CITY OF ALBUQUERQUE

Planning Department
Brennon Williams, Director

Mayor Timothy M. Keller

April 7, 2020

John M. Provine, P.E.
Molzen Corbin
2701 Miles Road SE
Albuquerque, NM 87106

RE: Sprit Drive / GA Parking Reconstruction
Drainage Report
Engineer's Stamp Date: 03/10/20
Hydrology File: N15D006B
CPN #: 722103

Dear Mr. Provine:

Based upon the information provided in your submittal received 03/10/2020, the Drainage Report is approved for Grading Permit and Work Order.

As a reminder, if the project total area of disturbance (including the staging area and any work within the adjacent Right-of-Way) is 1 acre or more, then an Erosion and Sediment Control (ESC) Plan and Owner's certified Notice of Intent (NOI) is required to be submitted to the Stormwater Quality Engineer (Doug Hughes, PE, jhughes@cabq.gov, 924-3420) 14 days prior to any earth disturbance.

If you have any questions, please contact me at 924-3995 or rbrissette@cabq.gov .

Sincerely,

Renée C. Brissette

Renée C. Brissette, P.E. CFM
Senior Engineer, Hydrology
Planning Department

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 6/2018)

Project Title: Spirit Dr. / GA Parking Reconstruction Building Permit #: _____ Hydrology File #: M16/N15

DRB#: _____ EPC#: _____ Work Order#: 722103

Legal Description: A portion of Tract A-1 and A-2, Sunport Municipal Addition

City Address: Intersection of Spirit Drive SE, and Clark Carr Road SE

Applicant: Molzen Corbin Contact: Mike Provine, PE

Address: 2701 Miles Road SE, Albuquerque NM, 87106

Phone#: (505) 242-5700 Fax#: (505) 242-0673 E-mail: mprovine@molzencorbin.com

Other Contact: City of Albuquerque - Aviation Department Contact: Rhonda Methvin, PE

Address: P.O. Box 9948, Albuquerque NM, 87119

Phone#: (505) 244-7738 Fax#: _____ E-mail: RMethvin@cabq.gov

TYPE OF DEVELOPMENT: _____ PLAT (# of lots) _____ RESIDENCE __X__ DRB SITE ___ ADMIN SITE

IS THIS A RESUBMITTAL? __X__ Yes _____ No

DEPARTMENT _____ TRANSPORTATION __X__ HYDROLOGY/DRAINAGE

Check all that Apply:

TYPE OF SUBMITTAL:

____ ENGINEER/ARCHITECT CERTIFICATION
____ PAD CERTIFICATION
____ CONCEPTUAL G & D PLAN
____ GRADING PLAN
__X__ DRAINAGE REPORT
____ DRAINAGE MASTER PLAN
____ FLOODPLAIN DEVELOPMENT PERMIT APPLIC
____ ELEVATION CERTIFICATE
____ CLOMR/LOMR
____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ TRAFFIC IMPACT STUDY (TIS)
____ STREET LIGHT LAYOUT
____ OTHER (SPECIFY) _____
____ PRE-DESIGN MEETING?

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
____ FLOODPLAIN DEVELOPMENT PERMIT
____ OTHER (SPECIFY) _____

DATE SUBMITTED: 3/10/20 By: [signature]

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____

MOLZENCORBIN

March 9, 2020

Mr. Dana Peterson, P.E.
Senior Engineer
City of Albuquerque
Planning Department
600 2nd Street NW
Albuquerque, New Mexico 87102

RE: Spirit Drive and GA Parking Reconstruction WHP131-11
Drainage Report

Dear Mr. Peterson:

This letter is submitted as the Drainage Report for the reconstruction of Spirit Drive from University Blvd. to Clark Carr Blvd., and Clark Carr Blvd. from Spirit Drive to and including the General Aviation Auto Parking Lot. An analysis was performed to determine the adequacy of the existing pipe systems including the calculation of the hydraulic grade lines for the pipe networks. Additionally, improvements are proposed for the storm water detention pond located at the northeast corner of the Spirit Drive and University Blvd. intersection which are analyzed and discussed in this report. Existing basin and flow data was obtained from the Albuquerque International Airport Drainage Master Plan (1995) and the Albuquerque International Sunport Rent-a-Car Drainage Report (1999). Information on the existing storm drain systems were obtained from Record Drawing files.

PROJECT DESCRIPTION:

The Albuquerque International Sunport is planning to reconstruct portions of Spirit Drive, Clark Carr Blvd. and the General Aviation (GA) parking lot. The plans include removing the existing concrete and asphalt pavement sections and repaving the roadway with a new asphalt pavement section.

An existing storm drain system directs the street runoff from the northern stretch of Spirit Drive to a pond at the northeast corner of Spirit Drive and University Blvd. (Spirit Drive Pond). Existing street drainage inlets will be replaced with new Type C inlets set into the existing pipe network which discharges into the Spirit Drive Pond (see Figure 1). Outlet improvements on the storm drains from the WE Basin discharge and the Rent-a-Car Center Line A from Basin 513 will be made in the pond, including replacement of wire enclosed rip-rap. Flow modifications are not included for these outlets in this project.

Three staging ponds were previously constructed for this project with the intention of collecting the local surface flows from Basin 511 prior to the storm water entering the Spirit Drive Pond. Historically, the local surface flows have eroded the adjacent slopes and grades, including the pond slopes. The erosion cuts and resulting sediment deposits in the Spirit Drive Pond are a maintenance issue tended to by the Aviation Department. The staging ponds have helped minimize the erosion caused by the surface flows; however, the pond discharge culverts were not sized for the flows and the erosion issues continued after the grading of these ponds. Improvements included in this project are regrading of the ponds for capacity and installation of piped outlets sized for the surface flows, and slope stabilization to minimize the erosion. Spillways are graded into the pond embankments to handle any overtopping that may occur.

The storm drainage from the GA parking lot, the portion of Clark Carr Blvd. east of Spirit Drive, and the portion of Spirit Drive south of the Sunport II Hangar is collected into an existing storm drain system and routed to the University Blvd. storm drain network. This system accepts flow from the southern end of the Spirit Drive project limits and a portion of the flows from the Sunport's GA drainage basin. The drainage area and land treatments are not changing with this project. Additional inlets are being added to the parking lot while the existing storm drain system downstream will remain unchanged. Detention of the "First Flush" will occur with an underground storage reservoir system to be located near the western edge (downstream edge) of the parking lot.

HYDROLOGIC CRITERIA:

The hydrologic criteria for this Drainage Report were determined using the City of Albuquerque Development Process Manual, Chapter 22. Hydrologic calculations were based on the 100 year/24-hour storm for the system capacity and precipitation data was collected from the NOAA Atlas specific to the project location (Station Name: ALBUQUERQUE WSFO AIRPO). Hydrologic characteristics of the site are shown in the storm drain plan and profile sheets. References throughout this Drainage Report are made to the Albuquerque International Sunport Rent-A-Car Facility Drainage Report (AIS RFDR) dated September 1999 and the Albuquerque International Airport Storm Drainage Master Plan (AIA DMP) dated May 1995. (Drainage File AIA DMP – M16D024).

EXISTING CONDITIONS:

The area of the improvements is approximately 14 acres in size, including Spirit Drive, GA parking lot, Clark Carr Blvd., and the drainage pond at the northeast corner of Spirit Drive and University Blvd. The roadways and parking lot are utilized for access to the General Aviation facilities located at the Albuquerque International Sunport. The affected portion of Spirit Drive was constructed in 1999 and the as constructed conditions of the roadway have not changed since the AIS RFDR was accepted; consequently, all the existing conditions for the Spirit Drive section of the project can be assumed to be the same as the existing conditions in the AIS RFDR.

The GA parking lot was originally constructed in 1979 and the portion of Clark Carr Blvd. from Spirit Drive to the parking lot was reconstructed in the early 1980's. Contributing flows generated an upstream sub-basin of the GA Basin, including Sub-basins 701-704 707-709, 711, 713, and 729, were diverted in the Runway 3-21 Improvements project in 1995 to the Sunport M3 Basin, as recommended in the AIS RFDR. The diversion and lower flows and volumes are reflected in the AIS RFDR. The hydraulic data in the AIS RFDR was utilized as existing conditions for this Report.

Currently, runoff generated on the GA parking lot drains to a single median drop inlet at the west end of the parking lot where it is then routed to the University Blvd storm drain system along with the GA Basin runoff from the other contributing sub-basins as described in the AIA DMP. The GA Basin includes the general aviation area located south and west of the intersection of Runways 12-30 and 3-21. The University Blvd storm drain system discharges west of I-25 near the old railroad track crossing and flows via an arroyo to the South Diversion Channel.

Runoff generated along Spirit Drive is collected in curb drop inlets and discharged into the Spirit Drive Pond at the northeast corner of Spirit Drive and University Blvd. This system also accepts flow from the WE Basin as described in the AIA DMP which includes the southern portion of the Terminal and Terminal Apron, the west ends of Runway 8-26 and Taxiways A and E, and a portion of the undeveloped escarpment area between the airport and University Blvd. The WE Basin runoff enters the pond directly without entering the Spirit Drive storm drain system, thus minimally affecting the storm drains within this project's limits.

The enclosed drawing shows the contributing basins, flows, and volumes used in the analysis performed for the reconstruction project.

DEVELOPED CONDITIONS:

The Spirit Drive section of this project aims to remove the existing pavement and repave with a new asphalt pavement section. The project will include updated signing and striping, ADA facilities, and sidewalk. The existing storm drain system will remain undisturbed with the exception of reconstructing the curb drop inlets. A hydraulic grade line was calculated using the improvements in this project as a check that the existing storm drainage system with new drop inlets has the capacity to perform within the design DPM design criteria. The hydraulic grade line is included on the project's plan and profile sheets, which are enclosed with this report.

The GA parking lot section of this project aims to remove the existing pavement and repave with a new asphalt pavement section. The project will remove and replace the existing single median drop inlet serving the parking lot, install a subsurface runoff storage structure to capture and retain the first flush flow, and install four additional median drop inlets to prevent standing water accumulation in the parking lot, see Figure 2. The overall contributing area and land treatments remain virtually unchanged with the proposed parking lot reconstruction.

The "First Flush" ordinance requires that the developer of a lot will be required to manage the 90thpercentile storm event (first flush) onsite based on the properties of the respective lot. First flush treatment for the GA parking lot will be provided through the installation of buried storage tanks near the discharge point of the parking lot flows to the storm drain in Clark Carr Blvd. Discharge of the first flush stormwater will be through filtered release to the ground through the bottom of the tanks. The storage capacity calculations for the first flush treatment for the GA Parking Lot discharge (90^{th} percentile storm event discharge volume) follow:

Figure 1 – First Flush Calculation:

$$Volume_{first\ flush} = \frac{0.34\ in.}{12\ {}^{in}/_{ft}} \times Area_{Land\ Treatment\ D}$$

$$0.14\ ac \cdot ft = \frac{0.34\ in.}{12\ {}^{in}/_{ft}} \times 4.9\ ac \quad (GA\ parking\ lot)$$

Figure 2 – First Flush Storage Provided:

$Volume_{Total} = Volume_{pipe} \times Volume_{media}$

$Volume_{pipe} = 4650\ cf$

$Volume_{pipe} = 0.1067\ ac \cdot ft$

$Volume_{media} = 40\%\ (voids)\ [8400\ cf(total) - 4650\ cf(pipe)]$

$Volume_{pipe} = 1500\ cf$

$Volume_{pipe} = 0.0344\ ac \cdot ft$

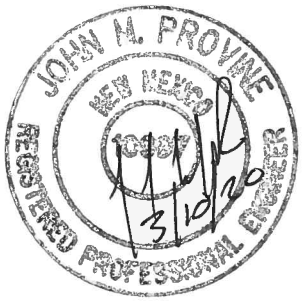
$Volume_{Total} = 0.1067\ \ ac \cdot ft\ \times 0.0344\ \ ac \cdot ft$

$Volume_{Total} = 0.1411\ \ ac \cdot ft$

Installation details and plans for the first flush treatment storage tanks will be included in the Bidding Documents.

Thank you for your time and cooperation on this project. Please contact me at (505) 242-5700 or mprovine@molzencorbin.com with any questions, or if you require additional information.

Sincerely,

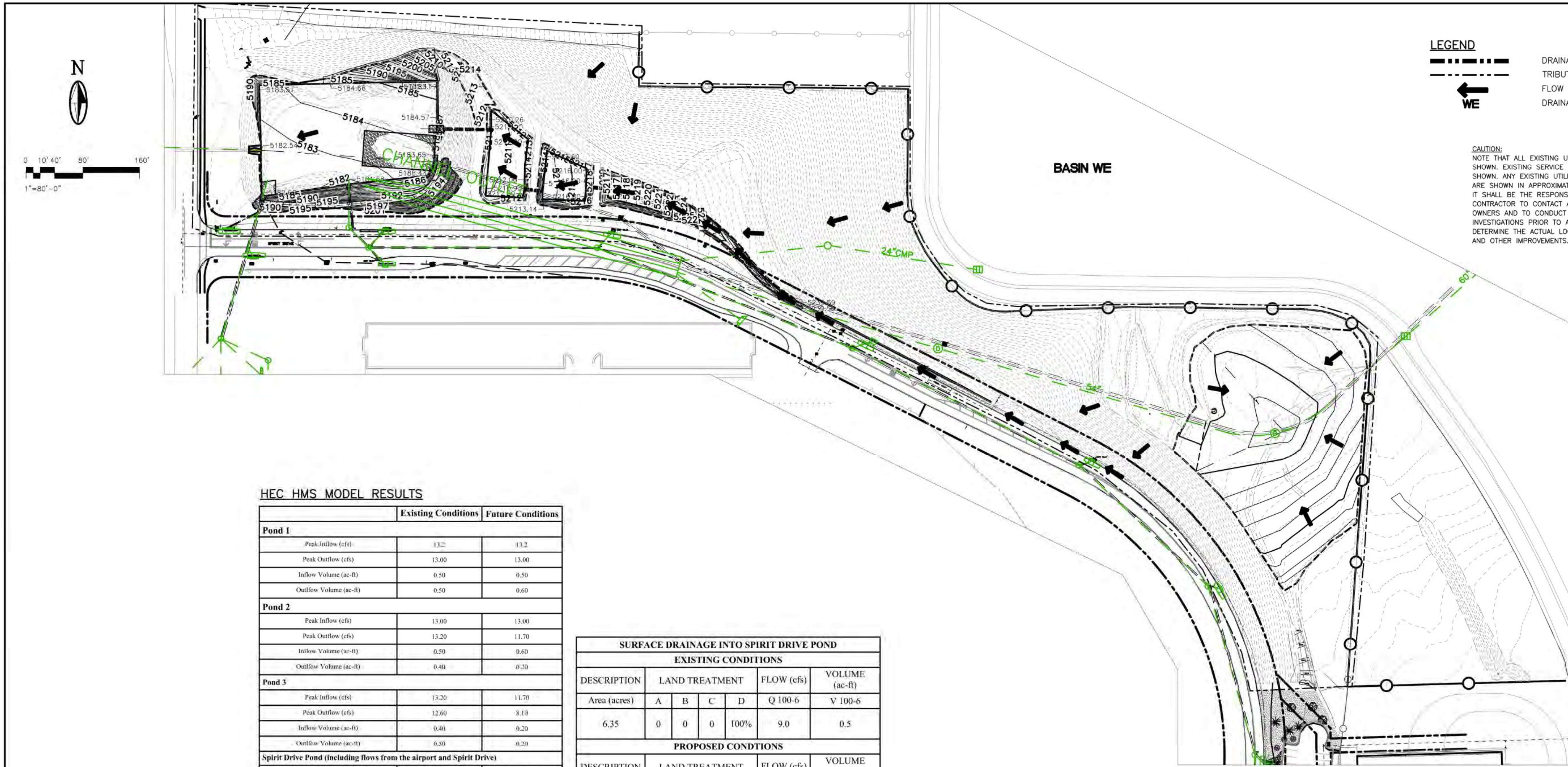


MOLZEN CORBIN

Mike Provine, P.E.

MP:pel
Enclosures

Cc: Ms. Rhonda Methvin, P.E., Planning Manager, COA Aviation Department



LEGEND

- DRAINAGE BASIN BOUNDARY
- TRIBUTARY AREA BOUNDARY
- FLOW DIRECTION ARROW
- WE DRAINAGE BASIN IDENTIFIER

CAUTION:
NOTE THAT ALL EXISTING UTILITIES MAY NOT BE SHOWN. EXISTING SERVICE CONNECTIONS ARE NOT SHOWN. ANY EXISTING UTILITIES THAT ARE SHOWN ARE SHOWN IN APPROXIMATE LOCATION ONLY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT ALL THE UTILITY OWNERS AND TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO ANY EXCAVATION TO DETERMINE THE ACTUAL LOCATION OF UTILITIES AND OTHER IMPROVEMENTS.

HEC HMS MODEL RESULTS

	Existing Conditions	Future Conditions
Pond 1		
Peak Inflow (cfs)	13.2	13.2
Peak Outflow (cfs)	13.00	13.00
Inflow Volume (ac-ft)	0.50	0.50
Outlfow Volume (ac-ft)	0.50	0.60
Pond 2		
Peak Inflow (cfs)	13.00	13.00
Peak Outflow (cfs)	13.20	11.70
Inflow Volume (ac-ft)	0.50	0.60
Outlfow Volume (ac-ft)	0.40	0.20
Pond 3		
Peak Inflow (cfs)	13.20	11.70
Peak Outflow (cfs)	12.60	8.10
Inflow Volume (ac-ft)	0.40	0.20
Outlfow Volume (ac-ft)	0.30	0.20
Spirit Drive Pond (including flows from the airport and Spirit Drive)		
Peak Inflow (cfs)	287.10	287.10
Peak Outflow (cfs)	286.40	286.40
Inflow Volume (ac-ft)	54.23	54.13
Outlfow Volume (ac-ft)	50.40	50.20

SURFACE DRAINAGE INTO SPIRIT DRIVE POND						
EXISTING CONDITIONS						
DESCRIPTION	LAND TREATMENT				FLOW (cfs)	VOLUME (ac-ft)
Area (acres)	A	B	C	D	Q 100-6	V 100-6
6.35	0	0	0	100%	9.0	0.5
PROPOSED CONDTIONS						
DESCRIPTION	LAND TREATMENT				FLOW (cfs)	VOLUME (ac-ft)
Area (acres)	A	B	C	D	Q 100-6	V 100-6
6.35	0	0	0	100%	9.0	0.5

PURPOSE & SITE LOCATION:

THE ALBUQUERQUE INTERNATIONAL SUNPORT SPIRIT DRIVE POND AND DRAINAGE INFRASTRUCTURE IS LOCATED ON THE NORTH EAST CORNER OF THE INTERSECTION OF UNIVERSITY BOULEVARD SE AND SPIRIT DRIVE SE (ALSO REFERRED TO AS ACCESS ROAD B). NO PART OF THIS LOCATION IS WITHIN A FLOOD PLAIN, AS DETERMINED BY FEMA FLOOD PLAIN MAP (MAP #35001C0342G). THIS ANALYSIS SHOWS THE EXISTING VS. PROPOSED DRAINAGE CONDITIONS FOR THE SITE.

HYDROLOGIC CRITERIA:

THE PROPOSED GRADING DRAINAGE FOR THE DEVELOPMENT OF THIS SITE ARE BASED ON THE CRITERIA IN THE CITY OF ALBUQUERQUE DEVELOPMENT PROCESS MANUAL, CHAPTER 22. FLOW CALCULATIONS ARE BASED ON THE 100 YEAR, 6 HOUR DESIGN STORM. THE ALBUQUERQUE INTERNATIONAL SUNPORT STORM DRAINAGE MASTER PLAN (MAY, 1995) AND THE FINAL DRAINAGE REPORT FOR SUNPORT BOULEVARD (MARCH, 1996) WERE ALSO REFERENCED.

EXISTING CONDITIONS:

THE PROJECT SITE (6.35 ACRES) IS WITHIN BASIN WE, AS DESCRIBED IN THE SUNPORT DRAINAGE MASTER PLAN. THE SPIRIT DRIVE POND IS EXISTING WITH TWO INLETS, ONE 54-INCH INLET COMING FROM THE UNDERGROUND DRAINAGE SYSTEM TO THE EAST, AND ONE 48-INCH INLET COMING FROM THE RENTAL CAR FACILITY LOT TO THE SOUTH. THE SPIRIT DRIVE POND THEN HAS A 60-INCH OUTLET ON THE WEST SIDE, CONNECTING UNDER UNIVERSITY BOULEVARD SE TO A PIPED STORM DRAIN SYSTEM THAT DISCHARGES INTO THE SOUTH DIVERSION CHANNEL THROUGH A CROSSING UNDER I-25, JUST SOUTH OF THE SUNPORT BOULVARD INTERCHANGE. THERE ARE THREE SMALLER PONDS THAT DISSIPATE HIGH ENERGY AND HIGH VELOCITY SURFACE WATER MAKING ITS WAY TO THE SPIRIT DRIVE POND FROM THE EAST. THESE SMALL PONDS ARE SEPARATED BY EARTHEN BERMS PLATED WITH ASPHALTIC MATERIAL AND CONTAINING 18-INCH HDPE PIPES TO MOVE WATER FROM THE THREE PONDS. THEY WERE CONSTRUCTED BY THE AVIATION DEPARTMENT IN AN EFFORT TO SETTLE THE DRAINAGE AND DECREASE VELOCITY PRIOR TO THE OVERLAND ENTRANCE INTO THE SPIRIT DRIVE POND. THE DRAINAGE AREA SITE IS CLASSIFIED AS CUT AND FILL ACCORDING TO THE NRCS, AND THEREFORE DESIGNED AS LAND TREATMENT D.

PROPOSED CONDITIONS:

THE LAND TREATMENT FOR THIS PROJECT WILL REMAIN MOSTLY THE SAME AS EXISTING, WITH SOME HIGHLY SLOPED AREAS TREATED WITH ROCK MATERIAL. THE RUNOFF WILL CONTINUE TO FOLLOW THE EXISTING CONDITIONS PATTERN. THE RUNOFF WILL DISCHARGE TO AN ENLARGED OPEN CONCRETE BASE COURSE LINED CHANNEL RUNNING PARALLEL TO SPIRIT DRIVE, AS DOES THE EXISTING DISCHARGE, AND OUTFALL INTO THE THREE ENLARGED PONDS (COMBINED VOLUME CAPACITY OF 0.84 AC-FT) TO THE EAST OF SPIRIT DRIVE TO DISSIPATE THE ENERGY. THESE PONDS WILL HAVE BERMS AS THEY PREVIOUSLY DID, HOWEVER, THEY WILL HAVE A DEFINED SWALE ACROSS THE TOP OF THE BERM TO ALLOW WATER TO DIRECTIONALLY TRAVEL ACROSS THE TOP AND INTO THE NEXT POND AS OVERFLOW. THE EXISTING 18-INCH DIAMETER CONNECTOR PIPES WILL BE REPLACED BY 30-INCH PIPE FROM THE FIRST POND TO THE SECOND, AND A 24-INCH FROM THE SECOND POND TO THE LAST SMALLER POND. THE LAST POND ABOVE THE SPIRIT DRIVE POND WILL CONTAIN A DROP INLET MANHOLE STRCUTURE WITH A BEE-HIVE GRATE INLET AND A 24-INCH PIPE TO CAPTURE THE WATER FROM THE POND AND SEND IT TO THE SPIRIT DRIVE POND. DUE TO THE CLOSE PROXIMITY TO THE AIRPORT AND THE AIRCRAFT APPROACHES TO RUNWASY 8 AND 12, IT IS PERTINENT TO ELIMINATE AND AVOID CONSTRUCTING BIRD ATTRACTANTS (STANDING WATER), THE FIRST FLUSH WILL NOT BE RETAINED WITHIN THE PONDS. THE SPIRIT DRIVE POND WILL BE RE-GRADED TO THE ORIGINAL DESIGN VOLUME (APPROXIMATELY 8.4 AC-FT) AND MEASURES WILL BE TAKEN TO MITIGATE HIGH WATER VELOCITY EROSION WITHIN THE POND FROM THE INLETS, INCLUDING THE USE OF CONCRETE AND ROCK TO DISSIPATE THE ENERGY AND VELOCITY OF THE INLETS.

AS BUILT INFORMATION
CONTRACTOR
WORK STAKED BY — DATE
INSPECTOR'S ACCEPTANCE BY — DATE
FIELD VERIFICATION BY — DATE
DRAWINGS CORRECTED BY — DATE

MICRO–FILM INFORMATION
RECORDED BY — DATE
NO.

BENCH MARKS
SDC_11_2
N=473,594.865, E=523,723.935, EL.–5001.66
GRND TO GRID FACTOR: 0.999678711
I_25_31
N=470,797.154, E=524,859.910
GRND TO GRID FACTOR: 0.999678711

SURVEY INFORMATION
FIELD NOTES
NO. | BY | DATE

ENGINEER'S SEAL
PRELIMINARY NOT FOR CONSTRUCTION

REVISIONS
NO. | DATE | REMARKS | BY

DESIGN
DESIGNED BY KE — DATE
DRAWN BY KE — DATE
CHECKED BY JMP — DATE

MOLZENCORBIN
ENGINEERS | ARCHITECTS | PLANNERS

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING DEVELOPMENT GROUP

TITLE: SPIRIT DRIVE / GA PARKING RECONSTRUCTION

SPIRIT DRIVE
PROPOSED DETENTION POND
DRAINAGE REPORT AND BASIN MAP

Design Review Committee	City Engineer Approval	Last Design Update	Mo./Day/Yr.	Mo./Day/Yr.

City Project No. 722103 | Zone Map No. M15 & N15 | Sheet G-109 Of

 MC PROJECT NUMBER: WHP131–11.D20