GRADING & DRAINAGE PLAN

THE COMMERCIAL WAREHOUSE PROJECT IS LOCATED IN THE FAIR–GROUNDS ADDN. OF ALBUQUERQUE APPROXIMATELY 5 MILES EAST OF THE DOWNTOWN CORE OF ALBUQUERQUE, NM. THE GRADING & DRAINAGE SCHEME HEREON IS IN COMPLIANCE WITH THE BERN–ALILLO COUNTY FLOOD HAZARD ORDINANCE, NO.88–46, AND THE CITY STORM DRAINAGE ORDINANCE. THE PLAN IS REQUIRED IN ORDER TO FACILITATE THE OWNER'S REQUEST FOR BUILDING PERMIT. THE PLAN SHOWS:

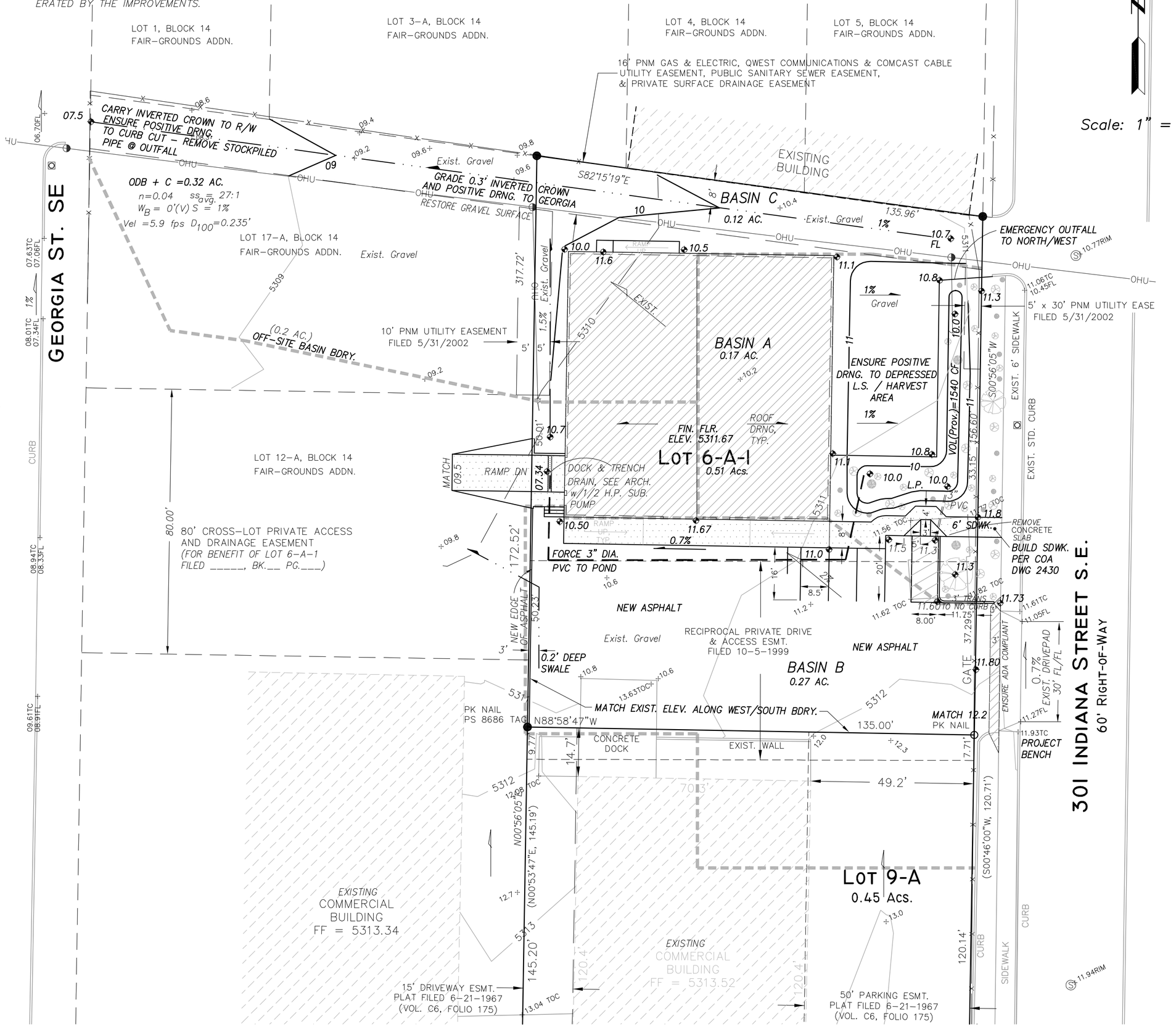
1. EXISTING CONTOURS, AND SPOT ELEVATIONS AND EXISTING DRAINAGE PATTERNS AND IMPROVEMENTS.
2. PROPOSED IMPROVEMENTS: SINGLE 6400 SF STRUCTURE ASPHALT DRIVES AND PARKING, NEW GRADE ELEVATIONS AND LANDSCAPING / WATER HARVESTING AREAS.
3. CONTINUITY BETWEEN EXISTING AND PROPOSED ELEVATIONS.
4. QUANTIFICATION AND ACCEPTANCE OF UPSTREAM OFF–SITE FLOWS WHICH CONTRIBUTE TO THE DEVELOPED FLOWS GENERATED BY THE IMPROVEMENTS.

THE PURPOSE OF THE PLAN IS TO ESTABLISH CRITERIA FOR CONTROLLING STORM RUNOFF AND EROSION, AND ESSENTIALLY ALLOWING HISTORIC FLOWS TO CONTINUE TO DRAIN THROUGH THE PROPERTY. PRESENTLY, THE SITE IS BOUNDED ON THE NORTH AND SOUTH BY DEVELOPED PROPERTY. INDIANA & GEORGIA STREETS ON THE EAST AND WEST ARE PAVED WITH CURB, GUTTER AND SIDEWALK, AND MAINTAINED BY THE CITY OF ALBUQUERQUE. THE SITE FALLS GENERALLY AT 2% FROM SOUTHEAST TO NORTHWEST.

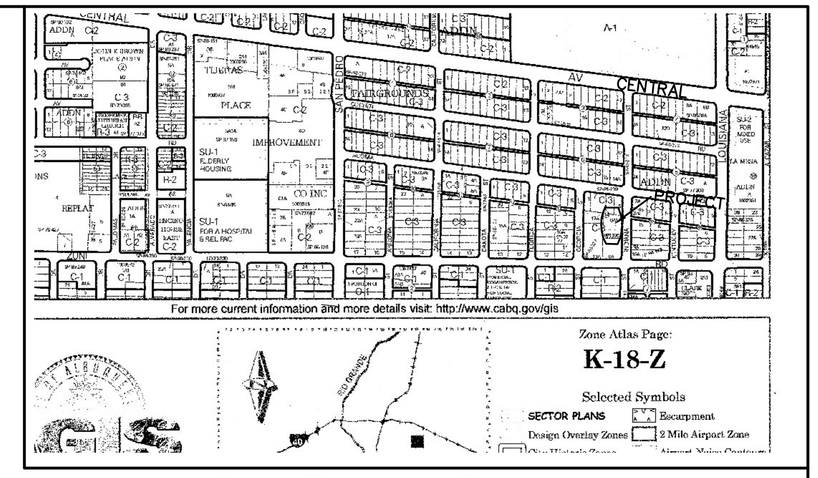
HISTORICAL SITE RUNOFF OUTFALL LOCATIONS WILL REMAIN UNCHANGED. SINCE THE EXIST. DRIVEWAY WILL BE USED ONLY MINIMAL GRADING IS PROPOSED WITHIN THE CITY R.O.W. FREE DISCHARGE OF DEVELOPED FLOW IS ACCEPTABLE SINCE THE TOTAL GENERATED DEVELOPED FLOW IS MINIMAL. WATER HARVESTING IS PROPOSED IN ORDER TO MITIGATE STORM RUNOFF (DISCHARGE) FROM THE SITE DUE TO THE IMPROVEMENTS, MINIMIZE OUTFALL POLLUTANTS, AND TO INCORPORATE LEED–TYPE/"GREEN" SITE ELEMENTS.

LEGEND

EXIST. SPOT ELEVATION	+24.0
EXIST. CONTOUR	10
NEW SPOT ELEVATION	24.0
NEW CONTOUR	12
NEW SWALE	
DRAINAGE DIRECTION, EXISTING	
BASIN BOUNDARY	
NEW CONCRETE CURB (0.5' HEIGHT)	
NEW P.C.C., CONCRETE	
TOP OF CURB, EXISTING	TC
FLOWLINE	FL
EXISTING POWER POLE	○
FACE OF CURB/FACE OF CURB	F–F



Scale: 1" = 20'



VICINITY MAP ZONE K–18 1" = 750'

NOTES

1. ALL WORK WITHIN THE RIGHT–OF–WAY SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE STANDARD SPECS. FOR PUBLIC WORKS CONSTRUCTION, 1986 EDITION, W/ 8 UPDATES.
2. AN EXCAVATION/CONSTRUCTION PERMIT IS REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY R.O.W. AN APPROVED COPY OF THIS PLAN MUST BE SUBMITTED AT THE TIME OF APPLICATION.
3. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES, AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
4. ALL LANDSCAPING AREA SHALL BE SOFT–LINED WITH NATIVE VEGETATION AND/OR GRAVEL. ASPHALT PARKING AREA SHALL DRAIN DIRECTLY ALONG EXISTING HISTORIC LOCATION.
5. CONTRACTOR SHALL ENSURE THAT NO SITE SOILS/SEDIMENT OR SILT ENTER THE RIGHT–OF–WAYS DURING CONSTRUCTION.
6. REVEGETATE ALL AREAS DISTURBED DUE TO CONSTRUCTION PER CITY OF ALBUQ. SPEC. 1011, NATIVE SEED MIX.
7. MAXIMUM SITE GRADING WITHOUT EROSION PROTECTION: 3 HORIZONTAL TO 1 VERTICAL, 3:1. ALL DIMENSIONS TO FACE OF CURB, UNLESS NOTED OTHERWISE.

CALCULATIONS

DESIGN CRITERIA

HYDROLOGIC METHODS PER SECTION 22.2, HYDROLOGY OF THE DEVELOPMENT PROCESS MANUAL REVISED JANUARY 1993 FOR CITY OF ALBUQUERQUE ADOPTED BY THE COUNTY OF BERNALILLO
DISCHARGE RATE: Q=QPEAK x AREA.."Peak Discharge Rates For Small Watersheds"
VOLUMETRIC DISCHARGE: VOLUME = EWeighted x AREA
P100 = 2.60 Inches, Zone 3 Time of Concentration, TC = 10 Minutes
DESIGN STORM: 100–YEAR/6–HOUR, 10–YEAR/6–HOUR [ ] = 10 YEAR VALUES

EXISTING CONDITIONS

LOT AREA = 0.51 ACRES, WHERE EXCESS PRECIP. 'C' =1.29 In. [0.62]
PEAK DISCHARGE, Q100 = 1.76 CFS [1] WHERE UNIT PEAK DISCHARGE 'C' = 3.45 CFS/AC. [2.0]
THEREFORE: VOLUME 100 = 2388 CF [1148]

DEVELOPED CONDITIONS

DETERMINE LAND TREATMENTS, PEAK DISCHARGE AND VOLUMETRIC DISCHARGE FOR STUDY AREA

	AREA	LAND TREATM'T	Q Peak	E
UNDEVELOPED	--- Ac.	A	1.87[0.58]	0.66[0.19]
LANDSCAPING	0.06 Ac.(12%)	B	2.60[1.19]	0.92[0.36]
GRAVEL & COMPACTED SOIL	0.04 Ac.(8%)	C	3.45[2.00]	1.29[0.62]
ROOF – PAVEMENT	0.41 Ac.(80%)	D	5.02[3.39]	2.36[1.50]
	0.51 Ac.			

THEREFORE: $E_{Weighted}$ = 2.10 In.[1.29] &
Q100 = 2.36 CFS VOLUME 100 = 3887 CF
Q10 = 1.53 CFS VOLUME 10 = 4141 CF

DETERMINE CAPACITY OF EAST BASIN TO HARVESTING AREA
BASIN AREA = 0.20 AC. THEREFORE @ E100~2.1 IN = 1500 C.F.±
THEN: 3887 CF–1500 CF = 2390± CF VOL. TO WEST..OK

	AREA	~Q100
BASIN A	0.17	0.71 CFS
BASIN B	0.27	1.35 CFS
BASIN C+ODB	0.32	1.28 CFS

CHANNEL CALCULATOR

GIVEN INPUT DATA:
SHAPE ..... TRAPEZOIDAL
SOLVING FOR ..... FLOWRATE
SLOPE ..... 0.0100 FT/FT
MANNING'S N 0.0400
DEPTH ..... 0.2320 FT
HEIGHT ..... 0.3000 FT
BOTTOM WIDTH ..... 0.0000 FT
LEFT SLOPE ..... 0.0370 FT/FT (V/H)
RIGHT SLOPE ..... 0.0370 FT/FT (V/H)

COMPUTED RESULTS:
FLOWRATE ..... 1.2848 CFS
VELOCITY ..... 0.8832 FPS
FULL FLOWRATE ..... 2.5499 CFS
FLOW AREA 1.4547 FT2
FLOW PERIMETER ..... 12.5491 FT
HYDRAULIC RADIUS ..... 0.1159 FT
TOP WIDTH ..... 12.5405 FT
AREA 2.4324 FT2
PERIMETER ..... 16.2273 FT
PERCENT FULL ..... 77.3333 %

PROJECT DATA

LEGAL DESCRIPTION

LOT 6–A–1, BLOCK 14, FAIRGROUNDS ADDITION
Albuquerque, Bernalillo County, New Mexico

PROJECT BENCHMARK

Top of Curb at the Projection of the Project Southeast Corner
MSL Elevation = 5311.93, As Tied From COA BRASS CAP, 7_K19, MSL 5325.99, NAVD88.

TOPOGRAPHIC DESIGN SURVEY

PERFORMED BY ALPHA PRO SURVEYING, LLC, Date DEC. 2012

PROJECT IS NOT LOCATED WITHIN A FEDERALLY DESIGNATED FLOOD HAZARD ZONE

FIRM MAP PANEL # 354 H

I, PHILIP W. CLARK, A PROFESSIONAL ENGINEER LICENSED IN ACCORDANCE WITH THE LAWS OF THE STATE OF NEW MEXICO, DO HEREBY CERTIFY THAT I HAVE VISITED THE SITE SHOWN HEREON, AND THAT THE CONTOURS SHOWN REPRESENT THE EXISTING GROUND CONDITIONS, AND DO FURTHER CERTIFY THAT NO EARTHWORK OF ANY KIND, NOR ANY DISTURBANCE OF THE EXISTING GROUND HAS OCCURRED ON THIS SITE SINCE THE CONTOURS WERE DETERMINED.

8/03/13

PHILIP W. CLARK NMPE #10265

Clark Consulting Engineers
19 Ryan Road
Edgewood, New Mexico 87015
Tele: (505) 281–2444 Fax: (505) 281–2444

DATE	REVISION

LOT 6–A–1, BLOCK 14, FAIRGROUNDS ADDITION ALBUQUERQUE
301 INDIANA STREET, NE A KIPCO PROJECT

Grading & Drainage Plan

DESIGNED BY: PWC	DRAWN BY: CCE	JOB #: KIPCO_GD	1 OF 1
CHECKED BY: PWC	DATE: 6/17/13	FILE #: G/D	