HYDROLOGY K14/D24 2 PLANS

K14/D24

2 PLANS

D 24 C 20 B 16 A 12 CITY OF ALBUQUERQUE C D

VICINITY MAP K-14

SCALE: 1" = 800'

PROJECT BENCHMARK:

A STANDARD ACS DISK SET IN A DRILLED HOLE IN THE SIDEWALK STAMPED "1-K14 ACS" LOCATED AT COPPER AVE., N.W. & 6th STREET IN THE SW QUADRANT OF THE INTERSECTION APPROXIMATELY 12' SOUTH OF THE BACK OF CURB OF COPPER AVE., 10.5' WEST OF THE BACK OF CURB ON 6th ST. AND 2.0' N.E. OF THE N.E. CORNER OF THE BUILDING.
ELEVATION = 4952.29 FEET (MSLD)

TEMPORARY BM:

SSW CURB RETURN - 4'± TO THE RIGHT OF EXISTING DROP INLET AS SHOWN ON DRAWING.
ELEVATION = 4950.57 FEET (MSLD)

STREET ADDRESS:

625 SILVER AVE. SW

SCALE: 1" = 20'

•LEGEND•

✦	PROPOSED SPOT ELEVATION
✦	EXISTING SPOT ELEVATION
50	PROPOSED CONTOUR
55	EXISTING CONTOUR
	SWALE
	PROPERTY LINE
	CONCRETE
	PROPOSED ASPHALT
	PROPOSED FENCE
—x—x—	EXISTING FENCE
T.C. 02.00	TOP OF CURB
FL. 01.65	FLOW LINE

DRAINAGE PLAN

The following items concerning the Silver Square Drainage Plan are contained hereon:

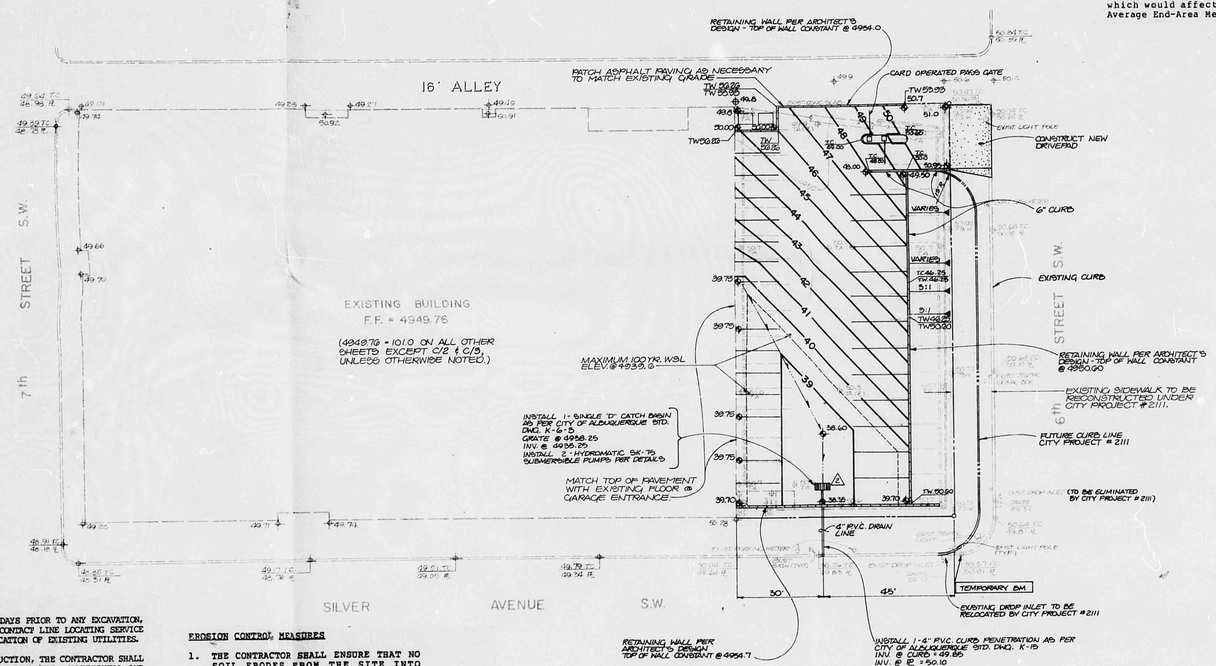
1. Vicinity Map
2. Grading Plan
3. Calculations

The proposed improvements, as shown by the Vicinity Map, are located on the north side of Silver Avenue S.W. between Sixth Street S.W. and Seventh Street S.W. At present, the site is developed as an office building with adjacent asphalt parking. The site is the previous location of Mountain Bell offices.

As shown by Plate K-14 of the Albuquerque Master Drainage Study, this site does not lie within a designated Flood Hazard Zone. It does not appear, from the review of this plate, that downstream flooding is a problem. In addition, there is a public storm drain system presently in Silver Avenue S.W. Lastly, it is believed that all offsite flows are contained within the adjacent public rights-of-way. This is deduced based upon the fact that there is no flooding identified in the adjacent streets or alley.

The Grading Plan shows 1) existing and proposed grades indicated by spot elevations and contours at 1' 0" intervals, 2) the limit and character of the existing improvements, 3) the limit and character of the proposed improvements, 4) the limit and character of the future public improvements, and 5) continuity between existing and proposed elevations. As shown by this plan, the proposed improvements consist of the demolition of the existing asphalt parking area located on the east side of the existing structure. This parking area will be reconstructed with a topographically lower parking lot which will permit access to a underground parking structure which will be constructed in conjunction with the renovation of the existing structure. In addition to the new parking lot, necessary retaining walls and landscaping will be provided along the north, south, and east sides of the new parking lot. Because the new parking lot will be situated below street grade, it will be necessary to pump the runoff generated by the parking lot area to the adjacent public right-of-way, Silver Avenue S.W. Appropriate pump details are located on the following sheet. Sufficient pond volume has been provided to contain 100 percent of the 100-year storm runoff should the pumps fail.

The Calculations which appear hereon analyze both the existing and developed conditions for the 100-year, 6-hour rainfall event. The Rational Method has been used for this analysis in accordance with the City of Albuquerque Development Process Manual, Volume II. As shown by these calculations, the proposed improvements will result in a net decrease in the peak runoff generated by this portion of the site. No changes are proposed to the existing structure which would affect the hydrology of the site and/or watershed. The pond volume has been determined based upon the Average End-Area Method. Pump calculations appear on the following sheet.



CALCULATIONS

Ground Cover Information

From SCS Bernalillo County Soil Survey, Plate 30:
AE = Agua Loam
Hydrologic Soil Group B

Rational Method

Discharge: $Q = CiA$
where C varies
$i = P_6 (6.84)\, T_c^{-0.51} = 4.65$ in/hr
$P_6 = 2.2$ in (DPM Plate 22.2D-1)
$T_c = 10$ min (minimum)
A = area, acres

Volume: $V = CP_6 A(1/12)$
where C varies
$P_6 = 2.2$ in (DPM Plate 22.2D-1)
A = area, sf

Existing Condition

$A_{total} = 10{,}500$ sf $= 0.24$ Ac
$A_{imp} = 10{,}500$ sf; % impervious = 100%
'C' = 1.0 (DPM Plate 22.2C-1)
$Q_{100} = CiA = 1.0\ (4.65)(0.24) = 1.1$ cfs
$V_{100} = CP_6 A = 1.0\ (2.2/12)(10{,}500) = 1925$ cf

Developed Condition

$A_{total} = 10{,}500$ sf $= 0.24$ Ac
$A_{imp} = 8400$ sf; % impervious = 80%
'C' = 0.76 (DPM Plate 22.2C-1)
$Q_{100} = CiA = 0.76\ (4.65)(0.24) = 0.8$ cfs
$V_{100} = CP_6 A = 0.76\ (2.2/12)(10{,}500) = 1460$ cf
$Q_{release} = 0.4$ cfs (from pump calculations)
$V_{pond} = 1/2[(A_{38.25} + A_{39} + A_{39.75})(0.75)]$
$= 1/2[(0 + 1900 + 3800)(0.75)] = 1870$ cf $> V_{100}$

Comparison

$\Delta Q_{100} = 1.1 - 0.4 = 0.7$ cfs (decrease)
$\Delta V_{100} = 1925 - 1460 = 465$ cf (decrease)

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CONSTRUCTION NOTES:

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE 765-1234, FOR LOCATION OF EXISTING UTILITIES.
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
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 CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE CITY OF ALBUQUERQUE STANDARDS AND PROCEDURES.

EROSION CONTROL MEASURES

1. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AT THE PROPERTY LINES AND WETTING THE SOIL TO KEEP IT FROM BLOWING.
2. THE CONTRACTOR SHALL PROMPTLY CLEAN UP ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY SO THAT THE EXCAVATED MATERIAL IS NOT SUSCEPTIBLE TO BEING WASHED DOWN THE STREET.

DAVIS WORTH ASSOCIATES, P.C.
811 DALLAS N.E. · ALBUQUERQUE · NEW MEXICO · 87110
ENGINEERS

NO.	DATE	BY	REVISIONS
1	1/85	JGM	ADJUST PLAN FOR SITE PLAN REVISIONS.
2	2/85	JGM	SHIFT CATCH BASIN LOCATION FOR ARCHITECT

DESIGNED BY: J.G.M.
DRAWN BY: S.G.H.
APPROVED: J.G.M.

JOB NO. 41711
DATE 12-84

GRADING AND DRAINAGE PLAN

RICHARD ELLIOTT ARCHITECTS
1101 CARDENAS N.E. ALBUQUERQUE, N.M. 87110 266-6

rev.	date	description

date 12/84 | file | sheet C/2
by TMA | checked JGM

SILVER SQUARE
625 SILVER AV SW
ALBUQUERQUE NM

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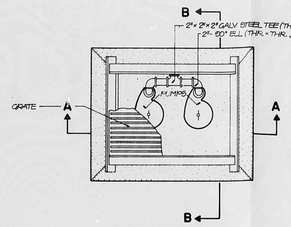
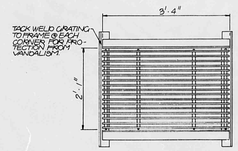
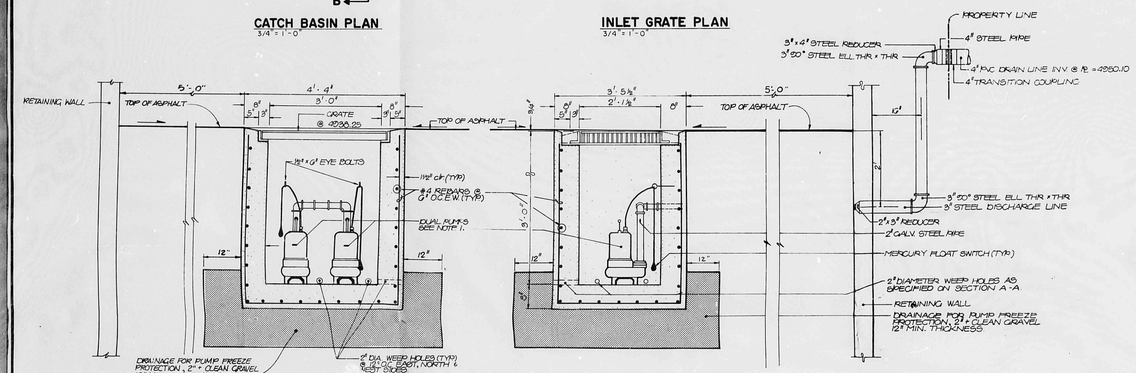


CATCH BASIN PLAN
3/4 = 1'-0"

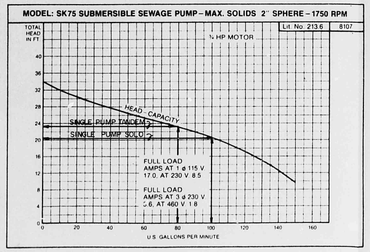


INLET GRATE PLAN
3/4 = 1'-0"



HYDROMATIC PUMPS

SECTION 200
PERFORMANCE DATA



PUMP CURVE

NOTES

1. Install two HYDRO-O-MATIC submersible pumps, Model SK75, 3/4 Hp motor, or approved equal. Pump installation shall include three mercury float switches with controls set for "LEAD", "LAG" and "ALTERNATE" modes of operation.
2. Refer to Electrical Plans for location of pump control box, installation of electrical cable/conduit and pump/control one-line diagrams.
3. Grating and frame shall be cleaned of all scale, rust and foreign materials and shall be painted with one shop coat of red oxide primer, then 2 finish coats of aluminum paint (AASHO M69).
4. Installation of the mercury float switches shall be at levels providing optimum pumping time without excessive pump cycling.

PUMP CALCULATIONS

1. Estimated Discharge Rate 100 GPM
2. Head Loss

A. Elevations: 50.10 - 35.2' = 14.8'

B. Friction (3" pipe)
Type of Pipe: Steel
Design C Value: 100
Chart C Value: 100
No Correction Required
H_f = 4.98 ft/100 ft
Length of Pipe = 18'+

Equivalent Length of Pipe:
Sudden Enlargement = 2'
90° Ell = 2 x 8' = 16'

Total Equivalent Length of 3" pipe = 36'+
H_f = 36 (4.98/100) = 1.8'

C. Friction (2" pipe)
Type of Pipe: Steel
Design C Value: 100
Chart C Value: 100
No Correction Required
H_f = 30.5 ft/100 ft
Length of Pipe = 3'+

Equivalent Length of Pipe
90° Ell = 5' x 2 = 10'

Equivalent Length of Pipe
H_f = 13 (30.5/100) = 4.0'

D. Total

$\Sigma H_L = H_{L_2} + H_{f_{P,3"}} + H_{f_{P,2"}}$ = 14.8' + 1.8' + 4.0' = 20.6'

3. Pump Curve Interpretation
@ H_L = 20.6, Q = 100 GPM

Q = 100 GPM (1 cf/7.48 gallon)(1 min/60 sec) = 0.2 cfs
Combined capacity of pumps is approximately 0.4 cfs

Reference: Cameron Hydraulic Data, 14th Edition Ingersoll-Rand Company, Woodcliff Lake, NJ 1970, PP-27, 32, 34, and 48.

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NO.	DATE	BY	REVISIONS
1	2/85	JGM	SHIFT CATCH BASIN LOCATION FOR ARCHITECT

BRN ASSOCIATES INC
811 DALLAS N.E. • ALBUQUERQUE • NEW MEXICO • 87110
ENGINEERS

DESIGNED BY J.G.M
DRAWN BY J.M.C
APPROVED J.G.M
JOB NO 41711
DATE 12/84

PUMP DETAILS

RICHARD ELLIOTT
ARCHITECTS
1101 CARDENAS N.E. ALBUQUERQUE, N.M. 87110 265-5500

JEFFREY G. MORITZ NEW MEXICO REGISTERED PROFESSIONAL ENGINEER

rev	date	description

SILVER SQUARE
625 SILVER AV SW
ALBUQUERQUE NM

date	file	sheet	
12/84			C/3
by TMA	checked JGM		

CITY OF ALBUQUERQUE
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