

## DRAINAGE CALCULATIONS

THE FOLLOWING CALCULATIONS ARE BASED ON PROCEDURES DETAILED IN THE CITY OF ALBUQUERQUE DEVELOPMENT PROCESS MANUAL, SECTION 22.2, REVISED JANUARY, 1993. THIS SITE IS IN ZONE 3 AS SHOWN ON FIGURE A-1.

EXISTING ON-SITE CONDITIONS:

| TREATMENT TYPE | AREA (acres) | UNIT RUNOFF (cfs/ac) | MAX Q (cfs) | UNIT VOL (in/ac) | TOTAL VOL. (cf) |
|----------------|--------------|----------------------|-------------|------------------|-----------------|
| A              | 0.000        | 1.87                 | 0.00        | 0.66             | 0               |
| B              | 0.009        | 2.60                 | 0.02        | 0.92             | 30              |
| C              | 0.014        | 3.45                 | 0.05        | 1.29             | 66              |
| D              | 0.162        | 5.02                 | 0.81        | 2.36             | 1388            |

TOTAL AREA 0.185 ac Q(100) = 0.88 cfs V(100) = 1484 cf  
Q(10) = 0.667 X 0.88 = 0.59 cfs  
V(10) = 0.667 X 1484 = 989 cf

### BASIN 'B'

| TREATMENT TYPE | AREA (acres) | UNIT RUNOFF (cfs/ac) | MAX Q (cfs) | UNIT VOL (in/ac) | TOTAL VOL. (cf) |
|----------------|--------------|----------------------|-------------|------------------|-----------------|
| A              | 0.000        | 1.87                 | 0.00        | 0.66             | 0               |
| B              | 0.000        | 2.60                 | 0.00        | 0.92             | 0               |
| C              | 0.009        | 3.45                 | 0.03        | 1.29             | 42              |
| D              | 0.305        | 5.02                 | 1.53        | 2.36             | 2613            |

TOTAL AREA 0.314 ac Q(100) = 1.56 cfs V(100) = 2655 cf  
Q(10) = 0.667 X 1.56 = 1.04 cfs  
V(10) = 0.667 X 2655 = 1770 cf

### BASIN 'C'

| TREATMENT TYPE | AREA (acres) | UNIT RUNOFF (cfs/ac) | MAX Q (cfs) | UNIT VOL (in/ac) | TOTAL VOL. (cf) |
|----------------|--------------|----------------------|-------------|------------------|-----------------|
| A              | 0.000        | 1.87                 | 0.00        | 0.66             | 0               |
| B              | 0.000        | 2.60                 | 0.00        | 0.92             | 0               |
| C              | 0.033        | 3.45                 | 0.13        | 1.29             | 155             |
| D              | 0.000        | 5.02                 | 0.00        | 2.36             | 0               |

TOTAL AREA 0.038 ac Q(100) = 0.13 cfs V(100) = 155 cf  
Q(10) = 0.667 X 0.13 = 0.09 cfs  
V(10) = 0.667 X 155 = 103 cf

### BASIN 'D'

| TREATMENT TYPE | AREA (acres) | UNIT RUNOFF (cfs/ac) | MAX Q (cfs) | UNIT VOL (in/ac) | TOTAL VOL. (cf) |
|----------------|--------------|----------------------|-------------|------------------|-----------------|
| A              | 0.000        | 1.87                 | 0.00        | 0.66             | 0               |
| B              | 0.000        | 2.60                 | 0.00        | 0.92             | 0               |
| C              | 0.000        | 3.45                 | 0.00        | 1.29             | 0               |
| D              | 0.030        | 5.02                 | 0.15        | 2.36             | 257             |

TOTAL AREA 0.030 ac Q(100) = 0.15 cfs V(100) = 257 cf  
Q(10) = 0.667 X 0.15 = 0.10 cfs  
V(10) = 0.667 X 257 = 171 cf

### BASIN 'E'

| TREATMENT TYPE | AREA (acres) | UNIT RUNOFF (cfs/ac) | MAX Q (cfs) | UNIT VOL (in/ac) | TOTAL VOL. (cf) |
|----------------|--------------|----------------------|-------------|------------------|-----------------|
| A              | 0.000        | 1.87                 | 0.00        | 0.66             | 0               |
| B              | 0.000        | 2.60                 | 0.00        | 0.92             | 0               |
| C              | 0.000        | 3.45                 | 0.00        | 1.29             | 0               |
| D              | 0.008        | 5.02                 | 0.04        | 2.36             | 69              |

TOTAL AREA 0.008 ac Q(100) = 0.04 cfs V(100) = 69 cf  
Q(10) = 0.667 X 0.04 = 0.03 cfs  
V(10) = 0.667 X 69 = 46 cf

### BASIN 'F'

| TREATMENT TYPE | AREA (acres) | UNIT RUNOFF (cfs/ac) | MAX Q (cfs) | UNIT VOL (in/ac) | TOTAL VOL. (cf) |
|----------------|--------------|----------------------|-------------|------------------|-----------------|
| A              | 0.000        | 1.87                 | 0.00        | 0.66             | 0               |
| B              | 0.005        | 2.60                 | 0.01        | 0.92             | 17              |
| C              | 0.005        | 3.45                 | 0.02        | 1.29             | 23              |
| D              | 0.000        | 5.02                 | 0.00        | 2.36             | 0               |

TOTAL AREA 0.010 ac Q(100) = 0.03 cfs V(100) = 40 cf  
Q(10) = 0.667 X 0.03 = 0.02 cfs  
V(10) = 0.667 X 40 = 27 cf

PROPOSED OFF-SITE CONDITIONS (BASIN SHOWN ON VICINITY MAP)

AREA TYPE 'D' = .42 X 4.51 = 1.90 AC (TABLE A-5)  
AREA TYPE 'C' = .66 X (4.51 - 1.89) = 1.74 AC  
AREA TYPE 'B' = .33 X (4.51 - 1.89) = 0.87 AC

PROPOSED ON-SITE CONDITIONS:

| TREATMENT TYPE | AREA (acres) | UNIT RUNOFF (cfs/ac) | MAX Q (cfs) | UNIT VOL (in/ac) | TOTAL VOL. (cf) |
|----------------|--------------|----------------------|-------------|------------------|-----------------|
| A              | 0.000        | 1.87                 | 0.00        | 0.66             | 0               |
| B              | 0.008        | 2.60                 | 0.02        | 0.92             | 27              |
| C              | 0.014        | 3.45                 | 0.05        | 1.29             | 66              |
| D              | 0.163        | 5.02                 | 0.82        | 2.36             | 1396            |

TOTAL AREA 0.185 ac Q(100) = 0.89 cfs V(100) = 1489 cf  
Q(10) = 0.667 X 0.89 = 0.59 cfs  
V(10) = 0.667 X 1489 = 993 cf

### BASIN 'B'

| TREATMENT TYPE | AREA (acres) | UNIT RUNOFF (cfs/ac) | MAX Q (cfs) | UNIT VOL (in/ac) | TOTAL VOL. (cf) |
|----------------|--------------|----------------------|-------------|------------------|-----------------|
| A              | 0.000        | 1.87                 | 0.00        | 0.66             | 0               |
| B              | 0.000        | 2.60                 | 0.00        | 0.92             | 0               |
| C              | 0.022        | 3.45                 | 0.08        | 1.29             | 103             |
| D              | 0.292        | 5.02                 | 1.47        | 2.36             | 2502            |

TOTAL AREA 0.314 ac Q(100) = 1.55 cfs V(100) = 2605 cf  
Q(10) = 0.667 X 1.55 = 1.03 cfs  
V(10) = 0.667 X 2605 = 1736 cf

### BASIN 'C', 'D', 'E', 'F'

NO CHANGE FROM PRE-DEVELOPMENT

### SUMMARY OF CALCULATIONS

AS SHOWN FROM THE CALCULATIONS ABOVE, THIS DEVELOPMENT MAKES NO IDENTIFIABLE CHANGE IN RUNOFF PEAK OR VOLUMES. HOWEVER, IT DOES ELIMINATE THE EXISTING CROSS-LOT DRAINAGE AND PROVIDES SIDEWALK SIDEWALK CULVERTS AT DISCHARGE POINTS.

### CAPACITY OF 12" SIDEWALK CULVERT

(WEIR FLOW)  $Q = 2.6 \times 1 + 0.67 \times 1.5 = 1.4$  cfs  
Q100 (BASIN 'F') = 0.03 cfs < Qcap = 1.4 cfs

### CAPACITY OF 24" SIDEWALK CULVERT

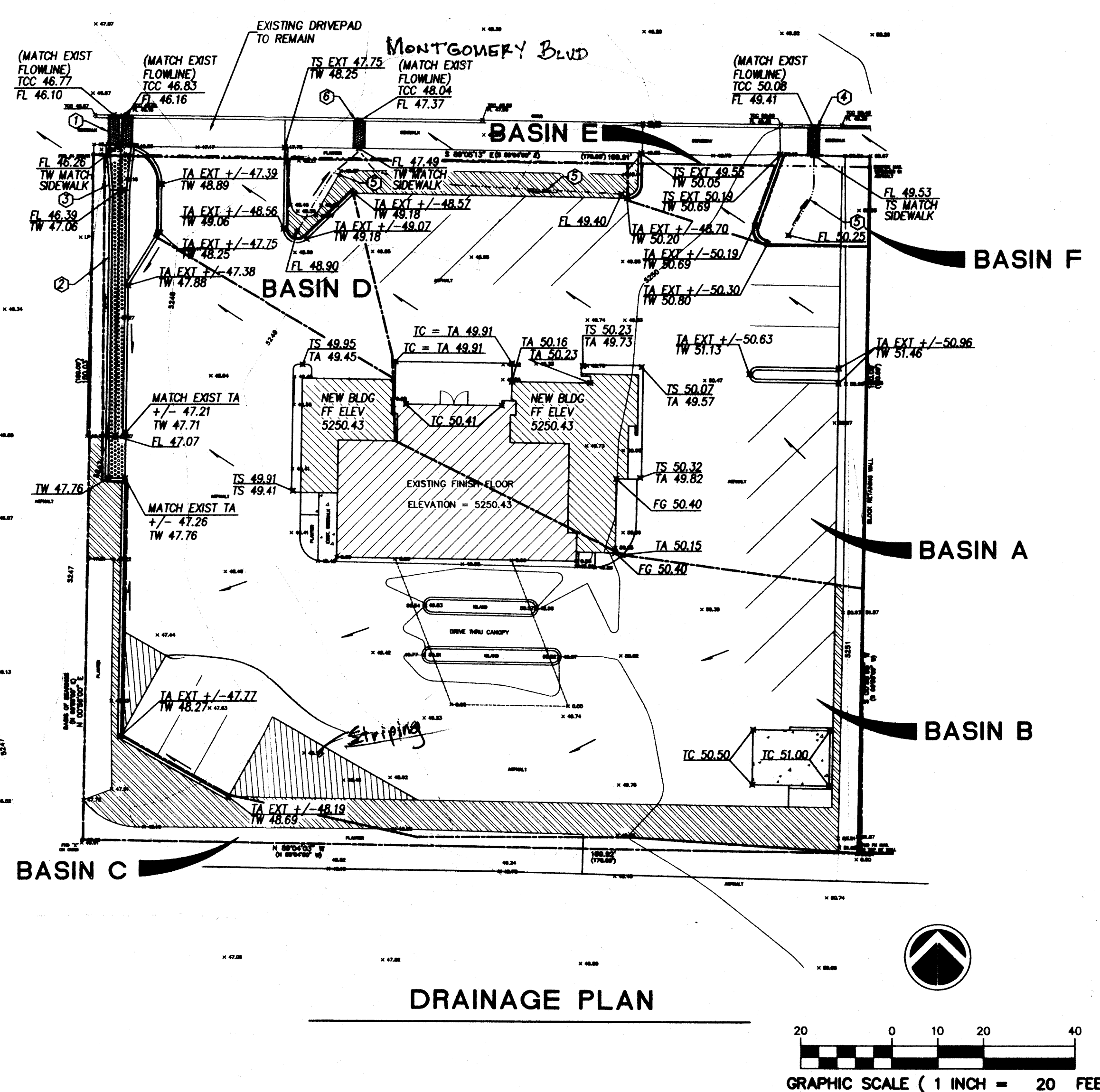
(WEIR FLOW)  $Q = 2.6 \times 2 + 0.67 \times 1.5 = 2.8$  cfs  
Q100 (BASIN 'A') = 0.89 cfs < Qcap = 2.8 cfs

### CAPACITY OF DOUBLE 24" SIDEWALK CULVERT

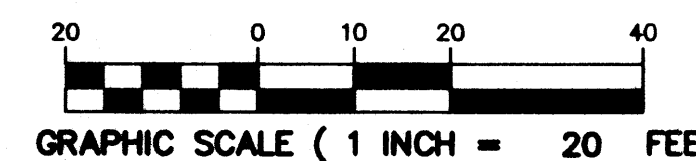
(WEIR FLOW)  $Q = 2.6 \times 2 + 0.67 \times 1.5 = 2.8$  cfs X 2 = 5.6 cfs  
Q100 (BASIN 'B') = 1.55 cfs < Qcap = 5.6 cfs

### CAPACITY OF WEST CHANNEL

MANNING EQN.  $Q = (1.486 / 0.035) \times (0.0129)^{2/3} \times (4.0)^{5/3} \times 0.667 = 3.76$  cfs  
Q100 (BASIN 'B') = 1.55 cfs < Qcap = 3.76 cfs



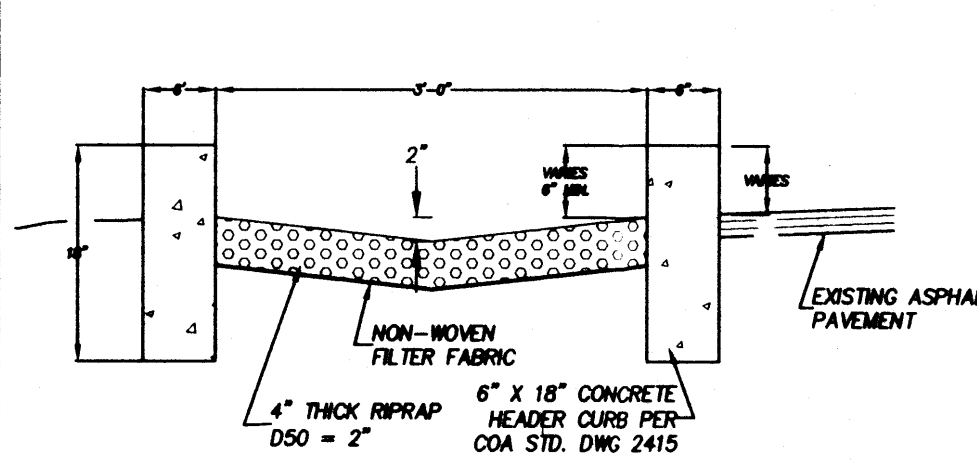
## DRAINAGE PLAN



## KEYED NOTES

- BUILD DOUBLE 24" (48" TOTAL) SIDEWALK CULVERT PER COA STD. DWG. 2236.
- BUILD RIPRAP LINED CONSTRUCTED SWALE PER DETAIL THIS SHEET.
- FLARE CHANNEL SECTION TO MATCH SIDEWALK CULVERT WITHIN THE LAST 10' ABOVE THE CULVERT.
- BUILD 12" SIDEWALK CULVERT PER COA STD. DWG. 2236.
- GRADE SWALE TO COLLECT LOCAL RUNOFF AND DIRECT TO CULVERT. SWALE SHALL BE LINED WITH LANDSCAPING ROCK TO PREVENT EROSION.
- BUILD 24" WIDE SIDEWALK CULVERT PER COA STD. DWG. 2236.

## CONSTRUCTED SWALE - DETAIL



## GENERAL NOTES

- PRIOR TO START OF CONSTRUCTION, THE CONTRACTOR SHALL CONTACT THE STATEWIDE LINE LOCATING SERVICE FOR LOCATION OF EXISTING UTILITIES. THIS SERVICE REQUIRES AT LEAST TWO WORKING DAYS.
- THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES, SHOWN OR NOT SHOWN ON THESE PLANS. ANY DAMAGE TO UTILITIES BY THE CONSTRUCTION EFFORTS SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT HIS OWN EXPENSE.
- WHEN REMOVAL OF EXISTING CONCRETE SIDEWALKS OR CURB AND GUTTER IS CALLED OUT, REMOVE FROM EXISTING CONSTRUCTION JOINTS ONLY. SAWING OR BREAKING WILL NOT BE ALLOWED.

## DRAINAGE DISCUSSION

### GENERAL

THE SITE IS CURRENTLY DEVELOPED AS A BANK OFFICE SITE INCLUDING A BUILDING FOOTPRINT OF 1528 SF WITH APPROXIMATELY 22,000 OF ASPHALT PAVED PARKING LOT. THIS PROPOSED PROJECT WILL INCREASE THE BUILDING SIZE TO 2380 SF. MODIFICATIONS TO THE PARKING LOT WILL SLIGHTLY REDUCE THE ASPHALT PAVED AREA.

### EXISTING DRAINAGE

THE EXISTING DEVELOPMENT HAS MULTIPLE DISCHARGE POINTS. THE MAJORITY OF THE EXISTING RUNOFF (BASINS B AND C) IS DIRECTED TO THE WEST CENTRAL PORTION OF THE SITE WHERE IT DISCHARGES THROUGH A DRIVE ACCESS INTO THE SITE TO THE WEST. THIS RUNOFF SHEET FLOWS ACROSS THE ADJACENT PARKING AND INTO MONTGOMERY BLVD. THE BALANCE OF THE SITE DISCHARGES DIRECTLY INTO MONTGOMERY THROUGH THE DRIVEPADS AND OVER THE SIDEWALK. ALL RUNOFF IN MONTGOMERY FLOWS WEST TO AN EXISTING DOUBLE 'C' INLET AT THE INTERSECTION OF MADERA 1500' WEST OF THIS SITE.

### PROPOSED DRAINAGE

TO ELIMINATE THE CROSS LOT DRAINAGE DISCUSSED ABOVE, A HEADER CURB AND RIPRAP LINED SWALE ARE PROPOSED ALONG THE WEST SIDE OF THE PARKING LOT FROM LOW POINT TO A NEW 48" SIDEWALK CULVERT AT MONTGOMERY. ADDITIONALLY, 24" AND 12" SIDEWALK CULVERTS HAVE BEEN PROPOSED BETWEEN THE DRIVEPADS AND EAST

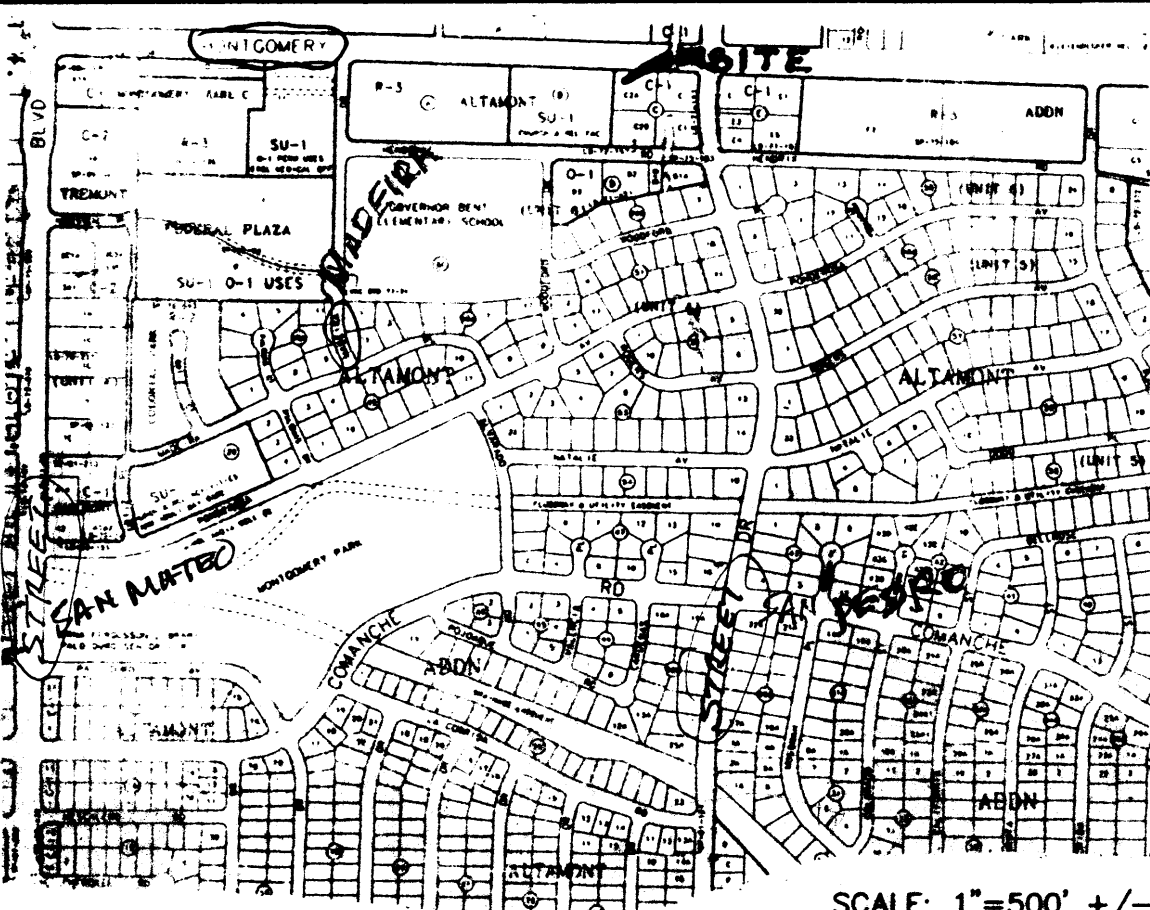
OF THE EAST DRIVEPAD TO DISCHARGE LOCALIZED ON-SITE RUNOFF TO MONTGOMERY. AS THE CALCULATIONS SHOW, THIS PROJECT HAS MINIMAL IMPACT ON THE PEAK DISCHARGE RATE AND VOLUME FROM THIS SITE.

### FLOOD PLAIN STATUS

AS SHOWN ON PANEL 35001C01390, EFFECTIVE SEPTEMBER 20, 1986, THIS SITE IS IN A ZONE X, AREAS DETERMINED TO BE OUTSIDE 500-YEAR FLOODPLAIN.

### OFF-SITE DRAINAGE

THIS SITE IS PROTECTED FROM OFF-SITE RUNOFF BY A WALL ALONG THE EAST PROPERTY LINE, BY A RIDGE ALONG THE SOUTH PROPERTY LINE AND BY MONTGOMERY BLVD TO THE NORTH. AS DISCUSSED ABOVE, THIS PROJECT WILL ELIMINATE CROSS LOT DRAINAGE FROM THIS SITE TO THE PROPERTY TO THE WEST.



## VICINITY MAP G-18-Z

## GRADING AND DRAINAGE PLAN

BANK OF BELIN

6000 MONTGOMERY BLVD. NE  
ALBUQUERQUE, NEW MEXICO

LEGAL DESCRIPTION: LOT C-2-A, UNIT 6,  
ALTAMONT ADDITION  
ALBUQUERQUE, NEW MEXICO

## BENCHMARK

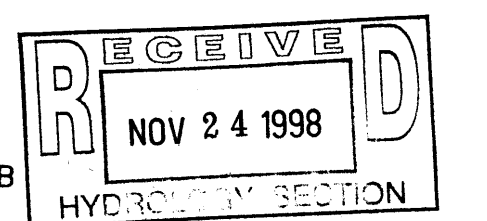
ALL VERTICAL ELEVATIONS SHOWN ARE BASED ON ACS CONTROL STATION M-4A, LOCATED ON THE CENTER MEDIAN OF MONTGOMERY BLVD. NE ON THE WEST SIDE OF THE INTERSECTION WITH SAN PEDRO, WHOSE PUBLISHED ELEVATION IS 5253.305.

## LEGEND

- SURFACE FLOW DIRECTION
- PROPERTY LINE
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- EXISTING BUILDING
- PROPOSED EXPANSION
- ASPHALT PAVT TO BE REMOVED
- DRAINAGE BASIN BOUNDARY

## ABBREVIATIONS

- FG FINISH GRADE
- FL FLOWLINE
- TS TOP OF SIDEWALK
- TCC TOP OF CONCRETE CURB
- TC TOP OF CONCRETE SLAB
- TA TOP OF ASPHALT PAVEMENT



## SO-19 FORM

### NOTICE TO CONTRACTOR

- AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN THE CITY RIGHT-OF-WAY. AN APPROVED COPY OF THESE PLANS MUST BE SUBMITTED AT THE TIME OF APPLICATION FOR THIS PERMIT.
- ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED WITHIN THE CITY RIGHT-OF-WAY SHALL, EXCEPT AS OTHERWISE STATED OR PROVIDED FOR HEREON, BE CONSTRUCTED IN ACCORDANCE WITH C.O.A. STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION 1986.
- TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR MUST CONTACT LINE LOCATING SERVICE 280-1990, FOR LOCATION OF EXISTING UTILITIES.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OR SURVEYOR SO THAT THE CONFLICT CAN BE RESOLVED WITH MINIMUM AMOUNT OF DELAY.
- BACKFILL COMP ACTION SHALL BE ACCORDING TO ARTERIAL STREET USE.
- MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER SERVED.

### THE FOLLOWING NOTES ALSO APPLY WHEN CHECKED

- ALL UTILITIES AND UTILITY SERVICE LINES SHALL BE INSTALLED PRIOR TO PAVING.
- BACKFILL COMP ACTION SHALL BE ACCORDING TO ARTERIAL STREET USE.
- TACK COAT REQUIREMENTS SHALL BE DETERMINED BY THE CITY ENGINEER.
- SIDEWALKS AND WHEELCHAIR RAMPS WITHIN THE CURB RETURNS SHALL BE CONSTRUCTED WHEREVER A NEW CURB RETURN IS CONSTRUCTED.
- IF CURB IS DEEPER FOR A DRIVEPAD OR A HANDICAP RAMP, THE DRIVEPAD OR RAMP SHALL BE CONSTRUCTED PRIOR TO ACCEPTANCE OF THE CURB AND GUTTER.
- ALL STORM DRAINAGE FACILITIES SHALL BE COMPLETED, INSPECTED AND APPROVED PRIOR TO FINAL ACCEPTANCE.

| APPROVALS     | ENGINEERS | DATE |
|---------------|-----------|------|
| A.C.E./DESIGN |           |      |
| INSPECTOR     |           |      |
| A.C.E./FIELD  |           |      |

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(505) 883-9644



REVISION DATE DESCRIPTION

| REVISION | DATE | DESCRIPTION |
|----------|------|-------------|
|          |      |             |
|          |      |             |

FILE NAME: BANK-C1 11/24/98

SHEET C1



S

SITE CONDITIONS (BASIN SHOWN ON VICINITY MAP)

$$.42 \times 4.51 = 1.90 \text{ AC (TABLE A-5)}$$
$$.66 \times (4.51 - 1.89) = 1.74 \text{ AC}$$
$$.33 \times (4.51 - 1.89) = 0.87 \text{ AC}$$

SITE CONDITIONS:

BASIN 'A'

| AREA (acres) | UNIT RUNOFF (cfs/ac) | MAX Q (cfs) | UNIT VOL (in/ac) | TOTAL VOL (cf) |
|--------------|----------------------|-------------|------------------|----------------|
| 0.00         | 1.87                 | 0.00        | 0.66             | 0              |
| 0.08         | 2.60                 | 0.02        | 0.92             | 27             |
| 0.14         | 3.45                 | 0.05        | 1.29             | 66             |
| 0.63         | 5.02                 | 0.82        | 2.36             | 1396           |

$$.85 \text{ ac} \quad Q(100) = 0.89 \text{ cfs} \quad V(100) = 1489 \text{ cf}$$
$$X \quad 0.89 = 0.59 \text{ cfs}$$
$$X \quad 1489 = 993 \text{ cf}$$

BASIN 'B'

| AREA (acres) | UNIT RUNOFF (cfs/ac) | MAX Q (cfs) | UNIT VOL (in/ac) | TOTAL VOL (cf) |
|--------------|----------------------|-------------|------------------|----------------|
| 0.00         | 1.87                 | 0.00        | 0.66             | 0              |
| 0.00         | 2.60                 | 0.00        | 0.92             | 0              |
| 0.22         | 3.45                 | 0.08        | 1.29             | 103            |
| 0.29         | 5.02                 | 1.47        | 2.36             | 2502           |

$$.14 \text{ ac} \quad Q(100) = 1.55 \text{ cfs} \quad V(100) = 2605 \text{ cf}$$
$$X \quad 1.55 = 1.03 \text{ cfs}$$
$$X \quad 2605 = 1736 \text{ cf}$$

BASIN 'C', 'D', 'E', 'F'

M PRE-DEVELOPMENT

CALCULATIONS

THE CALCULATIONS ABOVE, THIS DEVELOPMENT MAKES NO CHANGE IN RUNOFF PEAK OR VOLUMES. HOWEVER, IT DOES EXISTING CROSS-LOT DRAINAGE AND PROVIDES SIDEWALK CURBS AT DISCHARGE POINTS.

CAPACITY OF 12" SIDEWALK CULVERT

$$= 2.6 \times 1 \times 0.67 \times 1.5 = 1.4 \text{ cfs}$$
$$= 0.03 \text{ cfs} < Q_{cap} = 1.4 \text{ cfs}$$

CAPACITY OF 24" SIDEWALK CULVERT

$$= 2.6 \times 2 \times 0.67 \times 1.5 = 2.8 \text{ cfs}$$
$$= 0.89 \text{ cfs} < Q_{cap} = 2.8 \text{ cfs}$$

CAPACITY OF DOUBLE 24" SIDEWALK CULVERT

$$= 2.6 \times 2 \times 0.67 \times 1.5 = 2.8 \text{ cfs} \times 2 = 5.6 \text{ cfs}$$
$$= 1.55 \text{ cfs} < Q_{cap} = 5.6 \text{ cfs}$$

CAPACITY OF WEST CHANNEL

$$Q = (1.486 / 0.35) \times (0.0129)^{0.5} \times (3.50)^{0.667} = 3.03 \text{ cfs}$$
$$= 1.55 \text{ cfs} < Q_{cap} = 3.03 \text{ cfs}$$

## KEYED NOTES

24" (48" TOTAL) SIDEWALK CULVERT PER COA STD. DWG. 2236.

UNLINED CONSTRUCTED SWALE PER DETAIL THIS SHEET.

SECTION TO MATCH SIDEWALK CULVERT WITHIN THE LAST 10' OF CULVERT.

SIDEWALK CULVERT PER COA STD. DWG. 2236.

TO COLLECT LOCAL RUNOFF AND DIRECT TO CULVERT. SWALE TO BE FILLED WITH LANDSCAPING ROCK TO PREVENT EROSION.

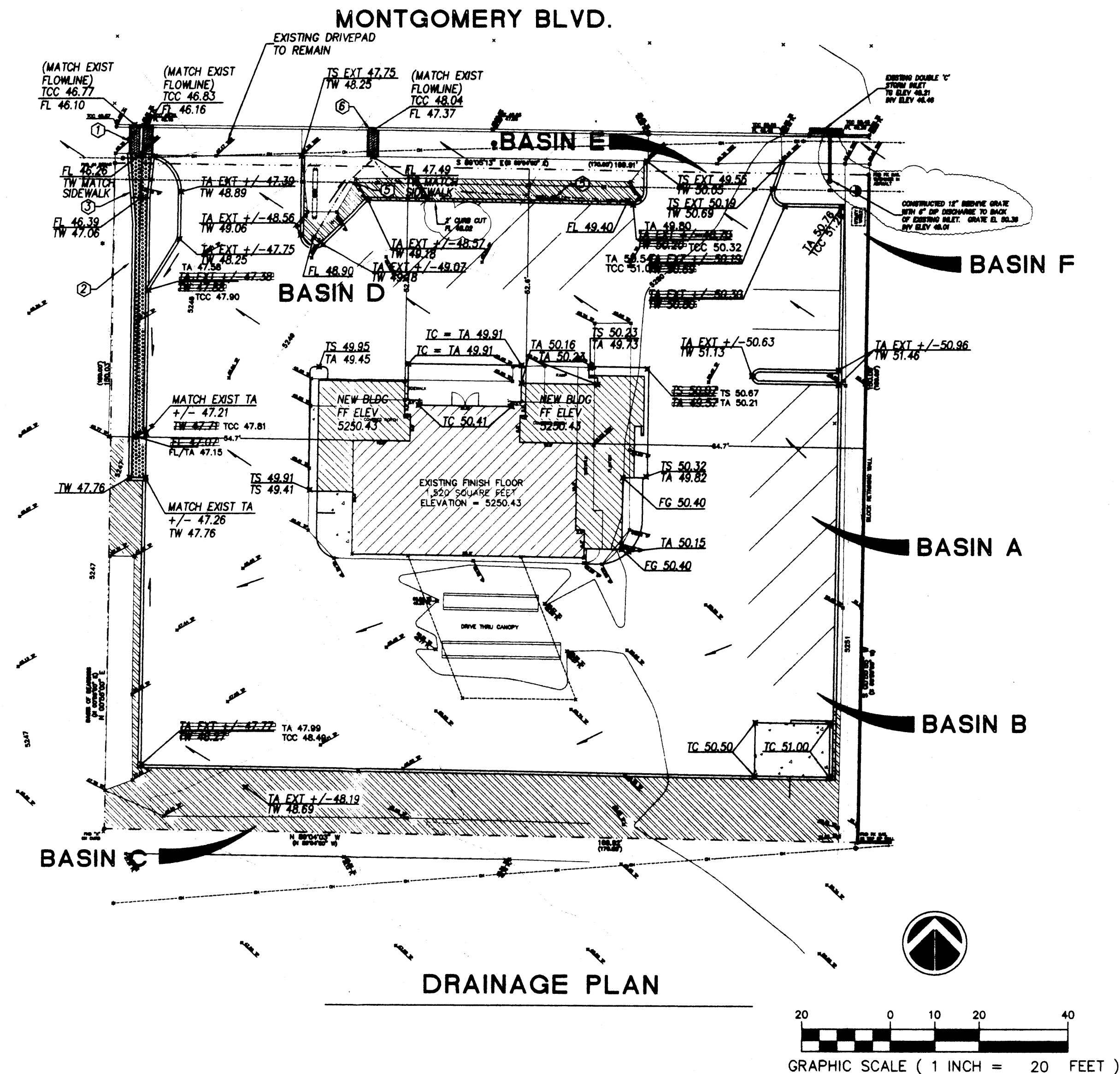
SIDEWALK CULVERT PER COA STD. DWG. 2236.

## DRAINAGE DISCUSSION

DEVELOPED AS A BANK OFFICE SITE INCLUDING A BUILDING WITH APPROXIMATELY 22,000 OF ASPHALT PAVED PARKING LOT. IT WILL INCREASE THE BUILDING SIZE TO 2380 SF. MODIFICATIONS WILL SLIGHTLY REDUCE THE ASPHALT PAVED AREA.

THE SITE HAS MULTIPLE DISCHARGE POINTS. THE MAJORITY OF (BASINS B AND C) IS DIRECTED TO THE WEST CENTRAL WHERE IT DISCHARGES THROUGH A DRIVE ACCESS INTO THE IS RUNOFF SHEET FLOWS ACROSS THE ADJACENT PARKING BLVD. THE BALANCE OF THE SITE DISCHARGES DIRECTLY THROUGH THE DRIVEPADS AND OVER THE SIDEWALK. ALL RUNOFF WEST TO AN EXISTING DOUBLE 'C' INLET AT THE INTERSECTION OF THIS SITE.

AS LOT DRAINAGE DISCUSSED ABOVE, A HEADER CURB AND ARE PROPOSED ALONG THE WEST SIDE OF THE PARKING LOT FROM 18" SIDEWALK CULVERT AT MONTGOMERY. ADDITIONALLY, 24" AND 5 HAVE BEEN PROPOSED BETWEEN THE DRIVEPADS AND EAST





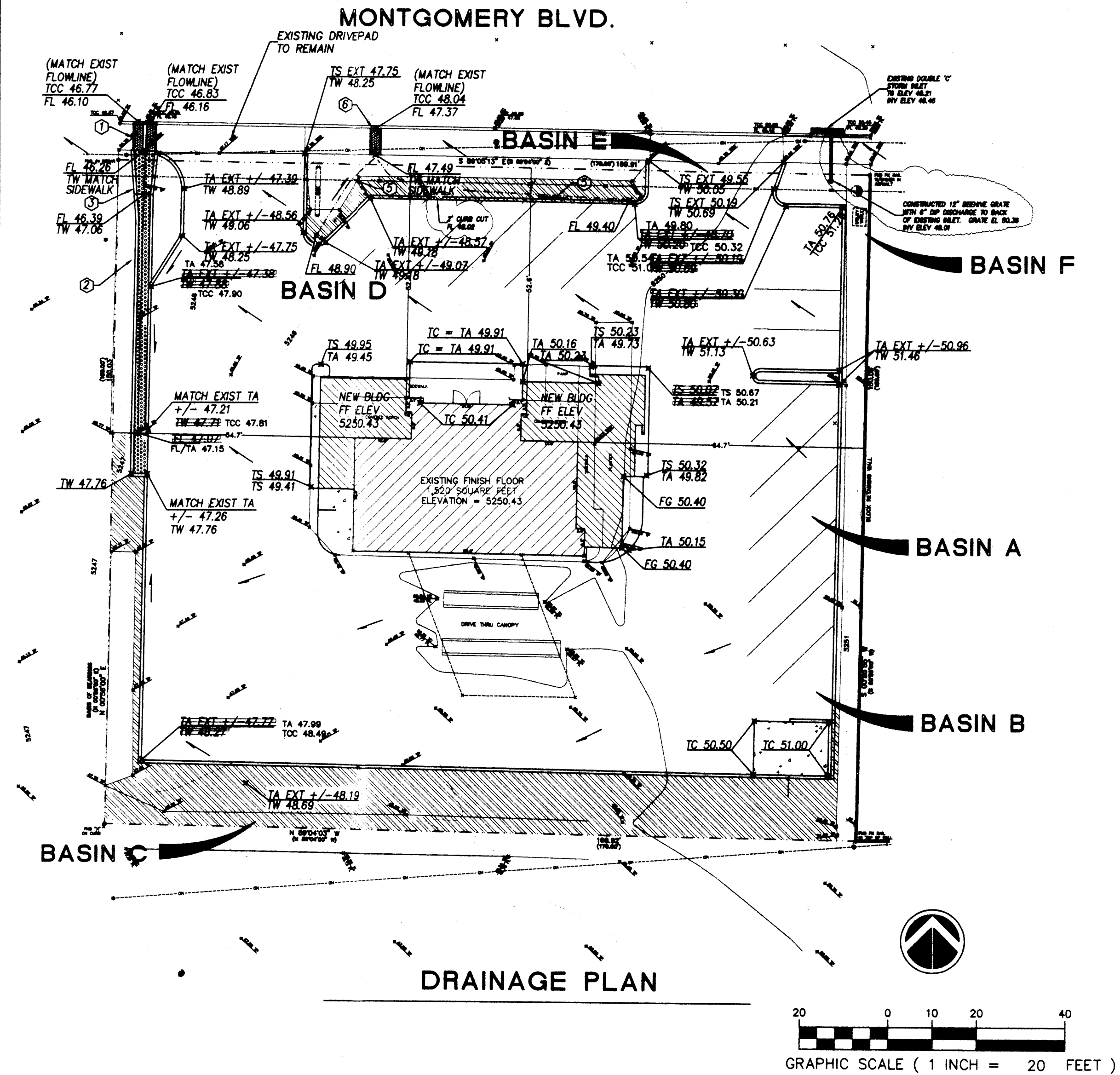
# IMAGE CALCULATIONS

|                    |  |
|--------------------|--|
| SS<br>S            | PROPOSED OFF-SITE CONDITIONS (BASIN SHOWN ON VICINITY MAP)   |
|                    | AREA TYPE 'D' = .42 X 4.51 = 1.90 AC (TABLE A-5)   |
|                    | AREA TYPE 'C' = .66x(4.51-1.89) = 1.74 AC  |
|                    | AREA TYPE 'B' = .33 X (4.51-1.89) = 0.87 AC  |
|                    | PROPOSED ON-SITE CONDITIONS:   |
|                    | BASIN 'A'  |
| TOTAL VOL.<br>(cf) | TREATMENT TYPE AREA (acres) UNIT RUNOFF (cfs/ac) MAX Q (cfs) UNIT VOL (in/ac) TOTAL VOL. (cf)  |
| 0                  | A 0.000 1.87 0.00 0.66 0   |
| 30                 | B 0.008 2.60 0.02 0.92 27  |
| 66                 | C 0.014 3.45 0.05 1.29 66  |
| 1388               | D 0.163 5.02 0.82 2.36 1396  |
| 1484 cf            | TOTAL AREA 0.185 ac Q(100) = 0.89 cfs V(100) = 1489 cf   |
|                    | Q(10) = 0.667 X 0.89 = 0.59 cfs  |
|                    | V(10) = 0.667 X 1489 = 993 cf  |
|                    | BASIN 'B'  |
| TOTAL VOL.<br>(cf) | TREATMENT TYPE AREA (acres) UNIT RUNOFF (cfs/ac) MAX Q (cfs) UNIT VOL (in/ac) TOTAL VOL. (cf)  |
| 0                  | A 0.000 1.87 0.00 0.66 0   |
| 0                  | B 0.000 2.60 0.00 0.92 0   |
| 42                 | C 0.022 3.45 0.08 1.29 103   |
| 2613               | D 0.292 5.02 1.47 2.36 2502  |
| 2655 cf            | TOTAL AREA 0.314 ac Q(100) = 1.55 cfs V(100) = 2605 cf   |
|                    | Q(10) = 0.667 X 1.55 = 1.03 cfs  |
|                    | V(10) = 0.667 X 2605 = 1736 cf   |
|                    | BASIN 'C', 'D', 'E', 'F'   |
| TOTAL VOL.<br>(cf) | NO CHANGE FROM PRE-DEVELOPMENT   |
| 0                  |  |
| 155                | SUMMARY OF CALCULATIONS  |
| 0                  | AS SHOWN FROM THE CALCULATIONS ABOVE, THIS DEVELOPMENT MAKES NO IDENTIFIABLE CHANGE IN RUNOFF PEAK OR VOLUMES. HOWEVER, IT DOES ELIMINATE THE EXISTING CROSS-LOT DRAINAGE AND PROVIDES SIDEWALK SIDEWALK CULVERTS AT DISCHARGE POINTS. |
| 55 cf              | CAPACITY OF 12" SIDEWALK CULVERT   |
|                    | (WEIR FLOW) Q = 2.6 * 1+0.67^1.5 = 1.4 cfs   |
|                    | Q100 (BASIN 'F') = 0.03 cfs < Qcap = 1.4 cfs   |
|                    | CAPACITY OF 24" SIDEWALK CULVERT   |
| TOTAL VOL.<br>(cf) | (WEIR FLOW) Q = 2.6 * 2+0.67^1.5 = 2.8 cfs   |
| 0                  | Q100 (BASIN 'A') = 0.89 cfs < Qcap = 2.8 cfs   |
| 257                | CAPACITY OF DOUBLE 24" SIDEWALK CULVERT  |
| 257 cf             | (WEIR FLOW) Q = 2.6 * 2+0.67^1.5 = 2.8 cfs X 2 = 5.6 cfs   |
|                    | Q100 (BASIN 'B') = 1.55 cfs < Qcap = 5.6 cfs   |
|                    | CAPACITY OF WEST CHANNEL   |
| TOTAL VOL.<br>(cf) | MANNING EQN Q = (1.486/.035) * (.0129)^0.5 * (3.50 / 4.75)^0.667 = 3.76 cfs  |
| 0                  | Q100 (BASIN 'B') = 1.55 cfs < Qcap = 3.76 cfs  |
| 0                  |  |
| 69                 |  |
| 69 cf              |  |

|                    |  |
|--------------------|--|
| TOTAL VOL.<br>(cf) | KEYED NOTES  |
| 0                  | 1. BUILD DOUBLE 24" (48" TOTAL) SIDEWALK CULVERT PER COA STD. DWG. 2236.   |
| 17                 | 2. BUILD RIPRAP LINED CONSTRUCTED SWALE PER DETAIL THIS SHEET.   |
| 23                 | 3. FLARE CHANNEL SECTION TO MATCH SIDEWALK CULVERT WITHIN THE LAST 10' ABOVE THE CULVERT.                                    |
| 0                  | 4. BUILD 12" SIDEWALK CULVERT PER COA STD. DWG. 2236.  |
| 0 cf               | 5. GRADE SWALE TO COLLECT LOCAL RUNOFF AND DIRECT TO CULVERT. SWALE SHALL BE LINED WITH LANDSCAPING ROCK TO PREVENT EROSION. |
|                    | 6. BUILD 24" WIDE SIDEWALK CULVERT PER COA STD. DWG. 2236.   |

|                    |   |
|--------------------|---|
| TOTAL VOL.<br>(cf) | DRAINAGE DISCUSSION   |
| 0                  | GENERAL   |
| 17                 | THE SITE IS CURRENTLY DEVELOPED AS A BANK OFFICE SITE INCLUDING A BUILDING FOOTPRINT OF 1528 SF WITH APPROXIMATELY 22,000 OF ASPHALT PAVED PARKING LOT. THIS PROPOSED PROJECT WILL INCREASE THE BUILDING SIZE TO 2380 SF. MODIFICATIONS TO THE PARKING LOT WILL SLIGHTLY REDUCE THE ASPHALT PAVED AREA.   |
| 23                 | EXISTING DRAINAGE   |
| 0                  | THE EXISTING DEVELOPMENT HAS MULTIPLE DISCHARGE POINTS. THE MAJORITY OF THE EXISTING RUNOFF (BASINS B AND C) IS DIRECTED TO THE WEST CENTRAL PORTION OF THE SITE WHERE IT DISCHARGES THROUGH A DRIVE ACCESS INTO THE SITE TO THE WEST. THIS RUNOFF SHEET FLOWS ACROSS THE ADJACENT PARKING AND INTO MONTGOMERY BLVD. THE BALANCE OF THE SITE DISCHARGES DIRECTLY INTO MONTGOMERY THROUGH THE DRIVEPADS AND OVER THE SIDEWALK. ALL RUNOFF IN MONTGOMERY FLOWS WEST TO AN EXISTING DOUBLE 'C' INLET AT THE INTERSECTION OF MADEIRA 1500' WEST OF THIS SITE. |
| 0 cf               | PROPOSED DRAINAGE   |
|                    | TO ELIMINATE THE CROSS LOT DRAINAGE DISCUSSED ABOVE, A HEADER CURB AND RIPRAP LINED SWALE ARE PROPOSED ALONG THE WEST SIDE OF THE PARKING LOT FROM LOW POINT TO A NEW 48" SIDEWALK CULVERT AT MONTGOMERY. ADDITIONALLY, 24" AND 12" SIDEWALK CULVERTS HAVE BEEN PROPOSED BETWEEN THE DRIVEPADS AND EAST   |

=500' +/-



|                            |  |
|----------------------------|--|
| CONSTRUCTED SWALE - DETAIL | GENERAL NOTES  |
|                            | <p>1. PRIOR TO START OF CONSTRUCTION, THE CONTRACTOR SHALL CONTACT THE STATEWIDE LINE LOCATING SERVICE FOR LOCATION OF EXISTING UTILITIES. THIS SERVICE REQUIRES AT LEAST TWO WORKING DAYS.</p> <p>2. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES, SHOWN OR NOT SHOWN ON THESE PLANS. ANY DAMAGE TO UTILITIES BY THE CONSTRUCTION EFFORTS SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT HIS OWN EXPENSE.</p> <p>3. WHEN REMOVAL OF EXISTING CONCRETE SIDEWALKS OR CURB AND GUTTER IS CALLED OUT, REMOVE FROM EXISTING CONSTRUCTION JOINTS ONLY. SAWING OR BREAKING WILL NOT BE ALLOWED.</p> |

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| ENGINEER'S CERTIFICATION   |
| <p>THE SITE HAS BEEN CONSTRUCTED IN SUBSTANTIAL COMPLIANCE WITH THE ORIGINAL GRADING AND DRAINAGE PLAN AS IDENTIFIED ON THE ABOVE GRADING PLAN EXCEPT AS FOLLOWS:</p> <p>-CURBS WERE ADDED ALONG THE EAST, WEST AND SOUTH SIDES OF THE PARKING AREA TO COMPLY WITH COA/TRAFFIC COMMENTS. GRADES WERE ADJUSTED ACCORDINGLY.</p> <p>-THE WEST SIDE RUNDOWN WAS NARROWED TO 30" DUE TO CLEARANCE PROBLEMS WITH EXISTING FACILITIES.</p> <p>-THE NORTHEAST SIDEWALK CULVERT WAS DELETED AND BEEHIVE INLET WITH 6" DIP DISCHARGE TO EXISTING INLET DUE TO CLEARANCE PROBLEMS AROUND THE EXIST. INLET.</p> |
| <p>LAWRENCE D. READ<br/>NEW MEXICO<br/>REGISTERED PROFESSIONAL ENGINEER<br/>10998</p> <p>LARRY D. READ, P.E.<br/>5.9.99</p>  |
| <p>JJK GROUP, INC.<br/>Structural &amp; Civil Engineers<br/>12836-B LOMAS BLVD., N.E.<br/>Albuquerque, New Mexico 87110<br/>(505) 296-5706</p>   |

## GRADING AND DRAINAGE PLAN

BANK OF BELEN

6000 MONTGOMERY BLVD. NE  
ALBUQUERQUE, NEW MEXICO

LEGAL DESCRIPTION: LOT C-2-A, UNIT 6,  
ALAMONT ADDITION  
ALBUQUERQUE, NEW MEXICO

BENCHMARK

ALL VERTICAL ELEVATIONS SHOWN ARE BASED ON ACS CONTROL STATION M-4A, LOCATED ON THE CENTER MEDIAN OF MONTGOMERY BLVD. NE ON THE WEST SIDE OF THE INTERSECTION WITH SAN PEDRO, WHOSE PUBLISHED ELEVATION IS 5253.305.

|  |
|--|
| LEGEND   |
| <p>— SURFACE FLOW DIRECTION</p> <p>--- PROPERTY LINE</p> <p>x EXISTING SPOT ELEVATION</p> <p>— PROPOSED SPOT ELEVATION</p> <p>EXISTING BUILDING</p> <p>PROPOSED EXPANSION</p> <p>ASPHALT PAVT TO BE REMOVED</p> <p>DRAINAGE BASIN BOUNDARY</p> <p>RECORD INFORMATION AS PROVIDED BY AM SURVEY 5/8/99</p> |
| ABBREVIATIONS  |
| <p>FG FINISH GRADE</p> <p>FL FLOWLINE</p> <p>TS TOP OF SIDEWALK</p> <p>TCC TOP OF CONCRETE CURB</p> <p>TC TOP OF CONCRETE SLAB</p> <p>TA TOP OF ASPHALT PAVEMENT</p>   |

## SO-19 FORM

NOTICE TO CONTRACTOR

AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN THE CITY RIGHT-OF-WAY. AN APPROVED COPY OF THESE PLANS MUST BE SUBMITTED AT THE TIME OF APPLICATION FOR THIS PERMIT.

ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED WITHIN THE CITY RIGHT-OF-WAY SHALL, EXCEPT AS OTHERWISE STATED OR PROVIDED FOR HEREON, BE CONSTRUCTED IN ACCORDANCE WITH C.O.A. STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION 1986.

TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR MUST CONTACT LINE LOCATING SERVICE 260-1990, FOR LOCATION OF EXISTING UTILITIES.

PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OR SURVEYOR SO THAT THE CONFLICT CAN BE RESOLVED WITH MINIMUM AMOUNT OF DELAY.

BACKFILL COMP ACTION SHALL BE ACCORDING TO ARTERIAL STREET USE.

MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER SERVED.

THE FOLLOWING NOTES ALSO APPLY WHEN CHECKED

☒ ALL UTILITIES AND UTILITY SERVICE LINES SHALL BE INSTALLED PRIOR TO PAVING.

☒ BACKFILL COMP ACTION SHALL BE ACCORDING TO ARTERIAL STREET USE.

☒ TACK COAT REQUIREMENTS SHALL BE DETERMINED BY THE CITY ENGINEER.

☒ SIDEWALKS AND WHEELCHAIR RAMPS WITHIN THE CURB RETURNS SHALL BE CONSTRUCTED WHEREVER A NEW CURB RETURN IS CONSTRUCTED.

☐ IF CURB IS DEPRESSED FOR A DRIVEPAD OR A HANDICAP RAMP, THE DRIVEPAD OR RAMP SHALL BE CONSTRUCTED PRIOR TO ACCEPTANCE OF THE CURB AND GUTTER.

☒ ALL STORM DRAINAGE FACILITIES SHALL BE COMPLETED, INSPECTED AND APPROVED PRIOR TO FINAL ACCEPTANCE.

| APPROVALS     | ENGINEERS | DATE |
|---------------|-----------|------|
| A.C.E./DESIGN |           |      |
| INSPECTOR     |           |      |
| A.C.E./FIELD  |           |      |
|               |           |      |
|               |           |      |

| REVISION   | DATE             | DESCRIPTION                       |
|------------|------------------|-----------------------------------|
|            |                  |                                   |
|            |                  |                                   |
|            | 05.09.99         | RECORD DRAWING FOR CERT OCCUPANCY |
| FILE NAME: | BANK-C1 11/24/98 | SHEET C1                          |