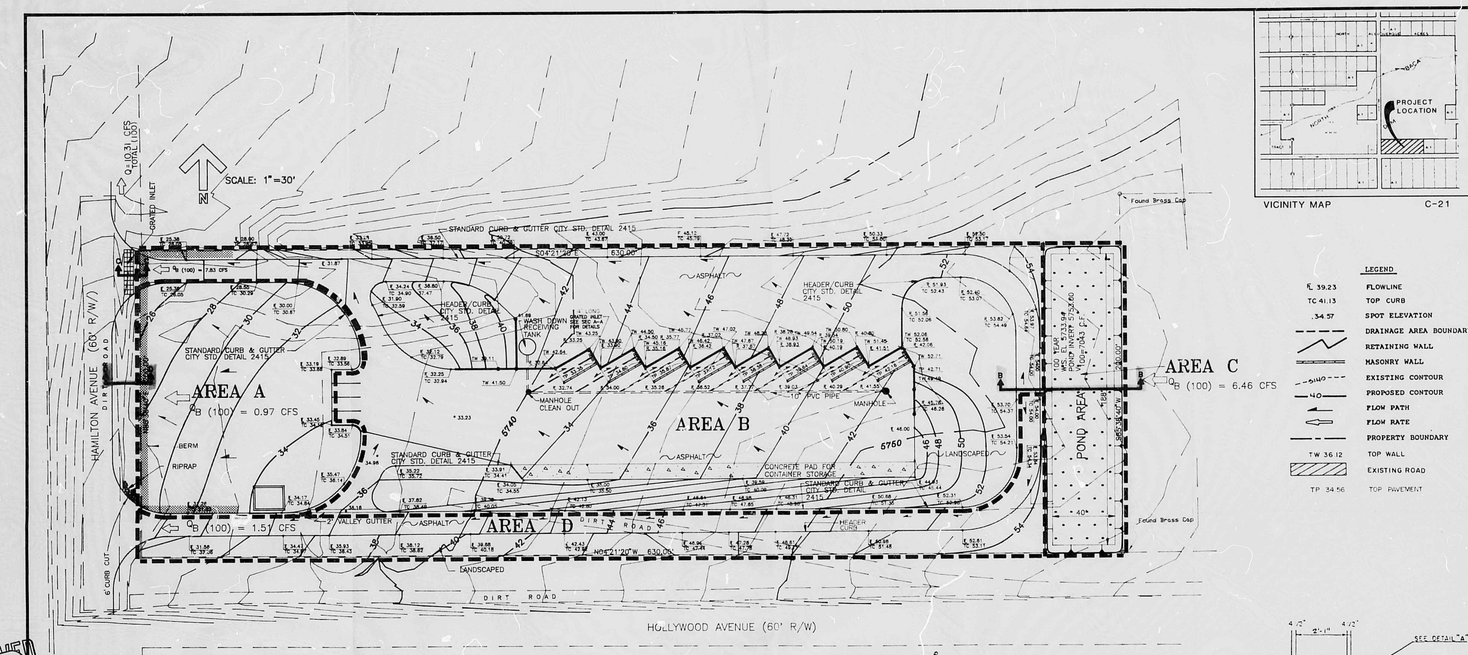
PUBLIC WORKS/HYDROLOGY

C21/D3







VICINITY MAP C-21

**LEGEND**

| | |
|---|---|
| FL 39.23 | FLOWLINE |
| TC 41.13 | TOP CURB |
| .34.57 | SPOT ELEVATION |
| | DRAINAGE AREA BOUNDARY |
| | RETAINING WALL |
| | MASONRY WALL |
| | EXISTING CONTOUR |
| | PROPOSED CONTOUR |
| | FLOW PATH |
| | FLOW RATE |
| | PROPERTY BOUNDARY |
| TW 36.12 | TOP WALL |
| | EXISTING ROAD |
| TP 34.56 | TOP PAVEMENT |

CITY OF ALBUQUERQUE NORTH BACA DAM SOLID WASTE CONVENIENCE CENTER

LOCATION AND DESCRIPTION:

THE SITE IS LOCATED ON THE NORTHEAST CORNER OF THE INTERSECTION OF HOLLYWOOD AVENUE AND HAMILTON STREET. THE SITE CONSISTS OF ABOUT 2.15 ACRES AND IS PRESENTLY UNDEVELOPED AND IS A PORTION OF NORTH BACA DAM SOLID WASTE. THE PROPERTY SLOPES FROM THE SOUTHEAST TO THE NORTHWEST AND HAS AN AVERAGE OF 4.5 PERCENT. THE SITE IS NOT LOCATED WITHIN A FLOOD PLAIN.

EXISTING CONDITIONS:

PRESENT:= RUNOFF FROM AN EXISTING OFF-SITE DRAINAGE BASIN FLOWS INTO AND COMBINES WITH THE ON-SITE RUNOFF. THE RESULTING RUNOFF THEN EXISTS THROUGH THE NORTHWEST CORNER OF THE SITE AND GOES ACROSS HAMILTON STREET INTO A SMALL ARROYO.

PROPOSED CONDITIONS:

THE PROPOSED DEVELOPMENT WILL BE A CITY OF ALBUQUERQUE SOLID WASTE CONVENIENCE CENTER WHICH WILL INCLUDE PAVED ACCESS ROADS, PARKING, AREAS FOR THE CONTAINERS, AND A SMALL OFFICE BUILDING. A DETENTION POND WILL BE PROVIDED TO CAPTURE THE OFF-SITE RUNOFF AND WILL BE SIZED FOR A 100-YEAR STORM. IN THE EVENT THAT FLOWS EXCEED THOSE OF A 100-YEAR STORM THE POND WILL OVERFLOW ONTO THE ACCESS ROAD AND THE FLOWS WILL EVENTUALLY BE DISCHARGED ON THE WEST SIDE OF THE SITE AND ON THE EAST SIDE OF HAMILTON STREET AND ACROSS HAMILTON STREET. FROM THERE THE FLOW WILL CROSS HAMILTON STREET AND ON INTO THE SMALL ARROYO PREVIOUSLY MENTIONED. AS A RESULT OF THE PROPOSED DEVELOPMENT THE RUNOFF WILL INCREASE FROM 31.31 CFS TO 6.46 CFS DUE TO THE USE OF THE DETENTION POND TO INTERCEPT THE OFFSITE FLOWS.

CALCULATIONS (OFF-SITE FLOW):
(BASED ON COA DEVELOPMENT PROCESS MANUAL, VOL. II)

SOIL TYPE (SCS SOIL SURVEY OF BERNALILLO COUNTY)
TIERRA. ENRICO DIERES GRAVELLY FINE SANDY LOAM (TpB, EtC)
HYDROLOGIC SOILS GROUP B

TIME OF CONCENTRATION (EXISTING):

| | |
|---|---|
| FLOW LENGTH | 851 FT |
| ELEVATION DIFF. | 19 FT |
| SLOPE | 2.2% |
| TIME OF CONCENTRATION | 4.41 MINUTES (USE 10 MINUTES) |

6-HOUR RAINFALL INTENSITIES:

| | |
|---|---|
| 100-YEAR STORM | 9.4 IN/HR |
| 10-YEAR STORM | 3.9 IN/HR |

EXISTING OFF-SITE CONDITIONS (UNDEVELOPED):

| SURFACE TYPE | AREA (AC) | % OF TOTAL | "C" VALUE |
|---|---|---|---|
| UNDEVELOPED | 2.34 | 98 | 0.40 |
| ROADS | 0.04 | 10 | 0.95 |

COMPOSITE "C" VALUE = 0.46

RUNOFF RATES Q(100) = C1A = (0.46) (9.4) (2.60) = 6.46 CFS
Q(10) = C1A = (0.46) (3.9) (2.60) = 4.19 CFS

RECENT THREE FLOWS POINT HERE

CALCULATIONS: (OUTS)
(BASED ON COA DEVELOPMENT PROCESS MANUAL, VOL. II)

SOIL TYPE (SCS SOIL SURVEY OF BERNALILLO COUNTY)
TIERRA. ENRICO DIERES GRAVELLY FINE SANDY LOAM (TpB, EtC)
HYDROLOGIC SOILS GROUP B

TIME OF CONCENTRATION (EXISTING):

| | |
|---|---|
| FLOW LENGTH | 445 FT |
| ELEVATION DIFF. | 26 FT |
| SLOPE | 4.0% |
| TIME OF CONCENTRATION | 3.48 (USE 10 MINUTES) |

6-HOUR RAINFALL INTENSITIES:

| | |
|---|---|
| 100-YEAR STORM | 9.4 IN/HR |
| 10-YEAR STORM | 3.9 IN/HR |

EXISTING ON SITE CONDITIONS (UNDEVELOPED):

| SURFACE TYPE | AREA (AC) | % OF TOTAL | "C" VALUE |
|---|---|---|---|
| UNDEVELOPED | 2.04 | 98 | 0.40 |
| ROADS | 0.05 | 2 | 0.95 |

COMPOSITE "C" VALUE = 0.43

RUNOFF RATES Q(100) = C1A = (0.41) (9.4) (2.89) = 6.45 CFS
Q(10) = C1A = (0.41) (3.9) (2.89) = 4.15 CFS

PROPOSED AREA A (TOTAL AREA = 1.5 AC):

| SURFACE TYPE | AREA (AC) | % OF TOTAL | "C" VALUE |
|---|---|---|---|
| UNDEVELOPED | 0.45 | 100 | 0.40 |

RUNOFF RATES Q(100) = C1A = (0.40) (9.4) (.045) = 0.97 CFS
Q(10) = C1A = (0.40) (3.9) (.045) = 0.42 CFS

PROPOSED AREA B (TOTAL AREA = 1.59 AC):

| SURFACE TYPE | AREA (AC) | % OF TOTAL | "C" VALUE |
|---|---|---|---|
| PARKING, ROADS | 1.27 | 68 | 0.95 |
| UNDEVELOPED | 0.59 | 32 | 0.40 |

COMPOSITE "C" VALUE = 0.78

RUNOFF RATES Q(100) = C1A = (0.78) (9.4) (1.84) = 7.83 CFS
Q(10) = C1A = (0.78) (3.9) (1.84) = 5.08 CFS

PROPOSED AREA C (TOTAL AREA = 5.24 AC):

| SURFACE TYPE | AREA (AC) | % OF TOTAL | "C" VALUE |
|---|---|---|---|
| UNDEVELOPED | 0.24 | 100 | 0.40 |

Q(100) = C1A = (0.40) (9.4) (0.24) = 0.94 CFS
Q(10) = C1A = (0.40) (3.9) (0.24) = 0.38 CFS

AREA "C" RUNOFFS WILL BE RETAINED IN PONDING AREA

*PROPOSED AREA D (TOTAL AREA = 2.41 AC):

| SURFACE TYPE | AREA (AC) | % OF TOTAL | "C" VALUE |
|---|---|---|---|
| UNDEVELOPED | 0.20 | 49 | 0.40 |
| ROADS | 0.21 | 51 | 0.95 |

COMPOSITE "C" VALUE = 0.43

RUNOFF RATES Q(100) = C1A = (0.68) (9.4) (0.43) = 1.51 CFS
Q(10) = C1A = (0.68) (3.9) (0.43) = 0.94 CFS

TOTAL RUNOFF RATES (DEVELOPED):

Q(100) = 10.31 CFS
Q(10) = 6.49 CFS

REQUIRED STORAGE AMOUNTS (FOR OFF-SITE FLOW):

| | |
|---|---|
| PERCENT IMPERVIOUS | 74 |
| PERVIOUS CN | 70 |
| COMPOSITE CN | 73 |
| DIRECT RUNOFF | 5.7 IN. |

VOLUME REQUIRED (FOR OFF-SITE FLOW):

$V = 0.7 \frac{(5.7)}{100} \frac{(2.60 \text{ AC.} \times 43,560 \text{ FT}^2)}{(12 \text{ IN./FT.})} = 4607 \text{ C.F.}$

REQUIRED STORAGE AMOUNTS (FOR AREA "C" ON-SITE FLOW):

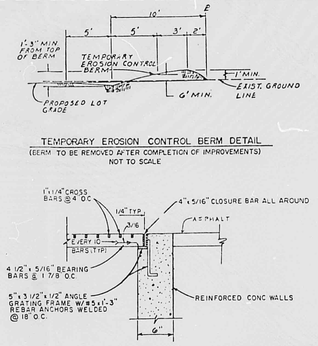
| | |
|---|---|
| PERCENT IMPERVIOUS | 0 |
| PERVIOUS CN | 70 |
| COMPOSITE CN | 70 |
| DIRECT RUNOFF | 0.5 IN. |

VOLUME REQUIRED (FOR AREA "C" ON-SITE FLOW):

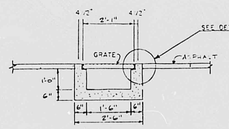
$V = 0.5 \frac{(1 \text{ FT.})}{100} \frac{(0.24 \text{ AC.} \times 43,560 \text{ FT}^2)}{(12 \text{ IN./FT.})} = 436 \text{ C.F.}$

TOTAL VOLUME REQUIRED = 4607 + 436 = 5043 C.F.

THE RETENTION POND IN AREA "C" WILL BE 188' X 49' X 1' AND ITS CAPACITY WILL BE ABOUT 7800 C.F.




TEMPORARY EROSION CONTROL BERM DETAIL
(BERM TO BE REMOVED AFTER COMPLETION OF IMPROVEMENTS)
NOT TO SCALE



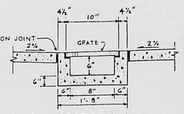

SECTION C-C

SECTION D-D
N.T.S.




(SEE SECTION C-C)
DETAIL A

SECTION B-B
N.T.S.




SECTION A-A

Black & Veatch
Engineers – Architects
Albuquerque, New Mexico
(505) 821-9491
BV PROJECT NO.

GARDNER, MASON & ASSOCIATES, INC.
ENGINEERS & PLANNERS
Albuquerque, New Mexico
(505) 881-3846

DEC 0 5 1983
HYDROLOGY SECTION

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: CONCEPTUAL GRADING AND DRAINAGE PLAN
NORTH BACA DAM SOLID WASTE CONVENIENCE CENTER

| APPROVALS | ENGINEER | DATE | APPROVALS | ENGINEER | DATE |
|---|---|---|---|---|---|
| City Engineer | | | Liquid Waste | | |
| AEC Design | | | Traffic | | |
| AEC Hydrology | | | Water | | |
| Traffic Eng. | | | Solid Waste | | |

COA PROJECT NO. | MAP NO. C 21 | SHEET | OF

AS BUILT INFORMATION
CONTRACTOR DATE
"RED-LINE" BY DATE
ENGINEERING BY DATE
FIELD VERIFICATION BY DATE
FINAL DRAWING BY DATE

MICRO-FILM INFORMATION
MICROFILM BY DATE
NO.

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES
NO. | BY | DATE

ENGINEER'S SEAL

| NO. | DATE | REMARKS | BY |
|---|---|---|---|
| | | REVISIONS | |

DESIGNED BY DATE
DRAWN BY DATE
CHECKED BY DATE

R# 24 DATE 3/14/02 DD

CITY OF ALBUQUERQUE

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DIRECTOR

NOTARY PUBLIC

OFFICIAL SEAL
Roberta Duran
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires 12-10-02

PLAN SHOT TWICE ONCE ON LIGHT ONCE ON DARK

CITY OF ALBUQUERQUE
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PLANS/PLATS ON FILE

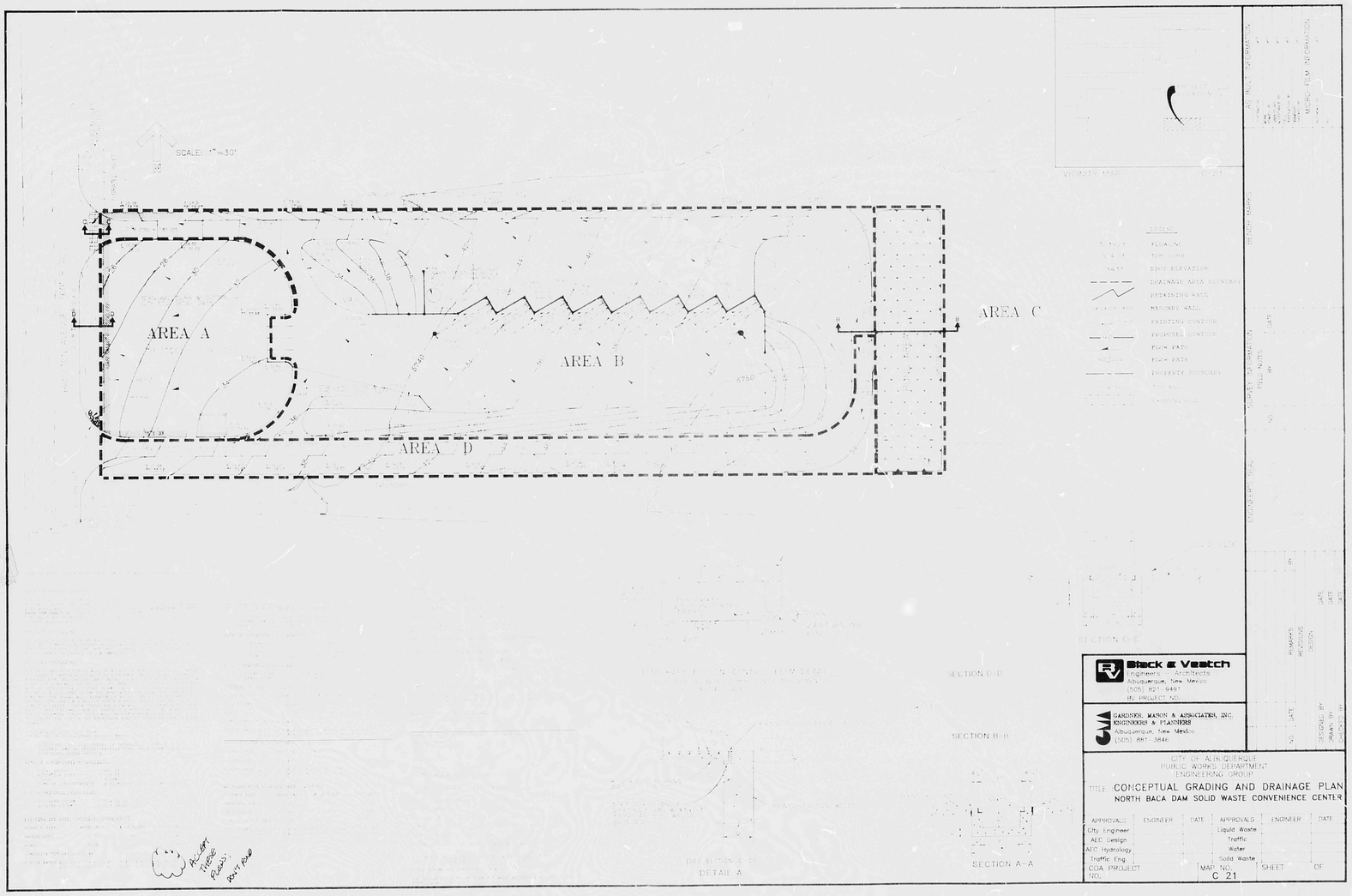
FILE DESC: C21/D3

# PLANS/PLATS 1

E 30 D 24 C 20 B 16 A 12

CITY OF ALBUQUERQUE

C D F




E 30 D 24 C 20 B 16 A 12

CITY OF ALBUQERQUE C D F