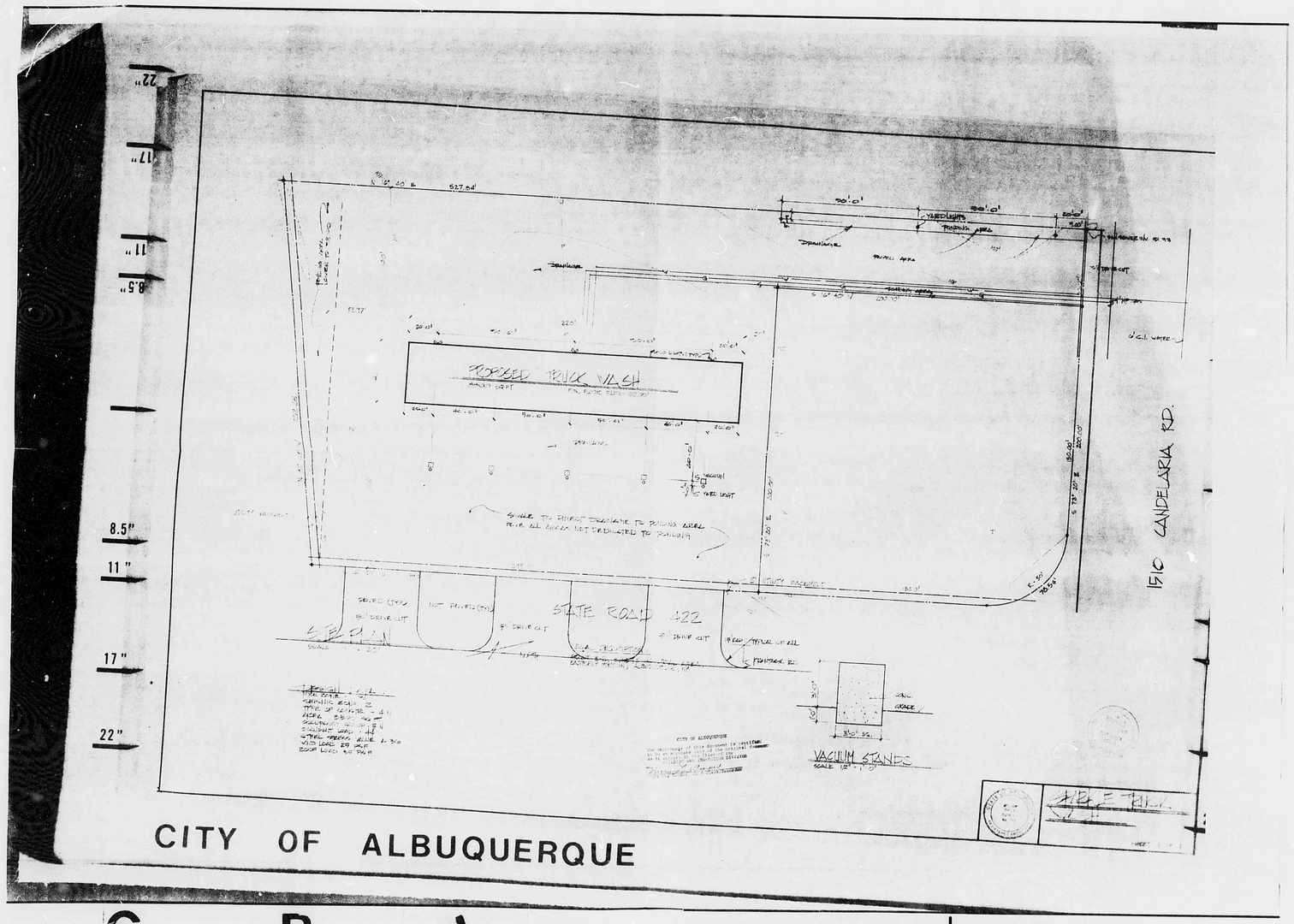

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PLANS/PLATS ON FILE

FILE DESC: H-15/0041

PLANS/PLATS 2

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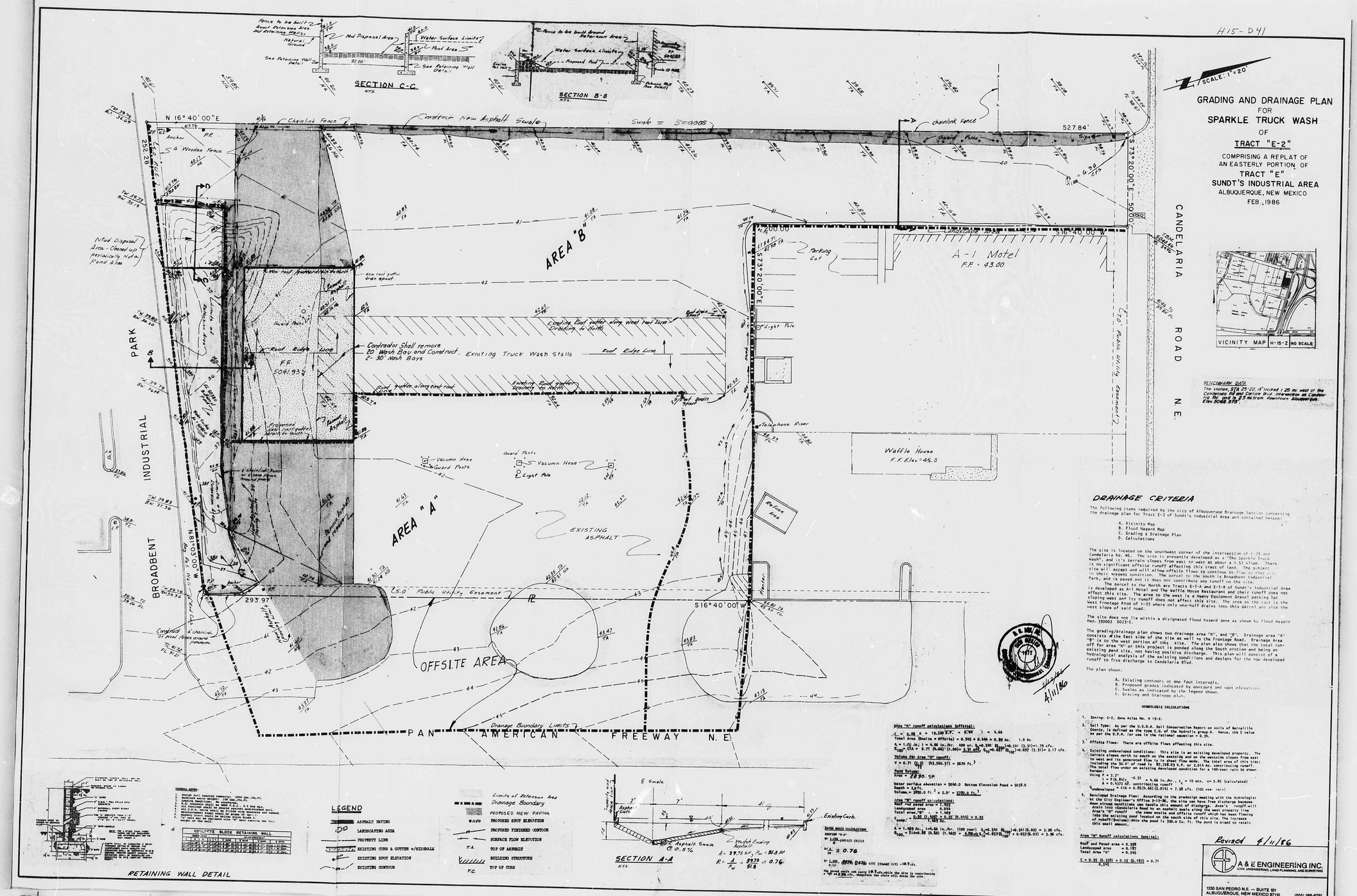
C 20 B 16 A 12 CITY OF ALBUQUERQUE C

H15-D41

SCALE: 1" = 20'

GRADING AND DRAINAGE PLAN
FOR
SPARKLE TRUCK WASH
OF
TRACT "E-2"

COMPRISING A REPLAT OF
AN EASTERLY PORTION OF
TRACT "E"
SUNDT'S INDUSTRIAL AREA
ALBUQUERQUE, NEW MEXICO
FEB., 1986



DRAINAGE CRITERIA

The following items required by the city of Albuquerque Drainage Section concerning the drainage plan for Tract E-2 of Sundt's Industrial Area and contained herein:

A. Vicinity Map
B. Flood Hazard Map
C. Grading & Drainage Plan
D. Calculations

The site is located on the southwest corner of the intersection of I-25 and Candelaria Rd. NE. The site is presently developed as a "The Sparkle Truck Wash", and it's terrain slopes from east to west at about a 1.5% slope. There is no significant offsite runoff affecting this tract of land. The subject site will accept and will allow offsite flows to continue to flow as they do in their present condition. The parcel to the south is Broadbent Industrial Park, and is paved and it does not contribute any runoff on the site.

The parcel to the North are Tracts E-1-A and E-1-B of Sundt's Industrial Area is developed as A-1 Motel and The Waffle House Restaurant and their runoff does not affect this site. The area to the west is a Heavy Equipment Gravel parking lot sloping west and its runoff does not affect this site. The area to the east is the West Frontage Road of I-25 where only one-half drains into this parcel and also the west slope of said road.

The site does not lie within a designated flood hazard zone as shown by flood Hazard Map. 350002 0023-C.

The grading/drainage plan shows two drainage area "A", and "B". Drainage area "A" consists of the East side of the site as well as the Frontage Road. Drainage Area "B" is to the west portion of this site. The plan also shows that the total run-off for area "A" of this project is ponded along the South protion and being an existing pond site, not having positive discharge. This plan will consist of a hydrological analysis of the existing conditions and designs for the now developed runoff to free discharge to Candelaria Blvd.

The plan shows:

A. Existing contours at one foot intervals.
B. Proposed grades indicated by contours and spot elevations.
C. Swales as indicated by the legend shown.
D. Grading and Drainage plan.

HYDROLOGIC CALCULATIONS

1. Zoning: C-2, Zone Atlas No. H 15-Z.
2. Soil Type: As per the U.S.D.A. Soil Conservation Report on soils of Bernalillo County, is defined as the type C.D. of the hydrologic group A. Hence, the C value as per the D.P.M. for use in the rational equation = 0.34.
3. Offsite Flows: There are offsite flows affecting this site.
4. Existing undeveloped conditions: This site is an existing developed property. The terrain slopes north to south on the east side and on the westside slopes from east to west and its generated flow is in sheet flow mode. The total area of this tract including the 50.0' of road is 87,728.03 S.F. or 2.014 Ac. contributing runoff. The total flow under an existing developed condition for a 100-year rain is shown hereunder:
   Using P = 2.2"
   $i = P(6.84)^{-0.51} = 4.66$ in./hr. t_c = 10 min. c= 0.95 (calculated)
   A = 0.4372 Ac. contributing runoff
   $Q_{undeveloped} = CiA = 0.95(4.66)(2.014) = 7.38$ cfs. (100 year rain)
5. Developed Drainage Plan: According to the predesign meeting with the Hydrologist at the City Engineer's Office 2-11-86, the site can have free discharge because drain inlet conditions can handle this amount of discharge. Asse's runoff will drain into the Candelaria Road by an asphalt swale along the west property line. Area's "B" runoff will flow south to a swale and offsite runoff which has been flowing into the existing pond located on the south side of this site. The increase of runoff (volume) into the pond is 320.0 Cu. Ft. the pond is sized to retain this small amount.

Area "A" runoff calculations (offsite):

$C = 0.08$ A = 19.330 S.F. = 0.44 i = 4.66
Total Area (Onsite + Offsite) = 0.395 + 0.44 = 0.84 Ac. 1.0 Ac.
$A = 1.0$; i_c = 4.66 in./hr. 100 yr. t_c=0.391 Q_{100}=(4.66)(1.3)(1.79) cfs.
Q_{100} = CiA = 0.71 (4.66)(1.00) = 3.31 cfs. Q_{10}=0.657 Q_{100}=(0.657)(3.31)= 2.17 cfs.

Volume for Area "A" runoff:
$V = 0.71 \left(\frac{i_{100}}{12}\right)(43,560.ft^2)$ = 5670 ft.^{3}

Pond Volume:
Area = 2830. SF
Water surface elevation = 5040.0 Bottom Elevation Pond = 5038.0
Depth = 2.0 ft.
Volume = 2830.0 ft.^{2} x 2.0' = 5700.0 ft.^{3}

Area "B" runoff calculations:
Roof and paved area = 1.415
Landscaped area = 0.045
Total area "B" = 1.460
$C_{comp} = \frac{0.90\ (1.415) + 0.25\ (0.045)}{1.460} = 0.92$

A = 1.460 Ac. i=4.66 in./hr. (100 year) Q_{100}=0.541 (Q_{100})=0.541(6.82) = 3.26 cfs.
Q_{100} = CiAc=.92 (4.66) (1.460) = 6.80 cfs. Q_{10}=0.657 (Q_{100}) = 0.657(6.80) = 4.46 cfs.

Area "B" runoff calculations (onsite):
Roof and Paved area = 0.395
Landscaped area = 0.045
Total Area "B" = 0.345
C = 0.92 (0.350) + 0.25 (0.187) = 0.71
0.345

Drain inlet calculations
Section "A-A"
Q = L.Cd (2g(d)) (2)1/2
$\frac{d}{H} = \frac{A}{H} = 0.76$
Q = L.Cd. (2g(d)) 3/2 (2)(2g)1/2 = 10.3 cfs.
0.32
The street curb can carry 10.3 cfs, while the site is contributing 4.46 cfs. Therefore the site will drain the site.

Revised 4/11/86

A & E ENGINEERING INC.
CIVIL ENGINEERING, LAND PLANNING, AND SURVEYING
1330 SAN PEDRO N.E. — SUITE 101
ALBUQUERQUE, NEW MEXICO 87110 (505) 266-8791

4/11/86

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Karen Acuna
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STATE OF NEW MEXICO
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Norberta Sanchez

H-15/D041

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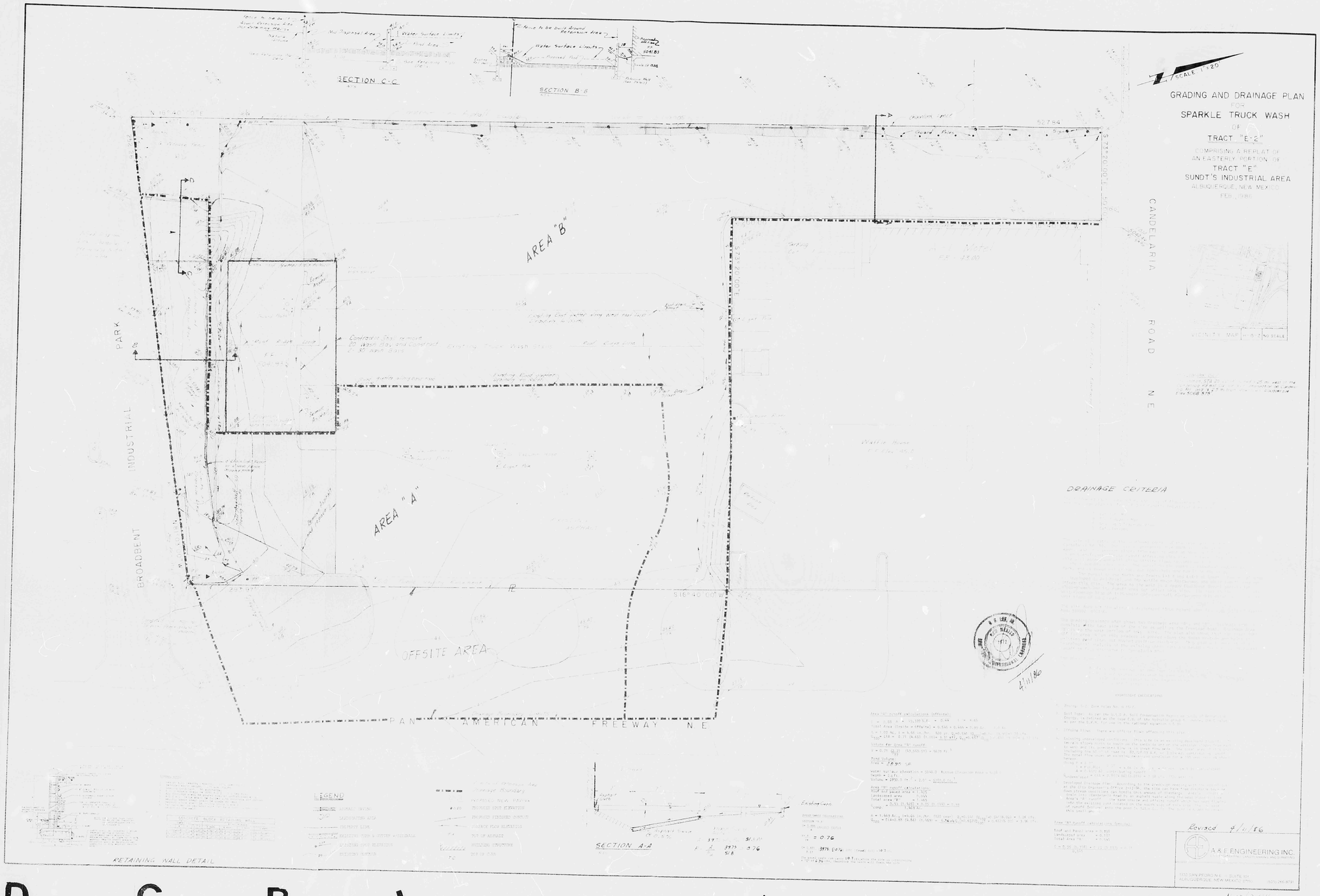

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Karen Aiken
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C D