HYDROLOGY F20/D9 N.E. HEIGHTS SELF STORAGE FACI

PHASE 2

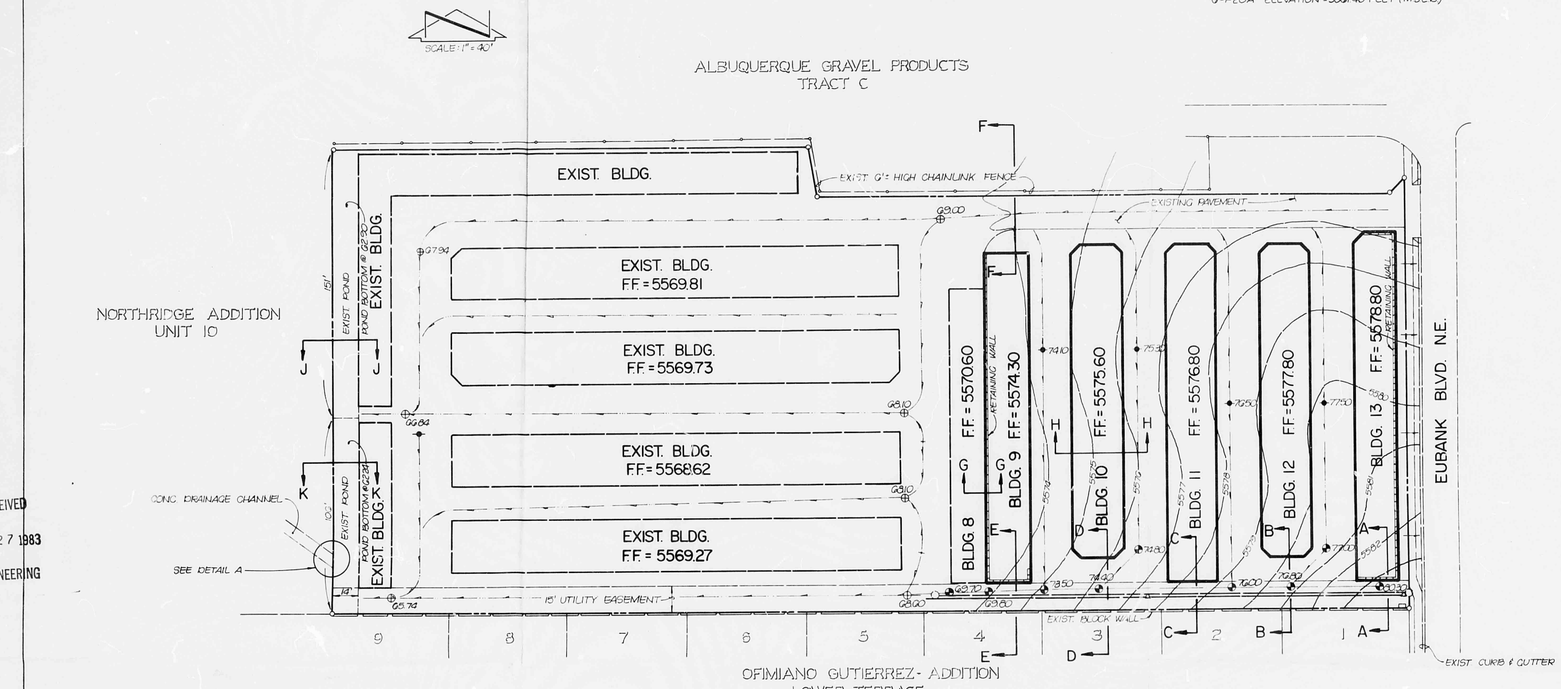
F20-D9

N.E. HEIGHTS

SELF STORAGE

FACILITY PHASE 2

1 PLAN



RECEIVED
MAY 27 1983
ENGINEERING

LEGAL DESCRIPTION

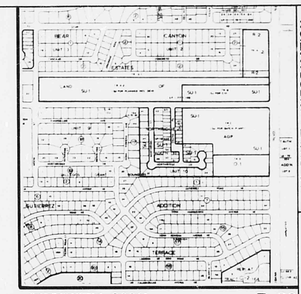
TRACT D, NORTHRIDGE ADDITION - UNIT 10

PROJECT BENCHMARK

A "D" CUT ON TOP OF THE CONCRETE CURB ON THE W.S.W. CURB RETURN AT THE WEST QUADRANT OF THE INTERSECTION OF OSUNA RD. N.E. & EUBANK BLVD. N.E. 'G-F20A' ELEVATION = 5591.90 FEET (M.S.L.D.)

LEGEND

- EXISTING CONTOUR
- ⊕G7.50 EXISTING SPOT ELEVATION
- ⊕7G.24 PROPOSED SPOT ELEVATION
- HIGH POINT
- EXISTING SWALE
- PROPOSED SWALE
- EXISTING BLOCK WALL



VICINITY MAP F-20
SCALE 1" = 800'

The following items concerning the Northeast Heights Self-storage Facility are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

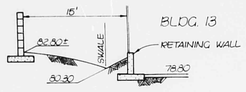
The site is located on the west side of Eubank Boulevard N.E., between Montgomery Boulevard N.E. and Spain Road N.E. The parcel is approximately 3.6 acres in size, of which 2.4 acres have already been developed as a self-storage facility, comprised of eight metal buildings set on asphalt paving. The remainder of the site will be developed in a similar manner, consisting of an additional six buildings with paved parking and vehicular circulation areas.

The general topography generally slopes east to west at ±4.0%. The project 1) does not lie in a flood plain, 2) does not lie adjacent to a natural or artificial water course, and 3) has no drainage easements on the property.

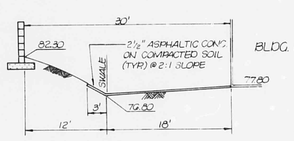
The site is bounded by Eubank Boulevard on the east, Albuquerque Gravel Products on the north, and single family residences on the south and west. The land lies above Eubank Boulevard and a block wall running along the southern property line prevents runoff from entering the site. An existing drainage trough along the north property line conveys off-site runoff away from the project site and the property to the west also slopes away from the site. A water block will be placed on the entrance road and therefore, there are no significant flows entering the site. Erosion will not result from upland runoff or from the proposed construction activities. This development will not block any drainage from adjacent properties.

A drainage study for the proposed site was prepared by Tom Mann & Associates and approved by the City of Albuquerque in October of 1979. The entire site drains into two ponds at the west end of the property. The ponds "retain" a volume of water before the storm water spills into a concrete lined drainage channel which conveys the flow into Northridge Drive. A 4" PVC pipe located at the bottom of Pond 'B' serves to drain the pond.

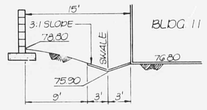
The Grading Plan shows 1) existing contours at 1' intervals, 2) proposed contours and spot elevations, 3) continuity between existing and proposed contours, 4) swales, 5) required retaining walls, and 6) that the runoff will be conveyed into the ponding area along the west porperty line before leaving the site. Overflow from the pond will spill into the existing concrete storm rundown and flow west into the existing street. The pond will retain 100 percent of the excess runoff from additional impervious areas that result from a 100 year frequency storm. The ponds are approximately three feet in depth.



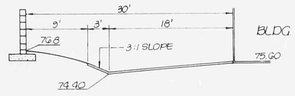
SECTION A-A
SCALE 1" = 10'



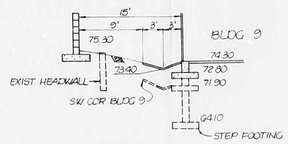
SECTION B-B
SCALE 1" = 10'



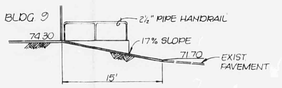
SECTION C-C
SCALE 1" = 10'



SECTION D-D
SCALE 1" = 10'



SECTION E-E
SCALE 1" = 10'

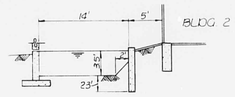


SECTION F-F
SCALE 1" = 10'

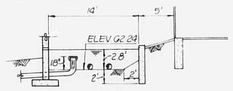
SECTION G-G
SCALE 1" = 10'

CROSS SECTION

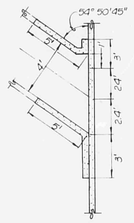
SECTION H-H
SCALE 1" = 10'



SECTION J-J
SCALE 1" = 10'



SECTION K-K
SCALE 1" = 10'



DETAIL A
SCALE 1" = 5'

CALCULATIONS

GROUND COVER INFORMATION

1. From SCS Bernalillo County Soil Survey, Plate 22
   TgB Tijeras Gravelly Fine Sand Loam
   Hydrological Soil Group B
2. Existing Condition
   A_{total} = 3.6 acres
   A_{imp} = 2.2 acres
   % imp = 61%
   C = 0.64 (DPM Plate 22.2C-1)
3. Developed Condition
   A_{total} = 3.6 acres
   A_{imp} = 3.3 acres
   % imp = 92%
   C = 0.88 (DPM Plate 22.2C-1)

RAINFALL INFORMATION

P_{6-100} = 2.45 in (DPM Plate 22.2D-1)
T_c = 10 min
$i_{6-100} = (2.45)(6.84)(10)^{-0.51}$ = 5.18 in/hr

HYDROLOGY

1. Existing Condition
   Q_{100} = CiA = (0.64)(5.18)(3.6) = 11.9 cfs
   V_{100} = (C)(P/12)(A) = (0.64)(2.45/12)(3.6) = 20,500 cf
2. Fully Developed Condition
   Q_{100} = CiA = (0.88)(5.18)(3.6) = 16.4 cfs
   V_{100} = (C)(P/12)(A) = (0.88)(2.45/12)(3.6) = 28,100 cf
3. As-Built Pond Volumes:
   Pond 'A' = (3.5)(14)(151) = 7400 cf
   Pond 'B' = (Below Weir) = (2.8)(14)(106) = 4150 cf
   Pond 'B' = (Above Weir) = (1.33)(14)(106) = 2000 cf
   Total = 13,550 cf
4. Storm Flows Leaving the Site
   A. 4" PVC DRAIN; $Q_{release} = CA\sqrt{2gH}$ = 3.7 cfs
      where C = 0.8
      A = 0.09 sf
      g = 32.2 ft/sec²
      H = 4.13'
   B. Weir Opening:
      $Q_{release} = (1.3)(4.8)(1.33)^{1.5}$
      = 9.6 cfs
5. Retention Volume, using dimensionless hydrograph analysis
   Using 4" PVC release, required Vol = 16,750 cf
   Storage Volume below weir opening = 11,550 cf
   Required Storage at or above weir opening = 5,200 cf
   A total submerged depth, Q_{rel} = 9.6 cfs
   V_{rel} = 16,500 cf
6. Comparison, 16,500 cf > 5200 cf, therefore, the existing pond will never fill to the top of the weir.

REGISTERED PROFESSIONAL ENGINEER
STATE OF NEW MEXICO
THOMAS M. MANN, JR.
3792
REGISTERED LAND SURVEYOR

APPROVED FOR CONSTRUCTION
CITY ENGINEER DATE

AS BUILT INFORMATION
CONTRACTOR
WORK STARTED BY DATE
INSPECTOR'S ACCEPTANCE BY DATE
AS-BUILT VERIFICATION BY DATE
DRAWING CORRECTED BY DATE
MICRO-FILM INFORMATION
RECORDED BY DATE
NO.

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES
NO. BY DATE

REFERENCES
MAP NO.
EST. NO.
WO. NO.

NO. DATE BY REMARKS

BII DALLAS N.E. - ALBUQUERQUE - NEW MEXICO - 87110
ENGINEERS

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

TITLE: GRADING PLAN
NORTHEAST HEIGHTS SELF STORAGE PHASE II

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer			Liquid Waste		
A.C.E. - Design			Traffic		
A.C.E. - Hydrology			Water		

DRAWING NO.
SHEET 1 OF 1

F20/D9