City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

August 18, 1993

Larry Read
Chavez-Grieves
5639 Jefferson NE
Albuquerque, NM 87109

RE: DRAINAGE PLAN FOR A TEMPORARY BUILDING @ ST. PIUS HIGH SCHOOL (G11-D40) ENGINEER'S STAMP DATED 8/13/93.

Dear Mr. Read:

Based on the information provided on your August 16, 1993 submittal, the above referenced site is approved for Building Permit.

Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

If I can be of further assistance, please feel free to contact me at 768-2667.

Sincerely,

Bernie J. Montoya

Bernie J. Montoya, CE
Engineer Associate

BJM/dl/WPHYD/7923

xc: Alan Martinez
File

DRAINAGE PLAN - PHASE I

ST. PIUS X HIGH SCHOOL

SEE UPDATE FOR BASIN I DATED AUG. 13, 1993 (ATTACHED)

LOCATION AND EXISTING CONDITION:

The site is located on the northeast corner of the intersection of Coors Road and St. Joseph's Drive N.W. containing approximately 57.9369 acres. The site is currently developed and slopes to the northwest corner of the site (Basin I-40.9 acres) and to the east (Basin II-17 acres). Runoff from Basin I is collected in existing pond and overflows to Coors Road. Runoff from Basin II runs across the east property line and outfalls into the Rio Grande via existing grades and existing catch basins with outlet pipes. No offsite runoff enters the site due to existing grades.

PROPOSED CONDITION:

Proposed development of the site includes two new buildings, a new track/football field, and a new paved parking lot.

The basins will remain approximately the same as existing, but runoff will be increased due to the new development.

The pond in Basin I will be enlarged and connected to an existing 60" RCP storm sewer located on the west side of Coors Road (Ladera Drainage System-Outfall Facility) and discharge to the Ladera Outfall (Mariposa Channel). The enlarged detention pond in Basin I will be designed to store the entire 100-year developed runoff volume from Basin I and half of the future development of Coors Road. The maximum water surface elevation of the pond will be set at the same elevation of the hydraulic grade line elevation in the 60" RCP during peak discharge corresponding to the point where the outlet will tie to the Ladera outfall (approximately 5102.5 feet). An automatic drainage (flap) gate will be installed as part of the outlet system from the detention basin to prevent reverse flow from the Ladera Outfall during pressurized conditions in the 60" RCP. No overflow spillway structures will be provided because the basin will be designed to store the total on-site 100-year storm volume.

As an interim solution in Phase I, the pond in Basin II will be designed to retain all runoff due to the new development. In Phase II, a controlled discharge system will be installed from the pond to a single outlet point. This single outlet point will intercept two other existing outlet points and control the discharge rate to the downstream property. 100-year storm runoff from this site will be reduced with the Phase II construction and downstream conditions will be improved. The outfall point of the Phase II storm drain improvements will be improved with riprap erosion control installed to the property line.

BASIN I SEE UPDATE DATED AUG. 13, 1993 (ATTACHED)

CALCULATIONS:

Area = 40.9 acres
I = 2.2 in./hr. Plate 22.2 D-2
6-hour, 100-year rainfall = 2.2 in. Plate 22.2 D-1
i = (2.2)(2.2) = 4.84 in./hr.

EXISTING ON-SITE CONDITIONS: (BASIN I)

SURFACE TYPE	"C" VALUE	A (ACRES)	"C"X A	COMPOSITE "C"=CXA/A
Streets, Drives, Walks	0.95	2.50	2.38	
Roofs	0.90	2.84	2.56	
Lawns & Landscaping	0.25	27.06	6.77	
Undeveloped	0.40	8.50	3.40	
TOTAL		40.90	15.11	0.37

Q(100) = (0.37)(4.84)(40.9) = 73.24 cfs
Q(10) = (0.657)(73.24) = 48.12 cfs
CN = 70 Plate 22.2 C-2
Direct Runoff = 0.39 in. Plate 22.2 C-4
V(100) = (0.39)(40.9)(43560)/12 = 57902 cu. ft.
V(12) = (0.657)(57902) = 38042 cu. ft.

PROPOSED ON-SITE CONDITIONS: (BASIN I)

SURFACE TYPE	"C" VALUE	A (ACRES)	"C"X A	COMPOSITE "C"=CXA/A
Streets, Drives, Walks	0.95	14.16	13.45	
Roofs	0.90	3.13	2.82	
Lawns & Landscaping	0.25	21.41	5.35	
Undeveloped	0.40	2.20	0.88	
TOTAL		40.90	22.50	0.55

Q(100) = (0.55)(4.84)(40.9) = 108.88 cfs
Q(10) = (0.657)(108.88) = 71.53 cfs
CN = 78 Plate 22.2 C-3
Direct Runoff = 0.59 in. Plate 22.2 C-4
V(100) = (0.59)(40.9)(43560)/12 = 87596 cu. ft.
V(10) = (0.657)(87596) = 57550 cu. ft.

BASIN II

CALCULATIONS:

Area = 17.0 acres
I = 2.2 in./hr. Plate 22.2 D-2
6-hour, 100-year rainfall = 2.2 in. Plate 22.2 D-1
i = (2.2)(2.2) = 4.84 in./hr.

EXISTING ON-SITE CONDITIONS: (BASIN II)

SURFACE TYPE	"C" VALUE	A (ACRES)	"C"X A	COMPOSITE "C"=CXA/A
Streets, Drives, Walks	0.95	3.44	3.27	
Roofs	0.90	2.34	2.11	
Lawns & Landscaping	0.25	3.30	0.83	
Undeveloped	0.40	7.92	3.17	
TOTAL		17.00	9.38	0.55

Q(100) = (0.55)(4.84)(17.0) = 45.25 cfs
Q(10) = (0.657)(45.25) = 29.73 cfs
CN = 78 Plate 22.2 C-2
Direct Runoff = 0.59 in. Plate 22.2 C-4
V(100) = (0.59)(17.0)(43560)/12 = 36409 cu. ft.
V(10) = (0.657)(36409) = 23921 cu. ft.

PROPOSED ON-SITE CONDITIONS: (BASIN II)

SURFACE TYPE	"C" VALUE	A (ACRES)	"C"X A	COMPOSITE "C"=CXA/A
Streets, Drives, Walks	0.95	5.19	4.93	
Roofs	0.90	2.60	2.34	
Lawns & Landscaping	0.25	1.88	0.47	
Undeveloped	0.40	7.33	2.93	
TOTAL		17.00	10.67	0.63

Q(100) = (0.63)(4.84)(17.0) = 51.84 cfs
Q(10) = (0.657)(51.84) = 34.06 cfs
CN = 80 Plate 22.2 C-3
Direct Runoff = 0.67 in. Plate 22.2 C-4
V(100) = (0.67)(17.0)(43560)/12 = 41346 cu. ft.
V(10) = (0.657)(41346) = 27164 cu. ft.

COORS ROAD

CALCULATIONS:

Area = 2.69 acres
I = 2.2 in./hr. Plate 22.2 D-2
6-hour, 100-year rainfall = 2.2 in. Plate 22.2 D-1
i = (2.2)(2.2) = 4.84 in./hr.

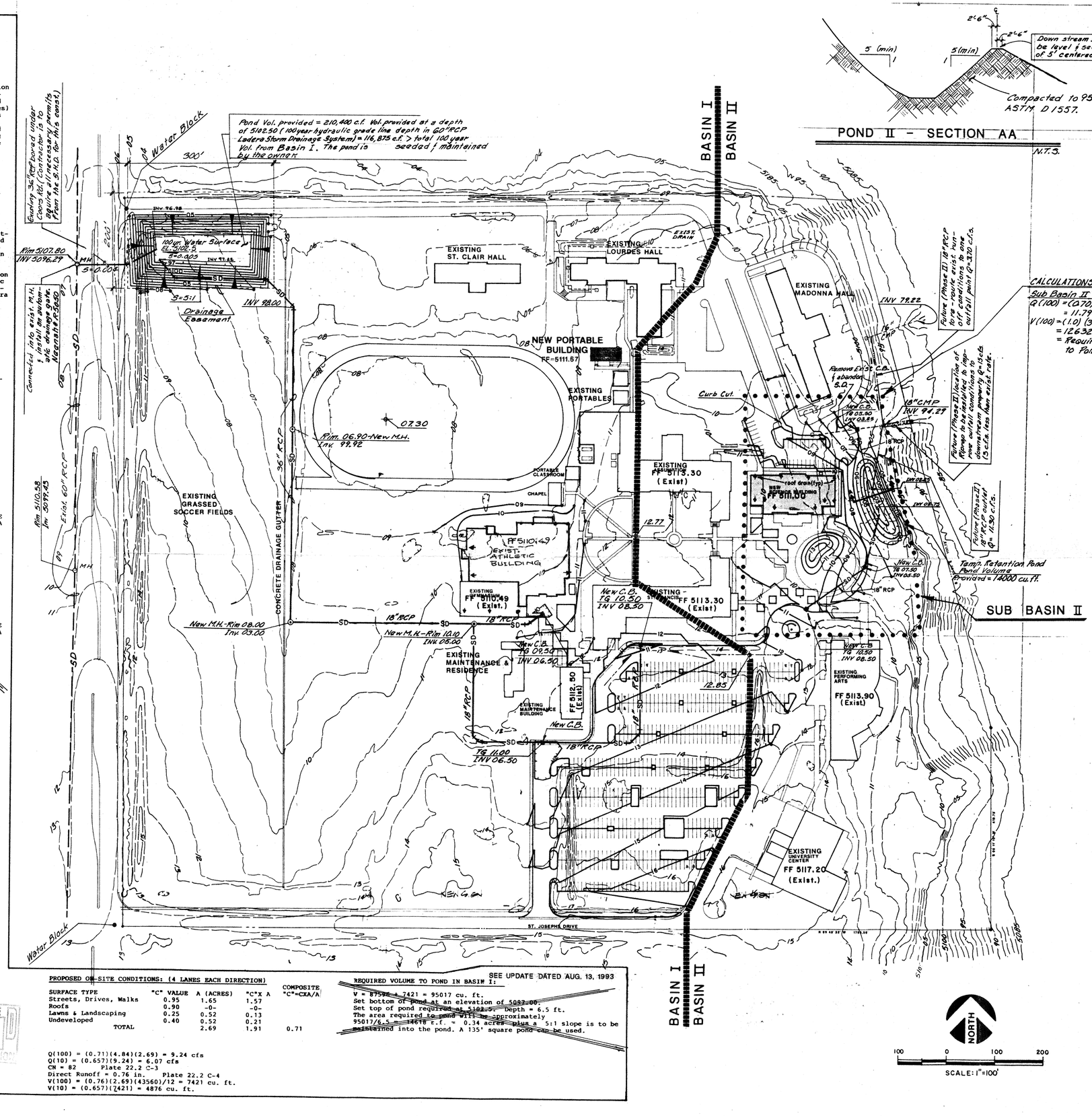
PROPOSED ON-SITE CONDITIONS: (4 LANES EACH DIRECTION)

SURFACE TYPE	"C" VALUE	A (ACRES)	"C"X A	COMPOSITE "C"=CXA/A
Streets, Drives, Walks	0.95	1.65	1.57	
Roofs	0.90	-0-	-0-	
Lawns & Landscaping	0.25	0.52	0.13	
Undeveloped	0.40	0.52	0.21	
TOTAL		2.69	1.91	0.71

Q(100) = (0.71)(4.84)(2.69) = 9.24 cfs
Q(10) = (0.657)(9.24) = 6.07 cfs
CN = 82 Plate 22.2 C-3
Direct Runoff = 0.76 in. Plate 22.2 C-4
V(100) = (0.76)(2.69)(43560)/12 = 7421 cu. ft.
V(10) = (0.657)(7421) = 4876 cu. ft.

REQUIRED VOLUME TO POND IN BASIN I: SEE UPDATE DATED AUG. 13, 1993

V = 87596 - 7421 = 95017 cu. ft.
Set bottom of pond at an elevation of 5087.00.
Set top of pond required at 5102.5. Depth = 6.5 ft.
The area required to pond will be approximately
95017/6.5 = 14618 s.f. = 0.34 acres plus a 5:1 slope is to be maintained into the pond. A 135' square pond can be used.

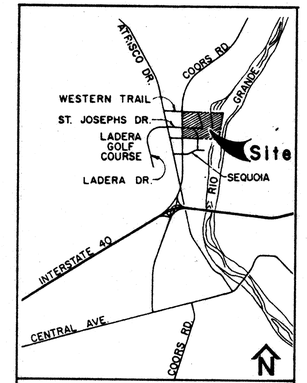


POND II - SECTION AA

N.T.S.

CALCULATIONS

Sub Basin II
Q(100) = (C)(I)(4.84)(3.84)
= 11.79 c.f.s.
V(100) = (1.0)(348)(43560)/12
= 12632 cu.ft.
= Required Volume to Pond.



VICINITY MAP F8 G-11-Z

FLOOD HAZARD BDY. MAP / Panel Nos. 14 & 21

LEGAL DESCRIPTION:

LANDS OF THE UNIVERSITY OF ALBUQUERQUE, EAST OF COORS BOULEVARD N.W. AND NORTH OF ST. JOSEPH'S DRIVE N.W., ALBUQUERQUE, NEW MEXICO.

BENCH MARK DATA:

THE STATION IS A 3-1/4" ALUMINUM TABLET STAMPED "ACS, NM 448-N48, 1984" SET IN THE SOUTH MEDIAN ON COORS BOULEVARD N.W. AT THE INTERSECTION OF COORS BOULEVARD N.W. AND ST. JOSEPH'S DRIVE N.W. ELEVATION = 5113.590, SLD, 1929.

TBM (SAME AS ACS BM)

SURVEY DATA:

SURVEY DATA PROVIDED BY EALLEY R. NAYLOR, N.M.L.S. NO6261, ALBUQUERQUE, NEW MEXICO, FEBRUARY 3, 1986.

LEGEND:

PROPERTY LINE
CONTOUR (EXIST) ——12——
CONTOUR (NEW) ——12——
SPOT ELEVATION (EXIST)
SPOT ELEVATION (NEW)

GENERAL NOTES:

1. ALL INFRASTRUCTURE SHOWN ON THIS PLAN ARE TO BE BUILT IN PHASE I UNLESS NOTED OTHERWISE.
2. FOR ADDITIONAL CONSTRUCTION NOTES, SEE UTILITIES SITE PLAN, SHEET NO. C1. 9.
3. ALL EXISTING NATURAL LANDSCAPE MATERIALS ARE TO BE REPLACED SEE LANDSCAPE PLAN.

BASIN I UPDATED AUGUST 13,1993 (ATTACHED)

LAWRENCE D. READ NEW MEXICO 10995 REGISTERED PROFESSIONAL ENGINEER
8/13/93

GRADING & DRAINAGE PLAN

ST. PIUS X HIGH SCHOOL

VICTOR J. CHAVEZ STATE OF NEW MEXICO REGISTERED PROFESSIONAL ENGINEER
4-1-87

THE BOEHNING PARTNERSHIP INC
ARCHITECTS & PLANNERS
301 GOLD AVENUE SW / SUITE 204 / ALBUQUERQUE, NM 87102

DATE 7-APRIL-87

SHEET # C1.5

NORTH

100 0 100 200

SCALE: 1"=100'

DRAINAGE PLAN - PHASE I

ST. PIUS X HIGH SCHOOL

SEE UPDATE FOR BASIN I DATED AUG. 25, 1998 (ATTACHED)
SEE UPDATE FOR BASIN I DATED AUG. 13, 1993 (ATTACHED)

LOCATION AND EXISTING CONDITION:

The site is located on the northeast corner of the intersection of Coors Road and St. Joseph's Drive N.W. containing approximately 57.9369 acres. The site is currently developed and slopes to the northwest corner of the site (Basin I-40.9 acres) and to the east (Basin II-17 acres). Runoff from Basin I is collected in an existing pond and overflows to Coors Road. Runoff from Basin II runs across the east property line and outfalls into the Rio Grande via existing grades and existing catch basins with outlet pipes. No offsite runoff enters the site due to existing grades.

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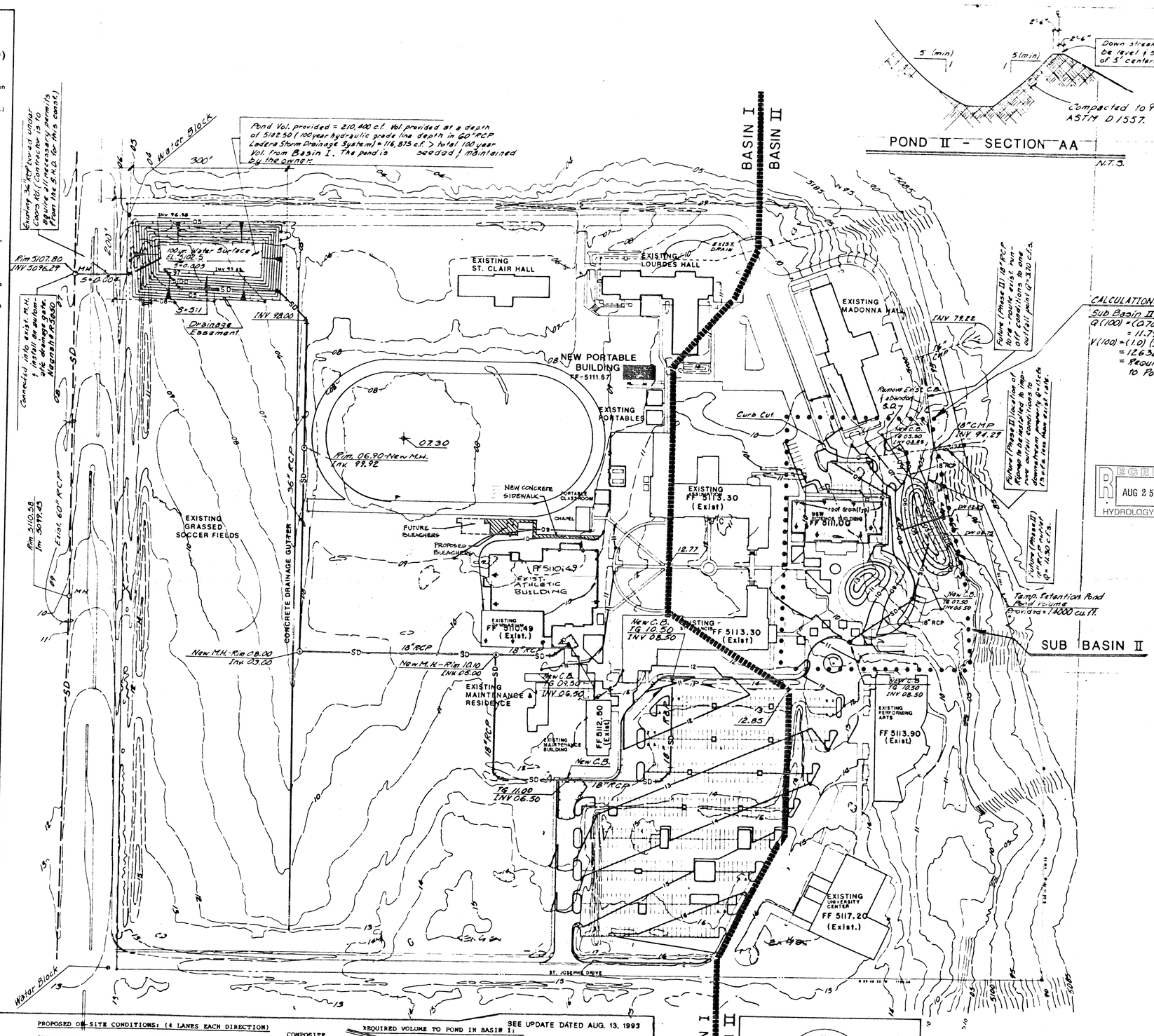
SEE UPDATE DATED AUG. 13, 1993

REQUIRED VOLUME TO POND IN BASIN I:

V = 87596 - 7421 = 95017 cu. ft.
Set bottom of pond at an elevation of 5093.00
Set top of pond required at 5102.5. Depth = 6.5 ft.
The area required to pond will be approximately
95017/6.5 = 14618 s.f. = 0.34 acres plus a 5:1 slope is to be maintained into the pond. A 135' square pond can be used.

SEE UPDATE FOR BASIN I DATED AUG. 25, 1998 (ATTACHED)

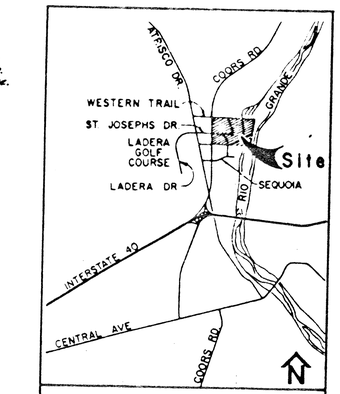


POND II - SECTION AA

N.T.S.

CALCULATIONS

Sub Basin II
Q(100) = (Q70)(4.84)(3.84)
= 11.79 c.f.s.
V(100) = (1.0)(3.8)(43560)/12
= 12632 cu ft
= Required Volume to Pond.



VICINITY MAP F&G-11-Z

FLOOD HAZARD BDY. MAP / Panel Nos. 14 & 21

LEGAL DESCRIPTION:

LANDS OF THE UNIVERSITY OF ALBUQUERQUE, EAST OF COORS BOULEVARD N.W. AND NORTH OF ST. JOSEPH'S DRIVE N.W., ALBUQUERQUE, NEW MEXICO.

BENCH MARK DATA:

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TBM (SAME AS ACS BM)

SURVEY DATA:

SURVEY DATA PROVIDED BY EALLEY R. NAYLOR, N.M.L.S. NO6261, ALBUQUERQUE, NEW MEXICO, FEBRUARY 3, 1986.

LEGEND:

PROPERTY LINE
CONTOUR (EXIST) 12
CONTOUR (NEW) 12
SPOT ELEVATION (EXIST)
SPOT ELEVATION (NEW)

GENERAL NOTES:

1. ALL INFRASTRUCTURES SHOWN ON THIS PLAN ARE TO BE BUILT IN PHASE I UNLESS NOTED OTHERWISE.
2. FOR ADDITIONAL CONSTRUCTION NOTES, SEE UTILITIES SITE PLAN, SHEET NO. C1.9.
3. ALL EXISTING NATURAL LANDSCAPE MATERIALS ARE TO BE REPLACED SEE LANDSCAPE PLAN.

RECEIVED
AUG 25 1998
HYDROLOGY SECTION

BASIN I UPDATED AUGUST 13, 1993 (ATTACHED)

LAWRENCE O. REED, NEW MEXICO, 10995, REGISTERED PROFESSIONAL ENGINEER
8/13/93

GRADING & DRAINAGE PLAN

ST. PIUS X HIGH SCHOOL

VICTOR J. CHAVEZ, STATE OF NEW MEXICO, REGISTERED PROFESSIONAL ENGINEER
4-1-87

THE BOEHNING PARTNERSHIP INC. ARCHITECTS & PLANNERS
THE GOULD BUILDING 701 / SUITE 204 / ALBUQUERQUE, NEW MEXICO 87102

DATE 7-APRIL-87

SHEET # C1.5

GUY C. JACKSON, NEW MEXICO, 13289, REGISTERED PROFESSIONAL ENGINEER
8-21-98

BASIN I UPDATED
AUG. 25, 1998 (ATTACHED)

NORTH
100 0 100 200
SCALE: 1"=100