PUBLIC WORKS/HYDROLOGY

G11/D38

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G11/D38

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City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

February 18, 1986

John Esquibel
A & E Engineering, Inc.
1330 San Pedro Drive, NE
Albuquerque, New Mexico 87110

RE: DRAINAGE PLAN SUBMITTAL OF COORS AUTO CARE CENTER
RECEIVED FEBRUARY 14, 1986 FOR BUILDING PERMIT APPROVAL
(G-11/D38)

Dear John:

I have reviewed the above referenced submittal, revision date February 14, 1986, and have the following comments to be addressed before approval of Building Permit:

1. Pond area No. 1 - as drawn, the scaled surface area is 500 ft^2, not 1400 ft^2 as listed in calculations. A depth of 1.7 ft would also require fencing. Revise calculations and drawing as required.

2. Pond area No. 5 - what are the required side slopes with a depth of 1.3 ft to provide the required volume? This information needs to be provided to insure that the pond is built as intended.

3. Ponds No. 6, 7, & 8 - Since these ponds are all connected with the private storm drain system, water levels will equalize between all three ponds. Your planimetered surface areas for pond No. 8 seem inaccurate when compared to values shown for pond No. 7, and a check done by myself.

25×10

0000 0000 0495

Provide calculations showing that the combined volumes of ponds 6, 7, and 8 are adequate for the combined drainage areas. Gravel is not an effective material for filling required ponding volumes because of small void volume after placement. A uniform graded cobble is normally used, with an available void volume being 30% to 40% of total cobble volume. Your previous calculations for ponds 6 and 7 assumed available void volume equal to 67% using gravel.

4. Provide on the drawings typical crossections for ponds 6, 7, and 8 showing required depths of cobble and other information as required for construction purposes.

5. Provide requirements for capping the end of the 12" PVC at the property line.

If you have any questions, call me at 766-7644.

Cordially,

Roger A. Green, PE

Roger A. Green, P.E.
C.E./Design Hydrology

cc: Standard Letter to:

Coors Auto Care Center Corp.
9322 N. 94th Way Suite 103
Scottsdale, AZ 85258

RAG/bsj

25×10

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A & E ENGINEERING INC.
CIVIL ENGINEERING, LAND PLANNING, AND SURVEYING

1330 SAN PEDRO N.E. — SUITE 101
ALBUQUERQUE, NEW MEXICO 87110 (505) 266-8791

LETTER OF TRANSMITTAL

DATE 2/14/86 JOB NO.
ATTENTION
RE Coors Auto Care Center

TO Roger Green
Hydraulics Dept
123 Central NE
Albuquerque N.Mex

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
✓			Calculations and Revised plan Showing Pond

RECEIVED FEB 14 1986 HYDROLOGY SECTION

THESE ARE TRANSMITTED as checked below:

☑ For approval ☐ Approved as submitted ☐ Resubmit ____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit ____ copies for distribution
☑ As requested ☐ Returned for corrections ☐ Return ____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS Roger:

Enclosed please find; Revised calculations for the ponds (No Fences required)
Revised plans to show ponds without Fences and New bottom Elevation
also computation for above

Thank you

COPY TO _____

SIGNED: [signature]

If enclosures are not as noted, kindly notify us at once.

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0000 0000 0497

A&E ENGINEERING INC.
CIVIL ENGINEERING, LAND PLANNING, AND SURVEYING

RECEIVED
JAN 15 1986
HYDROLOGY SECTION

Mr. Billy J. Goolsby
City of Albuquerque
Design Hydrology Section
123 Central N.W.
Albuquerque, New Mexico 87102

Re: Drainage Plan for Coors Auto Care Center G-11-D38

Dear Mr. Goolsby:

We have recieved your comments dated December 18, 1985 on the reference project and the following is our response to each of the items 1-6 inclusive.

Item 1

We have recalculated the hydrological calculations based on a six-hour rainfall value of 2.2. (See attached hydrological data)

Item 2

Each of the Drainage Basin Areas have been identified on the plan by note and also by legend.

Item 3

The Pond Volumes have been recomputed and do show an increase. (See attached plan and computations)

Item 4

The revised plan does not show any ponding within 15 feet of any structure. The revised plan shows temporary pavement within the ponds adjacent to the alley. A future 4" outlet will be placed after the SAD-198 alley improvements are constructed. The ponds along the alley and at the southeast corner will be filled and be graded to drain out by 4" outlet pipes to obtain positive drainage.

Item 5

Please find herewith a copy of the pre-design conference. The alley along the east side of the property will not be used by this development. The approved alley grades for this alley were not set by Drawing or Project No. 2419.

1330 SAN PEDRO N.E.
SUITE 101 (505) 266-8791
ALBUQUERQUE, NEW MEXICO 87110

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A&E ENGINEERING INC.

CIVIL ENGINEERING, LAND PLANNING, AND SURVEYING

In reference to the street grades for Sequoia Road N.W., we have designed the grades along the South property line to conform to the proposed future grades of Sequoia Road N.W. These proposed grades are to be set by the design of SAD 198. Therefore after discussing this subject with Asbury-Andrew & Robert Consulting Engineers for SAD 198, we have set our finish grades 1.50 to 1.75 feet above the existing conditions and we feel confident that our grades will be above their street grades.

Item 6

We have discussed this project with John Andrews of Asbury-Andrews & Robert Consulting Engineers for SAD 198 Project. To this date he has very preliminary design criteria on the storm drain system, and therefore based on this criteria we have raised our site to make sure that we will be able to flow our detained runoff into the SAD 198 future storm drain system.

Our client is scheduled to begin construction on this project as soon as we can obtain approval on this drainage plan.

Your final revisions and approval will be greatly appreciated.

Very truly yours,

John F. Esquibel

John F. Esquibel

1330 SAN PEDRO N.E.
SUITE 101 (505) 266-8791
ALBUQUERQUE, NEW MEXICO 87110

25×10

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DRAINAGE INFORMATION SHEET

PROJECT TITLE: Coors Auto Care Center ZONE ATLAS/DRNG. FILE #: G11-D38

LEGAL DESCRIPTION: Parcel B, Tract A-43

CITY ADDRESS:

ENGINEERING FIRM: A & E Engineering CONTACT: John Esquibel

ADDRESS: 1330 San Pedro NE #208 PHONE: 266-8791

OWNER: Coors Auto Care Center Corp. CONTACT: Bret Borg

Scottsdale, Az. 85258

ADDRESS: 9322 N. 94th Way Suite 103 PHONE: (602) 991-3282

ARCHITECT: Arvid Johnson CONTACT: Arvid Johnson

8940 N. 19th Ave

ADDRESS: Phoenix, Az. 85021 PHONE: (602) 997-9653

SURVEYOR: A & E Engineering CONTACT: John Esquibel

ADDRESS: 1330 San Pedro NE PHONE: 266-8791

CONTRACTOR: — CONTACT:

ADDRESS: PHONE:

RECEIVED JAN 15 1986 HYDROLOGY SECTION

PRE-DESIGN MEETING:

X YES

___ NO

___ COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. ___

EPC NO. ___

PROJ. NO. ___

TYPE OF SUBMITTAL:

X DRAINAGE REPORT

X DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

___ GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

___ FINAL PLAT APPROVAL

X BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

___ OTHER ___ (SPECIFY)

DATE SUBMITTED: January 15, 1986 2/12/86

BY: John Esquibel 2/14/86

A & E Engineering

25 x 10

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City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

December 18, 1985

John Esquibel
A & E Engineering
1330 San Pedro Drive, NE #208
Albuquerque, New Mexico 87110

RE: DRAINAGE PLAN FOR COORS AUTO CENTER
RECEIVED NOVEMBER 22, 1985 (G-11/D38)

Dear Mr. Esquibel:

I have reviewed the referenced submittal and forward these comments:

1. Per the Development Process Manual, the minimum six-hour rainfall is to be 2.2 inches.

2. The plan indicates many different drainage basins. However, these different basins are not addressed other than identified for ponding areas.

3. The volume computations will increase due to the increase in rainfall.

4. No ponding will be allowed adjacent to any structure or within 15 feet of the property line minus the required setback on adjacent property.

5. As previously identified in the pre-design conference (which a copy of was not attached to the submittal) City approved street and alley grades are required.

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6. Coordination with the SAD 198 Engineer is appropriate such that provisions will be made for the future utilization of that facility.

If you have any questions or comments regarding this project, call me at 766-7644.

Cordially,

Billy J. Goolsby

Billy J. Goolsby, P.E.
C.E./Design Hydrology

cc: Form letter to Owner

BJG/bsj

25×10

0000 0000 0502

DRAINAGE INFORMATION S.

NE of of Coors + Sequoia Rd

PROJECT TITLE: Coors Auto Care Center ZONE ATLAS/DRNG. FILE #: G-11-Z

LEGAL DESCRIPTION: Parcel B, Tract A-43

CITY ADDRESS:

ENGINEERING FIRM: A & E Engineering CONTACT: John Esquibel

ADDRESS: 1330 San Pedro NE #208 PHONE: 266-8791

OWNER: Coors Auto Care Center Corp. CONTACT: Bret Borg

ADDRESS: Scottsdale, Az. 85258 9322 N. 94th Way Suite 103 PHONE: (602) 991-3282

ARCHITECT: Arvid Johnson CONTACT: Arvid Johnson

ADDRESS: 8940 N. 19th Ave Phoenix, Az. 85021 PHONE: (602) 997-9653

SURVEYOR: A & E Engineering CONTACT: John Esquibel

ADDRESS: 1330 San Pedro NE PHONE: 266-8791

CONTRACTOR: – CONTACT:

ADDRESS: PHONE:

PRE-DESIGN MEETING:

X YES

___ NO

X COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO.

EPC NO.

PROJ. NO.

RECEIVED NOV 22 1985 HYDROLOGY SECTION

TYPE OF SUBMITTAL:

X DRAINAGE REPORT

X DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

___ GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

No EPC

DRB 84-798-

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

___ FINAL PLAT APPROVAL

X BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

___ OTHER _____ (SPECIFY)

DATE SUBMITTED: 11-22-85

BY: Lisa C Carper
A & E Engineering

25 x 10

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CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION/DESIGN HYDROLOGY SECTION

CONFERENCE RECAP

DRAINAGE FILE/ZONE ATLAS PAGE NO.: G-11 DATE: 10/25/85 @ 11:00

PLANNING DIVISION NOS: EPC: _____ DRB: _____

SUBJECT: Cowan Auto Center

STREET ADDRESS (IF KNOWN): _____

SUBDIVISION NAME: Cowan Addition Tract A-43

APPROVAL REQUESTED:

____	PRELIMINARY PLAT	____	FINAL PLAT
____	SITE DEVELOPMENT PLAN	X	BUILDING PERMIT
____	OTHER	____	ROUGH GRADING

	WHO	REPRESENTING
ATTENDANCE:	Lee Cooper	A & E Engineering
	Billy Gomberg	City/Design Hydrology

FINDINGS:

① Area currently does not have an outfall. On-site controlled discharge is required with ~~future~~ proposed means to connect to a future drainage facility. An SAD project (198[illegible]) is currently planned for the area.

② If not existing, the site is to be served by one (1) paved access. City approved grades are required for Sequoia Rd and the abutting alley.

③ An erosion control plan for the period of construction is required to ensure that sediments remain on-site.

④ Replat required to remove platlines or appropriate easements required for drainage.

Please provide copy prior to C.O.

The undersigned agrees that the above findings are summarized accurately and are only subject to change if further investigation reveals that they are not reasonable or that they are based on inaccurate information.

SIGNED: Billy Gomberg SIGNED: Lee Cooper

TITLE: C.E./Design Hydrology TITLE: A&E Engineering

DATE: 10/25/85 DATE: 10-25-85

NOTE PLEASE PROVIDE A COPY OF THIS RECAP WITH THE DRAINAGE SUBMITTAL

25 x 10

0000 0000 0504

x-tra

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

February 18, 1986

John Esquibel
A & E Engineering, Inc.
1330 San Pedro Drive, NE
Albuquerque, New Mexico 87110

RE: DRAINAGE PLAN SUBMITTAL OF COORS AUTO CARE CENTER
RECEIVED FEBRUARY 14, 1986 FOR BUILDING PERMIT APPROVAL
(G-11/D38)

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Provide calculations showing that the combined volumes of ponds 6, 7, and 8 are adequate for the combined drainage areas. Gravel is not an effective material for filling required ponding volumes because of small void volume after placement. A uniform graded cobble is normally used, with an available void volume being 30% to 40% of total cobble volume. Your previous calculations for ponds 6 and 7 assumed available void volume equal to 67% using gravel.

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Cordially,

Roger A. Green, PE

Roger A. Green, P.E.
C.E./Design Hydrology

cc: Standard Letter to:

Coors Auto Care Center Corp.
9322 N. 94th Way Suite 103
Scottsdale, AZ 85258

RAG/bsj

25×10

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x.tra

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

December 18, 1985

John Esquibel
A & E Engineering
1330 San Pedro Drive, NE #208
Albuquerque, New Mexico 87110

RE: DRAINAGE PLAN FOR COORS AUTO CENTER
RECEIVED NOVEMBER 22, 1985 (G-11/D38)

Dear Mr. Esquibel:

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3. The volume computations will increase due to the increase in rainfall.

4. No ponding will be allowed adjacent to any structure or within 15 feet of the property line minus the required setback on adjacent property.

5. As previously identified in the pre-design conference (which a copy of was not attached to the submittal) City approved street and alley grades are required.

25×10

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6. Coordination with the SAD 198 Engineer is appropriate such that provisions will be made for the future utilization of that facility.

If you have any questions or comments regarding this project, call me at 766-7644.

Cordially,

Billy J. Goolsby

Billy J. Goolsby, P.E.
C.E./Design Hydrology

cc: Form letter to Owner

BJG/bsj

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DRAINAGE CALCULATIONS

FOR

COORS AUTO CARE CENTER

ALBUQUERQUE, NEW MEXICO

Revised Febuary 14, 1986

RECEIVED
FEB 14 1986
HYDROLOGY SECTION

PREPARED BY:

A & E ENGINEERING, INC.

1330 SAN PEDRO N.E. SUITE 208

ALBUQUERQUE, NEW MEXICO 87110

25×10

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REPRODUCTION DUE TO THE POOR QUALITY
OF THE ORIGINAL DOCUMENT

DRAINAGE CALCULATIONS

I. REFERENCES

A. CITY OF ALBUQUERQUE DEVELOPMENT PROCESS MANUAL (DPM) VOLUME TWO, DESIGN CRITERIA, CHAPTER 22, DRAINAGE, FLOOD CONTROL AND EROSION CONTROL.

B. SOIL SURVEY OF BERNALILLO COUNTY AND PARTS OF SANDOVAL AND VALENCIA COUNTIES, NEW MEXICO, UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE.

C. FLOOD INSURANCE RATE MAP. 350002 0021 C. (NOT IN A FLOOD ZONE)

II. GENERAL INFORMATION

A. SOIL TYPE (REF. B., PAGE 30) SOIL TYPE IS M-W-A: HYDROLIC SOIL TYPE "B".

B. IMPERVIOUSNESS:

TYPE OF SURFACE	EXISTING AREA	PROPOSED AREA
BUILDING ROOF	VACANT LOT	42,750
CONCRETE SURFACES	"	-
ASPHALT SURFACES	"	89,393
LANDSCAPING	"	34,178
UNDEVELOPED SURFACE	"	-
SITE TOTAL	166,015	166,015
PERCENT IMPERVIOUS	0%	79%

C. "C" FACTOR (SEE REF. A., PLATE 22.2 C-1)
1. UNDEVELOPED "C" FACTOR = 0.34
2. DEVELOPED "C" FACTOR = 0.76

D. RAINFALL, 100-YEAR, 6-HOUR, R_6; (SEE REF. A., PLATE 22.2 D-1) $R_6 = 2.2$

E. TIME OF CONCENTRATION, T_c; T_c = 10 MIN.

F. RAINFALL INTENSITY, I. (SEE REF. A., PLATE 22.2 D-2)

$I = R_6 \times 6.84 \times T_c^{-0.51} = 2.2 \times 6.84 \times 10^{-0.51} = 4.65$ in./hr.

III. PEAK DISCHARGE

A. EXISTING CONDITIONS: (USE RATIONAL EQUATION)
$Q_{100} = 0.34 \times 4.65 \times 3.81 = 6.02$ cfs

$Q_{10} = 0.657 \times 5.48 = 3.96$ (REF. A., PALTE 22.2 D-1)

B. DEVELOPED CONDITIONS:
$Q_{100} = 0.76 \times 4.65 \times 3.81 = 13.46$ cfs

$Q_{10} = 0.657 \times 12.25 = 8.85$ cfs

IV. POND REQUIREMENT (VOLUME DETERMINED BY DRAINAGE AREAS AS SHOWN ON DRAWING)

A. DRAINAGE AREA No. 1

DRAINAGE WATERSHED AREA 5750 SQ. FT.	5750 sq. ft.
POND VOLUME REQUIRED (I = 2.2 c = 0.76)	801 cu. ft.
PONDING AREA AVAILABLE	1400 sq. ft. 500 ft²
DEPTH REQUIRED (D= 3V/A)	1.7 Ft.

Top Area = 25 x 20 = 500
Middle = 22.6 x 16.6 = 356.5
Bottom = 18.2 x 13.2 = 240.2

2:1 S.S.
depth = 1.7

Vol = $\left[500 + (4)(356.5) + 240.2\right] \frac{1.7}{6}$

= 63.9 ft³ < 80.1 ft³

RECEIVED
FEB 14 1986
HYDROLOGY SECTION

25× 32×

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REPRODUCTION DUE TO THE POOR QUALITY
OF THE ORIGINAL DOCUMENT

B. DRAINAGE AREA No. 2
DRAINAGE WATERSHED AREA — 5401 sq.ft.
PONDING VOLUME REQUIRED — 753 cu. ft.
PONDING AREA AVAILABLE — 340 sq.ft.
DEPTH REQUIRED — SEE DETAIL "A"

C. DRAINAGE AREA No. 3
DRAINAGE WATERSHED AREA — 7212 sq.ft.
PONDING VOLUME REQUIRED — 1005 cu.ft.
PONDING AREA AVAILABLE — 340 sq.ft.
DEPTH REQUIRED — SEE DETAIL "A"

D. DRAINAGE AREA No.4
DRAINAGE WATERSHED AREA — 5625 sq.ft.
PONDING VOLUME REQUIRED — 784 cu.ft.
PONDING AREA AVAILABLE — 340 sq.ft.
DEPTH REQUIRED — SEE DETAIL "A"

E. DRAINAGE AREA No. 5
DRAINAGE WATERSHED AREA — 3675 sq.ft.
PONDING VOLUME REQUIRED — 512 cu.ft.
PONDING AREA AVAILABLE — 700 sq.ft.
DEPTH REQUIRED — 1.3 ft — need 2.2

w/ 2:1 S.S. depth 1.3
T.A = 700
MA = 564
BA = 441
d = 3V/A
Vol = 736 FT³
> 512 ok

F. DRAINAGE AREA No. 6
DRAINAGE WATERSHED AREA — 21550 sq.ft.
PONDING VOLUME REQUIRED (plus 33% void ratio) 3994 cu.ft.
PONDING AREA AVAILABLE — 2400 sq.ft.
DEPTH REQUIRED (D = 3V/A) — 5.0 ft. — Depth of Rock Fill @ 33% Void shall be 3.5 Feet. Depth of Pond Rock to W.S. is 1.5 ft.

void 67% cobbled

G. DRAINAGE AREA No. 7
DRAINAGE WATERSHED AREA — 78025 sq. ft.
POND VOLUME REQUIRED (plus 33% void ratio) — 12208 cu. ft? 12,131 ft³
PONDING AREA AVAILABLE — 7962 sq.ft.
DEPTH REQUIRED (D = 3V/A) — see additional calculations attach. (Depth 1.5 Rock to W.S.)

H. DRAINAGE AREA No. 8
DRAINAGE WATER SHED AREA — 38773 sq.ft.
POND VOLUME REQUIRED — 5402 cu.ft.
PONDING AREA AVAILABLE — 6571 sq.ft.
DEPTH REQUIRED (D = 3V/A) — see additional calculations attach. (Depth Rock to W.S.)

VI. DRAINAGE COMMENTS

A. THE SITE IS LOCATED SUCH THAT THERE IS NO OUTFALL. ALL RUNOFF GENERATED IS RETAINED ON SITE BY PONDING METHODS AS SHOWN ON DRAINAGE PLAN. HOWEVER, PLANS SHOW FUTURE DONNECTION TO PROPOSED STORM SEWER PROJECT SAD-198.

B. DUE TO THE FLATNESS OF THE SITE THERE ARE NO OFFSITE FLOWS CONTRIBUTING TO THE GENERATED RUNOFF.

C. 12" PVC Drainpipe Capacity (Manning Equation)
s=.005 ft/ft, n=0.013 (per DPM),r=a/p 0.25 Ft
Q=2.5 cfs
Thus, The site will drain within 24 Hr.

RECEIVED
FEB 14 1986
HYDROLOGY SECTION

Ponds 6, 7, 8

Total Required
3003 + 10,871 + 5402
= 19,276

~~Total Provided~~
~~= 3003 + 10871 + 8494~~
~~= 22,368 ft³~~

25× 32×

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- POND. REQUIREMENT OF DRAINAGE AREA #7

TOTAL AREA (SURFACE) By Planimeter
POND LIMIT CONTOUR 02
7962 sq ft SIDESLOPE 1 : 2
BOTTOM OF POND - CONTOUR 0.5 (POND IS 18" DEEP)
5268 sq ft

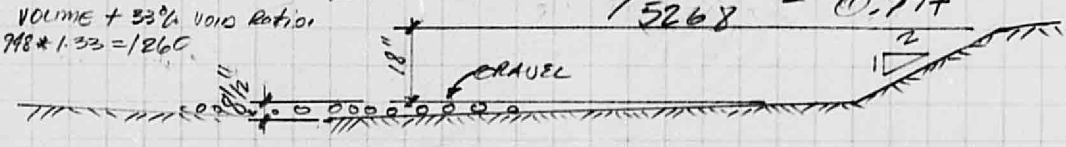
VOLUME

$$\frac{7962 + 5268}{2} \times 1.5 ft = 9922.5$$

NEED ADDITIONAL 10871 − 9922 = 948.50 ft³

D = 3V/A 3 (1260) / 5268 = 0.7 ft

VOLUME + 33% VOID Ratio
948 * 1.33 = 1260



- POND REQUIREMENT OF DRAINAGE AREA #8

TOTAL AREA (SURFACE) By Planimeter
POND LIMIT CONTOUR 02
6571 sq ft
BOTTOM OF POND CONTOUR 0.5 (POND IS 18" DEEP)
4754 sq ft

VOLUME

$$\frac{6571 + 4754}{2} \times 1.5 ft = 8494$$

THUS POND HAS CAPACITY 8494 > 5402

RECEIVED
FEB 14 1986
HYDROLOGY SECTION

25 × 10

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PLANS/PLATS ON FILE

FILE DESC: G11/D38

PLANS/PLATS 1

25×10

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25×10