



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

August 26, 2002

L. Bradford Sumrall, P.E.
Wilson & Company
2600 The American Road SE Suite 100
Rio Rancho, New Mexico 87124

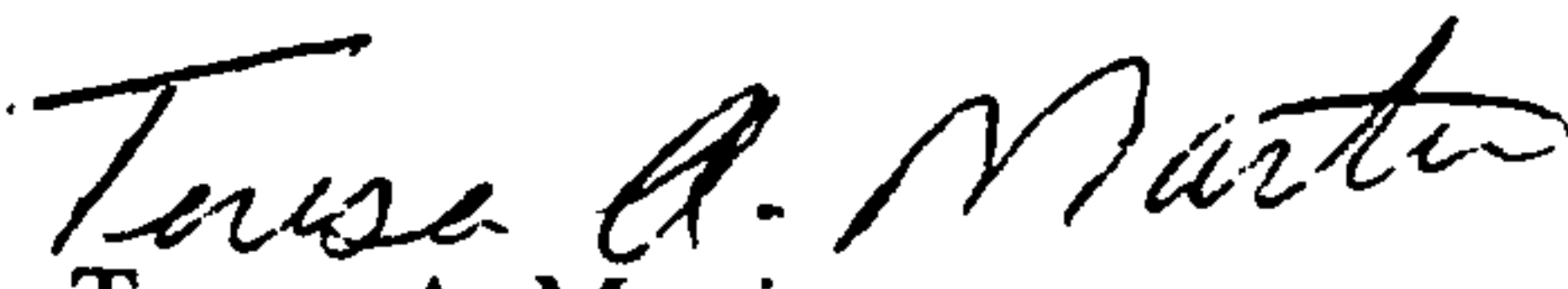
RE: LOWE'S HOME IMPROVEMENT CENTER- JUAN TABO (G-22/D13A)
(3100 Juan Tabo NE)
ENGINEERS CERTIFICATION FOR CERTIFICATE OF OCCUPANCY
ENGINEERS STAMP DATED 12/20/2000
ENGINEERS CERTIFICATION DATED 8/23/2002

Dear Mr. Sumrall:

Based upon the information provided in your Engineers Certification submittal dated 8/23/2002, and the approval of the SO19 by the City's Storm Drainage Maintenance Inspector, the above referenced site is approved for a Permanent Certificate of Occupancy.

If I can be of further assistance, please contact me at 924-3981.

Sincerely,


Teresa A. Martin

 Hydrology Plan Checker
Development & Bldg. Ser. Division

C: Certificate of Occupancy Clerk, COA
drainage file
approval file



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

August 8, 2002

L. Bradford Sumrall, P.E.
Wilson & Company
The American Road SE Suite 100
Rio Rancho, New Mexico 87124

RE: LOWE'S HOME IMPROVEMENT CTR.- JUAN TABO (G-22/D13A)
(3100 Juan Tabo NE)
CERTIFICATE OF OCCUPANCY APPROVAL-*Temporary Extension*
ENGINEERS CERTIFICATION DATED 8/7/2002

Dear Mr. Sumrall:

Based on the information provided in your submittal dated August 8, 2002, the above referenced project is approved for an *Extension of a TEMPORARY* Certificate of Occupancy.

A Extension of the Temporary Certificate of Occupancy has been issued for another 30 days, allowing the following outstanding drainage issue to be completed within this time scope:

- Asbuilt elevations of the retaining walls need to be included in the Engineers Certification as well as the finished floor elevation. See DPM checklist for Engineers Certification items (note circled items enclosed).

Upon completion of the outstanding drainage issue, final certification will be required for issuance of a Permanent Certificate of Occupancy.

If I can be of further assistance, please feel free to contact me at 924-3981.

Sincerely,

Teresa A. Martin
Hydrology Plan Checker
Development and Building Services Division
Bus

c: Vickie Chavez, COA
✓ Drainage file
Approval file

ENGINEER'S CERTIFICATION CHECKLIST FOR NON-SUBDIVISION
Page 22-183 ~~(5/4/00)~~ ~~(10/17/00)~~ (11/15/00) (4/1/02)

Use this checklist when certifying compliance with an approved drainage report or drainage plan for public, commercial and multi-residential buildings requiring a Certificate of Occupancy building permit or grading and paving projects. Engineer must revise the original drawing as approved with the following information which shall serve as minimum criteria for evaluation. This is merely a guide. The level of detail necessary for presentation and verification is a function of the specific plan being evaluated. The engineer's certification must be approved prior to the release of the issuance of a Certificate of Occupancy, or acceptance (by the City) of the completed work.

1. Completed Information Sheet - see Information Sheet.
2. Provide as-built finished floor and/or pad elevations.
3. Provide as-built spot elevations on the property line and/or limits of phase development (points of significant grade changes) to demonstrate compliance with the approved drainage report or drainage plan.
4. Provide copies of construction approval from the appropriate government agencies for construction within their right-of-ways and/or easements.
5. Outline the as-built drainage basin(s) (including roof areas) supported with sufficient spot elevations and roof drain locations.
6. Provide as-built elevations and dimensions for the following structures:
 - A. Pond(s) (include as-built volume calculations)
 - B. Pipe inlet(s) and outlet(s) (include as-built capacity calculations)
 - C. Rundown(s) (including the required inlet dimensions)
 - D. Spillway(s) (including the required outlet dimensions)

E. Channel(s)

F. Flowlines

G. Erosion control and Stormwater Pollution Prevention ~~control~~ structure(s)

H. Temporary drainage, erosion control and stormwater pollution prevention facilities required for phased development

I. Retaining and/or garden wall(s)

J. Other features critical to the drainage scheme.

7. Professional Certification

a. Engineer's stamp dated and signed accompanied with a statement indicating substantial compliance with the approved drainage report and/or deficiencies with recommended corrections.

b. The surveying associated with the certification must be performed by a professional engineer and/or surveyor in accordance with the "New Mexico Engineering and Surveying Practice Act" as amended and any standards adopted by the State Board of Registration.

APPROVED BY THE TECHNICAL REVIEW COMMITTEE ON 4/17/02

APPROVED BY THE EXECUTIVE COMMITTEE ON 5/1/02



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

July 8, 2002

L. Bradford Sumrall, P.E.
Wilson & Company 2600
The American Road SE Suite 100
Rio Rancho, New Mexico 87124

RE: LOWE'S HOME IMPROVEMENT CTR.- JUAN TABO (G-22/D13A)
(3100 Juan Tabo NE)
CERTIFICATE OF OCCUPANCY APPROVAL-*Temporary*
ENGINEERS CERTIFICATION DATED 7/3/2002

Dear Mr. Sumrall:

Based on the information provided in your letter dated July 8, 2002, the above referenced project is approved for a **TEMPORARY** Certificate of Occupancy.

A Temporary Certificate of Occupancy has been issued for 30 days, allowing the following outstanding drainage issues to be completed within this time scope:

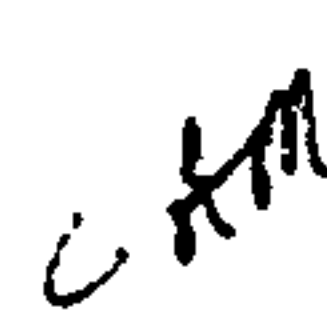
- Replace notes referring to installation of sidewalk culverts on Juan Tabo and connection to inlets and manholes on Candelaria on grading and drainage plan
- Correct detail sheet number references matching numbers to details.
- The SO19 items for the culverts and connections in the City right-of-way requires the City's storm drainage inspectors approval signature.
- Construction of exclusion fencing for conveyance channel on Juan Tabo.
- Obtain retaining wall permit for conveyance channel.

Upon completion of these outstanding drainage issues, final certification will be required for issuance of a Permanent Certificate of Occupancy.

If I can be of further assistance, please feel free to contact me at 924-3981.

Sincerely,

Teresa A. Martin

 Hydrology Plan Checker
Development and Building Services Division

c: Vickie Chavez, COA
 Drainage file
Approval file

WILSON & COMPANY

2600 American Rd. SE, Suite 100
Rio Rancho, NM 87124
505-898-8021
505-898-8501 Fax

Albuquerque
Colorado Springs
Denver
Fort Worth
Houston
Kansas City
Las Cruces
Lenexa
Los Angeles
Monterrey, Mex
Panama City, Pma
Phoenix
Rio Rancho
Salina
San Bernardino
Wichita

July 3, 2002

Carlos A. Montoya
Hydrology – Design Development
City of Albuquerque
Plaza del Sol, 600 2nd Street
Albuquerque, NM 87102

RE: CERTIFICATE OF OCCUPANCY, LOWE'S OF EAST ALBUQUERQUE
(G22/13A)

Dear Mr. Montoya,

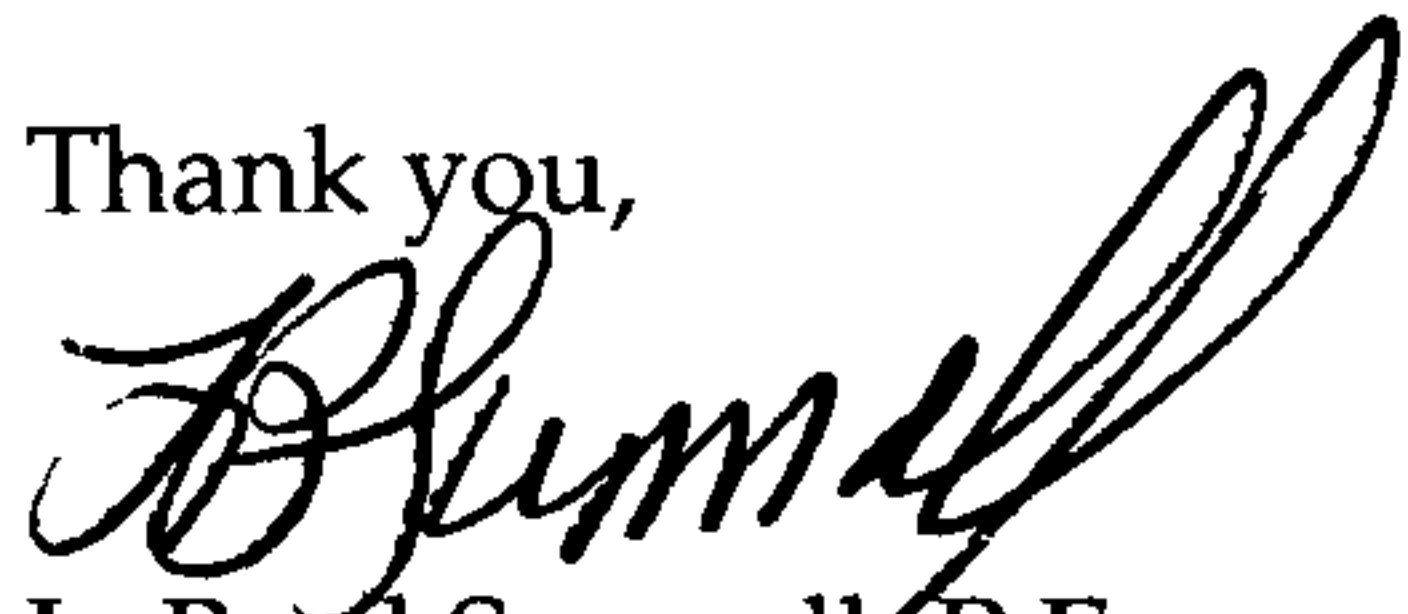
Wilson & Company, as agents for Lowe's Home Improvement Centers, requests Certificate of Occupancy for the store located at 3110 Juan Tabo NE. The deficiencies noted on the Drainage Certification Letter dated 5/8/02 have been completed.

Further items within the site have been brought to our attention as per a fax received from your office on 6/28/02. These items relate to a storm drainage conveyance channel located within the site adjacent to Juan Tabo NE. Specifically, the channel is constructed with a railroad tie retaining wall. Although designed to be less than 4-feet high, its as-built condition has raised the wall height above the 4-foot threshold requiring a permit. This permit is now in process with City Code Administration. Second, you noted that a fence enclosure around the pond is required. This fence has been completed since your last visit to the site. Lastly, you asked how the channel would affect the public road.

The public road is more than 10 feet west of the channel. The invert of the discharge pipe into the conveyance channel is 5627.3 ft while the sidewalk culvert invert is 5626.9 ft. This creates a grade of about 0.2% over the length of the channel. Given that it drains to the sidewalk culvert to the southwest, little standing water is expected to remain. Additionally, 4-inch rock was added to the bottom to reduce erosion, suppress weed growth and filter out particulates from the parking lot. Discussions with Bryan Wolfe, surface water quality engineer in City Hydrology, confirm that filtering large particles out of parking lot flows effectively reduces metal concentrations typically found in storm water.

We believe that we have effectively addressed your concerns regarding the channel and request an expedited issuance of the Certificate of Occupancy from your department. I am available during business hours at 348-4162 or 400-6966 (cell) if you have any questions.

Thank you,



L. Brad Sumrall, P.E.
Program Engineer



DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/11/2002)

PROJECT TITLE: Lowe's of East Albuquerque ZONE MAP/DRG. FILE#: G-22/D13A
DRB#: 1000769 EPC#: 001280000001195 WORK ORDER #: 657881

LEGAL DESCRIPTION: Tracts 1 and A, Tinnin Shopping Center

CITY ADDRESS: 3100 Juan Tabo NE

ENGINEERING FIRM: Wilson & Company

ADDRESS: 2600 The American Rd. SE, Suite 100

CITY: Rio Rancho, NM

CONTACT: Brad Sumrall

PHONE: (505) 898-8021

ZIP CODE: 87124

OWNER: Tinnin Enterprises

ADDRESS: 2303 Candelaria NW

CITY: Albuquerque, NM

CONTACT: Tom Tinnin

PHONE: (505) 342-1106

ZIP CODE: 87107

ARCHITECT: Kurt D. Reed Associates, Inc.

ADDRESS: 7400 East McDonald Dr., Suite 101

CITY, STATE: Scottsdale, AZ

CONTACT: Jack Swanson

PHONE: (480) 941-1440

ZIP CODE: 85250

SURVEYOR: Wilson & Co.

ADDRESS: 4900 Lang Ave. NE

CITY: Albuquerque, NM

CONTACT: C. Scott Croshaw, P.S.

PHONE: (505) 348-4035

ZIP CODE: 87109

CONTRACTOR: Gerald Martin

ADDRESS: 8501 Jefferson NE

CITY: Albuquerque, NM

CONTACT: Thom Kregge

PHONE: (505) 828 1144

ZIP CODE: 87113

CHECK TYPE OF SUBMITTAL:

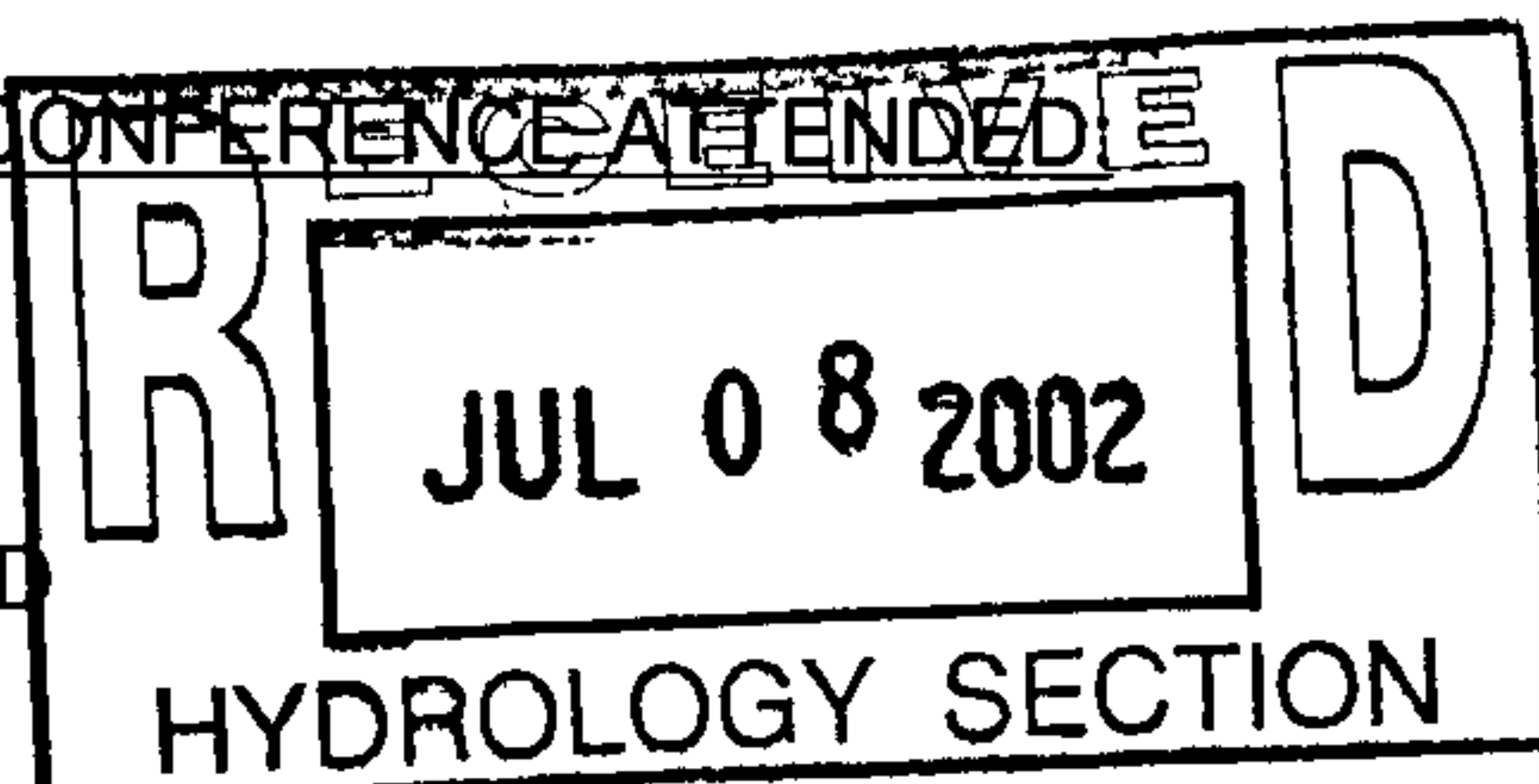
- ☐ DRAINAGE REPORT
☐ DRAINAGE PLAN
☐ CONCEPTUAL GRADING & DRAINAGE PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☒ ENGINEERS CERTIFICATION (HYDROLOGY)
☐ CLOMR\LOMR
☐ TRAFFIC CIRCULATION LAYOUT (TCL)
☒ ENGINEERS CERTIFICATION (TCL)
☒ ENGINEERS CERTIFICATION (DRB. APPR. SITE PLAN)
☐ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SIA / FINANCIAL GUARANTEE RELEASE
☐ PRELIMINARY PLAT APPROVAL
☐ S. DEV. PLAN FOR SUB'D. APPROVAL
☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
☐ SECTOR PLAN APPROVAL
☐ FINAL PLAT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☐ BUILDING PERMIT APPROVAL
☐ CERTIFICATION OF OCCUPANCY (PERM.)
☒ CERTIFICATION OF OCCUPANCY (TEMP.)
☐ GRADING PERMIT APPROVAL
☐ PAVING PERMIT APPROVAL
☐ WORK ORDER APPROVAL
☐ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED?

- ☒ YES
☐ NO
☐ COPY PROVIDED



Date Submitted: 07/08/02

By: LB Sumrall

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope of the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5)
3. **Drainage Report:** Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

ROWN0212 RIGHT OF WAY SYSTEM - UPDATE PERMIT DATA ROWNM212
 LOC. FRMT: 2 (1,2,3,4) W.O.: PRMT NBR: 2057136 05/03/2002
 1 = SPECIFIC ADR: HOUSE NUMBER: STREET: RD NE
 2 = AT AN INTR: JUAN TABO BD NE CANDELARIA
 3 = FROM AN INTR: FEET: HDG: OF
 4 = BETWEEN INTR: NAME OF COMMON INTR STREET
 MAP ZONE: CONTRACTOR: FRANKLIN'S EARTHMOV. FEES: EXCAVATION: \$4.00
 ADDRESS: P.O. BOX 30275 SIDEWALK: 100.00
 ALBUQUERQUE, NM 87176-1275 DRIVEPAD: 0.00
 884-6947 CURB/GUTTER: 0.00
 PERMIT EXPIRES: 05132002 INS. EXPIRES: 07012002 BARRICADE: 0.00
 BOND EXP: 12312002 COMPLT DATE: 05132002 RESTORATION: 0.00
 PAVING BY: CON STATE LICENSE: GF09 BLUE STK: TOTAL: 184.00
 WORK CODE: 0 (E,M,O) ACTIVITY: IEDP BARRICADE CO: BARR USED: AREA PRMT:
 DETOUR PLAN: N (Y,N) EMERGENCY-PLANNED CODE: P (E,P)
 DATE: 05032002 TODATE: 05132002 EXTENDED DATE: BAR REMOVED:
 SO#19 (4) LETTER ON FILE APPROVED PER JOE LUEHRING

PF1=UPD&PRNT PF3=UPD PF7=PRNT&KEEP PF8=UPD&KEEP ENTER=VALID PF10=MENU PF12=MAIN

Post-It® Fax Note 7671		Date 7/9/02	# of pages 1
To Terri Martin	From CUSA		
Co./Dept. One Stop	Co. Permits		
Phone #	Phone # 768 2552		
Fax # 924.3864	Fax #		

City of Albuquerque
Public Works Department
505-924-3900 (main number)
505-924-3864 (fax number)
Development and Building Services (One Stop Shop)
Plaza Del Sol Building, 2nd Floor
600 2nd Street NW
Albuquerque, NM 87102

City of Albuquerque:
Public Works Dept.
Dev: & Bldg. Svcs.

Fax

To: Brad Sumrall From: Carla A. Murphy

Fax: 898-8501 Pages Sent: (including this page) 2

Phone: _____ Date: 6-28-02

Time: _____

☐ Urgent ☒ For Review ☐ Please comment ☐ Please Reply ☐ Please Recycle

Comments:

Brad, I wasn't sure
about your E-mail address
so I also fax the E-mail

Thank Carla



Carlos A. Montoya

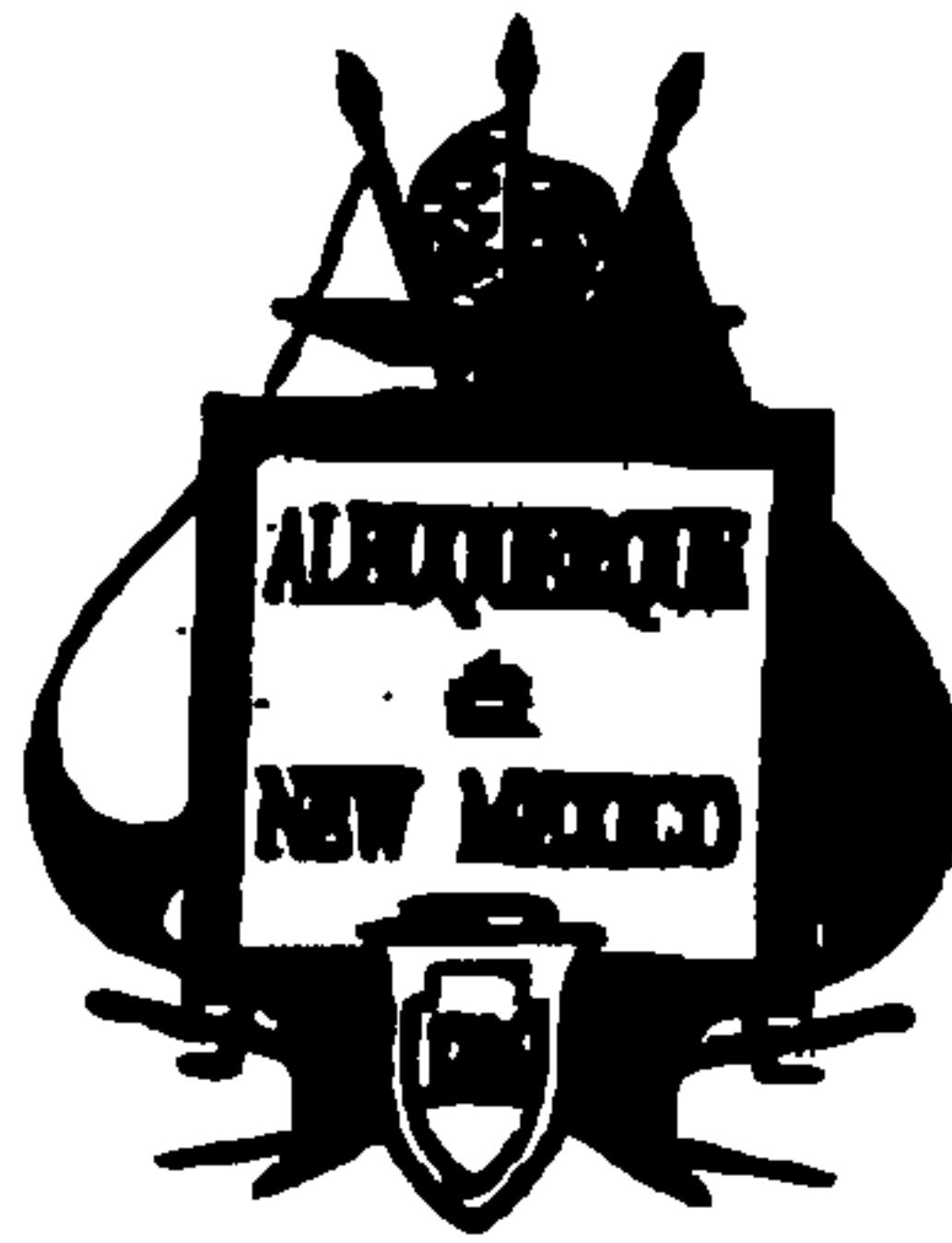
06/28/02 02:38 PM

To: lsumrall@wilsonco.com

cc: Fred J. Aguirre/PWD/CABQ@COA, (bcc: Carlos A. Montoya/PWD/CABQ)

Subject: LOWEs site on candelaria

Brad, I went out to the field at the LOWEs site on Juan Tabo to talk to Lloyd Sillas about the inlets on Candelaria. I noticed a separate problem in the LOWEs site next to the Juan Tabo right-of-way and north of the main entrance to the parking lot.. The private storm drain was brought in low and a retention pond was created next to the road. Railroad ties were used as a 4 to 5 foot retaining wall. The following items were of concern. First, a retaining wall permit is now required from code adm.. Second, a fence is now required for safety and criteria is listed in the DPM. Third, how is the retention pond going to effect the public road? Also, please send me the punch list that we came up with for the inlets in Candelaria. Thanks Carlos A. Montoya.



FAX TRANSMISSION

PUBLIC WORKS, MAPS AND RECORDS

Albuquerque, New Mexico

768-3608

Fax: 768-2502

To: Carlos Munoz From: Leany Romero
Fax: 924-3864 Pages: 3
Phone: _____ Date: 6/18/02
Re: _____ CC: _____

☐ Urgent ☒ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

Message:

• Comments: If you did not receive all pages, please call 768-3608. Thank you

WILSON & COMPANY

2600 The American Road SE
Suite 100
Rio Rancho, New Mexico 87124
(505) 898-8021
(505) 898-8501 Fax

Memo

Albuquerque
Colorado Springs
Cotton
Denver
Houston
Lenexa, KS
Kansas City, MO
Phoenix
Rio Rancho
Salina, KS
Wichita

From: L. Brad Sumrall, P.E.

To: Jim Eskew, Project Superintendent, Gerald Martin

Date: 14 June, 2002

Copies To: Paul Gallegos, Wilson & Company
Bill Nielson, Lowe's Construction Manager

Project No.: X0218001

Task: 01

Subject: Storm Drain Punch List - Lowe's East Albuquerque
COA Project No. 657881

A field inspection by City of Albuquerque staff was conducted on June 14 to review the constructed condition of the storm drain facilities within the public right-of-way for Lowe's of East Albuquerque. In attendance were:

Lenny Romero - COA, General Construction Inspector
Matt Klein - COA, Storm Drain Maintenance
Jim Eskew - Gerald Martin, Project Superintendent
Paul Gallegos - Wilson & Company, Project Inspector
L. Brad Sumrall, P.E. - Wilson & Company, Project Engineer
Representatives from Franklin Construction and Sundance Mechanical

Significant deficiencies were found in many of the facilities viewed. The following items must be reconstructed and reinspected prior to acceptance by the City of Albuquerque and the Owner. A list of deficiencies follows:

ITEM

COMPLETED

Construction Plan Sheet 5 of 11, Juan Tabo Utility Plan and Profile

1) Station 03+71 New Sidewalk Culvert

Sidewalk culvert not poured as a monolithic concrete structure. That is, sidewalk and bottom of culvert poured separately. Inadequate opening height also noted. Refer to Standard Drawings

2) Station 06+95 New Sidewalk Culvert

Sidewalk culvert not poured as a monolithic concrete structure. That is, sidewalk and bottom of culvert poured separately. Inadequate opening height also noted. Refer to Standard Drawings

T:\Projects\X0218001\11\Docs\MemoSD_punchlist061402.doc

ITEM

COMPLETED

3) Station 11+36 Existing Type "D" drop inlet

Inlet shown to remain as Type "D" inlet with no adjustments.
Newly constructed curb was cut back into sidewalk creating a
6-inch deep notch into curb. Curb line must be replaced to
maintain original alignment and type "C" inlet installed.

Construction Plan Sheet 6 of 11, Candelaria Utility Plan and Profile

4) Station 12+11

Grate installed upside down and curb poured over grate.

5) Station 13+11 Type D inlet

No floor poured in drop inlet.

6) Station 16+17 Install Double Type C inlet

New Type D inlet installed within flow line instead of at face of curb. Removal of
wood spacers, construction of support wall for south side of grate and regrouting
required.

7) Station 16+6' Install Double Type C inlet

New Type D inlet installed within flow line instead of at face of curb. Removal of
wood spacers, construction of support wall for south side of grate and regrouting
required.

8) Station 17+17 Install Double Type C inlet

Existing Type D inlet left in place given Type C at face of curb was out of flowline.
Type D inlet requires removal of wooden spacers, construction of a support wall on
south side of inlet to support raised grate and regrouting.



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

***Public Works Department
Transportation Development Services Section***

June 4, 2002

Brad Sumrall, P.E.
Wilson & Co, Suite 100
2600 The American Rd. S.E.
Rio Rancho, NM 87124

Re: Approval of Temporary Certificate of Occupancy (C.O.) for
Lowe's of East Albuquerque, [G22 / D013]
3110 Juan Tabo N.E.
Engineer's Stamp Dated 06/03/02

Dear Mr. Sumrall:

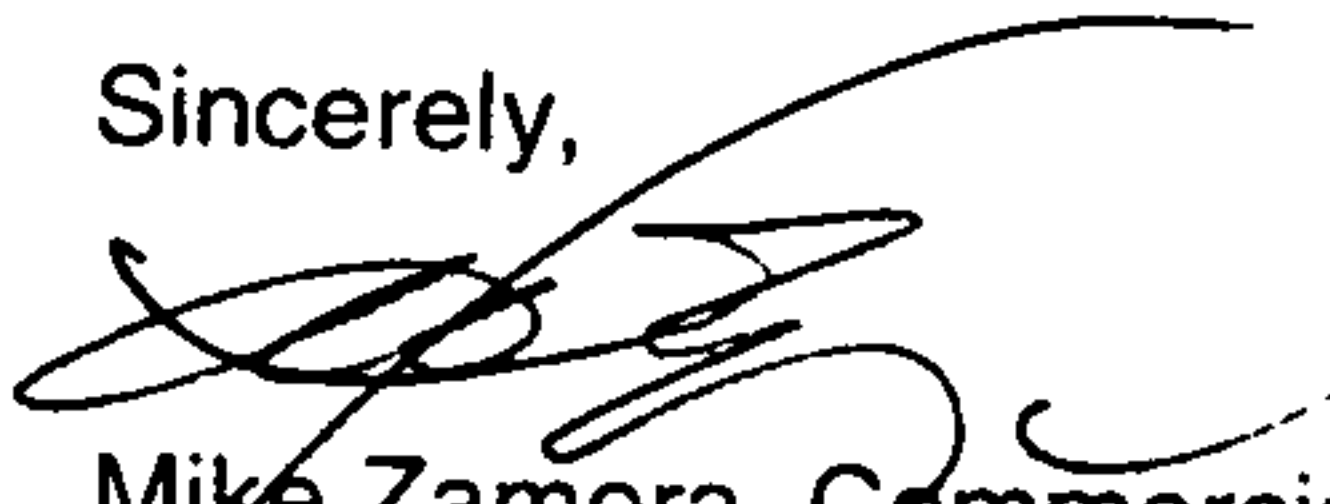
Based on the information provided on your submittal dated June 3, 2002, the above referenced project is approved for a 30-day Temporary C.O.

A Temporary C.O. has been issued allowing the outstanding issues stated in the Letter of Certification to be completed within this time period. When these issues have been fully completed, are in substantial compliance, and a Certification Package for Transportation has been resubmitted to the City's Hydrology office (at the front counter of Planning) for evaluation and approval, a Permanent C.O. will be issued. The "Cert" Package includes a Letter of Certification and the acceptable stamped, signed TCL or DRB Site Plan. Either plan and/or the letter needs to be stamped by the designer, signed and dated for that Certification. The signed off DRB plan and an Administrative Amendment is required for the Cert.

In addition to the Certification package, issues to be resolved within this time period are: 1) Removal of all construction fencing and all equipment and refuse/compactors, in the traffic/pedestrian circulation areas. 2) Removal of all landscape material (gravel, bark, etc.) from parking stalls for Final C.O. From the time of this Temp C.O., up to Certification for Final C.O., make sure material is contained in single stall or stalls needed to hold landscape material, keeping surrounding area clean of this material, to relieve liability.

If you have any questions, please call me at 924-3620.

Sincerely,



Mike Zamora, Commercial Plan Checker -
Development and Building Services
Planning Department

c: Hydrology file
Mike Zamora

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/11/2002)

PROJECT TITLE: Lowe's of East Albuquerque ZONE MAP/DRG. FILE#: T-13 622/013A

DRB#: 1000769 EPC#: 001280000001195 WORK ORDER #: 657881

LEGAL DESCRIPTION: Tracts 1 and A, Tinnin Shopping Center

CITY ADDRESS: 3100 Juan Tabo NE

ENGINEERING FIRM: Wilson & Company CONTACT: Brad Sumrall

ADDRESS: 2600 The American Rd. SE, Suite 100 PHONE: (505) 898-8021

CITY, STATE: Rio Rancho, NM ZIP CODE: 87124

OWNER: Tinnin Enterprises CONTACT: Tom Tinnin

ADDRESS: 2303 Candelaria NW PHONE: (505) 342-1106

CITY, STATE: Albuquerque, NM ZIP CODE: 87107

ARCHITECT: Kurt D. Reed Associates, Inc. CONTACT: Jack Swanson

ADDRESS: 7400 East McDonald Dr., Suite 101 PHONE: (480) 941-1440

CITY, STATE: Scottsdale, AZ ZIP CODE: 85250

SURVEYOR: Wilson & Co. CONTACT: C. Scott Croshaw, P.S.

ADDRESS: 4900 Lang Ave. NE PHONE: (505) 348-4035

CITY, STATE: Albuquerque, NM ZIP CODE: 87109

CONTRACTOR: Gerald Martin CONTACT: Thom Krege

ADDRESS: 8501 Jefferson NE PHONE: (505) 828 1144

CITY, STATE: Albuquerque, NM ZIP CODE: 87113

CHECK TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN
- ☐ CONCEPTUAL GRADING & DRAINAGE PLAN
- ☐ GRADING PLAN
- ☐ EROSION CONTROL PLAN
- ☐ ENGINEERS CERTIFICATION (HYDROLOGY)
- ☐ CLOMR/LOMR
- ☐ TRAFFIC CIRCULATON LAYOUT (TCL)
- ☒ ENGINEERS CERTIFICATION (TCL)
- ☐ ENGINEERS CERTIFICATION (DRB. APPR. SITE PLAN)
- ☐ OTHER

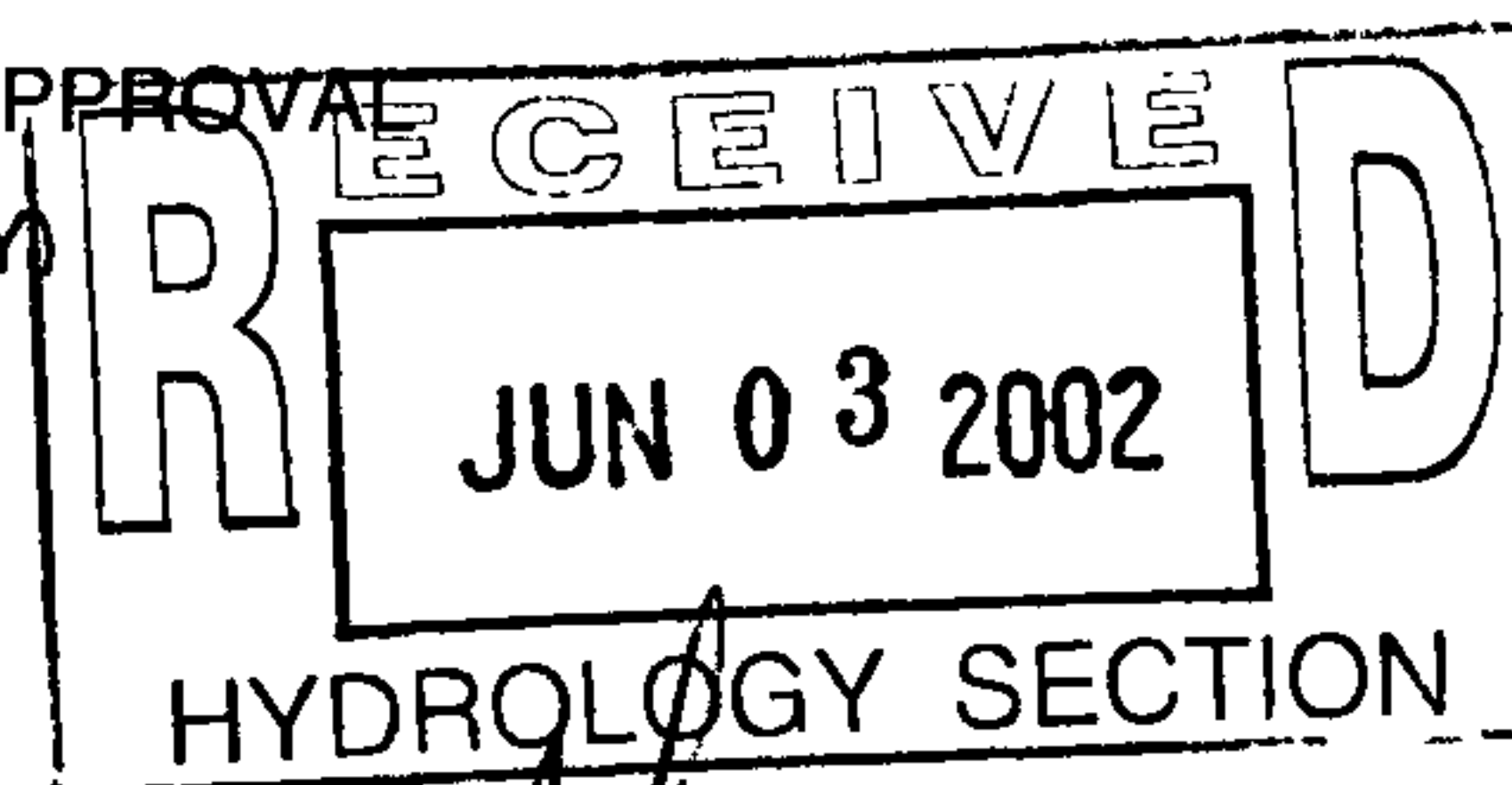
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- ☐ S. DEV. PLAN FOR SUB'D. APPROVAL
- ☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ☐ SECTOR PLAN APPROVAL
- ☐ FINAL PLAT APPROVAL
- ☐ FOUNDATION PERMIT APPROVAL
- ☐ BUILDING PERMIT APPROVAL
- ☐ CERTIFICATION OF OCCUPANCY (PERM.)
- ☒ CERTIFICATION OF OCCUPANCY (TEMP.)
- ☐ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☐ WORK ORDER APPROVAL
- ☐ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☒ YES
- ☐ NO
- ☐ COPY PROVIDED

Date Submitted: 6/03/02 By: LB Sumrall



Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope of the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5)
3. **Drainage Report:** Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

6/4/02 - CY 306.4 to Uicker; 6/5/02 - Sent letter (dated 6/4)
re: Need D.R.B. Plan (and App. Am.); logged in
explain Need for Final CO.
Also No File # (above)

WILSON & COMPANY

2600 THE AMERICAN ROAD SE, SUITE 100
RIO RANCHO, NEW MEXICO 87124
(505) 898-8021
FAX (505) 898-8501

TRANSMITTAL

Date: June 3, 2002

Job No.: X0218001

Re: TCL Certification

To: Design Development
Plaza del Sol

Attn: Brad Bingham, P.E.

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	Pages/Sheets	Description
1	6/3/02	1	Site Plan/Traffic Circ. Plan
1	6/3/02	1	Drainage and Transportation Information Sheet
1	6/3/02	1	Traffic Circulation Cert

THESE ARE TRANSMITTED AS CHECKED BELOW:

☒ For approval/signature

☐ Approved as submitted

☐ Resubmit _____ copies for approval

☐ For your use

☐ Approved as noted

☐ Submit _____ copies for distribution

☐ As requested

☐ Return _____ copies

☐ Return _____ corrected prints

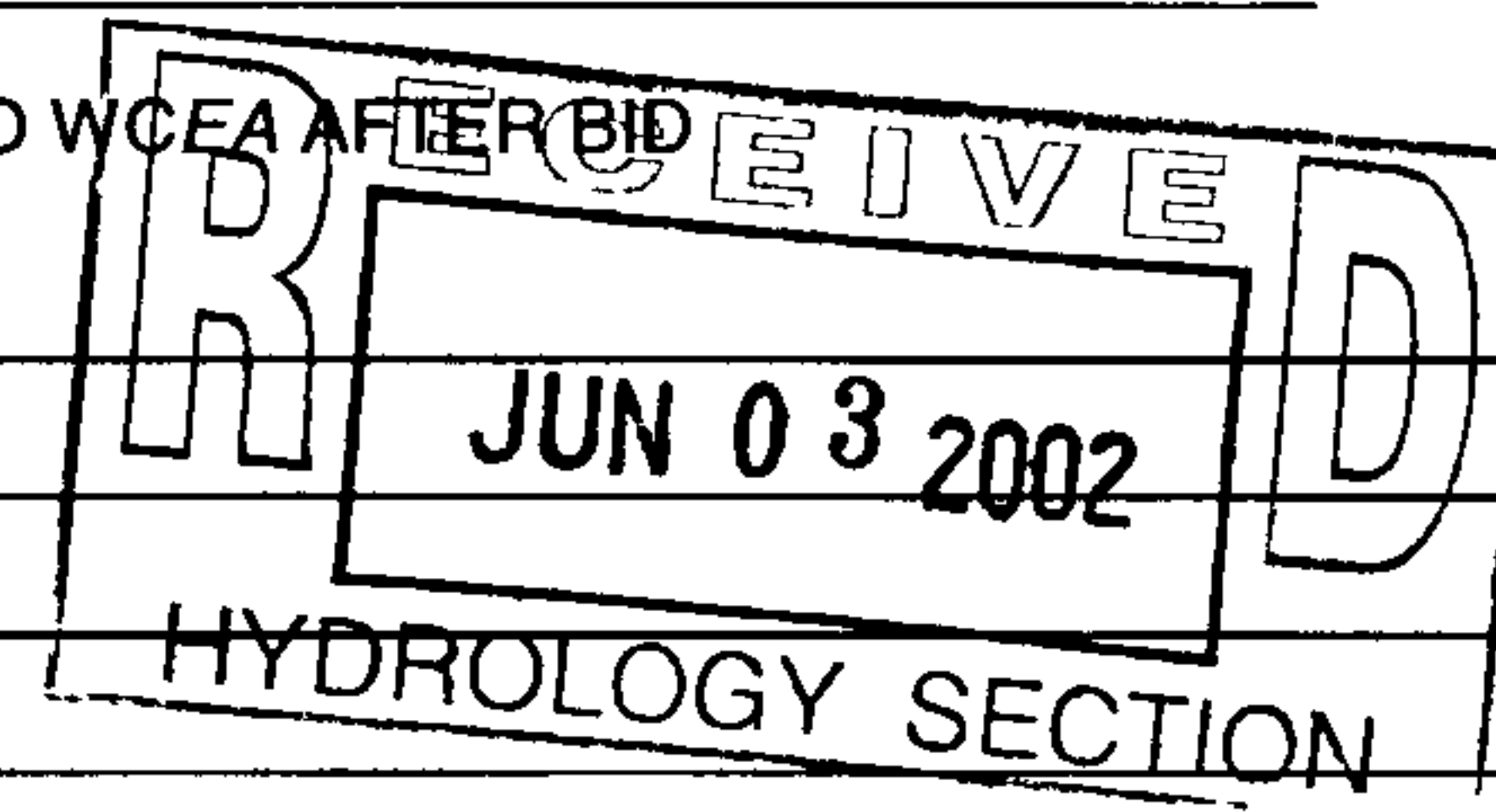
☐ For review and comment

☐ _____

☐ FOR BIDS DUE _____, 20__

☐ PRINTS ON LOAN - RETURN TO WCEA AFTER BID

Remarks:



COPY TO:

SIGNED:

LB Bingham

RECEIVED BY:

DATE:

TRAFFIC CIRCULATION CERT W/VERIFICATION BY ENGINEER OF RECORD

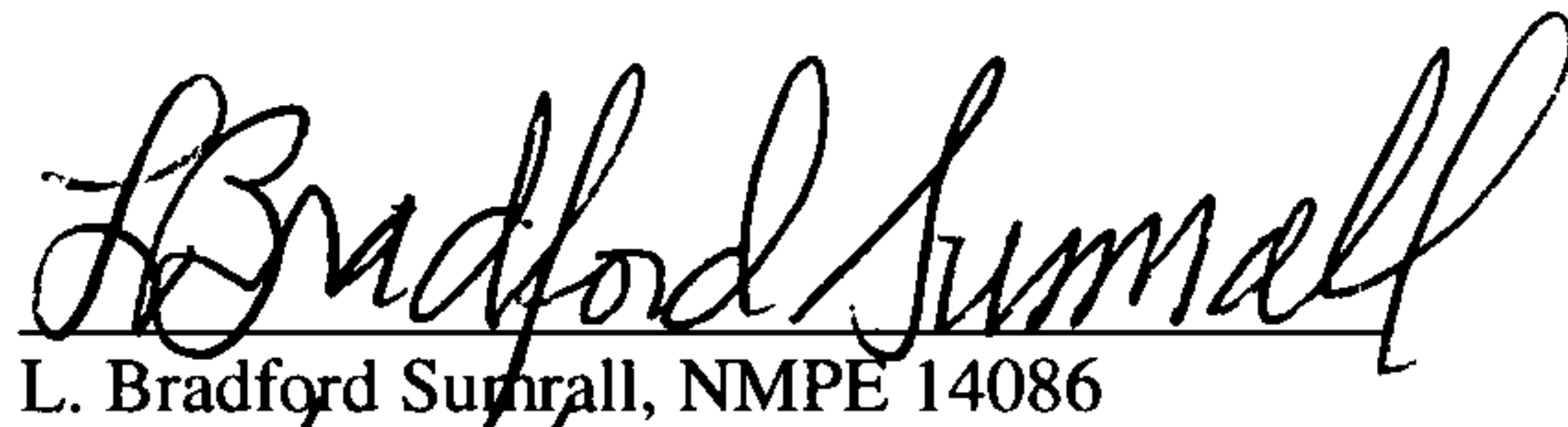
TRAFFIC CIRCULATION LAYOUT

RE: SITE AND TRAFFIC CIRCULATION LAYOUT CERTIFICATION
LOWE'S HOME IMPROVEMENT CENTER, 3100 JUAN TABO NE
DRB#: 1000769. EPC#: 00128 0000 01195. WORK ORDER#: 657881

I, L. Bradford Sumrall, NMPE 14086, OF THE FIRM Wilson & Company,
HEREBY CERTIFY THAT THIS PROJECT HAS BEEN CONSTRUCTED AND TRAFFIC WILL
CIRCULATE IN SUBSTANTIAL COMPLIANCE WITH AND IN ACCORDANCE WITH THE
DESIGN INTENT OF THE APPROVED PLAN DATED 26th of September, 2001. THE RECORD
INFORMATION EDITED ONTO THE ORIGINAL DESIGN DOCUMENT HAS BEEN OBTAINED BY
ME OR UNDER MY DIRECT SUPERVISION AND IS TRUE AND CORRECT TO THE BEST OF MY
KNOWLEDGE AND BELIEF. THIS CERTIFICATION IS SUBMITTED IN SUPPORT OF A
REQUEST FOR Temporary Certificate of Occupancy.

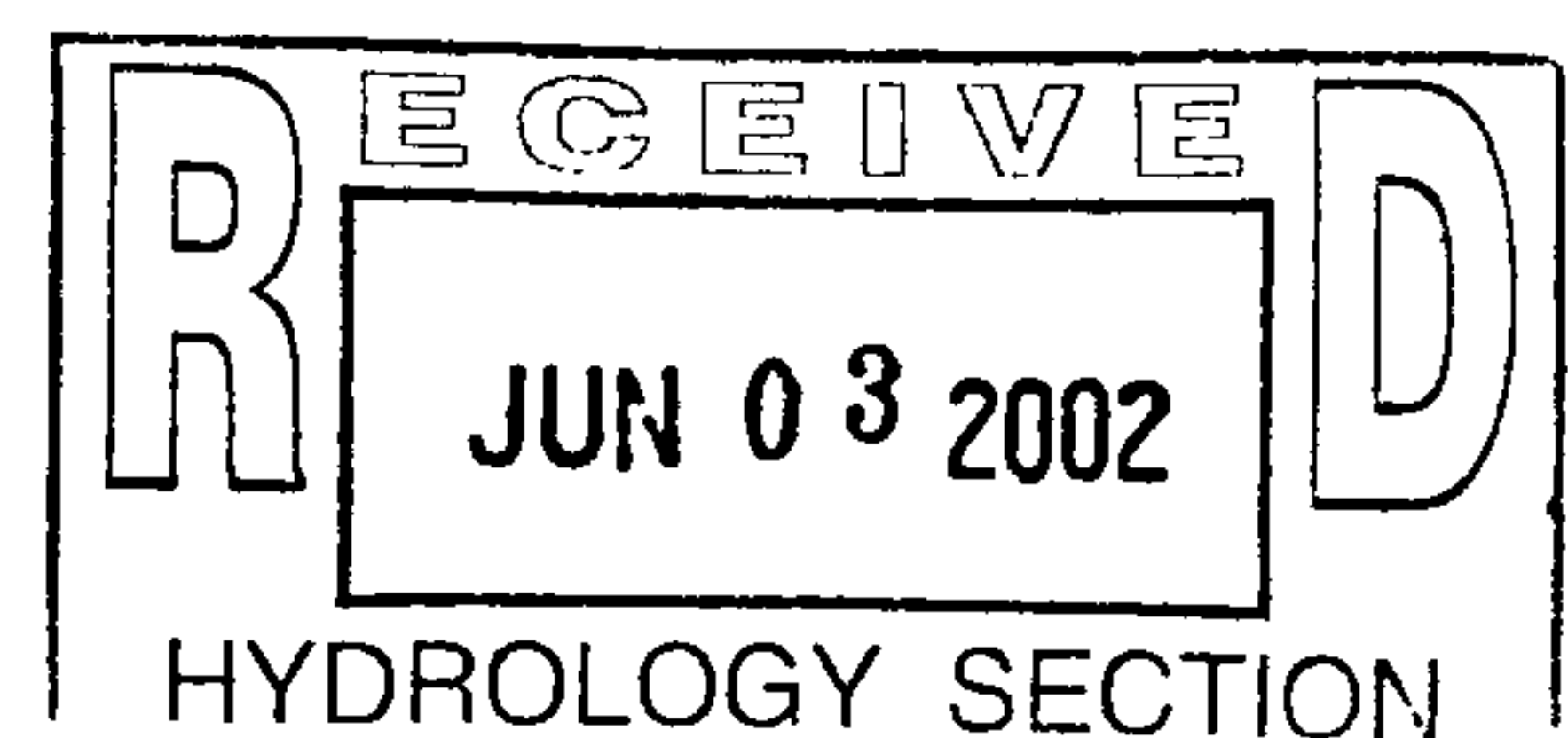
Deficiencies:

- 1) parking lot striping required in parking spaces north of building
- 2) stop bars and turn arrows not yet painted in parking lot
- 3) no parking signs installation required



L. Bradford Sumrall, NMPE 14086

6/03/02
DATE





City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

May 10, 2002

L. Bradford Sumrall, P.E.
Wilson & Company
2600 The American Road SE Suite 100
Rio Rancho, New Mexico 87124

RE: LOWE'S HOME IMPROVEMENT CTR. - (JUAN TABO) (G-22/D13A)
(3100 Juan Tabo NE)
CERTIFICATE OF OCCUPANCY APPROVAL-*Temporary*
ENGINEERS CERTIFICATION DATED 5/7/2002

Dear Mr. Sumrall:

Based on the information provided in your May 9, 2002 submittal, the above referenced project is approved for a Temporary Certificate of Occupancy for Stocking Purposes Only.

A Temporary Certificate of Occupancy has been issued for 30 days, allowing for stocking of the building to proceed. This will also allow the remaining drainage issues (as stated in the drainage certification letter signed 5/8/2002) to be completed within this time scope.

Upon completion of the remaining drainage issues, final certification will be required to be resubmitted to this office for a Permanent Certificate of Occupancy to be issued. When submitting for final certification, you must also include sheets 5, 6, and 7 of 11 in your certification. (These sheets are part of the grading and drainage plan which was approved and also need to be certified).

If I can be of further assistance, please feel free to contact me at 924-3981.

Sincerely,

Teresa A. Martin
Hydrology Plan Checker
Public Works Department
PWA

c: Vickie Chavez, COA
✓ Drainage file
Approval file

DRAINAGE CERT W/VERIFICATION BY ENGINEER OF RECORD
12/28/01

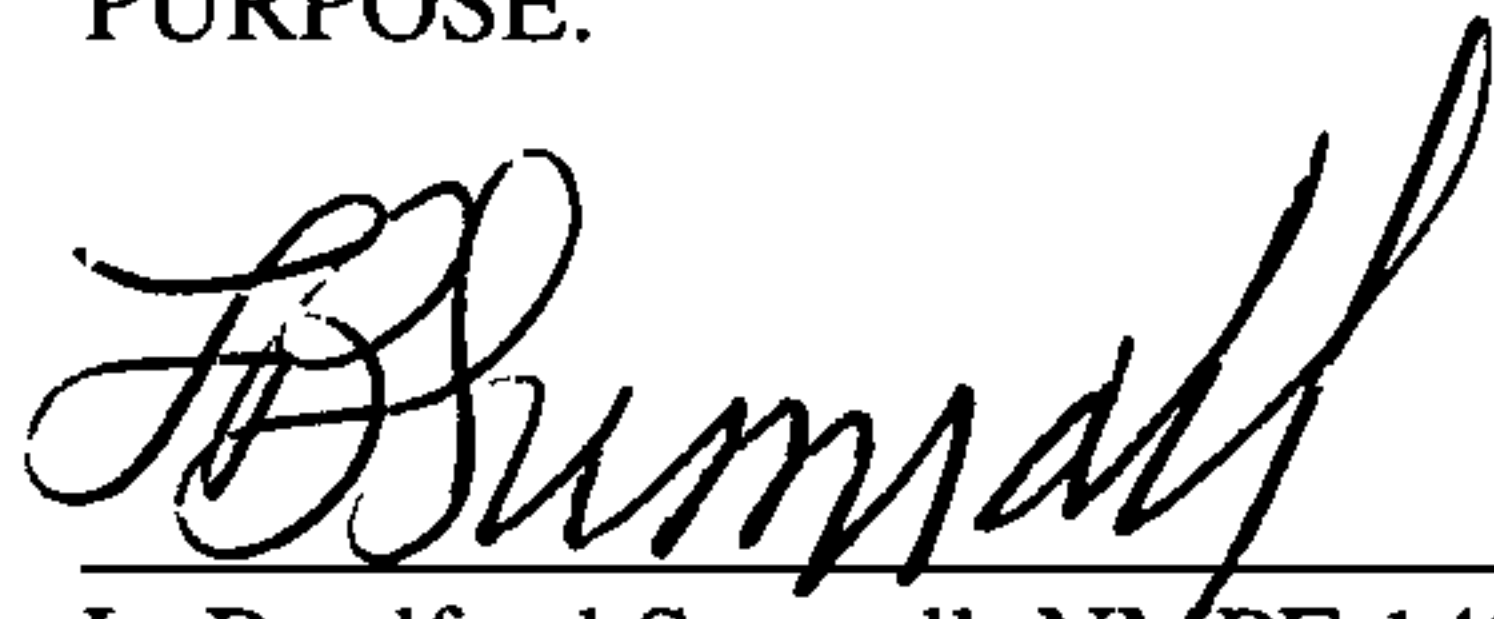
DRAINAGE CERTIFICATION

I, L. Bradford Sumrall, NMPE 14086, OF THE FIRM Wilson & Company, HEREBY CERTIFY THAT THIS PROJECT HAS BEEN GRADED AND WILL DRAIN IN SUBSTANTIAL COMPLIANCE WITH AND IN ACCORDANCE WITH THE DESIGN INTENT OF THE APPROVED PLAN DATED 9th of October, 2001. THE RECORD INFORMATION EDITED ONTO THE ORIGINAL DESIGN DOCUMENT HAS BEEN OBTAINED BY ME OR UNDER MY DIRECT SUPERVISION AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THIS CERTIFICATION IS SUBMITTED IN SUPPORT OF A REQUEST FOR Temporary Certificate of Occupancy.

Deficiencies:

- 1) Standard asphalt pavement in southern half of west parking lot.
- 2) Heavy-duty concrete pavement in access along south of building.
- 3) Concrete headwall in north ponding area adjacent to Juan Tabo Blvd.
- 4) Concrete rundown in ponding area adjacent to Juan Tabo Blvd.

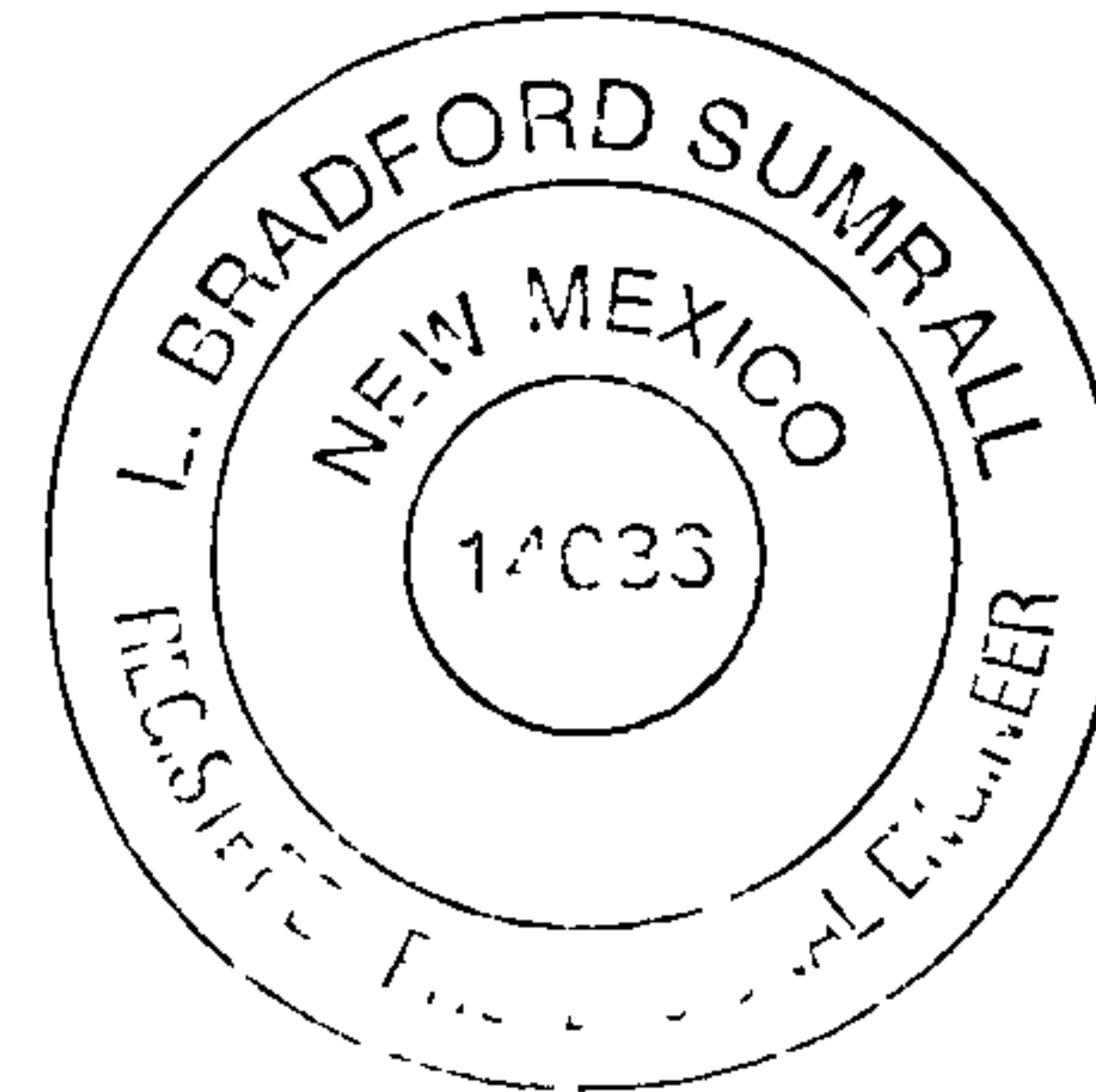
THE RECORD INFORMATION PRESENTED HEREON IS NOT NECESSARILY COMPLETE AND INTENDED ONLY TO VERIFY SUBSTANTIAL COMPLIANCE OF THE GRADING AND DRAINAGE ASPECTS OF THIS PROJECT. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT FOR ANY OTHER PURPOSE.



L. Bradford Sumrall, NMPE 14086

5/8/02

DATE



APPROVED BY THE EXECUTIVE COMMITTEE ON 4/9/02

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/11/2002)

G-22/D13A

PROJECT TITLE: Lowe's of East Albuquerque ZONE MAP/DRG. FILE#: 1702

DRB#: 1000769 EPC#: 00128000001195 WORK ORDER #: 657881

LEGAL DESCRIPTION: Tracts 1 and A, Tinnin Shopping Center

CITY ADDRESS: 3100 Juan Tabo NE

ENGINEERING FIRM: Wilson & Company CONTACT: Brad Sumrall

ADDRESS: 2600 The American Rd. SE, Suite 100 PHONE: (505) 898-8021

CITY, STATE: Rio Rancho, NM ZIP CODE: 87124

OWNER: Tinnin Enterprises CONTACT: Tom Tinnin

ADDRESS: 2303 Candelaria NW PHONE: (505) 342-1106

CITY, STATE: Albuquerque, NM ZIP CODE: 87107

ARCHITECT: Kurt D. Reed Associates, Inc. CONTACT: Jack Swanson

ADDRESS: 7400 East McDonald Dr., Suite 101 PHONE: (480) 941-1440

CITY, STATE: Scottsdale, AZ ZIP CODE: 85250

SURVEYOR: Wilson & Co. CONTACT: C. Scott Croshaw, P.S.

ADDRESS: 4900 Lang Ave. NE PHONE: (505) 348-4035

CITY, STATE: Albuquerque, NM ZIP CODE: 87109

CONTRACTOR: Gerald Martin CONTACT: Thom Krege

ADDRESS: 8501 Jefferson NE PHONE: (505) 828 1144

CITY, STATE: Albuquerque, NM ZIP CODE: 87113

CHECK TYPE OF SUBMITTAL:

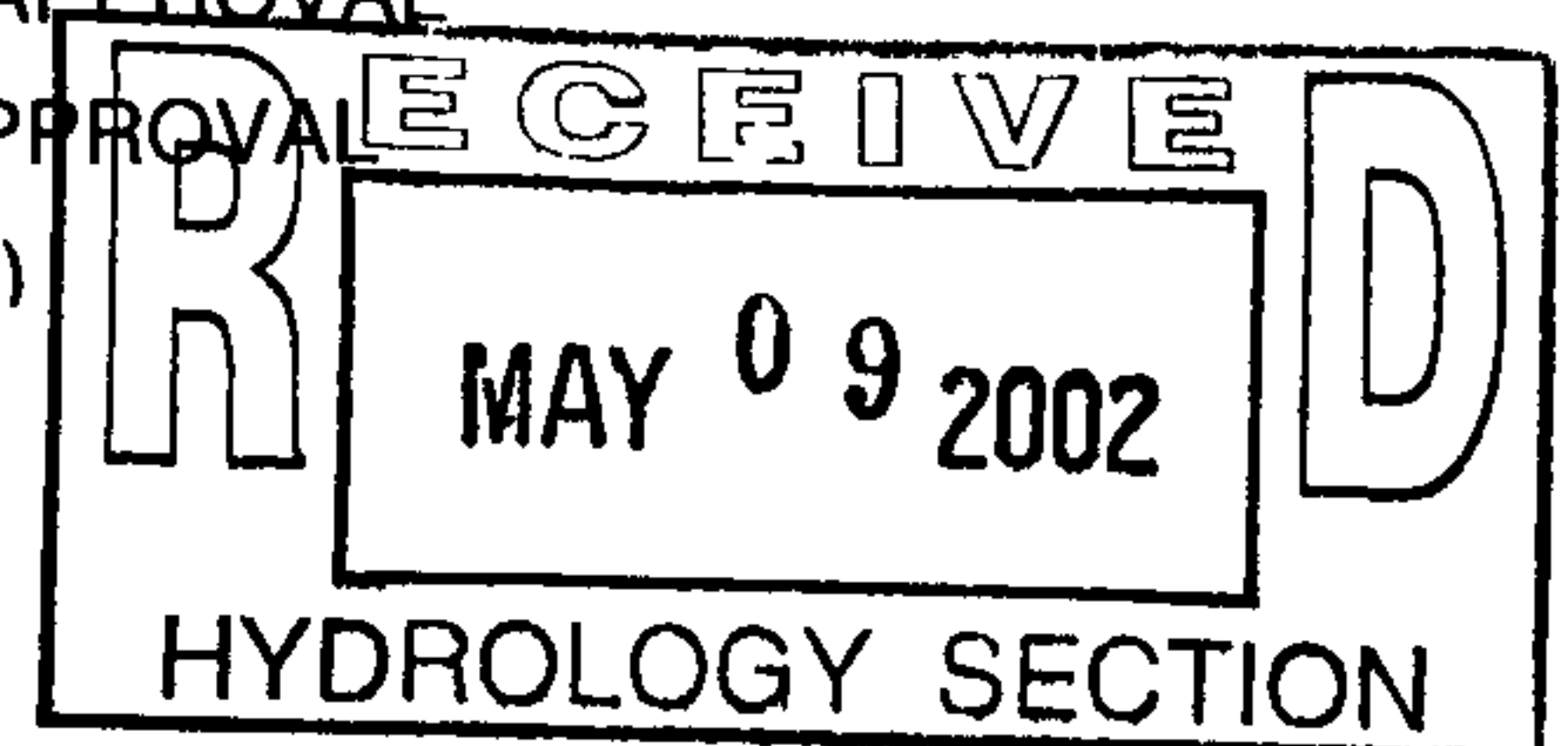
- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN
- ☐ CONCEPTUAL GRADING & DRAINAGE PLAN
- ☐ GRADING PLAN
- ☐ EROSION CONTROL PLAN
- ☒ ENGINEERS CERTIFICATION (HYDROLOGY)
- ☐ CLOMR\LOMR
- ☐ TRAFFIC CIRCULATION LAYOUT (TCL)
- ☐ ENGINEERS CERTIFICATION (TCL)
- ☐ ENGINEERS CERTIFICATION (DRB. APPR. SITE PLAN)
- ☐ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SIA / FINANCIAL GUARANTEE RELEASE
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ S. DEV. PLAN FOR SUB'D. APPROVAL
- ☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ☐ SECTOR PLAN APPROVAL
- ☐ FINAL PLAT APPROVAL
- ☐ FOUNDATION PERMIT APPROVAL
- ☐ BUILDING PERMIT APPROVAL
- ☐ CERTIFICATION OF OCCUPANCY (PERM.)
- ☒ CERTIFICATION OF OCCUPANCY (TEMP.)
- ☐ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☐ WORK ORDER APPROVAL
- ☐ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☒ YES
- ☐ NO
- ☐ COPY PROVIDED



Date Submitted: 5/9/02 By: Bryette Stagner

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope of the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5)
3. **Drainage Report:** Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

WILSON & COMPANY

2600 THE AMERICAN ROAD SE, SUITE 100
RIO RANCHO, NEW MEXICO 87124

(505) 898-8021

FAX (505) 898-8501

To: Plaza Del Sol
2nd Floor West

Attn: Brad Bingham

WE ARE SENDING YOU ☒ Attached ☐ Under Separate Cover

☐ Shop Drawings

☐ Prints

☐ Copy of letter

☐ Change order

via _____ the following items:

☒ Plans

☐ Samples

☐ Specifications

☐ _____

Copies	Date	Pages/Sheets	Description
1	5/7/02	1	App. for Temporary Certificate of Occupancy

THESE ARE TRANSMITTED AS CHECKED BELOW:

☒ For approval/signature

☐ Approved as submitted

☐ Resubmit _____ copies for approval

☐ For your use

☐ Approved as noted

☐ Submit _____ copies for distribution

☐ As requested

☐ Return _____ copies

☐ Return _____ corrected prints

☐ For review and comment

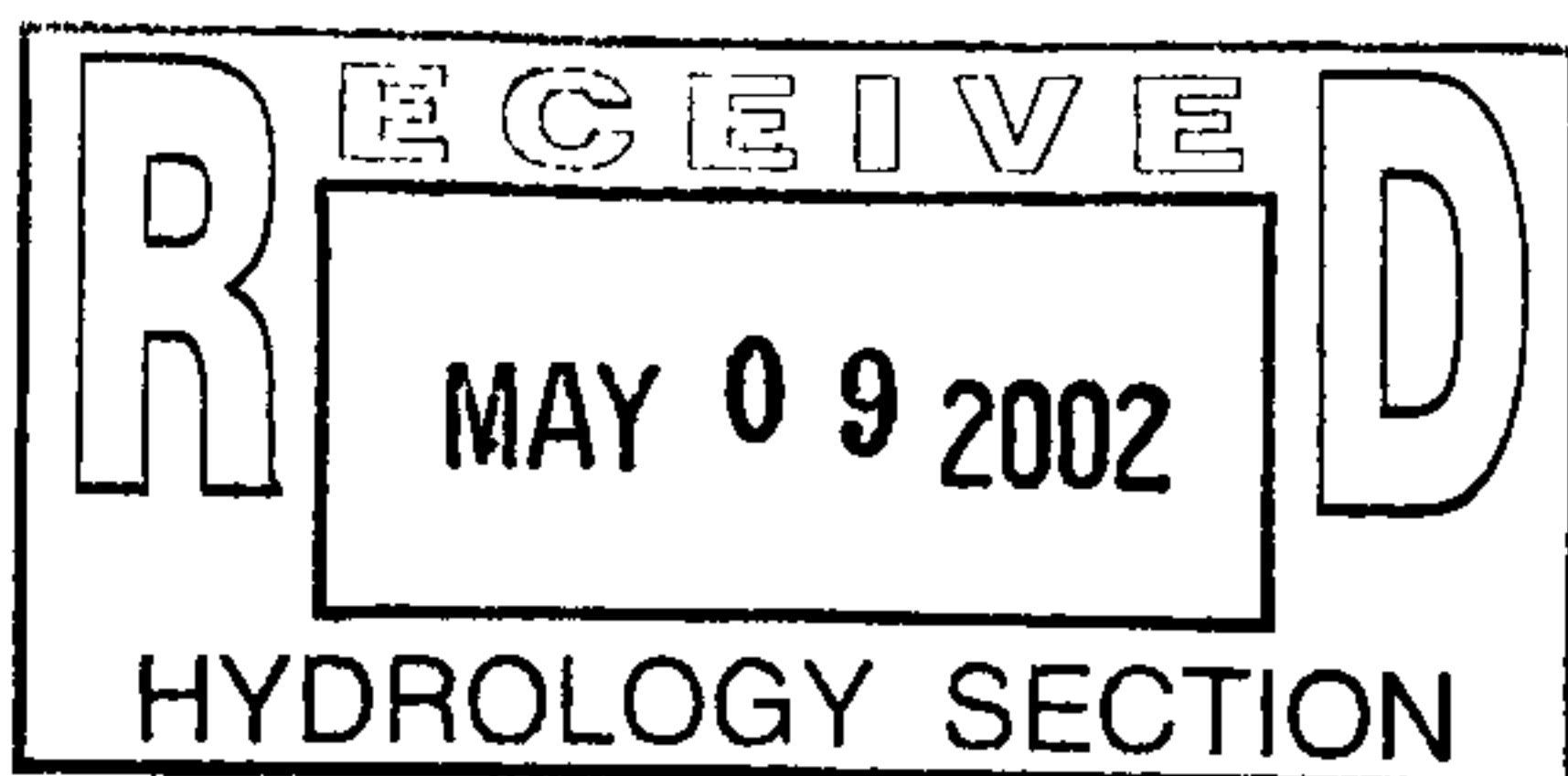
☐ _____

☐ FOR BIDS DUE _____, 20__ ☐ PRINTS ON LOAN - RETURN TO WCEA AFTER BID

Remarks: _____

COPY TO: File

SIGNED: Bryette Stynes



RECEIVED BY: _____

DATE: _____



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

*Franklin's
Earthmoving
4/30/02
Permit #
2057134*

December 21, 2000

L. Bradford Sumrall, P.E.
Wilson & Company
4900 Lang Avenue, NE
Albuquerque, NM 87109

RE: GRADING & DRAINAGE PLAN FOR ~~LOWE'S-EAST-ALBUQUERQUE~~ (G-22/
D013A) ENGINEER'S STAMP DATED DECEMBER 20, 2000, SUBMITTED FOR
BUILDING PERMIT AND SO 19 APPROVALS

Dear Mr. Sumrall,

Based upon the information provided in your December 20, 2000, submittal, the project, referred to above, is approved for Building Permit. Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

In addition, the submittal is approved for an SO 19 permit, which is required for construction within the city right-of-way.

Prior to release of the Certificate of Occupancy, an Engineer's Certification of the grading and drainage plan, per the DPM checklist, and a copy of the grading and drainage plan, with approval sign-off by the City's field inspector for the SO 19, will be required.

If you have any questions, please call me at 924-3988.

Sincerely,

Stuart Reeder, P.E.

Stuart Reeder, P.E.
Hydrology Division

xc: ☒ Pam Lujan, Permits w/attachment
Whitney Reiersen
File

EXHIBIT "A" (Revised 5/10/99)
TO SUBDIVISION IMPROVEMENT AGREEMENT
DEVELOPMENT REVIEW BOARD
REQUIRED INFRASTRUCTURE LISTING
FOR
LOWE'S HOME CENTER, 3100 JUAN TABO BLVD

D.R.B. Case No. 1000769
D.R.C. Project No. _____
Date Submitted: 12/15/00

Preliminary Plat Approval _____
Site Development Plan Approval X

DEVELOPMENT REVIEW BOARD (D.R.B.)
REQUIRED INFRASTRUCTURE LISTING
for LOWE'S HOME IMPROVEMENT CENTER
3100 JUAN TABO NE

Following is a summary of Public/Private Infrastructure required to be constructed or financially guaranteed to be constructed for the above development. This summary is not necessarily a complete listing. During the design process, if the City determines that appurtenant items have not been included in the summary, those items will be included in the listing and related financial guarantee, if the items normally are Subdivider responsibility. In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider responsibility are the responsibility of the Subdivider and will be included in the financial guarantee provided to the City.

<u>SIZE</u>	<u>TYPE IMPROVEMENT</u>	<u>LOCATION</u>	<u>FROM</u>	<u>TO</u>
<u>PAVEMENT</u>				
20' F-F	Commercial Alley Section	Eastern Property Margin	Northeast Property Corner	Candelaria Rd
Concrete Median	Concrete MedianCurb	Candelaria Rd.	325' east of Candelaria Rd./Juan Tabo Blvd. Intersection	445' east of Candelaria Rd./Juan Tabo Blvd. Intersection
Concrete Median	Concrete MedianCurb, Lt Turn Bay	Candelaria Rd.	85' east of Candelaria Rd./Juan Tabo Blvd. Intersection	175' east of Candelaria Rd./Juan Tabo Blvd. Intersection
12' Decel Lane	12' Wide Deceleration Lane	Candelaria Rd. (west bound)	400' east of Candelaria Rd./Juan Tabo Blvd. Intersection	580' east of Candelaria Rd./Juan Tabo Blvd. Intersection
Bus Bay	Bus Bay w/shelter	Juan Tabo Blvd.	150' north of Juan Tabo Blvd/Candelaria Rd Intersection	300' north of Juan Tabo Blvd/Candelaria Rd Intersection
Concrete Median	Concrete MedianCurb, Lt Turn Bay	Juan Tabo Blvd.	170' North of Candelaria Rd./Juan Tabo Blvd. Intersection	270' North of Candelaria Rd./Juan Tabo Blvd. Intersection
Concrete Median	Concrete MedianCurb, Lt Turn Bay	Juan Tabo Blvd.	470' North of Candelaria Rd./Juan Tabo Blvd. Intersection	590' North of Candelaria Rd./Juan Tabo Blvd. Intersection

<u>SIZE</u>	<u>TYPE IMPROVEMENT</u>	<u>LOCATION</u>	<u>FROM</u>	<u>TO</u>
Concrete Median	Concrete MedianCurb, Lt Turn Bay	Juan Tabo Blvd.	880' North of Candelaria Rd./Juan Tabo Blvd. Intersection	980' North of Candelaria Rd./Juan Tabo Blvd. Intersection

<u>SIZE</u>	<u>TYPE IMPROVEMENT</u>	<u>LOCATION</u>	<u>FROM</u>	<u>TO</u>
<u>WATER</u>				
10"	PVC Water Line	East Side of Lowe's Home Center	Candelaria Blvd	900 LF north
10"	PVC Water Line	North Side of Lowe's Home Center	90 deg Bend from above line heading west	146 LF west
6"	PVC Water Line	North Side of Lowe's Home Center	North from tee at 146 west of 90 deg bend	160 LF north to private easement
10"	PVC Water Line	East Side of Lowe's Home Center	71' north of southern property line	10' west of 10" main to edge of easement
6"	PVC Water Line	East Side of Lowe's Home Center	80' north of southern property line	10' west of 10" main to edge of easement
6"	PVC Water Line	East Side of Lowe's Home Center	18' north of southern property line	10' west of 10" main to edge of easement
FH	Fire Hydrant Relocation, 4' bury, MJ, incl. Restraint	North Side of Private Easement	55 LF north of property line	
6"	PVC Water Line	North Side of Lowe's Home Center	7' West of 90 deg bend	10' north to edge of easement
10"	PVC Water Line	North Side of Lowe's Home Center	At tee, 146' west of 90 deg Bend	22 ' west to edge of easement
<u>SANITARY SEWER</u>				
6"	SAS Line	Juan Tabo Blvd	West Property Line	54 LF to SAS in Juan Tabo Blvd.
6"	SAS Line	Juan Tabo Blvd	West Property Line	63 LF to SAS in Juan Tabo Blvd.
<u>STORM DRAINAGE</u>				
18"	15 LF of 18" SICP Storm Drain Line	Drop Inlet 365' east of intersection of Candelaria Rd./Juan Tabo Blvd.	South Property Line	SE to Drop Inlet
18"	14 LF of 18" SICP Storm Drain Line	Drop Inlet 27' east of intersection of Candelaria Rd./Juan Tabo Blvd.	South Property Line	South to Drop Inlet
24"	Sidewalk Drain	Juan Tabo Blvd.	470' north of intersection of Juan Tabo Blvd/Candelaria Rd.	
24"	Sidewalk Drain	Juan Tabo Blvd.	795' north of intersection of Juan Tabo Blvd/Candelaria Rd.	

Prepared by: _____
Printed Name: L. Bradford Sumrall, P.E.
Firm: Wilson & Company

SIZE TYPE IMPROVEMENT LOCATION FROM TO

Development Review Board Members Approvals

Traffic Date Public Works Utility Division Date

Parks - CIP Date City Engineer/AMAFCA Date

DRB Chairman Date



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

February 22, 1993

Steve Metro
Wilson & Company
6611 Gulton Court NE
Albuquerque, NM 87109

RE: REVISED DRAINAGE PLAN FOR A SONIC @ JUAN TABO & CANDELARIA (G22-D13A)
REVISION DATED 2/18/93.

Dear Mr. Metro:

Based on the information provided on your February 17, 1993 resubmittal, 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, CE
Engineering Assistant

BJM/d1/WPHYD/7470

xc: Alan Martinez
File_

PUBLIC WORKS DEPARTMENT



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

January 27, 1993

Steve Metro
Wilson & Company
6611 Gulton Ct. NE
Albuquerque, NM 87109

RE: DRAINAGE PLAN FOR A SONIC @ JUAN TABO & CANDELARIA (G22-D13A)
ENGINEER'S STAMP DATED 1/15/93.

Dear Mr. Metro:

Based on the information provided on your January 21, 1993 submittal, listed are certain concerns that will need to be addressed prior to final approval:

- ✓1. Benchmark must be permanently marked.
- ✓2. Top of curb and flow line elevation on Juan Tabo adjacent to the site.
- ✓3. Location and direction of roof drains.
4. Flow arrows to indicate how the proposed site will drain onto Juan Tabo.

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

Sincerely,

Bernie J. Montoya, CE
Engineering Assistant

BJM/d1/WPHYD/7470

PUBLIC WORKS DEPARTMENT



The City of Albuquerque
Engineering Division

MUNICIPAL DEVELOPMENT DEPARTMENT
P.O. Box 1293
ALBUQUERQUE, NEW MEXICO 87103

CARLOS MONTOTOYA, P.E.
CIVIL ENGINEER

(505) 766-7644

Enterprises

Insurance and Real Estate

R.P. Tinnin, Sr.
Chairman of the Board

Thomas P. Tinnin
President

RECEIVED
OCT 23 1985
DH0451
HYDROLOGY SECTION

October 16, 1985

Mr. Carlos Montoya
City of Albuquerque
Engineering Division
Municipal Development Dept.
P.O. Box 1293
Albuquerque, New Mexico 87103

Dear Mr. Montoya:

Enclosed is a copy of the approved drainage plan for Tinnin Shopping Center. I have indicated in red the existing ponding areas I would like to remove. This is in accordance with the plan.

My intent is to fill the ponding areas in with dirt and plant it with a variety of attractive plants to enhance the visible characteristics of the area.

If you concur with this proposal, please sign at the bottom of this letter and return it to me as soon as is convenient. I enclose a signed copy of this letter for your records and files.

Sincerely,

Thomas P. Tinnin, cal

Thomas P. Tinnin
President

TPT:cal
enclosure as indicated

Carlos A. Montoya



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

FILE COPY

November 14, 1983

Mr. Michial Emery
Bohannon-Huston, Inc.
4125 Carlisle Boulevard NE
Albuquerque, NM 87107

REF: DRAINAGE REPORT FOR TINNIN CENTER (G22-D13A)

Dear Mr. Emery:

In accordance with your response to my letter dated October 6, 1983, the above referenced drainage plan is conceptually approved.

It is understood that a more detailed plan will be forthcoming for approval from this department.

If I can be of further assistance, please contact me at 766-7644.

Yours truly,

Billy J. Goolsby, PE
Civil Engineer/Hydrology

BJG:mrk

MUNICIPAL DEVELOPMENT DEPARTMENT

C. Dwayne Sheppard, P.E.,

City Engineer

ENGINEERING DIVISION

Telephone (505) 766-7467

AN EQUAL OPPORTUNITY EMPLOYER

BOHANNAN-HUSTON INC.



4125 CARLISLE BLVD., N. E. ALBUQUERQUE, NEW MEXICO 87107 505 881-2000
 6713 VISCOUNT BLVD., EL PASO, TEXAS 79925 915 778-4491
 330 GARFIELD, SANTA FE, NEW MEXICO 87501 505 988-7671

October 25, 1983

Rec'd 10/31/83

Mr. Billy J. Goolsby
 Civil Engineer — Hydrology
 City of Albuquerque
 P.O. Box 1293
 Albuquerque, NM 87103

Re: Tinnin Center Drainage Report (G322-D13A)

Dear Billy:

This letter is in response to your comments dated October 6, 1983, on the above-referenced drainage report. As stated in your letter, detailed construction drawings will need to be prepared and submitted for approval prior to issuance of a building permit.

Since there is no regrading proposed around the perimeter of the site, except along the eastern boundary, we do not believe that extending the contours 25 feet is necessary. The boundaries of the site, on the north and south sides, are existing curb and gutter. The existing curb grades will be maintained.

Along the east boundary, the site borders an existing residential area. Spot elevations have been provided on all sides of the block walls at the existing property corners. We feel this should be adequate information to determine the acceptability of the proposed grading.

The Albuquerque Master Drainage Study performed an extensive analysis of the drainage conditions around the site. It indicates that there is a peak 100-year flow rate of 198 cfs at the intersection of Juan Tabo and Candelaria. Of this amount, 120 cfs is in the existing 54" storm drain. The Albuquerque Master Drainage Study does not indicate any flooding adjacent to the site. Therefore, additional analysis of the off-site flows should not be necessary.

Development of the site, as outlined in this report, will reduce the peak discharge from the site. Since development will improve the conditions downstream of the site, we do not feel an extensive analysis should be required.

It is our understanding that the drainage patterns proposed do not result in runoff crossing properties under separate ownership. All runoff is discharged directly into private or public streets. If further subdivision of the property occurs, the necessary easements will be provided.

PRINCIPALS

JERRY R. BOHANNAN, P. E. & L. S.

LARRY W. HUSTON

MICHAEL M. EMERY, P. E.

Mr. Billy J. Goolsby
October 25, 1983
Page 2

Appropriate "Construction within Public R/W" documents will be provided prior to construction.

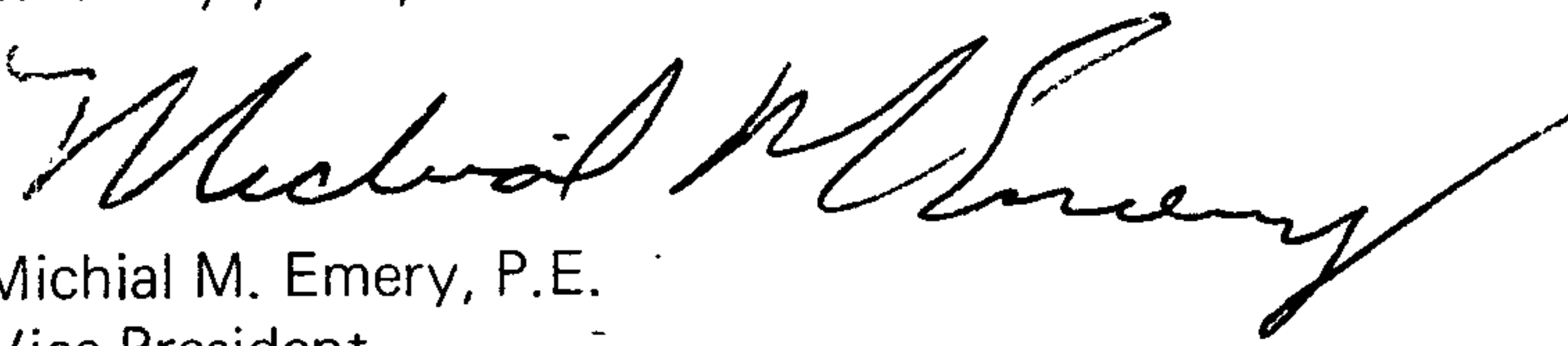
The flow arrow in Basin O was drawn incorrectly. The flows in Basin O will be discharged through a sidewalk culvert (per City Standard Drawing K-16-1), directly to the private street. The flows will not be routed through the landscaped area as previously shown.

Please note that in Table 4, Basin O is identified as a typical apartment basin. However, this is not a typical basin. The peak discharge from Basin O is 1.33 cfs. The other apartment basins 1a - 5b are identical to each other. The runoff from these basins will be discharged from the five detention ponds. The combined discharge will be 7.5 cfs. Therefore, the peak discharge from the apartment site will be $1.33 + 7.50 = 8.83$ cfs. The amount indicated in Table 4, is 11.3 cfs.

Details of the detention ponds within the apartment site will be submitted for approval prior to issuance of a building permit. A copy of your comments has been submitted to the architect. Your comments will be considered at the time these details are prepared.

If this additional information addresses your previous concerns, we would appreciate your prompt approval of the report with the above additions. If you have any questions, do not hesitate to contact Dave Millikan or me.

Sincerely yours,


Michael M. Emery, P.E.
Vice President

cc: Mr. Tom Tinnin
Mr. Van Gilbert

DMYM/js
Job No. 3 189 1

9/29/83 ~~AA~~ (G22-D13A)

Review of Drainage Report For Tinnen Center

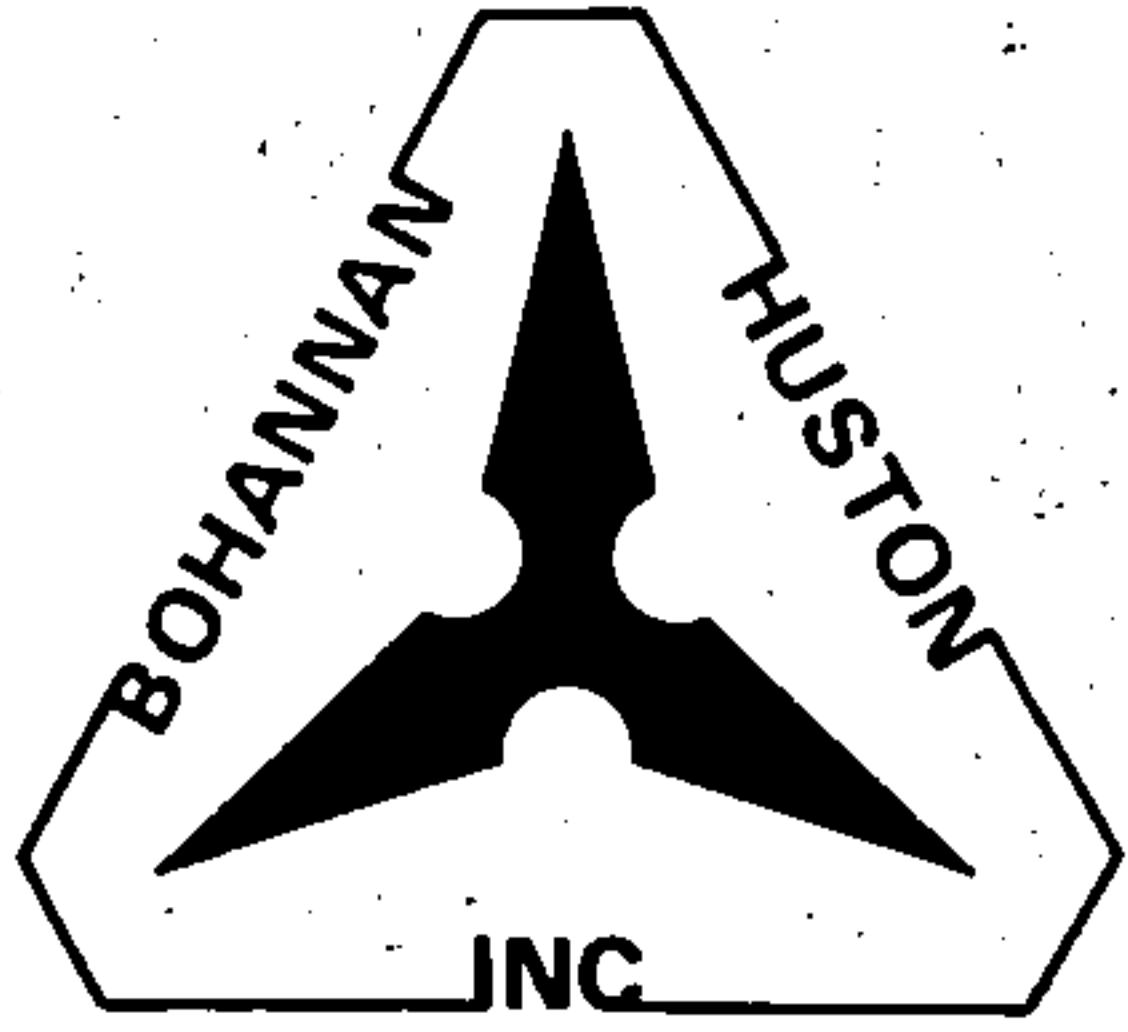
1. No Vicinity Map
2. No legal description
3. Non-standard scale
4. Contours do not extend beyond R
5. Off-site flows in Candelaria & Juan Tabo are not quantified.
6. T.C. & F.L. elevations not shown

Conceptual Review Only

This project was in the EPC review
No adverse comments other than
traffic was going to require some
rerouting on-site.

Do they address in the report:

1. Close proximity passing to structure?
2. The allowable outfall? - They propose several outlet pipes



BOHANNAN-HUSTON INC.

4125 Carlisle Blvd. Albuquerque, New Mexico 87107

(505) 881-2000

NE

To: City Engineering

622-013a

Attention: Theresa Lucero

☐ Parcel Post

☒ Messenger

☐ First Class

☐ UPS

☐ Air Mail

☐ RR Express

☐ Special Delivery

☐ Air Freight

☐ Bus

Transmittal

Date: 9-7-83 Our job number: 31891

Your job number: _____

Job: Drainage Report for Tinnin Center

We are enclosing:	For:
☐ Prints	☒ Your Use
☐ Sepias	☐ Your Approval
☐ Tracings	☐ Your Records
☐ Specs	☒ Review & Comments
☒ Studies Report	☐ Revisions
☐ Xerox	☐ Response to Your Request
☐ Plan Sets	_____
_____	_____
_____	_____
_____	_____

RECEIVED

SEP 08 1983

ENGINEERING

Comments: _____

By: David M. J. Miller thank you

Rec'd by: Becky Sandorval Date: 9-8-83

INFORMATION SHEET

PROJECT TITLE Tinnin Center TYPE OF SUBMITTAL Drainage Report

ZONE ATLAS PAGE NO. G-22 CITY ADDRESS _____

LEGAL DESCRIPTION Tinnin Shopping Center

ENGINEERING FIRM Bohannon—Huston, Inc. CONTACT Dave Millikan

ADDRESS 4125 Carlisle Blvd., NE PHONE 881-2000

OWNER Tinnin Enterprises CONTACT Tom Tinnin

ADDRESS P.O. Box 1885, Albuquerque, NM PHONE _____

ARCHITECT Van Gilbert & Associates CONTACT Jim Graf

ADDRESS 319 Central, NW, Albuquerque, NM PHONE 247-9955

SURVEYOR Bohannon—Huston, Inc. CONTACT Dwain Weaver

ADDRESS 4125 Carlisle Blvd., NE PHONE 881-2000

CONTRACTOR N/A CONTACT _____

ADDRESS _____ PHONE _____

DATE SUBMITTED 9-1-83

BY _____

RECEIVED
SEP 08 1983
ENGINEERING



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

May 29, 1992

Jake Bordenave
Bordenave Designs
Post Office Box 91194
Albuquerque, New Mexico 87199

RE: CONCEPTUAL DRAINAGE PLAN FOR TINNIN CENTER
(G-22/D13A) ENGINEER'S STAMP DATED APRIL 13, 1992

Dear Mr. Bordenave:

Based on the information provided on your submittal of May 7, 1992, the referenced site is approved for Site Development. Please be advised that prior to Building Permit release, the following concerns must be addresses.

1. Location and direction of roof drains.
2. Top of curb and flowline elevations on Juan Tabo Blvd., NE.
3. Spot elevations within your flow arrows.

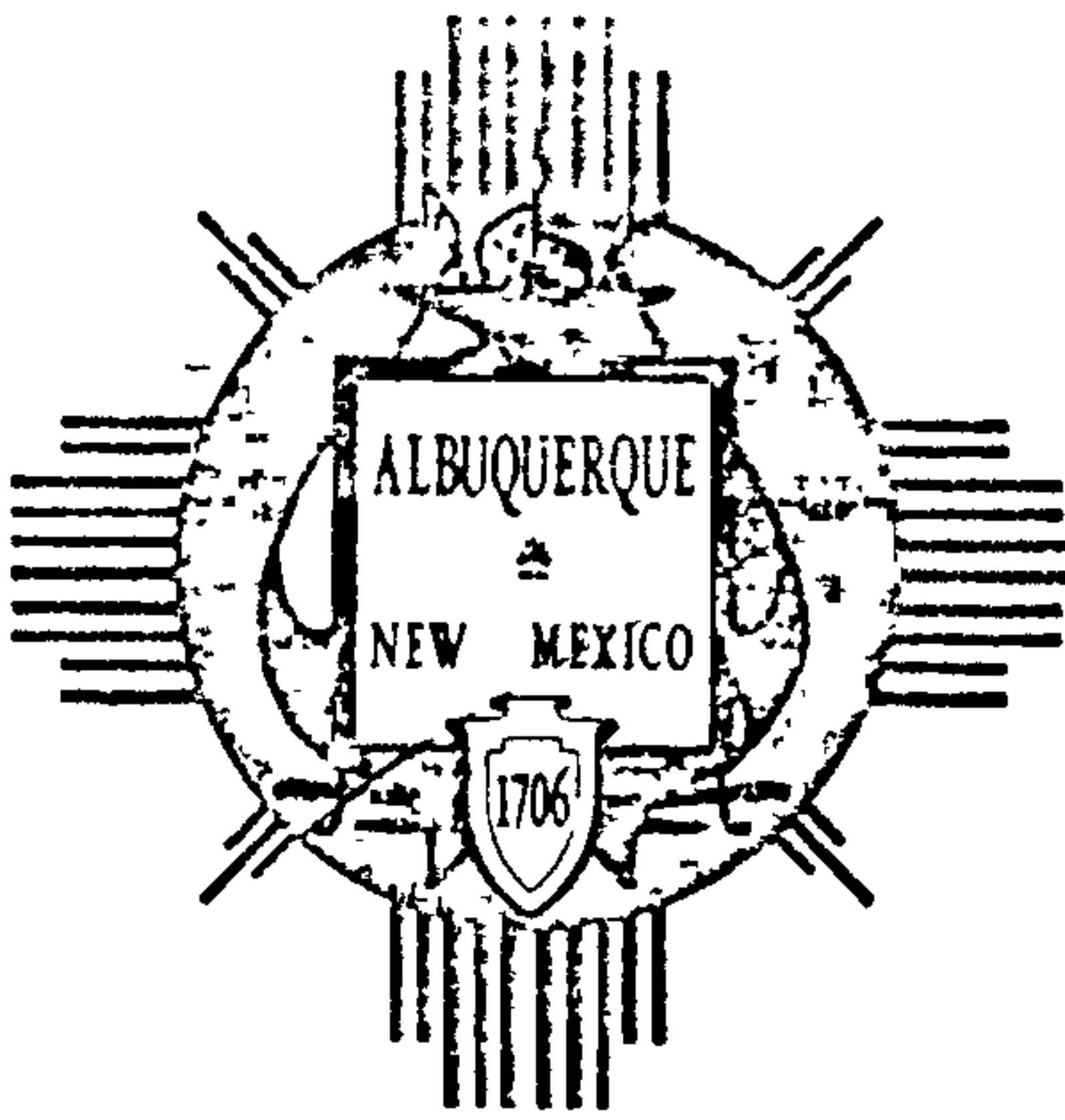
If I can be of further assistance, please feel free to call me at 768-2650.

Cordially,

Bernie J. Montoya, C.E.
Engineering Assistant

BJM/bsj
(WP+3370)

PUBLIC WORKS DEPARTMENT



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

October 6, 1983

Mr. David Millikan
Bohannon-Huston, Inc.
4125 Carlisle Blvd. N.E.
Albuquerque, N.M. 87107

RE: TINNIN CENTER DRAINAGE REPORT (G22-D13A)

Dear Mr. Millikan:

I have reviewed the report for the above mentioned site and the following are my comments:

1. As per your report the submitted plan has been reviewed as a conceptual master drainage scheme for the site, with the understanding that detailed grading and drainage plans will be submitted for approval prior to issuance of a building permit.
2. With respect to the previous comment the following items will have to be incorporated in the detailed plan.
 - a. Vicinity map.
 - b. Legal description.
 - c. The current submittal is of non-standard scale.
 - d. Contours to extend 25 feet (min) beyond the property line.
 - e. Off-site flows and downstream capacities will have to be quantified i.e., the existing flows in Juan Tabo and Candelaria and the capacity of the downstream systems.
 - f. The top of curb and flowline elevations will need to be given for verifying street capacities.
 - g. Easements and R/W's will need to be identified.
 - h. Appropriate "Construction Within Public R/W's" document will be required.
3. The drainage scheme looks good. There are a couple of comments concerning it.
 - a. For basin 0 the runoff is directed off the pavement into the landscaping. However, ponding is not provided. How is it to be handled from there?

Tinnin Enterprises

Insurance and Real Estate

Thomas P. Tinnin
President



Bus. (505) 242-2871

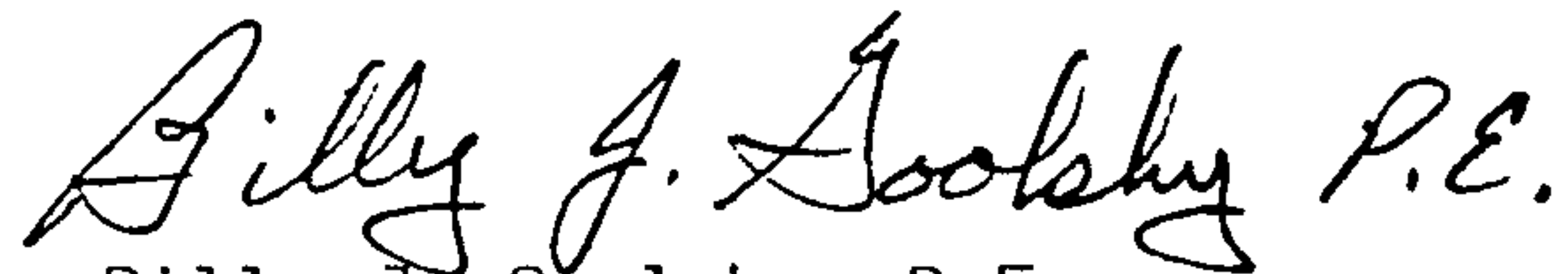
Res (505) 836-6904

20 First Plaza, Suite 518 • P O Box 1885 • Albuq, N.M. 87103

- b. It is recommended that plastic liner not be considered for the water-proofing of the ponds. The reasoning is due to the risk of damage by puncturing, etc. Maybe clay lining, asphalt or concrete would be better alternates. The other option would be the fifteen foot separation of the pond and the building.

Should you have any questions or comments concerning this review, please contact me.

Yours truly,

A handwritten signature in cursive script that reads "Billy J. Goolsby P.E.".

Billy J. Goolsby, P.E.
Civil Engineer/Hydrology

BJG/tsl

BOHANNAN-HUSTON

CHRYSLER

INC.



RECEIVED
TINNIN CENTER
DRAINAGE REPORT
SEP 08 1983
SEPTEMBER 1983
ENGINEERING

DRAINAGE REPORT

FOR

TINNIN CENTER

SEPTEMBER, 1983

PREPARED FOR

**TINNIN ENTERPRISES
P.O. BOX 1885
ALBUQUERQUE, NM 87103**

PREPARED BY

**BOHANNAN-HUSTON, INC.
4125 CARLISLE BLVD., NE
ALBUQUERQUE, NM 87107**



David M. Y. Millikan
David M. Y. Millikan, P.E.
N.M.P.E. No. 7547

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- Figure 2 – Flood Hazard Boundary Map
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- Figure 4 – DPM Plate 22.2 C-1
- Figure 5 – DPM Plate 22.2 D-2
- Figure 6 – DPM Plate 22.2 D-1

PLATES

- Plate 1 – Undeveloped Drainage
- Plate 2 – Developed Drainage and Grading Plan

PURPOSE AND SCOPE

This drainage report has been prepared to study the treatment of storm water flowing onto and generated within Tinnin Center. The report will be in two parts. First, the existing drainage conditions will be studied. Second, recommendations will be made to accommodate the proposed changes in the site.

This report is intended to analyze the drainage for this site in a comprehensive manner. Development of the site, in the manner outlined in this report will be in compliance with the criteria outlined in chapter 22 of the Development Process Manual (DPM). This report does not include a detailed grading plan. It is recommended that detailed construction drawings for all of the proposed improvements be prepared and approved prior to construction.

SITE LOCATION AND DESCRIPTION

The site is located in the North East Heights of Albuquerque, New Mexico. It is bounded by Candelaria Road on the south and by Juan Tabo Blvd. on the west.

The site contains approximately 14.6 acres. It slopes from northeast to southwest at a slope of approximately 3.3%.

The site will be divided into two areas. The first area will contain the existing shopping center and its proposed modifications. The second area contains the area from the west side of the private road to the east boundary of the site. (See Plate 1).

The soils on the site are classified by the Soil Survey for Bernalillo County as being Embudo-Tijeras complex. This soil type is classified as belonging to Hydrologic Soil Group "B".

METHOD OF ANALYSIS

The peak flow rates for the developed and undeveloped basins as well as the total runoff volumes were determined by using the Rational Method. This method was used as outlined in the DPM. The time of concentration was found to be less than ten minutes for all basins; therefore, ten minutes was used in all computations.

Rainfall intensities were determined by applying plates 22.2 D-1 (Figure 5) and 22.2 D-2 (Figure 6) of the DPM. The 100-year intensity was determined to be 5.38 in/hr. The 10-year intensity is 3.06 in/hr.

The runoff coefficients for the site were determined by calculating the percent of each basin which is impervious and using plate 22.2 C-1 (Figure 4).

EXISTING CONDITIONS

There is no runoff which enters the site from the upland basins. Flows in Candelaria and Juan Tabo are contained within the street rights-of-way. (See Figures 2 & 3).

The area east of the private road is undeveloped at the present time. Runoff from this area flows to the private road. From this point they are conveyed within the private road to Candelaria Blvd. The peak 100-year discharge from this area under present conditions is 11.8 cfs. The 100-year volume generated on this area is approximately 20,038 cubic feet. (Computations are included in Appendix)

A drainage and grading plan for the shopping center was prepared prior to previous development. Review of this report along with a visual inspection of the site indicates that not all of the recommendations in the previous report have been properly executed. The existing drainage plate for the shopping center divides the site into 18 drainage basins. (See Plate 1). The total 100-year discharge and total volume for this area under present conditions were found to be 41.0 cfs and 82,328 ft³.

Under present conditions there is retention ponding in some of the landscaped areas along Juan Tabo, in Basin M and along the private road behind the stores. The other ponds are graded to retain runoff, however, at the locations the runoff is supposed to enter the ponds, the parking lot is slightly below the elevation of the landscaped areas. Therefore, runoff from these areas does not enter the ponding areas. It is felt that not all of the ponding indicated on the previous drainage plan is ponded.

These ponds on the westside of the site which are collecting flows are in basins M and G. The previous report indicated that the total volume which was provided for storage was 21,757 ft³. It appears that only 12,780 ft³ is being retained under the present conditions. (See computations in the Appendix).

Our analysis of the site indicates that detention ponding is also provided on the roofs of the majority of the buildings. Discharge from the roofs is either through a limited number of scuppers or through 2" or 3" drain pipes. Computations indicating the amount of detention ponding on each roof are included in the appendix.

Due to the amount of runoff retained and the method by which it is retained, the area behind the stores is unsightly under present conditions. The majority of the roof area drains to this area. Retention ponding is provided adjacent to the buildings and stagnant water is continuously present in some of these areas. The 100-year discharge from this area under present conditions is 4.27 cfs. The 100-year volume generated on this area is approximately 23,522.4 ft³.

PROPOSED CONDITIONS

Since there are not severe flooding problems downstream from the site under present conditions, peak discharge after the proposed development should be equal to or less than the peak recommended in the previous report.

In the area west of the existing stores, we propose to build five detention ponds in the landscaped areas which already exist. The drainage and grading plan (Plate 2) indicates the drainage basins, flow directions and discharge (due to the 100-year storm) corresponding to the developed site. Computations in the Appendix show the detention pond cross-sections, inflow hydrographs, and proposed contours. The proposed contours and cross-sections indicate possible grading for these ponding areas. Construction plans of these areas may be different as long as the required volume is provided and other City requirements are met. Each of the basins will be drained by a drainline at the discharge rates indicated on Plate 2. Basins A, B, C, D, E, F, G, I, and J all drain onto Juan Tabo Blvd. as shown. Basin H drains onto Candelaria.

The existing retention ponds behind the shopping center will be regraded and a 6" drainline will be installed to drain this area to the existing storm sewer in Candelaria. Runoff from the roofs which drain to this side will be collected in these ponds and discharge into the drainline. Under existing conditions the discharge from the roofs is controlled by the number and size of discharge points. This detention of the runoff is utilized in the computations in this report (See Appendix).

At the present time runoff from the roof of the largest store (in the northeast corner) discharges through the backwall of the store onto the loading dock area. The locations at which these discharges occur results in some of the runoff draining into the depressed loading areas. At one time, sump pumps were used to remove this water from the loading docks. A site visit indicated that at least one of the sump pumps was either not being used, or is not functioning properly at this time.

In order to reduce the amount of standing water in these areas, there are two options:

- a. Repair the sump pump(s), as necessary, and institute a maintenance program to ensure they are used properly. It is recommended that the discharge from the sumps be directed into the ponding area in Basin M.
- b. Appropriate steps be taken to convey runoff directly from the roof drains to the detention pond in Basin M. It may be possible to do this by connecting a drainline to the building wall which collects runoff from the roof drains and conveys it to the south towards the ponds.

The total ponding on the shopping center, excluding roof ponding, outlined in this report design is 22,206 ft³. The amount required in the previous report was 21,757 ft³. The peak discharge upon development as outlined in this report is 25.8 cfs. This is about 2 cfs less than leaves the site under present conditions. Therefore, proposed revisions to the shopping center site do not negatively impact existing conditions downstream from the site.

The ponds behind the shopping center are within 15 feet of the center. These detention ponds are in the same location as the present retention ponds. Since the ponds will now have an outlet, the situation is an improvement on the present conditions.

The peak flow rates and volumes for the apartment site are shown in the Appendix. Runoff from the roofs of the apartments will be drained to the front. This as well as runoff from the drives will be routed through detention ponds adjacent to the private road. The ponds will detain the peak so that the peak discharge from the apartment site and the private road will not exceed the undeveloped rate. Each pond will be drained through a drainline to the private road. From this point, the runoff will be conveyed to Candelaria.

The ponds on the Apartment site will be within 15 feet of the buildings. In order to ensure that they do not produce settlement problems in the buildings, the bottom of the ponds should be waterproof. An alternative solution may be proposed if a soils report is prepared for the site which indicates other acceptable methods.

Runoff that falls in the backyard of each unit will be retained within the backyard. Therefore, this area does not contribute runoff from the site. The allowable discharge rate from the apartments will be equal to or less than the rate which is discharging now. Therefore, development of this site in this manner will not negatively impact existing conditions downstream from the site.

EROSION CONTROL

Erosion during construction of the new additions to the shopping center should not be significant. Some of the existing pavement will have to be removed. However, this should be for a short time only. The limited area of this work and short time of exposure will minimize the chance of erosion.

Erosion on the Apartment site will also be minimized. The first step of construction will be grading. At this point, the site will be graded so that all runoff will be routed through the ponds along the private road. The ponds will trap the majority of sediment before it leaves the site. Upon completion of construction, the entire site will be impervious or landscaped. Therefore, erosion will be negligible.

(Joins sheet 12)

Ad
2

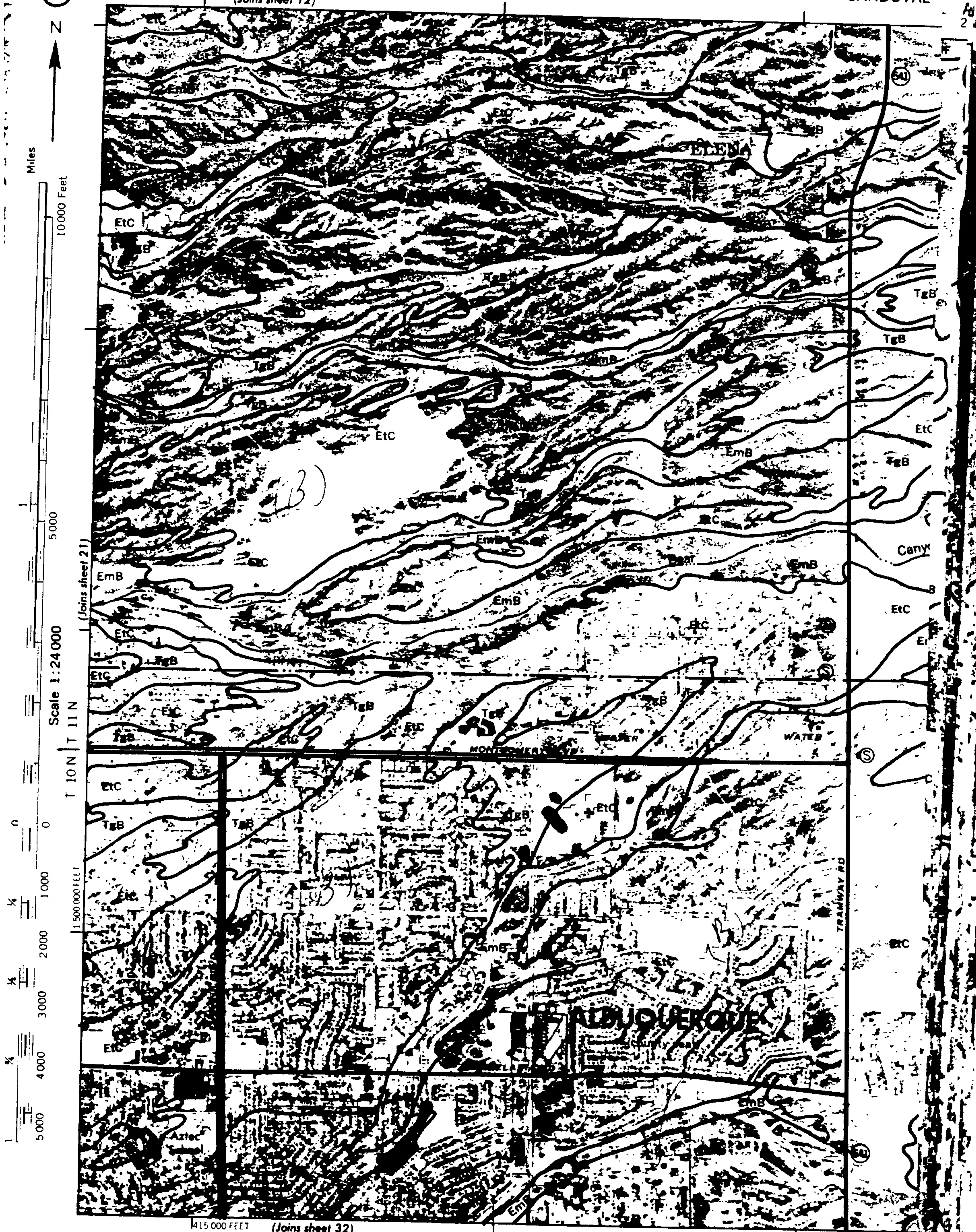


figure 1



Scale in Feet
200 100 0 200 400 600 800



LEGEND

- 100 YEAR FLOOD HAZARD AREA
- 10 YEAR FLOOD HAZARD AREA
- PROPOSED STORM DRAINAGE IMPROVEMENTS
- ANALYSIS POINT



COMPILED BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS
TAKEN DECEMBER 1922 & MARCH 1926 BY ROHANNAN WESTMAN HUSTON
& ASSOCIATES, INC. ALBUQUERQUE, NEW MEXICO

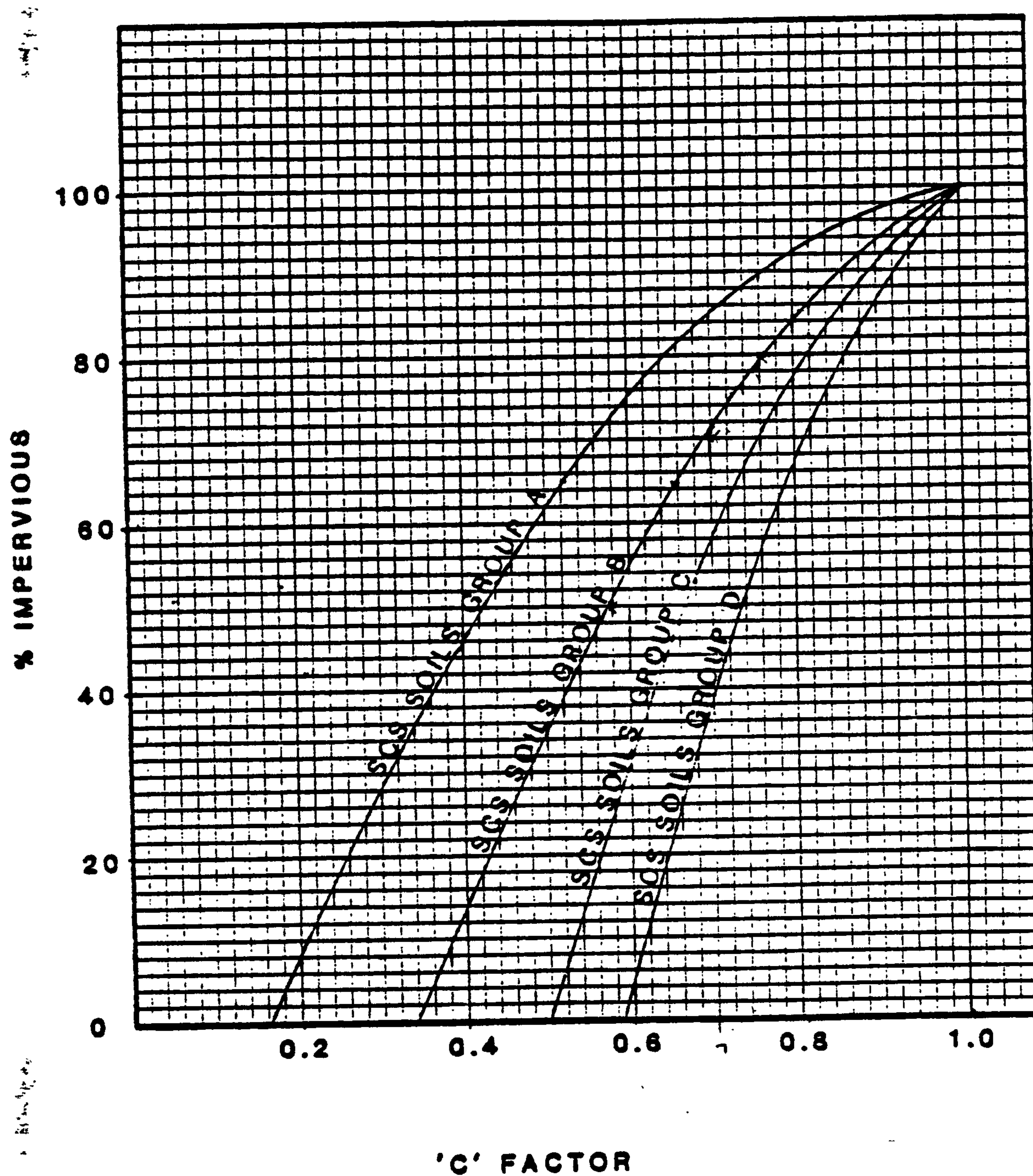
figure 3

G-21

ASTER DRAINAGE STUDY

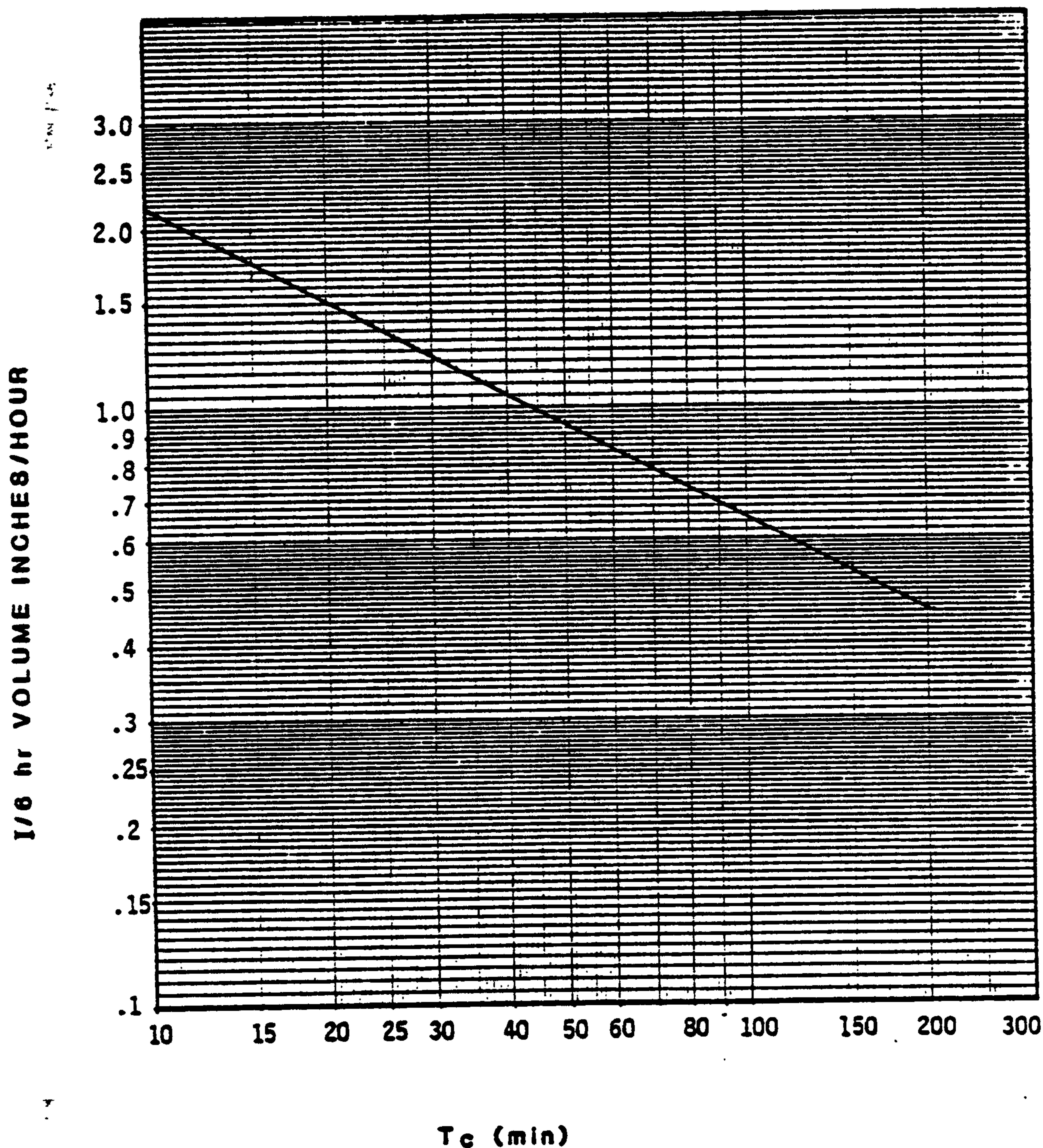
DRAINAGE CRITERIA

DETERMINATION OF RATIONAL FORMULA 'C' FACTOR



DIMENSIONLESS RAINFALL INTENSITIES

$$I = (6\text{-hr. rain}) 6.84 t_c^{-0.51}$$



note: To get actual intensities, multiply rainfall volume from plate D-1 by value from curve. Use reduction factors on Plate D-1 for other than 100-yr.

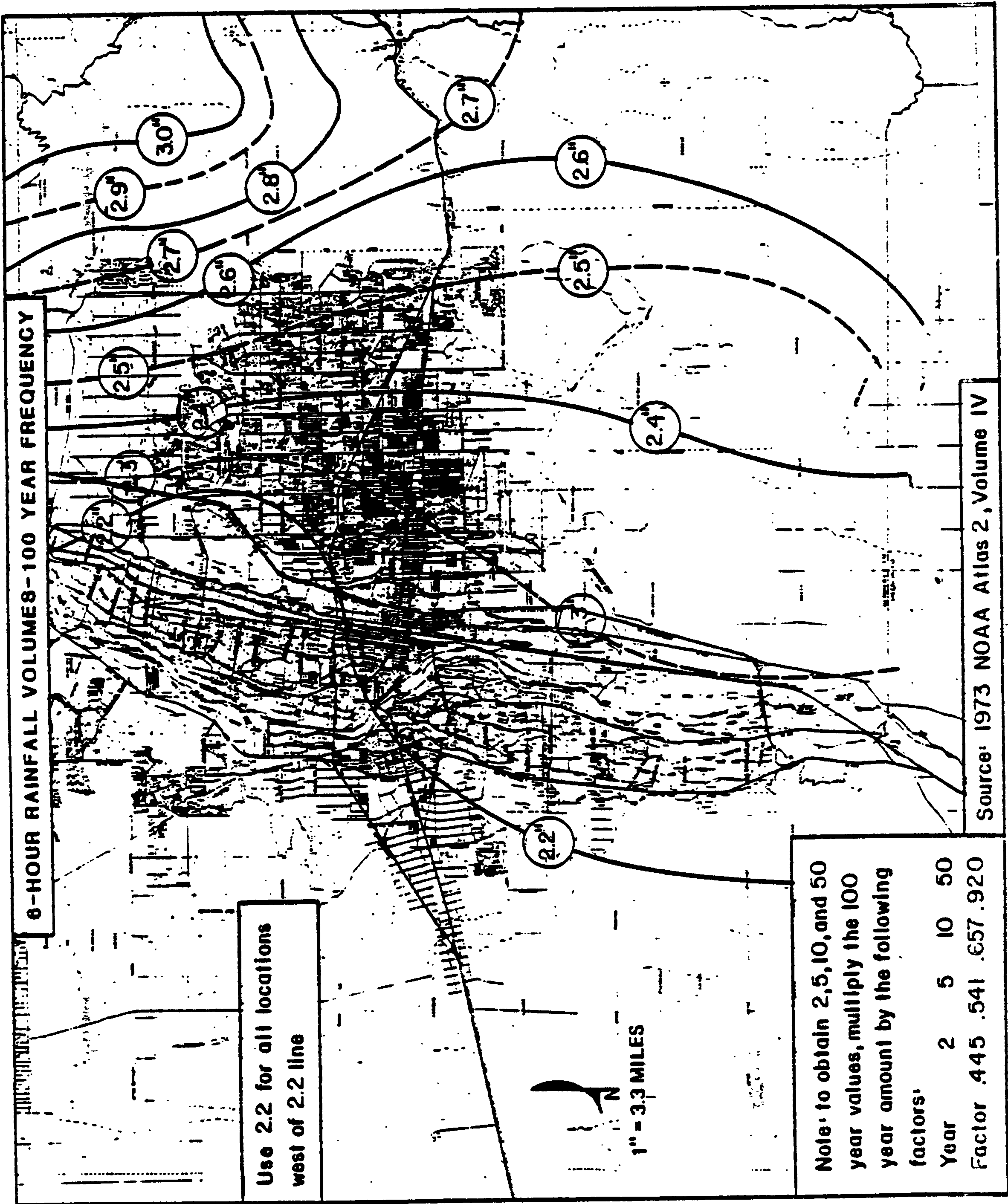


Figure 6

APPENDIX

APPENDIX

TABLE 1

Basin	Area (ac)	Percent Impervious	PRESENT DRAINAGE CONDITIONS							
			Runoff Coefficient	Time of Concentration (min)	Intensity 100 yr	Peak Flow Rate 100 yr (cfs)	Volume 100 yr (ac-ft)	Intensity 10 yr	Peak Flow Rate 10 yr (cfs)	Volume 10 yr (ac-ft)
A	5.36	15	.41	10	5.38	11.8	.46	3.53	7.8	.30
B	.19	100	1.0	10	5.38	1.02	.04	3.53	.67	.03
C	.10	100	1.0	10	5.38	.54	.02	3.53	.35	.01
D	.20	5.4	.37	10	5.38	.40	.02	3.53	.26	.01
F	.18	73	.69	10	5.38	.67	.03	3.53	.44	.02
G	1.24	95	.98	10	5.38	6.54	.25	3.53	4.29	.17
H	.50	100	1.0	10	5.38	2.69	.10	3.53	1.77	.07
I	.84	91	.86	10	5.38	3.88	.15	3.53	2.55	.10
J	.78	93	.89	10	5.38	3.73	.14	3.53	2.45	.10
K	.27	85	.81	10	5.38	1.18	.05	3.53	.77	.03
L	1.19	92	.88	10	5.38	5.63	.22	3.53	3.70	.14
M	1.53	93	.89	10	5.38	7.33	.28	3.53	4.81	.19
N	.29	99	.98	10	5.38	1.53	.06	3.53	1.00	.04
O	.22	98	.98	10	5.38	1.16	.06	3.53	.761	.03
ZR	1.11	100	1.0	10	5.38	5.97	.22	3.53	3.91	.15
DR	.22	100	1.0	10	5.38	1.18	.05	3.53	.78	.03
FR	.40	100	1.0	10	5.38	2.15	.10	3.53	1.41	.05
BR	.10	100	1.0	10	5.38	.54	.02	3.53	.35	.01
HR	.08	100	1.0	10	5.38	.43	.02	3.53	.28	.01



PROJECT NAME _____

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OF _____

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BY KBA

DATE

9/1/83

SUBJECT _____

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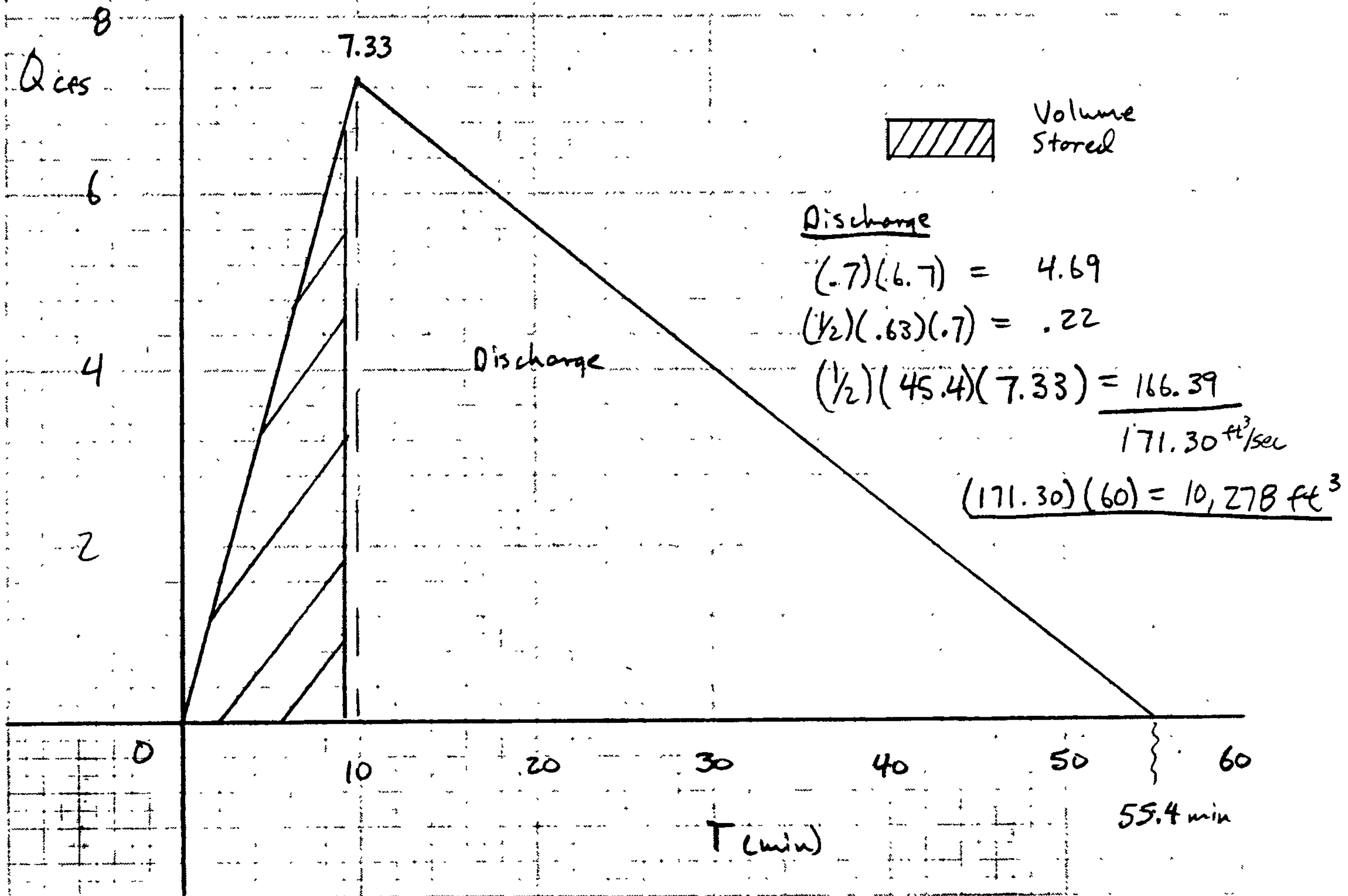
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In the present condition there were two basins collecting water, Basins M and G. The volumes for these basins were computed by the contour method and the storage area was found to be:

$$\text{Basin M} = 1857 \text{ ft}^3$$

$$\text{Basin G} = 10,923 \text{ ft}^3$$

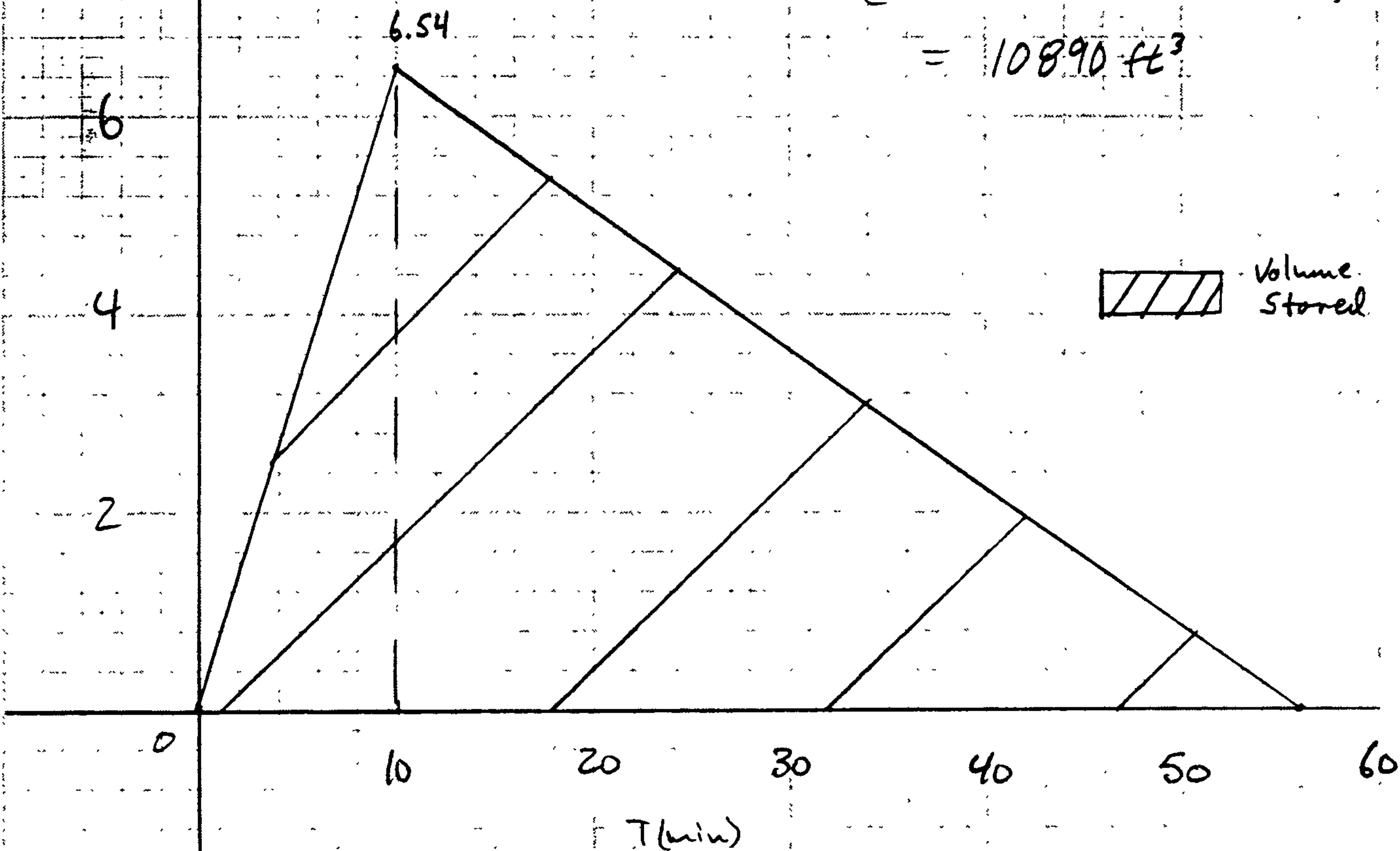
Hydrographs For Each Basin Basin M



Basin G

$Q_{(cfs)}$

$$\text{Volume} = (.25 \text{ acre-ft}) (43560 \text{ ft}^2/\text{acre}) = 10890 \text{ ft}^3$$



PROJECT NAME _____ SHEET 3 OF _____

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TABLE 2

Flows Discharging from Site

Basin	100 yr Q (cfs)	100 yr Volume (ac-ft)	Ponded Volume (ft ³)	Discharge Vol (ft ³)	Peak Discharge (cfs)
A	11.8	.46	0	0	11.8
B	1.02	.04	0	0	1.02
C	.54	.02	0	0	.54
D	.40	.02	0	0	.40
F	.67	.03	0	0	.67
G	6.54	.25	10,890 ft ³	0	0
H	2.69	.10	0	0	2.69
I	3.88	.15	0	0	3.88
J	3.73	.14	0	0	3.73
K	1.18	.05	0	0	1.18
L	5.63	.22	0	0	5.63
M	7.33	.28	1857 ft ³	10,278 ft ³	3.72
N	1.53	.06	0	0	1.53
O	1.16	.06	0	0	1.16
ZR	5.97	.22	0	0	.44
OR	1.18	.05	0	0	.4
FR	2.15	.10	0	0	.8
GR	.54	.02	0	0	.10
HR	.43	.02	0	0	.10
Total Runoff leaving site			—	—	39.79



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Root (Z)

Q (cfs)

Discharge Rate
 $(4)(.11) = .44 \text{ cfs}$

Volume of Ponding

$(\frac{1}{2})(5.97 - .4)(51 - 1)(60)$

$= 8,355 \text{ ft}^3$

5.97

6

4

2

Time (min)

10

20

30

40

50

60

70

80



Roof 0

Discharge Rate

$$2(2) = .4 \text{ ft}^3/\text{sec}$$

Roof ponding

$$\left(\frac{1}{2}\right)(1.2 - .4)(44 - 3.2) \times \frac{60 \text{ sec}}{\text{min}}$$

$$= 16.32$$

$$= 979 \text{ ft}^3$$

$Q(\text{cfs})$

2.0

1.5

1.0

.5

0

10

20

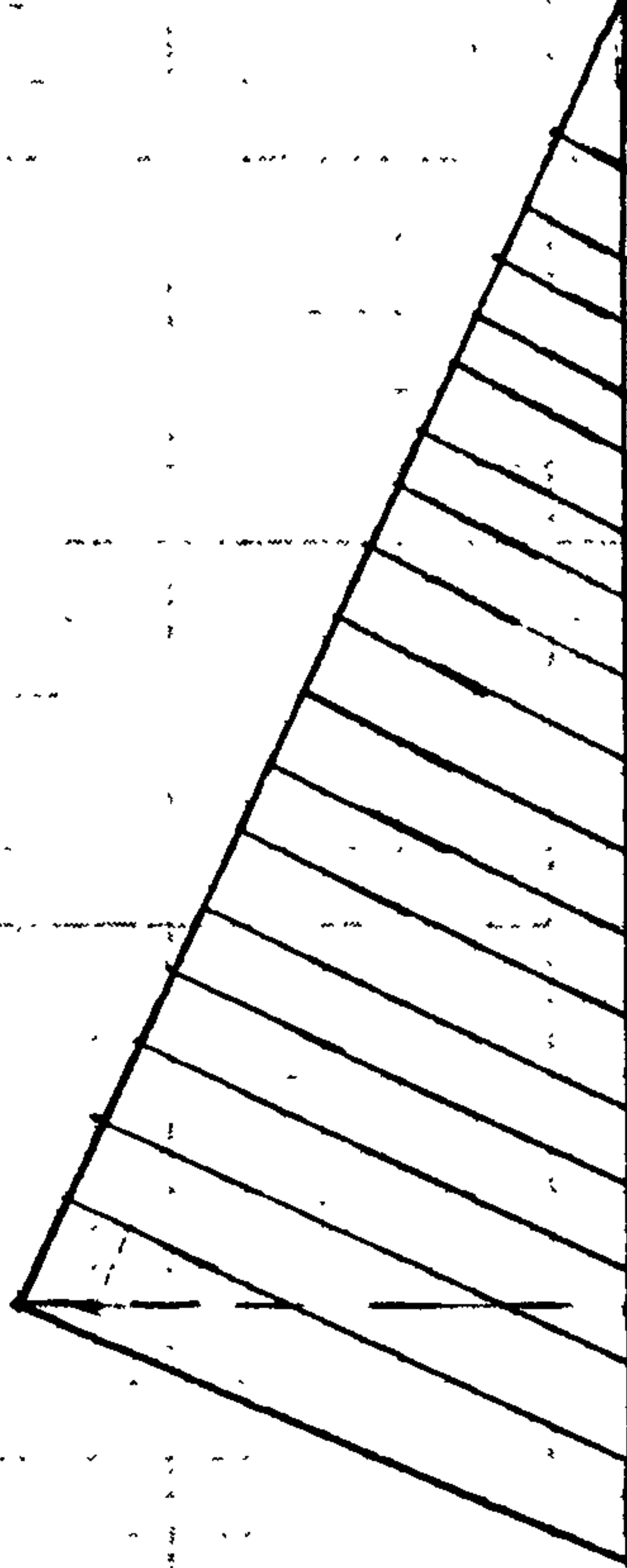
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40

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60

T (min)



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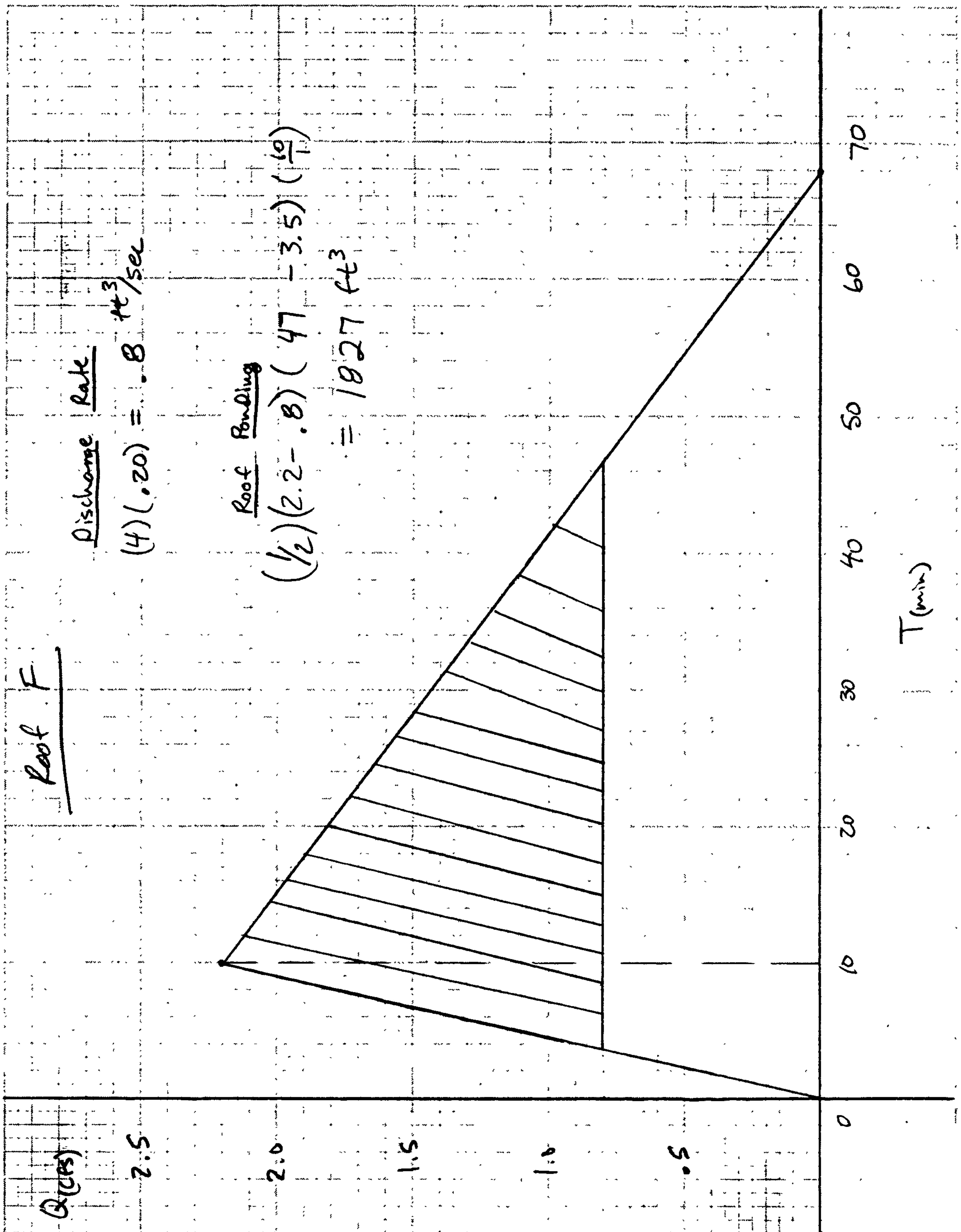
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BY KBA DATE _____

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DATE _____



PROJECT NAME _____ SHEET 7 OF _____

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SUBJECT _____ CH'D _____ DATE _____



PROJECT NAME _____

SHEET B OF _____

PROJECT NO. _____

BY KBA DATE _____

SUBJECT _____

CH'D _____

DATE _____

Roof GL

Drainage Rate

$$(2)(.05) = 1 \frac{1}{2} \frac{1}{sec}$$

Volume stored

$$\left(\frac{1}{2}\right) (54 - .1) (47.5 - 1.5) (60) \\ = 607.2 \text{ ft}^3$$

Q (cfs)

.6

.4

.2

0

10

20

30

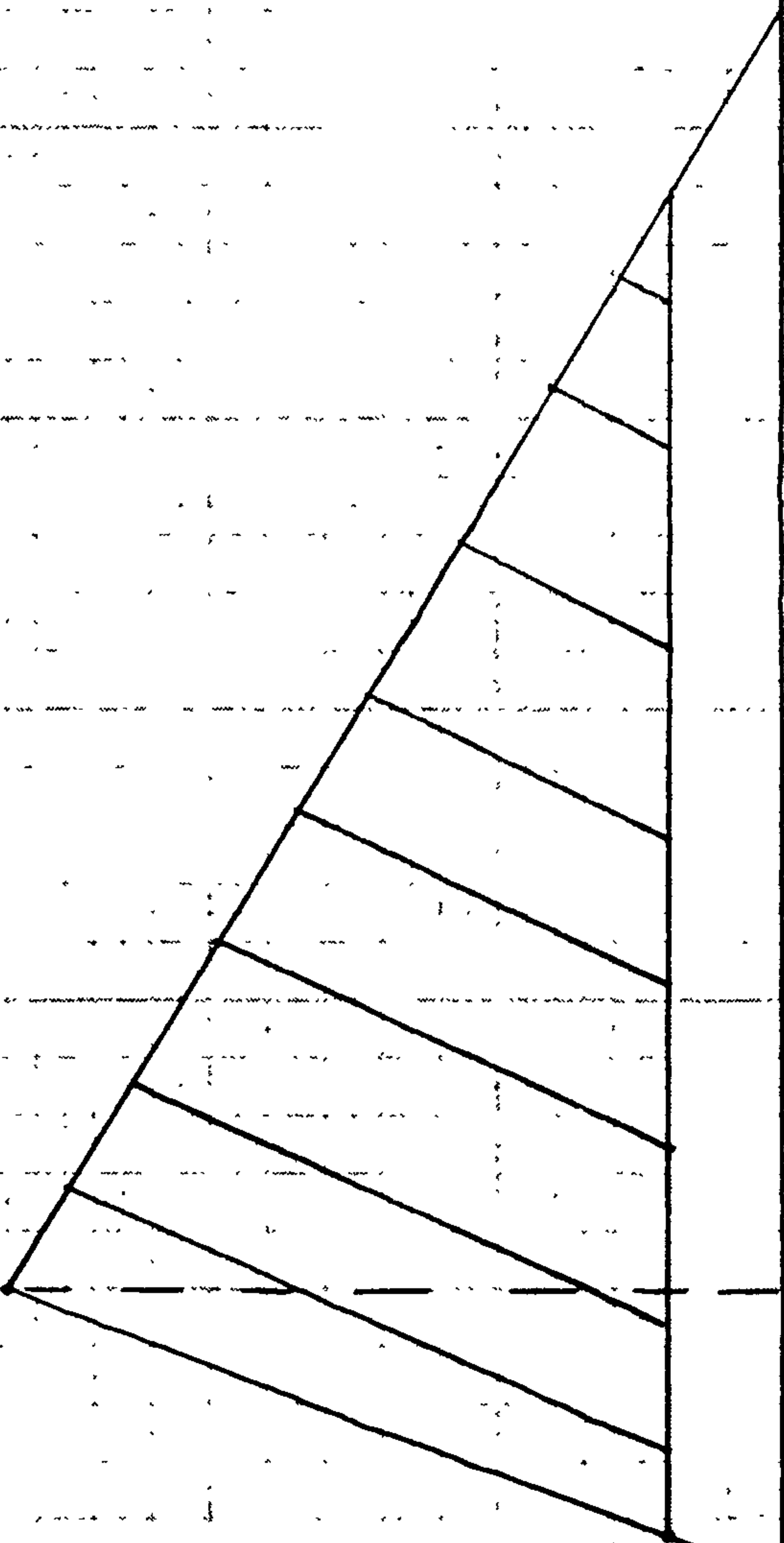
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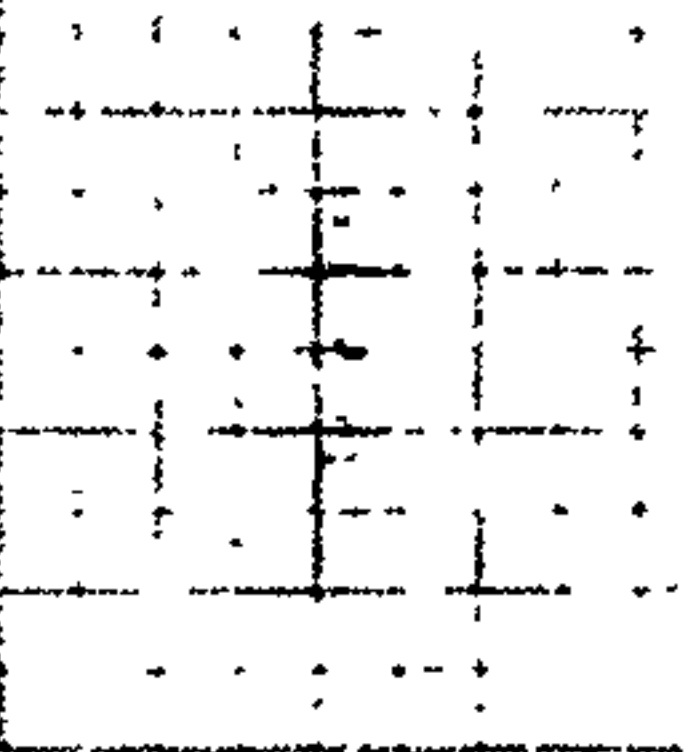
60

70

T (min)



Roof HR



$Q(cfs)$

6

4

2

0

10

20

30

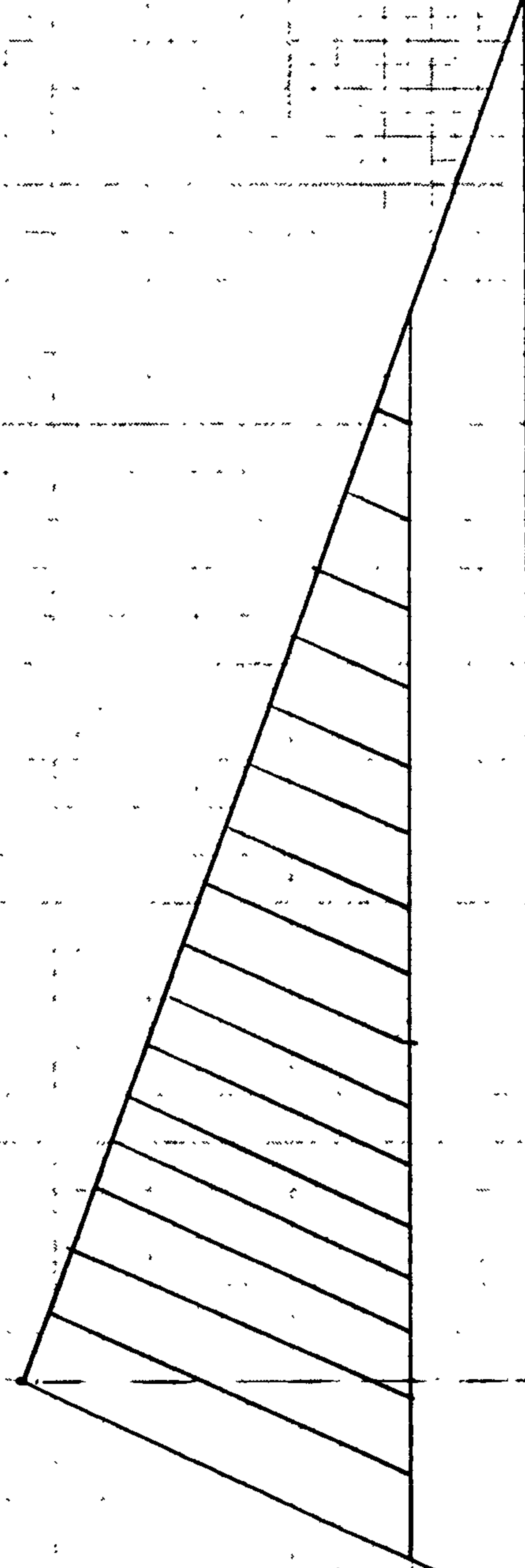
40

50

60

70

$T(min)$



Discharge ~~rate~~

$$2(.08) = .16 \text{ ft}^3/\text{sec}$$

Volume of Ponding

$$\left(\frac{1}{2}\right)(.43 - .16)(54.5 - 2.5)(60) = 515 \text{ ft}^3$$



Q for Sumpers

$$Q = CLH^{3/2}$$

$$L = 3.0$$

$$L = 8/12 = .67$$

$$H = 2.5/12 = .21$$

$$Q = (3.0)(.67)(.21)^{3/2}$$

$$Q = .19 \text{ ft}^3/\text{sec}$$

Q for 2" pipes

$$Q = CA\sqrt{2gh}$$

$$C = .6$$

$$A = \pi(1)^2/144 = .02 \text{ ft}^2$$

$$g = 32.2 \text{ ft/sec}$$

$$h = 2.5/12 = .21 \text{ ft}$$

$$Q = (.6)(.02)\sqrt{2(32.2)(.21)}$$

$$Q = .05 \text{ ft}^3/\text{sec}$$

Q for 3" pipes

$$Q = CA\sqrt{2gh}$$

$$Q = (.6)(.05)\sqrt{2(32.2)(.21)}$$

$$= .11 \text{ ft}^3/\text{sec}$$



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TABLE 3

Proposed Drainage Conditions

Basin	Area (ac)	Percent Impervious	Runoff Coefficient	Time of Concentration (min)	Intensity 100 yr	Peak Flow Rate 100 yr (cfs)	Volume 100 yr (ac-ft)	Intensity 10 yr	Peak Flow Rate (cfs)	Volume 10 yr (ac-ft)
A	.56	95	.92	10	5.38	2.77	.11	3.53	1.81	.07
B	.46	80	.76	10	5.38	1.88	.073	3.53	1.23	.048
C	.73	94	.92	10	5.38	3.61	.14	3.53	2.37	.091
D	.26	100	1.0	10	5.38	1.40	.05	3.53	.92	.036
E	1.36	96	.93	10	5.38	6.73	.26	3.53	4.46	.17
F	.422	88	.78	10	5.38	1.77	.07	3.53	1.16	.05
G	1.38	96	.96	10	5.38	7.13	.28	3.53	4.68	.181
H	1.16	82	.82	10	5.38	6.25	.20	3.53	3.36	.130
I	.15	87	.87	10	5.38	.70	.03	3.53	.461	.02
J	.59	81	.81	10	5.38	2.57	.10	3.53	1.69	.07
AR	.18	100	1.0	10	5.38	.97	.04	3.53	.64	.02
HR ₂	.21	100	1.0	10	5.38	1.13	.04	3.53	.74	.03
ZR	1.11	100	1.0	10	5.38	5.97	.22	3.53	3.91	.15
DR	.22	100	1.0	10	5.38	1.18	.05	3.53	.78	.03
FR	.40	100	1.0	10	5.38	2.15	.10	3.53	1.41	.05
GR	.10	100	1.0	10	5.38	.54	.02	3.53	.35	.01
HR ₁	.08	100	1.0	10	5.38	.43	.02	3.53	.28	.01



PROJECT NAME _____

SHEET 11

OF _____

PROJECT NO. _____

BY KBA

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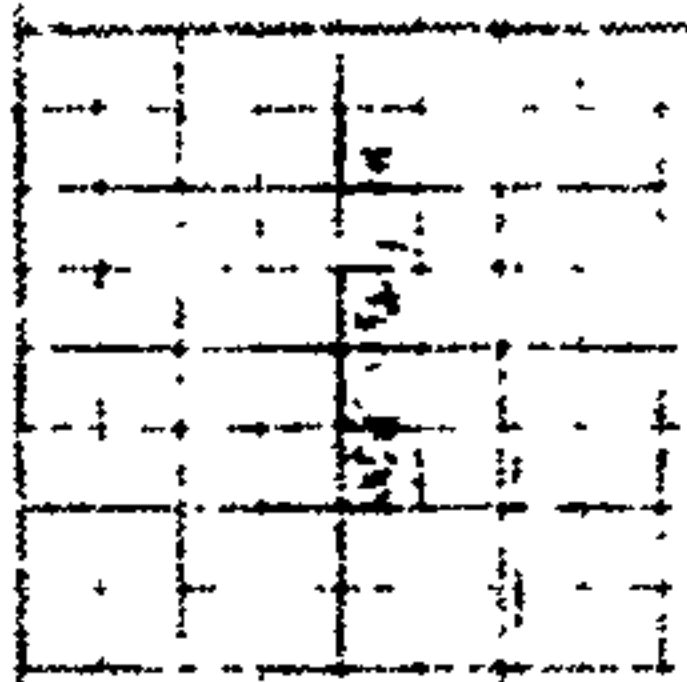
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DATE _____

New basins cont.

Basin	Area (ac)	Percent impervious	Runoff Coefficient	Time of Concentration (min)	Intensity 100 yr	Peak Flow Rate 100 yr (cfs)	Volume 100 yr (ac-ft)	Intensity 10 yr	Peak Flow Rate (cfs)	Volume 10 yr (ac-ft)
K	.16	100	1.0	10	5.38	1.02	.04	3.53	.67	.03
L	.10	100	1.0	10	5.38	.54	.02	3.53	.35	.01
M	.20	5.4	.37	10	5.38	.40	.02	3.53	.26	.01
N	.18	73	.69	10	5.38	.67	.03	3.53	.44	.02
O	.31	84	.80	10	5.38	1.33	.05	3.53	.88	.03

A is typical Apartment basin



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TABLE 4

Flows Discharging From Site

Basin	100 yr Q (cfs)	100 yr Volume (ac-ft)	Ponded Volume (ft ³)	Peak Discharge (cfs)
A	2.77	.11	894.0	2.1
B	1.88	.073	2,711	.15
C	3.61	.14	0	3.3
D	1.40	.05	0	1.40
E	6.73	.26	2154	3.7
F	1.77	.07	0	1.77
G	7.13	.28	0	7.13
H	6.25	.20	10,125	.8
I	.70	.03	0	.70
J	2.57	.10	0	2.57
K	1.02	.04	1742	0
L	.54	.02	871	0
M	.40	.02	871	0
N	.67	.03	1307	0
O	1.33	.05	6,455	11.3

Continued Next Page



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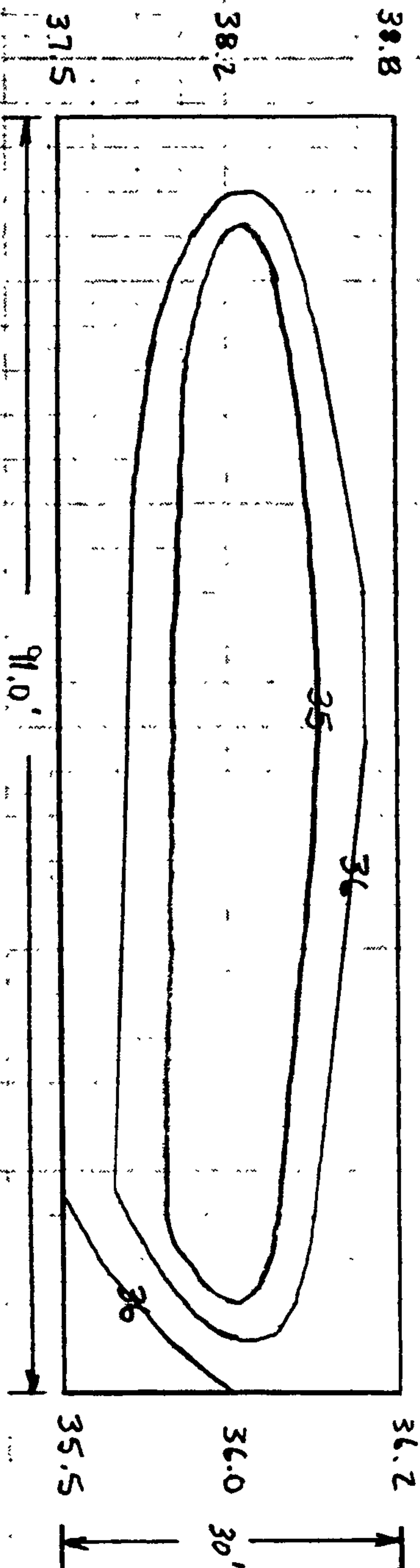
Cont

Basin	100 yr Q (cfs)	100 yr Volume (ac-ft)	Ponded Volume (ft ³)	Peak Discharge (cfs)
AR	.97	.04	0	.22
HR ₂	1.13	.04	0	.10
ZR	5.97	.22	0	.44
DR	1.18	.05	0	.4
FR	2.15	.10	0	.8
BR	.54	.02	0	.10
HR ₁	.43	.02	0	.10
Total Runoff Leaving Site			—	37.08



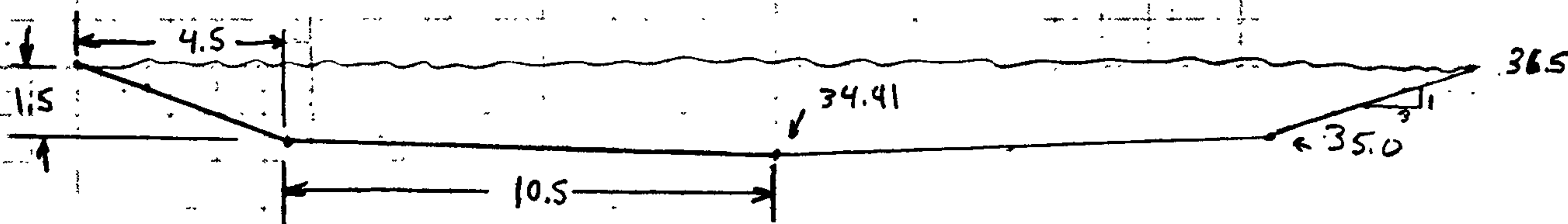
PROJECT NAME _____ SHEET 14 OF _____
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Pond B
Volume 2,711 ft^3



PROJECT NAME _____ SHEET 15 OF _____
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Point B (profile)

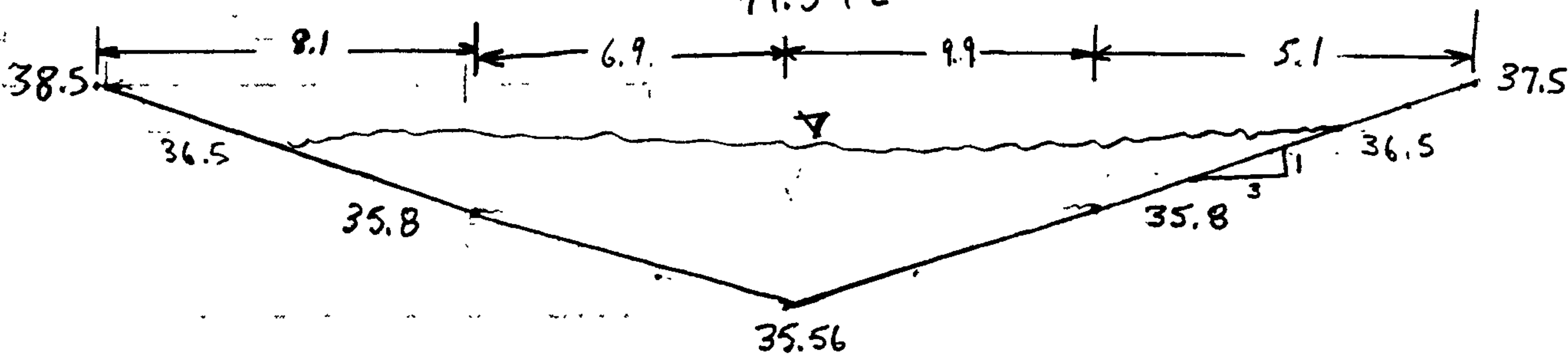


Area

$$2 \left[\left(\frac{1}{2} \right) (4.5) (1.5) \right] = 6.8$$

$$2 \left[\left(\frac{1}{2} \right) (.59) (10.5) \right] = 6.2$$

$$(21)(1.5) = \frac{31.5}{44.5 \text{ ft}^2}$$



Area

$$2 \left[\left(\frac{1}{2} \right) (2.1) (.7) \right] = 1.47$$

$$(6.8) (.7) = 11.76$$

$$(.24) (.5) (.99) = 1.2$$

$$(.24) (.5) (.69) = .83$$

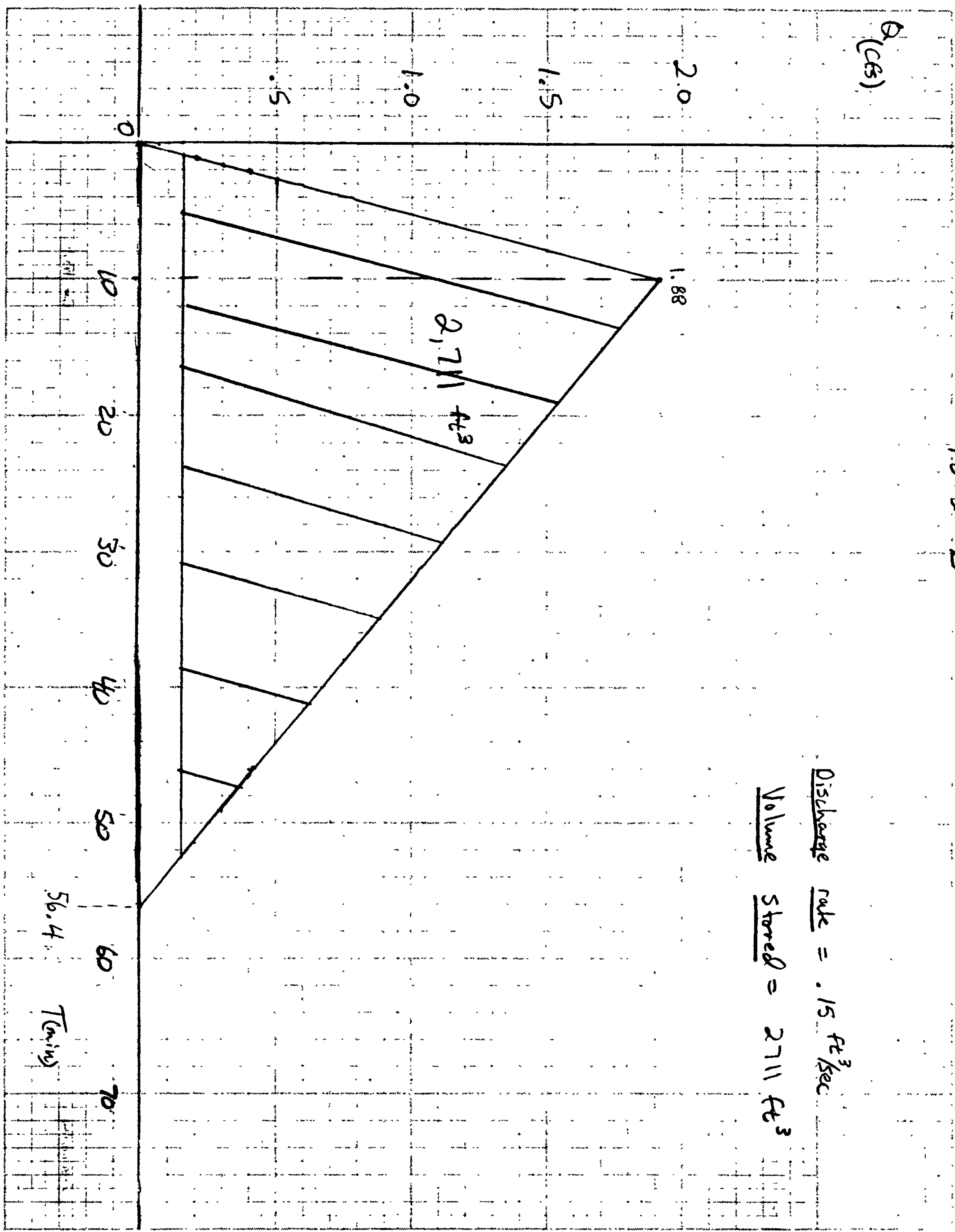
$$\frac{15.26}{}$$

$$\text{Volume} = \left(\frac{44.5 + 15.26}{2} \right) (91.0) = 2711 \text{ ft}^3$$



$\theta (cs)$

Pond B



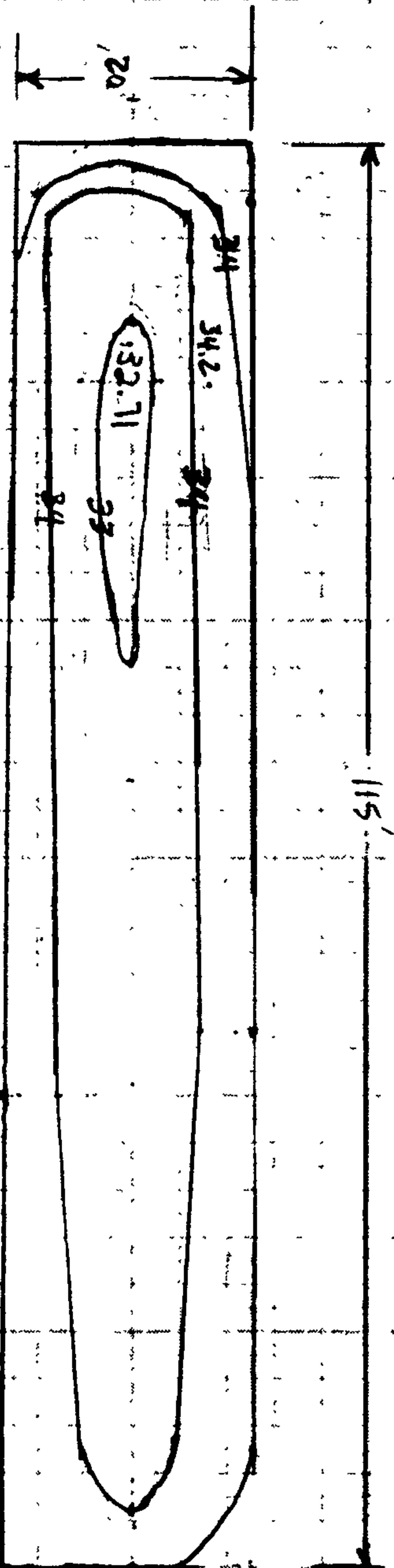
Discharge rate = .15 ft^3/sec

Volume stored = 2711 ft^3



PROJECT NAME _____ SHEET 17 OF _____
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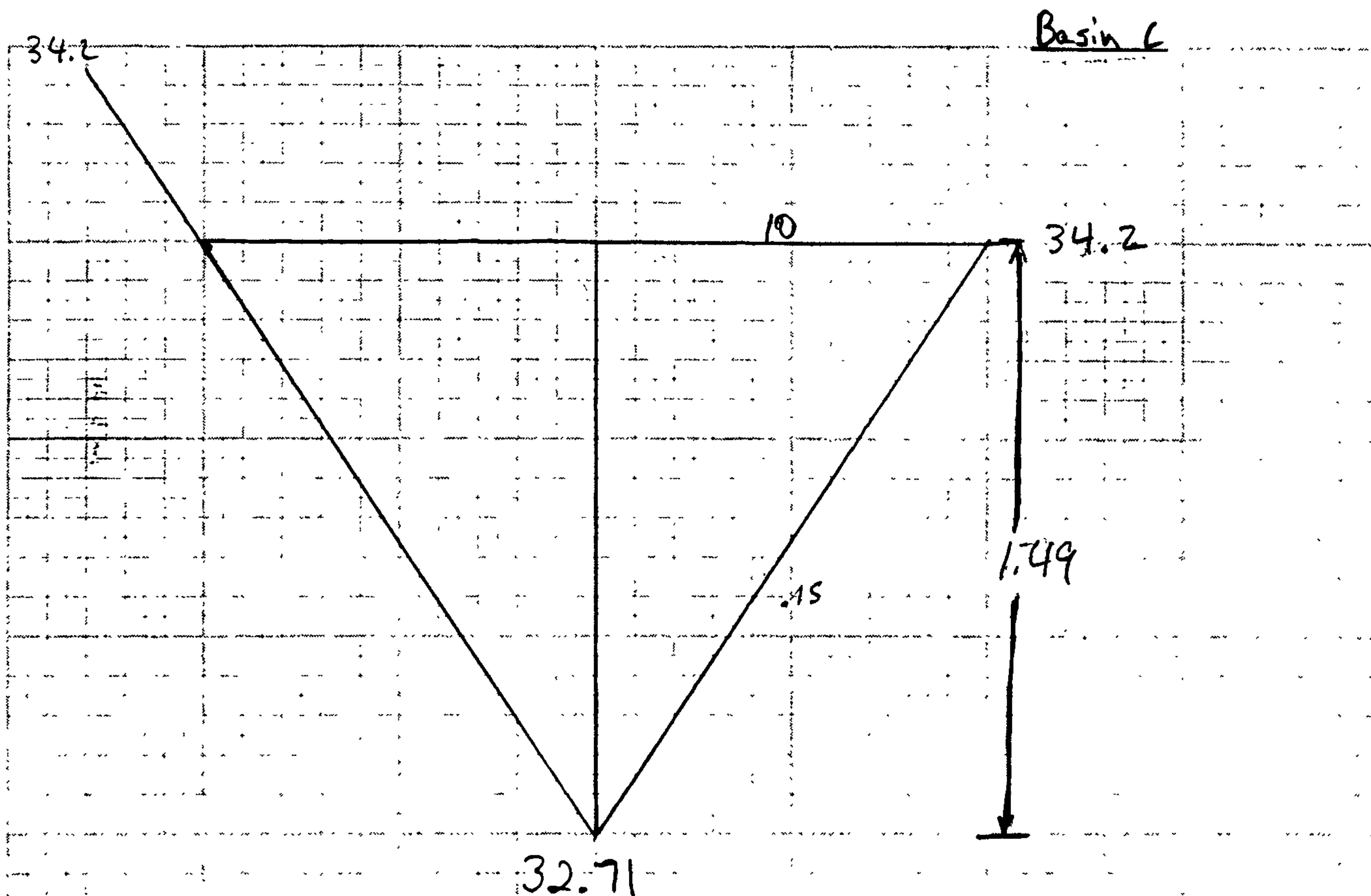
Pond C



Volume 9.14 ft³



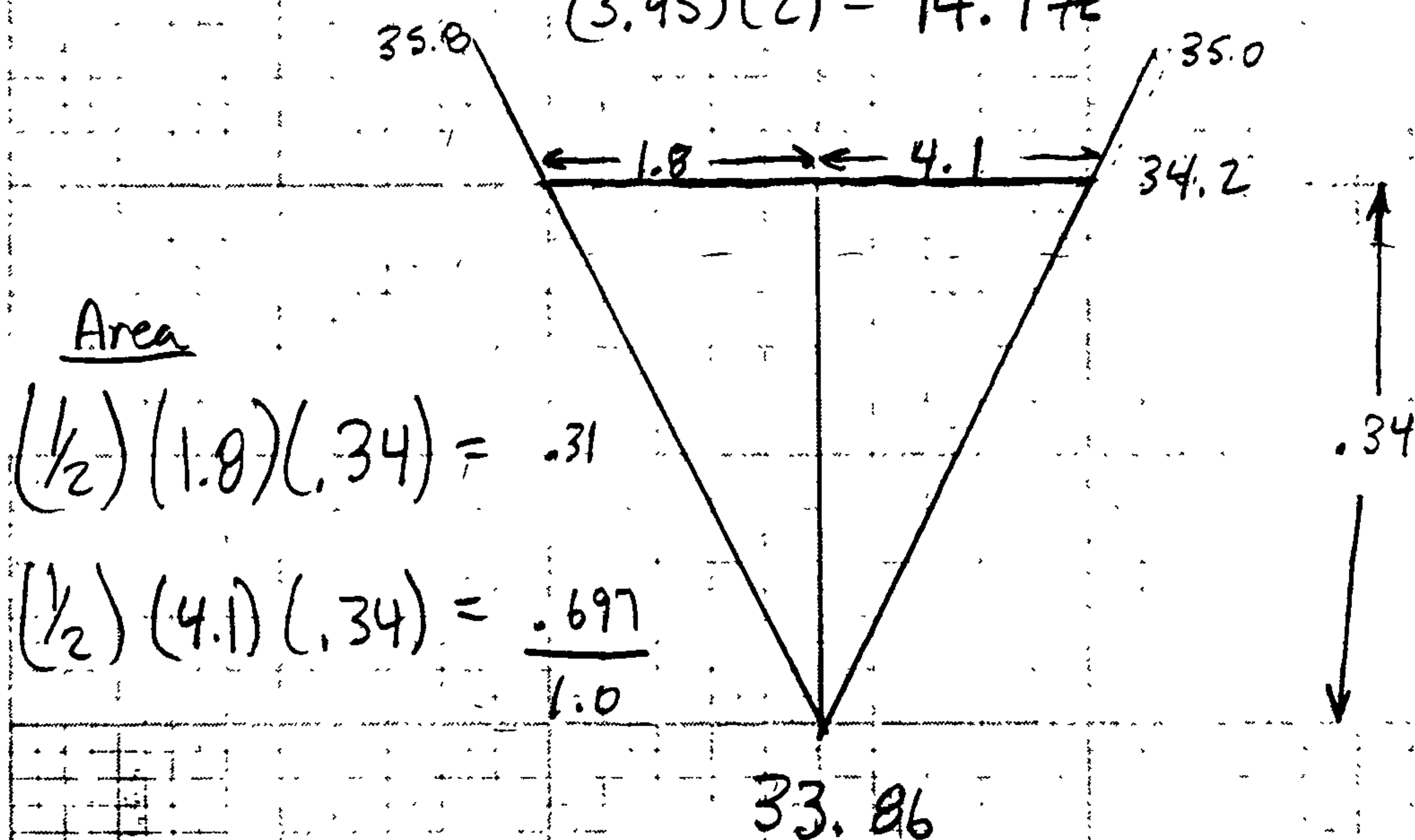
PROJECT NAME _____ SHEET 18 OF _____
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Area

$$\left(\frac{1}{2}\right)(1.49)(10) = 7.45$$

$$(3.95)(2) = 14.9 \text{ ft}^2$$



Area

$$\left(\frac{1}{2}\right)(1.8)(.34) = .31$$

$$\left(\frac{1}{2}\right)(4.1)(.34) = \frac{.697}{1.0}$$

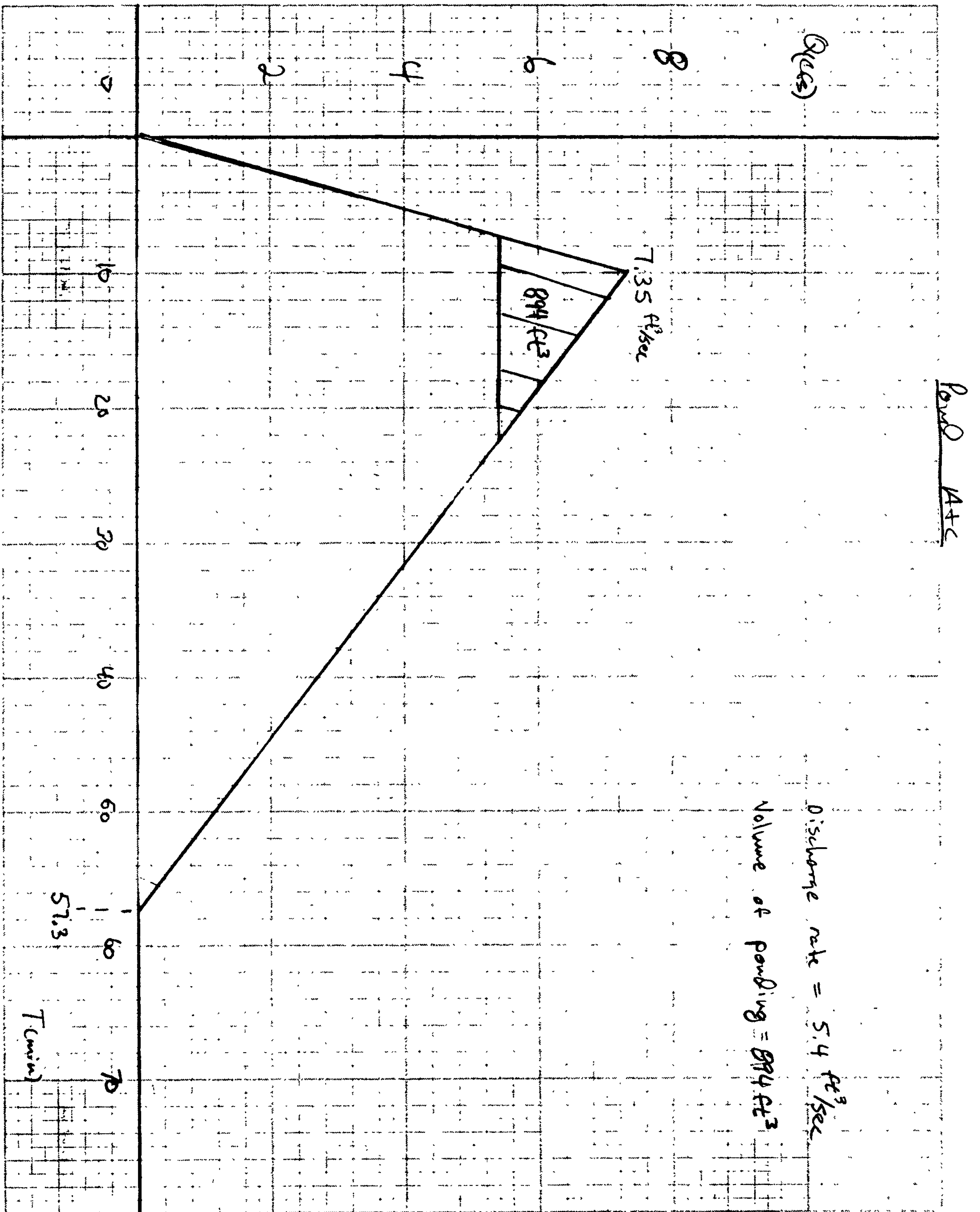
$$\text{Volume} = \left(\frac{14.9 + 1.0}{2}\right)(112.5) = 894.4 \text{ ft}^3$$



PROJECT NAME _____ SHEET 19 OF _____

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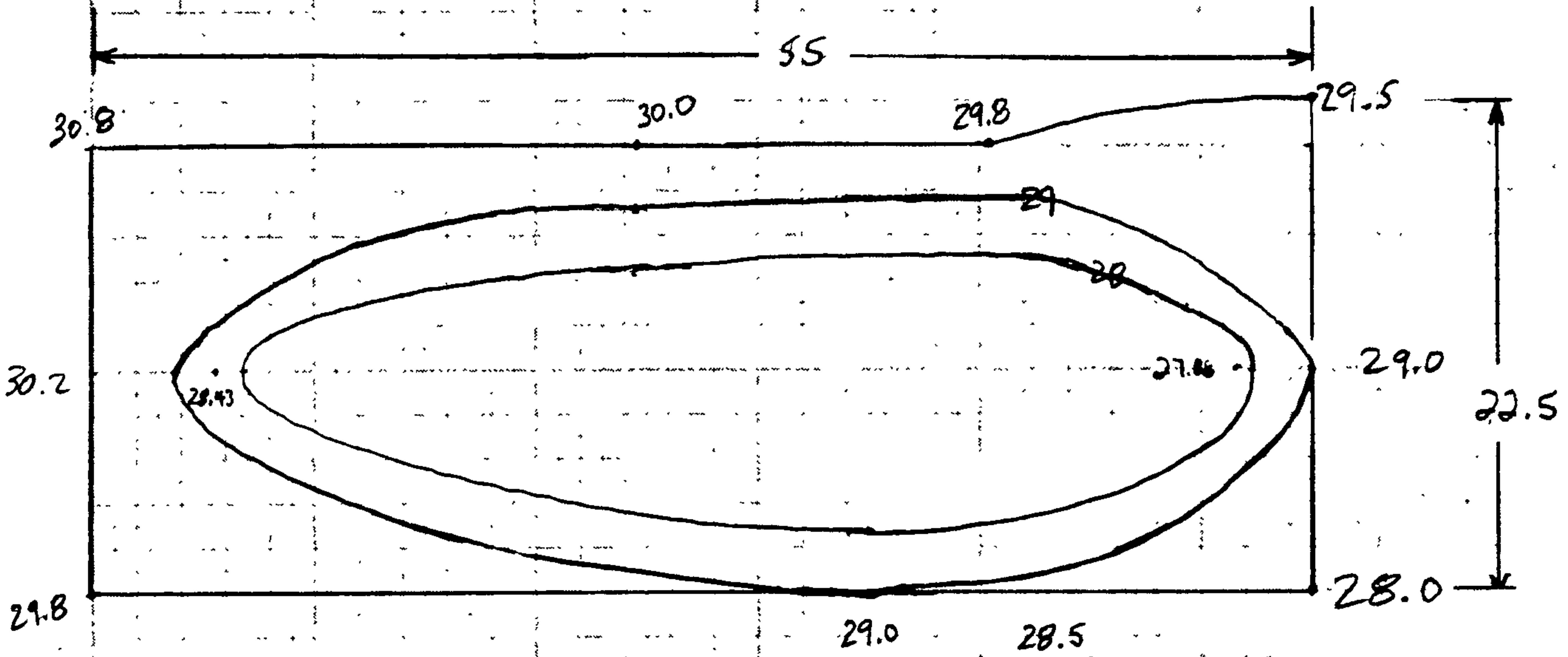
PROJECT NAME _____ SHEET 20 OF _____

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Pond E₁

(lower)



Volume 579 ft³



PROJECT NAME _____ SHEET 21 OF _____

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Pond E.

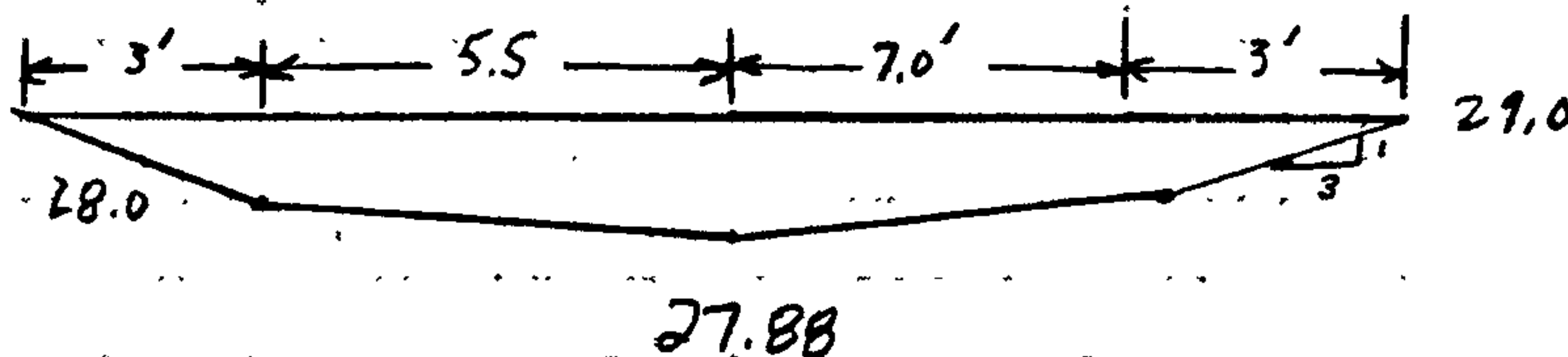
lower

Invert

$$28.5 - .12 - .67 = 27.71$$

$$(17)(.01) = .17$$

$$27.71 + .17 = 27.88$$



Area

$$(\frac{1}{2})(3)(1) = 1.5 \times 2 = 3.0$$

$$(12.5)(1) = 12.5$$

$$(\frac{1}{2})(7)(.12) = .42$$

$$(\frac{1}{2})(5.5)(.12) = .33$$

$$16.25 \text{ ft}^2$$

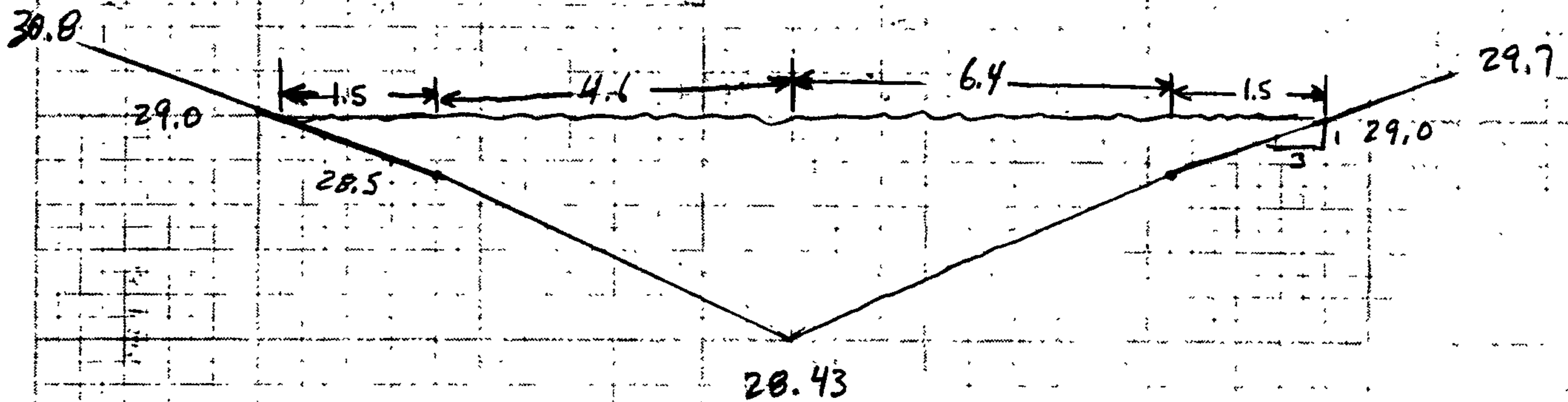


PROJECT NAME _____ SHEET 22 OF _____

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Pond E. con't



$$\left(\frac{1}{2}\right)(2)(1.5)(.5) = .75$$

$$(10.4)(.5) = 5.2$$

$$\left(\frac{1}{2}\right)(.07)(4.6) = .16$$

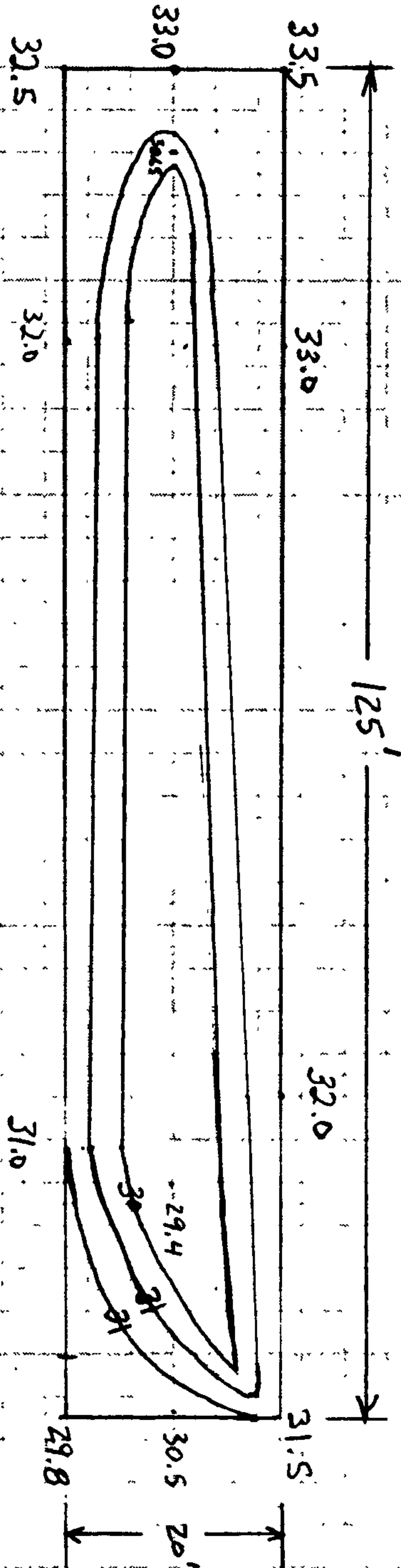
$$\left(\frac{1}{2}\right)(.07)(6.4) = .22$$

$$6.33 \text{ ft}^2$$

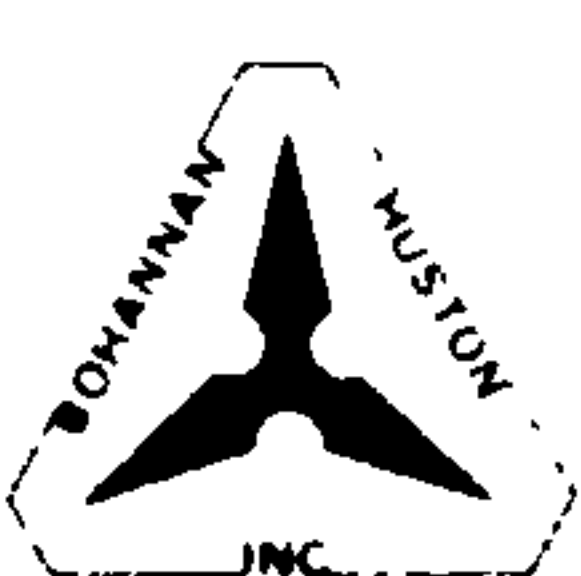
$$(11.3 \text{ ft}^2)(51.26) = 579 \text{ ft}^3$$



Pond E1 Wiglow

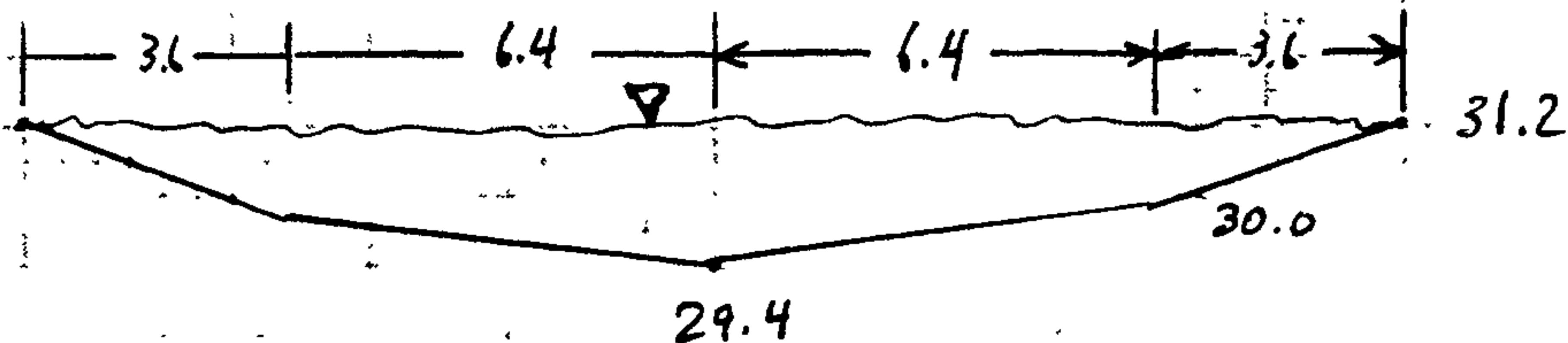


Volume 1575 ft³



Pond E_h

invert $30.0 - .67 - .12 = 29.21 \text{ ft}$
 $29.21 + .17 = 29.4 \text{ ft}$



Area

$$2\left(\frac{1}{2}\right)(3.6)(1.2) = 4.32$$

$$2\left(\frac{1}{2}\right)(.6)(6.4) = 3.84$$

$$(12.8)(1.2) = \frac{15.36}{23.52}$$

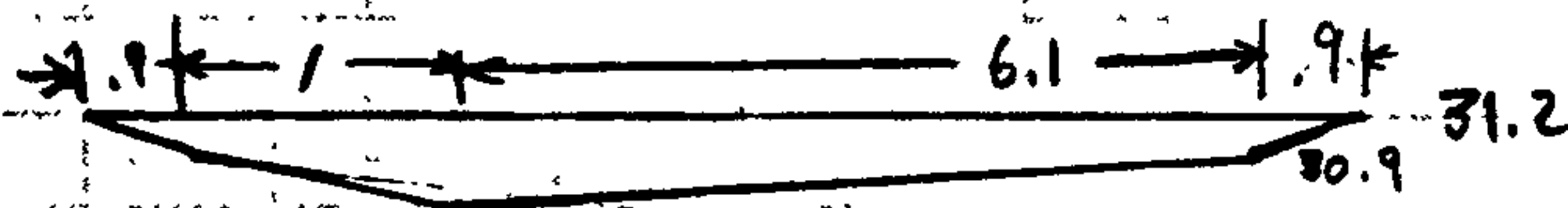


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Pond E_h Cont



Area

$$2 \left(\frac{1}{2} \right) (.9) (.3) = .27$$

$$(7.1) (.3) = 2.13$$

$$\left(\frac{1}{2} \right) (1) (.25) = .125$$

$$\left(\frac{1}{2} \right) (6.1) (.25) = .76$$

$$3.3 \text{ ft}^2$$

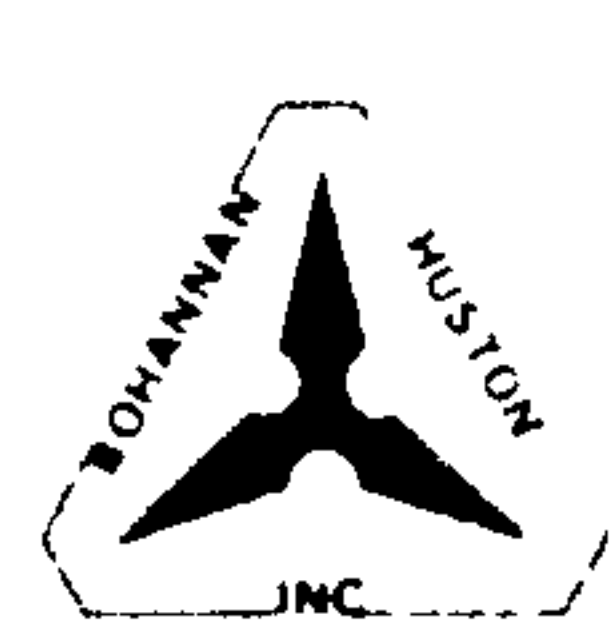
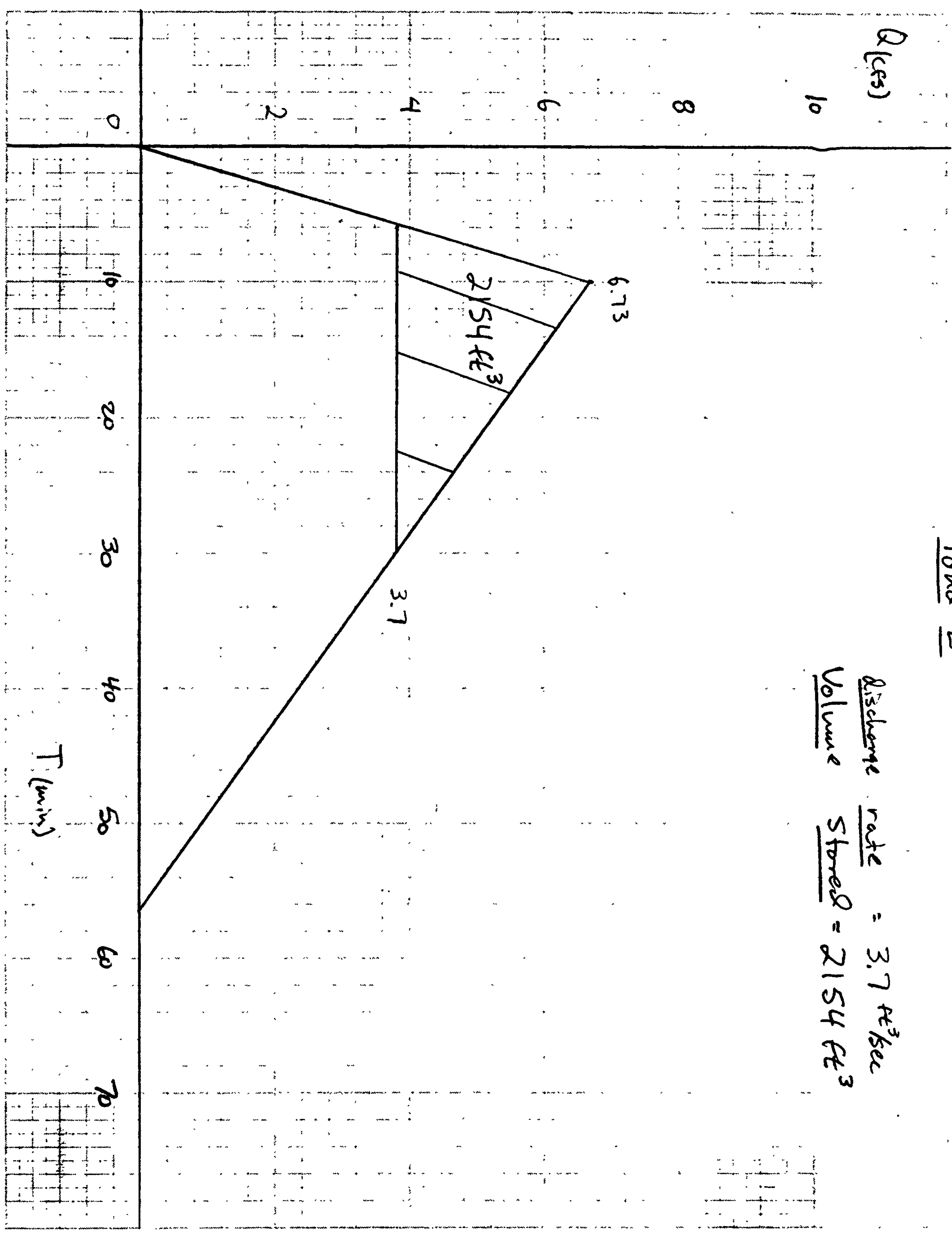
$$\text{Avg area} = \left(\frac{23.52 + 3.3}{2} \right) = 13.4 \text{ ft}^2$$

$$\text{Volume} = (13.4) (118) = 1575 \text{ ft}^3$$

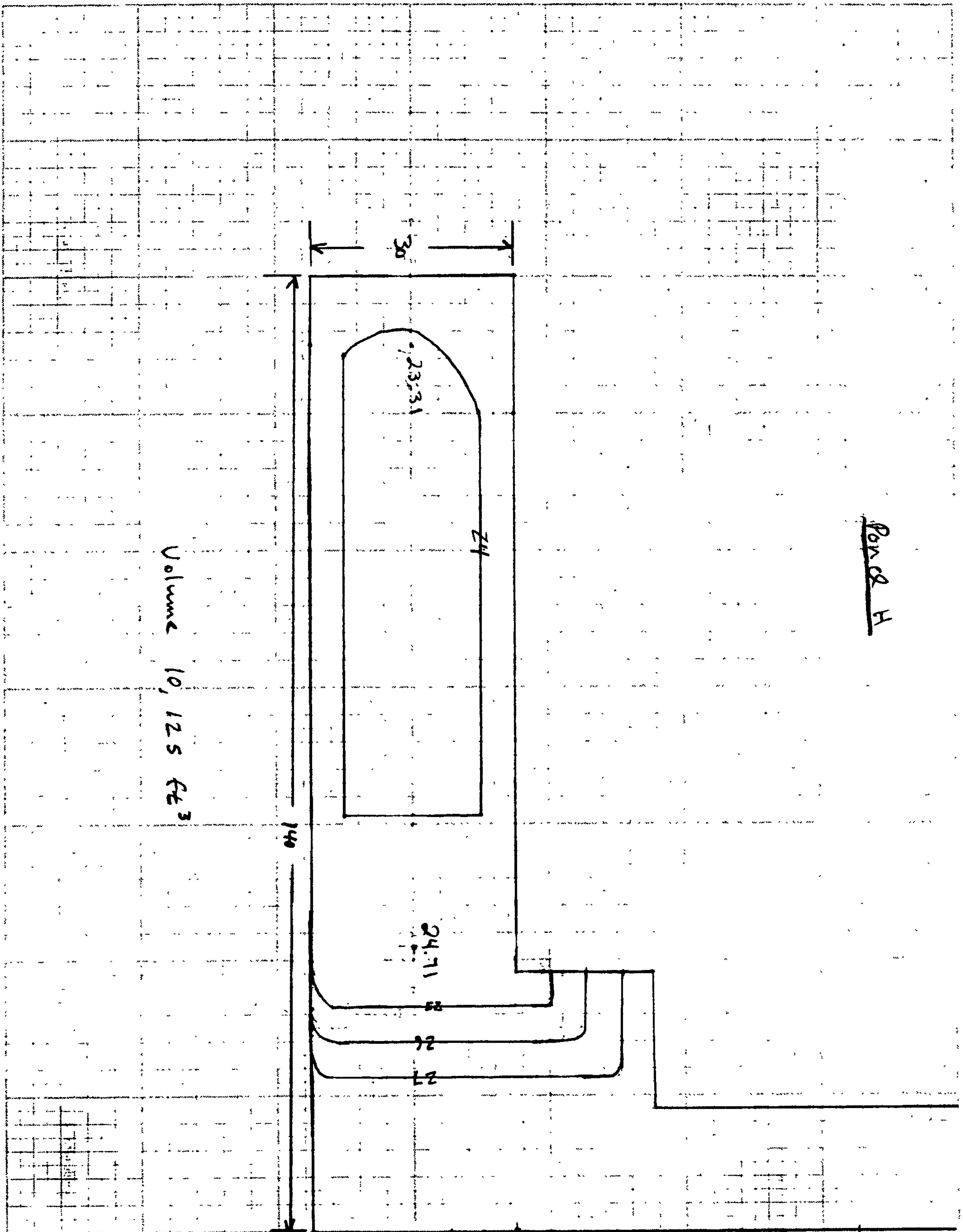


Pond E

Discharge rate = 3.7 ft³/sec
 Volume Stored = 2154 ft³



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 PROJECT NO. _____ BY KBA DATE _____
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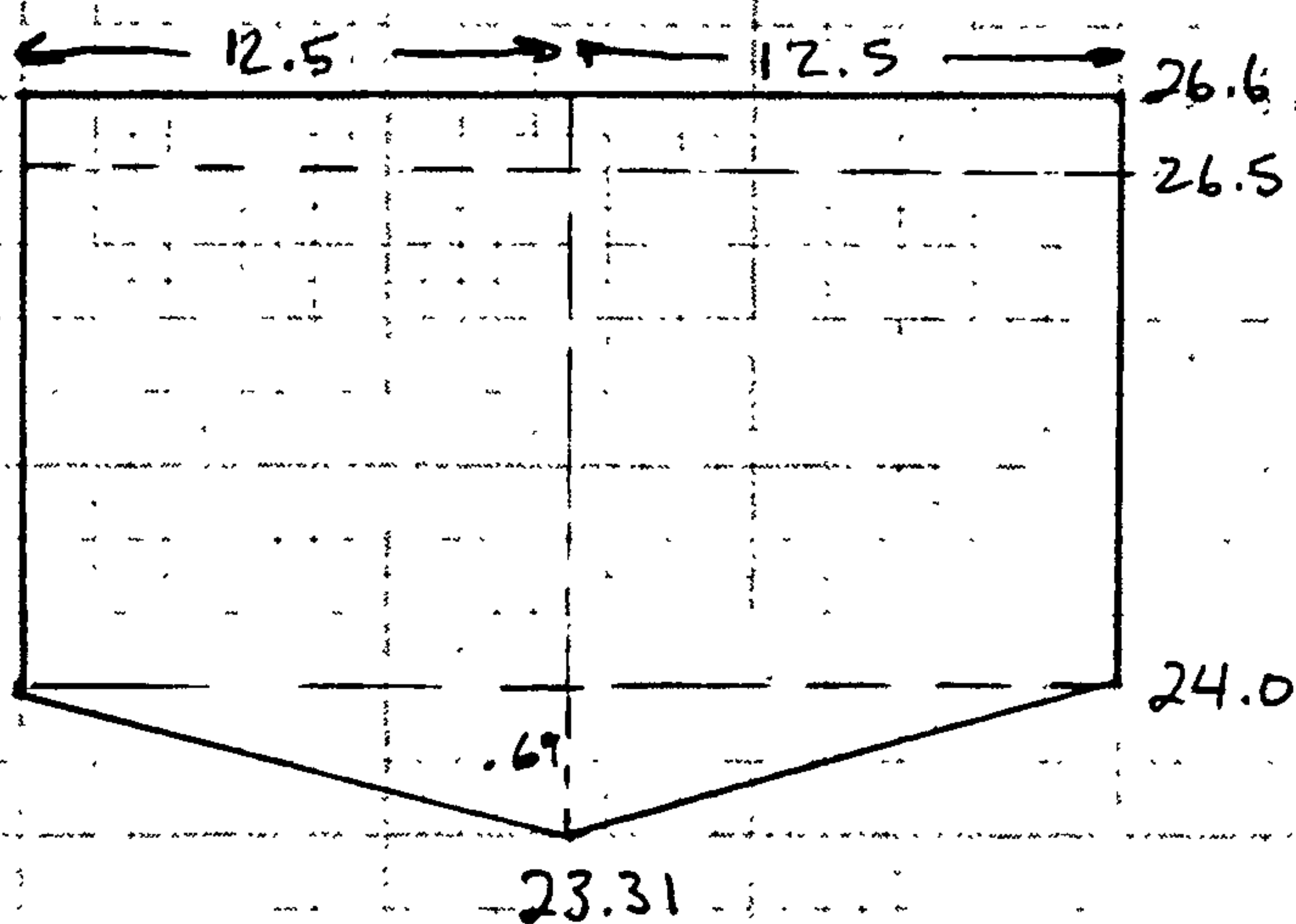


PROJECT NAME _____ SHEET 28 OF _____

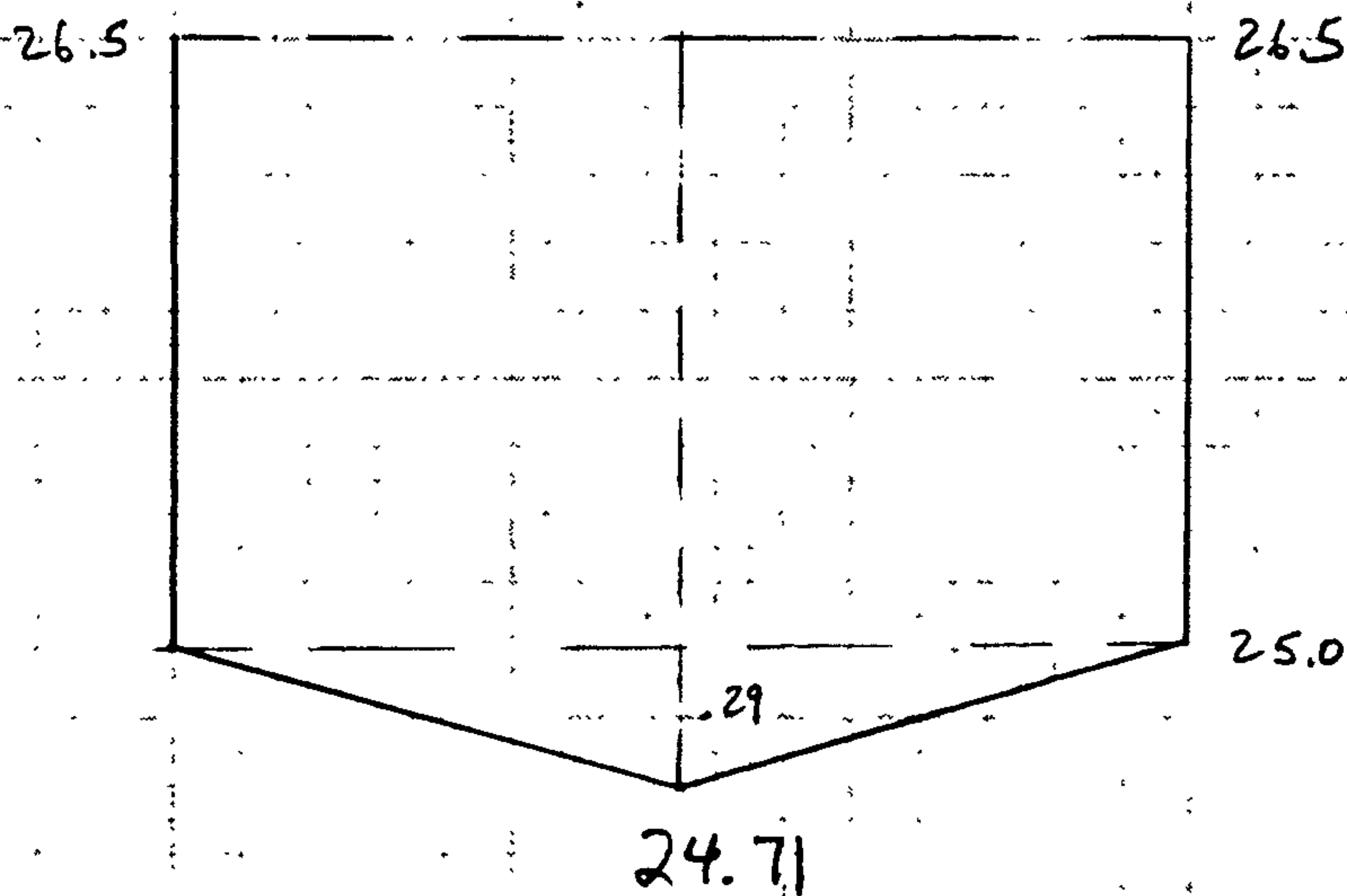
PROJECT NO. _____ BY KBA DATE _____

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Pond H



$$\begin{aligned} (25)(2.5) &= 62.5 \\ 2\left(\frac{1}{2}\right)(.69)(12.5) &= \frac{8.6}{71.1} \end{aligned}$$



$$\left(\frac{71.1 + 41.1}{2}\right) = 56.1 \text{ ft}^2$$

$$(56.1)(185) = 10,379 \text{ ft}^3$$

$$\begin{aligned} (25)(1.5) &= 37.5 \\ 2\left[\frac{1}{2} \cdot (.29)(12.5)\right] &= \frac{3.6}{41.1} \end{aligned}$$



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Pond H

Q (cfs)

8

6

4

2

0

6.25

10,125

10

20

30

40

50

60

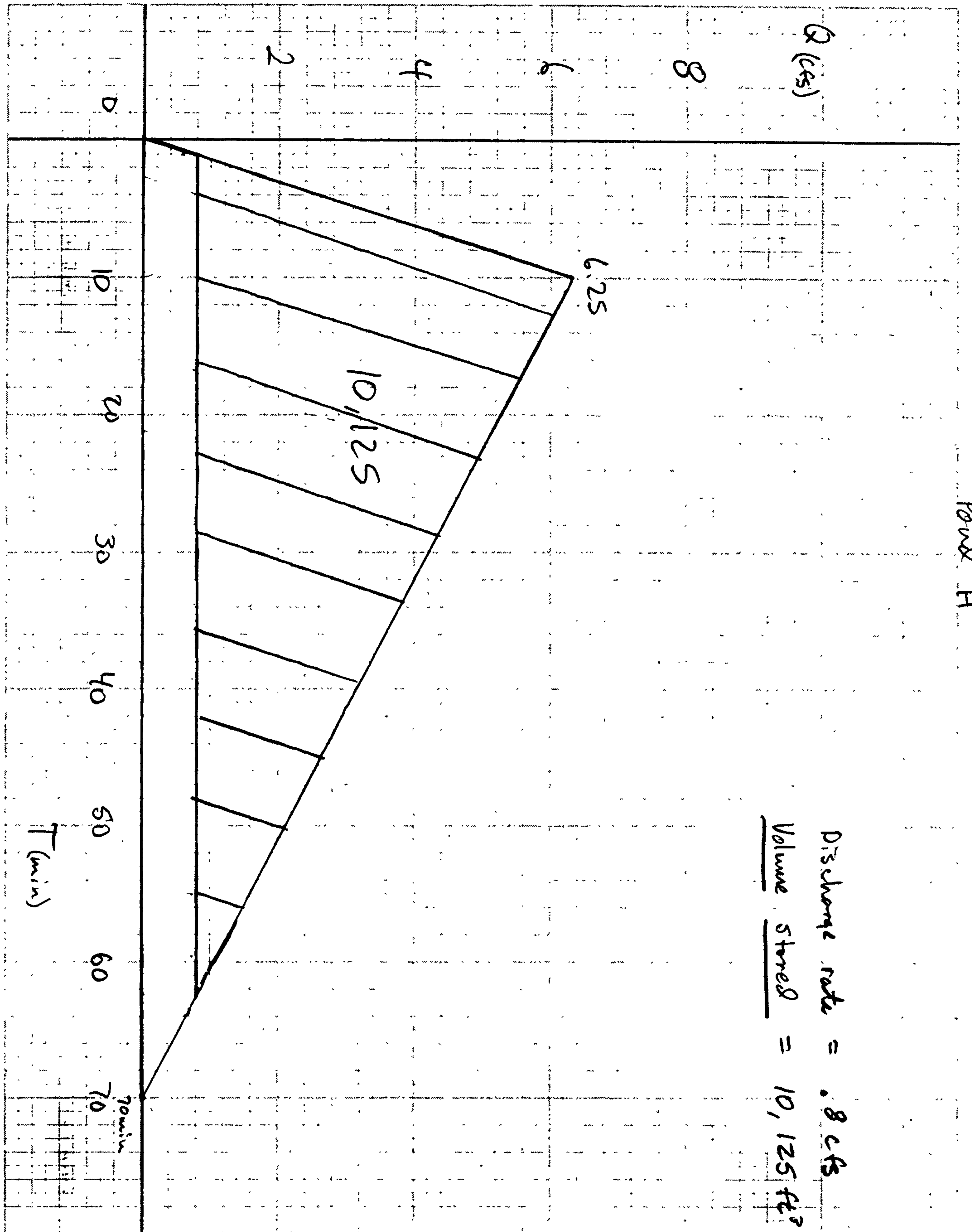
70

T (min)

70min

Discharge rate = .8 cfs

Volume stored = 10,125 ft³

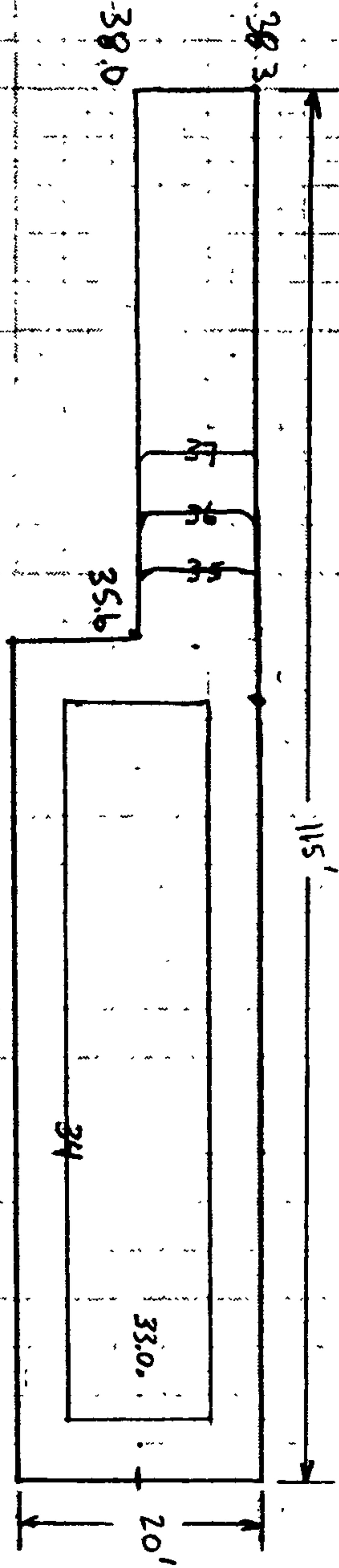


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Back Pond N



$$\text{Volume} = (1) (70) (20) = 1400 \text{ ft}^3$$



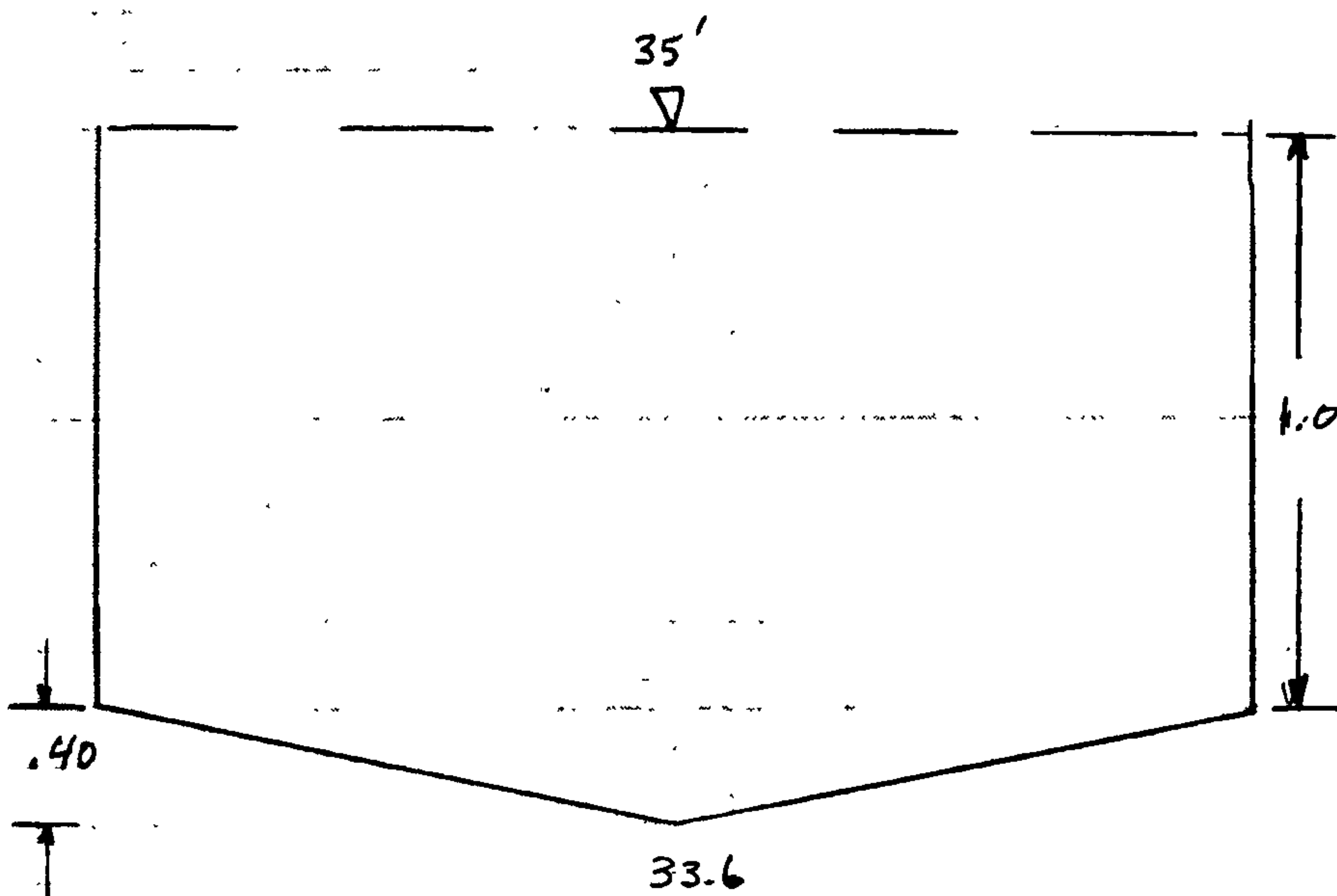
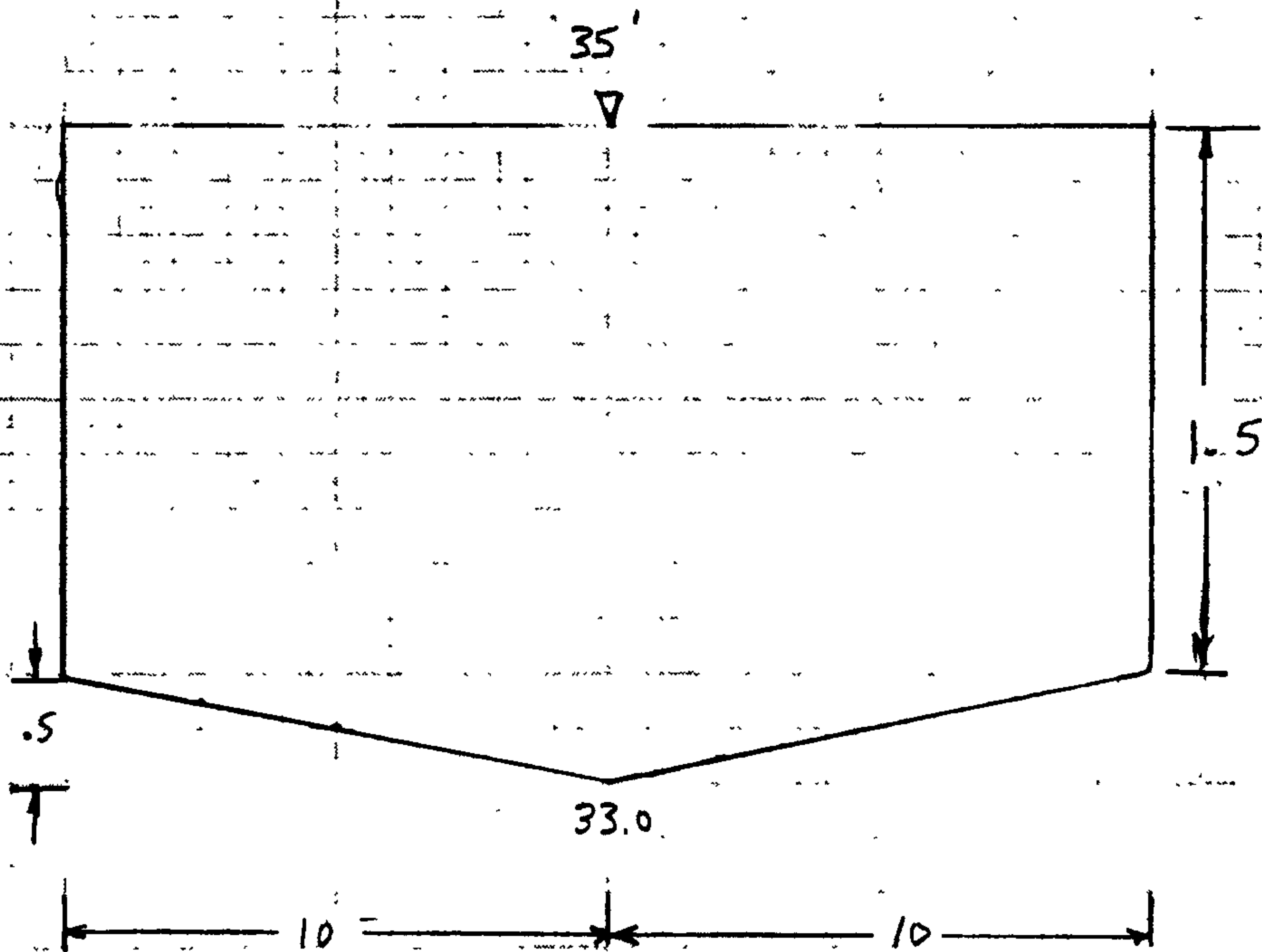
PROJECT NAME _____ SHEET 31 OF _____

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Pond N

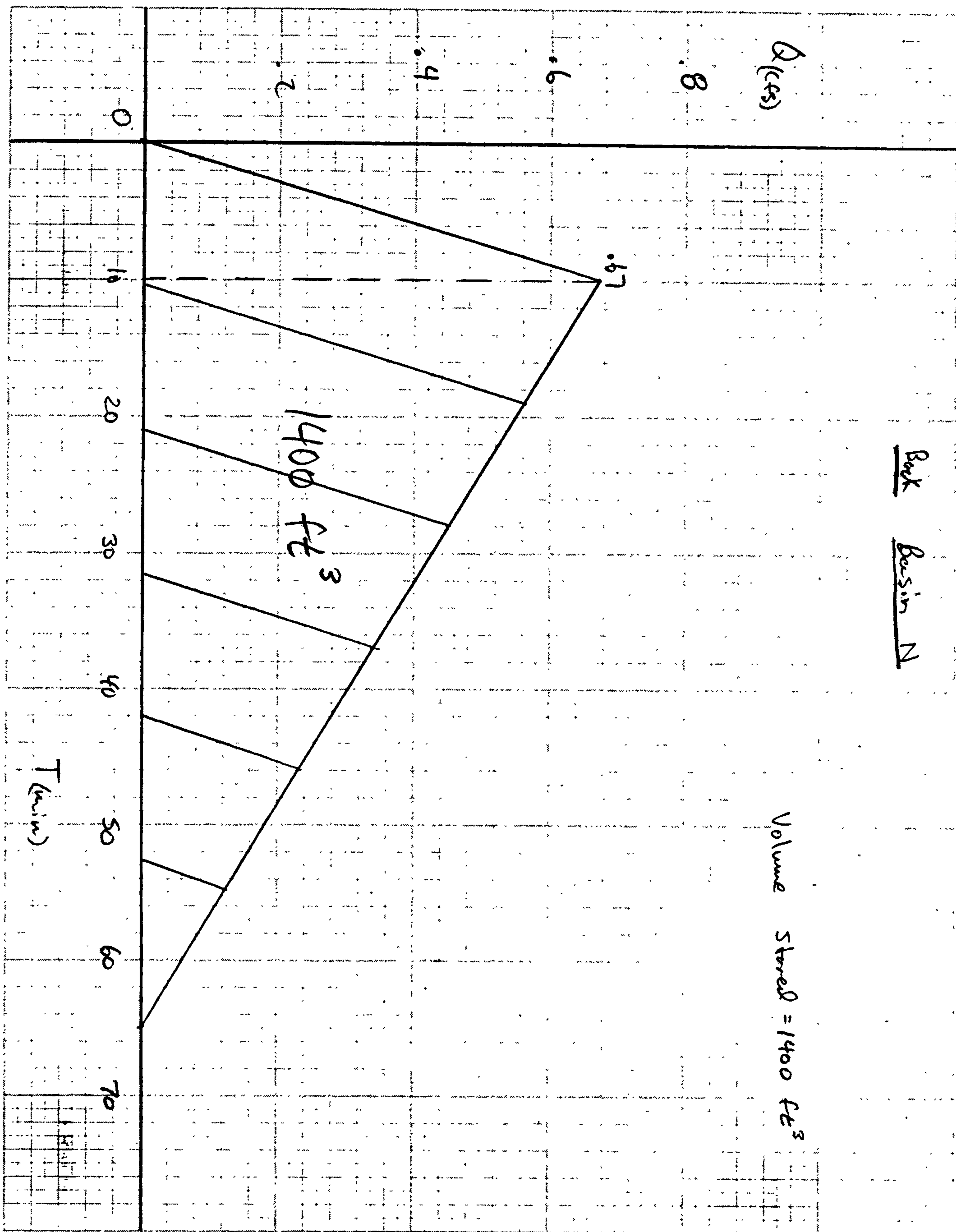
Cross Section



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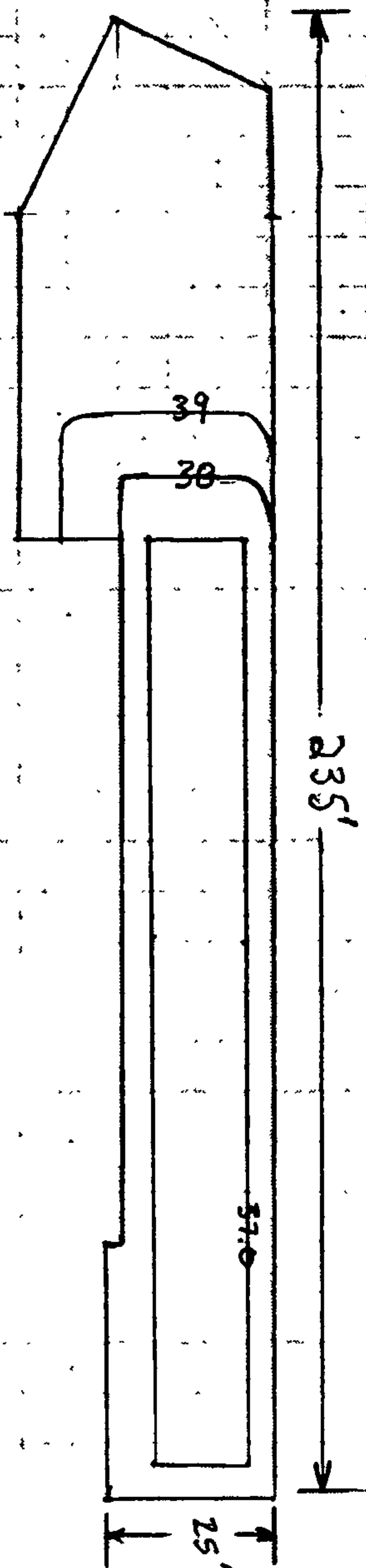


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Back Pond M



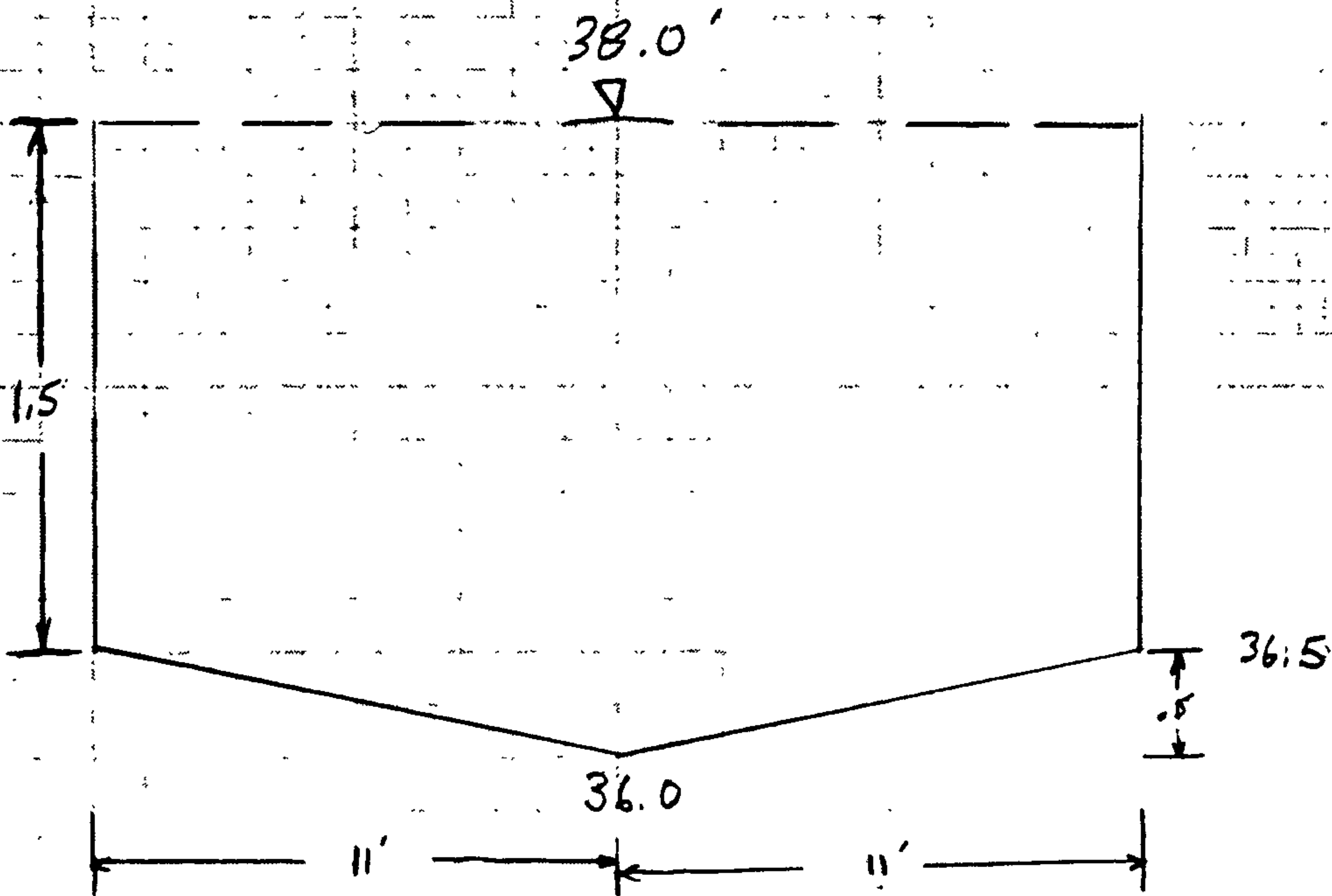
Volume

$$(160)(1)(22) = 3520 \text{ ft}^3$$



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End M



Area₁

$$(1.5)(22) = 33$$

$$2 \left[\left(\frac{1}{2} \right) (11)(1.5) \right] = 5.5$$

$$38.5 \text{ ft}^2$$

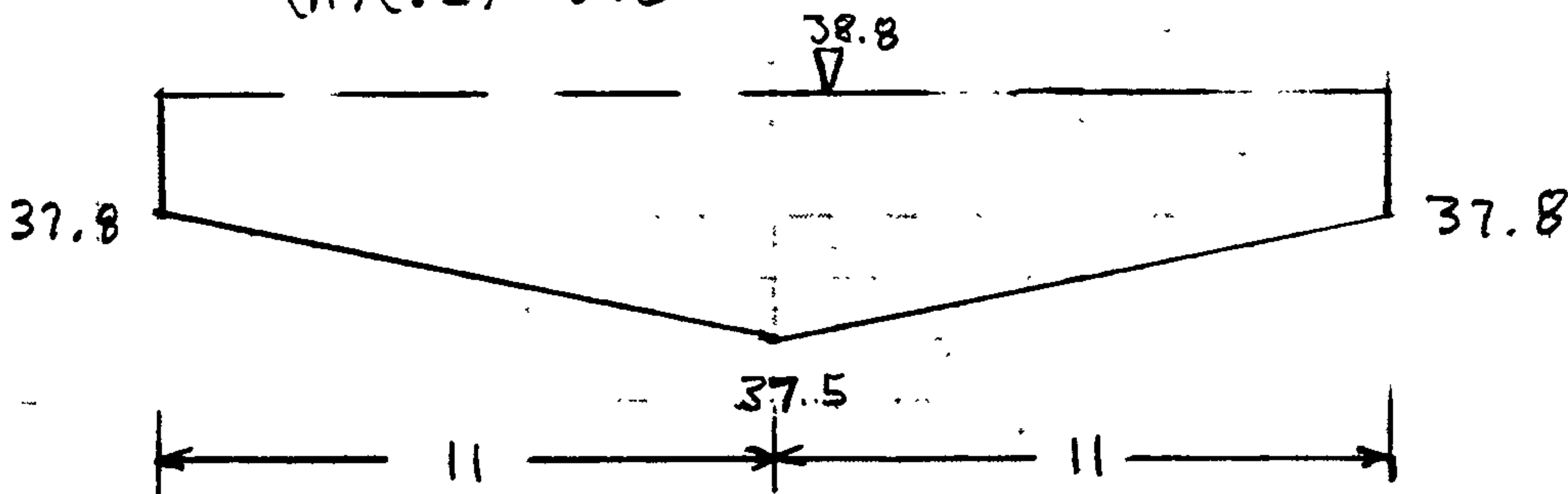
Area₂

$$2 \left[\left(\frac{1}{2} \right) (.2)(11) \right] = 2.2$$

$$(11)(.2) = 2.2$$

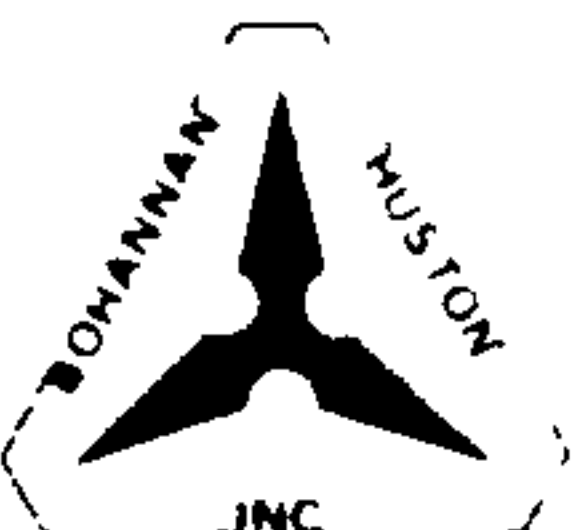
$$\text{Volume} = \left(\frac{5.5 + 38.5}{2} \right) (160)$$

$$= 3520 \text{ ft}^3$$



$$2 \left[\left(\frac{1}{2} \right) (.3)(11) \right] = 3.3$$

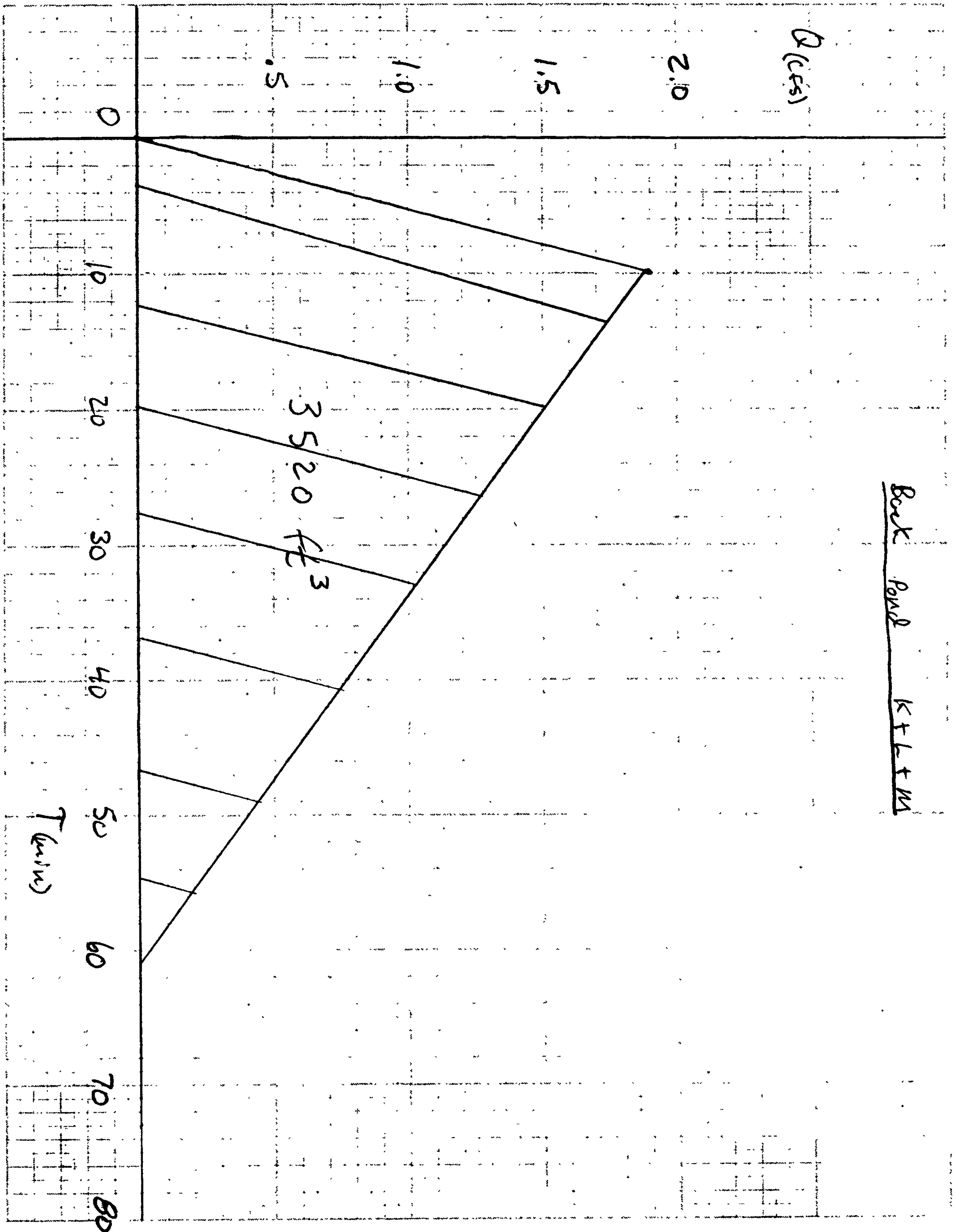
$$(11)(.3) = 3.3$$



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Roof HR₂

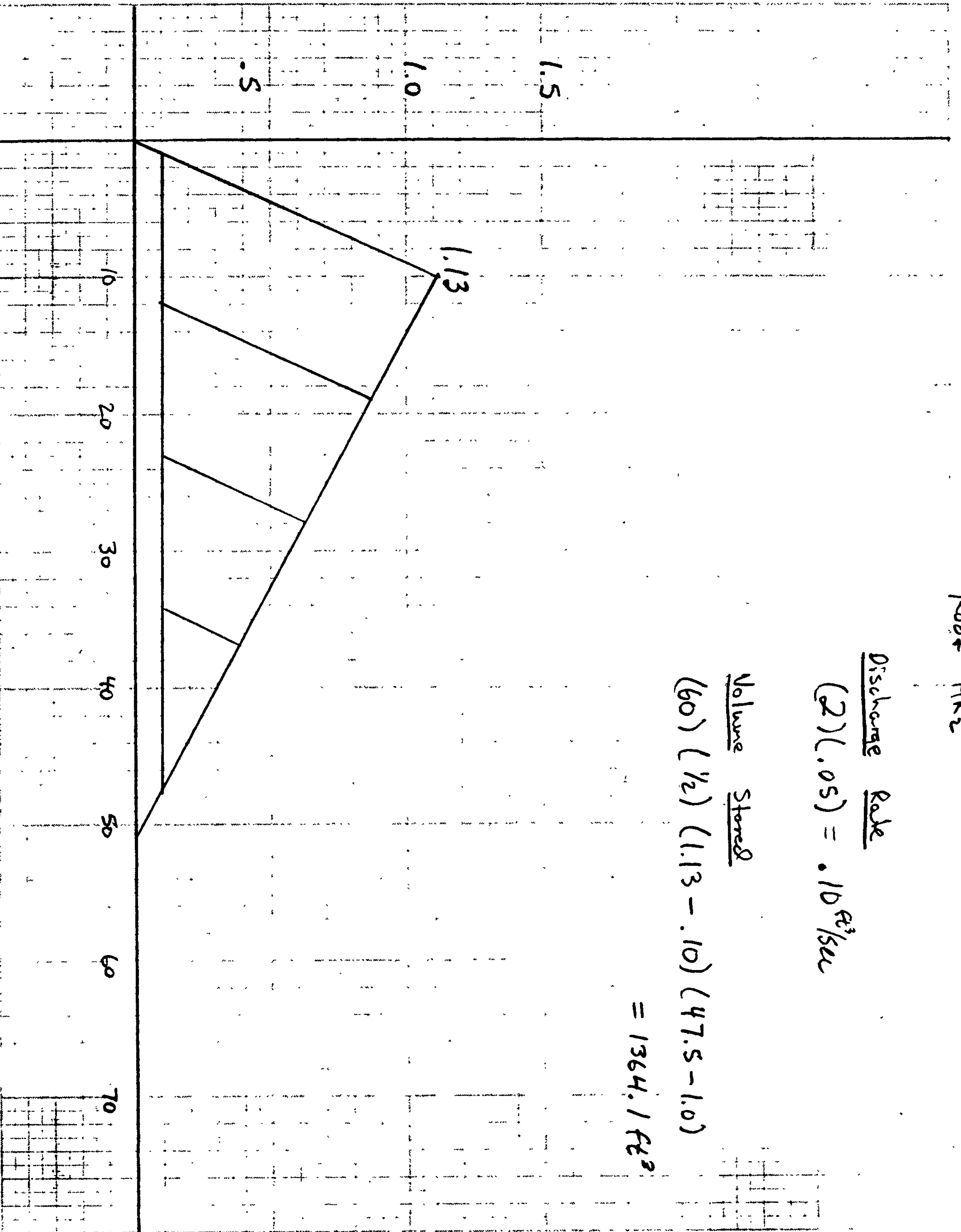
Discharge Rate

$$(2)(.05) = .10 \text{ ft}^3/\text{sec}$$

Volume Stored

$$(60)(\frac{1}{2})(1.13 - .10)(47.5 - 1.0)$$

$$= 1364.1 \text{ ft}^3$$



$Q(c/s)$

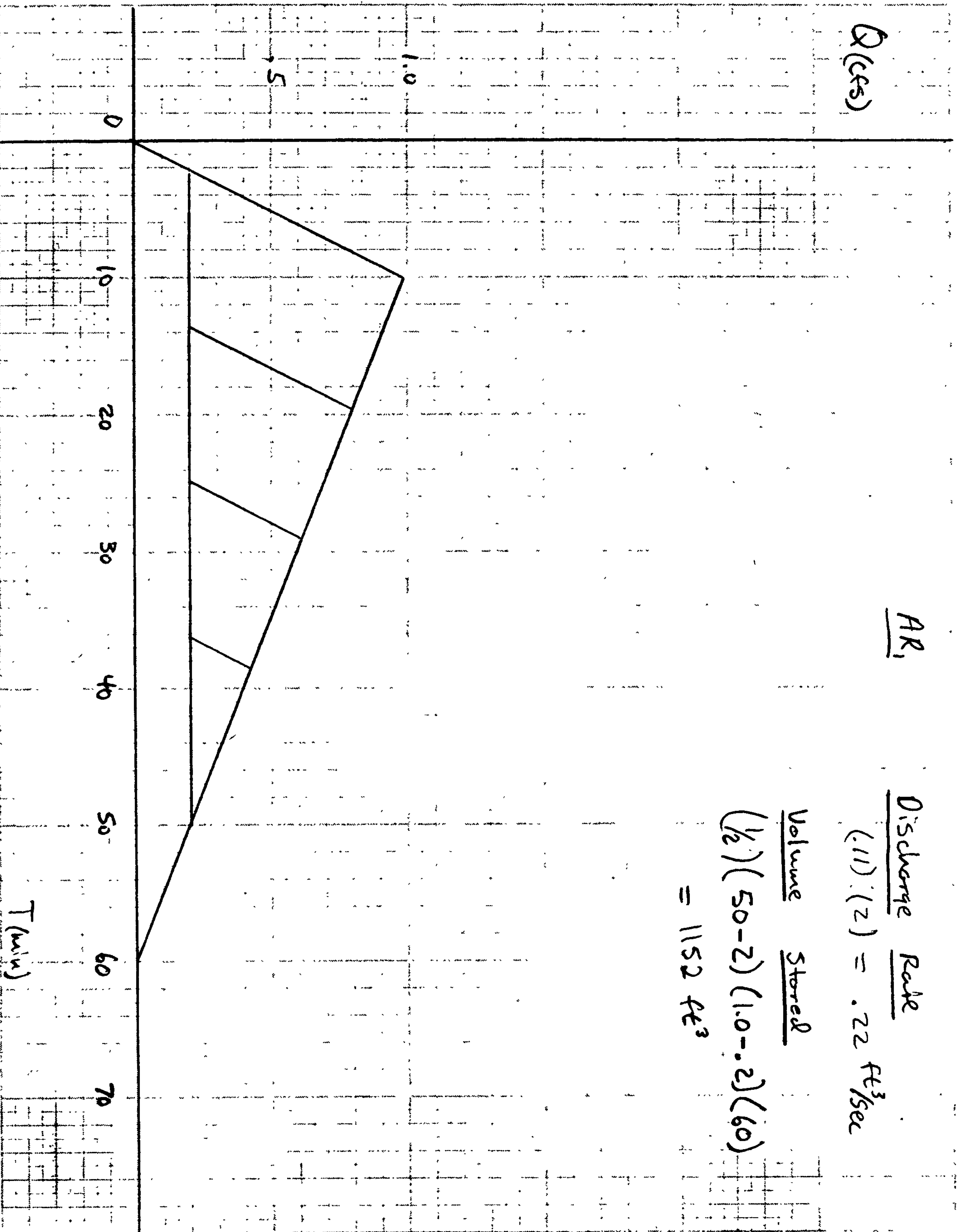
AR,

Discharge Rate

$$(.11)(.2) = .22 \text{ ft}^3/\text{sec}$$

Volume Stored

$$\left(\frac{1}{2}\right)(50-2)(1.0-.2)(60) = 1152 \text{ ft}^3$$



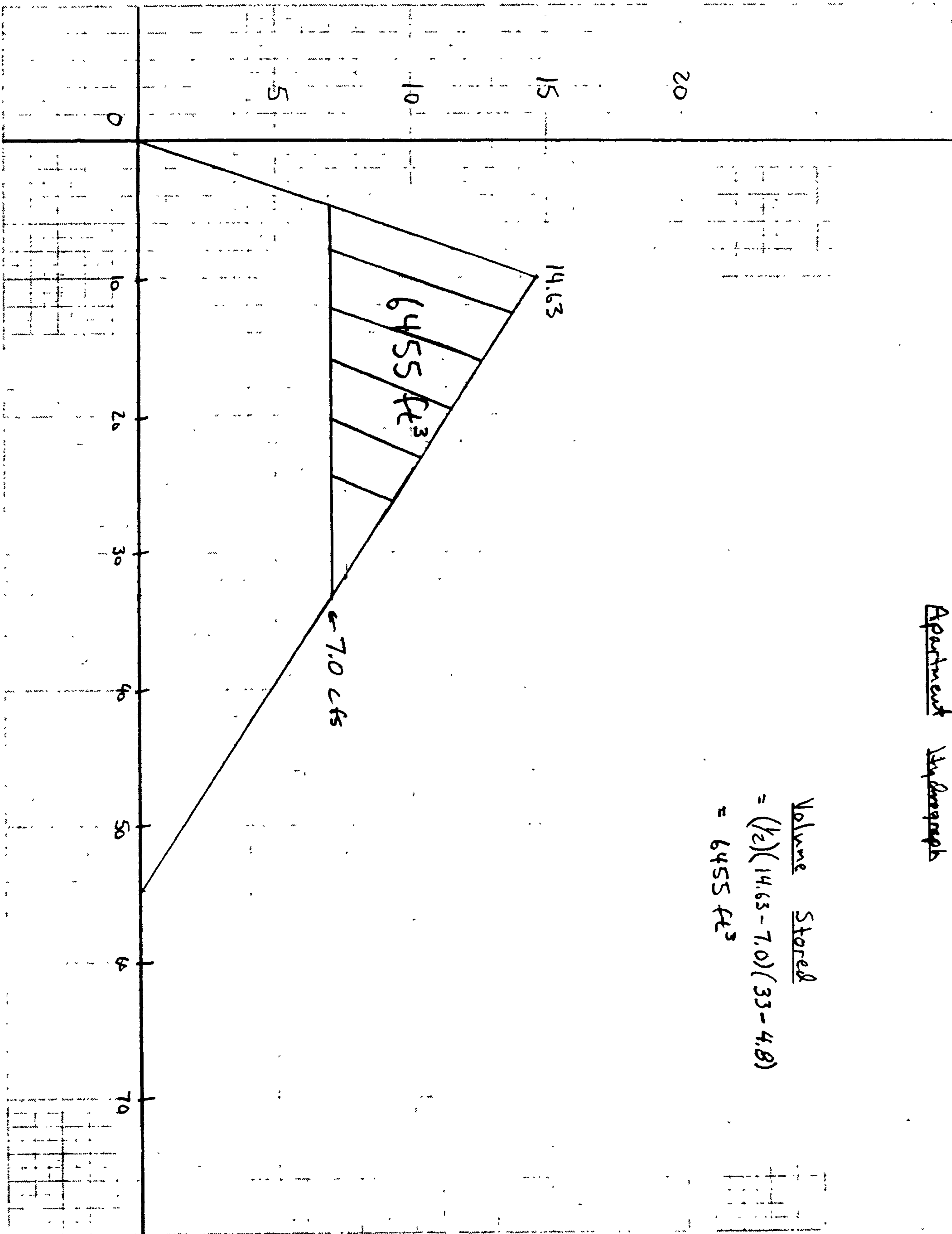
PROJECT NAME _____ SHEET 3B OF _____

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Apartment Hydrograph

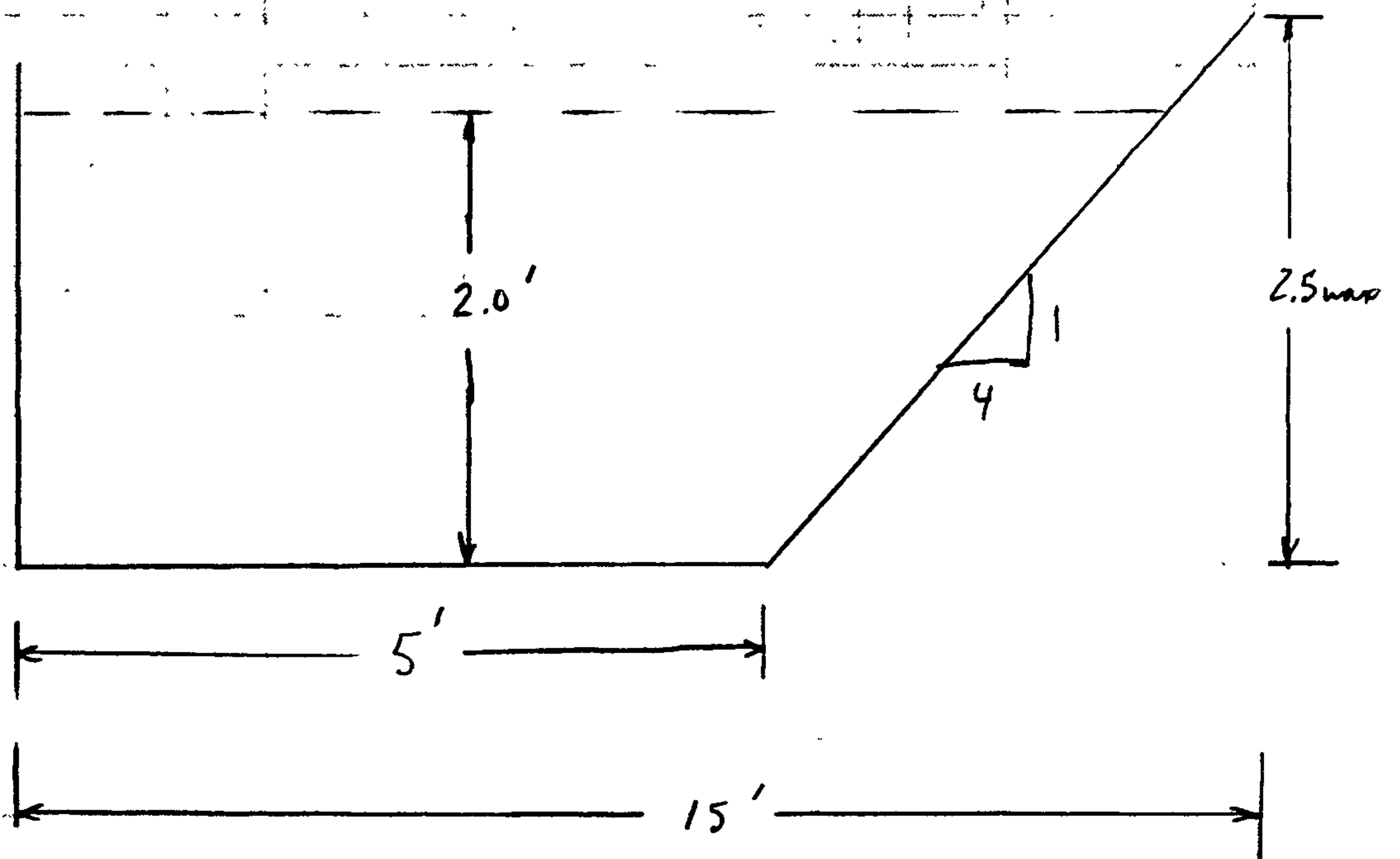
$$\begin{aligned} \text{Volume Stored} &= \left(\frac{1}{2}\right)(14.63 - 7.0)(33 - 4.8) \\ &= 6455 \text{ ft}^3 \end{aligned}$$



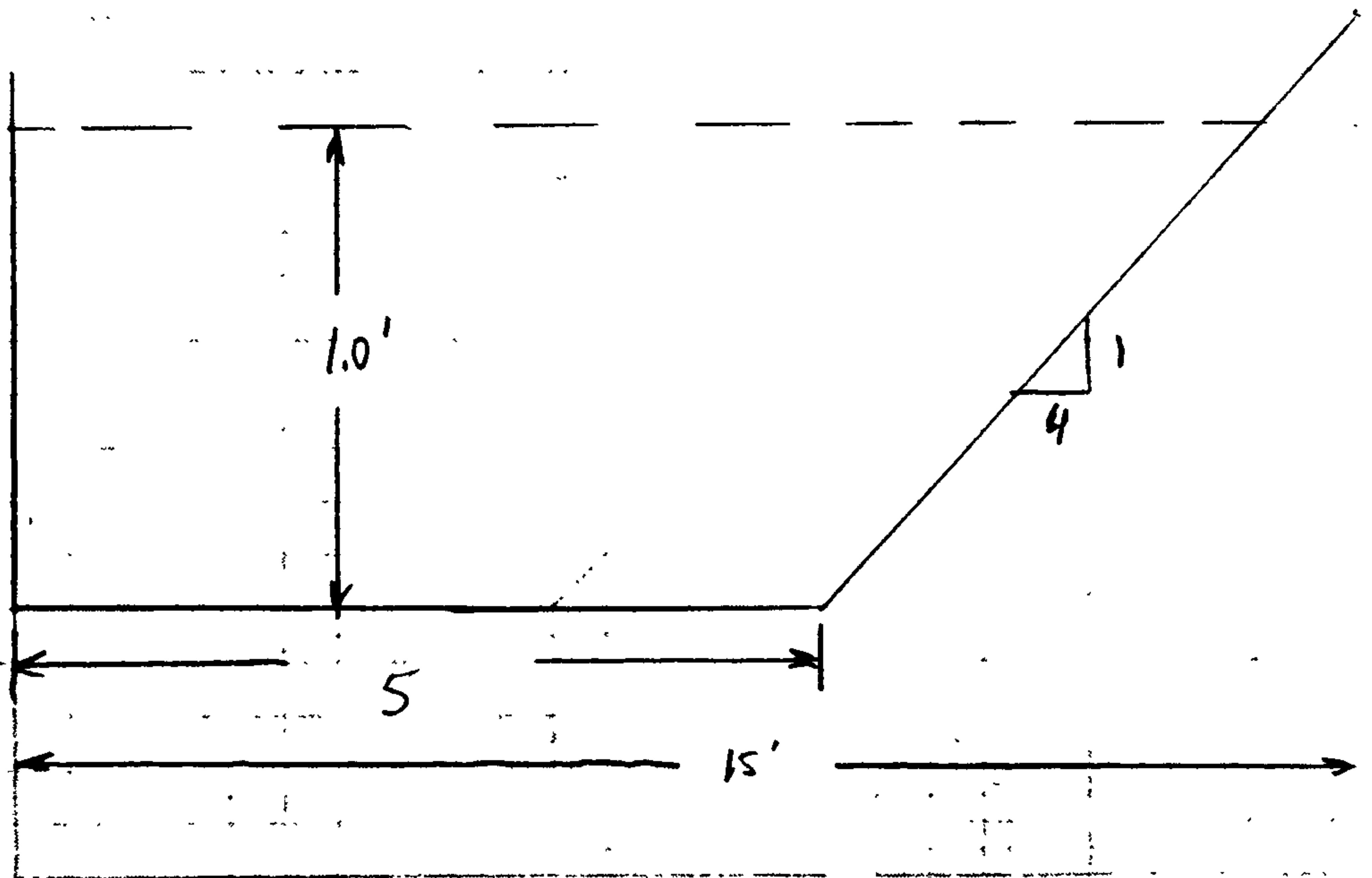
PROJECT NAME _____ SHEET 39 OF _____
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Typical Apartment Pond

Down stream end



upstream end



PROJECT NAME _____ SHEET 40 OF _____

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Area

$$(2)(5) = 10 \text{ ft}^2$$

$$\frac{(1/2)(8)(20) = 8 \text{ ft}^2}{18 \text{ ft}^2}$$

$$(5)(1) = 5 \text{ ft}^2$$

$$\frac{(5)(4)(1) = 2 \text{ ft}^2}{7 \text{ ft}^2}$$

$$\left(\frac{18+7}{2}\right)(105) = 1313 \text{ ft}^3$$

$$\text{Volume } (1313)(5) = \underline{6563 \text{ ft}^3}$$



PROJECT NAME _____

SHEET 41 OF _____

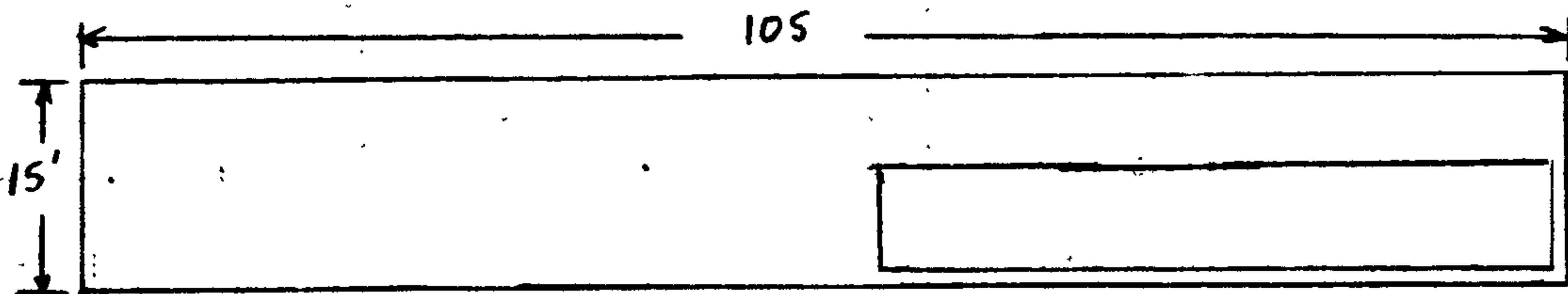
PROJECT NO. _____

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SUBJECT _____

CH'D _____ DATE _____

Typical Basin contours



PROJECT NAME _____ SHEET 42 OF _____
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SUBJECT _____ CH'D _____ DATE _____

Pipe Capacity Q

$$Q = A \cdot C \sqrt{2gh}$$

$$A = \left(\frac{3}{12}\right)^2 \pi = .196 \text{ ft}^2$$

$$C = .6$$

$$g = 32.2 \text{ ft/sec}^2$$

$$h = 3 \text{ ft}$$

$$Q = (.196)(.6) \sqrt{2(32.2)(3)}$$
$$= 1.6 \text{ ft}^3/\text{sec}$$

flow from roof to pipe

$$.8 + .4 + .44 = 1.64 \text{ ft}^3/\text{sec}$$

$$(1.6 - 1.64)(61.3)(60) = 147 \text{ ft}^3$$

Volume from back basin

$$V = .04 + .02 + .02 + .03 = .11 \text{ acre-ft} = 4792 \text{ ft}^3$$

$$4792 + 147 = 4939 \text{ ft}^3$$

Basin M Pond

$$3485 \text{ ft}^3$$

Basin N Pond

$$1450 \text{ ft}^3$$

Basins M and N will drain after roof's contribution to pipe is less than capacity.



PROJECT NAME _____ SHEET 43 OF _____

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SUBJECT _____ CH'D _____ DATE _____