County of Bernalillo

State of New Mexico
ONE CIVIC PLAZA, N.W.
ALBUQUERQUE, NEW MEXICO 87102
ADMINISTRATION (505) 768-4000
COMMISSION (505) 768-4217
FAX (505) 768-4329

March 2, 1993

Jeff Mortensen, P.E.
Jeff Mortensen & Assoc.
6010-B Midway Park Blvd.
Albuquerque, NM 87109

RE: DRAINAGE PLAN FOR LOT 1603, QUAILWOOD SUBDIVISION, SANDIA HEIGHTS SOUTH, RECEIVED FEBRUARY 25, 1993 FOR BUILDING PERMI, (D-23/D9A)

Dear Mr. Mortensen:

Based on the information provided, kindly address the comments provided to you by County PWD on February 26, 1993.

Please secure AMAFCA's and County PWD signature on the plan prior to release of the Building Permit by this office.

If you should have any questions, please do not hesitate to contact me at 768-2650.

Cordially,

Gilbert Aldaz, P.E. & P.S
City/County Floodplain Administrator

xc: Clifford E. Anderson, AMAFCA
Bob Foglesong, County PWD
File

wp+7550

County of Bernalillo

State of New Mexico

2400 BROADWAY S.E.
ALBUQUERQUE, NEW MEXICO 87102
ADMINISTRATION (505) 768-4000
COMMISSION (505) 768-4217
FAX (505) 768-4329

Date: 26-FEB-93

Subject: Submittal

Case No.: PWD-93-25

Zone Map No.: D-23

Street Address: 1603 QUAILWOOD RD NE

Legal Description: LOT 1603 SANDIA HEIGHTS SOUTH

Name of Applicant: Jeff Mortensen

Dear Applicant:

Bernalillo County Public Works Department will require **TWO WEEKS for review and comment of submittal and resubmittals, and ONE WEEK for final review and plat sign-off.** Major submittals may require more than two weeks for review and comment.

The issuance of a permit or a review or approval of plan specifications, computations, and shop drawings shall not be interpreted to be a permit for or an approval of any variance or violation of any of the provisions of any County or State codes, ordinances, standards, or policies. Nor shall such issuance of a permit or approval of plans, specifications, computations, and shop drawings prevent any authorized County representative or County inspector form thereafter requiring the correction of errors in said plans, specifications, computations, or shop drawings or from stopping construction operations which are being carried on thereunder when in violation of any County or State codes, ordinances, standards, or policies.

Review of construction plans, specifications, computations, and shop drawings is only for general conformance with the design concept of the project and general compliance with the plans and specifications and shall not be construed as relieving the Contractor, Land Divider, Subdivider, Engineer/Surveyor, or applicant of the full responsibility for: providing materials, equipment, and work required by the contract; the proper fitting and construction for the work; the accuracy and completeness of the submittal; selecting fabrication processes and techniques of construction; and performing the work in a safe manner.

REV 4-22-91 BR

COUNTY OF BERNALILLO

APPLICATION FOR CASE REVIEW

Please complete pages one and two of this application for review of your case. **Submit THREE bluelines of plat, drawings, or information with case submittals and THREE bluelines of plat, drawings, or information along with the original mylar for final sign-off applications. Submit a County Zone Atlas Map with subject property marked on the map.** If a Grading and Drainage plan is not included with a land division, replat, or conceptual plan, please submit one 8.5"x11" photcopy of a USGS quad map with the subject property superimposed.

NOTE: INCOMPLETE APPLICATIONS WILL BE RETURNED WITHOUT REVIEW.

1. APPLICANT INFORMATION:

a. Applicant is(check one):

____OWNER ____SURVEYOR __X_AGENT
____ENGINEER ____DRAINAGE ENGINEER

b. Date of this application: 23-FEB-93

c. Signature of applicant:
(print)_____ (sign)_____

d. OWNER: Stephen C Lynch PHONE: 505-294-6655
10701 Montgomery NE
Albuquerque, NM 87111

e. AGENT: Jeff Mortensen & Assoc PHONE: 505-345-4250
6010-B Midway Park NE
Albuquerque, NM 87109

f. OTHER(specify): Jeff Mortensen & Assoc PHONE: 505-345-4250
6010-B Midway Park NE
Albuquerque, NM 87109

2. TYPE OF SUBMITTAL (check one):

_____REPLAT
_____LAND DIVISION (MINOR SUBDIVISION)
_____MAJOR SUBDIVISION
_____CONSTRUCTION DRAWINGS
__X__GRADING/DRAINAGE PLAN
_____AS-CONSTRUCTED GRADING/DRAINAGE PLAN
_____VARIANCE REQUEST
_____TRAFFIC IMPACT ANALYSIS/TRAFFIC STUDY
_____INFRASTRUCTURE LIST/DESIGN REVIEW FEE
_____OTHER (specify):_____

TO BE FILLED OUT BY
COUNTY PUBLIC WORKS DEPARTMENT ONLY

Your: X submittal of drainage information
___ resubmittal of _____

is: ___ approved.
___ approved with comments/conditions.
X disapproved.

Case review comments are:
X attached.
___ not attached.
___ not attached. See remarks below.

Resubmittal is:
___ not required.
X required. When resubmitting, please use Resubmittal Form.

Please submit:
___ three bluelines of corrected plat incorporating case review comments.
___ original mylar and three bluelines for final sign-off.
___ grading/drainage plan.
___ as-constructed grading/drainage plan.
___ infrastructure list and/or improvements agreement.
___ design review fee.(payments accepted at county finance dept.)
___ schedule a CRC meeting with Public Works. Tel. 843-6120.
X other: See comments

It is required that:
___ Bernalillo County Public Works Department inspect improvements prior to final sign-off of plat.
___ Bernalillo County Public Works Department signature line be placed on plat.

Remarks: _____

Robert Foglesong 2/26/93
Robert Foglesong
County Surface Water Hydrologist
Bernalillo County Public Works Department

cc: ___ Jack Cloud, DRB
___ County Planning
___ Raymond Quintana, County Building and Zoning
X Owner: _____
X Agent: _____
X Case File: PWD 93-25
X Clifford E. Anderson, AMAFCA
X Gilbert Aldaz, County Floodplain Administrator, COA
___ Fred Torrez, NMSHTD District Three
X Other: _____

BERNALILLO COUNTY PUBLIC WORKS DEPARTMENT
CASE FILE COMMENTS

CASE NO: PWD-93-25

ZONE MAP NO.: D-23

REFERENCE CASES:

BP-93-59
CSU-92-42

STREET ADDRESS: 1603 QUAILWOOD RD NE

LEGAL DESCRIPTION: LOT 1603 SANDIA HEIGHTS SOUTH

COMMENTS OF:

23-FEB-93 DRE:

1. An excuted Encroachment Agreement between Bernalillo County and the property owner will be required for all proposed improvements within the the 10' Drainage Easement and right-of-way of Quailwood Road. These improvements will include, but not be limited to the proposed driveway, catch basin, 24" RCP, deck, riprap and CMU wall. Additionally, the encroachment agreement will require the property owner to maintain the entire 10' drainage easement. Attached is a copy of a blank encroachment agreement for you to review with your client. Please contact Dennis Quintana, ROW Agent, County Public Works Department for additional requirements and procedures in completing the agreement.
2. The proposed driveway does not appear to meet the minimum standards as outlined in the County's Sidewalk Ordinance, No. 88-11. Specifically, Section 12.A.5 of this ordinance requires the drivepad to be 5.5 feet, which is divided into a 3-foot transition curb and 2.5 feet of standing curb, from the property line as it is projected to the curb. Also, at the time of building permit application, the applicant was informed that a 20 minimum driveway would be required. If you have any additional questions concerning the drive, please contact the County's Design Review Engineer, Charles Bowman.

REAL PROPERTY ENCROACHMENT AGREEMENT AND COVENANTS UPON REAL ESTATE

This Agreement, between the County of Bernalillo, New Mexico ("County") and _____ ("User") is made in Albuquerque, New Mexico and is entered into as of the date of filing this Agreement with the County Clerk.

1. Recital. The User is the owner of certain real property hereinafter referred to as property B (see Exhibit A) (User's Property") located at _____ in Bernalillo County, New Mexico and more particularly described as:

The County is the owner of certain real property, easement, or public right-of-way ("County's Property" hereinafter referred to as Property A) adjoining, abutting or within User's Property. The user wishes to encroach upon, or already has encroached upon, the County's Property by construction of the following "Improvement" (see Exhibit "A")

A sketch of the proposed or existing Improvement is attached (see Exhibit A) and made a part of this Agreement.

The County agrees to permit the encroachment of the Improvements on the County's Property, provided the Users, their respective heirs, devisees, executors, administrators, legal representatives, successors, transferees, and assignees of the parties comply with the terms of this Agreement.

2. County Use of County's Property and County Liability. The County has the right to enter upon the County's Property at any time and perform whatever inspection, installation, maintenance, repair, modification or removal ("Work") it deems appropriate without liability to the user. If the work affects the Improvement, the County will not be financially or otherwise responsible for rebuilding or repairing the Improvement. The User promptly shall repair the Improvement to the County's satisfaction. The costs of repairing the Improvement shall be paid by the User.

3. User's Responsibility for Improvement. The User shall be solely responsible for constructing, maintaining, repairing and, if required, removing the Improvement, all in accordance with standards required by the County. The User shall be solely responsible for paying all related costs. The User shall not permit the Improvement to constitute a hazard to the health or safety of the general public or to interfere with the County's use of County's Property. The User shall conform with all applicable laws, ordinance and regulations.

4. Demand for Repair, Modification or Removal. The County may send written notice ("Notice") to the User to repair, modify or remove the Improvement within ninety (90) days after the date of mailing of the written notice to User ("Deadline") and the User shall promptly comply with the requirements of the Notice. The County may demand removal of the Improvement without cause. If the removal is demanded, the County also may require the User to return the County's Property to its original condition by the Deadline. The User shall perform all required work by the Deadline, at User's sole expense.

5. Failure to Perform. Emergency. If the User fails to comply with the terms of the Notice by the Deadline stated, or if the County determines that an emergency condition exists, the County may perform the work itself. The County then may assess the User for the cost of the work and for any other expenses or damages which result from User's failure to perform. The user shall pay the County the amount assessed within thirty (30) days after the County gives the User written notice of the amount due. If the County employs the County's Legal Department or an outside attorney to enforce this Agreement, the User shall pay the County all costs, charges and expenses, including reasonable attorney's fees for the County's Legal Department or outside attorney, expended or incurred by the County to enforce this Agreement.

6. Condemnation. If any part of the User's property is ever condemned by the County, the User shall waive all claims to compensation for any portion of User's structure and for severance damage to any remaining portion of User's structure.

7. Notice. For purposes of giving formal written notice to the User, User's address is:

Notice may be given to the User either in person or by mailing the notice by regular U.S. mail, postage paid. Notice shall be considered to have been received by the User within six (6) days after the notice is sent to User's as specified herein. If User's address changes, then the responsibility for notifying the County of such changes is on User and shall be done by giving written notice of the change by certified mail, return receipt requested, to the County Engineer at 2400 Broadway S.E., Albuquerque, N.M. 87102. If no change of address is accomplished by User as set forth herein, then notice shall be deemed to have been received by User at the address specified herein.

8. Indemnification. The User agrees to defend, indemnify and hold harmless the County, its officials, agents and employees from and against any and all claims, actions, suits or proceedings of any kind brought against said parties which arise for any reason as a result of User's use of the County's Property or which arise out of the Improvement. The County assumes no additional liability as a result of granting of the real property encroachment to _____. _____ will agree to indemnify the County from any and all liability or damages that may arise as a result of their actions pursuant to the encroachment agreement.

9. Term. This Agreement may be terminated in writing at any time by the User or by the County, without cause. Termination by either party shall be effective ninety (90) days after mailing by a party of written notice of termination to the other party. A notice of termination shall be a Notice under Paragraph 4 requiring the User to remove the Improvement and return the County's property to its original condition by the Deadline. Notice to the County shall be sent to the following address:
C/O County Engineer
2400 Broadway S.E.
Albuquerque, New Mexico 87102

10. Binding on User's Property. The obligations of the User set forth herein shall be binding upon the User, his heirs, assigns, transferees, and successors and on User's Property, and shall run with and be a burden upon User's Property until release by the County.

11. Entire Agreement. This Agreement contains the entire Agreement of the parties and supersedes any and all other Agreements of understandings oral or written, whether previous to the execution hereof or contemporaneous herewith.

12. Changes to Agreement. Changes to this Agreement are not binding unless made in writing, signed by both parties.

13. Construction and Severability. If any part of this Agreement is held to be invalid or unenforceable, the remainder of the Agreement shall remain valid and enforceable if the remainder is reasonably capable of completion.

14. Captions. The captions to the sections or paragraphs of this Agreement are not part of this Agreement and will not affect the meaning or construction of any of its provisions.

930101

DRAINAGE INFORMATION SHEET

PROJECT TITLE: LYNCH RESIDENCE ZONE ATLAS/DRNG. FILE #: D-23/D9A

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: LOT 1603 QUAILWOOD SUB. SANDIA HEIGHTS SOUTH

CITY ADDRESS: 1603 QUAILWOOD RD NE

ENGINEERING FIRM: JMA CONTACT: JEFF MORTENSEN

ADDRESS: 6010-B MIDWAY PARK BLVD PHONE: 345-4250

OWNER: STEPHEN C. LYNCH NE CONTACT: ARCHITECT

ADDRESS: 10701 MONTGOMERY PHONE: _____

ARCHITECT: JOSEPH GODKIN CONTACT: JOESEPH GODKIN

ADDRESS: 3901 INDIAN SCHOOL RD NE PHONE: 266-6058

SURVEYOR: JMA CONTACT: GRAEME MEANS

ADDRESS: _____ PHONE: 345-4250

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT
X DRAINAGE PLAN
___ CONCEPTUAL GRADING & DRAINAGE PLAN
X GRADING PLAN
___ EROSION CONTROL PLAN
___ ENGINEER'S CERTIFICATION
___ OTHER

RECEIVED
FEB 25 1993
HYDROLOGY SECTION

PRE-DESIGN MEETING:

___ YES
X NO
___ COPY PROVIDED

wpf 7550

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL
___ 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
X BUILDING PERMIT APPROVAL
___ CERTIFICATE OF OCCUPANCY APPROVAL
___ GRADING PERMIT APPROVAL
___ PAVING PERMIT APPROVAL
___ S.A.D. DRAINAGE REPORT
___ DRAINAGE REQUIREMENTS
___ OTHER _____ (SPECIFY)

DATE SUBMITTED: 02/25/93

BY: JMA

XC: CLIFF ANDERSON, AMAFCA

151070

CALCULATIONS

A. BASIN A

Site Characteristics

1. Precipitation Zone 4
2. $P_{6,100} = P_{360} = 2.90$
3. Total Area (A_T) 7920 sf = 0.182 ac
4. Existing Land Treatment

Treatment	Area (sf/ac)	%
B	1530/0.035	19%
D	6390/0.147	81%

5. Developed Land Treatment (Same as Existing)

Existing Condition

1. Volume

$E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$
$E_W = [(1.08)(0.035) + (2.64)(0.147)]/0.182 = 2.34$ in.
$V_{100} = (E_W/12) A_T$
$V_{100} = (2.34/12)(0.182) = 0.0355$ ac-ft = 1,550 cf

2. Peak Discharge

$Q_p = Q_{PA} A_A + Q_{PB} A_B + Q_{PC} A_C + Q_{PD} A_D$
$Q_p = Q_{100} = (2.92)(0.035) + (5.25)(0.147) = 0.9$ cfs

Developed Condition (Same as Existing)

B. BASIN B

Site Characteristics

1. Precipitation Zone 4
2. $P_{6,100} = P_{360} = 2.90$
3. Total Area (A_T) 7450 sf = 0.171 ac
4. Existing Land Treatment

Treatment	Area (sf/ac)	%
B	7450/0.171	100%

5. Developed Land Treatment

Treatment	Area (sf/ac)	%
B	4260/0.098	57%
D	3190/0.073	43%

Existing Condition

1. Volume

$E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$
$E_W = [(1.08)(0.171)/(0.171) = 1.08$ in.
$V_{100} = (E_W/12) A_T$
$V_{100} = (1.08/12)(0.171) = 0.0154$ ac-ft = 670 sf

2. Peak Discharge

$Q_p = Q_{PA} A_A + Q_{PB} A_B + Q_{PC} A_C + Q_{PD} A_D$
$Q_p = Q_{100} = (2.92)(0.171) = 0.5$ cfs

Developed Condition

1. Volume

$E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$
$E_W = [(1.08)(0.098) + (2.64)(0.073)]/0.171 = 1.75$ in.
$V_{100} = (E_W/12) A_T$
$V_{100} = (1.75/12)(0.171) = 0.0249$ ac-ft = 1,080 cf

2. Peak Discharge

$Q_p = Q_{PA} A_A + Q_{PB} A_B + Q_{PC} A_C + Q_{PD} A_D$
$Q_p = Q_{100} = (2.92)(0.098) + (5.25)(0.073) = 0.7$ cfs

Comparison

1. $\Delta V_{100} =$ 1,080 − 670 = 410 cf (increase)
2. $\Delta Q_{100} =$ 0.7 − 0.5 = 0.2 cfs (increase)

SUMP CONDITION @ KNUCKLE

a. Single "D" Inlet Capacity:

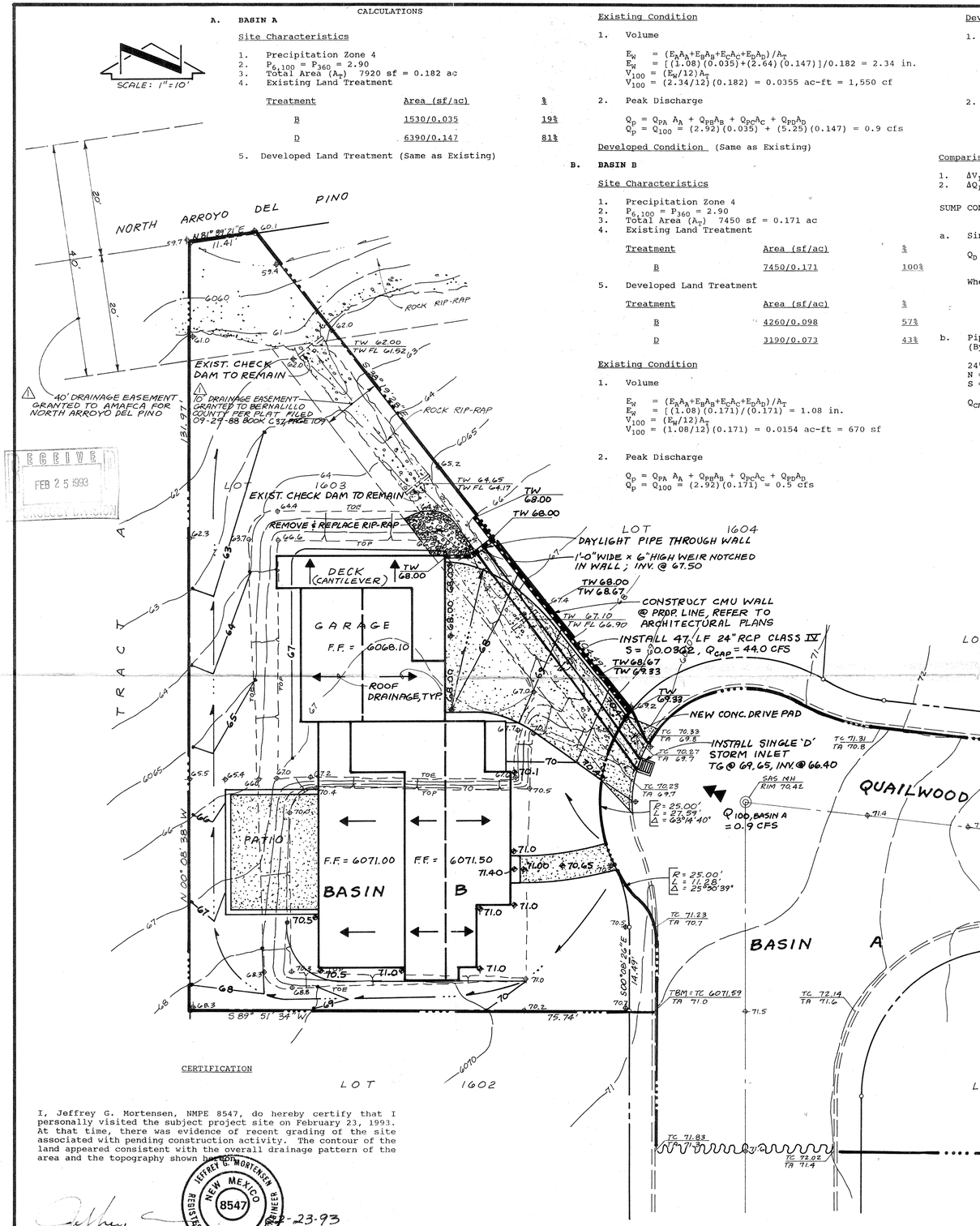
$Q_D = C A_{eff} (2g\,\Delta h)^{0.5}$
$= 8.7$cfs > 0.9 cfs

Where C = 0.7
$A_{eff} = 0.5\ (3.2 \times 2.1) = 3.36$ sf
$g = 32.2$ ft/s^2
$\Delta h = 0.50$ ft

b. Pipe Capacity
(By Feild's Hydraulics Calculator for Gravity Flow in Pipes)

24" RCP
N = 0.013
S = 0.036

$Q_{CAP} = 44$ cfs



CERTIFICATION

I, Jeffrey G. Mortensen, NMPE 8547, do hereby certify that I personally visited the subject project site on February 23, 1993. At that time, there was evidence of recent grading of the site associated with pending construction activity. The contour of the land appeared consistent with the overall drainage pattern of the area and the topography shown hereon.

JEFFREY G. MORTENSEN, NMPE 8547 — 02-23-93 Date

REVISED 02-25

RECEIVED FEB 25 1993 ALBUQUERQUE

LEGEND

- EXIST. SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- EXIST. CONTOUR LINE
- 72 PROPOSED SPOT ELEVATION
- EXIST. FLOWLINE
- PROPOSED FLOWLINE
- WATERBLOCK
- DRAINAGE BASIN BOUNDARY
- TC TOP OF CURB
- TA TOP OF ASPHALT
- TW TOP OF WALL
- PROPOSED CONCRETE

LEGAL DESCRIPTION

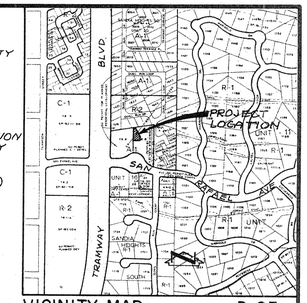
LOT 1603, QUAILWOOD SUBDIVISION, A REPLAT OF TRACT B, SANDIA HEIGHTS, UNIT 19, BERNALILLO COUNTY

PROJECT BENCHMARK

A STANDARD ACS BRASS TABLET STAMPED "1-D23," SET IN TOP OF A CONCRETE POST PROJECTING 0.1 FT. ABOVE GROUND. STATION IS LOCATED 2.45 MILES NORTH OF THE INTERSECTION OF MONTGOMERY BLVD. NE & TRAMWAY BLVD. NE, 105 FT. EAST OF THE CENTERLINE OF TRAMWAY BLVD.
ELEVATION = 6067.42 FT. (M.S.L.D.)

T B M

TOP OF CURB NEAR THE S.E. CORNER OF PROJECT PROPERTY AS SHOWN BELOW
ELEVATION = 6071.59 FT. (M.S.L.D.)



VICINITY MAP D-23
SCALE: 1"=800' (APPROX.)

DRAINAGE PLAN

The following items concerning the Lynch Residence Conceptual Drainage Plan are contained herein:

1. Vicinity Map 2. Grading Plan 3. Calculations

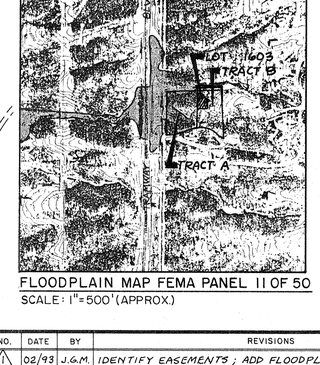
As shown by the Vicinity Map, the site is located just to the northeast of the intersection of Tramway Boulevard and San Rafael Avenue, NE. At present, the site for proposed development consists mainly of native grasses and desert annuals on a 5 to 10 percent slope. Under the proposed scheme of development, a patio home will be constructed on the site.

As shown by Panel 11 of 50 of the National Flood Insurance Program Flood Insurance Rate Maps for the City of Albuquerque, New Mexico, the site lies just south of a Flood Hazard Zone 4 with a 100-year depth of 6057. Because the elevation of this site is above 6057, this Flood Hazard Zone is not applicable to this site. The site does, however, appear to lie adjacent to this flood zone as mapped. The flood zone does not appear to encroach upon the site but appears to "touch" the site.

The Grading Plan shows 1) existing and proposed grades indicated by spot elevations and contours at 1'0" intervals, 2) the limit and character of the existing improvements, 3) the limit and character of the proposed improvements, and 4) continuity between existing and proposed grades. As shown by this plan, the proposed improvements consist of the construction of a new house, along with associated paving and landscaping. The proposed driveway for the house will cover an existing 10' drainage easement.

To accept and convey the runoff that originally flowed within this easement, a single "D" storm inlet will be constructed. The storm inlet will drain into a 24" storm drain which will discharge into the easement at a point approximately 50 feet further downstream than the present scenario. All runoff from Basin B is directed northward into the North Arroyo Del Pino, which is consistent with historic drainage patterns.

The calculations which appear hereon analyze the existing and developed conditions for the 100-year, 6-hour rainfall event. The Procedure for 40 Acre and Smaller Basins as set forth in Section 22.2, Hydrology of the Development Process Manual Volume 2, Design Criteria, August 1991, has been used to calculate the peak discharge and the volume of runoff generated. As shown by those calculations, the total volume of runoff generated by this site will be routed consistently with historic patterns.



FLOODPLAIN MAP FEMA PANEL 11 OF 50
SCALE: 1"=500' (APPROX.)

Construction Notes:

1. Two (2) working days prior to any excavation, contractor must contact New Mexico One Call System, 260-1990, for location of existing utilities.
2. Prior to construction, the contractor shall excavate and verify the horizontal and vertical location of all potential obstructions. Should a conflict exist, the contractor shall notify the engineer so that the conflict can be resolved with a minimum amount of delay.
3. All work on this project shall be performed in accordance with applicable federal, state and local laws, rules and regulations concerning safety and health.
4. All construction with public right-of-way shall be performed in accordance with applicable Bernalillo County Standards and Procedures.
5. If any utility lines, pipelines, or underground utility lines are shown on these drawings, they are shown in an approximate manner only, and such lines may exist where none are shown. If any such existing lines are shown, the location is based upon information provided by the owner of said utility, and the information may be incomplete, or may be obsolete by the time construction commences. The engineer has conducted only preliminary investigation of the location, depth, size, or type of existing utility lines, pipelines, or underground utility lines. This investigation is not conclusive, and may not be complete, therefore, makes no representation pertaining thereto, and assumes no responsibility or liability therefor. The contractor shall inform itself of the location of any utility line, pipeline, or underground utility line in or near the area of the work in advance of and during excavation work. The contractor is fully responsible for any and all damage caused by its failure to locate, identify and preserve any and all existing utilities, pipelines, and underground utility lines. In planning and conducting excavation, the contractor shall comply with state statutes, municipal and local ordinances, rules and regulations, if any, pertaining to the location of these lines and facilities.
6. The design of planters and landscaped areas is not part of this plan. All planters and landscaped areas adjacent to the building(s) shall be provided with positive drainage to avoid any ponding adjacent to the structure. For construction details, refer to landscaping plan.

Erosion Control Measures:

1. The contractor shall ensure that no soil erodes from the site into public right-of-way or onto private property. This can be achieved by constructing temporary berms at the property lines and wetting the soil to keep it from blowing.
2. The contractor shall promptly clean up any material excavated within the public right-of-way so that the excavated material is not susceptible to being washed down the street.
3. The contractor shall secure "topsoil disturbance permit" Prior to beginning construction.

JEFF MORTENSEN & ASSOCIATES, INC.
6010-B MIDWAY PARK BLVD. N.E.
ALBUQUERQUE, NEW MEXICO 87109
ENGINEERS & SURVEYORS (505)345-4250

GRADING & DRAINAGE PLAN

LYNCH RESIDENCE

DESIGNED BY JGM
DRAWN BY CEN
APPROVED BY JGM

NO.	DATE	BY	REVISIONS
1	02/93	J.G.M.	IDENTIFY EASEMENTS; ADD FLOODPLAIN MAP

JOB NO. 930101
DATE 02 - 93
SHEET 1 OF 1

SCALE: 1"=10'

4. Existing Land Treatment

Treatment	Area (sf/ac)	%
B	1530/0.035	19%
D	6390/0.147	81%

5. Developed Land Treatment (Same as Existing)

V_{100} = (2.34/12)(0.182) = 0.0355 ac-ft = 1,550 cf

2. Peak Discharge

$Q_p = Q_{PA} A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$
$Q_p = Q_{100}$ = (2.92)(0.035) + (5.25)(0.147) = 0.9 cfs

Developed Condition (Same as Existing)

B. BASIN B

Site Characteristics

1. Precipitation Zone 4
2. $P_{6,100} = P_{360} = 2.90$
3. Total Area (A_T) 7450 sf = 0.171 ac
4. Existing Land Treatment

Treatment	Area (sf/ac)	%
B	7450/0.171	100%

5. Developed Land Treatment

Treatment	Area (sf/ac)	%
B	4260/0.098	57%
D	3190/0.073	43%

Existing Condition

1. Volume

$E_W = (E_B A_B + E_B A_B + E_C A_C + E_D A_D)/A_T$
$E_W = [(1.08)(0.171)]/(0.171) = 1.08$ in.
$V_{100} = (E_W/12)A_T$
V_{100} = (1.08/12)(0.171) = 0.0154 ac-ft = 670 sf

2. Peak Discharge

$Q_p = Q_{PA} A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$
$Q_p = Q_{100}$ = (2.92)(0.171) = 0.5 cfs

V_{100} = (1.75/12)(0.171) = 0.0249 ac-ft = 1,080 cf

2. Peak Discharge

$Q_p = Q_{PA} A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$
$Q_p = Q_{100}$ = (2.92)(0.098) + (5.25)(0.073) = 0.7 cfs

Comparison

1. ΔV_{100} = 1,080 - 670 = 410 cf (increase)
2. ΔQ_{100} = 0.7 - 0.5 = 0.2 cfs (increase)

SUMP CONDITION @ KNUCKLE

a. Single "D" Inlet Capacity:

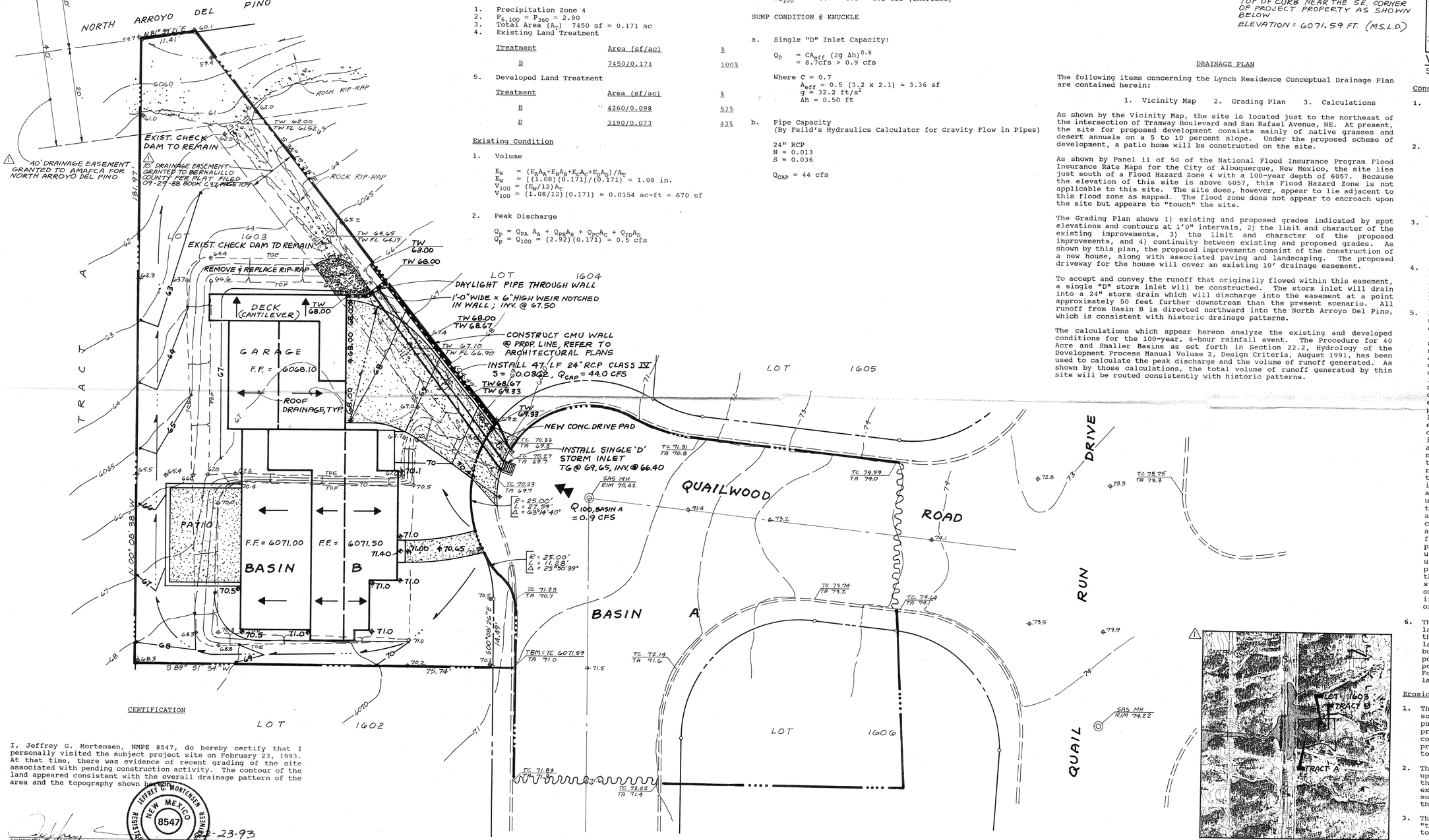
$Q_D = CA_{eff}(2g\,\Delta h)^{0.5}$
= 8.7cfs > 0.9 cfs

Where C = 0.7
A_{eff} = 0.5 (3.2 x 2.1) = 3.36 sf
g = 32.2 ft/s²
Δh = 0.50 ft

b. Pipe Capacity
(By Feild's Hydraulics Calculator for Gravity Flow in Pipes)

24" RCP
N = 0.013
S = 0.036

Q_{CAP} = 44 cfs



CERTIFICATION

I, Jeffrey G. Mortensen, NMPE 8547, do hereby certify that I personally visited the subject project site on February 23, 1993. At that time, there was evidence of recent grading of the site associated with pending construction activity. The contour of the land appeared consistent with the overall drainage pattern of the area and the topography shown hereon.

JEFFREY G. MORTENSEN, NMPE 8547 — Date 2-23-93
REVISED 02-25

JEFF MORTENSEN & ASSOCIATES, INC.
6010-B MIDWAY PARK BLVD. N.E.
ALBUQUERQUE, NEW MEXICO 87109
ENGINEERS & SURVEYORS (505)345-4250

GRADING & DRAINAGE PLAN

LYNCH RESIDENCE

DESIGNED BY JGM
DRAWN BY CEN
APPROVED BY JGM

NO.	DATE	BY	REVISIONS
1	02/93	J.G.M.	IDENTIFY EASEMENTS; ADD FLOODPLAIN MAP

JOB NO. 930101
DATE 02 - 93
SHEET 1 OF 1

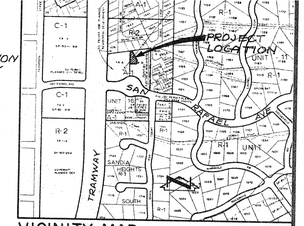
EXIST. FLOWLINE
PROPOSED FLOWLINE
WATERBLOCK
DRAINAGE BASIN BOUNDARY
TC TOP OF CURB
TA TOP OF ASPHALT
TW TOP OF WALL
PROPOSED CONCRETE

BENCHMARK

A STANDARD ACS BRASS TABLET STAMPED "I-D23," SET IN TOP OF A CONCRETE POST PROJECTING 0.1 FT. ABOVE GROUND. STATION IS LOCATED 2.45 MILES NORTH OF THE INTERSECTION OF MONTGOMERY BLVD. NE & TRAMWAY BLVD. NE, 105 FT. EAST OF THE CENTERLINE OF TRAMWAY BLVD.
ELEVATION = 6067.42 FT. (M.S.L.D.)

T B M

TOP OF CURB NEAR THE S.E. CORNER OF PROJECT PROPERTY AS SHOWN BELOW
ELEVATION = 6071.59 FT. (M.S.L.D.)



VICINITY MAP D-23
SCALE: 1"=800' (APPROX.)

DRAINAGE PLAN

The following items concerning the Lynch Residence Conceptual Drainage Plan are contained herein:

1. Vicinity Map 2. Grading Plan 3. Calculations

As shown by the Vicinity Map, the site is located just to the northeast of the intersection of Tramway Boulevard and San Rafael Avenue, NE. At present, the site for proposed development consists mainly of native grasses and desert annuals on a 5 to 10 percent slope. Under the proposed scheme of development, a patio home will be constructed on the site.

As shown by Panel 11 of 50 of the National Flood Insurance Program Flood Insurance Rate Maps for the City of Albuquerque, New Mexico, the site lies just south of a Flood Hazard Zone 4 with a 100-year depth of 6057. Because the elevation of this site is above 6057, this Flood Hazard Zone is not applicable to this site. The site does, however, appear to lie adjacent to this flood zone as mapped. The flood zone does not appear to encroach upon the site but appears to "touch" the site.

The Grading Plan shows 1) existing and proposed grades indicated by spot elevations and contours at 1'0" intervals, 2) the limit and character of the existing improvements, 3) the limit and character of the proposed improvements, and 4) continuity between existing and proposed grades. As shown by this plan, the proposed improvements consist of the construction of a new house, along with associated paving and landscaping. The proposed driveway for the house will cover an existing 10' drainage easement.

To accept and convey the runoff that originally flowed within this easement, a single "D" storm inlet will be constructed. The storm inlet will drain into a 24" storm drain which will discharge into the easement at a point approximately 50 feet further downstream than the present scenario. All runoff from Basin B is directed northward into the North Arroyo Del Pino, which is consistent with historic drainage patterns.

The calculations which appear hereon analyze the existing and developed conditions for the 100-year, 6-hour rainfall event. The Procedure for 40 Acre and Smaller Basins as set forth in Section 22.2, Hydrology of the Development Process Manual Volume 2, Design Criteria, August 1991, has been used to calculate the peak discharge and the volume of runoff generated. As shown by those calculations, the total volume of runoff generated by this site will be routed consistently with historic patterns.

FLOODPLAIN MAP FEMA PANEL 11 OF 50
SCALE: 1"=500' (APPROX.)

Construction Notes:

1. Two (2) working days prior to any excavation, contractor must contact New Mexico One Call System, 260-1990, for location of existing utilities.
2. Prior to construction, the contractor shall excavate and verify the horizontal and vertical location of all potential obstructions. Should a conflict exist, the contractor shall notify the engineer so that the conflict can be resolved with a minimum amount of delay.
3. All work on this project shall be performed in accordance with applicable federal, state and local laws, rules and regulations concerning safety and health.
4. All construction with public right-of-way shall be performed in accordance with applicable Bernalillo County Standards and Procedures.
5. If any utility lines, pipelines, or underground utility lines are shown on these drawings, they are shown in an approximate manner only, and such lines may exist where none are shown. If any such existing lines are shown, the location is based upon information provided by the owner of said utility, and the information may be incomplete, or may be obsolete by the time construction commences. The engineer has conducted only preliminary investigation of the location, depth, size, or type of existing utility lines, pipelines, or underground utility lines. This investigation is not conclusive, and may not be complete, therefore, makes no representation pertaining thereto, and assumes no responsibility or liability therefor. The contractor shall inform itself of the location of any utility line, pipeline, or underground utility line in or near the area of the work in advance of and during excavation work. The contractor is fully responsible for any and all damage caused by its failure to locate, identify and preserve any and all existing utilities, pipelines, and underground utility lines. In planning and conducting excavation, the contractor shall comply with state statutes, municipal and local ordinances, rules and regulations, if any, pertaining to the location of these lines and facilities.
6. The design of planters and landscaped areas is not part of this plan. All planters and landscaped areas adjacent to the building(s) shall be provided with positive drainage to avoid any ponding adjacent to the structure. For construction details, refer to landscaping plan.

Erosion Control Measures:

1. The contractor shall ensure that no soil erodes from the site into public right-of-way or onto private property. This can be achieved by constructing temporary berms at the property lines and wetting the soil to keep it from blowing.
2. The contractor shall promptly clean up any material excavated within the public right-of-way so that the excavated material is not susceptible to being washed down the street.
3. The contractor shall secure "topsoil disturbance permit" Prior to beginning construction.

1510070

CALCULATIONS

A. BASIN A

Site Characteristics

1. Precipitation Zone 4
2. $P_{6,100} = P_{360} = 2.90$
3. Total Area (A_T) 7920 sf = 0.182 ac
4. Existing Land Treatment

Treatment	Area (sf/ac)	%
B	1530/0.035	19%
D	6390/0.147	81%

5. Developed Land Treatment (Same as Existing)

Existing Condition

1. Volume

$E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$
$E_W = [(1.08)(0.035) + (2.64)(0.147)]/0.182 = 2.34$ in.
$V_{100} = (E_W/12)A_T$
$V_{100} = (2.34/12)(0.182) = 0.0355$ ac-ft = 1,550 cf

2. Peak Discharge

$Q_p = Q_{PA} A_A + Q_{PB} A_B + Q_{PC} A_C + Q_{PD} A_D$
$Q_p = Q_{100} = (2.92)(0.035) + (5.25)(0.147) = 0.9$ cfs

Developed Condition (Same as Existing)

B. BASIN B

Site Characteristics

1. Precipitation Zone 4
2. $P_{6,100} = P_{360} = 2.90$
3. Total Area (A_T) 7450 sf = 0.171 ac
4. Existing Land Treatment

Treatment	Area (sf/ac)	%
B	7450/0.171	100%

5. Developed Land Treatment

Treatment	Area (sf/ac)	%
B	4260/0.098	57%
D	3190/0.073	43%

Existing Condition

1. Volume

$E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$
$E_W = [(1.08)(0.171)/(0.171) = 1.08$ in.
$V_{100} = (E_W/12)A_T$
$V_{100} = (1.08/12)(0.171) = 0.0154$ ac-ft = 670 sf

2. Peak Discharge

$Q_p = Q_{PA} A_A + Q_{PB} A_B + Q_{PC} A_C + Q_{PD} A_D$
$Q_p = Q_{100} = (2.92)(0.171) = 0.5$ cfs

Developed Condition

1. Volume

$E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$
$E_W = [(1.08)(0.098) + (2.64)(0.073)]/0.171 = 1.75$ in.
$V_{100} = (E_W/12)A_T$
$V_{100} = (1.75/12)(0.171) = 0.0249$ ac-ft = 1,080 cf

2. Peak Discharge

$Q_p = Q_{PA} A_A + Q_{PB} A_B + Q_{PC} A_C + Q_{PD} A_D$
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Comparison

1. $\Delta V_{100} =$ 1,080 - 670 = 410 cf (increase)
2. $\Delta Q_{100} =$ 0.7 - 0.5 = 0.2 cfs (increase)

SUMP CONDITION @ KNUCKLE

a. Single "D" Inlet Capacity:

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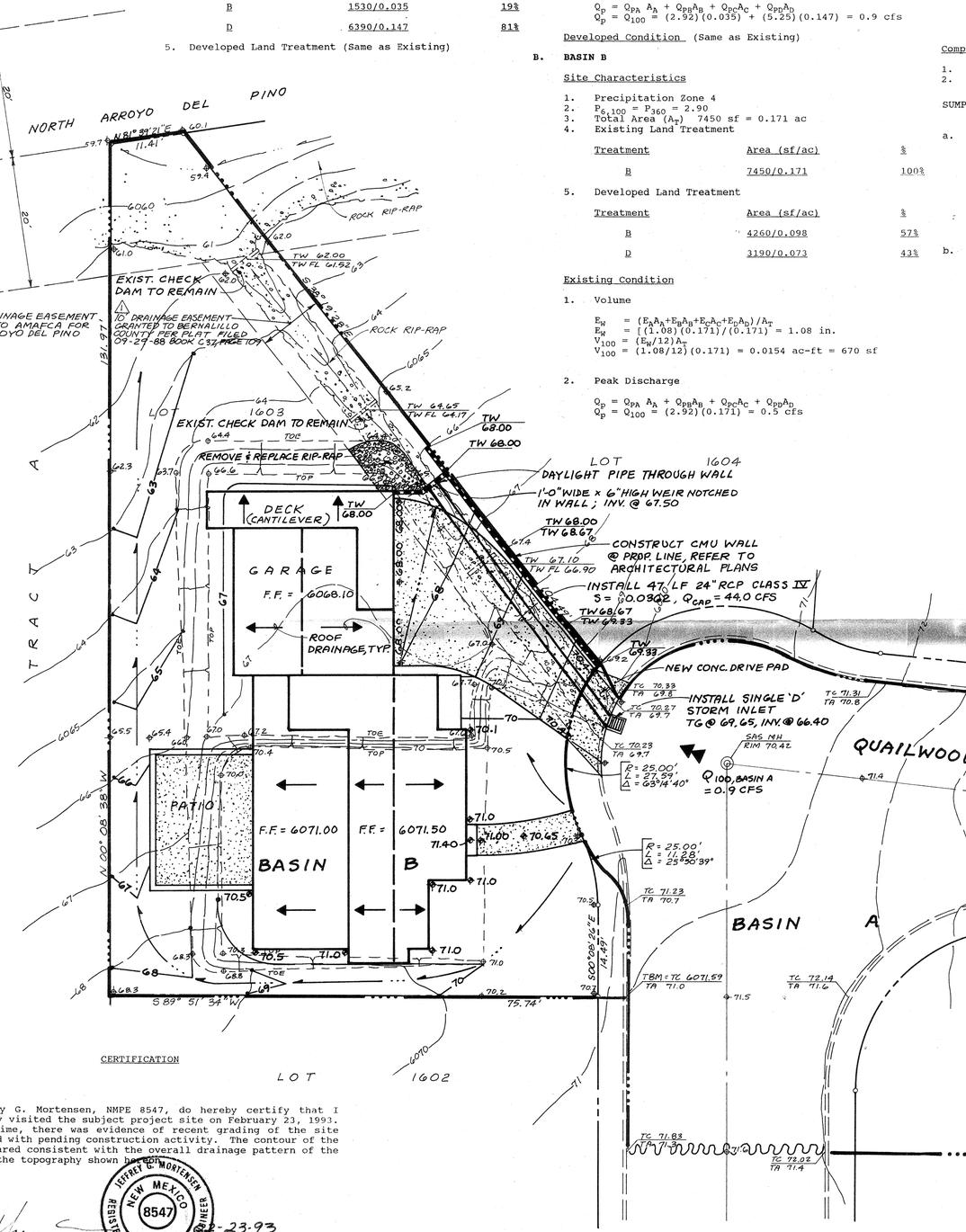

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JEFFREY G. MORTENSEN, NMPE 8547 — Date 02-23-93

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER

REVISED 02-25

LEGEND

- EXIST. SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- 72 EXIST. CONTOUR LINE
- 72 PROPOSED SPOT ELEVATION
- EXIST. FLOWLINE
- PROPOSED FLOWLINE
- WATERBLOCK
- DRAINAGE BASIN BOUNDARY
- TC TOP OF CURB
- TA TOP OF ASPHALT
- TW TOP OF WALL
- PROPOSED CONCRETE

LEGAL DESCRIPTION

LOT 1603, QUAILWOOD SUBDIVISION, A REPLAT OF TRACT B, SANDIA HEIGHTS, UNIT 19, BERNALILLO COUNTY

PROJECT BENCHMARK

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ELEVATION = 6067.42 FT. (M.S.L.D.)

T B M

TOP OF CURB NEAR THE SE. CORNER OF PROJECT PROPERTY AS SHOWN BELOW
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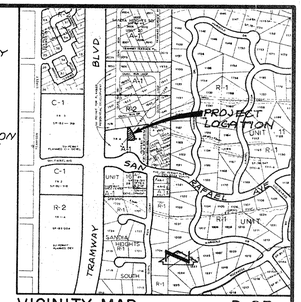

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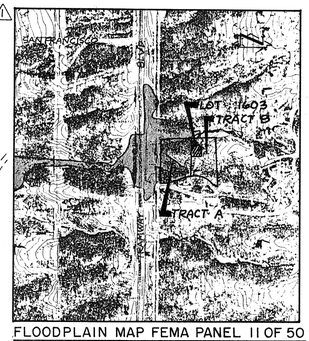

FLOODPLAIN MAP FEMA PANEL 11 OF 50
SCALE: 1"=500' (APPROX.)

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ALBUQUERQUE, NEW MEXICO 87109
ENGINEERS & SURVEYORS (505)345-4250

GRADING & DRAINAGE PLAN

LYNCH RESIDENCE

DESIGNED BY JGM
DRAWN BY CEN
APPROVED BY JGM

NO.	DATE	BY	REVISIONS
1	02/93	J.G.M.	IDENTIFY EASEMENTS; ADD FLOODPLAIN MAP

JOB NO. 930101
DATE 02-93
SHEET 1 OF 1