HYDROLOGY G11/D34 3 PLANS

G11/D34

3 PLANS

FILE COPY

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 768-7644

December 24, 1986

August Mosimann
Engineering Associates
532 Adams Street, NE
Albuquerque, New Mexico 7108

RE: CERTIFICATION FOR EXECUTIVE OFFICE BUILDING RECEIVED DECEMBER 5, 1986 (G-11/D34)

Dear Mr. Mosimann:

The above referenced certification, dated December 3, 1986, is approved.

If you should have any questions regarding this project, please call me at 768-2650.

Cordially,

Billy J. Goolsby
for Carlos A. Montoya, P.E.
City/County Floodplain Administrator

CAM/bsj

August F. Mosimann

engineering associates, inc.

532 Adams St., NE
Albuquerque, NM
87108
(505) 265-6545

RECEIVED
DEC 05 1986
HYDROLOGY SECTION

December 4, 1986

Mr. Carlos Montoya, P. E.
City/County Floodplain Administrator
Hydrology Section
P. O. Box 1293
Albuquerque, New Mexico 87103

Re: Certification for Executive West Office Building (G-11/D34)

Dear Mr. Montoya,

In reference to your letter of October 27, 1986 the following measures have been taken so that final Certificate of Occupancy may be issued :

1. The Drainage plan has been revised to include the new location of the south entrance.
2. The slope at the north property line has been reshaped so that it is no longer steeper than 2:1 per Item 4.A.(9), pg 107, DPM Drainage Report and Drainage Plan Checklist.

This letter is Certification that the site is now constructed in accordance with approved plans and specifications. Two copies of As-Built Drainage plans are included.

Thank you for your assistance in the completion of this project. If you have any further questions please call me at 265-6545.

Sincerely,

Mike J. Walla
for
Engineering Associates, Inc.

Reviewed by,

August F. Mosimann P.E.
Engineering Associates, Inc.

cc: Mr. Jack Dalton, Page and Wirtz
Mr. Dave Dekker, Design Collaborative

MJW/hs

Architectural Structural
Civil Structural
Site Analysis
Drainage Studies
Computer Applications
Inspection Services

FILE COPY

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

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

October 27, 1986

August F. Mosimann
Engineering Associates, Inc.
532 Adams Street, NE
Albuquerque, New Mexico 87108

RE: CERTIFICATION FOR EXECUTIVE WEST OFFICE (G-11/D34)
RECEIVED OCTOBER 9, 1986

Dear Mr. Mosimann:

A field visit to the site has produced the following comments:

1. It appears that the south entrance has been relocated.

2. The north property line shows a difference in ground elevation of more than 18 inches. A retaining wall would be needed for differences between existing constructed grades.

If you have any questions, please call me at 768-2650.

Cordially,

Carlos A. Montoya, P.E.
City/County Floodplain Administrator

CAM/bsj

FILE COPY

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

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

October 20, 1986

August Mosimann
Engineering Associates
532 Adams, NE
Albuquerque, New Mexico 87108

RE: CERTIFICATION FOR EXECUTIVE WEST OFFICE (G-11/D34)
RECEIVED OCTOBER 9, 1986

Dear Mr. Mosimann:

I have reviewed the referenced plan, dated October 9, 1986, and forward the following comments:

1. It appears that none of the spot elevations, volumes, rim elevations, or pipe elevations have changed.

2. Please verify the following information:

   A. Finish floor elevation.
   B. The grades necessary to contain the calculated volumes in the detention pond.
   C. Rim elevation for the storm sewer.
   D. Pipe elevation at the entrance.
   E. Swale invert elevation.

3. Please review the certification checklist in the DPM.

If you have any questions regarding these comments, please call me at 768-2653.

Cordially,

Carlos A. Montoya

Carlos A. Montoya, P.E.
City/County Floodplain Administrator

CAM/bsj

engineering associates, inc.

August F. Mosimann

532 Adams St., NE
Albuquerque, NM
87108
(505) 265-6545

October 8, 1986

RECEIVED
OCT 08 1986
HYDROLOGY SECTION

Mr. Carlos Montoya
City/County Floodplain Administrator
Hydrology Section
123 Central, N. W.
Albuquerque, New Mexico 87102

Re: Drainage for Executive West Office Building
(G-11/D34)

Dear Carlos,

The above referenced project is completed. This letter is certification that the site work was built in accordance with the city approved plans and specifications.

The following items have been verified with field measurements and observations during recent storm activity:

1. The finished floor elevation is correct.

2. The pond at the east side has the proper volume.

3. The main swale to the south of the building is correctly graded and directs flow into the east pond.

4. The drain system at the southwest corner which was designed to carry offsite flow from 57 th St. across the property is working properly.

One small variation occurred at the North West corner. A swale called for on the original drawings was intended to carry some roof runoff to the west parking area. A change in roof slope from the north to the west precluded the need for the swale; consequently, it was not built. The grass area where the swale was originally shown only recieves it's own rainfall and no longer conveys rainfall from any other source. Therefore I do not feel that a swale is needed.

Architectural Structural
Civil Structural
Site Analysis
Drainage Studies
Computer Applications
Inspection Services

With regard to your letter dated September 4, 1986 regarding this project we have the following replys:

1. Item 1 - The swale at the North West is no longer needed. The swale at the North East has been properly constructed and is working properly.

2. Items 2, 3, and 6 - The gratings referred to are actually an inlet-outlet system conveying offsite flow from 57 th St. It performs as designed.

3. Item 4 - The pond volume and shape is correct.

4. Item 5 - This letter is certification that the the site was constructed in accordance with the approved plans. Two copies of the as built plan are included.

Thank You. If any delay is anticipated in issuing the Cleared For Occupancy Certificate please let me know as soon as possible. If you have any questions please call.

Sincerely,

August F. Mosimann
for
Engineering Associiates, Inc.

cc: Mr. Gary Neuhaus, Page and Wirtz
Mr. David Dekker, Design Collaborative

Hand Delivered October 8, 1986

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Executive West Offices

ZONE ATLAS / DRNG FILE: G-11 1034

LEGAL DESCRIPTION: Lot 387A, Town of Atrisco Grant

CITY ADDRESS: 2929 Coors N. W.

ENGINEERING FIRM: Engineering Associates Inc.

CONTACT: August F. Mosimann

ADDRESS: 532 Adams NE 87108

PHONE: 265-6545

OWNER: H. E. C. Development Corporation

CONTACT: J. Russel Eaton

ADDRESS:

ARCHITECT: Design Collaborative Southwest

CONTACT: David Dekker

ADDRESS: 105 4th St. S. W.

PHONE: 843-9639

SURVEYOR: Ron Forstbauer Surveying Co.

CONTACT: Ron Forstbauer

ADDRESS: 508 Chama N. E., Albq.

CONTRACTOR: Page & Wint-

CONTACT: Gary Neuhaus

ADDRESS: P. O. Box 25627, Albq, 87125

PHONE: 823-2940

RECEIVED
OCT 09 1986
HYDROLOGY SECTION

PREDESIGN MEETING:

_X_YES
___NO
___COPY OF CONFERENCE RECAP HAS BEEN PROVIDED

DRB NO.
EPC NO.
PROJ. NO.

TYPE OF SUBMITTAL:
___DRAINAGE REPORT
_X_DRAINAGE PLAN
___CONCEPTUAL GRADING & DRAINAGE PLAN
_X_GRADING PLAN
___EROSION CONTROL PLAN
___ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:
___SKETCH PLAT
___PRELIMINARY PLAT
___SITE DEVELOPMENT PLAN
___FINAL PLAT APPROVAL
___BUILDING PERMIT APPROVAL
_X_CERTIFICATE OF OCCUPANCY
___ROUGH GRADING PERMIT
___GRADING/PAVING PERMIT
___OTHER (SPECIFY)

DATE SUBMITTED: 10/9/86

BY: August F. Mosimann
for Engineering Associates, Inc.

August F. Mosimann

engineering associates, inc.

532 Adams St., NE
Albuquerque, NM
87108
(505) 265-6545

September 10, 1986

Mr. Bernie Montoya
City/County Floodplain Administrator
Hydrology Section
123 Central, N. W.
Albuquerque, New Mexico 87102

Re: Drainage Inspection for Executive West Office
(G-11/D34)

Dear Bernie,

We were made aware of the letter you sent us regarding inspection of the above referenced project, and because we had not recieved it in the mail, picked up a copy from your office. Apparently the original has been lost.

The letter addressed several areas in which you felt that problems existed which should be cleared up before a final "CO" certificate could be issued by your department.

Because of the problem in delivery of the letter and the fact that the problems appear to be minor we would like to request that your department issue a ten day temporary "CO" during which time we will correct the problem areas.

The following replys to your concerns should provide additional information and possibly alleviate some of your fears.

Item 1. The swale at the north side of the building does not recieve runoff from any outside source and therefore needs only to convey its own runoff. The field work for the As-Built survey is currently in progress. It will include cross sectional characteristics of this swale, which I am confident is adequate even though it was not constructed in strict conformance with the plans. This information will be made available to you as soon as it is available.

Architectural Structural
Civil Structural
Site Analysis
Drainage Studies
Computer Applications
Inspection Services

Items 2 and 3. Although two similar gratings were used at the southwest corner of the project they had different purposes. One is an inlet and the other is an outlet which allows runoff from 57th street to pass under a series of gas lines at the west end of the site and then be conveyed across the site to Coors Blvd. A rock drain has been called for beneath the outlet to allow dissipation of runoff into the underlying siols.

Item 4. The as built survey, when it is complete, will provide the information regarding the pond volumes and elevations. If corrections are needed they will be made.

Item 5. Our office will provide certification as soon as the as built information is available.

Item 6. The off site flows originating from 57th street will be conveyed under the gas lines and across the site be the inlet-outlet system described in Items 2 and 3. Please note that when 57th street is completed those offsite flows will be eliminated. (Project # 2557). At the east end, Coors Road Project # 2695 is addressing the offsite flow which affects Executive West and several other sites.

Thank You. If you have any questions please call.

Sincerely,

August F. Moermann
for
Engineering Associiates, Inc.

cc: Mr. Gary Neuhaus, Page and Wirtz
Mr. David Dekker, Design Collaborative

FILE COPY

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

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

September 4, 1986

Tucker Green
Engineering Associates
532 Adams, NE
Albuquerque, New Mexico 87108

RE: DRAINAGE INSPECTION FOR EXECUTIVE WEST OFFICE
(G-11/D34)

Dear Mr. Green:

We inspected the referenced site and found the following problem areas:

1. The swale on the north property line was not properly constructed.

2. We were unable to find the outlet for the storm drain system.

3. The storm drain inlets were blocked with asphalt.

4. The perimeter pond elevations were not kept constant around the retention pond.

5. We will require a survey by the City, which will be completed in one to two weeks. Another alternative would be certification by the owner's engineer.

6. The off-site flows need to be allowed to travel through the site.

If you have any questions regarding these comments, please call me at 766-7644.

Cordially,

for Bernie J. Montoya
Carlos A. Montoya, P.E.
City/County Floodplain Administrator

CAM/bsj

Walter Nickerson, P.E., City Engineer

PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

Telephone (505) 768-2500

AN EQUAL OPPORTUNITY EMPLOYER

FILE COPY

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

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

July 8, 1986

Tucker Green
Engineering Associates
602 Adams, NE
Albuquerque, New Mexico 87110

RE: DRAINAGE PLAN FOR EXECUTIVE WEST OFFICE
(G-11/D34) RECEIVED JUNE 25, 1986

Dear Mr. Green:

The above referenced plan, dated June 25, 1986, is approved.

Please be advised of the following:

1. Historic offsite flows from the north need to be accepted onto the site and passed through.

2. Off-site flows on the west shoulder of Coors Boulevard also cannot be blocked. The small pipe can be used for low flows, however, the large flows will top the asphalt entrance.

3. Once improvements are made in Coors Boulevard, the owner is expected to tie into the future outfall. Please place this note on the drawing and submit to this office.

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

Cordially,

Carlos A. Montoya

Carlos A. Montoya, P.E.
City/County Floodplain Administrator

CAM/dae

August F. Mosimann

engineering associates, inc.

532 Adams St., NE
Albuquerque, NM
87108
(505) 265-6545

June 25, 1986

RECEIVED
JUN 25 1986
HYDROLOGY SECTION

Mr. Carlos Montoya
Design Hydrology Dept.
City of Albuquerque,
Albuquerque, NM

Ref: Drainage/grading @ Executive West Office Bldg File# G11-D33
Nuisance puddle/pond @ front of site adjacent to Coors Blvd.

Dear Mr. Montoya:

As we recently discussed, moderate storms create a large nuisance puddle in front of the southeast corner of the site, which is the location of the main driveway into the site. Under the criteria of the Coors Corridor Plan this drive will also provide access to the sites on either side of Executive West so the problem actually affects several sites.

Executive West is now nearly complete - the building is almost finished, most of the paving is in place, and so is the concrete curb which forms the top of the runoff detention pond. Some tenants are expecting to move in on July 1, but that may be optimistic.

Although the centerline slope of Coors Blvd in the immediate vicinity of the site is nearly zero, Photo-topographic Map H-11 indicates that the ditch along the west side of Coors slopes toward the south. Closer examination, or even a moderate storm, reveals that in fact the ditch has no outflow until it has spread into a long puddle which becomes widest and deepest at the southeast corner of Executive West. The situation has been made worse by the gentling of grade accompanying construction. While it is possible to calculate offsite flow from the undeveloped sites on the west side of Coors (see attached calculations), their "lumpy" but nearly flat and moderately vegetated condition makes me think that most of the water from the storm that highlighted the problem in fact ran off from the road surface and then ponded near the driveway. In such situations the ditch doesn't so much convey flows as collect them and hold them. It is also worth noting that there is frequent puddling/ponding in the bar ditch area at the intersection of Coors and Redlands, about 600 feet north of the site; at very high flows this puddle is probably continuous with the one in front of Executive West.

The finished floor of Executive West is well above the elevation of Coors centerline; thus flooding the building is not an issue.

Architectural Structural
Civil Structural
Site Analysis
Drainage Studies
Computer Applications
Inspection Services

We propose to put a 15" inch diameter concrete culvert across the low area at the driveway; this will allow runoff from moderate storms to balance the puddle on either side of the driveway, approximately as it does now. The driveway itself will be raised so as to be above water for all but brief periods during very heavy storms when there will be some flow across it. The size of the culvert is somewhat arbitrary, since in general is serves only as a balance pipe with very little flow through it and in cases of high flow it would be submerged and have well under a foot of head available: virtually all the high flow would pass over the pavement. Concrete pipe is desireable because it is rigid and would not suffer so much by loss of soil support under saturated conditions and because of its better flow characteristics compared to corrugated metal pipe. The 15" culvert would flow about 3.5 cfs under inlet control and with water just ready to flow across the driveway.

Water flows to the puddle/ditch come from several sources to the west and north of the site, with nominal peak rates as shown in the calculations. The point source flow entering the drainage area at Coors and Sequoia was calculated by Hall Engineering for peak flow passing the United New Mexico Bank and passing through the drainage retention facilities at Ladera Shopping Center. The acutal runoff that would ever have to pass the driveway (See Calculations) is subject to more uncertainties than usual. A major factor is the topography of the contributing areas. There are several large but poorly defined low areas which not only remove large volumes from flowing runoff but also reduce peak rate by a process analagous to reservoir storage above overflow level or to river channel storage. None of the flows coming past the bank at Sequoia and Coors will have any impact on Executive West until the ponding areas of the Ladera Shopping Center overflow at the intersection of Coors and Redlands. Similarly, many small topographic irregularities probably provide a significant amount of depression storage. Also, because of lack of reliable and detailed information about the local roadways acting as channels, the effect of flow-lagging on reducing peak rate was not considered. All these factors indicate that the calculated flows are higher than are at all likely.

Nearby future developments are also likely to reduce the flows, although they can't be counted on here. Coors widening south from Quail Road (roughly midway between the site and the overflow of the puddle at Ouray) is likely in roughly 1-1/2 years. This project is to include storm sewer in Coors, in Quail, and in 57th St/Atrisco at the back of the site and will reduce flows reaching Coors both upstream and downstream of the site. To the north of the site, probably farther in the future, Special Assessment District #198 should remove flows along Redlands Road.

The shape of the new proposed cross section was influenced by several constraints. One was to continue a 2 % minimum slope 12 feet west of the existing driving lane, to allow for proposed Coors widening. (Note that the original edge of pavement elevations were actually given at edge of shoulder and that edge of driving lane is roughly a foot higher.) Another was to provide the recommended 1 ft of cover above the top of the culvert without creating an

uncomfortably steep slope transition for traffic turning in from Coors. The culvert is located about as far from the road as practical, given the location of the onsite pond, the existing low areas of the puddle, and the property line. It was also considered important to keep the lowest part of the driveway higher than the highest bottom-of-puddle elevation down stream of the site.

It works out that the calculated top-of-pavement elevation is just slightly (0.2') above the previously calculated top-of-pond elevation (onsite) for the 100-year storm. Since the original pond was designed to retain onsite flow but to overflow offsite runoff out the driveway, it was decided to maintain the pond elevation by providing a low area at the north end of the driveway. This means that at the calculated depth, water would temporarily flow onto site raising the water surface there. As soon as peak flow passed the level would recede to design level. As mentioned above the design flows are very conservative. To pass the design flow, the water surface elevation will be almost at top of pavement above the pipe. By coincidence 0.2 ft is also the calculated amount of head required to drive flow across the driveway, assuming no drop-off in flow depth south of the driveway and constant cross section along the length of the culvert. The calculations also assume that for a given water surface elevation the combination of friction slope and depth will be that which gives maximum flow.

If you have any questions or concerns about this proposal, please let me know as soon as possible. Please. The amount of culvert opening <u>is</u> somewhat arbitrary; if you decide we must have more opening, we may want to consider a single larger pipe with a portion of the bottom considered silted up.

One final note: the approved drainage plan shows a 10 foot wide concrete apron across the drive at front and rear of the site. So far as I know this was added at the request of the architect; I have no engineering reason for it. The architect does not want it now, and I have deleted it from the revised plan.

Sincerely yours,

Tucker Green
for
Engineering Associates

ATTN: CARLOS MONTOYA

34

PROJECT TITLE: Executive West Offices ZONE ATLAS/DRNG. FILE #: G-11 / D 38

LEGAL DESCRIPTION: Lot 387A, Town of Atrisco Grant

CITY ADDRESS:

ENGINEERING FIRM: Engineering Associates CONTACT: Tucker Green

ADDRESS: 532 Adams NE Albq. 87102 PHONE: 265 5545

OWNER: H.E.C. Development Corporation CONTACT: Russell Eaton

ADDRESS: PHONE:

ARCHITECT: Design Collaborative Southwest CONTACT: Dave Dekker

ADDRESS: ~~400 San Felipe NW~~, Albq. 105 4th St SW PHONE: 843-9639

SURVEYOR: Ron Forstbauer Surveying Co. CONTACT: Ron Forstbauer

ADDRESS: 508 Chama NE, Albq. PHONE: 268-0248

CONTRACTOR: Page & Wirtz CONTACT: Franklin Bottoms

ADDRESS: P.O.Box 25627, Albq, 87125 PHONE: 823-2940

RECEIVED JUN 25 1986 HYDROLOGY SECTION

PRE-DESIGN MEETING:
X YES
___NO
___COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO.
EPC NO.
PROJ. NO.

TYPE OF SUBMITTAL:
___DRAINAGE REPORT
___DRAINAGE PLAN
___CONCEPTUAL GRADING & DRAINAGE PLAN
___GRADING PLAN
___EROSION CONTROL PLAN
___ENGINEER'S CERTIFICATION
X GRADING/DRAINAGE REVISION @ SE DRIVEWAY

CHECK TYPE OF APPROVAL SOUGHT:
___SKETCH PLAT APPROVAL
___PRELIMINARY PLAT APPROVAL
___SITE DEVELOPMENT PLAN APPROVAL
___FINAL PLAT APPROVAL
___BUILDING PERMIT APPROVAL
___FOUNDATION PERMIT APPROVAL
___CERTIFICATE OF OCCUPANCY APPROVAL
___ROUGH GRADING PERMIT APPROVAL
___GRADING/PAVING PERMIT APPROVAL
X OTHER (SPECIFY)
HANDLING OF OFFSITE FLOW @ COOKS BAR DITCH

TUCKER GREEN
for ENGINEERING ASSOCIATES INC
6/25/85

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

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

June 28, 1985

Tucker Green
Engineering Associates
532 Adams, NE
Albuquerque, New Mexico 87102

RE: DRAINAGE PLAN FOR EXECUTIVE WEST OFFICE BUILDING (G-11/D34) RECEIVED JUNE 5, 1985 - ADDENDUM RECEIVED JUNE 27, 1985

Dear Mr. Green:

The referenced plan dated June 26, 1985, is approved for building permit sign-off.

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

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

Cordially,

Carlos A. Montoya

Carlos A. Montoya, P.E.
City/County Floodplain Administrator

CAM/bsj

ADDED DATA/CLARIFICATION
AKA REVISION

PROJECT TITLE: Executive West Offices ZONE ATLAS/DRNG. FILE #: G-11

LEGAL DESCRIPTION: Lot 387A, Town of Atrisco Grant

CITY ADDRESS:

ENGINEERING FIRM: Engineering Associates CONTACT: Tucker Green

ADDRESS: 532 Adams NE Albq. 87102 PHONE: 265 6545

OWNER: H.E.C. Development Corporation CONTACT: J. Russell Eaton

ADDRESS: PHONE:

ARCHITECT: Design Collaborative Southwest CONTACT: Dave Dekker

ADDRESS: 400 San Felipe NW, Albq. PHONE: 843-9639

SURVEYOR: Ron Foratbauer Surveying Co. CONTACT: Ron Foratbauer

ADDRESS: 508 Chama NE, Albq. PHONE: 268-0248

CONTRACTOR: Page & Wirtz CONTACT: Franklin Bottoms

ADDRESS: P.O.Box 25627, Albq, 87125 PHONE: 823-2940

RECEIVED
JUN 27 1985
HYDROLOGY SECTION

PRE-DESIGN MEETING:
X YES
___NO
X COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO.
EPC NO.
PROJ. NO.

TYPE OF SUBMITTAL:
___DRAINAGE REPORT
X DRAINAGE PLAN
___CONCEPTUAL GRADING & DRAINAGE PLAN
X GRADING PLAN
___EROSION CONTROL PLAN
___ENGINEER'S CERTIFICATION

No cm

CHECK TYPE OF APPROVAL SOUGHT:
___SKETCH PLAT APPROVAL
___PRELIMINARY PLAT APPROVAL
X SITE DEVELOPMENT PLAN APPROVAL
___FINAL PLAT APPROVAL
X BUILDING PERMIT APPROVAL
___FOUNDATION PERMIT APPROVAL
___CERTIFICATE OF OCCUPANCY APPROVAL
___ROUGH GRADING PERMIT APPROVAL
___GRADING/PAVING PERMIT APPROVAL
___OTHER (SPECIFY)

DATE SUBMITTED: 6-26-85
BY: ~~August Neumann~~ Tucker Green for Engineering Associates

DRAINAGE INFORMATION SHEET

PROJECT TITLE: EXECUTIVE WEST OFFICES ZONE ATLAS/DRNG. FILE #: G-11 D34

LEGAL DESCRIPTION: TOWN OF ATRISCO GRANT LOT 39A 4

CITY ADDRESS:

ENGINEERING FIRM: ENGINEERING ASSOC CONTACT: TUCKER GREEN

ADDRESS: 532 ADAMS NE 87108 PHONE: 265 6545

OWNER: HEC Development CONTACT: J Russell Eaton

ADDRESS: PHONE:

ARCHITECT: DCSW CONTACT: DAVE DEWKER

ADDRESS: PHONE:

SURVEYOR: RON FORSTBAUER CONTACT: RON FORSTBAUER

ADDRESS: PHONE:

CONTRACTOR: PAGE & WURTZ CONTACT: GARY NEWHOUSE

ADDRESS: PHONE:

PRE-DESIGN MEETING:

___ YES

___ NO

___ COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. 84 324

EPC NO. _____

PROJ. NO. _____

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

X DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

X GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

___ FINAL PLAT APPROVAL

X BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

___ OTHER _____ (SPECIFY)

DATE SUBMITTED: 6-5-85

BY: TUCKER GREEN

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

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

May 24, 1985

Mr. Tucker Green
Engineering Associates
532 Adams NE
Albuquerque, NM 87102

REF: DRAINAGE PLAN FOR EXECUTIVE WEST OFFICE (G11-D34) RECEIVED APRIL 4, 1985

Dear Mr. Green:

I have reviewed the referenced plan and forward the following comments:

1. Please date the professional engineering stamp.

2. Submit preliminary street grades for 57th Street.

If you have any questions, please feel free to call me at 766-7644.

Sincerely,

Carlos A. Montoya
City/County Flood Plain Admin.

CAM:mrk

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

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

May 23, 1985

Mr. Tucker Green
Engineering Associates
532 Adams NE
Albuquerque, NM 87102

REF: FOUNDATION ONLY FOR EXECUTIVE WEST OFFICES (G11-D34) RECEIVED APRIL 4, 1985

Dear Mr. Green:

The referenced plan is approved for foundation only. We will expect a future submittal for Building Permit.

If you should have any further questions, please feel free to call me at 766-7644.

Sincerely,

Carlos A. Montoya
City/County Flood Plain Admin.

CAM:mrk

May 23, 1985

RECEIVED
MAY 23 1985
HYDROLOGY SECTION

Mr. Fred Aguirre
Chief, Hydrology Dept.
City of Albuquerque, N.M.
123 Central Ave. NW, 87102

Re: Executive West Office Building Drainage Plan

Dear Mr. Aguirre:

In our telephone conversation yesterday, I indicated that I preferred to hold off on asking for building permit approval of the drainage plan until the proposed road grades for 57th / Atrisco (at the rear of the site) had at least been submitted. Approval for foundation permit was given on April 19.

I have learned, however, that the architect submitted the plans for this project to the building department for review yesterday. Therefore I request that you review the drainage plan now, after all, and approve it if it is satisfactory. I understand that the approval would be conditional until the proposed road grades were accepted.

Access to the site will be from Coors, not from 57th/Atrisco, and the owner does not plan to use the proposed grades at this time.

I have discussed this matter with August Mosimann, the principal engineer here at Engineering Associates, and he sees no likelihood of any problems with the proposed road grades (or utilities extensions) that would affect the drainage.

I appreciate your cooperation in this matter. If you have any questions please feel free to call me at 265-6545.

Sincerely yours,

Tucker Green

Tucker Green

ATTN: CARLOS MONTOYA

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Executive West Offices ZONE ATLAS/DRNG. FILE #: G-11/D34 NEW

LEGAL DESCRIPTION: Lot 387A, Town of Atrisco Grant

CITY ADDRESS:

ENGINEERING FIRM: Engineering Associates CONTACT: Tucker Green

ADDRESS: 532 Adams NE Albq. 87102 PHONE: 265 6545

OWNER: H.E.C. Development Corporation CONTACT: J. Russell Eaton

ADDRESS: PHONE:

ARCHITECT: Design Collaborative Southwest CONTACT: Dave Dekker

ADDRESS: 400 San Felipe NW, Albq. PHONE: 843-9639

SURVEYOR: Ron Forstbauer Surveying Co. CONTACT: Ron Forstbauer

ADDRESS: 508 Chama NE, Albq. PHONE: 268-0248

CONTRACTOR: Page & Wirtz CONTACT: Franklin Bottoms

ADDRESS: P.O.Box 25627, Albq, 87125 PHONE: 823-2940

RECEIVED APR 04 1985 HYDROLOGY SECTION

PRE-DESIGN MEETING:
- X YES
- ___ NO
- X COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. DRB 84-324 5/15/84
EPC NO. AX 84 20/ Z84 110 9/20/84
PROJ. NO.

TYPE OF SUBMITTAL:
- ___ DRAINAGE REPORT
- X DRAINAGE PLAN
- ___ CONCEPTUAL GRADING & DRAINAGE PLAN
- X GRADING PLAN
- ___ EROSION CONTROL PLAN
- ___ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:
- ___ SKETCH PLAT APPROVAL
- ___ PRELIMINARY PLAT APPROVAL
- ___ SITE DEVELOPMENT PLAN APPROVAL
- ___ FINAL PLAT APPROVAL
- ___ BUILDING PERMIT APPROVAL
- X FOUNDATION PERMIT APPROVAL
- ___ CERTIFICATE OF OCCUPANCY APPROVAL
- ___ ROUGH GRADING PERMIT APPROVAL
- ___ GRADING/PAVING PERMIT APPROVAL
- ___ OTHER (SPECIFY)

AUGUST F. MOSIMANN STATE OF NEW MEXICO NO. 6148 REGISTERED PROFESSIONAL ENGINEER

DATE SUBMITTED: 4/4/84

BY: August Mosimann for Engineering Associates

Site Grading and Drainage Plan

for

Executive West Office Plaza

PROJECT DESCRIPTION

The roughly 200 x 500 ft site is located on the west side of Coors Blvd. N.W. about a mile north of the I-40 interchange and slightly south of Redlands Road. The junction of 57th Street with Atrisco Blvd. is approximately at the northwest corner of the property. The site includes a 100 ft wide strip of vacated Atrisco-right-of way, of which the easterly 50 ft remains as an easement to the Gas Company of New Mexico for two large high-pressure gas lines. The site is generally flat, but does slope slightly from west to east. There is no existing development adjacent to the site.

A three-story office building with approximately 40,000 total leasable square feet is proposed for the 2.4 acre site. Runoff will be directed to the front of the site. For the present, all onsite flow will be retained in a pond at the front of the site and, for large storms, in a portion of the parking lot. In the future, when Coors is developed according to the Coors Corridor plan, other arrangements can be made, as discussed below. Under existing conditions, there will be offsite flow from west of 57th Street, which is currently unpaved. When 57th Street is raised to proposed grades and paved with curb and gutter, that flow will be intercepted and no longer reach the site.

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GENERAL INFORMATION

The zone map is G-11
The legal description is lot 387A, Town of Atrisco Grant
The site is not in a 100-year flood area. (FEMA Map 35002 0021
The site is in the Coors Corridor Plan.
The site is not in Special Assessment District 198.

EXISTING CONDITIONS

The flow area is 104108 sq. ft. or 2.390 acres.
The flow area is 0% impervious
The soil is Group B, Type MWA (Madurez-Wink SCS Soil Survey Sheet 21)
The "C" factor is 0.34 (DPM Pl. 22.2 C-1)
The runoff Length L is 510 ft.
The slope S is 0.8 %
The time of concentration Tc is 0.0078*(L^.77)/(S^.385) = 6.08 min
(Use 10 minutes minimum)
The average velocity is L / (Tc x 60) = 0.85 ft/sec.
The 100-yr 6-hr precipitation amount AMT is 2.2 in (Pl 22.2 D_1)
The 100-yr intensity I is 2.15 x 2.2 = 4.73 in/hr (Pl 22.2 D-2)
The 100-yr flow rate is CIAc = 0.34 x 4.73 x 2.390 = 3.84 cfs.
The 100-yr volume is 0.34 x (2.2/12) x 104108 = 6490 cu. ft.
The 10-yr values are 65.7 % of the 100-yr values
for amount, intensity, rate, and volume. (Pl 22.2 D-1)

PROPOSED CONDITIONS

The flow area is 104108 sq. ft. or 2.390 acres.
The flow area is 76.6 % impervious
The soil is Group B, Type MWA (Madurez-Wink, SCS Soil Survey Sheet 21)
The "C" factor is 0.74 (DPM Pl. 22.2 C-1)
The runoff Length L is 510 ft.
The slope S is 0.9 %
The time of concentration Tc is 0.0078*(L^.77)/(S^.385) = 5.76 min
(Use 10 minutes minimum)
The average velocity is L / (Tc x 60) = 0.85 ft/sec.
The 100-yr 6-hr precipitation amount AMT is 2.2 in (Pl 22.2 D_1)
The 100-yr intensity I is 2.15 x 2.2 = 4.73 in/hr (Pl 22.2 D-2)
The 100-yr flow rate is CIAc = 0.76 x 4.73 x 2.390 = 8.59 cfs.
The 100-yr volume is 0.76 x (2.2/12) x 104108 = 14506 cu. ft.
The 10-yr values are 65.7 % of the 100-yr values
for amount, intensity, rate, and volume. (Pl 22.2 D-1)

OFFSITE FLOWS - NOT VALID AFTER 57TH STREET RAISED & PAVED
- UNDEVELOPED AREA DUE WEST OF SITE

The flow area is 93480 sq. ft. or 2.154 acres.
The flow area is 0 % impervious
The soil is Group B, Type MWA (Madurez-Wink, SCS Soil Survey Sheet 21)
The "C" factor is 0.34 (DPM Pl. 22.2 C-1)
The runoff Length L is 460 ft
The slope S is 0.3 %
The time of concentration Tc is 0.0078*(L^.77)/(S^.385) = 8.19 min
(Use 10 minutes minimum)
The average velocity is L / (Tc x 60) = 0.77 ft/sec.
The 100-yr 6-hr precipitation amount AMT is 2.2 in (Pl 22.2 D_1)
The 100-yr intensity I is 2.15 x 2.2 = 4.73 in/hr (Pl 22.2 D-2)
The 100-yr flow rate is CIAc = 0.34 x 4.73 x 2.154 = 3.46 cfs.
The 100-yr volume is 0.34 x (2.2/12) x 93840 = 5850 cu. ft.
The 10-yr values are 65.7 % of the 100-yr values
for amount, intensity, rate, and volume. (Pl 22.2 D-1)

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RUNOFF CONTROL

Designing runoff control for the site was complicated by the fact that neither Coors Blvd. at the front nor 57th St. at the rear is in its final form. Furthermore, although there is a recognized need for drainage facilites in the area, none is currently in place.

The engineering firm of Andrews, Asbury, and Roberts has done a study of existing drainage conditions an area which includes the site and is prepared to do a study of proposed conditions and facilities when funding becomes available. Conversation with Bob Fogelsong of that office (2/17/85) indicated there was a good possibility that their report would recommend storm drainage facilites along Coors.

Street grades for 57th Street/Atrisco Blvd between Quail Rd. on the south and Redlands Rd. on the north were designed in conjunction with this project. The unpaved roadway is flat now and runs between banks formed partly by repeated grading. The proposed grades raise the alignment at a minimum slope, and put gutter elevations near or above bank elevations for most of the length.

The site has been designed to meet expected future conditions as much as practicable. Elevations at the rear match those required by DPM for 57th St. as improved, except right at the rear driveway and at the area where offsite flow is accepted. These two areas will be regraded when 57th is improved. The site slopes east toward Coors but the front of the lot is maintained at an elevation that should be at or slightly above the elevations necessary when Coors is improved and widened. There is a retention pond just behind a curb near the front property line; when more permanent drainage facilities are installed this can be abandonned or adapted to a temporary detention pond with controlled outlet.

The presence of two large high-pressure gas lines in the Gas Co. easement had a strong influence on the details of the grading plan and on the method of handling offsite flow. Offsite flow enters the site at approximately the same elevation as the top of of the cover over the gas lines or possibly slightly below. Since the Gas Company will not permit any reduction in cover over these major lines, but will permit careful tunnelling beneath them, an inverted siphon was designed to take the offsite flow under the gas lines and into the swale in the parking lot. As shown on the plans, the inlet has a gravel drain and the outlet is equipped with numerous drain holes, a gravel pack, and a 4 foot extension to allow for silt build-up. The siphon is about 155 ft long including the vertical leg and operates with 0.9 ft of head. The 14.2 inch (nominal 15 inch) PVC pipe will flow 3.78 cfs at that head (see appendix), more than the 3.46 cfs required.

The pond system is designed to hold both onsite and offsite flow until its capacity is reached, and then any excess is passed to the bar ditch in front of the lot. The system is designed for 100 % retention of the onsite runoff from the 100-yr storm. Capacity is controlled by the high elevation of the east driveway, which also serves as a 45 ft wide spillway with 6 inch sides. At the overflow elevation of 5101.2 ft the pond capacity is 14,900 cu ft, while the 100-yr onsite volume of 14,506 is satisfied at 5101.12 ft, as shown on the graph in the appendix. Combined onsite and offsite flow for the 10-yr storm is 13,374 cu ft, also less than the pond capacity. As shown in the appendix, the capacity of the bar ditch is sufficient to hold all the offsite flow passed through the site in the 100-yr storm and the runoff from that portion of Coors, with approximately 1 lane of traffic affected.

To control erosion during construction the contractor is instructed to provide a two-foot high berm around the portion of the lot east of the gas easement. This would provide a temporary pond capacity of 21,000 cu ft (combined developed) at a depth of 1.37 ft, or a more reasonable capacity of 12,500 cu ft (combined undeveloped) at about 1.05 ft.

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A P P E N D I X

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

PRE-DESIGN CONFERENCE RECAP

HYDROLOGY SECTION PROJECT NO.: G11 DATE: 1-30-85

PLANNING DIVISION NOS. EPC: _____ DRB: _____

SUBJECT: [illegible]

LEGAL DESCRIP.: Lot 1-4 [illegible]

APPROVAL REQUESTED

___ PRELIMINARY PLAT
X SITE DEVELOPMENT PLAN
___ ROUGH GRADING
___ FINAL PLAT
___ BUILDING PERMIT

WHO:	REPRESENTING:
ATTENDANCE: [illegible]	

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X Conceptual Drainage Plan/Report required for Preliminary Plat and/or Site Development Plan sign-off.

X Approved Drainage Plan/Report required for Final Plat and/or Building Permit sign-off.

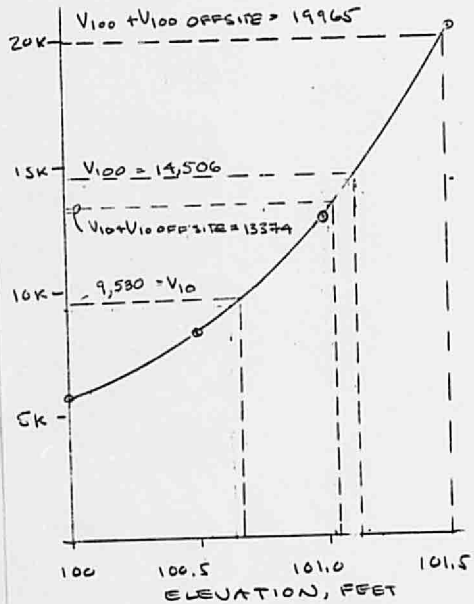
___ Subdivision Improvements Agreement or Financial Security required.

FINDINGS: (1) [illegible] DPW [illegible] (2) City Approve street grades on 57th st. (3) Retention pond is a temporary solution must address long term solution to site drainage.

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

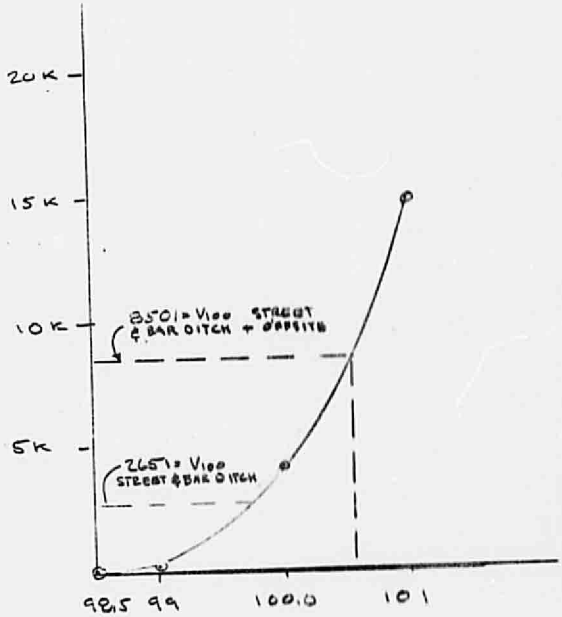
SIGNED: [illegible] SIGNED: [illegible]
TITLE: CE/Hydrology TITLE: CE
DATE: 1-30-85 DATE: 1/30/85

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



DETENTION POND PLUS PARKING STORAGE

VOLUMES CALCULATED WITH DRIVEWAY OVERFLOW AT 101.5 THEN OVERFLOW ELEV. REDUCED TO 101.2 AT SAME LOCATION. ACTUAL VOLUMES MINIMALLY HIGHER.



STREET & BAR DITCH POND

ELEV 100.0 = 3' ONTO EXISTING PAVEMENT

ELEV 101.0 = 22' ONTO EXISTING PAVEMENT

ASSUMES SURROUNDING AREA DEVELOPED SUCH THAT FLOW CANT FLOW ONTO ADJACENT PROPERTY

EXISTING EDGE OF PAVEMENT ≈ 99.5

2651 AT 3 INCLUDES FLOW FROM COOK'S & PART OF DRIVE

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BY ____ DATE ____ SUBJECT ____ JOB NO. ____
CHKD. BY ____ DATE ____ CLIENT ~~[illegible] COLLABORATIVE~~

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POND VOLUMES

DETENTION POND eg $A = 1.61665$ IN $= 20 \times 20 \times 1.61665$
$= 646.66$ IN²

BELOW 0.0

$A_0 = 0$	DV 323.3	VTOT	323.3
$A_1 = 1.61665$	DV 1015.1	VTOT	1338.4
$A_2 = 3.4588$	DV 1761.4	VTOT	3099.8
$A_3 = 5.348$	DV 2566.4	VTOT	5666.2
$A_4 = 7.48385$			

DETENTION POND, ABOVE 0.0

0.0	A_0 7.48385	DV 1557.2	VT	1557.2
0.5	A_1 8.088	DV 1670.7	VT	3227.9
1.0	A_2 8.6187	DV 1748.7	VT	4976.6
1.5	A_3 8.8686			

EAST PARKING, ABOVE 0.0

0	A_0 0	DV 856.5	VT	856.5
0.5	A_1 8.56495	DV 2154.5	VT	3011.0
1.0	A_2 12.97995	DV 2906.8	VT	5917.8
1.5	A_3 16.08805			

SOUTH PARKING,

0	A_0 0	DV 83.9	VT	83.9
0.5	A_1 .8398	DV 818.4	VT	902.2
1.0	A_2 7.34985	DV 2883.0	VT	3782
1.5	A_3 21.4849			

TOTALS

0	5666.2
0.5	8163.8
1.0	12807.3
1.5	20342.6

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DRAPHIX INC. 196533

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1/2" BARS @ 2" OC ⇒ 75% OPEN

GRATING $24(32-2\times2) = 24\times28$

A_g $24\times28\times3/4 = 432$ □"

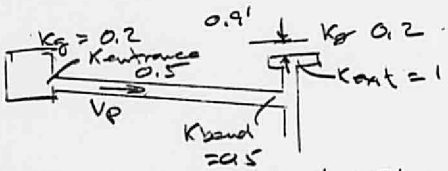
1424

$A_p = 158.368$ □" $(A_g/A_p)^2 = 7.441 = \frac{V_p^2}{V_g^2}$

A_g/A_p 2.728

say K_{grate} based on $K\frac{V^2}{2g}$ pipe $= 0.2$.

⇒ K_{grate} based on $K_{grate} \approx 1.5$ very conservative



$K_t = 2.4$

$H_{avail} = 0.9' = 2.4' - 1.5'$

$H_{avail} = H_{loss} = H_f + K_t \frac{V^2}{2g}$ pipe

Get H_f from Hazen-Williams $C = 130$

$Q = 1700$ gpm $= 3.788$ cfs $.460 + 2.4(.184\pm) = 0.903'$

$Q = 1698$ gpm $= 3.783$ cfs $.459 + 2.4(.183942\pm) = 0.900'$

$\therefore Q = 3.78$ cfs > 3.46 cfs OK

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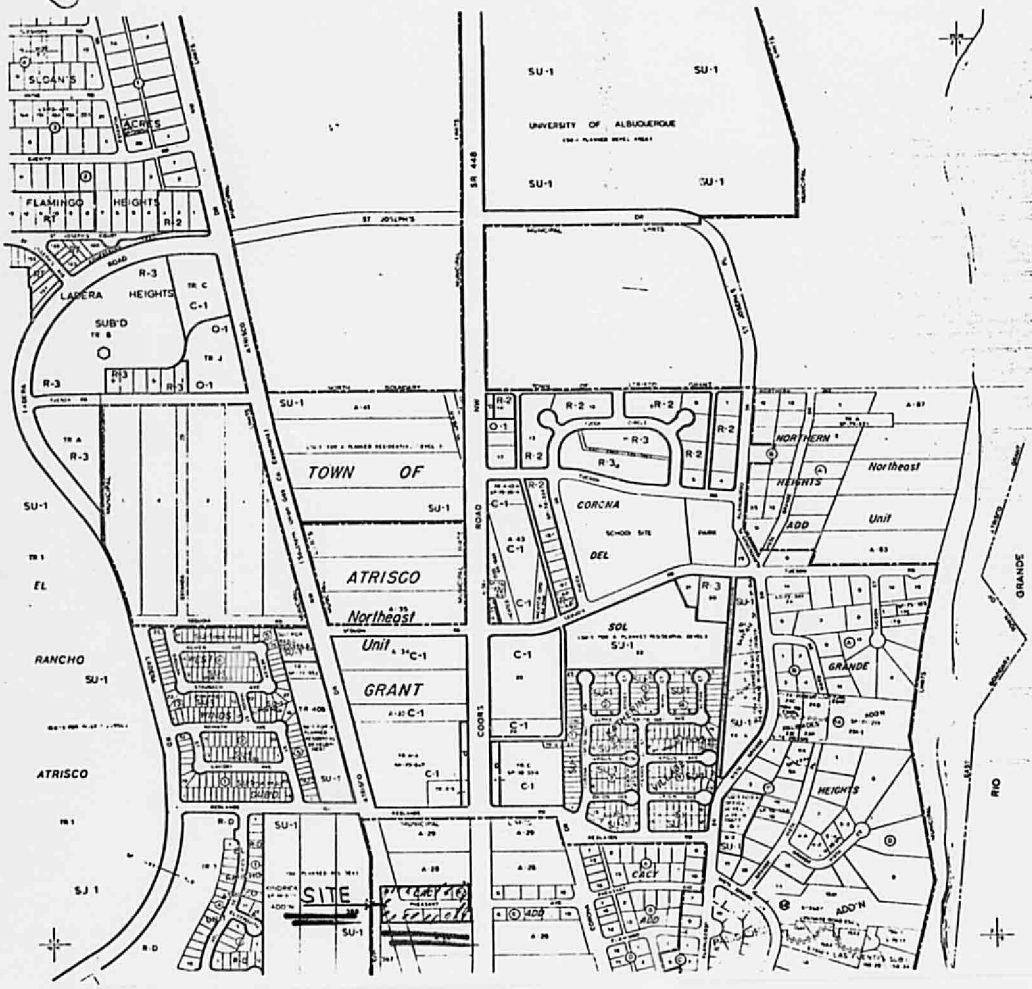
DRAPHIX INC. 196533



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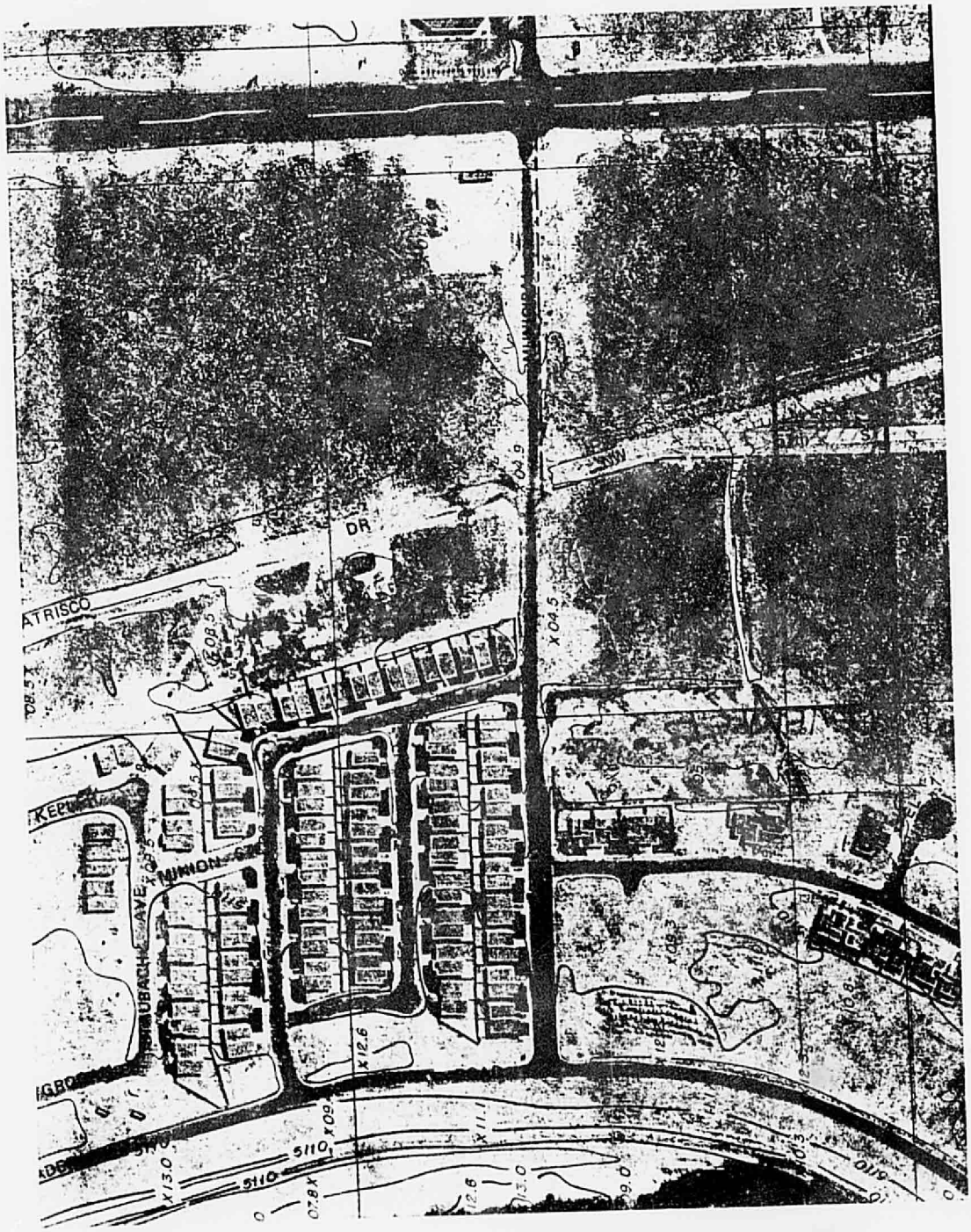
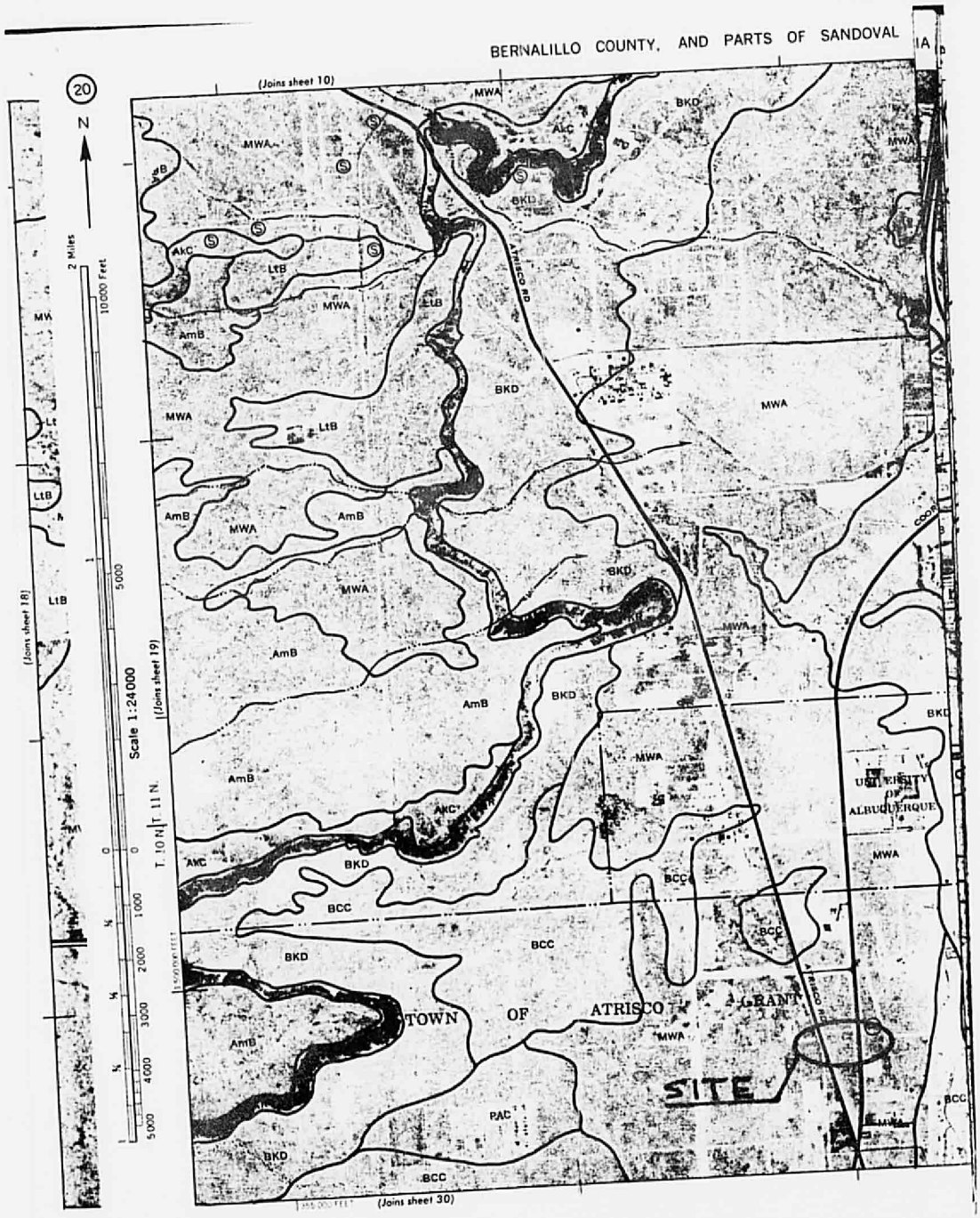
G-11-Z

THIS MICROIMAGE IS THE BEST POSSIBLE
REPRODUCTION DUE TO THE POOR QUALITY
OF THE ORIGINAL DOCUMENT




BERNALILLO COUNTY, AND PARTS OF SANDOVAL
20
N
(Joins sheet 10)
(Joins sheet 18)
(Joins sheet 19)
(Joins sheet 30)
2 Miles
10000 Feet
Scale 1:24000
T. 10 N.
T. 11 N.
TOWN OF ATRISCO GRANT
SITE
UNIVERSITY OF ALBUQUERQUE
ATRISCO RD
COORS
MWA
BKD
AkC
LtB
AmB
BCC
PAC

BY THG DATE 6-5 SUBJECT 57th St Atrisco NW
CHKD. BY ____ DATE ____ CLIENT ROAD GRADES (EXECUTIVE WEST OFFICE BLDG)
SHEET NO. ____ OF ____
JOB NO. ____

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NOTES: (1) ROAD GRADE 0.4%

(2) VERIBAL OK BY DAVE HARMON FOR 0.4%

(3) CITY PROJECT 2081 FOR 57th SOUTH OF QUAIL (START OF PROJECT) USES 0.4%

(4) CITY PROJECT 1584 FOR ATRISCO NORTH OF IRDLANDS (END OF PROJECT) USE 0.42% (CHECK AS-BUILT ROAD SURFACE SLOPE)

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JUN 05 1985
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RECEIVED MAY 20 1985

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

MAYOR
Harry E. Kinney

CHIEF
ADMINISTRATIVE OFFICER
Frank A. Kleinhenz

May 16, 1985

Design Collaborative Southwest
400 San Felipe, NW #6
Albuquerque, NM 87104

RECEIVED
JUN 05 1985
HYDROLOGY SECTION

RE: WATER AND SANITARY SEWER AVAILABILITY (G-11)

Subject Property: Cacy Addition, Blocks E & F, Lots 1-4
(Ref: DRB 84-324, AX-84-20, V-84-69, 2-84-110)

Proposed Development: Office Building

Dear Sirs:

Annexation of the property has recently been approved as such City water and sewer service can be provided contingent upon developer's construction of the necessary improvements.

WATER:

Service is available contingent upon construction of a 10" line from the existing line in Redlands, south within Atrisco and 57th Street to the southern boundry of the property. Service will be subject to utility Expansion Charges.

SEWER:

Service is available contingent upon construction of an 8" line from the existing line in Redlands, south within Atrisco and 57th Street to the southern boundry of the property. Minimum slope of the line must be .004. Service connection must be coordinated through a licensed plumber. Installation must conform to the plumbing code as adopted, and to effective Department connection requirements. Service will be subject to Utility Charges.

FIRE PROTECTION REQUIREMENTS:

Per the Fire Marshall's requirements, two (2) new hydrants will be necessary. A minimum of one (1) public hydrant will be required. It should be located at the approximate end of the required line (this location will allow for flushing the line). The second hydrant may be private on site.

The design and construction of all improvements will be at the developers expense. Some costs may be prorated to benefiting properties. When such properties take service, assessment prorata will be collected by the City and returned to the developer or his assigns. Design and construction of public facilities and prorata must be coordinated through the City Engineer's office. Private fire line taps must be coordinated through the Customer Services Division of Water Resources Department.

If you have further questions, and/or comments, please do not hesitate to contact me.

Very truly yours,

Jack McDonough
Administrative Assistant
Engineering Division
Water Resources Department
766-7354

JFM:jla

Attachments: Location and System Maps

xc: Tucker Green,
Mike E. Mendoza, WRD/Eng.
John Ertsgaard, WRD/Eng.
Roy Robinson, WRD/Water Systems
Josie Gutierrez, WRD/C.S.
f/Cacy Addition, Blks. E & F, G-11
f/Availability (G-11)

A02200/031298

BY _____ DATE _____ SUBJECT _____ SHEET NO _____ OF _____
CHKD. BY _____ DATE _____ CLIENT _____ JOB NO _____

engineering associates, inc. • 532 Adams Street, NE • Albuquerque, NM 87106 • (505) 265-0545

CALCULATIONS

BY: TMG DATE 6/19 SUBJECT EX WEST CULVERTS SHEET NO 1 OF
CHKD. BY: DATE CLIENT DESIGN FLOWS JOB NO.

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AREA	DESCRIPTION	ACRES	T_c ~ ACTUAL	I 4.65 MAX	C EST	Q 100	
1	1/2 COORS SEQUOIA TO EX. WEST S PE, 48 PAVING	1.87	—	4.65	.95	8.26	
2	ATRISCO SEQUOIA TO RED-LANDS, REDLAND ~200' W OF ATRISCO TO COORS S	1.29	—	4.65	.95	5.70	
3	PARTLY DEVELOPED STRIP W OF ATRISCO, SEQUOIA TO RED LANDS, ~1/3 APT & 1/3 BARE	4.59	7.2	4.65	.53	11.31	
4	BEHIND EX. W. S R TO RED-LANDS, (410' WIDE) + UNPAVED ST/ATRISCO, + LOTS ADJACENT TO EX WEST ON NORTH ~600' X 24' DIRT ROAD, W REST UNDEVELOPED	16.56	15.68	3.70	.42	17.96	FLOW @ COORS & SEQUOIA, PER BALL ENGL CO ~66.9 CFS
						(43.23)	+ 66.9 = 110.13
5	1/2 COORS (48' PAVE) EX. W.S R ~1250' S TO OUT FLOW SECTION @ GAS STATION	1.38	—	4.65	.95	6.10	} 24.54
(6)	UNDEVELOPED LAND S & W OF EX. W. THAT YIELDS RUNOFF TO CRITICAL OUT SECTION @ GAS STATION. INCLUDES ~450' X 24' DIRT ROAD. RUN OFF FROM GAS STATION ENTERS DOWN-STREAM	12.46	~16.47	3.61	.41	18.44	
						67.77	+ 66.9 = 134.67

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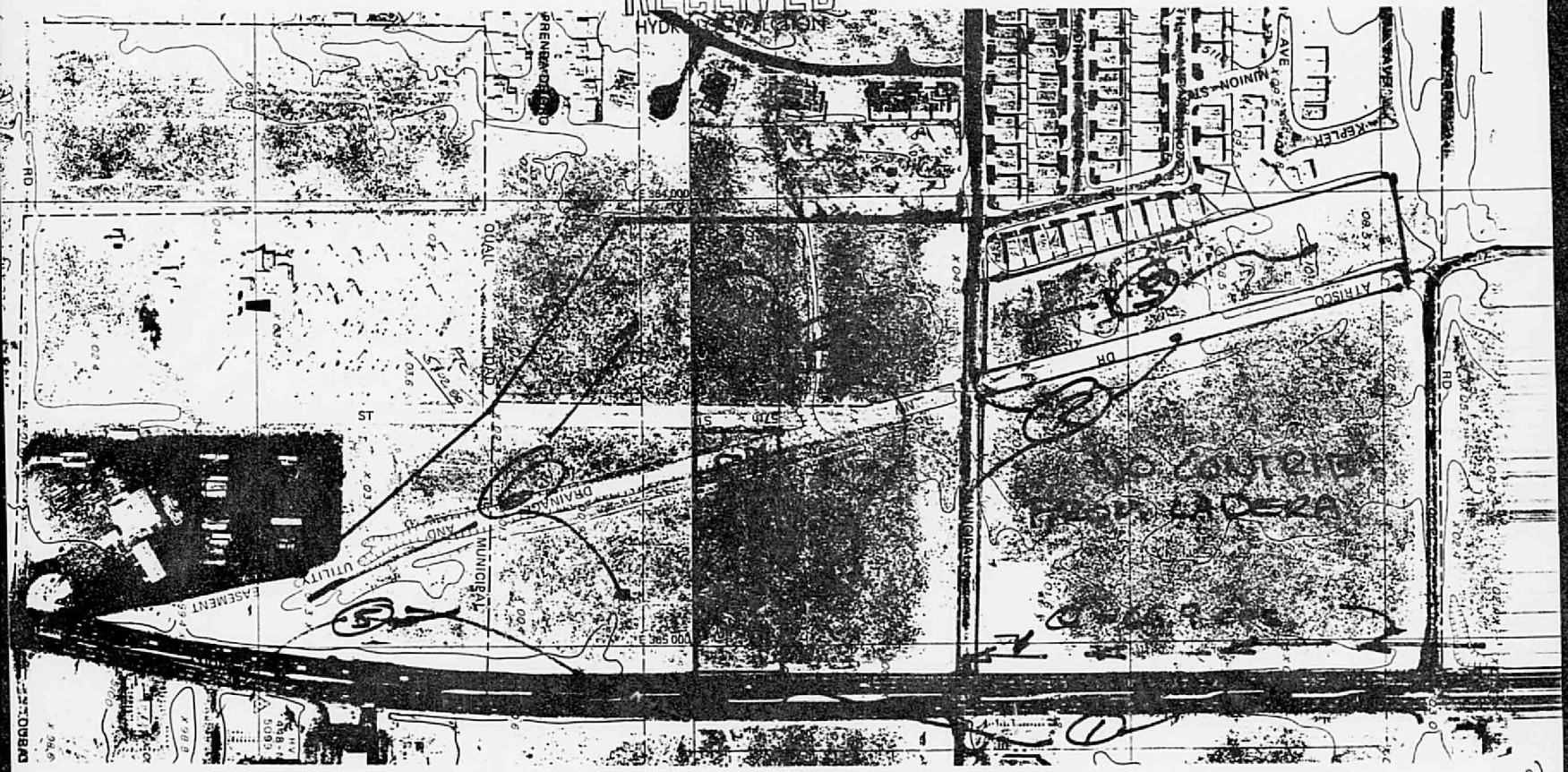
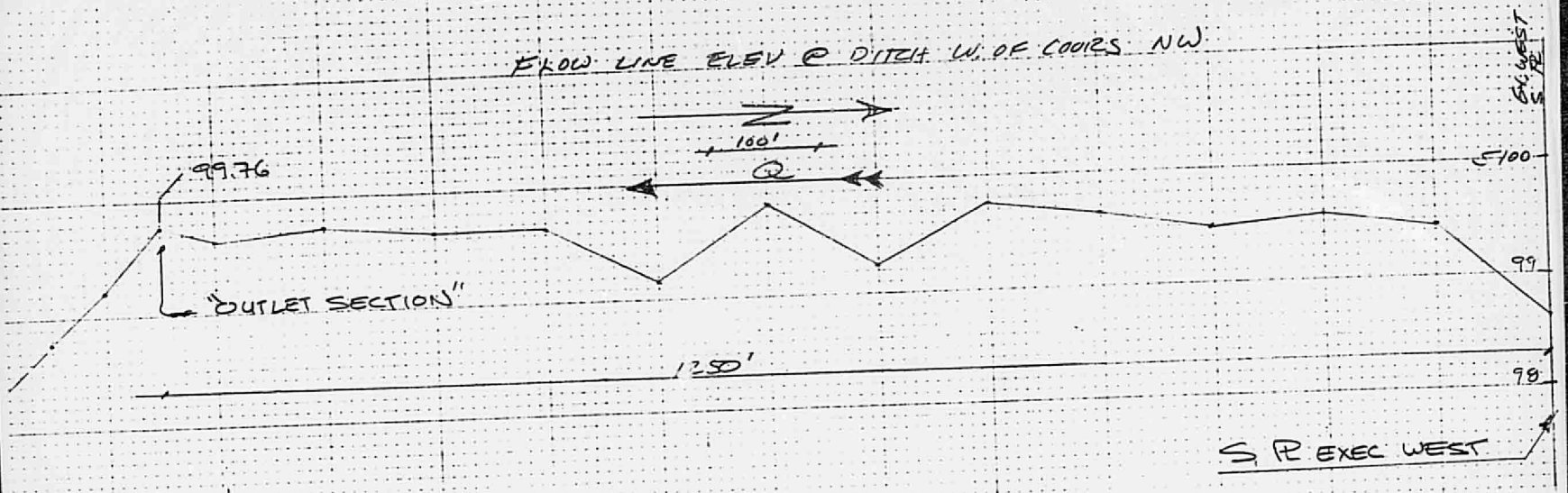
JUN 25 1986
HYDROLOGY DIVISION



MAPS H11 & G11

FLOW LINE ELEV @ DITCH W. OF COORS NW

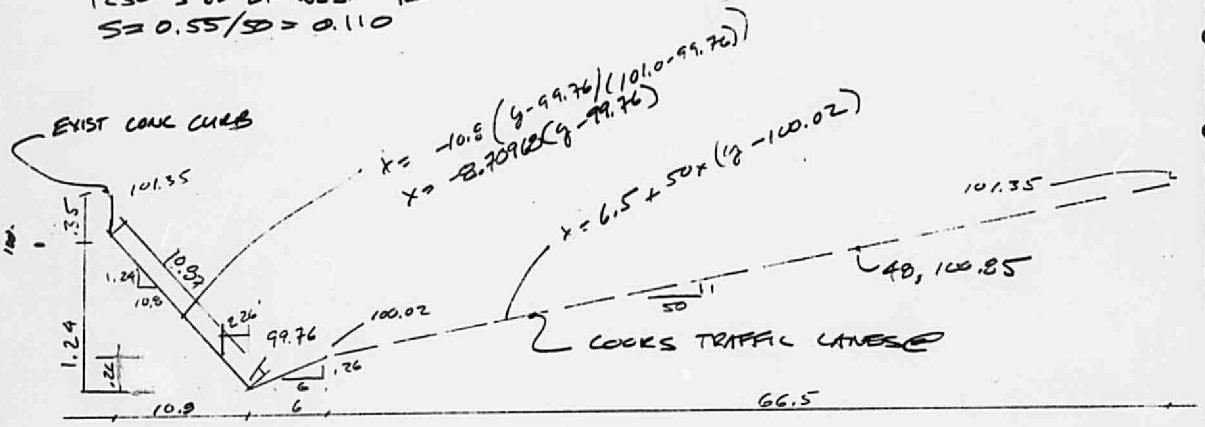


3

BY _____ DATE _____ SUBJECT Ex WEST & DRIVE SHEET NO 4 OF
CHKD. BY _____ DATE _____ CLIENT _____ JOB NO. _____

engineering associates, inc. • 532 Adams Street, NE • Albuquerque, NM 87108 • [505] 265-8545

1250' S OF EX WEST PL
S = 0.55/50 = 0.110



N ASPHALT = .017 N = DIRT = .030 USE N = 0.020

@ y	xL	xR
10.95	-9.494	48

CROSS SECTION @ DOWNSTREAM END OF LONG PUDDLE/LAKE @ RAR DITCH @ W SIDE OF COORS NW NEAR DURAY RD

5

PROG ODDCHANL: MANNING EQN IN CHAN W ARBITRARY STRAIGHT-LINE X-SECT

EX WEST DITCH - OUTLET SECTION @ GAS STATION (MY 12+50)

MANNING n = .02 SLOPE = .011 FT/FT

POINT	X	Y	LENGTH
1	-9.494	100.85	
			9.55636625502
2	0	99.76	
			6.00563069128
3	6	100.02	
			42.0082003899
4	48	100.85	

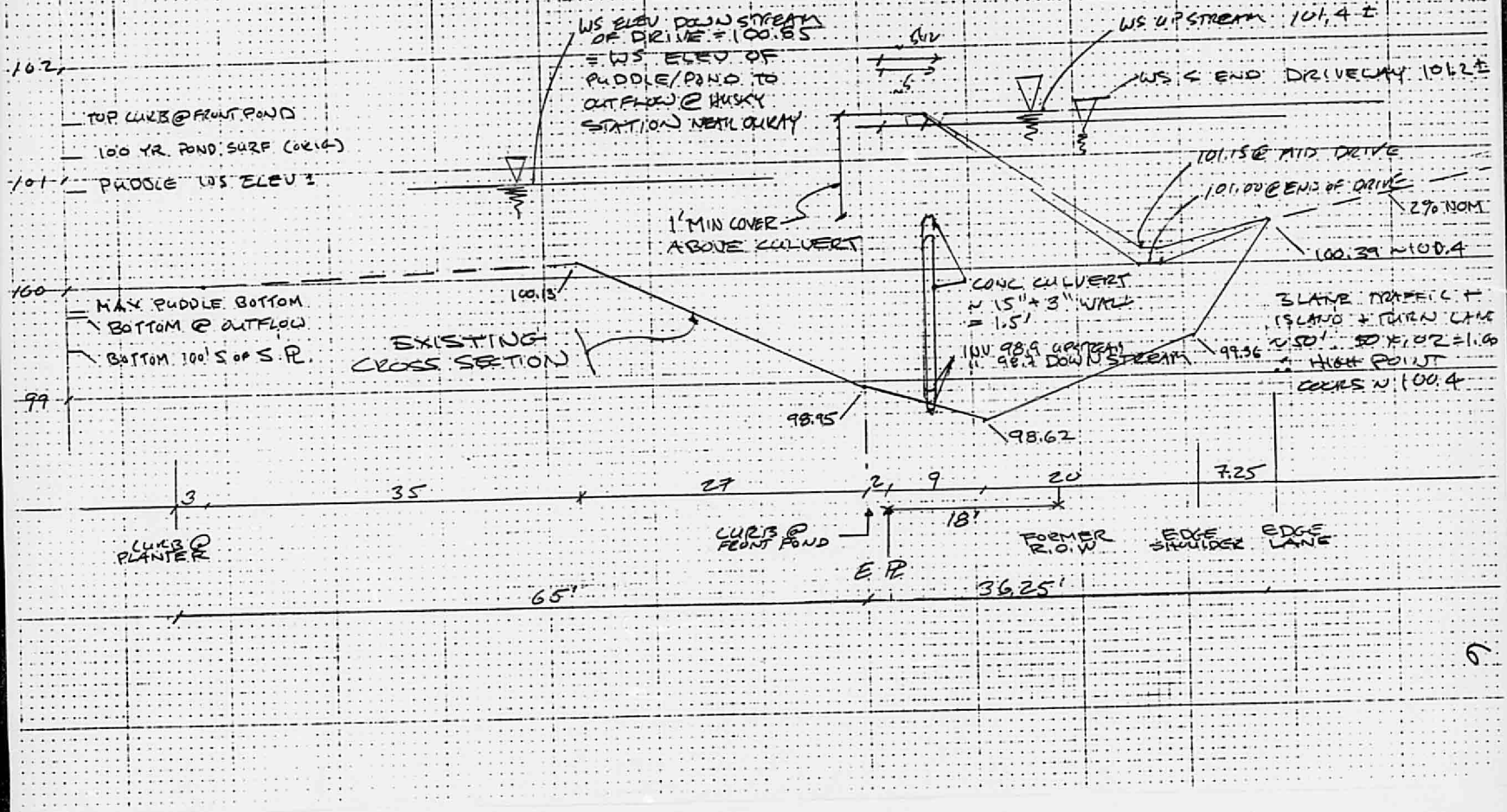
← 10" DEEP IN CREKS

A = 28.364 SQ FT
P WET = 57.570 FT
V = 4.874 FPS
Q = 138.252 CFS

Rq = 134.67 (nom)

CROSS SECTION NEAR ~~@~~ ℄ R. EXEC WEST @ E. DRIVEWAY

NOTE: THESE CALCS ASSUME Q100 MUST FLOW AFTER ALL PUDDLE/POND AREAS FILLED — UNREALISTICALLY CONSERVATIVE



6

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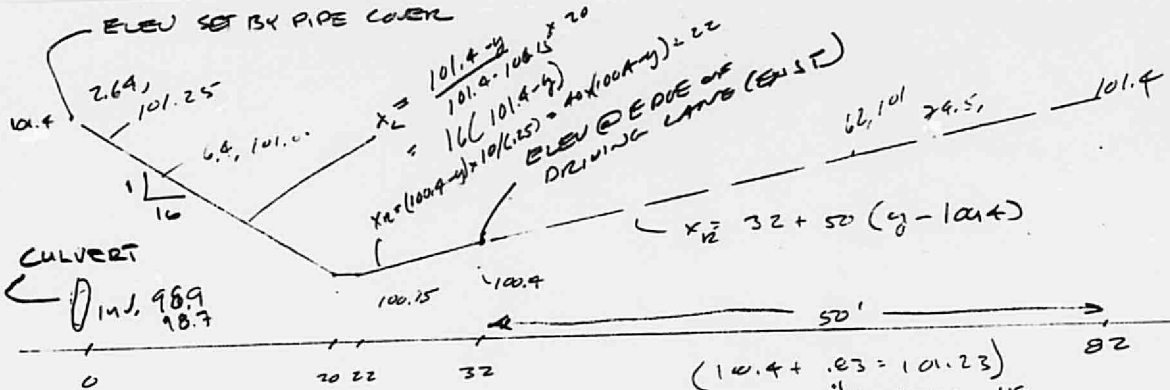
BY _____ DATE _____
CHKD. BY _____ DATE _____

SUBJECT _____
CLIENT _____

SHEET NO 7 OF _____
JOB NO. _____



(100.4 + .83 = 101.23)
10" + CURB NF

FLOWS BY PROGRAM "ODDCHANL"

Q KEEP 110.-8 ~ 102 CFS

WS ELEV = 101.4

S	y	XL	XR	Q	V
.002	101.27	2.02	75.5	109.6	2.66
.003	101.2	3.2	72	113.058 MAX	3.13
.004	101.14	4.16	69	111.66	3.47

OK

Q reg ~ 110 CFS

L = ±65' cor dh for S reg

WS ELEV = 101.23 10" chance

S	y	XL	XR	Q	V
.002	101.1	4.8	67	70.77	2.39
.003	101.04	5.76	64	72.908	2.80
.004	100.98	6.72	61	69.984	3.09

NG

CONSIDER: MAX FLOW @ SOMETHING LIKE N TO CUT DEPTH - ANALOGY W STREETS & WHILE FOR LEVEL BROAD CRESTED WEIRS

FLOW SECTION @ EAST END EAST DRIVE.

CAPACITY + OK @ WS ELEV = 5101.4

(5101.4 = HIGH LINE ABOVE CULVERT & 5' N OF S PL TO LANDSCAPE CURB)

BY. _____ DATE _____ SUBJECT EX WEST CULVERT SHEET NO 8 OF _____
CHKD. BY _____ DATE _____ CLIENT _____ JOB NO _____

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IN VERT 98.9 UPSTREAM SOFFIT = 100.15
98.7 DOWN STREAM
LENGTH 65'

15"D CONC, CIRCULAR, GROOVE END PROJECTING UPSTREAM

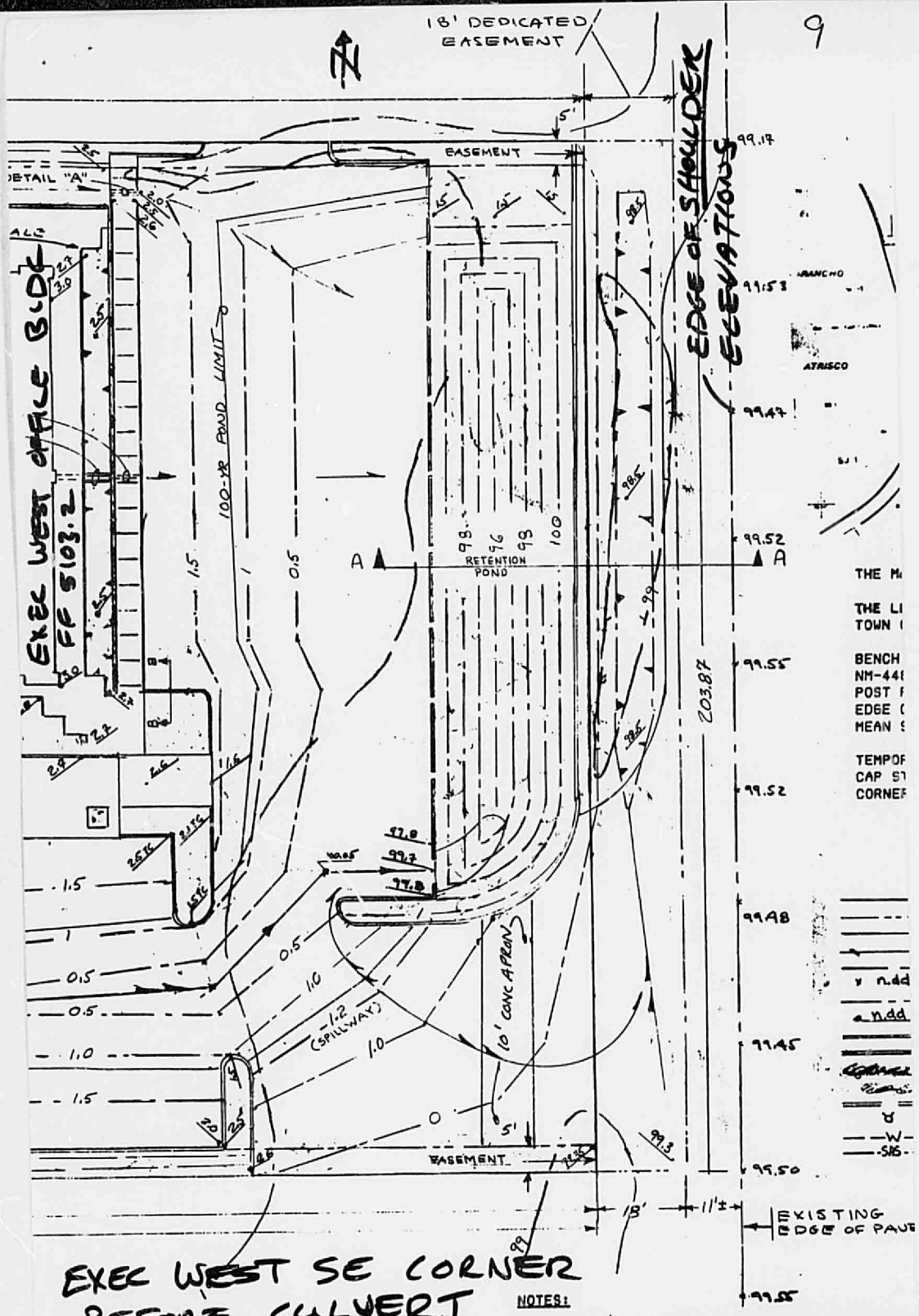
DRIVEWAY STARTS OVER FLOWING @ 101.15

ASSUME (FLASH FLOOD ? OK ?) FOR ALIGNMENT

HW = 1.25 HW/D = 1.0

INLET CONTROL HEC 5 CHART 2 Q ~ 3.5 CFS

OUTLET CONTROL - JUST SUBMERGED H=4.2' Q ~ 0



EXEC WEST SE CORNER BEFORE CULVERT ADDITION

NOTES:

AT THE TIME OF COORS CORRIDOR IMPROVEMENTS, OW
LANE ONTO HIS PROPERTY TO MATCH THE NEW EDGE O
SHALL COMPLY WITH OTHER REQUIREMENTS OF THE C
GRANTING ADDITIONAL EASEMENTS AND INSTALLING S
NECESSARY.