

CITY OF ALBUQUERQUE



January 8, 2014

Jose M. Zelaya, R.A.
J M J arquitectos
10010 Indian School Rd. NE #103
Albuquerque, NM 87112

Re: United Artist High Ridge 8 Theater Parking Improvements
12921 Indian School Rd. NE 87112,
Traffic Circulation Layout
Architect's Stamp dated 12-20-13 (J22-D041)

Dear Mr. Zelaya,

The TCL submittal received 1-08-14 is approved for Building Permit. The plan is stamped and signed as approved. A copy of this plan will be needed for each of the building permit plans. Please keep the original to be used for certification of the site for final C.O. for Transportation. **Public infrastructure or work done within City Right-of-Way shown on these plans is for information only and is not part of approval. A separate DRC and/or other appropriate permits are required to construct these items.**

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

If a temporary CO is needed, a copy of the original TCL that was stamped as approved by the City will be needed. This plan must include a statement that identifies the outstanding items that need to be constructed or the items that have not been built in "substantial compliance," as well as the signed and dated stamp of a NM registered architect or engineer. Submit this TCL with a completed Drainage and Transportation Information Sheet to Hydrology at the Development Services Center of Plaza Del Sol Building.

When the site is completed and a final C.O. is requested, use the original City stamped approved TCL for certification. A NM registered architect or engineer must stamp, sign, and date the certification TCL along with indicating that the development was built in "substantial compliance" with the TCL. Submit this certification TCL with a completed Drainage and Transportation Information Sheet to Hydrology at the Development Services Center of Plaza Del Sol Building.

Once verification of certification is completed and approved, notification will be made to Building Safety to issue Final C.O. To confirm that a final C.O. has been issued, call Building Safety at 924-3306.

Sincerely,

Cynthia K Beck
Associate Engineer, Planning Dept.
Development Review Services

C: File

Albuquerque - Making History 1706-2006





City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: UNITED ARTIST HIGHT RIDGE Building Permit #: _____ City Drainage #: J22DD41

DRB#: _____ EPC#: _____ Work Order#: _____

Legal Description: _____

City Address: _____

Engineering Firm: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Owner: United Artist (Regal Entertainment) Contact: _____

Address: 7132 REGAL LANE KNOXVILLE, TN 37918

Phone#: KNOXVILLE, TN Fax#: _____ E-mail: _____

Architect: JMZ Architects Jose M. Zelaya Contact: _____

Address: 10610 Indianschool Rd NE #103 Albuquerque, NM 87112

Phone#: 508-8512 Fax#: _____ E-mail: _____

Surveyor: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Contractor: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN 1st SUBMITTAL
- ☐ DRAINAGE PLAN RESUBMITTAL
- ☐ CONCEPTUAL G & D PLAN
- ☐ GRADING PLAN
- ☐ EROSION & SEDIMENT CONTROL PLAN (ESC)
- ☐ ENGINEER'S CERT (HYDROLOGY)
- ☐ CLOMR/LOMR
- ☒ TRAFFIC CIRCULATION LAYOUT (TCL)
- ☐ ENGINEER'S CERT (TCL)
- ☐ ENGINEER'S CERT (DRB SITE PLAN)
- ☐ ENGINEER'S CERT (ESC)
- ☐ SO-19
- ☐ OTHER (SPECIFY) _____

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- ☐ SIA/FINANCIAL GUARANTEE RELEASE
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ S. DEV. PLAN FOR SUB'D APPROVAL
- ☐ S. DEV. FOR BLDG. PERMIT APPROVAL
- ☐ SECTOR PLAN APPROVAL
- ☐ FINAL PLAT APPROVAL
- ☐ CERTIFICATE OF OCCUPANCY (PERM)
- ☐ CERTIFICATE OF OCCUPANCY (TCL TEMP)
- ☐ FOUNDATION PERMIT APPROVAL
- ☒ BUILDING PERMIT APPROVAL
- ☐ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☐ WORK ORDER APPROVAL
- ☐ GRADING CERTIFICATION
- ☐ SO-19 APPROVAL
- ☐ ESC PERMIT APPROVAL
- ☐ ESC CERT. ACCEPTANCE
- ☐ OTHER (SPECIFY) _____

WAS A PRE-DESIGN CONFERENCE ATTENDED: _____ Yes _____ No _____ Copy Provided

DATE SUBMITTED: 1/8/2014 By: [Signature]

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, and scope to 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 (5) acres and Sector Plans
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres
3. **Drainage Report:** Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more
4. **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

September 28, 2001

Fred C. Arfman, P.E.
Isaacson & Arfman
128 Monroe Street NE
Albuquerque, NM 87108

***RE: HINKLE FAMILY FUN CENTER BATTING CAGE & Paintball Court (J22-D41).
GRADING AND DRAINAGE PLAN FOR GRADING AND PAVING PERMIT
APPROVALS. ENGINEER'S STAMP DATED SEPTEMBER 21, 2001.***

Dear Ms. Arfman:

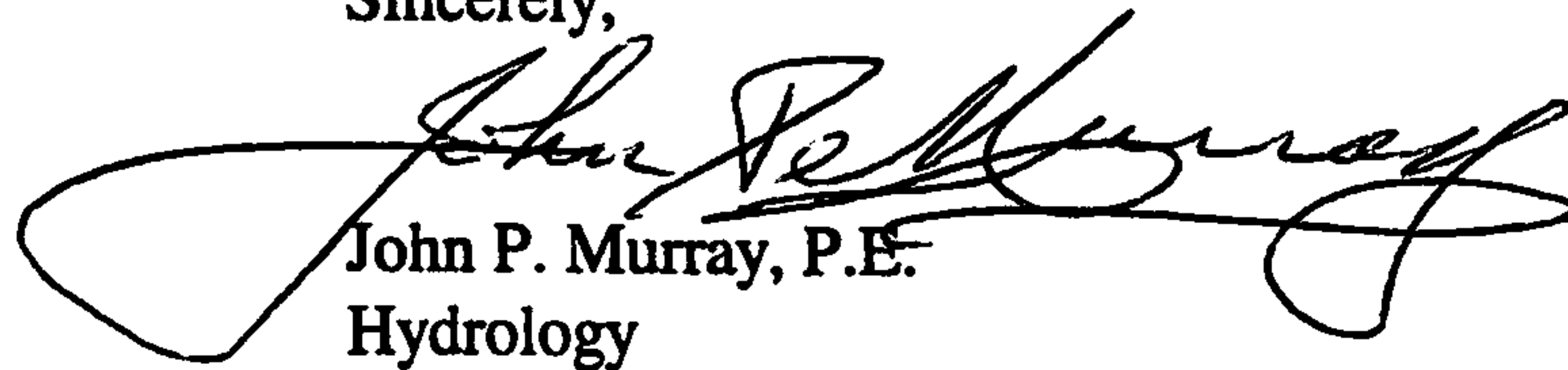
Based on the information provided on your September 24, 2001 submittal, the above referenced project is approved for Grading Permit and Paving Permit. The Paintball Court was added and the Batting Cage layout revised.

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

Prior to Certificate of Occupancy approval, an Engineer's Certification per DPM will be required.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,


John P. Murray, P.E.
Hydrology

c: Terri Martin
✓ File

DRAINAGE INFORMATION SHEET

PROJECT: HINKLE FAMILY FUN CENTER PARKING LOT
Bathing Cage & Paintball Court

ZONE ATLAS/DRNG. J-22/D-41
FILE#:

DRB # NA

EPC # NA

WORK ORDER #

LEGAL DESCRIPTION: TRACTS J2B2 & J2B3, BLOCK 5, ROYAL HEIGHTS ADDITION

CITY ADDRESS: 12921 INDIAN SCHOOL RD NE

ENGINEERING FIRM: Isaacson & Arfman, P.A.

CONTACT: GENNY DONART

ADDRESS: 128 Monroe Street NE

PHONE: 268-8828

CITY, STATE: Albuquerque, NM

ZIP CODE: 07108

OWNER: HINKLE FAMILY FUN CENTER

CONTACT:

ADDRESS: 12921 INDIAN SCHOOL RD NE

PHONE:

CITY, STATE: ABQ, NM

ZIP CODE: 87112

ARCHITECT: RICHARD MOELLER

CONTACT: RICHARD MOELLER

ADDRESS: 3737 BIG BEND RD NE

PHONE: 294-2891

CITY, STATE: ABQ, NM

ZIP CODE: 87111

SURVEYOR:

CONTACT:

ADDRESS:

PHONE:

CITY, STATE:

ZIP CODE:

CONTRACTOR:

CONTACT:

ADDRESS:

PHONE:

CITY, STATE:

ZIP CODE:

TYPE OF SUBMITTAL:

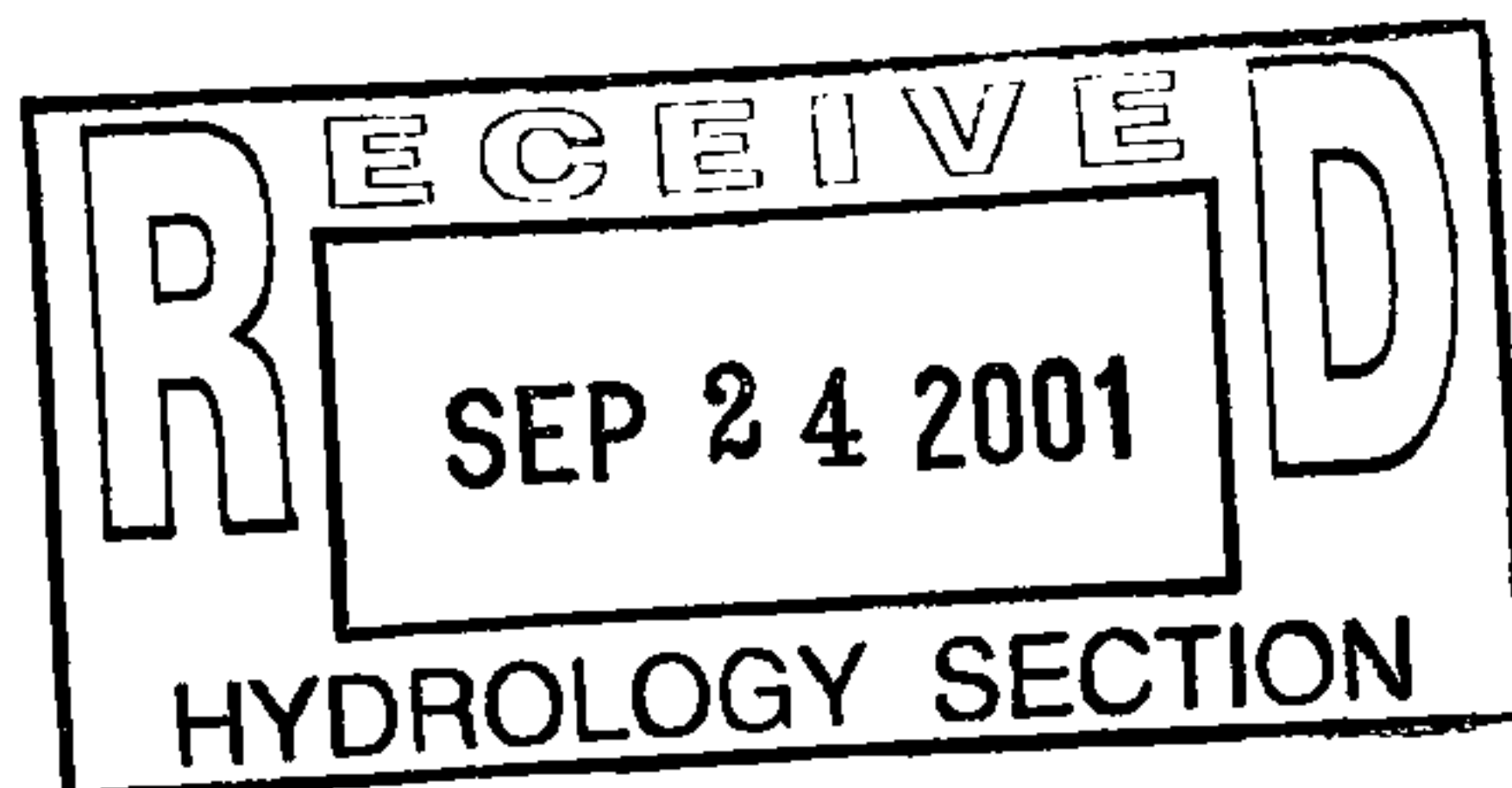
- ☐ DRAINAGE REPORT
☒ DRAINAGE PLAN
☐ CONCEPTUAL GRADING & DRAINAGE PLAN
☒ GRADING PLAN (REDESIGN)
☐ EROSION CONTROL PLAN
☐ ENGINEER'S CERTIFICATION
☐ OTHER

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
☐ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY APPROVAL
☒ GRADING PERMIT APPROVAL
☒ PAVING PERMIT APPROVAL
☐ S.A.D. DRAINAGE REPORT
☐ DRAINAGE REQUIREMENTS
☐ OTHER (SPECIFY)

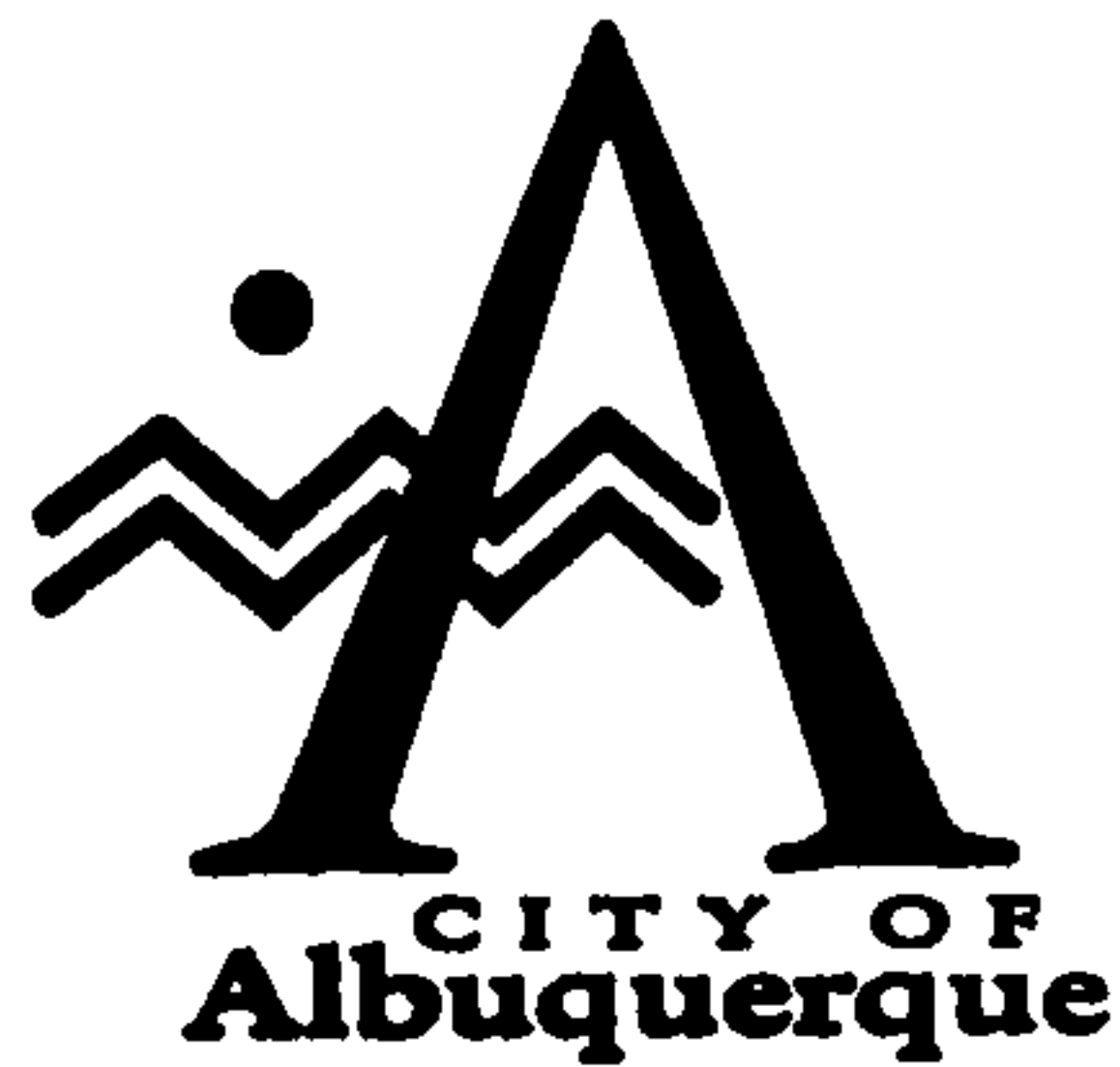
PRE-DESIGN MEETING:

- ☐ YES
☒ NO
☐ COPY PROVIDED



DATE SUBMITTED: 09/21/01

BY: Gennifer Donart
FOR ISAACSON & ARFMAN, P.A.



July 21, 1998

Celia Tomlison, P.E.
Rhombus P.A., Inc.
2620 San Mateo NE Suite D
Albuquerque, NM 87110

**RE: HINKLE FAMILY FUN CENTER PARKING LOT (J22-D41). GRADING AND
DRAINAGE PLAN FOR GRADING AND PAVING PERMIT APPROVALS.
ENGINEER'S STAMP DATED JUNE 23, 1998.**

Dear Ms. Tomlinson:

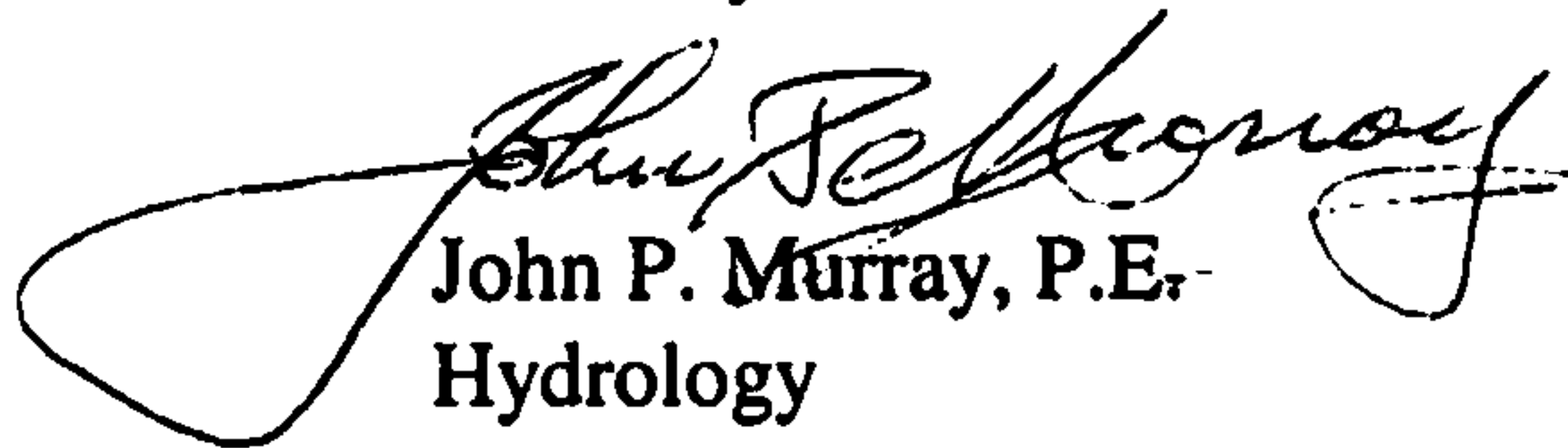
Based on the information provided on your June 23, 1998 submittal, the above referenced project is approved for Grading Permit and Paving Permit.

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

Prior to Certificate of Occupancy approval, an Engineer's Certification per DPM will be required.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,


John P. Murray, P.E.
Hydrology

c: Andrew Garcia
✓ File

Good for You, Albuquerque!





Martin J. Chávez, Mayor

Robert E. Gurulé, Director

June 27, 1997

Jake Bordenave
Bordenave Designs
P.O. Box 91194
Albuquerque, New Mexico 87199-1194

RE: REVISED ENGINEER CERTIFICATION FOR HINKLE FAMILY FUN CENTER
PHASE I (J22-D41) CERTIFICATION STATEMENT DATED 6/16/97

Dear Mr. Bordenave:

Based on the information provided on your June 19, 1997 resubmittal, Engineer Certification for the above referenced site is acceptable.

If I can be of further assistance, please feel free to contact me at 924-3986.

C: Andrew Garcia

File

Sincerely

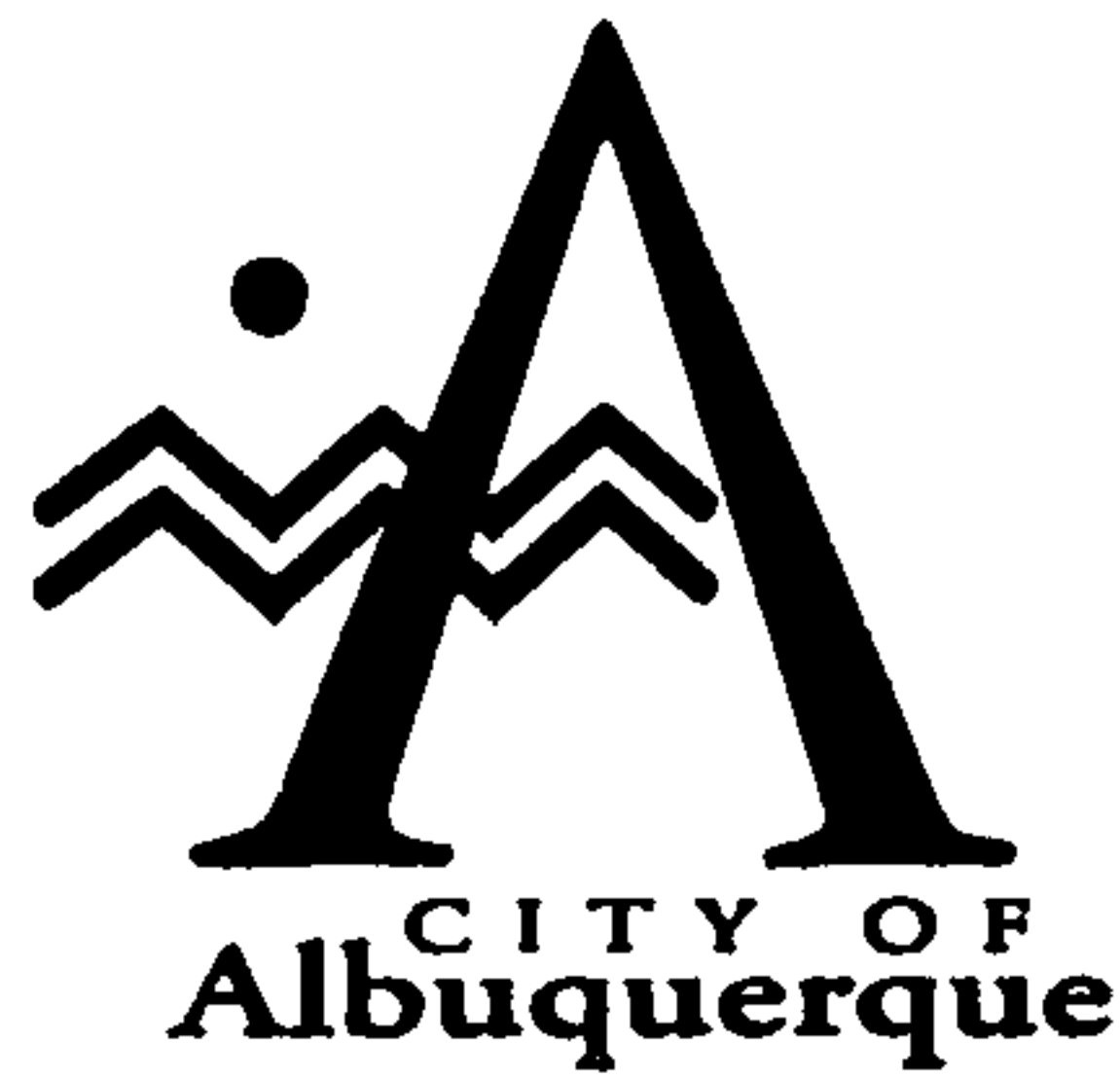
A handwritten signature in cursive script that reads 'Bernie J. Montoya'.

Bernie J. Montoya CE
Associate Engineer

Good for You. Albuquerque!

P.O. Box 1293, Albuquerque, New Mexico 87103





Martin J. Chávez, Mayor

June 10, 1997

J. Bordenave
Bordenave Designs
P.O. Box 91194
Albuquerque, New Mexico 87199-1194

**RE: ENGINEER CERTIFICATION FOR HINKLE FAMILY CENTER (J22-D41)
CERTIFICATION STATEMENT DATED 5/20/97**

Dear Mr. Bordenave:

Based on the information provided on your May 22, 1997 submittal, I am unable to continue the review of the above referenced site because of the following reasons:

1. Sheet No. C-2 that was approved for building permit does not match your submittal.
2. There is no as-built information on the plan sheet.
3. The original approval was not for phasing. Please address
4. There is no legend on your submittal.
5. Please follow the Engineer Certification checklist found in the DPM.

If I can be of further assistance, please feel free to contact me at 924-3986.

C: Andrew Garcia
File

Sincerely
Bernie J. Montoya
Bernie J. Montoya CE
Associate Engineer

Good for You, Albuquerque!

P.O. Box 1203, Albuquerque, New Mexico 87103



DRAINAGE INFORMATION SHEET

PROJECT DATA:

TITLE: HINKLE FAMILY FUN CENTER (PH. 1) DRNG. FILE #:J22/D41

DRB #:97-42 EPC #: - WORK ORDER #: -

LEGAL DESCRIPTION: TRACTS J2B2 AND J2B3, BLOCK 5, PANORAMA HGTS

CITY ADDRESS: 12921 INDIAN SCHOOL RD. NE

ENGINEERING FIRM: BORDENAVE DESIGNS

CONTACT: J. BORDENAVE

ADDRESS:P.O. BOX 91194, 87199-1194

PHONE: 823-1344

OWNER: HINKLE INVESTMENTS INC.

CONTACT: G. HINKLE

ADDRESS: P.O. BOX 14934, 87191

PHONE: 292-6094

ARCHITECT: RICHARD MOELLER

CONTACT: R. MOELLER

ADDRESS: 3737 BIG BEND NE, 87111-4361

PHONE: 294-2891

SURVEYOR: BORDENAVE DESIGNS

CONTACT: J. BORDENAVE

ADDRESS: P.O. BOX 91194, 87199-1194

PHONE: 823-1344

CONTRACTOR: HINKLE INVESTMENTS INC.

CONTACT: D. HINKLE

ADDRESS: P.O. BOX 14934,87191

PHONE: 292-6094

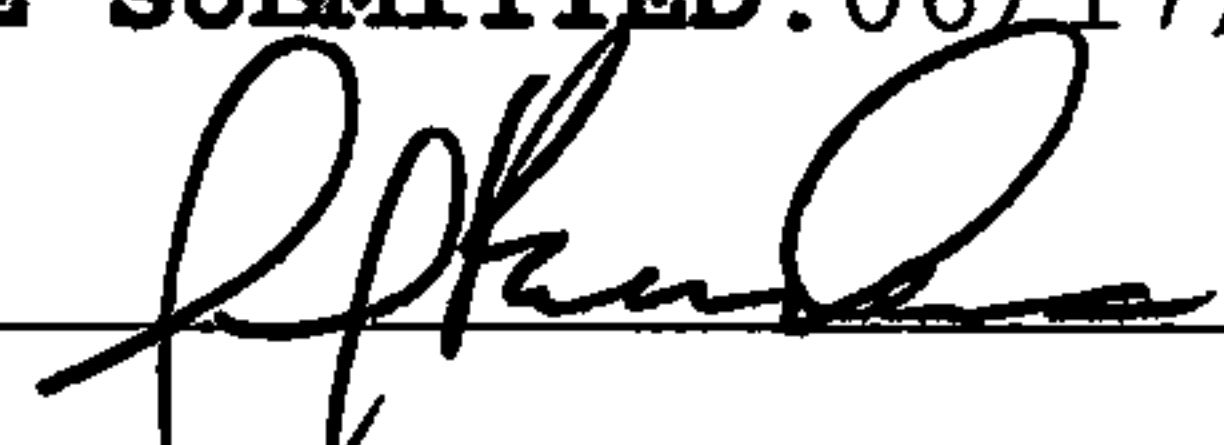
TYPE OF SUBMITTAL:

- ☐ CONCEPT GRADING & DRAINAGE PLAN
- ☐ GRADING PLAN
- ☐ DRAINAGE PLAN
- ☐ DRAINAGE REPORT
- ☐ EROSION CONTROL PLAN
- ☒ ENGINEER'S CERTIFICATION
- ☐ OTHER:

PRE-DESIGN MEETING:

- ☐ YES
- ☒ NO
- ☐ COPY OF MINUTES PROVIDED

DATE SUBMITTED:06/17/97

BY: 

TYPE OF APPROVAL SOUGHT:

- ☐ SECTOR PLAN
- ☐ SKETCH PLAT
- ☐ PRELIMINARY PLAT
- ☐ FINAL PLAT
- ☐ SITE DEV. PLAN FOR SUBD.
- ☐ SITE DEV. PLAN FOR PERMIT
- ☐ GRADING PERMIT
- ☐ PAVING PERMIT
- ☐ FOUNDATION PERMIT
- ☐ BUILDING PERMIT
- ☒ CERTIFICATE OF OCCUPANCY
- ☐ S.A.D. DRAINAGE REPORT
- ☐ DRAINAGE REQUIREMENTS
- ☐ OTHER:

JUN 19 1997

B Bordenave Designs

June 17, 1997

City of Albuquerque
PWD/Hydrology
P O Box 1293
Albuquerque NM 87103

Attn: Mr. Bernie Montoya
Re: J22/D41

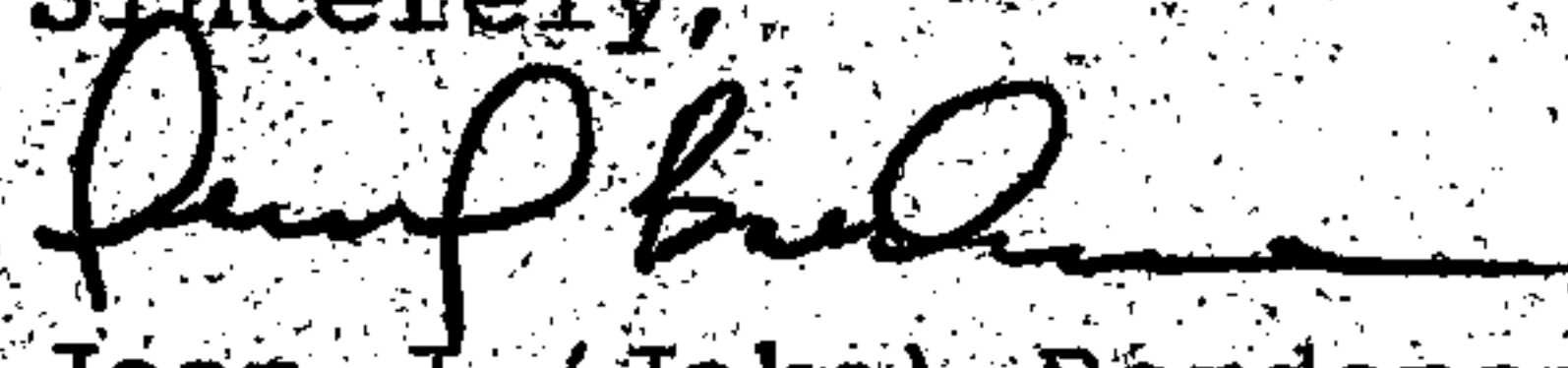
Dear Sir:

The following is written in response to your comments dated June 10, 1997. The comments are in the same order as the comments.

1. The difference in the plan is to show as-built construction. the differences in construction do not affect drainage flow quantities or patterns.
2. The information shown is as-built but that is not obvious since there is no legend.
3. The project was phased for financial reasons. Since the two areas of construction are completely independent drainage basins with both having direct access to the public right-of-way the is no adverse impact in constructing the two areas independently. A phase line has been added to the plan to facilitate approval of the areas independently.
4. A legend has been added to the plan.
5. Additional information has been added to the plan to make it comply with the DPM.

Thank you for your review and comments.

Sincerely,



Jean J. (Jake) Bordenave

P.O. Box 91194
Albuquerque, NM 87199-1194
(505) 823-1344



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

February 27, 1992

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

RE: REVISED CONCEPTUAL DRAINAGE PLAN FOR HIGH RIDGE SHOPPING
CENTER, PHASE II (J-22/D41) REVISION DATED JANUARY 31, 1992

Dear Mr. Bordenave:

Based on the information provided on your resubmittal of February 7, 1992, the revisions as indicated are acceptable for Site Development Plan approval.

Please be advised that my letter dated October 11, 1991 indicating what is required for building permit approval is still valid.

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

Cordially,

Bernie J. Montoya

Bernie J. Montoya, C.E.
Engineering Assistant

BJM/bsj
(WP+31)

PUBLIC WORKS DEPARTMENT

Walter H. Nickerson, Jr., P.E.
Assistant Director Public Works

ENGINEERING GROUP

Telephone (505) 768-2500

AN EQUAL OPPORTUNITY EMPLOYER



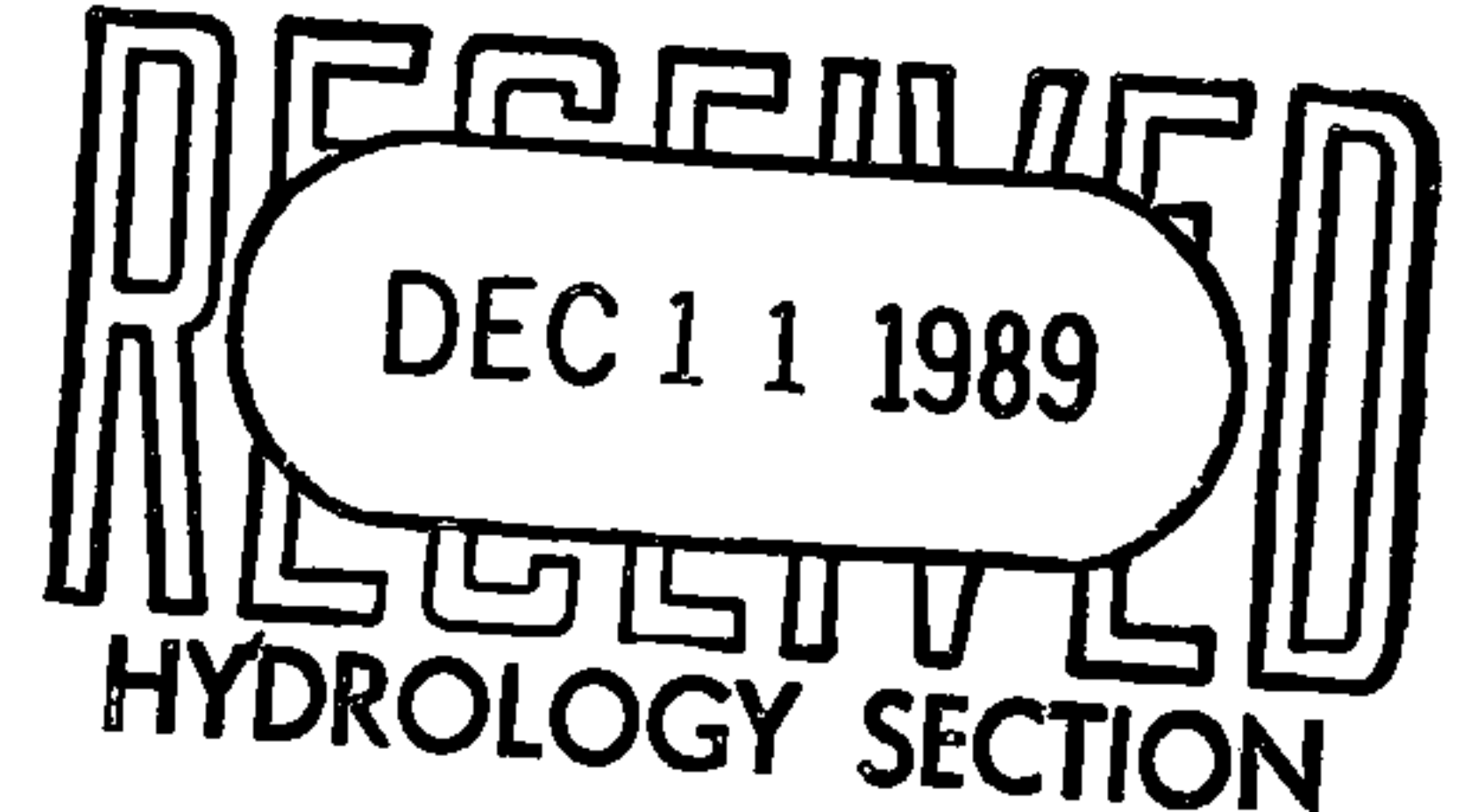
City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

J22/DM1

December 8, 1989

CERTIFICATE OF COMPLETION AND ACCEPTANCE



Mr. Gene E. Hinkle
High Ridge Rand Joint Venture
5301 Central Ave. N.E.
Albuquerque, NM 87108

RE: PROJECT NO. 3857, HIGH RIDGE SHOPPING CENTER, (MAP NO. J-22-Z)

Dear Mr. Hinkle:

This is to certify that the City of Albuquerque accepts Project No. 3857 as being completed according to approved plans and construction specifications. If all required rights-of-way and/or easements have been dedicated, the City of Albuquerque will accept for continuous maintenance all public infrastructure improvements constructed as part of Project No. 3857. If the required rights-of-way and/or easements have not been dedicated, the City of Albuquerque cannot accept the project for continuous maintenance and said maintenance will be the responsibility of the developer. When a final plat has been filed it will be the developer's responsibility to provide the Construction Management Division with a copy, at which time the City will fully accept Project No. 3857.

The project is described as follows:

- The Contractor installed 73 LF of 6" diameter water line and one (1) 4' fire hydrant. Also installed 863 LF of 8" water line with one (1) 2" service and 95 LF of 8" diameter sanitary sewer pipe.
- Built two (2) arterial pavement deceleration lanes on Indian School Rd., westbound lane, west of Tramway Blvd. and one (1) median revision on Indian School Rd., eastbound lane.
- The contractor's correction period begins the date of this letter and will be effective for a period of one (1) year.

LETTER OF ACCEPTANCE FOR PROJECT NO. 3857
December 8, 1989
Page Two (2)

Sincerely,



Brian L. Speicher, P.E.
Chief Construction Engineer
Design/Construction Division
Engineering Group
Public Works Department

BLS:kt

xc: Chavez-Grievess Consulting
Jaynes Corporation
Fred Aguirre, Engineering Group, PWD
Phil Fischer, Engineering Group, PWD
Ray Pang, Engineering Group, PWD
Terri Martin, Engineering Group, PWD
Alan Martinez, Engineering Group, PWD
Jeanette Barrett, Special Assessments
Sam Hall, Operations Group, PWD
A. N. Gaume, Operations Group, PWD
Jim Fink, Operations Group, PWD
Ray Chavez, Operations Group, PWD
Jon Ertsgaard, Water/Wastewater Group, PWD
Dave Parks, Engineering Group, PWD
Tom Kennerly, Engineering Group, PWD
Josie Gutierrez, New Meter Sales, Finance Group, PWD
Claudia Gallegos, Standby Clerk, Finance Group, PWD
Della Gallegos, Engineering Group, PWD
Fred Gomez, Engineering Group, PWD
Judy Aguilar, Engineering Group, PWD
f/Project 3857
f/Warranty
f/Readers

(INP 138272)

FILE COPY



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

Louis Saavedra
MAYOR

December 7, 1989

Victor Chavez
Chavez-Grieves Consulting Engineers
4600-C Montgomery Boulevard, NE
Albuquerque, New Mexico 87109

RE: ENGINEER'S CERTIFICATION FOR HIGH RIDGE SHOPPING CENTER
(RAND THEATER) (J-22/D41) ENGINEER'S CERTIFICATION DATED NOVEMBER
22, 1989

Dear Mr. Chavez:

Based on the information provided on your submittal of November 22, 1989,
Certification for the referenced drainage plan is acceptable.

Please be advised that a separate submittal for review for each phase of
construction will be required prior to release of Building Permit.

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+31)

PUBLIC WORKS DEPARTMENT

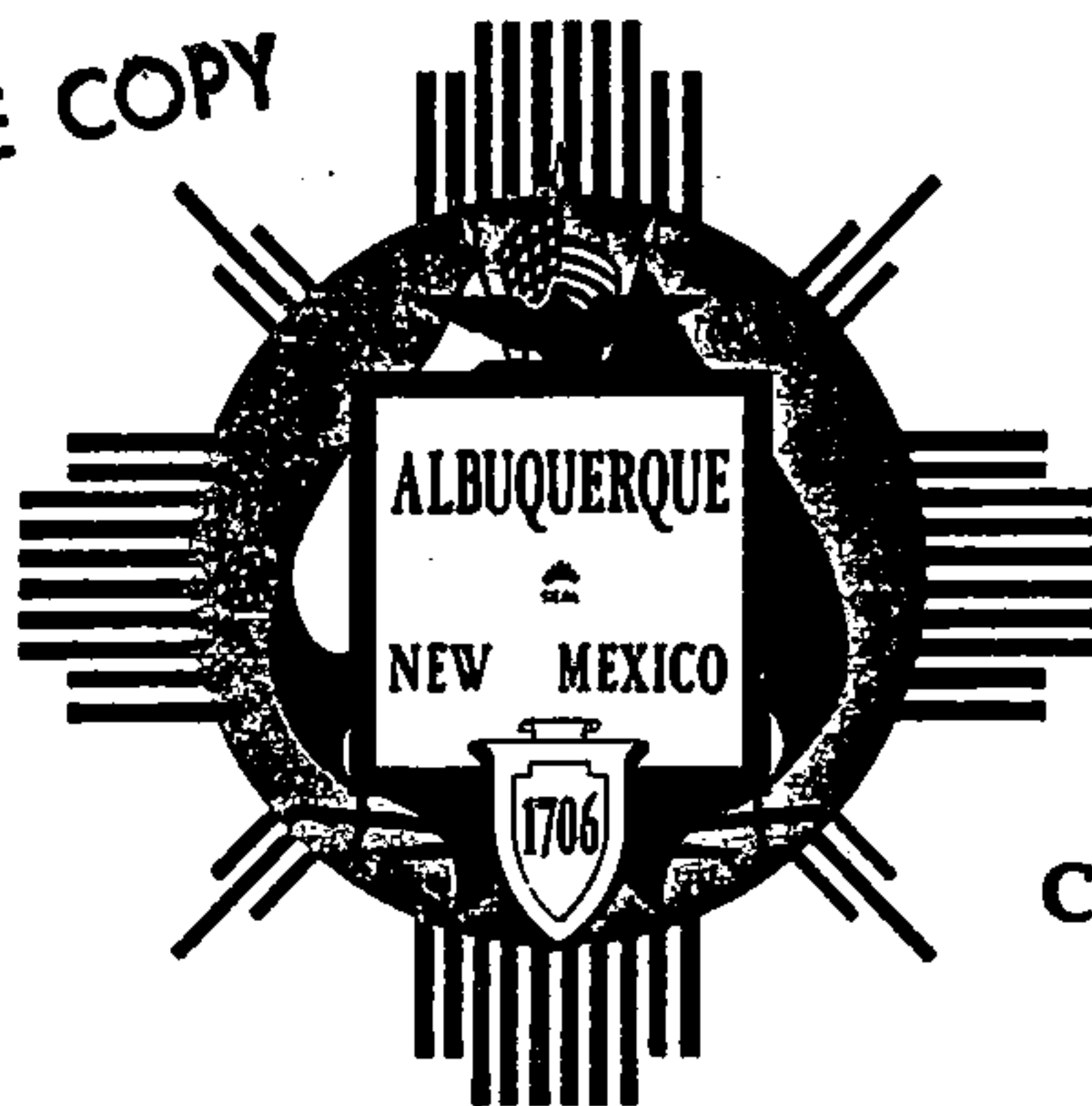
erson, Jr., P.E.
ector Public Works

ENGINEERING GROUP

Telephone (505) 768-2500

AN EQUAL OPPORTUNITY EMPLOYER

FILE COPY



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

KEN SCHULTZ
MAYOR

CLARENCE V. LITHGOW
CHIEF
ADMINISTRATIVE OFFICER

DAN WEAKS
DEPUTY CAO
PUBLIC SERVICES

FRED E. MONDRAGON
DEPUTY CAO
DEVELOPMENT & ENTERPRISE SERVICES

RAY R. BACA
DEPUTY CAO
PUBLIC SAFETY

July 13, 1989

Victor Chavez, P.E.
Chavez-Grieves Consulting Engineers
4600-C Montgomery Boulevard, NE
Albuquerque, New Mexico 87109

RE: DRAINAGE PLAN FOR HIGH RIDGE SHOPPING CENTER MOVIE THEATER
(J-22/D41A) ENGINEER'S STAMP DATED JULY 12, 1989

Dear Mr. Chavez:

Based on the information provided on your submittal of July 12, 1989, the above referenced plan is approved for Building Permit.

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

Also, a separate permit is required for construction within City right of way. A copy of this approval letter must be on hand when applying for the excavation permit.

Please be advised that any future development will require a separate submittal for review.

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

Cordially,

Bernie J. Montoya, C.E.
Engineering Assistant

xc: Becky Sandoval

BJM/bsj
(WP+31)

FILE COPY



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

KEN SCHULTZ
MAYOR

CLARENCE V. LITHGOW
CHIEF
ADMINISTRATIVE OFFICER

DAN WEAKS
DEPUTY CAO
PUBLIC SERVICES

FRED E. MONDRAGON
DEPUTY CAO
DEVELOPMENT & ENTERPRISE SERVICES

RAY R. BACA
DEPUTY CAO
PUBLIC SAFETY

June 22, 1989

Ricardo Sanchez
Chavez-Grieves Consulting Engineers
4600-C Montgomery Boulevard, NE
Albuquerque, New Mexico 87109

RE: DRAINAGE PLAN FOR HIGH RIDGE MOVIE THEATER
(J-22/D41A) RECEIVED JUNE 2, 1989

Dear Mr. Sanchez:

The referenced plan, dated June 2, 1989, is approved for Foundation and Rough Grading permit release only.

A resubmittal is required for building permit approval. On the resubmittal, the exact construction area for the theater, and the need for retaining walls on the north portion of the property must be addressed.

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

Cordially,

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

CAM/bsj
(WP+31)

FILE COPY



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

Ken Schultz
Mayor

UTILITY DEVELOPMENT DIVISION
HYDROLOGY SECTION
(505) 768-2650

July 17, 1987

Jackie McDowell
Chavez-Grievess Consulting Engineers
4600-C Montgomery Boulevard, NE
Albuquerque, New Mexico 87109

RE: REVISED SIDEWALK CULVERTS FOR HIGHRIDGE SHOPPING CENTER BLUE
CROSS/BLUE SHIELD BUILDING - RECEIVED JUNE 17, 1987 FOR
BUILDING PERMIT PROCESS (J-22/D41)

Dear Jackie:

The above referenced submittal dated June 12, 1987, is approved. It is your responsibility to see that the contractor is provided with copies of this approved revision. Provide this office with an additional copy including a signature block, title block, and vicinity map, for forwarding to inspection.

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

Cordially,

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

cc: Becky Sandoval, Permits

RAG/bsj

PUBLIC WORKS DEPARTMENT

Person, P.E., City Engineer

ENGINEERING GROUP

Telephone (505) 768-2500

AN EQUAL OPPORTUNITY EMPLOYER



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

MAYOR
KEN SCHULTZ

CHIEF
ADMINISTRATIVE OFFICER

GENE ROMO

DEPUTY CAO
PUBLIC SERVICES

FRANK MARTINEZ

DEPUTY CAO
PLANNING/DEVELOPMENT

BILL MUELLER

June 3, 1987

J-22/D41

Jackie McDowell
Chavez-Grieves Consulting Engineers
4600 Montgomery Blvd., NE
Building C, Suite 101
Albuquerque, NM 87109

RE: HIGHRIDGE SHOPPING CENTER - THREE STORM INLETS, PROJECT NO. 3269

Dear Jackie:

This letter shall summarize the field inspection performed by the City on June 1, 1987. In attendance were John Kelly, Storm Drainage & Arroyo Maintenance Division, Roger Green, Hydrology Division, and myself. We met on-site to review the options for the storm drainage improvements at the intersection of Chelwood Park and Indian School Rd., (both designated collector streets). During the inspection several items were concluded that will materially change the comments submitted to you from the DRC notes dated May 26, 1987. The following will summarize:

1. Additional storm drains should be RCP consistent with our May 26 letter.
2. Rip rap protection should be provided depending on the option chosen for the storm drain outfall. It is believed that the existing wire enclosed rip rap along the south bank of the channel will need to be penetrated by one or more storm drain outfalls and rip rap protection will be needed for the storm drain outfall.

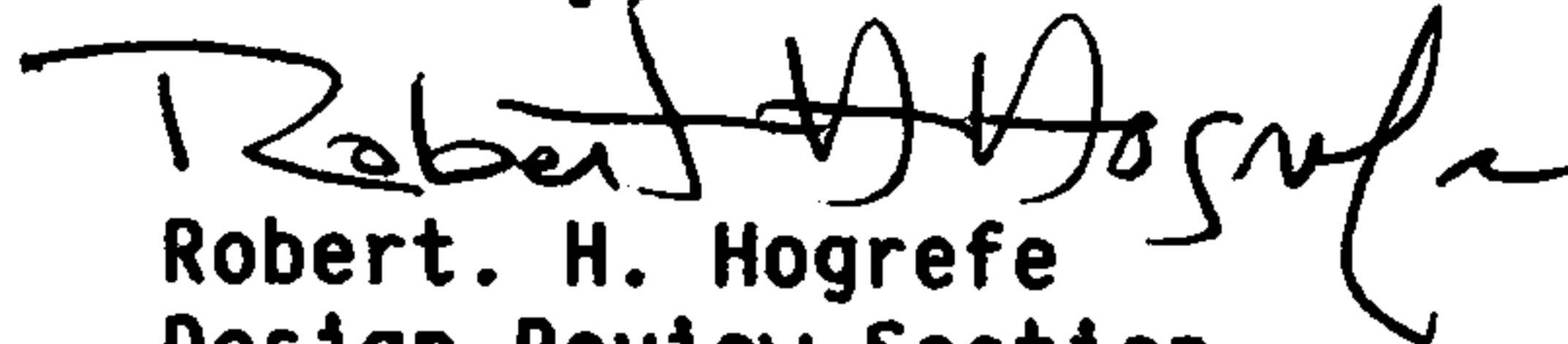
One option would be to consolidate the storm drains into one outfall line that would be able to be located 2 ft. off the existing channel bottom at the point of outfall. This would enable a greater slope for the storm drain outfall and it is not believed to create a conflict for future channel improvements when they may occur. Another option would be to consolidate the storm drain outfalls into two outfalls, where the same criteria would apply.

The option chosen (1 or 2 storm drain outfalls) should consider the degree of rip rap protection needed in the existing channel. Calculations will be needed to justify the extent of rip rap across the channel and up the north face of the channel. It may be that a consolidation into one storm drain will require complete cross section rip rapping protection. A minimum of half the arroyo (south half) would need protection.

The basic concept will allow a plunge pool into wire enclosed rip rap provided with filter blanket and cut off wall protection on all three sides of the rip rap extending upstream and downstream of the outfall. It is believed that a significant savings can be worked out depending on the calculations that justify what will provide adequate protection for the option chosen. It is not believed necessary to have three outfalls as per the present plan. However, it should be kept in mind that three additional catch basins on the south side of Indian School Rd. should be considered in sizing the connector and outfall lines.

3. Comment 3 of the May 26 DRC notes pertaining to remedial work downstream of the proposed outfall does not have to apply due to the fact that an apparent head cut will probably continue upstream to the new discharge point and remedial work is really not necessary in the existing channel.
4. I will be requesting a site survey for the arroyo, storm drain locations and for flow lines along Indian School Rd. to enable the determinations you will need to make.
5. As a final point, it should be noted that the cut off wall should extend the minimum of 1 ft. below the existing head cut located at the eastern most culvert discharge into the channel bottom.
6. For the record, it was noted in the field that the apparent street drainage from the Highridge Shopping Center area near Tramway down to the intersection of Chelwood seems to concentrate on the north side of Indian School Rd. Therefore, it is not felt necessary to require the developer to install any catch basins on the south side of Indian School Rd. The City will consider the additional storm drain construction in the future on the south side.

Sincerely,



Robert. H. Hogrefe
Design Review Section
Public Works Dept./Engineering Group

BH/tar
(5657E)

xc: Andre Houle, DRC Chairman/Design Review Section
Dan Hogan, Assistant Utility Engineer/Design-Hydrology
John Kelly, PWD/Operations-Storm Drainage Maintenance Section
Roger Green, PWD/Engineering-Hydrology

FILE COPY



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

Ken Schultz
Mayor

UTILITY DEVELOPMENT DIVISION
HYDROLOGY SECTION
(505) 768-2650

May 8, 1987

Jackie McDowell
Chavez-Grievess Consulting Engineers
4600 Montgomery Boulevard, NE Bldg. C #101
Albuquerque, New Mexico 87109

RE: REVISED GRADING & DRAINAGE PLAN SUBMITTAL OF HIGH RIDGE
SHOPPING CENTER BLUE CROSS/BLUE SHIELD BUILDING RECEIVED MAY 6,
1987 FOR BUILDING PERMIT APPROVAL (J-22/D41)

Dear Jackie:

The above referenced submittal, revised May 1, 1987, is approved for Building Permit sign-off by Hydrology for the Blue Cross/Blue Shield building. Include these approved plans with the construction sets routed for sign-off. Since the property is to be build out in phases, prior to Certificate of Occupancy approval by Hydrology, each phase will need an "as-built" plan with an Engineer's Certification submitted. On future Building Permit submittals, please include on the Drainage Plan the Top of Curb and flow line elevations of all adjacent streets.

Also, approved are the plans for construction of the two sidewalk culverts into Indian School Road. Contractor must obtain an excavation permit prior to construction of these items.

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

Cordially,

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

RAG/bsj

PUBLIC WORKS DEPARTMENT

Walter Nickerson, P.E., City Engineer

ENGINEERING GROUP

Telephone (505) 768-2500

AN EQUAL OPPORTUNITY EMPLOYER

ANDS A.P. 1002

@ Chelwood & Embudo Channel
OLF = 103 cfs

Chang-Grievos - 197.7 cfs fully developed.

1-29-87

Talked to Jackie: recalculate
TC for 20 ac watershed by time
routing down Indian School. I am
willing to approve Drainage scheme if
Transportation will give variance for
10 yr flow depth criteria.

Roger Green

FILE COPY



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

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

December 8, 1986

Jackie McDowell
Chavez-Grievess Consulting Engineers
4520 Montgomery Blvd., NE Suite #3
Albuquerque, New Mexico 87109

RE: REVISED CONCEPTUAL GRADING & DRAINAGE PLAN SUBMITTAL OF
HIGHRIDGE SHOPPING CENTER RECEIVED NOVEMBER 21, 1986 FOR SITE
DEVELOPMENT PLAN APPROVAL (J-22/D41)

Dear Jackie:

The above referenced submittal, revised November 21, 1986, is approved
for Site Development Plan sign-off by the City Engineer.

A detailed Drainage Plan will be required for review and approval at time
of Building Permit request.

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

Cordially,

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

cc: Bob Keeran

RAG/bsj

PUBLIC WORKS DEPARTMENT

Walter Nickerson, P.E., City Engineer

ENGINEERING GROUP

Telephone (505) 768-2500

AN EQUAL OPPORTUNITY EMPLOYER



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

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

October 18, 1985

Mr. Victor Chavez
Chavez-Grievess Consulting Engineers
4520 Montgomery Boulevard NE, Suite 3
Albuquerque, NM 87109

REF: DRAINAGE REPORT FOR HIGH RIDGE DEVELOPMENT (J22-D41) RECEIVED OCTOBER 2, 1985

Dear Mr. Chavez:

The above referenced plan dated October 1, 1985 is approved for Building Permit.

Please be advised that the referenced plan will be inspected as shown on the drawing with no phasing. Please attach a copy of this approved plan along with the appropriately approved "Drainage Facilities Within City Right-of-Way" document to both sets of construction plans prior to sign-off by Hydrology.

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

Sincerely,

Carlos A. Montoya
City/County Flood Plain Admin.

CAM:mrk

cc: Greg Olson

MUNICIPAL DEVELOPMENT DEPARTMENT

C. Dwayne Sheppard, P.E., City Engineer

ENGINEERING DIVISION

Telephone (505) 766-7467

AN EQUAL OPPORTUNITY EMPLOYER



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

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

September 23, 1985

Mr. Victor Chavez
Chavez-Grievess Consulting Engineers
4520 Montgomery Blvd. NE, Suite 3
Albuquerque, NM 87109

RE: DRAINAGE REPORT FOR HIGH RIDGE DEVELOPMENT (J22-D41) RECEIVED SEPT.
13, 1985

Dear Mr. Chavez:

The above referenced plan dated September 13, 1985 is approved for Building Permit.

Please be advised that the referenced plan will be inspected as shown on the drawing with no phasing. Please attach a copy of this approved plan along with the appropriately approved "Drainage Facilities Within City Right-of-Way" document to both sets of construction plans prior to sign-off by Hydrology.

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

Sincerely,

Carlos A. Montoya
City/County Flood Plain Admin.

CAM/cl

cc: Greg Olson

MUNICIPAL DEVELOPMENT DEPARTMENT

C. Dwayne Sheppard, P.E., City Engineer

ENGINEERING DIVISION

Telephone (505) 766-7467

AN EQUAL OPPORTUNITY EMPLOYER

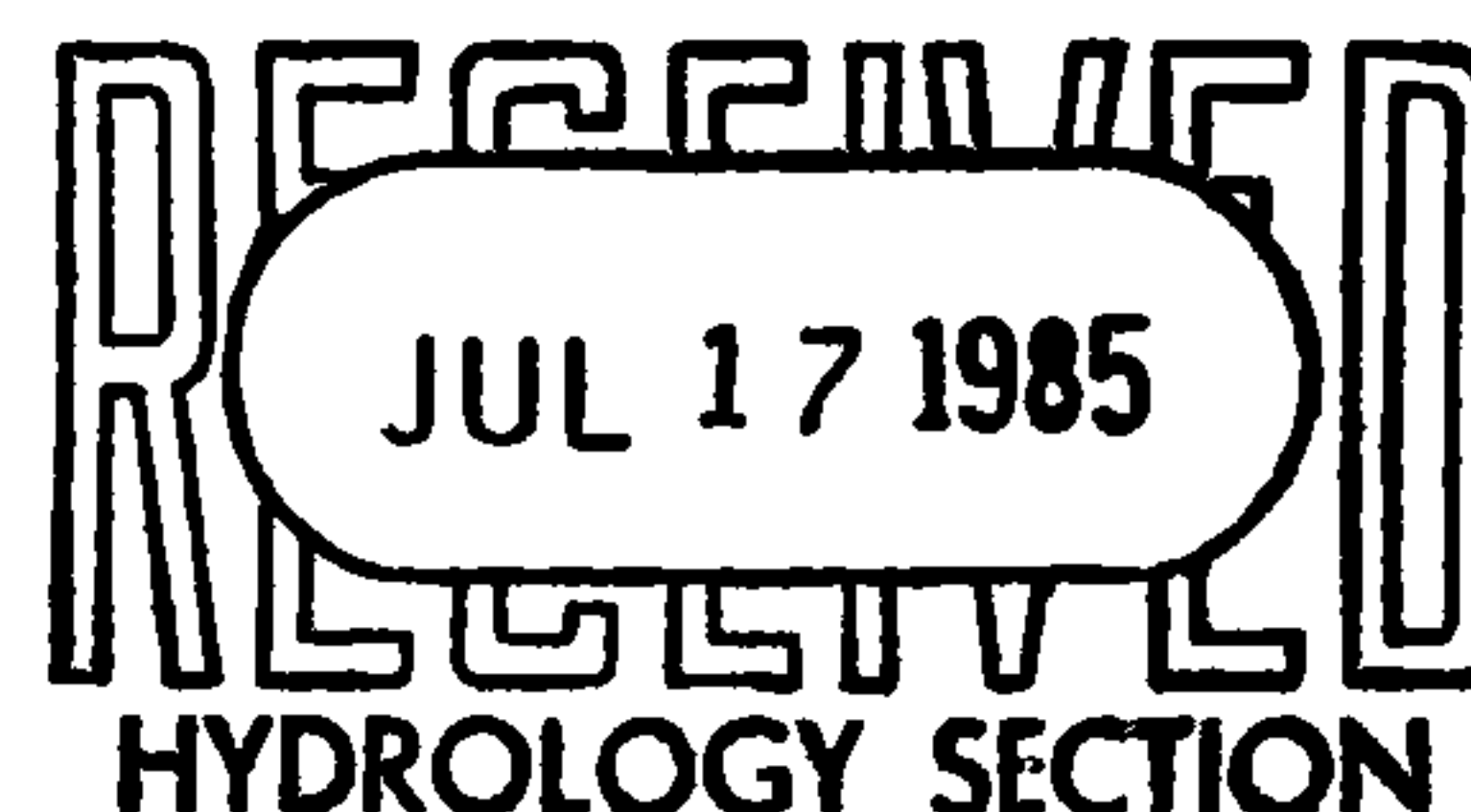


**CHAVEZ
GRIEVES / CONSULTING ENGINEERS, INC.**

4520 MONTGOMERY BLVD., SUITE 3
ALBUQUERQUE, N.M. 87109
(505) 881-7376

July 16, 1985

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



RE: DRAINAGE REPORT FOR HIGH RIDGE DEVELOPMENT
PHASE II (J22/D41)

Dear Carlos:

In response to your letter dated July 9, 1985, I offer the following:

All flows from the watershed (see enclosed watershed delineation) will be intercepted at the intersection of Indian School Road and Chelwood Park Blvd. by existing catch basins which discharge into the Embudo Drainage Easement.

The total proposed discharge from the watershed:

$$Q(100) = C_i A = (0.59)(4.32)(70) = 178 \text{ cfs}$$

$$Q(10) = (178)(0.657) = 117.2 \text{ cfs}$$

The 10-year storm depth of flow in Indian School Road:

$$Q = 1.486 A^{5/3} S^{1/2} / n$$

$$Q(10) = \text{existing} = 103 \text{ cfs}$$

$$Q(10) \text{ proposed} = 117.2 \text{ cfs}$$

$$A = (d - 0.48)(24)(2) + (0.48)(24) \\ = 48d - 11.52$$

$$p = 2(24 + d + d - 0.48) = 47.04 + 4d$$

$$n = 0.017$$

$$s = 0.03$$

$$Q(10) = (1.486)(48d - 11.52)^{5/3} (0.03)^{1/2} / (0.017)(47.04 + 4d)^{2/3}$$

$$d(\text{existing}) = 0.543 \text{ ft.}$$

$$d(\text{proposed}) = 0.568 \text{ ft.}$$

Your timely assistance is appreciated.

Sincerely,

CHAVEZ-GRIEVES CONSULTING ENGINEERS, INC.

Victor J. Chavez

Victor J. Chavez, P.E.

JSM:mf



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

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

January 3, 1985

Victor Chavez
Chavez-Grievies Consulting Engineers
4520 Montgomery Blvd., NE Suite 3
Albuquerque, New Mexico 87109

RE: CONCEPTUAL DRAINAGE REPORT FOR HIGH RIDGE DEVELOPMENT (J-22/D41)
RECEIVED NOVEMBER 16, 1984

Dear Vic:

The above referenced submittal is hereby approved for concept. Please provide a detailed grading and drainage plan for review and approval prior to Hydrology sign-off for the building permit set.

Should you have any questions or comments, please call this office at 766-7644.

Cordially,

Billy J. Goolsby, C.E.
Design Hydrology Section

BJG/bsj

MUNICIPAL DEVELOPMENT DEPARTMENT

C. Dwayne Sheppard, P.E., City Engineer

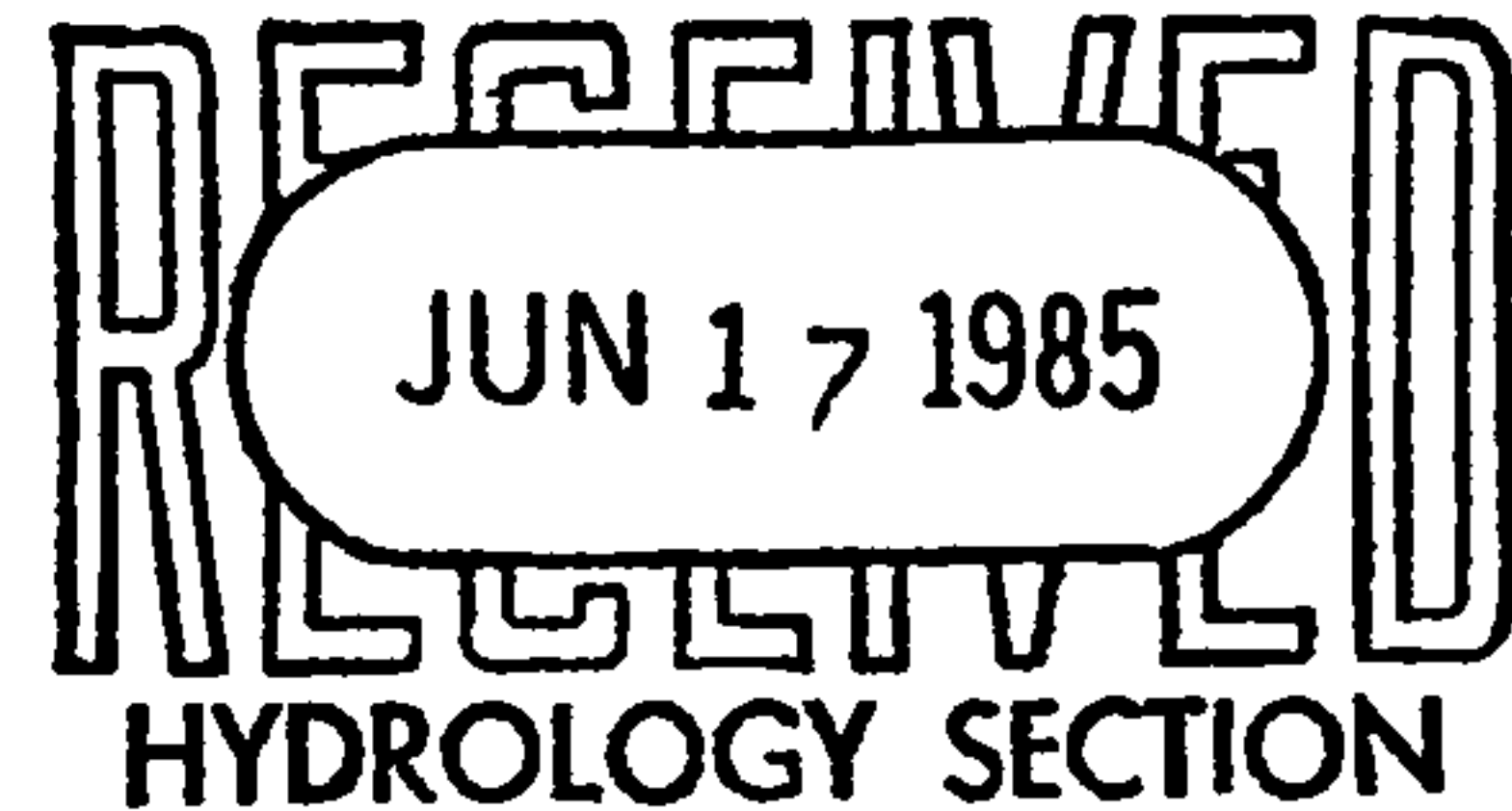
ENGINEERING DIVISION

Telephone (505) 766-7467

AN EQUAL OPPORTUNITY EMPLOYER

PHASE II
DRAINAGE PLAN

HIGH RIDGE DEVELOPMENT



THE STUDY SITE IS LOCATED ON THE NORTHWEST CORNER OF THE INTERSECTION OF TRAMWAY BLVD. AND INDIAN SCHOOL RD. N.E. CONTAINING APPROXIMATELY 9.9518 ACRES. THE SITE IS PRESENTLY UNDEVELOPED AND SLOPES FROM EAST TO WEST WITH AN AVERAGE SLOPE OF 5.5 PERCENT. FLOWS FROM THE SITE DISCHARGE DIRECTLY TO INDIAN SCHOOL RD. AND EASTRIDGE DR. AND ARE TRANSPORTED NORTHWEST TO CATCH BASINS LOCATED ON THE EAST SIDE OF THE INTERSECTION OF INDIAN SCHOOL RD. AND CHELWOOD PARK BLVD. THE CATCH BASINS DIRECT THE FLOWS TO THE EMBUDO DRAINAGE EASEMENT. ACCORDING TO THE ALBUQUERQUE MASTER DRAINAGE STUDY, THE EMBUDO DRAINAGE EASEMENT HAS THE CAPACITY TO HANDLE THE PROPOSED FLOWS.

OFF-SITE FLOWS HAVE NO IMPACT ON THE PROPOSED DEVELOPMENT. FLOWS EAST OF THE SITE ARE INTERCEPTED BY TRAMWAY BLVD. AND TRANSPORTED TO A LINED CHANNEL AT TRAMWAY BLVD. AND LOMAS BLVD. OTHER ADJACENT AREAS NORTH, WEST, AND SOUTH OF THE SITE ARE PREVENTED FROM CONTRIBUTING FLOWS TO THE SITE BY EXISTING GRADES.

THE PROPOSED DEVELOPMENT IS DIVIDED INTO; PHASE I, THE SHOPPING CENTER AND PHASE II, THE APARTMENT COMPLEX. PHASE I WILL PROVIDE TEMPORARY PONDING FOR A PORTION OF THE SITE. THE REMAINING PORTIONS OF PHASE I AND PHASE II WILL FREE DISCHARGE TO INDIAN SCHOOL RD. AND EASTRIDGE DR. THE TOTAL DISCHARGE FROM THE SITE WILL NOT EXCEED EXISTING DOWNSTREAM CAPACITIES AS SHOWN IN THE ATTACHED CALCULATIONS. THESE CALCULATIONS ARE FOR THE APARTMENT COMPLEX "PHASE II".

IF CONSTRUCTED AS PROPOSED, THE NEW DEVELOPMENT WILL NOT BE SUSCEPTIBLE TO FLOODING NOR INCREASE THE THREAT OF FLOODING IN DOWNSTREAM AREAS IN THE EVENT OF A 100-YEAR STORM.

EXISTING ON-SITE CONDITIONS:

- not fully developed ?!

A = 9.9518 ACRES; SCS SOILS GROUP B

I = 1250 FT.

S = (5850-5782)/1250 = 0.0544

$T_c = 0.0078 (1250)^{0.77} / (0.0544)^{0.385} = 5.80 \text{ MIN.}$

USE $T_c = 10 \text{ MIN.}$

I = 2.2 IN./HR. PLATE 22.2 D-2

6 HR. RAINFALL = 2.4 IN. PLATE 22.2 D-1

i = (2.2)(2.4) = 5.28 IN./HR.

PERCENT IMPERVIOUS - 0%

C = 0.34 PLATE 22.2 C-1

$Q(100) = (0.34)(5.28)(9.9518) = 17.87 \text{ CFS}$ ✓

$$Q(10) = (0.657)(17.87) = 11.74 \text{ CFS}$$

$$CN = 65 \quad \text{PLATE 22.2 C-2}$$

$$\text{DIRECT RUNOFF} = 0.3 \text{ IN.}$$

$$V(100) = (0.3)(9.9518)(43560)/12 = 10838 \text{ CU. FT.}$$

$$V(10) = (0.657)(10838) = 7120 \text{ CU. FT.}$$

PROPOSED ON-SITE CONDITIONS:

$$\text{PERCENT IMPERVIOUS} = 80\%$$

$$C = 0.76, \quad \text{PLATE 22.2 C-1}$$

$$Q(100) = (0.76)(5.28)(9.9518) = 39.93 \text{ CFS} \quad \checkmark$$

$$Q(10) = (0.657)(39.93) = 2624 \text{ CFS}$$

$$CN = 88 \quad \text{PLATE 22.2 C-2}$$

$$\text{DIRECT RUNOFF} = 1.3 \text{ IN.} \quad \text{PLATE 22.2 C-4}$$

$$V(100) = (1.3)(9.9518)(43560)/12 = 46963 \text{ CU. FT.}$$

$$V(10) = (0.657)(46963) = 30854 \text{ CU. FT.}$$

DOWNSTREAM STREET CAPACITY (INDIAN SCHOOL ROAD):

$$S = 0.029$$

$$Q = 95(2) = 190 \text{ CFS} \quad \text{PLATE 22.2 D-3}$$

EXISTING DOWNSTREAM REQUIREMENTS:

$$A = 70 \text{ ACRES (WATERSHED AREA)}$$

$$L = 3500 \text{ FT.}$$

$$S = (5850-5720)/3500 = 0.0371$$

$$T_c = 0.0078 (3500)^{0.77} / (0.0371)^{0.385} = 14.9 \text{ MIN.}$$

$$I = 1.8 \text{ IN./HR.} \quad \text{PLATE 22.2 D-2}$$

$$i = (1.8)(2.4) = 4.32 \text{ IN./HR.}$$

$$V = 3500 / (14.9)(60) = 3.92 \text{ FT./SEC.}$$

$$\text{PERCENT IMPERVIOUS} = 38\% \text{ (AVERAGE)}$$

$$C = 0.52, \quad \text{PLATE 22.2 C-1}$$

$$Q(100) = (0.52)(4.32)(70) = 157 \text{ CFS} \quad \checkmark$$

$$Q(10) = (0.657)(157) = 103 \text{ CFS}$$

$$CN = 77 \quad \text{PLATE 22.2 C-2}$$

$$\text{DIRECT RUNOFF} = 0.7 \text{ IN.} \quad \text{PLATE 22.2 C-4}$$

$$V(100) = (0.7)(70)(43560)/12 = 177870 \text{ CU. FT.}$$

PROPOSED DOWNSTREAM REQUIREMENTS:

$$Q(\text{PROPOSED}) = Q(\text{EXISTING}) + Q(\text{DUE TO PROPOSED DEVELOPMENT APARTMENT COMPLEX})$$

$$Q(\text{PROPOSED}) = 157 + (39.93 - 17.87)$$

$$= 179.0 \text{ CFS}$$

w/ PHASE II developed

PHASE I undeveloped

$$\begin{array}{r} 190 \\ - 179 \\ \hline \end{array}$$

11 cfs excess capacity

CONCEPTUAL DRAINAGE PLAN - PHASE I & II

HIGH RIDGE DEVELOPMENT COMPLEX

THE STUDY SITE IS LOCATED ON THE NORTHWEST CORNER OF THE INTERSECTION OF TRAMWAY BLVD. AND INDIAN SCHOOL RD. N.E. CONTAINING APPROXIMATELY 19.4470 ACRES. THE SITE (PHASE I & PHASE II) IS PRESENTLY 100% UNDEVELOPED AND SLOPES FROM EAST TO WEST WITH AN AVERAGE SLOPE OF 5.5 PERCENT. FLOWS FROM THE SITE DISCHARGE DIRECTLY TO INDIAN SCHOOL RD. AND EASTRIDGE DR. AND ARE TRANSPORTED NORTHWEST TO CATCH BASINS LOCATED ON THE EAST SIDE OF THE INTERSECTION OF INDIAN SCHOOL RD. AND CHELWOOD PARK BLVD. THE CATCH BASINS DIRECT THE FLOWS TO THE EMBUDO DRAINAGE EASEMENT. ACCORDING TO THE ALBUQUERQUE MASTER DRAINAGE STUDY, THE EMBUDO DRAINAGE EASEMENT HAS THE CAPACITY TO HANDLE THE PROPOSED FLOWS.

OFF-SITE FLOWS HAVE NO IMPACT ON THE PROPOSED DEVELOPMENT. FLOWS EAST OF THE SITE ARE INTERCEPTED BY TRAMWAY BLVD. AND TRANSPORTED TO A LINED CHANNEL AT TRAMWAY BLVD. AND LOMAS BLVD. OTHER ADJACENT AREAS NORTH, WEST, AND SOUTH OF THE SITE ARE PREVENTED FROM CONTRIBUTING FLOWS TO THE SITE BY EXISTING GRADES.

THE PROPOSED DEVELOPMENT WILL BE DEVIDED INTO; PHASE I, THE SHOPPING CENTER AND PHASE II, THE APARTMENT COMPLEX. PHASE I WILL PROVIDE TEMPORARY PONDING FOR A PORTION OF THE SITE.

THE REMAINING PORTIONS OF PHASE I AND PHASE II WILL FREE DISCHARGE TO INDIAN SCHOOL RD. AND EASTRIDGE DR. THE TOTAL DISCHARGE FROM THE SITE WILL NOT EXCEED EXISTING DOWNSTREAM CAPACITIES AS SHOWN IN THE ATTACHED CALCULATIONS.

IF CONSTRUCTED AS PROPOSED, THE NEW DEVELOPMENT WILL NOT BE SUSCEPTIBLE TO FLOODING NOR INCREASE THE THREAT OF FLOODING IN DOWNSTREAM AREAS IN THE EVENT OF A 100-YEAR STORM. *Prose*

PHASE I. *shopping Center*

EXISTING ON-SITE CONDITION:

A = 10 ACRES; SCS SOILS GROUP B

L = 1000 FT.

S = (5844-5788)/1000 = 0.0560

$T_c = 0.0078 (1000)^{0.77} / (0.0560)^{0.385} = 4.83 \text{ MIN.}$

USE $T_c = 10 \text{ MIN.}$

I = 2.2 IN./HR. PLATE 22.2 D-2

6-HR. RAINFALL = 2.4 IN. PLATE 22.2 D-1

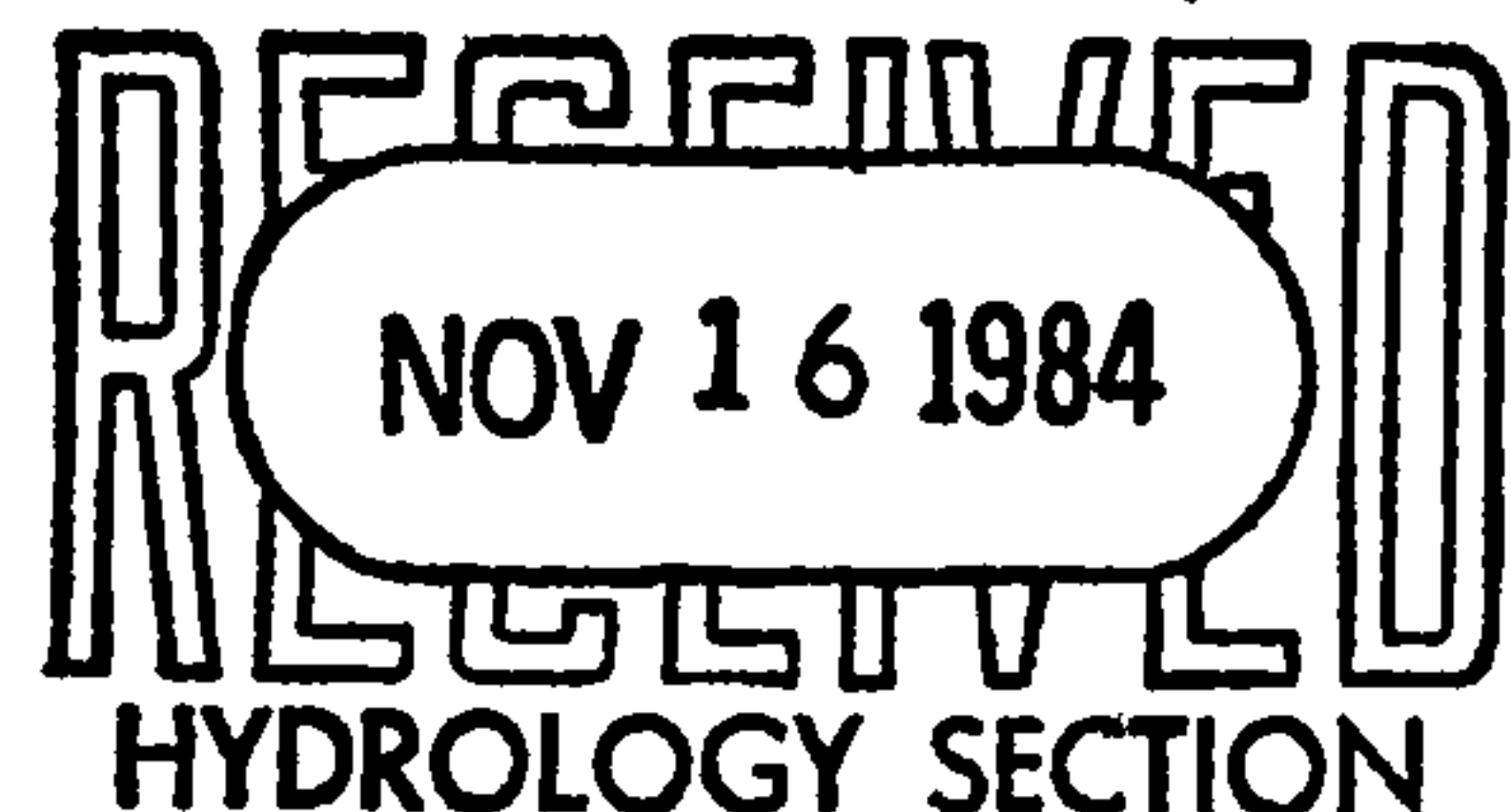
i = (2.2)(2.4) = 5.28 IN./HR.

PERCENT IMPERVIOUS = 0%

C = 0.34, PLATE 22.2 C-1

$Q(100) = (0.34)(5.28)(10) = 17.95 \text{ CFS}$

$Q(10) = (0.657)(17.95) = 11.79 \text{ CFS}$



CN = 65 PLATE 22.2 C-2
DIRECT RUNOFF = 0.3 IN.
 $V(100) = (0.3)(10)(43560)/12 = 10890$ CU. FT.
 $V(10) = (0.657)(10890) = 7155$ CU. FT.

PROPOSED ON-SITE CONDITIONS:

PERCENT IMPERVIOUS = 88% METHOD: SEE PLATE 22.2 E-1
(RUNOFF HYDROGRAPH)

C = 0.84 PLATE 22.2 C-1

AREA-FREE DISCHARGE = 6.5 ACRES

$Q(100)\text{-FREE DISCHARGE} = (0.84)(5.28)(6.5) = 28.8$ CFS

AREA-RUNOFF TO POND = 10-6.5 = 3.5 ACRES

VOL. OF RUNOFF TO POND = $(1.6)(3.5)(43560)/12 = 20328$ CU. FT.

$Q(100)\text{-DISCHARGE TO POND} = (0.84)(5.28)(3.5) = 15.5$ CFS

$T = 2V/Q = (2)(20328)/(15.5)(60) = 43.7$ MIN.

$Q(\text{MAX}) = \text{FROM POND} = 1$ CFS

REQ'D VOL. OF POND = $(39.5)(60)(15.5-1)/2 = 17183$ CU. FT.

AREA OF POND = 12000 SQ. FT.

AVG. DEPTH OF POND = $17183/12000 = 1.4' = 17"$

TIME TO DRAIN POND = $17183/3600 = 4.77$ HRS.

$Q(100)\text{-TOTAL DISCHARGE} = 28.8+1 = 29.8$ CFS

$Q(10) = (0.657)(29.8) = 19.58$ CFS

CN = 92 PLATE 22.2 C-2

DIRECT RUNOFF = 1.6 IN. PLATE 22.2 C-4

$V(100) = (1.6)(10)(43560)/12 = 58080$ CU. FT.

$V(10) = (0.657)(58080) = 38159$ CU. FT.

PHASE II. - Apartments

EXISTING ON-SITE CONDITIONS:

A = 9.447 ACRES; SCS SOILS GROUP B

I = 1250 FT.

$S = (5850-5782)/1250 = 0.0544$

$T_c = 0.0078 (1250)^{0.77} / (0.0544)^{0.385} = 5.80$ MIN.

USE $T_c = 10$ MIN.

I = 2.2 IN./HR. PLATE 22.2 D-2

6 HR. RAINFALL = 2.4 IN. PLATE 22.2 D-1

$i = (2.2)(2.4) = 5.28$ IN./HR.

PERCENT IMPERVIOUS - 0%

C = 0.34 PLATE 22.2 C-1

$Q(100) = (0.34)(5.28)(9.447) = 16.96$ CFS

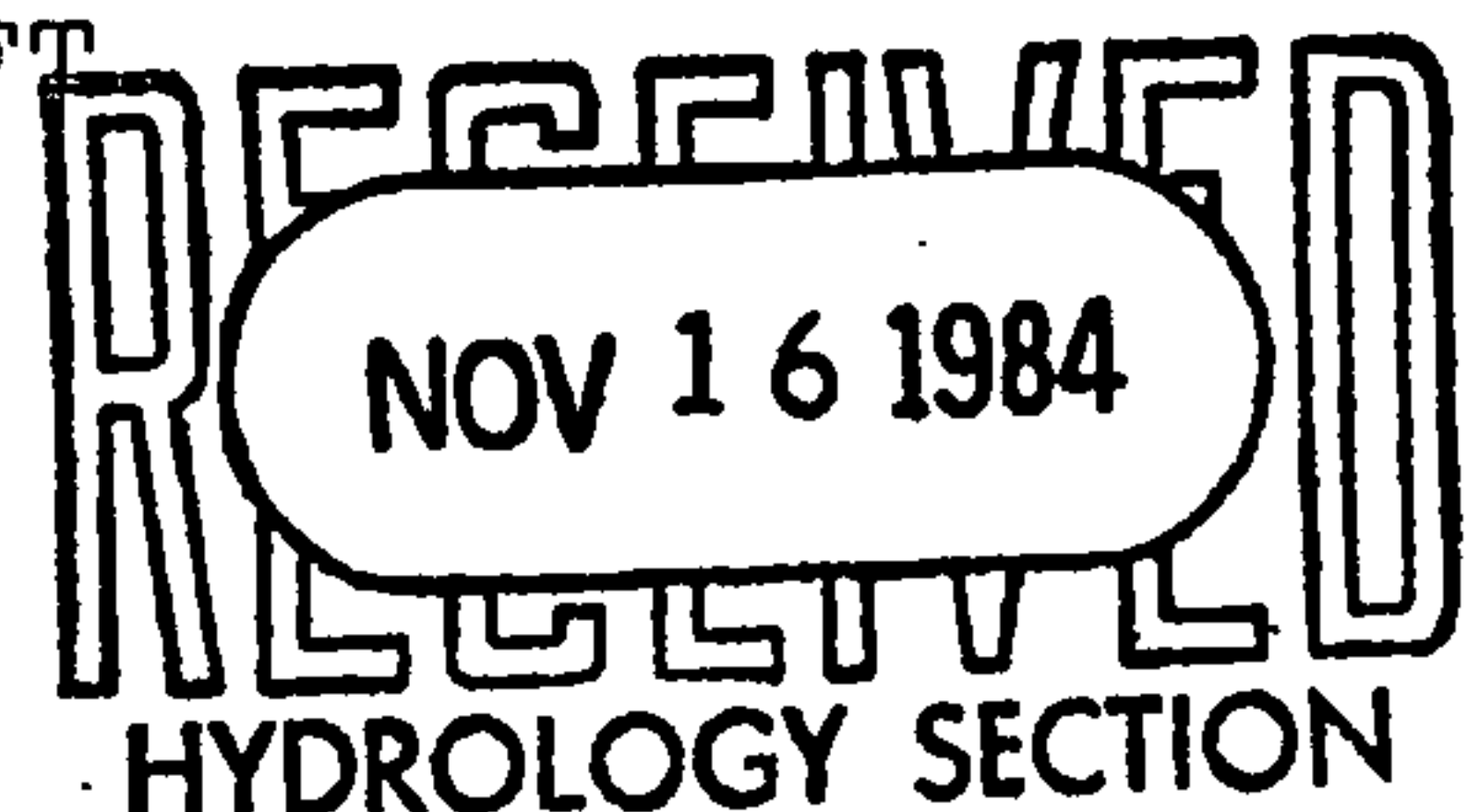
$Q(10) = (0.657)(16.96) = 11.14$ CFS

CN = 65 PLATE 22.2 C-2

DIRECT RUNOFF = 0.3 IN.

$V(100) = (0.3)(9.447)(43560)/12 = 10288$ CU. FT.

$V(10) = (0.657)(10288) = 6759$ CU. FT.



PROPOSED ON-SITE CONDITIONS:

PERCENT IMPERVIOUS = 80%

C = 0.76 PLATE 22.2 C-1

$Q(100) = (0.76)(5.28)(9.447) = 37.91 \text{ CFS}$

$Q(10) = (0.657)(37.91) = 24.91 \text{ CFS}$

CN = 88 PLATE 22.2 C-2

DIRECT RUNOFF = 1.3 IN. PLATE 22.2 C-4

$V(100) = (1.3)(9.447)(43560)/12 = 44580 \text{ CU. FT.}$

$V(10) = (0.657)(44580) = 29289 \text{ CU. FT.}$

DOWNSTREAM STREET CAPACITY (INDIAN SCHOOL ROAD):

S = 0.029

Q = 95(2) = 190 CFS PLATE 22.2 D-3

EXISTING DOWNSTREAM REQUIREMENT:

A = 70 ACRES (WATERSHED AREA)

L = 3500 FT.

$S = (5850-5720)/3500 = 0.0371$

$T_c = 0.0078 (3500)^{0.77} / (0.0371)^{0.385} = 14.9 \text{ MIN.}$

I = 1.8 IN./HR. PLATE 22.2 D-2

i = (1.8)(2.4) = 4.32 IN./HR.

$V = 3500 / (14.9)(60) = 3.92 \text{ FT./SEC.}$

PERCENT IMPERVIOUS = 38% (AVERAGE)

C = 0.52 PLATE 22.2 C-1

$Q(100) = (0.52)(4.32)(70) = 157 \text{ CFS}$

$Q(10) = (0.657)(157) = 103 \text{ CFS}$

CN = 77 PLATE 22.2 C-2

DIRECT RUNOFF = 0.7 IN. PLATE 22.2 C-4

$V(100) = (0.7)(70)(43560)/12 = 177870 \text{ CU. FT.}$

PROPOSED DOWNSTREAM REQUIREMENTS:

$Q(\text{PROPOSED}) = Q(\text{EXISTING}) + Q(\text{DUE TO PROPOSED DEVELOPMENT})$

$Q(\text{PROPOSED}) = 157 + (29.8 - 17.95) + (37.91 - 16.96)$
 $= 189.80 \text{ CFS}$

11.9 cfs
allowable

NO ? 21.0 cfs

RECEIVED
NOV 16 1984
HYDROLOGY SECTION