CITY OF
Albuquerque

March 13, 1998

Michael Baker Jr., Inc.
3601 Eisenhower Avenue, Suite 600
Alexandria, Virginia 22304-6439

FEMA Case Number: 96-06-190R
Community: City of Albuquerque,
New Mexico
Community No.: 350002

Attention: Mr. Monther S. Madanat

Dear Mr. Madanat:

This submittal is in response to the letter from the Federal Emergency Management Agency (FEMA) to the City of Albuquerque dated August 16, 1996 requesting additional data in order for FEMA to prepare a Letter of Map Revision for the North Arroyo Del Pino through the Quintessence Subdivision.

FEMA's letter requested the application and certification forms, the As-built plans certified by a registered professional engineer, an officially adopted operation and maintenance plan and certification of compaction of the fill material. These have been enclosed with this submittal along with the initial review fee of $2300.00.

City Hydrology has reviewed and approved the construction of the project as well as the contents of this submittal. The City would greatly appreciate your prompt response and approval for this Letter of Map Revision. If you have any questions concerning this submittal, please call me at (505) 924-3982. If you have any technical questions regarding the analysis, please call Mr. Kent Whitman at Community Sciences Corporation.

Sincerely,

Susan Calongne

Susan M. Calongne, P.E.
City/County Floodplain Administrator

Attachments

c: Kent M. Whitman, P.E., Community Sciences Corporation (letter only)
Samar Dababneh, Paradise West Inc. (letter only)
Ellery Biathrow, P.E. (letter only)
File D21/D3, (letter only)

CITY OF
Albuquerque
Public Works Department

June 17, 1997

Martin J. Chávez, Mayor

Robert E. Gurulé, Director

CERTIFICATION OF COMPLETION AND ACCEPTANCE

Samar Dababneh
President
5016 La Fiesta Drive NE
Albuquerque, NM 87109

RE: QUINTESSENCE UNTI 2; CITY PROJECT NO. 5206; MAP NO. D-21

Dear Ms. Dababneh:

This is to certify that the City of Albuquerque accepts the construction of the infrastructure provided in the Work Order Construction Plans, City Project No. 5206.93 as compliance with completing the required public infrastructure listed in the Subdivision Improvements Agreement (SIA) Paradise West, Inc. and the City of Albuquerque executed on March 27,1996.

Having satisfied the requirements referenced above, the SIA and any associated Financial Guaranty, held by the City, can now be released. The Contractors one-year warranty period started at the date of acceptance by the Chief Construction Engineer, dated April 9, 1997.

Please be advised this Certificate of Completion and Acceptance shall only become effective upon final plat approval and filing in the office of the Bernalillo County Clerk's Office.

Should you have any questions or issues regarding this project, please contact me.

Sincerely,

Ricardo B. Roybal, P.E.
City Engineer
Dev. & Bld. Services Div.
Public Works Department

CITY OF
Albuquerque

Public Works Department

April 16, 1997

Martin J. Chávez, Mayor

Robert E. Gurulé, Director

CERTIFICATION OF COMPLETION AND ACCEPTANCE

Samar Dababneh
President
Paradise West, Inc.
5016 La Fiesta N.E.
Albuquerque, NM 87109

RE: QUINTESSENCE SUB'D. PHASE 3; CITY PROJECT NO. 5206, MAP NO. D-21

Dear Ms. Dababneh:

This is to certify that the City of Albuquerque accepts the construction of the infrastructure provided in the Work Order Construction Plans, City Project No. 5206.92 as compliance with completing the required public infrastructure listed in the Subdivision Improvements Agreement (SIA) PARADISE WEST, INC. and the City of Albuquerque executed on March 22, 1996.

Having satisfied the requirements referenced above, the SIA and any associated Financial Guaranty, held by the City, can now be released. The Contractors one-year warranty period started at the date of acceptance by the Chief Construction Engineer, dated April 2, 1997.

Please be advised this Certificate of Completion and Acceptance shall only become effective upon final plat approval and filing in the office of the Bernalillo County Clerk's Office.

Should you have any questions or issues regarding this project, please contact me.

Sincerely,

Ricardo B. Roybal, P.E.
City Engineer
Dev. & Bld. Services Div.
Public Works Department

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

April 9, 1997

CERTIFICATE OF WORK ORDER COMPLETION

Sivage Thomas Homes Inc.
5141 Masthead N.E.
Albuquerque, NM 87109

RE: QUINTESSENCE SUBDIVISION UNIT 2 PROJECT NO. 5206.93 MAP NO. (D-21)

Dear Sir:

This is to certify that the City of Albuquerque accepts Project No. 5206.93 as being completed according to approved plans and construction specifications. Please be advised this certificate of completion and acceptance shall only become effective upon final plat approval and filing in the office of the Bernalillo County Clerk's Office.

The project is described as follows:

- Sanitary sewer improvements using a gravity flow system.
- Potable water distribution system; and fire protection as per plan.
- Storm drain improvements for the interior streets, collecting runoff by drop inlets and transporting the runoff by underground pipe to the Unit 1 drainage system.
- Asphalt concrete streets, Portland cement concrete curbs and gutters, wheelchair ramps within the subdivision.
- Built standard curb and gutter on the south half of the major local on the southside only 16'. A permanent section south plus 8' and a temporary section north.
- A 20' right of way with 10' wide improved trail for public access to trail system.

City of Albuquerque

P. O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103
PUBLIC WORKS DEPARTMENT

April 2, 1997

CERTIFICATE OF WORK ORDER COMPLETION

Sivage Thomas Homes Inc.
5141 Masthead N.E.
Albuquerque, NM 87109

RE: QUINTESSENCE SUBDIVISION UNIT 3 PROJECT NO. 5206.92 MAP NO. (D-21)

Dear Sir:

This is to certify that the City of Albuquerque accepts Project No. 5206.92 as being completed according to approved plans and construction specifications. Please be advised this certificate of completion and acceptance shall only become effective upon final plat approval and filing in the office of the Bernalillo County Clerk's Office.

The project is described as follows:

- Sanitary sewer improvements using a gravity flow system.
- Potable water distribuition system; and fire protection as per plan.
- Storm drain improvements for the interior streets, collecting runoff by drop inlets and transporting the runoff by underground pipe to the Unit 1 drainage system.
- Asphalt concrete streets, Portland cement concrete curbs and gutters, wheelchair ramps.
- An open drainage channel within the public drainage right-of-way.

The contractor's correction period began the date of this letter and is effective for a period of one (1) year.

Sincerely,

Russell B. Givler, P.E.
Chief Construction Engineer,
Public Works Department

CITY OF
Albuquerque

Martin J. Chávez, Mayor

September 18, 1996

James D. Hughes, P.E.
Community Sciences Corporation
Post Office Box 1328
Corrales, New Mexico 87048

RE: AMENDED GRADING AND DRAINAGE PLAN FOR QUINTESSENCE UNIT 3 (D21/D3), SUBMITTED FOR REVISED GRADING AND FINAL PLAT APPROVAL, ENGINEER'S STAMP DATED 9/3/96.

Dear Mr. Hughes:

City Hydrology has no objection to the above referenced amended Grading and Drainage Plan for Unit 3, however, this plan must be finalized by the DRB. The revision to construct the drainage channel on the north side of Lots 1 through 7, Block 21, to City Standards is acceptable.

After construction is complete, acceptance of the channel by the City will be required prior to release of financial guarantees. The Grading and Drainage Certification of the plan approved at DRB is also required prior to release of financial guarantees.

If you should have any questions, please feel free to call me at 768-2666.

Sincerely,

Susan Calongne

Susan M. Calongne, P.E.
City/County Floodplain Administrator

c: Fred Aguirre, DRB-94-552
File

ALBUQUERQUE NEW MEXICO 1706

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

December 6, 1995

James D. Hughes, P.E.
Community Sciences Corporation
Post Office Box 1328
Corrales, New Mexico 87048

RE: GRADING AND EROSION CONTROL PLAN FOR QUINTESSENCE, UNIT 3, (D21/D3) SUBMITTED FOR FINAL PLAT APPROVAL AND ROUGH GRADING APPROVAL, ENGINEER'S STAMP DATED 11/8/95.

Dear Mr. Hughes:

The above referenced Grading and Erosion Control plan is acceptable for rough grading approval. The proposed grades, however, do not match the grades which were approved by DRB on August 29, 1995. The revised grading plan for the entire subdivision must be submitted to and approved by the DRB prior to sign-off of the rough grading plan for this Unit.

Prior to sign-off for Final Plat approval, the following comments must be addressed:

1. Financial guarantees must be in place prior to final plat approval.

2. The typical 10' wide private drainage easements shown between lots must be identified on the plat.

3. The plat must identify whether the proposed concrete channel on the north side is to be within a public or private drainage easement or public right-of-way. If it is to be within public right-of-way, please make sure that the minimum required right-of-way width is provided. If the City is to maintain this channel, then the design must be approved by Storm Drain Maintenance prior to Work Order approval.

In order for the City to maintain the concrete channel, the following comments must be addressed:

4. A drivepad and pipe gate must be provided on Holbrook in order for City Maintenance to have access to the channel. The drop inlet within the channel must have a grate that can withstand vehicular loading. These structures are to be built with Unit 1, therefore these changes should be made to the plans for Unit 1.

5. The channel must have a minimum inside dimension of 12 feet wide in order for maintenance vehicles to maneuver through the channel. At the curve in the northeast corner, the channel must have a radius of 25' on the inside of the curve. Please make these minor revisions to the plat.

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

March 24, 1994

Cliff A. Spirock
Community Sciences
P.O. Box 1329
Corrales, NM 87048

RE: QUINTESSENCE SECTOR DEVELOPMENT PLAN
LETTER DATED 1/21/94.

Dear Mr. Spirock:

Your letter dated January 21, 1994 was reviewed by Cliff Anderson and myself. It appears to accurately reflect our meeting on 1/7/94. Consequently, the proposed modifications to the Sector Development Plan are acceptable to AMAFCA and the Hydrology Division.

However, final sign-off of the Sector Development Plan will require the updating of the Quintessence drainage report per Gilbert's letter dated 2/10/93 to Doug Hughes of your office.

Upon approval of this updated plan, I am authorized to sign the Sector Plan for AMAFCA and the City Engineer.

If you should have any questions, please feel free to contact me at 768-2668.

Sincerely,

Fred J. Aguirre, P.E.
PWD/Hydrology Division

FJA/dl/WPHYD/8402

c: Cliff Anderson
File

LARRY A. BLAIR
EXECUTIVE ENGINEER

Albuquerque
Metropolitan
Arroyo
Flood
Control
Authority

2600 PROSPECT N.E. - ALBUQUERQUE, N. M. 87107
TELEPHONE (505) 884-2215

September 21, 1992

Richard J. Heggen, PE, PH, PhD
620 Ridgecrest, SE
Albuquerque, NM 87108

RE: Hydrology/Hydraulic Review "Appendix A, Conceptual Drainage Plan for Quintessence Sector Development Plan", Fifth Supplement to Agreement for Engineering Services Hydrology/Hydraulic Review, dated December 3, 1990

You are authorized to proceed with hydrology and hydraulics review for the above-referenced project. Your proposal letter dated July 17, 1992 is acceptable to AMAFCA. This work will be under the Agreement for Engineering Services dated December 3, 1990. Fees for this work will be on a unit price basis with a maximum fee not to exceed $700 plus applicable gross receipts tax.

AMAFCA's contact on this project will be Cliff Anderson.

Sincerely,
AMAFCA

Larry A. Blair, P.E.
Executive Engineer

LAB:ij

copy: Fred Aguirre, Hydrologist, City of Albuquerque, PWD
Steve Metro, Wilson and Company

community
sciences
corporation

D21/D003

2 of 2

DRAINAGE REPORT

FOR

QUINTESSENCE SUBDIVISION
ZONE ATLAS D-21

PREPARED FOR

PARADISE WEST INC.

PREPARED BY

COMMUNITY SCIENCES CORPORATION
P. O. BOX 1328
CORRALES, NEW MEXICO 87048

DECEMBER, 1994

REVISED JANUARY 1995
REVISED MARCH, 1995
REVISED SEPTEMBER 1995

9-19-95

James D. Hughes

James D. Hughes, P.E.

JAMES D. HUGHES
11674
NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER

CSC#323-04-043/323-04AJ.REP

P.O. Box 1328
Corrales, New Mexico 87048
Tel (505) 897-0000 Fax (505) 898-5195

SURVEYING
LAND PLANNING
CIVIL ENGINEERING
DEVELOPMENT CONSULTANTS

Date: December,1995

DRAINAGE EASEMENT

Grant of Drainage Easement, Paradise West, Inc., A New Mexico Corporation ("Grantor"), whose address is 5016 La Fiesta Drive, NE, Albuquerque, NM 87109, and the City of Albuquerque, a New Mexico Municipal Corporation ("City"), whose address is P. O. Box 1293, Albuquerque, New Mexico, 87103.

Grantor grants to the City an exclusive, drainage easement ("Easement") in, over, upon and across the real property described on Exhibits "A" and "A-1" attached hereto ("Property") for the construction, installation, maintenance, repair, modification, replacement and operation of Drainage, together with the right to remove trees, bushes, undergrowth and any other obstacles upon the Property if the City determines they interfere with the appropriate use of this Easement. Subject to any encumberances and easements of record.

Grantor covenants and warrants that Grantor is the owner in fee simple of the Property, that Grantor has a good lawful right to convey the Property or any part thereof and that Grantor will forever warrant and defend the title to the Property against all claims from all persons or entities.

The grant and other provisions of this easement constitute covenants running with the land for the benefit of the City and its successors and assigns until terminated.

WITNESS my hand and seal this ____ day of ______________, 1995.

GRANTOR: Paradise West, Inc.
a New Mexico Corporation

By: [signature]

Its: President

STATE OF NEW MEXICO)
)SS
COUNTY OF BERNALILLO)

This instrument was acknowledged before me this 15 day of DEC., 1995 by SAMAR DABABNEH, its PRESIDENT, on behalf of said Corporation.

By: [signature]
NOTARY PUBLIC

My Commission Expires: 3-25-97

OFFICIAL SEAL
RICHARD D. QUINTANA
NOTARY PUBLIC - NEW MEXICO
NOTARY BOND FILED WITH SECRETARY OF STATE
My Commission Expires 3-25-97

CSC# 323-06-062\323-03AI.REP

EXHIBIT A-1

0.2172 ACRE
PUBLIC DRAINAGE EASEMENT
COMPRISED OF
A PORTION OF LOT 18, BLOCK 17, NORTH ALBUQUERQUE ACRES

SITUATE WITHIN
THE ELENA GALLEGOS GRANT
"PROJECTED" SECTION 21, T11N, R4E, N.M.P.M.
CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO

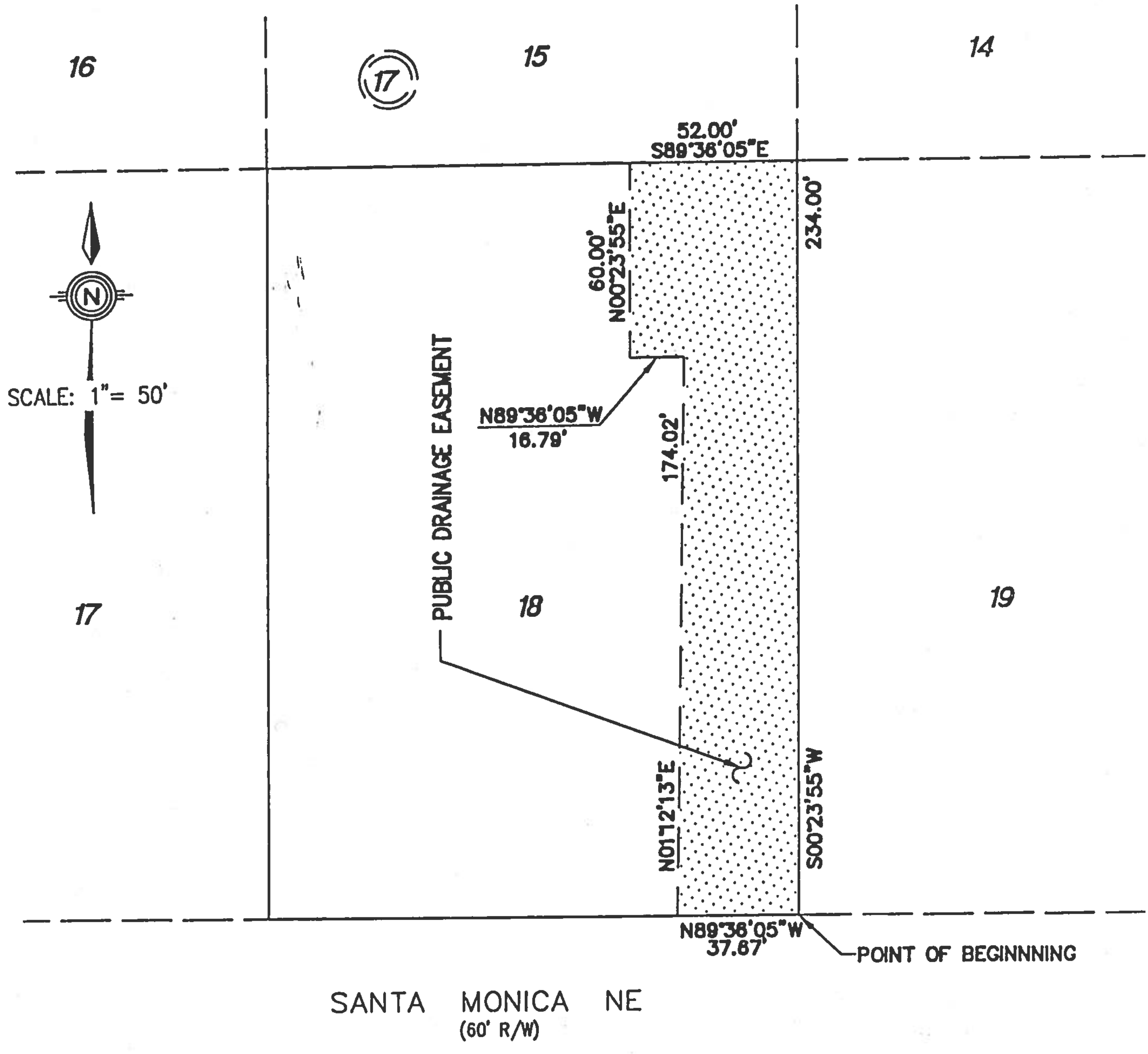


EXHIBIT A

0.2172 ACRE
PUBLIC DRAINAGE EASEMENT
COMPRISED OF
A PORTION OF LOT 18, BLOCK 17, NORTH ALBUQUERQUE ACRES

SITUATE WITHIN
THE ELENA GALLEGOS GRANT
"PROJECTED" SECTION 21, T11N, R4E, N.M.P.M.
CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO

LEGAL DESCRIPTION:

THAT CERTAIN EASEMENT SITUATE WITHIN THE ELENA GALLEGOS GRANT ("PROJECTED" SECTION 21, TOWNSHIP 11 NORTH, RANGE 4 EAST, NEW MEXICO PRINCIPAL MERIDIAN), CITY OF ALBUQUERQUE, NEW MEXICO, AND BEING COMPRISED OF LOT 18, BLOCK 17 OF NORTH ALBUQUERQUE ACRES AS THE SAME IS SHOWN AND DESIGNATED ON THE PLAT OF RECORD FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALLILO COUNTY, NEW MEXICO ON JUNE 8, 1931 IN VOLUME D, FOLIO 133, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE NORTHERLY RIGHT-OF-WAY LINE OF SANTA MONICA NE (60' R/W), SAID POINT ALSO BEING THE SOUTHEAST CORNER OF LOT 18, BLOCK 17 OF SAID NORTH ALBUQUERQUE ACRES AND THE **TRUE POINT OF BEGINNING** OF THE EASEMENT HEREIN DESCRIBED; **THENCE** ALONG THE NORTHERLY RIGHT-OF-WAY LINE OF SANTA MONICA NE, N89°36'05"W, 37.67 FEET TO AN ANGLE POINT; **THENCE** DEPARTING SAID NORTHERLY RIGHT-OF-WAY LINE, N01°12'13"E, 174.02 FEET TO AN ANGLE POINT; **THENCE** N89°36'05"W, 16.79 FEET TO AN ANGLE POINT; **THENCE** N00°23"55"E, 60.00 FEET TO A POINT ON THE NORTHERLY BOUNDARY OF LOT 18, BLOCK 17; **THENCE** ALONG THE NORTHERLY BOUNDARY, S89°36'05"E, 52.00 FEET TO THE NORTHEAST CORNER OF LOT 18, BLOCK 17; **THENCE** ALONG THE EASTERLY BOUNDARY LINE, S00°23'55"W, 234.00 FEET TO A POINT ON THE NORTHERLY RIGHT-OF-WAY LINE OF SANTA MONICA NE, THE SOUTHEAST CORNER OF LOT 18, BLOCK 17 AND THE **TRUE POINT OF BEGINNING** OF THE EASEMENT HEREIN DESCRIBED.

THE ABOVE DESCRIBED EASEMENT CONTAINS 0.2172 ACRES (9461 S.F.) MORE OR LESS.
(SEE ATTACHED EXHIBIT A-1)

SURVEYOR'S CERTIFICATION:

I, DAVID J. THOMPSON, HEREBY AFFIRM THAT I AM A DULY QUALIFIED REGISTERED PROFESSIONAL SURVEYOR UNDER THE LAWS OF THE STATE OF NEW MEXICO AND DO CERTIFY THAT THIS DESCRIPTION WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND MEETS THE "MINIMUM STANDARDS FOR LAND SURVEYORS" SET FOURTH BY THE STATE OF NEW MEXICO AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

12/21/95

DAVID J. THOMPSON, N.M.R.P.S. #12657 DATE

12/19/95

DAVID J. THOMPS

I. PURPOSE AND SCOPE

Paradise West Incorporated is planning to develop a 128 acre site into a single family residential community known as Quintessence. The Quintessence subdivision will be developed at a maximum density not to exceed 5 dwelling units per acre and will be developed in accordance with the Standards and Specifications of the City of Albuquerque (COA), the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA), the office of the New Mexico State Engineer and the Federal Emergency Management Administration (FEMA).

The purpose of this Drainage Report is to present an overall Drainage Management Plan and a comprehensive analysis of the drainage control, flood control and erosion control measures to be implemented as part of the Quintessence development. Onsite drainage as well as offsite drainage affected by this development will be addressed in this report.

II. SITE DESCRIPTION AND HISTORY

The 128 acre Quintessence Development is located in Blocks 14, 16, 18 and 20 of North Albuquerque Acres Tract 3 Unit 2 and is situated within the Elena Gallegos Grant, projected Sections 21, T11N, R4E, NMPM, City of Albuquerque, Bernalillo County, New Mexico as shown on Exhibit 1 Vicinity Map. The project site is bounded by Coronado Avenue on the north, Eubank Boulevard on the east, San Antonio Drive on the south and Holbrook Street on the west and an be found on COA Zone Atlas page D-21.

Onsite soils consist of Embudo and Tijeras Complexes. Embudo soils are typically found in drainage ways and depressions and the Tijeras soil is found on low ridges and narrow undulations. On both soils the runoff is medium and the hazard of water erosion is moderate. Both soils are classified as hydrologic soil group B by the USDA Soil Conservation Service. The most recent planning in the area includes the Quintessence Sector Development Plan including specifically Appendix A Conceptual Design Plan SD-89-1, Z-89-114, AX-92-6 as revised August 1994.

III. COMPUTATIONAL PROCEDURES

Hydrologic and sediment yield analyses were performed utilizing the AHYMO computer model (version 1993), the design criteria found in the COA-DPM Section 22.2 Hydrology of the Development Process Manual, Volume 2, Design Criteria, January 1993, and the Sediment and Erosion Guide, AMAFCA, March 1994.

Drainage for the fully developed conditions was analyzed for the 2-, 5-, 10-, 25-, 50-, and 100-year 6-hour storm event using the AHYMO hydrologic model. Time of Concentrations were estimated using the Upland Method and then were converted to Time to Peak (Lg) in accordance with section 22.2 of the COA-DPM which also establishes the minimum Time of Concentration to be 12 minutes.

The 100-year peak discharge values were used in the HEC-2 hydraulic model to determine the location of mountable and standard curb and gutter and where inlets for storm sewer were required. Swale and open channel capacities were also analyzed using the HEC-2 model.

The 100-year hydrographs were used to size both detention ponds and their associated outfall structures and emergency spillways. The East and West Detention Ponds and outfall structures were designed and evaluated utilizing AHYMO hydrologic model and POND2: Detention Pond Design & Analysis.

The storm sewer was also designed to pass the 100-year peak discharges. STORM PLUS computer software was utilized to analyze hydraulic grade lines, in accordance with Section 22.3 of the DPM.

Adequate sediment transport capabilities in the Eubank Blvd. storm sewer was analyzed using the power function relation $qs = aV^bY^c(1\text{-}Cf/10^6)^d$. This equation was developed from a multiple regression analysis of date compiled on bed material transport capacities for a broad range of hydraulic and bed material conditions in the Albuquerque area using the MPM-Woo method where:

qs = unit width bed material load in (cfs/ft)
V = average velocity (fps)
Y = hydraulic depth (ft)
Cf = fine sediment concentration by weight
So = channel slope

IV. DRAINAGE AND FLOOD CONTROL DESIGN CRITERIA

The following rainfall amounts were used in the AHYMO model (1993 version) for the hydrologic analysis and/or sediment analysis:

Return Period	1-hour (inches)	6-hour (inches)	24-hour (inches)
2-year	0.98	1.30	1.10
5-year	1.25	1.50	1.40
10-year	1.47	1.80	1.70
25-year	1.75	2.20	2.10
50-year	1.95	2.40	2.38
100-year	2.20	2.70	2.60

A TYPE 1-6 hour rainfall distribution based on NOAA Atlas 2 with peak intensity at 1.4 hours was used in all the AHYMO analyses. TYPE 2-24 hour rainfall distribution may be required in subsequent FEMA submittals.

In accordance with AMAFCA's design criteria for determination of percent land treatment D, the following equation was used for "single family residential " classification based on the maximum possible density of 5 dwelling units per acre: 7x (((NxN)+(5xN)))^1/2 which results in a Land Treatment D = 50%. It was assumed the other 50% would be split between Land Treatment B=25% and Land Treatment C=25%. The residential areas to the south of the proposed floodway channel may be developed at a higher density resulting in a "multiple unit residential (detached)" classification per AMAFCA's hydrologic design criteria. In this classification, Land Treatment D=60% and the remaining 40% was assumed split between Land Treatment B=20% and Land Treatment C=20% . Much of the developed areas to the north of the Pino Arroyo Storm Drain will be developed at a density less than the 5 dwelling units per acre thus offsetting the higher density development to the south.

In accordance with the COA - Hydrology Department and Bernalillo County, the following typical land treatment valves for developed conditions for the offsite North Albuquerque acres sub-basins were used: A = 43%, B = 20%, C = 20%, and D = 17%.

This drainage management plan has been designed to comply with AMAFCA's resolution 80-15, which requires that all land development projects be designed such that no flooding of private property will occur during any storm event up to and including the 100-year frequency. For street drainage design this means that for mountable curb and gutter, the normal depth cannot exceed 0.33 feet and the energy grade line cannot exceed 0.67 feet and for standard curb and gutter, the normal depth cannot exceed 0.67 feet and the energy grade line cannot exceed 1.0 feet.

For channel design, freeboard depths and, if applicable, super elevation depths were determined and added to the normal depth calculation to arrive at the channel design depth. Equations to determine these depths are presented in the COA-DPM.

The volume required in the East Pond for sediment storage is two times the average annual yield plus the single event 100-year yield.

For street capacity design, streets were assumed to have a 2% cross slope from lip of gutter to crown.

Adequate sediment transport in the Eubank storm sewer was determined by making sure the Eubank storm sewer sediment transport potential was greater than the calculated upstream arroyo sediment transport capability. Details on this analysis are presented in Appendix E.2.

At the time construction plans are approved by the City, a request for a conditional letter of map revision (CLOMR) will be submitted to FEMA through the city. At the time construction is complete a request for a letter of map revision (LOMR) will be submitted to FEMA through the city. Moneys for both items will be bonded separately.

V. EXISTING DRAINAGE CONDITIONS OVERVIEW

Natural drainage through and in the vicinity of the project site is characterized by arroyo channels that convey stormwater runoff in a general westward direction from the Sandia Mountains to the Rio Grande. PLATE 1 shows the existing drainage basin boundaries and drainage characteristics of the project site and surrounding areas.

Much of the Quintessence site is drained by the North Arroyo del Pino drainage basin which includes the main arroyo channel and several sub-basin tributaries. This drainage basin originates in the foothills of the Sandia Mountains. Recent upstream improvements, which include a diversion dike, has diverted a major portion of the upstream runoff from the main channel south to the South Arroyo del Pino which runs through the Tanoan Golf Course. Runoff from several of the drainage basins north of the del Pino drainage basin are intercepted by Holbrook street and conveyed south in an existing earth lined channel along Holbrook to the main channel of the North Arroyo del Pino. All the runoff from the project site as well as offsite contributing or intercepted areas enters the main channel of the Arroyo del Pino before entering the concrete lined open channel through the Heritage Hills East residential community. The design capacity of this channel is 642 cfs in accordance with the COA Standards and Specification including super-elevation and freeboard requirements. The Northeast Heights Drainage Management Plan (1975) identified the 100-year peak discharge in this channel at Ventura street to be 642 cfs and the Drainage Management Plan for Heritage Hill East (revised, May 1983) identified the design capacity of the concrete channel to be 642 cfs. Due to extremely high velocities in the concrete lined channel through Heritage Hills East and in order to comply with the COA-DPM criteria, the freeboard requirement is approximately 2.0 feet.

The main arroyo channel which cuts through the southern half of the project site is designated as a 100-year flood hazard zone by FEMA. Exhibit 2 shows the 100-year floodplain boundaries determined by FEMA and the HEC-2 analysis upstream of the Eubank/Santa Monica intersection. The HEC-2 hydraulic analysis printout used to determine the 100-year floodplain boundary drawn on Exhibit 2 is in Appendix B - Hydraulics. The 100-year FEMA floodplain boundary is also shown on the grading plan sheets 1-5. The FEMA boundary is wider than the HEC-2 analysis indicates because of an unstable (alluvial type) potential for split flow occurring a few hundred feet upstream.

VI. DRAINAGE MANAGEMENT PLAN

A. Overview

The 100-year peak discharges documented in this report for the Heritage Hills East open channel are substantially higher than the flows documented in previous reports. Analyses from the Northeast Heights Master Drainage Plan (January, 1988) determined the 100-year discharge from the North Arroyo del Pino, to be 448 cfs entering Heritage Hills East and 523 cfs at the west end near Ventura Street. In accordance with Section 22.2, Hydrology of the Development Process Manual Volume II, Design Criteria for the City of Albuquerque, January 1991 and using the March 1993 version of AHYMO, the 100-year pre-developed peak discharges were determined to be 553 entering Heritage Hills East and 840 cfs at Ventura Street. The differences in results are due to changes in COA calculation procedures and not to physical changes in the watershed.

In accordance with COA Drainage Ordinance, Section 12, Paragraph G, drainage facilities should be designed to accept contributing offsite flows assuming a fully developed watershed. Under existing drainage conditions, the concrete lined channel through Heritage Hills East is near or slightly in excess of design capacity, when using the updated COA design criteria. Capacity calculations were done for the Heritage Hills East open channel at three locations. The calculations along with the supporting HEC-2 printouts are in Appendix E.3. The capacity of this channel at the entrance near Holbrook is 640 cfs and at Ventura St. has a capacity of 910 cfs.

Without any attenuation of the 100-year peak discharges, the Quintessence Development would increase flows entering Heritage Hills East to 1010 cfs and at Ventura Street to 1354 cfs. Attenuation of these peak discharges to acceptable values will be accomplished through the construction of two on-site detention ponds.

A primary drainage system consisting of two detention ponds and a connecting underground storm drain will collect, attenuate and convey off-site and on-site runoff to the Heritage Hills East open channel system. The East Detention Pond, located near the Eubank/Santa Monica intersection will intercept contributing off-site runoff from the natural channel of the North Arroyo del Pino and Eubank Blvd., attenuate peak discharges and function as a sediment trap for off-site natural drainage areas. The West Detention Pond, located at the west end of the development will attenuate the flows from on-site drainage areas, off-site drainage areas north of Coronado Road and south of San Antonio Street and the East Detention Pond. Under normal conditions, discharge from the East Detention Pond will be conveyed to the West Detention Pond through a 4.5/ 6.0/ 7.0 feet diameter underground main line storm drain. If the East Detention Pond outlet structure should ever malfunction or if a storm of greater magnitude than the 100-year occurs, discharge from the East Pond emergency spillway will be conveyed through the open space area to the West Detention Pond.

Four separate on-site and one off-site storm sewers will convey stormwater runoff to the primary drainage infrastructure. The southeast storm sewer will enter the Pino storm drain joining the East and West Detention Ponds at Ma'an Drive. The southwest and northeast storm sewers will intersect the main line drain in a large 10 ft. by 10 ft. junction box located at one of two low points in the West Detention Pond. A fourth storm sewer in Holbrook/Coronado street discharges into the Heritage Hills East open channel directly. This storm sewer will also convey runoff from the contributing off-site drainage areas to the north of Coronado Road. Offsite drainage along Eubank Blvd. and the drainage areas to the east will be conveyed through a storm sewer located in Eubank and under Eubank at Santa Monica through a 72" RCP to the East Pond. Sheets 1-5 of the preliminary grading and erosion control plan show these storm sewer. PLATES 4 through 17 contain the on-site street and storm sewer profiles and hydraulic grade lines. Hydraulic grade lines found on PLATES 4-17 were generated using the STORMPLUS computer model. STORMPLUS printouts are found in Appendix D.

B. On-site Drainage

Hydrologic analyses for "developed conditions" utilized the AHYMO computer model (version 1993). A summary of the hydrologic input parameters for each drainage basin can be found in Table 1. Peak discharges for the 10- and 100- year storm for each drainage basin are summarized in Table 2. Summary printouts for the "developed drainage conditions" for the 2-, 5-, 10-, 25-, 50-, and 100- year storm event can be found in Appendix A - Hydrology.

A summary table of street capacity flow characteristics at key locations can be found in Table 3. This table contains information on the location of mountable versus standard curb and gutter and hydraulic parameters present at critical locations and/or transitions. The preliminary grading plans also show where mountable and standard curb and gutters are located. Storm sewer inlet capacities are summarized in Table 4. This table summarizes the amount of discharge which is expected to be intercepted and bypassed at each pair of storm inlets. Storm Sewer Sump Inlet Capacity Calculations are summarized in Table 5. Plate 3 is a plan view of the street flows and storm sewer flows in the subdivision. The Quintessence development has four low points in streets that require sump inlets to collect the remainder of stormwater not intercepted by upstream inlets. Two are located on Quintessence Road, one at the intersection of Ma'an Drive and the Pino Storm Drain and one at the end of Yaduda Place cul-de-sac. HEC-2 computations for private drainage swales located along sub-basin 110.3 (northwest boundary), 180.2 and 180.4 (southeast boundary) are in Appendix B.3 (see EXHIBIT 2).

C. Off-site Drainage

1. Eubank Blvd.

The future ultimate Eubank roadway design will most likely not be determined until after construction of Quintessence Subdivision has begun. However, it is quite certain that the ultimate drainage plan for Eubank Blvd. and the offsite drainage area to the east will include a storm sewer in Eubank that will convey runoff into the East Pond. Six culverts on the east side of Eubank will intercept drainage from offsite sub-basins and convey the runoff to the Eubank storm sewer. The exact location of the storm sewer and the ultimate profile of Eubank is to be determined at a later date. For Quintessence grading design purposes, the anticipated Eubank Blvd. and storm sewer profile were preliminarily determined and are shown on PLATE 7. Storm sewer sump inlets capacities for Eubank are listed in Table 5. Appendix E.2 contains a plan view of the culvert sections under Eubank Blvd. and sediment analysis for the culverts and storm sewer. The grading plan sheets also show the location of the culvert sections and storm sewers.

The FEMA floodway map shows a potential for an avulsion to occur in the Pino Arroyo several hundred feet upstream from Eubank. This potential for split flow in the Pino Arroyo will be handled through the construction of a diversion channel along the east edge of Lot 18, Block 17 of North Albuquerque Acres. Regardless of the flow path taken, the entire flow will be intercepted by the channel and directed south to a 60" RCP located along the north portion of the existing Santa Monica right-of-way. The 60" RCP will extend west to Eubank before discharging into a 72" RCP that extends under Eubank and into the East Sedimentation Pond. If the storm sewer is constructed within the east half of the ultimate Eubank Blvd. right-of-way, the storm sewer can connect into the manhole located near the Santa Monica/Eubank intersection. If the storm sewer is built within the west half of the ultimate right-of-way section then the storm sewer can discharge directly into the East Pond north of Santa Monica. PLATE 2 shows the floodplain boundaries as determined by FEMA and by a HEC-2 analysis. Appendix B.2 contains the HEC-2 summary printout that determined the boundaries. Appendix F contains the plan and profile details and supporting calculations for the diversion channel along Lot 18 and the 60" RCP and 72" RCP along Santa Monica and under Eubank.

Prior to construction of the ultimate Eubank Blvd., the interim drainage solution for Eubank will encompass the construction of a temporary drainage diversion channel on the west side of Eubank, contained entirely within a 70' wide temporary drainage easement within the east boundary of the Quintessence development to be privately maintained. Stormwater runoff from the east will be allowed to cross over the existing Eubank Blvd. as it presently does under existing conditions. These flows will then be intercepted and conveyed south to the East Sedimentation Pond. The channel will be 20' wide with 2:1 side slopes on the west bank and 3:1 side slopes on the east bank. Two 54" CMP will convey runoff under Quintessence Road. Just south of Quintessence Road, a soil-cement rundown will convey runoff down the East Pond embankment. The updated plan and profile view of this diversion channel can be found on Plates F-2 and F-3 in Appendix F.

2. Coronado Road

This drainage report is based on the ultimate roadway design for Coronado to be 30 ft. F-F from Holbrook to Eubank. Onsite and offsite drainage will be conveyed through a storm sewer in Coronado that connects to the Holbrook storm sewer as shown on the preliminary grading plan sheets.

The offsite drainage area located southeast of the Holbrook/Coronado intersection will flow west into Holbrook or be intercepted by the 11 foot private drainage swale located along the north boundary of onsite sub-basin 110.3. Appendix B.3 contains hydraulic calculations for this swale. The Coronado Road profile and storm sewer profile is detailed on PLATE 8.

D. Primary Drainage Infrastructure

1. East Sedimentation/Detention Pond Design

The East Sedimentation Pond located west of the Santa Monica/Eubank intersection is designed to have capacity to store the required sediment volume and attenuate flows from the 100-year storm event. The East Pond will have a maximum storage capacity of 8.3 acre-feet, 2.3 of which is reserved for sediment storage and 6.03 acre-feet for stormwater runoff detention. The pond is design to have a maximum depth of 11.0 feet, including 2.0 feet of freeboard with 3:1 side slopes. The top of pond will consist of a 10' wide berm set at an elevation of 5697.0' with a 70' wide emergency spillway with a crest at elevation 5695.0'. The spillway will be able to pass the 100-year peak flow of 492 cfs, at a maximum depth of 1.9'. Appendix C.1 contains supporting design information from POND-2 detention pond design and analysis used in the AHYMO model. The low point in the pond, located at the west end outfall structure, will be at elevation 5686.0'. Exhibit 2 summarizes drainage conditions at locations for the primary drainage infrastructure.

A sediment trap will be created through a 12 1/2 degree expansion and 45 degree contraction swale running through the east pond at an approximate slope of 1% from the east entrance to the west end outfall. The outfall structure consisting of a riser pipe with a 25 square foot horizontally-oriented opening and a crest elevation set at 5689.9' will facilitate in trapping sediment in the pond. When runoff storage in the pond reaches a maximum depth of 3.9 feet or elevation 5689.9', discharge will freely exit the pond through the riser pipe which will first function as a weir and then as an orifice.

Perforations in the riser pipe from its crest at elevation 5689.9' to the pond bottom at elevation 5686.0' will allow the pond to completely drain slowly, facilitating in the sediment removal process. Within several hours of the 100-year storm the pond will be completely drained. Discharge from the riser pipe will enter the 54" diameter Pino Storm Drain which transitions to a 72" culvert and 84" culvert near Ma'an Drive before entering the 10'x10' Junction Box in the West Pond.

Results from the AHYMO model for the 100-year storm event indicate that the peak inflow to the pond will be 492 cfs with a peak outflow of 260 cfs. Peak storage will be 7.7 acre-feet at an elevation of 5694.5'.

2. West Detention Pond Design

The West Detention Pond located at the west end of the Quintessence development is designed to have capacity to attenuate the 100-year storm event from the project site and contributing off-site areas to a level that will not exceed the design capacity of the downstream open channel system. Stormwater runoff from the Quintessence storm sewers and outflow from the East Pond will converge in a 10' x 10' junction box located at one of two low points within the West Pond. During storm events up to and including the 10-year storm, runoff will converge in the junction box and exit freely through the Pino Storm Drain which discharges into the Heritage Hills East open channel. During these events, the hydraulic grade will remain below the lowest ground surface in the pond. During the 100-year storm event, the total flow entering the junction box will exceed the capacity of the culvert exiting the junction box. Functioning as an orifice, a constriction at the opening of the exit culvert will chock down the flow exiting the junction box, causing the hydraulic grade line to rise above the bottom of the pond. When this occurs, the West Pond will fill up and detain the stormwater until the exit culvert capacity equals or exceeds the inflow hydrograph. The exit culvert invert and the bottom of the junction box will be at elevation 5618.6'.

At the elevation of the spillway crest (5633.5') the west pond will have a maximum storage capacity of 3.8 acre-feet at a maximum depth of 4.7 feet. At the top of the pond, at elevation 5635.5', the storage is 7.0 acre-feet. The two low points in the pond will be at elevation 5628.3'. The 10' x 10' junction box will be located at one low point and a Type 'D' inlet will be located at the other low point at 5630.0'.

Results from the AHYMO model and POND2 design analysis determined that for the 100-year storm event, the peak inflow to the pond will be 545 cfs and have a peak outflow of 378 cfs. A storage volume of 3.7 acre-feet at an elevation of 5632.9 feet will be required to contain runoff from the 100-year storm event.

The West Pond will have a 100' wide emergency spillway at the west end with a crest elevation of 5633.0'. The spillway was designed to pass the 100-year storm event under the assumption that the East Pond was at capacity and the outfall structure from the East Pond was clogged. Under these conditions the spillway will pass the 100-year peak discharge of 812 cfs, at a maximum depth of 2.1' to the downstream open channel.

3. Connecting Pino Storm Drain and Emergency Overflow Spillway

The underground culvert connecting the outfall structure at the East Pond to the 10' x 10' junction box in the West Pond is designed to have approximately 1728 feet of 54", 47 feet of 72" and 286 feet of 84" culvert at an average slope of 2.9%. Manholes along this culvert will be spaced at a maximum of every 450 feet. A manhole at the intersection with Ma'an Drive will intercept flows from the SE storm sewer and inlets located on Ma'an Drive and discharge into the Pino Storm Drain. Storm sewers from the residential areas to the south and north will intersect the Pino Storm Drain at the junction box. From the junction box the culvert will extend approximately 260 feet before entering the Heritage Hills East open channel. The Holbrook storm sewer will enter the Heritage Hills East open channel directly. Discharge from the Type "D" inlet at the other low point location in the West Detention Pond will enter the open channel directly. PLATES 4, 5, 6 contain the Pino Storm Drain profile and hydraulic grade line.

VII. Sediment Management Plan

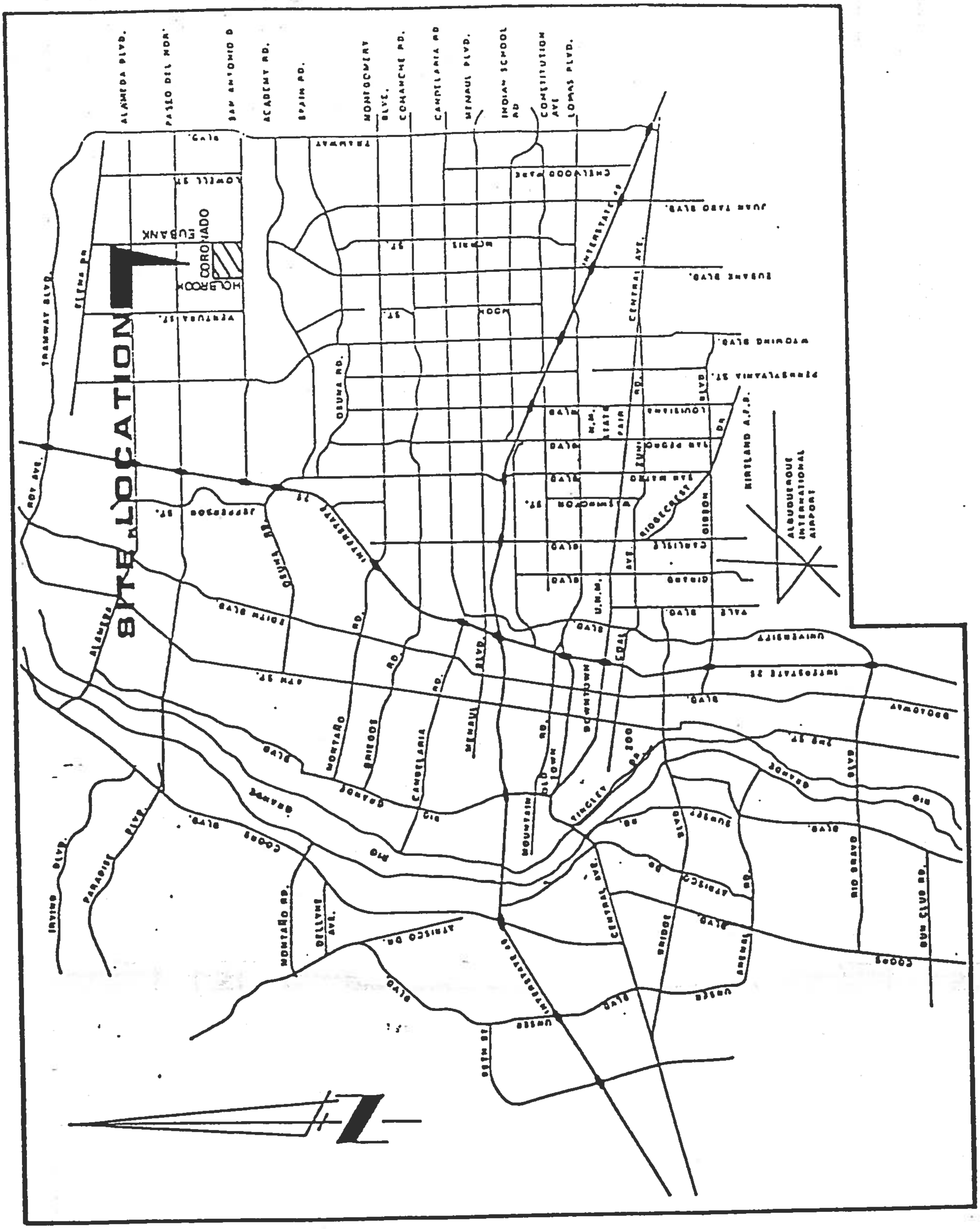
A sediment yield analysis was performed using AHYMO to determine the volume required in the East Pond for sediment storage. A summary of Sediment Transport Parameters used in AHYMO can be found in Table 6. Table 7 is a summary of the Sediment Yield Analysis. Results from the analysis indicate that 2.33 acre-feet of the total storage volume in the East Pond must be reserved for sediment storage. Appendix E.1 contains supporting sediment transport data and calculations. Appendix E.2 contains sediment transport analysis calculations for Eubank storm sewer.

VIII. Erosion Control

The Quintessence subdivision will be developed in unit phases. Control of erosion from natural and developing units in the project area onto existing roads and developed units will be accomplished through the construction of temporary diversion berms and sediment traps. Runoff from the undeveloped areas of the project site will be directed to sediment traps and then allowed to enter the nearby streets and storm sewers.

VICINITY MAP

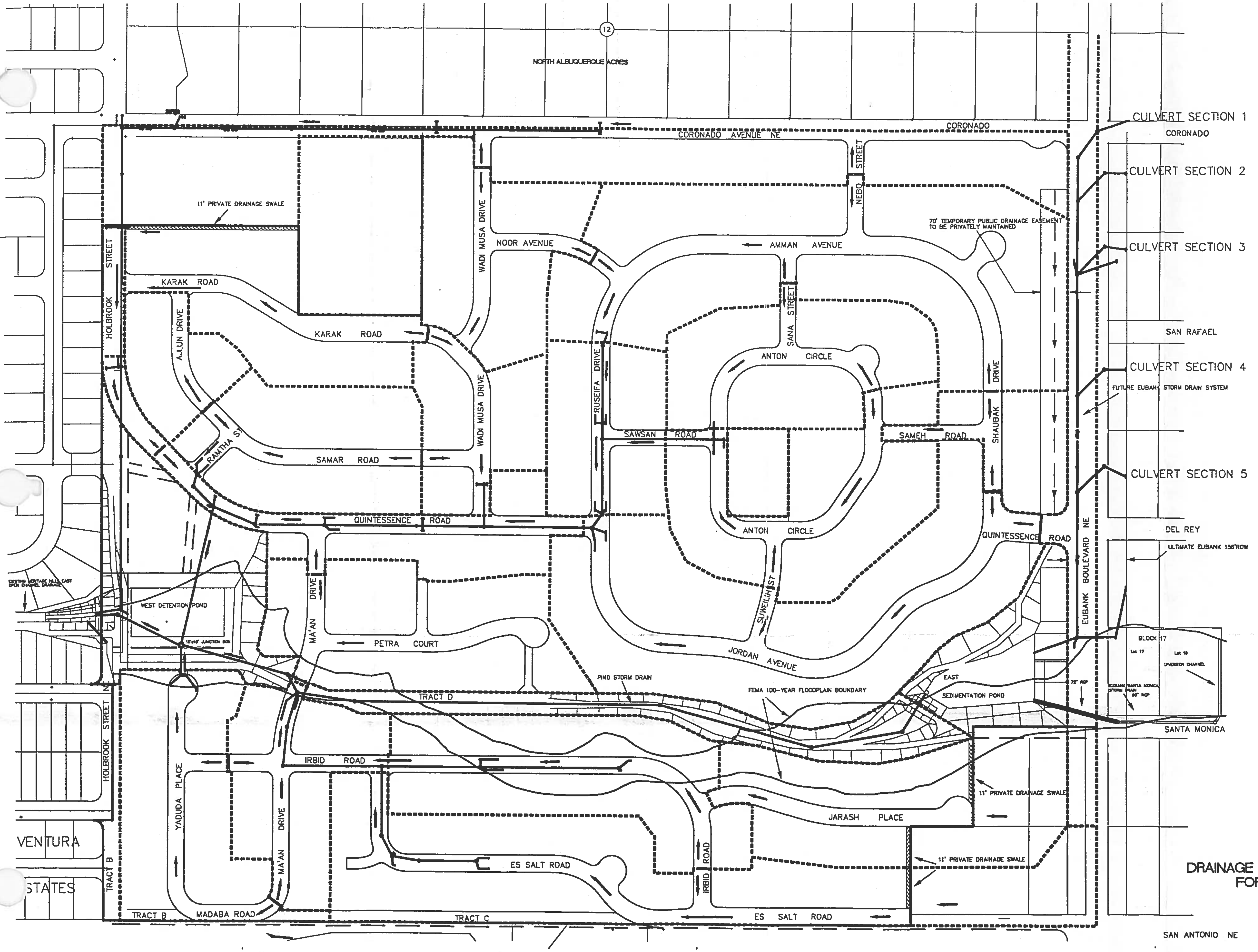
QUINTESSENCE
DRB NO. 94-552
DECEMBER 1994



VICINITY MAP
SCALE: 1'' = 12,000'±

EXHIBIT 1

QUINTESSENCE
DRB NO. 94-552
SEPTEMBER 1995



EAST SEDIMENTATION POND

PEAK Qin = 492cfs
PEAK Qout = 260cfs
PEAK STORAGE VOLUME = 7.7 AC.FT.
PEAK ELEVATION = 5694.5 FT.
EMERGENCY SPILLWAY ELEV = 5695.0 FT.
SPILLWAY WIDTH = 70 FT.
DEPTH = 1.9 FT. @ Q = 492cfs
MAXIMUM POND ELEVATION = 5697.0 FT.

WEST DETENTION POND

PEAK Qin = 545cfs
PEAK Qout = 378cfs
PEAK STORAGE VOLUME = 3.7 AC.FT.
PEAK ELEVATION = 5632.8 FT.
EMERGENCY SPILLWAY ELEV = 5633.0 FT.
SPILLWAY WIDTH = 100 FT.
DEPTH = 2.2 FT. @ Q = 812cfs
MAXIMUM POND ELEVATION = 5635.5 FT.

EMERGENCY OVERFLOW SPILLWAY

TYPICAL 60 FT. R/W, 17 FT B/W
3:1 SIDE SLOPES
Q = 485cfs DEPTH = 2.08 FT.

EXHIBIT 2
DRAINAGE CONDITIONS AT KEY LOCATIONS
FOR 100 YEAR STORM EVENT

Table 1: SUMMARY OF HYDROLOGIC PARAMETERS

DRAINAGE BASINS		AREA (ACRES)	AREA (SQ. MI.)	LAND TREATMENT A %	B %	C %	D %	Time to Peak (hrs)
100.1		4.236	0.00662	0	50	50	0	0.133
100.2		3.066	0.00479	0	50	50	0	0.133
100.3		3.110	0.00486	0	50	50	0	0.133
110.1		0.755	0.00118	0	0	0	100	0.133
110.2		3.610	0.00564	25	12.5	12.5	50	0.133
110.3		4.301	0.00672	0	25	25	50	0.133
110.4		2.739	0.00428	0	25	25	50	0.133
110.5	*	3.590	0.00561	0	25	25	50	0.133
110.6		5.081	0.00794	0	25	25	50	0.133
110.7	*	30.336	0.0474	43	20	20	17	0.180
110.8	*	11.302	0.01766	43	20	20	17	0.133
110.9	*	8.064	0.0126	43	20	20	17	0.133
120.1	*	21.568	0.0337	43	20	20	17	0.133
120.2	*	8.640	0.0135	43	20	20	17	0.133
120.3	*	8.704	0.0136	43	20	20	17	0.133
120.4	*	45.856	0.07165	43	20	20	17	0.160
120.5	*	28.672	0.04480	43	20	20	17	0.140
120.6	*	55.104	0.08610	43	20	20	17	0.133
120.7	*	31.936	0.0499	43	20	20	18	0.133
120.8	*	22.976	0.0359	43	20	20	18	0.133
120.9	*	7.162	0.01119	0	10	10	80	0.133
140.1		4.845	0.00757	0	25	25	50	0.133
150.1		3.520	0.0055	0	7.5	7.5	85	0.133
150.3		3.750	0.00586	0	25	25	50	0.133
150.4		10.918	0.01706	0	25	25	50	0.133
150.5		4.749	0.00742	0	25	25	50	0.133
150.6		2.285	0.00357	0	25	25	50	0.133
150.7		0.926	0.00145	25	12.5	12.5	50	0.133
150.8		6.118	0.00956	0	25	25	50	0.133
150.9		2.598	0.00406	0	25	25	50	0.133
150.10		4.858	0.00759	0	25	25	50	0.133
150.11		11.814	0.01846	0	25	25	50	0.133
160.1	.	6.107	0.00954	0	25	25	50	0.133
170.1		4.890	0.00764	0	20	20	60	0.133
170.2	*	6.336	0.00990	90	0	5	5	0.133
180.1		3.424	0.00535	0	20	20	60	0.133
180.2		8.326	0.01301	0	20	20	60	0.133
180.3		6.246	0.00976	0	20	20	60	0.133
180.4		3.814	0.00596	0	20	20	60	0.133
180.5	*	2.464	0.00385	0	25	25	50	0.133
180.6	*	1.677	0.00262	0	25	25	50	0.133
180.7	*	2.816	0.00440	90	0	5	5	0.133
190.1	*	38.464	0.06010	0	25	25	50	0.133
190.2	*	44.160	0.06900	0	25	25	50	0.133
190.3	*	17.600	0.02750	0	25	25	50	0.133

* = Offsite Drainage Areas

Table 2: SUMMARY OF DRAINAGE BASIN PEAK DISCHARGES

DRAINAGE BASINS		AREA (ACRES)	AREA (SQ. MI.)	Q-PEAK 100-YEAR (cfs)	Q PEAK 10-YR (cfs)
100.1		4.236	0.00662	13.4	7.1
100.2		3.066	0.00479	8.5	4.0
100.3		3.110	0.00486	9.9	5.2
110.1		0.755	0.00118	3.9	2.6
110.2		3.610	0.00564	14.0	8.2
110.3		4.301	0.00672	18.0	11.0
110.4		2.739	0.00428	11.5	7.0
110.5	*	3.590	0.00561	15.0	9.2
110.6		5.081	0.00794	21.2	13.0
110.7	*	30.336	0.0474	74.2	36.4
110.8	*	11.302	0.01766	33.8	16.8
110.9	*	8.064	0.0126	19.7	9.7
120.1	*	21.568	0.0337	64.5	32.0
120.2	*	8.640	0.0135	25.8	12.8
120.3	*	8.704	0.0136	26.0	12.9
120.4	*	45.856	0.07165	121.8	59.8
120.5	*	28.672	0.04480	82.8	41.0
120.6	*	55.104	0.08610	165.9	81.7
120.7	*	31.936	0.0499	95.4	47.3
120.8	*	22.976	0.03590	66.3	32.9
120.9	*	7.162	0.01119	34.2	22.1
140.1		4.845	0.00757	20.2	12.4
150.1		3.520	0.00550	17.2	11.2
150.3		3.750	0.00586	15.7	9.6
150.4		10.918	0.01706	45.6	27.9
150.5		4.749	0.00742	19.8	12.2
150.6		2.285	0.00357	9.6	5.9
150.7		0.926	0.00145	3.6	2.1
150.8		6.118	0.00956	25.6	15.7
150.9		2.598	0.00406	10.9	6.7
150.10		4.858	0.00759	20.3	12.4
150.11		11.814	0.01846	49.3	30.2
160.1		6.107	0.00954	25.5	15.6
170.1		4.890	0.00764	21.4	13.4
170.2	*	6.336	0.00990	14.2	5.4
180.1		3.424	0.00535	15.0	9.4
180.2		8.326	0.01301	36.5	22.8
180.3		6.246	0.00976	27.4	17.1
180.4		3.814	0.00596	16.7	10.4
180.5		2.464	0.00385	10.3	6.3
180.6		1.677	0.00262	7.0	4.3
180.7		2.816	0.0044	6.3	2.4
190.1	*	38.464	0.0601	160.6	98.3
190.2	*	44.160	0.0690	184.4	112.8
190.3	*	17.600	0.0275	73.4	45.0

Table 6: SUMMARY OF SEDIMENT TRANSPORT PARAMETERS

		WASH LOAD PARAMETERS						BED LOAD PARAMETERS		
Drainage Basin	Area (Sq.Mi.)	Soil Type	Soil K	Crop C	Erosion P	LS	Percent Imperv.	Top Width :Depth	Channel Slope	Manning's "n"
120.1	0.0337	Embudo/Tijeras	0.15	0.035	1	0.864	2	20:1	0.045	0.04
120.2	0.0135	"	0.15	0.035	1	0.864	2	20:1	0.045	0.04
120.3	0.0136	"	0.15	0.035	1	0.864	2	20:1	0.045	0.04
120.4	0.07165	"	0.15	0.035	1	0.758	2	20:1	0.042	0.03
120.5 120.6 120.7	0.1808		0.15	0.035	1	0.588	2	40:1	0.364	0.03

Notes: For all drainage basins: assume D50 = 1.32 mm (determined from 3 samples taken in drainage basin 120.7).
AHYMO rating table in sediment transport analysis based on Manning's equation.

TABLE 3: STREET CAPACITY FLOW CHARACTERISTICS AT KEY LOCATIONS

STREET	LOCATION	ST. WIDTH & CURB TYPE	% SLOPE	Q100	Dn	Dc	Vn	Vc	AREA	TOP WIDTH	EG	F	*POOL DEPTH
SAMEH RD.	10+25	22 Mount	4.00	10.00	0.25	0.33	4.04	2.42	2.47	22.01	0.51	2.15	0.44
SAWSAN RD.	10+45	24 Stand	3.31	29.00	0.41	0.55	5.61	3.40	5.17	24.21	0.90	2.14	0.77
RAMTHA ST.	11+13	24 Stand	1.25	21.20	0.43	0.49	3.70	3.04	5.73	24.22	0.65	1.34	0.67
RAMTHA ST.	11+35	24Stand	1.25	8.800	0.34	0.35	2.61	2.32	3.37	24.17	0.44	1.23	0.45
PETRA CT.	10+25	25 Mount	3.68	18.00	0.30	0.40	4.68	2.37	3.84	25.97	0.64	2.14	0.51
AJLUN DR.	10+25 (INT. Karak Rd.)	25Mount	1.41	10.50	0.30	0.32	2.83	2.81	3.71	25.91	0.42	1.32	0.47
KARAK RD.	12+00	25 Mount	2.88	15.00	0.30	0.37	4.05	2.67	3.70	25.91	0.55	1.89	0.51
SAMAR RD.	15+50	25 Mount	2.64	18.00	0.32	0.40	4.22	2.81	4.26	26.12	0.59	1.84	0.81
MADABA RD.	20+50	25 Mount	5.44	16.00	0.28	0.38	5.03	2.72	3.18	25.72	0.67	2.52	0.52
YADUDA PL.	26+60 (INT. Irbid Rd.)	26 Stand	3.21	32.00	0.43	0.57	5.59	3.41	5.73	26.22	0.91	2.11	0.80
YADUDA PL.	28+00	26 Stand	3.21	37.00	0.45	0.60	5.92	3.56	6.25	26.23	0.99	2.14	0.85
YADUDA PL.	28+67	26 Stand	1.00	43.10	0.58	0.64	4.44	3.78	9.71	26.29	0.88	1.29	0.92
YADUDA PL.	28+89	26 Stand	1.00	23.90	0.47	0.50	3.50	3.12	6.83	26.24	0.66	1.21	0.69
NOOR AVE.	10+25 (INT. Wadi Musa Dr.)	27 Mount	4.00	7.000	0.22	0.28	3.63	2.04	1.93	20.31	0.43	2.40	0.36
JARASH PL.	12+75	27 Mount	3.46	21.00	0.32	0.42	4.72	2.91	4.45	28.16	0.67	2.10	0.58
ANTON CIRCLE (N)	13+00	27 Mount	5.40	15.00	0.27	0.37	4.87	2.61	3.08	25.79	0.64	2.57	0.50
IRBID RD.	24+75	27 Mount	1.63	3.500	0.20	0.22	2.18	1.79	1.61	18.49	0.28	1.58	0.28
ANTON CIRCLE (S)	9+75	28 Stand	0.50	39.00	0.61	0.61	3.57	3.36	10.92	28.31	0.80	1.01	0.83
JARASH PL.	10+25 (INT. Irbid Rd.)	28 Stand	3.98	27.00	0.40	0.52	5.42	3.17	4.98	28.20	0.85	2.27	0.72
KARAK RD.	10+25 (INT. Holbrook St.)	28 Stand	1.42	28.50	0.47	0.47	4.05	3.22	7.03	28.24	0.72	1.43	0.73
ES SALT RD.	10+25 (INT. Irbid Rd.)	28 Stand	4.00	9.700	0.30	0.37	4.04	2.28	2.4	21.18	0.55	2.43	0.47
ANTON CIRCLE (N)	11+10	28 Stand	5.40	20.00	0.47	0.47	2.85	2.63	7.02	28.24	0.59	1.01	0.60
ES SALT RD.	13+10	28 Stand	2.53	16.80	0.37	0.44	3.91	2.72	4.29	28.19	0.61	1.77	0.58
ANTON CIRCLE (S)	13+25	28 Stand	5.58	26.00	0.37	0.51	5.91	3.13	4.40	28.19	0.92	2.64	0.70
ANTON CIRCLE (S)	13+50 (INT. Suweilih St.)	28 Stand	5.58	24.20	0.37	0.50	5.74	3.06	4.21	28.19	0.88	2.62	0.68
ES SALT RD.	14+76	28 Stand	2.53	20.00	0.39	0.47	4.20	2.85	4.77	28.2	0.66	1.80	0.63
ES SALT RD.	15+15	28 Stand	2.53	35.56	0.46	0.59	5.27	3.44	6.75	28.23	0.89	1.90	0.82
MA'AN DR.	15+25	28 Stand	0.58	37.80	0.60	0.60	3.54	3.46	10.69	28.30	0.79	1.01	0.83
IRBID RD.	15+70 (INT. Es Salt Rd.)	28 Stand	3.37	14.40	0.34	0.42	4.13	2.59	3.480	25.8	0.61	2.07	0.55
WADI MUSA DR. (N)	15+75 (INT. Karak Rd.)	28 Stand	1.29	20.30	0.41	0.47	3.69	2.86	5.500	28.21	0.63	1.47	0.63
MA'AN DR.	16+50 (INT. Irbid Rd.)	28 Stand	1.29	35.20	0.51	0.58	4.28	3.43	8.220	28.26	0.79	1.40	0.81
IRBID RD.	18+30	28 Stand	3.37	14.70	0.34	0.42	4.16	2.61	3.540	26.01	0.61	2.07	0.55
IRBID RD.	18+75	28 Stand	3.37	28.70	0.41	0.53	5.25	3.23	5.470	28.21	0.84	2.10	0.73
ES SALT RD.	21+25 (INT. Irbid Rd.)	28 Stand	2.53	20.75	0.39	0.47	4.26	2.88	4.870	28.20	0.67	1.81	0.63
IRBID RD.	22+25	28 Stand	3.37	36.89	0.44	0.60	5.79	3.47	6.370	28.23	0.97	2.15	0.83

***POOL DEPTH = Dc + (1.25Vc)**2/(2g)**

***INT. - Intersection**

CSC#323-07-010/323-07AI.XLS

TABLE 3: STREET CAPACITY FLOW CHARACTERISTICS AT KEY LOCATIONS

STREET	LOCATION	ST. WIDTH & CURB TYPE	% SLOPE	Q100	Dn	Dc	Vn	Vc	AREA	TOP WIDTH	EG	F	*POOL DEPTH
WADI MUSA DR. (S)	23+50	28 Stand	0.65	31.20	0.55	0.55	3.32	3.31	9.410	28.28	0.72	1.01	0.76
IRBID RD.	24+00	28 Stand	3.37	31.65	0.42	0.56	5.49	3.32	5.760	28.21	0.89	2.14	0.77
MA'AN DR.	14+28	28 Stand	1.60	25.50	0.44	0.51	4.02	3.11	6.340	28.23	0.69	1.50	0.70
MA'AN DR.	15+75	28 Stand	0.58	46.30	0.56	0.65	4.77	3.78	9.710	28.29	0.92	1.43	0.93
JORDAN AVE.	23+50	29 Mount	3.34	22.00	0.33	0.42	4.64	2.89	4.74	30.24	0.66	2.07	0.58
JORDAN AVE.	27+25	29 Mount	7.63	9.00	0.22	0.31	4.92	2.17	1.83	19.76	0.59	3.47	0.40
RUSEIFA DR.	10+50	30 Stand	1.50	4.93	0.55	0.65	4.98	3.77	9.890	30.28	0.93	1.54	0.93
AMMAN AVE.	11+00 (INT. Noor Ave.)	30 Stand	1.50	43.00	0.61	0.61	3.61	3.41	11.92	30.31	0.82	1.01	0.84
CORONADO AVE.	12+00	30 Stand	3.62	35.2	0.43	0.57	5.70	3.36	6.180	30.22	0.93	2.22	0.79
AMMAN AVE.	13+75	30 Stand	2.50	36.00	0.45	0.57	5.14	3.38	7.000	30.23	0.86	1.88	0.79
RUSEIFA DR.	15+10	30 Stand	0.89	45.60	0.59	0.63	4.13	3.68	11.05	30.30	0.85	1.20	0.89
RUSEIFA DR.	15+25	30 Stand	0.89	25.60	0.48	0.50	3.29	3.05	7.790	30.24	0.65	1.14	0.68
AMMAN AVE.	15+75 (INT. Sana St.)	30 Stand	4.00	28.70	0.40	0.52	5.16	3.16	5.570	30.21	0.82	2.12	0.71
RUSEIFA DR.	16+10	30 Stand	0.60	24.00	0.50	0.49	2.83	2.98	8.480	30.25	0.63	0.94	0.66
RUSEIFA DR.	16+32	30 Stand	0.60	46.00	0.63	0.63	3.68	3.69	12.51	30.32	0.84	1.01	0.89
JORDAN AVE.	18+00	30 Stand	3.34	37.00	0.44	0.58	5.67	3.40	6.520	30.22	0.94	2.15	0.80
RUSEIFA DR.	12+75	30 Stand	2.14	37.60	0.47	0.58	4.99	3.42	7.540	30.24	0.86	1.76	0.81
RUSEIFA DR.	12+90	30 Stand	2.14	20.80	0.40	0.46	3.95	2.82	5.270	30.20	0.64	1.66	0.61
CORONADO AVE.	18+75	30 Stand	3.62	37.00	0.43	0.58	5.81	3.40	6.37	30.22	0.96	2.23	0.80
CORONADO AVE.	23+10	30 Stand	3.42	39.50	0.44	0.59	5.86	3.51	6.74	30.23	0.98	2.19	0.83
HOLBROOK ST.	12+75	32 Stand	0.50	19.80	0.46	0.46	2.73	2.44	7.25	32.24	0.58	1.02	0.58
HOLBROOK ST.	16+50	32 Stand	0.50	40.50	0.63	0.6	8.23	3.46	2.55	32.3	0.79	0.91	0.78
QUINTESSENCE RD.	21+00	32 Stand	0.50	21.50	0.48	0.48	2.79	2.52	7.70	32.24	0.60	1.01	0.6
QUINTESSENCE RD.	22+30	32 Stand	2.95	32.90	0.44	0.56	5.09	3.23	6.46	32.22	0.84	2.01	0.76
QUINTESSENCE RD.	14+25 (INT. Karak Rd.)	32 Stand	0.50	9.000	0.36	0.36	2.21	1.81	4.06	27.97	0.44	1.10	0.42
QUINTESSENCE RD.	20+10 (INT. Ramtha St.)	32 Stand	0.50	5.000	0.30	0.30	1.96	1.56	2.56	21.89	0.36	1.22	0.35
QUINTESSENCE RD.	26+75	32 Stand	2.95	45.00	0.48	0.63	5.77	3.59	7.80	32.24	1.00	2.07	0.88
QUINTESSENCE RD.	28+45 (INT. Wadi Musa Dr.)	32 Stand	2.95	43.00	0.48	0.62	5.66	3.54	7.59	32.24	0.97	2.06	0.78

***POOL DEPTH = Dc + (1.25Vc)**2/(2g)**

INT. = Intersection

T[illegible]4: SUMMARY OF STORM[illegible]ER INLET CAPACITIES

INLET NO.	STREET	STREET WIDTH AND CURB TYPE	LOCATION (stations)	Q100 (cfs)	SLOPE %	DEPTH (ft)	Qintercepted (cfs)	TOTAL Qintercepted (cfs)	Qbypass (cfs)
1&2	Irbid Rd.	28 Stand	22+25	36.9	3.37	0.44	8.6	17.2	19.7
3&4	Irbid Rd.	28 Stand	18+75	28.7	3.37	0.41	7	14	14.7
5&6	Irbid Rd.	28 Stand	18+26, 18+20	14.7	3.37	0.34	4.2	8.4	6.3
7&8	Es Salt Rd.	28 Stand	15+25	35.6	2.53	0.46	8.6	17.2	18.4
9&10	Es Salt Rd.	28 Stand	14+76	20	2.53	0.39	6.2	12.4	7.6
11&12	Es Salt Rd.	28 Stand	13+00	16.8	2.53	0.37	5.5	11	5.8
19	Ma'an Dr.	28 Stand	15+25	37.8	0.58	0.6	8.4	8.4	29.4
20,21&22 Sump	Ma'an Dr.	28 Stand	15+75	46.3	0.58	0.56	15.4	46.3	0
23&24	Ma'an Dr.	28 Stand	14+28	25.5	1.60	0.44	4.3	8.6	16.9
26&27	Yaduda Pl.	26 Stand	28+56, 28+70	43.1	1.00	0.58	9.6	19.2	23.9
28&29 Sump	Yaduda Pl.	26 Stand	28+93	23.9	1.00	0.47	12	23.9	0
35&36	Anton Clr.	28 Stand	10+00	39	0.50	0.61	9	18	21
37&38	Anton Cir.	28 Stand	10+25, 10+60	20	0.50	0.47	6	12	8
39&40	Ruseifa Dr.	30 Stnad	15+03	46	0.89	0.59	10	20	26
41&42	Ruseifa Dr.	30 Stand	15+25	26	0.89	0.48	7	14	12
43&44	Ruseifa Dr.	30 Stand	16+10, 15+88	24	0.60	0.5	6.2	12.4	11.6
45&46	Ruseifa Dr.	30 Stand	16+32, 16+10	46	0.60	0.63	11	22	24
50&51	Ruseifa Dr.	30 Stand	10+50	49.3	2.14	0.55	9.6	19.2	30.1
52&53	Ruseifa Dr.	30 Stand	12+75	38	2.14	0.47	8.4	16.8	21.2
54&55	Ruseifa Dr.	30 Stand	12+90	21.2	2.14	0.4	6	12	9.2
56&57	Wadi Musa Dr.	28 Stand	23+50	31.2	0.65	0.55	8	16	15.2
60&61	Quintessence Rd.	32 Stand	26+75	45	2.95	0.46	9.6	19.2	25.8
64&65	Quintessence Rd.	32 Stand	22+35	32.9	2.95	0.47	8.2	16.4	16.5
66&67	Ramtha St.	24 Stand	11+13	21.2	1.25	0.43	6.2	12.4	8.8
68&69	Ramtha St.	24 Stand	11+35	8.8	1.25	0.34	3.5	7	1.8
70&71 Sump	Quintessence Rd.	32 Stand	21+00	21.5	0.50	0.48	10.75	21.5	0
87, 88&89 Sump	Holbrook St.	32 Stand	16+50	37.5	0.50	0.59	12.5	37.5	0
93&94	Holbrook St.	32 Stand	12+75	19.8	0.50	0.46	5.4	10.8	9
108&109	Coronado Ave.	30 Stand	18+75	37	3.62	0.43	8.6	17.2	19.8
110&111	Coronado Ave.	30 Stand	23+05	39.5	3.42	0.45	9	18	21.5

TABLE 5: **SUMMARY OF STORM SEWER SUMP INLET CAPACITIES**

INLET NO.	INLET TYPE (*)	STREET	LOCATION (stations)	Q100 (cfs)	Hw (ft)	Lw (ft)	Qw (cfs)	Qw w/WCF* (cfs)	Ho (ft)	A (sq ft)	Qo (cfs)	Qo w/OCF* (cfs)
20, 21 & 22	1	Ma'an Dr.	15+75	46.3	0.87	41.3	62.9	56.6	1	24.6	128.3	77.0
28&29	1	Yaduda Pl.	28+93	23.9	0.87	27.5	46.6	41.9	1	16.4	85.6	51.3
70 & 71	1	Quintessence Rd.	21+00	23.3	0.87	27.5	46.6	41.9	1	16.4	85.6	51.3
87, 88 & 89	1	Holbrook St.	16+50	42.4	0.87	41.3	62.9	56.6	1	24.6	128.3	77.0
103	1	Eubank Blvd.	27+60	9.8	0.44	15	11.5	10.4	0.47	8.58	29.3	17.6
98	1	Eubank Blvd.	17+29	8.9	0.44	15	11.5	10.4	0.4	8.58	29.3	17.6
106	2	Eubank Blvd.	30+70	33.7	1.5	14.93	72.14	64.9	1.5	11.29	68.8	41.3
105	2	Eubank Blvd.	29+60	33.7	1.5	14.93	72.14	64.9	1.5	11.29	68.8	41.3
102	2	Eubank Blvd.	27+40	28.5	1.5	14.93	72.14	64.9	1.5	11.29	68.8	41.3
101	2	Eubank Blvd.	24+35	28.3	1.5	14.93	72.14	64.9	1.5	11.29	68.8	41.3
100	2	Eubank Blvd.	21+65	122.5	1.5	29.86	144.3	130	1.5	22.58	137.6	82.6
104	2	Eubank Blvd.	29+20	7.6	1.5	14.93	72.14	64.9	1.5	11.29	68.8	41.3
Interim	2	Eubank Blvd.	21+50	6.5	1.5	14.93	72.14	64.9	1.5	11.29	68.8	41.3
99	2	Eubank Blvd.	18+10	3	1.5	14.93	72.14	64.9	1.5	11.29	68.8	41.3
90, 91 & 92	2	Coronado Ave.	11+80	74.2	1.17	44.79	149.1	134.2	1.17	33.87	182.3	109.4
107	3	West Pond Bottom							4.4	4.39	44.3	26.6

Qweir = CL(H)**1.5, Cweir = 2.65
*WCF (Weir Clog Factor) = 0.9
Qorifice = CA(2gH)**0.5, Corifice = 0.65
*OCF (Orifice Clog Factor) = 0.6

Inlet type:

1. Double Type "C" Inlet (COA)
2. Median Drop Inlets Serial MDI-1 (NMSH&TD)
3. Type "D" Inlet (COA)

Table 7: **SUMMARY OF SEDIMENT YIELD ANALYSIS**

Return Period	Drainage Basin Sediment Yield (Tons)					Total Sediment Yield	Total Volume
(Years)	120.1	120.2	120.3	120.4	120.5-.7	(Tons)	Ac.-Ft.(2)
2	16.21	4.29	4.34	115.31	200.58	340.73	0.156
5	29.78	7.76	7.84	218.96	381.54	645.64	0.296
10	53.05	13.54	13.69	396.82	704.45	1181.55	0.542
25	93.09	23.39	23.65	711.19	1279.38	2130.70	0.978
50	121.39	30.39	30.72	936.02	1703.53	2822.05	1.296
100	165.74	41.13	41.60	1289.68	2388.96	3927.11	1.803
Average [1] Annual (tons)	24.71	6.36	6.43	183.49	325.41	546.41	0.251

Required East Detention Pond Sediment Volume = **2 x (Avg. Annual Yield) + 100 yr Yield = 5019.93 Tons = 2.30 Acre-feet**

[1] Average Annual Event = 0.015 (100 yr) + 0.015 (50 yr) + 0.04 (25 yr) + 0.08 (10 yr) + 0.2 (5 yr) + 0.4 (2 yr)

[2] Bulked Unit weight of sediment = 100pcf

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AHYMO SUMMARY TABLE (AHYMO993) - AMAFCA VERSION OF HYMO - SEPTEMBER, 1993        RUN DATE (MON/DAY/YR) =08/25/1993
INPUT FILE = QUIN_100.DAT                                                            USER NO.= COMMSC_B.T93

                           FROM  TO                PEAK     RUNOFF              TIME TO   CFS     PAGE =  1
               HYDROGRAPH   ID   ID      AREA    DISCHARGE  VOLUME     RUNOFF     PEAK    PER
COMMAND      IDENTIFICATION NO.  NO.   (SQ MI)    (CFS)     (AC-FT)   (INCHES)  (HOURS)   ACRE   NOTATION

START                                                                                    TIME=        .00
*S*** QUINTESSENCE DEVELOPMENT JOB NO 323-04-30
*S*** PROPOSED SUB-DIVISION DESIGN DRAINAGE CONDITIONS
*S*** INPUT FILE: QUIN_100.DAT  DLH  8/25/95
*S*** POND2 WEST POND RATING TABLE: WESTPOND.PND
*S*** POND2 EAST POND RATING TABLE: EASTPOND.PND
*S*** LAND TREATMENT VALUES DEVELOPED RESIDENTIAL AREAS:A=0,B=25,C=25,D=50
*S*** LTV BASED ON TYPICAL SINGLE FAMILY RES. WHERE %D=7*(((N*N)+(5*N))^.5)
*S*** 100-YEAR 6-HOUR STORM EVENT
*S*** RAIN 1-HR=2.20"  RAIN 6-HR=2.70"
RAINFALL  TYPE= 1                                                                        RAIN6=    2.700
*S*** SUB-DRAINAGE AREA 110 *****
COMPUTE NM HYD      110.60   -    1    .00794      21.23      .764    1.80502   1.517   4.178 PER IMP=  50.00
*S     DA# 110.8 (OFFSITE AREA - FUTURE CONDITIONS)
*S               (NE OF CORONADO STREET)
COMPUTE NM HYD      110.80   -    2    .01766      33.79     1.097    1.16425   1.517   2.989 PER IMP=  17.00
*S  DISCHARGE WEST ALONG CORONADO
ADD HYD             110.80  1& 2  3    .02560      55.02     1.861    1.36297   1.517   3.358
*S*** ROUTE 110.6,8 WEST ALONG CORONADO
ROUTE               310.70   3    2    .02560      52.88     1.861    1.36298   1.533   3.227
*S     DA# 110.9 (OFFSITE AREA - FUTURE CONDITIONS)
*S               (NORTH OF CORONADO STREET,EAST OF HOLBROOK)
COMPUTE NM HYD      110.90   -    1    .01260      19.74      .782    1.16425   1.567   2.448 PER IMP=  17.00
ADD HYD             110.80  1& 2  3    .03820      72.43     2.643    1.29741   1.550   2.963
*S     DA# 110.7 (OFFSITE AREA - FUTURE CONDITIONS)
*S               (NORTH OF CORONADO STREET)
COMPUTE NM HYD      110.70   -    1    .04740      74.20     2.943    1.16425   1.567   2.446 PER IMP=  17.00
*S TOTAL DISCHARGE INTO CORONADO CULVERT AT HOLBROOK
*S TOTAL DA# 110.6,7,8,9
ADD HYD             110.90  1& 3  2    .08560     146.03     5.586    1.22367   1.550   2.665
*S*** ROUTE DA# 110.-.6-.7-.8-.9  *****
*S*** 270 FT SOUTH IN HOLBROOK    *****
ROUTE               310.70   2    1    .08560     144.15     5.586    1.22367   1.567   2.631
COMPUTE NM HYD      110.50   -    2    .00561      15.01      .540    1.80502   1.517   4.179 PER IMP=  50.00
COMPUTE NM HYD      110.20   -    3    .00564      13.99      .505    1.68013   1.517   3.875 PER IMP=  50.00
ADD HYD             110.90  2& 3  4    .01125      28.99     1.045    1.74237   1.517   4.027
*S*** ROUTE DA 110.2 & 110.5 470 FT WEST IN SWALE *****
*S*** BTWN DA 110.3 & DA 110.2                    *****
ROUTE               310.50   4    3    .01125      28.31     1.045    1.74241   1.533   3.931
*S*** COMBINE DA 110.2-.5-.6-.7-.8-.9 *****
ADD HYD             110.50  1& 3  4    .09685     171.03     6.632    1.28392   1.567   2.759
COMPUTE NM HYD      110.40   -    1    .00428      11.45      .412    1.80502   1.517   4.181 PER IMP=  50.00
COMPUTE NM HYD      110.30   -    2    .00672      17.97      .647    1.80502   1.517   4.179 PER IMP=  50.00
*S COMBINE DA 110.3 AND 110.4
ADD HYD             110.30  1& 2  3    .01100      29.42     1.059    1.80498   1.517   4.180
*S COMBINE FLOW DA 110.2 thru 110.9
ADD HYD             110.30  3& 4  1    .10785     196.74     7.691    1.33707   1.567   2.850
*S*** ROUTE DA 110.2 thru 110.9 *****
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 ADD HYD              150.10  1& 3   2      .08053      208.14      7.875     1.83366   1.550   4.039
 *S*** SUB-DRAINAGE AREA 140 *****
 COMPUTE NM HYD       140.10   -     1      .00757       20.24       .729     1.80502   1.517   4.178 PER IMP=  50.00
 *S*** TOTAL FLOW AT LOW POINT NEAR QUINTESSENCE/RAMTHA INT.

                              FROM  TO                 PEAK       RUNOFF                TIME TO   CFS     PAGE =  3
                 HYDROGRAPH    ID   ID       AREA    DISCHARGE    VOLUME     RUNOFF      PEAK     PER
 COMMAND       IDENTIFICATION  NO.  NO.    (SQ MI)     (CFS)      (AC-FT)   (INCHES)    (HOURS)   ACRE    NOTATION

 ADD HYD              140.10  1& 2  15      .08810      227.03      8.604     1.83119   1.550   4.026
 *S*** SUB-DRAINAGE AREA 160 *****
 COMPUTE NM HYD       160.10   -    16      .00954       25.50       .918     1.80502   1.517   4.177 PER IMP=  50.00
 *S*** SUB-DRAINAGE AREA 170 *****
 COMPUTE NM HYD       170.10   -     1      .00764       21.41       .788     1.93437   1.517   4.379 PER IMP=  60.00
 *S     DA# 170.2 (OFFSITE AREA - FUTURE CONDITIONS)
 *S               (SOUTHWEST OF SAN ANTONIO)
 COMPUTE NM HYD       170.20   -     2      .00990       14.22       .434      .82223   1.517   2.245 PER IMP=   5.00
 *S TOTAL FLOW INTO WEST POND FROM DA 170.1,-2
 ADD HYD              270.20  1& 2  17      .01754       35.63      1.222     1.30662   1.517   3.174
 *S*** SUB-DRAINAGE AREA 180 *****
 COMPUTE NM HYD       180.50   -     1      .00385       10.31       .371     1.80502   1.517   4.182 PER IMP=  50.00
 *S*** ROUTE DA 180.5 WEST 700 ON JARASH
 ROUTE                380.50   1     2      .00385        9.44       .371     1.80502   1.550   3.830
 COMPUTE NM HYD       180.40   -     1      .00596       16.71       .615     1.93437   1.517   4.380 PER IMP=  60.00
 *S COMBINE FLOW DA 180.4 + 180.5
 ADD HYD              180.40  1& 2   3      .00981       25.61       .985     1.88355   1.533   4.080
 *S*** ROUTE 180.5 & 180.4 WEST 877 FT ON IRBID
 ROUTE                380.40   3     2      .00981       23.90       .985     1.88357   1.567   3.806
 COMPUTE NM HYD       180.30   -     1      .00976       27.35      1.007     1.93437   1.517   4.378 PER IMP=  60.00
 *S COMBINE FLOW DA 180.3,4,5
 ADD HYD              180.30  1& 2   4      .01957       49.75      1.992     1.90888   1.533   3.972
 COMPUTE NM HYD       180.60   -     1      .00262        7.02       .252     1.80502   1.517   4.186 PER IMP=  50.00
 *S*** ROUTE 180.6 WEST 545 FT ON ES SALT
 ROUTE                380.60   1     2      .00262        6.54       .252     1.80501   1.550   3.903
 *S     DA# 180.7 (OFFSITE AREA - FUTURE CONDITIONS)
 *S               (SOUTH OF SAN ANTONIO)
 COMPUTE NM HYD       180.70   -     1      .00440        6.33       .193      .82223   1.517   2.249 PER IMP=   5.00
 *S COMBINE FLOW 180.6 & 180.7
 ADD HYD              280.70  1& 2   3      .00702       12.79       .445     1.18895   1.533   2.848
 *S*** ROUTE 180.6 & 180.7 WEST 1115 FT ON ES SALT
 ROUTE                380.70   3     2      .00702       10.63       .445     1.18899   1.600   2.365
 COMPUTE NM HYD       180.20   -     1      .01301       36.45      1.342     1.93437   1.517   4.377 PER IMP=  60.00
 *S COMBINE DA 180.6,7, & 180.2 AT IRBID/ES SALT INT.
 ADD HYD              180.20  1& 2   3      .02003       44.35      1.787     1.67310   1.533   3.460
 *S*** TOTAL DISCHARGE AT IRBID/ES SALT INT. *****
 ADD HYD              180.20  3& 4   2      .03960       94.10      3.780     1.78962   1.533   3.713
 *S*** ROUTE 180.2,3,4,5,6,7 WEST 263 FT ON IRBID TO MA'AN DRIVE
 ROUTE                380.20   2     3      .03960       94.17      3.780     1.78962   1.533   3.716
 *S*** ROUTE 180.2,3,4,5,6,7 NORTH 207 FT ON MA'AN TO PINO STORM DRAIN
 ROUTE                380.40   3     2      .03960       93.87      3.780     1.78962   1.550   3.704
 COMPUTE NM HYD       180.10   -     1      .00535       15.00       .552     1.93437   1.517   4.381 PER IMP=  60.00
 *S*** TOTAL DISCHARGE FROM DA 180.1,2,3,4,5,6,7 AT MA'AN DR/PINO STORM DRAIN
 ADD HYD              180.10  1& 2  18      .04495      108.16      4.332     1.80684   1.533   3.760
 *S**** OFFSITE DRAINAGE AREAS *****
 *S     DA# 120.1 (OFFSITE AREA - FUTURE CONDITIONS)
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*S******** (ASSUMES TOPWIDTH=20*DEPTH,N=.03,SLOPE=.042,D50=1.32mm)
*S
SEDIMENT TRANSP     120.40   1      SED ID = 4          PEAK CONC.(PPM-w) =   239850  TOTAL SED.(TONS) =   1289.68
*S  COMBINED HYDROGRAPH FROM 120.1,-.2,-.3,-.4,-.9
ADD HYD             120.40  1& 4   2      .14364     268.49     9.533     1.24439   1.550    2.921
*S   ROUTE HYDROGRAPHS 120.1 THRU 120.4 & 120.9 IN EUBANK STORM SEWER
*S   66" RCP; .010 SLOPE; 382 LF
ROUTE               320.30   2     3      .14364     271.06     9.533     1.24440   1.550    2.949
*S ROUTE HYDROGRAPHS 120.1 THRU 120.4 & 120.9 IN EUBANK STORM SEWER
*S IN 60" RCP; 0.005 SLOPE; 95 LF

                               FROM  TO                  PEAK      RUNOFF              TIME TO   CFS      PAGE =   5
                   HYDROGRAPH   ID   ID       AREA     DISCHARGE   VOLUME    RUNOFF     PEAK     PER
COMMAND          IDENTIFICATION NO.  NO.     (SQ MI)     (CFS)     (AC-FT)   (INCHES)  (HOURS)   ACRE     NOTATION

ROUTE               320.10   3     4      .14364     273.09     9.533     1.24440   1.550    2.971
*S     DA# 120.5 (OFFSITE AREA - FUTURE CONDITIONS)
*S                (EAST OF EUBANK)
COMPUTE NM HYD      120.50   -     1      .04480      82.78     2.782     1.16425   1.517    2.887 PER IMP=  17.00
*S  ROUTE AREA 120.5 THRU AREA 120.6 THE NORTH PINO FROM LOWELL ST TO BROWNING S
ROUTE               320.50   1     2      .04480      63.76     2.782     1.16427   1.600    2.224
*S     DA# 120.6 (OFFSITE AREA - FUTURE CONDITIONS)
*S                (EAST OF EUBANK)
COMPUTE NM HYD      120.60   -     1      .08610     165.86     5.346     1.16425   1.517    3.010 PER IMP=  17.00
*S COMBINED HYDROGRAPH FROM 120.5 & 120.6
ADD HYD             120.60  1& 2   3      .13090     213.51     8.128     1.16425   1.550    2.549
*S ROUTE AREA 120.5 & 120.6 THRU 120.7 FROM BROWNING ST TO EUBANK ST
ROUTE               320.60   3     2      .13090     156.79     8.128     1.16426   1.650    1.872
*S     DA# 120.7 (OFFSITE AREA - FUTURE CONDITIONS)
*S                (EAST OF EUBANK @ SANTA MONICA)
COMPUTE NM HYD      120.70   -     1      .04990      95.43     3.098     1.16425   1.517    2.988 PER IMP=  17.00
*S COMBINED HYDROGRAPH FROM 120.5 - 120.7
*S (FLOW IN PINO ON EAST SIDE OF EUBANK)
ADD HYD             120.70  1& 2   3      .18080     221.62    11.226     1.16425   1.600    1.915
*S******** SEDIMENT WASH LOAD AT EUBANK/SANTA MONICA FROM EAST DA 120.5-120.7
SED WASH LOAD       120.70   3
                                                                              WASH CONC.(PPM-w) =    4485
*S******** BED MATERIAL TRANSPORT CAPACITY FROM DA 120.7
*S
*S******** (ASSUMES TOPWIDTH=40*DEPTH,N=.03,SLOPE=.0364,D50=1.32mm)
*S
SEDIMENT TRANSP     120.70   3      SED ID = 5          PEAK CONC.(PPM-w) =   182172  TOTAL SED.(TONS) =   2388.96
*S TOTAL DISCHARGE FROM CONTRIBUTING AREAS TO EAST DETENTION POND
ADD HYD             120.70  3& 4   2      .32444     483.13    20.760     1.19973   1.550    2.327
*S     DA# 100.3 EAST DETENTION POND SITE
*S
COMPUTE NM HYD      100.30   -     1      .00486       9.86      .300     1.15829   1.517    3.171 PER IMP=    .00
*S TOTAL FLOW INTO EAST DETENTION POND FROM EUBANK STORM SEWER AND PINO ARROYO
*S SB# 120.1, 120.2, 120.3, 120.4, 120.5, 120.6, 120.7, 120.9
ADD HYD             100.30  1& 2   5      .32930     492.57    21.060     1.19912   1.550    2.337
*S*** ROUTE TOTAL FLOW THROUGH EAST DETENTION POND   *****
ROUTE RESERVOIR     500.10   5    11      .32930     259.95    18.725     1.06620   1.800    1.233 AC-FT=    7.738
*S***  NORTH PINO STORM DRAIN
*S***  ROUTE DETENTION POND OUTFLOW THROUGH 54" DIA. CONCRETE PIPE
ROUTE               400.10  11     1      .32930     259.94    18.725     1.06620   1.800    1.233
*S***  NORTH PINO STORM DRAIN
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*S              (HERITAGE EAST)
COMPUTE NM HYD       190.30   -     1      .02750     73.48     2.647    1.80502   1.517   4.175 PER IMP=  50.00
ADD HYD              400.90  1&12  13      .76168    889.95    57.130    1.40635   1.550   1.826
*S     DA# 120.8 (OFFSITE AREA - FUTURE CONDITIONS)
*S              (EAST OF EUBANK @ SAN ANTONIO)
COMPUTE NM HYD       120.80   -     1      .03590     66.34     2.229    1.16425   1.517   2.887 PER IMP=  17.00
FINISH
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AHYMO SUMMARY TABLE (AHYMO993) - AMAFCA VERSION OF HYMO - SEPTEMBER, 1993          RUN DATE (MON/DAY/YR) =08/25/1993
INPUT FILE = QUIN_50.DAT                                                                      USER NO.= COMMSC_B.T93

                           FROM  TO                  PEAK    RUNOFF             TIME TO   CFS    PAGE =  1
              HYDROGRAPH    ID   ID     AREA     DISCHARGE   VOLUME    RUNOFF     PEAK    PER
COMMAND    IDENTIFICATION  NO.  NO.   (SQ MI)      (CFS)    (AC-FT)   (INCHES)  (HOURS)   ACRE   NOTATION

START                                                                                          TIME=      .00
*S*** QUINTESSENCE DEVELOPMENT JOB NO 323-04-30
*S*** PROPOSED SUB-DIVISION DESIGN DRAINAGE CONDITIONS
*S*** INPUT FILE: QUIN_50.DAT  DLH  8/25/95
*S*** POND2 WEST POND RATING TABLE: WESTPOND.PND
*S*** POND2 EAST POND RATING TABLE: EASTPOND.PND
*S*** LAND TREATMENT VALUES DEVELOPED RESIDENTIAL AREAS:A=0,B=25,C=25,D=50
*S*** LTV BASED ON TYPICAL SINGLE FAMILY RES. WHERE %D=7*(((N*N)+(5*N))^.5)
*S*** 50-YEAR 6-HOUR STORM EVENT
*S*** RAIN 1-HR=1.95" RAIN 6-HR=2.40"
RAINFALL  TYPE= 1                                                                              RAIN6=    2.400
*S*** SUB-DRAINAGE AREA 110 *****
COMPUTE NM HYD     110.60   -    1    .00794     18.54     .652    1.53928   1.517   3.649 PER IMP=  50.00
*S     DA# 110.8 (OFFSITE AREA - FUTURE CONDITIONS)
*S               (NE OF CORONADO STREET)
COMPUTE NM HYD     110.80   -    2    .01766     28.22     .888     .94334   1.517   2.497 PER IMP=  17.00
*S  DISCHARGE WEST ALONG CORONADO
ADD HYD            110.80  1& 2  3    .02560     46.76    1.540    1.12815   1.517   2.854
*S*** ROUTE 110.6,8 WEST ALONG CORONADO
ROUTE              310.70   3    2    .02560     44.58    1.540    1.12816   1.550   2.721
*S     DA# 110.9 (OFFSITE AREA - FUTURE CONDITIONS)
*S               (NORTH OF CORONADO STREET,EAST OF HOLBROOK)
COMPUTE NM HYD     110.90   -    1    .01260     16.42     .634     .94334   1.567   2.036 PER IMP=  17.00
ADD HYD            110.80  1& 2  3    .03820     60.85    2.174    1.06718   1.550   2.489
*S     DA# 110.7 (OFFSITE AREA - FUTURE CONDITIONS)
*S               (NORTH OF CORONADO STREET)
COMPUTE NM HYD     110.70   -    1    .04740     61.70    2.385     .94334   1.567   2.034 PER IMP=  17.00
*S TOTAL DISCHARGE INTO CORONADO CULVERT AT HOLBROOK
*S TOTAL DA# 110.6,7,8,9
ADD HYD            110.90  1& 3  2    .08560    122.01    4.559     .99860   1.550   2.227
*S*** ROUTE DA# 110.-.6-.7-.8-.9  *****
*S*** 270 FT SOUTH IN HOLBROOK    *****
ROUTE              310.70   2    1    .08560    120.47    4.559     .99860   1.583   2.199
COMPUTE NM HYD     110.50   -    2    .00561     13.11     .461    1.53928   1.517   3.651 PER IMP=  50.00
COMPUTE NM HYD     110.20   -    3    .00564     12.06     .430    1.42818   1.517   3.342 PER IMP=  50.00
ADD HYD            110.90  2& 3  4    .01125     25.17     .890    1.48353   1.517   3.496
*S*** ROUTE DA 110.2 & 110.5 470 FT WEST IN SWALE *****
*S*** BTWN DA 110.3 & DA 110.2                    *****
ROUTE              310.50   4    3    .01125     24.51     .890    1.48355   1.533   3.404
*S*** COMBINE DA 110.2-.5-.6-.7-.8-.9 *****
ADD HYD            110.50  1& 3  4    .09685    143.67    5.449    1.05493   1.567   2.318
COMPUTE NM HYD     110.40   -    1    .00428     10.00     .351    1.53928   1.517   3.652 PER IMP=  50.00
COMPUTE NM HYD     110.30   -    2    .00672     15.70     .552    1.53928   1.517   3.650 PER IMP=  50.00
*S COMBINE DA 110.3 AND 110.4
ADD HYD            110.30  1& 2  3    .01100     25.70     .903    1.53924   1.517   3.651
*S COMBINE FLOW DA 110.2 thru 110.9
ADD HYD            110.30  3& 4  1    .10785    166.07    6.352    1.10433   1.567   2.406
*S*** ROUTE DA 110.2 thru 110.9 *****
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ADD HYD          150.10  1& 3  2     .08053    181.66    6.729   1.56663  1.550  3.525
*S*** SUB-DRAINAGE AREA 140 *****
COMPUTE NM HYD   140.10  -     1     .00757     17.68     .621   1.53928  1.517  3.649 PER IMP=  50.00
*S*** TOTAL FLOW AT LOW POINT NEAR QUINTESSENCE/RAMTHA INT.

                               FROM  TO                PEAK    RUNOFF             TIME TO   CFS    PAGE =  3
                 HYDROGRAPH    ID    ID     AREA    DISCHARGE  VOLUME   RUNOFF    PEAK     PER
COMMAND        IDENTIFICATION  NO.   NO.   (SQ MI)    (CFS)    (AC-FT)  (INCHES)  (HOURS)  ACRE   NOTATION

ADD HYD          140.10  1& 2  15    .08810    198.13    7.350   1.56428  1.550  3.514
*S*** SUB-DRAINAGE AREA 160 *****
COMPUTE NM HYD   160.10  -     16    .00954     22.28     .783   1.53928  1.517  3.648 PER IMP=  50.00
*S*** SUB-DRAINAGE AREA 170 *****
COMPUTE NM HYD   170.10  -     1     .00764     18.76     .677   1.66221  1.517  3.837 PER IMP=  60.00
*S     DA# 170.2 (OFFSITE AREA - FUTURE CONDITIONS)
*S               (SOUTHWEST OF SAN ANTONIO)
COMPUTE NM HYD   170.20  -     2     .00990     11.23     .334    .63176  1.517  1.772 PER IMP=   5.00
*S TOTAL FLOW INTO WEST POND FROM DA 170.1,-2
ADD HYD          270.20  1& 2  17    .01754     29.99    1.011   1.08057  1.517  2.672
*S*** SUB-DRAINAGE AREA 180 *****
COMPUTE NM HYD   180.50  -     1     .00385      9.00     .316   1.53928  1.517  3.653 PER IMP=  50.00
*S*** ROUTE DA 180.5 WEST 700 ON JARASH
ROUTE            380.50  1     2     .00385      8.15     .316   1.53928  1.550  3.310
COMPUTE NM HYD   180.40  -     1     .00596     14.64     .528   1.66221  1.517  3.838 PER IMP=  60.00
*S COMBINE FLOW DA 180.4 + 180.5
ADD HYD          180.40  1& 2  3     .00981     22.30     .844   1.61391  1.533  3.552
*S*** ROUTE 180.5 & 180.4 WEST 877 FT ON IRBID
ROUTE            380.40  3     2     .00981     20.60     .844   1.61393  1.567  3.281
COMPUTE NM HYD   180.30  -     1     .00976     23.96     .865   1.66221  1.517  3.836 PER IMP=  60.00
*S COMBINE FLOW DA 180.3,4,5
ADD HYD          180.30  1& 2  4     .01957     43.06    1.710   1.63798  1.533  3.438
COMPUTE NM HYD   180.60  -     1     .00262      6.13     .215   1.53928  1.517  3.656 PER IMP=  50.00
*S*** ROUTE 180.6 WEST 545 FT ON ES SALT
ROUTE            380.60  1     2     .00262      5.71     .215   1.53928  1.550  3.405
*S     DA# 180.7 (OFFSITE AREA - FUTURE CONDITIONS)
*S               (SOUTH OF SAN ANTONIO)
COMPUTE NM HYD   180.70  -     1     .00440      5.00     .148    .63176  1.517  1.776 PER IMP=   5.00
*S COMBINE FLOW 180.6 & 180.7
ADD HYD          280.70  1& 2  3     .00702     10.63     .363    .97039  1.533  2.365
*S*** ROUTE 180.6 & 180.7 WEST 1115 FT ON ES SALT
ROUTE            380.70  3     2     .00702      8.63     .363    .97043  1.600  1.920
COMPUTE NM HYD   180.20  -     1     .01301     31.94    1.153   1.66221  1.517  3.836 PER IMP=  60.00
*S COMBINE DA 180.6,7, & 180.2 AT IRBID/ES SALT INT.
ADD HYD          180.20  1& 2  3     .02003     38.14    1.517   1.41973  1.533  2.975
*S*** TOTAL DISCHARGE AT IRBID/ES SALT INT. *****
ADD HYD          180.20  3& 4  2     .03960     81.20    3.226   1.52759  1.533  3.204
*S*** ROUTE 180.2,3,4,5,6,7 WEST 263 FT ON IRBID TO MA'AN DRIVE
ROUTE            380.20  2     3     .03960     81.29    3.226   1.52759  1.533  3.208
*S*** ROUTE 180.2,3,4,5,6,7 NORTH 207 FT ON MA'AN TO PINO STORM DRAIN
ROUTE            380.40  3     2     .03960     81.08    3.226   1.52759  1.550  3.199
COMPUTE NM HYD   180.10  -     1     .00535     13.14     .474   1.66221  1.517  3.839 PER IMP=  60.00
*S*** TOTAL DISCHARGE FROM DA 180.1,2,3,4,5,6,7 AT MA'AN DR/PINO STORM DRAIN
ADD HYD          180.10  1& 2  18    .04495     93.66    3.701   1.54360  1.533  3.256
*S**** OFFSITE DRAINAGE AREAS *****
*S     DA# 120.1 (OFFSITE AREA - FUTURE CONDITIONS)
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*S******** (ASSUMES TOPWIDTH=20*DEPTH,N=.03,SLOPE=.042,D50=1.32mm)
*S
SEDIMENT TRANSP      120.40    1       SED ID =  4          PEAK CONC.(PPM-w) =   220332  TOTAL SED.(TONS) =     936.02
*S  COMBINED HYDROGRAPH FROM 120.1,-.2,-.3,-.4,-.9
ADD HYD              120.40  1& 4   2      .14364     225.66     7.802    1.01849   1.550   2.455
*S   ROUTE HYDROGRAPHS 120.1 THRU 120.4 & 120.9 IN EUBANK STORM SEWER
*S   66" RCP; .010 SLOPE; 382 LF
ROUTE                320.30    2    3      .14364     228.15     7.803    1.01851   1.550   2.482
*S ROUTE HYDROGRAPHS 120.1 THRU 120.4 & 120.9 IN EUBANK STORM SEWER
*S IN 60" RCP; 0.005 SLOPE; 95 LF

                               FROM  TO                  PEAK     RUNOFF              TIME TO   CFS     PAGE =  5
                  HYDROGRAPH    ID   ID       AREA     DISCHARGE  VOLUME    RUNOFF     PEAK     PER
COMMAND         IDENTIFICATION  NO.  NO.     (SQ MI)     (CFS)    (AC-FT)  (INCHES)  (HOURS)   ACRE    NOTATION

ROUTE                320.10    3    4      .14364     230.00     7.803    1.01851   1.550   2.502
*S     DA# 120.5 (OFFSITE AREA - FUTURE CONDITIONS)
*S               (EAST OF EUBANK)
COMPUTE NM HYD       120.50    -    1      .04480      69.06     2.254     .94334   1.533   2.408 PER IMP=  17.00
*S  ROUTE AREA 120.5 THRU AREA 120.6 THE NORTH PINO FROM LOWELL ST TO BROWNING S
ROUTE                320.50    1    2      .04480      50.99     2.254     .94337   1.600   1.779
*S     DA# 120.6 (OFFSITE AREA - FUTURE CONDITIONS)
*S               (EAST OF EUBANK)
COMPUTE NM HYD       120.60    -    1      .08610     138.27     4.332     .94334   1.517   2.509 PER IMP=  17.00
*S COMBINED HYDROGRAPH FROM 120.5 & 120.6
ADD HYD              120.60  1& 2   3      .13090     175.44     6.586     .94334   1.550   2.094
*S ROUTE AREA 120.5 & 120.6 THRU 120.7 FROM BROWNING ST TO EUBANK ST
ROUTE                320.60    3    2      .13090     121.64     6.586     .94337   1.650   1.452
*S     DA# 120.7 (OFFSITE AREA - FUTURE CONDITIONS)
*S               (EAST OF EUBANK @ SANTA MONICA)
COMPUTE NM HYD       120.70    -    1      .04990      79.70     2.511     .94334   1.517   2.496 PER IMP=  17.00
*S COMBINED HYDROGRAPH FROM 120.5 - 120.7
*S (FLOW IN PINO ON EAST SIDE OF EUBANK)
ADD HYD              120.70  1& 2   3      .18080     176.27     9.096     .94335   1.600   1.523
*S******** SEDIMENT WASH LOAD AT EUBANK/SANTA MONICA FROM EAST DA 120.5-120.7
SED WASH LOAD        120.70    3                                                 WASH CONC.(PPM-w) =      4329
*S******** BED MATERIAL TRANSPORT CAPACITY FROM DA 120.7
*S
*S******** (ASSUMES TOPWIDTH=40*DEPTH,N=.03,SLOPE=.0364,D50=1.32mm)
*S
SEDIMENT TRANSP      120.70    3       SED ID =  5          PEAK CONC.(PPM-w) =   163590  TOTAL SED.(TONS) =    1703.53
*S TOTAL DISCHARGE FROM CONTRIBUTING AREAS TO EAST DETENTION POND
ADD HYD              120.70  3& 4   2      .32444     401.57    16.899     .97662   1.550   1.934
*S     DA# 100.3 EAST DETENTION POND SITE
*S
COMPUTE NM HYD       100.30    -    1      .00486       8.42      .240     .92465   1.517   2.708 PER IMP=    .00
*S TOTAL FLOW INTO EAST DETENTION POND FROM EUBANK STORM SEWER AND PINO ARROYO
*S SB# 120.1, 120.2, 120.3, 120.4, 120.5, 120.6, 120.7, 120.9
ADD HYD              100.30  1& 2   5      .32930     409.62    17.139     .97586   1.550   1.944
*S*** ROUTE TOTAL FLOW THROUGH EAST DETENTION POND   *****
ROUTE RESERVOIR      500.10    5   11      .32930     225.03    14.804     .84295   1.783   1.068 AC-FT=    6.245
*S***  NORTH PINO STORM DRAIN
*S***  ROUTE DETENTION POND OUTFLOW THROUGH 54" DIA. CONCRETE PIPE
ROUTE                400.10   11    1      .32930     225.04    14.804     .84295   1.783   1.068
*S***  NORTH PINO STORM DRAIN
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*S              (HERITAGE EAST)
COMPUTE NM HYD       190.30   -     1      .02750     64.18     2.258    1.53928  1.517   3.646 PER IMP=  50.00
ADD HYD              400.90  1&12  13      .76168    793.45    47.318    1.16481  1.550   1.628
*S      DA# 120.8 (OFFSITE AREA - FUTURE CONDITIONS)
*S              (EAST OF EUBANK @ SAN ANTONIO)
COMPUTE NM HYD       120.80   -     1      .03590     55.34     1.806     .94334  1.533   2.409 PER IMP=  17.00
FINISH
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  AHYMO SUMMARY TABLE (AHYMO993) - AMAFCA VERSION OF HYMO - SEPTEMBER, 1993          RUN DATE (MON/DAY/YR) =08/25/1993
  INPUT FILE = QUIN_25.DAT                                                                  USER NO.= COMMSC_B.T93

                          FROM  TO                 PEAK      RUNOFF              TIME TO   CFS      PAGE =  1
             HYDROGRAPH   ID    ID      AREA     DISCHARGE   VOLUME    RUNOFF     PEAK     PER
  COMMAND  IDENTIFICATION NO.   NO.    (SQ MI)     (CFS)     (AC-FT)  (INCHES)   (HOURS)   ACRE     NOTATION

  START                                                                                             TIME=     .00
  *S*** QUINTESSENCE DEVELOPMENT JOB NO 323-04-30
  *S*** PROPOSED SUB-DIVISION DESIGN DRAINAGE CONDITIONS
  *S*** INPUT FILE: QUIN_25.DAT  DLH  8/25/95
  *S*** POND2 WEST POND RATING TABLE: WESTPOND.PND
  *S*** POND2 EAST POND RATING TABLE: EASTPOND.PND
  *S*** LAND TREATMENT VALUES DEVELOPED RESIDENTIAL AREAS:A=0,B=25,C=25,D=50
  *S*** LTV BASED ON TYPICAL SINGLE FAMILY RES. WHERE %D=7*(((N*N)+(5*N))^.5)
  *S*** 25-YEAR 6-HOUR STORM EVENT
  *S*** RAIN 1-HR=1.75"  RAIN 6-HR=2.20"
  RAINFALL  TYPE= 1                                                                                 RAIN6=    2.200
  *S*** SUB-DRAINAGE AREA 110 *****
  COMPUTE NM HYD     110.60   -    1    .00794     16.40      .575    1.35726    1.517    3.228 PER IMP=  50.00
  *S     DA# 110.8 (OFFSITE AREA - FUTURE CONDITIONS)
  *S               (NE OF CORONADO STREET)
  COMPUTE NM HYD     110.80   -    2    .01766     23.96      .748     .79463    1.517    2.120 PER IMP=  17.00
  *S  DISCHARGE WEST ALONG CORONADO
  ADD HYD            110.80  1& 2  3    .02560     40.36     1.323     .96911    1.517    2.463
  *S*** ROUTE 110.6,8 WEST ALONG CORONADO
  ROUTE              310.70   3    2    .02560     38.32     1.323     .96912    1.550    2.339
  *S     DA# 110.9 (OFFSITE AREA - FUTURE CONDITIONS)
  *S               (NORTH OF CORONADO STREET,EAST OF HOLBROOK)
  COMPUTE NM HYD     110.90   -    1    .01260     13.89      .534     .79463    1.567    1.722 PER IMP=  17.00
  ADD HYD            110.80  1& 2  3    .03820     52.10     1.857     .91155    1.550    2.131
  *S     DA# 110.7 (OFFSITE AREA - FUTURE CONDITIONS)
  *S               (NORTH OF CORONADO STREET)
  COMPUTE NM HYD     110.70   -    1    .04740     52.20     2.009     .79463    1.567    1.721 PER IMP=  17.00
  *S TOTAL DISCHARGE INTO CORONADO CULVERT AT HOLBROOK
  *S TOTAL DA# 110.6,7,8,9
  ADD HYD            110.90  1& 3  2    .08560    103.88     3.866     .84680    1.550    1.896
  *S*** ROUTE DA# 110.-.6-.7-.8-.9  *****
  *S*** 270 FT SOUTH IN HOLBROOK    *****
  ROUTE              310.70   2    1    .08560    102.05     3.866     .84681    1.583    1.863
  COMPUTE NM HYD     110.50   -    2    .00561     11.59      .406    1.35726    1.517    3.229 PER IMP=  50.00
  COMPUTE NM HYD     110.20   -    3    .00564     10.56      .378    1.25776    1.517    2.926 PER IMP=  50.00
  ADD HYD            110.90  2& 3  4    .01125     22.15      .784    1.30733    1.517    3.077
  *S*** ROUTE DA 110.2 & 110.5 470 FT WEST IN SWALE *****
  *S*** BTWN DA 110.3 & DA 110.2                    *****
  ROUTE              310.50   4    3    .01125     21.54      .784    1.30737    1.533    2.991
  *S*** COMBINE DA 110.2-.5-.6-.7-.8-.9 *****
  ADD HYD            110.50  1& 3  4    .09685    122.53     4.650     .90030    1.567    1.977
  COMPUTE NM HYD     110.40   -    1    .00428      8.85      .310    1.35726    1.517    3.231 PER IMP=  50.00
  COMPUTE NM HYD     110.30   -    2    .00672     13.89      .486    1.35726    1.517    3.229 PER IMP=  50.00
  *S COMBINE DA 110.3 AND 110.4
  ADD HYD            110.30  1& 2  3    .01100     22.74      .796    1.35721    1.517    3.230
  *S COMBINE FLOW DA 110.2 thru 110.9
  ADD HYD            110.30  3& 4  1    .10785    142.30     5.447     .94690    1.567    2.062
  *S*** ROUTE DA 110.2 thru 110.9 *****
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 ADD HYD             150.10  1& 3   2      .08053      160.74      5.944   1.38385  1.550   3.119
 *S*** SUB-DRAINAGE AREA 140 *****
 COMPUTE NM HYD      140.10   -     1      .00757       15.64       .548   1.35726  1.517   3.228 PER IMP=  50.00
 *S*** TOTAL FLOW AT LOW POINT NEAR QUINTESSENCE/RAMTHA INT.

                                FROM  TO               PEAK      RUNOFF             TIME TO   CFS    PAGE =  3
                  HYDROGRAPH     ID   ID      AREA   DISCHARGE   VOLUME    RUNOFF     PEAK    PER
 COMMAND        IDENTIFICATION   NO.  NO.   (SQ MI)    (CFS)     (AC-FT)  (INCHES)  (HOURS)   ACRE   NOTATION

 ADD HYD             140.10  1& 2  15      .08810      175.43      6.492   1.38157  1.533   3.111
 *S*** SUB-DRAINAGE AREA 160 *****
 COMPUTE NM HYD      160.10   -    16      .00954       19.71       .691   1.35726  1.517   3.228 PER IMP=  50.00
 *S*** SUB-DRAINAGE AREA 170 *****
 COMPUTE NM HYD      170.10   -     1      .00764       16.65       .601   1.47615  1.517   3.406 PER IMP=  60.00
 *S     DA# 170.2 (OFFSITE AREA - FUTURE CONDITIONS)
 *S               (SOUTHWEST OF SAN ANTONIO)
 COMPUTE NM HYD      170.20   -     2      .00990        9.04       .267    .50659  1.517   1.427 PER IMP=   5.00
 *S TOTAL FLOW INTO WEST POND FROM DA 170.1,-2
 ADD HYD             270.20  1& 2  17      .01754       25.69       .869    .92888  1.517   2.289
 *S*** SUB-DRAINAGE AREA 180 *****
 COMPUTE NM HYD      180.50   -     1      .00385        7.96       .279   1.35726  1.517   3.232 PER IMP=  50.00
 *S*** ROUTE DA 180.5 WEST 700 ON JARASH
 ROUTE               380.50   1     2      .00385        7.17       .279   1.35725  1.550   2.910
 COMPUTE NM HYD      180.40   -     1      .00596       12.99       .469   1.47615  1.517   3.407 PER IMP=  60.00
 *S COMBINE FLOW DA 180.4 + 180.5
 ADD HYD             180.40  1& 2   3      .00981       19.71       .748   1.42944  1.533   3.140
 *S*** ROUTE 180.5 & 180.4 WEST 877 FT ON IRBID
 ROUTE               380.40   3     2      .00981       18.08       .748   1.42946  1.567   2.879
 COMPUTE NM HYD      180.30   -     1      .00976       21.27       .768   1.47615  1.517   3.405 PER IMP=  60.00
 *S COMBINE FLOW DA 180.3,4,5
 ADD HYD             180.30  1& 2   4      .01957       37.89      1.516   1.45272  1.533   3.025
 COMPUTE NM HYD      180.60   -     1      .00262        5.42       .190   1.35726  1.517   3.235 PER IMP=  50.00
 *S*** ROUTE 180.6 WEST 545 FT ON ES SALT
 ROUTE               380.60   1     2      .00262        5.00       .190   1.35725  1.550   2.980
 *S    DA# 180.7 (OFFSITE AREA - FUTURE CONDITIONS)
 *S              (SOUTH OF SAN ANTONIO)
 COMPUTE NM HYD      180.70   -     1      .00440        4.03       .119    .50659  1.517   1.429 PER IMP=   5.00
 *S COMBINE FLOW 180.6 & 180.7
 ADD HYD             280.70  1& 2   3      .00702        8.95       .309    .82400  1.533   1.991
 *S*** ROUTE 180.6 & 180.7 WEST 1115 FT ON ES SALT
 ROUTE               380.70   3     2      .00702        7.13       .309    .82403  1.617   1.588
 COMPUTE NM HYD      180.20   -     1      .01301       28.35      1.024   1.47615  1.517   3.405 PER IMP=  60.00
 *S COMBINE DA 180.6,7, & 180.2 AT IRBID/ES SALT INT.
 ADD HYD             180.20  1& 2   3      .02003       33.38      1.333   1.24757  1.533   2.604
 *S*** TOTAL DISCHARGE AT IRBID/ES SALT INT. *****
 ADD HYD             180.20  3& 4   2      .03960       71.27      2.849   1.34895  1.533   2.812
 *S*** ROUTE 180.2,3,4,5,6,7 WEST 263 FT ON IRBID TO MA'AN DRIVE
 ROUTE               380.20   2     3      .03960       71.26      2.849   1.34896  1.533   2.812
 *S*** ROUTE 180.2,3,4,5,6,7 NORTH 207 FT ON MA'AN TO PINO STORM DRAIN
 ROUTE               380.40   3     2      .03960       71.20      2.849   1.34896  1.550   2.809
 COMPUTE NM HYD      180.10   -     1      .00535       11.67       .421   1.47615  1.517   3.407 PER IMP=  60.00
 *S*** TOTAL DISCHARGE FROM DA 180.1,2,3,4,5,6,7 AT MA'AN DR/PINO STORM DRAIN
 ADD HYD             180.10  1& 2  18      .04495       82.32      3.270   1.36409  1.533   2.861
 *S**** OFFSITE DRAINAGE AREAS *****
 *S     DA# 120.1 (OFFSITE AREA - FUTURE CONDITIONS)
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   *S******** (ASSUMES TOPWIDTH=20*DEPTH,N=.03,SLOPE=.042,D50=1.32mm)
   *S
   SEDIMENT TRANSP     120.40   1      SED ID = 4            PEAK CONC.(PPM-w) =  205681  TOTAL SED.(TONS) =    711.20
   *S  COMBINED HYDROGRAPH FROM 120.1,-.2,-.3,-.4,-.9
   ADD HYD             120.40  1& 4   2      .14364     192.65      6.636      .86625    1.550    2.096
   *S   ROUTE HYDROGRAPHS 120.1 THRU 120.4 & 120.9 IN EUBANK STORM SEWER
   *S   66" RCP; .010 SLOPE; 382 LF
   ROUTE               320.30   2     3      .14364     195.11      6.636      .86626    1.550    2.122
   *S ROUTE HYDROGRAPHS 120.1 THRU 120.4 & 120.9 IN EUBANK STORM SEWER
   *S IN 60" RCP; 0.005 SLOPE; 95 LF

                                  FROM  TO                 PEAK       RUNOFF               TIME TO    CFS     PAGE =   5
                     HYDROGRAPH    ID   ID       AREA    DISCHARGE    VOLUME     RUNOFF     PEAK      PER
   COMMAND        IDENTIFICATION  NO.  NO.     (SQ MI)     (CFS)      (AC-FT)   (INCHES)   (HOURS)    ACRE     NOTATION

   ROUTE               320.10   3     4      .14364     195.21      6.636      .86626    1.550    2.123
   *S      DA# 120.5 (OFFSITE AREA - FUTURE CONDITIONS)
   *S                (EAST OF EUBANK)
   COMPUTE NM HYD      120.50   -     1      .04480      58.58      1.899      .79463    1.533    2.043 PER IMP=  17.00
   *S  ROUTE AREA 120.5 THRU AREA 120.6 THE NORTH PINO FROM LOWELL ST TO BROWNING S
   ROUTE               320.50   1     2      .04480      42.00      1.899      .79466    1.600    1.465
   *S      DA# 120.6 (OFFSITE AREA - FUTURE CONDITIONS)
   *S                (EAST OF EUBANK)
   COMPUTE NM HYD      120.60   -     1      .08610     117.24      3.649      .79463    1.517    2.128 PER IMP=  17.00
   *S COMBINED HYDROGRAPH FROM 120.5 & 120.6
   ADD HYD             120.60  1& 2   3      .13090     146.62      5.548      .79463    1.550    1.750
   *S ROUTE AREA 120.5 & 120.6 THRU 120.7 FROM BROWNING ST TO EUBANK ST
   ROUTE               320.60   3     2      .13090      98.47      5.548      .79465    1.650    1.175
   *S      DA# 120.7 (OFFSITE AREA - FUTURE CONDITIONS)
   *S                (EAST OF EUBANK @ SANTA MONICA)
   COMPUTE NM HYD      120.70   -     1      .04990      67.67      2.115      .79463    1.517    2.119 PER IMP=  17.00
   *S COMBINED HYDROGRAPH FROM 120.5 - 120.7
   *S (FLOW IN PINO ON EAST SIDE OF EUBANK)
   ADD HYD             120.70  1& 2   3      .18080     146.00      7.662      .79465    1.600    1.262
   *S******** SEDIMENT WASH LOAD AT EUBANK/SANTA MONICA FROM EAST DA 120.5-120.7
   SED WASH LOAD       120.70   3                                                  WASH CONC.(PPM-w) =      4201
   *S******** BED MATERIAL TRANSPORT CAPACITY FROM DA 120.7
   *S
   *S******** (ASSUMES TOPWIDTH=40*DEPTH,N=.03,SLOPE=.0364,D50=1.32mm)
   *S
   SEDIMENT TRANSP     120.70   3      SED ID = 5            PEAK CONC.(PPM-w) =  149052  TOTAL SED.(TONS) =   1279.39
   *S TOTAL DISCHARGE FROM CONTRIBUTING AREAS TO EAST DETENTION POND
   ADD HYD             120.70  3& 4   2      .32444     338.89     14.299      .82635    1.550    1.632
   *S      DA# 100.3 EAST DETENTION POND SITE
   *S
   COMPUTE NM HYD      100.30   -     1      .00486       7.28       .198      .76280    1.517    2.339 PER IMP=    .00
   *S TOTAL FLOW INTO EAST DETENTION POND FROM EUBANK STORM SEWER AND PINO ARROYO
   *S SB# 120.1, 120.2, 120.3, 120.4, 120.5, 120.6, 120.7, 120.9
   ADD HYD             100.30  1& 2   5      .32930     345.82     14.496      .82541    1.550    1.641
   *S*** ROUTE TOTAL FLOW THROUGH EAST DETENTION POND   *****
   ROUTE RESERVOIR     500.10   5    11      .32930     199.01     12.162      .69251    1.767     .944 AC-FT=   5.327
   *S***  NORTH PINO STORM DRAIN
   *S***  ROUTE DETENTION POND OUTFLOW THROUGH 54" DIA. CONCRETE PIPE
   ROUTE               400.10  11     1      .32930     199.06     12.162      .69250    1.767     .945
   *S***  NORTH PINO STORM DRAIN
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*S              (HERITAGE EAST)
COMPUTE NM HYD        190.30   -     1      .02750      56.78      1.991     1.35726   1.517   3.226 PER IMP=  50.00
ADD HYD               400.90  1&12  13      .76168     722.01     40.657     1.00083   1.550   1.481
*S      DA# 120.8 (OFFSITE AREA - FUTURE CONDITIONS)
*S              (EAST OF EUBANK @ SAN ANTONIO)
COMPUTE NM HYD        120.80   -     1      .03590      46.95      1.521      .79463   1.533   2.043 PER IMP=  17.00
FINISH
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AHYMO SUMMARY TABLE (AHYMO993) - AMAFCA VERSION OF HYMO - SEPTEMBER, 1993           RUN DATE (MON/DAY/YR) =08/25/1993
INPUT FILE = QUIN_10.DAT                                                                         USER NO.= COMMSC_B.T93

                               FROM  TO                  PEAK      RUNOFF                TIME TO   CFS      PAGE =  1
                  HYDROGRAPH    ID   ID      AREA     DISCHARGE    VOLUME    RUNOFF       PEAK     PER
COMMAND         IDENTIFICATION  NO.  NO.   (SQ MI)      (CFS)      (AC-FT)  (INCHES)    (HOURS)   ACRE     NOTATION

START                                                                                                      TIME=     .00
*S*** QUINTESSENCE DEVELOPMENT JOB NO 323-04-30
*S*** PROPOSED SUB-DIVISION DESIGN DRAINAGE CONDITIONS
*S*** INPUT FILE: QUIN_10.DAT  DLH  8/25/95
*S*** POND2 WEST POND RATING TABLE: WESTPOND.PND
*S*** POND2 EAST POND RATING TABLE: EASTPOND.PND
*S*** LAND TREATMENT VALUES DEVELOPED RESIDENTIAL AREAS:A=0,B=25,C=25,D=50
*S*** LTV BASED ON TYPICAL SINGLE FAMILY RES. WHERE %D=7*(((N*N)+(5*N))^.5)
*S*** 10-YEAR 6-HOUR STORM EVENT
*S*** RAIN 1-HR=1.47"  RAIN 6-HR=1.80"
RAINFALL  TYPE= 1                                                                                          RAIN6=    1.800
*S*** SUB-DRAINAGE AREA 110 *****
COMPUTE NM HYD       110.60   -    1     .00794      13.00      .438     1.03411     1.517    2.558 PER IMP=  50.00
*S     DA# 110.8 (OFFSITE AREA - FUTURE CONDITIONS)
*S               (NE OF CORONADO STREET)
COMPUTE NM HYD       110.80   -    2     .01766      16.76      .514      .54578     1.517    1.482 PER IMP=  17.00
*S  DISCHARGE WEST ALONG CORONADO
ADD HYD              110.80  1& 2  3     .02560      29.75      .952      .69722     1.517    1.816
*S*** ROUTE 110.6,8 WEST ALONG CORONADO
ROUTE                310.70   3    2     .02560      27.70      .952      .69722     1.550    1.691
*S     DA# 110.9 (OFFSITE AREA - FUTURE CONDITIONS)
*S               (NORTH OF CORONADO STREET,EAST OF HOLBROOK)
COMPUTE NM HYD       110.90   -    1     .01260       9.67      .367      .54578     1.567    1.199 PER IMP=  17.00
ADD HYD              110.80  1& 2  3     .03820      37.28     1.319      .64725     1.550    1.525
*S     DA# 110.7 (OFFSITE AREA - FUTURE CONDITIONS)
*S               (NORTH OF CORONADO STREET)
COMPUTE NM HYD       110.70   -    1     .04740      36.35     1.380      .54578     1.567    1.198 PER IMP=  17.00
*S TOTAL DISCHARGE INTO CORONADO CULVERT AT HOLBROOK
*S TOTAL DA# 110.6,7,8,9
ADD HYD              110.90  1& 3  2     .08560      73.39     2.698      .59106     1.567    1.340
*S*** ROUTE DA# 110.-.6-.7-.8-.9  *****
*S*** 270 FT SOUTH IN HOLBROOK    *****
ROUTE                310.70   2    1     .08560      72.32     2.698      .59106     1.583    1.320
COMPUTE NM HYD       110.50   -    2     .00561       9.19      .309     1.03411     1.517    2.559 PER IMP=  50.00
COMPUTE NM HYD       110.20   -    3     .00564       8.21      .287      .95247     1.517    2.274 PER IMP=  50.00
ADD HYD              110.90  2& 3  4     .01125      17.40      .596      .99314     1.517    2.416
*S*** ROUTE DA 110.2 & 110.5 470 FT WEST IN SWALE *****
*S*** BTWN DA 110.3 & DA 110.2                    *****
ROUTE                310.50   4    3     .01125      16.80      .596      .99318     1.533    2.333
*S*** COMBINE DA 110.2-.5-.6-.7-.8-.9 *****
ADD HYD              110.50  1& 3  4     .09685      88.28     3.294      .63776     1.567    1.424
COMPUTE NM HYD       110.40   -    1     .00428       7.01      .236     1.03411     1.517    2.560 PER IMP=  50.00
COMPUTE NM HYD       110.30   -    2     .00672      11.00      .371     1.03411     1.517    2.558 PER IMP=  50.00
*S COMBINE DA 110.3 AND 110.4
ADD HYD              110.30  1& 2  3     .01100      18.02      .607     1.03406     1.517    2.559
*S COMBINE FLOW DA 110.2 thru 110.9
ADD HYD              110.30  3& 4  1     .10785     103.97     3.901      .67818     1.567    1.506
*S*** ROUTE DA 110.2 thru 110.9 *****
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ADD HYD              150.10  1& 3   2     .08053     127.00     4.543    1.05786  1.550   2.464
*S*** SUB-DRAINAGE AREA 140 *****
COMPUTE NM HYD       140.10   -     1     .00757      12.39      .418    1.03411  1.517   2.558 PER IMP=  50.00
*S*** TOTAL FLOW AT LOW POINT NEAR QUINTESSENCE/RAMTHA INT.

                                FROM  TO              PEAK      RUNOFF              TIME TO   CFS     PAGE =   3
                   HYDROGRAPH   ID    ID    AREA    DISCHARGE   VOLUME    RUNOFF     PEAK     PER
COMMAND          IDENTIFICATION NO.   NO.  (SQ MI)    (CFS)    (AC-FT)   (INCHES)   (HOURS)   ACRE    NOTATION

ADD HYD              140.10  1& 2  15     .08810     138.57     4.961    1.05582  1.550   2.458
*S*** SUB-DRAINAGE AREA 160 *****
COMPUTE NM HYD       160.10   -    16     .00954      15.62      .526    1.03411  1.517   2.558 PER IMP=  50.00
*S*** SUB-DRAINAGE AREA 170 *****
COMPUTE NM HYD       170.10   -     1     .00764      13.38      .464    1.13977  1.517   2.736 PER IMP=  60.00
*S     DA# 170.2 (OFFSITE AREA - FUTURE CONDITIONS)
*S               (SOUTHWEST OF SAN ANTONIO)
COMPUTE NM HYD       170.20   -     2     .00990       5.36      .159     .30116  1.533    .846 PER IMP=   5.00
*S TOTAL FLOW INTO WEST POND FROM DA 170.1,-2
ADD HYD              270.20  1& 2  17     .01754      18.73      .623     .66641  1.517   1.669
*S*** SUB-DRAINAGE AREA 180 *****
COMPUTE NM HYD       180.50   -     1     .00385       6.31      .212    1.03411  1.517   2.561 PER IMP=  50.00
*S*** ROUTE DA 180.5 WEST 700 ON JARASH
ROUTE                380.50   1     2     .00385       5.64      .212    1.03410  1.550   2.290
COMPUTE NM HYD       180.40   -     1     .00596      10.44      .362    1.13976  1.517   2.736 PER IMP=  60.00
*S COMBINE FLOW DA 180.4 + 180.5
ADD HYD              180.40  1& 2   3     .00981      15.68      .575    1.09824  1.533   2.498
*S*** ROUTE 180.5 & 180.4 WEST 877 FT ON IRBID
ROUTE                380.40   3     2     .00981      14.10      .575    1.09827  1.567   2.245
COMPUTE NM HYD       180.30   -     1     .00976      17.09      .593    1.13976  1.517   2.735 PER IMP=  60.00
*S COMBINE FLOW DA 180.3,4,5
ADD HYD              180.30  1& 2   4     .01957      29.86     1.168    1.11893  1.533   2.384
COMPUTE NM HYD       180.60   -     1     .00262       4.30      .144    1.03411  1.517   2.563 PER IMP=  50.00
*S*** ROUTE 180.6 WEST 545 FT ON ES SALT
ROUTE                380.60   1     2     .00262       3.89      .144    1.03410  1.550   2.321
*S     DA# 180.7 (OFFSITE AREA - FUTURE CONDITIONS)
*S               (SOUTH OF SAN ANTONIO)
COMPUTE NM HYD       180.70   -     1     .00440       2.39      .071     .30116  1.533    .848 PER IMP=   5.00
*S COMBINE FLOW 180.6 & 180.7
ADD HYD              280.70  1& 2   3     .00702       6.22      .215     .57464  1.550   1.384
*S*** ROUTE 180.6 & 180.7 WEST 1115 FT ON ES SALT
ROUTE                380.70   3     2     .00702       4.86      .215     .57467  1.617   1.083
COMPUTE NM HYD       180.20   -     1     .01301      22.77      .791    1.13976  1.517   2.735 PER IMP=  60.00
*S COMBINE DA 180.6,7, & 180.2 AT IRBID/ES SALT INT.
ADD HYD              180.20  1& 2   3     .02003      25.87     1.006     .94168  1.517   2.018
*S*** TOTAL DISCHARGE AT IRBID/ES SALT INT. *****
ADD HYD              180.20  3& 4   2     .03960      55.69     2.174    1.02928  1.533   2.197
*S*** ROUTE 180.2,3,4,5,6,7 WEST 263 FT ON IRBID TO MA'AN DRIVE
ROUTE                380.20   2     3     .03960      55.68     2.174    1.02928  1.533   2.197
*S*** ROUTE 180.2,3,4,5,6,7 NORTH 207 FT ON MA'AN TO PINO STORM DRAIN
ROUTE                380.40   3     2     .03960      55.66     2.174    1.02928  1.550   2.196
COMPUTE NM HYD       180.10   -     1     .00535       9.37      .325    1.13976  1.517   2.737 PER IMP=  60.00
*S*** TOTAL DISCHARGE FROM DA 180.1,2,3,4,5,6,7 AT MA'AN DR/PINO STORM DRAIN
ADD HYD              180.10  1& 2  18     .04495      64.44     2.499    1.04242  1.533   2.240
*S**** OFFSITE DRAINAGE AREAS *****
*S     DA# 120.1 (OFFSITE AREA - FUTURE CONDITIONS)
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*S******** (ASSUMES TOPWIDTH=20*DEPTH,N=.03,SLOPE=.042,D50=1.32mm)
*S
SEDIMENT TRANSP     120.40   1      SED ID = 4            PEAK CONC.(PPM-w) =   174068  TOTAL SED.(TONS) =   396.82
*S  COMBINED HYDROGRAPH FROM 120.1,-.2,-.3,-.4,-.9
ADD HYD             120.40  1& 4   2     .14364    138.54    4.662    .60850   1.550   1.507
*S   ROUTE HYDROGRAPHS 120.1 THRU 120.4 & 120.9 IN EUBANK STORM SEWER
*S   66" RCP; .010 SLOPE; 382 LF
ROUTE               320.30   2   3     .14364    140.68    4.662    .60851   1.550   1.530
*S ROUTE HYDROGRAPHS 120.1 THRU 120.4 & 120.9 IN EUBANK STORM SEWER
*S IN 60" RCP; 0.005 SLOPE; 95 LF

                              FROM  TO             PEAK      RUNOFF              TIME TO   CFS     PAGE =  5
                   HYDROGRAPH  ID   ID     AREA    DISCHARGE  VOLUME   RUNOFF     PEAK     PER
COMMAND        IDENTIFICATION  NO.  NO.   (SQ MI)    (CFS)    (AC-FT)  (INCHES)  (HOURS)   ACRE     NOTATION

ROUTE               320.10   3   4     .14364    141.14    4.662    .60851   1.550   1.535
*S      DA# 120.5 (OFFSITE AREA - FUTURE CONDITIONS)
*S                (EAST OF EUBANK)
COMPUTE NM HYD      120.50   -   1     .04480     41.02    1.304    .54578   1.533   1.431 PER IMP=  17.00
*S  ROUTE AREA 120.5 THRU AREA 120.6 THE NORTH PINO FROM LOWELL ST TO BROWNING S
ROUTE               320.50   1   2     .04480     26.85    1.304    .54578   1.650    .937
*S      DA# 120.6 (OFFSITE AREA - FUTURE CONDITIONS)
*S                (EAST OF EUBANK)
COMPUTE NM HYD      120.60   -   1     .08610     81.73    2.506    .54578   1.517   1.483 PER IMP=  17.00
*S COMBINED HYDROGRAPH FROM 120.5 & 120.6
ADD HYD             120.60  1& 2   3     .13090     99.65    3.810    .54577   1.533   1.190
*S ROUTE AREA 120.5 & 120.6 THRU 120.7 FROM BROWNING ST TO EUBANK ST
ROUTE               320.60   3   2     .13090     68.99    3.810    .54578   1.700    .823
*S     DA# 120.7 (OFFSITE AREA - FUTURE CONDITIONS)
*S               (EAST OF EUBANK @ SANTA MONICA)
COMPUTE NM HYD      120.70   -   1     .04990     47.32    1.452    .54578   1.517   1.482 PER IMP=  17.00
*S COMBINED HYDROGRAPH FROM 120.5 - 120.7
*S (FLOW IN PINO ON EAST SIDE OF EUBANK)
ADD HYD             120.70  1& 2   3     .18080    100.01    5.263    .54578   1.600    .864
*S******** SEDIMENT WASH LOAD AT EUBANK/SANTA MONICA FROM EAST DA 120.5-120.7
SED WASH LOAD       120.70   3                                                  WASH CONC.(PPM-w) =     4011
*S******** BED MATERIAL TRANSPORT CAPACITY FROM DA 120.7
*S
*S******** (ASSUMES TOPWIDTH=40*DEPTH,N=.03,SLOPE=.0364,D50=1.32mm)
*S
SEDIMENT TRANSP     120.70   3      SED ID =  5           PEAK CONC.(PPM-w) =   122774  TOTAL SED.(TONS) =    704.45
*S TOTAL DISCHARGE FROM CONTRIBUTING AREAS TO EAST DETENTION POND
ADD HYD             120.70  3& 4   2     .32444    236.92    9.924    .57355   1.550   1.141
*S      DA# 100.3 EAST DETENTION POND SITE
*S
COMPUTE NM HYD      100.30   -   1     .00486      5.19     .131    .50585   1.517   1.669 PER IMP=    .00
*S TOTAL FLOW INTO EAST DETENTION POND FROM EUBANK STORM SEWER AND PINO ARROYO
*S SB# 120.1, 120.2, 120.3, 120.4, 120.5, 120.6, 120.7, 120.9
ADD HYD             100.30  1& 2   5     .32930    241.93   10.055    .57255   1.550   1.148
*S*** ROUTE TOTAL FLOW THROUGH EAST DETENTION POND   *****
ROUTE RESERVOIR     500.10   5  11     .32930    129.56    7.723    .43972   1.783    .615 AC-FT=    4.287
*S***  NORTH PINO STORM DRAIN
*S***  ROUTE DETENTION POND OUTFLOW THROUGH 54" DIA. CONCRETE PIPE
ROUTE               400.10  11   1     .32930    129.55    7.723    .43972   1.783    .615
*S***  NORTH PINO STORM DRAIN
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*S              (HERITAGE EAST)
COMPUTE NM HYD      190.30   -    1     .02750    44.99    1.517   1.03411  1.517  2.556 PER IMP= 50.00
ADD HYD             400.90  1&12 13     .76168   567.27   29.146    .71748  1.550  1.164
*S     DA# 120.8 (OFFSITE AREA - FUTURE CONDITIONS)
*S              (EAST OF EUBANK @ SAN ANTONIO)
COMPUTE NM HYD      120.80   -    1     .03590    32.87    1.045    .54578  1.533  1.431 PER IMP= 17.00
FINISH
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 AHYMO SUMMARY TABLE (AHYMO993) - AMAFCA VERSION OF HYMO - SEPTEMBER, 1993        RUN DATE (MON/DAY/YR) =08/25/1993
 INPUT FILE = QUIN_5.DAT                                                                USER NO.= COMMSC_B.T93

                            FROM  TO              PEAK     RUNOFF             TIME TO   CFS      PAGE =  1
              HYDROGRAPH    ID    ID     AREA    DISCHARGE  VOLUME   RUNOFF    PEAK     PER
 COMMAND      IDENTIFICATION NO.  NO.   (SQ MI)    (CFS)    (AC-FT)  (INCHES)  (HOURS)  ACRE     NOTATION

 START                                                                                  TIME=      .00
 *S*** QUINTESSENCE DEVELOPMENT JOB NO 323-04-30
 *S*** PROPOSED SUB-DIVISION DESIGN DRAINAGE CONDITIONS
 *S*** INPUT FILE: QUIN_5.DAT  DLH  8/25/95
 *S*** POND2 WEST POND RATING TABLE: WESTPOND.PND
 *S*** POND2 EAST POND RATING TABLE: EASTPOND.PND
 *S*** LAND TREATMENT VALUES DEVELOPED RESIDENTIAL AREAS:A=0,B=25,C=25,D=50
 *S*** LTV BASED ON TYPICAL SINGLE FAMILY RES. WHERE %D=7*(((N*N)+(5*N))^.5)
 *S*** 5-YEAR 6-HOUR STORM EVENT
 *S*** RAIN 1-HR=1.25"  RAIN 6-HR=1.50"
 RAINFALL  TYPE= 1                                                                      RAIN6=    1.500
 *S*** SUB-DRAINAGE AREA 110 *****
 COMPUTE NM HYD       110.60   -    1    .00794    10.31     .338    .79756   1.517   2.029 PER IMP=  50.00
 *S     DA# 110.8 (OFFSITE AREA - FUTURE CONDITIONS)
 *S               (NE OF CORONADO STREET)
 COMPUTE NM HYD       110.80   -    2    .01766    11.39     .351    .37282   1.517   1.007 PER IMP=  17.00
 *S  DISCHARGE WEST ALONG CORONADO
 ADD HYD              110.80  1& 2  3    .02560    21.70     .689    .50453   1.517   1.324
 *S*** ROUTE 110.6,8 WEST ALONG CORONADO
 ROUTE                310.70   3    2    .02560    19.50     .689    .50454   1.550   1.190
 *S     DA# 110.9 (OFFSITE AREA - FUTURE CONDITIONS)
 *S               (NORTH OF CORONADO STREET,EAST OF HOLBROOK)
 COMPUTE NM HYD       110.90   -    1    .01260     6.60     .251    .37282   1.567    .819 PER IMP=  17.00
 ADD HYD              110.80  1& 2  3    .03820    26.10     .939    .46108   1.567   1.067
 *S     DA# 110.7 (OFFSITE AREA - FUTURE CONDITIONS)
 *S               (NORTH OF CORONADO STREET)
 COMPUTE NM HYD       110.70   -    1    .04740    24.81     .942    .37282   1.567    .818 PER IMP=  17.00
 *S TOTAL DISCHARGE INTO CORONADO CULVERT AT HOLBROOK
 *S TOTAL DA# 110.6,7,8,9
 ADD HYD              110.90  1& 3  2    .08560    50.90    1.882    .41220   1.567    .929
 *S*** ROUTE DA# 110.-.6-.7-.8-.9  *****
 *S*** 270 FT SOUTH IN HOLBROOK     *****
 ROUTE                310.70   2    1    .08560    50.36    1.882    .41220   1.583    .919
 COMPUTE NM HYD       110.50   -    2    .00561     7.29     .239    .79756   1.517   2.030 PER IMP=  50.00
 COMPUTE NM HYD       110.20   -    3    .00564     6.40     .220    .73047   1.517   1.774 PER IMP=  50.00
 ADD HYD              110.90  2& 3  4    .01125    13.69     .458    .76388   1.517   1.902
 *S*** ROUTE DA 110.2 & 110.5 470 FT WEST IN SWALE *****
 *S*** BTWN DA 110.3 & DA 110.2                    *****
 ROUTE                310.50   4    3    .01125    13.13     .458    .76392   1.533   1.824
 *S*** COMBINE DA 110.2-.5-.6-.7-.8-.9 *****
 ADD HYD              110.50  1& 3  4    .09685    62.91    2.340    .45305   1.567   1.015
 COMPUTE NM HYD       110.40   -    1    .00428     5.56     .182    .79756   1.517   2.031 PER IMP=  50.00
 COMPUTE NM HYD       110.30   -    2    .00672     8.73     .286    .79756   1.517   2.029 PER IMP=  50.00
 *S COMBINE DA 110.3 AND 110.4
 ADD HYD              110.30  1& 2  3    .01100    14.29     .468    .79751   1.517   2.030
 *S COMBINE FLOW DA 110.2 thru 110.9
 ADD HYD              110.30  3& 4  1    .10785    75.38    2.808    .48819   1.567   1.092
 *S*** ROUTE DA 110.2 thru 110.9 *****
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 ADD HYD            150.10  1& 3   2       .08053      100.10      3.517     .81876   1.550   1.942
 *S*** SUB-DRAINAGE AREA 140 *****
 COMPUTE NM HYD     140.10   -     1       .00757        9.83       .322     .79756   1.517   2.029 PER IMP=  50.00
 *S*** TOTAL FLOW AT LOW POINT NEAR QUINTESSENCE/RAMTHA INT.

                                FROM  TO                 PEAK      RUNOFF             TIME TO   CFS     PAGE =  3
                  HYDROGRAPH     ID   ID       AREA    DISCHARGE   VOLUME    RUNOFF     PEAK    PER
 COMMAND        IDENTIFICATION   NO.  NO.    (SQ MI)     (CFS)     (AC-FT)  (INCHES)  (HOURS)   ACRE     NOTATION

 ADD HYD            140.10  1& 2  15       .08810      109.30      3.839     .81694   1.550   1.938
 *S*** SUB-DRAINAGE AREA 160 *****
 COMPUTE NM HYD     160.10   -    16       .00954       12.39       .406     .79756   1.517   2.029 PER IMP=  50.00
 *S*** SUB-DRAINAGE AREA 170 *****
 COMPUTE NM HYD     170.10   -     1       .00764       10.79       .363     .89147   1.517   2.206 PER IMP=  60.00
 *S     DA# 170.2 (OFFSITE AREA - FUTURE CONDITIONS)
 *S              (SOUTHWEST OF SAN ANTONIO)
 COMPUTE NM HYD     170.20   -     2       .00990        2.81       .086     .16334   1.533    .443 PER IMP=   5.00
 *S TOTAL FLOW INTO WEST POND FROM DA 170.1,-2
 ADD HYD            270.20  1& 2  17       .01754       13.59       .449     .48046   1.517   1.210
 *S*** SUB-DRAINAGE AREA 180 *****
 COMPUTE NM HYD     180.50   -     1       .00385        5.00       .164     .79756   1.517   2.031 PER IMP=  50.00
 *S*** ROUTE DA 180.5 WEST 700 ON JARASH
 ROUTE              380.50   1     2       .00385        4.35       .164     .79755   1.567   1.767
 COMPUTE NM HYD     180.40   -     1       .00596        8.42       .283     .89147   1.517   2.207 PER IMP=  60.00
 *S COMBINE FLOW DA 180.4 + 180.5
 ADD HYD            180.40  1& 2   3       .00981       12.43       .447     .85455   1.533   1.980
 *S*** ROUTE 180.5 & 180.4 WEST 877 FT ON IRBID
 ROUTE              380.40   3     2       .00981       11.08       .447     .85458   1.583   1.764
 COMPUTE NM HYD     180.30   -     1       .00976       13.78       .464     .89147   1.517   2.206 PER IMP=  60.00
 *S COMBINE FLOW DA 180.3,4,5
 ADD HYD            180.30  1& 2   4       .01957       23.60       .911     .87294   1.533   1.885
 COMPUTE NM HYD     180.60   -     1       .00262        3.41       .111     .79756   1.517   2.033 PER IMP=  50.00
 *S*** ROUTE 180.6 WEST 545 FT ON ES SALT
 ROUTE              380.60   1     2       .00262        3.05       .111     .79755   1.550   1.818
 *S     DA# 180.7 (OFFSITE AREA - FUTURE CONDITIONS)
 *S              (SOUTH OF SAN ANTONIO)
 COMPUTE NM HYD     180.70   -     1       .00440        1.25       .038     .16334   1.533    .445 PER IMP=   5.00
 *S COMBINE FLOW 180.6 & 180.7
 ADD HYD            280.70  1& 2   3       .00702        4.27       .150     .39997   1.550    .951
 *S*** ROUTE 180.6 & 180.7 WEST 1115 FT ON ES SALT
 ROUTE              380.70   3     2       .00702        3.21       .150     .40000   1.633    .715
 COMPUTE NM HYD     180.20   -     1       .01301       18.36       .619     .89147   1.517   2.205 PER IMP=  60.00
 *S COMBINE DA 180.6,7, & 180.2 AT IRBID/ES SALT INT.
 ADD HYD            180.20  1& 2   3       .02003       20.25       .768     .71919   1.517   1.580
 *S*** TOTAL DISCHARGE AT IRBID/ES SALT INT. *****
 ADD HYD            180.20  3& 4   2       .03960       43.80      1.679     .79517   1.533   1.728
 *S*** ROUTE 180.2,3,4,5,6,7 WEST 263 FT ON IRBID TO MA'AN DRIVE
 ROUTE              380.20   2     3       .03960       43.81      1.679     .79518   1.533   1.729
 *S*** ROUTE 180.2,3,4,5,6,7 NORTH 207 FT ON MA'AN TO PINO STORM DRAIN
 ROUTE              380.40   3     2       .03960       43.82      1.679     .79519   1.550   1.729
 COMPUTE NM HYD     180.10   -     1       .00535        7.56       .254     .89147   1.517   2.207 PER IMP=  60.00
 *S*** TOTAL DISCHARGE FROM DA 180.1,2,3,4,5,6,7 AT MA'AN DR/PINO STORM DRAIN
 ADD HYD            180.10  1& 2  18       .04495       50.85      1.934     .80663   1.550   1.768
 *S**** OFFSITE DRAINAGE AREAS *****
 *S     DA# 120.1 (OFFSITE AREA - FUTURE CONDITIONS)
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 *S******** (ASSUMES TOPWIDTH=20*DEPTH,N=.03,SLOPE=.042,D50=1.32mm)
 *S
 SEDIMENT TRANSP       120.40   1      SED ID =  4           PEAK CONC.(PPM-w) =   144654  TOTAL SED.(TONS) =     218.96
 *S  COMBINED HYDROGRAPH FROM 120.1,-.2,-.3,-.4,-.9
 ADD HYD               120.40  1& 4   2      .14364      97.84      3.278      .42785    1.550    1.064
 *S   ROUTE HYDROGRAPHS 120.1 THRU 120.4 & 120.9 IN EUBANK STORM SEWER
 *S   66" RCP; .010 SLOPE; 382 LF
 ROUTE                 320.30   2    3      .14364      99.58      3.278      .42786    1.550    1.083
 *S ROUTE HYDROGRAPHS 120.1 THRU 120.4 & 120.9 IN EUBANK STORM SEWER
 *S IN 60" RCP; 0.005 SLOPE; 95 LF

                                FROM  TO                   PEAK      RUNOFF              TIME TO   CFS     PAGE =  5
                     HYDROGRAPH  ID   ID       AREA     DISCHARGE    VOLUME     RUNOFF     PEAK     PER
 COMMAND          IDENTIFICATION NO.  NO.     (SQ MI)      (CFS)     (AC-FT)   (INCHES)  (HOURS)   ACRE     NOTATION

 ROUTE                 320.10   3    4      .14364      99.99      3.278      .42786    1.550    1.088
 *S      DA# 120.5 (OFFSITE AREA - FUTURE CONDITIONS)
 *S                 (EAST OF EUBANK)
 COMPUTE NM HYD        120.50   -    1      .04480      27.89       .891      .37282    1.533     .973 PER IMP=  17.00
 *S  ROUTE AREA 120.5 THRU AREA 120.6 THE NORTH PINO FROM LOWELL ST TO BROWNING S
 ROUTE                 320.50   1    2      .04480      16.28       .891      .37283    1.650     .568
 *S      DA# 120.6 (OFFSITE AREA - FUTURE CONDITIONS)
 *S                 (EAST OF EUBANK)
 COMPUTE NM HYD        120.60   -    1      .08610      55.31      1.712      .37282    1.517    1.004 PER IMP=  17.00
 *S COMBINED HYDROGRAPH FROM 120.5 & 120.6
 ADD HYD               120.60  1& 2   3      .13090      66.29      2.603      .37282    1.533     .791
 *S ROUTE AREA 120.5 & 120.6 THRU 120.7 FROM BROWNING ST TO EUBANK ST
 ROUTE                 320.60   3    2      .13090      46.35      2.603      .37282    1.650     .553
 *S      DA# 120.7 (OFFSITE AREA - FUTURE CONDITIONS)
 *S                 (EAST OF EUBANK @ SANTA MONICA)
 COMPUTE NM HYD        120.70   -    1      .04990      32.16       .992      .37282    1.517    1.007 PER IMP=  17.00
 *S COMBINED HYDROGRAPH FROM 120.5 - 120.7
 *S (FLOW IN PINO ON EAST SIDE OF EUBANK)
 ADD HYD               120.70  1& 2   3      .18080      67.31      3.595      .37282    1.600     .582
 *S******** SEDIMENT WASH LOAD AT EUBANK/SANTA MONICA FROM EAST DA 120.5-120.7
 SED WASH LOAD         120.70   3                                                  WASH CONC.(PPM-w) =     3801
 *S******** BED MATERIAL TRANSPORT CAPACITY FROM DA 120.7
 *S
 *S******** (ASSUMES TOPWIDTH=40*DEPTH,N=.03,SLOPE=.0364,D50=1.32mm)
 *S
 SEDIMENT TRANSP       120.70   3      SED ID =  5           PEAK CONC.(PPM-w) =   101355  TOTAL SED.(TONS) =     381.30
 *S TOTAL DISCHARGE FROM CONTRIBUTING AREAS TO EAST DETENTION POND
 ADD HYD               120.70  3& 4   2      .32444     163.82      6.873      .39718    1.550     .789
 *S      DA# 100.3 EAST DETENTION POND SITE
 *S
 COMPUTE NM HYD        100.30   -    1      .00486       3.58       .085      .32805    1.533    1.151 PER IMP=    .00
 *S TOTAL FLOW INTO EAST DETENTION POND FROM EUBANK STORM SEWER AND PINO ARROYO
 *S SB# 120.1, 120.2, 120.3, 120.4, 120.5, 120.6, 120.7, 120.9
 ADD HYD               100.30  1& 2   5      .32930     167.30      6.958      .39616    1.550     .794
 *S*** ROUTE TOTAL FLOW THROUGH EAST DETENTION POND   *****
 ROUTE RESERVOIR       500.10   5   11      .32930      68.31      4.626      .26339    1.867     .324 AC-FT=   3.591
 *S***  NORTH PINO STORM DRAIN
 *S***  ROUTE DETENTION POND OUTFLOW THROUGH 54" DIA. CONCRETE PIPE
 ROUTE                 400.10  11    1      .32930      68.33      4.626      .26339    1.883     .324
 *S***  NORTH PINO STORM DRAIN
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*S                (HERITAGE EAST)
COMPUTE NM HYD        190.30   -    1       .02750      35.69      1.170      .79756   1.517   2.028 PER IMP=  50.00
ADD HYD               400.90  1&12  13      .76168     438.06     20.918      .51492   1.567    .899
*S      DA# 120.8 (OFFSITE AREA - FUTURE CONDITIONS)
*S                (EAST OF EUBANK @ SAN ANTONIO)
COMPUTE NM HYD        120.80   -    1       .03590      22.35       .714      .37282   1.533    .973 PER IMP=  17.00
FINISH
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AHYMO SUMMARY TABLE (AHYMO993) - AMAFCA VERSION OF HYMO - SEPTEMBER, 1993          RUN DATE (MON/DAY/YR) =08/25/1993
INPUT FILE = QUIN_2.DAT                                                                        USER NO.= COMMSC_B.T93

                            FROM  TO                  PEAK      RUNOFF             TIME TO   CFS     PAGE =  1
                HYDROGRAPH   ID   ID       AREA     DISCHARGE   VOLUME    RUNOFF     PEAK    PER
COMMAND       IDENTIFICATION NO.  NO.    (SQ MI)     (CFS)      (AC-FT)  (INCHES)  (HOURS)   ACRE     NOTATION

START                                                                                               TIME=      .00
*S*** QUINTESSENCE DEVELOPMENT JOB NO 323-04-30
*S*** PROPOSED SUB-DIVISION DESIGN DRAINAGE CONDITIONS
*S*** INPUT FILE: QUIN_2.DAT  DLH  8/25/95
*S*** POND2 WEST POND RATING TABLE: WESTPOND.PND
*S*** POND2 EAST POND RATING TABLE: EASTPOND.PND
*S*** LAND TREATMENT VALUES DEVELOPED RESIDENTIAL AREAS:A=0,B=25,C=25,D=50
*S*** LTV BASED ON TYPICAL SINGLE FAMILY RES. WHERE %D=7*(((N*N)+(5*N))^.5)
*S*** 2-YEAR 6-HOUR STORM EVENT
*S*** RAIN 1-HR=0.98"  RAIN 6-HR=1.30"
RAINFALL  TYPE= 1                                                                                   RAIN6=    1.300
*S*** SUB-DRAINAGE AREA 110 *****
COMPUTE NM HYD      110.60   -    1     .00794        7.70       .266     .62841    1.517   1.515 PER IMP=  50.00
*S    DA# 110.8 (OFFSITE AREA - FUTURE CONDITIONS)
*S              (NE OF CORONADO STREET)
COMPUTE NM HYD      110.80   -    2     .01766        7.38       .245     .25980    1.517    .653 PER IMP=  17.00
*S DISCHARGE WEST ALONG CORONADO
ADD HYD             110.80  1& 2  3     .02560       15.08       .511     .37411    1.517    .920
*S*** ROUTE 110.6,8 WEST ALONG CORONADO
ROUTE               310.70   3    2     .02560       13.09       .511     .37412    1.567    .799
*S    DA# 110.9 (OFFSITE AREA - FUTURE CONDITIONS)
*S              (NORTH OF CORONADO STREET,EAST OF HOLBROOK)
COMPUTE NM HYD      110.90   -    1     .01260        4.33       .175     .25981    1.567    .537 PER IMP=  17.00
ADD HYD             110.80  1& 2  3     .03820       17.42       .685     .33639    1.567    .713
*S    DA# 110.7 (OFFSITE AREA - FUTURE CONDITIONS)
*S              (NORTH OF CORONADO STREET)
COMPUTE NM HYD      110.70   -    1     .04740       16.27       .657     .25980    1.567    .536 PER IMP=  17.00
*S TOTAL DISCHARGE INTO CORONADO CULVERT AT HOLBROOK
*S TOTAL DA# 110.6,7,8,9
ADD HYD             110.90  1& 3  2     .08560       33.69      1.342     .29398    1.567    .615
*S*** ROUTE DA# 110.-.6-.7-.8-.9  *****
*S*** 270 FT SOUTH IN HOLBROOK    *****
ROUTE               310.70   2    1     .08560       33.35      1.342     .29398    1.583    .609
COMPUTE NM HYD      110.50   -    2     .00561        5.44       .188     .62841    1.517   1.516 PER IMP=  50.00
COMPUTE NM HYD      110.20   -    3     .00564        4.73       .174     .57751    1.517   1.310 PER IMP=  50.00
ADD HYD             110.90  2& 3  4     .01125       10.17       .362     .60285    1.517   1.412
*S*** ROUTE DA 110.2 & 110.5 470 FT WEST IN SWALE *****
*S*** BTWN DA 110.3 & DA 110.2                    *****
ROUTE               310.50   4    3     .01125        9.70       .362     .60289    1.533   1.347
*S*** COMBINE DA 110.2-.5-.6-.7-.8-.9 *****
ADD HYD             110.50  1& 3  4     .09685       42.57      1.704     .32986    1.567    .687
COMPUTE NM HYD      110.40   -    1     .00428        4.15       .143     .62841    1.517   1.516 PER IMP=  50.00
COMPUTE NM HYD      110.30   -    2     .00672        6.52       .225     .62841    1.517   1.515 PER IMP=  50.00
*S COMBINE DA 110.3 AND 110.4
ADD HYD             110.30  1& 2  3     .01100       10.67       .369     .62836    1.517   1.516
*S COMBINE FLOW DA 110.2 thru 110.9
ADD HYD             110.30  3& 4  1     .10785       51.81      2.072     .36030    1.550    .751
*S*** ROUTE DA 110.2 thru 110.9 *****
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 ADD HYD              150.10  1& 3   2       .08053       73.82       2.782      .64785   1.550   1.432
 *S*** SUB-DRAINAGE AREA 140 *****
 COMPUTE NM HYD       140.10   -     1       .00757        7.34        .254      .62841   1.517   1.515 PER IMP=  50.00
 *S*** TOTAL FLOW AT LOW POINT NEAR QUINTESSENCE/RAMTHA INT.

                                FROM  TO                  PEAK        RUNOFF               TIME TO   CFS      PAGE =   3
                   HYDROGRAPH    ID   ID       AREA     DISCHARGE     VOLUME     RUNOFF     PEAK     PER
 COMMAND         IDENTIFICATION  NO.  NO.    (SQ MI)      (CFS)       (AC-FT)   (INCHES)   (HOURS)   ACRE      NOTATION

 ADD HYD              140.10  1& 2  15       .08810       80.63       3.036      .64617   1.550   1.430
 *S*** SUB-DRAINAGE AREA 160 *****
 COMPUTE NM HYD       160.10   -    16       .00954        9.25        .320      .62841   1.517   1.515 PER IMP=  50.00
 *S*** SUB-DRAINAGE AREA 170 *****
 COMPUTE NM HYD       170.10   -     1       .00764        8.16        .291      .71371   1.517   1.670 PER IMP=  60.00
 *S      DA# 170.2 (OFFSITE AREA - FUTURE CONDITIONS)
 *S                (SOUTHWEST OF SAN ANTONIO)
 COMPUTE NM HYD       170.20   -     2       .00990        1.28        .044      .08263   1.517    .202 PER IMP=   5.00
 *S TOTAL FLOW INTO WEST POND FROM DA 170.1,-2
 ADD HYD              270.20  1& 2  17       .01754        9.45        .334      .35748   1.517    .842
 *S*** SUB-DRAINAGE AREA 180 *****
 COMPUTE NM HYD       180.50   -     1       .00385        3.74        .129      .62841   1.517   1.516 PER IMP=  50.00
 *S*** ROUTE DA 180.5 WEST 700 ON JARASH
 ROUTE                380.50   1     2       .00385        3.21        .129      .62840   1.567   1.301
 COMPUTE NM HYD       180.40   -     1       .00596        6.37        .227      .71370   1.517   1.670 PER IMP=  60.00
 *S COMBINE FLOW DA 180.4 + 180.5
 ADD HYD              180.40  1& 2   3       .00981        9.30        .356      .68017   1.533   1.482
 *S*** ROUTE 180.5 & 180.4 WEST 877 FT ON IRBID
 ROUTE                380.40   3     2       .00981        8.15        .356      .68020   1.583   1.298
 COMPUTE NM HYD       180.30   -     1       .00976       10.43        .372      .71370   1.517   1.669 PER IMP=  60.00
 *S COMBINE FLOW DA 180.3,4,5
 ADD HYD              180.30  1& 2   4       .01957       17.69        .727      .69688   1.533   1.413
 COMPUTE NM HYD       180.60   -     1       .00262        2.55        .088      .62841   1.517   1.518 PER IMP=  50.00
 *S*** ROUTE 180.6 WEST 545 FT ON ES SALT
 ROUTE                380.60   1     2       .00262        2.25        .088      .62840   1.550   1.344
 *S      DA# 180.7 (OFFSITE AREA - FUTURE CONDITIONS)
 *S                (SOUTH OF SAN ANTONIO)
 COMPUTE NM HYD       180.70   -     1       .00440         .57        .019      .08263   1.517    .203 PER IMP=   5.00
 *S COMBINE FLOW 180.6 & 180.7
 ADD HYD              280.70  1& 2   3       .00702        2.81        .107      .28626   1.550    .624
 *S*** ROUTE 180.6 & 180.7 WEST 1115 FT ON ES SALT
 ROUTE                380.70   3     2       .00702        2.09        .107      .28629   1.633    .464
 COMPUTE NM HYD       180.20   -     1       .01301       13.90        .495      .71370   1.517   1.669 PER IMP=  60.00
 *S COMBINE DA 180.6,7, & 180.2 AT IRBID/ES SALT INT.
 ADD HYD              180.20  1& 2   3       .02003       15.17        .602      .56387   1.517   1.183
 *S*** TOTAL DISCHARGE AT IRBID/ES SALT INT. *****
 ADD HYD              180.20  3& 4   2       .03960       32.71       1.330      .62960   1.533   1.291
 *S*** ROUTE 180.2,3,4,5,6,7 WEST 263 FT ON IRBID TO MA'AN DRIVE
 ROUTE                380.20   2     3       .03960       32.70       1.330      .62962   1.533   1.290
 *S*** ROUTE 180.2,3,4,5,6,7 NORTH 207 FT ON MA'AN TO PINO STORM DRAIN
 ROUTE                380.40   3     2       .03960       32.64       1.330      .62961   1.550   1.288
 COMPUTE NM HYD       180.10   -     1       .00535        5.72        .204      .71370   1.517   1.670 PER IMP=  60.00
 *S*** TOTAL DISCHARGE FROM DA 180.1,2,3,4,5,6,7 AT MA'AN DR/PINO STORM DRAIN
 ADD HYD              180.10  1& 2  18       .04495       38.02       1.533      .63961   1.533   1.322
 *S**** OFFSITE DRAINAGE AREAS *****
 *S      DA# 120.1 (OFFSITE AREA - FUTURE CONDITIONS)
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*S******** (ASSUMES TOPWIDTH=20*DEPTH,N=.03,SLOPE=.042,D50=1.32mm)
*S
SEDIMENT TRANSP     120.40   1      SED ID = 4          PEAK CONC.(PPM-w) =  115859  TOTAL SED.(TONS) =   115.31
*S  COMBINED HYDROGRAPH FROM 120.1,-.2,-.3,-.4,-.9
ADD HYD             120.40  1& 4  2     .14364     65.66     2.363     .30843   1.550   .714
*S   ROUTE HYDROGRAPHS 120.1 THRU 120.4 & 120.9 IN EUBANK STORM SEWER
*S   66" RCP; .010 SLOPE; 382 LF
ROUTE               320.30   2   3      .14364     66.94     2.363     .30842   1.550   .728
*S ROUTE HYDROGRAPHS 120.1 THRU 120.4 & 120.9 IN EUBANK STORM SEWER
*S IN 60" RCP; 0.005 SLOPE; 95 LF

                                FROM  TO                  PEAK      RUNOFF               TIME TO   CFS     PAGE =   5
                  HYDROGRAPH     ID   ID      AREA      DISCHARGE   VOLUME    RUNOFF      PEAK     PER
COMMAND         IDENTIFICATION   NO.  NO.    (SQ MI)      (CFS)     (AC-FT)  (INCHES)   (HOURS)   ACRE    NOTATION

ROUTE               320.10   3   4      .14364     67.28     2.363     .30842   1.550   .732
*S     DA# 120.5 (OFFSITE AREA - FUTURE CONDITIONS)
*S               (EAST OF EUBANK)
COMPUTE NM HYD      120.50   -   1      .04480     18.06      .621     .25981   1.533   .630 PER IMP=  17.00
*S  ROUTE AREA 120.5 THRU AREA 120.6 THE NORTH PINO FROM LOWELL ST TO BROWNING S
ROUTE               320.50   1   2      .04480     10.11      .621     .25977   1.650   .353
*S     DA# 120.6 (OFFSITE AREA - FUTURE CONDITIONS)
*S               (EAST OF EUBANK)
COMPUTE NM HYD      120.60   -   1      .08610     35.64     1.193     .25980   1.517   .647 PER IMP=  17.00
*S COMBINED HYDROGRAPH FROM 120.5 & 120.6
ADD HYD             120.60  1& 2  3     .13090     42.54     1.814     .25979   1.533   .508
*S ROUTE AREA 120.5 & 120.6 THRU 120.7 FROM BROWNING ST TO EUBANK ST
ROUTE               320.60   3   2      .13090     28.24     1.814     .25977   1.650   .337
*S     DA# 120.7 (OFFSITE AREA - FUTURE CONDITIONS)
*S               (EAST OF EUBANK @ SANTA MONICA)
COMPUTE NM HYD      120.70   -   1      .04990     20.83      .691     .25981   1.517   .652 PER IMP=  17.00
*S COMBINED HYDROGRAPH FROM 120.5 - 120.7
*S (FLOW IN PINO ON EAST SIDE OF EUBANK)
ADD HYD             120.70  1& 2  3     .18080     42.44     2.505     .25977   1.600   .367
*S******** SEDIMENT WASH LOAD AT EUBANK/SANTA MONICA FROM EAST DA 120.5-120.7
SED WASH LOAD       120.70   3                                                 WASH CONC.(PPM-w) =    3442
*S******** BED MATERIAL TRANSPORT CAPACITY FROM DA 120.7
*S
*S******** (ASSUMES TOPWIDTH=40*DEPTH,N=.03,SLOPE=.0364,D50=1.32mm)
*S
SEDIMENT TRANSP     120.70   3      SED ID = 5          PEAK CONC.(PPM-w) =   79457  TOTAL SED.(TONS) =   200.58
*S TOTAL DISCHARGE FROM CONTRIBUTING AREAS TO EAST DETENTION POND
ADD HYD             120.70  3& 4  2     .32444    108.36     4.868     .28131   1.550   .522
*S     DA# 100.3 EAST DETENTION POND SITE
*S
COMPUTE NM HYD      100.30   -   1      .00486      2.30      .052     .20195   1.517   .741 PER IMP=     .00
*S TOTAL FLOW INTO EAST DETENTION POND FROM EUBANK STORM SEWER AND PINO ARROYO
*S SB# 120.1, 120.2, 120.3, 120.4, 120.5, 120.6, 120.7, 120.9
ADD HYD             100.30  1& 2  5     .32930    110.56     4.920     .28014   1.550   .525
*S*** ROUTE TOTAL FLOW THROUGH EAST DETENTION POND   *****
ROUTE RESERVOIR     500.10   5  11      .32930     32.32     2.588     .14734   2.050   .153 AC-FT=   3.089
*S***  NORTH PINO STORM DRAIN
*S***  ROUTE DETENTION POND OUTFLOW THROUGH 54" DIA. CONCRETE PIPE
ROUTE               400.10  11   1      .32930     32.32     2.588     .14733   2.050   .153
*S***  NORTH PINO STORM DRAIN
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*S                (HERITAGE EAST)
COMPUTE NM HYD         190.30   -     1       .02750       26.65      .922     .62841   1.517    1.514 PER IMP=  50.00
ADD HYD                400.90  1&12  13       .76168      317.15    15.269     .37587   1.567     .651
*S      DA# 120.8 (OFFSITE AREA - FUTURE CONDITIONS)
*S                (EAST OF EUBANK @ SAN ANTONIO)
COMPUTE NM HYD         120.80   -     1       .03590       14.48      .497     .25981   1.533     .630 PER IMP=  17.00
FINISH
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AHYMO SUMMARY TABLE (AHYMO993) - AMAFCA VERSION OF HYMO - SEPTEMBER, 1993          RUN DATE (MON/DAY/YR) =08/29/1993
INPUT FILE = QUINEMRG.DAT                                                                   USER NO.= COMMSC_B.T93

                                FROM  TO                  PEAK     RUNOFF              TIME TO   CFS      PAGE =  1
                   HYDROGRAPH    ID   ID       AREA    DISCHARGE   VOLUME    RUNOFF     PEAK     PER
COMMAND          IDENTIFICATION  NO.  NO.     (SQ MI)    (CFS)     (AC-FT)  (INCHES)   (HOURS)   ACRE     NOTATION

START                                                                                                     TIME=       .00
*S*** QUINTESSENCE DEVELOPMENT JOB NO 323-04-30
*S*** PROPOSED SUB-DIVISION DESIGN DRAINAGE CONDITIONS
*S*** INPUT FILE: QUINEMRG.DAT  DLH  8/29/95
*S*** POND2 WEST POND RATING TABLE: WESTPOND.PND
*S*** POND2 EAST POND RATING TABLE: EASTPOND.PND
*S*** LAND TREATMENT VALUES DEVELOPED RESIDENTIAL AREAS:A=0,B=25,C=25,D=50
*S*** LTV BASED ON TYPICAL SINGLE FAMILY RES. WHERE %D=7*(((N*N)+(5*N))^.5)
*S*** 100-YEAR 6-HOUR STORM EVENT
*S*** RAIN 1-HR=2.20"  RAIN 6-HR=2.70"
RAINFALL  TYPE= 1                                                                                         RAIN6=    2.700
*S*** SUB-DRAINAGE AREA 110 *****
COMPUTE NM HYD      110.60    -    1     .00794      21.23       .764    1.80502    1.517    4.178 PER IMP=  50.00
*S    DA# 110.8 (OFFSITE AREA - FUTURE CONDITIONS)
*S              (NE OF CORONADO STREET)
COMPUTE NM HYD      110.80    -    2     .01766      33.79      1.097    1.16425    1.517    2.989 PER IMP=  17.00
*S  DISCHARGE WEST ALONG CORONADO
ADD HYD             110.80  1& 2   3     .02560      55.02      1.861    1.36297    1.517    3.358
*S*** ROUTE 110.6,8 WEST ALONG CORONADO
ROUTE               310.70   3     2     .02560      52.88      1.861    1.36298    1.533    3.227
*S    DA# 110.9 (OFFSITE AREA - FUTURE CONDITIONS)
*S              (NORTH OF CORONADO STREET,EAST OF HOLBROOK)
COMPUTE NM HYD      110.90    -    1     .01260      19.74       .782    1.16425    1.567    2.448 PER IMP=  17.00
ADD HYD             110.80  1& 2   3     .03820      72.43      2.643    1.29741    1.550    2.963
*S    DA# 110.7 (OFFSITE AREA - FUTURE CONDITIONS)
*S              (NORTH OF CORONADO STREET)
COMPUTE NM HYD      110.70    -    1     .04740      74.20      2.943    1.16425    1.567    2.446 PER IMP=  17.00
*S TOTAL DISCHARGE INTO CORONADO CULVERT AT HOLBROOK
*S TOTAL DA# 110.6,7,8,9
ADD HYD             110.90  1& 3   2     .08560     146.03      5.586    1.22367    1.550    2.665
*S*** ROUTE DA# 110.-.6-.7-.8-.9  *****
*S*** 270 FT SOUTH IN HOLBROOK     *****
ROUTE               310.70   2     1     .08560     144.15      5.586    1.22367    1.567    2.631
COMPUTE NM HYD      110.50    -    2     .00561      15.01       .540    1.80502    1.517    4.179 PER IMP=  50.00
COMPUTE NM HYD      110.20    -    3     .00564      13.99       .505    1.68013    1.517    3.875 PER IMP=  50.00
ADD HYD             110.90  2& 3   4     .01125      28.99      1.045    1.74237    1.517    4.027
*S*** ROUTE DA 110.2 & 110.5 470 FT WEST IN SWALE *****
*S*** BTWN DA 110.3 & DA 110.2                    *****
ROUTE               310.50   4     3     .01125      28.31      1.045    1.74241    1.533    3.931
*S*** COMBINE DA 110.2-.5-.6-.7-.8-.9 *****
ADD HYD             110.50  1& 3   4     .09685     171.03      6.632    1.28392    1.567    2.759
COMPUTE NM HYD      110.40    -    1     .00428      11.45       .412    1.80502    1.517    4.181 PER IMP=  50.00
COMPUTE NM HYD      110.30    -    2     .00672      17.97       .647    1.80502    1.517    4.179 PER IMP=  50.00
*S COMBINE DA 110.3 AND 110.4
ADD HYD             110.30  1& 2   3     .01100      29.42      1.059    1.80498    1.517    4.180
*S COMBINE FLOW DA 110.2 thru 110.9
ADD HYD             110.30  3& 4   1     .10785     196.74      7.691    1.33707    1.567    2.850
*S*** ROUTE DA 110.2 thru 110.9 *****
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  ADD HYD            150.10  1& 3  2       .08053      208.14      7.875     1.83366   1.550   4.039
  *S*** SUB-DRAINAGE AREA 140 *****
  COMPUTE NM HYD     140.10   -    1       .00757       20.24       .729     1.80502   1.517   4.178 PER IMP=  50.00
  *S*** TOTAL FLOW AT LOW POINT NEAR QUINTESSENCE/RAMTHA INT.

                                FROM  TO                  PEAK       RUNOFF               TIME TO   CFS      PAGE =   3
                   HYDROGRAPH    ID   ID       AREA     DISCHARGE    VOLUME    RUNOFF      PEAK     PER
  COMMAND        IDENTIFICATION  NO.  NO.     (SQ MI)     (CFS)      (AC-FT)   (INCHES)   (HOURS)   ACRE     NOTATION

  ADD HYD            140.10  1& 2  15      .08810      227.03      8.604     1.83119   1.550   4.026
  *S*** SUB-DRAINAGE AREA 160 *****
  COMPUTE NM HYD     160.10   -    16      .00954       25.50       .918     1.80502   1.517   4.177 PER IMP=  50.00
  *S*** SUB-DRAINAGE AREA 170 *****
  COMPUTE NM HYD     170.10   -    1       .00764       21.41       .788     1.93437   1.517   4.379 PER IMP=  60.00
  *S     DA# 170.2 (OFFSITE AREA - FUTURE CONDITIONS)
  *S               (SOUTHWEST OF SAN ANTONIO)
  COMPUTE NM HYD     170.20   -    2       .00990       14.22       .434      .82223   1.517   2.245 PER IMP=   5.00
  *S TOTAL FLOW INTO WEST POND FROM DA 170.1,-2
  ADD HYD            270.20  1& 2  17      .01754       35.63      1.222     1.30662   1.517   3.174
  *S*** SUB-DRAINAGE AREA 180 *****
  COMPUTE NM HYD     180.50   -    1       .00385       10.31       .371     1.80502   1.517   4.182 PER IMP=  50.00
  *S*** ROUTE DA 180.5 WEST 700 ON JARASH
  ROUTE              380.50   1    2       .00385        9.44       .371     1.80502   1.550   3.830
  COMPUTE NM HYD     180.40   -    1       .00596       16.71       .615     1.93437   1.517   4.380 PER IMP=  60.00
  *S COMBINE FLOW DA 180.4 + 180.5
  ADD HYD            180.40  1& 2  3       .00981       25.61       .985     1.88355   1.533   4.080
  *S*** ROUTE 180.5 & 180.4 WEST 877 FT ON IRBID
  ROUTE              380.40   3    2       .00981       23.90       .985     1.88357   1.567   3.806
  COMPUTE NM HYD     180.30   -    1       .00976       27.35      1.007     1.93437   1.517   4.378 PER IMP=  60.00
  *S COMBINE FLOW DA 180.3,4,5
  ADD HYD            180.30  1& 2  4       .01957       49.75      1.992     1.90888   1.533   3.972
  COMPUTE NM HYD     180.60   -    1       .00262        7.02       .252     1.80502   1.517   4.186 PER IMP=  50.00
  *S*** ROUTE 180.6 WEST 545 FT ON ES SALT
  ROUTE              380.60   1    2       .00262        6.54       .252     1.80501   1.550   3.903
  *S     DA# 180.7 (OFFSITE AREA - FUTURE CONDITIONS)
  *S               (SOUTH OF SAN ANTONIO)
  COMPUTE NM HYD     180.70   -    1       .00440        6.33       .193      .82223   1.517   2.249 PER IMP=   5.00
  *S COMBINE FLOW 180.6 & 180.7
  ADD HYD            280.70  1& 2  3       .00702       12.79       .445     1.18895   1.533   2.848
  *S*** ROUTE 180.6 & 180.7 WEST 1115 FT ON ES SALT
  ROUTE              380.70   3    2       .00702       10.63       .445     1.18899   1.600   2.365
  COMPUTE NM HYD     180.20   -    1       .01301       36.45      1.342     1.93437   1.517   4.377 PER IMP=  60.00
  *S COMBINE DA 180.6,7, & 180.2 AT IRBID/ES SALT INT.
  ADD HYD            180.20  1& 2  3       .02003       44.35      1.787     1.67310   1.533   3.460
  *S*** TOTAL DISCHARGE AT IRBID/ES SALT INT. *****
  ADD HYD            180.20  3& 4  2       .03960       94.10      3.780     1.78962   1.533   3.713
  *S*** ROUTE 180.2,3,4,5,6,7 WEST 263 FT ON IRBID TO MA'AN DRIVE
  ROUTE              380.20   2    3       .03960       94.17      3.780     1.78962   1.533   3.716
  *S*** ROUTE 180.2,3,4,5,6,7 NORTH 207 FT ON MA'AN TO PINO STORM DRAIN
  ROUTE              380.40   3    2       .03960       93.87      3.780     1.78962   1.550   3.704
  COMPUTE NM HYD     180.10   -    1       .00535       15.00       .552     1.93437   1.517   4.381 PER IMP=  60.00
  *S*** TOTAL DISCHARGE FROM DA 180.1,2,3,4,5,6,7 AT MA'AN DR/PINO STORM DRAIN
  ADD HYD            180.10  1& 2  18      .04495      108.16      4.332     1.80684   1.533   3.760
  *S**** OFFSITE DRAINAGE AREAS *****
  *S     DA# 120.1 (OFFSITE AREA - FUTURE CONDITIONS)
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 *S******** (ASSUMES TOPWIDTH=20*DEPTH,N=.03,SLOPE=.042,D50=1.32mm)
 *S
 SEDIMENT TRANSP      120.40    1     SED ID =  4              PEAK CONC.(PPM-w) =   239850  TOTAL SED.(TONS) =    1289.68
 *S  COMBINED HYDROGRAPH FROM 120.1,-.2,-.3,-.4,-.9
 ADD HYD              120.40  1& 4   2      .14364     268.49      9.533     1.24439   1.550    2.921
 *S   ROUTE HYDROGRAPHS 120.1 THRU 120.4 & 120.9 IN EUBANK STORM SEWER
 *S   66" RCP; .010 SLOPE; 382 LF
 ROUTE                320.30    2    3      .14364     271.06      9.533     1.24440   1.550    2.949
 *S ROUTE HYDROGRAPHS 120.1 THRU 120.4 & 120.9 IN EUBANK STORM SEWER
 *S IN 60" RCP; 0.005 SLOPE; 95 LF

                               FROM  TO                  . PEAK     RUNOFF              TIME TO   CFS      PAGE =   5
                   HYDROGRAPH   ID   ID       AREA     DISCHARGE    VOLUME    RUNOFF      PEAK    PER
 COMMAND         IDENTIFICATION NO.  NO.     (SQ MI)     (CFS)     (AC-FT)   (INCHES)   (HOURS)   ACRE     NOTATION

 ROUTE                320.10    3    4      .14364     273.09      9.533     1.24440   1.550    2.971
 *S     DA# 120.5 (OFFSITE AREA - FUTURE CONDITIONS)
 *S                (EAST OF EUBANK)
 COMPUTE NM HYD       120.50    -    1      .04480      82.78      2.782     1.16425   1.517    2.887 PER IMP=  17.00
 *S  ROUTE AREA 120.5 THRU AREA 120.6 THE NORTH PINO FROM LOWELL ST TO BROWNING S
 ROUTE                320.50    1    2      .04480      63.76      2.782     1.16427   1.600    2.224
 *S     DA# 120.6 (OFFSITE AREA - FUTURE CONDITIONS)
 *S                (EAST OF EUBANK)
 COMPUTE NM HYD       120.60    -    1      .08610     165.86      5.346     1.16425   1.517    3.010 PER IMP=  17.00
 *S COMBINED HYDROGRAPH FROM 120.5 & 120.6
 ADD HYD              120.60  1& 2   3      .13090     213.51      8.128     1.16425   1.550    2.549
 *S ROUTE AREA 120.5 & 120.6 THRU 120.7 FROM BROWNING ST TO EUBANK ST
 ROUTE                320.60    3    2      .13090     156.79      8.128     1.16426   1.650    1.872
 *S     DA# 120.7 (OFFSITE AREA - FUTURE CONDITIONS)
 *S                (EAST OF EUBANK @ SANTA MONICA)
 COMPUTE NM HYD       120.70    -    1      .04990      95.43      3.098     1.16425   1.517    2.988 PER IMP=  17.00
 *S COMBINED HYDROGRAPH FROM 120.5 - 120.7
 *S (FLOW IN PINO ON EAST SIDE OF EUBANK)
 ADD HYD              120.70  1& 2   3      .18080     221.62     11.226     1.16425   1.600    1.915
 *S******** SEDIMENT WASH LOAD AT EUBANK/SANTA MONICA FROM EAST DA 120.5-120.7
 SED WASH LOAD        120.70    3                                                       WASH CONC.(PPM-w) =      4485
 *S******** BED MATERIAL TRANSPORT CAPACITY FROM DA 120.7
 *S
 *S******** (ASSUMES TOPWIDTH=40*DEPTH,N=.03,SLOPE=.0364,D50=1.32mm)
 *S
 SEDIMENT TRANSP      120.70    3     SED ID =  5              PEAK CONC.(PPM-w) =   182172  TOTAL SED.(TONS) =    2388.96
 *S TOTAL DISCHARGE FROM CONTRIBUTING AREAS TO EAST DETENTION POND
 ADD HYD              120.70  3& 4   2      .32444     483.13     20.760     1.19973   1.550    2.327
 *S     DA# 100.3 EAST DETENTION POND SITE
 *S
 COMPUTE NM HYD       100.30    -    1      .00486       9.86       .300     1.15829   1.517    3.171 PER IMP=    .00
 *S !!! ASSUME EAST POND FULL CAPACITY !!!
 *S TOTAL FLOW INTO EAST DETENTION POND
 *S FROM EUBANK STORM DRAIN, PINO ARROYO, OFFSITE DRAINAGE
 ADD HYD              100.30  1& 2   5      .32930     492.57     21.060     1.19912   1.550    2.337
 ROUTE                400.80    5   12      .32930     442.81     21.060     1.19912   1.617    2.101
 *S TOTAL ONSITE DISCHARGE FROM DA'S 160'S AND 180'S
 *S AT "Q" STREET/OPEN CHANNEL INTERSECTION
 ADD HYD              180.10 16&18   6      .05449     133.10      5.250     1.80652   1.533    3.817
 *S*** COMBINE EAST DET. POND OUTFLOW AND DA 160'S AND 180'S
```

```
AHYMO SUMMARY TABLE (AHYMO993) - AMAFCA VERSION OF HYMO - SEPTEMBER, 1993          RUN DATE (MON/DAY/YR) =08/29/1993
INPUT FILE = QUINOPND.DAT                                                                    USER NO.= COMMSC_B.T93

                                 FROM  TO                 PEAK      RUNOFF                TIME TO   CFS     PAGE =  1
                   HYDROGRAPH    ID    ID     AREA     DISCHARGE    VOLUME    RUNOFF     PEAK     PER
COMMAND          IDENTIFICATION  NO.   NO.   (SQ MI)     (CFS)     (AC-FT)   (INCHES)   (HOURS)   ACRE     NOTATION

START                                                                                                     TIME=      .00
*S*** QUINTESSENCE DEVELOPMENT JOB NO 323-04-30
*S*** PROPOSED SUB-DIVISION DESIGN DRAINAGE CONDITIONS
*S*** INPUT FILE: QUINOPND.DAT  DLH  8/29/95
*S*** POND2 WEST POND RATING TABLE: WESTPOND.PND
*S*** POND2 EAST POND RATING TABLE: EASTPOND.PND
*S*** LAND TREATMENT VALUES DEVELOPED RESIDENTIAL AREAS:A=0,B=25,C=25,D=50
*S*** LTV BASED ON TYPICAL SINGLE FAMILY RES. WHERE %D=7*(((N*N)+(5*N))^.5)
*S*** 100-YEAR 6-HOUR STORM EVENT
*S*** RAIN 1-HR=2.20"  RAIN 6-HR=2.70"
RAINFALL  TYPE= 1                                                                                        RAIN6=    2.700
*S*** SUB-DRAINAGE AREA 110 *****
COMPUTE NM HYD         110.60    -    1     .00794     21.23       .764    1.80502    1.517    4.178 PER IMP=  50.00
*S     DA# 110.8 (OFFSITE AREA - FUTURE CONDITIONS)
*S               (NE OF CORONADO STREET)
COMPUTE NM HYD         110.80    -    2     .01766     33.79      1.097    1.16425    1.517    2.989 PER IMP=  17.00
*S  DISCHARGE WEST ALONG CORONADO
ADD HYD                110.80  1& 2   3     .02560     55.02      1.861    1.36297    1.517    3.358
*S*** ROUTE 110.6,8 WEST ALONG CORONADO
ROUTE                  310.70    3    2     .02560     52.88      1.861    1.36298    1.533    3.227
*S     DA# 110.9 (OFFSITE AREA - FUTURE CONDITIONS)
*S               (NORTH OF CORONADO STREET,EAST OF HOLBROOK)
COMPUTE NM HYD         110.90    -    1     .01260     19.74       .782    1.16425    1.567    2.448 PER IMP=  17.00
ADD HYD                110.80  1& 2   3     .03820     72.43      2.643    1.29741    1.550    2.963
*S     DA# 110.7 (OFFSITE AREA - FUTURE CONDITIONS)
*S               (NORTH OF CORONADO STREET)
COMPUTE NM HYD         110.70    -    1     .04740     74.20      2.943    1.16425    1.567    2.446 PER IMP=  17.00
*S TOTAL DISCHARGE INTO CORONADO CULVERT AT HOLBROOK
*S TOTAL DA# 110.6,7,8,9
ADD HYD                110.90  1& 3   2     .08560    146.03      5.586    1.22367    1.550    2.665
*S*** ROUTE DA# 110.-.6-.7-.8-.9  *****
*S*** 270 FT SOUTH IN HOLBROOK     *****
ROUTE                  310.70    2    1     .08560    144.15      5.586    1.22367    1.567    2.631
COMPUTE NM HYD         110.50    -    2     .00561     15.01       .540    1.80502    1.517    4.179 PER IMP=  50.00
COMPUTE NM HYD         110.20    -    3     .00564     13.99       .505    1.68013    1.517    3.875 PER IMP=  50.00
ADD HYD                110.90  2& 3   4     .01125     28.99      1.045    1.74237    1.517    4.027
*S*** ROUTE DA 110.2 & 110.5 470 FT WEST IN SWALE *****
*S*** BTWN DA 110.3 & DA 110.2                    *****
ROUTE                  310.50    4    3     .01125     28.31      1.045    1.74241    1.533    3.931
*S*** COMBINE DA 110.2-.5-.6-.7-.8-.9 *****
ADD HYD                110.50  1& 3   4     .09685    171.03      6.632    1.28392    1.567    2.759
COMPUTE NM HYD         110.40    -    1     .00428     11.45       .412    1.80502    1.517    4.181 PER IMP=  50.00
COMPUTE NM HYD         110.30    -    2     .00672     17.97       .647    1.80502    1.517    4.179 PER IMP=  50.00
*S COMBINE DA 110.3 AND 110.4
ADD HYD                110.30  1& 2   3     .01100     29.42      1.059    1.80498    1.517    4.180
*S COMBINE FLOW DA 110.2 thru 110.9
ADD HYD                110.30  3& 4   1     .10785    196.74      7.691    1.33707    1.567    2.850
*S*** ROUTE DA 110.2 thru 110.9 *****
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ADD HYD               150.10  1& 3   2      .08053      208.14      7.875     1.83366   1.550    4.039
 *S*** SUB-DRAINAGE AREA 140 *****
COMPUTE NM HYD        140.10   -     1      .00757       20.24       .729     1.80502   1.517    4.178 PER IMP=  50.00
 *S*** TOTAL FLOW AT LOW POINT NEAR QUINTESSENCE/RAMTHA INT.

                                FROM  TO                  PEAK      RUNOFF               TIME TO   CFS      PAGE =  3
                  HYDROGRAPH    ID    ID      AREA     DISCHARGE    VOLUME    RUNOFF      PEAK     PER
COMMAND         IDENTIFICATION  NO.   NO.   (SQ MI)      (CFS)      (AC-FT)  (INCHES)   (HOURS)   ACRE     NOTATION

ADD HYD               140.10  1& 2  15      .08810      227.03      8.604     1.83119   1.550    4.026
 *S*** SUB-DRAINAGE AREA 160 *****
COMPUTE NM HYD        160.10   -    16      .00954       25.50       .918     1.80502   1.517    4.177 PER IMP=  50.00
 *S*** SUB-DRAINAGE AREA 170 *****
COMPUTE NM HYD        170.10   -     1      .00764       21.41       .788     1.93437   1.517    4.379 PER IMP=  60.00
 *S     DA# 170.2 (OFFSITE AREA - FUTURE CONDITIONS)
 *S               (SOUTHWEST OF SAN ANTONIO)
COMPUTE NM HYD        170.20   -     2      .00990       14.22       .434      .82223   1.517    2.245 PER IMP=   5.00
 *S TOTAL FLOW INTO WEST POND FROM DA 170.1,-2
ADD HYD               270.20  1& 2  17      .01754       35.63      1.222     1.30662   1.517    3.174
 *S*** SUB-DRAINAGE AREA 180 *****
COMPUTE NM HYD        180.50   -     1      .00385       10.31       .371     1.80502   1.517    4.182 PER IMP=  50.00
 *S*** ROUTE DA 180.5 WEST 700 ON JARASH
ROUTE                 380.50   1     2      .00385        9.44       .371     1.80502   1.550    3.830
COMPUTE NM HYD        180.40   -     1      .00596       16.71       .615     1.93437   1.517    4.380 PER IMP=  60.00
 *S COMBINE FLOW DA 180.4 + 180.5
ADD HYD               180.40  1& 2   3      .00981       25.61       .985     1.88355   1.533    4.080
 *S*** ROUTE 180.5 & 180.4 WEST 877 FT ON IRBID
ROUTE                 380.40   3     2      .00981       23.90       .985     1.88357   1.567    3.806
COMPUTE NM HYD        180.30   -     1      .00976       27.35      1.007     1.93437   1.517    4.378 PER IMP=  60.00
 *S COMBINE FLOW DA 180.3,4,5
ADD HYD               180.30  1& 2   4      .01957       49.75      1.992     1.90888   1.533    3.972
COMPUTE NM HYD        180.60   -     1      .00262        7.02       .252     1.80502   1.517    4.186 PER IMP=  50.00
 *S*** ROUTE 180.6 WEST 545 FT ON ES SALT
ROUTE                 380.60   1     2      .00262        6.54       .252     1.80501   1.550    3.903
 *S     DA# 180.7 (OFFSITE AREA - FUTURE CONDITIONS)
 *S               (SOUTH OF SAN ANTONIO)
COMPUTE NM HYD        180.70   -     1      .00440        6.33       .193      .82223   1.517    2.249 PER IMP=   5.00
 *S COMBINE FLOW 180.6 & 180.7
ADD HYD               280.70  1& 2   3      .00702       12.79       .445     1.18895   1.533    2.848
 *S*** ROUTE 180.6 & 180.7 WEST 1115 FT ON ES SALT
ROUTE                 380.70   3     2      .00702       10.63       .445     1.18899   1.600    2.365
COMPUTE NM HYD        180.20   -     1      .01301       36.45      1.342     1.93437   1.517    4.377 PER IMP=  60.00
 *S COMBINE DA 180.6,7, & 180.2 AT IRBID/ES SALT INT.
ADD HYD               180.20  1& 2   3      .02003       44.35      1.787     1.67310   1.533    3.460
 *S*** TOTAL DISCHARGE AT IRBID/ES SALT INT. *****
ADD HYD               180.20  3& 4   2      .03960       94.10      3.780     1.78962   1.533    3.713
 *S*** ROUTE 180.2,3,4,5,6,7 WEST 263 FT ON IRBID TO MA'AN DRIVE
ROUTE                 380.20   2     3      .03960       94.17      3.780     1.78962   1.533    3.716
 *S*** ROUTE 180.2,3,4,5,6,7 NORTH 207 FT ON MA'AN TO PINO STORM DRAIN
ROUTE                 380.40   3     2      .03960       93.87      3.780     1.78962   1.550    3.704
COMPUTE NM HYD        180.10   -     1      .00535       15.00       .552     1.93437   1.517    4.381 PER IMP=  60.00
 *S*** TOTAL DISCHARGE FROM DA 180.1,2,3,4,5,6,7 AT MA'AN DR/PINO STORM DRAIN
ADD HYD               180.10  1& 2  18      .04495      108.16      4.332     1.80684   1.533    3.760
 *S**** OFFSITE DRAINAGE AREAS *****
 *S     DA# 120.1 (OFFSITE AREA - FUTURE CONDITIONS)
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 *S******** (ASSUMES TOPWIDTH=20*DEPTH,N=.03,SLOPE=.042,D50=1.32mm)
 *S
 SEDIMENT TRANSP      120.40    1      SED ID =  4              PEAK CONC.(PPM-w) =   239850  TOTAL SED.(TONS) =    1289.68
 *S  COMBINED HYDROGRAPH FROM 120.1,-.2,-.3,-.4,-.9
 ADD HYD              120.40  1& 4    2       .14364    268.49     9.533    1.24439   1.550   2.921
 *S   ROUTE HYDROGRAPHS 120.1 THRU 120.4 & 120.9 IN EUBANK STORM SEWER
 *S   66" RCP; .010 SLOPE; 382 LF
 ROUTE                320.30    2     3       .14364    271.06     9.533    1.24440   1.550   2.949
 *S ROUTE HYDROGRAPHS 120.1 THRU 120.4 & 120.9 IN EUBANK STORM SEWER
 *S IN 60" RCP; 0.005 SLOPE; 95 LF

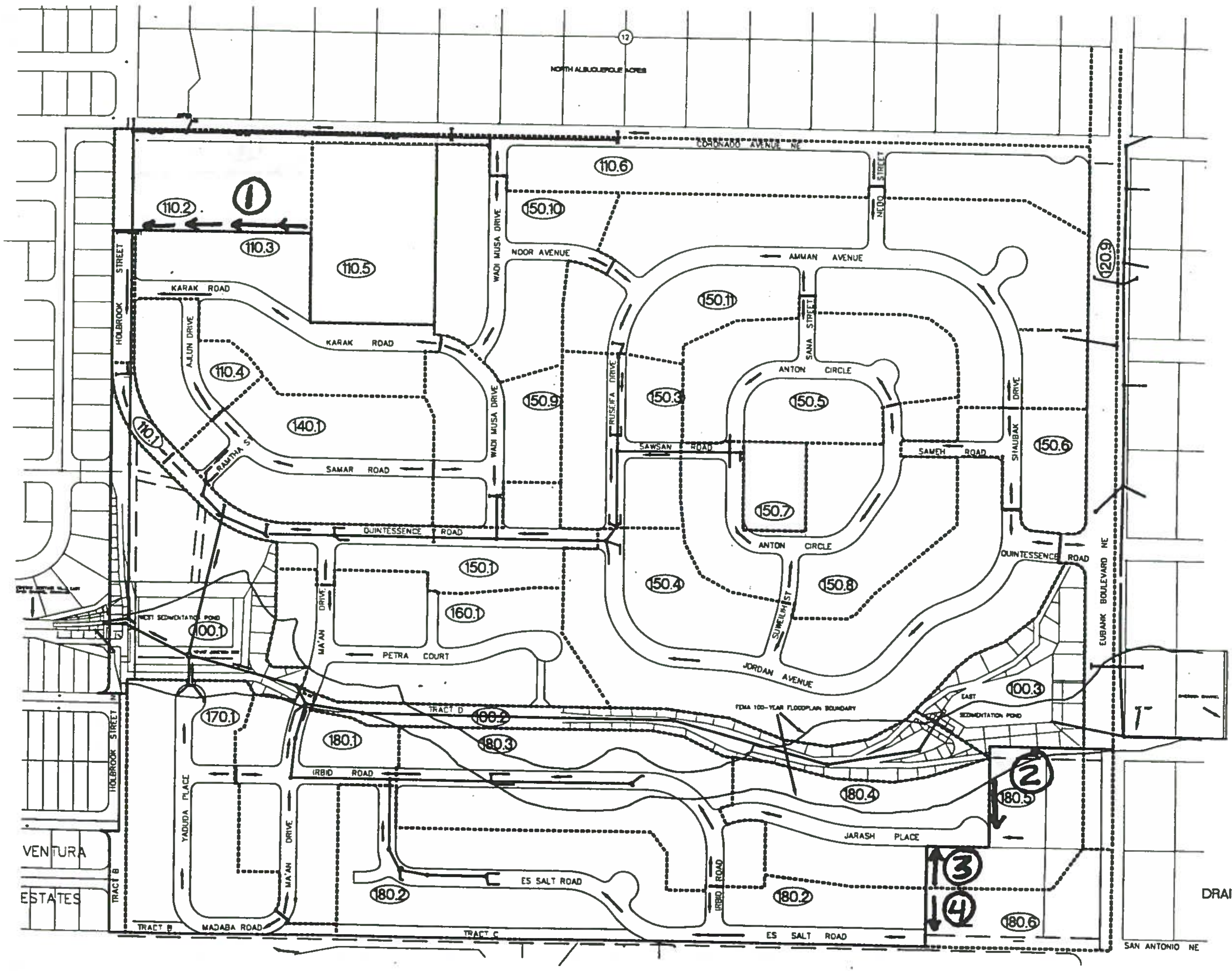
                                FROM   TO                 PEAK     RUNOFF              TIME TO    CFS     PAGE =   5
                  HYDROGRAPH     ID    ID       AREA    DISCHARGE   VOLUME    RUNOFF     PEAK     PER
 COMMAND        IDENTIFICATION   NO.   NO.    (SQ MI)     (CFS)    (AC-FT)   (INCHES)  (HOURS)   ACRE     NOTATION

 ROUTE                320.10    3     4       .14364    273.09     9.533    1.24440   1.550   2.971
 *S      DA# 120.5 (OFFSITE AREA - FUTURE CONDITIONS)
 *S                (EAST OF EUBANK)
 COMPUTE NM HYD       120.50    -     1       .04480     82.78     2.782    1.16425   1.517   2.887 PER IMP=  17.00
 *S  ROUTE AREA 120.5 THRU AREA 120.6 THE NORTH PINO FROM LOWELL ST TO BROWNING S
 ROUTE                320.50    1     2       .04480     63.76     2.782    1.16427   1.600   2.224
 *S      DA# 120.6 (OFFSITE AREA - FUTURE CONDITIONS)
 *S                (EAST OF EUBANK)
 COMPUTE NM HYD       120.60    -     1       .08610    165.86     5.346    1.16425   1.517   3.010 PER IMP=  17.00
 *S COMBINED HYDROGRAPH FROM 120.5 & 120.6
 ADD HYD              120.60  1& 2    3       .13090    213.51     8.128    1.16425   1.550   2.549
 *S ROUTE AREA 120.5 & 120.6 THRU 120.7 FROM BROWNING ST TO EUBANK ST
 ROUTE                320.60    3     2       .13090    156.79     8.128    1.16426   1.650   1.872
 *S      DA# 120.7 (OFFSITE AREA - FUTURE CONDITIONS)
 *S                (EAST OF EUBANK @ SANTA MONICA)
 COMPUTE NM HYD       120.70    -     1       .04990     95.43     3.098    1.16425   1.517   2.988 PER IMP=  17.00
 *S COMBINED HYDROGRAPH FROM 120.5 - 120.7
 *S (FLOW IN PINO ON EAST SIDE OF EUBANK)
 ADD HYD              120.70  1& 2    3       .18080    221.62    11.226    1.16425   1.600   1.915
 *S******** SEDIMENT WASH LOAD AT EUBANK/SANTA MONICA FROM EAST DA 120.5-120.7
 SED WASH LOAD        120.70    3                                                     WASH CONC.(PPM-w) =      4485
 *S******** BED MATERIAL TRANSPORT CAPACITY FROM DA 120.7
 *S
 *S******** (ASSUMES TOPWIDTH=40*DEPTH,N=.03,SLOPE=.0364,D50=1.32mm)
 *S
 SEDIMENT TRANSP      120.70    3      SED ID =  5              PEAK CONC.(PPM-w) =   182172  TOTAL SED.(TONS) =    2388.96
 *S TOTAL DISCHARGE FROM CONTRIBUTING AREAS TO EAST DETENTION POND
 ADD HYD              120.70  3& 4    2       .32444    483.13    20.760    1.19973   1.550   2.327
 *S     DA# 100.3 EAST DETENTION POND SITE
 *S
 COMPUTE NM HYD       100.30    -     1       .00486      9.86      .300    1.15829   1.517   3.171 PER IMP=    .00
 *S !!! ASSUME EAST POND FULL CAPACITY !!!
 *S TOTAL FLOW INTO EAST DETENTION POND
 *S FROM EUBANK STORM DRAIN, PINO ARROYO, OFFSITE DRAINAGE
 ADD HYD              100.30  1& 2    5       .32930    492.57    21.060    1.19912   1.550   2.337
 ROUTE                400.80    5    12       .32930    442.81    21.060    1.19912   1.617   2.101
 *S TOTAL ONSITE DISCHARGE FROM DA'S 160'S AND 180'S
 *S AT "Q" STREET/OPEN CHANNEL INTERSECTION
 ADD HYD              180.10 16&18    6       .05449    133.10     5.250    1.80652   1.533   3.817
 *S*** COMBINE EAST DET. POND OUTFLOW AND DA 160'S AND 180'S
```

QUINTESSENCE

DRB NO. 94-552

SEPTEMBER 1995



EAST SEDIMENTATION \ DETENTION POND

PEAK Qin = 492cfs
PEAK Qout = 260cfs
PEAK STORAGE VOLUME = 7.7 AC.FT.
PEAK ELEVATION = 5696.5 FT.
EMERGENCY SPILLWAY ELEV = 5697.0 FT.
SPILLWAY WIDTH = 70 FT.
DEPTH = 1.9 FT. @ Q = 492cfs

WEST SEDIMENTATION \ DETENTION POND

PEAK Qin = 545cfs
PEAK Qout = 378cfs
PEAK STORAGE VOLUME = 3.7 AC.FT.
PEAK ELEVATION = 5632.8 FT.
EMERGENCY SPILLWAY ELEV = 5633.0 FT.
SPILLWAY WIDTH = 100 FT.
DEPTH = 2.2 FT. @ Q = 812cfs

EMERGENCY OVERFLOW SPILLWAY

TYPICAL 60 FT. R/W, 17 FT B/W
3:1 SIDE SLOPES
Q = 485cfs DEPTH = 2.08 FT.

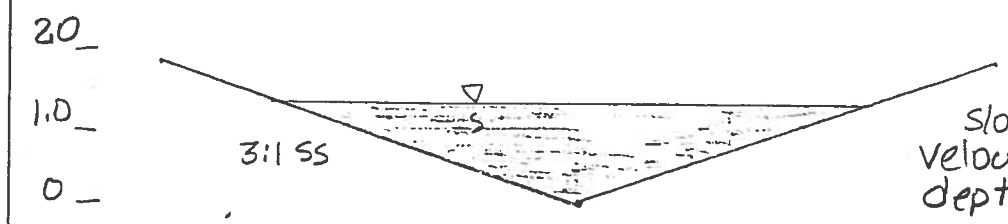
EXHIBIT 3
DRAINAGE CONDITIONS AT KEY LOCATIONS
FOR 100 YEAR STORM EVENT

Quintessence	2-27-95	323-04-034

PRIVATE DRAINAGE SWALE IN 11 FT EASM'T AREAS

Location: Btwn DA 110.2 and 110.3, north boundary Block 21, Lot 1 thru 7 (DA 110.2 & 110.5)

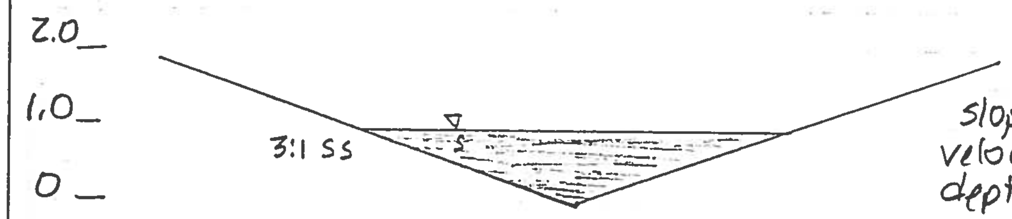
(1)



Q = 29 cfs
slope = 0.027 %
velocity = 5.9 fps
depth = 1.3 ft.

Location : Along east boundary Block 5 Lot 38 (50% DA 180.5)

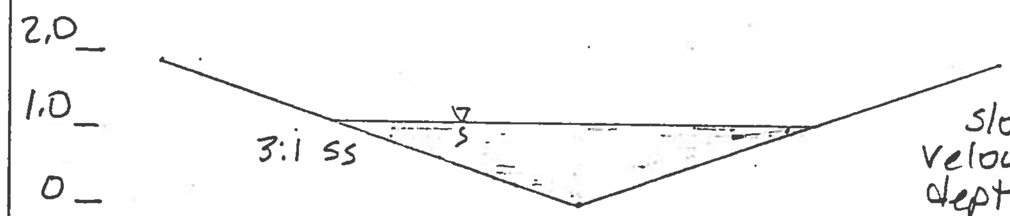
(2)



Q = 10.2 cfs
slope = 0.02 %
velocity = 4.0 fps
depth = 0.9 ft.

Location: Along east boundary Block 6 Lot 1 (50% DA 180.5)

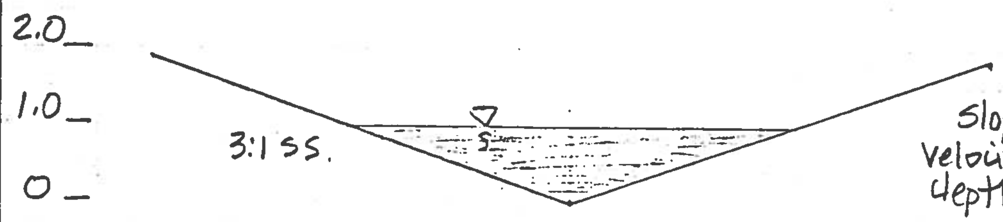
(3)



Q = 10.2 cfs
slope = 0.008 %
velocity = 2.9 fps
depth = 1.1 ft

Location: Along east boundary Block 6 Lot 23 (DA 180.6)

(4)



Q = 7.0 cfs
slope = 0.008 %
velocity = 2.6 fps
depth = 1.0 ft.

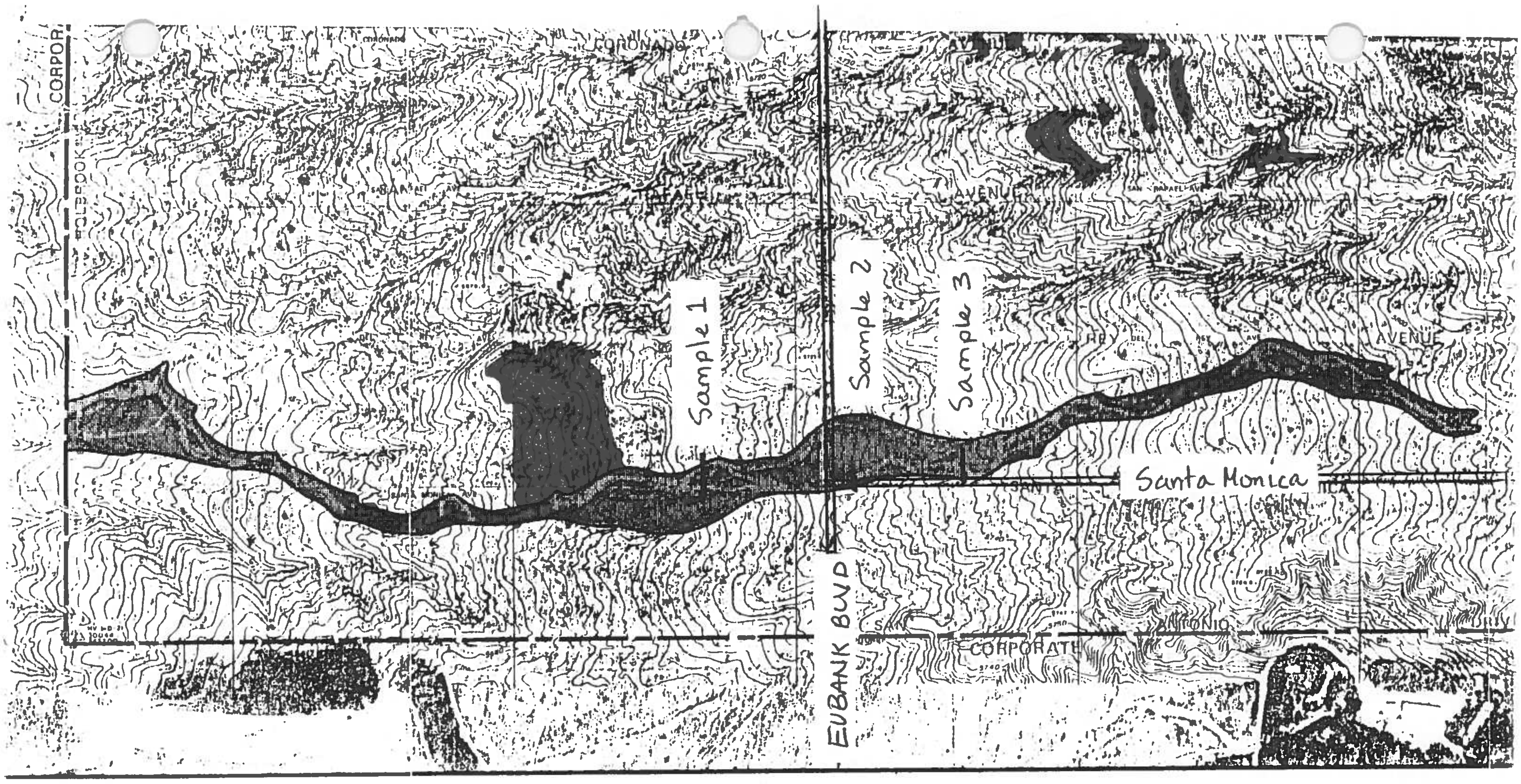
Outlet Structure File: WESTPOND.STR

POND-2 Version: 5.17　　　S/N:
Date Executed:　　　Time Executed:

****
WEST DETENTION POND
QUINTESSENCE DEVELOPMENT DRB NO. 94-552
USING REVISED CONTOUR VOLUMES
REVISED SEPT 95
****

***** COMPOSITE OUTFLOW SUMMARY ****

Elevation (ft)	Q (cfs)	Contributing Structures
18.66	0.0	+3
19.11	10.6	+3
19.56	21.2	+3
20.01	31.8	+3
20.46	42.5	+3
20.91	53.1	+3
21.36	63.7	+3
21.81	74.3	+3
22.26	84.9	+3
22.71	95.5	+3
23.16	109.6	+3
23.61	126.0	+3
24.06	140.6	+3
24.51	154.8	+3
24.96	168.2	+3
25.41	181.2	+3
25.86	193.8	+3
26.31	206.1	+3
26.76	217.9	+3
27.21	239.1	+3
27.66	254.9	+3
28.11	261.9	+3
28.56	269.0	+3
29.01	276.2	+3
29.46	283.7	+3
29.91	291.2	+3
30.36	311.3	+1 +3
30.81	324.8	+1 +3
31.26	336.5	+1 +3
31.71	347.4	+1 +3
32.16	357.7	+1 +3
32.61	367.3	+1 +3
33.06	376.7	+1 +3
33.51	385.8	+1 +3
33.96	394.6	+1 +3
34.41	403.0	+1 +3
34.86	411.3	+1 +3
35.00	0.0	



Sample Date 9/13/94

THIS MAP WAS PRODUCED FROM TOPOGRAPHY GENERATED BY BOHANNAN-HUSTON, INC., ALBUQUERQUE, NEW MEXICO, AND FROM EXISTING TOPOGRAPHY ACQUIRED BY THE CITY OF ALBUQUERQUE AND THE ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY.

HORIZONTAL AND VERTICAL CONTROL DATA SURVEYED BY BOHANNAN-HUSTON, INC. AND THE CITY OF ALBUQUERQUE OR ITS AUTHORIZED AGENT.

TOPOGRAPHY COMPILED FROM VERTICAL AERIAL PHOTOGRAPHY EXPOSED IN PRECISION AERIAL CAMERAS BY BOHANNAN-HUSTON, INC. AND BY THE AUTHORIZED AGENTS OF THE CITY OF ALBUQUERQUE AND THE ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY.

SCALE: 1" = 500' (APPROX.)

ORTHOPHOTOGRAPHY ACCOMPLISHED FROM VERTICAL AERI[A]
POSED IN A ZEISS RMK/A, LENS SERIAL NO. 98144, ON 10-8-80.
STEREOCOMPILATION AND FINAL DRAFTING ACCOMPLISHED B[Y]
INC., AND BY AUTHORIZED AGENTS OF THE CITY OF ALBUQU[ER]
QUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORI[TY]
PRODUCTION ACCOMPLISHED BY BOHANNAN-HUSTON, INC.
2-FOOT CONTOUR INTERVAL ESTABLISHED ON NATIONAL GEO[DETIC]

NFIP, Flood Boundary and Floodway Map, ALB. CPN 350002 011
10/14/83, FEMA.

V & A

[redacted]

SIEVE ANALYSIS TEST RESULTS

Location

Sieve Size		#2 Pino Arroyo at Eubank	#1 Pino Arroyo 400' Downstream	#3 Pino Arroyo 400' Upstream
3/4"	19.05mm.	100	100	100
3/8"	9.53mm.	98	99	99
No. 4	4.76mm	89	96	96
No. 8	2.38mm	49	74	76
No. 16	1.18mm.	24	42	44
No. 30	.60	16	24	19
No. 50	.30	12	15	9
No. 100	.149	8	9	7
No. 200	.074	5.8	5.4	5.9

	Upper	Lower
Gravel	3"-8" 80mm-200mm.	.2" 4.76mm #4 2.00mm #10
Sand	4.76mm/2.00mm.	.076mm. #200 .05mm #270
Silt/Clay	.074mm/.05mm.	None.

Pg. 46, Ch. 3 Essentials of Soil Mechanics + Foundations, McCarthy.

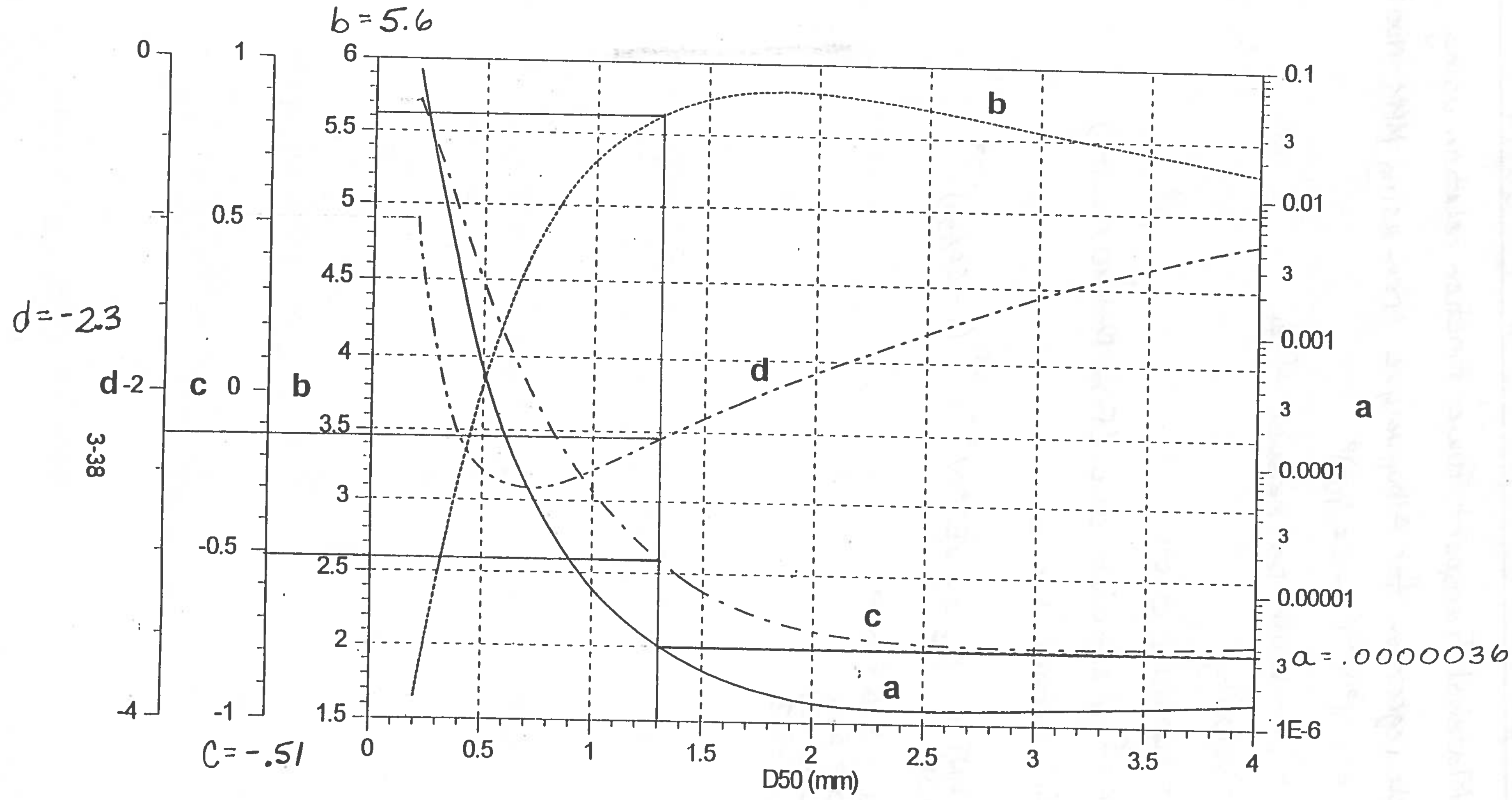


Figure 3.10. Coefficient and exponents for Equation 3.41, developed using MPM-Woo method.

E1.5

Table B.3. Slope-Length and Slope-Steepness Factor LS (Topographic Factor).

SOIL LOSS RATIO (LS) 1/

Length 2/ of Slope (L)	Percent of Slope 2/																					
	0.2	0.3	0.4	0.5	1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	25.0	30.0	40.0	50.0	60.0
20	.05	.05	.06	.06	.08	.12	.18	.21	.24	.30	.44	.61	.01	1.0	1.2	1.6	1.8	2.6	3.5	5.5	8	10
40	.06	.07	.07	.00	.10	.15	.22	.28	.34	.43	.63	.87	1.2	1.4	1.0	2.2	2.6	3.5	5.0	8	11	15
60	.07	.08	.00	.00	.11	.17	.25	.33	.41	.52	.77	1.0	1.4	1.0	2.2	2.6	3.0	4.5	6.0	10	14	18
80	.08	.08	.09	.09	.12	.19	.27	.37	.40	.60	.89	1.2	1.6	2.0	2.6	3.0	3.5	5.5	7	11	16	21
100	.00	.09	.09	.10	.13	.20	.29	.40	.54	.67	.99	1.4	1.0	2.3	2.0	3.4	4.1	6.0	0	13	10	23
110	.00	.09	.10	.10	.13	.21	.30	.42	.56	.71	1.0	1.4	1.8	2.4	3.0	3.5	4.5	6.0	8	13	19	24
120	.09	.09	.10	.10	.14	.21	.30	.43	.59	.74	1.0	1.6	2.0	2.6	3.0	4.0	4.5	6.0	9	14	20	25
130	.09	.09	.10	.10	.14	.22	.31	.44	.61	.77	1.2	1.6	2.0	2.6	3.0	4.0	4.5	7	9	14	20	26
140	.09	.10	.10	.10	.14	.22	.32	.46	.63	.80	1.2	1.6	2.2	2.8	3.5	4.0	5.0	7	9	15	21	27
150	.09	.10	.10	.10	.15	.23	.32	.47	.66	.82	1.2	1.7	2.2	2.8	3.5	4.2	5.0	7	10	15	22	28
160	.09	.10	.11	.11	.15	.23	.33	.48	.68	.85	1.2	1.8	2.2	3.0	3.5	4.5	5.0	7	10	16	23	29
180	.10	.10	.11	.11	.15	.24	.34	.51	.72	.90	1.4	1.8	2.4	3.0	4.0	4.5	5.5	8	11	17	24	31
200	.10	.10	.11	.11	.16	.25	.35	.53	.76	.95	1.4	1.9	2.6	3.2	4.0	5.0	5.8	8	11	18	25	33
300	.10	.11	.12	.12	.18	.28	.40	.62	.93	1.2	1.7	2.4	3.1	4.0	4.9	6.0	7.1	10	14	22	31	40
400	.11	.12	.13	.13	.20	.31	.44	.70	1.1	1.4	2.0	2.7	3.6	4.6	5.7	6.9	8.2	12	16	25	36	46
500	.11	.12	.13	.13	.21	.33	.47	.76	1.2	1.5	2.2	3.1	4.0	5.1	6.4	7.7	9.1	13	18	28	40	52
600	.11	.12	.13	.14	.22	.34	.49	.82	1.3	1.6	2.4	3.4	4.4	5.6	7	8.4	10	14	19	31	44	57
700	.12	.13	.14	.14	.23	.36	.52	.87	1.4	1.8	2.6	3.5	5.0	6.0	8	9	11	16	21	33	47	61
800	.12	.13	.14	.15	.24	.38	.54	.92	1.5	1.9	2.8	3.9	5.1	6.5	8	9.7	11.5	17	22	36	50	65
900	.12	.13	.14	.15	.25	.39	.56	.96	1.6	2.0	3.0	4.0	5.5	7	9	10	12	18	24	38	53	69
1000	.13	.14	.15	.15	.26	.40	.57	1.0	1.7	2.1	3.1	4.3	5.7	7.3	9	10.9	12.9	19	25	40	56	73
1100	.17	.18	.19	.20	.27	.41	.59	1.0	1.8	2.2	3.5	4.5	6.0	8	9	11	14	20	26	42	59	77
1200	.17	.18	.20	.21	.27	.42	.61	1.0	1.0	2.4	3.5	4.5	6.0	8	10	12	14	20	28	44	62	80
1300	.18	.19	.20	.21	.28	.43	.62	1.2	2.0	2.4	3.5	5.0	7	8	10	12	15	21	29	46	64	83
1400	.18	.19	.21	.22	.29	.44	.63	1.2	2.0	2.6	3.5	5.0	7	9	11	13	15	22	30	47	67	87
1500	.19	.20	.21	.22	.29	.45	.65	1.2	2.0	2.6	4.0	5.5	7	9	11	13	16	23	31	49	69	90
1600	.19	.20	.21	.23	.30	.46	.66	1.2	2.2	2.6	4.0	5.5	7	9	11	14	16	24	32	51	71	93
1700	.19	.21	.22	.23	.30	.47	.67	1.2	2.2	2.8	4.0	5.5	7	9	12	14	17	24	33	52	73	95
2000	.20	.22	.23	.24	.32	.49	.71	1.4	2.4	3.0	4.5	6.0	8	10	13	15	18	26	36	57	80	104

1/ From USDA Ag. Handbook No. 537, December 1978.
2/ When the length of slope exceeds 400 feet and (or) percent of slope exceeds 24 percent, soil loss estimates are speculative as these values are beyond the range of research data.

April 1981

Assume length of slope = 400 Ft.
Slope = 3.64%
LS = .588

$\left(\frac{400}{72.6}\right)^{3.64}(.065 + .045 \times 3.64 + .0065(3.64)^2) = 1.861(.065 + .1653 + .861 = .588$

E1.7

Soils: Appendix B $Y_s = \alpha (V q_p)^{\beta} \cdot K (LS) C P$ MUSLE Eqn.

Embudo – drainageways + depressions Group B

Tijeras – low ridges + narrow undulations Group B

① K = .15 (K = Erosion Factor, USDA, Physical + Chemical properties of the soils, EMBUDO: @0-20" K = .15.)

② C = .035 (C = cover + management factor, Sediment and Erosion Design Guide, AMAFCA, 3/94, pg B.5
Assumed → Description: Tall weeds or short brush w/ avg drip fall ht = 20" percent cover 75%, Type cover: cover at surface is grass, grasslike plants, decaying compacted duff or litter 2" deep, (as contrast to broadleaf herbaceous plants), percent ground cover 60%

③ $\alpha = 285$

④ $\beta = .56$

⑤ P = 1

⑥ $LS = \left(\frac{\lambda}{72.6}\right)^{n} (.065 + .0454 S + .0065 \cdot S^2)$

λ = slope length. = 400'

S = percent slope = 4.0 (act = 4.3)

n = exp = .4

$LS = \left(\frac{400}{72.6}\right)^{.4} (.065 + .0454(4.3) + .0065 \cdot (4.3)^2)$

$(1.979)\ (.065 + .1952 + .1202)$

$(1.979)\ (.3804) = .7528$

or .5889

EUBANK STORM DRAINAGE SYSTEM OVERVIEW:

The Eubank storm drainage system is designed to receive off-site flows that develop east of Eubank Blvd. to include basins 120.01, 120.2, 120.3, 120.4 and 120.7. The arroyo is also designed to be self-cleaning with regard to sediment.

SEDIMENT TRANSPORT CAPACITY:

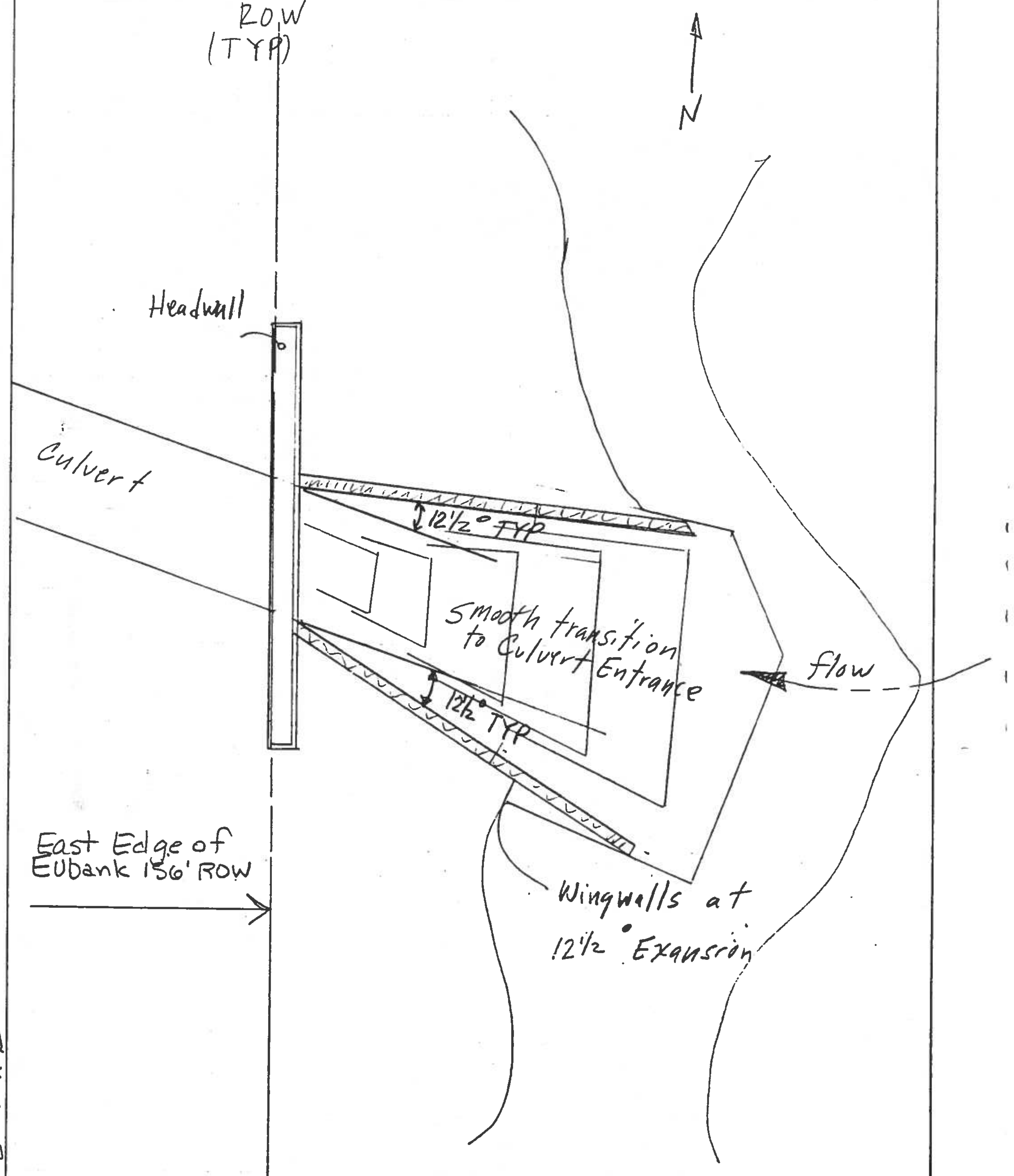
Off-site flows will be conveyed to collection points at culverts located on the ease edge of the Eubank 156' right-of-way. A smooth transition is used to bring flows from the existing terrain to the culvert entrances. The culvert transitions use 12 1/2° flare wingwalls to assure the proper transport of sediment in the construction.

The culverts operate as a self-cleaning system where sediment is not allowed to have excessive bed flow that may cause pipe blockage. The computation to accomplish this assures that a minimum slope occurs that relates to bed flow within the pipe and blockage problems. If this minimum slope is exceeded than sediment will be effectively transported through the pipe.

First the actual depth of flow within the pipe is computed and an equivalent rectangular width and depth is determined. It as assumed that an equivalent qs for the pipe can be determined using the Qs determinal for the natural upstream arroyo using the AHYMO. The regression equation developed for Albuquerque using the MPM-Woo method is used to solve the limiting pipe velocity. This velocity is used in Mannings equation to determine the minimum required slope.

In each case the pipe gradient exceeds this minimum slope. It is also noted that the actual velocity exceeds the limiting velocity in each case, thus assuring that the system is capable of transporting the inflowing sediment. The main line storm drain was analyzed in the same manner as the adjoining culvert sections.

EUBANK | Quintessence | 523-04-050



EUBANK BLVD, TYPICAL CULVERT ENTRANCE

WITH WINGWALLS.

Heritage Hills East Open Channel Capacity Calculations

Location 1 Entrance to Channel @ Holbrook

Q = 640 cfs

Slope = 2.61%

Depth = 2.00 Ft

Velocity = 24.5 fps.

Top Width = 16.11

Freeboard Req'd = $0.7(2+.025(24.5)(2.00)^{1/3})$

= 1.94 Ft.

Superelevation = $1.3\left(\frac{(24.5)^2(16.11)}{32.2\cdot(700)}\right)$ = .56

Total Req'd depth = 4.50 Ft.

Location 2 - 700 Ft downstream of entrance

Q = 635 cfs.

Slope = 5.09%

Depth = 1.66

Velocity = 30.55

Top Width = 15.07

Freeboard Req'd = $0.7(2+.025(30.55(1.66)^{1/3})$

= 2.03

Superelevation = $1.3\left(\frac{(30.55)^2(15.07)}{32.2\cdot700}\right)$ = .81

Total Req'd depth = 4.5

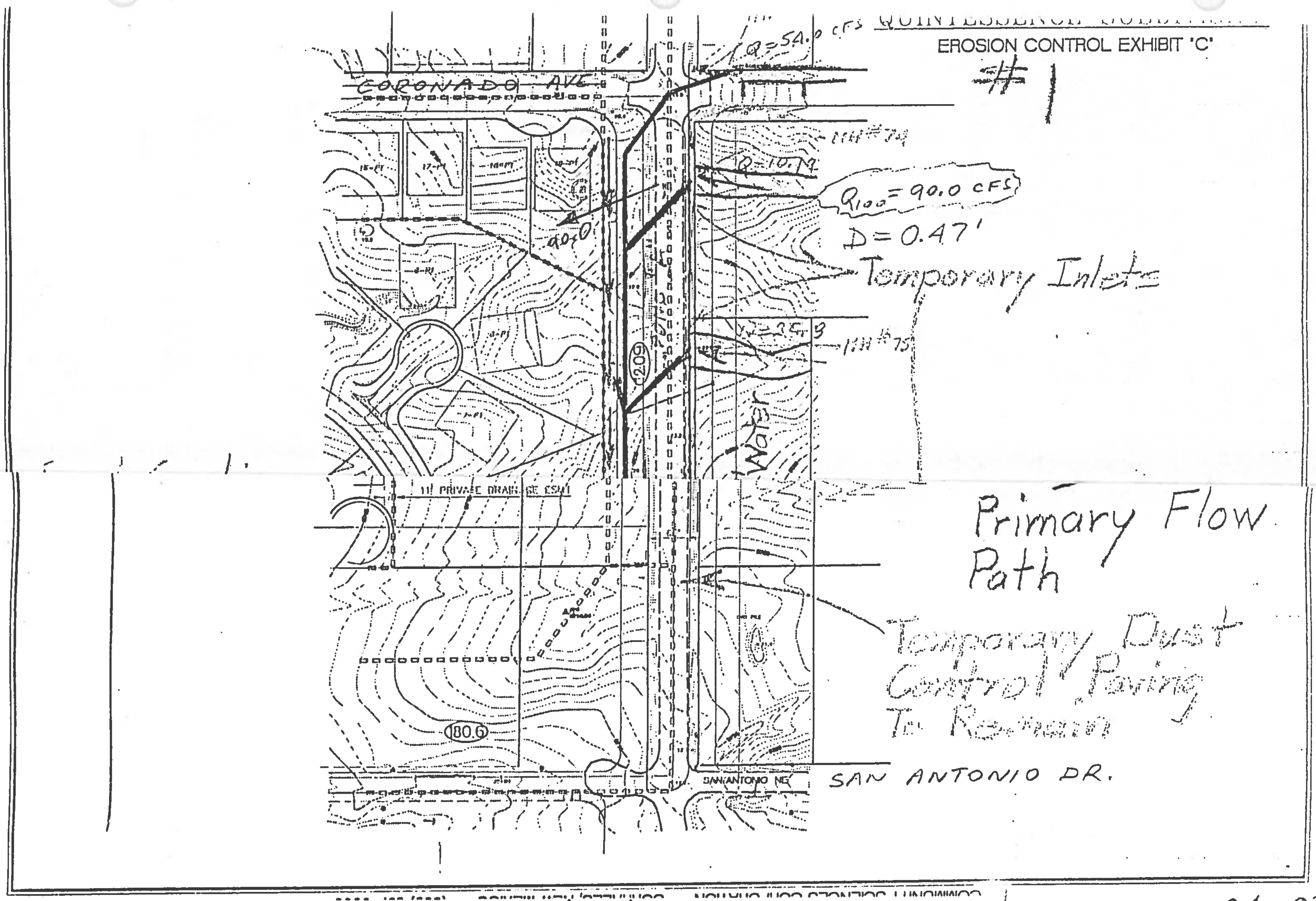


EXHIBIT "A"

323-04-033

ADDENDUM #1 TO
DRAINAGE REPORT

FOR

QUINTESSENCE SUBDIVISION
ZONE ATLAS D-21

Prepared for:

PARADISE WEST INC.

Prepared by:

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MAY 1995

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SURVEYING
LAND PLANNING
CIVIL ENGINEERING
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CSC#323-04-033/323-04AO.REP

PURPOSE & SCOPE

The purpose of this addendum is to document temporary surface drainage conditions at Eubank on the east side of the Quintessence. There are currently no culverts under Eubank and it is questionable whether or not a storm drain system should actually be constructed as part of the Quintessence Infrastructure. If the system is constructed, it would be built west of the existing pavement with temporary inlets east of the pavement that would be subject to clogging and thus be of questionable benefit. If the system is bonded now and constructed later, it could be built on the east side of the future right-of-way less expensively and leaving move flexibility for adjustments that will likely be necessary when the City gets to the Final Eubank Design.

To assist City Transportation and Hydrology Departments in determining whether to build or bond, this addendum includes:

1) hydraulic capacity calculations for the temporary inlets,

2) weir depth calculations for the 100yr surface flows across Eubank, and

3) a design profile, typical cross section, culvert calculations, and HEC-2 backwater calculations for a temporary diversion swale/berm to be constructed west of the existing pavement.

SUMMARY OF RESULTS
INLET CAPACITIES

"Avid Eng. Inc." Station	MH. No.*	Low Point Elev. (FT)	Low Point Station	Top of Grate Elev. (FT)	Sump Depth (FT)	Number of Grates	Incoming Flow (CFS)	Inlet Capacity (CFS)	Safety Factor
22+24	77	18.34	22+15.56	16.84	1.5	3	121.80	206.40	1.69
24+90	76	20.50	23+70	19.00	1.5	1	26.00	68.80	2.65
28+10	75	21.64	29+05.26	20.14	1.5	1	25.80	68.80	2.67
30+04	74	21.64	29+05.26	20.14	1.5	1	10.19	68.80	6.75
31+43	73	25.07	31+43	23.57	1.5	2	54.00	137.60	2.55

*MH to become temporary inlet per NMSHTD with Grate Type MDI-1.

WEIR DEPTHS

Station from AVID Plans	Low Point Elevation	Weir Water Elevation	Depth* (FT)	Velocity* (FPS)	Q_{100} (CFS)
15+23.78	5717.68	5718.23	0.55	1.96	127
18+50.97	5718.46	5718.91	0.45	1.78	90
22+15.56	5718.34	5718.93	0.59	2.03	148
28+05.26	5721.64	5722.11	0.47	1.82	90

*The velocities upstream of the road are on the order of 6fps to 8fps, but are expected to jump and pool on east side of road then cross the road at the weir depths and velocities as shown above.

DIVERSION SWALE

See "Grading Plan & Profile Eubank Avenue" sheets 13A and 14A in pockets at the end of this addendum for a summary of the Temporary Diversion Swale on the West side of Eubank.

ASSUMPTIONS & METHODOLOGY

Temporary inlets may or may not be required at the 5 concentrated flow paths on the East side of Eubank depending on whether or not the surface flow depths over Eubank are acceptable as an interim condition to City Transportation. The inlets are to each have 18" of depression below the low points (spill over elevations) in the existing Eubank pavement. The inlet capacities were calculated using 1.5 feet of head for both weir and orifice flow conditions and orifice flow was found to be the limiting condition. These inlets typically used in Highway Department Medians have tremendous capacity and thus provide a substantial safety factor against clogging.

Whether these inlets are to be built or not, the next question to be answered is how deep would the water get in Eubank assuming 100% of the 100yr flow goes over it. Though their are 5 separate approach paths of concentrated flow, there are only two dips in the existing pavement. As a worst case assumption, the 5 approaches were assumed to be totally concentrated at the two dips. If some of the flow crosses the road before it gets to the dips, then the depths and velocities would be less at the dips. The water was assumed to then pond on the east side of the road at each of the two dips and flow through the dips like a broad crested weir. Haestead Methods POND-2 software was used to evaluate these irregularly shaped weirs. The upstream approach velocities were estimated to be between 6 fps and 8 fps because that is the typical range of values for the wide natural flow areas that were analyzed on the North Pino Arroyo.

The HEC-2 analysis of the North Pino Arroyo as presented in the original report suggests that using rigid boundary conditions the 100yr flood plain will be confined to the narrow southerly thalwag and be totally intercepted by the open channel to be built in Santa Monica. But the arroyo is not rigid. Instead it is lined with highly erosive sand and frequently transports other debris which has the potential to clog the main channel and cause some or all of the flow to spread out in the remained of the floodplain. For the purpose of analyzing the flow depth over Eubank it was assumed that the entire 100yr flow left the main channel and flowed across Eubank at the two southerly dip sections with half of the flow going to each. The more northerly of the two dips can build up only so much head then it begins to spill water over into the southerly dip. This condition was simulated with two separate weirs...one going over Eubank and the other weir passing flow in a southerly direction parallel to Eubank. Outlet Structure File: C simulates these two weirs and it indicates that of the 111 cfs approaching the northerly weir only 90 cfs crosses Eubank at that location and the remaining 21 cfs flows southerly on the East side of Eubank and joins with the 111 cfs that was assumed to approach the southerly weir. A similar split occurs at that location allowing 127 cfs to cross Eubank and sending 5 cfs south to the South Pino Arroyo.

If all of the 100yr flows pass over the top of Eubank they are to be intercepted by a temporary diversion swale west of the existing pavement and conveyed to a temporary rundown into the Quintessence East Pond. The backwater calculations for the diversion began at the crest of that rundown with a broad crested weir calculation (see profile). Then normal depth is calculated between the rundown and a pair of 48" Temporary CMP's at Del Ray. Inlet and Outlet Capacity Nomographs were used to evaluate the culverts 48" CMP's which were governed by inlet control. The depth of the culverts was dictated by the water and sewer lines that had to cross over the top of the temporary culverts. HEC-2 backwater analysis was performed above the culverts to determine the subcritical water surface their beginning with the inlet control headwater depth at the culverts. The minimum top elevation for the berm on the west side of the channel was determined by adding 2 feet of freeboard to the water surface elevations.

upstream