Hydrology E11/D15 Vista Montano

K11/D15

VISTA MONTAÑO

5 PLANS

RATIONAL METHOD

RUNOFF COMPUTATIONS

Sheet No. 1

Project: Vista Montaño

Drainage Area No. 0.5.1

Area = _____ acres

Maximum Overland Flow: L = _____ S = _____

Maximum Channel Flow:

Channel No. 1 L = 2,900 L.F S = 1.13%

Channel No. 2 L = _____ S = _____

Channel No. 3 L = _____ S = _____

Accumulation Time

Overland Flow or Inlet Time: _____ min.

Channel No. 1 Flow:

See Attached. Velocity = 2.42 (Average) ft/sec; Time = _____ / X 60 = 20° min.

Channel No. 2 Flow:

Velocity = _____ ft/sec; Time = _____ / X 60 = _____ min.

Channel No. 3 Flow:

Velocity = _____ ft/sec; Time = _____ / X 60 = _____ min.

Total Accumulation Time: T = 20° min.

I = 189/4+25 = 189/45 = 4.20

Q = CIA = (0.38) (4.20) (2.13) = 34.6 c.f.s.

Date: 7-27-77

Comp. by: [signature]

Checked by: _____

WEIGHTED RUNOFF COEFFICIENT

___ % Ponded @ ___ ___

___ % Non-Ponded @ ___ ___

___ % _____ @ ___ ___

100 % TOTAL ___

RATIONAL METHOD

RUNOFF COMPUTATIONS

Sheet No. 2

Project: Vista Montaño

Drainage Area No. O.S. 2

Area = 4.8 acres

Maximum Overland Flow: L = _____ S = _____

Maximum Channel Flow:

Channel No. 1 L = 720 S = 1.74%

Channel No. 2 L = _____ S = _____

Channel No. 3 L = _____ S = _____

Accumulation Time

Overland Flow or Inlet Time: _____ min.

Channel No. 1 Flow:

See Attached Velocity = 2.00 ft/sec; Time = _____ / X 60 = 6.0 min.
Average

Channel No. 2 Flow:

Velocity = _____ ft/sec; Time = _____ / X 60 = _____ min.

Channel No. 3 Flow:

Velocity = _____ ft/sec; Time = _____ / X 60 = _____ min.

Total Accumulation Time: T = 10.0 min.

I = 189 (+425) = = 189/35 = 5.40

Q = CIA = (0.38) (5.40) (4.8) = 9.8 c.f.s.

Date: 7-27-77

Comp. by: [signature]

Checked by: _____

WEIGHTED RUNOFF COEFFICIENT

___ % Ponded @ ___ ___

___ % Non-Ponded @ ___ ___

___ % _____ @ ___ ___

100 % TOTAL ___

RATIONAL METHOD

RUNOFF COMPUTATIONS

Sheet No. 3

Project: Vista Montaño

Drainage Area No. O.S. 3

Area = 57.5 acres

Maximum Overland Flow: L = _____ S = _____

Maximum Channel Flow:

Channel No. 1 L = 3,550 S = 1.18%

Channel No. 2 L = _____ S = _____

Channel No. 3 L = _____ S = _____

Accumulation Time

Overland Flow or Inlet Time: _____ min.

Channel No. 1 Flow:

See Attached. Velocity = 2.54 ft/sec; Time = _____ / X 60 = 23.3 min.
AVERAGE

Channel No. 2 Flow:

Velocity = _____ ft/sec; Time = _____ / X 60 = _____ min.

Channel No. 3 Flow:

Velocity = _____ ft/sec; Time = _____ / X 60 = _____ min.

Total Accumulation Time: T = 23.3 min.

I = 189/(T+25) = 189/48 = 3.94

Q = CIA = (0.38) (3.94) (57.5) = 86 c.f.s.

Date: 7-27-77

Comp. by: [signature]

Checked by: _____

WEIGHTED RUNOFF COEFFICIENT

___ % Ponded @ ___ ___

___ % Non-Ponded @ ___ ___

___ % _____ @ ___ ___

100 % TOTAL ___

RATIONAL METHOD

RUNOFF COMPUTATIONS

Sheet No. 1

Project: Vista Montaño

Drainage Area No. 0.5.2 + North watershed

Area = 4.6 + 6.2 11.0 acres

Maximum Overland Flow: L = _____ S = _____

Maximum Channel Flow:

Channel No. 1 L = on-site 800 S = _____

Channel No. 2 L = _____ S = _____

Channel No. 3 L = _____ S = _____

Accumulation Time

Overland Flow or Inlet Time: 6.0 min.

Channel No. 1 Flow:

Velocity = 3.2 ft/sec; Time = _____ / X 60 = 4.2 min.

Channel No. 2 Flow:

Velocity = _____ ft/sec; Time = _____ / X 60 = _____ min.

Channel No. 3 Flow:

Velocity = _____ ft/sec; Time = _____ / X 60 = _____ min.

Total Accumulation Time: T = 10.0 min.

I = _____ = _____ = _____

Q = CIA = (0.38) (5.9) (11.0) = 22.6 c.f.s.

Date: 7-27-77

Comp. by: [signature]

Checked by: _____

WEIGHTED RUNOFF COEFFICIENT

___ % Ponded @ ___ ___

___ % Non-Ponded @ ___ ___

___ % _____ @ ___ ___

100 % TOTAL ___

RATIONAL METHOD

RUNOFF COMPUTATIONS

Sheet No. 5

Project: Vista Montaño

Drainage Area No. 05, 3+ South watershed.

Area = 57.5 + 10.5 = 68.0 acres

Maximum Overland Flow: L = _____ S = _____

Maximum Channel Flow:

Channel No. 1 L = 630 S = 1.50%

Channel No. 2 L = _____ S = _____

Channel No. 3 L = _____ S = _____

Accumulation Time

Overland Flow or Inlet Time: 23.3 min.

Channel No. 1 Flow:

Velocity = 7.5 ft/sec; Time = _____ / X 60 = 1.4 min.

Channel No. 2 Flow:

Velocity = _____ ft/sec; Time = _____ / X 60 = _____ min.

Channel No. 3 Flow:

Velocity = _____ ft/sec; Time = _____ / X 60 = _____ min.

Total Accumulation Time: T = 24.7 min.

I = 189/(6+25) = 189/50 = 3.78

Q = CIA = (0.38) (3.78) (68.0) = 97.7 c.f.s.

Date: 7-27-77

Comp. by: [signature]

Checked by: _____

WEIGHTED RUNOFF COEFFICIENT

___ % Ponded @ ___ ___

___ % Non-Ponded @ ___ ___

___ % _____ @ ___ ___

100 % TOTAL ___

7-27-77

Vista Montano

Time of Concentration

$T_c = 0.0078 K^{(0.77)}$ $K = \sqrt{L^3/H}$

O.S. 1

$L = 2,900$ ft.

$H = 5152 - 5119 = 33$ ft.

$K = \sqrt{(2,900)^3/33} = 27,185.67$

$T_c = 0.0078(27,185.67)^{(0.77)} = \boxed{20.3 \text{ min.}}$

O.S. 2.

$L = 720'$

$H = 26.5 - 14 = 12.5$

$K = \sqrt{(720)^3/12.5} = 5,464.42$

$T_c = 0.0078(5,464.42)^{(0.77)} = 5.89$ $\boxed{\text{Say 10min}}$

O.S. 3.

$L = 3,550$ ft.

$H = 5156 - 5114 = 42'$ ft.

$K = \sqrt{(3,550)^3/42} = 32,637.6$

$T_c = 0.0078(32,637.6)^{(0.77)} = \boxed{23.3 \text{ min}}$

Genge/Murray-McCormick

2601 Wyoming Blvd., N.E. Suite F
Albuquerque, N.M. 87110/505 292-1936
Engineering · Surveying · Planning
Tucson · Phoenix · Denver · Pueblo

July 29, 1977

Mr. V. M. Kimmick
City Engineer
City of Albuquerque
P. O. Box 1293
Albuquerque, New Mexico 87103

Re: Vista Montano Subdivision
Luther Construction Et.Al.

Dear Mr. Kimmick:

Pursuant to your previous meeting with Mr. Phil Garcia, Mr. Bill Luther, and Mr. Carl Tebbens of this office, we herewith submit our evaluation of the offsite drainage flowing through the above subdivision. Please note that a portion of the offsite flow actually by-passes the site along the northwest corner of the subject parcel.

As a portion of this property (northeast corner) lies within the 100-year flood plain of the existing arroyo passing to the north, which is under study by Fred Denny and Associates, we hereby request your conceptual approval such that we may proceed with platting of the portion south of the limit shown on the exhibit attached.

It is understood the Denny study will propose three alternate solutions for evaluation and as the study is at this writing, incomplete and it will be some time before a course of action will be chosen by the City and AMAFCA, we ask for this relief so that Mr. Luther may proceed with the preparation of a detailed formal drainage report and engineering plans.

Very truly yours,

GENGE/MURRAY-McCORMICK, INC.

Thomas J. Baack

Thomas J. Baack

TJH:dw

Encl.

cc: Mr. W. E. Luther

CITY OF ALBUQUERQUE, NEW MEXICO
CITY ENGINEER'S OFFICE

MEMORANDUM - August 12, 1977

TO: Mr. Phil Garcia, Planning Dept.
FROM: Bruno Conegliano, Asst. City Engineer - Hydrology
SUBJECT: VISTA MONTANO SUBDIVISION

This morning we had a meeting in the office of the City Engineer and we have reviewed drainage problems and possible solutions for the above-referenced subdivision. We are satisfied with the general concept and approach outlined by the engineer. The final solution will be developed in concurrence with the future development to the east and west of this subdivision but we see no reason to delay approval of the plat for this subdivision.

BC/fs

cc: Carl Tebbens
Bill Luther
Jim Smith
V. M. Kimmick
Drainage File

MEURER, SERAFINI AND MEURER, INC.

CONSULTING ENGINEERS • SURVEYORS • PLANNERS

2601 WYOMING BLVD., N.E., SUITE F • ALBUQUERQUE, NEW MEXICO 87110 • (505) 292-1936

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OCT 05 1977
CITY ENGINEERS

MEMORANDUM

TO : Mr. V. M. Kimmick
Mr. Bruno Conegliano
Mr. Bill Luther

FROM: Thomas J. Haack

RE : Vista Montano Subdivision Drainage

DATE: October 4, 1977

Just a note to confirm our submission of the drainage report covering the platting and improvement of the above subdivision. Considering all of the discussions which have taken place on this matter, we also should note that the flows emanating from Vista Montano are temporarily allowed to flow to Montano Road rather than to flow easterly to the La Mariposa Channel. Further, that at the time land now known as a church site is developed, provision will be made by the owner of that site to allow this flow (90+ cfs) to flow eastward parallel to Montano Road.

At the time of our presentation, we did not discuss the discharge of (24 cfs) flows from the northernmost street and it was later mentioned by Bruno that an easement would be necessary from this project to the future channel.

Please refer to Figure 2 and note that this discharge is directly into the course of natural drainage for this basin. Further that Figure 3 calls for rip-rap dissipation of the accelerated velocities caused by development. We therefore propose to notify the adjacent owner and thereby gain his acknowledgement and approval of our method and volume of discharge.

Should the context of this memo and the points mentioned differ from your recollections, I would appreciate your immediate response.

0553

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Bruce
Any problem with this? Any problem with Bill Lynch?

February 15, 1978

RECEIVED
FEB 15 1978
CITY ENGINEERS

Mr. V. M. Kimmick
City Engineer
City of Albuquerque
P. O. Box 1293
Albuquerque, New Mexico 87103

Re: Vista Montano North

E11-D15

Dear Mr. Kimmick:

After having had a discussion with Mr. Bill luther of Luther Construction Company, he has asked that I prepare this request in order that he may file the northerly portion of his Vista Montano development, entitled Vista Montano North.

If you will recall, Mr. Luther was unable to plat the northerly portion of the above referenced development since that portion is currently within the 100 year flood plain limits. Bill filed a plat entitled Vista Montano South which contained those portions of his property which were outside the limits of the existing flood plain. At this point, Bill would like to finalize the platting and do so in such a manner that this property will be totally outside the limits of the existing flood plain. I would like to suggest the following solution:

> The lots in the northern portion of the development and the streets would have to be filled to such an extent that the future houses would be above the flood plain limits. In order to accomplish the fill operation that would be required, Bill has suggested that he, at his own expense, cut the northern portion of Montano Road adjacent to his development in conjunction with the City's lowering of the south half of that roadway; and use that dirt excavated in the northern portion of the Montano excavation for the fill required on the subject lots.
>
> An analysis would have to be made as to the extent to which the lots would have to be raised in order to take them out of the existing flood plain. It might be possible that a diversion wall would be required along the northerly boundary of this project; however, that would have to be determined at such time as the flood plain analysis is made.

Bill Luther discussed this idea with Jim Smith and Jim suggested that it might be a possibility.

We would appreciate your consideration of this solution and a response at your earliest convenience.

Very truly yours,

MEURER, SERAFINI AND MEURER, INC.

Carl A. Tebbens

Carl A. Tebbens, P.E.
Vice President

CAT:dw

cc: Mr. Bill Luther, Luther Construction
Mr. Jim Smith, A.M.A.F.C.A.
Bruno Conegliano, City of Albuquerque

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

MAYOR
David Rusk

E11-D15

May 25, 1978

Lawrence Garcia & Assoc., Inc.
1605 Carlisle Blvd. NE
Albuquerque, New Mexico 87110

RECEIVED
MAY 30 1978
CITY ENGINEERS

Dear Mr. Garcia:

RE: Vista Montano Subdivision
SC5-70-28-16

At their meeting of May 23, 1978, the Administrative Review Board approved the proposed plat of Vista Montano Subdivision.

If you have any questions please do not hesitate to contact this office.

Sincerely,

Phil Garcia
Principal Planner

jd

0558