DRAINAGE PLAN

I. EXECUTIVE SUMMARY

A. VINEYARD ESTATES UNIT IV-A IS A PROPOSED RESIDENTIAL SUBDIVISION LOCATED WITHIN THE VINEYARD SECTOR PLAN AREA OF NORTH ALBUQUERQUE ACRES TO BE CONSTRUCTED BY HOECH REAL ESTATE CORPORATION (HREC).
B. A PORTION OF THE SITE LIES WITHIN A FLOOD HAZARD ZONE ASSOCIATED WITH AN EXISTING TEMPORARY DETENTION POND WHICH DRAINS TO THE NORTH DOMINGO BACA ARROYO (NDBA).
C. IN ACCORDANCE WITH PREVIOUSLY APPROVED PLANS, THE AFOREMENTIONED DETENTION POND CAN BE ELIMINATED UPON CONSTRUCTION OF PERMANENT NDBA/CARMEL AVENUE STORM DRAINAGE IMPROVEMENTS AND EXTENSION OF THE 54" PUBLIC VINA DEL SOL STORM DRAIN TO THE NDBA/CARMEL IMPROVEMENTS.
D. AMAFCA HAS SUCCESSFULLY BID AND HAS AWARDED A CONTRACT TO CONSTRUCT THE PERMANENT NDBA/CARMEL AVENUE STORM DRAIN IMPROVEMENTS AS PART OF A COST SHARING AGREEMENT WITH HREC. THIS STORM DRAIN WILL PROVIDE THE OUTFALL FOR THE FREE DISCHARGE OF FULLY DEVELOPED RUNOFF FROM THIS SITE AND THE VINA DEL SOL STORM DRAIN.
E. AN APPROVED CLOMR WAS PREPARED SUPPORTING ELIMINATION OF THE UNDERLYING FLOOD HAZARD ZONE AS PART OF THE AFOREMENTIONED AMAFCA COST-SHARING AGREEMENT. THE AGREEMENT ALSO INCLUDES A POST-CONSTRUCTION LOMR.
F. DEVELOPED SITE RUNOFF WILL BE DIRECTED TO THE PROPOSED STREETS AND WILL BE COLLECTED BY STORM INLETS AND STORM DRAINS OUTFALLING TO THE PROPOSED PUBLIC CARMEL AVENUE STORM DRAIN WHICH IS SIZED FOR FREE DISCHARGE FROM THIS SITE.
G. THE AFOREMENTIONED AMAFCA PROJECT WILL PROVIDE A FULLY DEVELOPED DRAINAGE OUTFALL FOR THIS SITE, BUT WILL NOT ELIMINATE OFFSITE FLOWS FROM THE EAST. THIS PROJECT WILL CONSTRUCT A PUBLIC DRAINAGE CHANNEL TO ACCEPT AND CONVEY OFFSITE FLOWS FROM THE EAST IN ACCORDANCE WITH THE VINEYARD ESTATES, UNIT IV MASTER DRAINAGE PLAN.

II. INTRODUCTION

PROPOSED LOTS 1-P1 THROUGH 14-P1 WILL BE SINGLE FAMILY DETACHED RESIDENTIAL HOMES CONSTRUCTED ON INDIVIDUALLY PLATTED LOTS. THE DEVELOPER IS HOECH REAL ESTATE CORPORATION (HREC). VINA DEL SOL PLACE NE WILL BE A PUBLIC STUB (DEAD END) STREET, AND FRESNO WAY NE WILL BE A PRIVATE STREET.

THE SITE IS UNDEVELOPED EXCEPT FOR AN EXISTING PRIVATELY MAINTAINED TEMPORARY DETENTION POND AND CONCRETE SPILLWAY. THIS PROJECT WILL CONSTRUCT THE PERMANENT VINA DEL SOL STORM DRAIN EXTENSION AND ELIMINATE THE NEED FOR THE POND AND ALLOW VACATION OF THE UNDERLYING PUBLIC (CITY OF ALBUQUERQUE) DRAINAGE EASEMENT. DEVELOPED RUNOFF FROM THIS SITE WILL BE COLLECTED WITHIN PROPOSED PUBLIC AND PRIVATE STREETS THAT WILL DRAIN TO THE PROPOSED PUBLIC 78" STORM DRAIN TO BE CONSTRUCTED BY AMAFCA IN CARMEL. FULL WIDTH PERMANENT CARMEL AVENUE NE PAVING IMPROVEMENTS WILL BE CONSTRUCTED BY HREC IN SUPPORT OF THIS PROJECT AND ANOTHER UPCOMING HREC PROJECT TO BE LOCATED ON THE SOUTH SIDE OF CARMEL. THIS SITE WILL ACCEPT EXISTING AND DEVELOPED RUNOFF FROM THE EAST WHICH PASSES THROUGH AN EXISTING ARROYO TRIBUTARY ON LOT 23, BLOCK 18.

THE RESPONSIBILITY AND FUNDING FOR THE CARMEL AVENUE STORM DRAIN EXTENSION AND POST-CONSTRUCTION LOMR ARE INCLUDED IN THE APPROVED COST-SHARING AGREEMENT FOR THE AMAFCA PROJECT WHICH WAS SUCCESSFULLY BID BY AMAFCA AND AWARDED BY THE AMAFCA BOARD AND SCHEDULED FOR WINTER 2002-3 CONSTRUCTION. THE PREVIOUSLY APPROVED CLOMR DRAINAGE REPORT SUPPORTED THE CARMEL AND VINA DEL SOL STORM DRAIN EXTENSIONS, THE ELIMINATION OF THE UNDERLYING FLOODPLAIN, AND DEMONSTRATED DOWNSTREAM CAPACITY FOR THIS PROJECT. A DRAFT INFRASTRUCTURE LIST IS SUBMITTED WITH THIS REPORT. THIS SUBMITTAL IS MADE IN SUPPORT OF THE FOLLOWING APPROVALS:

1) DRB PRELIMINARY AND FINAL PLAT FOR VINEYARD ESTATES, UNIT IV-A
2) VACATION OF THE EXISTING PUBLIC (CITY OF ALBUQUERQUE) DRAINAGE EASEMENT ON EXISTING LOTS 25 AND 26
3) DRC APPROVAL FOR THE INFRASTRUCTURE PLANS TO BE SUBMITTED UPON PRELIMINARY PLAT APPROVAL
4) ROUGH GRADING APPROVAL

III. PROJECT DESCRIPTION:

AS SHOWN ON SHEET 1 BY VICINITY MAP C-20, THE SITE IS LOCATED IN THE NORTH ALBUQUERQUE ACRES AREA OF ALBUQUERQUE. THE SITE IS LOCATED EAST OF VENTURA ST. N.E. BETWEEN CARMEL AVE. N.E. AND HOLLY AVE. N.E., AND LIES WITHIN THE VINEYARD SECTOR PLAN AREA. THE EXISTING LEGAL DESCRIPTION IS: LOTS 24-27, BLOCK 18, TRACT 3, UNIT 3, NORTH ALBUQUERQUE ACRES. LOTS 25-27 ARE ZONED R-D, AND LOT 24 IS ZONED R-D (5 DU/ACRE). THE PROPOSED DEVELOPMENT IS 14 UNITS ON 4 GROSS ACRES (3.D DU/AC) AND IS CONSISTENT WITH THE EXISTING ZONINGS AND SECTOR PLAN. AS SHOWN BY PANEL 141 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS, BERNALILLO COUNTY, NEW MEXICO, AND INCORPORATED AREAS, REVISED 04/02/2002, THE SITE IS IMPACTED BY A DESIGNATED FLOOD HAZARD ZONE (AE, ELEV 5573) ASSOCIATED WITH THE TEMPORARY PUBLIC DETENTION POND WHICH ACCEPTS RUNOFF FROM THE VINA DEL SOL STORM DRAIN AND A SMALL NDBA TRIBUTARY. THE CLOMR SUPPORTING THIS PROJECT AND THE CARMEL/NDBA AMAFCA PROJECT ADDRESSED THE ELIMINATION OF THIS FLOODPLAIN AND WAS APPROVED BY FEMA. A POST-CONSTRUCTION LOMR WILL BE PREPARED AND SUBMITTED BY THIS OFFICE TO OFFICIALLY ELIMINATE THIS FLOOD HAZARD ZONE UPON COMPLETION OF THE PROPOSED CARMEL AVENUE STORM DRAIN PROJECT BY AMAFCA.

IV. BACKGROUND DOCUMENTS

THE FOLLOWING IS A LIST OF DOCUMENTS RELATED TO THE SITE AND SURROUNDING AREA. THIS LIST MAY NOT BE INCLUSIVE, HOWEVER, REPRESENTS A SUMMARY OF RELEVANT PLANS AND DOCUMENTS WHICH ARE KNOWN TO THE ENGINEER AT THE TIME OF PLAN PREPARATION.

A. THE "NORTH AND SOUTH DOMINGO BACA ARROYO AND PASEO DEL NORTE CORRIDOR DRAINAGE MANAGEMENT PLAN" PREPARED FOR AMAFCA BY RESOURCE TECHNOLOGY, INC. (RTI) DATED DECEMBER, 1991. THIS PLAN HAS BEEN ADOPTED BY AMAFCA AS A GUIDELINE FOR DRAINAGE MANAGEMENT WITHIN THIS AREA WHICH INCLUDES THE NORTH DOMINGO BACA ARROYO (NDBA). AMAFCA RESOLUTION 1992-3 DATED JANUARY 03, 1992 FORMALLY ADOPTED THIS PLAN WHICH IDENTIFIES THE EXTENSION OF PERMANENT DRAINAGE IMPROVEMENTS WITHIN THE NDBA CORRIDOR, AND ESTABLISHED DEVELOPED DRAINAGE BASIN BOUNDARIES WITHIN THE PLAN AREAS. AS SHOWN BY FIGURE 5-6 OF THIS PLAN, THE SUBJECT AREA IS IDENTIFIED TO DEVELOP RESIDENTIALLY AND TO DRAIN TO FUTURE PERMANENT NDBA IMPROVEMENTS CONSTRUCTED WITHIN THE CARMEL CORRIDOR. THE PROPOSED DEVELOPMENT IS CONSISTENT WITH THIS CONCEPT.
B. VINEYARD ESTATES UNIT IV GRADING AND DRAINAGE PLAN PREPARED BY JEFF MORTENSEN AND ASSOCIATES, INC. (JMA) DATED 09/23/1994 (CITY HYDROLOGY FILE C20/D3C). THIS PLAN SUPPORTED THE CONSTRUCTION OF THE VINEYARD ESTATES, UNIT IV SUBDIVISION TO THE NORTH (CITY PROJECT # 3391.94) AND ESTABLISHED THE CONCEPT WHEREBY VINEYARD IV WOULD ACCEPT OFFSITE FLOWS FROM THE EAST AND CONVEY THEM THROUGH THE PUBLIC VINA DEL SOL STORM DRAIN TO A TEMPORARY DETENTION POND ON AN INTERIM BASIS WITH FREE DISCHARGE ULTIMATELY PROGRAMMED TO A VINA DEL SOL STORM DRAIN EXTENSION TO FUTURE NORTH DOMINGO BACA CARMEL AVENUE STORM DRAIN IMPROVEMENTS. THIS PLAN ALSO DEPICTED A PUBLIC DRAINAGE CHANNEL TO BE CONSTRUCTED WITH VINEYARD IV-A TO ACCEPT OFFSITE TRIBUTARY FLOWS FROM LOT 23, BLOCK 18. THE PROPOSED IMPROVEMENTS AND DRAINAGE CONCEPTS ARE CONSISTENT WITH THOSE IDENTIFIED THEREIN.
C. MASTER DRAINAGE PLAN – NORTH ARROYO DE DOMINGO BACA, PREPARED BY JMA DATED 02/28/1996. THIS PLAN WAS SPECIFICALLY PREPARED FOR ALBUQUERQUE PUBLIC SCHOOLS (APS) TO SERVE AS A GUIDE IN IDENTIFYING PROPOSED IMPROVEMENTS TO THE NDB ARROYO BETWEEN THE UPPER AND LOWER NORTH DOMINGO BACA DAMS. THE PLAN ALSO PRESENTED ALIGNMENT, IMPROVEMENTS, OWNERSHIP, HYDROLOGY, PHASING, AND PARTICIPATION WITH MORE CURRENT INFORMATION AND IN GREATER DETAIL THAN THE RTI PLAN (REFERENCE A). THE PROPOSED IMPROVEMENTS ARE CONSISTENT WITH THOSE IDENTIFIED IN THAT PLAN.
D. DRAINAGE CALCULATIONS FOR FURR'S PASEO DEL NORTE DATED 12/11/1998 WITH ENGINEER'S CERTIFICATION DATED 9/27/1999 PREPARED BY MARK GOODWIN & ASSOCIATES (HYDROLOGY FILE C20/D16). THESE PLANS SUPPORTED THE EXISTING COMMERCIAL SHOPPING CENTER LOCATED ON THE EAST SIDE OF VENTURA STREET BETWEEN PASEO DEL NORTE AND HOLLY AND WHICH CONSTRUCTED THE EXISTING HOLLY AVENUE 36" PUBLIC STORM DRAIN UNDER CITY PROJECT # 601981. THE HOLLY AVENUE STORM DRAIN ANALYSIS ON SHEET 5 OF THIS SUBMITTAL REFERENCES THIS REPORT.
E. FINAL NORTH ALBUQUERQUE ACRES MASTER DRAINAGE PLAN PREPARED BY RTI FOR THE CITY OF ALBUQUERQUE DATED OCTOBER, 1998 AND HYDROLOGY REPORT FOR NORTH ALBUQUERQUE ACRES AND SANDIA HEIGHTS DRAINAGE STUDY PHASES I AND II PREPARED BY RTI FOR BERNALILLO COUNTY DATED NOVEMBER, 1998. THESE DRAINAGE MANAGEMENT PLANS SHARE A COMMON HYDROLOGIC AHYMO MODEL FOR THE NDB ARROYO BASIN WHICH WAS DEVELOPED BY MODIFYING THAT ORIGINALLY DEVELOPED BY RTI FOR AMAFCA IN THEIR 1991 REPORT (REFERENCE A). THESE REPORTS ARE CURRENT UPDATES TO THE ORIGINAL RTI PLAN AND THE PROPOSED IMPROVEMENTS AND DRAINAGE CONCEPT ARE CONSISTENT WITH THOSE IDENTIFIED THEREIN.
F. REQUEST FOR CONDITIONAL LETTER OF MAP REVISION (CLOMR) FOR THE NORTH DOMINGO BACA ARROYO CARMEL AVENUE STORM DRAIN EXTENSION PREPARED BY JMA DATED 06/14/2002 AND APPROVED BY FEMA 11/08/2002 (FEMA CASE NUMBER 02-06-2145R). THIS CLOMR AND ASSOCIATED DRAINAGE REPORT WAS PREPARED TO SUPPORT THE PROPOSED COST SHARE PROJECT BY AMAFCA AND TO REMOVE THE ASSOCIATED FLOODPLAIN DESIGNATION FROM THE NDBA WEST OF A POINT MIDBLOCK BETWEEN HOLBROOK STREET AND EUBANK. IT SERVES AS A MASTER DRAINAGE PLAN FOR DEVELOPMENT IN THE NORTH DOMINGO BACA WATERSHED AND INCLUDES A PRELIMINARY DESIGN OF THE CARMEL AND VINA DEL SOL STORM DRAINS AS PROPOSED HEREIN.
G. GRADING AND DRAINAGE PLAN FOR DESERT RIDGE PLACE PREPARED BY JMA DATED 08/14/2002 (HYDROLOGY FILE C20/D34, DRB # 1001543). THIS DRB APPROVED PLAN WAS PREPARED IN SUPPORT OF A PROPOSED RESIDENTIAL DEVELOPMENT BY HREC WEST OF VENTURA STREET THAT INCLUDED A DESIGN FOR TEMPORARY DETENTION PONDING TO ALLOW PHASED DEVELOPMENT WHILE CONTINUING TO ACCEPT NDBA FLOWS. THE PROPOSED VINA DEL SOL STORM DRAIN PROPOSED HEREIN BY VINEYARD ESTATES IV-A WILL REDUCE, BUT NOT ELIMINATE THE FLOWS IMPACTING THE DESERT RIDGE PLACE POND.
H. GRADING AND DRAINAGE PLAN FOR VENTURA VILLAGE DATED 11/25/2002 (DRB # 1001463) BY CLARK CONSULTING ENGINEERS. THIS PROJECT, LOCATED AT THE SOUTHEAST CORNER OF VENTURA STREET AND CARMEL AVE, AND IMMEDIATELY DOWNSTREAM OF VINEYARD ESTATES, UNIT IV-A, IS FINANCIALLY RESPONSIBLE FOR CONSTRUCTING ITS CARMEL AVENUE PAVING FRONTAGE WHICH WILL BE EXTENDED BY VINEYARD ESTATES, UNIT IV-A. IT IS ALSO RESPONSIBLE FOR CONSTRUCTING A 42" PUBLIC RCP STORM DRAIN IN ITS VENTURA STREET FRONTAGE WHICH WILL DELIVER HOLLY AVENUE STREET FLOWS TO THE PROPOSED NDBA CARMEL SYSTEM.
I. CONSTRUCTION PLANS FOR THE NORTH DOMINGO BACA ARROYO CARMEL AVENUE STORM DRAIN EXTENSION PREPARED BY JMA DATED 10/07/2002 (CITY PROJECT NUMBER 693481). AMAFCA HAS AWARDED THIS PROJECT WITH CONSTRUCTION SCHEDULED TO BEGIN IN LATE DECEMBER, 2002. THIS CARMEL STORM DRAIN WILL BE THE DEVELOPED DRAINAGE OUTFALL FOR THE PROPOSED IMPROVEMENTS AND THE VINEYARD ESTATES UNIT IV-A PROJECT RELIES UPON ITS CONSTRUCTION.
J. DRAINAGE REPORT FOR "VENTURA STREET NE, ROB'S PLACE NE TO HOLLY AVE NE" BY JEFF MORTENSEN & ASSOCIATES, INC, DATED 12/06/2002. THIS PLAN, CURRENTLY UNDER CITY REVIEW, ADDRESSES THE CONSTRUCTION OF PERMANENT VENTURA STREET PAVING AND STORM DRAINAGE IMPROVEMENTS, INCLUDING A 42" PUBLIC RCP STORM DRAIN IN THE FRONTAGE OF VENTURA VILLAGE (REF H). CONSTRUCTION OF THIS 42" STORM DRAIN, WHICH IS REQUIRED BY BOTH THE VENTURA VILLAGE AND DESERT RIDGE PLACE INFRASTRUCTURE LISTS (REF'S G AND H), WILL PROVIDE THE PERMANENT OUTFALL FOR FULLY DEVELOPED RUNOFF DRAINING TO HOLLY AS DEPICTED ON THE BASIN MAP ON SHEET 5 OF THIS SUBMITTAL.

THE PROPOSED CONSTRUCTION OF RESIDENTIAL SINGLE FAMILY HOMES DRAINING DIRECTLY AND FREELY TO PERMANENT NORTH DOMINGO BACA ARROYO DRAINAGE IMPROVEMENTS AS PROPOSED AND DESCRIBED HEREIN IS CONSISTENT WITH AND IN ACCORDANCE WITH THE POLICIES AND REQUIREMENTS OF THE ABOVE LISTED DOCUMENTS, AND IS CONSISTENT WITH THE CONCEPTS PREVIOUSLY ESTABLISHED BY THE CITY AND AMAFCA FOR NORTH DOMINGO BACA ARROYO DEVELOPMENT.

DRAINAGE PLAN (CON'T)

V. EXISTING CONDITIONS:

AN EXISTING PRIVATELY MAINTAINED TEMPORARY PUBLIC DETENTION POND IS LOCATED ON THE SITE. THE REMAINDER OF THE SITE IS UNDEVELOPED. CARMEL AVENUE NE TO THE SOUTH LIES TOPOGRAPHICALLY LOWER AND IS AN EXISTING UNDEVELOPED PUBLIC STREET. TO THE NORTH LIES VINEYARD ESTATES, UNIT IV, AN EXISTING DEVELOPED RESIDENTIAL SINGLE FAMILY SUBDIVISION. AN EXISTING SINGLE HOME LIES ON THE COUNTY LOT (23) TO THE EAST. OFFSITE FLOWS IN THE AMOUNT OF 41.8 CFS ENTER THE SITE THROUGH A MINOR ARROYO TRIBUTARY TRAVERSING LOT 23. THE SITE DRAINS FROM NORTHEAST TO SOUTHWEST, CONCENTRATING IN THE MAIN CHANNEL OF THE NDBA WHICH IS LOCATED SOUTH OF THE SITE. THE PROPERTY TO THE WEST IS UNDEVELOPED.

VI. DEVELOPED CONDITIONS

THE PROPOSED IMPROVEMENTS CONSIST OF 14 SINGLE FAMILY RESIDENTIAL HOMES. VINA DEL SOL PLACE NE WILL BE A PUBLIC DEAD END STREET, AND FRESNO WAY NE WILL BE A PRIVATE STREET. ALL LOTS WILL DRAIN TO PUBLIC RIGHT OF WAY IN ACCORDANCE WITH THE GRADING PLAN ON SHEET 2 VIA STREET FLOW OR THROUGH A BENEFICIARY EASEMENT. PERMANENT CARMEL AVENUE PAVING AND STORM DRAINAGE IMPROVEMENTS WILL BE CONSTRUCTED IN THE PROJECT FRONTAGE. FOR THE PURPOSES OF THIS PROJECT, THE CARMEL AVENUE STORM DRAIN TO BE CONSTRUCTED BY AMAFCA BY CITY PROJECT # 693481 HAS BEEN SHOWN HEREIN AS EXISTING. STORM INLETS WILL BE PROVIDED IN CARMEL AVENUE AS SHOWN ON THE GRADING PLAN, SHEET 2. DOWNSTREAM PUBLIC DRAINAGE INFRASTRUCTURE SERVING THIS SITE HAS BEEN RECENTLY CONSTRUCTED BY AMAFCA AS PART OF A PREVIOUS COST SHARING AGREEMENT AND WILL BE EXTENDED TO COVER THIS SITE'S ENTIRE FRONTAGE AS PART OF A PROPOSED COST-SHARING AGREEMENT AND CITY PROJECT (REF I). DOWNSTREAM CARMEL AVENUE PAVING IMPROVEMENTS WILL BE CONSTRUCTED AS PART OF THE VENTURA VILLAGE PROJECT (REF J). AS DEMONSTRATED BY THE CLOMR (REF F) SUPPORTING THE COST-SHARING PROJECT AND THIS DEVELOPMENT, THE EXISTING PROPOSED CARMEL STORM DRAIN EXTENSION PROVIDES DOWNSTREAM CAPACITY FOR THE FREE DISCHARGE OF FULLY DEVELOPED RUNOFF FROM THIS SITE. IN THE DEVELOPED CONDITION, EXISTING AND DEVELOPED RUNOFF FROM LOT 23, BLOCK 18 WILL BE ACCEPTED BY THE SITE IN PERPETUITY VIA PUBLIC DRAINAGE CHANNEL TO BE CONSTRUCTED BY THIS PROJECT.

A BASIN MAP AND CALCULATIONS ARE PROVIDED ON SHEET 5 TO ILLUSTRATE THE CARMEL AVENUE STREET HYDRAULICS AS REQUIRED TO CONFIRM THE ADEQUACY OF THE STORM INLET DESIGN PRESENTED HEREIN. AS SHOWN ON THE PLAN, IT IS EXPECTED THAT THE BERNALILLO COUNTY PROPERTY LOCATED WEST OF HOLBROOK STREET NE AND BETWEEN HOLY AND CARMEL WILL DRAIN SOUTH TO HOLLY, AND NOT TO CARMEL AS ORIGINALLY MODELED IN THE CLOMR. THIS PROPERTY, TENTATIVELY NAMED "VINEYARD COURT ESTATES" IS UNDER THE CONTROL OF HOECH REAL ESTATE CORPORATION AND WILL BE DEVELOPED RESIDENTIALLY. AS PREVIOUSLY INDICATED, THE CARMEL AVENUE STORM INLET ANALYSIS PRESENTED HEREIN ASSUMES THAT THIS AREA WILL DRAIN SOUTH TO HOLLY WHICH AS CALCULATED HEREIN, HAS SUFFICIENT DOWNSTREAM STORM DRAINAGE CAPACITY IN THE PROPOSED 42" AND EXISTING 36" STORM DRAINS. THIS FUTURE VINEYARD COURT ESTATES PROJECT WILL BE REQUIRED TO ANALYZE AND DESIGN THE APPROPRIATE INLETS IN HOLLY TO PUT THE FLOWS INTO THE PUBLIC STORM DRAIN. IF IT IS LATER DECIDED TO DRAIN THIS SITE TO THE NORTH TO CARMEL, SUFFICIENT CAPACITY WILL EXIST IN THE CARMEL STORM DRAIN, BUT NEW INLETS AND A NEW CARMEL INLET ANALYSIS MUST BE PERFORMED. IN EITHER CASE, THE FUTURE PROJECT HAS DOWNSTREAM CAPACITY, BUT MUST ANALYZE, LOCATE, DESIGN AND CONSTRUCT THE APPROPRIATE INLETS.

A FEMA APPROVED CLOMR WAS PREPARED BY THIS OFFICE TO SUPPORT THE PROPOSED AMAFCA PROJECT, THE VINA DEL SOL STORM DRAIN EXTENSION, AND TO SUPPORT ELIMINATION OF THE EXISTING FLOOD HAZARD ZONE IMPACTING THE SITE. A POST-CONSTRUCTION LOMR WILL BE PREPARED AND SUBMITTED BY THIS OFFICE UPON COMPLETION OF THE AMAFCA PROJECT. FLOOD INSURANCE MAY BE REQUIRED FOR ANY BUILDINGS CONSTRUCTED WITHIN THE FLOODPLAIN PRIOR TO FEMA APPROVAL OF THE LOMR.

VII. GRADING PLAN

THE GRADING PLANS ON SHEET 2 OF THIS SUBMITTAL SHOWS: 1) EXISTING GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'0" INTERVALS AS TAKEN FROM THE TOPOGRAPHIC SURVEY PREPARED BY JEFF MORTENSEN & ASSOCIATES, INC DATED 09/18/2002, 2) PROPOSED GRADES AND DRAINAGE TRENDS INDICATED BY SPOT ELEVATIONS, HOUSE PAD ELEVATIONS, AND FLOWLINES 3) THE LIMIT AND CHARACTER OF THE EXISTING IMPROVEMENTS, 4) THE LIMIT AND CHARACTER OF THE PROPOSED IMPROVEMENTS, 5) THE EXISTING FLOODPLAIN LIMITS, AND 6) THE LIMIT AND CHARACTER OF EXISTING AND PROPOSED OFFSITE PUBLIC STORM DRAINAGE IMPROVEMENTS. FOR THE PURPOSES OF THIS PROJECT, THE CARMEL AVENUE STORM DRAIN TO BE CONSTRUCTED BY AMAFCA BY CITY PROJECT # 693481 HAS BEEN SHOWN HEREIN AS EXISTING.

VIII. CALCULATIONS

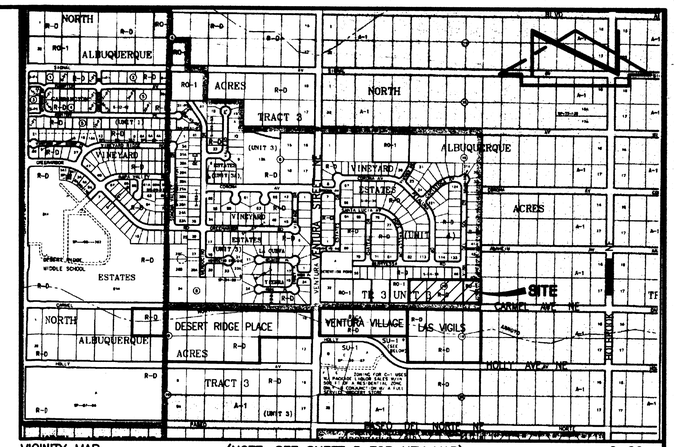
THE CALCULATIONS, WHICH APPEAR HEREON, ANALYZE AND EVALUATE THE DEVELOPED CONDITIONS FOR THE 100-YEAR, 6-HOUR RAINFALL EVENT. THE PEAK RATE OF DISCHARGE AND VOLUME OF RUNOFF GENERATED WAS TAKEN FROM THE CLOMR DRAINAGE REPORT (REF F) WHICH WAS DETERMINED USING AHYM097 IN ACCORDANCE WITH THE PROCEDURE FOR 40-ACRE AND SMALLER BASINS, AS SET FORTH IN THE REVISION OF SECTION 22.2, HYDROLOGY OF THE DEVELOPMENT PROCESS MANUAL, VOLUME 2, DESIGN CRITERIA, DATED JANUARY, 1993. THE FLOW RATES FOR SUB-BASINS A-1 AND A-2 WERE DERIVED FORM BASIN 921.4 OF THE CLOMR, AND THE FLOW RATES FOR SUB-BASINS B-1 AND B-2 WERE DERIVED FROM CLOMR BASIN 921.25. AS WAS PREVIOUSLY DEMONSTRATED BY THE APPROVED CLOMR, THE PROPOSED CARMEL AVENUE STORM DRAIN IS SIZED FOR FREE DISCHARGE OF FULLY DEVELOPED RUNOFF FROM THIS SITE.

OPEN CHANNEL STORM DRAIN AND STREET HYDRAULIC CALCULATIONS WERE PERFORMED USING MANNING'S EQUATION SOLVED BY THE FLOWMASTER 6.0 PROGRAM BY HAESTAD METHODS. THE ASSUMED MANNING'S "n" VALUE WAS 0.13 FOR CONCRETE CHANNEL LINING AND REINFORCED CONCRETE PIPE (RCP), AND 0.017 FOR STREETS. AS DEMONSTRATED BY THE CALCULATIONS ON SHEETS 4 AND 5, THE DRAINAGE CHANNEL, STORM DRAINS AND STREETS ARE ALL SIZED TO SAFELY CONVEY THE 100-YEAR DESIGN STORM. CHANNEL AND PIPE ENTRANCE CONDITIONS WERE PERFORMED USING THE WEIR AND ORIFICE EQUATIONS, RESPECTIVELY. THE STREET CAPACITIES WERE FURTHER ANALYZED TO ENSURE THAT A HYDRAULIC JUMP WOULD BE CONTAINED WITH THE PUBLIC STREET RIGHT-OF-WAY. BECAUSE IT IS EXTREMELY DIFFICULT TO PERFORM HYDRAULIC JUMP CALCULATIONS FOR IRREGULAR SECTIONS SUCH AS STREETS, THE APPROXIMATE HYDRAULIC JUMP DEPTH WAS CONSERVATIVELY ASSUMED TO BE 77% OF THE ENERGY GRADE LINE CALCULATED BY THE FLOWMASTER PROGRAM. THIS RATIO WAS DETERMINED BY ANALYZING THE RELATIONSHIP BETWEEN SEQUENT DEPTH AND THE ENERGY GRADE LINE FOR AN EQUIVALENT RECTANGULAR CHANNEL AT FLOW RATES AND SLOPES SIMILAR TO THOSE OBSERVED HEREIN. THIS METHODOLOGY WAS PREVIOUSLY UTILIZED BY THIS OFFICE IN THE DESERT RIDGE PLACE DRAINAGE REPORT (REF G).

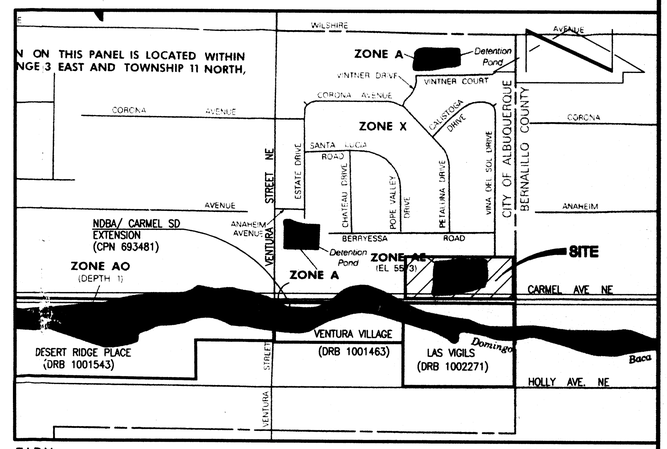
IX. CONCLUSIONS

A. THE PROPOSED SITE IMPROVEMENTS AND DRAINAGE CONCEPT ARE CONSISTENT WITH THE DEVELOPMENT CRITERIA ESTABLISHED BY PREVIOUSLY APPROVED PLANS FOR THIS SITE AND NDBA DEVELOPMENT.
B. DEVELOPED RUNOFF FROM THIS SITE WILL DRAIN FREELY TO PERMANENT PUBLIC NDBA IMPROVEMENTS SIZED FOR THIS DISCHARGE, TO BE CONSTRUCTED BY AMAFCA, CITY PROJECT # 693481; CONTRACT AWARDED BY AMAFCA 11/20/2002.
C. AMAFCA HAS SUCCESSFULLY BID AND HAS AWARDED THE CONTRACT TO CONSTRUCT THE PERMANENT NDBA/CARMEL AVENUE STORM DRAIN IMPROVEMENTS AS PART OF A COST SHARING AGREEMENT WITH HREC. THIS STORM DRAIN WILL PROVIDE THE OUTFALL FOR THE FREE DISCHARGE OF FULLY DEVELOPED RUNOFF FROM THIS SITE AND THE VINA DEL SOL STORM DRAIN.
D. A SEPARATE DRAINAGE SUBMITTAL FOR CLOMR APPROVAL SUPPORTING THE AMAFCA PROJECT WAS ENDORSED BY THE CITY AND COUNTY FLOODPLAIN ADMINISTRATORS AND WAS APPROVED BY FEMA ON 11/08/2002.
E. A POST-CONSTRUCTION LOMR SUBMITTAL SUPPORTING THE AMAFCA PROJECT WILL BE PREPARED BY THIS OFFICE UPON PROJECT COMPLETION FOR THE PURPOSES OF ELIMINATING THE UNDERLYING FLOODPLAIN.
F. ALL NEW PUBLIC DRAINAGE EASEMENTS, RIGHT OF WAY, AND PUBLIC AND PRIVATE INFRASTRUCTURE IMPROVEMENTS REQUIRED BY THIS PROPOSAL WILL BE PROVIDED FOR BY THE DRB ACTIONS SUBMITTED TO SUPPORT THIS PROJECT AND BY THE PROPOSED AMAFCA COST-SHARE PROJECT. THE INFRASTRUCTURE LIST WILL CLEARLY IDENTIFY WHICH IMPROVEMENTS ARE TO BE GUARANTEED BY THE DEVELOPER AND WHICH ARE GUARANTEED BY THE COST-SHARING AGREEMENT.
G. THERE ARE NO DPM DESIGN VARIANCES REQUESTED AT THIS TIME.
H. A PUBLIC DRAINAGE CHANNEL WILL BE CONSTRUCTED BY THIS PROJECT TO ACCEPT OFFSITE FLOWS FROM THE EAST. THIS CHANNEL AND ALL PROPOSED PUBLIC STORM DRAINS WILL BE OWNED, OPERATED AND MAINTAINED BY THE CITY OF ALBUQUERQUE

INDEX OF DRAWINGS



VICINITY MAP (NOTE: SEE SHEET 5 FOR KEY MAP) C-20
SCALE: 1" = 750'±



F.I.R.M. PANEL 141 OF 825
SCALE: 1" = 500'±

LEGAL DESCRIPTION

LOTS 24-27, BLOCK 18, NORTH ALBUQUERQUE ACRES, TRACT 3, UNIT 3

PROJECT BENCHMARK (NGVD 1929)

ACS STATION "HEAVEN" (TIED PRIOR TO PASEO DEL NORTE ROADWAY CONSTRUCTION IN 1999)
PREVIOUS ELEVATION = 5378.79 FEET (NGVD 1929)

THIS BENCHMARK HAS BEEN USED TO PROVIDE CONSISTENCY BETWEEN THIS SURVEY AND SURVEYS PREVIOUSLY CONDUCTED FOR RELATED NORTH DOMINGO BACA ARROYO PROJECTS AND THEREFORE REPRESENTS THE "PROJECT DATUM" FOR THIS PROJECT.

NOTE: THE ELEVATION FOR ACS STATION "5-C20", AN ACS 1 3/4" ALUMINUM DISK STAMPED "ACS BM, 5-C20", EPOXIED TO THE TOP OF A STORM INLET, AT THE N.N.E. CURB RETURN IN THE NORTHEAST QUADRANT OF THE INTERSECTION OF VENTURA STREET AND ANAHEIM AVENUE N.E., BASED UPON THE "PROJECT DATUM" IS 5552.84 FEET (NGVD 29). THE C.O.A. PUBLISHED ELEVATION FOR "5-C20" IS 5552.71 FEET (NGVD 29) AND THEREFORE VARIES BY 0.13 FEET VERTICALLY FROM THE "PROJECT DATUM".

T.B.M.

A #5 REBAR WITH CAP STAMPED "CONTROL PT NMPS 11184" SET NEAR THE NORTH SIDE OF THE CARMEL AVENUE N.E. RIGHT-OF-WAY NEAR THE SOUTHWEST CORNER OF THE EXISTING POND. ELEVATION = 5580.92 FEET (NGVD 1929)

RECEIVED
DEC 19 2002
HYDROLOGY SECTION

J. GRAEME MEANS NEW MEXICO 13676 REGISTERED PROFESSIONAL ENGINEER
12/16/2002

DRB PROJECT #1002207

File Path: L:\MWORK\10563A\ | Plot Date: 12-16-2002
File Name: 10563CV.DWG | Plot Time: 3:55 pm

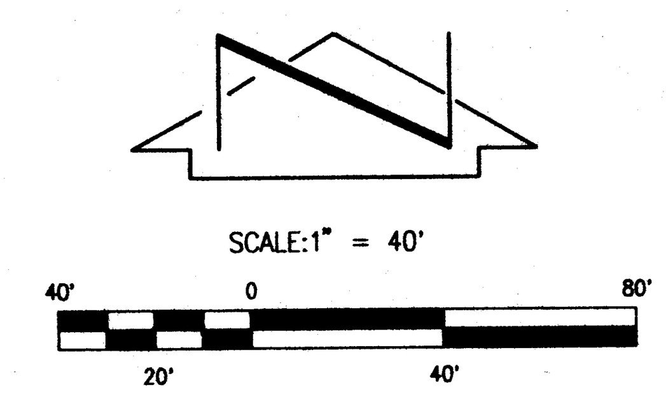
JEFF MORTENSEN & ASSOCIATES, INC.
6010-B MIDWAY PARK BLVD. N.E.
ALBUQUERQUE NEW MEXICO 87109
ENGINEERS SURVEYORS (505) 345-4250
FAX 505 345-4254 Email: jmainc@swcp.com

COVER SHEET, VICINITY MAP, FIRM, INDEX OF DRAWINGS, CALCULATIONS AND DRAINAGE PLAN
VINEYARD ESTATES, UNIT IV-A

DESIGNED BY G.M.
DRAWN BY S.G.H.
APPROVED BY J.G.M.

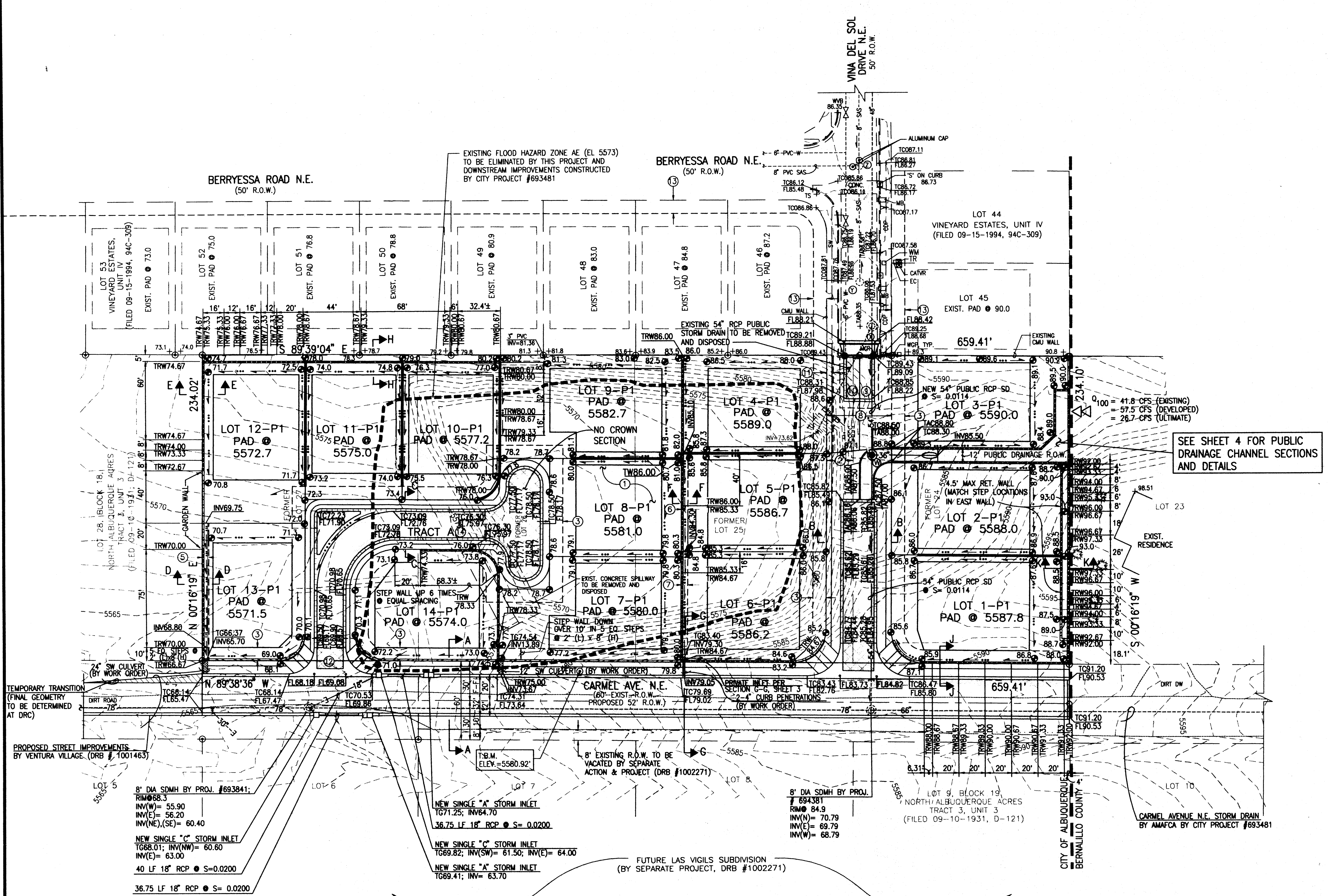
NO.	DATE	BY	REVISIONS

JOB NO. 2001.056.3
DATE 12-2002
SHEET 1 OF 5



KEYED MANHOLE NOTES

MH	TYPE	STATUS	RIM	INV. OUT	INV. IN	INV. IN
(W)	SDMH	PROPOSED	5587.70	72.92(S)	73.22(N)	74.72(E)
(X)	SDMH	EXIST.	5588.22	74.42(S)	74.25(N)	N/A
(Y)	SAS	EXIST.	5587.46	80.93(N)	N/A	N/A
(Z)	SAS	EXIST.	5586.23	80.20(W)	80.29(N)	80.23(S)



KEYED NOTES

VACATED, RELEASED AND TERMINATED EASEMENTS

(1) PUBLIC DRAINAGE EASEMENT GRANTED BY DOCUMENT FILED 09-29-1994, BOOK 94-27, PAGES 7077-7082 TO BE VACATED BY DRB ACTION (FORMER LOTS 25 AND 26, BLOCK 18)

(2) PUBLIC WATERLINE EASEMENT GRANTED BY DOCUMENT FILED 09-29-1994, BOOK 94-27, PAGES 7077-7082, AND RELEASED AND TERMINATED BY DOCUMENT FILED 04-20-1995, BOOK 95-9, PAGES 6350-6351, DOC. #95038600

NEW EASEMENTS

(3) 10' PUBLIC UTILITY EASEMENT.

(4) 38' PUBLIC (CITY OF ALBUQUERQUE) WATER AND SANITARY SEWER; PRIVATE (SERVING LOTS 7-13) ACCESS AND PRIVATE DRAINAGE EASEMENT.

(5) 5' PRIVATE DRAINAGE EASEMENT TO SERVE LOT 12. MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE OWNER OF LOT 13.

(6) 5' PRIVATE DRAINAGE EASEMENT TO SERVE LOT 4. MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE OWNER OF LOT 5.

(7) 5' PRIVATE DRAINAGE EASEMENT TO SERVE LOTS 4 AND 5. MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE OWNER OF LOT 6.

(8) 50' WIDE PUBLIC (CITY OF ALBUQUERQUE) DRAINAGE, SANITARY SEWER AND WATER EASEMENT

(9) 15' x 40' PRIVATE ACCESS EASEMENT TO SERVE LOT 4. MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE OWNER OF LOT 3.

(10) 15' x 40' PRIVATE ACCESS EASMENT TO SERVE LOT 3. MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE OWNER OF LOT 4.

(11) 5' PUBLIC (CITY OF ALBUQUERQUE) SIDEWALK EASEMENT.

(12) PUBLIC (CITY OF ALBUQUERQUE) ACCESS EASEMENT.

EXISTING EASEMENT

(13) 10' PUBLIC UTILITY EASEMENT GRANTED BY PLAT 94C-309, OFFSITE

LEGEND

CATVR	CABLE TELEVISION RISER
CDP	CONCRETE DRIVE PAD
CF	CONCRETE FILLET
CMU	CONCRETE MASONRY UNIT
CWCR	CONCRETE WHEELCHAIR RAMP
EC	ELECTRIC CABINET
FL	FLOWLINE
GR	GUARD RAIL
GRV	GRAVEL
INV	INVERT
MB	MAIL BOX
MGR	METAL GUARD RAIL
MH	MANHOLE
SAS	SANITARY SEWER
SD	STORM DRAIN
SW	SIDEWALK
TA	TOP OF ASPHALT
TAC	TOP OF ASPHALT CURB
TC	TOP OF CURB
TCO	TOP OF CONCRETE
TP	TOP OF PIPE
TR	TELEPHONE RISER
WGP	WOOD GUARD POSE
— — —	EXISTING CONTOUR
+ 67.9	EXISTING SPOT ELEVATION
	EXISTING CONIFEROUS TREE
(W)	KEYED MANHOLE NOTES
71.15	PROPOSED SPOT ELEVATION
	FLOWLINE
	EXISTING FLOOD HAZARD ZONE
	HIGH POINT
	RETAINING WALL
	GARDEN WALL (CAN RETAIN 18" MAX.)
	PROPOSED ASPHALT
	PROPOSED CONCRETE
	PAVING CROWN TRANSITION
	PROPOSED TEMPORARY PAVEMENT
	MOUNTABLE CURB AND GUTTER (4")
	STANDARD CURB AND GUTTER

NOTE:

THIS IS NOT A BOUNDARY SURVEY. APPARENT PROPERTY CORNERS ARE SHOWN FOR ORIENTATION ONLY. BOUNDARY DATA SHOWN IS BASED UPON THE BOUNDARY SURVEY OF LOTS 24, 25, 26 AND 27, BLOCK 18, NORTH ALBUQUERQUE ACRES, TRACT 3, UNIT 3 (VINEYARD IV-A) BY JEFF MORTENSEN & ASSOCIATES, INC. DATED 9-18-2002.

PROJECT BENCHMARK

ACS STATION "HEAVEN" (TIED PRIOR TO PASEO DEL NORTE ROADWAY CONSTRUCTION IN 1999)
PREVIOUS ELEVATION = 5378.79 FEET (NGVD 1929)

THIS BENCHMARK HAS BEEN USED TO PROVIDE CONSISTENCY BETWEEN THIS SURVEY AND SURVEYS PREVIOUSLY CONDUCTED FOR RELATED NORTH DOMINGO BACA ARROYO PROJECTS AND THEREFORE REPRESENTS THE "PROJECT DATUM" FOR THIS PROJECT.

NOTE: THE ELEVATION FOR ACS STATION "5-C20", AN ACS 1 3/4" ALUMINUM DISK STAMPED "ACS BM, 5-C20", EPOXIED TO THE TOP OF A STORM INLET, AT THE N.N.E. CURB RETURN IN THE NORTHEAST QUADRANT OF THE INTERSECTION OF VENTURA STREET AND ANAHEIM AVENUE N.E., BASED UPON THE "PROJECT DATUM" IS 5552.84 FEET (NGVD 29). THE C.O.A. PUBLISHED ELEVATION FOR "5-C20" IS 5552.71 FEET (NGVD 29) AND THEREFORE VARIES BY 0.13 FEET VERTICALLY FROM THE "PROJECT DATUM".

T.B.M.

A #5 REBAR WITH CAP STAMPED "CONTROL PT NMPS 11184" SET NEAR THE NORTH SIDE OF THE CARMEL AVENUE N.E. RIGHT-OF-WAY NEAR THE SOUTHWEST CORNER OF THE EXISTING POND. ELEVATION = 5580.92 FEET (NGVD 1929)

RECEIVED DEC 19 2002 HYDROLOGY SECTION

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File Path: [illegible] | Plot Date: 12-16-2002
File Name: 1056.3G1.DWG | Plot Time: 4:01 pm

JMA
JEFF MORTENSEN & ASSOCIATES, INC.
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ROUGH GRADING APPROVAL

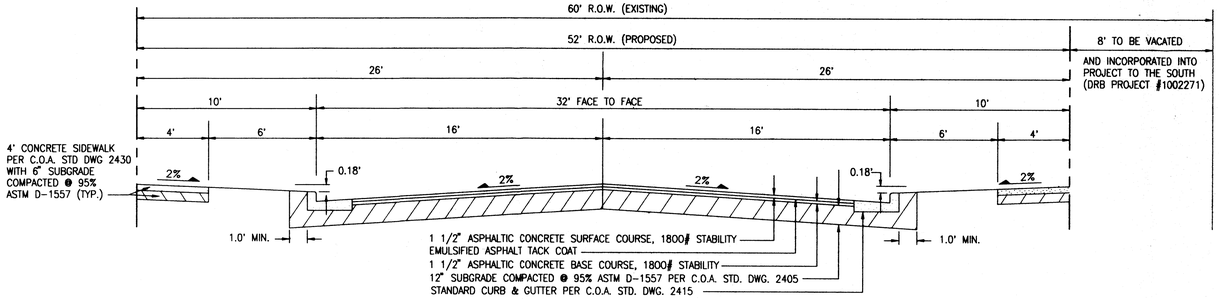
CITY HYDROLOGY | DATE

GRADING PLAN
VINEYARD ESTATES, UNIT IV-A

DESIGNED BY G.M.
DRAWN BY S.G.H.
APPROVED BY J.G.M.

NO.	DATE	BY	REVISIONS

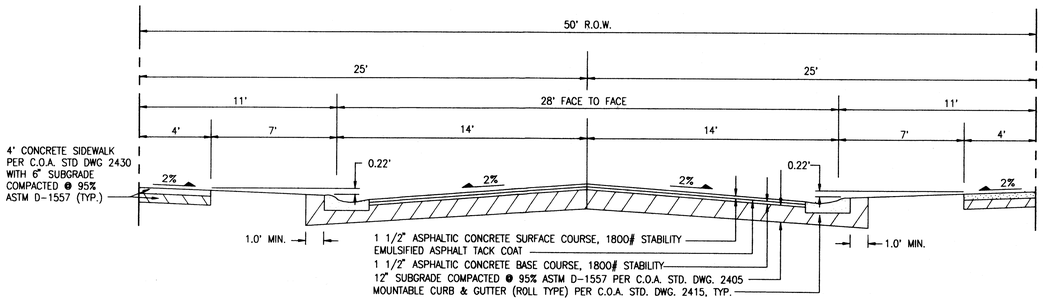
JOB NO. 2001.056.3
DATE 12-2002
SHEET 2 OF 5



SECTION A–A (CARMEL AVENUE N.E.)

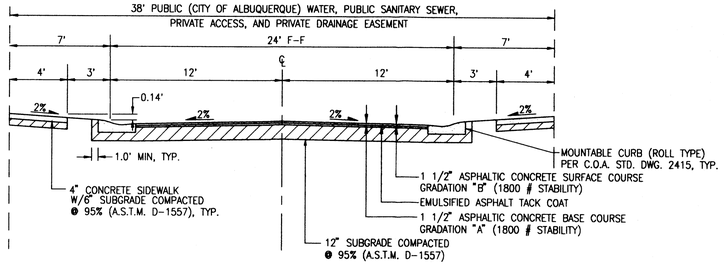
SCALE: 1" = 4'

NOTE: SOUTH HALF PAVING IMPROVEMENTS TO BE CONSTRUCTED BY SIMULTANEOUS PROJECT BY SAME DEVELOPER (DRB PROJECT #1002271)



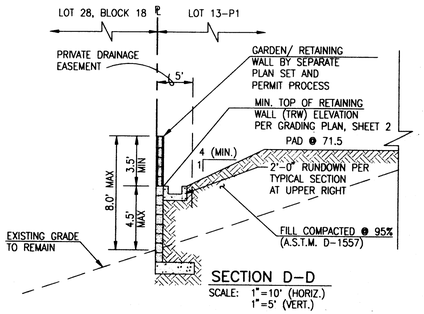
SECTION B--B (VINA DEL SOL DRIVE N.E.)

SCALE: 1" = 4'



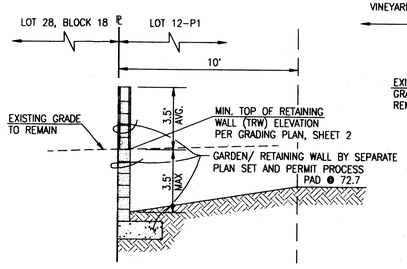
SECTION C–C (PRIVATE STREET WITH NORMAL CROWN)

SCALE: 1" = 5'



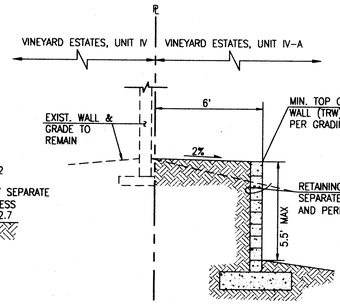
SECTION D–D

SCALE: 1"=10' (HORIZ.)
1"=5' (VERT.)



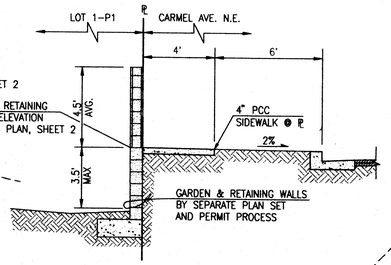
SECTION E–E

SCALE: 1"=4'



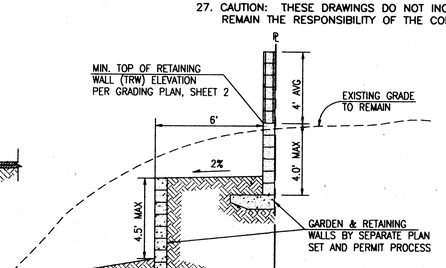
SECTION H–H

SCALE: 1"=4'



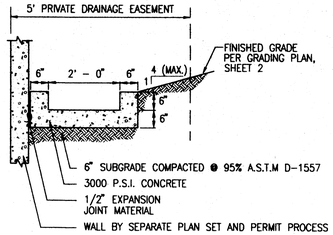
SECTION J–J

SCALE: 1"=4'



SECTION K–K

SCALE: 1"=4'



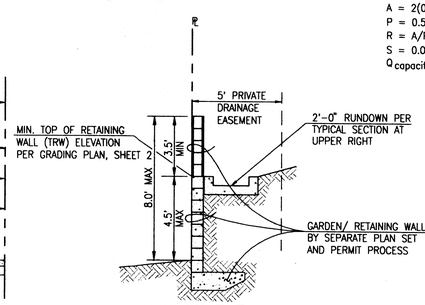
TYPICAL 2'–0" RUNDOWN SECTION

SCALE: 1" = 2' – 0"

HYDRAULIC CAPACITY (2' RUNDOWN)

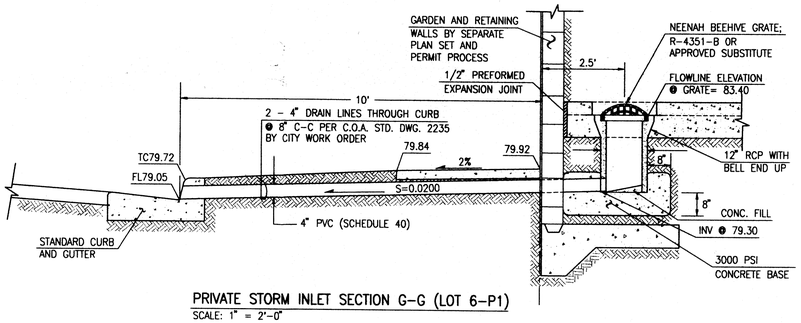
$Q = (1.49/n)AR^{2/3} S^{1/2}$

Where n = 0.013
A = 2(0.50) = 1.0 sf
P = 0.5 + 2.0 + 0.5 = 3.0 ft.
R = A/P = 0.33; $R^{2/3}$ = 0.48
S = 0.01 (minimum)
$Q_{capacity}$ = 5.5 cfs



SECTION F–F

SCALE: 1"=4'



PRIVATE STORM INLET SECTION G–G (LOT 6–P1)

SCALE: 1" = 2'–0"

GENERAL NOTES:

1. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED UNDER CONTRACT SHALL, EXCEPT AS OTHERWISE STATED OR PROVIDED FOR HEREON, BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION – 1986, UPDATE 6.
2. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM, 260–1990 FOR LOCATION OF EXISTING UTILITIES.
3. IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE MANNER ONLY, AND SUCH LINES MAY EXIST WHERE NONE ARE SHOWN. IF ANY SUCH EXISTING LINES ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE OWNER OF SAID UTILITY, AND THE INFORMATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME CONSTRUCTION COMMENCES. THE ENGINEER HAS CONDUCTED ONLY PRELIMINARY INVESTIGATION OF THE LOCATION, DEPTH, SIZE, OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES. THIS INVESTIGATION IS NOT CONCLUSIVE, AND MAY NOT BE COMPLETE, THEREFORE, MAKES NO REPRESENTATION PERTAINING THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFORE. THE CONTRACTOR SHALL INFORM ITSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE, OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK IN ADVANCE OF AND DURING EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES, AND UNDERGROUND UTILITY LINES. IN PLANNING AND CONDUCTING EXCAVATION, THE CONTRACTOR SHALL COMPLY WITH STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES.
4. SHOULD A CONFLICT EXIST BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL PROMPTLY NOTIFY THE ENGINEER IN WRITING SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY FOR ALL PARTIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INTERPRETATIONS IT MAKES WITHOUT FIRST CONTACTING THE ENGINEER AS REQUIRED ABOVE.
5. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ADJACENT PROPERTIES DURING CONSTRUCTION.
6. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING SAFETY AND HEALTH.
7. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT–OF–WAY OR ONTO PRIVATE PROPERTY.
8. THE CONTRACTOR SHALL PROMPTLY CLEAN UP ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT–OF–WAY SO THAT THE EXCAVATED MATERIAL IS NOT SUSCEPTIBLE TO BEING WASHED DOWN THE STREET.
9. WHEN APPLICABLE, THE CONTRACTOR SHALL SECURE "TOPSOIL DISTURBANCE PERMIT" PRIOR TO BEGINNING CONSTRUCTION. AN EXCAVATION PERMIT IS REQUIRED FOR ALL WORK WITHIN PUBLIC RIGHT–OF–WAY.
10. A DISPOSAL SITE FOR ALL EXCESS EXCAVATION MATERIAL (CONTAMINATED OR OTHERWISE), ASPHALTIC PAVING, CONCRETE PAVING, ETC. SHALL BE OBTAINED BY THE CONTRACTOR IN COMPLIANCE WITH APPLICABLE REGULATIONS. ALL COSTS INCURRED IN OBTAINING A DISPOSAL SITE AND IN HAUL THERETO SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION, THEREFORE, NO SEPARATE PAYMENT SHALL BE MADE.
11. A BORROW SITE FOR IMPORT MATERIAL SHALL BE OBTAINED BY THE CONTRACTOR IN COMPLIANCE WITH APPLICABLE REGULATIONS. ALL COSTS INCURRED IN OBTAINING A BORROW SITE AND IN HAUL THERETO SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION, THEREFORE, NO SEPARATE PAYMENT SHALL BE MADE.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SAFELY OBTAINING THE REQUIRED COMPACTION. THE CONTRACTOR SHALL SELECT AND USE METHODS WHICH SHALL NOT BE INJURIOUS OR DAMAGING TO THE EXISTING FACILITIES AND STRUCTURES WHICH SURROUND THE WORK AREAS.
13. THE CONTRACTOR SHALL CONFINE HIS WORK WITHIN THE CONSTRUCTION LIMITS IN ORDER TO PRESERVE THE EXISTING IMPROVEMENTS AND SO AS NOT TO INTERFERE WITH THE OPERATIONS OF THE EXISTING FACILITIES.
14. ALL DIMENSIONS AND RADII OF CURB, CURB RETURNS, AND WALLS ARE SHOWN TO THE FACE OF CURB AND/OR WALL.
15. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
16. ALL FILL SHALL BE FREE FROM VEGETATION, DEBRIS, AND OTHER DELETERIOUS MATERIALS.
17. ALL FILL SHALL BE COMPACTED TO A MINIMUM OF 95% ASTM D–1557 UNLESS A GREATER COMPACTION REQUIREMENT IS OTHERWISE SPECIFIED. ALL EARTHWORK FOR BUILDING PADS SHALL BE PERFORMED IN ACCORDANCE WITH THE STRUCTURAL AND GEOTECHNICAL SPECIFICATIONS WHERE AVAILABLE.
18. ALL EXISTING UTILITIES ENCOUNTERED WITHIN THE WORK LIMITS SHALL BE ADJUSTED TO GRADE AND SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION.
19. THE PAD ELEVATIONS SHOWN HEREON ARE FOR ROUGH GRADING PURPOSES.
20. FINISHED FLOOR ELEVATIONS MAY VARY FROM THE PAD ELEVATIONS AND WILL BE DETERMINED AS A FUNCTION OF INDIVIDUAL HOUSE DESIGN.
21. FINISHED FLOOR ELEVATIONS SHOULD BE ESTABLISHED AT A MINIMUM OF FOUR INCHES ABOVE PAD ELEVATIONS; DEVIATIONS FROM THESE GUIDELINES MUST BE BASED ON THE RECOMMENDATIONS AND/OR DESIGN OF A COMPETENT DESIGN PROFESSIONAL.
22. CROSS–LOT DRAINAGE WILL NOT BE PERMITTED EXCEPT AS SHOWN ON THE APPROVED GRADING PLAN AND WITH A RECORDED EASEMENT, GRANTED BY THE PLAT
23. RETAINING WALLS SHALL BE CONSTRUCTED BY THE DEVELOPER PRIOR TO DRAINAGE CERTIFICATION FOR FINANCIAL GUARANTY RELEASE. A SEPARATE PLAN REVIEW AND PERMIT PROCESS IS REQUIRED FOR ALL RETAINING AND GARDEN WALLS.
24. THE FINISHED GRADING OF EACH LOT SHALL BE ACCOMPLISHED BY THE LOT OWNER OR ITS BUILDER. DEVELOPED RUNOFF SHOULD BE DIRECTED TO THE STREETS.
25. MAXIMUM UNPROTECTED SLOPES SHALL BE 3:1; MINIMUM SLOPES SHALL BE 1%.
26. ROUGH GRADING TOLERANCES SHALL BE ± 0.1 FT FOR BUILDING PADS AND STREETS AND ± 0.67' FOR ALL OTHER GRADING.
27. **CAUTION: THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL REMAIN THE RESPONSIBILITY OF THE CONTRACTOR.**

RECEIVED
DEC 19 2002
HYDROLOGY SECTION

J. GRAEME MEANS
NEW MEXICO
(13676)
REGISTERED PROFESSIONAL ENGINEER
12/16/2002

DRB PROJECT #1002207

File Path: C:\MyWork\Vinya\ | Plot Date: 12-16-2002
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JEFF MORTENSEN & ASSOCIATES, INC.
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SECTIONS, DETAILS AND GENERAL NOTES
VINEYARD ESTATES, UNIT IV-A

DESIGNED BY G.M.
DRAWN BY S.G.H./J.P.
APPROVED BY J.G.M.

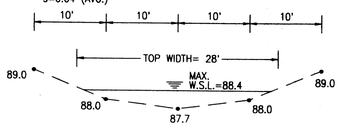
NO.	DATE	BY	REVISIONS

JOB NO. 2001.056.3
DATE 12-2002
SHEET 3 OF 5

HYDRAULIC CALCULATIONS (Q_{100}=60 CFS)

A. UPSTREAM NATURAL CHANNEL (MANNING'S EQUATION)

$Q=(1.49/n)AR^{2/3}S^{1/2}$
n=0.035 (NATURAL ARROYO)
s=0.04 (AVG.)



USING FLOWMASTER 6.0: d=0.7ft, v=4.9fps

B. CONCRETE CHANNEL NORMAL DEPTH (MANNING'S EQUATION)

$Q=(1.49/n)AR^{2/3}S^{1/2}$
n=0.013 (CONCRETE)
s=0.0078
USING FLOWMASTER 6.0: d=0.93ft, v=7.8fps,
Fr= 1.58
PER D.P.M. 22.3.C.4.9 (1), REQUIRED FREEBOARD= 1.0ft.

C. WEIR CONDITION HEIGHT @ ENTRANCE AND CHANNEL TURN (WEIR EQUATION)

$Q=CLH^{3/2}$
C=2.6
L=10.0ft
H=1.75ft + 2/3 (INVERT DEPTH OF 0.33) = 1.97ft
THIS DEPTH GOVERNS AS IT IS GREATER THAN NORMAL DEPTH OF 0.93ft. (FROM B)
MIN. CHANNEL DEPTH = 1.97ft + 1.0^2ft FREEBOARD = 2.97ft

D. CHECK FOR UPSTREAM IMPACT

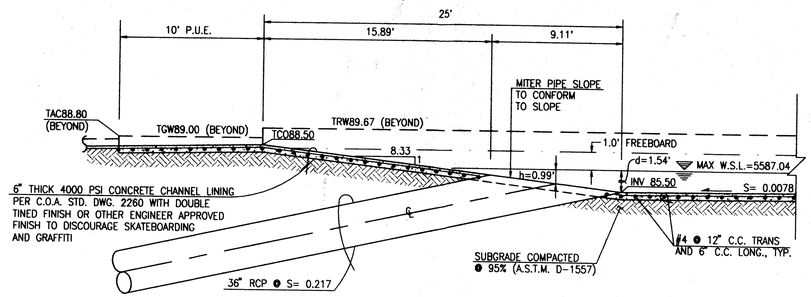
UPSTREAM W.S.L. = 88.4ft (FROM A)
MAX WEIR DEPTH = 1.97ft (FROM C)
CHANNEL INVERT @ ENTRANCE = 86.43
MAX CHANNEL W.S.L. = 1.97 + 86.43 = 88.4 (NO INCREASE IN UPSTREAM DEPTH)

E. 36" OUTLET PIPE CAPACITY (MANNING'S EQUATION)

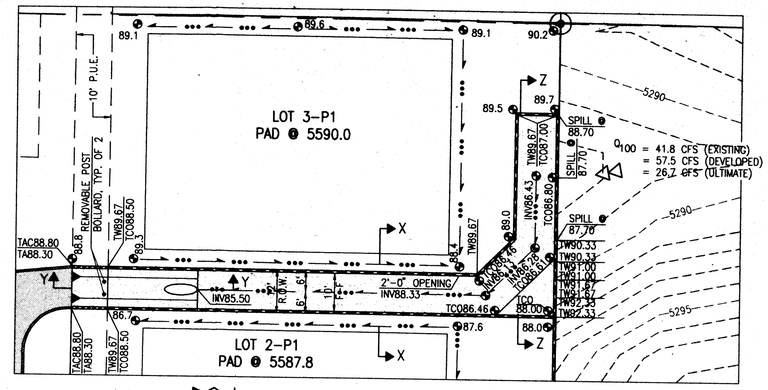
S= 0.217
n= 0.013 (RCP)
Q_{CAP}=310.7cfs (FULL FLOW FROM FLOW MASTER 6.0)
$Q_{CAP}=5.2x\ Q_{100}$ (NOT LIMITING)

F. 36" OUTLET PIPE ENTRANCE CONDITION (ORIFICE EQUATION)

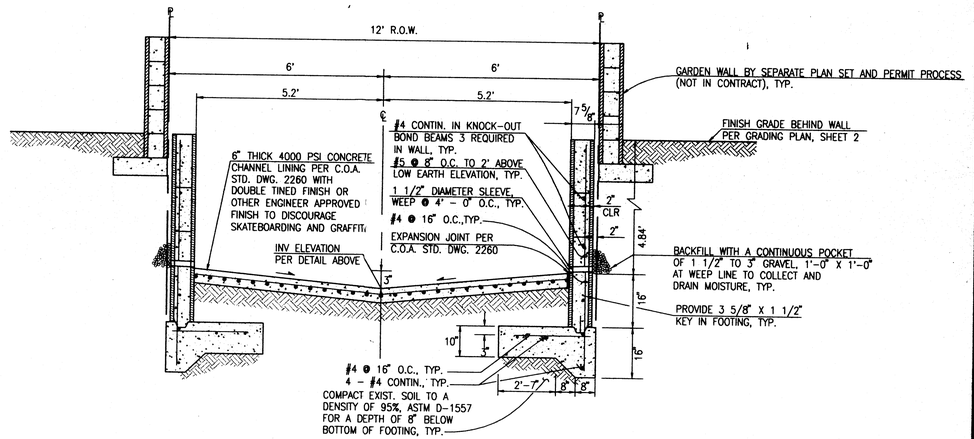
$Q=CA\ (2gh)^{0.5}$
C=0.7
$g=32.2ft/s^2$
Aeff=½A= (½)(21.46sf)=10.73sf (ASSUME 50% CLOGGED)
hreq. FOR Q_{100} =0.99ft (MEASURED @ CENTER OF PIPE)
MAX W.S.L.=87.04 @ ENTRANCE (SEE SECTION Y-Y)



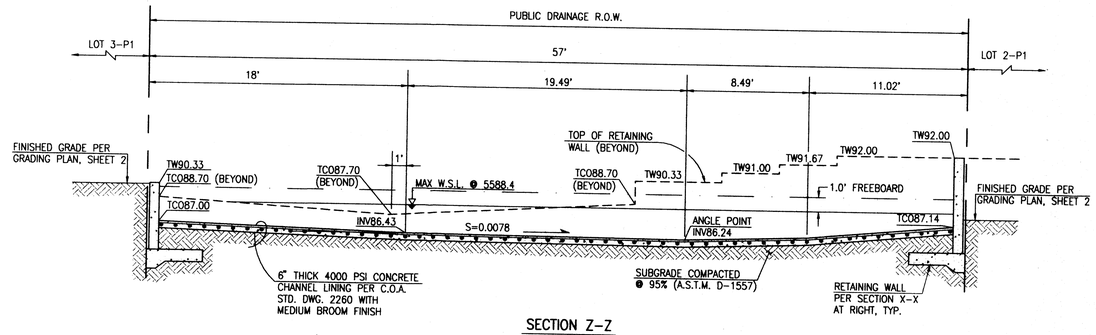
SECTION Y-Y
SCALE: 1" = 5'



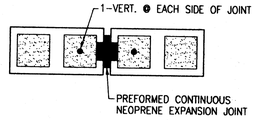
PUBLIC DRAINAGE CHANNEL DETAIL
SCALE: 1" = 20'



SECTION X-X
SCALE: 1" = 2'



SECTION Z-Z
SCALE: 1" = 5'



TYPICAL MASONRY CONTROL JOINT DETAIL
SCALE: 1" = 1'- 0"

RETAINING WALL NOTES:

1. 8"X8"X16" CMU OF UBC STD. 24-4 OR 24-5.
2. USE KNOCK-OUT BOND BEAM BLOCK AT 4'-0" MAX C.C., VERTICALLY, AND 1 #4 CONTINUOUS.
3. FILL ALL BLOCK VOIDS WITH 3000 PSI CONCRETE.
4. REINFORCING TO BE INTERMEDIATE GRADE STEEL. fs=20,000 psi
5. IN LIEU OF CONTINUOUS KNOCK-OUT BOND BEAMS, CONTRACTOR MAY INSTALL DUR-O-WALL REINFORCING EVERY SECOND COURSE.
6. SPLICE SHALL BE 40 BAR DIA. MINIMUM FOR VERTICAL BARS. ALL OTHER SHALL BE 20 BAR DIA. MINIMUM.
7. CONCRETE FILL SHALL BE 21 DAYS OLD OR ACHIEVE 70% OF DESIGN STRENGTH PRIOR TO BACKFILLING.
8. INSTALL MASONRY CONTROL JOINTS PER TYPICAL DETAIL AT UNIFORM SPACINGS OF 20' (MIN.) TO 24' (MAX.)

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DEC 19 2002
HYDROLOGY SECTION

J. GRAEME MEANS
NEW MEXICO
13676
REGISTERED PROFESSIONAL ENGINEER
12/16/2002

DRB PROJECT #1002207

File Path: F:\DWG\1056\SD2.DWG | Plot Date: 12-16-2002
File Name: 1056SSD2.DWG | Plot Time: 4:04 pm

JEFF MORTENSEN & ASSOCIATES, INC.
6010-B MIDWAY PARK BLVD. N.E.
ALBUQUERQUE NEW MEXICO 87109
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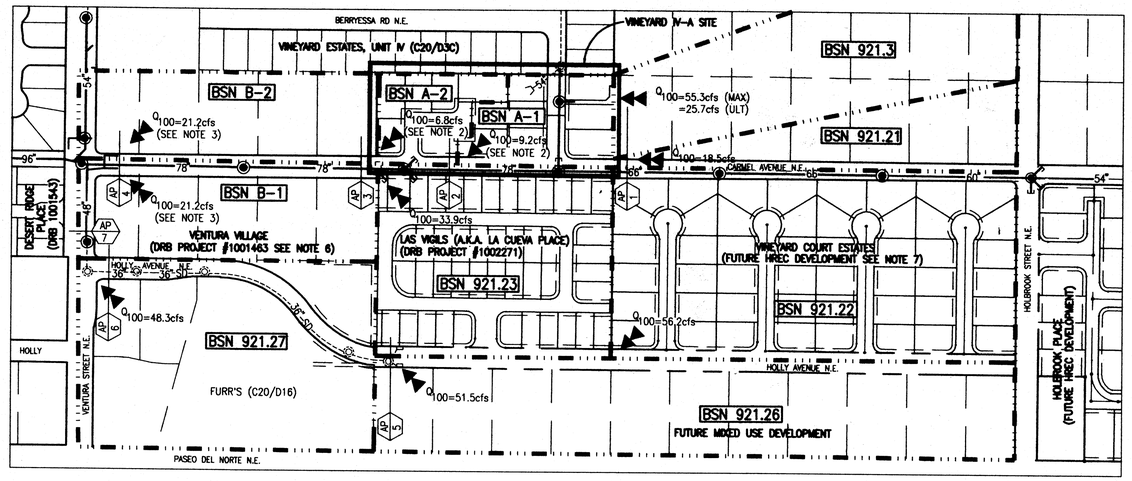
FAX: 505 345-4254 Email: jmainc@swcp.com

PUBLIC DRAINAGE CHANNEL SECTIONS, DETAILS AND CALCULATIONS
VINEYARD ESTATES, UNIT IV-A

DESIGNED BY	G.M.
DRAWN BY	S.G.H.
APPROVED BY	J.G.M.

NO.	DATE	BY	REVISIONS

JOB NO.	2001.056.3
DATE	12-2002
SHEET	4 OF 5



BASIN & KEY MAP (DEVELOPED CONDITIONS)

SCALE: 1" = 200'

CARMEL AVENUE STREET AND INLET ANALYSIS

ANALYSIS POINT	Q_{100} (cfs)	STREET SLOPE	D_{100} (ft)	V_{100} (fps)	Fr_{100}	E (ft)	$D_{seq,a}$ (cfs)	INLETS	Q_{INLETS}[b] (cfs)	$Q_{RESIDUAL}$ (cfs)
AP1	18.5	0.0390	0.36	4.67	2.17	0.70	0.54	NONE	0	18.5
AP2	27.7	0.0390	0.41	5.16	2.23	0.82	0.63	2 Sgl. "A"	14.0	13.7
AP2	13.7	0.0390	0.33	4.34	2.13	0.62	0.48	2 Sgl. "C"	10.0	3.7
AP3	10.5	0.0285	0.32	3.62	1.81	0.52	0.40	NONE	0	10.5
AP4	52.9	0.0300	0.51	6.16	2.11	1.10	0.85	2 Sgl. "A"	18.0	34.9
AP4	34.9	0.0300	0.45	5.23	2.02	0.87	0.67	2 Dbl. "C"	17.0	17.9
AP4	17.9	0.0300	0.37	4.19	1.92	0.64	0.49	2 Dbl. "C"	12.0	5.9 [c]

a-YSEQ. = 0.77*E BASED ON EQUIVALENT RECT. CHANNEL
b-FROM DPM PLATES 22.3 D-5,6
c-CONTINUES TO VENTURA (MAX ALLOWED)=6.2 CFS

HOLLY AVENUE STORM DRAIN ANALYSIS

ANALYSIS POINT	Q_{100} (cfs)	STORM DRAIN	SD SLOPE	SD CAPACITY (OPEN)cfs	SD CAPACITY (PRESSURE)cfs
AP5	107.7	36" (EXIST)	0.015	87.9	N/A [b]
AP6	156.0 [a]	36" (EXIST)	0.023	108.8	279 [c]
AP7	156.0 [a]	42" (PROPOSED)	0.050	209.7	N/A

a-ASSUMES ALL EXISTING DETENTION IS ELIMINATED AND CONVERTED TO FREE DISCHARGE
b-ASSUMES RESIDUAL FLOW WILL BE CARRIED IN STREET (SEE NOTE 7 AT RIGHT)
c-PRESSURE FLOW, MANNING'S EQUATION, n=0.013, MAX ALLOWABLE HGL= RIM ELEVATION.
d-WHEN OPEN CHANNEL CAPACITY EXCEEDS Q_{100}, NO FURTHER ANALYSIS IS PERFORMED AND THE PRESSURE CAPACITY IS "N/A"

SUMMARY OF HYDROLOGY CALCULATIONS (FROM CLOMR ANYMO-SEE NOTE 1)

BASIN	AREA (SQ. MI.)	% A	% B	% C	% D	Q_{100} (DEV)	V_{100} (DEV)
921.21	0.0080	25	15	20	40	18.46 cfs	0.728 cfs
921.22	0.0219	0	34	16	50	56.15 cfs	2.295 cfs
921.23	0.0125	0	25	15	60	33.87 cfs	1.421 cfs
921.24	0.0094	0	34	16	50	24.07 cfs	0.976 cfs
921.25	0.0125	0	25	15	60	33.87 cfs	1.421 cfs
921.26	0.0172	0	10	10	80	51.47 cfs	2.285 cfs
921.27	0.0156	0	10	0	90	48.28 cfs	2.199 cfs
921.3	0.0125	22	23	38	17	25.72 cfs	0.893 cfs

DRAINAGE INFORMATION:

1. NUMBERED BASINS AND DEVELOPED FLOW RATES SHOWN HEREON ARE TAKEN FROM THE FEMA APPROVED CLOMR TITLED "NORTH DOMINGO BACA ARROYO/CARMEL AVENUE N.E. STORM DRAIN EXTENSION " BY JMA DATED 6-17-02, (FEMA CASE NO. 02-06-2145R).
2. FLOW RATES SHOWN FOR SUB-BASINS A-1 AND A-2 ARE PRO-RATED FROM THE CLOMR BASIN 921.24.
3. FLOW RATES SHOWN FOR SUB-BASINS B-1 AND B-2 ARE PRO-RATED FROM THE CLOMR RATE OF 4.23 cfs PER ACRE FROM CLOMR BASIN 921.25.
4. CARMEL AVENUE N.E. STORM DRAIN IMPROVEMENTS ARE BEING CONSTRUCTED BY AMAFCA UNDER CITY PROJECT #693481. CONTRACT WAS AWARDED 11/20/2002 BY AMAFCA.
5. VENTURA STREET N.E. STORM DRAIN AND PAVING IMPROVEMENTS SHALL BE CONSTRUCTED BY HOECH REAL ESTATE CORPORATION AND ARE FINANCIALLY GUARANTEED BY PROCEDURE "B" AGREEMENT FOR CITY PROJECT #694881 (DESERT RIDGE PLACE), DRB PROJECT #1001543.
6. CARMEL AVENUE N.E. PAVING IMPROVEMENTS AND STORM INLETS FRONTING VENTURA VILLAGE SHALL BE CONSTRUCTED AND GUARANTEED BY LLAVE HOMES. DRB PROJECT #1001463.
7. VINEYARD COURT ESTATES IS SHOWN FOR INFORMATION ONLY. IT IS A PROPOSED RESIDENTIAL SINGLE FAMILY SUBDIVISION TO BE SUBMITTED TO THE CITY BY HOECH REAL ESTATE CORPORATION (HREC) FOR REVIEW AND APPROVAL FOLLOWING SUCCESSFUL ANNEXATION OF THE PROPERTY BY HREC. ALTHOUGH THE CLOMR (NOTE 1) SHOWS THIS BASIN DRAINING TO THE NORTH, IT IS NOW PLANNED TO DRAIN TO THE SOUTH TO HOLLY. THE OUTFALL WILL STILL BE TO THE NDBA SYSTEM. THE DRAINAGE PLAN FOR THAT PROJECT SHALL ANALYZE DOWNSTREAM STORM DRAIN AND INLET CAPACITY IN HOLLY IN GREATER DETAIL. BASED ON THE STORM DRAIN CALCULATIONS HEREON, THE 36" HOLLY STORM DRAIN AND 42" VENTURA STORM DRAINS HAVE ADEQUATE CAPACITY TO ACCEPT THE ADDITIONAL FLOWS FROM VINEYARD COURT ESTATES, HOWEVER A DETAILED STORM INLET ANALYSIS IS NOT PRESENTED HEREON. FURTHER ANALYSIS BY THE VINEYARD COURT ESTATES DRAINAGE PLAN IS BEYOND THE SCOPE OF THIS PLAN AND MAY INDICATE A NEED FOR ADDITIONAL INLETS IN HOLLY TO ALLOW SURFACE RUNOFF TO ENTER THE STORM DRAIN.

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HYDROLOGY SECTION

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NEW MEXICO
13676
REGISTERED PROFESSIONAL ENGINEER
12/16/2002

DRB PROJECT #1002207

File Path: S:\WORK\VINEYARD\DWG\
File Name: 10563DC.DWG
Plot Date: 12-16-2002
Plot Time: 4:14 pm

JEFF MORTENSEN & ASSOCIATES, INC.
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BASIN & KEY MAP; HYDROLOGY & STREET HYDRAULICS CALCULATIONS
VINEYARD ESTATES, UNIT IV-A

DESIGNED BY G.M.
DRAWN BY J.L.P.JR
APPROVED BY J.G.M.

NO.	DATE	BY	REVISIONS

JOB NO. 2001.056.3
DATE 12-2002
SHEET 5 OF 5

ENGINEER'S DRAINAGE CERTIFICATION

A. EXECUTIVE SUMMARY

THE FOLLOWING DRAINAGE RELATED ITEMS ARE REQUIRED FOR FINANCIAL GUARANTY RELEASE FOR THIS PROJECT:

1) ENGINEER'S DRAINAGE CERTIFICATION OF THE DRB APPROVED GRADING AND DRAINAGE PLAN FOR VINEYARD ESTATES, UNIT IV-A.
2) CITY ACCEPTANCE OF OFFSITE DRAINAGE IMPROVEMENTS CONSTRUCTED BY AMAFCA UNDER CITY PROJECT # 693481.
3) LETTER OF MAP REVISION (LOMR).

THIS SUBMITTAL ADDRESSES ITEM 1 ONLY. ITEMS 1 AND 2 HAVE ALREADY BEEN ADDRESSED AS FOLLOWS: THE CITY ENGINEER ISSUED THE CERTIFICATE OF COMPLETION AND ACCEPTANCE FOR PROJECT # 693481 ON MAY 28, 2004, AND THE LOMR WAS ISSUED BY FEMA ON MARCH 23, 2004.

B. CERTIFICATION

THE FOLLOWING IS A BRIEF DESCRIPTION OF THE VARIOUS PROJECT ELEMENTS:

1) HOUSE PADS

THE HOUSE PAD ELEVATIONS WERE CERTIFIED BY CHARLES G. CALA, NMPS 11184 ON AUGUST 8, 2004. ALL PADS WERE VERIFIED PRIOR TO THE COMMENCEMENT OF HOME CONSTRUCTION AND THE GRADES WERE FOUND TO BE WITHIN 0.1 FEET OF THE APPROVED PLAN ELEVATION AND IN SUBSTANTIAL COMPLIANCE WITH THE DRB APPROVED PLAN.

2) LOT GRADES

LOT GRADES (FLOWLINES AND PROPERTY CORNERS) WERE VERIFIED BY GROUND SURVEY UPON COMPLETION OF INFRASTRUCTURE INSTALLATION. THOSE FOUND TO BE WITHIN CONSTRUCTION TOLERANCES (0.33') BY THE GROUND SURVEY HAVE BEEN MARKED ON THE PLAN WITH A CHECK MARK. THOSE FOUND BY THE GROUND SURVEY TO BE OUTSIDE OF THE SPECIFIED CONSTRUCTION TOLERANCES, BUT STILL IN SUBSTANTIAL COMPLIANCE WITH THE DRB APPROVED GRADING AND DRAINAGE PLAN HAVE BEEN CORRECTED WITH THE ACTUAL RECORD ELEVATION NOTED.

AS A RESULT OF PRIVATE WALL CONSTRUCTION, HOME CONSTRUCTION, AND PUBLIC UTILITY INSTALLATIONS THAT FOLLOWED ROUGH GRADING, SOME OF THE REAR YARD GRADES AND SIDE YARD SWALES WERE FOUND TO BE OUT OF COMPLIANCE BY THE VERIFICATION SURVEY. IN THESE CASES, THE CORRECT GRADE WAS STAKED AT THE TIME OF THE VERIFICATION SURVEY, AND THE LOT GRADING WAS SUBSEQUENTLY RESTORED BY THE RESPONSIBLE PARTY AND VISUALLY INSPECTED BY THIS ENGINEER IN APRIL, JUNE, AND AUGUST OF 2004 AND DETERMINED TO BE IN SUBSTANTIAL CONFORMANCE WITH THE GRADES AND WITH THE INTENT SET FORTH BY THE DRB APPROVED PLAN. IN THESE INSTANCES, THE GRADES HAVE BEEN CIRCLED AND HAVE NOT BEEN CORRECTED OR MARKED ON THE PLAN WITH A CHECK. THIS CERTIFICATION OF LOT GRADES REPRESENTS THE CONDITION OF THE LOTS AT THE TIME OF THE AFOREMENTIONED SURVEYS AND INSPECTIONS. CHANGES TO THE GRADES ATTRIBUTABLE TO SUBSEQUENT PRIVATE CONSTRUCTION ACTIVITIES ARE BEYOND OUR CONTROL, AND FINISHED GRADING FOR ALL LOTS SHALL BE SHALL BE RESTORED AND COMPLETED UPON DEVELOPMENT AND LANDSCAPING OF EACH LOT BY THEIR RESPECTIVE BUILDERS. THE FINISHED LOT ELEVATIONS AND SLOPES MUST CONFORM TO THE APPROVED PLAN.

3) PUBLIC INFRASTRUCTURE

THIS PROJECT INCLUDED PUBLIC AND PRIVATE CURB AND GUTTER, PUBLIC STORM DRAIN AND PUBLIC DRAINAGE CHANNEL CONSTRUCTION THAT WAS ACCOMPLISHED UNDER CITY PROJECT NO. 705282. AS INDICATED BY THE AS-BUILT DRAWINGS AND ENGINEER'S CERTIFICATE OF SUBSTANTIAL COMPLIANCE FOR THAT PROJECT (BY JEFF MORTENSEN, NMPE 8547, THESE ITEMS WERE FOUND TO BE IN SUBSTANTIAL COMPLIANCE WITH THE APPROVED PLAN.

4) OFFSITE GRADING

AS A RESULT OF CARMEL AVENUE STORM DRAIN CONSTRUCTION BY AMAFCA AND RETAINING WALL CONSTRUCTION ASSOCIATED WITH THIS PROJECT, THE PRE-EXISTING GRADES ON LOT 23, BLOCK 18, NAA, TRACT 3, UNIT 3 WERE DISTURBED, RESULTING IN OFFSITE FLOWS BEING BLOCKED BY LOT 1 OF VINEYARD ESTATES, UNIT IV-A. THIS GRADING WAS RESTORED WITH THE PRIOR APPROVAL OF AMAFCA AND CITY HYDROLOGY, AND A RIP RAP APRON WAS PROVIDED AT THE EDGE OF PAVING. THIS GRADING WAS VISUALLY INSPECTED BY THIS ENGINEER JUNE 22, 2004 AND DETERMINED TO BE IN SUBSTANTIAL COMPLIANCE WITH INTENT OF THE PRE-EXISTING CONDITION AS SHOWN ON THE APPROVED PLAN. OFFSITE FLOWS FROM THE EAST WILL CONTINUE TO DRAIN TO CARMEL.

5) LOT DEVELOPMENT

THIS PLAN ALSO IDENTIFIES THE LOTS UPON WHICH HOUSES HAVE BEEN COMPLETED OR ARE UNDER CONSTRUCTION AT THE TIME OF THIS CERTIFICATION. THE LOTS ARE SHOWN BY A CIRCLED 'H'. AS PREVIOUSLY INDICATED, HOME CONSTRUCTION INCLUDES NUMEROUS ACTIVITES THAT MAY DISRUPT SITE GRADING, PARTICULARLY FOOTING EXCAVATION, LANDSCAPING, WALL CONSTRUCTION, AND PRIVATE UTILITY INSTALLATION. CHANGES TO THE GRADES ATTRIBUTABLE TO SUBSEQUENT PRIVATE CONSTRUCTION ACTIVITIES ARE BEYOND OUR CONTROL, AND FINISHED GRADING FOR ALL LOTS SHALL BE SHALL BE RESTORED AND COMPLETED UPON DEVELOPMENT AND LANDSCAPING OF EACH LOT BY THEIR RESPECTIVE BUILDERS. THE FINISHED LOT ELEVATIONS AND SLOPES MUST CONFORM TO THE APPROVED PLAN.

6) RETAINING WALLS

THIS PLAN IDENTIFIES SEVERAL LOCATIONS WHERE RETAINING WALL CONSTRUCTION WAS REQUIRED TO ACCOMPLISH THE DEISGN GRADES. AS DETERMINED BY A COMBINATION OF GROUND SURVEY, FIELD INSPECTION, AND EVALUATION RELATIVE TO THE PLAN GRADES, THE WALLS HAVE BEEN CONSTRUCTED IN A MANNER THAT WILL FACILITATE THE DESIGN GRADES AND ARE THEREFORE IN SUBSTANTIAL COMPLIANCE WITH THE APPROVED PLAN. ADDITIONAL WALLS NOT SHOWN ON THE APPROVED PLAN WERE CONSTRUCTED AT THE LOW CORNERS OF LOTS 13, 7, AND 4. ACCORDINGLY, THE GRADES WERE RAISED AT THE CORNERS, BUT IN ACCORDANCE WITH INTENT OF APPROVED PLAN. PER DISCUSSIONS WITH CITY STAFF, DRB REVIEW OF THE CHANGED GRADES WAS NOT REQUIRED BECAUSE THE PAD ELEVATIONS AND APPEARANCE FROM ADJACENT LOTS AND ROW WAS NOT CHANGED.

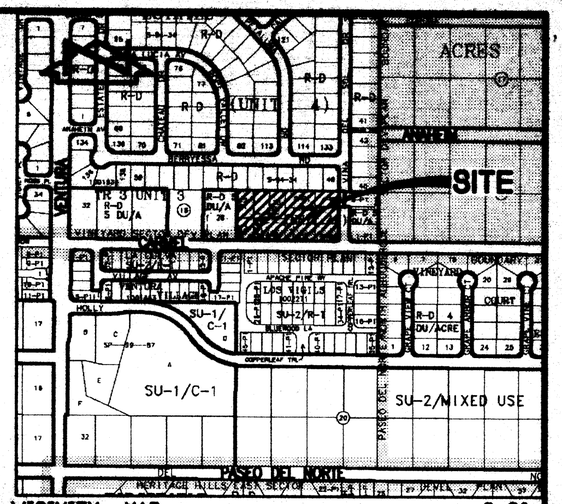
7) LOT 14

AS SHOWN ON THE PLAN, THE RETAINING WALL ALONG THE EAST SIDE OF LOT 14 WAS JOGGED AROUND A PNM TRANSFORMER. FURTHERMORE, THE FOOTING OF THIS WALL WAS CONSTRUCTED UP TO A COUPLE OF FEET HIGHER THAN INTENDED, RESULTING IN REAR YARD GRADES UP TO A COUPLE OF FEET HIGHER THAN SHOWN ON THE APPROVED PLAN. INSTEAD OF RELOCATING THE UTILTIES AND RECONSTRUCTING THE WALL, THE HOME BUILDER, T.C. BUILDING, HAS ELECTED TO CONSTRUCT A HOME THAT UTILTIZES THE HIGHER REAR YARD GRADE, AND WILL CONSTRUCT A RETAINING STEMWALL AT THE REAR OF THE HOME. THE HOME AND SITE GRADING WILL BE CONSTRUCTED BY THE HOME BUILDER IN CONFORMANCE WITH THE INTENT OF THE APPROVED PLAN WHEREBY ALL RUNOFF WILL BE DIRECTED TO THE ADJACENT STREETS.

THIS CERTIFICATION EVALUATES GRADING AND DRAINAGE ISSUES ONLY AND DOES NOT ADDRESS COMPLIANCE WITH A.D.A. GUIDELINES. THE RECORD INFORMATION IS NOT NECESSARILY COMPLETE AND INTENDED ONLY TO VERIFY SUBSTANTIAL COMPLIANCE OF GRADING AND DRAINAGE ASPECTS OF THIS PLAN. THOSE RELYING ON THIS PLAN ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT FOR ANY OTHER PURPOSE.

J. Graeme Means — 08/13/2004

J. GRAEME MEANS, NMPE 13676 — DATE



VICINITY MAP — C-20

SCALE: 1" = 750' (APPROX.)

J. GRAEME MEANS NEW MEXICO 13676 REGISTERED PROFESSIONAL ENGINEER

J. Graeme Means 08/13/2004

File Path: E:\[illegible]\10563CERT.DWG | Plot Date: 08-13-2004 | Plot Time: 2:42 pm | File Name: 10563CERT.DWG

JEFF MORTENSEN & ASSOCIATES, INC.
6010-B MIDWAY PARK BLVD. N.E.
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ENGINEERS SURVEYORS (505) 345-4250
FAX: (505) 345-4254 ESTABLISHED 1977

ENGINEER'S CERTIFICATION
VINEYARD ESTATES, UNIT IV-A

DESIGNED BY G.M.
DRAWN BY R.R.W.
APPROVED BY G.M.

NO.	DATE	BY	REVISIONS
1	08/04	G.M.	ENGINEER'S CERTIFICATION

JOB NO. 2003.042.1
DATE 08-2004
SHEET 1 OF 4

SCALE:1" = 40'

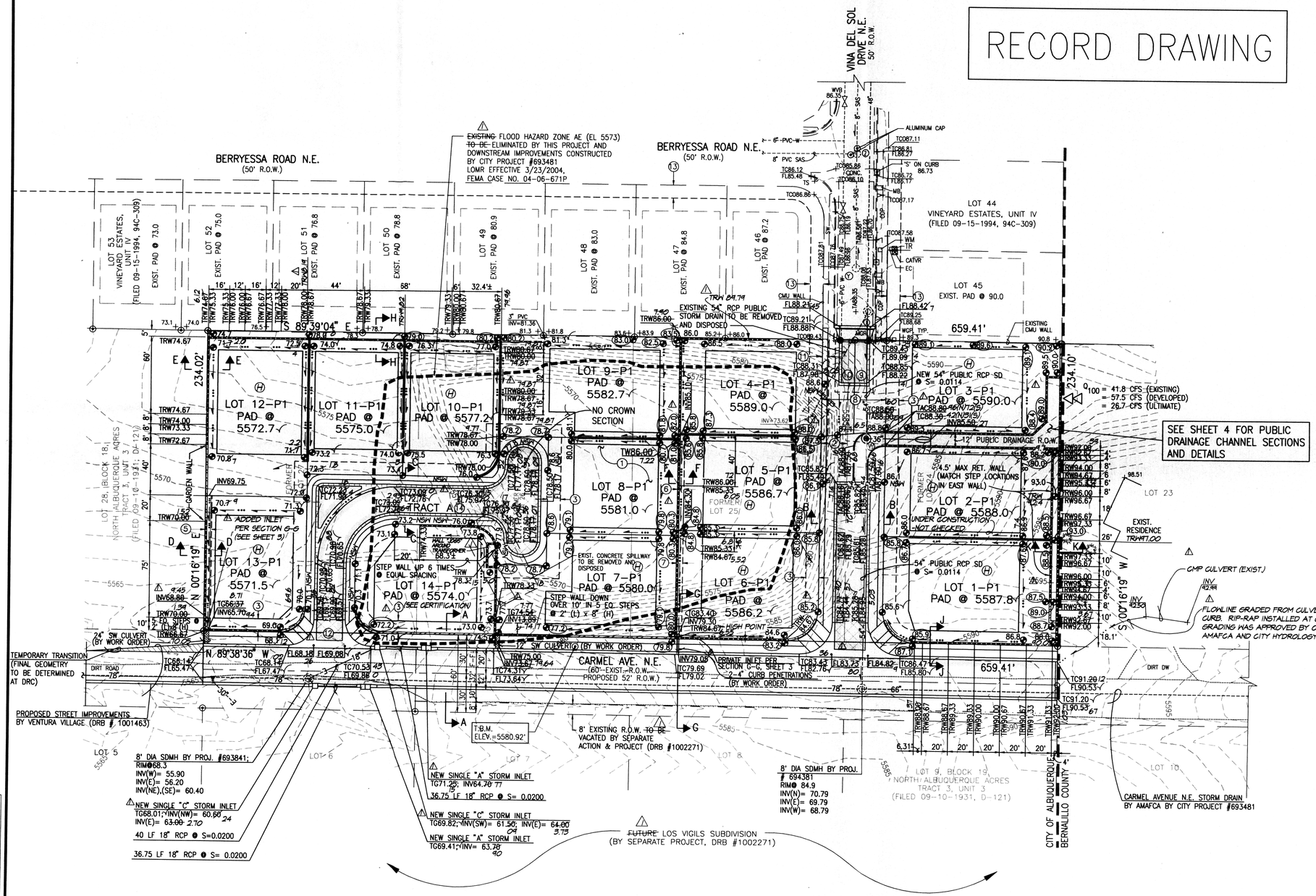
40' 0 80'

20' 40'

KEYED MANHOLE NOTES

MH	TYPE	STATUS	RIM	INV. OUT	INV. IN	INV. IN
(W)	SDMH	PROPOSED	5587.70	72.92(S)	73.22(N)	74.72(E)
(X)	SDMH	EXIST.	5588.22	74.42(S)	74.25(N)	N/A
(Y)	SAS	EXIST.	5587.46	80.93(N)	N/A	N/A
(Z)	SAS	EXIST.	5586.23	80.20(W)	80.29(N)	80.23(S)

RECORD DRAWING



KEYED NOTES

VACATED, RELEASED AND TERMINATED EASEMENTS

(1) PUBLIC DRAINAGE EASEMENT GRANTED BY DOCUMENT FILED 09-29-1994, BOOK 94-27, PAGES 7077-7082 TO BE VACATED BY DRB ACTION (FORMER LOTS 25 AND 26, BLOCK 18)

(2) PUBLIC WATERLINE EASEMENT GRANTED BY DOCUMENT FILED 09-29-1994, BOOK 94-27, PAGES 7077-7082, AND RELEASED AND TERMINATED BY DOCUMENT FILED 04-20-1995, BOOK 95-9, PAGES 6350-6351, DOC. #95038600

NEW EASEMENTS

(3) 10' PUBLIC UTILITY EASEMENT.

(4) 38' PUBLIC (CITY OF ALBUQUERQUE) WATER AND SANITARY SEWER; PRIVATE (SERVING LOTS 7-13) ACCESS AND PRIVATE DRAINAGE EASEMENT.

(5) 5' PRIVATE DRAINAGE EASEMENT TO SERVE LOT 12. MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE OWNER OF LOT 13.

(6) 5' PRIVATE DRAINAGE EASEMENT TO SERVE LOT 4. MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE OWNER OF LOT 5.

(7) 5' PRIVATE DRAINAGE EASEMENT TO SERVE LOTS 4 AND 5. MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE OWNER OF LOT 6.

(8) 50' WIDE PUBLIC (CITY OF ALBUQUERQUE) DRAINAGE, SANITARY SEWER AND WATER EASEMENT

(9) 15' x 40' PRIVATE ACCESS EASEMENT TO SERVE LOT 4. MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE OWNER OF LOT 3.

(10) 15' x 40' PRIVATE ACCESS EASEMENT TO SERVE LOT 3. MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE OWNER OF LOT 4.

(11) 5' PUBLIC (CITY OF ALBUQUERQUE) SIDEWALK EASEMENT.

(12) PUBLIC (CITY OF ALBUQUERQUE) ACCESS EASEMENT.

EXISTING EASEMENT

(13) 10' PUBLIC UTILITY EASEMENT GRANTED BY PLAT 94C-309, OFFSITE

LEGEND

CATVR	CABLE TELEVISION RISER
CDP	CONCRETE DRIVE PAD
CF	CONCRETE FILLET
CMU	CONCRETE MASONRY UNIT
CWCR	CONCRETE WHEELCHAIR RAMP
EC	ELECTRIC CABINET
FL	FLOWLINE
GR	GUARD RAIL
GRV	GRAVEL
INV	INVERT
MB	MAIL BOX
MGR	METAL GUARD RAIL
MH	MANHOLE
SAS	SANITARY SEWER
SD	STORM DRAIN
SW	SIDEWALK
TA	TOP OF ASPHALT
TAC	TOP OF ASPHALT CURB
TC	TOP OF CURB
TCO	TOP OF CONCRETE
TP	TOP OF PIPE
TR	TELEPHONE RISER
WGP	WOOD GUARD POSE
67.9	EXISTING CONTOUR
	EXISTING SPOT ELEVATION
	EXISTING CONIFEROUS TREE
(W)	KEYED MANHOLE NOTES

71.15	PROPOSED SPOT ELEVATION
	FLOWLINE
	EXISTING FLOOD HAZARD ZONE
	HIGH POINT
	RETAINING WALL
	GARDEN WALL (CAN RETAIN 18" MAX.)
	PROPOSED ASPHALT
	PROPOSED CONCRETE
	PAVING CROWN TRANSITION
	PROPOSED TEMPORARY PAVEMENT
	MOUNTABLE CURB AND GUTTER (4")
	STANDARD CURB AND GUTTER

⚠ CERTIFICATION LEGEND

✓	RECORD ELEVATION = DESIGN ELEVATION (± 0.1' FOR PADS, ± 0.3' FOR YARD GRADES, ± 0.05' FOR CONCRETE)
⚠ 88.38	RECORD ELEVATION
⚠ 87.5	GRADE VISUALLY CHECKED FOR GENERAL COMPLIANCE NOT SURVEYED (SEE CERTIFICATION)
⚠ (H)	HOME UNDER CONSTRUCTION OR CONSTRUCTED ON LOT AT TIME OF CERTIFICATION
⚠ NSW	NO SIDEWALK IN PLACE – GRADE TO BE ESTABLISHED WITH SIDEWALK CONSTRUCTION

NOTE:

THIS IS NOT A BOUNDARY SURVEY. APPARENT PROPERTY CORNERS ARE SHOWN FOR ORIENTATION ONLY. BOUNDARY DATA SHOWN IS BASED UPON THE BOUNDARY SURVEY OF LOTS 24, 25, 26 AND 27, BLOCK 18, NORTH ALBUQUERQUE ACRES, TRACT 3, UNIT 3 (VINEYARD IV-A) BY JEFF MORTENSEN & ASSOCIATES, INC. DATED 9-18-2002.

PROJECT BENCHMARK

ACS STATION "HEAVEN" (TIED PRIOR TO PASEO DEL NORTE ROADWAY CONSTRUCTION IN 1999)
PREVIOUS ELEVATION = 5378.79 FEET (NGVD 1929)

THIS BENCHMARK HAS BEEN USED TO PROVIDE CONSISTENCY BETWEEN THIS SURVEY AND SURVEYS PREVIOUSLY CONDUCTED FOR RELATED NORTH DOMINGO BACA ARROYO PROJECTS AND THEREFORE REPRESENTS THE "PROJECT DATUM" FOR THIS PROJECT.

NOTE: THE ELEVATION FOR ACS STATION "5-C20", AN ACS 1 3/4" ALUMINUM DISK STAMPED "ACS BM, 5-C20", EPOXIED TO THE TOP OF A STORM INLET, AT THE N.N.E. CURB RETURN IN THE NORTHEAST QUADRANT OF THE INTERSECTION OF VENTURA STREET AND ANAHEIM AVENUE N.E., BASED UPON THE "PROJECT DATUM" IS 5552.84 FEET (NGVD 29). THE C.O.A. PUBLISHED ELEVATION FOR "5-C20" IS 5552.71 FEET (NGVD 29) AND THEREFORE VARIES BY 0.13 FEET VERTICALLY FROM THE "PROJECT DATUM".

T.B.M.

A #5 REBAR WITH CAP STAMPED "CONTROL PT NMPS 11184" SET NEAR THE NORTH SIDE OF THE CARMEL AVENUE N.E. RIGHT-OF-WAY NEAR THE SOUTHWEST CORNER OF THE EXISTING POND. ELEVATION = 5580.92 FEET (NGVD 1929)

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AUG 16 2004
HYDROLOGY SECTION

J. GRAEME MEANS NEW MEXICO 13678 REGISTERED PROFESSIONAL ENGINEER
12/14/2002
08/13/2004

DRB PROJECT #1002207

File Path: E:\DWG\JOBS\2003\2003.042.1\ Plot Date: 08-13-2004
File Name: 1056.3G1 RECORD.DWG Plot Time: 2:30 pm

JEFF MORTENSEN & ASSOCIATES, INC.
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ROUGH GRADING APPROVAL

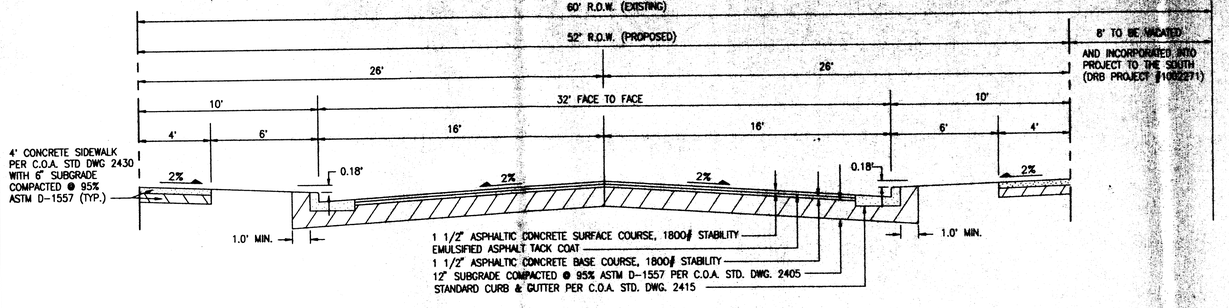
CITY HYDROLOGY DATE

GRADING PLAN
VINEYARD ESTATES, UNIT IV-A

DESIGNED BY G.M.
DRAWN BY S.G.H.
APPROVED BY J.G.M.

NO.	DATE	BY	REVISIONS
1	08/04	G.M.	ENGINEER'S CERTIFICATION

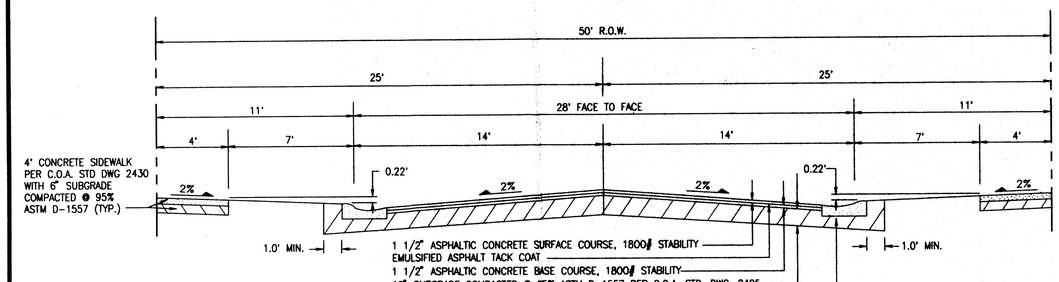
JOB NO. 2003.042.1
DATE 12-2002
SHEET 2 OF 4



SECTION A-A (CARMEL AVENUE N.E.)

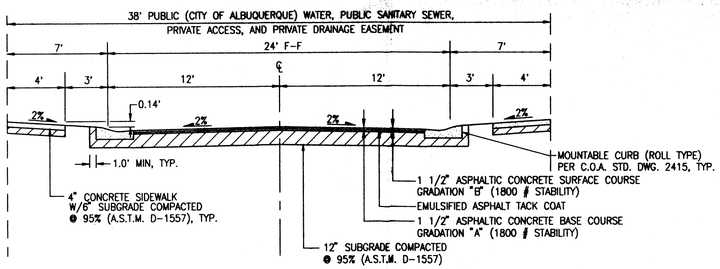
SCALE: 1" = 4'

NOTE: SOUTH HALF PAVING IMPROVEMENTS TO BE CONSTRUCTED BY SIMULTANEOUS PROJECT BY SAME DEVELOPER (DRB PROJECT #1002271)



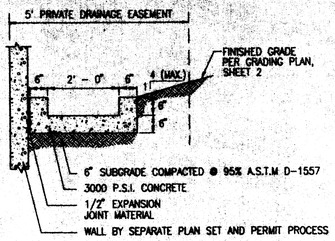
SECTION B-B (VINA DEL SOL DRIVE N.E.)

SCALE: 1" = 4'



SECTION C-C (PRIVATE STREET WITH NORMAL CROWN)

SCALE: 1" = 5'



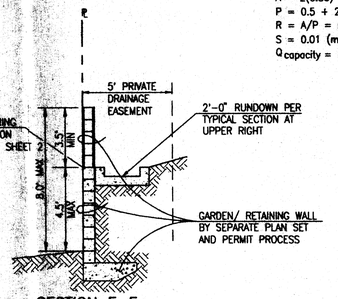
TYPICAL 2'-0" RUNDOWN SECTION

SCALE: 1" = 2' - 0"

HYDRAULIC CAPACITY (2' RUNDOWN)

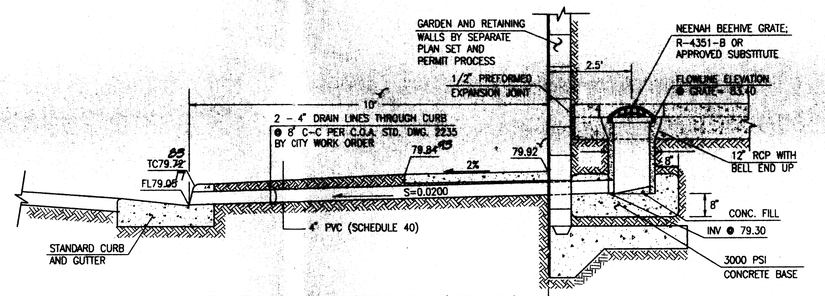
$Q = (1.49/n)AR^{2/3} S^{1/2}$

Where n = 0.013
A = 2(0.50) = 1.0 sf
P = 0.5 + 2.0 + 0.5 = 3.0 ft.
R = A/P = 0.33; $R^{2/3} = 0.48$
S = 0.01 (minimum)
$Q_{capacity}$ = 5.5 cfs



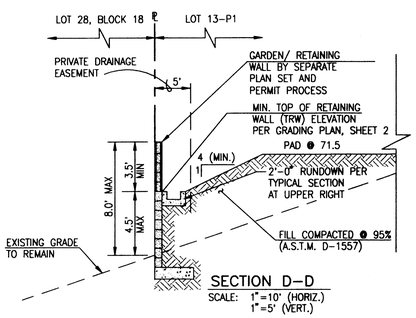
SECTION F-F

SCALE: 1"=4'



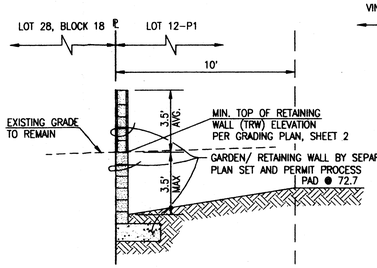
PRIVATE STORM INLET SECTION G-G (LOT 6-P1)

SCALE: 1" = 2'-0"



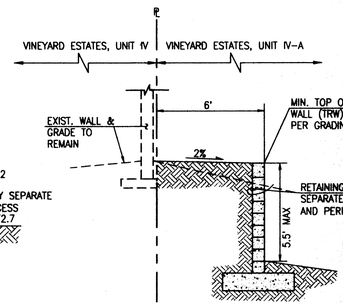
SECTION D-D

SCALE: 1"=10' (HORIZ.)
1"=5' (VERT.)



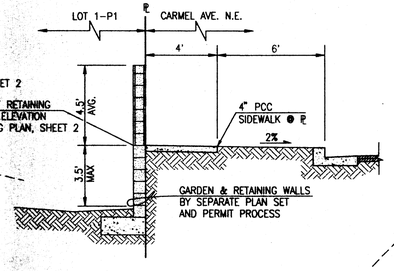
SECTION E-E

SCALE: 1"=4'



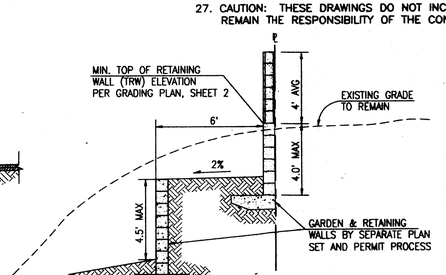
SECTION H-H

SCALE: 1"=4'



SECTION J-J

SCALE: 1"=4'



SECTION K-K

SCALE: 1"=4'

GENERAL NOTES:

1. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED UNDER CONTRACT SHALL, EXCEPT AS OTHERWISE STATED OR PROVIDED FOR HEREON, BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION - 1986, UPDATE 6.
2. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM, 260-1990 FOR LOCATION OF EXISTING UTILITIES.
3. IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE MANNER ONLY, AND SUCH LINES MAY EXIST WHERE NONE ARE SHOWN. IF ANY SUCH EXISTING LINES ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE OWNER OF SAID UTILITY, AND THE INFORMATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME CONSTRUCTION COMMENCES. THE ENGINEER HAS CONDUCTED ONLY PRELIMINARY INVESTIGATION OF THE LOCATION, DEPTH, SIZE, OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES. THIS INVESTIGATION IS NOT CONCLUSIVE, AND MAY NOT BE COMPLETE, THEREFORE, MAKES NO REPRESENTATION PERTAINING THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFORE. THE CONTRACTOR SHALL INFORM ITSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE, OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK IN ADVANCE OF AND DURING EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES, AND UNDERGROUND UTILITY LINES. IN PLANNING AND CONDUCTING EXCAVATION, THE CONTRACTOR SHALL COMPLY WITH STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES.
4. SHOULD A CONFLICT EXIST BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL PROMPTLY NOTIFY THE ENGINEER IN WRITING SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY FOR ALL PARTIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INTERPRETATIONS IT MAKES WITHOUT FIRST CONTACTING THE ENGINEER AS REQUIRED ABOVE.
5. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ADJACENT PROPERTIES DURING CONSTRUCTION.
6. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING SAFETY AND HEALTH.
7. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY.
8. THE CONTRACTOR SHALL PROMPTLY CLEAN UP ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY SO THAT THE EXCAVATED MATERIAL IS NOT SUSCEPTIBLE TO BEING WASHED DOWN THE STREET.
9. WHEN APPLICABLE, THE CONTRACTOR SHALL SECURE "TOPSOIL DISTURBANCE PERMIT" PRIOR TO BEGINNING CONSTRUCTION. AN EXCAVATION PERMIT IS REQUIRED FOR ALL WORK WITHIN PUBLIC RIGHT-OF-WAY.
10. A DISPOSAL SITE FOR ALL EXCESS EXCAVATION MATERIAL (CONTAMINATED OR OTHERWISE), ASPHALTIC PAVING, CONCRETE PAVING, ETC. SHALL BE OBTAINED BY THE CONTRACTOR IN COMPLIANCE WITH APPLICABLE REGULATIONS. ALL COSTS INCURRED IN OBTAINING A DISPOSAL SITE AND IN HAUL THERETO SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION, THEREFORE, NO SEPARATE PAYMENT SHALL BE MADE.
11. A BORROW SITE FOR IMPORT MATERIAL SHALL BE OBTAINED BY THE CONTRACTOR IN COMPLIANCE WITH APPLICABLE REGULATIONS. ALL COSTS INCURRED IN OBTAINING A BORROW SITE AND IN HAUL THERETO SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION, THEREFORE, NO SEPARATE PAYMENT SHALL BE MADE.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SAFELY OBTAINING THE REQUIRED COMPACTION. THE CONTRACTOR SHALL SELECT AND USE METHODS WHICH SHALL NOT BE INJURIOUS OR DAMAGING TO THE EXISTING FACILITIES AND STRUCTURES WHICH SURROUND THE WORK AREAS.
13. THE CONTRACTOR SHALL CONFINE HIS WORK WITHIN THE CONSTRUCTION LIMITS IN ORDER TO PRESERVE THE EXISTING IMPROVEMENTS AND SO AS NOT TO INTERFERE WITH THE OPERATIONS OF THE EXISTING FACILITIES.
14. ALL DIMENSIONS AND RADII OF CURB, CURB RETURNS, AND WALLS ARE SHOWN TO THE FACE OF CURB AND/OR WALL.
15. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
16. ALL FILL SHALL BE FREE FROM VEGETATION, DEBRIS, AND OTHER DELETERIOUS MATERIALS.
17. ALL FILL SHALL BE COMPACTED TO A MINIMUM OF 95% ASTM D-1557 UNLESS A GREATER COMPACTION REQUIREMENT IS OTHERWISE SPECIFIED. ALL EARTHWORK FOR BUILDING PADS SHALL BE PERFORMED IN ACCORDANCE WITH THE STRUCTURAL AND GEOTECHNICAL SPECIFICATIONS WHERE AVAILABLE.
18. ALL EXISTING UTILITIES ENCOUNTERED WITHIN THE WORK LIMITS SHALL BE ADJUSTED TO GRADE AND SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION.
19. THE PAD ELEVATIONS SHOWN HEREON ARE FOR ROUGH GRADING PURPOSES.
20. FINISHED FLOOR ELEVATIONS MAY VARY FROM THE PAD ELEVATIONS AND WILL BE DETERMINED AS A FUNCTION OF INDIVIDUAL HOUSE DESIGN.
21. FINISHED FLOOR ELEVATIONS SHOULD BE ESTABLISHED AT A MINIMUM OF FOUR INCHES ABOVE PAD ELEVATIONS; DEVIATIONS FROM THESE GUIDELINES MUST BE BASED ON THE RECOMMENDATIONS AND/OR DESIGN OF A COMPETENT DESIGN PROFESSIONAL.
22. CROSS-LOT DRAINAGE WILL NOT BE PERMITTED EXCEPT AS SHOWN ON THE APPROVED GRADING PLAN AND WITH A RECORDED EASEMENT, GRANTED BY THE PLAT
23. RETAINING WALLS SHALL BE CONSTRUCTED BY THE DEVELOPER PRIOR TO DRAINAGE CERTIFICATION FOR FINANCIAL GUARANTY RELEASE. A SEPARATE PLAN REVIEW AND PERMIT PROCESS IS REQUIRED FOR ALL RETAINING AND GARDEN WALLS.
24. THE FINISHED GRADING OF EACH LOT SHALL BE ACCOMPLISHED BY THE LOT OWNER OR ITS BUILDER. DEVELOPED RUNOFF SHOULD BE DIRECTED TO THE STREETS.
25. MAXIMUM UNPROTECTED SLOPES SHALL BE 3:1; MINIMUM SLOPES SHALL BE 1%.
26. ROUGH GRADING TOLERANCES SHALL BE ± 0.1 FT FOR BUILDING PADS AND STREETS AND ± 0.67' FOR ALL OTHER GRADING.
27. CAUTION: THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL REMAIN THE RESPONSIBILITY OF THE CONTRACTOR.

RECORD DRAWING

RECEIVED
AUG 16 2004
HYDROLOGY SECTION

I. GRAEME MEANS — NEW MEXICO — 13676 — REGISTERED PROFESSIONAL ENGINEER
12/16/2002 08/13/2004

DRB PROJECT #1002207

File Path: L:\MWORK\1056\SDREC.DWG | Plot Date: 08-13-2004 | Plot Time: 2:32 pm | File Name: 1056SDREC.DWG

JEFF HORTENSEN & ASSOCIATES, INC.
6010-B MIDWAY PARK BLVD. N.E.
ALBUQUERQUE NEW MEXICO 87109
ENGINEERS SURVEYORS (505) 345-4250
FAX: 505 345-4254 Email: jmainc@swcp.com

SECTIONS, DETAILS AND GENERAL NOTES
VINEYARD ESTATES, UNIT IV-A

DESIGNED BY G.M.
DRAWN BY S.G.H./J.L.P.
APPROVED BY J.G.M.

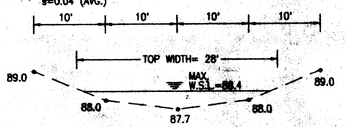
NO.	DATE	BY	REVISIONS
1	08/04	G.M.	ENGINEER'S CERTIFICATION

JOB NO. 2003.042.1
DATE 12-2002
SHEET 3 OF 4

HYDRAULIC CALCULATIONS (Q_{100}=60 CFS)

A. UPSTREAM NATURAL CHANNEL (MANNING'S EQUATION)

$Q=(1.49/n)AR^{2/3}S^{1/2}$
n=0.035 (NATURAL ARROYO)
s=0.04 (AVG.)



USING FLOWMASTER 6.0: d=0.7ft, v=4.9fps

B. CONCRETE CHANNEL NORMAL DEPTH (MANNING'S EQUATION)

$Q=(1.49/n)AR^{2/3}S^{1/2}$
n=0.013 (CONCRETE)
s=0.0078
USING FLOWMASTER 6.0: d=0.93ft, v=7.8fps,
Fr= 1.58
PER D.P.M. 22.3.C.4.9 (1), REQUIRED FREEBOARD= 1.0ft.

C. WEIR CONDITION HEIGHT @ ENTRANCE AND CHANNEL TURN (WEIR EQUATION)

$Q=CLH^{3/2}$
C=2.6
L=10.0ft
H=1.75ft + 2/3 (INVERT DEPTH OF 0.33) = 1.97ft
THIS DEPTH GOVERNS AS IT IS GREATER THAN NORMAL DEPTH OF 0.93ft. (FROM B)
MIN. CHANNEL DEPTH = 1.97ft + 1.0ft FREEBOARD = 2.97ft

D. CHECK FOR UPSTREAM IMPACT

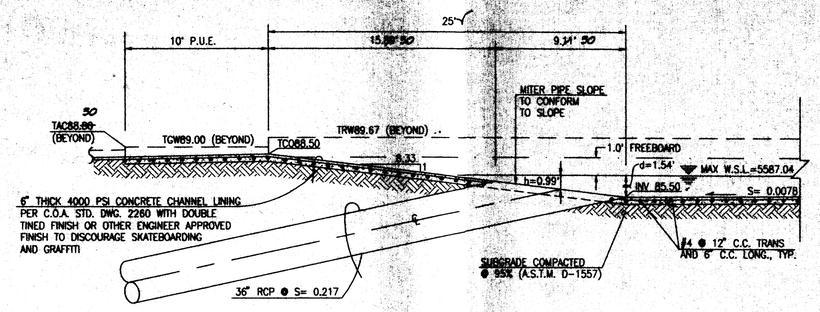
UPSTREAM W.S.L. = 88.4ft (FROM A)
MAX WEIR DEPTH = 1.97ft (FROM C)
CHANNEL INVERT @ ENTRANCE = 86.43
MAX CHANNEL W.S.L. = 1.97 + 86.43 = 88.4 (NO INCREASE IN UPSTREAM DEPTH)

E. 36" OUTLET PIPE CAPACITY (MANNING'S EQUATION)

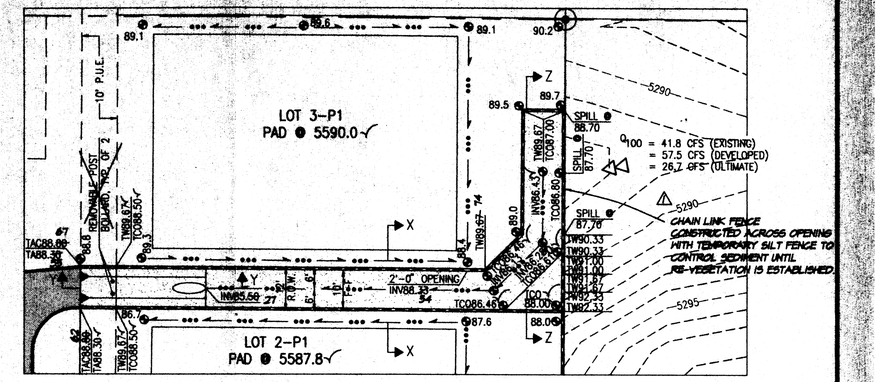
S= 0.217
n= 0.013 (RCP)
Q_{CAP}=310.7cfs (FULL FLOW FROM FLOW MASTER 6.0)
$Q_{CAP}=5.2x\ Q_{100}$ (NOT LIMITING)

F. 36" OUTLET PIPE ENTRANCE CONDITION (ORIFICE EQUATION)

$Q=CA\ (2gh)^{0.5}$
C=0.7
g=32.2ft/s²
Aeff=½A= (½)(21.46sf)=10.73sf (ASSUME 50% CLOGGED)
hreq. FOR Q_{100}=0.99ft (MEASURED @ CENTER OF PIPE)
MAX W.S.L.=87.04 @ ENTRANCE (SEE SECTION Y-Y)

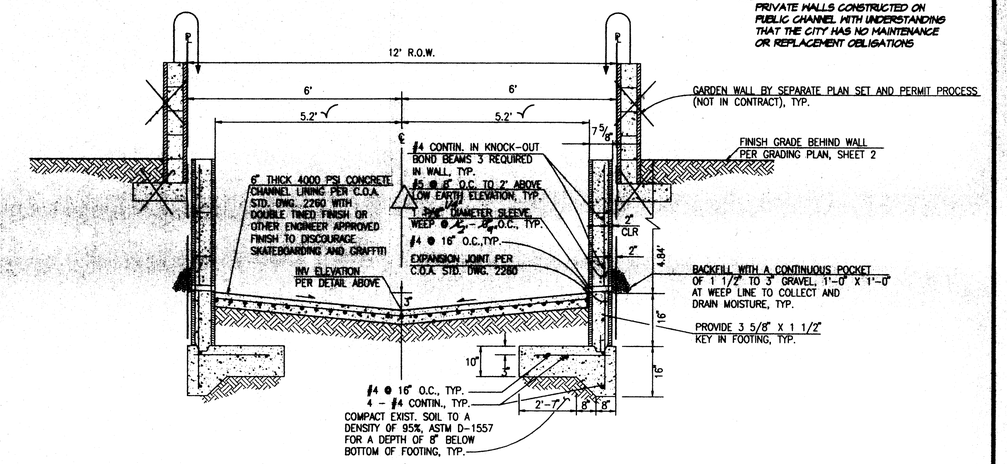


⚠ SECTION Y-Y
SCALE: 1" = 5'



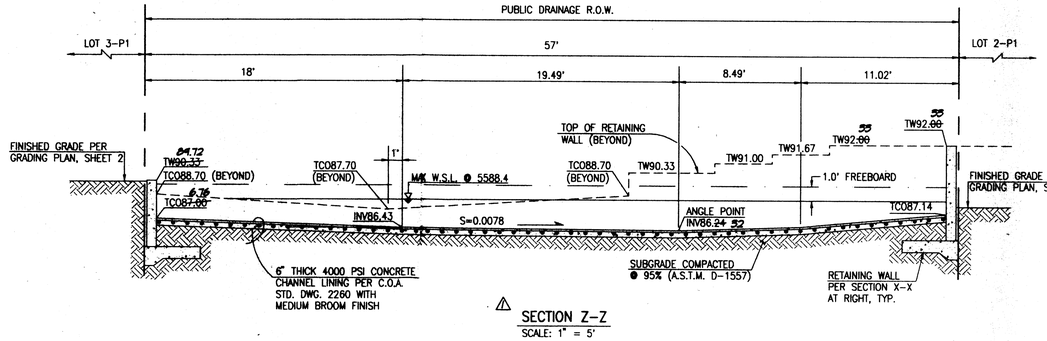
PUBLIC DRAINAGE CHANNEL DETAIL
SCALE: 1" = 20'

RECORD DRAWING

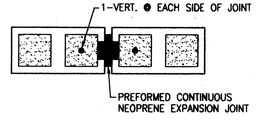


⚠ PRIVATE WALLS CONSTRUCTED ON PUBLIC CHANNEL WITH UNDERSTANDING THAT THE CITY HAS NO MAINTENANCE OR REPLACEMENT OBLIGATIONS

⚠1 SECTION X-X
SCALE: 1" = 2'



⚠ SECTION Z-Z
SCALE: 1" = 5'



TYPICAL MASONRY CONTROL JOINT DETAIL
SCALE: 1" = 1'- 0"

RETAINING WALL NOTES:

1. 8"X8"X16" CMU OF UBC STD. 24-4 OR 24-5.
2. USE KNOCK-OUT BOND BEAM BLOCK AT 4'-0" MAX C.C., VERTICALLY, AND 1 #4 CONTINUOUS.
3. FILL ALL BLOCK VOIDS WITH 3000 PSI CONCRETE.
4. REINFORCING TO BE INTERMEDIATE GRADE STEEL. fs=20,000 psi
5. IN LIEU OF CONTINUOUS KNOCK-OUT BOND BEAMS, CONTRACTOR MAY INSTALL DUR-O-WALL REINFORCING EVERY SECOND COURSE.
6. SPLICE SHALL BE 40 BAR DIA. MINIMUM FOR VERTICAL BARS. ALL OTHER SHALL BE 20 BAR DIA. MINIMUM.
7. CONCRETE FILL SHALL BE 21 DAYS OLD OR ACHIEVE 70% OF DESIGN STRENGTH PRIOR TO BACKFILLING.
8. INSTALL MASONRY CONTROL JOINTS PER TYPICAL DETAIL AT UNIFORM SPACINGS OF 20' (MIN.) TO 24' (MAX.).

RECEIVED
AUG 16 2004
HYDROLOGY SECTION

J. GRAEME MEANS
NEW MEXICO
13676
REGISTERED PROFESSIONAL ENGINEER

12/16/2002 08/13/2004

DRB PROJECT #1002207

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File Name: 10563SD2REC.DWG
Plot Date: 06-23-2004
Plot Time: 5:07 pm

JEFF MORTENSEN & ASSOCIATES, INC.
6010-B MIDWAY PARK BLVD. N.E.
ALBUQUERQUE NEW MEXICO 87109
ENGINEERS SURVEYORS (505) 345-4250
FAX: (505) 345-4254 ESTABLISHED 1977

PUBLIC DRAINAGE CHANNEL SECTIONS, DETAILS AND CALCULATIONS
VINEYARD ESTATES, UNIT IV-A

DESIGNED BY G.M.
DRAWN BY S.G.H.
APPROVED BY J.G.M.

NO.	DATE	BY	REVISIONS
⚠	08/04	G.M.	ENGINEER'S CERTIFICATION

JOB NO. 2003.042.1
DATE 12-2002
SHEET 4 OF 4