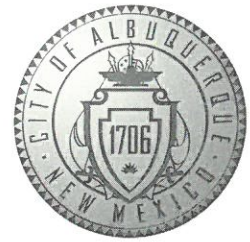


CITY OF ALBUQUERQUE



October 4, 2017

J. Graeme Means, P.E.
High Mesa Consulting Group
6010 B Midway Park Blvd NE
Albuquerque, NM 87109

**RE: Mark 3S Holly Development
9300 Holly NE
Conceptual Grading and Drainage Plan
Engineer's Stamp Date 10/2/2017 (File: C20D062)**

Dear Mr. Means:

Based on the information provided in your submittal received on 10/3/17, this plan is approved for SPBP and SPS.

Prior to final sign-off by DRB, the plan must be labeled as "not for construction."

A detailed grading and drainage plan will be required prior to Building Permit. This detailed plan will need to show hydraulic calculations for the sidewalk culvert and pond volume calculations. Other comments can be reasonably expected based on the level detail provided.

If you have any questions, please contact me at 924-3695 or dpeterson@cabq.gov.

Sincerely,

Dana Peterson, P.E.
Senior Engineer, Planning Dept.
Development Review Services



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: _____ **Building Permit #:** _____ **City Drainage #:** _____

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

Legal Description: _____

City Address: _____

Engineering Firm: _____ **Contact:** _____

Address: _____

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

Owner: _____ **Contact:** _____

Address: _____

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

Architect: _____ **Contact:** _____

Address: _____

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

Other Contact: _____ **Contact:** _____

Address: _____

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

Check all that Apply:

DEPARTMENT:

- ☐ HYDROLOGY/ DRAINAGE
☐ TRAFFIC/ TRANSPORTATION
☐ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

- ☐ ENGINEER/ ARCHITECT CERTIFICATION

☐ CONCEPTUAL G & D PLAN
☐ GRADING PLAN
☐ DRAINAGE MASTER PLAN
☐ DRAINAGE REPORT
☐ CLOMR/LOMR

☐ TRAFFIC CIRCULATION LAYOUT (TCL)
☐ TRAFFIC IMPACT STUDY (TIS-NIA)
☐ EROSION & SEDIMENT CONTROL PLAN (ESC)

☐ OTHER (SPECIFY) _____

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- ☐ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY

☐ PRELIMINARY PLAT APPROVAL
☐ SITE PLAN FOR SUB'D APPROVAL
☐ SITE PLAN FOR BLDG. PERMIT APPROVAL
☐ FINAL PLAT APPROVAL
☐ SIA/ RELEASE OF FINANCIAL GUARANTEE
☐ FOUNDATION PERMIT APPROVAL
☐ GRADING PERMIT APPROVAL
☐ SO-19 APPROVAL
☐ PAVING PERMIT APPROVAL
☐ GRADING/ PAD CERTIFICATION
☐ WORK ORDER APPROVAL
☐ CLOMR/LOMR

☐ PRE-DESIGN MEETING
☐ OTHER (SPECIFY) _____

IS THIS A RESUBMITTAL?: ☐ Yes ☐ No

DATE SUBMITTED: _____ **By:** _____

COA STAFF: _____ ELECTRONIC SUBMITTAL RECEIVED: _____

File Path: P:\Mesa\0710141\0710141.DWG Plot Date: 10-03-2017
File Name: 170141_SH3-R3.DWG Plot Time: 2:23 pm

NOTE:

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ZONING

SU-2 / MIXED USE

LEGAL DESCRIPTION

TRACTS A AND B, MARK 3S HOLLY DEVELOPMENT FILED ON 03-01-2007, PLAT BOOK 2007C, PAGE 49; TOGETHER WITH LOT 8 AND THE WEST-HALF OF 9, BLOCK 20, NORTH ALBUQUERQUE ACRES, TRACT 3, UNIT 3 FILED ON 9-10-1931, PLAT BOOK D, PAGE 121.

TEMPORARY BENCHMARK #2 (T.B.M.)

A MAG NAIL W/WASHER SET IN THE TOP OF A CONCRETE CURB, IN THE NORTHEASTERN PORTION OF THE SITE, AS SHOWN ON THIS SHEET.
ELEVATION = 5592.04 FEET (NAVD 88)

PASEO DEL NORTE N.E.

PROPOSED AMENDED SITE AND EXPANSION TO WEST

EXISTING SITE IMPROVEMENTS TO REMAIN

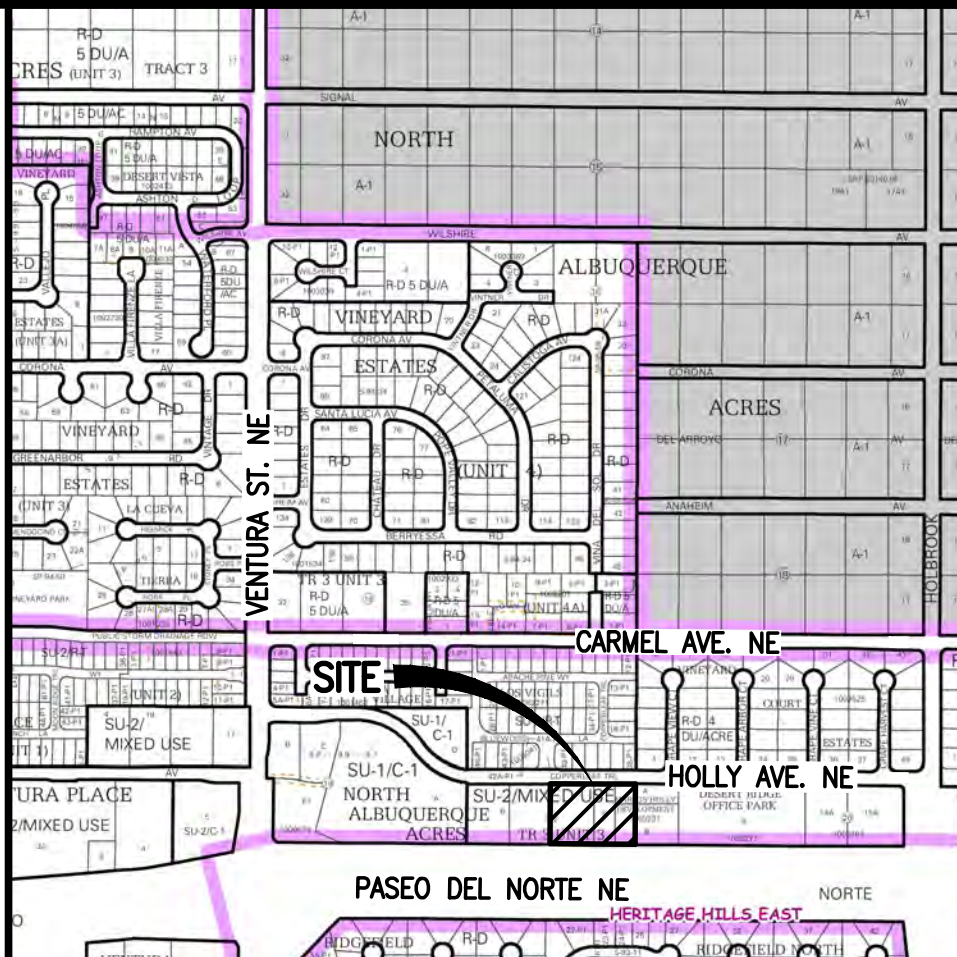
HOLLY STREET SEQUENT DEPTH ANALYSIS

- S=0.0410 IS MAX. EXIST. SLOPE OF HOLLY AVE. ALONG SITE FRONTAGE PER ANALYSIS OF EXISTING TOPOGRAPHIC DATA; SLOPE MATCHES 2002 LAS VIGILS SUBDIVISION DRAINAGE REPORT (DRB PROJECT #1002271) FOR THIS FRONTAGE
- Q₁₀₀ VARIES FROM 16.2 TO 34.9 CFS (MAX Q₁₀₀ STREET FLOW BETWEEN AP5 & AP6 FROM 2002 LAS VIGILS SUBDIVISION, DRB PROJECT #1002271) - SEE ATTACHED EXHIBIT
- SEQUENT DEPTH (D_{seq}) VARIES FROM 0.85 FT TO 0.55 FT BETWEEN AP5 AND AP6, THEREFORE FLOW IS RETAINED WITHIN THE STREET RIGHT OF WAY BETWEEN THE BATTERIES OF INLETS

KEYED NOTES:

- HOLLY IMPROVEMENTS TO BE CONSTRUCTED BY CITY WORK ORDER.
- 24" SIDEWALK CULVERT PER COA STD DWG 2236.
- 8" HDPE (SMOOTH INTERIOR) STORM DRAIN.
- 12" HDPE (SMOOTH INTERIOR) STORM DRAIN.
- WYE/BEND COMBINATION WITH CLEANOUT TO GRADE.
- CLEANOUT TO GRADE.
- DEPRESSED LANDSCAPING FOR WATER QUALITY, INTENDED TO HOLD THE 80TH PERCENTILE STORM EVENT (.26 IN) = 900 CF TO THE MAXIMUM EXTENT PRACTICABLE.
- PERFORATED PIPE WRAPPED WITH FILTER FABRIC.
- 18" STORM INLET
- 12" CURB OPENING
- NEW PRIVATE MANHOLE
- 18" RCP STUB AND MANHOLE BY CITY WORK ORDER

GRAPE VIEW CT. N.E.



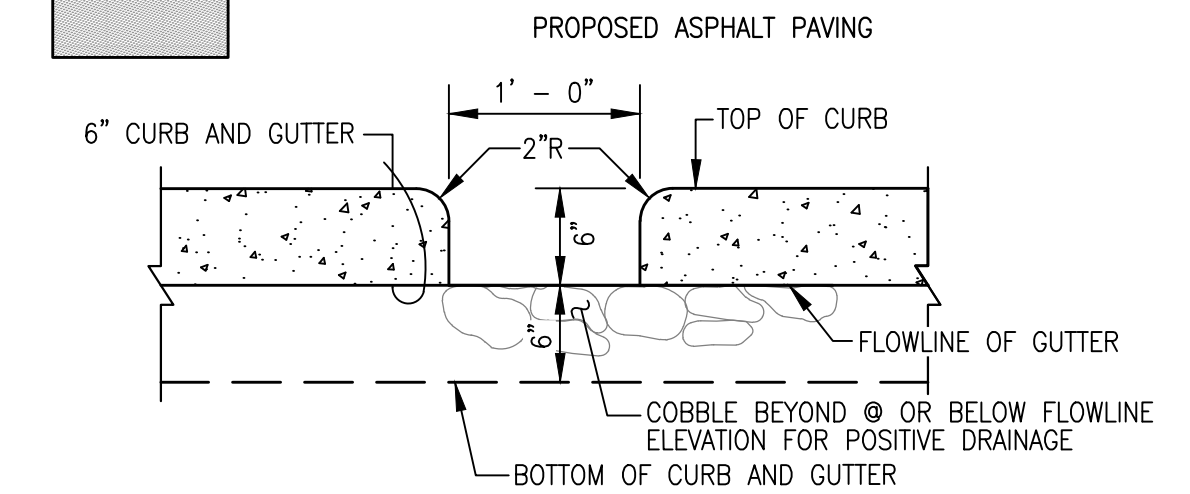
VICINITY MAP

SCALE: 1" = 750'

C-20

LEGEND

- | | |
|---------|----------------------------|
| INV | INVERT |
| TA | TOP OF ASPHALT PAVEMENT |
| TC | TOP OF CURB |
| TG | TOP OF GRADE |
| + 95.05 | EXISTING SPOT ELEVATION |
| ● 89.00 | PROPOSED SPOT ELEVATION |
| --- | EXISTING FLOWLINE |
| --- | PROPOSED FLOWLINE |
| --- | EXISTING CONTOUR |
| --- | PROPOSED CONTOUR |
| --- | EXISTING DIRECTION OF FLOW |
| --- | PROPOSED DIRECTION OF FLOW |
| --- | RIGHT OF WAY LINE |
| --- | PUBLIC EASEMENT LINE |
| --- | HIGH POINT / DIVIDE |
| --- | RETAINING WALL |
| --- | LOT LINE TO BE REMOVED |
| --- | PROPOSED CONCRETE |



CURB CUT SECTION

SCALE: 1" = 1'-0"

CONCEPTUAL DRAINAGE NARRATIVE

THIS PROJECT IS AN EXPANSION TO AN EXISTING MONTESSORI SCHOOL AND DAYCARE FACILITY. THE EXPANSION AREA WAS CURRENTLY DEVELOPED AS A LANDSCAPING MATERIALS RETAIL AND STORAGE YARD. THE SITE DRAINS FROM SOUTHEAST TO NORTHWEST TO HOLLY AVE NE. THE SITE DOES NOT LIE WITHIN A DESIGNATED FLOODPLAIN. THE PROPOSED DRAINAGE CONCEPT FOR THE SITE WILL BE CONTINUED FREE DISCHARGE TO EXISTING PUBLIC STORM DRAINAGE FACILITIES IN HOLLY THAT WERE DESIGNED, SIZED AND CONSTRUCTED TO ACCEPT 4.68 CFS PER ACRE FROM THIS SITE BASED ON THE FOLLOWING PLANS PREPARED BY THIS OFFICE FOR THIS SITE AND SURROUNDING AREAS:

LOMR FOR NORTH DOMINGO BACA ARROYO CARMEL AVENUE STORM DRAIN EXTENSION (HMC 12/08/2003) APPROVED BY FEMA 03/23/2004.

DRAINAGE REPORT FOR LOS VIGILS SUBDIVISION (HMC 12/31/2002, C20/D41).

GRADING AND DRAINAGE PLAN FOR DESERT RIDGE OFFICE PARK (HMC C20/D51).

DRAINAGE REPORT FOR VINEYARD COURT ESTATES (HMC 08/21/2003)

GRADING AND DRAINAGE PLANS FOR HOLLY MARK 3S DEVELOPMENT (HMC 02/05/2007 AND 05/11/2015).

AS WITH THE PREVIOUS PHASES, SITE ROOF DRAINAGE WILL BE PIPED TO A DIRECT STORM DRAIN CONNECTION; HOWEVER IT WILL FIRST BE ROUTED THROUGH A STORM WATER QUALITY MANHOLE TO TREAT FIRST FLUSH. SITE RUNOFF WILL BE DIRECTED TO LANDSCAPED AREAS DEPRESSED TO RETAIN THE 80TH PERCENTILE FIRST FLUSH FOR WATER QUALITY. NO RETENTION PONDING FOR DISCHARGE CONTROL IS REQUIRED OR PROPOSED BEYOND FIRST FLUSH PROVISIONS.

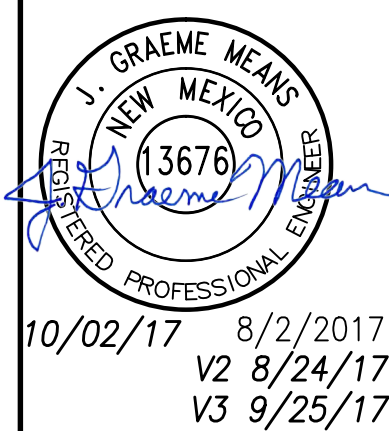
KEYED EASEMENT NOTES

EASEMENTS - EXISTING

- 10' PUBLIC UTILITY EASEMENT GRANTED BY PLAT 2007C-49
- PORTION OF ① TO BE VACATED BY FORTHCOMING ACTION
- 10' PUBLIC ACCESS AND PUBLIC UTILITY EASEMENT GRANTED BY PLAT 99C-89
- 10' PNM OVERHEAD EASEMENT GRANTED BY PLAT 99C-89
- 10' PRIVATE SANITARY SEWER EASEMENT GRANTED BY PLAT 2007C-49 TO SERVE TRACT B. MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE OWNER OF TRACT A. (TO BE VACATED BY FORTHCOMING ACTION.)
- 10' PRIVATE WATER LINE EASEMENT GRANTED BY PLAT 2007C-49 TO SERVE TRACT B. MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE OWNER OF TRACT A. (TO BE VACATED BY FORTHCOMING ACTION.)

EASEMENT - PROPOSED

- 10' PUBLIC UTILITY EASEMENT GRANTED BY FORTHCOMING PLATTING ACTION



10/02/17 8/2/2017
V2 8/24/17
V3 9/25/17

HIGH MESA Consulting Group
Engineers, Surveyors & Stormwater Utility Consultants

8010-B Midway Park Blvd. NE • Albuquerque, New Mexico 87109
Phone: 505.345.4250 • Fax: 505.345.4254 • www.highmesacg.com

CONCEPTUAL GRADING AND DRAINAGE PLAN MARK 3S HOLLY DEVELOPMENT

DESIGNED BY

R.J.C.

DRAWN BY

J.Y.R./T.N.T.

APPROVED BY

G.M.

REVISIONS

NO.	DATE	BY	REVISIONS
1	8/17	G.M.	STAFF INITIAL REVIEW COMMENTS
2	9/17	G.M.	ADDRESS EPC CONDITIONS
3	10/17	G.M.	ADDRESS HYDROLOGY COMMENTS

JOB NO.

2017.014.2

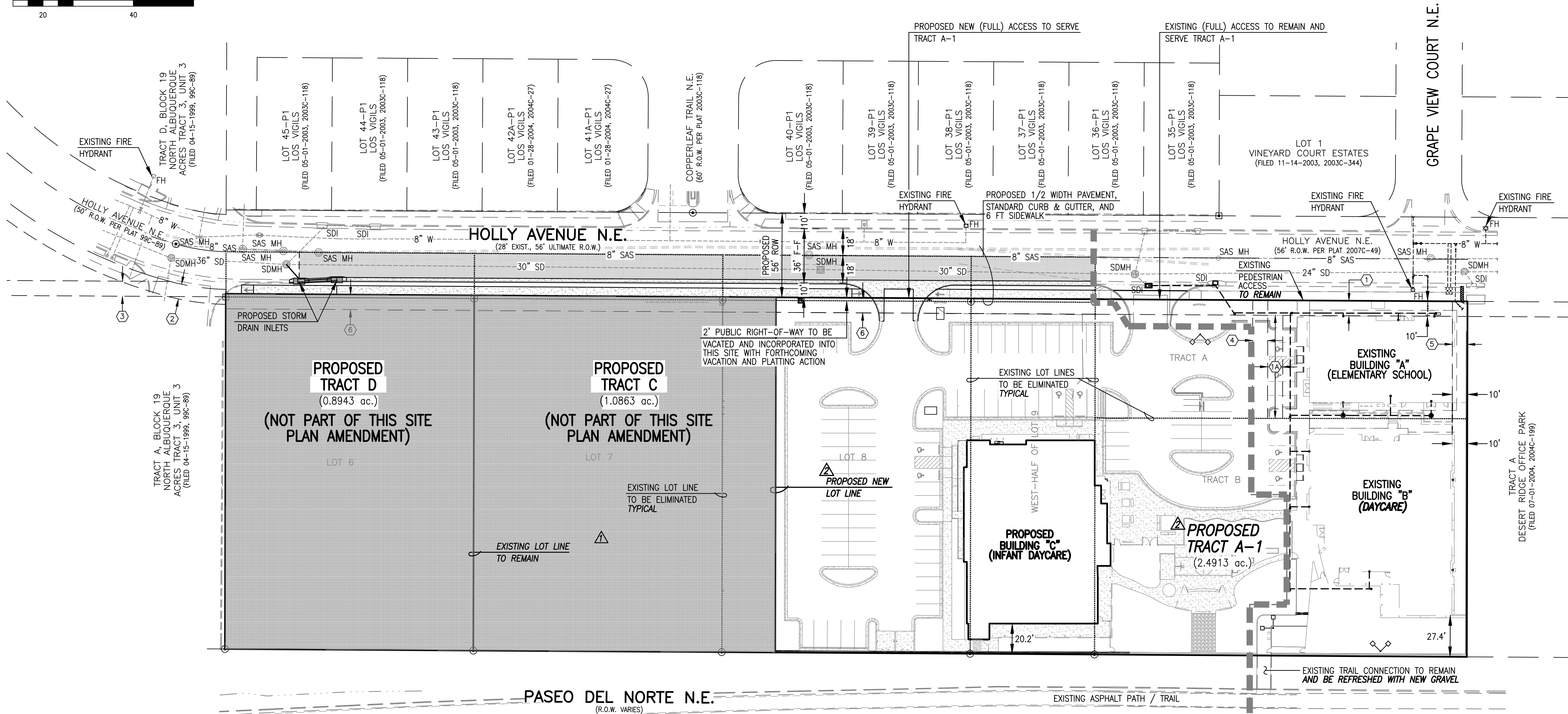
DATE

09-2017

SHEET

OF

13



SCALE: 1" = 750'

SU-2 / MIXED USE

LEGAL DESCRIPTION

TRACTS A AND B, MARK 3S HOLLY DEVELOPMENT FILED ON 03-01-2007
PLAT BOOK 2007C, PAGE 49; TOGETHER WITH LOTS 8 AND THE
WEST-HALF OF 9, BLOCK 20, NORTH ALBUQUERQUE ACRES, TRACT 3, UN-
3 FILED ON 09-10-1931, PLAT BOOK D, PAGE 121.

2 SITE DEVELOPMENT PLAN FOR SUBDIVISION NOTES

- 1 THE SITE INCLUDES PROPOSED TRACT A-1. AMENDED FROM PREVIOUS TRACTS A AND B.
- 2 PROPOSED / EXISTING USES
 - 3 A. BUILDING "A" - ELEMENTARY SCHOOL (EXISTING)
 - 4 B. BUILDING "B" - DAYCARE (EXISTING)
 - 5 C. BUILDING "C" - DAYCARE (PROPOSED)
- 6 PEDESTRIAN AND VEHICULAR INGRESS AND EGRESS AND INTERNAL CIRCULATION REQUIREMENTS WILL BE AS SHOWN HEREON; ACCESS TO PROPOSED TRACT A-1 WILL BE AS SHOWN HEREON; 2 FULL ACCESS POINTS TO HOLLY
- 7 MAXIMUM BUILDING HEIGHT = 36 FT
- 8 MINIMUM SETBACKS SHALL BE 10'
- 9 MAXIMUM FLOOR AREA RATIO = 0.30
- 10 APPLICABLE SECTOR PLAN IS LA CUEVA SECTOR DEVELOPMENT PLAN (LCSDP). DEVELOPMENT PLAN SHALL COMPLY WITH THE "COMMON REGULATIONS REGULATING THE USE OF SUR-2 ZONED PROPERTIES AND RT DEVELOPMENT IN THE RD ZONE" IN THE LCSDP.
- 11 PROPOSED WORK IN THE PUBLIC RIGHT-OF-WAY SHALL BE CONSTRUCTED UNDER CITY WORK ORDER.

PROJECT NUMBER: 1005237
APPLICATION NUMBER: 17 EPC-40033


IS AN INFRASTRUCTURE LIST REQUIRED? () YES () NO IF YES, THEN A SET OF APPROVED DRC PLANS WITH A WORK ORDER IS REQUIRED FOR ANY CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY OR FOR CONSTRUCTION OF PUBLIC IMPROVEMENTS.

DRB SITE DEVELOPMENT PLAN APPROVAL:

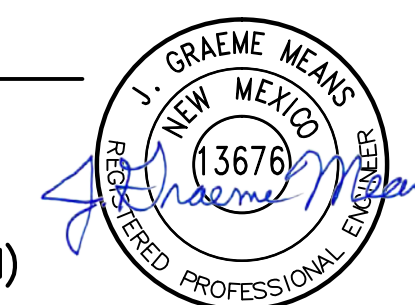
TRAFFIC ENGINEERING, TRANSPORTATION DIVISION	Date
ABCWUA	Date
PARKS AND RECREATION DEPARTMENT	Date
CITY ENGINEER	Date
SOLID WASTE MANAGEMENT	Date
FIRE MARSHAL	Date
DRB CHAIRPERSON, PLANNING DEPARTMENT	Date

INDEX OF DRAWINGS

SHEET	DESCRIPTION
1A	SITE PLAN FOR SUBDIVISION (2017 AMENDMENT)
2A	CONCEPTUAL GRADING AND DRAINAGE PLAN
1	SITE PLAN FOR SUBDIVISION (DRB APPROVED PLAN)
2	CONCEPTUAL UTILITY PLAN (DRB APPROVED PLAN)



8/2/2017
V2 8/24/17
V3 9/25/17



V2 8/24/1
V3 9/25/1

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2 KEYED EASEMENT NOTES

EASEMENTS – EXISTING

- ① 10' PUBLIC UTILITY EASEMENT GRANTED BY PLAT 2007C-49
- ①A PORTION OF ① TO BE VACATED **BY** FORTHCOMING ACTION
- ② 10' PUBLIC ACCESS AND PUBLIC UTILITY EASEMENT GRANTED BY PLAT 99C-89
- ③ 10' PNM OVERHEAD EASEMENT GRANTED BY PLAT 99C-89
- ④ 10' PRIVATE SANITARY SEWER EASEMENT GRANTED BY PLAT 2007C-49 TO SERVE TRACT B. MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE OWNER OF TRACT A. (TO BE VACATED BY FORTHCOMING ACTION.)
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EASEMENT – PROPOSED

- 6 10' PUBLIC UTILITY EASEMENT GRANTED BY FORTHCOMING PLATTING ACTION

2 SITE DEVELOPMENT PLAN FOR SUBDIVISION NOTES

THE PROPOSED SITE DEVELOPMENT PLAN FOR SUBDIVISION AMENDMENT IS FOR PROPOSED TRACT A-1. THIS IS AN AMENDMENT AND EXPANSION TO THE SITE DEVELOPMENT PLAN FOR SUBDIVISION FOR EXISTING TRACTS A AND B - THE CURRENT MONTESSORI ONE PRESCHOOL AND ELEMENTARY SCHOOL CAMPUS. PROPOSED TRACTS C AND D ARE NOT PART OF THIS SITE DEVELOPMENT PLAN. REFER TO SITE DEVELOPMENT PLAN FOR SUBDIVISION FOR MARK 3S HOLLY DEVELOPMENT - WEST FOR PROPOSED TRACTS C AND D.

AFTER SEVERAL YEARS OF SUCCESSFUL OPERATION AND GROWTH, MONTESSORI ONE PLANS TO EXPAND THEIR SITE AND ADD A THIRD BUILDING DEDICATED FOR INFANTS. THEY HAVE ACQUIRED ADDITIONAL PROPERTY TO THE WEST OF THE CURRENT SITE AND ARE PROPOSING NEW BUILDING CONSTRUCTION ALONG WITH SITE PARKING, ACCESS, AND CIRCULATION IMPROVEMENTS.



THE MAIN ELEMENT OF THE PROPOSED EXPANSION IS A NEW 11,000 SF BUILDING DEDICATED TO AN INFANT DEVELOPMENT PROGRAM DESIGNED TO SERVE APPROXIMATELY 24 CHILDREN. THE EXPANSION WILL INCLUDE A NEW DRIVE ENTRANCE, NEW PAVED PARKING AND LANDSCAPING. A NEW PLAYGROUND WILL BE CONSTRUCTED BETWEEN THE PROPOSED BUILDING AND THE EXISTING BUILDING TO THE EAST, DISPLACING EXISTING PARKING. TO MAINTAIN CIRCULATION, THERE WILL BE MODIFICATIONS TO THE EXISTING SITE PARKING. THE EXISTING SITE WALL ALONG PASEO DEL NORTE WILL BE EXTENDED AND MODIFIED.

THIS IS AN INFILL PROJECT, WITH THE NEW EXPANSION REPLACING THE PREVIOUS LANDSCAPE RETAIL AND STORAGE YARD. THE SITE WILL BE SERVED BY EXISTING PUBLIC WATER, SANITARY SEWER AND STORM DRAIN FACILITIES IN HOLLY AVE N.E. CONSTRUCTED BY PREVIOUS PROJECTS. THE LAST REMAINING TEMPORARY SECTION OF HOLLY WILL BE PAVED WITH PERMANENT PAVEMENT AND CURB AND GUTTER BY THIS PROJECT.

DESIGNED BY R.J.C.

BRUNNEN 1994

APPROVED BY G.M.

NO.	DATE	BY	REVISIONS	JOB NO.
	8/17	G.M.	STAFF INITIAL REVIEW COMMENTS	2017.014.2
	9/17	G.M.	ADDRESS EPC CONDITIONS	
				DATE
				09-2017
				SHEET
				1A OF

SITE *DEVELOPMENT* PLAN FOR SUBDIVISION (2017 AMENDMENT)

MARK 3S HOLLY DEVELOPMENT

HIGH MESA Consulting Group

6010-B Midway Park Blvd. NE • Albuquerque, New Mexico 87109
Phone: 505.345.4250 • Fax: 505.345.4254 • www.highmesacg.com

File Path: P:\DATA\2017\2017.04.1\ENG\MS\92\	Plot Date:	09-25-2017
File Name: 170142_SH1A-R2.DWG	Plot Time:	2:15 pm

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SII-2 / MIXED USE

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ELEVATION = 5592.04 FEET (NAVD 88)

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ELEVATION = 5592.04 FEET (NAVD 88)

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_____ / _____




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GRAPE VIEW CT. N.E.

- 1 HOLLY IMPROVEMENTS TO BE CONSTRUCTED BY CITY WORK ORDER
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THE 80TH PERCENTILE STORM EVENT (.26 IN) = 900 CF TO
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- 9 18" STORM INLET
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- 11 **NEW PRIVATE MANHOLE**
- 12 18" RCP STUB AND MANHOLE BY CITY WORK ORDER

INV	INVERT
TA	TOP OF ASPHALT PAVEMENT
TC	TOP OF CURB
TG	TOP OF GRATE
95.05	EXISTING SPOT ELEVATION
89.00	PROPOSED SPOT ELEVATION
...	EXISTING FLOWLINE
...	PROPOSED FLOWLINE
590- - -	EXISTING CONTOUR
92- - -	PROPOSED CONTOUR
- - -	EXISTING DIRECTION OF FLOW
- - -	PROPOSED DIRECTION OF FLOW
- - -	RIGHT OF WAY LINE
- - -	PUBLIC EASEMENT LINE
 - -	HIGH POINT / DIVIDE
	RETAINING WALL
	LOT LINE TO BE REMOVED
	PROPOSED CONCRETE

PROPOSED ASPHALT PAVING

A cross-sectional diagram of a curb and gutter. The curb on the left is labeled 'CURB AND GUTTER' and has a height of '2"R'. The gutter on the right is labeled 'GUTTER' and has a height of '2"R'. The total width of the curb and gutter assembly is '1' - 0"'. The top of the curb is labeled 'TOP OF CURB'. The bottom of the gutter is labeled 'BOTTOM OF GUTTER'. The flowline of the gutter is indicated by a dashed line labeled 'FLOWLINE OF GUTTER'. The cobble beyond the gutter is labeled 'COBBLE BEYOND OR BELOW FLOWLINE ELEVATION FOR POSITIVE DRAINAGE'. The diagram also shows the 'CURB AND GUTTER' assembly and the 'FLOWLINE OF GUTTER'.

SCALE: 1" = 1'-0"

THIS PROJECT IS AN EXPANSION TO AN EXISTING MONTESSORI SCHOOL AND DAYCARE FACILITY. THE EXPANSION AREA WAS CURRENTLY DEVELOPED AS A LANDSCAPING MATERIALS RETAIL AND STORAGE YARD. THE SITE DRAINS FROM SOUTHEAST TO NORTHWEST TO HOLLY AVE NE. THE SITE DOES NOT LIE WITHIN A DESIGNATED FLOODPLAIN. THE PROPOSED DRAINAGE CONCEPT FOR THE SITE WILL BE CONTINUED FREE DISCHARGE TO EXISTING PUBLIC STORM DRAINAGE FACILITIES IN HOLLY THAT WERE DESIGNED, SIZED AND CONSTRUCTED TO ACCEPT 4.68 CFS PER ACRE FROM THIS SITE BASED ON THE FOLLOWING PLANS PREPARED BY THIS OFFICE FOR THIS SITE AND SURROUNDING AREAS:

LOMR FOR NORTH DOMINGO BACA ARROYO CARMEL AVENUE STORM DRAIN EXTENSION (HMC 12/08/2003) APPROVED BY FEMA
03/23/2004.

DRAINAGE REPORT FOR LOS VIGIL SUBDIVISION (HMC# 12/31/2002, C20/D41).

GRADING AND DRAINAGE PLAN FOR DESERT RIDGE OFFICE PARK (HMC# C30/D51)




DRAINAGE REPORT FOR WINEYARD COURT ESTATES (JUN06 02/01/2007)

SEALING THE DRAINAGE PLANS FOR NEIGHBORHOOD OF STEUBENTOWN (UNION CO) 08/21/2003 AND 08/21/2003

AS WITH THE PREVIOUS PHASES, SITE ROOF DRAINAGE WILL BE PIPED TO A DIRECT STORM DRAIN CONNECTION; HOWEVER IT WILL FIRST BE ROUTED THROUGH A STORM WATER QUALITY MANHOLE TO TREAT FIRST FLUSH. SITE RUNOFF WILL BE DIRECTED TO LANDSCAPED AREAS DEPRESSED TO RETAIN THE 80TH PERCENTILE FIRST FLUSH FOR WATER QUALITY. NO RETENTION PONDING FOR DISCHARGE CONTROL IS REQUIRED OR PROPOSED BEYOND FIRST FLUSH PROVISIONS.

- 1 10' PUBLIC UTILITY EASEMENT GRANTED BY PLAT 2007C-49
- 1A PORTION OF 1 TO BE VACATED **BY** FORTHCOMING ACTION
- 2 10' PUBLIC ACCESS AND PUBLIC UTILITY EASEMENT GRANTED BY PLAT 99C-89
- 3 10' PNM OVERHEAD EASEMENT GRANTED BY PLAT 99C-89
- 4 10' PRIVATE SANITARY SEWER EASEMENT GRANTED BY PLAT 2007C-49 TO SERVE TRACT B. MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE OWNER OF TRACT A. (TO BE VACATED BY FORTHCOMING ACTION.)
- 5 10' PRIVATE WATER LINE EASEMENT GRANTED BY PLAT 2007C-49 TO SERVE TRACT B. MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE OWNER OF TRACT A. (TO BE VACATED BY FORTHCOMING ACTION.)

6 10' PUBLIC UTILITY EASEMENT GRANTED BY FORTHCOMING PLATTING ACTION

NOL	DATE	BY	REVISIONS
	8/17	G.M.	STAFF INITIAL REVIEW COMMENTS
	9/17	G.M.	ADDRESS EPC CONDITIONS
	10/17	G.M.	ADDRESS HYDROLOGY COMMENTS

10/02/17 8/2/2017
V2 8/24/17
V3 9/25/17

10/02/17 8/2/2017
V2 8/24/17
V3 9/25/17

HIGH MESA Consulting Group

6010-B Midway Park Blvd. NE • Albuquerque, New Mexico 87109
Phone: 505.345.4250 • Fax: 505.345.4254 • www.highmesacg.com

CONCEPTUAL GRADING AND DRAINAGE PLAN

MARK 3S HOLLY DEVELOPMENT

DATE 09-2017

SHEET 2A OF

DRAINAGE REPORT

I. EXECUTIVE SUMMARY

- A. THE LAS VIGILS SUBDIVISION IS A PROPOSED GATED RESIDENTIAL COMMUNITY LOCATED WITHIN THE LA CUEVA 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 THE NORTH DOMINGO BACA ARROYO (NDBA) WHICH CONTRIBUTES OFFSITE FLOWS.
- C. AMAFCA HAS SUCCESSFULLY BID AND HAS AWARDED A CONTRACT TO CONSTRUCT PERMANENT NDBA/CARMEL AVENUE PUBLIC 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.
- D. A SIMULTANEOUS PROJECT PROPOSED BY HREC ON THE NORTH SIDE OF CARMEL AVENUE NE, VINEYARD ESTATES UNIT IV-A, WILL CONSTRUCT PERMANENT STORM DRAIN FACILITIES IN VINA DEL SOL NE AND ELIMINATE OFFSITE FLOWS FROM THE NORTH.
- E. DEVELOPED SITE RUNOFF WILL BE DIRECTED TO PROPOSED PRIVATE INTERNAL STREETS AND WILL BE COLLECTED BY PRIVATE STORM INLETS AND RCP STORM DRAINS OUTFALLING TO THE PROPOSED PUBLIC CARMEL AVENUE STORM DRAIN SIZED FOR FREE DISCHARGE FROM THIS SITE.
- F. THE PUBLIC NDBA/CARMEL STORM DRAIN EXTENSION BY AMAFCA WITH ITS APPURTENANCES AND UPSTREAM INLET WILL EFFECTIVELY REMOVE THE DESIGNATED FLOODING HAZARD AND ALLOW DEVELOPMENT AS PROPOSED HEREIN. AN APPROVED CLOMR WAS PREPARED BY THIS OFFICE SUPPORTING ELIMINATION OF THE UNDERLYING FLOOD HAZARD ZONE AS PART OF THE AFOREMENTIONED AMAFCA COST SHARING AGREEMENT THAT ALSO INCLUDES A POST-CONSTRUCTION LOMR.
- G. THE AMAFCA NDBA/CARMEL STORM DRAIN PROJECT WILL REDUCE, BUT NOT ELIMINATE OFFSITE ARROYO FLOWS. A TEMPORARY PUBLIC DETENTION POND WILL BE CONSTRUCTED ON HREC OWNED BERNALILLO COUNTY PROPERTY TO THE EAST OF THE SITE TO TEMPORARILY INTERCEPT THESE FLOWS. A TEMPORARY EASEMENT AND MAINTENANCE COVENANT WILL BE PROVIDED TO THE CITY FOR THIS POND.
- H. APPROVAL AND CONSTRUCTION OF THIS PROJECT AND OF VINEYARD ESTATES, UNIT IV-A WILL ELIMINATE THE TEMPORARY PONDING REQUIREMENT FOR THE PROPOSED VENTURA VILLAGE PROJECT WHICH LIES IMMEDIATELY DOWNSTREAM.
- I. APPROVAL AND CONSTRUCTION OF THIS PROJECT, OF VINEYARD ESTATES UNIT IV-A, OF VENTURA VILLAGE, AND OF THE "VENTURA STREET NE ROB'S PLACE TO HOLLY AVENUE NE" PROJECT WILL ELIMINATE THE TEMPORARY PONDING REQUIREMENT FOR THE DESERT RIDGE PLACE PROJECT PROPOSED BY HREC WHICH LIES ON THE WEST SIDE OF VENTURA STREET NE.

II. INTRODUCTION

PROPOSED LOTS 1-P1 THROUGH 45-P1 WILL BE SINGLE FAMILY DETACHED RESIDENTIAL HOMES CONSTRUCTED ON INDIVIDUALLY PLATTED LOTS. THE DEVELOPER IS HOECH REAL ESTATE CORPORATION (HREC). CARMEL AND HOLLY AVENUES ARE PUBLIC STREETS. THE INTERNAL STREETS ARE PRIVATE AND WILL BE OWNED, OPERATED, AND MAINTAINED BY THE LAS VIGILS HOMEOWNER'S ASSOCIATION.

THE SITE IS UNDEVELOPED. DEVELOPED RUNOFF FROM THIS SITE WILL BE COLLECTED WITHIN PROPOSED PUBLIC AND PRIVATE STREETS THAT WILL DRAIN TO THE PROPOSED PUBLIC STORM DRAIN TO BE CONSTRUCTED BY AMAFCA IN CARMEL. FULL WIDTH PERMANENT CARMEL AVENUE NE PAVING IMPROVEMENTS (BOTH SIDES) WILL BE CONSTRUCTED BY HREC IN SUPPORT OF THIS PROJECT AND IN SUPPORT OF THE VINEYARD ESTATES, UNIT IV-A PROJECT TO BE CONSTRUCTED SIMULTANEOUSLY WITH THIS PROJECT ON THE NORTH SIDE OF CARMEL. A TEMPORARY PUBLIC DETENTION POND WILL BE CONSTRUCTED ON HREC OWNED PROPERTY EAST OF THE SITE ON BERNALILLO COUNTY LAND TO ACCEPT EXISTING OFFSITE FLOWS IN ADVANCE OF UPSTREAM DEVELOPMENT WHICH IS PLANNED BY HREC UPON COMPLETION OF A PENDING ANNEXATION REQUEST.

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 APPROVED CLOMR DRAINAGE REPORT SUPPORTED THE CARMEL STORM DRAIN EXTENSION, 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 THE LAS VIGILS SUBDIVISION
- 2) VACATION OF CARMEL AVENUE PUBLIC STREET RIGHT-OF-WAY
- 3) DRG APPROVAL FOR THE FORTHCOMING 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 LA CUEVA SECTOR PLAN AREA. THE EXISTING LEGAL DESCRIPTION IS: LOTS 6-9 AND 24-27, BLOCK 19, TRACT 3, UNIT 3, NORTH ALBUQUERQUE ACRES. THE SITE IS ZONED SU-2/RT BY THE LA CUEVA SECTOR DEVELOPMENT PLAN. AS INDICATED BY A LETTER DATED 07/02/2002 TO HREC FROM VICTOR CHAVEZ, DIRECTOR, CITY OF ALBUQUERQUE PLANNING DEPARTMENT (A COPY OF WHICH IS SUBMITTED WITH THIS REPORT), THIS PROJECT, WHICH INCLUDES LOW DENSITY RESIDENTIAL HOUSING ON LOTS GREATER THAN 5000 SF, IS CONSISTENT WITH THE EXISTING ZONING AND SECTOR PLAN AND DOES NOT REQUIRE EPC REVIEW OR A SITE PLAN SUBMITTAL. 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 (AO, DEPTH 1') ASSOCIATED WITH THE MAIN BRANCH OF THE NORTH DOMINGO BACA ARROYO. 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 AMAFCA PROJECT.

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 IDENTIFIED THE EXTENSION OF PERMANENT DRAINAGE IMPROVEMENTS WITHIN THE NDBA CORRIDOR, AND ESTABLISHED DEVELOPED DRAINAGE BASIN BOUNDARIES WITHIN THE PLAN AREAS. AS SHOWN BY FIGURE 6-6 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. 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.
- C. 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 PAVING AND 36" PUBLIC STORM DRAIN UNDER CITY PROJECT # 601981. THE HOLLY IMPROVEMENTS LIE IMMEDIATELY DOWNSTREAM OF LAS VIGILS AND WILL BE EXTENDED BY THIS PROJECT.
- D. 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.
- E. 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 NORTH DOMINGO BACA ARROYO CARMEL AVENUE STORM DRAIN EXTENSION 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. THE PROPOSED IMPROVEMENTS ARE CONSISTENT WITH THOSE IDENTIFIED IN THAT PLAN.
- F. 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 DETENTION POND NOW PROPOSED BY LAS VIGILS WILL REDUCE, BUT NOT ELIMINATE THE FLOWS IMPACTING THE DESERT RIDGE PLACE POND. THE DESERT RIDGE PLACE PONDING REQUIREMENT CAN BE ELIMINATED IN CONJUNCTION WITH THE APPROVAL AND CONSTRUCTION OF VINEYARD ESTATES UNIT IV-A, OF VENTURA VILLAGE, AND OF THE "VENTURA STREET NE ROB'S PLACE TO HOLLY AVENUE NE" PROJECT.
- G. 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 WEST OF LAS VIGILS, IS FINANCIALLY RESPONSIBLE FOR CONSTRUCTING ITS CARMEL AVENUE PAVING FRONTAGE WHICH WILL BE EXTENDED BY THE LAS VIGILS PROJECT IN CONJUNCTION WITH THE VINEYARD ESTATES, UNIT IV-A PROJECT ALSO BY HREC. 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, SIMILAR TO DESERT RIDGE PLACE (REF. F). THIS PLAN INCLUDED A DESIGN FOR TEMPORARY DETENTION PONDING TO ALLOW DEVELOPMENT IN ADVANCE OF UPSTREAM DEVELOPMENT WHILE CONTINUING TO ACCEPT NDBA FLOWS. THE DETENTION POND NOW PROPOSED BY HREC FOR LAS VIGILS WILL ELIMINATE THE FLOWS IMPACTING THE VENTURA VILLAGE POND FROM THE MAIN CHANNEL OF THE NDBA. THE VINA DEL SOL STORM DRAIN TO BE CONSTRUCTED BY VINEYARD ESTATES, UNIT IV-A, ALSO BY HREC, WILL ELIMINATE THE REMAINING OFFSITE FLOWS. TOGETHER, THE TWO PROPOSED HREC PROJECTS WILL ELIMINATE THE PONDING REQUIREMENT FOR VENTURA VILLAGE.
- H. 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 JANUARY, 2003. THIS CARMEL STORM DRAIN WILL BE THE DEVELOPED DRAINAGE OUTFALL FOR THE PROPOSED IMPROVEMENTS AND THE LAS VIGILS PROJECT RELIES UPON ITS CONSTRUCTION.

- I. 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 G). CONSTRUCTION OF THIS 42" STORM DRAIN, WHICH IS REQUIRED BY BOTH THE VENTURA VILLAGE AND DESERT RIDGE PLACE INFRASTRUCTURE LISTS (REF'S G AND F), WILL PROVIDE THE PERMANENT OUTFALL FOR FULLY DEVELOPED RUNOFF DRAINING TO HOLLY AS DEPICTED ON THE BASIN MAP ON SHEET 3 OF THIS SUBMITTAL.
- J. DRAINAGE REPORT FOR "VINEYARD ESTATES, UNIT IV-A" BY JEFF MORTENSEN & ASSOCIATES, INC, DATED 12/16/2002. THIS PLAN, CURRENTLY UNDER CITY REVIEW, ADDRESSES THE PROPOSED CONSTRUCTION BY HREC OF A 14 LOT RESIDENTIAL SUBDIVISION ON THE NORTH SIDE OF CARMEL AVENUE, DIRECTLY ACROSS FROM LAS VIGILS. THIS PROJECT WILL SHARE WITH LAS VIGILS THE SAME CARMEL AVENUE UTILITY, PAVING, AND STORM DRAIN REQUIREMENTS FOR CARMEL AVENUE N.E. IT WILL ALSO CONSTRUCT A PUBLIC 54" STORM DRAIN IN VINA DEL SOL NE WHICH WILL ELIMINATE FLOWS FROM THE NORTH ASSOCIATED WITH AN NDBA TRIBUTARY. THESE RELATED PROJECTS WILL BE HEARD CONCURRENTLY AT DRB.

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.

V. EXISTING CONDITIONS:

THE SITE IS UNDEVELOPED. THE SOUTHERN HALF OF THE SITE HAS BEEN PARTIALLY GRADED AND SOMEWHAT COMPACTED THROUGH ITS USE AS STORAGE, PARKING AND PLANT NURSERY FOR THE PETE'S LANDSCAPING BUSINESS. CARMEL AVENUE NE TO THE NORTH LIES TOPOGRAPHICALLY LOWER AND IS AN EXISTING UNDEVELOPED PUBLIC STREET. HOLLY AVENUE NE TO THE SOUTH IS AN UNDEVELOPED PUBLIC STREET WITH SOME PAVED PORTIONS SERVING THE PETE'S LANDSCAPING BUSINESS. OFFSITE FLOWS IN THE AMOUNT OF 162 CFS ENTER THE SITE FROM THE EAST IN THE MAIN CHANNEL OF THE NORTH DOMINGO BACA ARROYO. THE SITE GENERALLY DRAINS FROM SOUTHEAST TO NORTHWEST, CONCENTRATING IN THE MAIN CHANNEL OF THE NDBA. THE PROPERTY TO THE WEST IS UNDEVELOPED.

VI. DEVELOPED CONDITIONS

THE PROPOSED IMPROVEMENTS CONSIST OF A PRIVATE GATED COMMUNITY WITH 45 SINGLE FAMILY RESIDENTIAL HOMES WITH PRIVATE STREETS AND PRIVATE DRAINAGE FACILITIES. ALL LOTS WILL DRAIN TO INTERNAL STREETS WITH THE GRADING PLAN ON SHEET 2 VIA STREET FLOW OR THROUGH A BENEFICIARY EASEMENT. THE PROPOSED PRIVATE TRENCH DRAIN STORM INLETS ARE GRATE ONLY INLETS AND WILL REDUCE "FLOATABLE" POLLUTANTS ENTERING THE PUBLIC SYSTEM. PERMANENT HOLLY AND 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 (REF. H) HAS BEEN SHOWN HEREIN AS EXISTING. PUBLIC STORM INLETS WILL BE PROVIDED IN CARMEL AND HOLLY AVENUE AS SHOWN ON THE GRADING PLAN, SHEET 2. DOWNSTREAM CARMEL AVENUE 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 H). DOWNSTREAM CARMEL AVENUE PAVING IMPROVEMENTS WILL BE CONSTRUCTED AS PART OF THE VENTURA VILLAGE PROJECT (REF G). AS DEMONSTRATED BY THE CLOMR (REF E) 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 AS PRESENTED HEREIN.

DOWNSTREAM HOLLY AVENUE PAVING AND STORM DRAIN IMPROVEMENTS WERE CONSTRUCTED BY THE FURR'S PASEO DEL NORTE PROJECT UNDER CITY PROJECT NUMBER 601981 (REF. C). A BASIN MAP AND CALCULATIONS ARE PROVIDED HEREON TO ILLUSTRATE THE HOLLY AVENUE STREET HYDRAULICS AS REQUIRED TO CONFIRM THE ADEQUACY OF THE STORM INLET DESIGN PRESENTED HEREIN. AS SHOWN ON THE PLAN, AND AS PRESENTED IN THE VINEYARD ESTATES, UNIT IV-A DRAINAGE REPORT (REF. J) IT IS EXPECTED THAT THE BERNALILLO COUNTY PROPERTY LOCATED WEST OF HOLBROOK STREET NE AND BETWEEN HOLLY 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 HOLLY 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 UPSTREAM OF THE SITE IN HOLLY TO PUT THE FLOWS INTO THE PUBLIC HOLLY STORM DRAIN EXTENSION. BASED UPON THE STREET FLOW AND STORM DRAIN CALCULATIONS, A MAXIMUM OF 50 CFS OF SURFACE STREET FLOW WILL BE ALLOWED IN HOLLY AT THE EASTERN BOUNDARY OF LAS VIGILS, WITH ALL REMAINING FLOW IN THE STORM DRAIN. IF IT IS LATER DECIDED TO DRAIN VINEYARD COURT ESTATES TO THE NORTH TO CARMEL, SUFFICIENT CAPACITY STILL EXISTS IN THE CARMEL STORM DRAIN, BUT NEW INLETS AND A NEW CARMEL INLET ANALYSIS MUST BE PERFORMED. IN EITHER CASE, THE FUTURE PROJECT TO THE EAST HAS DOWNSTREAM CAPACITY, BUT MUST ANALYZE, DESIGN AND CONSTRUCT THE APPROPRIATE INLETS.

A FEMA APPROVED CLOMR WAS PREPARED BY THIS OFFICE TO SUPPORT THIS PROJECT, THE PROPOSED AMAFCA PROJECT, 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 PLAN 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 09/19/2002, 2) PROPOSED GRADES AND DRAINAGE TRENDS INDICATED BY SPOT ELEVATIONS, HOUSE PAD ELEVATIONS, AND FLOWLINES 3) PROPOSED TEMPORARY DETENTION POND GRADING INDICATED BY CONTOURS AT 1'0" INTERVALS, 4) THE LIMIT AND CHARACTER OF THE EXISTING IMPROVEMENTS, 5) THE LIMIT AND CHARACTER OF THE PROPOSED IMPROVEMENTS, 6) THE EXISTING FLOODPLAIN LIMITS, AND 7) 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 # (REF. H) 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 TAKE FROM THE CLOMR DRAINAGE REPORT (REF. E) WHICH WAS DETERMINED USING AHYMO97 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, A-2 AND A-3 WERE DERIVED FROM BASIN 921.23 OF THE CLOMR. AS WAS PREVIOUSLY DEMONSTRATED BY THE APPROVED CLOMR, THE PROPOSED CARMEL AVENUE PUBLIC STORM DRAIN IS SIZED FOR FREE DISCHARGE OF FULLY DEVELOPED RUNOFF FROM THIS SITE.

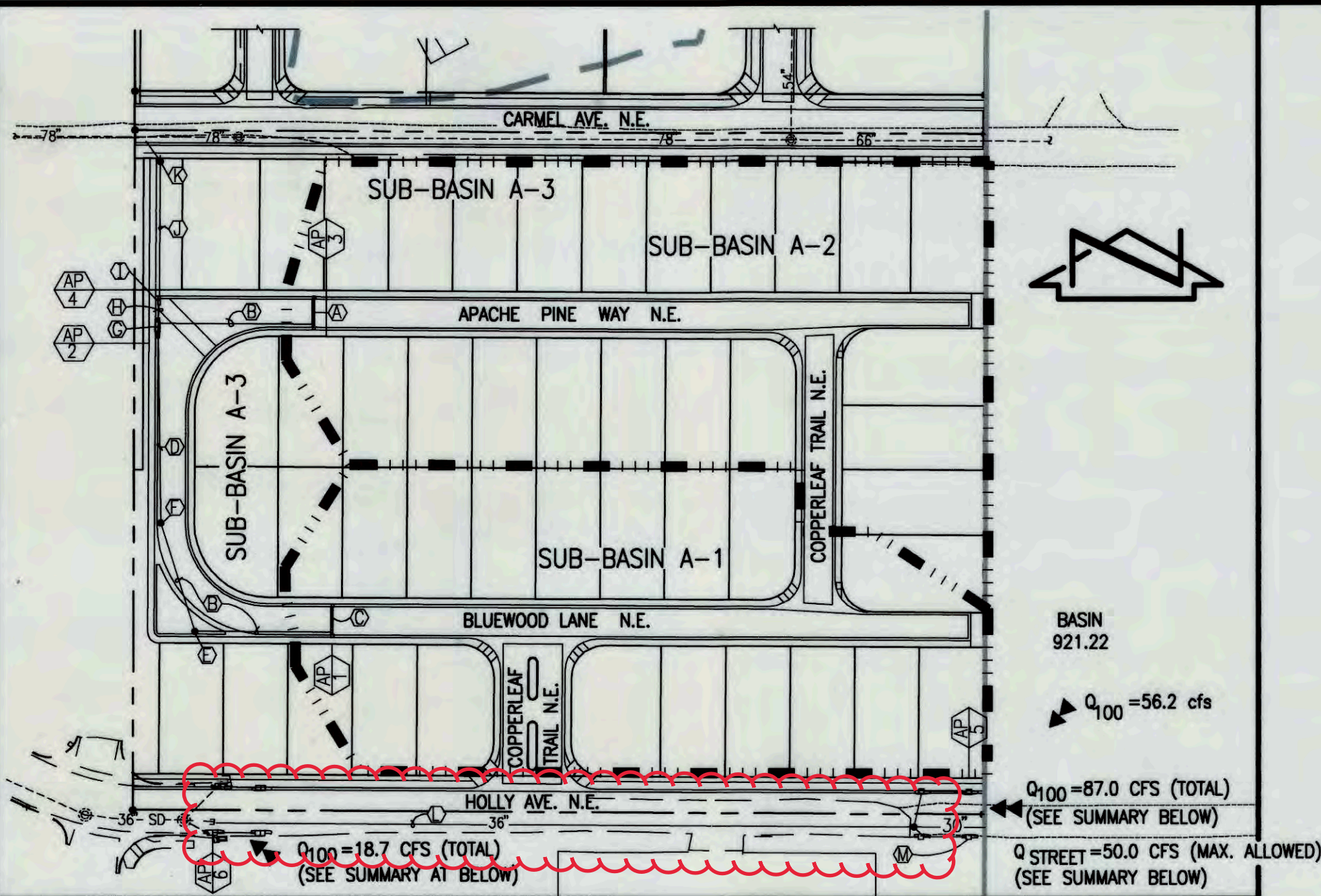
THE INFLOW/OUTFLOW CHARACTERISTICS OF THE TEMPORARY DETENTION POND WERE MODELED USING THE ROUTE RESERVOIR COMMAND OF THE AHYMO97 PROGRAM WITH VOLUMES DETERMINED BY AVERAGE END-AREA METHOD AND DISCHARGES USING CULVERT NOMOGRAPHS. AS DEMONSTRATED BY THE MODEL, THE POST-PROJECT CONDITIONS WILL YIELD A MAXIMUM 100-YEAR STORAGE OF 2.46 ACRE FEET AT A DEPTH OF 5.2 FT.

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 REINFORCED CONCRETE PIPE (RCP) AND 0.017 FOR STREETS. AS DEMONSTRATED BY THE CALCULATIONS SUMMARIZED AT LEFT, THE STORM DRAINS AND STREETS ARE ALL SIZED TO SAFELY CONVEY THE 100-YEAR DESIGN STORM. THE STREET CAPACITIES WERE FURTHER ANALYZED TO ENSURE THAT A HYDRAULIC JUMP WOULD BE CONTAINED WITH THE DEDICATED STREET RIGHT-OF-WAY OR EASEMENT. 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 DRAINAGE REPORTS FOR DESERT RIDGE PLACE (REF. G) AND VINEYARD ESTATES, UNIT IV-A (REF. J).

PRIVATE STORM INLET CALCULATIONS WERE PERFORMED USING THE FLOWMASTER 6.0 PROGRAM USING U.S.D.T. FHA METHODOLOGY FOR GRATE INLETS ON GRADE AND IN SAG CONDITIONS, WHERE APPLICABLE. GRATES WERE ASSUMED TO BE 50% CLOGGED. THE PUBLIC TYPE "A" AND TYPE "C" INLETS IN HOLLY WERE ANALYZED USING D.P.M PLATES 22.3 D-5 AND 6. AS SHOWN BY THE INLET HYDRAULICS TABLE AT LEFT, ALL INLETS ARE SIZED TO PASS THE DEVELOPED CONDITIONS 100-YEAR STORM. BECAUSE THE DOWNSTREAM PRIVATE INLET IS LOCATED AT A SAG CONDITION, THIS INLET WAS CHECKED UNDER PRESSURE (EMERGENCY) CONDITIONS FOR THE ABILITY TO CONVEY TWICE THE 100 YEAR FLOW. THE EMERGENCY OVERFLOW SPILLWAY CALCULATION FOR THE TEMPORARY DETENTION POND WAS CALCULATED USING THE WEIR EQUATION WITH C-2.6. AS SHOWN BY THE SPILLWAY CALCULATION AT LEFT, THE SPILLWAY HAS CAPACITY FOR 162 CFS AT A DEPTH OF 2.0 FT. THIS EMERGENCY OVERFLOW IS DIRECTED TO THE APACHE PINE WAY N.E. ACCESS AND DRAINAGE EASEMENT.

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 AND WHICH WILL BE CONSTRUCTED BY AMAFCA AS PART OF A PROPOSED COST-SHARING AGREEMENT. THE CONTRACT FOR THIS AMAFCA PROJECT WAS AWARDED 11/22/2002.
- C. A SEPARATE DRAINAGE SUBMITTAL FOR CLOMR APPROVAL SUPPORTING THE AMAFCA PROJECT WAS APPROVED BY FEMA.
- D. A POST-CONSTRUCTION LOMR SUBMITTAL SUPPORTING THE AMAFCA PROJECT WILL BE PREPARED BY THIS OFFICE UPON PROJECT COMPLETION FOR THE PURPOSES OF ELIMINATING THE FLOODPLAIN.
- E. 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 TO BE GUARANTEED BY THE COST-SHARING AGREEMENT.
- F. THERE ARE NO DPM DESIGN VARIANCES REQUESTED AT THIS TIME.
- G. THE ON-SITE PRIVATE STREETS AND STORM DRAINS WILL BE OWNED, OPERATED AND MAINTAINED BY THE LAS VIGILS HOMEOWNER'S ASSOCIATION.
- H. A TEMPORARY PUBLIC DRAINAGE EASEMENT AND AN AGREEMENT AND COVENANT WILL BE REQUIRED FOR PRIVATE MAINTENANCE OF THE PROPOSED TEMPORARY DETENTION POND.



DRAINAGE BASIN AND KEY MAP (DEVELOPED CONDITIONS)

SCALE: 1" = 100'

STREET AND INLET HYDRAULICS

ANALYSIS POINT	Q ₁₀₀ (CFS)	S(ft./ft.)	d(ft.)	V ₁₀₀ (fps)	Fr ₁₀₀	E(ft.)	D _{seq} (ft)	Q _{inlet} (CFS)	RESIDUAL (CFS)	INLET TYPE
AP-1	11.3	0.0100	0.28	2.64	1.14	0.38	0.29	8.8 ^A	2.5	CATTLE GUARD (14")
AP-2	8.4	0.0100	0.43	2.73	1.14	0.55	0.42	4.6 ^B	3.8	SINGLE "A"
AP-3	13.3	0.0266	0.25	3.79	1.80	0.47	0.36	9.6 ^A	3.7	CATTLE GUARD (14")
AP-4	7.5	SAG	0.44	N/A	N/A	0.44	N/A	7.5 ^A	0	DOUBLE "D"
AP-5	50 ^C	0.041	0.48	6.33	2.38	1.10	0.85	18.8 ^B	31.2	SINGLE "C"
AP-5	31.2	0.041	0.42	5.42	2.29	0.88	0.68	15.0 ^B	16.2	SINGLE "C"
AP-6	34.9	0.015	0.49	3.87	1.45	0.72	0.55	16.0 ^B	18.9	DOUBLE "C"
AP-6	18.9	0.015	0.42	3.28	1.39	0.47	0.36	11.0 ^B	7.9	DOUBLE "C"

- A - CALCULATED USING HAESTAD FLOWMASTER 6.0
B - CALCULATED USING DPM PLATES 22.3-D 5,6
C - MAX. ALLOWED BY UPSTREAM DEVELOPMENT
D - D_{seq}=0.77 *E BASED ON EQUIVALENT RECT. CHANNEL

STORM DRAIN SCHEDULE AND HYDRAULICS (RCP)

STORM DRAIN	SIZE	SLOPE (ft./ft.)	Q ₁₀₀ (CFS)	NORMAL DEPTH (ft.) ^A	CAPACITY (CFS) ^A
Ⓐ	18"	0.0100	9.6(MAX)	1.13	11.3
Ⓑ	18"	0.0270	8.8	0.76	18.6
Ⓒ	24"	0.0200	23.0	1.26	34.4
Ⓓ	24"	0.0280	30.5	1.36	40.7
Ⓔ	36"	0.0250	72.8	1.83	113.4
Ⓜ	30"	0.0250	39	1.40	69.8

STORM DRAINAGE KEYED NOTES

- Ⓐ CONSTRUCT NEENAH R-4999-L3 TRENCH DRAIN (14"); INV OUT 5563.20
Ⓑ INSTALL 18" RCP STORM DRAIN @ S=0.0100
Ⓒ CONSTRUCT NEENAH R-4999-L3 TRENCH DRAIN (14"); INV OUT @ 5568.50
Ⓓ INSTALL 18" RCP STORM DRAIN; A S=0.0270
Ⓔ CONSTRUCT 4" DIA. SDMH; INV IN @ 5567.45; INV OUT @ 5564.19
Ⓕ CONSTRUCT 4" DIA. SDMH; INV IN @ 5566.35; INV OUT @ 5566.10
Ⓖ CONSTRUCT SINGLE "A" STORM INLET; INV IN @ 5562.00; INV OUT @ 5561.50
Ⓗ INSTALL 24" RCP @ S=0.0200
Ⓙ CONSTRUCT DOUBLE "D" STORM INLET; INV IN @ 5561.20; INV OUT @ 5560.60
Ⓚ INSTALL 24" RCP @ S=0.0280
Ⓛ CONSTRUCT 4" DIA. SDMH W/GRATED LID; INV IN @ 5557.50; INV OUT @ 5557.00
Ⓜ INSTALL 36" RCP @ S=0.025 (MIN.)
Ⓝ INSTALL 30" RCP @ S=0.025 (MIN.)

HYDROLOGY SUMMARY AND INFORMATION

SITE LIES WITHIN CLOMR BASIN 921.23 WHICH GENERATES 4.23 CFS/ACRE

SUB-BASIN	AREA (ac)	Q ₁₀₀
A-1	2.66	11.25 CFS
A-2	3.15	13.32 CFS
A-3	1.39	5.88 CFS
TOTALS	7.20	30.5 CFS

1. NUMBERED BASINS AND DEVELOPED FLOW RATES SHOWN HEREON ARE TAKEN FROM THE FEMA APPROVED CLOMR TITLED "NORTH DOMINGO BACA ARROYO/CARMEL AVENUE STORM DRAIN EXTENSION BY JMA DATED 6-17-02, (FEMA #02-06-2145R)
2. HOLLY AVENUE STREET FLOWS @ AP-5 AND AP-6 WERE DETERMINED BY ADDING THE UPSTREAM CLOMR BASINS 921.22 AND THE CONTRIBUTING PORTIONS OF BASIN 921.26.
3. THE MAX. STREET CAPACITY AT AP-5 IS APPROXIMATELY 50 CFS WHICH CONTAINS THE HYDRAULIC JUMP WITHIN THE R.O.W. DEVELOPED FLOWS IN EXCESS OF THAT AMOUNT MUST BE PUT INTO THE STORM DRAIN BY UPSTREAM DEVELOPMENT.
4. THE CARMEL AVENUE STORM DRAIN WAS DESIGNED AND ANALYZED BY THE AFOREMENTIONED CLOMR REPORT AND THE DRAINAGE REPORT FOR VINEYARD ESTATES, UNIT IV-A BY JMA DATED 12/16/2002. (DRB 1002207)

EMERGENCY SPILLWAY CALCULATIONS

Q=CLH (WEIR EQUATION)
C=2.6
L=22 ft
H=2.0 ft
Q=162 cfs = Q₁₀₀

DRAINAGE REPORT AND CALCULATIONS
LAS VIGILS SUBDIVISION

DRB PROJECT # 1002271

DESIGNED BY	DATE	BY	REVISIONS	JOB NO.
G.M.				2002.045.3
DRAWN BY	DATE	BY	REVISIONS	JOB NO.
S.G.H.				12-2002
APPROVED BY	DATE	BY	REVISIONS	JOB NO.
G.M.				3 OF 4

Jma

JEFF MORTENSEN & ASSOCIATES, INC.
6010-B MIDWAY PARK BLVD. N.E.
ALBUQUERQUE, N.M. 87109
ENGINEERS & SURVEYORS (CDS) 345-4250
FAX: 505 345-4254 E-MAIL: jma@jma-inc.com

