

DRAINAGE PLAN:

I. INTRODUCTION AND EXECUTIVE SUMMARY

THIS PROJECT, LOCATED IN THE LOWER SOUTHWEST MESA OF THE ALBUQUERQUE METROPOLITAN AREA, REPRESENTS A MODIFICATION TO AN EXISTING APS SCHOOL SITE WITHIN AN INFILL AREA. THE PROPOSED DEVELOPMENT IS COMPRISED OF THE INSTALLATION OF THREE (3) PORTABLE CLASSROOM BUILDINGS AND LIMITED PAVING IMPROVEMENTS AT THE NORTHEAST PORTION OF THE EXISTING SCHOOL SITE. THE DRAINAGE CONCEPT FOR THIS PROJECT WILL BE THE CONTINUED FREE DISCHARGE OF DEVELOPED RUNOFF TO EXISTING ONSITE PRIVATE STORM DRAINAGE IMPROVEMENTS THAT DISCHARGE TO THE AMOLE CHANNEL ADJACENT TO AND DOWNSTREAM OF THE SITE. THE AMOLE CHANNEL AT THIS LOCATION IS OWNED, OPERATED AND MAINTAINED BY AMAFCA.

THIS SUBMITTAL IS MADE IN SUPPORT OF FOUNDATION, GRADING AND PAVING PERMITS WITHIN THE JURISDICTION OF THE CITY OF ALBUQUERQUE.

II. PROJECT DESCRIPTION

AS SHOWN BY THE VICINITY MAP, THE SCHOOL SITE IS LOCATED ON THE EAST SIDE OF VERMEJO PARK DRIVE SW SOUTH OF BLAKE ROAD SW AND WEST AND SOUTH OF THE AMOLE CHANNEL. THE CURRENT LEGAL DESCRIPTION IS TRACT 8-A-1-A-1, EL RANCHO GRANDE I, AS SHOWN BY PANEL 336 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS PUBLISHED BY FEMA FOR BERNALILLO COUNTY, NEW MEXICO, REVISED OCTOBER 20, 2008. THIS SITE DOES NOT LIE WITHIN A DESIGNATED FLOOD HAZARD ZONE. THE SITE DOES, HOWEVER, DISCHARGE TO A DESIGNATED FLOOD HAZARD ZONE ASSOCIATED WITH THE AMOLE CHANNEL WHERE THE 100-YEAR FLOOD DISCHARGE IS CONTAINED IN THE CHANNEL.

III. BACKGROUND DOCUMENTS

THE PREPARATION OF THIS PLAN RELIED UPON THE FOLLOWING DOCUMENTS AND ACTIVITIES:

- PREDESIGN CONFERENCE RECAP DATED 5-31-05 CONDUCTED WITH HIGH MESA CONSULTING GROUP (FORMERLY JEFF MORTENSEN & ASSOCIATES, INC.). THE RECAP ALLOWED FOR THE FREE DISCHARGE OF DEVELOPED RUNOFF TO THE AMOLE CHANNEL PROVIDED ADEQUATE DOCUMENTATION WAS PROVIDED.
- MASTER DRAINAGE PLAN (MDP) FOR TRACT 8-A-1-A, EL RANCHO GRANDE ELEMENTARY SCHOOL (AKA RUDOLFO ANAYA ELEMENTARY SCHOOL) PREPARED BY HIGH MESA CONSULTING GROUP (NMPE 13676) DATED 07/09/2007. THIS REFERENCED PLAN ESTABLISHED FREE DISCHARGE TO THE AMOLE CHANNEL AT A MAXIMUM ALLOWABLE DISCHARGE RATE OF 57 CFS AS REGULATED BY THE EXISTING 36" RCP OUTLET TO THE AMOLE CHANNEL.
- GRADING AND DRAINAGE PLAN FOR PROTOTYPE ELEMENTARY SCHOOL BID LOT NO. 3 (AKA RUDOLFO ANAYA ELEMENTARY SCHOOL) PREPARED BY BOHANNAN HUSTON INC. (NMPE 16858), DATED 3-5-08 AND CERTIFIED 8/14/09. THIS REFERENCE PLAN INDICATES THAT THE SITE HAS BEEN GRADED AND DRAINED IN SUBSTANTIAL COMPLIANCE WITH THE APPROVED PLAN DATED 3-5-08. THE RELEASE OF THE PERMANENT CERTIFICATE OF OCCUPANCY BY HYDROLOGY SUGGESTS THAT THERE ARE NO OUTSTANDING DRAINAGE REQUIREMENTS ON THIS SITE. THIS REFERENCED PLAN ADDRESSES PHASE 1 DEVELOPMENT ONLY AND DOES NOT DEPICT PHASE 2 AND FUTURE PORTABLE CLASSROOM BUILDINGS. THE PLAN ALSO APPEARS TO LACK HYDROLOGIC CALCULATIONS DEMONSTRATING THAT THE DEVELOPED DISCHARGE IS WITHIN THE LIMITS ESTABLISHED BY THE 2007 MDP.
- RECORD PLAN SET CONTAINED IN THE ADMINISTRATIVE OFFICES OF THE ELEMENTARY SCHOOL REVIEWED ON OCTOBER 18, 2010. REVIEW OF THE RECORD DRAWINGS INDICATED THAT THE PROPOSED PROJECT SITE WAS ORIGINALLY INTENDED FOR PORTABLE CLASSROOM BUILDINGS IN RESPONSE TO FUTURE GROWTH.
- PARTIAL TOPOGRAPHIC SURVEY PREPARED BY HIGH MESA CONSULTING GROUP (NMPS 11184) DATED 05-08-2012. THIS REFERENCED SURVEY PROVIDES THE BASIS FOR THE EXISTING CONDITIONS OF THE PROJECT SITE.
- VISUAL SITE INSPECTION CONDUCTED ON APRIL 09, 2012, TO CONFIRM THAT THE DRAINAGE PATTERNS PRESENT ON THE SITE CONVEY RUNOFF FROM THE PROPOSED CONSTRUCTION SITE TO THE 36" RCP OUTLET TO THE AMOLE CHANNEL.
- PHASE 1 PORTABLE CLASSROOM INSTALLATION PLANS PREPARED BY HIGH MESA CONSULTING GROUP (NMPE 8547) DATED JUNE 17, 2011 AND SUBSEQUENTLY CERTIFIED NOVEMBER 03, 2011. THE REFERENCED PLAN ESTABLISHED A PRECEDENT FOR ALLOWING SMALL PROJECTS TO DEVELOP AND DISCHARGE TO THE EXISTING ONSITE PRIVATE DETENTION POND.

IV. EXISTING CONDITIONS

THE PROJECT SITE LIES AT THE NORTHEAST CORNER OF THE SCHOOL SITE. IT CONSISTS OF A DEVELOPED PORTION OF THE SCHOOL SITE COMPRISING LANDSCAPING, A GRAVEL FIRE TRUCK ACCESS, AND PLAYGROUND IMPROVEMENTS. IT IS BOUNDED ON THE NORTH BY RESIDENTIAL DEVELOPMENT, ON THE EAST BY THE AMOLE CHANNEL AND UNDEVELOPED SCHOOL SITE, ON THE SOUTH BY GRAVEL FIRE TRUCK ACCESS AND FUTURE PORTABLE CLASSROOM LOCATIONS, AND ON THE WEST BY EXISTING PLAYGROUND. AT PRESENT, THE PROJECT SITE DRAINS TO ONSITE PRIVATE STORM DRAINAGE IMPROVEMENTS THAT DISCHARGE TO AN ONSITE DETENTION POND THAT OUTLETS TO THE AMOLE CHANNEL PER THE APPROVED MASTER DRAINAGE PLAN REFERENCED ABOVE. THE ABOVE DESCRIBED DRAINAGE PATTERN IS CONSISTENT WITH THE 2008 GRADING AND DRAINAGE PLAN FOR THE PROTOTYPE SCHOOL REFERENCED ABOVE.

THERE ARE NO OFFSITE FLOWS IMPACTING THIS SITE. THE AMOLE CHANNEL LIES TO THE NORTH AND EAST AND IS TOPOGRAPHICALLY LOWER THAN THE PROJECT SITE, THEREFORE IT DOES NOT CONTRIBUTE OFFSITE FLOWS. EXISTING SCHOOL SITE DEVELOPMENT SURROUNDS THE REMAINING SIDES OF THE PROJECT SITE, THEREFORE ELIMINATING THE POSSIBILITY FOR OFFSITE FLOWS.

V. DEVELOPED CONDITIONS

THIS PROJECT CONSISTS OF THE SECOND PHASE OF PORTABLE CLASSROOM BUILDINGS INSTALLATION ON AN EXISTING ELEMENTARY SCHOOL SITE. THE COMPLETED PROJECT WILL CONSIST OF THREE (3) DOUBLE CLASSROOM PORTABLE BUILDINGS. AN ASPHALT PAVED WALKWAY WILL PROVIDE PEDESTRIAN ACCESS TO THE BUILDINGS. CRUSHED ASPHALT BASE COURSE (MILLINGS) WILL BE INSTALLED AROUND THE PERIMETER OF THE BUILDINGS TO MITIGATE EROSION AND TO PROVIDE DISCONNECTED IMPERVIOUS AREA AND MAINTAIN FIRE TRUCK ACCESS. DEVELOPED RUNOFF WILL CONTINUE TO DRAIN TO THE EXISTING ONSITE PRIVATE STORM DRAIN IMPROVEMENTS THAT DISCHARGE TO THE EXISTING ONSITE DETENTION POND AND EVENTUALLY ENTER THE AMOLE CHANNEL, THE OUTFALL FOR THIS SCHOOL SITE.

VI. GRADING PLAN

THE GRADING PLAN SHOWS 1.) EXISTING AND PROPOSED GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'-0" INTERVALS, 2.) THE LIMIT AND CHARACTER OF THE EXISTING AND PROPOSED IMPROVEMENTS, AND 3.) CONTINUITY BETWEEN EXISTING AND PROPOSED GRADES. AS SHOWN BY THIS PLAN, THE PROPOSED GRADING WILL MAINTAIN THE CURRENT DRAINAGE PATTERN OF DISCHARGE TO THE EXISTING ONSITE DETENTION POND. FROM THIS POINT, RUNOFF ULTIMATELY DISCHARGES TO THE AMOLE CHANNEL, A PUBLIC DRAINAGE FACILITY.

VII. CALCULATIONS

THE CALCULATIONS CONTAINED HEREON ANALYZE THE EXISTING AND DEVELOPED CONDITIONS FOR THE 100-YEAR, 6-HOUR RAINFALL EVENT. 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, HAS BEEN USED TO QUANTIFY THE PEAK RATE OF DISCHARGE AND VOLUME OF RUNOFF GENERATED. AS DEMONSTRATED BY THESE CALCULATIONS, THE PROPOSED PORTABLE CLASSROOM PARK WILL RESULT IN A NEGLIGIBLE INCREASE IN THE DEVELOPED RUNOFF GENERATED BY THIS PORTION OF THE RUDOLFO ANAYA ELEMENTARY SCHOOL SITE.

VIII. CONCLUSIONS

THE FOLLOWING CONCLUSIONS HAVE BEEN ESTABLISHED AS A RESULT OF THE EVALUATIONS CONTAINED HEREIN:

- THE PROPOSED IMPROVEMENTS WILL MAINTAIN THE EXISTING DRAINAGE PATTERNS OF THIS PORTION OF THE EXISTING ELEMENTARY SCHOOL SITE.
- THE DISCHARGE OF DEVELOPED RUNOFF TO THE EXISTING ONSITE PRIVATE DETENTION POND IS CONSISTENT WITH THE 2008 GRADING AND DRAINAGE PLAN FOR THE SCHOOL SITE AS WELL AS THE 2011 PHASE 1 PORTABLE CLASSROOM PROJECT.
- THE PROPOSED IMPROVEMENTS WILL RESULT IN A NEGLIGIBLE INCREASE IN THE DEVELOPED RUNOFF GENERATED BY THIS SITE.
- THE PROPOSED IMPROVEMENTS WILL NOT ADVERSELY IMPACT DOWNSTREAM PROPERTIES OR DOWNSTREAM DRAINAGE CONDITIONS.

CALCULATIONS:

I. SITE CHARACTERISTICS

- A. PRECIPITATION ZONE = 1
- B. $P_{100, 6 \text{ HR}} = P_{360} = 2.20$
- C. TOTAL PROJECT AREA (A_T) = 26,000 SF
0.60 AC

D. LAND TREATMENTS

1. EXISTING LAND TREATMENT			
TREATMENT	AREA (SF/AC)		%
B	2,640 / 0.06		10
C	20,560 / 0.47		78
D	2,800 / 0.07		12
2. DEVELOPED LAND TREATMENT			
TREATMENT	AREA (SF/AC)		%
B	2,640 / 0.06		10
C	13,260 / 0.30		51
D	10,100 / 0.23		39

II. HYDROLOGY

A. EXISTING CONDITION

1. VOLUME
 $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$
 $E_W = (0.44 * 0.00) + (0.67 * 0.06) + (0.99 * 0.47) + (1.97 * 0.07) / 0.60 = 1.07 \text{ IN}$
 $V_{100, 6 \text{ HR}} = (E_W / 12) A_T = (1.07 / 12) 0.60 = 0.0537 \text{ AC-FT} = 2,340 \text{ CF}$
2. PEAK DISCHARGE
 $Q_p = Q_{pA} A_A + Q_{pB} A_B + Q_{pC} A_C + Q_{pD} A_D$
 $Q_p = Q_{100} = (1.29 * 0.00) + (2.03 * 0.06) + (2.87 * 0.47) + (4.37 * 0.07) = 1.8 \text{ CFS}$

B. DEVELOPED CONDITION

1. VOLUME
 $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$
 $E_W = (0.44 * 0.00) + (0.67 * 0.06) + (0.99 * 0.30) + (1.97 * 0.23) / 0.60 = 1.34 \text{ IN}$
 $V_{100, 6 \text{ HR}} = (E_W / 12) A_T = (1.34 / 12) 0.60 = 0.0667 \text{ AC-FT} = 2,900 \text{ CF}$
2. PEAK DISCHARGE
 $Q_p = Q_{pA} A_A + Q_{pB} A_B + Q_{pC} A_C + Q_{pD} A_D$
 $Q_p = Q_{100} = (1.29 * 0.00) + (2.03 * 0.06) + (2.87 * 0.30) + (4.37 * 0.23) = 2.1 \text{ CFS}$

C. COMPARISON

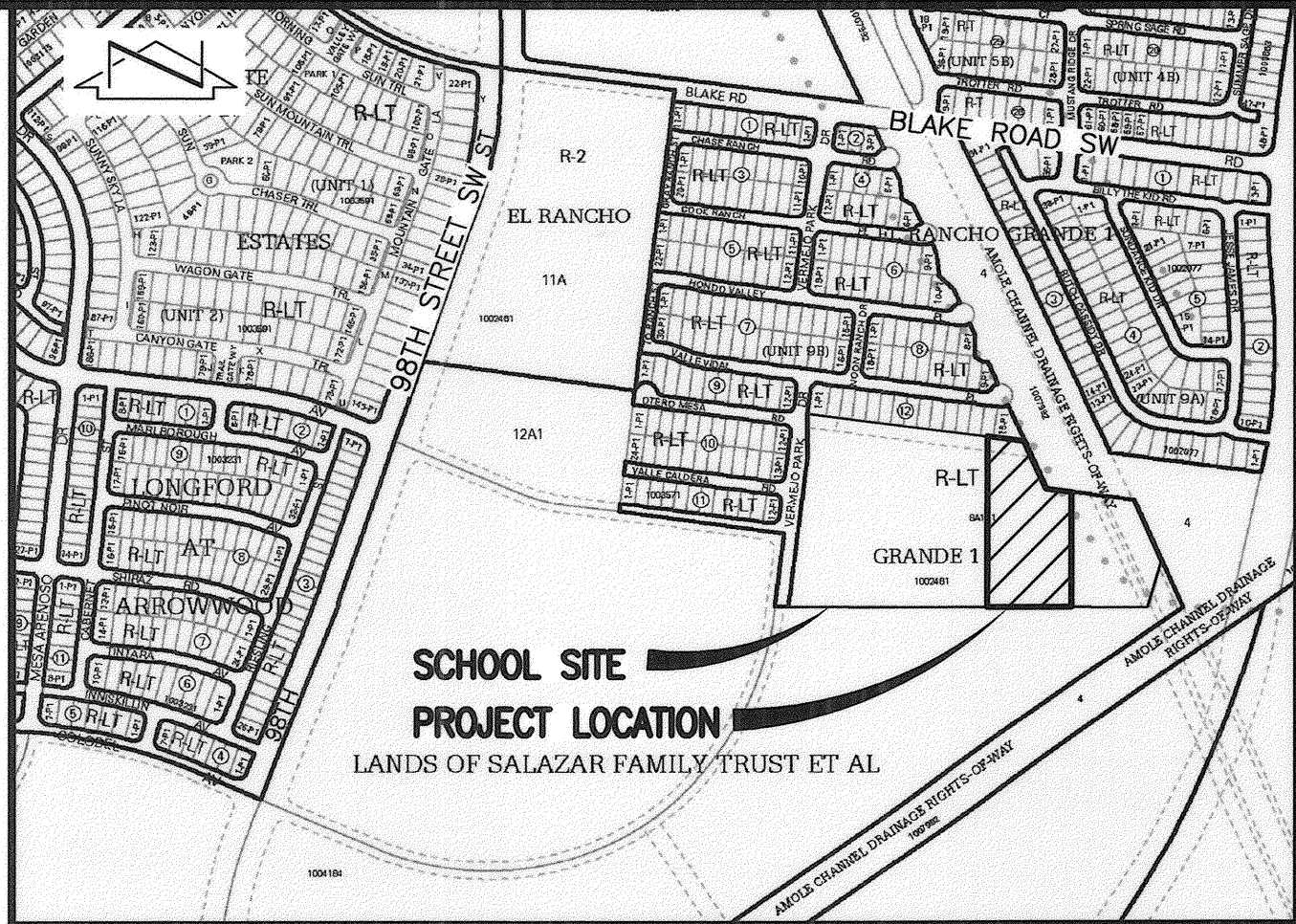
1. VOLUME
 $\Delta V_{100, 6 \text{ HR}} = 2,900 - 2,340 = 560 \text{ CF} \quad (\text{INCREASE})$
2. PEAK DISCHARGE
 $\Delta Q_{100} = 2.1 - 1.8 = 0.3 \text{ CFS} \quad (\text{INCREASE})$

CONSTRUCTION NOTES:

- TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM 260-1990 FOR DESIGNATION (LINE-SPOTTING) OF EXISTING PUBLIC UTILITIES AND EXISTING UTILITIES OWNED AND OPERATED BY ALBUQUERQUE PUBLIC SCHOOLS.
- 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. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INTERPRETATIONS IT MAKES WITHOUT FIRST CONTACTING THE ENGINEER AS REQUIRED ABOVE.
- ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
- ALL CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE CITY OF ALBUQUERQUE STANDARDS AND PROCEDURES.
- 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 THEREFOR. 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.

EROSION CONTROL MEASURES:

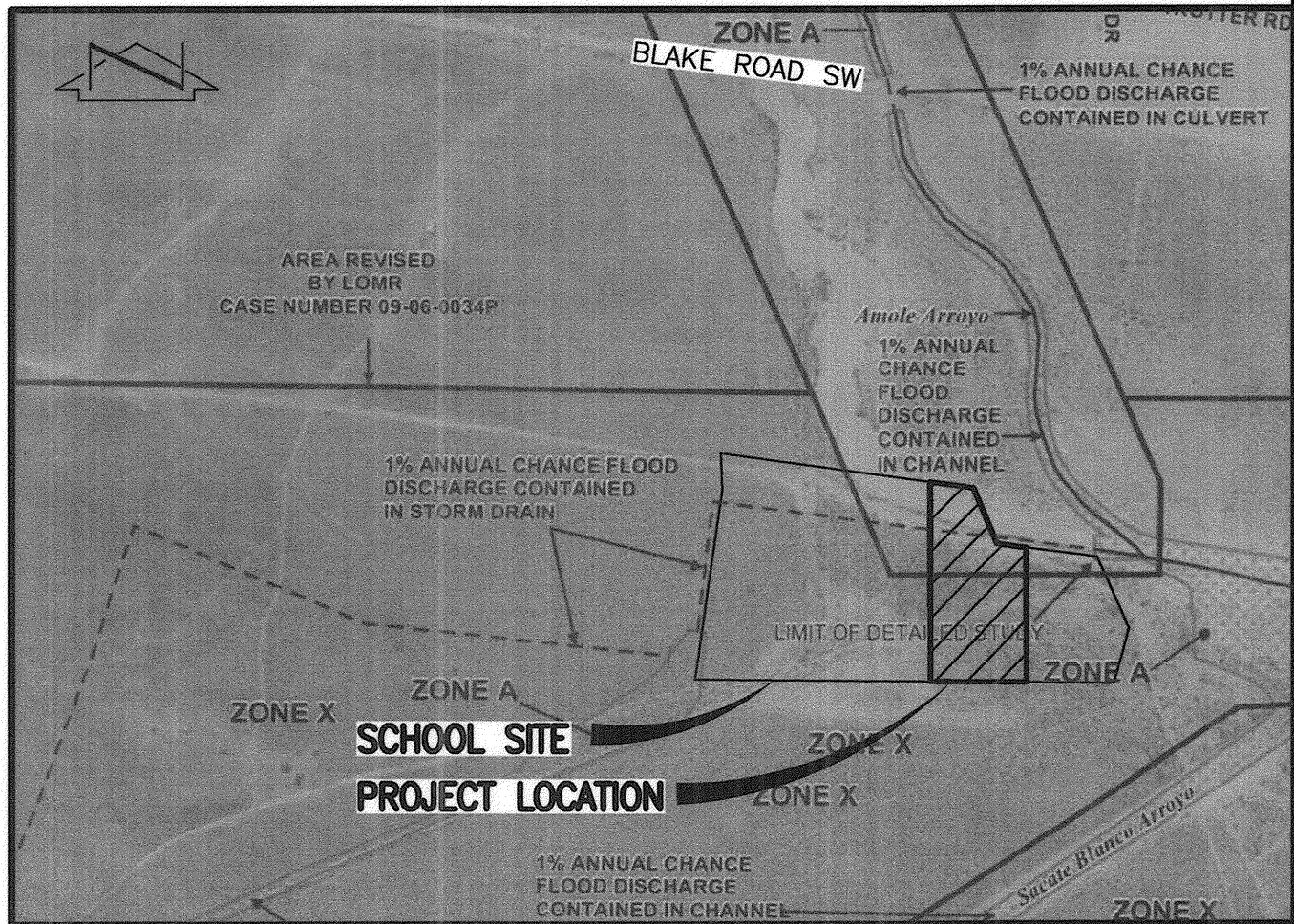
- THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY.
- THE CONTRACTOR SHALL PROMPTLY CLEAN UP ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY SO THAT THE EXCAVATED MATERIAL IS NOT SUSCEPTIBLE TO BEING WASHED DOWN THE STREET.
- WHEN APPLICABLE, CONTRACTOR SHALL SECURE "TOPSOIL DISTURBANCE PERMIT" FROM THE CITY AND/OR FILE A NOTICE OF INTENT (N.O.I.) WITH THE EPA PRIOR TO BEGINNING CONSTRUCTION.



VICINITY MAP

SCALE: 1" = 750'

N-9



F.I.R.M.

SCALE: 1" = 500'

PANEL 336 OF 825

DATED: OCTOBER 20, 2008

LEGAL DESCRIPTION:

A PORTION OF TRACT 8-A-1-A-1, EL RANCHO GRANDE I, ALBUQUERQUE, NEW MEXICO

BENCHMARK

PROJECT BENCHMARK

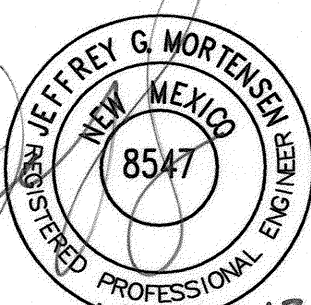
ACS 3 1/4" ALUMINUM CAP STAMPED "3-N10", SET FLUSH ON TOP OF CONCRETE CURB IN THE NW CURB RETURN OF UNSER BOULEVARD S.W. AND BLAKE ROAD S.W., LOCATED 25.4 FEET NORTH OF CENTERLINE OF BLAKE ROAD S.W. AND 92.0 FEET WEST OF CENTERLINE OF UNSER BOULEVARD S.W., NOT SHOWN. ELEVATION = 5036.50 (NAVD 88)

TEMPORARY BENCHMARK (T.B.M.)

A #5 REBAR W/CAP STAMPED "HMCg CONTROL NMPS 11184", AS SHOWN ON SHEET 7. ELEVATION=5041.13 (NAVD 88)



RECORD DRAWING



01-10-2013
07-03-2012

DESIGNED BY				NO.				DATE				BY				REVISIONS				JOB NO.			
J.G.M.				10-12				B.E.E.				RECORD DRAWING								2011.183.8			
J.Y.R.																				06-2012			
J.G.M.																				8 OF 11			



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