

CITY OF ALBUQUERQUE



June 6, 2016

Richard J. Berry, Mayor

J. Graeme Means, P.E.
High Mesa Consulting Group
4715 Moon St NE
Albuquerque, NM, 87111

**RE: Bandelier Elementary
Parking Lot Improvements
Grading and Drainage Plan
Engineer's Stamp Date 4-26-2016 (File: L16D028B)**

Dear Mr. Means:

Based upon the information provided in your submittal received 4-8-2016, the above referenced Grading and Drainage Plan is approved for Grading Permit and Paving Permit.

Please be advised that the project footprint (including staging area) must remain under 1-acre. If it is expected to be exceeded during construction, an ESC Plan and ESC Grading Permit will be required.

PO Box 1293

If you have any questions, you can contact me at 924-3986.

Albuquerque

New Mexico 87103

www.cabq.gov

Sincerely,

Abel Carrillo, P.E.
Principal Engineer, Planning Department
Development Review Services

Orig: Drainage file



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: Bandelier Elementary School North Parking Lot Reconstruction Building Permit #: _____ City Drainage #: L16 DOZ&B
DRB#: _____ EPC#: _____ Work Order#: _____
Legal Description: Tract A, Bandelier Elementary School
City Address: 3309 Pershing Ave SE, Albuquerque NM 87106

Engineering Firm: High Mesa Consulting Group Contact: Graeme Means #13676
Address: 6010-B Midway Park Blvd NE, Albuquerque NM 87109
Phone#: 505-345-4250 Fax#: 505-345-4254 E-mail: gmeans@highmesecg.com

Owner: Albuquerque Public Schools Contact: Annelle Darby
Address: 915 Oak Street SE, Albuquerque NM 87106
Phone#: 505-848-8829 Fax#: _____ E-mail: annelle.darby@aps.edu

Architect: see Engineer 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

PLAN

ON LAYOUT (TCL)
JDY (TIS)
JT CONTROL PLAN (ESC)

____ Yes ☒ No

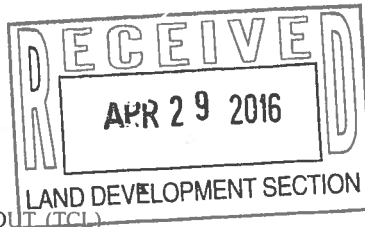
CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

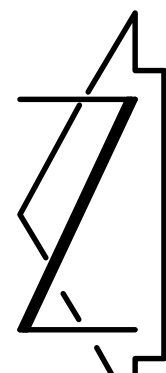
☐ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY
☐ PRELIMINARY PLAT APPROVAL
☐ SITE PLAN FOR SUB'D APPROVAL
☐ SITE PLAN FOR BLDG. PERMIT APPROVAL
☐ FINAL PLAT APPROVAL
☐ SIA/ RELEASE OF FINANCIAL GUARANTEE
☐ FOUNDATION PERMIT APPROVAL
☒ GRADING PERMIT APPROVAL
☐ SO-19 APPROVAL
☒ PAVING PERMIT APPROVAL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

☐ PRE-DESIGN MEETING
☐ OTHER (SPECIFY) _____

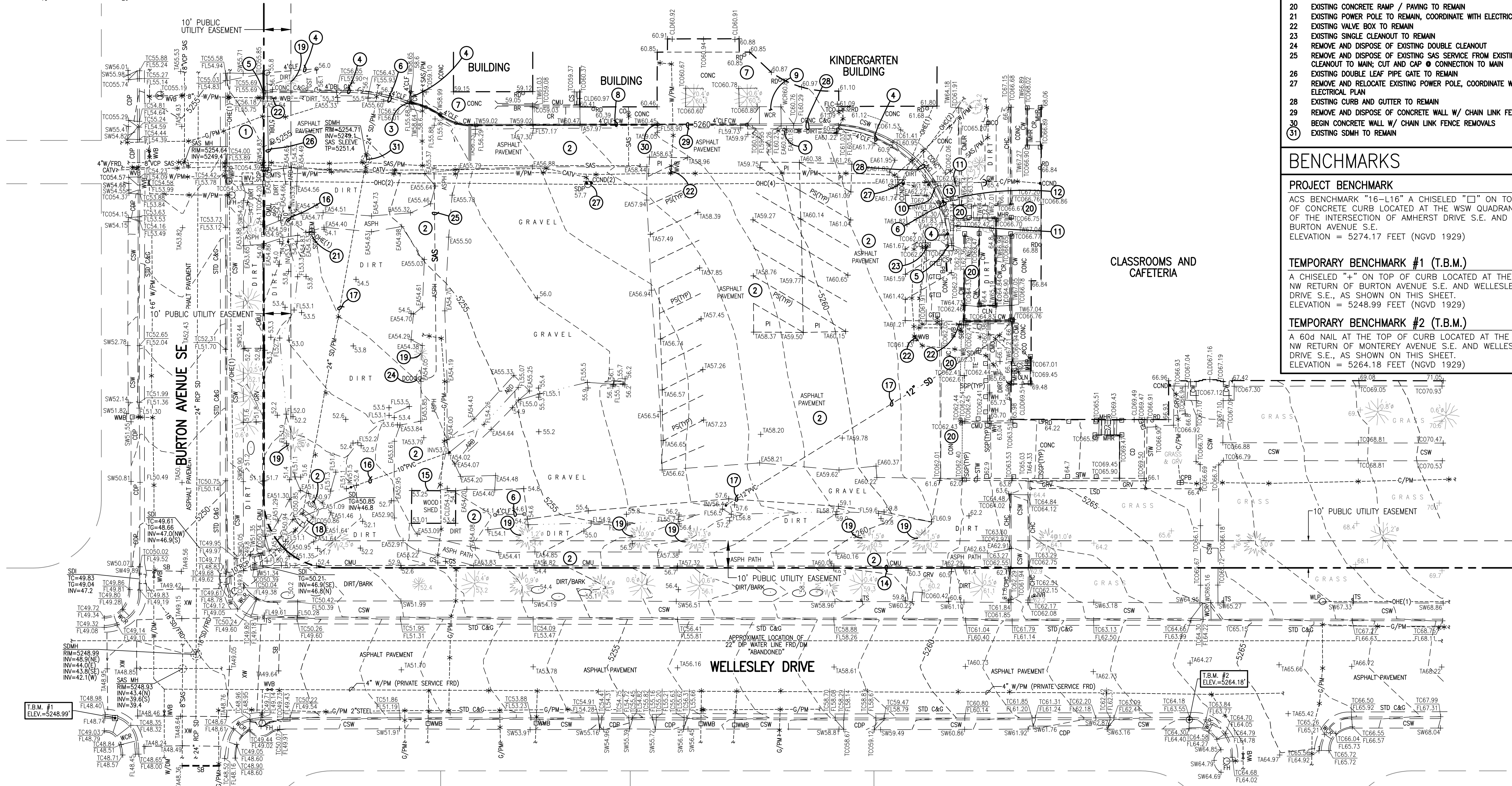
I-16 By: Justin Schara

C SUBMITTAL RECEIVED: _____





SCALE: 1" = 20'



KEYED NOTES

- EXISTING DRIVEPAD TO REMAIN
- REMOVE AND PULVERIZE EXISTING ASPHALT PAVING FOR PROCESSING WITH NATIVE SOIL TO MANUFACTURE IN SITU BASE COURSE
- BEGIN 4" CHAIN LINK FENCE REMOVAL
- REMOVE & DISPOSE OF EXISTING 4" CHAIN LINK FENCE
- END 4" CHAIN LINK FENCE REMOVAL
- REMOVE AND DISPOSE OF EXISTING CONCRETE CURB AND GUTTER
- EXISTING CONCRETE SIDEWALK TO REMAIN
- EXISTING CONCRETE WALL W/ 4" CHAIN LINK FENCE TO REMAIN
- NEATLY SAWCUT, REMOVE AND DISPOSE OF EXISTING WHEELCHAIR ACCESS RAMP
- NEATLY SAWCUT EXISTING CURB AND GUTTER
- NEATLY SAWCUT EXISTING CONCRETE SIDEWALK
- REMOVE AND DISPOSE OF EXISTING SIDEWALK CULVERT
- REMOVE AND DISPOSE OF EXISTING CONCRETE SIDEWALK
- EXISTING CMU TO REMAIN
- REMOVE AND RETURN EXISTING WOOD SHED TO OWNER
- REMOVE AND DISPOSE OF EXISTING 10" PVC STORM DRAIN
- EXISTING STORM DRAIN TO REMAIN
- REMOVE AND DISPOSE OF EXISTING SINGLE 'D' INLET IN POOR CONDITION
- EXISTING CONCRETE RAMP / PAVING TO REMAIN
- EXISTING POWER POLE TO REMAIN, COORDINATE WITH ELECTRICAL PLAN
- EXISTING VALVE BOX TO REMAIN
- EXISTING SINGLE CLEANOUT TO REMAIN
- REMOVE AND DISPOSE OF EXISTING DOUBLE CLEANOUT
- REMOVE AND DISPOSE OF EXISTING SAS SERVICE FROM EXISTING DOUBLE CLEANOUT TO MAIN; CUT AND CAP @ CONNECTION TO MAIN
- EXISTING DOUBLE LEAF PIPE GATE TO REMAIN
- REMOVE AND RELOCATE EXISTING POWER POLE, COORDINATE WITH ELECTRICAL PLAN
- EXISTING CURB AND GUTTER TO REMAIN
- REMOVE AND DISPOSE OF CONCRETE WALL W/ CHAIN LINK FENCE
- BEGIN CONCRETE WALL W/ CHAIN LINK FENCE REMOVALS
- EXISTING SDMH TO REMAIN

BENCHMARKS

PROJECT BENCHMARK

ACS BENCHMARK "16-116" A CHISELED "C" ON TOP OF CONCRETE CURB LOCATED AT THE WSW QUADRANT OF THE INTERSECTION OF AMHERST DRIVE S.E. AND BURTON AVENUE S.E.
ELEVATION = 5274.17 FEET (NGVD 1929)

TEMPORARY BENCHMARK #1 (T.B.M.)

A CHISELED "4" ON TOP OF CURB LOCATED AT THE NW RETURN OF BURTON AVENUE S.E. AND WELLESLEY DRIVE S.E., AS SHOWN ON THIS SHEET.
ELEVATION = 5248.99 FEET (NGVD 1929)

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

A 60d NAIL AT THE TOP OF CURB LOCATED AT THE NW RETURN OF MONTEREY AVENUE S.E. AND WELLESLEY DRIVE S.E., AS SHOWN ON THIS SHEET.
ELEVATION = 5264.18 FEET (NGVD 1929)

LEGEND

ARD	ASPHALT RUNDOWN
ASPH	ASPHALT
BOL	BUILDING OVERHANG
BR	BIKE RACK
C&G	CURB AND GUTTER
C/PM	COMMUNICATION LINE BY PAINT MARK
CAV	CABLE TELEVISION LINE BY PAINT MARK
CCND	COMMUNICATION CONDUIT
CD	CONCRETE TRUCK DOCK
CDP	CONCRETE DRIVE PAD
CHC	CONCRETE HEADER CURB
CLD	CENTERLINE DOOR
CLDD	CENTERLINE DOUBLE DOOR
CLF	CHAIN LINK FENCE
CLN	CONCRETE LANDING
CMU	CONCRETE MASONRY UNIT WALL
CO	CONCRETE MASONRY UNIT RETAINING WALL
CONC	CONCRETE
CPB	COMMUNICATION PULLBOX
CR	CONCRETE RAMP
CS	CONCRETE STEPS
CSW	CONCRETE SIDEWALK
CW	CONCRETE WALL
DBL	DOUBLE
DCO	DUCTILE IRON PIPE
DIP	DUCTILE IRON PIPE
E/PM	ELECTRIC LINE BY PAINT MARK
EA	EDGE OF ASPHALT
EM	ELECTRIC METER
FL	FIRE HYDRANT
FLC	FLOWLINE
FRO	FIRE LINE CONNECTION
G/PM	GAS LINE BY PAINT MARK
GATE	GATE
GRV	GAS SERVICE
GST	GATE STOP POST
GT	GREASE TRAP
GW	GUY WIRE ANCHOR
HCS	HANDICAPPED PARKING SIGN
INV	PIPE INVERT
ISD	IRRIGATION VALVE BOX
IVB	LANDSCAPE DIVIDER
MH	MANHOLE
MHR	METAL HAND RAIL
MTS	METAL SIGN
OHC(2)	OVERHEAD COMMUNICATION (# OF LINES)
OHC(1)	OVERHEAD ELECTRIC (# OF LINES)
PB	CONCRETE WHEEL STOP
PI	PAINTED PARKING LOT ISLAND
PVC	PAINTED PARKING STALL STRIPE
RCP	POLYVINYL CHLORIDE PIPE
SAS	REINFORCED CONCRETE PIPE
SAS/PM	SANITARY SEWER
SB	SANITARY SEWER LINE BY PAINT MARK
SD	PAINTED TRAFFIC STOP BAR
SD/PM	STORM DRAIN LINE BY PAINT MARK
SDI	STORM DRAIN INLET
SDMH	STORM DRAIN MANHOLE
SOP	SERVICE DROP POLE
SOP	STEEL GUARD POST
STD	STANDARD
STW	STUCCO WALL
SW	SIDEWALK CULVERT
SWC	SIDEWALK CULVERT
TA	TOP OF ASPHALT
TC	TOP OF CURB
TCO	TOP OF CONCRETE
TE	TOP OF CONCRETE
TE	TRASH ENCLOSURE
TP	TOP OF GRATE
TP	TOP OF PIPE
TS	TOP OF SIDE
TW	TOP OF WALL
TYP	TYPICAL
W/DM	WATER LINE FROM COA DISTRIBUTION MAPS
W/PM	WATER LINE BY PAINT MARK
WB	PARKING LOT WATER BLOCK
WCR	CONCRETE WHEELCHAIR RAMP
WH	WEEP HOLE IN WALL
WLP	WOOD LIGHT POLE
WMB	WOOD METER BOX
WPP	WOOD POWER POLE
WV	WATER VALVE
WVB	WATER VALVE BOX
WV	PAINTED PEDESTRIAN CROSSING
WV	EXISTING SPOT ELEVATION
WV	PROPOSED SPOT ELEVATION
WV	EXISTING FLOWLINE
WV	PROPOSED FLOWLINE
WV	EXISTING CONTOUR
WV	PROPOSED CONTOUR
WV	EXISTING DIRECTION OF FLOW
WV	PROPOSED DIRECTION OF FLOW
WV	RIGHT OF WAY LINE
WV	PUBLIC EASEMENT LINE
WV	HIGH POINT / DIVIDE
WV	TREE TRUNK DIAMETER
WV	CONIFEROUS TREE
WV	DECIDUOUS TREE
WV	SMALL DECIDUOUS TREE
WV	LANDSCAPING SHRUB
WV	LANDSCAPING BOULDER
WV	PAINTED UTILITY MARK
WV	PROPOSED CONCRETE
WV	PROPOSED ASPHALT PAVING
WV	PROPOSED GRAVEL BASE COURSE

File Path: P:\DATA\2015\151805\151805_S2.DWG Plot Date: 04-25-2016
File Name: 151805_S2.DWG Plot Time: 2:33 pm

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

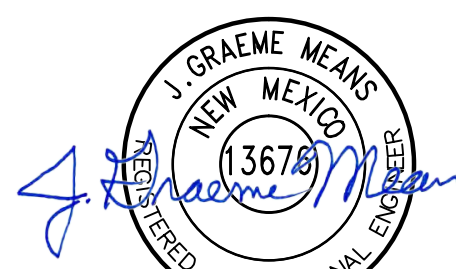
SURVEY NOTE

THIS IS NOT A BOUNDARY SURVEY; DATA IS SHOWN FOR ORIENTATION ONLY. THE BOUNDARY INFORMATION DEPICTED BY THIS PLAN IS BASED UPON AN BOUNDARY SURVEY PREPARED BY HIGH MESA CONSULTING GROUP, NMPS 11184, DATED 04/2007. THE TOPOGRAPHIC INFORMATION DEPICTED HEREON IS BASED UPON THE PARTIAL TOPOGRAPHIC AND UTILITY SURVEY PREPARED BY HIGH MESA CONSULTING GROUP, NMPS NO. 11184, DATED 11/30/2015 (2015.180.8).

DEMOLITION PLAN AND LEGEND NORTH PARKING LOT RECONSTRUCTION BANDELIER ELEMENTARY SCHOOL

DESIGNED BY J.G.M.
DRAWN BY J.Y.R.S.C.C.
APPROVED BY G.M.

NO.	DATE	BY	REVISIONS	JOB NO.
				2015.180.5
				DATE 04-2016
				SHEET 2 OF 11



04-26-2016

File Path: P:\DATA\2015\MS\2015.180.3\DWG | Plot Date: 04-25-2016
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DRAINAGE PLAN

I. INTRODUCTION AND EXECUTIVE SUMMARY

THIS PROJECT, LOCATED IN THE SOUTHEAST HEIGHTS OF THE ALBUQUERQUE METROPOLITAN AREA, REPRESENTS THE MODIFICATION OF AN EXISTING ALBUQUERQUE PUBLIC SCHOOLS ELEMENTARY SCHOOL SITE WITHIN AN INFILL AREA. THE PROPOSED CONSTRUCTION CONSISTS OF THE RECONSTRUCTION OF AN EXISTING PAVED PARKING LOT TO INCREASE PARKING CAPACITY, IMPROVE VEHICULAR CIRCULATION, IMPROVE PEDESTRIAN ACCESS AND ADDRESS STORM WATER QUALITY. NEW WATER HARVESTING AREAS WILL CAPTURE THE FIRST FLUSH RUNOFF FROM THE NEW PARKING LOT AND A PORTION OF THE EXISTING UPSTREAM ROOF AREA TO THE MAXIMUM EXTENT PRACTICABLE. THE DRAINAGE CONCEPT FOR THE SITE IS THE CONTINUED FREE DISCHARGE OF DEVELOPED RUNOFF PER THE 1997 APPROVED MASTER DRAINAGE PLAN REFERENCED BELOW COMBINED WITH THE CAPTURE AND TREATMENT OF FIRST FLUSH RUNOFF.

THIS SUBMITTAL IS MADE IN SUPPORT OF GRADING AND PAVING PERMIT TO BE ISSUED BY THE CITY OF ALBUQUERQUE.

II. PROJECT DESCRIPTION

AS SHOWN BY THE VICINITY MAP, THE EXISTING SITE IS LOCATED ON THE SOUTH SIDE OF COPPER AVENUE NE, SOUTH OF THE LOS ALTOS PARK AND GOLF COURSE. AS SHOWN BY PANEL 358 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP FOR BERNALILLO COUNTY, DATED AUGUST 16, 2012, THE SITE DOES NOT LIE WITHIN ANY DESIGNATED FLOOD HAZARD ZONE. THE SITE IS LOCATED UPSTREAM OF A DESIGNATED FLOOD HAZARD ZONE AO (DEPTH 1) LOCATED AT THE SOUTHWEST CORNER OF THE SCHOOL SITE AT THE INTERSECTION OF DOMINGO ROAD NE AND GENERAL SOMERVELL ST NE. THE PROPOSED PROJECT LOCATION DRAINS EAST TO WEST TO GENERAL SOMERVELL ST NE, THEN DRAINS NORTH TO COPPER AVE NE, AWAY FROM THE DESIGNATED FLOOD HAZARD ZONE.

III. BACKGROUND DOCUMENTS AND RESEARCH

THE PREPARATION OF THIS SUBMITTAL RELIED UPON THE FOLLOWING DOCUMENTS:

A. MASTER DRAINAGE PLAN (MDP) FOR HAWTHORNE ELEMENTARY SCHOOL PREPARED BY HIGH MESA CONSULTING GROUP (FORMERLY JEFF MORTENSEN & ASSOCIATES, INC.) (NMPE 8547) DATED 10-29-97. THE 1997 MDP ESTABLISHED THE SITE CONSISTS OF FIVE DRAINAGE BASINS, BASINS A, B, C, D AND E. THE PROJECT SITE LIES WITHIN BASINS B AND C. THE 1997 MDP ESTABLISHED THAT WHILE THE EXISTING SITE IS ALLOWED FREE DISCHARGE TO THE ADJACENT PUBLIC STREETS OF GENERAL SOMERVELL STREET AND DOMINGO ROAD NW, RUNOFF GENERATED BY FUTURE DEVELOPMENT MUST NOT EXCEED THE ALLOWABLE MAXIMUM PEAK DISCHARGE OF 29.7 CFS FROM THE ENTIRE SCHOOL SITE AS CALCULATED IN THE 1997 MDP. RUNOFF GENERATED BY FUTURE DEVELOPMENT THAT EXCEEDS THIS RATE MUST BE MANAGED ONSITE TO MAINTAIN THE ALLOWABLE 29.7 CFS MAXIMUM DISCHARGE.

B. MINI GYMNASIUM GRADING AND DRAINAGE PLAN PREPARED BY HIGH MESA CONSULTING GROUP (FORMERLY JEFF MORTENSEN & ASSOCIATES, INC.) (NMPE 8547) DATED 03-12-99 AND CERTIFIED 02-28-2001. PERMANENT DRAINAGE IMPROVEMENTS CONSISTING OF A CONCRETE VALLEY GUTTER AND SIDEWALK CULVERTS WERE CONSTRUCTED WITHIN BASINS B AND C TO IMPROVE POSITIVE DRAINAGE FROM THE NEW MINI GYMNASIUM TO GENERAL SOMERVELL STREET NE. THE 1999 PROJECT REINFORCED AND MAINTAINED THE MAXIMUM ALLOWABLE DISCHARGE RATE OF 29.7 CFS FROM THE SCHOOL SITE ESTABLISHED BY THE 1997 MDP.

C. TOPOGRAPHIC SURVEY PREPARED BY HIGH MESA CONSULTING GROUP, NMPS 11184, DATED 12/15/2015. THE SUBJECT SURVEY PROVIDES THE BASIS FOR THE EXISTING CONDITIONS OF THE SITE AS DEPICTED BY THIS SUBMITTAL. THIS TOPOGRAPHIC INFORMATION DEPICTED HEREON IS BASED UPON THE NAD 83/NAVD 88 DATUM, AN UPDATE FROM THE PREVIOUS NAVD 29 DATUM UTILIZED ON THE 1997 MASTER DRAINAGE PLAN

IV. EXISTING CONDITIONS

THE PROJECT SITE IS LOCATED WITH PORTIONS OF BASINS B AND C DEFINED BY THE 1997 MASTER DRAINAGE PLAN AND CONSISTS OF AN EXISTING PAVED PARKING LOT, LANDSCAPING, AND PRIVATE STORM DRAINAGE IMPROVEMENTS. THE PROJECT SITE GENERALLY DRAINS FROM EAST TO WEST, WITH THE PAVED PARKING LOT PORTION SHEET FLOWING TO THE ADJACENT PUBLIC STREETS OF GENERAL SOMERVELL ST NE AND COPPER AVE NE, WHILE THE LANDSCAPED PORTION DRAINS VIA PRIVATE STORM DRAIN IMPROVEMENTS TO A SIDEWALK CULVERT ON THE EAST SIDE OF GENERAL SOMERVELL ST NE AND DISCHARGES INTO THE PUBLIC STREET. FROM THIS POINT, RUNOFF DRAINS NORTH TO THE INTERSECTION OF GENERAL SOMERVELL ST NE AND COPPER AVE NE, WHENCE IT FLOWS WEST WITHIN COPPER AVE NE TO THE INTERSECTION OF COPPER AVE NE AND WYOMING BLVD NE. EXISTING STORM DRAIN FACILITIES WITHIN WYOMING BLVD NE AT THIS INTERSECTION SERVE AS THE OUTFALL FOR THE SITE.

THE PROJECT SITE IS BOUNDED ON THE NORTH BY COPPER AVENUE NE, A FULLY DEVELOPED PUBLIC STREET, ON THE EAST BY AN EXISTING PORTABLE CLASSROOM BUILDING; ON THE SOUTH BY AN EXISTING PERMANENT CLASSROOM BUILDING, AND ON THE WEST BY GENERAL SOMERVELL STREET NE, A FULLY DEVELOPED PUBLIC STREET.

THERE ARE NO APPARENT OFFSITE FLOWS IMPACTING THE PROJECT SITE, AS THE SITE IS TOPOGRAPHICALLY HIGHER THAN THE ADJACENT PUBLIC STREETS, AND IS BOUNDED ON THE EAST AND SOUTH BY EXISTING SCHOOL IMPROVEMENTS. HOWEVER, IT IS NOTED THAT RUNOFF FROM THE EXISTING SCHOOL BUILDING TO THE SOUTH AND A TRENCH DRAIN OUTLET AT THE CORNER OF THE BUILDING IS ACCEPTED ONTO AND FLOWS THROUGH AN EXISTING WATER HARVESTING AREA BETWEEN THE BUILDING AND EXISTING PAVED PARKING WITH OVERFLOW DISCHARGING VIA PRIVATE STORM DRAIN AND SIDEWALK CULVERT TO GENERAL SOMERVELL STREET NE.

V. DEVELOPED CONDITIONS

THE PROPOSED CONSTRUCTION CONSISTS OF RECONSTRUCTION OF AN EXISTING PARKING LOT. LANDSCAPED AREAS WITHIN THE PARKING LOT, AS WELL AS A LANDSCAPE BUFFER AROUND THE PERIMETER OF THE PARKING LOT WILL BE DEPRESSED TO THE MAXIMUM EXTENT PRACTICABLE WHERE POSSIBLE TO CAPTURE DEVELOPED RUNOFF. RUNOFF FROM THE PARKING LOT WILL DRAIN VIA CURB OPENINGS INTO THESE LANDSCAPED WATER HARVESTING AREAS. OVERFLOW RUNOFF FROM THE LANDSCAPED BUFFER WILL SHEETFLOW INTO COPPER AVENUE NE.

ROOF RUNOFF FROM THE EXISTING CLASSROOM BUILDING TO THE SOUTH WILL DRAIN TO A NEW LANDSCAPED WATER HARVESTING AREA BETWEEN THE BUILDING AND THE PAVED PARKING. NEW PRIVATE STORM DRAIN IMPROVEMENTS WILL COLLECT THE OVERFLOW RUNOFF FROM THIS AREA, IN ADDITION TO INTERCEPTING RUNOFF FROM THE EXISTING TRENCH DRAIN OUTLET REFERENCED ABOVE, AND DISCHARGE IT TO THE BACK OF THE EXISTING SIDEWALK CULVERT ALONG GENERAL SOMERVELL ST NE.

THE PROPOSED IMPROVEMENTS WILL RESULT IN A MINIMAL INCREASE IN DEVELOPED RUNOFF GENERATED BY THE SITE (50 CF, 0.2 CFS) AS A RESULT OF INCREASED IMPERVIOUS AREA, HOWEVER THIS WILL BE OFFSET BY THE WATER HARVESTING CAPACITY (~800 CF) PROVIDED IN THE DEVELOPED CONDITION.

AS IN THE EXISTING CONDITION, THERE ARE NO OFFSITE FLOWS IMPACTING THE PROJECT SITE.

VI. FIRST FLUSH

THE PROPOSED LANDSCAPED WATER HARVESTING AREAS WITHIN THE NEW PARKING LOT AND THE DEPRESSED LANDSCAPED BUFFER BETWEEN THE PAVED PARKING LOT AND THE PUBLIC SIDEWALKS WILL CAPTURE AND TREAT THE FIRST FLUSH RUNOFF GENERATED BY THE PROPOSED PARKING LOT TO THE MAXIMUM EXTENT PRACTICABLE. HOWEVER, THIS AREA IS LIMITED AND IS NOT LARGE ENOUGH TO CONTAIN THE ENTIRE FIRST FLUSH. BECAUSE OF THIS, A VARIANCE TO THE CITY'S FIRST FLUSH REQUIREMENTS IS REQUESTED BASED UPON THE FOLLOWING:

- THE PROJECT SITE IS LOCATED IN AN OVERALL SITE WITHOUT ZONING (SITE PLAN) REQUIREMENTS FOR SUFFICIENT LANDSCAPING AREAS TO CONTAIN FIRST FLUSH FROM THE PARKING LOT.
- THE WATER HARVESTING AREAS WITHIN THE PARKING LOT AND THE LANDSCAPED BUFFERS AT THE PERIMETER OF THE PARKING LOT ARE INSUFFICIENT IN SIZE TO CAPTURE THE ENTIRE FIRST FLUSH FROM THE PROJECT SITE
- WHILE THE WATER HARVESTING AREA BETWEEN THE EXISTING BUILDING AND PARKING LOT WILL NOT CAPTURE RUNOFF FROM THE PARKING LOT, THIS AREA WILL CAPTURE AND TREAT FIRST FLUSH FROM THE ADJACENT EXISTING CLASSROOM BUILDING, THEREBY MITIGATING THE OVERALL FIRST FLUSH FROM THE SITE TO THE MAXIMUM EXTENT PRACTICABLE
- VOLUME CONTAINED IS THAT WHICH IS PRACTICABLE YET LESS THAN THE REQUIRED 0.44-INCH STORM AS CALCULATED

VII. 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 PLAN WILL MAINTAIN THE CURRENT DRAINAGE PATTERN OF THE PROJECT SITE, WITH DEVELOPED RUNOFF RESTRAINED TO NOT EXCEED THE MAXIMUM ALLOWABLE PEAK DISCHARGE RATE OF 29.7 CFS FROM THE SITE.

VIII. EROSION AND SEDIMENT CONTROL

THE PROJECT DISTURBS ONE-ACRE OF LAND, OR GREATER. A SEPARATE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) HAS BEEN PREPARED CONCURRENT WITH THIS PLAN. A SITE SPECIFIC EROSION AND SEDIMENT CONTROL PLAN IS INCLUDED HEREIN THAT PROPOSES SILT FENCE AND INLET PROTECTION BEST MANAGEMENT PRACTICES (TEMPORARY BMPs), SEDIMENT DETENTION BASINS (PERMANENT BMPs) AND GOOD HOUSEKEEPING BMPs TO CAPTURE CONSTRUCTION RELATED SEDIMENT FROM DISCHARGING TO THE ADJACENT AND DOWNSTREAM CITY STREETS.

IX. 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 PROJECT WILL RESULT IN A MINIMAL INCREASE IN DEVELOPED RUNOFF GENERATED BY THE SITE (50 CF, 0.2 CFS); HOWEVER, THIS INCREASE WILL BE OFFSET BY THE INCLUSION OF LANDSCAPED WATER HARVESTING AREAS SIZED TO CAPTURE 800 CF OF FIRST FLUSH RUNOFF FROM THE SITE. FIRST FLUSH CONTAINMENT VOLUMES WERE EVALUATED (CALCULATED) USING THE AVERAGE END-AREA METHOD.

X. CONCLUSIONS

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

- THIS PROJECT REPRESENTS A MODIFICATION TO AN EXISTING SITE WITHIN AN INFILL AREA
- THE PROPOSED IMPROVEMENTS WILL MAINTAIN AND NOT ALTER THE EXISTING DRAINAGE PATTERNS OF THE SITE
- THE PROPOSED IMPROVEMENTS WILL NOT RESULT IN AN INCREASE IN THE DEVELOPED RUNOFF VOLUME DISCHARGED FROM THE SITE AND HENCE WILL NOT EXCEED THE MAXIMUM DISCHARGE LIMITS SET FORTH IN THE APPROVED 1997 MASTER DRAINAGE PLAN
- THE PROPOSED IMPROVEMENTS WILL NOT ADVERSELY IMPACT DOWNSTREAM PROPERTIES OR DOWSTREAM DRAINAGE CONDITIONS
- EROSION AND SEDIMENT CONTROL MEASURES ARE PROPOSED HEREIN FOR INSTALLATION DURING CONSTRUCTION; BMP INSTALLATION BASED ON THIS PLAN SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE CONSTRUCTION RELATED SEDIMENT DOES NOT DISCHARGE FROM THE SITE TO PUBLIC RIGHT-OF-WAY
- THIS PROJECT IS SUBJECT TO AN EPA NPDES PERMIT
- A VARIANCE TO THE REQUIREMENT TO CAPTURE AND TREAT THE FIRST FLUSH (0.44 INCH STORM) OF RUNOFF FROM THE NEW IMPERVIOUS (PAVED) AREA CREATED BY THIS PLAN IS REQUESTED BASED UPON THE FOLLOWING:
 - NEW LANDSCAPED AREAS ARE DEPRESSED WHERE POSSIBLE TO CAPTURE AND TREAT THE FIRST FLUSH TO THE MAXIMUM EXTENT PRACTICABLE
 - THE WATER HARVESTING AREAS WITHIN THE PARKING LOT AND THE LANDSCAPED BUFFERS AT THE PERIMETER OF THE PARKING LOT ARE NOT LARGE ENOUGH TO CAPTURE THE ENTIRE FIRST FLUSH GENERATED BY THE PROJECT SITE
 - WHILE THE WATER HARVESTING AREA BETWEEN THE EXISTING BUILDING AND PARKING LOT WILL NOT CAPTURE RUNOFF FROM THE PARKING LOT, IT WILL CAPTURE AND TREAT FIRST FLUSH ROOF RUNOFF FROM THE EXISTING ADJACENT CLASSROOM BUILDING, THEREBY MITIGATING THE FIRST FLUSH FROM THE OVERALL SITE TO THE MAXIMUM EXTENT PRACTICABLE
 - THE PROJECT SITE IS LOCATED IN AN OVERALL SITE WITHOUT ZONING (SITE PLAN) REQUIREMENTS FOR SUFFICIENT LANDSCAPING AREAS TO CONTAIN FIRST FLUSH FROM THE PARKING LOT VOLUME CONTAINED IS THAT WHICH IS PRACTICABLE YET LESS THAN THE REQUIRED 0.44-INCH STORM

CALCULATIONS

I. SITE CHARACTERISTICS

- A. PRECIPITATION ZONE = 2
- B. $P_{100, 6 \text{ HR}} = P_{300} = 2.35$
- C. TOTAL PROJECT AREA (A_T) = 43,200 SF
1.00 AC
- D. LAND TREATMENTS

1. EXISTING CONDITION

TREATMENT	AREA (SF/AC)	%
A	0 / 0	0
B	0 / 0	0
C	7,750 / 0.18	18
D	35,750 / 0.82	82

2. DEVELOPED CONDITION

TREATMENT	AREA (SF/AC)	%
A	0 / 0	0
B	0 / 0	0
C	2,040 / 0.05	5
D	41,160 / 0.95	95

II. AREA OF DISTURBANCE

AREA OF DISTURBANCE = 1.0 AC ∴ SEPARATE EROSION & SEDIMENT CONTROL IS REQ'D

III. HYDROLOGY

A. EXISTING CONDITION

- a. VOLUME
 $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$
 $E_W = (0.53^*0.00) + (0.78^*0.00) + (1.13^*0.18) + (2.12^*0.82) / 1.00 = 1.94 \text{ IN}$
 $V_{100, 6 \text{ HR}} = (E_W / 12) A_T = (1.94 / 12) 1.00 = 0.1617 \text{ AC-FT} = 7.040 \text{ CF}$

- b. PEAK DISCHARGE
 $Q_p = Q_{pA} A_A + Q_{pB} A_B + Q_{pC} A_C + Q_{pD} A_D$
 $Q_p = Q_{100} = (1.56^*0.00) + (2.28^*0.00) + (3.14^*0.18) + (4.70^*0.82) = 4.4 \text{ CFS}$

B. DEVELOPED CONDITION

- a. VOLUME
 $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$
 $E_W = (0.53^*0.00) + (0.78^*0.00) + (1.13^*0.05) + (2.12^*0.95) / 1.00 = 2.07 \text{ IN}$
 $V_{100, 6 \text{ HR}} = (E_W / 12) A_T = (2.07 / 12) 1.00 = 0.1725 \text{ AC-FT} = 7.510 \text{ CF}$

- b. PEAK DISCHARGE
 $Q_p = Q_{pA} A_A + Q_{pB} A_B + Q_{pC} A_C + Q_{pD} A_D$
 $Q_p = Q_{100} = (1.56^*0.00) + (2.28^*0.00) + (3.14^*0.05) + (4.70^*0.95) = 4.6 \text{ CFS}$

- c. FIRST FLUSH (90TH PERCENTILE STORM EVENT)
 $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$
 $E_W = (0.00^*0.00) + (0.00^*0.00) + (0.00^*0.05) + (0.44^*0.95) / 1.00 = 0.42 \text{ IN}$
 $V_{\text{FIRST FLUSH}} = (E_W / 12) A_T = (0.42 / 12) 1.00 = 0.0350 \text{ AC-FT} = 1.520 \text{ CF}$

- d. WATER HARVESTING AREA CAPACITY
i. NW CORNER WATER HARVESTING

ELEV	AREA	VOLUME	ΣVOLUME
5249	200		
5250	420	310	310

 $V_{WH} = 310 \text{ CF}$

- ii. PARKING LOT ISLANDS WATER HARVESTING (3 WATER HARVESTING AREAS)
 $V_{WH} = 250 \text{ CF}$

- iii. TOTAL PROJECT SITE WATER HARVESTING
 $V_{\text{TOTAL WH}} = 310 + 250 = 560 \text{ CF} < V_{\text{FIRST FLUSH}} = 1,160 \text{ CF}$
∴ FIRST FLUSH CAPTURED TO THE MAXIMUM EXTENT PRACTICABLE

C. COMPARISON

- a. VOLUME WITHOUT WATER HARVESTING
 $\Delta V_{100, 6 \text{ HR}} = V_{\text{DEV } 100} - V_{\text{EX } 100}$
 $\Delta V_{100, 6 \text{ HR}} = 7510 - 7040 = 470 \text{ CF} \quad (\text{INCREASE})$

- b. VOLUME WITH WATER HARVESTING
 $\Delta V_{100, 6 \text{ HR}} = V_{\text{DEV } 100} - V_{\text{EX } 100} - V_{\text{TOTAL WH}}$
 $\Delta V_{100, 6 \text{ HR}} = 7510 - 7040 - 560 = -90 \text{ CF} \quad (\text{DECREASE})$

- c. FIRST FLUSH
 $V_{\text{FIRST FLUSH}} = 1,160 \text{ CF} > V_{\text{TOTAL WH}} = 560 \text{ CF}$
∴ FIRST FLUSH CAPTURED TO THE MAXIMUM EXTENT PRACTICABLE

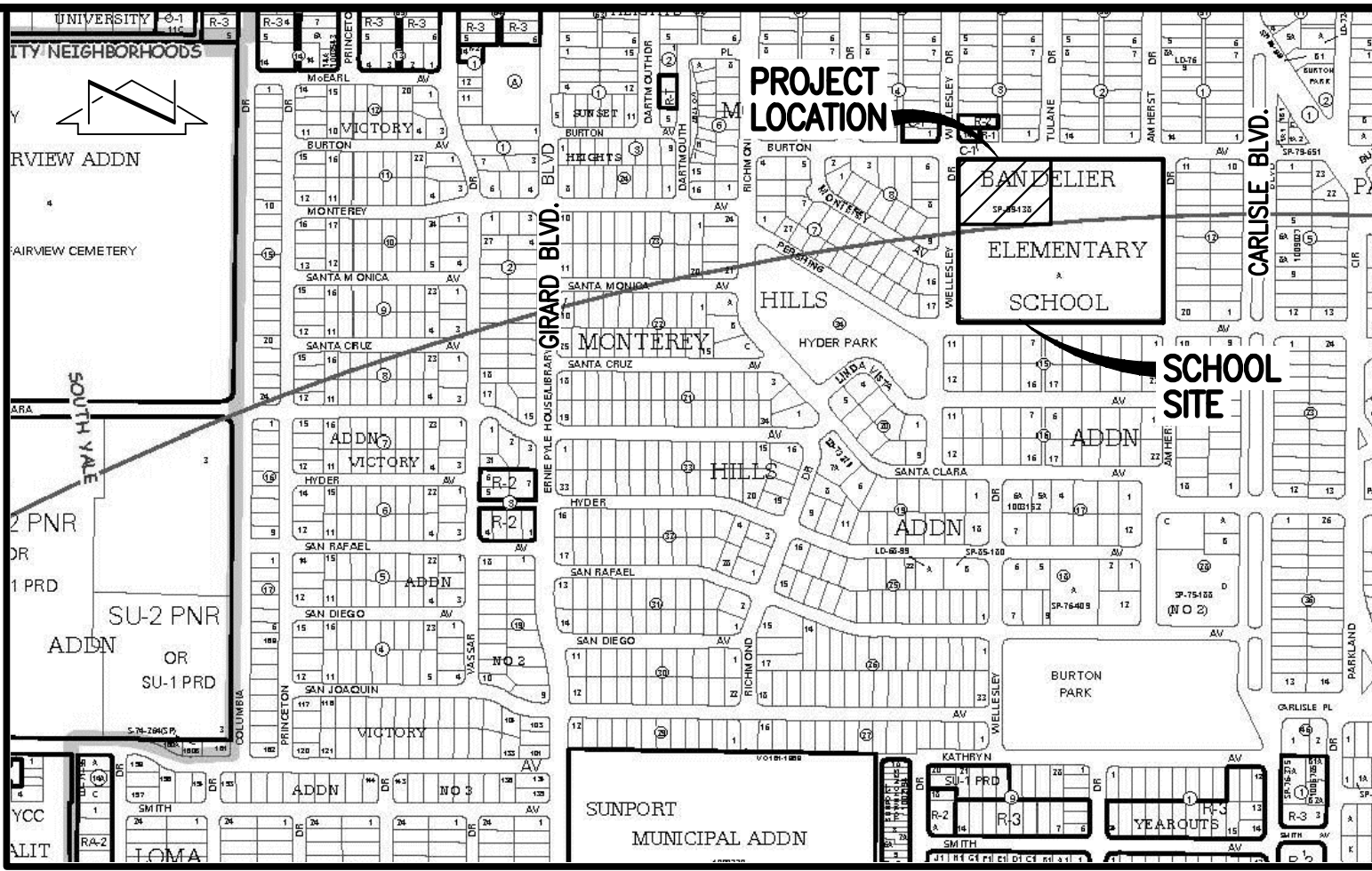
- d. PEAK DISCHARGE
 $\Delta Q_{100} = 4.6 - 4.4 = 0.2 \text{ CFS} \quad (\text{INCREASE})$

CONSTRUCTION NOTES:

- TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM, 811, 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.
- UTILITY INFORMATION SHOWN HEREON IS BASED UPON ONSITE SURFACE EVIDENCE, ABOVEA DISTRIBUTION MAPS AND UTILITY LINE-SPOTS PROVIDED BY HIGH MESA CONSULTING GROUP, FIELD DESIGNATION REPORT (2015.180.7) DATED NOVEMBER 12, 2015. IN ADDITION, UTILITY LINE-SPOTS WERE REQUESTED VIA THE NEW MEXICO ONE CALL SERVICE (TICKET #2015460896). UTILITY LINES THAT APPEAR ON THESE DRAWINGS 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 AND SEDIMENT CONTROL MEASURES:

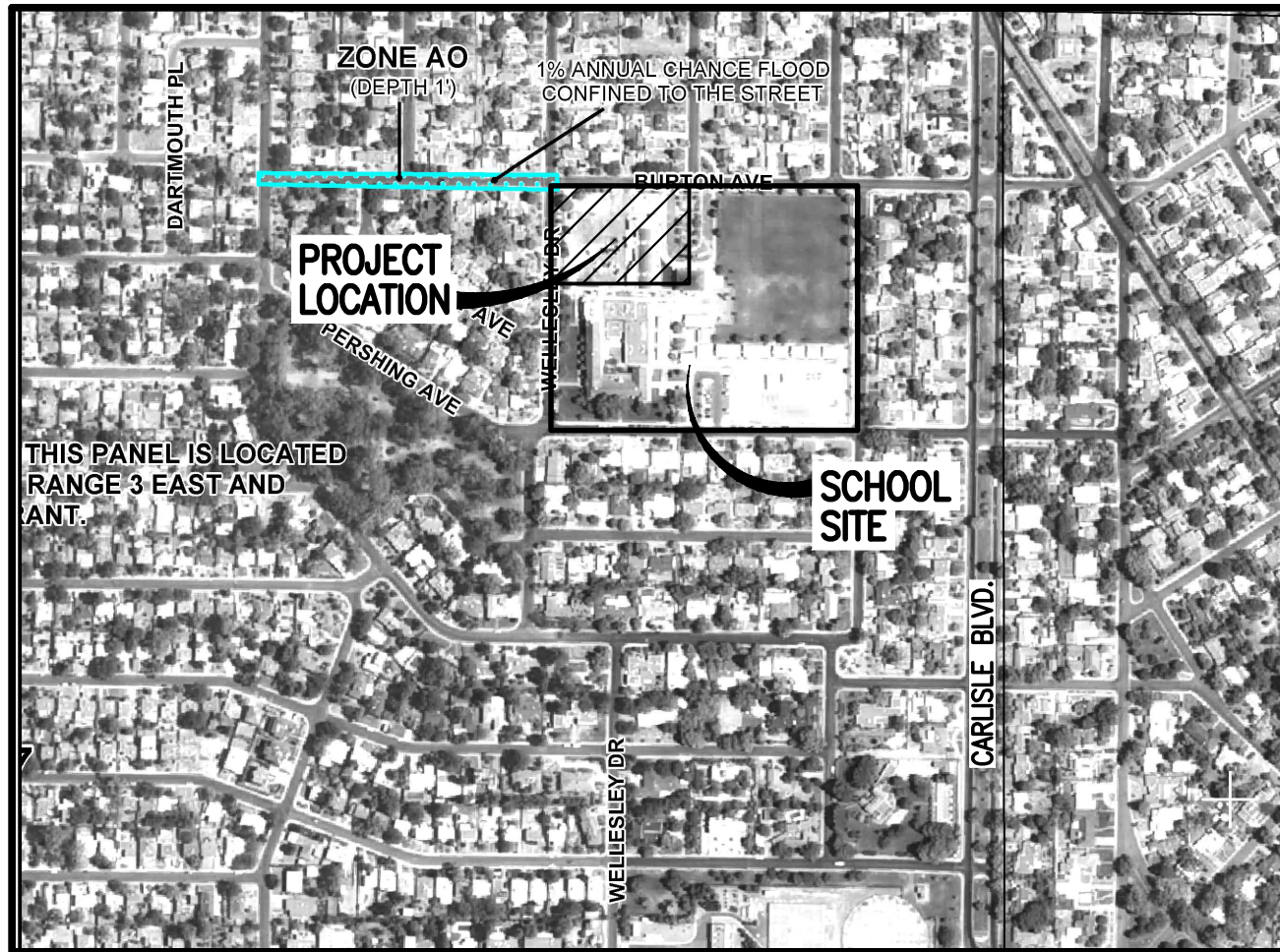
- THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY.
- THE CONTRACTOR SHALL PROMPTLY CLEAN UP ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY SO THAT THE EXCAVATED MATERIAL IS NOT SUSCEPTIBLE TO BEING WASHED DOWN THE STREET.
- NO SPOILS FROM THE PROJECT SHALL BE DEPOSITED IN THE STREET.
- SPOILS SHALL BE STAGED ON THE UPHILL SIDE OF TRENCHES WHEN TRENCHING IS REQUIRED.
- THE CONTRACTOR SHALL CLEAN AND REMOVE ALL FUGITIVE DUST, SOIL AND DEBRIS RESULTING FROM THIS PROJECT FROM THE STREET AT THE END OF EACH DAY
- CONTRACTOR SHALL LEAVE THE AREA IMMEDIATELY BEHIND THE CURB DEPRESSED TO CONTAIN NUISANCE FLOWS AND SEDIMENT.
- CONCRETE TRUCKS SHALL BE SENT BACK TO THE PLANT FOR WASHING; THE WASHING OF CONCRETE TRUCKS SHALL NOT BE PERMITTED WITHIN THE PUBLIC RIGHT-OF-WAY.
- 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'

L-16



F.I.R.M.

SCALE: 1" = 750'

353 OF 825

DATE: AUGUST 16, 2012

BENCHMARKS

PROJECT BENCHMARK

ACS BENCHMARK "16-L16" A CHISELED "C" ON TOP OF CONCRETE CURB LOCATED AT THE WSW QUADRANT OF THE INTERSECTION OF AMHERST DRIVE S.E. AND BURTON AVENUE S.E.
ELEVATION = 5274.17 FEET (NGVD 1929)

TEMPORARY BENCHMARK #1 (T.B.M.)

A CHISELED "H" ON TOP OF CURB LOCATED AT THE NW RETURN OF BURTON AVENUE S.E. AND WELLESLEY DRIVE S.E., AS SHOWN ON SHEET 2.
ELEVATION = 5248.99 FEET (NGVD 1929)

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

A 60d NAIL AT THE TOP OF CURB LOCATED AT THE NW RETURN OF MONTEREY AVENUE S.E. AND WELLESLEY DRIVE S.E., AS SHOWN ON SHEET 2.
ELEVATION = 5264.18 FEET (NGVD 1929)

LEGAL DESCRIPTION

TRACT A, BANDELIER ELEMENTARY SCHOOL, ALBUQUERQUE, NEW MEXICO



04-26-2016



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DRAINAGE PLAN AND CALCULATIONS NORTH PARKING LOT RECONSTRUCTION BANDELIER ELEMENTARY SCHOOL

DESIGNED BY	_____J.G.M.	NO.	DATE	BY	REVISIONS	JOB NO.
DRAWN BY	_____J.Y.R.,S.C.C.					DATE
APPROVED BY	_____G.M.					SHEET
						5 OF 11