

DRAINAGE PLAN

I. INTRODUCTION AND EXECUTIVE SUMMARY

THIS PROJECT, LOCATED IN THE OLD TOWN AREA, REPRESENTS A MODIFICATION TO AN EXISTING SITE WITHIN AN INFILL AREA. THE PROPOSED IMPROVEMENTS CONSIST OF THE PHASE 1 BUILDING ADDITION TO THE EXISTING MUSEUM LOCATED AT THE NORTHEAST CORNER OF THE INTERSECTION OF MOUNTAIN ROAD NW AND 18TH STREET NW. THE PROPOSED IMPROVEMENTS LIE WITHIN BASIN B AS DEFINED BY THE 2011 CONCEPTUAL GRADING PLAN REFERENCED BELOW. THEREFORE THIS SUBMITTAL FOCUSES ONLY ON BASIN B. THE PROPOSED DRAINAGE CONCEPT IS THE CONTINUED ROUTING OF DEVELOPED RUNOFF THROUGH AN EXISTING WATER HARVESTING AREA PRIOR TO CONTROLLED DISCHARGE TO MOUNTAIN ROAD NW.

THIS SUBMITTAL IS MADE IN SUPPORT OF BUILDING PERMIT APPROVAL.

II. PROJECT DESCRIPTION

AS SHOWN BY THE VICINITY MAP, THE SITE IS LOCATED AT THE NORTHEAST CORNER OF THE INTERSECTION OF MOUNTAIN ROAD AND 18TH STREET NW. THE PROJECT AREA IS LOCATED AT THE SOUTHEAST CORNER OF THE SITE. THE CURRENT LEGAL DEED OF THE SITE IS TRACT B-3-A AND A PORTION OF B-3-B, FREEWAY-OLD TOWN, LIMITED, ALBUQUERQUE, NEW MEXICO. AS PANEL 331 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS FOR BERNALILLO COUNTY, MEXICO, SEPTEMBER 26, 2008, THIS SITE DOES NOT LIE WITHIN A DESIGNATED FLOOD HAZARD ZONE. HOWEVER, IT WAS PREVIOUSLY RECOGNIZED BY 1999 SUBMITTAL THAT MOUNTAIN ROAD NW HAS LIMITED DRAINAGE CAPACITY. IN RECOGNITION OF THIS AND SUPPORT OF THE MISSION OF THE MUSEUM, WATER HARVESTING AREAS WERE CREATED THAT EFFECTIVELY ACT AS DETENTION PONDS. IN KEEPING WITH THE PAST INTENT, THE CONTINUED ROUTING OF DEVELOPED RUNOFF THROUGH EXISTING WATER HARVESTING AREAS IS PROPOSED.

III. BACKGROUND DOCUMENTS AND RESEARCH

THE PREPARATION OF THIS SUBMITTAL RELIED UPON THE FOLLOWING DOCUMENTS:

- PARTIAL TOPOGRAPHIC SURVEY PREPARED BY HIGH MESA CONSULTING GROUP, NMPS NO. 11184, DATED 04-20-2012. THIS REFERENCED SURVEY PROVIDES THE BASIS FOR THE EXISTING CONDITIONS OF THE PROJECT SITE. IN ADDITION, A SUMP PUMP WAS DISCOVERED DURING THIS SURVEY THAT DISCHARGES RUNOFF FROM THE BASIN B POND TO MOUNTAIN ROAD.
- CONCEPTUAL GRADING PLAN (FOR EPC SITE PLAN APPROVAL) FOR THE EXPLORA SCIENCE CENTER PREPARED BY HIGH MESA CONSULTING GROUP, NMPS 8547, DATED 10-21-2011. THE PURPOSE OF THE PLAN ESTABLISHED THE CONCEPT OF ROUTING DEVELOPED RUNOFF FROM BASIN B THROUGH THE EXISTING "NATURE AREA" WATER HARVESTING POND PRIOR TO DISCHARGE TO MOUNTAIN ROAD NW. APPROVAL OF THE CONCEPTUAL PLAN WAS CONDITIONED UPON LIMITING THE DISCHARGE FROM BASIN B TO 2.75 CFS/AC (4.18 CFS FOR THE 1.52 AC BASIN B), OR LESS. THE PLAN DEMONSTRATES THE FUTURE FULL BUILDOUT CONDITION OF BASIN B, AS WELL AS ESTABLISHED THAT NO OFFSITE FLOWS IMPACT BASIN B.
- DRAINAGE SUBMITTAL FOR THE EXPLORA SCIENCE CENTER & CHILDREN'S MUSEUM PREPARED BY HIGH MESA CONSULTING GROUP (FORMERLY JEFF MORTENSEN & ASSOCIATES, INC.), NMPS 8547, DATED 09-21-99 AND CERTIFIED 09-04-2002. THE REFERENCE DOCUMENT ESTABLISHED AN APPROVED DISCHARGE RATE OF 2.9 CFS (1.9 CFS/AC) FROM BASIN B, CONTROLLED BY THE 24" SIDEWALK CULVERT DISCHARGING OVERFLOW TO MOUNTAIN ROAD NW. IN ADDITION, THE PLAN ESTABLISHED AN EXISTING BASIN B POND VOLUME OF 2,850 CF.
- ADDITIONAL RESEARCH UNCOVERED NO PLANS DOCUMENTING THE BASIN B SUMP PUMP INSTALLATION. AT THE TIME OF THE 2002 CERTIFICATION, THERE WAS NO RECORD OF A SUMP PUMP OR 2" DRAIN LINE TO A CURB OPENING AT THE SOUTHEAST PRIVATE ENTRANCE. THEREFORE, NO RECORD DATA OR CALCULATIONS ON THE DISCHARGE RATE FROM THIS PUMP ARE AVAILABLE FOR REVIEW.

IV. EXISTING CONDITIONS

AT PRESENT, BASIN B GENERALLY DRAINS FROM NORTH TO SOUTH WITH DEVELOPED RUNOFF ROUTED THROUGH A WATER HARVESTING AREA THAT ALSO SERVES AS A "NATURE AREA" AN EXHIBIT TO THE MUSEUM. MISCELLANEOUS AND LOW FLOWS ARE MITIGATED BY THE WATER HARVESTING AREA. LARGER FLOWS ARE COLLECTED VIA STORM INLET IN A SUMP CONDITION AND DISCHARGED VIA SUMP PUMP WITH A 2" PVC DRAIN LINE THROUGH A CURB PENETRATION AT THE PRIVATE ENTRANCE TO MOUNTAIN ROAD NW. FROM THIS POINT, RUNOFF FLOWS SOUTH INTO MOUNTAIN ROAD NW. OVERFLOW FROM THE POND FREE DISCHARGES VIA SIDEWALK CULVERT TO MOUNTAIN ROAD NW, A FULLY DEVELOPED ASPHALT PAVED PUBLIC STREET WITH CURB AND GUTTER AND SIDEWALK.

PER THE 2011 CONCEPTUAL PLAN REFERENCED ABOVE, NO OFFSITE FLOWS IMPACT BASIN B.

V. DEVELOPED CONDITIONS

THE PHASE 1 BUILDING ADDITION IS PROPOSED WITHIN BASIN B. THE IMPROVEMENTS WILL ENCR OACH UPON THE WATER HARVESTING AREA PREVIOUSLY IDENTIFIED AS A "DETENTION POND". THE DEVELOPED RUNOFF FROM THE PROPOSED BUILDING ADDITION WILL CONTINUE TO BE ROUTED THROUGH THE EXISTING WATER HARVESTING AREA WITH DISCHARGE TO MOUNTAIN ROAD NW VIA EXISTING SUMP PUMP AND 2" DRAIN LINE THROUGH A CURB PENETRATION. BY USING THE EXISTING SUMP PUMP AND DRAIN LINE, THE DEVELOPED CONDITION WILL MAINTAIN THE EXISTING RATE OF DISCHARGE TO MOUNTAIN ROAD NW.

IN THE EVENT OF SUMP PUMP FAILURE, OVERFLOW FROM THE POND WILL BE MAINTAINED TO MOUNTAIN ROAD NW VIA SIDEWALK CULVERT AT THE SOUTH EDGE OF THE SITE, MAINTAINING THE EXISTING APPROVED DRAINAGE PATTERN FOR THE SITE. CALCULATIONS INCLUDED HEREON DEMONSTRATE THE CULVERT HAS A DISCHARGE CAPACITY OF 2.8 CFS FOR THE 1.52 AC BASIN B (1.8 CFS/AC), LESS THAN THE 2.75 CFS/AC REQUIRED AS A CONDITION OF THE 2011 CONCEPTUAL PLAN APPROVAL.

DUE TO THE PHASE 1 ADDITION ENCR OACHING UPON THE WATER HARVESTING AREA, AS WELL AS ADDITIONAL IMPROVEMENTS TO THE "NATURE AREA", THE POND WILL BE REGRADED BETWEEN THE BUILDING ADDITION AND A NEW RETENTION WALL ALONG THE EAST AND SOUTH EDGES OF THE WATER HARVESTING AREA. THIS WILL RESULT IN AN INCREASED DETENTION CAPACITY OF THE BASIN B POND. THE INCREASED CAPACITY IS SIZED TO CONTAIN NOT ONLY THE INCREASE IN VOLUME OF RUNOFF DUE TO PHASE 1 IMPROVEMENTS, BUT ALSO THE INCREASE DUE TO FULL BUILD-OUT OF BASIN B AS CHARACTERIZED IN THE 2011 CONCEPTUAL PLAN.

THE FINISHED FLOOR ELEVATION OF THE PROPOSED BUILDING ADDITION WILL MATCH THE EXISTING BUILDING THAT IS SIGNIFICANTLY HIGHER THAN THE MAXIMUM WATER SURFACE ELEVATION OF THE NATURE AREA THEREBY PROTECTING THE BUILDING FROM ONSITE FLOODING. IN ADDITION, THE STRUCTURAL DESIGN OF THE BUILDING ADDITION FOUNDATIONS SHALL TAKE INTO ACCOUNT THE PROXIMITY OF THE NEW BUILDING FOOTPRINT TO THE MAXIMUM WATER SURFACE ELEVATION WITHIN THE NATURE AREA TO MAKE SURE THE FOUNDATION IS WATERPROOF AND PROTECTED FROM THE ADVERSE EFFECTS OF PONDING ADJACENT TO A STRUCTURE.

VI. GRADING PLAN

THE GRADING PLAN SHOWS 1.) EXISTING GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'-0" INTERVALS AS TAKEN FROM A PARTIAL TOPOGRAPHIC SURVEY DATED 04-20-2012, 2.) PROPOSED GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'-0" INTERVALS, 3.) PHASE 1 IMPROVEMENTS, 4.) THE LIMIT AND CHARACTER OF THE EXISTING IMPROVEMENTS TAKEN FROM THE PARTIAL TOPOGRAPHIC SURVEY DATED 04-20-2012, 5.) THE LIMIT AND CHARACTER OF THE PROPOSED PHASE 1 IMPROVEMENTS, AND 6.) CONTINUITY BETWEEN EXISTING AND PROPOSED GRADES.

VII. CALCULATIONS

THE CALCULATIONS CONTAINED HEREON ANALYZE THE EXISTING AND DEVELOPED CONDITIONS FOR THE 100-YEAR, 6-HOUR RAINFALL EVENT FOR BASIN B (THE PORTION OF THE SITE AFFECTED BY THE PROPOSED PHASE 1 IMPROVEMENTS). 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, 1993, HAS BEEN USED TO QUANTIFY THE PEAK RATE OF DISCHARGE AND VOLUME OF RUNOFF GENERATED. AS DEMONSTRATED BY THESE CALCULATIONS, THE PROPOSED IMPROVEMENTS WILL RESULT IN A MINOR INCREASE IN THE PEAK RATE OF DISCHARGE AND VOLUME OF RUNOFF GENERATED BY THIS PROJECT.

THE AVERAGE END-AREA METHOD WAS USED TO CALCULATE THE WATER HARVESTING POND VOLUME IN BOTH THE EXISTING AND DEVELOPED CONDITIONS. THESE CALCULATIONS DEMONSTRATE AN INCREASE IN BASIN B POND CAPACITY ($\Delta V_{POND} = 1,115$ CF). THIS INCREASED POND VOLUME IS SIZED TO ACCOMMODATE THE INCREASED VOLUME OF DISCHARGE DUE TO FULL BUILD-OUT OF BASIN B ($\Delta V_{100} = 940$ CF) AS CHARACTERIZED IN THE 2011 CONCEPTUAL PLAN REFERENCED ABOVE.

UPON COMPLETION OF FULL BUILD-OUT, THE IMPROVEMENTS WILL RESULT IN A DEVELOPED PEAK RATE OF DISCHARGE OF 6.1 CFS (4.0 CFS/AC) TO THE EXISTING "NATURE AREA" WATER HARVESTING POND, AN INCREASE OF 0.5 CFS FROM THE EXISTING 5.6 CFS (3.7 CFS/AC) DISCHARGE RATE. THE INCREASE WILL BE MITIGATED BY THE INCREASED POND CAPACITY, WHILE MAINTAINING THE EXISTING HISTORIC DISCHARGE RATE FROM THE POND BY CONTINUED USE OF THE EXISTING POND SUMP PUMP TO DRAIN THE POND.

THE WEIR EQUATION IS USED TO CALCULATE THE OVERFLOW CAPACITY OF THE 2" SIDEWALK CULVERT THAT DISCHARGES OVERFLOW TO MOUNTAIN ROAD NW. THESE CALCULATIONS DEMONSTRATE A DISCHARGE CAPACITY OF 2.8 CFS FROM BASIN B, THAT IS LESS THAN THE ALLOWABLE RATE OF 2.75 CFS/AC (4.18 AC FOR 1.52 AC BASIN B) REQUIRED PER THE 2011 CONCEPTUAL PLAN REFERENCED ABOVE.

VIII. CONCLUSIONS

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

- THE SITE DOES NOT LIE WITHIN A DESIGNATED FLOOD HAZARD ZONE.
- CONTROLLED DISCHARGE OF RUNOFF FROM BASIN B IS LIMITED TO 2.75 CFS/AC, OR 4.18 CFS FROM THE 1.52 AC SITE, PER THE 2011 CONCEPTUAL PLAN CITY PLANNING DEPARTMENT COMMENTS (J13/D070) RECEIVED 11-3-2011.
- THE EXISTING 2" SIDEWALK CULVERT DISCHARGING BASIN B POND OVERFLOW RUNOFF TO MOUNTAIN ROAD NW HAS A CAPACITY OF 2.8 CFS (1.8 CFS/AC), LESS THAN THE ALLOWABLE CONTROLLED DISCHARGE RATE OF 2.75 CFS/AC (4.18 CFS). THIS EVALUATION ASSUMES THE EXISTING SUMP PUMP HAS NEGLIGIBLE CAPACITY OR IS INOPERATIONAL, AS ITS ORIGIN, CONDITION AND CAPACITY ARE UNKNOWN.
- THE EXISTING RATE OF DISCHARGE FROM THE POND VIA SUMP PUMP WILL BE MAINTAINED BY CONTINUED USE OF THE EXISTING POND SUMP PUMP AND DRAIN LINE TO DRAIN THE REGRADED POND. NO RECORDS OR CALCULATIONS WERE AVAILABLE TO QUANTIFY THE DISCHARGE RATE FROM THIS PUMP.
- PHASE 1 IMPROVEMENTS IN BASIN B WILL RESULT IN A MINOR INCREASE IN VOLUME OF RUNOFF GENERATED BY THE BASIN. THIS INCREASE IS ACCOMMODATED BY INCREASING THE POND VOLUME.
- FULL BUILD-OUT OF BASIN B (INCLUDING PHASE 1) WILL RESULT IN A MINOR INCREASE IN VOLUME OF RUNOFF GENERATED BY BASIN B OF 940 CF.
- THE PHASE 1 DEVELOPED POND IS SIZED TO CONTAIN THE VOLUME OF RUNOFF INCREASE DUE TO FULL BUILD-OUT OF BASIN B. THE INCREASED CAPACITY OF 1,115 CF WILL CONTAIN THE 940 CF FULL BUILD-OUT INCREASE.
- THE CONTINUED ROUTING OF BASIN B RUNOFF THROUGH THE NATURE AREA IS APPROPRIATE AND INTEGRAL TO THE EXHIBIT.
- THE ROUTING OF BASIN B RUNOFF THROUGH THE NATURE AREA IS REQUIRED TO MEET THE INTENT OF THE CONTROLLED DISCHARGE REQUIREMENTS FOR BASIN B.
- THE PROPOSED IMPROVEMENTS WILL NOT ADVERSELY IMPACT DOWNSTREAM PROPERTIES OF CONDITIONS.

CALCULATIONS

I. SITE CHARACTERISTICS

A. PRECIPITATION ZONE = 2

B. $P_{6,100} = P_{360} = 2.35$

C. BASIN B AREA (A_B) = 66,150 SF
1.52 AC

D. DISTURBED AREA DUE TO CONSTRUCTION = 0.55 AC

E. LAND TREATMENTS

1. EXISTING LAND TREATMENT

a. BASIN B TREATMENT	66,150 SF = 1.52 AC	%
B	27,350 / 0.63	41
D	38,800 / 0.89	59

2. DEVELOPED LAND TREATMENT

a. BASIN B - PHASE 1 TREATMENT	66,150 SF = 1.52 AC	%
B	22,850 / 0.53	35
D	43,300 / 0.99	65

II. HYDROLOGY

A. EXISTING CONDITION

1. BASIN B

a. VOLUME

$$E_w = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$
$$E_w = ((0.00^*0.53) + (0.63^*0.78) + (0.00^*1.13) + (0.89^*2.12)) / 1.52 = 1.57 \text{ IN}$$
$$V_{100} = (E_w / 12) A_T = (1.57 / 12) 1.52 = 0.1989 \text{ AC-FT} = 8,660 \text{ CF}$$

b. PEAK DISCHARGE

$$Q_p = Q_{pA_A} + Q_{pB_A} + Q_{pC_A} + Q_{pD_A}$$
$$Q_p = Q_{100} = ((0.00^*1.56) + (0.63^*2.28) + (0.00^*3.14) + (0.89^*4.7)) = 5.6 \text{ CFS}$$

c. EXISTING "NATURE AREA" POND VOLUME

$V_{EXIST POND} = 2,850 \text{ CF}$ (AS-APPROVED VOLUME PER 2002 CERTIFIED PLAN OF RECORD)

B. DEVELOPED CONDITION

1. BASIN B - PHASE 1

a. VOLUME

$$E_w = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$
$$E_w = ((0.00^*0.53) + (0.53^*0.78) + (0.00^*1.13) + (0.99^*2.12)) / 1.52 = 1.66 \text{ IN}$$
$$V_{100} = (E_w / 12) A_T = (1.66 / 12) 1.52 = 0.2103 \text{ AC-FT} = 9,160 \text{ CF}$$

b. PEAK DISCHARGE

$$Q_p = Q_{pA_A} + Q_{pB_A} + Q_{pC_A} + Q_{pD_A}$$
$$Q_p = Q_{100} = ((0.00^*1.56) + (0.53^*2.28) + (0.00^*3.14) + (0.99^*4.7)) = 5.9 \text{ CFS}$$

2. FULL BUILDOUT (FROM 10-21-2011 CONCEPTUAL PLAN)

a. VOLUME

$V_{100-FULL BUILDOUT} = 9600 \text{ CF}$

b. PEAK DISCHARGE

$Q_{100-FULL BUILDOUT} = 6.1 \text{ CFS}$

3. "NATURE AREA" WATER HARVESTING POND VOLUME

ELEV	AREA	VOLUME	± VOLUME
4960	3180	3565	3565
4961	3950	400	3965 ✓
4961.1	4110		

$V_{POND @ MAX WSL = 4961.1} = 3695 \text{ CF}$

4. EXISTING 2" SIDEWALK CULVERT OVERFLOW CAPACITY (WEIR EQUATION) (EVALUATED IN THE EVENT THE SUMP PUMP HAS NEGLIGIBLE CAPACITY OR IS INOPERATIONAL)

$$Q_{CULV} = C^* L^* H^{3/2}$$

$C = 3$
 $L = 2 \text{ FT}$
 $H = 0.6'$

$$Q_{CULV} = 2.8 \text{ CFS} < Q_{ALLOWABLE} = 2.75 \text{ CFS/AC} * 1.52 \text{ AC} = 4.18 \text{ CFS}$$

$Q_{ALLOWABLE} = 2.75 \text{ CFS/AC PER COA PLAN, DEPT COMMENTS, 11-3-2011 (J13/D070)}$

C. COMPARISON

1. BASIN B - PHASE 1

a. VOLUME

$$\Delta V_{100} = 9,160 - 8,660 = 500 \text{ CF} \quad (\text{INCREASE})$$

b. PEAK DISCHARGE

$$\Delta Q_{100} = 5.9 - 5.6 = 0.3 \text{ CFS} \quad (\text{INCREASE})$$

2. BASIN B FULL BUILD OUT (FROM 2011 CONCEPTUAL PLAN)

a. VOLUME

$$\Delta V_{100} = 9,600 - 8,660 = 940 \text{ CF} \quad (\text{INCREASE})$$

b. PEAK DISCHARGE

$$\Delta Q_{100} = 6.1 - 5.6 = 0.5 \text{ CFS} \quad (\text{INCREASE})$$

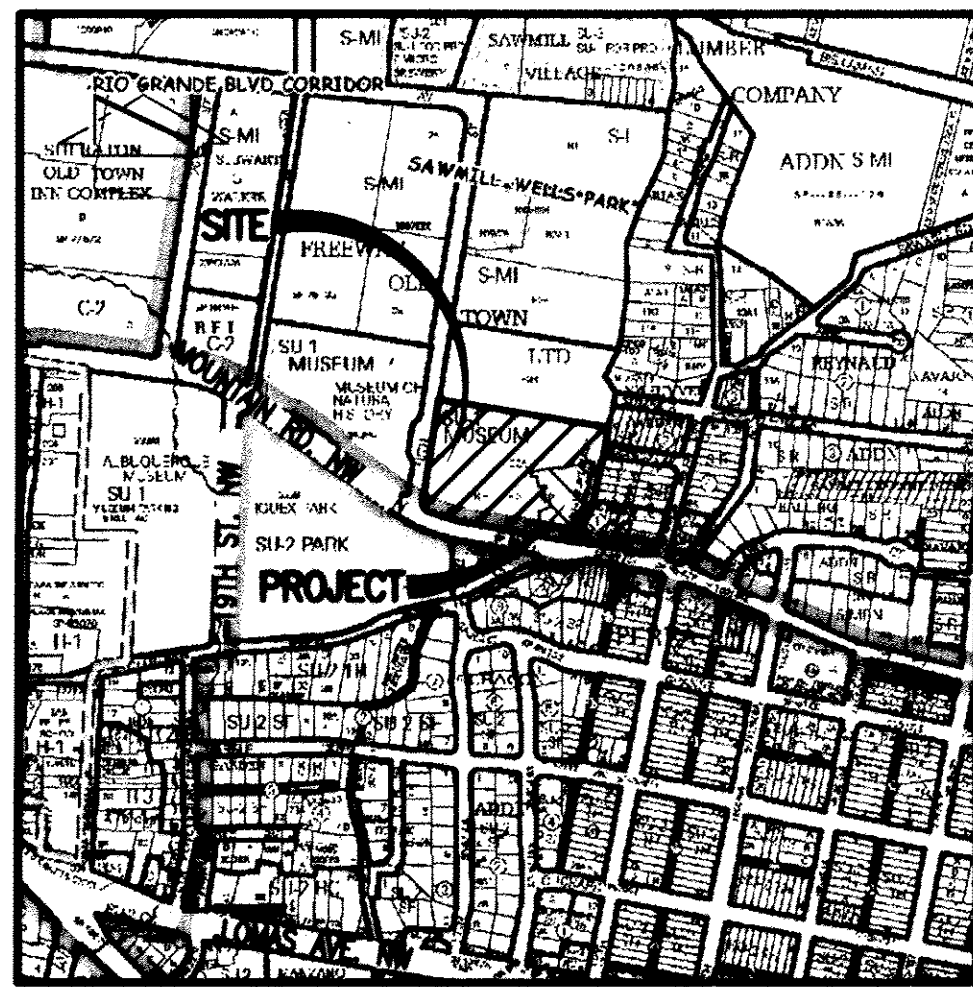
3. BASIN B POND

a. VOLUME

$$\Delta V_{POND} = V_{POND,DEV} - V_{POND,EXIST}$$
$$\Delta V_{POND} = 3,965 - 2850 = 1,115 \text{ CF}$$
$$\Delta V_{POND} = 1,115 \text{ CF} > \Delta V_{100} = 940 \text{ CF}$$

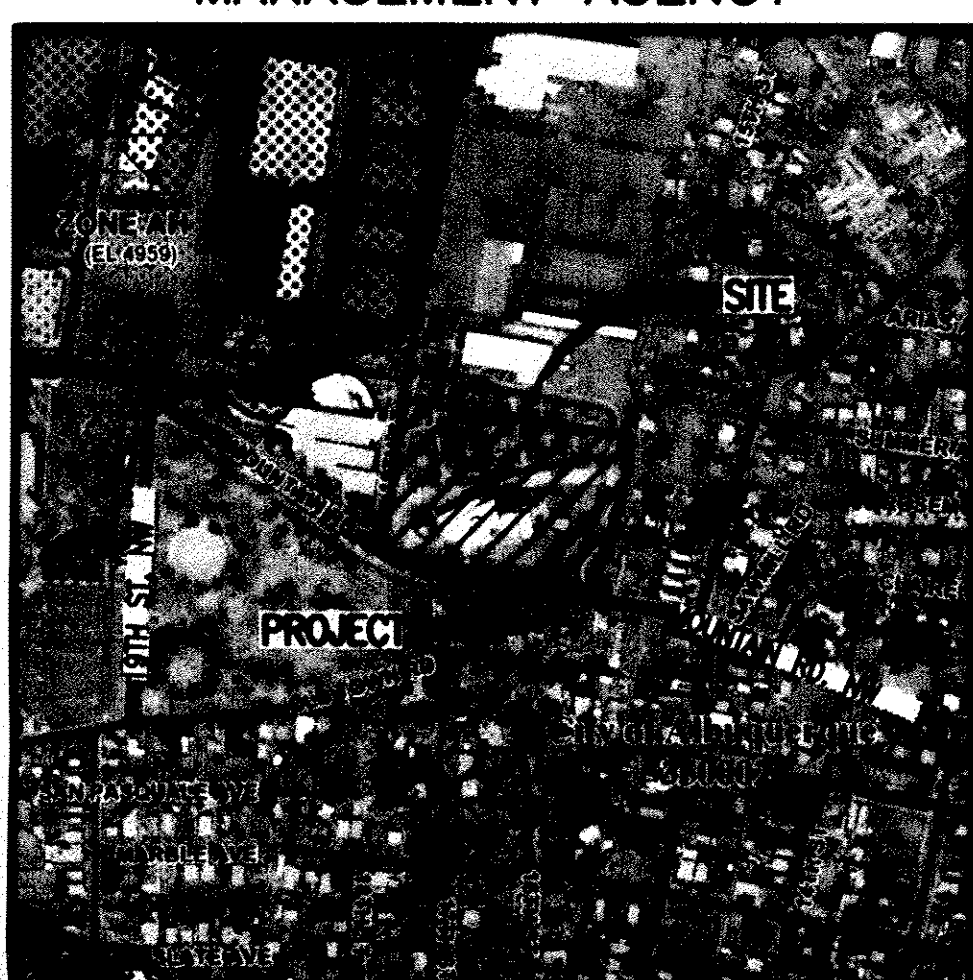
LEGEND

0.8" AIR
AL LIGHT
ARV
BOH
BP
BTM
BW
CAM
CCL
CD
CF
CHC
CLD
CLDD
CND
CONC
COP
CS
CW
CW/F
E/PM
EBB
EC
ECAB
EM
EO
EPB
FE
FH
FL
FLB
G/PM
GC
GEN
GM
GMS
GS
IVB
MBC
MHR
MLP
MRG
MS
PB
PS
PVC
PVP
RD
RR
SB
SCB
SD
SGP
STD C&G
SW
SWC
SWS
TA
TC
TCQ
TRN
TS
TYP
VG
WCR
WF
WH
WHB
WMB
WVB
*
DECIDUOUS TREE
SMALL DECIDUOUS TREE
LANDSCAPING SHRUB
SMALL LANDSCAPING SHRUB
YUCCA
LANDSCAPING BOULDER



VICINITY MAP J-13
SCALE: 1" = 750'

FEDERAL EMERGENCY MANAGEMENT AGENCY

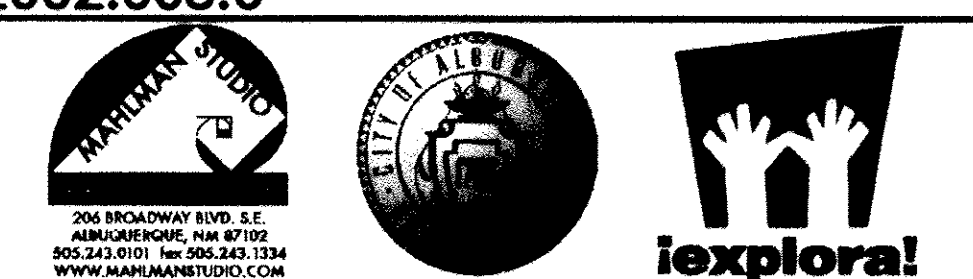


F.I.R.M. PANEL 331 of 825
SCALE: 1" = 500' DATED 09-26-2008

LEGAL DESCRIPTION:

TRACT B-3-A & PORTION OF B-3-B, FREEWAY-OLDTOWN LTD

HIGH MESA Consulting Group
6010-B MIDWAY PARK BLVD. NE • ALBUQUERQUE, NEW MEXICO 87109
PHONE: 505.345.4250 • FAX: 505.345.4254 • www.hghmesacg.com
2002.003.6



CITY OF ALBUQUERQUE
CAPITAL IMPLEMENTATION PROGRAM

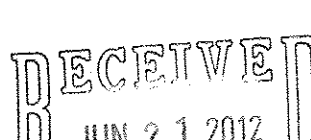
PROJECT TITLE: EXPLORA SCIENCE CENTER & CHILDRENS MUSEUM ADDITION & RENOVATIONS
1701 MOUNTAIN RD. NW
ALBUQUERQUE, NEW MEXICO 87102

DRAWING TITLE: DRAINAGE PLAN AND CALCULATIONS

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	MO/DAY/YR	MO/DAY/YR

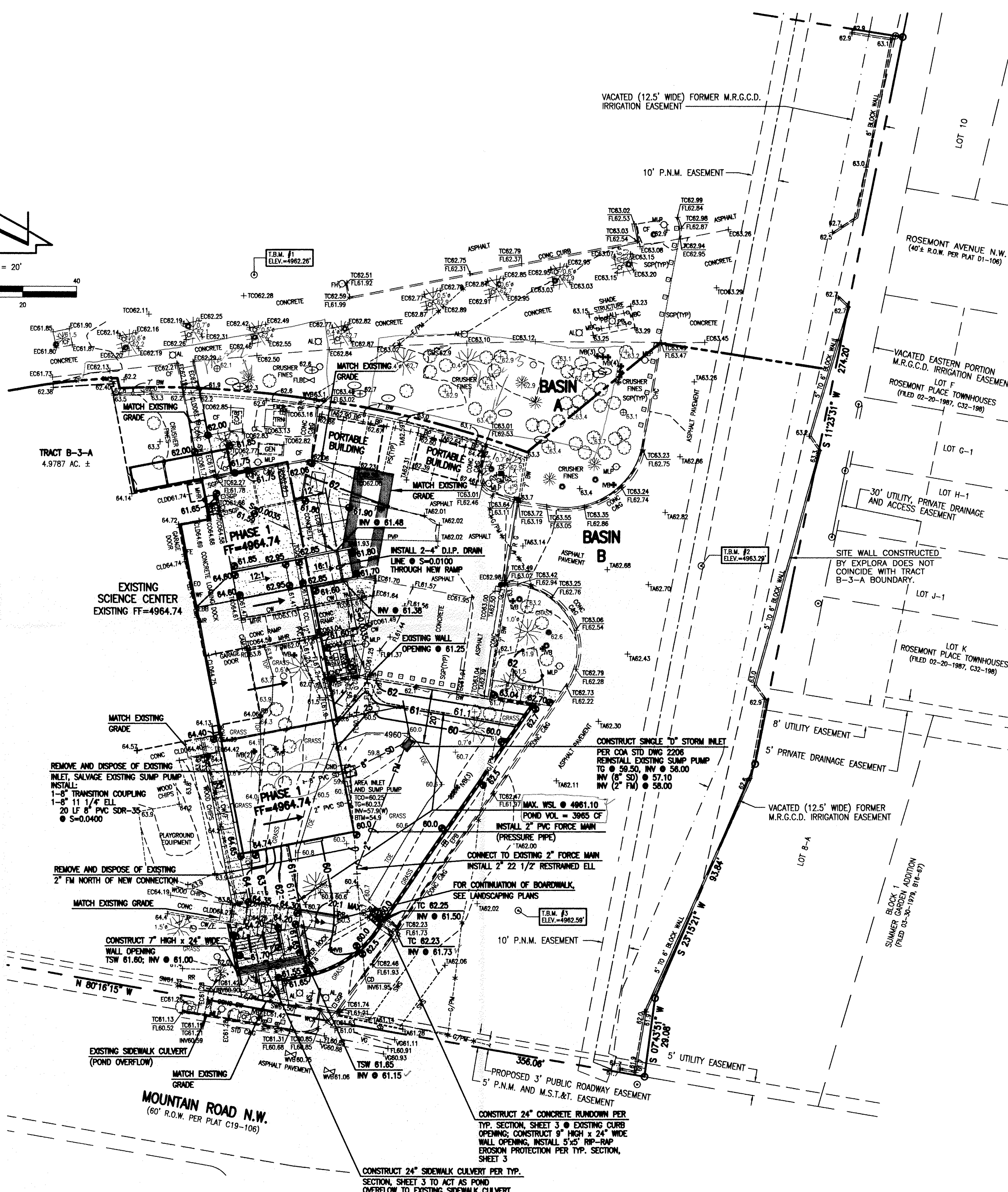
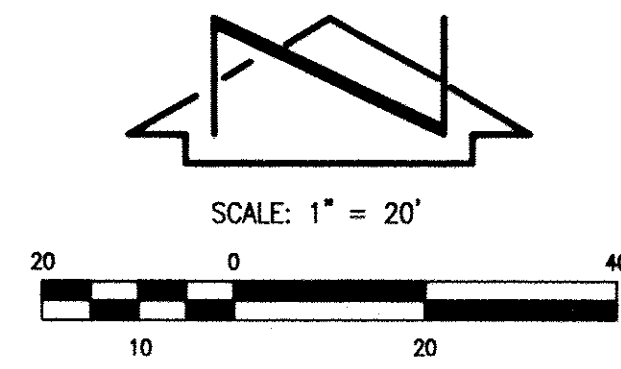
CITY PROJECT NO. 6497.93
ZONE MAP NO. J-13
DWG. C-101
SHEET 8 OF 107

File Path: P:\DATA\2002\003\6\SWA
File Name: 2003B-SH1.DWG
Plot Date: 06-15-2012
Plot Time: 04:18 pm



LEGEND

0.8" AIR	DIAMETER OF TREE TRUNK
AL	COMPRESSED AIR LINE AT BUILDING
ARV	AREA LIGHT
BP	WATER LINE AIR RELEASE VALVE
BTM	BUILDING OVERHANG
BW	CONCRETE PARKING BUMPER
CCL	BOTTOM OF SUMP
CD	BLOCK WALL
CF	SECURITY CAMERA AT BUILDING
CHC	CONCRETE LANDING
CLD	DRAIN PIPE THROUGH CURB
CLDD	LANDSCAPING CRUSHER FINES
CND	CONCRETE HEADER CURB
CONC	CENTERLINE DOUBLE DOOR
COP	ELECTRIC CONDUIT
CS	CONCRETE
CW	CONCRETE CURB OPENING
CW/F	CONCRETE STEPS
E/PM	CONCRETE WALL WITH 7" METAL FENCE ON TOP
EBB	ELECTRIC LINE BY PAINT MARK
EC	ELECTRIC BREAKER BOX
ECAB	EDGE OF CONCRETE
EW	ELECTRIC CABINET
EO	ELECTRIC METER
EPB	ELECTRIC OUTLET
FE	ELECTRIC PULLBOX
FH	FIRE EXTINGUISHER AT BUILDING
FLB	FIRE HYDRANT
G/PM	FLOWLINE
GC	FIRE LINE VALVE BOX
GM	GAS BY PAINT MARK
GMS	GATE CONTROL BOX
IB	ELECTRIC GENERATOR
MBC	GAS METER
MHR	GENERAL METAL SIGN (DOG)
MPL	GAS SERVICE FROM UNDERGROUND
MRS	IRRIGATION VALVE BOX
PS	METAL BUILDING COLUMN
PVC	METAL HAND RAIL
PVP	METAL LIGHT POLE ON 2" DIAMETER
RR	CONCRETE BASE
SB	METAL ROLL GATE ON CONCRETE
SOB	METAL SIGN
SGP	PLASTIC BENCH
STD	PAINTED PARKING STRIPE
C&G	POLYVINYL CHLORIDE PIPE
SW	ASPHALT PAVING PATCH
SWC	ROOF DRAIN
SWS	LANDSCAPING RIVER ROCK
TA	PAINTED STOP BAR
TC	SPRINKLER CONTROL BOX
TCO	STORM DRAIN
TRN	STEEL GUARD POST
TS	COA STANDARD CURB AND GUTTER
TYC	SEWAGE
WCR	SIDEWALK CULVERT
WF	PAINTED SOLID WHITE STRIPE
WH	TOP OF ASPHALT
WMB	TOP OF CURB
WVB	TOP OF CONCRETE
*	ELECTRIC TRANSFORMER
	TRAFFIC SIGN
	TYPICAL
	CONCRETE VALLEY GUTTER
	CONCRETE WHEELCHAIR RAMP
	WATER FAUCET
	WEEP HOLE IN WALL
	WATER HOT BOX
	WATER METER BOX
	WATER VALVE BOX
	PAINTED UTILITY MARKER
	DECIDUOUS TREE
	SMALL DECIDUOUS TREE
	LANDSCAPING SHRUB
	SMALL LANDSCAPING SHRUB
	YUCCA
	LANDSCAPING BOULDER
	HIGH POINT
	PROPOSED SPOT ELEVATION
	PROPOSED CONTOUR
	PROPOSED FLOWLINE
	EXISTING DIRECTION OF FLOW
	PROPOSED DIRECTION OF FLOW
	RETAINING WALL (SEE STRUCTURAL)
	PROPOSED BASIN
	PROPOSED CONCRETE
	PROPOSED ASPHALT PAVING



CONSTRUCTION NOTES:

- TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM 280-1990 (ALBUQUERQUE AREA), 1-800-321-ALERT(2537) (STATEWIDE), FOR LOCATION OF EXISTING UTILITIES.
- 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.
- UNLESS FINAL STABILIZATION IS OTHERWISE PROVIDED FOR, ANY AREAS OF EXCESS DISTURBANCE (TRAFFIC ACCESS, STORAGE YARD, EXCAVATED MATERIAL, ETC.) SHALL BE RE-SEEDING ACCORDING TO C.O.A. SPECIFICATION 1012 "NATIVE GRASS SEEDING". THIS WILL BE CONSIDERED INCIDENTAL TO CONSTRUCTION, THEREFORE, NO SEPARATE PAYMENT WILL BE MADE.

AREA OF DISTURBANCE = 0.55 AC, < 1 AC

HIGH MESA Consulting Group
4010-B MIDWAY PARK BLVD. NE • ALBUQUERQUE, NEW MEXICO 87109
PHONE: 505.345.4250 • FAX: 505.345.4254 • www.highmesacg.com

2002.003.6

CITY OF ALBUQUERQUE CAPITAL IMPLEMENTATION PROGRAM			
PROJECT TITLE: EXPLORA SCIENCE CENTER & CHILDRENS MUSEUM ADDITION & RENOVATIONS 1701 MOUNTAIN RD. NW ALBUQUERQUE, NEW MEXICO 87102			
DRAWING TITLE: GRADING PLAN			
DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	MO./DAY/YR.	MO./DAY/YR.
CITY PROJECT NO. 6497.93	ZONE MAP NO. J-13	DWG. C-102	SHEET OF 9 107

NOTE:
THIS IS NOT A BOUNDARY SURVEY; DATA IS SHOWN FOR ORIENTATION ONLY. ONLY THE BOUNDARY INFORMATION DEPICTED HEREON IS BASED UPON BOUNDARY SURVEY PREPARED BY HIGH MESA CONSULTING GROUP, NMPS 11184, DATED 04/20/2012 (2012.007.1). TOPOGRAPHIC INFORMATION DEPICTED HEREON IS BASED PARTIAL TOPOGRAPHIC INFORMATION SURVEY PREPARED BY HIGH MESA CONSULTING GROUP, NMPS NO. 11184, DATED 04/20/2012 (2012.007.1).

File Path: P:\DATA\2002.003.6\DWG Plot Date: 06-18-2012
File Name: 2003.6-SH2.DWG Plot Time: 09:50 am

