CITY OF ALBUQUERQUE

Planning Department
Suzanne Lubar, Director

Mayor Richard J. Berry

December 22, 2015

Jeff Mortensen, P.E.
High Mesa Consulting Group
6010-B Midway Park Blvd NE
Albuquerque, New Mexico 87109

RE: **Sunset Memorial Park Pueblo Esperanza Phase 2**
924 Menaul NE
Grading and Drainage Plan
Engineers Stamp Date 12/7/15 (H15D016)

Dear Mr. Mortensen,

Based upon the information provided in your submittal received 12/7/15, this plan is approved for Building Permit. Please attach a copy of this approved plan to the construction sets in the permitting process prior to sign-off by Hydrology.

Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

If you have any questions, please contact me at 924-3695 or Rudy Rael at 924-3977.

Sincerely,

Rita Harmon, P.E.
Senior Engineer, Hydrology
Planning Department

RR/RH
C: File

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

DRAINAGE PLAN

I. INTRODUCTION AND EXECUTIVE SUMMARY

THIS PROJECT, LOCATED IN THE LOWER NORTHEAST HEIGHTS OF THE ALBUQUERQUE METROPOLITAN AREA, REPRESENTS A MODIFICATION TO AN EXISTING SITE WITHIN AN INFILL AREA. THE PROPOSED CONSTRUCTION CONSISTS OF MODEST LANDSCAPE AND HARDSCAPE IMPROVEMENTS TO AN AREA PREVIOUSLY MASS GRADED AND STABILIZED WITH TURF GRASS. THE DRAINAGE CONCEPT WILL BE THE CONTINUED FREE DISCHARGE OF DEVELOPED RUNOFF FROM THIS UPPER PORTION OF THE OVERALL SITE, THROUGH THE EXISTING PARK TO THE ESTABLISHED OUTFALL IN EDITH BLVD. NE. THIS CONCEPT WAS ESTABLISHED BY THE ORIGINAL MASTER DRAINAGE PLAN FOR THE SITE DATED 04-20-1987 AS PERIODICALLY UPDATED AND AS RECENTLY UPDATED BY DRAINAGE SUBMITTAL DATED 04-09-2015.

THIS SUBMITTAL IS MADE IN SUPPORT OF BUILDING PERMIT TO BE ISSUED BY THE CITY OF ALBUQUERQUE FOR THE NEW CRYPT BUILDING AND SURROUNDING SITE WORK.

II. PROJECT DESCRIPTION

AS SHOWN BY THE VICINITY MAP, THE PROPOSED PROJECT SITE IS LOCATED AT THE NORTHEAST CORNER OF THE OVERALL SITE THAT IS LOCATED AT THE SOUTHEAST CORNER OF THE INTERSECTION OF MENAUL BLVD. NE AND EDITH BLVD. NE. AS SHOWN BY PANEL 332 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS PUBLISHED BY FEMA FOR BERNALILLO COUNTY, NEW MEXICO, AUGUST 16, 2012, THIS SITE DOES NOT LIE WITHIN A DESIGNATED FLOOD HAZARD ZONE, HOWEVER DOES LIE IMMEDIATELY ADJACENT TO A DESIGNATED FLOOD HAZARD ZONE WHERE THE 100-YEAR FLOOD IS CONTAINED IN THE CONSTRUCTED CHANNEL (STREET).

III. BACKGROUND DOCUMENTS

THE PREPARATION OF THIS PLAN RELIED UPON THE FOLLOWING DOCUMENTS:

- MASTER DRAINAGE PLAN (MDP) PREPARED BY HIGH MESA CONSULTING GROUP (FORMERLY TOM MANN & ASSOCIATES, INC. AND JEFF MORTENSEN & ASSOCIATES, INC.) DATED 04-20-1987 AND PERIODICALLY UPDATED AS REFERENCED ABOVE. THE 04-09-2015 UPDATE SPECIFICALLY ADDRESSED THE AREA OF THE PROPOSED PROJECT SITE. THE UPDATED MDP PROVIDES THE CONCEPT BASIS FOR SITE DRAINAGE.
- GRADING AND DRAINAGE PLAN FOR THE URN GARDEN LOOP DRIVE PREPARD BY HIGH MESA CONSULTING GROUP (FORMERLY JEFF MORTENSEN & ASSOCIATES, INC.) DATED 02-22-2006 AND CERTIFIED 10-31-2006. THIS REFERENCE PROJECT PROVIDES FOR THE MEANS FOR THE SUBJECT PROJECT SITE TO DRAIN AND IDENTIFIES THE AREA SURROUNDING THE LOOP DRIVE AS "FUTURE BURIAL SPACE".
- PARTIAL TOPOGRAPHIC SURVEY PREPARED BY HIGH MESA CONSULTING GROUP, NMPS 11184, DATED 10-21-2014. THE SUBJECT SURVEY PROVIDES THE BASIS FOR THE EXISTING CONDITIONS OF THE SITE AS DEPICTED BY THIS SUBMITTAL.

IV. EXISTING CONDITIONS

THE PROJECT SITE PRESENTLY CONSISTS OF A LANDSCAPED PORTION OF THE SUNSET MEMORIAL PARK CEMETERY. THE PROJECT SITE IS BOUNDED ON THE NORTH BY MENAUL BLVD. NE. ON THE EAST BY EXISTING TURF GRASS, ON THE SOUTH BY THE URN GARDEN LOOP DRIVE CONSTRUCTED IN 2006, AND ON THE WEST BY EXISTIBNG TURF GRASS. THE LOOP DRIVE GENERALLY DRAINS FROM EAST TO WEST DISCHARGING TO LOMBARDY DRIVE, ANOTHER PRIVATE STREET WITHIN THE PARK. FROM THIS POINT, SITE RUNOFF DRAINS WEST INTERNAL TO THE PARK TOWARD EDITH BLVD. NE. AS DESCRIBED IN THE AFOREMENTIONED MASTER DRAINAGE PLAN UPDATE, RUNOFF GENERATED BY THE PARK AND REACHING THE WESTERLY LIMITS IS COLLECTED BY A PRIVATE STORM DRAIN SYSTEM THAT CONNECTS TO THE PUBLIC STORM DRAIN SYSTEM WITHIN EDITH BLVD. NE, THE OUTFALL FOR THE SITE.

THE PROJECT SITE GENTLY SLOPES FROM EAST TO WEST TOWARD LOMBARDY DRIVE. AT PRESENT, THE PROJECT SITE CONSISTS OF IRRIGATED TURF GRASS. THE PROJECT SITE IS FRAMED BY RETAINING WALL ON THE NORTH AND CURB AND GUTTER ASSOCIATED WITH THE LOOP DRIVE ON THE SOUTH.

THERE ARE NO APPARENT OFFSITE FLOWS IMPACTING THE PROJECT SITE AS THE SITE IS TOPOGRAPHICALLY HIGHER THAN THE ADJACENT PARK IMPROVEMENTS. MORE IMPORTANTLY, THE PROJECT SITE IS INTERNAL TO THE PARK THEREBY PROTECTING IT FROM POTENTIAL OFFSITE FLOWS FROM NEIGHBORING SITES. THE FLOODPLAIN ASSOCIATED WITH MENAUL BLVD. NE IS NOT ONLY TOPOGRAPHICALLY LOWER THAN THE PARK, BUT IS SEPARATED BY A RETAINING WALL ON THE NORTH PROPERTY LINE OF THE PARK. THE RETAINING WALL ON THE NORTH PROPERTY LINE ALLOWS THE SITE TO BE TOPOGRAPHICALLY HIGHER THAN THE ADJACENT RIGHT-OF-WAY WHERE FLOOD WATERS ARE CONFINED TO THE CONSTRUCTED STREET.

V. DEVELOPED CONDITIONS

THE PROPOSED CONSTRUCTION CONSISTS OF A RELATIVELY SMALL (ROUGHLY 10' X 50') CRYPT BUILDING, PEDESTRIAN WAYS CONSISTING OF CONCRETE SIDEWALK AND PAVERS, AND LANDSCAPING. THE ROOF OF THE NEW CRYPT BUILDING WILL SLOPE TO THE NORTH WHERE ROOF RUNOFF WILL BE CAPTURED IN A LANDSCAPED WATER HARVESTING AREA THAT WILL LIE BETWEEN THE NORTH FACE OF THE NEW BUILDING AND THE BACK OF SIDEWALK ALONG THE SOUTH SIDE OF MENAUL BLVD. NE. THE REMAINDER OF THE PROJECT SITE WILL GENTLY SLOPE FROM EAST TO WEST WITH EXCESS RUNOFF BEING CAPTURED BY A TEMPORARY WATER HARVESTING AREA WEST OF THE SITE. FUTURE DEVELOPMENT OF THE LAND IMMEDIATELY WEST OF THE PROJECT SITE WILL DIRECT EXCESS RUNOFF TO NEW LANDSCAPED AREAS WHERE THE RUNOFF (FIRST FLUSH) WILL BE CAPTURED AND TREATED PER THE APPROVED MASTER DRAINAGE PLAN UPDATE FOR THE SITE.

THE ABOVE DESCRIBED DRAINAGE PATTERN IS CONSISTENT WITH THE EXISTING DRAINAGE PATTERN FOR THIS PORTION OF THE PARK AS WELL AS THE UPDATED MASTER DRAINAGE PLAN DATED 04-09-2015 REFERENCED ABOVE.

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

VI. GRADING PLAN

THE GRADING PLANS SHOW 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 FROM EAST TO WEST WITH RUNOFF ENTERING LOMBARDY DRIVE AFTER WHICH RUNOFF WILL FLOW INTERNAL TO THE OVERALL SITE BEFORE OUTFALLING TO EDITH BLVD. NE.

THE GRADING PLAN ALSO IDENTIFIES TWO (2) WATER HARVESTING AREAS DESIGNED AND INTENDED TO CAPTURE AND TREAT THE FIRST FLUSH OF RUNOFF FROM THE CONTRIBUTING IMPERVIOUS AREAS.

VII. EROSION CONTROL PLAN

THIS PROJECT DISTURBS LESS THAN ONE-ACRE OF LAND. A SEPARATE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) HAS NOT BEEN PREPARED. THE SMALL SIZE OF THIS PROJECT DOES NOT WARRANT THE PREPARATION OF A SITE SPECIFIC EROSION CONTROL PLAN. IT SHOULD BE NOTED, HOWEVER, THAT ANY SEDIMENT DISCHARGED INTO THE INTERNAL STREETS WITHIN THE PARK WILL BE PROMPTLY REMOVED BY PARK STAFF AS PART OF THEIR DUTIES TO KEEP THE PREMISES CLEAN AND PRESENTABLE AT ALL TIMES.

VIII. 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 NEGLIGIBLE INCREASE IN THE DEVELOPED RUNOFF GENERATED BY THE INTERIOR PROJECT SITE. THE INCREASE IN RUNOFF, HOWEVER, WILL BE MITIGATED BY WATER HARVESTING. THE TEMPORARY WATER HARVESTING AREA WILL CAPTURE AND TREAT THE FIRST FLUSH OF RUNOFF GENERATED BY THE NEW LANDSCAPE AND HARDSCAPE IMPROVEMENTS. CLOSER REVIEW OF THE CALCULATED VOLUMES INDICATES THAT THE PROPOSED TEMPORARY WATER HARVESTING AREA CAN CONTAIN IN EXCESS OF THE 100-YEAR DEVELOPED RUNOFF FROM THE PROPOSED PROJECT SITE. THE LANDSCAPED WATER HARVESTING AREA ALONG THE SOUTH SIDE OF MENAUL BLVD. NE WILL CAPTURE A VOLUME OF RUNOFF IN EXCESS OF THAT CALCULATED FOR THE 100-YEAR RAINFALL EVENT FOR ITS RELATIVELY SMALL CONTRIBUTING AREA, MAINLY THE ROOF AREA OF THE NEW CRYPT BUILDING. WATER HARVESTING AREA VOLUMES ARE CALCULATED USING THE AVERAGE END-AREA METHOD.

IX. CONCLUSIONS

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

1. THE PROPOSED IMPROVEMENTS WILL MAINTAIN AND NOT ALTER THE EXISTING DRAINAGE PATTERNS OF THE PROJECT SITE AND THE AFFECTED PORTIONS OF THE EXISTING PARK.
2. THE PROPOSED IMPROVEMENTS WILL RESULT IN A NEGLIGIBLE INCREASE IN THE DEVELOPED RUNOFF VOLUME GENERATED BY THE SITE WITH THE INCREASE BEING MITIGATED BY ONSITE WATER HARVESTING DESIGNED TO CAPTURE AND TREAT THE FIRST FLUSH FROM THE NEW IMPERVIOUS AREAS.
3. STRUCTURAL EROSION AND SEDIMENT CONTROL MEASURES ARE NOT PROPOSED DURING CONSTRUCTION BECAUSE ROUTINE MAINTENANCE BY PARK STAFF WILL ENSURE THE CLEAN-UP AND REMOVAL OF ANY SEDIMENT THAT MAY DISCHARGE FROM THE CONSTRUCTION SITE TO DOWNSTREAM PORTIONS OF THE PARK.
4. THE PROPOSED IMPROVEMENTS WILL NOT ADVERSELY IMPACT DOWNSTREAM PROPERTIES OR DOWNSTREAM DRAINAGE CONDITIONS
5. THIS PROJECT IS NOT SUBJECT TO AN EPA NPDES PERMIT; FUTURE PROJECTS MAY TRIGGER THE NEED FOR THE PREPARATION OF A SWPPP AND THE SUBSEQUENT FILING OF AN NPDES PERMIT.

CALCULATIONS

I. SITE CHARACTERISTICS

A. PRECIPITATION ZONE = 2

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

C. TOTAL PROJECT AREA (A_T) = 9,770 SF = 0.22 AC

D. LAND TREATMENTS

1. EXISTING CONDITION

a. PUEBLO ESPERANZA - PH 2A

TREATMENT	AREA (SF/AC)	%
A	0 / 0	0
B	8,850 / 0.20	100
C	0 / 0	0
D	0 / 0	0

b. CRYPT ROOF RUNOFF

TREATMENT	AREA (SF/AC)	%
A	0 / 0	0
B	920 / 0.02	100
C	0 / 0	0
D	0 / 0	0

2. DEVELOPED CONDITION

a. PUEBLO ESPERANZA - PH 2A

TREATMENT	AREA (SF/AC)	%
A	0 / 0	0
B	4,910 / 0.11	55
C	0 / 0	0
D	3,940 / 0.09	45

b. CRYPT ROOF RUNOFF

TREATMENT	AREA (SF/AC)	%
A	0 / 0	0
B	470 / 0.01	50
C	0 / 0	0
D	450 / 0.01	50

II. HYDROLOGY

A. EXISTING CONDITION

1. PUEBLO ESPERANZA - PH 2A (DISCHARGE TO PARK)

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*0.20) + (1.13*0.00) + (2.12*0.00)/0.20 = 0.78 IN

$V_{100.6\ HR} = (E_W/12)A_T =$ (0.78/12)0.20 = 0.0130 AC-FT = 570 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 * 0.20) + (3.14 * 0.00) + (4.70 * 0.00) = 0.5 CFS

2. CRYPT ROOF RUNOFF (DISCHARGE TO MENAUL)

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*0.02) + (1.13*0.00) + (2.12*0.00)/0.02 = 0.78 IN

$V_{100.6\ HR} = (E_W/12)A_T =$ (0.78/12)0.02 = 0.0013 AC-FT = 60 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 * 0.02) + (3.14 * 0.00) + (4.70 * 0.00) = 0.1 CFS

B. DEVELOPED CONDITION

1. PUEBLO ESPERANZA - PH 2A (DISCHARGE TO PARK)

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*0.11) + (1.13*0.00) + (2.12*0.09)/0.20 = 1.38 IN

$V_{100,\ 6\ HR} = (E_W/12)A_T =$ (1.38/12)0.20 = 0.0230 AC-FT = 1,000 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*0.11) + (3.14*0.00) + (4.70*0.09) = 0.7 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*0.11) + (0.09*0.00) + (0.34*0.09)/0.20 = 0.15 IN

$V_{FIRST\ FLUSH} = (E_W/12)A_T =$ (0.15/12)0.20 = 0.0025 AC-FT = 110 CF

d. WATER HARVESTING AREA CAPACITY (WSL @ 5018.0)

ELEV	AREA	VOLUME	ΣVOLUME
5017	1400		
		1800	1800
5018	2200		

V_{WH} = 1,800 CF > V_{100} = 1,000 CF > $V_{FIRST\ FLUSH}$ = 110 CF ∴ OK

2. CRYPT ROOF RUNOFF (DISCHARGE TO MENAUL)

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*0.01) + (1.13*0.00) + (2.12*0.01)/0.02 = 1.45 IN

$V_{100,\ 6\ HR} = (E_W/12)A_T =$ (1.45/12)0.02 = 0.0024 AC-FT = 110 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*0.01) + (3.14*0.00) + (4.70*0.01) = 0.1 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*0.01) + (0.09*0.00) + (0.34*0.01)/0.02 = 0.17 IN

$V_{FIRST\ FLUSH} = (E_W/12)A_T =$ (0.17/12)0.02 = 0.0003 AC-FT = 10 CF

d. WATER HARVESTING AREA CAPACITY (WSL @ 5017.2)

ELEV	AREA	VOLUME	ΣVOLUME
5016.7	190		
		165	165
5017.2	480		

V_{WH} = 160 CF > V_{100} = 110 CF > $V_{FIRST\ FLUSH}$ = 10 CF ∴ OK

C. COMPARISONS

1. PUEBLO ESPERANZA - PH 2A (DISCHARGE TO PARK)

a. VOLUME WITHOUT WATER HARVESTING

$\Delta V_{100,\ 6\ HR} = V_{DEV\ 100} - V_{EX\ 100}$

$\Delta V_{100,\ 6\ HR} =$ 1000 - 570 = 430 CF (INCREASE)

b. VOLUME WITH WATER HARVESTING

$\Delta V_{100,\ 6\ HR} = V_{DEV\ 100} - V_{EX\ 100} - V_{POND}$

$\Delta V_{100,\ 6\ HR} =$ 1000 - 570 - 1800 = -1,370 CF (DECREASE)

c. PEAK DISCHARGE

$\Delta Q_{100} =$ 0.7 - 0.5 = 0.2 CFS (INCREASE)

NOTE: PH2A RUNOFF CONTAINED WITHIN WATER HARVESTING AREA NEGATING CALCULATED INCREASE IN RUNOFF VOLUME GENERATED

2. CRYPT ROOF RUNOFF (DISCHARGE TO MENAUL)

a. VOLUME WITHOUT WATER HARVESTING

$\Delta V_{100,\ 6\ HR} = V_{DEV\ 100} - V_{EX\ 100}$

$\Delta V_{100,\ 6\ HR} =$ 110 - 60 = 50 CF (INCREASE)*

b. VOLUME WITH WATER HARVESTING

$\Delta V_{100,\ 6\ HR} = V_{DEV\ 100} - V_{EX\ 100} - V_{POND}$

$\Delta V_{100,\ 6\ HR} =$ 110 - 60 - 165 = -115 CF (DECREASE)*

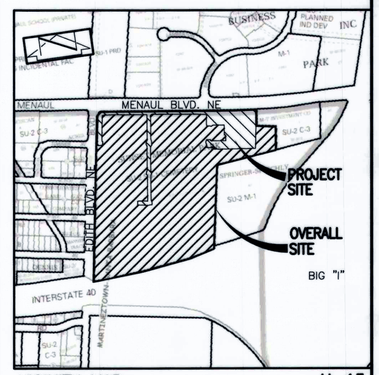
c. PEAK DISCHARGE

$\Delta Q_{100} =$ 0.1 - 0.0 = 0.1 CFS (INCREASE)

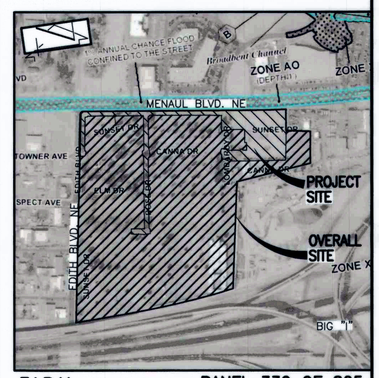
* NOTE: ROOF RUNOFF CONTAINED WITHIN WATER HARVESTING AREA NEGATING CALCULATED INCREASE IN RUNOFF VOLUME GENERATED

LEGEND

AC	ASPHALT CURB
ASPH	ASPHALT
C&G	CURB AND GUTTER
C/PM	COMMUNICATION LINE BY PAINT MARK
CB	CONCRETE BENCH
CF	LANDSCAPING CRUSHER FINES
CHC	CONCRETE HEADER CURB
CLD	CENTERLINE DOOR
CLF	CHAIN LINK FENCE
CMH	COMMUNICATION MANHOLE
CMU	CONCRETE MASONRY WALL
CMU/STONE	CONCRETE MASONRY AND STONE WALL
CND	ELECTRIC CONDUIT
CONC	CONCRETE
COP	CURB OPENING
CPB	COMMUNICATION PULLBOX
CSW	CONCRETE SIDEWALK
E/PM	ELECTRIC LINE BY PAINT MARK
EA	EDGE OF ASPHALT
EPB	ELECTRIC PULLBOX
FH	FIRE HYDRANT
FL	FLOWLINE
G/PM	GAS LINE BY PAINT MARK
GA	GATE
GALV	GALVANIZED PIPE
GRV	LANDSCAPING GRAVEL
GVB	GAS VALVE BOX
GW	GUY WIRE ANCHOR
HCS	HANDICAPPED PARKING SIGN
HS	GRAVE MARKER HEADSTONE
IVB	IRRIGATION VALVE BOX
LSD	LANDSCAPING DIVIDER
MG	METAL GATE
MLP	METAL LIGHT POLE
MTN	MOUNTABLE
MTS	METAL SIGN
OHC(1)	OVERHEAD COMMUNICATION (# OF LINES)
OHE(2)	OVERHEAD ELECTRIC (# OF LINES)
PB	CONCRETE WHEEL STOP
PLB	PLASTIC BENCH
PS	PAINTED PARKING STRIPE
PVC	POLYVINYL CHLORIDE PIPE
SB	STONE BENCH/HEADSTONE
SDI	STORM DRAIN INLET
STD	STANDARD
STW	STUCCO WALL
SW	SIDEWALK
T/PM	TRAFFIC LINE BY PAINT MARK
TA	TOP OF ASPHALT
TC	TOP OF CURB
TCO	TOP OF CONCRETE
TG	TOP OF GRATE
TPB	TRAFFIC PULLBOX
TS	TRAFFIC SIGN
TSG	TRAFFIC SIGNAL BASE
TW	TOP OF WALL
TYP	TYPICAL
VC	CONCRETE VALLEY GUTTER
W/PM	WATER LINE BY PAINT MARK
WCR	CONCRETE WHEELCHAIR RAMP
WH	WEEP HOLE IN WALL
WIF	WROUGHT IRON FENCE
WMB	WATER METER BOX
WPP	WOOD POWER POLE
WS	WOOD SIGN
XW	PAINTED CROSSWALK
1.0'ø	TREE TRUNK DIAMETER
	DECIDUOUS TREE
	SMALL DECIDUOUS TREE
	CONIFEROUS TREE
	SMALL CONIFEROUS TREE
	GROUP OF TREES
	LANDSCAPING SHRUB
	SMALL LANDSCAPING SHRUB
	YUCCA/CACTUS
	LANDSCAPING BOULDER
	PAINTED UTILITY MARK
	CEMETERY PLOT MARKER
	PAINTED HANDICAPPED PARKING SPACE
INV	**INVERT**
TA	**TOP OF ASPHALT PAVEMENT**
TC	**TOP OF CURB**
TG	**TOP OF GRATE**
+ 20.05	**EXISTING SPOT ELEVATION**
14.00	**PROPOSED SPOT ELEVATION**
	EXISTING FLOWLINE
	PROPOSED FLOWLINE
4920	**EXISTING CONTOUR**
20	**PROPOSED CONTOUR**
	EXISTING DIRECTION OF FLOW
	PROPOSED DIRECTION OF FLOW
	RIGHT OF WAY LINE
	PUBLIC EASEMENT LINE
	HIGH POINT / DIVIDE
	EXISTING GRAPHIC POINT OF DISCHARGE
	PROPOSED GRAPHIC POINT OF DISCHARGE
	PROPOSED CONCRETE
	PROPOSED ASPHALT PAVING
	STABILIZED CRUSHER FINES
	PROPOSED LANDSCAPE (TURF) AREA



VICINITY MAP — H-15
SCALE: 1" = 750'



F.I.R.M. — PANEL 332 OF 825
SCALE: 1" = 500' — DATE 09-26-2008

LEGAL DESCRIPTION

TRACT 1, SUNSET MEMORIAL PARK, ALBUQUERQUE, NEW MEXICO

PROJECT BENCHMARK

AN A.G.R.S. 1 3/4" ALUMINUM DISK STAMPED "ACS BM, 11-H15" EPOXIED ON TOP OF CONCRETE CURB RETURN, AT THE ENE QUADRANT OF THE INTERSECTION OF MENAUL BOULEVARD AND BROADBENT PARKWAY N.E.
ELEVATION = 5015.50 FEET (NAVD 1988)

TEMPORARY BENCHMARK #3 (T.B.M.)

A 60d NAIL SET IN TOP OF CONCRETE CURB, SHOWN ON SHEET C-2.
ELEVATION = 5020.19 FEET (NAVD 1988)

cpra
cemetery planning resource alliance

cpra studio, llc
456 s broadway st
suite 200
denver, co 80209

303 683 5917
(fax) 303 683 5958
866.733.2772

PUEBLO ESPERANZA - PHASE 2A
@ SUNSET MEMORIAL PARK
ALBUQUERQUE, NEW MEXICO

SCALE:
DRAWN BY: S.C.C.
CHECKED BY: J.G.M
PROJECT No: 2014.079.5
DATE/ISSUE: 12/07/2015
CD SUBMITTAL:

SHEET: C-1

SHEET NUMBER: 1 of 2

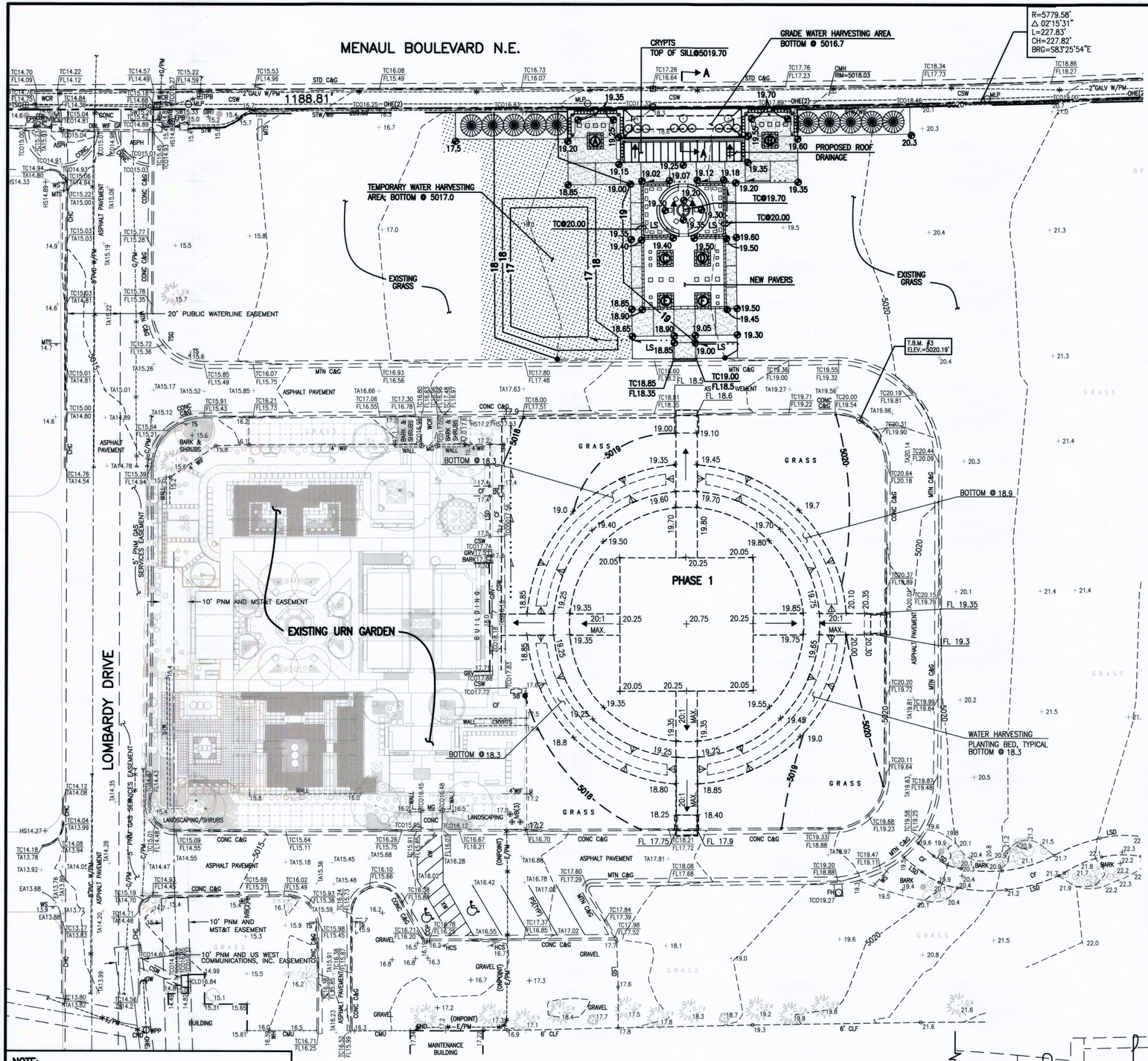
File Path: P:\DATA\2014.079.5\ENG\ | Plot Date: 12-07-2015
File Name: 140795_1OF2.DWG | Plot Time: 07:25 am

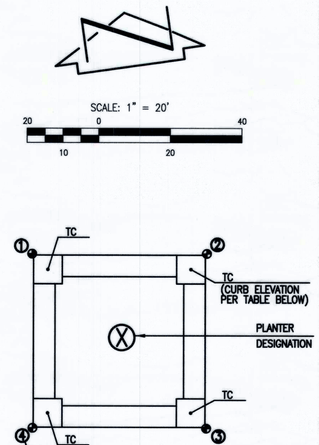
HIGH MESA Consulting Group
6010-B MIDWAY PARK BLVD. NE • ALBUQUERQUE, NEW MEXICO 87109
PHONE: 505.345.4250 • FAX: 505.345.4254 • www.highmesacg.com

DRAINAGE PLAN AND CALCULATIONS
PUEBLO ESPERANZA - PHASE 2A
SUNSET MEMORIAL PARK

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

NO.	DATE	BY	REVISIONS





TYPICAL PLANTER DETAIL
NOT TO SCALE

PLANTER	TC	1	2	3	4
A	19.65	19.25	19.30	19.15	19.10
B	20.00	19.60	19.65	19.50	19.45
C	19.70	19.30	19.35	19.30	19.20
D	19.80	19.40	19.45	19.40	19.30
E	19.50	19.05	19.15	19.10	19.00
F	19.80	19.35	19.45	19.35	19.25

CONSTRUCTION NOTES:

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM, 811, FOR DESIGNATION (LINE-SPOTTING) OF EXISTING UTILITIES.
2. 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.
3. 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.
4. ALL CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE CITY OF ALBUQUERQUE STANDARDS AND PROCEDURES.
5. 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.
6. THE DESIGN OF PLANTERS AND LANDSCAPED AREAS IS NOT PART OF THIS PLAN. ALL PLANTERS AND LANDSCAPED AREAS ADJACENT TO THE BUILDING(S) SHALL BE PROVIDED WITH POSITIVE DRAINAGE TO AVOID ANY PONDING ADJACENT TO THE STRUCTURE. FOR CONSTRUCTION DETAILS, REFER TO LANDSCAPING PLAN.

EROSION CONTROL MEASURES:

1. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY.
2. 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.
3. 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.

GRADING LEGEND

INV	INVERT
TA	TOP OF ASPHALT PAVEMENT
TC	TOP OF CURB
TG	TOP OF GRATE
+ 20.05	EXISTING SPOT ELEVATION
● 14.00	PROPOSED SPOT ELEVATION
	EXISTING FLOWLINE
	PROPOSED FLOWLINE
-5020-	EXISTING CONTOUR
20	PROPOSED CONTOUR
	EXISTING DIRECTION OF FLOW
	PROPOSED DIRECTION OF FLOW
	RIGHT OF WAY LINE
	PUBLIC EASEMENT LINE
	HIGH POINT / DIVIDE
	PROPOSED TURF GRASS (REVEGETATION)
	PROPOSED CONCRETE

LEGAL DESCRIPTION

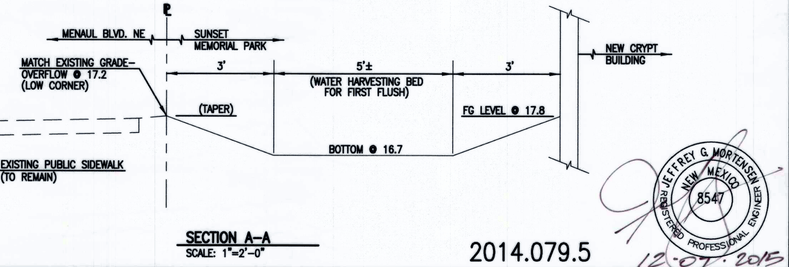
TRACT 1, SUNSET MEMORIAL PARK

PROJECT BENCHMARK

AN A.G.R.S. 1 3/4" ALUMINUM DISK STAMPED "ACS BM, 11-H15" EPOXIED ON TOP OF CONCRETE CURB RETURN, AT THE ENE QUADRANT OF THE INTERSECTION OF MENAUL BOULEVARD AND BROADBENT PARKWAY N.E.
ELEVATION = 5015.50 FEET (NAVD 1988)

TEMPORARY BENCHMARK #3 (T.B.M.)

A 60d NAIL SET IN TOP OF CONCRETE CURB, SHOWN ON THIS SHEET.
ELEVATION = 5020.19 FEET (NAVD 1988)



SECTION A-A
SCALE: 1"=2'-0"

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 10/21/2014 (2014.042.3). THE TOPOGRAPHIC INFORMATION DEPICTED HEREON IS BASED UPON THE PARTIAL TOPOGRAPHIC AND UTILITY SURVEY PREPARED BY HIGH MESA CONSULTING GROUP, NMPS NO. 11184, DATED 10/21/2014 (2014.042.2).

HIGH MESA Consulting Group
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File Path: P:\DATA\2014.079.5\LNW\ | Plot Date: 12-07-2015
File Name: 140795_20F2.DWG | Plot Time: 07:10 am

GRADING PLAN
PUEBLO ESPERANZA - PHASE 2A
SUNSET MEMORIAL PARK

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

NO.	DATE	BY	REVISIONS

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PUEBLO ESPERANZA - PHASE 2A
@ SUNSET MEMORIAL PARK
ALBUQUERQUE, NEW MEXICO

SCALE:
DRAWN BY: S.C.C.
CHECKED BY: J.G.M
PROJECT No.: 2014.079.5
DATE/ISSUE: 12/07/2015
CD SUBMITTAL:

SHEET: C-2
SHEET NUMBER: 2 of 2

2014.079.5

JEFFREY G. MORTENSEN
NEW MEXICO
8547
REGISTERED PROFESSIONAL ENGINEER
12-07-2015