



OL ABB. BOTANICAL NAME

BOTANICAL NAME COMMON NAME

Populous frimontii

COTTONWOOD

SHRUBS, PERENNIALS, VINES & GRASS PLANTINGS

Parthenocisis inserta WOODBINE

Sporobolus wrightii GIANT SACATON GRASS

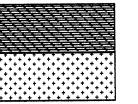
Fallugia paradoxa

APACHE PLUME

Rosmarinus off.

TRAILING ROSEMARY

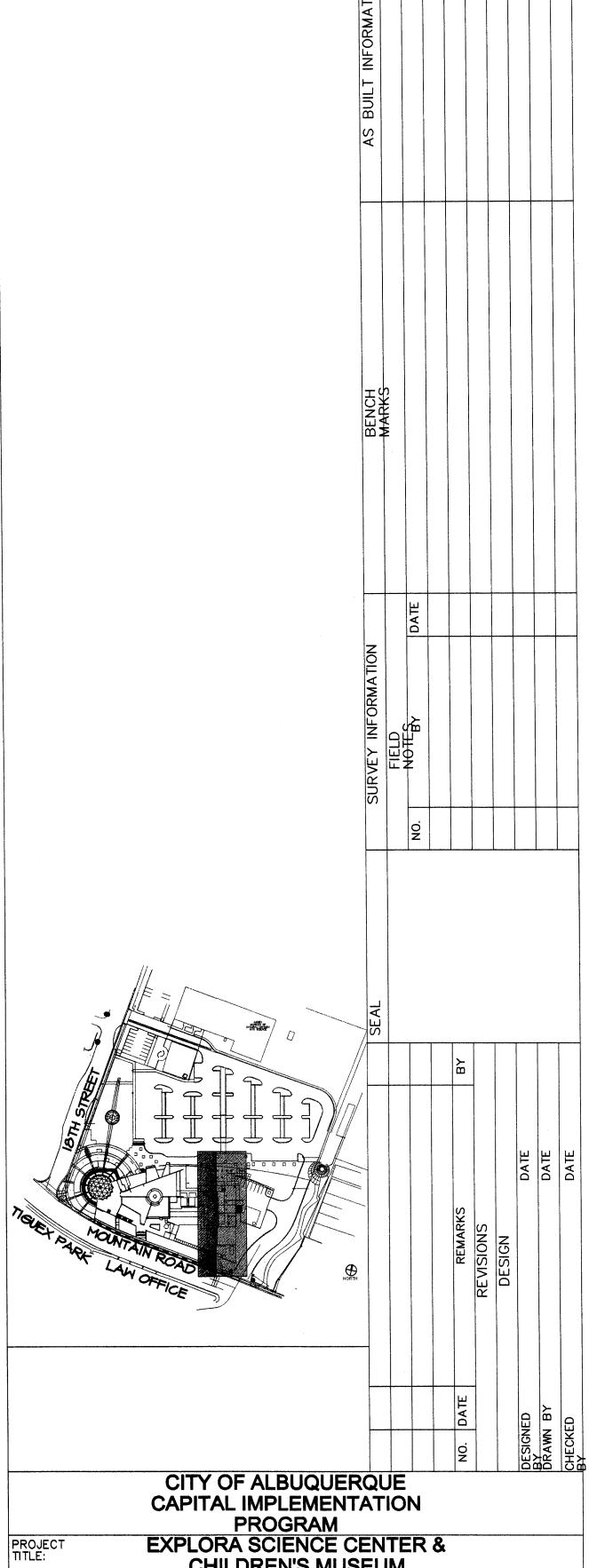
GROUND COVERS



Helianthus maximiliani MAXIMILLIAN SUNFLOWER

Ericameria laricifolia TURPENTINE BUSH

Anemopsis californica YERBA DE MANZA





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Planning Landscape architecture Market analysis



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DRAINAGE PLAN CALCULATIONS . SITE CHARACTERISTICS INTRODUCTION AND EXECUTIVE SUMMARY A. PRECIPITATION ZONE = THIS PROJECT, LOCATED IN THE OLD TOWN AREA, REPRESENTS A MODIFICATION TO AN EXISTING SITE WITHIN AN INFILL AREA. THE PROPOSED IMPROVEMENTS CONSIST OF PHASED BUILDING ADDITIONS TO THE EXISTING MUSEUM LOCATED AT THE NORTHEAST B. $P_{6,100} = P_{360} =$ CORNER OF THE INTERSECTION OF MOUNTAIN ROAD NW AND 18TH STREET NW. ALL PHASES OF THE PROPOSED IMPROVEMENTS LIE WITHIN BASIN B. THE PROPOSED DRAINAGE CONCEPT IS THE CONTINUED ROUTING OF DEVELOPED RUNOFF THROUGH AN EXISTING C. TOTAL PROJECT AREA $(A_T) =$ WATER HARVESTING AREA PRIOR TO FREE DISCHARGE TO MOUNTAIN ROAD NW. 1.52 AC THIS SUBMITTAL IS MADE IN SUPPORT OF SITE PLAN APPROVAL AT THE EPC. D. LAND TREATMENTS II. PROJECT DESCRIPTION 1. EXISTING LAND TREATMENT AS SHOWN BY THE VICINITY MAP, THE SITE IS LOCATED AT THE NORTHEAST CORNER OF THE INTERSECTION OF MOUNTAIN ROAD NW 66,150 SF = 1.52 AC a. BASIN B AND 18TH STREET NW. THE PROJECT AREA IS LOCATED AT THE SOUTHEAST CORNER OF THE SITE. THE CURRENT LEGAL DESCRIPTION AREA (SF/AC) TREATMENT OF THE SITE IS "TRACT B-3-A AND A PORTION OF B-3-B, FREEWAY-OLD TOWN, LIMITED", ALBUQUERQUE, NEW MEXICO. AS SHOWN BY PANEL 331 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS FOR BERNALILLO COUNTY, NEW 27,350 / 0.63 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 IN SUPPORT OF THE MISSION OF THE MUSEUM, WATER HARVESTING AREAS WERE CREATED THAT EFFECTIVELY ACTED AS DETENTION 38,800 / 0.89 PONDS. IN KEEPING WITH THE PAST INTENT, THE CONTINUED ROUTING OF DEVELOPED RUNOFF THROUGH EXISTING WATER HARVESTING AREAS IS PROPOSED DESPITE THE FACT THAT THE SITE IS ALLOWED FREE DISCHARGE TO THE ADJACENT CITY STREETS. 2. DEVELOPED LAND TREATMENT III. BACKGROUND DOCUMENTS AND RESEARCH 66,150 SF = 1.52 AC a. BASIN B - PHASE 1 THE PREPARATION OF THIS SUBMITTAL RELIED UPON THE FOLLOWING DOCUMENTS: AREA (SF/AC) TREATMENT CONCEPTUAL GRADING & DRAINAGE PLAN FOR THE EXPLORA SCIENCE CENTER PREPARED BY HIGH MESA CONSULTING GROUP 23,500 / 0.54 (FORMERLY JEFF MORTENSEN & ASSOCIATES, INC) DATED 06-30-98. THE PURPOSE OF THE CONCEPTUAL PLAN ESTABLISHED THAT FREE DISCHARGE IS PERMISSIBLE FROM THE SITE TO MOUNTAIN ROAD NE, WHILE ALSO ESTABLISHING THE CONCEPT OF 42,650 / 0.98 MITIGATING NUISANCE FLOWS BY ROUTING DEVELOPED RUNOFF THROUGH WATER HARVESTING AREAS. THE CONCEPTUAL PLAN ALSO IDENTIFIED THAT THE DEVELOPED SITE IS COMPRISED OF THREE (3) DRAINAGE BASINS SUBSEQUENTLY REFINED BY 66,150 SF = 1.52 AC b. BASIN B - PHASE 2 FINAL DESIGN; THE PROPOSED SITE LIES WITHIN BASIN B AS PREVIOUSLY DEFINED. AREA (SF/AC) TREATMENT • 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 21,050 / 0.48 REFERENCE DOCUMENT PROVIDES THE BASIS FOR THE EXISTING CONDITIONS OF THE SITE FOR THE PURPOSES OF THIS SUBMITTAL FOR SITE PLAN APPROVAL AND ESTABLISHES THAT OFFSITE FLOWS DO NOT IMPACT BASIN B. 45,100 / 1.04 c. BASIN B - PHASE 3 66.150 SF = 1.52 AC /. EXISTING CONDITIONS AREA (SF/AC) TREATMENT AT PRESENT, BASIN B GENERALLY DRAINS FROM NORTH TO SOUTH WITH DEVELOPED RUNOFF ROUTED THROUGH A WATER 18,450 / 0.42 HARVESTING AREA THAT ALSO SERVES AS A "NATURE AREA", AN EXHIBIT TO THE MUSEUM. NUISANCE AND LOW FLOWS ARE MITIGATED BY THE WATER HARVESTING AREA BEFORE OVERFLOWING VIA SIDEWALK CULVERT TO MOUNTAIN ROAD NW. 47,700 / 1.10 AS PREVIOUSLY DEMONSTRATED, NO OFFSITE FLOWS IMPACT BASIN B. II. HYDROLOGY DEVELOPED CONDITIONS A. EXISTING CONDITION PHASED BUILDING ADDITIONS ARE PROPOSED WITHIN BASIN B. THESE IMPROVEMENTS WILL ENCROACH UPON THE WATER HARVESTING AREA PREVIOUSLY IDENTIFIED AS A "DETENTION POND", ALTHOUGH NOT REQUIRED FOR PRIOR APPROVALS (I.E. FREE 1. BASIN B DISCHARGE WAS DETERMINED TO BE PERMISSIBLE). THE DEVELOPED RUNOFF FROM THE PROPOSED BUILDING ADDITIONS WILL CONTINUE TO BE ROUTED THROUGH THE EXISTING "NATURE AREA" WITH OVERFLOW TO MOUNTAIN ROAD NW VIA EXISTING SIDEWALK CULVERT. THE FINISHED FLOOR ELEVATION OF THE PROPOSED BUILDING ADDITIONS WILL MATCH THE EXISTING BUILDING THAT IS a. VOLUME SIGNIFICANTLY HIGHER THAN THE MAXIMUM WATER SURFACE ELEVATION OF THE NATURE AREA THEREBY PROTECTING THE BUILDING $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) A_T$ FROM ONSITE FLOODING. IN ADDITION, THE STRUCTURAL DESIGN OF THE BUILDING ADDITION FOUNDATIONS SHALL TAKE INTO $((0.00^{\circ}0.53) + (0.63^{\circ}0.78) + (0.00^{\circ}1.13) + (0.89^{\circ}2.12))/1.52 = 1.57 \text{ IN}$ ACCOUNT THE PROXIMITY OF THE NEW BUILDING FOOTPRINT TO THE MAXIMUM WATER SURFACE ELEVATION WITHIN THE NATURE $V_{100} = (E_W/12)A_T = (1.57/12)1.52 = 0.1989 \text{ AC-FT} =$ AREA TO MAKE SURE THE FOUNDATION IS WATERPROOF AND PROTECTED FROM SETTLEMENT. b. PEAK DISCHARGE VI. GRADING PLAN $Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$ $Q_P = Q_{100} = ((0.00^*1.56) + (0.63^*2.28) + (0.00^*3.14) + (0.89^*4.7)) =$ 5.6 CFS THE GRADING PLAN SHOWS 1.) EXISTING GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'0" INTERVALS AS TAKEN FROM THE DRAINAGE CERTIFICATION DATED 09-04-2002, 2) PROPOSED GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT B. DEVELOPED CONDITION 1'-0" INTERVALS, 3) PHASING, 4) THE LIMIT AND CHARACTER OF THE EXISTING IMPROVEMENTS TAKEN FROM THE DRAINAGE CERTIFICATION DATED 09-04-2002, 5) THE LIMIT AND CHARACTER OF THE PROPOSED IMPROVEMENTS, AND 6) CONTINUITY BETWEEN 1. BASIN B - PHASE 1 EXISTING AND PROPOSED GRADES. a. VOLUME VII. CALCULATIONS $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$ THE CALCULATIONS CONTAINED HEREON ANALYZE THE EXISTING AND DEVELOPED CONDITIONS FOR THE 100-YEAR, 6-HOUR RAINFALL $((0.00^{\circ}0.53) + (0.54^{\circ}0.78) + (0.00^{\circ}1.13) + (0.98^{\circ}2.12))/1.52 = 1.64 \text{ IN}$ EVENT FOR BASIN B (THE PORTION OF THE SITE AFFECTED BY THE PROPOSED IMPROVEMENTS). THE PROCEDURE FOR 40 ACRE AND $V_{100} = (E_W/12)A_T = (1.64/12)1.52 = 0.2077 \text{ AC-FT} =$ 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 b. PEAK DISCHARGE GENERATED. AS DEMONSTRATED BY THESE CALCULATIONS, THE PROPOSED IMPROVEMENTS WILL RESULT IN A MINOR INCREASE IN $Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$ THE PEAK RATE OF DISCHARGE AND VOLUME OF RUNOFF GENERATED BY THIS PROJECT. $Q_P = Q_{100} = ((0.00^*1.56) + (0.54^*2.28) + (0.00^*3.14) + (0.98^*4.7)) =$ 5.8 CFS VII. CONCLUSIONS 2. BASIN B - PHASE 2 THE FOLLOWING CONCLUSIONS HAVE BEEN ESTABLISHED AS A RESULT OF THE EVALUATIONS AND ANALYSES CONTAINED HEREIN: a. VOLUME $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) A_T$ 1. THE SITE DOES NOT LIE WITHIN A DESIGNATED FLOOD HAZARD ZONE. 2. THE FREE DISCHARGE OF RUNOFF FROM THIS SITE IS APPROPRIATE BASED UPON PRIOR SUBMITTALS. $E_W = ((0.00^{+}0.53) + (0.48^{+}0.78) + (0.00^{+}1.13) + (1.04^{+}2.12))/1.52 = 1.69 \text{ IN}$ 3. THE CONTINUED ROUTING OF BASIN B RUNOFF THROUGH THE NATURE AREA IS APPROPRIATE AND INTEGRAL TO THE EXHIBIT. $V_{100} = (E_W/12)A_T = (1.69/12)1.52 = 0.2141 \text{ AC-FT} =$ 9,320 CF 4. THE ROUTING OF BASIN B RUNOFF THROUGH THE NATURE AREA IS NOT REQUIRED AS FREE DISCHARGE IS PERMISSIBLE. 5. THE PROPOSED IMPROVEMENTS WILL RESULT IN A NEGLIGIBLE INCREASE IN RUNOFF GENERATED BY BASIN B. **b. PEAK DISCHARGE** 6. THE PROPOSED IMPROVEMENTS WILL NOT ADVERSELY IMPACT DOWNSTREAM PROPERTIES OF CONDITIONS. $Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$ $Q_P = Q_{100} = ((0.00^*1.56) + (0.48^*2.28) + (0.00^*3.14) + (1.04^*4.7)) =$ 6.0 CFS 3. BASIN B - PHASE 3 a. VOLUME $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) A_T$ $((0.00^{\circ}0.53) + (0.42^{\circ}0.78) + (0.00^{\circ}1.13) + (1.10^{\circ}2.12))/1.52 = 1.74 \text{ IN}$ (1.74/12)1.52 = 0.2204 AC-FT =9,600 CF $V_{100} = (E_W/12)A_T =$ b. PEAK DISCHARGE $Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$ $Q_P = Q_{100} = ((0.00^*1.56) + (0.42^*2.28) + (0.00^*3.14) + (1.10^*4.7)) =$ 6.1 CFS C. COMPARISON 1. BASIN B - PHASE 1 a. VOLUME (INCREASE) *V₁₀₀ = 9,050 - 8,660 = 390 CF b. PEAK DISCHARGE 0.2 CFS (INCREASE) $^*Q_{100} = 5.8 - 5.6 =$ 2. BASIN B - PHASE 2 a. VOLUME (INCREASE) 9,320 - 8,660 = b. PEAK DISCHARGE 0.4 CFS (INCREASE) $^{*}Q_{100} = 6.0 - 5.6 =$ 3. BASIN B - PHASE 3 a. VOLUME (INCREASE) 9,600 - 8,660 = b. PEAK DISCHARGE

0.5 CFS

 $^{*}Q_{100} = 6.1 - 5.6 =$

(INCREASE)

LEGAL DESCRIPTION: TRACT B-3-A & PORTION OF B-3-B, FREEWAY-OLDTOWN LTD T.B.M. #1 A BRIDGE SPIKE ON THE WEST FACE OF A WOOD POWER POLE LOCATED NEAR THE NORTHEAST CORNER OF THE PROPERTY AND OPPOSITE THE DEAD-END OF ROSEMONT ST. N.W. ELEVATION = 4959.61 FEET (M.S.L.D.) A 'D' CHISELED ON THE TOP OF CURB OF 18TH ST. N.W. AT THE N.W. CORNER OF THE PROPERTY. ELEVATION = 4957.60 FEET (M.S.L.D.) 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. 4. UNLESS FINAL STABILIZATION IS OTHERWISE PROVIDED FOR, ANY AREAS OF EXCESS DISTURBANCE (TRAFFIC ACCESS, STORAGE YARD, EXCAVATED MATERIAL. ETC.) SHALL BE SCALE: 1'' = 750'RF-SFFDED ACCORDING TO C.O.A. SPECIFICATION 1012 "NATIVE GRASS SEEDING". THIS WILL BE CONSIDERED INCIDENTAL TO CONSTRUCTION, THEREFORE, NO SEPARATE PAYMENT WILL BE MADE. LEGEND TOP OF CURB FLOWLINE TOP OF ASPHALT EDGE OF ASPHALT EA; E/A WATER VALVE WATER METER W.M. TCO TOP OF CONCRETE T.R. TELEPHONE RISER **ELECTRIC CONDUIT** U/G T UNDERGROUND TELEPHONE W.C. RAMP WHEELCHAIR RAMP H.C. SIGN HANDICAP SIGN OVERHEAD 0.H. S.V.B. SPRINKLER VALVE BOX ANTI-SIPHON VALVE A.S.V. ROOF DRAIN CLEAN-OUT DBL. C.O. DOUBLE CLEAN-OUT NATURAL GRADE UNDERGROUND U/G HEATING/VENTILATION/ AIR CONDITIONING X-FMR TRANSFORMER S.G.P. STEEL GUARD POST P.P. POWER POLE CENTERLINE COVERED CONCRETE COV. CONC. PANEL 331 of 825 FIRM TOP OF SIDEWALK CVCIVEERING TOP OF WALL FIRE HYDRANT L.P. LIGHT POLE STUMP ~ -4960-- ~ EXISTING CONTOUR SMALL SHRUB DECIDUOUS TREE TREE LINE EXISTING SPOT ELEVATION HIGH POINT **62.00** PROPOSED SPOT ELEVATION PROPOSED CONTOUR PROPOSED FLOWLINE EXISTING DIRECTION OF FLOW **√**— PROPOSED DIRECTION OF FLOW RETAINING WALL PROPOSED CONCRETE MESA\Consulting Group PROPOSED ASPHALT PAVING 6010-B MIDWAY PARK BLVD. NE . ALBUQUERQUE, NEW MEXICO 87109 PHONE: 505.345.4250 • FAX: 505.345.4254 • www.highmesacg.com 2002.003.5 ALBUQUERQUE, NM 87102 505.243.0101 fax 505.243.1334 CITY OF ALBUQUERQUE CAPITAL IMPLEMENTATION PROGRAM PROJECT TITLE: EXPLORA SCIENCE CENTER & CHILDREN'S MUSEUM 1701 MOUNTAIN ROAD NW DRAWING TITLE DRAINAGE PLAN AND CALCULATIONS (FOR SITE PLAN APPROVAL) DESIGN REVIEW COMMITTEE | CITY ENGINEER APPROVAL MO./DAY/YR. MO./DAY/YR. CITY PROJECT NO. ZONE MAP NO. SHEET OF DRB # 3

