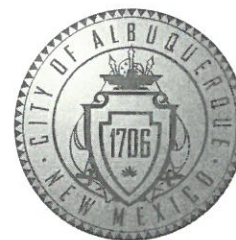


CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development Review Services



September 30, 2016

Fred Arfman, P.E.
Isaacson & Arfman, P.A.
128 Monroe Street N.E.
Albuquerque, NM 87108

Richard J. Berry, Mayor

**RE: Albuquerque Biopark Zoo Penguin Exhibit
Grading & Drainage Plan
Engineer's Stamp Date 9-15-2016 (File: K13D034G)**

Dear Mr. Arfman:

Based upon the information provided in your submittal received 9-19-2016, the above referenced cannot be approved for Building Permit until the following comments are addressed:

1. Provide an overall plan of the Zoo showing the location of the proposed development, including the pond and park that would accept any overflow of the retention ponds.
2. Provide calculations that show the Max WSE of the retention ponds (use the 10 day storm for permanent retention ponds per DPM). Show the MWSE on the plan.
3. Clarify the location of all retaining walls and note which walls are part of the architectural plan set and which walls are part of the Civil plans. All retaining walls need to show the Top of Wall and Bottom of Wall elevation.
4. Verify that the Zoo is willing to accept drainage discharging over the retaining wall. This seems very unusual since such discharge will stain and erode the wall over time. If this is in fact acceptable, show depressed areas that would collect the flows.
5. Provide a basin map.
6. Contact Jane Rael (505-289-3439) at the WUA to verify that they will in fact accept drainage from the trench drain into the sanitary sewer. If so, ensure that the plumbing sheets show a pipe tied to the trench drain. Provide the Plumbing sheet. (11x17 only)
7. Provide Sections showing how the building relates to the site. Include the open mechanical area in the section.
8. Define the surface materials particularly the area on the east side of the building.
9. Walkway on the south side shows curb using triple lines. What is the meaning? Provide section cut.
10. The narrative states that the previous drainage scheme is being used, but the existing contours do not reflect previous ponding. Please clarify.

PO Box 1293

Albuquerque

New Mexico 87103

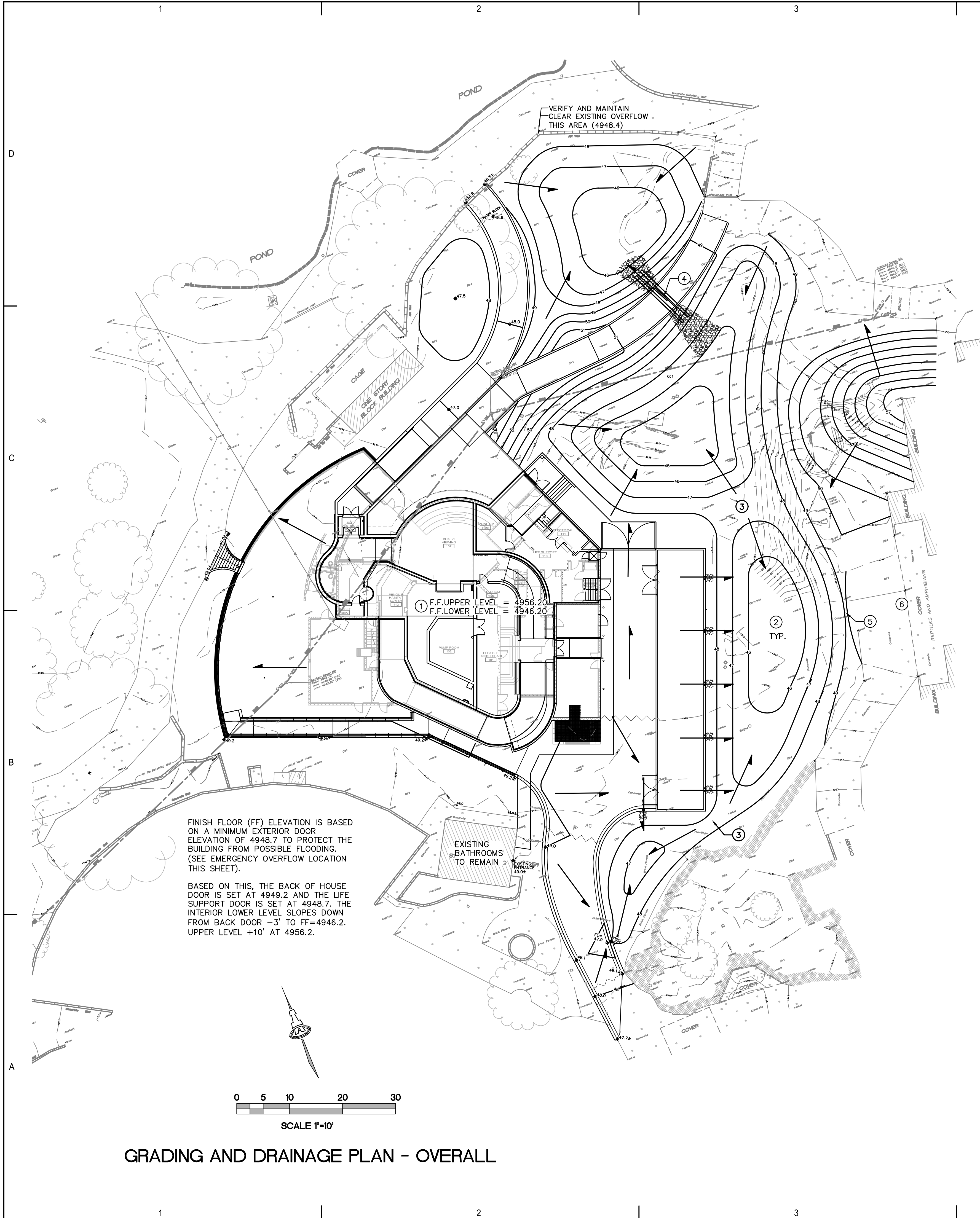
www.cabq.gov

If you have any questions, you can contact me at 924-3695.

Sincerely,

Rita Harmon, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file



GRADING AND DRAINAGE PLAN - OVERALL

GENERAL NOTES

- THE CONTRACTOR SHALL ABIDE BY ALL STATE, LOCAL, AND FEDERAL LAWS, CODES, RULES AND REGULATIONS WHICH APPLY TO THE CONSTRUCTION OF THESE IMPROVEMENTS, INCLUDING EPA AND ADA REQUIREMENTS.
- ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED UNDER CONTRACT SHALL, EXCEPT AS OTHERWISE STATED ON OR PROVIDED FOR HEREON, BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT EDITION OF THE CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS (COA SPEC.).
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS FOR THE PROJECT PRIOR TO COMMENCING CONSTRUCTION, OR PRIOR TO OCCUPANCY, AS APPROPRIATE.
- COORDINATE WORK WITH SITE PLAN, UTILITY PLAN, DEMOLITION PLAN, AND LANDSCAPE PLAN.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING OBSTRUCTIONS, AND CONDITION OF ALL EXISTING INFRASTRUCTURE PRIOR TO CONSTRUCTION. REPORT ALL DISCREPANCIES TO THE ARCHITECT AND VERIFY THE ARCHITECT INTENT BEFORE PROCEEDING.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SITE SAFETY.
- THE CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS ON SITE AT ALL TIMES.
- THE CONTRACTOR SHALL OBTAIN ALL REQUIRED INSPECTIONS OF THE WORK.
- CONSTRUCTION ACTIVITY SHALL BE LIMITED TO THE PROJECT LIMITS. ANY DAMAGE TO ADJACENT STRUCTURES RESULTING FROM THE CONSTRUCTION PROCESS SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE. CONTRACTOR SHALL BE RESPONSIBLE FOR DOCUMENTING EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL MAINTAIN ALL BARRICADING AND CONSTRUCTION SIGNING AT ALL TIMES. THE CONTRACTOR SHALL VERIFY THE PROPER LOCATION OF ALL BARRICADING AT THE END AND BEGINNING OF EACH DAY.
- EXISTING UTILITY LINES ARE SHOWN IN AN APPROXIMATE MANNER ONLY AND MAY BE INCOMPLETE OR OBSOLETE. SUCH LINES MAY OR MAY NOT EXIST WHERE SHOWN OR NOT SHOWN. CONTRACTOR SHALL CONTACT NM-811 FOR UTILITY LINE SPOTS FIVE WORKING DAYS PRIOR TO CONDUCTING SITE FIELD WORK. CONTRACTOR SHALL FIELD VERIFY AND LOCATE ALL UTILITIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION. 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. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF NECESSARY DRY UTILITY ADJUSTMENTS.
- FIVE WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR MUST CONTACT NM811 (811) FOR LOCATION OF EXISTING UTILITIES.
- ALL SITE PREPARATION, GRADING OPERATIONS, FOUNDATION CONSTRUCTION, AND PAVEMENT INSTALLATION WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT, WHICH WILL BE PROVIDED BY THE OWNER OR ARCHITECT.
- ALL TRASH, DEBRIS, & SURFACE VEGETATION SHALL BE CLEARED AND LEGALLY DISPOSED OF OFFSITE.
- VIBRATORY COMPACTION SHALL NOT BE USED OVER IN-PLACE UTILITIES.
- SOIL TESTING AND INSPECTION SERVICES DURING SITE OPERATIONS ARE REQUIRED. CONTRACTOR SHALL ALLOW TESTING LABS TO INSPECT AND APPROVE COMPACTED SUBGRADES, BACKFILL, AND FILL LAYERS BEFORE FURTHER CONSTRUCTION WORK IS DONE. SHOULD COMPACTION TESTS INDICATE INADEQUATE DENSITY, CONTRACTOR SHALL PROVIDE ADDITIONAL COMPACTION AND TESTING AT THE CONTRACTOR'S SOLE EXPENSE.
- ADJUST ANY RIMS OF EXISTING UTILITY FEATURES AS NECESSARY TO MATCH NEW GRADES. UTILITIES IN PAVED AREAS SHALL BE HS-25 TRAFFIC RATED.
- CONTRACTOR SHALL COMPLY WITH LOCAL REGULATIONS FOR RESEEDING OF DISTURBED AREAS.

GRADING NOTES

- GRADING SHALL BE PERFORMED AT THE ELEVATIONS AND IN ACCORDANCE WITH THE DETAILS SHOWN ON THIS PLAN.
- PROPOSED SPOT AND CONTOUR ELEVATIONS SHOWN REPRESENT TOP OF FINISH MATERIAL (I.E. TOP OF CONCRETE, TOP OF CONCRETE BUILDING PAD, TOP OF PAVEMENT MATERIAL, TOP OF LANDSCAPING MATERIAL, ETC.). CONTRACTOR SHALL GRADE, COMPACT SUBGRADE AND DETERMINE EARTHWORK ESTIMATES BASED ON ELEVATIONS SHOWN MINUS FINISH MATERIAL THICKNESSES.
- IF FIELD GRADE ADJUSTMENTS ARE REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT.
- THE ENVIRONMENTAL PROTECTION AGENCY (EPA) AND THE CITY OF ALBUQUERQUE REQUIRE A STORM WATER POLLUTION PREVENTION PLAN (SWPPP), AN NPDES PERMIT, AND AN EROSION AND SEDIMENT CONTROL (ESC) PERMIT FOR PROJECTS WHERE CONSTRUCTION ACTIVITIES MEET THE EPA THRESHOLD. (SWPPP, NPDES PERMIT, AND ESC PLAN BY OTHERS.) A CURRENT CITY-APPROVED ESC PERMIT MUST BE INCLUDED WITH THE CONTRACTOR'S SUBMITTAL FOR A ROUGH GRADING, GRADING, PAVING, BUILDING, OR WORK ORDER PERMIT. CONTRACTOR SHALL COORDINATE WITH OWNER TO DETERMINE WHO WILL PREPARE SWPPP AND INSPECT REQUIRED ELEMENTS.
- ALL NEW PAVEMENT SURFACES SHALL BE CONSTRUCTED WITH POSITIVE SLOPE AWAY FROM BUILDINGS AND POSITIVE SLOPE TOWARD EXISTING AND/OR PROPOSED DRAINAGE PATHS. PAVING AND ROADWAY GRADES SHALL BE $\pm 0.1'$ FROM PLAN ELEVATIONS. BUILDING PAD ELEVATION SHALL BE $\pm 0.05'$ FROM PLAN ELEVATION.
- WHERE GRADES BETWEEN NEW AND EXISTING ARE SHOWN AS 'MATCH' OR '±', TRANSITIONS SHALL BE SMOOTH.
- ALL EROSION PROTECTION SHALL BE 6" AVG. DIA. ANGULAR FACED ROCK (F.F. ROCK) PLACED OVER GEOTEX 501 NON-WOVEN GEOTEXTILE (O.E.). NOTE: IF APPROVED BY ENGINEER, ALTERNATIVE EROSION PROTECTION MAY BE SUBSTITUTED.
- STORMWATER RETENTION POND ELEVATIONS AND SITE STORMWATER CONTROL MEASURES SHOWN ON THIS PLAN SHALL BE STRICTLY ADHERED TO FOR CERTIFICATION PURPOSES.
- POST-CONSTRUCTION MAINTENANCE FOR STORMWATER FACILITIES WILL BE THE RESPONSIBILITY OF THE FACILITIES OWNER. ENGINEER RECOMMENDS THAT OWNER INSPECT SITE YEARLY AND AFTER EACH RAINFALL TO IDENTIFY NEW AREAS OF EROSION AND INSTALL ADDITIONAL EROSION PROTECTION AS NEEDED BASED ON ACTUAL OCCURRENCES.

VICINITY MAP



PROJECT DATA

PROPERTY: THE SITE IS A PORTION OF THE ALBUQUERQUE RIO GRANDE ZOO PROPERTY LOCATED WITHIN C.O.A. VICINITY MAP K-13. THE SITE IS BOUND TO THE NORTH AND WEST BY THE MAIN PARK AREA AND BANDSTAND POND, AND TO THE SOUTH AND EAST BY EXISTING ANIMAL EXHIBIT.

PROPOSED IMPROVEMENTS: THE PROPOSED IMPROVEMENTS INCLUDE A NEW FACILITY HOUSING THE PROPOSED PENGUIN EXHIBIT WITH ASSOCIATED CONCRETE WALKS AND LANDSCAPING. DRAINAGE IMPROVEMENTS WILL BE CONSTRUCTED TO ADDRESS BUILDING DISCHARGE.

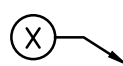
LEGAL: TROPICAL AMERICA AND ADJACENT AREAS, RIO GRANDE ZOO, ALBUQUERQUE, NM

BENCHMARK: VERTICAL DATUM IS BASED UPON THE ALBUQUERQUE CONTROL STATION MONUMENT "12-114", ELEVATION = 4947.708 FEET (NAVD 1988), AS PUBLISHED.

OFF-SITE: NO OFFSITE FLOW IMPACTS THIS PROPERTY.

FLOOD HAZARD: PER BERNALILLO COUNTY FIRM MAP #333, THE SITE IS LOCATED WITHIN FLOOD ZONE 'X' (SHADED) DESIGNATED AS AREA OF MODERATE FLOOD HAZARD, USUALLY THE AREA BETWEEN THE LIMITS OF THE 100-YEAR AND 500-YEAR FLOODS.

DRAINAGE PLAN CONCEPT: THE PROPOSED AREA TO BE DEVELOPED PREVIOUSLY HOUSED THE TROPICAL AMERICA EXHIBIT AND EXTENSIVE WALKS AND COVERED AREAS. THE TOTAL PROPOSED IMPROVED AREA WILL BE APPROXIMATELY THE SAME AS THE PRE-DEVELOPED CONDITION. HISTORICALLY, THE MAJORITY OF THIS AREA DRAINED TO LOCALIZED WATER HARVESTING AREAS WITHIN THE LANDSCAPING OVERFLOWING TO THE MAIN PARK. THE PROPOSED DEVELOPMENT WILL ALSO UTILIZE TEMPORARILY ALL WATER HARVESTING BASINS FOR INFILTRATION. EXCESS STORMWATER WOULD DISCHARGE TO THE MAIN PARK AREA WHICH, HISTORICALLY, IS USED TO INFILTRATE STORMWATER. THE FINAL LANDSCAPING FOR THIS EXHIBIT WILL BE DESIGNED AS PART OF A DIFFERENT PROJECT. FUTURE DESIGN WILL PROVIDE AREA PONDS SIZED TO RETAIN THE 100-YEAR, 6-HOUR VOLUME FOR INFILTRATION WITH EMERGENCY OVERFLOW TO THE PARK AT AN ELEVATION ≤ 4948.5 .



KEYED NOTES

KEYED NOTES REFERENCE OVERALL GRADING (SCALE 1:20) AROUND BUILDING. SEE CG-101 AND CG-102 FOR SPECIFIC KEYED NOTES FOR UPPER LEVEL (SHOWN FADED) AND LOWER LEVEL GRADING AND DRAINAGE (SCALE 1:10).

- SEE CG-101 FOR UPPER LEVEL GRADES THIS AREA. SEE CG-102 FOR LOWER LEVEL GRADES THIS AREA.
- FINAL SITE LANDSCAPE PLAN TO BE DESIGNED UNDER SEPARATE CONTRACT. CONSTRUCT TEMPORARY STORMWATER RETENTION POND BASINS TO ELEVATIONS SHOWN. SEE OVERALL GRADING AND DRAINAGE PLAN (CG-001) FOR FULL EXTENT OF TEMPORARY GRADING.
- OVERFLOW BETWEEN WATER HARVESTING BASINS = 47.5.
- INSTALL TWO 12" ϕ CULVERTS WITH END SECTIONS. PROVIDE EROSION PROTECTION EACH END.
- GRADE THIS AREA WITH BERM (TOP OF BERM 49.0) TO PREVENT STORMWATER FROM BACKING UP INTO REPTILE AND AMPHIBIAN AREA.
- EXISTING STORMWATER FROM THIS AREA WILL CONTINUE TO DRAIN TO THE REPTILE AND AMPHIBIAN AREA.

LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- FLOW ARROW (PROPOSED)
- FINISH FLOOR ELEVATION
- EROSION PROTECTION

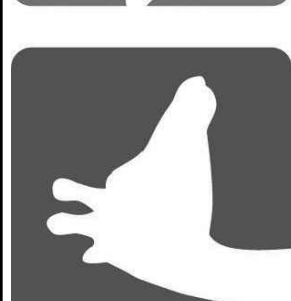


Van H. Gilbert Architect PC
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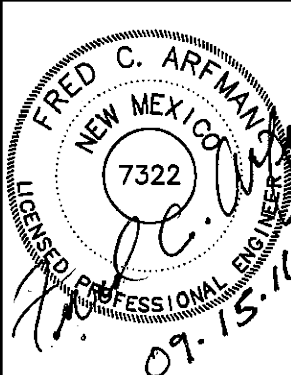


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STRUCTURAL ENGINEERS:	Chavez - Grievies Consulting Engineers, Inc.
MECHANICAL, ELECTRICAL ENGINEERS:	Bridgers and Paxton Consulting Engineers, Inc.
LIFE SUPPORT ENGINEERS:	Alvine and Associates, Inc.



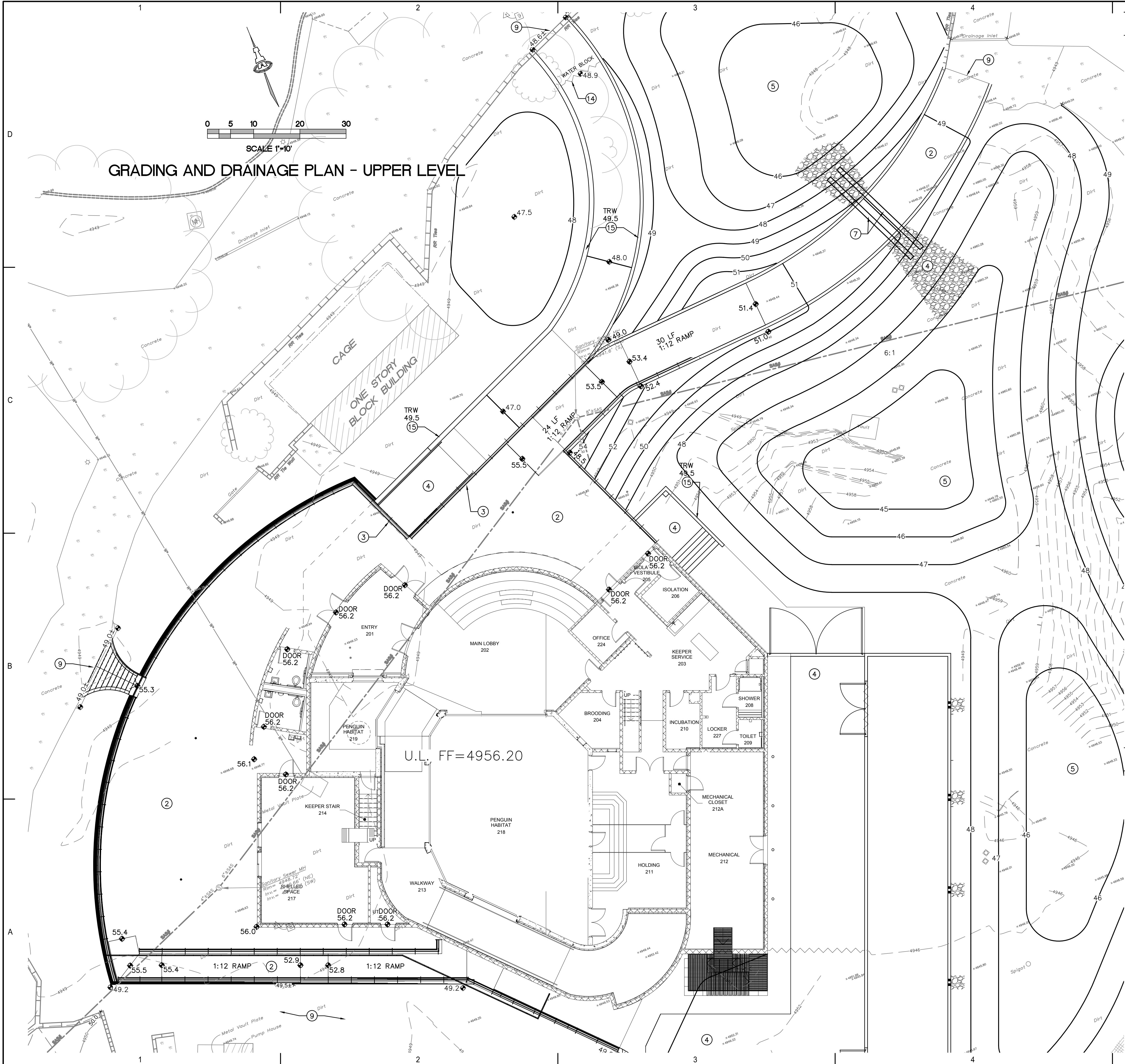
NO.	DATE	REVISION/REMARKS	BY
DESIGNED BY:	BJB	DATE:	9/15/16
DRAWN BY:	BJB	DATE:	9/15/16
CHECKED BY:	FCA	DATE:	9/15/16
SUBMITTAL / DATE CONSTRUCTION DOCUMENTS	15/16		
PROJECT NUMBER	16200		
PROJECT FILENAME	2140 CG-001.dwg	Sep 15, 2016	



ALBUQUERQUE BIOPARK ZOO
PENGUIN EXHIBIT
Albuquerque, New Mexico

OVERALL
GRADING AND
DRAINAGE PLAN

CG-100
SHEET OF



- ### KEYED NOTES
- NOT USED
 - CONSTRUCT STEPS AND ADA COMPLIANT RAMP(S) AND WALKWAYS TO ACHIEVE GRADE DIFFERENCES SHOWN. SEE ARCHITECTURAL FOR DETAILS.
 - SEE ARCHITECTURAL FOR CURB THIS AREA TO ENSURE NO UPPER PLAZA STORMWATER DRAINS ONTO TO LOWER LEVEL RAMP.
 - SEE CG-102 FOR LOWER LEVEL GRADES THIS AREA.
 - FINAL SITE LANDSCAPE PLAN TO BE DESIGNED UNDER SEPARATE CONTRACT. CONSTRUCT TEMPORARY STORMWATER RETENTION PONDS TO ELEVATIONS SHOWN. SEE OVERALL GRADING AND DRAINAGE PLAN (CG-001) FOR FULL EXTENT OF TEMPORARY GRADING.
 - NOT USED
 - INSTALL TWO 12"Ø CULVERTS AT INV. = 47.5 (TO EQUALIZE FLOW). PROVIDE EROSION PROTECTION EACH END.
 - NOT USED
 - COORDINATE TRANSITION BETWEEN NEW CONSTRUCTION AND EXISTING CONSTRUCTION WITH ARCHITECT.
 - NOT USED
 - NOT USED
 - NOT USED
 - NOT USED
 - PAVEMENT GRADE BREAK / WATER BLOCK.
 - CONSTRUCT RETAINING WALLS THIS AREA TO PROTECT LOWER AREAS FROM STORMWATER. TOP OF WALL ELEVATION SHOWN REFERS TO MINIMUM ELEVATION. SEE ARCHITECTURAL FOR ADDITIONAL INFORMATION.
 - NOT USED
 - NOT USED

LEGEND

---	EXISTING CONTOUR
—56—	PROPOSED CONTOUR
◆56.2	PROPOSED SPOT ELEVATION
→	FLOW ARROW (PROPOSED)
FF=4946.20	FINISH FLOOR ELEVATION
[Hatched Area]	EROSION PROTECTION

ISAACSON & ARFMAN, P.A.
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Albuquerque, New Mexico 87108
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2140 CG-101.dwg Sep 15, 2016

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LIFE SUPPORT ENGINEERS:	Alvine and Associates, Inc.

ABQ BIOPARK
ZOO BOTANIC GARDEN TINGLEY BEACH AQUARIUM

NO.	DATE	REVISION/REMARKS	BY

DESIGNED BY:	BJB	DATE:	9/15/16
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ALBUQUERQUE BIOPARK ZOO
PENGUIN EXHIBIT
Albuquerque, New Mexico

GRADING AND DRAINAGE PLAN
MAIN LEVEL

CG-101

SHEET OF

