

Gonzales Road S.W.

1800' N 90° 00' 00" East

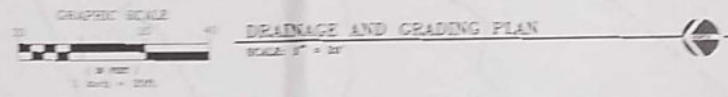
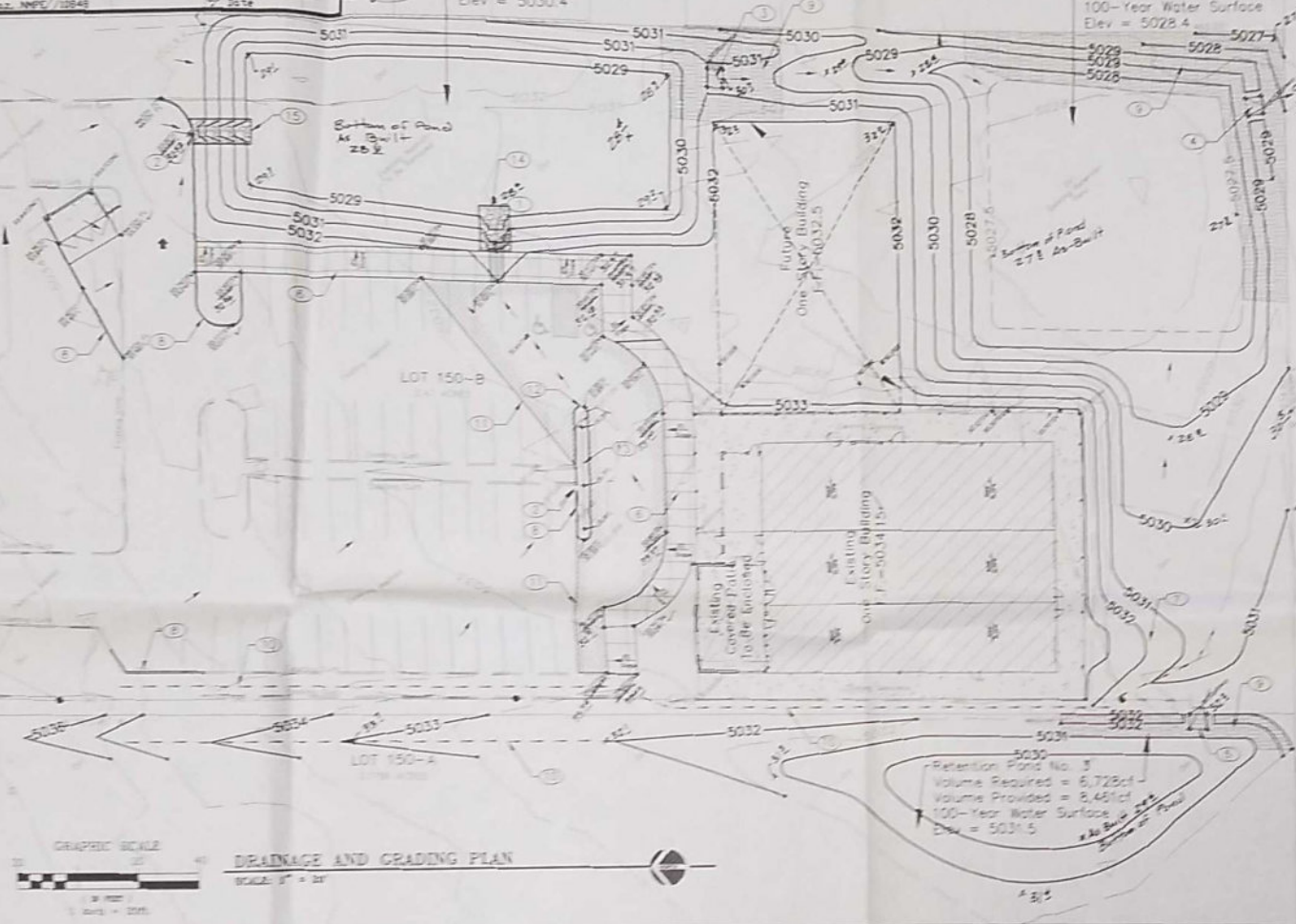
As indicated by the aerial information shown herein for the LA Promessa Charter School Grading and Drainage plan has been constructed in substantial compliance with the approved Grading and Drainage Plan. This Certification is presented in fulfillment of drainage requirements required by the City of Albuquerque. The information shown herein has been obtained by Harris Surveying, Inc. and is true and correct to the best of my knowledge and belief.

Robert Allen
 Robert Allen, NCEP/10848
 3-19-11
 Date

Retention Pond No. 1
 Volume Required = 11,009cf
 Volume Provided = 11,566cf
 100-Year Water Surface
 Elev = 5030.4

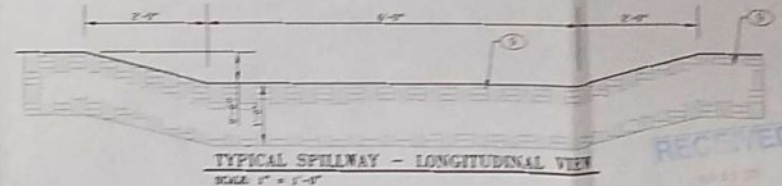
Retention Pond No. 2
 Volume Required = 8,175cf
 Volume Provided = 8,906cf
 100-Year Water Surface
 Elev = 5028.4

Retention Pond No. 3
 Volume Required = 6,728cf
 Volume Provided = 8,451cf
 100-Year Water Surface
 Elev = 5031.5

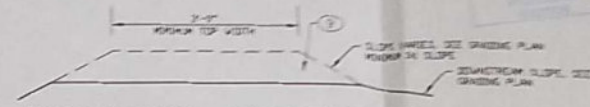


CONSTRUCTION NOTES:

- CONSTRUCT 2'-0" WIDE BY 6" DEEP SIDEWALK CURBS WITH STEEL PLATE TOP PER CITY STD. DWS 0229.
- PROVIDE 2" WIDE CURB OPENING TO ALLOW FLOWS FROM ASPHALT AREA TO DRAIN INTO LANDSCAPED AREA.
- CONSTRUCT A DRAINAGE POND SPILLWAY FOR POND NO. 1 WITH SPILLWAY ELEVATION = 5028.0 PER DETAIL SHOWN ON THIS SHEET.
- CONSTRUCT A DRAINAGE POND SPILLWAY FOR POND NO. 2 WITH SPILLWAY ELEVATION = 5028.0 PER DETAIL SHOWN ON THIS SHEET.
- CONSTRUCT A DRAINAGE POND SPILLWAY FOR POND NO. 3 WITH SPILLWAY ELEVATION = 5030.0 PER DETAIL SHOWN ON THIS SHEET.
- NEW SIDEWALK, SEE SITE PLAN BY ARCHITECT.
- NEW HANDICAP RAMP, SEE DETAILS BY ARCHITECT.
- NEW CURB, SEE SITE PLAN BY ARCHITECT.
- COMPACTION REQUIREMENTS - FOLLOWING ALL CUT EARTHWORK, THE SOILS AT THE BASE OF EXCAVATIONS SHOULD BE COMPACTED TO A DEPTH OF 8 INCHES AND MOISTURE CONTENTED TO OPTIMUM MOISTURE CONTENT (MVC) THE SURFACE OF THE NATURAL SOILS AT THE BASE OF EXCAVATIONS SHOULD BE COMPACTED TO 95% MAXIMUM DRY DENSITY AS DETERMINED BY ASTM STANDARD D1557. MODIFIED PROCTOR TESTING (ASTM D1557) WILL BE NECESSARY TO DETERMINE THE MAXIMUM DRY DENSITY AND OPTIMUM MOISTURE CONTENT OF THE NATURAL SOILS AT THE BASE OF EXCAVATIONS AS WELL AS ON ENGINEERED FILL PLACES. THE SURFACE OF NATURAL SOILS SHOULD BE TESTED FOR COMPACTION PRIOR TO PLACING ENGINEERED FILL. ENGINEERED FILL SHOULD BE PLACED IN LIFTED LIFTS A MAXIMUM OF EIGHT-INCHES THICK. EACH LIFT OF FILL SHOULD BE COMPACTED PRIOR TO PLACING ADDITIONAL LIFT. COMPACTION TESTING SHOULD BE PERFORMED ON FILL AT A MAXIMUM OF EVERY OTHER LIFT UNTIL FINISHED GRADE IS REACHED.
- CONSTRUCT 6" DEEP EARTH DVALE TO DRAIN FLOWS.
- LIMITS OF ASPHALT REMOVAL AND REPLACEMENT.
- PROVIDE 2" WIDE CURB OPENING TO ALLOW OVERFLOWS FROM WATERHARVESTING AREA TO DRAIN INTO ASPHALT.
- GRADE 6" DEEP DVALE FOR WATER HARVESTING ISLAND.
- 18" LONG X 18" WIDE X 12" THICK, 4" ROUND FRACTURE ROCK WITH FILTER BLANKET AT BOTTOM.
- 18" LONG X 18" WIDE X 12" THICK, 4" ROUND FRACTURE ROCK WITH FILTER BLANKET AT BOTTOM.



TYPICAL SPILLWAY - LONGITUDINAL VIEW
 SCALE: 1" = 1'-0"



TYPICAL SPILLWAY - CROSS SECTION VIEW
 SCALE: 1" = 1'-0"

FIRM MAP 35001C0328D
 SCALE: N.T.S.

VICINITY MAP L-10
 SCALE: N.T.S.

LEGEND

1.000' - 10' 0" 0" 0"	1.000' - 10' 0" 0"	1.000' - 10' 0" 0"
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UTILITY PRECAUTIONS
 THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL UTILITIES PRIOR TO THE START OF THE WORK. IN THE EVENT OF AN UNEXPECTED UTILITY ENCOUNTER, THE CONTRACTOR SHALL STOP WORK IMMEDIATELY AND NOTIFY THE ENGINEER. THE ENGINEER SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL UTILITIES PRIOR TO THE START OF THE WORK. IN THE EVENT OF AN UNEXPECTED UTILITY ENCOUNTER, THE CONTRACTOR SHALL STOP WORK IMMEDIATELY AND NOTIFY THE ENGINEER. THE ENGINEER SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL UTILITIES PRIOR TO THE START OF THE WORK. IN THE EVENT OF AN UNEXPECTED UTILITY ENCOUNTER, THE CONTRACTOR SHALL STOP WORK IMMEDIATELY AND NOTIFY THE ENGINEER.

APPLIED ENGINEERING AND SURVEYING, INC.
 CIVIL ENGINEERING, LANDSCAPE ARCHITECTURE, PLANNING AND SURVEYING

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 www.aesurvey.com

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CONSULTANTS

PROFESSIONAL SEAL



LA PROMESSA
 CHARTER SCHOOL
 ALBUQUERQUE, NEW MEXICO

NAME DATE DESCRIPTION

PROJECT NUMBER
 DRAWING NUMBER
 CHECK BY
 DATE

PROPOSED
 GRADING/DRAINAGE
 IMPROVEMENTS

REVISION
 C-101

by the as-built information shown hereon for the La Promessa Charter and Drainage plan has been constructed in substantial compliance with Grading and Drainage Plan. This Certification is presented in fulfillment of requirements requested by the City of Albuquerque. The information has been obtained by Harris Surveying, Inc and is true and correct to my knowledge and belief.

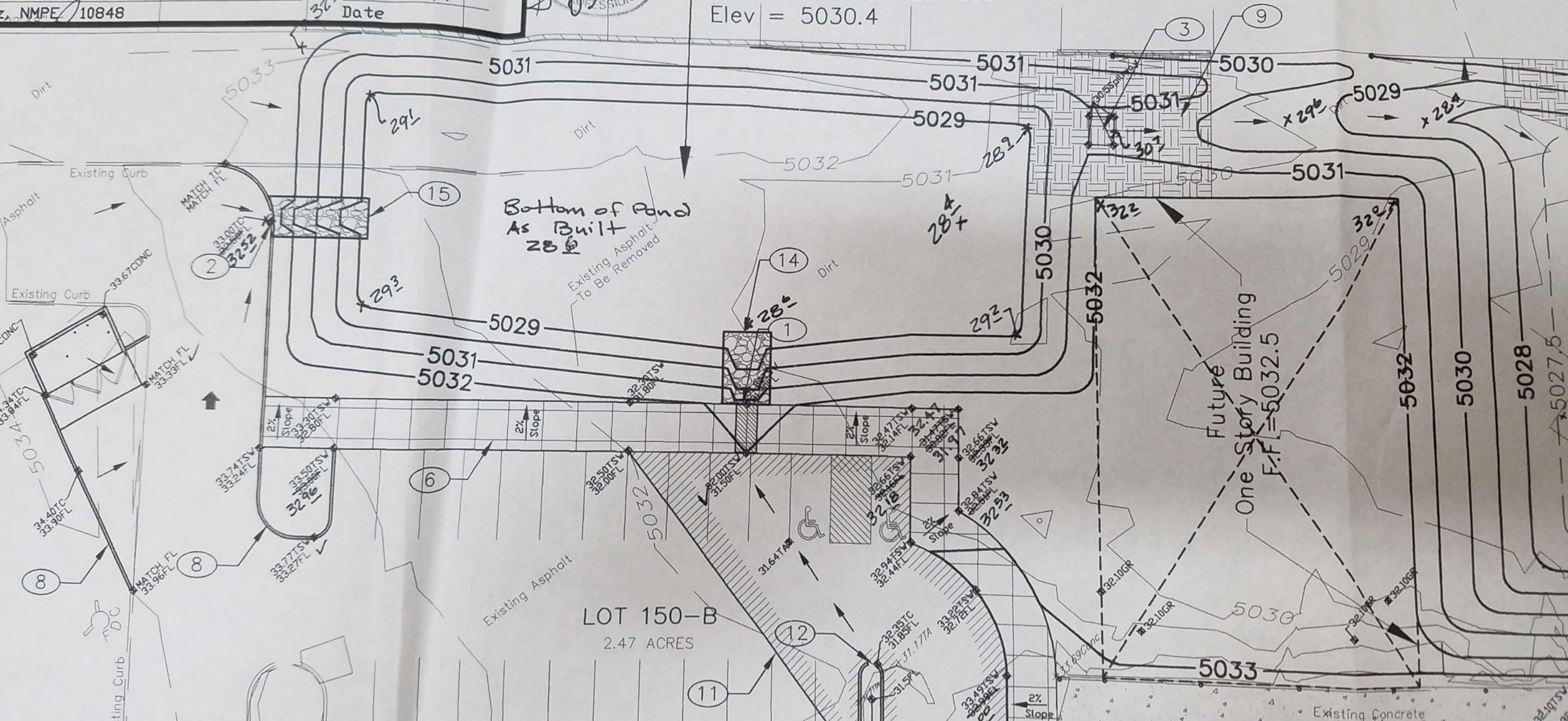
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LA NMPE 10848

3rd 3-19-11
Date

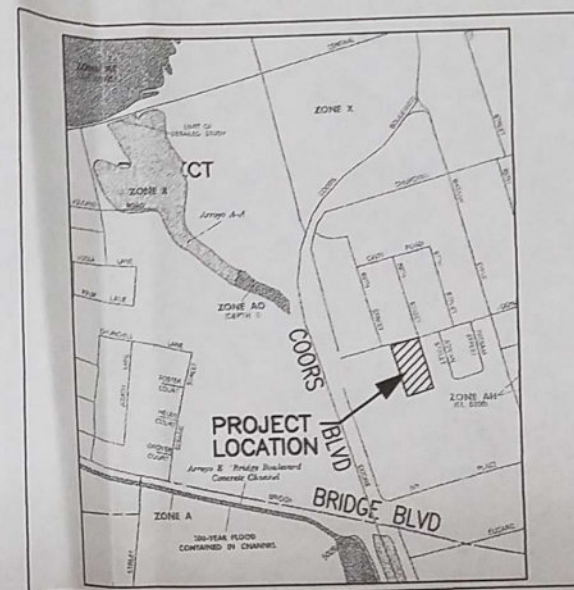
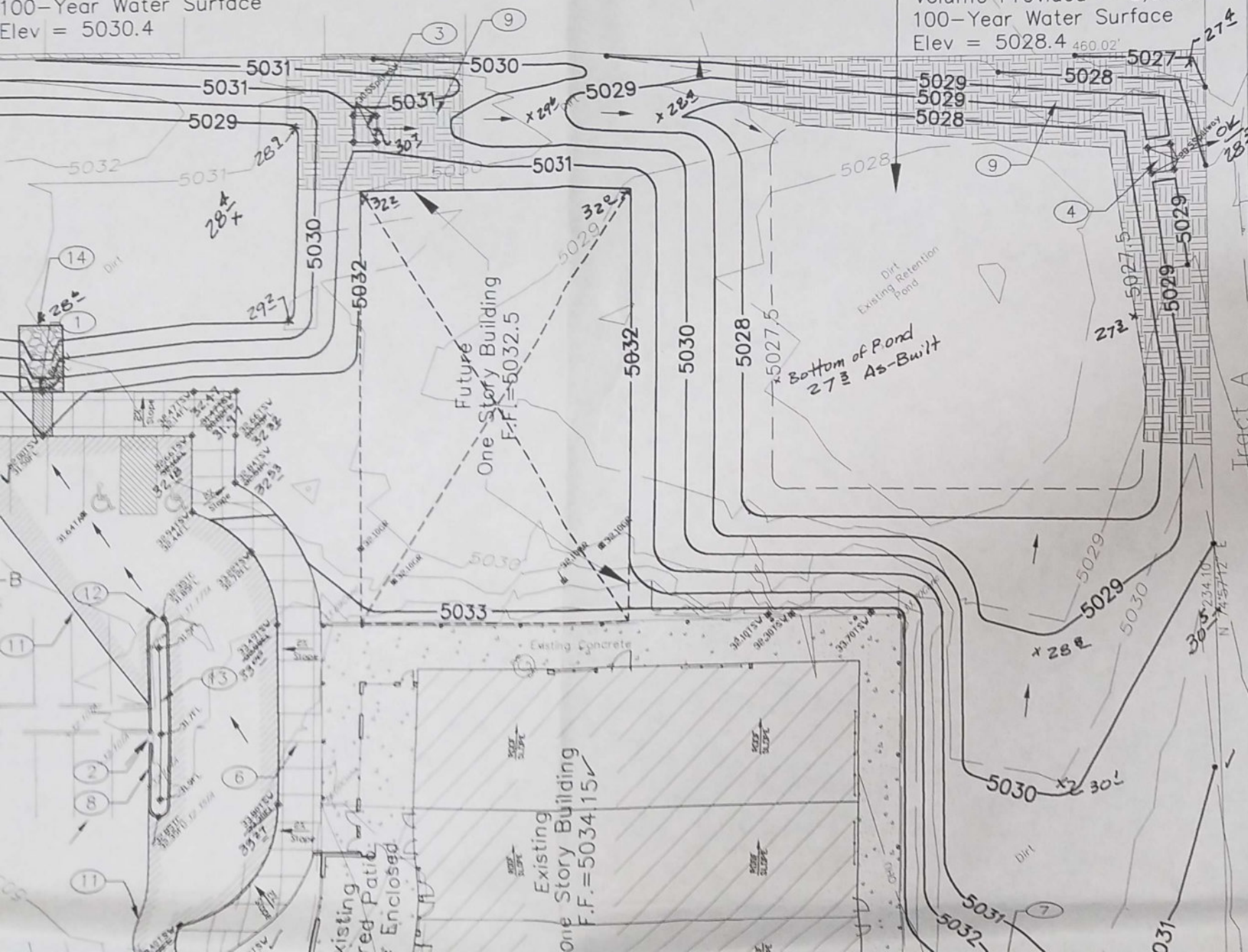


Retention Pond No. 1
Volume Required = 11,009cf
Volume Provided = 11,566cf
100-Year Water Surface
Elev = 5030.4



Retention Pond No. 1
Volume Required = 11,009cf
Volume Provided = 11,566cf
100-Year Water Surface
Elev = 5030.4

-Retention Pond No. 2
Volume Required = 8,175cf
Volume Provided = 8,906cf
100-Year Water Surface
Elev = 5028.4 ^{460.02'}



FIRM MAP 35001C0329D

SCALE: N.T.S.



VICINITY MAP L-10

SCALE: N.T.S.

LEGEND

APPLIED ENGINEERING
SURVEYING, INC.

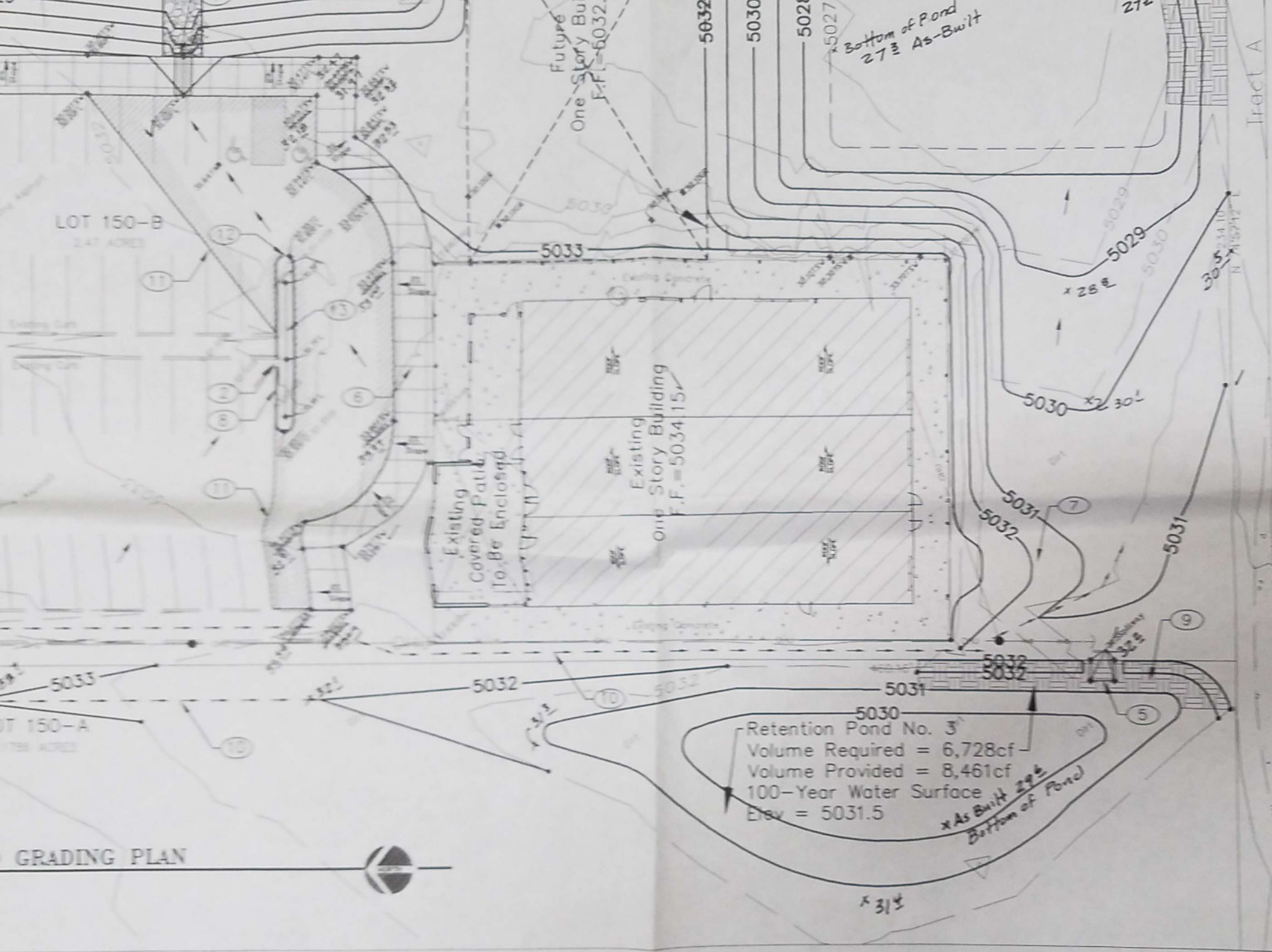
CIVIL ENGINEERING, LAND
PLANNING AND SURVEYING

1605 Blair Drive NE Albuquerque, NM
Office: (505) 480-8125 Facsimile: (505) 480-8125

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CONSULTAN

PROFESSIONAL



GRADING PLAN

EQUIREMENTS - FOLLOWING ALL OUT-OF-EARTHWORK, THE SOILS AT THE BASE OF THE SLOPES SHOULD BE SCARIFIED TO A DEPTH OF 8 INCHES AND MOISTURE

SCALE: N.T.S.



VICINITY MAP L-10
SCALE: N.T.S.

LEGEND

5360	NEW OUTSIDE GRADE	NEW GRADE BREAK
5362	EXISTING OUTSIDE GRADE	EXISTING GRADE ELEVATION
33.02	AS-BUILT NEW TOP OF CURB ELEVATION	NEW GRADE ELEVATION
33.02	AS-BUILT NEW TOP OF CURB ELEVATION	FLUME GRADE ELEVATION
7480.11	NEW TOP OF ASPHALT ELEVATION	NEW TOP OF WALL ELEVATION
7581.87	NEW TOP OF SIDEWALK ELEVATION	NEW FINISH FLOOR ELEVATION
DRAINAGE DITCH		NEW GRADE BREAK
		x 27 3/4 AS-BUILT ELEV.

UTILITY PRECAUTIONS

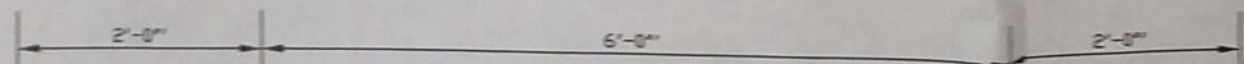
THE CONTRACTOR SHALL INFORM ITSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE, OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK IN ADVANCE OF AND DURING EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY, AND PRESERVE ANY 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

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All design concepts
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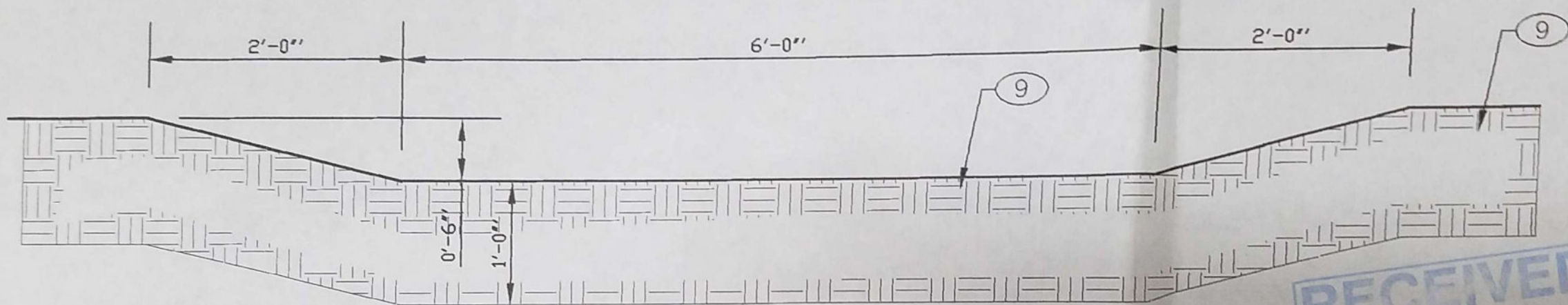


100-Year Water Surface
Elev = 5031.5

x As Built
Bottom of

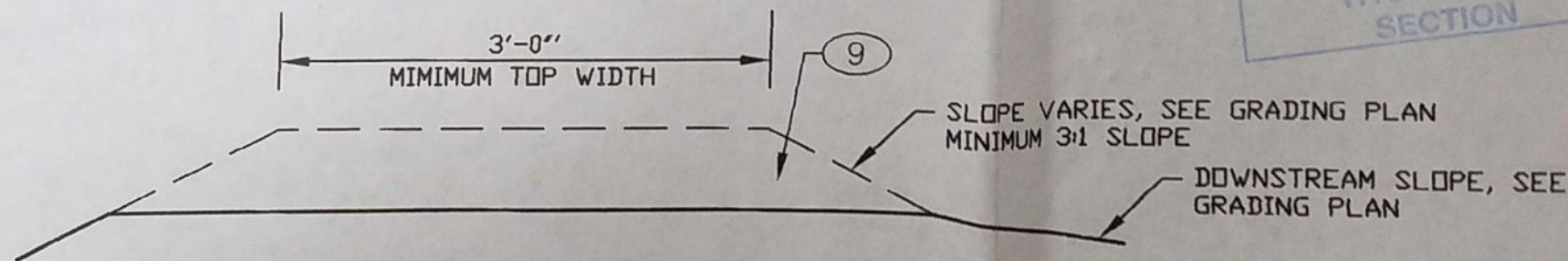
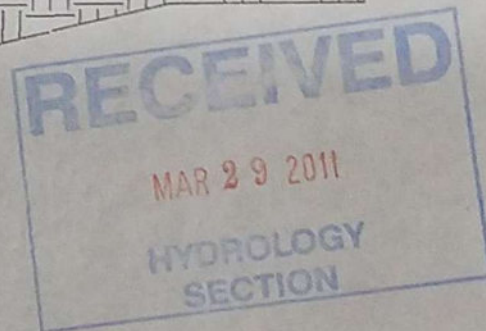
x 3/4

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



TYPICAL SPILLWAY - LONGITUDINAL VIEW

SCALE: 1" = 1'-0"

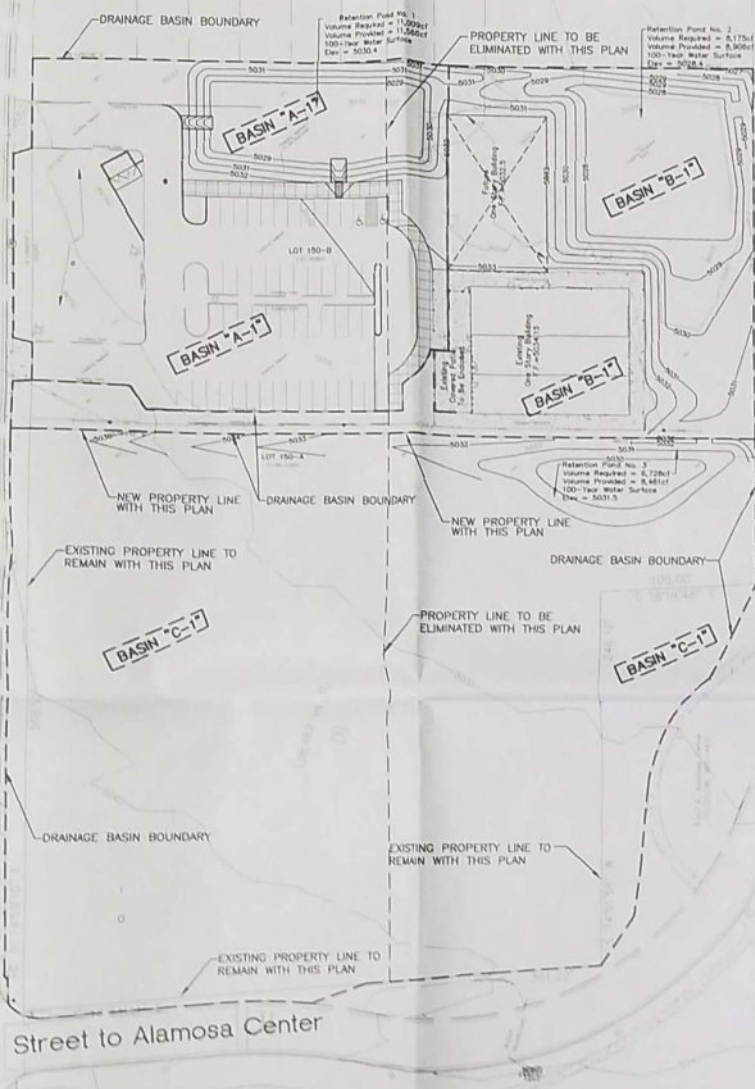


TYPICAL SPILLWAY - CROSS SECTION VIEW

SCALE: 1" = 1'-0"

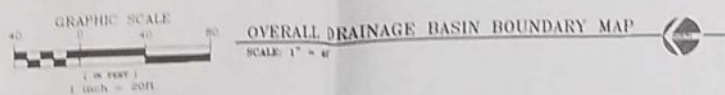
Gonzales Road S.W.

Gonzales Road S.W.



Coors Boulevard S.W.

Street to Alamosa Center



DRAINAGE PLAN
THE FOLLOWING CONCERN THE RECONSTRUCTION OF AN EXISTING BUILDING AND PARKING LOT TO INCLUDE VACANT LAND FOR THE PROPOSED RETENTION POND NO. 1 AND 150' X 150' LOCATED AT THE SOUTHEAST CORNER OF COORS BOULEVARD AND GONZALES ROAD SW. ALBUQUERQUE, NEW MEXICO. THE FOLLOWING INFORMATION CONTAINED HEREIN IS AS FOLLOWS:

1. DRAINAGE CALCULATIONS
2. VOLUME REQUIRED
3. FLOOD INSURANCE RATE MAP 35001C0329D, DATED 07/20/1996

EXISTING CONDITIONS
AS SHOWN BY THE CITY MAP, THE SITE IS LOCATED AT THE SOUTHEAST CORNER OF COORS BOULEVARD AND GONZALES ROAD SW. THE PARCELS CURRENT LEGAL DESCRIPTION IS LOTS 150 AND 151, TOWN OF ALBUQUERQUE, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO. THE PROPERTY IS BOUNDED ON THE SOUTH BY THE CITY ALAMOSA CENTER, ON THE EAST BY A VACANT LOT, ON THE NORTH BY GONZALES ROAD SW. AND ON THE WEST BY THE PARK ACCESS ROAD THAT SERVES THE CITY ALAMOSA CENTER.

THE OVERALL SITE CONTAINS APPROXIMATELY 5.55 ACRES. THE EASTERN PORTION OF LOTS 150 AND 151 IS CURRENTLY DEVELOPED WITH A METAL BUILDING THAT WAS USED AS A CHURCH AND A PAVED PARKING LOT. THE DEVELOPED PORTION CURRENTLY DRAINAGE TO AN EXISTING RETENTION POND LOCATED AT THE SOUTHEAST CORNER OF THE SITE. THE EASTERN PORTION OF THE EXISTING DEVELOPED AREA WAS ANALYZED FOR THE DRAINAGE PLAN NO. 100101 AT CITY HYDROLOGY DATED 1981. THE WESTERN PORTION OF THE SITE IS CURRENTLY UNDEVELOPED AND CONTAINS SOME NATIVE GRASSES.

THE SITE IS CURRENTLY NOT IN A DESIGNATED 100-YEAR FLOODPLAIN PER FIRM MAP 35001C0329D.

PROPOSED CONDITIONS
AS SHOWN BY THE PLAN, THE PROPOSAL IS TO DIVIDE THE 5.55 ACRE SITE INTO TWO LOTS. THE EASTERN LOT 150.B WILL NOW CONTAIN 2.47 ACRES WHICH WILL NOW INCLUDE ALL OF THE CURRENT EXISTING DEVELOPED AREA WHICH CONSIST OF THE EXISTING PARKING LOT AND BUILDING. THE WESTERN LOT 150.A WILL NOW CONTAIN 3.08 ACRES WHICH WILL REMAIN UNDEVELOPED AS PART OF THIS PLAN.

THIS PROPOSED DRAINAGE AND DRAINAGE PLAN WILL ADDRESS LOT 150.B WHICH WILL HAVE THE EXISTING PARKING LOT RECONSTRUCTED. THE EXISTING BUILDING WILL BE RECONSTRUCTED AND ADDITIONAL SIDEWALKS WILL BE ADDED ALONG WITH SOME PLAYGROUND EQUIPMENT. THERE WILL BE A PORTFOLIO SITE ASIDE FOR A FUTURE BUILDING. THE EXISTING FLOW AND FOR PROPOSED FLOW BASED ON THE PROPOSED IMPROVEMENTS AT PART OF THIS PLAN TO INCLUDE THE RETENTION POND FOR THE FUTURE Bldg.

THE CALCULATIONS WHICH APPEAR HEREON, ANALYZE BOTH THE EXISTING AND DEVELOPED CONDITIONS FOR THE 100-YEAR, 1-HOUR RAINFALL RUNOFF FOR PEAK FLOWS AND DRAINAGE DURATION FOR VOLUME REQUIREMENTS. THE PROCEDURE FOR EACH AND SMALLER BASINS AS SET FORTH IN THE REVISION OF SECTION 22.1 HYDROLOGY OF THE DEVELOPMENT PROCESS MANUAL, VOLUME 2, DESIGN CRITERIA, DATED JANUARY 1993. THIS D.P.M. PROCEDURE IS USED FOR ANALYZING EXISTING FLOWS.

DRAINAGE CAPACITY
BASED ON A REVIEW OF THE EXISTING DRAINAGE PLAN FOR THE ALAMOSA CENTER WHICH LIES ALONG THE SOUTH BOUNDARY OF THE SITE, NO OFFSITE FLOWS WERE CONSIDERED FOR THIS DEVELOPMENT PER DRAINAGE PLAN 100101. BASED ON THE FACT THAT THE EXISTING DRAINAGE PLAN 100101 UTILIZED A RETENTION POND, THE INDICATORS TO THE EXISTING DEVELOPED SITE WILL ALSO PROPOSE A RETENTION POND.

EXISTING FLOWS
A REVIEW OF THE TOPOGRAPHIC SURVEY AND A FIELD VISIT TO THE SITE INDICATES THAT OFFSITE FLOWS FOR THE PROPOSED UNDEVELOPED TRACT TO THE WEST LOT 150.A COULD ENTER THE SITE. BASED ON THE EXISTING CONTOURS THERE APPEARS TO BE AN EXISTING RETENTION POND AT THE SOUTHEAST CORNER OF THE LOT 150.A. A PART OF THIS PLAN A NEW DRAINAGE ANALYSIS WILL BE PERFORMED TO DETERMINE THE SIZE OF THE RETENTION POND REQUIRED TO MEET CURRENT CITY HYDROLOGY STANDARDS. THE EXISTING RETENTION POND WILL BE INCREASED TO ACCOMMODATE EXISTING UNDEVELOPED DRAINAGE CONDITIONS FOR LOT 150.A. WHEN LOT 150.A DEVELOPS IN THE FUTURE A REVERSED RETENTION POND WILL BE NEEDED FOR LOT 150.A WITH THE POSSIBILITY FOR A NEED TO DEVELOP AN OFFSITE TO BATHY DRIVE WHICH CURRENTLY HAS EXISTING DRAINAGE IMPROVEMENTS. THIS WOULD ALLOW THIS RETENTION POND TO BE CONVERTED TO A RETENTION POND. THIS WILL ALLOW THAT A DRAINAGE EXISTENCE CAN BE SECURED ACROSS THE CITY OWNED ALAMOSA CENTER IN ORDER TO CONVEY FLOWS FROM THIS SITE.

DRAINAGE CALCULATIONS
FIRM 35001C0329D, DATED 07/20/1996

1. EXISTING STORM DRAINAGE (24-HOUR) AT 100-YEAR STORM
24 HOUR = 2.47 INCHES
10 DAY = 3.47 INCHES

2. PEAK DISCHARGE (CFS) FOR 100-YEAR STORM (TABLE 4.1)
2.1. 1.27 CFS PER ACRE UNCOMPACTED "A"
2.2. 2.87 CFS PER ACRE UNCOMPACTED "B"
2.3. 4.37 CFS PER ACRE IMPERVIOUS AREA "C"
FOR WATERBODIES USE SHALL BE EQUAL TO 4.0 CFS

3. EXISTING PRECIPITATION (INCHES) 48-HOUR STORM (TABLE 4.2)
4.8 INCHES (1.2 INCHES UNCOMPACTED "A"
1.0 INCHES UNCOMPACTED "B"
2.0 INCHES UNCOMPACTED "C"
2.4 INCHES IMPERVIOUS AREA "C")

4. EXISTING CONDITIONS
EXISTING AREA OF LOT 150.B CURRENTLY DEVELOPED = 2.47 ACRES
EXISTING ASPHALT AREA = 37,790 SF
EXISTING BUILDING AREA = 1,200 SF
EXISTING CONCRETE AREA = 4,500 SF
TOTAL TREATMENT "D" AREA = 37,790 + 1,200 + 4,500 = 43,490 SF
1.17 ACRES (EXISTING BUILDING, CONCRETE AND ASPHALT TREATMENT)

TREATMENT "B" AREA = 0.15 ACRES (EXISTING RETENTION POND CONTOUR 5028)

TREATMENT "C" AREA = 1.15 ACRES (REMAINING AREA)

TREATMENT "D" AREA = 0.15 ACRES (EXISTING RETENTION POND CONTOUR 5028)

EXISTING ASPHALT AND SIDEWALK AREA = 25,780 SF
TOTAL TREATMENT "D" AREA = 25,780 SF + 0.15 ACRES

LANDSCAPED AREA = 3,584 SF
TREATMENT "B" AREA = 3,584 SF + 0.15 ACRES

TREATMENT "C" AREA = 4.31 ACRES (REMAINING AREA)

TREATMENT "D" AREA = 0.15 ACRES (EXISTING RETENTION POND CONTOUR 5028)

EXISTING ASPHALT AND SIDEWALK AREA = 25,780 SF
TOTAL TREATMENT "D" AREA = 25,780 SF + 0.15 ACRES

LANDSCAPED AREA = 3,584 SF
TREATMENT "B" AREA = 3,584 SF + 0.15 ACRES

A. SITE PROPOSED RETENTION POND VOLUME
PROPOSED AREA OF LOT 150.B TO BE DEVELOPED = 2.47 ACRES
BASIN "A-1" - RETENTION POND NO. 1
TOTAL AREA = 37,790 SF + 1,200 SF
EXISTING ASPHALT AND CONCRETE TO REMAIN AND NEW ASPHALT TO BE RECONSTRUCTED AREA = 37,790 SF
NEW CONCRETE AREA = 2,900 SF
TOTAL TREATMENT "D" AREA = 37,790 + 2,900 = 40,690 SF
0.93 ACRES
TREATMENT "B" & "C" AREA = 1.32 ACRES - 0.85 AC = 0.47 AC
USE SOE TREATMENT "B" AND "C"
TREATMENT "B" = 0.50 X 0.47 AC = 0.23 ACRES
TREATMENT "C" = 0.50 X 0.47 AC = 0.23 ACRES

TREATMENT "D" AREA = 0.15 ACRES
TREATMENT "B" AREA = 0.23 ACRES
TREATMENT "C" AREA = 0.23 ACRES

PROPOSED RETENTION POND NO. 1 VOLUME
ELEV. 5029
5029 8.128 0.5 4.193

5030 8.443 0.5 4.193

PROPOSED RETENTION POND VOLUME PROVIDED = 11.56 ACFT
PROPOSED RETENTION POND VOLUME REQUIRED FOR 10-DAY STORM = 0.27 ACFT

PROPOSED RETENTION POND NO. 2 VOLUME
ELEV. 5029
5029 8.128 0.5 4.193

5030 8.443 0.5 4.193

PROPOSED RETENTION POND VOLUME PROVIDED = 11.56 ACFT
PROPOSED RETENTION POND VOLUME REQUIRED FOR 10-DAY STORM = 0.27 ACFT

BASIN "B-1" - RETENTION POND NO. 2
TOTAL AREA = 37,790 SF + 1,200 SF
EXISTING ASPHALT AND CONCRETE TO REMAIN AND NEW ASPHALT TO BE RECONSTRUCTED AREA = 37,790 SF
NEW CONCRETE AREA = 2,900 SF
TOTAL TREATMENT "D" AREA = 37,790 + 2,900 = 40,690 SF
0.93 ACRES
TREATMENT "B" & "C" AREA = 1.32 ACRES - 0.45 AC = 0.87 ACRES
USE SOE TREATMENT "B" AND "C"
TREATMENT "B" = 0.50 X 0.87 AC = 0.43 ACRES
TREATMENT "C" = 0.50 X 0.87 AC = 0.43 ACRES

TREATMENT "D" AREA = 0.15 ACRES
TREATMENT "B" AREA = 0.43 ACRES
TREATMENT "C" AREA = 0.43 ACRES

PROPOSED RETENTION POND NO. 2 VOLUME
ELEV. 5029
5029 8.128 0.5 4.193

5030 8.443 0.5 4.193

PROPOSED RETENTION POND VOLUME PROVIDED = 11.56 ACFT
PROPOSED RETENTION POND VOLUME REQUIRED FOR 10-DAY STORM = 0.27 ACFT

BASIN "C-1" - RETENTION POND NO. 3
TOTAL AREA = 37,790 SF + 1,200 SF
EXISTING ASPHALT AND CONCRETE TO REMAIN AND NEW ASPHALT TO BE RECONSTRUCTED AREA = 37,790 SF
NEW CONCRETE AREA = 2,900 SF
TOTAL TREATMENT "D" AREA = 37,790 + 2,900 = 40,690 SF
0.93 ACRES
TREATMENT "B" & "C" AREA = 1.32 ACRES - 0.45 AC = 0.87 ACRES
USE SOE TREATMENT "B" AND "C"
TREATMENT "B" = 0.50 X 0.87 AC = 0.43 ACRES
TREATMENT "C" = 0.50 X 0.87 AC = 0.43 ACRES

TREATMENT "D" AREA = 0.15 ACRES
TREATMENT "B" AREA = 0.43 ACRES
TREATMENT "C" AREA = 0.43 ACRES

PROPOSED RETENTION POND NO. 3 VOLUME
ELEV. 5029
5029 8.128 0.5 4.193

5030 8.443 0.5 4.193

PROPOSED RETENTION POND VOLUME PROVIDED = 11.56 ACFT
PROPOSED RETENTION POND VOLUME REQUIRED FOR 10-DAY STORM = 0.27 ACFT

BASIN "D-1" - RETENTION POND NO. 4
TOTAL AREA = 37,790 SF + 1,200 SF
EXISTING ASPHALT AND CONCRETE TO REMAIN AND NEW ASPHALT TO BE RECONSTRUCTED AREA = 37,790 SF
NEW CONCRETE AREA = 2,900 SF
TOTAL TREATMENT "D" AREA = 37,790 + 2,900 = 40,690 SF
0.93 ACRES
TREATMENT "B" & "C" AREA = 1.32 ACRES - 0.45 AC = 0.87 ACRES
USE SOE TREATMENT "B" AND "C"
TREATMENT "B" = 0.50 X 0.87 AC = 0.43 ACRES
TREATMENT "C" = 0.50 X 0.87 AC = 0.43 ACRES

TREATMENT "D" AREA = 0.15 ACRES
TREATMENT "B" AREA = 0.43 ACRES
TREATMENT "C" AREA = 0.43 ACRES

PROPOSED RETENTION POND NO. 4 VOLUME
ELEV. 5029
5029 8.128 0.5 4.193

5030 8.443 0.5 4.193

PROPOSED RETENTION POND VOLUME PROVIDED = 11.56 ACFT
PROPOSED RETENTION POND VOLUME REQUIRED FOR 10-DAY STORM = 0.27 ACFT

BASIN "E-1" - RETENTION POND NO. 5
TOTAL AREA = 37,790 SF + 1,200 SF
EXISTING ASPHALT AND CONCRETE TO REMAIN AND NEW ASPHALT TO BE RECONSTRUCTED AREA = 37,790 SF
NEW CONCRETE AREA = 2,900 SF
TOTAL TREATMENT "D" AREA = 37,790 + 2,900 = 40,690 SF
0.93 ACRES
TREATMENT "B" & "C" AREA = 1.32 ACRES - 0.45 AC = 0.87 ACRES
USE SOE TREATMENT "B" AND "C"
TREATMENT "B" = 0.50 X 0.87 AC = 0.43 ACRES
TREATMENT "C" = 0.50 X 0.87 AC = 0.43 ACRES

TREATMENT "D" AREA = 0.15 ACRES
TREATMENT "B" AREA = 0.43 ACRES
TREATMENT "C" AREA = 0.43 ACRES

PROPOSED RETENTION POND NO. 5 VOLUME
ELEV. 5029
5029 8.128 0.5 4.193

5030 8.443 0.5 4.193

PROPOSED RETENTION POND VOLUME PROVIDED = 11.56 ACFT
PROPOSED RETENTION POND VOLUME REQUIRED FOR 10-DAY STORM = 0.27 ACFT

BASIN "F-1" - RETENTION POND NO. 6
TOTAL AREA = 37,790 SF + 1,200 SF
EXISTING ASPHALT AND CONCRETE TO REMAIN AND NEW ASPHALT TO BE RECONSTRUCTED AREA = 37,790 SF
NEW CONCRETE AREA = 2,900 SF
TOTAL TREATMENT "D" AREA = 37,790 + 2,900 = 40,690 SF
0.93 ACRES
TREATMENT "B" & "C" AREA = 1.32 ACRES - 0.45 AC = 0.87 ACRES
USE SOE TREATMENT "B" AND "C"
TREATMENT "B" = 0.50 X 0.87 AC = 0.43 ACRES
TREATMENT "C" = 0.50 X 0.87 AC = 0.43 ACRES

TREATMENT "D" AREA = 0.15 ACRES
TREATMENT "B" AREA = 0.43 ACRES
TREATMENT "C" AREA = 0.43 ACRES

PROPOSED RETENTION POND NO. 6 VOLUME
ELEV. 5029
5029 8.128 0.5 4.193

B. SITE PROPOSED RETENTION POND VOLUME
PROPOSED AREA OF LOT 150.B TO BE DEVELOPED = 2.47 ACRES
BASIN "A-1" - RETENTION POND NO. 1
TOTAL AREA = 37,790 SF + 1,200 SF
EXISTING ASPHALT AND CONCRETE TO REMAIN AND NEW ASPHALT TO BE RECONSTRUCTED AREA = 37,790 SF
NEW CONCRETE AREA = 2,900 SF
TOTAL TREATMENT "D" AREA = 37,790 + 2,900 = 40,690 SF
0.93 ACRES
TREATMENT "B" & "C" AREA = 1.32 ACRES - 0.45 AC = 0.87 ACRES
USE SOE TREATMENT "B" AND "C"
TREATMENT "B" = 0.50 X 0.87 AC = 0.43 ACRES
TREATMENT "C" = 0.50 X 0.87 AC = 0.43 ACRES

TREATMENT "D" AREA = 0.15 ACRES
TREATMENT "B" AREA = 0.43 ACRES
TREATMENT "C" AREA = 0.43 ACRES

PROPOSED RETENTION POND NO. 1 VOLUME
ELEV. 5029
5029 8.128 0.5 4.193

5030 8.443 0.5 4.193

PROPOSED RETENTION POND VOLUME PROVIDED = 11.56 ACFT
PROPOSED RETENTION POND VOLUME REQUIRED FOR 10-DAY STORM = 0.27 ACFT

PROPOSED RETENTION POND NO. 2 VOLUME
ELEV. 5029
5029 8.128 0.5 4.193

5030 8.443 0.5 4.193

PROPOSED RETENTION POND VOLUME PROVIDED = 11.56 ACFT
PROPOSED RETENTION POND VOLUME REQUIRED FOR 10-DAY STORM = 0.27 ACFT

BASIN "B-1" - RETENTION POND NO. 2
TOTAL AREA = 37,790 SF + 1,200 SF
EXISTING ASPHALT AND CONCRETE TO REMAIN AND NEW ASPHALT TO BE RECONSTRUCTED AREA = 37,790 SF
NEW CONCRETE AREA = 2,900 SF
TOTAL TREATMENT "D" AREA = 37,790 + 2,900 = 40,690 SF
0.93 ACRES
TREATMENT "B" & "C" AREA = 1.32 ACRES - 0.45 AC = 0.87 ACRES
USE SOE TREATMENT "B" AND "C"
TREATMENT "B" = 0.50 X 0.87 AC = 0.43 ACRES
TREATMENT "C" = 0.50 X 0.87 AC = 0.43 ACRES

TREATMENT "D" AREA = 0.15 ACRES
TREATMENT "B" AREA = 0.43 ACRES
TREATMENT "C" AREA = 0.43 ACRES

PROPOSED RETENTION POND NO. 2 VOLUME
ELEV. 5029
5029 8.128 0.5 4.193

5030 8.443 0.5 4.193

PROPOSED RETENTION POND VOLUME PROVIDED = 11.56 ACFT
PROPOSED RETENTION POND VOLUME REQUIRED FOR 10-DAY STORM = 0.27 ACFT

BASIN "C-1" - RETENTION POND NO. 3
TOTAL AREA = 37,790 SF + 1,200 SF
EXISTING ASPHALT AND CONCRETE TO REMAIN AND NEW ASPHALT TO BE RECONSTRUCTED AREA = 37,790 SF
NEW CONCRETE AREA = 2,900 SF
TOTAL TREATMENT "D" AREA = 37,790 + 2,900 = 40,690 SF
0.93 ACRES
TREATMENT "B" & "C" AREA = 1.32 ACRES - 0.45 AC = 0.87 ACRES
USE SOE TREATMENT "B" AND "C"
TREATMENT "B" = 0.50 X 0.87 AC = 0.43 ACRES
TREATMENT "C" = 0.50 X 0.87 AC = 0.43 ACRES

TREATMENT "D" AREA = 0.15 ACRES
TREATMENT "B" AREA = 0.43 ACRES
TREATMENT "C" AREA = 0.43 ACRES

PROPOSED RETENTION POND NO. 3 VOLUME
ELEV. 5029
5029 8.128 0.5 4.193

5030 8.443 0.5 4.193

PROPOSED RETENTION POND VOLUME PROVIDED = 11.56 ACFT
PROPOSED RETENTION POND VOLUME REQUIRED FOR 10-DAY STORM = 0.27 ACFT

BASIN "D-1" - RETENTION POND NO. 4
TOTAL AREA = 37,790 SF + 1,200 SF
EXISTING ASPHALT AND CONCRETE TO REMAIN AND NEW ASPHALT TO BE RECONSTRUCTED AREA = 37,790 SF
NEW CONCRETE AREA = 2,900 SF
TOTAL TREATMENT "D" AREA = 37,790 + 2,900 = 40,690 SF
0.93 ACRES
TREATMENT "B" & "C" AREA = 1.32 ACRES - 0.45 AC = 0.87 ACRES
USE SOE TREATMENT "B" AND "C"
TREATMENT "B" = 0.50 X 0.87 AC = 0.43 ACRES
TREATMENT "C" = 0.50 X 0.87 AC = 0.43 ACRES

TREATMENT "D" AREA = 0.15 ACRES
TREATMENT "B" AREA = 0.43 ACRES
TREATMENT "C" AREA = 0.43 ACRES

PROPOSED RETENTION POND NO. 4 VOLUME
ELEV. 5029
5029 8.128 0.5 4.193

5030 8.443 0.5 4.193

PROPOSED RETENTION POND VOLUME PROVIDED = 11.56 ACFT
PROPOSED RETENTION POND VOLUME REQUIRED FOR 10-DAY STORM = 0.27 ACFT

BASIN "E-1" - RETENTION POND NO. 5
TOTAL AREA = 37,790 SF + 1,200 SF
EXISTING ASPHALT AND CONCRETE TO REMAIN AND NEW ASPHALT TO BE RECONSTRUCTED AREA = 37,790 SF
NEW CONCRETE AREA = 2,900 SF
TOTAL TREATMENT "D" AREA = 37,790 + 2,900 = 40,690 SF
0.93 ACRES
TREATMENT "B" & "C" AREA = 1.32 ACRES - 0.45 AC = 0.87 ACRES
USE SOE TREATMENT "B" AND "C"
TREATMENT "B" = 0.50 X 0.87 AC = 0.43 ACRES
TREATMENT "C" = 0.50 X 0.87 AC = 0.43 ACRES

TREATMENT "D" AREA = 0.15 ACRES
TREATMENT "B" AREA = 0.43 ACRES
TREATMENT "C" AREA = 0.43 ACRES

PROPOSED RETENTION POND NO. 5 VOLUME
ELEV. 5029
5029 8.128 0.5 4.193

5030 8.443 0.5 4.193

PROPOSED RETENTION POND VOLUME PROVIDED = 11.56 ACFT
PROPOSED RETENTION POND VOLUME REQUIRED FOR 10-DAY STORM = 0.27 ACFT

BASIN "F-1" - RETENTION POND NO. 6
TOTAL AREA = 37,790 SF + 1,200 SF
EXISTING ASPHALT AND CONCRETE TO REMAIN AND NEW ASPHALT TO BE RECONSTRUCTED AREA = 37,790 SF
NEW CONCRETE AREA = 2,900 SF
TOTAL TREATMENT "D" AREA = 37,790 + 2,900 = 40,690 SF
0.93 ACRES
TREATMENT "B" & "C" AREA = 1.32 ACRES - 0.45 AC = 0.87 ACRES
USE SOE TREATMENT "B" AND "C"
TREATMENT "B" = 0.50 X 0.87 AC = 0.43 ACRES
TREATMENT "C" = 0.50 X 0.87 AC = 0.43 ACRES

TREATMENT "D" AREA = 0.15 ACRES
TREATMENT "B" AREA = 0.43 ACRES
TREATMENT "C" AREA = 0.43 ACRES

PROPOSED RETENTION POND NO. 6 VOLUME
ELEV. 5029
5029 8.128 0.5 4.193

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CONSULTANTS

PROFESSIONAL SEAL

LA PROMESSA CHARTER SHOOL
ALBUQUERQUE, NEW MEXICO

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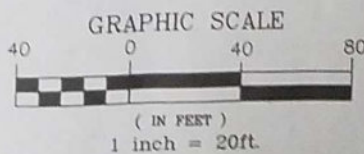
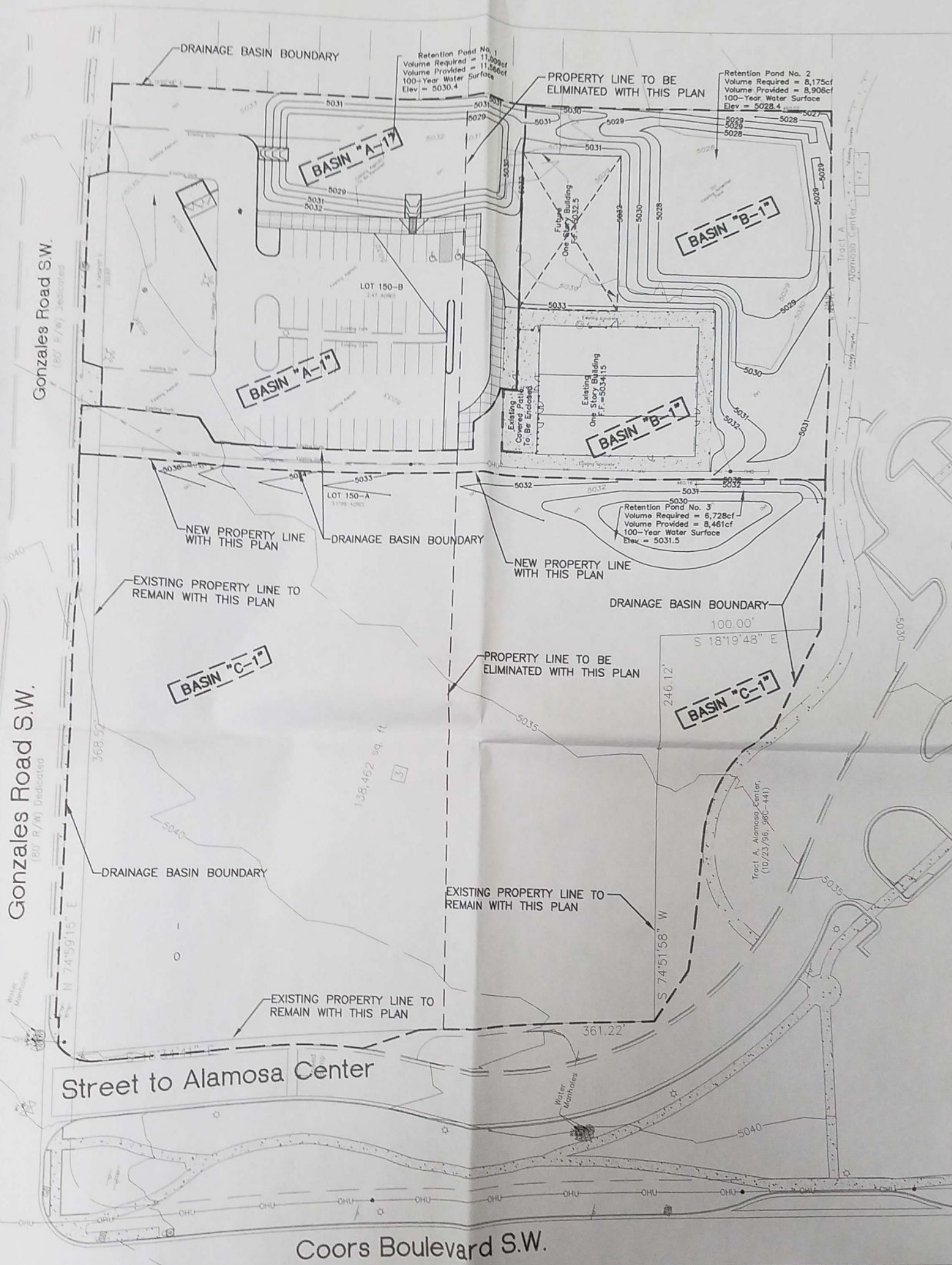
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SHEET TITLE
DRAINAGE CALCULATIONS

SHEET NUMBER
C-102

Gonzales Road S.W.
(80' R/W) Dedicated

Gonzales Road S.W.
(80' R/W) Dedicated



OVERALL DRAINAGE BASIN BOUNDARY MAP
SCALE: 1" = 40'

DRAINAGE PLAN

THE FOLLOWING ITEMS CONCERN THE RECONSTRUCTION OF AN EXISTING BUILDING AND PARKING LOT TO INCLUDE VACANT LAND FOR THE PROPOSED REPLATTED LOTS OF 150-A AND 150-B LOCATED AT THE SOUTHEAST CORNER OF COORS BOULEVARD SW AND GONZALES ROAD SW, ALBUQUERQUE, NEW MEXICO. THE FOLLOWING INFORMATION CONTAINED HEREON IS AS FOLLOWS:

1. DRAINAGE CALCULATIONS
2. VICINITY MAP K-10
3. FLOOD INSURANCE RATE MAP 35001C0329D, Dated 09/20/1996

EXISTING CONDITIONS

AS SHOWN BY THE VICINITY MAP, THE SITE IS LOCATED AT THE SOUTHEAST CORNER OF COORS BOULEVARD SW AND GONZALES ROAD SW. THE PARCEL'S CURRENT LEGAL DESCRIPTION IS LOTS 150 AND 151, TOWN OF ATRISCO GRANT UNIT 6, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO, FILED IN THE COUNTY CLERKS OFFICE ON NOVEMBER 1, 1976 IN BOOK D-18-A. THE PROPERTY IS BOUNDED ON THE SOUTH BY THE CITY ALAMOSA CENTER, ON THE EAST BY A RESIDENTIAL SUBDIVISION, ON THE NORTH BY GONZALES ROAD SW AND ON THE WEST BY THE PAVED ACCESS ROAD THAT SERVES THE CITY ALAMOSA CENTER.

THE OVERALL SITE CONTAINS APPROXIMATELY 5.65 ACRES. THE EASTERN PORTION OF LOTS 150 AND 151 IS CURRENTLY DEVELOPED WITH A METAL BUILDING THAT WAS USED AS A CHURCH AND A PAVED PARKING LOT. THIS DEVELOPED PORTION CURRENTLY DRAINS TO AN EXISTING RETENTION POND LOCATED AT THE SOUTHEAST CORNER OF THE SITE. THE EASTERN PORTION OF THE EXISTING DEVELOPED AREA WAS ANALYZED PER THE DRAINAGE PLAN NO. L-10/D7 AT CITY HYDROLOGY DATED 1986. THE WESTERN PORTION OF THE SITE IS CURRENTLY UNDEVELOPED AND CONTAINS SOME NATIVE GRASSES.

THE SITE IS CURRENTLY NOT IN A DESIGNATED 100-YEAR FLOODPLAIN PER FIRM MAP 35001C0334D

PROPOSED CONDITIONS

AS SHOWN BY THE PLAN THE PROPOSAL IS TO DIVIDE THE 5.56 ACRE SITE INTO TWO LOTS. THE EASTERN LOT 150-B WILL NOW CONTAIN 2.47 ACRES WHICH WILL NOW INCLUDE ALL OF THE CURRENT EXISTING DEVELOPED AREA WHICH CONSIST OF THE EXISTING PARKING LOT AND BUILDING. THE WESTERN LOT 150-A WILL NOW CONTAIN 3.17 ACRES WHICH WILL REMAIN UNDEVELOPED AS PART OF THIS PLAN.

THIS PROPOSED GRADING AND DRAINAGE PLAN WILL ADDRESS LOT 150-B WHICH WILL HAVE THE EXISTING PARKING LOT RECONSTRUCTED, THE EXISTING BUILDING WILL BE REMODELED AND ADDITIONAL SIDEWALKS WILL BE ADDED ALONG WITH SOME PLAYGROUND EQUIPMENT, THERE WILL BE A PORTION SET ASIDE FOR A FUTURE BUILDING. THE EXISTING RETENTION POND WILL BE ANALYZED FOR EXISTING FLOWS AND FOR PROPOSED FLOWS BASED ON THE PROPOSED IMPROVEMENTS AS PART OF THIS PLAN TO INCLUDE SIZING THE RETENTION POND FOR THE FUTURE BUILDING.

THE CALCULATIONS WHICH APPEAR HEREON, ANALYZE BOTH THE EXISTING AND DEVELOPED CONDITIONS FOR THE 100-YEAR, 6 HOUR RAINFALL RUNOFF FOR PEAK FLOWS AND STORM DURATION FOR VOLUME REQUIREMENTS. THE PROCEDURE FOR 40 ACRE AND SMALLER BASINS AS SET FORTH IN THE REVISION OF SECTION 22.7 HYDROLOGY OF THE DEVELOPMENT PROCESS MANUAL, VOLUME 2, DESIGN CRITERIA, DATED JANUARY 1993. THIS D.P.M. PROCEDURE IS USED FOR ANALYZING ONSITE FLOWS.

DOWNSTREAM CAPACITY

BASED ON A REVIEW OF THE EXISTING DRAINAGE PLAN FOR THE ALAMOSA CENTER WHICH EXISTS ALONG THE SOUTH BOUNDARY OF THIS SITE, NO OFFSITE FLOWS WERE CONSIDERED FOR THIS DEVELOPMENT PER DRAINAGE PLAN L-10/D13. BASED ALSO ON THE FACT THAT THE EXISTING DRAINAGE PLAN L-10/D7 UTILIZED A RETENTION POND, THE MODIFICATIONS TO THE EXISTING DEVELOPED SITE WILL ALSO PROPOSE A RETENTION POND.

OFFSITE FLOWS

A REVIEW OF THE TOPOGRAPHIC SURVEY AND A FIELD VISIT TO THE SITE INDICATES THAT OFFSITE FLOWS FOR THE PROPOSED UNDEVELOPED TRACT TO THE WEST (LOT 150-A) COULD ENTER THIS SITE, BASED ON THE EXISTING CONTOURS THERE APPEARS TO BE AN EXISTING RETENTION POND AT THE SOUTHEAST CORNER OF THIS LOT 150-A. AS PART OF THIS PLAN A NEW DRAINAGE ANALYSIS WILL BE PERFORMED TO DETERMINE THE SIZE OF THE RETENTION POND REQUIRED TO MEET CURRENT CITY HYDROLOGY STANDARDS. THE EXISTING RETENTION POND WILL BE INCREASED TO ACCOMMODATE EXISTING UNDEVELOPED DRAINAGE CONDITIONS FOR LOT 150-A. WHEN LOT 150-A DEVELOPS IN THE FUTURE A REVISED RETENTION POND WILL BE NEEDED FOR LOT 150-A WITH THE POSSIBILITY FOR A NEED TO DEVELOP AN OUTFALL TO BATTAN DRIVE WHICH CURRENTLY HAS EXISTING DRAINAGE IMPROVEMENTS. THIS WOULD ALLOW THIS RETENTION POND TO BE CONVERTED TO A DETENTION POND, THIS WILL ASSUME THAT A DRAINAGE EASEMENT CAN BE SECURED ACROSS THE CITY OWNED ALAMOSA CENTER IN ORDER TO CONVEY FLOWS FROM THIS SITE.

DRAINAGE CALCULATIONS

1. PRECIPITATION ZONE = 1
2. DESIGN STORM = DEPTH (INCHES) AT 100-YEAR STORM
6-HOUR = 2.20 INCHES

6. SIZE PROPOSED RETENTION POND

BASIN "A-1" - RETEN
TOTAL AREA = 57.5
EXISTING ASPHALT
TO BE RECONSTRUCT
NEW CONCRETE AR
TOTAL TREATMENT
0.69 ACRES
TREATMENT "B" &
USE 50% TREATMEN
TREATMENT "B"
TREATMENT "C"
TREATMENT

A
B
C
D

Q(PROPOSED-6H)
4.55 CFS (A)
POND

V(PROPOSED-6H)
= 0.1

V(PROPOSED-10)
= 0.2
= 11.

PROPOSED RETEN
ELEV. ARE
5029 6.6

5030 8.1

5030.5 8.6

PROPOSED RETEN
= C
= C

BASIN "B-1" - R
TOTAL AREA =
EXISTING BUILD
EXISTING CON
FUTURE BUILD
TOTAL TREATM
= 0.45 ACRES (B
BUILDING)
TREATMENT "B"
USE 50% TREA
TREATMENT "
TREATMENT "

TREATM
A
B
C
D

Q(PROPOSED)
3.78 CFS
POND

V(PROPOSED)

V(PROPOSED)

PROPOSED
ELEV.
5027.5

5028

5028.5

PROPOSED

BASIN "C-1"
EXISTING UN
85% UNDIST
15% DISTUR

THIS LOT 150-A. AS PART OF THE RETENTION POND WILL BE PERFORMED TO DETERMINE THE SIZE OF THE EXISTING RETENTION POND WILL BE CURRENT CITY HYDROLOGY STANDARDS. THE EXISTING RETENTION POND WILL BE INCREASED TO ACCOMMODATE EXISTING UNDEVELOPED DRAINAGE CONDITIONS FOR LOT 150-A. WHEN LOT 150-A DEVELOPS IN THE FUTURE A REVISED RETENTION POND WILL BE NEEDED FOR LOT 150-A WITH THE POSSIBILITY FOR A NEED TO DEVELOP AN OUTFALL TO BATTAN DRIVE WHICH CURRENTLY HAS EXISTING DRAINAGE IMPROVEMENTS. THIS WOULD ALLOW THIS RETENTION POND TO BE CONVERTED TO A DETENTION POND, THIS WILL ASSUME THAT A DRAINAGE EASEMENT CAN BE SECURED ACROSS THE CITY OWNED ALAMOSA CENTER IN ORDER TO CONVEY FLOWS FROM THIS SITE.

DRAINAGE CALCULATIONS

1. PRECIPITATION ZONE = 1
2. DESIGN STORM = DEPTH (INCHES) AT 100-YEAR STORM
 6-HOUR = 2.20 INCHES
 24-HOUR = 2.66 INCHES
 10 DAY = 3.67 INCHES
3. PEAK DISCHARGE (CFS/ACRE) FOR 100-YEAR, ZONE 2, TABLE A-9:
 Q = 1.29 CFS/ACRE SOIL UNCOMPACTED "A"
 Q = 2.03 CFS/ACRE LANDSCAPED "B"
 Q = 2.87 CFS/AC COMPACTED SOIL "C"
 Q = 4.37 CFS/ACRE IMPERVIOUS AREA "D"
 FOR WATERSHEDS LESS THAN OR EQUAL TO 40 ACRES
4. EXCESS PRECIPITATION, E (INCHES), 6 HOUR STORM, ZONE 2, TABLE A-8 :
 E = 0.44 INCHES SOIL UNCOMPACTED "A"
 E = 0.67 INCHES LANDSCAPED "B"
 E = 0.99 INCHES COMPACTED SOIL "C"
 E = 1.97 INCHES IMPERVIOUS AREA "D"
5. EXISTING CONDITIONS:
 EXISTING AREA OF SCHOOL SITE CURRENTLY DEVELOPED = 2.47 ACRES
 EXISTING ASPHALT AREA = 37,778 SF
 EXISTING BUILDING AREA = 9,235 SF
 EXISTING CONCRETE AREA = 4,068 SF
 TOTAL TREATMENT "D" AREA = 37,778 + 9,235 + 4,068 = 51,091 SF =
 1.17 ACRES (EXISTING BUILDING, CONCRETE AND ASPHALT TREATMENT);

TREATMENT "B" AREA = 0.15 ACRES (EXISTING RETENTION POND CONTOUR 5028)

TREATMENT "C" = 1.15 ACRES (REMAINING AREA)

<u>TREATMENT</u>	<u>AREA (ACRES)</u>
A	0
B	0.15
C	1.15
D	1.17

$$Q(\text{EXISTING-6HR}) = (2.03 \times 0.15) + (2.87 \times 1.15) + (4.37 \times 1.17) = \underline{8.71 \text{ CFS (6HR)}}$$

EXISTING ONSITE FLOW TO RETENTION POND

$$V(\text{EXISTING-6HR}) = ((0.67 \times 0.15) + (0.99 \times 1.15) + (1.97 \times 1.17)) / 12 \\ = 0.30 \text{ AC-FT EXISTING ONSITE VOLUME RETENTION}$$

CURRENT RETENTION POND VOLUME:

<u>ELEV.</u>	<u>AREA (SF)</u>	<u>DEPTH (FT)</u>	<u>VOLUME (CF-FT)</u>
5027.0	35		
		1	5,386
5028.0	5,351		
		0.15	896
5028.15	6,596		
			<u>6,282 CF</u>

CURRENT RETENTION POND VOLUME = 6,282 CF

= 0.14 AC-FT < 0.30 AC-FT UNDERSIZED FOR 6-HR STORM

6. SIZE PROPOSED RETENTION POND VOLUME:
 PROPOSED AREA OF LOT 150-B TO BE DEVELOPED = 2.47ACRES

BASIN "A-1" - RETENTION POND NO. 1
 TOTAL AREA = 57,568SF = 1.32ACRES
 EXISTING ASPHALT AND CONCRETE TO REMAIN AND NEW ASPHALT
 TO BE RECONSTRUCTED AREA = 27,1574SF
 NEW CONCRETE AREA = 2,940SF
 TOTAL TREATMENT "D" AREA = 27,157 + 2,940SF = 30,097SF =
 0.69ACRES

TREATMENT "B" & "C" AREA = 1.32AC - 0.69AC = 0.63AC
 USE 50% TREATMENT "B" AND "C"

TREATMENT "B" = 0.50 X 0.63AC = 0.32ACRES
 TREATMENT "C" = 0.50 X 0.63AC = 0.31ACRES

TREATMENT	AREA(ACRES)
A	0
B	0.32
C	0.31
D	0.69

$$Q(\text{PROPOSED-6HR}) = (2.03 \times 0.32) + (2.87 \times 0.31) + (4.37 \times 0.69) =$$

$$4.55\text{CFS (6HR) PROPOSED ONSITE FLOW TO RETENTION POND}$$

$$V(\text{PROPOSED-6HR}) = ((0.67 \times 0.32) + (0.99 \times 0.31) + (1.97 \times 0.69)) / 12)$$

$$= 0.16\text{AC-FT PROPOSED ONSITE VOLUME RETENTION}$$

$$V(\text{PROPOSED-10DAY}) = 0.16\text{AC-FT} + (0.69 \times (3.67 - 2.20) / 12)$$

$$= 0.25\text{AC-FT PROPOSED ONSITE VOLUME RETENTION}$$

$$= 11,009\text{CF PROPOSED ONSITE VOLUME RETENTION}$$

PROPOSED RETENTION POND NO. 1 VOLUME:

ELEV.	AREA(SF)	DEPTH(FT)	VOLUME(CF-FT)
5029	6,620	1	7,374
5030	8,128	0.5	4,193
5030.5	8,643		
			11,566CF

PROPOSED RETENTION POND VOLUME PROVIDED = 11,566CF

= 0.27AC-FT

= 0.27AC-FT > 0.25AC-FT REQUIRED FOR 10-DAY STORM

BASIN "B-1" - RETENTION POND NO. 2'

TOTAL AREA = 51,748SF = 1.19AC
 EXISTING BUILDING AREA + ENCLOSE PORCH = 9,527SF
 EXISTING CONCRETE AREA = 3,770SF
 FUTURE BUILDING = 6,121SF
 TOTAL TREATMENT "D" AREA = 9,527 + 3,770 + 6,121SF = 19,418SF
 = 0.45ACRES (EXISTING BUILDING, CONCRETE AND FUTURE BUILDING)

TREATMENT "B" & "C" AREA = 1.19AC - 0.45 = 0.74ACRES

USE 50% TREATMENT "B" AND "C"

TREATMENT "B" = 0.50 X 0.74AC = 0.37ACRES

TREATMENT "C" = 0.50 X 0.74AC = 0.37ACRES

TREATMENT	AREA(ACRES)
A	0
B	0.37
C	0.37
D	0.45

$$Q(\text{PROPOSED-6HR}) = (2.03 \times 0.37) + (2.87 \times 0.37) + (4.37 \times 0.45) =$$

$$3.78\text{CFS (6HR) PROPOSED ONSITE FLOW TO RETENTION POND}$$

$$V(\text{PROPOSED-6HR}) = ((0.67 \times 0.37) + (0.99 \times 0.37) + (1.97 \times 0.45)) / 12)$$

$$= 0.13\text{AC-FT PROPOSED ONSITE VOLUME RETENTION}$$

$$V(\text{PROPOSED-10DAY}) = 0.13\text{AC-FT} + (0.45 \times (3.67 - 2.20) / 12)$$

$$= 0.19\text{AC-FT PROPOSED ONSITE VOLUME RETENTION}$$

$$= 8,175\text{CF PROPOSED ONSITE VOLUME RETENTION}$$

PROPOSED RETENTION POND NO. 2 VOLUME:

ELEV.	AREA(SF)	DEPTH(FT)	VOLUME(CF-FT)
5027.5	7,770	0.5	4,131
5028	8,754	0.5	4,774
5028.5	10,344		
			8,906CF

PROPOSED RETENTION POND VOLUME PROVIDED = 8,906CF

= 0.20AC-FT

= 0.20AC-FT > 0.19AC-FT REQUIRED FOR 10-DAY STORM

BASIN "C-1" - RETENTION POND NO. 3

EXISTING UNDEVELOPED LAND AREA = 154,702SF = 3.55AC

85% UNDISTURBED TREATMENT "A" = 0.85 X 3.55AC = 3.02AC

15% DISTURBED TREATMENT "C" = 0.15 X 3.55AC
 = 0.53AC

8. SIZE RETENTION POND SPILLWAYS:

BASIN "A-1" - RETENTION POND NO. 1

USE WEIR EQUATION FOR SIZING OPEN

$$Q = C \times L \times (H)^{3/2}$$

$$L = Q / C \times (H)^{3/2}$$

$$Q = 4.55\text{CFS } C = 3.0 \text{ COEFFICIENT}$$

$$H = (Q / C \times L)^{2/3}$$

$$H = (4.55 / 3.0 \times 6)^{2/3}$$

$$H = 0.40' \text{ WATER DEPTH OVER SPILLWAY}$$

$$100\text{YEAR WATER SURFACE OVER SPILLWAY}$$

$$= 5030.90$$

BASIN "B-1" - RETENTION POND NO. 1

USE WEIR EQUATION FOR SIZING OPEN

$$Q = C \times L \times (H)^{3/2}$$

$$L = Q / C \times (H)^{3/2}$$

$$Q = 3.48\text{CFS } C = 3.0 \text{ COEFFICIENT}$$

$$H = (Q / C \times L)^{2/3}$$

$$H = (3.78 / 3.0 \times 6)^{2/3}$$

$$H = 0.35' \text{ WATER DEPTH OVER SPILLWAY}$$

$$100\text{YEAR WATER SURFACE OVER SPILLWAY}$$

$$= 5028.85$$

BASIN "C-1" - RETENTION POND NO. 1

USE WEIR EQUATION FOR SIZING OPEN

$$Q = C \times L \times (H)^{3/2}$$

$$L = Q / C \times (H)^{3/2}$$

$$Q = 5.42\text{CFS } C = 3.0 \text{ COEFFICIENT}$$

$$H = (Q / C \times L)^{2/3}$$

$$H = (5.42 / 3.0 \times 6)^{2/3}$$

$$H = 0.45' \text{ WATER DEPTH OVER SPILLWAY}$$

$$100\text{YEAR WATER SURFACE OVER SPILLWAY}$$

$$= 5031.45$$

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$$Q(\text{PROPOSED-6HR}) = (2.03 \times 0.37) + (2.87 \times 0.37) + (4.37 \times 0.45) = 3.78 \text{ CFS (6HR) PROPOSED ONSITE FLOW TO RETENTION POND}$$

$$V(\text{PROPOSED-6HR}) = ((0.67 \times 0.37) + (0.99 \times 0.37) + (1.97 \times 0.45)) / 12 = 0.13 \text{ AC-FT PROPOSED ONSITE VOLUME RETENTION}$$

$$= 0.13 \text{ AC-FT} = 0.13 \text{ AC-FT} + (0.45 \times (3.67 - 2.20)) / 12 = 0.19 \text{ AC-FT PROPOSED ONSITE VOLUME RETENTION}$$

$$= 8.175 \text{ CF PROPOSED ONSITE VOLUME RETENTION}$$

PROPOSED RETENTION POND NO. 2 VOLUME:

ELEV.	AREA(SF)	DEPTH(FT)	VOLUME(CF-FT)
5027.5	7,770	0.5	4,131
5028	8,754	0.5	4,774
5028.5	10,344		

8,906CF

PROPOSED RETENTION POND VOLUME PROVIDED = 8,906CF
= 0.20AC-FT
= 0.20AC-FT > 0.19AC-FT REQUIRED FOR 10-DAY STORM

BASIN "C-1" - RETENTION POND NO. 3

EXISTING UNDEVELOPED LAND AREA = 154,702SF = 3.55AC
85% UNDISTURBED TREATMENT "A" = 0.85 X 3.55AC = 3.02AC
15% DISTURBED TREATMENT "C" = 0.15 X 3.55AC = 0.53AC

TREATMENT	AREA(ACRES)
A	3.02
B	0
C	0.53
D	0

$$Q(\text{PROPOSED-6HR}) = (1.29 \times 3.02) + (2.87 \times 0.53) = 5.42 \text{ CFS (6HR) PROPOSED ONSITE FLOW TO RETENTION POND}$$

$$V(\text{PROPOSED-6HR}) = ((0.44 \times 3.02) + (0.99 \times 0.53)) / 12 = 0.15 \text{ AC-FT PROPOSED ONSITE VOLUME RETENTION}$$

$$= 6.728 \text{ CF PROPOSED ONSITE VOLUME RETENTION}$$

E A-8 :

PROPOSED RETENTION POND NO. 2 VOLUME:

ELEV.	AREA(SF)	DEPTH(FT)	VOLUME(CF-FT)
5030	2,589		
5031	5,203	1.0	3,896
5031.5	6,762	0.5	2,991

6,887CF

PROPOSED RETENTION POND VOLUME PROVIDED = 8,461CF
= 0.16AC-FT
= 0.16AC-FT > 0.15AC-FT REQUIRED FOR 10-DAY STORM

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7. SIZE SIDEWALK CULVERT:

EXISTING ASPHALT AND SIDEWALK AREA = 25,783SF
TOTAL TREATMENT "D" AREA = 25,783SF = 0.59AC

LANDSCAPED AREAS = 3,594SF
TREATMENT "B" AREA = 3,594SF = 0.08ACRES

CFS (6HR)

TREATMENT "C" = 4,631SF = 0.11ACRES (REMAINING AREA)

TREATMENT	AREA(ACRES)
A	0
B	0.08
C	0.11
D	0.59

$$Q(\text{EXISTING-6HR}) = (2.03 \times 0.08) + (2.87 \times 0.11) + (4.37 \times 0.59) = 3.06 \text{ CFS (6HR) ONSITE FLOW TO SIDEWALK CULVERT}$$

USE WEIR EQUATION FOR SIZING OPENING:

$$Q = C \times L \times (H)^{3/2}$$

$$L = Q / C \times (H)^{3/2}$$

Q = 3.06CFS C = 3.0 COEFFICIENT H = 0.5' HIGH CURB

$$L = 3.06 / 3.0 (0.5)^{3/2}$$

DEVELOPED = 2.47 ACRES

MAIN AND NEW ASPHALT

40SF = 30,097SF =

PAC = 0.63 AC

S
S

31) + (4.37 X 0.69) =
DOWN TO RETENTION

1) + (1.97 X 0.69) / 12)
VOLUME RETENTION
(3.67 - 2.20) / 12)
VOLUME RETENTION
VOLUME RETENTION

(F-FT)

ED = 11,566CF

FOR 10-DAY STORM

527SF

21SF = 19,418SF
D FUTURE

4 ACRES

8. SIZE RETENTION POND SPILLWAYS:

BASIN "A-1" - RETENTION POND NO. 1

USE WEIR EQUATION FOR SIZING OPENING:

$$Q = C \times L \times (H)^{3/2}$$

$$L = Q / C \times (H)^{3/2}$$

$$Q = 4.55 \text{ CFS } C = 3.0 \text{ COEFFICIENT } L = 6' \text{ WIDE SPILLWAY}$$

$$H = (Q / C \times L)^{2/3}$$

$$H = (4.55 / 3.0 \times 6)^{2/3}$$

$$H = 0.40' \text{ WATER DEPTH OVER SPILLWAY}$$

$$100\text{YEAR WATER SURFACE OVER SPILLWAY} = 5030.5 + 0.40 \\ = 5030.90$$

BASIN "B-1" - RETENTION POND NO. 2

USE WEIR EQUATION FOR SIZING OPENING:

$$Q = C \times L \times (H)^{3/2}$$

$$L = Q / C \times (H)^{3/2}$$

$$Q = 3.48 \text{ CFS } C = 3.0 \text{ COEFFICIENT } L = 6' \text{ WIDE SPILLWAY}$$

$$H = (Q / C \times L)^{2/3}$$

$$H = (3.78 / 3.0 \times 6)^{2/3}$$

$$H = 0.35' \text{ WATER DEPTH OVER SPILLWAY}$$

$$100\text{YEAR WATER SURFACE OVER SPILLWAY} = 5028.5 + 0.35 \\ = 5028.85$$

BASIN "C-1" - RETENTION POND NO. 3

USE WEIR EQUATION FOR SIZING OPENING:

$$Q = C \times L \times (H)^{3/2}$$

$$L = Q / C \times (H)^{3/2}$$

$$Q = 5.42 \text{ CFS } C = 3.0 \text{ COEFFICIENT } L = 6' \text{ WIDE SPILLWAY}$$

$$H = (Q / C \times L)^{2/3}$$

$$H = (5.42 / 3.0 \times 6)^{2/3}$$

$$H = 0.45' \text{ WATER DEPTH OVER SPILLWAY}$$

$$100\text{YEAR WATER SURFACE OVER SPILLWAY} = 5031.5 + 0.45 \\ = 5031.45$$

APP

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Timothy Sims
Plan Checker-Hydrology
Planning Department
Development & Building Services Division
600 2nd St. NW, Suite 201
Albuquerque, NM 87102

September 23, 2013

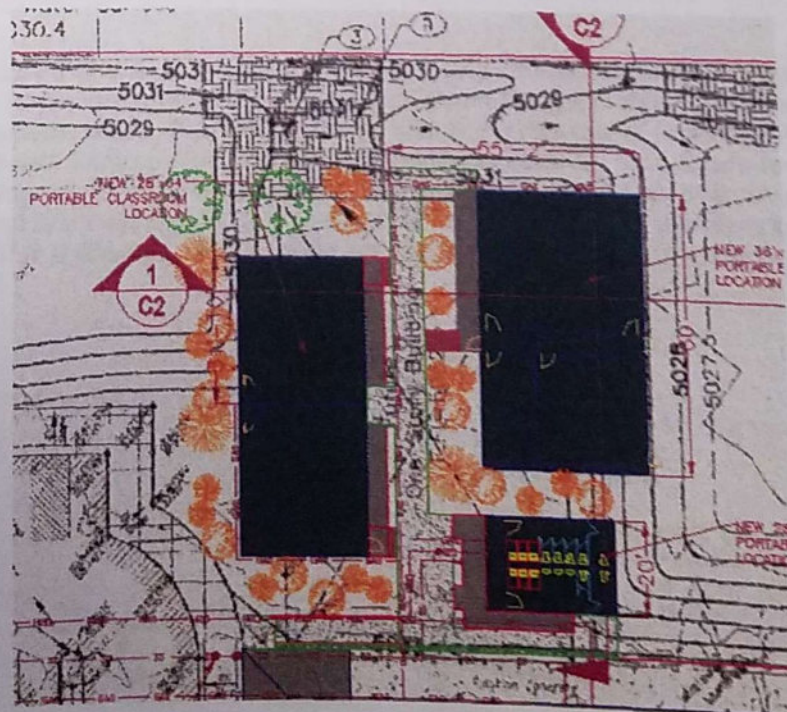
Re: Reduction in Retention Pond capacity at Nuestros Valores Charter School, Albuquerque, NM

Mr. Sims

You will find below our methodology and calculations showing the proposed reduction of the retention pond capacity at the Nuestros Valores Charter School. This minor reduction in the pond's capacities are required to provide adequate foundation support for the new portable classroom facilities the school needs to accommodate an increase in the student population.

The basis for these calculations is the site plans submitted to the City of Albuquerque in 2009 for the building of the current school infrastructure. The "Proposed Grading/Drainage Improvements" plan in this submittal shows the locations, contours and 100 year rainfall event depths for three retention ponds located to the east and west of the main school facility. Additionally, the drawing shows the area for a "Future One Story Building" which was graded to accommodate the anticipated future growth of the school. This area is where the client would like to locate the new buildings, which will be three portable class room buildings instead of a one story structure. It should be noted that all three of the existing retention ponds are interconnected, allowing water transfer between the three ponds.

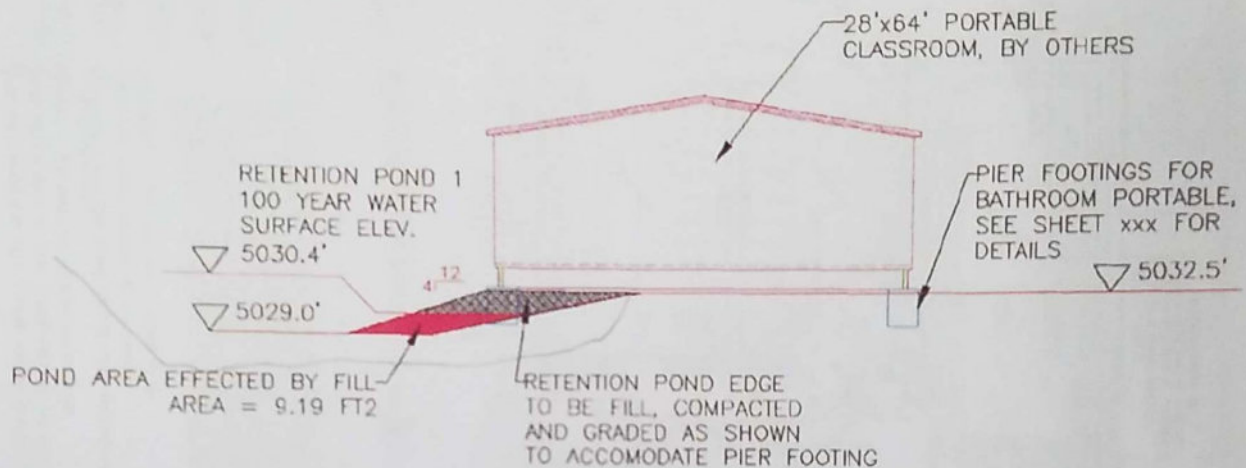
Because of the sizes of the new portable classrooms and the architectural requirements between the classrooms, the new buildings were sited so as to encroach upon retention ponds 1 and 2 along their southern and northern edges, respectively. In addition, the building layout will extend into the drainage link between retention ponds 1 and 2 along the western edge of the link. Retention Pond 3 is not affected by the new building locations. This layout is shown in the figure shown below.



New Portable Buildings Layout

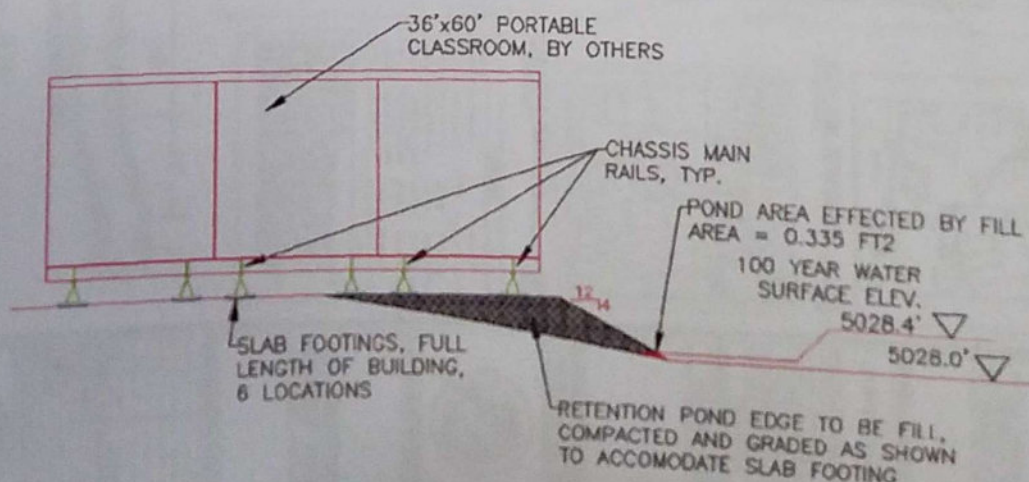
In determining the effect that the portable buildings will have on the existing retention ponds, cross sections were drawn to show the extent of encroachment that the bank modifications will have on the existing retention ponds sides.

Starting with Retention Pond 1, we have drawn the cross section through the pond and adjacent building which shows this encroachment. It should be noted that this condition occurs only along a 31'-10" length of the southern portion of retention Pond 1 and not along the entire length of the southern side. This length is itself conservative since it does not account for the corner bend of the pond. This condition is shown below.



The area of fill that affects the capacity of Retention Pond 1 as shown above is 9.19 ft². This occurs for a conservative length of 31'-10" along the southern edge of Retention Pond 1. The corresponding volume that is removed from water storage of the pond based upon the 100 Year Water Surface Elevation is conservatively calculated at 293 ft³. This reduces the capacity of Retention Pond 1 from 11,566 ft³ to 11,273 ft³, a 2.6% reduction in the retention pond capacity and still above the required capacity of 11,099 ft³.

Considering Retention Pond 2 in the same manner, we show the cross section through the large portable adjacent to Retention Pond 2. The length of fill occurs along the entire 60' of the building side and is shown in the sketch below. The area of fill that affects the capacity of Retention Pond 2 based upon the 100 Year Water Surface Elevation as shown below is 0.335 ft². This occurs for a length of 60'-0" along the northern edge of Retention Pond 2. The corresponding volume that is removed for water storage from the pond is conservatively calculated at 20.1 ft³. This reduces the capacity of Retention Pond 2 from 8,906 ft³ to 8,885.9 ft³, a 0.2% in the retention pond capacity and still above the required capacity of 8,175 ft³.



As stated previously, the retaining pond system design in the 2009 drawings is a network of three retention ponds connected by spillways with differing exit elevations for Pond 1 to Pond 2 and for Pond 3 to Pond 2. These elevations are 5030.4 and 5031.5 respectively. An additional check for system capacity is looking at the reduction in capacity of the entire system. The original system capacity was $(11,566 + 8,906 + 8,461) = 28,933 \text{ ft}^3$. With the reduction described above, the new system capacity is $(11,273 + 8,885.9 + 8,461) = 28,619.9 \text{ ft}^3$, a 1.1% reduction in overall system capacity.

Curve Number for the building site

As is seen on the original 2009 drawings, the original designer provided additional volume in the ponds while also prepping an area for the future location of a new building facility. This additional volume amounts to an 11.7% increase above the required volume.

Because the existing surface has been graded, compacted and has a layer of gravel over the majority of the site, an approximate Curve Number (CN) could be assumed to be in the 86 – 93 range for this surface. An impervious surface for the roofs and asphalt that will replace the surface described above would have a CN value of 98. It seems reasonable that the original storage capacity took into these considerations in their design.

Conclusion

Our conclusion is that the small modifications to the edges of Ponds 1 & 2 are minor and will still easily meet the retention requirements for the drainage system.



Robert E. Bookwalter, PE NM # 13847
Armstrong Group, Inc.