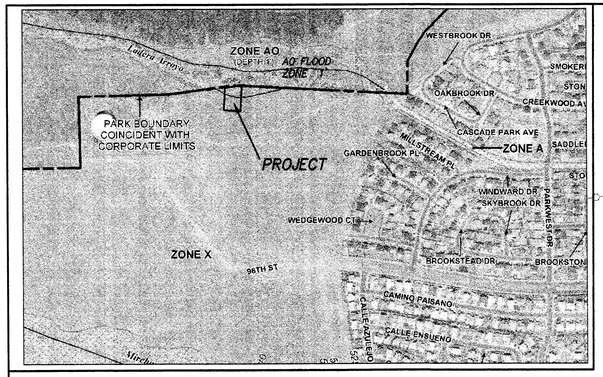


FIRM MAP PANEL # 094G

GRADING & DRAINAGE PLAN

THE RESIDENTIAL PROJECT IS LOCATED IN THE NORTHWEST AREA OF ALBUQUERQUE OFF 98TH STREET, NORTH OF INTERSTATE 40. THE GRADING AND DRAINAGE SCHEME HEREON IS IN COMPLIANCE WITH THE BERNALILLO COUNTY FLOOD HAZARD ORDINANCE, NO.88-46, AND THE CITY STORM DRAINAGE ORDINANCE. THE PLAN IS REQUIRED IN ORDER TO FACILITATE THE OWNER'S REQUEST FOR BUILDING PERMIT. THE PLAN SHOWS:

1. EXISTING CONTOURS, AND SPOT ELEVATIONS AND EXISTING DRAINAGE PATTERNS AND EXISTING IMPROVEMENTS (CURB/GUTTER CITY STREET).
2. PROPOSED IMPROVEMENTS: 3600± SF (FOOTPRINT) BUILDING STRUCTURE INCLUDING, CONCRETE DRIVE/PARKING, CONCRETE FLAT WORK, NEW GRADE ELEVATIONS, AND LANDSCAPING.
3. CONTINUITY BETWEEN EXISTING AND PROPOSED ELEVATIONS.
4. QUANTIFICATION OF DEVELOPED FLOWS GENERATED BY THE IMPROVEMENTS WHICH CONTRIBUTE TO THE EXISTING FLOWS.

PRESENTLY, THE SITE IS A SURFACE WITH NATIVE VEGETATION. THE SITE IS BOUNDED ON THE NORTH BY PARK LAND, BY DEVELOPED VACANT LAND EAST AND WEST, AND FALLS AT APPROXIMATELY 10% FROM THE SOUTHWEST TO NORTHEAST.
MESA RAIN ROAD IS AN EXISTING RESIDENTIAL STREET WITH 2 LANES, STD CURB, GUTTER, AND OFFSET/DETACHED SIDEWALK PROPOSED. SITE RUNOFF WILL BE ALLOWED TO EITHER DRAIN THROUGH THE SITE, AND/OR PONDED IN DEPRESSED LANDSCAPE AREAS. THE SITE HAS HISTORICALLY SHEET FLOWED TO THE NATURAL DRAW.

HISTORICAL DOWNSTREAM OUTFALL LOCATIONS WILL REMAIN UNCHANGED WITH DEVELOPMENT. FREE DISCHARGE OF SITE RUNOFF IS ACCEPTABLE SINCE DOWNSTREAM CAPACITY EXISTS WITH THE MINIMAL INCREASE DUE TO DEVELOPMENT, AND COMPLIES WITH THE OVERALL CITY DRAINAGE ORDINANCE. A PORTION OF SITE RUNOFF IS ROUTED THROUGH PROPOSED LANDSCAPING.

THE SITE IS LOCATED WITHIN A FEMA DESIGNATED 100-YEAR FLOODPLAIN, AO 1 FOOT DEPTH, THEREFORE THE FINSIH FLOOR IS SET A MINIMUM 2' ABOVE THAT ELEVATION.

CALCULATIONS

DESIGN CRITERIA

HYDROLOGIC METHODS PER SECTION 22.2, HYDROLOGY OF THE DEVELOPMENT PROCESS MANUAL (DPM) REVISED JANUARY 1993 FOR CITY OF ALBUQUERQUE, ADOPTED BY THE COUNTY OF BERNALILLO
DISCHARGE RATE: Q=QPEAK x AREA.."Peak Discharge Rates For Small Watersheds"
VOLUMETRIC DISCHARGE: VOLUME = EWeighted x AREA
P100 = 2.20 Inches, Zone 1 Time of Concentration, TC = 10 Minutes
DESIGN STORM: 100-YEAR/6-HOUR, 10-YEAR/6-HOUR [ ] = 10 YEAR VALUES

EXISTING CONDITIONS

LOT AREA = 0.45 ACRES, WHERE EXCESS PRECIP. 'W' =0.61 In. [0.18]
PEAK DISCHARGE, Q100 = 0.8 CFS [0.3], WHERE UNIT PEAK DISCHARGE 'B' = 2.03 CFS/AC. [0.76]
THEREFORE: VOLUME 100 = 996 CF [294]

DEVELOPED CONDITIONS

DETERMINE LAND TREATMENTS, PEAK DISCHARGE AND VOLUMETRIC DISCHARGE FOR STUDY AREA

	AREA	LAND TREATM'T	Q Peak	E
UNDEVELOPED	0.17 Ac.(38%)	A	1.29[0.24]	0.49[0.08]
LANDSCAPING	0.08 Ac.(18%)	B	2.03[0.76]	0.67[0.22]
GRAVEL & COMPACTED SOIL	0.08 Ac.(18%)	C	2.87[1.49]	0.99[0.44]
ROOF - PAVEMENT	0.12 Ac.(27%)	D	4.40[2.90]	1.97[1.24]
	0.45 Ac.			

THEREFORE: $E_{Weighted}$ = 0.92 In.[0.58] &
Q100 =1.14 CFS VOLUME 100 = 1503 CF
Q10 = 0.6 CFS VOLUME 10 = 947 CF

DOWNSTREAM ANALYSIS

THIS FACILITY HAS CAPACITY AND THE PROJECT TIME TO PEAK IS MUCH LESS THAN OVERALL BASIN TIME TO PEAK & INCREASE DUE TO DEVELOPMENT IS MINIMAL. (INCREASE FROM THE EXISTING EQUALS 0.3±CFS in the 100-Year Event)

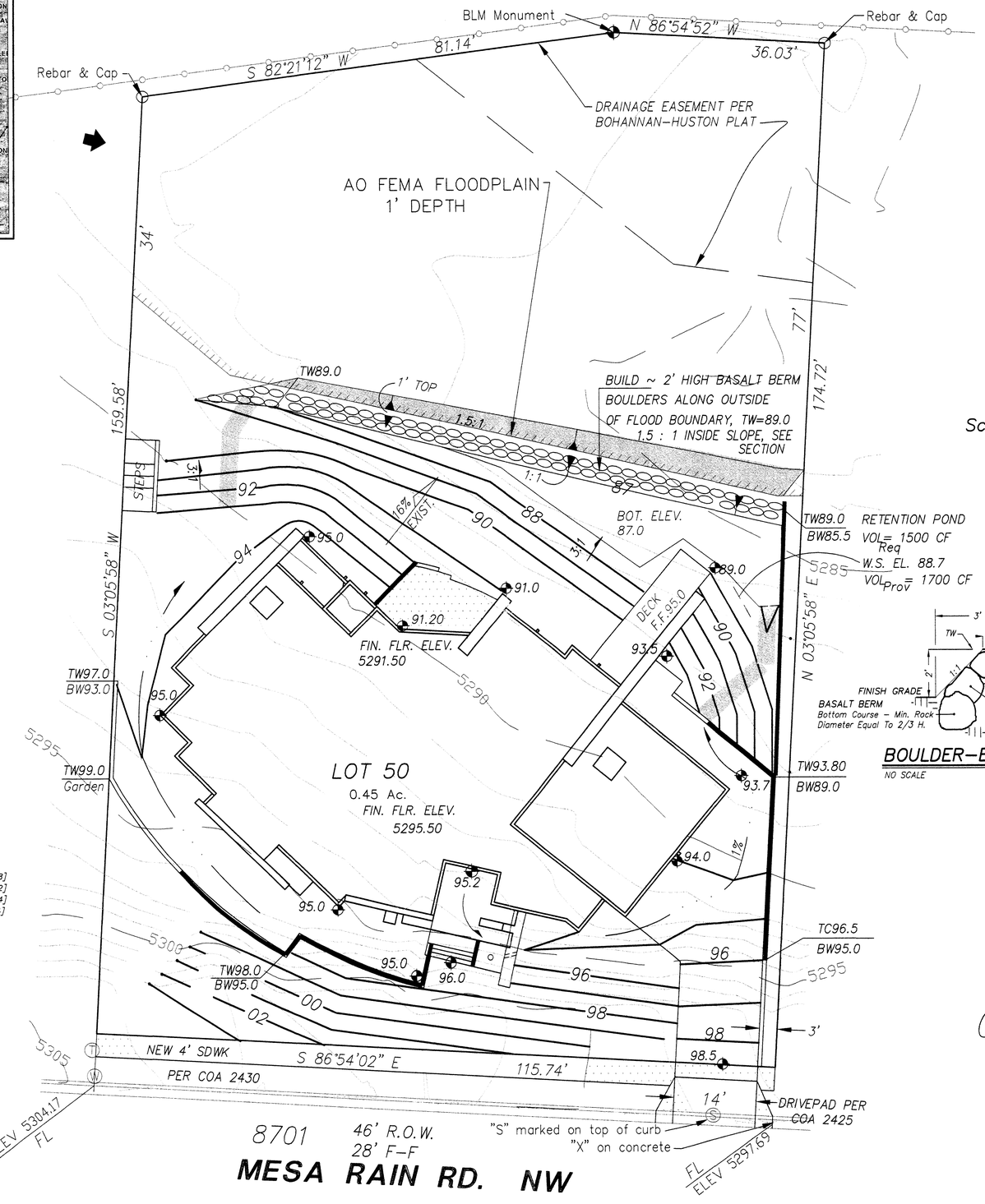
SIZE REQUIRED ZONE 1, RETENTION POND

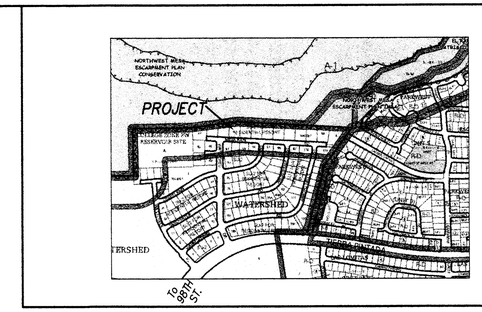
PER MASTER DRAINAGE REPORT FOR THE WATERSHED SUBDIVISION PREPARED BY BOHANNAN-HUSTON - POND THE 100-YEAR, 6-HR. STORM FOR TIER OF LOTS NORTH OF MESA RAIN ROAD, ~ 1500 Cubic Feet

$AREA_{89\ Contour}$ = 1295 SF] @ 2' DEPTH = 1700 CF (Provided)
$AREA_{87}$ = 423 SF]

I, PHILIP W. CLARK, A PROFESSIONAL ENGINEER LICENSED IN ACCORDANCE WITH THE LAWS OF THE STATE OF NEW MEXICO, DO HEREBY CERTIFY THAT I HAVE VISITED THE SITE SHOWN HEREON, AND THAT THE CONTOURS SHOWN REPRESENT THE EXISTING GROUND CONDITIONS, AND DO FURTHER CERTIFY THAT NO EARTHWORK OF ANY KIND, NOR ANY DISTURBANCE OF THE EXISTING GROUND HAS OCCURRED ON THIS SITE SINCE THE CONTOURS WERE DETERMINED.

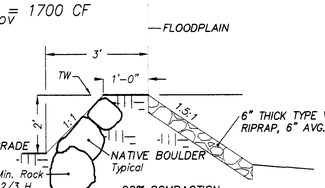
PHILIP W. CLARK NMPE #10265





VICINITY MAP ZONE H-9 Scale: 1" = 750'

Scale: 1" = 10'



BOULDER-BERM SECTION
NO SCALE

NOTES

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5. LANDSCAPING IRRIGATION SYSTEM SHALL BE DRIP-TYPE. CONTRACTOR SHALL INSTALL SYSTEM PRIOR TO PLACEMENT OF PAVING.
6. CONTRACTOR SHALL ENSURE THAT NO SITE SOILS/SEDIMENT OR SILT ENTER THE RIGHT-OF-WAYS AND ARROYO DURING CONSTRUCTION.
7. REVEGETATE ALL AREAS DISTURBED DUE TO CONSTRUCTION PER CITY OF ALBUQ. SPEC. 1011, NATIVE SEED MIX.
8. MAXIMUM SITE GRADING WITHOUT EROSION PROTECTION: 3 HORIZONTAL TO 1 VERTICAL, 3:1. ALL DIMENSIONS TO FACE OF CURB, UNLESS NOTED OTHERWISE.

LEGEND

PROPERTY LINE	
EXIST. CURB/GUTTER	
EXIST. SPOT ELEVATION	+24.0
EXIST. CONTOUR	10
NEW SPOT ELEVATION	◆ 24.0
NEW CONTOUR	54
NEW SWALE	
DRAINAGE DIRECTION, EXISTING	
NEW CONCRETE CURB (0.5' HEIGHT)	
NEW P.C.C., CONCRETE	
TOP OF CURB	TC
FLOWLINE	FL
EXISTING POWER POLE	O PP
FACE OF CURB/FACE OF CURB	F-F
TOP OF WALL, RET.	TW

3' WIDE x 8" BURY RIPRAP SWALE UNLESS NOTED OTHERWISE

PROJECT DATA

AUG 25 20

ZONED, SU-2 RESIDENTIAL RESORT

LEGAL DESCRIPTION

LOT 50, WATERSHED SUBDIVISION, ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO

PROJECT BENCHMARK - 12-H11, ON COORS BLVD.

3 1/4" ALUM DISK IN TOP OF CURB, IN TRAFFIC ISLAND MEDIAN 50' SOUTH OF 98TH ST./UNSER INTERSECTION, MSL ELEVATION = 5209.32, NAVD 88 (STAMPED 4_H9 2004).

TOPOGRAPHIC DESIGN SURVEY

COMPILED BY CLARK CONSULTING ENGINEERS UNDER THE DIRECTION OF PHILIP W. TURNER, PS (TERRAMETRICS OF NEW MEXICO).

PHILIP W. CLARK NEW MEXICO 10265 REGISTERED PROFESSIONAL ENGINEER 8.25.11

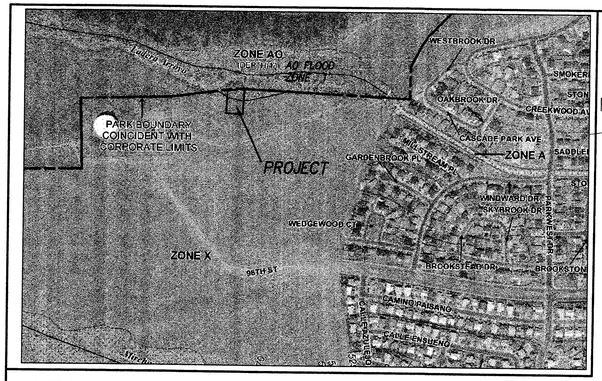
Clark Consulting Engineers
19 Ryan Road
Edgewood, New Mexico 87015
Tele: (505) 281-2444 Fax: (505) 281-2444

DATE	REVISION

LOT 50, WATERSHED SUBDIVISION
ALBUQUERQUE, NEW MEXICO
WRIGHT - OTERO RESIDENCE

Grading & Drainage Plan

DESIGNED BY: PWC	DRAWN BY: CCE	JOB #: Otero	C1 OF 1
CHECKED BY: PWC	DATE: 8/11/2011	FILE #: G/D	



FIRM MAP PANEL # 094G

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THEREFORE: VOLUME 100 = (1290 CF [490])

DEVELOPED CONDITIONS

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	AREA	LAND TREATM'T	Q Peak	E
UNDEVELOPED	0.17 Ac.(38%)	A	1.29[0.24]	0.49[0.08]
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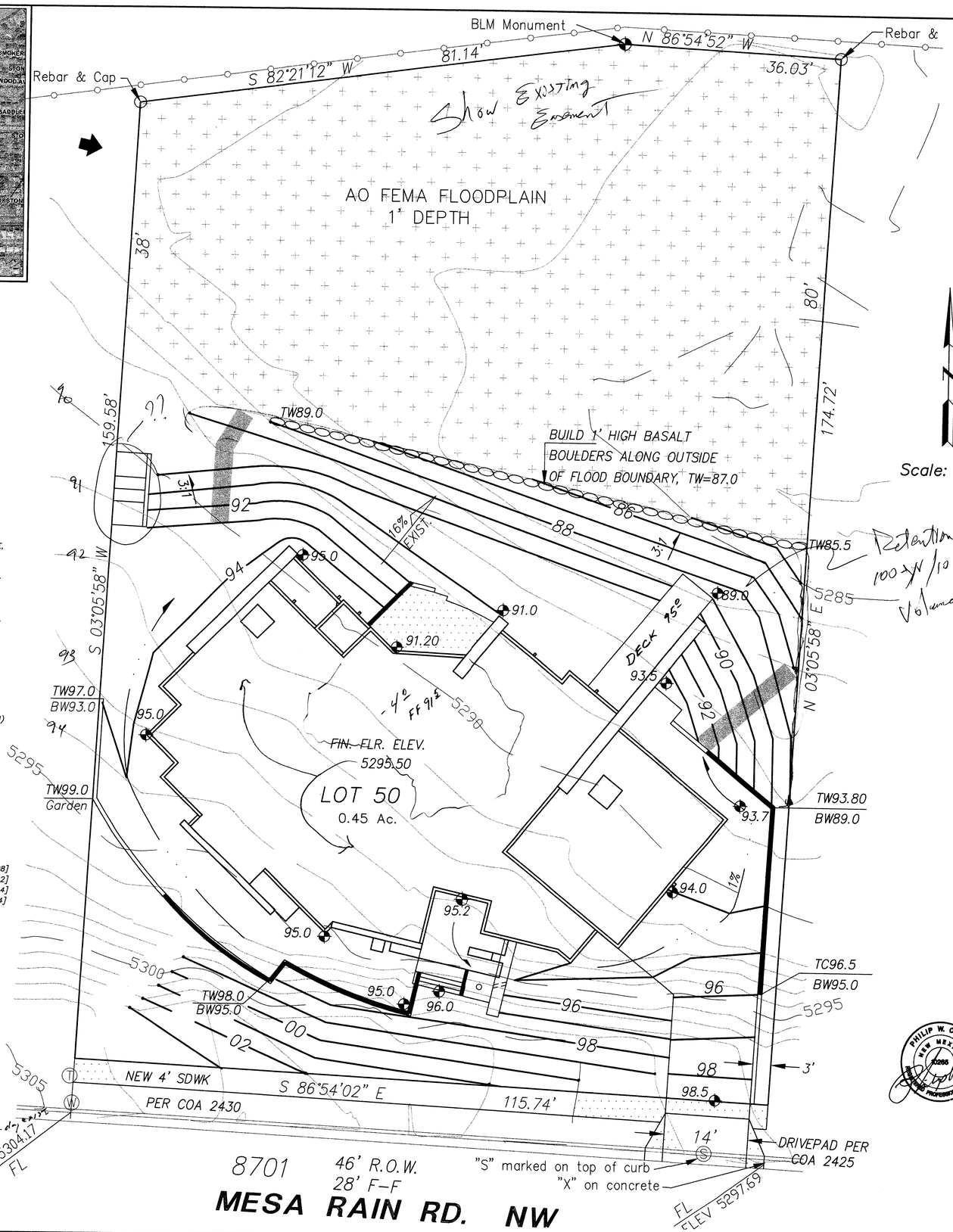

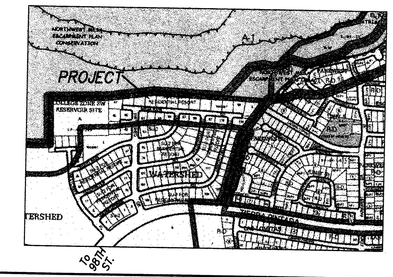

VICINITY MAP ZONE H-9 Scale: 1" = 750'

NOTES

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LEGEND

PROPERTY LINE	
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EXIST. SPOT ELEVATION	+24.0
EXIST. CONTOUR	10
NEW SPOT ELEVATION	24.0
NEW CONTOUR	54
NEW SWALE	
DRAINAGE DIRECTION, EXISTING	
NEW CONCRETE CURB (0.5' HEIGHT)	
NEW P.C.C., CONCRETE	
TOP OF CURB	TC
FLOWLINE	FL
EXISTING POWER POLE	PP
FACE OF CURB/FACE OF CURB	F-F
TOP OF WALL, RET.	TW
3' WIDE x 8" BURY RIPRAP SWALE	

PROJECT DATA

ZONED, SU-2 RESIDENTIAL RESORT

LEGAL DESCRIPTION

LOT 50, WATERSHED SUBDIVISION, ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO

PROJECT BENCHMARK - 12-H11, ON COORS BLVD.

3 1/4" ALUM DISK IN TOP OF CURB, IN TRAFFIC ISLAND MEDIAN 50' SOUTH OF 98TH ST./UNSER INTERSECTION, MSL ELEVATION = 5209.32, NAVD 88 (STAMPED 4_H9 2004).

TOPOGRAPHIC DESIGN SURVEY

COMPILED BY CLARK CONSULTING ENGINEERS UNDER THE DIRECTION OF PHILIP W. TURNER, PS (TERRAMETRICS OF NEW MEXICO).

PHILIP W. CLARK NEW MEXICO 10265 REGISTERED PROFESSIONAL ENGINEER 8.16.2011

Clark Consulting Engineers
19 Ryan Road
Edgewood, New Mexico 87015
Tele: (505) 281-2444 Fax: (505) 281-2444

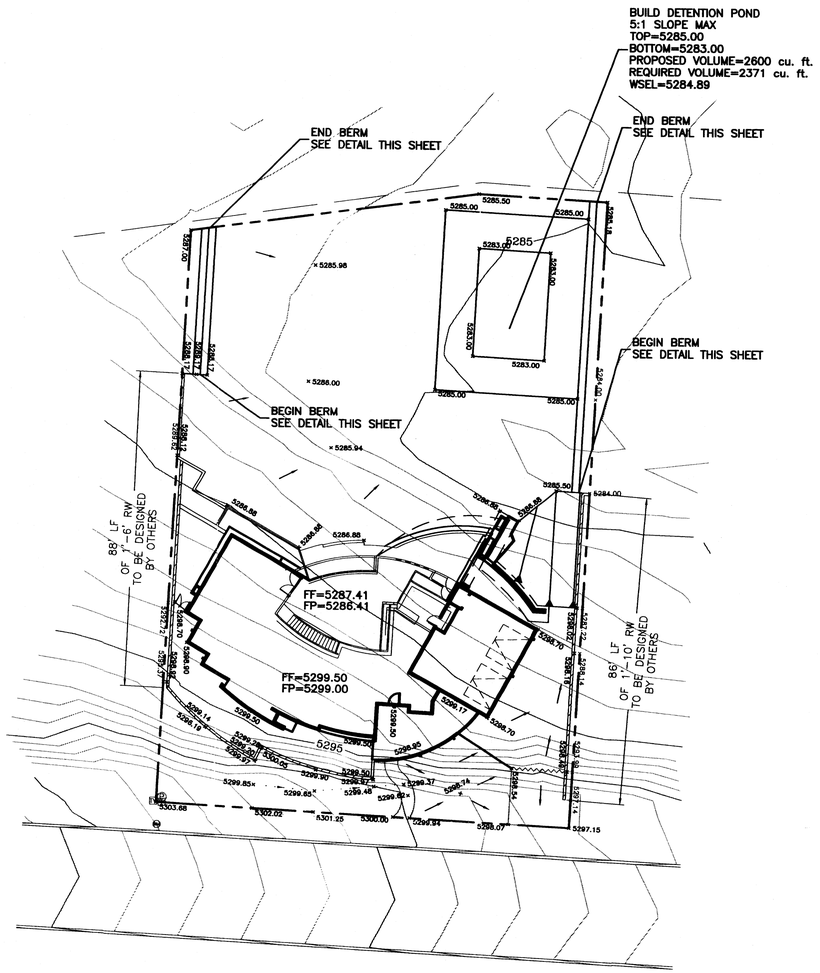
DATE	REVISION

LOT 50, WATERSHED SUBDIVISION
ALBUQUERQUE, NEW MEXICO
WRIGHT - OTERO RESIDENCE
Grading & Drainage Plan

DESIGNED BY: PWC	DRAWN BY: CCE	JOB #: Otero	C1 OF 1
CHECKED BY: PWC	DATE: 8/11/2011	FILE #: G/D	

CAUTION:

EXISTING UTILITIES ARE NOT SHOWN. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO ANY EXCAVATION TO DETERMINE THE ACTUAL LOCATION OF UTILITIES & OTHER IMPROVEMENTS.



EROSION CONTROL NOTES:

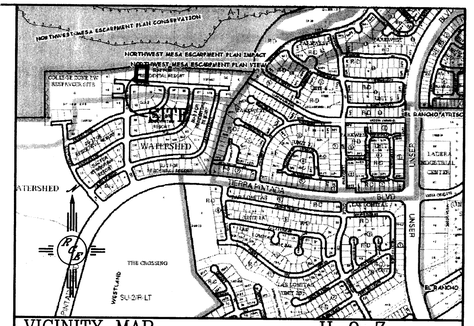
1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING WORK.

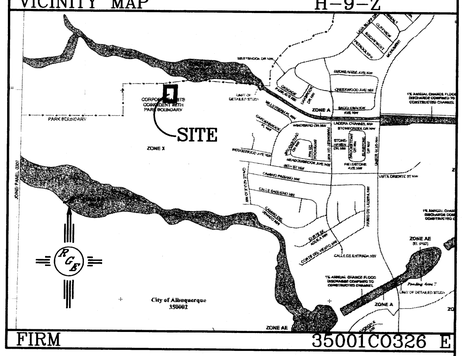
2. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RUN-OFF ON SITE DURING CONSTRUCTION.

3. CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL SEDIMENT THAT GETS INTO EXISTING RIGHT-OF-WAY.

4. REPAIR OF DAMAGED FACILITIES AND CLEANUP OF SEDIMENT ACCUMULATIONS ON ADJACENT PROPERTIES AND IN PUBLIC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.

5. ALL EXPOSED EARTH SURFACES MUST BE PROTECTED FROM WIND AND WATER EROSION PRIOR TO FINAL (CITY) ACCEPTANCE OF ANY PROJECT.





LEGAL DESCRIPTION:

LOT 50, WATERSHED SUBDIVISION

NOTES:

1. ALL SPOT ELEVATIONS REPRESENT FLOWLINE ELEVATION UNLESS OTHERWISE NOTED.

2. ALL WALLS ALONG THE WEAT PL SHALL BE OFFSET 1'. ALL WALLS ALONG THE EAST PL SHALL BE OFFSET 18".

LEGEND

- EXISTING EDGE OF PAVING
- BOUNDARY LINE
- 5171 EXISTING CONTOUR
- 5170 EXISTING INDEX CONTOUR
- FLOW ARROW
- FLOW LINE
- 5048.25 PROPOSED SPOT ELEVATION
- 5048.25 EXISTING SPOT ELEVATION
- RIGHT-OF-WAY
- EXISTING BUILDING
- PROPOSED BUILDING ADDITION
- EXISITNG WALL
- PROPOSED SCREEN WALL
- PROPOSED RETAINING WALL

Weighted E Method

Existing Basins

Basin	Area (sf)	Area (acres)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	100-Year Weighted E (ac-ft)	100-Year Volume (ac-ft)	100-Year Flow cfs	10-day Volume (ac-ft)
ONSITE	19624.00	0.451	100%	0.4505051	0%	0.000	0%	0	0%	0.000	0.440	0.017	0.58	0.017

Proposed Developed Basins

Basin	Area (sf)	Area (acres)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	100-Year 6-hr. Weighted E (ac-ft)	100-Year 6-hr. Volume (ac-ft)	100-Year 6-hr. Flow cfs	10-day Volume (ac-ft)
ONSITE	19624.00	0.451	21%	0.0948661	30%	0.135	23%	0.10362	26%	0.117	1.033	0.039	1.21	0.054

Equations:

Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed*Ad / (Total Area)

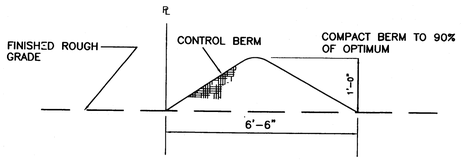
Volume = Weighted D * Total Area

Flow = Qa * Aa + Qb * Ab + Qc * Ac + Qd * Ad

Where for 100-year, 6-hour storm

Ea= 0.44 Qa= 1.29
Eb= 0.67 Qb= 2.03
Ec= 0.99 Qc= 2.87
Ed= 1.97 Qd= 4.37

SITE SHALL RETAIN THE 100-YEAR, 10-DAY STORM WATER VOLUME OF 0.054 ac-ft 2370.1 cubic feet



BERM DETAIL
NTS

PROJECT BENCHMARK

PROJECT BENCHMARK IS A ALBUQUERQUE CONTROL STATION "4-H9 2004" BEING A 3 1/4" ALUMINUM DISC SET FLUSH ON TOP OF CURB. LOCATED AT THE INTERSECTION OF UNSER BLVD. AND 98TH STREET, ON THE SOUTHEAST QUADRANT OF THE CONTINUOUS TURN ISLAND. ELEVATION = 5209.315 FEET (NAVD 1988 VERTICAL DATUM)

SCALE: 1"=20'

RECEIVED
NOV 04 2008
HYDROLOGY SECTION

ROUGH GRADING APPROVAL DATE

ENGINEER'S SEAL

DAVID SOULE NEW MEXICO 14522 REGISTERED PROFESSIONAL ENGINEER 11/4/08

DAVID SOULE P.E. #14522

OTERO-WRIGHT

GRADING AND DRAINAGE PLAN

Rio Grande Engineering
1606 CENTRAL AVENUE SE SUITE 201
ALBUQUERQUE, NM 87106
(505) 872-0999

DRAWN BY WCWJ

DATE 11-04-08

2828-LAYOUT-9-04-08

SHEET # —

JOB # 2828

CAUTION:

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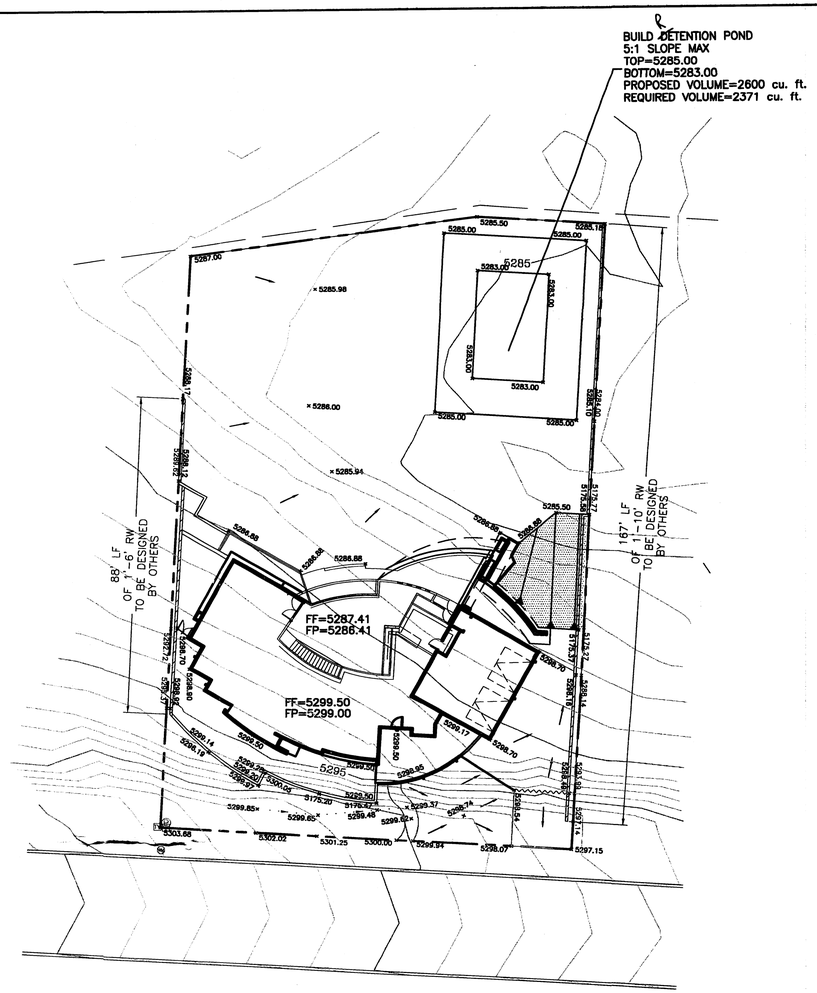

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3. CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL SEDIMENT THAT GETS INTO EXISTING RIGHT-OF-WAY.

4. REPAIR OF DAMAGED FACILITIES AND CLEANUP OF SEDIMENT ACCUMULATIONS ON ADJACENT PROPERTIES AND IN PUBLIC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.

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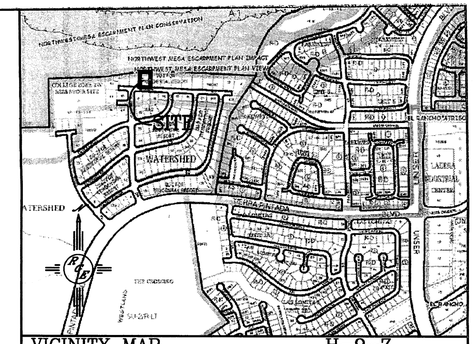
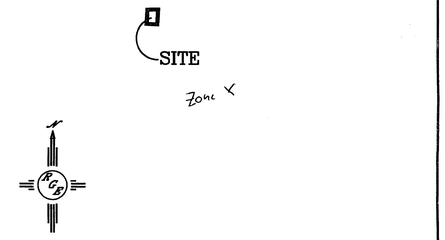


VICINITY MAP H-9-Z



FIRM 35001C0326 E

LEGAL DESCRIPTION:

LOT 50, WATERSHED SUBDIVISION

NOTES:

1. ALL SPOT ELEVATIONS REPRESENT FLOWLINE ELEVATION UNLESS OTHERWISE NOTED.

2. ALL WALLS ALONG THE WEST PL SHALL BE OFFSET 1'. ALL WALLS ALONG THE EAST PL SHALL BE OFFSET 18".

LEGEND

- EXISTING EDGE OF PAVING
- BOUNDARY LINE
- 5171 EXISTING CONTOUR
- 5170 EXISTING INDEX CONTOUR
- FLOW ARROW
- FLOW LINE
- 5048.25 PROPOSED SPOT ELEVATION
- 5048.25 EXISTING SPOT ELEVATION
- RIGHT-OF-WAY
- EXISTING BUILDING
- PROPOSED BUILDING ADDITION
- EXISITNG WALL
- PROPOSED SCREEN WALL
- PROPOSED RETAINING WALL

PROJECT BENCHMARK

PROJECT BENCHMARK IS A ALBUQUERQUE CONTROL STATION "4-H9 2004" BEING A 3 1/4" ALUMINUM DISC SET FLUSH ON TOP OF CURB. LOCATED AT THE INTERSECTION OF UNSER BLVD. AND 98TH STREET, ON THE SOUTHEAST QUADRANT OF THE CONTINUOUS TURN ISLAND. ELEVATION = 5209.315 FEET (NAVD 1988 VERTICAL DATUM)

N

20 10 0 10 20

SCALE: 1"=20'

RECEIVED
OCT 20 2008
HYDROLOGY SECTION

ROUGH GRADING APPROVAL DATE

ENGINEER'S SEAL

DAVID SOULE NEW MEXICO 14522 REGISTERED PROFESSIONAL ENGINEER

DAVID SOULE
P.E. #14522

OTERO-WRIGHT

GRADING AND DRAINAGE PLAN

Rio Grande Engineering
1606 CENTRAL AVENUE SE
SUITE 201
ALBUQUERQUE, NM 87106
(505) 872-0999

DRAWN BY WCWJ

DATE 10-17-08

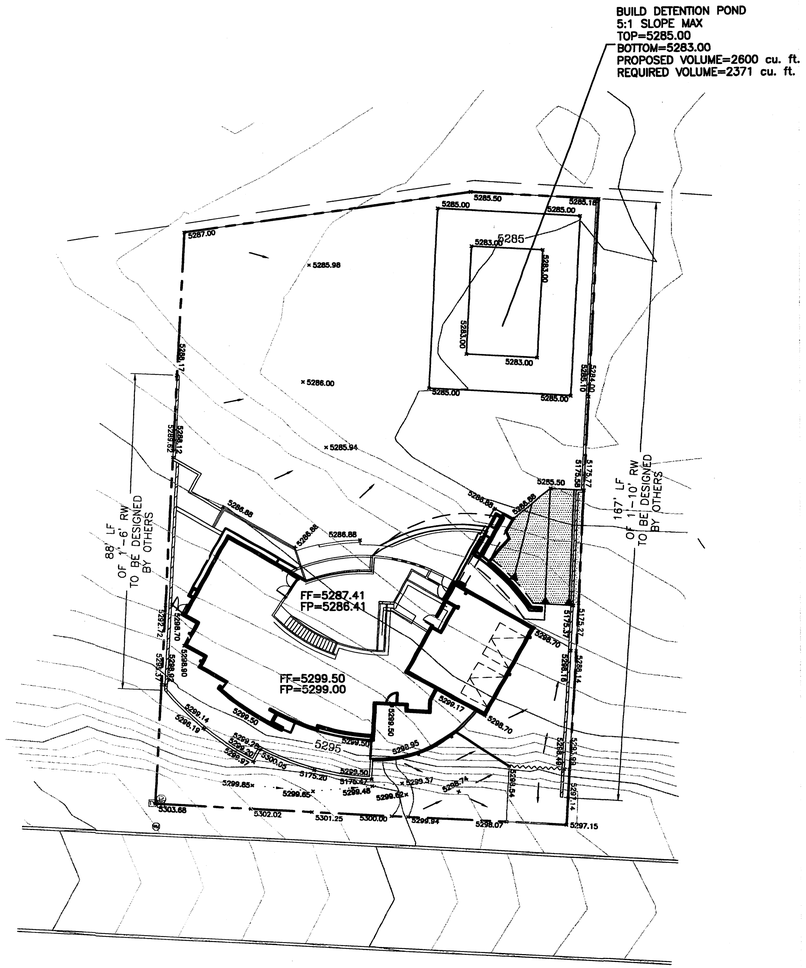
2828-LAYOUT-9-04-08

SHEET # —

JOB # 2828

CAUTION:

EXISTING UTILITIES ARE NOT SHOWN. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO ANY EXCAVATION TO DETERMINE THE ACTUAL LOCATION OF UTILITIES & OTHER IMPROVEMENTS.



EROSION CONTROL NOTES:

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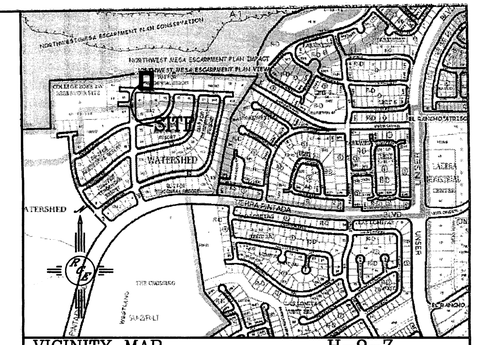

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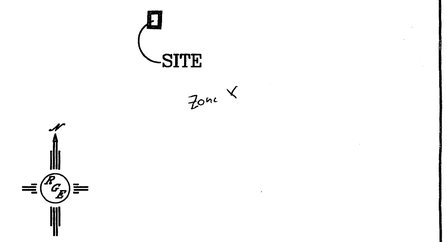

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