

## TERRAIN MANAGEMENT PLAN

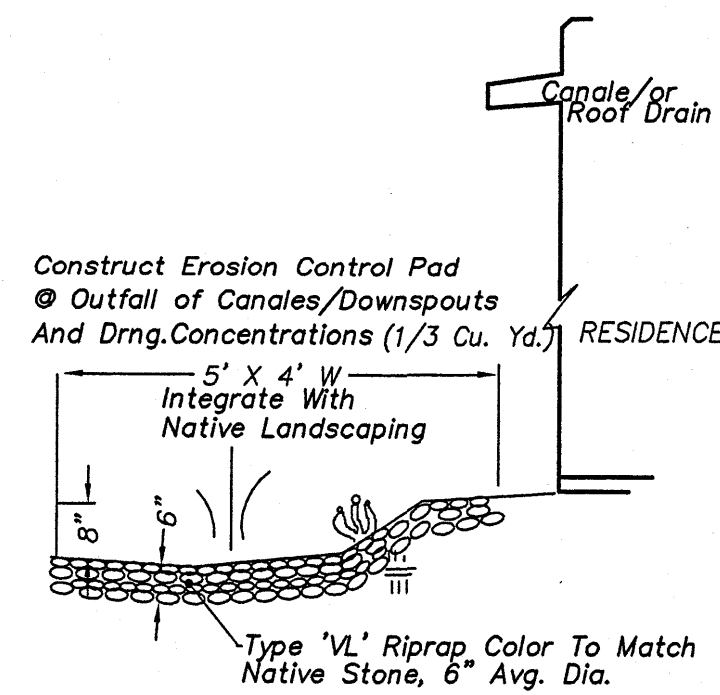
THE SINGLE-FAMILY RESIDENTIAL PROJECT IS LOCATED IN THE NORTH FOUR HILLS SUBDIVISION IN THE EASTERN PORTION OF THE CITY. THE GRADING AND DRAINAGE SCHEME HEREON IS IN COMPLIANCE WITH CITY OF ALBUQUERQUE, INCLUDING DESIGN STANDARDS AND DETAILS, AND STORM DRAINAGE ORDINANCE. THE PLAN IS REQUIRED IN ORDER TO FACILITATE THE OWNER'S REQUEST FOR GRADING AND BUILDING PERMIT. THE PLAN SHOWS:

1. EXISTING CONTOURS, SPOT ELEVATIONS, AND EXISTING DRAINAGE PATTERNS AND IMPROVEMENTS + RECENT PAD(S) EXCAVATION
2. PROPOSED IMPROVEMENTS: 4000 SQUARE FOOT "FOOTPRINT", CONCRETE DRIVEWAY, EROSION CONTROL, AND NEW GRADE ELEVATIONS.
3. CONTINUITY BETWEEN EXISTING AND PROPOSED ELEVATIONS
4. QUANTIFICATION AND ACCEPTANCE OF UPSTREAM OFFSITE FLOWS WHICH CONTRIBUTE TO THE DEVELOPED FLOWS GENERATED BY THE IMPROVEMENTS.

THE PURPOSE OF THE PLAN IS TO ESTABLISH CRITERIA FOR CONTROLLING STORM RUNOFF AND EROSION, AND ESSENTIALLY ALLOWING HISTORIC FLOWS TO CONTINUE TO DRAIN THROUGH THE PROPERTY. PRESENTLY, THE SITE IS BOUNDED ON THE EAST AND WEST BY DEVELOPED LOTS. THE PRIVATE ROADWAY ON THE NORTH IS A PAVED ACCESS WITH CURB/GUTTER AND ATTACHED SIDEWALK. THE SITE IS STEEPLY SLOPING @ APPROXIMATELY 2-40% MINIMAL OFFSITE RUN-OFF ENTERS THE PROPERTY. ALL ON-SITE FLOWS ARE QUANTIFIED ON THE PLAN, AND ADDRESSED IN THE CALCULATIONS.

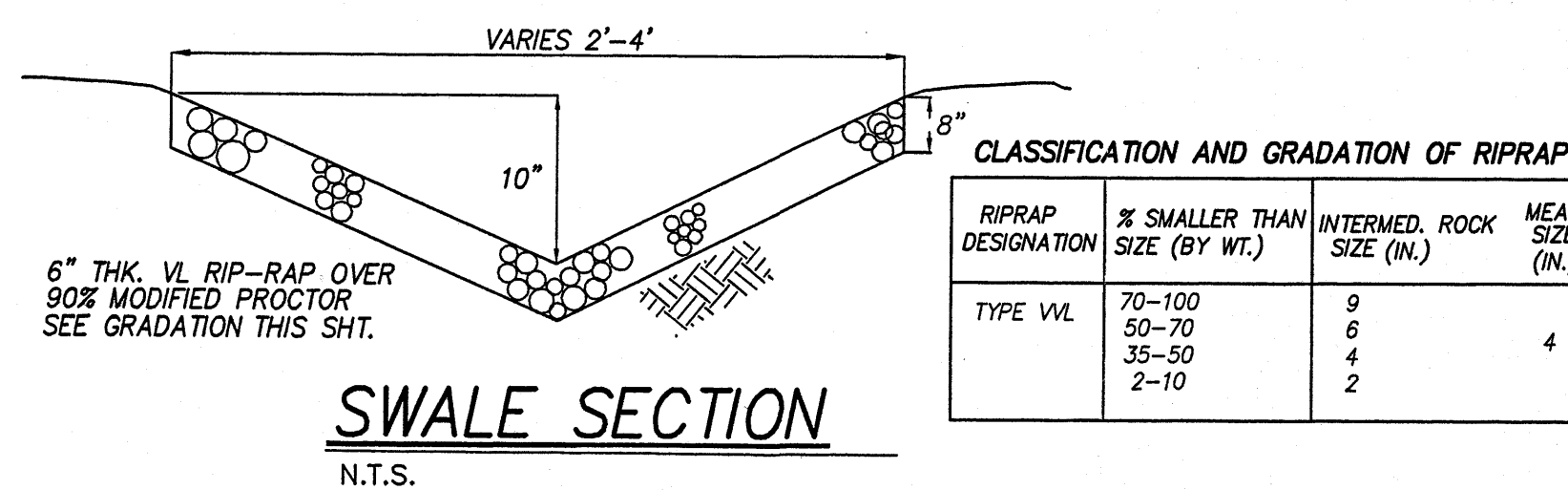
THE SITE IS NOT ENCUMBERED BY A DESIGNATED FEMA FLOODPLAIN. DOWNSTREAM STORM DRAINAGE CONVEYANCE IS VIA THE TIJERAS ARROYO (TRACT M) THROUGH THE SUBDIVISION AND ITS OUTFALL.

HISTORICAL SITE RUNOFF OUTFALL LOCATIONS WILL REMAIN UNCHANGED IN FINAL DEVELOPMENT.



### EROSION CONTROL PAD

NO SCALE



### SWALE SECTION

N.T.S.

## 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:  $Q = Q_{PEAK} \times AREA$ . "Peak Discharge Rates For Small Watersheds"  
VOLUMETRIC DISCHARGE:  $VOLUME = E_{Weighted} \times AREA$   
 $P100 = 2.90$  inches, Zone 4 Time of Concentration,  $TC = 10$  Minutes  
DESIGN STORM: 100-YEAR/6-HOUR, 10-YEAR/6-HOUR [ ] = 10 YEAR VALUES

### EXISTING CONDITIONS

50% B/C Ea.  
LOT AREA = 0.39 ACRES, WHERE EXCESS PRECIP. Composite = 1.27 in.[0.60]  
PEAK DISCHARGE,  $Q100 = 1.29$  CFS [0.73], WHERE UNIT PEAK DISCHARGE = 3.3 CFS/AC. [1.86]  
THEREFORE:  $VOLUME 100 = 1797$  CF [849]

### DEVELOPED CONDITIONS

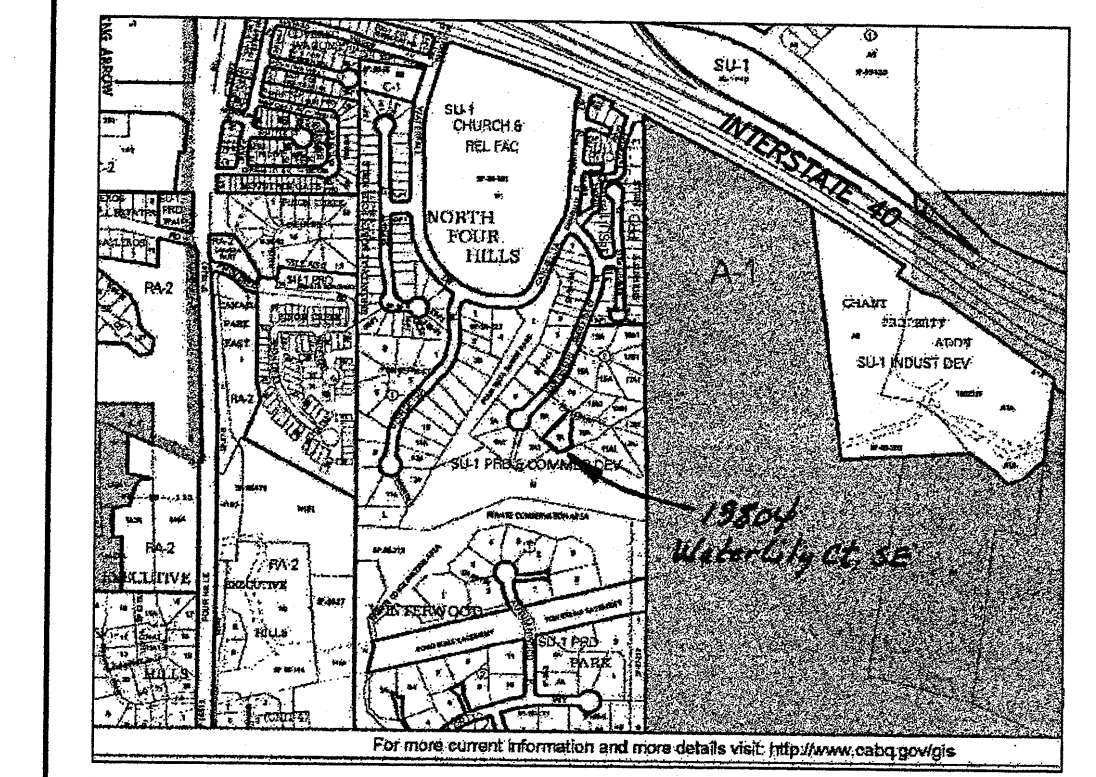
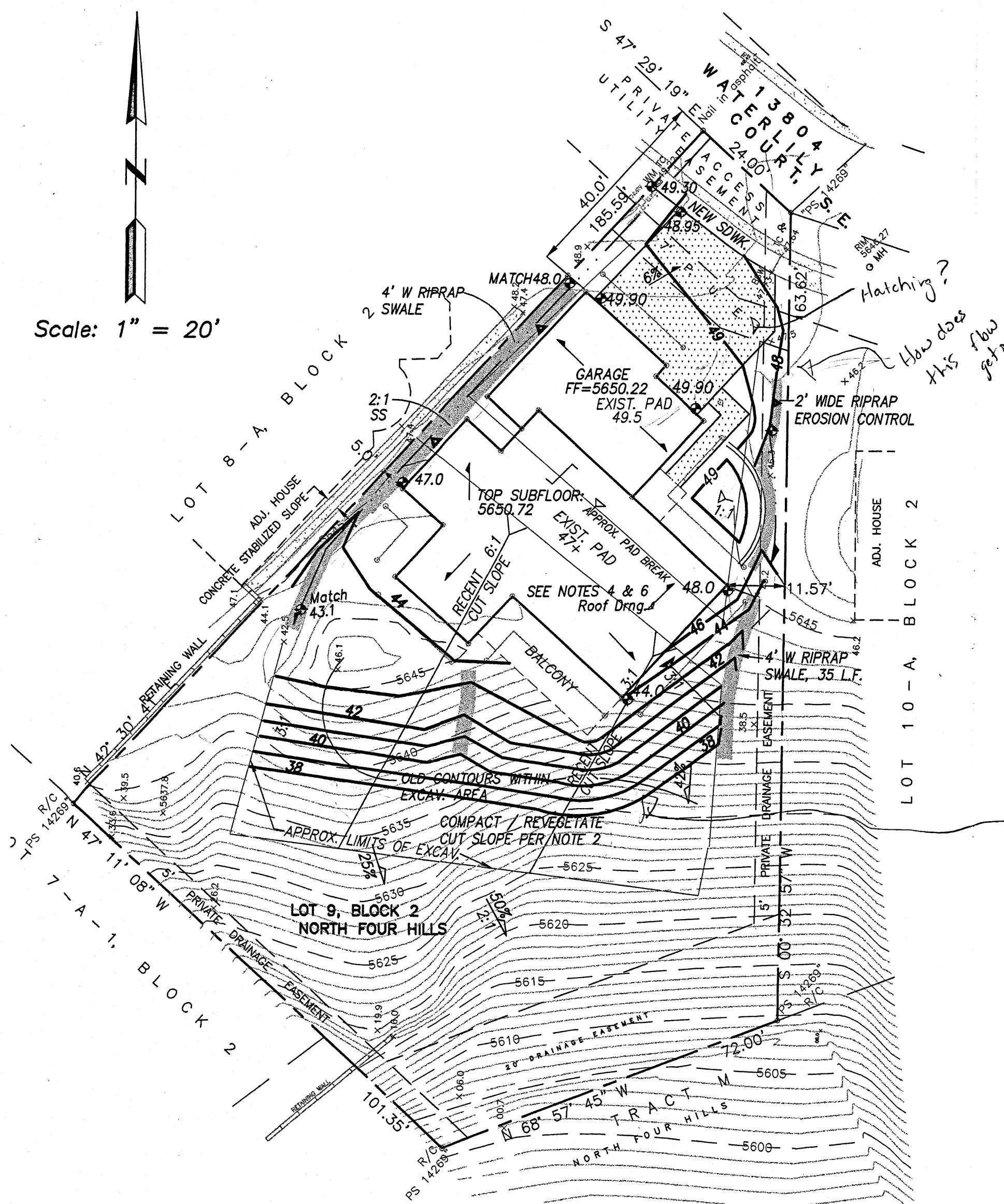
DETERMINE LAND TREATMENTS, PEAK DISCHARGE AND VOLUMETRIC DISCHARGE FOR STUDY AREA

	AREA	LAND TREATM'T	$Q_{Peak}$	$E$
UNDEVELOPED	0.0 Ac.	A	2.20[0.87]	0.80[0.28]
LANDSCAPING; 10-20% SL	0.14 Ac.(36%)	B	2.92[1.45]	1.08[0.46]
GRAVEL & COMP. SOIL; 20%	0.15 Ac.(38%)	C	3.73[2.26]	1.46[0.73]
ROOF - PAVEMENT	0.10 Ac.(26%)	D	5.25[3.57]	2.64[1.69]
	0.39 Ac.			

THEREFORE:  $E_{Weighted} = 1.63$  in.[0.89] &  
 $Q100 = 1.5$  CFS  
 $Q10 = 0.9$  CFS  
 $VOLUME 100 = 2307$  CF  
 $VOLUME 10 = 1258$  CF

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. EXCEPTIONS NOTED - THIS PLAN.

*Philip W. Clark*  
PHILIP W. CLARK NMPE #10265



## VICINITY MAP L-23

## NOTES

1. NO PERIMETER FENCING AROUND THE PROPERTY IS PROPOSED. CONSTRUCTION OF FUTURE FENCING SHALL PERMIT THE PASSING OF DRAINAGE TO AND FROM HISTORIC OUT FALL AND ENTRANCE LOCATIONS.
2. REVEGETATE ALL AREAS DISTURBED DUE TO CONSTRUCTION PER CITY OF ALBUQUERQUE NATIVE SEED MIX, #1011.
3. MAXIMUM SITE GRADING WITHOUT EROSION PROTECTION: 3 HORIZONTAL TO 1 VERTICAL, 3:1.
4. PROVIDE EROSION PROTECTION AT ALL OUTFALL OF CANALES AND CMU/COURTYARD DRAIN OPENINGS WITH 1/3 CU.YD. OF BURIED RIPRAP COBBLES OF 4" DIA. @ 6" DEPTH. COLOR TO MATCH NATIVE ROCK EARTH TONE. SEE EROSION CONTROL PAD, THIS SHEET. SEE ROOF PLAN DISCHARGE LOCATIONS.
5. BUILD 4' X 6' X 1' DEPTH RIPRAP EROSION CONTROL PAD AT ALL POINTS OF ROOF DRAINAGE CONCENTRATION
6. CONTRACTOR SHALL REFER TO THE GEOTECHNICAL REPORT PREPARED BY VINYARD & ASSOCIATES FOR ALL EARTHWORK PREPARATION.

## LEGEND

+24.0	EXIST. SPOT ELEVATION
◆ 24.0	NEW SPOT ELEVATION
---	EXIST. EDGE OF ROAD
---	NEW SWALE
OPP	EXISTING POWER POLE
EG/TG	EDGE OF OR TOP OF GRAVEL
---	NEW RIPRAP EROSION CONTROL
---	TYPE V.L. RIPRAP, D50 = 4"
FL	FLOW LINE

Proposed/Existing contours?

## PROJECT DATA

### LEGAL DESCRIPTION:

LOT 9-A, BLOCK 2, NORTH FOUR HILLS  
ALBUQUERQUE, NEW MEXICO

### TOPOGRAPHIC SURVEY

DESIGN SURVEY PERFORMED BY WAYJOHN SURVEYING  
DATED MARCH, 2012

### PROJECT BENCHMARK

TOP OF CURB AT THE NORTHWEST PROP CORNER  
ELEV. = 5649.22, NAVD88 AS TIED TO ACS MONUMENTATION

<b>Clark Consulting Engineers</b> 19 Ryan Road Edgewood, New Mexico 87015 Tele: (505) 281-2444 Fax: (505) 281-2444	
DATE	REVISION
LOT 9-A, BLOCK 2, NORTH FOUR HILLS SANDOVAL COUNTY, NEW MEXICO TUAN VAN HUYNH RESIDENCE	
<b>GRADING &amp; DRAINAGE PLAN</b>	
DESIGNED BY: PWC	DRAWN BY: CCE
CHECKED BY: PWC	DATE: 4/6/12
JOB #: TUAN_RES	FILE #: G/D

RECEIVED  
1 OF 1  
2012



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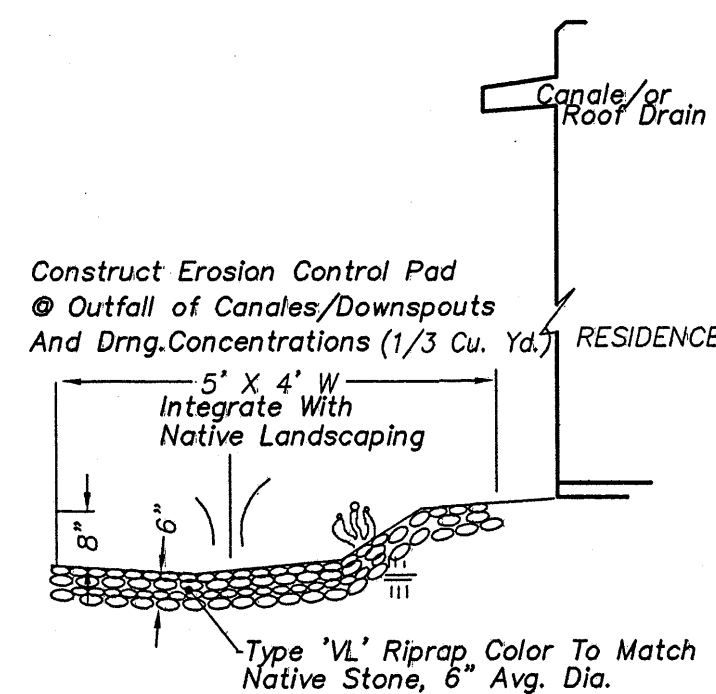
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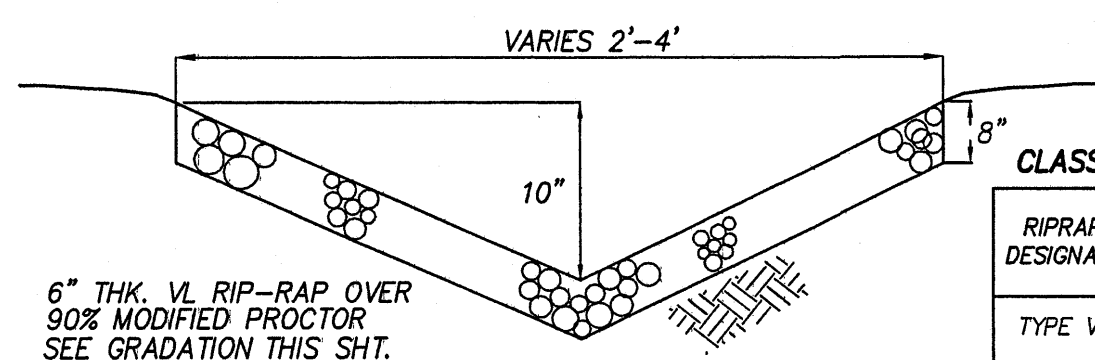
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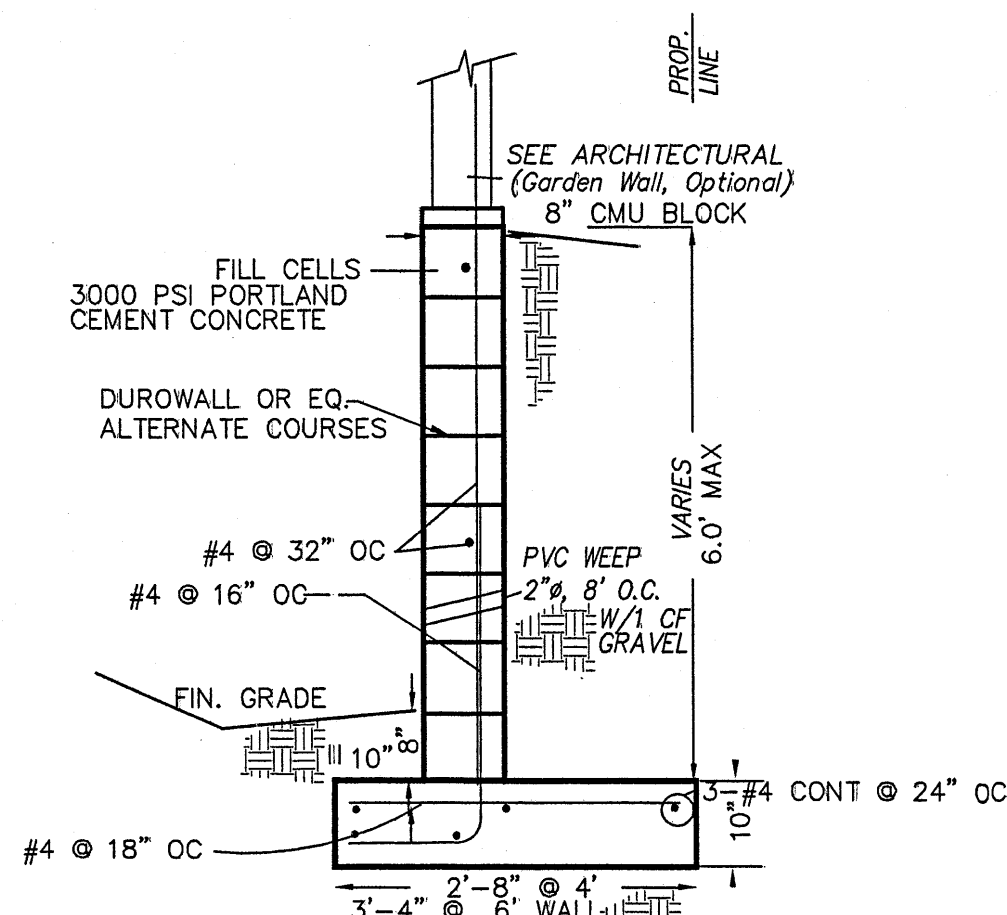


### SWALE SECTION

N.T.S.

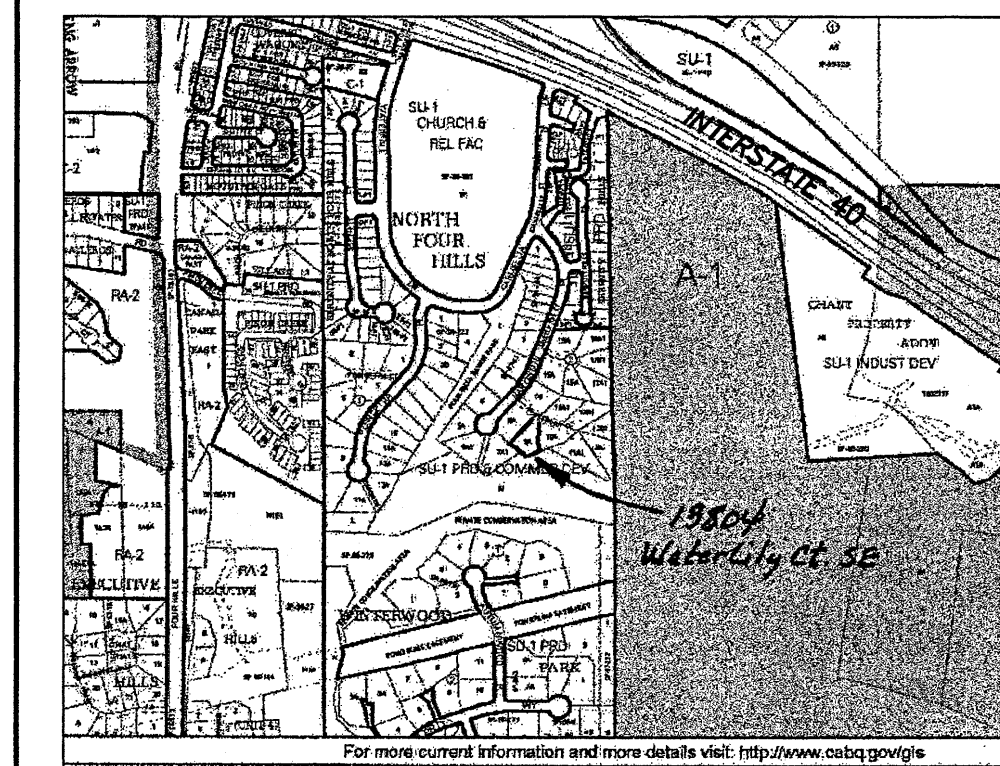
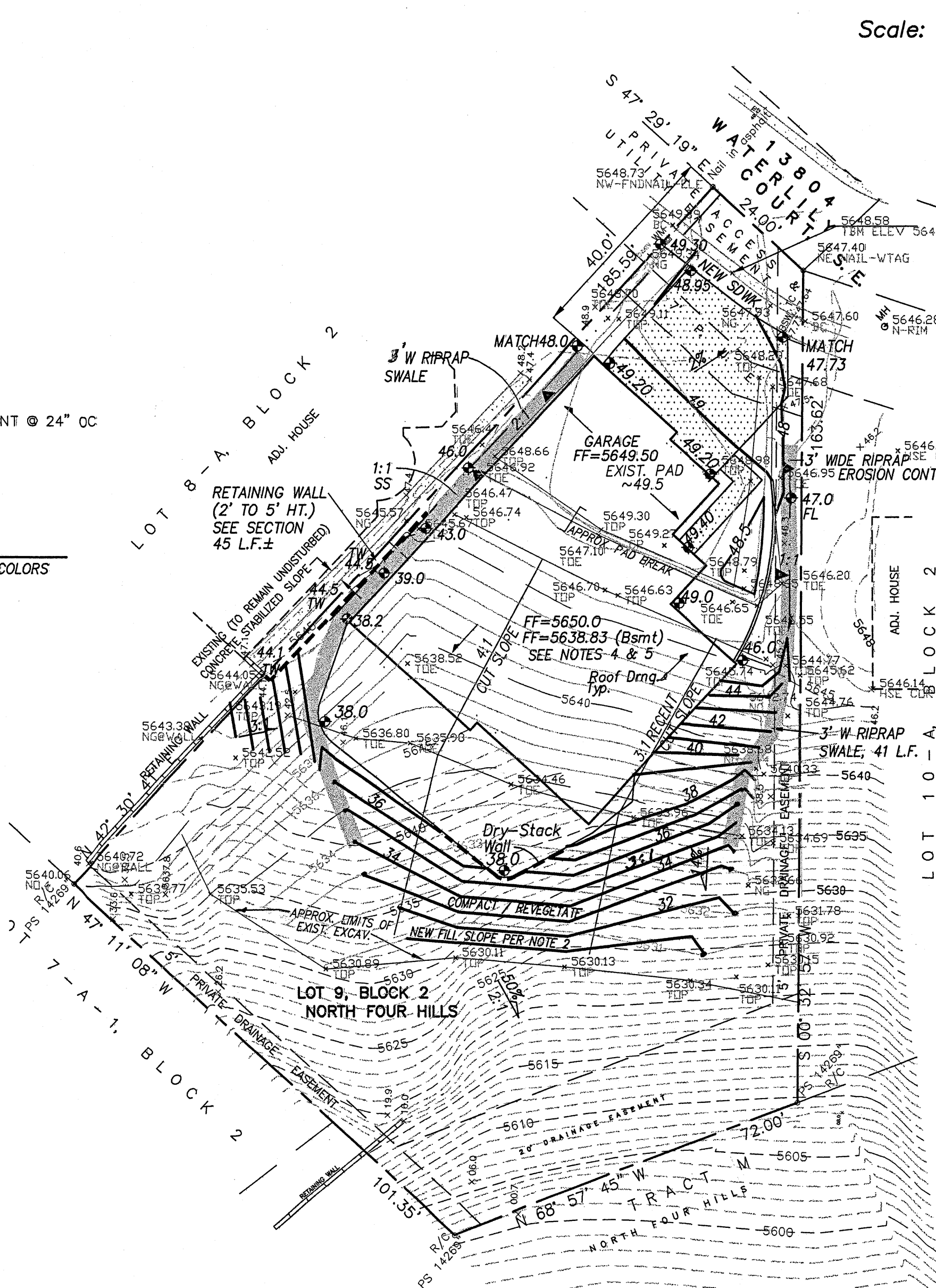
#### CLASSIFICATION AND GRADATION OF RIPRAP

RIPRAP DESIGNATION	% SMALLER THAN SIZE (BY WT.)	INTERMED. ROCK SIZE (IN.)	MEAN SIZE (IN.)
TYPE V.L.	70-100	9	4
	50-70	6	
	35-50	4	
	2-10	2	



### CMU RETAINING WALL

N.T.S. NOTE: STUCCO TO BE TEXTURED, EARTH TONE COLORS



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- EXISTING CONTOUR
- EXISTING INDEX CONTOUR
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*Philip W. Clark*  
PHILIP W. CLARK NMPE #10265

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#### TOPOGRAPHIC SURVEY

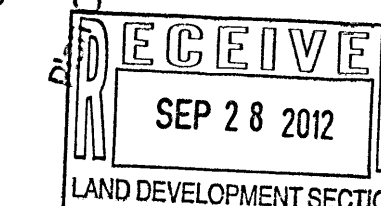
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Albuquerque  
Building & Safety  
SEP 28 2012  
I.B.C.  
Check Section



<b>Clark Consulting Engineers</b> 19 Ryan Road Edgewood, New Mexico 87015 Tele: (505) 281-2444 Fax: (505) 281-2444	
DATE: 8-24-12	REVISION: REVISED PER RE-DESIGN WITH WALK-OUT BSMT
LOT 9-A, BLOCK 2, NORTH FOUR HILLS ALBUQUERQUE, NEW MEXICO <b>TUAN VAN HUYNH RESIDENCE</b> <b>GRADING &amp; DRAINAGE PLAN</b>	
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CHECKED BY: PWC	DATE: 4/8/12
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