

FIRM MAP PANEL # 351

GRADING & DRAINAGE PLAN

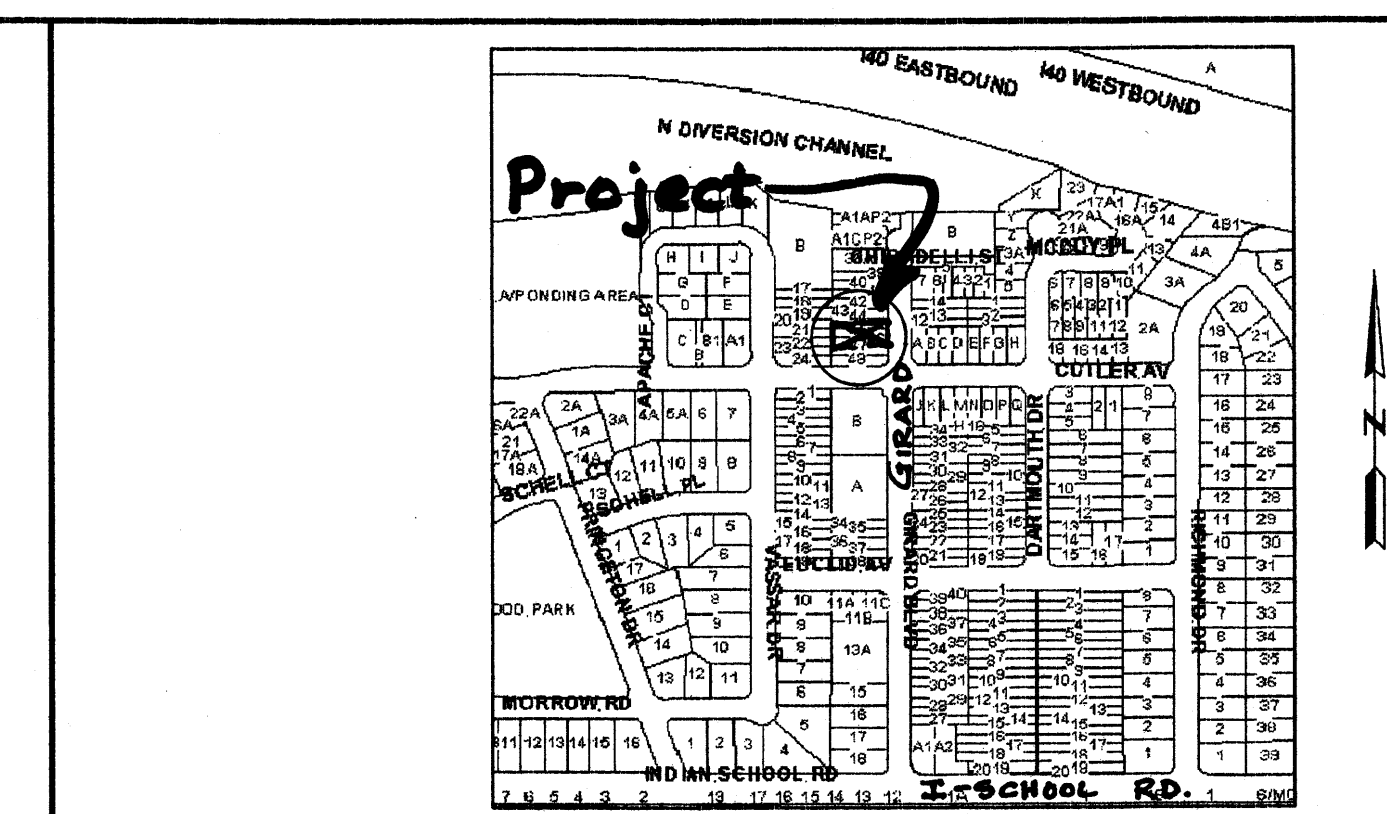
THE PROPOSED TOWNHOME PROJECT IS LOCATED IN THE ESTABLISHED NETHERWOOD PARK ADDITION OF ALBUQUERQUE ON GIRARD BLVD. BETWEEN CUTLER AVE. AND THE INTERSTATE 40. THE GRADING AND DRAINAGE SCHEME HEREON IS IN COMPLIANCE WITH THE BERNALILLO COUNTY FLOOD HAZARD ORDINANCE, NO.88-46, AND THE CITY STORM DRAINAGE 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 IMPROVEMENTS.
2. PROPOSED IMPROVEMENT: APPROX. 4200 SF FOUR-PLEX BUILDING, ASPHALT DRIVE/PARKING, CONCRETE FLAT WORK, NEW GRADE ELEVATIONS, AND LANDSCAPING AREAS.
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 AN UNDEVELOPED LOT WITH SPARSE VEGETATION. THE SITE IS BOUNDED BY A DEVELOPED RESIDENTIAL PROPERTY TO THE WEST, AND DEVELOPED MULTI-FAMILY FACILITIES ARE ADJACENT ON THE SOUTH AND NORTH. THE SITE FALLS APPROXIMATELY 1X-8X FROM EAST TO WEST FROM THE EXISTING MAJOR LOCAL STREET ON THE EAST (GIRARD BOULEVARD).

GIRARD BLVD. IS A PAVED 2 LANE STREET, WITH CURB, GUTTER AND ATTACHED SIDEWALK. SITE RUNOFF WILL BE REQUIRED TO FREE DISCHARGE THE IMPERVIOUS DEVELOPED FLOW DIRECTLY TO THE STREET VIA THE NEW DRIVEPAD.

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. A MINIMAL PORTION (0.08 ACRES) OF PRIMARILY PERVIOUS SITE RUNOFF IS ROUTED THROUGH PROPOSED LANDSCAPING. *NO OFF-SITE FLOWS ENTER PROPERTY.*



VICINITY MAP ZONE H-16 Scale: 1" = 500'

NOTES

1. ALL WORK WITHIN THE RIGHT-OF-WAY SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE STANDARD SPECS. FOR PUBLIC WORKS CONSTRUCTION, 6TH EDITION W/ UPDATES.
2. AN EXCAVATION/CONSTRUCTION PERMIT IS REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY R.O.W. AN APPROVED COPY OF THIS PLAN MUST BE SUBMITTED AT THE TIME OF APPLICATION.
3. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES, AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
4. ALL LANDSCAPING AREA SHALL BE SOFT-LINED WITH NATIVE VEGETATION AND/OR GRAVEL. ASPHALT PARKING AREA SHALL DRAIN DIRECTLY TO AND THRU NEW DRIVEPAD.
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 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.

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: $Q = \text{PEAK} \times \text{AREA}$; $\text{Peak Discharge Rates For Small Watersheds}$
VOLUMETRIC DISCHARGE: $\text{VOLUME} = E_{\text{weighted}} \times \text{AREA}$
 $P100 = 2.35 \text{ inches, Zone 2}$ Time of Concentration, TC = 10 Minutes
DESIGN STORM: 100-YEAR/6-HOUR, 10-YEAR/6-HOUR [J] = 10 YEAR VALUES

EXISTING CONDITIONS

LOT AREA = 0.25 ACRES, WHERE EXCESS PRECIP. 'A' = 0.53 in. [0.13]
PEAK DISCHARGE, Q100 = 0.4 CFS [0.1] WHERE UNIT PEAK DISCHARGE 'A' = 1.56 CFS/AC. [0.380]
THEREFORE: $\text{VOLUME } 100 = 461 \text{ CF} [118]$

DEVELOPED CONDITIONS

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

	AREA	LAND TREATMENT	Q Peak	E
UNDEVELOPED/POND	0.03 AC.(12%)	A	1.56[0.38]	0.53[0.13]
LANDSCAPING	0.04 AC.(16%)	B	2.28[0.95]	0.78[0.28]
GRAVEL & COMPACTED SOIL	--- AC.	C	3.14[1.71]	1.13[0.52]
ROOF - PAVEMENT	0.18 AC.(72%)	D	4.70[3.14]	2.12[1.34]
	0.25			

THEREFORE: $E_{\text{weighted}} = 1.71 \text{ in.} [1.03]$ &
Q100 = 0.98 CFS & VOLUME 100 = 1552 CF
Q10 = 0.6 CFS & VOLUME 10 = 935 CF

DOWNSTREAM ANALYSIS

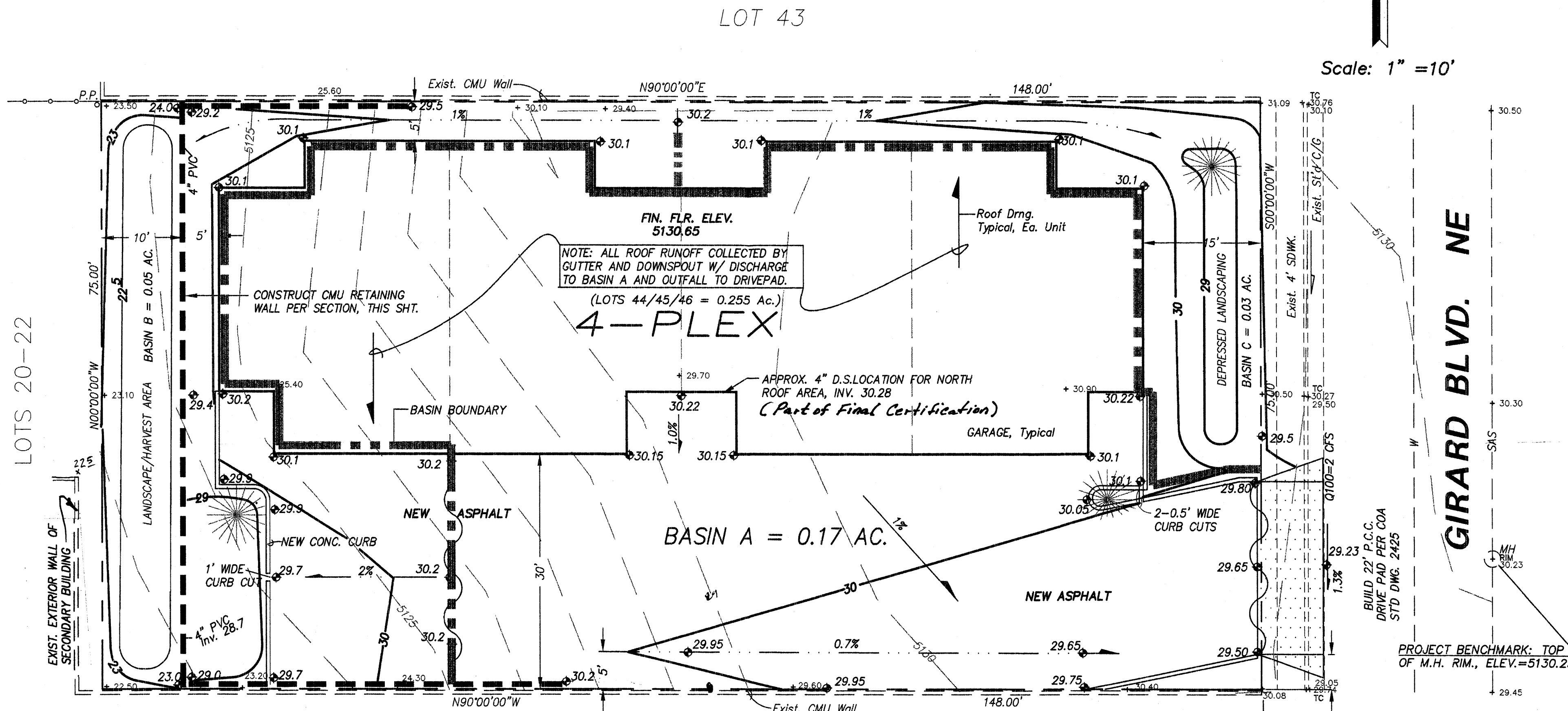
PROPERTY LOCATED WITHIN ESTABLISHED NEIGHBORHOOD WITH DOWNSTREAM STORM SEWER SYSTEM LOCATED WITHIN STREETS. SURFACE STREET RUNOFF CURRENTLY IS CONVEYED SOUTHERLY TO CUTLER AVE. THEN TURNS WEST TO NORTH DIVERSION CHANNEL POND LOCATED AT PRINCETON CUTLER INTERSECTION.

THE DEPTH OF RUNOFF WITHIN STREET IS CONSIDERED MINIMAL DUE TO THE 0.5 CFS INCREASE OF DISCHARGE RATE ASSOCIATED WITH THE DEVELOPMENT.

BASIN A = 0.17 AC. Q100 = 0.17 x 4.7 CFS = 0.8 CFS
(100% IMPERVIOUS, LAND TREATMENT D)

BASIN B = 0.05 AC. 40% IMPERVIOUS, 60% LAND TREATMENT B
Q100 = 0.02 AC. x 4.7 CFS + 0.03 x 2.3 CFS = 0.16 CFS
VOL.100 = (40% x 2.12 in. + 60% x 0.78 in.) x 0.05 x 43560/12 = 239 CF

BASIN C = 0.03 AC. 100% LAND TREATMENT B
Q100 = 0.03 AC. x 2.3 CFS = 0.07 CFS
VOL.100 = 0.78 in. x 0.03 x 43560/12 = 85 CF

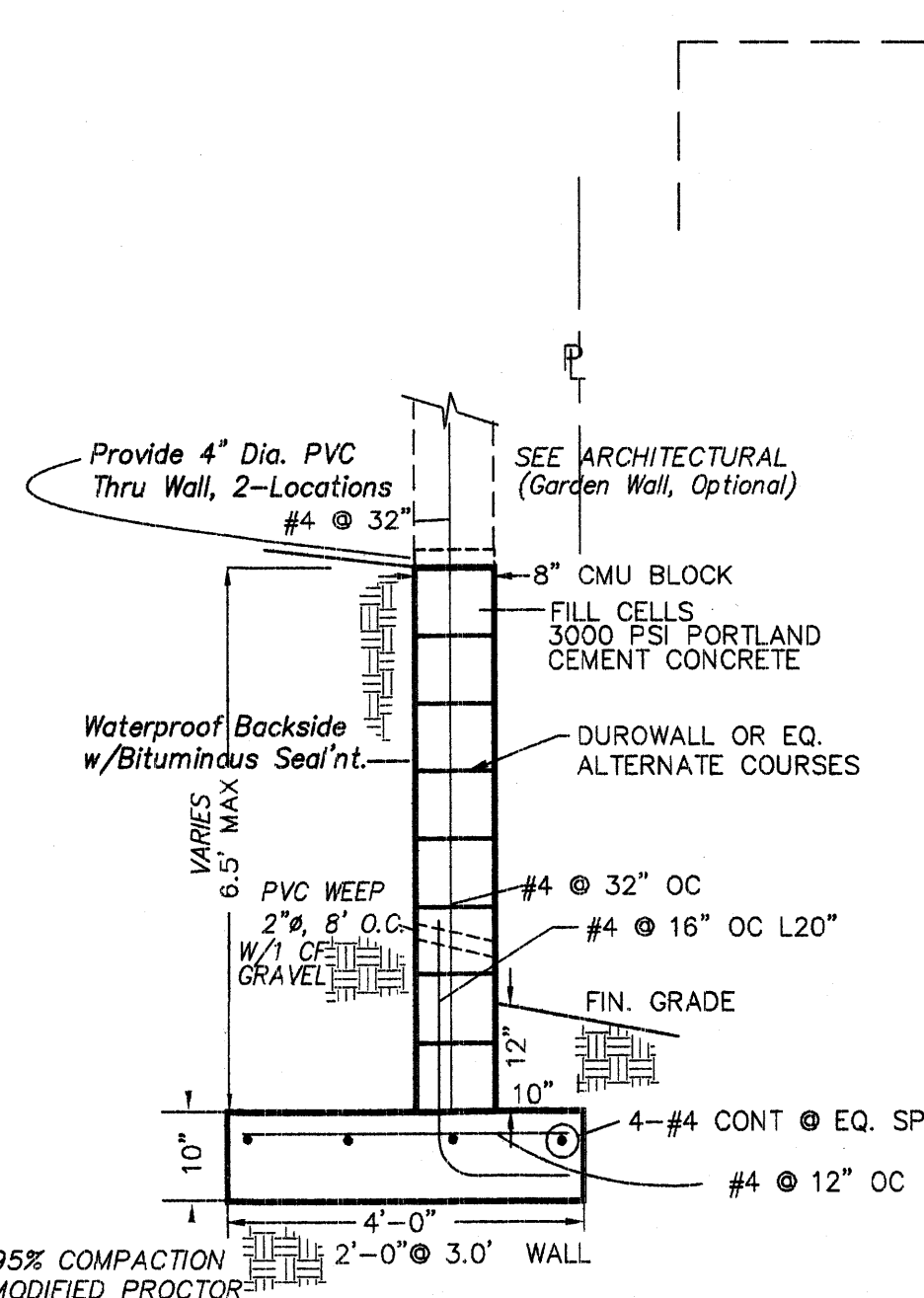


Scale: 1" = 10'

GIRARD BLVD. NE

LEGEND

EXIST. SPOT ELEVATION	+24.0
EXIST. CONTOUR	-10
NEW SPOT ELEVATION	+24.0
NEW CONTOUR	-12
NEW SWALE	
DRAINAGE DIRECTION, EXISTING	
NEW CONCRETE CURB (0.5' HEIGHT)	
NEW P.C.C., CONCRETE	TC
TOP OF CURB, EXISTING	FL
FLOWLINE	
EXISTING POWER POLE	OP
WATER BLOCK (HIGH PT.)	
DECIDUOUS TREE	
GUTTER DOWNSPOUT	D.S.



CMU RETAINING WALL @ PL
NTS NOTE: STUCCO TO BE TEXTURED, EARTH TONE COLORS

LOT 47

Contours outside property line

Are any of the existing walls retaining walls?

Before CO, must verify the roof runoff collected by downspout

PROJECT DATA

LEGAL DESCRIPTION (Concurrent Platting)
LOTS 44-46, BLOCK 19, NETHERWOOD PARK ADDITION
Albuquerque, Bernalillo County, New Mexico

PROJECT BENCHMARK

Top of Manhole Rim Elevation Opposite Site
MSL Elevation = 5130.23
(Tied From ACS 6-118, Located @ Trumbull/Louisiana)

TOPOGRAPHIC DESIGN SURVEY

Compiled by Clark Consulting Engineers From Design Survey
Performed on, 10/3/03

PHILIP W. CLARK
NEW MEXICO
10289
10-24-03
Rev'd 12-7-03

RECEIVED
DEC 8 2003
HYDROLOGY SECTION

Clark Consulting Engineers
19 Ryan Road
Edgewood, New Mexico 87015

Tele: (505) 281-2444 Fax: (505) 281-2444

DATE REVISION
12-7-03 Add C-4
Comments

LOTS 44, 45, & 46, BLOCK 19,
NETHERWOOD PARK ADDITION

4-PLEX FOR ART REEVES

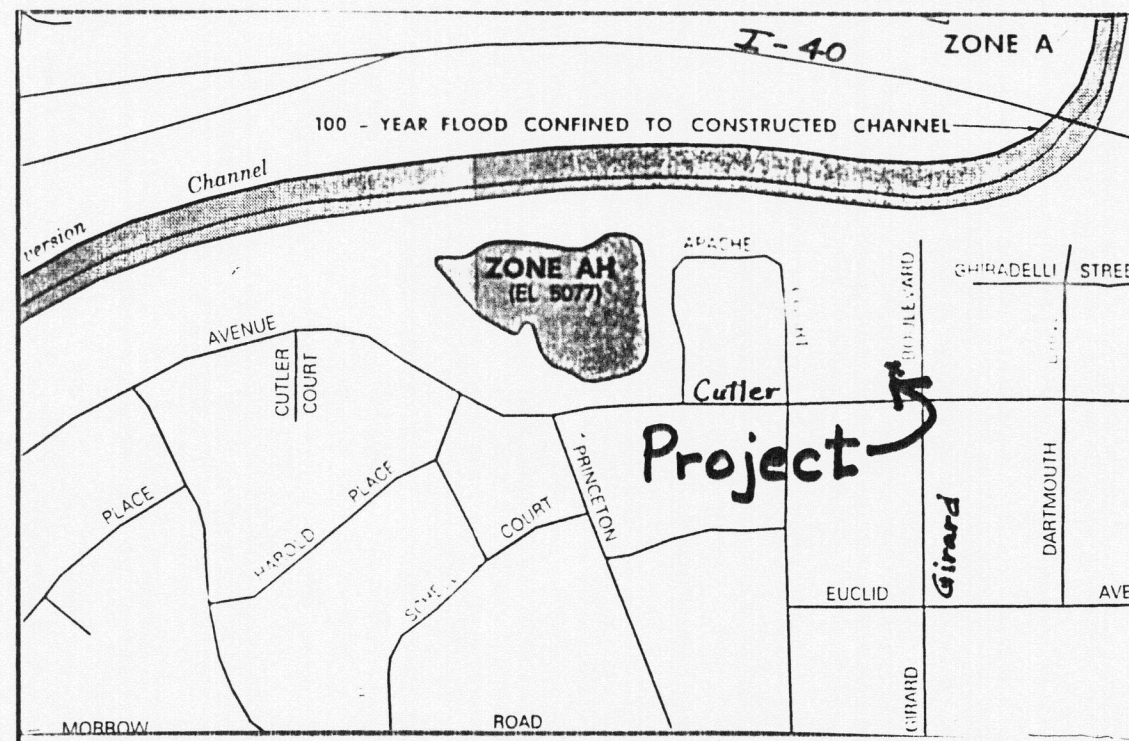
Site, Grading & Drainage Plan

DESIGNED BY: PWC DRAWN BY: CCE JOB #: Smith-Joe

CHECKED BY: PWC DATE: 10/03/03 FILE #: G/D

1 OF 1

H16/D136



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GRADING & DRAINAGE PLAN

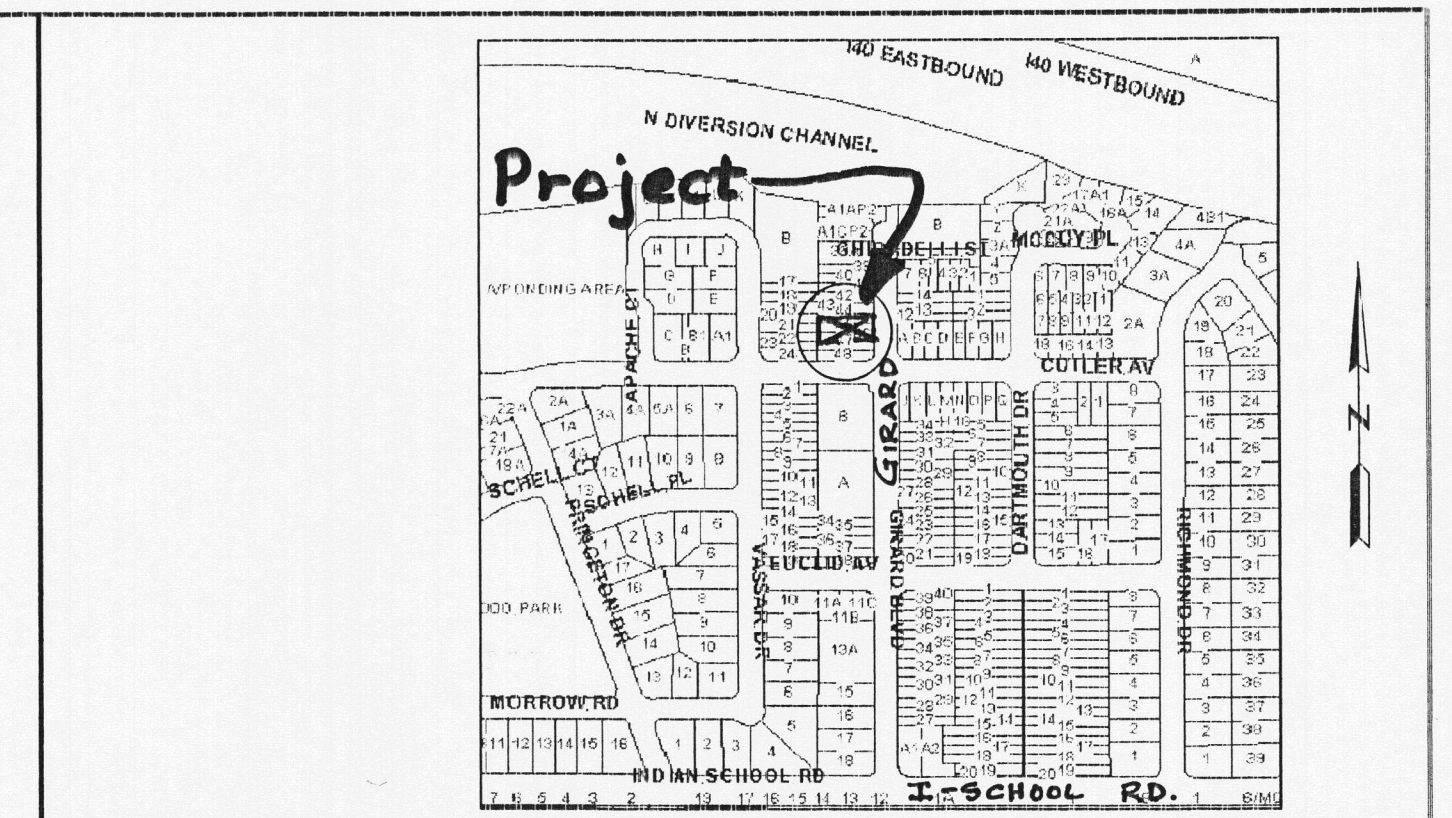
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LEGEND

- EXIST. SPOT ELEVATION: +24.0
- EXIST. CONTOUR: 10
- NEW SPOT ELEVATION: 24.0
- NEW CONTOUR: 12
- NEW SWALE
- DRAINAGE DIRECTION, EXISTING
- NEW CONCRETE CURB (0.5' HEIGHT)
- NEW P.C.C., CONCRETE
- TOP OF CURB, EXISTING
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THEREFORE: $E_{\text{Weighted}} = 1.71$ in. [1.03] & $Q_{100} = 0.98$ CFS. $Q_{10} = 0.6$ CFS. $VOLUME_{100} = 1552$ CF. $VOLUME_{10} = 935$ CF.

DOWNSTREAM ANALYSIS

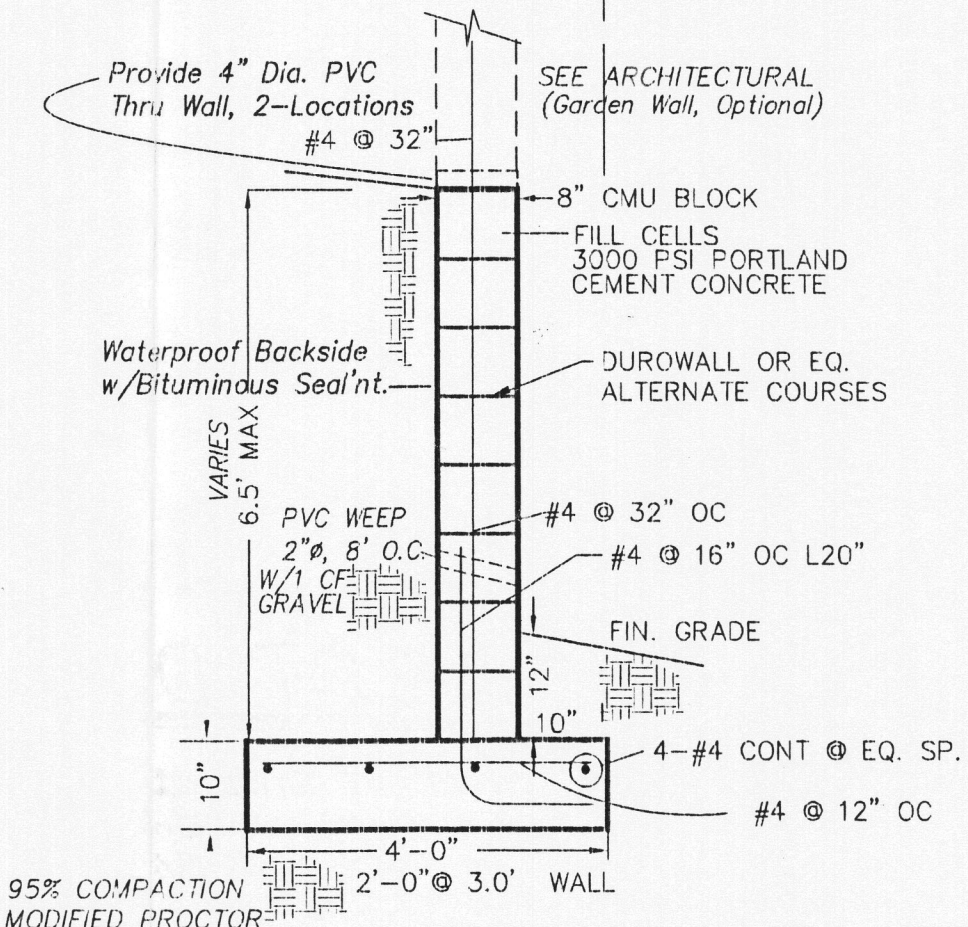
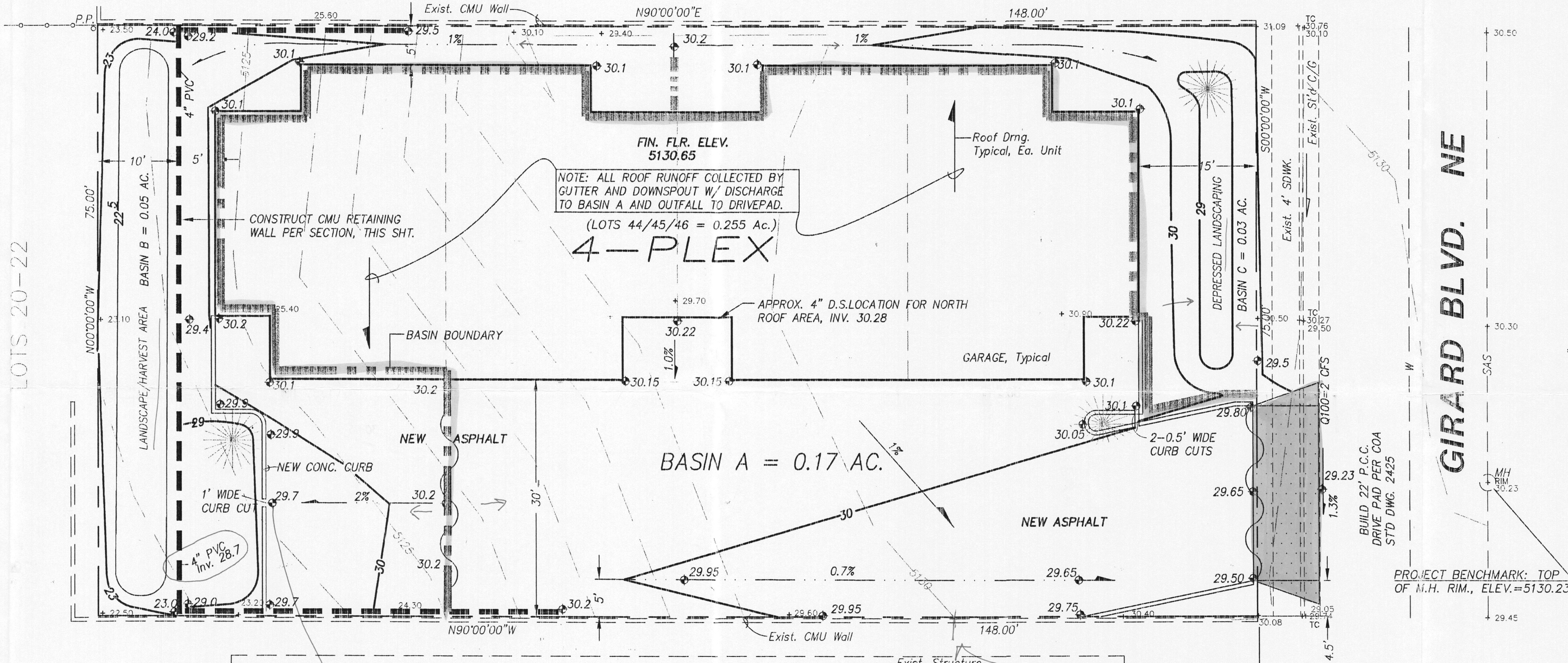
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BASIN B = 0.05 AC. 40% IMPERVIOUS, 60% LAND TREATMENT B. $Q_{100} = 0.02$ AC. \times 4.7 CFS + 0.03 \times 2.3 CFS = 0.16 CFS. $VOL_{100} = (40\% \times 2.12 \text{ in.} + 60\% \times 0.78 \text{ in.}) \times 0.05 \times 43560/12 = 239$ CF.

BASIN C = 0.03 AC. 100% LAND TREATMENT B. $Q_{100} = 0.03$ AC. \times 2.3 CFS = 0.07 CFS. $VOL_{100} = 0.78 \text{ in.} \times 0.03 \times 43560/12 = 85$ CF.



CMU RETAINING WALL @ PL
NTS NOTE: STUCCO TO BE TEXTURED, EARTH TONE COLORS

Landscape curb made to be basin at wide to assure all developed water drains to pad
for CO, will need to verify downspout runs to curb (verification of the roof collection)
Is Exist wall Retaining? If not, should go to All asphalt should drain to street
do the existing CMU wall on the south

PROJECT DATA

LEGAL DESCRIPTION (Concurrent Platting)

LOTS 44-46, BLOCK 19, NETHERWOOD PARK ADDITION Albuquerque, Bernalillo County, New Mexico

PROJECT BENCHMARK

Top of Manhole Rim Elevation Opposite Site MSL Elevation = 5130.23 (Tied From ACS 6-L18, Located @ Trumbull/Louisiana)

TOPOGRAPHIC DESIGN SURVEY

Compiled by Clark Consulting Engineers From Design Survey Performed on, 10/3/03

Clark Consulting Engineers 19 Ryan Road Edgewood, New Mexico 87015 Tel: (505) 281-2444 Fax: (505) 281-2444	
DATE	REVISION
LOTS 44, 45, & 46, BLOCK 19, NETHERWOOD PARK ADDITION 4-PLEX FOR ART REEVES Site, Grading & Drainage Plan	
DESIGNED BY: PWC	DRAWN BY: CCE
CHECKED BY: PWC	DATE: 10/03/03
JOB #: Smith_Joe	FILE #: G/D
1 OF 1	

PHILIP W. CLARK
NEW MEXICO
10265
Professional Engineer
10-24-03
RECEIVED
OCT 24 2003
HYDROLOGY SECTION

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.

Phil 10-24-03
PHILIP W. CLARK NIMPE #10265