City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

August 19,1992

Ken Hovey
Ken Hovey Design Group
335 Jefferson SE
Albuquerque, N.M. 87106

RE: DRAINAGE & GRADING PLAN FOR BENNETT RESIDENCE (J-23/D22)
RECEIVED AUGUST 19, 1992 FOR BUILDING PERMIT APPROVAL
STAMPED & DATED AUGUST 19, 1992

Dear Mr. Hovey:

Based on the information included in the submittal referenced above, the Building Permit and S.O. 19 for this project is approved by City Hydrology.

The Drainage & Grading plan must be included in the set of construction document that you submit for Building Permit. A separate permit is required for construction within City right of way. A copy of this letter must be on hand when applying for the excavation permit.

Certification of grades in accordance with the DPM checklist will be required before any Certificate of Occupancy is released.

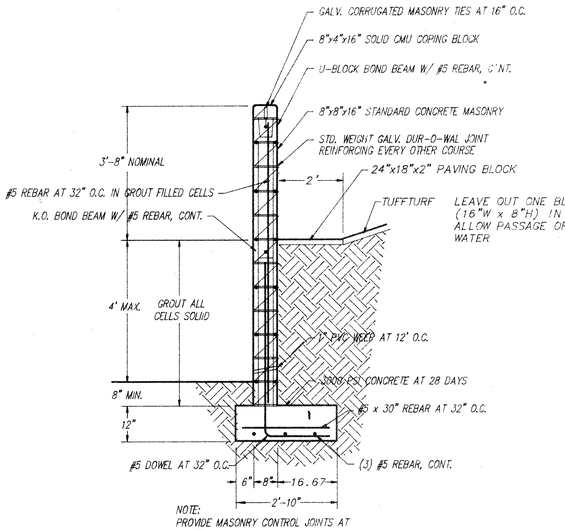
If I can be of further assistance, you may contact me at 768-2727.

Sincerely,

John P. Curtin, P.E.
PWD/Hydrology

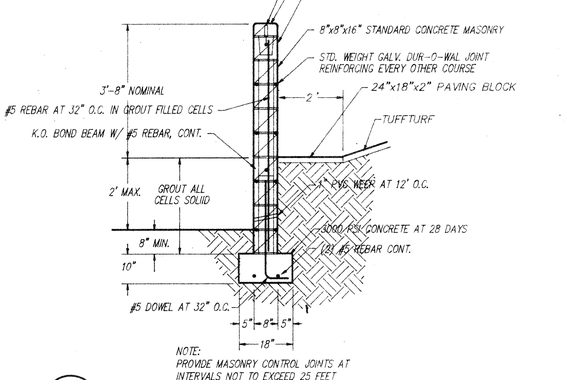
xc: Alan Martinez
Darlene Saavedra

WPHYD+3529



NOTE:
PROVIDE MASONRY CONTROL JOINTS AT INTERVALS NOT TO EXCEED 25 FEET

B/2 CMU RETAINING/GARDEN WALL
SCALE 1/2"=1'-0"



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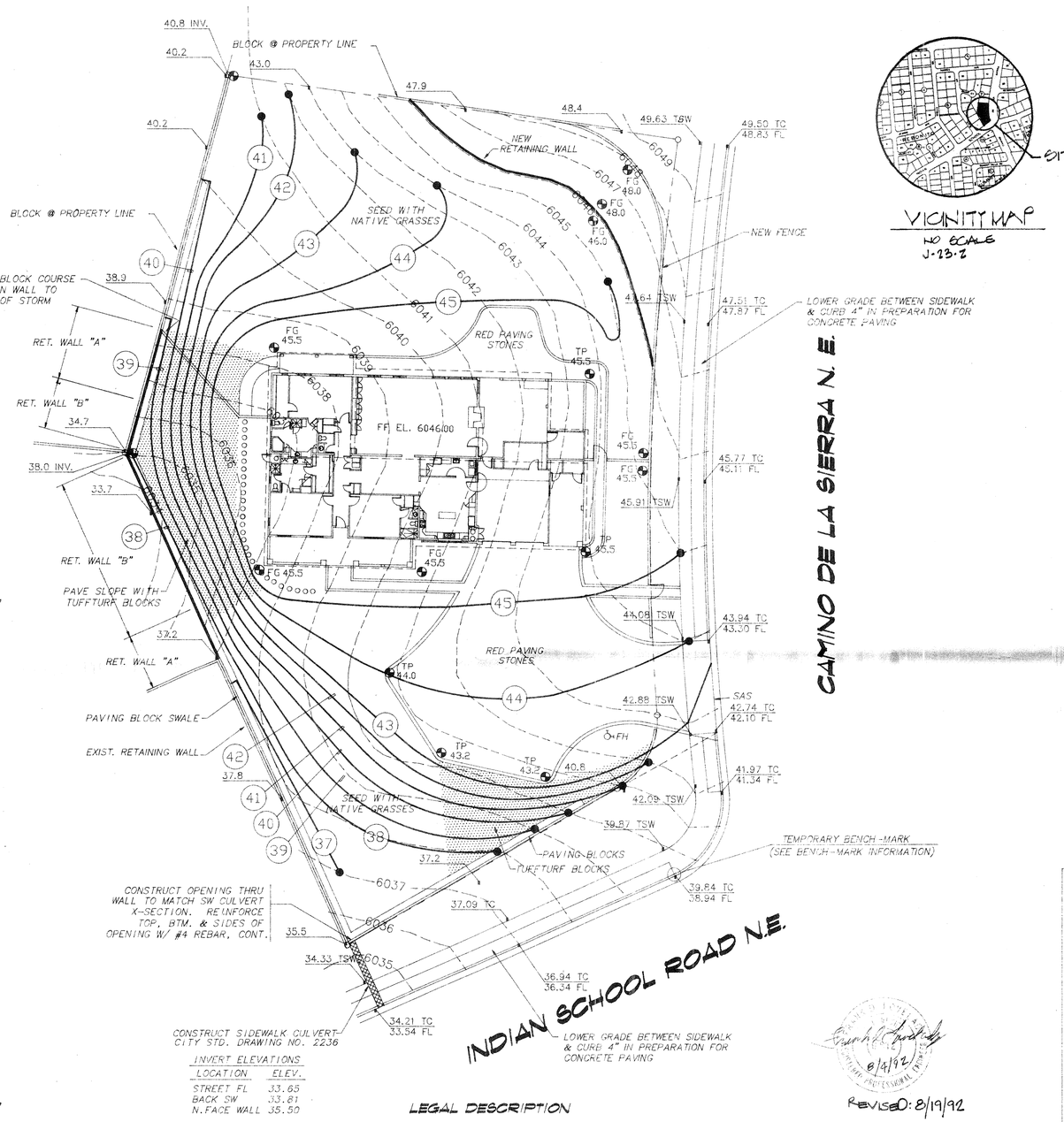

INVERT ELEVATIONS	
LOCATION	ELEV.
STREET FL	33.65
BACK SW	33.81
N.FACE WALL	35.50

VICINITY MAP
NO SCALE
J-23-Z

DRAINAGE CALCULATIONS
IWAYNE BENNETT RESIDENCE

EXISTING CONDITIONS:

The site slopes from east west. Fill material has been placed on the site and compacted, under the proposed house, to 95% maximum density. Other locations on the site have been compacted to 90% maximum density. Camino de la Sierra slopes to the south into Indian School Road. There is considerable runoff from Rebonito Court that enters Camino de la Sierra and turns south, and, for this reason, a low (2') drainage wall is proposed along the east property line.

PROPOSED CONDITIONS:

It is proposed to construct a residence as shown on the plan. The lowest corner of the site is the southwest corner. The driveway is to be covered with pavers. The curb around the edges of the driveway will be flush with the pavers. Slopes of 3:1 will be paved with "tuff turf" blocks and flatter slopes will be seeded with native grasses. A 2' wide drainage swale is proposed adjacent to the walls, which will terminate at a point in the southwest corner where runoff will enter an 18-inch sidewalk culvert through a hole in the wall. Swale will be lined with 2' X 1.5' X 2" concrete blocks.

SOIL INFORMATION:

(Refer to Soil Survey of Bernalillo County, June 1977). Soil is Te, Tesajo-Millet Stony Sandy Loams, Hydrologic Soil Group "A".
Use Hydrologic Soil Group "B" due to the compaction on the site.

FLOODWAY MAP:

Panel 31 of the Floodway Map shows that the site does not lie in, near or upstream from a designated flood hazard zone.

RAINFALL, 100-YEAR, 6-HOUR:

(Refer to D.P.M., Plate 22.2 D-1) $R_6 = 2.55$ inches.

TIME OF CONCENTRATION:

(Use ten (10) minutes, minimum time of concentration.)

RAINFALL INTENSITY:

(Refer to D.P.M., Plate 22.2 D-2).

$I = R_6 \times 6.84 \times Tc^{-0.51} = 2.55 \times 6.84 \times 10^{-0.51} = 5.39$ inches per hour.

SITE AREA:

Site Area = 0.8008 acres = 34883 sf (±)

SITE IMPERVIOUSNESS:

Surface Type	"C"	"CN"	DIRECT RUNOFF	AREA of SITE (Sq. Ft.) EXISTING	DEVELOPED
Building Roof	0.90	98	2.30	-	5970
Drives, walks	0.95	98	2.30	-	9000
Natural/Seeded	0.40	82	1.10	34883	19913
Landscaping	0.25	61	0.25	-	-
Totals				34883	34883

WEIGHTED "C" FACTOR:

Existing: C = 0.40

Developed:

$C_w = \frac{(5970 \times 0.90 + 9000 \times 0.95 + 19913 \times 0.40)}{34883} = 0.63$

PEAK DISCHARGE:

Existing: $Q_{100} = CIA = 0.40 \times 5.39 \times 0.8008 = 1.73$ cfs
$Q_{10} = 0.657 \times 1.73 = 1.14$ cfs

Developed: $Q_{100} = CIA = 0.63 \times 5.39 \times 0.8008 = 2.72$ cfs
$Q_{10} = 0.657 \times 2.72 = 1.79$ cfs

VOLUME, 100-YEAR AND 10-YEAR, 6-HOUR:

Existing: $V_{100} = 34883(1.10 / 12) = 3198$ cf
$V_{10} = 0.657 \times 3198 = 2101$ cf

Developed:

$V_{100} = \frac{(2.30 \times 14970 + 1.10 \times 19913)}{12} = 4695$ cf

$V_{10} = 0.657 \times 4695 = 3085$ cf

CONCRETE CHANNEL:

2' Bottom, side slope 3:1 on one side and vertical on the other side. Try 4" depth. $A = 0.33 \times 2.0 + (0.33 \times 0.99)\frac{1}{2} = 0.82$
$P = 0.33 + 2.0 + (0.33^2 + 0.99^2)^{1/2} = 3.37$ feet.
$R = A / P = 0.82 / 3.37 = 0.24$; Use Manning's Equation, N = 0.015, S = 0.0125
$Q = A (1.486 / N) R^{2/3} S^{1/2} = 0.82 (1.486/0.015)(0.24)^{2/3} (0.0125)^{1/2} = 3.50$
3.50 cfs > 2.72 cfs (Capacity is Adequate)

SIDEWALK CULVERT:

Use 1.5' wide sidewalk culvert per Standard Drawing No. 2236. Use Orifice Equation, $Q = CA(2GH)^{1/2}$ $A = 1.5 \times 0.67 = 1.01$ $C = 0.6$ $G = 32.2$
$H = 0.33$ $Q = 0.6 \times 1.0 (2 \times 32.2 \times 0.33)^{1/2} = 2.76$ cfs
2.76 cfs > 2.72 cfs (One 18" wide sidewalk culvert is adequate.)

CITY OF ALBUQUERQUE

DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY (S.O. 19)

NOTICE TO CONTRACTOR

1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY. AN APPROVED COPY OF THESE PLANS MUST BE SUBMITTED AT THE TIME OF APPLICATION FOR THIS PERMIT.
2. ALL WORK DETAILED ON THIS PLAN TO BE PERFORMED UNDER CONTRACT, EXCEPT AS STATED OR PROVIDED HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1986.
3. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE-CALL SYSTEM, INC., 260-1990, FOR LOCATION OF EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
5. BACKFILL COMPACTION SHALL BE IN ACCORDING TO RESIDENTIAL STREET USE.
6. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
7. THE ADDRESS OF THE PROPERTY SERVED IS 1619 CAMINO DE LA SIERRA NE.

APPROVALS:

HYDROLOGY	John P. Curtin (NAME)	8-19-92 (DATE)
INSPECTOR	(NAME)	(DATE)
CONSTRUCTION	(NAME)	(DATE)

ABBREVIATION LEGEND

TOP OF SIDEWALK	-	TSW
TOP OF CURB	-	TC
FINISH GRADE	-	FG
TOP OF PAVEMENT/ TOP OF PAVERS	-	TP
FLOW LINE	-	FL

SYMBOL LEGEND

EXISTING CONTOUR — 46
PROPERTY LINE
EXISTING SPOT ELEVATION
PROPOSED CONTOUR — 6045
PROPOSED SPOT ELEVATION — 45.5

LEGAL DESCRIPTION

LOT 18A (FORMERLY LOTS 17 & 18), BLOCK 7, REBONITO SUBDIVISION, BERNALILLO COUNTY, ALBUQUERQUE, NEW MEXICO.

BENCH-MARK INFORMATION

TEMPORARY BENCH-MARK BEING THE TOP OF CURB SPRAY PAINTED FLUORESCENT ORANGE BEARS ELEVATION 6039.84 (MSL)
REFERENCE TO CITY BENCH-MARK 2455-5, ELEVATION 5979.95(MSL).

GRADING PLAN

SCALE: 1"=20.0'

0 5' 10' 20' 40'

REVISED: 8/19/92