





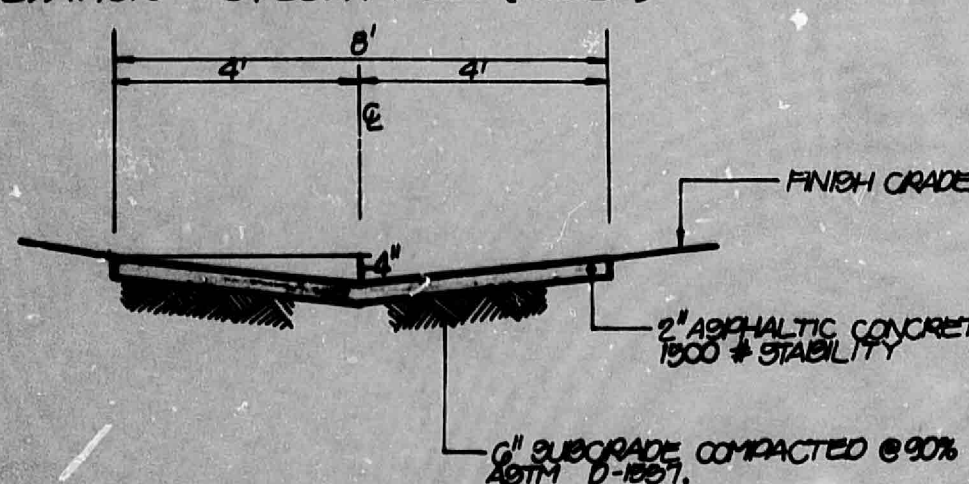


VICINITY MAP  
SCALE 1" = 800'

J-22

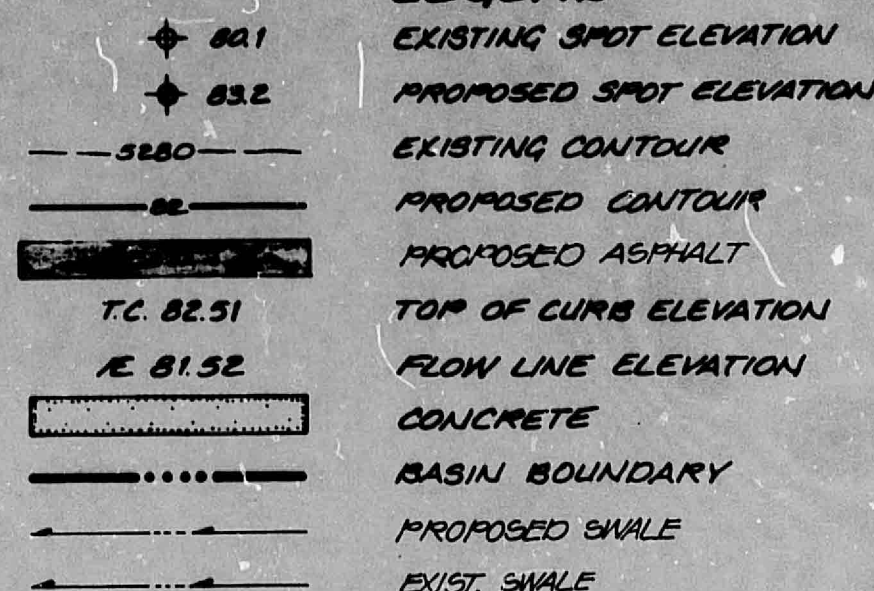
# PROJECT BENCHMARK = TBM

ACS BENCHMARK 11-J22, LOCATED IN THE SOUTHWEST QUADRANT OF THE INTERSECTION OF CONSTITUTION AVE AND LA CHARLES DRIVE NE IN WSW CORNER RETURN A STANDARD BRASS TABLET STAMPED "11-J22, 1979" SET FLUSH WITH THE SIDEWALK. ELEVATION = 5730.41 FEET (MSLD)



SECTION A-A  
SCALE: 1" = 3'

## LEGEND



The following items concerning the Chelwood Elementary Drainage Plan are contained hereon:

1. Vicinity Map
2. AMDS Plate
3. Grading Plan
4. Calculations

The proposed improvements, as shown by the Vicinity Map, are located at the northeast corner of the intersection of Chelwood Park Boulevard N.E. and Constitution Avenue N.E. At present, the site is developed as an elementary school campus. The majority of the surrounding area is developed residentially with the exception of the Blue Cross-Blue Shield Building which is located at the southeast corner of the intersection of Eastridge Drive N.E. and Indian School Road N.E.

As shown by Plate J-22 of the Albuquerque Master Drainage Study (AMDS), the site does not lie within a designated Flood Hazard Zone. There is also no apparent flooding in the surrounding streets. Off-site basins and flow directions have been indicated on this plate to demonstrate that there are no off-site flows impacting the site. It has been determined by field observation that the Blue Cross-Blue Shield Building discharges its runoff to Eastridge Drive N.E. The unpaved playground area immediately east of the proposed building site drains to the west and intercepts any runoff generated with a berm, as shown. At this point, runoff is directed to the north where it ponds along the south right-of-way line of Eastridge Drive N.E.

The Grading Plan shows 1) existing and proposed grades indicated by spot elevations and contours at 1' 0" intervals, 2) the limit and character of the existing improvements, and 3) the limit and character of the proposed improvements. At present, the site drains from east to west and discharges onto Chelwood Park Boulevard via the existing drive pad. At this point, there is an existing erosion problem in which soil from the site is being washed onto the street. It is because of this that the asphalt walk has been proposed to provide a hard surface upon which the runoff can flow once it concentrates. This will eliminate the present gulleying that is taking place where the runoff accumulates. Once the runoff reaches the east right-of-way line of Chelwood Park Boulevard, it will be intercepted by a single 'D' catch basin which will be connected to the existing double 'C' catch basin in Chelwood Park Boulevard via a four-inch PVC drain line. This will serve to control the "nuisance" flows from the site.

The Calculations which appear below analyze both the existing and developed conditions for the 100-year, 6-hour rainfall event. The Rational Method has been used for this analysis in accordance with the City of Albuquerque Development Process Manual, Volume II. The analysis has been limited to that sub-basin within which the proposed additions are located. This sub-basin, as mentioned above, discharges its runoff to Chelwood Park Boulevard via an existing drivepad. The runoff generated by other portions of the site is either contained on-site or is discharged off-site at other points along the boundary.

## Calculations

### Ground Cover Information

1. From SCS Bernalillo County Soil Survey, Plate 32: EMB Babudo gravelly fine sandy loam Hydrologic Soil Group B
2. Existing Conditions  
 $A_{total} = 94,000 \text{ sf} = 2.2 \text{ Ac}$   
 $A_{imp} = 13,400 \text{ sf}$   
 $\% \text{ impervious} = 14\%$   
 $'C' = 0.40 \text{ (DPM Plate 22.2 C-1)}$
3. Developed Condition  
 $A_{total} = 94,000 \text{ sf} = 2.2 \text{ Ac}$   
 $A_{imp} = 16,530 \text{ sf}$   
 $\% \text{ impervious} = 18\%$   
 $'C' = 0.41 \text{ (DPM Plate 22.2 C-1)}$

### Rational Method

1. Discharge:  $Q = CiA$   
 where C varies  
 $i = P_6 (6.84) T_C^{-0.51} = 5.28 \text{ in/hr}$   
 $P_6 = 2.5 \text{ in (DPM Plate 22.2 D-1)}$   
 $T_C = 10 \text{ min (minimum)}$   
 $A = \text{area, acres}$
2. Volume:  $V = C P_6 A (1/12)$   
 where C varies  
 $P_6 = 2.5 \text{ in (DPM Plate 22.2 D-1)}$   
 $A = \text{area, sf}$

### Existing Condition

$$Q_{100} = CiA = 0.40(5.28)(2.2) = 4.6 \text{ cfs}$$

$$V_{100} = C P_6 A = 0.40(2.5/12)(94,000) = 7830 \text{ cf}$$

### Developed Condition

$$Q_{100} = CiA = 0.41(5.23)(2.2) = 4.8 \text{ cfs}$$

$$V_{100} = C P_6 A = 0.41(2.5/12)(94,000) = 8030 \text{ cf}$$

### Comparison

$$\Delta Q_{100} = 4.6 - 4.8 = 0.2 \text{ cfs (increase)}$$

$$\Delta V_{100} = 7830 - 8030 = 200 \text{ cf (increase)}$$

### SUPPLEMENTAL CALCULATIONS (01/17/84)

#### Controlled Discharge Rate

$$Q = CA \sqrt{2gh} \text{ (Orifice Equation)}$$

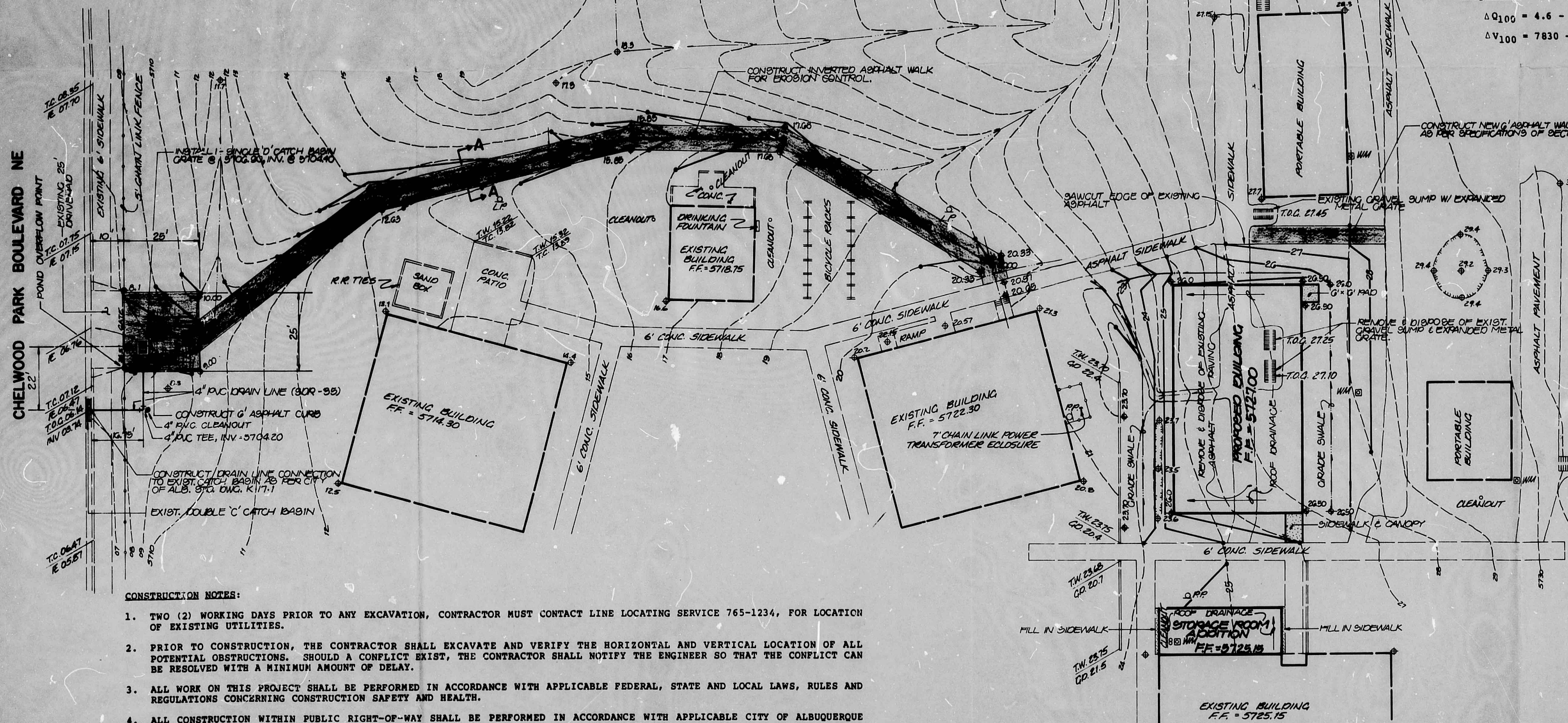
Where  $C = 0.8$   
 $A = 0.0873 \text{ sf (4" dia pipe)}$   
 $g = 32.2 \text{ ft/sec}^2$   
 $h = 7.4 - 4.4 = 3.0 = 2.8'$   
 (measured from water surface level to center of pipe & single "D" CATCH BASIN)  
 $Q = 0.9 \text{ cfs}$

#### Channel Hydraulics

$$Q = 1.49 A R^{2/3} S^{1/2} \text{ (Manning Equation)}$$

Where  $n = 0.017 \text{ (asphalt)}$   
 $s = 1/30 = 0.03 \text{ (average)}$   
 $A \& R = f(w, M, d)$   
 $w = \text{bottom width} = 0$   
 $M = \text{cross-slope} = 12 \text{ (i.e. 12:1)}$   
 $d = \text{depth} = 4" \text{ (maximum)}$   
 $Q_{capacity} = 5.9 \text{ cfs @ } v = 4.5 \text{ fps}$   
 $Q = 4.8 \text{ cfs, } d = 0.3' \text{ and } v = 4.4 \text{ fps}$

The capacity of the walk is adequate to handle the developed 100-year, 6 hour rainfall event for the site. In view of the calculations above, there will be negligible freeboard, therefore some spillage over the edges of the channel may occur. Any spillage will be minor and should not cause any significant damage to the walk. It should also be realized that the entire 4.8 cfs will be introduced at the inlet and will not be carried over the entire length of the walk. The walk is intended to improve the existing erosion problem present on the site. The proposed walk will do that for the majority of the rainfall events experienced in this part of the City.



### CONSTRUCTION NOTES:

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE 765-1234, FOR LOCATION OF EXISTING UTILITIES.
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
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 CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE CITY OF ALBUQUERQUE STANDARDS AND PROCEDURES.
5. EXISTING UNDERGROUND UTILITY LINES ARE ANTICIPATED IN THE CONSTRUCTION AREA. IF ENCOUNTERED, THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THAT PORTION OF THE UNDERGROUND LINE LYING WITHIN THE BUILDING AREA TO A POINT AT LEAST FIVE (5) FEET BEYOND THE BUILDING LIMITS. AT THAT POINT, THE CONTRACTOR SHALL CAP AND/OR REROUTE SAID LINE AS REQUIRED BY THE OWNER OR HIS REPRESENTATIVE. THIS WORK, IF FOUND NECESSARY, SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION, THEREFORE NO SEPARATE PAYMENT WILL BE MADE.

REVISIONS:

JOB: 00892  
 DRW: TMA  
 CHK: JCM  
 DATE: 12/88

BLAND  
 & ASSOCIATES

GRADING & DRAINAGE PLAN CHELWOOD ELEMENTARY SCHOOL

SHEET



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