HYDROLOGY K23/D18 Copperfield Apts. #2

K23 / D18

COPPERFIELD

APARTMENTS #2

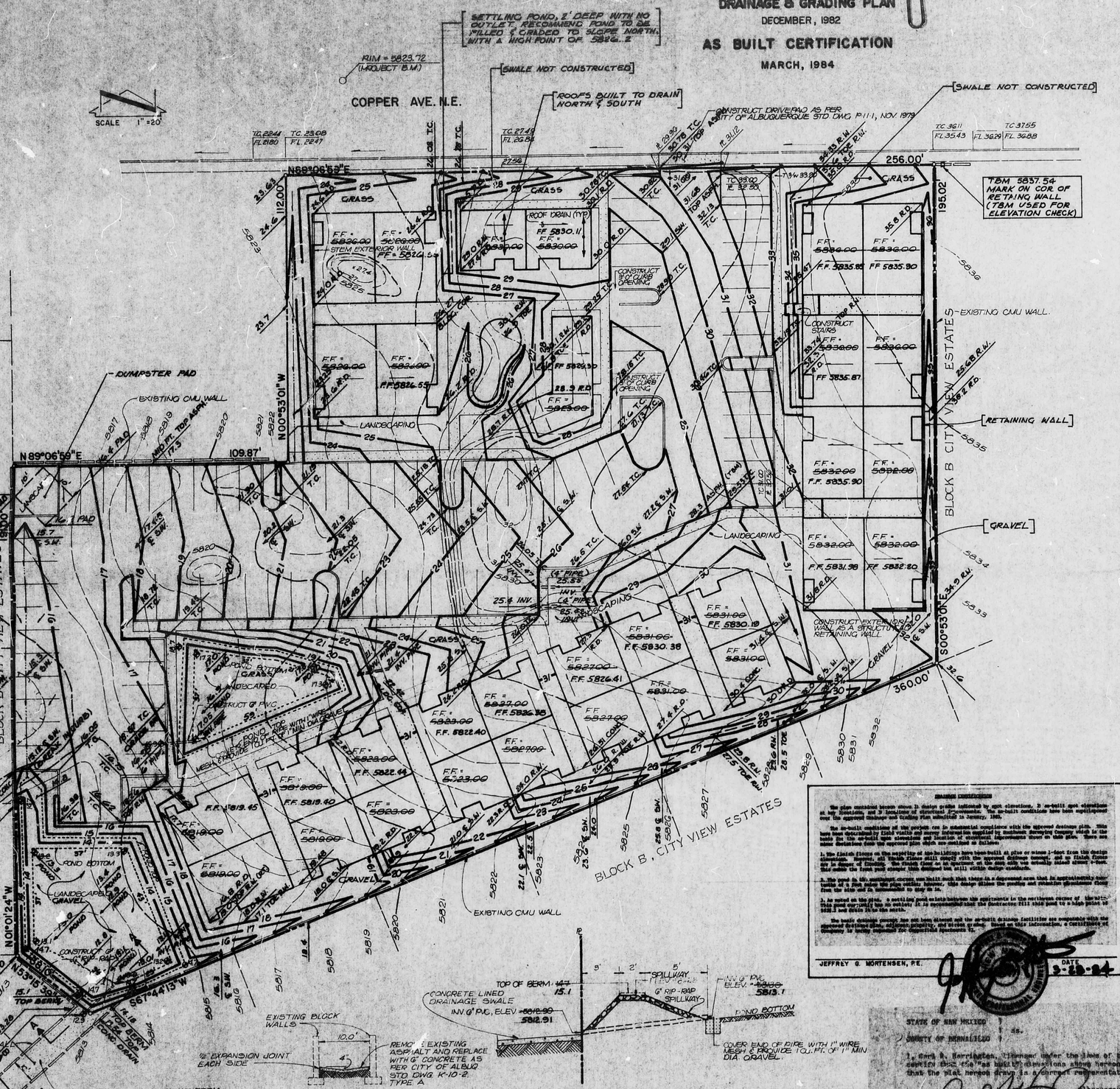
1 PLAN

COPPERFIELD APARTMENTS #2
DRAINAGE & GRADING PLAN
DECEMBER, 1982

AS BUILT CERTIFICATION
MARCH, 1984

VICINITY MAP K-23
SCALE 1" = 800'

SCALE 1" = 20'



•LEGEND•

- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- EXISTING GRADE
- PROPOSED GRADE
- SWALE
- TC 2304 EXISTING TOP OF CURB
- FL 2247 EXISTING FLOW LINE
- CONCRETE
- BASIN BOUNDARY

PROJECT BENCHMARK:
CITY OF ALBUQUERQUE 12-K23 A
BRASS CAP SET IN CONC. CURB "RE-TURN" @ INTERSECTION OF JEWEL PLACE & DOMINGO RD. N.E.
ELEV. = 5806.46'

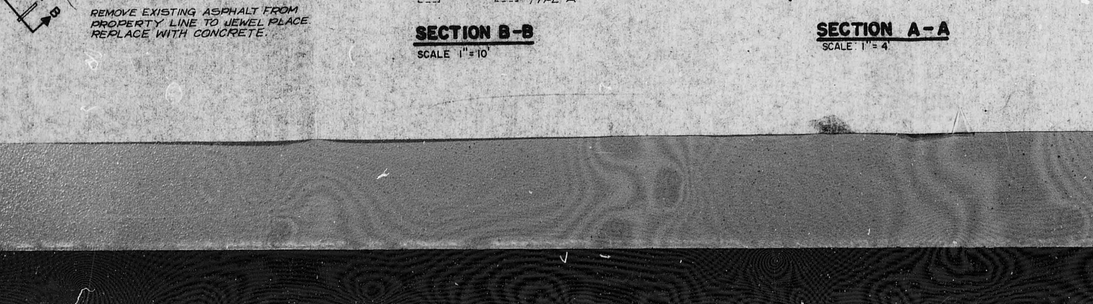
TEMPORARY BENCHMARK:
RIM OF A SANITARY SEWER MANHOLE LOCATED IN COPPER AVE. N.E. & THE N.W. CORNER OF THE PROJECT SITE.

LEGAL DESCRIPTION:
LOT 4-A, BLOCK B, CITY VIEW ESTATES, UNIT A.

AS BUILT LEGEND

℄ SWL	℄ SWALE
R.W.	RETAINING WALL
T.C.	TOP OF CURB
R.D.	ROOF DRAIN
ASPH.	ASPHALT
R.T.	RAILROAD TIES
CONC.	CONCRETE
25.5	AS BUILT SPOT ELEVATION
[ ]	CALL OUTS FOR AS BUILT STRUCTURES

[CONSTRUCTED UNDER CITY WORK ORDER]



SECTION B-B
SCALE 1"=10'

SECTION A-A
SCALE 1"=4'

AS BUILT CERTIFICATION

The plan contained herein shows 1) design grades indicated by spot elevations, 2) as-built spot elevations at key locations, and 3) location of structural improvements. As-built conditions have been superimposed over the approved Drainage and Grading Plan submitted in January, 1982.

The as-built conditions of the project are in substantial compliance with the approved drainage plan. This have been determined by field visits and survey information supplied by Southwest Surveying Company which is the basis for the as-built spot elevations and location of structural improvements shown on this plan. There are minor deviations from the approved plan which are outlined as follows:

1. The finish floors on the majority of the buildings have been built at plus or minus 1-foot from the design elevations. However, all finish floors still comply with the approved drainage concept, and no finish floor is in danger of flooding. The finish floor on 30 apartments on the east side was actually raised approx 2-feet. This makes the lowest pad elevation this designed has still within design guards.

2. The pond in the southwest corner was built such that there is a depressed area that is approximately one-tenth of a foot below the pipe outlet however, this design allows the ponding and retention phenomenon flow from the site and is recommended to stay as is.

3. As noted on the plan, a settling pond exists between the apartments in the northeast corner of the site. This pond currently has no outlet. It is recommended that the contractor fill this pond to a high point of 5826.2 and drain it to the north.

The basic drainage concept has not been altered and the as-built drainage facilities are compatible with the approved drainage plan, adjacent property, and street grades. Based on this information, a Certificate of Occupancy is being requested for Copperfield Apartments #2.

JEFFREY G. MORTENSEN, P.E. — DATE 3-28-84

STATE OF NEW MEXICO } ss.
COUNTY OF BERNALILLO }

I, Earl B. Harrington, licensed under the laws of the State of New Mexico do hereby certify that the "as built" elevations shown hereon were taken under my direction and that the plat hereon drawn is a correct representation of said elevations.

Albuquerque, New Mexico, March 28, 1984

Earl B. Harrington, N.M. Registered Land Surveyor #7806
Southwest Surveying Co., 1400 Pat D. NE, Albuquerque, N.M. 87102

REGISTERED PROFESSIONAL ENGINEER — THOMAS T. MAY — NEW MEXICO — AND LAND SURVEYOR

DRAINAGE PLAN

The following items concerning the Copperfield Apartments No. 2 Grading and Drainage Plan are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

The proposed improvements as shown by the Vicinity Map are located on the south side of Copper Avenue between Jewel Place and Turner Road N.E. The site is more particularly described as Lot 4-A, Block B, of Cityview Estates, Unit A.

The proposed improvements consist of 30 apartment units with associated offices, recreation, and parking areas. Copper Avenue is paved with standard curb and gutter, and carries storm flows westward toward Tramway Blvd. A CMU wall surrounds the property on the east, south and west preventing storm flows from entering the subject property. At present, the site is undeveloped with runoff draining east to west. An existing 10-foot wide paved drainage channel carries flows from the site to Jewel Place. At this point the flows are diverted southward to Nel Smith Drive then south and east to Encantado Road, then westward into the Tramway diversion channel. There is no evidence of downstream flooding occurring in any of these streets.

The Grading Plan shows: 1) existing grades indicated by contours at 1'-0" intervals 2) proposed grades indicated by spot elevations 3) continuity between proposed and existing elevations 4) proposed buildings, sidewalks, driveways 5) the limit and character of proposed improvements. All flows generated on-site flow into a pond before discharging via a 6-inch pipe into the existing drainage channel.

The calculations which appear below determine the 100-year, 6-hour peak discharge rates and runoff volumes in both existing and developed states using the Rational Method. The Dimensionless Hydrograph was used to determine ponding volumes. Both methods are in accordance with the City of Albuquerque Development Process Manual, Volume II.

Calculations

Drainage Conditions:

1. From SCS Bernalillo County Soil Survey, Plate 32, Soil Type: Embudo-Tijeras complex, (ETC), Hydrological Soil Group: 'B'

2. $P_{100} = 2.55$"(DPM Plate 22.2 D-1)

3. $i_{100} = 2.55 \times 6.84 \times (10)^{-0.51} = 5.39$ in/hr

EXISTING STATE:

Area = 1.9 AC
% Impervious 0%
C = 0.34 (DPM Plate 22.2 C-1)
L = 475'
S = (5836 - 5812) /475 = 0.0505 ft/ft

$T_c = (0.0078)(475^{0.77})/(0.0505^{0.385}) = 28$ min: use 10 min

Q = CiA = (0.34)(5.39)(1.9) = 3.5 cfs
Vol = PCA = (2.55)(0.34)(1.9)(43560)/12 6000 cf

DEVELOPED STATE

Area =	Impervious	= 1.3 Ac	(68%)
	Pervious	= 0.6 Ac	(32%)
	Total:	= 1.9 Ac	(100%)

C = 0.68 (DPM Plate 22.2 C-1)
T_c = 10 min
Q = CiA = (0.68)(5.39)(1.9) = 7.0 cfs
Vol = PCA = (2.55)(0.68)(1.9)(43560)/12 = 11,960 cf

REQUIRED POND VOLUME, using dimensionless hydrograph

$q_p = Q_{100} = 7.0$ cfs
$t_p = t_c = 10$ min
$Vol_1 + Vol_2 = V_{100} = 11,960$ cf
$Vol_1 = (0.5)(10)(7.0)(60) = 2100$ cf
$Vol_2 = V_{100} - Vol_1 = 11,960 - 2100 = 9860$ cf
$T_r = (2)(Vol_2)/q_p = (2)(9860)/(7)(60) = 47$ min

$Q_{release} = CA\sqrt{2gh} = 1.54$ cfs
Where C = 0.8 (Cameron Handbook)
A = 0.196 (6" pipe)
g = 32.2 ft/ sec^2
H = 1.5'

$Vol_{release} = Q(T_r + t_p) - \frac{Q^2 t_p}{2Q_p} - \frac{Q^2 T_r}{2Q_p}$

$Vol_{required} = 11,960 - 5060 = 6900$ cf

Actual Pond Volumes

$Vol_{(1)} = (1.5)(2700 + 3400)/2 = 4600$ cf
$Vol_{(2)} = (1.5)(1020 + 1700)/2 = 2040$ cf
Total: 6640 cf

811 DALLAS N.E. · ALBUQUERQUE · NEW MEXICO 87110
ENGINEERS

JOB NO. 2-1301

HYDROLOGY K23/D18 Copperfield Apts. #2

K23 / D18

COPPERFIELD

APARTMENTS #2

1 PLAN

COPPERFIELD APARTMENTS #2

DRAINAGE & GRADING PLAN

DECEMBER, 1982

AS BUILT CERTIFICATION

MARCH, 1984

VICINITY MAP K-23

SCALE 1" = 800'

SCALE 1" = 20'

•LEGEND•

- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- 5843 EXISTING GRADE
- 65 PROPOSED GRADE
- SWALE
- T.C. 2304 EXISTING TOP OF CURB
- FL. 2247 EXISTING FLOW LINE
- CONCRETE
- BASIN BOUNDARY

PROJECT BENCHMARK:

CITY OF ALBUQUERQUE 12-K23 SQUARE CHISELED ON EAST CURB RETURN @ INTERSECTION OF JEWEL PLACE & DOMINGO RD. N.E.
ELEV. = 5806.49'

TEMPORARY BENCHMARK:

RIM OF A SANITARY SEWER MANHOLE LOCATED IN COPPER AVE. N.E. & THE N.W. CORNER OF THE PROJECT SITE.

LEGAL DESCRIPTION:

LOT 4-A, BLOCK B, CITY VIEW ESTATE, UNIT A.

AS BUILT LEGEND

- ℄ S.W. ℄ SWALE
- R.W. RETAINING WALL
- T.C. TOP OF CURB
- R.D. ROOF DRAIN
- ASPH. ASPHALT
- R.T. RAILROAD TIES
- CONC. CONCRETE
- 28.5 AS BUILT SPOT ELEVATION
- [ ] CALL OUTS FOR AS BUILT STRUCTURES

[CONSTRUCTED UNDER CITY WORK ORDER]

[SETTLING POND, 2' DEEP WITH NO OUTLET. RECOMMEND POND TO BE FILLED & GRADED TO SLOPE NORTH, WITH A HIGH POINT OF 5826.2]

RIM = 5823.72 (PROJECT B.M.)

[SWALE NOT CONSTRUCTED]

[ROOFS BUILT TO DRAIN NORTH & SOUTH]

CONSTRUCT DRIVEPAD AS PER CITY OF ALBUQUERQUE STD. DWG. P-111, NOV. 1979

[SWALE NOT CONSTRUCTED]

COPPER AVE. N.E.

256.00'

195.02'

360.00'

112.00'

109.87'

N89°06'59"E

N00°53'01"W

S00°53'01"E

N01°01'24"W

S67°44'13"W

N53°15'30"W

TBM 5837.54 MARK ON COR OF RETAING WALL (TBM USED FOR ELEVATION CHECK)

DUMPSTER PAD

EXISTING CMU WALL

[RETAINING WALL]

[GRAVEL]

CONSTRUCT EXTENSION OF WALL AS STRUCTURAL RETAINING WALL

BLOCK B CITY VIEW ESTATE

BLOCK B, CITY VIEW ESTATES

LANDSCAPING

GRASS

GRAVEL

ROOF DRAIN (TYP)

CONSTRUCT 3'10" CURB OPENING

CONSTRUCT STAIRS

POND BOTTOM (GRASS)

UNDECORED

CONSTRUCT 6" PVC

COVER END OF PIPE WITH WIRE MESH & PROVIDE 1 CU. FT. OF 1" MIN DIA GRAVEL

CONSTRUCT 3'10" CURB OPENING

EXISTING BLOCK WALL

REMOVE EXISTING ASPHALT FROM PROPERTY LINE TO JEWEL PLACE. REPLACE WITH CONCRETE.

SECTION B-B

SCALE 1" = 10'

EXISTING BLOCK WALLS

½" EXPANSION JOINT EACH SIDE

REMOVE EXISTING ASPHALT AND REPLACE WITH 6" CONCRETE AS PER CITY OF ALBUQ STD DWG K-10-2, TYPE A

SECTION A-A

SCALE 1" = 4'

TOP OF BERM 14.7 / 15.1

CONCRETE LINED DRAINAGE SWALE

INV. 6" PVC, ELEV. 5812.80 / 5812.91

SPILLWAY

6" RIP-RAP SPILLWAY

INV. 6" PVC, ELEV. 5813.0 / 5813.1

POND BOTTOM

COVER END OF PIPE WITH 1" WIRE MESH & PROVIDE 1 CU. FT. OF 1" MIN DIA GRAVEL.

DRAINAGE CERTIFICATION

The plan contained hereon shows 1) design grades indicated by spot elevations, 2) as-built spot elevations at key locations, and 3) locations of storm drainage facilities. The as-built conditions have been experienced over the approved Drainage and Grading Plan submitted in January, 1983.

The as-built conditions of the project are in substantial compliance with the approved drainage plan. This has been determined by field visits and survey information supplied by Southwest Surveying Company which is the basis for the as-built spot elevations and location of structural improvements shown on this plan. There are some deviations from the approved plan which are outlined as follows:

1. The finish floors on the majority of the buildings have been built at plus or minus 1-foot from the design elevation. However, all finish floors still comply with the approved drainage report, and no finish floor has to be raised or lowered. The finish floor of the apartment at the east end was actually built about 1-foot. This makes the front yard slopes then designed too still within design standards.

2. The pond in the approved report was built much shallower than the report assumed so that it approximately contains 2 to 3 feet of the pond volume needed. This design allows the ponding and retention requirement drain from the site and is considered to stay as is.

3. As noted on the plan, a settling pond exists between the apartments in the northwest corner of the site. This pond currently has no outlet it is recommended that the contractor fill this pond to a high point of 5826.2 and drain it to the north.

The basic drainage concepts are now almost and the as-built drainage facilities are compatible with the approved Drainage and Grading Plan. Based on this information, a Certificate of Occupancy is being requested for Copperfield Apartments #2.

JEFFREY G. MORTENSEN, P.E. DATE 3-28-84

STATE OF NEW MEXICO } ss.
COUNTY OF BERNALILLO }

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Albuquerque, New Mexico, March 28, 1984

Gary R. Harrington, N.M. Registered Professional Surveyor #7894
Southwest Surveying Co., 1400 Wyoming Blvd. NE, Albuquerque, N.M. 87112

REGISTERED PROFESSIONAL ENGINEER — STATE OF NEW MEXICO — THOMAS F. MARTIN — 5202

REGISTERED PROFESSIONAL LAND SURVEYOR — STATE OF NEW MEXICO

1/27/15

JOB NO. 2-1301

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ENGINEERS

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