·L E G E N D·

MATERIALS

- CONCRETE
- RIP · RAP

LINES

- SUBDIVISION BOUNDARY
- PROPERTY LINE (PLAN)
- PROPERTY LINE (SECTION)
- CENTERLINE
- EASEMENT LINE
- MATCH LINE
- SECTION CUT LINE

EARTHWORK

EXISTING / NEW

- CONTOUR LINE
- SPOT ELEVATION
- PROJECT / PHASE BOUNDARY
- SWALE
- DIRECTION OF FLOW

MISCELLANEOUS UTILITIES

- GAS LINE
- UNDERGROUND TELEPHONE
- UNDERGROUND ELECTRICAL
- STORM DRAIN
- STORM DRAIN MANHOLE
- STORM DRAIN INLET

SANITARY SEWER

- SANITARY SEWER LINE
- SANITARY SEWER MANHOLE
- SAS SERVICE CONNECTIONS
- SAS CAP OR PLUG
- ENCASEMENT

WATER

- WATER LINE
- WATER SERVICE CONNECTIONS
- GATE VALVE
- FIRE HYDRANT
- BUTTERFLY VALVE
- REDUCER
- WATER PRESSURE ZONE BOUNDARY

WATER FITTINGS

- CAPS AND PLUGS
- ELBOW
- CROSS
- TEE

MISCELLANEOUS

- CHAINLINK FENCE
- FIELD FENCE
- COMMON YARD WALL
- RETAINING WALL
- POWER OR TELEPHONE POLE

CONSTRUCTION PLANS FOR THE DEVELOPMENT OF

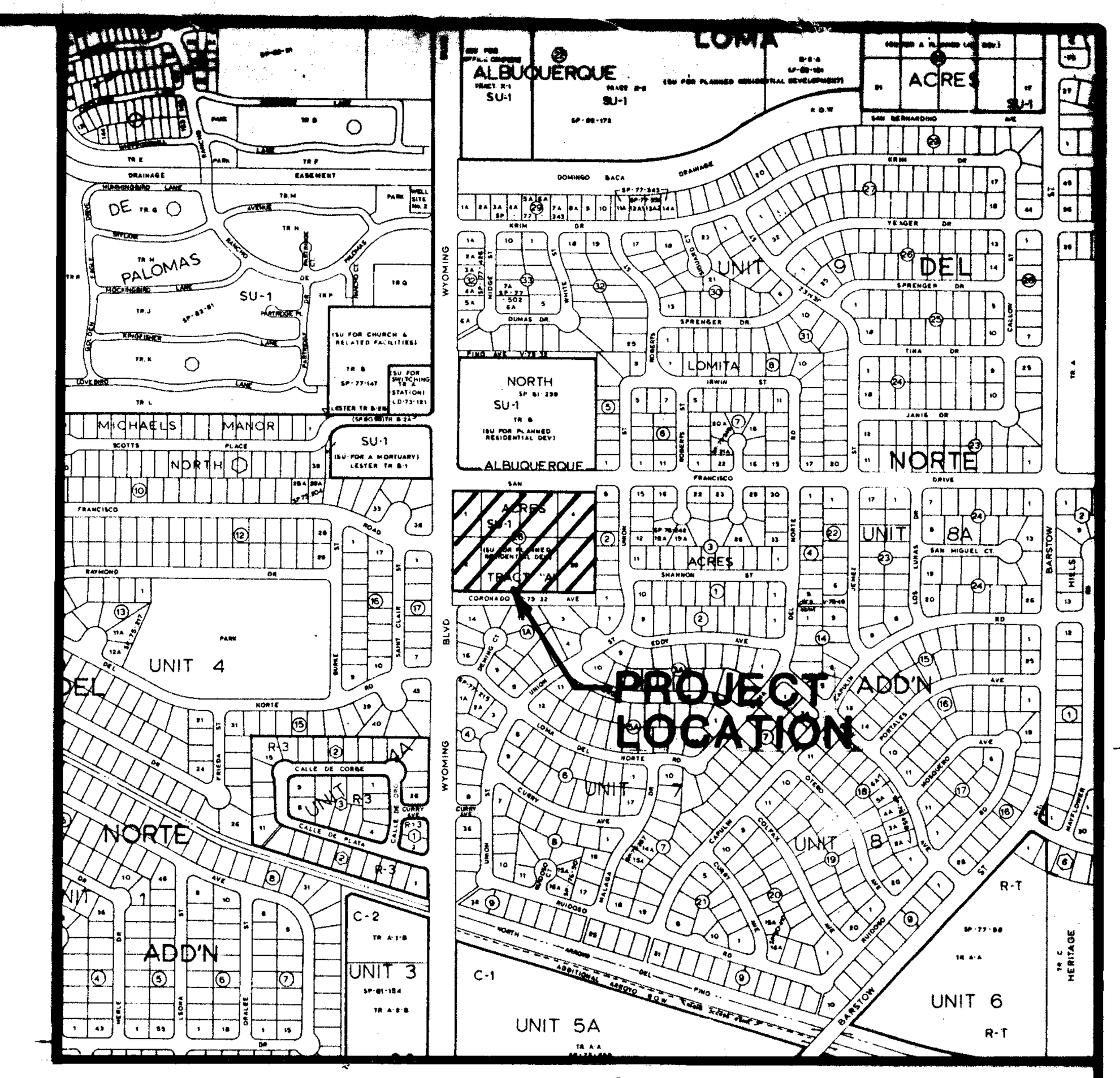
KEYSTONE PARK ADDITION

PAVING, SANITARY SEWER AND WATER LINE EXTENSION

ALBUQUERQUE, NEW MEXICO

OCTOBER, 1985

INDEX OF DRAWINGS



VICINITY MAP
SCALE: 1"-800'

D-19

GENERAL NOTES

1. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED UNDER CONTRACT SHALL, EXCEPT AS OTHERWISE STATED OR PROVIDED FOR HEREON, BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE INTERIM STANDARD SPECIFICATIONS - PUBLIC WORKS CONSTRUCTION - 1985.
2. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, 765-1234, FOR LOCATION OF EXISTING UTILITIES.
3. 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.
4. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ADJACENT PROPERTIES DURING CONSTRUCTION.
5. 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.
6. THE CONTRACTOR MUST SUBMIT A CONSTRUCTION SIGNING AND BARRICADING PLAN TO TRAFFIC ENGINEERING TO RECEIVE A BARRICADING PERMIT PRIOR TO CONSTRUCTION.
7. ALL UTILITIES AND UTILITY SERVICE LINES SHALL BE INSTALLED PRIOR TO PAVING.
8. BACKFILL COMPACTION SHALL BE ACCORDING TO SPECIFIED STREET USE.
9. TACK COAT REQUIREMENTS SHALL BE DETERMINED BY THE CITY ENGINEER.
10. SIDEWALKS AND WHEELCHAIR RAMPS WITHIN THE CURB RETURNS SHALL BE CONSTRUCTED WHEREVER A NEW CURB RETURN IS CONSTRUCTED.
11. IF CURB IS DEPRESSED FOR A DRIVEPAD OR A HANDICAP RAMP, THE DRIVEPAD OR RAMP SHALL BE CONSTRUCTED PRIOR TO ACCEPTANCE OF CURB AND GUTTER.
12. ALL STORM DRAINAGE FACILITIES SHALL BE COMPLETED PRIOR TO FINAL ACCEPTANCE.

2 6 2 6 8 9 0 1 8 6

APPROVAL OF AS BUILT DRAWING
CHIEF CONSTRUCTION ENGINEER
10-20-86

REV.	SHEETS	CITY ENGINEER	DATE	USER DEPARTMENT	DATE	USER DEPARTMENT	DATE

APPROVAL OF REVISIONS

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR · STATE OF NEW MEXICO · THOMAS MANN · 3792

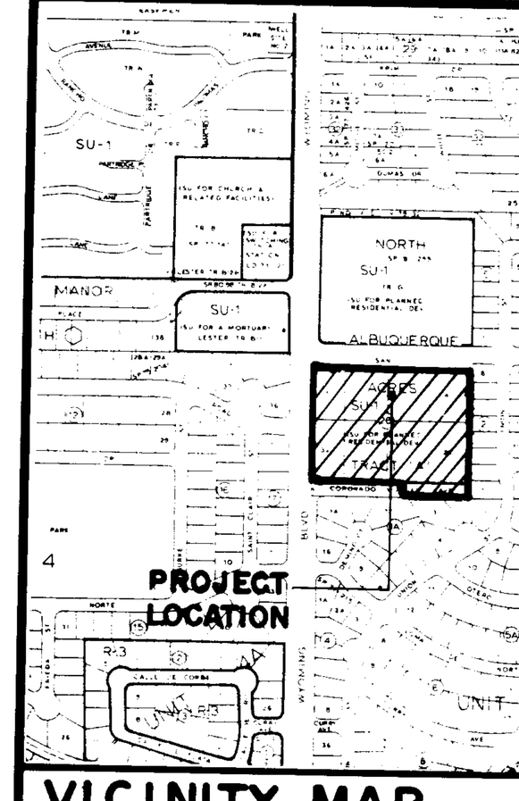
Tom Mann & Associates Inc
811 DALLAS N.E.
ALBUQUERQUE · NEW MEXICO · 87110
ENGINEERS

APPROVED FOR CONSTRUCTION
A.C.E.

2689

SHEET 1 OF 8

SP-09-04-100



VICINITY MAP D-19
SCALE 1" = 800'

KEYSTONE PARK ADDITION

86 4229

A REPLAT OF

LOTS 1-4 & 29-32, TRACT A, UNIT A NORTH ALBUQUERQUE ACRES

ALBUQUERQUE, NEW MEXICO
SEPTEMBER, 1985

C29
74

DESCRIPTION

A certain tract of land located within the Corporate limits of the City of Albuquerque, New Mexico comprising Lots 1 through 4 and 29 through 32, Block 26, Tract A, Unit A, North Albuquerque Acres, as shown on the plat filed in the Office of the County Clerk of Bernalillo County, New Mexico, on March 17, 1937, Book D, Page 129, and being more particularly described as follows:

Beginning at the southeast corner of the parcel herein described thence N 89°47'57" W a distance of 249.02 feet; thence N 00°12'03" E a distance of 30.00 feet; thence N 89°47'57" W a distance of 355.20 feet to a point on the east right-of-way line of Wyoming Boulevard N.E.; thence S 89°59'20" W a distance of 56.00 feet to a point on the centerline of Wyoming Boulevard N.E.; thence N 00°00'40" W a distance of 525.42 feet along said centerline to a point of intersection on the centerline of San Fransico Drive N.E.; thence N 89°57'56" E a distance of 660.00 feet along said centerline; thence S 00°01'18" E a distance of 557.92 feet to the point of beginning and containing 8.1505 acres more or less.

DEDICATION and FREE CONSENT
The undersigned owners of the land shown hereon do hereby consent to the subdivision of said land in the manner shown on this plat and do hereby dedicate the public rights-of-way, drainage way and grant utility easements including the rights of ingress and egress and the right to trim interfering trees.

Thomas E. Fielder (signature) — 9/26/85
THOMAS E. FIELDER — Date

ACKNOWLEDGEMENT
STATE OF NEW MEXICO)
) SS
COUNTY OF BERNALILLO)

5-6-89

The foregoing instrument was acknowledged before me this 25th day of September 1985.

Charlott Calaf (signature)
Notary Public

APPROVALS:

Richard Dineen (signature) — Planning Director, City of Albuquerque, N.M.	1-15-86 Date
Jon E. Entsgaard (signature) — Water Resources, City of Albuquerque, N.M.	12-30-85 Date
Fred J Aguirre (signature) — City Engineer, City of Albuquerque	1-13-86 Date
Fred J Aguirre (signature) — A.M.A.F.C.A., City of Albuquerque	1-13-86 Date
Robert A. (signature) — Traffic Engineer, City of Albuquerque, N.M.	12-30-85 Date
Janet Saiers (signature) — Parks and Recreation, City of Albuquerque, N.M.	12-30-85 Date
(signature) — Chief City Surveyor, City of Albuquerque, N.M.	092585 Date
Rose Ebell (signature) — Property Manager, City of Albuquerque, N.M.	10-3-85 Date
John Myers (signature) — Public Service Company of New Mexico	12/10/85 Date
Mel Cordova (signature) — Gas Company of New Mexico	12-12-85 Date
Wayne Henning (signature) — Mountain Bell	10-18-85 Date

CERTIFICATION
I, Thomas T. Mann, Jr., a registered Land Surveyor under the laws of the State of New Mexico, do hereby certify that this plat was prepared by me or under my supervision; shows all easements noted in a title report prepared by U.S. LIFE TITLE COMPANY on APRIL 1, 1985 (TI57890-11); meets the minimum requirements of monumentation and surveys of the Albuquerque Subdivision Ordinance, and is true and correct to the best of my knowledge and belief.

(signature) 9/29/85
Thomas T. Mann, Jr., N.M.L.S. No. — Date

REGISTERED PROFESSIONAL LAND SURVEYOR STATE OF NEW MEXICO THOMAS T. MANN, JR. 3792

ACKNOWLEDGEMENT
STATE OF NEW MEXICO)
) SS
COUNTY OF BERNALILLO)

5-6-89

The foregoing instrument was acknowledged before me on this 25th day of September, 1985.

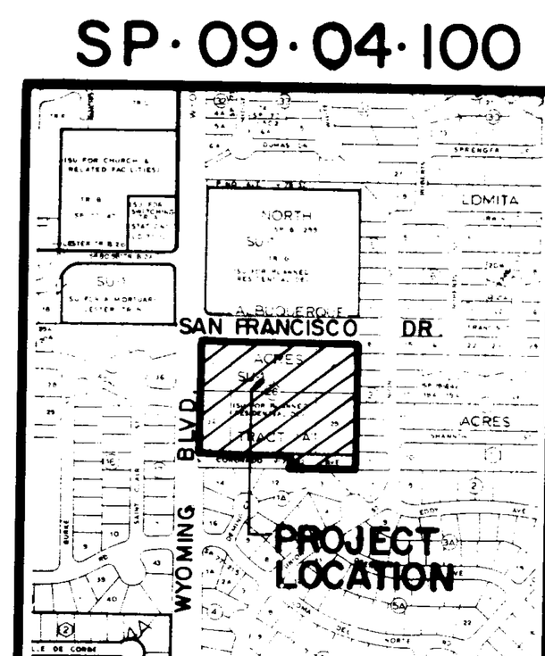
Charlott Calaf (signature)
Notary Public

Tom Mann & Associates, Inc.
811 DALLAS N.E. · ALBUQUERQUE · NEW MEXICO · 87110
ENGINEERS
JOB NO. 50981

SP-86-18
DRB-85-350.1

SHT. 1 OF 2

SP-09-04-100



VICINITY MAP D-19
SCALE 1" = 800'

KEYSTONE PARK ADDITION

A REPLAT OF

LOTS 1-4 & 29-32, TRACT A, UNIT A NORTH ALBUQUERQUE ACRES

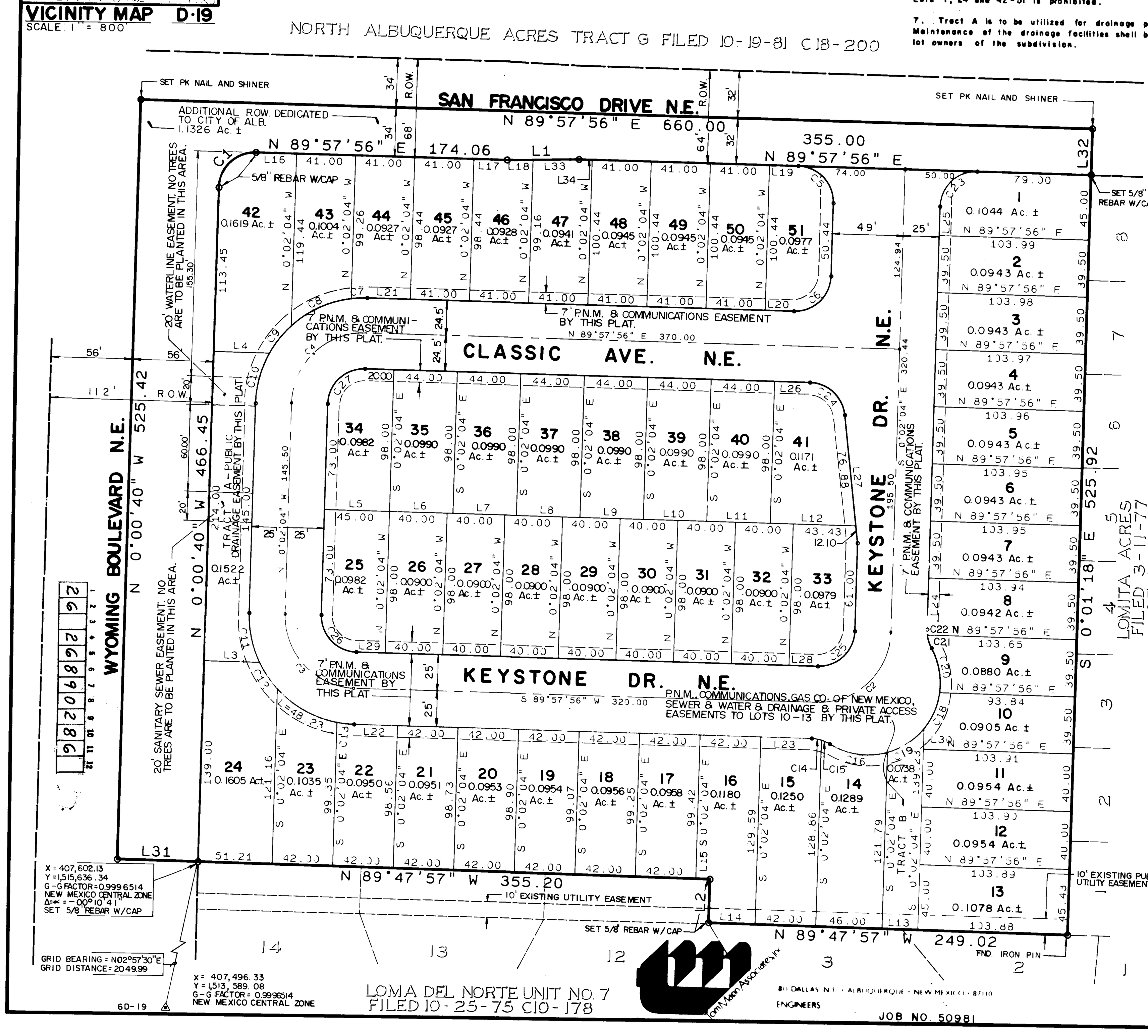
ALBUQUERQUE, NEW MEXICO
SEPTEMBER, 1985

SCALE: 1" = 50'

86 4229

Notes:

1. Property corners have been set as indicated with caps. L.S. No. 6401.
2. 0.22 miles of half-width and 0.25 miles of full-width street created.
3. All distances are ground distances.
4. Site located within Section 21, T11N, R2E, N.M.P.M.
5. Bearing base is plat of "Loma Del Norte, Unit 7" filed October 25, 1975, Book C10, Page 178. Grid to Ground Rotation Factor = +0°09'06".
6. Access to Wyoming Blvd. and San Francisco Dr. from Lots 1, 24 and 42-51 is prohibited.
7. Tract A is to be utilized for drainage purposes. Maintenance of the drainage facilities shall be by the lot owners of the subdivision.
8. The Public Service Company of New Mexico (P.N.M.) and Communications easements shown hereon are reserved for overhead distribution lines for pole type utilities and buried distribution lines, conduits and pipes for underground utilities where shown or indicated and include the right of ingress and egress for construction and maintenance, and the right to trim interfering trees and shrubs. Also included are easements for the right to install power and communication service lines along side lot lines.



LINE	BEARING	DISTANCE
L1	N 87°40'23" E	50.00
L2	N 0°12'03" E	30.00
L3	N 89°57'56" E	38.30
L4	N 89°57'56" E	38.73
L5	N 89°57'56" E	45.00
L6	N 89°57'56" E	44.00
L7	N 89°57'56" E	44.00
L8	N 89°57'56" E	44.00
L9	N 89°57'56" E	44.00
L10	N 89°57'56" E	44.00
L11	N 89°57'56" E	44.00
L12	N 89°57'56" E	59.43
L13	N 89°47'57" W	25.00
L14	N 89°47'57" W	32.13
L15	N 89°47'57" W	9.99
L16	N 89°57'56" E	27.97
L17	N 89°57'56" E	23.09
L18	N 87°40'23" E	17.93
L19	N 89°57'56" E	20.05
L20	S 89°57'56" W	20.05
L21	S 89°57'56" W	29.95
L22	N 89°57'56" E	30.00
L23	N 89°57'56" E	35.33
L24	N 0°02'04" W	35.77
L25	N 0°02'04" W	20.00
L26	N 89°57'56" E	24.70
L27	S 7°27'57" E	88.98
L28	S 89°57'56" W	20.00
L29	S 89°57'56" W	20.00
L30	S 0°02'04" E	14.23
L31	S 89°59'20" W	56.00
L32	S 0°01'18" E	32.00
L33	N 87°40'23" E	32.07
L34	N 89°57'56" E	8.95

CURVE	ARC	DELTA	RADIUS
C1	39.26	89°58'36"	25.00
C2	78.54	90°00'00"	50.00
C3	78.54	90°00'00"	50.00
C4	78.54	90°00'00"	50.00
C5	39.27	90°00'00"	25.00
C6	39.27	90°00'00"	25.00
C7	11.09	8°28'12"	75.00
C8	46.44	35°28'27"	75.00
C9	23.87	18°14'16"	75.00
C10	36.41	27°49'05"	75.00
C11	35.29	26°57'28"	75.00
C12	22.24	16°59'16"	75.00
C13	12.05	9°12'25"	75.00
C14	6.75	15°28'42"	25.00
C15	6.54	14°59'16"	25.00
C16	41.45	47°29'51"	50.00
C17	——	——	——
C18	27.55	31°34'18"	50.00
C19	30.91	35°25'32"	50.00
C20	31.80	36°26'16"	50.00
C21	9.55	21°53'16"	25.00
C22	3.74	8°34'43"	25.00
C23	39.27	90°00'00"	25.00
C24	36.03	82°34'07"	25.00
C25	39.27	90°00'00"	25.00
C26	39.27	90°00'00"	25.00
C27	39.27	90°00'00"	25.00

2689 SH. 2 of 8

Tom Mann & Associates, Inc.
811 DALLAS N.E. · ALBUQUERQUE · NEW MEXICO · 87110
ENGINEERS
JOB NO. 50981

SP-86-18

SHT. 2 OF 2

EROSION CONTROL MEASURES

1. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AT THE PROPERTY LINES AND WETTING THE SOIL TO KEEP IT FROM BLOWING.
2. THE CONTRACTOR SHALL PROMPTLY CLEAN UP ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY SO THAT THE EXCAVATED MATERIAL IS NOT SUSCEPTIBLE TO BEING WASHED DOWN THE STREET.
3. THE CONTRACTOR SHALL SECURE "TOPSOIL DISTURBANCE PERMIT" PRIOR TO BEGINNING CONSTRUCTION.

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.

PROJECT BENCHMARK

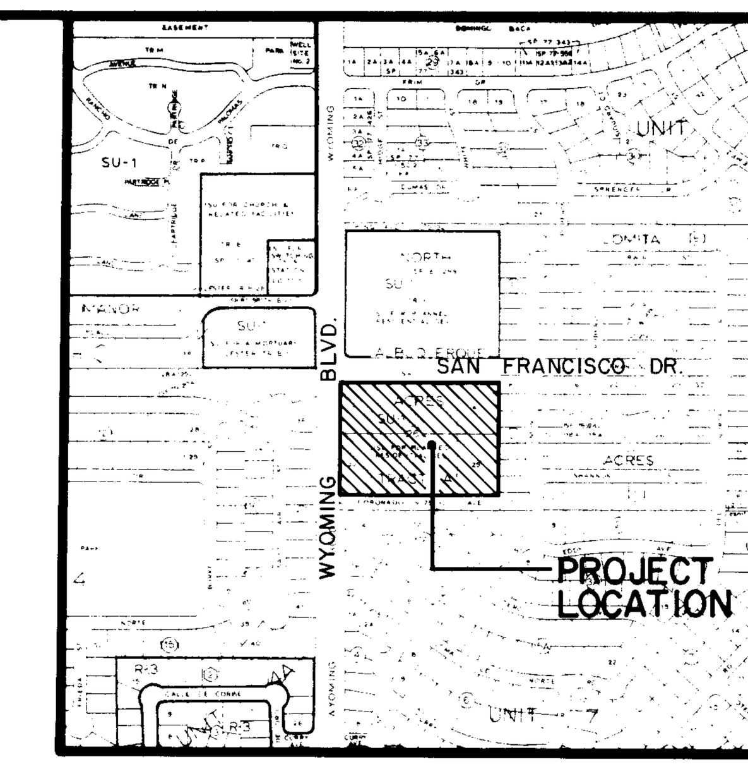
A STANDARD ACS BRASS TABLET STAMPED "6-D19-1978" SET IN TOP OF A CONCRETE POST FLUSH WITH THE GROUND LOCATED AT THE NORTHWEST CORNER OF THE INTERSECTION OF SAN ANTONIO DRIVE, N.E. & WYOMING BOULEVARD, N.E.
ELEVATION = 5403.54 FEET (M.S.L.D.)

LEGAL DESCRIPTION

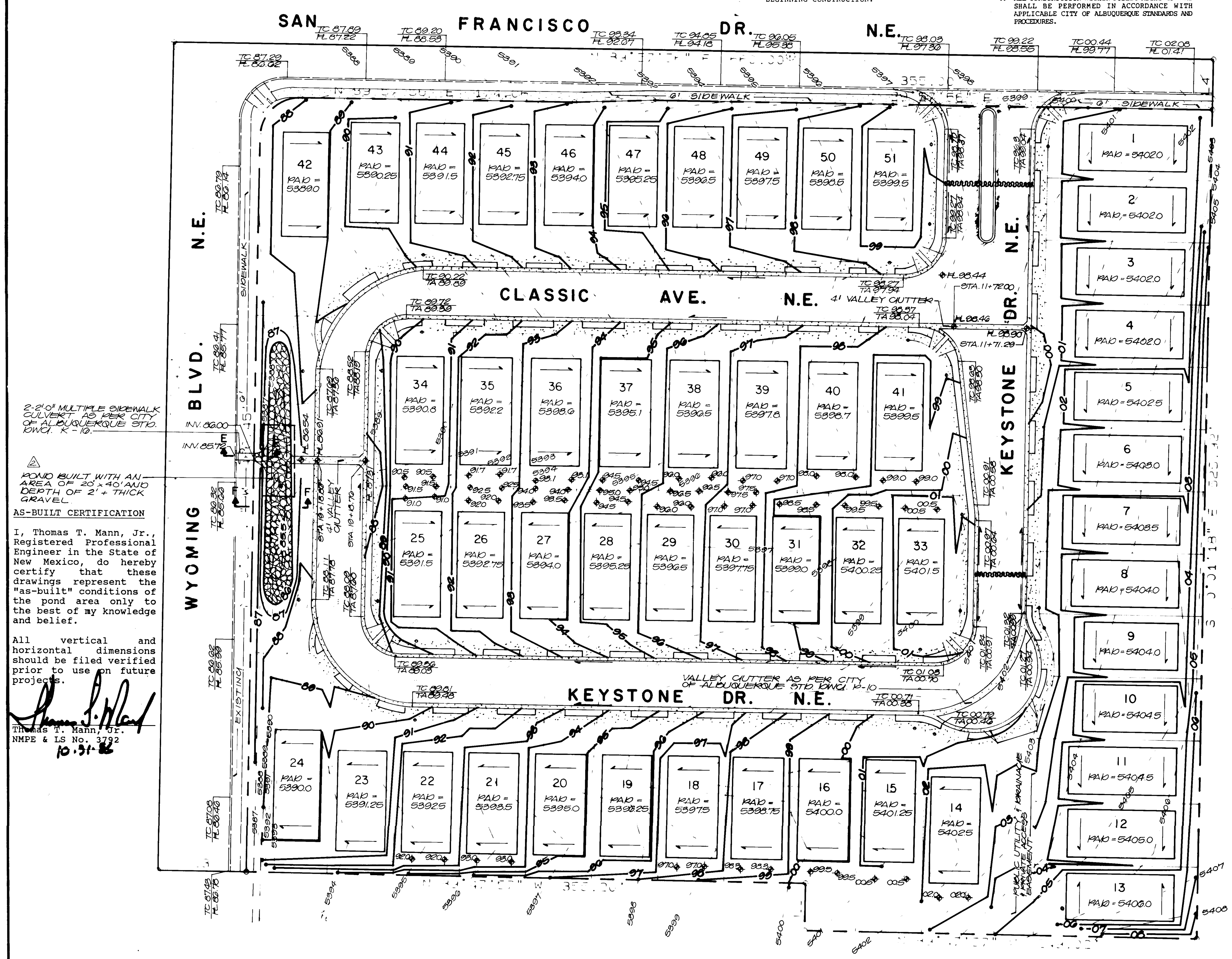
LOTS 1-4 & 29-32, TRACT A, UNIT A, NORTH ALBUQUERQUE ACRES

LEGEND

— 5400 —	EXISTING CONTOUR
— 00 —	PROPOSED CONTOUR
⌖	EXISTING SPOT ELEVATION
⌖	PROPOSED SPOT ELEVATION
← ··· ←	SWALE
(stippled box)	PROPOSED CONCRETE
(box)	PROPOSED ASPHALT PAVING
TC 99.22	TOP OF CURB
FL 98.55	FLOWLINE
(symbol)	WATERBLOCK



VICINITY MAP D-19
SCALE : 1" = 800'



AS-BUILT CERTIFICATION

I, Thomas T. Mann, Jr., Registered Professional Engineer in the State of New Mexico, do hereby certify that these drawings represent the "as-built" conditions of the pond area only to the best of my knowledge and belief.

All vertical and horizontal dimensions should be filed verified prior to use on future projects.

Thomas T. Mann, Jr.
NMPE & LS No. 3792
10-31-86

DRAINAGE PLAN

The following items concerning the Keystone Park South 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 San Francisco Drive N.E. and east of Wyoming Boulevard N.E. At the present time, the site is undeveloped. The adjoining parcels are developed.

As shown by Panel 10 of the National Flood Insurance Program Flood Boundary and Floodway Maps for the City of Albuquerque, New Mexico, this site does not lie within a designated Flood Hazard Zone. The existing site is higher than Wyoming Boulevard to the west and San Francisco Drive to the north. The land to the east of the project site is higher than the project site, but concrete block walls prevent runoff from entering the project site. The land to the south is approximately parallel to the project site, but again block walls prevent stormwater runoff from entering the project site; therefore, offsite flows are negligible.

The Grading Plan shows 1) existing and proposed grades indicated by spot elevations and contours at 1'-0" intervals, 2) the continuity between existing and proposed elevations, 3) the limit and character of existing improvements, and 4) the limit and character of proposed improvements. As shown by this plan, the proposed improvements consist of the construction of residences, streets, sidewalks and associated improvements. Street grades for San Francisco Drive N.E. have been established in SAD No. 213. At present the site drains from east to west. The proposed grading will continue the flow in an east-to-west direction. Flows will be collected by the streets and routed to the west and into a ponding area before exiting into Wyoming Boulevard. The pond area will detain low flows and reduce the peak flow rates during large storms, thereby benefitting flow conditions downstream in San Francisco Drive. Stormwater runoff will continue across Wyoming Boulevard and in a westerly direction down San Francisco Drive. As the flows approach Interstate Highway No. 25, there is an area designated as a Zone AO Flood Area. This zone could have flooding to a depth of one foot in a 100-year, 6-hour rainfall event.

Individual lots are graded to drain to the street in front of each lot. Grading in conjunction with block walls will direct flows to the front of each unit. Cross-lot drainage easements will not be necessary.

The Calculations which appear below analyze both the existing and developed conditions for the 100-year, 6-hour rainfall event and for the 10-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. As shown by these calculations, the flow from the existing drainage basin at Interstate No. 25 is approximately 200 cfs. The development of Keystone Park South will increase the flow to approximately 209 cfs. The increase in flow as a result of development is less than 5%, which is a relatively small amount. The calculations for the 10-year, 6-hour rainfall event show a depth of flow in San Francisco Drive N.E. of 0.62 feet in both the existing and developed conditions, which shows that the proposed development will have no impact on the street flows. These calculations show the worst condition of street flows in San Francisco Drive N.E. At the present time, construction is under way for two drop inlets in San Francisco Drive at the Wyoming Boulevard intersection. These inlets will collect water from San Francisco Drive and divert it out of the basin and to the north. The two inlets have the capacity to divert more water out of the basin and to the north than the increased runoff generated by the development of Keystone Park South. This pattern of runoff is consistent with the pre-design conference recap which accompanies this submittal.

CALCULATIONS - KEYSTONE PARK SOUTH

Ground Cover Information

From SCS Bernalillo County Soil Survey, Plates 11 & 12:
Etc Embudo-Tijeras Complex
Hydrologic Soil Group B

Rational Method

Discharge: Q = CiA
where C varies
$i = P_6 (6.84) T_c^{-0.51} = 4.97$ in./hr
$P_6 = 2.35$ in (DPM Plate 22.2 D-1)
$T_c = 10$ min (minimum)
A = area, acres

Volume: $V = CP_6A(1/12)$
where C varies
$P_6 = 2.35$ in (DPM Plate 22.2 D-1)
A = area, acres

Existing Condition

A_{total} = 305,700 sf = 7.02 Ac
A_{imp} = 0 sf; % impervious = 0%
'C' = 0.34 (DPM Plate 22.2 C-1)
Q_{100} = CiA = 0.34(4.97)(7.02) = 12 cfs
$V_{100} = CP_6A$ = 0.34(2.35/12)(305,700) = 20,350 cf

Developed Condition

A_{total} = 305,700 sf = 7.02 Ac
A_{imp} = 190,000 sf; % impervious = 62%
'C' = 0.64 (DPM Plate 22.2 C-1)
Q_{100} = CiA = 0.64(4.97)(7.02) = 22 cfs
$V_{100} = CP_6A$ = 0.64(2.35/12)(305,700) = 38,310 cf
$V_{pond} = ½[(A_{86}+A_{85.5})(0.50)+(A_{87}+A_{86})(1.0)]$
V_{pond} = ½[(2,640+1,280)(0.50)+(4,025+2,640)(1.0)]
= 4,315 cf

Comparison

ΔQ_{100} = 22 - 12 = 10 cfs (increase)
ΔV_{100} = 38,310 - 20,350 = 17,960 cf (increase)

Grate Capacity for Type 'A' Storm Inlet (Two grates)

Q = 13 cfs per each (DPM Plate 22.3 D-5)
$Q_{capacity}$ = f(s,d)
Q_{total} = 26 cfs
s = slope = 0.0332
d = depth of water above flowline = 0.67

$Q = (1.49/n)A R^{2/3} s^{1/2}$ (Manning Equation)
s = slope = 0.02
n = roughness coefficient = 0.013

Pipe Capacity

$Q_{capacity}$ = 15 cfs
Diameter = 18"

Hydraulic Analysis of Sidewalk Culvert

$Q = (1.49/n) A R^{2/3} S^{1/2}$ (Manning Equation)
w = botton width = 4'
s = slope = 0.022
n = roughness coefficient = 0.015 (concrete)
m = side slope = 0 (vertical)
d = depth = 0.625
$Q_{capacity}$ = f(w,s,n,m,d) = 22.5 cfs

CALCULATIONS - 10-YEAR, 6-HOUR RAINFALL EVENT

Ground Cover Information

From SCS Bernalillo County Soil Survey, Plate 11 & 21:
EtC Embudo Tijeras Complex
Hydrologic Soil Group B

Rational Method

Discharge: Q = CiA
where C varies
$i = P_6 (6.84) T_c^{-0.51} = 1.61$ in./hr
P_6 = 2.35(0.657) = 1.54 in (DPM Plate 22.2 D-1)
T_c = 40 min
A = area, acres

Volume: $V = CP_6A(1/12)$
where C varies
P_6 = 1.54 in (DPM Plate 22.2 D-1)
A = area, acres

Existing Condition

A_{total} = 6,387,500 sf = 147 Ac
A_{imp} = 2,871,800 sf; % impervious = 45%
'C' = 0.55 (DPM Plate 22.2 C-1)
Q_{100} = CiA = 0.55(1.61)(147) = 130 cfs
$V_{100} = CP_6A$ = 0.55(1.54/12)(6,387,500) = 450,850 cf

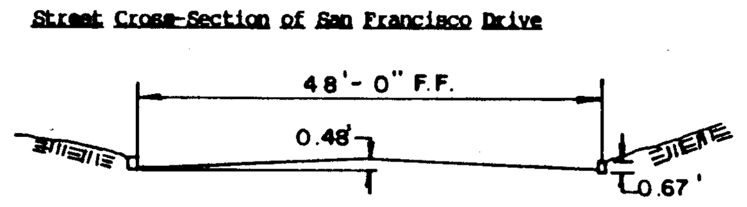
Developed Condition

A_{total} = 6,387,500 sf = 147 Ac
A_{imp} = 3,066,000 sf; % impervious = 48%
'C' = 0.58 (DPM Plate 22.2 C-1)
Q_{100} = CiA = 0.58(1.61)(147) = 137 cfs
$V_{100} = CP_6A$ = 0.58(1.54/12)(6,387,500) = 475,440 cf

Comparison

ΔQ_{100} = 137 - 130 = 7 cfs (increase)
ΔV_{100} = 475,440 - 450,850 = 24,590 cf (increase)

Street Cross-Section of San Francisco Drive



$Q = (1.49/n) A R^{2/3} S^{1/2}$ (Manning Equation)
w = botton width = 48'
s = slope = 0.024
n = roughness coefficient = 0.017
m = side slope = 0 (vertical)
d = depth
Q = f(w,s,n,m,d)

Depth existing condition = 0.62'
Depth developed condition = 0.62'

CALCULATIONS - TOTAL BASIN

Ground Cover Information

From SCS Bernalillo County Soil Survey, Plates 11 & 21:
Etc Embudo-Tijeras Complex
Hydrologic Soil Group B

Rational Method

Discharge: Q = CiA
where C varies
$i = P_6 (6.84) T_c^{-0.51} = 2.45$ in./hr
$P_6 = 2.35$ in (DPM Plate 22.2 D-1)
A = area, acres
L = 10,300 ft
H = 5,430 - 5,182 = 248
S = 0.024
$T_c = 0.0078 (10,300^{0.77}/0.024^{0.385})$ = 40 min
V = 10,300/40(60) = 4.26 fps

Volume: $V = CP_6A(1/12)$
where C varies
$P_6 = 2.35$ in (DPM Plate 22.2 D-1)

Existing Condition

A_{total} = 6,387,500 sf = 147 Ac
A_{imp} = 2,871,800 sf; % impervious = 45%
'C' = 0.55 (DPM Plate 22.2 C-1)
Q_{100} = CiA = 0.55(2.45)(147) = 200 cfs
$V_{100} = CP_6A$ = 0.55(2.35/12)(6,387,500) = 687,990 cf

Developed Condition

A_{total} = 6,387,500 sf = 147 Ac
A_{imp} = 3,066,000 sf; % impervious = 48%
'C' = 0.58 (DPM Plate 22.2 C-1)
Q_{100} = CiA = 0.58(2.45)(147) = 209 cfs
$V_{100} = CP_6A$ = 0.58(2.35/12)(6,387,500) = 725,514 cf

Comparison

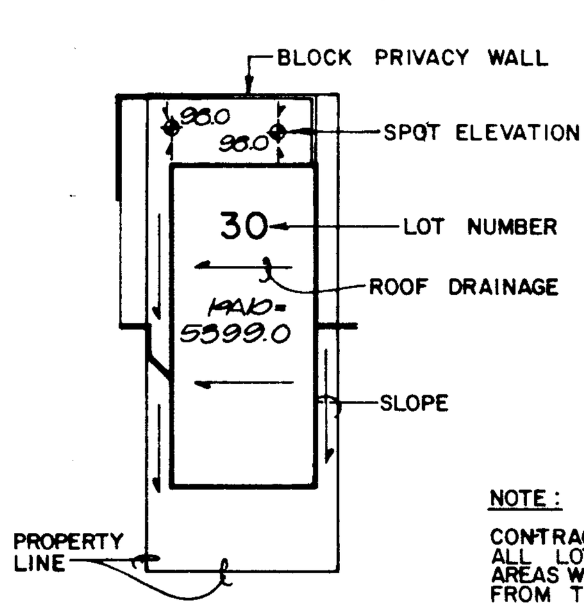
ΔQ_{100} = 209 - 200 = 9 cfs (increase)
ΔV_{100} = 725,514 - 687,990 = 37,524 cf (increase)

AS-BUILT CERTIFICATION

I, Thomas T. Mann, Jr., Registered Professional Engineer in the State of New Mexico, do hereby certify that these drawings represent the "as-built" conditions of this project to the best of my knowledge and belief.

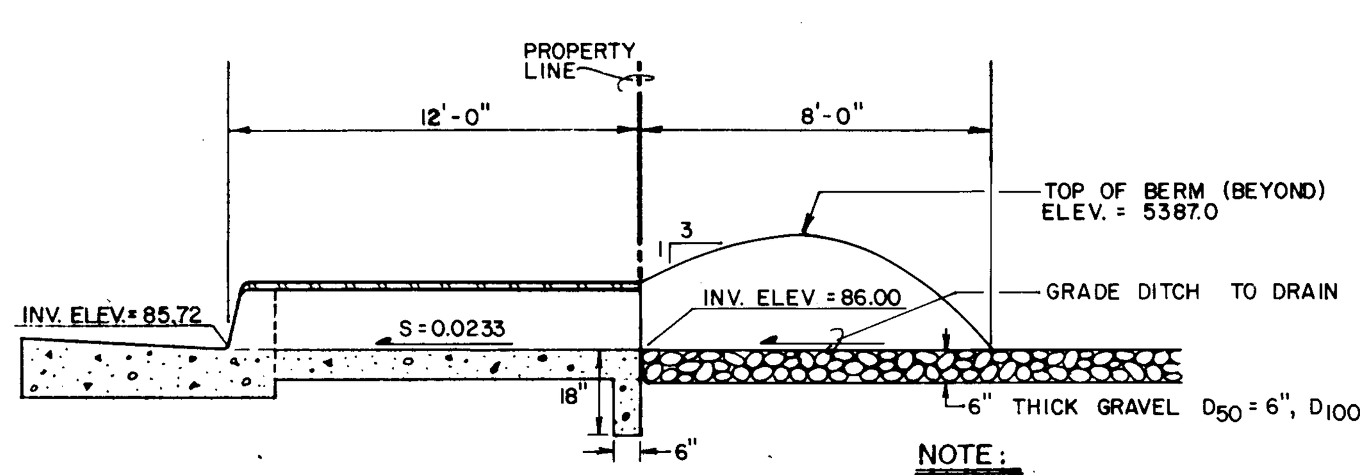
All vertical and horizontal dimensions should be filed verified prior to use on future projects.

Thomas T. Mann, Jr. Date
NMPE & LS No. 3792



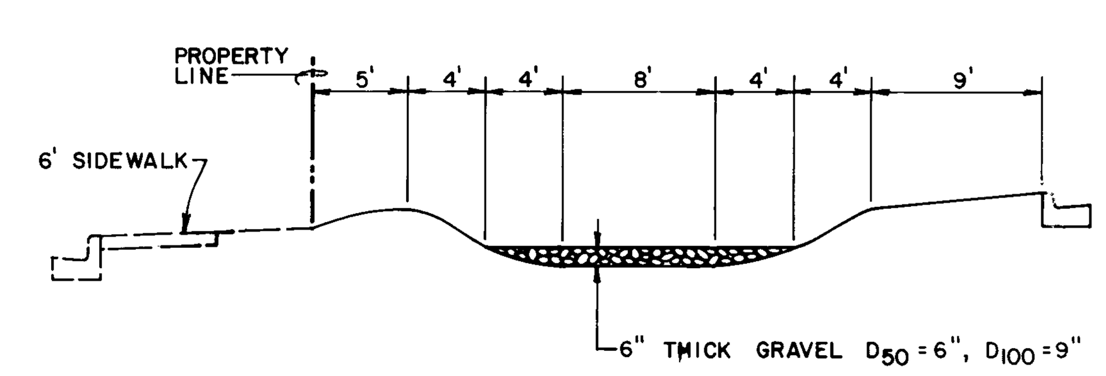
NOTE:
CONTRACTOR SHALL GRADE ALL LOTS SUCH THAT ALL AREAS WILL DRAIN AWAY FROM FROM THE HOUSE.

TYPICAL LOT GRADING



SECTION E - E
NTS

NOTE:
FOR CONSTRUCTION DETAILS SEE CITY OF ALBUQ. STD. DWG. K-16.



SECTION F - F
HORIZ. SCALE : 1" = 10'
VERT. SCALE : 1" = 5'

THOMAS T. MANN, JR. 3792 NEW MEXICO REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
10-18-85

26 2689 0386

ENGINEERS

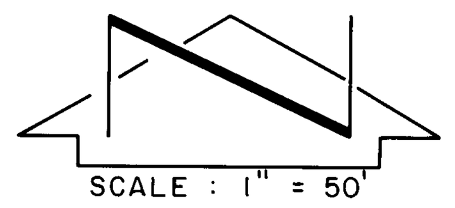
NO.	DATE	BY	REVISIONS
1	10/18/85	TM	ADDRESSED COMMENTS IN 9-18-85 LETTER
2	10/86	LRU	AS BUILT PRIVATE PONDING AREA

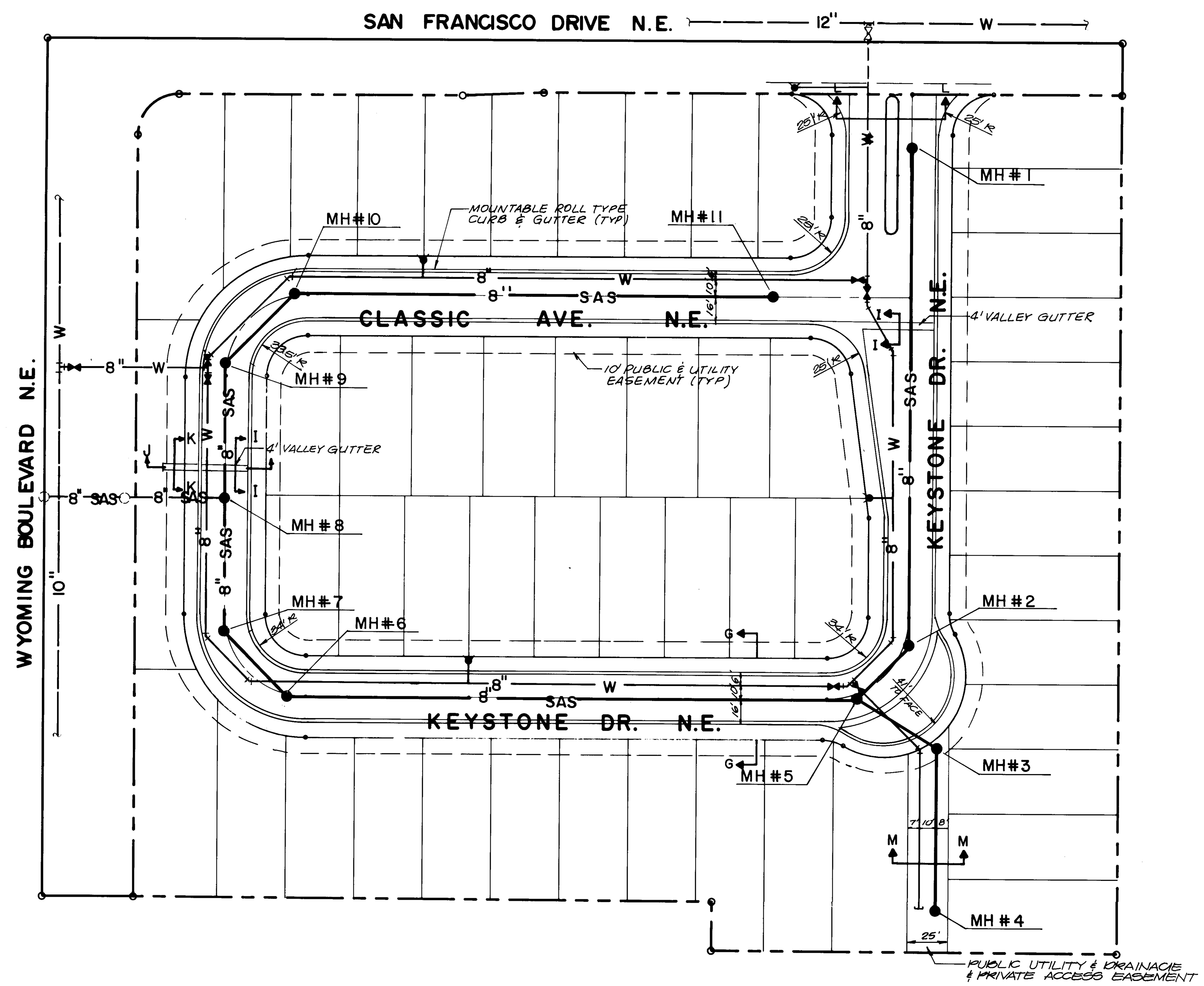
DESIGNED BY K.L.S.
DRAWN BY L.B.D.
APPROVED T.T.M.

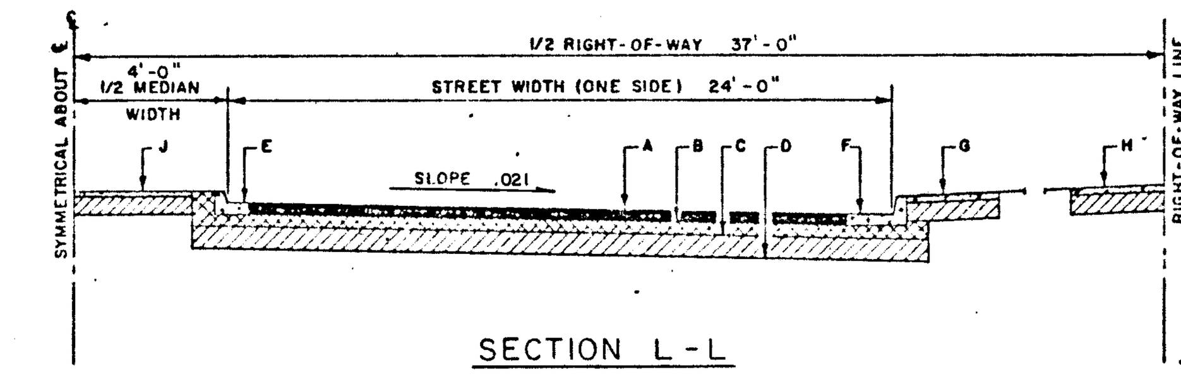
JOB NO. 50981
DATE 9-85

GRADING & DRAINAGE PLAN
KEYSTONE PARK SOUTH

SHEET 3 of 8







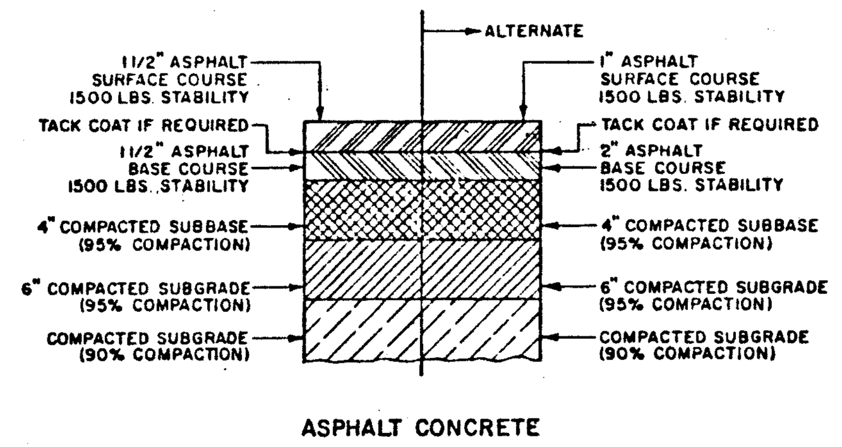
SECTION L-L

GENERAL NOTES:

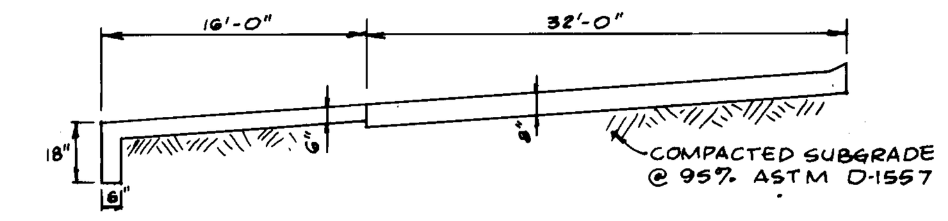
1. ALL SUBGRADE COMPACTION FOR C. & G. WILL EXTEND 12" MIN. ON EITHER SIDE OF C. & G OR CURB SECTION.
2. SUBGRADE PREPARATION UNDER SIDEWALK AND DRIVEPADS SHALL BE INCLUDED WITH THE PARTICULAR ITEM.
3. FINISH GRADE AT PROPERTY LINE SHALL BE 0.67' MIN. ABOVE TOP OF CURB.
4. SLOPE EASEMENT REQUIREMENTS WILL BE SHOWN ON PROJECT CONSTRUCTION PLANS.
5. TRANSVERSE SLOPE FOR PAVEMENT SHALL BE 2% TYPICAL.

CONSTRUCTION NOTES:

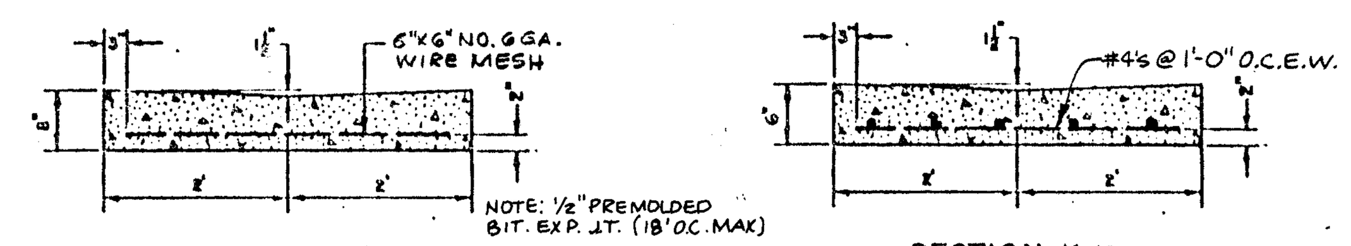
A. ASPHALT CONC. PAVEMENT.
B. A.T.B. OR C.T.B.
C. COMPACTED SUBBASE.
D. COMPACTED SUBGRADE.
E. C. & G. MOUNTABLE MEDIAN.
F. C. & G. MOUNTABLE ROLL TYPE.
G. SIDEWALK ADJACENT TO CURB (NON-STANDARD, VARIANCE REQUIRED).
H. SIDEWALK AT STANDARD SETBACK.
J. MEDIAN. TO BE LANDSCAPED.
K. 1/2" EXPANSION JOINT MATERIAL.



ASPHALT CONCRETE PAVEMENT SECTION

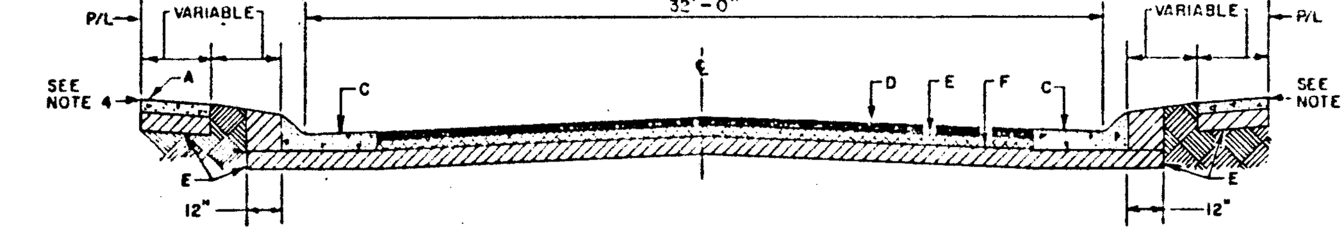


SECTION J-J



SECTION I-I

SECTION K-K



SECTION G-G

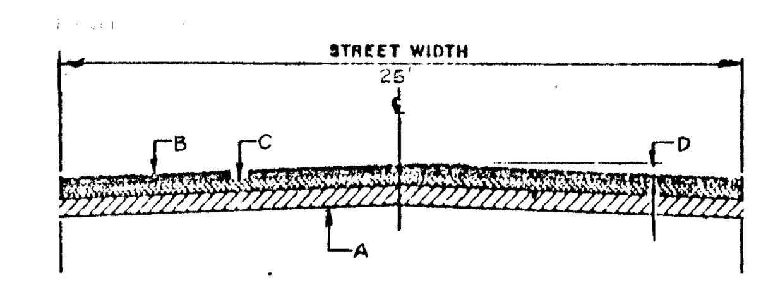
GENERAL NOTES:

1. CROWN ON STREETS SHALL BE AS FOLLOWS:
   a. 32' STREET = 4"
   b. 40' STREET = 5"
   c. LESS THAN 32' STREET, PAVEMENT SLOPE = 2%
2. ALL SUBGRADE COMPACTION FOR C. & G. WILL EXTEND 12" MIN. ON EITHER SIDE OF C. & G. OR CURB SECTION
3. SUBGRADE PREPARATION UNDER SIDEWALK AND DRIVEPADS SHALL BE INCLUDED WITH THE PARTICULAR ITEM.
4. FINISH GRADE AT PROPERTY LINE SHALL BE 0.67' MIN. ABOVE TOP OF CURB.

CONSTRUCTION NOTES:

A. SIDEWALK AT STANDARD SETBACK.

C. MOUNTABLE ROLL C. & G.
D. A.C. OR P.C.C. PAVEMENT.
E. 4" COMPACTED SUBBASE.
F. 6" COMPACTED SUBGRADE.



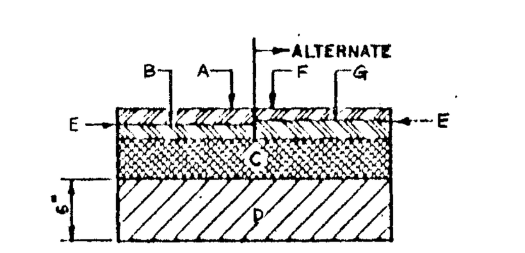
SECTION M-M

GENERAL NOTES:

1. REDUCE CROWN TO FLAT SECTION AT INTERSECTIONS ONLY WHERE REQUIRED FOR DRAINAGE.
2. REDUCE NORMAL CROWN TO HALF CROWN AT THROUGH INTERSECTIONS WHERE DRAINAGE ACROSS ROADWAY IS NOT REQUIRED.
3. CARRY NORMAL CROWN THROUGH "T" INTERSECTIONS WHERE DRAINAGE ACROSS ROADWAY IS NOT REQUIRED.

CONSTRUCTION NOTES:

A. 6" COMPACTED SUBGRADE.
B. ASPHALT CONCRETE.
C. COMPACTED SUBBASE.
D. CROWN (4" TYPICAL MEASURED FROM EDGE OF PAVEMENT.



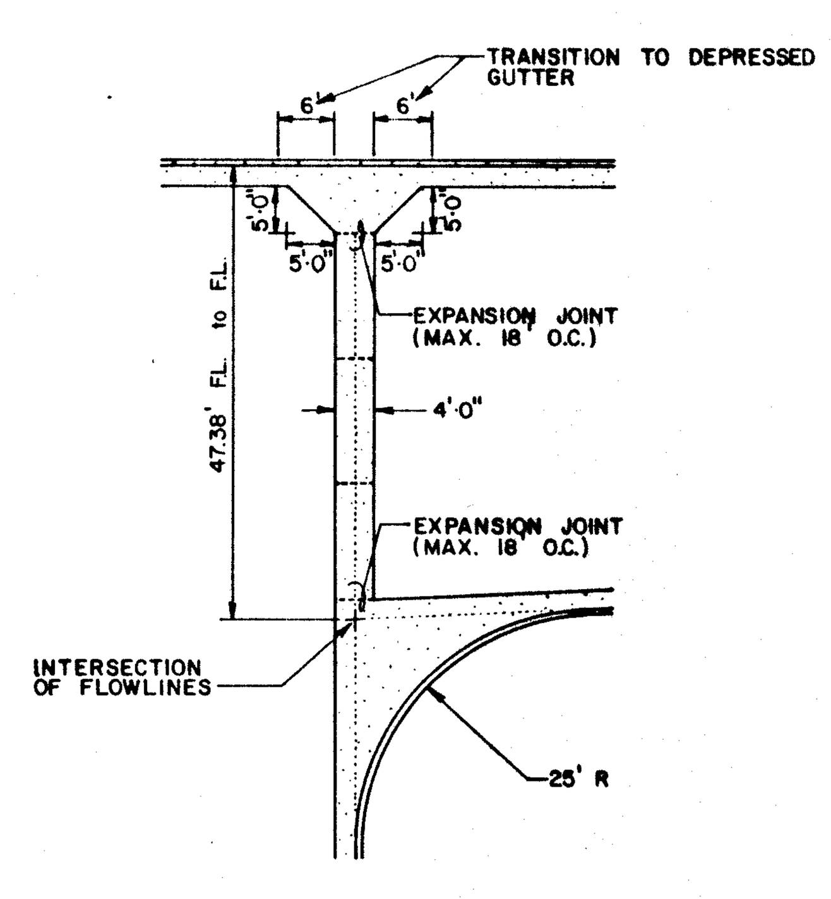
PRIVATE ACCESS EASEMENT

GENERAL NOTES:

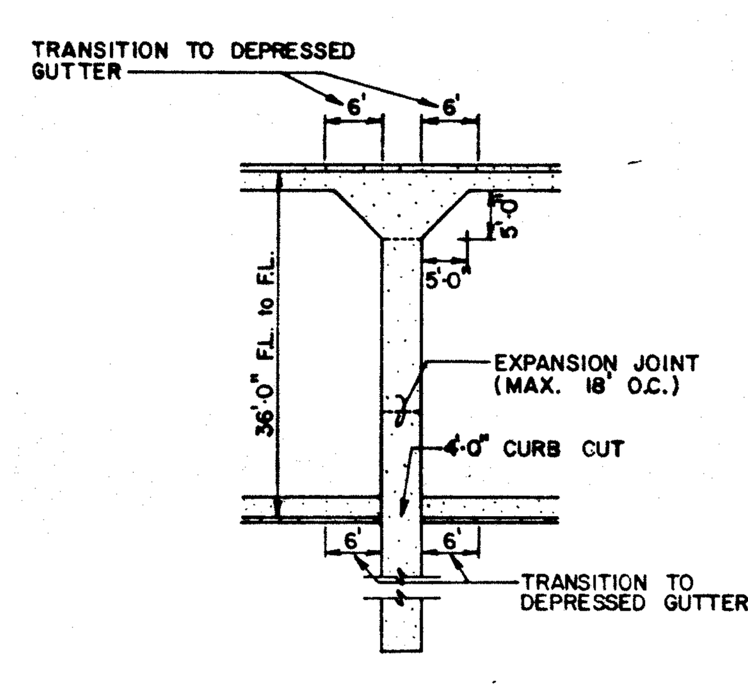
1. FOR TYPICAL STREET SECTIONS CROWN IS MEASURED FROM LIP OF CURB TO ℄ OF STREET OR FROM LIP OF CURB TO LIP OF CURB ON STREETS WITH MEDIANS. FOR NON-TYPICAL STREET SECTIONS, MAINTAIN A MINIMUM 2% CROSS SLOPE FROM HIGH POINT TO EDGE OF PAVEMENT EXCEPT IN NO CROWN SECTIONS AND TRANSITIONS TO NO CROWN SECTIONS (SEE DWG. P-1).

CONSTRUCTION NOTES:

A. 1 1/2" SURFACE COURSE, 1500 LBS. STABILITY.
B. 1 1/2" BASE COURSE, 1500 LBS. STABILITY.
C. 4" COMPACTED SUBBASE.
D. COMPACTED SUBGRADE.
E. TACK COAT.
F. 1" SURFACE COURSE, 1500 LBS. STABILITY.
G. 2" BASE COURSE, 1500 LBS. STABILITY.



DETAIL 1
SCALE : 1" = 20'



DETAIL 2
SCALE : 1" = 20'

AS BUILT INFORMATION

CONTRACTOR | WORK STAKED BY | INSPECTOR'S ACCEPTANCE BY | FIELD VERIFICATION BY | DRAWINGS CORRECTED BY — DATE

MICRO-FILM INFORMATION

RECORDED BY — DATE — NO.

BENCH MARKS

A STANDARD ACS BRASS TABLET STAMPED "6-D19-1978" SET IN TOP OF A CONCRETE POST FLUSH WITH GROUND LOCATED AT THE NORTHWEST CORNER OF THE INTERSECTION OF SAN ANTONIO DRIVE, NE AND WYOMING BOULEVARD, NE.
ELEVATION = 5403.54 (MLSD)

SURVEY INFORMATION

FIELD NOTES		
NO.	BY	DATE

REFERENCES

MAP NO.	WO NO.
EST NO.	

NO.	DATE	REMARKS	BY

26 26890486

APPROVED FOR CONSTRUCTION

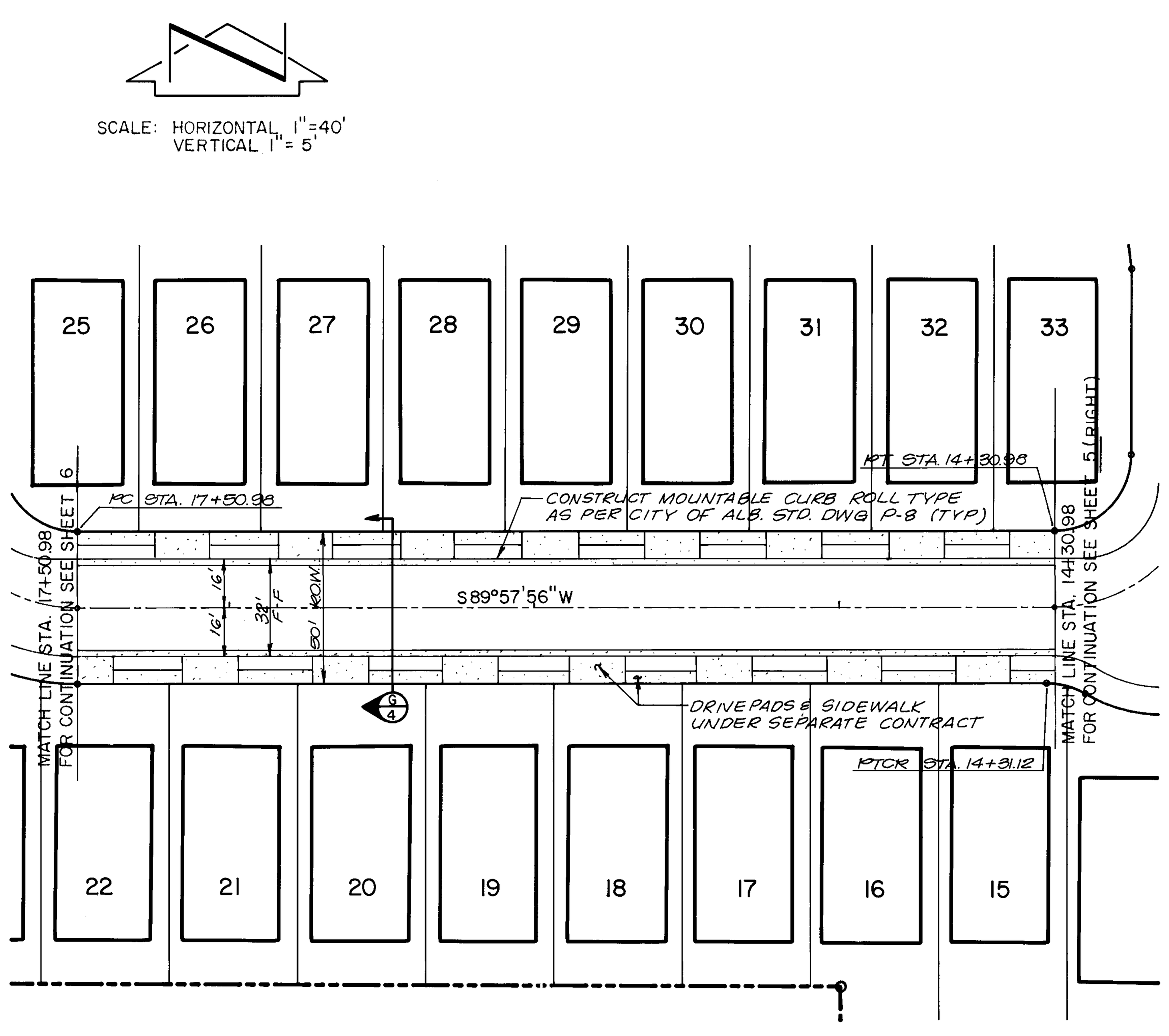
CITY ENGINEER — DATE

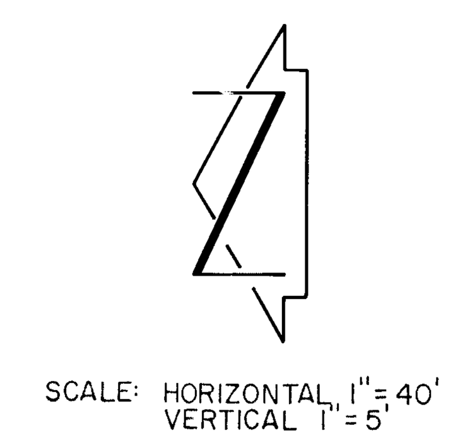
CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

TITLE: KEYSTONE PARK SOUTH
UTILITY SITE PLAN
DETAILS

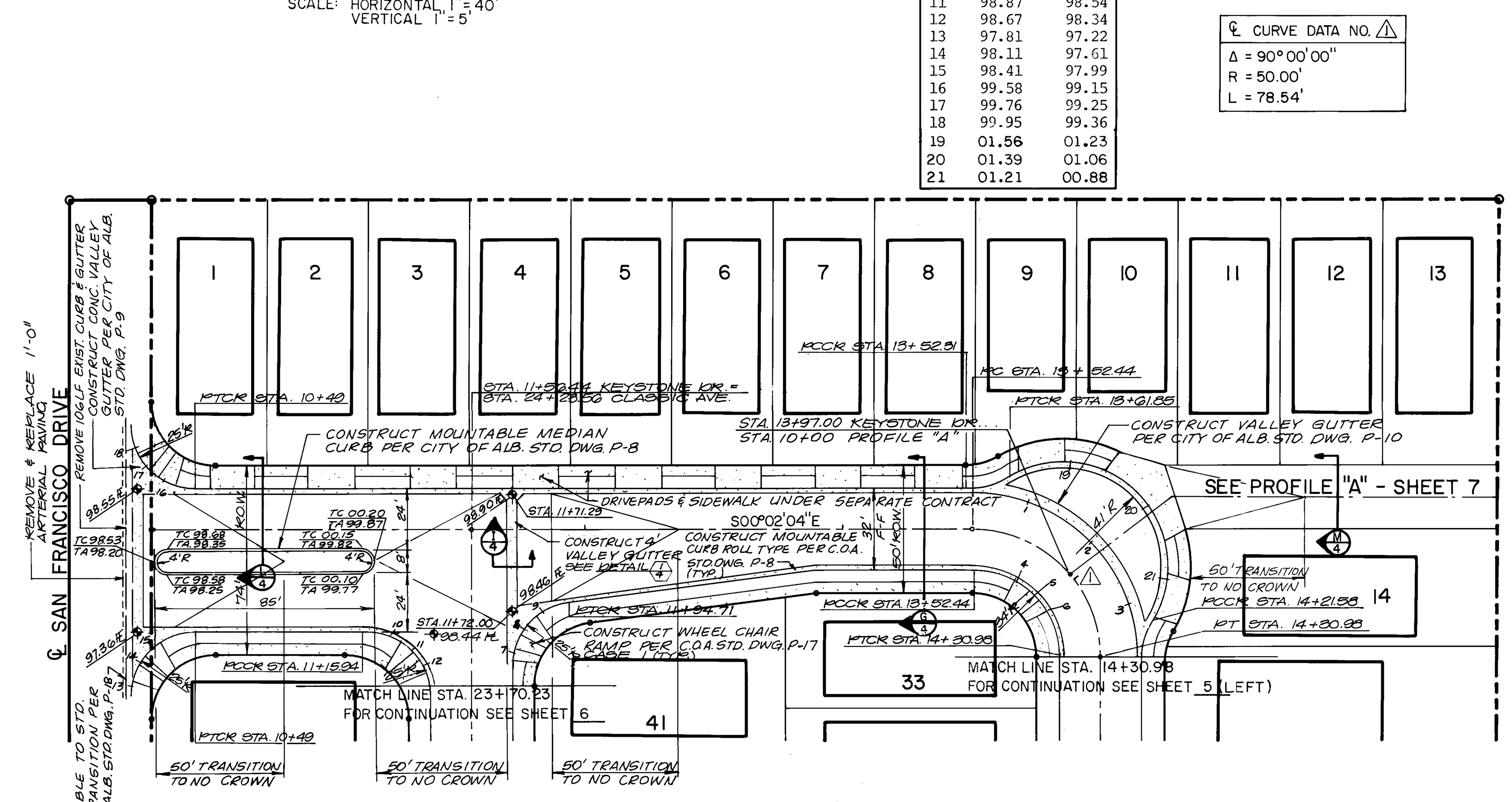
APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer		12/23/85	Liquid Waste		12/6/85
A.C.E.-Design		12/10/85	Traffic		12/6/85
A.C.E.-Hydrology		12/10/85	Water		12/6/85

DRAWING NO.	MAP NO.	SHEET	OF
2689	D-19	4	8



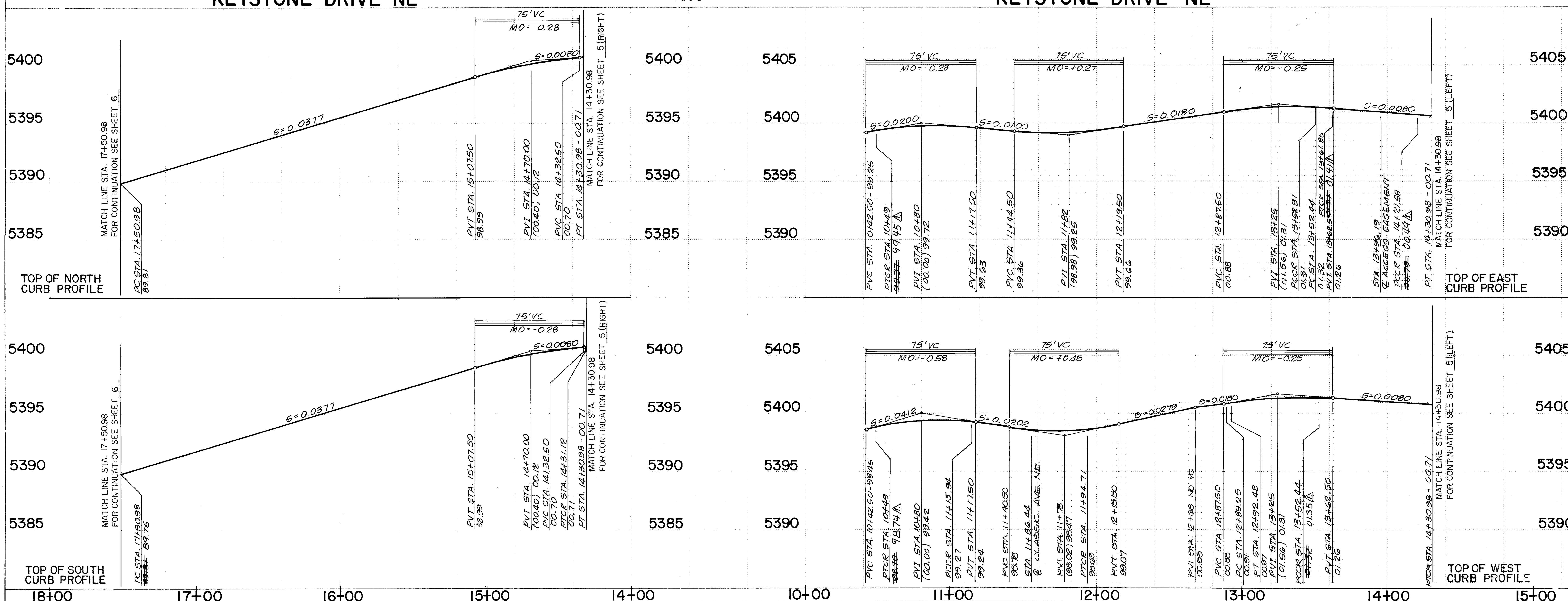


	TC	FL
1		00.79
2		00.66
3		00.52
4	01.17	00.84
5	00.95	00.62
6	00.87	00.54
7	98.38	98.05
8	98.46	98.13
9	98.55	98.22
10	99.07	98.74
11	98.87	98.54
12	98.67	98.34
13	97.81	97.22
14	98.11	97.61
15	98.41	97.99
16	99.58	99.15
17	99.76	99.25
18	99.95	99.36
19	01.56	01.23
20	01.39	01.06
21	01.21	00.88



KEYSTONE DRIVE NE

KEYSTONE DRIVE NE



STREET PAVING IMPROVEMENTS

1. ALL SLOPES AS SHOWN ON PROFILES ARE BASED ON CENTERLINE STATIONING.
2. WHERE REMOVAL OF EXISTING CURB & GUTTER, SIDEWALK OR PAVEMENT IS REQUIRED, THE CONTRACTOR SHALL SAWCUT AND/OR REMOVE TO THE NEAREST JOINT. CURB & GUTTER SHOWN AS EXISTING AND NOT TO BE REMOVED UNDER THIS CONTRACT WHICH IS DAMAGED OR DISPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
3. ALL DIMENSIONS OF CURB & GUTTER RETURNS ARE SHOWN TO FACE OF CURB.

AS BUILT INFORMATION

CONTRACTOR *Universal*
WORK STAKED BY — DATE
INSPECTOR'S ACCEPTANCE BY *L. VALDEZ* — DATE *5-13-86*
FIELD VERIFICATION BY — DATE
DRAWINGS CORRECTED BY *E.N.* — DATE *10-9-86*

MICRO-FILM INFORMATION

RECORDED BY — DATE
NO

BENCH MARKS

A STANDARD ACS BRASS TABLET STAMPED "6-D19-1978" SET IN TOP OF A CONCRETE POST FLUSH WITH GROUND LOCATED AT THE NORTHWEST CORNER OF THE INTERSECTION OF SAN ANTONIO DRIVE, NE AND WYOMING BOULEVARD, NE.
ELEVATION = 5403.54 (MLSD)

SURVEY INFORMATION

NO.	FIELD NOTES	BY	DATE

ENGINEER'S SEAL

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR — STATE OF NEW MEXICO — THOMAS MANN 3792

REVISIONS

NO.	DATE	REMARKS	BY
1	10-9-86	Revised from as-built information	E.N.

	BY	DATE
DESIGNED BY	K.L.S.	12-85
DRAWN BY	L.B.D.	12-85
CHECKED BY	T.T.M.	12-85

26 26890586

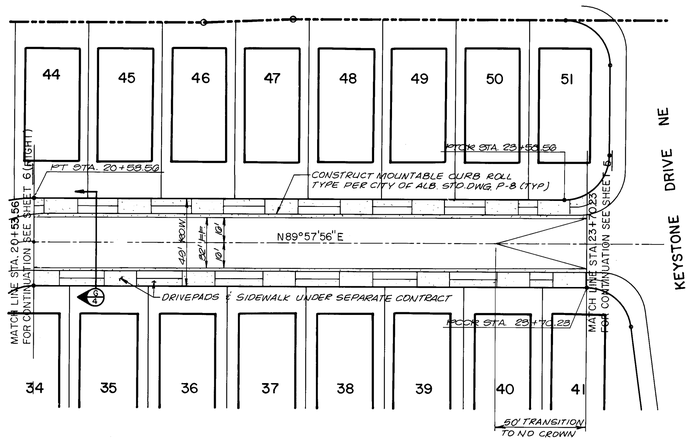
CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

TITLE: KEYSTONE PARK SOUTH
PAVING IMPROVEMENTS PLAN & PROFILE
STATION 10+00 — STATION 17+50.98

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer	[signature]	12/23/85	Liquid Waste	N/A	12/6/85
A.C.E.-Design	[signature]	12/10/85	Traffic	S.A. Parks	12/6/85
A.C.E.-Hydrology	[signature]	12/10/85	Water	N/A	12/6/85

DRAWING NO. 2689 — MAP NO. D-19 — SHEET 5 OF 8

SCALE: HORIZONTAL 1"=40'
VERTICAL 1" = 5'



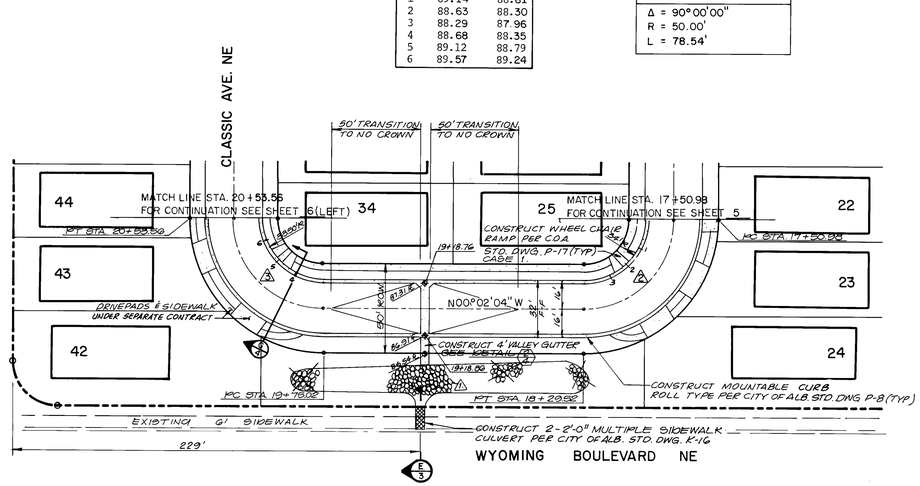
CLASSIC AVENUE NE

SCALE: HORIZONTAL 1"=40'
VERTICAL 1" = 5'

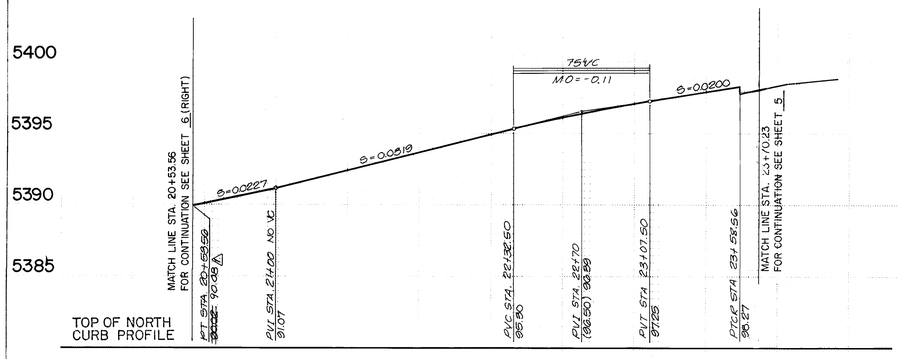
	TC	FL
1	89.14	88.81
2	88.63	88.30
3	88.29	87.96
4	88.68	88.35
5	89.12	88.79
6	89.57	89.24

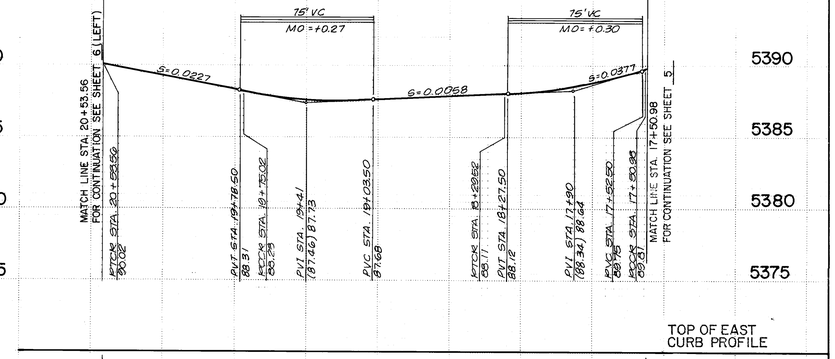
℄ CURVE DATA NO. 1
Δ = 90°00'00"
R = 50.00'
L = 78.54'

℄ CURVE DATA NO. 2
Δ = 90°00'00"
R = 50.00'
L = 78.54'



KEYSTONE DRIVE NE





STREET PAVING IMPROVEMENTS

1. ALL SLOPES AS SHOWN ON PROFILES ARE BASED ON CENTERLINE STATIONING.
2. WHERE REMOVAL OF EXISTING CURB & GUTTER, SIDEWALK OR PAVEMENT IS REQUIRED, THE CONTRACTOR SHALL SAWCUT AND/OR REMOVE TO THE NEAREST JOINT. CURB & GUTTER SHOWN AS EXISTING AND NOT TO BE REMOVED UNDER THIS CONTRACT WHICH IS DAMAGED OR DISPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
3. ALL DIMENSIONS OF CURB & GUTTER RETURNS ARE SHOWN TO FACE OF CURB.

SURVEY INFORMATION
FIELD NOTES
NO. BY DATE

BENCH MARKS
A STANDARD ACS BRASS TABLET STAMPED "6-D19-1978" SET IN TOP OF A CONCRETE POST FLUSH WITH GROUND LOCATED AT THE NORTHWEST CORNER OF THE INTERSECTION OF SAN ANTONIO DRIVE, NE AND WYOMING BOULEVARD, NE.
ELEVATION = 5403.54 (MLSD)

AS BUILT INFORMATION
CONTRACTOR Universal
WORK PERFORMED BY
INSPECTORS DATE 6/13/86
ACCEPTANCE BY E. VALDEZ DATE
VERIFICATION BY DATE
CORRECTED BY E.N. DATE 10/86
MICRO-FILM INFORMATION
RECORDED BY DATE
NO

ENGINEER'S SEAL
REGISTERED PROFESSIONAL ENGINEER
STATE OF NEW MEXICO
THOMAS T. MANN JR.
3703
PROFESSIONAL LAND SURVEYOR

NO.	DATE	REVISIONS	BY
1	10.09.86	Revised from as-built information	E.N.

DESIGNED BY K.L.S. DATE 12-85
DRAWN BY L.B.D. DATE 12-85
CHECKED BY T.T.M. DATE 12-85

26 2689 0686

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

TITLE: KEYSTONE PARK SOUTH
PAVING IMPROVEMENTS PLAN & PROFILE
STATION 17+ 50.98 — STATION 23+70.23

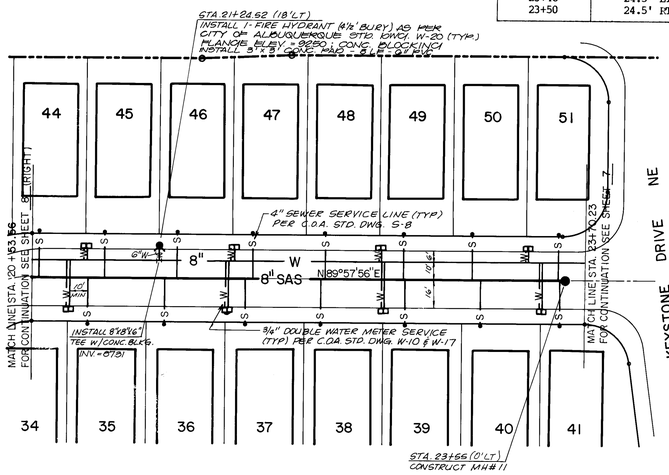
APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer		12/15/85	Liquid Waste	N/A BR	12/4/85
A C E - Design		12/10/85	Traffic	D.A. Parks	12/4/85
A C E - Hydrology		12/10/85	Water	N/A BR	12/4/85

DRAWING NO. 2689 | MAP NO. D-19 | SHEET 6 OF 8

METERED SERVICE LINE STATIONING	
STATION	LOCATION
20+83.52	18' LT OF CENTERLINE
20+73.56	18' RT OF CENTERLINE
21+61.56	18' RT OF CENTERLINE
21+65.52	18' LT OF CENTERLINE
22+47.52	18' LT OF CENTERLINE
22+49.56	18' RT OF CENTERLINE
23+29.52	18' LT OF CENTERLINE
23+37.56	18' RT OF CENTERLINE

4" SANITARY SEWER SERVICE STATIONING		
STATION	LOCATION	INVERT AT PROPERTY LINE
20+58	24.5' LT OF CENTERLINE	86.10
20+84	24.5' RT OF CENTERLINE	86.90
20+94	24.5' LT OF CENTERLINE	87.30
21+27	24.5' RT OF CENTERLINE	88.30
21+35	24.5' LT OF CENTERLINE	88.60
21+72	24.5' RT OF CENTERLINE	89.70
21+76	24.5' LT OF CENTERLINE	89.90
22+15	24.5' RT OF CENTERLINE	91.10
22+16	24.5' LT OF CENTERLINE	91.10
22+58	24.5' LT OF CENTERLINE	92.10
22+60	24.5' RT OF CENTERLINE	92.00
22+98	24.5' LT OF CENTERLINE	93.00
23+03	24.5' RT OF CENTERLINE	93.10
23+48	24.5' LT OF CENTERLINE	94.00
23+50	24.5' RT OF CENTERLINE	93.90

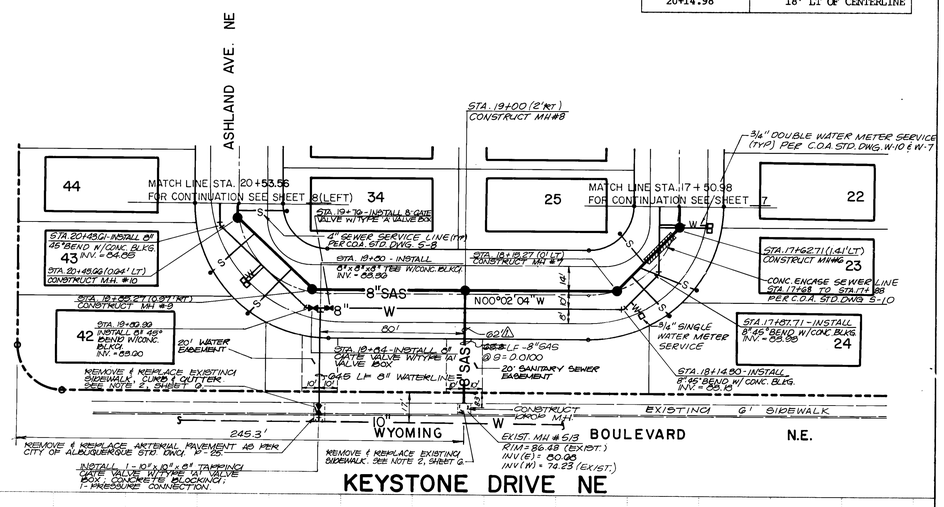
SCALE: HORIZONTAL 1"=40'
VERTICAL 1"=5'

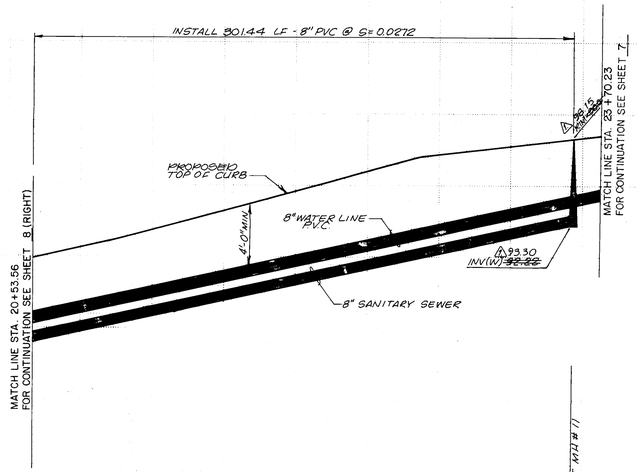


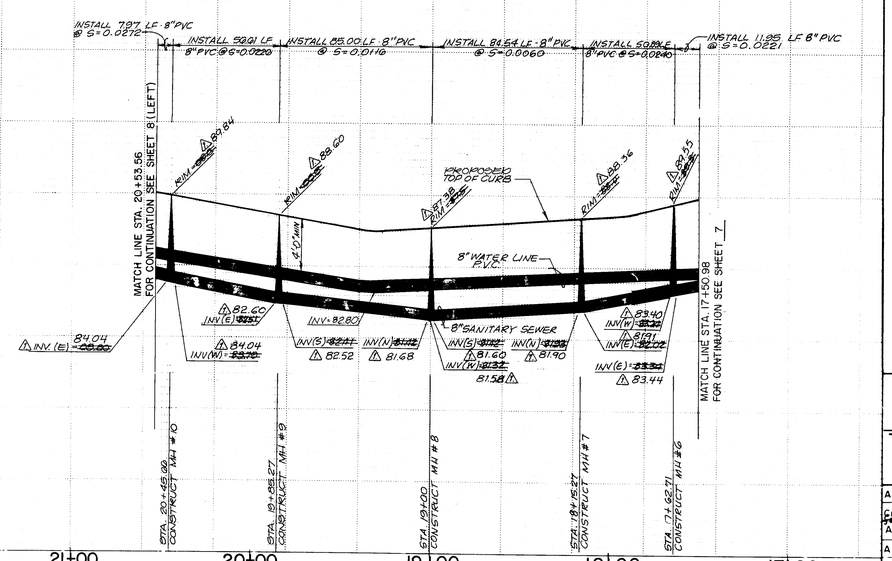
SCALE: HORIZONTAL 1"=40'
VERTICAL 1"=5'

4" SANITARY SEWER SERVICE STATIONING		
STATION	LOCATION	INVERT AT PROPERTY LINE
17+90	25' RT OF CENTERLINE	84.60
17+92	25' LT OF CENTERLINE	84.60
18+00	25' LT OF CENTERLINE	84.20
20+07	25' RT OF CENTERLINE	84.90
20+32	25' LT OF CENTERLINE	85.50
20+50	25' RT OF CENTERLINE	85.90

METERED SERVICE LINE STATIONING	
STATION	LOCATION
17+59.02	18' LT OF CENTERLINE
18+10	18' LT OF CENTERLINE
20+14.98	18' LT OF CENTERLINE







SANITARY SEWER SYSTEM

1. ALL STATIONING IS BASED ON STREET CENTERLINE UNLESS INDICATED OTHERWISE.
2. ALL SEWER PIPE SHALL BE P.V.C. (SDR 35).
3. SLOPES SHOWN ON THE PROFILES ARE BASED ON TRUE DISTANCES.
4. ALL MANHOLES SHALL BE 4-FOOT DIAMETER TYPE "E" AS PER CITY OF ALBUQUERQUE STANDARD DRAWING S-2 UNLESS OTHERWISE NOTED.
5. SEWER SERVICE LATERALS SHALL BE PROVIDED WITH ELECTRONIC MARKER DISCS AS PER CITY OF ALBUQUERQUE STANDARD DRAWING S-9.

WATER DISTRIBUTION SYSTEM

6. ALL STATIONING IS BASED ON STREET CENTERLINE.
7. WATER MAIN SHALL BE P.V.C. (C-900) OR AS APPROVED BY THE CITY OF ALBUQUERQUE WATER RESOURCES DIVISION.
8. WATER LINE SHALL HAVE A MINIMUN COVER OF 4'-0" (TOP OF CURB TO TOP OF PIPE).
9. WATER LINE SHALL BE LOCATED 10'-0" FROM AND PARALLEL TO STREET CENTERLINE UNLESS OTHERWISE NOTED.
10. CONTRACTOR SHALL FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF EXISTING WATERLINES.

AS BUILT INFORMATION
CONTRACTOR Universal DATE
WORK STAKED BY
INSPECTED BY A. VALDEZ DATE 12-86
AS-BUILTED BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS COMPILED BY E.M. DATE 12-86
COMPUTER GENERATED BY MICRO-FILM INFORMATION
RECORDED BY DATE
NO

BENCH MARKS
A STANDARD ACS BRASS TABLET STAMPED "6-D19-1978" SET IN TOP OF A CONCRETE POST FLUSH WITH GROUND LOCATED AT THE NORTHWEST CORNER OF THE INTERSECTION OF SAN ANTONIO DRIVE, NE AND WYOMING BOULEVARD, NE.
ELEVATION = 5403.54 (MLSD)

SURVEY INFORMATION
FIELD NOTES
NO. BY DATE

ENGINEER'S SEAL
REGISTERED PROFESSIONAL ENGINEER
STATE OF NEW MEXICO
THOMAS T. MANN, JR.
3752
REGISTERED LAND SURVEYOR

NO	DATE	REMARKS	BY
1	10-10-86	Revised from as built drawings	E.M.

REVISIONS

DESIGN	BY	DATE
	K.L.S.	12-85
DRAWN	BY	DATE
	L.B.D.	12-85
CHECKED	BY	DATE
	T.T.M.	12-85

26 268900886

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

TITLE: KEYSTONE PARK SOUTH
SANITARY SEWER & WATER LINE IMPROVEMENTS P&P
STATION 17+50.98 — STATION 23+70.23

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer		12/22/85	Liquid Waste		12/6/85
A.C.E. - Design		12/10/85	Traffic		12/6/85
A.C.E. - Hydrology		12/10/85	Water		12/6/85

DRAWING NO. 2689
MAP NO. D-19
SHEET 8 OF 8