

- 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.

NOTES:

1. RETAINING, PLANTER & GARDEN WALLS NOT PART OF THIS PLAN. REFER TO ARCHITECTURAL DRAWINGS.

2. ALL DEVELOPED ROOF RUNOFF MUST BE DIRECTED AWAY FROM THE BUILDING AND CONVEYED TO PAVED SURFACES AND/OR DRAINAGE STRUCTURES.

CURVE	AHC	DELTA	RADIUS	CHORD LENGTH	CHORD BEARING	TAN LENGTH
C2	39.27	90°00'00"	25.00	35.36	S 44°57'41" W	25.00

JMA
JEFF MORTENSEN & ASSOCIATES, INC.
6010-B MIDWAY PARK BLVD. N.E.
ALBUQUERQUE, N.M. 87109
ENGINEERS (505) 345-4250

APPROVED FOR ROUGH GRADING
HYDROLOGY SECTION
DATE

GRADING AND DRAINAGE PLAN
PAVILIONS - PHASE II

APPROVALS	NAME	DATE
A.C.E. / DESIGN		
INSPECTOR		
A.C.E. / FIELD		

DESIGN BY: J. G. M.
DRAWN BY: J. M. A.
APPROVED BY: J. G. M.

NO.	DATE	BY	REVISION	JOB NO.
1	11/90	JGM	MINOR PLAN ADDITIONS	900658
2	04/92	JGM	DRAINAGE CERTIFICATION (IIA)	9 - 1990
3	04/92	JGM	IDENTIFY CORRECTIVE ACTION	
4	07/92	JGM	PHASE IIB DRAINAGE CERT.	
				SHEET 6 OF 8

PHASE IIA
ENGINEER'S DRAINAGE CERTIFICATION

As indicated by the as-built spot elevations and survey information shown hereon, the Phase IIA portion of this project has been constructed in substantial conformance with the approved grading and drainage plan. Phase I of the project is complete. Phase II, in general, is under construction. Phase II has been further divided into sub-phases for the purpose of obtaining temporary Certificate of Occupancy for "stand-alone" portions of the Phase II project. Phase IIA is a "stand-alone" portion of the project which is situated at the downstream side of the project. The runoff generated by these improvements discharges to existing drainage facilities. Individual drainage certifications will be prepared for subsequent phases of work upon substantial completion. The purpose for phasing the certifications is so that phased occupancy can be obtained. It is based upon the information presented above, combined with the as-built information presented hereon, that acceptance of the Phase IIA portion of this project is recommended.

Jeffrey G. Mortensen
Professional Engineer
New Mexico
8547

04-07-92
Date

PHASE IIA ENGINEER'S DRAINAGE RECERTIFICATION

The Engineer's Drainage Certification submitted for Phase IIA dated April 7, 1992, identified an area in the paving which required "corrective action". The corrective action consisted of the removal of curb along the west edge of paving. It was observed during a return visit to the site on July 25, 1992, that the corrective action had been completed. At the same time, it was noted that a small storage building had been constructed within a previously landscaped planter area. The building is relatively small, measuring far less than 500 square feet. A revised grading and drainage plan submittal was apparently not required for this structure due to the fact that it falls well below the 500 square feet threshold.

Jeffrey G. Mortensen
Professional Engineer
New Mexico
8547

07-28-92
Date

PHASE IIB ENGINEER'S DRAINAGE CERTIFICATION

As indicated by the as-built spot elevations and survey information shown hereon, the Phase IIB portion of this project has been constructed in substantial conformance with the approved grading and drainage plan. Phases I & IIA of the project have been previously completed. As stated in the Phase IIA Certification, Phase II has been divided into sub-phases for the purpose of obtaining temporary Certificate of Occupancy for "stand-alone" portions of the Phase II project. Phase IIB is now complete resulting in total project completion. Minor modifications to the plan are indicated as part of the as-built information. The modifications, however, do not alter the drainage concept, nor do they significantly alter the drainage basins previously set forth by the approved plan. Finished floor elevations are slightly higher than those designed which will not adversely impact the drainage of the site.

It is based upon the information presented above, combined with the as-built information presented hereon, that final acceptance of the Phase II portion of this project is recommended.

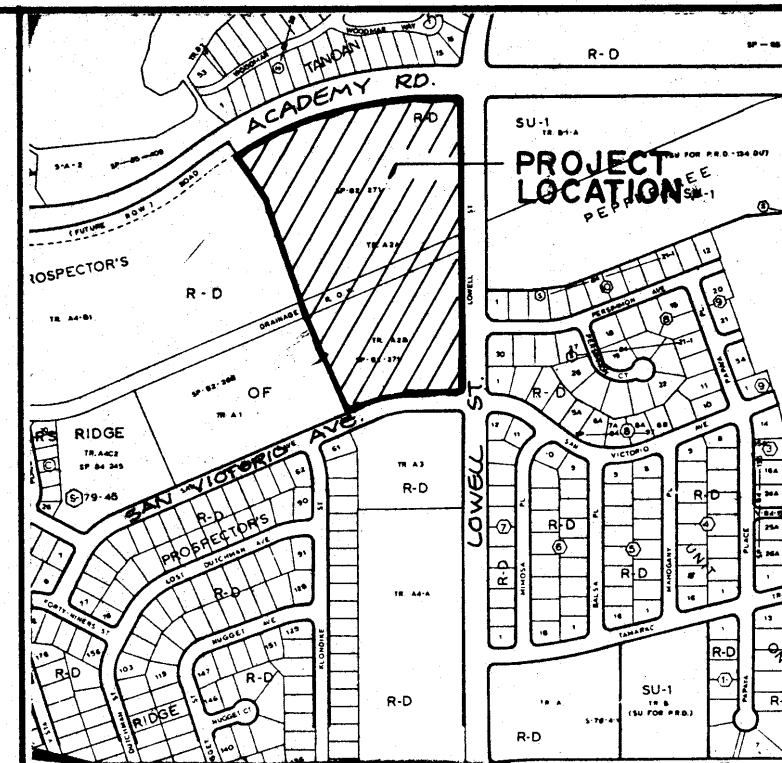
Jeffrey G. Mortensen
Professional Engineer
New Mexico
8547

07-28-92
Date

RECEIVED
JUL 29 1992
HYDROLOGY DIVISION

LEGEND

- EXISTING SPOT ELEVATION
- EXISTING CONTOUR
- TC TOP OF CURB
- FL FLOWLINE
- PROPOSED SPOT ELEVATION
- PROPOSED CONTOUR
- PROPOSED ASPHALT
- PROPOSED CONCRETE
- PROPOSED RETAINING WALL
- PROPOSED GRADE
- BASIN BOUNDARY
- PROPOSED WATERBLOCK
- PHASE BOUNDARY LINE



VICINITY MAP
SCALE: 1" = 800'

E-22

PROJECT BENCHMARK = T.B.M.
THE STATION IS A 3/4" ALUMINUM CAP SET FLUSH IN THE TOP OF CURB OF THE MEDIAN AND IS STAMPED "A.C.S. 3-E22A 1986". LOCATED NORTH OF THE CENTERLINE ON SAN VICTORIO AVE. N.E. APPROXIMATELY 40.3 FEET AT THE INTERSECTION OF SAN VICTORIO AVE. N.E. & LOWELL STREET N.E. ELEVATION: 5891.17 FEET (M.S.L.D.)

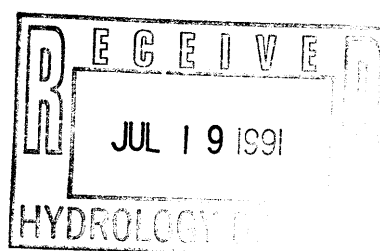
LEGAL DESCRIPTION
LOTS A-1 & A-2, SUNWEST TRUSTEE TRACT

NOTE:
RETAINING, PLANTER & GARDEN WALLS NOT PART OF THIS PLAN. REFER TO ARCHITECTURAL DRAWINGS.

ENGINEER'S CERTIFICATION

As indicated by the spot elevations and other as-built information shown hereon, this project has been constructed in substantial conformance with the approved Grading & Drainage Plan. Minor field changes were incorporated during the construction process. These include the addition of sidewalks, the relocation of some of the curb openings, the adjustment of retaining wall locations. These modifications have not altered the drainage concept established by the approved Grading & Drainage Plan. It is based upon this information that City acceptance is recommended and requested for this project.

Jeffrey G. Mortensen, 07-19-91
REGISTERED PROFESSIONAL ENGINEER



MATCH LINE ; FOR CONTINUATION SEE SHEET 2 OF 2

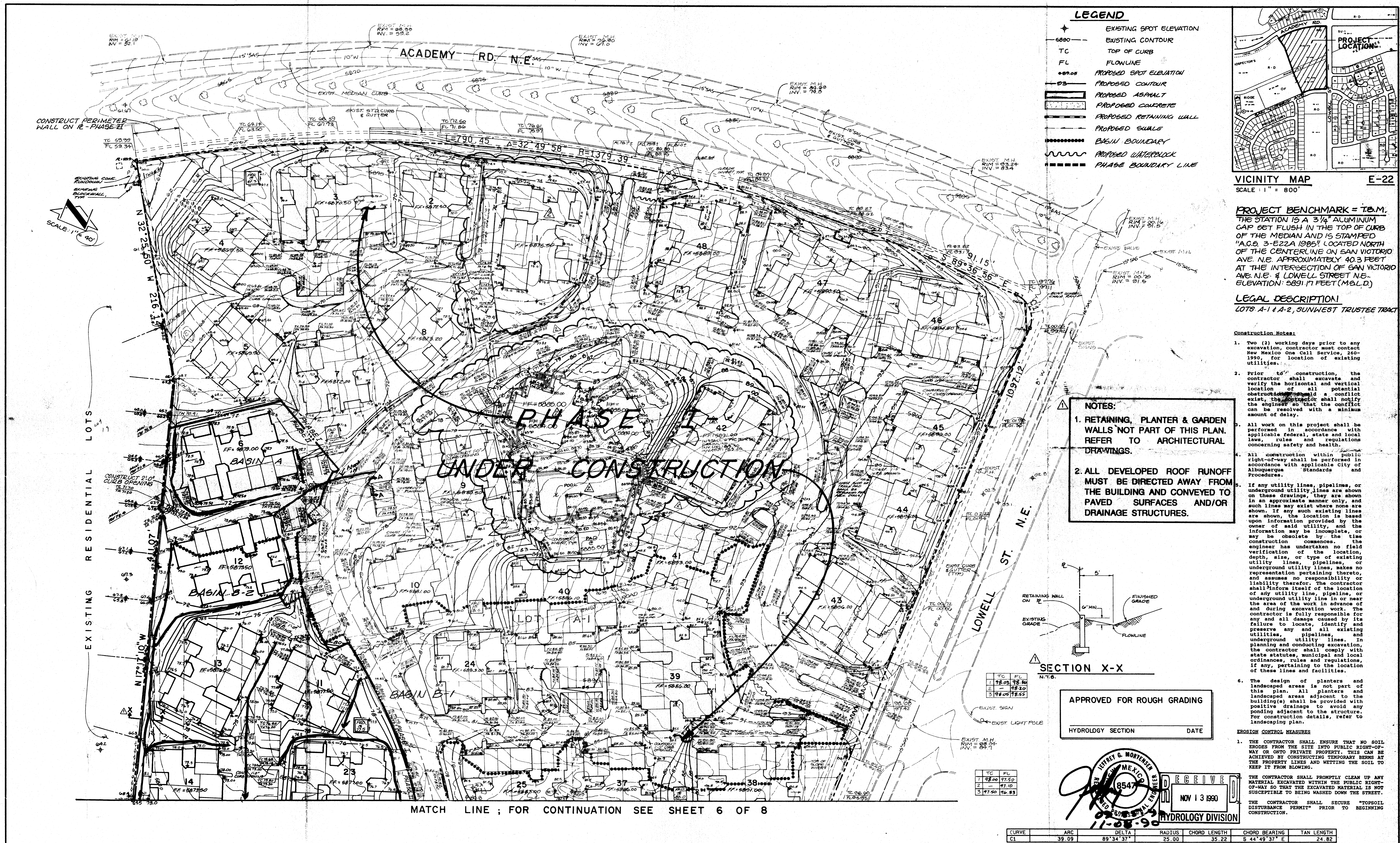


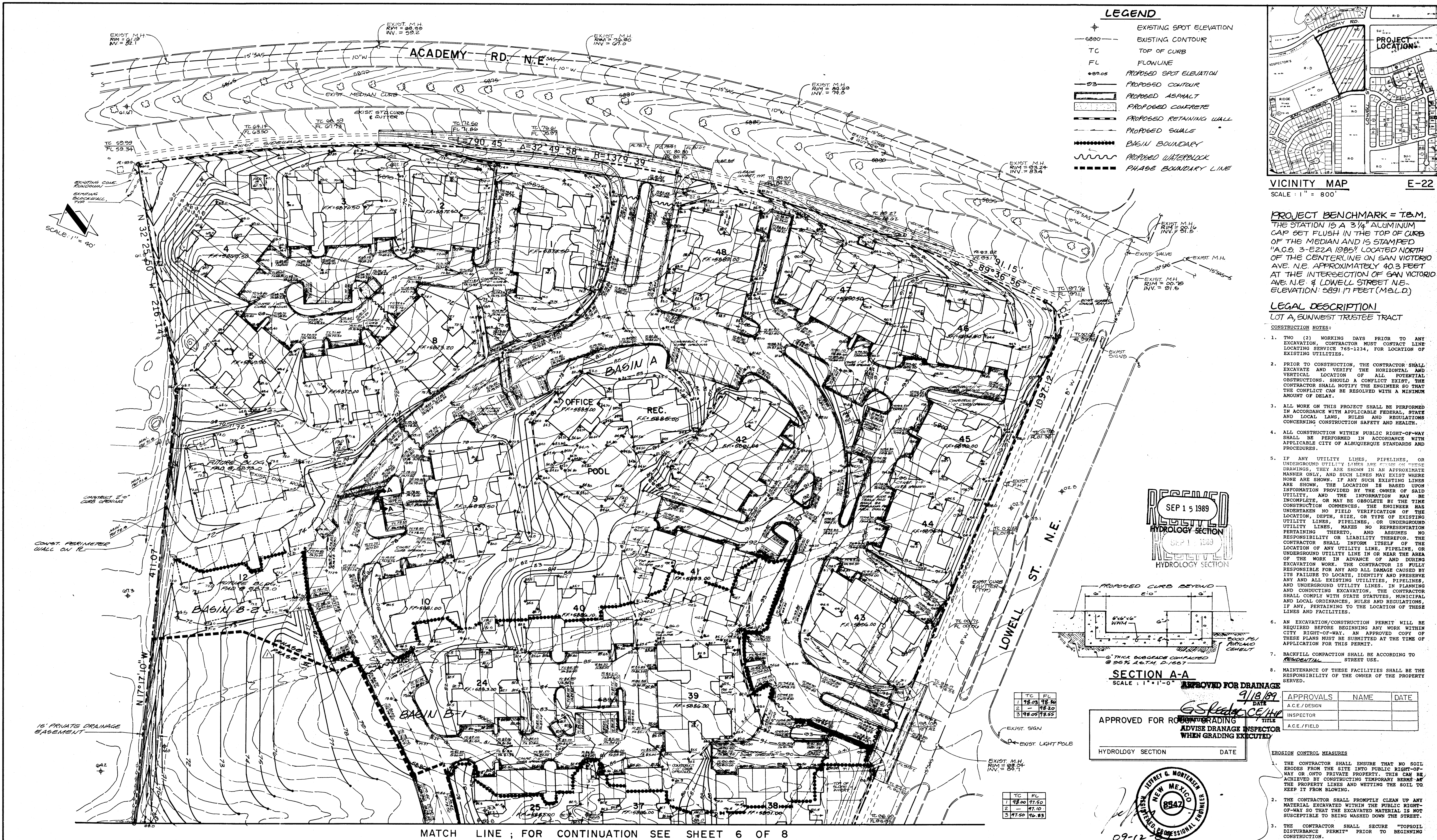
JEFF MORTENSEN & ASSOCIATES, INC.
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ALBUQUERQUE, NEW MEXICO 87109
ENGINEERS (505) 345-4250

GRADING AND DRAINAGE PLAN PAVILIONS - PHASE I

DESIGN BY	J.G.M.	No.	9/89	Date	7/91	By	J.G.M.	Revision	PHASING	JOB NO.	900655
DRAWN BY	J.M.A.								AS-BUILT & CERTIFY	DATE	07-1991
APPROVED BY	J.G.M.									SHEET	OF 2

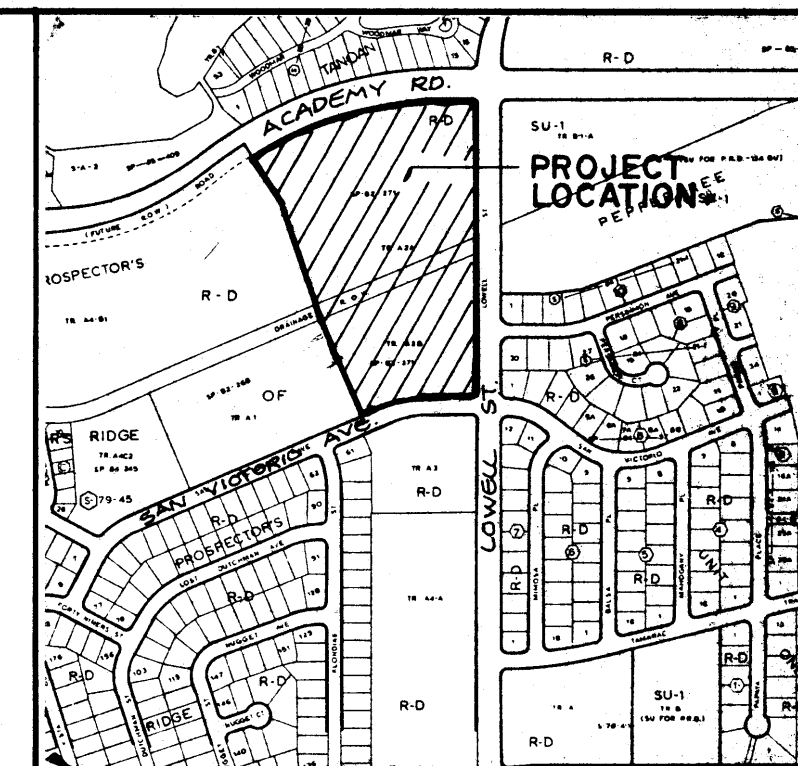
CURVE	ARC	DELTA	RADIUS	CHORD LENGTH	CHORD BEARING	TAN LENGTH
C1	39.09	89°34'37"	25.00	35.22	S 44°49'37" E	24.82





LEGEND

- EXISTING SPOT ELEVATION
- EXISTING CONTOUR
- TC TOP OF CURB
- FL FLOWLINE
- PROPOSED SPOT ELEVATION
- PROPOSED CONTOUR
- PROPOSED ASPHALT
- PROPOSED CONCRETE
- PROPOSED RETAINING WALL
- PROPOSED SWALE
- BASIN BOUNDARY
- PROPOSED WATERBLOCK
- PHASE BOUNDARY LINE



VICINITY MAP

SCALE: 1" = 800'

E-22

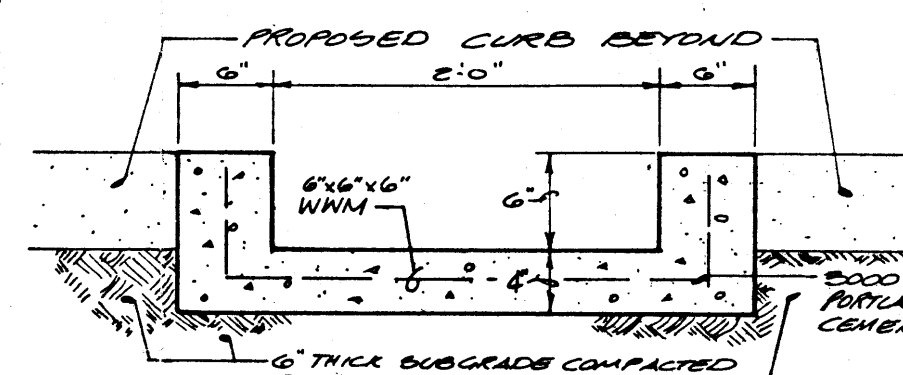
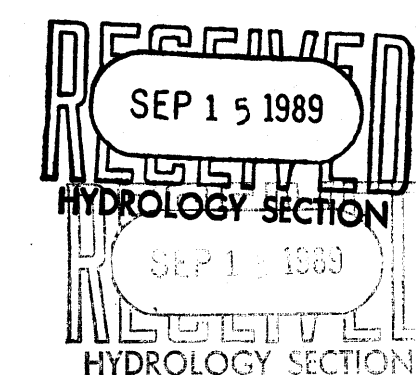
PROJECT BENCHMARK = T.B.M.
THE STATION IS A 3/4" ALUMINUM CAP SET FLUSH IN THE TOP OF CURB OF THE MEDIAN AND IS STAMPED "A.G.S. 3-222A 1986" LOCATED NORTH OF THE CENTERLINE ON SAN VICTORIO AVE. N.E. APPROXIMATELY 40.3 FEET AT THE INTERSECTION OF SAN VICTORIO AVE. N.E. & LOWELL STREET N.E. ELEVATION: 5891.17 FEET (M.S.L.D.)

LEGAL DESCRIPTION

LOT A, SUNWEST TRUSTEE TRACT

CONSTRUCTION NOTES:

- TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LOCATING SERVICE 765-1234, FOR LOCATION OF EXISTING UTILITIES.
- 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.
- 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.
- ALL CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE CITY OF ALBUQUERQUE STANDARDS AND PROCEDURES.
- IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE MANNER ONLY, AND SUCH LINES MAY EXIST WHERE NONE ARE SHOWN. IF ANY SUCH EXISTING LINES ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE OWNER OF SAID UTILITY, AND THE INFORMATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME CONSTRUCTION COMMENCES. THE ENGINEER HAS UNDERTAKEN NO FIELD VERIFICATION OF THE LOCATION, DEPTH, SIZE, OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES. MAKES NO REPRESENTATION PERTAINING THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFOR. THE CONTRACTOR SHALL INFORM ITSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE, OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK IN ADVANCE OF AND DURING EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES, AND UNDERGROUND UTILITY LINES. IN PLANNING AND CONDUCTING EXCAVATION, THE CONTRACTOR SHALL COMPLY WITH STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES.
- 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.
- BACKFILL COMPACTION SHALL BE ACCORDING TO RESIDENTIAL STREET USE.
- MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.



SECTION A-A

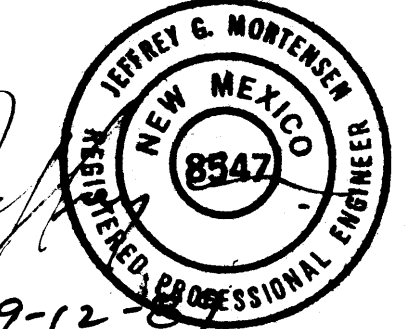
SCALE: 1" = 1'-0"

APPROVED FOR DRAINAGE

DATE	NAME	DATE
9/18/89	A.C.E./DESIGN	
	INSPECTOR	
	A.C.E./FIELD	

APPROVED FOR ROAD GRADING
ADVISE DRAINAGE INSPECTOR
WHEN GRADING EXECUTED

HYDROLOGY SECTION DATE



- EROSION CONTROL MEASURES**
- 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 BERM AT THE PROPERTY LINES AND WETTING THE SOIL TO KEEP IT FROM BLOWING.
 - 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.
 - THE CONTRACTOR SHALL SECURE "TOPSOIL DISTURBANCE PERMIT" PRIOR TO BEGINNING CONSTRUCTION.

CURVE	ARC	DELTA	RADIUS	CHORD LENGTH	CHORD BEARING	TAN LENGTH
C1	39.09	89°34'37"	25.00	35.22	S 44°49'37" E	24.82

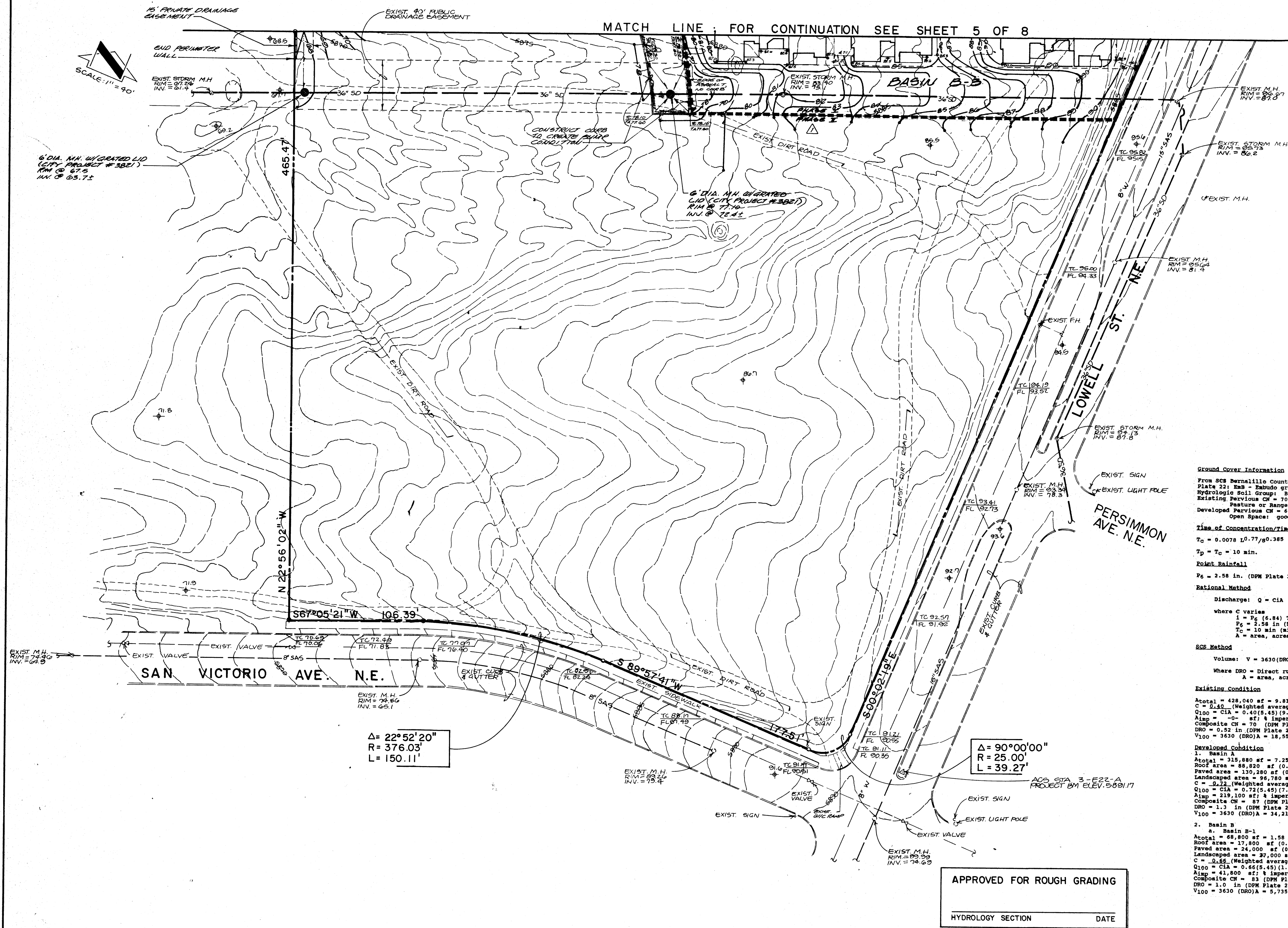


JEFF MORTENSEN & ASSOCIATES, INC.
811 DALLAS, N.E. DALLAS, TEXAS 75210
ENGINEERS TELEPHONE (955) 265-5611

GRADING AND DRAINAGE PLAN PAVILIONS - PHASE I

DESIGN BY	J.G.M.	No.	1	Date	9/18/89	By	J.G.M.	Revision	PHASING	JOB NO.	890911
DRAWN BY	J.M.A.									DATE	8 - 1989
APPROVED BY	J.G.M.									SHEET	5 OF 8

Requires P.E. Cert.



DRAINAGE PLAN

The following items concerning the Pavilions - Phase I Drainage Plan are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

As shown by the Vicinity Map, the site is located on the west side of Lowell Street N.E. between Academy Road N.E. and San Victorio Avenue N.E. At present, the site is undeveloped. The areas to the west of the site are presently being developed. The areas to the east and south are partially developed while the area to the north is undeveloped. In view of the state of the surrounding development, this is an infill site. At present, the site drains from east to west onto the adjoining property located west of the site. Offsite flows from the north, east and south appear to be contained in Academy Road N.E., Lowell Street N.E. and San Victorio Avenue N.E., respectively. We lower than the site. In conclusion, offsite flows are not a concern for this site. A public storm presence of this facility has been previously discussed by the Conceptual Grading and Drainage Plan for this site, as well as the Master Drainage Plan for this site. Those plans also demonstrate the ability of this site to freely discharge its runoff.

The Grading Plan shows 1) existing and proposed grades indicated by spot elevations and contours at 1'0" intervals, 2) continuity between existing and proposed grades, and 3) the limit and character of the proposed Phase I improvements. As shown by this plan, the Phase I improvements consist of the construction of apartments along with adjacent paving and landscaping. The Phase I portion of the project is confined to the northern portion of the site which, for the most part, lies to the north of the aforementioned public drainage easement. The runoff generated by Basin A will be directed to the northwest corner of the site as shown by the Master Drainage Plan for the complete development of three sub-basins, Basin B-1, Basin B-2, and Basin B-3. Of these three sub-basins, Basin B-1 is the largest, generating approximately 5.7 cfs. This runoff is collected by the main private street which runs through the site. The runoff is then drained within that street to the south to a sump condition which will be created within the paving above the aforementioned public storm drain facility. A manhole with a grates lid will be constructed at this point to accept this runoff into the public storm drain. Basin B-2 is a relatively small area which will generate only 0.7 cfs. In the interim, grading will be performed to convey that small amount of runoff to the south where it will enter the public storm drain. This will be accomplished through the construction of another manhole with a grates lid. Both manholes will be constructed by City Work Order (Project No. 3821). Basin B-3 will consist of some roof area, landscaping, and a portion of the public storm drain easement. This too is a relatively small area generating only about 2.0 cfs. This 2.0 cfs will flow on the surface of the public storm drain easement and will be intercepted by the same manhole with a grates lid which has been described as the outfall for Basin B-1. This will result in approximately 7.7 cfs being discharged to that manhole with the grates lid. Due to the fact that this is a sump condition, the proposed structure will be more than adequate to accept that amount of runoff.

The Calculations which appear hereon analyze both the existing and developed conditions for the 100-year, 6-hour rainfall event. The Rational Method has been used to quantify the peak rate of discharge while the SCS Method has been used to quantify the volume of runoff generated by the proposed improvements. Both Methods have been used in accordance with the City of Albuquerque Development Process Manual, Volume II, and the Mayor's Emergency Rule adopted January 14, 1986. As shown by these calculations, the proposed improvements will result in a net increase in peak runoff from this site.

In view of the fact that this site will now undergo phase development, all portions of the site disturbed by the grading operations must be addressed in regard to erosion control. As shown by the grading plan, the amount of the site which may be disturbed by the Phase I construction has been minimized, nonetheless, that area will need to be treated for erosion control. Because of this, an erosion control plan has been created for this site and is hereby incorporated into this submittal.

Ground Cover Information	
From SCS Bernalillo County Soil Survey, Plate 22: Bas - Embudo gravelly fine sandy loam	
Hydrologic Soil Group: B	
Existing Pervious CN = 70 (DPM Plate 22.2 C-2)	
Pasture or Range Land: fair condition	
Developed Pervious CN = 61 (DPM Plate 22.2 C-2)	
Open Space: good condition	
Time of Concentration/Time to Peak	
$T_c = 0.0078 \cdot 10.77 / 0.385$ (Kirpich Equation)	
$T_p = T_c = 10 \text{ min.}$	
Point Rainfall	
$P_2 = 2.58 \text{ in. (DPM Plate 22.2 D-1)}$	
Rational Method	
Discharge: $Q = CIA$	
where C varies	
$I = P_2 (6.84) T_c^{-0.51} = 5.45 \text{ in/hr}$	
$P_2 = 2.58 \text{ in (DPM Plate 22.2D-1)}$	
$T_c = 10 \text{ min (minimum)}$	
A = area, acres	
SCS Method	
Volume: $V = 3630 \text{ (DRO) A}$	
Where DRO = Direct runoff in inches	
A = area, acres	
Existing Condition	
Atotal = 428,040 sf = 9.83 Ac	
C = 0.40 (Weighted average per Emergency Rule, 1/14/86)	
$Q_{100} = CIA = 0.40(5.45)(9.83) = 21.4$	
Atmp = -0.0 sf; 8 impervious = -0.4	
Composite CN = 70 (DPM Plate 22.2 C-2)	
DRO = 0.52 in (DPM Plate 22.2 C-4)	
$V_{100} = 3630 \text{ (DRO)A} = 18,385 \text{ cf}$	
Developed Condition	
1. Basin A	
Atotal = 315,880 sf = 7.25 Ac	
Roof area = 88,820 sf (0.28)	
Paved area = 130,280 sf (0.41)	
Landscaped area = 96,780 sf (0.31)	
C = 0.22 (Weighted average per Emergency Rule, 1/14/86)	
$Q_{100} = CIA = 0.22(5.45)(7.25) = 28.4 \text{ cfs}$	
Atmp = 219,100 sf; 8 impervious = 60.4	
Composite CN = 87 (DPM Plate 22.2 C-2)	
DRO = 1.3 in (DPM Plate 22.2 C-4)	
$V_{100} = 3630 \text{ (DRO)A} = 34,213 \text{ cf}$	
2. Basin B-1	
Atotal = 68,800 sf = 1.58 Ac	
Roof area = 17,800 sf (0.26)	
Paved area = 24,000 sf (0.35)	
Landscaped area = 27,000 sf (0.39)	
C = 0.66 (Weighted average per Emergency Rule, 1/14/86)	
$Q_{100} = CIA = 0.66(5.45)(1.58) = 5.7 \text{ cfs}$	
Atmp = 41,800 sf; 8 impervious = 61.4	
Composite CN = 83 (DPM Plate 22.2 C-2)	
DRO = 1.0 in (DPM Plate 22.2 C-4)	
$V_{100} = 3630 \text{ (DRO)A} = 5,735 \text{ cf}$	
3. Basin B-2	
Atotal = 11,760 sf = 0.27 Ac	
Roof area = 3,700 sf (0.31)	
Landscaped area = 4,060 sf (0.69)	
C = 0.42 (Weighted average per Emergency Rule, 1/14/86)	
$Q_{100} = CIA = 0.42(5.45)(0.27) = 0.7 \text{ cfs}$	
Atmp = 1,700 sf; 8 impervious = 31.4	
Composite CN = 78 (DPM Plate 22.2 C-2)	
DRO = 0.8 in (DPM Plate 22.2 C-4)	
$V_{100} = 3630 \text{ (DRO)A} = 785 \text{ cf}$	
4. Basin B-3	
Atotal = 31,600 sf = 0.73 Ac	
Roof area = 9,000 sf (0.28)	
Landscaped area = 5,000 sf (0.28)	
Unpaved area = 13,600 sf (0.44)	
C = 0.40 (Weighted average per Emergency Rule, 1/14/86)	
$Q_{100} = CIA = 0.40(5.45)(0.73) = 2.0 \text{ cfs}$	
Atmp = 9,000 sf; 8 impervious = 28.4	
Composite CN = 75 (DPM Plate 22.2 C-2)	
DRO = 0.82 in (DPM Plate 22.2 C-4)	
$V_{100} = 3630 \text{ (DRO)A} = 1,643 \text{ cf}$	
Comparison	
$\Delta Q_{100} = (28.4 + 5.7 + 0.7 + 2.0) - 21.4 = 15.4 \text{ cfs (increase)}$	
$\Delta V_{100} = (34,213 + 5,735 + 785 + 1,643) - 18,385 = 23,821 \text{ cf (increase)}$	

RECEIVED
SEP 15 1989
HYDROLOGY SECTION

RECEIVED
SEP 15 1989
HYDROLOGY SECTION

APPROVED FOR DRAINAGE
9/18/89
DATE
09-12-89
ADVISE DRAINAGE INSPECTOR
WHEN GRADING EXECUTED



JEFF MORTENSEN & ASSOCIATES, INC.
811 DALLAS, N.E. ALBUQUERQUE, NM 87110
ENGINEERS TELEPHONE (505) 265-5611

GRADING AND DRAINAGE PLAN
PAVILIONS - PHASE I

DESIGN BY	J.G.M.	No.	Date	By	Revision	JOB NO.	890911
DRAWN BY	J.M.A.	1	9/18/89	J.G.M.	PHASING	DATE	8 - 1989
APPROVED BY	J.G.M.					SHEET	6 OF 8