Table of Contents

File 1981-0063-c
Date 2/8/02

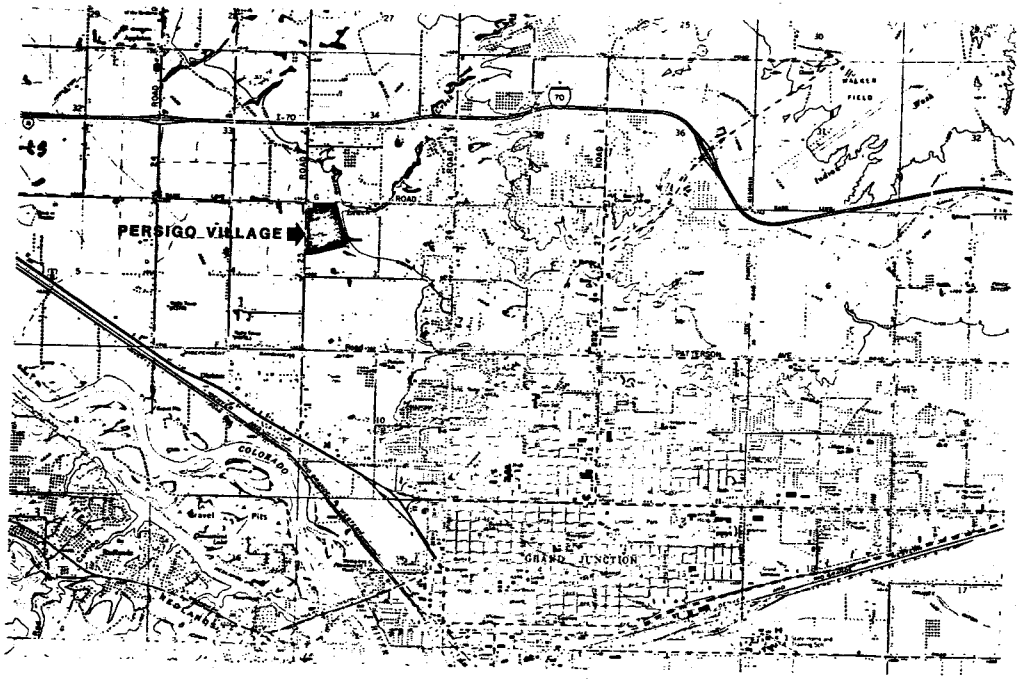
Project Name: Persigo Village – Final

Present	Scanned	
		A few items are denoted with an asterisk (*), which means they are to be scanned for permanent record on the in some instances, not all entries designated to be scanned by the department are present in the file. There are also documents specific to certain files, not found on the standard list. For this reason, a checklist has been provided. **Remaining items, (not selected for scanning), will be marked present on the checklist. This index can serve as a quick guide for the contents of each file.** **Files denoted with (**) are to be located using the ISYS Query System. Planning Clearance will need to be typed in full, as well as other entries such as Ordinances, Resolutions, Board of Appeals, and etc.**
X		***Summary Sheet – Table of Contents**
X	X	Review Sheet Summary
X		Application form
X		Review Sheets
		Receipts for fees paid for anything
		***Submittal checklist**
		***General project report**
		Reduced copy of final plans or drawings
		Reduction of assessor's map
		Evidence of title, deeds
X	X	***Mailing list to adjacent property owners**
		Public notice cards
		Record of certified mail
X		Legal description
		Appraisal of raw land
		Reduction of any maps – final copy
		***Final reports for drainage and soils (geotechnical reports)**
		Other bound or nonbound reports
		Traffic studies
		Individual review comments from agencies
		***Consolidated review comments list**
X	X	***Petitioner's response to comments**
		***Staff Reports**
		***Planning Commission staff report and exhibits**
		***City Council staff report and exhibits**
		***Summary sheet of final conditions**
		***Letters and correspondence dated after the date of final approval (pertaining to change in conditions or expiration date)**

DOCUMENTS SPECIFIC TO THIS DEVELOPMENT FILE:

X	X	Action Sheet	X	X	Letter from James Langford to Bob Golden re: chanages in project – 11/9/82
X	X	Review Sheet Summary	X	X	Development Schedule
X		Review Sheets	X		Subdivision Summary From
X		Traffic Impact Analysis	X	X	Development Improvement Agreement - ** - (to be scanned)
X		Traffic Distrubution Diagram	X	X	Planning Commission Minutes - ** - 10 26/ 82
X		Proposed Adjacent Land Use	X		Floor Plan
X		Subdivision Summary Form	X		Adjacent Property Owners Diagram
X	X	Preliminary Geotechnical Report	X		Preliminary Plat
X	X	Pavement Section Design	X		Traffic Control and Circulation
X		Drainage Report	X		Sidewalk Sections and Lot 1 / Lot 3 Parking
X		Memo from City Planning to City Utilities re: petitioner changing project from apartments to condos – 6/3/83	X	X	Landscape / Screening Map
X		Valuation Section - appraisal – 11/17/82	X	X	Final Plat
X		Public Notice Posting – 8/16/83 & 10/12/82	X		Grading, Drainage & Site Plan

VICINITY MAP



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3/3

OWNER:
PWS INVESTMENTS
P O BOX 2026
GRAND JUNCTION, CO 81502

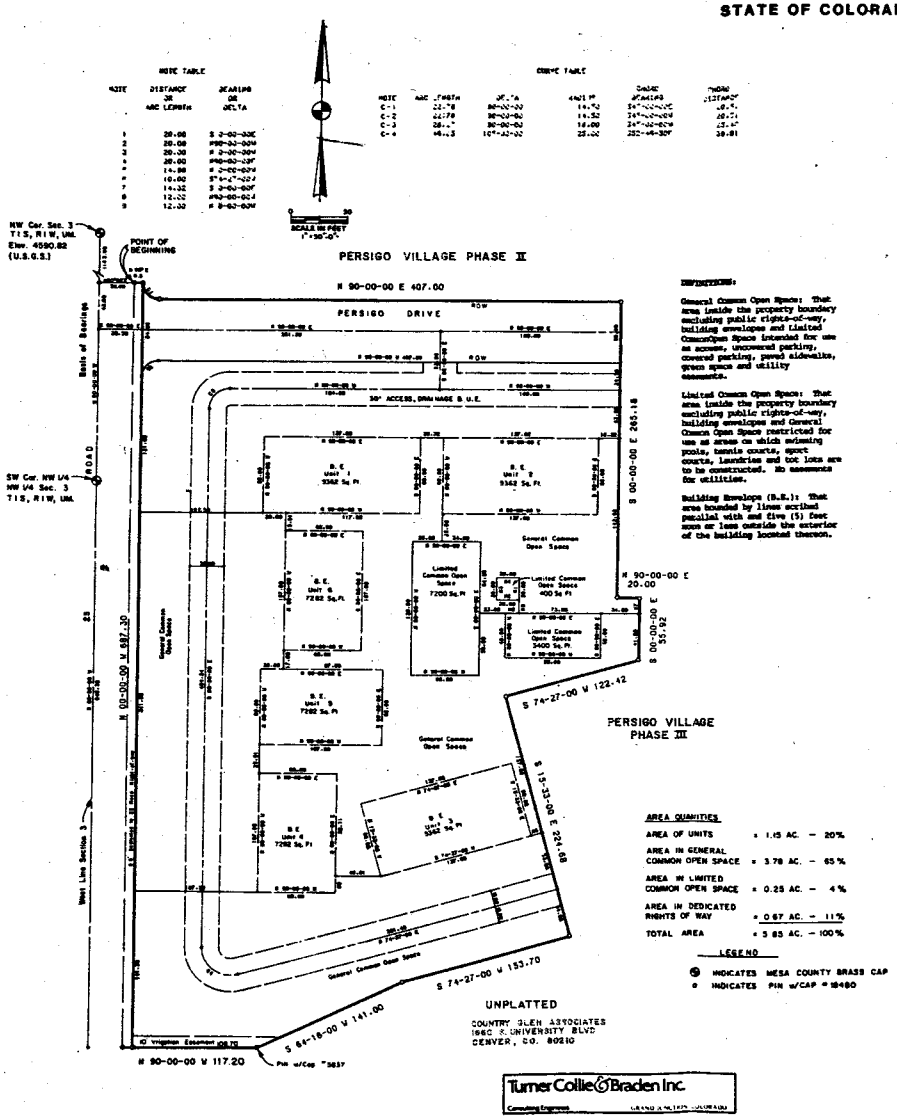
DEVELOPER:
LOGOS CONSTRUCTION
727 23 ROAD
GRAND JUNCTION, CO 81501

FINAL PLAT OF
PERSIGO VILLAGE
A 740 MULTI-FAMILY UNIT DEVELOPMENT

Turner Collie & Braden Inc.
Consulting Engineers

PERSIGO VILLAGE, PHASE I

A PART OF THE NORTHWEST ONE QUARTER OF SECTION 3, TOWNSHIP 1 SOUTH, RANGE 1 WEST UTE MERIDIAN CITY OF GRAND JUNCTION, COUNTY OF MESA, STATE OF COLORADO



DEFINITIONS:

General Common Open Space: That area inside the property boundary excluding public rights-of-way, building envelopes and Limited Common Open Space intended for use as accessory uncovered parking, covered parking, paved sidewalks, green space and utility easements.

Limited Common Open Space: That area inside the property boundary excluding public rights-of-way, building envelopes and General Common Open Space restricted for use as areas on which swimming pools, tennis courts, sport courts, laundries and tot lots are to be constructed. No easements for utilities.

Building Envelope (B.E.)s: That area bounded by lines scribed parallel with and five (5) feet more or less outside the exterior of the building located thereon.

AREA QUANTITIES

AREA OF UNITS	= 1.15 AC.	= 20%
AREA IN GENERAL COMMON OPEN SPACE	= 3.78 AC.	= 65%
AREA IN LIMITED COMMON OPEN SPACE	= 0.25 AC.	= 4%
AREA IN DEDICATED RIGHTS OF WAY	= 0.67 AC.	= 11%
TOTAL AREA	= 5.85 AC.	= 100%

LEGEND

⊕ INDICATES MESA COUNTY BRASS CAP
• INDICATES PIN w/CAP = 18480

Turner Collie & Braden Inc.
Consulting Engineers

DEDICATION

KNOW ALL MEN BY THESE PRESENTS:

That the undersigned PWE Investments, a Colorado partnership, is the owner of that real property situated in the City of Grand Junction, County of Mesa, State of Colorado. Said real property being a part of the northwest one quarter (NW 1/4) of Section 3, Township 1 South, Range 1 West of the Ute Meridian as shown on the accompanying plat and being more particularly described as follows:

Commencing at the northwest corner of said Section 3 from whence the west one quarter corner of said Section 3 bears S 00° 00' 00" W 2640.52 feet with all bearings contained herein being relative thereto;

Thence along the west line of said Section 3 S 00° 00' 00" W 1143.00 feet;

Thence departing said west line N 90° 00' 00" E 30.00 feet to a point on the easterly right-of-way (R.O.W.) line of 25 Road. Said point being the POINT OF BEGINNING;

Thence departing said easterly R.O.W. N 90° 00' 00" E 8.50 feet to a point on a curve;

Thence 22.76 feet along the arc of a non-tangent curve to the left having a central angle of 90° 00' 00", a radius of 14.50 feet and whose long chord bears S 45° 00' 00" E 20.51 feet;

Thence N 90° 00' 00" E 407.00 feet;
Thence S 00° 00' 00" E 265.18 feet;
Thence N 90° 00' 00" E 20.00 feet;
Thence S 00° 00' 00" E 55.92 feet;
Thence S 74° 27' 00" W 122.42 feet;
Thence S 15° 33' 00" E 224.68 feet;
Thence S 74° 27' 00" W 153.70 feet;
Thence S 64° 16' 00" W 141.00 feet;
Thence N 90° 00' 00" W 117.20 feet to the easterly R.O.W. of said 25 Road;
Thence along said easterly R.O.W. N 00° 00' 00" W 687.30 feet to the POINT OF BEGINNING. Containing 5.85 acres more or less.

That said owners have caused the said real property to be laid out and surveyed as PERSIGO VILLAGE, PHASE I, City of Grand Junction, County of Mesa, State of Colorado.

That said owners do hereby dedicate and set apart the streets as shown on the accompanying plat for the use of the public forever and hereby dedicate those portions of said real property which are labeled as utility easements and General Common Open Space on the accompanying plat as perpetual easements for the installation and maintenance of utilities, irrigation and drainage facilities, including but not limited to, electric lines, gas lines, telephone lines; together with the right to trim interfering trees and brush; with perpetual right of ingress and egress for installation and maintenance of such lines. Such easements and rights shall be utilized in a reasonable and prudent manner.

IN WITNESS WHEREOF said owners have caused their names to be hereunto subscribed this 1ST day of OCTOBER, A.D. 1982.

PWE INVESTMENTS, a Colorado Partnership

Ray Painter — Ray Painter, General Partner
Clifford K. Wangeo — Clifford K. Wangeo, General Partner
Kenneth M. Simons — Kenneth M. Simons, General Partner

State of Colorado)
) SS
County of)

The foregoing dedication was acknowledged before me this 1ST day of OCTOBER A.D., 1982 by RAY PAINTER, CLIFFORD K. WANGEO AND KENNETH M. SIMONS

My commission expires 08-08-85.

Witness my hand and official seal.

Notary Public

CITY APPROVAL

This plat of PERSIGO VILLAGE, PHASE I, a subdivision of the City of Grand Junction, County of Mesa, State of Colorado, was approved this _____ day of _____ A.D., 1982.

City Manager — President of Council — Chairman, Grand Junction Planning Commission

Director of Development — Grand Junction City Engineer

SURVEYOR'S CERTIFICATE

I, Kenneth Scott Thompson, do hereby certify that I am a Registered Land Surveyor licensed under the laws of the State of Colorado. That this plat is a true, correct and complete plat of the dedication of PERSIGO VILLAGE, PHASE I as laid out, platted, dedicated and shown hereon. That such plat was made from an accurate survey of said property by me and under my supervision and correctly shows the location and dimensions of said streets and is in compliance with applicable requirements governing the subdivision of land.

IN WITNESS WHEREOF I have set my hand and seal this 30TH day of September, A.D. 1982.

Kenneth Scott Thompson
REGISTERED LAND SURVEYOR

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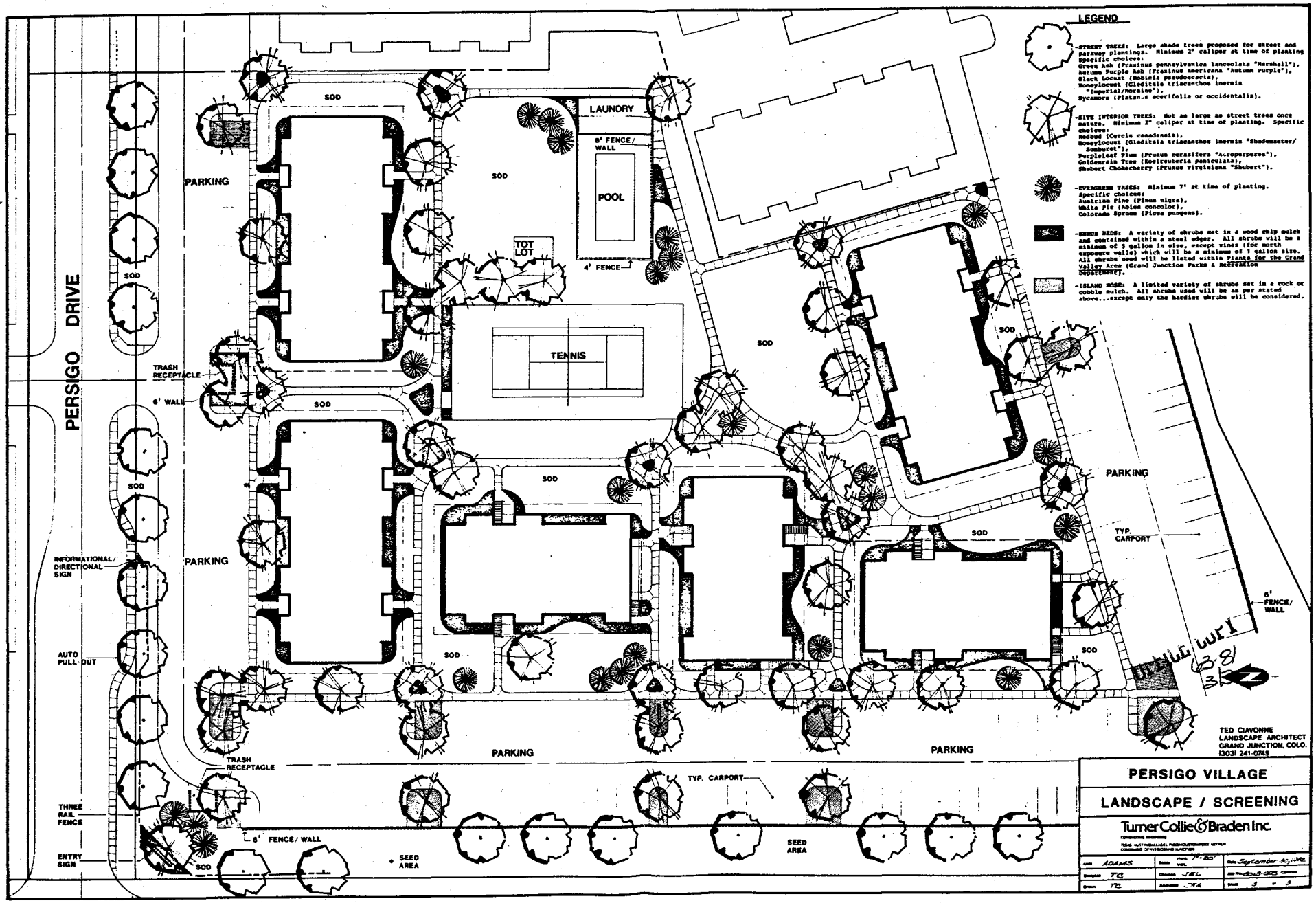
NOTICE: According to Colorado law you must commence any legal action based upon any defect in this survey within six years after you first discover such defect. In no event, may any action based upon any defect in this survey be commenced more than ten years from the date of the certification shown hereon.

CLERK AND RECORDER'S CERTIFICATE

STATE OF COLORADO)
) SS
COUNTY OF MESA)

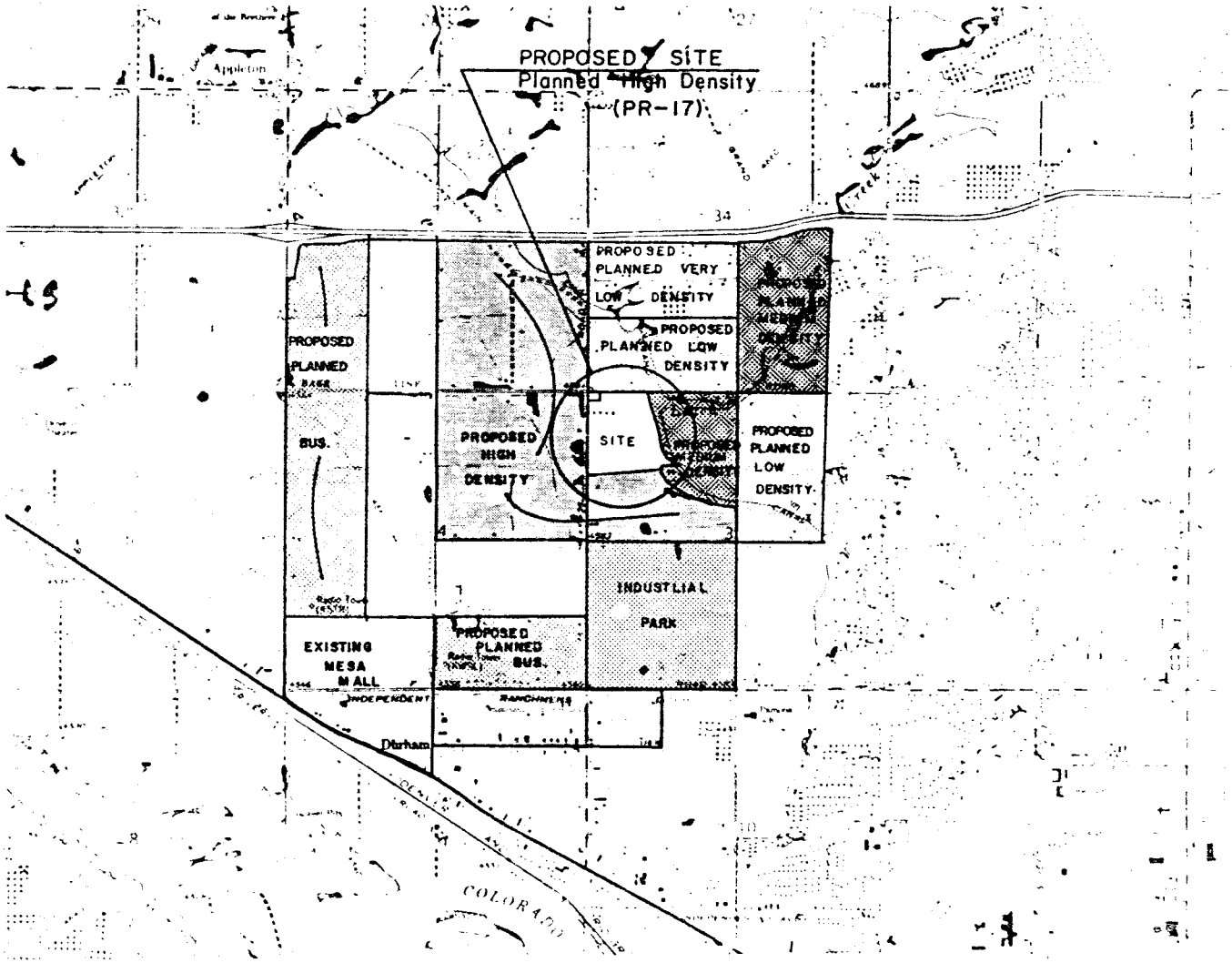
I do hereby certify that this instrument was filed in my office at _____ o'clock __M. this _____ day of _____, A.D., 19___ and is duly recorded in Plat Book No. _____, Page _____.

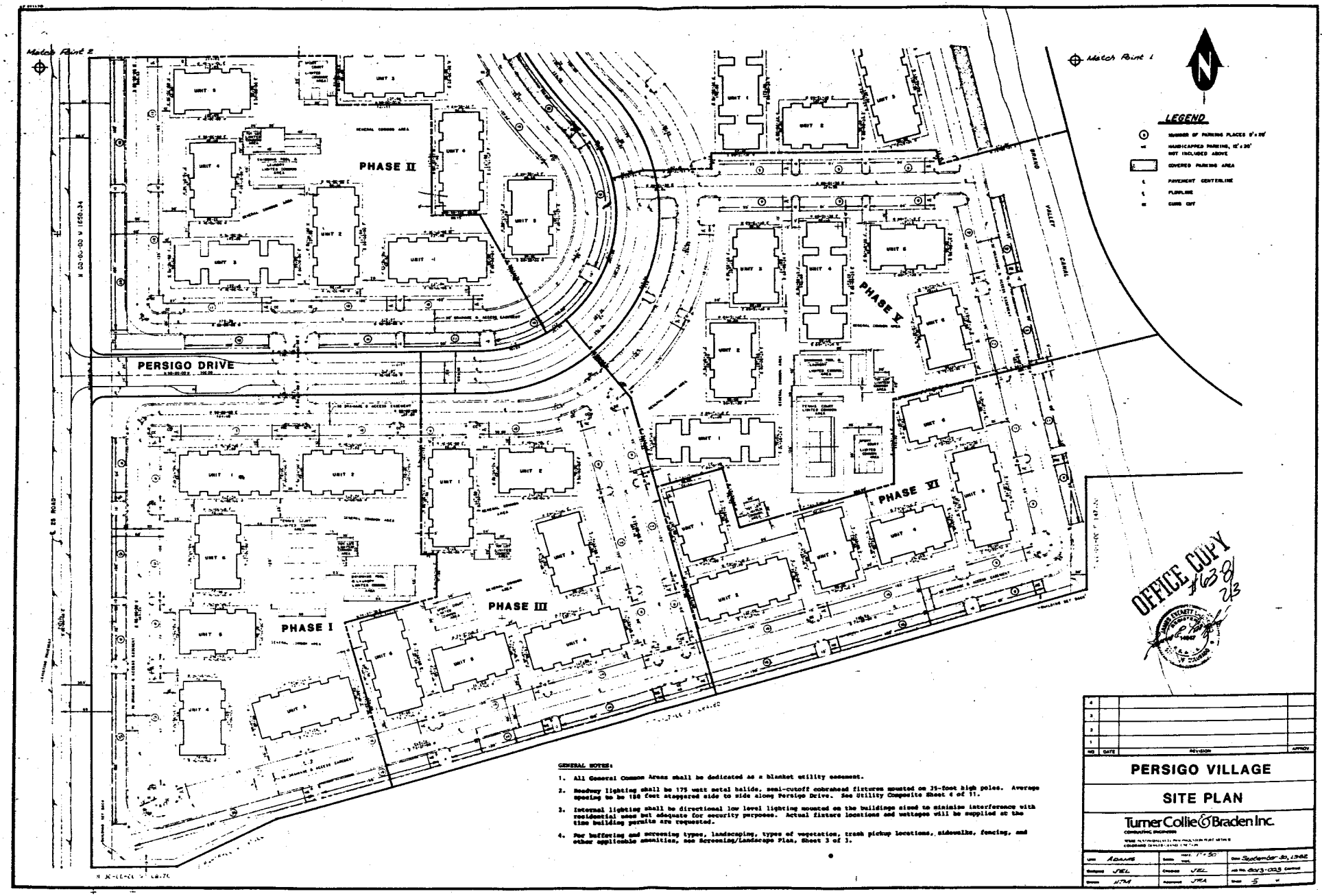
Clerk and Recorder — Deputy — Fees: $_____


PERSIGO DRIVE
SOD
PARKING
LAUNDRY
6' FENCE/ WALL
POOL
TOT LOT
4' FENCE
TENNIS
TRASH RECEPTACLE
6' WALL
INFORMATIONAL/ DIRECTIONAL SIGN
AUTO PULL-OUT
THREE RAIL FENCE
ENTRY SIGN
6' FENCE / WALL
SEED AREA
TYP. CARPORT
6' FENCE/ WALL
LEGEND
-STREET TREES: Large shade trees proposed for street and parkway plantings. Minimum 2" caliper at time of planting. Specific choices:
Green Ash (Fraxinus pennsylvanica lanceolata "Marshall"),
Autumn Purple Ash (Fraxinus americana "Autumn purple"),
Black Locust (Robinia pseudoacacia),
Honeylocust (Gleditsia triacanthos inermis "Imperial/Moraine"),
Sycamore (Platanus acerifolia or occidentalis).
-SITE INTERIOR TREES: Not as large as street trees once mature. Minimum 2" caliper at time of planting. Specific choices:
Redbud (Cercis canadensis),
Honeylocust (Gleditsia triacanthos inermis "Shademaster/ Sunburst"),
Purpleleaf Plum (Prunus cerasifera "Atropurpurea"),
Goldenrain Tree (Koelreuteria paniculata),
Shubert Chokecherry (Prunus virginiana "Shubert").
-EVERGREEN TREES: Minimum 7' at time of planting. Specific choices:
Austrian Pine (Pinus nigra),
White Fir (Abies concolor),
Colorado Spruce (Picea pungens).
-SHRUB BEDS: A variety of shrubs set in a wood chip mulch and contained within a steel edger. All shrubs will be a minimum of 5 gallon in size, except vines (for north exposure walls) which will be a minimum of 1 gallon size. All shrubs used will be listed within Plants for the Grand Valley Area (Grand Junction Parks & Recreation Department).
-ISLAND BEDS: A limited variety of shrubs set in a rock or cobble mulch. All shrubs used will be as per stated above...except only the hardier shrubs will be considered.
TED CIAVONNE
LANDSCAPE ARCHITECT
GRAND JUNCTION, COLO.
(303) 241-0745
PERSIGO VILLAGE
LANDSCAPE / SCREENING
Turner Collie & Braden Inc.
ADAMS
TC
TC
JEL
September 30, 1982
3 of 3

PERSIGO VILLAGE

Proposed Adjacent Land Use





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GENERAL NOTES:

1. All General Common Areas shall be dedicated as a blanket utility easement.
2. Roadway lighting shall be 175 watt metal halide, semi-cutoff cobrahead fixtures mounted on 35-foot high poles. Average spacing to be 150 feet staggered side to side along Persigo Drive. See Utility Composite Sheet 4 of 11.
3. Internal lighting shall be directional low level lighting mounted on the buildings aimed to minimize interference with residential uses but adequate for security purposes. Actual fixture locations and wattages will be supplied at the time building permits are requested.
4. For buffering and screening types, landscaping, types of vegetation, trash pickup locations, sidewalks, fencing, and other applicable amenities, see Screening/Landscape Plan, Sheet 3 of 3.

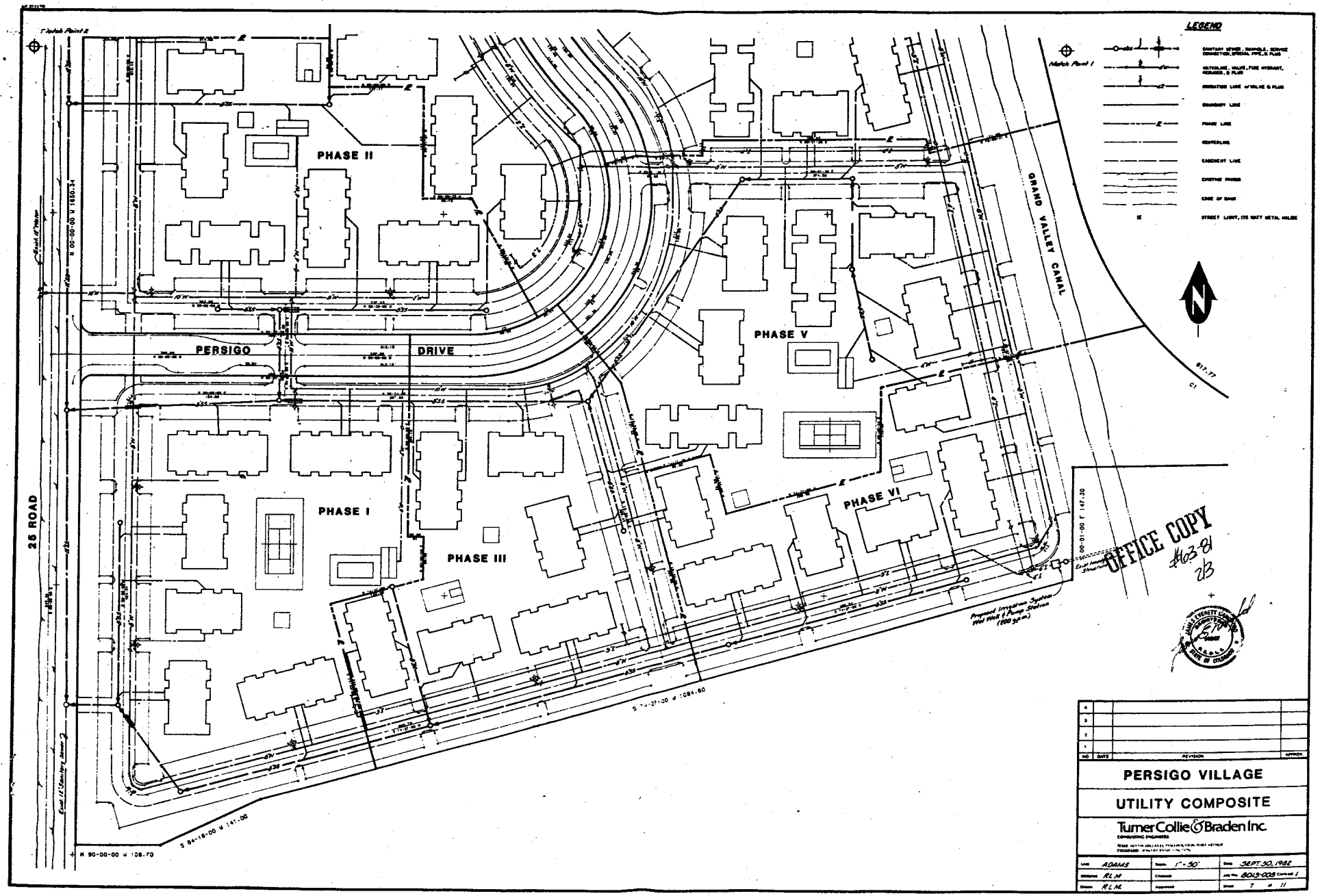
NO	DATE	REVISION	APPROV
4			
3			
2			
1			

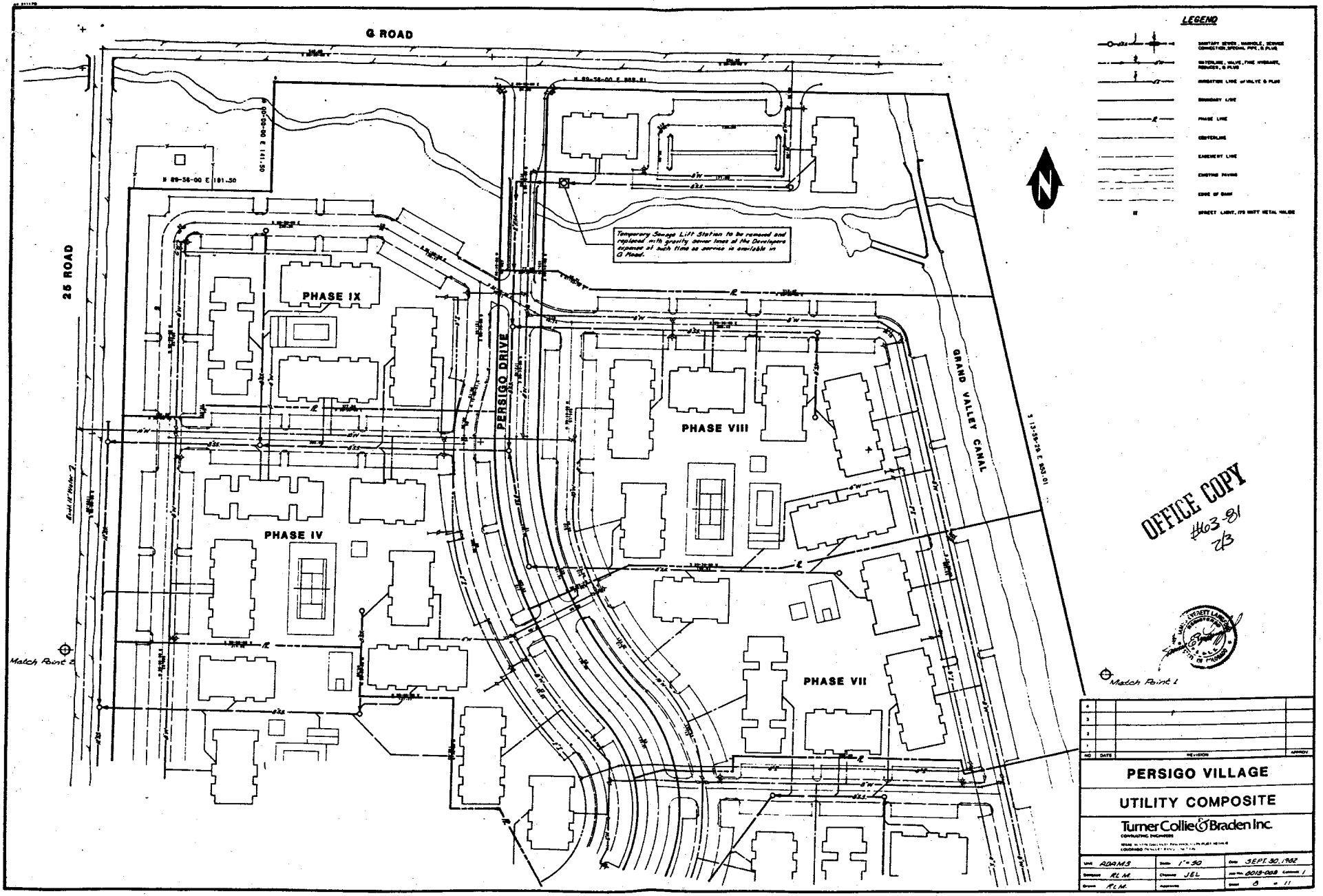
PERSIGO VILLAGE

SITE PLAN

Turner Collie & Braden Inc.
CONSULTING ENGINEERS

Job	ADAMS	Scale	Hor. 1"=50'
Designed	JEL	Checked	JEL
Drawn	JTM	Approved	JTA
Date	September 30, 1982		
Job No.	2013-003		
Sheet	5		


LEGEND
PHASE I
PHASE II
PHASE III
PHASE V
PHASE VI
PERSIGO
DRIVE
25 ROAD
GRAND VALLEY CANAL
OFFICE COPY
#103-81
23
PERSIGO VILLAGE
UTILITY COMPOSITE
Turner Collie & Braden Inc.
CONSULTING ENGINEERS
ADAMS
1"=50'
SEPT. 30, 1982
RLM
RLM
7 of 11


G ROAD
25 ROAD
PERSIGO DRIVE
GRAND VALLEY CANAL
PHASE IX
PHASE VIII
PHASE IV
PHASE VII
Temporary Sewage Lift Station to be removed and replaced with gravity sewer lines at the Developers expense at such time as service is available in G Road.
Match Point 2
Match Point 1
LEGEND
OFFICE COPY
#63-81
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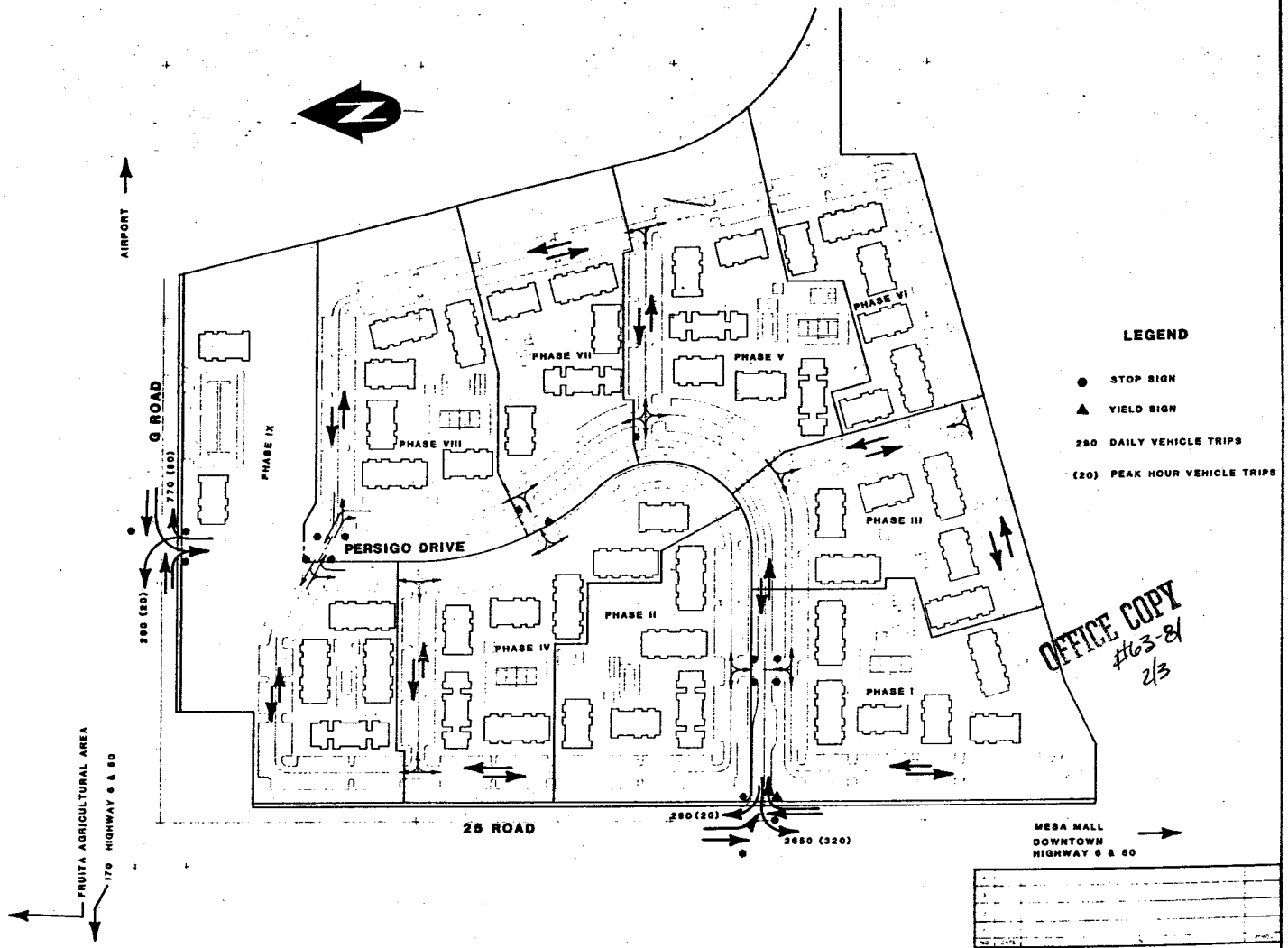
PERSIGO VILLAGE
UTILITY COMPOSITE
Turner Collie & Braden Inc.
CONSULTING ENGINEERS
SEPT 30, 1982



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PERSIGO VILLAGE
TRAFFIC CONTROL & CIRCULATION

Turner Collie & Braden Inc.

ADAMS			September 30, 1981
RH		JBL	
ATM		JRA	

TRAFFIC IMPACT ANALYSIS

FOR

PERSIGO VILLAGE

I Daily Vehicle-Trip Generation

A. Land use category:
Low-rise apartments (less or equal to 2 levels)

B. Trip generation rate:
5.4 trips.unit, source: "Institute of Transportation Engineer's Trip Generation Manual", 1979
740 units x 5.4 trips/unit = 3996 daily vehicle trips into and out of the site proper
(use 4000)

II P.M. Peak-Hour Traffic

A. Same land use category as I

B. P.M. peak-hour trip rate:
inbound = 0.4 trips/unit
outbound = 0.2 trips/unit
source: "Institute of Transporation Engineer's Trip Generation Manual", 1979

inbound: 0.4 trips/unit x 740 units = 296 (use 300)
outbound: 0.2 trips/unit x 740 units = 148 (use 150)

NOTE: Therefore, for this type of land use, 11.3% (450/4000) of the daily traffic will occur in the P.M. peak-hour. Directional traffic will be reversed in the A.M. peak-hour, i.e. 300 outbound and 150 inbound.

III Trip Purpose Distribution

Trip Purpose	Percent of Total Daily Trips*	Daily Trips By Purpose
A. Work/Personal Business	49%	1960
B. Social/Recreation	13%	520
C. Education	17%	680
D. Shopping	18%	720
E. Other	3%	120
	100%	4000

*Source: Based on an average of 3 persons/household, "Transportation and Traffic Engineering Handbook", The Institute of Transporation Engineers, 1976.

IV Daily Trip Distribution by General Location of Trip Purpose

A. Work/Personal Business
75% southbound x 1960 = 1470
20% eastbound x 1960 = 392
5% westbound x 1960 = 98

B. Social/Recreation
50% southbound x 520 = 260
50% westbounbd x 520 = 260

C. Education
50% eastbound x 680 = 340
50% southbound x 680 = 340

D. Shopping
75% southbound x 720 = 540
25% westbound x 720 = 180

E. Other
33% eastbound x 120 = 40
33% southbound x 120 = 40
33% westbound x 120 = 40

TOTAL 4000 vehicle trips

NOTE: All directions (from the site proper) are assumed based on the general knowledge of destinations for each trip purpose. All southbound trips will exit/enter from 25 Road, all eastbound trips will exit/enter from G Road, and westbound trips will exit/enter one-half from 25 Road and one-half from G Road. Northbound trips are included in westbound trips since these trips will first go west from the site proper.

V Total Daily Traffic by Direction

A. Southbound = 1470 + 260 + 340 + 540 + 40 = 2650
B. Eastbounbd = 392 + 340 + 40 = 772 (use 770)
C. Westbound = 98 + 260 + +180 + 40 = 578 (use 580)

TOTAL 4000 vehicle trips

VI P.M. Peak-Hour Trip Distribution by General Location of Trip Purpose

(Assumes 80% of all P.M. peak-hour trips are work related trips, and the remaining 20% are divided equally among the other trip purposes) Refer to II for P.M. peak-hour traffic development and to IV for directional distributions for each trip purpose.

A. Work/Personal Business
.80 x 4550 = 360 total P.M. peak-hour trips
75% southbound x 360 = 270
20% eastbound x 360 = 72
5% westbound x 360 = 18

B. Social/Recreation
.50 x 450 = 22 total P.M. peak-hour trips
50% southbound x 22 = 11
50% westbound x 22 = 11

C. Education
0.5 x 450 = 23 total P.M. peak-hour trips
50% eastbound x 23 = 11
50% southbound x 23 = 12

D. Shopping
0.5 x 450 = 23 total P.M. peak-hour trips
75% southbound x 23 = 17
25% wetbound x 23 = 6

E. Other
.05 x 450 = 22 total P.M. peak-hour trips
33% eastbound x 22 = 7
33% southbound x 22 = 8
33% westbound x 22 = 7

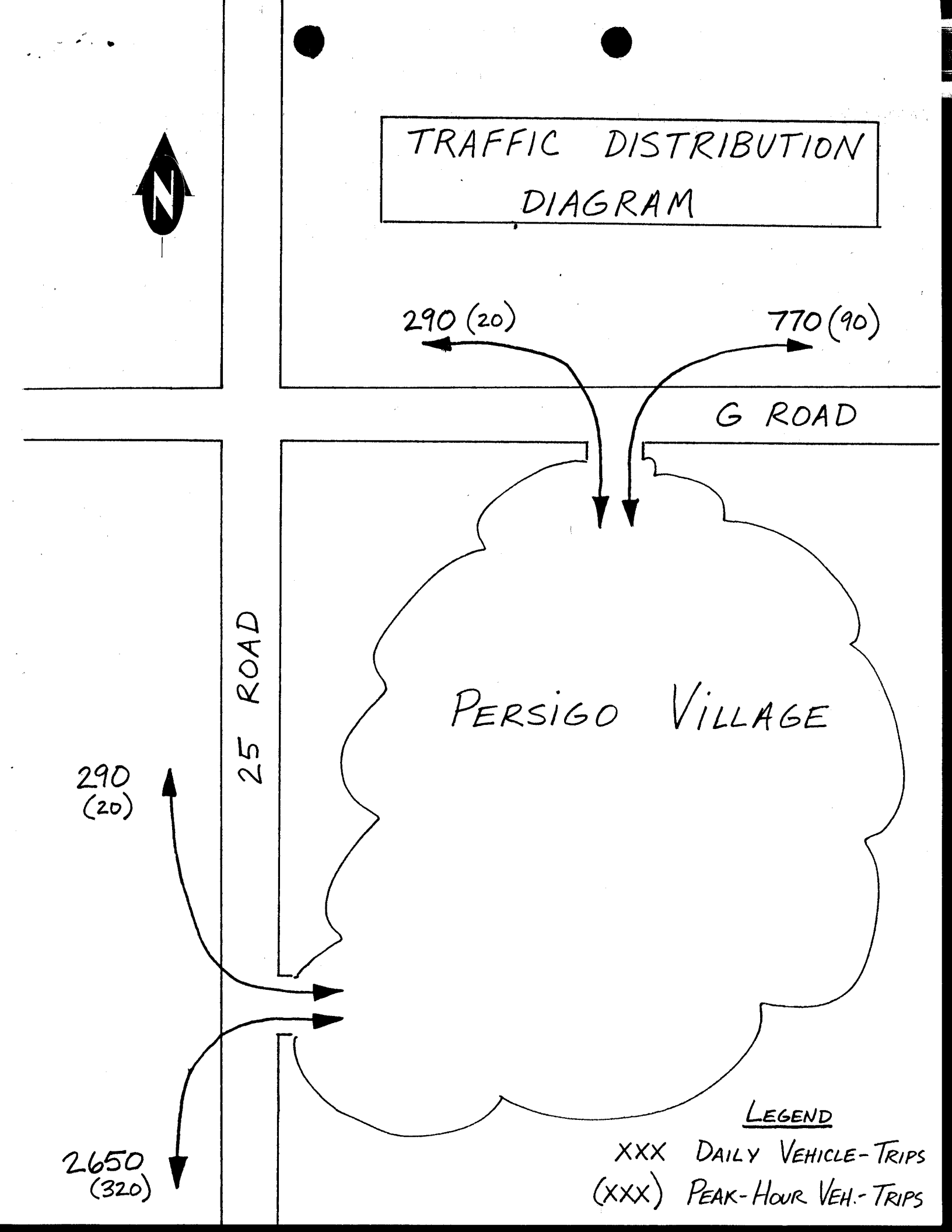
VII Total P.M. Peak-Hour Traffic by Direction

A. Southbound = 270 + 11 + 12 + 17 + 8 = 318 (use 320)
B. Eastbound = 72 + 11 + 7 = 90
C. Westbound = 18 + 11 + 6 + 7 = 42 (use 40)

TOTAL 450 vehicle trips

VIII Roadway Facility Requirements

Depending on through (non-site) traffic adjacent to the site, a 2-lane roadway on G Road and 25 Road should accomodate daily site-generated traffic. However, in the peak-hour the dominant movement will be to the south from 25 Road. Left-turn bays for cars turning out of the site onto 25 Road in the morning should be long enough to store 5-6 cars. Right-turn channels for cars turning into the site from 25 Road in the evening should be provided.


TRAFFIC DISTRIBUTION DIAGRAM
N
290 (20)
770 (90)
G ROAD
25 ROAD
PERSIGO VILLAGE
290 (20)
2650 (320)
LEGEND
XXX DAILY VEHICLE-TRIPS
(XXX) PEAK-HOUR VEH.-TRIPS

GEO TESTING
Geotechnical Engineering and Materials Testing
LABORATORIES, INC.

63-81

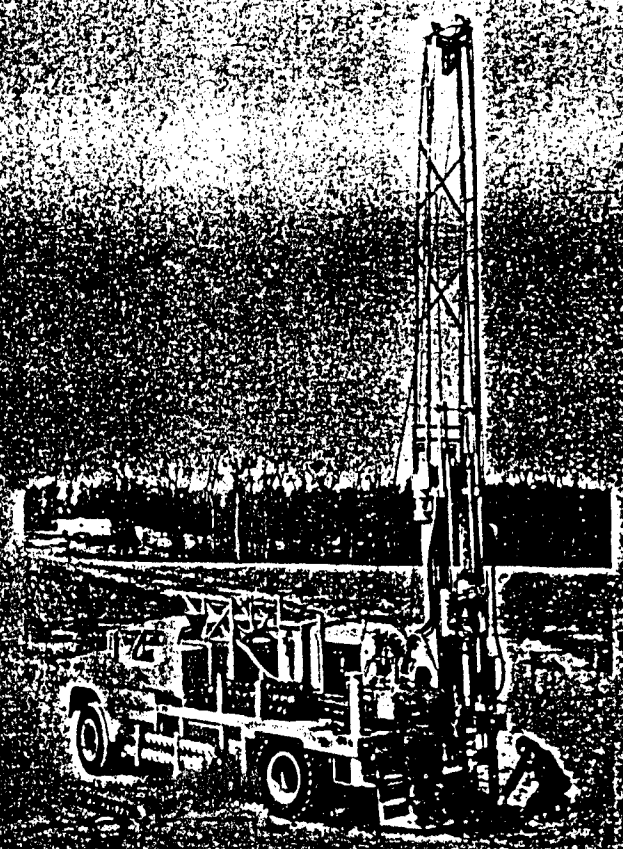
PH Management
P.O. Box 363
Grand Junction, Colorado 81502

Preliminary Geotechnical report for Planned Multi-family residence

Attention: Ken Shrum

Job 999-78

27 May 1981



P.O. Box 3142 · 3224 Highway 6 & 24 No. 3 · Grand Junction, Colorado 81502 · 303 — 434-9873

GEO TESTING
Geotechnical Engineering and Materials Testing
LABORATORIES, INC.

27 May 1981

PH Management
P.O. Box 363
Grand Junction, Colorado 81502

Attention: Ken Shrum

Re: Preliminary Geotechnical report for planned Multi-family Residences; Job 999-78.

Gentlemen:

We have completed our preliminary geotechnical studies of the proposed Multi-family housing. Data from our field and laboratory studies, along with our preliminary analyses and recommended design criteria have been summarized and are presented in the attached report. If you have any questions, please call.

Yours truly,

GEO TESTING LABORATORIES, INC.

Stephen G. Rice

Stephen G. Rice
Secretary/Treasurer

SGR/dldl

P.O. Box 3142 • 3224 Highway 6 & 24, No. 3 • Grand Junction, Colorado 81502 • 303 – 434-9873

TABLE OF CONTENTS

INTRODUCTION

We made this preliminary study to assist in determining the best types and depths of foundations for the structures and design criteria for them. Data from our field and laboratory work are summarized on Figures #1 through 5, attached.

PROPOSED CONSTRUCTION

We understand the proposed structures planned at this time will be 2 story wood frame multi-family units and will consist of approximately 24 units per structure.

For the purpose of our analyses, we assumed maximum column loads on the order of 15 Kips and wall loads of 2½ Kips/Ft.

If final designs vary from these assumptions, we should be advised to permit re-evaluation of our recommendations and conclusions.

SITE CONDITIONS

The site contains 48 acres on the southeast corner of G Road and 25 Road. Grand Valley Canal runs along the east property line and Leach Creek borders along the north property line. At the time of our observations water was present in both locations.

The site was abandoned pasture consisting of grasses and weeds. Drainage was generally towards 25 Road to the west and southwest, however the northwest corner of the property, water has been known to "pond" at times during high periods of seasonal irrigation or runoff.

There are farm houses adjacent to the property, on both G Road and 25 Road. Most are wood frame single story and 2 story with no basements. No apparent damage to the foundation systems was noted.

No bodies of water or bedrock outcroppings were observed on the site.

SUB SOILS

Our test holes showed about 54.0 to as much as 70 feet of medium dense silts, soft silts, clays and medium dense clays overlying dense sands, gravels and cobbles which were encountered in test holes 1,3,6,8,11,13,14,16 and 18.

Groundwater was encountered in test holes 1,7,11,13,14,16 and 18 ranging in depth from 8.0 feet to 15.0 feet, caving had occurred in all test holes drilled. Due to the groundwater conditions we do not suggest basement type construction.

FOUNDATIONS

We have considered one type of foundation for the proposed buildings. Founding the building with spread footings on the natural upper silts involves a "normal" risk of foundation movement. Founding the building with driven piling would reduce the risk of foundation movement, however due to the depths of gravel encountered it would not be economical for the proposed structures to bear on piles. We believe considering safety, economy, and the ever present risk of movement involved in any type of foundation, spread footings on the natural silts would be the most practical. The preliminary foundation criteria included herein is for spread footings only. However, should you decide upon a lower risk alternative, such as driven piling, we would be happy to discuss the criteria for them with you.

Spread footings placed below frost depth of about 3.0 feet should be designed for a maximum soil bearing pressure of 1000 PSF.

FLOOR SLABS

We believe the most practical type of floor used in conjunction with spread footing foundations would be a floating slab-on-grade.

For slab-on-grade construction, we suggest the following:

1. Place a minimum of 4" of gravel beneath the compacted to a minimum of 70% relative density (ASTM D-2049) or 95% of Proctor density (ASTM D-698) whichever applies to the chosen material.

2. Provide moderate slab reinforcement and carry the reinforcement through the interior slab joints, but not to foundation walls or load bearing walls.

3. Omit under slab plumbing. Where such plumbing is unavoidable, pressure test it during construction to minimize the possibility of leaks that result in foundation wetting. Utility trenches should be compacted to a minimum of 95% maximum dry density as determined by ASTM D-698.

WETTING OF FOUNDATION SOILS

Wetting of foundation soils always causes some degree of volume change in the soils and should be prevented during and after construction. Methods of doing this include compaction of "impervious" backfill around the structure, provision of an adequate grade for rapid runoff of surface water away from the structure, and discharge of roof downspouts and other water collection systems well beyond the limits of the backfill.

GENERAL INFORMATION

Our exploratory test holes were spaced as closely as feasible in order to obtain a preliminary comprehensive picture of the sub soil conditions; however, erratic soil conditions may occur between test holes. When more design information is known it is advisable that we be notified to perform a more detailed analysis of the

soils encountered. This preliminary report is not intended to be used for design purposes.

GEO TESTING LABORATORIES, INC.

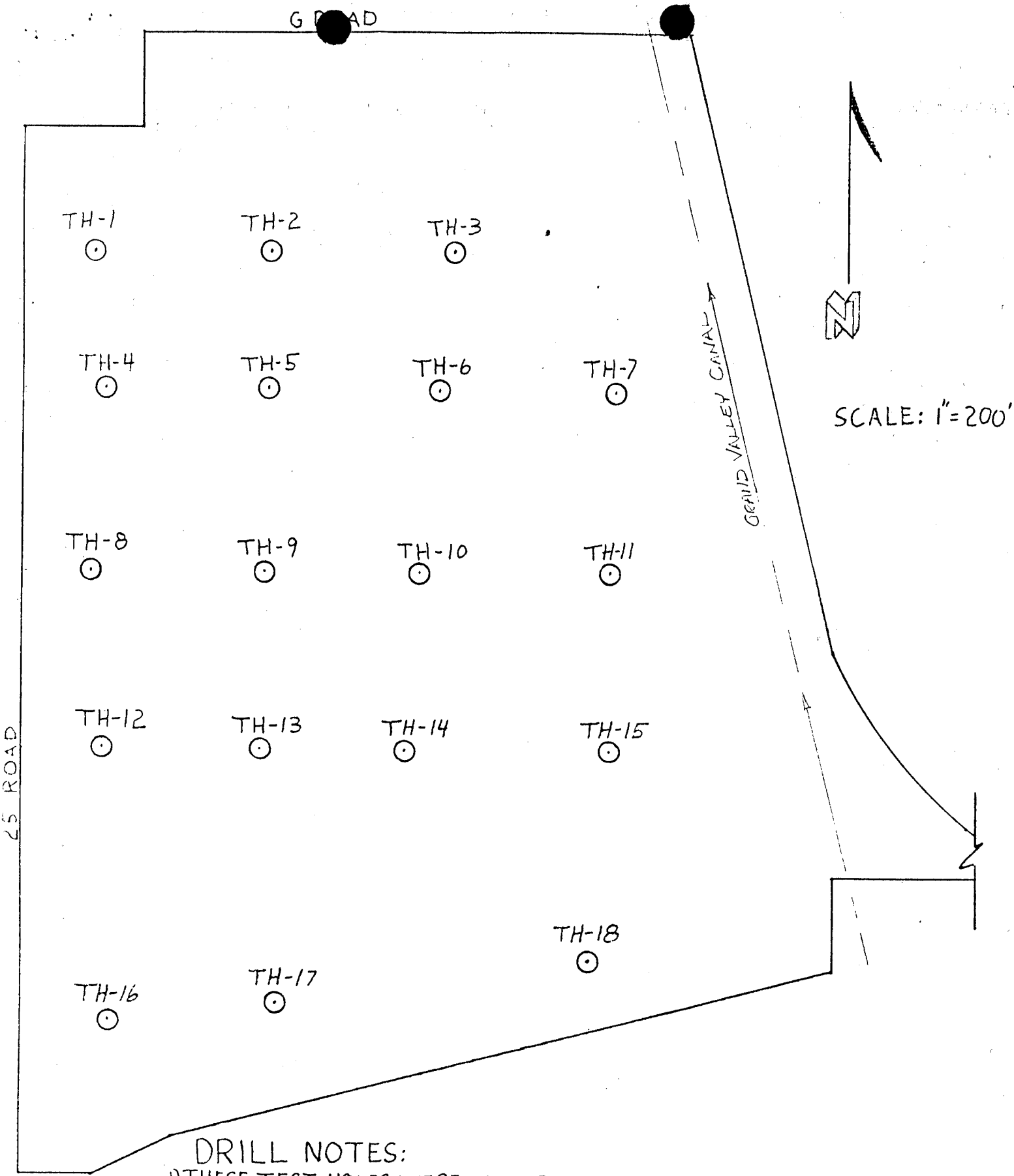
Stephen G. Rice

Drafted by:
Stephen G. Rice
Secretary/Treasurer

Andrew A. Porter

Reviewed by:
Andrew A. Porter, P.E.
President

SGR/dldl



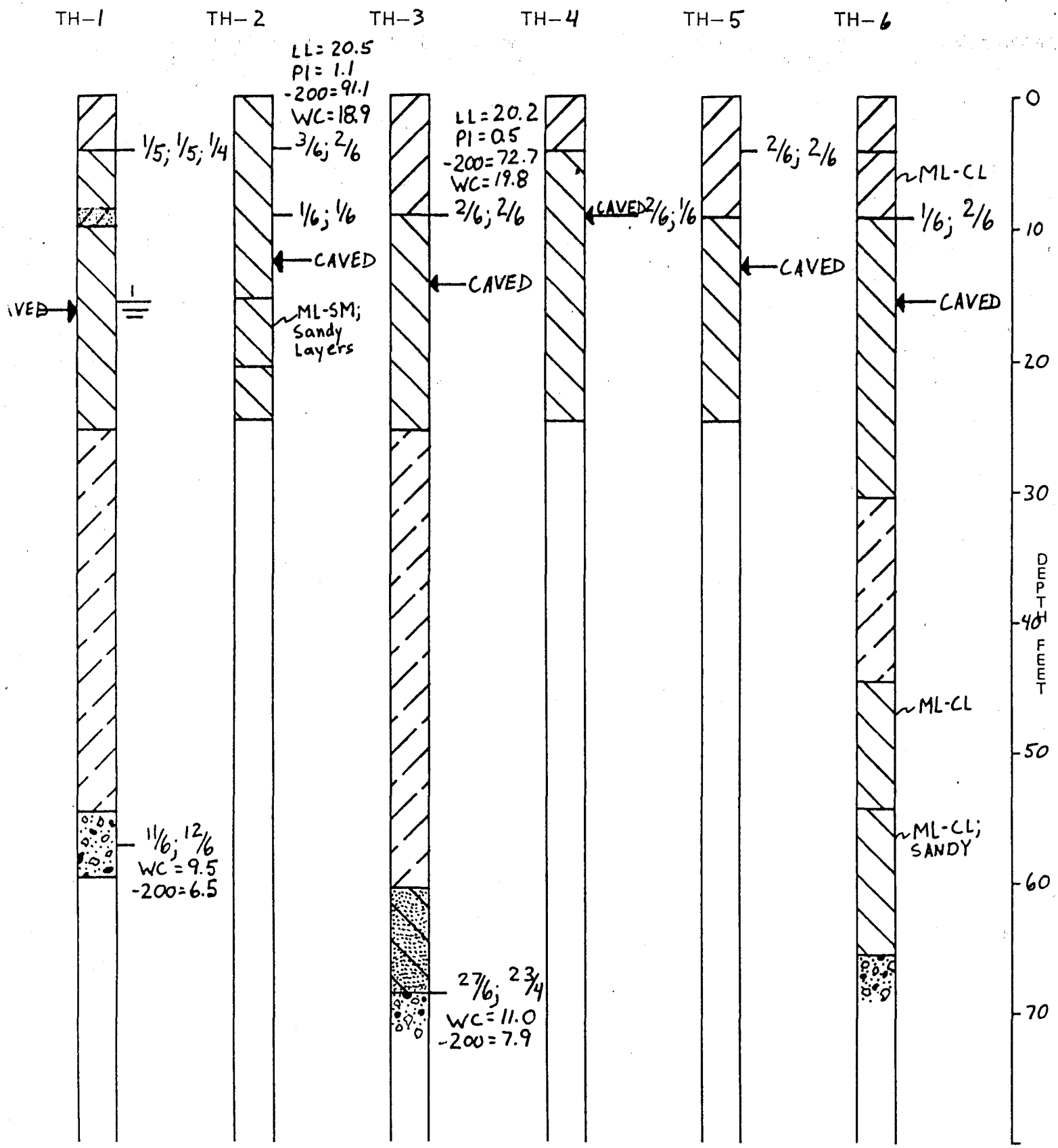
DRILL NOTES:

1) THESE TEST HOLES WERE DRILLED ON APRIL 17, 20, 21, 22 & 23 POWERED BY A CME-55 DRILL RIG WITH 4" SOLID AUGER.
2) THESE TEST HOLES WERE LOCATED BY PARAGON ENGINEERS.
3) THIS DRAWING WAS REDUCED FROM A PLAN BY PARAGON ENGINEERS.

GTL GEO TESTING LABORATORIES, INC.
Geotechnical Engineering and Materials Testing

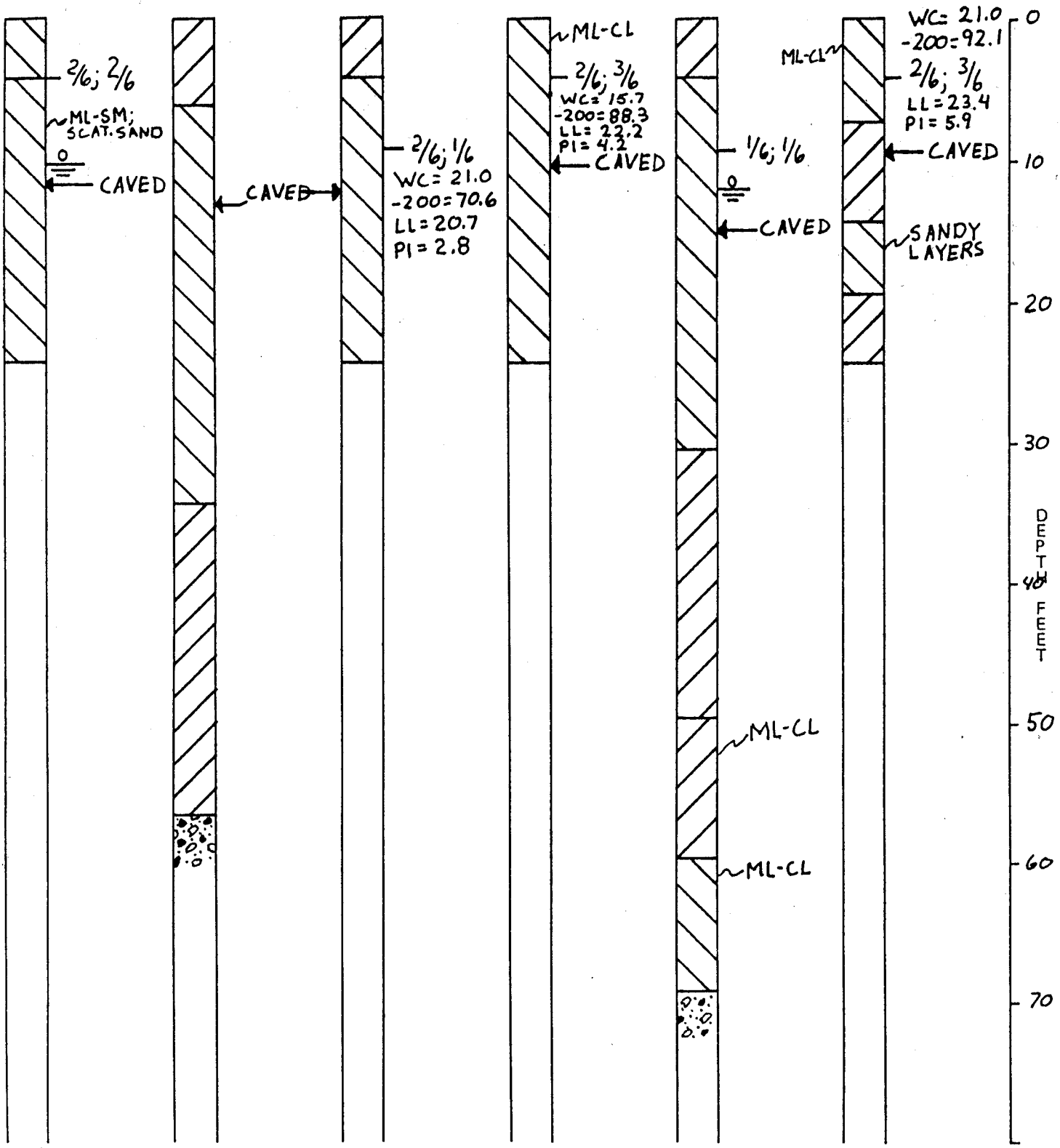
P-H MANAGEMENT JOB #999-78
LOCATION OF TEST HOLES

Fig. 1



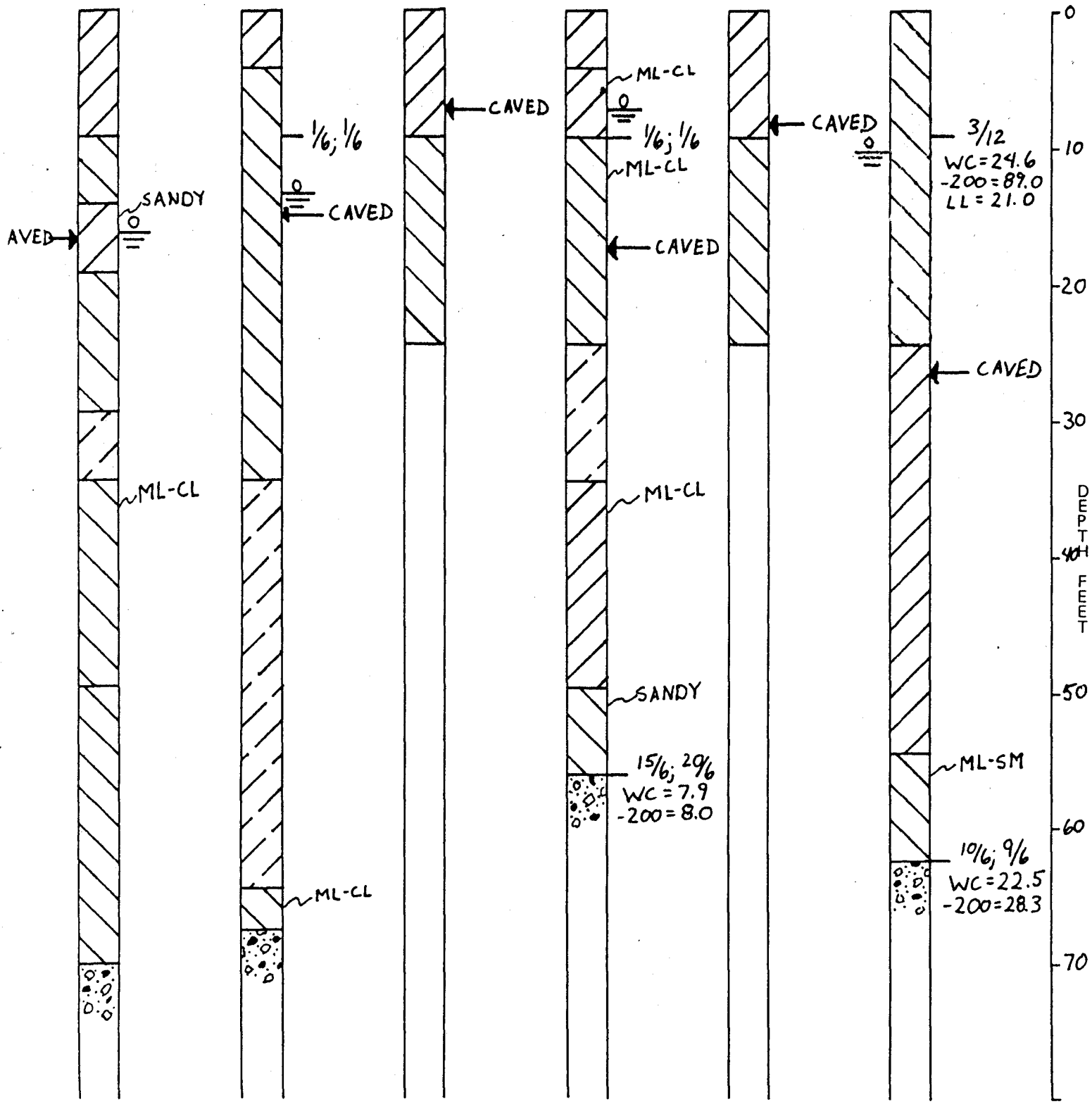
GTL GEO TESTING Geotechnical Engineering and Materials Testing
LABORATORIES, INC.
P-H MANAGEMENT JOB #999-78
SUMMARY LOGS OF TESTS AND TEST HOLES

Fig. 2A



GTL GEO TESTING
Geotechnical Engineering and Materials Testing
LABORATORIES, INC.
P-H MANAGEMENT JOB #999-78
SUMMARY LOGS OF TESTS AND TEST HOLES

Fig. 2B



GTL GEO TESTING Geotechnical Engineering and Materials Testing
LABORATORIES, INC.
RH MANAGEMENT JOB # 999-78
SUMMARY LOGS OF TESTS AND TEST HOLES

Fig. 2C

CL, CL-CH, CH
CLAY, medium stiff to very stiff

CL, CL-CH, CH
CLAY, soft to very soft

SP, SW, SP-SW, SP-SC, SP-SM, SW-SC, SW-SM
SAND, medium to very dense, clean to slightly dirty

SP, SW, SP-SW, SP-SC, SP-SM, SW-SC, SW-SM
SAND, loose to medium dense, clean to slightly dirty

SC, SC-SM
SAND, clayey, ~~loose~~ dense to ~~medium~~ very dense

SC, SC-SM
SAND, clayey loose to medium dense

ML, ML-CL
SILT, dense to very dense

ML, ML-CL
SILT, loose to medium dense

SM, SM-SC
SAND, silty, dense to very dense

SM, SM-SC
SAND, silty, loose to medium dense

GW-SW, GP-SP, GW, GP, SW-GW, SP-GP, GW-GC, GW-GM
GRAVEL and SAND, clean to slightly dirty, dense to very dense

GRAVEL and SAND, clean, loose to medium dense

GC-CL, GC
GRAVEL and SAND, very clayey, dense to very dense

GC-CL, GC
GRAVEL and SAND, very clayey, loose to medium dense

GM-ML
GRAVEL and SAND, very silty, dense to very dense

GM-ML
GRAVEL and SAND, very silty, loose to medium dense

CL-CH, CH, CL
CLAY (highly weathered claystone) or SHALE

SP, SM, SC, SW
SAND (highly weathered sandstone)

CLAYSTONE or SHALE firm to medium hard

SANDSTONE, firm to medium hard

SANDSTONE, CLAYSTONE, SHALE, or SILTSTONE, hard to very hard

CLAYSTONE, SHALE, or SILTSTONE, layered, firm to medium hard

SILTSTONE, firm to medium hard

CONCRETE or ASPHALT PAVING and BASECOURSE, etc.

TOPSOIL

FILL, man made, loose or unknown

FILL, man made, dense, controlled

GRANITE or similar hard competent rock

Gradual change in materials. Exact strata change not located.

Undisturbed sample taken by Shelby, Denison, Pitcher, etc.

Indicates practical Rig Refusal. More than one such symbol indicated depth in adjacent hole attempted at same location

0 Free water level and number of days after drilling that measurement was taken.

9/12 Indicated that 9 blows of a 140 pound hammer falling 30 inches were required to drive a 2-inch diameter sample 12 inches.

WC = Water content percent

DD = Dry density, PCF

UC = Unconfined compression strength, PSF

LL = Liquid limit, percent

PI = Plasticity index, percent

SS = Shear Stress, direct shear, torvane, etc. PSF

-200 = Percent passing number 200 sieve

GTL GEO TESTING LABORATORIES, INC.
Geotechnical Engineering and Materials Testing

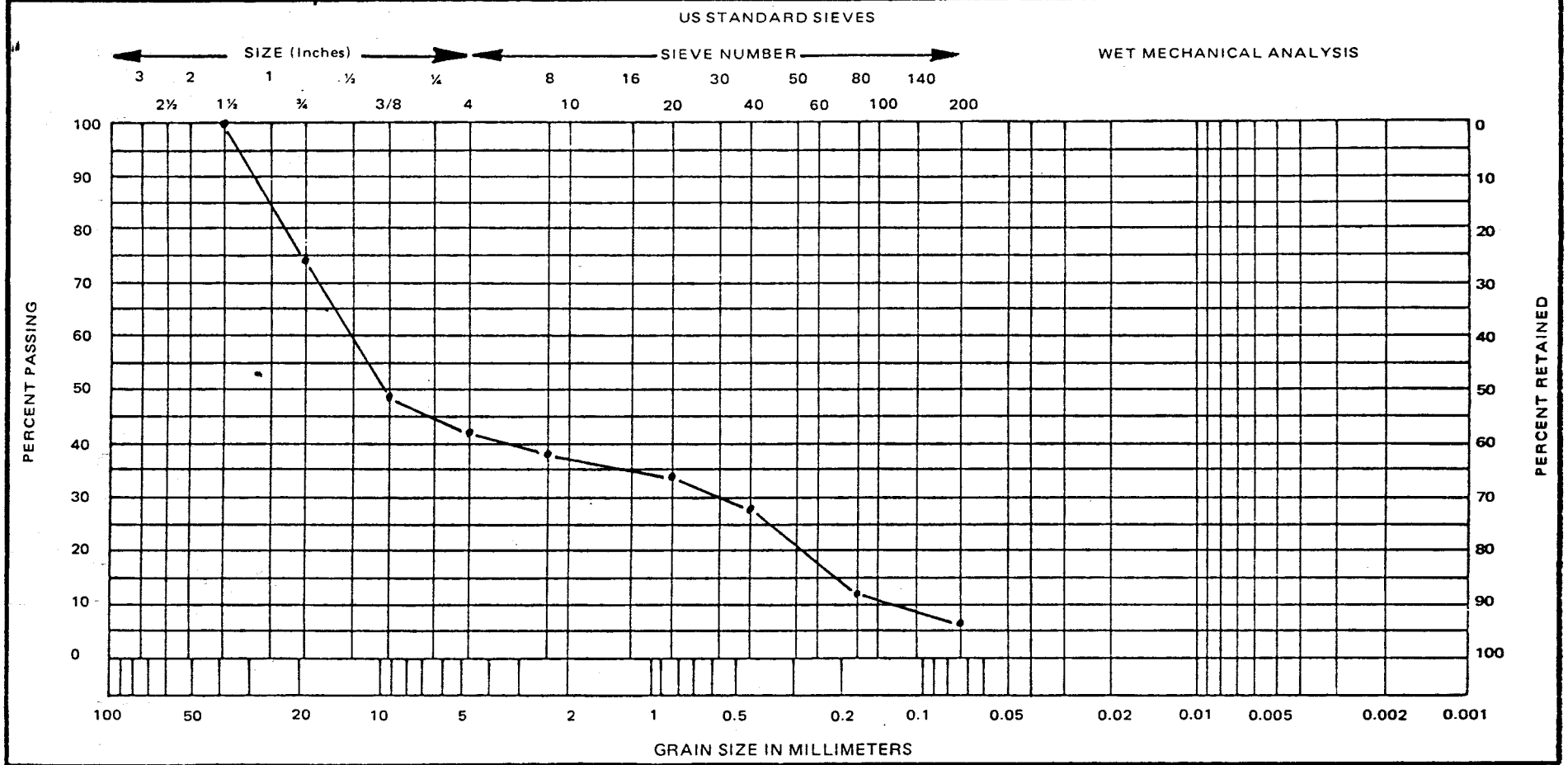
SUMMARY LOGS LEGEND
Fig. 3

GTL GEO TESTING LABORATORIES, INC. Geotechnical Engineering and Materials Testing

GRAIN SIZE DISTRIBUTION GRAPH AGGREGATE GRADING CHART

DATE: 4/28/81

PROJECT: P-H Management 999-78



EXCAVATION NUMBER	SAMPLE NUMBER	NATURAL % MOISTURE	W_L	W_P	I_P	CLASSIFICATION	REMARKS
1 @ 59'-0		9.5	—	—	—	GP-GM	Gravel - 57.7 %, Sands - 35.9 %, fines - 6.4 %

TECHNICIAN (Signature): Conny Thelps

PLOTTED BY (Signature): Conny Thelps

CHECKED BY (Signature): [illegible]

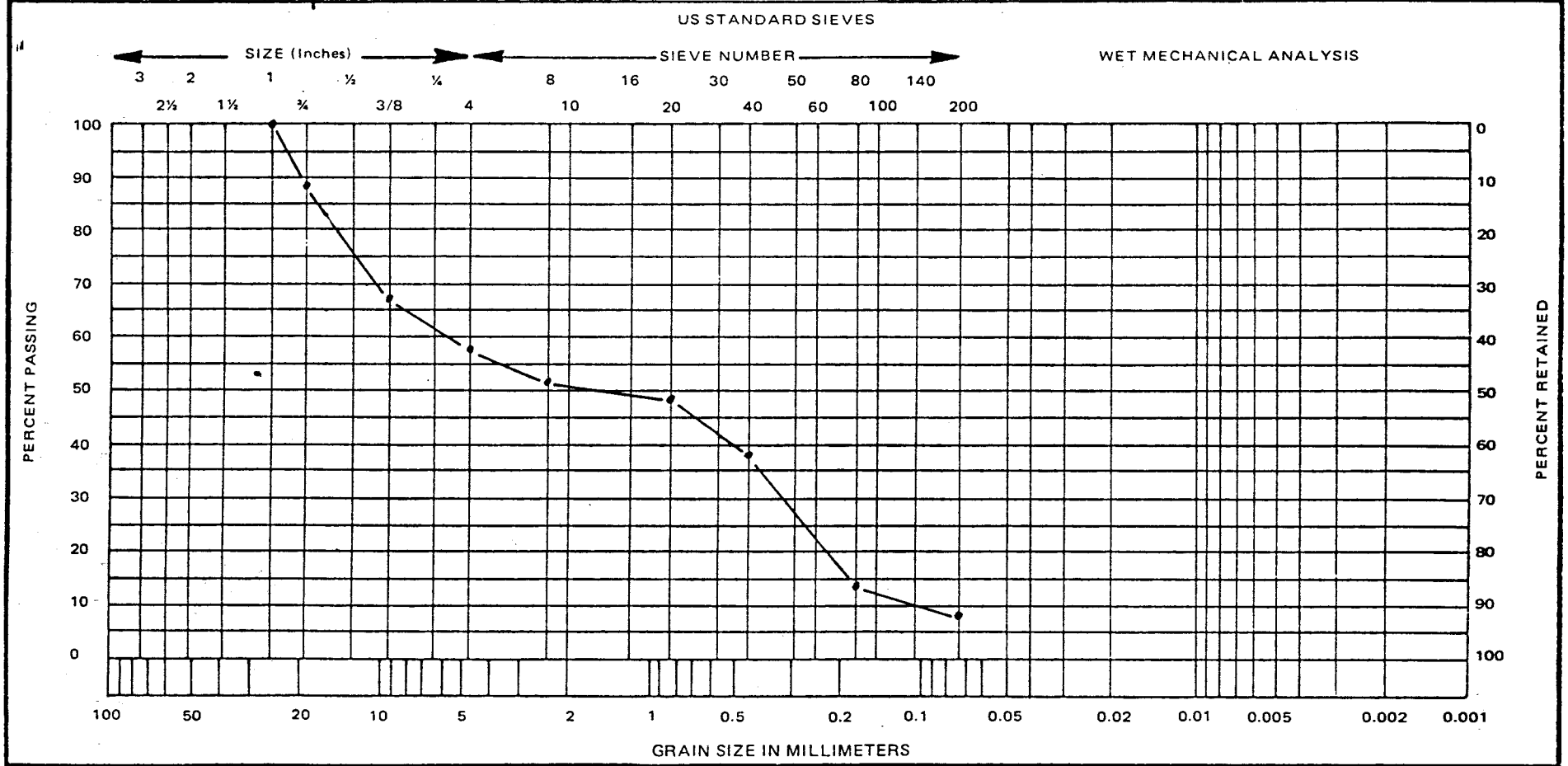
Fig. 4

GTL GEO TESTING LABORATORIES, INC. Geotechnical Engineering and Materials Testing

GRAIN SIZE DISTRIBUTION GRAPH AGGREGATE GRADING CHART

DATE: 4/28/81

PROJECT: P-H Management 999-78



EXCAVATION NUMBER	SAMPLE NUMBER	NATURAL % MOISTURE	W_L	W_P	I_P	CLASSIFICATION	REMARKS
3 @ 68'-0		11.0	—	—	—	SP-SM (gravelly)	Gravel - 42.4%, Sands - 49.7%, Fines - 7.9%

TECHNICIAN (Signature): Lonny Thelps

PLOTTED BY (Signature): Lonny Thelps

CHECKED BY (Signature): D Martin

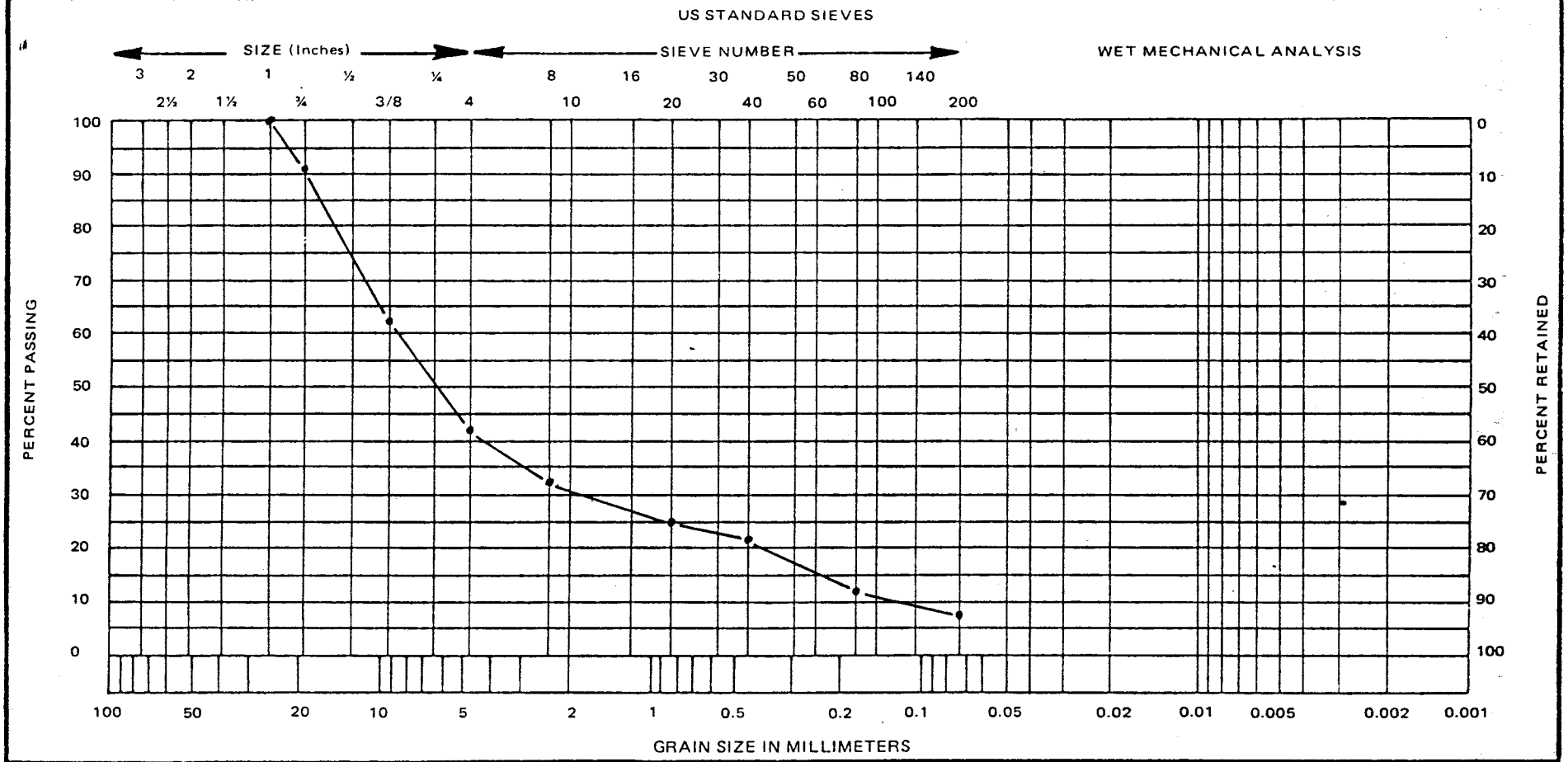
FIG. 5

GTL GEO TESTING LABORATORIES, INC.
Geotechnical Engineering and Materials Testing

GRAIN SIZE DISTRIBUTION GRAPH AGGREGATE GRADING CHART

DATE 4/28/81

PROJECT P-H Management 999-78



EXCAVATION NUMBER	SAMPLE NUMBER	NATURAL % MOISTURE	W_L	W_P	I_P	CLASSIFICATION	REMARKS
16 @ 55.5'		7.9	—	—	—	GP-GM	Gravel - 56.4%, Sands - 35.6%, Fines - 8.0%

TECHNICIAN (Signature) Lonny Thelps

PLOTTED BY (Signature) Lonny Thelps

CHECKED BY (Signature)

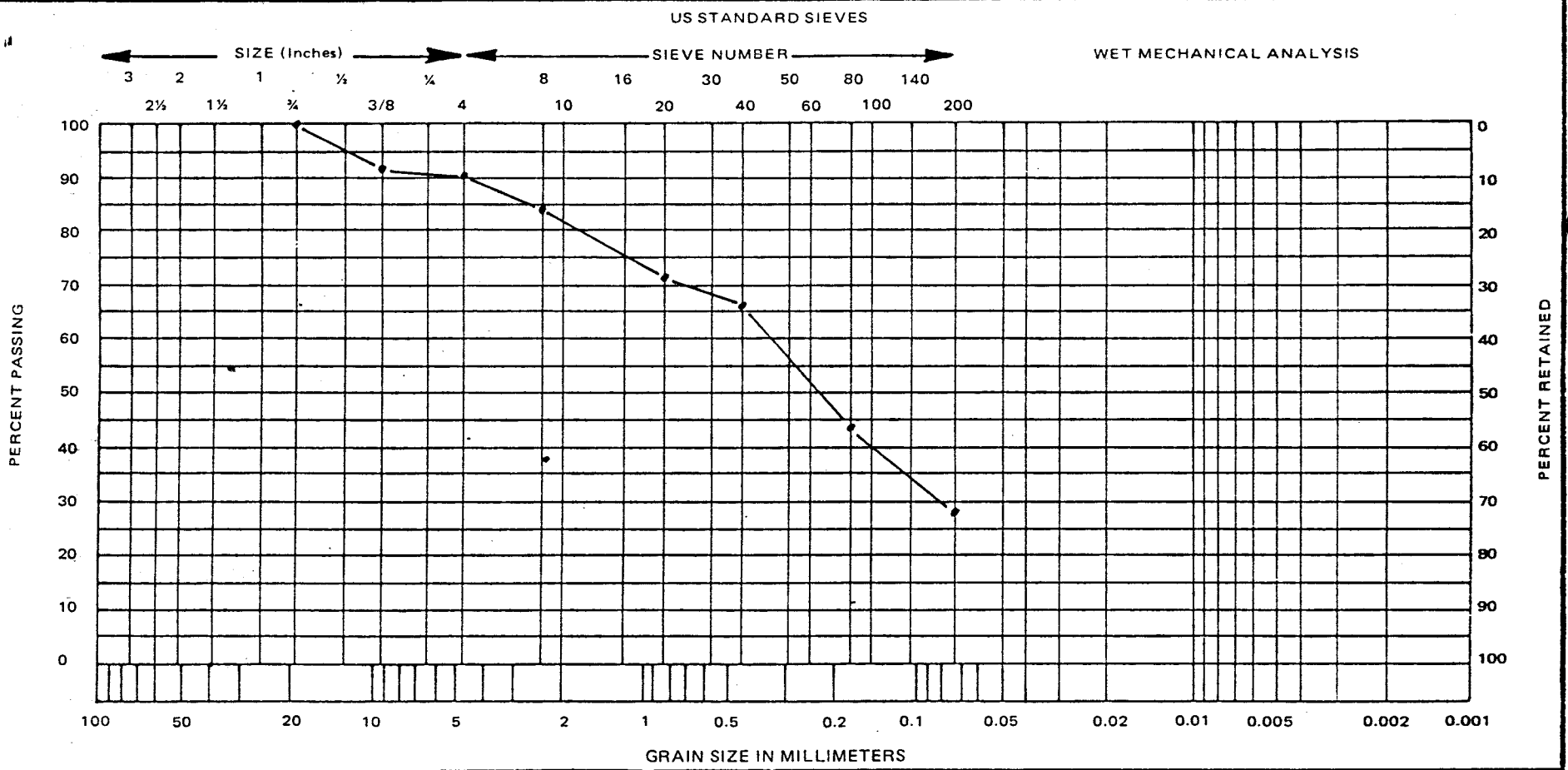
Fig. 6

GTL GEO TESTING LABORATORIES, INC.
Geotechnical Engineering and Materials Testing

GRAIN SIZE DISTRIBUTION GRAPH AGGREGATE GRADING CHART

DATE: 4/28/81

PROJECT: P-H Management 999-78



EXCAVATION NUMBER	SAMPLE NUMBER	NATURAL % MOISTURE	W_L	W_P	I_P	CLASSIFICATION	REMARKS
18@62'-0		22.5	—	—	—	SM	Gravel - 9.7%, Sands - 62.0%, Fines - 28.3%

TECHNICIAN (Signature): Lonny Thelps

PLOTTED BY (Signature): Lonny Thelps

CHECKED BY (Signature): A Hailes

Fig. 7

Pavement Section Design

Persigo Village
25 Rd. & G Road
Grand Junction, CO

24 September 1982

WESTERN TECHNOLOGIES, INC.

Phoenix
3737 East Broadway Road
P.O. Box 21387
Phoenix, Arizona 85036
(602) 268-1381

Flagstaff
2400 East Huntington Drive
Flagstaff, Arizona 86001
(602) 774-8708

Tucson
423 South Olsen Avenue
Tucson, Arizona 85719
(602) 624-8894

Farmington
400 South Lorena
Farmington, New Mexico 87401
(505) 327-4966

Las Vegas
300 West Boston Avenue
Las Vegas, Nevada 89102
(702) 382-7483

Grand Junction
P.O. Box 177
3224 Highway 6 & 24, No. 3
Clifton, Colorado 81520
(303) 434-9873

WESTERN TECHNOLOGIES, INC.

P.O. Box 177
322 Highway 6 & 24, No. 3
Clifton, Colorado 81520
(303) 434-9873

Turner Collie & Braden, Inc.
P.O. Box 3944
Grand Junction, CO 81501

24 September 1982

Job No. 6142J077
Invoice No. 61420158

ATTENTION: Jim Langford

PROJECT: Persigo Village
25 Rd. & G Road
Grand Junction, CO

The following report presents the pavement section design on the roads within the above referenced project limits. The design was performed using the Asphalt Institute's Replacement Method and the Colorado State Highway Department Method. Traffic criteria was provided by Turner Collie and Braden. The recommended pavement sections were calculated for a twenty year design life.

If you have any questions concerning this information or if we may be of any additional service, please do not hesitate to contact us.

Sincerely yours,
WESTERN TECHNOLOGIES, INC.

Jim Fife

Jim Fife

Reviewed by:

COLORADO REGISTERED CRAIG P. WIEDEMAN 19512 PROFESSIONAL ENGINEER

Craig P. Wiedeman, P.E.
Division Manager

JF/jf

Copies: Addressee (2)

Persigo Village
Job No. 6142J07

Introduction

This report presents the results of our field investigation, laboratory testing and pavement section design for residential streets in Persigo Village near the interesection of 25 Rd. and G Rd. in Grand Junction, Colorado.

Field Investigation

Seven subgrade samples were obtained by hand methods on 17 September 1982, at the locations shown on the accompanying site plan. All samples were a composite of material from existing grade to a depth of approximately 18 inches. No groundwater was encountered at any sample location at the time of this exploration. All samples were returned to the laboratoary for testing to determine their physical properties. Any vegetation or debris recovered was removed prior to testing.

Laboratory Testing

Visual classification was performed on all samples obtained. Four samples were then chosen for laboratory testing. The samples were classified using both the Unified and the AASHTO Classification Systems, with group indices calculated according to the United States Bureau of Public Roads Method.

Results indicated that the soils were relatively uniform and consisted of clays, silts and fine sands. For design purposes a composite of the clays and silts was used. The composite sample of these soils was tested for CBR values in the soaked condition with the following results:

Soil Group	CBR Value*
Clays & Silts	4

*Value in the soaked condition at 95% of maximum density as determined in accordance with ASTM D698.

Test results are enclosed in the summary data sheets and include initial compaction data, CBR value and swell results at four days. Due to the limited extent of the sandy silt material encountered during our field investigation, the CBR value obtained on the clayey material was used for design purposes.

Design Recommendations

Several alternate pavement sections are tabulated and included hereinafter. Based on a total evaluation of existing and projected future conditions, the following pavement section appears to be the most feasible for the proposed streets and parking areas:

Proposed Streets

3 inches - asphaltic concrete pavement
4 inches - aggregate base course
8 inches - aggregate subbase course

Proposed Parking Areas

3 inches - asphaltic concrete pavement
6 inches - aggregate base course

Construction Recommendations

It is recommended that all materials conform with Colorado Highway Department Specifications. Aggregate subbase material should conform with Class 1 specifications. Aggregate base course should conform with Class 6 specifications. Asphaltic concrete pavement should conform with Grading E specifications and consist of an approved mix design giving required Marshall properties, optimum asphalt content, job mix tolerances, and recommended mixing and placement temperatures. Asphaltic concrete should be compacted to a minimum of 95 percent of maximum density as determined using the 75 blow Marshall method. The compaction of all subgrade and fill materials should be performed to the following recommended percent compaction and moisture content:

Material	Test Method	Minimum Percent Compaction	Moisture Content
Existing Subgrade	AASHTO T-99	95	Optimum ± 2%
Subbase Fill	ASSHTO T-99	95	Optimum ± 2%
Subbase Course	ASSHTO T-180	95	Optimum ± 3%
Base Course	ASSHTO T-180	95	Optimum ± 3%

Acceptance testing of fill materials and mineral aggregates should be performed prior to construction to assess compliance with project requirements. Positive drainage should be provided during construction and maintained throughout the life of the proposed streets. Adequate drainage is essential for continuing performance of these streets.

Construction Procedure

The following procedure is recommended for preparation of all alignments:

- Strip and remove existing vegetation, debris, rubble and excavate to the subgrade level. Clean and widen depressions, pits and ditches to accommodate compaction equipment.
- Rework, moisten or dry as required, and compact all subgrade soils to a minimum depth of 8 inches. Reworking may be accomplished by scarification, discing, removal and replacement or other methods which will result in uniform moisture contents and densities.
- Place and compact required fill in horizontal lifts at thicknesses consistent with compaction equipment used to achieve uniform densities throughout lift thickness.

It is recommended that all excavation, subgrade preparation, fill placement and asphalt laydown be accomplished under observation and testing directed by the geotechnical/materials engineer to assess compliance with the project requirements.

Sincerely yours,
WESTERN TECHNOLOGIES, INC.

Jim Fife

Reviewed by:

Craig P. Wiedeman, P.E.
Division Manager

Persigo Village
Job No. 6142J07

CALIFORNIA BEARING RATIO RESULTS

Soil: Composite of Clays & Silts

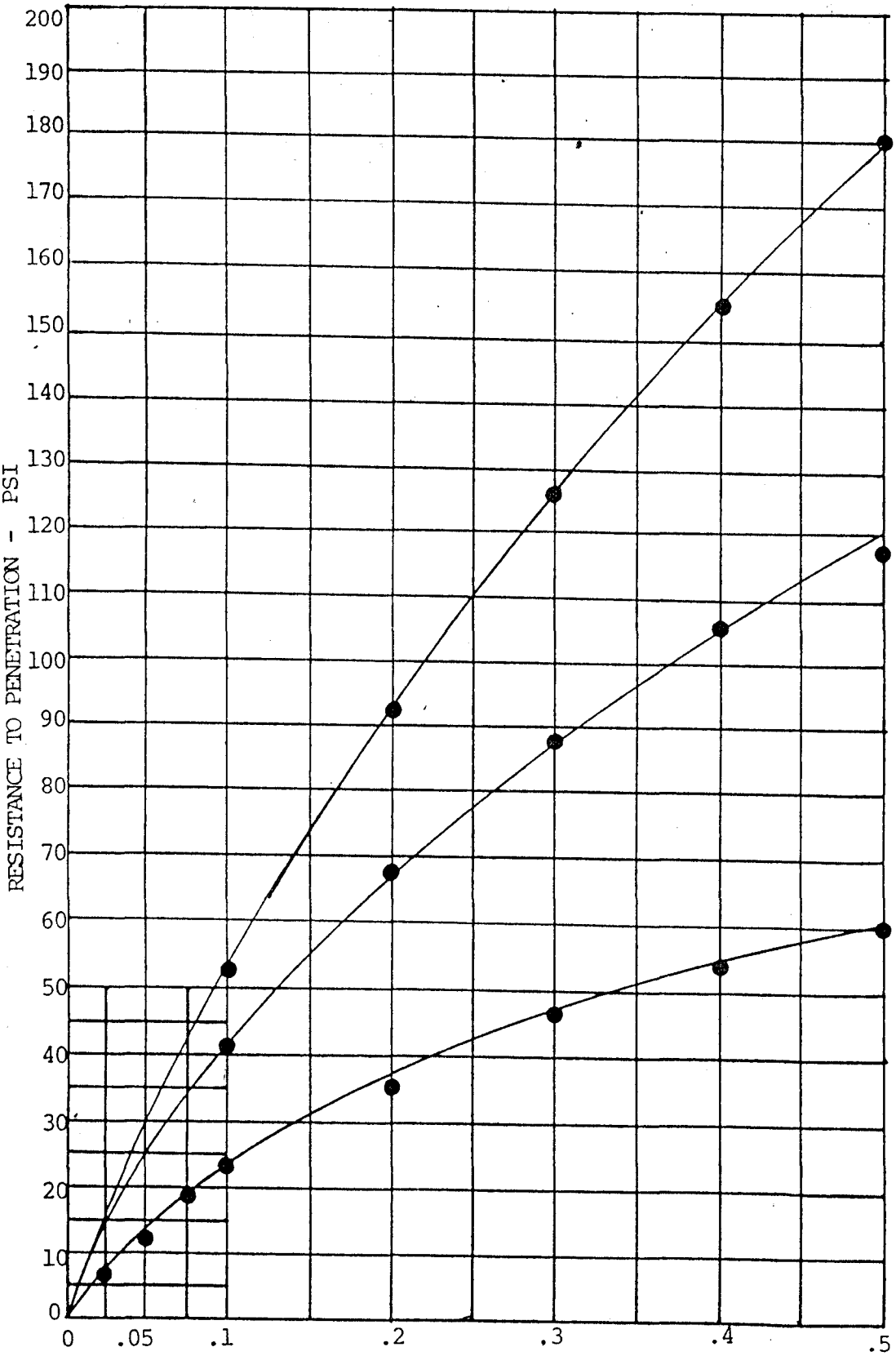
INITIAL COMPACTION DATA	Point 1	Point 2	Point 3
Number of Blows per Layer	15	26	56
Initial Wet Density (PCF)	115.6	126.4	129.3
Initial Moisture Content (%)	14.7	17.1	16.1
Initial Dry Density (PCF)	100.8	105.3	109.4
Initial Compaction (%) (Proctor - 110.7 pcf @ 14.0)	91	95	99
SWELL RESULT (4 Days)			
Swell (inches)	.035	.036	.046
Swell (%)	.8	.8	1.0
Soaked Wet Density (PCF)	121.3	126.4	129.3
Soaked Moisture Content (%)	20.1	18.6	17.3
Soaked Dry Density			
Divided by Original M.C.	105.7	107.9	111.4
Divided by Soaked M.C.	101.0	106.6	110.2
PENETRATION TEST RESULTS			
Surcharge Weight (lbs)	12.5	12.5	12.5
Piston Seating Pressure (lbs)	10	10	10
Load for Penetration-Inches	lbs/PSI	lbs/PSI	lbs/PSI
0.025	6.1	12.1	12.1
0.050	12.7	25.8	25.8
0.075	18.5	34.8	37.9
0.100	24.2	42.4	51.5
0.200	34.5	68.2	90.9
0.300	45.8	87.9	127.3
0.400	53.0	105.8	154.5
0.500	60.0	116.7	180.6

Corrected Pressure for Penetration-Inches

	CBR	CBR	CBR
0.10	2.4	4.2	5.2
0.20	2.3	4.5	6.1
0.30	2.4	4.6	6.7
0.40	2.3	4.6	6.7
0.50	2.3	4.5	6.9

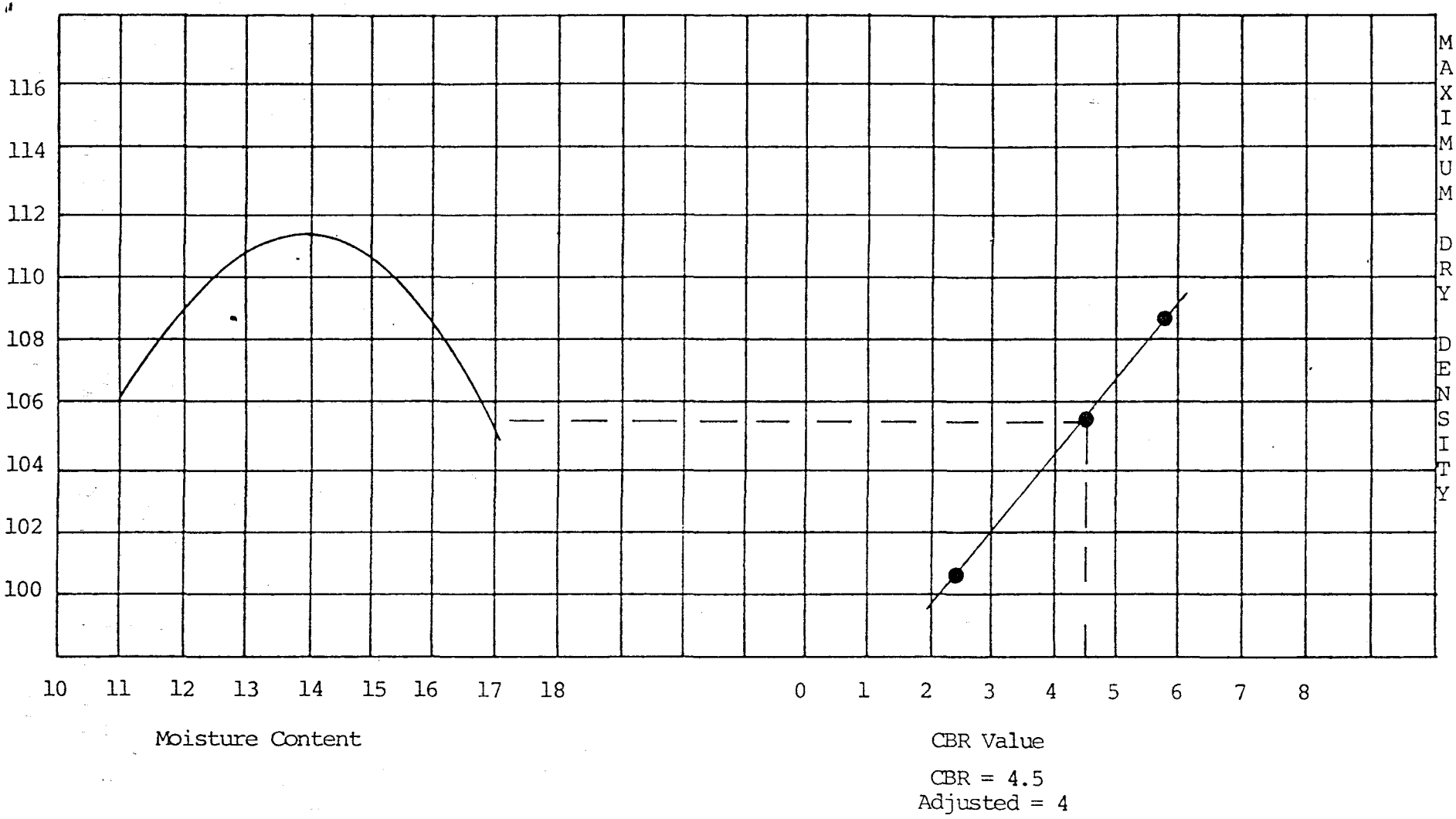
Persigo Village
Job No. 6142J07[redacted]

CBR STRESS - STRAIN RESULTS

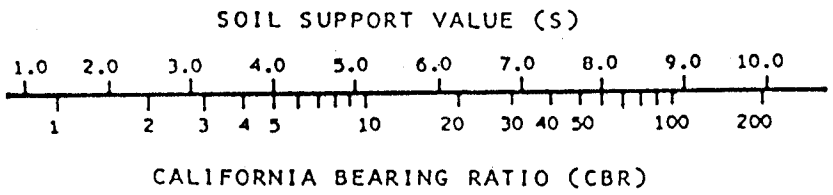


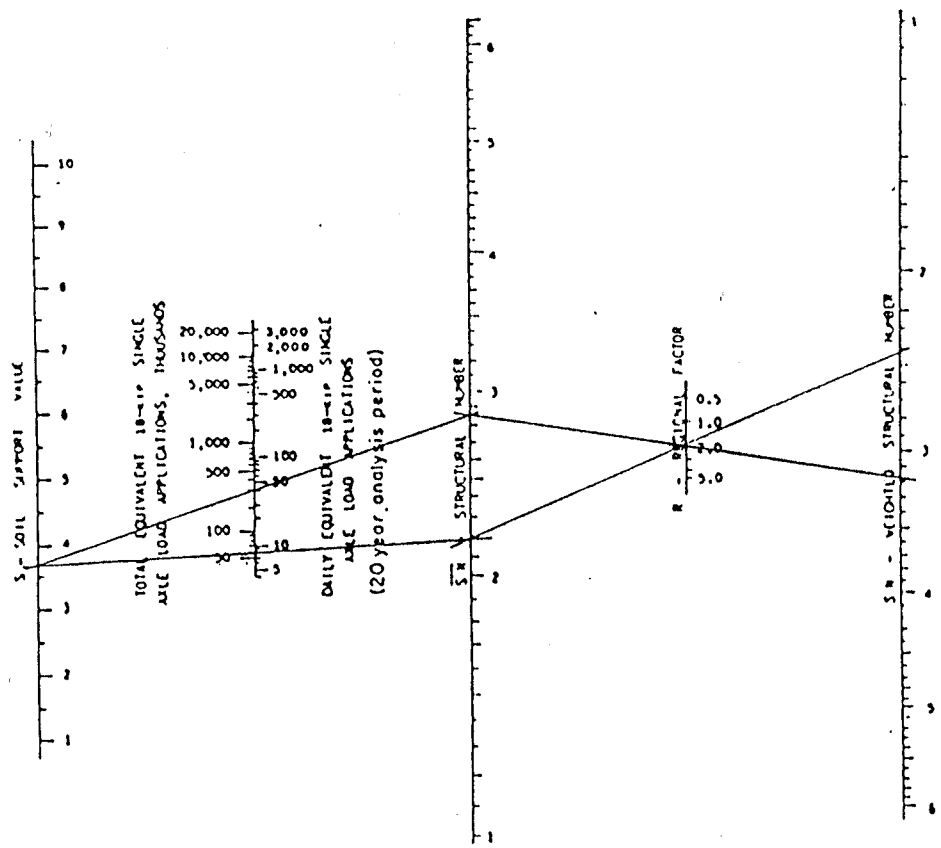
Persigo Village
Job No. 6142J077

MOISTURE DENSITY CBR CURVES



CBR = 4.5
Adjusted = 4





2.42

3.18

Figure II-2 Design Chart for Flexible Pavements, p_t = 2.0

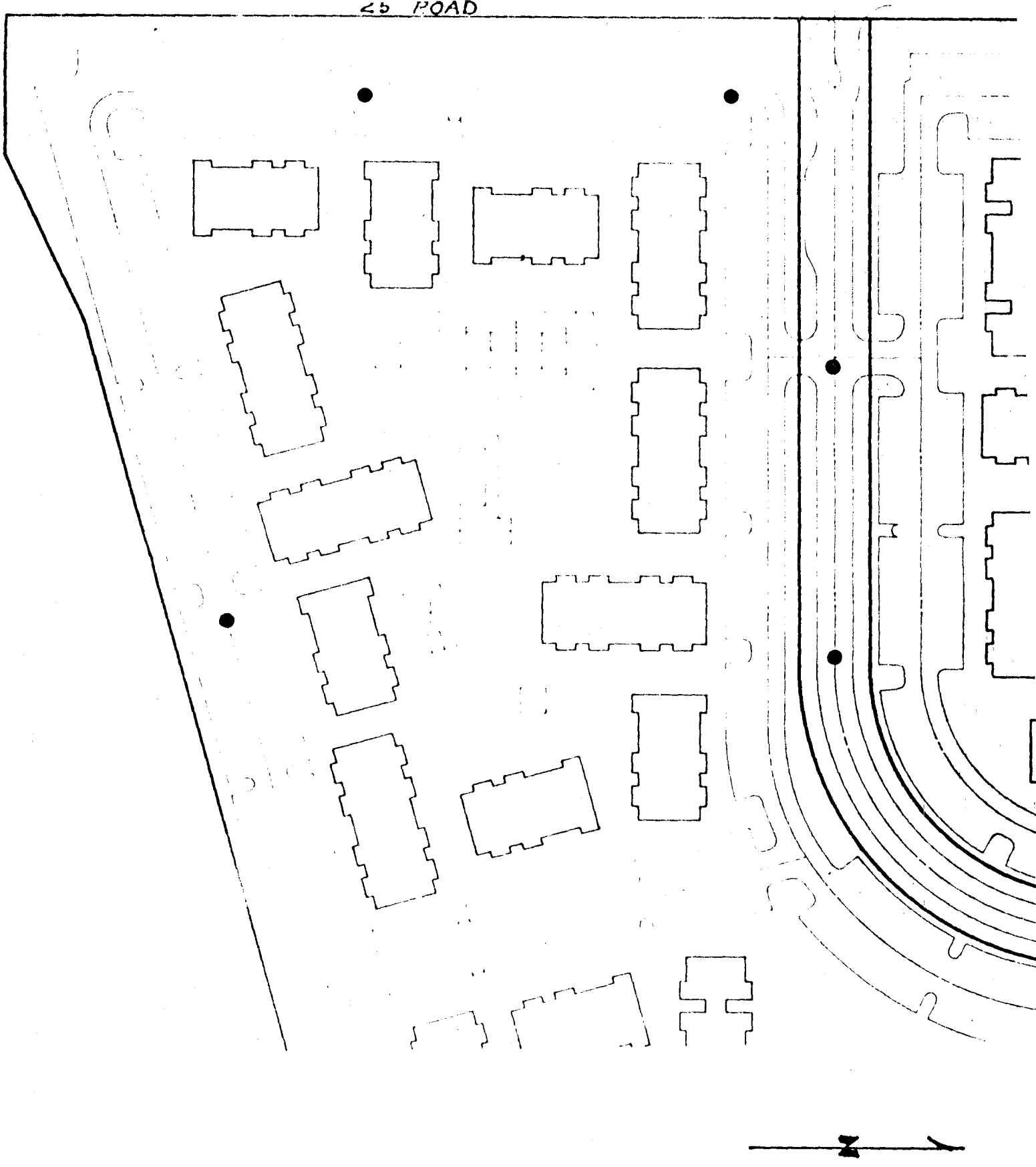
Persigo Village
Job No. 6142J07

ALTERNATE PAVEMENT SECTIONS

Description		CBR	DTN	BCS	ABC	SBC	TOTAL
Residential Streets	A	4	40	8			8
(2650 trips/day)	B			3	10		13
	C			3	4	8	15
	D			3	14		17
	E			3	4	16	23
Parking Areas	A	4	8	6			6
(800 trips/day)	B			3	6		9
	C			3	4	3	10
	D			3	9		12
	E			3	4	7	14

CBR = California Bearing Ratio Value
DTN = Equivalent 18K Daily Traffic Number
BCS = Bituminous Concrete Surface
ABC = Aggregate Base Course
SBC = Subbase Course

A = Bituminous Concrete Pavement
B = Bituminous Concrete Pavement + Aggregate Base Course (Replacement Method)
C = Bituminous Concrete Pavement + Aggregate Base Course + Subbase Course (Replacement Method)
D = Bituminous Concrete Pavement + Aggregate Base Course (Colorado Highway Department Method)
E = Bituminous Concrete Pavement + Aggregate Base Course + Subbase Course (Colorado Highway Department Method)


25 ROAD

PERSIGO VILLAGE

DRAINAGE REPORT

Prepared By

TURNER COLLIE & BRADEN INC.

GRAND JUNCTION, COLORADO

Introduction

The project site is an undeveloped area of approximately 39 acres located within the Leach Creek watershed at the southeast corner of the intersection of G Road and 25th Street in Grand Junction, Colorado (see Exhibit 1). The site is partially inundated by the 100-year flood plain of Leach Creek as defined by the U.S. Army Corps of Engineers (COE) in its November 1976 report entitled "Flood Hazard Information - Grand Junction, Colorado." Development of the site will require reclamation of the land by either mass filling of the property or construction of a low levee to remove the area from the Leach Creek flood plain. In addition, local officials are concerned about the impact that the development of the site will have on flooding conditions downstream in Leach Creek. This report describes the drainage improvements proposed as part of the site development and the impact these improvements will have on flooding conditions in Leach Creek.

Existing Conditions Hydrology and Hydraulics

The project site is located in the lower reaches of Leach Creek with approximately 26.4 square miles of watershed area located upstream of the site. The upstream watershed remains largely undeveloped and conditions today were assumed to be similar to those considered by the COE in its 1976 Flood Hazard Information study. The 100-year flood plain for Leach Creek in the vicinity of the project site was estimated, from the COE report, to be approximately 4590.0 feet mean sea level (National Geodetic Vertical Datum). Other information taken from the COE report included a 100-year discharge in Leach Creek at H Road of 1,800 cubic feet per second (cfs).

To properly evaluate the impact that development of the project site will have on flood levels on Leach Creek, it was first necessary to simulate a 100-year hydrograph in Leach Creek at the project site and to reconstruct the resulting flood profile and match it, within reasonable limits, to that published by the COE.

Simulation of a flood hydrograph was performed using the U.S. Soil Conservation Service (SCS) computer program TR-20 and 100-year 24-hour rainfall amounts presented in NOAA Atlas 2, Volume III. The Leach Creek watershed was divided into several subwatersheds as indicated in Exhibit 2. Local flood hydrographs were determined for each subwatershed and routed downstream, assuming an average velocity of 3 to 7 feet per second as projected by the COE report. The resulting peak discharges are summarized in Table 1.

Verification of the 100-year flood profile presented by the COE was performed using flows generated by the TR-20 program and the COE computer backwater program "HEC-2-Water Surface Profiles." Stream cross-sections were obtained from large-scale topography with 1-foot contours of the site, supplemented by field surveys. Field surveys of the bridge crossing at 25th Street revealed the low chord of the bridge to be one foot higher than that used in the 1976 COE report. However, the peak hydrograph flows developed by TR-20 methodology are also higher than those used by the COE. Therefore, the differences between the two 100-year flood profiles (Exhibit 3a) are not significant.

Impact of Local Hydrograph on Peak Flow

Development of the tract will increase the rate of runoff from the project site above that anticipated from its current undeveloped condition. If allowed to flow unrestricted into Leach Creek, the increase in runoff would increase the peak flow in Leach Creek and contribute to the potential for downstream flooding. To control the rate of runoff into Leach Creek, it is proposed to provide site grading that will allow for onsite detention of storm water (in parking lot areas, etc.) so that during intense rainfalls the amount of water discharging to Leach Creek will not increase the peak flow of the storm above existing conditions.

The peak historic flow from the site into Leach Creek is 11 cfs, but examination of the relative timing of the hydrographs from the site of Leach Creek shows that the outflow from the site increases the Leach Creek hydrograph peak by only 6 cfs. Thus, the post development drainage system should be designed to regulate the developed condition discharge from the site that occurs concurrently with the peak discharge on Leach Creek to a rate no greater than 6 cfs. Higher rates, however, can be discharged at times prior to or after the peak rate on Leach Creek without causing flooding beyond the present 100-year flood limits.

Reclamation - Impact of Levee on Flood Levels

Two techniques were considered to reclaim the property from the flood plain. The first technique considered was to fill in the portion of the property currently estimated to be inundated by the 100-year flood in Leach Creek. An estimated 11,100 cubic yards of fill would be required.

The second reclamation technique considered was construction of a low earthen levee in conjunction with a short concrete retaining wall along the north and west property lines as indicated in Grading and Drainage Plan. Construction of a levee will prevent gravity drainage directly to Leach Creek and will require detention of storm water as part of the internal drainage system design. The Federal Insurance Administration (FIA) discourages the construction of levees. A copy of the policy guidelines is contained in Appendix A of this report.

Because of a lack of available fill material the levee option of construction is being proposed for reclamation.

To reclaim a portion of the project from the flood plain, it is proposed to construct a levee and retaining wall along the north property line as indicated in Grading and Drainage Plan. It is recommended that an earthen levee be constructed to an elevation 3 feet higher (elevation 4593.0) than the existing 100-year flood elevation (4590.0). The concrete retaining wall can be constructed to an elevation one foot higher (elevation 91.0). The COE computer model HEC-2 was used to evaluate the impact of the proposed encroachment (the levee) on the flood levels. It was determined that the levee actually decreased water surface elevations by increasing channel efficiencies. A comparison of the flood levels with and without the levee is shown in Table 2.

Site Drainage - Stormwater Detention Requirements

Leach Creek will be utilized as the point of discharge of stormwater runoff. Via a system of buried conduits, catch basins, valley pans and grassed swales, drainage is to be collected and eventually routed to Leach Creek.

Site grading has been planned in such a manner that runoff from buildings, recreational areas and open areas will be directed to the parking areas by the shortest overland route possible. This overland flow will be carried in shallow sodded swales across open areas, between buildings and over the sidewalks to the paved parking areas. The asphalt paved parking areas will be constructed with a minimum one percent (1%) fall towards the center to pull drainage into a three-foot valley pan to be constructed along the centerline. These pans will then convey the site drainage to designated storm water detention areas where, during major events, runoff will be detained until such time as it can safely be released to Leach Creek. A safe time being any time when water levels in Leach Creek are below flood stage. As the peak of the storm in Leach Creek passes, the water surface

elevation will drop, decreasing back pressure on the storm sewer outfalls, allowing the flap gates to open and, in so doing, release the detained flows to the stream.

The peak discharge from the project site, under developed conditions, was estimated from the SCS handbook "Procedures for Determining Peak Flows in Colorado" and the SCS handbook on TR-55 (Urban Hydrology). The resulting storm hydrograph (Exhibit 3c) was estimated as a triangular shape with 80 percent of the total runoff occurring within the base time (Tb) of the hydrograph.

Because of the proposed levee, storm outflow to Leach Creek will be limited by the capacity of the storm sewers. The capacity of the storm sewers is determined in part by the depth of ponding and also the tailwater depth in Leach Creek. The tailwater depth, which varies according to the flow in Leach Creek, was estimated by computing a rating curve for Leach Creek (using HEC-2) and converting the flood flow hydrograph to a flood-stage hydrograph (Exhibit 3d). The COE computer program RPROUT was then used to determine the extent of stormwater detention required. The results of analysis show that 2.5 acre-feet of detention storage should be provided on the project site to accommodate a 100-year storm runoff (Exhibit 4). To accommodate runoff from a 10-year storm event, an estimated 1.3 acre-feet of detention storage is required.

From the previously discussed analysis of Leach Creek detailing the coincidence of the stream hydrograph with that of the site, it was found that 2.5 acre-feet of storage would be needed during the 100-year event, and 1.3 during the 10-year event. Using the hydrographs prepared for each of the basins, the amount of detention needed for both the minor and major storms in each of the basins was determined. This has been tabulated along with the available storage volume in Table 3. The available storage volume shaded on the Grading and Drainage Plan is defined as that volume possible to be detained within the limits shown at a maximum depth of 2.0 feet and always at least one-half foot below finish floor elevation of any building. This volume would be needed only during 100-year or greater storm events.

Runoff rates into each of the basins and design discharge rates for the underground storm sewer system were calculated using the Rational Method. Rainfall Intensity, Duration Curves furnished by the City of Grand Junction Engineering Department were used in these computations, the results of which have been shown at selected points on the Grading and Drainage Plan.

From the values tabulated in Table 3 it can be seen that all Basins are able to detain that portion of the 10-year event that is needed, and all Basins but Basin nine are able to detain the needed flow during the 100-year event. Although detention of the 100-year excess is not mandatory, safe passage of this flow to areas where it can be handled safely is required. The excess 100-year flow from Basin 9 will enter the paved section of Persigo Drive, flow to the low point, cross the street over the crown and spill into the parking area for basin 1 where it will be carried to Basin 1's detention area. Basin 2's available storage volume far exceeds the volume it needs for its own runoff.

As the high water subsides in Leach Creek all Basins will drain returning conditions to normal.

Flood flows in Leach Creek will be kept from entering the site by an earthen levee along that reach immediately adjoining the Creek, and by a concrete retaining wall along that length bordering the Western Slope Gas property.

Permit Requirements

Before proposing the construction of Phase IV, the first activity to encroach on the present limits of the 100-year flood plain, a permit from the City of Grand Junction will be applied for and approved. Reclamation of the property from the Leach Creek flood plain by construction of the levee will constitute filling of the flood plain. The local area office of the Corps of Engineers, Sacramento District, will be consulted to determine if a permit is required under Section 10 or Section 404 of the permitting program administered by the COE.

In addition to the COE permit requirements, the Owner may contact the Federal Emergency Management Agency (FEMA) administrator for the federal flood insurance program, requesting the project site be removed from the flood plain of Leach Creek. Submittal to FEMA requesting a Letter of Map Amendment (LOMA) would allow the issuance of Class A building permits for development of the entire project site.

Summary and Conclusions

Reclamation of the project site from the 100-year flood plain of Leach Creek is necessary in order to allow development of the entire 39 acres of the tract. This can be accomplished by construction of a levee along the north and west lines of the property without increasing flood levels in Leach Creek. Construction of the levee will require stormwater detention be considered as an integral part of the internal tract drainage design. An estimated 2.3 acre-feet of storage is required to protect against flooding during a 100-year storm event; 1.2 acre-feet of storage is required to protect against flooding during the 10-year storm event.

Because of the filling within the Leach Creek flood plain resulting from the proposed levee, the City of Grand Junction Office of Planning and the COE permit office will be consulted to determine permit requirements. In addition, the Federal Emergency Management Agency may be contacted and supporting documentation be provided to them requesting an amendment to the official flood plain map of the area, which would remove the project site from the Leach Creek flood plain and allow issuance of Class A building permits for the entire tract.

TABLE 1 - 100-YEAR PEAK DISCHARGES IN LEACH CREEK

Location	Drainage Area	100-Year Peak Drainage
H Road	19.9 sq. mi.	1,960 cfs
I-70	22.9 sq. mi.	2,500 cfs
25 Road (project site)	26.0 sq. mi.	3,050 cfs

TABLE 2 - IMPACT OF LEVEE ON 100-YEAR WATER SURFACE PROFILES IN LEACH CREEK

	Elevation of Water Surface (feet msl)	
Location	Without Levee	With Levee
100 feet west of 25 Road	4,581.10	4,581.10
At 25 Road	4,590.03	4,589.98
500 feet east of 25 Road	4,590.41	4,590.24
At Grand Valley Canal	4,591.26	4,591.22

TABLE 3 - STORM WATER DETENTION VOLUMES

Basin	Required (ac.-ft.) 10 yr.	100 yr.	Available (ac.-ft.) Maximum
1	0.13	0.23	1.04
2	0.14	0.31	0.82
3	0.07	0.11	0.35
4	0.50	1.00	1.66
5 & 6	0.11	0.20	0.28
7 & 8	0.06	0.10	0.10
9	0.26	0.53	0.43

APPENDIX A

DRAFT

10-6-77

U. S. Department of Housing
and Urban Development, the
Federal Insurance Administration's
Interim Policy on Mapping
Leveed-Areas

The Federal Insurance Administration (FIA) discourages the construction of levees in the Nation's flood plains. Such structures tend to engender a false sense of security only to stimulate residential development in the Nation's flood plains-a result clearly at cross-purposes with the national goals of sound flood plain management in general and with the specific objectives of the National Flood Insurance Program.

The Federal Insurance Administration recognizes however that with proper construction safeguards and flood plain management considerations a levee can be designed to protect an area from the standard project flood without aggravating the flood hazard. Protection against this magnitude of flooding is urged for all levees especially where residential development is located in or planned for the levee project.

There is a clear need for a comprehensive Federal policy for non-Federal levees, including standards for elevation, structural stability, etc., to assure adequate protection from major flooding. In the interim, however, the Federal Insurance Administration has developed a policy to represent accurately those areas subject to inundation from the 100-year flood.

The following represents then FIA's policy for evaluating levees and for removing leveed-areas from the special flood hazard area designation, i.e., areas shown to be subject to inundation from the 100-year flood on FIA's flood maps:

Existing Levees. Levees constructed prior to the effective date of this policy will be evaluated as follows:

1. Levees which are not under a form of ownership which is legally bound to perfo repair and maintenance work of the levees will not be considered as providing protection against the base flood regardless of their design or condition.

2. Levees which were designed and constructed by a Federal agency or another body recognized by FIA will be considered as providing adequate protection against the base flood (i.e., 100-year flood) provided that:

a. The design protection elevation (exclusive of design freeboard) is equal to or greater than the base flood elevation at all points.

b. Field inspection indicates that the levee is structurally sound and adequately maintained.

c. The historic behavior of the levee system, since construction, with respect to seepage, underseepage, embankment and foundation stability does not indicate the likelihood of failure at flood stages equal to or less than those expected during the occurence of the base flood.

3. Levees whose design and construction were accomplished by a body other than a Federal agency will be considered as adequate protection against the base floc under the following conditions:

a. The minimum freeboard maintained at all points during the occurrence of the base flood will be 3.0 feet. At the upstream end of the levee a additiona 0.5 foot of freeboard above the minimum tapering to 0.0 feet above the minimum at the downstream end will be required. An additional freeboard of 1.0 foot above the minimum shall also be required within 100 feet either side of structures within the levee, such as drains, pipes, etc., or wherever the flow in the stream is constructed, such as at bridges.

b. Field inspection indicates that the levee is structurally sound and adequately maintained.

c. The historic behavior of the levee system, since construction, with respect to seepage, underseepage, embankment and foundation stability does not indicat a likelihood of failure at flood stages equal to or less than those expected during the occurrence of the base flood.

New Levees. Levees constructed or improved following the date of this policy will be evaluated as follows:

1. For Federally designed and constructed levees (or their equivalent) where the design protection elevation (exclusive of design freeboard) is equal to or greater than the base flood elevation, the leveed area will be removed from th area of special flood hazard upon completion of the project.

2. For non-Federally designed and constructed levees, FIA will remove a leveed-area from the area of special flood hazard only if the following criteria are met:

a. The levee is complete.

b. Any increase in flood elevation above, below, or through the project area is limited to 1.0 foot and has been coordinated with, and approved by, all adjacent communities in writing. The project must also be consistent with all other regulations of the National Flood Insurance Program.

c. The design, specifications and construction of the project are in accordance with the U.S. Army Corps of Engineers Engineering Manual No.1110-2-1913 entitl "Design and Construction of Levees", and include a minimum freeboard allowance described in paragraph 3a above.

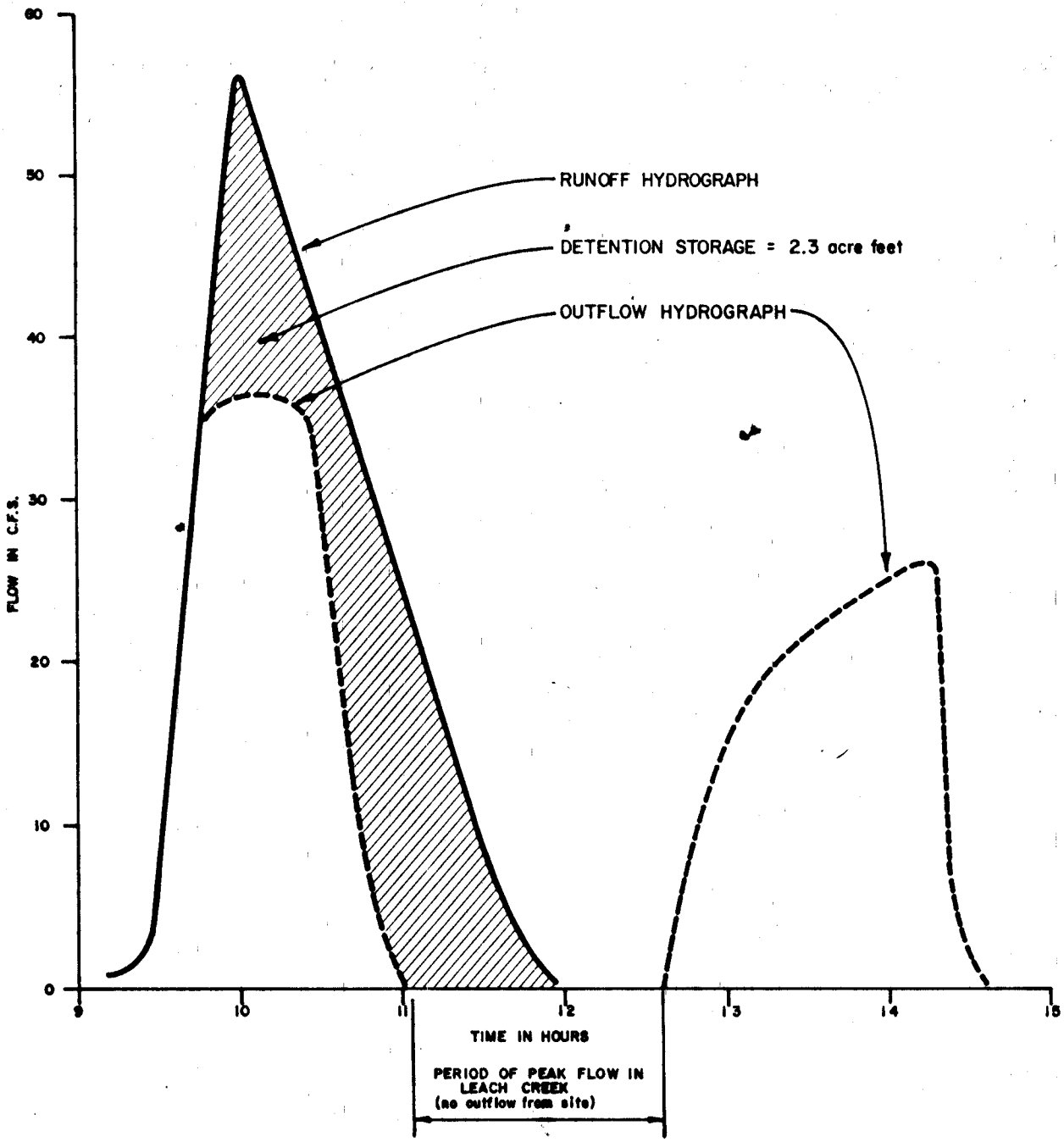
d. The plans, specifications and construction of the project are reviewed and accepted by the Federal Insurance Administration.

e. A public agency or community will assume ownership and will accept full responsibility for the operation, maintenance and repair of the project follo its completion.

f. The levee builder provides FIA with an analysis of the post-project flood ha including those associated with internal drainage within the area protected b the levees. To be considered to provide 100-year protection, a levee project must have adequate interior drainage. The levee builder must have also provi the plans and specifications of an interior drainage system the details and specifications of which were reviewed and accepted by FIA.

Mapping Policy. Where levees do not meet these criteria, the flood hazard area and floodway will be delineated as if the levee does not exist. Where the levee does meet FIA criteria for providing protection against the base flood, the floo and floodway will be delineated at the centerline of the levee. All areas prote by levees which meet FIA criteria for exclusion from the area of special flood h will be delineated as Zone B on the Flood Insurance Rate Map and as an area subj to inundation by the 500-year flood on the Flood Hazard Floodway Map. The Zone definition will be modified accordingly. These criteria will be followed even i the levee provides protection against the 500-year flood, since the uncertainty associated with the determination of the levee's integrity be indicated on maps published by FIA.

EXHIBITS



PROJECT SITE RUNOFF HYDROGRAPH & OUTFALL HYDROGRAPH

(including variable tailwater affect of Leach Creek)

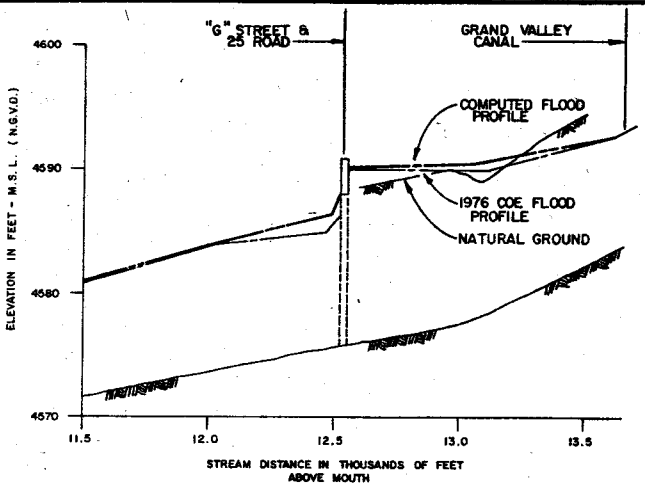
100-YEAR STORM

PERSIGO VILLAGE DRAINAGE STUDY

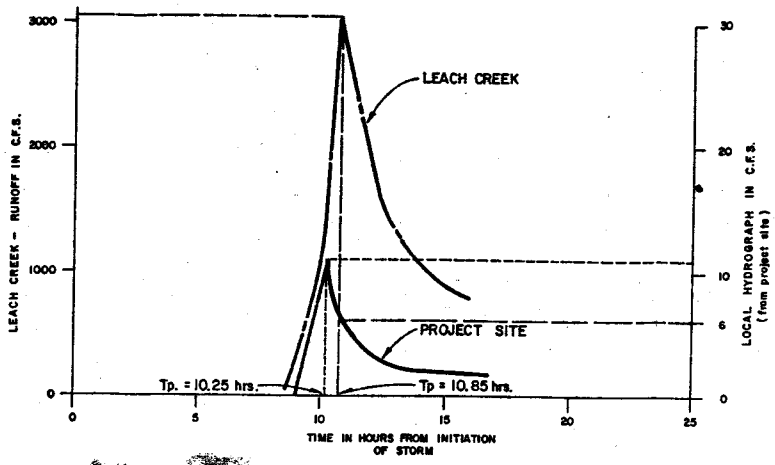
LEACH CREEK HYDROGRAPH

Turner Collie & Braden Inc.
CONSULTING ENGINEERS
TEXAS AUSTIN/DALLAS/EL PASO/HOUSTON/PORT ARTHUR
COLORADO DENVER/GRAND JUNCTION

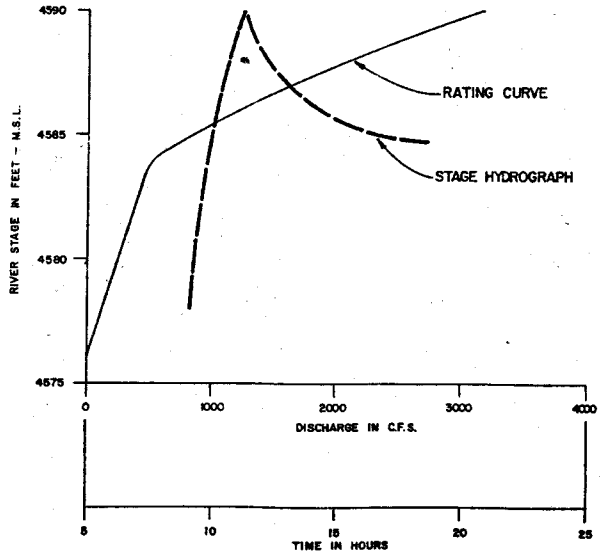
Exhibit 4	Job No. 8013-003	Date SEPT., 1982



COMPARISON OF FLOOD PROFILES

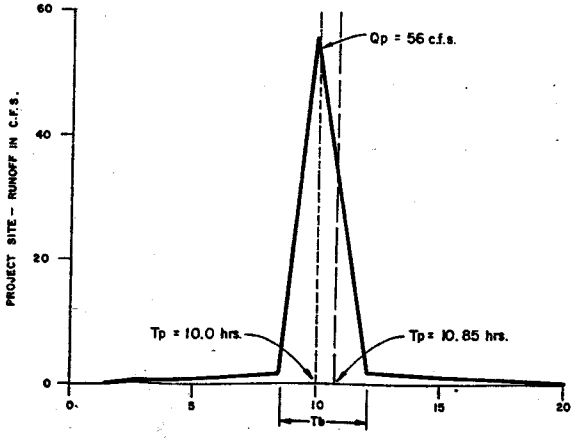


100-YEAR STORM HYDROGRAPHS



RATING CURVE & STAGE HYDROGRAPH

(Leach Creek @ "G" Road and 25 Road)



100-YEAR STORM HYDROGRAPH

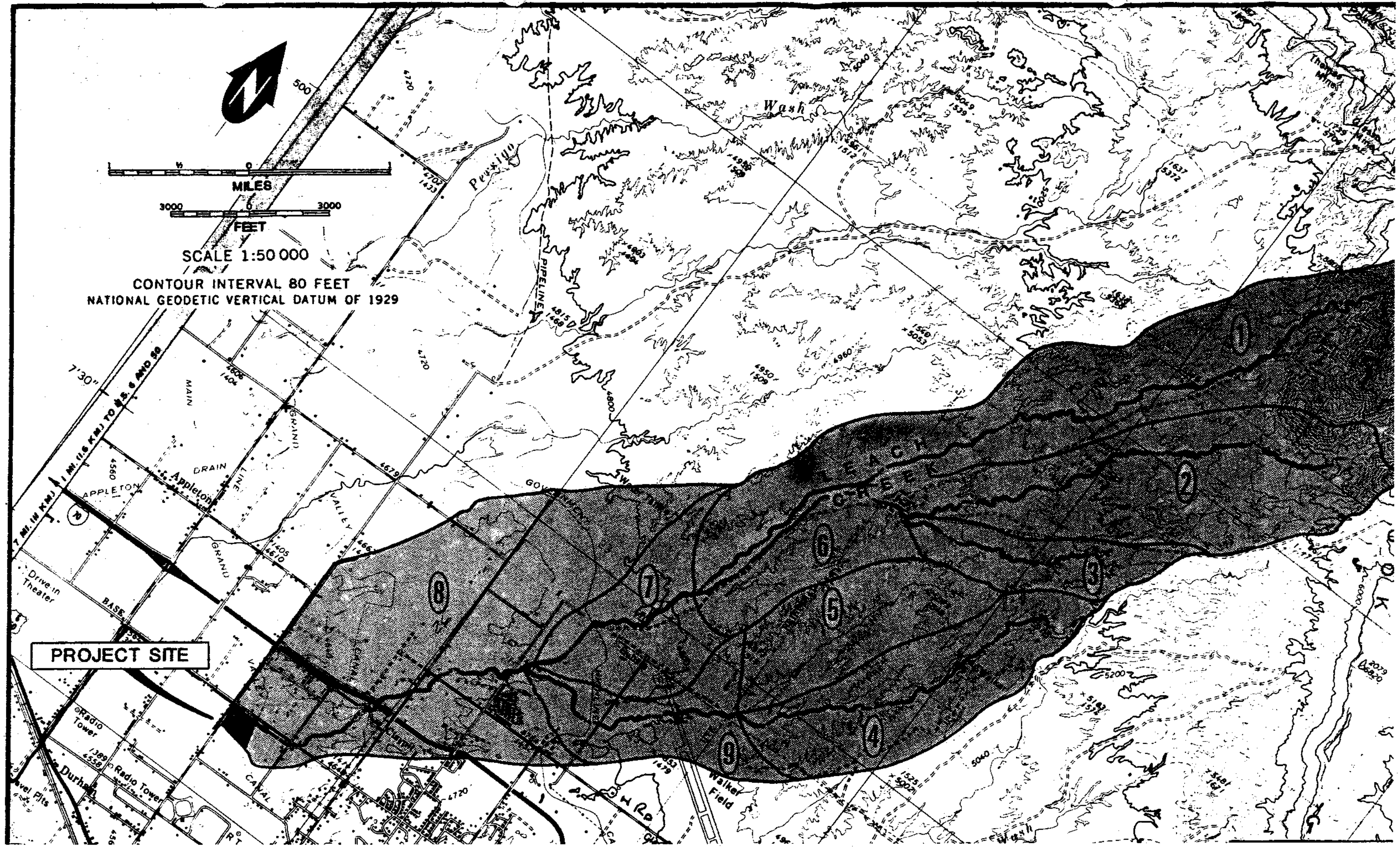
(project site developed)

PERSIGO VILLAGE
DRAINAGE STUDY

PROFILES AND HYDROGRAPHS

Turner Collie & Braden Inc.
CONSULTING ENGINEERS
TEXAS AUSTIN/DALLAS/EL PASO/HOUSTON/PORT ARTHUR
COLORADO DENVER/GRAND JUNCTION

Exhibit	3	Job No.	8013-003	Date	SEPT., 1982



MILES
3000
FEET
3000
SCALE 1:50 000
CONTOUR INTERVAL 80 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
PROJECT SITE
Appleton
MAIN
DRAIN
LINE
VALLEY
PIPELINE
Wash
LEACH CREEK
Walker Field
Drive-in Theater
Radio Tower
1
2
3
4
5
6
7
8
9

REVIEW SHEET SUMMARY

FILE NO. 63-81 TITLE HEADING Persigo Village DUE DATE 6/10/83

ACTIVITY - PETITIONER - LOCATION - PHASE - ACRES Revised Final Plan & Plat, Persigo Village, E corner of 25 & G Roads, Petitioner: Colex Ltd.

PETITIONER ADDRESS P. O. Box 363, G.J.

ENGINEER Paragon Engineering, 2784 Crossroads Blvd., Suite 104, G.J.

DATE REC.	AGENCY	COMMENTS
6/10/83	City Planning	Revised Final Plat: 1. The final plat seems acceptable, since it is going as condo's. The technical issues regarding: easements, ROW, and utility composites should be referred to the Engineering Dept. We will need a revised Improvements Agreement and guarantee for all public improvements within Phase I. 2. The changes as proposed can be accommodated thru Sec. 7-5-6A minor changes. 3. All other applicable review agency comments resolved. 4. The final must be recorded prior to issuing any building permits. 5. The open space for Phase I will be fees rather than land. As the future phases develop, consideration of land for public open space will be revowed. Final Plan: 1. All amenities and landscaping must be in place prior to occupancy. Good to see them up front. 2. How will landscaping be maintained? (same as before?) If homeowners association will, then we need covenents recorded with plat to ensure maintenance and follow-up. 3. Six parking stalls at entry off Persigo Drive - the one or two furthest to the east should be deleted. Backing out of stalls could create a hazard at the intersection. 4. Signage at entry may create sight distance problem. No more than 30" tall in the sight triangle is allowed. 5. This change can be accommodated thru Sec. 7-5-6A. 6. Resolve all other applicable review agency comments.
6/10/83	City Utilities	Manholes should be constructed at the end of all sanitary sewer lines. The plugged ends shown on the plans are not adequate for cleaning and maintenance. The 6" sewer line extending north of MH B-2 should be changed to 8" pipe. This line is too close to the building (10' min.) and also needs a manhole at the end of the line. This sewer line is in a B.E. (building Envelope) area. If utility easements are not included in B.E., then a separate 20' utility easement should be provided for the sewer line.
6/10/83	City Eng.	This review does not constitute approval of construction plans for the sanitary sewer system. Construction plans for the sewer system must be approved prior to construction.

GJPC 4/30/85 rec. 1 year extension (see 4 of 4)

REVIEW SHEET SUMMARY

FILE NO. 63-81 3/3 TITLE HEADING Persigo Village Phase I Final Plat DUE DATE 10/14/82

ACTIVITY - PETITIONER - LOCATION - PHASE - ACRES Petitioner: M. Ray Painter/ PWS Investments.

Location: Southeast corner of G Road and 25 Road. A request for a final plat and plan of 84 units on approximately 5.7 acres in a planned residential zone at 17 units per acre.

a. Consideration of final plat. b. Consideration of final plan.

PETITIONER ADDRESS PWS Investments, P.O. Box 3944

ENGINEER Turner Collie & Braden Inc.

DATE REC.	AGENCY	COMMENTS
10/7/82	Transportation Eng.	All traffic control devices on public streets will be determined by the city or county traffic engineer. There will be no multi-way stop on 25 Rd. or G Rd. at this time.
10/8/82	Public Service	See comments of review for preliminary plat.
10/13/82	City Fire	The Grand Junction Fire Department will approve this final on Phase 1 with hydrant spacing and water mains as shown. The Fire Dept. needs to know how units are going to be addressed.
10/13/82	Public Service	Gas: Designate easements and note that general common area is also utility easements. Electric: No objection to final plat-customer to contact PS Co. for electric service. Street lighting on public streets will be through Public Service Company in accordance with Franchise and PUC Tariffs. NOTE: There is a proposed 230 KV Transmission Line along the east side of 25 Road, adjacent to this subdivision.
10/14/82	Planning Staff Comments	This is a final and all issues need to be resolved prior to first public hearing. 1. Overall - see preliminary plan discussion. 2. Imapct statement see preliminary plan discussion. 3. Site plan: 1. Need setbacks shown on plat. 2. What is the no. of units per building? 3. Bike racks needed. 4. Landscape - irr. maintenance? Low prifile at intersections. 5. Need hts. of structures. 6. Need to see stalls to verify all will be valid spaces and number included. 7. Trash p/u verified with Bill Reeves. 8. Signage detail needed - sign approved as part of plan. 9. Will sidewalks be public or private? If public need easements, dedication. 10. Need 25 Rd. improvements guarantee (i.e. escrow funds). 11. 5% open space upon recording of final plat. 12. Development schedule (see preliminary plan review comments). 13. All streets, (i.e. improvements agreements) need to be signed.

Late - County Road
Ute Water
City Engineer

Turner Collie & Braden Inc.

PO BOX 3944
GRAND JUNCTION, CO 81502
743 HORIZON COURT
SUITE 102
303 243-7436

November 9, 1982

Bob Golden
Grand Junction City Planner
City of Grand Junction
250 North 5th St.
Grand Junction, CO 81501

Re: Persigo Village

Dear Bob,

Please find attached two sets of revised drawings for the Final Plat and the Construction Drawings of the above referenced project and a listing of the changes we have made to each sheet.

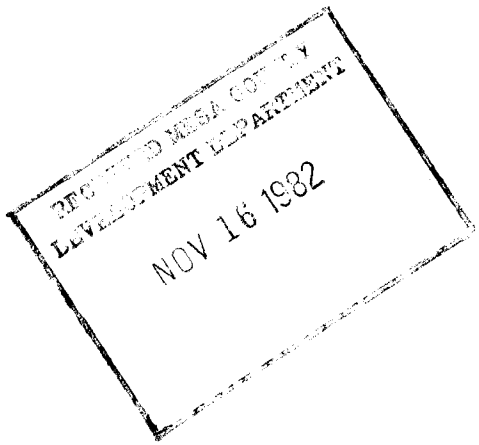
I have made the changes discussed in the letter we sent you prior to the Preliminary Plat/Plan hearing. This is what I intend to submit to Ron Rish for construction approval. If you see anything I have omitted or any additional detail you would want on these drawings, please call and we will get them revised.

Respectfully,

Jim Langford

James E. Langford, P.E. & L.S.

encls.
cc: John Cavness
JEL/ca



PERSIGO VILLAGE PLAT

1. Added easement for storm sewer outfall
2. Added easement for temporary gravel turn-around
3. Added easement for utilities extended beyond Lot 1
4. Added number of dwelling units to each building envelope
5. Changed name from Phase I to Lot 1
6. Changed radii for curves C-1 and C-2 to 20 feet
7. Added building setback lines
8. Moved tables and definitions to accomodate extended easements

LANDSCAPE AND SCREENING

1. Relocated walk along Persigo Drive to 6" off ROW
2. Located trash pickup locations in accordance with the wishes of Bill Reeves

PERSIGO VILLAGE
PLANS FOR CONSTRUCTION

1. Cover Sheet
   -Retitled Lot 1 vs. Phase I
   -Added sheet 12 of 12, Miscellaneous Details, and renumbered sheets

2. Standard Legend and Construction Notes
   -(No Change)

3. Grading, Drainage and Site Plan
   -Relocated sidewalk on Persigo Dr. to 6" inside ROW
   -Located trash pickup locations per the wishes of Bill Reeves

4. Utility Composite
   -Realigned waterlines in accordance with wishes of Ute Water
   -Added trash pick-up locations
   -Reworded Note 2 as directed by Ute Water

5. Persigo Drive
   -Moved sidewalk on Typical Detail

6. Lot 1/Lot 3 parking
   -Added staking detail for trash pick-up locations

7. Sanitary Sewer Profiles
   -(No Change)

8. Storm Sewer Plan & Profile
   -Re-routed storm sewer to outfall below 25 Road bridge
   -Deleted flap gate
   -Moved details to Miscellaneous Detail Sheet 12 of 12

9. Paving Details
   -(No Change)

10. Waterline Details
    -(No Change)

11. Sewerline Details
    -(No Change)

12. Miscellaneous Details
    -New Sheet

Final

PWS Investments
P.O. Box 2026
Grand Junction, CO 81502

John Cavness
%Logos Construction
727 23 Road
Grand Junction, CO 81501

Turner Collie & Braden Inc.
P.O. Box 3944
Grand Junction, CO 81502

Merl & M.M. Hockett
2527 G Road
Grand Junction, CO 81501

Robert J. & Betty J. Carmack
677 25 1/2 Road
Grand Junction, Co 81501

GPL Grand Junction
45452 Cabrito Road #219
Van Nuys, CA 91406

Delbert F. & Edna E. Wanzer
2520 F 1/2 Road
Grand Junction, CO 81501

Project Thirty et al
27831 Lapaz Road
Laguna Niguel, CA 92677

Kenneth A. Johnson
6 Soldier's Field Park #113
Boston, MA 02163

Wayde E. & Hazel Dockery
2524 G Road
Grand Junction, CO 81501

Curtis B. Lashbrook
2526 G Road
Grand Junction, CO 81501

Leemon R. & C.A. Reynolds
695 25 Road
Grand Junction, CO 81501

Gary Edward & Vicki M. Johnson
693 25 Road
Grand Junction, CO 81501

Country Glen Associates
1666 So. University Blvd.
Denver, CO 80210

Floyd E. & Sharon Williams
3316 Laurel Lane
Grand Junction, CO 81501

Helen Hilgenfeld
683 25 Road
Grand Junction, CO 81501

Galen & Kolene Homedew
2081 J Road
Fruita, CO 81521

Raedene S. Basinger
679 25 Road
Grand Junction, CO 81501

Western Slope Gas Co.
2478 Industrial Blvd.
Grand Junction, CO 81501

Vern & Bernice Eva Wood
677 25 Road
Grand Junction, CO 81501

Gaylen A. & M.E. States
675 25 Road
Grand Junction, CO 81501

Mendell E. & Lily Silzell
2492 Independent Ave.
Grand Junction, CO 81501

Bert C. & Louise B. Morrison
669 25 Road
Grand Junction, CO 81501

Gertrude Spencer
667 25 Road
Grand Junction, CO 81501

Herman L. & Connie Crist
145 Willowbrook
Grand Junction, CO 81501

Donald R. & Marilyn Coatney
655 25 Road
Grand Junction, CO 81501

Irving Biers
935 Northern Way
Grand Junction, CO 81501

PERSIGO VILLAGE DEVELOPMENT SCHEDULE

Phase I construction on Persigo Village is scheduled to start the first week of December 1982, subject to completion of present financing.

The first build-out of the project is scheduled to be in nine phases with about eighty units per phase. Each phase of construction should be approximately six months in duration.

The planned schedule is to proceed from one phase to the next for a completed build-out within four and one-half years. It must be recognized, however, that the market demand should influence the speed of build-out. If the demand is stronger than anticipated, development of subsequent phases will be accelerated. If the demand is less than expected, time between development phase starts may be extended to nearer one year.

Turner Collie & Braden Inc.

PO BOX 3944
GRAND JUNCTION, CO 81502
743 HORIZON COURT
SUITE 102
303 243-7436

October 25, 1982

Grand Junction Planning Commission
Grand Junction, CO 81501

Attn: Mr. Bob Golden

Re: Persigo Village

Gentlemen:

The following is submitted in response to comments for the project review of the Persigo Village Preliminary Plan and Final Plat for Phase I.

Transportation Engineer: The stop signs shown on 25 Road and G Road were not intended to be installed by the developer at this or any other time. We realize that is the business of the City and County Traffic Engineers. Since we submitted a plan, the stop signs were shown to indicate that, at some future time if development in the area progresses in accordance with plans that have been previously approved by Council, traffic on 25 and/or G Road may warrant a traffic control device to permit residents of Persigo Village to enter either 25 or G Roads safely.

City Engineer: The sidewalk on Persigo Drive has been relocated from being attached to the curb and gutter to being located 6-inches off the right-of-way line.

Temporary easements for access and utilities have been shown on the Final Plat of Lot 1 for all improvements extending beyond the limits of Lot 1.

City Public Works: The Engineer has met with the Director of Public Works and the City Engineer concerning access to manholes by maintenance vehicles. Since it is necessary in some instances (because of grade and facilities) to have manholes in areas not located adjacent to paved thoroughfares, it was agreed that those few manholes will be accessed by the City's maintenance pickup truck by use of an 8-foot wide, 6" thick sidewalk. This wider and thicker sidewalk will be constructed specifically for access by the maintenance vehicle.

Public Service Co.: The Engineer is aware of the 230 kv line proposed on 25 Road. The owner's representatives have perviously met with Public Service representatives and are contacting Mr. Larry Kieth of that Company to assure there will be no major conflict. Mr. Cavness is making the application for service.

All areas within the boundary of the development not specifically covered by public rights-of-way or limited common open space, are noted as General Common Open Space and are available for the routing of Public Service Company lines.

City Fire: In order that adequate fire protection capability be provided the development, we requested of Ute Water that we be allowed to loop the primary line through the development and either tie back into 25 Road or G Road. Ute Water felt there was insufficient capacity in G Road to permit the loop to be made there, but would allow looping back to the 12" line in 25 Road if a permanent gravel fire lane were installed over their line when it leaves the parking area and enters the 25 Road ROW. The Fire Department still wants an 8" line extended to the 8" line in G Road and we agree.

Addresses have been assigned to the units and approved by Mr. Noble of the Fire Department. We are now clearing the address system with the Post Office.

City Planning Staff Comments: Since the interim sewage treatment plant is in operation, capacity is available for this development.

The developer is contacting the City Attorney to provide required assurances for ROW improvements and phasings for 25 and G Roads.

The Ute Water representative said pressure of about 160 psi at the Mesa Mall area is reduced through pressure reducing valves to about 80 psi for the 12" line at F Road.

After Mr. Golden explained the development schedule enforcement procedure, we believe the schedule for Phase I development should be revised to May 1983 since weather and other factors might influence the start time for construction.

Landscaping around the project entrance will be low profile where site distances might be effected. A 3-sided masonary trash pick-up will be used. The location and orientation of the pickups will be coordinated with Mr. Bill Reeves.

The irrigation system is shown on the plans. Since the units will be renter-occupied initially the irrigation system will be operated and maintained by the owners. Ultimately, when the units are converted to condominiums, a home owners association will be established which, among other things, will be tasked with operating and maintaining the system.

Site Plan:

1. A minimum setback of 10-feet for primary structures will be noted on the Plan.

2. Although parking lot dimensions and representative areas were shown on the Plan, Mr. Golden pointed out that some particular spaces may not be desirable due to site distance or traffic circulation. Since there are more than the required number of spaces planned, it was agreed that this question could be better addressed during the striping phase when actual conflicts will be apparent.

3. Sidewalks in public rights-of-way will be public, all others will be private.

4. Bike racks will be located in the center recreation areas of each phase. This will provide a lighted, more secure location. According to the Grand Junction Bicycle Program Study it can be assumed there will be about one bicycle per thirty people. Therefore, a rack for eight to ten bicycles in each phase should provide adequate parking. The actual hardware will be selected by the Landscape Architectto best blend with the landscape and other facilities.

5. The percentage space breakdown is tabulated on the Plan and Plat.

6. No comment necessary.

7. The owners will maintain ammenities and open space until a homeowners association is created. When a homeowners association is created, responsibility for operation and maintenance will transfer to that association.

8. All parking lots will be paved and striped.

9. No comment necessary.

10. Fire access has been coordinated through Mr. Noble and he has no problem with access. There will be two graveled emergency access points off 25 Road with knock-out fence sections to assure being able to get emergency equipment into the area.

11. Signage will meet the City sign code. The entry sign will not adversely affect site distance for vehicles entering or leaving the development.

12. Mr. Cavness will meet with the City Attorney to develop surety procedures.

13. The owners will coordinate with the City Parks Department if it desires to utilize Persigo Wash as part of the greenbelt system.

14. The difference between the ODP and the Preliminary Plan is the result of going to two story rather than three story buildings. For future condominium use the two story structures are much more desirable.

15. All raised issues have been or are being resolved at this time.

16. The gas substation will be screened by the covered parking surrounding the project.

Floodplain Administration: The drainage analysis performed on Leach Creek determined that the removal of the shallow ponding area adjacent to 25 Road from the 100-year flood plain limits had a suprisingly minimal effect on the elevation of the water surfaces at the 25 Road bridge; therefore, it is not felt that improvements to the crossing would be needed for drainage purposes.

Turner Collie & Braden Inc.

October 25, 1982
Grand Junction Planning Commission
Attn: Mr. Bob Golden

Page Five

There was some concern over the use of a flap gate on the storm sewer outfall at 25 and G Roads. If the gate stuck, it was felt surcharging may cause flooding of the buildings. To address this concern we would offer to move the discharge from above the 25 Road bridge where the water surface elevation is approximately 5290 feet, to the downstream side of the bridge where the water surface elevation drops to approximately 5286.5 feet. All buildings have finish floor elevations above 5288 feet; therefore, static water pressure surcharging the storm sewer system should not be able to force ponding above the 5286.5 feet mentioned above and thus could not reach the buildings.

Final Plat Review: Most comments on the final plat review have been addressed in the previous statements. Remaining explanations are:

3.2 The number of units per building is being added to the plat.

3.5 Maximum structure heights above the slab are 23'-5 1/4".

3.13 All sheets (i.e. Improvement Agreements) will be signed.

We trust the preceding comments are satisfactory. If you require further information, please call.

Respectfully,

Jim Langford

James E. Langford, P.E. & L.S.

JEL/ca