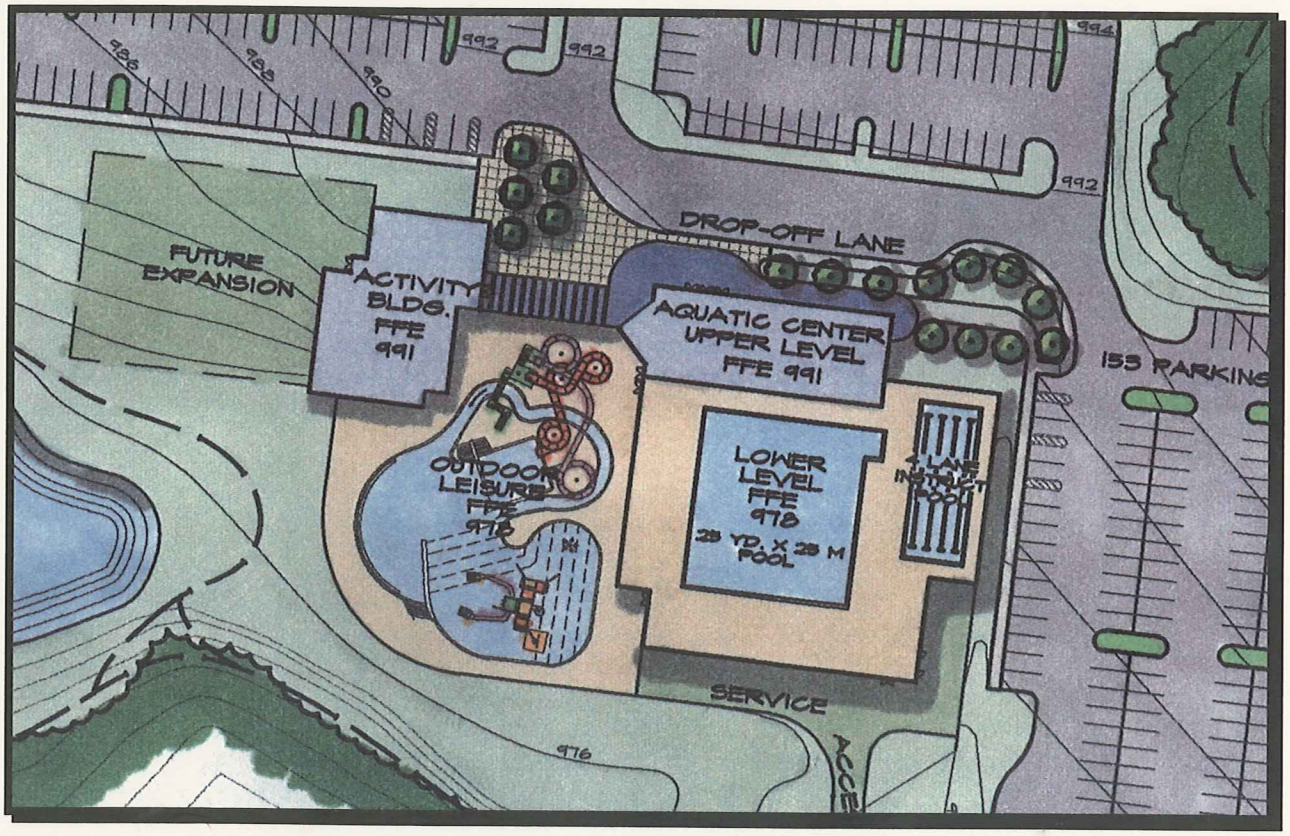
Mountain Park Aquatics Center

ROCKBRIDGE POOL & ACTIVITY BUILDING

GWINNETT COUNTY, GEORGIA

Gwinnett County
Department of Community Services

Final Report
MARCH 2001



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DESIGN AND COMMON SENSE, INC
Land Planning / Landscape Architecture / Urban Design

Councilman/Hunsaker & Associates
Natatorium Planners, Designers & Engineers

ACKNOWLEDGEMENTS

Rockbridge Aquatic Center Steering Commitee
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Councilman/Hunsaker & Associates
Natatorium Planners, Designers & Engineers

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LIST OF ILLUSTRATIONS

GOALS AND OBJECTIVES/THE EXECUTIVE SUMMARY

The Rockbridge Pool & Activity Building planning study was developed in anticipation of the 2001 Sales Tax Program. The new facility will replace the existing Mt. Park pool facility and Depot building. After developing a budget for a new facility, Gwinnett County purchased the property at 1065 Rockbridge Road. The proposed program for the site includes the preparation of an Aquatic Center with subsequent lobby, restroom/locker rooms, administration offices, first aid, vending area, competition lap pool, outdoor leisure pool, storage and mechanical rooms, an Activity building that includes lobby, administration offices, classrooms, divided multi-purpose room, kitchen, restrooms, storage, mechanical and expansion capabilities for additional classrooms and a single gym, and site parking & infrastructure.

The Master Planning approach included the following steps:

- Phase One – Site Analysis/Programming

  Public Information Meeting with County representatives and community group in order to:

  1. Determine user needs and objectives.
  2. Present Base Plan and Site Analysis.
  3. Discuss opportunities and constraints of the site.
  4. Present different Aquatic designs and possibilities.
  5. Determine Community 'Wish List' for Aquatic Center
  6. Develop Programming for Aquatics and Site
  7. Develop Programming for Activity Center with County Representatives

- Phase Two – Concept Plans

  Public Information Meeting with County representatives and community group to:

  1. Present Two Site Concepts
  2. Present Three Aquatic Center Options
  3. Discuss Rough Cost Estimates for Site and Aquatic Center
  4. Develop Master Plan from County representatives and Community groups feedback

- Phase Three – Master Plan

  Public Information Meeting with County representatives and community group to:

  1. Present Final Concept with Bid Alternate
  2. Review cost Estimate

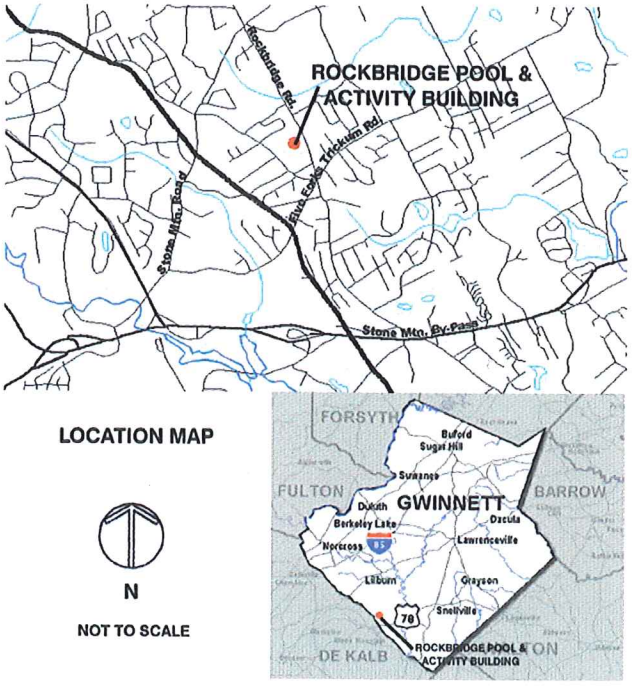
PHASE ONE

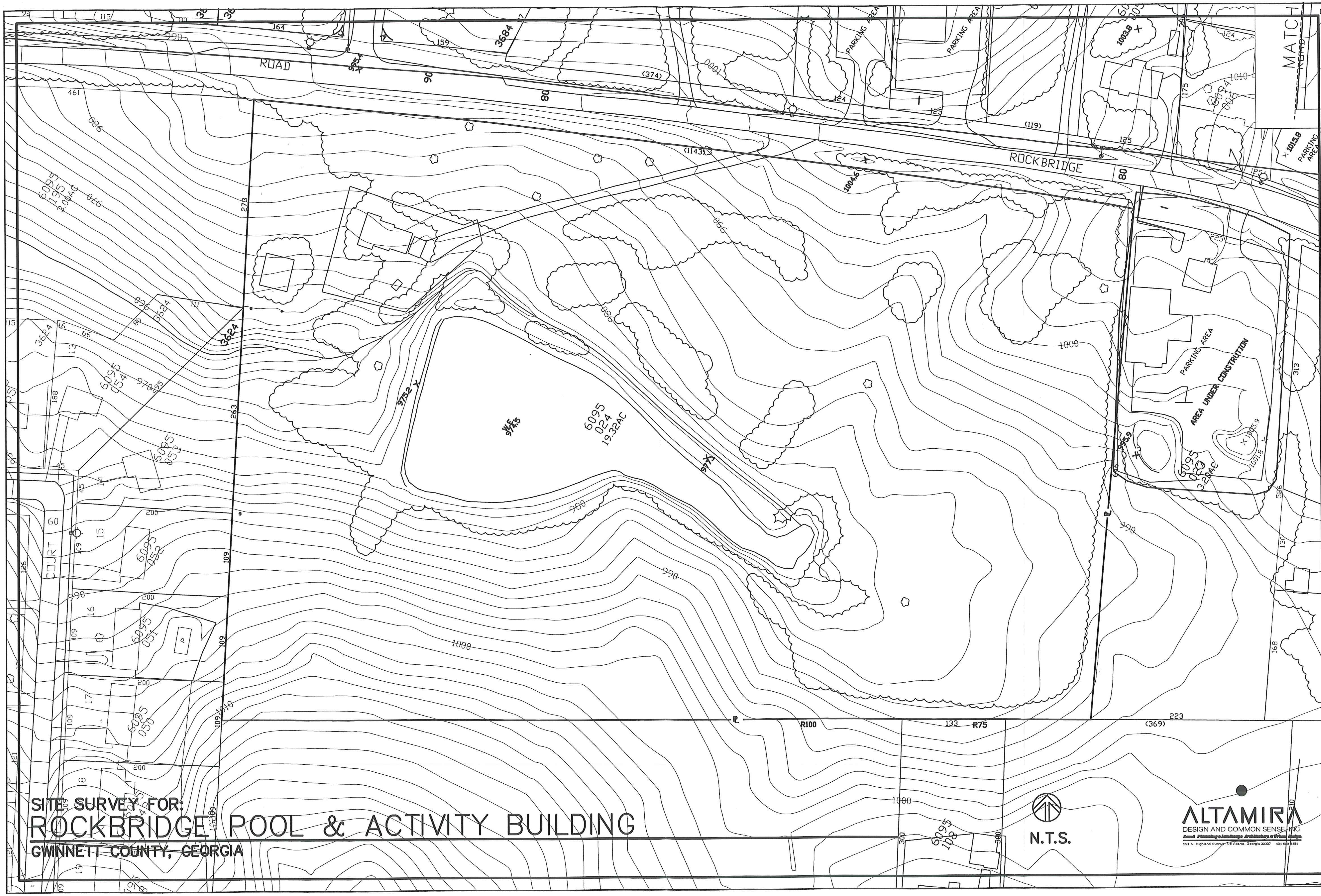
MEETING ONE
Thursday, October 19, 2000
Mt. Park Depot

The initial kickoff meeting was used to familiarize County representatives, Altamira staff, and community residents to the project and with each other. Altamira presented a site inventory to the community residents to familiarize them with the location and general makeup of the property. The County expressed their goal of replacing the outdated facility at Mt. Park and creating a citizen steering committee to work with designers to define user needs for the facility. In addition, the County explained what the Master planning process would involve and the projected timetable for the project. The anticipated completion of the construction documents is by the summer of 2001 with construction completed by summer/fall 2002.

SITE CONTEXT/INVENTORY

The Rockbridge Pool & Activity Building Site was acquired in anticipation of the 2001 Sales Tax Program. The Site is located in the southwest corner of Gwinnett County at 1065 Rockbridge Road. The parcel is approximately 19.32 Acres adjoined by residential neighborhoods on the north and west sides of the property. Commercial property is located on the southern portion of The property formerly contained a residential home and out buildings in the northeastern corner that have been demolished. There is currently a 1.3 Acre lake in the center of the property, a stand of old white oaks in the southeastern corner and a primarily wooded slope along the western boundary.





SITE SURVEY FOR:

ROCKBRIDGE POOL & ACTIVITY BUILDING

GWINNETT COUNTY, GEORGIA

EXISTING ROCKBRIDGE SITE

Rockbridge Road Looking South

Existing Site and Pond

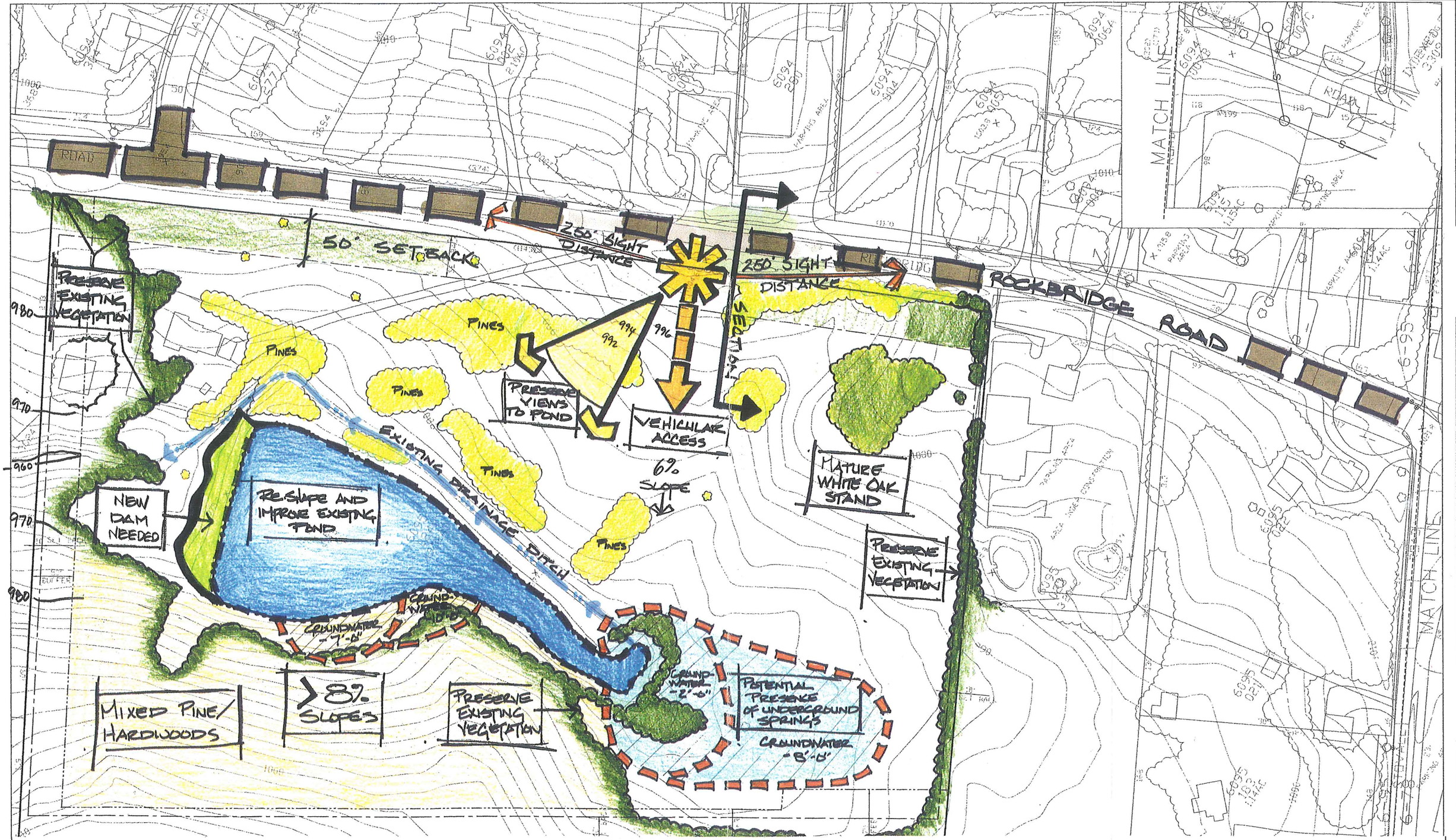
PHASE ONE

MEETING TWO
Tuesday, November 14, 2000
Mt. Park Depot

Altamira presented site analysis. Councilman/Hunsaker presentation reviewed aquatic designs (Competitive, Recreational, Instructional, Fitness and Therapy) to show relationships and possibilities that were available for the Aquatic center. The County representatives expressed its request for the park to also include a Leisure Pool, Activity Center, Trails. Picnic tables, etc, and a playground which could be implemented in a later phase. The Citizen's Committee voiced its aspirations for the site. They included maximum parking, handicap parking at building entrance, senior parking, sidewalks and crosswalks at Rockbridge Rd, open natural green space, off site parking (walk or shuttle connection), walking trails, connection of Activity Building and Aquatic Center, traffic light, playground and picnic shelter, preservation of White Oak Stand, maximum screening of cars from road and maintain views to lake. In addition, the Committee stated its wish list for the Aquatic Center. Councilman/Hunsaker was instructed to develop three conceptual options. The first one containing a 25yd. x 25m indoor pool w/ separate 4 lane warm up pool and outdoor leisure pool, the second option containing a 25yd. x 50m pool with combined indoor leisure pool and warm-up lanes, and finally a 25yd x 50m indoor pool and outdoor leisure pool.

SITE ANALYSIS

The site encompasses 19.32 acres of pines and mixed hardwoods, open grassland, and a 1.3 acre spring-fed pond located in the center of the property. Steep slopes, greater than 8%, are located along the western portion of the site that would provide opportunities for open space and trails as development in this area would not be cost effective. Preservation of the natural vegetative buffer along the north, west, and south boundaries of the site in addition to the large stand of white oaks in the southeastern corner, would provide separation between the adjacent commercial and residential properties. The existing pond is in need of complete renovation as it is presently in poor condition and is insufficient in size for retention. In addition, the Geotechnical report revealed underground springs in the southeastern portion of the property in which groundwater is located approximately two feet below the surface in some areas. The remaining one-half of the site consists of average slopes from Rockbridge Road down to the pond, providing the most advantageous location for the proposed pool complex, activity building, and parking facilities.



SITE ANALYSIS FOR:

MOUNTAIN PARK AREA AQUATICS CENTER

GWINNETT COUNTY, GEORGIA

NOVEMBER 1, 2000

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)

1 inch = 50 ft.

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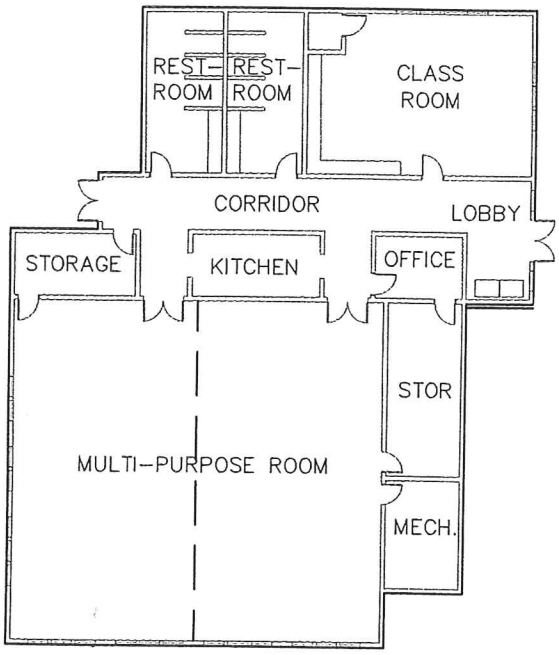
PHASE TWO

MEETING THREE
Wednesday, November 29, 2000
Lawrenceville Historic Courthouse

A meeting was held with county representatives to determine needs and programming for a new Activity building. Altamira provided overview of two conceptual site plans and reviewed considerations of the site. Security, vandalism, and conflict between user groups were concerns aired during the meeting. Gwinnett County approved the idea of joint programming between the Pool and Activity Building. Using Bogan Park and Singleton Road Activity Centers as guides, the county expressed their needs for the Activity building. They include a Multi purpose room to seat 250 people, provide space for exercise classes, coffin style storage, and a movable partition. A kitchen (smaller than the one at Bogan) to include counter/cabinet space, sink, microwave, and icemaker to be located adjacent to the Multi-purpose room. A Classroom with sinks and cabinet/counter space to be used for Arts & Crafts, small group meetings. A small entry lobby, reception desk, restrooms, storage, vending space, and mechanical & electrical rooms. An Open Lawn area for outdoor activities was desired along with expansion capabilities for additional classrooms and a single gym in the future. Altamira reviewed basic needs and estimated that a 4000 – 5000 S.F. building would be necessary.

ACTIVITY BUILDING

RESTROOMS	576 S.F.
CLASSROOM	900 S.F.
KITCHEN	185 S.F.
OFFICE	130 S.F.
MULTI-PURPOSE	2780 S.F.
STORAGE	488 S.F
MECHANICAL	195 S.F.
LOBBY	184 S.F.
CORRIDOR	445 S.F.
TOTAL	5883 S.F.



PHASE TWO

MEETING FOUR
Tuesday, December 5, 2000
Collins Hill Aquatic Center

Councilman/Hunsaker led tour of the Collins Hill Aquatics Center. The tour was used to familiarize committee members with spatial dimensions of the different components of a comparable Aquatic facility and related costs and overhead necessary for these spaces. Altamira reviewed two site concepts with Citizen' s committee. Site Concept #1 (Two level building, single building) had an estimated construction cost of between 1 – 1.2 million dollars. Site Concept #2 was (One Level, separate building) and also had an estimated budget of 1 – 1.2 million dollars. Altamira further reviewed the Activity Building concept and estimated cost of 600,000 dollars. Citizen's committee expressed a preference for Site Concept #1. Councilman/Hunsaker presented three Aquatic Options.

Option #1
- 25yd. x 25m pool
- 4-lane Instructional pool
- 750 seating
- 10,000S.F. Outdoor Leisure Pool (16,000S.F.)

Option #2
- 25yd. x 25m pool
- 325 Seating
- Spa 350S.F.
- 6,700S.F. Indoor Leisure Pool

Option #3
- 50m x 25yd pool
- Bulkhead
- 2-1 Meter Diving Boards
- 750 Seats
- 10,000S.F. Outdoor Leisure Pool

Citizen's committee discussed budget constraints and desires. The 25yd. x 25m pool and 10,000S.F. Outdoor Leisure Pool with 10,000S.F. of deck was essential to the Aquatic Center and was acceptable to all members.

SITE CONCEPT ONE

This site concept places the Rockbridge Pool & Activity building roughly in the center of the property 250 feet from Rockbridge Rd. The Aquatic Center is a two level structure that utilizes the site slope most effectively. The concept has parking equally distributed around the Pool with approximately 350 parking spaces and 14 Handicap spaces. This also incorporates a bus drop off zone on the northeast side of the building and 6 bus parking spaces in the south parking lot. An area for expansion is located on the north side of the Activity building for future classrooms and a single gym. A trail is also presented in the park to provide a future neighborhood connection and circulation path through the natural areas of the site. An area for a future playground and open lawn is located in the northern corner of the property that would be easily accessible by the local neighborhood.

Pros:

- Distributes Parking evenly across site
- Limits maximum walk to Aquatic Entrance to around 500'.
- The Aquatic Center is on two levels. This layout works with slopes to reduce imported earth fill, maximizes view to pond and natural wooded areas. Separates wet and dry functions onto different levels, aquatic seating on the main level above the locker room and restrooms and create on grade access from all pools to an outdoor lawn.
- The Building is setback 250' from Rockbridge Road and will have a more subtle profile due to being a single floor roof height at the plaza elevation.
- The activity Center may be expanded to include additional classrooms and a single gym
- The leisure pool is not visible from Rockbridge Road.
- Leisure Pool can be indoor or outdoor.
- Preserves mature stand of White Oaks.
- Activity Center may be separate building if desired.

Cons:

- Parking at Rockbridge Rd. is located within the 50' landscape buffer due to size of the Aquatics Center and location of wet soils near the pond.
- Two-thirds of parking is visible from Rockbridge Rd.
- No separate Leisure Pool entrance.
- An elevator and stairs are required in the Aquatic Center.

CONCEPT #1

MOUNTAIN PARK AREA AQUATICS CENTER

GWINNETT COUNTY, GEORGIA

DECEMBER 1, 2000

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)

1 inch = 50 ft.

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SITE CONCEPT TWO

This concept also places the Rockbridge Pool roughly in the center of the site but only 150 ft. from Rockbridge Rd. This creates an opportunity for a notable architectural presence on the road. Two-thirds of the parking is concealed from the road. There are approximately 300 parking spaces, 12 Handicap spaces, a bus drop off zone in the northeastern corner of the Pool Complex, and 6 bus spaces in the south parking lot. The Activity building is situated in the north corner of the property but could be placed next to the Pool Complex. Additional expansion capabilities are available for the Activity Building for future classrooms and a single gym. A future looping trail is shown to provide a path through the natural areas and provide for a connection with the local neighborhood.

Pros:

- Two thirds of parking is concealed from view from Rockbridge Road.
- The two buildings are the same level, no stairs, ramps or elevators are required
- The separate buildings create an individual identity and independent outdoor use areas on the site.
- The Pool Complex is setback 150' from Rockbridge Rd. and will have a commanding visual presence from the road.
- More open space and views preserved around Pond and Natural areas
- The Activity Building may be expanded to include additional classrooms and a single gym
- The leisure pool may have a separate entrance adjacent to parking
- Preserves Mature stand of White Oaks

Cons:

- Maximum walk to entry plaza is 600'
- Activity Building & Pool Complex are not connected-longer utility runs required.
- If leisure pool is an outdoor facility, it will be visible from Rockbridge Rd.
- The Single Level Aquatic Center increases the amount of imported fill $\pm$75,000 c.y.
- Requires a retaining wall at the back of the building to provide maintenance access and to create an outdoor lawn area on grade.

CONCEPT #2

MOUNTAIN PARK AREA AQUATICS CENTER

GWINNETT COUNTY, GEORGIA

DECEMBER 1, 2000

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)

1 inch = 50 ft.

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PHASE THREE

MEETING FIVE
Tuesday, January 9, 2001
Mt. Park Depot
Preliminary Master Plan

Altamira reviewed the selected Site Concept #1 and highlights from Meeting Four . The Preliminary Master Plan was presented which included 350 Parking Spaces, bus parking, a drop off zone in front, an Activity building linked to the Aquatic Center by a plaza and building canopy with adjacent handicap and senior parking. Committee members from the neighborhood adjacent to the site needed clarification as to why Altamira had arrived at the present Preliminary Master Plan. It was expressed that the site seemed "maxed out". In particular, the 350 parking spaces and 525 spectator seats represented on the plan. The ensuing discourse by Altamira, County, and other Committee Members explained that maximum seating and parking was the charge given to Altamira, in response to other members desire for an aquatic facility that could handle swim meets, provide adequate parking for the Indoor Facility, Outdoor Leisure Pool, and Activity Center. Further comments went on to explain that by master planning the site for the ideal development it would provide an opportunity to build later if some items could not be built in this phase.
Reviewed Aquatic Center:

a. A two level center with the 25yd. x 25m pool located on the lower level
b. Lobby, stairs, and elevator located on the upper level
c. Lockers, restrooms, meeting rooms, 525 spectator seating located on lower level
d. 9720 S.F. Outdoor Leisure Pool plus 9,800 S.F. located below plaza level
e. 4-lane instructional pool as a bid alternate

ROCKBRIDGE ROAD

FUTURE PAVILION

PLAY-GROUND

OPEN LAWN

135 PARKING SPACES

74 PARKING SPACES

153 PARKING SPACES

FUTURE EXPANSION

ACTIVITY BLDG. FFE 991

DROP-OFF LANE

AQUATIC CENTER UPPER LEVEL FFE 991

OUTDOOR LEISURE FFE 978

LOWER LEVEL FFE 978 25 YD. X 25 M POOL

4 LANE INSTRUCT POOL

POND WATER ELEV. 974

FUTURE TRAIL SYSTEM

SERVICE ACCESS DRIVE

LIFT STATION

BUS BUS BUS BUS

PARKING AREA UNDER CONSTRUCTION

PARKING AREA

PARKING AREA

PARKING AREA

PARKING PLAN:

STANDARD	350
ACCESSIBLE	12
BUS	4

MASTER PLAN FOR:

MOUNTAIN PARK AQUATICS CENTER

GWINNETT COUNTY, GEORGIA

JANUARY 3, 2001

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)

1 inch = 50 ft.

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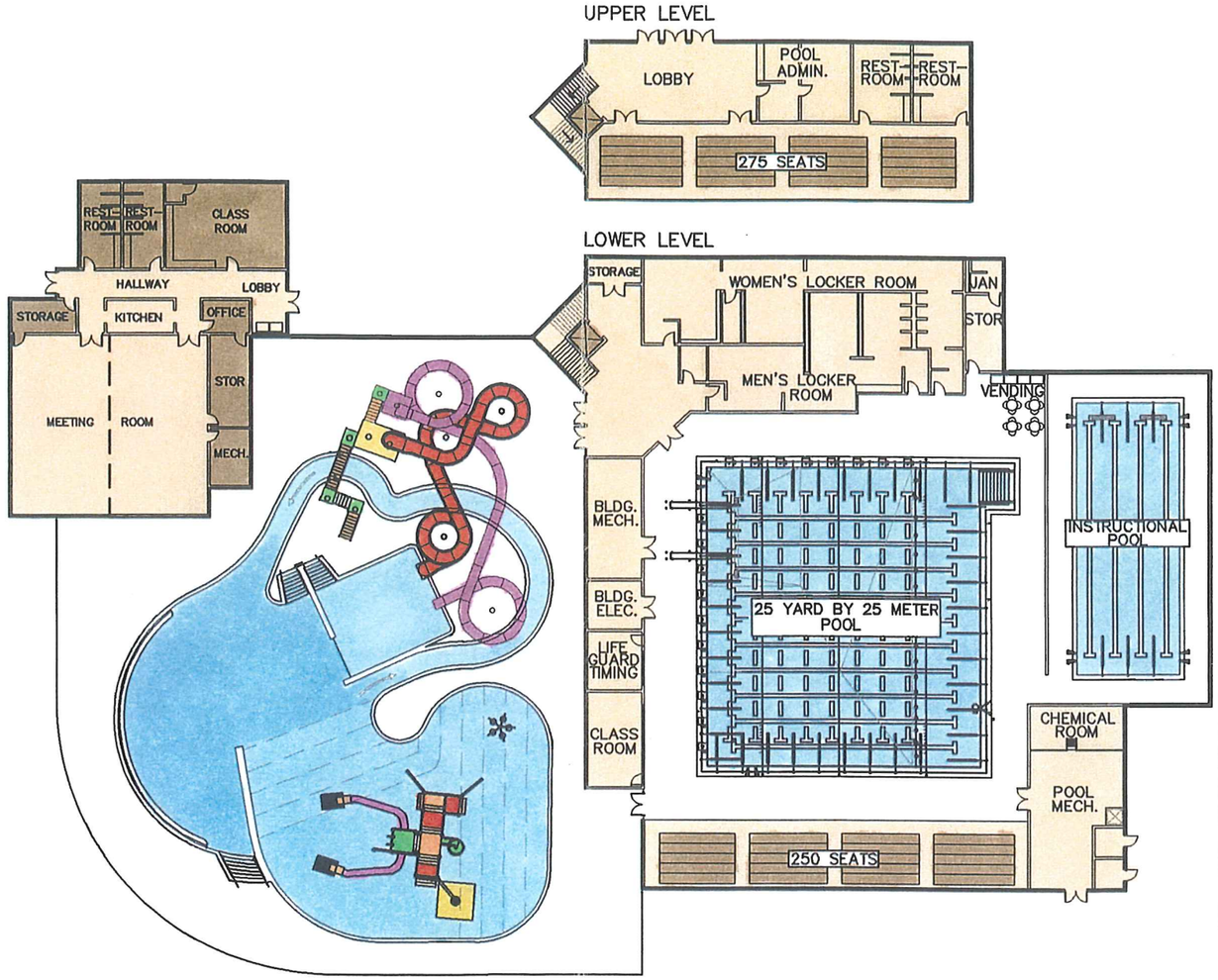
ACTIVITY BUILDING

RESTROOMS	576 S.F.
CLASSROOM	900 S.F.
KITCHEN	185 S.F.
OFFICE	130 S.F.
MEETING ROOM	2780 S.F.
STORAGE	488 S.F.
MECHANICAL	195 S.F.
LOBBY	184 S.F.
HALLWAY	445 S.F.

TOTAL: 5883 S.F.



INDOOR AQUATICS BUILDING

25 YARD BY 25 METER POOL	6240 S.F.
POOL DECK	6418 S.F.
INSTRUCTIONAL POOL	2100 S.F.
POOL DECK	1896 S.F.
SPECTATOR SEATING FOR 275	2215 S.F.
SPECTATOR SEATING FOR 250	1950 S.F.
POOL STORAGE	640 S.F.
POOL MECHANICAL & CHEMICAL	1100 S.F.
POOL ADMINISTRATION	350 S.F.
CLASS ROOM / MEETING ROOM	400 S.F.
LOBBY	1000 S.F.
LIFEGUARD / TIMING ROOM	200 S.F.
JANITOR	75 S.F.
LOCKER ROOMS	2950 S.F.
RESTROOMS	525 S.F.
INTERIOR WALLS	5422 S.F.

TOTAL: 32,531 S.F.

OUTDOOR LEISURE POOL

SCS WATER PLAY FEATURE	
150' WATERSLIDE W/ TOWER	
RAINDROPS, BUCKET FOUNTAIN, ETC.	
CURRENT CHANNEL	
TOTAL WATER SURFACE	9720 S.F.
POOL DECK	9800 S.F.

TOTAL: 19,520 S.F.

BUILDING PLAN FOR:

MOUNTAIN PARK AQUATICS CENTER

GWINNETT COUNTY, GEORGIA

JANUARY 3, 2001

GRAPHIC SCALE

30 0 10 20 40 80

(IN FEET)

1 inch = 20 ft.

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PHASE THREE

MEETING SIX
Thursday, January 18, 2001
Gwinnett County
Gwinnett County Recreation Authority

Members of the Gwinnett Department of Community Services in conjunction with the Altamira staff, presented the Master Plan to the Recreation Authority. In addition, there were representatives from various neighborhood and sports organizations present. Upon conclusion of the presentation and a question and answer session, there was a majority decision of the Authority to strongly encourage the Board of Commissioners to fund the project in its entirety and provide additional funds needed beyond the SPLOST.

MEETING SEVEN
Wednesday, February 21, 2001
Gwinnett County
Gwinnett County Board of Commissioners

Upon completion of presenting the Master Plan by Altamira, the Board approved the plan as presently shown but it is important to keep the project within budget of the available SPLOST funding. The release of the RFP by the Department of Community Services to include construction documents for the entire project.

Master Plan
Cost Estimate

Rockbridge Pool Activity Building

Altamira
01.31.01

QTY.	UNIT	DESCRIPTION	UNIT COST	TOTAL
		Mobilization:		
1	L.S.	Mobilization	$50,000.00	$50,000.00
1	L.S.	General Conditions / Insurance / Bonds	$150,000.00	$150,000.00
1	L.S.	Site Staking / Engineering/Supervision	$100,000.00	$100,000.00
			SUBTOTAL:	**$300,000.00**
		Demolition:		
5	AC.	Clearing and Grubbing	$2,000.00	$10,000.00
1	L.S.	Erosion Control Misc. Systems	$15,000.00	$15,000.00
1	L.S.	Construction Exit	$1,000.00	$1,000.00
			SUBTOTAL:	**$26,000.00**
		Grading and Drainage:		
11,920	C.Y.	Cut/Fill	$2.50	$29,800.00
23,080	C.Y.	Structural Fill (Imported)	$8.00	$184,640.00
5,690	C.Y.	Cut @ Pond Hauled Off Site	$2.00	$11,380.00
1500	C.Y.	Dam Structural Fill	$12.00	$18,000.00
79,200	S.F.	Fine Grading	$0.07	$5,544.00
930	L.F.	24" RCP	$35.00	$32,550.00
5	E.A.	SWCB	$1,650.00	$8,250.00
1	L.S.	Pond Concrete Spillway	$1,250.00	$1,250.00
1	L.S.	Storm Pretreatment System	$15,000.00	$15,000.00
			SUBTOTAL:	**$306,414.00**
		Site Utilities:		
500	L.F.	Potable Water	$26.50	$13,250.00
300	L.F.	Electrical Power	$137.50	$41,250.00
1	L.S	GA. Power Parking Lighting-Allowance	$25,000.00	$25,000.00
1500	L.F.	6" PVC Sanitary Sewer	$28.00	$42,000.00
6	EA.	Manholes	$1,500.00	$9,000.00
1	L.S.	Lift Station	$30,000.00	$30,000.00
			SUBTOTAL:	**$160,500.00**
		Hardscape		
15,300	S.Y.	Asphalt Paving	$12.00	$183,600.00
17,800	L.F.	Concrete Curb and Gutter	$7.50	$133,500.00
14,500	S.F	Concrete/Paver Walks	$5.00	$72,500.00
7,110	L.F.	Parking Lot Striping	$0.50	$3,555.00
6	EA.	H.C. Parking Striping & Sign	$50.00	$300.00
			SUBTOTAL:	**$393,455.00**
		Site Elements		
1	L.S.	Site Furnishings	$10,000.00	$10,000.00
1	L.S.	Entrance Sign	$10,000.00	$10,000.00
1	L.S.	Landscape	$75,000.00	$75,000.00
1	L.S.	Irrigation	$25,000.00	$25,000.00
280	L.F.	Vinyl Coated Chainlink Fence 12' ht	$28.00	$7,840.00
85	L.F.	Steel Handrail @ Upper Plaza	$50.00	$4,250.00
			SUBTOTAL:	**$132,090.00**
			SITE SUBTOTAL:	**$1,318,459.00**

Master Plan
Cost Estimate

Rockbridge Pool Activity Building

Altamira
01.31.01

		Buildings		
5883	S.F.	Activity Center Allowance		$630,000.00
			SUBTOTAL:	**$630,000.00**
		Aquatics		
1	L.S.	Aquatic Center		$4,459,970.00
		275 permanent seats, without 4 Lane Instructional Pool,		
		w/ additional deck space for portable seating, classroom, lobby & lockers		
1	L.S.	Outdoor Leisure Pool		$1,445,000.00
232	C.Y.	Structural Retaining Wall (535 LF)(6253 S.F.)	$350.00	$81,200.00
1	L.S.	Foundation Drainage System	$5,000.00	$5,000.00
288	C.Y.	Retaining Wall Footing	$175.00	$50,400.00
			SUBTOTAL:	**$6,041,570.00**
			BLDG. TOTALS:	**$6,671,570.00**
			SITE & BUILDINGS SUB TOTAL:	**$7,990,029.00**
		Other Items		
1	L.S.	Owner's Testing Service	$30,000.00	$30,000.00
1	L.S.	A&E Fees	$500,000.00	$500,000.00
1	L.S.	FF&E	$75,000.00	$75,000.00
			SUBTOTAL:	**$605,000.00**
			TOTAL:	**$8,595,029.00**
		2% Program Management Fee (On site Inspection Manager)		$171,900.58
		3.7% Contingency(site & buildings only)		$295,631.07
			GRAND TOTAL:	**$9,062,560.65**
			A: 2001 SPLOST Funds:	**$8,588,000.00**
			B: 2001 Recreation Capital Funds (Budgeted for A&E costs)	**$480,403.00**
			TOTAL FUNDS AVAILABLE:	**$9,068,403.00**

CONCEPT 1-B

(NOTE: All items include a 2% Program Management Fee)
(On Site Inspection Manager)

4 Lane Instructional Pool	$1,058,816.10	**$10,121,376.75**
Passive Area Improvements (Playground, Nature Trails, Picnic Pavillion)	$366,817.50	**$10,488,194.25**
CONCEPT B TOTAL	**$1,425,633.60**	
	ADJUSTED GRAND TOTAL:	**$10,488,194.25**

PHASE THREE

MEETING SIX
Thursday, January 18, 2001
Gwinnett County
Gwinnett County Recreation Authority

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Gwinnett County Board of Commissioners

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APPENDIX

Geotechnical Report

ROCKBRIDGE POOL & ACTIVITY BUILDING

PRELIMINARY SUBSURFACE EXPLORATION

PROPOSED ROCKBRIDGE ROAD SITE

GWINNETT COUNTY, GEORGIA

Submitted to

Gwinnett County Parks & Recreation
75 Langley Drive
Lawrenceville, Georgia 30045

PROJECT NUMBER: MEG 97140.8
January 07, 2000

MATRIX ENGINEERING GROUP
Geotechnical, Environmental, and Construction Materials Consultants

MATRIX ENGINEERING GROUP
Geotechnical, Environmental, and Construction Materials Consultants

January 7, 2000

Mr. Rex Lee Schuder, ASLA
Gwinnett County Parks & Recreation
75 Langley Drive
Lawrenceville, Georgia 30045

Re: Preliminary Subsurface Exploration and Engineering Evaluation
1065 Rockbridge Road
Gwinnett County, Georgia
Matrix Engineering Group Project Number 97140.8

Dear Mr. Schuder:

Matrix Engineering Group has completed the authorized subsurface exploration for the proposed Rockbridge Road Site located at 1065 Rockbridge Road in Gwinnett County, Georgia. The scope of this work was to perform seventeen (17) soil test borings in accordance with ASTM D 1586, two (2) hand auger borings, and provide the findings and recommendations regarding the geotechnical aspects of the proposed development.

This report describes our investigative procedures and presents our findings, conclusions and engineering recommendations.

Matrix Engineering Group appreciates the opportunity to have served the Gwinnett County Parks & Recreation and looks forward to our continued association. If you have any questions or need further assistance, please do not hesitate to call.

Very truly yours,

MATRIX ENGINEERING GROUP

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1.0 INTRODUCTION

MATRIX ENGINEERING GROUP has completed the authorized Preliminary Subsurface Exploration for the proposed Rockbridge Road Site in Gwinnett County, Georgia. This work was performed in accordance with our proposal number MEG-9910272 dated October 27, 1999 and was authorized on December 14, 1999. The objective of this work was to explore the subsurface conditions and provide the findings and recommendations regarding the geotechnical aspects of the proposed development.

We understand that the proposed development will include a community center, swimming pools, and associated driveways and parking areas.

Seventeen (17) soil test borings (designated as B-1 to B-17) and two (2) hand augers (designated as H-1 and H-2) were performed at the subject site. The approximate test locations are shown on Figure 1 provided in the Appendix. The test borings were located in the field by Matrix Engineering Group representatives using tape measurements and relying on existing features (i.e. existing roads, structures, and site features). Test boring B-13 was offset due to the presence of soft soils at the surface, which prohibited the drilling equipment from accessing the boring location.

2.0 EXPLORATION AND TESTING PROGRAM

2.1 Field Exploration

The soil test borings were performed in general accordance with ASTM D 1586-83 standards. Borings were advanced by augering through soils with continuous flights of hollow-stem augers. The augers also act as a casing for the borehole to prevent collapse. At regular intervals, soil samples were obtained through the center of the auger with a standard 1.4-inch I.D., 2-inch O.D., split-tube sampler. The sampler is first seated six inches to penetrate any loose cuttings, and then driven an additional foot with blows of a 140-pound hammer falling 30 inches. The number of hammer blows required to drive the sampler the final foot is recorded and is designated as the Standard Penetration Resistance. The penetration resistance, when properly evaluated, is an index of the soil strength, consistency and ability to support foundations.

The samples were classified in the field in general accordance with ASTM D 2488-93 (Visual-Manual Procedure for Description of Soils). Representative portions of the soil samples were placed in glass jars and transported to the laboratory where they were examined to verify the field classifications. Soil descriptions and penetration resistance values are presented graphically on the Test Boring Records presented in Appendix A of this report.

2.2 Laboratory Testing

All soil samples recovered from the field were transported to the laboratory for verification and storage. The soil classifications are described in the Test Boring Records. The soil samples are kept in sealed glass jars and will be stored for a period of 60 days and then disposed off unless otherwise instructed by the owner or the engineer.

3.0 SITE DESCRIPTION AND GENERAL SITE GEOLOGY

3.1 Site Description

The subject site is located in Land Lot 95 in the 6th District, at 1065 Rockbridge Road, Gwinnett County, Georgia. The site is bound by Rockbridge Road from the eastern periphery, a commercial property from the southern periphery, and residential properties from the west and north peripheries.

The site is approximately 19.32 acres and is partially lightly to heavily wooded, primarily with pines and deciduous trees. The site slopes from the western and eastern boundaries towards the center of the site, where a man-made pond is present. A dam was constructed at the north side of the pond. A drainage feature is also present along the eastern boundary of the pond and exiting the property at the northern periphery. A driveway, single story wood frame building, a barn, and a small shed are present on the northeastern section of the site.

3.2 General Site Geology

The subject site is located in the Piedmont Geologic Province, which contains the oldest rock formations in the Southeastern United States. The parent rocks in the region are primarily comprised of the unconsolidated mass of quartz, feldspar, mica, and a wide variety of dark minerals such as hornblende and amphibole.

The local geology in Gwinnett County, (according to the Geologic Map of Georgia) consists of the granite gneiss, which includes diorite and injected gneiss that underlies about 65 percent of the county. The rest of the county is underlain by Brevard Schist, which occupies a narrow area of 2 to 3 miles wide in most places, but near Suwannee it widens to about 5 miles. The biotite gneiss and schist form a triangular pattern from Lawrenceville southwestward.

The proportion of felsic and mafic minerals in these parent rocks, as well as of quartz that is very resistant to weathering, limits the amount of clay in the soils. Therefore these soils are sandy and have faint horizons, and in small scattered areas, hard rock is exposed.

Chemical decomposition initially occurs along the boundaries of individual mineral crystals. As a result, partially weathered rock has the appearance of dense sand (SM, SP). With further weathering, the individual crystals other than quartz are attacked and the mass becomes a

micaceous silty sand (SM) or micaceous sandy silt (ML). In this stage, the original banding of the parent rock is apparent, but the original crystalline structure is not observed. Reflecting the composition of the original rock, mica flakes, rather than the quartz grains, often comprise the majority of the sand-size particles. Finally, in the more advanced stages of chemical weathering, the material is changed into a red or reddish-brown silty clay (CL or CH) or clayey silt (ML or MH). Depending on the quartz content, a sandy fraction will be present. In this weathered stage, the banding and crystalline structure of the parent rocks is lost.

4.0 GENERAL SUBSURFACE CONDITIONS

The subsurface conditions were characterized by visual examination of the soil obtained from the split-spoon sampler and observation of the auger cutting during the drilling operation in general accordance with ASTM D2488-93 and ASTM D2487-93. The borings were drilled up to 20 feet below the existing surface. Based on our observations and test boring records, the conditions at the subject site can be are characterized as follows:

4.1 Topsoil and Surface Cover

Topsoil layer at the test locations primarily consisted of dark brown sandy and silty clay with roots and decomposed organics that ranged from 4 to 12 inches. An asphalt drive and concrete pads are present south of the exiting house.

4.2 Man-Made Fill

Man-made fill was not encountered at the test boring locations, except at test H-2, which was performed at the existing dam. We anticipate that man-made fill is also present at the improved areas, such as the existing house, barn, and septic tank areas, if present. Based on the topography, we believe that fill materials are limited to the northeastern section of the site.

4.3 Residual Material

Residual soils are those which have weathered in place from the parent rock. The top 1 to 3 feet of the residual soils consisted primarily of soft to very stiff inorganic silty clay (CL). The soft soils primarily were found in the area south of the pond in the vicinity of test borings B-3, B-4, and B-8. Beneath the clayey soils soft to hard clayey silt and sandy silt (ML) were encountered up to eight feet below the existing surface. Beneath the silty soils very loose to medium dense silty coarse to fine sand (SM) with varying degrees of mica was encountered at all of the test locations. Loose soils were encountered at several locations at various depths.

4.4 Partially Weathered Rock and Bedrock

Partially weathered rock and bedrock were not encountered at any of the test boring locations.

4.5 Groundwater

Groundwater measurements were taken during the drilling operation and at least 24 hours after the drilling. Groundwater was recorded and presented at the Soil Test Boring Logs in the Appendix. The groundwater elevations ranged from a few inches below the surface in the vicinity of hand auger boring (H-1) to greater than 20 feet at the western areas of the site (highest elevations). Shallow groundwater was encountered (ranging in depth between 8 inches to 3 feet below the surface) south of the existing pond. This area appears to be contain several underground springs.

Groundwater levels tend to fluctuate with seasonal and longer-term climatic conditions. Fluctuation on the order of 4 to 8 feet is common in the Atlanta area.

5.0 FINDINGS AND RECOMMENDATIONS

The following recommendations are based on the information furnished to us, the data obtained from the subsurface exploration, and our past experience with similar projects. They were prepared in general accordance with established and accepted professional geotechnical engineering practice in this region. Our recommendations do not reflect any variations that would likely exist between the pre-designated borings or unexplored areas. No other warranty is expressed or implied. Matrix Engineering Group is not responsible for conclusions, opinions, or recommendations made by others based on this report.

5.1 Excavation Considerations

We understand that maximum excavation depths on the order of 20 feet might be required to achieve the proposed finished grades at some locations.

The excavation within this project may include the existing fills, where the existing improvements are located, underground utilities, and the residual materials. Our experience indicates that the fill and residual soils can generally be removed with conventional earth moving equipment, provided that proper groundwater control is maintained. Groundwater was encountered at most of the test boring locations, therefore, we recommend that the proposed finished floor elevations be reviewed and recommendations be made to facilitate the earthwork activities. **We anticipate that french-drains, subgrade stabilization, and excavation of unsuitable materials will be required prior to construction of structural fill as discussed in the following sections.**

COST #

5.2 Subgrade Preparation and Slab-On-Grade Construction

The proposed finished elevations were not provided to us at the time of writing this report. Subgrade preparation should be performed by stripping of the topsoil layer, removal of existing structures and/or construction debris, existing pavement structure, unsuitable existing fills, and

soft soils. Underground utility lines, or other items, such as septic tanks, or trash pits that may be encountered during the grading operation should be treated on an individual basis.

After the unsuitable materials are removed, the suitability of the exposed subgrades in all areas should be confirmed by proofrolling. The proofrolling should be performed by a loaded tandem-wheeled dump truck with minimum weight of 20 tons. Any material that deflects excessively or ruts under the loaded truck should be densified or removed and replaced with well-compacted materials. The proofrolling should be observed by a geotechnical engineer or other qualified inspector. Structural Fill procedures are provided in Section 6.1 of this report.

We anticipate that the soft soils in the vicinity of test borings B-3, B-4, B-7, B-8 and possibly B-13 will require stabilization or removal prior to placement of structural fill for slab-on-grade construction, driveways, and parking areas. The extent and depth of the excavation and stabilization should be determined after review of the proposed structures in this area. We also anticipate that dewatering will be necessary prior to construction of any structural fill in this area. Dewatering could be achieved by the installation of underground drains (i.e. french drains).

COST $

5.3 Foundations

The subsurface soil conditions revealed that soft clays and silts as well as loose to very loose sand were present at various elevations. We recommend that once, the proposed buildings layout and foundation elevations are determined, a review of the subsurface soil conditions should be performed in order to recommend allowable soil bearing capacities for the design foundations or recommend remedial measures to improve the soil bearing capacity. For preliminary design, an allowable soil bearing capacity of 2,000 pounds per square foot (psf) can be used for design of foundations constructed on the residual soil or new structural fill. Structural fill should be placed in accordance with the criteria provided in Section 6.1. Minimum footing dimensions of 18 and 24 inches should be used for wall and spread footings, respectively, to prevent shear failure, and should be a minimum 12 inches below subgrade elevations to minimize the effects of frost and heave.

We recommend that foundation inspection be performed utilizing dynamic cone penetrometer equipment in accordance with ASTM STP 399. A recommended foundation inspection criterion is provided in Section 6.2 of this report.

5.4 Slopes

Common practice in this region has been to limit temporary slopes to 2.0(H) to 1.0(V) or flatter. The soil conditions at this site may tolerate a maximum temporary slope of 1.5(H) to 1.0(V). The soils in this area may contain fissures, foliation planes and other discontinuities that could cause sloughing or possibly a slope failure, even on relatively flat slopes. Therefore, the excavation for the slopes should be monitored by a geotechnical engineer to ensure that soil

conditions are similar to those we have encountered. Potential planes of weakness will be more visible at depth as the excavation proceeds. If weak conditions are evident the engineer can then recommend any necessary remedial actions.

Vertical cut that exceeds five feet should be braced or shored as required by OSHA regulations for safety. If any excavation, including a utility trench, is extended to a depth of more than twenty-feet, it will be necessary to have the slopes designed by a professional engineer.

6.0 CONSTRUCTION RECOMMENDATIONS

6.1 Structural Fill

The residual soils present at the subject site appear to be suitable for suitable for use as a structural fill. Structural fill should be compacted in accordance with the following criteria:

1. Adequate laboratory proctor density tests should be performed on representative samples of the proposed fill materials to provide data necessary for the quality control. The moisture content at the time of compaction should be within 3 percentage points of the optimum moisture content. In addition, we recommend that the fill soils be free of organics and relatively non-plastic with plasticity indices less than 20.

2. Suitable fill material should be placed in thin lifts (lift thickness depends on type of equipment used, but generally lifts of 8 inches loose measurement are recommended). The soils should be compacted by mechanical means such as sheepsfoot rollers.

3. We recommend that the fill be compacted to a minimum of 95% of the Standard Proctor Maximum Dry Density (ASTM Specifications D 698). The top two feet under pavements should be compacted to a minimum of 98% of the Standard Proctor Test.

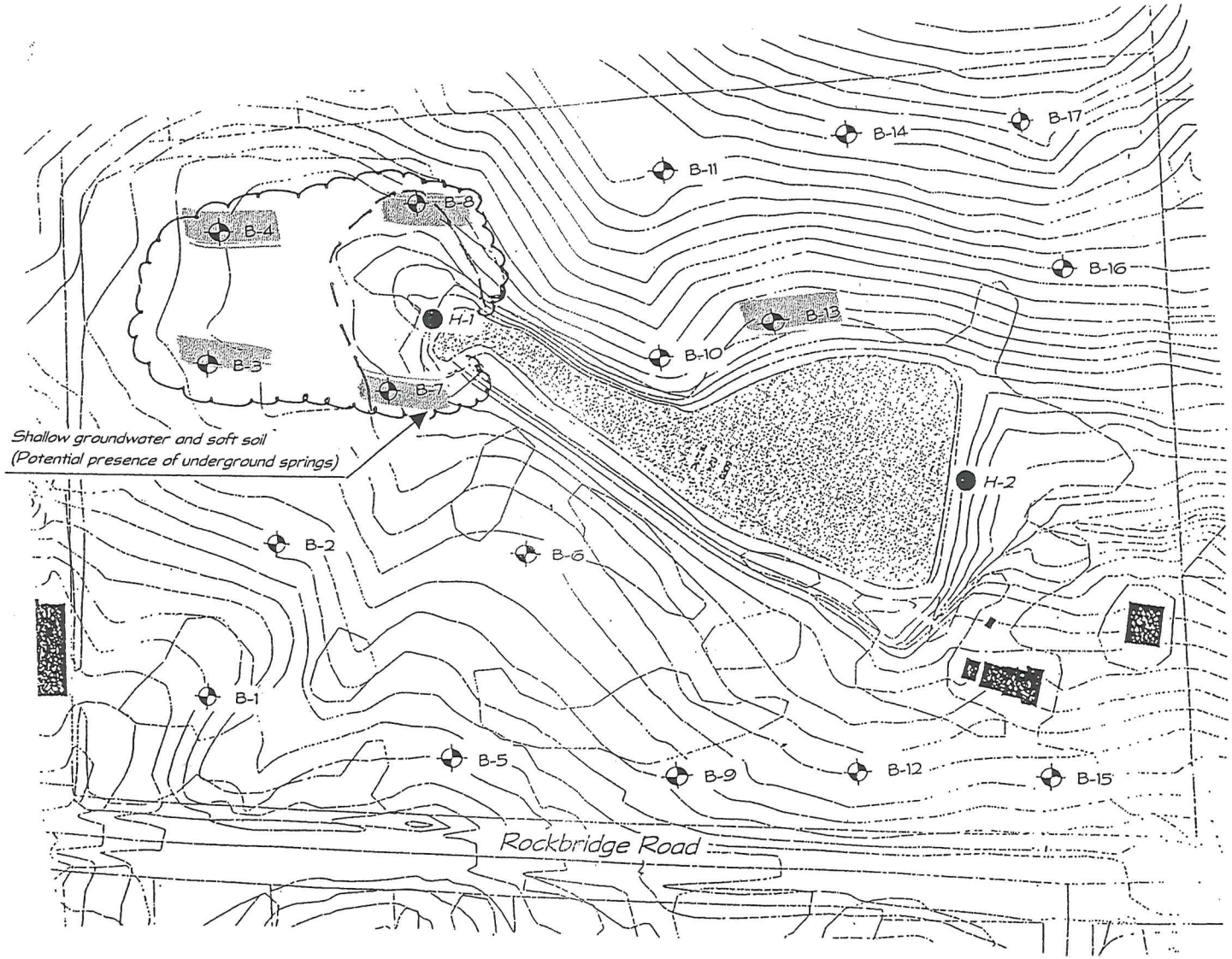
4. An experienced soil engineering inspector should take adequate density tests throughout the fill placement operation to ensure that the specified compaction is being achieved.

6.2 Construction Inspection and Testing

During construction, it is advisable that Matrix Engineering Group inspect the site preparation and foundation construction work in order to ensure that our recommended procedures are followed. The placement of any compacted fill should be inspected and tested. The utilization of acceptable on-site borrow materials as well as adequate off-site selected fill must be verified.

APPENDIX

Figure 1: Test Boring Locations Plan
Test Borings Records



MATRIX ENGINEERING GROUP

ATLANTA, GEORGIA

CLIENT

Gwinnett County Parks & Recreation

TITLE

APPROXIMATE TEST LOCATIONS PLAN

Proposed Rockbridge Road Site

Gwinnett County, Georgia

DRAWN	REVIEWED	DATE	PROJECT NUMBER	SCALE	
-	SA	1/5/00	MEG 97140.8	N.T.S.	1

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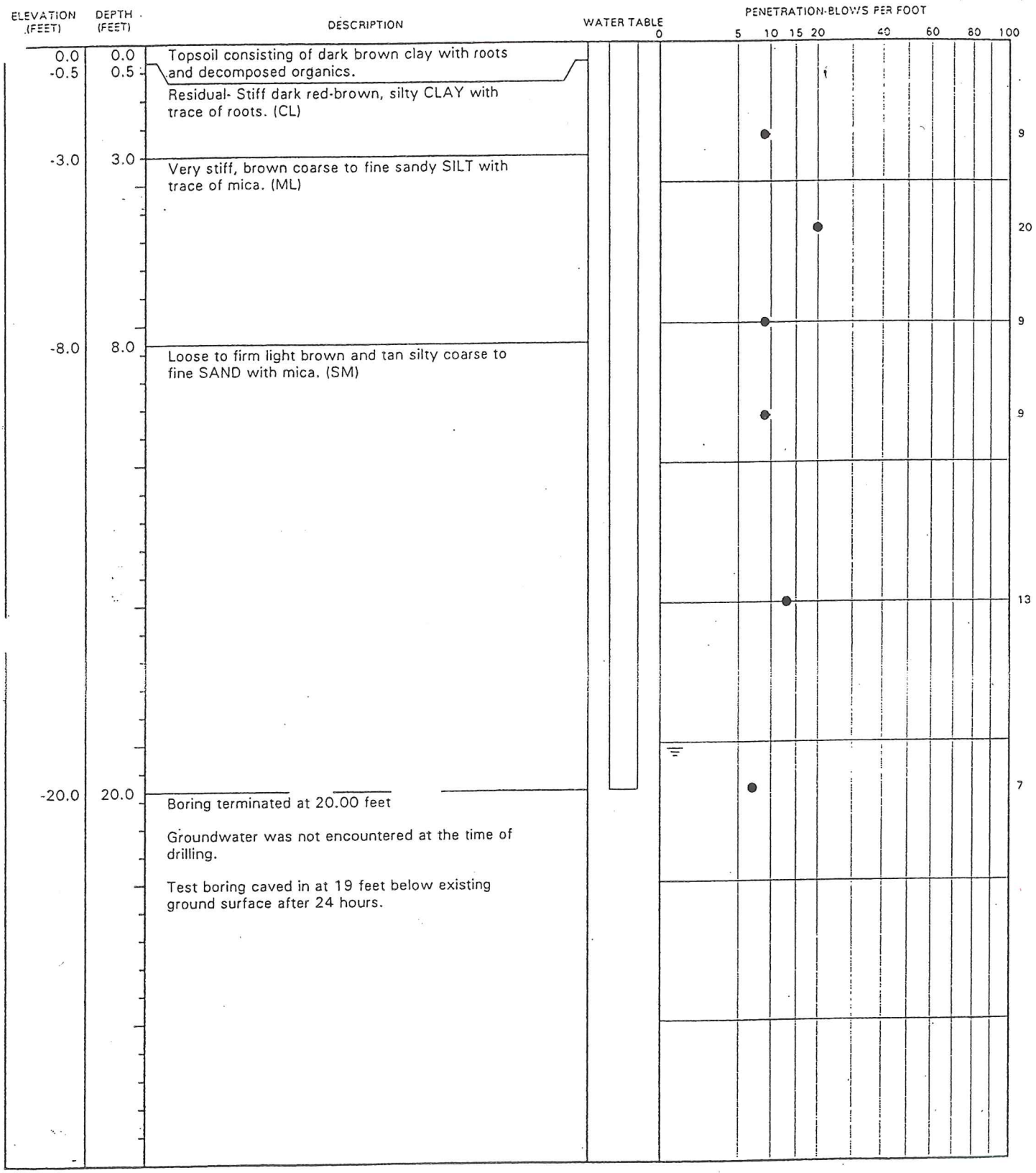

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PRELIMINARY SUBSURFACE EXPLORATION
1065 ROCKBRIDGE ROAD
GWINNETT COUNTY, GEORGIA

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Checked By:	SA	Date Completed:	12-28-99
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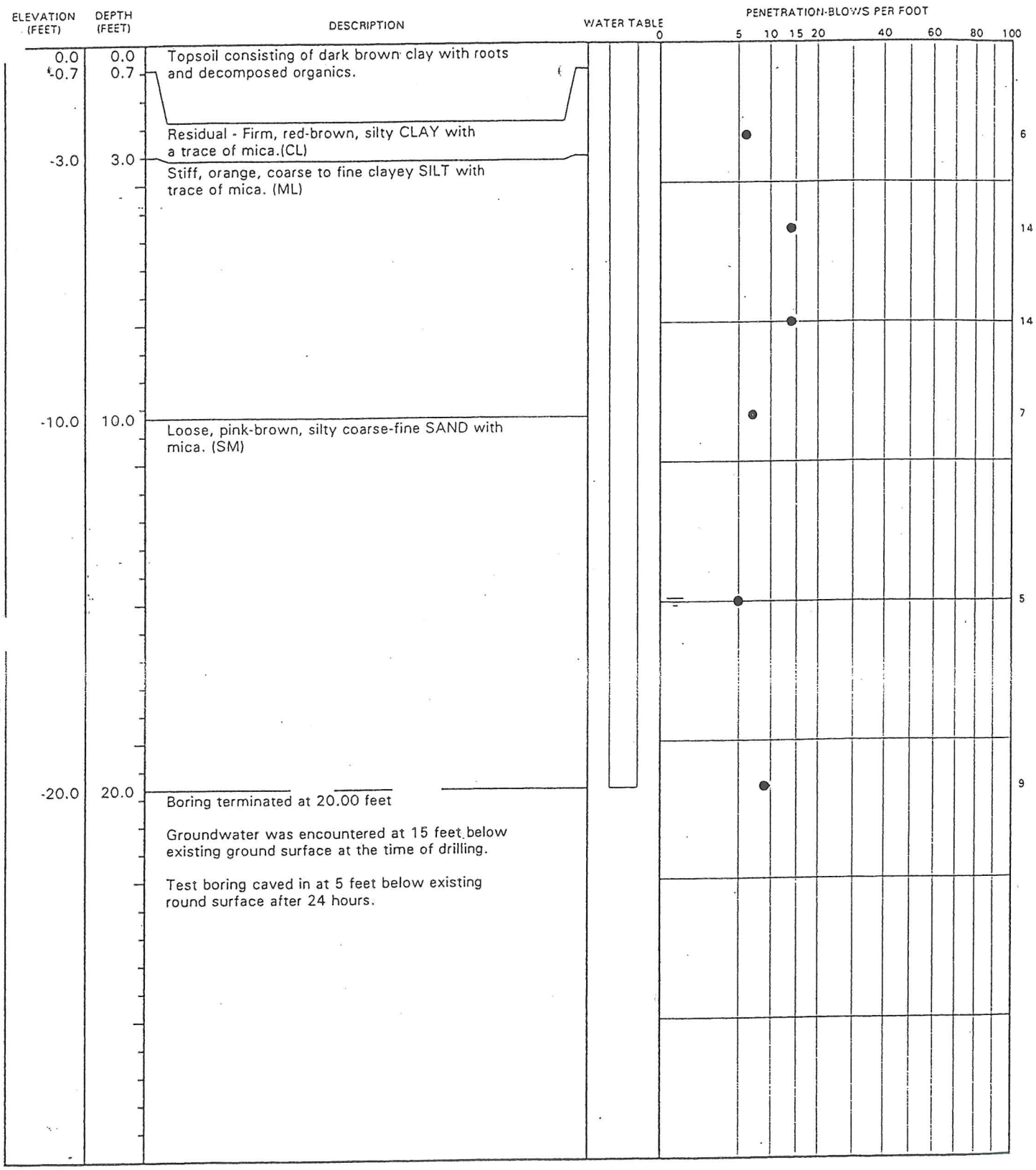

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PRELIMINARY SUBSURFACE EXPLORATION
1065 ROCKBRIDGE ROAD
GWINNETT COUNTY, GEORGIA

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Atlanta, Georgia

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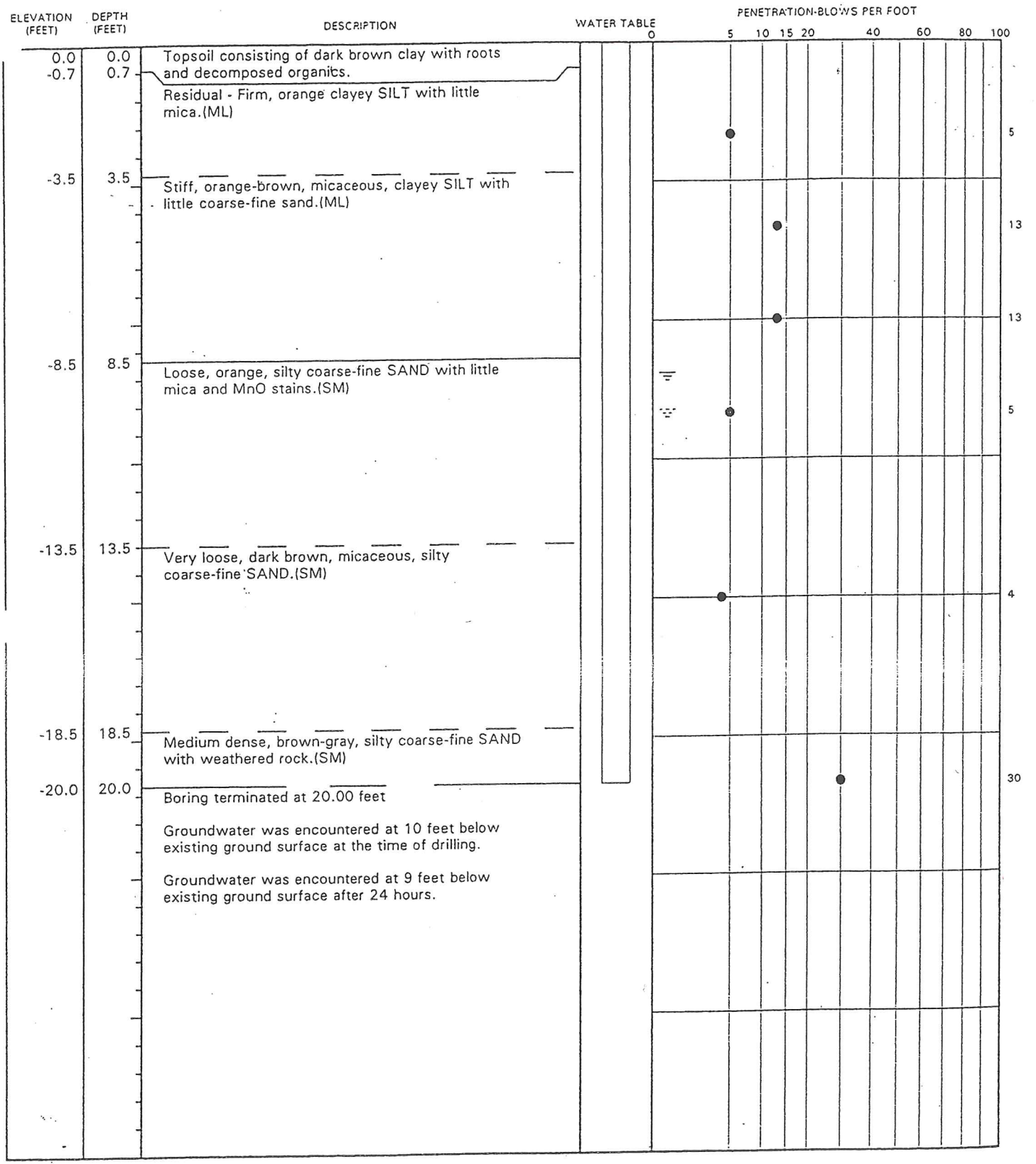

PROJECT:
PRELIMINARY SUBSURFACE EXPLORATION
1065 ROCKBRIDGE ROAD
GWINNETT COUNTY, GEORGIA

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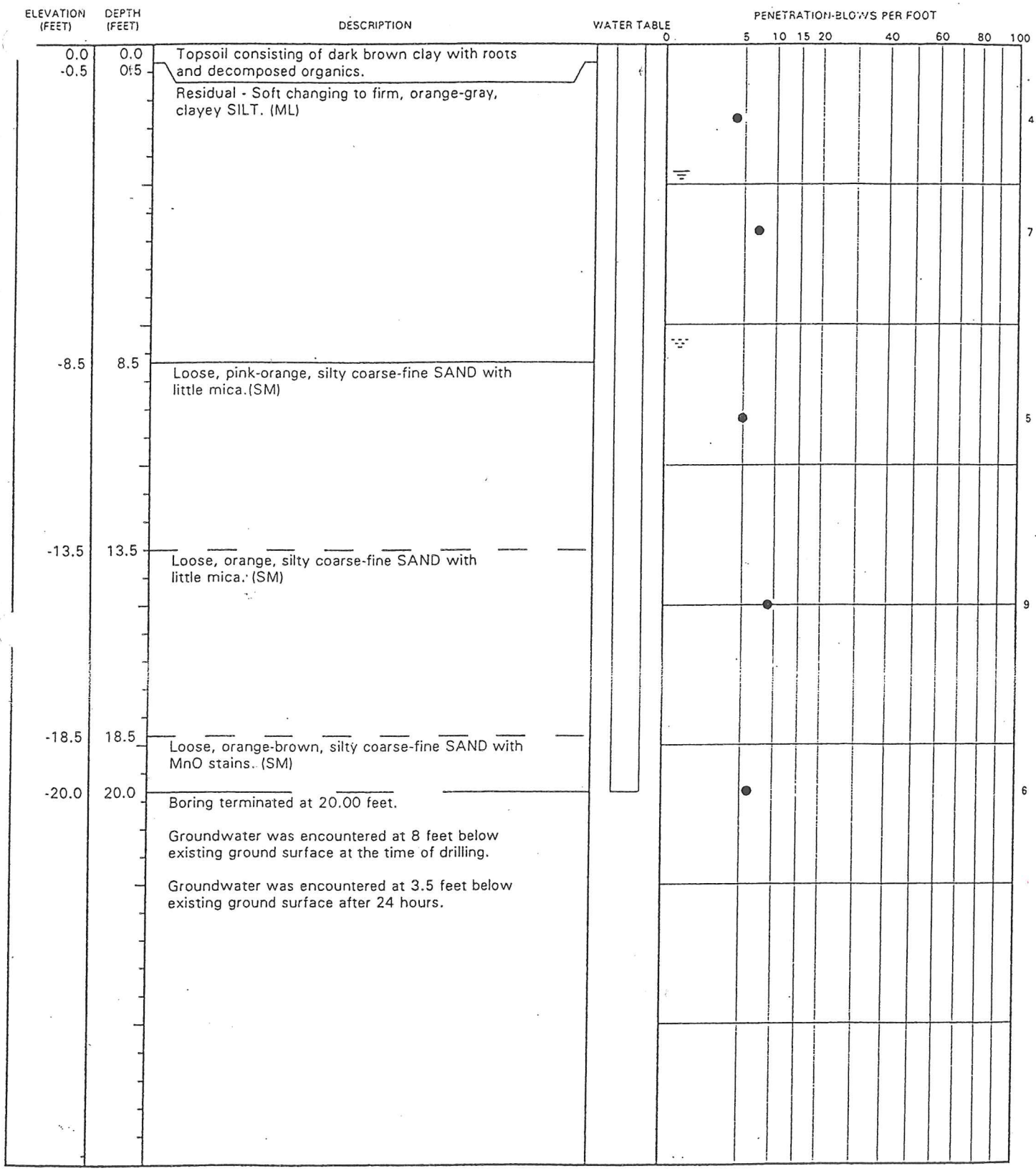
TEST BORING RECORD



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GWINNETT COUNTY, GEORGIA

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Atlanta, Georgia

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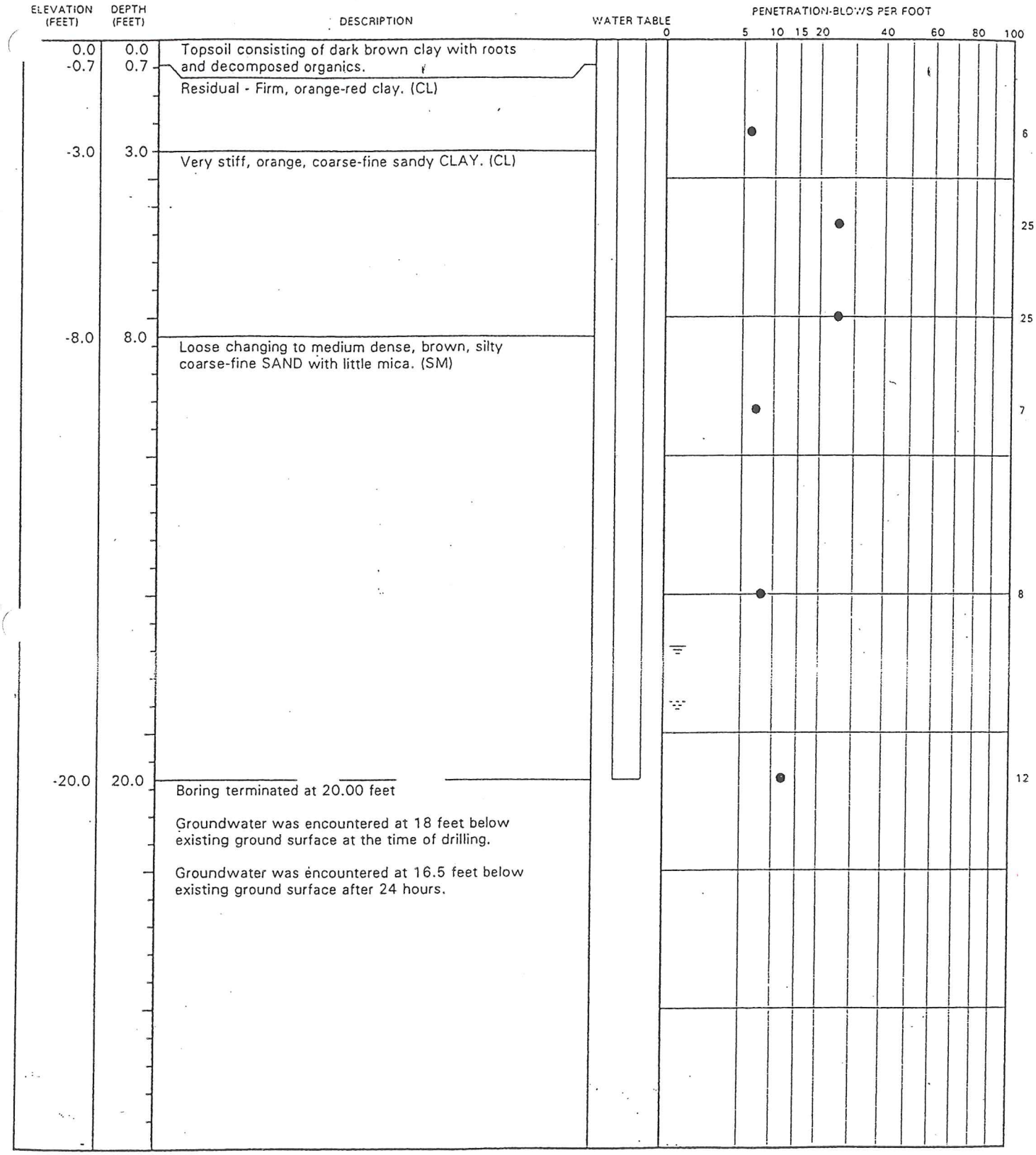

PROJECT:
PRELIMINARY SUBSURFACE EXPLORATION
1065 ROCKBRIDGE ROAD
GWINNETT COUNTY, GEORGIA

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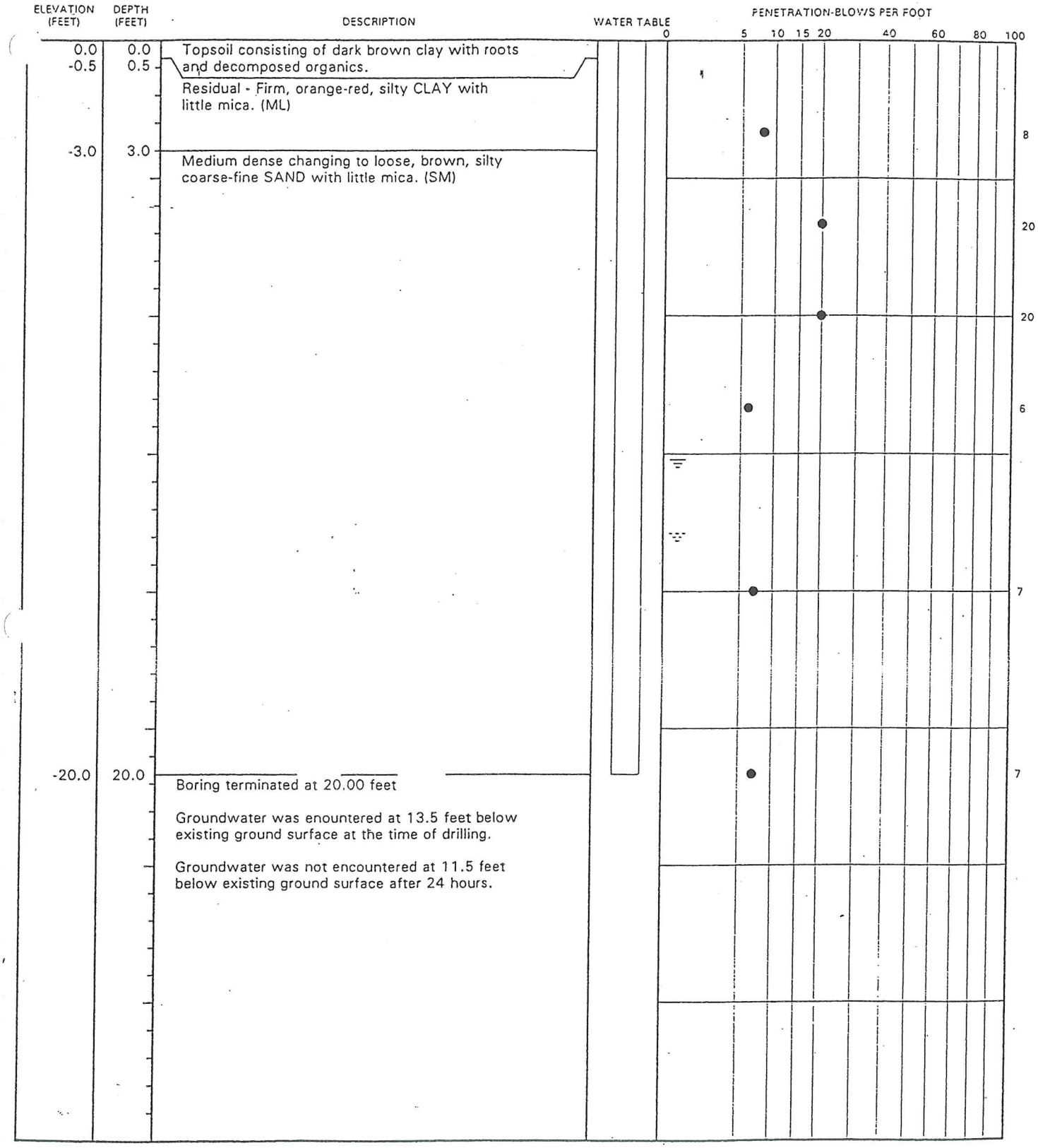

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GWINNETT COUNTY, GEORGIA

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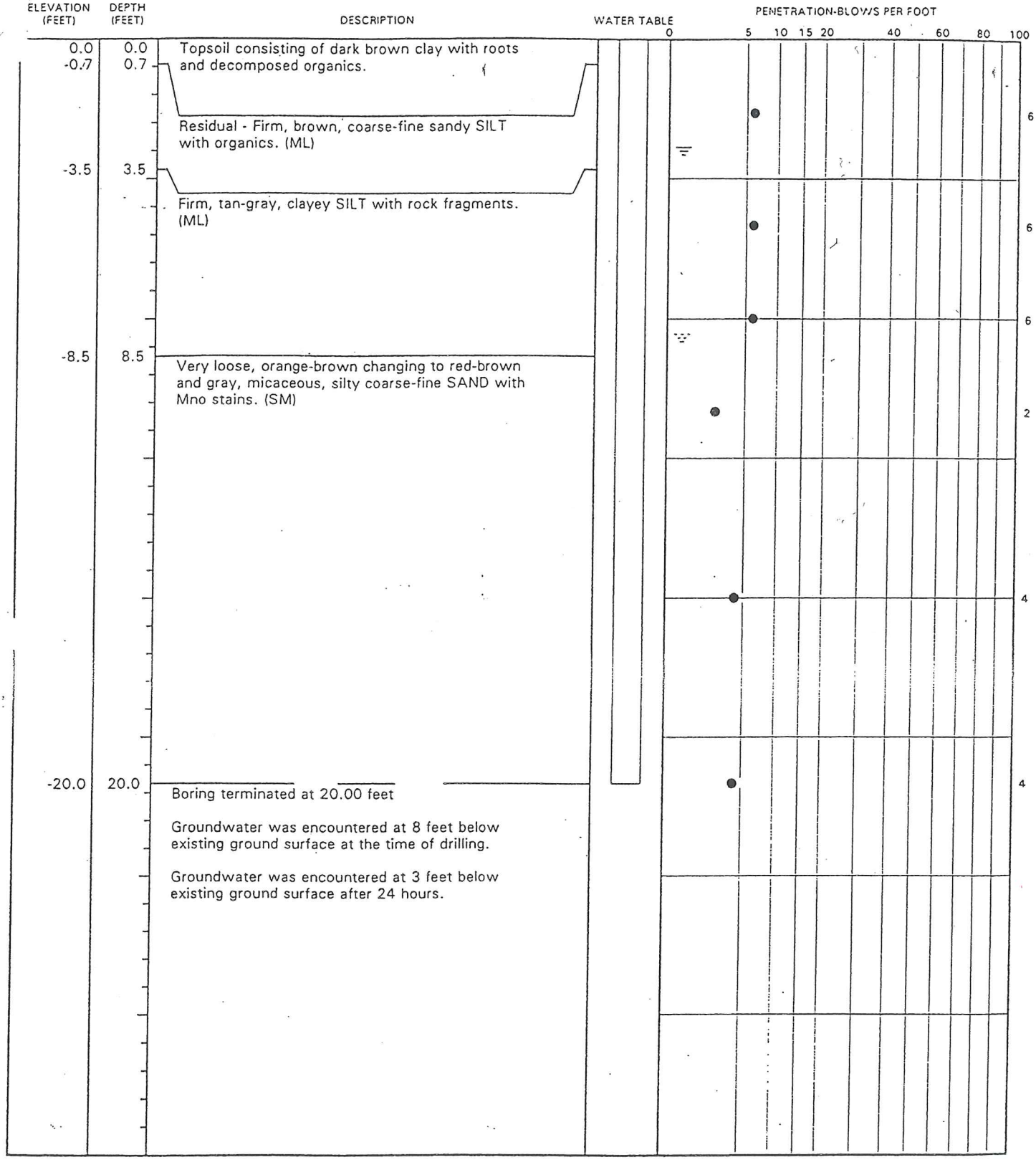

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PRELIMINARY SUBSURFACE EXPLORATION
1065 ROCKBRIDGE ROAD
GWINNETT COUNTY, GEORGIA

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Atlanta, Georgia

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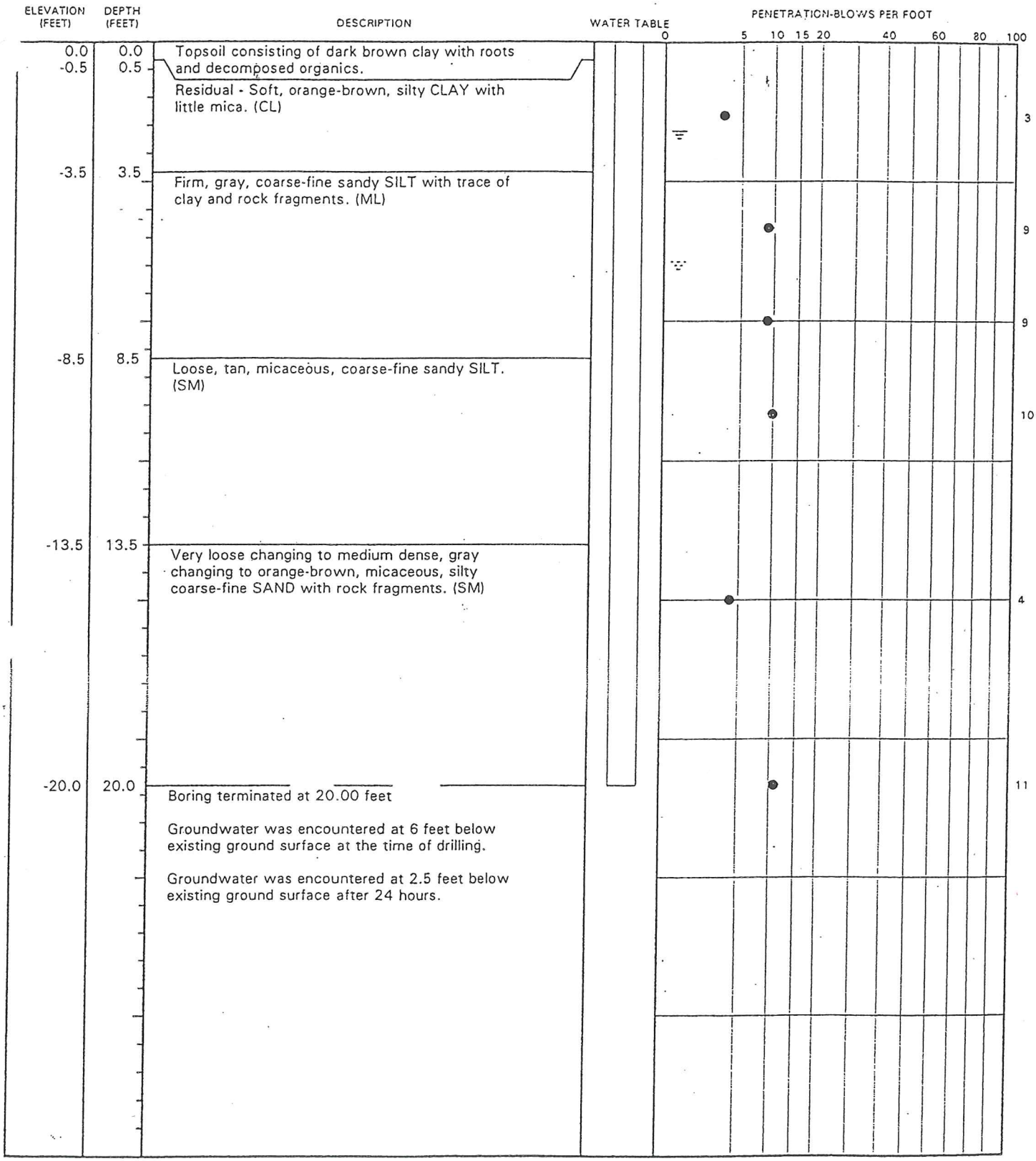

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PRELIMINARY SUBSURFACE EXPLORATION
1065 ROCKBRIDGE ROAD
GWINNETT COUNTY, GEORGIA

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Atlanta, Georgia

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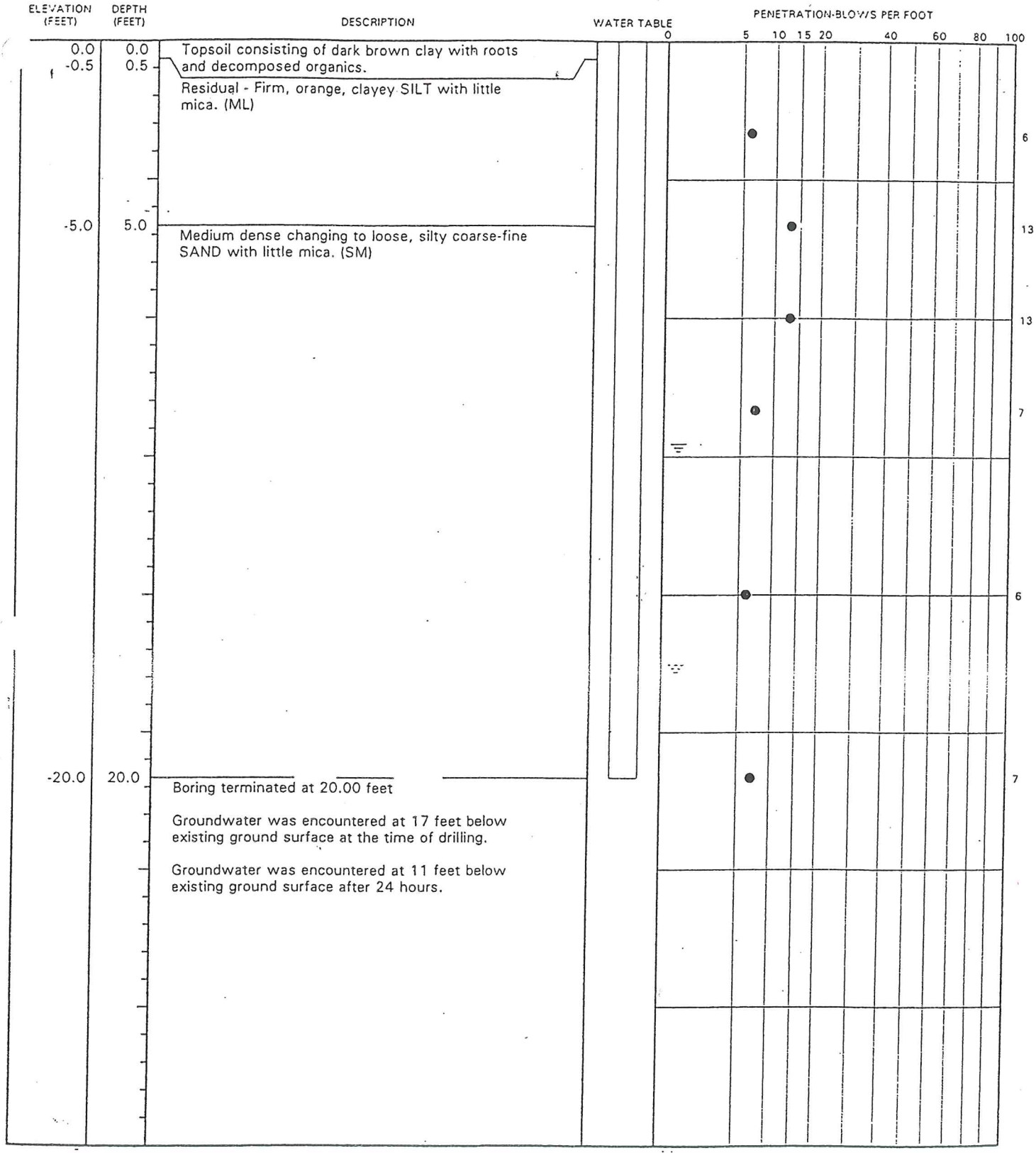

PROJECT:
PRELIMINARY SUBSURFACE EXPLORATION
1065 ROCKBRIDGE ROAD
GWINNETT COUNTY, GEORGIA

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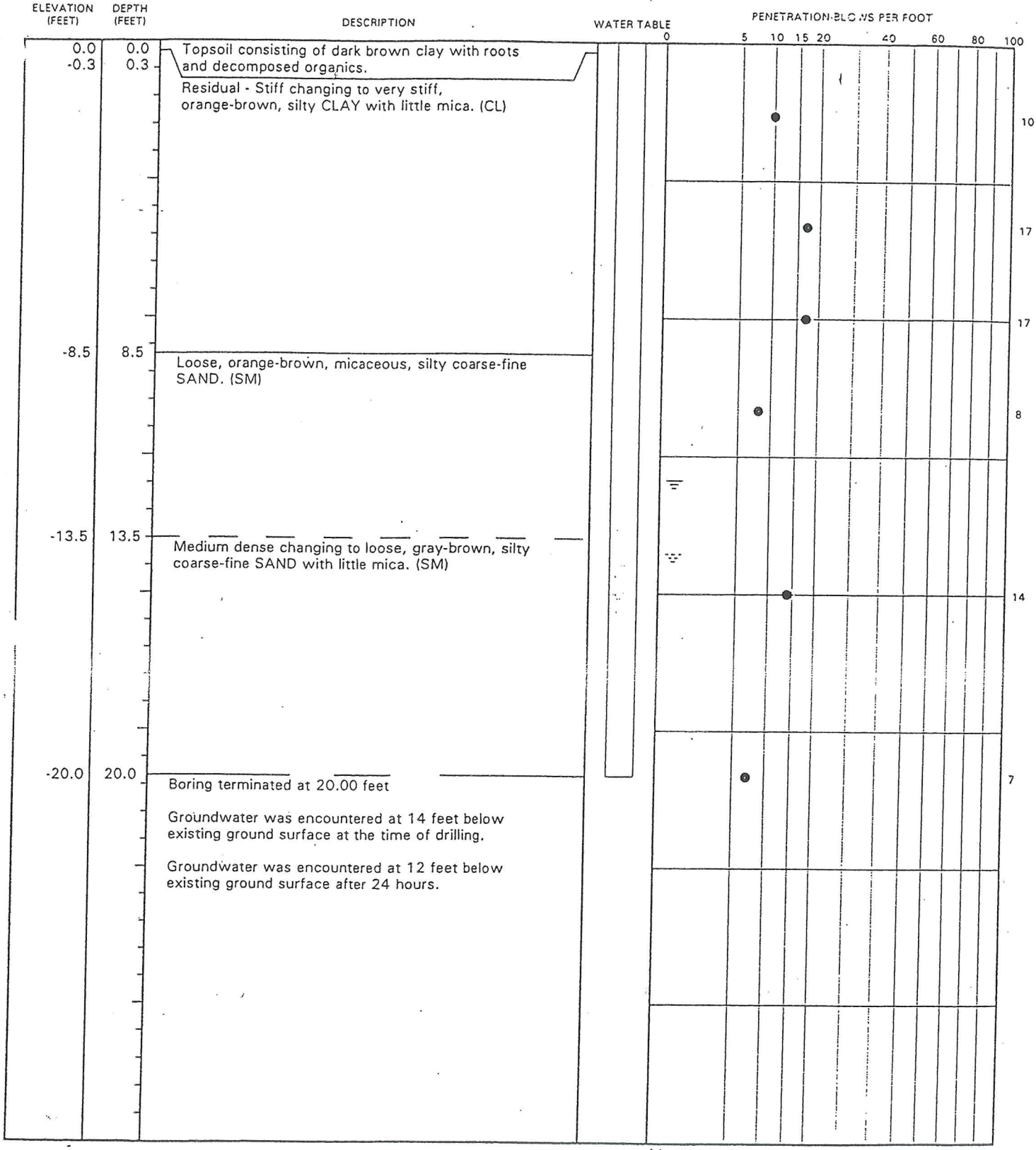
TEST BORING RECORD



PROJECT:
PRELIMINARY SUBSURFACE EXPLORATION
1065 ROCKBRIDGE ROAD
GWINNETT COUNTY, GEORGIA

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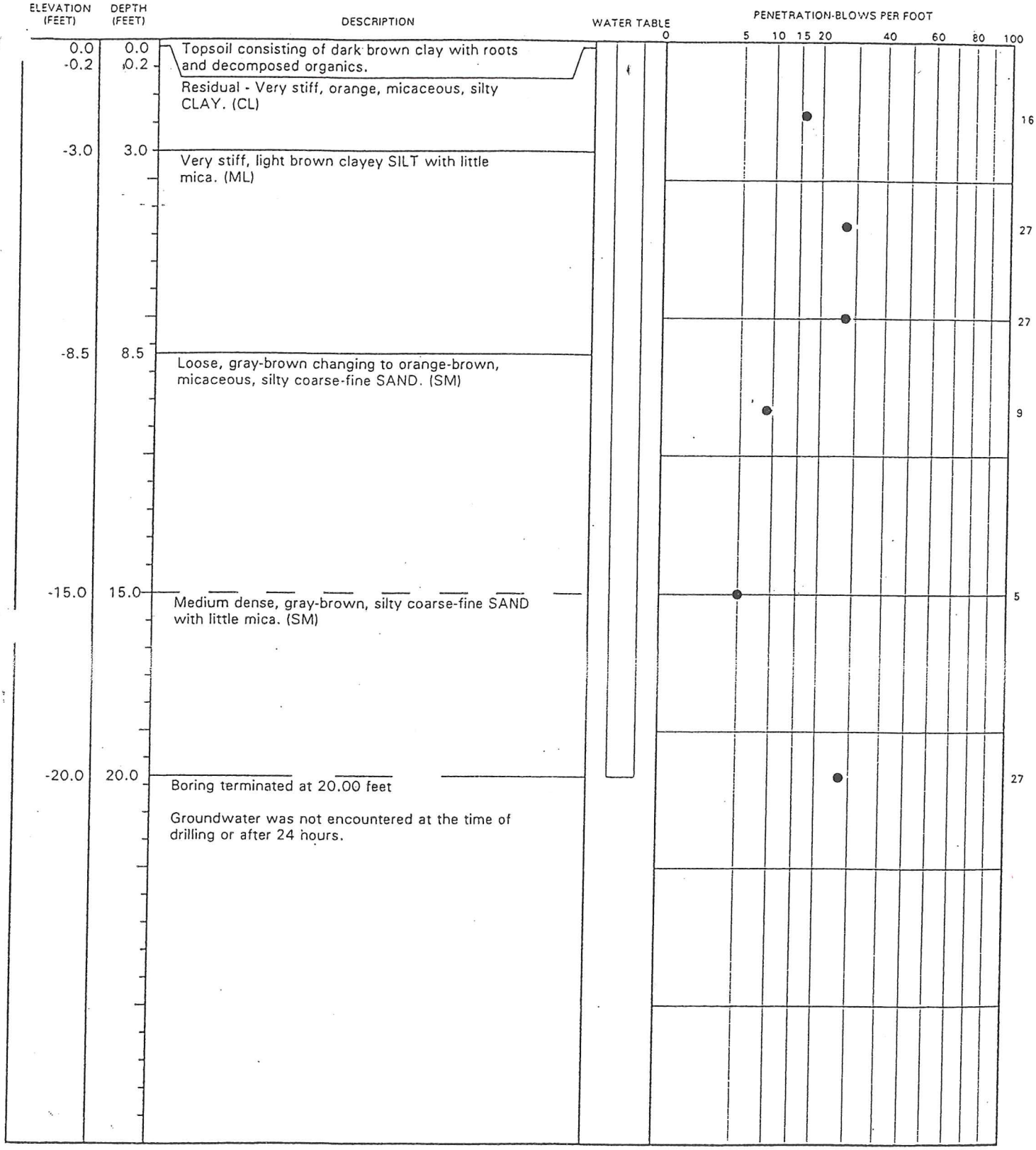

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PRELIMINARY SUBSURFACE EXPLORATION
1065 ROCKBRIDGE ROAD
GWINNETT COUNTY, GEORGIA

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MATRIX ENGINEERING GROUP
Atlanta, Georgia

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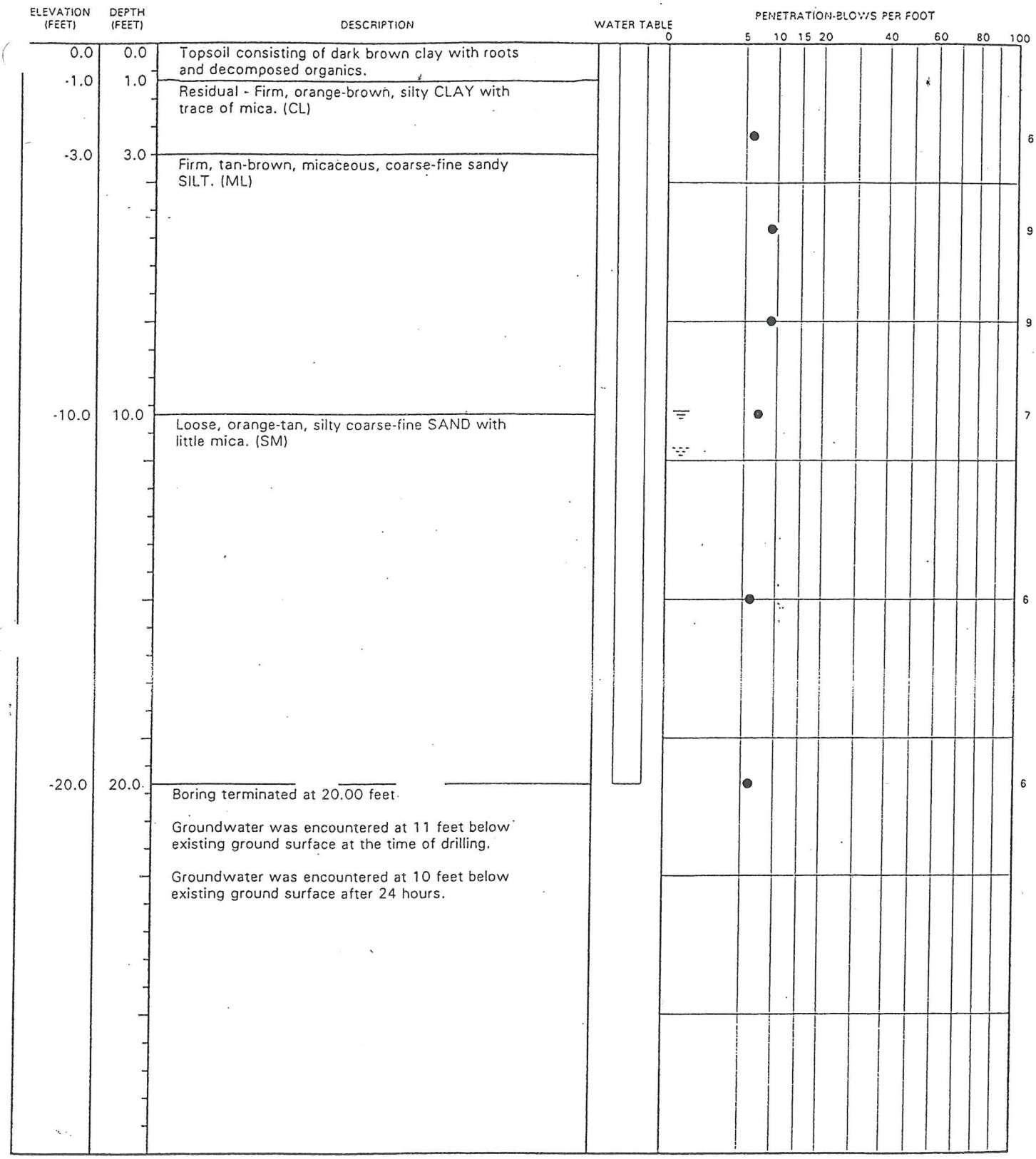

PROJECT:
PRELIMINARY SUBSURFACE EXPLORATION
1065 ROCKBRIDGE ROAD
GWINNETT COUNTY, GEORGIA

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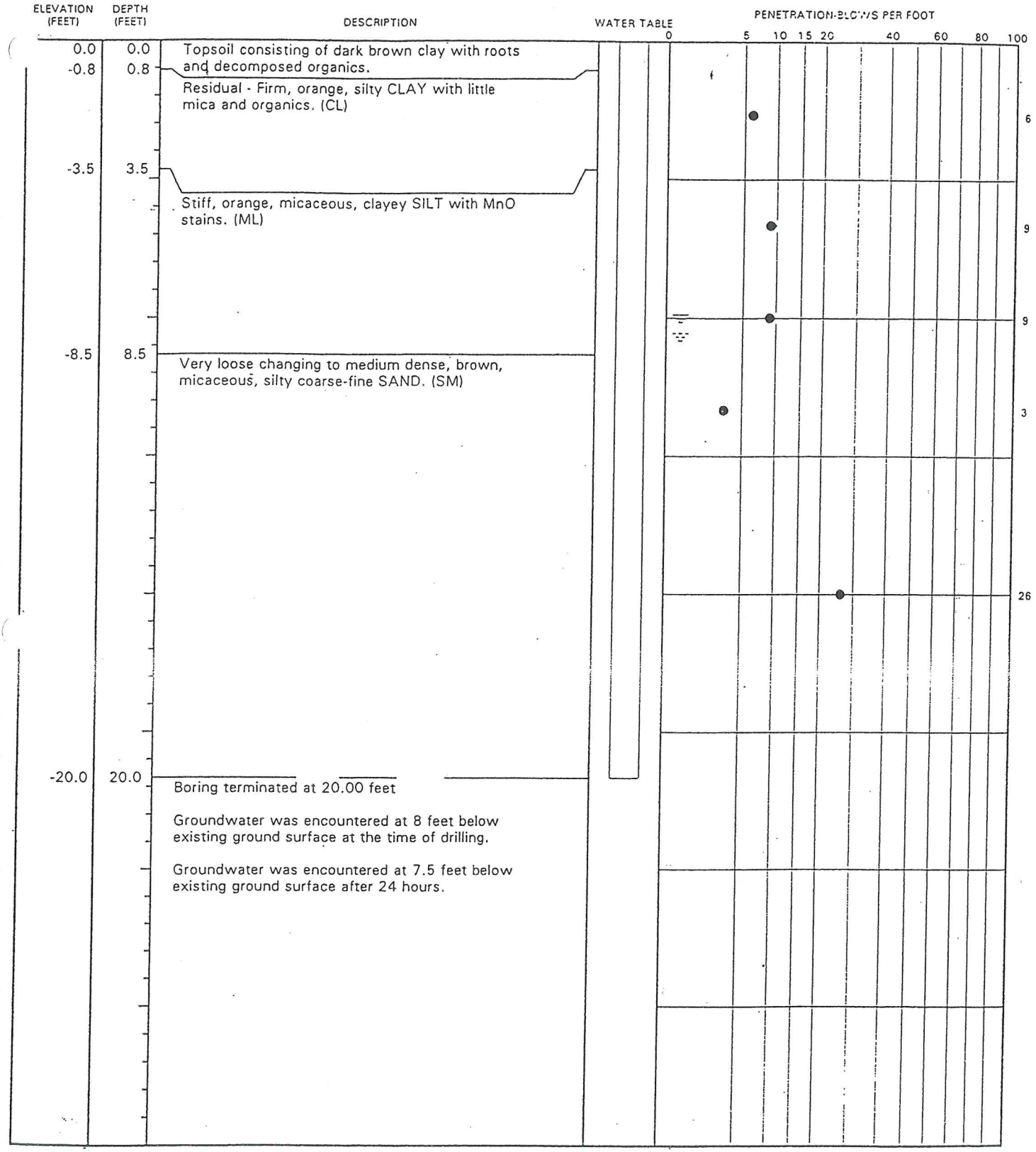
TEST BORING RECORD



PROJECT:
PRELIMINARY SUBSURFACE EXPLORATION
1065 ROCKBRIDGE ROAD
GWINNETT COUNTY, GEORGIA

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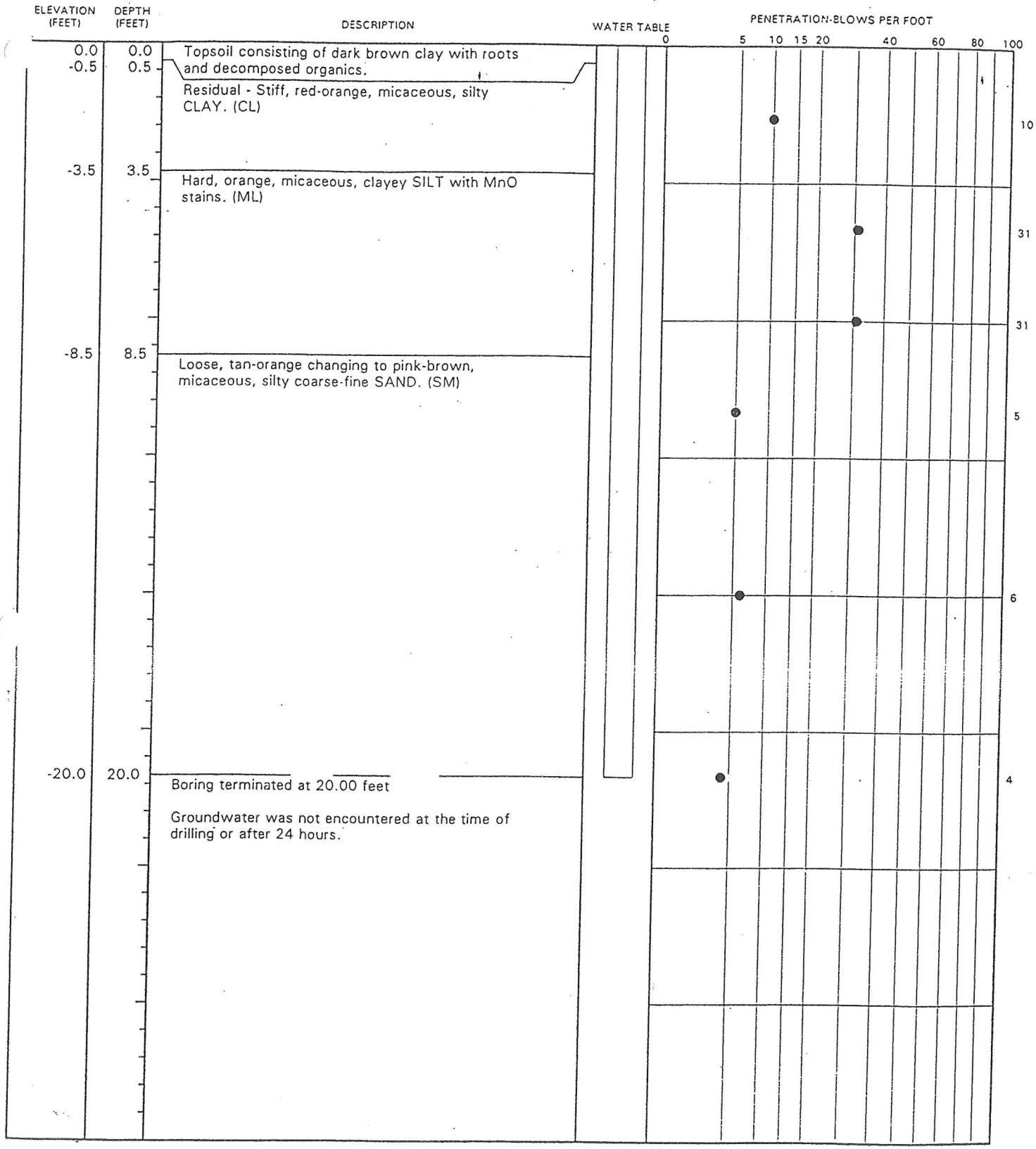
MATRIX ENGINEERING GROUP
Atlanta, Georgia

TEST BORING RECORD



PROJECT:
PRELIMINARY SUBSURFACE EXPLORATION
1065 ROCKBRIDGE ROAD
GWINNETT COUNTY, GEORGIA

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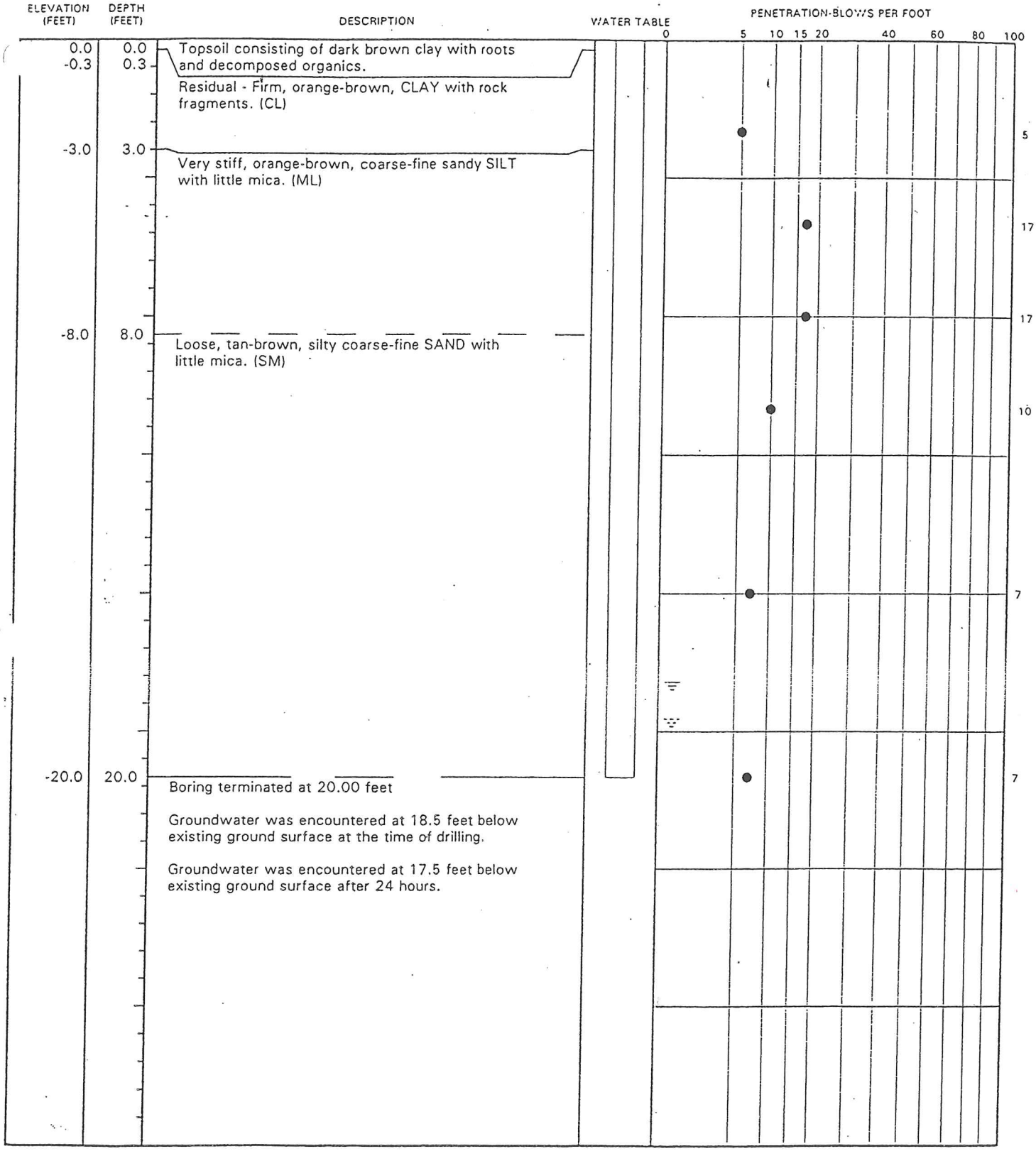
MATRIX ENGINEERING GROUP
Atlanta, Georgia

TEST BORING RECORD



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PRELIMINARY SUBSURFACE EXPLORATION
1065 ROCKBRIDGE ROAD
GWINNETT COUNTY, GEORGIA

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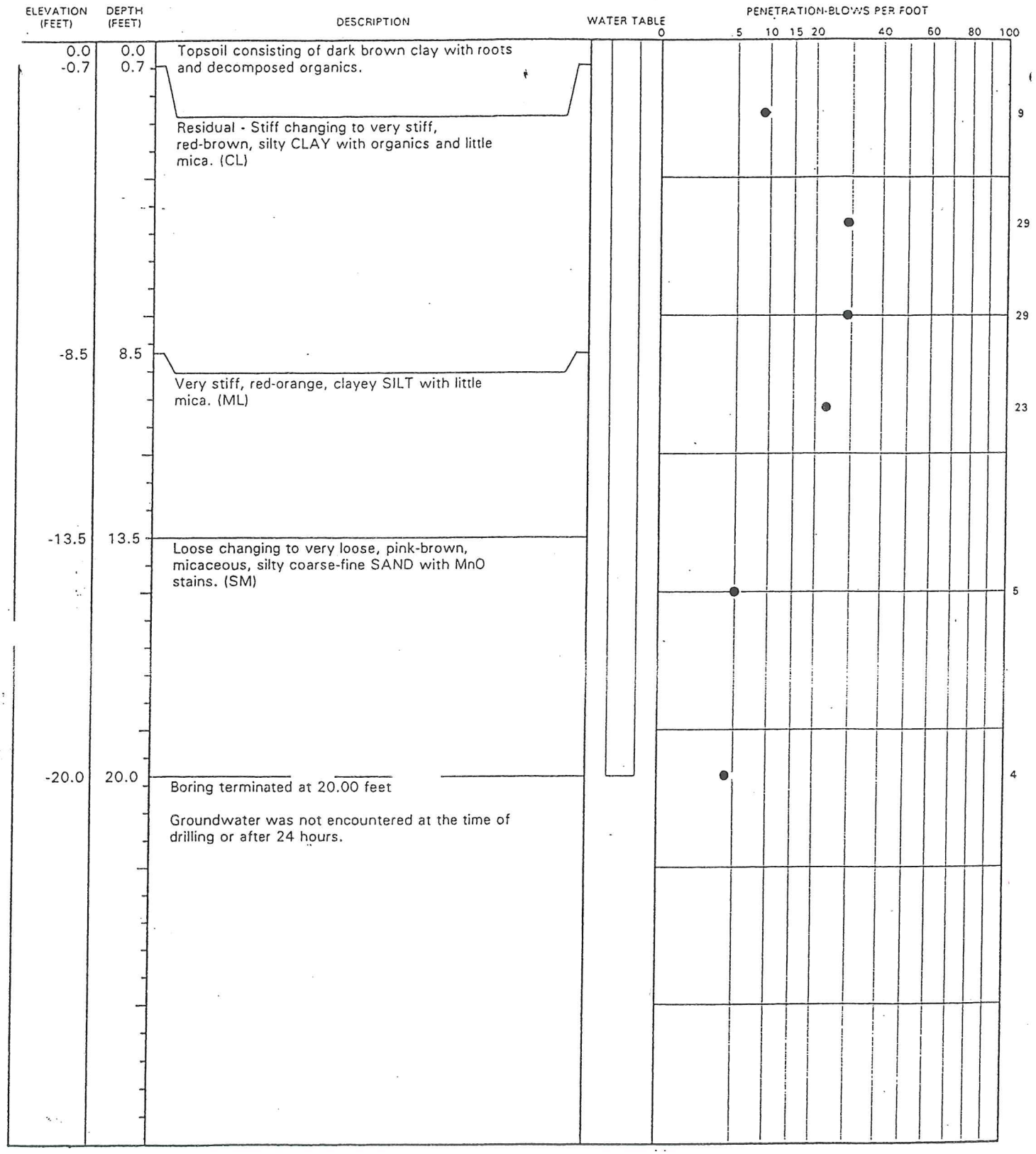
MATRIX ENGINEERING GROUP
Atlanta, Georgia

TEST BORING RECORD



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1065 ROCKBRIDGE ROAD
GWINNETT COUNTY, GEORGIA

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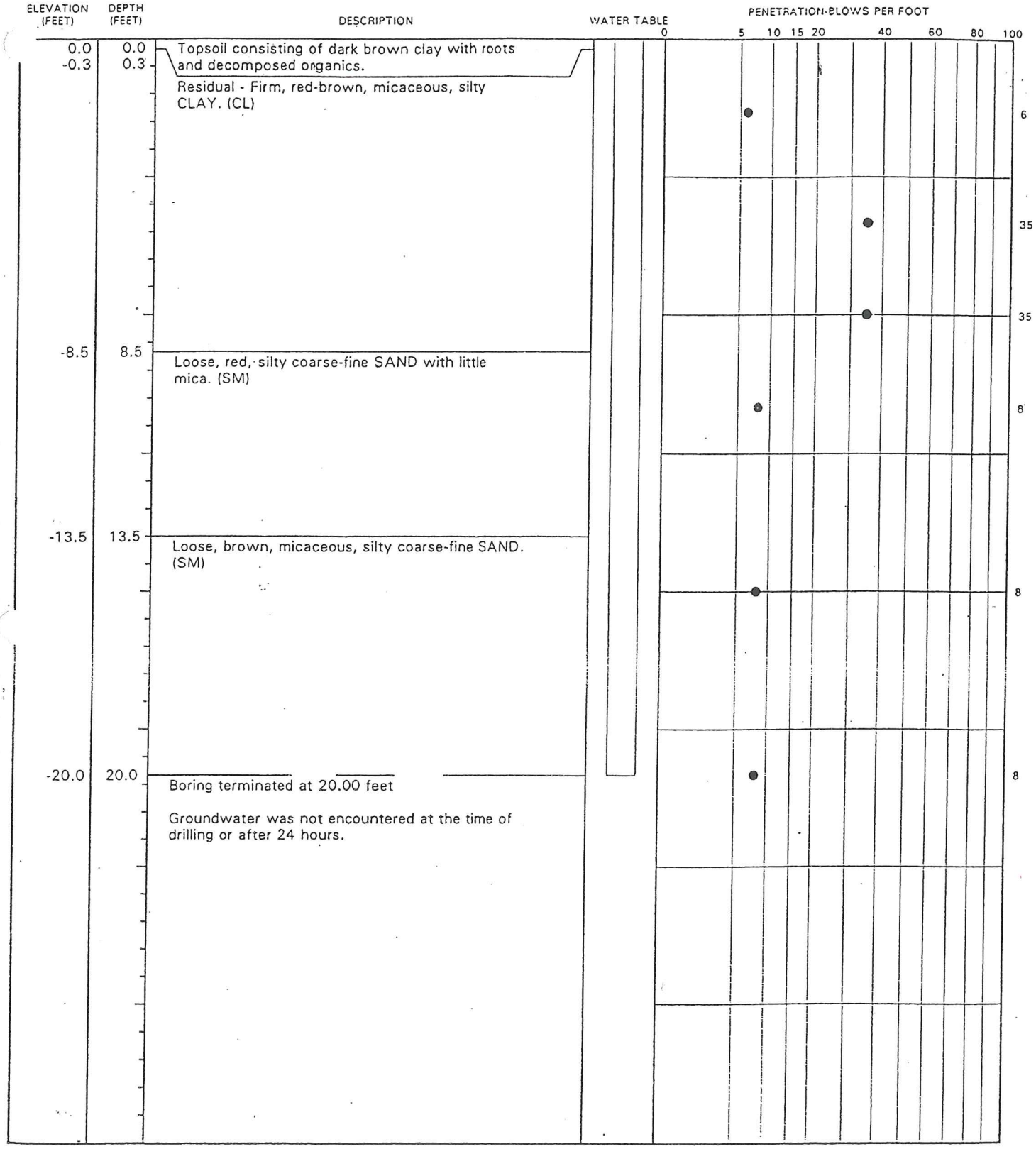
Checked By:	SA	Date Completed:	12-29-99
		Job Number:	MEG97140.8

MATRIX ENGINEERING GROUP
Atlanta, Georgia

TEST BORING RECORD



PROJECT:
PRELIMINARY SUBSURFACE EXPLORATION
1065 ROCKBRIDGE ROAD
GWINNETT COUNTY, GEORGIA

Drilled By:	LANIER	Boring Number:	B-17
Logged By:	RT	Date Started:	12-29-99
Checked By:	SA	Date Completed:	12-29-99
		Job Number:	MEG97140.8

MATRIX ENGINEERING GROUP
Atlanta, Georgia


109 P.S.
LAKE
OUTDOOR
POOL
NATATORIUM
ENTRY
PLAZA
ACTIVITY
BUILDING
186 P.S.
48 P.S.
ROCKBRIDGE ROAD