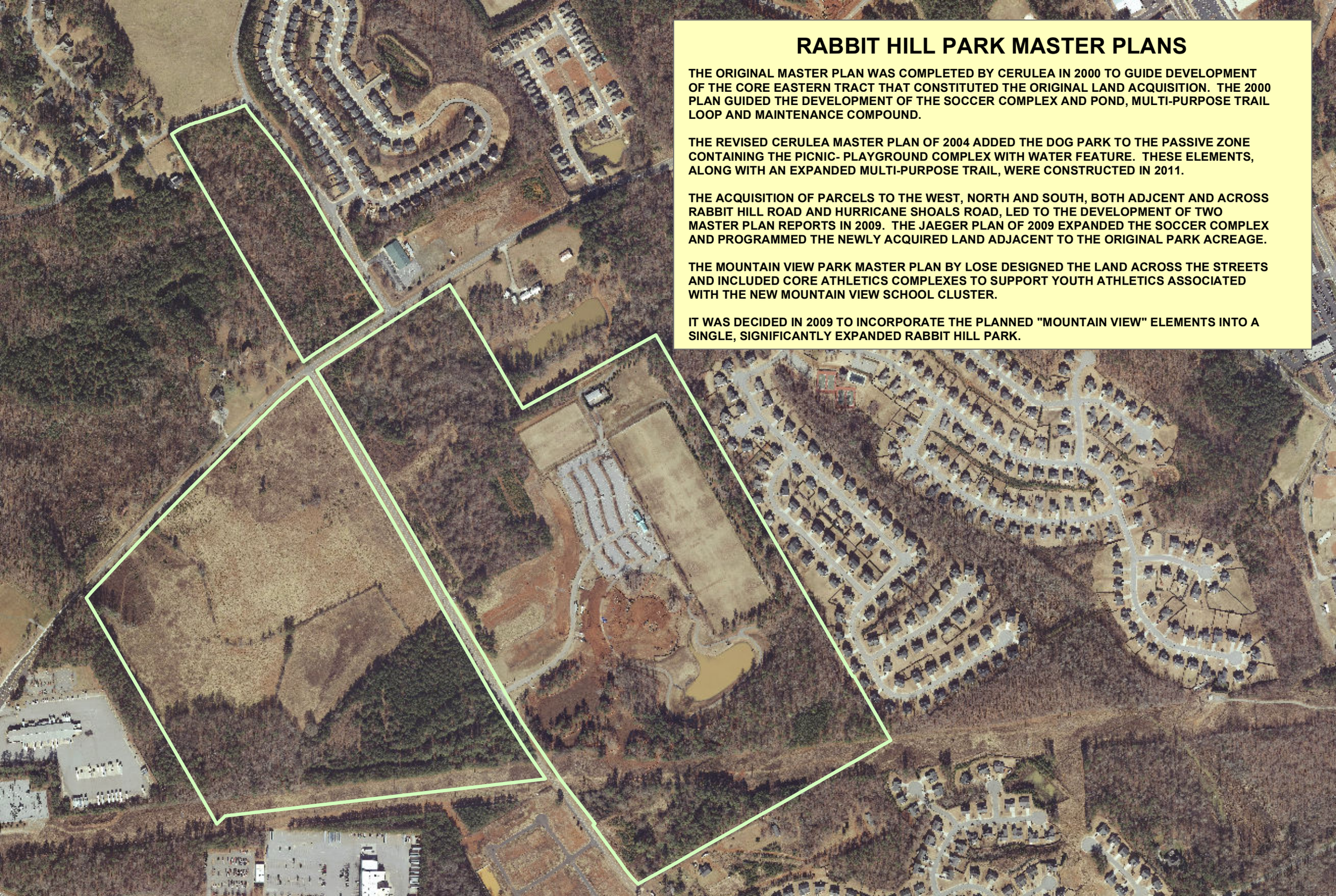

RABBIT HILL PARK MASTER PLANS

THE ORIGINAL MASTER PLAN WAS COMPLETED BY CERULEA IN 2000 TO GUIDE DEVELOPMENT OF THE CORE EASTERN TRACT THAT CONSTITUTED THE ORIGINAL LAND ACQUISITION. THE 2000 PLAN GUIDED THE DEVELOPMENT OF THE SOCCER COMPLEX AND POND, MULTI-PURPOSE TRAIL LOOP AND MAINTENANCE COMPOUND.

THE REVISED CERULEA MASTER PLAN OF 2004 ADDED THE DOG PARK TO THE PASSIVE ZONE CONTAINING THE PICNIC- PLAYGROUND COMPLEX WITH WATER FEATURE. THESE ELEMENTS, ALONG WITH AN EXPANDED MULTI-PURPOSE TRAIL, WERE CONSTRUCTED IN 2011.

THE ACQUISITION OF PARCELS TO THE WEST, NORTH AND SOUTH, BOTH ADJCENT AND ACROSS RABBIT HILL ROAD AND HURRICANE SHOALS ROAD, LED TO THE DEVELOPMENT OF TWO MASTER PLAN REPORTS IN 2009. THE JAEGER PLAN OF 2009 EXPANDED THE SOCCER COMPLEX AND PROGRAMMED THE NEWLY ACQUIRED LAND ADJACENT TO THE ORIGINAL PARK ACREAGE.

THE MOUNTAIN VIEW PARK MASTER PLAN BY LOSE DESIGNED THE LAND ACROSS THE STREETS AND INCLUDED CORE ATHLETICS COMPLEXES TO SUPPORT YOUTH ATHLETICS ASSOCIATED WITH THE NEW MOUNTAIN VIEW SCHOOL CLUSTER.

IT WAS DECIDED IN 2009 TO INCORPORATE THE PLANNED "MOUNTAIN VIEW" ELEMENTS INTO A SINGLE, SIGNIFICANTLY EXPANDED RABBIT HILL PARK.

RABBIT HILL PARK
Master Plan

Gwinnett County

Department of Community Services

Parks Division

Prepared by:

CERULEA, Inc.

April, 2000

The Rabbit Hill Park Master Plan was prepared with the participation and guidance of the Master Plan Steering Committee members. For their efforts we are most appreciative.

Richard E. Brown

Leigh Couch

Susan Lamb

Michael McCollum

Maureen Prow

Rev. W. Ron Sailor, Sr.

Cheryl Sileo

Timothy W. Twyman

Tammie Ziegler

Shawn J. Butler

The support and vision of the Gwinnett County Board of Commissioners has assured preparation and faithful implementation of the Master Plan:

Chairman:	*Wayne Hill*
District 1:	*Tommy Hughes*
District 2:	*Patti Muise*
District 3:	*Judy Waters*
District 4:	*Kevin Kenerly*

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1.0 Project Goals and Objectives

At Rabbit Hill Park, Gwinnett County is seeking to address the specific recreational needs of the area served by this new park site. Situated in the rapidly developing Dacula area and located proximal to heavily traveled Georgia Rte. 316 via lightly trafficked Rabbit Hill Road, the 74.2 acre park was acquired at the close of 1999. This Master Plan will address the identified program elements required to be contained within the Park. As proposed, this park will be a complement to the existing program offerings at Dacula Park creating a supplementary relationship with that park such that the service area is provided with a full range of recreational program offerings. The addition of the following new facilities will be required so that a higher level of service can be provided in keeping with Gwinnett County standards:

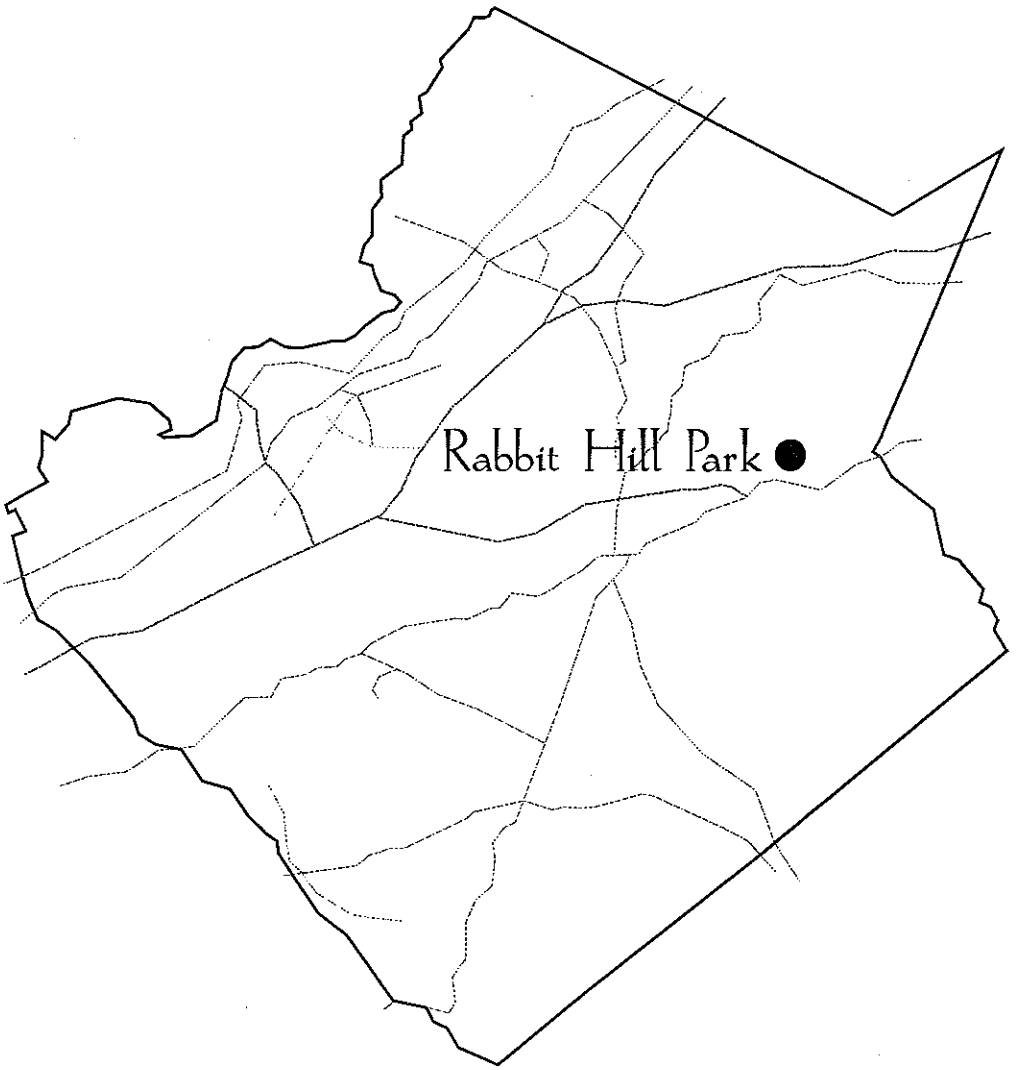
- Youth soccer complex to serve this portion of the County;
- Adult soccer field;
- Tennis court area;
- Youth roller sports area including roller court with dasher boards and spectator area, free-skate area, and centrally located concession/restroom;
- Sand volleyball courts;
- Basketball courts;
- Comprehensive system of multi-use trails and separate soft surface walking paths;
- Large group pavilion with adjacent lawn area, restroom, and sand volleyball court;
- Playgrounds, including one small area fenced and adjacent to the youth soccer complex and one larger area adjacent to the group pavilion;
- Maintenance facility with fenced paved yard and storage building;
- Area set aside for a potential future activity building/gymnasium facility;
- Incorporate adequate spatial allocations as required to comply with the County's new stormwater and tree preservation ordinances; and
- Adequate parking, landscaping, signage, utilities and lighting for all of the above.

The following tasks were performed in order to provide the information needed to determine the final program and design:

- Inventory and Analysis of the site including topography, subsurface investigation, vegetation, and hydrology.
- Confirmation of Program, based on input of staff as well as the Steering Committee.
- Alternative Development Concepts were prepared to test a variety of approaches to the development of the site.
- A final Master Plan concept and cost estimate was developed to reflect the preferred hybrid development scheme and Phase I development priorities.

2.0 Site Context

Rabbit Hill Park, located on the east side of Rabbit Hill Road about 2000 feet north of the intersection with Fence Road, is adjacent to residentially zoned land. Tracts opposite the Park on Rabbit Hill Road are zoned office and industrial. The Park is in the Dacula area and is less than two miles from Dacula Park. Traffic volumes on Rabbit Hill Road are light to moderate. Adjacent undeveloped land to the east is presently being developed as a large subdivision.



3.0 Methodology

Using a traditional approach to the park planning process, the project progressed through a series of interim tasks to arrive at a consensus Master Plan. The sequence of tasks performed to develop the Master Plan included:

- Project Start-up including Base Plan Development from hand digitized County GIS maps (4 foot contour data) together with Boundary Surveys and field located specimen trees and subsurface borings in CAD format files obtained by the County;
- Initial Meetings with Gwinnett County Department of Community Services (hereinafter DCS) and the Steering Committee to determine a list of program features and priorities;
- Physical Site Inventory and Analysis including walkover of the site to record condition of existing physical elements;
- Alternative Conceptual Plan Development during which three different site plans were prepared and presented to the Steering Committee and Staff;
- Preliminary Master Plan Development where a hybrid concept was produced, together with a cost estimate, presented to the Steering Committee and Staff, and then subsequently refined; and
- Final Master Plan Development where refinements were incorporated and costs estimated to develop a Phase I Program and later phase prioritized listing. This summary report was then prepared to include the final plan, cost estimates (with prioritization), and foregoing process synopsis.

A more detailed outline of tasks follows:

1. Project Start-Up (1/6/00-1/13/00)

The project commenced upon Notice to Proceed and base surveys were assembled of the parcel. CERULEA prepared a consolidated digital base plan from the data provided. The initial Steering Committee meeting was held on January 13 resulting in the establishment of a project meeting schedule and basic program outline.

2. Site Inventory and Analysis (1/14/00 - 1/31/00)

Comparable Gwinnett County sites were toured by Steering Committee members prior to the January 31 meeting so that they would be familiar with the types of program offerings under discussion. DCS staff prepared a memorandum to record the findings of this process and transmitted this to CERULEA (see Appendix A).

A. Physical Investigation

The physical investigation began with a site visit to document existing conditions. A series of four graphics were then prepared to record the findings organized under the headings of Topography, Watershed, Vegetation, and Facilities. Discussion of subsurface rock and its impact on potential grading and utility alignments was reviewed with the Steering Committee.

B. Programmatic Development

Programmatic input was collected by DCS staff which included comments, observations and requests from the Citizen Steering Committee and DCS. This was transmitted to CERULEA to allow development of the Alternative Concept Plans.

3. Conceptual Development (2/1/00-2/14/00)

Three alternative concept plans were quickly developed to consider the program requirements and to minimize rock excavation and imported fill. The plans were varied and were presented to the Steering Committee on February 14, 2000. All the alternatives placed the soccer in the northeast quadrant to take advantage of flatter terrain and to provide a more compact footprint for the soccer use. From this process, Scheme C was selected for refinement. From discussion during the meeting, the group supported an aggregated single terrace so that light poles could be placed at the outer edges of the fields and swales between fields would be eliminated. In this concept, fields can be rotated or shifted along their axis to minimize repetitive wear in the goal zones. A memo from DCS staff outlined specific attributes to be reflected in the hybrid scheme (see Appendix A).

4. Preliminary Master Plan Development (2/15/00 - 2/22/00)

The Preliminary Master Plan was presented to the Steering Committee on February 22. The consolidated youth soccer terrace was presented and enthusiastically accepted by DCS staff and the Steering Committee. Staff requested a fenced enclosure for the tot play area next to the north end of the soccer terrace and also requested a wide trail link encircling the youth soccer field. They requested relocating maintenance activities further north to make room for the tot play area. Also, the tennis courts were to be moved further north to allow better buffering from the youth skate complex and they requested a mulch trail be shown on the steep terrain of the southeast quadrant of the site. Steering Committee members supported the plan as amended by staff comment and also asked that the budget provide for a kicking wall for soccer practice. Minutes of this meeting, prepared by DCS staff are located in Appendix A.

5. *Final Master Plan (2/23/00-3/28/00)*

Following the presentation of the final master plan on February 28, there were minor plan revisions requested by staff, to include realignment of the first park drive intersection to provide a more perpendicular intersection with the group picnic and youth skate access drives, together with minor walkway and trail realignments. The Steering Committee also requested that an area abutting the lakeshore be set aside for a future memorial garden.

Phasing costs and priorities were developed, and after much discussion, a prioritized program listing was agreed upon. A summary of this meeting is included in Appendix A.

The final revision was presented to the Board of Commissioners on March 28, 2000, without further revision and was subsequently formally adopted.

4.0 Site Inventory and Analysis

The Existing Conditions site plan is included in this section. Inventory and analysis findings follow:

Topography and Drainage

The Park is a sideslope landform, where a relatively flat-topped ridge line runs under Rabbit Hill Road. The generously flat areas of the site are associated with shallow depth to bedrock (often as little as 2 to 4 feet deep). Existing slopes elsewhere in the 6-20% range predominate with maximal slopes in the southeastern quadrant (a valley) exceeding 30%. Fortunately, the flatter portions of the site encourage development of the soccer fields in a manner that may readily minimize rock excavation.

Geotechnical studies obtained by DCS confirm that rock should be encountered in areas where grading is required. Refer to Matrix Engineering Report Number 97140.7 dated December 3, 1999, and revisions dated December 17 and 27, 1999, with additional borings and Atterberg Limits tests. They identify that soils in certain areas of shallow depth to bedrock may be unsuitable for certain structural fill applications.

The surface water drains off of the western edge to the eastern site perimeter, typically in sheet flow patterns until concentration points are reached in existing drainage swales. These various swales then exit the site over natural courses. There is a very minimal storm pipe network associated with the existing abandoned subdivision development (Bunny Estates) and some of these pipe runs will likely be incorporated into the development of the Park per the master plan concept.

There is no evidence of surface water impoundment on the site, except for a silted former pond bed at the extreme southeast corner. The site has sufficient acreage to support a pond. It is encouraged that the Owner explore for subsurface water resources to replenish such a pond and use the water to the greatest extent for irrigation requirements and maintenance of a constant water level in the pond. It is recommended that a new stormwater pond be developed entirely in compliance with the new County stormwater regulations. A forebay system is suggested to filter runoff through emergent vegetation.

Vegetation

The entire site is wooded with the exception of several acres in the extreme southwest corner at the power easement. The northwest portion of the site is predominately a poor forest of young pines which grew following abandonment of the Bunny Estates subdivision in the early 1980's.

GENERAL NOTES

1. REFERENCE TO THIS SURVEY SHOULD BE MADE TO THAT CERTAIN WARRANTY DEED FROM FOX GROUP PARTNERSHIP, TO RODDY STURDIVANT, DATED: MAY 13, 1999, RECORDED IN DEED BOOK 18386, PAGE 131, BOND ON FILE WITH THE CLERK OF SUPERIOR COURT, GWINNETT COUNTY, GEORGIA.

2. REFERENCES FOR THIS SURVEY SHOULD ALSO BE MADE TO THAT CERTAIN WARRANTY DEED FROM WOODROW MURPHY, ET AL. TO THE FOX GROUP PARTNERSHIP, DATED APRIL 25, 1995, RECORDED IN DEED BOOK 3042, PAGE 413, APOREGAD RECORDS.

3. THE BEARING STRUCTURE FOR THIS SURVEY IS BASED UPON MONUMENTATION FOUND IN THE FIELD AT THE TIME OF THIS SURVEY AND REFERENCED TO GWINNETT COUNTY GIS MONUMENT NO. CC-031 AND THE AZIMUTH MARK NO. CC-231. THE HORIZONTAL DATUM IS NAD 83, BASED UPON THE NAR01 ADJUSTMENT OF 1994.

4. THE FIELD WORK FOR THIS SURVEY WAS CONDUCTED ON DECEMBER 10 THROUGH: 20, 1999.

5. NO PORTION OF THIS PROPERTY LIES WITHIN A DESIGNATED FLOOD PRONE AREA AS PER F.I.R.M. COMMUNITY PANEL NO. 130322-0210-C, GWINNETT COUNTY, GEORGIA, DATED MAY 4, 1992.

GENERAL NOTES

6. THIS SITE IS SERVICED BY SOME UNDERGROUND UTILITIES. THE FIRM OF HAYES, JAMES & ASSOCIATES, INC. DOES NOT CERTIFY TO THE ACCURACY OF THE UNDERGROUND UTILITIES SHOWN OR NOT SHOWN HEREON. CONTACT THE UTILITY PROTECTION CENTER AT 1-800-282-7411, PRIOR TO ANY DIGGING.

7. I.P.S. INDICATES THAT A 1/2" REBAR TYPE PIN WAS SET.

8. USERS OF THIS CADD FILE ARE CAUTIONED THAT CRITICAL DIMENSIONS OBTAINED BY ELECTRONIC INQUIRY CAN NOT BE RELIED UPON WITHOUT VERIFICATION. HAYES, JAMES & ASSOCIATES, INC. SHOULD BE CONSULTED PRIOR TO ISSUANCE OF CONSTRUCTION DRAWINGS FOR INPUT AND VERIFICATION.

9. THE TERM "CERTIFICATION" RELATING TO LAND SURVEYING SERVICES SHALL MEAN A SIGNED STATEMENT BASED UPON FACTS AND KNOWLEDGE KNOWN TO THE REGISTRANT AND IS NOT A GUARANTEE OR WARRANTY, EITHER EXPRESSED OR IMPLIED.

GENERAL NOTES

10. THE PUBLIC RECORDS AS SHOWN HEREON REFLECTS TO THOSE RECORDS NECESSARY TO ESTABLISH THE EASEMENTS SHOWN HEREON AND REFERENCE TO THE SAME DOES NOT AND IS NOT INTENDED TO CONSTITUTE A TITLE SEARCH OR TITLE OPINION.

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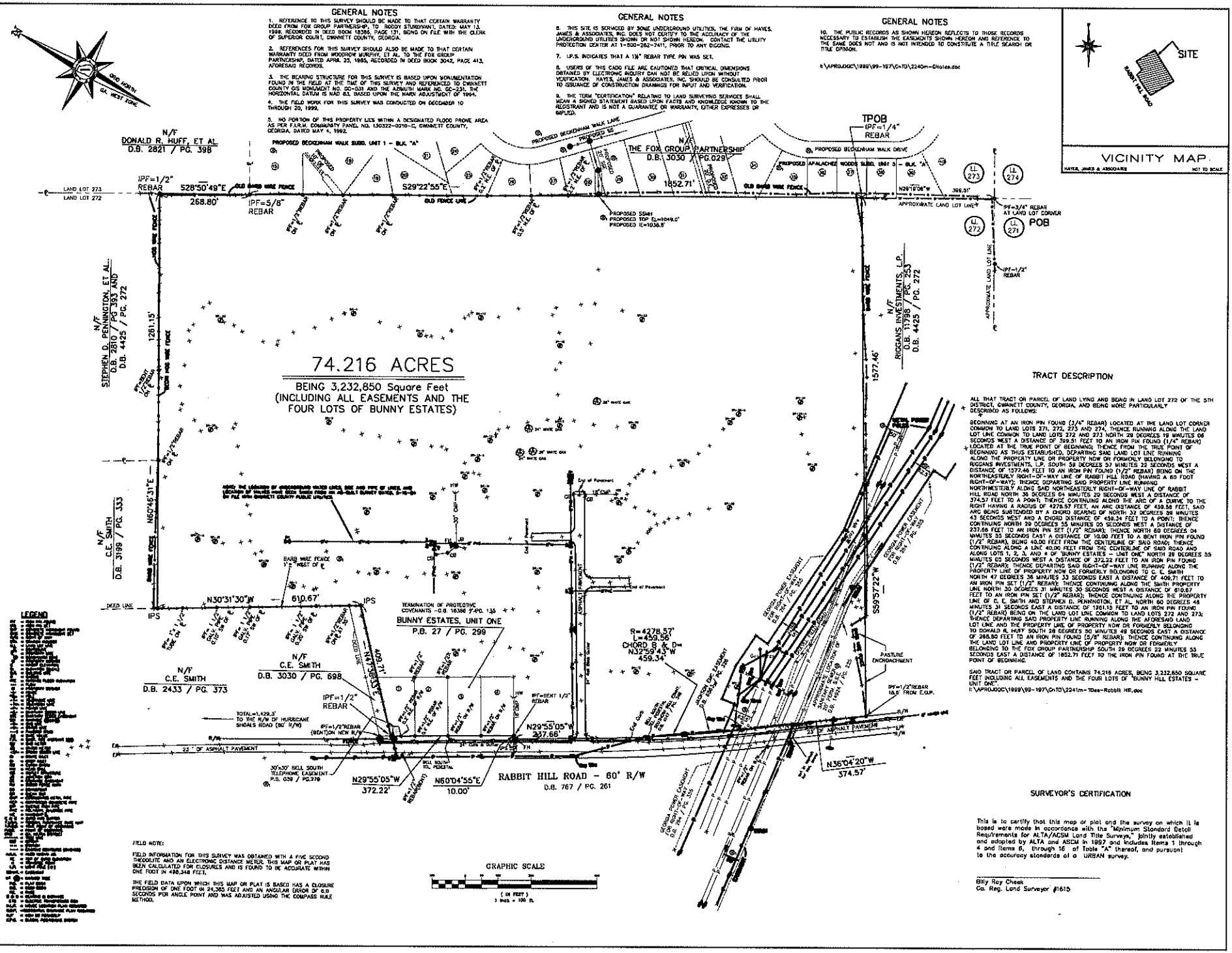

TRACT DESCRIPTION

ALL THAT TRACT OR PARCEL OF LAND LYING AND BEING IN LAND LOT 272 OF THE 5TH DISTRICT, GWINNETT COUNTY, GEORGIA, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT AN IRON PIN FOUND (3/4" REBAR) LOCATED AT THE LAND LOT CORNER COMMON TO LAND LOTS 271, 272, 273 AND 274, THENCE RUNNING ALONG THE LAND LOT LINE COMMON TO LAND LOTS 272 AND 273 NORTH 29 DEGREES 19 MINUTES 06 SECONDS WEST A DISTANCE OF 396.51 FEET TO AN IRON PIN FOUND (1/4" REBAR) LOCATED AT THE TRUE POINT OF BEGINNING; THENCE FROM THE TRUE POINT OF BEGINNING AS THUS ESTABLISHED, DEPARTING SAID LAND LOT LINE RUNNING ALONG THE PROPERTY LINE OR PROPERTY NOW OR FORMERLY BELONGING TO RIGGANS INVESTMENTS, L.P. SOUTH 59 DEGREES 57 MINUTES 22 SECONDS WEST A DISTANCE OF 1577.46 FEET TO AN IRON PIN FOUND (1/2" REBAR) BEING ON THE NORTHEASTERLY RIGHT-OF-WAY LINE OF RABBIT HILL ROAD (HAVING A 60 FOOT RIGHT-OF-WAY); THENCE DEPARTING SAID PROPERTY LINE RUNNING NORTHWESTERLY ALONG SAID NORTHEASTERLY RIGHT-OF-WAY LINE OF RABBIT HILL ROAD NORTH 36 DEGREES 04 MINUTES 20 SECONDS WEST A DISTANCE OF 374.57 FEET TO A POINT; THENCE CONTINUING ALONG THE ARC OF A CURVE TO THE RIGHT HAVING A RADIUS OF 4278.57 FEET, AN ARC DISTANCE OF 459.56 FEET, SAID ARC BEING SUBTENDED BY A CHORD BEARING OF NORTH 32 DEGREES 59 MINUTES 43 SECONDS WEST AND A CHORD DISTANCE OF 459.34 FEET TO A POINT; THENCE CONTINUING NORTH 29 DEGREES 55 MINUTES 05 SECONDS WEST A DISTANCE OF 337.66 FEET TO AN IRON PIN SET (1/2" REBAR); THENCE NORTH 60 DEGREES 04 MINUTES 55 SECONDS EAST A DISTANCE OF 10.00 FEET TO A BENT IRON PIN FOUND (1/2" REBAR), BEING 40.00 FEET FROM THE CENTERLINE OF SAID ROAD; THENCE CONTINUING ALONG A LINE 40.00 FEET FROM THE CENTERLINE OF SAID ROAD AND ALONG LOTS 1, 2, 3, AND 4 OF "BUNNY ESTATES - UNIT ONE" NORTH 29 DEGREES 55 MINUTES 05 SECONDS WEST A DISTANCE OF 372.22 FEET TO AN IRON PIN FOUND (1/2" REBAR); THENCE DEPARTING SAID RIGHT-OF-WAY LINE RUNNING ALONG THE PROPERTY LINE OF PROPERTY NOW OR FORMERLY BELONGING TO C. E. SMITH NORTH 47 DEGREES 38 MINUTES 33 SECONDS EAST A DISTANCE OF 409.71 FEET TO AN IRON PIN SET (1/2" REBAR); THENCE CONTINUING ALONG THE SMITH PROPERTY LINE NORTH 30 DEGREES 31 MINUTES 30 SECONDS WEST A DISTANCE OF 610.67 FEET TO AN IRON PIN SET (1/2" REBAR); THENCE CONTINUING ALONG THE PROPERTY LINE OF C. E. SMITH AND STEPHEN D. PENNINGTON, ET AL. NORTH 60 DEGREES 46 MINUTES 31 SECONDS EAST A DISTANCE OF 1261.15 FEET TO AN IRON PIN FOUND (1/2" REBAR) BEING ON THE LAND LOT LINE COMMON TO LAND LOTS 272 AND 273; THENCE DEPARTING SAID PROPERTY LINE RUNNING ALONG THE AFORESAID LAND LOT LINE AND THE PROPERTY LINE OF PROPERTY NOW OR FORMERLY BELONGING TO DONALD R. HUFF SOUTH 28 DEGREES 50 MINUTES 49 SECONDS EAST A DISTANCE OF 268.80 FEET TO AN IRON PIN FOUND (5/8" REBAR); THENCE CONTINUING ALONG THE LAND LOT LINE AND PROPERTY LINE OF PROPERTY NOW OR FORMERLY BELONGING TO THE FOX GROUP PARTNERSHIP SOUTH 29 DEGREES 22 MINUTES 55 SECONDS EAST A DISTANCE OF 1852.71 FEET TO THE IRON PIN FOUND AT THE TRUE POINT OF BEGINNING.

SAID TRACT OR PARCEL OF LAND CONTAINS 74.216 ACRES, BEING 3,232,850 SQUARE FEET INCLUDING ALL EASEMENTS AND THE FOUR LOTS OF "BUNNY HILL ESTATES - UNIT ONE".

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LEGEND

FIELD NOTE:

FIELD INFORMATION FOR THIS SURVEY WAS OBTAINED WITH A FIVE SECOND THEODOLITE AND AN ELECTRONIC DISTANCE METER. THIS MAP OR PLAT HAS BEEN CALCULATED FOR CLOSURES AND IS FOUND TO BE ACCURATE WITHIN ONE FOOT IN 498,348 FEET.

THE FIELD DATA UPON WHICH THIS MAP OR PLAT IS BASED HAS A CLOSURE PRECISION OF ONE FOOT IN 24,385 FEET AND AN ANGULAR ERROR OF 6.0 SECONDS PER ANGLE POINT AND WAS ADJUSTED USING THE COMPASS RULE METHOD.

SURVEYOR'S CERTIFICATION

This is to certify that this map or plat and the survey on which it is based were made in accordance with the "Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys," jointly established and adopted by ALTA and ASCM in 1997 and includes Items 1 through 4 and Items 8, through 16 of Table "A" thereof, and pursuant to the accuracy standards of a URBAN survey.

Billy Roy Cheek
Ga. Reg. Land Surveyor #1615

HAYES, JAMES & ASSOCIATES
CONSULTING ENGINEERS, PLANNERS & SURVEYORS
770-822-1000

A.L.T.A. / A.C.S.M. SURVEY
FOR
GWINNETT COUNTY DEPARTMENT OF COMMUNITY SERVICES
OF
RABBIT HILL PARK

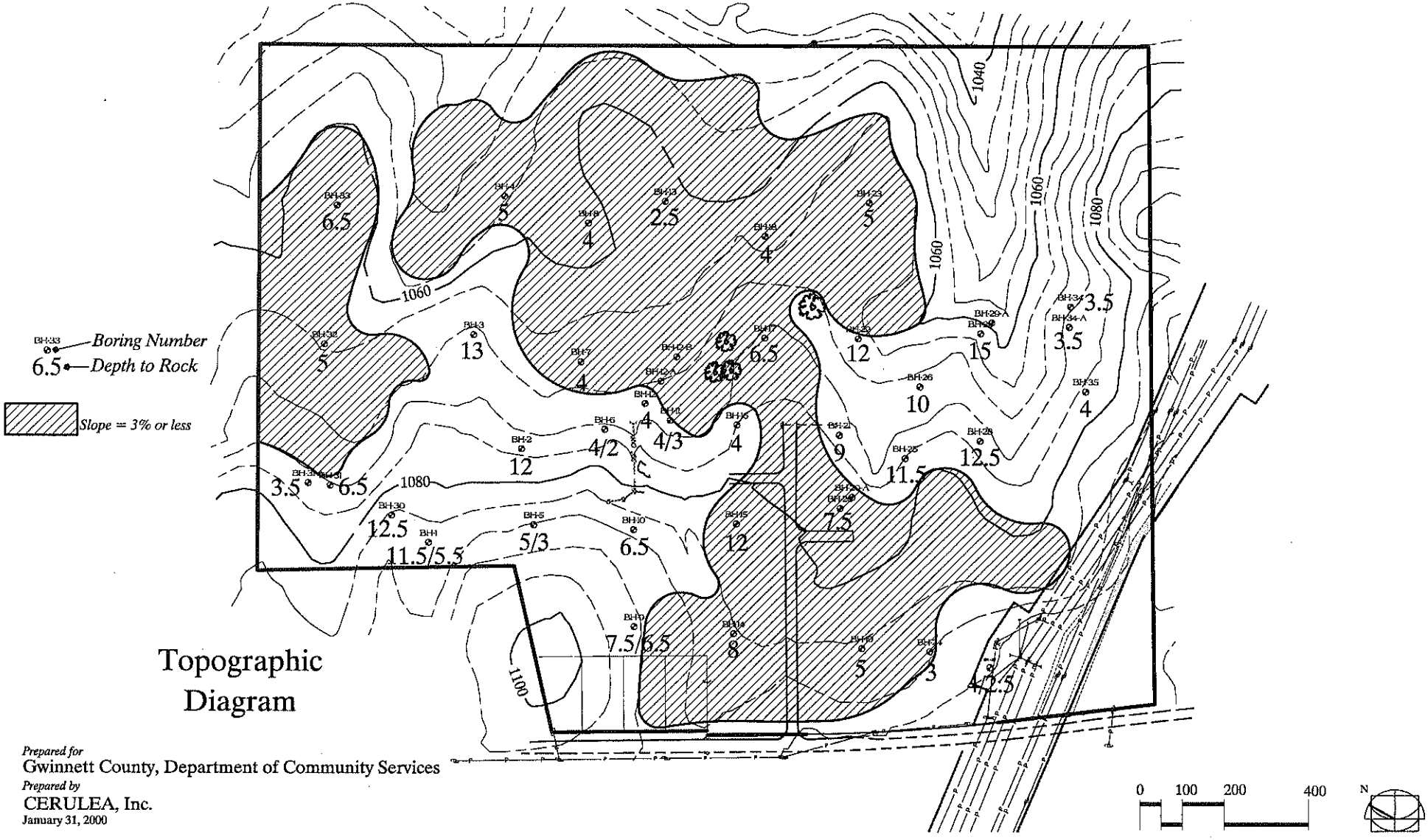
ISSUE					
DATE	DESCRIPTION	BY	APVD.	DATE	BY	APVD.
12/20/99					

DATE: DECEMBER 23, 1999
SCALE: HORIZ. 1" = 100' VERT. N/A
FIELD BOOK: 1999-0004 PG. 57
LAND LOT(S): 272
DISTRICT: 5TH
SECTION: N/A
COUNTY: GWINNETT STATE: GEORGIA
SURVEYOR: B.R. CHEEK
DRAWN BY: SHANE
CHECKED: BRC
APPROVED: BRC

SHEET 1 OF 1

SHEET 1 OF 1
SHEET:
VOL:
PAGE:
FILE NO.: 99-197
FIELD NO.: 99-57

Rabbit Hill Park



Topographic Diagram

Prepared for
Gwinnett County, Department of Community Services
Prepared by
CERULEA, Inc.
January 31, 2000

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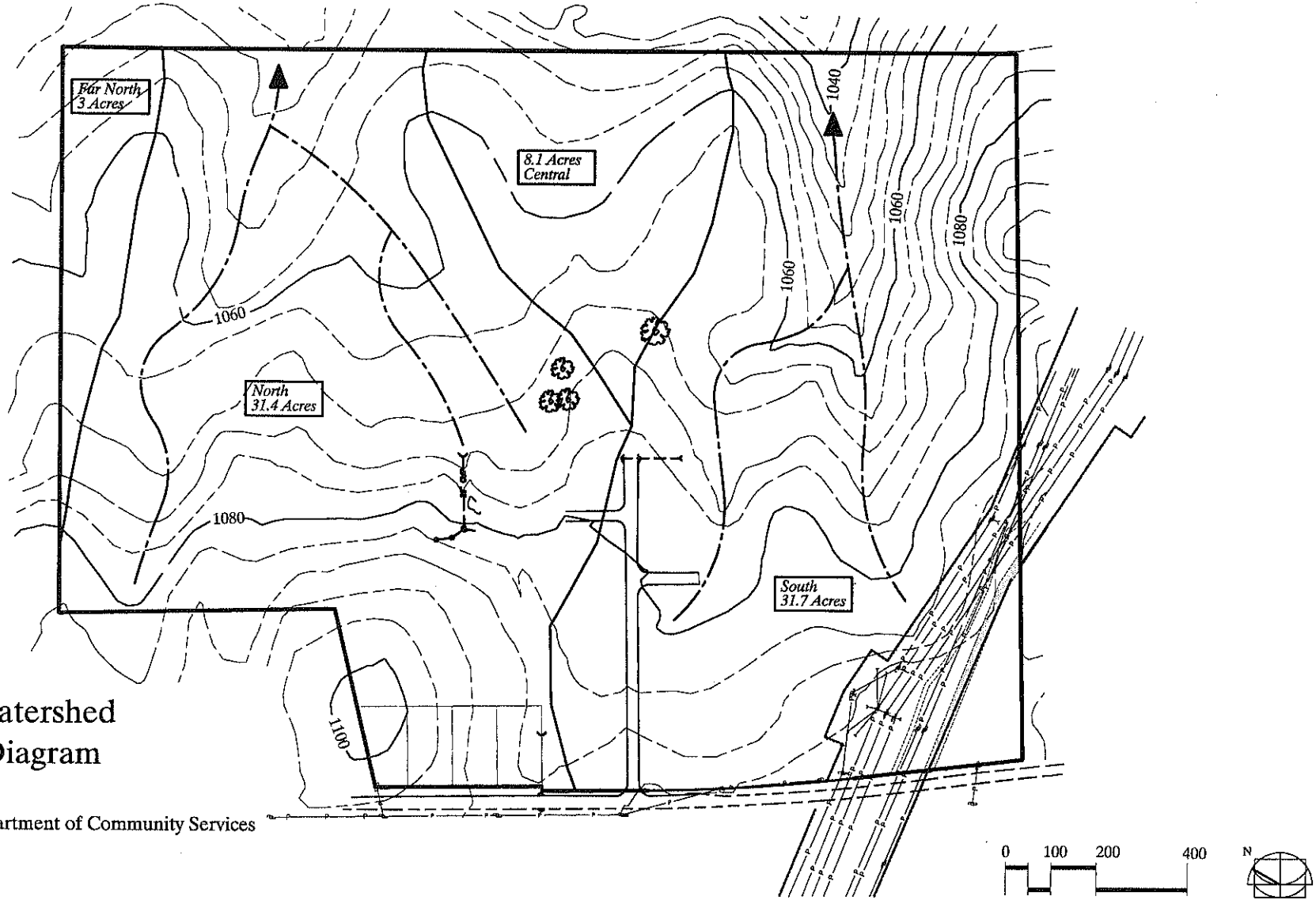
Rabbit Hill Park



Watershed Diagram

Prepared for
Gwinnett County, Department of Community Services
Prepared by
CERULEA, Inc.
January 31, 2000

The balance of the site is a fair mesic hardwood forest with a few specimen size oak trees in the center of the property. These trees were field located by a surveyor during the master plan process. Better hardwood stands are located at the extreme north and southeast portions of the Park.

Facilities

An abandoned road network associated with Bunny Estates provides an entry to the property. The pavement is not in poor condition, although very little of the alignment is in areas where it can be incorporated into the proposed master plan layout. The site can readily accommodate required parking as determined by the programmatic analysis.

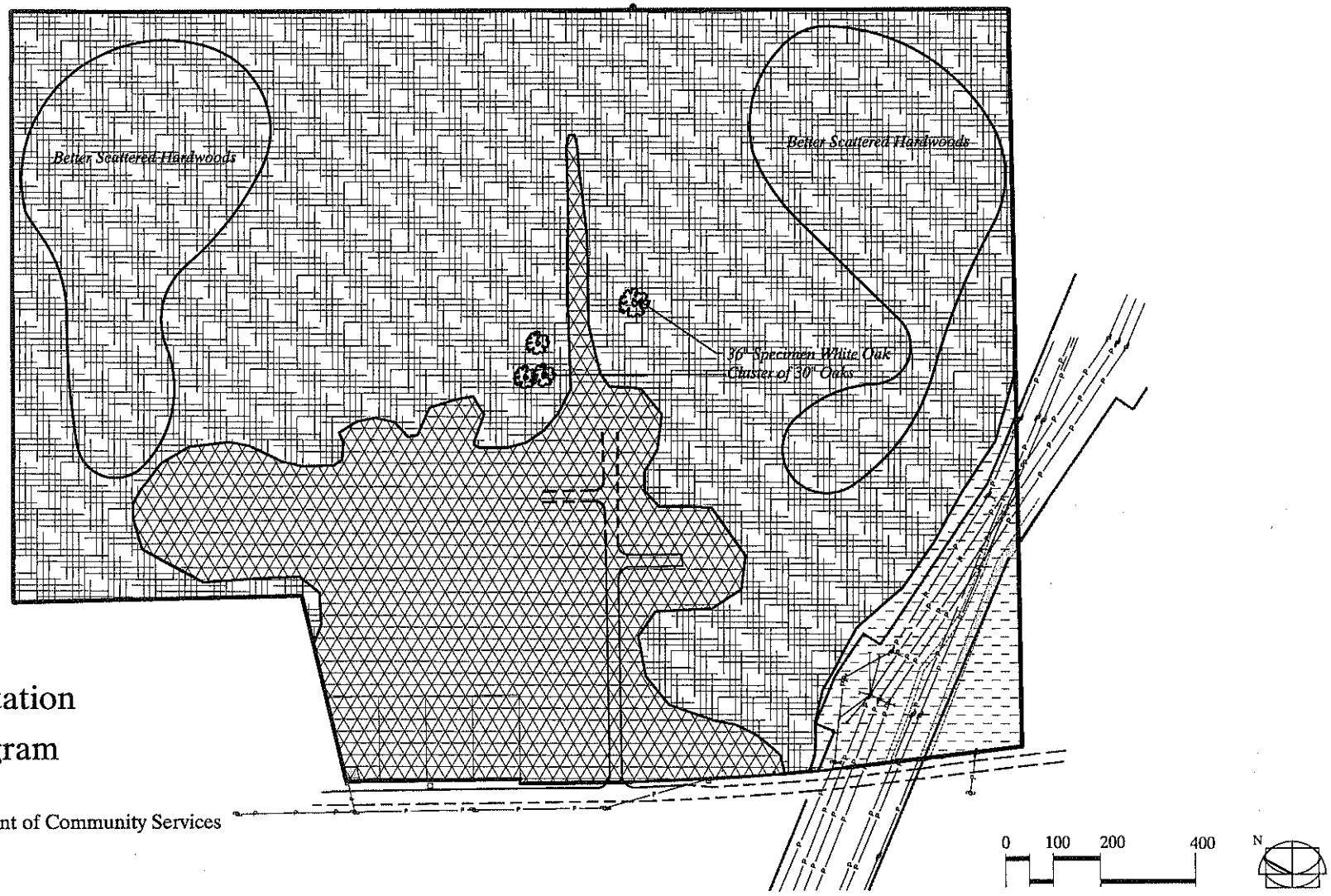
The perimeter of the site is well suited to the proposed multi-use trail system, with one exception. The extreme side slopes in the valley at the southeast corner of the property suggests that the trail not be located at the perimeter to avoid the steep well forested slope in that area.

There are no other structures on the property. Former utility development associated with Bunny Estates includes a potable water system and the previously discussed storm pipe system. The water system does not have a required master meter and the domestic elements of the system are not separated from the fire protection elements. This problem may be resolved by replacement of non-compliant water piping infrastructure.

Spatial Relationships

Lighting for the soccer fields will include state-of-the-art glare control to minimize light spill, as reflected in the Preliminary Master Plan Design Estimate (Appendix B).

Rabbit Hill Park



Field

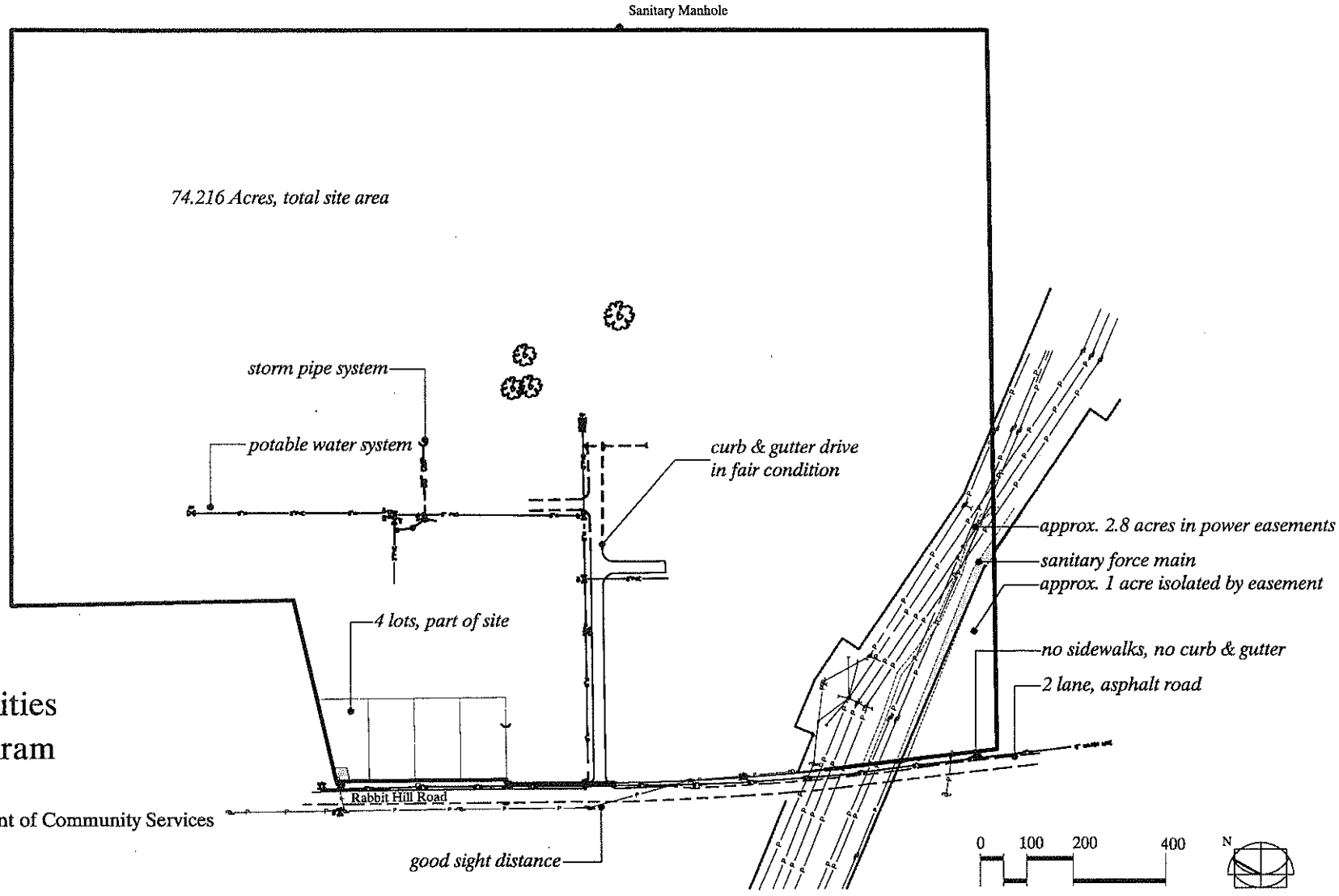
Mesic Hardwood

Early Successional

Vegetation Diagram

Prepared for
Gwinnett County, Department of Community Services
Prepared by
CERULEA, Inc.
January 31, 2000

Rabbit Hill Park



Facilities Diagram

Prepared for
Gwinnett County, Department of Community Services
Prepared by
CERULEA, Inc.
January 31, 2000

5.0 Programmatic Analysis

Working with the Steering Committee and DCS staff, a finalized, prioritized list of park improvements was developed in keeping with Phase I budgetary limits of $2,500,000 and later phase priorities. There was much discussion of this prioritization with the Steering Committee in order to carefully consider the ranking and associated timing of the development of the park elements. The following cost allocations are based on more detailed cost projections included in Appendix B of this report.

The first priority level (and Phase I) program list based on a current $2,500,000 construction budget includes:

First Priority Level	
Basic Infrastructure, Grading, Contingencies	$1,451,000
Youth Soccer, 5 Fields, No Lights	$664,000
Parking, 400+ cars, Drive, Decel, Walks	$235,000
Small Restroom (4 Fixtures)	$72,000
Maintenance Compound	$78,000
Sub-Total	$2,500,000

The Second Priority Level (First Tier Program Options) contained the list of additional park program features the Committee believed should be in the next construction phase, or considered for the first phase of construction if any additional funds become available. The items are listed in the Committee's order of priority.

Second Priority Level	
1. Youth Soccer Concession/Restroom Bldg.	$585,000
2. Main Playground and Basketball Courts	$180,000
3. Multi-purpose trail loop at Soccer & Pond	$138,000
4. Sand Volleyball (1 court)	$12,000
5. Picnic Pavilion, Lawn, Parking (50 spaces)	$315,000
Sub-Total	$1,230,000

The third priority level (Second Tier Program Options) contained the remaining items needed to complete the construction of the Park according to the Master Plan. The items are listed in the Committee's order of priority.

Third Priority Level	
1. Tennis/Sand Volleyball Courts+Parking	$291,000
2. ½ Youth Soccer Field Lights	$330,000
3. Adult Soccer Field + Parking	$249,000
4. Finish Multi-purpose/mulch Trails = Shelter	$175,000
5. Skatepark + Concession + Parking	$1,027,000
6. ½ Youth Soccer Field Lights	$330,000
7. Adult Soccer Field Lights	$135,000
8. Soccer Complex Tot Lot	$50,000
Sub-Total	$2,587,000

The total estimated park construction costs for all three priority levels is $6,317,000 not including architectural and engineering services, furnishings or program administrations costs.

The final program narrative follows in more detail:

1. Basic Infrastructure and Passive Features

A. Utilities

Stormwater System: The plan must incorporate the requirements of the new stormwater ordinance. Elements would include a pond with vegetated forebay to filter water before it reaches outfall positions . Also, broad, grassed or vegetated swales between parking bays are to be provided to filter runoff slowly from the pavement while minimizing depth of cut to shallow bedrock. Trench drains or other similar shallow stormwater conveyances may be necessary for path crossings where standard depth of burial of pipes is not afforded by depth to bedrock. Very minimal use of curbing is proposed to be used to allow sheet flow of water off of paved surfaces. Wheelstops and bollards will be required to keep vehicles on paved surfaces in uncurbed areas.

Irrigation System: The irrigation system would be designed to serve all sodded areas such as the soccer fields and common area lawns near the soccer fields, courts, and large picnic pavilion. Also irrigation is needed for the existing specimen oak trees and new tree plantings (including the depressed islands in the parking areas would receive drip or pop-up spray irrigation as appropriate). The details of the system would be in compliance with DCS standards.

Given that there will be a large lake on site, the first phase of construction will include exploration and drilling for subsurface water resources such that a suitable well or wells may supply the water needs of both the lake and the irrigation system. The well(s) would be equipped with pumps to supply the lake. The irrigation system must therefore include a lake pump unit located near the lake to be furnished with appropriate strainers and pressure regulation equipment. As the lake will be used as a water source, the irrigation system components shall be designed for a heavier particulate load. As a back-up, the entire irrigation system must also be supplied via a separate meter and tap from the water main at Rabbit Hill Road.

Potable Water Distribution: A proposed meter point near the park entry is suggested, although if the system is found to be in good working order, the existing distribution may be metered within the Park. Metering remote from the Rabbit Hill Road right-of-way would require special approval of the Public Utilities department. If approval is not obtained, then replacement of some or all of the existing water distribution piping may be required for separation of potable and fire water distribution. The latter outcome would consume a portion of the contingency included in the first priority basic infrastructure line item.

Sanitary System: A proposed sanitary sewer manhole to be located at the property line is shown on the Master Plan and the layout stake for this has been field located by Hayes James surveyors during the course of the master planning process. Copies of preliminary plats for the proposed sewer are available from Gwinnett County. Great care must be exercised to layout the proposed gravity system collection lines to serve all future phases of the Park during the first phase of park development. Obviously, consideration of depth to rock will be critical.

Telephone/Electricity: Provide comprehensive wiring and infrastructure in the development of the Park. Transformer and underground power distribution must be situated to serve all future development needs. Conduits for later phase sports lighting at the soccer fields will be required to minimize disruption of the fields when lights are added.

B. Circulation

Entrance: The existing subdivision entry is to be converted to serve the Park, with adequate provision for a wider and longer decel lane per current requirements. Several hundred feet of existing drive can be retained for the park entry drive provided that the base course and asphalt are cored and tested to confirm suitability. The existing asphalt pavement did not exhibit cracking or other signs of deterioration during the master planning process.

Multi-Purpose Trail: An asphalt paved, 12' wide 1.6 mile long trail is the backbone of the system. Connecting segments will allow subordinate loops around both the lake and the youth soccer complex. The trail will be marked with signage to indicate distance and will have a center-line stripe along the major trail loop. There is one at-grade crossing of the park driveway.

This crossing is in a highly visible location several hundred feet from the Rabbit Hill Road entry and must be elevated above drive level in the form of a broad speed hump.

Sidewalks: 8' wide concrete sidewalks will be provided to circulate around and through the parking area, linking all park elements

Wood Chip Trail: A 6' wide wood chip trail will be developed to circulate through the southern woodlands, including the area in the southwest which may be used for a future activity building/gymnasium if a suitable alternative site is not obtained elsewhere. Regular maintenance will be required to replenish the woodchips, otherwise rutting of soil is expected. Also in this area a frisbee golf course could be developed provided conflicts can be eliminated between the trails and the alignment of the "holes". There is no funding proposed for the frisbee course and any portions of the course would be removed if a conflict arises pending determination of use for a proposed future activity building/gymnasium.

Parking: The following table indicates how the Master Plan provides sufficient parking given the demands of the facility mix:

Facility	# of spaces
Youth Soccer (5 fields @ 80 spaces each)	400
Adult Soccer (1 field @ 80 spaces)	80
Group Pavilion, Playground, Trails	70
Tennis, Skate Area, Basketball, Volleyball	200
Total Parking	750

Parking bays are widely spaced to allow grading of depressed heavily landscaped swales between so that stormwater pipe use is minimized, thereby reducing potential trench rock excavation

Signage: A comprehensive signage program utilizing Gwinnett County park standards will be developed.

Maintenance Facility: Located in the northeast corner of the site, the fenced compound includes a paved yard and a 1,200 square foot building with storage bays and a staff office and restroom. This building can be expanded to include sports association storage if the association pays costs for same and work is added during the design of the maintenance building.

Open Meadow: Central to the Park and adjacent to the lake, large play area, and group pavilion, this area will be graded to preserve large specimen oak trees and provide a dramatic view of the lake and woodlands surrounding it.

Landscape Development: Extensive landscaping is envisioned and a conceptual level representation is included in the color Master Plan graphic. Screening to contain light spill and glare will be necessary, particularly along the eastern side of the youth soccer complex. Along the banks of the lake, a memorial garden area is to be set aside for future memorials appropriate to the park setting.

Picnic and Play Areas: An octagonal 60' structure similar to that at Collins Hill Park will be constructed overlooking the lake. An adjacent lawn and large play area will be provided together with a small restroom building and a sand volleyball court. The four fixture, free standing restroom building will serve the youth soccer fields pending development of a larger concession with restrooms in a later phase.

C. Sports Facilities

Youth Soccer Complex: This complex will be terraced on one level with five adjacent full size fields. Given the shallow depth to bedrock in the subgrade under much of the terrace, the area will be elevated with fill to bridge over questionable areas. The fill will be obtained from the lake, parking areas, and youth skate area as necessary to achieve a balance of cut and fill. Fill quality is anticipated to be compromised by larger rock fragments, so careful monitoring of fill placement is required. The areas of the site where thin soils overlay poorly drained shallow bedrock have developed soils of high plasticity which may be incorporated into deeper fills if properly monitored during construction.

The field surface will be pitched to a crown at the center of the fields with a slope of approximately 1%. This flat slope is made possible by incorporation of a sand profile turf system including coarse river sand, subdrainage piping, organic amendment sod and irrigation. Storm water will in large part percolate through the sand profile to the subdrain pipes. These pipes will convey water to trunk storm lines or to daylight swales at the perimeter of the field. Deep cut for storm pipes is to be avoided as this will almost certainly create trench rock excavation conditions

All fields will be lighted to minimize spill, glare, and sky glow. As lighting will be a later phase improvement, conduits will be installed in the first phase across the fields to the proposed light pole locations. The pole locations are based on a preliminary design prepared by a lighting manufacturer. Modified pole foundations may be required for the final design to minimize rock core drilling requirements. It is suggested that the Contractor during Phase I provide test pit excavations with a suitable back hoe ripper to identify actual depth to core drillable rock. Some of the poles on the east side of the field are in deeper fills. Given the probable rocky nature of the fill material, monitored placement of higher quality fill will be required to assure attainment of compacted lifts that can be readily drilled for a pole foundation during a later phase.

For maintenance, the light poles must be equipped with climbing steps and platforms to allow bulbs to be changed by maintenance staff without the need for a heavy bucket truck. The sand profile system is budgeted for a thickness of 6 inches. This is too thin to support the weight of heavy vehicle loads and would rut if trafficked upon. Other maintenance vehicles anticipated would be "Cushman" type personnel transporters and lawn mowers. These vehicles should be equipped with wider flotation type tires to properly distribute the weight load. It is suggested that warning signs be placed at the drive gate field entrances regarding allowable vehicular weight and tire type. The benefit of the single terrace approach is that as areas of the sod wear in front of the goals, fields can be shifted or rotated 90 degrees to distribute the wear pattern and allow sod repair or regeneration to proceed without shutting down the entire complex. It is important when shifting fields to avoid aligning goals with the light poles as the goalie on the opposite side of the field may be blinded by the glare of the aligned lights when high kicks approach the goal.

Chain-link fences will be provided at the perimeter of the terrace. Single pedestrian and drive gates will be provided at several locations, all of which can be locked to keep unauthorized vehicles off of the field surface. In a later phase, a kicking wall (or walls) will be provided on suitable areas outside of the fenced enclosure (or otherwise incorporated into the fenced enclosure). Kicking walls allow for soccer kicking practice. A large open warm-up area will be provided at the north end of the soccer terrace near the maintenance building. A small fenced play area will be aligned with the northwest corner of the youth soccer terrace to provide an enclosed secured environment with minimal equipment for tots and other small children.

Spectators will observe the games from the sidelines (30 feet is provided between fields). Moveable bleachers may be provided, but are not a budgeted construction item. Between the parking lot and the fields, a common areas for spectators will be developed to reflect the most current standards of the Gwinnett Parks Department including paved areas with concrete, benches, picnic tables, waste receptacles, and shade trees grown in a sand profile, irrigated, common area lawn. In a later phase, the common area will have a standard design large concession building with restrooms and storage as well. If the youth soccer association elects to participate in the added cost during the design phase of the soccer maintenance building, then added storage bays can be incorporated into that building as well.

Adult Soccer Field: A single full size lighted field is set aside for adult use, centered along the north property line, well separated from other activities. This would be developed in a later phase and is otherwise constructed identically to the youth fields. This field will share the central concession and restroom building located at the youth soccer fields.

Youth Skating Area: Gwinnett County's first skating facilities are presently under construction at Pinckneyville Park. This master plan incorporates prototypical layouts reflective of that plan with certain modifications. A larger free skating area is reflected in this Master Plan based on internal staff observations of the larger potential demand for this activity. Otherwise, the

concession and restroom facilities as well as the roller court with dasher boards and spectator areas are similar to Pinckneyville.

Sand Volleyball Courts: A pair of courts are placed side by side near the skating area to capitalize on the age group similarities. The sand courts are per standards developed in other Gwinnett Parks. A single sand volleyball court is to be placed near the large group pavilion to support that use as well. The location allows common use of the restroom facilities at the skate area..

Basketball Courts: Again, a pair of courts are placed side by side near the skating area to capitalize on the age group similarities. The basketball courts are fenced and unlighted and are located in a highly visible area near the front of the Park. The location allows common use of the restroom facilities at the skate area..

Tennis Courts: Four courts in two sets of two are placed side by side north of the skating area with additional buffer in consideration of the tennis users' preference for a more remote location. This siting, however, does allow common use of the restroom facilities at the skate area..

6.0 Alternative Development Concepts and Master Plan

A total of three alternative development concepts were prepared and presented to the Steering Committee. Following this, a hybrid plan, called the Preliminary Master Plan, was developed to reflect a consensus approach to the Park's development.

Concept Plans A, B, and C

All three concept plans (refer to the following pages) represent identical development programs , but vary in terms of spatial layout, extent of reuse of existing facilities, and adjacency. The elements of each concept are discussed in the following narrative:

Concept Plan A

- The main park drive and entry remains at the existing point on Rabbit Hill Road, sufficient parking is provided for all site uses (740 spaces in a geometrical layout), about 700 feet of the existing drive system is retained from the abandoned subdivision;
- Six soccer fields are located along the east and north property lines, one of then will be set aside for adult use. All are walking distance to a central concession and restroom building;
- The maintenance facility is located in roughly the north central area of the Park near existing water supply lines;
- An area reserved for a possible activity/gymnasium building is shown in the southwest quadrant of the Park;
- The group pavilion is located in the upper end of the southeast corner where a wooded valley is preserved, adjacent to an open grassed area, sand volleyball courts, a large play area and a small restroom building;
- Two sand volleyball courts are located in the center of the Park near several large specimen oak trees;
- A youth skating park is located north of the main drive near the park entry, including a roller court, free skate area and a restroom concession building;
- Four tennis courts are located along the existing park drive central to the Park;
- A paved multi-use trail loop circulates around the perimeter, 1.5 miles in length;
- Basketball courts are situated very close to the Rabbit Hill Road entry;
- Stormwater wetlands or ponds are shown in the southeast and northeast corners of the site; and
- An area reserved for future expansion is shown in the northwest quadrant.

Concept Plan B

- The main park drive and entry remains at the existing point on Rabbit Hill Road. Sufficient parking is provided for all site uses (700 total spaces in a curvilinear layout). Only a few hundred feet of the existing drive system is retained from the abandoned subdivision;
- Six soccer fields are located along the east and north property lines, one of them will be set aside for adult use, all are walking distance to a central concession and restroom building;
- The maintenance facility is located in the northwest corner of the Park;
- An area reserved for a possible activity/gymnasium building is shown in the southwest quadrant of the Park;
- The group pavilion is located in the center of the Park, on axis with the main park drive, adjacent to a 2.9 acre lake, an open grassed area, sand volleyball courts, a large play area, and a small restroom building;
- Two sand volleyball courts are located near the park entry and within walking distance of the youth skate area restroom facilities;
- A youth skate park is located north of the main drive central to the Park, including a roller court, expanded free skate area, and a restroom concession building;
- Four tennis courts are located in the northwest corner of the Park within walking distance of the youth skate area restroom facilities;
- A paved multi-use trail loop circulates around the perimeter, 1.6 miles in length;
- Basketball courts are situated very close to the Rabbit Hill Road entry; and
- Stormwater wetlands or ponds are shown in the southeast and northeast corners of the site.

Concept Plan C

- The main park drive and entry remains at the existing point on Rabbit Hill Road. Sufficient parking is provided for all site uses (756 total spaces in a curvilinear layout). About 700 feet of the existing drive system is retained from the abandoned subdivision;
- Five youth soccer fields are located along the east property line and one adult field is set aside along the north property line; all are walking distance to a central concession and restroom building;
- The maintenance facility is located in the northwest corner of the Park;
- An area reserved for a possible activity/gymnasium building is shown in the southwest quadrant of the Park;
- The group pavilion is located in the center of the Park, on axis with the main park drive, adjacent to a 2.4 acre lake, an open grassed area, sand volleyball courts, a large play area, and a small restroom building. This area includes four large specimen oaks defining the perimeter of the open lawn area;
- Two sand volleyball courts are located near the park entry and within walking distance of the youth skate area restroom facilities;

- A youth skate park is located north of the main drive central to the Park, including a roller court, expanded free skate area, and a restroom concession building;
- Four tennis courts are located in the northwest corner of the Park next to the adult soccer field with a 700 foot walking distance to the youth skate area restroom facilities;
- A paved multi-use trail loop circulates around the perimeter, 1.7 miles in length;
- Basketball courts are situated very close to the Rabbit Hill Road entry; and
- Stormwater wetlands or ponds are shown in the southeast and northeast corners of the site.

Evaluation of Alternative Concepts

Both DCS staff and Steering Committee members selected Concept Plan C as the basis for further refinement as a Preliminary Master Plan (see February 14 memo in Appendix)

Plan C was favored based on the following reasons:

- Better separation of adult from youth soccer; and
- Larger, better defined core meadow area with existing trees and large playground overlooking the lake.

Preliminary Master Plan

The following refinements were requested to be incorporated into the Preliminary Master Plan by the Steering Committee:

- Create a subsidiary loop of the multi-purpose trail (perhaps around the proposed pond) with a very flat gradient to accommodate handicapped park users and beginning rollerbladers;
- Revise the horizontal alignment of the main park drive so that most park users are directed to the soccer complex parking area before they must stop and turn their vehicles. Access the Group Pavilion by means of a stub drive off of the main park drive;
- Add a tot-lot to the soccer complex in a location where it will be convenient to those soccer fields most remote from the large playground planned for the picnic area;
- Reduce the space between the soccer fields to 30', and prepare a grading plan and soil profile which will eliminate the need to place drainage swales between the five soccer fields in the youth complex. The proposed soil profile for the soccer playing surface should include a significant (6" or greater) layer of sand, sub-surface drainage and single ridge grading pattern in order to reduce the degree of slope needed to drain the playing fields;
- Attempt to light the soccer fields entirely with poles located at the perimeter of a combined five field array in order to eliminate the need for light poles between any of the youth association soccer fields. Utilize high cutoff fixtures to light the soccer fields;

- Revise the array of site features on Concept "C" so that the maintenance compound is moved to the north of Field B and to the east of Field A. Move the proposed tennis courts near the northwestern most corner of the Park below Field A;

Additional comments from staff included the following:

- Adjust the multi-purpose trail alignment to surround, rather than split the preserved woodlands in the eastern corner of the Park. This will provide the largest possible zone for the array of either a potential disk golf course or a series of mulch nature trails;
- Move the Group Pavilion location closer to the proposed turnaround in order to limit the tendency of pavilion users to drive into the passive turf space and to create a larger unbroken turf area to the immediate east of the Group Pavilion. Revise the proposed location of the restroom building serving the Picnic Pavilion accordingly;
- Assume that the freeskating and hockey zones of the Roller Sports area will be lighted, and adjust their proximity to the property boundary as needed; and
- Provide a comprehensive pedestrian solution in the next phase of design that will show how every element of the Park is linked to each other by means of sidewalks and multi-purpose trails. Insure that this system allows for park users to walk a loop around the five-field youth soccer complex by means of this system.

All of the above elements requested in the review process were reflected in the Preliminary Master Plan. The plan was developed with major interval contours and a balanced grading approach was established. A cost estimate was prepared for all elements (see Appendix).

Final Master Plan

The following review comments and refinements were reflected in the final color rendered Master Plan Graphic. The staff comments included the following:

- Move the maintenance compound to the north so that it is near the northernmost corner of the adult soccer field. Move the proposed tot-lot to the position vacated by the maintenance compound. Enclose the tot lot by a fence, which joins to the soccer field perimeter fence, and provide an entrance gate into the tot lot zone from the interior of the soccer fields. The sidewalk parallel to the parking lot and running between the parking lot and the soccer fields should be shown at multi-purpose trail width, and must connect to the perimeter asphalt multi-purpose trail by means of an extension past the tot lot and maintenance compound;

- Show a mulch trail loop, which takes advantage of the preserved open space east and west of the proposed lake. As it will be a walking trail only, it can be shown at 5'-6' width and can switchback up and down steeper slopes; and

- Move the tennis courts in a northerly direction to move them further away from the anticipated noise emanating from the skate park elements.

Additional comments from the Citizen Steering Committee included the following:

- Provide a kicking wall for the youth soccer complex.

Upon presentation if the final draft, staff and the Committee requested further refinement of the plan to include:

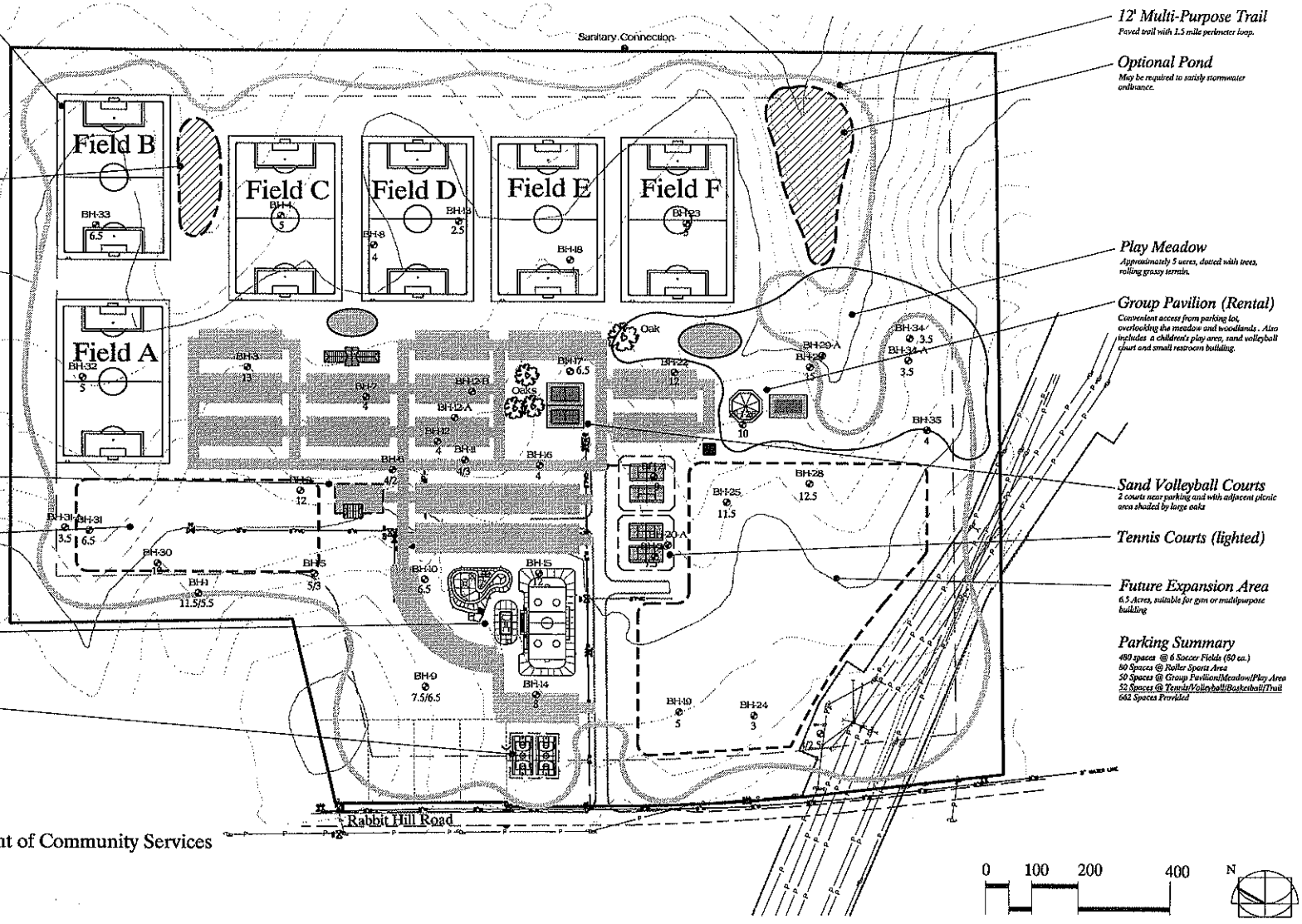
- Addition of sidewalks to provide a sidewalk connection all around the parking bays; and
- Additional curvature of the entry drive and realignment of the first intersection for parking access such that 90 degree intersections result.

After further review CERULEA proposed the final modifications to include:

- Pulling the main trail crossing back proximal to the first driveway intersection; and
- Removing notation references to "Meadow" from the plan where the potential future activity building/gymnasium site is located.

The final revised plan was presented to the Board of Commissioners on March 28, 2000, and the plan was subsequently adopted.

Rabbit Hill Park



Soccer Complex
6 lighted fields, (5) Youth and (1) Adult Fields Central Concession Building w/ Small Play Area. Generally set on fill to avoid shallow rock and located to minimize amount of imported fill required.

Stormwater Wetland
Empoundment to assure satisfaction of county stormwater ordinance. Heavily planted for natural cover.

Maintenance Facility
Fenced and paved yard with 30x40' building.

Future Expansion Area
2.4 Acres

Roller Sports Area
Common area with restroom, full size court with dasher boards and rollerblade course, all lighted.

Basketball Courts (2)

12' Multi-Purpose Trail
Paved trail with 1.5 mile perimeter loop.

Optional Pond
May be required to satisfy stormwater ordinance.

Play Meadow
Approximately 5 acres, dotted with trees, rolling grassy terrain.

Group Pavilion (Rental)
Convenient access from parking lot, overlooking the meadow and woodlands. Also includes a children's play area, sand volleyball court and small restroom building.

Sand Volleyball Courts
2 courts near parking and with adjacent picnic area shaded by large oaks

Tennis Courts (lighted)

Future Expansion Area
6.5 Acres, suitable for gym or multipurpose building

Parking Summary
480 spaces @ 6 Soccer Fields (80 ea.)
80 Spaces @ Roller Sports Area
50 Spaces @ Group Pavilion/Meadow/Play Area
52 Spaces @ Tennis/Volleyball/Basketball/Trail
662 Spaces Provided

Concept A

Prepared for
Gwinnett County, Department of Community Services
Prepared by
CERULEA, Inc.
February 14, 2000

Rabbit Hill Park

Soccer Complex
6 lighted fields, (5) Youth and (1) Adult Fields Central Concession Building w/ Small Play Area. Generally set on fill to avoid shallow rock and located to minimize amount of imported fill required.

Stormwater Wetland
Empoundment to assure satisfaction of county stormwater ordinance. Heavily planted for natural cover.

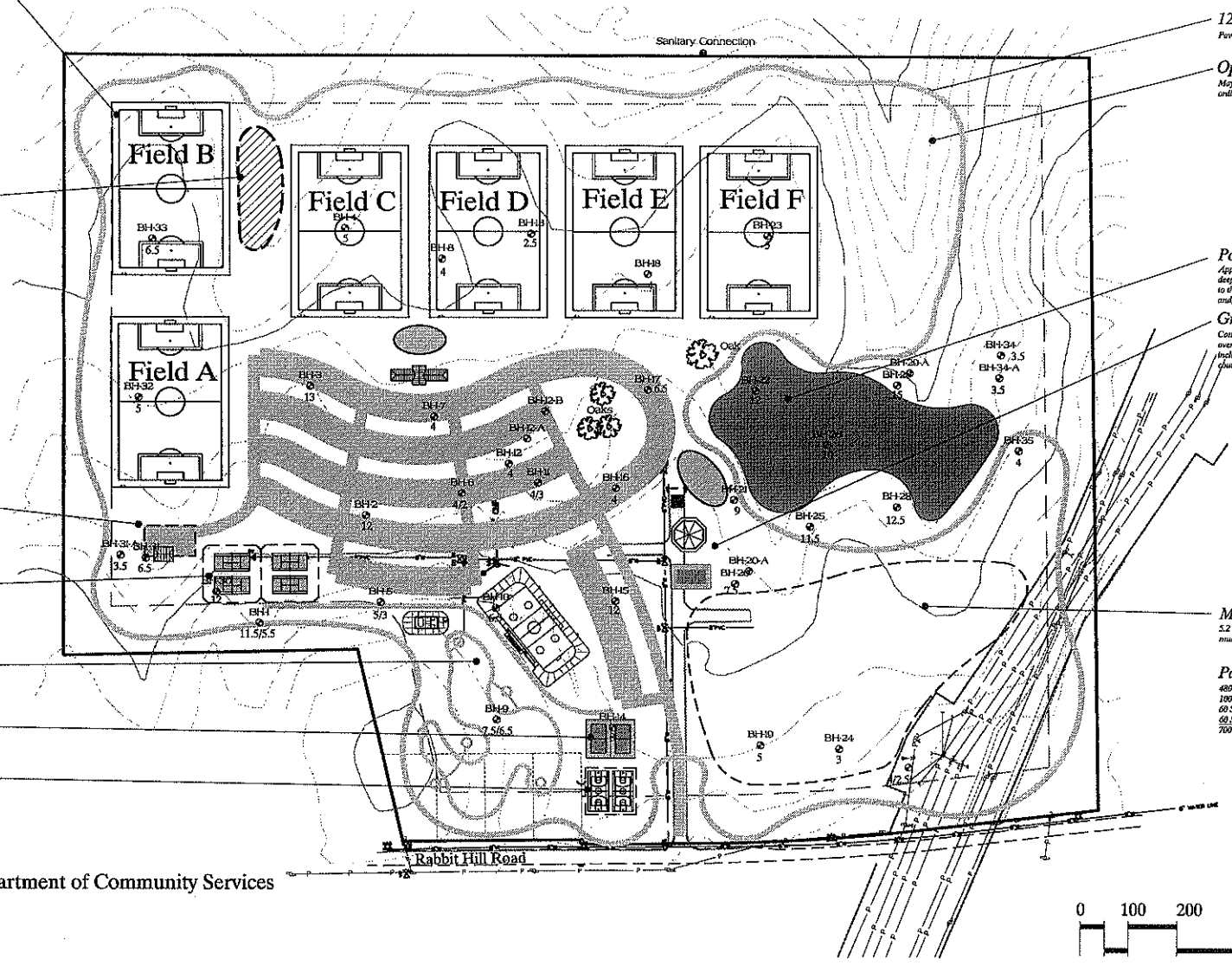
Maintenance Facility
Fenced and paved yard with 30'x40' building.

Tennis Courts (lighted)
4 courts near parking and adjacent to roller area restroom

Roller Sports Area
Common area with restroom, full size court with dasher boards and large rollerblade course incorporated into slope, all lighted.

Sand Volleyball Courts
2 courts near parking and a short distance from roller sports area restroom.

Basketball Courts (2)



12' Multi-Purpose Trail
Paved trail with 1.6 mile perimeter loop.

Optional Stormwater Wetland
May be required to satisfy stormwater ordinance.

Pond
Approx 2.9 acre basin to be excavated from deeper subsoil on the site. Direct surface water to the pond from around site via grassed swales and/or concrete swales

Group Pavilion (Rental)
Convenient access from parking lot, overlooking the pond and woodlands. Also includes a children's play area, sand volleyball court and small restroom building.

Meadow/Future Expansion Area
5.2 acre area suitable for future gym or multipurpose building and associated parking.

Parking Summary
480 spaces @ 6 Soccer Fields (80 ea.)
100 Spaces @ Roller Sports Area
60 Spaces @ Group Pavilion/Meadow/Play Area
60 Spaces @ Tennis/Volleyball/Basketball/Trail
700 Spaces Provided

0 100 200 400 N

Concept B

Prepared for
Gwinnett County, Department of Community Services
Prepared by
CERULEA, Inc.
February 14, 2000

Rabbit Hill Park

Soccer Complex
6 lighted fields. (5) Youth and (1) Adult Fields with central Concession Building. Generally set on fill to avoid shallow rock and located to minimize amount of imported fill required.

12' Multi-Purpose Trail
Paved trail with 1.7 mile perimeter loop.

Optional Stormwater Wetland
May be required to satisfy stormwater ordinance.

Pond
Approx 2.4 acre basin to be excavated from deeper subsoil on the site. Direct surface water to the pond from around site via grassed and/or concrete swales. Excavate to rock level, then pressure rock exposed rock as feature of lake shores.

Group Pavilion (Rental)
Convenient access from parking lot, overlooking the pond and woodlands. Also includes a large children's play area, and sand volleyball court.

Tennis Courts (lighted)
4 courts near parking and adjacent to roller area restroom

Maintenance Facility
Fenced and paved yard with 30x40' building.

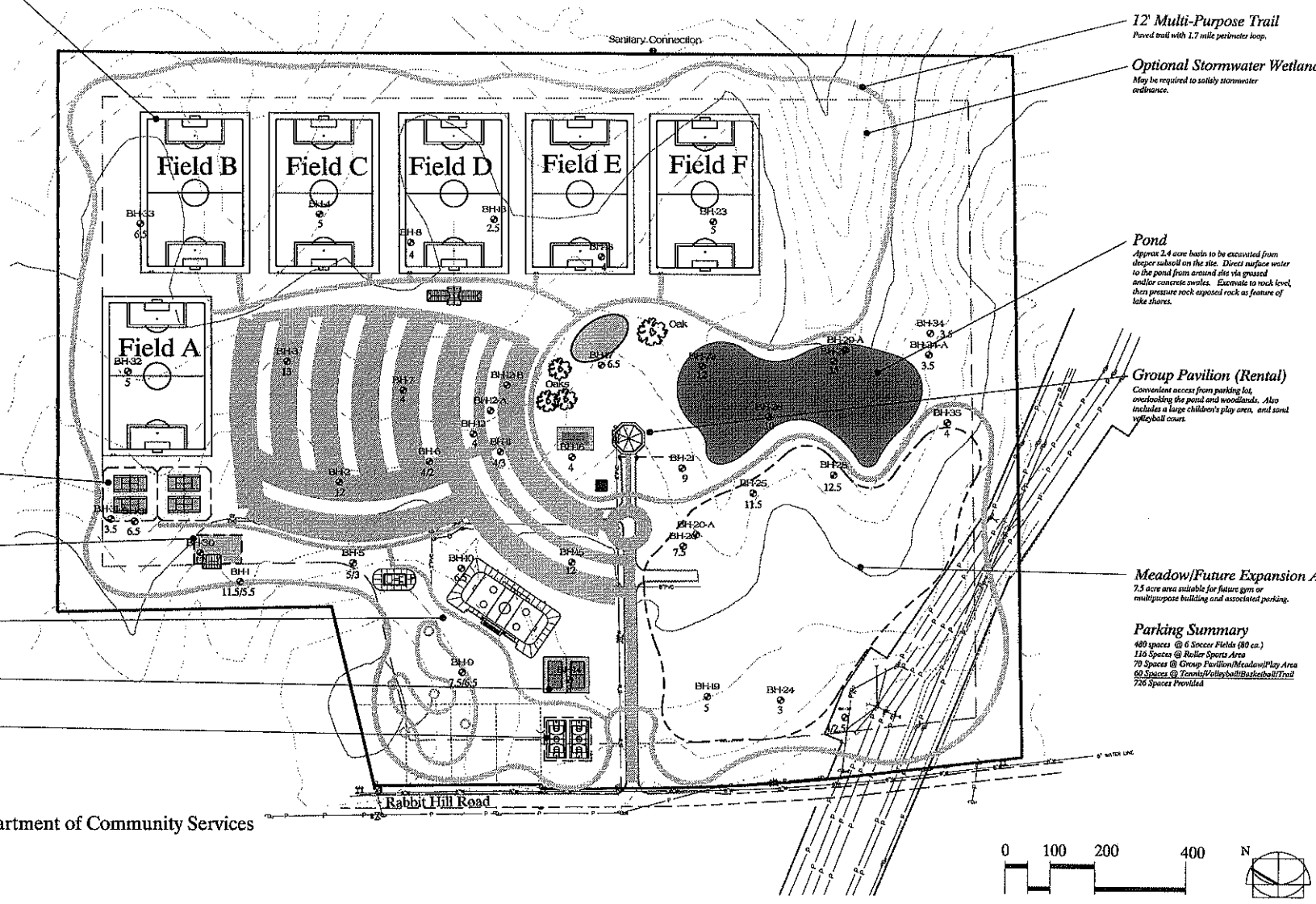
Roller Sports Area
Common area with restroom, full size court with dasher boards and large rollerblade course incorporated into slope, all lighted.

Sand Volleyball Courts
2 courts near parking and a short distance from roller sports area restroom.

Basketball Courts (2)

Meadow/Future Expansion Area
7.5 acre area suitable for future gym or multipurpose building and associated parking.

Parking Summary
480 spaces @ 6 Soccer Fields (80 ea.)
116 Spaces @ Roller Sports Area
70 Spaces @ Group Pavilion/Meadow/Play Area
60 Spaces @ Tennis/Volleyball/Basketball/Trail
726 Spaces Provided



Concept C

Prepared for
Gwinnett County, Department of Community Services
Prepared by
CERULEA, Inc.
February 14, 2000

Rabbit Hill Park

Youth Soccer Complex
(5) Lighted Fields with central Concession Building. Generally set on fill to avoid shallow rock and located to minimize amount of imported fill required. Sand Profile field surface with subdrainage and a 1% slope crown. Fields are set on one terrace and lights are set at the perimeter to allow rotation of fields when sod wears on goal axis.

Children's Play Area
A secondary playground for those using adjacent soccer fields. Basic equipment will be provided, but not the quantity or diversity of equipment in the main playground near the lake.

Maintenance Facility
Fenced and paved yard with 30'x40' building. Standard building can be expanded with support of youth soccer association to provide overhead storage bays accessible directly from the field

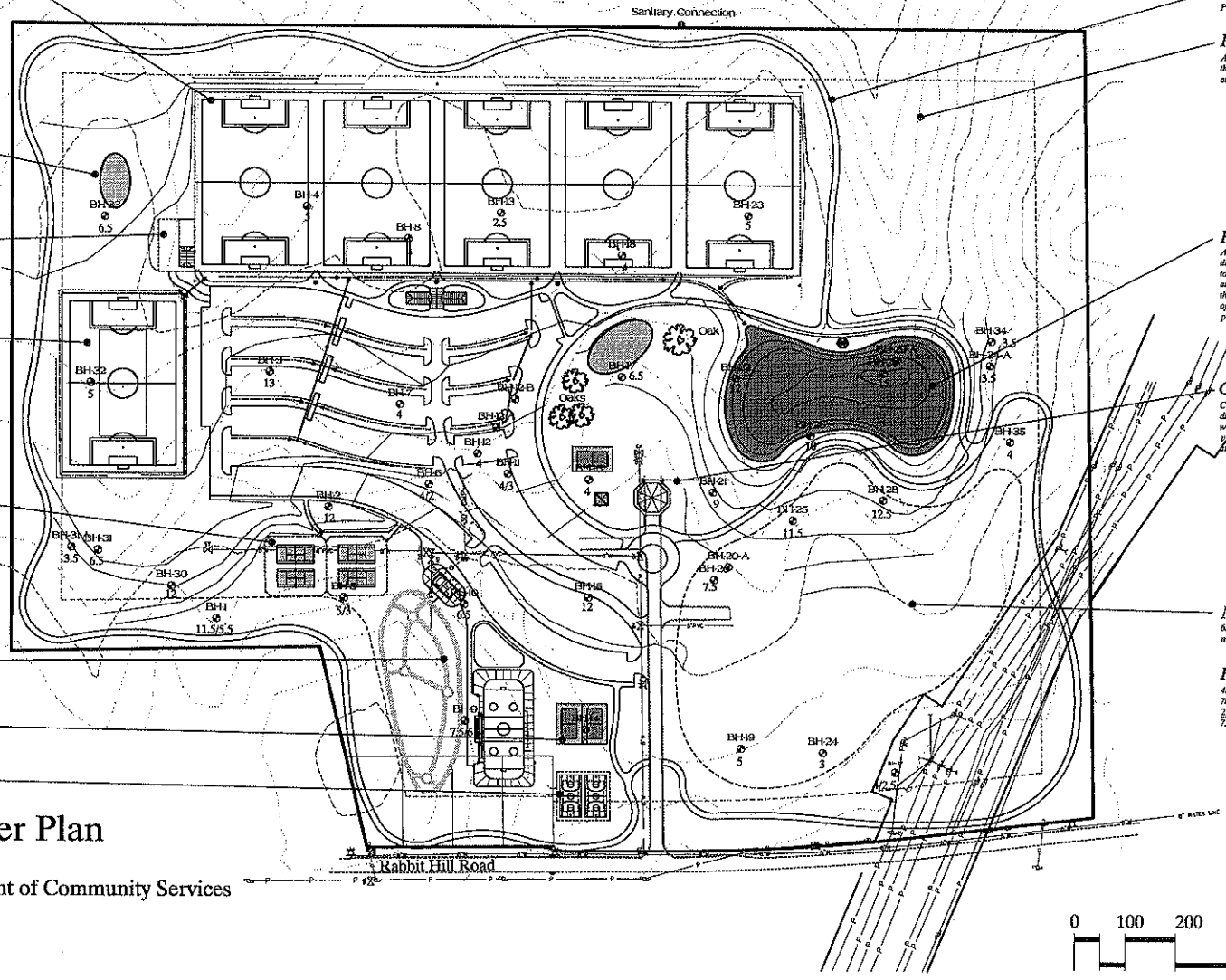
Adult Soccer
(1) Lighted Field, generally set on fill to avoid shallow rock and located to minimize amount of imported fill required. Sand Profile field surface with subdrainage and a 1% slope crown.

Tennis Courts (lighted)
4 courts near parking and adjacent to court area restroom.

Roller Sports Area
Common area with restroom, full size court with dasher boards and large rollerblade course incorporated into slope, all lighted.

Sand Volleyball Courts
2 courts near parking and a short distance from court sports area restroom.

Basketball Courts (2)



12' Multi-Purpose Trail
Paved trail with 1.6 mile perimeter loop.

Potential Frisbee Golf Course
A 9 hole or larger layout may be developed in this valley or at the proposed building site as an interim use.

Pond
Approx 2.0 acre basin to be excavated from steeper subsoil on the site. Direct surface water to the pond from around site via grassed and/or concrete swales. Excavate to rock level, then pressure wash exposed rock as a feature of the lake shores. Provide small group pavilion at lake shore.

Group Pavilion (Rental)
Convenient access from parking lot w/ drop-off area. Overlooking the pond and woodlands. Also includes a large children's play area, small restroom building, open lawn area, and sand volleyball court.

Meadow/Future Expansion Area
6.9 acre area suitable for future gym or multipurpose building and associated parking.

Parking Summary
480 spaces @ 6 Soccer Fields (80 ea.)
70 Spaces @ Group Pavilion/Meadow/Playground /Trail
200 Spaces @ Court Sports/Trailhead
750 Total Spaces

Preliminary Master Plan

Prepared for
Gwinnett County, Department of Community Services
Prepared by
CERULEA, Inc.
February 22, 2000

Rabbit Hill Park

Youth Soccer Complex
(5) Lighted Fields with central Concession Building. Generally set on fill to avoid shallow rock and located to minimize amount of imported fill required. Sand Profile field surface with subdrainage and a 1% slope crown. Fields are set on one terrace and lights are set at the perimeter to allow rotation of fields when sod wears on goal axis.

Children's Play Area
A fenced tot playground for those using adjacent soccer fields. Basic equipment will be provided, but not the quantity or diversity of equipment in the main playground near the lake.

Maintenance Facility
Fenced and paved yard with 30'x40' building. Standard building can be expanded with support of youth soccer association to provide overhead storage bays.

Adult Soccer
(1) Lighted Field, generally set on fill to avoid shallow rock and located to minimize amount of imported fill required. Sand Profile field surface with subdrainage and a 1% slope crown.

Tennis Courts (lighted)
4 courts near parking and a short walk to court area restroom.

Roller Sports Area
Common area with restroom, full size court with dasher boards and large rollerblade course incorporated into slope, all lighted.

Sand Volleyball Courts
2 courts near parking and a short distance from court sports area restroom.

Basketball Courts (2)

12' Multi-Purpose Trail
Paved trail with 1.6 mile perimeter loop. Benches will be provided. Loops around youth soccer and lake will be 12' wide.

Mulched Woodland Trail
A six foot mulch trail will be situated in both the valley and the upper meadow. A further possibility in these areas are a frisbee golf layout. Any elements in the upper meadow would be an interim use pending determination of possible building siting.

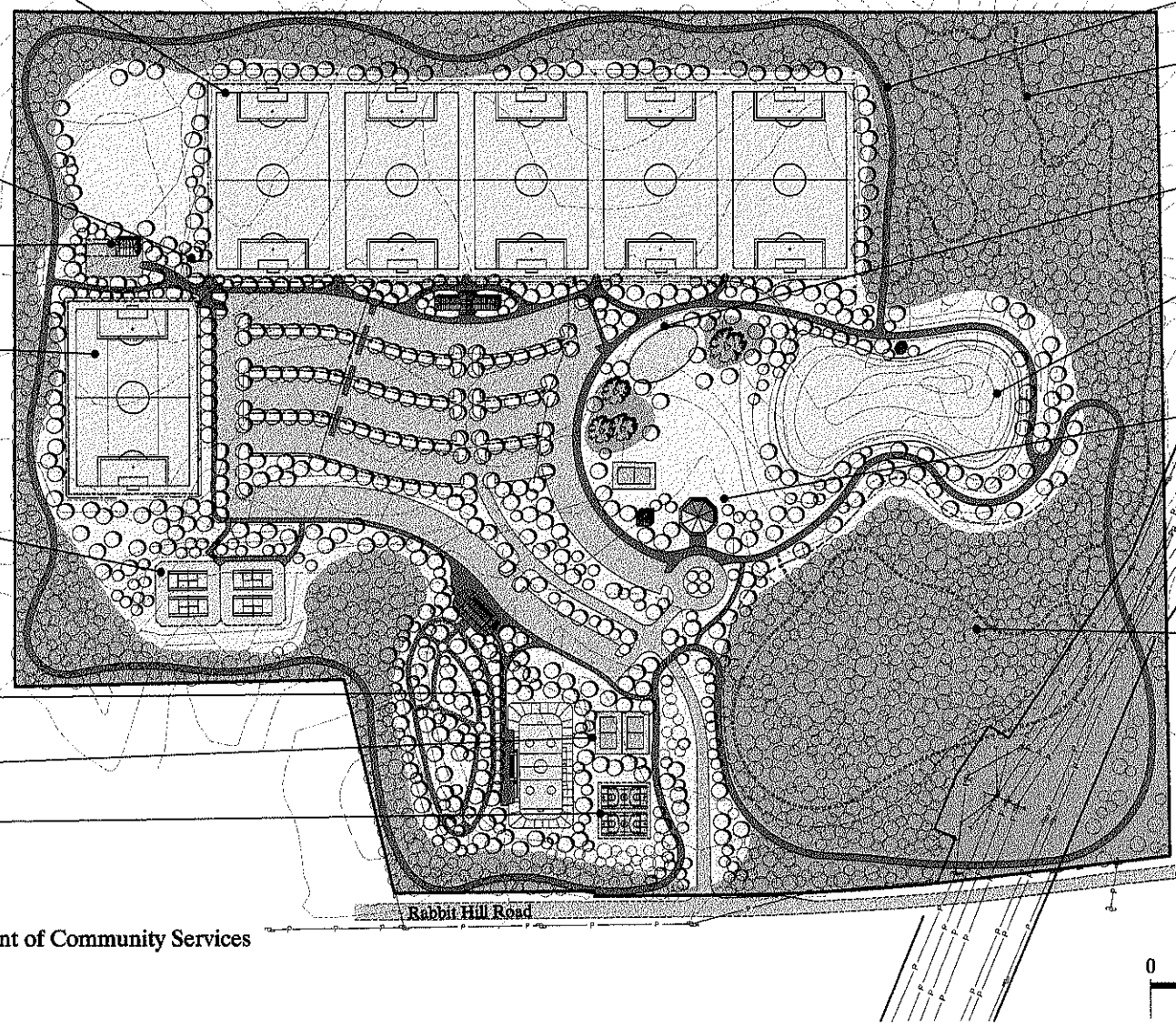
Children's Play Area
A large mulch surface play area with seperate equipment layouts for tots and K-6 age groups. Includes swings and seating.

Pond
Approx 2.0 acre basin to be excavated from deeper subsoil on the site. Direct surface water to the pond from around site via grassed and/or concrete swales. Excavate to rock level, then pressure wash exposed rock as a feature of the lake shores. Provide small group pavilion at lake shore together with area reserved for memorial garden.

Group Pavilion (Rental)
Convenient access from parking lot w/ drop-off area. Overlooking the pond and woodlands. Also includes a small restroom building, open lawn area, and sand volleyball court.

Future Expansion Area
6.9 acre area suitable for future gym or multipurpose building and associated parking.

Parking Summary
486 spaces @ 6 Soccer Fields (80 ea.)
70 Spaces @ Group Pavilion/Playground /Trail
200 Spaces @ Court Sports/Trailhead
750 Total Spaces



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Master Plan

Prepared for
Gwinnett County, Department of Community Services
Prepared by
CERULEA, Inc.
March 10, 2000

GWINNETT COUNTY
Department of Community Services
Planning, Development and
Special Operations
(770) 822-8840
Fax: (770) 822-8835

MEMORANDUM

TO: Citizen Steering Committee Members and Senior Administrative Staff

FROM: Rex Schuder, Senior Community Planner

SUBJECT: Rabbit Hill Park Site Master Plan – Steering Committee and Staff Meeting Schedules

DATE: January 14, 2000

A meeting was held with the Citizen Steering Committee for the above referenced project on January 13, 2000. At that meeting, we scheduled all of the working meetings for the committee **All steering committee and staff meetings will be held in the Parks and Recreation Large Conference Room in our 3rd floor offices in the Gwinnett Justice and Administration Center in Lawrenceville.** The steering committee and staff meeting schedules are as follows:

STEERING COMMITTEE MEETING SCHEDULE

1. Park Facilities Programming and Site Inventory/Analysis Meeting - Monday, Jan. 31st, at 6:00p.m.

3. Presentation of Three Alternative Conceptual Plans – Monday, Feb. 14th, at noon.

4. Presentation of the Preliminary Master Plan – Tuesday, Feb. 22nd, at noon.

5. Presentation of the Final Master Plan – Monday, Feb. 28th at 6:00 p.m.

STAFF MEETING SCHEDULE

1. Park Facilities Programming and Site Inventory/Analysis Meeting - Monday, Jan. 31st, at 3:30p.m.

3. Presentation of Three Alternative Conceptual Plans – Monday, Feb. 14th, at 10:00 a.m.

6. Presentation of the Preliminary Master Plan – Tuesday, Feb. 22nd, at 10:00 a.m.

7. Presentation of the Final Master Plan – Monday, Feb. 28th at 3:30 p.m.

Please mark these dates on your calendar. Planning has been asked to place the master plan development for Rabbit Hill Park on a fast track timeline. If you are unable to attend any of the relevant scheduled meetings, please send a representative. Thank you for your cooperation.

GWINNETT COUNTY
Department of Community Services
Planning, Development and
Special Operations
(770) 822-8840
Fax: (770) 822-8835

MEMORANDUM

TO: Citizen Steering Committee Members and Senior Administrative Staff

FROM: Rex Schuder, Senior Community Planner

SUBJECT: Rabbit Hill Park Site Master Plan – Program Recommendations

DATE: February 4, 2000

The Park Facilities Programming and Site Inventory/Analysis Meetings for both the Citizen Steering Committee and staff took place on Monday, January 31st. It was explained to both groups that the core feature of the park would be a soccer complex composed of: five full size youth association soccer fields; concession/restroom building with tot-lot; shady outdoor dining zone; kicking wall; one full size adult field; adequate parking for the entire soccer complex. It was explained that the soccer complex would use up approximately one half of the total park acreage.

The following list of program items are those which were proposed by both groups for inclusion in the remaining half of the park acreage.

1. Perimeter 12' wide paved multi-purpose trail.
2. Picnic areas proximate to preserved woods and including: 60' diameter pavilion; dedicated playground with sufficient size for swings plus play structures for both younger and older children; stand alone restroom building; zone of maintained turf in an irregular shape suitable for use by large picnic groups; dedicated parking; lighting for pavilion/playground area which will allow use to continue into the early evening. The maintained turf area would be graded and configured in such a way as to insure unstructured play use into the future.
3. SkatePark with dedicated parking identical to the elements proposed for Pinckneyville Park.
4. Maintenance Compound
5. Basketball Courts

In addition to the above, the Citizen Steering Committee proposed:

1. Two to Four Tennis Courts (not a tennis complex).
2. Sand Volleyball Courts
3. Activity Building
4. Gymnasium

It was explained to the Citizen Steering Committee that our current countywide Capital Program Update Master Plan project had recommended the acquisition of other new park acreage in the Dacula area for the purpose of siting a new Activity Center Building. The Committee noted that even if an alternative location were proposed for an Activity Center, they still believed that the area needs a Gym.

After further consultation with staff, it was determined that the most efficient way to provide for both would be to attach a gymnasium to the future activity building, so that the staff anticipated for the activity building could also oversee the proposed gym. This combined Activity Center/Gym will continue to be proposed for a future land acquisition in the Dacula area outside of both Dacula Park and the Rabbit Hill Park Site. Therefore, we will accommodate the need for basketball at the Rabbit Hill Park Site by means of outdoor basketball courts.

We will, however, attempt to reserve an area of unprogrammed space within the boundaries of the Rabbit Hill Park Site, which would be large enough to accommodate a gym. If the public does not approve the sales tax extension vote this coming November, and we are therefore unable to acquire additional acreage in the Dacula area for a future Activity Center/Gym project, we will reserve a "fall back position by retaining a suitable area of unprogrammed park space.

John Gnoffo with Cerulea, Inc. will now prepare alternative conceptual plans for the next meeting, scheduled for Monday, February 14th (noon for the Steering Committee, 10:00 a.m. for staff) in the Parks and Recreation large Conference Room. Additionally, with regard to meeting schedules, we have tentatively scheduled the presentation of the final master plan to the Gwinnett County Recreation Authority for March 14, 2000 at 7:00 p.m. in the Gymnasium of Best Friend Park. We will let you know if this presentation date becomes firm. Steering Committee members are welcome to attend.

GWINNETT COUNTY
Department of Community Services
Planning, Development and
Special Operations
(770) 822-8840
Fax: (770) 822-8835

MEMORANDUM

TO: Citizen Steering Committee Members and Senior Administrative Staff

FROM: Rex Schuder, Senior Community Planner

SUBJECT: Rabbit Hill Park Site Master Plan – Concept Plan Recommendations

DATE: February 14, 2000

The Alternative Conceptual Plans Presentations for both the Citizen Steering Committee and staff took place on Monday, February 14, 2000. Both the staff and Steering Committees agreed that Concept C needed to be refined into the Preliminary Master Plan through incorporation of their review comments.

The Citizen Steering Committee Comments included the following:

1. Create a subsidiary loop of the multi-purpose trail (perhaps around the proposed pond) with a very flat gradient to accommodate handicap park users and beginning rollerbladers.

2. Revise the horizontal alignment of the main park drive so that most park users are directed to the soccer complex parking area before they must stop and turn their vehicles. Access the Group Pavilion by means of a stub drive off of the main park drive.

3. Add a tot-lot to the soccer complex in a location where it will be convenient to those soccer fields most remote from the large playground planned for the picnic area.

4. Reduce the space between the soccer fields to 30', and prepare a grading plan and soil profile which will eliminate the need to place drainage swales between the five soccer fields in the youth complex. The proposed soil profile for the soccer playing surface should include a significant (6" or greater) layer of sand, sub-surface drainage and single ridge grading pattern in order to reduce the degree of slope needed to drain the playing fields.

5. Attempt to light the soccer fields entirely with poles located at the perimeter of a combined five field array in order to eliminate the need for light poles between any of the youth association soccer fields. Utilize high cutoff fixtures to light the soccer fields.

6. Revise the array of site features on Concept "C" so that the maintenance compound is moved to the north of Field B and to the east of Field A. Move the proposed tennis courts to the buffer line at the northwestern most corner of the park below Field A.

Additional comments from staff included the following:

1. Adjust the multi-purpose trail alignment to surround, rather than split the preserved woodlands in the eastern corner of the park. This will provide the largest possible zone for the array of either a potential disk golf course or a series of mulch nature trails.

2. Move the Group Pavilion location closer to the proposed turnaround in order to limit the tendency of pavilion users to drive into the passive turf space and to create a larger unbroken turf area to the immediate east of the Group Pavilion. Revise the proposed location of the restroom building serving the Picnic Pavilion accordingly.

3. Assume that the freeskating and hockey zones of the Roller Sports area will be lighted, and adjust their proximity to the property boundary as needed.

4. Provide a comprehensive pedestrian solution in the next phase of design that will show how every element of the park is linked to each other by means of sidewalks and multi-purpose trails. Insure that this system allows for park users to walk a loop around the five-field youth soccer complex by means of this system.

John Gnoffo with Cerulea, Inc. will incorporate the above comments into the Preliminary Master Plan and present this to both staff and the Citizen Steering Committee on Tuesday, February 22, 2000. Both presentations will take place in the Parks and Recreation Large Conference Room, with the staff presentation at 10:00 a.m. and the Citizen Steering Committee presentation at noon.

If you have any question regarding this master planning project, please call me at (770) 822-8864.

GWINNETT COUNTY
Department of Community Services
Planning, Development and
Special Operations
(770) 822-8840
Fax: (770) 822-8835

MEMORANDUM

TO: Citizen Steering Committee Members and Senior Administrative Staff

FROM: Rex Schuder, Senior Community Planner

SUBJECT: Rabbit Hill Park Site Master Plan – Preliminary Master Plan Recommendations

DATE: February 25, 2000

The Preliminary Master Plan Presentation for both the Citizen Steering Committee and staff took place on Tuesday, February 22, 2000. Both the staff and Steering Committees agreed that the Preliminary Master Plan be refined into the Final Master Plan through incorporation of their review comments.

The staff comments included the following:

1. Move the maintenance compound to the north so that it abuts the buffer setback line near the northernmost corner of the adult soccer field. Move the proposed tot-lot to the position vacated by the maintenance compound. Enclose the tot lot by a fence, which joins to the soccer field perimeter fence, and provide an entrance gate into the tot lot zone from the interior of the soccer fields. The sidewalk parallel to the parking lot and running between the parking lot and the soccer fields should be shown at multi-purpose trail width, and must connect to the perimeter asphalt multi-purpose trail by means of an extension past the tot lot and maintenance compound.

2. Show a mulch trail loop, which takes advantage of the preserved open space east and west of the proposed lake. As it will be a walking trail only, it can be shown at 5'-6' width and can switchback up and down steeper slopes.

3. Move the tennis courts in a northerly direction to move them further away from the anticipated noise emanating from the skate park elements.

Additional comments from the Citizen Steering Committee included the following:

1. Provide a kicking wall for the youth soccer complex.

John Gnoffo with Cerulea, Inc. will incorporate the above comments into the Final Master Plan and present this to both staff and the Citizen Steering Committee on Monday, February 28, 2000. Both presentations will take place in the Parks and Recreation Large Conference Room, with the staff presentation at 3:30 p.m. and the Citizen Steering Committee presentation at 6:00 p.m.

If you have any question regarding this master planning project, please call me at (770) 822-8864.

GWINNETT COUNTY
Department of Community Services
Planning, Development and
Special Operations
(770) 822-8840
Fax: (770) 822-8835

MEMORANDUM

TO: Citizen Steering Committee Members and Senior Administrative Staff

FROM: Rex Schuder, Senior Community Planner

SUBJECT: Rabbit Hill Park Site Master Plan – Final Master Plan Recommendations

DATE: February 29, 2000

The Master Plan Presentation for both the Citizen Steering Committee and staff took place on Monday, February 28, 2000. Both the staff and Steering Committees agreed that the Master Plan be accepted as the Final Master Plan through incorporation of their review comments.

The staff comments included the following:

1. Rationalize the vehicular intersection between the main park drive, the parking drive serving the Picnic Pavilion and the parking drive serving the skate park by means on creating a single intersection wherein right-of-way is intuitively obvious.

2. Complete the internal pedestrian system by adding sidewalk along the edge of the adult soccer field linking the sidewalk serving the tennis/skatepark to the sidewalk serving the youth soccer complex, and by adding sidewalk to connect the large picnic pavilion area to the skatepark area.

3. Staff recommends that the park be named Rabbit Hill Park.

Additional comments from the Citizen Steering Committee included the following:

1. Provide a kicking wall for the youth soccer complex in the project budget, but wait until we are designing construction documents to locate the wall within the park. The soccer association members will give thought to the best location for the kicking wall in the meantime.

2. Provide a space within the park (the north end of the proposed pond is preferred) where the association (or other community groups) can design and construct (with County review and approval) some sort of memorial location by means of supplying trees, benches and other such items in memory of specific individuals.

3. The committee could not suggest a better name than Rabbit Hill Park, and therefore recommends its adoption.

The Committee was asked for park construction priority recommendations. Cerulea presented a park construction cost estimate broken out into three levels of priority.

The first priority level (Phase I Core Program) was based on the current construction budget of $2.5 million and included the following:

First Priority Level	
Basic Infrastructure, Grading, Contingencies	$1,451,000
Youth Soccer, 5 Fields, No Lights	$664,000
Parking, 400+ cars, Drive, Decel, Walks	$235,000
Small Restroom (4 Fixtures)	$72,000
Maintenance Compound	$78,000
Sub-Total	$2,500,000

The Second Priority Level (First Tier Program Options) contained the list of additional park program features the committee believe should be in the next construction phase, or considered for the first phase of construction if any additional funds come available. The items are listed in the committee's order of priority.

Second Priority Level	
1. Youth Soccer Concession/Restroom Bldg.	$585,000
2. Main Playground and Basketball Courts	$180,000
3. Multi-purpose trail loop @Soccer & Pond	$138,000
4. Sand Volleyball (1 court)	$12,000
5. Picnic Pavilion, Lawn, Parking (50 spaces)	$315,000
Sub-Total	$1,230,000

The third priority level (Second Tier Program Options) contained the remaining items needed to complete the construction of the park according to the master plan. The items are listed in the committee's order of priority.

Third Priority Level	
1. Tennis/Sand Volleyball Courts+Parking	$291,000
2. ½ Youth Soccer Field Lights	$330,000
3. Adult Soccer Field + Parking	$249,000
4. Finish Multi-purpose/mulch Trails = Shelter	$175,000
5. Skatepark + Concession + Parking	$1,027,000
6. ½ Youth Soccer Field Lights	$330,000
7. Adult Soccer Field Lights	$135,000
8. Soccer Complex Tot Lot	$50,000
Sub-Total	$2,587,000

The total estimated park construction costs for all three priority levels is $6,317,000 not including A&E, furnishings or program administrations costs.

John Gnoffo with Cerulea, Inc. will incorporate the above comments into the Final Master Plan and present this to the Board of Commissioners at a meeting tentatively scheduled for Tuesday, March 21, 2000. We will contact steering committee members when this presentation date is firm. If you have any question regarding this master planning project, please call me at (770) 822-8864.

Rabbit Hill Park Master Plan
Gwinnett County Dept. of Community Services
Preliminary Master Plan Design Estimate
Prepared by: CERULEA Incorporated
February 25, 2000

	Description	Quantity	Unit Price	Phase I	Phase II	Phase III
01.2	**Insurance Cost/Bond Cost = 3%**			$102,000.00	$33,750.00	$33,750.00
02.3	**Site Preparation**				$50,000.00	$50,000.00
	Asphalt Removal	1611.00	*$3.00* SY	$4,833.00		
	Curb Removal	2200.00	*$1.50* LF	$3,300.00		
	Other Demolition/Fence Removal	1.00	*$5,000.00* LS	$5,000.00		
	Clearing: Chipping/Spreading/Timber Sale	**48.00**	*$5,000.00* AC	$240,000.00		
	Earthwork - Balanced Cut and Fill w/ topsoil vols.	110000.00	*$2.50* CY	$275,000.00		
	Earthwork - Contingency Stone Removal	50000.00	*$2.50* CY	$125,000.00		
	Tree Protection - fencing save areas	7500.00	*$1.25* LF	$9,375.00		
	Permanent Grassing (allow 7 acres for woodchips)	24.00	*$3,500.00* AC	$84,000.00	$6,000.00	$6,000.00
	Erosion Control - all measures	48.00	*$1,000.00* AC	$40,000.00	$4,000.00	$4,000.00
02.4	**Stormwater System**					
	Headwalls to 36"	22.00	*$300.00* EA	$6,600.00		
	Headwalls 42"	2.00	*$1,200.00* EA	$2,400.00		
	Junction Box/Drop Inlet	2.00	*$1,400.00* EA	$2,800.00		
	Pond Outlet Control Weir & Pipe	1.00	*$15,000.00* LS	$15,000.00		
	Trench Drains (5@ 20' ea. soccer path crossings)	100.00	*$180.00* LF	$18,000.00		
	18"	500.00	*$20.00* LF	$10,000.00		
	24"	400.00	*$25.00* LF	$10,000.00		
	42"	30.00	*$75.00* LF	$2,250.00		
	Path Cross-Drains	12.00	*$500.00* EA		$3,000.00	$3,000.00
	Subdrains	15440.00	*$3.50* LF	$45,040.00		$9,000.00
02.5	**Paving**					
	Asphalt Drive and Parking - Phase I - 400 spaces	10000.00	*$11.75* SY	$117,500.00		
	Asphalt Parking/Drive - Neighborhood Park (50 - 62 sp.)	1886.00	*$11.75* SY		$22,160.50	
	Asphalt Parking - Teen Courts (194)	5870.00	*$11.75* SY			$68,972.50
	Asphalt Drive and Parking - Adult Soccer (92)	3008.00	*$11.75* SY			$35,344.00
	Asphalt Drive Decel Lane Expansion	350.00	*$18.00* SY	$6,300.00		
	Asphalt - Resurface Existing Drive	1468.00	*$3.20* SY	$4,697.60		
	Pavement Marking/Striping @ Parking	1.00	LS	$3,000.00	$1,500.00	$1,500.00
	Wheelstops @ Parking - Phase I	400.00	*$25.00* EA	$10,000.00		
	Wheelstops @ Parking - Phase II	62.00	*$25.00* EA		$1,550.00	
	Wheelstops @ Parking - Phase III	288.00	*$25.00* EA			$7,200.00
	Asphalt Trails - Soccer/Lake Loops	7000.00	*$11.50* SY		$80,500.00	
	Asphalt Trails - Balance of System	5338.00	*$11.50* SY			$61,387.00
	Mulch Trails Allowance	1.00	*$50,000.00* LS			$50,000.00
	Concrete Curb and Gutter (limited)	2000.00	*$7.50* LF	$15,000.00		
	Concrete Curb and Gutter @ Decel	310.00	*$7.50* LF	$2,325.00		
	Concrete Sidewalks Phase I (none in R.O.W.)	22176.00	*$2.25* SF	$49,896.00		
	Maintenance Drive/Court Phase I	7475.00	*$3.50* SF	$26,162.50		
	Concrete Sidewalks Phase II	28135.00	*$2.25* SF			$63,303.75
	Concrete Step Treads	16.00	*$35.00* EA			$560.00
	Step Railings	60.00	*$25.00* LF			$1,500.00

	RABBIT HILL PARK PROGRAM					
02.6	**Sewer Waste System - (Impact Fees Not Included)**					
	6" Ductile Iron	2750.00	*$30.00* LF	$82,500.00		
	Manholes - 4-6 VF	8.00	*$1,200.00* EA	$9,600.00		
	Wastewater Impact Fees	1.00	*$15,085.00* LS	$15,085.00		
02.9	**Water System (small meter services off exist. lines)**					
	Potable Water Piping 2"	555.00	*$12.00* LS	$6,660.00		
	Potable Water Piping 1"	500.00	*$8.00* LS	$4,000.00		
	Potable Water Meter/Tap Fee 2" conces./maint./hockey	1.00	*$4,605.00* LS	$4,605.00		
	Potable Water Meter/Tap Fee 2" irrigation	1.00	*$4,605.00* LS	$4,605.00		
	Potable Water Meter/Tap Fee 1" (small restroom)	1.00	*$1,437.00* LS	$1,437.00		
02.10	**Fire Hydrants/System Amount**					
	Hydrants (assumes re-use of existing)	2.00	*$2,500.00* EA	$5,000.00		
	8" DIP Main (assumes re-use of existing service)	500.00	*$22.00* LF	$11,000.00		
02.12	**Traffic Control Gates - Not Used**					
02.13	**Play Area (2 areas)**					
	Resilient Tiles @ Main Play Area	500.00	*$20.00* SF		$10,000.00	
	K-6 Play Area Equipment 13000sf	1.00	*$110,000.00* LS		$110,000.00	
	Drain/Fabric Allowance	1.00	*$8,500.00* LS		$8,500.00	
	Play Area 5' Walk/Curb	365.00	*$16.00* LF		$5,840.00	
	Fiber Mulch (16,000 sf Woodcarpet)	1.00	*$19,000.00* LS		$19,000.00	
	Soccer Tot Lot	1.00	*$20,000.00* LS		$20,000.00	
02.14	**Court Sports**					
	Tennis, Sets of Two, with nets/fences/lights	2.00	*$90,000.00* EA			$180,000.00
	Basketball, Set of 2, Fenced and Paved/Striped	1.00	*$30,000.00* EA			$30,000.00
	Sand Volleyball - Per Court - w/ timber edge, nets	1.00	*$8,000.00* EA		$8,000.00	
	Sand Volleyball - Per Court - w/ timber edge, nets	2.00	*$8,000.00* EA			$16,000.00
	Roller Court - Dasher Boards, Lights, Spectator Terrace	1.00	*$340,000.00* LS			$340,000.00
	Roller Challenge Course - Allowance	1.00	*$210,000.00* LS			$210,000.00
02.16	**Site Furnishings (Moveable Bleachers NIC)**					
	Picnic Tables (2 ADA) on conc. pad	20.00	*$650.00* EA		$7,000.00	$6,000.00
	Benches, on conc. pad	15.00	*$750.00* EA		$6,000.00	$5,250.00
	Trash Receptacles on conc. pad	20.00	*$500.00* EA	$3,000.00	$3,000.00	$4,000.00
	Picnic Grills, on conc. pads	8.00	*$300.00* EA			$2,400.00
	Hi-lo non-freeze drinking fountain	2.00	*$3,500.00* LS			$7,000.00

	RABBIT HILL PARK PROGRAM					PAGE 3
02.17	**Soccer Fields Amount**					
	Youth Soccer Perimeter Fence - 8' Galv.	3084.00	*$13.00* LF	$40,092.00		
	Adult Soccer Perimeter Fence - 8' Galv.	1190.00	*$13.00* LF			$15,470.00
	Maint. Compound/Play Perimeter Fence- 8' Galv.	500.00	*$13.00* LF	$6,500.00		
	Gates @ Fences	8.00	*$700.00* EA	$4,200.00		$1,400.00
	Lights - Youth Soccer (Phase 1 Conduits allowance)	1.00	*$640,000.00* LS	$15,000.00		$640,000.00
	Lights - Adult Soccer	1.00	*$125,000.00* LS			$125,000.00
	Sodded Turf - Youth Soccer	433574.00	*$0.30* SF	$130,072.20		
	Sodded Turf - Phase I Com. Areas @ Youth Soccer	28000.00	*$0.35* SF	$9,800.00		
	Sand Profile @ Sodded Areas - Phase I	8550.00	*$32.00* CY	$273,600.00		
	Sodded Turf - Adult Soccer	87060.00	*$0.30* SF			$26,118.00
	Sodded Turf - Phase II Common Areas	56000.00	*$0.35* SF		$15,000.00	$5,000.00
	Sand Profile @ Sodded Areas -Adult Soccer	2650.00	*$32.00* CY		$29,000.00	$84,800.00
	Irrigation System (Phase I sodded areas only)	461574.00	*$0.25* LS	$115,393.50		
	Irrigation System (Adult Soccer sodded areas only)	143060.00	*$0.25* LS		$6,000.00	$30,000.00
	Irrigation Well & Lake Pump System	1.00	*$36,000.00* LS	$36,000.00		
02.18	**Buildings**					
	Concession/Restroom	3200.00	*$160.00* SF		$512,000.00	
	Small Restroom	400.00	*$180.00* SF	$72,000.00		
	Roller Sports Restroom/Concession	2200.00	*$160.00* SF			$352,000.00
	Trailer Restroom - 1 Year Lease (alternate)	1.00	*$30,000.00* LS			
	Maintenance Building 30x40	1200.00	*$65.00* SF	$78,000.00		
	Shade Awnings @ Soccer/Play Areas	1.00	*$30,000.00* LS		$30,000.00	
	Group Shelter	2750.00	*$60.00* SF		$165,000.00	
	Small Shelter	856.00	*$35.00* SF			$29,960.00
02.20	**All other Sitework**					
	Buried Electric Cable	2000.00	*$4.00* LF	$8,000.00		
	Pay Phone @ Concession - Activation Fee	1.00	*$360.00* LS		$360.00	
	Roadway/Parking Lights - Power Company Charge	25.00	*$650.00* EA	$9,000.00	$3,000.00	$4,250.00
	Phone Service Trenching in conduit (re-use existing?)	2000.00	*$6.50* LF	$13,000.00		
	Landscape Allowance	1.00	*$200,000.00* LS	$97,000.00	$48,340.00	$54,000.00
	Entry Sign Pylon	1.00	*$7,800.00* EA	$7,800.00		
	Other Signage	1.00	*$5,000.00* LS	$1,500.00	$1,500.00	$2,000.00
	Bike Racks	2.00	*$490.00* EA			$980.00
02.21	Planning Factor/Trench Rock Allowance			$200,000.00	$20,000.00	$20,000.00
	Sub-total All Construction			**$2,499,928.80**	**$1,230,000.50**	**$2,587,145.25**
	A&E Fees	1.00	LS	$187,000.00	$100,000.00	$150,000.00
	07 Subtotal 01..06			**$2,686,928.80**	**$1,330,000.50**	**$2,737,145.25**

RABBIT HILL PARK

Youth Soccer Complex
(5) Lighted Fields with central Concession Building . Generally set on fill to avoid shallow rock and located to minimize amount of imported fill required. Sand Profile field surface with subdrainage and a 1% slope crown. Fields are set on one terrace and lights are set at the perimeter to allow rotation of fields when sod wears on goal axis.

Children's Play Area
A fenced tot playground for those using adjacent soccer fields. Basic equipment will be provided, but not the quantity or diversity of equipment in the main playground near the lake.

Maintenance Facility
Fenced and paved yard with expanded maintenance building to support of youth soccer association with overhead storage bays.

Adult Soccer
(1) Lighted Field, generally set on fill to avoid shallow rock and located to minimize amount of imported fill required. Sand Profile field surface with subdrainage and a 1% slope crown.

Tennis Courts (lighted)
4 courts near parking and a short walk to court area restroom.

Roller Sports Area
Common area with restroom/concession, full size roller court with dasher boards and a medium-sized set of concrete bowls and street-course for in-line skating and skateboarding.

Sand Volleyball Courts
2 courts near parking and a short distance from court sports area restroom.

Basketball Courts (2)

12' Multi-Purpose Trail
Paved trail with 1.6 mile perimeter loop. Benches will be provided. Loops around youth soccer and lake will be 12' wide.

Children's Play Area
A large mulch surface play area with seperate equipment layouts for tots and K-6 age groups. Includes swings and seating. Optional stream shown with liner and associated stone and boulders set along water course. Stream is fed by drilled irrigation well and operates when lake requires irrigation water or fresh water replenishment.

Pond
Approx 2.0 acre basin to be excavated from deeper subsoil on the site. Direct surface water to the pond from around site via grassed and/or concrete swales. Excavate to rock level, then pressure wash exposed rock as a feature of the lake shores. Provide small group pavilion at lake shore together with area reserved for memorial garden.

Group Pavilion (Rental)
Convenient access from parking lot w/ drop-off area. Overlooking the pond and woodlands. Also includes a small restroom building, open lawn area, and sand volleyball court.

Senior Court Area
Central 20' x 20' pavilion shades gametables, with adjacent boccie courts and horseshoe pitches (2 each). Preserve surrounding trees for shade, but open filtered views to lake.

Dog Park Area
3.6 acre fenced area seperated into 3 zones. An entrance plaza includes a dog-watering area with seating. Cleared areas are irrigated turf, wooded areas have pea gravel mulch. Adjacent 70+ space car parking area provided.

Parking Summary
480 Spaces @ 6 Soccer Fields (80 ea.)
70 Spaces @ Group Pavilion/Playground /Trail
70 Spaces@ Dog Park Area
200 Spaces @ Court Sports/Trailhead
820 Total Spaces

Park Area = 74.216 Acres

Master Plan

Prepared for
Gwinnett County, Department of Community Services

Prepared by
CERULEA, Inc.
June 14, 2004

Rabbit Hill Park Master Plan Revision

Gwinnett County Dept. of Community Services

Master Plan Cost Estimate

Prepared by: CERULEA Incorporated

16-Jul-04

Description	Quantity	Unit Price		Extended $
A. Add Dog Park				
Clear & Grub (select thinning also included)	3.50	*$7,000.00*	AC	$24,500.00
Stake Layout	1.00	*$1,800.00*	LS	$1,800.00
Dog Park Furnishings & Drinking/Dog Fountain	1.00	*$15,000.00*	LS	$15,000.00
Asphalt Path from Parking	300.00	*$18.00*	SY	$5,400.00
Plaza - Concrete Brick	2275.00	*$8.00*	SF	$18,200.00
Dog Park Fencing 8' Vinyl-Clad	2400.00	*$22.00*	LF	$52,800.00
Dog Park Passage Gates (2 gates each)	5.00	*$1,500.00*	EA	$7,500.00
Dog Park Drive Gates	2.00	*$900.00*	EA	$1,800.00
Water Line to Dog Fountain - 1.5"	350.00	*$8.00*	LF	$2,800.00
Dog Park Irrigation & Sod/Structural Soil Bed	120000.00	*$1.25*	SF	$150,000.00
Dog Park Gravel Bed under Trees	30500.00	*$0.50*	SF	$15,250.00
Grade/Erosion Control Allowance - Minor Regrading in Selected Areas	1.00	*$25,000.00*	LS	$25,000.00
Culverts and Subdrainage Allowance	1.00	*$35,000.00*	LS	$35,000.00
				$355,050.00
B. Add Senior Court Facilities				
Shelter 20' x 20'	400.00	*$85.00*	SF	$34,000.00
Gametables & Furnishings Allowance	1.00	*$14,000.00*	EA	$14,000.00
Boccie Courts	2.00	*$8,000.00*	EA	$16,000.00
Horseshoe Pitch	2.00	*$3,000.00*	EA	$6,000.00
Concrete Walkway	2400.00	*$3.75*	SF	$9,000.00
Retaining/Seatwall Allowance	300.00	*$100.00*	LF	$30,000.00
Stake Layout	1.00	*$1,200.00*	LS	$1,200.00
Select Clear/Grub Wooded Areas	25000.00	*$0.50*	SF	$12,500.00
Grade/Erosion Control/Mulching	1.00	*$15,000.00*	LS	$15,000.00
Culverts - Crossdrains Allowance	1.00	*$7,500.00*	LS	$7,500.00
				$145,200.00
C. Add Parking For Above				
Asphalt Parking Lot Paving	3100.00	*$18.00*	SY	$55,800.00
Wheelstops	70.00	*$33.00*	EA	$2,310.00
Striping	1.00	*$800.00*	LS	$800.00
Curb and Gutter at Radii	400.00	*$11.00*	LF	$4,400.00
Asphalt Path near Parking	830.00	*$18.00*	SY	$14,940.00
Clear & Grub (select thinning also included)	1.20	*$7,000.00*	AC	$8,400.00
Parking Lot Landscape Planting (per County Ordinance)	18.00	*$300.00*	LS	$5,400.00
Stake Layout	1.00	*$1,800.00*	LS	$1,800.00
Select Clear/Grub Wooded Areas	21000.00	*$0.50*	SF	$10,500.00
Grade/Erosion Control	2100.00	*$10.00*	LF	$21,000.00
Culverts - Crossdrains Allowance	1.00	*$12,000.00*	LS	$12,000.00
				$137,350.00

Subtotal of Line Items	**$637,600.00**
Design/Survey/Testing Allowance @ 13%	$82,888.00
Total Allocation less Program Manager Costs	**$720,488.00**

Rabbit Hill Park Master Plan

Gwinnett County, Georgia

October, 2009

Compiled by

Lose & Associates, Inc. and The Jaeger Company

Introduction

In the fall of 2008, the Gwinnett County Department of Community Services, Parks and Recreation Division enlisted the services of Lose & Associates, Inc. and The Jaeger Company to develop individual master plans for two future components of the County's park system. Land for a Mountain View Park was purchased by the County to provide additional recreational facilities to compliment those already located at the existing Rabbit Hill Park. Lose & Associates, Inc. was placed in charge of developing the Master Plan for this future amenity. Concurrently, The Jaeger Company was placed in charge of developing a master plan for the expansion of facilities at the existing Rabbit Hill Park.

Although these master plans were developed individually, both the design consultants and parks and recreation staff collaborated together on multiple occasions to ensure a seamless design between both properties that would effectively meet the needs of the overall community. During this process, the Gwinnett County Recreation Authority recognized the benefits of unifying both the existing and planned facilities at Rabbit Hill Park with those planned at the land for the Mountain View Community Park into one unified Master Plan for Rabbit Hill Park. In order to meet the requirements of the master planning process, the individual reports developed for these two facilities have been assimilated into a single document.

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1. Introduction

2. Book 1: Mountain View Community Park Master Plan

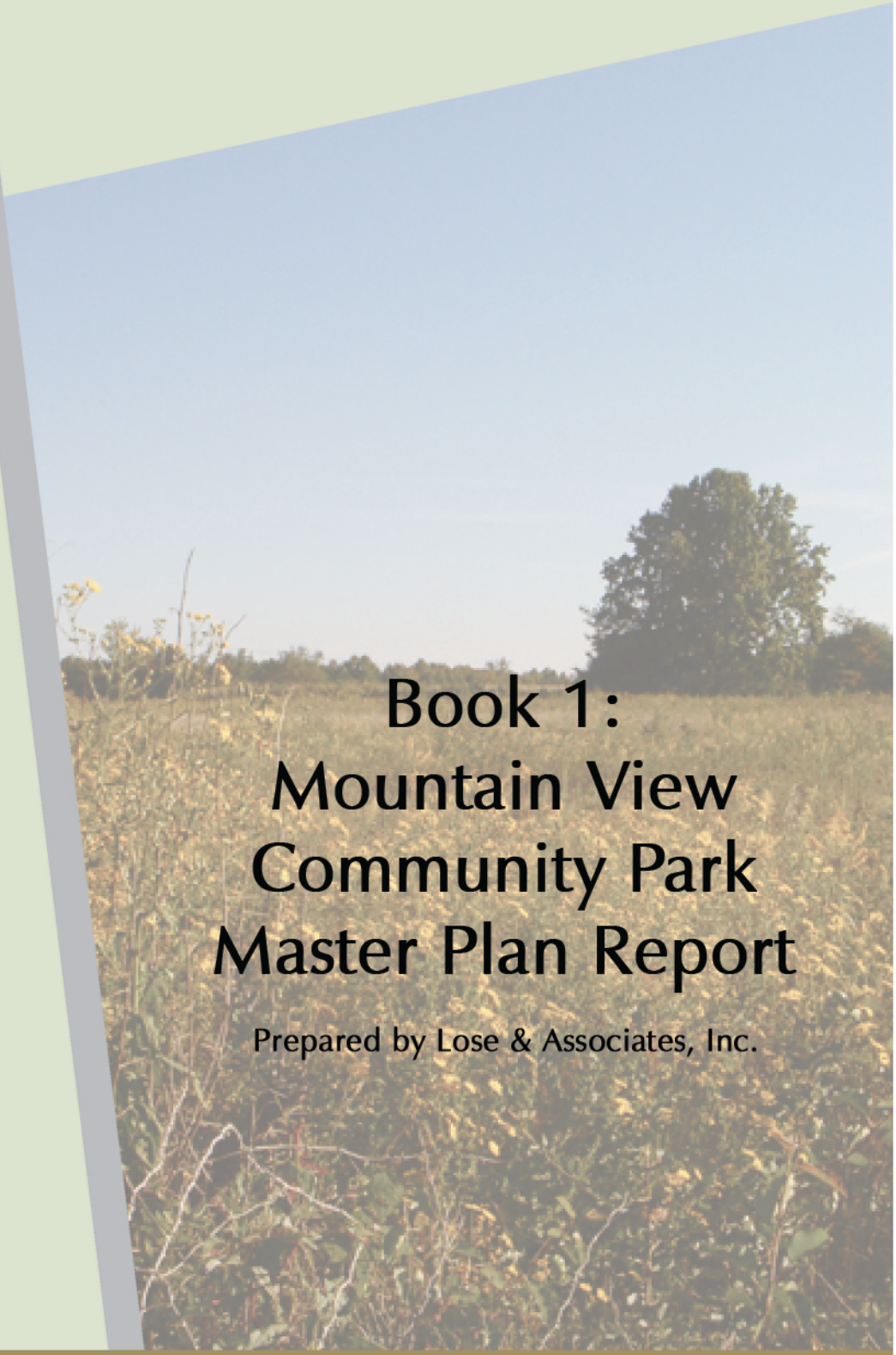
- *As prepared by Lose & Associates, Inc.*

3. Book 2: Rabbit Hill Park Master Plan Summary Report

- *As prepared by The Jaeger Company*

4. Rabbit Hill Park Composite Master Plan

- Refer to estimates presented in Books 1 and 2 for Opinions of Probable Cost



Book 1: Mountain View Community Park Master Plan Report

Prepared by Lose & Associates, Inc.

Mountain View Community Park
Master Plan

October 2009

Gwinnett County Department of Community Services – Parks and Recreation Division

2009 Gwinnett County Board of Commissioners:
Charles Bannister
Shirley Lasseter
Bert Natusi
Mike Beaudreau
Kevin Kenerly

2009 Gwinnett County Recreation Authority Members:
Lois Allen
Charlie Underwood
Jack Bolton
Jeff Little
Charlotte Nash
H.S. "Chip" Randall
Wayne Sutor
Julianne Thompson
Derek Hart

Mountain View Community Park Citizen Input Committee Members:
Marilyn Palmer
Bill Wooton
Thurman Roberts
Karen Lee
Blaise Fitzpatrick
Dale Hansen
Vicki Wood
Terri Ervin
Dennis Hollingsworth
Stephen Hatcher
Corbitt Woods
Debra Edgehill
Blake Watts
Alan Larkins
Gary Bishop
Felicia Wilson

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Appendix A
Final Opinion of Probable Cost

Appendix B
Meeting Minutes

Appendix C
Subsurface Exploration Report

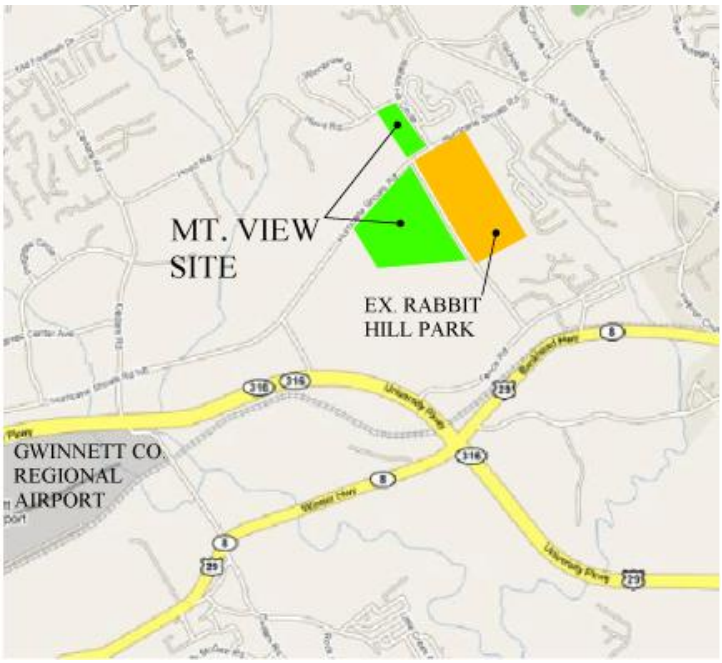
Introduction

The land for the Mountain View Community Park is comprised of two parcels adjacent to the existing Rabbit Hill Park, to the west of the city of Dacula, Georgia. The larger southern parcel is 73.90 acres in size while a separate northern parcel is 15.03 acres in size. The land was acquired to provide a home for athletic facilities for the newly formed Mountain View High School Cluster Area. It also was acquired to provide the community with a mixture of other passive and active uses not already provided in the existing Rabbit Hill Park, not an expansion of sports facilities already provided in the existing Rabbit Hill Park. Before the master planning process began, it was understood that the park would be designed to contain a standard 7-field youth baseball/softball complex and a multi-purpose field (serving football, soccer and lacrosse). It was desired that an outdoor family leisure aquatic center would be located here to serve this area of the County. The goal of the master planning process was to find the optimum location for these facilities, as well as other facilities or uses the citizen input committee desired.

Site Analysis

2.1 Location

The land for the Mountain View Community Park is located near the intersections of Hurricane Shoals Road, Rabbit Hill Road, and Rabbit Hill Circle, just west of Dacula, Georgia (**Book 1, Figure 1**). The larger southern parcel is across Rabbit Hill Road from the existing Rabbit Hill Park and abuts large warehouse distribution centers for Federal Express and Publix. The smaller northern parcel lies between the roads of Hurricane Shoals Road, Rabbit Hill Circle and Hood Road and abuts several private residences.



Book 1, Figure 1

The following sections provide additional information and graphic representations for the categories of site climate, subsurface conditions, soils, topography, hydrology, vegetation and cultural impacts.

2.2 Climate

Gwinnett County has a humid, subtropical climate characterized by long, hot summers (average summer temperature of 77º) and influenced by moist, tropical air from the Gulf of Mexico. Winters are cool and moderate (average winter temperature of 44º), and significant cold spells generally last for only one or two days. Precipitation is heavy throughout the year and results mainly from afternoon thunderstorms. Total annual precipitation is slightly more than 50 inches.

2.3 Subsurface Conditions

The presence of significant subsurface rock is evident in many places, primarily the southeastern corner of the northern parcel and the southeastern corner of the southern parcel, where it lies very near the surface and will pose a significant challenge to mass earth moving operations and utilities. Other areas of the southeastern parcel also have subsurface rock fairly close to the surface, but it should not pose a problem to minor earth moving or utilities. Approximately half to one third of the southern parcel does not have subsurface rock that will present obstacles to construction. In order to plan mass grading operations better, a subsurface exploration report was prepared by United Consulting (**Book 1, Appendix C**) and was summarized for the citizen input committee in **Book 1, Figure 2**.

2.4 Soils

The underlying soils of the sites consist of loamy sands and clays that support development. Areas noted as poorly drained on the soils map coincide with other findings and field observations. The following Soils Analysis map (**Book1, Figure 3**) was derived from the USDA and Soil Conservation Service soil survey of Gwinnett County. The suitability for development of soils shown is determined more by slope than by bearing capacity.

2.5 Topography

The sites' topography is fairly gentle compared to other parcels on which the County has developed community parks. Large footprint facilities will likely need to be terraced to avoid significant cut and fill slopes. The only areas of significant terrain occur along the drainage features and stream buffers associated with the northern parcel. **Book 1, Figure 4** outlines the relatively flat areas and their relationship to the steeper areas of the site. In general, topography will not pose significant challenges to the project.

2.6 Hydrology

Most areas of the northern parcel are well drained and drain towards the streams in the western portions of the site. These stream features will require state and local stream buffers that present challenges to development. Large open areas of the southern parcel drain towards a central area of the site, that eventually lead to low flat poorly drained areas in the southwestern portions of the site that contain some channels requiring state and local stream buffers. These poorly

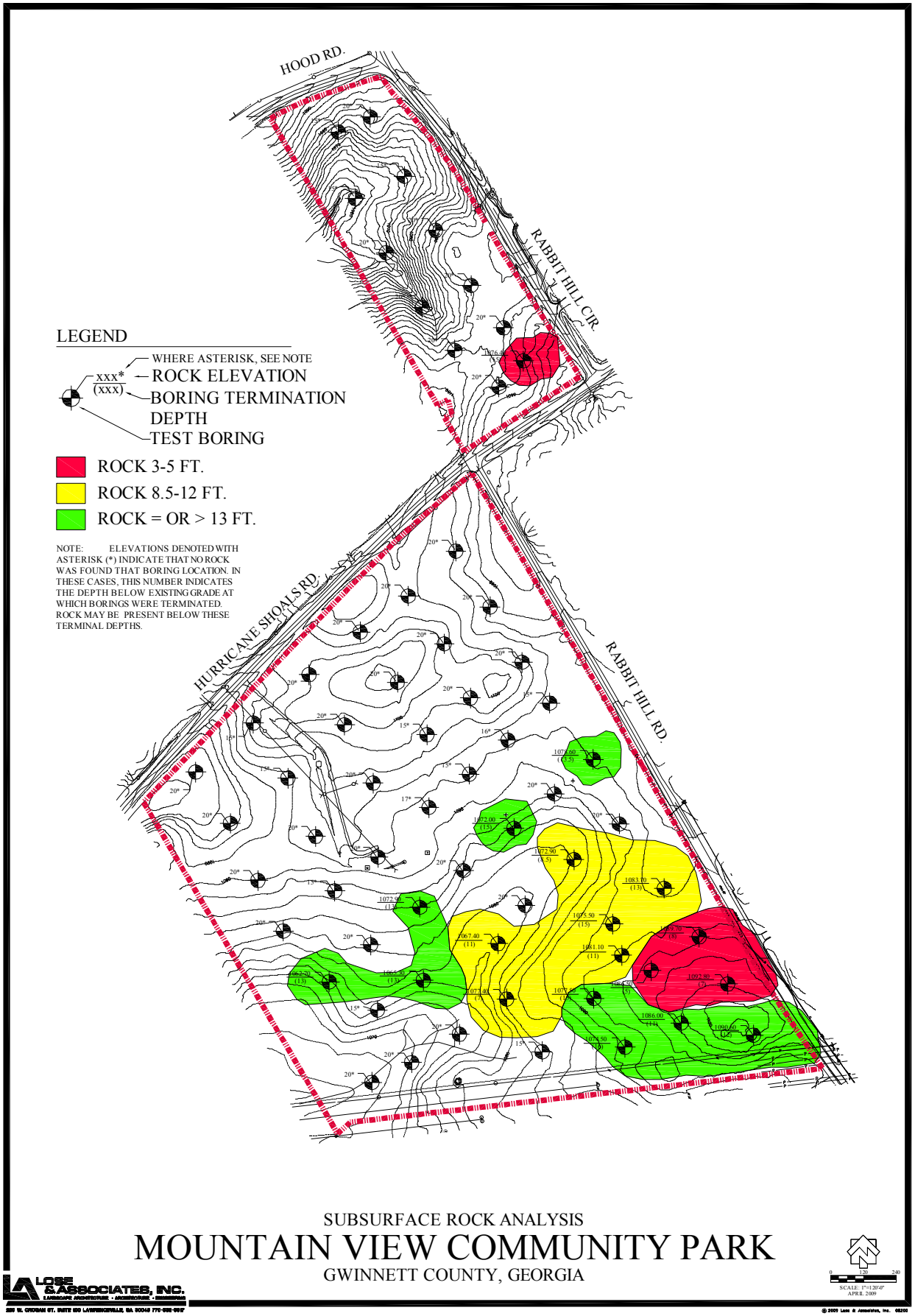
drained areas also show signs of wetland conditions and should be further investigated to determine the limits of Jurisdictional Waters of the United States. (**Book 1, Figure 5**).

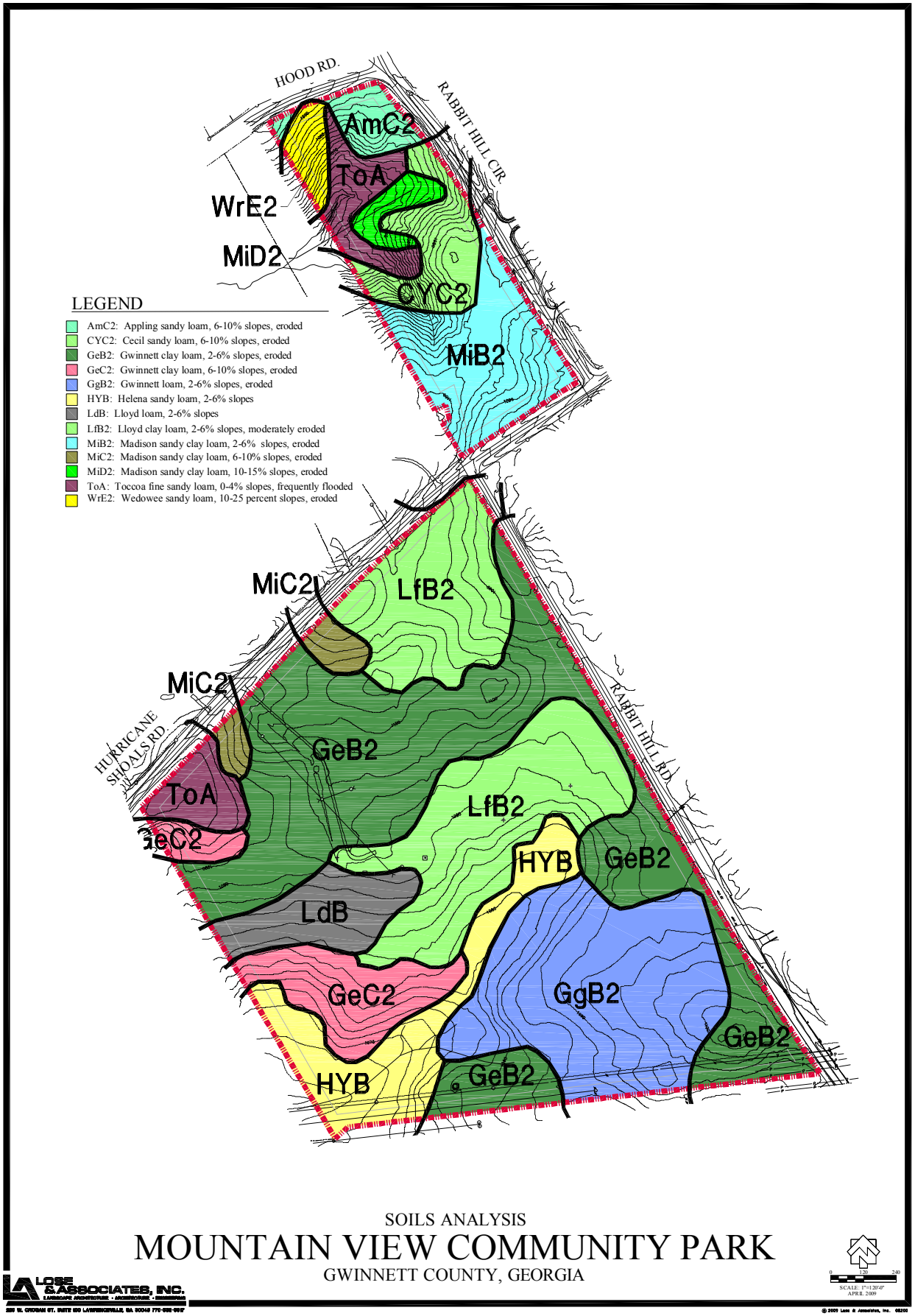
2.7 Vegetation

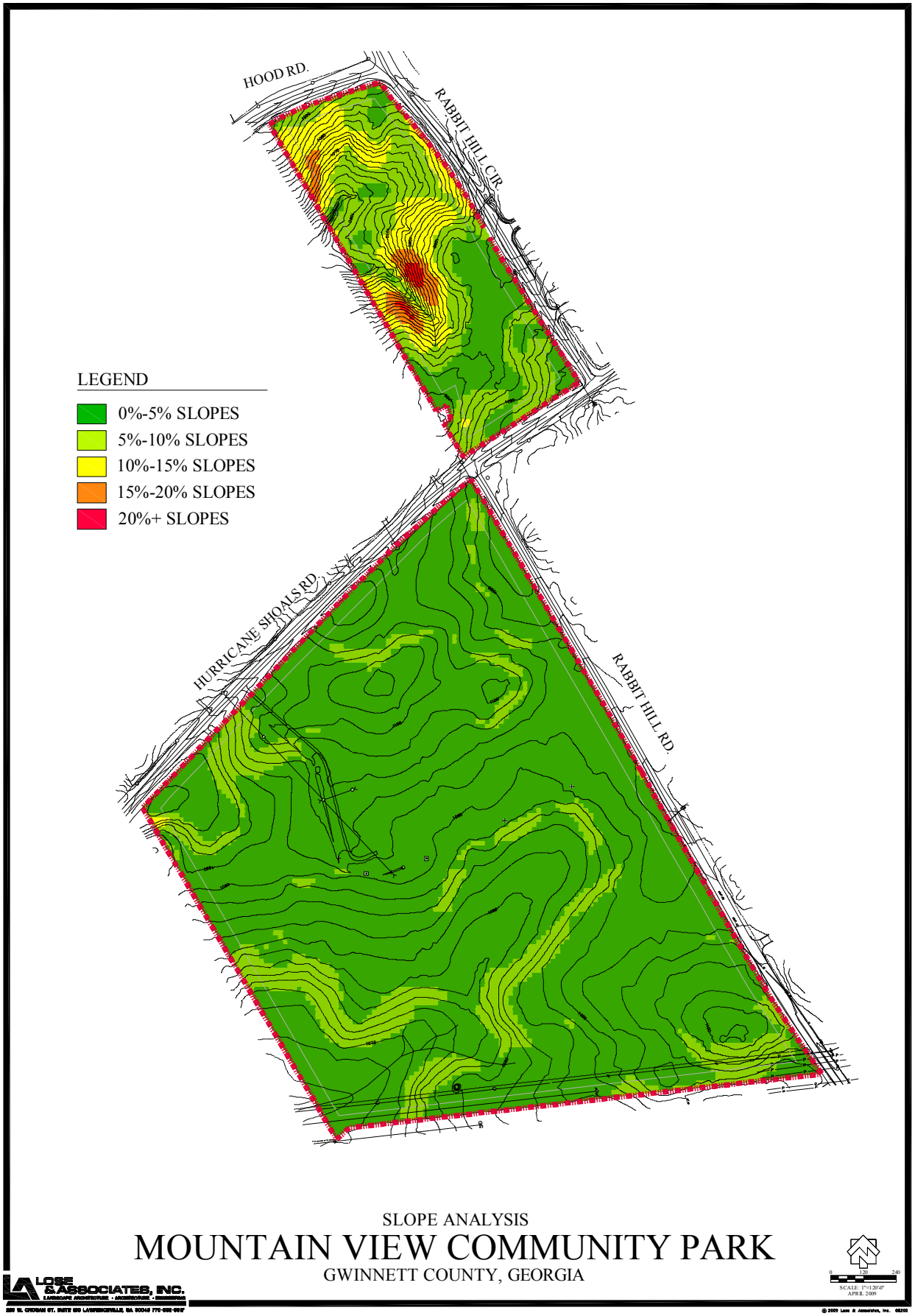
Until the arrival of European settlers three hundred years ago, the Georgia Piedmont was predominately forested with mixed hardwoods. Subsequent agricultural practices have cleared the forested areas so often, allowing younger pine forests to grow back time and time again, that most people associate the pine forest as Georgia's dominant forest cover type. The sequential change in forest cover on the land for the Mountain View Community Park is the direct result of human intervention. Aerial photography dating back to the 1930s shows that the current large open areas have been farmed for many years (**See Book 1, Figures 6-8**). The hardwood areas along the streams of the northern parcel and in the poorly drained southwestern area of the southern parcel have been in place for some time. The pine woods on the southern parcel area a recent growth of trees. The mixed new growth areas on the northern parcel are those that were most recently cleared. The old homesite area on the southern parcel has a few interesting pines that would add interest to park features. The following **Book 1, Figure 9** is a graphic representation of the vegetation composition of the site. In summary, most areas of the parcels can be developed without impacting significant vegetation. Areas that do have large hardwood zones also have other development restrictions such as stream buffers or wetlands that would make them less desirable for the development of features with large footprints.

2.8 Cultural Impacts

Man has been active on the properties for some time. As noted earlier, the large open areas have been farmed for many years. Farming activities and alteration of drainage patterns have lead to poorly drained portions of the southern parcel. Hurricane Shoals Road has a high volume of traffic during rush hour peaks that regularly exceeds the posted 45 mph speed limit, but traffic on Rabbit Hill Circle, Rabbit Hill Road and Hurricane Shoals Road is steady at all times of day and presents challenges to pedestrian connectivity between the parcels and the existing Rabbit Hill Park. The remains of a small house lie along the southern boundary of the southern parcel that present a danger to park users in their current condition, but also the opportunity for an interpretive experience. Water, sewer and power utilities are adjacent to the parcels and providing services should not prove difficult. The large power easement along the southern boundary of the southern parcel presents the opportunity for an alternative transportation connection to Dacula to the east. Because of the power easement and the vehicular access it provides to Hurricane Shoals Road, several dumpsites occur along the southern boundary of the southern parcel. This includes concrete spoils, soil dumping and trash. Some of this appears to be the result of Georgia Power activity. The following **Book 1, Figure 10** is a graphic representation of the cultural impacts on the site.


HOOD RD.
RABBIT HILL CIR.
RABBIT HILL RD.
HURRICANE SHOALS RD.
LEGEND
WHERE ASTERISK, SEE NOTE
xxx*
(xxx)
ROCK ELEVATION
BORING TERMINATION DEPTH
TEST BORING
ROCK 3-5 FT.
ROCK 8.5-12 FT.
ROCK = OR > 13 FT.
NOTE: ELEVATIONS DENOTED WITH ASTERISK (*) INDICATE THAT NO ROCK WAS FOUND THAT BORING LOCATION. IN THESE CASES, THIS NUMBER INDICATES THE DEPTH BELOW EXISTING GRADE AT WHICH BORINGS WERE TERMINATED. ROCK MAY BE PRESENT BELOW THESE TERMINAL DEPTHS.
SUBSURFACE ROCK ANALYSIS
MOUNTAIN VIEW COMMUNITY PARK
GWINNETT COUNTY, GEORGIA
LOSE & ASSOCIATES, INC.
SCALE: 1"=120'-0"
APRIL 2009


HOOD RD.
RABBIT HILL CIR.
AmC2
ToA
WrE2
MiD2
CYC2
MiB2
LEGEND
AmC2: Appling sandy loam, 6-10% slopes, eroded
CYC2: Cecil sandy loam, 6-10% slopes, eroded
GeB2: Gwinnett clay loam, 2-6% slopes, eroded
GeC2: Gwinnett clay loam, 6-10% slopes, eroded
GgB2: Gwinnett loam, 2-6% slopes, eroded
HYB: Helena sandy loam, 2-6% slopes
LdB: Lloyd loam, 2-6% slopes
LfB2: Lloyd clay loam, 2-6% slopes, moderately eroded
MiB2: Madison sandy clay loam, 2-6% slopes, eroded
MiC2: Madison sandy clay loam, 6-10% slopes, eroded
MiD2: Madison sandy clay loam, 10-15% slopes, eroded
ToA: Toccoa fine sandy loam, 0-4% slopes, frequently flooded
WrE2: Wedowee sandy loam, 10-25 percent slopes, eroded
MiC2
LfB2
MiC2
HURRICANE SHOALS RD.
RABBIT HILL RD.
GeB2
ToA
LfB2
GeC2
HYB
GeB2
LdB
GeC2
GgB2
GeB2
HYB
GeB2
SOILS ANALYSIS
MOUNTAIN VIEW COMMUNITY PARK
GWINNETT COUNTY, GEORGIA
LOSE & ASSOCIATES, INC.
SCALE: 1"=120'-0"
APRIL 2009


HOOD RD.
RABBIT HILL CIR.
LEGEND
0%-5% SLOPES
5%-10% SLOPES
10%-15% SLOPES
15%-20% SLOPES
20%+ SLOPES
HURRICANE SHOALS RD.
RABBIT HILL RD.
SLOPE ANALYSIS
MOUNTAIN VIEW COMMUNITY PARK
GWINNETT COUNTY, GEORGIA
LOSE & ASSOCIATES, INC.
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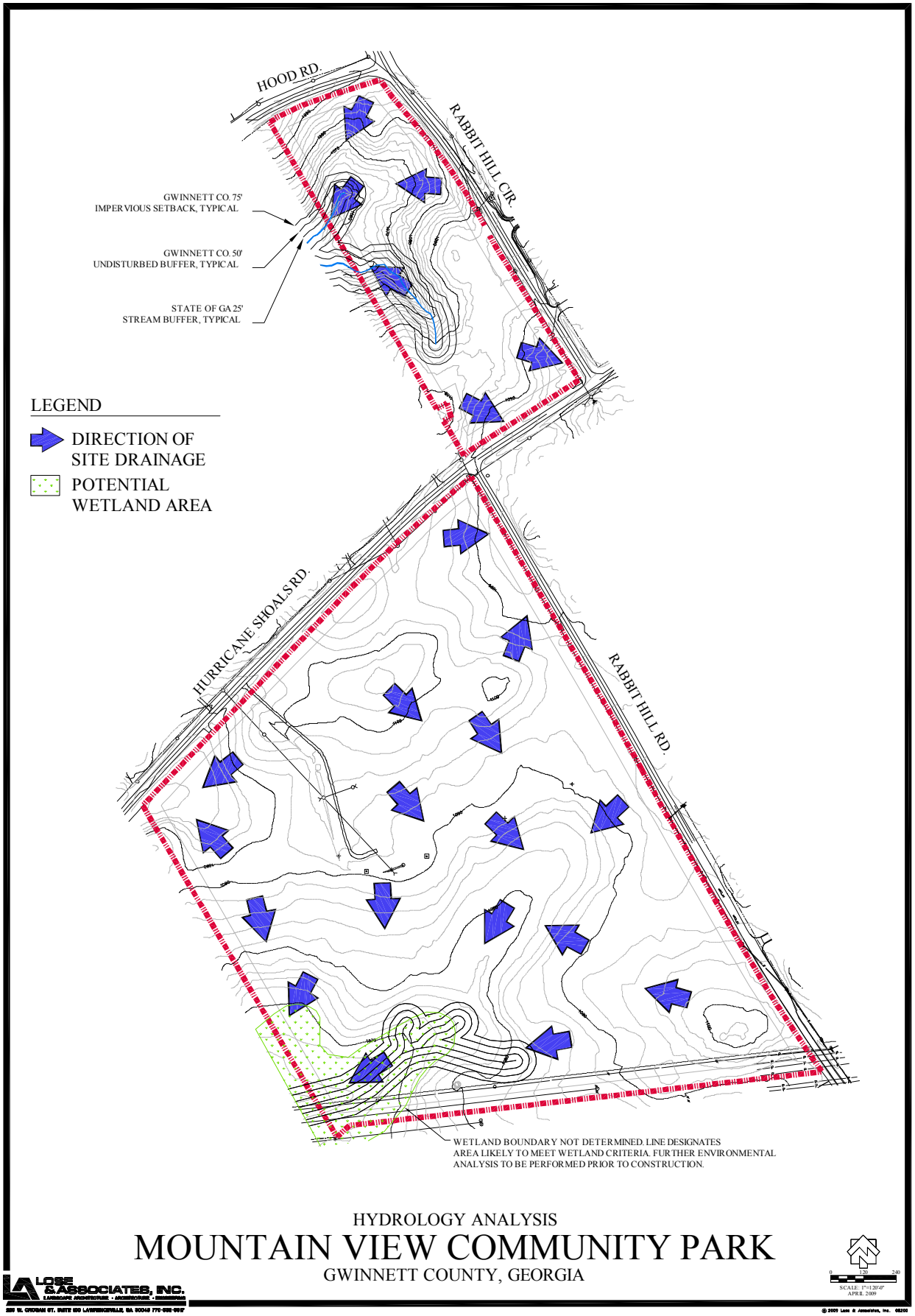
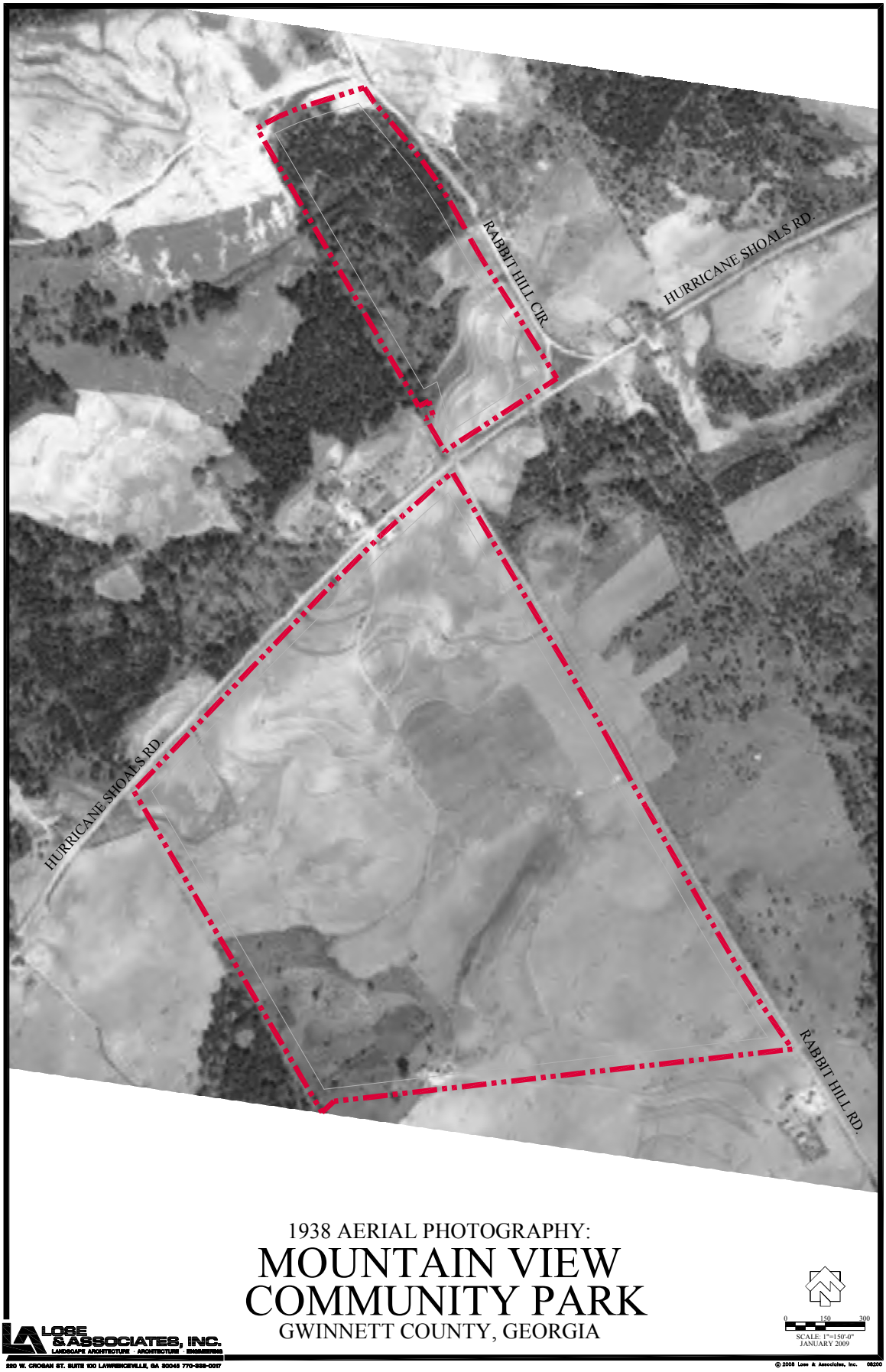
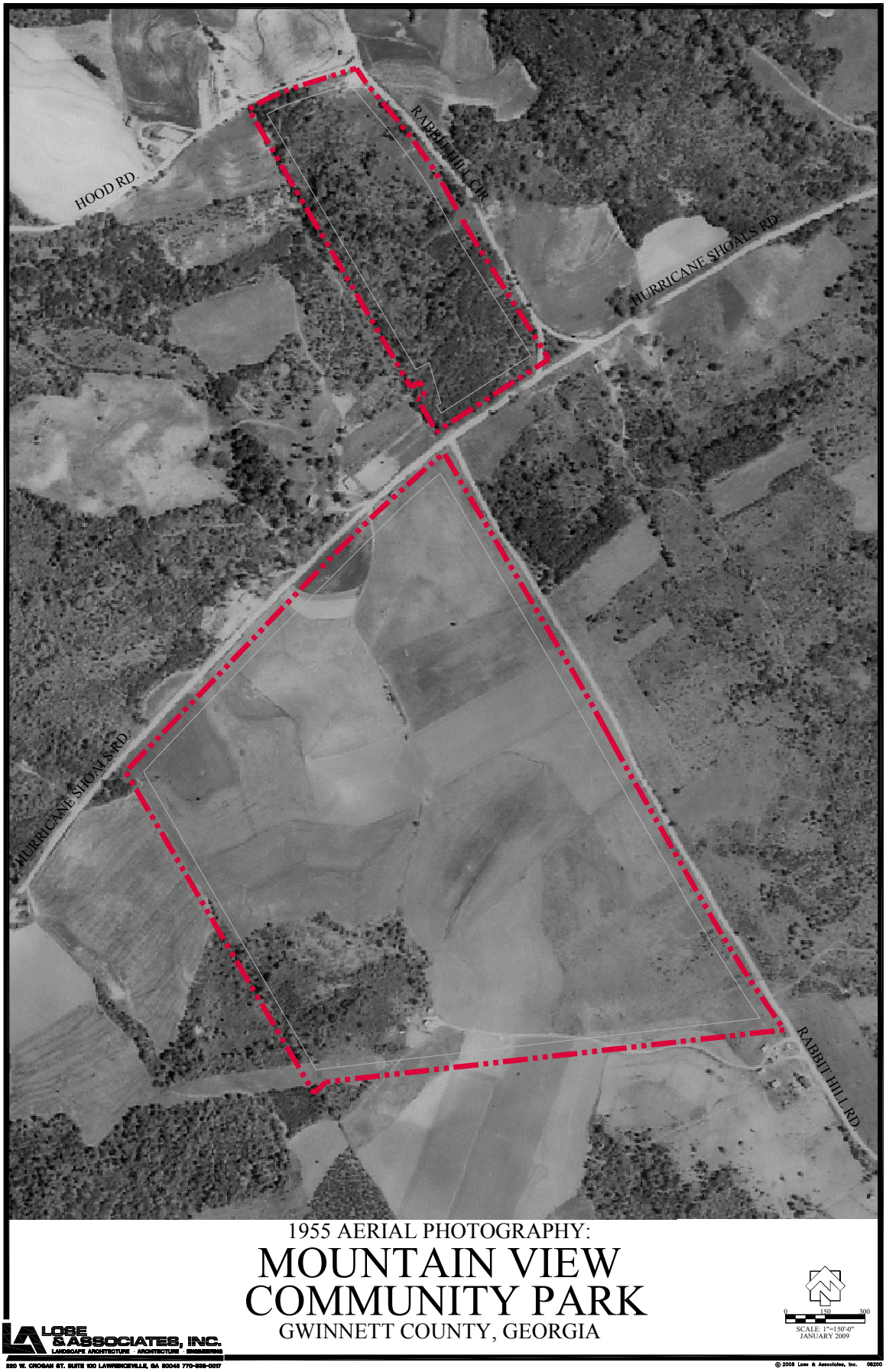
APRIL 2009

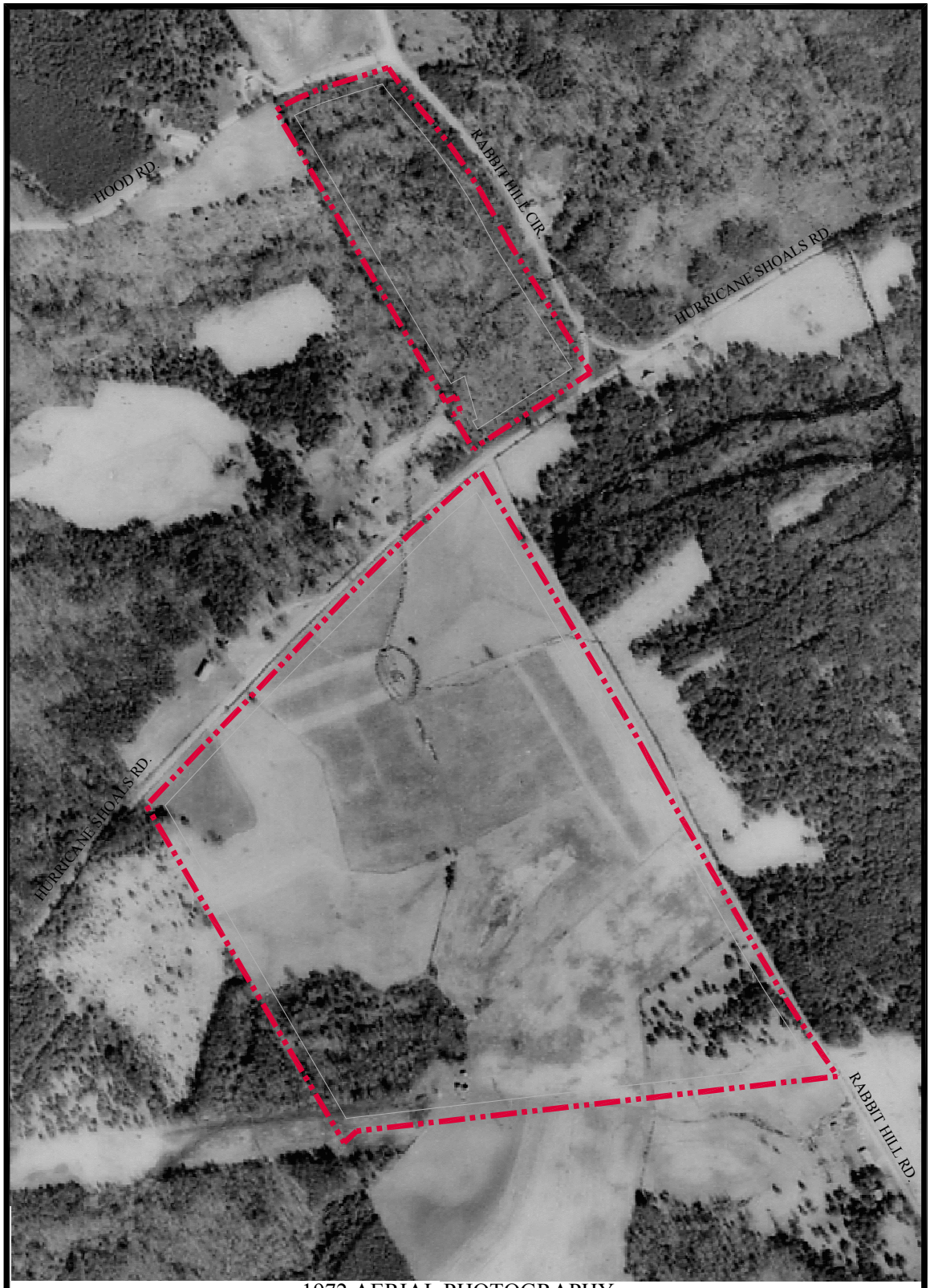

HOOD RD.
RABBIT HILL CIR.
GWINNETT CO. 75'
IMPERVIOUS SETBACK, TYPICAL
GWINNETT CO. 50'
UNDISTURBED BUFFER, TYPICAL
STATE OF GA 25'
STREAM BUFFER, TYPICAL
LEGEND
DIRECTION OF
SITE DRAINAGE
POTENTIAL
WETLAND AREA
HURRICANE SHOALS RD.
RABBIT HILL RD.
WETLAND BOUNDARY NOT DETERMINED. LINE DESIGNATES
AREA LIKELY TO MEET WETLAND CRITERIA. FURTHER ENVIRONMENTAL
ANALYSIS TO BE PERFORMED PRIOR TO CONSTRUCTION.
HYDROLOGY ANALYSIS
MOUNTAIN VIEW COMMUNITY PARK
GWINNETT COUNTY, GEORGIA
LOSE & ASSOCIATES, INC.
LANDSCAPE ARCHITECTURE • ARCHITECTURE • ENGINEERING
SCALE: 1"=120'-0"
APRIL 2009



Book 1, Figure 6



Book 1, Figure 7



1972 AERIAL PHOTOGRAPHY:

MOUNTAIN VIEW COMMUNITY PARK

GWINNETT COUNTY, GEORGIA

LOSE & ASSOCIATES, INC.
LANDSCAPE ARCHITECTURE · ARCHITECTURE · ENGINEERING
220 W. CROGAN ST. SUITE 100 LAWRENCEVILLE, GA 30045 770-339-0017

0 150 300
SCALE: 1"=150'-0"
JANUARY 2009

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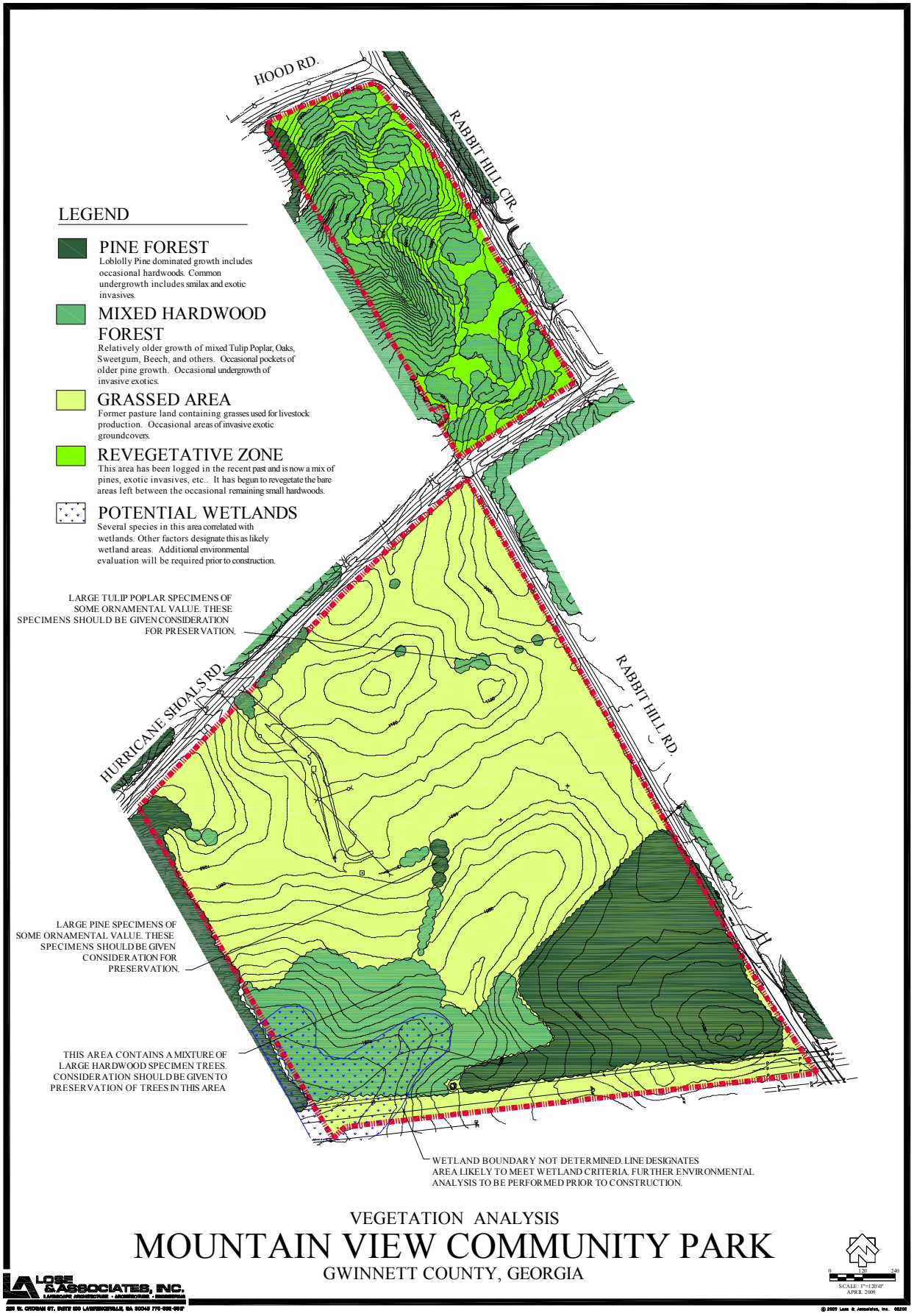
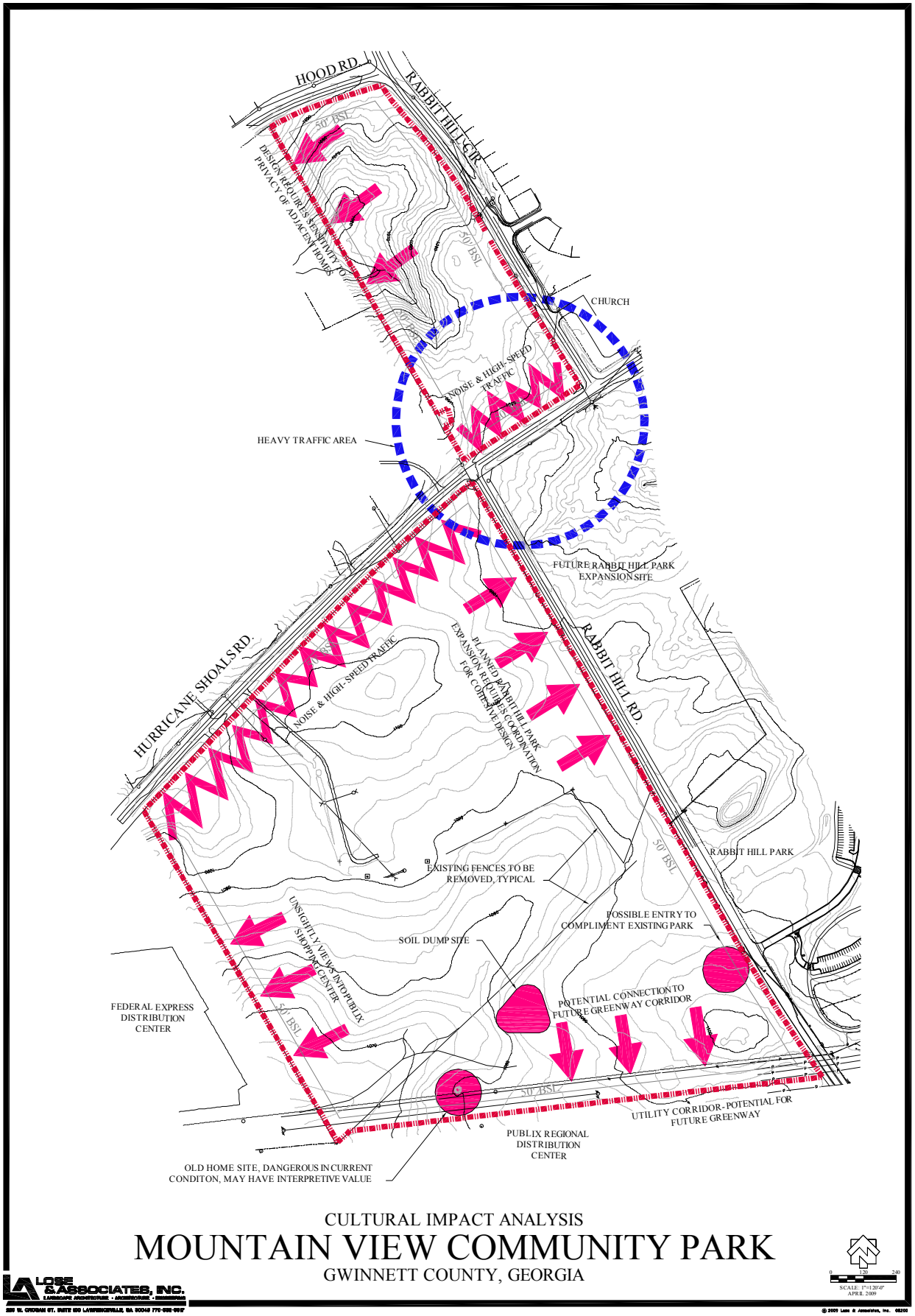

HOOD RD.
RABBIT HILL CIR.
LEGEND
PINE FOREST
Loblolly Pine dominated growth includes occasional hardwoods. Common undergrowth includes smilax and exotic invasives.
MIXED HARDWOOD FOREST
Relatively older growth of mixed Tulip Poplar, Oaks, Sweetgum, Beech, and others. Occasional pockets of older pine growth. Occasional undergrowth of invasive exotics.
GRASSED AREA
Former pasture land containing grasses used for livestock production. Occasional areas of invasive exotic groundcovers.
REVEGETATIVE ZONE
This area has been logged in the recent past and is now a mix of pines, exotic invasives, etc.. It has begun to revegetate the bare areas left between the occasional remaining small hardwoods.
POTENTIAL WETLANDS
Several species in this area correlated with wetlands. Other factors designate this as likely wetland areas. Additional environmental evaluation will be required prior to construction.
LARGE TULIP POPLAR SPECIMENS OF SOME ORNAMENTAL VALUE. THESE SPECIMENS SHOULD BE GIVEN CONSIDERATION FOR PRESERVATION.
HURRICANE SHOALS RD.
RABBIT HILL RD.
LARGE PINE SPECIMENS OF SOME ORNAMENTAL VALUE. THESE SPECIMENS SHOULD BE GIVEN CONSIDERATION FOR PRESERVATION.
THIS AREA CONTAINS A MIXTURE OF LARGE HARDWOOD SPECIMEN TREES. CONSIDERATION SHOULD BE GIVEN TO PRESERVATION OF TREES IN THIS AREA
WETLAND BOUNDARY NOT DETERMINED. LINE DESIGNATES AREA LIKELY TO MEET WETLAND CRITERIA. FURTHER ENVIRONMENTAL ANALYSIS TO BE PERFORMED PRIOR TO CONSTRUCTION.
VEGETATION ANALYSIS
MOUNTAIN VIEW COMMUNITY PARK
GWINNETT COUNTY, GEORGIA
LOSE & ASSOCIATES, INC.
SCALE: 1"=120'-0"
APRIL 2009



Book 1, Figure 10

Public Input

3.1 Initial Program Development

To initiate the public input process, a meeting was held at Mill Creek High School on October 30, 2008, to allow members of the community an opportunity to voice their desires for the programming on the land for the Mountain View Community Park. Gwinnett County staff presented a map of the park and aerial photography that dated back to the 1930's.

Discussion that followed centered on the fact that most in the audience thought that the property had been acquire to expand soccer facilities at the existing Rabbit Hill Park. Gwinnett County staff explained that expansion of Rabbit Hill Park would occur on newly acquire land immediately adjacent to the existing Rabbit Hill Park and that the land for the Mountain View Community Park were for the development of community park facilities for the newly formed Mountain View High School Cluster Area, in addition to other uses to be determined in the course of the master plan.

The citizens were asked to fill out survey forms outlining their wishes and concerns for the park development. The following is a list of suggestions gathered at the meeting:

- More Soccer (this suggestion dominated the comment sheets, as the majority of the audience was there thinking the meeting was about the expansion of the existing Rabbit Hill Park for the Dacula Soccer Association).
- An Outdoor Aquatics Center
- Indoor Pools (with programs for seniors)
- Playgrounds
- Climbing structures
- Picnic Areas
- Pavilions
- Nature Trails
- Paved bicycle or jogging Trails
- Teen facilities
- Dog Park
- Football
- Basketball
- Baseball/softball
- Senior Center
- Benches
- Fishing if there is a pond
- Tennis courts
- Disc golf course
- Volleyball pits
- Lacrosse field

- Open space for multi-sport usage

Rex noted that if anyone else wanted to discuss soccer, they could stay after the meeting. He then discussed the master plan and steering committee process, what volunteers could expect in a timeline of meetings, what their roles would be vs. the consultant's roles, and that although no construction dollars have been committed, they would be responsible for determining the phasing of the park's development once funds were available. He asked for anyone interested serving on the steering committee to please fill out a form.

3.2 Park System Tours and Program Refinement

On 3-21-09, a tour of existing Gwinnett County Parks was given by Gwinnett County Parks staff, to give citizen input committee members and understanding of standard park developments and facilities the County typically offers. The group visited Lenora Park, Pinckneyville Park and Duncan Creek Park where the different types of facilities were demonstrated. The group discussed the development challenges that each type of facility faces and how those challenges can be met at the site for the Mountain View Community Park.

On 3-26-09, a tour of the land for the Mountain View Community Park was given by Gwinnett County Parks staff, to give citizen input committee members an understanding of the property and to ask for their input regarding the project program.

Following the site walk, the group convened at the Rabbit Hill Park Soccer Building and developed the following list of program features that should be explored in the 3 alternative conceptual drawings.

- County standard multi-purpose field
- 7-field baseball complex
- Stand alone outdoor family leisure aquatic center
- Basketball courts
- Sand volleyball courts
- Badminton courts
- County standard pavilion/playground facility
- A smaller shelter/smaller tot lot playground facility separate from the larger pavilion facility
- An open maintained lawn area for open play
- A network of paved multi-purpose trails
- Natural surface paths in the woods on the northern parcel
- Traffic calming devices (raised crosswalks, traffic circles, etc.) to allow some degree of pedestrian connectivity between the various parcels across the busy roads. Some discussion with Gwinnett DOT will be required to determine what will be allowed on this.

Alternative Conceptual Master Plans

4.1 Meeting Discussion and Alternative Selection

On 4-24-09, a meeting was held at the Gwinnett County Justice and Administration Center to review the site analysis information and review the 3 alternative conceptual plans (**Book 1, Figures 11, 12, 13**) prepared for the park.

The citizen input committee was presented the various site analysis sheets. In synopsis, the stream buffer areas, areas of larger hardwood trees, potential wetland areas, and areas of shallow bedrock were noted as items that more directly impacted the layout of the 3 alternative plans. It was also noted that some of the features, such as the larger trees at the old home site would add interest to the plans, but their preservations might not be possible in all concepts.

The group was then presented with the 3 alternative conceptual plans. It was noted that the program features that had been discussed at the last meeting had been included on each of the plans in different ways, different relationships, sometimes different sizes, etc. The group discussed the plans and the following is a synopsis of important characteristics the group liked.

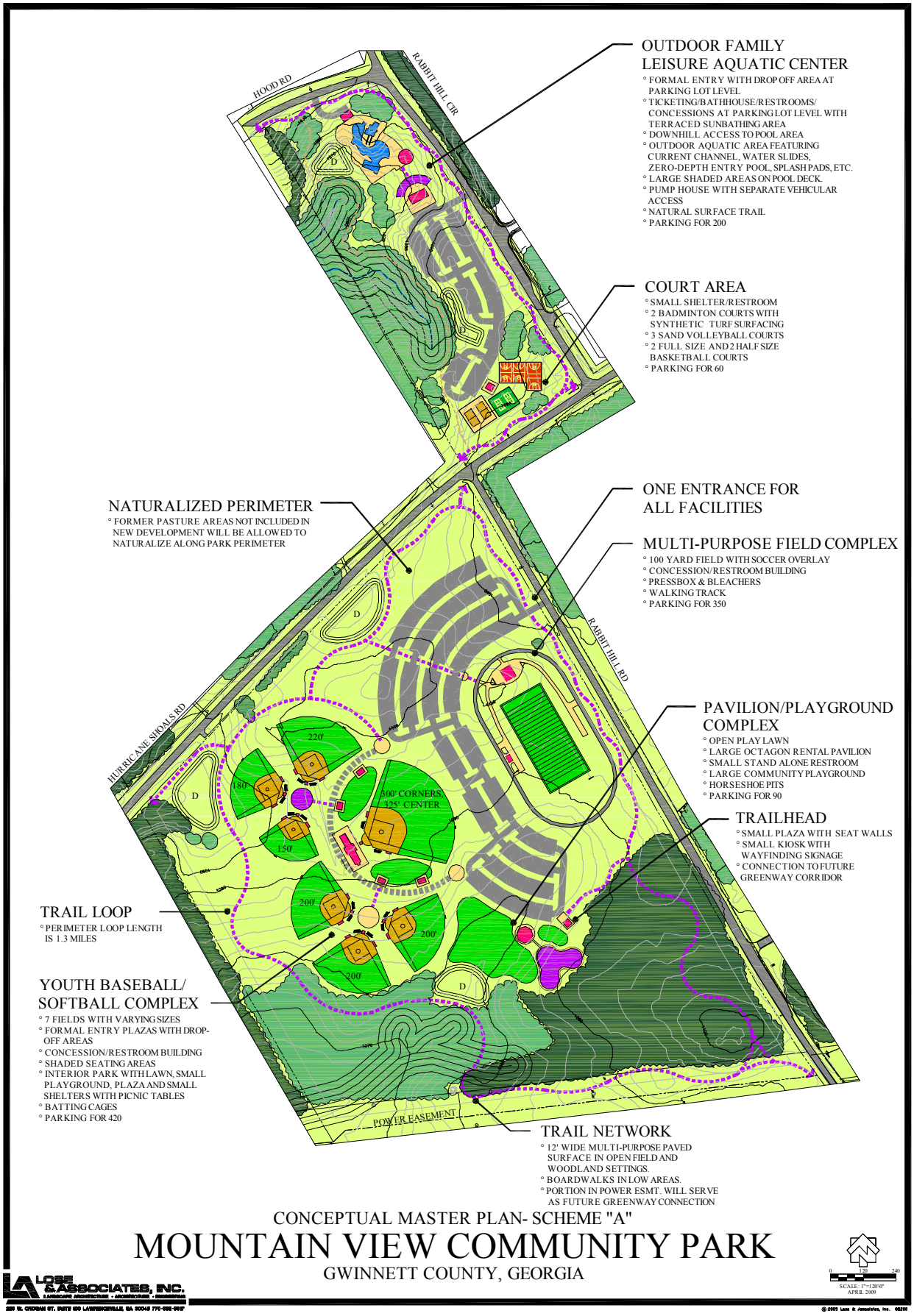
- The group preferred parking arrangement where a larger lot was developed, allowing overflow from baseball and football to take advantage of open parking nearby.
- The group liked the idea of the pavilion/playground facility being somewhat separated from other more active uses
- The group liked the schemes where the court activities where more near a higher use area.
- The group liked concepts that showed a passive use area around the old home site trees.
- The group like concept C, showing more direct parking access to the center of the complex, as well as concepts that showed more direct small field access to the center.
- The group like the schemes that showed a lake
- The group wanted to see if a separate entrance from Hurricane Shoals Road could be added to any of the schemes.
- The group like the idea of the aquatic facility being more visible, closer to Hurricane Shoals Road, and further way from neighbors downstream to the west.

Several members of the group began to note that concept C seemed to capture more of the things they liked.

The group was asked if concept C was the preferred plan, and the vote was unanimous, with it noted that the group would like to see it moved into the preliminary master plan phase, with the following additions:

- Include a pier/pavilion in the lake, like shown on concept B.
- Include a small playground/small shelter passive area at the back of the parking for the aquatic center, near to the Hood Road end of the parking lot.

- Explore options with DOT and discuss the implications of a second entrance on Hurricane Shoals Road (including the chance of cut-through traffic in the park) versus a traffic signal at the Rabbit Hill Road entrance (that could offer some pedestrian protection for people wanting to walk back and forth to the existing Rabbit Hill Park.
- Be sure that areas designed for children have some sort of passive pedestrian traffic protection (rails, fencing, etc.) where in proximity to roads, lakes, etc.
- The natural surface trail in the woods on the aquatic center parcel should be located to avoid direct contact/direct access to the neighboring residence. In the area immediately adjacent, consider moving the trail a little further up the hill.



Book 1, Figure 11

Book 1, Figure 12

HOOD RD
RABBIT HILL CIR
OUTDOOR FAMILY
LEISURE AQUATIC CENTER
° FORMAL ENTRY WITH DROP OFF AREA AT PARKING LOT LEVEL
° DOWNHILL ACCESS TO POOL AREA
° TICKETING/BATHHOUSE/RESTROOMS/ CONCESSIONS AT POOL LEVEL
° OUTDOOR AQUATIC AREA FEATURING CURRENT CHANNEL, WATER SLIDES, ZERO-DEPTH ENTRY POOL, SPLASH PADS, ETC.
° LARGE SHADED AREAS ON POOL DECK
° LARGE OPEN PLAZA FOR SUNBATHING
° PUMP HOUSE WITH SEPARATE VEHICULAR ACCESS
° NATURAL SURFACE TRAIL LOOP
° PARKING FOR 200
MULTI-PURPOSE
FIELD COMPLEX
° 100 YARD FIELD WITH SOCCER OVERLAY
° CONCESSION/RESTROOM BUILDING
° PRESSBOX & BLEACHERS
° WALKING TRACK
° PARKING FOR 360
NATURALIZED PERIMETER
° FORMER PASTURE AREAS NOT INCLUDED IN NEW DEVELOPMENT WILL BE ALLOWED TO NATURALIZE ALONG PARK PERIMETER
POTENTIAL
TRAFFIC CIRCLE
COURT AREA
° 2 BADMINTON COURTS WITH SYNTHETIC TURF SURFACING
° 3 SAND VOLLEYBALL COURTS
° 2 FULL SIZE AND 2 HALF SIZE BASKETBALL COURTS
° SMALL SHELTER AND STAND ALONE RESTROOM
° PARKING FOR 75
RABBIT HILL RD
HURRICANE SHOALS RD
PAVILION/PLAYGROUND
COMPLEX
° OPEN PLAY LAWN
° LARGE OCTAGON RENTAL PAVILION
° LARGE COMMUNITY PLAYGROUND
° SMALL STAND ALONE RESTROOM
° MULTI-PURPOSE TRAIL LOOP AROUND SMALL LAKE
° HORSESHOE PITS
° PARKING FOR 85
300' CORNERS
325' CENTER
200'
200'
150'
180'
200'
220'
4 ACRE
LAKE
POTENTIAL
TRAFFIC
CIRCLE
TRAIL LOOP
° PERIMETER LOOP LENGTH IS 1.4 MILES
YOUTH BASEBALL/
SOFTBALL COMPLEX
° 7 FIELDS WITH VARYING SIZES
° FORMAL ENTRY PLAZA WITH DROP OFF AREA
° CONCESSION/RESTROOM BUILDING
° SHADED SEATING AREAS
° INTERIOR PARK WITH LAWN, SMALL PLAYGROUND, PLAZA AND SMALL SHELTERS WITH PICNIC TABLES
° BATTING CAGES
° PARKING FOR 425
PASSIVE AREA
° OLD HOME SITE WITH LARGE TREES
° OPEN PLAY LAWN
° SMALL SHELTERS WITH PICNIC TABLES
° SMALL PLAYGROUND FOR 2-5 YEAR OLDS
° SHARED RESTROOM WITH TEEN AREA
° PARKING FOR 40
POWER EASEMENT
TRAIL NETWORK
° 12' WIDE MULTI-PURPOSE PAVED SURFACE IN OPEN FIELD AND WOODLAND SETTINGS.
° BOARDWALKS IN LOW AREAS.
° PORTION IN POWER ESMT. WILL SERVE AS FUTURE GREENWAY CONNECTION
TRAILHEAD
° SMALL PLAZA WITH SEAT WALLS
° SMALL KIOSK WITH WAYFINDING SIGNAGE
° CONNECTION TO FUTURE GREENWAY CORRIDOR
CONCEPTUAL MASTER PLAN- SCHEME "C"
MOUNTAIN VIEW COMMUNITY PARK
GWINNETT COUNTY, GEORGIA
LOSE & ASSOCIATES, INC.
SCALE: 1"=120'-0"
APRIL 2009

Preliminary Master Plan

Using the comments gathered in the previous meetings, Lose & Associates prepared a preliminary master plan and presented it on June 2, 2009.

5.1 Preliminary Master Plan Description

Prior to the formal presentation of the Preliminary Master Plan, meeting participants were given a brief synopsis of previous portions of the planning process, which have ultimately led to the development of the current plan. Some group recommendations from the previous meeting were modified following recommendations from Parks and Recreation Division staff, including the elimination of the boardwalk across the lake, the changing of components of the teen area, and the elimination of the small playground located at the proposed aquatics parcel.

Following this discussion, the overall park design was presented to the group (**Book 1, Figure 14**). Similar to the previous meeting, each element of the park was presented, noting all the changes that had been made to enhance its overall structure and efficiency. The first items presented included elements added following the first presentation.

Secondary Access Road: During previous portions of the planning process, committee members expressed an interest in studying the feasibility of providing a secondary access road from Hurricane Shoals Road. As shown in the plan, this development could easily fit into the proposed facility and be designed in such a way as to deter potential use as a cut-through for highway traffic.

Maintenance Storage Yard: Due to its proximity to the existing Rabbit Hill Park maintenance complex, the development of an additional maintenance compound at this location was deemed an unnecessary duplication of facilities. However, the transfer of storage materials and small maintenance equipment from site to site would be an inefficient solution, as well. To remediate this dilemma, a small maintenance storage yard is proposed to accommodate storage materials and equipment used frequently at the proposed park. Additionally, this feature would be fenced and screened with vegetation to provide additional security and to reduce visual impacts on the surrounding park area.

Secondary Passive Use Area: Following the adoption of the previous conceptual master plan, planners identified a large undeveloped space between the park entry road and the Multi-Purpose Field Complex parking lot. In order to provide additional passive recreation opportunities, recommendations were made to provide an additional passive use area, featuring an open play lawn with shade tree plantings, as well as a small shelter.

Teen Area: Previous discussions identified that the planning of a teen area was also occurring for the expansion of the existing Rabbit Hill Park and that one at the Mountain View site with similar features would be a duplication. Therefore, staff direction lead to the removal of the badminton and sand volleyball features to the Rabbit Hill site and the relocation of the skatepark

being discussed for the Rabbit Hill site to the Mountain View site. The proposed skate park is currently planned at approximately 14,000 square feet and could possibly support a combination of bowl and free-skate components. Planners intend the size of this facility to provide service for a more local community, rather than produce a regional draw, like similar facilities at Duncan Creek Community Park.

After discussing these previously unplanned facilities, the presentation continued to include a review of the refined park components previously selected from the conceptual master plan.

Youth Baseball/Softball Complex: Following a review of the updated field layout, group members noted their satisfaction with the interior park spaces at the complex, citing the benefits of additional shaded areas for large events. Additional recommendations were also made regarding the expansion of the interior playground. Members noted that by moving the 180-foot field more to the east, this would provide additional room to the center of the complex, allowing for a larger, more diverse children's playground.

Sports Field Parking Lot: Despite its size, group members expressed their satisfaction with the proposed layout of the parking lot intended to serve the Multi-Purpose Field Complex and the Youth Baseball/Softball Complex. Its current layout provides an ideal solution for deterring cut-through traffic in the event that the Secondary Access Road becomes developed. Also, the current layout allows for overflow parking to be shared between the two facilities. One area for improvement, as noted by group members, is to investigate the possibility of developing grassed swales through the parking lots to achieve higher quality stormwater runoff prior to its storage in the lake.

Lake: During the design process, the development of a sizeable lake on the property became a feasible amenity which could potentially serve a dual purpose. Aside from the visual benefits of having a large water feature on site, this lake development could also serve to benefit stormwater management on site. In regards to stormwater management, one aspect of the lake design is the variation between steep and shallow, gradual slopes along the lake edge. The intention of these transitions is to provide two distinct experiences as one travels the lake's perimeter. Where the proposed play lawns abut the lake, designers intend to provide steep slopes along the bank, possibly with a reinforced edge, to provide a more urban waterfront experience, with safety railing along pedestrian routes. In contrast, the lake edges along the teen area and the dam would have more gradual slopes to provide a wetland experience, planted with vegetation that could withstand the slow periodic water inundation that would occur with the influx of stormwater runoff into the lake. These two contrasts will provide the lake with a more naturalized appearance, increasing its appeal to visitors. In addition to the overlooks and boardwalks along the north side of the lake, group members recommend providing similar features on the lake's southern edge, with shaded areas and locations for adult swings.

Passive Use Area: Located in the vicinity of the previous home site, this passive feature provides a small interactive educational playground along with three small shelters and an open lawn area. One of the key factors in locating these amenities in this area is their ability to preserve or have low impacts on several large specimen trees located in this area.

Pavilion/Playground Complex: Like the Multi-Purpose Field Complex, the elements included in this facility are part of a standard design practice found in many other county parks. While their layout may vary slightly, the general concepts are still in place at this facility. When questioned about the relative size of open play lawn at this complex, group participants were informed that the proposed complex is nearly three times the size of the one they viewed when visiting Duncan Creek Park. In addition, group members were told that the large size of the playlawn is in response to previous requests for an open space in this area that would be suitable for pick-up games of kickball.

Outdoor Family Leisure Aquatic Center: As noted earlier in the meeting, one of the features removed due to staff recommendations was the small children's playground area at the north end of the parking lot. Staff members noted that by isolating this parcel for outdoor aquatics, only, additional security for could be provided by closing the entire facility to park visitors during the off-season. Another change included the realignment of the nature trail following previous comments from the group. Additional distance between the trail and neighboring properties, particularly at the stream fork, has been provided for additional security.

Following the presentation of the Preliminary Master Plan, group members suggested that the plan show additional turn lanes at Hurricane Shoals Road and Rabbit Hill Road to demonstrate any impacts the road right-of-way would have on adjacent county-owned properties.

PARK ACREAGE	
NORTH	± 15.0
SOUTH	± 72.8
TOTAL ACREAGE	± 87.8

PARKING SUMMARY	
FACILITY	NUM. OF SPACES
OUTDOOR FAMILY LEISURE AQUATIC CENTER	232
TOTAL NORTH SIDE	232
MULTI-PURPOSE FIELD COMPLEX	320
YOUTH BASEBALL/ SOFTBALL COMPLEX	420
PASSIVE AREA	40
COURT AREA	90
PAVILION/PLAYGROUND COMPLEX	85
TOTAL SOUTH SIDE	955
TOTAL DEVELOPMENT	1187

OUTDOOR FAMILY LEISURE AQUATIC CENTER

- FORMAL ENTRY WITH DROP OFF AREA AT PARKING LOT LEVEL
- DOWNHILL ACCESS TO POOL AREA
- TICKETING/BATHHOUSE/RESTROOMS/ CONCESSIONS AT POOL LEVEL
- OUTDOOR AQUATIC AREA FEATURING CURRENT CHANNEL, WATER SLIDES, ZERO-DEPTH ENTRY POOL, SPLASH PADS, ETC.
- LARGE SHADED AREAS ON POOL DECK
- LARGE OPEN PLAZA FOR SUNBATHING
- PUMP HOUSE WITH VEHICULAR ACCESS
- NATURAL SURFACE TRAIL CONNECTION

12' PAVED MULTI-PURPOSE TRAIL LOOP

- PERIMETER LOOP LENGTH OF 1.5 MILES
- 12' WIDE MULTI-PURPOSE PAVED SURFACE IN OPEN FIELD AND WOODLAND SETTINGS.
- BOARDWALKS IN LOW AREAS

MULTI-PURPOSE FIELD COMPLEX

- 100 YARD FIELD WITH SOCCER/LACROSSE OVERLAY
- CONCESSION/RESTROOM BUILDING WITH PLAZA
- PRESSBOX & BLEACHERS
- WALKING TRACK
- PARKING FOR 320

NATURALIZED PERIMETER

- FORMER PASTURE AREAS NOT INCLUDED IN NEW DEVELOPMENT WILL BE ALLOWED TO NATURALIZE ALONG PARK PERIMETER

POTENTIAL SECONDARY ENTRANCE

- DIRECT ACCESS TO PARK FROM HURRICANE SHOALS ROAD
- PARKING LOT ARRANGEMENT DETERS CUT-THROUGH TRAFFIC

MAINTENANCE STORAGE AREA

- ±5600 SF FENCED YARD WITH STORAGE SHED
- SCREENED WITH VEGETATION

YOUTH BASEBALL/ SOFTBALL COMPLEX

- 7 FIELDS WITH VARYING SIZES
- FORMAL ENTRY PLAZA WITH DROP OFF AREA
- CONCESSION/RESTROOM BUILDING
- SHADED SEATING AREAS
- INTERIOR POCKET PARKS WITH LAWN, SMALL PLAYGROUND, PLAZAS AND SMALL SHELTERS WITH PICNIC TABLES
- BATTING CAGES

PASSIVE AREA

- PRESERVE LARGE TREES AT OLD HOME SITE
- OPEN PLAY LAWN
- SMALL SHELTERS WITH PICNIC TABLES
- SMALL PLAYGROUND FOR INTERPRETIVE NATURAL PLAY OPPORTUNITIES
- SHARED RESTROOM WITH TEEN AREA

TRAFFIC SIGNAL

- PEDESTRIAN CROSSING CONNECTING OUTDOOR FAMILY LEISURE AQUATIC CENTER AND ATHLETIC FIELDS

PASSIVE AREA

- OPEN PLAY LAWN
- SMALL SHELTER WITH PICNIC TABLES

TEEN AREA

- ±14,000 SF LIGHTED FREE SKATE AREA
- 2 FULL SIZE AND 2 HALF SIZE BASKETBALL COURTS
- SMALL SHELTER AND STAND ALONE RESTROOM

TRAFFIC CIRCLE

- POTENTIAL CONNECTION TO RABBIT HILL PARK EXPANSION

LAKE

- 12' WIDE BOARDWALK WITH SMALL SHELTER
- TIERED OVERLOOK CONNECTED TO BOARDWALK
- SAFETY FENCING ALONG HIGH-USE AREAS SUCH AS PLAY LAWNS
- SERVES AS DETENTION FACILITY AND SOURCE OF IRRIGATION WATER

PAVILION/PLAYGROUND COMPLEX

- OPEN PLAY LAWN
- LARGE OCTAGON RENTAL PAVILION
- LARGE COMMUNITY PLAYGROUND WITH SEPERATE AREAS FOR 2-5 AND 5-12 YEAR OLDS
- SMALL STAND ALONE RESTROOM
- MULTI-PURPOSE TRAIL LOOP AROUND LAKE
- HORSESHOES PITS

RABBIT HILL PARK CONNECTION

- RAISED PEDESTRIAN CROSSING AT 4-WAY STOP
- PUSH-BUTTON CROSSING SIGNAL

EASEMENT TRAIL

- PORTION IN POWER ESMT. WILL SERVE AS FUTURE GREENWAY CONNECTION
- REMOVE EXISTING STRUCTURE AND REPLACE WITH INTERPRETIVE FEATURE

TRAILHEAD

- SMALL PLAZA WITH SEAT WALLS
- SMALL KIOSK WITH WAYFINDING SIGNAGE
- SHARED USE OF SMALL RESTROOM
- CONNECTION TO FUTURE GREENWAY CORRIDOR

PRELIMINARY MASTER PLAN

MOUNTAIN VIEW COMMUNITY PARK

GWINNETT COUNTY, GEORGIA

LOSE & ASSOCIATES, INC.
LANDSCAPE ARCHITECTURE · ARCHITECTURE · ENGINEERING
520 W. CROGAN ST. SUITE 108 LAWRENCEVILLE, GA 30046 770-339-0017

SCALE: 1"=120'-0"
MAY 15, 2009

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Final Master Plan and Opinion of Probable Cost

After the preliminary master plan was presented, the requested modifications were made and a final master plan (**Book 1, Figure 15**) and the opinion of probable cost were developed. The final master plan was presented to the citizen input committee on June 30, 2009.

6.1 Master Plan Description

Entrance Drive

In anticipation of the expansion of Rabbit Hill Park, the main entry drive has been provided at Rabbit Hill Rd along with the proposed development of a traffic circle conforming to DOT standards. The purpose of this turnabout is to provide a more cohesive connection to the proposed park expansion while increasing pedestrian safety as they cross the road between the two parks.

Secondary Entrance Drive

Following requests from steering committee members, a secondary entrance drive has been planned to provide access from the park interior to Hurricane Shoals Road. Although this drive is proposed as a future amenity, County staff will have to work with GDOT to determine the feasibility of a secondary access point. In anticipation of its approval, planners aligned the drive with the large sports field parking lot to deter cut-through traffic from the highway.

Multi-Purpose Field Complex

The layout of this facility is commonly found throughout the Gwinnett Parks system and has been developed through the implementation of design standards. Like others before it, this complex features a large rectangle field supporting football, soccer and lacrosse, two elevated championship-sized bleachers, a pressbox, as well as a concessions/restroom building with shaded plazas. This facility is also surrounded by a walking track and features a formal entry area with decorative paving accents and shaded seat walls.

Youth Baseball/Softball Complex

This large, tiered facility features a formal entry plaza with decorative paving accents and shaded seat walls that provide access to a large interior park space serving seven fields of varying sizes. Field sizes at this facility include one 150’ Tee-Ball field, one 180’ field, three 200’ fields, one 225’ field, and an adult-sized field with 300’ corners and a 325’ center field. As mentioned before, these fields are arranged in groups on three tiers to minimize grading impacts on the site and to provide optimal viewing areas for spectators. At the center of the complex is a large shade plaza with a concession/restroom building featuring a central breezeway. Surrounding this

building are several dedicated green spaces, which could be used for tailgating tents during tournaments, and three small shelters. Each end of this open space terminates in other gathering plazas. The north plaza, which serves the larger fields, features decorative paving accents and plaza trees in grates. The southern plaza, which serves the smaller field cluster, features a children's playground.

Both sport field complexes are served by a large interior parking lot, allowing for an efficient distribution of overflow parking. Furthermore, this lot features shallow slopes across the pavement, allowing for the potential development of interior swales to increase stormwater quality before being detained in the proposed lake.

Maintenance Storage Area

A 5,600 square-foot storage yard has been provided along with a small storage shed for various maintenance materials and equipment that would, otherwise, have to be stored at the existing Rabbit Hill Park. This development is screened with vegetation to reduce the visual impacts on surrounding areas.

Teen Area

Taking from the security benefits noted from similar complexes elsewhere in the County, this facility is located at the front of the park, to aid in deterring undesirable activities. To better serve this facility, a separate parking area has also been provided. A formal entry plaza with decorative paving accents and shaded seat walls controls access in and out of the facility. A small shelter has been provided within the interior of the complex, along with shaded seating areas at ideal viewing areas. This complex features a basketball pod, similar to others in the county system, that includes two full-sized courts and two half-courts with perimeter fencing and a court lighting system. On the opposite side of the facility is a 14,000 square-foot skate park with a light system, which can be designed to accommodate varying skate opportunities. The Teen Area also shares a restroom building, located on the western end of the parking lot, which would be shared with visitors using the large passive use area.

Passive Use Area

In an effort to preserve the existing specimen trees in this area, passive recreation elements have been introduced to minimize development impacts. As a result, this area features an open play lawn, small shelters and a small playground for interpretive natural play opportunities. The passive use area also serves as an access point to the lake and its amenities, such as the tiered overlook, boardwalks and a small shelter. All of the features incorporated in this site are accessed from the sports field parking lot through a formal entry plaza that also features decorative paving accents and shaded seat walls.

Pavilion/Playground Complex

Due to the programming nature of this facility, a separate entrance has been provided, along with the necessary parking amenities. Similar in design to others located elsewhere in the County,

this amenity features a large open play lawn as well as a large octagon rental pavilion, a community playground and restroom. Like the passive use area, this facility provides access to the lake and its amenities, such as overlooks with shade arbors and adult swings. The proposed community playground is large enough to accommodate multiple play features in separate areas for 2-5 and 5-12 year olds. To avoid a duplication of amenities, a single restroom has been provided for shared use between the Pavilion/Playground Complex and the Trailhead.

Lake

The southern portion of the site has also been designed to accommodate a 5 acre lake which will serve as a source for well-fed irrigation water and stormwater retention. A critical part of the lake design is the variation in slope along its perimeter. Through this variation, areas of inundation are created to provide pockets of wetland experiences where the slope is shallow. Conversely, steeply sloped edges, such as those adjacent to the Passive Use Area and the Pavilion/Playground Complex , provide the opportunity for an urban waterfront experience, with safety railing along pedestrian routes. These areas would also feature boardwalks and overlooks that connect to the adjacent Passive Use Area and the Pavilion/Playground Complex.

Trailhead

Following plans for future greenway development, a trailhead has been provided at the end of the Pavilion/Playground Complex parking lot. This development features a small plaza with decorative paving accents and shaded seat walls, along with a kiosk displaying wayfinding signage. While this development would serve as the primary connection to the future greenway, it also provides an access point to the 1.5 mile long Multi-Purpose Trail Loop located on-site. The trail is composed of a 12'wide paved surface with boardwalks, where necessary in low areas. Several connections to this loop have been provided throughout the park, including sidewalks for access from outside of park property. Where these connections require users to cross roads or driveways, combinations of raised crossings, crosswalks and stop signals have been provided to increase pedestrian safety.

Traffic Signal

Controlling traffic at the intersection of Hurricane Shoals Rd and Rabbit Hill Rd is a critical component of managing traffic congestions and pedestrian safety. As a result, a traffic signal with left turn lanes from both of these roads is recommended to manage both pedestrian and vehicular circulation in this area.

Outdoor Family Leisure Aquatic Center

The entire northern parcel has been dedicated for programming to support the Outdoor Family Leisure Aquatic Center. Parking for this facility is served by a separate entrance, capable of being closed during the off-season, located on Rabbit Hill Circle. This parking lot also features a drop off area at a formal entry plaza, which provides downhill access to the ticketing area. A multi-purpose building has been provided at the pool entry to house ticketing, concessions, restrooms and a bathhouse. Once inside the facility, visitors can enjoy a variety of aquatic

features, including a current channel, water slides, zero-depth entry pool and splash pads. The pool deck also features shaded seating areas and a large open plaza for sunbathing. A separate pump house has also been provided to house the pool equipment, along with its own access drive for maintenance vehicles.

Like the southern parcel, a multi-purpose trail has also been provided along this parcel's road frontages to provide access to and from the site. In addition, a natural surfaces trail connection has also been provided to take advantage of some of the more scenic portions of the property and to create full walking loop.

6.2 Master Plan Presentation

Following a review of the modifications made to the plan since the development of the preliminary master plan, committee members voted to accept the final master plan as the guiding document for the future development of this community park. The result of this vote was a unanimous decision to accept the final plan.

After the presentation, the members analyzed the opinion of probable cost to determine items to be included in a Phase 1 development. This process resulted in committee members recommending the development of all features in Phase 1, except the Pavilion/Playground Complex and Outdoor Family Leisure Aquatic Center. This vote assumed the imminent construction of a Pavilion/Playground complex across the street at the existing Rabbit Hill Park and the continued use of the existing pool at Dacula Park. These two remaining items would be developed as future phases at a later date. Copies of the full opinion of probable cost and the recommended phasing schedule can be found in **Appendix B**.

6.3 Inclusion of Master Plan in newly expanded Rabbit Hill Park

Following the presentation of the final master plan, it was determined by staff and the Recreation Authority that the property for the Mountain View Community Park would be incorporated by name into Rabbit Hill Park. Therefore, the designs for the plan needed to be added to those already existing and those being proposed for the existing Rabbit Hill Park parcels to create one large graphic showing the entirety of the newly expanded Rabbit Hill Park.

PARK ACREAGE	
NORTH	± 15.0
SOUTH	± 72.8
TOTAL ACREAGE	± 87.8

PARKING SUMMARY	
FACILITY	NUM. OF SPACES
OUTDOOR FAMILY LEISURE AQUATIC CENTER	232
TOTAL NORTH SIDE	232
MULTI-PURPOSE FIELD COMPLEX	320
YOUTH BASEBALL/ SOFTBALL COMPLEX	420
PASSIVE AREA	40
COURT AREA	90
PAVILION/PLAYGROUND COMPLEX	85
TOTAL SOUTH SIDE	955
TOTAL DEVELOPMENT	1187*

* NOTE: WHEREVER GRADING PERMITS, PARKING LOTS SHOULD HAVE INTERNAL GRASSED SWALES TO INCREASE THE QUALITY OF STORMWATER RELEASED INTO THE LAKE

OUTDOOR FAMILY LEISURE AQUATIC CENTER

- FORMAL ENTRY WITH DROP OFF AREA AT PARKING LOT LEVEL
- DOWNHILL ACCESS TO POOL AREA
- TICKETING/BATHHOUSE/RESTROOMS/ CONCESSIONS AT POOL LEVEL
- OUTDOOR AQUATIC AREA FEATURING CURRENT CHANNEL, WATER SLIDES, ZERO-DEPTH ENTRY POOL, SPLASH PADS, ETC.
- LARGE SHADED AREAS ON POOL DECK
- LARGE OPEN PLAZA FOR SUNBATHING
- PUMP HOUSE WITH VEHICULAR ACCESS
- NATURAL SURFACE TRAIL CONNECTION

12' PAVED MULTI-PURPOSE TRAIL LOOP

- PERIMETER LOOP LENGTH OF 1.5 MILES
- 12' WIDE MULTI-PURPOSE PAVED SURFACE IN OPEN FIELD AND WOODLAND SETTINGS.
- BOARDWALKS IN LOW AREAS

MULTI-PURPOSE FIELD COMPLEX

- 100 YARD FIELD WITH SOCCER/LACROSSE OVERLAY
- CONCESSION/RESTROOM BUILDING WITH PLAZA
- PRESSBOX & BLEACHERS
- WALKING TRACK
- PARKING FOR 320

NATURALIZED PERIMETER

- FORMER PASTURE AREAS NOT INCLUDED IN NEW DEVELOPMENT WILL BE ALLOWED TO NATURALIZE ALONG PARK PERIMETER

POTENTIAL SECONDARY ENTRANCE

- DIRECT ACCESS TO PARK FROM HURRICANE SHOALS ROAD
- PARKING LOT ARRANGEMENT DETERS CUT-THROUGH TRAFFIC

MAINTENANCE STORAGE AREA

- ±5600 SF FENCED YARD WITH STORAGE SHED
- SCREENED WITH VEGETATION

YOUTH BASEBALL/ SOFTBALL COMPLEX

- 7 FIELDS WITH VARYING SIZES
- FORMAL ENTRY PLAZA WITH DROP OFF AREA
- CONCESSION/RESTROOM BUILDING
- SHADED SEATING AREAS
- INTERIOR POCKET PARKS WITH LAWN, SMALL PLAYGROUND, PLAZAS AND SMALL SHELTERS WITH PICNIC TABLES
- BATTING CAGES

PASSIVE AREA

- PRESERVE LARGE TREES AT OLD HOME SITE
- OPEN PLAY LAWN
- SMALL SHELTERS WITH PICNIC TABLES
- SMALL PLAYGROUND FOR INTERPRETIVE NATURAL PLAY OPPORTUNITIES
- SHARED RESTROOM WITH TEEN AREA

TRAFFIC SIGNAL

- PEDESTRIAN CROSSING CONNECTING OUTDOOR FAMILY LEISURE AQUATIC CENTER AND ATHLETIC FIELDS
- LEFT TURN LANES FROM HURRICANE SHOALS RD AND RABBIT HILL RD

PASSIVE AREA

- OPEN PLAY LAWN
- SMALL SHELTER WITH PICNIC TABLES

TEEN AREA

- ±14,000 SF LIGHTED FREE SKATE AREA
- 2 FULL SIZE AND 2 HALF SIZE BASKETBALL COURTS
- SMALL SHELTER AND STAND ALONE RESTROOM

TRAFFIC CIRCLE

- POTENTIAL CONNECTION TO RABBIT HILL PARK EXPANSION

LAKE

- 12' WIDE BOARDWALK WITH SMALL SHELTER
- TIERED OVERLOOK CONNECTED TO BOARDWALK
- SAFETY FENCING ALONG HIGH-USE AREAS SUCH AS PLAY LAWNS
- SERVES AS DETENTION FACILITY AND SOURCE OF IRRIGATION WATER
- OVERLOOKS WITH ADULT SWINGS UNDER ARBORS

PAVILION/PLAYGROUND COMPLEX

- OPEN PLAY LAWN
- LARGE OCTAGON RENTAL PAVILION
- LARGE COMMUNITY PLAYGROUND WITH SEPARATE AREAS FOR 2-5 AND 5-12 YEAR OLDS
- SMALL STAND ALONE RESTROOM
  - MULTI-PURPOSE TRAIL LOOP AROUND LAKE
  - HORSESHOES PITS

RABBIT HILL PARK CONNECTION

- PEDESTRIAN CROSSING AT 4-WAY STOP
- PUSH-BUTTON CROSSING SIGNAL

TRAILHEAD

- SMALL PLAZA WITH SEAT WALLS
- SMALL KIOSK WITH WAYFINDING SIGNAGE
- SHARED USE OF SMALL RESTROOM
- CONNECTION TO FUTURE GREENWAY CORRIDOR

EASEMENT TRAIL

- PORTION IN POWER ESMT. WILL SERVE AS FUTURE GREENWAY CONNECTION
- REMOVE EXISTING STRUCTURE AND REPLACE WITH INTERPRETIVE FEATURE

FINAL MASTER PLAN

MOUNTAIN VIEW COMMUNITY PARK SITE

GWINNETT COUNTY, GEORGIA

0 120 240

SCALE: 1"=120'-0"
JUNE 30, 2009

LOSE & ASSOCIATES, INC.
LANDSCAPE ARCHITECTURE · ARCHITECTURE · ENGINEERING
220 W. CROGAN ST. SUITE 100 LAWRENCEVILLE, GA 30045 770-338-0017

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Gwinnett County Recreation Authority Presentation

On September 10, 2009, the final master plan (**Book1, Figure 15**), now re-titled as part of the existing Rabbit Hill Park, was included with the Rabbit Hill Park expansion graphics and was presented to the Gwinnett County Recreation Authority. Also presented was a summary of costs associated with the recommended phasing schedule (**Appendix B**) developed by the citizen input committee. Following the presentation, the Authority unanimously voted to approve the plan.

Cited Resources

8.1 Resource Mapping

GIS and Aerial Photography. Digital format. Provided by Gwinnett County Department of Community Services, Planning Development and Special Operations.

United States Department of Agriculture Soil Conservation Service. An Update for the Soil Survey of Gwinnett County, Georgia. 1988.

United States Department of the Interior. "United States Geological Survey 7.5 Minute Series Topographic Mapping."

Appendix A

Final Opinion of Probable Cost

Mountain View Community Park Final Master Plan

Opinion of Probable Cost- 6-17-09

Item	Qty.	Unit	$/Unit	Cost
SOUTH PARCEL				
Overall Site Work/ Utilities				
Mass grading	160000	cy	$ 3.00	$ 480,000.00
Rock blasting and grading (budget)	1	ls	$ 250,000.00	$ 250,000.00
Erosion control (budget, includes tree protection fencing, silt fence, erosion control matting, etc)	1	ls	$ 200,000.00	$ 200,000.00
Storm drainage (budget)	1	ls	$ 20,000.00	$ 20,000.00
Outfall structure	1	ea	$ 3,500.00	$ 3,500.00
Spillway	1	ls	$ 35,000.00	$ 35,000.00
Clay liner (import)	6800	cy	$ 12.00	$ 81,600.00
Heavy duty clearing	6.4	ac	$ 10,000.00	$ 64,000.00
Light duty clearing	42.4	ac	$ 2,500.00	$ 106,000.00
8" Sewer service (includes structures)	1200	lf	$ 65.00	$ 78,000.00
2" Domestic water meter	2	ls	$ 22,000.00	$ 44,000.00
Domestic backflow preventer	2	ls	$ 2,500.00	$ 5,000.00
2" Domestic water service	1000	lf	$ 20.00	$ 20,000.00
8" Fire service	1710	lf	$ 42.00	$ 71,820.00
Heavy duty asphalt pavement	19800	sf	$ 4.00	$ 79,200.00
Concrete curb and gutter	1300	lf	$ 13.00	$ 16,900.00
Striping	1	ls	$ 2,500.00	$ 2,500.00
Heavy duty concrete pavement (at roundabout)	2050	sf	$ 4.50	$ 9,225.00
Irrigation well (includes testing, evaluation and	1	ls	$ 75,000.00	$ 75,000.00
Irrigation pump	1	ls	$ 40,000.00	$ 40,000.00
Pipe gates	2	ea	$ 3,500.00	$ 7,000.00
Outdoor storage area (includes fencing, light duty concrete pavement and shed)	1	ls	$ 85,000.00	$ 85,000.00
Park entry signage (includes landscaping, electrical service)	1	ea	$ 10,000.00	$ 10,000.00
Subtotal with 5% Mobilization, Fees, Etc. and 15% Contingency				**$ 2,153,872.09**
Multi-Purpose Field Complex				
Electrical service	1	ls	$ 25,000.00	$ 25,000.00
Storm drainage (budget)	1	ls	$ 117,000.00	$ 117,000.00
8" Sewer service (includes structures)	600	lf	$ 65.00	$ 39,000.00
Fire hydrant (incl fees.)	1	ea	$ 5,200.00	$ 5,200.00
2" Domestic water service	200	lf	$ 20.00	$ 4,000.00
Heavy duty asphalt pavement	113000	sf	$ 4.00	$ 452,000.00
Concrete curb and gutter	5850	lf	$ 13.00	$ 76,050.00
Striping	1	ls	$ 9,500.00	$ 9,500.00
Vehicular and handicapped signage	16	ea	$ 250.00	$ 4,000.00
Light duty concrete pavement	28000	sf	$ 3.50	$ 98,000.00
Decorative concrete pavement	210	sf	$ 8.00	$ 1,680.00
Seat walls	55	lf	$ 75.00	$ 4,125.00
Plaza development (includes concrete pavement, tree grates, decorative concrete patterning and curbing)	1	ls	$ 34,500.00	$ 34,500.00
Multi-purpose field (includes turf, irrigation, striping, lighting, fencing, sound conduit and goal posts)	1	ls	$ 387,000.00	$ 387,000.00
Walking track (includes asphalt pavement, striping, lighting)	1	ls	$ 115,000.00	$ 115,000.00
Site furnishings (budget)	1	ls	$ 21,000.00	$ 21,000.00
Bleachers (elevated, 5 row, 122' long)	2	ea	$ 100,000.00	$ 200,000.00
Facility rules signage	1	ea	$ 1,000.00	$ 1,000.00
Trail rules signage	4	ea	$ 1,000.00	$ 4,000.00
Landscape (budget, includes parking lot trees)	1	ls	$ 40,000.00	$ 40,000.00
Irrigation (budget)	1	ea	$ 10,000.00	$ 10,000.00
Pressbox building	1	ea	$ 100,000.00	$ 100,000.00
Restrooms/concession building	1	ea	$ 375,000.00	$ 375,000.00
Subtotal with 5% Mobilization, Fees, Etc. and 15% Contingency				**$ 2,563,588.91**

Youth Baseball/Softball Complex				
Electrical service	1	ls	$ 30,000.00	$ 30,000.00
Storm drainage (budget)	1	ls	$ 200,000.00	$ 200,000.00
8" Sewer service (includes structures)	1200	lf	$ 65.00	$ 78,000.00
8" Fire service	690	lf	$ 42.00	$ 28,980.00
Fire hydrant (incl fees.)	1	ea	$ 5,200.00	$ 5,200.00
2" Domestic water service	500	lf	$ 20.00	$ 10,000.00
Heavy duty asphalt pavement	132000	sf	$ 4.00	$ 528,000.00
Concrete curb and gutter	7100	lf	$ 13.00	$ 92,300.00
Striping	1	ls	$ 9,800.00	$ 9,800.00
Vehicular and handicapped signage	17	ea	$ 250.00	$ 4,250.00
Light duty concrete pavement	71650	sf	$ 3.50	$ 250,775.00
Decorative concrete pavement	1200	sf	$ 8.00	$ 9,600.00
Seat walls	460	lf	$ 75.00	$ 34,500.00
Stairs (includes handrails)	1	ls	$ 14,000.00	$ 14,000.00
4' Decorative steel fencing (safety purposes)	250	lf	$ 30.00	$ 7,500.00
6' Vinyl-coated chain line fence	750	lf	$ 14.00	$ 10,500.00
300' Field (includes fence, dugout, score towers, turf, irrigation, lighting, infield, etc.)	1	ls	$ 240,000.00	$ 240,000.00
220' Field (includes fence, dugout, score towers, turf, irrigation, lighting, infield, etc.)	1	ls	$ 185,000.00	$ 185,000.00
200' Field (includes fence, dugout, score towers, turf, irrigation, lighting, infield, etc.)	3	ls	$ 170,000.00	$ 510,000.00
180' Field (includes fence, dugout, score towers, turf, irrigation, lighting, infield, etc.)	1	ls	$ 155,000.00	$ 155,000.00
150' Field (includes fence, dugout, score towers, turf, irrigation, lighting, infield, etc.)	1	ls	$ 135,000.00	$ 135,000.00
Small playground (budget, includes safety surfacing)	1	ls	$ 100,000.00	$ 100,000.00
Site furnishings (budget)	1	ls	$ 31,000.00	$ 31,000.00
Flag poles	1	ea	$ 1,500.00	$ 1,500.00
Plaza tree grates	4	ea	$ 500.00	$ 2,000.00
Bleachers (5 row, 21' long)	14	ea	$ 5,000.00	$ 70,000.00
Facility rules signage	1	ea	$ 1,000.00	$ 1,000.00
Landscape (budget, includes parking lot trees)	1	ls	$ 60,000.00	$ 60,000.00
Irrigation (budget)	1	ea	$ 20,000.00	$ 20,000.00
Small pavilion	3	ea	$ 50,000.00	$ 150,000.00
Restrooms/concession building (w/ breezeway)	1	ea	$ 475,000.00	$ 475,000.00
Subtotal with 5% Mobilization, Fees, Etc. and 15% Contingency				**$ 4,164,552.79**
Passive Area				
Storm drainage (budget)	1	ls	$ 30,000.00	$ 30,000.00
2" Domestic water service	200	lf	$ 20.00	$ 4,000.00
Light duty concrete pavement	2850	sf	$ 3.50	$ 9,975.00
8' Asphalt trail spurs	900	lf	$ 35.00	$ 31,500.00
Decorative concrete pavement	200	sf	$ 8.00	$ 1,600.00
Fishing pier with shelter (includes tiered overlook, abutments and benches)	1	ls	$ 190,000.00	$ 190,000.00
Seat walls	75	lf	$ 75.00	$ 5,625.00
Interactive learning play area	1	ls	$ 50,000.00	$ 50,000.00
Site furnishings (budget)	1	ls	$ 23,000.00	$ 23,000.00
Facility rules signage	1	ea	$ 1,000.00	$ 1,000.00
Landscape (budget, includes turf interior)	1	ls	$ 25,000.00	$ 25,000.00
Irrigation (budget)	1	ea	$ 10,000.00	$ 10,000.00
Small pavilion	4	ea	$ 50,000.00	$ 200,000.00
Subtotal with 5% Mobilization, Fees, Etc. and 15% Contingency				**$ 702,402.75**
Teen Area				
Electrical service	1	ls	$ 20,000.00	$ 20,000.00
Storm drainage (budget)	1	ls	$ 40,000.00	$ 40,000.00
8" Sewer service (includes structures)	500	lf	$ 65.00	$ 32,500.00
Fire hydrant (incl fees.)	1	ea	$ 5,200.00	$ 5,200.00
2" Domestic water service	300	lf	$ 20.00	$ 6,000.00
Heavy duty asphalt pavement	27800	sf	$ 4.00	$ 111,200.00
Concrete curb and gutter	1480	lf	$ 13.00	$ 19,240.00
Striping	1	ls	$ 2,000.00	$ 2,000.00

Vehicular and handicapped signage	6	ea	$ 250.00	$	1,500.00
Light duty concrete pavement	10000	sf	$ 3.50	$	35,000.00
Basketball area (2 full size courts, 2 half size courts, includes fencing, court surfacing, striping and lighting)	1	ls	$ 155,000.00	$	155,000.00
Lighted free skate area (budget, +/- 14,000 sf)	1	ls	$ 500,000.00	$	500,000.00
Site furnishings (budget)	1	ls	$ 15,000.00	$	15,000.00
Facility rules signage	1	ea	$ 1,000.00	$	1,000.00
Landscape (budget, includes parking lot trees)	1	ls	$ 10,000.00	$	10,000.00
Irrigation (budget)	1	ea	$ 3,000.00	$	3,000.00
Small pavilion	1	ea	$ 50,000.00	$	50,000.00
Restroom	1	ea	$ 110,000.00	$	110,000.00
Subtotal with 5% Mobilization, Fees, Etc. and 15% Contingency				**$**	**1,348,342.80**
Pavilion/Playground Complex					
Electrical service	1	ls	$ 20,000.00	$	20,000.00
Storm drainage (budget)	1	ls	$ 90,000.00	$	90,000.00
8" Sewer service (includes structures)	400	lf	$ 65.00	$	26,000.00
8" Fire service	460	lf	$ 42.00	$	19,320.00
Fire hydrant (incl fees.)	1	ea	$ 5,200.00	$	5,200.00
2" Domestic water service	260	lf	$ 20.00	$	5,200.00
Heavy duty asphalt pavement (includes deceleration lane)	42000	sf	$ 4.00	$	168,000.00
Concrete curb and gutter (includes deceleration lane)	2550	lf	$ 13.00	$	33,150.00
Striping	1	ls	$ 4,350.00	$	4,350.00
Vehicular and handicapped signage	4	ea	$ 250.00	$	1,000.00
Light duty concrete pavement	10150	sf	$ 3.50	$	35,525.00
8' Asphalt trail spurs	900	lf	$ 35.00	$	31,500.00
Large community playground	1	ls	$ 250,000.00	$	250,000.00
Horseshoes pits	2	ea	$ 2,500.00	$	5,000.00
Shade structures (at playground)	4	ea	$ 10,000.00	$	40,000.00
Site furnishings (budget)	1	ls	$ 44,000.00	$	44,000.00
Park entry signage (includes landscaping, electrical service)	1	ea	$ 10,000.00	$	10,000.00
Facility rules signage	1	ea	$ 1,000.00	$	1,000.00
Landscape (budget, includes parking lot trees, lawn	1	ls	$ 40,000.00	$	40,000.00
Irrigation (budget)	1	ea	$ 25,000.00	$	25,000.00
Arbor decking	2	ea	$ 68,000.00	$	136,000.00
Bench swings	4	ea	$ 3,000.00	$	12,000.00
Arbor	2	ea	$ 5,100.00	$	10,200.00
Large octagon rental pavilion	1	ea	$ 120,000.00	$	120,000.00
Small restroom	1	ls	$ 110,000.00	$	110,000.00
Subtotal with 5% Mobilization, Fees, Etc. and 15% Contingency				**$**	**1,500,252.34**
Trailhead/ Trails					
Storm drainage (budget)	1	ls	$ 25,000.00	$	25,000.00
Light duty concrete pavement	1200	sf	$ 3.50	$	4,200.00
Light duty concrete pavement (trail connections)	1150	sf	$ 3.50	$	4,025.00
Decorative concrete pavement	210	sf	$ 8.00	$	1,680.00
8' Asphalt trail spur (includes lake loop)	2500	lf	$ 35.00	$	87,500.00
12' Asphalt trail	7920	lf	$ 45.00	$	356,400.00
Raised pedestrian crossing	4	ea	$ 7,000.00	$	28,000.00
12' wide boardwalk (at stream crossings, wetlands)	60	lf	$ 650.00	$	39,000.00
Steel bridge over dam spillway	1	ls	$ 50,000.00	$	50,000.00
Seat walls	60	lf	$ 75.00	$	4,500.00
Site furnishings (budget)	1	ls	$ 5,000.00	$	5,000.00
Trail rules signage	4	ea	$ 1,000.00	$	4,000.00
Landscape (budget)	1	ls	$ 10,000.00	$	10,000.00
Irrigation (budget)	1	ea	$ 3,000.00	$	3,000.00
Kiosk with interpretive signage	1	ls	$ 7,500.00	$	7,500.00
Subtotal with 5% Mobilization, Fees, Etc. and 15% Contingency				**$**	**760,489.54**
Secondary Entry (from Hurricane Shoals Road)					
Heavy duty asphalt pavement	19850	sf	$ 4.00	$	79,400.00
Concrete curb and gutter	1640	lf	$ 13.00	$	21,320.00
Striping	1	ls	$ 1,000.00	$	1,000.00
Raised pedestrian crossing	1	ea	$ 7,000.00	$	7,000.00

Pipe gates	1	ea	$ 3,500.00	$	3,500.00
Park entry signage (includes landscaping, electrical service)	1	ea	$ 10,000.00	$	10,000.00
Subtotal with 5% Mobilization, Fees, Etc. and 15% Contingency				**$**	**147,580.65**
Intersection Improvements (At Hurricane Shoals Road and Rabbit Hill Road)					
Heavy duty asphalt pavement	39000	sf	$ 4.00	$	156,000.00
Concrete curb and gutter	2000	lf	$ 13.00	$	26,000.00
Striping	1	ls	$ 7,500.00	$	7,500.00
Traffic signal	1	ls	$ 105,000.00	$	105,000.00
Subtotal with 5% Mobilization, Fees, Etc. and 15% Contingency				**$**	**355,608.75**
NORTH PARCEL/OUTDOOR FAMILY LEISURE AQUATIC CENTER					
Electrical service	1	ls	$ 25,000.00	$	25,000.00
Mass grading	38000	cy	$ 4.50	$	171,000.00
Erosion control (budget, includes tree protection fencing, silt fence, erosion control matting, etc)	1	ls	$ 50,000.00	$	50,000.00
Storm drainage (budget)	1	ls	$ 195,000.00	$	195,000.00
Heavy duty clearing	6.5	ac	$ 10,000.00	$	65,000.00
2" PVC force main	525	lf	$ 20.00	$	10,500.00
Sewer service pump station	1	ls	$ 35,000.00	$	35,000.00
Pavement cut and overlay (for sanitary sewer line at Rabbit Hill Circle)	1	ls	$ 3,500.00	$	3,500.00
2" Domestic water meter	1	ls	$ 22,000.00	$	22,000.00
Domestic backflow preventer	1	ls	$ 2,500.00	$	2,500.00
2" Domestic water service	190	lf	$ 20.00	$	3,800.00
8" Fire service	120	lf	$ 42.00	$	5,040.00
Fire hydrant (incl fees.)	1	ea	$ 5,200.00	$	5,200.00
Heavy duty asphalt pavement	86500	sf	$ 4.00	$	346,000.00
Concrete curb and gutter	4720	lf	$ 13.00	$	61,360.00
Striping	1	ls	$ 3,400.00	$	3,400.00
Vehicular and handicapped signage	9	ea	$ 250.00	$	2,250.00
Light duty concrete pavement	10000	sf	$ 3.50	$	35,000.00
6' Wide natural surface trail	1500	lf	$ 15.00	$	22,500.00
8' Wide asphalt trail	2200	lf	$ 15.00	$	33,000.00
Light duty concrete pavement (trail connections)	1750	sf	$ 3.50	$	6,125.00
Seat walls	235	lf	$ 75.00	$	17,625.00
Site furnishings (budget)	1	ls	$ 15,000.00	$	15,000.00
Outdoor family aquatic center (includes all pavement, fencing, lighting, pumps, funbrellas and aquatic features)	1	ls	$ 1,300,000.00	$	1,300,000.00
Facility rules signage	1	ea	$ 1,000.00	$	1,000.00
Trail rules signage	4	ea	$ 1,000.00	$	4,000.00
Landscaping (budget, includes parking lot trees)	1	ls	$ 40,000.00	$	40,000.00
Irrigation (budget)	1	ls	$ 15,000.00	$	15,000.00
Pool house	1	ls	$ 402,000.00	$	402,000.00
Pump house	1	ls	$ 141,000.00	$	141,000.00
Subtotal with 5% Mobilization, Fees, Etc. and 15% Contingency				**$**	**3,669,351.00**
	DEVELOPMENT SUBTOTAL			**$**	**17,366,041.61**
	A&E, Prj. Mgt. Fees (12%)			**$**	**2,083,924.99**
		PROJECT TOTAL		**$**	**19,449,966.61**

These costs were prepared using figures from previous park project developed over the past few years, not during the hyper-competitive bid market of 2009. As it is unknown as to when portions of the park will be developed, we recommend setting budgets, establishing phasing limits, etc. using these figures, with the understanding that some additional features (add alternates) may be possible to be constructed as part of an established construction budget. Should the hyper-competitive bid market of 2009 reflect a permanent reset of the bid market, all figures should be reevaluated prior to establishing construction budgets.

This opinion of probable cost is provided by Lose & Associates, Inc. for Mt. View Community Park. Estimates of construction quantities and opinions of probable cost provided by us are made on the basis of our experience, level of design and known construction costs. They represent our best judgment as design professionals. We cannot and do not, however, guarantee that the actual construction quantities or costs will not vary from our quantities and opinions of probable costs. Lose & Associates makes no warranty, expressed or implied, for the accuracy of such opinions as compared to bid or actual costs.

Appendix B

Meeting Minutes

LOSE & ASSOCIATES, INC.
LANDSCAPE ARCHITECTURE • ARCHITECTURE • PLANNING

MEMORANDUM

Date: 10-31-08

To: Rex Schuder

From: Whit Alexander

Re: Mountain View Community Park Master Plan Citizen Input Meeting 10-30-08

On 10-30-08, a meeting was held at Mill Creek High School to gather public input for the master plan program and to begin to assemble the citizen input committee for the project. Park and Recreation Division staff included Grant Guess and Rex Schuder. Lose & Associates representatives included Rebecca Alexander.

Grant welcomed the citizens in attendance. As there was a large group of people in the audience already discussing soccer as the meeting opened, Grant asked how many were there to talk about expanding soccer at Rabbit Hill Park. Most responded they were. Grant welcomed them to fill out a comment form, but since tonight's meeting was about Mountain View Park they would not be talking about expanding Rabbit Hill Park tonight. The County intends to have a member on the steering committee from the Dacula Soccer Group, so their needs will be voiced. Rex added that due to the impending opening of Mountain View High School the County wants to initiate the master plan for Mountain View Park before moving on to planning the expansion of Rabbit Hill Park. He continued saying that the Mountain View Park site doesn't have enough space to add a soccer complex in addition to the intended baseball/softball complex and football/lacrosse/soccer multi-use field and the site at Rabbit Hill Park is larger and would better accommodate soccer complex expansion.

Rex asked that the citizens fill out their input surveys. He then explained the master planning process and stressed that those wishing to serve on the input committee consider the time commitment required.

There was a question and answer period that followed. The following is a synopsis of topics covered.

Comment: What is the timeline to begin construction on Mountain View Park?
Response: It all depends on whether the SPLOST is approved, so there is no timeline to give. If it passes, and it's identified as an early project, it would be open in about 3 years. The master plan for Mountain View and another for the expansion of Rabbit Hill will take about 6 months. The process for construction documents and permitting will take another 9. There is another project currently under design for Rabbit Hill

including a pavilion, a playground and a dog park. Grant invited attendees to review graphics of the improvements. Although it's unknown whether the SPLOST will pass or not, the County is holding meetings now because the Mountain View High School and other schools in its cluster will be opening soon.

Question: The high school is getting football and baseball immediately, but not soccer…why?
Response: The sector is already served by soccer facilities. Rabbit Hill is the largest soccer complex in the County and the County has bought land to make it bigger. Again, all that can be said is that it will depend on the passage of the SPLOST.

A good bit more discussion followed centered on the need for soccer and the hope for expansion of soccer at Rabbit Hill. Eventually conversation turned to questions and answers for the development of Mountain View Park.

Comment: There was a suggestion that walking areas, picnicking, swimming occur in neighborhoods but that athletic programs might be better served by fewer more central locations.

Response: That might work well in counties without traffic issues, but it would be difficult to have happen here. The driving times to cross the county after work make it difficult for the citizens to be served by a small number of large facilities. Rex referred to the 2007 comprehensive master plan suggestions about Mountain View Park. It does not recommend soccer for Mountain View Park Site because soccer is this sector is currently provided by Rabbit Hill Park.

Rex described that one of the proposed amenities for Mountain View Park was an outdoor family aquatic center (since the pool at Dacula is obsolete compared to County standards) and the comprehensive master plan calls for one here.

Question: What drives the siting of indoor pools? Demographics?

Response: First, indoor Competition pools are strategically placed to serve the high schools based on an earlier comprehensive plan that proposed a system of north, central, south, west and east indoor competition pools. Once the county proceeds with one of those planned facilities, demographics are consulted to determine if the size of the senior population in the sector warrants a second indoor warm water hydro aerobic/ instructional pool to serve the needs of the community.

Rex noted that the group should fill out forms to get comments in writing. Verbal comments will not be fully recorded, although discussion is welcomed.

Question: Are forms going to be online so the entire community can give comment or will other information be placed on a website?

Response: No. The county has surveyed the entire population to determine recreation interest using a lengthy and expensive statistically valid method. The purpose of the

community interest survey taken tonight is to record the interest of those that showed up to tonight's meeting.

He noted that the land for Mountain View Park is not an expansion of Rabbit Hill, it's a new park. There is also new land for the expansion of Rabbit Hill Park, but that is separate. He asked how many people were in attendance for the expansion of soccer (approximately 80%-90% of the hands).

Rex invited the group to look at the historical aerial photos available that showed the changes to the Mountain View park site over sixty years. He continued saying that now you know we are not talking about expanding Rabbit Hill Park's soccer complex on the property at Mountain View Park, if you are still interested in serving on a steering committee, please fill out applications.

Question: Statistically, how many players per acre are there compared to other areas?

Response: Those stats are in the comprehensive master plan and demonstrate a demand for additional soccer fields county-wide, not just in the Dacula area.

Rex noted that additional soccer fields are included in park master plans around the area in other parks (4 at Duncan Creek, 3 at Rock Springs, 3 at Rhodes Jordan). All are being looked at and some plans are progressing at Rhodes Jordan, but the County hasn't decided when these will be constructed. He recommended contacting your commissioner to voice your interest in additional soccer fields for the future.

Question: Why 2 or 3 fields here and there?

Response: The County's topography and available land makes it difficult to develop large pads for much larger soccer complexes. Further south in Georgia, especially in the Coastal Plain, it is common to have large flat areas that can accommodate complexes with ten or more adult sized fields. However, in the Piedmont, our hilly terrain and underlying rock make such opportunities rare. The easiest sites to develop in Gwinnett are usually already developed.

Comment: I would like to thank Gwinnett Parks for what they do. I am one of the 20% here to talk about Mountain View Park and would like to serve on the steering committee.

Rex noted that if anyone else wanted to discuss soccer, they could stay after the meeting. He then discussed the master plan and steering committee process, what volunteers could expect in a timeline of meetings, what their roles would be vs. the consultant's roles, and that although no construction dollars have been committed, they would be responsible for determining the phasing of the park's development once funds were available.

Question: How long would the process take?

Response: Rex noted approximately 6 months due to the holidays impacting when the steering committee could meet. He asked for anyone interested serving on the steering committee to please fill out a form.

The following is a list of suggestions gathered at the meeting:

- More Soccer (this suggestion dominated the comment sheets, as the majority of the audience was there thinking the meeting was about the expansion of Rabbit Hill Park for the Dacula Soccer Association).
- An Outdoor Aquatics Center
- Indoor Pools (with programs for seniors)
- Playgrounds
- Climbing structures
- Picnic Areas
- Pavilions
- Nature Trails
- Paved bicycle or jogging Trails
- Teen facilities
- Dog Park
- Football
- Basketball
- Baseball/softball
- Senior Center
- Benches
- Fishing if there is a pond
- Tennis courts
- Disc golf course
- Volleyball pits
- Lacrosse field
- Open space for multi-sport usage

End of Memo

Thank you.

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MEMORANDUM

Date: 1-30-09
To: Rex Schuder
From: Whit Alexander
Re: Mountain View Community Park Master Plan Scheduling Meeting 1-29-09

On 1-29-09, a meeting was held at the Gwinnett County Justice and Administration Center to meet the citizen input committee and to set the schedule for the remaining meetings, deadlines, etc. Park and Recreation Division staff included Grant Guess and Rex Schuder. Lose & Associates representatives included Whit Alexander. Citizen Input Committee members present included: Marilyn Palmer, Bill Wooton, Thurman Roberts, Karen Lee, Blaise Fitzpatrick, Dale Hansen, Vicki Wood, Terri Ervin, Dennis Hollingsworth, Stephen Hatcher, Corbitt Woods, Debra Edgehill, Blake Watts, Alan Larkins, Gary Bishop, and Felicia Wilson.

Rex welcomed the group and briefly described the design process and the fact that it would take several months to complete. The following is a list of dates and deadlines that were established by the group.

March 21st: Park System Tour-Group to assemble at the GJAC parking lot.
March 27th: Site Walk-Group to assemble at Rabbit Hill Park at 12:30 pm.
April 10th: Lose to deliver pdf's of 3 concepts and site analysis sheets to Rex for review.
April 17th: Lose to deliver prints of 3 concepts and site analysis sheet to Rex for distribution to committee.
April 23rd: Presentation of 3 concepts and site analysis sheets to committee.
May 15th: Lose to deliver pdf of preliminary master plan to Rex for review
May 22nd: Lose to deliver prints of preliminary master plan to Rex for distribution to committee.
June 2nd: Presentation of preliminary master plan to committee.
June 17th: Lose to deliver pdf of final master plan to Rex for review.
June 24th: Lose to deliver prints of final master plan to Rex for distribution to committee.
June 30th: Presentation of final master plan to committee and establishment of phasing by committee.
July 21st: Additional date for additional meeting, if necessitated by hybrid concept plan.

Following the meeting, Alan Larkins asked to be excused from the committee, as his interest in the project was for an indoor aquatic center, and since that won't be part of the project program, felt his input would be limited.

End of Memo

Thank you.

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MEMORANDUM

Date: 3-23-09
To: Rex Schuder
From: Whit Alexander
Re: Mountain View Community Park Master Plan Park Tour 3-21-09

On 3-21-09, a tour of existing Gwinnett County Parks was given by Gwinnett County Parks staff, to give citizen input committee members and understanding of standard park development and facilities the County typically offers. Park and Recreation Division staff included Grant Guess and Rex Schuder. Lose & Associates representatives included Whit Alexander. Citizen Input Committee members present included: Marilyn Palmer, Bill Wooton, Karen Lee, Vicki Wood, Terri Ervin, Dennis Hollingsworth, Stephen Hatcher, Debra Edgehill, Gary Bishop, and Felicia Wilson.

The group assembled at the Gwinnett County Justice and Administration Center and traveled by van to Lenora Park. At Lenora Park, Rex described the loop multi-purpose trail system and how it serves to increase security by having responsible adults near all parts of the park. The stand-alone outdoor family leisure aquatic center was reviewed for inclusion in the master plan. The standard multi-purpose field complex (football) was reviewed for inclusion in the master plan. The multi-field baseball complex and playground/rental pavilion complex were also reviewed, with it noted that since these were initially developed county, many things have been improved as subsequent parks were developed. Things such as the amount of parking, detention, grading, etc. for all the facilities were discussed so that the group would have an understanding of the amount of space such developments occupy.

The group then traveled to Pinckneyville Park to review the 7-field baseball complex. Rex noted how this was an evolution in refinement from the Lenora plan to include a standard concession restroom building. He wanted the group to understand how the terrain at the site dictated the layout of the complex, where portions of it were built on several terraces to accommodate grades. He wanted the group to understand that the footprint required for such a large facility didn't stop at the edges of the fields and parking, but extended to allow grading of cut and fill slopes. He noted that at Mt. View Park, such stepped terracing may be required, not because the site is especially steep (in fact, it is relatively gentle in slope), but because shallowness of underlying rock may dictate how much cut and fill could occur in any one terrace. He also noted that in such a field configuration, sometimes the larger field can be place outside the immediate complex, allowing for a more typical backstop, since protection of the complex center area by "Hollywood" backstops is not necessary.

The group finally traveled to Duncan Creek Park, where another standard multi-purpose field (football) was reviewed. The group also reviewed a standard basketball full-court and half-court complex. The group reviewed a standard playground/pavilion complex where the pavilion is

sufficiently adjacent to parking to allow easier set up for events. The large community playground, with its separation of play features by age group, multiple surfacing options, sufficient shade structures, etc. was discussed. The small open lawn was discussed as was the small stand alone restroom. The reasoning for the placement of the facilities, including passive policing, rental vs. open access of pavilion vs. playground, etc. was also described.

Following the visit to Duncan Creek Park, the vans returned to the Gwinnett County Justice and Administration Center and the tour adjourned.

End of Memo

Thank you.

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MEMORANDUM

Date: 3-27-09
To: Rex Schuder
From: Whit Alexander
Re: Mountain View Community Park Master Plan Site Tour 3-27-09

On 3-26-09, a tour of the Mt. View Community Park site was given by Gwinnett County Parks staff, to give citizen input committee members an understanding of the property and to ask for their input regarding the project program. Park and Recreation Division staff included Grant Guess and Rex Schuder. Lose & Associates representatives included Whit Alexander. Citizen Input Committee members present included: Marilyn Palmer, Blake Watts, Karen Lee, Vicki Wood, Terri Ervin, Stephen Hatcher, Debra Edgehill, Blaise Fitzpatrick, and Felicia Wilson.

The group walked the property, with Rex explaining various features of the vegetation and its succession criteria and habitat. Whit also explained stream buffer features and areas where rock would likely impact the design.

Following the site walk, the group convened at the Rabbit Hill Park Soccer Building and developed the following list of program features that should be explored in the 3 alternative conceptual drawings.

- County standard multi-purpose field
- 7-field baseball complex
- Stand alone outdoor family leisure aquatic center
- Basketball courts
- Sand volleyball courts
- Badminton courts
- County standard pavilion/playground facility
- A smaller shelter/smaller tot lot playground facility separate from the larger pavilion facility
- An open maintained lawn area for open play
- A network of paved multi-purpose trails
- Natural surface paths in the woods on the northern parcel
- Traffic calming devices (raised crosswalks, traffic circles, etc.) to allow some degree of pedestrian connectivity between the various parcels across the busy roads. Some discussion with Gwinnett DOT will be required to determine what will be allowed on this.

The meeting ended with it noted that Lose & Associates would prepare three different conceptual plans which addressed the program in different ways for presentation to the committee. Rex will be mailing these to the committee before the next meeting.

End of Memo

Thank you.

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MEMORANDUM

Date: 4-25-09
To: Rex Schuder
From: Whit Alexander
Re: Mountain View Community Park Master Plan Alternative Conceptual Plan Meeting 4-24-09

On 4-24-09, a meeting was held at the Gwinnett County Justice and Administration Center to review the site analysis information and review the 3 alternative conceptual plans prepared for the park. Park and Recreation Division staff included Grant Guess. Lose & Associates representatives included Whit Alexander and Aaron St. Pierre. Citizen Input Committee members present included: Marilyn Palmer, Bill Wooton, Karen Lee, Blaise Fitzpatrick, Vicki Wood, Terri Ervin, Stephen Hatcher, Corbitt Woods, Debra Edgehill, Gary Bishop, Felicia Wilson and Alan Coggins.

Grant welcomed the group. He explained what was about to be presented to the group was a discussion on the plans and information Rex had mailed them earlier and then turned the presentations over to Whit.

Whit presented all the various site analysis sheets. In synopsis, the stream buffer areas, areas of larger hardwood trees, potential wetland areas, and areas of shallow bedrock were noted as items that more directly impacted the layout of the 3 alternative plans. Whit also noted that some of the features, such as the larger trees at the old home site would add interest to the plans, but might not be avoidable in all concepts.

Whit then presented the 3 alternative conceptual plans. He noted the program features that had been discussed at the last meeting and noted that each of the plans captured that program in different ways, different relationships, sometimes different sizes, etc. The group discussed the plans and the following is a synopsis of important characteristics the group liked.

- The group preferred parking arrangement where a larger lot was developed, allowing overflow from baseball and football to take advantage of open parking nearby.
- The group liked the idea of the pavilion/playground facility being somewhat separated from other more active uses
- The group liked the schemes where the court activities where more near a higher use area.
- The group liked concepts that showed a passive use area around the old home site trees.
- The group like concept C, showing more direct parking access to the center of the complex, as well as concepts that showed more direct small field access to the center.
- The group like the schemes that showed a lake
- The group wanted to see if a separate entrance from Hurricane Shoals Road could be added to any of the schemes.

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- The group like the idea of the aquatic facility being more visible, closer to Hurricane Shoals Road, and further way from neighbors downstream to the west.

Several members of the group began to note that concept C seemed to capture more of the things they liked.

Grant asked for a show of hands if concept C was the preferred plan, and the vote was unanimous, with it noted that the group would like to see it moved into the preliminary master plan phase, with the following additions:

- Include a pier/pavilion in the lake, like shown on concept B.
- Include a small playground/small shelter passive area at the back of the parking for the aquatic center, near to the Hood Road end of the parking lot.
- Whit and Grant are to explore options with DOT and discuss the implications of a second entrance on Hurricane Shoals Road (including the chance of cut-through traffic in the park) versus a traffic signal at the Rabbit Hill Road entrance (that could offer some pedestrian protection for people wanting to walk back and forth to Rabbit Hill Park.
- Be sure that areas designed for children have some sort of passive pedestrian traffic protection (rails, fencing, etc.) where in proximity to roads, lakes, etc.
- The natural surface trail in the woods on the aquatic center parcel should be located to avoid direct contact/direct access to the neighboring residence. In the area immediately adjacent, consider moving the trail a little further up the hill.

Grant noted that before the next meeting the group would receive a mailing showing the preliminary master plan, which would show a more refined version of Concept C, with the suggested notes. He noted that at end of the review meeting the group would be presented the preliminary opinions of cost. He also explained how at the final review meeting, the group would have the chance to set the prioritization for the development of the various facilities.

End of Memo

Thank you.

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MEMORANDUM

Date: 6-2-09
To: Rex Schuder
From: Aaron St. Pierre
Re: Mountain View Community Park Master Plan: Preliminary Master Plan Meeting 6-2-09

On 6-2-09, a meeting was held at the Gwinnett County Justice and Administration Center to review the Preliminary Master Plan for the proposed Mountain View Community Park. Park and Recreation Division staff included Grant Guess and Rex Schuder. Lose & Associates representatives included Whit Alexander and Aaron St. Pierre. Citizen Input Committee members present included: Marilyn Palmer, Karen Lee, Blaise Fitzpatrick, Terri Ervin, Stephen Hatcher, Gary Bishop, Thurman Roberts and Blake Watts.

Rex welcomed the group and began to review the past portions in the planning process which ultimately led to the Preliminary Master Plan before the group. He also explained what was about to be presented to the group was a discussion on the plan, which Rex had previously mailed them, and then turned the presentation over to Grant.

Grant noted that prior to this presentation, Park and Recreation Division staff gathered to discuss the planning of several parks, including Mountain View. He explained that the staff recognized a duplication of basketball courts between Mountain View Park and Rabbit Hill Park Expansion. To resolve the issue, staff recommended that Lose remove the volleyball and badminton courts, which will be implemented at Rabbit Hill, and replace them with a community-sized skate park. Furthermore, staff suggested the removal of a boardwalk which crossed the lake, citing maintenance issues for the basis of this deletion. Division staff also recommended removing the small children's playground from the north parcel to increase security for Outdoor Family Leisure Aquatics Center during inactive months of the year. Staff rationalized that during these periods, the entire north parcel could be gated and closed to restrict access to this area. Finally, Grant noted that Division staff is continuing discussions with Georgia DOT regarding the development of a roundabout and traffic signal in conjunction with this park. Grant then turned the meeting over to Whit for the presentation of the Preliminary Master Plan.

Whit first noted that some additional modifications will be made following the presentation of this plan to further enhance its overall structure and efficiency. He went on to discuss elements of the plan that were added since the last presentation:

- Secondary Access Road- Following Committee recommendations, Lose provided a corridor for a secondary access road into the park from Hurricane Shoals road. The purpose of this corridor was to demonstrate the feasibility of such an entry should its development be approved by Georgia Dot.

- Maintenance Storage Yard- The maintenance facility to serve this development is currently located within Rabbit Hill Park. To alleviate the need for constantly transporting equipment between the two parks, Division staff requested a small storage yard with a covered shed. This feature will be fenced and screened with vegetation to reduce visual impacts on the surrounding park area.
- Second Passive Use Area- After recognizing the undeveloped space between the park entry road and the Multi-Purpose Field Complex parking lot, Division staff recommended providing an additional passive use area with open play lawn and a small shelter
- Skate Park- This feature is currently planned at approximately 14,000 square feet. While smaller than the skate facility at Duncan Creek, which is considered a regional facility, this skate park is intended to serve a more local community.

Whit then continued by reviewing the refined park elements previously displayed in Conceptual Master Plan "C". He highlighted several features including:

- The development of a parking lot to serve the sports fields without providing a direct cut-through in the event that the secondary access road is developed.
- The interior park spaces at the Youth Baseball/Softball Complex.
- The grading of the lake to produce varying vegetative features along the lake edge. In doing so, Lose developed a distinct water edge with safety railing along the open play lawns and vegetated "wetland" areas near the teen area and the dam.
- The open play lawn and pavilion, which is nearly three times the size of the similar feature located in Duncan Creek Park.
- The nature trail in the north parcel has been realigned to place additional distance between the trail and neighboring properties, particularly at the stream fork.

Following his presentation, Whit opened the meeting to those present to add comments on the plan or ask questions. Suggestions resulting from this discussion included the following:

- Investigate the possibility of developing grassed swales through the parking lots to achieve higher quality stormwater runoff prior to its storage in the lake.
- Extend the 180' and 150' Youth Baseball/Softball fields away from the center of the complex to provide room to expand the proposed small children's playground.
- Show additional turn lanes associated with a traffic signal at the intersection of Hurricane Shoals Rd and Rabbit Hill Rd to demonstrate any impacts the road right-of-way would have on the adjacent county-owned properties.
- Provide additional lake boardwalk/overlook along the southern side of the lake, with shaded areas and locations for adult swings.

Whit went on to present and discuss the anticipated costs for the development of the park and all of its features. He noted that overall development costs are necessary to establish baseline utilities such as access roads, water service and sewer service, as well as the grading of the site. From that point, the programmed features and their required utilities may be developed. In doing so, designers open the possibility of providing phasing options, to be selected by the committee, to accommodate county funds for development and operation. Rex noted that the prioritization of items for phasing will occur at a later date.

After this open discussion, Rex took a vote on the Committee's desire to advance this Preliminary plan to a Final Master Plan, which includes the revisions suggested during this meeting. Those present unanimously voted to advance this plan with the suggested changes.

Rex concluded the meeting by thanking those present for their participation and noted that the next meeting will feature the presentation of the Final Master Plan and a group exercise to prioritize park features to assimilate a park development phasing plan.

End of Memo

Thank you.

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MEMORANDUM

Date: 6-30-09
To: Rex Schuder
From: Aaron St. Pierre
Re: Mountain View Community Park Master Plan: Final Master Plan Meeting 6-30-09

On 6-30-09, a meeting was held at the Gwinnett County Justice and Administration Center to review the Final Master Plan for the proposed Mountain View Community Park. Park and Recreation Division staff included Grant Guess and Rex Schuder. Lose & Associates representatives included Whit Alexander and Aaron St. Pierre. Citizen Input Committee members present included: Bill Wootton, Alan Coggins, Karen Lee, Felicia Wilson and Terri Ervin.

Rex welcomed the group and began to review the past portions in the planning process which ultimately led to the Final Master Plan before the group. He noted that this plan includes the suggested changes determined at the group's previous meeting. He then asked for a vote of those present if the plan presented at this meeting should be accepted as the guiding plan for future development of this community park. The group unanimously voted to accept this Final Master Plan.

Following the plan's acceptance, Rex explained that the group's next assignment was to prioritize the development of the various park features so that a phasing plan could be created. He went on to explain how the costs for each park feature have been separated in order to provide opportunities for individual development. Both he and Whit also demonstrated to the group how park features such as the passive use areas are dependant on the development of other features, such as the multi-purpose field complex and youth baseball/softball complex. However, other features such as the pavilion/ playground complex and outdoor family leisure aquatics center could easily be developed independently. After this explanation, Rex opened the meeting to those present suggest and vote on park features to be included in Phase I Development. The following is a summary of the group's prioritization:

1. Multi-Purpose Field Complex- Unanimous vote
2. Youth Baseball/Softball Complex- Unanimous vote
3. Trail Loop- 4 out of 5 supported this feature versus the Teen Complex
4. Teen Complex- Unanimous vote. Those present wish to note that, should an additional breakdown of the Teen Complex be required to accommodate available funds for Phase I Development, the development of the basketball courts should take priority over the skatepark.
5. Passive Area Development- Unanimous vote. The group proposed that this feature should be listed as an add alternate in order to accommodate development funds, if necessary.

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After prioritizing features to be included in the first phase of development, Rex asked the group to perform the same task for the remaining features to be included in a Phase II Development. The following is a summary of the group's prioritization for Phase II:

6. Outdoor Family Leisure Aquatic Center- Unanimous vote
7. Pavilion/Playground Complex- Unanimous vote. (The group citied a similar development proposed for Rabbit Hill Park as the reason why this feature ranked last for development priority.)

With the phasing plan established, Rex concluded this planning process by asking the group the following questions:

- Was the planning process sufficient enough to prepare the group for their decisions? Those present responded "yes".
- What was the most valuable part of the planning process? Visiting other park sites to understand park features, their structure, and their layout was noted as the most valuable part of this process.
- Does the group have any ideas to make the planning process better? A recommendation from the group was to shorten the time frame of the process, if possible.

Rex thanked all of those present for their time and participation and concluded the meeting.

End of Memo

Thank you.

Appendix C

Subsurface Exploration Report

PRELIMINARY SUBSURFACE EXPLORATION
AND
GEOTECHNICAL ENGINEERING EVALUATION

AT

RABBIT HILL SOCCER COMPLEX SITE
Gwinnett County, Georgia

Submitted to

Gwinnett County Department of Community Services
75 Langley Drive
Lawrenceville, Georgia 30045

PROJECT NUMBER: MEG 97140.51
May 2007

MATRIX ENGINEERING GROUP, INC.
Geotechnical, Environmental, and Construction Materials Consultants

MATRIX ENGINEERING GROUP, INC.
Geotechnical, Environmental, and Construction Materials Consultants

May 30, 2007

Mr. Rex Schuder
Gwinnett County Department of Community Services
75 Langley Drive
Lawrenceville, Georgia 30045

Re: Report of Subsurface Exploration and Geotechnical Engineering Evaluation
The Proposed Rabbit Hill Soccer Complex Site
Gwinnett County, Georgia
Matrix Engineering Group Project Number MEG-97140.51

Mr. Schuder:

Matrix Engineering Group, Inc. has completed the authorized Subsurface Exploration for the proposed Rabbit Hill Soccer Complex Site located in Dacula, Georgia. The scope of this work was to perform a subsurface exploration including soil borings and rock coring at the proposed Soccer Complex Site in accordance with ASTM D 1586 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, Inc. appreciates the opportunity to have served the Gwinnett County Department of Community Services, 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, INC.

Sam Alyateem

GEORGIA REGISTERED No. 19197 PROFESSIONAL ENGINEER O. SAMIR ALYATEEM

Sam Alyateem, PE
Principal Geotechnical Engineer

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EXECUTIVE SUMMARY

The Subsurface Exploration was completed for the proposed Rabbit Hill Soccer Complex Site. The objective of this exploration was to evaluate the subsurface soil conditions and provide recommendations for the site preparation and proposed construction activities. The following summarizes our findings and recommendations. For detailed information and discussions, refer to the appropriate section in the body of this report.

- A total of eighty-three (83) soil test borings and six (6) rock cores were performed at the Site. The test locations were determined and located in the field by Matrix Engineering staff. The approximate test locations are shown in Figure 1 provided in the Appendix.

- Based on the soil test borings, a topsoil layer consisting of organics and a root system was encountered within the upper 6 to 12 inches throughout the site. Man made fill or disturbed soils were encountered at several test borings. Beneath the topsoil and possible fill layer, residual soils consisting primarily of very stiff clayey silts and medium dense to dense sand-silt mixtures with occasional loose soils were encountered up to the termination depths.

- Partially Weathered Rock (PWR) and bedrock were encountered at test borings B13, B26, B28, B30, B35, B37, B44, B50, B57, B69, B70 and B77 at depths ranging from 3.5 to 18.5 feet BGS. Auger refusal was encountered at test boring B30, B32, B34, B35, B37, B43, B44, B45, B49, B53, B69, B70, B71, B72, B73, B74, B76, B77, B78, and B80 at depths ranging from 7 to 16 feet BGS Excavation within these areas could be difficult and possibly require blasting or other non-conventional methods of removal.

- Groundwater was encountered at test borings B7, B13, B71, B18, B19-, B21, B27, B31, B36, B38, B46, B47, B48, B50, B52, B53, B54, B55, B56, B60, B64, B81, B82 and B83 at depths ranging from 5 to 19 feet BGS.

- The soils encountered in the test borings appear to be suitable for use as a structural fill. Moisture conditioning to achieve the acceptable moisture range should be anticipated during the construction. For structural fill recommendations, refer to Section 8.1 of this report.

- Based on the test borings and our engineering evaluation, it is our opinion that shallow foundations can be used to support single story, lightly loaded buildings. The foundations should be situated within the residual soils or at newly constructed fill in order to avoid differential settlements. We recommend a maximum net allowable soil bearing pressure of 2,500 pounds per square foot (psf) be used for the design of foundations constructed on the residual soil or newly structural fill.

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APPENDIX

Figure 1: Approximate Test Boring Locations Plan

Correlation of Standard Penetration Resistance with Relative Compactness Consistency

Boring Logs

1.0 INTRODUCTION

MATRIX ENGINEERING GROUP, INC. (Matrix) has completed the authorized Subsurface Exploration for the Rabbit Hill Soccer Complex Site located around the intersection of Rabbit Hill Road and Hurricane Shoals Road in Gwinnett County, Georgia. This work was performed in general accordance with our proposal dated April 25, 2007.

2.0 PROJECT DESCRIPTION

- We understand that the proposed developments at the site will include single-story structures, play fields, and parking areas and driveways. The design layout and elevations were not available at the time of our exploration and report preparation.
- Based on the existing topography, we anticipate that cut and fill to be on the order of 10 to 20 feet to reach the proposed grades.

3.0 SCOPE OF WORK

The scope of work for this project consisted of:

- Drilling of a total of eighty-three (83) soil borings located throughout the project site to a depth of up to twenty (20) feet below the existing grade,
- Rock coring at select locations based on the soil boring data,
- Field and laboratory testing to determine the engineering characteristics of the soils encountered in the test borings,
- Performing a geotechnical engineering evaluation, and
- Preparation of this geotechnical report based on the data gathered during the exploration.

The purpose of this report is to subsurface conditions, to analyze and evaluate the data obtained, and to provide recommendations regarding geotechnical aspects of the proposed development.

4.0 EXPLORATION AND TESTING PROGRAM

4.1 Subsurface Exploration

Our geotechnical exploration program consisted of drilling and sampling of a total of eighty-three (83) soil borings and six (6) rock coring locations. The test borings were designated and located in the field by Matrix staff by utilizing tape measurements, a compass and relying on existing features (i.e. existing roads and site features). Due to the amount of rock found during the construction of the existing Rabbit Hill

Soccer Field Complex, the borings were located by using a grid with approximately 200 feet and 250 feet spacing in order to better profile of the subsurface conditions. The subsurface exploration was performed in general accordance with ASTM D1586 standards. The borings were performed using an ATV-drill rig. The planned drilled depths were 15-20 feet below the existing surface (BGS). The borings were advanced by augering through the 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.

Representative soil samples were obtained using split-spoon tube sampling techniques in general conformance with ASTM Specification D1586. The samples were classified in the field in general accordance with ASTM D 2488 (Visual-Manual Procedure for Description of Soils). Representative portions of the soil samples were placed in glass jars and transported to our laboratory. Undisturbed samples obtained from the drilling operations were sealed immediately in the field and returned to Matrix laboratory for further evaluation and testing. During the field operations, Matrix staff maintained a continuous log of the subsurface conditions including changing in the stratigraphy and observed groundwater level. Soil descriptions and penetration resistance values are presented graphically on the Test Boring Records presented in the Appendix of this report. The water levels encountered in the borings both during and after sampling are also noted on the respective boring logs.

4.2 Laboratory and Field Testing

The laboratory testing program for this project consisted of performing soil classifications. All soil samples recovered from the borings were visually classified in accordance with ASTM D2488. In conjunction with the laboratory testing program, the soil samples was examined by a geotechnical engineer and visually classified on the basis of texture and plasticity in accordance with the Unified Soil Classification System.

The soil samples are kept in sealed glass jars and will be stored for a period of 60 days and then disposed of unless otherwise instructed by the owner or the engineer.

5.0 SITE DESCRIPTION AND GENERAL SITE GEOLOGY

5.1 Site Description

The subject site consists of three (3) separate parcels of land located at the intersection of Rabbit Hill Road and Hurricane Shoals Road in Dacula, Georgia. The parcels can be described as follows:

- Parcel 1 – Parcel 1 Occupies approximately 19.15 Acres and is triangular in shape that is bound by Rabbit Hill Road from the east, a power easement from the southern boundary and Parcel 2 from the northwestern boundary. The site is heavily wooded with pines and some hardwoods. The site topography slopes towards the western and southwestern areas where a drainage feature was noted.

- Parcel 2 – Parcel 2 occupies approximately 54.76 acres and is located at the intersection of Rabbit Hill Road and Hurricane Shoals Road. The parcel is bound by Hurricane Shoals Road from the north and Rabbit Hill Road from the east. The southern periphery is bound by Parcel 1. A commercial property is binds the site from the west with a wooded buffer. The site is primarily clear with the exception of the southwestern area of the site which is heavily wooded with pines and some hardwoods. A single-story structure is located at the center of the site and appeared to have been used for animal's shelter. The parcel appears to be gently sloping to the south and southwestern areas where a drainage feature is located. The surface run-off appears to drain in southwesterly towards the drainage feature where it exists the site at the southwestern corner.

- Parcel 3 – Parcel 3 occupies approximately 18.95 acres and is located east of the intersection of Rabbit Hill Road and Hurricane Shoals Road. The parcel is bound by Hurricane Shoals Road from the north and Rabbit Hill Road west. The site is bound by the existing Rabbit Hill Park from the south and by residential property from the east. The parcel is moderately to heavily wooded with pines and some hardwoods with the exception of the area along Rabbit Hill Road. The topography appears to slope moderately in an easterly direction where a drainage feature is located. The drainage feature appears to collect surface run-off and drains easterly where it exits the site at the eastern boundary of the site.

- Parcel 4- Parcel 4 occupies approximately 15.02 acres and is located north of the intersection of Rabbit Hill Road and Hurricane Shoals Road. The parcel is bound by Hurricane Shoals Road from the south, Rabbit Hill Circle from the east and Hood Road from the north.

Residential properties bind the site from the western periphery. The parcel is moderately to heavily wooded with pines and some hardwoods. The topography appears to slope moderately towards the central areas of the site where a drainage feature forms. Steep slopes are located near the western boundary and the center of the property. Surface run-off appears to drain towards these features and exits the site at the western boundary of the site.

5.2 General Site Geology

The project 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.

6.0 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 and ASTM D2487. The subsurface conditions are characterized as follows:

6.1 Surface Material and Man-Made Fill

A topsoil layer consisting of organics and a root system was encountered within the upper 8-12 inches. Based on the test boring records, possible man made fill or disturbed soils were noted at test borings B5, B34, B41, B42, B49, B51, B52, B53, B54, B55, B58, B59, B60, B62, B63, B64, B65, B66, B67, B68, B69, B75, B78, B79, B82 and B83. This layer appears to have been disturbed by action of agricultural cultivation grading equipment. The soil consisted primarily of firm to very stiff with occasional soft soils orange to brown clayey and silt mixtures. The standard penetration values ranged from 3 blows per foot (bpf) to 19 bpf.

6.2 Residual Material

Residual soils are those which have weathered in place from the parent rock. Residual soils were encountered at all of the test locations below the topsoil and disturbed or man-made fill. The residual soils consisted primarily of firm to very stiff clayey silts and silty clays as well as loose to medium dense, tan to yellowish orange, micaceous sandy-silt mixtures with varying degree of mica. The standard penetration values ranged from 5 bpf to 71 bpf.

6.3 Partially Weathered Rock and Bedrock

Partially Weathered Rock is a regionally used term for residual material with a Standard Penetration Resistance of 100 or more, but which can be penetrated by the soil drilling equipment. Partially weathered rock was encountered at test borings B13, B26, B28, B30, B35, B37, B44, B50, B57, B69, B70 and B77 at depths ranging from 3.5 to 18.5 feet BGS. Auger refusal was encountered at test boring B30, B32, B34, B35, B37, B43, B44, B45, B49, B53, B69, B70, B71, B72, B73, B74, B76, B77, B78, and B80 at depths ranging from 7 to 16 feet BGS. Bedrock typically is encountered beneath the partially weathered rock. The bedrock generally could not be penetrated with the drilling equipment and test borings are terminated at the bedrock elevation or above the bedrock elevation. The test borings where bedrock was encountered was drilled until auger refusal was encountered, where further penetration was not possible. The auger refusal elevations were encountered a few feet beneath the partially weathered rock elevations. Refer to Table 1 for the auger refusal elevations.

Off-set borings were drilled near the test borings where shallow auger refusal was encountered in order to determine the horizontal extent of the rock. The locations of the off-set test borings are described in Table 1.

Rock coring was also performed at a total of six (6) locations in order to further explore the nature of the auger refusal material and determine the Rock Quality Designation (RQD). The rock was cored utilizing diamond drill bit that extended up to 10 feet below the auger refusal elevations. The percent recovery and RQD were calculated and are presented in Table 2. This information is used to evaluate the rock hardness and rippability.

The geologic profile described generally represents the conditions encountered in the soil borings. Some variations in the description should be expected. The stratification lines designating the interfaces between earth materials shown on the boring logs are approximate; in-situ transition may be gradual.

TABLE 1: SUMMARY OF TEST BORING RECORDS, RABBIT HILL SOCCER COMPLEX SITE, GWINNETT COUNTY, GEORGIA

Boring No.	Planned Depth (ft BGS)	Drilled Depth (ft BGS)	Groundwater (Before/After) Depth (ft BGS)	P.W.R/Auger Refusal (ft BGS)	Remarks
B1	20	20	N/E	N/E	
B2	20	20	N/E	N/E	
B3	20	20	N/E	N/E	
B4	20	20	N/E	N/E	
B5	15	15	N/E	N/E	
B6	20	20	0/13	N/E	
B7	20	20	18/15	N/E	
B8	15	15	N/E	N/E	

Boring No.	Planned Depth (ft BGS)	Drilled Depth (ft BGS)	Groundwater (Before/After) Depth (ft BGS)	P.W.R/Auger Refusal (ft BGS)	Remarks
B9	20	20	N/E	N/E	
B10	20	20	N/E	N/E	
B11	20	20	N/E	N/E	
B12	20	20	N/E	N/E	
B13	20	20	18/15	N/E	
B14	20	20	-/17	N/E	
B15	15	15	N/E	N/E	
B16	20	20	N/E	N/E	
B17	15	20	N/E	N/E	
B18	20	20	-/14	N/E	
B19	20	20	-/7	N/E	
B20	15	15	-/11	N/E	
B21	20	20	-/14	N/E	
B22	20	17	-/14	N/E	
B23	15	15	N/E	N/E	
B24	20	16	-/14	16/16	
B25	15	15	N/E	N/E	
B26	20	13.5	15/8	13.5/13.5	
B27	20	20	-/7	N/E	
B28	15	15	-/11	N/E	
B29	20	20	-/11	N/E	
B30	20	13	-/11	13/13	
B31	20	20	13/11	N/E	
B32	20	13	-/6	13/13	
B33	15	15	-/7	N/E	
B34	20	13	N/E	10/13	
B35	20	11	-/4	10/11	
B36	20	20	8/5	N/E	
B37	20	8.5	8/7	10/8	Off-set to 50' South-West. A.R. at 8'
B38	20	20	13	N/E	
B39	20	20	N/E	N/E	
B40	15	15	N/E	N/E	
B41	15	15	N/E	N/E	
B42	20	20	-/17	N/E	

Boring No.	Planned Depth (ft)	Drilled Depth (ft)	Groundwater (Before/After) Elevations (ft MSL)	P.W.R/A.R. (Ft BGS)	Remarks
B43	20	11	N/E	12/12	
B44	20	11	N/E	13.5/11	
B45	20	20	17/13	N/E	
B46	15	15	12/6	N/E	
B47	20	20	15.5/14	N/E	
B48	15	15	N/E	7/8	
B49	20	7	N/E	5/7	Off-set 50' South. A.R. at 7'
B50	15	15	12/12	N/E	
B51	20	20	-/10	N/E	
B52	15	15	10/0	N/E	
B53	20	20	12/9	N/E	
B54	20	20	13/6	N/E	
B55	15	15	12/11	N/E	
B56	15	15	3.5/2.5	N/E	
B57	15	15	N/E	N/E	
B58	20	20	N/E	N/E	
B59	20	20	N/E	N/E	
B60	20	20	19/0	N/E	
B61	15	15	-/12	N/E	
B62	20	20	N/E	N/E	
B63	20	15	N/E	N/E	
B64	15	15	5/0	N/E	
B65	20	20	-/15.5	N/E	
B66	20	20	-/17	N/E	
B67	20	20	N/E	N/E	
B68	20	20	N/E	N/E	
B69	20	13	N/E	10/13	
B70	20	8	N/E	5/8	Off-set 50' North and South. A.R. at 8'and d 7'.
B71	20	7	N/E	5/7	Off-set 50' South. A.R. at 2' Off-set 100' South. A.R. at 3'
B72	20	12	N/E	10/12	

Boring No.	Planned Depth (ft)	Drilled Depth (ft)	Groundwater (Before/After) Elevations (ft MSL)	P.W.R/Auger Refusal (Ft BGS)	Remarks
B73	20	11	N/E	10/11	
B74	20	5	N/E	5/8	Off-set 50' South. A.R. at 7'
B75	15	15	N/E	15	
B76	20	11	N/E	11/11	
B77	15	15	N/E	N/E	
B78	20	16	N/E	16/16	
B79	15	15	N/E	N/E	
B80	15	7	N/E	5/10	Off-set 65 South. No rock was found
B81	20	20	16/16	N/E	
B82	20	20	8/8	N/E	
B83	20	20	11/11	N/E	

Notes:
BGS: Below Ground Surface
P.W.R.: Partial Weathered Rock.
A.R.: Auger Refusal.
N/E: Not Encountered
- : No Groundwater was encountered during drilling

TABLE 2: ROCK CORING DATA, RABBIT HILL SOCCER COMPLEX SITE, GWINNETT

CORE NUMBER/ BORING NO.	TOTAL DEPTH OF CORE	RECOVERY (%)	RQD (%)	REMARKS
R37	10	62.5	12.5	Highly weathered rock
R48	5	100	100	Solid Rock
R49	5	75	13	Highly weathered rock
R57	10	0	0	Completely weathered rock
R69	10	56	0	Completely weathered rock
R80	10	51	3	Completely weathered rock

COUNTY, GEORGIA

Notes:
Core Numbers (i.e. R37 matches the Boring Test Location Number B37) as shown on Figure 1.
RQD: Rock Quality Designation.

6.4 Groundwater

Groundwater level measurements were obtained in boreholes during the drilling operations. Groundwater was encountered at test borings B7, B13, B17, B18, B19-, B21, B27, B31, B36, B38, B46, B47, B48, B50, B52, B53, B54, B55, B56, B60, B64, B81, B82 and B83 at depths ranging from 5 to 19 feet BGS. Table 1 above and the boring logs in the Appendix, document the groundwater depths. The groundwater was encountered generally near the existing drainage features. Groundwater levels may change during the course of the year. Groundwater elevations do fluctuate with seasonal changes and typically vary on the order of 4 to 8 feet.

7.0 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, Inc. is not responsible for conclusions, opinions, or recommendations made by others based on this report.

7.1 Excavation Considerations & Dewatering

At the time of writing this report, we are unaware of the proposed earthwork plans. The site utilities plans were not available at the time of writing this report. Therefore, excavation depths to install utilities are not known at this time.

Excavation will consist of removal of the topsoil, disturbed soils, residual soils and partially weathered rock zones. Consequently, several different excavation methods may be required. Our experience indicates that the fill and residual soils that were encountered at the test borings can generally be removed with conventional earth moving equipment. Large size boulders, partially weathered rock or bedrock will require drilling and/or blasting for removal. The areas that encountered partially weathered rock and auger refusal would most likely require unconventional methods for removal. The approximate areas that would potentially require blasting are shown on the attached Figure 1. The actual depth to partially weathered rock and bedrock are provided in Table 1. Localized zones of partially weathered rock or large boulders may be encountered at other locations or between the test borings.

Partially weathered rock and auger refusal was encountered at several locations and could be encountered above the planned proposed excavation elevations. Partially weathered rock, potentially bedrock at or near the surface was encountered which will require unconventional methods for removal (such as blasting or drilling). Minor amounts of partially weathered rock can generally be removed during the mass grading operations by large front-end loaders, large hydraulic trackhoes, or heavy tractor drawn rippers (such as D-8 Caterpillar). However, more extensive depths of partially weathered rock normally require blasting or rock drilling for removal. ***Therefore, we recommend that the owner negotiate competitive unit rates for potential unforeseen conditions and rock excavation prior to awarding the contract or include an estimated quantity of excavation and replacement of unsuitable soil and rock as part of the contract.***

We recommend that the following general recommendations for rock excavation, or a variation thereof, be incorporated into the project specifications.

General Recommendations for Rock Excavation:

Rock excavation shall consist of all material which can not be excavated except by drilling, blasting or wedging. It shall consist of un-decomposed stone hard enough to ring under a hammer, and the amount of solid stone shall be not less than one (1) cubic yard in volume. Rock is further defined as follows:

(1) General Excavation: Any material occupying an original volume of more than one cubic yard which cannot be excavated with a single-tooth ripper drawn by a crawler tractor having a minimum draw bar pull rated at not less than 80,000 pounds (caterpillar D-8 or larger).

(2) Trench Excavation: Any material occupying an original volume of more than one cubic yard which cannot be excavated with a backhoe having a bucket curling force rated at not less than 40,000 pounds, using a rock bucket and rock teeth (a John Deere 790 or larger).

Groundwater was not encountered at elevations that could be at or near the proposed finished subgrade elevations at any of the test borings. The groundwater table was measured at 17 feet below the existing grade at test boring B21.

7.2 Subgrade Preparation

Subgrade preparation for the proposed development should be the stripping of topsoil and soft soils, if encountered. 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 an approximate weight of 25 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. Structural Fill procedures are provided in Section 8.1 of this report.

7.3 Foundations

Based on the test borings and our engineering evaluation, it is our opinion that shallow foundations can be used to support lightly-loaded structures. The foundations should be situated within the residual soils or at newly constructed fill in order to avoid differential settlements. We recommend a maximum net allowable soil bearing pressure not to exceed 2,500 pounds per square foot (psf) for design of foundations constructed on the residual soil or newly structural fill. The net allowable soil bearing pressure refers to that pressure which may be transmitted to the foundation soils in excess of the final minimum surrounding overburden pressure. Soft soils, if encountered, should be removed and replaced with suitable soils and properly compacted in accordance with the project specifications or our recommendations provided in Section 8 provided in this report.

Foundation inspections should be performed utilizing dynamic cone penetrometer equipment in accordance with ASTM STP 399. A recommended foundation inspection criterion is provided in Section 8.2 of this report.

7.4 Slopes and Vertical Cuts

A common practice in this region has been to limit slopes to 2.0(H) to 1.0(V) or flatter. The soil conditions at this site may tolerate a maximum temporary slope of 1.0(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 cuts that exceed 5 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 20 feet, it will be necessary to have the slopes designed by a professional engineer.

8.0 CONSTRUCTION RECOMMENDATIONS

8.1 Structural Fill

We recommend that the following criteria be used for structural fill:

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 measurements 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 2 feet under pavements or structural areas 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.

8.2 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.

Each footing excavation should be inspected by Matrix Engineering Group, Inc. in order to verify the availability of the required bearing pressure and to determine any special procedures required. At a minimum, Hand Auger and Dynamic Cone Penetrometer testing in accordance with ASTM STP 399

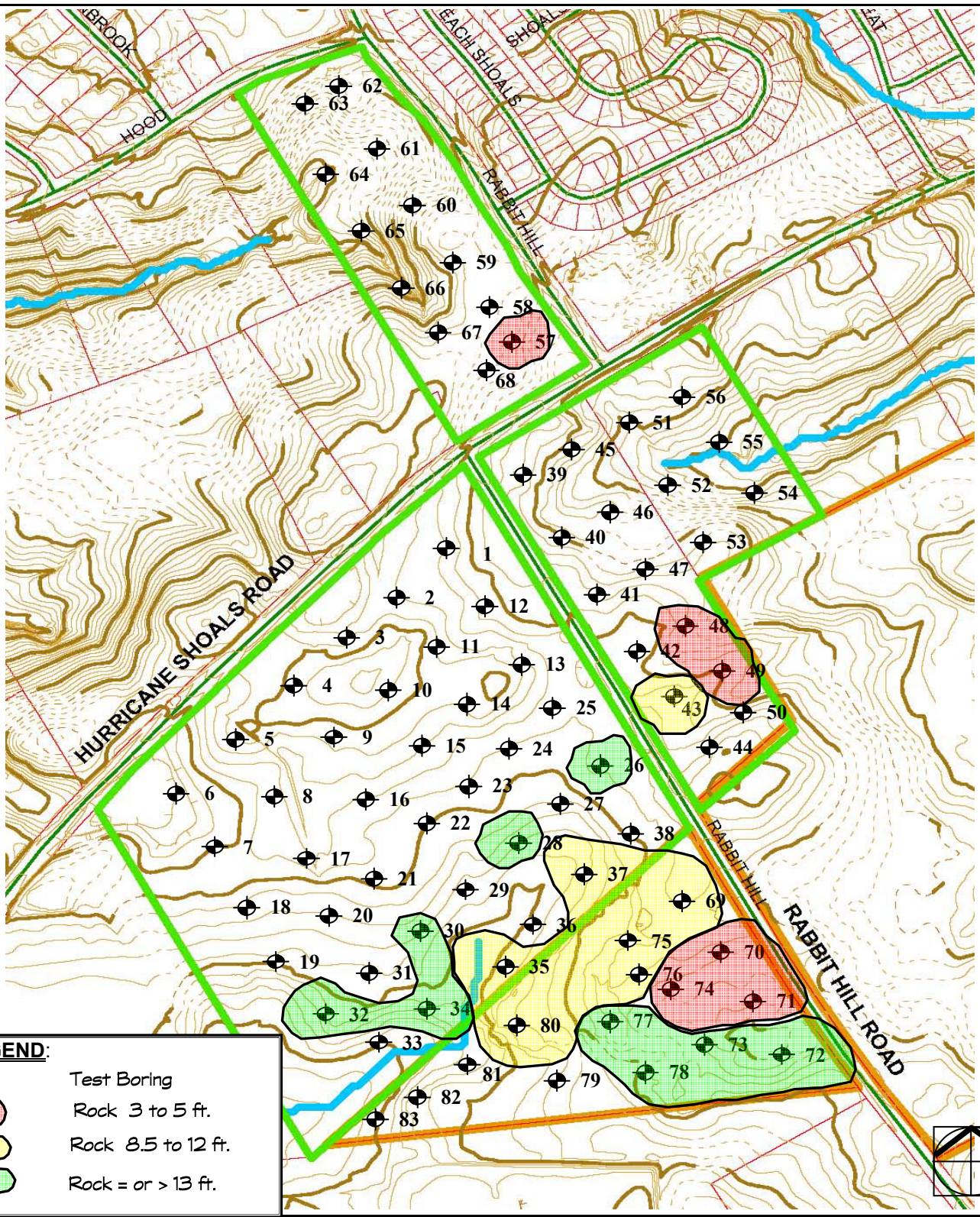
should be performed every 50 feet for wall footing and one every spread footing or as directed by the geotechnical engineer.

APPENDIX

Figure 1: Approximate Test Boring Locations Plan

Correlation of Standard Penetration Resistance with Relative Compactness Consistency

Boring Logs



MATRIX ENGINEERING GROUP, INC.

TUCKER, GEORGIA

TITLE

ApproximateTest Boring Locations Plan and Approximate Rock Boundaries Rabbit Hill Soccer Complex Site Gwinnett County, GA

CLIENT

Gwinnett County Department of Community Services

DRAWN	REVIEWED	DATE	SCALE	PROJECT NUMBER	FIGURE
- EB	SA	5/17/2007	-	97140.51	1

CORRELATION OF STANDARD PENETRATION RESISTANCE WITH RELATIVE COMPACTNESS AND CONSISTENCY

SAND & GRAVEL

NO. OF BLOWS, N	RELATIVE COMPACTNESS
0 - 4	Very Loose
5 - 10	Loose
11 - 30	Medium Dense
31 - 50	Dense
Over 50	Very Dense

SILT & CLAY

NO. OF BLOWS, N	RELATIVE COMPACTNESS
0 - 1	Very Soft
2 - 4	Soft
5 - 8	Firm
9 - 15	Stiff
16 - 30	Very Stiff
31 - 50	Hard
Over 50	Very Hard

DRILLING SYMBOLS

Water Table Level after 24 Hours

Water Table Level at the Time of Drilling

Standard Penetration Test

Rock Core

Undisturbed Sample

50/2" Number of Blows (50) to Drive the Spoon a Number of Inches (2")

DRILLING PROCEDURES

SOIL SAMPLING AND STANDARD PENETRATION TESTING ARE PERFORMED IN ACCORDANCE WITH ASTM D1586-84 (RE-APPROVED IN 1992). THE STANDARD PENETRATION RESISTANCE (N) REPRESENTS THE NUMBER OF BLOWS OF A 140-LB HAMMER FALLING 30 INCHES ON A 2.0 INCH O.D. 1.4 INCH I.D. SPLIT SPOON SAMPLER TO DRIVE IT ONE FOOT. THE SAMPLES OBTAINED FROM THE SPLIT SPOON SAMPLER ARE CLASSIFIED IN THE FIELD IN ACCORDANCE WITH ASTM D2488-93 (VISUAL MANUAL PROCEDURE FOR DESCRIPTION OF SOILS).

MATRIX ENGINEERING GROUP, INC.

Geotechnical, Environmental, and Construction Materials Consultants

DRILL HOLE LOG

BORING NO. B-1

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Very Stiff, Reddish Brown, Sandy Silt With Some Clay.	CL-ML				20
							22
	2.5						
							22
	5						
	7.5						
		Firm changing to Stiff, Tannish Orange, Sandy SILT with MnO staining.	ML				8
	10						
	12.5						
							10
	15						
	17.5						
							7
	20	Firm, Orange-Tan, Micaceous Sandy Silt With Trace Of Mno. Soil becomes wet.	ML				
		Boring Terminated At 20 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

MATRIX ENGINEERING GROUP, INC.

Geotechnical, Environmental, and Construction Materials Consultants

DRILL HOLE LOG

BORING NO. B-2

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Stiff, Dark Brown, Silty CLAY.	CL-ML				9
	2.5						
							15
	5						
	7.5						
		Very Stiff, Reddish Brown, Sandy SILT.	ML				16
	10						
	12.5						
							8
	15	Loose, Orange Tan, Micaceous, Silty Medium to Fine SAND, with Mno.	SM				
	17.5						
							9
	20	Loose, Orange Tan, Micaceous, Silty Medium to Fine SAND, with Mno.	SM				
		Boring Terminated At 20 ft. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

MATRIX ENGINEERING GROUP, INC.

Geotechnical, Environmental, and Construction Materials Consultants

DRILL HOLE LOG

BORING NO. B-3

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Stiff, Reddish Brown, Silty CLAY.	CL-ML				13
	2.5						
							7
	5						
	7.5						
		Stiff, Sandy SILT with some mica.	ML				10
	10						
	12.5						
		Loose, Orange Silty Coarse to Fine SAND with Mno staining.					9
	15						
	17.5						
		Stiff, Orange Tan Sandy SILT, Micaceous with Mno staining.					10
	20						
		Boring Terminated At 20 ft. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

MATRIX ENGINEERING GROUP, INC.

Geotechnical, Environmental, and Construction Materials Consultants

DRILL HOLE LOG

BORING NO. B-4

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Stiff, Reddish Brown, Sandy SILT.	ML				10
	2.5						
							10
	5						
	7.5						
		Medium Dense, Orange Brown, Micaceous Silty Coarse to Fine SAND With Mno staining. Moist.	SM				12
	10						
	12.5						
		Stiff, Orange Brown, Sandy SILT With Mno staining.	ML				10
	15						
	17.5						
							11
	20						
		Boring Terminated At 20 ft. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

MATRIX ENGINEERING GROUP, INC.

Geotechnical, Environmental, and Construction Materials Consultants

DRILL HOLE LOG

BORING NO. B-5

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Possible Fill, Stiff, Orange Brown, Sandy SILT with trace of Clay.	ML				14
	2.5						
		Residual, Stiff, Brown Sandy SILT with Rock Fragmentation.	ML				11
	5						
	7.5						
		Soil color changes to orange with MnO staining.					10
	10						
	12.5						
		Moist, Orange, Medium Dense, Silty, Medium to Fine SAND.	SM				11
	15						
		Boring Terminated At 15 ft. B.G.S.					
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

MATRIX ENGINEERING GROUP, INC.

Geotechnical, Environmental, and Construction Materials Consultants

DRILL HOLE LOG

BORING NO. B-6

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ ____ **AFTER 24 Hours:** ▼ 13 **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Firm, Orange, Micaceous Sandy SILT with trace of Clay.	ML				8
	2.5						
							6
	5	Firm, Orange White, Sandy SILT with Mno staining.	ML				
	7.5						
		Loose changing to Medium Dense, Orange Tan, Silty Medium to Fine SAND with Mno staining.	SM				7
	10						
	12.5						
							11
	15						
	17.5						
							10
	20	Loose, Dark Orange, Silty Coarse to Fine SAND. Wet.	SM				
		Boring Terminated At 20 ft. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

MATRIX ENGINEERING GROUP, INC.

Geotechnical, Environmental, and Construction Materials Consultants

DRILL HOLE LOG

BORING NO. B-7

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: 18 **AFTER 24 Hours:** 15 **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Very Stiff, Reddish Brown, Silty CLAY.	CL-ML				
		Topsoil.					
	2.5						16
	5						17
	7.5						
		Firm, Orange, Micaceous Sandy SILT with Mno staining.	ML				6
	10						
	12.5						
		Medium Dense, Orange, Silty Medium to Fine SAND with Mno staining.	SM				11
	15						
	17.5						
		Medium Dense, Light Tan, Silty Medium to Fine SAND. Wet.					11
	20						
		Boring Terminated At 20 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

MATRIX ENGINEERING GROUP, INC.

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DRILL HOLE LOG

BORING NO. B-8

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Stiff, Orange Brown, Sandy SILT with trace of Clay.	ML				13
	2.5						
							14
	5						
	7.5						
		Firm, Tan Orange, Sandy SILT with Trace Of Mica And Mno.	ML				6
	10						
	12.5						
		Loose, Light Tan, Orange, Silty Fine SAND With Mno.	SM				6
	15						
		Boring Terminated At 15 Feet. B.G.S.					
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

MATRIX ENGINEERING GROUP, INC.

Geotechnical, Environmental, and Construction Materials Consultants

DRILL HOLE LOG

BORING NO. B-9

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △; Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Stiff, Reddish Brown, Sandy SILT with some Clay.	ML				15
	2.5						
							14
	5						
	7.5						
		Medium Dense, Orange,Tan, Silty Medium to Fine SAND with some mica and Mno.	SM				18
	10						
	12.5						
		Loose, Orange, Silty Fine SAND with some Mno.	SM				6
	15						
	17.5						
		Dense, Orange, SAND with some rock fragment.	SM				45
	20						
		Boring Terminated At 20 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

MATRIX ENGINEERING GROUP, INC.

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DRILL HOLE LOG

BORING NO. B-10

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Very Stiff, Reddish Brown, Silty CLAY.	ML				18
	2.5						
		Stiff, Orange Brown, Sandy SILT with trace of mica.	ML				13
	5						
	7.5						
		Firm, Orange Tan, Micaceous Sandy SILT.	ML				6
	10						
	12.5						
		Loose, Dark Orange Brown, Silty Medium To Fine SAND.	SM				7
	15						
	17.5						
		Loose, Light Tan, Silty Fine SAND with Mno.	SM				8
	20						
		Boring Terminated at 20 feet B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-11

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Stiff, Reddish Brown, Sandy SILT with trace of Clay.	ML				14
	2.5						
		Medium Dense changing to Loose, Gray Orange, Silty Coarse To Fine SAND With Some Rock Fragmentation.	SM				11
	5						
	7.5						
	10						10
	12.5						
	15						10
	17.5						
		Soil color changes to orange tan.					8
	20						
		Boring Terminated At 20 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

MATRIX ENGINEERING GROUP, INC.

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DRILL HOLE LOG

BORING NO. B-12

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
	2.5	Top Soil. Residual, Stiff, Reddish Brown, Silty CLAY.	CL-ML				11
	5	Stiff changing to Firm, Orange, Reddish Brown, Sandy SILT with Some Clay.	ML				13
	7.5						
	10						7
	12.5						
	15	Loose, Tan Orange, Silty Fine SAND And Moist With Mno And Trace Of Mica.	SM				8
	17.5						
	20	Loose, Light Tan, Yellow Silty Fine SAND With moist.	SM				6
	22.5	Boring Terminated At 20 ft. B.G.S.					
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

MATRIX ENGINEERING GROUP, INC.

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DRILL HOLE LOG

BORING NO. B-13

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ 18 **AFTER 24 Hours:** ▼ 15 **CAVING>** C

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Top Soil.					
		Residual, Stiff changing to Very Stiff, Dark Silty CLAY.	CL-ML				
	2.5						11
	5						16
	7.5						
		Firm changing to Very Stiff, Orange Brown, Sandy SILT With Some Rock Fragmentation And Very Moist.	ML				5
	10						
	12.5						
	15						16
	17.5						
		Partially Weathered Rock, sampled as Gray, Orange Silty Coarse to Fine SAND.	PWR				50/0"
	20	Boring Terminated At 20 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

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DRILL HOLE LOG

BORING NO. B-14

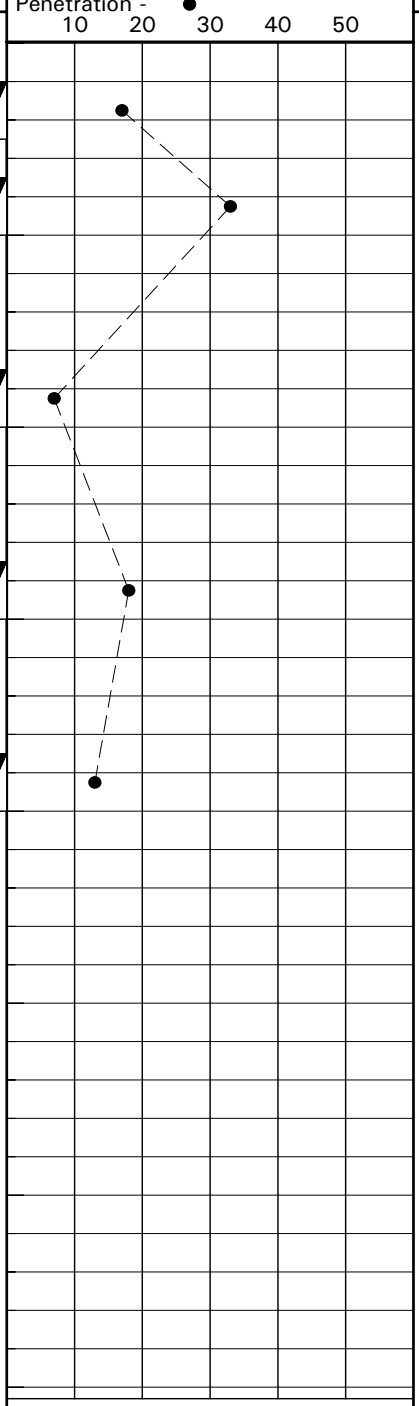
File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ ____ **AFTER 24 Hours:** ▼ 17 **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	N-Value
	0					
		Topsoil.				
		Residual, Very Stiff, Reddish Brown, Clayey Sandy SILT.	ML			17
	2.5					
		Dense, Orange Brown, Silty Medium to Fine SAND With Some Clay.	SM			33
	5					
	7.5					
		Firm, Orange Brown, Sandy SILT With Some Mno Along With Rock Fragmentation.	ML			7
	10					
	12.5					
		Medium Dense, Orange, Silty Medium to Fine SAND.	SM			18
	15					
	17.5 ▼					
		Stiff, Orange Tan, Sandy SILT With Some Mno Along With Rock Fragmentation.	ML			13
	20					
		Boring Terminated At 20 Feet. B.G.S.				
	22.5					
	25					
	27.5					
	30					
	32.5					
	35					

TEST RESULTS

Natural Moisture Content (%) - △
Penetration - ●



This information pertains only to this boring and should not be interpreted as being indicitive of the site.

MATRIX ENGINEERING GROUP, INC.

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DRILL HOLE LOG

BORING NO. B-15

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △; Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Top Soil.					
		Residual, Stiff, Orange Brown, Sandy SILT, With Some Rock Fragmentation.	ML				12
	2.5						
							13
	5						
	7.5						
		Firm, Orange Brown, Sandy SILT With Trace Of Mica And Clay.	ML				8
	10						
	12.5						
		Very Stiff, Dark Orange brown, Sandy SILT With Some Mno And Rock Fragmentation.	ML				25
	15						
		Boring Terminated At 15 Feet. B.G.S.					
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-16

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Stiff, Reddish Brown, Silty CLAY.	CL-ML				
	2.5						15
	5						15
	7.5						
		Stiff, Orange Brown, Sandy SILT.	ML				12
	10						
	12.5						
	15						12
	17.5						
		Loose, Light Tan, Silty Fine SAND With Some Mno.	SM				7
	20						
		Boring Terminated At 20 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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Geotechnical, Environmental, and Construction Materials Consultants

DRILL HOLE LOG

BORING NO. B-17

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: 14 **AFTER 24 Hours:** **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Top Soil.					
		Residual, Stiff changing to Very Stiff, Reddish Brown, Silty CLAY.	CL-ML				
	2.5						12
	5						16
	7.5						
		Medium Dense changing to Loose, Dark Orange, Silty SAND.	SM				23
	10						
	12.5						
		Soil becomes wet.					9
	15						
		Boring Terminated At 15 ft. B.G.S.					
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-18

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ 17 **AFTER 24 Hours:** ▼ 14 **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Top Soil. Residual, Very Stiff, Reddish Brown, Silty CLAY.	CL-ML				
	2.5						16
		Very Stiff changing to Firm, Tan, Sandy SILT With trace Of Clay .	ML				17
	5						
	7.5						
	10						6
	12.5						
		Loose, Orange Brown, Wet, Silty Coarse SAND With Some Mno.	SM				10
	15						
	17.5 ▽						
	20						6
		Boring Terminated At 20 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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Geotechnical, Environmental, and Construction Materials Consultants

DRILL HOLE LOG

BORING NO. B-19

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ 15 **AFTER 24 Hours:** ▼ 7 **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Stiff, Reddish Brown, Silty CLAY.	CL-ML				
	2.5						12
		Stiff changing to Soft, Tan, Sandy SILT With Trace Of Clay.	ML				10
	5						
	7.5 ▽						
							4
	10						
	12.5						
		Very Loose, Tan-Orange, Wet Silty Fine SAND With Trace Of Clay And Mno.	SM				4
	15 ▽						
	17.5						
		Medium Dense, Tan-Brown, micaceous Silty Fine SAND With trace Of Mno.					15
	20						
		Boring Terminated At 20 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-20

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ ____ **AFTER 24 Hours:** ▽ 11 **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Stiff, Reddish Brown, Silty CLAY.	CL				11
	2.5						
		Very Stiff changing to Stiff, Orange Brown, Sandy SILT with Little Clay.	ML				17
	5						
	7.5						
	10						10
	12.5						
		Loose, Orange, Silty Medium to Fine SAND.	SM				8
	15						
		Boring Terminated At 15 Feet. B.G.S.					
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-21

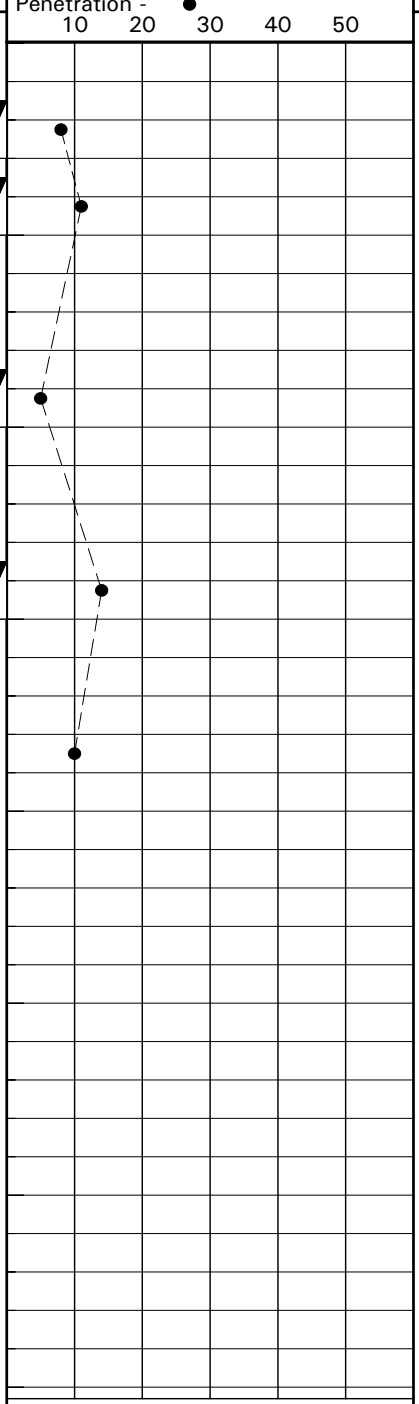
File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: 16 **AFTER 24 Hours:** 14 **CAVING>**

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	N-Value
	0					
		Topsoil.				
		Residual, Firm changing to Stiff, Reddish Brown, Silty CLAY.	CL-ML			
	2.5					8
	5					11
	7.5					
		Loose, Orange, Wet, Silty SAND With trace Of Rock Fragment.	SM			5
	10					
	12.5					
		Medium Dense, Reddish Orange, Silty Coarse SAND With Some Rock Fragmentation And Mno.	SM			14
	15					
	17.5					
		Loose, Dark Orange Brown, Silty Fine SAND With Trace Of Mica And Mno.	SM			10
	20					
		Boring Terminated At 20 Feet. B.G.S.				
	22.5					
	25					
	27.5					
	30					
	32.5					
	35					

TEST RESULTS

Natural Moisture Content (%) - △
Penetration - ●



This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-22

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ ____ **AFTER 24 Hours:** ▼ 14 **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Stiff changing to Very Stiff, Reddish Brown, Silty CLAY.	CL				14
	2.5						
							19
	5						
	7.5						
		Medium Dense, Dark Orange Brown, Silty Coarse SAND.	SM				25
	10						
	12.5						
		▽ Very Loose, Orange Brown, Wet Silty Fine SAND	SM				4
	15						
	17.5						
	20						
		Boring Terminated At 17 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

Planned Depth for Boring B22 was 20' B.G.S. Auger Refusal Encountered At The Depth Of 17' B.G.S.

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-23

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Very Stiff changing to Stiff, Reddish Brown, Silty CLAY.	CL				16
	2.5						
							17
	5						
	7.5						
							11
	10						
	12.5						
		Medium Dense,Orange Brown, Silty Coarse To Fine SAND.	SM				15
	15						
		Boring Terminated At 15 Feet. B.G.S.					
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-24

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ ____ **AFTER 24 Hours:** ▼ 14 **CAVING>** C ____

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Very Stiff, Reddish Brown, Silty CLAY.	CL-ML				16
	2.5						
							16
	5						
	7.5						
		Dense changing to Medium Dense, Gray Orange, Silty Coarse To Fine SAND With Some Rock Fragmentation.	SM				34
	10						
	12.5						
							21
	15						
		Auger Refusal At 16 Feet. B.G.S.					
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

Planned Depth for Boring B24 was 20' B.G.S. Auger Refusal Encountered At The Depth Of 16' B.G.S.

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DRILL HOLE LOG

BORING NO. B-25

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Very Stiff, Reddish Brown, Silty CLAY.	CL				19
	2.5						
		Very Stiff, Orange, Wet, Brown Sandy SILT With Some Mica.	ML				16
	5						
	7.5						
		Firm, Orange, Wet Brown Sandy SILT With Some Mica.	ML				7
	10						
	12.5						
		Medium Dense, Orange-Tan, Wet Silty Medium SAND With Trace Of Mno.	SM				13
	15	Boring Terminated At 15 Feet. B.G.S.					
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-26

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ ____ **AFTER 24 Hours:** ▼ 13 **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △; Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Stiff, Reddish Brown, Silty CLAY.	CL-ML				15
	2.5						
							14
	5						
	7.5						
		Loose, Orange, Silty Medium SAND With Trace Of Mno.	SM				9
	10						
	12.5						
		Partially Weathered Rock, sampled as Gray, Silty Medium SAND With Trace Of Rock Fragmentation.	PWR				50/0"
	15						
		Hard drilling.					
	17.5						
	20						
		Boring Terminated at 13.5 feet B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

Auger refusal was encountered at 13.5 feet BGS at test boring B-26. As a result, an additional offset borings was performed. Auger refusal was also encountered at 13.5 feet BGS.

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-27

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: 15 **AFTER 24 Hours:** 8 **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0	Topsoil.					
		Residual, Very Stiff, Reddish Brown, Silty CLAY.	CL-ML				16
	2.5						
							18
	5						
	7.5						
		Loose, Gray-Orange, Gray Clayey SAND With Some Mno.	SC				6
	10						
	12.5						
		Loose changing to Medium Dense, Gray-Orange, Silty Fine SAND With Some Mno.	SM				7
	15						
	17.5						
							12
	20	Boring Terminated At 20 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-28

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ ____ **AFTER 24 Hours:** ▼ 7 **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Stiff changing to Very Stiff, Reddish Brown, Silty CLAY.	CL-ML				12, 19
	2.5						
	5						19
	7.5 ▽						
		Stiff, Reddish Brown, Silty CLAY.	CL				11
	10						
	12.5						
		Partially Weathered Rock, sampled as Gray, Silty Coarse to Fine SAND.	PWR				50/2"
	15	Boring Terminated At 15 Feet. B.G.S.					
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-29

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ ____ **AFTER 24 Hours:** ▼ 11 **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △; Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Very Stiff, Reddish Brown, Silty CLAY.	CL-ML				22
	2.5						
							20
	5						
	7.5						
		Stiff, Light Tan, Sandy SILT With Some Clay.	ML				12
	10						
	12.5						
		Medium Dense, Gray-Orange, Silty Fine SAND with some Mno.	SM				20
	15						
	17.5						
		Partially Weathered Rock, sampled as Gray, Silty Fine To Medium SAND.	PWR				50/5"
	20	Boring Terminated At 20 ft. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-30

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ ____ **AFTER 24 Hours:** ▼ 11 **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △; Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Very Stiff changing to Stiff, Reddish Brown, Silty CLAY.	CL-ML				
	2.5						19
	5						12
	7.5						13
	10						
		Medium Dense, Orange Brown, Silty SAND With Trace Of Mno.	SM				
	12.5						
		Auger Refusal At 13 Feet. B.G.S.					
	15						
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

Auger refusal was encountered at 13 feet BGS at test boring B-30. As a result, an additional offset borings was performed. Auger refusal was also encountered at 13 feet BGS.

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-31

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: 13 **AFTER 24 Hours:** 11 **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Stiff, Orange Brown, Coarse Sandy SILT.	ML				
	2.5						11
	5						14
	7.5						
		Medium Dense, Orange Brown, Silty Medium SAND With Trace Of Mno.	SM				20
	10						
	12.5						
	15						11
	17.5						
		Soil becomes wet.					20
	20						
		Boring Terminated At 20 ft. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

MATRIX ENGINEERING GROUP, INC.

Geotechnical, Environmental, and Construction Materials Consultants

DRILL HOLE LOG

BORING NO. B-32

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ ____ **AFTER 24 Hours:** ▼ 6 **CAVING>** C ____

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Stiff, Dark Orange Brown, Sandy SILT With Some Clay.	ML				
	2.5						12
	5						10
	7.5						
		Loose, Orange, Silty Fine SAND With Trace Of Mno.	SM				5
	10						
	12.5						
		Auger Refusal At 13 ft. B.G.S.					
	15						
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

Auger refusal was encountered at 13 feet BGS at test boring B-26. As a result, an additional offset borings was performed. Auger refusal was also encountered at 13 feet BGS.

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DRILL HOLE LOG

BORING NO. B-33

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ ____ **AFTER 24 Hours:** ▼ 7 **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0	Topsoil.					
		Residual, Stiff changing to Very Stiff, Dark Tan, Clayey SILT.	ML				
	2.5						14
	5						18
	7.5 ▼						
		Medium Dense, Dark Tan, Silty Fine SAND With Trace Of Mno.	SM				12
	10						
	12.5						6
	15	Loose, Wet, Dark Gray, Micaceous Silty Fine SAND.	SM				
		Boring Terminated At 15 ft. B.G.S.					
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-34

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Possible Fill, Stiff, Tan, Silty CLAY.	CL-ML				10
	2.5						
		Residual, Stiff, Light Tan-Gray, Sandy SILT With Trace Of Clay.	ML				9
	5						
	7.5						
		Stiff, Reddish brown, Silty CLAY.	CL-ML				14
	10						
	12.5						
	15						
		Auger Refusal At 13 ft. B.G.S.					
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

Auger refusal was encountered at 10 feet BGS at test boring B-34. As a result, an additional offset borings was performed. Auger refusal was also encountered at 13 feet BGS.

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-35

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ ____ **AFTER 24 Hours:** ▼ 4 **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △; Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Stiff changing to Very Stiff, Tan, Sandy SILT With Some Clay.	ML				
	2.5						12
	5						17
	7.5						
	10						50/5"
		Partially Weathered Rock, sampled as Gray, Silty Fine SAND With Some Mno.	PWR				
	12.5						
	15						
		Auger Refusal At 11 Feet. B.G.S.					
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

Auger refusal was encountered at 11 feet BGS at test boring B-35. As a result, an additional offset borings was performed. Auger refusal was also encountered at 11 feet BGS.

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-36

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: 8 **AFTER 24 Hours:** 5 **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0	Topsoil.					
		Residual, Stiff, Orange Brown, Sandy SILT With Some Clay.	ML				13
	2.5						
		Stiff, Tan, Sandy SILT With Trace Of Clay.	ML				13
	5						
	7.5						
							11
	10	Medium Dense, Tan-Gray, Silty Fine SAND. Wet.	CL-ML				
	12.5						
		Loose, Orange, White Silty Fine To Coarse SAND.					5
	15						
	17.5						
							10
	20						
		Boring terminated At 20 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-37

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: 8 **AFTER 24 Hours:** 7 **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Stiff, Red Silty CLAY. Wet.	CL-ML				11
	2.5						
		Very Stiff, Tan, Sandy SILT With Some Clay.	ML				16
	5						
	7.5						
	10						
		Partially Weathered Rock, sampled as Gray, Silty Medium SAND.	PWR				50/0"
		Auger Refusal At 10 Feet. B.G.S.					
	12.5						
	15						
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

Auger refusal was encountered at 10 feet BGS at test boring B-37. As a result, an additional offset borings was performed. Auger refusal was encountered at 8 feet BGS.

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-38

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ ____ **AFTER 24 Hours:** ▼ 13 **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Topsoil. Residual, Stiff, Reddish Brown Silty CLAY.	CL-ML				13
	2.5						
		Stiff, Orange Brown, Sandy SILT With Some Clay. Wet	ML				15
	5						
	7.5						
		Medium Dense, Tan Orange, Silty Medium SAND With Trace Of Mno And Rock Fragmentation.	SM				18
	10						
	12.5						
		Loose changing to Medium Dense, Gray-Tan, Silty Medium Fine SAND With Trace Of Mno.	SM				9
	15						
	17.5						
		Very Moist.					13
	20						
		Boring terminated At 20 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-39

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △; Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Very Stiff, Reddish Brown Silty CLAY.	CL-ML				30
	2.5						
							28
	5	Medium Dense changing to Dense,Tan Orange Brown, Micaceous Silty Medium SAND.	SM				
	7.5						
							37
	10						
	12.5						
							38
	15						
	17.5						
		Medium Dense, Orange Dark Tan, Micaceous Silty Medium SAND With Trace Of Mno.					14
	20	Boring terminated At 20 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-40

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:** 1000 ft. MSL
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △; Penetration - ●; 10 20 30 40 50)	N-Value
1000	0	Topsoil.					
		Residual, Stiff changing to Very Stiff, Reddish Brown, Silty CLAY.	CL-ML				13
	2.5						
							18
995	5						
	7.5						
							22
990	10						
	12.5						
							6
985	15	Loose, Light Tan, Micaceous Silty Fine SAND With Some Clay. Wet.	SM				
		Boring terminated At 15 Feet. B.G.S.					
	17.5						
980	20						
	22.5						
975	25						
	27.5						
970	30						
	32.5						
965	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-41

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Fill, Very Stiff, Red Orange, Clayey SILT.	CL-ML				19
	2.5						
		Residual, Stiff, Reddish Brown, Micaceous Sandy SILT With Trace Of Mno.	ML				13
	5						
	7.5						
		Medium Dense, Light Tan, Micaceous Silty Medium SAND With Trace Of Mno.	SM				14
	10						
	12.5						
	15						11
		Boring terminated At 15 Feet. B.G.S.					
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

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DRILL HOLE LOG

BORING NO. B-42

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ ____ **AFTER 24 Hours:** ▼ 17 **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
		Topsoil. Possible Fill, Stiff, Reddish Brown, Silty CLAY.	CL-ML				11
	2.5						
		Residual, Loose changing to Medium Dense, Tan-Brown, Silty Fine SAND.	SM				10
	5						
	7.5						
	10						5
	12.5						
	15						9
	17.5 ▽						
		Soil color changes to yellowish gray.	SM				12
	20	Boring terminated At 20 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-43

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Firm, Reddish Brown, Clayey SILT.	CL-ML				
	2.5						6
		Firm, Orange-Red, Micaceous Sandy SILT With Trace Of Clay.	ML				7
	5						
	7.5						
							14
	10	Medium Dense, Tan-Orange, Silty Coarse SAND, With Trace Of Mno. Wet.	SM				
		PWR	P.W.R				50/0
	12.5	Auger Refusal At 12 ft. B.G.S.					
	15						
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

Auger refusal was encountered at 11 feet BGS at test boring B-43. As a result, an additional offset borings was performed. Auger refusal was encountered at 12 feet BGS.

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-44

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △; Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Firm, Reddish Brown, Silty CLAY.	CL-ML				
	2.5						8
							9
	5	Stiff, Orange, Sandy SILT With Some clay.	ML				
	7.5						
							50/5"
	10	Partially Weathered Rock, sampled as Tan-White, Silty coarse SAND With Some Rock Fragmentation.	PWR				
	12.5						
		Auger Refusal At 13.5 ft. B.G.S.					
	15						
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

Auger refusal was encountered at 13.5 feet BGS at test boring B-44. As a result, an additional offset borings was performed. Auger refusal was encountered at 12 feet BGS.

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-45

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: 17 **AFTER 24 Hours:** 13 **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0	Topsoil.					
		Residual, Stiff, Reddish Brown, Sandy SILT With Some Clay.	ML				13
	2.5						
							12
	5	Medium Dense changing to Loose, Tan Brown, Micaceous Silty Medium SAND With Trace Of Mno.	SM				
	7.5						
							10
	10						
	12.5						
							14
	15	Medium Dense, Dark Tan, Micaceous Silty Medium SAND With Mno.	SM				
	17.5						
							15
	20	Soil becomes wet.					
		Boring terminated At 20 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-46

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: 12 **AFTER 24 Hours:** 6 **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0	Topsoil.					
		Residual, Stiff, Reddish Brown, Sandy SILT With Some Clay.	ML				11
	2.5						
	5	Very Stiff, Gray, Silty CLAY.	CL-ML				19
	7.5						
	10	Loose, Yellow, Clayey Fine SAND. Wet.	SC				5
	12.5						
	15	Loose, Light Tan, Silty Medium SAND With Trace Of Clay And Mno. Wet.	SM				8
		Boring terminated At 15 Feet. B.G.S.					
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-47

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: 15.5 **AFTER 24 Hours:** 14 **CAVING>**

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0	Topsoil.					
		Residual, Stiff, Reddish Brown, Silty CLAY.	CL-ML				13
	2.5						
		Stiff, Orange Brown, Sandy SILT With Trace Of Mno.	ML				11
	5						
	7.5						
		Loose, Light Tan, Silty Fine SAND With Rock Fragmentation.	SM				10
	10						
	12.5						
		Soil becomes wet.					8
	15						
	17.5						
		Soil color changes to orange.					9
	20	Boring terminated At 20 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-48

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △; Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Very Stiff, Gray, Sandy SILT With Rock Fragmentation.	ML				24
	2.5						
		Very Stiff, Orange, Sandy SILT With Rock Fragmentation.	ML				21
	5						
	7.5	Boring Terminated At 7' B.G.S.					
	10						
	12.5						
	15						
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

Planned Depth for Boring B-48 was 20' B.G.S. Auger Refusal Encountered At The Depth Of 7' and 8' respectively B.G.S.

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-49

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △; Penetration - ●; 10 20 30 40 50)	N-Value
	0	Topsoil.					
		Fill, Stiff, Reddish Brown, Silty CLAY.	CL-ML				14
	2.5						
	5	Residual, Very Stiff, Orange, Sandy SILT With Trace Of Clay.	ML				18
	7.5	Auger Refusal At 7 Feet. B.G.S.					
	10						
	12.5						
	15						
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

Auger refusal was encountered at 5 feet BGS at test boring B-49. As a result, 2 additional offset borings were performed. Auger refusal were encountered at 7 feet BGS, respectively.

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-50

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ 12 **AFTER 24 Hours:** ▼ 12 **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Stiff, Reddish Brown, Silty CLAY.	CL-ML				10
	2.5						
		Very Stiff, Dark Orange Brown, Sandy SILT With Some Clay.	ML				16
	5						
	7.5						
		Dense, Light Tan Orange, Silty Coarse SAND With Trace Of Mno.	SM				42
	10						
	12.5 ▽						
		Partially Weathered Rock, sampled as Dark Orange-Gray, Silty Coarse SAND. Wet.	PWR				50/2"
	15	Boring terminated At 15 Feet. B.G.S.					
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-51

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ ____ **AFTER 24 Hours:** ▽ 10 **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △; Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Possible Fill, Stiff changing to Very Stiff, Reddish Brown Silty CLAY.	CL-ML				9
	2.5						
	5						16
	7.5						
	10 ▽	Residual, Stiff, Gray Orange, Alluvial, Silty CLAY.	CL-ML				15
	12.5						
	15	Loose, Dark Brown, Silty Fine SAND With Trace Of Roots. Alluvium, Wet.	SM				5
	17.5						
	20	Loose, Orange, Micaceous Silty Fine SAND.	SM				5
		Boring terminated At 20 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-52

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: 10 **AFTER 24 Hours:** 0 **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0	Topsoil.					
		Possible Fill, Firm, Reddish Brown Silty CLAY.	CL-ML				6
	2.5						
		Residual, Firm, Gray Orange, Alluvium, Tan, Silty CLAY.	CL-ML				5
	5						
	7.5						
		Loose, Dark Orange, Silty Medium SAND.	SM				8
	10						
	12.5						
							4
	15	Very Loose, Light Orange, Micaceous Silty Fine SAND With Trace Of Clay. Wet.	SM				
		Boring terminated At 15 Feet. B.G.S.					
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

MATRIX ENGINEERING GROUP, INC.

Geotechnical, Environmental, and Construction Materials Consultants

DRILL HOLE LOG

BORING NO. B-53

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: 12 **AFTER 24 Hours:** 9 **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0	Topsoil. Disturb Fill, Firm, Reddish Brown, Silty CLAY	CL-ML				8
	2.5	Fill, Stiff, Orange Brown, Micaceous Sandy SILT With Trace Of Clay.	CL-ML				10
	5						
	7.5						
	10	Residual, Loose, Light Tan, Micaceous Silty Medium SAND With Trace Of MnO.	SM				10
	12.5						
	15	Loose, Orange, Silty Medium SAND With Trace Of P.W.R. Wet.	SM				10
	17.5						
	20	Loose To Very Loose, Orange, Micaceous Silty Medium to Fine SAND with Trace Of Mno. Wet. Boring terminated At 20 Feet. B.G.S.	SM				4
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-54

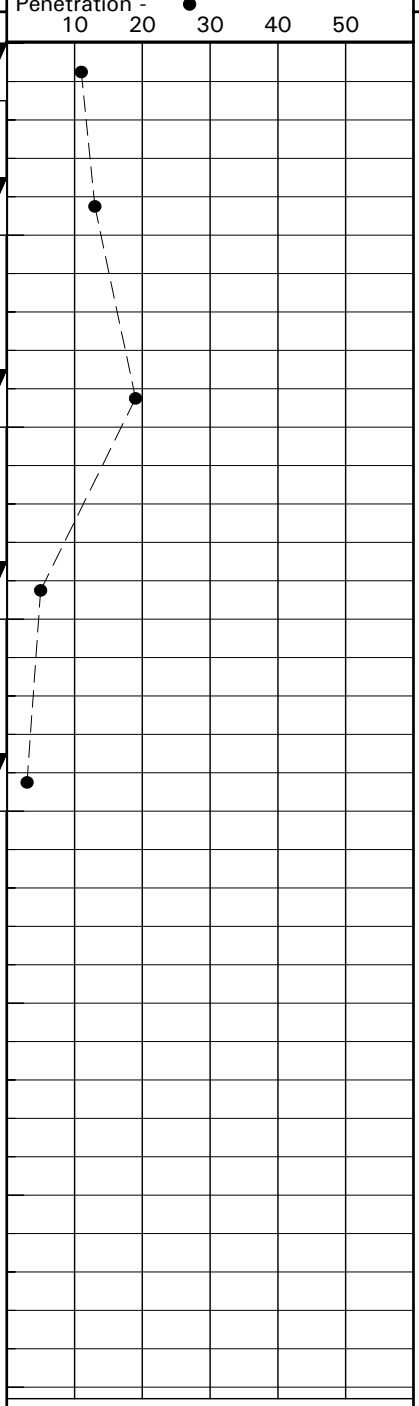
File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: 13 **AFTER 24 Hours:** 6 **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	N-Value
	0	Topsoil.		
		Possible Fill, Stiff, Reddish Brown, Silty CLAY.	CL-ML	11
	2.5			
		Residual, Stiff, Orange Brown, Micaceous Sandy SILT With Trace Of Clay.	ML	13
	5			
	7.5			
		Medium Dense changing to Loose, Orange, Micaceous Silty Medium SAND With Trace Of Mno.	SM	19
	10			
	12.5			
	15			5
	17.5			
	20	Soil becomes very wet.	SM	3
		Boring terminated At 20 Feet. B.G.S.		
	22.5			
	25			
	27.5			
	30			
	32.5			
	35			

TEST RESULTS

Natural Moisture Content (%) - △
Penetration - ●



This information pertains only to this boring and should not be interpreted as being indicitive of the site.

MATRIX ENGINEERING GROUP, INC.

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DRILL HOLE LOG

BORING NO. B-55

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: 12 **AFTER 24 Hours:** 11 **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Possible Fill, Very Stiff, Reddish Brown, Sandy SILT With Trace Of Clay.	CL-ML				16
	2.5						
		Residual, Very Stiff, Gray Brown, Silty CLAY. Alluvium.	CL				19
	5						
	7.5						
	10						6
		Loose, Light Gray, Micaceous Silty Fine Very Stiff To Loose, Light Gray, Micaceous Silty Fine SAND.	SM				
	12.5						
	15	Medium Dense, Dark Orange-Tan, Micaceous Silty Medium SAND. Wet.	SM				13
		Boring terminated At 15 Feet. B.G.S.					
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

MATRIX ENGINEERING GROUP, INC.

Geotechnical, Environmental, and Construction Materials Consultants

DRILL HOLE LOG

BORING NO. B-56

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: 3.5 **AFTER 24 Hours:** 2.5 **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Residual, Firm, Gray Tan, Sandy SILT.	ML				6
	2.5						
	5						6
	7.5						
	10						6
		Loose, Tan, Micaceous Silty Fine SAND With trace Of Mno And Rock Fragmentation.	SM				
	12.5						
	15						9
		Boring terminated At 15 Feet. B.G.S.					
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-57

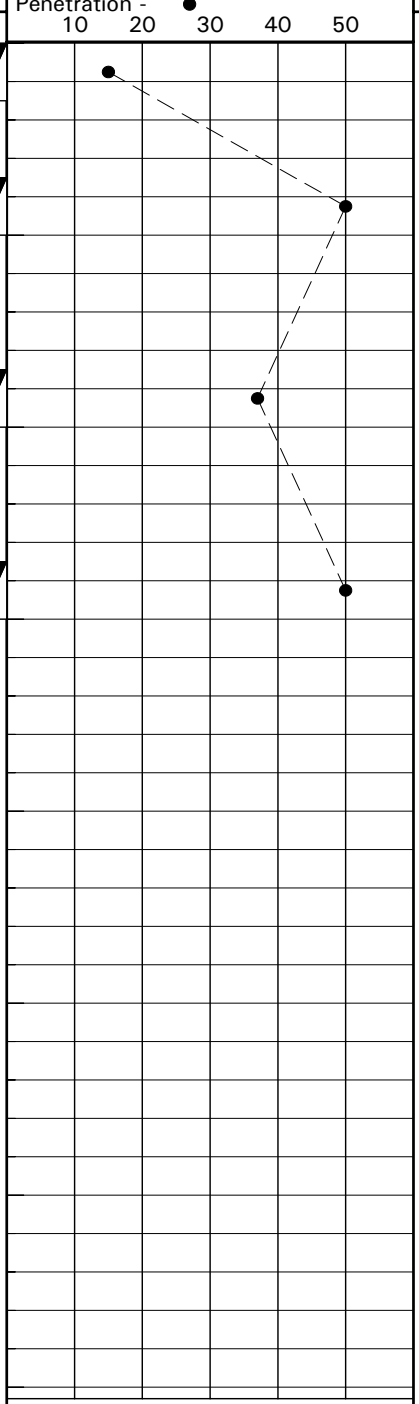
File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	N-Value
	0					
		Topsoil.				
		Residual, Stiff, Reddish Brown, Sandy SILT with Little Clay.	ML			15
	2.5					
		Partially Weathered Rock, sampled as Orange, Sandy SILT.	PWR			50/2"
	5					
	7.5					
		Dense, Orange Brown, Micaceous, Silty Coarse to Fine SAND.	SM			37
	10					
	12.5					
		Partially Weathered Rock, sampled as Orange, Silty SAND.	PWR			50/5"
	15					
		Boring terminated At 15 Feet. B.G.S.				
	17.5					
	20					
	22.5					
	25					
	27.5					
	30					
	32.5					
	35					

TEST RESULTS

Natural Moisture Content (%) - △
Penetration - ●



An offset test boring was performed 10 feet from test boring B-57 and was terminated at 10 feet BGS. No rock was encountered at the offset boring.

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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Geotechnical, Environmental, and Construction Materials Consultants

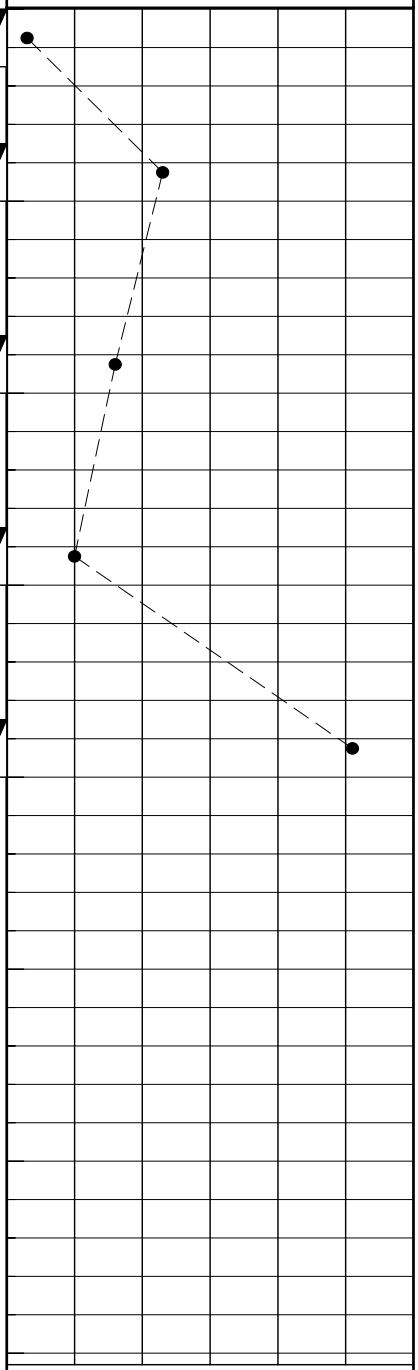
DRILL HOLE LOG

BORING NO. B-58

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Possible Fill, Very Soft, Brown, Sandy SILT.	ML				3
	2.5						
		Residual, Very Stiff, Orange Brown, Silty CLAY, With Trace Of Alluvium And Roots.	CL-ML				23
	5						
	7.5						
	10						16
	12.5						
	15	Loose changing to Very Dense, Orange Brown, Micaceous Silty Medium SAND.	SM				10
	17.5						
	20	Soil becomes wet.					51
		Boring terminated At 20 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						



This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-59

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Possible Fill, Stiff, Reddish Brown, Sandy SILT With trace Of Clay.	ML				11
	2.5						
	5						13
	7.5						
	10	Residual, Medium Dense changing to Loose, Light Tan, Micaceous Silty Fine SAND With Trace Of Mno.	SM				11
	12.5						
	15						10
	17.5						
	20	Medium Dense, Tan, Micaceous, Silty Fine SAND. Wet.	SM				11
		Boring terminated At 20 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

MATRIX ENGINEERING GROUP, INC.

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DRILL HOLE LOG

BORING NO. B-60

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ 19 **AFTER 24 Hours:** ▼ _____ **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △; Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Topsoil.					
		Possible Fill, Stiff, Reddish Brown, Clayey SILT.	CL-ML				14
	2.5						
		Residual, Medium Dense, Light Brown, Micaceous Silty Fine SAND.	SM				14
	5						
	7.5						
		Medium Dense, Light Gray-Tan, Micaceous Silty Fine SAND With Trace Of Mno.	SM				14
	10						
	12.5						
		Medium Dense, Dark Tan, Micaceous Silty Fine SAND. Wet.	SM				15
	15						
	17.5						
		▽ Soil color changes to light tan.	SM				28
	20						
		Boring terminated At 20 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

MATRIX ENGINEERING GROUP, INC.

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DRILL HOLE LOG

BORING NO. B-61

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ ____ **AFTER 24 Hours:** ▼ 12 **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Top Soil.					
		Residual, Loose, Light Orange, Silty Medium SAND.	SM				5
	2.5						
		Stiff, Orange Brown, Silty CLAY.	CL-ML				10
	5						
	7.5						
		Medium Dense, Tan, Micaceous Silty Fine SAND.	SM				15
	10						
	12.5 ▽						
		Firm, Tan-Gray, Clayey SILT.Wet.	ML				7
	15	Boring terminated At 15 Feet. B.G.S.					
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

MATRIX ENGINEERING GROUP, INC.

Geotechnical, Environmental, and Construction Materials Consultants

DRILL HOLE LOG

BORING NO. B-62

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
		Top Soil. Possible Fill, Very Stiff, Orange Brown, Silty CLAY.	CL-ML				16
	2.5						
		Residual, Medium Dense, Light Tannish Brown Silty Medium SAND.	SM				15
	5						
	7.5						
		Medium Dense, Light White-Tan, Micaceous Silty Fine SAND With Trace Of Mno.	SM				16
	10						
	12.5						
	15						20
	17.5						
	20	Medium Dense, Gray-Tan, Micaceous Silty Fine SAND.Wet.	SM				15
		Boring terminated At 20 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

MATRIX ENGINEERING GROUP, INC.

Geotechnical, Environmental, and Construction Materials Consultants

DRILL HOLE LOG

BORING NO. B-63

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
		Top Soil. Possible Fill, Stiff, Tannish Brown, Micaceous Sandy SILT.	ML				13
	2.5						
		Residual, Medium Dense, Light Tan-White, Micaceous Silty Fine SAND.	SM				13
	5						
	7.5						
		Medium Dense, Gray-Orange, Micaceous Silty Medium SAND.	SM				20
	10						
	12.5						
		Wet.	SM				19
	15						
		Boring terminated At 15 Feet. B.G.S.					
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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Geotechnical, Environmental, and Construction Materials Consultants

DRILL HOLE LOG

BORING NO. B-64

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: 5 **AFTER 24 Hours:** **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Top Soil.					
		Possible Fill, Loose, Dark Orange, Silty SAND With Trace Of Clay.	SM				7
	2.5						
							5
	5	Firm, Gray-Brown, Alluvium, Silty CLAY.	CL-ML				
	7.5						
							9
	10	Loose, Purple Tan, Micaceous Silty Medium SAND With Trace Of MnO. Wet.	SM				
	12.5						
							21
	15	Medium Dense, Gray-Tan, Silty Medium SAND, With Trace Of Mno. Wet.	SM				
		Boring terminated At 15 Feet. B.G.S.					
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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Geotechnical, Environmental, and Construction Materials Consultants

DRILL HOLE LOG

BORING NO. B-65

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ ____ **AFTER 24 Hours:** ▽ 15.5 **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0	Top Soil.					
		Possible Fill, Firm, Reddish Brown, Silty CLAY.	CL-ML				
	2.5						7
	5	Residual, Medium Dense, Tan-Brown, Silty Fine SAND.	SM				12
	7.5						
	10	Loose, Tan-Light yellow, Medium SAND.	SM				10
	12.5						
	15	Loose, Orange-Gray, Silty Fine SAND. With Trace Of MnO.	SM				7
	17.5						
	20	Yellowish Gray.	SM				8
		Boring terminated At 20 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-66

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ ____ **AFTER 24 Hours:** ▼ 17 **CAVING>** C ____

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
		Top Soil.					
		Possible Fill, Stiff, Reddish Brown, Silty CLAY.	CL-ML				15
	2.5						
		Residual, Stiff, Orange-Brown, Sandy SILT With Trace Of Clay.	ML				9
	5						
	7.5						
							10
	10	Loose, Light Tan, Silty Fine SAND With Trace Of MnO.	SM				
	12.5						
							7
	15	Loose, Tannish- Orange, Micaceous Silty Fine SAND.	SM				
	17.5 ▽						
		Tan.	SM				6
	20						
		Boring terminated At 20 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-67

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
		Topsoil with roots.					
		Possible Fill, Stiff, Orange Brown, Silty CLAY.	CL				12
	2.5						
		Residual, Very Stiff, Orange Brown, Sandy SILT with little Clay.	ML				17
	5						
	7.5						
		Loose changing to Medium Dense, Brown, Micaceous, Silty Medium to Fine SAND.	SM				9
	10						
	12.5						
							6
	15						
	17.5						
		Soil color changes to Grayish Orange.					16
	20						
		Boring terminated at 20 feet B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-68

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ●)	N-Value
	0	Top Soil And Roots.					
	2.5	Possible Fill, Stiff, Reddish Brown, Silty CLAY.	CL-ML				13
	5	Residual, Very Stiff, Orange Brown, Sandy SILT with Trace Of Clay.	ML				16
	7.5						
	10	Medium Dense, Reddish Brown, Micaceous Silty Fine SAND With Trace Of MnO.	SM				13
	12.5						
	15	Loose, Dark Tan, Micaceous Silty Medium SAND With Trace Of MnO.	SM				10
	17.5						
	20	Very Dense, Dark Gray-Brown, Micaceous Silty Coarse SAND With Trace Of MnO.	SM			71 →	71
	22.5	Boring terminated At 20 Feet. B.G.S.					
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-69

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Top Soil And Roots.					
		Possible Fill, Stiff, Reddish Brown, Silty CLAY With Rock Fragments.	CL-ML				12
	2.5						
		Residual, Dense, Silty Coarse SAND With trace Of MnO.	SM				32
	5						
	7.5						
		Partially Weathered Rock, sampled as Gray, Silty Coarse SAND.	PWR				50/5"
	10						
	12.5						
		Boring terminated At 13 Feet. B.G.S.					
	15						
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

Planned Depth for Boring B69 was 20' B.G.S. Auger Refusal Encountered At The Depth Of 13' B.G.S.

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-70

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △; Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Top Soil And Roots.					
		Residual, Very Stiff, Reddish Brown, Silty CLAY With Rock Fragments.	CL-ML				25
	2.5						
		Partially Weathered Rock, sampled as Gray, Silty Coarse SAND.	PWR				50/2"
	5						
		Auger Refusal At 5 Feet. B.G.S.					
	7.5						
	10						
	12.5						
	15						
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

Auger refusal was encountered at 5 feet BGS at test boring B-70. As a result, 2 additional offset borings were performed. Auger refusal was encountered at 8 feet and 7 feet BGS, respectively at these offset borings.

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-71

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △; Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Top Soil.					
		Residual, Stiff, Reddish Brown, Silty CLAY.	CL-ML				12
	2.5						
		Very Stiff, Reddish Orange Sandy SILT With Trace Of Clay.	ML				18
	5						
		Auger refusal At 5 Feet. B.G.S.					
	7.5						
	10						
	12.5						
	15						
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

Auger refusal was encountered at 5 feet BGS at test boring B-71. As a result, 2 additional offset borings were performed. Auger refusal was encountered at 7 feet and 2 feet BGS, re spectively

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-72

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △; Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Top Soil.					
		Residual, Very Stiff, Gray-Orange, Silty CLAY with Rock Fragmentation.	CL-ML				18
	2.5						
	5	Very Stiff, Reddish Orange, Sandy SILT With Trace Of Clay.	CL-ML				23
	7.5						
	10	Very dense, Tan, Silty SAND.	SM			●71 →	71
		Auger Refusal At 10 Feet. B.G.S.					
	12.5						
	15						
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

Auger refusal was encountered at 10 feet BGS at test boring B-72. As a result, an additional offset borings were performed. Auger refusal was encountered at 12 feet BGS.

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-73

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Top Soil And Roots.					
		Residual, Very Stiff, Reddish Brown, Silty CLAY.	CL-ML				17
	2.5						
	5	Very Stiff, Reddish Orange, Silty CLAY. Wet.	CL-ML				18
	7.5						
	10	Medium Dense, Light Orange, Silty Fine SAND With Trace Of MnO.	SM				27
	12.5						
	15						
		Auger Refusal At 11 Feet. B.G.S.					
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

Auger refusal was encountered at 10 feet BGS at test boring B-73. As a result, an additional offset borings were performed. Auger refusal was encountered at 11' BGS.

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DRILL HOLE LOG

BORING NO. B-74

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △; Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Top Soil. Residual, Very Stiff, Dark Brown, Sandy SILT, With Trace Of Clay.	ML				24
	2.5						
	5	Hard, Reddish Orange, Sandy SILT With trace Of Rock fragmentation.	ML				32
	7.5						
	10						
	12.5						
	15	Auger Refusal At 8 Feet. B.G.S.					
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

Auger refusal was encountered at test boring B-74 at 8 feet BGS. As a result 2 additional borings were performed 50 feet pathway from boring B-74 and auger refusal were encountered at 7 feet and 8 feet BGS.

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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Geotechnical, Environmental, and Construction Materials Consultants

DRILL HOLE LOG

BORING NO. B-75

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
		Top Soil And Roots.					
		Possible Fill, Stiff, Reddish Brown, Silty CLAY.	CL-ML				10
	2.5						
		Residual, Dense changing to Medium Dense, Tan, Silty Coarse SAND With trace Of Mno.	SM				31
	5						
	7.5						
	10						22
	12.5						
	15						26
		Boring terminated At 15 Feet. B.G.S.					
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-76

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △; Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Top Soil. Residual, Very Stiff, Dark Brown, Silty CLAY.	CL-ML				21
	2.5						
		Very Stiff, Reddish orange, Sandy SILT With Trace Of Clay.	ML				26
	5						
	7.5						
		Very Stiff, Orange, Clayey SILT.	CL-ML				16
	10						
		Auger refusal At 11 Feet. B.G.S.					
	12.5						
	15						
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

Auger refusal was encountered at 11 feet BGS at test boring B-76. As a result, additional offset borings were performed. Auger refusal was encountered at 7 feet and 8 feet BGS, re spectively

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-77

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
		Top Soil. Residual, Hard, Reddish Orange, Silty CLAY with Rock fragmentation.	CL-ML				39
	2.5						
							32
	5	Dense Changing To Medium Dense, Silty Medium SAND With Trace Of MnO. Wet.	SM				
	7.5						
							19
	10						
	12.5						
	15	Partially Weathered Rock, sampled as Dark Brown, Silty Coarse SAND.	PWR				50/5"
		Boring terminated At 15 Feet. B.G.S.					
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-78

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Top Soil.					5
		Possible Fill, Firm, Dark Brown, Silty CLAY, With Trace Of Top Soil.	CL-ML				
	2.5						
							29
	5	Residual, Very Stiff, Tan, Sandy SILT With Trace Of Clay.	ML				
	7.5						
							19
	10	Medium Dense, Tan Orange, Silty Medium SAND.	SM				
	12.5						
	15	Medium Dense, Orange, Silty Coarse SAND With trace Of Mno. Wet.	SM				23
		Auger Refusal At 16 Feet. B.G.S.					
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-79

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
		Top Soil. Possible Fill, Soft, Reddish Brown, Silty CLAY.	CL-ML				4
	2.5						
	5						29
		Residual, Very Stiff, Tan, Sandy SILT With Trace Of Clay.	ML				
	7.5						
	10	Medium Dense, Tan-Orange, Silty Medium SAND. With Trace Of MnO.	SM				17
	12.5						
	15						25
	17.5						
	20						
		Boring terminated At 15 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-80

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ _____ **AFTER 24 Hours:** ▼ _____ **CAVING>** C ___

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △; Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Top Soil.					
		Residual, Firm, Reddish Brown, Silty CLAY.	CL-ML				6
	2.5						
	5						7
	7.5	Auger Refusal At 7 Feet. B.G.S.					
	10						
	12.5						
	15						
	17.5						
	20						
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

Boring offset 65 ft. to the South.
Auger refusal at 10 ft.

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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Geotechnical, Environmental, and Construction Materials Consultants

DRILL HOLE LOG

BORING NO. B-81

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: ▽ 16 **AFTER 24 Hours:** ▼ 16 **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △ Penetration - ● 10 20 30 40 50)	N-Value
	0						
		Top Soil.					
		Residual, Firm, Reddish Brown, Silty Clay.	CL-ML				5
	2.5						
	5						5
	7.5						
	10						6
		Loose Changing To Very Loose, Tan, SILTY SAND With Some Clay.	CL-ML				
	12.5						
	15						5
	17.5						
	20						4
		Boring terminated At 20 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

BORING NO. B-82

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: 8 **AFTER 24 Hours:** 8 **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0						
		Top Soil.					
		Possible Fill, Firm, Reddish Brown, Silty CLAY.	CL-ML				7
	2.5						
							9
	5	Residual, Stiff, Reddish Brown, Sandy SILT With trace Of Clay.	ML				
	7.5						
		Firm, Gray, Silty CLAY, Alluvium.	CL-ML				5
	10						
		Loose, Tan, Clayey SAND.	SC				5
	12.5						
	15						
	17.5						
	20						
		Boring terminated At 20 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

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DRILL HOLE LOG

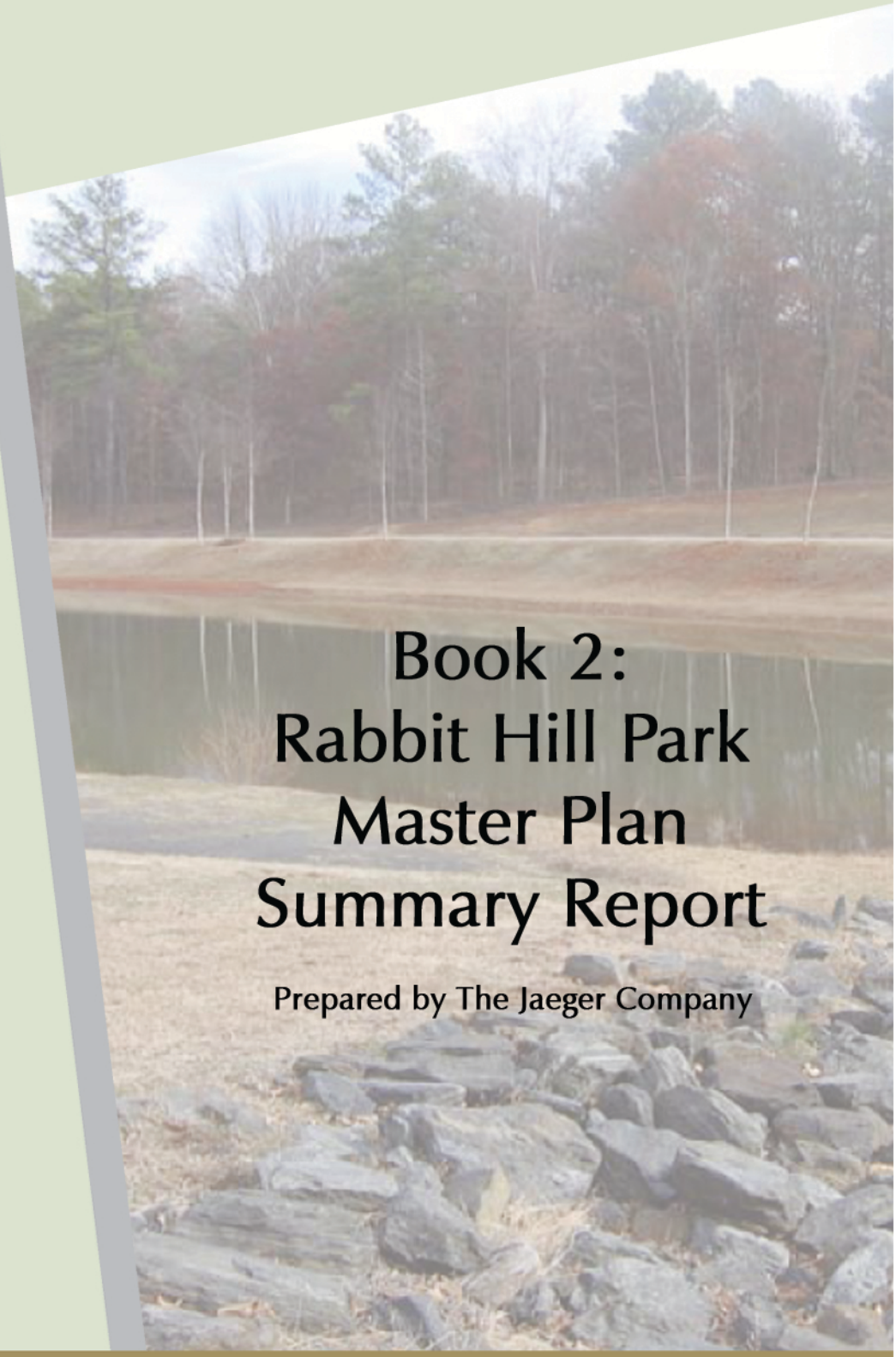
BORING NO. B-83

File: Rabbit Hill Date Printed: 6/1/2007

PROJECT: Rabbit Hill Soccer Complex Site **PROJECT NO.:** 94140.51
CLIENT: Gwinnett County Department of Community Services **DATE:** 4/30/2007
LOCATION: Refer to Figure 1 **ELEVATION:**
DRILLER: Kilman Brothers **LOGGED BY:** Miloud Bourouiss
DRILLING METHOD: ASTM D 1586
DEPTH TO - WATER> INITIAL: 11 **AFTER 24 Hours:** 11 **CAVING>** C

ELEVATION (feet)	DEPTH (feet)	Description	SOIL TYPE	SOIL SYMBOL	SAMPLERS	TEST RESULTS (Natural Moisture Content (%) - △, Penetration - ●; 10 20 30 40 50)	N-Value
	0	Top Soil.					
		Possible Fill, Stiff, Reddish Brown, Silty, CLAY.	CL-ML				10
	2.5						
							12
	5	Residual, Stiff, Reddish Brown, Sandy SILT With Trace Of Clay.	ML				
	7.5						
		Soft, Gray, Silty CLAY, Alluvium.	CL-ML				4
	10						
	12.5						
		Loose Changing To Very Loose, Tan, Clayey SAND.	SC				5
	15						
	17.5						
							4
	20						
		Boring terminated At 20 Feet. B.G.S.					
	22.5						
	25						
	27.5						
	30						
	32.5						
	35						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.



Book 2: Rabbit Hill Park Master Plan Summary Report

Prepared by The Jaeger Company

Rabbit Hill Park

Master Plan
Summary Report

Prepared for:
Gwinnett County Department of
Community Services
Parks and Recreation

October 2009

THE JAEGER COMPANY

Rabbit Hill Park Master Plan
Summary Report

Prepared for:

Gwinnett County Department of Community Services
Parks and Recreation

THE JAEGER COMPANY

Landscape Architecture • Historic Preservation
Planning • Environmental Assessment

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The Rabbit Hill Park Master Plan was prepared with the participation and guidance of the following:

Athletic Association:

Mark Bowen	Dacula Soccer Club
Corbitt Woods	Dacula Soccer Club
Dusty Bost	Dacula Soccer Club

Gwinnett County Department of Community Services:

Phil Hoskins	Director, Department of Community Services
Grant Guess	Division Director, Project Administrator
Sharon Plunkett	Division Director, Operations
Rex Lee Schuder	Principal Community Planner
Bill Lundsford	Developmental Manager

Gwinnett County Recreation Authority:

Lois Allen	District 4 Chairperson
Charlie Underwood	District 4 Vice-Chairperson
Charlotte Nash	District 3
Steve Flynt	District 3
Jack Bolton	District 2
Wayne Sutor	District 2
Julianne Thompson	District 1
Derek Hart	District 1
H.S. “Chip” Randall	At Large

Gwinnett County Board of Commissioners:

Charles E. Bannister	Chairperson
Shirley Lasseter	District 1
Burt Nasuti	District 2
Mike Beaudreau	District 3
Kevin Kenerly	District 4

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1.0 Project Goals and Objectives

At the Rabbit Hill Park site, Gwinnett County is seeking to address countywide recreational needs in a manner compatible with the sustainable preservation of unique natural and cultural resources. A master plan study was completed by Cerulea, Inc. in April of 2000 for the original 74.2 acres of land that had been acquired to create Rabbit Hill Park. Two phases of park development have occurred on that portion of the site to date which have followed the recommendations of the master plan. Gwinnett County later acquired several parcels contiguous to the park and this study was commissioned to update and expand the existing master plan to include these additional properties. The first property acquisition added 20.79 acres in three contiguous parcels that expand the western boundary of the park to the intersection of Hurricane Shoals Road and Rabbit Hill Road with frontage acreage on both. The second acquisition added 14.215 acres to the eastern end of the park including land under and around the electrical transmission lines found in that zone.

The county wishes to develop the entirety of Rabbit Hill Park site to include a diverse range of active and passive recreational opportunities for a wide range of age groups. The park program for the site is to serve as a Community Park with a special focus on soccer. The site will also function as a sister park for the nearby Mountain View Park (which is being planned concurrently) and therefore amenities are planned to be complimentary that park site.

The following is a list of principal goals of the Master Plan:

- Provide a well-built multi-use trail system that considers connections to adjacent areas or trail systems and provides future sidewalk connections along road frontage.
- Provide amenity areas to service surrounding neighborhoods, schools and a variety of user groups.
- Provide a safe, environmentally sustainable and usable environment for active and passive park activities.
- Provide facilities that complement the adjacent Mountain View Park.
- Accommodate the needs of the local athletic association, The Dacula Soccer Club.

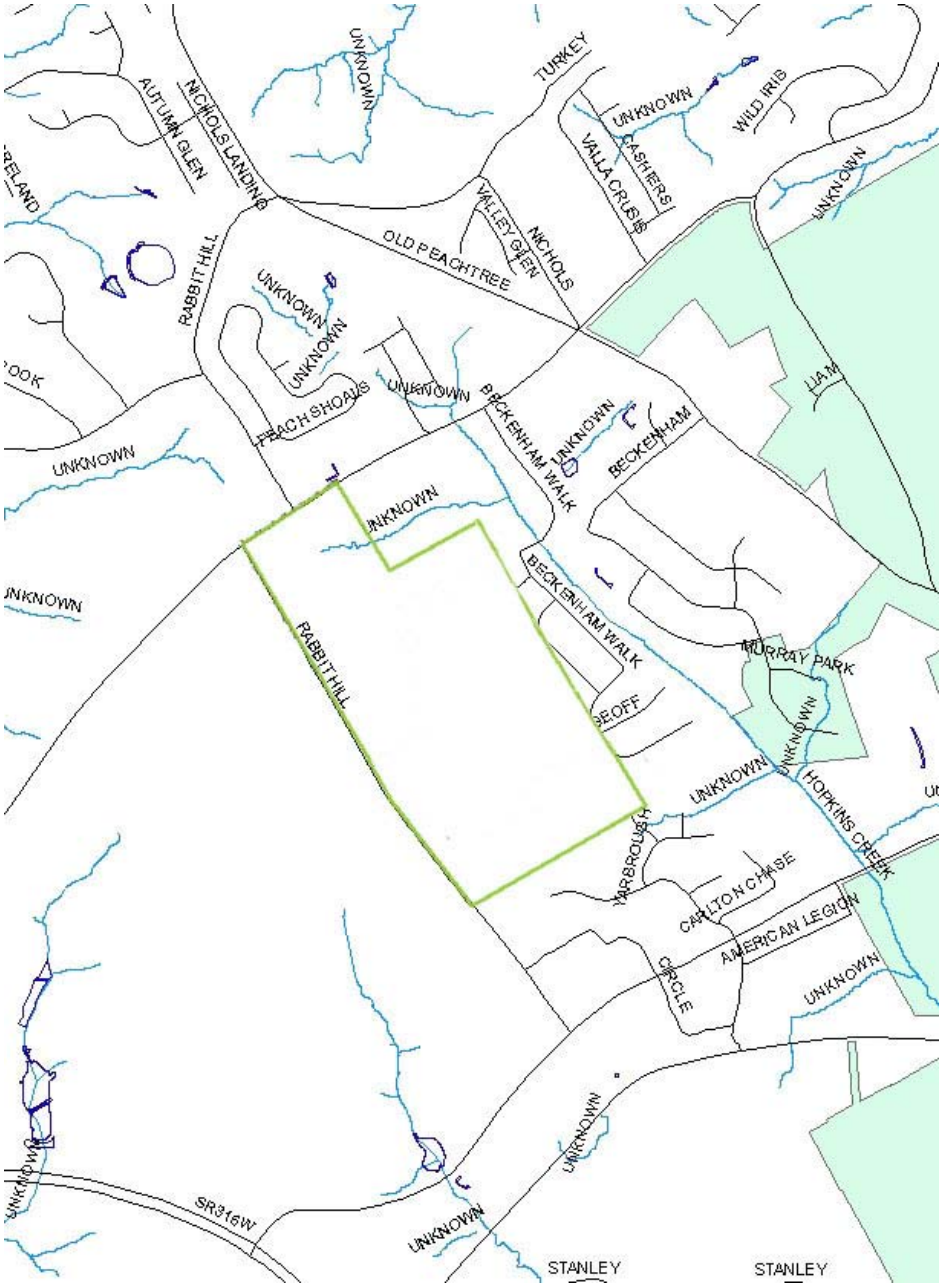

Figure 1: Location Map for Rabbit Hill Park site.

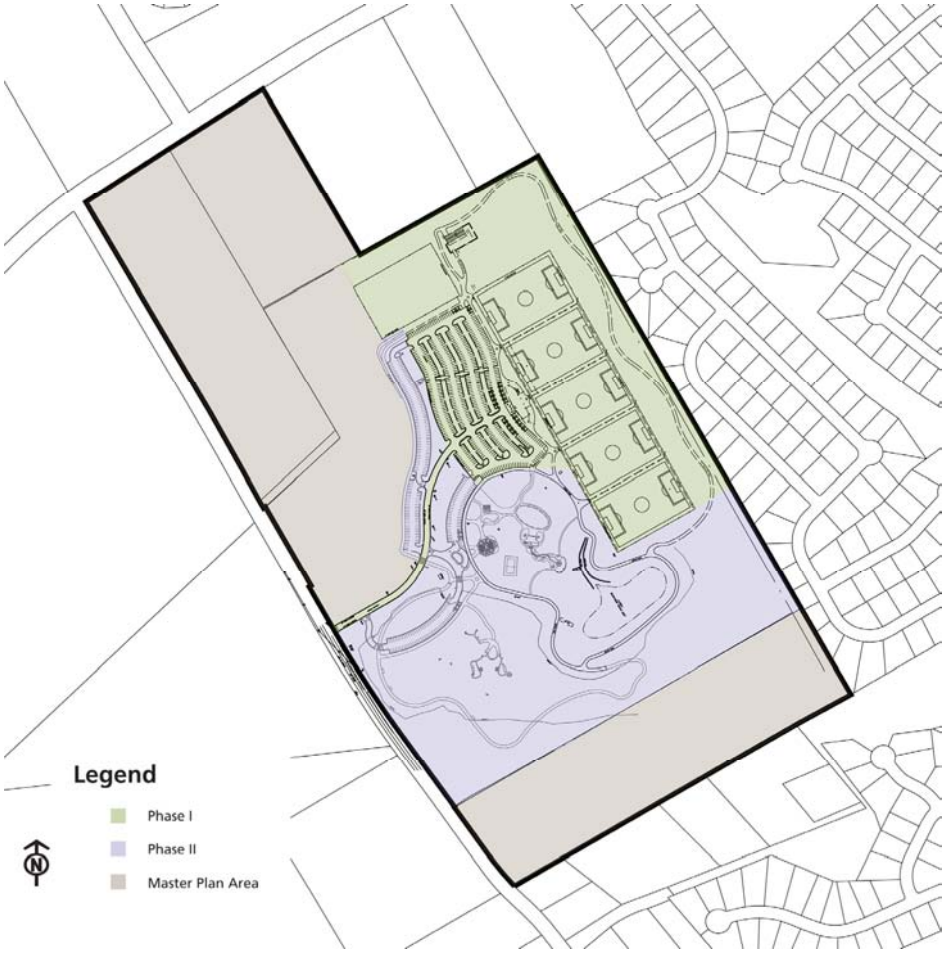

Figure 2: Phases of Development for Rabbit Hill Park.

2.0 Site Context

The Rabbit Hill Park site is located in the eastern portion of Gwinnett County at the intersection of Rabbit Hill Road and Hurricane Shoals Road, just outside the city limits of Dacula, Georgia. The parcel is bounded by Hurricane Shoals Road to the northwest, privately owned residential properties to the east, Rabbit Hill Road to the west, and by a power easement to the south. The site is located approximately two and one half miles northwest of downtown Dacula, and approximately six and one quarter miles northeast of downtown Lawrenceville, the county seat. The total acreage for the site is 109.221 with approximately 7.5 acres consisting of power easement.

Before the creation of Gwinnett County on December 15, 1818 the land that is now Gwinnett County was occupied by both the Creek and Cherokee Indians. Treaties with the Cherokee Indians in 1789 and 1818 allowed for the settlement of this area. Early settlers to the area were subsistence farmers some of whom later branched out into larger farming interests such as cotton. After the county was formed in 1818, land surveyors began dividing the land into four land districts, and these districts were subsequently divided into land lots. The tracts of land which make up the park site were first large tracts which were distributed using this system, and subsequently subdivided.

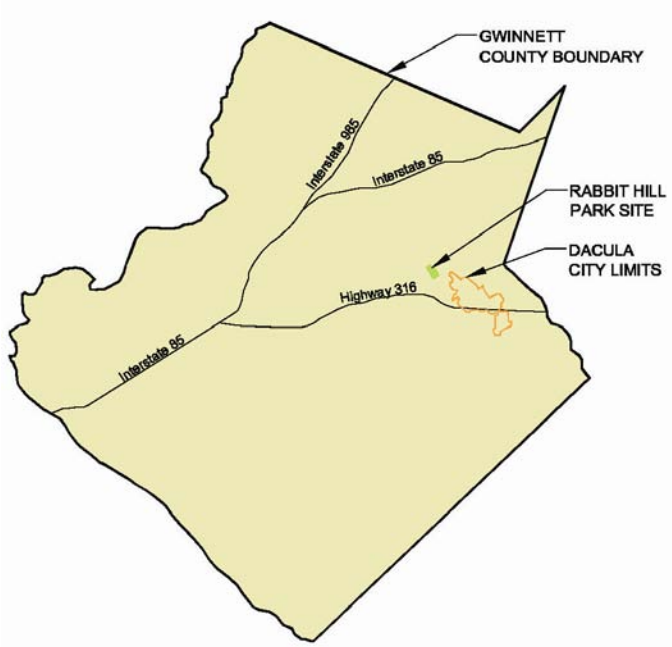

Figure 3: Gwinnett County Location Map.

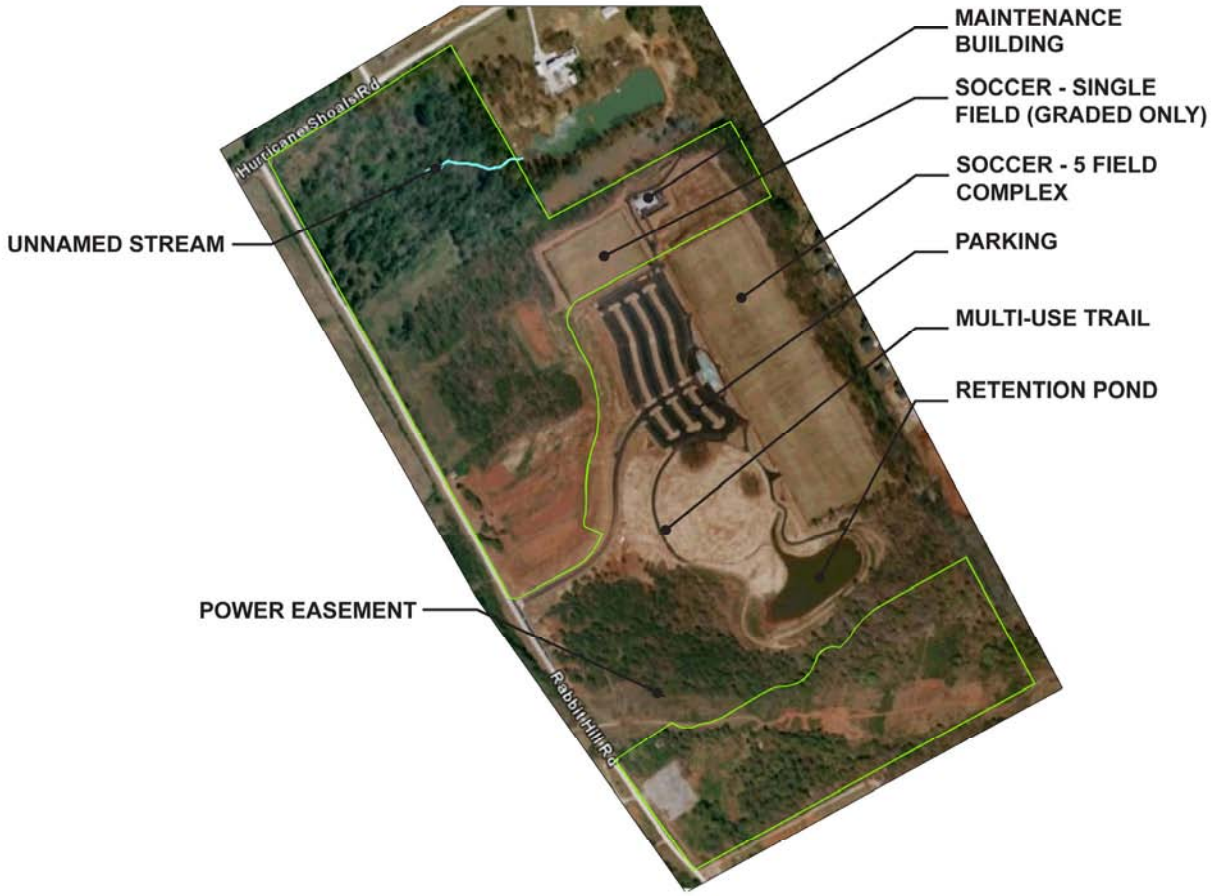

Figure 4: Aerial Photograph of Existing Site Conditions.

3.0 Methodology

Using a traditional approach to the park planning process, the project progressed through a series of interim tasks to arrive at a consensus Master Plan.

The sequence of tasks performed to develop the Master Plan included:

- Program confirmation based on input of Department of Community Service staff
- Inventory and analysis of the site, including slope, hydrology, soils, vegetation and existing features
- Alternative development concepts prepared to explore a variety of design approaches, their feasibility and impact on the site
- Presentation of Concepts to the Dacula Soccer Club
- A Preliminary Master Plan blending elements from multiple concepts with a Preliminary Cost Estimate
- A Draft Master Plan developed as a refined preliminary plan with a phased Cost Estimate
- A Final Master Plan with a refined Cost Estimate

Inventory and Analysis (December 2008 – February 2009)
Site visits were conducted to perform detailed field study of site features. Research and review of the previous master plan document was also carried out during this time. Multiple graphics were prepared to record the field and research findings related to the following:

Existing Conditions
Slope Analysis
Hydrology Analysis
Vegetation
Soils Analysis
Issues & Opportunities

A geotechnical survey was also performed during this time as the site conditions were known to have shallow depth to rock. The survey was completed on 02.10.09.

Kick-Off Meeting (3.24.09)
The plan development process began with the creation of a project schedule and discussion of the anticipated process with officials from Gwinnett County and the Dacula Soccer Club.

Conceptual Plan Development (04.16.09)
Three alternative concept plans for the site were developed by The Jaeger Company. A variety of options were explored, resulting in diverse solutions to satisfied the project goals and objectives, but differed principally on the basis parking layout, site entry, soccer field configuration and distribution of additional site amenities. After the options were presented and reviewed by the Dacula Soccer Club, program elements were more clearly defined and a hybrid of all three concepts was decided upon. Additional comments were later provided by Gwinnett County Department of Community Services.

Preliminary Master Plan (05.07.09)
A preliminary master plan was developed for the site based on an amalgamation of the three Concept Plans and comments from the Dacula Soccer Club Gwinnett and County Department of Community Services. Parking spaces were adjusted to meet county standards, and amenity areas were refined. A Preliminary Cost Estimate was distributed and costs to accompany the plan.

Final Master Plan (07.30.09)
Prior to the submittal, adjustments were made to the plan based on developments with the programming of the adjacent Mountain View Park and additional comments from Gwinnett County Department of Community Services staff. The Final Master Plan and Cost Estimate were submitted to Gwinnett County for review and comment. The Final Master Plan graphic and Cost Estimate were accepted with some changes and additions.

Recreation Authority (09.10.09)
The Jaeger Company presented the Rabbit Hill Park Master Plan to the Recreation Authority along with Lose and Associates, who presented the Mountain View Park Master Plan. The two parks will function as one park in upon completion of the independent master planning efforts under the single name of Rabbit Hill Park. There was a brief question and answer and discussion session regarding the plan. The final plan was approved by the Authority and no revisions were required.

4.0 Site Inventory and Analysis

The following constitutes a summary of the inventory and analysis process. Each major category of discussion is supplemented by a composite illustrative graphic found at the end of the narrative portion of this document and keyed to the right.

Existing Conditions (Illustration B)
Topographic and boundary survey information was obtained from Gwinnett County. This information was combined with floodplain boundaries, setback and stream buffer requirements, adjacent building footprints and utility information to create a graphic that illustrates the existing conditions found on site. The existing park provides six adult sized soccer fields (five finished and one graded with turf). The existing soccer complex is served by a maintenance compound, concession/restroom building and parking. In addition, the park site is master planned to receive a Pavilion/playground/Restroom Complex, Dog Park, Teen Facilities, four Tennis Courts and an extension to the current multi-use trail loop. The Pavilion/Restroom Complex plus the Dog Park are presently in design development stage as per the master plan and are funded in the 2005 sales tax program.

Slope Analysis (Illustration C)
Topographic information was obtained from the County GIS system and included data at a two-foot contour interval. The majority of the slopes in the park are minimal, ranging from 0 – 5%. The slopes are steepest along a streambed on the exterior of the site adjacent to Hurricane Shoals Road and along the wooded hillside. Flatter portions of the site exist as areas currently developed as ball fields and surface parking. The highest point on the site (elevation 1108 ft.) is found on a hilltop in the eastern portion of the park and the lowest point on the site at the point where the Creek enters site drainage enters an existing retention pond at an elevation of 1058 ft. There is a 50' elevation difference across the site.

Hydrology Analysis (Illustration D)
The site is bordered to the north by an unnamed creek. This creek and its tributaries located on site makeup part of the Upper Alcovy River Watershed, which is part of the larger Upper Ocmulgee Watershed. This Creek eventually joins Hopkins Creek as part of the tributary network feeding into the Alcovy River.

The site is divided into smaller watersheds feeding into one onsite retention pond, one offsite pond and an unnamed creek. Most stormwater on the site drains into the unnamed creek. Two small ponds exist in the northern and central portion of the park. Where proposed pavements and roofs are concentrated on site, compliance with County stormwater regulations will be required.

Illustration B – Existing Conditions

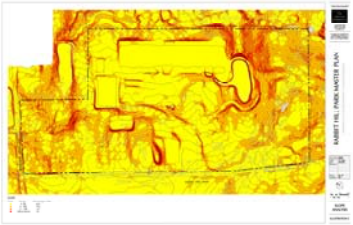

Illustration C – Slope Analysis

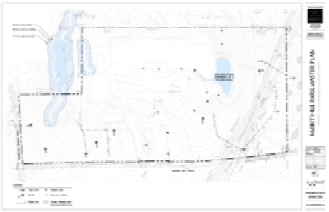

Illustration D – Hydrology Analysis

Figure 5: *Existing Retention Pond*

Soils Analysis
Soils at the Rabbit Hill Park site are distributed relative to the topography. Clay loams and sandy clay loams are generally found along the hilltops. Floodplain soils consisting of alluvial sand, silt, and clay are deposited along the creek and its tributaries. Shallow rock has been determined throughout the site in a series of three geotechnical reports conducted over a period of ten years by the following consultants:

Matrix Engineering Group, Project No. 97140.7, December 03, 1999
Matrix Engineering Group, Project No. 97140.51, May 2007
United Consulting, Project No. 2008.1925.01, February 9, 2009

Vegetation (Illustration E)
Vegetation on the added parcels is largely open field along the roadway transitioning to mixed pine and hardwood toward the back of the site. A few specimen trees exist along the egde of the open field areas. The drainage area toward the unnamed stream contains many exotic plants in the understory.

Issues and Opportunities
Potential issues in developing the site for recreational use include the shallow depth of rock along the road frontage of the site where the topography is most optimal for development. A wide power easement along the southern end of the site segments the property and limits use of that space. Subsequently, these areas will be carefully considered in the planning of passive and active recreation and proximity of amenities to one another.

Illustration E – Vegetation Analysis

Figure 6: *Specimen Trees*

Figure 7: *Power Easement*

5.0 Development Program

Figure 8: *Existing Soccer Fields at Rabbit Hill Park*

Program Elements

The park will be supported by a variety of improvements that facilitate access, visitor comfort and use of the property. Facilities at Rabbit Hill Park will complement those already developed during previous phases of park development, and those proposed at the adjacent Mountain View Park site. The overall concept for park development is to provide a variety of desired active recreation facilities serving all age groups while preserving strategic areas of the park as a passive use space and to enhance public access to natural features. Sports fields and their supporting amenities will be strategically located to provide a variety of active use field spaces accommodating the needs of the Dacula Soccer Club.

Fields to be accommodated on the Rabbit Hill site include:

- Soccer complex that includes the following four fields and sizes:
    - (2) Contiguous field, 360' x 525' – sized to accommodate the Dacula Soccer Club's practice field layout (figure 9).
    - (1) Non-Contiguous Field, 210 x 340' – already graded
    - (1) Top Soccer Field, 150' x 250' – artificial turf practice field

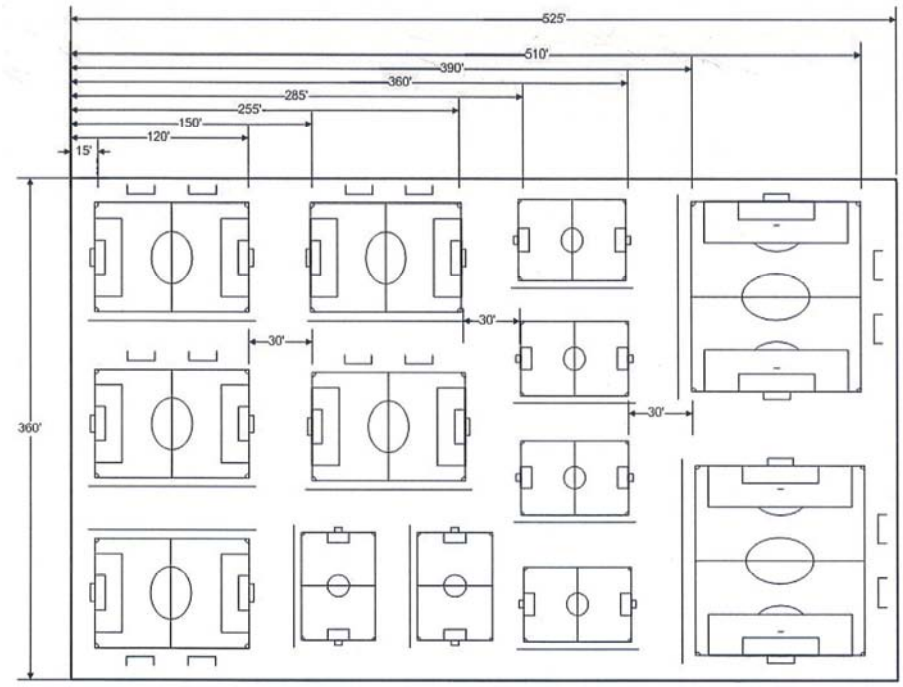

Figure 9: Dacula Soccer Club's practice field layout.

Alignment of trails and passive use spaces will be strategic, coinciding with the topography in order to minimize erosion problems. Other recreation programming for the site includes:

- Picnic Areas
- Playground Areas
- Multi-Use Trail System
- Trail Connections to the Lilburn Greenway
- Lawn Courts Activity Area
- Trailhead Building with Restroom Facility
- Teen Area
- Connects to Future Sidewalks along Rabbit Hill Road
- Connection across Rabbit Hill Road to Mountain View Park Site

Vehicular Circulation

Vehicular circulation within the park will include two new entrance drives in addition to the existing park entrance along Rabbit Hill Road. One new entrance drive is to be located on Rabbit Hill Road just south of the intersection of Rabbit Hill Road and Hurricane Shoals Road and will serve the parking areas for the soccer complex, playground, lawn court and picnic area. The parking lot will be bilaterally symmetrical with a central drop off area for the soccer fields and two wings of parking that serve the surrounding amenities. This entrance drive will also connect the Rabbit Hill Park to Mountain View Park with a roundabout. A second vehicular entry drive is planned on Rabbit Hill Road south of the existing park entrance. This entry road serves the court area and associated parking. Both entrance drives will be lined with specimen shade trees.

Desired Parking Allotment for Proposed Park Facilities

Playground/Picnic Area	35
Soccer Complex	300
Lawn Courts Area	35
Court Area	85
Total Spaces*	455

* Parking for multi-use trail use is contained within parking counts for other uses.

Parking and Roads

Roads in the site will be asphalt with curb and gutters. Parking lot aisles will be asphalt. It has been proposed that the parking spaces themselves be pervious pavement spaces with striping, allowing for groundwater infiltration in parking areas. Pervious pavement allows rainwater to flow through pavement uniformly, allowing it to naturally filter and purify before entering the ground, reducing pollutants. Pervious pavements also reduce erosion and lower costs associated with stormwater management systems. Bioswales are proposed

Figure 10: *Bioswale*

between parking aisles in many locations of the site to allow for additional infiltration of stormwater runoff from parking areas. Site infrastructure and utility installation should be considered in the construction all park roads.

Soccer Complex

The proposed soccer complex includes two contiguous soccer fields, one non-contiguous field (which has already been graded) and a 'Top Soccer' artificial turf practice field located adjacent to the five existing soccer fields. All fields will be serviced by a single concession area located between the two contiguous and one non-contiguous field and proximate to the parking area. The fields will occupy three separate terraces due to site topography. Lighting should be located at the perimeter of all fields.

Due to soil conditions and shallow depth of rock encountered on the site, it is likely that additional drainage underneath the athletic fields will be required. A more refined grading and drainage plan will need to be conducted during the development of construction documents to address this issue. Existing soccer fields on site have been constructed with an additional drainage layer to mitigate the impervious layer of rock below the surface. The design of the future soccer fields should follow a similar design per Gwinnett County approval.

A central concession area should be located to the east of the two contiguous fields and follow the Gwinnett County standard facility with restrooms on one side and concessions on the other with a central open breezeway. A plaza comprised of decorative pavers and a large planter with seat walls and ornamental plantings will surround the central concession building area. A vehicular drop-off area is also proposed in this area to provide access to both the concession area and upper fields.

Playground and Picnic Area

A sixty foot diameter structure is proposed to provide reserved/rental space for large gatherings. This facility would also be available on a first come first served basis when the facility is not reserved. This pavilion will be located at the northernmost end of the parking area near the intersection of Hurricane Shoals Road and Rabbit Hill Road. The structure will contain picnic tables, outdoor grills and security lighting. A single beach volleyball court will also be provided adjacent to the pavilion. A 3.4 acre lawn area as well as uncovered picnic and free play areas are also planned for this portion of the park. Finally, as a standard pavilion/playground complex, this pavilion will be supported by a dedicated large playground and restroom facility.

Lawn Courts Area

Three sand volleyball courts and four badminton courts will be provided in the area between the existing park entrance drive and the proposed soccer complex. A Gwinnett County standard restroom building and shelter are located between the parking and court areas. These structures will be

surrounded by a small plaza with seating that overlooks the courts below. The shelter has been located to encourage teen gathering. Space for teen play equipment such as teen swings will also be provided. The lawn courts area is located in a highly visible portion of the site along Rabbit Hill Road.

Court Area

The court area includes a large, open expanse of irrigated turf dotted with various amenities. Included in these amenities are: a small shelter, (3) horseshoe pits and (2) bocce courts, restroom, picnic tables and a trail orientation kiosk. Four tennis courts are also located in this area as well as a large area designed for unstructured play. The entire court area is surrounded by a universally accessible route which ties into the multi-use trail system. The court area can also be accessed be a separate vehicular entrance on Rabbit Hill Road.

Trail Network

Multi-Use Trail

As envisioned, all park elements will be connected by the multi-use trail system and its sidewalk spurs. This system allows a park user to park a vehicle once and then access all points of the park. Park maintenance forces will use the paved trail system to access all park zones. The horizontal and vertical curvature design and slopes must be chosen with consideration of these vehicular requirements. All multi-use trails will be asphalt paved and twelve feet wide, unless otherwise noted. The following loops and connectors make up the multi-use trail system *(see Illustration X):*

- *Section A (0.46 miles)* – Beginning at the soccer complex parking area, the route continues northward running parallel with Rabbit Hill Road. The trail runs along the perimeter of the seeded turf area at the playground / picnic area. This section of the trail is connected to the intersection of Hurricane Shoals Road and Rabbit Hill Road by a multi-use trail spur. After this spur, the trail continues around the perimeter of the turf lawn providing access to the playground / picnic area. An additional spur connects the park with the intersection of Hurricane Shoals Road and Rabbit Hill Circle. The trail then ties back into the soccer complex parking area sidewalk and the next portion of multi-use trail. This loop should be treated as a pedestrian boulevard and include tree plantings placed appropriately to provide a shaded setting.
- *Section B (0.21 miles)* – Beginning at the end of Section A, this portion of starts from the soccer complex parking area and heads eastward around the detention area to the two contiguous soccer fields. The trail then leads to the concession area with associated plaza. The route continues along the contiguous soccer fields and the second detention area. The trail splits at this point to head to either, the existing sidewalk network or along the drive to return to the soccer complex parking area.

- *Section C (0.81 miles)* – This section of trail is an expansion of the existing multi-use trail system to the southern end of the parcel and is comprised of two loops. The first loop encircles the parking area and the tennis courts with a connecting piece of trail in between. This loop also provides access to the horseshoe and Bocce ball courts from the parking area. The second loop is connected to the first and encircles a hilltop. There is also a spur to provide for future development of the trail system.

Shelters

Smaller shelters are associated with age-appropriate amenity areas. Two are located on the site. One shelter is located in the lawn courts area, overlooking the sand volleyball and badminton courts. Another shelter is associated with the court area. All shelters will conform to Gwinnett County standards for small shelter structures.

Figure 11: *Small Shelter*

Other Structures

An Orientation kiosk will be placed at the court area. This custom kiosk will have at least two sides containing orientation information including a map of the trail systems. Park rules and bulletins can also be posted on these kiosks.

Playgrounds

The purpose of the large playground areas proposed for the site is to provide play opportunities for children of all ages. Their presence helps assure a constant flow of responsible adults on site during daylight hours. Play areas may be partially enclosed by seat walls. Playground equipment for each area will include multiple swing sets, multiple play structures for both tots and older children, and ancillary play equipment. The large play area will be adjacent to some expanse of open lawn and will include shade trees. Playgrounds should meet current Gwinnett County playground design standards. An additional play area should be located adjacent to the teen activity area and contain teen play equipment and swings as well as shade trees.

Figure 12: *Play Structures*

Restrooms

Restrooms will be associated with all activity zones in the park. The county standard "stand alone" restroom facility of an approximate 600 SF building is specified for locations where the restroom cannot be incorporated into the concession facility. Restrooms will be incorporated into concession buildings for the soccer complex. Stand alone restrooms are planned for the large playground/pavilion area, lawn court area and the court area.

Utilities

There are current connections for power, water and sewer service to the existing soccer fields and restroom. Sewer line connections can be made at the central portion of the site from the existing developed portions of the site.

Additional power and water connections can occur off of Rabbit Hill Road and Hurricane Shoals Road if necessary.

Furnishings

In general, furnishings will be spare and modest. Benches shall be placed at quarter mile intervals along the multi-use trail. Additional benches will be located near the playground area and horse shoe courts.

Picnic tables will be provided, including ten within the pavilion area. Grills will be associated the picnic tables closest to the pavilion. Trash receptacles will be located with all benches and should be accessible by maintenance vehicles.

Figure 13: *Orientation Signage*

Signs

Signs indicating entrances and parking areas will be placed at several locations along Rabbit Hill Road. Trail directional signs will be placed at intersections of all trails. Trail mileage signs shall be placed along stretches of trails at .25 mile intervals. A trail route and mileage map should be included in the orientation kiosk to explain the trail route lengths.

Landscape Management

Landscape management will consist of regular mowing of activity fields and open turf areas. Due to natural woodland character of portions of the site, native plant species are recommended for planting associated with park development. Native plantings will help new development areas blend with the proposed passive woodland areas.

Figure 14: *Entrance Sign*

Forest Management

Forest management will consist of pruning or removing trees that obstruct trails, roadways and parking lots; threaten buildings and other structures; or interfere with any type of circulation activity. Diseased trees should be monitored and removed if the spread of disease cannot be controlled. Efforts to preserve healthy trees will be a high priority in all areas, as well as preservation and restoration of the understory woodland shrub layer. Where possible, invasive species such as kudzu and privet should be managed with eradication and replaced with appropriate native species.

Areas designated for revegetation (slopes 3:1 and greater) should be replanted either with small pines and/or small hardwoods. Slopes necessary for grading sports fields (such as the Football Area) should be planted with small pines which should be allowed to grow into hardwood forests with succession. Stream bank revegetation areas should be planted with hardwood trees and riverine shrub species.

6.0 Alternate Development Concepts and Master Plan

Based on the findings from inventory and analysis, a total of three alternative concept plans were explored and presented to the Dacula Soccer Club. Following this presentation, The Jaeger Company addressed the athletic association's comments and Gwinnett County staff recommendations in a Preliminary Design Plan. After more refinement, the Final Master Plan was prepared.

Concept Plans A, B & C
All three concept plans (*Illustrations F, G and H*) represent the same overall program development but differ in terms site entrance, parking layout, soccer field layout, concession stand location and location of amenities.

The following comments and suggestions resulted from this meeting:

1. The restroom/concession stand location was favored in Concept A.

2. Tennis and Court area was favored on the parcel south of the power easement and Concept C reflected the best arrangement.

3. A drop-off circle is desired for the Soccer Field area and ideally would be tied into the concession area.

4. A secondary exit to the new parking area (tie the proposed and existing parking areas together) is desired.

5. The soccer field configuration is favored in Concept A.

6. The bilateral symmetry in the parking lot layout is favored in Concept B.

Overall plan: **Concept B**, with the following changes: move concession location to in-between soccer fields, use field configuration from Concept A, provide auxiliary parking exit towards existing lot and provide additional drop-off to concession area from existing lot. Use Tennis and Court layout from Concept C.

Preliminary Master Plan
The Preliminary Master Plan (*Illustration I*) was presented and received the following input from the Steering Committee and staff:

- Change amenities at Teen Recreation Area as these will be included on the Mountain View Park site. Replace with a Lawn Courts area including Badmitton and Sand Volley Ball.
- Include Multi-use trail connections to future greenway trail locations and future sidewalk connections along Rabbit Hill Road and Hurricane Shoals Road.

- A “top soccer” practice field area was added adjacent to the soccer fields and maintenance area planned Phase I of the park development. This field will feature artificial turf and utilize all available space in the corner of the site.

Final Master Plan

The Final Master Plan (*Illustration J*) and the Final Cost Estimate (*Appendix A*), were presented and accepted by Gwinnett County staff. The final graphic reflects the Phase I, Phase II and the current Master Plan for the Rabbit Hill Park site.

7.0 Cost Estimate Summary

Below is a cost estimate summary for completing the Rabbit Hill Park site per recommendations from this Master Planning effort. An itemized cost estimate is included in Appendix A.

RABBIT HILL PARK SITE MASTER PLAN
The Jaeger Company
COST ESTIMATE - FINAL 8.19.09

Item	*Subtotal*	*Total*
Earthwork and Infrastructure	**$**	**195,000**
Soccer Complex	**$**	**3,376,930**
Playground / Picnic Area	**$**	**639,825**
Lawn Courts Area	**$**	**393,435**
Court Area	**$**	**939,030**
Traffic Circle	**$**	**70,675**
Rabbit Hill Park Entrance	**$**	**45,200**
Multi-Use Trail System	**$**	**361,600**
Budget Summary		
Subtotal	$	6,021,695
Contingency (15%)	$	903,254
Insurance/Bonds/Other Fees (10%)	$	692,495
Program Management (5.5%)	$	418,959
Land. Arch./Eng./Arch./Survey Fees (9%)	$	685,570
TOTAL	$	8,721,974

Figure 20: Cost Estimate Summary

A more detailed cost estimate can be found in *Appendix A.*

ILLUSTRATIONS

Landscape Architecture - Historic Preservation
Planning - Environmental Assessment

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RABBIT HILL PARK MASTER PLAN

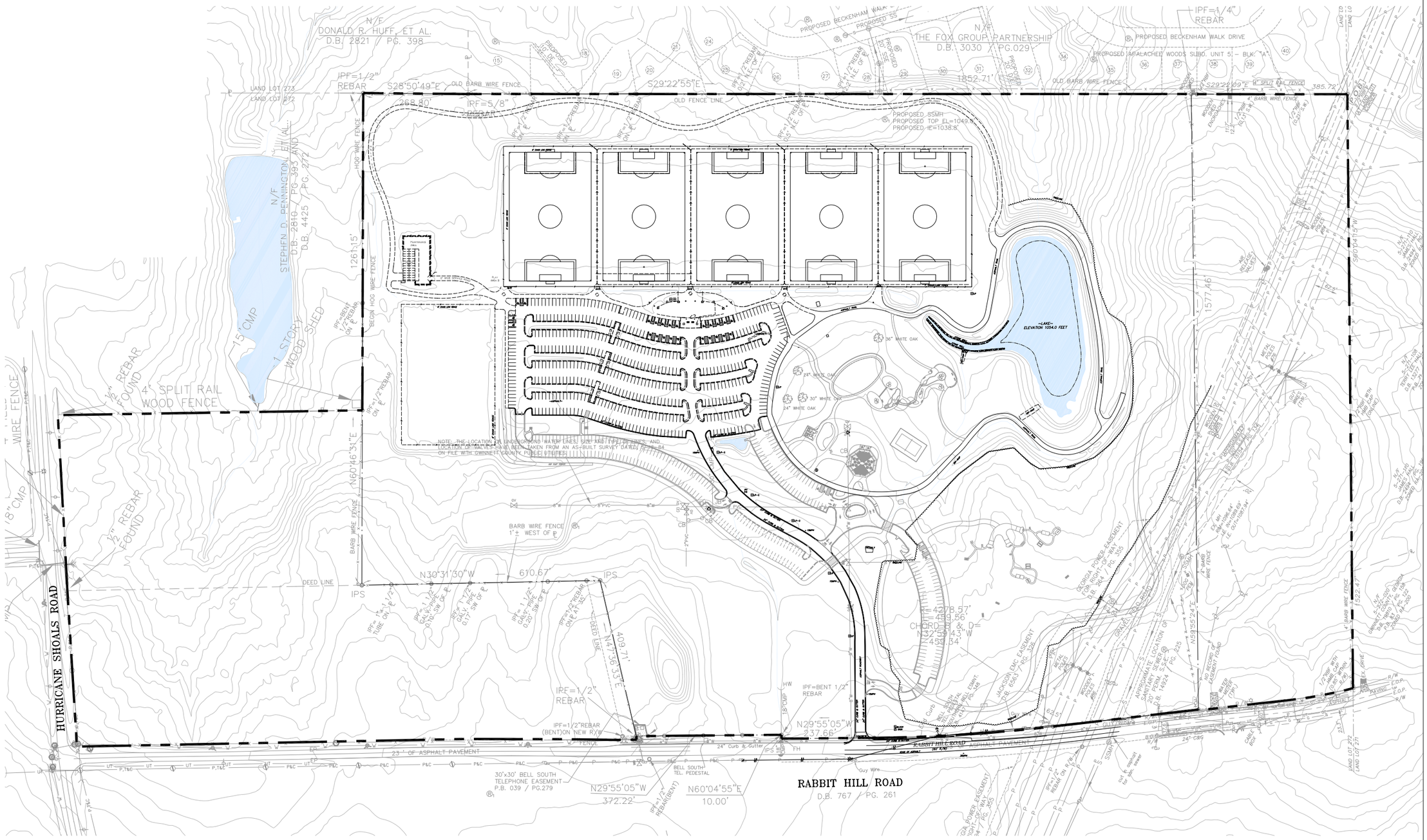
GWINNETT COUNTY DEPARTMENT OF COMUNITY SERVICES

ProjectNo.:	08040
Scale:	1" = 250'
Date:	09-26-09
Revisions:	
Drawn:	DL, LR
Checked:	EM

0 125 250

AERIAL PHOTO

ILLUSTRATION A



Landscape Architecture - Historic Preservation
Planning - Environmental Assessment

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RABBIT HILL PARK MASTER PLAN

GWINNETT COUNTY DEPARTMENT OF COMUNITY SERVICES

ProjectNo.:	08040
Scale:	1" = 250'
Date:	09-26-09
Revisions:	
Drawn:	DL, LR
Checked:	EM

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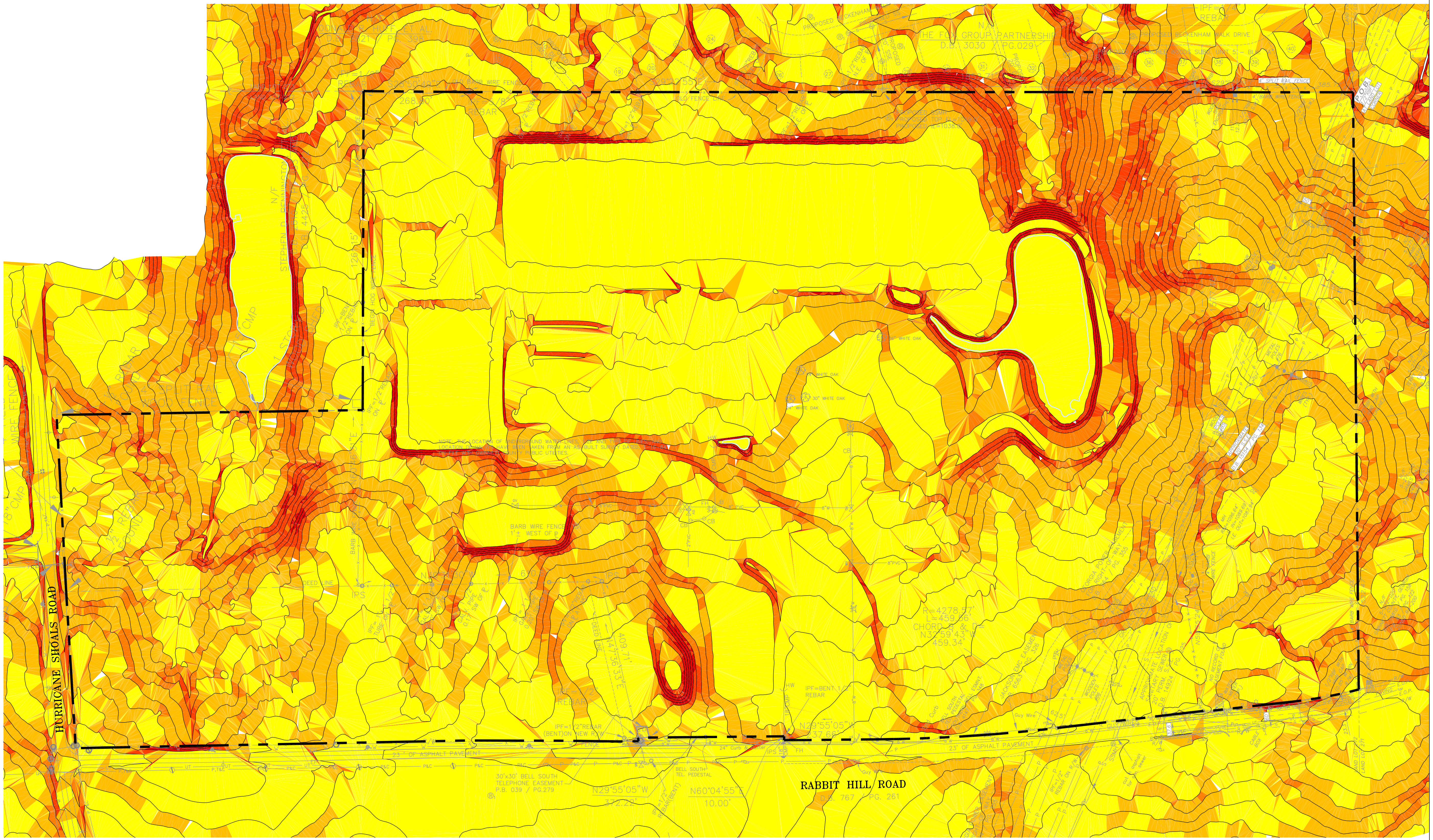
0 125 250

EXISTING CONDITIONS

ILLUSTRATION B



SLOPE

Color	Range	Percentage of Site
Yellow	0 -5%	65.9
Light orange	6 - 10%	19.2
Orange	11 - 15%	6.7
Red	16% & Above	8.1

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Planning · Environmental Assessment

THE JAEGER COMPANY

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RABBIT HILL PARK MASTER PLAN

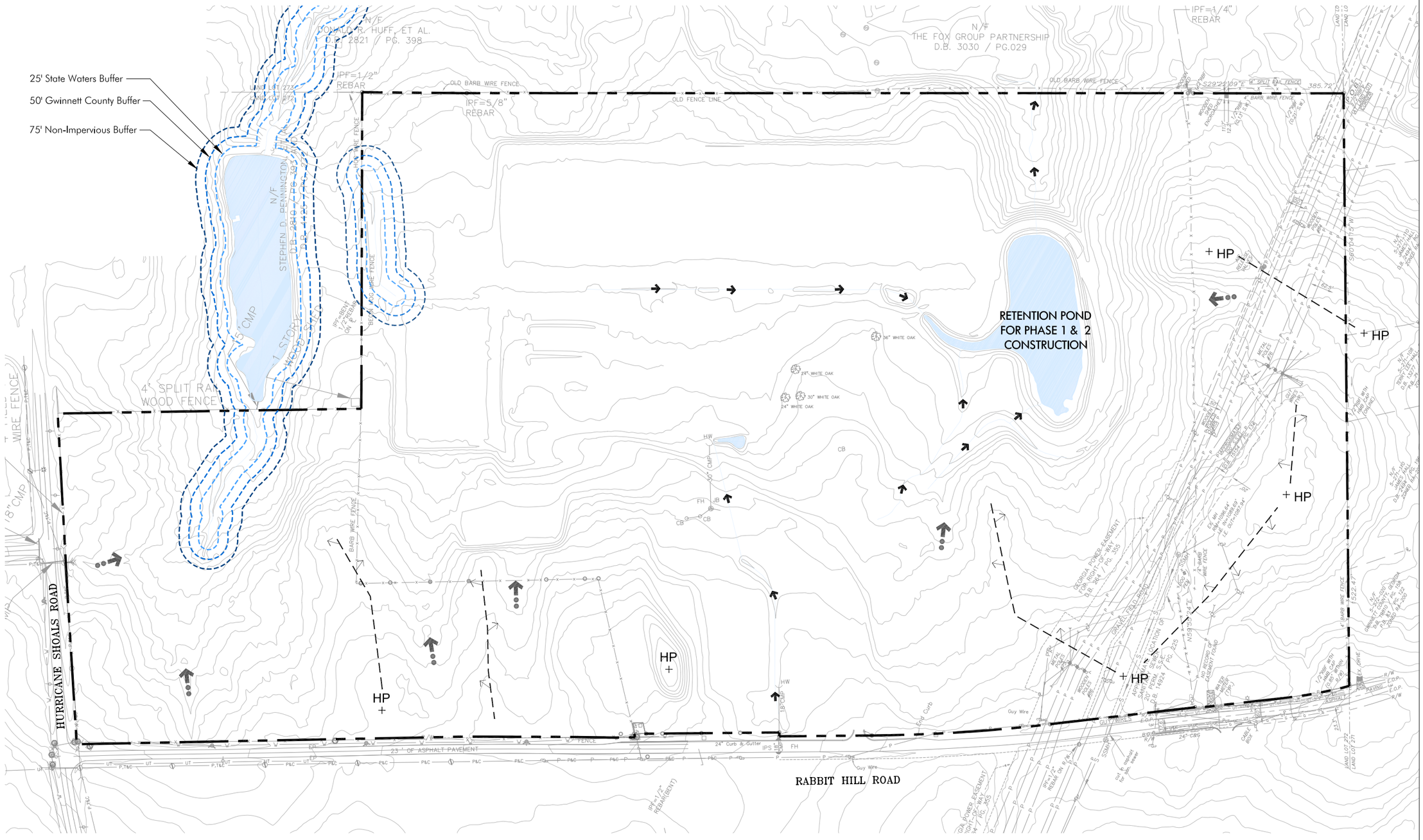
GWINNETT COUNTY DEPARTMENT OF COMMUNITY SERVICES

ProjectNo.:	08040
Scale:	1" = 250'
Date:	09-26-09
Revisions:	
Drawn:	DL, LR
Checked:	EM

0 125 250

SLOPE ANALYSIS

ILLUSTRATION C



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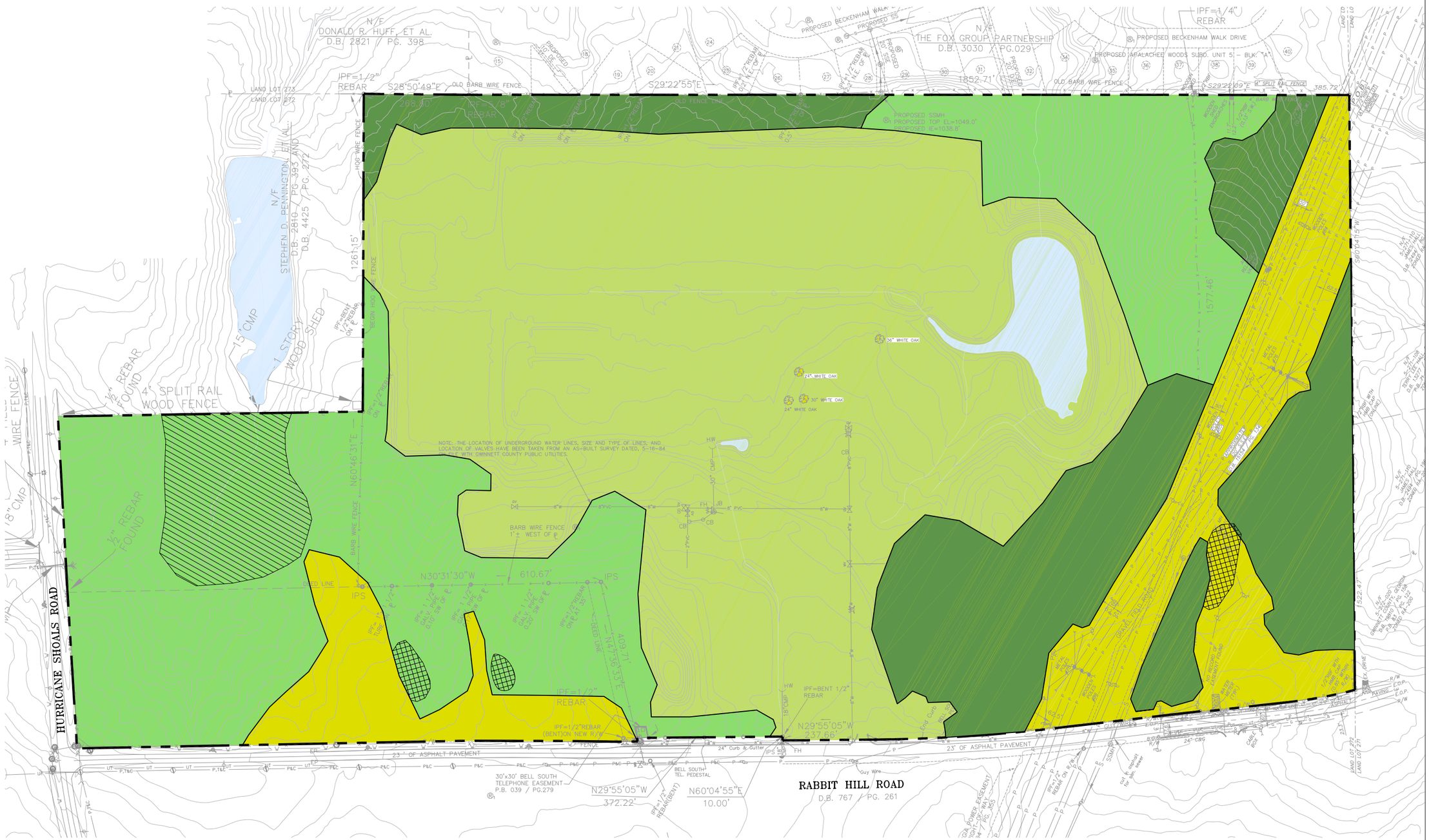
HYDROLOGY ANALYSIS

ILLUSTRATION D



LEGEND

- Cleared For Site Development
- Mixed Forest / Primarily Hardwood
- Mixed Forest / Primarily Evergreen

LEGEND

- Open Field
- Specimen Trees
- Invasive Exotics

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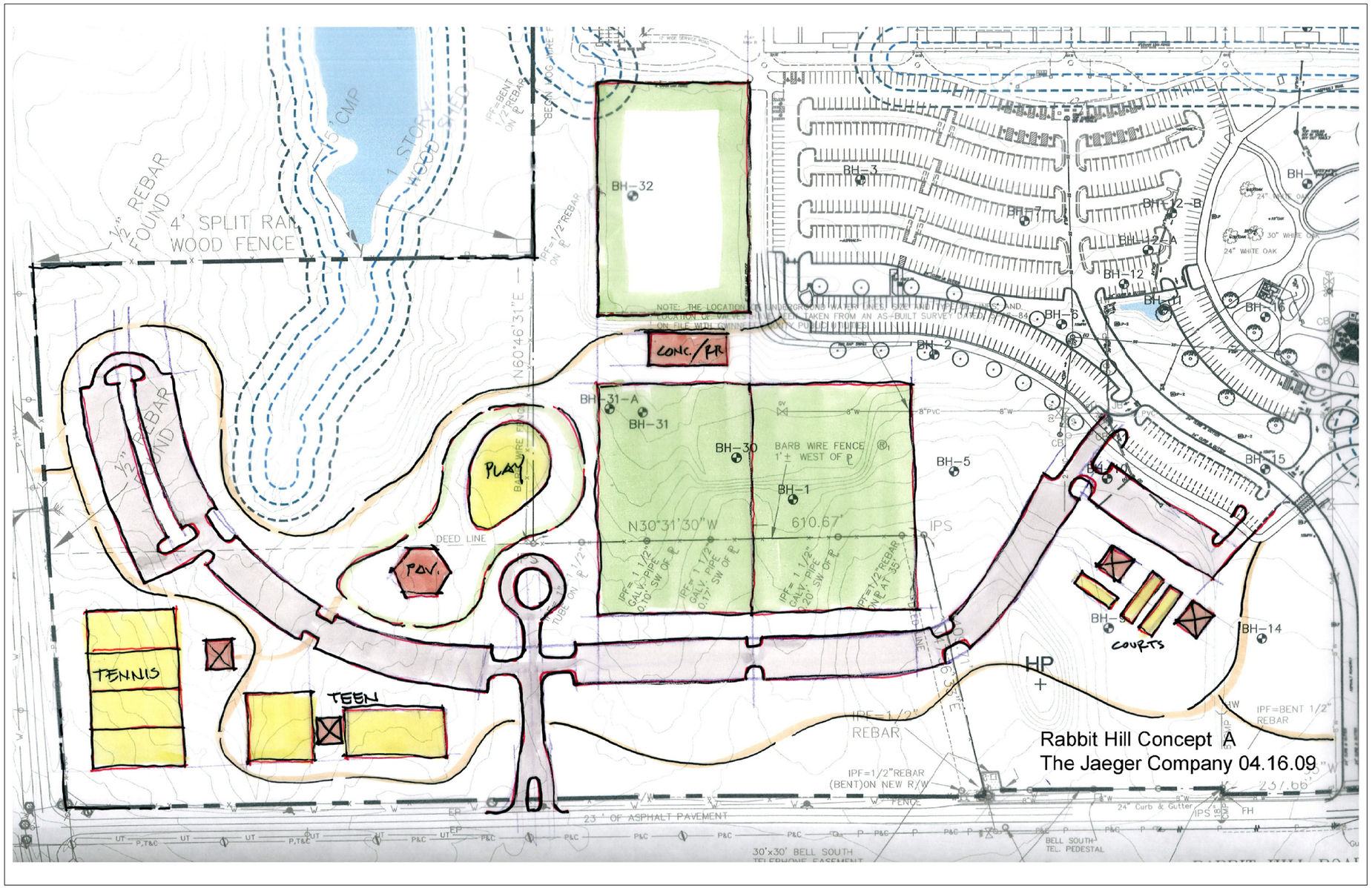
VEGETATION ANALYSIS

ILLUSTRATION E



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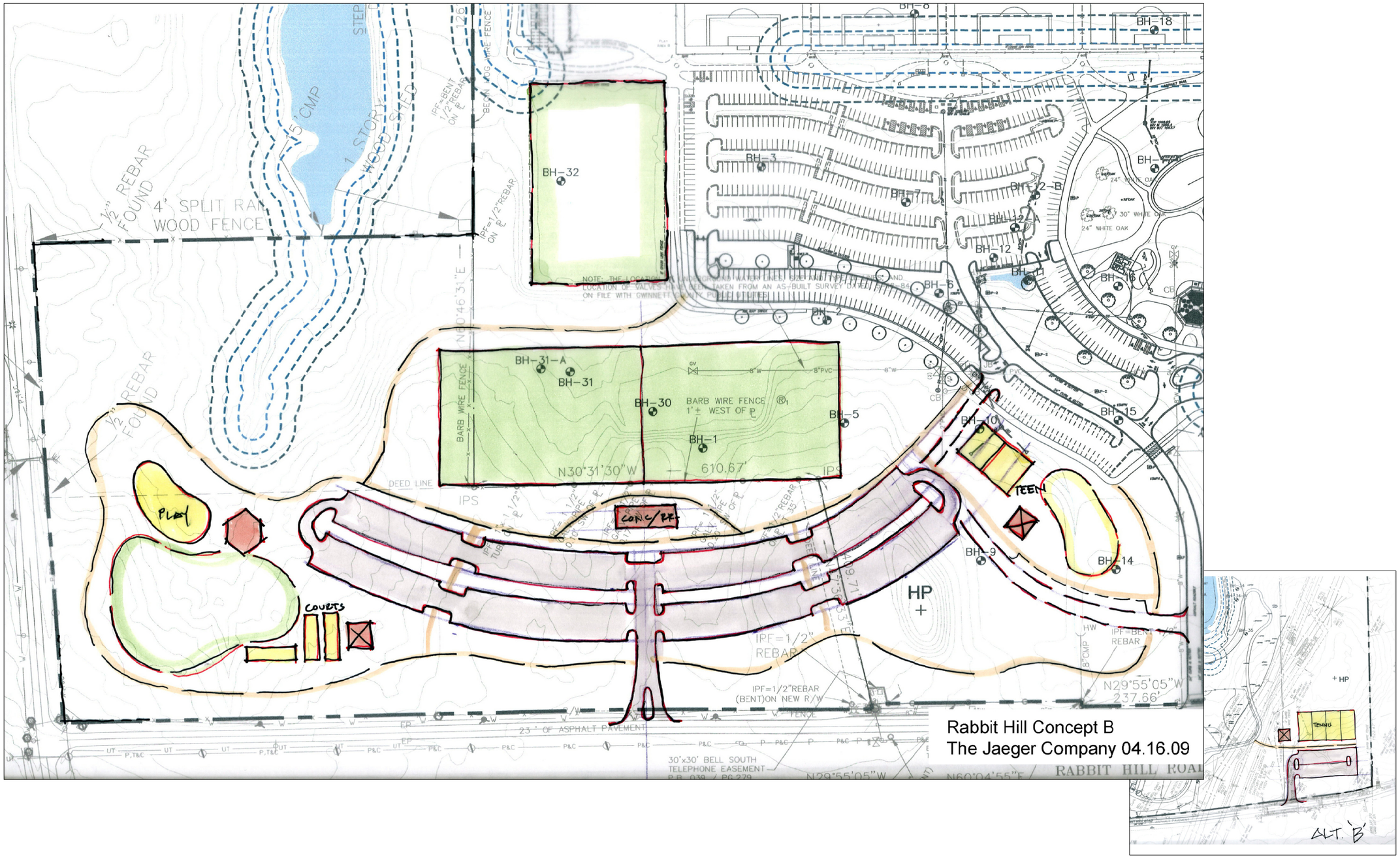
CONCEPT A

ILLUSTRATION F



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GWINNETT COUNTY DEPARTMENT OF COMUNITY SERVICES

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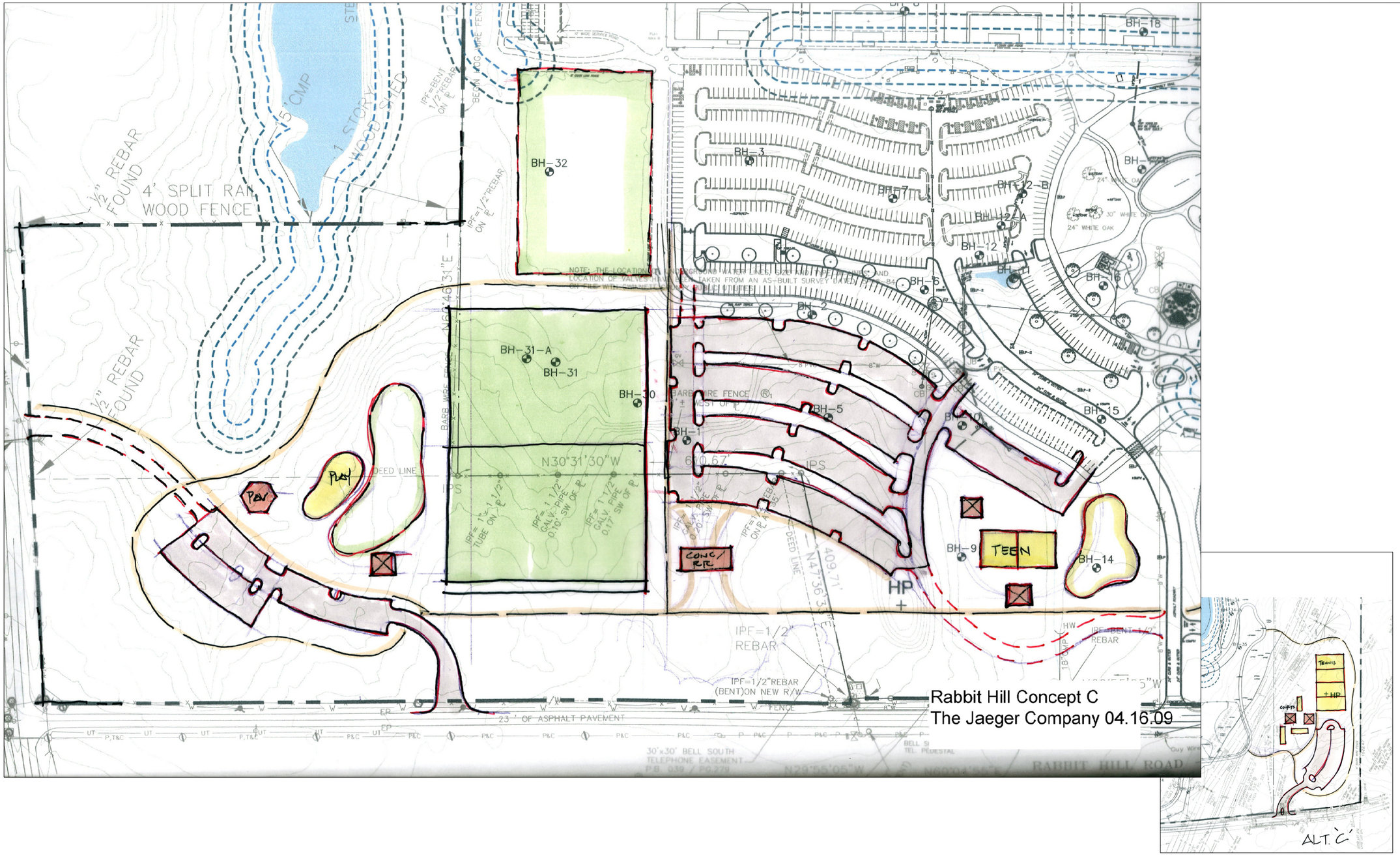
CONCEPT B

ILLUSTRATION G



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Date:	05-26-09
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CONCEPT C

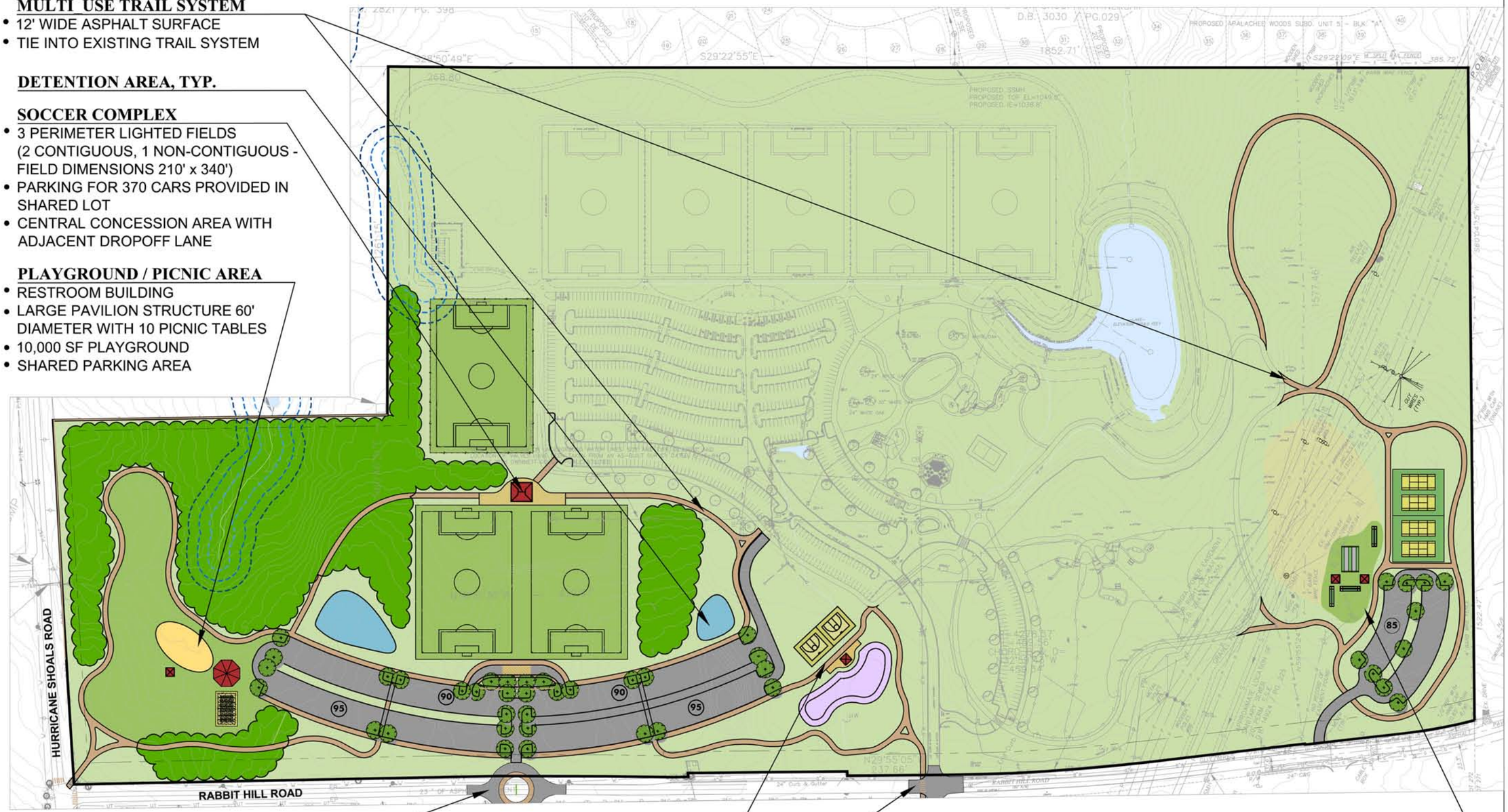
ILLUSTRATION H

MULTI_USE TRAIL SYSTEM
- 12' WIDE ASPHALT SURFACE
- TIE INTO EXISTING TRAIL SYSTEM

DETENTION AREA, TYP.

SOCCER COMPLEX
- 3 PERIMETER LIGHTED FIELDS (2 CONTIGUOUS, 1 NON-CONTIGUOUS - FIELD DIMENSIONS 210' x 340')
- PARKING FOR 370 CARS PROVIDED IN SHARED LOT
- CENTRAL CONCESSION AREA WITH ADJACENT DROPOFF LANE

PLAYGROUND / PICNIC AREA
- RESTROOM BUILDING
- LARGE PAVILION STRUCTURE 60' DIAMETER WITH 10 PICNIC TABLES
- 10,000 SF PLAYGROUND
- SHARED PARKING AREA



POTENTIAL TRAFFIC CIRCLE
- ALIGN WITH MOUNTAIN VIEW PARK MAIN ENTRANCE

TEEN RECREATION AREA
- RESTROOM BUILDING
- 20,000 SF SKATE FACILITY WITH BOTH BOWL AND STREET FEATURES
- SHELTER AND ASSOCIATED PLAZA WITH SEATING FOR TEEN GATHERING
- 2 HALF COURT BASKETBALL COURTS
- PARKING FOR 60 CARS IN SHARED LOTS

RABBIT HILL PARK ENTRANCE
- FOUR WAY INTERSECTION WITH PEDESTRIAN SIGNAL
- 12' WIDE, STRIPED CROSSWALK ON THE WEST SIDE OF ENTRANCE TO ACCOMODATE MULTI-USE TRAIL USERS
- MOUNTAIN VIEW PARK SECONDARY ENTRANCE TO ALIGN WITH INTERSECTION

COURT AREA
- RESTROOM BUILDING
- TRAIL ORIENTATION INFORMATION AND PICNIC TABLES
- PARKING FOR 85 CARS
- SHELTER FOR GATHERING
- 2 HORSE SHOE COURTS
- 2 BOCCE BALL COURTS
- 4 TENNIS COURTS
- UNSTRUCTURED PLAY AREA

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RABBIT HILL PARK MASTER PLAN

GWINNETT COUNTY DEPARTMENT OF COMUNITY SERVICES

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0 120 240

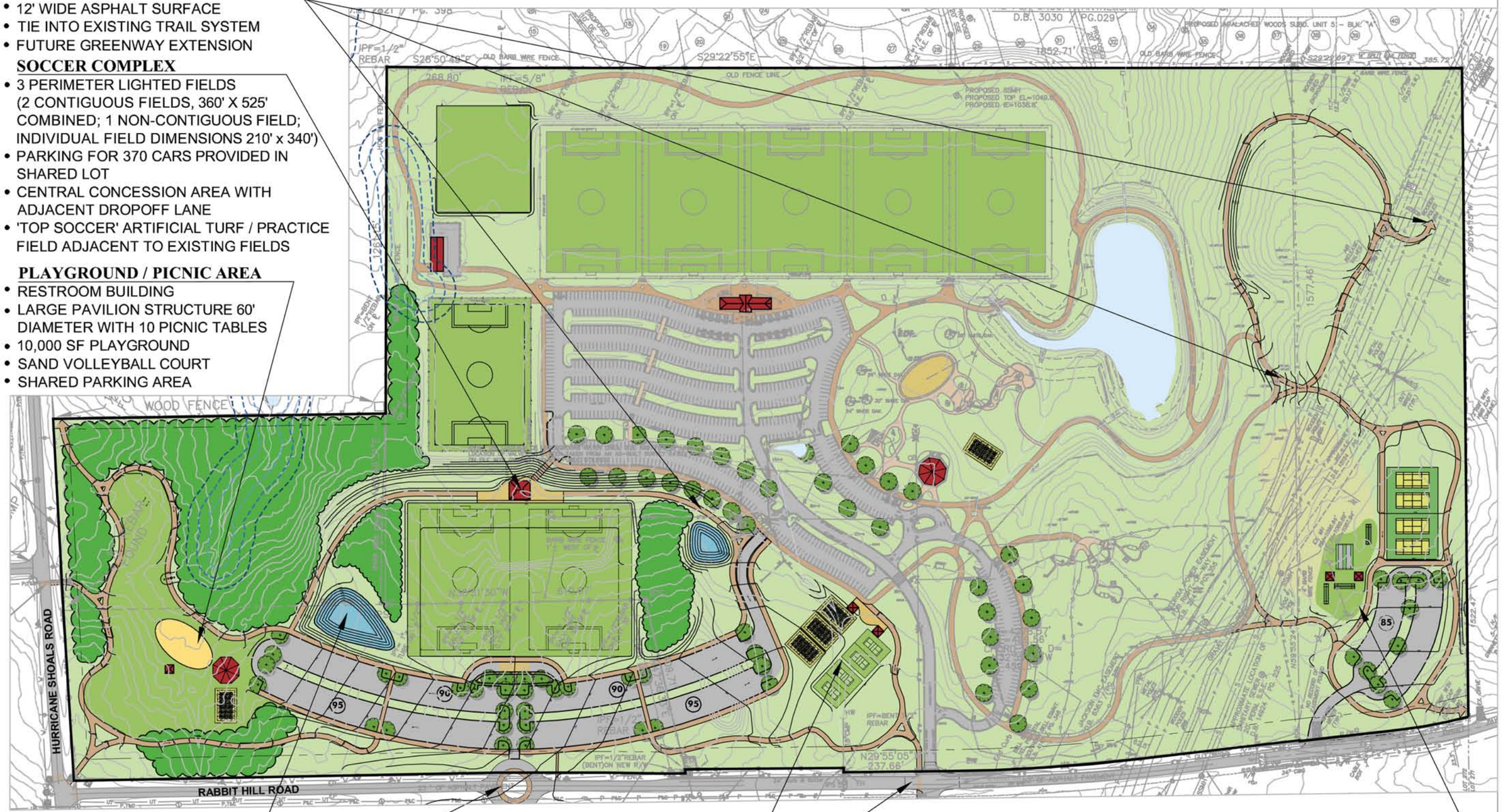
PRELIMINARY MASTER PLAN

ILLUSTRATION I

MULTI USE TRAIL SYSTEM
- 12' WIDE ASPHALT SURFACE
- TIE INTO EXISTING TRAIL SYSTEM
- FUTURE GREENWAY EXTENSION

SOCCER COMPLEX
- 3 PERIMETER LIGHTED FIELDS (2 CONTIGUOUS FIELDS, 360' X 525' COMBINED; 1 NON-CONTIGUOUS FIELD; INDIVIDUAL FIELD DIMENSIONS 210' x 340')
- PARKING FOR 370 CARS PROVIDED IN SHARED LOT
- CENTRAL CONCESSION AREA WITH ADJACENT DROPOFF LANE
- 'TOP SOCCER' ARTIFICIAL TURF / PRACTICE FIELD ADJACENT TO EXISTING FIELDS

PLAYGROUND / PICNIC AREA
- RESTROOM BUILDING
- LARGE PAVILION STRUCTURE 60' DIAMETER WITH 10 PICNIC TABLES
- 10,000 SF PLAYGROUND
- SAND VOLLEYBALL COURT
- SHARED PARKING AREA



DETENTION AREA, TYP.

POTENTIAL TRAFFIC CIRCLE
- ALIGN WITH ENTRANCE TO PARK AMENITIES ON THE SOUTHWEST SIDE OF RABBIT HILL ROAD

LAWN COURTS AREA
- RESTROOM BUILDING
- 4 BADMITTON COURTS
- 3 SAND VOLLEYBALL COURTS
- SHELTER AND ASSOCIATED PLAZA WITH SEATING FOR TEEN GATHERING
- PARKING FOR 60 CARS IN SHARED LOTS

RABBIT HILL PARK ENTRANCE
- FOUR WAY INTERSECTION WITH PEDESTRIAN SIGNAL
- 12' WIDE, STRIPED CROSSWALK ON THE WEST SIDE OF ENTRANCE TO ACCOMODATE MULTI-USE TRAIL USERS
- ALIGN PARK ENTRANCES ON BOTH SIDES OF RABBIT HILL ROAD

COURT AREA
- RESTROOM BUILDING
- TRAIL ORIENTATION INFORMATION AND PICNIC TABLES
- PARKING FOR 85 CARS
- SHELTER FOR GATHERING
- 3 HORSE SHOE COURTS
- 2 BOCCE BALL COURTS
- 4 TENNIS COURTS
- UNSTRUCTURED PLAY AREA

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RABBIT HILL PARK MASTER PLAN

GWINNETT COUNTY DEPARTMENT OF COMUNITY SERVICES

ProjectNo.:	08040
Scale:	1" = 120'
Date:	07-30-09
Revisions:	
Drawn:	DL
Checked:	EM

0 120 240

FINAL MASTER PLAN

ILLUSTRATION J

APPENDIX A

COST ESTIMATE

RABBIT HILL PARK SITE MASTER PLAN
The Jaeger Company
COST ESTIMATE - FINAL 8.19.09

Item	*Unit*	*Unit Price*	*Quantity*	*Subtotal*	*Total*
Earthwork and Infrastructure					**$ 195,000**
Misc. Demolition	LS	$15,000	1	$15,000	
Erosion Control	LS	$80,000	1	$80,000	
Stormwater Management	LS	$90,000	1	$90,000	
Utility Connect Fees	LS	$10,000	1	$10,000	
Soccer Complex					**$ 3,376,930**
Grading - Cut & Fill	CY	$5	62,100	$310,500	
Clearing	AC	$7,000	1.10	$7,700	
Concession Building	LS	$200,000	1	$200,000	
Soccer Field (340' x 210')	EA	$175,000	3	$525,000	
Top Soccer Field (250' x 220')	EA	$475,000	1	$475,000	
Field Lighting	LS	$440,000	1	$440,000	
Perimeter Fence, Vinyl Coated-Around Soccer Fields	LF	$18	2,570	$46,260	
Sidewalks	SF	$5	39,660	$198,300	
Decorative Paving - Plaza	SF	$10	8,485	$84,850	
Asphalt Drive / Parking Aisles	SY	$40	17,930	$717,200	
Parking/Roadway Lights	EA	$4,500	28	$126,000	
Curb & Gutter	LF	$15	6,850	$102,750	
Stairs including Handrails	LF	$250	225	$56,250	
Bench on Concrete Pad	EA	$1,500	3	$4,500	
Trash Receptacle on Concrete Pad	EA	$1,000	3	$3,000	
Detention Basin Seed Mix	AC	$4,000	0.55	$2,200	
Landscaping (Trees each)	EA	$700	32	$22,400	
Water Service (2" domestic)	LF	$24	90	$2,160	
Sanitary Sewer (8" with structures)	LF	$75	520	$39,000	
Electricity/Conduit	LF	$14	990	$13,860	
Playground / Picnic Area					**$ 639,825**
Grading - Cut & Fill	CY	$5	380	$1,900	
Clearing	AC	$7,000	0.10	$700	
Restroom	EA	$140,000	1	$140,000	
60' Dia. Rental Pavillion	LS	$100,000	1	$100,000	
Playground	EA	$150,000	1	$150,000	
Sand Volleyball Court	EA	$12,000	1	$12,000	
Picnic Tables	EA	$1,725	10	$17,250	
Grill	EA	$500	4	$2,000	
Bench on Concrete Pad	EA	$1,500	2	$3,000	
Trash Receptacle on Concrete Pad	EA	$1,000	2	$2,000	
Irrigation	AC	$3,200	3.50	$11,200	
Turf Area (Seeded)	AC	$5,000	3.50	$17,500	
Water Service (2" domestic)	LF	$24	295	$7,080	
Sanitary Sewer (8" with structures)	LF	$75	1,855	$139,125	
Electricity/Conduit	LF	$14	230	$3,220	
Perimeter Fence, Vinyl Coated	LF	$18	1,825	$32,850	
Lawn Courts Area					**$ 393,435**
Grading - Cut & Fill	CY	$5	2,020	$10,100	
Restroom	EA	$140,000	1	$140,000	
Shelter	LS	$100,000	1	$100,000	
Decorative Paving - Plaza	SF	$10	2,120	$21,200	
Sand Volleyball Court	EA	$12,000	3	$36,000	
Badminton Court	EA	$10,000	4	$40,000	
Bench on Concrete Pad	EA	$1,500	1	$1,500	
Trash Receptacle on Concrete Pad	EA	$1,000	1	$1,000	
Bike Rack	EA	$1,200	1	$1,200	
Teen Swings	EA	$700	1	$700	
Water Service (2" domestic)	LF	$24	125	$3,000	
Sanitary Sewer (8" with structures)	LF	$75	425	$31,875	
Electricity/Conduit	LF	$14	490	$6,860	

RABBIT HILL PARK SITE MASTER PLAN
The Jaeger Company
COST ESTIMATE - FINAL 8.19.09

Item	*Unit*	*Unit Price*	*Quantity*	*Subtotal*	*Total*
Court Area					**$ 939,030**
Grading - Cut & Fill	CY	$5	9,600	$48,000	
Restroom	EA	$140,000	1	$140,000	
Shelter	LS	$100,000	1	$100,000	
Asphalt Drive / Parking Aisles	SY	$40	4,640	$185,600	
Rabbit Hill Road Decel Lane, Asphalt	SY	$50	240	$12,000	
Curb & Gutter	LF	$15	2,140	$32,100	
Parking/Roadway Lights	EA	$4,500	8	$36,000	
Horseshoe Court	EA	$2,500	2	$5,000	
Bocce Ball Court	EA	$2,500	3	$7,500	
Tennis Court	EA	$80,000	4	$320,000	
Kiosk	LS	$7,500	1	$7,500	
Picnic Tables	EA	$1,725	5	$8,625	
Grill	EA	$500	2	$1,000	
Bench on Concrete Pad	EA	$1,500	3	$4,500	
Trash Receptacle on Concrete Pad	EA	$1,000	3	$3,000	
Irrigation	AC	$3,200	0.50	$1,600	
Turf Area (Seeded)	AC	$5,000	0.50	$2,500	
Landscaping (Trees each)	EA	$700	10	$7,000	
Water Service (2" domestic)	LF	$24	370	$8,880	
Sanitary Sewer (8" with structures)	LF	$75	105	$7,875	
Electricity/Conduit	LF	$14	25	$350	
Traffic Circle					**$ 70,675**
Asphalt Drive	SY	$40	1,125	$45,000	
Sidewalks	SF	$5	2,600	$13,000	
Curb & Gutter	LF	$15	845	$12,675	
Rabbit Hill Park Entrance					**$ 45,200**
Pedestrian Signal System	EA	$45,000	1	$45,000	
Crosswalk Striping	EA	$200	1	$200	
Multi-Use Trail System					**$ 361,600**
Multi-Use Trail (12' wide asphalt)	LF	$40	9,040	$361,600	
Budget Summary					
				Subtotal	$ 6,021,695
				Contingency (15%)	$ 903,254
				Insurance/Bonds/Other Fees (10%)	$ 692,495
				Program Management (5.5%)	$ 418,959
				Land. Arch./Eng./Arch./Survey Fees (9%)	$ 685,570
				TOTAL	$ 8,721,974

Rabbit Hill Park
Composite Master Plan

Outdoor Family Leisure Aquatic Center

- Formal entry with drop off area at parking lot level
- Ticketing/bathhouse/restrooms/concessions at pool level
- Outdoor aquatic area featuring current channel, water slides, zero-depth entry pool, splash pads, etc.
- Large shaded areas on pool deck
- Large open plaza for sunbathing
- Pump house with vehicular access
- 2/3 mile trail loop with natural surfaced woodland experience

Playground/ Picnic Area

- Restroom building
- 60' diameter octagonal pavilion with 10 picnic tables
- 10,000 sf playground
- Sand volleyball court
- Shared parking area

Traffic Signal

- Pedestrian crossing connecting Outdoor Family Leisure Aquatic Center and athletic fields
- Left turn lanes from Hurricane Shoals Rd and Rabbit Hill Rd

12' Paved Multi-Purpose Trail Loop

- Perimeter loop length of 1.5 miles west of Rabbit Hill Rd
- 12' wide multi-purpose paved surface in open field and woodland settings
- Boardwalks in low areas

Multi-Purpose Field Complex

- 100 yard field with soccer/lacrosse overlay
- Concession/ restroom building with plaza
- Pressbox & bleachers
- Walking track

Maintenance Storage Area

- ±5600 sf fenced yard with storage shed
- Screened with vegetation

Potential Secondary Entrance

- Direct access to park from Hurricane Shoals Rd
- Parking lot arrangement deters cut-through traffic

Naturalized Perimeter

- Former pasture areas not included in new development will be allowed to naturalize along park perimeter

Youth Baseball/ Softball Complex

- 7 fields with varying sizes
- Formal entry plaza with drop off area
- Concession/ restroom building
- Shaded seating areas
- Interior open space with lawn, small playground, plazas and shelters with picnic tables
- Batting cages

Passive Area

- Preserve large trees at old home site
- Open play lawn
- Shelters with picnic tables
- Small playground for interpretive natural play opportunities
- Shared restroom with teen area

Lake

- 12' wide boardwalk with octagonal shelter
- Tiered overlook connected to boardwalk
- Safety fencing along high-use areas such as play lawns
- Fed by well
- Serves as detention facility and source of irrigation water
- Deck overlooks with adult swings under arbors

Pavilion/ Playground Complex

- Irrigated 1.7 acre open play lawn
- 60' diameter octagonal pavilion
- Large community playground with separate areas for 2-5 and 5-12 year olds
- Restroom building
- Multi-purpose trail loop around lake
- Horseshoes pits

Parking Summary

Facility (West of Rabbit Hill Rd & North of Hurricane Shoals Rd)	Number of Spaces	Facility (East of Rabbit Hill Rd)	Number of Spaces
Outdoor Family Leisure Aquatic Center	232	Playground/ Picnic Area	95
Multi-Purpose Field Complex	320	Soccer Complex	871
Youth Baseball/Softball Complex	420	Pavilion/ Playground Complex	55
Passive Area	40	Lawn Courts Area	50
Teen Area	90	Dog Park	72
Pavilion/Playground Complex	85	Court Area	85
Subtotal	1187	Subtotal	1228

*Total Development = 2415 Parking Spaces**

* Note: Where possible, parking lots to have internal grassed swales.

Park Totals

Location	12' Multi-Purpose Trail Length (miles)	Park Acreage
North of Hurricane Shoals	0.4	15.03
West of Rabbit Hill Rd	1.5	73.89
East of Rabbit Hill Rd	3.3	109.23
Total	5.2 miles	198.15 Acres

Passive Area

- Open play lawn
- Shelter with picnic tables

Traffic Circle

Maintenance Compound

Soccer Complex

- Five 330'x210' lighted soccer fields
- Restroom/concession building with breezeway
- Formal entry plaza
- 3 perimeter lighted fields (2 contiguous fields, 360'x525' combined; 1 non-contiguous field; individual field dimensions 210'x340')
- Central concession area with adjacent dropoff lane
- 'Top Soccer' artificial turf/practice field adjacent to existing fields

Lawn Courts Area

- Restroom building
- 4 badminton courts
- 3 sand volleyball courts
- Shelter and associated plaza with seating

Pavilion/ Playground Complex

- 60' diameter octagonal pavilion
- Restroom building
- Large community playground with well-fed rivulate play channel sending water to 2 acre lake
- Lake serves as detention facility and source of irrigation water
- Sand volleyball court
- Open play lawn with lake overlook

Rabbit Hill Park Entrance

- Four-way intersection with pedestrian signal
- 12' wide, striped crosswalk on the north side of entrance to accommodate multi-use trail users
- Align park entrances on both sides of Rabbit Hill Rd

Dog Park

- Three separate areas for dogs of various sizes
- Drinking fountains with pet attachment
- Agility equipment and bench seating
- Preserve existing trees where possible for shade

Court Area

- Restroom building
- Trail orientation information and picnic tables
- Shelter
- 3 horseshoes pits
- 2 bocce ball courts
- 4 tennis courts
- Unstructured 1.7 acre play area

Potential Greenway Connection to Dacula Park

Design Credits

- Lose & Associates, Inc.
- The Jaeger Company
- Cerulea, Inc.
- Breedlove Land Planning, Inc.

Teen Area

- ±14,000 sf lighted free skate area
- 2 full size and 2 half size basketball courts
- Shelter and restroom building

Trailhead

- Small plaza with seat walls
- Small kiosk with wayfinding signage
- Shared use of restroom building
- Connection to future greenway corridor

0 150 300

SCALE: 1"=150'-0"
SEPTEMBER 10, 2009

RABBIT HILL PARK MASTER PLAN

Prepared for Gwinnett County Department of Community Services

LOSE & ASSOCIATES, INC.
LANDSCAPE ARCHITECTURE • ARCHITECTURE • ENGINEERING
250 W. CROGAN ST. SUITE 135 LAWRENCEVILLE, GA 30046 770-338-3037

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