

US EPA ARCHIVE DOCUMENT

McCALLUM

TESTING LABORATORIES, INC.*Geotechnical Engineering, Materials Testing & Environmental Services***April 5, 2001****Hassell and Folkes, P.C.**

325 Volvo Parkway

Chesapeake, VA 23320

Attention: **Jack Claud**Subject: **Subsurface Exploration**

Proposed Etheridge Greens Golf Course

Chesapeake, Virginia

MTL Project 012004

Dear Mr. Claud:

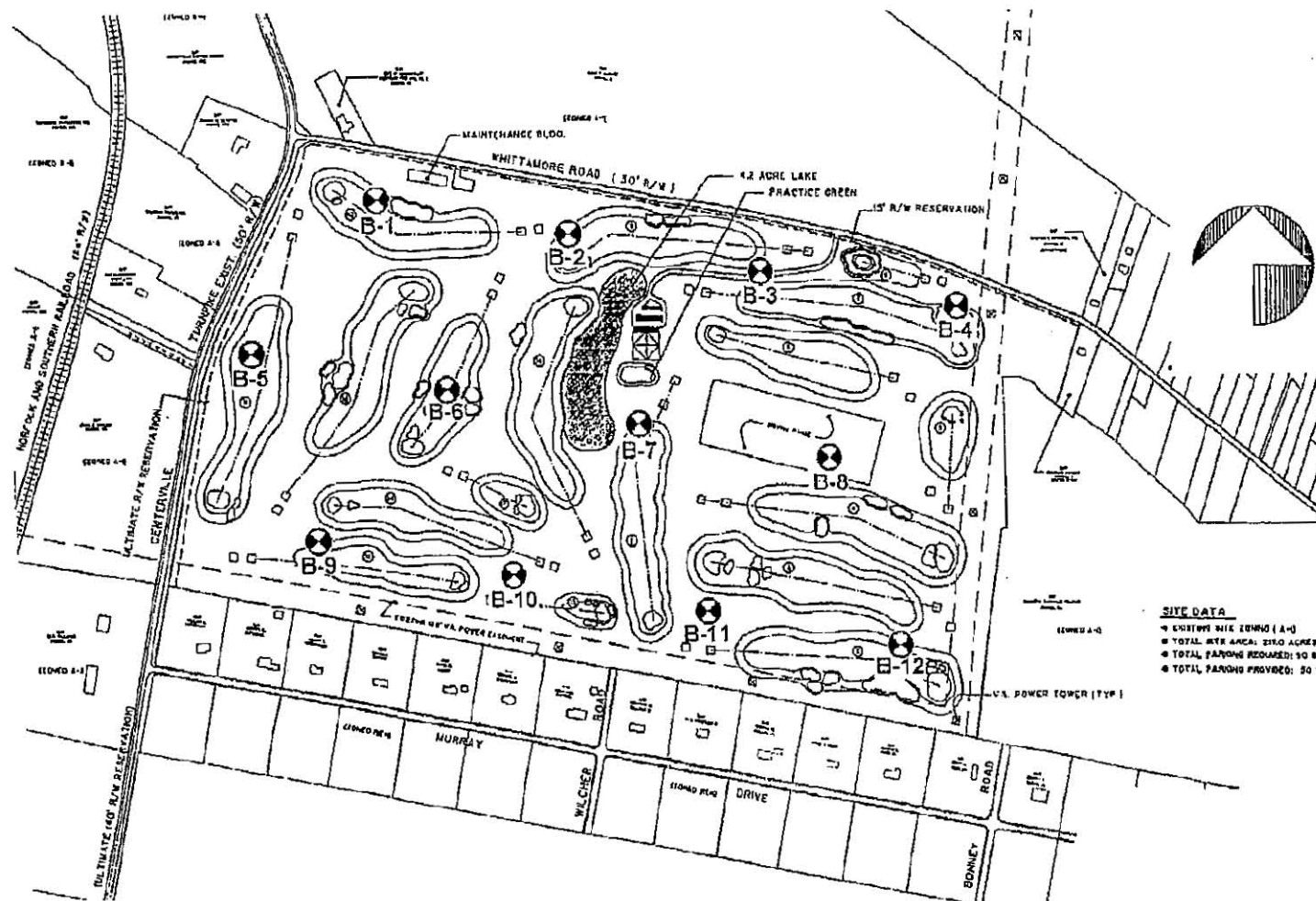
McCallum Testing Laboratories, Inc. has completed the requested subsurface exploration services for the above referenced project. A total of 12 soil test borings were drilled extending to depths of 25.5 ft. beneath the existing ground surface. Standard Penetration Tests (SPT's) were performed at 2 ft. intervals in the upper 10 ft. of boring and at 5 ft. intervals below 10 ft. All drilling and sampling were performed in accordance with applicable ASTM Standards. At the completion of drilling, groundwater level measurements were made within the completed bore holes. In addition, temporary monitoring wells were installed at 4 of the 12 boring locations and the stabilized groundwater level was measured in each. All samples obtained from the borings were visually examined and classified by our laboratory personnel according to the Unified Soils Classification System. Please note that the engineering properties of the obtained samples were not evaluated by a Geotechnical Engineer. The detailed results of the field sampling and testing are attached along with a Test Boring Location Plan.

Should you have any questions concerning this matter, please contact this office at your earliest convenience.

Very truly yours,

McCALLUM TESTING LABORATORIES, INC.**David P. Rediger, E.I.T.****Laboratory Manager**

1808 HAYWARD AVENUE, CHESAPEAKE, VA 23320 ♦ P.O. BOX 13337, CHESAPEAKE, VA 23325-0337
PHONE (757) 420-2520 ♦ FAX (757) 424-2874



Ref: Original plan provided by Hassell & Folkes, P.C.

McCALLUM TESTING LABORATORIES, INC.

1808 Hayward Avenue
Chesapeake, Virginia 23325-0337

Scale:	Approved By: David P. Rediger, E.I.T.	Date: 4/5/01
Project:	Proposed Etheridge Greens Golf Course Chesapeake, Virginia	
Drawing Title:	Test Boring Location Plan	Drawing Number: 1-01-2004

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CHESAPEAKE, VIRGINIA

Unified Soil Classification System ASTM Designation D 2487

Standard Penetration Test (SPT) Resistance Correlations

Coarse Grained Soils (More than 50% of material retained on the No. 200 Sieve)	Gravels (more than 50% retained on the No. 4 Sieve)	GW	Well graded gravels, gravel-sand mixtures, little or no fines
		GP	Poorly graded gravels, gravel-sand mixtures, little or no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	Sands (more than 50% passing the No. 4 Sieve)	SW	Well graded sands, gravelly sands, little or no fines
		SP	Poorly graded sands, gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
Fine Grained Soils (More than 50% of material passes the No. 200 Sieve)	Silt & Clays (LL less than 50)	ML	Inorganic silts, very fine sands, silty or clayey fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy
		OL	Organic silts and organic silty clays of low plasticity
	Silt & Clays (LL greater than 50)	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, plastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity
Highly Organic Soil		PEAT	Peat and other highly organic soils

Coarse Grained Soils

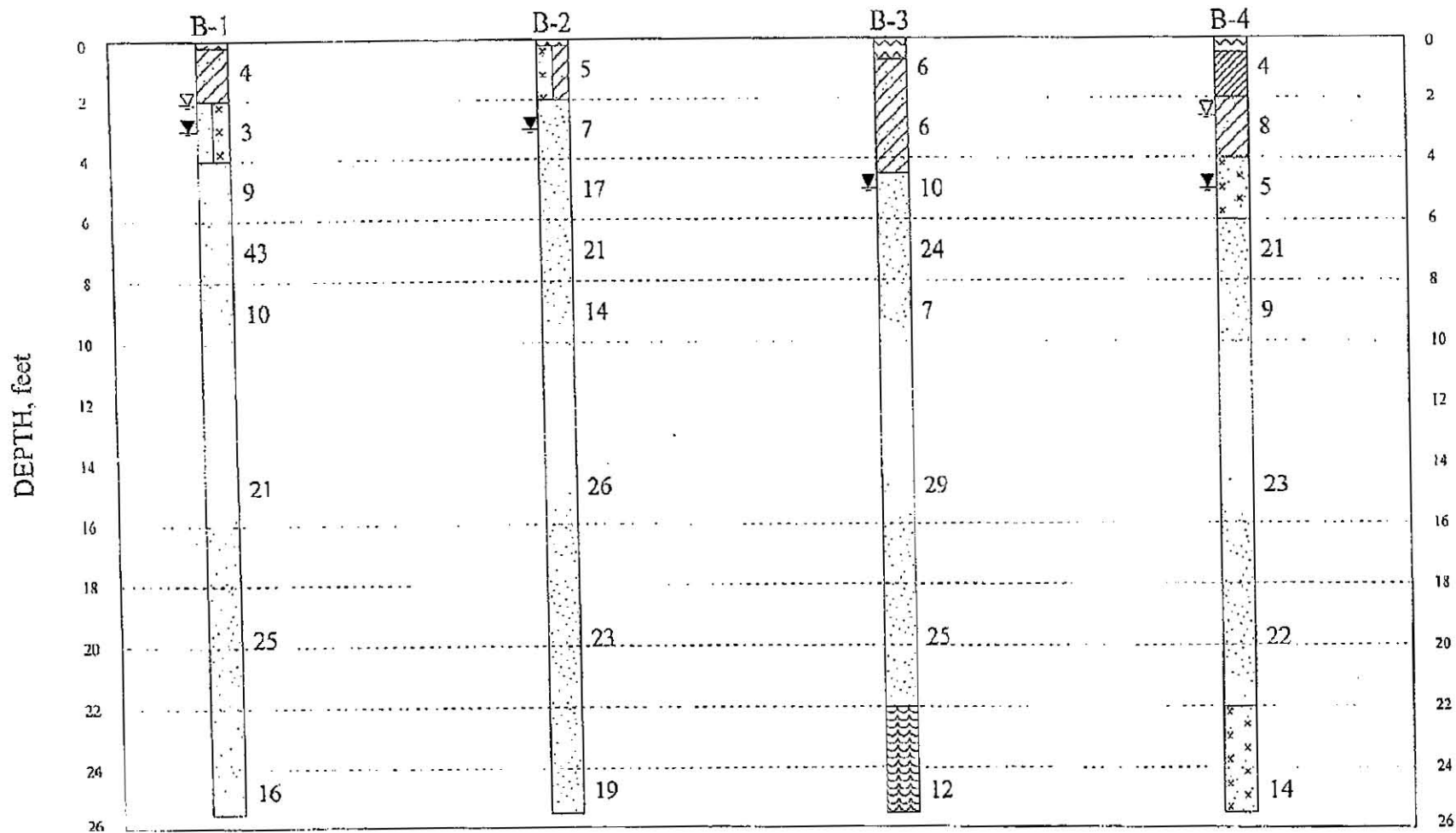
SPT
vs.
Relative Density

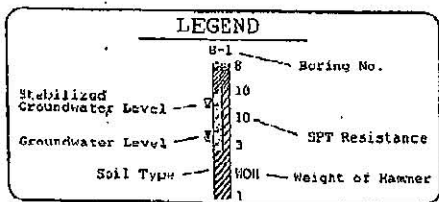
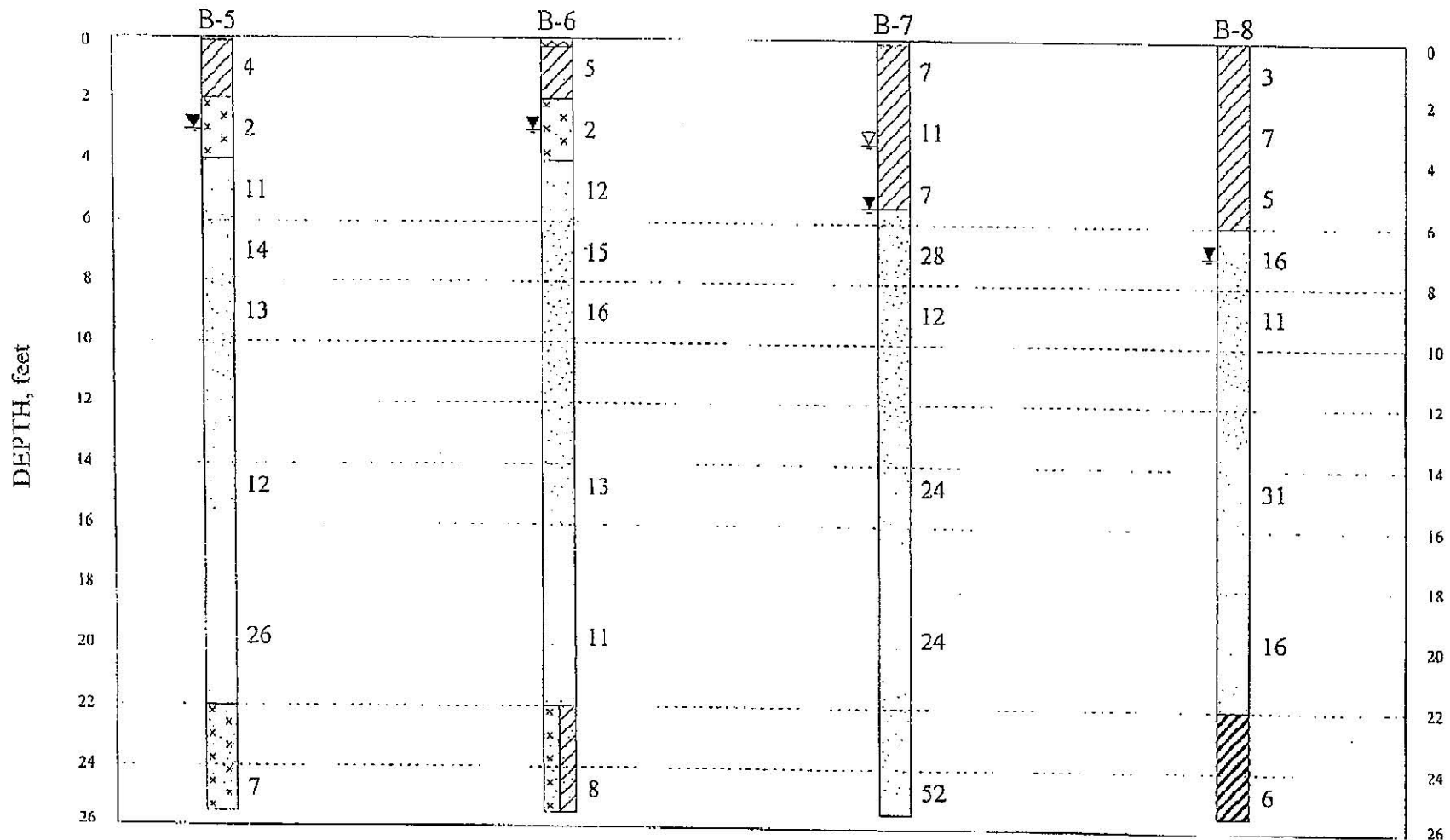
Blows/Ft	Relative Density
0-4	Very Loose
5-10	Loose
11-30	Medium Compact
31-50	Compact
Over 50	Very Compact

Fine Grained Soils

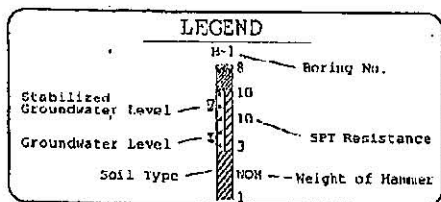
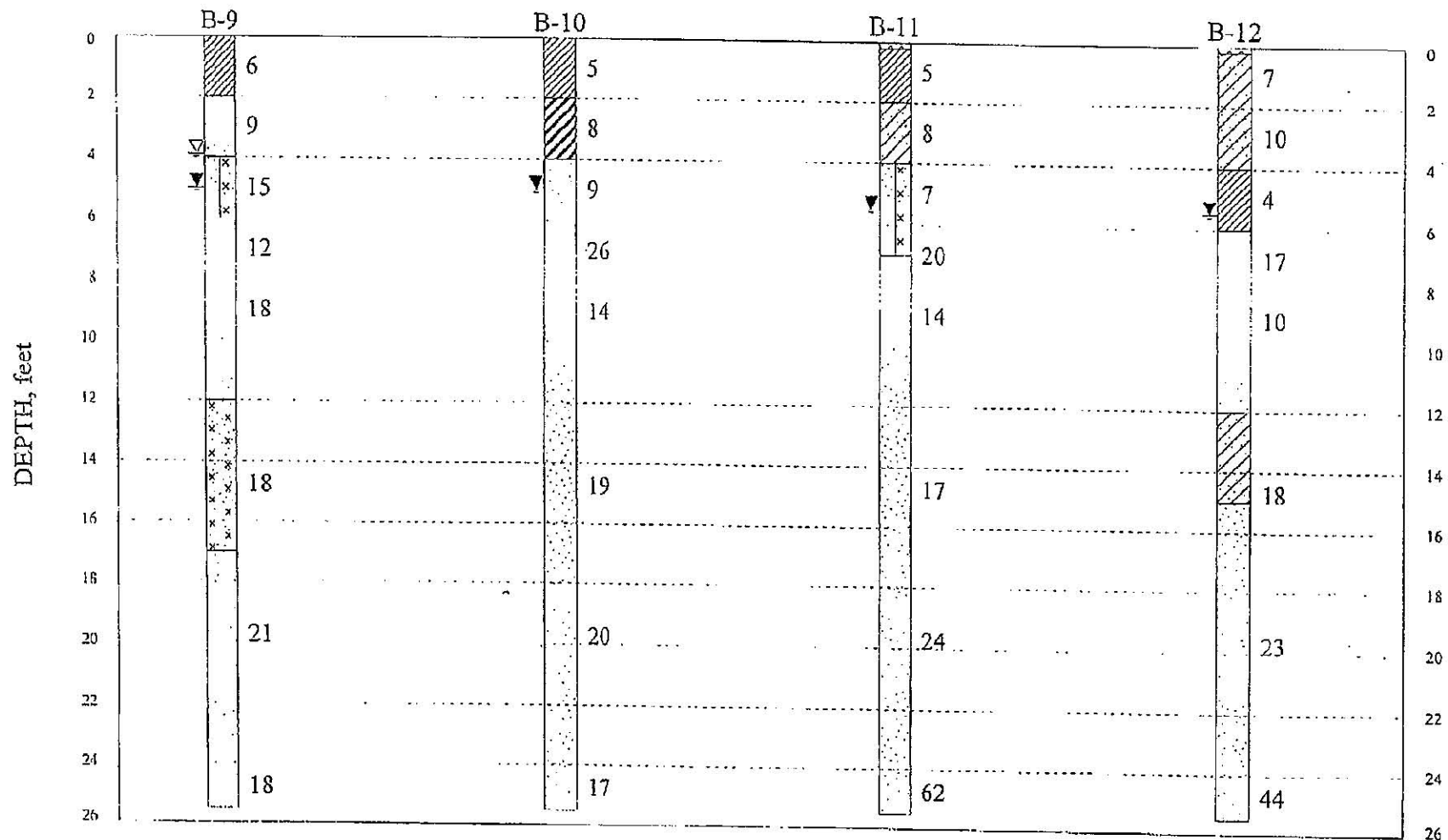
SPT
vs.
Consistency

Blows/Ft	Consistency
0-2	Very Soft
3-4	Soft
5-8	Medium Stiff
9-15	Stiff
16-30	Very Stiff
31-50	Hard
Over 50	Very Hard

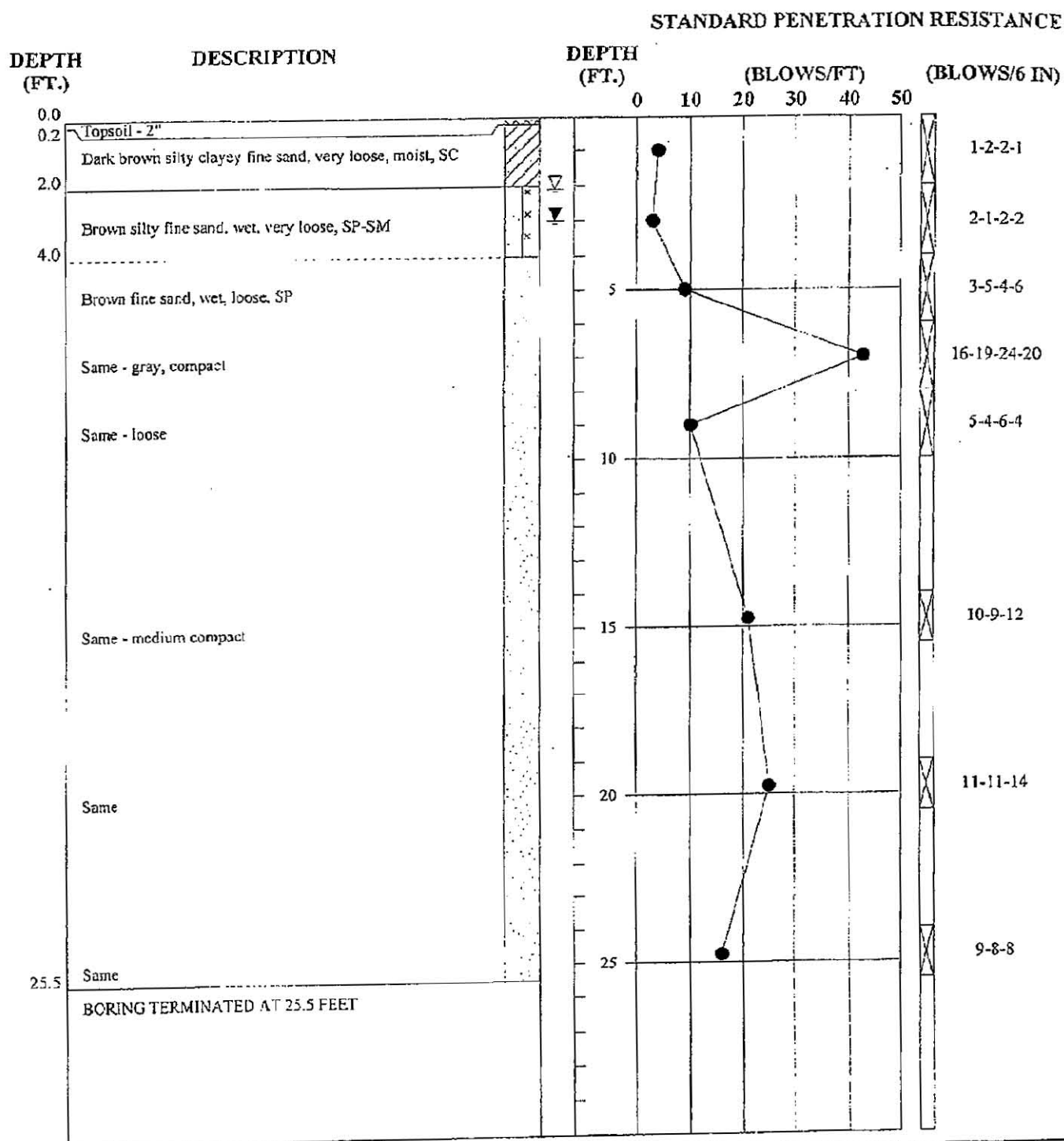




Subsurface Profile	
Drawing 3	
PROJECT	Proposed Etheridge Greens Golf Course
PROJECT NO.	01-2004
McCALLUM TESTING LABORATORIES, INC.	



Subsurface Profile	
Drawing 4	
PROJECT	Proposed Ethridge Greens Golf Course
PROJECT NO. 01-2004	
McCALLUM TESTING LABORATORIES, INC.	



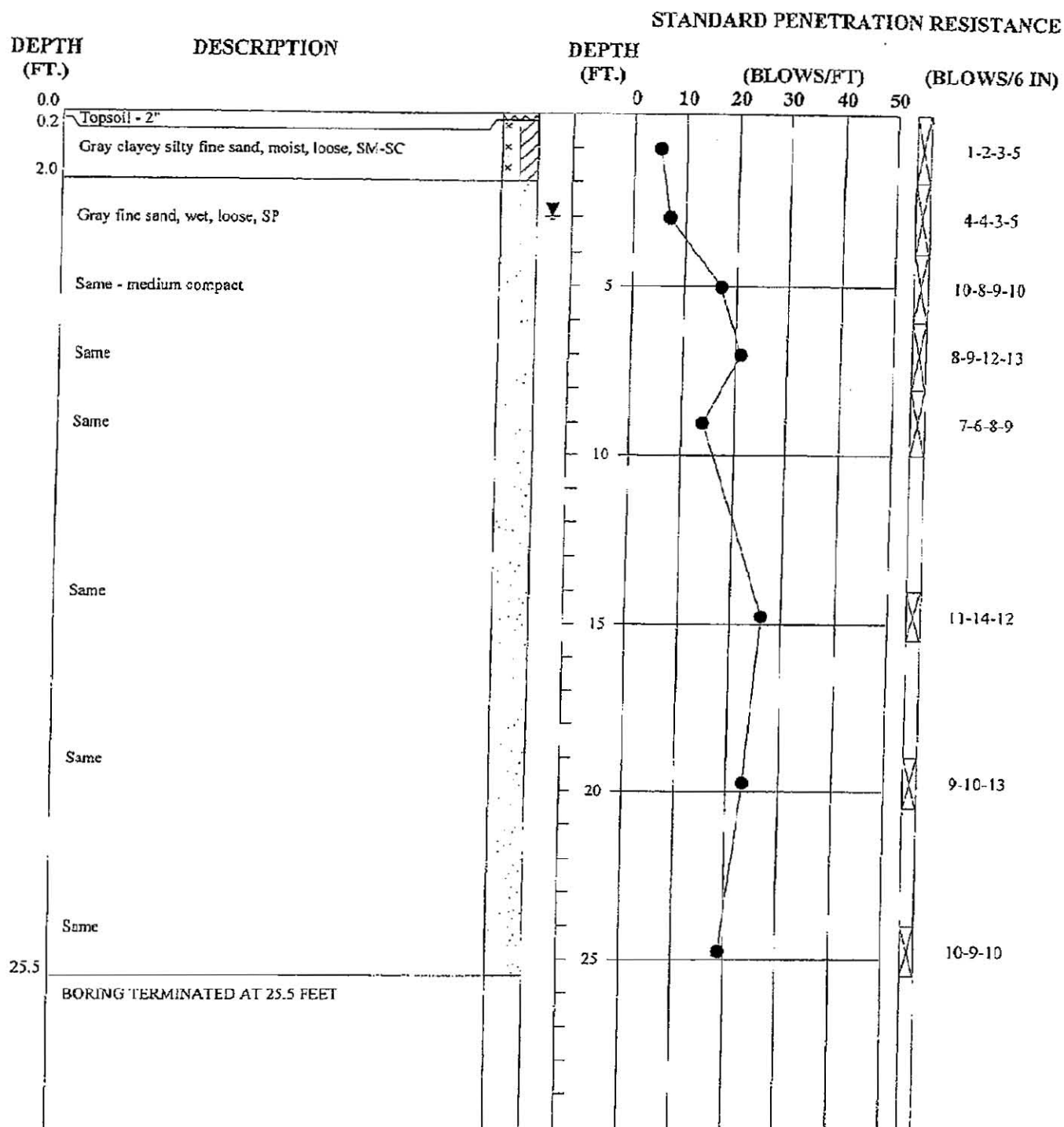
NOTES: Stabilized groundwater level measured at 2.1 ft. in temporary monitoring well.

- - - - Gradual Stratum Change
- - - - Approximate Stratum Change
- - Penetration Resistance (N - value)
- ⌵ - Standard Penetration Test
- - Undisturbed Sample
- ▽ - Groundwater Level at Time of Boring
- ▽ - Stabilized Groundwater Level Reading

TEST BORING RECORD

BORING NUMBER	B-1
DATE DRILLED	March 16, 2001
PROJECT NUMBER	01-2001
PROJECT LOCATION	Proposed Etheridge Greens Golf Course Chesapeake, Virginia

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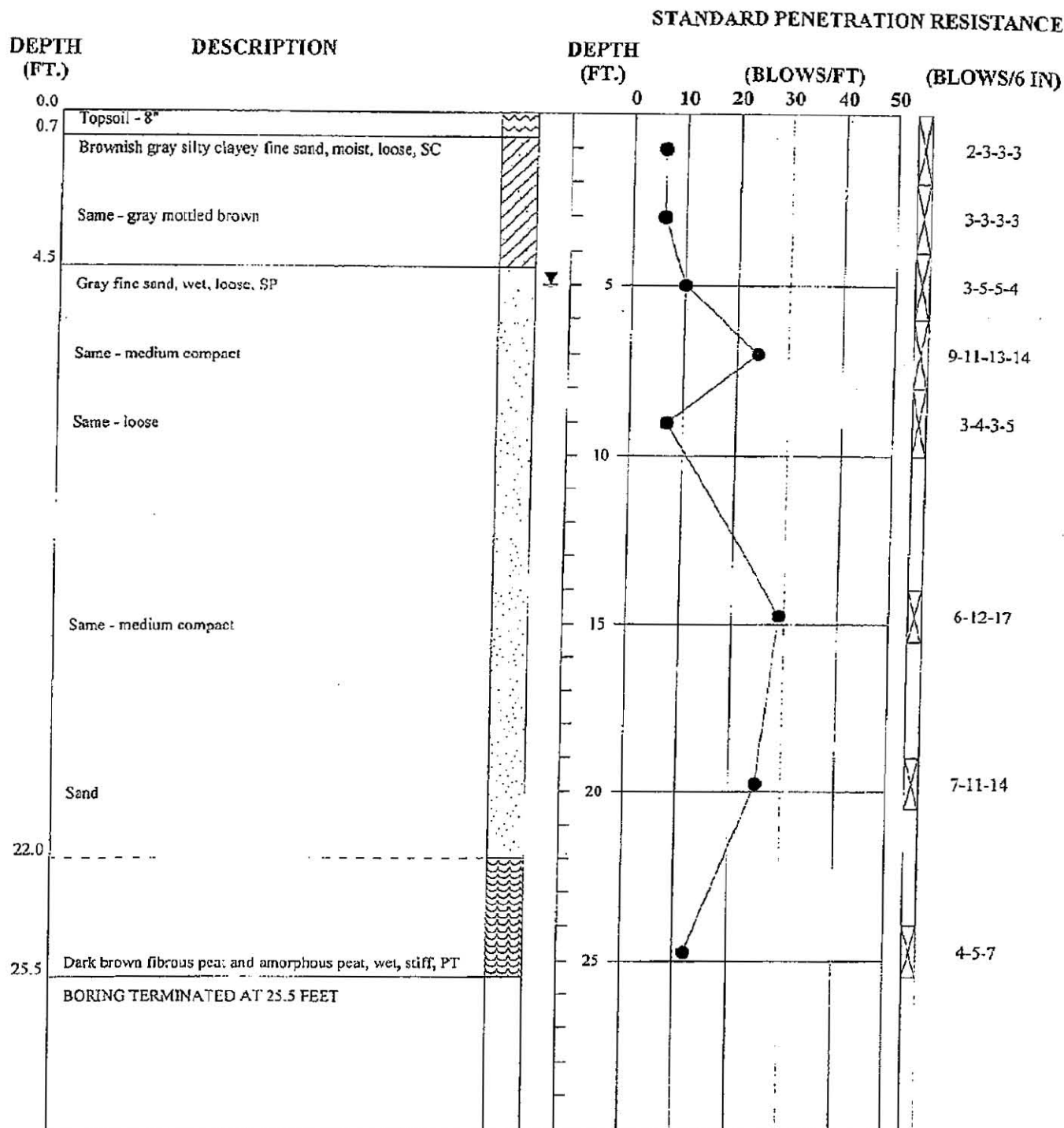
NOTES:

- - - - Gradual Stratum Change
- - - Approximate Stratum Change
- Penetration Resistance (N - value)
- Standard Penetration Test
- Undisturbed Sample
- Groundwater Level at Time of Boring
- Stabilized Groundwater Level Reading

TEST BORING RECORD

BORING NUMBER	B-2
DATE DRILLED	March 16, 2001
PROJECT NUMBER	01-2004
PROJECT LOCATION	Proposed Etheridge Greens Golf Course Chesapeake, Virginia

McCALLUM TESTING LABORATORIES, INC.



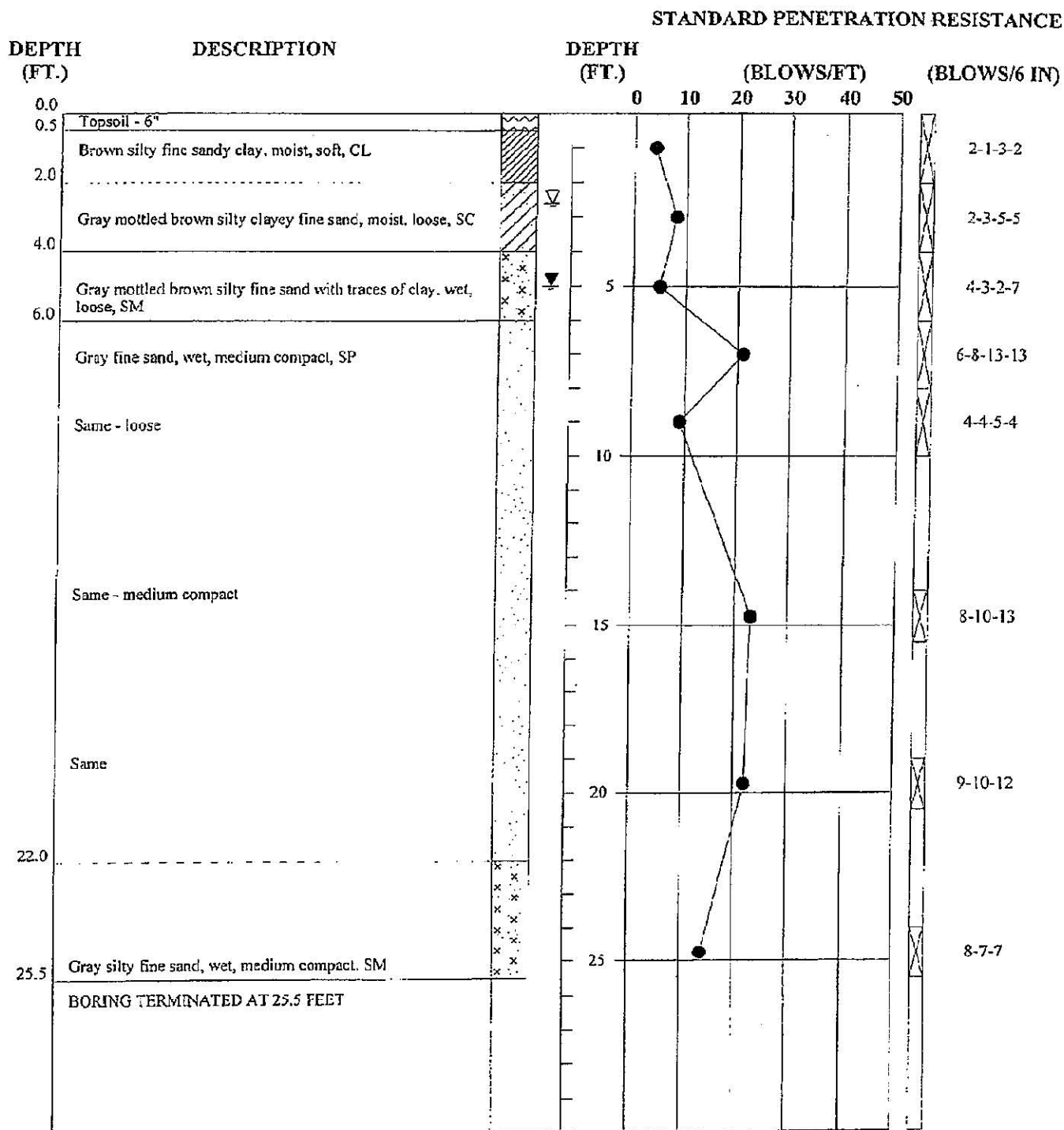
NOTES:

- - Gradual Stratum Change
- - - - - Approximate Stratum Change
- - Penetration Resistance (N - value)
- ⊗ - Standard Penetration Test
- ▬ - Undisturbed Sample
- ▽ - Groundwater Level at Time of Boring
- ▽ - Stabilized Groundwater Level Reading

TEST BORING RECORD

BORING NUMBER	B-3
DATE DRILLED	March 16, 2001
PROJECT NUMBER	01-2004
PROJECT	Proposed Etheridge Greens Golf Course
LOCATION	Chesapeake, Virginia

McCALLUM TESTING LABORATORIES, INC.



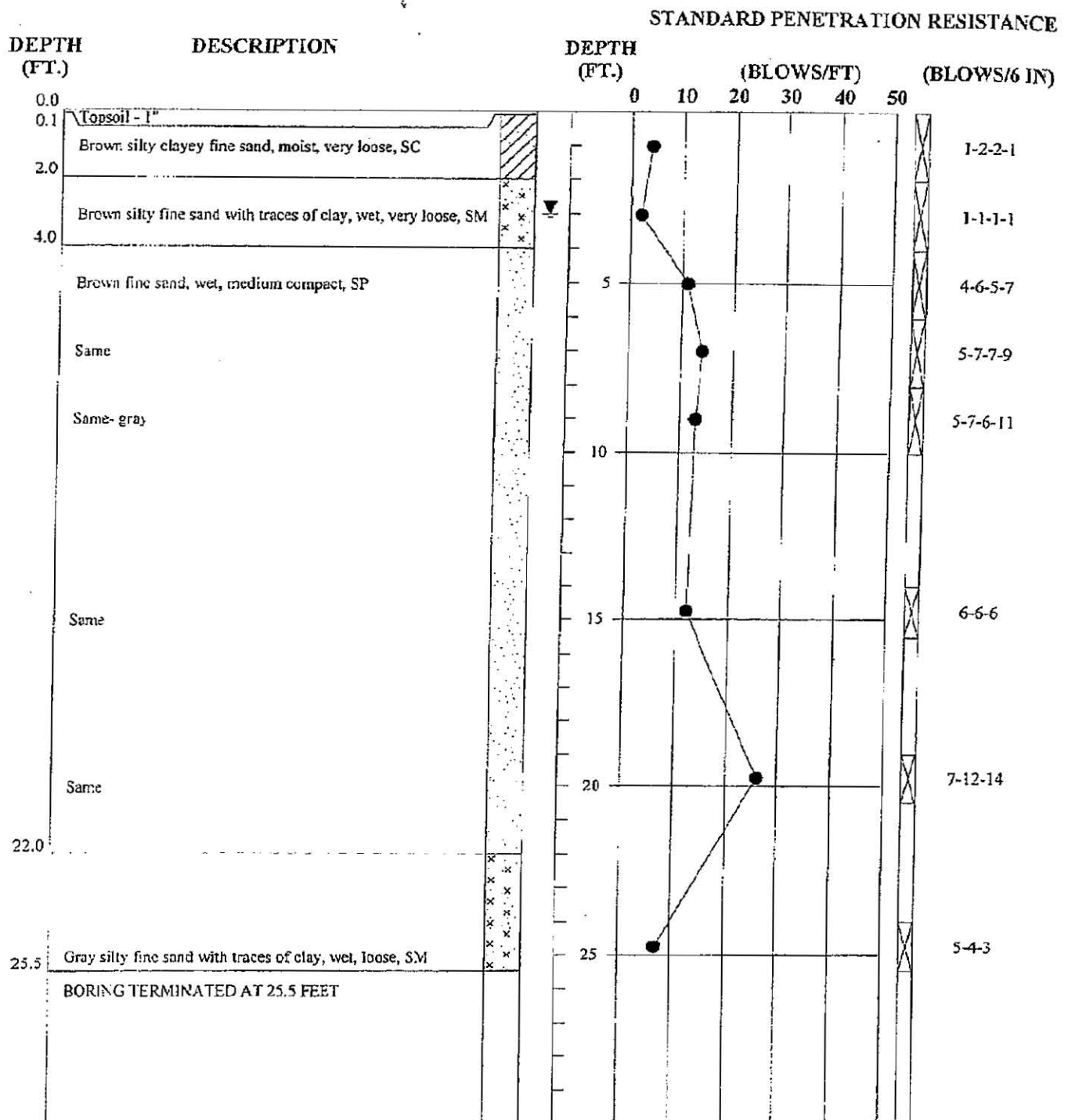
NOTES: Stabilized groundwater level measured at 2.6 ft. in temporary monitoring well.

-----	- Gradual Stratum Change
- - - -	- Approximate Stratum Change
●	- Penetration Resistance (N - value)
⊠	- Standard Penetration Test
■	- Undisturbed Sample
▽	- Groundwater Level at Time of Boring
⊡	- Stabilized Groundwater Level Reading

TEST BORING RECORD

BORING NUMBER	B-4
DATE DRILLED	March 16, 2001
PROJECT NUMBER	01-2004
PROJECT LOCATION	Proposed Etheridge Greens Golf Course Chesapeake, Virginia

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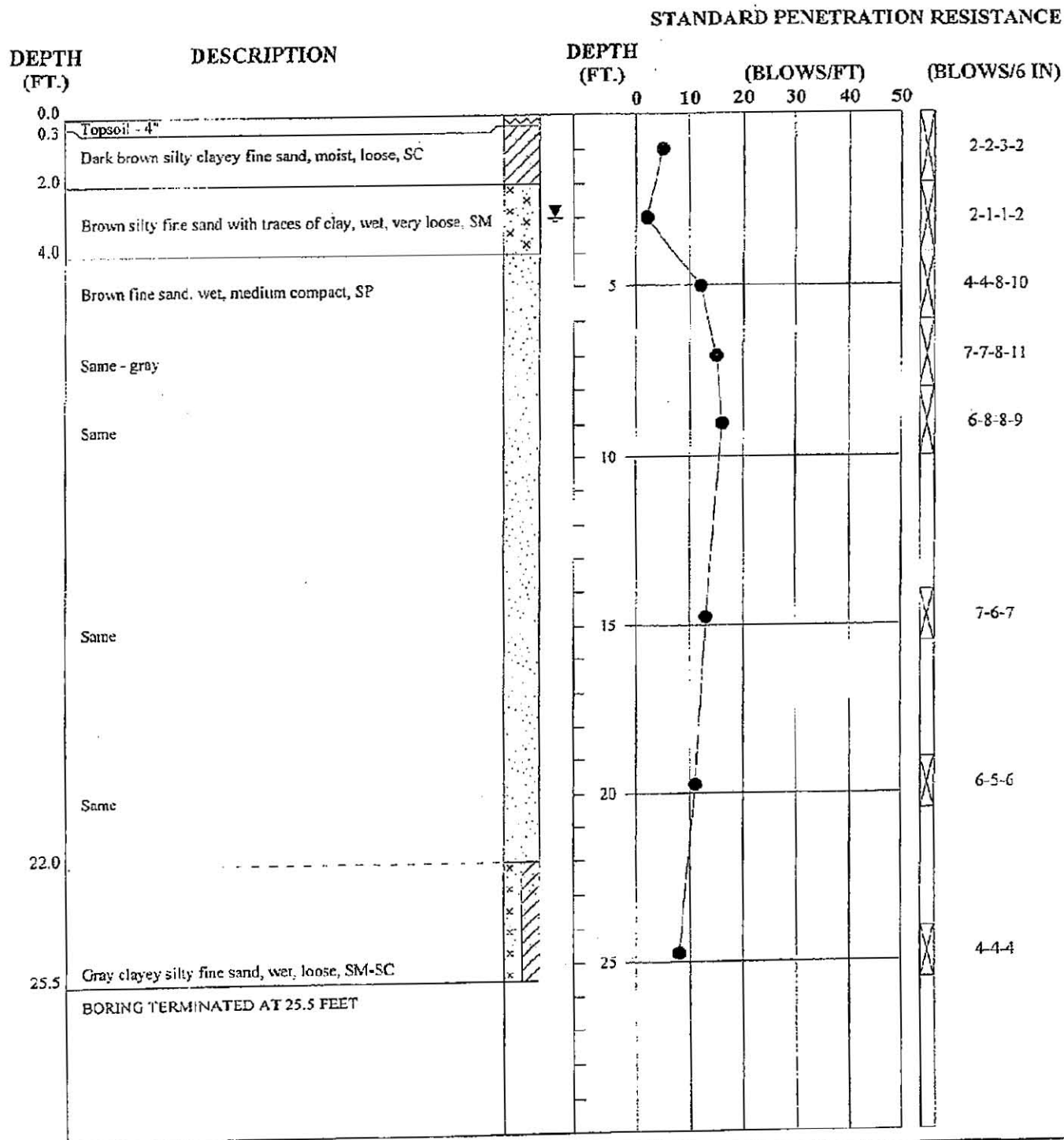
NOTES:

- Gradual Stratum Change
- Approximate Stratum Change
- - Penetration Resistance (N - value)
- ▧ - Standard Penetration Test
- ▩ - Undisturbed Sample
- ▽ - Groundwater Level at Time of Boring
- ◻ - Stabilized Groundwater Level Reading

TEST BORING RECORD

BORING NUMBER	B-5
DATE DRILLED	March 16, 2001
PROJECT NUMBER	01-2004
PROJECT	Proposed Etheridge Greens Golf Course
LOCATION	Chesapeake, Virginia

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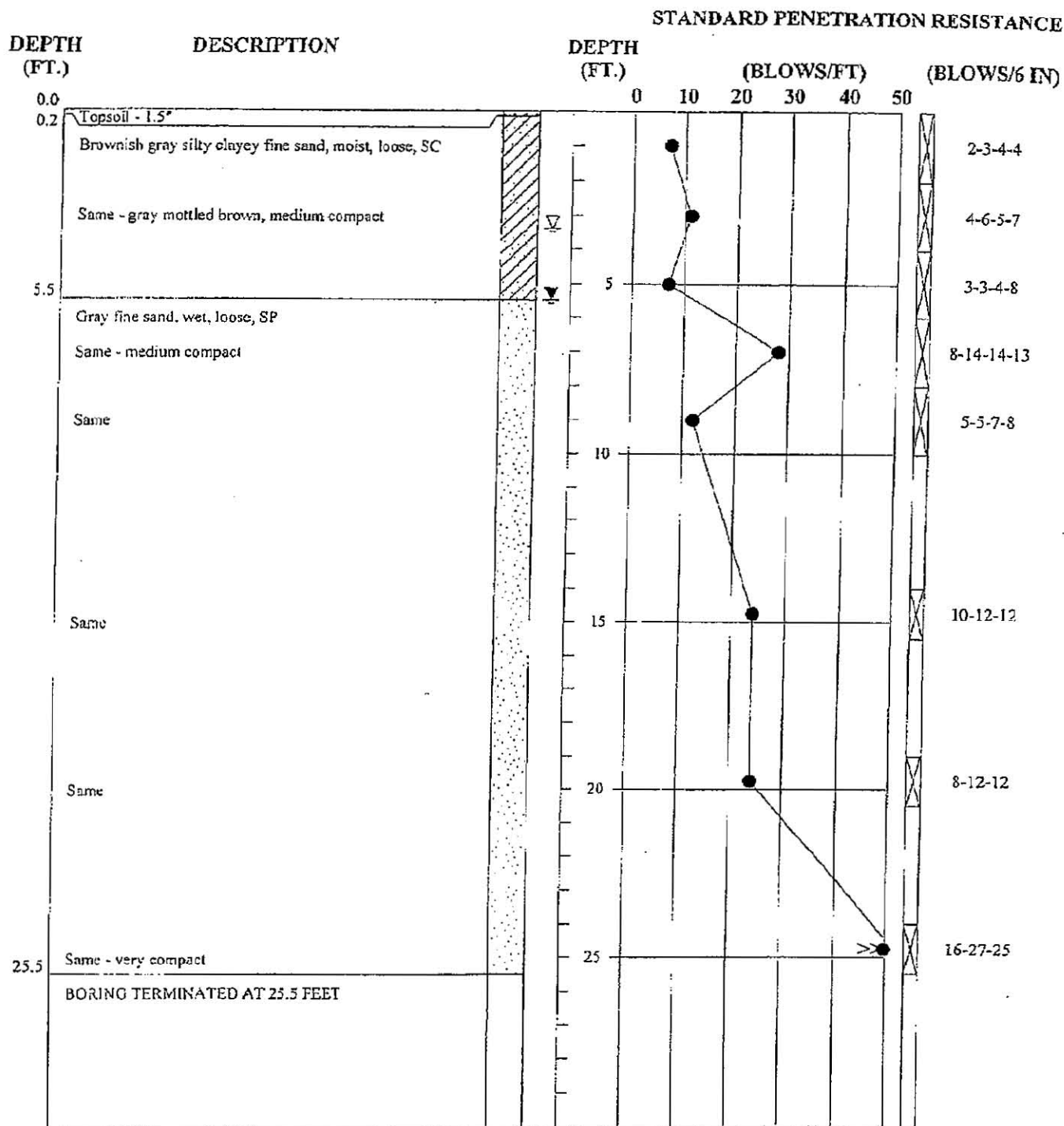
NOTES:

- Gradual Stratum Change
- Approximate Stratum Change
- - Penetration Resistance (N - value)
- ⊠ - Standard Penetration Test
- - Undisturbed Sample
- ▽ - Groundwater Level at Time of Boring
- ◻ - Stabilized Groundwater Level Reading

TEST BORING RECORD

BORING NUMBER	B-6
DATE DRILLED	March 16, 2001
PROJECT NUMBER	01-2004
PROJECT LOCATION	Proposed Etheridge Greens Golf Course Chesapeake, Virginia

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NOTES: Stabilized groundwater level measured at 3.4 ft. in temporary monitoring well.

- Gradual Stratum Change
- Approximate Stratum Change
- - Penetration Resistance (N - value)
- ⌵ - Standard Penetration Test
- - Undisturbed Sample
- ▽ - Groundwater Level at Time of Boring
- ▽ - Stabilized Groundwater Level Reading

TEST BORING RECORD

BORING NUMBER B-7
DATE DRILLED March 16, 2001
PROJECT NUMBER 01-2004
PROJECT Proposed Etheridge Greens Golf Course
LOCATION Chesapeake, Virginia

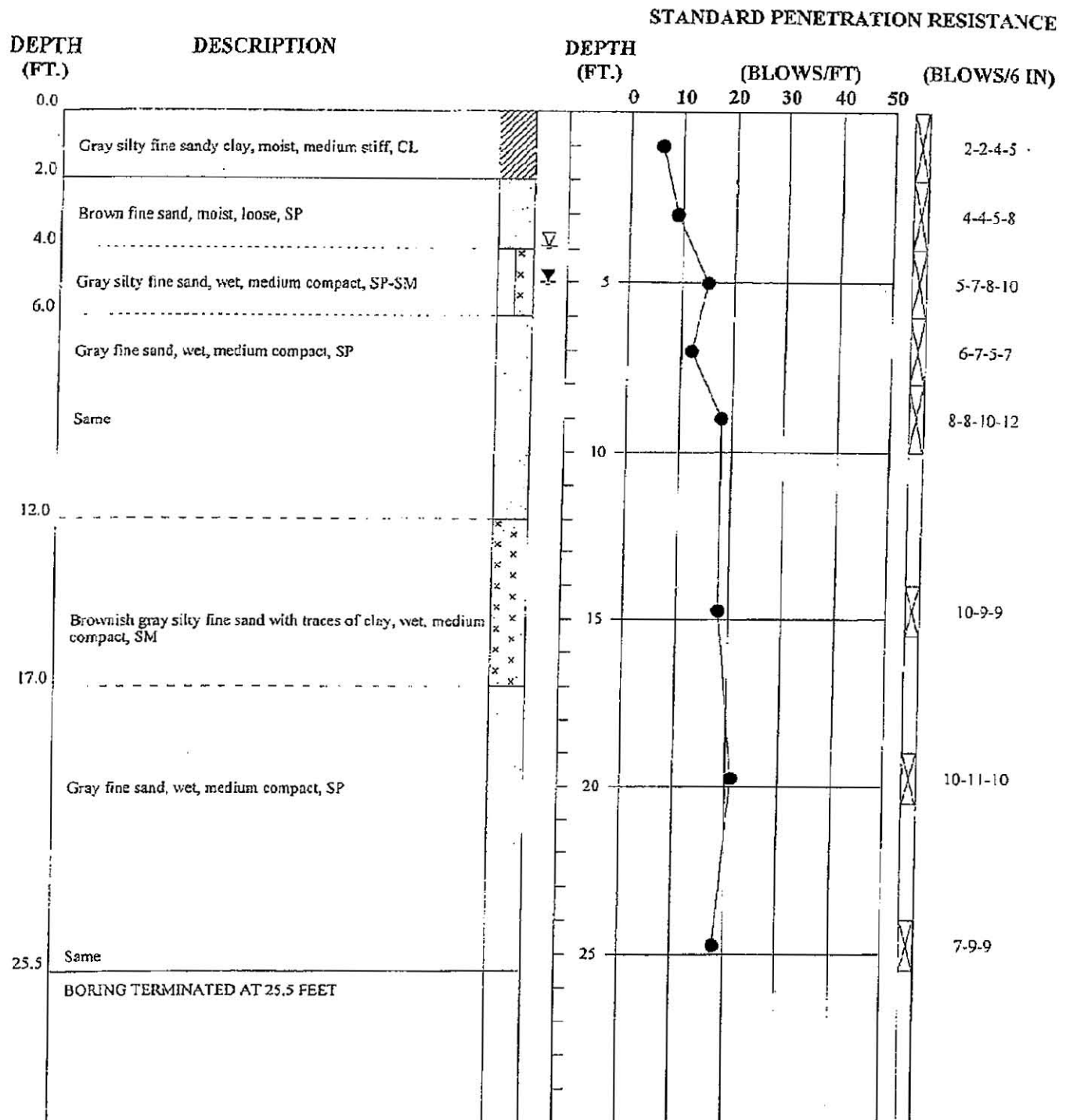
McCALLUM TESTING LABORATORIES, INC.



TEST BORING RECORD

- | | |
|------------------|---|
| BORING NUMBER | B-8 |
| DATE DRILLED | March 14, 2001 |
| PROJECT NUMBER | 01-2004 |
| PROJECT LOCATION | Proposed Etheridge Greens Golf Course
Chesapeake, Virginia |

McCALLUM TESTING LABORATORIES, INC.



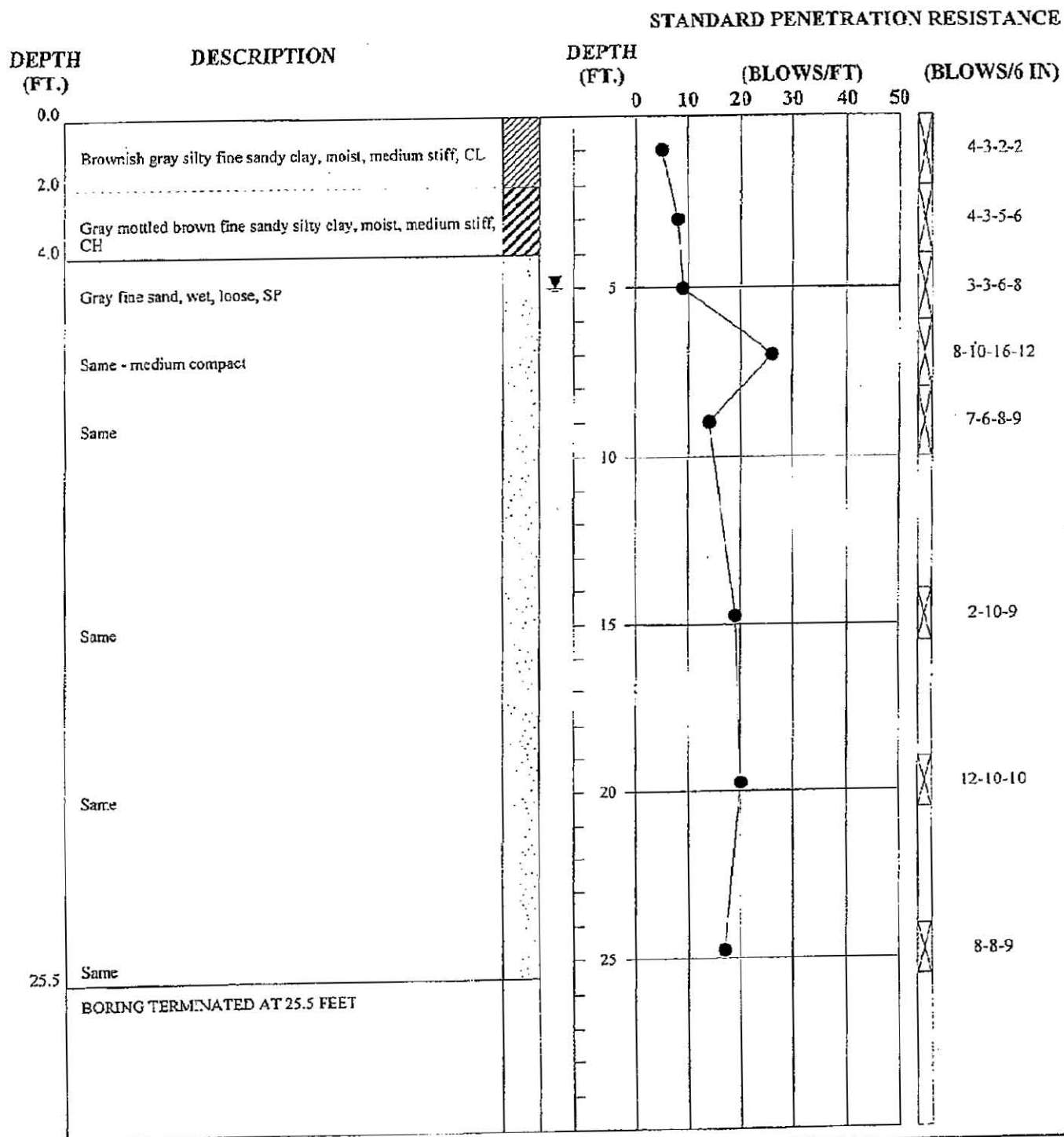
NOTES: Stabilized groundwater level measured at 3.9 ft. in temporary monitoring well.

---	- Gradual Stratum Change
- - -	- Approximate Stratum Change
●	- Penetration Resistance (N - value)
⊗	- Standard Penetration Test
■	- Undisturbed Sample
▽	- Groundwater Level at Time of Boring
▽	- Stabilized Groundwater Level Reading

TEST BORING RECORD

BORING NUMBER	B-9
DATE DRILLED	March 14, 2001
PROJECT NUMBER	01-2004
PROJECT LOCATION	Proposed Etheridge Greens Golf Course Chesapeake, Virginia

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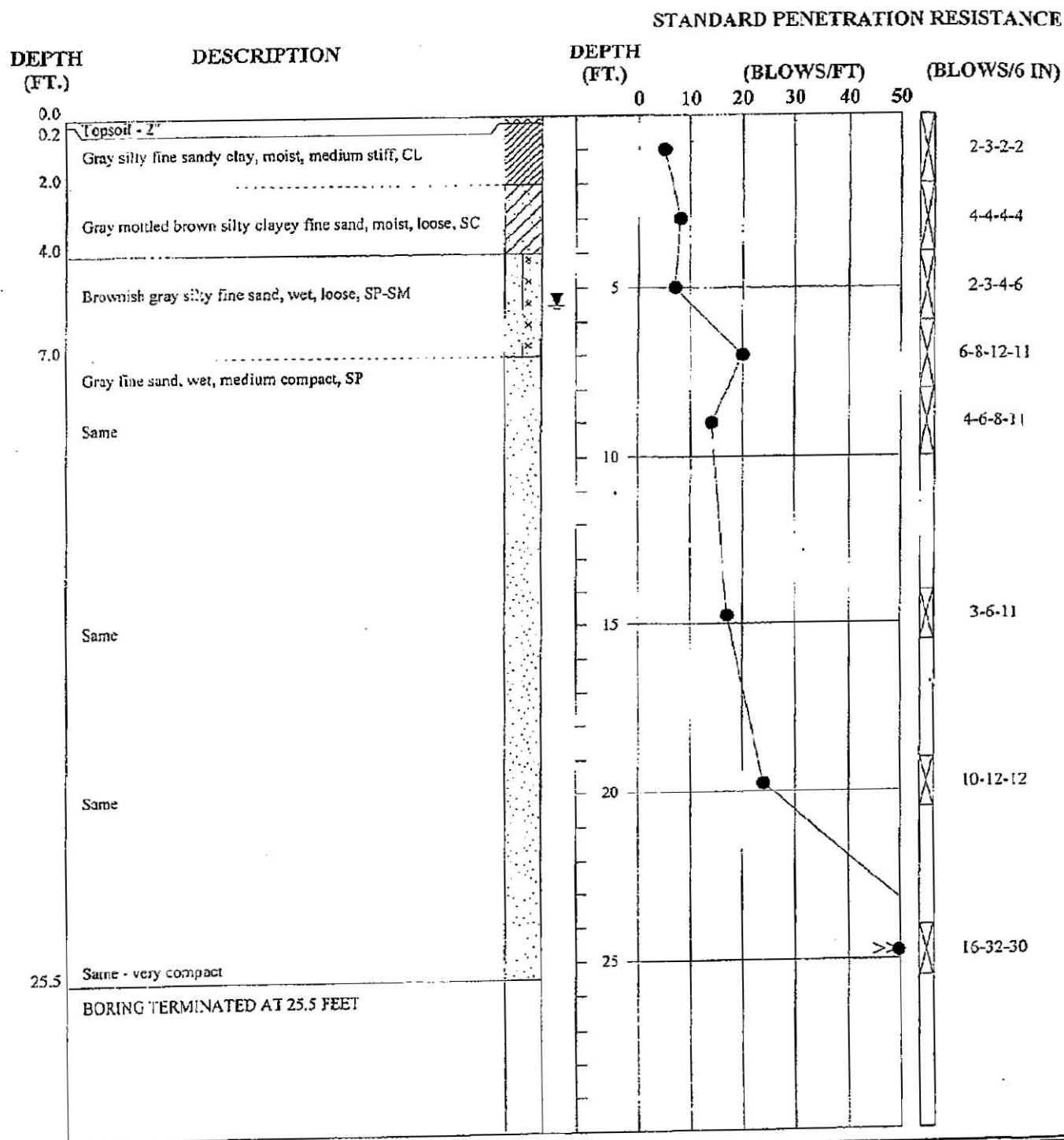
NOTES:

- - Gradual Stratum Change
- - Approximate Stratum Change
- - Penetration Resistance (N - value)
- ⊠ - Standard Penetration Test
- - Undisturbed Sample
- ▽ - Groundwater Level at Time of Boring
- ▽ - Stabilized Groundwater Level Reading

TEST BORING RECORD

BORING NUMBER	B-10
DATE DRILLED	March 14, 2001
PROJECT NUMBER	01-2004
PROJECT	Proposed Etheridge Greens Golf Course
LOCATION	Chesapeake, Virginia

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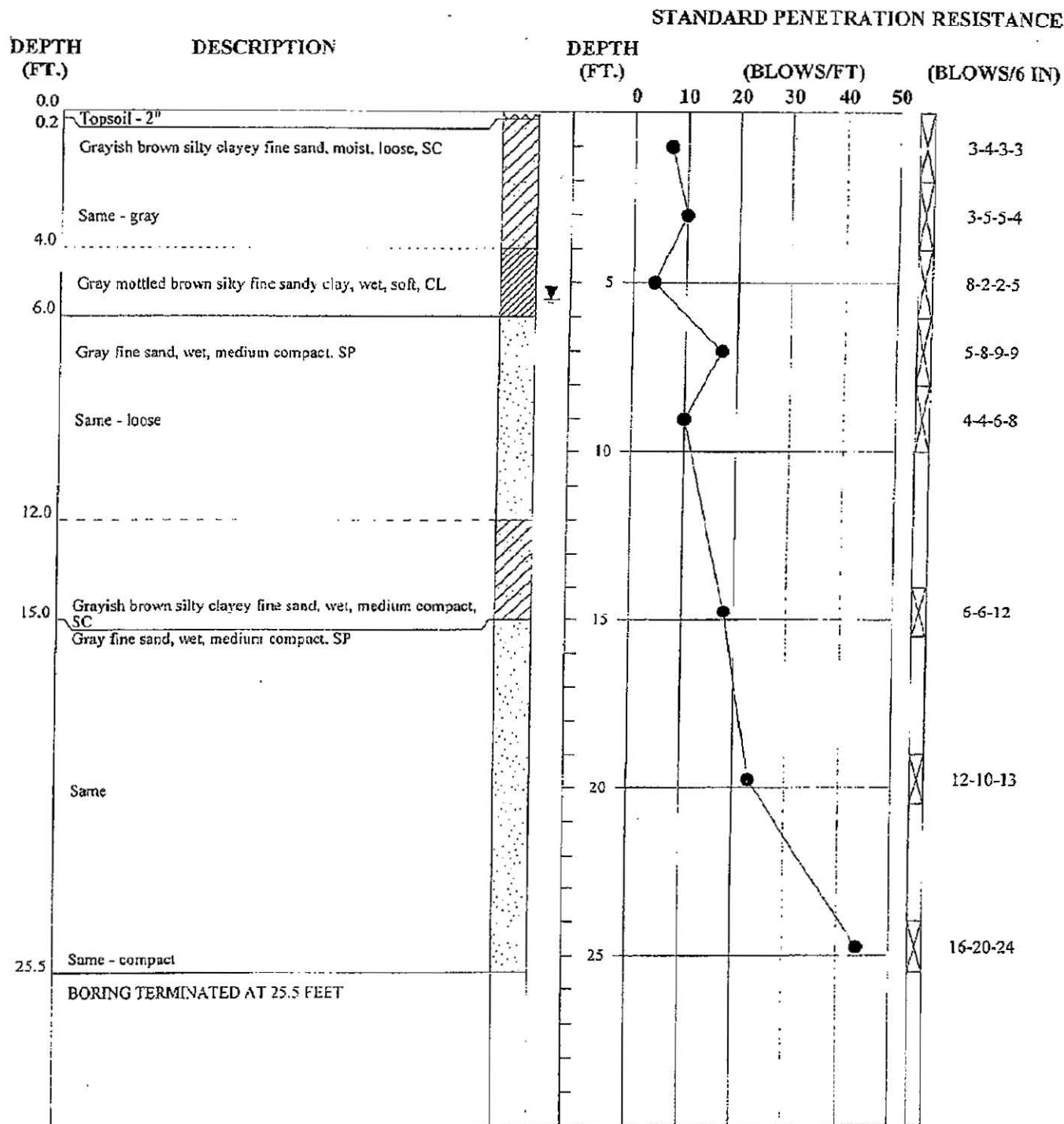
NOTES:

- Gradual Stratum Change
- Approximate Stratum Change
- - Penetration Resistance (N - value)
- ⊗ - Standard Penetration Test
- ▬ - Undisturbed Sample
- ▼ - Groundwater Level at Time of Boring
- ▽ - Stabilized Groundwater Level Reading

TEST BORING RECORD

BORING NUMBER	B-11
DATE DRILLED	March 14, 2001
PROJECT NUMBER	01-2004
PROJECT	Proposed Etheridge Greens Golf Course
LOCATION	Chesapeake, Virginia

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NOTES:

- - - Gradual Stratum Change
- - - Approximate Stratum Change
- - Penetration Resistance (N - value)
- ▤ - Standard Penetration Test
- ▬ - Undisturbed Sample
- ▽ - Groundwater Level at Time of Boring
- ▽ - Stabilized Groundwater Level Reading

TEST BORING RECORD

BORING NUMBER	B-12
DATE DRILLED	March 14, 2001
PROJECT NUMBER	01-2004
PROJECT	Proposed Etheridge Greens Golf Course
LOCATION	Chesapeake, Virginia

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