

SOIL CLASSIFICATION

AASHTO

A1	Gravel and Sand
A3	Fine Sand
A2	Silty or Clayey Gravel and Sand
A4	Silty Soil - Low Compressibility
A5	Silty Soil - Highly Compressible
A6	Clayey Soil - Low Compressibility
A7	Clayey Soil - Highly Compressible

ROCK QUALITY DESIGNATION

R.Q.D. (%)	ROCK DESCRIPTION
<25	Very Poor
25 to 50	Poor
51 to 75	Fair
76 to 90	Good
>90	Excellent

SHEAR STRENGTH

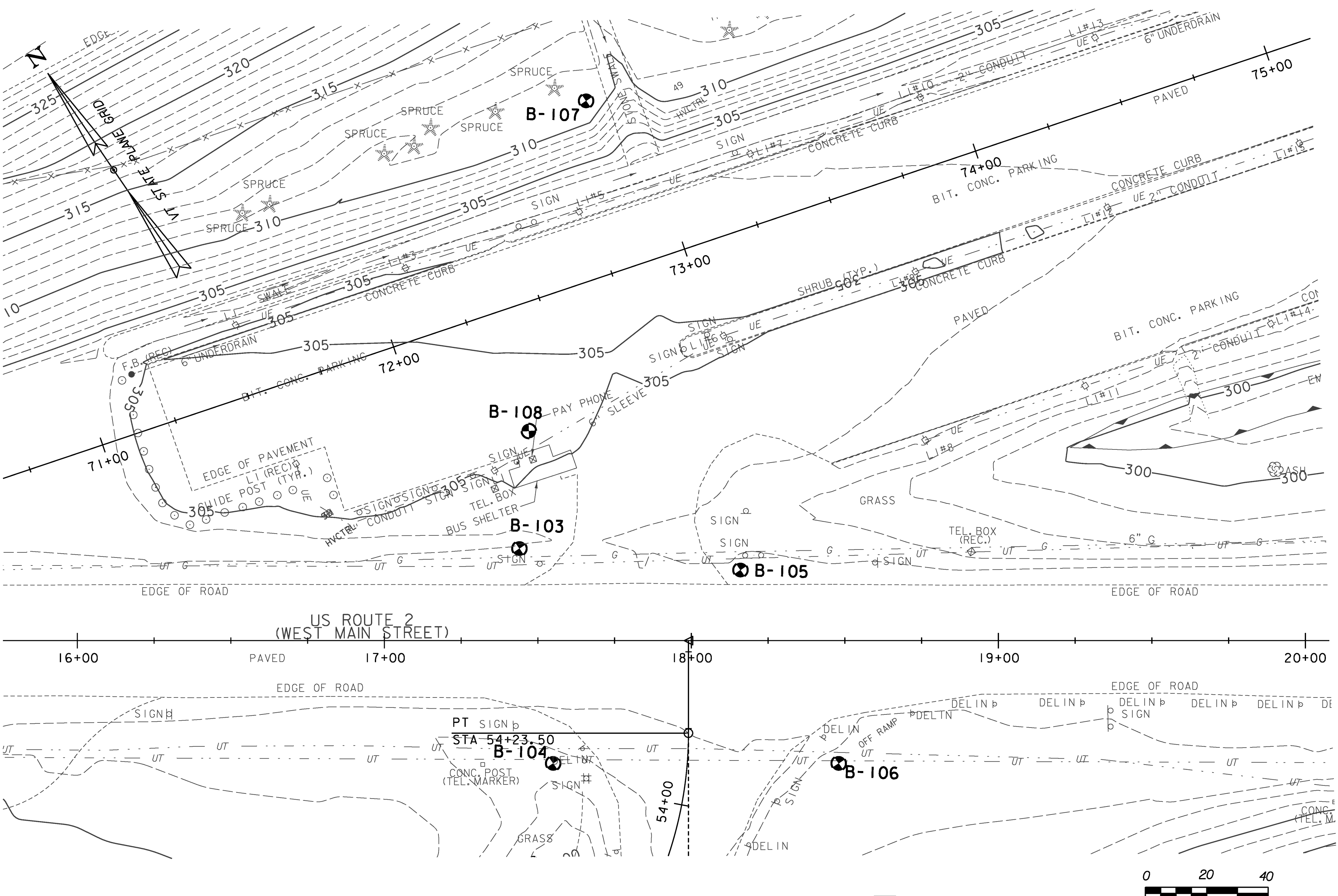
UNDRAINED SHEAR STRENGTH IN kPa	CONSISTENCY
<12	Very Soft
12-24	Soft
24-48	Med. Stiff
48-96	Stiff
96-192	Very Stiff
>192	Hard

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

DENSITY (GRANULAR SOILS)		CONSISTENCY (COHESIVE SOILS)	
N	DESCRIPTIVE TERM	N	DESCRIPTIVE TERM
<5	Very Loose	<2	Very Soft
5-10	Loose	2-4	Soft
11-24	Med. Dense	5-8	Med. Stiff
25-50	Dense	9-15	Stiff
>50	Very Dense	16-30	Very Stiff
		31-60	Hard
		>60	Very Hard

COMMONLY USED SYMBOLS

	Water Elevation		
⊙	Standard Penetration Boring		
⊕	Auger Boring		
⊖	Rod Sounding		
S	Sample		
N	Standard Penetration Test		
	Blow Count Per 300 mm For:		
	50.8 mm O.D. Sampler		
	35.0 mm I.D. Sampler		
	Hammer Weight Of 63.5 kg.		
	Hammer Fall Of 762 mm		
VS	Field Vane Shear Test		
US	Undisturbed Soil Sample		
B	Blast		
DC	Diamond Core		
MD	Mud Drill		
WA	Wash Ahead		
HSA	Hollow Stem Auger		
AX	Core Size 30.1 mm		
BX	Core Size 42.0 mm		
NX	Core Size 54.7 mm		
M	Double Tube Core Barrel Used		
LL	Liquid Limit		
PL	Plastic Limit		
PI	Plasticity Index		
NP	Non Plastic		
w	Moisture Content (Dry Wgt. Basis)		
D	Dry		
M	Moist		
MTW	Moist To Wet		
W	Wet		
Sat	Saturated		
Bo	Boulder		
Gr	Gravel		
Sa	Sand		
Si	Silt		
Cl	Clay		
HP	Hardpan		
Le	Ledge		
NLTD	No Ledge To Depth		
CNPF	Can Not Penetrate Further		
TLOB	To Ledge Or Boulder		
NR	No Recovery		
Rec.	Recovery		
%Rec.	Percent Recovery		
RQD	Rock Quality Designation		
CBR	California Bearing Ratio		
<	Less Than		
>	Greater Than		
R	Refusal (N > 100)		
OW	Indicates a temporary observation well installed		
<u>COLOR</u>			
blk	Black	pnk	Pink
bl	Blue	pu	Purple
brn	Brown	rd	Red
dk	Dark	tn	Tan
gry	Gray	wh	White
gn	Green	yel	Yellow
lt	Light	mltc	Multicolored
or	Orange		



DEFINITIONS (AASHTO)

BEDROCK (LEDGE) - Rock in its native location of indefinite thickness.	VARVED - Alternate layers of silt and clay.
BOULDER - A rock fragment with an average dimension > 304.8 mm.	HARDPAN - Extremely dense soil, cemented layer, not softened when wet.
COBBLE - Rock fragments with an average dimension between 76.2 and 304.8 mm.	MUCK - Soft organic soil (containing > 10% organic material).
GRAVEL - Rounded particles of rock < 76.2 mm and > 2 mm (#10 sieve).	MOISTURE CONTENT - Weight of water divided by dry weight of soil.
SAND - Particles of rock < 2 mm (#10 sieve) and > 75 µm (#200 sieve).	FLOWING SAND - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.
SILT - Soil < 75 µm (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.	STRIKE - Angle from magnetic north to line of intersection of bed with a horizontal plane.
CLAY - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.	DIP - Inclination of bed with a horizontal plane.

GENERAL NOTES

- The test borings shown herein were drilled by the Agency between the period from 02/09/12 through 03/22/12.
- Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
- Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
- Engineering judgement was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgement by the Contractor.
- Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
- Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.

BORING CHART

HOLE NO.	STATION	OFFSET (ft)	GROUND ELEV.
B-103	VT ROUTE 2 17+44	30.00 LT	304.0
B-104	VT ROUTE 2 17+55	40.00 RT	302.6
B-105	VT ROUTE 2 18+16	23.00 LT	304.2
B-106	VT ROUTE 2 18+48	40.00 RT	303.6
B-107	PNR 72+85	56.00 LT	310.3
B-108	PNR 72+33	40.00 RT	305.2

PROJECT NAME:	RICHMOND
PROJECT NUMBER:	STP 0284 (17)/ CMG PARK (31)
FILE NAME:	z97ci86bor.dgn
PROJECT LEADER:	ERIK ATKINS
DESIGNED BY:	T. BIGELOW
BORING LAYOUT SHEET 2	
PLOT DATE:	4/29/2013
DRAWN BY:	N. BOSAN
CHECKED BY:	E. ATKINS
SHEET	29 OF 133