

NƯỚC CỘNG HÒA XÃ HỘI CHỦ NGHĨA  
VIỆT NAM  
KHẢO SÁT CHUẨN BỊ  
DỰ ÁN XÂY DỰNG ĐƯỜNG TRỰC CHÍNH  
ĐÔ THỊ THÀNH PHỐ HẢI PHÒNG

**BÁO CÁO CUỐI KỲ  
PHỤ LỤC**

Tháng 11, 2016

CƠ QUAN HỢP TÁC QUỐC TẾ NHẬT BẢN (JICA)

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CÔNG TY ORIENTAL CONSULTANTS GLOBAL CO., LTD.  
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Mục Lục

Danh mục từ viết tắt

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<b>Từ viết tắt</b>	<b>Tên gốc</b>	<b>Tiếng Nhật</b>
AADT	Lượng xe ngày đêm trung bình trong năm	年平均日交通量
AASHTO	Hiệp hội Giao thông và Đường bộ Mỹ	米国全州道路交通運輸行政官協会
ADB	Ngân hàng Phát triển châu Á	アジア開発銀行
AHP	Phương pháp phân tích thứ bậc	階層分析法
ASTM	Hiệp hội vật liệu và thử nghiệm Hoa Kỳ	米国試験材料協会
B/C	Tỷ suất lợi ích trên chi phí	費用便益比
BOD	Nhu cầu oxy sinh hóa	生物化学的酸素要求量
BOT	Xây dựng – Vận hành – Chuyển giao	BOT 方式 (PFI の事業方式の一つ)
BQ	Bảng dự toán khối lượng	数量計算書
BRT	Buýt nhanh	バス高速輸送システム
BT	Xây dựng – Chuyển giao	BT 方式(建設-移転)
CBA	Phân tích chi phí, lợi ích	費用便益分析
CBR	Hệ số kháng California	シービーアール試験
CCTV	Mạch truyền hình khép kín	閉鎖回路テレビシステム
CIF, C.I.F	Chi phí, bảo hiểm, cước	運賃保険料込み条件
CIP	Đúc bê tông tại chỗ	現場打ち
COD	Nhu cầu oxy hóa học	化学的酸素要求量
CPI	Chỉ số giá tiêu dùng	消費者物価指数
DAC	Ủy ban hỗ trợ phát triển	開発援助委員会
DCP	Thí nghiệm xuyên côn tĩnh	動的コーン貫入試験
DD, D/D	Thiết kế chi tiết	詳細設計
DMS	Khảo sát đo đạc chi tiết	細資産調査
DOC	Sở Xây dựng	建設省
DONRE	Sở Tài nguyên và Môi trường	ベトナム地方省天然資源環境部
DOT	Sở Giao thông vận tải	運輸省
DWT	Trọng tải chuyên chở bằng tấn	載貨重量トン
EIA	Đánh giá tác động môi trường	環境影響評価
EIRR	Tỷ suất hoàn vốn kinh tế	経済的内部収益率
EL	Mức độ cao	標高
EMP	Kế hoạch quản lý môi trường	環境管理計画
FIRR	Tỷ suất hoàn vốn tài chính	財務的内部収益率
FOB, F.O.B	Giao trên tàu	本船甲板渡し条件

FS, F/S	Nghiên cứu khả thi	実施可能性調査
FY	Năm tài chính	会計年度
GDP	Tổng sản phẩm quốc nội	国内総生産
GHG	Khí gây hiệu ứng nhà kính	温室効果ガス
GNI	Tổng thu nhập quốc dân	国民総所得
GNP	Tổng sản phẩm quốc dân	国民総生産
GRDP	Tổng sản phẩm khu vực trong nước	地域内総生産
GSO	Tổng cục Thống kê	統計局
HPPC	Ủy ban Nhân dân Hải Phòng	ハイフォン市人民委員会
HWL	Cao chùng mực nước	朔望平均満潮面
IMF	Quỹ tiền tệ quốc tế	国際通貨基金
IT/R	Báo cáo tạm thời	中間報告書
JBIC	Ngân hàng Hợp tác quốc tế Nhật Bản	国際協力銀行
JETRO	Tổ chức Ngoại thương Nhật Bản	独立行政法人日本貿易振興機構
JICA	Văn phòng Hợp tác quốc tế Nhật Bản	独立行政法人国際協力機構
JPY	Đồng Yên	日本円
LEP	Luật Bảo vệ môi trường	環境保護法
LWL	Sâu chùng mực nước	朔望平均干潮面
MAC	Nồng độ cho phép cực đại	最大許容濃度
MONRE	Bộ Tài nguyên và Môi trường	ベトナム天然資源環境省
MPI	Bộ Kế hoạch và Đầu tư	計画・投資省
MSL	Mực nước biển trung bình	平均海面
NPV	Giá trị ròng hiện tại	正味現在価値
O&M	Vận hành và Bảo trì	運営維持管理
OD	Nguồn gốc – Điểm đến	起終点
ODA	Hỗ trợ phát triển chính thức	政府開発援助
OECD	Tổ chức Hợp tác và Phát triển Kinh tế	経済協力開発機構
PAP	Dự án ảnh hưởng tới người dân	プロジェクトの影響を受ける住民
PC	Bê tông ứng suất trước căng trước	プレストレストコンクリート
PCU	Đơn vị xe con trung bình	乗用車換算台数
PFI	Tư nhân – Tài chính – Sáng kiến	PFI
PMU	Ban Quản lý dự án	事業実施組織
PPP	Hợp tác công tư	PPP
RAP	Kế hoạch hành động tái định cư	住民移転計画
RC	Bê tông cốt thép	鉄筋コンクリート

ROW	Quyền ưu tiên qua đường	道路用地
SCF	Hệ số chuyển đổi tiêu chuẩn	標準変換係数
SEDP	Kế hoạch Phát triển Kinh tế - Xã hội	社会経済開発計画
SEDS	Chiến lược Phát triển Kinh tế - Xã hội	社会経済開発戦略
SHMs	Ky hợp thâm vãn cộng đồng	-
SLSC	Ước lượng bình phương chuẩn	水文確率分析における分布形の適合度を表す評価指標
SPC	Công ty mục đích đặc biệt	特定目的会社
SPSP	Vòng vây cọc ống thép dạng giếng	鋼管矢板
SPT	Thí nghiệm xuyên tiêu chuẩn	標準貫入試験
TA	Hỗ trợ kỹ thuật	技術支援
TDSI	Viện chiến lược và phát triển giao thông vận tải	ベトナム交通開発戦略研究所
TTC	Chi phí thời gian lưu thông	旅行時間費用
UD	Đất nguyên dạng	原状土
UN	Liên Hiệp Quốc	国際連合
UNEP	Chương trình Môi trường Liên Hiệp Quốc	国際連合環境計画
UNESCO	Tổ chức Giáo dục, Khoa học và Văn hóa của Liên Hiệp Quốc	国際連合教育科学文化機関
USD, US\$	Đồng Đô la Mỹ	アメリカドル
VAT	Thuế giá trị gia tăng	付加価値税
VND	Đồng Việt Nam	ベトナムドン
VOC	Chi phí vận hành phương tiện	走行費用
VSIP	Khu công nghiệp Việt Nam - Singapore	ベトナム・シンガポール工業団地
WB	Ngân hàng Thế giới	世界銀行
WTO	Tổ chức thương mại thế giới	世界貿易機関

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## Phụ lục A2 Cầu Hoàng Văn Thụ

### 2.1 Thực trạng cầu Hoàng Văn Thụ

Ngày 10 Tháng 11 năm 2015, Ủy ban nhân dân Thành phố Hải Phòng đã công bố trong một cuộc họp báo rằng việc xây dựng Trung tâm hành chính chính trị nằm trên bờ Bắc sông Cấm ở huyện Thủy Nguyên đã được phê duyệt. Dự án bao gồm hai thành phần chính, phát triển khu đô thị mới và xây dựng cầu Hoàng Văn Thụ qua sông Cấm để kết nối các khu đô thị mới với trung tâm thành phố hiện có của Hải Phòng.

Dự án cần tổng vốn đầu tư khoảng 10 nghìn tỷ đồng, trong đó có 7 nghìn tỷ đồng là cần thiết cho việc xây dựng cầu Hoàng Văn Thụ và kè trên sông Cấm. Ủy ban nhân dân Thành phố Hải Phòng đề nghị Chính phủ Việt Nam nên dành 7 nghìn tỷ đồng cho việc xây dựng cây cầu.

Ông. Dương Ngọc Tuấn, Giám đốc Sở Kế hoạch & Đầu tư Thành phố Hải Phòng cho biết kế hoạch yêu cầu dành của 7 nghìn tỷ đồng từ Chính phủ là phù hợp vì vị trí của Hải Phòng là một trong những thành phố đóng góp hàng đầu vào doanh thu cho Chính phủ, đứng thứ ba sau Hà Nội và Thành phố Hồ Chí Minh trong sáu tháng đầu năm 2015.

Đối với số 3 nghìn tỷ đồng còn lại của dự án, Ủy ban nhân dân Thành phố Hải Phòng cho biết, quỹ sẽ được huy động từ các nguồn khác nhau, chẳng hạn như bán đất dự án và tổ chức đấu giá các lô đất.

Trước đó, kế hoạch xây dựng cầu Hoàng Văn Thụ đã được đề cập trong các quyết định sau.

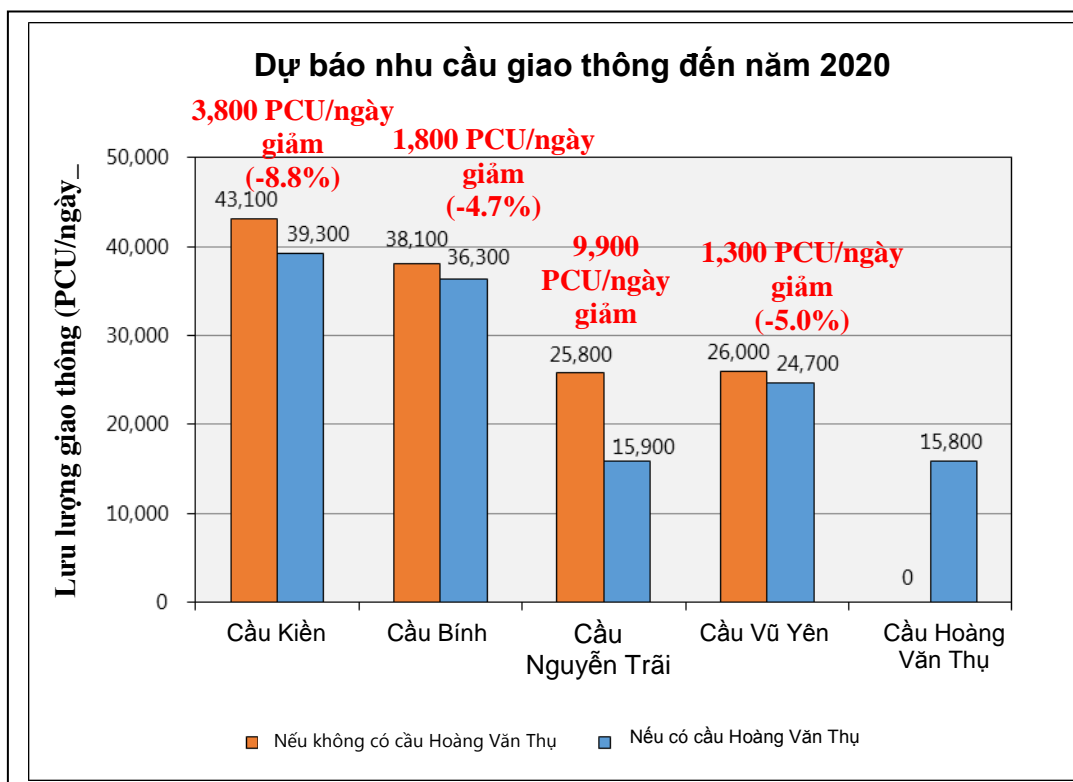
1. Quyết định số 1841/QĐ-UBND ngày 15 tháng 11 năm 2011 của Ủy ban nhân dân Thành phố Hải Phòng về việc phê duyệt Quy hoạch chi tiết (tỷ lệ 1/5000) khu đô thị mới Bắc Sông Cấm ở huyện Thủy Nguyên.
2. Quyết định số 2666/QĐ-UBND ngày 1 tháng 12 năm 2014 của Ủy ban nhân dân Thành phố Hải Phòng về việc phê duyệt Quy hoạch chi tiết (tỷ lệ 1/2000) trung tâm hành chính mới tại khu đô thị mới Bắc Sông Cấm.

Hiện nay, thiết kế chi tiết của cầu Hoàng Văn Thụ vẫn chưa được tiến hành và do đó không có thông tin liên quan đến chiều dài của cây cầu, chiều rộng và kết cấu vv.

Chính phủ, Bộ Kế hoạch và Đầu tư đã không đưa ra bất kỳ văn bản chính thức nào mặc dù biết kế hoạch đã được phê duyệt mà Ủy ban Nhân dân Thành phố Hải Phòng đã trình lên. Thứ trưởng Bộ Kế hoạch và Đầu tư Đào Quang Thu cho biết rằng Chính Phủ đã không có bất kỳ quyết định nào về vấn đề này cũng như Chính phủ đang phải đối mặt với thâm hụt ngân sách và sự gia tăng nợ công.

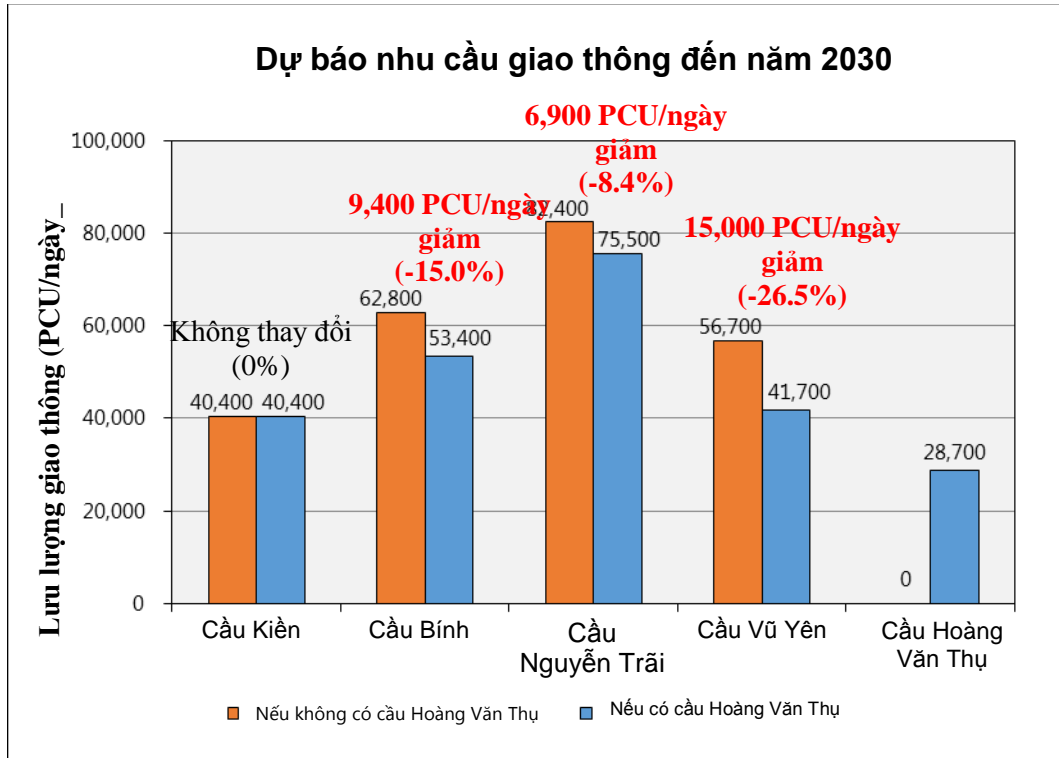
## 2.2 Tác động của Cầu Hoàng Văn Thụ đến ước tính lưu lượng giao thông

Các kết quả từ nhu cầu giao thông trong tương lai cho năm 2020 và năm 2030 đối với 2 trường hợp: với việc xây dựng cầu Hoàng Văn Thụ và không xây dựng cầu Hoàng Văn Thụ được trình bày dưới đây. Nhìn chung, nếu cầu Hoàng Văn Thụ được xây dựng, nhu cầu giao thông dự báo trên cầu Bính, cầu Nguyễn Trãi và cầu Vũ Yên sẽ giảm so với tình hình nếu cầu Hoàng Văn Thụ không được xây dựng.



Nguồn: Đoàn nghiên cứu

**Hình 2.1-1** Dự báo nhu cầu giao thông đến năm 2020. Có và không có cầu Hoàng Văn Thụ



Nguồn: Đoàn nghiên cứu

**Hình 2.1-2** Dự báo nhu cầu giao thông đến năm 2030. Có và không có cầu Hoàng Văn Thụ

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### 2.2.1 Tác động đến ước tính nhu cầu giao thông cho cầu Kiền

Các tác động tới ước tính nhu cầu giao thông từ việc xây dựng cầu Hoàng Văn Thụ sẽ được tối thiểu như trong hình trên..

### 2.2.2 Tác động đến ước tính nhu cầu giao thông cho cầu Bính

Nếu cầu Hoàng Văn Thụ được xây dựng, thì ước tính nhu cầu giao thông của cầu Biên đến năm 2020 sẽ giảm khoảng 1.800 PCU /ngày và đến năm 2030 sẽ giảm khoảng 9.400 PCU /ngày so với trường hợp Cầu Hoàng Văn Thụ không được xây dựng. Điều này thể hiện sự sụt giảm 4,7% và 15% trong nhu cầu giao thông ước tính của cầu Bính vào năm 2020 và năm 2030 tương ứng.

### 2.2.3 Tác động đến ước tính nhu cầu giao thông cho cầu Nguyễn Trãi

Nếu cầu Hoàng Văn Thụ được xây dựng, thì ước tính nhu cầu giao thông cầu Nguyễn Trãi đến năm 2020 sẽ giảm khoảng 9.900 PCU /ngày và đến năm 2030 sẽ giảm khoảng 6.900 PCU /ngày. Xây dựng cầu Hoàng Văn Thụ sẽ có một tác động lớn vào ước tính nhu cầu lưu lượng giao thông của cầu Nguyễn Trãi vì nó giảm 9.900 PCU /ngày vào năm 2020 thể hiện sự sụt giảm 38,4% trong nhu cầu giao thông ước tính.

Trong năm 2030, nhu cầu giao thông ước tính của cầu Nguyễn Trãi mà không xây dựng cầu Hoàng Văn Thụ là 82.400 PCU /ngày và cầu sẽ bị ách tắc vì nó vượt quá sức chứa 70.000 PCU /ngày. Với việc xây dựng cầu Hoàng Văn Thụ, nhu cầu giao thông ước tính trên cầu Nguyễn Trãi trong năm 2030 sẽ giảm xuống còn 75.000 PCU/ngày và tắc nghẽn dự báo trên cầu Nguyễn Trãi có thể được phân phối cho các cầu khác..

### 2.2.4 Tác động đến ước tính nhu cầu giao thông cho cầu Vũ Yên

Nếu cầu Hoàng Văn Thụ được xây dựng, thì ước tính nhu cầu giao thông của cầu Vũ Yên đến năm 2020 và đến năm 2030 sẽ giảm tương ứng khoảng 1.300 PCU /ngày và 15.000 PCU /ngày tức là giảm 5% và 26,5%. Vì vậy việc xây dựng cầu Hoàng Văn Thụ sẽ có một tác động lớn đến nhu cầu giao thông ước tính của cầu Vũ Yên.

Đến năm 2030, do quá trình phát triển đô thị của Khu công nghiệp VSIP Hải Phòng (VSIP Hải Phòng), người ta ước tính rằng sẽ có một sự gia tăng lớn về số lượng các chuyến đi phía bờ Bắc của sông Cấm. Kết quả là, trong trường hợp Cầu Hoàng Văn Thụ không được xây dựng, những chuyến đi qua sông Cấm sẽ được phân phối cho các cầu Vũ Yên do tắc nghẽn tại cầu Bính và cầu Nguyễn Trãi.

Mặt khác, trong trường hợp cầu Hoàng Văn Thụ được xây dựng, ùn tắc trên cầu Bính và cầu Nguyễn Trãi sẽ được giảm nhẹ và sự cần thiết vượt sông Cấm thông qua cầu Vũ Yên sẽ được giảm xuống. Kết quả là, nhu cầu giao thông ước tính của cầu Vũ Yên được giảm trong trường hợp cầu Hoàng Văn Thụ được xây dựng.



### **2.3 Ảnh hưởng của Cầu Hoàng Văn Thụ về đánh giá kinh tế của các Dự án trong Nghiên cứu này**

Tiến độ thi công cầu Hoàng Văn Thụ là một yếu tố quan trọng đối với các dự án đề xuất, đặc biệt đối với các dự án xây dựng cầu Nguyễn Trãi, vì cả hai cầu Hoàng Văn Thụ và cầu Nguyễn Trãi đều song song vượt sông Cẩm và có đặc điểm cạnh tranh với nhau..

Mặc dù có giả thiết cầu Hoàng Văn Thụ được hoàn thiện xây dựng trước năm 2030 (tức là, sau năm 2020), thì tiến độ dự án có thể kéo dài một mức độ đáng kể theo các quan chức Việt Nam. Do đó, phân luồng giao thông đã tiến hành giả định rằng cả hai cầu Nguyễn Trãi và Hoàng Văn Thụ đã có trong năm 2020, và sự khác biệt về lợi ích kinh tế được ước tính.

Các kết quả đã cho thấy rằng việc xây dựng cầu Hoàng Văn Thụ sẽ không ảnh hưởng bất lợi đến dự án cầu Nguyễn Trãi. Trên thực tế các EIRR tính toán cho thấy chỉ có một sự khác biệt chính. Điều này trên thực tế các lợi ích kinh tế hơi khác chỉ trong vài năm giữa 2023 và 2029.

### **2.4 Kết luận**

Từ quan điểm về quy hoạch giao thông, có thể nói rằng cầu Văn Thụ Hoàng là cần thiết để đáp ứng nhu cầu giao thông gia tăng trong tương lai qua sông Cẩm. Đặc biệt trong năm 2030, do sự phát triển đô thị trên bờ bắc của sông Cẩm, nhu cầu giao thông sẽ tăng và dự kiến rằng 4 cầu (Bính, Kiên, Nguyễn Trãi, Vũ Yên) sẽ không thể đáp ứng đủ nhu cầu giao thông. Từ việc xây dựng cầu Hoàng Văn Thụ, nhu cầu giao thông qua sông Cẩm sẽ được phân phối giữa các cầu khác nhau và hy vọng rằng cầu Hoàng Văn Thụ có thể được hoàn thành trước năm 2030.

## **PHỤ LỤC A3: KHẢO SÁT ĐIỀU KIỆN TỰ NHIÊN**

### **3.1 Nhật ký lỗ khoan**

# **NT-Series**



Fig.		Drilling Log					Hole Number: <b>BHNT-01</b>																
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>1</u>																			
Supervisor: <u>Tan</u>		Coordinate: <u>N:205159.25 E:1064141.33</u>		Elevation: <u>MSL+2.30</u> m																			
Driller: <u>Quang</u>		Date Started: <u>20150427</u>		Water Table : GL <u>-2.30</u> m																			
Type of Drilling Rig: <u>Rotary: Rig No 2</u>		Date Terminated: <u>20150429</u>		Remarks:																			
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test											
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm									
									From	To	C'ter			1st	2nd	3rd							
										N-value													
1	2.30	0.00			Fill	-	-	Fill material is stone.	1.00	1.03	1.02	SPT-1	500	50	-	-							
2		3.00							2.00	2.03	2.02	SPT-2	500	50	-	-							
3	-0.70	3.00							3.15	3.45	3.30	SPT-3	2	1	1	1	●						
4					SILT	Dark Grey	Very Loose	With trace of organic matter.	4.00	4.90	4.45	HP-1	REC: 90 / 90cm										
5									5.15	5.45	5.30	SPT-4	2	1	1	1	●						
6									6.15	6.45	6.30	SPT-5	2	1	1	1	●						
7			6.80						7.15	7.45	7.30	SPT-6	2	1	1	1	●						
8									8.00	8.60	8.30	SPT-7	2	1	1	1	●						
9									9.15	9.45	9.30	SPT-8	2	1	1	1	●						
10	-7.50	9.80							10.15	10.45	10.30	SPT-9	4	1	2	2	●						
11									CLAY	Yellowish Grey mottled with brown	Medium Stiff	With slightly mica fragments, fine grained sand and cementation.	11.15	11.45	11.30	SPT-10	5	1	2	3	●		
12			3.70		12.15	12.45	12.30	SPT-11					5	1	2	3	●						
13					13.15	13.45	13.30	SPT-12					4	1	2	2	●						
14			13.50		14.15	14.45	14.30	SPT-13					0	1	0	0	●						
15					SILT	Brownish Grey	Very Soft	With slightly mica fragments and trace of organic matter.	15.00	15.90	15.45	HP-2	REC: 90 / 90cm										
16									16.15	16.45	16.30	SPT-14	0	1	0	0	●						
17									17.15	17.45	17.30	SPT-15	0	1	0	0	●						
18									18.15	18.45	18.30	SPT-16	0	1	0	0	●						
19									19.15	19.45	19.30	SPT-17	2	1	1	1	●						
20									20.15	20.45	20.30	SPT-18	2	1	1	1	●						
21									21.15	21.45	21.30	SPT-19	0	1	0	0	●						
22									22.15	22.45	22.30	SPT-20	0	1	0	0	●						
23			22.2						23.00	23.90	23.45	HP-3	REC: 90 / 90cm										
24									24.15	24.45	24.30	SPT-21	0	1	0	0	●						
25					25.15	25.45	25.30	SPT-22	0	1	0	0	●										
26					26.15	26.45	26.30	SPT-23	0	1	0	0	●										
27					27.15	27.45	27.30	SPT-24	0	1	0	0	●										
28					28.15	28.45	28.30	SPT-25	0	1	0	0	●										
29					29.15	29.45	29.30	SPT-26	0	1	0	0	●										
30					30.15	30.45	30.30	SPT-27	0	1	0	0	●										
31	-28.70	31.00																					

Fig.		Drilling Log					Hole Number: <b>BHNT-01</b>																						
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>			Sheet: <u>2</u>																								
Supervisor: <u>Tan</u>		Coordinate: <u>N:205159.25 E:1064141.33</u>		Elevation: <u>MSL+2.30</u> m																									
Driller: <u>Quang</u>		Date Started: <u>20150427</u>		Water Table: GL <u>-2.30</u> m																									
Type of Drilling Rig: <u>Rotary: Rig No 2</u>		Date Terminated: <u>20150429</u>		Remarks:																									
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test																	
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value												
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100							
31	-27.70	30.00			SILT	Blackish Grey	Very Soft	With slightly mica fragments and trace of organic matter.	30.15	30.45	30.30	SPT-27	0	1	0	0	●												
32																				●									
33			22.20																		●								
34																						●							
35																							●						
36	-33.40	35.70							Silty SAND	Blackish Grey	Very Loose	Mainly fine grained sand. With trace of mica fragments.	35.15	35.45	35.30	SPT-32	2	1	1	1	●								
37																						●							
38																							●						
39			6.00																					●					
40																								●					
41																									●				
42	-38.40	41.70																							●				
43					SAND	Blackish Grey	Dense	Mainly medium to coarse grained sand. With trace of mica fragments.					42.15	42.45	42.30	SPT-39	37	10	18	19							●		
44			3.30																										
45	-42.70	45.00																											
46																													
47	-44.40	46.70			SAND	Blackish Grey	Dense	Mainly fine grained sand. With trace of mica fragments and gravel.	45.15	45.45	45.30	SPT-42	32	10	14	18									●				
48			0.75																										
49	-48.15	47.45			SAND	Blackish Grey	Very Dense	Mainly fine grained sand. With trace of mica fragments and gravel.	47.15	47.45	47.30	SPT-44	60	19	24	36										●			
50					END OF BH																								
51																													
52																													
53																													
54																													
55																													
56																													
57																													
58																													
59																													
60																													
61																													

Fig.		Drilling Log						Hole Number: <b>BHNT-02</b>																
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>1</u>																				
Supervisor: <u>Tan</u>		Coordinate: <u>N:205208.60 E:1064139.90</u>		Elevation: <u>MSL+2.73</u> m																				
Driller: <u>Quang</u>		Date Started: <u>20150410</u>		Water Table: GL <u>-1.60</u> m																				
Type of Drilling Rig: <u>Rotary: Rig No 2</u>		Date Terminated: <u>20150413</u>		Remarks:																				
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test												
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value							
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100		
1	2.73	0.00			SAND	Brownish Grey	Very Loose	Mainly fine grained sand. With trace of mica fragments.	1.15	1.45	1.30	SPT-1	0	0	0	0								
2	0.73	2.00	2.00						2.15	2.45	2.30	SPT-2	6	2	3	3								
3	-0.27	3.00	1.00		CLAY	Brownish Grey	Medium Stiff	With trace of mica fragments.	3.15	3.45	3.30	SPT-3	4	1	2	2								
4									4.00	4.44	4.22	HP-1	REC: 90 / 90cm											
5									5.15	5.45	5.30	SPT-4	3	1	1	2								
6			6.00		SILT	Brownish Grey	Soft to Medium Stiff	With trace of mica and organic matter.	6.15	6.45	6.30	SPT-5	3	1	1	2								
7									7.15	7.45	7.30	SPT-6	4	1	2	2								
8									8.15	8.45	8.30	SPT-7	5	1	2	3								
9	-6.27	9.00							9.15	9.45	9.30	SPT-8	5	2	2	3								
10									10.15	10.45	10.30	SPT-9	5	2	2	3								
11									11.15	11.45	11.30	SPT-10	5	2	2	3								
12									12.15	12.45	12.30	SPT-11	6	2	3	3								
13									13.15	13.45	13.30	SPT-12	6	2	3	3								
14									14.15	14.45	14.30	SPT-13	6	2	3	3								
15			11.00		SILT	Brownish Grey	Medium Stiff	With slightly mica fragments and trace of fine grained sand.	15.15	15.45	15.30	SPT-14	5	2	2	3								
16									16.15	16.45	16.30	SPT-15	6	2	3	3								
17									17.15	17.45	17.30	SPT-16	5	2	2	3								
18									18.15	18.45	18.30	SPT-17	4	2	2	2								
19									19.00	19.90	19.45	HP-2	REC: 90 / 90cm											
20	-17.27	20.00							20.15	20.45	20.30	SPT-18	4	2	2	2								
21									21.15	21.45	21.30	SPT-19	5	2	2	3								
22									22.15	22.45	22.30	SPT-20	6	2	3	3								
23									23.15	23.45	23.30	SPT-21	6	2	3	3								
24									24.15	24.45	24.30	SPT-22	7	2	3	4								
25			10.20		CLAY	Blackish Grey	Medium Stiff to Stiff	With slighty of mica and trace of sea shell fragments.	25.15	25.45	25.30	SPT-23	7	2	3	4								
26									26.15	26.45	26.30	SPT-24	8	3	4	4								
27									27.15	27.45	27.30	SPT-25	7	3	3	4								
28									28.15	28.45	28.30	SPT-26	10	4	5	5								
29									29.15	29.45	29.30	SPT-27	11	4	5	6								
30	-27.47	30.20							30.15	30.45	30.30	SPT-28	11	5	5	6								
31	-28.27	31.00	11.80		SAND	Grey	Medium Dense	Fine to medium grained sand. Occasionally with gravel.																

Fig.		Drilling Log				Hole Number: <b>BHNT-02</b>											
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>2</u>													
Supervisor: <u>Tan</u>		Coordinate: <u>N:205208.60 E:1064139.90</u>		Elevation: <u>MSL+2.73</u> m													
Driller: <u>Quang</u>		Date Started: <u>20150410</u>		Water Table: GL <u>-1.60</u> m													
Type of Drilling Rig: <u>Rotary: Rig No 2</u>		Date Terminated: <u>20150413</u>		Remarks:													
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test					
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value
									From	To	C'ter			1st	2nd	3rd	
31	-27.47	30.20			SAND	Grey	Medium Dense	Fine to medium grained sand. Occasionally with gravel.	30.15	30.45	30.30	SPT-28	11	5	5	6	
32				31.15					31.45	31.30	SPT-29	20	6	9	11		
33			5.80						32.15	32.45	32.30	SPT-30	22	8	10	12	
34									33.15	33.45	33.30	SPT-31	21	8	10	11	
35									34.15	34.45	34.30	SPT-32	21	7	9	12	
36		36.00							35.15	35.45	35.30	SPT-33	17	6	8	9	
37					Silty SAND	Grey	Medium Dense	Fine to medium grained sand, with few gravel.	36.15	36.45	36.30	SPT-34	11	3	5	6	
38			6.00						37.15	37.45	37.30	SPT-35	14	5	7	7	
39									38.15	38.45	38.30	SPT-36	15	5	7	8	
40									39.15	39.45	39.30	SPT-37	19	6	8	11	
41									40.15	40.45	40.30	SPT-38	19	8	8	11	
42	-35.27	42.00							41.15	41.45	41.30	SPT-39	18	8	8	10	
43					Silty SAND	Blackish Grey to Light Grey	Medium Dense	Mainly fine grained sand. With slightly mica and with gravel.	42.15	42.45	42.30	SPT-40	31	14	14	17	
44			2.80						43.15	43.45	43.30	SPT-41	42	18	21	21	
45	-42.07	44.80							44.15	44.45	44.30	SPT-42	47	18	21	26	
46					Silty SAND	Light Grey	Medium Dense to Very Dense	Fine to medium grained sand. With slightly mica fragments.	45.15	45.45	45.30	SPT-43	57	28	28	29	
47	-44.07	46.80							46.15	46.45	46.30	SPT-44	63	28	29	34	
48					SANDSTONE	Bluish Grey	Medium Strong	Weathered	47.00	47.04	47.02	SPT-45	383	51	-	-	
49			3.20						48.00	48.03	48.02	SPT-46	500	50	-	-	
50	-47.27	50.00							49.00	49.03	49.02	SPT-47	530	53	-	-	
51					END OF BH												
52																	
53																	
54																	
55																	
56																	
57																	
58																	
59																	
60																	
61																	



Fig.		Drilling Log							Hole Number: <b>BHNT-03</b>													
Project No.	<b>OS14-0022</b>	Project Name:	<b>Hai Phong Arterial Road Construction</b>			Sheet:	<b>1</b>															
Supervisor:	<b>Tan</b>	Coordinate:	<b>N:205212.37</b>	<b>E:1064139.26</b>	Elevation:	<b>MSL+2.27</b> m																
Driller:	<b>Quang</b>	Date Started:	<b>20150417</b>			Water Table: GL:	<b>-3.13</b> m															
Type of Drilling Rig:	<b>Rotary; Rig No 2</b>	Date Terminated:	<b>20150424</b>			Remarks:																
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test										
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value					
									From	To	C'ter				1st	2nd	3rd	0	20	40	60	80
	2.27	0.00																				
1																						
2									1.15	1.45	1.30	SPT-1	300	50	-	-						
3									2.15	2.45	2.30	SPT-2	750	50	-	-						
4									3.15	3.45	3.30	SPT-3	375	50	-	-						
5									4.00	4.44	4.22	SPT-4	500	50	-	-						
6			11.50		Fill	-	-	Fill material is rock.	5.15	5.45	5.30	SPT-5	300	50	-	-						
7									6.15	6.45	6.30	SPT-6	1500	50	-	-						
8									7.15	7.45	7.30	SPT-7	500	50	-	-						
9									8.15	8.45	8.30	SPT-8	300	50	-	-						
10									9.15	9.45	9.30	SPT-9	300	50	-	-						
11									10.15	10.45	10.30	SPT-10	750	50	-	-						
12	-9.23	11.50							11.15	11.45	11.30	SPT-11	300	50	-	-						
13									12.15	12.45	12.30	SPT-12	4	1	2	2	●					
14									13.15	13.45	13.30	SPT-13	4	1	2	2	●					
15									14.15	14.45	14.30	SPT-14	2	1	1	1	●					
16									15.15	15.45	15.30	SPT-15	2	1	1	1	●					
17									16.00	16.90	16.45	HP-1	REC: 90 / 90cm									
18									17.15	17.45	17.30	SPT-16	3	1	2	1	●					
19									18.15	18.45	18.30	SPT-17	4	1	2	2	●					
20					SILT	Brownish Grey to Grey	Soft	With slightly mica fragments and trace of organic matter and sea shell fragments.	19.00	19.90	19.45	SPT-18	3	1	2	1	●					
21									20.15	20.45	20.30	SPT-19	3	1	1	2	●					
22									21.15	21.45	21.30	SPT-20	4	1	2	2	●					
23									22.15	22.45	22.30	SPT-21	3	2	1	2	●					
24									23.15	23.45	23.30	SPT-22	4	2	2	2	●					
25									24.15	24.45	24.30	SPT-23	4	1	2	2	●					
26									25.15	25.45	25.30	SPT-24	3	2	1	2	●					
27									26.15	26.45	26.30	SPT-25	4	2	2	2	●					
28									27.15	27.45	27.30	SPT-26	3	1	1	2	●					
29	-9.23	28.50							28.15	28.45	28.30	SPT-27	4	1	2	2	●					
30			3.00		CLAY	Blackish Grey	Medium Stiff	With trace of mica fragments, organic matter and sea shell fragments.	29.15	29.45	29.30	SPT-28	8	3	4	4	●					
31	-8.73	31.00							30.15	30.45	30.30	SPT-29	7	3	3	4	●					

Fig.		Drilling Log						Hole Number: <b>BHNT-03</b>																
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>2</u>																				
Supervisor: <u>Tan</u>		Coordinate: <u>N:205212.37 E:1064139.26</u>		Elevation: <u>MSL+2.27</u> m																				
Driller: <u>Quang</u>		Date Started: <u>20150417</u>		Water Table: GL <u>-3.13</u> m																				
Type of Drilling Rig: <u>Rotary: Rig No 2</u>		Date Terminated: <u>20150424</u>		Remarks:																				
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test												
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value							
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100		
31	-27.73	30.00	3.00		CLAY	Blackish Grey	Medium Stiff	With trace of mica fragments, organic matter and sea shell fragments.	30.15	30.45	30.30	SPT-29	7	3	3	4								
32	-28.23	31.50			Silty SAND	Yellowish Grey, Light Grey	Medium Dense to Dense	Mainly fine grained sand. With trace of mica fragments and sea shell fragments. Occasionally with a lot of gravel.	31.15	31.45	31.30	SPT-30	9	3	4	5								
33									32.15	32.45	32.30	SPT-31	25	9	10	15								
34									33.15	33.45	33.30	SPT-32	27	9	11	16								
35									34.15	34.45	34.30	SPT-33	27	10	12	15								
36									35.15	35.45	35.30	SPT-34	29	11	13	16								
37									36.15	36.45	36.30	SPT-35	37	13	17	20								
38			13.00						37.15	37.45	37.30	SPT-36	30	9	13	17								
39									38.15	38.45	38.30	SPT-37	25	10	12	13								
40									39.15	39.45	39.30	SPT-38	28	11	11	17								
41									40.15	40.45	40.30	SPT-39	25	8	9	16								
42									41.15	41.45	41.30	SPT-40	25	8	9	16								
43									42.15	42.45	42.30	SPT-41	25	11	12	13								
44									43.15	43.45	43.30	SPT-42	28	10	13	15								
45	-42.23	44.50			44.15	44.45	44.30	SPT-43	30	13	14	16												
46	-43.73	46.00			Gravelly SAND	Light Grey	Dense	Medium to coarse grained sand.	45.15	45.45	45.30	SPT-44	36	18	18	18								
47					SILTSTONE	Bluish Grey	Medium Strong	Weathered	46.00	46.04	46.02	SPT-45	375	50	-	-								
48			3.08						47.00	47.08	47.04	SPT-46	191	51	-	-								
49									48.00	48.11	48.06	SPT-47	139	51	-	-								
50	-46.81	49.08							49.00	49.08	49.04	SPT-48	188	50	-	-								
51					END OF BH																			
52																								
53																								
54																								
55																								
56																								
57																								
58																								
59																								
60																								
61																								

Fig.		Drilling Log					Hole Number: <b>BHNT-04</b>																			
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>			Sheet: <u>1</u>																					
Supervisor: <u>Lam</u>		Coordinate: <u>N:205221.91 E:1064137.91</u>		Elevation: <u>MSL-4.33</u> m																						
Driller: <u>Thanh</u>		Date Started: <u>20150708</u>		Water Table: GL <u>-4.33</u> m																						
Type of Drilling Rig: <u>Rotary: Rig No 6</u>		Date Terminated: <u>20150710</u>		Remarks:																						
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test														
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value									
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100				
1	-4.33	0.00			Silty SAND	Brownish Grey	Very Soft	With slightly micafragments and lense of silty sand.																		
2												2.15	2.45	2.30	SPT-1	2	0	1	1	●						
3												3.15	3.45	3.30	SPT-2	2	0	1	1	●						
4			6.00									4.00	4.90	4.45	HP-1	REC: 90 / 90cm										
5												5.15	5.45	5.30	SPT-3	1	0	0	1	●						
6	-10.33	6.00							Silty SAND	Brownish Grey to Blackish Grey	Loose to Medium Dense	With slightly mica fragments. Occasionally with slightly organic matter and trace of shell fragments and lense of silty clay. Sand is mainly fine grained														
7								6.15					6.45	6.30	SPT-4	5	1	2	3	●						
8								7.15					7.45	7.30	SPT-5	7	1	2	5	●						
9								8.15					8.45	8.30	SPT-6	5	1	1	4	●						
10			6.80					9.15					9.45	9.30	SPT-7	1	0	0	1	●						
11								10.15					10.45	10.30	SPT-8	9	2	4	5	●						
12								11.15					11.45	11.30	SPT-9	6	2	3	3	●						
13	-17.13	12.80						12.15					12.45	12.30	SPT-10	12	3	6	6	●						
14					SILT	Brownish Grey to Bluish Grey	Soft	With trace of mica fragments and shell fragments. Occasionally with pocket of sand.																		
15																13.15	13.45	13.30	SPT-11	2	1	1	1	●		
16												14.15	14.45	14.30	SPT-12	2	1	1	1	●						
17												15.00	15.70	15.35	HP-2	REC: 70 / 90cm										
18												16.15	16.45	16.30	SPT-13	4	1	2	2	●						
19												17.15	17.45	17.30	SPT-14	4	1	2	2	●						
20												18.15	18.45	18.30	SPT-15	4	1	2	2	●						
21												19.15	19.45	19.30	SPT-16	4	1	2	2	●						
22												20.15	20.45	20.30	SPT-17	4	1	2	2	●						
23												21.15	21.45	21.30	SPT-18	4	1	2	2	●						
24												22.15	22.45	22.30	SPT-19	4	0	2	2	●						
25												23.15	23.45	23.30	SPT-20	4	0	2	2	●						
26	-25.13	24.80			CLAY	Brownish Grey	Medium Stiff to Very Stiff	With slightly mica fragments and occasionally laminated silty sand from 34.00m.																		
27												25.15	25.45	25.30	SPT-22	9	3	4	5	●						
28												26.15	26.45	26.30	SPT-23	8	3	4	4	●						
29												27.15	27.45	27.30	SPT-24	8	2	4	4	●						
30												28.15	28.45	28.30	SPT-25	7	3	3	4	●						
31												29.15	29.45	29.30	SPT-26	9	5	4	5	●						
31	-35.33	31.00										30.15	30.45	30.30	SPT-27	9	3	4	5	●						

Fig.		Drilling Log					Hole Number: <b>BHNT-04</b>																		
Project No. <b>OS14-0022</b>		Project Name: <b>Hai Phong Arterial Road Construction</b>			Sheet: <b>2</b>																				
Supervisor: <b>Lam</b>		Coordinate: <b>N:205221.91 E:1064137.91</b>		Elevation: <b>MSL-4.33 m</b>																					
Driller: <b>Thanh</b>		Date Started: <b>20150708</b>		Water Table: GL <b>-4.33 m</b>																					
Type of Drilling Rig: <b>Rotary: Rig No 6</b>		Date Terminated: <b>20150710</b>		Remarks:																					
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test													
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value								
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100			
31	-34.33	30.00			CLAY	Brownish Grey	Medium Stiff to Very Stiff	With slightly mica fragments and occasionally laminated silty sand from 34.00m.	30.15	30.45	30.30	SPT-27	9	3	4	5	●								
32												31.15	31.45	31.30	SPT-28	6	1	3	3	●					
33												32.15	32.45	32.30	SPT-29	8	4	4	4	●					
34			17.40									33.15	33.45	33.30	SPT-30	10	4	5	5	●					
35												34.15	34.45	34.30	SPT-31	10	4	5	5	●					
36												35.15	35.45	35.30	SPT-32	16	5	8	8	●					
37												36.15	36.45	36.30	SPT-33	15	6	8	7	●					
38	-42.23	37.90										37.15	37.45	37.30	SPT-34	10	6	5	5	●					
39					Silty SAND	Light Grey	Medium Dense to Very Dense	Fine grained sand. With slightly mica fragments and a lot of gravel.	38.15	38.45	38.30	SPT-35	51	10	20	31									
40			2.80									39.15	39.45	39.30	SPT-36	82	25	39	43						
41	-45.03	40.70										40.15	40.45	40.30	SPT-37	22	11	10	12						
42					SILTSTONE	Reddish Brown mottled with grey	Medium Strong	Weathered	41.15	41.27	41.21	SPT-38	125	35	50	-						→			
43				3.54								42.15	42.30	42.23	SPT-39	100	18	50	-						●
44												43.15	43.27	43.21	SPT-40	125	22	50	-						→
45	-45.57	44.24			END OF BH				44.15	44.24	44.20	SPT-41	167	40	50	-						→			
46																									
47																									
48																									
49																									
50																									
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Fig.										Drilling Log										Hole Number: BHNT-05				
Project No. OS14-0022		Supervisor: Hoan		Driller: Anh		Type of Drilling Rig: Rotary Rig No 1		Project Name: Hai Phong Arterial Road Construction		Coordinate: N:205226.71 E:1064137.05		Date Started: 20150406		Date Terminated: 20150415		Sheet: 1		Elevation: MSL+0.20 m		Water Table: GL 0.20 m		Remarks:		
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test			N-value									
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			0	20	40	60	80	100		
									From	To	C'ter			1st	2nd	3rd								
1	0.20	0.00			SILT	Blackish Grey	Very Soft	With slightly mica fragments. Occasionally with laminated silty sand from 8.00m.																
2												1.15	1.45	1.30	SPT-1	1	0	0	1	●				
3												2.15	2.45	2.30	SPT-2	0	0	0	0	●				
4												3.15	3.45	3.30	SPT-3	0	0	0	0	●				
5												4.00	4.90	4.45	HP-1	REC: 90 / 90cm								
6		10.30										5.15	5.45	5.30	SPT-4	0	0	0	0	●				
7												6.15	6.45	6.30	SPT-5	1	0	0	1	●				
8												7.15	7.45	7.30	SPT-6	2	0	0	2	●				
9												8.00	8.60	8.30	SPT-7	0	1	0	0	●				
10												9.15	9.45	9.30	SPT-8	0	0	0	0	●				
11	-10.10	10.30			Clayey SAND	Blackish Grey	Loose to Medium Dense	Mainly fine grain sand. With slightly mica fragments and with sandy clay from 11.00 to 11.40m.																
12												10.15	10.45	10.30	SPT-9	5	2	2	3	●				
13												11.15	11.45	11.30	SPT-10	13	3	6	7	●				
14		4.70										12.15	12.45	12.30	SPT-11	9	2	3	6	●				
15	-14.80	15.00										13.15	13.45	13.30	SPT-12	11	3	5	6	●				
16					Sandy SILT	Dark Grey	Soft to Stiff	With slightly mica fragments. Sand is mainly fine grained.																
17												14.15	14.45	14.30	SPT-13	13	4	6	7	●				
18		6.0										15.15	15.45	15.30	SPT-14	5	2	2	3	●				
19												16.15	16.45	16.30	SPT-15	4	1	2	2	●				
20												17.15	17.45	17.30	SPT-16	4	1	2	2	●				
21	-20.80	21.00			CLAY	Brownish Grey	Medium Stiff to Stiff	With slightly mica fragments and sea shell fragments.																
22												18.15	18.45	18.30	SPT-17	3	1	1	2	●				
23												19.00	19.90	19.45	HP-2	REC: 90 / 90cm								
24												20.15	20.45	20.30	SPT-18	11	2	5	6	●				
25												21.15	21.45	21.30	SPT-19	12	3	5	7	●				
26		8.0										22.15	22.45	22.30	SPT-20	6	2	3	3	●				
27												23.15	23.45	23.30	SPT-21	7	3	3	4	●				
28												24.15	24.45	24.30	SPT-22	6	2	3	3	●				
29	-28.80	29.00						25.15	25.45	25.30	SPT-23	6	2	3	3	●								
30					CLAY	Blackish Grey	Stiff to Very Stiff	With trace of mica fragments and organic matter, Occasionally with laminated clayey sand from 33.00m.																
31	-30.80	31.00										26.15	26.45	26.30	SPT-24	6	3	3	3	●				
								27.15	27.45	27.30	SPT-25	7	2	3	4	●								
								28.15	28.45	28.30	SPT-26	7	3	3	4	●								
								29.15	29.45	29.30	SPT-27	8	3	4	4	●								
								30.15	30.45	30.30	SPT-28	11	4	5	6	●								



Fig.		Drilling Log					Hole Number: <b>BHNT-05</b>										
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>2</u>													
Supervisor: <u>Hoan</u>		Coordinate: <u>N:205226.71 E:1064137.05</u>		Elevation: <u>MSL+0.20</u> m													
Driller: <u>Anh</u>		Date Started: <u>20150406</u>		Water Table: GL <u>0.20</u> m													
Type of Drilling Rig: <u>Rotary: Rig No 1</u>		Date Terminated: <u>20150415</u>		Remarks:													
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test					
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			
									From	To	C'ter			1st	2nd	3rd	
										N-value							
31	-29.80	30.00			CLAY	Blackish Grey	Stiff to Very Stiff	With trace of mica fragments and organic matter. Occasionally with laminated clayey sand from 33.00m.	30.15	30.45	30.30	SPT-28	11	4	5	6	●
32			4.50						31.15	31.45	31.30	SPT-29	12	5	6	6	●
33									32.15	32.45	32.30	SPT-30	22	4	8	14	●
34	-33.30	33.50			Clayey SAND	Blackish Grey	Dense to Very Dense	Mainly fine grained sand. With trace of mica fragments.	33.15	33.45	33.30	SPT-31	23	8	11	12	●
35			3.50						34.15	34.45	34.30	SPT-32	42	9	21	21	●
36									35.15	35.45	35.30	SPT-33	40	14	19	21	●
37	-36.80	37.00			SAND	Brownish Grey	Dense to Very Dense	Mainly fine grained sand. With trace of mica fragments and sea shell fragments.	36.15	36.45	36.30	SPT-34	61	15	19	21	●
38			2.45						37.15	37.45	37.30	SPT-35	42	12	20	22	●
39									38.15	38.45	38.30	SPT-36	51	15	24	25	●
40	-39.25	39.45			END OF BH				39.15	39.45	39.30	SPT-37	50	14	21	29	●
41																	
42																	
43																	
44																	
45																	
46																	
47																	
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58																	
59																	
60																	
61																	

Fig.		Drilling Log						Hole Number: <b>BHNT-06</b>															
Project No. <b>OS14-0022</b>		Project Name: <b>Hai Phong Arterial Road Construction</b>				Sheet: <b>1</b>																	
Supervisor: <b>Hoan</b>		Coordinate: <b>N:205235.53 E:1064135.01</b>		Elevation: <b>MSL+2.88</b>		m																	
Driller: <b>Anh</b>		Date Started: <b>20150401</b>		Water Table : GL <b>-2.10</b>		m																	
Type of Drilling Rig: <b>Rotary: Rig No 1</b>		Date Terminated: <b>20150405</b>		Remarks:																			
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test											
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value						
									From	To	C'ter			1st	2nd	3rd		0	20	40	60	80	100
1	2.88	0.00	1.00		SAND	Brownish Grey	Very Loose	Mainly fine grained sand.															
2	1.88	1.00							1.15	1.45	1.30	SPT-1	0	0	0	0							
3									2.00	2.90	2.45	HP-1	REC: 90 / 90cm										
4									3.15	3.45	3.30	SPT-2	0	0	0	0							
5									4.15	4.45	4.30	SPT-3	0	0	0	0							
6			9.60		SILT	Brownish Grey	Very Soft	With slightly mica fragments. Sand is mainly fine grained.	5.15	5.45	5.30	SPT-4	0	0	0	0							
7									6.00	6.90	6.45	HP-2	REC: 90 / 90cm										
8									7.15	7.45	7.30	SPT-5	2	1	1	1							
9									8.00	8.60	8.30	SPT-6	2	0	1	1							
10									9.15	9.45	9.30	SPT-7	2	1	1	1							
11	-7.72	10.60							10.15	10.45	10.30	SPT-8	2	1	1	1							
12			2.90		Sandy SILT	Dark Grey	Soft to Stiff	With slightly mica fragments and organic matter. Sand is mainly fine grained.	11.15	11.45	11.30	SPT-9	3	1	1	2							
13									12.15	12.45	12.30	SPT-10	4	1	2	2							
14	-10.62	13.60							13.15	13.45	13.30	SPT-11	13	4	6	7							
15	-11.42	14.30	0.80		Silty SAND	Blackish Grey	Loose	Mainly fine grained sand. With trace of mica fragments, organic matter and sea shell fragments.	14.15	14.45	14.30	SPT-12	6	3	3	3							
16									15.15	15.45	15.30	SPT-13	6	2	3	3							
17									16.15	16.45	16.30	SPT-14	4	1	2	2							
18			5.70		SILT	Blackish Grey	Medium Stiff	With trace of mica fragments.	17.15	17.45	17.30	SPT-15	4	1	2	2							
19									18.15	18.45	18.30	SPT-16	4	2	2	2							
20	-17.12	20.00							19.15	19.45	19.30	SPT-17	4	1	2	2							
21									20.15	20.45	20.30	SPT-18	5	1	2	3							
22									21.15	21.45	21.30	SPT-19	4	1	2	2							
23									22.15	22.45	22.30	SPT-20	5	2	2	3							
24									23.15	23.45	23.30	SPT-21	5	2	2	3							
25			9.00		CLAY	Grey	Medium Stiff	With trace of mica fragments, sea shell fragments and organic matter.	24.15	24.45	24.30	SPT-22	5	2	2	3							
26									25.15	25.45	25.30	SPT-23	5	2	2	3							
27									26.15	26.45	26.30	SPT-24	5	2	2	3							
28									27.15	27.45	27.30	SPT-25	5	2	2	3							
29	-26.12	29.00							28.15	28.45	28.30	SPT-26	6	2	3	3							
30			5.50						29.15	29.45	29.30	SPT-27	10	4	4	6							
31	-28.12	31.00			CLAY	Grey	Stiff	With trace of mica fragments, organic matter and fine grained sand.	30.15	30.45	30.30	SPT-28	11	4	4	7							





Fig.		Drilling Log						Hole Number: <b>BHNT-07</b>																	
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>1</u>																					
Supervisor: <u>Hoan</u>		Coordinate: <u>N:205230.25 E:1064136.61</u>		Elevation: <u>MSL+2.10</u> m																					
Driller: <u>Anh</u>		Date Started: <u>20150418</u>		Water Table : GL <u>-2.58</u> m																					
Type of Drilling Rig: <u>Rotary: Rig No 1</u>		Date Terminated: <u>20150420</u>		Remarks:																					
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test													
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value								
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100			
1	2.10	0.00	1.50		SILT	Brown	Stiff	With slightly mica fragments and organic matter.	1.15	1.45	1.30	SPT-1	15	6	7	8									
2	0.60	1.50							2.15	2.45	2.30	SPT-2	0	0	0	0									
3									3.00	3.90	3.45	HP-1	REC: 90 / 90cm												
4									4.15	4.45	4.30	SPT-3	0	0	0	0									
5			7.50		SILT	Brownish Grey	Very Soft	With slightly mica fragmnets and trace of organic matter	5.15	5.45	5.30	SPT-4	0	0	0	0									
6									6.15	6.45	6.30	SPT-5	0	0	0	0									
7									7.15	7.45	7.30	SPT-6	0	0	0	0									
8									8.00	8.60	8.30	SPT-7	0	0	0	0									
9	-6.90	9.00							9.15	9.45	9.30	SPT-8	0	0	0	0									
10									10.00	10.90	10.45	HP-2	REC: 90 / 90cm												
11									11.15	11.45	11.30	SPT-9	0	0	0	0									
12									12.15	12.45	12.30	SPT-10	0	0	0	0									
13									13.15	13.45	13.30	SPT-11	0	1	0	0									
14									14.15	14.45	14.30	SPT-12	1	0	0	1									
15			12.20		SILT	Brownish Grey	Very Soft to Soft	With slightly mica fragments and trace of organic matter and laminated silty sand.	15.15	15.45	15.30	SPT-13	1	0	0	1									
16									16.15	16.45	16.30	SPT-14	2	1	1	1									
17									17.15	17.45	17.30	SPT-15	3	0	1	2									
18									18.15	18.45	18.30	SPT-16	4	1	2	2									
19									19.15	19.45	19.30	SPT-17	4	1	2	2									
20									20.15	20.45	20.30	SPT-18	4	1	2	2									
21	-13.10	21.20							21.15	21.45	21.30	SPT-19	4	1	2	2									
22									22.15	22.45	22.30	SPT-20	5	1	2	3									
23									23.15	23.45	23.30	SPT-21	7	3	3	4									
24			5.60		Silty CLAY	Brownish Grey	Medium Stiff	With trace of mica fragments and sea shell fragments.	24.15	24.45	24.30	SPT-22	6	3	3	3									
25									25.15	25.45	25.30	SPT-23	7	2	3	4									
26									26.15	26.45	26.30	SPT-24	6	2	3	3									
27	-24.70	26.80							27.15	27.45	27.30	SPT-25	8	3	4	4									
28									28.15	28.45	28.30	SPT-26	9	3	4	5									
29			4.90		CLAY	Grey	Stiff	With slightly mica fragments, organic matter and sea shell fragments. Occasionally with sand pocket.	29.15	29.45	29.30	SPT-27	10	4	5	5									
30									30.15	30.45	30.30	SPT-28	9	4	4	5									
31	-28.90	31.00																							

Fig.		Drilling Log					Hole Number: <b>BHNT-07</b>										
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>2</u>													
Supervisor: <u>Hoan</u>		Coordinate: <u>N:205230.25 E:1064136.61</u>		Elevation: <u>MSL+2.10</u> m													
Driller: <u>Anh</u>		Date Started: <u>20150418</u>		Water Table: GL <u>-2.58</u> m													
Type of Drilling Rig: <u>Rotary: Rig No 1</u>		Date Terminated: <u>20150420</u>		Remarks:													
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test					
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			
									From	To	C'ter			1st	2nd	3rd	
										N-value							
31	-27.90	30.00	4.90		CLAY	Grey	Stiff	With slightly mica fragments, organic matter and sea shell fragments. Occasionally with sand pocket.	30.15	30.45	30.30	SPT-28	9	4	4	5	
32	-29.60	31.70							31.15	31.45	31.30	SPT-29	10	4	5	5	
33			2.30		SILT	Blackish Grey	Stiff to Very Stiff	With trace of mica fragments and organic matter.	32.15	32.45	32.30	SPT-30	16	6	8	8	
34	-31.90	34.00							33.15	33.45	33.30	SPT-31	13	5	6	7	
35			2.20		SAND	Blackish Grey mottled with yellowish grey	Medium Dense	Mainly fine grained sand. With trace of mica fragments and organic matter.	34.15	34.45	34.30	SPT-32	13	5	6	7	
36	-34.10	36.20							35.15	35.45	35.30	SPT-33	13	4	6	7	
37									36.15	36.45	36.30	SPT-34	22	4	7	7	
38									37.15	37.45	37.30	SPT-35	34	10	13	21	
39									38.15	38.45	38.30	SPT-36	35	11	14	21	
40			6.25		Silty SAND	Grey	Dense	Mainly fine grained sand. With slightly mica fragments.	39.15	39.45	39.30	SPT-37	34	10	14	20	
41									40.15	40.45	40.30	SPT-38	43	13	20	23	
42									41.15	41.45	41.30	SPT-39	44	12	21	23	
43	-40.35	42.45							42.15	42.45	42.30	SPT-40	40	11	19	21	
44					END OF BH												
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Fig.		Drilling Log					Hole Number: <b>BHNT-08</b>																				
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>			Sheet: <u>2</u>																						
Supervisor: <u>Hoan</u>		Coordinate: <u>N:205240.13 E:1064136.30</u>		Elevation: <u>MSL+1.73</u> m																							
Driller: <u>Anh</u>		Date Started: <u>20150422</u>		Water Table: GL <u>-2.27</u> m																							
Type of Drilling Rig: <u>Rotary: Rig No 1</u>		Date Terminated: <u>20150425</u>		Remarks:																							
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test															
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value										
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100					
31	-28.27	30.00	3.10		CLAY	Grey	Medium Stiff to Stiff	With trace of mica fragments.	30.15	30.45	30.30	SPT-28	9	3	4	5	●										
32									31.15	31.45	31.30	SPT-29	11	4	5	6	●										
33	-30.77	32.50							32.15	32.45	32.30	SPT-30	14	4	6	8	●										
34			5.70		CLAY	Yellowish Grey mottled with grey	Stiff to Very Stiff	With trace of mica fragments.	33.15	33.45	33.30	SPT-31	16	6	7	9	●										
35									34.15	34.45	34.30	SPT-32	16	5	7	9	●										
36									35.15	35.45	35.30	SPT-33	16	6	7	9	●										
37									36.15	36.45	36.30	SPT-34	27	6	8	10	●										
38									37.15	37.45	37.30	SPT-35	16	7	7	9	●										
39	-36.47	38.20							38.15	38.45	38.30	SPT-36	17	7	8	9	●										
40			3.30		Sandy SILT	Dark Grey	Stiff to Very Stiff	With trace of mica fragments, organic matter and cementation. Sand is mainly fine grained.	39.15	39.45	39.30	SPT-37	13	6	6	7	●										
41									40.15	40.45	40.30	SPT-38	15	6	7	8	●										
42	-38.77	41.50							41.15	41.45	41.30	SPT-39	14	4	5	9	●										
43			1.60		Clayey SAND	Light Grey	Very Dense	Fine to coarse grained sand. With trace of organic matter and gravel.	42.15	42.45	42.30	SPT-40	67	26	32	35					●						
44	-41.37	43.10	2.90		SILT STONE	Bluish Grey	Medium Strong	Weathered	43.15	43.45	43.30	SPT-41	63	29	31	32						●					
45									44.15	44.45	44.30	SPT-42	61	21	37	13										●	
46	-44.27	46.00							45.00	45.14	45.07	SPT-43	107	50	-	-											→
47			2.03		SANDSTONE	Reddish Brown	Medium Strong	Weathered	46.00	46.08	46.04	SPT-44	278	74	-	-							→				
48	-46.30	48.03							47.00	47.07	47.04	SPT-45	326	76	-	-											→
49									48.00	48.03	48.02	SPT-46	500	50	-	-											
50					END OF BH																						
51																											
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# **VY-Series**



Fig.		Drilling Log					Hole Number: <b>BHVIY-01</b>																
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>			Sheet: <u>1</u>																		
Supervisor: <u>Lam</u>		Coordinate: <u>N:205029.58 E:1064446.65</u>		Elevation: <u>MSL+2.38</u> m																			
Driller: <u>Thanh</u>		Date Started: <u>20150508</u>		Water Table: GL <u>-1.51</u> m																			
Type of Drilling Rig: <u>Rotary: Rig No 6</u>		Date Terminated: <u>20150512</u>		Remarks:																			
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test											
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value						
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100	
1	2.38	0.00			Fill	-	-	Fill material are rock, sand, clay etc.	1.15	1.45	1.30	SPT-1	7	3	3	4							
2	0.38	2.00																					
3	-0.32	2.70	0.70		SAND	Blacksh Grey	Very Loose	Mainly fine grained sand. With slightly mica fragments and trace of organic matter and laminated silty clay.	2.15	2.45	2.30	SPT-2	4	2	2	2							
4									3.15	3.45	3.30	SPT-3	2	1	1	1							
5									4.15	4.45	4.30	SPT-4	0	0	0	0							
6									5.00	6.00	5.50												
7			7.00		SILT	Brownish Grey	Very Soft	With slightly mica fragments and organic matter.	6.00	6.90	6.45	HP-1	REC: 90 / 90cm										
8									7.15	7.45	7.30	SPT-5	0	0	0	0							
9									8.00	8.90	8.45	HP-2	REC: 90 / 90cm										
10	-7.32	9.70							9.15	9.45	9.30	SPT-6	0	0	0	0							
11					Silty SAND	Dark Grey	Loose	Mainly fine grained sand. With slightly mica fragments.	10.15	10.45	10.30	SPT-7	10	2	4	6							
12	-9.32	11.70							11.15	11.45	11.30	SPT-8	9	2	4	5							
13	-10.72	13.10	1.40		CLAY	Yellowish Grey	Soft to Medium Stiff	With slightly mica fragments and organic matter.	12.15	12.45	12.30	SPT-9	3	2	2	1							
14									13.15	13.45	13.30	SPT-10	8	2	4	4							
15					CLAY	Yellowish Grey mottled with light grey	Medium Stiff to Stiff	With trace of mica fragments and cementation.	14.15	14.45	14.30	SPT-11	11	4	5	6							
16			4.70						15.15	15.45	15.30	SPT-12	12	4	5	7							
17									16.15	16.45	16.30	SPT-13	14	5	6	8							
18	-15.42	17.80							17.15	17.45	17.30	SPT-14	12	3	5	7							
19									18.15	18.45	18.30	SPT-15	10	3	4	6							
20									19.15	19.45	19.30	SPT-16	10	3	4	6							
21									20.15	20.45	20.30	SPT-17	8	2	3	5							
22			7.60		CLAY	Brownish Grey	Medium Stiff to Stiff	With trace of mica fragments.	21.15	21.45	21.30	SPT-18	8	2	4	4							
23									22.15	22.45	22.30	SPT-19	8	2	3	5							
24									23.15	23.45	23.30	SPT-20	6	3	3	3							
25									24.15	24.45	24.30	SPT-21	7	2	3	4							
26	-23.02	25.40							25.15	25.45	25.30	SPT-22	8	2	4	4							
27			2.40		Sandy SILT	Light Grey mottled with yellowish grey	Medium Stiff	With slightly mica fragments and trace of organic matter.	26.15	26.45	26.30	SPT-23	6	3	3	3							
28	-25.42	27.80							27.15	27.45	27.30	SPT-24	5	2	2	3							
29			1.80		Sandy CLAY	Yellowish Grey mottled with bluish grey	Very Stiff	With trace of mica fragments, silty sand and cementation.	28.15	28.45	28.30	SPT-25	19	7	9	10							
30	-27.22	29.60							29.15	29.45	29.30	SPT-26	19	8	9	10							
31	-28.62	31.00	7.20		Silty CLAY	Brownish Grey	Medium Stiff to Stiff	With slightly mica fragments and laminated silty sand.	30.15	30.45	30.30	SPT-27	11	6	6	5							



Fig.		Drilling Log				Hole Number: <b>BHVIY-01</b>											
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>2</u>													
Supervisor: <u>Lam</u>		Coordinate: <u>N:205029.58 E:1064446.65</u>		Elevation: <u>MSL+2.38</u> m													
Driller: <u>Thanh</u>		Date Started: <u>20150508</u>		Water Table: GL <u>-1.51</u> m													
Type of Drilling Rig: <u>Rotary: Rig No 6</u>		Date Terminated: <u>20150512</u>		Remarks:													
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test					
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value
									From	To	C'ter			1st	2nd	3rd	
31	-27.62	30.00			Silty CLAY	Grey	Soft to Very Stiff	With trace of mica fragment, organic matter. Sand is mainly fine grained.	30.15	30.45	30.30	SPT-27	11	6	6	5	
32				31.15					31.45	31.30	SPT-28	6	2	3	3		
33				32.15					32.45	32.30	SPT-29	6	3	3	3		
34		7.20		33.15					33.45	33.30	SPT-30	9	4	4	5		
35				34.15					34.45	34.30	SPT-31	10	4	5	5		
36				35.15					35.45	35.30	SPT-32	9	3	4	5		
37	-34.42	36.80			Silty SAND	Light Grey	Mainly fine grained sand. With trace of mica fragments and a lot of gravel.	36.15	36.45	36.30	SPT-33	7	2	3	4		
38	-35.02	37.40	0.60	37.15				37.45	37.30	SPT-34	41	28	24	17			
39					SANDSTONE	Reddish Brown	Medium Strong	Weathered	38.15	38.45	38.30	SPT-35	75	23	33	42	
40				39.15					39.45	39.30	SPT-36	43	15	19	24		
41		5.97		40.15					40.33	40.24	SPT-37	180	19	30	30		
42				41.15					41.45	41.30	SPT-38	55	19	24	31		
43				42.15					42.45	42.30	SPT-39	57	14	27	30		
44	-40.99	43.37			END OF BH			43.15	43.37	43.26	SPT-40	124	18	38	40		
45					END OF BH												
46					END OF BH												
47					END OF BH												
48					END OF BH												
49					END OF BH												
50					END OF BH												
51					END OF BH												
52					END OF BH												
53					END OF BH												
54					END OF BH												
55					END OF BH												
56					END OF BH												
57					END OF BH												
58					END OF BH												
59					END OF BH												
60					END OF BH												
61					END OF BH												



Fig.		Drilling Log					Hole Number: <b>BHVIY-02</b>																				
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>1</u>																							
Supervisor: <u>Chien</u>		Coordinate: <u>N:205036.61 E:1064448.96</u>		Elevation: <u>MSL+2.02</u> m																							
Driller: <u>Hung</u>		Date Started: <u>20150616</u>		Water Table: GL <u>-0.82</u> m																							
Type of Drilling Rig: <u>Rotary: Rig No 7</u>		Date Terminated: <u>20150620</u>		Remarks:																							
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test															
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value										
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100					
1	2.02	0.00			Fill	-	-	Fill material are rock, sand, clay etc.	1.15	1.45	1.30	SPT-1	0	0	0	0											
2			2.60							2.15	2.45	2.30	SPT-2	4	3	3	1										
3	-0.58	2.60								3.15	3.45	3.30	SPT-3	0	0	0	0										
4					CLAY	Bluish Grey to Brownish Grey	Very Soft	With trace of fine grained sand.	4.00	4.44	4.22	HP-1	REC: 44 / 90cm														
5													5.15	5.45	5.30	SPT-4	0	0	0	0							
6													6.15	6.45	6.30	SPT-5	0	0	0	0							
7													7.00	7.86	7.43	HP-2	REC: 86 / 90cm										
8			10.90										8.15	8.45	8.30	SPT-6	0	0	0	0							
9													9.15	9.45	9.30	SPT-7	2	1	1	1							
10													10.15	10.45	10.30	SPT-8	2	0	1	1							
11													11.15	11.45	11.30	SPT-9	0	0	0	0							
12													12.00	12.75	12.38	HP-3	REC: 75 / 90cm										
13													13.15	13.45	13.30	SPT-10	1	1	1	0							
14	-11.48	13.50			Silty SAND	Grey	Loose	Mainly fine grained sand. With trace of mica fragment and shell fragments.	14.15	14.45	14.30	SPT-11	5	3	2	3											
15			2.00										15.15	15.45	15.30	SPT-12	5	2	1	4							
16	-13.48	15.50			Silty CLAY	Brownish Grey	Very Soft to Soft	with trace of mica fragment. Occasionally with trace of fine grained sand and organic matter.	16.15	16.45	16.30	SPT-13	2	1	1	1											
17													17.15	17.45	17.30	SPT-14	0	0	0	0							
18													18.15	18.45	18.30	SPT-15	1	0	0	1							
19													19.15	19.45	19.30	SPT-16	0	0	0	0							
20													20.15	20.45	20.30	SPT-17	1	0	0	1							
21													21.15	21.45	21.30	SPT-18	2	0	1	1							
22													22.15	22.45	22.30	SPT-19	1	0	0	1							
23			14.60										23.15	23.45	23.30	SPT-20	2	0	1	1							
24													24.15	24.45	24.30	SPT-21	2	0	1	1							
25													25.15	25.45	25.30	SPT-22	3	1	1	2							
26													26.15	26.45	26.30	SPT-23	3	1	1	2							
27									27.15	27.45	27.30	SPT-24	3	1	1	2											
28									28.15	28.45	28.30	SPT-25	3	0	1	2											
29									29.15	29.45	29.30	SPT-26	4	1	2	2											
30	-28.08	30.10			Sandy CLAY	Grey	Soft to Very Stiff	with trace of mica fragment, organic matter. Sand is mainly fine grained.	30.15	30.45	30.30	SPT-27	7	2	3	4											
31	-28.98	31.00																									

Fig.		Drilling Log					Hole Number: <b>BHVIY-02</b>																	
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>2</u>																				
Supervisor: <u>Chien</u>		Coordinate: <u>N:205036.61 E:1064448.96</u>		Elevation: <u>MSL+2.02</u> m																				
Driller: <u>Hung</u>		Date Started: <u>20150616</u>		Water Table: GL <u>-0.82</u> m																				
Type of Drilling Rig: <u>Rotary: Rig No 7</u>		Date Terminated: <u>20150620</u>		Remarks:																				
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test												
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value							
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100		
31	-27.98	30.00			Sandy CLAY	Grey	Soft to Very Stiff	with trace of mica fragment, organic matter. Sand is mainly fine grained.	30.15	30.45	30.30	SPT-27	7	2	3	4								
32			3.30			31.15			31.45	31.30	SPT-28	3	0	1	2									
33						32.15			32.45	32.30	SPT-29	6	3	3	3									
34	-31.38	33.40			Clayey SAND	Grey to Dark Grey	Medium Dense to Very Dense	Mainly fine grained sand. With trace of mica fragment, organic matter. Occasionally with clay from 35.70m to 36.45m.	33.15	33.45	33.30	SPT-30	34	4	8	26								
35									34.15	34.45	34.30	SPT-31	21	14	10	11								
36									35.15	35.45	35.30	SPT-32	20	5	10	10								
37									36.15	36.45	36.30	SPT-33	10	3	3	7								
38			8.20						37.15	37.45	37.30	SPT-34	67	11	32	35								
39									38.15	38.45	38.30	SPT-35	29	13	16	13								
40									39.15	39.45	39.30	SPT-36	38	20	18	20								
41									40.15	40.45	40.30	SPT-37	18	8	8	10								
42	-35.58	41.60			SANDSTONE	Reddish Brown	Medium Strong	Weathered	41.15	41.45	41.30	SPT-38	31	11	15	16								
43			3.52						42.00	42.07	42.04	SPT-39	214	50	-	-								
44									43.00	43.14	43.07	SPT-40	107	50	-	-								
45									44.00	44.14	44.07	SPT-41	107	50	-	-								
46	-43.10	45.12			END OF BH				45.00	45.12	45.06	SPT-42	125	50	-	-								
47																								
48																								
49																								
50																								
51																								
52																								
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59																								
60																								
61																								

Fig.		Drilling Log						Hole Number: <b>BHVIY-05</b>															
Project No. <b>OS14-0022</b>		Project Name: <b>Hai Phong Arterial Road Construction</b>		Sheet: <b>1</b>																			
Supervisor: <b>Lam</b>		Coordinate: <b>N:205056.48 E:1064456.77</b>		Elevation: <b>MSL+2.4</b> m																			
Driller: <b>Thanh</b>		Date Started: <b>20150518</b>		Water Table: GL <b>-1.63</b> m																			
Type of Drilling Rig: <b>Rotary: Rig No 6</b>		Date Terminated: <b>20150521</b>		Remarks:																			
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test											
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value						
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100	
1	2.40	0.00	1.50		Fill	-	-	Fill material are rock, sand, clay etc.	1.15	1.45	1.30	SPT-1	21	3	7	14							
2	0.90	1.50			SAND	Yellowish Grey to Dark Grey	Loose	Mainly fine grained sand. With trace of sea shell fragments.	2.15	2.45	2.30	SPT-2	9	4	4	5							
3	-0.40	2.80	1.30						3.15	3.45	3.30	SPT-3	0	0	0	0							
4									4.00	4.88	4.44	HP-1	REC: 88 / 90cm										
5									5.15	5.45	5.30	SPT-4	0	0	0	0							
6									6.15	6.45	6.30	SPT-5	2	1	1	1							
7									7.15	7.45	7.30	SPT-6	2	0	1	1							
8									8.00	8.68	8.34	HP-2	REC: 68 / 90cm										
9			11.40		SILT	Blackish Grey	Very Soft	With slightly mica fragments and organic matter and laminated silty sand from 8.00m.	9.15	9.45	9.30	SPT-7	3	0	1	2							
10									10.15	10.45	10.30	SPT-8	2	2	1	1							
11									11.15	11.45	11.30	SPT-9	2	0	1	1							
12									12.15	12.45	12.30	SPT-10	2	1	1	1							
13									13.15	13.45	13.30	SPT-11	1	0	0	1							
14	-11.80	14.20							14.15	14.45	14.30	SPT-12	14	5	6	8							
15					CLAY	Yellowish Grey	Stiff	With trace of mica fragments.	15.15	15.45	15.30	SPT-13	15	5	7	8							
16			4.00						16.15	16.45	16.30	SPT-14	14	4	6	8							
17									17.15	17.45	17.30	SPT-15	9	3	4	5							
18	-15.80	18.20							18.15	18.45	18.30	SPT-16	8	2	4	4							
19									19.15	19.45	19.30	SPT-17	6	3	3	3							
20									20.15	20.45	20.30	SPT-18	7	3	3	4							
21									21.15	21.45	21.30	SPT-19	7	2	3	4							
22									22.15	22.45	22.30	SPT-20	7	3	3	4							
23									23.15	23.45	23.30	SPT-21	8	3	4	4							
24									24.15	24.45	24.30	SPT-22	7	3	3	4							
25			13.60		CLAY	Bluish Grey	Medium Stiff	With slightly mica fragments and organic matter.	25.15	25.45	25.30	SPT-23	8	3	4	4							
26									26.15	26.45	26.30	SPT-24	7	3	4	3							
27									27.15	27.45	27.30	SPT-25	6	3	3	3							
28									28.15	28.45	28.30	SPT-26	7	3	3	4							
29									29.15	29.45	29.30	SPT-27	7	2	3	4							
30									30.15	30.45	30.30	SPT-28	6	2	3	3							
31	-28.60	31.00																					

Fig.		Drilling Log						Hole Number: <b>BHVIY-05</b>										
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>2</u>														
Supervisor: <u>Lam</u>		Coordinate: <u>N:205056.48 E:1064456.77</u>		Elevation: <u>MSL+2.4</u> m														
Driller: <u>Thanh</u>		Date Started: <u>20150518</u>		Water Table: GL <u>-1.63</u> m														
Type of Drilling Rig: <u>Rotary: Rig No 6</u>		Date Terminated: <u>20150521</u>		Remarks:														
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test						
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value	
									From	To	C'ter			1st	2nd	3rd		
31	-27.60	30.00			CLAY	Bluish Grey	Medium Stiff	With slightly mica fragments and organic matter.	30.15	30.45	30.30	SPT-28	6	2	3	3		
32	-29.40	31.80	13.60						31.15	31.45	31.30	SPT-29	6	1	3	3	●	
33									32.15	32.45	32.30	SPT-30	12	3	5	7	●	
34									33.15	33.45	33.30	SPT-31	16	6	7	9	●	
35									34.15	34.45	34.30	SPT-32	12	5	6	6	●	
36			8.00		Silty CLAY	Bluish Grey to Brownish Grey	Stiff to Very Stiff	With slightly mica fragments. Occasionally with laminated silty sand.	35.15	35.45	35.30	SPT-33	12	4	5	7	●	
37									36.15	36.45	36.30	SPT-34	10	4	5	5	●	
38									37.15	37.45	37.30	SPT-35	9	3	4	5	●	
39									38.15	38.45	38.30	SPT-36	19	8	8	11	●	
40	-37.40	39.80							39.15	39.45	39.30	SPT-37	30	12	16	14	●	
41	-38.60	41.00	1.20		Sandy CLAY	Brownish Grey	Very Stiff	With slightly mica fragments. Sand is mainly fine grained.	40.15	40.45	40.30	SPT-38	23	8	8	15	●	
42	-39.60	42.00	1.00		SAND	Light Grey	Very Dense	Mainly fine grained sand. With trace of mica fragments.	41.15	41.45	41.30	SPT-39	63	16	28	35	●	
43									42.15	42.21	42.18	SPT-40	250 /30cm	58 /6cm	50	-	→	
44			3.07		SILTSTONE	Reddish Brown	Medium Strong	Weathered	43.00	43.12	43.06	SPT-41	175 /30cm	70 /12cm	-	-	→	
45	-42.67	45.07							44.00	44.10	44.05	SPT-42	225 /30cm	75 /10cm	-	-	→	
46					END OF BH				45.00	45.07	45.04	SPT-43	132 /30cm	75 /7cm	-	-	→	
47																		
48																		
49																		
50																		
51																		
52																		
53																		
54																		
55																		
56																		
57																		
58																		
59																		
60																		
61																		

Fig.		Drilling Log							Hole Number: <b>BHVIY-06</b>																						
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>1</u>																											
Supervisor: <u>Lam</u>		Coordinate: <u>N:205101.73 E:1064558.81</u>		Elevation: <u>MSL-1.45</u> m																											
Driller: <u>Thanh</u>		Date Started: <u>20150514</u>		Water Table: GL <u>-1.31</u> m																											
Type of Drilling Rig: <u>Rotary: Rig No 6</u>		Date Terminated: <u>20150517</u>		Remarks:																											
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test																			
									Depth in m	Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value																
									From	To	C'ter		1st	2nd	3rd	0	20	40	60	80	100										
1	-1.45	0.00	1.10		SAND	Dark Grey	Loose	Mainly fine grained sand. With laminated silty clay.																							
2	-2.55	1.10			CLAY	Dark Grey to Brownish Grey	Very Soft to Soft	With slightly mica fragments and organic matter.	1.15	1.45	1.30	SPT-1	0	0	0	0															
3			3.90																												
4													3.00	4.00	3.50	HP-1	REC: 88 / 90cm														
5	-6.45	5.00											4.15	4.45	4.30	SPT-3	0	0	0	0											
6									SILT	Brownish Grey	Very Soft	With slightly mica fragments and organic matter and trace of cementation. Occasionally with laminated silty sand.	5.00	5.85	5.43	HP-2	REC: 85 / 90cm														
7													6.15	6.45	6.30	SPT-4	0	0	0	0											
8			6.30										7.15	7.45	7.30	SPT-5	0	0	0	0											
9													8.15	8.45	8.30	SPT-6	0	0	0	0											
10													9.15	9.45	9.30	SPT-7	0	0	0	0											
11													10.15	10.45	10.30	SPT-8	0	0	0	0											
12	-12.75	11.30			CLAY	Yellowish Grey to Brownish Grey	Medium Stiff to Stiff	With trace of mica fragments.					11.15	11.45	11.30	SPT-9	4	0	1	3											
13			4.30														12.15	12.45	12.30	SPT-10	10	3	4	6							
14																	13.15	13.45	13.30	SPT-11	11	3	4	7							
15																	14.15	14.45	14.30	SPT-12	12	4	5	7							
16	-17.05	15.60							SILT	Grey	Medium Stiff	With trace of mica fragments. Occasionally with trace of sea shell fragments.	15.15	15.45	15.30	SPT-13	8	2	4	4											
17			15.10										16.15	16.45	16.30	SPT-14	5	2	2	3											
18													17.15	17.45	17.30	SPT-15	5	1	2	3											
19													18.15	18.45	18.30	SPT-16	5	1	2	3											
20													19.15	19.45	19.30	SPT-17	5	2	2	3											
21													20.15	20.45	20.30	SPT-18	6	2	3	3											
22													21.15	21.45	21.30	SPT-19	5	1	2	3											
23													22.15	22.45	22.30	SPT-20	5	0	2	3											
24													23.15	23.45	23.30	SPT-21	6	2	3	3											
25													24.15	24.45	24.30	SPT-22	5	1	2	3											
26									25.15	25.45	25.30	SPT-23	4	0	2	2															
27									26.15	26.45	26.30	SPT-24	5	0	2	3															
28									27.15	27.45	27.30	SPT-25	5	1	2	3															
29									28.15	28.45	28.30	SPT-26	6	2	3	3															
30									29.15	29.45	29.30	SPT-27	6	2	3	3															
31	-32.45	31.00	10.30		Silty CLAY	Brownish Grey	Stiff		30.15	30.45	30.30	SPT-28	6	1	3	3															



Fig.		Drilling Log					Hole Number: <b>BHVIY-06</b>										
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>2</u>													
Supervisor: <u>Lam</u>		Coordinate: <u>N:205101.73 E:1064558.81</u>		Elevation: <u>MSL-1.45</u> m													
Driller: <u>Thanh</u>		Date Started: <u>20150514</u>		Water Table: GL <u>-1.31</u> m													
Type of Drilling Rig: <u>Rotary: Rig No 6</u>		Date Terminated: <u>20150517</u>		Remarks:													
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test					
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			
									From	To	C'ter			1st	2nd	3rd	
										N-value							
31	-32.15	30.70	15.10		SILT	Grey	Medium Stiff	With trace of mica fragments. Occasionally with trace of sea shell fragments.	30.15	30.45	30.30	SPT-28	6	1	3	3	
32					Silty CLAY	Brownish Grey	Stiff	With slightly mica and trace of sea shell fragments. Occasionally with sandy clay and laminated silty sand.	31.15	31.45	31.30	SPT-29	13	3	6	7	
33									32.15	32.45	32.30	SPT-30	12	3	6	6	
34									33.15	33.45	33.30	SPT-31	9	3	4	5	
35									34.15	34.45	34.30	SPT-32	9	5	4	5	
36		10.30							35.15	35.45	35.30	SPT-33	10	3	5	5	
37									36.15	36.45	36.30	SPT-34	8	2	4	4	
38									37.15	37.45	37.30	SPT-35	8	3	4	4	
39									38.15	38.45	38.30	SPT-36	9	4	4	5	
40									39.15	39.45	39.30	SPT-37	10	3	4	6	
41	-42.45	41.00							SILTSTONE	Reddish Brown	Medium Strong	Weathered.	40.15	40.45	40.30	SPT-38	10
42					41.15	41.21	41.18	SPT-39					250	21	50	-	
43			3.06		42.00	42.11	42.06	SPT-40					136	50	-	-	
44	-45.51	44.06			43.00	43.13	43.07	SPT-41					115	50	-	-	
45					END OF BH				44.00	44.06	44.03	SPT-42	340	68	-	-	
46																	
47																	
48																	
49																	
50																	
51																	
52																	
53																	
54																	
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58																	
59																	
60																	
61																	

Fig.		Drilling Log				Hole Number: BHVY-07																		
Project No. OS14-0022		Project Name: Hai Phong Arterial Road Construction		Sheet: 1																				
Supervisor: Chien		Coordinate: N:205111.49 E:1064502.43		Elevation: MSL+0.38 m																				
Driller: Hung		Date Started: 20150703		Water Table: GL -4.75 m																				
Type of Drilling Rig: Rotary Rig No 7		Date Terminated: 20150707		Remarks:																				
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test												
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value							
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100		
1	0.38	0.00							1.15	1.45	1.30	SPT-1	0	0	0	0								
2									2.15	2.45	2.30	SPT-2	2	0	1	1								
3									3.15	3.45	3.30	SPT-3	1	0	0	1								
4									4.15	4.45	4.30	SPT-4	1	0	0	1								
5			8.30		SILT	Dark Grey	Very Soft	With slightly mica fragments. Sand is mainly fine grained.	5.15	5.45	5.30	SPT-5	1	0	0	1								
6									6.00	6.80	6.40	HP-1	REC: 80 / 90cm											
7									7.15	7.45	7.30	SPT-6	2	0	1	1								
8									8.15	8.45	8.30	SPT-7	4	1	2	2								
9	-7.92	8.30							9.15	9.45	9.30	SPT-8	9	3	4	5								
10									10.15	10.45	10.30	SPT-9	9	3	4	5								
11									11.15	11.45	11.30	SPT-10	12	3	5	7								
12									12.15	12.45	12.30	SPT-11	5	2	2	3								
13									13.15	13.45	13.30	SPT-12	5	2	2	3								
14									14.15	14.45	14.30	SPT-13	6	2	3	3								
15									15.15	15.45	15.30	SPT-14	5	2	2	3								
16									16.15	16.45	16.30	SPT-15	5	2	2	3								
17									17.15	17.45	17.30	SPT-16	6	2	3	3								
18						Dark Grey to Grey mottle with yellowish brown	Medium Stiff to Stiff	With trace of mica fragments, sea shell fragments and organic matter	18.15	18.45	18.30	SPT-17	6	2	3	3								
19			20.10		SILT				19.15	19.45	19.30	SPT-18	7	2	3	4								
20									20.15	20.45	20.30	SPT-19	7	2	3	4								
21									21.15	21.45	21.30	SPT-20	7	2	3	4								
22									22.15	22.45	22.30	SPT-21	8	2	3	5								
23									23.15	23.45	23.30	SPT-22	7	2	3	4								
24									24.15	24.45	24.30	SPT-23	5	1	2	3								
25									25.15	25.45	25.30	SPT-24	5	2	2	3								
26									26.15	26.45	26.30	SPT-25	5	2	2	3								
27									27.15	27.45	27.30	SPT-26	5	1	2	3								
28									28.15	28.45	28.30	SPT-27	6	2	2	4								
29	-28.02	28.40							29.15	29.45	29.30	SPT-28	16	6	7	9								
30			6.20		CLAY	Yellowish Brown	Very Stiff	With slightly mica fragments and trace of organic matter.	30.15	30.45	30.30	SPT-29	17	6	8	9								
31	-30.62	31.00																						

Fig.		Drilling Log						Hole Number: <b>BHVV-07</b>																	
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>2</u>																					
Supervisor: <u>Chien</u>		Coordinate: <u>N:205111.49 E:1064502.43</u>		Elevation: <u>MSL+0.38</u> m																					
Driller: <u>Hung</u>		Date Started: <u>20150703</u>		Water Table: GL <u>-4.75</u> m																					
Type of Drilling Rig: <u>Rotary: Rig No 7</u>		Date Terminated: <u>20150707</u>		Remarks:																					
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test													
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value								
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100			
31	-29.62	30,00			CLAY	Yellowish Brown	Very Stiff	With slightly mica fragments and trace of organic matter.	30.15	30.45	30.30	SPT-29	17	6	8	9	●								
32			6,20						31.15	31.45	31.30	SPT-30	17	6	8	9	●								
33									32.15	32.45	32.30	SPT-31	18	6	8	10	●								
34									33.15	33.45	33.30	SPT-32	18	7	8	10	●								
35	-34.22	34,60							34.15	34.45	34.30	SPT-33	17	5	7	10	●								
36			3,50		Silty SAND	Grey	Very Dense	Mainly fine grained sand. With trace of mica fragments.	35.15	35.31	35.23	SPT-34	94	16	50	-						●			
37									36.15	36.32	36.24	SPT-35	88	18	50	-									●
38									37.15	37.45	37.30	SPT-36	99	16	40	59									●
39	-37.72	38,10			SILTSTONE	Reddish Brown	Medium Strong	Weathered	38.00	38.06	38.03	SPT-37	250	50	-	-							→		
40			2,00						39.00	39.13	39.07	SPT-38	115	50	-	-									
41	-38.72	40,10				END OF BH				40.00	40.10	40.05	SPT-39	150	50	-	-							→	
42																									
43																									
44																									
45																									
46																									
47																									
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60																									
61																									



Fig.		Drilling Log						Hole Number: <b>BHVIY-08</b>																				
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>1</u>																								
Supervisor: <u>Lam</u>		Coordinate: <u>N:205117.08 E:1064504.41</u>		Elevation: <u>MSL+1.23</u> m																								
Driller: <u>Thanh</u>		Date Started: <u>20150704</u>		Water Table: GL <u>-0.49</u> m																								
Type of Drilling Rig: <u>Rotary: Rig No 6</u>		Date Terminated: <u>20150706</u>		Remarks:																								
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test																
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value											
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100						
1	1.23	0.00	1.30		Silty CLAY	Brownish Grey	Very Soft	with slightly micafragment.	1.15	1.45	1.30	SPT-1	1	0	0	1												
2	-0.07	1.30			Sandy SILT	Brownish Grey	Very Soft	Sand is mainly fine grained. With clayey sand from 3.00m to 3.50m.	2.15	2.45	2.30	SPT-2	1	0	0	1												
3																												
4			4.30										3.00	3.50	3.25	HP-1	REC: 50 / 90cm											
5													4.15	4.45	4.30	SPT-3	2	0	1	1								
6	-4.37	5.60											5.15	5.45	5.30	SPT-4	1	0	0	1								
7					Silty CLAY	Brownish Grey to Bluish Grey	Very Soft	with slightly shell fragments and trace of mica fragments and organic matter.	6.15	6.45	6.30	SPT-5	0	0	0	0												
8			3.70										7.15	7.45	7.30	SPT-6	1	0	0	1								
9													8.00	8.60	8.30	SPT-7	0	0	0	0								
10	-8.07	9.30			CLAY	Yellowish Grey mottled with bluish grey	Stiff	with slightly mica fragments.	9.00	9.70	9.35	HP-2	REC: 70 / 90cm															
11													10.15	10.45	10.30	SPT-8	7	1	3	4								
12			4.40										11.15	11.45	11.30	SPT-9	8	3	3	5								
13													12.15	12.45	12.30	SPT-10	11	3	5	6								
14	-12.47	13.70											13.15	13.45	13.30	SPT-11	9	3	4	5								
15					SILT	Brownish Grey to Bluish Grey	Medium Stiff	with slightly mica fragments and trace of shell fragment	14.15	14.45	14.30	SPT-12	7	3	3	4												
16													15.15	15.45	15.30	SPT-13	5	2	2	3								
17													16.15	16.45	16.30	SPT-14	5	2	2	3								
18													17.15	17.45	17.30	SPT-15	5	2	2	3								
19													18.15	18.45	18.30	SPT-16	5	2	2	3								
20													19.15	19.45	19.30	SPT-17	5	2	2	3								
21													20.15	20.45	20.30	SPT-18	5	2	2	3								
22			16.40										21.15	21.45	21.30	SPT-19	5	2	2	3								
23													22.15	22.45	22.30	SPT-20	5	2	2	3								
24													23.15	23.45	23.30	SPT-21	5	2	2	3								
25													24.15	24.45	24.30	SPT-22	6	2	3	3								
26													25.15	25.45	25.30	SPT-23	5	2	2	3								
27													26.15	26.45	26.30	SPT-24	5	2	2	3								
28									27.15	27.45	27.30	SPT-25	5	3	2	3												
29									28.15	28.45	28.30	SPT-26	5	1	2	3												
30	-28.87	30.10							29.15	29.45	29.30	SPT-27	6	2	3	3												
31	-29.77	31.00	2.60		CLAY	Light Grey mottled with bluish grey	Stiff to Very Stiff	with trace of mica fragments.	30.15	30.45	30.30	SPT-28	12	3	5	7												

Fig.		Drilling Log					Hole Number: <b>BH-VY-08</b>												
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>2</u>															
Supervisor: <u>Lam</u>		Coordinate: <u>N:205117.08 E:1064504.41</u>		Elevation: <u>MSL+1.23</u> m															
Driller: <u>Thanh</u>		Date Started: <u>20150704</u>		Water Table: GL <u>-0.49</u> m															
Type of Drilling Rig: <u>Rotary: Rig No 6</u>		Date Terminated: <u>20150706</u>		Remarks:															
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test							
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm					
									From	To	C'ter			1st	2nd	3rd			
									N-value										
									0 20 40 60 80 100										
31	-26.77 -28.97	30.00 30.10			Silty CLAY		Medium Stiff	with trace of mica fragments.	30.15	30.45	30.30	SPT-28	12	3	5	7	●		
32			2.60		CLAY	Light Grey mottled with bluish grey	Stiff to Very Stiff	with trace of mica fragments.	31.15	31.45	31.30	SPT-29	18	5	8	10	●		
33	-31.47	32.70							32.15	32.45	32.30	SPT-30	17	6	8	9	●		
34			2.38		Silty SAND	Light Grey	Medium Dense	Mainly fine grained sand. With trace of mica fragments.	33.15	33.45	33.30	SPT-31	10	3	5	5	●		
35	-33.85	35.08							34.15	34.45	34.30	SPT-32	11	3	4	7	●		
36									35.15	35.45	35.30	SPT-33	36	11	14	22	●		
37			2.72		SAND	Light Grey	Dense	Mainly fine grained sand.	36.15	36.45	36.30	SPT-34	42	12	17	25	●		
38	-36.57	37.80							37.15	37.45	37.30	SPT-35	33	11	16	17	●		
39									38.15	38.30	38.23	SPT-36	100	21	50	-	●		
40			3.26		SILTSTONE	Reddish Brown	Medium Strong	Weathered	39.15	39.27	39.21	SPT-37	150	19	60	-	→		
41	-39.83	41.06							40.15	40.25	40.20	SPT-38	150	29	50	-	→		
42					END OF BH				41.00	41.06	41.03	SPT-39	420	70	-	-	→		
43																			
44																			
45																			
46																			
47																			
48																			
49																			
50																			
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57																			
58																			
59																			
60																			
61																			

Fig.		Drilling Log						Hole Number: <b>BHVIY-09</b>																				
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>1</u>																								
Supervisor: <u>Lam</u>		Coordinate: <u>N:205123.70 E:1064505.18</u>		Elevation: <u>MSL+0.93</u> m																								
Driller: <u>Thanh</u>		Date Started: <u>20150630</u>		Water Table: GL <u>-1.78</u> m																								
Type of Drilling Rig: <u>Rotary: Rig No 6</u>		Date Terminated: <u>20150702</u>		Remarks:																								
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test																
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value											
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100						
1	0.93	0.00			Silty CLAY	Brownish Grey	Very Soft	With slightly mica fragments and organic matter.	1.15	1.45	1.30	SPT-1	0	0	0	0												
2	-0.97	1.90			SILT	Brownish Grey	Very Soft	With slightly mica fragments and trace of organic matter and sea shell fragments.	2.15	2.45	2.30	SPT-2	2	0	1	1												
3																												
4																												
5																												
6	-5.07	6.00											5.00	5.88	5.44	HP-1	REC: 88 / 90cm											
7					Silty CLAY	Bluish Grey	Very Soft	With trace of mica fragments and organic matter.	6.15	6.45	6.30	SPT-5	1	0	0	1												
8																												
9	-7.87	8.80											7.15	7.45	7.30	SPT-6	1	0	0	1								
10					CLAY	Yellowish Grey	Medium Stiff to Stiff	With trace of mica fragments.	8.00	8.60	8.30	SPT-7	1	0	0	1												
11													9.15	9.45	9.30	SPT-8	5	1	2	3								
12	-11.07	12.00											10.15	10.45	10.30	SPT-9	6	2	2	4								
13													11.15	11.45	11.30	SPT-10	11	4	5	6								
14													9.45	9.75	9.60	SPT-11	6	2	3	3								
15					SILT	Brownish Grey to Bluish Grey	Medium Stiff	With slightly mica fragments and trace of shell fragments and organic matter	12.15	12.45	12.30	SPT-12	5	2	2	3												
16													13.15	13.45	13.30	SPT-13	5	1	2	3								
17													14.15	14.45	14.30	SPT-14	5	1	2	3								
18													15.15	15.45	15.30	SPT-15	5	2	2	3								
19													16.15	16.45	16.30	SPT-16	5	2	2	3								
20													17.15	17.45	17.30	SPT-17	5	2	2	3								
21													18.15	18.45	18.30	SPT-18	6	2	2	4								
22					CLAY	Light Grey mottled with yellowish grey	Stiff to Very Stiff	With trace of mica fragments, sea shell fragments and organic matter.	19.15	19.45	19.30	SPT-19	5	2	2	3												
23													20.15	20.45	20.30	SPT-20	7	2	2	5								
24													21.15	21.45	21.30	SPT-21	13	4	5	8								
25													22.15	22.45	22.30	SPT-22	15	6	7	8								
26	-24.87	25.80											23.15	23.45	23.30	SPT-23	18	8	9	9								
27					Silty CLAY	Light Grey	Stiff	With trace of mica fragments.	24.15	24.45	24.30	SPT-24	20	6	9	11												
28													25.15	25.45	25.30	SPT-25	10	4	5	5								
29													26.15	26.45	26.30	SPT-26	7	3	3	4								
30													27.15	27.45	27.30	SPT-27	8	3	4	4								
31	-30.07	31.00											28.15	28.45	28.30	SPT-28	7	3	3	4								
									29.15	29.45	29.30	SPT-29	7	3	3	4												
									30.15	30.45	30.30	SPT-29	7	3	3	4												

Fig.		Drilling Log				Hole Number: <b>BHVV-09</b>																				
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>2</u>																						
Supervisor: <u>Lam</u>		Coordinate: <u>N:205123.70 E:1064505.18</u>		Elevation: <u>MSL+0.93</u> m																						
Driller: <u>Thanh</u>		Date Started: <u>20150630</u>		Water Table: GL <u>-1.78</u> m																						
Type of Drilling Rig: <u>Rotary: Rig No 6</u>		Date Terminated: <u>20150702</u>		Remarks:																						
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test														
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value									
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100				
31	-29.07	30.00			Silty CLAY	Light Grey	Stiff	With trace of mica fragments.	30.15	30.45	30.30	SPT-29	7	3	3	4	●									
32			8.40						31.15	31.45	31.30	SPT-30	8	3	3	5	●									
33									32.15	32.45	32.30	SPT-31	9	3	4	5	●									
34	-33.27	34.20							33.15	33.45	33.30	SPT-32	10	3	5	5	●									
35	-34.07	35.00	0.80		Silty SAND	Light Grey	Medium Dense	Mainly fine grained sand. With trace of mica fragments.	34.15	34.45	34.30	SPT-33	30	4	11	19	●									
36			2.00		SILT	Light Grey	Very Stiff to Hard	With slightly mica fragments and trace of fine grained sand.	35.15	35.45	35.30	SPT-34	20	6	8	12	●									
37	-36.07	37.00							36.15	36.45	36.30	SPT-35	39	9	15	24	●									
38					SILTSTONE	Reddish Brown, Bluish Grey	Medium Strong	Weathered.	37.25	37.55	37.40	SPT-36	70	20	24	46	●									
39			3.29						38.25	38.34	38.30	SPT-37	217	32	65	-	→									
40									39.15	39.21	39.18	SPT-38	250	40	50	-	→									
41	-39.36	40.29			END OF BH				40.15	40.29	40.22	SPT-39	129	29	60	-	→									
42																										
43																										
44																										
45																										
46																										
47																										
48																										
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60																										
61																										

Fig.		Drilling Log						Hole Number: <b>BHVIY-10</b>																				
Project No. <b>OS14-0022</b>		Project Name: <b>Hai Phong Arterial Road Construction</b>		Sheet: <b>1</b>																								
Supervisor: <b>Lam</b>		Coordinate: <b>N:205129.87 E:1064503.57</b>		Elevation: <b>MSL+1.01 m</b>																								
Driller: <b>Thanh</b>		Date Started: <b>20150620</b>		Water Table: GL <b>-1.80 m</b>																								
Type of Drilling Rig: <b>Rotary: Rig No 6</b>		Date Terminated: <b>20150623</b>		Remarks:																								
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test																
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value											
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100						
1	1.01	0.00	1.30		Silty CLAY	Grey	Very Soft	With slightly mica fragments and trace of organic matter.	1.15	1.45	1.30	SPT-1	1	0	0	1	●											
2	-0.29	1.30			Sandy SILT	Grey	Very Soft	With slightly mica and trace of sea shell fragments.	2.15	2.45	2.30	SPT-2	1	0	0	1	●											
3			3.50																									
4																												
5	-3.79	4.80																										
6																												
7					SILT	Bluish Grey	Very Soft	with slightly mica and trace of sea shell fragments	6.00	6.88	6.44	HP-1	REC: 88 / 90cm															
8			5.90																									
9																												
10																												
11	-6.69	10.70																										
12			2.80		CLAY	Yellowish Grey mottled with light grey	Medium Stiff	With trace of mica fragments.	11.15	11.45	11.30	SPT-10	13	5	6	7	●											
13																												
14	-12.49	13.50																										
15					SILT	Brownish Grey to Bluish Grey	Medium Stiff to Very Stiff	With trace of mica fragments and occasionally with tarace of sea shell fragments and organic matter	14.15	14.45	14.30	SPT-13	7	3	3	4	●											
16																												
17																												
18																												
19																												
20																												
21																												
22																												
23																												
24																												
25																												
26																												
27	-25.29	26.30			Sandy CLAY	Bluish Grey mottled with yellowish grey	Stiff to Very Stiff	With trace of mica fragments and organic matter and laminated silty sand.	26.15	26.45	26.30	SPT-24	12	3	4	8	●											
28			3.40																									
29																												
30	-28.69	29.70			SAND	Light Grey	Dense to Very Dense	Fine to medium grained sand. With trace of mica fragments.	28.15	28.45	28.30	SPT-26	20	5	3	17	●											
31	-29.99	31.00	6.30																									
									30.15	30.45	30.30	SPT-28	42	10	19	23	●											



Fig.		Drilling Log					Hole Number: <b>BH-VY-10</b>															
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>2</u>																		
Supervisor: <u>Lam</u>		Coordinate: <u>N:205129.87 E:1064503.57</u>		Elevation: <u>MSL+1.01</u> m																		
Driller: <u>Thanh</u>		Date Started: <u>20150620</u>		Water Table: GL <u>-1.80</u> m																		
Type of Drilling Rig: <u>Rotary: Rig No 6</u>		Date Terminated: <u>20150623</u>		Remarks:																		
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test										
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm								
									From	To	C'ter			1st	2nd	3rd						
31	-28.99	30.00	6.30	[Sand Pattern]	SAND	Light Grey	Dense to Very Dense	Fine to medium grained sand. With trace of mica fragments.	30.15	30.45	30.30	SPT-28	42	10	19	23						
32																						
33																						
34																						
35																						
36	-34.99	36.00																				
37			3.06	[Siltstone Pattern]	SILTSTONE	Reddish Brown	Medium Strong	Weathered	36.00	36.10	36.05	SPT-34	300	70	-	-						
38																						
39	-38.05	39.06																				
40					END OF BH				39.00	39.06	39.03	SPT-37	350	70	-	-						
41																						
42																						
43																						
44																						
45																						
46																						
47																						
48																						
49																						
50																						
51																						
52																						
53																						
54																						
55																						
56																						
57																						
58																						
59																						
60																						
61																						

Fig.		Drilling Log				Hole Number: <b>BHVV-11</b>																									
Project No. <b>OS14-0022</b>		Project Name: <b>Hai Phong Arterial Road Construction</b>		Sheet: <b>1</b>																											
Supervisor: <b>Lam</b>		Coordinate: <b>N:205135.90 E:1064501.20</b>		Elevation: <b>MSL+0.47</b> m																											
Driller: <b>Thanh</b>		Date Started: <b>20150618</b>		Water Table: <b>GL -2.70</b> m																											
Type of Drilling Rig: <b>Rotary: Rig No 6</b>		Date Terminated: <b>20150620</b>		Remarks:																											
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test																			
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value														
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100									
1	0.47	0.00			SILT	Brownish Grey	Very Soft	With slightly mica fragments and sea shell fragments and laminated silty sand.	1.15	1.45	1.30	SPT-1	0	0	0	0	●														
2																															
3																															
4																															
5			9.00																												
6																															
7																															
8																															
9	-8.53	9.00																													
10					CLAY	Brownish Grey	Very Soft	With slightly mica fragments	9.15	9.45	9.30	SPT-8	2	0	1	1	●														
11	-10.73	11.20	2.20																												
12	-11.43	11.90	0.70		CLAY	Yellowish Grey	Medium Stiff	With trace of mica fragments.	11.15	11.45	11.30	SPT-9	6	0	2	4	●														
13					Silty CLAY	Bluish Grey	Soft to Medium Stiff	With slightly mica fragments and trace of sea shell fragments.	12.15	12.45	12.30	SPT-10	3	1	1	2	●														
14																															
15																															
16																															
17																															
18																															
19																															
20																															
21																															
22																															
23																															
24	-23.03	23.50																													
25					Silty CLAY	Light Grey	Medium Stiff	With trace of mica fragments and sea shell fragments.	24.15	24.45	24.30	SPT-22	5	2	2	3	●														
26																															
27			6.50																												
28																															
29																															
30	-29.53	30.00																													
31	-30.53	31.00	1.80						CLAY	Yellowish Grey to Bluish Grey	Very Stiff to Hard	With slightly mica fragments.	30.15	30.45	30.30	SPT-28	20	5	9	11	●										

Fig.		Drilling Log					Hole Number: <b>BH-VY-11</b>													
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>2</u>																
Supervisor: <u>Lam</u>		Coordinate: <u>N:205135.90 E:1064501.20</u>		Elevation: <u>MSL+0.47</u> m																
Driller: <u>Thanh</u>		Date Started: <u>20150618</u>		Water Table: GL <u>-2.70</u> m																
Type of Drilling Rig: <u>Rotary: Rig No 6</u>		Date Terminated: <u>20150620</u>		Remarks:																
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test								
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value			
									From	To	C'ter			1st	2nd	3rd	0	20	40	60
31	-29.53	30,00	1,80		CLAY	Yellowish Grey to Bluish Grey	Very Stiff to Hard	With slightly mica fragments.	30.15	30.45	30.30	SPT-28	20	5	9	11				
32	-31.33	31,80	1,30		Silty SAND	Light Grey	Medium Dense to Dense	Many fine grained sand. With trace of mica fragments.	31.15	31.45	31.30	SPT-29	46	20	22	24				
33	-32.63	33,10	1,30		CLAY	Brownish Grey	Medium Stiff to Stiff	With slightly mica fragments and some organic matter.	32.15	32.45	32.30	SPT-30	47	14	19	28				
34			3,20		CLAY	Brownish Grey	Medium Stiff to Stiff	With slightly mica fragments and some organic matter.	33.15	33.45	33.30	SPT-31	12	8	7	5				
35			3,20		CLAY	Brownish Grey	Medium Stiff to Stiff	With slightly mica fragments and some organic matter.	34.15	34.45	34.30	SPT-32	11	5	5	6				
36			3,20		CLAY	Brownish Grey	Medium Stiff to Stiff	With slightly mica fragments and some organic matter.	35.15	35.45	35.30	SPT-33	19	6	9	10				
37	-25.83	36,30	3,19		SILTSTONE	Bluish Grey, Reddish Brown	Medium Strong	Weathered	36.15	36.44	36.30	SPT-34	89	10	19	65				
38			3,19		SILTSTONE	Bluish Grey, Reddish Brown	Medium Strong	Weathered	37.15	37.45	37.30	SPT-35	82	22	32	50				
39			3,19		SILTSTONE	Bluish Grey, Reddish Brown	Medium Strong	Weathered	38.15	38.27	38.21	SPT-36	163	23	65	-				
40	-39,02	39,49			END OF BH				39.15	39.29	39.22	SPT-37	139	25	65	-				
41																				
42																				
43																				
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Fig.		Drilling Log					Hole Number: <b>BHVI-12</b>																					
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>1</u>																								
Supervisor: <u>Lam</u>		Coordinate: <u>N:205144.41 E:1064457.66</u>		Elevation: <u>MSL+0.53</u> m																								
Driller: <u>Thanh</u>		Date Started: <u>20150615</u>		Water Table: GL <u>-1.13</u> m																								
Type of Drilling Rig: <u>Rotary: Rig No 6</u>		Date Terminated: <u>20150617</u>		Remarks:																								
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test																
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value											
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100						
1	0.53	0.00			Silty CLAY	Dark Grey	Very Soft	With slightly mica fragments and sea shell fragments.	1.15	1.45	1.30	SPT-1	0	0	0	0	●											
2				2.15					2.45	2.30	SPT-2	0	0	0	0	●												
3			5.70						3.00	3.85	3.43	HP-1	REC: 85 / 90cm			●												
4									4.15	4.45	4.30	SPT-3	0	0	0	0	●											
5									5.15	5.45	5.30	SPT-4	0	0	0	0	●											
6	-5.17	5.70							Clayey SILT	Dark Grey	Very Soft	With trace of mica fragments and sea shell fragments. Occasionally with laminated silty sand.	6.15	6.45	6.30	SPT-5	2	0	1	1	●							
7			2.30		7.15	7.45	7.30	SPT-6					0	0	0	0	●											
8	-7.47	8.00			Clayey SAND	Grey	Very Loose	Mainly fine grained sand.					8.00	8.60	8.30	HP-2	REC: 60 / 90cm			●								
9	-8.57	9.10	1.10						9.15	9.45	9.30	SPT-7	4	1	2	2	●											
10									SILT	Brownish Grey to Bluish Grey	Soft to Medium Stiff	With trace of mica fragments and organic matter.	10.15	10.45	10.30	SPT-8	4	1	2	2	●							
11					11.15	11.45	11.30	SPT-9					3	0	1	2	●											
12					12.00	12.88	12.44	HP-3					REC: 88 / 90cm			●												
13					13.15	13.45	13.30	SPT-10					4	1	2	2	●											
14			9.40		14.15	14.45	14.30	SPT-11					4	2	2	2	●											
15					15.15	15.45	15.30	SPT-12					5	2	2	3	●											
16					16.15	16.45	16.30	SPT-13					5	1	2	3	●											
17					17.15	17.45	17.30	SPT-14					5	1	2	3	●											
18					18.15	18.45	18.30	SPT-15					5	2	2	3	●											
19	-17.97	18.50			CLAY	Bluish Grey	Medium Stiff to Stiff	With trace of mica fragments and organic matter and laminated silty sand.					19.15	19.45	19.30	SPT-16	12	5	6	6	●							
20									20.15	20.45	20.30	SPT-17	10	4	5	5	●											
21									21.15	21.45	21.30	SPT-18	9	3	4	5	●											
22									22.15	22.45	22.30	SPT-19	8	3	4	4	●											
23			8.30						23.15	23.45	23.30	SPT-20	7	3	3	4	●											
24									24.15	24.45	24.30	SPT-21	8	3	4	4	●											
25									25.15	25.45	25.30	SPT-22	8	4	4	4	●											
26									26.15	26.45	26.30	SPT-23	9	4	4	5	●											
27	-26.27	26.80			SAND	Light Grey	Dense	Mainly fine grained sand. With trace of mica fragments and organic matter.	27.15	27.45	27.30	SPT-24	41	11	18	23	●											
28			2.00						28.15	28.45	28.30	SPT-25	39	12	17	22	●											
29	-28.27	28.80							Sandy SILT	Dark Grey	Stiff	With trace of mica fragments. Sand is mainly fine grained.	29.15	29.45	29.30	SPT-26	10	4	5	5	●							
30			5.00		30.15	30.45	30.30	SPT-27					10	5	5	5	●											
31	-30.47	31.00																										

Fig.		Drilling Log				Hole Number:		BH-VY-12																			
Project No. OS14-0022		Project Name: Hai Phong Arterial Road Construction		Sheet: 2		Supervisor: Lam		Elevation: MSL+0.53 m																			
Driller: Thanh		Coordinate: N:205144.41 E:1064457.66		Date Started: 20150615		Water Table: GL: -1.13 m		Remarks:																			
Type of Drilling Rig: Rotary: Rig No 6		Date Terminated: 20150617																									
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test															
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value										
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100					
31	-29.47	30.00			Sandy SILT	Dark Grey	Stiff	With trace of mica fragments. Sand is mainly fine grained.	30.15	30.45	30.30	SPT-27	10	5	5	5	●										
32			5.00						31.15	31.45	31.30	SPT-28	9	4	4	5	●										
33									32.15	32.45	32.30	SPT-29	10	4	5	5	●										
34	-33.27	33.80							33.15	33.45	33.30	SPT-30	12	4	6	6	●										
35					Silty SAND	Light Grey	Mideum Dense to Very Dense	Mainly fine grained sand. With trace of mica fragments and gravel.	34.15	34.45	34.30	SPT-31	45	12	21	24		●									
36			4.10						35.15	35.45	35.30	SPT-32	49	14	20	29				●							
37									36.15	36.44	36.30	SPT-33	61	15	21	18				●							
38	-37.37	37.90							37.15	37.45	37.30	SPT-34	38	12	18	20				●							
39					SILTSTONE	Reddish Brown	Medium Strong	Weathered	38.00	38.10	38.05	SPT-35	210	70	-	-								→			
40			3.19						39.00	39.12	39.06	SPT-36	188	75	-	-										→	
41	-40.56	41.09							40.00	40.12	40.06	SPT-37	175	70	-	-											→
42					END OF BH				41.00	41.09	41.05	SPT-38	233	70	-	-								→			
43																											
44																											
45																											
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Fig.		Drilling Log				Hole Number: <b>BHVIY-13</b>																				
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>1</u>																						
Supervisor: <u>Lam</u>		Coordinate: <u>N:205211.65 E:1064446.54</u>		Elevation: <u>MSL+1.88</u> m																						
Driller: <u>Thanh</u>		Date Started: <u>20150606</u>		Water Table: GL <u>-1.60</u> m																						
Type of Drilling Rig: <u>Rotary: Rig No 6</u>		Date Terminated: <u>20150611</u>		Remarks:																						
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test														
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value									
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100				
1	1.88	0.00			CLAY	Blackish Grey	Very Soft	With slightly mica fragments and roots. Laminated silty sand from 5.00m.	1.15	1.45	1.30	SPT-1	0	0	0	0	●									
2				2.15					2.45	2.30	SPT-2	0	0	0	0	●										
3		5.70		3.15					3.45	3.30	SPT-3	0	0	0	0	●										
4				4.00					4.88	4.44	HP-1	REC: 88 / 90cm			●											
5				5.15					5.45	5.30	SPT-4	0	0	0	0	●										
6	-3.82	5.70			Clayey SILT	Brownish Grey	Very Soft to Soft	With slightly mica fragments and sea shell fragments and trace of fine grained sand.	6.15	6.45	6.30	SPT-5	2	0	1	1	●									
7		2.50		7.15					7.45	7.30	SPT-6	0	0	0	0	●										
8	-6.32	8.20			Silty CLAY	Brownish Grey	Medium Stiff	With slightly mica fragments and cementation.	8.00	8.60	8.30	SPT-7	6	1	2	4	●									
9	-7.32	9.20	1.00	9.15					9.45	9.30	SPT-8	4	1	2	2	●										
10					SILT	Blackish Grey mottled with brownish grey	Soft	With trace of mica fragments and sea shell fragments.	10.15	10.45	10.30	SPT-9	3	1	1	2	●									
11		3.80		11.15					11.45	11.30	SPT-10	3	1	1	2	●										
12				12.00					12.68	12.34	HP-2	REC: 68 / 90cm			●											
13	-11.12	13.00		13.15					13.45	13.30	SPT-11	4	2	2	2	●										
14				14.15					14.45	14.30	SPT-12	4	2	2	2	●										
15				15.15	15.45	15.30	SPT-13	4	2	2	2	●														
16		6.00		16.15	16.45	16.30	SPT-14	4	1	2	2	●														
17				17.15	17.45	17.30	SPT-15	4	2	2	2	●														
18				18.15	18.45	18.30	SPT-16	5	2	2	3	●														
19	-17.12	19.00		19.15	19.45	19.30	SPT-17	15	5	7	8	●														
20				20.15	20.45	20.30	SPT-18	9	4	4	5	●														
21		2.80		21.15	21.45	21.30	SPT-19	7	3	3	4	●														
22	-19.82	21.80		22.15	22.45	22.30	SPT-20	7	3	3	4	●														
23	-21.22	23.10		23.15	23.45	23.30	SPT-21	27	7	11	16	●														
24	-22.02	23.90	0.80	24.15	24.45	24.30	SPT-22	9	5	4	5	●														
25				25.15	25.45	25.30	SPT-23	32	9	15	17	●														
26		2.80		26.15	26.45	26.30	SPT-24	22	8	11	11	●														
27	-24.82	26.70		27.15	27.45	27.30	SPT-25	9	4	4	5	●														
28	-26.22	28.10	1.40	28.15	28.45	28.30	SPT-26	42	9	20	22	●														
29				29.15	29.45	29.30	SPT-27	47	10	19	28	●														
30		3.60		30.15	30.45	30.30	SPT-28	54	10	24	30	●														
31	-29.12	31.00																								

Fig.		Drilling Log					Hole Number: <b>BH-VY-13</b>											
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>			Sheet: <u>2</u>													
Supervisor: <u>Lam</u>		Coordinate: <u>N:205211.65 E:1064446.54</u>		Elevation: <u>MSL+1.88</u> m														
Driller: <u>Thanh</u>		Date Started: <u>20150606</u>		Water Table: GL <u>-1.60</u> m														
Type of Drilling Rig: <u>Rotary: Rig No 6</u>		Date Terminated: <u>20150611</u>		Remarks:														
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test						
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm				
									From	To	C'ter			1st	2nd	3rd		
									N-value									
									0 20 40 60 80 100									
31	-28.12	30.00	3.60		Silty SAND	Light Grey	Dense to Very Dense	Mainly fine grained sand. With trace of organic matter.	30.15	30.45	30.30	SPT-28	54	10	24	30		
32	-29.82	31.70							31.15	31.45	31.30	SPT-29	45	13	23	22		
33			3.75		Silty CLAY	Brownish Grey mottled with light grey	Stiff	With slightly mica fragments and trace of organic matter and laminated silty sand.	32.15	32.45	32.30	SPT-30	8	4	4	4		
34									33.15	33.45	33.30	SPT-31	9	4	4	5		
35									34.15	34.45	34.30	SPT-32	10	4	4	6		
36	-33.57	35.45								35.15	35.45	35.30	SPT-33	9	3	4		5
37			3.05		SAND	Light Grey	Very Dense	Fine to medium grained sand. With trace of mica fragments and gravel.	35.45	35.90	35.68	SPT-34	63	15	30	33		
38									36.15	36.45	36.30	SPT-35	57	18	28	29		
39	-36.62	38.50								37.15	37.45	37.30	SPT-36	55	11	28		27
40			3.41		SILTSTONE	Reddish Brown, Bluish Grey	Medium Strong	Weathered	38.15	38.45	38.15	SPT-37	51	12	21	30		
41									38.70	38.90	38.80	SPT-38	193	24	43	50		
42	-40.03	41.91								39.75	39.85	39.80	SPT-39	195	25	65		-
									40.60	40.75	40.68	SPT-40	140	70	-	-		
43				41.85	41.91	41.88	SPT-41	250	44	50	-							
44							END OF BH											
45																		
46																		
47																		
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50																		
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58																		
59																		
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61																		

Fig.		Drilling Log				Hole Number: <span style="font-size: 1.2em;">BHVIY-14</span>															
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>1</u>																	
Supervisor: <u>Lam</u>		Coordinate: <u>N:205238.00 E:1064435.91</u>		Elevation: <u>MSL+0.33</u> m																	
Driller: <u>Thanh</u>		Date Started: <u>20150602</u>		Water Table: GL <u>-3.20</u> m																	
Type of Drilling Rig: <u>Rotary: Rig No 6</u>		Date Terminated: <u>20150604</u>		Remarks: _____																	
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test									
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value				
														0	20	40	60	80	100		
			From	To	C'ter				1st	2nd	3rd										
1	0.33	0.00			Silty CLAY	Dark Grey	Very Soft	With slightly mica fragments and fine grained sand. With silty sand from 5.00m.	1.15	1.45	1.30	SPT-1	0	0	0	0					
2									2.15	2.45	2.30	SPT-2	0	0	0	0					
3			6.20						3.15	3.45	3.30	SPT-3	0	0	0	0					
4									4.15	4.45	4.30	SPT-4	0	0	0	0					
5									5.00	5.80	5.40	HP-1	REC: 80 / 90cm								
6	-5.87	6.20			CLAY	Light Grey to Yellowish Grey	Medium Stiff to Stiff	With slightly mica fragments, fine grained sand and organic matter.	6.15	6.45	6.30	SPT-5	7	1	3	4					
7			2.40						7.15	7.45	7.30	SPT-6	10	3	5	5					
8									8.15	8.45	8.30	SPT-7	6	2	3	3					
9	-8.27	8.60							9.15	9.45	9.30	SPT-8	4	2	2	2					
10					SILT	Brownish Grey to Bluish Grey	Soft	With trace of mica fragments, organic matter and sea shell fragments.	10.15	10.45	10.30	SPT-9	2	1	1	1					
11									11.00	11.88	11.44	HP-2	REC: 88 / 90cm								
12									12.15	12.45	12.30	SPT-10	2	1	1	1					
13									13.15	13.45	13.30	SPT-11	2	1	1	1					
14									14.15	14.45	14.30	SPT-12	2	1	1	1					
15			13.00						15.15	15.45	15.30	SPT-13	2	1	1	1					
16									16.15	16.45	16.30	SPT-14	2	1	1	1					
17									17.15	17.45	17.30	SPT-15	3	1	1	2					
18									18.15	18.45	18.30	SPT-16	3	0	1	2					
19									19.15	19.45	19.30	SPT-17	3	1	1	2					
20					20.15	20.45	20.30	SPT-18	3	1	1	2									
21					21.15	21.45	21.30	SPT-19	3	1	1	2									
22	-11.27	21.60			CLAY	Light Grey mottled with yellowish grey	Medium Stiff to Stiff	With trace of mica fragments and organic matter.	22.15	22.45	22.30	SPT-20	5	2	3	2					
23									23.15	23.45	23.30	SPT-21	4	2	2	2					
24									24.15	24.45	24.30	SPT-22	5	2	2	3					
25			6.30						25.15	25.45	25.30	SPT-23	4	1	2	2					
26									26.15	26.45	26.30	SPT-24	4	2	2	2					
27									27.15	27.45	27.30	SPT-25	10	2	5	5					
28	-27.57	27.90							SAND	Yellowish Grey to Light Grey	Dense to Very Dense	Fine to medium grained sand and occasionally coarse sand. With some gravel.	28.15	28.45	28.30	SPT-26	37	10	16	21	
29					29.15	29.45	29.30	SPT-27					44	12	17	27					
30			8.10		30.15	30.45	30.30	SPT-28					55	17	26	29					
31	-30.67	31.00																			



Fig.										Drilling Log					Hole Number: BHVY-14							
Project No. OS14-0022			Project Name: Hai Phong Arterial Road Construction			Sheet: 2			Supervisor: Lam			Coordinate: N:205238.00 E:1064435.91			Elevation: MSL+0.33 m							
Driller: Thanh			Date Started: 20150602			Water Table: GL -3.20 m			Type of Drilling Rig: Rotary: Rig No 6			Date Terminated: 20150604			Remarks:							
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test										
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value					
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100
31	-30,67	31,00	8,20		SAND	Yellowish Grey to Light Grey	Dense to Very Dense	Fine to medium grained sand and occasionally coarse sand. With some gravel.	30.15	30.45	30.30	SPT-28	55	17	26	29						
32																						
33																						
34																						
35																						
36	-35,87	36,20																				
37			2,87		SILTSTONE	Reddish Brown	Medium Strong	Weathered.	36.15	36.45	36.30	SPT-34	68	15	22	46						
38																						
39	-38,74	39,07																				
40					END OF BH				39.00	39.07	39.04	SPT-37	300	70	-	-						
41																						
42																						
43																						
44																						
45																						
46																						
47																						
48																						
49																						
50																						
51																						
52																						
53																						
54																						
55																						
56																						
57																						
58																						
59																						
60																						
61																						

Fig.		Drilling Log				Hole Number: <b>BHVIY-15</b>																				
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>1</u>																						
Supervisor: <u>Lam</u>		Coordinate: <u>N:205238.00 E:1064435.91</u>		Elevation: <u>MSL-0.55</u> m																						
Driller: <u>Thanh</u>		Date Started: <u>20150528</u>		Water Table: GL <u>-0.35</u> m																						
Type of Drilling Rig: <u>Rotary: Rig No 6</u>		Date Terminated: <u>20150531</u>		Remarks:																						
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test														
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value									
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100				
1	-0.55	0.00			Silty CLAY	Brownish Grey	Very Soft to Soft	With trace of mica fragments and a lot of fine grained sand.	1.15	1.45	1.30	SPT-1	0	0	0	0	●									
2															SPT-2	1	0	0	1	●						
3																SPT-3	1	0	0	1	●					
4			8.00													HP-1	REC: 88 / 90cm									
5																SPT-4	0	0	0	0	●					
6																SPT-5	0	0	0	0	●					
7																SPT-6	0	0	0	0	●					
8	-8.55	8.00														SPT-7	2	0	1	1	●					
9					SILT	Grey	Very Soft to Soft	With trace of mica fragments and a lot of fine grained sand.	8.15	8.45	8.30	SPT-7	2	0	1	1	●									
10																SPT-8	2	1	1	1	●					
11																HP-2	REC: 88 / 90cm									
12																SPT-9	2	0	1	1	●					
13			9.00													SPT-10	2	1	1	1	●					
14																SPT-11	2	1	1	1	●					
15																SPT-12	3	1	1	2	●					
16																SPT-13	3	1	1	2	●					
17	-17.55	17.00										SPT-14	3	1	2	1	●									
18					CLAY	Bluish Grey	Soft	With trace of mica fragments and sea shell fragments.	17.15	17.45	17.30	SPT-15	4	2	2	2	●									
19			3.00												SPT-16	4	2	2	2	●						
20	-20.55	20.00														SPT-17	4	2	2	2	●					
21	-21.55	21.00	1.00		SILT	Reddish Brown	Hard	With trace of mica fragments.	20.15	20.45	20.30	SPT-18	59	12	30	29					●					
22					Silty SAND	Yellowish Grey	Medium Dense	Mainly fine grained sand. With trace of mica fragments and sea shell fragments.	21.15	21.45	21.30	SPT-19	19	5	8	11						●				
23	-23.25	22.70	1.70													SPT-20	20	7	9	11					●	
24					Silty SAND	Yellowish Grey to Light Grey	Dense	Mainly fine grained sand. With gravel and occasionally with clay and sandy silt.	23.15	23.45	23.30	SPT-21	22	6	10	12							●			
25																SPT-22	26	6	11	15					●	
26																SPT-23	28	5	12	16					●	
27			15.30													SPT-24	29	7	12	17					●	
28																SPT-25	37	11	19	18					●	
29																SPT-26	28	10	13	15					●	
30																SPT-27	32	8	13	19					●	
31	-31.55	31.00														SPT-28	69	19	34	35					●	

Fig.		Drilling Log					Hole Number: <b>BHVV-15</b>										
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>2</u>													
Supervisor: <u>Lam</u>		Coordinate: <u>N:205238.00 E:1064435.91</u>		Elevation: <u>MSL-0.55</u> m													
Driller: <u>Thanh</u>		Date Started: <u>20150528</u>		Water Table: GL <u>-0.35</u> m													
Type of Drilling Rig: <u>Rotary; Rig No 6</u>		Date Terminated: <u>20150531</u>		Remarks:													
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test					
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			
									From	To	C'ter			1st	2nd	3rd	
									N-value								
31	-31.55	31.00			Silty SAND	Yellowish Grey to Light Grey	Dense	Mainly fine grained sand. With gravel and occasionally with clay and sandy silt.	30.15	30.45	30.30	SPT-28	69	19	34	35	
32				31.15					31.45	31.30	SPT-29	41	13	19	22		
33				32.15					32.45	32.30	SPT-30	35	10	14	21		
34				33.15					33.45	33.30	SPT-31	22	8	10	12		
35		14.50		34.15					34.45	34.30	SPT-32	38	10	18	20		
36				35.15					35.45	35.30	SPT-33	40	10	14	26		
37				36.15					36.45	36.30	SPT-34	29	9	10	19		
38	-38.45	37.90		37.15					37.45	37.30	SPT-35	32	7	11	21		
39				38.15	38.29	38.22	SPT-36	107	22	50	-	→					
40			3.17	39.15	39.20	39.18	SPT-37	360	43	60	-	→					
41	-41.62	41.07		40.15	40.27	40.21	SPT-38	138	30	55	-	→					
42				41.00	41.07	41.04	SPT-39	300	70	-	-	→					
43					END OF BH												
44																	
45																	
46																	
47																	
48																	
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Fig.			Drilling Log						Hole Number: <b>BHUY-16</b>														
Project No. <b>OS14-0022</b>			Project Name: <b>Hai Phong Arterial Road Construction</b>			Sheet: <b>1</b>																	
Supervisor: <b>Cuong</b>			Coordinate: <b>N:205323.20 E:1064419.06</b>			Elevation: <b>MSL+1.12 m</b>																	
Driller: <b>Tinh</b>			Date Started: <b>20150419</b>			Water Table: GL: <b>-1.29 m</b>																	
Type of Drilling Rig: <b>Rotary: Rig No 4</b>			Date Terminated: <b>20150423</b>			Remarks:																	
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test											
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value						
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100	
1	1.12 0.12	0.00 1.00	1.00		Fill	-	-	Fill material are concrete, rock, sand and silt.															
2					SILT	Dark Grey	Very Soft	With slightly mica fragments and organic matter.	1.15	1.45	1.30	SPT-1	1	0	0	1	●						
3									2.15	2.45	2.30	SPT-2	2	0	1	1	●						
4			5.50						3.00	3.90	3.45	HP-1	REC: 90 / 90cm										
5									4.15	4.45	4.30	SPT-3	2	0	1	1	●						
6									5.15	5.45	5.30	SPT-4	3	0	1	2	●						
7	-5.38	6.50							6.15	6.45	6.30	SPT-5	2	0	1	1	●						
8					CLAY	Yellowish Brown mottled with yellowish grey and blackish grey	Medium Stiff	With slightly mica fragments and trace of sea shell fragments.	7.15	7.45	7.30	SPT-6	5	1	2	3	●						
9			4.80						8.15	8.45	8.30	SPT-7	6	2	2	4	●						
10									9.15	9.45	9.30	SPT-8	7	3	3	4	●						
11									10.15	10.45	10.30	SPT-9	7	3	3	4	●						
12	-10.18	11.30							11.15	11.45	11.30	SPT-10	7	3	3	4	●						
13	-11.88	13.00	1.70		CLAY	Blackish Grey mottled with yellowish brown	Soft to Medium Stiff	With trace of mica fragments.	12.15	12.45	12.30	SPT-11	5	2	2	3	●						
14					SILT	Blackish Grey	Medium Stiff	With trace of mica fragments and organic matter and slightly sea shell fragments.	13.15	13.45	13.30	SPT-12	3	2	1	2	●						
15									14.15	14.45	14.30	SPT-13	5	1	2	3	●						
16									15.15	15.45	15.30	SPT-14	5	2	2	3	●						
17									16.15	16.45	16.30	SPT-15	4	1	2	2	●						
18									17.15	17.45	17.30	SPT-16	5	2	2	3	●						
19									18.15	18.45	18.30	SPT-17	7	2	3	4	●						
20									19.15	19.45	19.30	SPT-18	7	3	3	4	●						
21			14.30						20.15	20.45	20.30	SPT-19	5	2	2	3	●						
22									21.15	21.45	21.30	SPT-20	4	1	2	2	●						
23									22.15	22.45	22.30	SPT-21	5	2	2	3	●						
24									23.15	23.45	23.30	SPT-22	5	1	2	3	●						
25									24.15	24.45	24.30	SPT-23	6	2	2	4	●						
26									25.15	25.45	25.30	SPT-24	5	2	2	3	●						
27				26.15	26.45	26.30	SPT-25	5	2	2	3	●											
28	-26.18	27.30		27.15	27.45	27.30	SPT-26	18	7	9	9	●											
29				28.15	28.45	28.30	SPT-27	20	7	9	11	●											
30			8.80	29.15	29.45	29.30	SPT-28	23	10	11	12	●											
31	-29.88	31.00		30.15	30.45	30.30	SPT-29	21	10	10	11	●											

Fig. Drilling Log										Hole Number: <b>BH-VY-16</b>							
Project No. <b>OS14-0022</b>		Project Name: <b>Hai Phong Arterial Road Construction</b>		Sheet: <b>2</b>													
Supervisor: <b>Cuong</b>		Coordinate: <b>N:205323.20 E:1064419.06</b>		Elevation: <b>MSL+1.12 m</b>													
Driller: <b>Tinh</b>		Date Started: <b>20150419</b>		Water Table: <b>GL -1.29 m</b>													
Type of Drilling Rig: <b>Rotary: Rig No 4</b>		Date Terminated: <b>20150423</b>		Remarks:													
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test					
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value
									From	To	C'ter			1st	2nd	3rd	
31	-29.88	31.00			Silty SAND	Yellowish Grey, Light Grey	Medium Dense to Dense	Fine to medium grained sand. With some gravels.	30.15	30.45	30.30	SPT-29	21	10	10	11	●
32				31.15					31.45	31.30	SPT-30	16	5	8	8	●	
33			8.80	32.15					32.45	32.30	SPT-31	19	8	9	10	●	
34				33.15					33.45	33.30	SPT-32	24	10	12	12	●	
35				34.15					34.45	34.30	SPT-33	18	7	7	11	●	
36				35.15					35.45	35.30	SPT-34	17	8	8	9	●	
37	-34.98	36.10		36.15					36.45	36.30	SPT-35	16	7	8	8	●	
38			3.95	37.00	37.07	37.04	SPT-36	214	50	-	-	→					
39				38.00	38.05	38.03	SPT-37	300	50	-	-	→					
40	-38.93	40.05		39.00	39.05	39.03	SPT-38	300	50	-	-	→					
41				40.00	40.05	40.03	SPT-39	300	50	-	-	→					
42																	
43																	
44																	
45																	
46																	
47																	
48																	
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Fig.		Drilling Log					Hole Number: <b>BHXY-17</b>																	
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>1</u>																				
Supervisor: <u>Cuong</u>		Coordinate: <u>N:205414.56 E:1064411.64</u>		Elevation: <u>MSL+0.91</u> m																				
Driller: <u>Tinh</u>		Date Started: <u>20150424</u>		Water Table: GL <u>-0.79</u> m																				
Type of Drilling Rig: <u>Rotary: Rig No 4</u>		Date Terminated: <u>20150427</u>		Remarks:																				
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test												
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value							
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100		
1	0.91 0.11	0.00 0.80	1.00		Fill	-	-	Fill material are rock, sand and clay.																
2					SILT	Blackish Grey	Very Soft	With slightly mica fragmnets, fine grained sand and organic matter.	1.15	1.45	1.30	SPT-1	2	0	1	1								
3																								
4																								
5			6.70																					
6																								
7																								
8																								
8	-6.59	7.50			SILT	Blackish Grey	Medium Stiff	With slightly mica fragments and sea shell fragments and organic matter.	6.00	6.90	6.45	HP-2	REC: 90 / 90cm											
9																								
10																								
11																								
12																								
13			9.00																					
14																								
15																								
16																								
17																								
17	-15.59	16.50							CLAY	Greenish Grey mottled with reddish brown	Stiff	With trace of mica fragments.	16.15	16.45	16.30	SPT-14	5	1	2	3				
18			1.50																					
19					Sandy SILT	Yellowish Grey mottled with grey	Stiff	With trace of mica fragments. Sand is fine to medium grained.	17.15	17.45	17.30	SPT-15	9	3	4	5								
20																								
21			4.10																					
22																								
22	-21.19	22.10			SAND	Light Grey	Medium Dense to Dense	With trace of sea shell fragments and gravel.	21.15	21.45	21.30	HP-1	REC: 90 / 90cm											
23																								
24																								
25			3.90																					
26																								
26	-25.09	26.00																						
27																								
27									Clayey SAND	Blackish Grey mottled with brownish grey	Medium Dense to Dense	With slightly organic matter.	26.15	26.45	26.30	SPT-24	45	11	19	26				
28			3.00																					
28																								
29					Sandy CLAY	Blackish Grey mottled with brownish grey	Very Stiff	With slightly organic matter.	27.15	27.45	27.30	SPT-25	25	9	11	14								
29	-28.09	29.00																						
30			1.60																					
30					SILT STONE	Reddish Brown	Medium Strong	Slightly to highly weathered	29.15	29.45	29.30	SPT-27	17	4	8	9								
31	-29.69	30.60																						
31	-30.09	31.00	3.04																					



Fig.		Drilling Log					Hole Number: <b>BHVV-17</b>													
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>			Sheet: <u>2</u>															
Supervisor: <u>Cuong</u>		Coordinate: <u>N:205414.56 E:1064411.64</u>		Elevation: <u>MSL+0.91</u> m																
Driller: <u>Tinh</u>		Date Started: <u>20150424</u>		Water Table: GL <u>-0.79</u> m																
Type of Drilling Rig: <u>Rotary: Rig No 4</u>		Date Terminated: <u>20150427</u>		Remarks: _____																
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test								
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value			
									From	To	C'ter			1st	2nd	3rd				
	-29.69	30.60	1.60		Sandy CLAY	Blackish Grey mottled with	Very Stiff	With slightly organic matter.	30.15	30.45	30.30	SPT-28	21	6	11	10	●			
31					SILTSTONE	Reddish Brown	Medium Strong	Weathered	30.75	30.89	30.82	SPT-29	107	22	50		→			
32			3.19						31.75	31.82	31.79	SPT-30	214	27	50		→			
33									32.75	32.80	32.78	SPT-31	300	42	50		→			
34	-32.88	33.79			END OF BH				33.75	33.79	33.77	SPT-32	375	45	50		→			
35																				
36																				
37																				
38																				
39																				
40																				
41																				
42																				
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Fig.

### Drilling Log

Hole Number:

**BHUY-18**

Project No. OS14-0022

Project Name: Hai Phong Arterial Road Construction

Sheet:

**1**

Supervisor: Chien

Coordinate: N:205109.58 E:1064510.26

Elevation: MSL+2.86 m

Driller: Hung

Date Started: 20150622

Water Table: GL -1.76 m

Type of Drilling Rig: Rotary: Rig No 7

Date Terminated: 20150630

Remarks:

Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test												
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value							
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100		
1	2.86	0.00			Sandy SILT	Very Soft to Soft	Dark Grey	With trace of mica fragments. Sand is mainly fine grained.																
2												1.15	1.45	1.30	SPT-1	2	0	1	1	●				
3												2.15	2.45	2.30	SPT-2	0	0	0	0	●				
4												3.15	3.45	3.30	SPT-3	1	0	0	1	●				
5												4.00	4.90	4.45	HP-1	REC: 90 / 90cm								
6			11.30									5.15	5.45	5.30	SPT-4	3	0	1	2	●				
7												6.15	6.45	6.30	SPT-5	1	0	0	1	●				
8												7.15	7.45	7.30	SPT-6	2	0	1	1	●				
9												8.15	8.45	8.30	SPT-7	2	0	1	1	●				
10												9.15	9.45	9.30	SPT-8	0	0	0	0	●				
11												10.15	10.45	10.30	SPT-9	1	0	0	1	●				
12	-8.44	11.30			Silty CLAY	Soft to Medium Stiff	Yellowish Grey	With trace of mica fragments																
13			2.70									11.15	11.45	11.30	SPT-10	3	0	1	2	●				
14												12.15	12.45	12.30	SPT-11	5	1	2	3	●				
15												13.15	13.45	13.30	SPT-12	3	1	1	2	●				
16					Silty CLAY	Medium Stiff	Dark Grey	With trace of mica fragments.	14.15	14.45	14.30	SPT-13	4	1	2	2	●							
17												15.15	15.45	15.30	SPT-14	5	1	2	3	●				
18			7.00									16.15	16.45	16.30	SPT-15	5	1	2	3	●				
19												17.15	17.45	17.30	SPT-16	5	1	2	3	●				
20												18.15	18.45	18.30	SPT-17	7	2	3	4	●				
21												19.15	19.45	19.30	SPT-18	5	2	2	3	●				
22												20.15	20.45	20.30	SPT-19	7	3	3	4	●				
23					SILT	Medium Stiff	Bluish Grey	With trace of mica fragments, organic matter and shell fragments																
24												21.15	21.45	21.30	SPT-20	7	2	3	4	●				
25												22.15	22.45	22.30	SPT-21	6	2	3	3	●				
26			10.50									23.15	23.45	23.30	SPT-22	7	3	3	4	●				
27												24.15	24.45	24.30	SPT-23	6	2	3	3	●				
28												25.15	25.45	25.30	SPT-24	6	2	3	3	●				
29												26.15	26.45	26.30	SPT-25	6	2	3	3	●				
30												27.15	27.45	27.30	SPT-26	7	2	3	4	●				
31												28.15	28.45	28.30	SPT-27	6	2	3	3	●				
								29.15	29.45	29.30	SPT-28	6	2	3	3	●								
								30.15	30.45	30.30	SPT-29	5	2	2	3	●								



Fig.		Drilling Log						Hole Number: <b>BH-VY-18</b>																					
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>2</u>																									
Supervisor: <u>Chien</u>		Coordinate: <u>N:205109.58 E:1064510.26</u>		Elevation: <u>MSL+2.86</u> m																									
Driller: <u>Hung</u>		Date Started: <u>20150622</u>		Water Table: GL <u>-1.76</u> m																									
Type of Drilling Rig: <u>Rotary: Rig No 7</u>		Date Terminated: <u>20150630</u>		Remarks:																									
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test																	
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm															
									From	To	C'ter			1st	2nd	3rd													
										N-value																			
31	-27.14	30.00	10.50		SILT	Bluish Grey	Medium Stiff	With trace of mica fragments and organic matter	30.15	30.45	30.30	SPT-29	5	2	2	3	●												
32	-28.64	31.50	6.20		CLAY	Dark Grey to Grey	Stiff to Very Stiff	With trace of mica fragments. occasionally with trace of fine grained sand and shell fragments.	31.15	31.45	31.30	SPT-30	5	1	2	3	●												
33																													
34																													
35																													
36																													
37																													
38	-34.84	37.70																											
39			3.90		SAND	Grey	Dense to Very Dense	Mainly fine grained sand. With some gravel and with sandy clay from 39.00m to 39.50m.	38.15	38.45	38.30	SPT-37	21	6	9	12	●												
40																													
41																													
42	-38.74	41.60																											
43			3.05		SILTSTONE	Reddish Brown	Medium Strong	Weathered	41.15	41.36	41.26	SPT-40	71	23	50	/21cm	●												
44																													
45	-41.79	44.65																											
46					END OF BH				44.60	44.65	44.63	SPT-44	300	50	-	-	●												
47																													
48																													
49																													
50																													
51																													
52																													
53																													
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# **RR-Series**





Fig. Drilling Log										Hole Number: <b>BHRR-01</b>												
Project No. <b>OS14-0022</b>		Project Name: <b>Hai Phong Arterial Road Construction</b>		Sheet: <b>1</b>																		
Supervisor: <b>Doan</b>		Coordinate: <b>N:205452.68 E:1064356.48</b>		Elevation: <b>MSL+1.46</b> m																		
Driller: <b>Tam</b>		Date Started: <b>20150425</b>		Water Table: GL <b>-1.35</b> m																		
Type of Drilling Rig: <b>Rotary: Rig No 5</b>		Date Terminated: <b>20150426</b>		Remarks:																		
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test										
									Depth in m		Sample No.	N-value blows/30cm	Blows per each 15 cm									
									From	To	C'ter		1st	2nd	3rd	N-value						
																0	20	40	60	80	100	
1	1.46 0.46	0.00 1.00	1.00		Fill	-	-	Fill material are concrete, rock and sandy clay														
2			1.30		SAND	Grey	Very Loose	Sand is mainly fine grained	1.15	1.45	1.30	SPT-1	3	1	1	2						
3	-0.84	2.30							2.15	2.45	2.30	SPT-2	2	0	1	1						
4			1.85		SILT	Yellowish Grey	Very Soft	With teace of mica fragments, shell fragments and organic matter	3.00	3.90	3.45	HP-1	REC: 90 / 90cm									
5									4.15	4.45	4.30	SPT-3	5	1	1	4						
6									5.15	5.45	5.30	SPT-4	7	3	3	4						
7			4.85		CLAY	Whitish Grey	Medium Stiff to Stiff	With trace of mica fragments, fine grained sand and shell fragments, occasionally with koketubutu.	6.15	6.45	6.30	SPT-5	12	4	5	7						
8									7.15	7.45	7.30	SPT-6	8	3	3	5						
9	-7.54	9.00							8.15	8.45	8.30	SPT-7	7	2	3	4						
10									9.15	9.45	9.30	SPT-8	7	3	3	4						
11									10.15	10.45	10.30	SPT-9	8	3	4	4						
12									11.15	11.45	11.30	SPT-10	6	3	3	3						
13			6.50		SILT	Grey	Medium Stiff	With trace of mica fragments and shell fragments.	12.15	12.45	12.30	SPT-11	6	2	2	4						
14									13.15	13.45	13.30	SPT-12	6	2	3	3						
15									14.15	14.45	14.30	SPT-13	7	3	4	3						
16	-14.04	15.50							15.15	15.45	15.30	SPT-14	6	2	3	3						
17									16.15	16.45	16.30	SPT-15	11	3	5	6						
18			4.50		Sandy CLAY	Yellowish Grey to Whitish Grey	Stiff to Very Stiff	With trace of mica fragments and organic matter. Sand is mainly fine grained.	17.15	17.45	17.30	SPT-16	10	4	5	5						
19									18.15	18.45	18.30	SPT-17	14	6	7	7						
20	-18.54	20.00							19.15	19.45	19.30	SPT-18	19	7	9	10						
21									20.15	20.09	20.12	SPT-19	167	50	-	-						
22			3.12		SILTSTONE	Reddish Brown	Medium Strong	Weathered	21.15	21.29	21.22	SPT-20	107	13	50	-						
23	-21.66	23.12							22.00	22.09	22.05	SPT-21	167	50	-	-						
24									23.00	23.12	23.06	SPT-22	115	50	-	-						
25					END OF BH																	
26																						
27																						
28																						
29																						
30																						
31																						

Fig.		Drilling Log										Hole Number: <b>BHRR-02</b>															
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>1</u>																							
Supervisor: <u>Hoang</u>		Coordinate: <u>N:205536.82 E:1064333.43</u>		Elevation: <u>MSL+0.82</u> m																							
Driller: <u>Hoi</u>		Date Started: <u>20150427</u>		Water Table: GL <u>-0.8</u> m																							
Type of Drilling Rig: <u>Rotary: Rig No 3</u>		Date Terminated: <u>20150427</u>		Remarks:																							
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test															
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value										
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100					
1	0.82	0.00			SILT	Brownish Grey	Very Soft	With slightly mica fragments and sea shell fragments.	1.15	1.45	1.30	SPT-1	2	0	1	1											
2			2.50																								
3	-1.68	2.50											2.15	2.45	2.30	SPT-2	2	1	1	1							
4					SILT	Blackish Grey to Reddish Brown with grey	Soft to Medium Stiff	With slightly mica fragments.	3.15	3.45	3.30	SPT-3	5	2	2	3											
5													4.00	5.00	4.50	SPT-4	6	2	3	3							
6			7.10										5.15	5.45	5.30	SPT-5	3	1	1	2							
7													6.15	6.45	6.30	SPT-6	6	2	2	4							
8													7.15	7.45	7.30	SPT-7	4	1	2	2							
9													8.00	8.60	8.30	SPT-8	5	2	2	3							
10	-8.78	9.60											9.15	9.45	9.30	SPT-9	8	3	4	4							
11			2.40						Sandy SILT	Brownish Grey	Medium Stiff	With trace of micafragments and sea shell fragments. Sand is mainly fine grained.	10.15	10.45	10.30	SPT-10	5	1	2	3							
12	-11.18	12.00											11.15	11.45	11.30	SPT-11	5	2	2	3							
13					Silty SAND	Yellowish Brown, Light Grey mottled with whitish grey	Medium Dense	Mainly fine grained sand. With trace of mica fragments and with lots of gravel from 16.00m.	12.15	12.45	12.30	SPT-12	17	5	7	10											
14													13.15	13.45	13.30	SPT-13	19	6	7	12							
15			5.00										14.15	14.45	14.30	SPT-14	20	8	9	11							
16													15.15	15.45	15.30	SPT-15	19	7	9	10							
17	-16.18	17.00											16.15	16.45	16.30	SPT-16	23	8	11	12							
18					SILTSTONE	Reddish Brown	Mideum Strong	Weathered.	17.15	17.45	17.30	SPT-17	50	19	27	23											
19			3.07										18.15	18.37	18.26	SPT-18	75	20	28	22							
20	-19.25	20.07											19.00	19.14	19.07	SPT-19	107	-	-	-							
21					END OF BH				20.00	20.07	20.04	SPT-20	214	50	-	-											
22																											
23																											
24																											
25																											
26																											
27																											
28																											
29																											
30																											
31																											

Fig.		Drilling Log				Hole Number: <b>BHRR-03</b>																		
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>1</u>																				
Supervisor: <u>Doan</u>		Coordinate: <u>N:205617.49 E:1064310.24</u>		Elevation: <u>MSL+2.65</u> m																				
Driller: <u>Tam</u>		Date Started: <u>20150421</u>		Water Table: GL <u>-0.30</u> m																				
Type of Drilling Rig: <u>Rotary: Rig No 5</u>		Date Terminated: <u>20150422</u>		Remarks:																				
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test												
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value							
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100		
1	2.65	0.00			CLAY	Grey	Very Soft to Soft	With trace of mica fragments.	1.15	1.45	1.30	SPT-1	2	1	1	1								
2			4.00	2.15					2.45	2.30	SPT-2	0	0	0	0									
3				3.15					3.45	3.30	SPT-3	3	1	1	2									
4	-1.35	4.00		4.15					4.45	4.30	SPT-4	4	1	2	2									
5				3.00	SILT	Brownish Grey mottled with yellowish brown	Soft	With trace of mica fragments, fine grained sand, organic matter and cementation.	5.15	5.45	5.30	SPT-5	2	0	1	1								
6									6.00	6.90	6.45	HP-1	REC: 90 / 90cm											
7	-4.35	7.00							7.15	7.45	7.30	SPT-6	3	1	1	2								
8				1.70	CLAY	Grey	Soft	With trace of mica fragments and sea shell fragments.	8.00	8.60	8.30	SPT-7	3	1	1	2								
9	-6.05	8.70		9.15					9.45	9.30	SPT-8	4	2	2	2									
10				5.50	Sandy CLAY	Light Grey mottled with yellowish grey	Medium Stiff to Stiff	With trace of mica fragments and organic matter. Sand is mainly fine grained.	10.15	10.45	10.30	SPT-9	5	2	2	3								
11									11.15	11.45	11.30	SPT-10	5	2	2	3								
12									12.15	12.45	12.30	SPT-11	9	3	4	5								
13									13.15	13.45	13.30	SPT-12	13	4	6	7								
14	-11.55	14.20			SILTSTONE	Reddish Brown	Medium Strong	Weathered	14.15	14.45	14.30	SPT-13	51	20	24	27								
15				15.15					15.45	15.30	SPT-14	63	30	30	33									
16				16.00					16.03	16.02	SPT-15	500	50	-	-									
17				3.83					17.00	17.03	17.02	SPT-16	520	52	-	-								
18	-15.38	18.03							18.00	18.03	18.02	SPT-17	500	50	-	-								
19					END OF BH																			
20																								
21																								
22																								
23																								
24																								
25																								
26																								
27																								
28																								
29																								
30																								
31																								

Fig.		Drilling Log						Hole Number: <b>BHRR-04</b>															
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>1</u>																			
Supervisor: <u>Doan</u>		Coordinate: <u>N:205622.60 E:1064302.84</u>		Elevation: <u>MSL+2.61</u> m																			
Driller: <u>Tam</u>		Date Started: <u>20150423</u>		Water Table: GL <u>-1.37</u> m																			
Type of Drilling Rig: <u>Rotary: Rig No 5</u>		Date Terminated: <u>20150424</u>		Remarks:																			
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test											
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value						
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100	
1	2.61	0.00			CLAY	Yellowish Grey	Soft to Medium Stiff	With a lot of fine grained sand.	1.15	1.45	1.30	SPT-1	4	1	2	2	●						
2	0.61	2.00	2.00						2.15	2.45	2.30	SPT-2	5	2	2	3	●						
3					Sandy CLAY	Yellowish Grey mottle with reddish brown	Soft to Medium Stiff	With slightly mica fragments and cementation. Sand is mainly fine grained.	3.15	3.45	3.30	SPT-3	5	1	2	3	●						
4			2.50						4.00	5.00	4.50	SPT-4	3	2	2	1	●						
5	-1.89	4.50							5.00	5.90	5.45	HP-1	REC: 90 / 90cm			●							
6									6.15	6.45	6.30	SPT-5	1	1	0	1	●						
7			4.80		SILT	Brownish Grey	Very Soft to Medium Stiff	With trace of mica fragments	7.15	7.45	7.30	SPT-6	2	1	1	1	●						
8									8.15	8.45	8.30	SPT-7	4	1	2	2	●						
9									9.15	9.45	9.30	SPT-8	5	1	2	3	●						
10	-6.69	9.30							10.15	10.45	10.30	SPT-9	7	3	3	4	●						
11					CLAY	Bluish Grey	Medium Stiff to Stiff	With slightly mica fragments and trace of organic matter and fine grained sand.	11.15	11.45	11.30	SPT-10	11	4	5	6	●						
12			3.70						12.15	12.45	12.30	SPT-11	10	3	4	6	●						
13	-10.39	13.00							13.15	13.45	13.30	SPT-12	10	4	5	5	●						
14									14.15	14.45	14.30	SPT-13	11	5	5	6	●						
15			3.90		CLAY	Grey	Stiff to Very Stiff	With trace of mica fragments and slightly organic matter and fine to medium sand.	15.15	15.45	15.30	SPT-14	11	4	5	6	●						
16									16.15	16.45	16.30	SPT-15	19	7	9	10	●						
17	-14.29	16.90							17.00	17.08	17.04	SPT-16	188	50	-	-							→
18									18.00	18.05	18.03	SPT-17	300	50	-	-							→
19			3.06		SILTSTONE	Reddish Brown	Medium Strong	Weathered	19.00	19.04	19.02	SPT-18	375	50	-	-							→
20	-17.35	19.96							19.90	19.96	19.93	SPT-19	250	50	-	-							→
21					END OF BH																		
22																							
23																							
24																							
25																							
26																							
27																							
28																							
29																							
30																							
31																							

Fig.		Drilling Log						Hole Number: <b>BHRR-05</b>																				
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>1</u>																								
Supervisor: <u>Hoang</u>		Coordinate: <u>N:205619.23 E:1064212.23</u>		Elevation: <u>MSL+2.52</u> m																								
Driller: <u>Hoi</u>		Date Started: <u>20150423</u>		Water Table: GL <u>-1.93</u> m																								
Type of Drilling Rig: <u>Rotary: Rig No 3</u>		Date Terminated: <u>20150424</u>		Remarks:																								
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test																
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value											
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100						
1	2.52	0.00	1.50		CLAY	Blackish Grey	Very Soft	With trace of mica fragments and organic matter.	1.15	1.45	1.30	SPT-1	0	1	0	0												
2	1.02	1.50			Silty CLAY	Blackish Grey mottled with reddish brown and whitish grey	Very Soft	With trace of mica fragments and fine grained sand.	2.15	2.45	2.30	SPT-2	0	1	0	0												
3			4.00																									
4																												
5																												
6	-2.98	5.50																										
7			1.50		Sandy SILT	Blackish Grey	Very Soft	With trace of organic matter. Sand is mainly fine grained.	6.00	6.90	6.45	HP-1	REC: 90 / 90cm															
8					Clayey SAND	Grey	Very Loose	Mainly fine grained sand.	7.15	7.45	7.30	SPT-6	0	1	0	0												
9			3.50																									
10																												
11	-7.98	10.50																										
12			2.00		CLAY	Grey mottled with light grey and brown	Stiff	With fine grained sand and trace of gravel.	11.15	11.45	11.30	SPT-10	17	6	8	9												
13	-9.98	12.50			CLAY	Grey mottled with brown and blackish grey	Medium Stiff	With trace of mica fragments and fine to medium grained sand.	12.15	12.45	12.30	SPT-11	19	7	9	10												
14			4.00																									
15																												
16																												
17	-13.98	16.50																										
18			1.90		CLAY	Yellowish Grey	Hard	With trace of mica fragments and slightly fine grained sand.	17.00	17.08	17.04	SPT-16	33	8	15	18												
19	-15.88	18.40			SILTSTONE	Reddish Brown	Medium Strong	Weathered	18.15	18.45	18.30	SPT-17	34	10	15	19												
20			3.69																									
21																												
22	-19.57	22.09																										
23					END OF BH				22.00	22.09	22.05	SPT-21	167	50	-	-												
24																												
25																												
26																												
27																												
28																												
29																												
30																												
31																												



Fig.		Drilling Log					Hole Number: <b>BHRR-06</b>																	
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>			Sheet: <u>1</u>																			
Supervisor: <u>Hoang</u>		Coordinate: <u>N:205620.52 E:1064136.27</u>		Elevation: <u>MSL+1.85</u> m																				
Driller: <u>Hoi</u>		Date Started: <u>20150424</u>		Water Table: GL <u>-0.80</u> m																				
Type of Drilling Rig: <u>Rotary: Rig No 3</u>		Date Terminated: <u>20150424</u>		Remarks:																				
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test												
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value							
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100		
1	1.85	0.00			SILT	Grey	Very Soft	With trace of fine grained sand and organic matter.	0.15	0.45	0.30	SPT-1	0	1	0	0								
2				1.15					1.45	1.30	SPT-2	0	1	0	0									
3			5.00						2.00	2.90	2.45	HP-1	REC: 90 / 90cm											
4									3.15	3.45	3.30	SPT-3	0	1	0	0								
5	-3.15	5.00							4.15	4.45	4.30	SPT-4	0	1	0	0								
6					CLAY	Blackish Grey	Very Soft	With trace of mica fragments and slightly fine grained sand.	5.15	5.45	5.30	SPT-5	0	1	0	0								
7			4.20						6.00	6.90	6.45	HP-2	REC: 90 / 90cm											
8									7.15	7.45	7.30	SPT-6	0	1	0	0								
9	-7.35	9.20							8.00	8.60	8.30	SPT-7	0	1	0	0								
10					SAND	Reddish Brown	Very Loose	Mainly fine grained sand. With trace of gravel	9.15	9.45	9.30	SPT-8	4	1	2	2								
11	-8.95	10.80	1.60						10.15	10.45	10.30	SPT-9	2	1	1	1								
12					CLAY	Grey mottled with reddish brown	Stiff	With trace of mica fragments and slightly fine grained sand. Occasionally with sand from 13.00m to 13.50m.	11.15	11.45	11.30	SPT-10	9	2	4	5								
13									12.15	12.45	12.30	SPT-11	12	6	5	7								
14			4.90						13.15	13.45	13.30	SPT-12	12	6	5	7								
15									14.15	14.45	14.30	SPT-13	13	5	5	8								
16	-13.85	15.70							15.15	15.45	15.30	SPT-14	15	6	7	8								
17	-15.15	17.00	1.30		Silty SAND	Blackish Grey	Loose	Mainly fine grained sand. With trace of organic matter.	16.15	16.45	16.30	SPT-15	5	2	2	3								
18					SILTSTONE	Reddish Brown	Medium Strong	Weathered	17.15	17.45	17.30	SPT-16	55	5	23	32								
19			3.07						18.00	18.12	18.06	SPT-17	125	50	-	-								
20	-18.22	20.07							19.00	19.07	19.04	SPT-18	375	50	-	-								
21					END OF BH				20.00	20.07	20.04	SPT-19	214	50	-	-								
22																								
23																								
24																								
25																								
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27																								
28																								
29																								
30																								
31																								

Fig.		Drilling Log					Hole Number: <b>BHRR-07</b>																			
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>			Sheet: <u>1</u>																					
Supervisor: <u>Hoang</u>		Coordinate: <u>N:205631.73 E:1064045.38</u>		Elevation: <u>MSL+1.21</u> m																						
Driller: <u>Hoi</u>		Date Started: <u>20150419</u>		Water Table: GL <u>-0.63</u> m																						
Type of Drilling Rig: <u>Rotary: Rig No 3</u>		Date Terminated: <u>20150421</u>		Remarks:																						
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test														
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value									
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100				
1	1.21	0.00			CLAY	Grey	Soft	With trace of mica fragments and fine grained sand.	1.15	1.45	1.30	SPT-1	3	1	2	1	●									
2			2.80																							
3	-1.59	2.80											2.15	2.45	2.30	SPT-2	3	1	2	1	●					
4					SILT	Dark Grey	Very Soft	With trace of mica fragments.	3.15	3.45	3.30	SPT-3	0	1	0	0	●									
5			4.20																							
6													4.15	4.45	4.30	SPT-4	0	1	0	0	●					
7	-5.79	7.00			CLAY	Blackish Grey	Very Soft	With trace of mica fragments.	5.50	6.40	5.95	HP-1	REC: 90 / 90cm													
8																										
9			3.80										7.15	7.45	7.30	SPT-5	0	1	0	0	●					
10					CLAY	Blackish Grey	Very Soft	With trace of mica fragments.	8.00	8.60	8.30	SPT-6	0	1	0	0	●									
11	-9.59	10.80																								
12													9.15	9.45	9.30	SPT-7	0	1	0	0	●					
13					CLAY	Blackish Grey mottled with reddish brown or grey	Soft to Stiff	With trace of mica fragments.	10.15	10.45	10.30	SPT-8	0	1	0	0	●									
14			-10.80																							
15													11.15	11.45	11.30	SPT-9	8	3	4	4	●					
16	-14.09	15.30			SAND	Reddish Brown	Medium Dense	Mally fine grained sand.	12.15	12.45	12.30	SPT-10	8	2	4	4	●									
17	-14.79	16.00	0.70																							
18													13.15	13.45	13.30	SPT-11	9	4	4	5	●					
19					SILTSTONE	Reddish Brown	Medium Strong	Weathered	14.15	14.45	14.30	SPT-12	3	1	2	1	●									
20	-17.81	19.02																								
21													15.15	15.45	15.30	SPT-13	11	2	3	8	●					
22					END OF BH				16.15	16.45	16.30	SPT-14	33	10	18	15	●									
23																										
24													17.00	17.02	17.01	SPT-15	750	50	-	-						
25																										
26									18.00	18.02	18.01	SPT-16	138	55	-	-							→			
27																										
28									19.00	19.02	19.01	SPT-17	413	55	-	-							→			
29																										
30																										
31																										

Fig.		Drilling Log						Hole Number: <b>BHRR-08</b>																
Project No. <u>OS14-0022</u>		Project Name: <u>Hai Phong Arterial Road Construction</u>		Sheet: <u>1</u>																				
Supervisor: <u>Hoang</u>		Coordinate: <u>N:205635.43 E:1064023.90</u>		Elevation: <u>MSL+2.04</u> m																				
Driller: <u>Hoi</u>		Date Started: <u>20150425</u>		Water Table: GL <u>-0.90</u> m																				
Type of Drilling Rig: <u>Rotary: Rig No 3</u>		Date Terminated: <u>20150426</u>		Remarks:																				
Scale in m	Elevation in m	Depth in m	Thickness in m	Legend	Type of Soil	Color	Relative Density or Consistency	General Remarks	Sampling			Standard Penetration Test												
									Depth in m			Sample No.	N-value blows/30cm	Blows per each 15 cm			N-value							
									From	To	C'ter			1st	2nd	3rd	0	20	40	60	80	100		
1	2.04	0.00			CLAY	Yellowish Grey mottled with light grey or yellowish grey	Medium Stiff	With trace of mica fragments.	1.15	1.45	1.30	SPT-1	5	2	2	3	●							
2				2.15					2.45	2.30	SPT-2	5	1	3	2	●								
3			5.70						3.15	3.45	3.30	SPT-3	6	1	3	3	●							
4									4.15	4.45	4.30	SPT-4	7	2	3	4	●							
5									5.15	5.45	5.30	SPT-5	6	2	3	3	●							
6	-3.66	5.70			SILT	Blackish Grey	Very Soft	With slightly mica and organic matter and trace of fine grained sand.	6.15	6.45	6.30	SPT-6	0	1	0	0	●							
7									7.00	7.90	7.45	HP-1	REC: 90 / 90cm											
8			4.00						8.00	8.60	8.30	SPT-7	0	1	0	0	●							
9					Silty SAND	Blackish Grey to Brownish Grey	Very Loose to Loose	Mainly fine grained sand. With trace of mica fragments and organic matter.	9.00	9.90	9.45	HP-2	REC: 90 / 90cm											
10	-7.66	9.70							10.15	10.45	10.30	SPT-8	2	1	1	1	●							
11									11.15	11.45	11.30	SPT-9	5	1	2	3	●							
12									12.15	12.45	12.30	SPT-10	4	1	2	2	●							
13									13.15	13.45	13.30	SPT-11	4	1	2	2	●							
14			8.90						14.15	14.45	14.30	SPT-12	5	1	2	3	●							
15									15.15	15.45	15.30	SPT-13	5	1	2	3	●							
16									16.15	16.45	16.30	SPT-14	5	1	2	3	●							
17									17.15	17.45	17.30	SPT-15	4	1	2	2	●							
18									18.15	18.45	18.30	SPT-16	5	1	2	3	●							
19	-16.56	18.60			CLAY	Yellowish Grey mottled with brown and grey	Medium Stiff	With trace of mica fragments and fine grained sand.	19.15	19.45	19.30	SPT-17	8	3	4	4	●							
20									20.15	20.45	20.30	SPT-18	7	3	3	4	●							
21									21.15	21.45	21.30	SPT-19	7	3	3	4	●							
22									22.15	22.45	22.30	SPT-20	6	2	3	3	●							
23			8.20						23.15	23.45	23.30	SPT-21	8	3	4	4	●							
24									24.15	24.45	24.30	SPT-22	8	3	4	4	●							
25									25.15	25.45	25.30	SPT-23	8	2	4	4	●							
26									26.15	26.45	26.30	SPT-24	6	2	3	3	●							
27	-24.76	26.80			27.15	27.45	27.30	SPT-25	60	10	28	32	●											
28					SILTSTONE	Reddish Brown	Medium Strong	Weathered	28.00	28.08	28.04	SPT-26	188	50	-	-					→			
29			3.27						29.00	29.07	29.04	SPT-27	214	50	-	-							→	
30	-28.03	30.07							30.00	30.07	30.04	SPT-28	214	50	-	-							→	
31					END OF BH																			