

Bidders are requested to incorporate the changes/clarifications noted below to the above noted Request for Tender (RFT) documents in their possession and be governed accordingly.

The purpose of this addendum is to:

- 1. Revise the date of Substantial Performance of the Work indicated in the tender documents to November 30, 2017.
- 2. Address questions raised during the bidding period.
- 1. Revisions to the tender documents to correct the date of the Substantial Performance of the Work
 - a. Instructions to Bidders

Section 29 of the Instructions to Bidders has been revised as follows:

- The date of Substantial Performance of the Work has been changed from November 1, 2018 to November 30, 2018; and
- The anticipated date of notification of award of the Contract has been changed from November 2017 to November 30, 2017.

The revised Section 29 shall read as follows:

"Bidders are advised that this is a completion date Contract and Substantial Performance of the Work must be achieved on or before November 30, 2018. The anticipated date of notification of award of the Contract is November 30, 2017. If the date of notification of award of the Contract is delayed beyond November 30, 2017, then this shall be considered a cause of delay which could not be reasonably anticipated to occur and which YRRTC deems to be beyond the Contractor's reasonable control pursuant to GC 5.1(e) of the General Conditions."





b. Articles of Agreement

Article A-1 (c) of the Articles of Agreement has been revised to change the date of the Substantial Performance of the Work from September 30, 2018 to November 30, 2018.

The revised Article A-1(c) shall read as follows:

"(c) achieve Substantial Performance of the Work by November 30, 2018."

c. Bid Form

Section 3 of the Bid Form has been revised to change the date of the Substantial Performance of the Work from September 30, 2018 to November 30, 2018.

The revised Section 4 of the Articles of Agreement shall read as follows:

"The undersigned hereby offers to perform the Work required by the Contract, do and fulfill everything indicated by the Contract and achieve Substantial Performance of the Work strictly in accordance with the Contract on or before November 30, 2018, subject to adjustment pursuant to GC 5 of the General Conditions."

2. Responses to Bidders' questions

Q1 Please refer to Instruction to Bidders

Please clarify the date of Substantial Performance. Item 4 on the Bid Form lists Substantial Performance as September 30, 2018. Item 29 of Instructions to Bidders lists Substantial Performance as November 1, 2018. This is extremely urgent as this would effect when the liquidated damages of \$8,500 per day would begin if the project were not to be completed by the Substantial Performance date.

- A1. Please refer to the revisions to the tender documents indicated in Section 1 of this Addendum.
- Q2 Can York Region provide the CAD files and/or the Model for this project?
- A2. CAD Files will only be released to the successful bidder after the award of the Contract.
- Q3. We are requesting an extension of two (2) weeks from the stated closing date as many major trades are requiring more time to submit a competitive bid.
- A3 The closing date has been extended to October 3, 2017 by Addendum #1.





Q4 Request for Alternate Products Approval

Please find attached product information for your review and submittal for approval as an alternate vapour permeable air barrier on this project.

SECTION 07 27 00 – Air and Vapour Control

- A4 Proposals for substitutions of products and materials will not be considered during the tender process. Following the Contract award, the Contractor's requests for substitutions will be considered in accordance with GC 43 "Equivalents" of the General Conditions and Specifications Section 01 25 00 "Product Substitution Procedures". The Bidders' submissions shall based on the requirements specified in the Contract Documents.
- Q5 Re-review of Section 09 29 00 GYPSUM WALLBOARD, we would appreciate your consideration in approving CGC for the following:

SECTION 09 29 00 GYPSUM WALLBOARD (PAGE 5)

- 2.2.6.7.1 Base bid: DensArmor Plus by Georgia Pacific CGC equivalent: Sheetrock Glass Mat Mold Tough (Regular)
- 2.2.6.7.2 Base bid: DensArmor Plus Fireguard CGC equivalent: Sheetrock Glass Mat Mold Tough (Firecode X)
- A5 Proposals for substitutions of products and materials will not be considered during the tender process. Following the Contract award, the Contractor's requests for substitutions will be considered in accordance with GC 43 "Equivalents" of the General Conditions and Specifications Section 01 25 00 "Product Substitution Procedures". The Bidders' submissions shall based on the requirements specified in the Contract Documents.
- Q6 Section 08 42 29 Automatic Sliding Doors

Regarding specification Section 08 42 29 Automatic Sliding Doors, we respectfully request that our RECORD 5100 series automatic sliding door be accepted as an approved alternate product. I have attached product information for you to review. The RECORD 5100 series automatic door is approved for Canadian Tire, Petsmart, LCBO, BMO, TD Canada Trust and Home Hardware. I have also attached a copy of the specifications for the York Region Admin Annex which shows the RECORD product to be approved for that project. Please let me know if you require additional information.

A6 Proposals for substitutions of products and materials will not be considered during the tender process. Following the Contract award, the Contractor's requests for substitutions will be considered in accordance with GC 43 "Equivalents" of the General Conditions and Specifications Section 01 25 00 "Product Substitution Procedures". The Bidders' submissions shall based on the requirements specified in the Contract Documents.





Q7 071800 – TRAFFIC COATINGS; 2.1

Currently, **071800 – TRAFFIC COATINGS; 2.1** calls for VULKEM by TREMCO and we would like to request that our **GEM-CRETE TWM PLUS** be reviewed for alternate approval. Attached are the required documents to assist with review, please let us know if this materials may proceed as approved.

- A7 Proposals for substitutions of products and materials will not be considered during the tender process. Following the Contract award, the Contractor's requests for substitutions will be considered in accordance with GC 43 "Equivalents" of the General Conditions and Specifications Section 01 25 00 "Product Substitution Procedures". The Bidders' submissions shall based on the requirements specified in the Contract Documents.
- Q8 Collins Sales represents American Dryer for a wide range of hand dryer units within Ontario. We would like to be considered as an equivalent to the Xlerator XL-SB-ECO model specified already with our ExtremeAir EXT7-SS model. I have attached a copy of the specification sheet for your convenience.

I would like to seek your assistance in being used in future projects as well. Would you be able to list on specifications in the future?

- A8 Proposals for substitutions of products and materials will not be considered during the tender process. Following the Contract award, the Contractor's requests for substitutions will be considered in accordance with GC 43 "Equivalents" of the General Conditions and Specifications Section 01 25 00 "Product Substitution Procedures". The Bidders' submissions shall based on the requirements specified in the Contract Documents.
- Q9 The Drawing. No. A-001 shows the total Architectural Drawing Nos. from A-001 to A-931. The Drawing Nos. A-807 to A-931 is missing in the folder for Contract Drawings. Is these missing drawings are to be issued through addendum?
- A9 All of the Architectural Drawings Sheets included in the tender documents are listed on page A-001. Drawings A-807 to A-931 were included in the issued tender documents.

Q10 <u>**Re: Door Schedule - Hollow Metal Doors & Frames</u>** Doors 301, 302, ST1A and ST1B are indicated in the hardware schedule that the doors are 82 mm thickness, this information is not indicated on door schedule. Please confirm.</u>

A10 Doors 301, 302, ST1A and ST1B will have zinc cladding added. These doors are to use a standard 45mm door construction. The hinges are for a 82mm door to allow for 45mm door, 3mm drainage layer, 16mm sheathing and 19mm standing seam zinc. See drawing details 1/2-A865.





- Q11 Doors 307, 308 and 404 are indicated in the hardware schedule that the doors and frames are S.STL however the door schedule does not indicate that these doors are S.STL. please confirm.
- A11 Refer to the revised Schedule of Finished Hardware, Section 08 71 00.01 included with this Addendum.
- Q12 As per section 31 23 15 Excavation and Fill 1.5.1.1 For information on geotechnical conditions and soils and groundwater management strategy, refer to the "Geotechnical Investigation Report Proposed Cornell Bus Terminal, Report Ref. No. 14-072" dated September 3, 2014 and Geotechnical Support for Design of Foundations and Pavement, Report Ref No.: 16-105 dated June 1, 2017 as appended to the Contract Documents. However we are unable to find Geotechnical Report. Could you provide us?
- A12 Copies of the Geotechnical Report Ref. No. 14-07, dated September 3, 2014 and Geotechnical Support for Design of Foundations and Pavement, Report Ref No. 16-105, dated June 1, 2017, are attached to this Addendum.
- Q13 As per section 01 50 00 1.5.1 Contractors Site Office as described below and there isn't any details for that. Could please clarify if any?
- A13 "As described below" refers to items 1.5.1.4 through 1.5.1.6 of Specification Section 01 50 00.
- Q14 I am writing to you knowing that you may not be accepting alternatives for the above listed project at this time. With that, I still wanted to provide you with our information in the invent that we find that some of the contractor base may choose to provide CPI pricing on a voluntary basis. We have found that in some cases our product may present a cost savings over a fibreglass system as our manufacturing process can be far less complex.
- A14 Proposals for substitutions of products and materials will not be considered during the tender process. Following the Contract award, the Contractor's requests for substitutions will be considered in accordance with GC 43 "Equivalents" of the General Conditions and Specifications Section 01 25 00 "Product Substitution Procedures". The Bidders' submissions shall based on the requirements specified in the Contract Documents.
- Q15 Re: Wall Louvres Specification for Louvres cannot be found in documents, kindly provide specification.
- A15 The architectural louvres (or Fixed-Position Aerofoil Louvre screens) can be found in Specification Section 10 91 00, paragraph 2.3.7.
- Q16 The Summary of Work (Specification Section 01 11 00, clause 8.1.3, is for the Permits to be obtained by Contractor.

Who should we contact for the Right of Way Permit and Road Cut Permit, in the region? It will be appreciated if we can have the contact persons for the other permits, except the above, to be obtained by contractor.





It will be helpful if the cost of permits is included in the Cash Allowance proposed for this project, to keep all the bidders on the same page.

A16 Bidders are instructed to contact the City of Markham Permit Department and other Authorities Having Jurisdiction for all inquiries relating to permits.

As the permits are the responsibility of the Contractor as indicated in Specification Section 01 11 00, clause 8.1.3, all costs associated with obtaining required permits shall be included in the Contract Price. There is no Cash Allowance for obtaining permits.

Q17 The Supplementary Conditions, clause SC 13, is for the Owner Controlled Insurance Program.

It includes Builders Risk Policy for the full amount of the Contract Price until the substantial completion of the work, as well as Wrap Up Liability Policy for the project in the amount of \$25,000,000.00 until the substantial completion and extension for a minimum of 24 months. Is The Regional Municipality of York and The York Region Rapid Transit Corporation will be providing these two insurance? Or do we need to carry the cost of these two insurance?

- A17 YRRTC will put in place the Builders Risk Policy as well as the Wrap up Liability Policy. The Contractor will not be required to carry the costs of these two insurance policies.
- Q18 Have you specified a permanent filtration system for the diesel fuel inside the storage tank backing up the Standby Power Generator System or for the storage tanks involved in refueling the buses, if any?
- A18 There is no permanent filtration system specified for the Diesel Generator.
- Q19 We are requesting acceptable manufacture for approved alternate from Mechanical items as mention below,
 23 21 23 Hydronic Pumps Equals Request for Bell and Gosset
 23 52 00 Boilers Equals Request for Viesmann
 23 70 00 Packaged indoor/outdoor air handling equipment Equals Request for Daikin
 23 72 13 Heat Reclaim Devices Equals Request for Novel Aire
 23 81 26 RTU Equals Request for Daikin
 23 81 26 Split System Air Conditioning Split heat pumps Equals Request for Daikin
 23 82 33 Finned Tube Equals Request for Sigma
 23 84 13 Humidifier Equals Request for DriSteem
 25 00 00 Controls Equals Request for HTS/Alerton
- A19 Proposals for substitutions of products and materials will not be considered during the tender process. Following the Contract award, the Contractor's requests for substitutions will be considered in accordance with GC 43 "Equivalents" of the General Conditions and Specifications Section 01 25 00 "Product Substitution Procedures". The Bidders' submissions shall based on the requirements specified in the Contract Documents.





Where applicable Bidders must acknowledge receipt of all addenda issued in the space provided on the Bid Form. Where there is no evidence of receipt of all addenda, save and except any addenda which the Region/YRRTC deems, in its sole discretion, to be administrative in nature, the Bid shall be rejected.

Yours truly,

Uk

Marie Kavanagh, CPPO Senior Purchasing Analyst Regional Municipality of York



PARTIAL PLANS W/R CONCESSION BUILDING

Heading # 024

1 SGL DOC	DR 307 CORRIDOR	303 TO WOMEN'S PUBLIC WASHROOM 307 90-RH	
TYPE A1/A	A1 965 X 215	0 x 45 HM DR X HM FR	
3	HINGE	CB199 114 X 101 NRP	C32D
1	PASSAGE	ND10S RHODES	C260
1	AUTO DOOR OPERATOR	HORTON 7100 SERIES 39" AL	
2	PUSH BUTTON	CM-45/4 GRFSE1 4 1/2" SQUARE	630
1	RELAY	CX-33	
1	ELECTRIC STRIKE	1006 FAIL SAFE 12/24 VDC	C32D
1	POWER SUPPLY	PS902	
1	SIGN	WOMEN PICTOGRAM TAPE	SILVER
1	ARMORPLATE	GSH80A 863 X 925 TAPE	32D
1	FLOOR STOP	GSH 209	C26D
	NOTE: LOW VOLTAGE	AND 120 VOLT SUPPLIED AND WIRED BY	

ELECTRICAL CONTRACTOR

Heading # 025

1 SGL DOOF	CORRIDOR CORRIDOR	303 TO MEN'S PUBLIC WASHROOM 307 90-LH	
TYPE A1/A1	965 x 21	50 X 45 HM DR X HM FR	
3	HINGE	CB199 114 X 101 NRP	C32D
1	PASSAGE	ND10S RHODES	C260
1 .	AUTO DOOR OPERATOR	HORTON 7100 SERIES 39" AL	
2	PUSH BUTTON	CM-45/4 GRFSE1 4 1/2" SQUARE	630
1 1	ELECTRIC STRIKE	1006 FAIL SAFE 12/24 VDC	C32D
1 :	RELAY	CX-33	
1	POWER SUPPLY	PS902	
1	SIGN	MEN PICTOGRAM TAPE	SILVER
1 .	ARMORPLATE	GSH80A 863 X 925 TAPE	32D
1	FLOOR STOP	GSH 209	C26D

NOTE: LOW VOLTAGE AND 120 VOLT SUPPLIED AND WIRED BY ELECTRICAL CONTRACTOR

REVISION #01 TO IFT PACKAGE

PARTIAL PLANS NORTH PLAZA BUILDING

Heading # 032 1 PAIR DOORS 404 EXTERIOR FROM ELECTRICAL ROOM 404 90-LHR/RHRA TYPE A2/E1 2/965 X 2150 X 45 HM DR X HM FR 3/4 HOUR "C" FIRE RATED 2 SET PIVOT 7226F 3/4 OFFSET US32D 2 POWER TRANSFER PIVOT 7226PT 3/4 OFFSET X 8 WIRE US32D 1 EXIT DEVICE 98-NL-OP-F 110NL-MD 65mm WIDE DR. 630 FOR 3 1/4" THICK DOORS 1 RIM CYLINDER IC CORE FULL SIZE # 20-057 EV-29 GGMK/CMK 626 FOR 3 1/4" THICK DOORS 1CONSTRUCTION CORE23-030-ICX1ELECTRIC STRIKE9600 24VDC5FSE 626 32D 1 SURFACE MOUNTING BOX MODEL SMB BLK 1SORFACE MOONTING BOXMODEL SMB1POWER SUPPLYPS904 - 4RL2DOOR PULLSGSH 1180-24B MOUNTING1DOOR CLOSER4040XP-72MCT.B. EDA RH1DOOR CLOSER4040XP-72MCT.B. EDA LH2OVERHEAD STOP104S90 DEGREES2KICKPLATEGSH80A254X2JANB WEATHERSTRIPW-132X1WEADERD WEATHERSTRIPW121X065 C32D 689 689 630 TAPE 32D CA 1HEADER WEATHERSTRIPW-131 X2DOOR SWEEPW-13S X9651THRESHOLDCT-75 X1930 1 X 965 CA CA AL

- NOTE: LOW VOLTAGE AND 120 VOLT SUPPLIED AND WIRED BY ELECTRICAL CONTRACTOR
- NOTE: CARD READER, DOOR CONTACT, REQUEST TO EXIT MOTION SENSOR, SUPPLIED BY ELECTRICAL SECURITY CONTRACTOR

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geotechnical division of TERRAPEX

June 1, 2017 Revised on June 21, 2017

Ref No.: 16-105

HDR Canada 100 York Boulevard, Suite 300 Richmond Hill, ON L4B 1J8

Att: Maher Sayed, Project Manager

Subject: Geotechnical Support for Design of Foundations and Pavement Cornell Bus Terminal, Markham, Ontario

Alston Associates (AA) was commissioned by HDR Canada (HDR) to provide geotechnical consulting and support associated with the design of the pavement structure and foundations for the proposed Cornell Bus Terminal in Markham, Ontario.

The following geotechnical investigation report was prepared by Alston Associates Inc. in 2014 for Cole Engineering Group Ltd. acting on behalf of the Region of York: "Geotechnical Investigation Proposed Cornell Bus Terminal, Highway 7 and Ninth Line, South of Rose Way Extension, Markham, Ontario. Report Ref. No. 14-072, dated September 3, 2014.

The geotechnical investigation report recommended an asphaltic concrete pavement for the bus station. However HDR advised that the proposed pavement structure will be a rigid concrete pavement incorporating a 250 mm thick reinforced concrete slab. HDR also advised that the terminal building will be an open; unheated structure.

The design and construction recommendations provided by **AA** to HDR are detailed below:

Pavement Design

The following asphaltic concrete pavement structure was recommended in our geotechnical investigation report for the bus terminal.

Pavement Layer	Compaction Requirements	Heavy Duty Pavement Minimum Component Thickness
Surface Course	As per OPSS 310	50 mm Hot-Laid HL3 (HS)
Asphaltic Concrete	As per OP33 310	
Binder Course	As por ODSS 210	100 mm Hot-Laid HL8 (HDBC)
Asphaltic Concrete	As per OPSS 310	
Granular Base	100% SPMDD*	200 mm Granular 'A'
Granular Sub-base	100% SPMDD*	450 mm Granular 'B' Type II

A gross weight of the articulated bus; 6800 kg for front axle, 8440 kg for middle axle, 12600 kg for rear axle; for a total load of 27840 kg, with an AADT of 700 was used for the pavement design recommended in the geotechnical report.

Based on recent understanding that a concrete pavement will be constructed within the bus terminal and that the terminal will be an open structure; unheated, in order to prevent frost related heave of the pavement structure, it is recommended that free draining granular soils be used within the frost penetration depth. Consequently, the following pavement structure is recommended for the terminal.

Pavement Layer	Compaction Requirements	Minimum Pavement Component Thickness
Concrete		250 mm
Granular Base	100% SPMDD*	150 mm Granular 'A'
Granular Sub-base	100% SPMDD*	300 mm Granular 'B' Type II
Free draining Soil	100% SPMDD*	600 mm Granular 'B' Type I

* Note: Standard Proctor Maximum Dry Density (ASTM-D698).

The rigid pavement recommended above will provide significantly better support than the flexible pavement recommended in the geotechnical report, and will heave much less (if any) than the flexible pavement.

Sub-surface drainage must be provided to prevent accumulation of water within the free draining granular material. In addition to providing better support to the pavement, the granular soil will provide higher resistance to the top of caisson foundations proposed to support the superstructure.

Prior to placement of the Granular B Type I material, the subgrade must be compacted to at least 98% SPMDD. The granular pavement structure materials should be placed in lifts not exceeding 150 mm thick and be compacted to a minimum of 100% SPMDD. The granular materials should conform to the gradation requirements of OPSS 1010 (Material specifications for aggregates).

The granular materials must be extended a minimum of 1.5 m out from the outside edges of the pavement structure and the perimeter of the caisson foundations.

The long-term performance of the proposed pavement structure is highly dependent upon the subgrade support conditions. Stringent construction control procedures should be maintained to ensure that uniform subgrade moisture and density conditions are achieved.

In addition, the need for adequate drainage cannot be over-emphasized. The subgrade underlying the granular soils should be free of depressions and should be sloped to provide effective drainage. Surface

water should not be allowed to pond adjacent to the outside edges of pavement areas. Sub-drains must be provided under the base of the granular B Type I material to facilitate effective and assured drainage of the granular materials and prevent frost related heave of the pavement structure. The invert of sub-drains should be maintained at least 0.3 m below subgrade level. A minimum of two lines of sub-drains are recommend to be placed along the length of the terminal.

Additional comments on the construction of pavement areas are as follows:

As part of the subgrade preparation, proposed pavement areas should be stripped of topsoil, unsuitable earth fill, organic soils and other obvious objectionable material. Fill required to raise the grades to design elevations should be free of organic material and at a moisture content which will permit compaction to the specified densities. The subgrade should be properly shaped, crowned, and then proof-rolled. Soft or spongy subgrade areas should be sub-excavated and properly replaced with suitable approved backfill compacted to 98% SPMDD.

For fine-grained soils as encountered at the site, the degree of compaction specification alone cannot ensure distress free subgrade. Proof-rolling of the subgrade must be carried out and witnessed by geotechnical staff prior to placement of the specified granular materials.

Foundation Design

It is understood that drilled shaft piles (caissons) would be utilized to support the proposed structure. We also understand that the loading applied by the proposed structure on the pile heads would be as follows:

- vertical 400 to 1300 kN
- lateral 70 to 150 kN
- moment 100 to 300 kNm

Analyses of the caisson foundations assuming a minimum embedment of 1 m into the very dense sandy silt or hard silty clay till soils, and placement of compacted granular soil surrounding the upper 1.2 m depth of the caisson, has revealed that the lateral movement of the pile heads should be limited to a maximum of 6 mm, and the anticipated settlement should be no more than 5 mm.

The results of the analyses calculated based on maximum loading condition of 1300 kN (vertical), 150 kN (lateral), and 300 kNm (moment) are summarized in the following Table:

Diameter (m)	Geotechnical resistance at ULS (kN)	Base of caisson depth below ground surface (m)	Horizontal Displacement (mm)	Approximate Settlement (mm)
1.2	1800	5.5	6	5
1.5	2825	5.5	5	3
1.8	4075	5.5	5	2

The results of the analyses calculated based on minimum loading condition of 400 kN (vertical), 70 kN (lateral), and 100 kNm (moment) are summarized in the following Table:

Diameter (m)	Geotechnical resistance at ULS (kN)	Base of caisson depth below ground surface (m)	Horizontal Displacement (mm)	Approximate Settlement (mm)
1.2	1475	4	6	1
1.5	2300	4	6	1
1.8	3300	4	6	1

In order to achieve a minimum embedment of 1 m into the very dense soil, it will be necessary to found the caissons at or below the elevations tabulated below:

Borehole Location	Ground Elevation	Found caissons at or below elevation
MW1	195.32 m	191.0m
MW2	194.31 m	190.8 m
BH3	195.77 m	190.8 m
BH4	195.79 m	190.8 m
BH5	195.55 m	191.0 m
MW6	194.48 m	191.0 m
BH7	194.35 m	190.3 m
BH8	194.61 m	190.6 m
BH9	194.69 m	190.0 m
MW10	194.74 m	190.2 m
MW11	194.81 m	190.1 m

The minimum spacing between adjacent caissons should be twice the diameter of the larger caisson.

It may be necessary to install temporary liners for the excavation of the footing holes.

Due to variations in the consistency of the founding soils and/or loosening caused by excavating disturbance and/or seasonal frost effects, all footing subgrade must be evaluated by the Geotechnical Engineer prior to placing foundation concrete to ensure that the soil exposed at the excavation base is consistent with the design geotechnical bearing resistance, and the bases of the caisson holes are adequately cleaned prior to concreting.

In the event necessary, the stepping of the footings at different elevations should be carried out at an angle no steeper than 2 horizontal (clear horizontal distance between footings) to 1 vertical (difference in elevation).

The native soils are susceptible to disturbance when wet, so construction scheduling should consider the amount of excavation left exposed to the elements, during foundation preparation.

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Rainwater or groundwater seepage entering the foundation excavation must be pumped away (not allowed to pond). The foundation subgrade soils should be protected from freezing, inundation and equipment traffic at all times.

The native soils tend to weather and deteriorate rapidly on exposure to atmosphere or surface water. **AA** recommends that footings placed on the exposed native soil should be poured on the same day as they are excavated, after removal of all unsuitable founding materials and approval of the bearing surface. Alternatively, a concrete mud slab could be used to protect a bearing surface where footing construction is to be delayed.

All exterior footings should be provided by at least 1.2 m of soil cover or equivalent artificial thermal insulation for frost protection purposes. As a subsurface drainage system will be installed below the pavement granular material that will be placed under the proposed pavement, it should not be necessary to insulate grade beams founded within the granular soil.

Exposed soil foundation subgrades should be protected against freezing and surface water should be kept away from the foundation subgrade areas to prevent softening.

If construction proceeds during freezing weather conditions, adequate temporary frost protection for the footing bases and concrete must be provided.

Should you have any questions regarding this letter, please do not hesitate to contact our office.

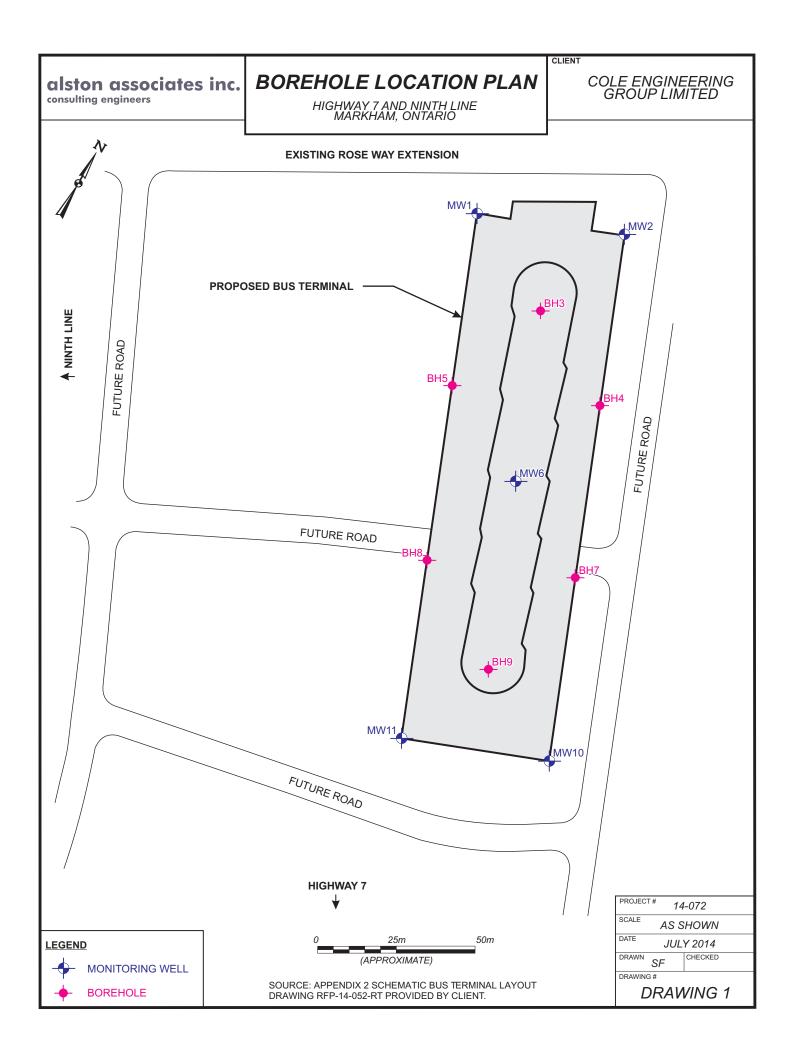
Yours very truly, alston associates A division of Terrapex Environmental Ltd.



Vic Nersesian, P.Eng. Vice President, Geotechnical Services

Attachments:

Borehole Location Plan Logs of Boreholes



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50/25 6.5 7.5 Water strike at approximately 7.5 m depth 83 9 9,5 9,5 9,5 183 184. 185. 18	- 5.5								trace trace g	clay ravel	-			190 - - - 189.5 -
7.5 Water strike at approximately 7.5 m depth 9 83 5 1 1 1 83 5 1 1 1 83 1 5 1 1 1 83 1 1 1 1	-			50/25	5	6				grey		8		- - 189 - - -
approximately 7.5 m 83 5 9 83 5 187.4 8.5 9 9 83 5 186.9 186.9 9 9.5 97/250 5 186.9 186.9 10 97/250 5 186.9 186.9	- - - - -													188.5 - - - - 188 -
	-		approximately 7.5 m		83	5						9	83	- - - 187.5 –
9 97/250 9.5 10 97/250 10 10 250 180 185.5	-											-		187 -
	-				97/250	5						10	97/ 250	186.5 - - - - - - -
	- 9.5 -											1		-
	-	alsta	on associates i	nc.			LOGGED B	日的 Y: MI	_	DRILLING DATE	: 21	L Juli	/ 20	
Consulting engineers REVIEWED BY: VN Page 1 of 2						ł						carj	, _0	· ·

	NT: Cole Engineer	ring cornell Bus Terminal				OD: Augering and Split Spoon Sampling ECT ENGINEER: VN ELEV. (m) 195.32						BH N	No.: MW1				
	TION: Hwy 7/Nint			<u> </u>	RTHIN			ix. VI	<u>۲</u>		=V. (m) 195.32 STING:	PROJECT NO				* 1	
		AUGER DRI	VEN			NG			·			IT S	POON				
DEPTH (m)	INSTRUMENTATION DATA	REMARKS	40 8 N (Blow	l-Valu /s/300	ength 0 160 e		PL W.(<u>) 40</u>			SOIL SYMBOL	SO DESCRI			SAMPLE TYPE	SAMPLE NO.	SPT(N)	ELEVATION (m)
- 10 - 10.5 - 11.5 - 11.5 - 12			50/125			5					very de moist, SANDY trace	grey SILT clay	-		10		185 - 184.5 - 184 - 183.5 - 183.5 -
- 12.5 - 13 - 13.5 - 13.5 - 14.5			50/12	5 🔺		10					trace g (TIL		(wet)		13		182.5 - 182 - 181.5 - 181.5 -
- - - - - - - - - - - - - - - - - - -				87/	250	9					hard, moi SILTY (trace sand, tr (TIL	CLAY race gravel L)			14	87/ 250	180.5 · 180 ·
											END OF BOREHO	ιLE					
	aleta	n associator													1!		
	alston associates inc.									ML		DRILLING D	ATE: 2	21 .	July	201	4
	CC	onsulting enginee	15				KF/	VIEW	υĒ	5Y: \	VIN	Page 2 of 2					

PROJECT: Proposed Cornell Bus Terminal PROJECT ENGINEER: VN ELEV. (m) 194.31 BH No.: NORTING: LOCATION: Hwy 7/Ninth Line, Markham NORTHING: EASTING: PROJECT NO.: 14-00 SAMPLE TYPE AUGER DRIVEN CORING DYNAMIC CONE SHELBY (E INSTRUMENTATION DATA REMARKS 40 80 120 160 N-Value SOIL DESCRIPTION 20 40 60 80 20 40 60 80 20 40 60 80 20 40 60 80 20 40 60 80 300 mm TOPSOIL 0.5 Borehole cave-in at 4.9 m and groundwater level at 1.8 m below ground. 6 Firm, moist, brown mottled grey CLAYEY SILT, trace sand trace rootlets firm moist, brown SANDY SILTY CLAY trace sand	72 SPI		SPOON
SAMPLE TYPE AUGER DRIVEN CORING DYNAMIC CONE SHELBY (E) INSTRUMENTATION DATA REMARKS 40 80 120 160 N-Value 0 SOIL DESCRIPTION DESCRIPTION DESCRIPTION 0 For monitoring well details refer to Cole For monitoring well details refer to Cole 6 300 mm TOPSOIL firm, moist, brown mottled grey 0.5 Borehole cave-in at 4.9 m and groundwater level at 1.8 m below ground surface on completion. 4 H Firm moist, brown SANDY SILTY CLAY	SPI		1
INSTRUMENTATION DATA REMARKS Shear Strength (kPa) O SOIL 0 For monitoring well details refer to Cole Engineering log sheets. Borehole cave-in at 4.9 m and groundwater level at 1.8 m below ground surface on completion. 6 PL W.C. LL 0 300 mm TOPSOIL 1 1 7 H H Firm, moist, brown sANDY SILTY CLAY 5			1
0 For monitoring well details refer to Cole Engineering log sheets. Borehole cave-in at 4.9 m and groundwater level at 1.8 m below ground surface on completion. 6 300 mm TOPSOIL 1 1 7 H H 300 mm TOPSOIL 1	_	SPT(N)	ELEVATION (m)
at 1.8 m below ground surface on completion. ↑7 H H firm moist, brown SANDY SILTY CLAY	1A 1B 1C	6	194 -
	2	7	193.5 - 193 -
26 26 26 26 26 26 26 26 26 26 26 26 26 2	3A 3B	26	192.5 -
2.5 B2 brown	4	82	192 - 191.5 -
a a brownish grey grey grey grey grey grey grey grey	5	97/ 275	5 191 -
-4 Water strike at approimately 3.7 m depth. 99/250 grey	6	99/ 250	190.5 - 190 -
- 4.5 50/150 ▲ (wet)	7	50/ 150) 189.5 -
5.5 5.5 Land Land Land Land Land Land Land Land			189 - 188.5 -
-6 50/140 ▲ 50/140 ▲ 100 € 100 € 100 € -6.5 -6.5 -6.5 -6.5 -6.5 -6.5	8	50/ 140) 188 -
			187.5 - 187 -
7.5 50/100 ▲ 50/100 ▲	9	50/ 100	186.5 -
			186 -
9 9.5	10	50/ 75	185.5 - 185 -
			184.5
alston associates inc. Logged by: ML DRILLING DATE: 21	July	y 20	
Consulting engineers REVIEWED BY: VN Page 1 of 2			

PRO.	NT: Cole Engineer	METHOD: Augering and Spl PROJECT ENGINEER: VN						EV. (m) 194.31	BH No.: MW2						
LOCA	TION: Hwy 7/Nint	h Line, Markham		NORTHI		EASTING:				PROJECT NO.: 14-072					
SAMF		AUGER DRI	VEN		CORI	NG	G DYNAMIC CO			SHELBY		SPL	IT S	POON	
DEPTH (m)	INSTRUMENTATION DATA	REMARKS	40 8	rr Strength (kPa) 0 120 160 I-Value vs/300mm) 0 60 80		PL W.C)	SOIL SYMBOL	SC DESCR		SAMPLE TYPE	SAMPLE NO.	SPT(N)	ELEVATION (m)
10 10.5 11.5 12 12.5 13 13.5 14.5 14.5			50/10 50/10	▶ ▲				n body body body body body body body body	היו להיול היולדה להיול היולדה להיולדה להיולדה להיולדה להיולדה להיולדה להיולדה להיולדה להיולדה להיולדה לההיולדה להיולד היולדה היולדה היולדה היולדה להיולדה להיולדה להיולדה היולדה היולדה היולדה להיולדה להיולדה להיולדה להיולדה מינה היולדה היולדה היולדה היולדה להיולדה להיולדה להיולדה היולדה להיולדה להיולדה היולדה היולדה היולדה להיולדה לה	very o moist SAND trace trace (TI	, grey Y SILT e clay gravel		11	50/ 100 50/ 150	184 183.5 183 182.5 182 181.5 181 180.5 180 179.5
			50/10							END OF BOREH	OLE		14	50/ <u>100</u>	179
		on associates					GED					DRILLING DATE: 21 July 2014			
			11 17				CED						1		

	NT: Cole Enginee			METHOD: Augering and Sp PROJECT ENGINEER: VN					poon Sampling		~			
	•	Cornell Bus Terminal					R: VN	EL	EV. (m) 195.77	BH No.:				
	ATION: Hwy 7/Nin			NORTH	2			_	STING:	PROJECT NO.: 1	4-07			
SAM		AUGER DRI	VEN		3	DRING		DYN/	AMIC CONE S	HELBY	Ш.	SPL		POON
DEPTH (m)	INSTRUMENTATION DATA	REMARKS	40 8	ar Strength (kPa) 80 120 16 I-Value vs/300mm) 10 60 80	50)	PL W 20 40		SOIL SYMBOL	SO DESCR		SAMPLE TYPE	SAMPLE NO.	SPT(N)	ELEVATION (m)
_ 0 _ _		Borehole cave-in at 5.5 m and groundwater level at 2.1 m below ground	6						350 mm T	OPSOIL		1A	6	195.5 -
- 0.5 - - - - 1		surface on completion.	▲ 15						loose moist, t silty fine compact (FIL	e sand		1B 2A	15	195 -
- - - 1.5									loose, moi SANDY	st, brown		2B	15	194.5 -
- - - 2 -			7						trace clay, tr (TIL	ace gravel		3	7	194 -
- - - 2.5 - -			▲ 8						firm moist, t SILTY trace sand, t	CLAY		4	8	193.5 - 193 -
- 3 - 3 			16						very (TIL stiff			5A 5B	16	192.5 -
- 4				88	▶					brown		6	88	192 -
- - - 4.5									very d	st		-		191.5 -
- 5				79					SANDY trace trace g (TIL	clay Iravel L) brownish		7	79	191 - 190.5 -
- - 5.5 -		Water strike at approximate 5.5 m depth.								grey				190.5 -
- 		depin.								grey	, 	8A	50	189.5 -
- 6.5				58					hard, moi SILTY trace sand, t	CLAY		8B	58	189 -
-7 - - -									(TIL	L)				188.5 -
- 7.5				76						wei	t	9	76	188 -
- 8									very d gre SANDY	ey .				187.5 -
- 8.5 - - - - - - - - - - - - - - - - - -									trace trace g (TIL	clay ıravel				187 -
- - - 9.5 -				9	2					moist		10	92	186.5 -
F	aleta	on associates	inc				GGED B		4					186 -
		onsulting enginee					VIEWED			DRILLING DATE: Page 1 of 2	22	Juiy	20	14

	NT: Cole Enginee									boon Sampling	BH No.:	2			
		Cornell Bus Terminal				IGINEEI	R: VN	-		EV. (m) 195.77					
	TION: Hwy 7/Nint			NORT	-						PROJECT NO.: 14	4-07			
SAM		AUGER DRI	VEN Shea	ar Strength		RING			YNA	MIC CONE S	HELBY	Ш_			POON
DEPTH (m)	INSTRUMENTATION DATA	REMARKS	40 8	(kPa) <u>0 120 16</u> I-Value vs/300mm <u>0 60 8</u>	<u>50</u>)	PL W.C <u>20 40 -</u>			SOIL SYMBOL	SC DESCR		SAMPLE TYPE	SAMPLE NO.	SPT(N)	ELEVATION (m)
- - 10 -								21 122/21 122/21							185.5 -
- 10.5				95/25	50			127/11/22/11/2					11	95/	185 -
- 11 - -				00/20										250	184.5 -
- - 11.5 -								21 1 22 1 1 2 2 1							184 -
- 			50/10					12221122211		very d moist,			12	50/ 100	183.5 -
- - 12.5 -										SANDY trace	′ SILT clay			100	183 -
- - 13 -							21 12221 1222		(TIL	L)				182.5 -	
- - 13.5 -												-		182 -	
- 				9									13	91	181.5 -
- - 14.5 -								221 1 2221 1 222							181 -
- 			50/10										14	50/_	-
										END OF BOREHO	DLE			100	
	alsta	on associates	inc.	<u> </u>		LOG	GED	BY:	M	_	DRILLING DATE:	22	Julv	/ 201	14
		onsulting enginee					/IEWE				Page 2 of 2				

	NT: Cole Enginee	ring Cornell Bus Terminal					ng and S ER: VN		poon Sampling EV. (m) 195.79	BH No.:	Δ			
	ATION: Hwy 7/Nin			NORT				-	STING:	PROJECT NO.: 1				
	-		VEN		7	RING		_		HELBY	\mathbb{T}		IT S	POON
DEPTH (m)		REMARKS	Shea 40 8 N (Blow	ar Strengtl (kPa) 80 120 10 I-Value vs/300mm 40 60 8	n 60 n)	PL V	V.C. LL 0 60 80	SOIL SYMBOL	SC DESCR	IL	SAMPLE TYPE	Ŋ	SPT(N)	ELEVATION (m)
- 0		Borehole cave-in at 9.7 m and groundwater level							350 mm T	OPSOIL		1A		
- - 0.5 - - - 1		at 4.0 m below ground surface on completion.			8	21 4			loose, moi silty fine (FIL	e sand		1B 2A	4	195.5 - 195 -
- ' - - 1.5			8			19 19			firm, r dark brow ORGAN	n to black		2B 3A	8	194.5 -
- - - - -			\$ 5			20			firm moist t grey to d stiff silty clay, trace	ark grev		3B	5	194 - 193.5 -
- - 2.5 -			13		6	4			(FIL compact, m SANDY SILT	L) oist, brown , trace clay		4A 4B	13	193.5
- 3 - - - 3.5		19		1	1			trace grav very stiff, m SILTY CLAY trace grav	oist, brown , trace sand		5	19	192.5 -	
- - - 4 -				82/275	~ ~							6	82/ 275	192 - 191.5 -
- - 4.5 -			50/10	•	7							7	50/ 100	
- 5 - - - - 5.5														190.5 -
- - - - -		Water strike at			6							8A	95/	190 -
- - 6.5 -		approximately 6.1 m depth.		95/27	5 6				very d mo SAND	ist ′ SILT		8B	275	189.5 - 189 -
- - - - -									trace trace c (TIL	ravel				188.5 -
- 7.5 - - - - 8			50/14		7							9	50/ 140	188 -
- 8.5														187.5 -
9													501	187 -
- - - 9.5		50/10		9							10	100	186.5 -	
F	alsta	on associates	inc.				JGGED B	BARAN MI:YE	<u> </u>	DRILLING DATE:	23	L Julv	/ 20	<u> 186 -</u> 14
1		onsulting enginee								Page 1 of 2		Jui		

	NT: Cole Enginee								boon Sampling	BH No.:	٨			
		Cornell Bus Terminal		NORTH		INEER:	VN	-	EV. (m) 195.79	PROJECT NO.: 14				
	TION: Hwy 7/Nint		RIVEN		CORI				STING:	HELBY	+-07 ∏			POON
SAIVI		AUGER	Shea	ar Strength							<u> _</u>	SFL		
DEPTH (m)	INSTRUMENTATION DATA	REMARKS	40 8 N (Blow	(kPa) 30 120 160 I-Value vs/300mm) 40 60 80	Γ _F	PL W.C. I		SOIL SYMBOL	SO DESCR		SAMPLE TYPE	SAMPLE NO.	SPT(N)	ELEVATION (m)
- 10								影						-
- - - 10.5														185.5 -
- - - 11 -				88	▲ <mark>7</mark>				very dense			11	88	185 - - - 184.5 -
- - 11.5 -														104.5 - - - - 184 -
- 12														-
- 				61	₹				moist t gre SANDY	ey .		12	61	183.5 -
- 								trace g	clay ıravel				183 - - - - - - - - - - 	
- - 13.5 -				7									182 -	
- - 14 -		47		7			<u>10+00+00</u> 80-280-280	dense			13		181.5 -	
- 14.5														181 -
- 15 - -									very					- 180.5 -
- - 15.5				63	8				dense			14		-
	alste	inc.			LOGGE	D BY		END OF BOREHO		23	July	. 201	4	
		on associates								DRILLING DATE:	23	July	201	4
1	CC	onsulting engine	∋rs			REVIE	VED I	BY: ۱	√N	Page 2 of 2				

	NT: Cole Enginee								1	boon Sampling	DUNA	~			
		Cornell Bus Terminal					ER: VI	N	ELE	EV. (m) 195.55	BH No.:				
	ATION: Hwy 7/Nin			NORTH						STING:	PROJECT NO.: 14	1-07			
SAM		AUGER DRI	VEN		CC	ORING				MIC CONE S	HELBY .	Ш_	SPI		POON
DEPTH (m)	INSTRUMENTATION DATA	REMARKS	40 8	ar Strength (kPa) 80 120 16 I-Value /s/300mm) 10 60 80			W.C. LL 0 60 80		SOIL SYMBOL	SO DESCR		SAMPLE TYPE	SAMPLE NO.	SPT(N)	ELEVATION (m)
- 0 - -		Borehole cave-in at 5.2 m and groundwater level at 0.9 m below ground	4							400 mm T	OPSOIL		1A	4	195.5 -
- 0.5 - -		surface on completion.								loose, mois silty fine (FIL	e sand		1B 2A		195 -
-1 - - -			7							loose	<u>,</u>		2B	7	194.5 -
- 1.5 - - - - 2			10							moist, t SANDY trace	SILT		3	10	194 -
- 2.5			1 2							trace g (TIL compact	ravel		4	12	193.5 - 193 -
- 3														12	192.5 -
- 3.5			32							hard, mois SILTY CLAY, trace grav	trace sand		5A 5B	32	192 -
- 4				75									6	75	191.5 -
- - 4.5 -				92/280									7	92/ 280	191 -
-5															190.5 -
- 5.5 - -															190 -
- 6 - - - - 6.5		Split spoon wet on retrieval of Sample 8. Water strike at		75 🔺						very d			8	75	189.5 -
- 7		approximately 6.1 m depth								moi SANDY trace	´ SILT clay				189 -
- 7.5										trace g (TIL					188.5 - 188 -
- - - - 8			50/7	5 🔺									9	50/ 75	187.5 -
- 8.5															187 -
9															186.5 -
- - - 9.5			50/10										10	50/ 100	186 -
-		n amodiator							開始				Ļ		
		on associates onsulting enginee									DRILLING DATE: Page 1 of 2	23	July	/ 20	14

	NT: Cole Enginee								Spoon Sampling			~			
		Cornell Bus Terminal		PROJEC		INEER	: VN	E	LEV. (m) 195.55		No.:				
LOCA	TION: Hwy 7/Nint			NORTHI					ASTING:		T NO.: 14	-			
SAMF		AUGER			CORIN	١G		DYN		SHELBY		\bot	SPL	IT S	POON
DEPTH (m)	INSTRUMENTATION DATA	REMARKS	40 8	ar Strength (kPa) 30 120 160 I-Value vs/300mm) 40 60 80	P	L W.C. 40 6		SOIL SYMBOL	S DESC	OIL RIPTIC	N	SAMPLE TYPE	SAMPLE NO.	SPT(N)	ELEVATION (m)
- 10															185.5 -
- - - - - - -				70									11		185.5
- 11 - -								XD-XD-XD-XD-XD-XD-XD-XD-XD-XD-XD-XD-XD-X							184.5 -
- - 11.5 -															184 -
- - 12 -			50/7	5 ▲						dense			12	50/ 75	183.5 -
- - 12.5 -									SAN tra	st, grey DY SILT ce clay				75	183 -
- - 13 -							X02-X02-	trac	e gravel FILL)					182.5 -	
- - 13.5 -		50/10	φ ▲									13	50/	182 -	
- 													100	181.5 -	
- - 14.5 -								XD:XD:XD							181 -
- - 15 -			50/10	•				TOTAL CON					14	50/ 100	180.5 -
		on associate						3Y: M		DRILLIN	IG DATE:	23	July		4
						REV/	FWF		VN						
	CC	onsulting engine	ers			REVI	EWE	D BY:	VN	Page 2	of 2				

	IT: Cole Enginee	ring Cornell Bus Terminal				gering and S SINEER: VN		boon Sampling EV. (m) 194.48	BH No.:	N	IV	V6	
	TION: Hwy 7/Nint			NORTH			-	STING:	PROJECT NO.: 1				
SAMF		AUGER DRI	VEN		CORI	NG	DYNA		SHELBY	\square	SPI	LIT S	SPOON
DEPTH (m)	INSTRUMENTATION DATA	REMARKS	40 8 N (Blov	ar Strength (kPa) <u>80</u> 120 160 N-Value ws/300mm) <u>40</u> 60 80	F	PL W.C. LL 9 40 60 80	SOIL SYMBOL	SC DESCR		SAMPLE TYPE	SAMPLE NO.	SPT(N)	ELEVATION (m)
0		For monitoring well details refer to Cole	4					350 mm 1	OPSOIL		1A		
- 0.5		Engineering log sheets.						frim, moist, brow CLAYEY SIL			1B	4	194
- 1			▲ 5					loose moist to w SAND	/ SILT		2	5	193.5
- 1.5								trace					193
-2			10		11 ♥			(TII compact			3	10	192.5
- 2.5			Ę	53 🛦				hard, moi SILTY CLAY trace grav	,trace sand		4	53	192
- 3										┨╥			191.5
- 3.5				81	8				browi		5	81	191
- 4				83/250				very		_	6	83/ 250	190.5
- 4.5			50/14	10 🔺				dense			7	50/ 140	
- 5													189.5
- 5.5									gre				189
- 6		Water strike at approximately 6.0 m						dense mo	ict (some				188.5
- 6.5		depth. Split spoon wet on retrieval of Sample 8.	44					SAND ^V trace	/ SILT clay)	8	44	188
-7								trace ((TII					187.5
- 7.5			50/7	∕5▲				very dense	(mois to wet		9	50/	187
- 8												75	186.5
- 8.5													186
- 9												50/	185.5
- 9.5			50/10								10	50/ 100	185
		on associates		I		LOGGED I	BY: ML	-	DRILLING DATE	: 23	/24	July	2014
	cc	onsulting enginee	rs			REVIEWEI	DBY: \	VN	Page 1 of 2				

	NT: Cole Enginee	ring Cornell Bus Terminal		METHOD PROJEC					boon Sampling	BH No.	- N	Π\Λ	16	
	ATION: Hwy 7/Nint			NORTHIN		NEER.		+	EV. (m) 194.48 STING:	PROJECT NO.:				
			RIVEN		CORIN	G		-		HELBY	TT			POON
DEPTH (m)	INSTRUMENTATION DATA	REMARKS	Shea 40 & N (Blov	ar Strength (kPa) 30 120 160 I-Value vs/300mm) 40 60 80	PL	_ W.C. L 40 60		SOIL SYMBOL	SC DESCR	١L		SAMPLE NO.	SPT(N)	ELEVATION (m)
- 10														184.5 -
- - - - - - - - - - - - - - - - - - -			50/15	•								11	50/ 150	184 - 183.5 -
- - 11.5 - - - - 12									very d moist, SAND	grey				183 – 182.5 –
- - - - - - - -			50/7	5 ▲					trace trace ((TIL	clay gravel		12	75	182 -
- 13 - - - - 13.5													181.5 – - - - - - - - - - - - - - - - - - - -	
- - - - - - -		50/12	5 🔺								13	50/ 125	180.5 -	
- - - - - - - - - - - - - - - - - - -			50/15	0					hard, mo SILTY CLAY trace grav	, trace sand		14	50/	180 – 179.5 –
	alsta	on associates				LOGGE	DB	Y: MI	END OF BOREH	DLE DRILLING DATE	E: 23		ų5φ	2014
		onsulting engine			ŀ	REVIEV				-	:: 23	/24、	JUIY	2014
	CC	nsumng engine	015			REVIEV	v⊏D	DI:	VIN	Page 2 of 2				

	NT: Cole Enginee							poon Sampling	BH No	- 7	,		
	TION: Hwy 7/Nint	ornell Bus Terminal		NORTHIN		NEER: V		EV. (m) 194.35	PROJECT NO.:				
					CORIN	G		STING:	SHELBY	T4-07		ITS	POON
DEPTH (m)	INSTRUMENTATION DATA	REMARKS	Shear (k 40 80 N-\ (Blows	Strength (Pa) 120 160 Value (/300mm) 60 80	PL	W.C. LL 40 60 8		S	OIL RIPTION	SAMPLE TYPE	SAMPLE NO.	SPT(N)	ELEVATION (m)
- 0 - - - 0.5		Borehole cave-in at 5.5 m and groundwater level at 4.6 m below ground surface on completion.						firm, moist, bro	n TOPSOIL own to dark browr ILT, trace sand		1A 1B	8	194 -
- - 			34					trace clay, tra	prown SANDY SIL ace gravel (TILL)	т	2A 2B	34	193.5 -
1.5									n SILTY SAND				193 -
-2			14					SILT trac	st, brown TY CLAY ce sand e gravel		3	14	192.5 -
- - 2.5			26						TIĽL)		4A 4B	26	192 -
- 3 - - - 3.5			50/125								5	50/ 125	191 -
- - - - - - -				77				very dense	bro	own	6	77	190.5 - 190 -
- 4.5 				99/250					 browr		7	99/ 250	189.5 -
- 5.5		Water strike at approximately 5.5 m							g 				189 -
- 6		depth.	74	/275 🔺				SAN tra	noist DY SILT ce clay e gravel ^g	rey	8	74/ 275	188.5 -
- 6.5								(TILL)			210	187.5 -
-7 - - -7.5													187 -
-8			44					dense			9	44	186.5 -
- 8.5													186 -
-9			50/125					very dense			10	50/ 125	185.5 -
- 9.5													-
		on associates ir			Ĺ	LOGGED	BY: M	L	DRILLING DA	TE: 24	Jul	/ 20	14
	CC	onsulting engineers	6			REVIEW	ED BY:	VN	Page 1 of 2				

	NT: Cole Enginee			METHO	D: Aug	ering a	and S	plit S	poon Sampling	B 11 M	_			
	-	Cornell Bus Terminal		PROJEC		INEER:	VN	EL	EV. (m) 194.35	BH No.:				
		th Line, Markham		NORTHI				_	STING:	PROJECT NO.: 14	4-07			
SAMF		AUGER DR	IVEN		CORIN	١G		DYNA	MIC CONE S	HELBY		SPL	IT S	POON
DEPTH (m)	INSTRUMENTATION DATA	REMARKS	40 8	ar Strength (kPa) 30 120 160 I-Value vs/300mm) 40 60 80	P	L W.C. 40 60		SOIL SYMBOL	SC DESCR		SAMPLE TYPE	SAMPLE NO.	SPT(N)	ELEVATION (m)
- 10														184.5
- - - - - - - - - - - - - - - - - - -			50/12	5 🔺								11	50/ 125	184 - - - 183.5 -
- 11 - - -								201-201-20 201-201-20						183 -
- 11.5 - - - - 12									very d moist,	grey				- - 182.5 -
- 12.5			50/5	•				201-201-20 201-201-20	SANDY trace trace o	clay ıravel		12	50/ 50	182 -
- 13								0.0000	(TIL	L)				- 181.5 - -
- - - 13.5													181 -	
- - - 14		50/5	♥ ▲				040040				13	50/ 50	180.5 -	
- 											-			180 - - -
- - - 15 -									hard, mo SILTY CLAY trace grav	, trace sand				179.5 -
-			50/12	5▲				 	END OF BOREHO	DLE			50/ 125	179 _
	5													
	alsta	on associates	inc			LOGO	ED R	Y: MI		DRILLING DATE:	24	Juk	201	14
		onsulting enginee				REVIE				Page 2 of 2		Jary		

	NT: Cole Engineer	ring cornell Bus Terminal				gering and Sp SINEER: VN		boon Sampling	BH No.:	8			
	TION: Hwy 7/Nint			NORTH		DINEER. VIN	+	EV. (m) 194.61 STING:	PROJECT NO.: 14				
	-		/EN	M	CORI	NG	-		HELBY	T			POON
DEPTH (m)	INSTRUMENTATION DATA	REMARKS	Shea (40 8 N (Blow	r Strength (kPa) 0 120 160 -Value s/300mm) 0 60 80) F	PL W.C. LL 0 40 60 80	SOIL SYMBOL	SO DESCRI	IL	SAMPLE TYPE	SAMPLE NO.	SPT(N)	ELEVATION (m)
0 0.5		Borehole cave-in at 7.8 m and groundwater level at 4.3 m below ground surface on completion.	18		20) 31		300 mm T0 very stiff, moist, brov some sand, tra	wn CLAYEY SILT		1A 1B	18	194.5 - 194 -
- - - - - - - - - - - - - - - - - - -			4 11		12 9			compact, mo SANDY SILT, trace grave	trace clay		2	11	193.5 - 193 -
- - - - - -			19					very stiff moist, b SILTY CLAY,	rown trace sand		3A 3B	19	192.5 -
- 2.5 			31		9			hard trace grave	əl (TILL)		4	31	192 - 191.5 -
- 3.5		Water strike at		89					brown brownish		5	89	191 -
- 4 - - - - - - 4.5		approximately 3.8 m depth.	50/150	95/250	6				grey grey		6 7	50/	190.5 - 190 -
-5									0.7			150	189.5 -
- 5.5 - - - - - - 6													189 - 188.5 -
- 				68	6			very de mois SANDY trace o	st clay) SILT clay		8	68	188 -
-7 			50/125		8			trace gi (TILI	(moist to wet)		9	50/	187.5 - 187 -
- - - - - - -											5	125	186.5 -
- 8.5 - - - - - 9					7								186 - 185.5 -
- - - - - - - -			58/1	50	7						10	58/ 150	
		on associates i				LOGGED BY			DRILLING DATE:	24	July	/ 20	14
	cc	onsulting engineer	'S			REVIEWED	BY: \	VN	Page 1 of 2				

	NT: Cole Enginee	ering Cornell Bus Terminal				ering and INEER: VN		poon Sampling EV. (m) 194.61	BH No.:	8			
	•	th Line, Markham		NORTH				STING:	PROJECT NO.: 14				
			IVEN	M	CORIN	IG			HELBY	\mathbb{T}		IT S	POON
DEPTH (m)	INSTRUMENTATION DATA		Shea 40 8 N (Blow	Ar Strength (kPa) 30 120 160 J-Value vs/300mm) 40 60 80) P	L W.C. LL 40 60 80	SOIL SYMBOL	SO DESCR	۱L	SAMPLE TYPE	SAMPLE NO.	SPT(N)	ELEVATION (m)
- 10													
- - - 10.5 -			50/12	5	8						11		184.3 - - - - 184 -
- - - 11 - -								very d moist, SANDY	grey			125	- 183.5 - -
- 11.5 - - - - 12								trace trace g (TIL	clay Iravel				183 -
-			50/5	φ ▲	9						12	50/ 50	182.5 -
- 12.5													182 - -
- 13 - - - - 13.5												181.5 -	
-		50/10	φ ▲	8			har			13	50/ 100	181 -	
- 14 - -							moist, SILTY traces	CLAY sand				- 180.5 - -	
- 14.5								trace g (TIL					180 - - -
- 15 - -			50/10	ø ▲	11						14	50/ <u>100</u>	179.5 -
	alste	inc				BY: M	END OF BOREHO		24	.101	201	14	
		on associates							DRILLING DATE:	24	July	201	14
	C	onsulting enginee	312			REVIEWE	л ВА:	VIN	Page 2 of 2				

	NT: Cole Engin				 -		boon Sampling		•			
	•	d Cornell Bus Ter			NEER: VN		EV. (m) 194.69	BH No.:				
		Ninth Line, Markha		NORTHI		-	STING:	PROJECT NO.: 14	-07 ∏			
SAM	PLE TYPE	AUGER	DRIVEN	ar Strength	G		MIC CONE SI	HELBY _	μ_	SPL	IT S	POON
DEPTH (m)	INSTRUMENTATI DATA	ON REMARKS	S 40 5	(kPa) 80 120 160 N-Value ws/300mm) 40 60 80	W.C. LL 40 60 80	SOIL SYMBOL	SO DESCRI		SAMPLE TYPE	SAMPLE NO.	SPT(N)	ELEVATION (m)
_ 0							∖ <u>50 mm TC</u>		Ħ	1A		194.5 -
- - - 0.5							compact, moist trace gravel, tra trace rootle	ace organics		1B	14	194.5 -
- - - - -			7					moist		2A 2B	7	193.5 -
- - 1.5 -			▲ 5				loose, b sandy trace g	/ silt		3	5	193 -
-2							(FIĽ	L) wet		4A		192.5 -
- 2.5							stiff, wet, brown m			4A 4B 4C	10	192 -
- 3 - - - - 3.5			25				stiff to very stiff, SILTY CLAY, trace grave	trace sand		5	25	191.5 -
- 4			50/10	0				brown		6	50/ 100	191 -
- - - 4.5												190.5 -
- 5				87/250				 brownish grey		7	87/ 250	190 -
- 												189.0
												188.5 -
- - 6.5				78			very de moi SANDY	st		8	78	188 -
- 7 							trace e trace g (TIL	ravel				187.5 -
- - 7.5 -				87/275						9	87/ 275	187 -
- 												186.5 -
- 8.5 												186 -
-9			50/7	∕5 ▲						10	50/ 75	185.5 -
- 9.5 -												185 -
F	als	ston associ	ates inc.		LOGGED B	N: MF	D	DRILLING DATE:	ـــــــــــــــــــــــــــــــــــــ	 Julv	201	14
1		consulting en			 REVIEWED			Page 1 of 2	_7	2 Gry	_0	

CLIENT: Cole Engineering PROJECT: Proposed Cornell Bus Terminal					METHOD: Augering and S PROJECT ENGINEER: VN					BH No.: 9				
	TION: Hwy 7/Nint			NORTHING:				-	EV. (m) 194.69 STING:	PROJECT NO.: 14-072				
			VEN		CORIN			_		HELBY	TT			POON
DEPTH (m)			Shea 40 & N (Blov	ar Strength (kPa) 30 120 160 I-Value vs/300mm) 40 60 80	P	L W.C. 40 60	LL	SOIL SYMBOL	SC DESCR	NL			SPT(N)	ELEVATION (m)
- - 10 - - - - 10.5														-
- 10.3 - - - - 11			50/12	5 🔺								11	125	184 - - - - 183.5 -
- - - 11.5 - -								AD-AD-AD-A	very d	ense				183 -
- - 12 - - - - 12.5			50/10	● ▲					moist, SAND) trace trace g	′ SILT clay		12	50/ 100	- - 182.5 -
- 12.5 - - - - - 13									(TIL	L)				182 -
- - - 13.5 -														- 181.5 - - - - 181 –
- - - 14 - -			50/10	● ▲								13	100	180.5 -
- 14.5 - - - - 15									hard, mo		_			180 -
- 15.5				93/250					SILTY CLAY trace grav	el (TILL)		14	93/ 250	179.5 - - - -
	alste	on associates	inc						END OF BOREH				. 201	
						LOGG				DRILLING DATE	24	July	201	4
I I	CC	onsulting enginee		REVIEWED BY: VN			Page 2 of 2							

LICATION: Hwy 7NIMT Line, Markam NORTHING: EASTRG: PROJECT NO: 14-072 SAMPLE TYPE AUGER DRIVEN SPLIT SPC SHELBY SPLIT SPC SAMPLE TYPE AUGER DRIVEN SPLIT SPC SOLL SPLIT SPC SAMPLE TYPE AUGER DRIVEN SPLIT SPC SOLL SPLIT SPC SAMPLE TYPE AUGER DRIVEN SPLIT SPC SOLL SPLIT SPC SAMPLE TYPE AUGER DRIVEN SPLIT SPC SOLL SPLIT SPC SAMPLE TYPE AUGER SPLIT SPC SOLL SPLIT SPC SOLL SPLIT SPC SAMPLE TYPE AUGER SOLL SOLL SOLL SPLIT SPC SOLL SPLIT SPC SAMPLE TYPE GOLDAND SOLDAND	CLIENT: Cole Engineering METHOD: Aug PROJECT: Proposed Cornell Bus Terminal PROJECT ENG							gering and Split Spoon Sampling SINEER: VN ELEV. (m) 194.74 BH No.: MW10								
INSTRUMENTATION REMARKS Issue Statem (a) ap 120 rot (b) ap 120 rot (c) ap 120 rot (:									
BRETURDMENTATION RECARROS design to transmitter and the second strates of t								G	DYNA		SHELBY	\square	SP	LIT S	SPOON	
adatas refer to Cois 12 13 350 mm TOPSOL 14 14 1 ad 8 m and a groundwater level at 4.6 m and a groundwater le			REMARKS	40 8 N (Blow	(kPa) 80 120 10 I-Value vs/300mm	60 1)			SOIL SYMBOL			SAMPLE TYPE	SAMPLE NO.	SPT(N)	ELEVATION (m)	
0.5 Change Strate Strate Strate 18 1 1 1 10 1 10 1 10 1 10 1 10 1.5 11 1.6 11 1.7 12 1.8 11 1.9 11 1.6 11 1.7 12 1.8 11 1.9 12 1.9 11 1.9 11 1.1 12 1.1 12 1.2 12 1.3 11 1.4 11 1.5 11 1.5 11 1.6 11 1.7 12 1.8 11 1.9 11 1.1 12 1.1 12 1.1 12 1.1 12 1.1 12 1.1 12 1.1 12 1.1 12 1.1 12 1.1 12 1.1 12 1.1 12 1.1 12	0			12						350 mm	TOPSOIL		1A	40	194.5	
1 on completion. 47 12 lose 28 7 12 1.5 411 11 11 11 12 onpact brown most to wet mace gravel trace gravel (TLL) 3 11 2.5 47 12 12 12 12 12 14 14 15 3 4 4 7 12 12 12 14 14 14 15 3 3 12 12 12 12 14 14 7 15 3 3 3 14 14 14 14 15 15 14 16 14 17 15 16 14 16	0.5		sheets.Borehole cave-in at 8.5 m and groundwater level at 4.6							CLAYEY SIL	T, trace sand		-	12	194	
2 2 2.5 3 3 3 3 3 3 3 3 3 3 3 3 3	1			7		.	12						-	7	193.5	
2.5 4 7 12	· 1.5 · 2			1 1					201-201-201- 201-201-201-	moist	to wet		3	11	193	
3.5 3.4 8 1 1 1 5 3.4 5 4 49 8 4 1 1 6 49 4.5 49 7 49 1 6 49 1 5.5 49 7 49 1 1 1 1 6.5 49 8 6 1 1 1 1 7 40 7 49 1 1 1 7 40 7 40 7 40 1 8 40 7 40 7 40 1 9 9.5 8 8 8 8 1 1	2.5			7			12		11-11-11-11-11-11-11-11-11-11-11-11-11-	trace	e clay gravel		4	7	192.5 · 192 ·	
4 49 8 brownish grey 6 49 6 49 6 4.5 49 7 49 7 49 7 49 5.5 9 8 6 7 8 6 1 <td< td=""><td>• 3 • 3.5</td><td></td><td></td><td>34</td><td></td><td>8</td><td>3</td><td></td><td></td><td>SILTY CLAY</td><td>r, trace sand</td><td></td><td>5</td><td>34</td><td>191.5</td></td<>	• 3 • 3.5			34		8	3			SILTY CLAY	r, trace sand		5	34	191.5	
5 49 7 7 49 5.5 6 18 6.5 88 6 11 18 7 88 6 11 18 8.5 40 7 11 18 9 40 7 11 18 8.5 9 88290 8 11 10 9.5 10 88290 8 11 10	• 4			49		5	3				brown	n	6	49	191 190.5	
5.5 6 6.5 7 7 7 7 7 7 8 8 8 8 9 9.5 8 8 8 8 8 8 8 8 8 8 8 8 8	· 4.5 · 5			49	9▲	7				dense	gre	y -	7	49	190	
6.5	5.5								100-100-100 0100-100						189.5	
6.5 7 7 7.5 8 8.5 9 9.5 8 88/290 8 8 88/290 8 8 8 8 8 8 9 10 8 8 8 8 8 8 8 8 8 8 8 8 8	6						;		000000000000000000000000000000000000000	very					188.5	
7.5 8 8.5 9 9.5 8.7 9.5	6.5									SAND	Y SILT e clay)	8	88	188	
8 8.5 9 9.5 9.5 9.5 9.5 9.5 9.5 9.5	7								10-10-10 10-10-10	trace (TI	gravel LL)				187.5	
8.5 9 9.5 9.5				40 4		7				dense			9	40	187	
9 9.5	• 8.5								50-50-51 20-20-51						186.5	
9.5	• 9														186	
	9.5				88/290		3						10	88/ 290		
	alston associates inc.												<u> </u>		185	
Consulting engineers REVIEWED BY: VN Page 1 of 2				- H	LOGGED BY: MP DRILLING DATE: 24 July 20							14				

	NT: Cole Enginee					poon Sampling		· M\\/10						
	-	Cornell Bus Termina	al			INEER: VN	-	EV. (m) 194.74	BH No.: MW10				0	
	TION: Hwy 7/Nin			NORTHI				STING:	PROJECT NO.: 14					
SAM		AUGER		ar Strength	CORIN	NG	DYN/		HELBY	_⊥	SPL	IT S	POON	
DEPTH (m)	INSTRUMENTATION DATA	REMARKS	40 8	(kPa) <u>80 120 160</u> I-Value vs/300mm) <u>40 60 80</u>	- - 20	L W.C. LL 40 60 80	SOIL SYMBOL	SC DESCR		SAMPLE TYPE	SAMPLE NO.	SPT(N)	ELEVATION (m)	
- 10														
- - - 10.5											•		184.5 - - - - - -	
- - - 11 -				83	7			very d moist,	grey		11	83	183.5 -	
- - 11.5 -								SANDY trace trace g (TIL	clay jravel				183 -	
- 			50/12		6				-L)		12	50/	182.5 -	
- 			50/12								12	125	182 -	
- 							2000			_			181.5 -	
- - 13.5 -			50/12	5▲	7			very den SILTY	SAND		13	50/	- - 181 –	
- 								trace ç	jravel			125	180.5 -	
- 								hard, mo	ist. arev	_			180 -	
- - 15 -			50/7	5	11			SILTY CLAY trace grav	, trace sand		14	50/	179.5 -	
							 	END OF BOREHO	DLE			<u>,75</u> ,		
	alsto	on associate	es inc.			LOGGED E	BY: M	P	DRILLING DATE	:: 24	July	, 201	14	
										: 24	July	20'	14	
L	CC	onsulting engin	eers			REVIEWED	DBY:	VN	Page 2 of 2					

LICATION: Hoy ZMIND Line, Markiam DOTHNG: EASTING: PROJECT NO: 14:072 SAMPLE TYPE AUGER DRVEN CONNO DIVEMIC CONE SHELEY SPLIT SPOON SMPLE TYPE AUGER DRVEN CONNO DIVEMIC CONE SHELEY SPLIT SPOON SMPLE TYPE AUGER DRVEN CONNO DIVEMIC CONE SHELEY SPLIT SPOON SMPLE TYPE AUGER DRVEN CONNO DIVEMIC CONE SHELEY SPLIT SPOON SMPLE TYPE AUGER DRVEN CLAYER SHELEY SPLIT SPOON SMPLETYPE For monitoring well end provide register. For monitoring well end provide register. SPLIT FORCE TROPOLIC Totace gravel (Inclust) Totace gravel (Inclust) Totace gravel (Inclust) SPLIT SPOON 1.5 SPLIT FORCE TO CONDUCT SPLIT FORCE SPLIT FORCE TROPOLIC SPLIT FORCE SPLIT SPOON SPLIT FORCE SPLIT SPOON SPLIT FORCE SPLIT SPLIT FORCE SPLIT FORC		NT: Cole Enginee			ering and Split Spoon Sampling							1			
SAMPLE TYPE AUGER DRIVEN CORING DYNAMIC CONE SHELBY SPUT SPON 8 8										/ • • •					
Status Plane is breach (a) P									T		IT S	POON			
2.0.5 2.0.1mm (DF-SOLL) 11 13 12 19.5 1.5 3 19	DEPTH (m)		REMARKS 40	ear Strength (kPa) 80 120 160 N-Value ows/300mm) P	РL W.C. LL		SO	IL	SAMPLE TYPE						
1 at 27 m below ground and sufface on completion. 4 19 19 19 10 100	-		details refer to Cole 12 Engineering log sheets. Borehole cave-in at 3.7				compact, moist	, brown sand			12	194.5 -			
2 19 18 18	- - - 1 -		at 2.7 m below ground surface on completion.				firm, moist	, brown		2	5	194 - 193.5 -			
-2.5 -3 -18 -18 -18 -19.5 -3.5	-			19			SANDY SILT	, trace clay		3	19	193 -			
-3.5 -3.5	-			18			moist, b SILTY CLAY,	rown trace sand		4	18	192.5 - 192 -			
-4.5 Wet soil caving from Sample 7 onward. 50/100 50/100 100.5 <td>-</td> <td></td> <td>23</td> <td></td> <td></td> <td></td> <td>trace grave</td> <td>· · ·</td> <td></td> <td></td> <td>23</td> <td>191.5 -</td>	-		23				trace grave	· · ·			23	191.5 -			
4.5 Wet soil caving from Sample 7 onward. 50/100 50/100 100 100 189.5 -5.5 -6 -6.5 -6.5 -6.5 189.5 189.5 -6.5 -6.5 -6.5 -6.5 189.5 189.5 -7.7 -6.5 -6.5 -6.5 189.5 189.5 -7.7 -6.5 -6.5 -6.5 189.5 189.5 -7.6 -6.5 -6.5 -6.5 -6.5 188.5 -7.7 -6.5 -6.5 -6.5 -6.5 -6.5 -7.5 <td< td=""><td>- - 4 -</td><td></td><td>50/1</td><td></td><td></td><td></td><td></td><td></td><td></td><td>6</td><td></td><td></td></td<>	- - 4 -		50/1							6					
5.5	-			100				grey 		7		190.5 -			
-6.5 wery dense moist SANDY SILT trace clay trace gravel (TILL) 8 63 188.5 -7 50/75 ▲ 50/75 ▲ 9 9 50/75 ▲ 9 -8.5 50/100 ▲ 50/100 ▲ 10 186.5 186.5 -9 50/100 ▲ 50/100 ▲ 10 186.5 186.5 -9 50/100 ▲ 10 10 186.5 186.5 -9 50/100 ▲ 10 186.5 186.5 186.5 -9 50/100 ▲ 10 186.5 186.5 186.5 -9 50/100 ▲ 10 186.5 186.5 186.5 -9 50/100 ▲ 10 186.5 186.5 186.5 -9 50/100 ▲ 10 186.5 186.5 186.5 -9 50/100 ▲ 10 186.5 186.5 186.5 -9 50/100 ▲ 10 186.5 186.5 186.5 -9 50/100 ▲ 10 186.5 186.5 186.5 -9.5 50/100 ▲ 10 185.5 185.5 185.5 </td <td>- - - 5.5 -</td> <td></td>	- - - 5.5 -														
-7 -7.5 50/75 • 1 <td< td=""><td>-</td><td></td><td></td><td>63</td><td></td><td></td><td>mois</td><td>st</td><td></td><td>8</td><td>63</td><td>188.5 -</td></td<>	-			63			mois	st		8	63	188.5 -			
-7.5 -8 -8.5 -9 -9.5 -9.5 -9.5 -9.5 -0.	- - - - - -						trace gi	ravel				188 -			
-8.5 -9 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -0	- - 7.5		50.	/75						9	50/ 75				
-9 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9.5 -9	-														
-9.5 alston associates inc. Logged BY: MP DRILLING DATE: 25 July 2014	-											186 -			
alston associates inc. Logged BY: MP DRILLING DATE: 25 July 2014	- - - 9.5		50/1	100 ▲						10	50/ 100				
	-	alsta	on associates inc					25	յսհ						
				-				Page 1 of 2	20 July 2014						

	NT: Cole Enginee					olit S	boon Sampling									
	-	Cornell Bus Termina	al	PROJEC		INEER: \	/N	ELEV. (m) 194.81 BH No.: M								
	TION: Hwy 7/Nin			NORTHING:				-	STING:	PROJECT NO.: 14-072						
SAME	SAMPLE TYPE AUGER DRIVEN				CORIN	IG	[DYNA	MIC CONE S	HELBY	Ш.	SPL	IT S	POON		
DEPTH (m)	INSTRUMENTATION DATA	REMARKS	40 8 N (Blow	ar Strength (kPa) 30 120 160 I-Value vs/300mm) 40 60 80		L W.C. L 40 60		SOIL SYMBOL	SC DESCR		SAMPLE TYPE	SAMPLE NO.	SPT(N)	ELEVATION (m)		
- 10 - 10.5 			50/7	5 🔺					very d moist, SANDY trace trace g (TIL	grey ′ SILT clay jravel		11	50/ 75	184.5 - - - 184 -		
- - - - - - - - -								50 200 000 000 000 80 80 90 90 90	(_			183.5 - - - - 183 -		
- - 12 - - - - 12.5			31					200 200 200 200 200 200 200 200 200 200	dense SAND GRA	and		12		182.5		
- - - 13								1.00 200 200 1.00 200 200 1.00 200 200						182 -		
- - 13.5 -			50/10									13		181.5 – 181.5 –		
- 14 - - - - 14.5									hai moist, SILTY trace s trace g	grey CLAY sand				180.5 -		
- - - 15 - -									(TIL				50/	180 - 180 - 179.5 -		
_ 15.5			50/2	5▲					END OF BOREHO			14	25			
		on associate														
				LOGGE	D BY	Y: M	0		E: 25 July 2014							
	CC	REVIEWED				BY:	٧N	Page 2 of 2								