



Terraprobe

*Consulting Geotechnical & Environmental Engineering
Construction Materials Inspection & Testing*

**FOUNDATION INVESTIGATION REPORT
CADDEL CREEK CULVERT EXTENSION
HIGHWAY 17, TOWNSHIP OF SALTER
2.7 KM WEST OF HIGHWAY 553**

AGREEMENT No. 5009-E-0063, G.W.P. 5214-08-00, SITE: 46-402

GEOCRES No. 41J-91

PREPARED FOR: McIntosh Perry Consulting Engineers Ltd.
192 Hickson Avenue
Kingston, Ontario
K7K 2N9

Attention: Mr. Bob Boutilier

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Distribution:

1 Copy - McIntosh Perry Consulting Engineers Ltd.
2 Copies - MTO Project Manager, Northeastern Region
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1 Copy - Terraprobe Inc., Brampton

Terraprobe Inc.

Greater Toronto

11 Indell Lane
Brampton, Ontario L6T 3Y3
(905) 796-2650 Fax: 796-2250
brampton@terraprobe.ca

Hamilton – Niagara

903 Barton Street, Unit 22
Stoney Creek, Ontario L8E 5P5
(905) 643-7560 Fax: 643-7559
stoneycreek@terraprobe.ca

Central Ontario

220 Bayview Drive, Unit 25
Barrie, Ontario L4N 4Y8
(705) 739-8355 Fax: 739-8369
barrie@terraprobe.ca

Northern Ontario

1012 Kelly Lake Rd., Unit 1
Sudbury, Ontario P3E 5P4
(705) 670-0460 Fax: 670-0558
sudbury@terraprobe.ca

www.terraprobe.ca

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FOUNDATION INVESTIGATION REPORT
CADDEL CREEK CULVERT EXTENSION
HIGHWAY 17, TOWNSHIP OF SALTER, ONTARIO
AGREEMENT No. 5009-E-0063, G.W.P. 5214-08-00, SITE: 46-402
GEOCRES No. 41J-91
PART 1: FACTUAL INFORMATION

1 INTRODUCTION

This report presents the factual results of a foundation investigation conducted at the Highway 17 crossing of Caddel Creek. An extension to the north side of the existing culvert is required to facilitate construction of a future westbound passing lane. The site is located 2.7 km west of Highway 553, in Sables-Spanish Rivers (Massey), in the Township of Salter, District of Sudbury, Ontario.

The purpose of this investigation was to explore the subsurface conditions at the site and based on the data obtained, to provide a borehole location plan, a record of borehole, a stratigraphic profile, laboratory test results and descriptions of the subsurface conditions. A model of the subsurface conditions was developed from the data obtained.

Terraprobe Inc. conducted the investigation as a sub-consultant to McIntosh Perry Consulting Engineers Ltd., under the Ministry of Transportation Ontario (MTO) Northeastern Region Agreement Number 5009-E-0063.

2 SITE DESCRIPTION & PHYSIOGRAPHY

Highway 17 crosses Caddel Creek via a cast in place, concrete rigid frame, open footing culvert that is 4.3 m wide by 1.5 m high with a length of 27.3 m. At this site Highway 17 is a two-lane highway with gravel shoulders carrying both east and west bound traffic. A CPR (Canadian Pacific Railway) track runs parallel to Highway 17 and is located approximately 30 m north of Highway 17 centreline.

Caddel Creek flows from north to south through relatively flat terrain. The roadway embankment height is ± 2 m high. The vegetation consists primarily of grass, shrubs and occasional small trees. Beyond the culvert site the area is vegetated with mature stands of deciduous and coniferous trees.

The site is located in Northern Ontario on the Canadian Shield, a region characterized by bare igneous or metamorphic rock outcrops or rock near the surface covered by a thin layer of soil. Sand, silt and clay deposits are found in the low lying areas.

The Surficial Geology Map for Algoma, Sudbury, Timiskaming and Nipissing shows that the area of the project lies on a lacustrine plain composed of varved or massive clay and silt, fine sand and silty to sandy till.



3 SITE INVESTIGATION AND FIELD TESTING

The site investigation and field testing for this project were carried out on November 17th to 18th, 2011 and consisted of drilling and sampling one borehole to a depth of 26.4 m below ground surface. The approximate borehole location is shown on the attached Borehole Location and Soil Strata Drawing in Appendix C.

Samples of the overburden soils were obtained at regular intervals of depth using a split spoon sampler in conjunction with Standard Penetration Testing (SPT), as specified in ASTM Method D1586. The undrained shear strength of the clayey silt deposit encountered in the borehole was measured using an MTO type field vane. A relatively undisturbed soil sample was also collected with a thin-walled Shelby Tube sampler.

Ground water conditions were observed in the open borehole during and immediately following the drilling operations. After drilling was complete the borehole was abandoned in accordance with MOE Regulation 903 by sealing/grouting with a clay slurry mixture.

The drilling, sampling and in-situ testing was observed on a full time basis by a member of Terraprobe's technical staff who also logged the boreholes and processed the recovered soil samples for transport to Terraprobe's Brampton laboratory for further examination and testing.

4 LABORATORY TESTING

The recovered soil samples were examined in the laboratory to verify the initial field classifications. Natural water contents were determined on all of the samples and selected samples were also subjected to further laboratory classification testing including grain size analyses and Atterberg Limits tests. The results of the laboratory testing are shown on the Record of Borehole sheets in Appendix A and on the Figures in Appendix B.

5 DESCRIPTION OF SUBSURFACE CONDITIONS

Details of the subsurface soil and ground water conditions encountered in the borehole are presented on the Record of Borehole sheets in Appendix A and on the "Borehole Location and Soil Strata" drawing in Appendix C. The stratigraphic boundaries shown have been inferred from non-continuous samples and observations of drilling resistance and typically represent a transition from one soil type to another. These boundaries should not be interpreted to represent exact planes of geological change. The subsurface conditions are confirmed at the borehole location only, and will vary between and beyond the location investigated. The following discussion has been simplified in terms of the major soil strata.

In general, the borehole penetrated topsoil and an extensive deposit of generally stiff clayey silt.

5.1 Topsoil

A 280 mm thick surface layer of topsoil was encountered in the borehole.



5.2 Clayey Silt

A native clayey silt deposit was encountered beneath the topsoil and to the depth explored in the borehole (i.e. to 26.4 m below the existing ground surface or to Elev. 158.4 m).

The grain size distribution plots of samples of the clayey silt are presented on Figure B-1. These results show a grain size distribution consisting of 0-1% gravel, 0-3% sand, 78-83% silt and 13-22% clay size particles.

Samples of the clayey silt were also subjected to Atterberg Limits tests and the results are shown on the plasticity chart, Figure B-2. The index values from these tests are summarized below:

| | |
|---------------------------|--------|
| Liquid Limit: | 26-27% |
| Plastic Limit: | 20-21% |
| Plasticity Index: | 6% |
| Natural Moisture Content: | 26-31% |

These values indicate that the deposit generally consisted of low plasticity clayey silt.

The N values determined in the clayey silt ranged from 2 to 10 blows for 0.3 m penetration. Field vane shear tests indicated undrained shear strengths ranging from 88 kPa to greater than 100 kPa. The above values indicate that the consistency of the clayey silt was generally in the stiff range. The natural water content of samples of the clayey silt recovered from the penetration testing ranged from 22 to 45 per cent with an average natural water content of about 30 per cent.

5.3 Water Levels

The ground water table was estimated based on the observations in the open borehole during drilling operations and a review of moisture contents of the retrieved samples. This interpretation indicates a ground water table at about Elev. ± 183.0 m.

The ground water observations at this site are short term and the levels are expected to fluctuate seasonally as well as after severe weather events. The ground water level may also be affected by the free water level in the existing water course.

5.4 Miscellaneous

The borehole location was marked in the field by a member of Terraprobe's technical staff by referring to the existing highway alignment and other topographical features shown on the base plans provided by McIntosh Perry Consulting Engineers. The ground surface elevation of the borehole was referenced to the Ministry of Transportation benchmark numbered 0011914U591 located on CPR concrete box culvert, on north side of Trans-Canada Highway 17, 0.2 km west of Caddel Road. The benchmark consists of a bolt in north face of the northeast corner of the culvert. The elevation of this benchmark was understood to be 185.581 m referred to geodetic datum.

Utility clearances were obtained by Terraprobe prior to drilling. The drilling, sampling and in-situ testing operations were conducted with a track mounted drill rig owned and operated by Landcore



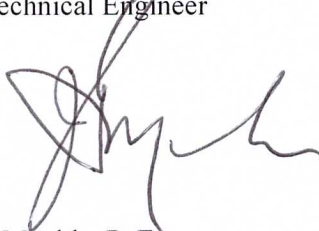
Drilling of Chelmsford, Ontario. The borehole was advanced using a combination of hollow-stem augering and washboring techniques.

Mr. Wen Zhu carried out the field work and the laboratory testing was performed at Terraprobe's Brampton laboratory. The report was written by Hussein Ahmed, P. Eng. and J. G. Muckle, P. Eng. and was reviewed by Michael Tanos, P. Eng.

Prepared by:



H. Ahmed, P. Eng.
Geotechnical Engineer



J. G. Muckle, P. Eng.,
Associate, Senior Geotechnical Engineer

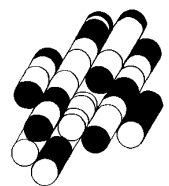


Report Reviewed by:
Michael Tanos, P. Eng.,
Review Principal



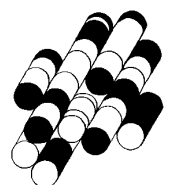
APPENDICES

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APPENDIX A

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LIMITATIONS AND RISK

Procedures

The soil conditions were confirmed at the borehole locations only and conditions may vary between and beyond the boreholes. The boundaries between the various strata as shown on the logs are based on non-continuous sampling. These boundaries represent an inferred transition between the various strata, rather than a precise plane of stratigraphic change.

This investigation has been carried out using investigation techniques and engineering analysis methods consistent with those ordinarily exercised by Terraprobe and other engineering practitioners, working under similar conditions and subject to the time, financial and physical constraints applicable to this project. The discussions and recommendations that have been presented are based on the factual data obtained.

It must be recognized that there are special risks whenever engineering or related disciplines are applied to identify subsurface conditions. Even a comprehensive sampling and testing programme implemented in accordance with the most stringent level of care may fail to detect certain conditions. Terraprobe has assumed for the purposes of providing design parameters and advice, that the conditions that exist between sampling points are similar to those found at the sample locations. The conditions that Terraprobe has interpreted to exist between sampling points can differ from those that actually exist.

It may not be possible to drill a sufficient number of boreholes or sample and report them in a way that would provide all the subsurface information that could affect construction costs, techniques, equipment and scheduling. Contractors bidding on or undertaking work on the project should be directed to draw their own conclusions as to how the subsurface conditions may affect them, based on their own investigations and their own interpretations of the factual investigation results, cognizant of the risks implicit in the subsurface investigation activities.

Changes In Site And Scope

It must be recognized that the passage of time, natural occurrences, and direct or indirect human intervention at or near the site have the potential to alter subsurface conditions. Groundwater levels are particularly susceptible to seasonal fluctuations.

The design advice is based on the factual data obtained from this investigation made at the site by Terraprobe and are intended for use by the owner and its retained designers in the design phase of the project. If there are changes to the project scope and development features, or there is any additional information relevant to the interpretations made of the subsurface information, the geotechnical design parameters and comments relating to constructibility issues and quality control may not be relevant or complete for the revised project. Terraprobe should be retained to review the implications of such changes with respect to the contents of this report.

This report was prepared for the express use of the Ministry of Transportation, its retained design consultants and McIntosh Perry Consulting Engineers Ltd. It is not for use by others. This report is copyright of Terraprobe Inc. and no part of this report may be reproduced by any means, in any form, without the prior written permission of Terraprobe Inc. The Ministry of Transportation, its retained design consultants and McIntosh Perry Consulting Engineers Ltd., are authorized users.

EXPLANATION OF TERMS USED IN REPORT

N VALUE: THE STANDARD PENETRATION TEST (SPT) N VALUE IS THE NUMBER OF BLOWS REQUIRED TO CAUSE A STANDARD 51mm O.D. SPLIT BARREL SAMPLER TO PENETRATE 0.3m INTO UNDISTURBED GROUND IN A BOREHOLE WHEN DRIVEN BY A HAMMER WITH A MASS OF 63.5kg. FALLING FREELY A DISTANCE OF 0.76m. FOR PENETRATIONS OF LESS THAN 0.3m N VALUES ARE INDICATED AS THE NUMBER OF BLOWS FOR THE PENETRATION ACHIEVED. AVERAGE N VALUE IS DENOTED THUS \bar{N} .

DYNAMIC CONE PENETRATION TEST: CONTINUOUS PENETRATION OF A CONICAL STEEL POINT (51mm O.D. 60° CONE ANGLE) DRIVEN BY 475J IMPACT ENERGY ON 'A' SIZE DRILL RODS. THE RESISTANCE TO CONE PENETRATION IS MEASURED AS THE NUMBER OF BLOWS FOR EACH 0.3m ADVANCE OF THE CONICAL POINT INTO THE UNDISTURBED GROUND.

SOILS ARE DESCRIBED BY THEIR COMPOSITION AND CONSISTENCY OR DENSENESS.

CONSISTENCY: COHESIVE SOILS ARE DESCRIBED ON THE BASIS OF THEIR UNDRAINED SHEAR STRENGTH (c_u) AS FOLLOWS:

| c_u (kPa) | 0 - 12 | 12 - 25 | 25 - 50 | 50 - 100 | 100 - 200 | >200 |
|-------------|-----------|---------|---------|----------|------------|------|
| | VERY SOFT | SOFT | FIRM | STIFF | VERY STIFF | HARD |

DENSENESS: COHESIONLESS SOILS ARE DESCRIBED ON THE BASIS OF DENSENESS AS INDICATED BY SPT N VALUES AS FOLLOWS:

| N (BLOWS/0.3m) | 0 - 5 | 5 - 10 | 10 - 30 | 30 - 50 | >50 |
|----------------|------------|--------|---------|---------|------------|
| | VERY LOOSE | LOOSE | COMPACT | DENSE | VERY DENSE |

ROCKS ARE DESCRIBED BY THEIR COMPOSITION AND STRUCTURAL FEATURES AND/OR STRENGTH.

RECOVERY: SUM OF ALL RECOVERED ROCK CORE PIECES FROM A CORING RUN EXPRESSED AS A PERCENT OF THE TOTAL LENGTH OF THE CORING RUN.

MODIFIED RECOVERY: SUM OF THOSE INTACT CORE PIECES, 100mm+ IN LENGTH EXPRESSED AS A PERCENT OF THE LENGTH OF THE CORING RUN. THE ROCK QUALITY DESIGNATION (RQD), FOR MODIFIED RECOVERY IS:

| RQD (%) | 0 - 25 | 25 - 50 | 50 - 75 | 75 - 90 | 90 - 100 |
|---------|-----------|---------|---------|---------|-----------|
| | VERY POOR | POOR | FAIR | GOOD | EXCELLENT |

JOINTING AND BEDDING:

| SPACING | 50mm | 50 - 300mm | 0.3m - 1m | 1m - 3m | >3m |
|----------|------------|------------|------------|---------|------------|
| JOINTING | VERY CLOSE | CLOSE | MOD. CLOSE | WIDE | VERY WIDE |
| BEDDING | VERY THIN | THIN | MEDIUM | THICK | VERY THICK |

ABBREVIATIONS AND SYMBOLS

FIELD SAMPLING

| | | | |
|----|---------------------|----|---------------------------|
| SS | SPLIT SPOON | TP | THINWALL PISTON |
| WS | WASH SAMPLE | OS | OSTERBERG SAMPLE |
| ST | SLOTTED TUBE SAMPLE | RC | ROCK CORE |
| BS | BLOCK SAMPLE | PH | TW ADVANCED HYDRAULICALLY |
| CS | CHUNK SAMPLE | PM | TW ADVANCED MANUALLY |
| TW | THINWALL OPEN | FS | FOIL SAMPLE |

STRESS AND STRAIN

| | | |
|--------------------------------------|-----|-------------------------------|
| u_w | kPa | PORE WATER PRESSURE |
| r_u | 1 | PORE PRESSURE RATIO |
| σ | kPa | TOTAL NORMAL STRESS |
| σ' | kPa | EFFECTIVE NORMAL STRESS |
| τ | kPa | SHEAR STRESS |
| $\sigma_1, \sigma_2, \sigma_3$ | kPa | PRINCIPAL STRESSES |
| ϵ | % | LINEAR STRAIN |
| $\epsilon_1, \epsilon_2, \epsilon_3$ | % | PRINCIPAL STRAINS |
| E | kPa | MODULUS OF LINEAR DEFORMATION |
| G | kPa | MODULUS OF SHEAR DEFORMATION |
| μ | 1 | COEFFICIENT OF FRICTION |

MECHANICAL PROPERTIES OF SOIL

| | | |
|----------------|-------------------|--------------------------------------|
| m_v | kPa ⁻¹ | COEFFICIENT OF VOLUME CHANGE |
| C_c | 1 | COMPRESSION INDEX |
| C_s | 1 | SWELLING INDEX |
| C_α | 1 | RATE OF SECONDARY CONSOLIDATION |
| C_v | m ² /s | COEFFICIENT OF CONSOLIDATION |
| H | m | DRAINAGE PATH |
| T_v | 1 | TIME FACTOR |
| U | % | DEGREE OF CONSOLIDATION |
| σ'_{vo} | kPa | EFFECTIVE OVERBURDEN PRESSURE |
| σ'_p | kPa | PRECONSOLIDATION PRESSURE |
| τ_f | kPa | SHEAR STRENGTH |
| c' | kPa | EFFECTIVE COHESION INTERCEPT |
| ϕ' | - ° | EFFECTIVE ANGLE OF INTERNAL FRICTION |
| c_u | kPa | APPARENT COHESION INTERCEPT |
| ϕ_u | - ° | APPARENT ANGLE OF INTERNAL FRICTION |
| τ_R | kPa | RESIDUAL SHEAR STRENGTH |
| τ_r | kPa | REMOULDED SHEAR STRENGTH |
| S_x | 1 | SENSITIVITY = c_u / τ_r |

PHYSICAL PROPERTIES OF SOIL

| | | | | | | | | |
|----------------|-------------------|--------------------------------|-----------|------|-------------------------------------|-----------|-------------------|---|
| ρ_s | kg/m ³ | DENSITY OF SOLID PARTICLES | e | 1, % | VOID RATIO | e_{min} | 1, % | VOID RATIO IN DENSEST STATE |
| γ_s | kN/m ³ | UNIT WEIGHT OF SOLID PARTICLES | n | 1, % | POROSITY | I_D | 1 | DENSITY INDEX = $\frac{e_{max} - e}{e_{max} - e_{min}}$ |
| ρ_w | kg/m ³ | DENSITY OF WATER | w | 1, % | WATER CONTENT | D | mm | GRAIN DIAMETER |
| γ_w | kN/m ³ | UNIT WEIGHT OF WATER | S_r | % | DEGREE OF SATURATION | D_n | mm | n PERCENT - DIAMETER |
| ρ | kg/m ³ | DENSITY OF SOIL | w_L | % | LIQUID LIMIT | C_u | 1 | UNIFORMITY COEFFICIENT |
| γ | kN/m ³ | UNIT WEIGHT OF SOIL | w_p | % | PLASTIC LIMIT | h | m | HYDRAULIC HEAD OR POTENTIAL |
| ρ_d | kg/m ³ | DENSITY OF DRY SOIL | w_s | % | SHRINKAGE LIMIT | q | m ² /s | RATE OF DISCHARGE |
| γ_d | kN/m ³ | UNIT WEIGHT OF DRY SOIL | I_p | % | PLASTICITY INDEX = $(w_L - w_p)$ | v | m/s | DISCHARGE VELOCITY |
| ρ_{sat} | kg/m ³ | DENSITY OF SATURATED SOIL | I_L | 1 | LIQUIDITY INDEX = $(w - w_p)/I_p$ | i | 1 | HYDRAULIC GRADIENT |
| γ_{sat} | kN/m ³ | UNIT WEIGHT OF SATURATED SOIL | I_c | 1 | CONSISTENCY INDEX = $(w_L - w)/I_p$ | k | m/s | HYDRAULIC CONDUCTIVITY |
| ρ' | kg/m ³ | DENSITY OF SUBMERGED SOIL | e_{max} | 1, % | VOID RATIO IN LOOSEST STATE | j | kN/m ² | SEEPAGE FORCE |
| γ' | kN/m ³ | UNIT WEIGHT OF SUBMERGED SOIL | | | | | | |

RECORD OF BOREHOLE No 16+200 16.0 LT of CL 1 of 2

METRIC

G.W.P. 5214-08-00 LOCATION 16+200 16.0 LT of CL Coords: E:219038 N:5119261.2 ORIGINATED BY WEN
DIST HWY Hwy. 17 BOREHOLE TYPE HOLLOW STEM AUGERS / WASH BORING COMPILED BY D.B.
DATUM GEODETIC DATE 2011-11-17 CHECKED BY H.A.

| SOIL PROFILE | | | SAMPLES | | | GROUND WATER CONDITIONS | ELEVATION SCALE | DYNAMIC CONE PENETRATION RESISTANCE PLOT | | PLASTIC LIMIT | NATURAL MOISTURE CONTENT | LIQUID LIMIT | UNIT WEIGHT γ kN/m³ | REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL |
|----------------------|---|------------|---------|------|---------------|----------------------------|-----------------|---|--------------|-------------------|--------------------------------|-----------------|--------------------------------------|--|
| ELEV DEPTH (m) | DESCRIPTION | STRAT PLOT | NUMBER | TYPE | SPT 'N' VALUE | | | SHEAR STRENGTH (kPa) | | WATER CONTENT (%) | | | | |
| | | | | | | | | ○ UNCONFINED | + FIELD VANE | W _p | W | W _L | | |
| | | | | | | | | ● QUICK TRIAXIAL | × LAB VANE | | | | | |
| 184.8 | GROUND SURFACE | | | | | | 20 40 60 80 100 | | | | | | | |
| 184.5 | 280mm TOPSOIL | | 1 | SS | 5 | | | | | | | | | |
| 0.3 | CLAYEY SILT, trace sand, trace gravel, occasional organics, firm, brown / grey, moist | | 2 | SS | 2 | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | 3 | SS | 2 | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | 4 | SS | 5 | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | 5 | SS | 4 | | | | | | | | | |
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| | | | 6 | ST | | | | | | | | | | |
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| | | | | | | | | | | | | | | |
| 181.9 | CLAYEY SILT, stiff, grey, moist | | | | | | | | | | | | | |
| 2.9 | | | | | | | | | | | | | | |
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Continued Next Page

+³, X³: Numbers refer to Sensitivity ○ 3% STRAIN AT FAILURE

RECORD OF BOREHOLE No 16+200 16.0 LT of CL 2 of 2

METRIC

G.W.P. 5214-08-00 LOCATION 16+200 16.0 LT of CL Coords: E:219038 N:5119261.2 ORIGINATED BY WEN
DIST HWY Hwy. 17 BOREHOLE TYPE HOLLOW STEM AUGERS / WASH BORING COMPILED BY D.B.
DATUM GEODETIC DATE 2011-11-17 CHECKED BY H.A.

| SOIL PROFILE | | | SAMPLES | | | GROUND WATER CONDITIONS | ELEVATION SCALE | DYNAMIC CONE PENETRATION RESISTANCE PLOT | | | | | PLASTIC LIMIT W _p | NATURAL MOISTURE CONTENT W | LIQUID LIMIT W _L | UNIT WEIGHT γ kN/m ³ | REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL | | | |
|----------------------|-------------|------------|---------|------|---------------|----------------------------|-----------------|---|--|--|--|--|--|---|---------------------------------------|--|--|-------------------|--|--|
| ELEV DEPTH (m) | DESCRIPTION | STRAT PLOT | NUMBER | TYPE | SPT 'N' VALUE | | | SHEAR STRENGTH (kPa) | | | | | | | | | | WATER CONTENT (%) | | |
| | | | | | | | | 20 40 60 80 100 | | | | | | | | | | 20 40 60 80 100 | | |

○ UNCONFINED

● QUICK TRIAXIAL

+ FIELD VANE

× LAB VANE

→

→

| | | | | | | | | | | | | | | | | | |
|--|--|----|----|----|----|--|--|--|--|--|--|--|--|--|--|--|--|
| (continued) | | | | | | | | | | | | | | | | | |
| CLAYEY SILT, stiff, grey, moist (continued) | | | 13 | SS | 4 | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | 14 | SS | 6 | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | 15 | SS | 10 | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | 16 | SS | 8 | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | 17 | SS | 5 | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | 18 | SS | 6 | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | 19 | SS | 7 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | 20 | SS | 4 | | | | | | | | | | | | | |

→

→

44

45

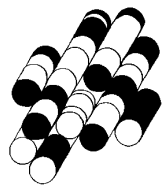
commence casing and washboring

END OF BOREHOLE

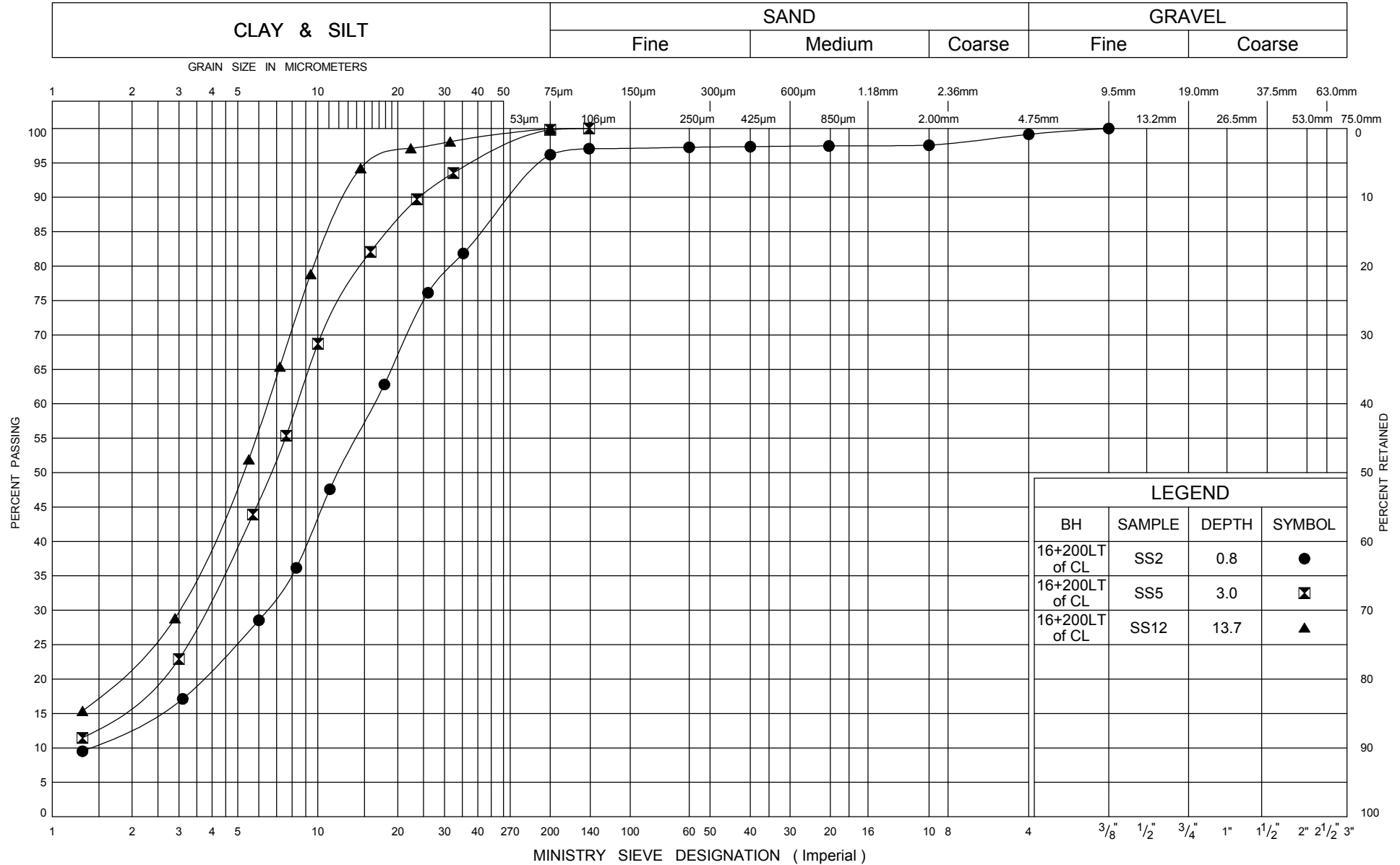
Borehole contained drill water upon completion of drilling. Unstabilized water level and cave not measured.

APPENDIX B

TERRAPROBE INC.



UNIFIED SOIL CLASSIFICATION SYSTEM



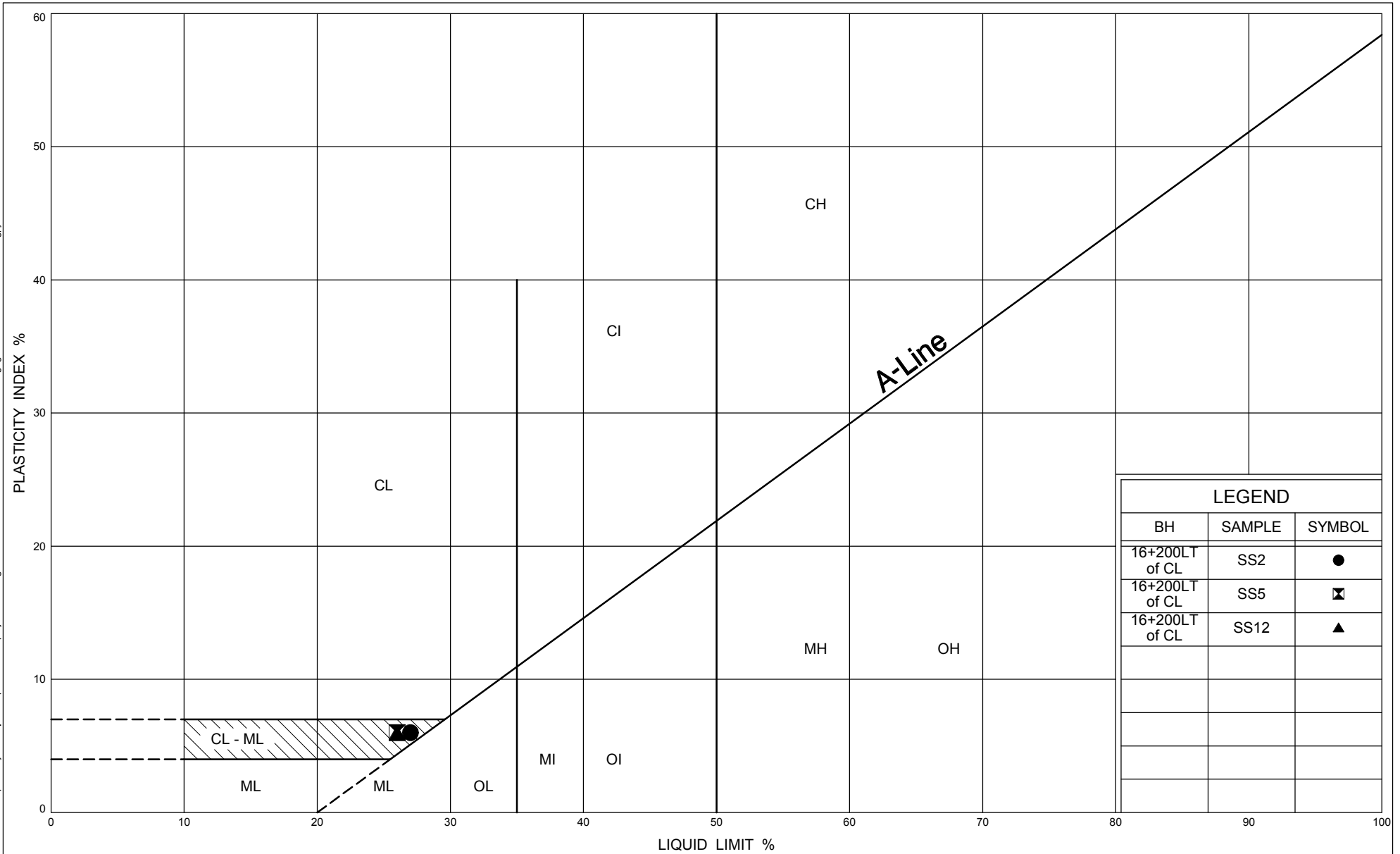
GRAIN SIZE DISTRIBUTION

CLAYEY SILT

FIG No B-1

Proj. No 5214-08-00

Caddel Creek Culvert Extension



| LEGEND | | |
|----------------|--------|--------|
| BH | SAMPLE | SYMBOL |
| 16+200LT of CL | SS2 | ● |
| 16+200LT of CL | SS5 | ⊠ |
| 16+200LT of CL | SS12 | ▲ |
| | | |
| | | |
| | | |
| | | |
| | | |



Ministry of
Transportation

PLASTICITY CHART

CLAYEY SILT

FIG No B-2

G W P 5214-08-00

Caddel Creek Culvert Extension

APPENDIX C

TERRAPROBE INC.

