

Project Specific Supplementary Specialty Plan: Foundation Assignments

Assignment No.: 2

Purchase Order No.: **4015-E-0015**

Highway No.: 17, McKenzie Creek and Dinorwic Lake Culvert Replacements

Location: **Eastern Region**

Consultant/Sub-consultant Name: **McIntosh Perry / Thurber Engineering Ltd.**

Specialty: **Foundation Engineering**

Date: March 2016

No. (1)	Phase/Task (2)	Methodology (3)	Deliverables (4)	Reference Manuals (5)	Independent Technical Review		Quality Control Review & Audit Staff (8)	Completion Date (9)
					Procedure (6)	Documentation (7)		
1.0 Reference Document Review								
1.1	Reference Document Review	Review Design Criteria, Collect and review background information, e.g. GEOCRE files, published ecological data, maintenance reports, etc	Internal document list	RFP	Confirm adequacy/ sufficiency of data	Initials	P. Carnaffan, P.Eng.	PC May 5/16
2.0 Data Collection – Field Investigation								
2.1	Prepare Safety Plan	Confirm field staff understanding of OHS requirements. Confirm qualifications of sub-contractor personnel. Submit Notices to Ministry of Labour, as applicable.	Health & Safety Plan	MOL/OHS Act and Regulations, Book 7, and Thurber's Safety Manual	Review Plan	Initials	P. Carnaffan, P.Eng.	PC Jul 11/16
2.2	Site Reconnaissance	Review site conditions including traffic, access, brush/tree cover, etc.	Notes / Records	OHSA, MTO Temporary Conditions Manual	Review Reconnaissance Notes	Initials	P. Carnaffan, P.Eng.	Jul 12/16 PC
2.3	Traffic Control Plan	Prepare a written plan for traffic control taking into account site conditions.	Traffic plan	Ontario Traffic Manual, Book7, OHSA	Review Traffic Plan	Initials	P. Carnaffan, P.Eng.	Jul 12/16 PC

Project Specific Supplementary Specialty Plan: Foundation Assignments

Assignment No.: 2

Purchase Order No.: **4015-E-0015**

Highway No.: 17, McKenzie Creek and Dinorwic Lake Culvert Replacements

Location: **Eastern Region**

Consultant/Sub-consultant Name: **McIntosh Perry / Thurber Engineering Ltd.**

Specialty: **Foundation Engineering**

Date: March 2016

No. (1)	Phase/Task (2)	Methodology (3)	Deliverables (4)	Reference Manuals (5)	Independent Technical Review		Quality Control Review & Audit Staff (8)	Completion Date (9)
					Procedure (6)	Documentation (7)		
2.4	Site Clearances	Obtain permissions to enter for investigation on private land. Obtain underground utility locates (gas/water, communications, etc).	PTE Records Locate Records	N/A	Review PTE and Utility Clearances	Initials	P. Carnaffan, P.Eng.	PC Jul 27/16
2.5	Project Notifications	File Notice of Project with MOL. Notify i) MTO Project Manager ii) MTO Local Operations iii) TPM Team of commencement of fieldwork.	Notifications	RWSCU & RFP	Review Notifications	Initials	P. Carnaffan, P.Eng.	PC July 5/16
2.6	Site Investigation Plan	Develop site investigation plan.	Fieldwork Plan	Design Criteria, MTO Foundation Investigation Guidelines	Review Plan	Initials	P. Carnaffan, P.Eng.	PC Jul 12/16
2.7	Brief Technical Staff	Meet with all field staff plus key office and laboratory staff.	Field Instructions Briefing Notes	N/A	Review Briefing Notes	Initials	P. Carnaffan, P.Eng.	PC Jul 14/16
2.8	Engage Specialist Contractors	Provide written instructions regarding project requirements, schedule and site specific issues to contractors (drilling, traffic control, etc)	Instructions to drillers	RFP, Thurber Field Manuals	Review Instructions	Initials	P. Carnaffan, P.Eng.	PC Jul 13/16

Project Specific Supplementary Specialty Plan: Foundation Assignments

Assignment No.: 2

Purchase Order No.: 4015-E-0015


Highway No.: 17, McKenzie Creek and Dinorwic Lake Culvert Replacements

Location: **Eastern Region**

Consultant/Sub-consultant Name: **McIntosh Perry / Thurber Engineering Ltd.**

Specialty: **Foundation Engineering**

Date: March 2016

No. (1)	Phase/Task (2)	Methodology (3)	Deliverables (4)	Reference Manuals (5)	Independent Technical Review		Quality Control Review & Audit Staff (8)	Completion Date (9)
					Procedure (6)	Documentation (7)		
2.9	Site Investigation and Field Testing	Drill boreholes at prescribed locations and to prescribed depths. Conduct SPT sampling and install piezometers. Protect integrity of samples through appropriate handling and transportation procedures. Restore site as far as is practicable.	Field logs.	MTC Soils Classification Manual, ASTM Methods, CFEM	Review field documentation.	Initials	P. Carnaffan, P.Eng.	PC Oct 19/16
2.10	Laboratory Testing	Record incoming samples and conduct visual identifications (VI). Conduct routine/medium complexity testing in accordance with Proposal.	Lab work sheets.	MTO Laboratory Manual, ASTM Methods, Terms of Reference	Review results and conduct random re-calculations	Initials	P. Carnaffan, P.Eng.	PC Nov 8/16
Milestone Quality Review No. 1			Audit		Review Process Table	Initials	J. Lee, P. Eng.	 Mar 24/17

Project Specific Supplementary Specialty Plan: Foundation Assignments

Assignment No.: 2

Purchase Order No.: 4015-E-0015

Highway No.: 17, McKenzie Creek and Dinorwic Lake Culvert Replacements

Location: **Eastern Region**

Consultant/Sub-consultant Name: **McIntosh Perry / Thurber Engineering Ltd.**

Specialty: **Foundation Engineering**

Date: March 2016

No. (1)	Phase/Task (2)	Methodology (3)	Deliverables (4)	Reference Manuals (5)	Independent Technical Review		Quality Control Review & Audit Staff (8)	Completion Date (9)
					Procedure (6)	Documentation (7)		
3.0 Geotechnical Analysis								
3.1	Prepare graphical borehole logs, Plans, Profiles and Cross-sections	Obtain base plan from Prime Consultant, plot borehole locations and draft profiles and cross-sections. Prepare borehole logs on gINT software.	Borehole logs, plans and profiles.	MTO Drafting Standards for Foundations	Review logs, plans and profiles for accuracy, completeness and conformance to MTO Standards	Initials	P. Carnaffan, P.Eng. McKenzie Creek Dinorwic Lake	 PC Dec 12/16 PC Dec 14/16
3.2	Engineering analysis	Perform calculations for: i) foundation resistance ii) settlement iii) stability iv) earth pressures v) other calculations as required by the project specifics	Calculation sheets.	CHBDC, CFEM, RFQ	Review for soundness of engineering judgement, review calculation sheets	Initials	P. Carnaffan, P.Eng. McKenzie Creek Dinorwic Lake	 PC Mar 21/17 PC Mar 21/17

Project Specific Supplementary Specialty Plan: Foundation Assignments

Assignment No.: 2

Purchase Order No.: 4015-E-0015

Highway No.: 17, McKenzie Creek and Dinorwic Lake Culvert Replacements

Location: Eastern Region

Consultant/Sub-consultant Name: **McIntosh Perry / Thurber Engineering Ltd.**

Specialty: Foundation Engineering

Date: March 2016

[illegible]

Project Specific Supplementary Specialty Plan: Foundation Assignments

Assignment No.: 2

Purchase Order No.: 4015-E-0015

Highway No.: 17, McKenzie Creek and Dinorwic Lake Culvert Replacements

Location: **Eastern Region**

Consultant/Sub-consultant Name: **McIntosh Perry / Thurber Engineering Ltd.**

Specialty: **Foundation Engineering**

Date: March 2016

No. (1)	Phase/Task (2)	Methodology (3)	Deliverables (4)	Reference Manuals (5)	Independent Technical Review		Quality Control Review & Audit Staff (8)	Completion Date (9)
					Procedure (6)	Documentation (7)		
4.1	Draft Report Preparation	Complete DRAFT Foundation Investigation and Design Report Report signed by 2 P.Eng's one of whom is the Designated Principal Contact Prepare report in two sections i) Foundation Investigation Report ii) Foundation Design Report Check report contains appropriate content and recommendations Check report documents appropriate range of alternative recommendations with pros, cons, risks and cost estimates	Draft Foundation Investigation and Design Report	Terms of Reference, Codes, CHBDC, CFEM	Critical technical review. Check report contains appropriate content and recommendation Check report documents appropriate range of alternative recommendations with pros, cons and risks presented	Initials	P.K. Chatterji, P.Eng. McKenzie Creek Dinorwic Lake	<i>PKC</i> <i>Mar 21/17</i> <i>PKC</i> <i>Mar 21/17</i>
Milestone Quality Review No. 2			Audit		Review Process Table	Initials	J. Lee, P. Eng.	<i>JL</i> <i>Mar 21/17</i>

Project Specific Supplementary Specialty Plan: Foundation Assignments

Assignment No.: 2

Purchase Order No.: **4015-E-0015**

Highway No.: 17, McKenzie Creek and Dinorwic Lake Culvert Replacements

Location: **Eastern Region**

Consultant/Sub-consultant Name: **McIntosh Perry / Thurber Engineering Ltd.**

Specialty: **Foundation Engineering**

Date: March 2016

No. (1)	Phase/Task (2)	Methodology (3)	Deliverables (4)	Reference Manuals (5)	Independent Technical Review		Quality Control Review & Audit Staff (8)	Completion Date (9)
					Procedure (6)	Documentation (7)		
4.2	Final Report Preparation	Review and incorporate comments received from MTO and the TPM Team.	Final Foundation Investigation and Design Report	Terms of Reference, Codes, CHBDC, CFEM	Review final report for incorporation of comments.	Signature on Report	P.K. Chatterji, P.Eng. McKenzie Creek <i>De</i> Dinorwic Lake	<i>our 16/17</i>
5.0 Design Consultation								
5.1	Contract Package Review	Review 60 & 90% contract packages.	Written Comments	Technical report(s) and addenda	Activity Checklist	Initials	P.K. Chatterji, P.Eng. 60% 90% Post DCP	

Project Specific Supplementary Specialty Plan: Foundation Assignments

Assignment No.: 2

Purchase Order No.: **4015-E-0015**

Highway No.: 17, McKenzie Creek and Dinorwic Lake Culvert Replacements

Location: **Eastern Region**

Consultant/Sub-consultant Name: **McIntosh Perry / Thurber Engineering Ltd.**

Specialty: **Foundation Engineering**

Date: March 2016

No. (1)	Phase/Task (2)	Methodology (3)	Deliverables (4)	Reference Manuals (5)	Independent Technical Review		Quality Control Review & Audit Staff (8)	Completion Date (9)
					Procedure (6)	Documentation (7)		
5.2	Report Addendum	Prepare addenda as necessary based on design changes, or outcome of Constructability Review.	Addendum, Transmittal Records	N/A	Review addenda	Initials	P.K. Chatterji, P.Eng.	
Milestone Quality Review No. 3			Audit		Review Process Table	Initials	J. Lee, P. Eng.	

CHBDC – Canadian Highway Bridge Design Code

CFEM – Canadian Foundation Engineering Manual