SECTION 00600
GENERAL CONDITIONS-TABLE OF CONTENTS

ARTICLE

GC1 DEFINITIONS

The following definitions apply to all of the Contract Documents.

1.1 CONTRACT DOCUMENTS

The Contract Documents consist of the General Conditions, Notice to Bidders, Bonds, Instructions to Bidders, Form of Tender, Special Provisions, Project Specifications, Drawings, Memorandum of Agreement and all Addenda.

1.2 CONTRACT

The Contract Documents form the Contract. The Contract is the undertaking by the parties to perform their respective duties, responsibilities and obligations as prescribed in the Contract Documents and represents the entire agreement between the parties. The Contract supersedes all prior negotiations, representations or agreements either written or oral. The Contract may be amended only as provided in the General Conditions of the Contract.

1.3 CONTRACTOR

The Contractor is the party named as such in the Memorandum of Agreement.

1.4 ENGINEER

The Engineer is a representative authorized by the municipal corporation of the City of Regina to act in that capacity.

1.5 OWNER

The Owner is the municipal corporation of the City of Regina.

1.6 PLACE OF WORK

The Place of Work means the site or location designated as such in the Contract Documents.

1.7 SUBCONTRACTOR

Subcontractor means a person, not contracting with or employed directly by an Owner or its agent, but who provides services or Product to an improvement under an agreement with the Contractor or with another subcontractor, but not including a labourer

1.8 SUBSTANTIAL PERFORMANCE

Substantial Performance has the meaning stipulated in the most current edition of *The Builders' Lien Act* with respect to the work of the Contractor and Subcontractors as defined under this Contract.

1.9 TOTAL PERFORMANCE

Total Performance means that the entire Work is completed to the requirements of the Contract Documents and as stipulated in *The Builders' Lien Act* and is so certified by the Engineer.

1.10 PRODUCT

The term "Product" includes all materials, equipment, articles and related items which are incorporated into the Work.

1.11 WORK

The Work is all labour, Product and services required to achieve Total Performance of the Contract as shown, described or inferable from the Contract Documents.

GC2 CONTRACT DOCUMENTS

2.1 The Contract Documents shall be signed and sealed by the Owner and the Contractor. The Contract Documents are complementary and what is required by one is as binding as if required by all.

2.2 The Owner and Contractor stipulate that the Contract Documents and the prices set forth therein include all equipment, superintendence, transportation and all else reasonably necessary for and incidental to the proper execution of the Work, unless expressly stated to the contrary therein. The Contractor performs all Work and takes all measures which are shown in, or are reasonably inferred from, the Contract Documents to achieve Total Performance of the Contract.

2.3 Words and abbreviations which have well known technical or industry meanings are used in the Contract Documents in accordance with such recognized meanings.

2.4 References made to the singular are considered to include the plural, as the context requires.

2.5 In case of any inconsistency or conflict between the provisions of the Contract Documents, the provisions of such documents and addenda thereto take precedence and govern in the following order:

.1 Executed Memorandum of Agreement

.2 Special Provisions

.3 General Conditions

.4 Project Specifications

.5 Drawings

.6 Executed Form of Tender

.7 Instructions to Bidders

.8 Notice to Bidders

.9 All other documents

2.6 To further clarify the 2.5 above, the following rules apply to the resolution of conflicts:

.1 Documents of most recent date govern over earlier documents.

.2 Figured dimensions govern over scaled dimensions.

.3 Larger scale drawings govern over smaller scale drawings. Detail representations govern over both.

.4 Project Specifications govern over Drawings.

.5 General Conditions govern over Project Specifications.

.6 Special Provisions govern over the General Conditions of the Contract.

.7 The Memorandum of Agreement governs over all other Contract Documents.

GC3 ADDITIONAL INSTRUCTIONS

3.1 During the progress of the Work, the Engineer will furnish to the Contractor such additional instructions as may be necessary to supplement the Contract Documents for the performance of the Work. Such instructions must be consistent with the intent of the Contract Documents.

3.2 Additional instructions may be in the form of specifications, drawings, samples, models or in writing.

3.3 Additional instructions will be issued with reasonable promptness and due consideration for the progress of the Work.

GC4 OWNERSHIP OF DOCUMENTS AND MODELS

4.1 Drawings, specifications, models and copies thereof furnished for the purposes of the Work remain the property of the Owner with the exception of the executed Contract Documents belonging to the Contractor. All documents and models are to be used only with respect to the Work and are not to be used on any other Work or Contract. Documents and models are not to be copied or revised in any manner without the written authorization of the Owner.

4.2 Models furnished by the Contractor at the Owner's expense are the property of the Owner.

GC5 OWNER'S RIGHTS

5.1 OWNER'S RIGHT TO DO WORK

If the Contractor neglects or refuses to promptly and properly perform the Work or any portion of it or otherwise fails to substantially comply with the provisions of the Contract Documents, the Owner may, with the concurrence of the Engineer, and upon providing 24 hours written notice to the Contractor, remedy the deficiency without prejudice to any other right or remedy the Owner may have. All costs incurred by the Owner as a result of this action, subject to the approval of the amount by the Engineer, will be deducted from payment due to the Contractor.

5.2 OWNER'S TERMINATION OF CONTRACTOR'S RIGHTS

5.2.1 The Contractor is deemed to be in breach of Contract if there is a dissolution, termination of existence, insolvency, business failure, appointment of a receiver of any part of the property of the Contractor, assignment for the benefit of creditors, or commencement of any proceeding under any bankruptcy or insolvency laws by or against the Contractor or any guarantor or surety of the Contractor. In the event of a breach of Contract, the Owner has the right to terminate the rights of the Contractor effective immediately upon delivery of notice of termination to the Contractor or receiver or trustee, as the case may be.

5.2.2 If, in the written opinion of the Engineer, the Contractor:

.1 has failed to commence Work within the time specified or contemplated in the Contract;

.2 has failed or is failing to use diligence in the advancement of the Work or to follow instructions of the Engineer or perform the Work in strict accordance with the requirements of the Contract

.3 has repeatedly disregarded relevant laws or bylaws;

.4 has failed or is failing to provide additional workers or equipment to

accelerate the rate of Work as may be necessary to ensure timely completion;

.5 has failed or is failing to make prompt payment to Subcontractors, labourers or suppliers; or

.6 is otherwise in breach of a substantial requirement of the Contract Documents;

the Owner may notify the Contractor of the Engineer's concern and require that the Contractor immediately remedy the default. If the Contractor fails to remedy the default to the satisfaction of the Engineer within seven days of receipt of this notice, the Owner may issue a written notice of termination of the Contractor's rights. This notice will be effective immediately.

5.2.3 To clarify the foregoing, to comply with the Owner's notice to remedy a default, the Contractor must commence and continue with the necessary corrective measure within seven days of the date of the notice. Additionally, the Contractor must prepare a detailed schedule for the completion of the remedy and submit it to the Engineer within the same seven day period. Failure to submit a schedule or to complete the remedy in accordance with the schedule will be deemed as cause for termination to proceed.

5.2.4 Upon termination, the Owner may take all Work out of the Contractor's hands and employ the necessary means to complete the Work. In such event:

.1 the Contractor forfeits all rights with respect to making claims or objections regarding costs to the Owner to complete the Work;

.2 all Product and all rights, proprietary or otherwise, licenses, powers and privileges, whether relating to or effecting real or personal property, acquired, possessed, or provided by the Contractor for the purposes of the Work under the provisions of the Contract will become or remain the property of the Owner. All of the foregoing may be used by the Owner in connection with the Work to the full extent previously enjoyed or contemplated by the Contractor; and

.3 the Owner may take possession of all the Contractor's equipment on the Place of Work. The Owner may use the equipment in any way required to complete the Work without the Owner being in any way liable to the Contractor for such use. Upon completion of the Work the equipment may, at the option of the Owner, either be returned to the Contractor or sold by the Owner. If the equipment is sold, the net proceeds the sale will be credited to the Contractor's indebtedness to the Owner.

5.2.5 If the Contractor's rights are terminated under the terms of this Article, the Contractor forfeits entitlement to further progress payments under the Contract until the Work is completed by or on behalf of the Owner. Upon completion of the Work, the Engineer will determine the Owner's costs of completion. If these costs are less than the balance of the Contract price remaining unpaid following termination, the Owner will pay the difference to the Contractor. If the costs of completion exceed the Contract balance, the Contractor is required to promptly pay to the Owner the amount by which the completion costs exceed the Contract balance. "Completion costs" may include, at the discretion of the Engineer, a reasonable allowance for any anticipated costs of warranty work in accordance with the provisions of Article 5.4 - Correction After Completion.

5.2.6 Under the provisions of this Article, the Owner has the absolute discretionary right to terminate the rights of the Contractor to perform any part of the Work and to permit or require the Contractor to continue to perform the rest of the Work. All provisions of this Article apply to any partial termination of rights with any modification as the circumstances require.

5.2.7 Nothing contained in this Article in any way limits the Owner's right to make any claim under the Performance Bond required under Article 9.6 – Bonds.

5.3 SEPARATE CONTRACTS WITH OTHER CONTRACTORS

5.3.1 The Owner reserves the right to award other Contracts in connection with a project of which the Work of this Contract is a part, or to do certain Work with his own forces.

5.3.2 When separate Contracts are awarded for different parts of a project, or Work is performed by the Owners own forces, the Owner is responsible for:

.1 providing coordination of the Work of his own forces and of each separate Contract with the Work of this Contract;

.2 ensuring that insurance coverage is provided by all contractors to the same requirements as called for in Article 9.5 – Insurance in this Contract; and

.3 ensuring that the insurance coverage of all other contractors is coordinated with the insurance of this Contractor as it effects the Work of this Contract.

5.4 CORRECTION AFTER COMPLETION

5.4.1 Maintain the Work against any defect or deficiency arising from or attributable to faulty installation, faulty Product or faulty workmanship which appear within the maintenance period set forth in the Contract Documents. Immediately, upon notification of any deficiency by the Owner, repair all deficiency and bear all costs for this Work.

5.4.2 In the event of emergency, the Owner may make any deficiency and must promptly notify the Contractor of such an occurrence. The Contractor shall reimburse the Owner for all reasonable remedial costs incurred by the Owner for the emergency Work.

5.4.3 Replacement Product and Work is subject to the same maintenance period as that originally provided. The second maintenance period commences upon acceptance of remedial Work by the Engineer, except in the case of emergency Work performed by the Owner. This emergency Work is at the Owner's risk of quality.

5.4.4 If the Contractor refuses or neglects to make good any deficiency following the Owner’s notification to do so under the terms of this Article, the Owner may, in addition to any right or remedy conferred herein or otherwise available by law, cause the Work to be done. The Contractor is wholly responsible to reimburse the Owner for any cost incurred to correct the Work.

5.4.5 The Contractor's obligation to maintain the Work is not waived by the issue of any payment, approval or certificate by the Owner or the Engineer or by occupation or use of the Place of Work.

5.4.6 The Contractor's duty to maintain the Work for the duration of the maintenance period is provided as a guarantee of quality and is intended to provide a method for prompt correction of any deficiency. The stipulations within this Article in no way limit the Contractor's liability for Work found not to be in accordance with the Contract Documents even if this is discovered by or made known to the Owner after the expiration of the maintenance period.

GC6 ENGINEER’S RIGHTS

6.1 ENGINEER’S STATUS

6.1.1 The Engineer will act as the authorized representative of the Owner, and will occasionally observe the Work to ensure progress and quality are satisfactory and meet the intent and standards called for in the Contract Documents.

6.1.2 The Engineer will evaluate the Contractor's application for payment and determine the amount to be paid. The Engineer will act as the payment certifier for purposes of *The Builders' Lien Act*.

6.1.3 The Engineer will provide all interpretation of the requirements and provisions within the Contract Documents and will issue clarification or direction, as required.

6.1.4 The Engineer is not responsible for and will not have control nor charge of construction means, methods, techniques, sequences or procedures or for safety precautions and programs required for the Work in accordance with the applicable construction safety legislation, other regulations or general construction practice. The Engineer is not responsible for and does not have control or charge over any act or omission of the Contractor or any Subcontractor or their agents, employees or other persons performing any of the Work.

6.2 ENGINEER'S DECISIONS

6.2.1 The decision or direction of the Engineer on questions arising under the Contract Documents are deemed to be final. In the event that the Contractor considers it necessary to dispute a decision or direction of the Engineer, he may seek remedy as stipulated in Article 9.11 – Dispute Resolution.

6.3 EMERGENCIES

6.3.1 The Engineer has the authority in an emergency to stop the progress of the Work, or to order that certain remedial Work be done immediately whenever, in the Engineer's opinion, such stoppage or remedial Work is necessary to ensure the safety of life, or the Work, or neighbouring structures and property.

6.3.2 In the event the Contractor neglects or refuses to immediately undertake any remedial Work or measures that, in the opinion of the Engineer, must be done immediately, the Owner may proceed to carry out that Work without further notice to the Contractor. In the event that this remedial Work was required due to a failure by the Contractor to adhere strictly to the Contract, the cost for such Work will be borne by the Contractor.

GC7 CONTRACTOR'S RIGHTS AND OBLIGATIONS

7.1 SUPERINTENDENCE

7.1.1 Employ a competent superintendent and necessary assistance satisfactory to the Engineer and that will be in attendance anytime that Work is being performed.

7.1.2 Change of the person designated as superintendent may only be made for good reason and requires the prior consent of the Engineer.

7.1.3 The superintendent is deemed to be the Contractor's representative and instruction given to the superintendent is deemed to be given to the Contractor.

7.2 LABOUR AND PRODUCT

7.2.1 Unless otherwise stipulated within this Contract provide and bear the cost for labour, Product, tools, construction machinery and equipment, water, heat, light, power, transportation, storage facilities, security and all other services necessary for the performance of the Work in accordance with the Contract Documents.

7.2.2 Provide only new Product unless otherwise stipulated within the Contract Documents and provide Product of the best quality and which are fully suited to the purpose required. All Product is subject to review and approval by the Engineer.

7.2.3 Maintain good order and discipline among all employees engaged on the Work. Employ only personnel who are qualified to perform the Work assigned to them. Immediately discharge any employee who commits nuisance, harassment, discrimination, illegal conduct or is found to be unable to properly perform the Work assigned to them.

7.3 CONTROL OF WORK

7.3.1 Plan, direct, supervise and be responsible for means, methods, techniques, sequences, procedures and coordination of all aspects of the Work to ensure conformance with the Contract Documents.

7.3.2 Perform all operations and provide all coordination required for the Work to come together properly and fit with or be received by the Work of any other Contract which is referenced in or may be reasonably inferred from the Contract Documents. Ensure that operations performed under the Contract in no way compromise or endanger the Work of any other Contractor.

7.3.3 Bear responsibility for safety at the Place of Work and for complete compliance with rules, regulations and practices required under all applicable safety legislation.

7.3.4 Bear responsibility for the design, erection, operation, maintenance and removal of all temporary structural and other facilities and the execution of construction methods required for their use. Engage and bear the cost for the services of registered professional engineering personnel skilled

in the appropriate disciplines to perform these functions where required by law or by the Contract Documents.

7.3.5 Bear no responsibility for any design or construction method for any temporary structural or other facility which is specified or shown within the Contract Documents. However, assume full responsibility for the safe and proper execution of such specified design and method.

7.4 PROTECTION OF WORK, PRODUCTS AND PROPERTY

7.4.1 Continuously maintain adequate protection of the Work. Take all reasonable and prudent precautions to protect the property of the Owner, all other public or privately owned property adjacent to the Place of Work, and any property which may be reasonably expected to be effected by operations required to undertake the Work.

7.4.2 Furnish and maintain all temporary support and protection for any existing structure, infrastructure or other obstruction encountered in the progress of the Work, to the satisfaction of the Engineer. Where such structure, infrastructure or obstruction is damaged or disturbed as a result of the Work, bear all cost for their restoration to a condition which existed prior to the undertaking of the Work and to the satisfaction of the Engineer.

7.4.3 Bear all cost for the provision, erection, maintenance and removal of all signs, barriers, shelters, or other measures required to protect construction personnel and the general public from accident or injury at or adjacent to the Place of Work.

7.4.4 Clearly mark excavations, construction equipment or other temporary obstructions to normal traffic using reflective devices, lights or flares, particularly during the time between sunset and sunrise. Provide, install and maintain all traffic control devices, signage or personnel required for safe and efficient detours and restrictions necessitated by the Work to the satisfaction of the Engineer.

7.4.5 Without limiting the foregoing, ensure that all safety measures are effected in compliance with all applicable statutes, bylaws, regulations, codes and standards. Promptly remedy any deficiency in accordance with direction received from the Engineer or any regulatory agency having jurisdiction.

7.5 SUSPENSION OF WORK

7.5.1 Work may only be suspended by the Contractor provided that the suspension is due to an order of the court or other authority, or failure of the Owner to remit payment as stipulated in the Contract. Work may not be suspended as a result of any act, fault or omission of the Contractor or

anyone employed by it.

7.5.2 Work may be suspended only after the Engineer has been provided with written notice at least seven calendar days prior of the intent to do so. Notice is without prejudice to any further right or remedy that the Contractor may have to recover payment for all Work executed to the date of such notice.

7.5.3 This Article does not permit the Contractor to terminate the Contract.

GC8 SUBCONTRACTORS

8.1 Be fully responsible for the preservation and protection of the rights of all parties under the Contract with respect to Work to be performed under Subcontract and:

.1 employ only those Subcontractors listed in the Form of Tender of the Contract Documents or as may be subsequently agreed to in writing by the Engineer;

.2 enter into a contract with each Subcontractor that requires them to perform their Work in complete accordance with the terms and conditions of the Contract Documents;

.3 be fully responsible to the Owner for any act or omission of any Subcontractor and any person directly or indirectly employed by a Subcontractor.

8.2 The Engineer reserves the right to reject the use of any Subcontractor proposed by the Contractor and to require the Contractor to employ an alternate Subcontractor acceptable to the Engineer for that portion of the Work.

8.3 In the event that the Engineer requires the use of an alternate Subcontractor, the Contract price will be adjusted by the difference between the firm bid prices submitted to the Contractor by the rejected Subcontractor and the alternate Subcontractor.

8.4 The Engineer may not insist that the Contractor employ any Subcontractor to whom the Contractor reasonably objects.

8.5 The Engineer may, if requested, advise any Subcontractor as to the percentage of that Subcontractor's portion of the Work which is considered to be complete and/or has been certified for payment.

8.6 Nothing in the Contract Documents creates any form of contractual relationship between any Subcontractor and the Owner or Engineer.

GC9 CONTRACTURAL OBLIGATIONS

9.1 LAW OF THE CONTRACT

The law of the Province of Saskatchewan governs the Contract.

9.2 NON-WAIVER

9.2.1 No term or condition of the Contract is waived due to failure of the Owner or Engineer to at any time enforce or require the strict keeping of any term or condition of the Contract. Such failure does not effect, impair or prevent the Owner or Engineer from pursuing remedy available under law for breach of any term or condition.

9.2.2 No provision in the Contract, which imposes or may be deemed to impose extra or specific responsibilities or liabilities on the Contractor, will restrict the general or any other responsibility or liability of the Contractor in any way.

9.3 ASSIGNMENT

The Contract may not be assigned without the prior written consent of all parties to the Contract.

9.4 INDEMNIFICATION

Indemnify and hold harmless the Owner and Engineer, their agents and servants from and against all claims, demands, actions, causes of action and losses of or by third parties that arise from or are attributable to the Contractor's performance of the Contract, provided that such claims are founded upon and attributable to bodily injury or death or damage to or destruction of tangible property.

9.5 INSURANCE

9.5.1 Provide, maintain and bear the cost for all insurance coverage required by the Contract.

9.5.2 Provide General Liability insurance in an amount not less than two million ($2,000,000.00) dollars per occurrence in the form described in the Contract Documents and satisfactory to the Owner. This Insurance must cover premises and operations liability and completed operations liability. Work may not commence at the Place of Work until the Owner has reviewed and approved the insurance coverage submitted by the Contractor. The general liability insurance shall be in the joint names of the Contractor, Owner and Consultant.

9.5.3 If required by the Contract Documents, provide All-Risk Property Insurance in a form satisfactory to the Owner. This insurance must name

the Owner and Contractor as Insured Parties and must include property of the Owner and Contractor to the limit set forth in the Contract Documents. Adjustment of any loss suffered by either the Owner or the Contractor is the sole responsibility of the Contractor. Subsequent to adjustment, the repair and completion of the Work is the sole responsibility of the Contractor. The Owner will reimburse the Contractor as the Work proceeds both for payment due under the Contract and for the full amount that the Owner's interest has been adjusted for any loss incurred.

9.5.4 Insurance provided under the foregoing provisions shall contain a statement whereby the Insurer waives all rights of subrogation against any party named or contemplated as an Insured Party in the required policies.

9.5.5 The Contractor is solely responsible for full payment of any deductible amount which may be due in the event of any and all claims under policies required by the Contract Documents.

9.5.6 Arrange, provide and pay for vehicle liability insurance, in excess of current statutory coverage, covering owned, non-owned and leased motor vehicles. This additional coverage must be in an amount of not less than one million ($1,000,000) dollars inclusive per occurrence of bodily injury or death or damage to property pursuant to *The Automobile Accident Insurance Act.*

9.5.7 Where aircraft or watercraft are used directly or indirectly in the performance of the Work, provide and pay for aircraft and watercraft insurance in the amount of not less than one million ($1,000,000) dollars per occurrence of bodily injury or death or damage to property including loss of use thereof.

9.5.8 Ensure that General Liability and All-Risk Property policies contain an endorsement by the Insurer which states that the policies and coverage thereunder shall neither be amended or cancelled until 30 calendar days after written notice to such effect has been given to all Named Insured.

9.5.9 Maintain all policies until the completion of the Work, and unless otherwise stipulated in writing, maintain the General Liability policy until the expiration of any maintenance period stipulated in the Contract.

9.6 BONDS

9.6.1 Furnish the following to the Owner within ten calendar days of receiving Contract Documents for execution:

.1 Performance or Guarantee Bond conditioned on the prompt and proper performance of the Work by the Contractor and in an

amount equal to 50% of the Total Tender Price; and

.2 Labour and Materials Payment Bond conditioned on the prompt and proper payment by the Contractor to all parties providing labour and Product in the performance of the Work and in the amount of 50% of the Total Tender Price.

9.6.2 Provide all bonds in a form acceptable to the Owner and duly issued by a Surety acceptable to the Owner.

9.6.3 Maintain the Performance or Guarantee Bond in full force and effect for a period of not less than two years from the date of Total Performance under the Contract. Maintain the Labour and Materials Payment Bond in full force and effect for not less than one year from the date of final payment of the Contract.

9.6.4 The Owner reserves the right to require that Bonding be renewed or converted in order to cover warranty obligations under the Contract.

9.7 PERMITS, NOTICES, LAWS AND RULES

9.7.1 The following are the sole responsibility of the Contractor:

.1 Application and payment for all necessary permits and licenses required for the execution of the Work, including the obtainment of local business licenses for the Contractor and any Subcontractor who is not in current possession of one. Obtaining easements and rights-of-way are not included in the foregoing.

.2 Provision of all necessary notices and payments for all fees required by Law.

.3 Compliance with and strict adherence to all laws, ordinances, codes, rules, standards and regulations which are in force or become in force during the performance of the Work and which relate to the Work and to the preservation of public health and safety and construction safety.

.4 Subsequent to the issue of Notice to Proceed, but prior to the actual commencement of Work, furnish to the Owner copies of current business licences for the Contractor and Subcontractor who are party to the Contract.

.5 Failure to comply with any requirement of this Article will result in either a withholding of permission to commence Work, or a direction to immediately stop any Work in progress until satisfactory proof of compliance is presented to the Engineer. No claims for compensation will be considered for any costs incurred as a result of Work not being allowed to proceed due to non-compliance with the requirements. No applications for extension of Contract time will be considered which arise from any delay caused by a stoppage of Work due to non-compliance with the requirements.

9.8 PATENT FEES

Pay all royalties and license fees and save the Owner harmless from any costs that result from suits or claims for patent infringement caused by performance of the Work.

9.9 DAMAGES AND MUTUAL RESPONSIBILITIES

9.9.1 In the event that any party to this Contract suffers loss or damage resulting from a wrongful act or neglect of any other party to this Contract or anyone employed by them, the injured party shall be fully reimbursed by the party at fault for all damages.

9.9.2 Make all claims against all parties held to be liable within a reasonable time after the observance of damage and not later than the date indicated on the Substantial Performance Certificate, except as expressly stipulated otherwise for the case of faulty Work or Product. Claims may be settled by mutual agreement or in the manner set out in Article 9.10 – Disputes and Article 9.11 – Dispute Resolution, or by action in a court of competent jurisdiction. Parties reimbursing other parties shall be subrogated to the rights of the other parties in respect of a wrongful act or neglect if it is that of a third party.

9.9.3 If the Contractor causes damage to any other contractor on the Work, the Contractor must settle all claims promptly upon receipt of notice of claim.

9.9.4 Defend the Owner and save and hold the Owner harmless from all cost and judgement resulting from action brought by any other contractor which are found to be the result of fault or negligence of the Contractor. The Contractor retains the right to appeal in the name of the Owner to any and all courts of competent jurisdiction, any order or judgement against the Owner. In doing so, the Contractor must completely indemnify the Owner against any and all costs to carry out any appeal and for any further judgement which may result.

9.10 DISPUTE

9.10.1 A dispute is a difference between any parties to the Contract with respect to interpretation, application or administration of the Contract. A dispute which can not resolved by decision of the Engineer will be resolved as described in Article 9.11 – Dispute Resolution.

9.10.2 A claimant must provide written notice of any dispute to the other party by registered mail within 30 calendar days of receiving the decision of the Engineer. The notice must provide full particulars of the matter in dispute and the basis of the dispute including all relevant references to the Contract Documents as well as a description and valuation of any damage which has occurred. The other party to the dispute must reply to the notice by registered mail within 14 calendar days of its receipt. The reply must fully describe its position with regard to the claim of dispute and must reference all relevant provisions of the Contract Documents which are held to support this position.

9.10.3 Where any dispute is not settled promptly by decision of the Engineer, the Engineer will provide instruction as he deems necessary for the proper performance of the Work and to prevent delays pending settlement of the dispute. All parties will act immediately to carry out the instructions. No act by any party will be construed as an implied agreement with these instructions nor will it be deemed to be a renunciation or waiver of any right or recourse to the settlement of a dispute. If it is subsequently determined that the instructions were at variance with the Contract Documents, the Owner will pay the Contractor all legitimate costs incurred in carrying out the instructions beyond what the Contract Documents, correctly understood and interpreted, would have required him to incur, including costs resulting from interruption of the Work.

9.10.4 In recognition of the Contractor's obligation to continue with the disputed Work as stipulated in this Article, it is agreed that the Contractor may request and expect that dispute resolution proceedings will be convened immediately where the Engineer's decision is held to be at variance with the Contract Documents.

9.11 DISPUTE RESOLUTION

9.11.1 All parties to this Contract agree that all disputes and differences arising under this Contract may be the subject of alternative dispute resolution methods, such as mediation or arbitration, upon the mutual agreement of all parties.

9.11.2 If arbitration is chosen, it shall be before a sole arbitrator to be agreed upon by all parties. If the parties consent to arbitration, but cannot agree upon a sole arbitrator, then either party may apply to a judge to appoint

an arbitrator as provided for under the provision of *The Arbitration Act* as amended or replaced from time to time. The parties agree that the provisions of that Act shall apply to any arbitration conducted hereunder, other than the schedule for payment of the arbitrator.

9.11.3 The award of an arbitrator shall be final and binding on all parties and shall not be varied or set aside on any grounds other than those that an award of a sole arbitrator appointed under the provisions of the Act would be.

9.11.4 Each party shall be responsible for its own costs.

GC10 WORK PROGRESS, PAYMENTS AND COMPLETION

10.1 USE, CARE AND CLEANING OF THE PLACE OF WORK

10.1.1 The Owner may at any time take possession of or use any completed or partially completed portion of the Work whether or not any stipulated time or date for completion of the Work has expired. The Owner's possession or use of any portion of the Work does not constitute acceptance of it under the Contract. If such prior use or possession can be demonstrated to have increased the cost or delayed the completion of the Work, the Contractor will be entitled to extra compensation and/or extension of Contract time as determined by the Engineer.

10.1.2 Restrict equipment travel, storage of Product and construction operations to limits indicated by laws, ordinances, permits or as directed by the Engineer, so as to cause minimal interference with any use by the Owner or the general public. At all times keep the Place of Work clean and free of accumulations of waste material of any kind. Promptly dispose of waste material in accordance with local requirements.

10.1.3 At the completion of the Work meticulously clean all portions and leave them in at least a "broom clean" condition unless more exacting requirements are specified in the Contract Documents.

10.2 CERTIFICATES AND PAYMENT

10.2.1 Subject to all provisions contained within this Article, payment will be made by the Owner to the Contractor on a progressive monthly basis for Work performed under this Contract.

10.2.2 Payment will be subject to holdback in accordance with *The Builders' Lien Act* whether or not some or all of the Work falls within the scope of the legislation. Release of holdback monies will be made by the Owner only after the Contractor has fulfilled all requirements set out in GC10.

10.2.3 At the end of each month prepare a progress claim for all Work and authorized changes in the Work completed within that month and submit it to the Engineer for review and certification.

10.2.4 Except in respect of the final progress payment, the total amount certified by the Engineer as payable for each monthly submission will be paid by the Owner within 30 calendar days after the Owner's receipt of the certificate.

10.2.5 The Engineer may at any time retain from the progress payment such sum, in addition to money remaining unpaid under the Contract, as the Engineer determines may be necessary to secure the Owner against the cost of all remaining Work or correction of any deficiency already noted. The amount of such sum will be based upon the Engineer's reasonable estimate of cost to the Owner for completing the Work or remedying the deficiency.

10.2.6 No payment made by the Owner will in any way be construed as acceptance of any part of the Work known to be or later found to be at variance with the Contract Documents.

10.3 PAYMENT WITHHELD

10.3.1 The Owner may withhold or nullify, on written notice to the Contractor specifying the grounds relied on for doing so, any or all of any progress payment to the extent the Owner deems reasonably necessary to protect itself from claims or loss. The right hereby provided is dependent upon one or more of the following:

.1 Receipt of a written certificate from the Engineer stating that justification exists for such withholding for any of the following reasons:

a) the Contractor is not making satisfactory progress in the opinion of the Engineer;

b) the Contractor is not remedying defective work or is not making repairs in a manner satisfactory to the Engineer;

c) the Contractor is failing to make prompt payment due to Subcontractors or for materials or labour incorporated in the Work; or

d) there exists or is believed to exist any unsatisfied claims for damages caused by the Contractor to anyone employed on the Place of Work or in connection with the Work.

.2 There is evidence that there is an affidavit of claim of lien, or a lien, filed against the Work or Place of the Work or, that there is reasonable evidence of the probably of imminent filing of an affidavit of claim of lien.

10.4 SUBSTANTIAL PERFORMANCE

10.4.1 Request for Certificate of Substantial Performance by the Contractor or any Subcontractor is to be delivered to the Engineer in writing. Within seven days of receipt of such written request, the Engineer will either issue a certificate or provide written notice of refusal to issue the certificate to all applicants. If the Engineer refuses to issue the certificate, the Engineer must provide written explanation of the basis of refusal.

10.4.2 Upon receiving a certificate of Substantial Performance, the Contractor is responsible for posting a copy or copies of the certificate in prominent locations at the Place of Work as required by *The Builders' Lien Act*.

10.5 HOLDBACK RELEASE DOCUMENTS

The following documents must be obtained by the Contractor and presented to the Engineer before the release of any holdback monies can proceed:

10.5.1 A certified copy of the title to the property (Place of Work) upon which the Work of the Contract is being performed. Such certificate must stipulate that, as of a date two days after the expiry of the 40-day holdback period, no notice or affidavit of lien or liens have been filed or other matters recorded to make effective any lien.

10.5.2 In the event that the copy of title described in (1) above cannot be produced, furnish to the Engineer a Statutory Declaration, dated not earlier than seven days after the expiry of the applicable 40-day holdback period, which states the reason that no land title certificate can be produced. The Statutory Declaration must also stipulate that all costs have been paid in full for all Product, labour, work and services incurred directly or indirectly in completing the Work of the Contract.

10.5.3 A certificate from the Worker's Compensation Board certifying that, as of a date after the expiry of the applicable 40-day holdback period, all assessments due to the Board from the Contractor have been paid.

10.5.4 Written confirmation by tax authorities that all Saskatchewan resident Contractors have E & H accounts in good standing or that all non-Saskatchewan resident Contractors have fully paid all provincial E & H tax in any way due and payable under this Contract.

10.6 RELEASE OF HOLDBACK FUNDS

10.6.1 The issuance of a Certificate of Substantial Performance requires the Owner to release the appropriate amount of holdback funds to the recipient of the Certificate no later than 14 working days after the latest of:

.1 the date upon which the release is permitted under the provisions of *The Builders' Lien Act* or;

.2 the receipt by the Owner of the holdback release documents as detailed in Article 10.5 – Holdback Release Documents.

10.6.2 Where a request for Substantial Performance is from a Subcontractor or is in respect of a Subcontract, the Contractor is required to submit verification to the Engineer that the Work covered by that Subcontract is substantially performed.

10.7 TOTAL PERFORMANCE

10.7.1 Upon achieving what it asserts to be Total Performance of the Contract, the Contractor may make written application to the Engineer for a final inspection. This application must state that all Work is complete, all systems have been tested and are operating correctly and that the Place of Work is in a clean condition.

10.7.2 The Contractor is responsible for making all arrangements for a mutually agreeable time for the final inspection as well as coordination of all parties required to attend the inspection. The Contractor is required to demonstrate the proper operation of any systems pre-designated by the Engineer. The Engineer will carry out this inspection accompanied by the Contractor. During the final inspection, the Engineer will endeavour to advise the Contractor of all deficiency requiring correction.

Following the final inspection, the Engineer will promptly provide an all inclusive list of deficiency to the Contractor.

10.7.3 Upon making good all deficiency, submit to the Engineer a written statement attesting to the completion. Upon the Engineer's confirmation of acceptable correction of deficiencies, the Engineer will recommend to the Owner that a certificate of Total Performance be issued to the Contractor. Upon acceptance of such recommendation, the Owner will promptly issue the certificate.

10.8 FINAL PROGRESS PAYMENT

10.8.1 Subsequent to the Owner's issuance of a certificate of Total Performance, the Engineer and the Contractor will review and finalize quantities and amounts payable for all Work, including any outstanding claims in respect of the Contract. These finalized amounts will be incorporated by the Contractor into a final progress payment certificate which is deemed to represent payment in full for all Work performed under the Contract.

10.8.2 The final progress payment certificate submission is to be accompanied by a written declaration by the Contractor that all claims for payment under the Contract, including all claims for Change Orders or force account items have been presented to the Engineer and that no further claims will be made.

10.8.3 Payment of all monies certified by the Engineer as due under the final progress payment certificate will be paid by the Owner within 14 calendar days of receipt of the Final Progress Payment certificate.

10.9 CHANGES IN THE WORK

10.9.1 Without invalidating the Contract, the Engineer may alter, add or deduct from the scope of the Work with appropriate adjustment made to the Total Tender Price of the Contract.

10.9.2 Perform changes in the Work under the terms of the Contract. Apply for any changes to the completion time of the Contract caused by any changes in the Work at the same time as cost changes for this Work are presented to the Owner.

10.9.3 Except as provided for under Article 6.4 – Emergencies, make no changes to the Work without written, signed authorization from the Engineer. Such authorization must include a mutually agreeable value for such Work, or a statement of agreement that such valuation will be arrived at pursuant to the terms of Article 10.10 – Valuation of Changes. Make no claims for any Work performed without such authorization.

10.9.4 In the event that timely agreement cannot be reached on the valuation of changes to the Work, carry out these changes promptly upon receipt of written direction from the Engineer to do so.

10.9.5 Performance of changes to the Work which have been directed by the Engineer, as stipulated elsewhere, in no way prejudice the position of the Contractor as to the valuation of the Work.

10.9.6 Within 30 calendar days of being directed to perform a change in the Work without first reaching a mutually agreeable valuation, as per this

Article, deliver a notice of disagreement to the Owner, with a copy to the Engineer. The notice of disagreement must contain full particulars of the matter in dispute along with a summary of costs which are asserted to be fair and reasonable for the change to the Work, and references to all Contract provisions which are held to substantiate the costs claimed.

10.9.7 The Owner will provide a written reply to the Contractor within 14 calendar days of receipt of a notice of disagreement. The reply will either confirm agreement with the valuation proposed by the Contractor or will clearly state reasons for disagreement, and will present an alternative valuation which the Owner holds to be fair and reasonable.

10.10 VALUATION OF CHANGES

10.10.1 Valuation of changes to the Work will be determined using one or more of the following methods:

.1 by unit prices as tendered in the Form of Tender;

.2 by unit prices mutually agreed upon by the parties to the Contract;

.3 by the Owner's acceptance of lump sum(s) proposed by the Contractor; or

.4 by cost and percentage of labour and Product.

10.10.2 Pursuant to 10.10.1.4, hourly costs of labour will be per the Form of Tender. The surcharge on these hourly costs will be the rate presently set by the Saskatchewan Department of Highways and Transportation. This rate is deemed to include sufficient allowances for all payroll overheads as well as profit. All labour is deemed to be resident in the City of Regina and, as such, no allowance will be considered for room and board or travel.

10.10.3 Pursuant to 10.10.1.4, the cost of Product will be reimbursed at the delivered cost to the Place of Work plus ten percent (10%) which is deemed to cover both overhead and profit.

10.10.4 Pursuant to 10.10.1.4, the cost of any rental of equipment will be reimbursed at the rates and under the terms of the most current issue of the "Equipment Rental Rates" of the Saskatchewan Department of Highways and Transportation.

10.10.5 Pursuant to 10.10.1.4, for all changes in the Work, keep a separate accounting of the net cost of labour and Product expended to perform such Work, including all applicable receipts. Present such accounting to the Engineer, in any form requested, for review and certification.

10.10.6 Include applications for payments for changes in the Work as a part of the regular monthly progress payment submission. Where the completion or the final valuation of changes of the Work extends beyond a one month period a reasonable partial payment may be claimed for it on the normal monthly progress submission.

10.10.7 If the Engineer and the Contractor are unable to agree to valuation pursuant to the above methods, the matter will be resolved as per Article 9.11 – Dispute Resolution.

10.11 REJECTED WORK

10.11.1 Promptly remove, re-execute or replace any and all rejected Work or Product whether incorporated in the Work or not, which has been identified by the Engineer as not conforming to the Contract Documents. Bear all costs related to the removal, refabrication or replacement of rejected Work or Product including delays or damage to the Work of any other contractor. Correction is required whether or not the rejected Work or Product was previously overlooked by the Engineer or did not become apparent until a later time.

10.11.2 Reimburse the Owner for any additional engineering, inspection, testing or other related costs incurred in respect of rejected Work or Product whether or not the Work or Product are rejected or are accepted at a reduced price.

10.11.3 If the Contractor fails to remove rejected Product or Work within a time stipulated by written notice, the Owner may remove and store them at the Contractor's expense. If the Contractor fails to pay the expenses of removal and storage within seven calendar days of being notified of the costs due, the Owner may, upon provision of 14 days written notice to the Contractor, sell the Product at auction or private sale. The Owner will reimburse the Contractor any net proceeds of the sale after deductions for all costs incurred in the removal, storage and disposal of the Work or Product. However, if the net proceeds of this sale are insufficient to cover the cost incurred by the Owner as described above, the shortfall will be deducted from the Total Tender Price.

10.11.4 The provisions of this Article in no way restrict the liability of the Contractor from any other provision within the Contract Documents or otherwise by Law.

10.12 DEDUCTIONS FOR DEFICIENT WORK

10.12.1 If, in the opinion of the Engineer, it is not expedient to correct defective Work or Work not done in accordance with the Contract Documents, the Owner may deduct the difference between the Work done and the Work called for by the Contract from the Contract Price. The difference in

value will be as determined by the Engineer.

10.12.2 This Article in no way limits or qualifies the duty of the Contractor to perform and complete the Work in strict conformance with the requirements of the Contract Documents.

10.12.3 This Article in no way constitutes agreement on the part of the Owner to a limitation of recoverable damages in the event that cost of correction is uneconomic.

10.13 DELAYS

10.13.1 If the Contractor is delayed in the completion and/or delivery of the whole or any portion of the Work by any cause that, in the opinion of the Engineer, was beyond the Contractor's control, then the Contractor may make application to the Engineer for a reasonable extension to the completion time for the Contract. Legitimate causes of delay are considered to be:

.1 action or non-action, wrongful act or omission of the Owner, the Engineer or of any employee of the Owner;

.2 strikes, embargoes, acts of God, the public enemy or a foreign state;

.3 fire, floods, epidemics, earthquakes, or quarantine restrictions; or

.4 delay by common carrier.

10.13.2 Provide the Engineer with written notice of claim for extension within seven days of commencement of unavoidable delay. In the case of a continuing cause of delay, only one claim shall be necessary. The Engineer may require that provision of an extended Consent of Surety be a condition of granting any extension of time.

10.13.3 Make no claim or demand, nor bring any action or suit against the Owner for any damages sustained due to any delay beyond the control of the Owner. Without restricting the generality of the foregoing, periods of inclement weather are to be expected and will not be considered as cause for an extension of time for completion. Scheduling allowances for the occurrence of inclement weather and cost considerations for the utilization of labour and machinery to meet any specified completion date must be incorporated into tenders at the time of their preparation.

10.13.4 The Engineer shall not, except by written notice to the Contractor or as provided in Article 6.3 - Emergencies, stop or delay any part of the Work pending decisions or proposed changes either by itself or by the Owner.

10.13.5 Once Work has commenced neither labour nor equipment may be removed from the Work without the permission of the Engineer. Diligent and effective prosecution of the Work and its timely completion is a material requirement of the Contract. Failure to complete the Work within the time specified and any extension of time approved by the Engineer may result in the Owner sustaining uncontemplated expense and/or loss of use or employment of the Work. Such cost is a compensable loss to the Owner and is payable to the Owner by way of ascertained liquidated damage and not as a penalty. The per diem rate set forth in the Contract Documents is deemed without further proof to be a legitimate pre-estimate by the Parties of the cost of additional engineering, inspection, reporting and administration that the Owner will incur in the event of delay. The Owner may deduct these amounts from payments otherwise due to the Contractor.

10.13.6 The Owner does not forfeit or waive any rights under the Contract by permitting the Contractor to continue with or to complete the Work after the time fixed for its completion, including any approved extensions.

10.13.7 In the event the Contractor fails to complete the Work, the Owner retains the right to recover liquidated damages from the Contractor or his Surety regardless of whether the Contractor has defaulted or the Owner has already taken over any part of the Work.

Replacement of Victoria Ave East Bridges over Pilot Butte Creek and Victoria Ave Widening
Contract No. 2435

1.0 Extra Work

1.1 Pursuant to Clause 10.10, Valuation of Changes, of the General Conditions the percentage mark up on all labour is set at 70%, the percentage mark-up on work by subcontractor's shall be 10%.

1.2 The Contractor shall submit to the Engineer, a labour and equipment rental rate list prior to start of construction. An overtime rate for labour shall be included in the submission. Contrary to Clause 10.10.1.2 of the General Conditions, these rates will be used for work where no unit prices are provided in the Contract.

1.3 Refer to General Conditions – Clauses 10.9 and 10.10 regarding changes to the work.

.1 Contemplated Change Notice (CCN): issued after award of Contract, does NOT constitute an order to perform the change but is a notice of a proposed change only. Submit to the Engineer within fourteen (14) days after receipt of "Contemplated Change Notice", a statement of cost adjustments and EFFECT UPON CONSTRUCTION SCHEDULE REQUIRED BY THE PROPOSED CHANGE. Itemize statement in accordance with all items separately listed.

.3 Field Order (FO): during Construction, the Engineer may issue a Field Order to authorize a change or additional work of an emergency nature. A firm total cost (extra or credit) or a method for determining this cost must be included (unit price, cost plus or time basis). Submit to the Engineer within fourteen (14) days after receipt of "Field Order", a statement of EFFECT UPON CONSTRUCTION SCHEDULE REQUIRED BY THE PROPOSED CHANGE.

.4 Change Order (CO): after receipt of the statement of cost adjustment and Owner's approval of same, the Engineer will issue a "Change Order" in the amount of the approved cost adjustment which will authorize the Contractor to proceed with the change to the work, or alternatively, will notify the Contractor that the proposed change is cancelled.

2.0 Damages for Late Completion

All Work is to be completed by October 30, 2015 based on a starting date of June 15, 2015.

It is agreed by the parties that if the Contractor fails to complete the work or portions of the work on or before the stipulated final completion date or within such extensions to the completion date as made by Change Order, damage will be sustained by the Owner. It is further agreed that it would be impractical and extremely difficult to ascertain and

determine the actual damage the Owner will sustain by reason of such delay. In recognition of the foregoing, the parties to the Contract agree that the Contractor will pay to the Owner the sum of one thousand dollars ($1,000.00) plus GST as a genuine pre-estimate of damages the owner will sustain in each and every calendar day the Work remains incomplete ("Liquidated Damages"). Liquidated Damages are to cover actual costs incurred by the City for maintaining its engineering, inspection and other forces and equipment on the Work past the indicated completion date and is separate from Site Rental.

The Engineer's certification as to the number of days for which Liquated Damages to be charged will be final and binding on all parties. Liquidated Damages shall not be applied to Statutory Holidays.

The Owner shall have the right to holdback, drawback, deduct and set off from and against the amounts of any monies owing at any time by the Owner to the Contractor, any liquidated damages owing and unpaid.

3.0 Adjustment of Completion Date

Bidders are advised that the intent is to have this Contract awarded no later than June 1, 2015. Any delay in award will be considered a delay beyond the Contractor's control as described in Clause 10.13, Delays, of the General Conditions.

4.0 Construction Staging

Construction shall proceed according to the Contract Drawings. A minimum of two (2) lanes of traffic in each direction shall be maintained on Victoria Avenue through the duration of the Work.

The general intent of the proposed construction staging is to limit traffic disruptions on Victoria Avenue. However, the City will consider any reasonable staging plan proposed by the successful bidder that limits the impact to traffic, subject to the approval of the Engineer.

5.0 Site Rental

Site rental will be charged to the Contractor for each calendar day during construction that traffic is restricted on Victoria Avenue resulting from the Work. A restriction is an event which disrupts normal traffic flow on Victoria Avenue for any period of time. Restrictions include, but not limited to; detours, flagpersons, lane closures or width restrictions. Site rental, when applicable, will be at a rate of three thousand dollars ($3,000.00) plus GST per calendar day.

Site rental applies to each calendar day (7 days per week, including statutory holidays) regardless of whether the Contractor is working or not working on the site. Partial days shall not be considered and shall be rounded up to the nearest whole number of calendar days. Site Rental will apply regardless of adverse weather conditions. The Contractor shall account for a typical amount of weather days in their bid submission. If the number of adverse weather days exceeds the historical average based data on Environment Canada website, the Contractor may, upon submission with supporting documentation, be granted

weather days, in excess of the historical average, upon approval by the Engineer.

Payment

A separate Contract Item has been included in the tender form to provide for Site Rental charged to the Contractor. Site Rental will be debited from this figure at each progress payment based on actual events. If at the end of the Contract there is a positive balance, the Contractor will be paid out the remaining value on the final progress payment. If there is a negative balance, the Contractor will have the amount debited from the respective progress payment.

6.0 Indemnification

The Contractor agrees to indemnify and save harmless the Province, the City, their officers, servants, employees, or agents from and against all claims, demands, loss, costs, damages, actions, suits or other proceedings by whomsoever brought or persecuted in any manner based upon, or occasioned by any injury to persons, damage, to or loss or destruction of property, economic loss or infringement of rights caused by or arising directly or indirectly from:

a) the Funding Agreement between the Province and the City required pursuant to the Rehabilitation Agreement for the replacement of the bridges under the Urban Highway Connector Program;

b) the performance of the contract or the breach of any term or condition of it by the Contractor, its officers, servants, employees or agents; or

c) any omission or other willful or negligent act of the contract, a Third Party, their respective employees, officers, servants or agents.

No Agency

The Contractor agrees that nothing in the Funding Agreement between the Province and the City required pursuant to the Rehabilitation Agreement for the replacement of the bridges under the Urban Highway Connector Program is to be constructed as authorizing the Contractor or any Third Party to contract for or to incur any obligation on behalf of the City, or the Province or to act as agent for them.

7.0 Modifications to Standard Construction Specifications

7.1 Water and Hydrants

.1 Contrary to Item 1.7 Water Supply, Section 01500, Temporary Facilities, the Contractor shall be allowed to take from the City hydrants all water necessary for the construction of the Works as and when permitted by the Engineer. Prior to commencement of construction, the Contractor must fill out and sign and application form, complete with deposit per hydrant. The Contractor will be supplied with fittings and a proper wrench, which must be returned within fifteen (15) days of completion of Contract. The application does not entitle the bearer free use of any hydrant in the City,

but is restricted to only that hydrant stated on the application form. The deposit will be refunded, less an administration charge, only after fittings are returned and the hydrants are inspected. The cost for repair of damaged hydrants will be deducted from the deposit.

.2 The Contractor is further advised that, except for the deposit and administration charges noted above, all additional costs for use of hydrants for this contract will be waived when hydrants are used for this contract only.

.3 No direct payment will be made for the application of water on the work, but shall be considered a subsidiary obligation under the respective tender items**.**

7.2 Safety and Security

Add the following clauses to General Requirements - Section 01001 Clause 1.3:

1.3.7 Ensure all workers, including Subcontractors, are wearing appropriate personal protection equipment. Safety clothing shall meet CSA Z96-02 High Visibility Safety Apparel garment classes. All garments must have a tag or method of identification from the manufacturer that indicates the Class and level of the garment. Minimum specifications for the following garments are:

.1 T-Shirts are to be Class 2, Level 2 compliant.
.2 Vests are to be Class 2, Level 2 compliant.
.3 Bibs are to be Class 2, Level 2 compliant at a minimum.
.4 Coveralls are to be Class 3, Level 2 compliant.

1.3.8 All workers shall be required to wear a sleeved work shirt to cover the upper torso. Tank tops or sleeveless shirts (less than 8 centimetres [3 inches] below shoulder) shall not be worn at the place of work.

7.3 Witness Points

Contrary to Section 01450 “Quality Control and Quality Assurance”, Clause 1.1.3, there are no Witness Points on this project.

7.4 Section 01300 Submittals

Add the following to Section 01300 Submittals Clause 1.4

1.4.7 All shop drawings submitted to the Engineer for review must bear the Contractor’s shop drawing stamp indicating that the information supplied has been reviewed by the Contractor and that all field dimensions and site requirements have been checked. Failure to provide this stamp on all shop drawings submitted to the Engineer will result in the shop drawings being stamped with **NOT REVIEWED** and returned.

Add the following to Section 01300 Submittals:

1.7 Progress Photographs

1.7.1 Upon commencement of Work and at two (2) week intervals, supply the Engineer with sufficient digital photographs to clearly indicate progress of all parts of the Work. Photographs of each element are to be taken from three (3) different vantage points. Photographs are to include, but not be limited to, the following:

- Work site and surrounding area just prior to mobilization to site and after completion of the work;
- Asphalt pavement removal;
- Removal of bridges;
- Installation and monitoring of pumping requirements;
- Installation of culverts;
- Installation of road structure;
- Asphalt pavement placement;
- Installation of concrete barriers;
- Installation of guardrail;
- Sealer application; and
- Other work which will be covered after completion.

7.5 Section 01700 Contract Completion

The reference to Sections 01790 Operations and Maintenance Manuals and 01810 Commissioning are not applicable to the work.

7.6 Project Construction Signs

Add the following to Section 01500 Temporary Facilities Clause 1.11:

1.11.7 A deposit of $200.00 plus GST will be required for each of the project signs supplied by the City of Regina. This deposit will be deducted from the first progress payment and will be refunded upon return of the signs, in good condition to the City yards at the completion of the Work.

7.7 Reinforcing Steel

7.7.1 Scope

The Work will consist of supply of all equipment, labour, materials, and related works for the supply and installation of reinforcing steel as shown on the plans or as designated by the Engineer.

This Specification is for the supply, fabrication, handling and placing of plain reinforcing steel, epoxy coated reinforcing steel, corrosion resistant reinforcing steel (CRR), and stainless reinforcing steel. All reinforcing steel shall be supplied and installed in the lengths and shapes shown on the

Plans. The bar lists shown are provided for estimating purposes only. No substitution of bars or changes to bar details will be permitted without prior approval of the Engineer.

7.7.2 Products

7.7.2.1 Plain Reinforcing - Plain reinforcing steel shall be Grade 400, meeting the requirements of CSA Standard G30.18M.

7.7.2.2 Corrosion Resistant Reinforcing - Corrosion Resistant Reinforcing Steel (CRR) shall consist of either low carbon/chromium reinforcing steel or stainless reinforcing steel.

Low carbon/chromium reinforcing steel shall meet the requirements of ASTM A1035. The minimum yield strength based on the 0.2% offset method shall be equal to 690 MPa.

Stainless reinforcing steel, if used, shall meet the requirements of Clause 7.7.2.4.

Unless otherwise specified, only one type of CRR shall be supplied for use throughout the project.

7.7.2.3 Galvanized Reinforcing - Plain reinforcing steel meeting the requirements of Clause 7.7.2.1 shall be used in in the production of galvanized reinforcing steel.

All reinforcing bars to be hot-dip galvanized after fabrication to the requirements of CAN/CSA G164.

7.7.2.4 Stainless Reinforcing - Stainless reinforcing steel shall be of the following designations as defined by the Unified Numbering System (UNS):

- - S31653
- - S31603
- - S31803
- - S30400
- - S32304

Stainless reinforcing steel shall meet the requirements of ASTM A276 and ASTM A955/A955M (including Annex 1.2 or 1.3). The minimum yield strength shall be 420 MPa.

Unless otherwise specified, only one type of stainless reinforcing steel shall be supplied for used throughout the project.

7.7.3 Execution

7.7.3.1 Material Production and Testing

Reinforcing steel shall be produced and tested in accordance with the applicable standard(s). Material manufacturer mill test certificates showing proof of compliance shall be submitted to the Engineer for review and acceptance prior to the placement of any reinforcing steel.

Mill test certificates shall be provided for each lot delivered to the site.

The following additional information, as applicable, shall be supplied for each lot of stainless reinforcing steel delivered to the site:

- Austenitic grades: Test results verifying compliance with ASTM A262, Practice E.
- Duplex grades: Test results verifying compliance with ASTM A923, Method A, by demonstrating an unaffected etched structure.

Stainless reinforcing steel shall be pickled to remove all mill scale and surface oxidation. Details of the Manufacturer's pickling process shall be included with the mill test certificate submissions.

7.7.3.2 Fabrication

All bars requiring bends shall be cold bent at the fabrication facility. Heating of bars to facilitate bending will not be permitted.

Bars shall be cut by shearing or with fluid cooled saws. Torch cutting will not be permitted. Bars showing evidence of torch cutting will be rejected.

Unless otherwise specified, all hooks and bends shall be fabricated using the pin diameters and dimensions recommended in The Reinforcing Steel Institute of Canada (RSIC) Manual of Standard Practice. Bars shall conform accurately to the dimensions shown on the Plans, and be within the fabricating tolerances detailed in the RSIC Manual of Standard Practice.

Fabrication of stainless reinforcing steel shall be carried out in such a manner that bar surfaces are not contaminated with deposits of iron or other non stainless steels; or suffer damage due to straightening or bending.

Reinforcing steel shall be fabricated without laminations or burrs.

7.7.3.3 Shipping, Handling, and Storage

Reinforcing steel shall be covered and protected at all times during transportation.

Reinforcing steel of differing material types shall be stored separately. Bar tags identifying the material type shall be clearly visible and shall be maintained in-place until installation of the material.

The Contractor shall store all reinforcing steel on platforms, skids, or other suitable means of support able to keep the material above the ground surface while protecting it from mechanical damage or deterioration.

On-site storage of reinforcing steel shall not exceed 120 days unless protected with polyethylene sheeting or equivalent protective material acceptable to the Engineer.

The Contractor shall take all precautions necessary to prevent damage to the material during handling operations. Bundles shall be handled with spreaders and non-metallic slings, or by other methods acceptable to the Engineer. Damaged materials shall be replaced by the Contractor at his expense.

7.7.3.4 Placing and Fastening

Reinforcing steel incorporated into the Work shall be free from loose rust, scale, dirt, paint, oil or other foreign materials.

Reinforcing steel shall be accurately placed in the positions shown on the Plans, and shall be securely tied and chaired before placing the concrete. Bars shall be tied at all intersections except when the bar spacing is less than 250 mm in each direction; alternate intersections may be tied at these locations. Specified distances from forms shall be maintained by supports, spacers, or other means approved by the Engineer.

Reinforcing cover shall not be less than that specified on the Plans. Supports used to prevent bars from contact with forms or for separation between layers of bars shall be of adequate strength, shape and dimension, and shall be approved for use by the Engineer. Supports shall be either plastic or precast concrete. Where additional reinforcing support bars are proposed by the Contractor, they shall be of the same material type and grade used in the Work. Supports and spacers fabricated from alternate material types may be used upon approval by the Engineer.

Plastic bolster slab supports shall be Aztec Strong Back Slab/Beam Bolster PSBB manufactured by Dayton Superior, or approved equivalent. Bolster slab supports shall be staggered and configured to facilitate full concrete consolidation.

Precast concrete supports shall be used for all exposed faces of curbs, medians and barriers. Precast concrete supports shall be Total Bond Concrete Supports manufactured by Con Sys Inc., or approved equivalent. Precast concrete supports shall have the compressive strength, rapid chloride permeability, and air content meeting the specification requirements for the class of concrete being placed.

Except as noted herein, tie-wire shall be manufactured from the same material type as the reinforcing steel being tied. Plastic coated tie wire may be used where low carbon/chromium reinforcing steel is being placed. Where stainless reinforcing steel is being placed, tie-wire shall be stainless steel of any grade listed in Clause 7.7.2.4.

Welding of reinforcing steel will not be permitted.

Field bending of reinforcing steel, regardless of circumstance, will not be permitted unless specified on the Plans.

7.7.3.5 Splicing

Splicing of bars, unless shown on the Plans or approved in writing by the Engineer, is prohibited.

Splices, where permitted, shall be staggered. For lapped splices, bars shall be placed in contact and wired together while maintaining the minimum required clear distance to other bars and the required minimum distance to the surface of the concrete.

7.7.3.6 Repair of Galvanized Reinforcing Steel

Care shall be taken in order to prevent damage of galvanized surfaces. Fabric slings, wood blocking or other approved methods shall be used to support and separate galvanized reinforcing when handling, hauling or storing.

Individual bars on which the galvanized coating has been damaged shall be replaced or repaired by the Contractor at his expense as determined by the Engineer.

Where repair of damaged galvanizing is required, the repair shall be by metallizing in conformance with ASTM A780, Method A3, to a thickness of 180 µm.

7.7.3.7 Repair of Stainless Reinforcing Steel

Individual stainless steel reinforcing bars exhibiting any of the following defects shall be repaired or replaced at the Contractor's expense:

- Any single area of iron contamination greater than 100 mm

in length.
- Two (2) or more areas of iron contamination greater than 50 mm in length.
- Frequent small occurrences of iron contamination along the full length of the bar.

Bars exhibiting excessive staining, as determined by the Engineer, shall have the contaminants identified by energy dispersive x-ray analysis (EDXA). Contaminant identification shall be carried out by the Contractor at his expense.

Methods proposed for the repair of stainless reinforcing steel bars shall be approved by the City of Regina and Engineer prior to implementation.

Stainless reinforcing steel bars exhibiting signs of mechanical damage shall be replaced.

7.7.4 Measurement and Payment

No separate measurement will be made for reinforcing steel. No separate payment for reinforcing steel will be made. The cost of reinforcing steel shall be included in the unit price rate for the applicable item(s) of Work.

7.8 Supply and Install Precast Concrete Box Culverts

7.8.1 Scope

The Work will consist of the supply and installation of precast concrete box culverts at locations and in conformity with lines, grades and cross-sections shown on the plans or designated by the Engineer. This shall include standard culvert sections and bevelled end culvert sections.

The Contractor shall be responsible for the detailed design of the concrete and steel reinforcement for the precast concrete box culverts to resist the loads provided on the plans including providing shop plans stamped by a Professional Engineer registered in the Province of Saskatchewan for the design of the box culverts.

Shop plans and design reports shall be provided to the Engineer illustrating that the Reinforced Concrete Box has been designed by direct design methods in accordance with ASCE 26-97. Design factors contained in the CAN/CSA-S6 Canadian Highway Bridge Design Code (CHBDC) shall govern over the ASCE and the ASTM documents.

All materials shall be subject to inspection, sampling and quality assurance testing by a third party retained and paid for by the Contractor. The Contractor shall provide safe, convenient access acceptable for inspection

and sampling of the materials, and shall cooperate in the inspection and sampling process when requested to do so. Any material found unacceptable shall be replaced or repaired with acceptable material by the Contractor at the Contractor's expense. All costs associated with the re-inspection required by the Engineer due to faulty work shall be paid for by the Contractor.

Cracks in the precast box culvert identified either at the manufacturer's plant or at the project site will require action as follows:

- Cracks equal to or less than 0.2 mm, in width are considered minor and shall be documented on the inspection report.
- Cracks greater than 0.2 mm and less 0.3 mm in width shall be assessed by the manufacturer and a repair or replacement strategy developed. The repair or replacement strategy shall be submitted to the Engineer for review and acceptance prior to the commencement of the repair or replacement work. The Engineer shall be present for all repair work undertaken by the manufacturer or Contractor.
- Sections with cracks 0.3 mm in width or greater shall be rejected.

All Precast Box Culvert (PBC) material shall be handled carefully and in such a manner as to prevent cracking, gouging or chipping the concrete surfaces. All rubber gaskets shall be kept warm at room temperature prior to installation during winter months. Culvert material designated by the Engineer as unacceptable, due to failure to meet the specified requirements, shall be immediately repaired or replaced by the Contractor at his expense.

7.8.2 Products

7.8.2.1 Precast Concrete Box Culverts

a) The supply and manufacture of all PBC's shall be in accordance with the current edition of ASTM 1433M "Standard Specification for Precast Reinforced Concrete monolithic Box Sections for Culverts, Storm Drains, and Sewers (Metric)" following the design procedure in the American Society for Civil Engineers (ASCE) "Standard Practice for Direct Design of Buried Precast Concrete Box Sections". Thickness and size shall be as shown on the plans or as designated by the Engineer.

b) Design life of the PBC's shall be 75 years.

c) All PBC's shall be manufactured from sulphate resistant Type HS or HSb cement in accordance with CSA A3001.

d) Concrete mix design shall be by the Contractor and shall comply with Section 2500, Supply of Portland Cement

Concrete, and Clause 7.9.2. Design strength and other mix parameters shall be selected by the Contractor to achieve the design life required.

e) Reinforcing steel shall conform to all requirements of Clause 7.7.

f) All gaskets supplied for reinforced concrete pipe projects shall meet the requirements of CSA 257.3. The precast box culvert sections shall be joined with preformed flexible joint sealants in accordance with ASTM C990 or rubber gaskets compliant with ASTM C1619.

g) All boxes supplied shall be marked in accordance with ASTM 1433M standards:

- The box designation shall be indicated as follows:
  - S_____, R____, H____ - where,
    - S= designated box section span, mm,
    - R= designated section rise, mm,
    - H= minimum-maximum fill height, m
- The date of manufacture.
- The manufacture's name or trademark.
- The plant identification (Box ID).
- One (1) end of each box section designed to be installed with the top slab up shall be legibly marked during the process of manufacturing or immediately thereafter on the inside and outside of the top slab, or shall have the top identified by the location of one (1) or more lift holes or devices.
- Plant Prequalification Symbol.

7.8.2.2 Rip Rap

Shall adhere with all requirements of Clause 1.5.28 of Section 01025, Measurement and Payment.

7.8.2.3 Geotextile

Shall adhere with all requirements of Clause 1.5.19 of Section 01025, Measurement and Payment.

7.8.2.4 Granular Material

Shall adhere with all requirements of Clause 1.5.27 of Section 01025, Measurement and Payment.

7.8.3 Execution

7.8.3.1 Construction

a) The installation of the precast box culvert shall be carried out in a professional manner meeting all the requirements of the preparation of bedding and haunch gravel as specified on the plans. It is essential that the structure be kept dewatered to the bottom of the excavation until all backfilling is complete. Installation of PBC shall follow both ASTM C1479M and the CHBDC respectively. The Contractor shall submit documentation of lifting procedures for the Engineer's review, two (2) weeks prior to installation of the culvert.

b) Excavation (including sub-cut) shall adhere to all requirements of Clause 1.5.21 of Section 01025, Measurement and Payment. If the culvert foundation is unsuitable, the bottom of the bed shall be sub-cut to the dimensions staked by the Engineer. The sub-cut shall be backfilled in accordance with the requirements of Clause 1.5.24 of Section 01025, Measurement and Payment. The bedding line shall be shaped to fit the culvert.

c) Placing and installation of the box may proceed only after the excavation, foundation and bottom bedding material and shape have been inspected and accepted by the Engineer. Installation of the culvert shall include a rubber gasket and/or coil sealants such as Kent Seal or Con Seal at each joint conforming to CSA 257.3. The Contractor shall implement proper installation methods for the rubber gaskets for the particular type of gasket being installed. Allowable joint gap spacing between joined box sections shall not exceed 13 mm.

Contractor shall:

- Install and join sections in accordance with the manufacturer's recommendations.
- Install the precast box culvert as shown on the plans in accordance with the proposed staging shown.
- Clean the inside of both ends prior to joint installation.
- Keep all rubber gaskets at room temperature and out of direct sunlight. Gaskets shall be free of dirt, oil and grease.
- Use lifting clutches in conjunction with the embedded lifting pins (anchors).
- If the installed section is not on an acceptable grade, the section shall be completely unjoined, the grade corrected, and the box section then rejoined.

Under no circumstances shall the Contractor:

- Use an excavator, or any other mechanical device to push, pound, or rock the culvert to achieve the proper grade.
- Drag boxes along the ground to either stockpile or install the section.

d) When installation of the structure has been accepted by the Engineer, backfilling with granular materials as specified on the plans may proceed. In addition to the requirements of Clause 1.5.27 of Section 01025, Measurement and Payment, the following requirements shall be met:

- When the ambient air temperature is below 0°C, no backfilling is allowed unless otherwise accepted by the Engineer. When acceptance is granted, all backfill material shall be in a thawed state when placed and compacted. Backfill material shall not be placed on frozen substrate.
- Backfilling shall be free of voids and provide uniform support to the structure. The backfill shall be placed such that the level of fill on one side does not exceed the level of fill on the other side of the structure by more than 300 mm.
- Should vibratory equipment be required, the backfill shall be placed and compacted by equipment moving parallel to the structure with simultaneous handwork along the structure.
- Clean material void of rocks and sharp objects shall be used.
- Should in situ material be used in place of granular material, the in situ material shall also extend to the springline of the structure as per the compaction required by the Engineer. The Engineer shall confirm the in situ material conforms to the type and compaction level as specified on the plans.

e) Granular backfill under the haunches of culverts shall be compacted with mechanical impact tampers.

f) No objectionable material shall be used within that portion of the embankment above or below the bedding line on culverts through the roadbed. The embankment, within three (3) diameters or three (3) spans of the culvert barrel, shall be free from rocks having a dimension of 75 mm or greater when measured in any direction.

g) The Contractor shall repair or replace, at no direct expense to the City of Regina, any culvert damaged by his operation.

7.8.4 Measurement and Payment

Measurement for Precast Concrete Box Culverts will be made on the basis of the number of units acceptably placed and remaining in the completed work.

Payment for Precast Concrete Box Culverts will be included in the unit price bid for the appropriate work (standard sections or bevelled end sections) acceptably placed and remaining in the completed work, which price shall include full compensation for completing the work described above. This shall include the cost of detailed culvert design and the cost of furnishing all labour, materials, equipment, tools, and incidentals necessary to supply and install the precast concrete box culverts and all associated hardware.

The following materials and work are included as separate unit price items: gravel foundation, granular backfill, heavy rock riprap, and earth excavation.

When the specified 28-day concrete strength is not met, the precast concrete box culvert units shall be paid as per the following percentage of the unit price:

Strength below the specified 28-day strength	Percentage of Unit Price to be paid
1 MPa or less	95%
1 MPa to 2 MPa	90%
2 MPa to 3 MPa	85%
3 MPa to 4 MPa	80%

In the event that the concrete tested is more than 4 MPa below the specified 28-day strength, the precast concrete box culvert units fabricated from the concrete represented by the test specimens shall be rejected. In the event that the unit has been delivered and/or erected in the field, it shall be removed and returned to the Contractor's plant for replacement. The entire cost of replacement, including delivery and erection costs, shall be at the Contractor's expense.

When materials are delivered to the worksite, payments will be made to a maximum of 90% of the cost of the materials based upon the applicable supplier’s invoices. Payments will not be initiated until the Contractor submits the invoices to the Engineer upon receipt and acceptance of the material at the site. The remaining payment will be made after the structure is backfilled and accepted by the Engineer.

7.9 Precast F-Type Barriers

7.9.1 Scope

The Work will consist of supply of all equipment, labour, materials, and related works for the installation of F-Type barriers as shown on the plans or as designated by the Engineer.

This specification is for the supply, manufacture, delivery and erection of precast concrete bridge units and miscellaneous precast components.

7.9.2 Products

7.9.2.1 Supply of Portland Cement Concrete

The requirements of Section 2500, Supply of Portland Cement Concrete shall be followed unless noted otherwise.

Concrete strength of the F-Type barriers shall be 40 MPa at 28 days entrained air content shall be 5%-8%.

7.9.2.2 Reinforcing Steel

The requirements of Clause 7.7 shall be followed.

7.9.2.3 19mm Diameter Loop Bars

Minimum yield of 420 MPa, minimum tensile strength of 550 MPa, minimum 14% elongation in 203mm, pass a 180 degree bend test using a 3.5D bend diameter.

7.9.2.4 32mm Diameter Pins

Shall meet ASTM A36.

7.9.2.5 Standards

The manufacture of prestressed and precast concrete bridge units shall be in accordance with The Canadian Standards Association (CSA) Standard A23.4.

Where imperial/metric conversions are necessary, The National Standard of Canada, CAN3-Z234.1-79 shall be used as the basis of conversion.

7.9.2.6 Qualification

The Contractor shall notify the City of Regina and Engineer of any subcontractors in his employ. The Contractor shall remain

responsible for the Work of the subcontractors. All terms of the Contract, such as right of access, shall apply to the subcontractor.

The fabricator shall operate a recognized precast concrete fabricating plant and be fully certified by the Canadian Precast/Prestressed Concrete Institute (CPCI) Certification Program in the applicable Product Group classification.

7.9.2.7 Shop Plans

Electronic and one (1) hard copy of the shop plans showing all necessary fabrication details of the precast units, such as reinforcing steel, blockouts, stressing system, anchorage devices, void support system and screed rail shall be submitted to the Engineer for review prior to manufacturing. The shop plans shall be legible and of adequate quality to be reproduced. Each drawing shall have a sufficient blank space for the Engineer's review stamp. The Engineer's review of the shop plans shall not be construed as relieving the Contractor from his responsibility for errors or omissions. All shop plans will be stamped as follows:

"This review applies to general arrangements and details of design but not to dimensions or details of fabrication and is subject to the requirements of specifications and to such corrections as may be marked here on".

7.9.2.8 Forms

Precast concrete units are to be manufactured in steel forms which are acceptable to the Engineer. For all members the forms shall be designed to be removed without damaging the member.

7.9.2.9 Concrete Finish

Rubbed Finish - This finish is essentially that obtained when concrete has been cast and adequately compacted in a properly oiled steel form. All holes, cavities and defects shall be repaired so that the finished surface presents a smooth, true, dense, uniformly coloured, and non-stained appearance. The concrete surfaces shall be thoroughly wire brushed to expose any hole or cavity prior to repairs. All residue of form oil shall be removed from the surface. These areas shall be saturated with water for a period of not less than thirty minutes, carefully pointed and trued with mortar of a colour which will match the existing concrete. Mortar used for pointing shall be less than one hour old. The patches shall be properly cured by placing the repaired unit in the steam cure for a period of four (4) days immediately after patching.

The finished surfaces shall be true and uniform. Any barrier which

does not have a surface finish acceptable to the Engineer shall be removed and replaced at the Contractor's expense.

7.9.2.10 Curing

Curing of all non-prestressed concrete shall be as follows:

a) Moist Curing

The units may be moist cured in lieu of elevated temperature curing in accordance with the following:

Upon removal from the forms the units shall be cleaned, patched, finished, and ready for inspection within a period not exceeding 12 hours. Patching shall be performed with an approved product and at an ambient temperature of 15°C to 30°C. After completion of patching and finishing, within 24 hours of removal from the form, the units shall be placed under two (2) layers of light coloured filter fabric at an ambient temperature of not less than 15°C. The filter fabric or burlap shall be kept in a continuously wet condition throughout the curing period by means of a soaker hose or other means as reviewed and accepted by the City of Regina. Curing with filter fabric or burlap and water shall be maintained for a minimum period of seven (7) days.

7.9.2.11 Dimensional Tolerances

The maximum dimensional deviation in mm, of cast units from that as detailed on the plans shall not exceed the following:

Length ± 20 mm x length (m)
Width ± 3 mm
Depth ± 5 mm

7.9.2.12 Handling and Storage

Precast units shall be handled by means of accepted lifting devices at designated locations. Units shall be maintained in an upright position, supported near the ends and on stable foundations.

At no time shall the barriers be lifted, moved, etc. by the use of the loop bars at the ends.

7.9.2.13 Inspection and Testing

The Contractor shall be responsible for quality control. Inspection of the units by the Engineer will not relieve the Contractor of his responsibility for quality control.

The Contractor shall provide testing equipment, facilities and

personnel to ensure that the concrete supply meets all requirements of the specifications. He shall maintain the required air entrainment by testing and making adjustments to the mix prior to and during the placing of concrete in the forms. The Engineer may test the air content to ensure that this is being correctly maintained however testing of concrete by the Engineer will not relieve the Contractor of his overall responsibility for quality control of the concrete.

The Contractor shall make concrete test cylinders to determine the 28-day strength. Samples for testing will be taken from the fresh concrete being placed in the forms at the rate of one set of cylinders for every three (3) Type-F units cast continuously. Additional cylinders may be cast at the discretion of the Engineer. A set shall consist of three (3) cylinders. A strength test will be the average of the 28-day strengths of the three (3) cylinders (one set). Continuous casting shall mean no break in the casting longer than one hour.

The Contractor shall be responsible for transporting the test cylinders to an independent CSA testing laboratory. The transportation and testing of concrete test cylinders will be at the Contractor's expense. These tests shall represent the strength of the cast concrete. Test results shall be forwarded to the Engineer within 24 hours of testing.

Sampling, making, curing and testing concrete specimens shall be in accordance with the requirements of the following CSA standards:

- Sampling - A23.2-1C
- Concrete Test Cylinders - A23.2-3C
- Testing Concrete Cylinders - A23.2-9C
- Air Content - A23.2-4C
- Density of Concrete - A23.2-6C
- Air Void Determination - A23.2-17C

7.9.2.14 Failure to Meeting Strength Requirements

The Engineer reserves the right to reject any concrete whatsoever which does not meet the specified strength determined in accordance with this Specification. The Engineer may, however, at his discretion, accept concrete which does not meet the specified strength requirements. Refer to Clause 7.9.3 for details of payment adjustments.

7.9.3 Measurement and Payment

Measurement for Precast F-Type Barriers will be made on the basis of the number of units acceptably placed during construction. Any F-Type barriers used during construction but not required once construction is complete will become the property of the City of Regina and shall be transferred to the City of Regina's yard on Armour Road.

Payment for Precast F-Type Barriers will be included in the unit price bid for the Work acceptably placed during construction, which price shall include full compensation for completing the Work described above. This shall include the cost of furnishing all labour, materials, equipment, tools, and incidentals necessary to supply and install the precast barriers and all associated hardware.

When the specified 28-day concrete strength is not met, the precast F-Type barriers shall be paid as per the following percentage of the unit price:

Strength below the specified 28-day strength	Percentage of Unit Price to be paid
1 MPa or less	95%
1 MPa to 2 MPa	90%
2 MPa to 3 MPa	85%
3 MPa to 4 MPa	80%

In the event that the concrete tested is more than 4 MPa below the specified 28-day strength, the precast F-Type barriers fabricated from the concrete represented by the test specimens shall be rejected. In the event that the unit has been delivered and/or erected in the field, it shall be removed and returned to the Contractor's plant for replacement. The entire cost of replacement, including delivery and erection costs, shall be at the Contractor's expense.
When materials are delivered to the worksite, payments will be made to a maximum of 90% of the cost of the materials based upon the applicable supplier's invoices. Payments will not be initiated until the Contractor submits the invoices to the Engineer upon receipt and acceptance of the material at the site. The remaining payment will be made after the structure is backfilled and accepted by the Engineer.

7.10 Precast Lock-Block Retaining Walls

7.10.1 Scope

The Work will consist of supply of all equipment, labour, materials, and related works for the installation of Lock-Block Retaining Walls as shown on the plans or as designated by the Engineer.

This specification is for the supply, manufacture, delivery and erection of precast concrete bridge units and miscellaneous precast components.

7.10.2 Products

7.10.2.1 Supply of Portland Cement Concrete

The requirements of Section 2500, Supply of Portland Cement Concrete shall be followed unless noted otherwise.

Concrete strength of the Lock-Block Retaining Walls shall be 25 MPa at 28 days entrained air content shall be 5%-8%.

7.10.2.2 Standards

The manufacture of prestressed and precast concrete bridge units shall be in accordance with The Canadian Standards Association (CSA) Standard A23.4.

Where imperial/metric conversions are necessary, The National Standard of Canada, CAN3-Z234.1-79 shall be used as the basis of conversion.

7.10.2.3 Qualification

The Contractor shall notify the City of Regina and Engineer of any subcontractors in his employ. The Contractor shall remain responsible for the Work of the subcontractors. All terms of the Contract, such as right of access, shall apply to the Subcontractor.

The fabricator shall operate a recognized precast concrete fabricating plant and be fully certified by the Canadian Precast/Prestressed Concrete Institute (CPCI) Certification Program in the applicable Product Group classification.

7.10.2.4 Shop Plans

Electronic and one hard copy of the shop plans showing all necessary fabrication details of the precast units, such as reinforcing steel, blockouts, stressing system, anchorage devices, void support system and screed rail shall be submitted to the Engineer for review prior to manufacturing. The shop plans shall be legible and of adequate quality to be reproduced. Each drawing shall have a sufficient blank space for the Engineer's review stamp. The Engineer's review of the shop plans shall not be construed as relieving the Contractor from his responsibility for errors or omissions. All shop plans will be stamped as follows:

"This review applies to general arrangements and details of design but not to dimensions or details of fabrication and is subject to the requirements of specifications and to such corrections as may be marked here on".

7.10.2.5 Forms

Precast concrete units are to be manufactured in steel forms which are acceptable to the Engineer. For all members the forms shall be designed to be removed without damaging the member.

7.10.2.6 Concrete Finish

Rubbed Finish - This finish is essentially that obtained when concrete has been cast and adequately compacted in a properly oiled steel form. All holes, cavities and defects shall be repaired so that the finished surface presents a smooth, true, dense, uniformly coloured, and non-stained appearance. The concrete surfaces shall be thoroughly wire brushed to expose any hole or cavity prior to repairs. All residue of form oil shall be removed from the surface. These areas shall be saturated with water for a period of not less than thirty minutes, carefully pointed and trued with mortar of a colour which will match the existing concrete. Mortar used for pointing shall be less than one hour old. The patches shall be properly cured by placing the repaired unit in the steam cure for a period of four (4) days immediately after patching.

The finished surfaces shall be true and uniform. Any block wall which does not have a surface finish acceptable to the Engineer shall be removed and replaced at the Contractor's expense.

7.10.2.7 Curing

Curing of all non-prestressed concrete shall be as follows:

a) Moist Curing

The units may be moist cured in lieu of elevated temperature curing in accordance with the following:

Upon removal from the forms the units shall be cleaned, patched, finished, and ready for inspection within a period not exceeding 12 hours. Patching shall be performed with an approved product and at an ambient temperature of 15°C to 30°C. After completion of patching and finishing, within 24 hours of removal from the form, the units shall be placed under two (2) layers of light coloured filter fabric at an ambient temperature of not less than 15°C. The filter fabric or burlap shall be kept in a continuously wet condition throughout the curing period by means of a soaker hose or other means as reviewed and accepted by the City of Regina. Curing with filter fabric or burlap and water shall be maintained for a minimum period of seven (7) days.

7.10.2.8 Dimensional Tolerances

The maximum dimensional deviation in mm, of cast units from that as detailed on the plans shall not exceed the following:

Length ± 20 mm x length (m)
Width ± 3 mm
Depth ± 5 mm

7.10.2.9 Handling and Storage

Precast units shall be handled by means of accepted lifting devices at designated locations. Units shall be maintained in an upright position, supported near the ends and on stable foundations.

At no time shall the block walls be lifted, moved, etc. by the use of the loop bars at the ends.

7.10.2.10 Inspection and Testing

The Contractor shall be responsible for quality control. Inspection of the units by the Engineer will not relieve the Contractor of his responsibility for quality control.

The Contractor shall provide testing equipment, facilities and personnel to ensure that the concrete supply meets all requirements of the specifications. He shall maintain the required air entrainment by testing and making adjustments to the mix prior to and during the placing of concrete in the forms. The Engineer may test the air content to ensure that this is being correctly maintained however testing of concrete by the Engineer will not relieve the Contractor of his overall responsibility for quality control of the concrete.

The Contractor shall make concrete test cylinders to determine the 28-day strength. Samples for testing will be taken from the fresh concrete being placed in the forms at the rate of one (1) set of cylinders for every three (3) block wall units cast continuously. Additional cylinders may be cast at the discretion of the Engineer. A set shall consist of three (3) cylinders. A strength test will be the average of the 28-day strengths of the three (3) cylinders (one set). Continuous casting shall mean no break in the casting longer than one hour.

The Contractor shall be responsible for transporting the test cylinders to an independent CSA testing laboratory. The transportation and testing of concrete test cylinders will be at the Contractor's expense. These tests shall represent the strength of the cast concrete. Test results shall be forwarded to the Engineer within 24 hours of testing.

Sampling, making, curing and testing concrete specimens shall be in accordance with the requirements of the following CSA standards:

- Sampling - A23.2-1C
- Concrete Test Cylinders - A23.2-3C
- Testing Concrete Cylinders - A23.2-9C
- Air Content - A23.2-4C
- Density of Concrete - A23.2-6C
- Air Void Determination - A23.2-17C

7.10.2.11 Failure to Meeting Strength Requirements

The Engineer reserves the right to reject any concrete whatsoever which does not meet the specified strength determined in accordance with this Specification. The Engineer may, however, at his discretion, accept concrete which does not meet the specified strength requirements. Refer to Clause 7.10.3 for details of payment adjustments.

7.10.3 Measurement and Payment

Measurement for Precast Lock-Block Retaining Walls will be made on the basis of the percentage complete as determined by the Engineer in accordance with Clause 1.1.3 of Section 01025, Measurement and Payment.

Payment for Precast Lock-Block Retaining Walls will be included in the lump sum price bid for the Work acceptably placed and remaining in the completed Work, which price shall include full compensation for completing the Work described above. This shall include the cost of furnishing all labour, materials, equipment, tools, and incidentals necessary to supply and install the lock block walls and all associated hardware.

When the specified 28-day concrete strength is not met, the Lock-Block Retaining Walls shall be paid as per the following percentage of the unit price:

Strength below the specified 28-day strength	Percentage of Unit Price to be paid
1 MPa or less	95%
1 MPa to 2 MPa	90%
2 MPa to 3 MPa	85%
3 MPa to 4 MPa	80%

In the event that the concrete tested is more than 4 MPa below the specified 28-day strength, the precast Lock-Block Retaining Walls fabricated from the concrete represented by the test specimens shall be rejected. In the event that the unit has been delivered and/or erected in the field, it shall be removed and returned to the Contractor's plant for replacement. The entire cost of replacement, including delivery and erection costs, shall be at the Contractor's expense.

When materials are delivered to the worksite, payments will be made to a maximum of 90% of the cost of the materials based upon the applicable supplier’s invoices. Payments will not be initiated until the Contractor submits the invoices to the Engineer upon receipt and acceptance of the material at the site. The remaining payment will be made after the structure is backfilled and accepted by the Engineer.

7.11 Chain Link Fence

7.11.1 Scope

The Work will consist of supply of all equipment, labour, materials, and related works for the installation of 1.5m high Chain Link Fence as shown on the plans or as designated by the Engineer.

7.11.2 Products

7.11.2.1 Supply of Chain Link Fence

All materials shall be supplied as new for this project.

7.11.2.2 Attachment to Concrete

Attachment of the fence posts to the top of the box culvert sections or lock blocks shall be by post installed concrete anchors suitable for use to anchor the chain link post baseplates to the concrete surfaces.

7.11.3 Execution

7.11.3.1 Post Location

Line posts shall be set a maximum of 3.0 m apart, measured parallel to the ground surface. Corner posts shall be installed where the alignment change exceeds 20 degrees or where elevation changes occur.

7.11.3.2 Top Rail

Top rails shall be supported at each line post with a line post cap so that a continuous brace is formed between terminal posts. The rails shall be joined with sleeves to allow for expansion and contraction. Connections to terminal posts shall be made securely using rail ends and brace bands.

7.11.3.3 Terminal Post Bracing

Braces shall be installed from end and gate posts to the nearest line post at mid-panel and parallel to the top rail. Braces shall be installed on both sides of corner and straining posts in a similar manner.

7.11.3.4 Bottom Tension Wire

A tension wire shall be installed within the bottom 150 mm of fabric. The wire shall be stretched taut and free of sag; and be

fastened securely to the end, corner, gate and straining posts with tension bands and turnbuckles.

7.11.3.5 Chain Link Fabric

The fabric shall be placed on the outside of the enclosed area unless otherwise directed by the Consultant. The bottom of the fabric shall be 50 mm above the finished ground. The fabric shall be stretched to tension as recommended by the Manufacturer; and fastened to the end, corner, gate and straining posts with tension bands at 300 mm spacing. The fabric shall also be secured to line posts, top rails and the bottom tension wire with tie wire at 450 mm intervals. The tie wire shall have a minimum of two (2) twists. Once installed and tensioned, the fabric shall have a smooth uniform appearance satisfactory to the Consultant, and be free of sags, dents and bulges.

7.11.3.6 Damaged Surfaces

Damaged surfaces shall be cleaned with a wire brush to remove loose and cracked spelter coatings, followed by the application of two (2) coats of an approved zinc rich paint over the damaged areas.

7.11.4 Measurement and Payment

Measurement for Chain Link Fence will be based on a percentage complete as determined by the Engineer in accordance with Clause 1.1.3 of Section 01025, Measurement and Payment.

Payment for Chain Link Fence will be included in the unit price bid for the Work acceptably placed and remaining in the completed Work, which price shall include full compensation for completing the Work described above. This shall include the cost of furnishing all labour, materials, equipment, tools, and incidentals necessary to supply and install the fencing and all associated hardware.

7.12 Embankments for Victoria Avenue Widening (Table II)

7.12.1 Scope

The Work will consist of supply of all labour, equipment, and materials necessary to complete the embankments as indicated on the plans, or as directed by the Engineer in accordance with the Specification 2120.

7.12.2 Execution

The Contractor shall remove grass, vegetation, and other unsuitable materials from the existing embankment slopes before widening occurs.

Topsoil within the Construction Footprint shall be removed and placed outside of the top of the new sideslope before widening occurs. The Construction Footprint is defined as the area within the cut or fill stakes

The Contractor shall widen the existing grade by notching as shown on drawing D-0010 to the depth necessary to balance cut and fill or to the depth of the existing surfacing structure, whichever is greater. The material from the notch shall be bladed to the toe of the existing sideslope and be incorporated into the widening.

The Contractor shall construct the earth embankment in a manner that shall not cause an upward movement or a distortion of the existing asphalt concrete.

Windrowing embankment and surfacing materials on the existing surfacing structure will not be permitted unless authorized by the Engineer.

7.12.3 Measurement and Payment

Measurement for Embankments for Victoria Avenue Widening (Table II) will be made on a cut volume basis.

Payment for Embankments for Victoria Avenue Widening (Table II) will be made on a cubic metre basis.

7.13 Supply and Installation of Geotextile Fabric

7.13.1 Scope

The Work will consist of the supply and installation of woven geotextile at locations and in conformity with lines, grades and cross-sections shown on the plans or designated by the Engineer.

Geotextile shall be placed under all riprap and keyed in as shown on the plans.

Geotextile shall be placed between the gravel foundation and native soil and between the granular backfill and native soil as shown on the plans.

All Work shall be in accordance with Section 2155, Supply and Installation of Geotextile Fabric.

7.13.2 Execution

In addition to the requirements of Section 2155, the following shall apply:

- The top edge of the filter fabric shall be anchored by digging a 300 mm deep trench, inserting the top edge of the fabric and backfilling with compacted soil.

- Care shall be taken to prevent puncturing or tearing the geotextile. Any damage shall be repaired by use of patches that extend at least 1 m beyond the perimeter of the tear or puncture.
- The fabric shall be covered by rock riprap, gravel foundation, or granular backfill within sufficient time so that ultraviolet damage does not occur; in no case shall this time exceed seven (7) days for ultraviolet material and 14 days for ultraviolet protected and low ultraviolet susceptible polymer geotextiles.

Heavy equipment will not be permitted to operate directly on the geotextile.

7.13.3 Measurement and Payment

No separate payment for geotextile will be made. The cost of geotextile shall be included in the unit price rate for the appropriate item(s) of work.

7.14 Cofferdam and Water Management

7.14.1 Scope

The Contractor shall be responsible for the design, supply, and installation of cofferdams upstream and downstream of the work zone to de-water the Work zone. The top elevation and size of the cofferdam shall be determined by the Contractor to suit the proposed work plan and schedule.

To control the height of water against the cofferdam the Contractor shall pump water from the upstream end of the cofferdam to the downstream end of the culvert. For the outlet pump hose an energy dissipation pool lined with riprap or other suitable armouring complete with silt fence downstream of the outlet shall be used to control erosion.

The cofferdam shall be constructed of a suitable non-erodible material chosen by the Contractor. The use of gabion baskets, an aquadam, a soil berm covered with riprap, or steel sheet piling are all seen to be feasible options. In all cases the cofferdam shall adhere with the environmental approvals in place for the project.

7.14.2 Products

The Contractor shall supply all materials required for the installation of the cofferdam system chosen.

7.14.3 Execution

Installation shall be in accordance with the manufacturer's instructions for the system chosen by the Contractor or as determined by the designer of the cofferdam.

7.14.4 Measurement and Payment

Measurement of cofferdam and water management will be based on a percentage complete as determined by the Engineer in accordance with Clause 1.1.3.

Payment for Cofferdam and Water Management will be made at the lump sum bid. This payment will be full compensation for completing the Work as described above including excavation and for the use of all equipment, tools, labour and incidentals necessary to complete the work. It shall also include the costs required for the removal of the cofferdam and restoration of the site upon completion of the Work.

7.15 Removal of Bridge Structures

7.15.1 Scope

The Work will consist of supply of all equipment, labour, materials, and related works for the removal of the existing bridge structures as shown on the plans or designated by the Engineer.

7.15.2 Execution

Removal shall mean removing bridge structures, salvaging the materials listed or designated by the Engineer, stockpiling the salvaged materials at the bridge site or the Contractor's storage area, disposing of the remainder of the bridge structure and leaving all work areas in a tidy and safe condition. The Contractor shall provide the Engineer with a list of all materials that were salvaged.

Materials listed by the Engineer for salvage shall be dismantled piece by piece removing all nails, bolts, drift pins and other hardware. Torch cutting to remove hardware or to dismantle these materials will not be permitted.

Materials in bridge structures not listed for salvage shall be disposed of in a manner and location acceptable to the Engineer. The Contractor shall provide written acceptance from the owners of the disposal site(s) and evidence of their acceptance of the disposal site clean-up, prior to receiving full payment.

In general, the portion of bridge abutments and piers located above natural ground level shall be completely removed, and the portion 1 m below the natural ground level may remain in place.

When determined by the Engineer, the Contractor shall haul salvaged materials. The haul of salvaged materials shall include loading, unloading, stockpiling and all associated handling of the materials.

7.15.3 Measurement and Payment

Measurement will be based on a percentage complete as determined by the Engineer in accordance with Clause 1.1.3.

Payment for Removal of Bridge Structures will be made at the lump sum bid for the removal of both bridge structures as shown on the plans. This payment will be full compensation for completing the Work as described above including excavation and for the use of all equipment, tools, labour and incidentals necessary to complete the Work.

7.16 Backfill - Clay Seals

7.16.1 Scope

All backfill material shall adhere with Section 2120, Embankments.

The Work will consist of the supply and installation of backfill under the granular and clay seals at the ends of the culvert as shown on the plans.

7.16.2 Products

Generally the material shall consist of clay or till materials. Highly plastic clay material or material with high silt content will not be permitted. The quality of the material, and the methods of placing and compacting, requires acceptance by the Engineer before commencement of this stage of construction.

7.16.3 Execution

Compaction shall be as specified on the plans or as directed by the Engineer.

7.16.4 Measurement and Payment

Measurement of backfill - clay seals will be made on a surveyed cubic metres (m^3) basis of the completed work.

Payment for backfill - clay seals will be made on the basis of the unit price bid. This payment will be full compensation for completing the Work as described above including the use of all equipment, tools, labour and incidentals necessary to complete the Work. Hauling costs are considered incidental to the work and no separate or additional payment shall be made.

Payment by the cubic metre (m^3) shall not relieve the Contractor from responsibility to ensure the final cross sections are built to the neat lines shown on the plans. No separate or additional payment shall be made due to needless over build determined by the Engineer to be at the sole discretion of the Contractor.

7.17 Supply and Install Granular Materials

7.17.1 Scope

All granular materials and backfill shall adhere with Section 2120, Embankments, 2210, Sub-Drainage Sand, 2230, Granular Base Course, and 2315, Trench Excavation and Backfill.

The Work will consist of the supply and installation of gravel for the foundation of the precast concrete box culvert sections as shown on the plans. This shall include the supply and installation of the perforated pipes shown on the plans.

This specification applies to the supply and installation of the granular backfill as shown on the plans.

This specification also applies to the backfill of any sub-cut areas required if the culvert foundation is unsuitable.

7.17.2 Products

The gravel foundation shall meet the specification for Type 32 Base with gradation as specified in Clause 2.1.1 of Section 2230, Granular Base Course.

The granular backfill shall meet the specification for Sub-Drainage Sand with gradation specified in Clause 2.1.1 of Section 2210, Sub-Drainage Sand.

Perforated pipe shall conform to Section 2170, Perforated Drainage Pipe. Contrary to Section 2170, granular material around the perforated pipe shall meet the specification for Coarse Gravel with gradation as specified in Clause 2.5.2 of Section 2315, Trench Excavation and Backfill.

7.17.3 Execution

Compaction shall be as specified on the plans or as directed by the Engineer for the different types of material.

Contrary to Section 2170, Perforated Drainage Pipe, the perforated pipe shall be placed within the gravel foundation material and graded to drain out of the downstream clay seal. The ends of the pipes shall have a mesh screen installed to prevent animal ingress and shall be placed within the riprap apron such that positive drainage is maintained.

7.17.4 Measurement and Payment

Measurement of both gravel foundation and granular backfill will be by the tonne as determined by the official tickets obtained from the granular supplier. The Contractor shall be responsible to obtain the tickets and supply them to the Engineer.

Payment of both gravel foundation and granular backfill will be at the unit price bid. This payment will be full compensation for completing the Work as described above including the use of all equipment, tools, labour and incidentals necessary to complete the Work. Hauling costs are considered incidental to the Work and no separate or additional payment shall be made.

Payment by the tonne (t) shall not relieve the Contractor from responsibility to ensure the final cross sections are built to the neat lines shown on the plans. No separate or additional payment shall be made due to needless over excavation determined by the Engineer to be at the sole discretion of the Contractor.

When geotextile filter fabric and/or weeping tile are specified, the supply, placing, equipment and tools necessary to acceptably complete this Work will be considered incidental and no separate or additional payment for this incidental Work will be made.

7.18 Supply and Install Heavy Rock Riprap

7.18.1 Scope

This specification is for the supply, delivery, and installation of heavy rock riprap at locations and in conformity with lines, grades and cross-sections shown on the plans or designated by the Engineer. This Work shall include all necessary trimming, excavation, and fill required to satisfactorily place the rock riprap, such as:

- excavation, trimming, and shaping headslope
- excavation at headslope toe, and for rock apron
- excavation for rock in stream bank transition zone
- backfill over rock in stream bank transition zone to restore lines of natural bank.

7.18.2 Products

The rock supplied shall be hard, durable and angular in shape, resistant to weathering and water action, free from overburden, spoil, shale or shale seams and organic material, and shall meet the following gradation requirements:

• Nominal Mass	= 7 kg
• Nominal Diameter	= 200 mm
• None Greater than	= 40 kg = 300mm
• 20% to 50%	= 10 kg = 200mm
• 50% to 80%	= 7 kg = 175mm
• 100% Greater than	= 3 kg = 125mm

In general, no sandstone will be permitted, however if the proposed material meets or exceeds the minimum requirements, consideration may be given to accepting the material. For these occurrences, further testing shall be done to ensure acceptability. This would include testing of the material in accordance with CSA A23.2-15A "Petrographic Examination of Aggregates". The minimum dimension of any single rock shall be not less than one third of its maximum dimension. The minimum acceptable unit weight of the rock is 2.5 t/m^3.

The Contractor shall provide the Engineer with evidence of the acceptability of the riprap material. Reliable performance records of proposed material, other than fieldstone, will be considered evidence of acceptability. Angular fieldstone shall be considered to have a reliable performance record, and will be accepted if it meets the gradation requirements.

7.18.3 Execution

The rock shall be handled, dumped or placed into position to conform to the specified gradation and to the cross section shown on the drawings. The finished surface shall be reasonably uniform, free from bumps or depressions, and with no excessively large cavities below or individual stones projecting above the general surface.

Riprap placement shall commence at the base of the geotextile blanket area and proceed up the slope. The height of drop of riprap shall be limited to 1.0 m or less, and the riprap shall not be allowed to roll down the slope. Heavy equipment will not be permitted to operate directly on the geotextile.

7.18.4 Measurement and Payment

Measurement for Heavy Rock Riprap will be based on the surveyed plan area of the riprap acceptably placed multiplied by the design thickness shown on the plans.

Payment for Heavy Rock Riprap will be made at the unit price bid and shall be full compensation for all labour, equipment, and materials necessary for the Work.

When woven geotextile filter fabric is specified, the supply, placing, equipment and tools necessary to acceptably complete this Work will be considered incidental and no separate or additional payment for this incidental Work will be made.

8.0 Changes in Quantities

Except in the case of Lump Sum Items, the Owner will pay the Contractor only for actual measured quantities of Work or materials furnished in accordance with the Contract. Payment for Lump Sum Items will be made on the basis of percentage completion of the Lump Sum Item. The actual quantities of Work and materials to be furnished may be greater or less than the quantities specified in the Tender Form.

In this Clause an increase or decrease in the quantity of an Unit Price Item is determined as the difference between the final quantity of the Item, as measured by the Engineer and the approximate quantity of the Item specified in the Tender Form.

If the quantity of a Unit Price Item increases or decreases by an amount not exceeding twenty percent (20%) of the approximate quantity, the Owner will pay the Contractor for the quantity of work performed at the unit prices specified in the Tender Form.

If the quantity of an Item increases by an amount greater than twenty percent (20%) of the approximate quantity specified in the Tender Form, either party may request in writing that the Unit Price for the Item be adjusted, subject to the following:

(a) The unadjusted Unit Price applies on the quantity up to and including one hundred and twenty percent (120%) of the approximate quantity specified in the Tender Form;

(b) Any adjusted Unit Price applies only to the quantity in excess of one hundred and twenty percent (120%) of the approximate quantity specified in the Tender Form;

(c) The Owner will not make an allowance for losses sustained or profits accrued on a quantity up to and including one hundred and twenty percent (120%) of the approximate quantity specified in the Tender Form;

(d) The adjusted Unit Price will be calculated based on Force Account Rates in accordance with Item 1, Extra Work, of these Special Provisions; and

(e) If the costs applicable to that Item include fixed costs, those fixed costs are excluded from the Unit Price for the Item for amounts in excess of one hundred and twenty percent (120%) of the estimated quantity specified in the Tender Form.