

Special Provisions and Notice to Bidders for: Richmond BF 0284(28)

2. CONTRACT COMPLETION DATE. This Contract shall be completed on or before September 29, 2017

11. NOTICE TO BIDDERS - INCENTIVE/DISINCENTIVE (I/D). The Agency's intent is to have the bridge closure period (BCP) be as short a duration as possible. To encourage the Contractor to provide a maximum effort to complete the Identified Work for I/D within the period as defined below, the Agency is willing to pay an incentive.

(a) Dates. The allowable BCP shall start at 7:00 a.m. and end 28 consecutive calendar days later by 6:59 a.m. The duration shall be between June 19, 2017 and August 18, 2016. During the BCP the Contractor will be allowed to work on this bridge 24 hours per day, 7 days per week, including holiday periods.

Night work will be allowed during the BCP. See Special Provision Nos. 13 NOTICE TO BIDDERS - REQUIREMENTS FOR NIGHTTIME WORK and 14 NOTICE TO BIDDERS - NIGHTTIME WORK RESTRICTIONS for additional information and requirements.

The Contractor shall submit to the VAOT Construction Section for review and approval a certified letter indicating the BEGIN CONSTRUCTION DATE for the BCP work. This letter shall be received by the Construction Section a minimum of twenty one (21) calendar days prior to the BEGIN CONSTRUCTION DATE indicated in the letter. The BEGIN CONSTRUCTION DATE shall be determined by the Contractor.

The I/D period as established above for this Contract is absolutely fixed and will not be changed for any Act of God, omission, improper action, direction of the Engineer, or any other reason unless done so by the Secretary and only under extreme conditions as determined by the Secretary.

There shall be a pre-closure meeting held on site with the Contractor's Superintendent, Contractor's Project Manager, the Engineer, the Project Manager, the Town of Richmond, Richmond Fire Department, Richmond Rescue, Inc., Vermont State Police and the Chittenden County Regional Planning Commission to discuss durations of work, types of night work, work sequencing, etc. The Contractor shall be responsible for setting this meeting up and making appropriate contacts. This meeting shall be held a minimum of 14 days prior to the BCP.

There shall be a public information meeting. The Contractor's Superintendent and Contractor's Project Manager shall be available to attend. The Contractor shall be prepared to discuss the construction schedule with the public. The Public Outreach Coordinator shall be responsible for setting this meeting up and making appropriate contacts. This meeting shall be held a minimum of 21 days prior to the BCP.

All prefabricated concrete elements shall be authorized for shipment prior to the BCP. The bridge shall remain open to traffic until the prefabricated elements are authorized for shipment.

(b) Identified Work. All work required to open the new Bridge to two-way traffic including:

- (1) Wearing Course of pavement placed on approaches and bridge;
- (2) Permanent bridge and approach railing installed; and
- (3) Detour signs removed or covered up.

No daily lane closures will be allowed before the 21 days prior to the BCP to progress work items outside EPSC and Traffic Control.

In the 21 days prior to the BCP the contractor will be allowed to maintain a minimum of one-lane (11 feet wide) alternating traffic.

No night work will be allowed during this 21 day window and, two-way traffic must be maintained on the existing alignment during nighttime hours.

(c) Pay Schedule. The Contractor will receive a lump sum compensation of thirty thousand dollars (\$30,000) for completing the Identified Work before the end of the I/D period.

In addition, the Contractor will be compensated at a rate of two hundred dollars (\$200.00) per hour that the Identified Work is completed prior to the end of the I/D period, up to a maximum total payment as specified herein. Only full hours where the new bridge is opened by 6:00 a.m. will count toward this extra incentive payment.

The maximum amount payable under the incentive clause shall be sixty thousand dollars (\$60,000) (including the lump sum payment).

For each hour after the end of the I/D period that the Identified Work remains uncompleted, the Contractor will be assessed a disincentive at a rate of two hundred dollars (\$200.00) per hour. The full hourly disincentive amount will be assessed for each hour that traffic is not allowed on the bridge for any portion of the hour. There shall be no maximum on the disincentive amount.

This assessed disincentive is separate from, and will be imposed in addition to, liquidated damages which may be imposed for failure to complete the Contract on time.

(d) Underruns and Overruns. The proposal indicates an estimated quantity for each Contract pay item. The fact that the actual amounts used in the construction of this project may vary from the estimate will not be a basis or cause for changing any of the conditions for I/D.

The Agency recognizes that additional work beyond the work indicated in the Plans is always possible in any construction contract. The Agency is willing to pay for necessary additional work in accordance with the terms and requirements of the Contract and the Standard Specifications for Construction, however, the Contractor shall absorb any resulting construction time within the original project and CPM Schedules, and there will be no adjustments or changes to the I/D dates or I/D conditions.

(e) Payment. Payment will be made as specified in Section 900.

12. NOTICE TO BIDDERS - REQUIREMENTS FOR NIGHTTIME WORK. The Contractor is hereby notified that night work will be allowed during the bridge closure period.

Night work shall be performed in accordance with the National Cooperative Highway Research Program (NCHRP) Report 476 - "Guidelines for Design and Operation of Nighttime Traffic Control for Highway Maintenance and Construction". A copy of this guideline specification may be downloaded from the following website: [http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp\\_rpt\\_476.pdf](http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_476.pdf).

Prior to beginning night work, the Contractor shall design a lighting system and present it to the Engineer for approval. The Contractor shall not perform any night work or activities within the project limits until the lighting system has been fully approved and is in place on the project.

The designed lighting system shall be mobile, shall be mounted separately from other construction equipment, shall illuminate the entire work area to daylight intensity with minimal glare, and shall be a surrounding design that minimizes shadows in the work area as much as possible.

All costs associated with the lighting system will be considered incidental to Contract item 900.645 Special Provision (Traffic Control, All-Inclusive).

13. NOTICE TO BIDDERS - NIGHTTIME WORK RESTRICTIONS. The Contractor is hereby notified that during the bridge closure period, no work shall be performed between the hours of 9:00 p.m. and 6:00 a.m. that creates a noise level exceeding 75 decibels. The decibel level shall be measured from the point of activity to the nearest occupied residence.

Construction activities expected to reach this noise threshold include pneumatic hammers, hoe-ram, and similar impact type equipment.

The Contractor shall provide the Engineer, for the duration of the nighttime work, with a sound level meter capable of measuring this noise criteria during the bridge closure period.

Sound level meters shall be Rion NL-20, CESVA SC-160, Extech 407780 or an approved equal capable of meeting IEC60651: 1979 Type 2 and IEC60804: 1985 Type 2 Standards.

The cost for providing this equipment and meeting the specified noise level criteria will not be paid for separately, but will be considered incidental to all other Contract items.

SECTION 900 - SPECIAL PROVISION ITEMS

CRITICAL PATH METHOD (CPM) SCHEDULE

40. DESCRIPTION. This work shall consist of developing and furnishing a CPM Schedule, including narratives, updates, and revisions for the duration of the Contract.

These provisions shall supersede Subsection 108.03(a) of the Standard Specifications.

41. SUBMISSIONS.

- (a) The Contractor is responsible for the scheduling of all Contract work, which shall include, but is not limited to subcontracted work, complete and acceptable submissions, work component fabrications, and delivery of materials. The schedule shall include allowance for time for all aspects of the work including sufficient time for VTrans to perform its functions as indicated in the Contract, including but not limited to acceptance inspection and/or testing, and review and acceptance/approval of any required Working Drawings as defined in Section 105 or otherwise in the Contract Documents.
- (b) Provide the following items with each schedule submission. The schedule shall be prepared with MS Project.
- (1) An electronic copy in MS Project format with run date and version of the schedule;
- (2) A PDF illustrated in color, depicting no more than 50 activities on each 280 by 430 mm (11 by 17 in.) sheet, and with each sheet including title, project name and number, match data for diagram correlation, and a key;
- (3) A four-week look-ahead narrative to provide a more detailed plan of upcoming work highlighting the near term priorities. Indicate the anticipated workdays per week, number of shifts per day, number of hours per shift, crew sizes, and assumed resources. If the project requires a road closure, identify any changes in anticipated resources, or work schedule during the closure period.
- (c) The CPM schedule shall include the following:
- (1) Activities that describe the essential features of the work, activities that might delay Contract completion, and which activities are on the critical path;

- (2) The planned start and completion dates for each activity and the duration of each activity stated in work days (field activities of more than 15 work days in duration shall be broken into two or more activities distinguished by location or some other logical feature); this estimated figure shall include considerations for permit limitations, seasonal limitations, and any other anticipated delays.
  - (3) When the project contains a defined Road or Bridge Closure Period of a minimum of 24 hours and up to a maximum of 28 days, the duration for work within the closure period shall be shown in hours instead of days. The maximum duration of each activity within the closure period shall be limited to twelve (12) hours;
  - (4) Finish-to-Start relationships among activities, without leads or lags unless justified in the narrative, and approved by the Engineer;
  - (5) Distinct columns showing Predecessors, Successors, Duration, Actual Start, and Actual Finish for each Activity;
  - (6) Project suspension or work inactivity that is three (3) days or longer;
  - (7) Dates related to the procurement of materials, equipment, and articles of special manufacture;
  - (8) Dates related to the submission of Working Drawings, plans, and other data specified for review or approval by the Agency;
  - (9) Key milestone dates specified in the Contract including but not limited to; Notice to Proceed, Interim Completion, Permit Restriction Dates, and Contract Completion Date. These shall be the only constraints in the schedule logic;
  - (10) Activities related to Agency or Third Party reviews and inspections.
- (d) For contracts with an original Contract amount in excess of \$8,000,000.00 the following additional information shall be shown on the CPM schedule:
- (1) Each Contract bid item identified with at least one activity, except:  
  
Lump Sum items, Lump Unit items, Contract items paid by the "Hour", Contract items paid by the "Dollar", Section 641 pay items, and Section 653 pay items.

- (2) Each compensable activity shall identify the applicable Contract item(s), along with the total quantity intended to be placed during that activity.

42. BASELINE SCHEDULE. The CPM Schedule submittal shall be received by the Engineer a minimum of seven (7) calendar days prior to the preconstruction meeting. The Engineer and Contractor may review the schedule at the preconstruction meeting. Any requested information and a revised schedule shall be submitted within seven (7) calendar days after receiving the Engineer's request. The Engineer shall be allowed twenty-one (21) calendar days to review the schedule and provide a response. The Engineer will review the schedule by assessing the schedule's compliance with these provisions and conformance with the Contract requirements. By accepting the schedule, the Engineer does not modify the Contract in any way. The Baseline Schedule shall be accepted before any field work begins. The accepted schedule will be used as the Baseline Schedule for the remainder of the project.

The schedule shall define and sequence activities so as to accurately describe the project and to meet Contract requirements for scope of work, phasing, accommodations for traffic, and interim, and project completion dates. Create the schedule, beginning with the date of the Notice to Proceed.

43. SCHEDULE UPDATES. The schedule shall be updated during active construction at the end of every other bi-weekly estimate period (update period) and when directed by the Engineer. Projects with short duration road closures are of particular importance as the project float will be limited. The Contractor shall promptly inform the Engineer of any schedule delays or changes that occur during these periods. The Engineer shall be allowed ten (10) calendar days to review the update for compliance with these provisions and provide a response. Include the following with each update:

- (1) Actual start dates of each activity started;
- (2) Actual finish dates of each activity finished, or remaining durations of activities started but not yet completed;
- (3) Narrative report describing progress during the update period, shifts in the critical activities from the previous update, sources of delay, potential problem areas, work planned for the next update period, and changes made to the schedule. Changes include additions, deletions, or revisions to activities due to the issuance of a Contract revision, changes to an activity duration, changes to relationships between activities, or changes to the planned sequence of work or the method and manner of its performance.
- (4) The Original schedule shall be shown as a Baseline

44. REVISIONS. Schedule revisions shall be submitted within ten (10) calendar days after any of the following:
- (1) A written request to revise the schedule from the Engineer;
  - (2) A delay (actual or projected) to scheduled milestones or project completion dates;
  - (3) When actual progress falls behind the most recent schedule accepted by the Engineer, either by falling more than two (2) weeks behind schedule or by 5% of the total Contract time, the Contractor shall immediately inform the Engineer in writing. The Engineer may require the Contractor to submit a revised schedule. Neither the Engineer's acceptance of such revised schedule nor any Agency feedback regarding the revised schedule shall be construed as an approval of the revised schedule, nor should it be construed as the Agency's dictation of the Contractor's means and methods;
  - (4) Issuance of a Change Order/Supplemental Agreement(s) that by adding, deleting, or revising activities, changes the planned sequence of work or the method and manner of its performance;
  - (5) Issuance of a Change Order/Supplemental Agreement(s) that adds time to the Contract;
  - (6) The Contractor shall participate in progress meetings at the request of the Engineer to review and discuss the updated schedule information including any activity delay, coordination requirements, change orders, potential delays, and other relevant issues.

The Engineer shall review the revised schedule for compliance with these provisions, and provide a response within ten (10) calendar days.

45. FLOAT. Any float in the schedule is to be credited to the project only.
46. FAILURE TO SUBMIT SCHEDULE. Failure to submit a schedule (i.e. original baseline schedule, required updates, revisions, and when requested by the Engineer) in accordance with these provisions may be grounds for suspension of partial payments, as identified in Subsection 109.08, until a satisfactory schedule meeting the requirements of these provisions is received by the Engineer.
47. METHOD OF MEASUREMENT. The quantity of Special Provision (CPM Schedule) to be measured for payment will be the number of each CPM Schedule (i.e. original baseline schedule, required updates, revisions, and when requested by the Engineer), accepted by the Engineer through the duration of the Contract.
48. BASIS OF PAYMENT. The accepted quantity of Special Provision (CPM Schedule) will be paid for at the Contract unit price for each. Payment will be full compensation for preparing and submitting a schedule as

specified, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.620 Special Provision (CPM Schedule)	Each

TRAFFIC CONTROL

49. DESCRIPTION. This work shall consist of establishing and maintaining traffic control measures to protect the traveling public and construction operations as indicated in the Plans and as directed by the Engineer.

The work under this Section shall be performed in accordance with these provisions, the Plans, and Section 641 of the Standard Specifications.

50. SUBMITTALS. The Contractor shall submit to the Engineer for approval a site-specific traffic control plan in accordance with Subsection 105.03. The traffic control plan shall conform to the requirements of the MUTCD and all applicable Agency Standard Drawings. Where conflicts exist, the MUTCD will govern. Each phase of construction shall be included in the submitted traffic control plan. The Contractor shall allow the Agency 14 calendar days to review and respond to the proposed traffic control plan.

51. TRAFFIC CONTROL DEVICES. Temporary traffic barrier shall meet the requirements of Section 621. Traffic control devices shall meet the requirements of Section 641.

52. METHOD OF MEASUREMENT. The quantity of Special Provision (Traffic Control, All-Inclusive) to be measured for payment will be on a lump sum basis for providing traffic control in the complete and accepted work.

The quantities for Uniformed Traffic Officers and Flaggers will be measured separately in accordance with Section 630.

53. BASIS OF PAYMENT. The accepted quantity of Special Provision Traffic Control, All-Inclusive) will be paid for at the Contract lump sum price.

Partial payments will be made as follows:

- (a) The first 15% of the Contract lump sum price will be paid upon approval of the Contractor's traffic control plan.
- (b) The remaining 85% of the Contract lump sum price will be paid on a prorated basis for the estimated duration of the Contract work remaining.

Payment will be full compensation for preparing, implementing, inspecting, maintaining, and removing the applicable traffic control plan and required traffic control devices, including but not limited to temporary traffic barrier, temporary pavement markings, and signing; and for furnishing all labor, tools, materials, equipment, and incidentals necessary to complete the work.

Uniformed Traffic Officers and Flaggers will be paid for separately under Contract items 630.10 and 630.15, respectively.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.645 Special Provision (Traffic Control, All-Inclusive)	Lump Sum

INCENTIVE/DISINCENTIVE (I/D)

54. INCENTIVE/DISINCENTIVE (I/D), is hereby made a new Section of the Specifications as follows:

The payment of monies for performance under the Incentive/Disincentive (I/D) specifications contained in these Special Provisions shall be as follows:

1. For the incentive payment as described in part (c) of Special Provision No. 12, the Contractor will be paid in the next bi-weekly estimate in which the Contractor has satisfactorily met the requirements of I/D.
2. For the assessed disincentive as described in part (c) of Special Provision No. 12, the Engineer will deduct the amount due the Agency from the monies due the Contractor on the next bi-weekly estimate.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.650 Special Provision (Incentive/Disincentive) (N.A.B.I.)	Lump Unit

HIGH PERFORMANCE CONCRETE, RAPID SET

55. DESCRIPTION. This work shall consist of designing, furnishing, and placing a high early strength, high performance, Portland cement concrete at the locations indicated in the Plans and as directed by the Engineer.

The work under this Section shall be performed in accordance with these provisions, the Plans, and Section 501 of the Standard Specifications.

56. MATERIALS. Materials shall meet the requirements of Subsection 501.02 and the following:

High Early Strength Portland Cement.....701.04

57. MIX DESIGN SUBMISSION CRITERIA. Concrete shall meet the following requirements:

- (a) The mix shall be classified as self-consolidating concrete (SCC) mix. If the project will only be using this mix in flat work application, then the mix will be classified and tested as a conventional concrete with a slump not to exceed 9 inches.

(b) Compressive Strength.

28 day compressive strength - 5000 psi

In addition to this requirement, the Contractor shall be aware that a minimum compressive strength of 4000 psi, as determined by field-cured test cylinders, shall be achieved prior to allowing traffic on the structure.

(c) Permeability. 56 Day Permeability - 2500 coulombs (The permeability may be tested prior to 56 days but results must still be 2500 coulombs or less). Test shall be performed in accordance with Subsection 510.04(b)(6)f.

(d) Air Content. 7 ± 1.5%.

(e) Slump/Spread. The mix shall not exhibit segregation at the slump /spread being used.

(1) For SCC mix the visual stability index (VSI) shall be equal to or less than 1.

(f) Alkali-Silica Reactivity (ASR). Test shall be performed in accordance with Subsections 510.04(b)(6)g and 510.04(b)(7).

(g) The mix may contain shrinkage-compensating admixture such that there will be no separation of concrete from adjacent precast units. The Contractor shall include results for the unrestrained shrinkage test method, ASTM C 157. The maximum shrinkage allowed shall be 0.04%. Testing shall be performed by an independent lab that is CCRL accredited in AASHTO T 30 or ASTM C 1260.

(h) A proprietary concrete mix design meeting the same performance requirements may also be considered for use.

58. SUBMITTALS. A minimum of fourteen (14) calendar days prior to placement (or prior to the pre-placement meeting, if one is required), the Contractor shall submit the mix design for approval. The mix design shall be submitted to the Agency's Materials Laboratory, attention Composite Materials Engineer. Concrete under this provision shall not be placed until the mix design has been approved.

(a) Trial Batch. Twenty-one (21) to seven (7) days prior to the first placement, the Contractor shall produce and place a 2 cubic yard trial batch, as an SCC, at a location agreed upon by the Contractor and the Engineer. The purpose of this trial batch is to demonstrate that the mix is capable of producing the wet test results within the specified ranges. The Engineer shall be given a minimum notice of seven (7) days prior to the trial batch pour. The trial batch shall be poured in the presence of the Engineer and the Composite Materials Engineer. The trial batch shall be produced and poured in the same manner, estimated concrete temperature, and time frames that will occur during construction. The Contractor shall provide qualified personnel to test spread, air content, and temperature of the trial batch.

If this mix will be used in flat work application, a second trial batch will be required at the anticipated slump the Contractor will need; this trial batch will be tested for the same properties, except for the spread, where it will be for slump. If the mix will only be used in flat work application for the project, the requirement for testing the mix as an SCC will be disregarded. If the trial mix falls outside of any of the listed ranges for the testing criteria, the trial batch shall be subject to rejection.

- (b) Mix Acceptance Criteria. The placed concrete will be tested for all mix design criteria as specified herein, with the exception of permeability, shrinkage, and ASR. If the test results fall outside of the specified ranges for the tested criteria, the mix shall be subject to rejection.

- 59. CURING CONCRETE. The method of wet curing used shall meet the requirements of Subsection 501.17. Concrete shall be wet cured until it has reached the minimum design strength as specified herein, verified by testing of field cylinders.
- 60. LOADING OF CONCRETE. After the concrete has been placed and the finishing operations concluded, it shall not be walked on or disturbed in any manner, including the removal of forms, until curing is complete as specified herein.

The concrete shall obtain the specified minimum design strength prior to any vehicular loading.

A portable compression testing machine calibrated in accordance with Section 5 of ASTM C 39 shall be provided by the Contractor and available on-site for cylinder testing of field-cured cylinders for construction progress. All testing and equipment shall conform to ASTM C 39. Testing shall be performed, and equipment operated by, a qualified Agency project individual(s). The individual(s) shall be trained in the operation of the machine by the owner or representative of the machine who is proficient in the operations and functions of the machine. Once the Agency individual(s) is confident in the operation and test procedure, a Materials Lab individual shall complete a proficiency check on-site of the individual(s) operating the machine, using practice cylinders, for the purpose of qualifying the individual(s).

If an independent lab is proposed to be used to test the field-cured cylinders, the Contractor shall submit documentation providing verification for the following:

- (a) Calibration of the compression machine in accordance with Section 5 of ASTM C 39.
- (b) Compression machine meets the requirements of ASTM C 39.
- (c) Proficiency of the technician who will be performing the test methods.

The Engineer may approve barring any other unforeseen requirements. The State at any time reserves the right to perform an independent proficiency of the technician for the test methods used and review of the testing facility.

61. METHOD OF MEASUREMENT. The quantity of Special Provision (High Performance Concrete, Rapid Set) to be measured for payment will be the number of cubic meters (cubic yards) of concrete placed in the complete and accepted work, as determined by the prismatic method using dimensions shown on the Plans or as directed by the Engineer, including the volume of precast concrete stay-in-place forms, but excluding the volume of steel or other stay-in-place forms and form filling materials. No deductions will be made for the volume of concrete displaced by steel reinforcement, structural steel, expansion joint material, scuppers, weep holes, conduits, tops of piles, scoring, chamfers or corners, inset panels of 38 mm (1 ½ inches) or less in depth, or any pipe less than 200 mm (8 inches) in diameter.
62. BASIS OF PAYMENT. The accepted quantity of Special Provision (High Performance Concrete, Rapid Set) will be paid for at the Contract unit price per cubic meter (cubic yard). Payment will be full compensation for performing the work specified, including designing the mix, satisfactory finishing and curing, and for furnishing all forms, materials, including joint filler and bond breaker, labor, tools, admixtures, equipment, including automatic temperature recording units, trial batches, and incidentals necessary to complete the work.

The cost of heating materials and protecting the concrete against cold weather, and any additional cost for cement, will not be paid for separately but will be considered incidental to Special Provision (High Performance Concrete, Rapid Set).

The cost of furnishing testing facilities and supplies at the batch plant and the setting of inserts, bench marks, and bridge plaques furnished by the Agency will not be paid for separately but will be considered incidental to Special Provision (High Performance Concrete, Rapid Set).

Costs for all materials, labor, and incidentals for steel or other stay-in-place forms and form filling materials will not be paid for separately, but will be considered incidental to Special Provision (High Performance Concrete, Rapid Set).

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.608 Special Provision (High Performance Concrete, Rapid Set)(FPQ)	Cubic Yard