



# DANE COUNTY DEPARTMENT of PUBLIC WORKS, HIGHWAY and TRANSPORTATION

**County Executive**  
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**Commissioner / Director**  
Gerald J. Mandli

APRIL 24, 2012

## ATTENTION ALL REQUEST FOR BID (RFB) HOLDERS

### RFB NO. 312005 - ADDENDUM NO. 1

#### PARKING RAMP REPAIRS, RESTORATION & WATERPROOFING

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**BIDS DUE:** THURSDAY, MAY 3, 2012, 2:00 PM. DUE DATE AND TIME ARE NOT CHANGED BY THIS ADDENDUM.

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This Addendum is issued to modify, explain or clarify the original Request for Bid (RFB) and is hereby made a part of the RFB. Please attach this Addendum to the RFB.

#### PLEASE MAKE THE FOLLOWING CHANGES:

**1. Document Index**

Delete current Document Index; replace with new Index, issued with this Addendum.

**2. Instructions to Bidders**

Page ITB-2 - After Item 2.I., insert the following:

- “J. Contractor shall have a minimum of three (3) years of experience in performing work similar to that called for on the project.
  
- K. Contractor shall submit a list of five (5) projects in which similar work to that specified was successfully completed. This list shall contain the following for each of the five projects:
  - Project name
  - Owner of project
  - Owner's representative, address and telephone number
  - One sentence description of work
  - Cost of portion of work similar to that specified in this section
  - Total restoration cost of projects
  - Date of completion of work
  
- L. The sum of costs of the projects shall be a minimum of \$50,000.00.”

**3. Bid Form**

Page BF-4 - BID CHECKLIST box: Delete the box insert the following:

**BID CHECK LIST:**

These items **must** be included with Bid:

- |                                   |   |
|-----------------------------------|---|
| <input type="checkbox"/> Bid Form | <input type="checkbox"/> Fair Labor Practices Certification                       |
| <input type="checkbox"/> Bid Bond | <input type="checkbox"/> Project Listing (Instructions to Bidders, Section 2.J-K) |

**4. Best Value Contracting Application**

Page BVCA-1 - Under “**EXEMPTIONS**”

Delete the first bullet point.

**5. Section 01 00 00**

Page 1 - Item 1.2.A.: Delete the current paragraph & insert the following:

“Project Description: Perform the Work as specified and detailed in Construction Documents package. Contractor to provide all construction services for repair, restoration, waterproofing, pressure washing and restriping the existing pavement markings of the three level parking ramp located adjacent to the Passenger Terminal. Refer to Section 01 10 00 for detailed information.”

Page 5 - Item 1.23.A.:

Delete “ Work may be done during normal business hours (8:00 am to 4:30 pm), but ” from this item.

**6. Section 01 10 00**

Add new Section 01 10 00, issued with this Addendum.

**7. Section 01 20 00**

Add new Section 01 20 00, issued with this Addendum.

**8. Section 02 41 75**

Add new Section 02 41 75, issued with this Addendum.

**9. Section 03 01 00**

Add new Section 03 01 00, issued with this Addendum.

**10. Section 07 18 00**

Add new Section 07 18 00, issued with this Addendum.

**11. Section 07 90 00**

Add new Section 07 90 00, issued with this Addendum.

If any additional information about this Addendum is needed, please call Scott Carlson at 608/266-4179, carlson.scott@countyofdane.com.

Sincerely,  
*Scott Carlson*  
Project Manager / Engineer

Enclosures:

Document Index

Sections 01 10 00; 01 20 00; 02 41 75; 03 01 00; 07 18 00; 07 90 00

S:\PubWork\Shared\Engineering Division\Scott Carlson\312005 - Airport Ramp\03 - Addendum\Addendum 1.doc

## DOCUMENT INDEX FOR RFB NO. 312005

### PROCUREMENT AND CONTRACTING REQUIREMENTS

- Project Manual Cover Page
- Documents Index
- Invitation to Bid (Legal Notice)
- Instructions to Bidders
- Bid Form
- Fair Labor Practices Certification
- Best Value Contracting Application
- Sample Public Works Contract
- Sample Bid Bond
- Sample Performance Bond
- Sample Payment Bond
- Conditions of Contract
- Supplementary Conditions

### DIVISION 01 - GENERAL REQUIREMENTS

- 01 00 00 - Basic Requirements
- 01 10 00 - Summary of Work
- 01 20 00 - Unit Prices
- 01 74 19 - Recycling

### DIVISION 02 - EXISTING CONDITIONS

- 02 41 75 - Removal of Existing Concrete and Surface Preparation

### DIVISION 03 - CONCRETE

- 03 01 00 - Patching of Deteriorated Concrete

### DIVISION 07 - THERMAL AND MOISTURE PROTECTION

- 07 18 00 - Traffic Coatings (Adhered Membrane)
- 07 90 00 - Joint Protection (Sealants)

### DRAWINGS

To be printed to correct scale or size, plot figures on 8.5" x 11" (A) paper.

- Figure S1 - Plan at South Half of Level 2
- Figure S2 - Enlarged Deck Plan
- Figure S3 - Detail & Plan at Concrete Spall
- Figure S4 - Chord Connector Detail
- Figure S5 - Flange to Flange Connector Detail
- Figure S6 - Joint Between Adjacent Double Tees
- Figure S7 - Membrane at Crossover
- Figure S8 - Sealant Replacement at Spandrels & Walls

SECTION 01 10 00  
SUMMARY OF WORK

PART 1 GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

- A. The scope of the work to be performed under the Contract includes restoration and waterproofing at the three supported structural parking levels of one of the two Dane County Regional Airport parking ramps located in Madison, Wisconsin, and pressure washing and restriping of pavement markings in several bays of both ramps.
- B. Work primarily consists of removal and replacement of the existing sealant at double tee joints; repairs to the chord connectors and membrane placement at the cast-in-place concrete pour strips at the central column lines as shown on the plans. Plans show the general layout of the parking structure but are not intended to show specific work locations.

1.2 RELATED WORK

- A. Basic Requirements - Section 01 00 00

1.3 DESCRIPTION OF STRUCTURE

- A. Dane County Regional Airport (DCRA) parking ramp is a four level precast structure, one slab on grade level and three elevated levels. It is three bays wide and measures approximately 178 feet wide by 842 feet long. The structural system consists of precast columns, spandrel panels and ten foot wide double tees.

1.4 DESCRIPTION OF DETERIORATION

- A. Deteriorated sealant and edge spalling at the chord connectors at the precast joints of the east bay.
- B. Slab cracks and joint sealant failures at the double tees.
- C. Minor areas of unsound concrete on the topside of the double tee.
- D. Repairs for the restoration will address areas throughout the three supported levels of the structure.

1.5 DESCRIPTION OF PROCEDURES FOR RESTORATION

- A. Removal of Unsound Concrete
  - 1. The principal activities required in the removal of unsound concrete includes:
    - a. Removing unsound concrete and patching.

- b. Removing sound concrete around exposed reinforcing bars to achieve the specified encasement of reinforcing by concrete. Removal depths vary. See detail for spall replacement and Specification Section 01 20 00 for description of removal work item.
  - c. Chipping or sawcutting perimeter of removal areas.
  - d. Sandblasting to clean existing exposed steel to near white metal condition and exposed concrete surfaces.
  - e. The area will be marked prior to the work. The marking in the field does not guarantee that unsound concrete is not present in areas beyond those marked. Additional concrete removal may be required after the Contractor's initial removal. The Owner's representative will review the removal areas prior to concrete replacement.
  - f. Removal of unsound concrete, cleaning of reinforcing, and preparation of the sound concrete surfaces for patching is specified in Section 02 41 75.
- B. Replacing Concrete in Chipped Out Voids
- 1. The principal activities required in replacing concrete in chipped out voids include:
    - a. Structural concrete shall be used to fill voids made by removal of unsound concrete. This concrete is specified in Section 03 01 00.
    - b. The structural concrete shall be finished and cured as specified in Section 03 01 00.
- C. Installation of Sealant in Cracks.
- 1. The principal activities required in the sealant work includes:
    - a. The routing and preparation of random slab cracks as designated by the Owner or Owner' Representative.
    - b. The installation of sealant shall be completed as detailed and per Section 07 90 00.
- D. Replace Sealant at Chord Connectors
- 1. The principal activities required in replacing the sealant at the chord connectors include:
    - a. The existing sealant at the chord connectors to be replaced shall be removed along a one foot length of the double tee joint. This length will be centered on the chord connector location.
    - b. Top surface of the embedded steel angles are to be cleaned with a wire wheel to remove rust and allow inspection of the welded connection. Steel is to then be coated with two coats of a zinc rich corrosion inhibitor.
    - c. Re-weld and repair connections that fail inspection.
    - d. Edges of the concrete joint are to be ground to remove any residue of the removed sealant.
    - e. Surfaces are to be primed prior to replacing the sealant.
    - f. Loose concrete at the underside of the embedded angles is to be chipped off. The exposed steel shall then be cleaned with a wire wheel and coated with two coats of a zinc rich corrosion inhibitor. No new concrete will be placed at the underside of the angles.



## PART 3 EXECUTION

### 3.1 WORK SEQUENCE

- A. Restoration shall be completed in phases to allow for the continued operation of the parking garage during the restoration.
- B. Each floor consists of three bays, each bay measuring 60 ft. wide by 840 feet long. Each bay contains approximately 170 parking stalls.
- C. Contractor shall be allowed approximately 340 parking stalls out of service for the work. This shall include the top side of the slab being restored and the area directly below the restoration. Drive lanes shall continue to be open throughout the restoration with the exception of the crossover locations between bays. Crossovers to receive a new adhered elastomeric membrane shall be closed during the membrane application. An alternate area will be established for traffic flow between adjacent bays during the time of membrane placement at the crossover points.
- D. No parking or traffic will be allowed above areas being restored on the underside of the slab or below the areas being restored on the topside of the slab. This area will be included in Contractor's work area. Contractor shall coordinate phasing with the Airport Parking Manager for the number of parking stalls out of service.
- E. Repair, restoration and sealing work shall be coordinated with pressure washing and line striping to permit all work to be performed while the contractor has access to each group of parking stalls.
- F. The Contractor shall schedule work so that the County has access to undisturbed parking areas.
- G. Contractor will provide appropriate signage warning the public of the construction area and directing them to exits. They shall provide and maintain necessary walkway with appropriate protection to prevent bodily injury to the public and maintain normal public usage during course of construction.
- H. Interruptions to entrances and exits shall be limited.
- I. There are no limits to the Contractor's work time. Work may be completed at any time, 7 days a week and 24 hours a day. Contractor shall keep the Public Works Project Engineer and the Parking Manager informed of the intended work schedule and notify the Parking Manager when the work schedule changes.
- J. Contractor shall plan work and give notice to the Public Works Project Engineer and the Parking Manager of its intent to move to a different work area at least ten days prior to the date of the intended move. This is required to allow the notification of users of the parking structure, to avoid cars parked in Contractor's area of work.



### 3.2 CONTRACTOR USE OF PREMISES

- A. Confine operations at the site to areas permitted by:
  - 1. Law
  - 2. Ordinance
  - 3. Permits
  - 4. Contract Documents
- B. Do not unreasonably encumber site with materials and equipment.
- C. Do not load structure with weight that will endanger structure.
- D. Assume full responsibility for protection and safekeeping of products stored on the premises. Construction equipment, shoring, tools, etc. shall not be stored in areas of the County's continued use.
- E. Confine operations and material storage to immediate work area. There is no storage for materials outside of Contractor's work area.
- F. Move any stored products that interfere with operations of County or other contractors.
- G. Limit use of site for work and storage:
  - 1. Contractor shall submit detailed schedules to the Public Works Project Engineer and the Director of Facilities and Maintenance, Parking Manager and Director of Engineering ( collectively referred to as the Owner). This schedule shall show the project work items to be completed in the required time period. The schedule shall display the phasing and reflect the need for a 7 day notice prior to moving the restoration into a new area.
  - 2. Contractor shall provide flag person(s) as needed. Flag person(s) shall be present during repairs in drive lanes to direct traffic through single lane areas created by the restoration work.
  - 3. Contractor will pay for all vehicle parking outside of the construction limits at the standard posted rate. No free stalls will be provided other than those required for construction. Construction vehicles shall be parked in the area of Contractors' ongoing work.

### 3.3 TRAFFIC MAINTENANCE

- A. The Owner will continue to use the parking structure during the renovation. Contractor must schedule and arrange the work so as to maintain access to undisturbed parking areas. Short interruptions in traffic flow may be permitted but must be scheduled and written approval given by the Public Works Project Engineer and the Parking Manager seven (7) days prior to the planned interruption. During these interruptions, Contractor shall provide personnel to direct traffic within the structure. Access through entrances must be maintained at all times.
- B. Access through entrances and exits must be maintained at all times. Adequate signage shall be provided by Contractor to direct traffic within the parking structure. This is to direct traffic to proper exits and to available parking. Signage shall also direct pedestrian

traffic to open stairs. Signage shall warn of areas of one and two-way traffic on the end bays.

END OF SECTION

## SECTION 01 20 00

### UNIT PRICES

#### PART 1 GENERAL

##### 1.1 PAYMENT

- A. Work is to be performed and paid for on a Unit Price basis. References to estimated quantities in the bid documents are not intended to limit the quantities called for under the Contract. The work items and basis of payment are listed in abbreviated form below. All work is to be performed and completed as called for in these Specifications and the Drawings that follow.
1. Repair unsound concrete at top of slab: Included in this item is removal of unsound concrete, preparing exposed surfaces, and placing concrete patches per Specification Section 01 10 00. Payment based on surface area of patch installed (\$/sq.ft.).
  2. Rout and seal topside slab cracks: To proper configuration as detailed and install sealant per Specification Section 01 10 00. Payment based on linear foot of sealant installed (\$/ln.ft.).
  3. Replace sealant at chord connectors: Included in this item is removal of sealant and concrete edge spalls over embedded steel angles, cleaning and grinding exposed steel and concrete surfaces and coating cleaned steel with two coats of a zinc rich corrosion inhibiting coating prior to resealing. Welded connections are to be inspected following the removal of sealant and cleaning the steel at the top side of the chord connectors. Also included in this item is the removal of loose concrete at the underside of the steel angles, grinding or wire brushing the steel surface clean then coating the cleaned steel with two coats of a zinc rich coating. See Specification Section 01 10 00. Payment based on chord connectors resealed (\$/loc.).
  4. Replace joint sealant between precast double tees at flange to flange connectors: Included in this item is removal of sealant, preparation of concrete surface for new sealant placement, inspection of flange to flange weld connection, sandblasting or grinding the steel connection and coating the cleaned steel with two coats of a zinc rich corrosion inhibiting coating and placement of new sealant per Specification Section 01 10 00. Payment based on one foot segments of sealant installed (\$/loc.).
  5. Replace joint sealant between precast double tees NOT at flange to flange connectors: Included in this item is removal of sealant, preparation of concrete surface for new sealant placement and placement of new sealant per Specification Section 01 10 00. Payment based on one foot segments of sealant installed (\$/loc.)
  6. Replace joint sealant between precast double tees and cast-in-place concrete pour strips: Included in this item is removal of sealant and concrete edge spalls, preparation of concrete surface for new sealant placement, and placement of new sealant per Specification Section 01 10 00. Payment based on linear foot of sealant installed (\$/ln.ft.).

7. Replace joint sealant at intersection of precast double tees and spandrels or precast walls: Included in this item is removal of sealant, preparation of concrete surface for new sealant placement, installation of backer rod, and placement of new sealant per Specification Section 01 10 00. Payment based on linear foot of sealant installed (\$/ln.ft.).
8. Recoat concrete pour strip at end bay and mid-ramp crossovers with membrane: Included in this item are shot blasting existing membrane covered slab and adjacent concrete surface and applying membrane per Specification Section 01 10 00. Payment based on surface area of membrane installed (\$/sq.ft.).
9. Pressure wash and restripe existing pavement markings: Included in this item is the removal of debris from floors and disposal off site, pre-treatment of oil stains, pressure washing of entire parking deck floor, re-stripping of existing parking stall, crosswalk and arrow markings, and application of reflective glass beads on all repainted lines, per Specification Section 01 10 00. Payment based on price for washing/stripping of each bay. Each bay measures 60 ft. wide by 840 ft. long and contains approximately 170 parking stalls (\$/bay).

## 1.2 MEASUREMENT OF QUANTITIES

- A. Work to be performed on a unit price basis shall be measured according to the quantities described above. Payment will be made for work actually performed, based on quantities recorded by Contractor and approved by the Owner. Unless stated otherwise, records described below shall consist of tables with the required measured quantities. Unless otherwise stated, the Owner will verify the accuracy of the record by visual examination of the work performed and measuring the quantities with a measuring wheel. See Specification Section 01 00 00 "Submittals" for required timelines to submit drawings and related information for Application For Payment.
- B. Contractor shall notify the Owner at once in writing of any unit price work that deviates materially from the prescribed basis for bidding and for which an adjustment in Unit Price is desired. Contractor shall measure and quantify all such deviations, subject to the Owner's verification, prior to any repair work which might make verification impossible. No adjustments in Unit Prices will be considered unless supporting field measurements are provided, and subject to the Owner's prior approval. Adjustments will only be considered if all repairs of a given type have been measured and all deviations, both plus and minus have been included in the determination of the average deviation from the Unit Price basis.
- C. Removal of slab concrete
  1. Contractor shall maintain a record of the location and quantity of concrete removed, identified by unit price item. This record shall be submitted to the Owner on a weekly basis. The quantities shall be reported with tables cross-referenced to the drawings.
- D. Slab crack and precast joint sealant replacement.
  1. Contractor shall maintain a record of the location and quantity of cracks and joints sealed. Tables cross-referenced to the drawings shall show length of cracks sealed and one foot joint segments replaced and related work items.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

## SECTION 02 41 75

### REMOVAL OF EXISTING CONCRETE AND SURFACE PREPARATION

#### PART 1 GENERAL

1.1 APPLICABLE PROVISIONS OF DIVISION 01 SHALL GOVERN WORK OF THIS SECTION.

#### 1.2 SUMMARY

- A. Include all materials, labor, services and incidentals necessary for the completion of this section of the work.
- B. Include the removal of unsound concrete, sandblasting of acceptable reinforcing and exposed steel plates and angles and cleaning of the newly exposed underlying sound concrete prior to casting new fill concrete.
- C. The removal work shall be carried out in such a manner so as to create a minimal disturbance with the continued use of the parking structure.

#### 1.3 RELATED WORK

- A. Related work specified elsewhere:
  - 1. Summary of Work - Section 01 10 00
  - 2. Patching of Deteriorated Concrete - Section 03 01 00

#### 1.4 UNIT PRICES

- A. Contractor shall submit unit prices as required in Section 01 20 00.
- B. For the portion of work to be performed on a unit price basis, quantities will be measured according to Section 01 20 00.

#### PART 2 PRODUCTS

#### 2.1 EQUIPMENT

- A. Chipping Hammers: Use chipping hammers with a total weight not to exceed:
  - 1. Use chipping hammers of nominal 15 pound class or less for removal of concrete.
- B. Sandblasting Equipment: Sandblasting equipment shall be capable of removing rust from the exposed reinforcement and laitance from newly exposed concrete surfaces.
- C. Compressed Air Equipment: Compressed air equipment shall be capable of removal of dust and dirt from concrete repair areas.

## PART 3 EXECUTION

### 3.1 CONCRETE REMOVAL

- A. Prior to any removal, Contractor shall submit Contractor's plan for confining dust, collecting and disposal of broken concrete, steel reinforcement and other waste material as a result of Contractor's removal operations. This plan shall be submitted to the Public Works Project Engineer prior to start of construction. Dumpster and air compressor locations shall be coordinated with the Parking Manager. Stockpiling of removal debris within parking garage will not be allowed.
- B. Restoration areas which require removal of unsound concrete will be identified and marked by the Owner or Owner's Representative. The unsound concrete shall be removed by chipping to sound concrete. The marking by the Owner or Owner's Representative in the field does not guarantee that unsound concrete is not present in areas beyond those marked. Additional concrete removal may be required after Contractor's initial removal. The Owner or Owner' Representative will review the removal areas prior to concrete replacement.
- C. Remove concrete in an area extending beyond the outer boundary mark of unsound concrete. Where possible, the areas removed shall be rectangular in shape in plan view. Do not feather edges, but chip edges square or slightly undercut.
- D. During the chipping process in these deteriorated concrete areas, care shall be exercised to avoid cracking of the underlying sound concrete.
- E. The newly exposed sound concrete shall be cleaned by blowing away loose material with a deep sandblast and followed by cleaning with a compressed air jet.
- F. The Public Works Project Engineer shall be allowed 24 hours for the inspection of properly prepared concrete surfaces and reinforcement, before the scheduled concrete placement.
- G. See Speciation Section 01 20 00 for all submittals required prior to request for payment submittal.

### 3.2 REINFORCEMENT CLEANING AND/OR REPLACEMENT

- A. Exposed reinforcing shall be thoroughly cleaned by sandblasting to remove all rust and unsound concrete.
- B. Existing reinforcing shall be secured and supported in such a manner that displacement by concrete placement is prevented.
- C. Where portions of reinforcing bars are exposed, the Owner or Owner' Representative will determine if the embedded portion of the bar is soundly bonded to the remaining concrete. If, in the Owner or Owner Representative's judgment, the bar is not soundly bonded, Contractor shall remove concrete around and under the bar for a length as determined by the Owner or Owner's Representative.

3.3 CLEAN UP

- A. Contractor shall remove all loose concrete from the site and leave the area broom clean daily.
- B. Debris shall not be flushed down the existing floor drains.

END OF SECTION



## SECTION 03 01 00

### PATCHING OF DETERIORATED CONCRETE

#### PART 1 GENERAL

- 1.1 APPLICABLE PROVISIONS OF DIVISION 01 SHALL GOVERN WORK OF THIS SECTION.
- 1.2 SUMMARY
  - A. Include all materials, labor, services and incidentals necessary for the completion of this section of the work.
  - B. Furnish labor, material, equipment and tools for patching of ledge and wall areas as specified.
- 1.3 RELATED WORK
  - A. Related work specified elsewhere:
    - 1. Removal of Existing Concrete and Surface Preparation - Section 02 41 75

#### PART 2 PRODUCTS

- 2.1 ACCEPTABLE PRODUCTS
  - A. SikaRepair 222 by Sika Corporation or approved equal for horizontal repairs.
  - B. SikaRepair SHB by Sika Corporation and Renderoc HB2 by Fosroc, Inc. or approved equal for vertical and overhead repairs.
  - C. Packaging: Factory-proportioned kit.
  - D. Limitations:
    - 1. Minimum application thickness: 3/8"
    - 2. Minimum ambient and surface temperatures: 45°F and rising at time of application.
    - 3. Store products at 65°F to 80°F. Protect from freezing, keep dry.
    - 4. For overhead application thickness greater than 1 1/2", use patching materials with multiple lifts.

## PART 3 EXECUTION

### 3.1 PREPARATION OF SURFACES TO RECEIVE PATCHING CONCRETE

- A. Remove all unsound material, dirt, oil, grease and other bond-inhibiting materials. Continue removal until there are no offsets in the cavity which will cause an abrupt change in thicknesses of the patching concrete.
- B. Loose concrete should be removed from reinforcing bars.
- C. Conform to additional specific preparation requirements specified by the manufacturer or ACI Standard for each patching product as applicable.

### 3.2 MIXING, APPLICATION, CURING AND FINISHING

- A. Conform to manufacturer's specifications or ACI Standard for each patching product, as applicable.
- B. Finished surface shall be struck off flush with existing surfaces. Finish shall match existing or be lightly brushed.

### 3.3 CURING

- A. Concrete shall be maintained above 50°F and in a moist condition for at least the first 7 days after placing.
- B. Curing shall be accomplished by burlap covers kept continuously wet, continuous waterproof paper or 4 mil polyethylene sheeting conforming to ASTM C-171 with edges lapped and tightly sealed by sand, wood planks, pressure-sensitive tape, mastic or glue.
- C. A spray applied curing compound may be used in accordance with ASTM C-309. Two applications shall be made; the second shall be within an hour of the first application.

END OF SECTION

## SECTION 07 18 00

### TRAFFIC COATINGS (ADHERED MEMBRANE)

#### PART 1 GENERAL

1.1 APPLICABLE PROVISIONS OF DIVISION 01 SHALL GOVERN WORK OF THIS SECTION.

#### 1.2 WORK INCLUDED

- A. Include all materials, labor, services and incidentals necessary for the completion of this section of the work.
- B. Provide labor, materials, equipment and supervision necessary to complete the fluid applied traffic coating work including surface preparation. This shall be done to provide a fully adhered elastomeric membrane to areas identified.
- C. A pre-construction meeting will be required with Contractor in order to coordinate the work schedule and inspection required by the Public Works Project Engineer. A stepped sample of the coating system shall be reviewed and agreed to for surface texture. The approved surface texture shall be used throughout. Areas deemed to vary from the sample will be recoated at no additional cost. This will primarily be areas devoid of surface aggregates that present a slippery surface when wet.

#### 1.3 QUALITY ASSURANCE

- A. Industry standards, specifications and codes.
- B. General:
  - 1. Comply with all provisions of the following codes and standards except as modified herein.
  - 2. All referenced codes and standards including all revisions and commentaries shall be the most currently adopted as of the date of these contract documents.
- C. American Society for Testing and Materials (ASTM):
  - 1. Specific ASTM numbers are noted in later text.

#### 1.4 APPLICATOR QUALIFICATIONS

- A. The system applicator shall be licensed to install the selected membrane system and shall have experience in the application of fluid applied deck coatings. Contractor or its subcontractor shall submit qualifications to Public Works Project Engineer showing that membrane applicator has experience in installing specified membrane. The membrane applicator shall have completed a minimum of 200,000 sq.ft. of membrane application. Qualifications shall consist of a list of a minimum of 5 projects completed within the past 5 years using the membrane Contractor proposes to install for this project. List shall

include name of project, location, areas of product application, and contact person with phone number. Projects listed shall be a minimum of 10,000 sq.ft. per project listed.

- B. The Applicator is to check wet film (mil) thickness and maintain a daily record.

#### 1.5 MANUFACTURER'S QUALIFICATIONS

- A. The system manufacturer shall provide a representative who will instruct the applicator's crews on the proper methods and techniques of mixing and applying the materials.

#### 1.6 SUBMITTALS

- A. Sample:
  - 1. Submit stepped sample of coating system applied to ¼" x 12" x 12" plywood or similar rigid base showing each component for each duty grade to be applied. Sample to be noted with component mil thicknesses and aggregate size and manufacturer.
- B. Manufacturer's literature:
  - 1. Submit two copies of manufacturer's literature for all products furnished including appropriate material safety data sheets.
- C. Certification:
  - 1. Submit list of at least 5 projects of a similar nature by applicator which have been installed during the last 5 years identified with project name, location and date.
- D. Applicator's license certificate:
  - 1. Submit copy of 'Certificate of License' issued to system applicator by Adhered Elastomeric Membrane manufacturer.
- E. Maintenance manual:
  - 1. Upon completion of the work required by this section, submit four (4) copies of the maintenance manual, identified with project name, location and date; type of coating system applied and surface to which system was applied including sketches where necessary. Include recommendations for periodic inspections, care and maintenance and snow removal guideline. Identify common causes of damage with instructions for temporary patching until permanent repair can be made.
- F. Guarantee:
  - 1. The Installer shall review surface condition of slab prior to the installation of the membrane system. Written notice shall be provided to the Public Works Project Engineer stating any condition which will impair the performance of the membrane system. Installation of the membrane system shall constitute acceptance of the surface by the Installer.
  - 2. Upon completion and acceptance of the work required by this section submit an executed copy of the guarantee.

## 1.7 JOB CONDITIONS

- A. General:
1. Install deck coating materials in strict accordance with all safety and weather conditions required by manufacturer product literature, material safety data sheets or as modified by applicable rules and regulations of local, State and Federal authorities having jurisdiction.
  2. Job conditions are restricted only to inspection and preparation of the top surface of the substrate to be coated.
  3. Post 'No Smoking' signs in area during and for at least 8 hours following application period.
  4. Open fires and spark producing equipment are not and will not be in application areas until vapors have dissipated.
- B. Environmental conditions:
1. Rain shall not be anticipated within 8 hours of application.
  2. Substrate surface temperatures shall be above 40°F (5°C) and lower than 110°F (44°C).
  3. Proper notices shall be given prior to the start of membrane application.
  4. Positive ventilation for interior applications is to be continuously supplied throughout application period and 8 hours after. Installer is responsible for all fume control. Air intakes for buildings are to be protected against infiltration of fumes into ventilation systems.

## 1.8 GUARANTEE

- A. Completed installation shall be guaranteed jointly and severally on a single document, by adhered elastomeric membrane manufacturer and applicator, against defects of materials and workmanship for a period of five (5) years beginning with date of substantial completion of the deck coating system.
- B. Installer is to provide labor and materials to repair any deficiencies or defects which develop due to normal use. Snowplows, abrasive maintenance equipment, truck traffic, vandalism and construction traffic are not normal traffic use and are exempt from the warranty.

## PART 2 PRODUCTS

### 2.1 GENERAL

- A. Components shall be products of the selected membrane system or shall be certified as compatible with components produced by the system manufacturer.
- B. The waterproofing system shall be a fully adhered, fluid applied, traffic bearing, elastomeric membrane system. This system shall be capable of preventing the infiltration of water, salts, gasoline and other fluids into the concrete.
- C. Installer shall not change membrane system after selection of system has been made.

- D. Installer shall verify the slab surface condition prior to installation of the system. All areas of heavy wear or slab irregularities shall be filled prior to membrane placement to assure a level, uniform surface. This shall be done according to the membrane manufacturers recommendations.
- E. Areas identified having a topping system shall be manufacturer's heavy duty system. These systems shall consist of a primer, base coat or membrane, wear coat and top coat.
- F. Wear coats are to be saturated with aggregate.
- G. Material thicknesses are dry film thicknesses. The thickness listed for the wear coat does not include the aggregate.
- H. Approved membrane systems include:
  - 1. "Auto-Guard II Double Texture" by Neogard Corp., Dallas, Texas. Double Texture: Primer, base coat to a total thickness of 25 mils, wear coat consisting of 2 grit coats for a total thickness of 25 mils, top coat at 10 mils.
  - 2. "Sonoguard" by Degussa Building Systems, Shakopee, Minnesota. Heavy duty traffic: Primer, base coat thickness 25 mils, wear coat of 20 mils, top coat at 10 mils.
  - 3. "Kelmar Exposure 2" by Technical Barrier Systems, Oakville, Ontario. Kelmar Exposure 2: Primer, base coat to a total thickness of 25 mils, wear coat thickness 27 mils, top coat at 10 mils.
  - 4. "Iso-Flex 750 EU Deck Coating System" by LymTal International, Inc. Orion, Michigan. Heavy Duty Traffic: Primer, base coat to 25 mils wear coat of 20 mils and top coat at 10 mils.
  - 5. Or approved equal.
- I. Color:
  - 1. The top coat color is to be gray.
- J. Packaging:
  - 1. The coatings are packaged in 5 gallon and 55 gallon containers.

## 2.2 RELATED MATERIALS

- A. Installer shall furnish related materials required for crack repair, cant sealant, overbanding and flashing per system manufacturer's requirements to achieve a complete waterproof system.

## 2.3 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to job site in sealed, undamaged containers. Each container shall be identified with material name, date of manufacture and lot number.
- B. Materials should be stored indoors or covered at temperatures not exceeding 90°F. Higher temperatures will reduce shelf life of product.
- C. Drums should be stored on sides, pails should be stored inverted.

## PART 3 EXECUTION

### 3.1 CONDITION OF SURFACES

- A. Before coating work is commenced, the top surface of the slab at the crossover locations to be coated shall be shotblasted. Surfaces shall be cleaned with oil free compressed air jet following the shotblasting. See detail for slab at crossover and extent of membrane placement.
- B. Additional cleaning to remove deposits, which will hinder bond of membrane to the existing surfaces, shall be done by the membrane applicator as part of the application with no additional cost to the Owner.
- C. Remove all foreign projections on the deck by grinding or other suitable methods.
- D. All honeycomb, voids, deteriorated, and/or unsound concrete shall be repaired so as to produce a sound, uniform surface.
- E. Verify that curing methods used for concrete are compatible with the surface requirements for the coating system.
- F. Top surfaces of substrates other than concrete shall be treated as required by the membrane "Application Specifications."
- G. Commencement of coating installation implies acceptance of the top surface of the substrate area only, as suitable to accept traffic topping. Responsibility for all other aspects of the substrate if any, shall be the responsibility of others.

### 3.2 PREPARATION

- A. Rout or sawcut all cracks exceeding 1/16" in width and fill with sealant as detailed.
- B. Membrane system is to bridge cracks that open up in the substrate up to 1/16" in width maximum. Acceptable width of caulked joints is per system manufacturer's specification.
- C. Fill all expansion, control and construction joints to be overcoated by deck coating with sealant. Joints larger than 1" should be reviewed with membrane system specification.
- D. Protect adjacent surfaces with drop cloths or masking as required.

### 3.3 PRIMER

- A. Prime all concrete surfaces at the manufacturers recommended rate. Concrete primer shall be compatible for the use intended.

### 3.4 DETAIL WORK

- A. The following detail work shall be applied as a minimum:

1. Apply 20 mil dry film thickness of non-flowing type coating over all flashings (sheet flashings, sealant cants and rigid corners). Extend coating 2" beyond flashing out onto adjacent deck surface. Unless otherwise indicated on drawings or where limited by height of base, extend coating a minimum of 1" above the top of the flashing and terminate in a straight line. Use masking tape for such purposes.
2. Apply 20 mil dry film thickness of non-flowing type coating for a distance of 2" on each side of all cracks.
3. Apply 20 mil dry film thickness of non-flowing type coating for a distance of 2" on each side of all expansion joints, control joints and construction joints to be coated.
4. Detail coats over cracks, construction joints, cant joints, patch perimeters, etc. are to be included in deck coating cost.
5. Allow all detail work to cure prior to installation of coating system.

### 3.5 BASE COAT

- A. In areas to receive adhered elastomeric membrane, apply coating material at a dry film thickness as specified. Extend coating over all fluid applied flashings and detail coatings.
- B. Allow to cure 16 hours minimum or as approved by manufacturer. At temperatures less than 75°F (24°C) and relative humidity less than 50%, extend curing time.

### 3.6 WEAR COAT

- A. Apply wear coating material at a dry film thickness as specified to all horizontal areas to receive adhered elastomeric membrane. Vertical surface will not receive a wear coat.
- B. While coating is still fluid, uniformly broadcast aggregate over the surface. Aggregate is to be applied to saturation for the wear coat. Sample of aggregate to be applied shall be submitted to the Public Works Project Engineer prior to installation.
- C. Allow to cure 16 hours minimum or as approved by manufacturer. At temperatures less than 75°F (24°C) and relative humidity less than 50%, extend curing time.
- D. Remove excess aggregate from deck surface by manual sweeping or mechanical vacuum, followed by air blast.

### 3.7 TOP COAT

- A. Apply a top coat of material at an average dry film thickness of 10 mils minimum or as recommended by manufacturer, to encapsulate the top layer of aggregate. Application of top coat is not to eliminate the non-slip surface texture of the membrane system in place. See requirements for test samples to be submitted at or before the pre-construction meeting.
- B. Allow finished installation to cure 48 hours minimum or as approved by manufacturer before permitting traffic on surfaces. At temperatures less than 75°F (24°C) and relative humidity less than 50%, extend curing time.



### 3.8 CLEANING

- A. Clean stains from adjacent surfaces with toluene, 1,1,1 - trichloroethylene or xylene.
- B. Note: When using solvents for cleanup, extinguish all sources of ignition in the area and observe proper precautionary measures for handling such materials.
- C. Remove foreign matter from finished coating surfaces.

### 3.9 MAINTENANCE

- A. Damaged surfaces may be cleaned and have liquid coating and grit applied to match surrounding surface. Where a regular maintenance and cleaning program is required, surfaces may be washed with commercial detergents or chlorinated solvents.

END OF SECTION

## SECTION 07 90 00

### JOINT PROTECTION (SEALANTS)

#### PART 1 GENERAL

1.1 APPLICABLE PROVISIONS OF DIVISION 01 SHALL GOVERN WORK OF THIS SECTION.

#### 1.2 WORK INCLUDED

- A. Include all materials, labor, services and incidentals necessary for the completion of this section of the work.
- B. Sealants are required at, but are not necessarily limited to the following general locations:
  - 1. Isolation joints between double tees and precast spandrels and between double tees and walls.
  - 2. Routed cracks.
  - 3. Replacement sealant between double tees and at chord connectors at tee joints.
  - 4. Specific drawing details requiring caulking. Wherever caulking is called for it shall mean "sealant".

#### 1.3 SUBMITTALS

- A. Manufacturer's data:
  - 1. Submit three (3) copies of manufacturer's specifications, recommendations and installation instructions for each type of sealant, caulking compound and associated miscellaneous material required. Include manufacturer's published data, letter of certification or certified test laboratory report indicating that each material complies with the requirements and is intended generally for the applications shown. Show by transmittal that one copy of each recommendation and instruction has been distributed to the installer.
- B. Samples:
  - 1. Submit samples of each color required for each type of sealant or caulking compound exposed to view. Compliance with all other requirements is the exclusive responsibility of Contractor.

#### 1.4 GUARANTEE

- A. Submit three (3) copies of written guarantee agreeing to repair or replace sealants which fail to perform as airtight and watertight joints or fail in joint adhesion, cohesion, abrasion resistance, weather resistance, extrusion resistance, migration resistance, stain resistance or general durability or appear to deteriorate in any other manner not clearly specified by submitted manufacturer's data as an inherent quality of the material for the exposure indicated. Provide guarantee signed by the installer and Contractor.
- B. Guarantee period shall be five (5) years.

## 1.5 APPLICATOR QUALIFICATIONS

- A. Contractor shall submit documentation proving a minimum of three (3) years of experience in performing work similar to that called for on the project.
- B. Contractor shall submit a list of five (5) projects in which similar work to that specified was successfully completed. This list shall contain the following for each of the five projects:
  - 1. Project name
  - 2. Owner of project
  - 3. Owner's representative, address and telephone number
  - 4. One sentence description of work
  - 5. Cost of portion of work similar to that specified in this section
  - 6. Total restoration cost of projects
  - 7. Date of completion of work
- C. The sum of costs of the projects shall be a minimum of \$50,000.00.

## PART 2 PRODUCTS

### 2.1 SEALANT

- A. Sealants shall be non-staining and non-tack type. Unless otherwise specifically called for, sealant shall have high elongation properties and shall be so designated on the label by the manufacturer. Follow all manufacturer's previously submitted recommendations for type required at joints.
- B. Traffic-bearing, two component, Type 1 self-leveling, as applicable, unmodified polyurethane sealant containing no asphalt, fillers or plasticizers. Follow all manufacturer's previously submitted recommendations for type required at joints. Sealants shall conform to Federal Specification TT-S-00227E.
- C. Acceptable Productions and Manufacturers:
  - 1. "Sikaflex-2C NS/SL" by Sika
  - 2. "Sonolastic NP2/SL2" by Sonneborn
  - 3. "THC-900/901" by Tremco
  - 4. Or Approved Equal

### 2.2 JOINT CLEANER

- A. Provide the type of joint cleaning compound recommended by the sealant or caulking compound manufacturer for the joint surfaces to be cleaned.

### 2.3 JOINT PRIMER/SEALER

- A. Provide the type of joint primer/sealer recommended by the sealant manufacturer for the joint surfaces to be primed or sealed.

## 2.4 BOND BREAKER TAPE

- A. Polyethylene tape or other plastic tape as recommended by the sealant manufacture to be applied to sealant-contact surfaces where bond to the substrate or joint filler must be avoided for proper performance of sealant. Provide self-adhesive tape wherever applicable.

## 2.5 SEALANT BACKER ROD

- A. Compressible rod stock polyethylene foam, polyethylene jacketed polyurethane foam or other flexible, permanent, durable non-absorptive material as recommended for compatibility with sealant by the sealant manufacturer which will control the joint depth for sealant placement, break bond of sealant at bottom of joint, form optimum shape of sealant bead on back side and provide a highly compressible backer to minimize the possibility of sealant extrusion when joint is compressed. Backer rod shall be at least ¼" larger than width of joint.

# PART 3 EXECUTION

## 3.1 PRE-INSTALLATION MEETING

- A. At Contractor's direction, the installer, Owner, sealant manufacturer's technical representative and other trades involved in coordination with sealant work shall meet with the Owner's Representative / Public Works Project Engineer.
- B. Contractor shall review and approve the procedures and time schedule proposed for installation of sealants and coordination with other work and shall review and inspect each major sealant application required on the project.

## 3.2 WEATHER CONDITIONS

- A. Do not proceed with installation of sealants under adverse weather conditions or when temperatures are below or above manufacturer's recommended limitations for installation. Proceed with the work only when forecasted weather conditions are favorable for proper cure and development of high early bond strength. Coordinate time schedule with contractor to avoid delay of project.

## 3.3 JOINT SURFACE PREPARATION

- A. Clean joint surfaces immediately before installation of sealant or caulking compound. Remove dirt, insecure coatings, moisture and other substances which would interfere with bond of sealant or caulking compound.
- B. The installer must examine the joint surfaces, backing and anchorage of units forming sealant rabbet and conditions under which the sealant work is to be performed and notify Contractor in writing of any conditions detrimental to the proper and timely completion of the work and performance of the sealants. Do not proceed with the sealant work until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

### 3.4 INSTALLATION

- A. Comply with sealant manufacturer's printed instructions except where more stringent requirements are shown or specified and except where manufacturer's specific recommendations directs otherwise.
- B. Prime or seal the joint surfaces wherever shown or recommended by the sealant manufacturer. Do not allow primer/sealant to spill or migrate onto adjoining surfaces.
- C. Install sealant backer rod for sealants except where specifically noted to be omitted or recommended to be omitted by sealant manufacturer for the application shown.
- D. Install bond breaker tape wherever required by manufacturer's recommendations to ensure that elastomeric sealants will perform properly.
- E. Employ only proven installation techniques which will ensure that sealants will be deposited in uniform, continuous ribbons without gaps or air pockets, with complete "wetting" of the joint bond surfaces equally on opposite sides. Except as otherwise indicated, fill sealant rabbet to a slightly concave surface slightly below adjoining surfaces. Where horizontal joints are between a horizontal surface and a vertical surface, fill joint to form a slight cove so that joint will not trap moisture and dirt.
- F. Install sealant to depths as recommended by the sealant manufacturer.

### 3.5 CURE AND PROTECTION

- A. Cure sealants and caulking compounds in compliance with manufacturer's instructions and recommendations to obtain high early bond strength, internal cohesive strength and surface durability.
- B. The installer shall advise Contractor of procedures required for the curing and protection of sealants and caulking compounds during the construction period so that they will be without deterioration or damage (other than normal wear and weathering) at the time of Owner's Representative / Public Works Project Engineer's acceptance.

END OF SECTION