

CITY OF WEST PALM BEACH, FLORIDA



TECHNICAL SPECIFICATIONS AND DRAWINGS

**ITB No. 11-12-101
PROJECT NO 10993406**

**STRUCTURAL REPAIR OF THE FLOW EQUALIZATION BASIN
(ECRWF)**

CITY OF WEST PALM BEACH, FLORIDA

STRUCTURAL REPAIR OF THE FLOW EQUALIZATION BASIN

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SECTION 01010

SUMMARY OF WORK

PART 1 - GENERAL

1.01 LOCATION OF WORK

All of the work is located at the East Central Regional Water Reclamation Facility (ECRWRF) in the City of West Palm Beach, Palm Beach County, Florida, as shown on the Project Drawings.

1.02 SCOPE OF WORK

A. Contractor's Duties - Provide and pay for:

1. Labor, materials and equipment
2. Tools, construction equipment and fuel
3. Freight and sales tax

B. Project Description:

The Contractor shall furnish all labor, materials, equipment, tools, services and incidentals to complete all work required by the drawings and specifications. This Work summary is as follows:

1. Repair damaged concrete columns and elevated walkways at the ECRWRF Equalization Basin. The Work shall include cleaning the basin, removing unsound concrete, preparing the concrete and reinforcing bars, replacement of damaged reinforcing basin, epoxy adhesive injection, epoxy mortar backfill, repair of construction and expansion joints, and escutcheon plates as shown on the Drawings and as specified. The Contractor shall coordinate with the Engineer after cleaning and disinfecting the basin to identify areas in need of repair, the type of repair required, and the quantity of the repair required.
2. The Contractor shall furnish and install labor and material to repair the six types of damaged concrete as shown on the Drawings. The types of repairs shall include:
 - a. Column repairs at the intersection point with the basin floor.
 - b. Crack repairs in elevated slabs.
 - c. Large areas of spalled concrete located on elevated slabs.
 - d. Areas of spalled concrete located on elevated beams.
 - e. Areas of spalled concrete located on columns.
 - f. Construction and expansion joints on the basin floor and walls.

C. The Work shall be complete, in place, ready for continuous service, and shall include any repairs, replacement and/or restoration required as a result of damages caused during this construction. Additionally, the Contractor shall perform applicable tests as stipulated elsewhere in these specifications.

- D. The flow equalization basin shall be taken out of service for a maximum of two months from April 30, 2012 to June 30, 2012. All concrete repairs, erection of scaffolding, etc. that must take place below elevation 18.0 feet (high water level) must occur during this two-month duration. The two-month period will occur after the Contractor has provided written notice to the Owner and the Owner has taken the basin out of service.
- E. The Contractor shall furnish all materials, equipment and labor which is reasonably and properly inferable and necessary for the proper completion of the Work, whether specifically indicated in the Contract Documents or not.

1.03 REFERENCES

- A. Whenever reference is made to the furnishing of materials or testing thereof to conform to the standards of any technical society, organization or body, it shall be construed to mean the latest standard, code, specifications or tentative specifications adopted and published at the date of advertisement for bids, even though reference has been made to an earlier standard. The following list of specifications is hereby made a part of the Contract, the same as if herein repeated in full. In the event of any conflict between any of these specifications, standards, codes or tentative specifications and the specifications, the latter shall govern. In the event that one of the following conflicts with another, the decision as to which shall govern will be decided by the Engineer-of-Record, whose judgment will be final.
- B. When no reference is made to a code, standard, or specification, the standard specifications of ASTM (American Society of Testing Materials), the ANSI (American National Standard Institute), the ASME (American Society of Mechanical Engineers), the IEEE (Institute of Electrical and Electronics Engineers, Inc.), or the NEMA (National Electrical Manufacturers Association) shall govern.
- C. The Work shall be complete, in place, ready for continuous service, and shall include any repairs, replacement and/or restoration required as a result of damages caused during this construction. Additionally, the Contractor shall perform applicable tests as stipulated elsewhere in these specifications.
- D. The Contractor shall furnish all materials, equipment, and labor which is reasonably and properly inferable and necessary for the proper completion of the work, whether specifically indicated in the Contract Documents or not.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

SECTION 01019

GENERAL REQUIREMENTS

1.01 EXISTING UTILITIES AND STRUCTURES

- A. The existing utilities and facilities shown have been located from the Owner's and other records. Guaranties are not made that all existing facilities are shown or that those shown are entirely accurate. The Contractor will assure himself of any utilities, structures or facilities prior to performing any Work. Prior to the start of Work, the Contractor will request the Owner to advise him of the location of their facilities in the vicinity and will notify the Engineer of any deviation between existing conditions and the drawings. The Contractor will assume liability for damages sustained or costs incurred because of his operations in the vicinity of existing utilities or structures. The Contractor will be solely responsible for the protection and maintenance of existing utilities to provide uninterrupted service to commercial and residential customers.
- B. Existing utilities and facilities shall be located prior to commencement of each task.

1.02 PROTECTION OF EXISTING AND ADJACENT PROPERTIES

- A. Unless indicated otherwise, all shrubbery, paved streets and walks, fences and walls, adjacent structures and equipment will be fully protected against damage during each stage of the project. Any damage by the Contractor will be fully restored to original condition.

1.03 SUBSTITUTIONS

- A. For substitution of products in place of those specified, bidder must submit shop drawings and technical data at least seven (7) calendar days prior to the Bid Opening date to substantiate "an approved equal" by the City, except specified items followed by the words "no substitution".
- B. Submit five copies of request for substitution. Include in request:
 - 1. Complete Data substantiating compliance of proposed substitution with Contract Documents.
 - 2. For Products:
 - a. Product identification, including manufacturer's name and address.
 - b. Manufacturers' literature:
 - (1) Product description.
 - (2) Performance and test data.
 - (3) Reference standards.
 - c. Samples.

- d. Name and address of similar projects on which product was used, and date of installation.
3. For construction methods:
 - a. Detailed description of proposed method.
 - b. Drawings illustrating methods.
4. Itemized comparison of proposed substitution with product or method specified.
5. Data relating to changes in construction schedule.
6. Relation to separate contracts.
7. Accurate cost data on proposed substitution in comparison with product or method specified.

1.04 CONSTRUCTION WATER

- A. The Contractor will be responsible for making application for hydrant meters with backflow preventers. The City will install necessary connections and backflow preventers at locations needed by the Contractor and approved by the Engineer. Maintenance of such is the responsibility of the Contractor. All associated fees will be paid by the Contractor.
- B. Construction water will be paid for by the Contractor. In an event that damage to these facilities occurs, the Contractor will be responsible for all costs associated with their replacement by the City's standard rate.

1.05 SANITARY FACILITIES

- A. If necessary, the Contractor shall provide temporary restroom facilities for field crews. Location of such facilities will be subject to the approval of the City. Existing City/Residence facilities are not available for use by the Contractor.

1.06 WORKING HOURS

- A. All work on this contract shall be conducted during normal working hours (7:00 A.M. to 5:00 P.M.) on weekdays. No work shall be performed on weekends or City observed holidays.

1.07 ASSEMBLIES OR UNITS

- A. Where the Contractor is required to furnish and install an assembly or unit, the Contractor shall furnish all component parts as required by the manufacturer of the unit.

1.08 ACCESS TO THE WORK SITE

- A. The Contractor may use only the roads and/or easements designated by the Owner for access to the work locations. The Contractor shall be responsible for maintaining, protecting and restoring the routes to the satisfaction of the Owner and Engineer.

1.09 SECURITY

- A. The Contractor shall be fully responsible for the safety and security of the construction area including any temporary measures required to maintain its protection. The Contractor will be responsible for any damages or theft incurred to his tools, equipment, machinery, and new work in-place not yet been fully accepted by the City.

1.10 PRECONSTRUCTION CONFERENCE/PROJECT PROGRESS MEETING

- A. Before the Contractor starts the work, a conference will be held to establish procedures for handling Shop Drawings and other submittal, and for processing Applications for Payment, and to establish a working understanding among the parties as to the work.
- B. At each project progress meeting, the Contractor shall develop and submit for approval a progress schedule and phasing plan demonstrating complete fulfillment of all contract requirements including all activities of subcontractors, equipment vendors and suppliers. An updated schedule shall be submitted with each pay request.

1.11 REMOVAL OF ALL TEMPORARY FACILITIES & RESTORATION OF SITE

- A. Upon completion of the work, it shall be the responsibility of the Contractor to remove all temporary facilities including but not limited to pumps, fences, signs, temporary power, materials or other debris. The site, adjacent properties and Owner facilities, shall be restored to their original condition.

1.12 VIDEO-TAPING

- A. At least one (1) week prior to start of construction, the Contractor shall televise all areas where construction is to take place including existing surface conditions within the project limits. Such video tapes shall be provided to the Engineer before construction commences. The CD shall serve as a record of the existing conditions for disputes arising from restoration, and should therefore be taken along the line of construction at sufficient detail as necessary to clearly depict details of existing conditions.
- B. The Contractor shall be responsible for providing the necessary equipment for the viewing of the video tapes at the Engineer's office for the duration of the project. All CDs shall be indexed and catalogued in such a manner that each photographed area is

readily identifiable and shall also indicate the date and time (hour, minutes & seconds) on which the photograph was made. The Contractor shall also televise any unusual conditions encountered during construction that are not already a matter of photographic record. In any area where existing conditions cannot be determined by means of video tapes, the area shall be restored as approved by the Engineer at the Contractor's expense. All CDs shall become the property of the Owner.

- C. The Contractor will be responsible for any repairs required as a result of construction in performance of this Contract. The Contractor will submit two (2) copies of the CD to the Engineer-of-Record prior to the start of construction.

1.13 SALVAGED MATERIAL

- A. Any existing equipment or material which is removed or replaced as a result of construction under this project may be designated as salvage by the City and if so shall be removed, cleaned, and delivered to the site in a protected place specified by the City. Any equipment or material not worthy of salvaging, as directed by the City, shall be disposed of by the Contractor at a suitable location. Upon request of the Engineer, Contractor shall submit evidence of proper disposal.

1.14 NOISE CONTROL

- A. The Contractor shall comply with the City Ordinances regarding noise control. The Contractor shall make every effort to minimize noises caused by his operations. Equipments shall be equipped with hospital –grade silencers or mufflers designed to operate with the least possible noise.

1.15 OBSTRUCTION

- A. The attention of the Contractor is drawn to the fact that during excavation at the project site, the possibility exists of the Contractor encountering various utilities (water, chemical, electrical, gas, or other) not shown on the drawings. The Contractor shall exercise extreme care before and during excavation to locate and flag these lines so as to avoid damage to the existing lines. Should damage occur to an existing line, the Contractor shall repair the line at no cost to the City.
- B. It is the responsibility of the Contractor to ensure that all utility or other poles, the stability of which may be endangered by the close proximity of excavation, are temporarily stayed in position while the work proceeds in the vicinity of the pole and that the utility or other companies concerned be given reasonable advance notice of any such excavation by the Contractor.

1.16 CLEAN-UP

- A. The Contractor shall maintain the site of the work in a neat condition. The Contractor shall remove all excess materials, excess excavated materials and all debris resulting from his operations within a time frame approved by the Engineer.

1.17 DESIGN PROFESSIONALS REPRESENTING OWNER

- A. Various Design Professionals as consultants to the Owner prepared the drawings and specifications for the project. The Owner may have the various Design Professionals provide services to the Owner during construction phase of the project.

1.18 VISITS TO SITE BY OWNER'S REPRESENTATIVE

- A. The Owner's representative will make visits to the site at intervals appropriate to the various stages of construction to observe the progress and quality of the executed work and to determine, in general, if the work is proceeding in accordance with the Contract Documents.
- B. The Owner's representative's efforts will be directed toward providing for the Owner a greater degree of confidence that the completed work will conform to the drawings and these specifications. On the basis of such visits and on-site observations, the Owner's representative will keep the Owner informed of the progress of the work and will endeavor to guard the Owner against defects and deficiencies in the work.

1.19 LIMITATIONS ON OWNER'S REPRESENTATIVE RESPONSIBILITIES

- A. Neither the Owner's representative's authority to act under these specifications and drawings or elsewhere in other documents nor any decision made by the Owner's representative in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of the Owner's representative to the Contractor, any sub-Contractor, any manufacturer, fabricator, supplier or distributor, or any of their agents or employees or any other person performing any of the work.
- B. The Owner's representative shall not be responsible to the Contractor's means, methods, techniques, sequences or procedures of construction, or safety precautions and programs incident thereto, and the Owner's representative shall not be responsible for the Contractor's failure to perform the work in accordance with the drawings and these specifications.
- C. The Owner's representative shall not be responsible for the acts or omissions of the Contractor or of any sub-Contractors, or of any other persons at the site or otherwise performing any of the work.

1.20 WARRANTY

- A. The Contractor shall be responsible for defects in materials (including latent defects) or workmanship for a period of one year after the date of final acceptance of the project by the Owner. Such defects include, but not limited to, any settlement noted in backfill, fill, or in structures built over the backfill or fill during the warranty period in accordance with the GENERAL CONDITIONS will be considered to be caused by improper compaction methods and shall be corrected by the Contractor at

no cost to the Owner. Structures damaged by settlement shall be restored to their original condition by the Contractor at no cost to the Owner.

- B. The Contractor shall furnish factory warranty on all equipment furnished for the performance and completion of the project against defects in materials and/or workmanship. The factory warranty shall become effective on the date of delivery and acceptance by the Owner. Should any defects in materials or workmanship, the Contractor shall replace at no cost to the Owner.

END OF SECTION

SECTION 01020

MAINTENANCE AND PROTECTION OF PROPERTIES

PART 1 – GENERAL

1.01 EXISTING UTILITY AND STRUCTURES PROTECTION

- A. Existing utilities and facilities shall be located prior to commencement of each task.
- B. The existing, utilities and facilities, as shown on the Contract Drawings, have been located from the best available City records. There is no guaranty that all existing facilities are shown or that those shown are entirely accurate. The Contractor shall undertake the work necessary to assure of the location of any utilities, structures or facilities prior to performing any Work. The City and the Engineer will assume no liability for damages sustained or costs incurred because of the Contractor's operations in the vicinity of existing utilities or structures. The Contractor shall immediately notify the Engineer of any deviation between existing conditions and the drawings.

1.02 PROTECTION OF EXISTING AND ADJACENT PROPERTIES

- A. All structures and equipment shall be fully protected against damage during each stage of the project. Any damage by the Contractor shall be fully restored to original condition unless indicated otherwise on the drawings or by City officials.
- B. In the event any of the Contractor's activities were to disrupt or endanger any facilities, he shall at his own expense make all necessary repairs or replacements necessary to correct the situation to the satisfaction of the Engineer. Such work shall progress continuously to completion on a 24-hour per day, seven workday basis. The Contractor shall be responsible for the services of repair crews on call 24 hours per day for emergencies that arise involving work under this Contract.

1.03 SITE CONDITIONS

- A. Site Investigation and Representation
 - 1. The Contractor acknowledges satisfaction as to the general nature and location of the work, the general and local conditions, particularly those bearing upon availability of transportation, availability of labor, water, electric, power, roads, and uncertainties of weather, or similar physical conditions, the character of equipment and facilities needed preliminary to and during the prosecution of the work, and all other matters which can in any way affect the work or the cost thereof under this contract.
 - 2. Failure by the Contractor to become acquainted with the physical conditions and all the available information will not relieve the Contractor from responsibility for properly estimating the difficulty or cost of successfully performing the work.

3. The Contractor warrants that as a result of examination and investigation of all the aforesaid data, the Contractor can perform the work in a good and workmanlike manner and to the satisfaction of the Owner. The Owner assumes no responsibility for any representations made by any of its officers or agents during or prior to the execution of this Contract, unless (1) such representations are expressly stated in the Contract, and (2) the Contract expressly provides that the responsibility therefore is assumed by the Owner.

1.04 PROTECTION OF EXISTING UTILITIES

A. Contractor's Responsibility for Utility Properties and Service

1. The Contractor shall be solely and directly responsible to the Owner and operators of such properties for any damage, injury, expense, loss, inconvenience, delay, suits, actions, or claims of any character brought because of any injuries or damage which may result from the construction operations under this Contract.
2. Neither the Owner nor its officers or agents shall be responsible to the Contractor for damages as a result of the Contractor's failure to protect utilities encountered in the work.
3. The Contractor shall replace in kind, at his own expense, all existing utilities or structures removed or damaged during construction, unless otherwise provided for in these Contract documents or ordered by the Engineer.

B. Interfering Structures

1. Take necessary precautions to prevent damage to existing structures whether on the surface, aboveground, or underground.
2. Protect underground and aboveground existing structures from damage. Notify the Engineer of any damaged structure, and make repairs or replacements.

1.05 PRESERVATION, RESTORATION, AND CLEANUP

A. Site Restoration and Cleanup

1. At all times during the work, keep the premises clean and orderly, and upon completion of the work, repair all damage caused by equipment and leave the project free of rubbish or excess materials of any kind.

END OF SECTION

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 – GENERAL

1.01 BASIS FOR PAYMENTS

- A. The various major items of work will be paid for in lump sum or unit cost amounts listed in the Schedule of Bid Items. All bid items shall include all labor, equipment, material and testing as specified to construct the item, completed, tested and accepted. The lump sum amounts shall be further distributed in accordance with sub-values identified for the work listed in the Schedule of Bid Items (B1) and is not intended to be complete and all inclusive of the required work items. The work shall include all miscellaneous and ancillary items necessary to construct a complete and functional Project.

1.02 SCHEDULE OF VALUES

- A. The descriptions below generally outline the scope of work required for those elements of the work to be paid for under each lump sum or unit cost item listed in the Schedule of Bid Items.

1.03 BREAKDOWN OF BASE BID

- A. Where the Schedule of Bid Items show quantities, these quantities are primarily shown for bid evaluation purposes, and are believed to be reasonably accurate.
- B. In the event that the actual quantity of material installed exceeds the quantity shown, the CONTRACTOR will be paid the unit price shown for the quantity of the value shown in the bid breakdown.
- C. A credit will be similarly provided to the City by the CONTRACTOR for quantities less the those shown on the bid breakdown.

1.04 PAYMENTS

- A. Shall be in accordance with the provisions of the GENERAL CONDITIONS

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

3.01 BID ITEM DESCRIPTIONS

A. BID ITEM NO. 1 – GENERAL CONDITIONS, BONDS, AND INDEMNIFICATION

This bid item shall include the costs to comply with all elements of the General Conditions of the Contract, including but not limited to: compliance with the requirements of the General Conditions, bonds, insurance, record keeping, safety and permitting, and indemnification. Payment shall be made at the Contract Lump Sum Price as identified on the BID FORM upon completion of work identified in the general conditions.

B. BID ITEM NO. 2 – MOBILIZATION/DEMOBILIZATION

This bid item shall include the costs for mobilization/demobilization. Payment shall be made at the Contract Lump Sum Price as identified on the BID FORM upon completion of work associated with mobilization/demobilization. This pay item includes work and operations in mobilizing and demobilizing for the work on the well sites, including, but not limited to, those operations necessary for the movement of personnel, equipment, supplies and incidentals to and from the project site, and for the establishment and removal of temporary offices, buildings, facilities, equalization basins cleaning and preparation as required by these specifications, the special provisions, and State and local laws and regulations.

C. BID ITEM NO. 3 – BASIN CLEANING/DISINFECTING

This bid item includes all equipment, materials, and labor necessary to clean and remove all solids, residuals, and grease from the equalization basin. This item shall also include all materials and labor, including safety equipment necessary to disinfect the basin and make it safe to perform the work.

D. BID ITEM NO. 4 - TYPE 1A REPAIR - COLUMN BASE WITH ESCUTCHEON PLATE

This bid item includes all equipment, materials, and labor necessary to furnish and install the repair method as shown on the attached drawings and specifications. This item shall include the surface preparation, escutcheon plates, quick seal material, epoxy, grout, concrete, appurtenances, testing, and any all other necessary items to provide a complete repair.

E. BID ITEM NO. 5 - TYPE 1B REPAIR - COLUMN BASE WITH EPOXY ADHESIVE INJECTION

This bid item includes all equipment, materials, and labor necessary to furnish and install the repair method as shown on the attached drawings and specifications. This

item shall include the surface preparation, epoxy injection resin, injection ports, crack sealer, appurtenances, testing, and any all other necessary items to provide a complete repair.

F. BID ITEM NO. 6 - TYPE 2A REPAIR - SLAB CRACK REPAIR AS SPECIFIED

This bid item includes all equipment, materials, and labor necessary to furnish and install the repair method as shown on the attached drawings and specifications. This item shall include the surface preparation, removal of unsound concrete, sand blasting, reinforcing bar preparation, corrosion neutralization, epoxy resin sealant, epoxy motor backfill, appurtenances, testing, and any all other necessary items to provide a complete repair.

G. BID ITEM NO. 7 - TYPE 2B REPAIR - SLAB CRACK REPAIR WITH REINFORCING BARS

This bid item includes all equipment, materials, and labor necessary to furnish and install the repair method as shown on the attached drawings and specifications. This item shall include the surface preparation, removal of unsound concrete, sand blasting, reinforcing bar preparation, new supplemental reinforcing bars, corrosion neutralization, epoxy resin sealant, epoxy motor backfill, appurtenances, testing, and any all other necessary items to provide a complete repair.

H. BID ITEM NO. 8 - TYPE 2C REPAIR - SLAB CRACK REPAIR WITH EPOXY INJECTION

This bid item includes all equipment, materials, and labor necessary to furnish and install the repair method as shown on the attached drawings and specifications. This item shall include the surface preparation, removal of unsound concrete, sand blasting, reinforcing bar preparation, corrosion neutralization, epoxy resin sealant, epoxy injection resin, injection ports and crack sealer, epoxy motor backfill, appurtenances, testing, and any all other necessary items to provide a complete repair.

I. BID ITEM NO. 9 - TYPE 3A REPAIR - SLAB SPALLED AREA REPAIR AS SPECIFIED

This bid item includes all equipment, materials, and labor necessary to furnish and install the repair method as shown on the attached drawings and specifications. This item shall include the surface preparation, removal of unsound concrete, sand blasting, reinforcing bar preparation, corrosion neutralization, epoxy resin sealant, epoxy motor backfill, appurtenances, testing, and any all other necessary items to provide a complete repair.

J. BID ITEM NO. 10 - TYPE 3B REPAIR - SLAB SPALLED AREA REPAIR WITH REINFORCING BARS

This bid item includes all equipment, materials, and labor necessary to furnish and install the repair method as shown on the attached drawings and specifications. This item shall include the surface preparation, removal of unsound concrete, sand blasting, reinforcing bar preparation, new supplemental reinforcing bars, corrosion neutralization, epoxy resin sealant, epoxy motor backfill, appurtenances, testing, and any all other necessary items to provide a complete repair.

K. BID ITEM NO. 11 - TYPE 3C REPAIR - SLAB SPALLED AREA REPAIR WITH EPOXY INJECTION

This bid item includes all equipment, materials, and labor necessary to furnish and install the repair method as shown on the attached drawings and specifications. This item shall include the surface preparation, removal of unsound concrete, sand blasting, reinforcing bar preparation, corrosion neutralization, epoxy resin sealant, epoxy injection resin, injection ports and crack sealer, epoxy motor backfill, appurtenances, testing, and any all other necessary items to provide a complete repair.

L. BID ITEM NO. 12 - TYPE 4A REPAIR - BEAM SPALLED AREA REPAIR AS SPECIFIED

This bid item includes all equipment, materials, and labor necessary to furnish and install the repair method as shown on the attached drawings and specifications. This item shall include the surface preparation, removal of unsound concrete, sand blasting, reinforcing bar preparation, corrosion neutralization, epoxy resin sealant, epoxy motor backfill, appurtenances, testing, and any all other necessary items to provide a complete repair.

M. BID ITEM NO. 13 - TYPE 4B REPAIR - BEAM SPALLED AREA REPAIR WITH REINFORCING BARS

This bid item includes all equipment, materials, and labor necessary to furnish and install the repair method as shown on the attached drawings and specifications. This item shall include the surface preparation, removal of unsound concrete, sand blasting, reinforcing bar preparation, new supplemental reinforcing bars, corrosion neutralization, epoxy resin sealant, epoxy motor backfill, appurtenances, testing, and any all other necessary items to provide a complete repair.

N. BID ITEM NO. 14 - TYPE 4C REPAIR - BEAM SPALLED AREA REPAIR WITH EPOXY INJECTION

This bid item includes all equipment, materials, and labor necessary to furnish and install the repair method as shown on the attached drawings and specifications. This item shall include the surface preparation, removal of unsound concrete, sand blasting, reinforcing bar preparation, corrosion neutralization, epoxy resin sealant, epoxy injection resin, injection ports and crack sealer, epoxy motor backfill, appurtenances, testing, and any all other necessary items to provide a complete repair.

O. BID ITEM NO. 15 - TYPE 5A REPAIR - COLUMN SPALLED AREA REPAIR AS SPECIFIED

This bid item includes all equipment, materials, and labor necessary to furnish and install the repair method as shown on the attached drawings and specifications. This item shall include the surface preparation, removal of unsound concrete, sand blasting, reinforcing bar preparation, corrosion neutralization, epoxy resin sealant, epoxy motor backfill, appurtenances, testing, and any all other necessary items to provide a complete repair.

P. BID ITEM NO. 16 - TYPE 5B REPAIR - COLUMN SPALLED AREA REPAIR WITH REINFORCING BARS

This bid item includes all equipment, materials, and labor necessary to furnish and install the repair method as shown on the attached drawings and specifications. This item shall include the surface preparation, removal of unsound concrete, sand blasting, reinforcing bar preparation, new supplemental reinforcing bars, corrosion neutralization, epoxy resin sealant, epoxy motor backfill, appurtenances, testing, and any all other necessary items to provide a complete repair.

Q. BID ITEM NO. 17 - TYPE 5C REPAIR - COLUMN SPALLED AREA REPAIR WITH EPOXY INJECTION

This bid item includes all equipment, materials, and labor necessary to furnish and install the repair method as shown on the attached drawings and specifications. This item shall include the surface preparation, removal of unsound concrete, sand blasting, reinforcing bar preparation, corrosion neutralization, epoxy resin sealant, epoxy injection resin, injection ports and crack sealer, epoxy motor backfill, appurtenances, testing, and any all other necessary items to provide a complete repair.

R. BID ITEM NO. 18 - TYPE 6A REPAIR – EXPANSION JOINTS LOCATED ON THE BASIN FLOOR

This bid item includes all equipment, materials, and labor necessary to furnish and install the repair method as shown on the attached drawings and specifications. This item shall include the surface preparation, removal of existing elastomeric expansion material, primer, new expansion elastomer, appurtenances, testing, and any all other necessary items to provide a complete repair.

S. BID ITEM NO. 19 - TYPE 6B REPAIR – EXPANSION JOINTS LOCATED ON THE BASIN FLOOR WITH LEAKS

This bid item includes all equipment, materials, and labor necessary to furnish and install the repair method as shown on the attached drawings and specifications. This item shall include the surface preparation, removal of existing elastomeric expansion material, primer, backer rod, new expansion elastomer, appurtenances, testing, and any all other necessary items to provide a complete repair.

T. BID ITEM NO. 20 - TYPE 6C REPAIR – EXPANSION JOINTS LOCATED ON THE BASIN WALLS

This bid item includes all equipment, materials, and labor necessary to furnish and install the repair method as shown on the attached drawings and specifications. This item shall include the surface preparation, removal of existing elastomeric expansion material, primer, new expansion elastomer, appurtenances, testing, and any all other necessary items to provide a complete repair.

U. BID ITEM NO. 21 - TYPE 6D REPAIR – INTERFACE BETWEEN THE TOP OF THE CONCRETE OVERLAY AND ORIGINAL CONCRETE SLAB

This bid item includes all equipment, materials, and labor necessary to furnish and install the repair method as shown on the attached drawings and specifications. This item shall include the surface preparation, primer, backer rod, new expansion elastomer, appurtenances, testing, and any all other necessary items to provide a complete repair.

V. BID ITEM NO. 22 – REMOVE AND DISPOSE OF OLD AERATOR SUPPORTS ON BASIN FLOOR

This bid item includes all equipment, materials, and labor necessary to remove and dispose of the fifteen (15) existing aerator supports as shown on the attached drawings. This item shall include the removal of the metal structures, bolts, connectors, and appurtenances, the patching of the concrete basin floor where the aerators are located, and the proper disposal all removed items at an approved site.

END OF SECTION

SECTION 01041

PROJECT COORDINATION

PART 1-GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Engineer will coordinate the work between Prime Contractors as required.
- B. The Contractor shall:
 - 1. Coordinate work of his employees and subcontractors.
 - 1. Expedite his work to assure compliance with schedules.
 - 2. Comply with orders and instructions of Engineer.

1.02 RELATED REQUIREMENTS

- A. Section 01152: Applications for Payment.
- B. Section 01200: Project Meetings.
- C. Section 01501: Construction Facilities and Temporary Controls.
- D. Section 01700: Contract Closeout.

1.03 CONSTRUCTION ORGANIZATION AND START-UP

- A. Engineer shall establish on-site lines of authority and communications:
 - 1. Schedule and conduct pre-construction meeting and progress meetings as specified in Section.
 - 2. Establish procedures for:
 - a. Submittals
 - b. Reports and records
 - c. Recommendations
 - d. Coordination of drawings
 - e. Schedules
 - f. Resolution of conflicts
 - 3. Interpret Contract Documents:
 - a. Transmit written interpretations to Contractor, and to other concerned parties.

4. Assist in obtaining permits and approvals:
 - a. Verify that contractor and subcontractors have obtained inspections for Work and for temporary facilities.
5. Control the use of Site:
 - a. Allocate space for Contractor's use for field offices, work and storage areas.
6. Inspection and Testing:
 - a. Inspect work to assure performance in accord with requirements of Contract Documents.
 - b. Administer special testing and inspections of suspect Work.
 - c. Reject Work which does not comply with requirements of Contract Documents.

1.04 CONTRACTOR'S DUTIES

- A. Construction Schedules:
 1. Prepare a detailed schedule of basic operations.
 2. Monitor schedules as work progresses:
 - a. Identify potential variances between scheduled and probable completion dates or each phase.
 - b. Recommend to Owner adjustments in schedule to meet required completion dates.
 - c. Document changes in schedule; submit to Owner, Engineer and to involved subcontractors.
 3. Observe work of each subcontractor to monitor compliance with schedule.
 - a. Verify that labor and equipment are adequate for the work and the schedule.
 - b. Verify that product procurement schedules are adequate.
 - c. Verify that product deliveries are adequate to maintain schedule.
 - d. Report noncompliance to Engineer, with recommendation for changes.
- B. Process Shop Drawings, Product Data and Samples:
 1. Prior to submittal to Engineer, review for compliance with Contract Documents:
 - a. Field dimensions and clearance dimensions.
 - b. Relation to available space.

- c. Effect of any changes on the work of any subcontractor.
- C. Prepare Coordination Drawings as required to resolve conflicts and to assure coordination of the work of, or affected by, mechanical and electrical trades, or by special equipment requirements.
 - 1. Submit to Engineer.
 - 2. Reproduce and distribute copies to concerned parties after Engineer review.
- D. Maintain Reports and Records at Job Site, available Engineer and Owner.
 - 1. Daily log of progress of work.
 - 2. Records
 - a. Contacts
 - b. Purchase Orders
 - c. Materials and equipment records
 - d. Applicable handbooks, codes and standards
 - 3. Maintain file of record documents

1.05 CONTRACTOR'S CLOSE-OUT DUTIES

- A. At completion of Work, conduct an inspection to assure that:
 - 1. Specified cleaning has been accomplished.
 - 2. Temporary facilities have been removed from site.
- B. Substantial Completion:
 - 1. Conduct an inspection to develop a list of Work to be completed or corrected.
 - 2. Assist Engineer in inspection.
 - 3. Supervise correction and completion of work of subcontractors.

1.06 ENGINEER'S CLOSE-OUT DUTIES

- A. Final Completion:
 - 1. When the Contractor determines that Work is finally complete, conduct an inspection to verify completion of Work.

B. Administration of Contract closeout:

1. Receive and review contractor's final submittals.
2. Transmit to Owner with recommendations for action.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

SECTION 01152

APPLICATION FOR PAYMENT

PART I –GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Submit Applications for Payment to Engineer in accordance with the schedule established by Conditions of the Contract and herein.

1.02 RELATED REQUIREMENTS

- A. Agreement between Owner and Contractor: Lump Sum and Unit Price.
- B. Conditions of the Contract: Progress Payments, Retainage and Final Payment.
- C. Section 01025: Measurement and Payment
- D. Section 01700: Contract Closeout.

1.03 FORMAT AND DATA REQUIRED

- A. Submit applications in the form required by Owner, with itemized data typed on 8-1/2 Inch x 11 inch white paper continuation sheets.
- B. Provide itemized data on continuation sheet:
 - 1. Format, schedules, line items and values: Those of the Schedule of Values accepted by Engineer.

1.04 PREPARATION OF APPLICATION FOR EACH PROGRESS PAYMENT

- A. Application Form:
 - 1. Fill in required Information, including that for Change Orders executed prior to date of submittal of application.
 - 2. Fill in summary of dollar values to agree with respective totals indicated on continuation sheets.
 - 3. Execute certification with signature of a responsible officer of Contract firm.
- B. Continuation Sheets:
 - 1. Fill in total list of all scheduled component items of Work, with item number and scheduled dollar value for each item.

2. Fill In dollar value in each column for each scheduled line item when work has been preformed or products stored.
 - a. Round off values to nearest dollar, or as specified for Schedule of Values.
3. List each Change Order executed prior to date of submission at the end of the continuation sheets.
 - a. List by Change Order Number, and description, as for an original component item of work.

1.05 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

- A. When the Owner or the Engineer requires substantiating data, Contractor shall submit suitable information, with a cover letter identifying:
 1. Project
 2. Application number and date.
 3. Detailed list of enclosures.
 4. For stored products:
 - a. Item number and identification as shown on application.
 - b. Description of specific material.
- B. Submit one copy of data and cover letter for each copy of application.

1.06 PREPARATION OF APPLICATION FOR FINAL PAYMENT

- A. Fill in Application form as specified for progress payments.
- B. Use continuation sheet for presenting the final statement of accounting as specified in Section 01700 - Contract Closeout

1.07 SUBMITTAL PROCEDURE

- A. Submit Applications for Payment to Engineer at the times stipulated.
- B. Number: Four (4) copies of Application.
- C. When Engineer finds Application properly completed and correct, he will transmit certificate for payment to Owner, with copy to Contractor.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01200

PROJECT MEETINGS, SCHEDULES, AND REPORTS

PART1-GENERAL

1.01 SUMMARY

A. Project Meetings:

1. Preconstruction conference.
2. Monthly Progress meetings.

B. Schedules and Reports:

1. Initial coordination submittals.
2. Construction progress schedule.
3. Procurement schedule.
4. Construction progress reports.
5. Schedule of values.
6. Special reports.

1.02 PROJECT MEETINGS

A. Pre-construction Conference

1. Engineer will administer a meeting within 5 days after the Effective Date of the Agreement, to review items stated in the following agenda and to establish a working understanding between the parties as to their relationships during conduct of the Work.
2. Preconstruction conference shall be attended by:
 - a. Contractor and his superintendent.
 - b. Representatives of principal Subcontractors and Suppliers.
 - c. Engineer and his Resident Project Representative if any.
 - d. City Project Manager.
 - e. Other affected parties determined by the City.
3. Agenda:
 - a. Projected construction schedules.
 - b. Critical Work sequencing.
 - c. Designation of responsible personnel.
 - d. Project coordination.
 - e. Procedures and Processing of:

- (1) Field decisions.
 - (2) Substitutions.
 - (3) Submittals.
 - (4) Change Orders.
 - (5) Applications for payment.
- f. Procedures for testing.
 - g. Procedures for maintaining record documents.
 - h. Use of Premises:
 - (1) Office, work and storage areas.
 - (2) City's requirements.
 - i. Construction facilities, controls, and construction aids.
 - j. Temporary utilities.
 - k. Safety and first aid.
 - l. Security.
 - m. Requirements of any permits obtained by the City.
 - n. Procurement Schedule.
4. Location of Meeting: ECRWRF, 4325 North Haverhill Road, West Palm Beach, Florida 33417.

B. Progress Meetings:

1. Engineer will administer a meeting every month and at other times requested by Engineer. Contractor, Engineer and all Subcontractors active on the site shall be represented at each meeting. Contractor may request attendance by representatives of his Suppliers and other Subcontractors, or other entities concerned with current program or involved with planning, coordination or performance of future activities. All participants in the meeting shall be familiar with the Project and authorized to conclude matters relating to the Work.
2. Contractor and each Subcontractor shall be prepared to discuss the current construction progress report, any anticipated future changes to the schedule, and advise if their current progress or future anticipated schedules are compatible with the Work.
3. If one Subcontractor is delaying another, Contractor shall direct such changes as are necessary for those involved to mutually agree on schedule changes in the best interest of construction progress.
4. Agenda.
 - a. Review of construction progress since previous meeting.
 - b. Field observations, interface requirements, conflicts.

- c. Problems which impede construction schedule.
 - d. Off-site fabrication.
 - e. Delivery schedules.
 - f. Submittal schedules and status.
 - g. Site utilization,
 - h. Temporary facilities and services.
 - i. Hours of Work.
 - j. Hazards and risks.
 - k. Housekeeping.
 - l. Quality and Work standards.
 - m. Change orders.
 - n. Documentation of information for payment request.
 - o. Corrective measures and procedures to regain projected schedule if necessary.
 - p. Revisions to construction schedule.
 - q. Progress and schedule during succeeding Work period.
 - r. Review proposed changes for:
 - (1) Effect on construction schedule and on completion date.
 - (2) Effect on other contracts of the Project
 - s. Other business.
5. Location of Meetings: Office of ECRWRF, 4325 North Haverhill Road, West Palm Beach, Florida 33417.
6. Reporting: After each meeting, minutes of the meeting will be distributed by Engineer to each party present and to parties who should have been present.

1.03 SCHEDULES AND REPORTS

A. Initial Coordination Schedules:

- 1. Within 10 days after the Effective Date of Agreement, Contractor shall submit to Engineer for review and acceptance:
 - a. A tentative procurement schedule of equipment and materials.
 - b. A tentative schedule of values for partial pay purposes.
 - c. A tentative schedule of Submittals, as stated in SECTION 01300.
 - d. Certification of insurance or copies of policies if not previously submitted.

B. Construction Progress Schedule:

- 1. A detailed proposed construction progress schedule shall be submitted prior to submittal of the first pay request.

- a. The CONTRACTOR's planning, scheduling and execution of the contract work shall be presented to the City by submission of the progress schedule information and data specified in this Section.
 - b. The CONTRACTOR is responsible for coordinating its own schedules (including subcontractors).
2. The Contract Schedules shall be in both precedence diagram and bar chart format, plotted on a time-scaled calendar, and expressly identify Contract Time, milestones, critical path(s), and all activities. Activities shall display early dates and total float.

Connections between activities, whether on the same sheet or on different sheets, shall identify both predecessor and successor work. Activity data shall include a description of the work, activity costs, activity duration, and special codes. The use of start or finish restraint dates must be approved by the CITY.

- a. Prepare schedules with separate bar for each significant or major portion of the Work or construction activity. Within each time bar, indicate estimated completion percentage in 10% increments.
- b. The schedule shall also show the Work broken down into major phases and key items with the date Work is expected to begin and be completed. Sequence of listings shall be in the chronological order of the start of each item of Work. Each work Activity shall show the Quantity -of Work to be performed, Duration of Activity, Daily Rate of Production Required.
- c. Phasing: Provide notations on the schedule to show how the sequence of the Work is affected by the following:
 - (1) Requirements for phase completion.
 - (2) Work by separate contractors.
 - (3) Coordination with existing construction.
 - (4) Uninterruptible services.
 - (5) Site restrictions.
 - (6) Provisions for future construction.
- d. Scale and spacing shall allow space for notations and revisions.
- e. Sheet size: Multiple of 8-1/2" x 11".
- f. The schedule shall show a payout curve for the duration of the project on a monthly basis projecting City payments to the Contractor based on work completed.

3. Provide sub-schedules to define critical portions of entire schedules, including inspections and tests.
4. Engineer will review and comment on schedule and, upon agreement with Contractor on any necessary changes, Engineer will furnish Contractor prints of the accepted schedule. Contractor shall not change the accepted construction progress schedule without prior concurrence of the Engineer.
5. Submit to Engineer for acceptance an updated schedule at least once each month. Schedule shall show actual progress and any proposed changes in the schedule of remaining Work.
6. The Contract Schedules shall break down the work into activities and relationships to the extent required to effectively manage the work. The contract Schedules shall divide the work into manageable segments and specify the progression from the Notice to Proceed date to the end of the Contract Time.
7. Each activity shown on the Contract Schedules shall be assigned a budget value. The total budget value of all activities shall equal the Lump Sum Contract Price. The Contract Schedule is to include appropriate time allowances and constraints for submittals, necessary coordination with others, specified construction, start-up and performance testing. Site-related activities shall not reflect a combination of work located in separate structures, work corresponding to different divisions of the specifications, work performed by first and second tier subcontractors or rough in and finish work of the same trade.
8. The CONTRACTOR'S Construction Schedule shall reflect the timely delivery of all permanent materials. Procurement activities should include preparation, review and acceptance of shop drawings, material fabrication and material deliveries.
9. USE OF FLOAT: Total Float is the amount of time a WORK activity can slip from its early start without delaying the project. Contract Float is the number of days between the CONTRACTOR'S anticipated date for early completion of the WORK, or specified part and the corresponding Contract Time. Total Float and Contract Float belong to the project and are not for the exclusive benefit of any party. They shall be available to the City, their consultants, or the CONTRACTOR to accommodate changes in the WORK or to mitigate the effect of events which may delay performance or completion. The City will monitor and optimize the use of float for the benefit of the Program.
10. EARLY COMPLETION: An early completion schedule is one which anticipates completion of all of specified part of the work ahead of the corresponding Contract Time. Since Contract float belongs to the project, the CONTRACTOR shall not be entitled to any extension in Contract Time or recovery for any delay incurred because of extensions in an early completion date until all contract float is used or consumed and performance or completion of the WORK extends

beyond the Contract Time. The CONTRACTOR shall adjust or remove any float suppression techniques (e.g., preferential sequencing, crew movements, equipment use, form reuse, etc.), extended durations, imposed dates and others, as a prerequisite to a request for an increase in Contract Price or Contract Time. Use of restraint dates should be minimized and requires approval by the City.

2. Submit a construction progress report with each application for partial payment. Work reported complete but not readily apparent to Engineer must be substantiated with supporting data.

C. Schedule of Values:

1. Submit as specified in GENERAL CONDITIONS.
2. Content:
 - a. Schedule shall list the installed value of the component parts of the Work in sufficient detail to serve as a basis for computing values for progress payments during construction. Each Work Activity shall be priced, and the total shall equal the Contract Total.
 - b. The sum of all values listed in the schedule shall equal the total Contract Price.
 - c. Each schedule monthly update shall indicate the Actual Start Date, Actual or Projected Finish Date, and percentage of completion for each Work Activity. The Percentage of Completion times the completed value of each work item will support the Contractor's pay request and must be submitted attached to each pay request.

D. Special Reports:

1. When an event of an unusual and significant nature occurs at the site, prepare and submit a special report. List the chain of events, persons participating, response by Contractor's personnel, an evaluation of the results or effects, and similar pertinent information. Advise the City and Engineer in advance when such events are known or predictable.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. The types of submittals controlled by these general requirements include shop drawings, procedure manuals, samples and miscellaneous work-related submittals.

1.02 GENERAL SUBMITTAL REQUIREMENTS

- A. Coordination and Sequencing:

The Contractor shall coordinate preparation and processing of submittals with performance of the work so that the work will not be delayed by submittals. The Contractor shall coordinate and sequence different categories of submittals for the same work, and for interfacing units of work, so that one will not be delayed for coordination with another. No extension of time will be allowed because of failure to properly coordinate and sequence submittals.

- B. Preparation of Submittal:

Provide permanent marking on each submittal to identify project, date, Contractor, subcontractor, submittal name and similar information to distinguish it from other submittals. Each submittal shall clearly state where the item is to be installed. Package each submittal appropriately for transmittal and handling. Submittals which are received from sources other than through Contractor's office will be returned without action. All results of testing by independent labs or agencies shall be submitted to the Engineer. This shall include both passing and failing tests.

1.03 SHOP DRAWINGS AND SAMPLES

- A. As soon as practicable and within thirty (30) days after the date of execution of the Contract, the Contractor, in conformance with the conditions of the contract, shall submit to the Engineer for approval, three (3) copies (in addition to those copies necessary for his own requirements) of the shop drawings.
- B. Shop drawings submitted to the Engineer for his review, shall first be checked and approved by the Contractor, as indicated by a "Checked" stamp marked "Approved" on each copy of the shop drawing. Shop drawings received without the Contractor's "Checked and Approved" stamp will be returned without further action.
- C. Shop drawings shall be submitted, but not be limited to, the following:
 - 1. Escutcheon Plates
 - 2. Epoxy Injection Resin
 - 3. Reinforcing Bars

4. Corrosion Neutralizer
5. Epoxy Resin Sealer
6. Crack Sealer
7. Epoxy Mortar Backfill
8. Concrete

D. Product Data

1. Collect required data into one submittal for each unit of work or system; and mark each copy to show which choices and options are applicable to the project. Include manufacturer's standard printed recommendations for application and use, compliance with standards, application of labels and seals, notation of field measurements which have been checked, and special coordination requirements. Maintain one set of product data for each submittal at the project site, available for reference by the Engineer. For purposes of this submittal, manufacturer's fabrication drawings shall be synonymous with shop drawings.
2. The Contractor shall not submit product data or allow its use on the project, until compliance with requirements of the Contract Documents has been confirmed. Submittal is for information and record only, unless otherwise indicated.

1.04 DOCUMENTS

- A. Maintain at the job site one copy of all drawings, specifications; addenda; approved shop drawings; change orders; field orders; other contract modifications; and other approved documents submitted by the Contractor in compliance with various sections of the specifications. Each of these Project Record Documents shall be clearly marked "Project Record Copy" and maintained in good condition; available at all times for review by the Engineer and not used for construction purposes.

1.05 BOND AND COMPLETED OPERATION INSURANCE

- A. Prior to final payment, the Contractor shall submit proof that bonds and completed operations insurance are in effect as required by the GENERAL CONDITIONS.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

SECTION 01410

TESTING AND QUALITY CONTROL

PART 1- GENERAL

1.01 CONTRACTOR QUALITY CONTROL

- A. Establish a quality control system to perform sufficient inspection of all items of Work, including that of Subcontractors, to insure conformance to the Specifications and Drawings with respect to the materials, workmanship, construction, equipment performance, and identification.

1.02 TESTING LABORATORY SERVICES:

- A. All tests which require the services of a laboratory to determine compliance with the Contract Documents shall be performed by an independent commercial testing laboratory acceptable to City. The laboratory shall be staffed with experienced technicians, properly equipped, ACI certified, and fully qualified to perform the tests in accordance with the specified standards.

1.03 TESTING LABORATORY SERVICES FURNISHED BY CONTRACTOR:

- A. All testing laboratory services shall be performed and paid for by the Contractor, and a certified copy of the results will be furnished to the City within 5 days of the test.
- B. The Contractor is also responsible for testing and inspection services required to achieve an effective quality control program, to assure that the work strictly complies with the contract requirements. Contractor shall pay all costs for such services. Contractor shall also pay for any tests performed by City which do not meet Specifications, as described below.

1.04 TRANSMITTAL OF TEST REPORTS:

- A. Written reports of test and engineering data furnished by Contractor shall be submitted as specified in Section 01300.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01540

SECURITY AND PROTECTION

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Requirements: This section specified minimum requirements of temporary provisions for security and protection is the Contractor's sole responsibility, and is not limited to the minimums established by the requirements hereof. Except as otherwise indicated, the use of alternative security and protection methods of facilities, equivalent to those specified in the Contractor's option. The work of this section is defined to exclude required insurance coverage, performance/payment bonds, first aid requirements, general supervision, quality control, damage surveys, enclosure of completed work and stored materials, inspections and test of the work, instruction to Owner's personnel and similar recognized protection/security provision, which are, nevertheless, specified In other parts of the contract documents, if required.
- B. The types of security and protection facilities and services required for the entire project include, but are not limited to, the following:
 - 1. Security enclosure and lockup of work.
 - 2. Personnel security program.
 - 3. Environmental protection.

1.02 QUALITY ASSURANCE

- A. Regulations: Comply with governing regulations for the installation and operation of security and protection facilities, including the rules and recommendations of fire and building departments, police, rescue squad's watchman services and similar local organizations and companies.

1.03 JOB CONDITIONS

- A. Conditions of Use: Use security and protection facilities and services in a safe, sanitary, lawful and publicly acceptable manner, which will not interfere unduly with performance of the work nor result in other deleterious effects.

1.04 MATERIALS OF SECURITY AND PROTECTION FACILITIES

- A. General: For use in security and protection facilities, provide either new or used materials and equipment, which are in substantially undamaged and serviceable conditions. Provide types and quality levels which are recognized in the construction industry as suitable for the intended use in each application.

1.05 INSTALLATION OF SECURITY/PROTECTION FACILITIES

- A. General: Use qualified tradesmen for the installation of security and protection facilities. Locate facilities where they will serve the total project construction work adequately, and result in a minimum interference with performance of the work. Relocate, modify and extend facilities as required during the course of the work, to properly accommodate the entire work of the project. Provide and maintain a reasonably neat and uniform appearance in security and protection facilities, acceptable to the Owner.

1.06 STORAGE

- A. Where materials and equipment must be temporally stored, prior to and during construction, and are of substantial value or attractive for possible theft, provide secure lockup and enforce strict discipline in connection with the timing of installation and release of materials, so that the opportunity for theft and vandalism is minimized.

1.07 ENVIRONMENTAL PROTECTION

- A. General: Provide protection facilities, operate temporary facilities, conduct construction activities and enforce strict discipline for personnel at the project site in ways and by methods which comply with environmental protection regulations, and which will minimize the possibility that the air, waterways and subsoil might be contaminated or polluted, or that other undesirable and deleterious effects might result from performance of the work at the project site. Avoid the use of tools and equipment which produce harmful noise; and restrict the use of noise-making tools and equipment to the hours of use which will minimize noise complaints by persons or residents near the project.

1.08 TERMINATION AND REMOVAL

- A. General: Maintain protection and security facilities and services in good operating condition through the time and use and until the completion and use of permanent work makes each temporary service unnecessary, or until the Owner's occupancy has replaced the need for the service or until its discontinuation has been otherwise authorized. Remove each facility promptly after its use has been terminated. Complete or restore permanent work which may have been delayed or otherwise affected by the temporary facility. Replace work which cannot be satisfactorily restored. Except as otherwise indicated, the materials and equipment of temporary security and protection facilities remain the property of the Contractor.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01600

EQUIPMENT AND MATERIALS

PART 1- GENERAL

1.01 RELATED WORK

1. **SUBSTITUTIONS AND PRODUCT OPTIONS:** General Conditions.

The contractor shall comply with the contract documents and the City's approved Product List (APL).

2. **SUBMITTALS:** Section 01300.

1.02 DEFINITIONS

- A. Definitions used in this paragraph are not intended to negate the meaning of other terms used in the Contract Documents, including such terms as "systems," "structure," "finishes," "accessories," "furnishings," "special construction," and similar terms. Such terms are self-explanatory and have recognized meanings in the construction industry.
- B. **PRODUCTS:** Items purchased for incorporation in the Work, regardless of whether they were specifically purchased for the Project or taken from the previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and other terms of similar intent.
- C. **EQUIPMENT:** A product with operational or non-operational parts, regardless of whether motorized, manually operated, or fixed. Equipment may require service connections such as wiring or piping.
- D. **MATERIALS:** Products that must be substantially cut, shaped, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form parts of Work.

1.03 QUALITY ASSURANCE

- A. **EQUIPMENT AND MATERIAL INCORPORATED INTO THE WORK:** Provide products that comply with the requirements of the Contract Documents, undamaged, and unless otherwise indicated, unused at the time of installation. Provide products that are complete with all accessories, trim, finish, safety guards, and other devices and details needed for a complete installation and for the intended use and effect.
- B. **STANDARD PRODUCTS:** Where they are available and comply with Specifications, provide standard products of types that have been produced and used successfully in similar situations on other projects.
- C. **CONTINUED AVAILABILITY:** Where, because of the nature of its application, the City is likely to need replacement parts or additional amounts of a product at a later

date, either for maintenance and repair or replacement, provide standard products for which the manufacturer has published assurances that the products and its parts are likely to be available to the City at a later date.

1. Conform to applicable Specifications, codes, standards, and regulatory agencies.
2. Comply with size, make, type, and quality specified, or as specifically approved in writing by the Engineer.
3. Manufactured and Fabricated Products:
 - a. Design, fabricate, and assemble in accordance with the best engineering and shop practices.
 - b. Manufacture like parts of duplicate units to standard sizes and gauges, to be interchangeable.
 - c. Equipment and Materials shall be suitable for service conditions intended.
 - d. Equipment capacities, sizes, and dimensions indicated or specified shall be adhered to unless variations are specifically approved in writing.
 - e. Provide labels and nameplates where required by regulatory agencies or to state identification and essential operating data.
 - f. Two or more items of the same kind shall be identical, supplied by the same manufacturer.
4. Do not use equipment and material for any purpose other than that for which it is designed or is specified.

D. SOURCE LIMITATIONS To the fullest extent possible, provide products of the same kind from a single source.

E. IDENTIFICATION: Each item of equipment shall have permanently affixed to it a label or tag with its equipment number designated in this contract. Marker shall be stainless steel and shall be located so as to be easily visible.

1.04 TRANSPORTATION AND SHIPMENT

A. SHIPMENT PREPARATION: Contractor shall require manufacturers and suppliers to prepare Equipment and Materials for shipment in a manner to facilitate unloading and handling, and to protect against damage or unnecessary exposure in transit and storage, for contractor supplied equipment. Provisions for protection shall include the following:

1. Crates or other suitable packaging materials.

2. Covers and other means to prevent corrosion, moisture damage, mechanical injury, and accumulation of dirt in motors, electrical equipment, and machinery.
 3. Suitable rust-preventive compound on exposed machined surfaces and unpainted iron and steel.
 4. Grease packing or oil lubrication in all bearings and similar items.
 5. Precast concrete components shall be transported, lifted and stored as specified by the precast supplier. Precast supplier shall provide written instructions to the Contractor as to the above Contractor shall provide a copy to City.
- B. MARKING: Each item of Equipment and Material shall be tagged or marked as identified in the delivery schedule or on Submittals. Complete packing lists and bills of material shall be included with each shipment. Each piece of every item need not be marked separately, provided that all pieces of each item are packed or bundled together and the packages or bundles are properly tagged or marked.

1.05 DELIVERY, STORAGE AND HANDLING

A. DELIVERY:

1. Arrange deliveries of Equipment and Materials in accordance with construction schedules, in ample time to facilitate inspection prior to installation, and to avoid delay of the Work.
2. Deliver, store and handle Equipment and Materials in accordance with manufacturer's recommendations using means and methods that will prevent damage, deterioration, and loss, including theft.
3. Control delivery schedules to minimize long term storage at the site and to prevent overcrowding of construction spaces. In particular, coordinate delivery and installation to ensure minimum holding or storage times for items known or recognized to be flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other sources of loss.
4. Avoid conflict with Work of City or other contractors.
5. Deliver Equipment and Materials to the site in manufacturer's sealed containers or other packaging system with identifying labels and instructions for handling, storing, unpacking, protecting, and installing.
6. Mark deliveries of component parts of equipment to identify the equipment, to permit easy accumulation of parts, and to facilitate inspection and measurement of quantity or counting of units.
7. Immediately on delivery, inspect shipment to assure:

- a. Product complies with requirements of Contract Documents and reviewed Submittals.
- b. Quantities are correct.
- c. Containers and packages are intact, labels are legible.
- d. Equipment and Materials are properly protected and undamaged.

B. HANDLING:

1. Provide equipment and personnel necessary, to unload and handle Equipment and Materials, by methods to prevent damage or soiling to Equipment and Materials, or packaging.
2. Handle by methods to prevent bending or overstressing. Where lifting points are designated, lift components only at those points.
3. Provide additional protection to surrounding surfaces as necessary to prevent damage.

PART 2 – PRODUCTS

2.01 PRODUCT SELECTION AND SUBSTITUTIONS

- A. Specified in Instructions to Bidders and General Conditions.

PART 3 – EXECUTION

3.01 MANUFACTURERS INSTRUCTIONS

A. INSTALLATION:

1. When Contract Documents require that installation of work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions if not a part of Submittals, containers, or packaging to parties involved in the installation, including a copy to the City.
2. Maintain one complete set of instructions at the job site during installation and until completion.
3. Handle, install, connect, clean, condition, and adjust products in accordance with such instructions and in conformance with specified requirements. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with Engineer for further instructions.

4. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents, or approved in writing by manufacturer and the City.
5. Accurately locate and align with other Work, and anchor Equipment and Materials securely in place except as required for proper movement and performance.
6. Clean and protect exposed surfaces as necessary to ensure freedom from damage and deterioration at time of acceptance.

END OF SECTION

SECTION 01630

PRODUCT OPTIONS AND SUBSTITUTIONS

PART 1 GENERAL

1.01 SUMMARY

- A. This Section covers the Engineer's review procedures for Contractor's requests of acceptable substitute items of material and equipment. See applicable paragraph of the Instructions to the Bidders of this Contract Document. If the proposed substitution is approved, such approvals will be set forth in an addendum.
- B. Requests received after the date established above or after the contract award, will not be considered unless one or more of the following conditions apply:
 - 1. The substitution must be required for compliance with final interpretation of code requirements or regulations.
 - 2. The substitution must be due to the unavailability of the specified products, through no fault of the Contractor.
 - 3. The substitution may be requested when subsequent information discloses the inability of the specified products to perform properly or to fit in the designated space.
 - 4. The substitution may be requested when in the judgment of the Engineer a substitution would be substantially to the City's best interests in terms of cost, time or other considerations.

1.02 SUBSTITUTION REQUEST

- A. Submit as required in SECTION 01300, Submittals:
 - 1. Complete data substantiating compliance of the proposed substitution with the Contract Document.
 - a. Product identification including manufacturer's name and address.
 - b. Manufacturer's literature including product description, performance and test data, and reference standards.
 - c. Name and address of similar projects on which product was used and dates of installation.
 - 2. Itemized comparison of proposed substitution with product or method specified.

3. Data relating to changes in the construction schedule.
 4. For requests submitted after bids are received, accurate cost data on proposed substitution in comparison with product or method specified.
- B. In submitting the request for substitution, the Contractor makes the following representations:
1. The Contractor has investigated the proposed product and has determined that it is equal or superior in all respects to that specified.
 2. The Contractor will provide the same warranty or guarantee for the substitution as for the product specified.
 3. The Contractor will coordinate installation of the accepted substitution into the work, making such changes as may be required for the work to be completed in all respects.
 5. The Contractor waives all claims for additional costs related to substitution that subsequently becomes apparent.
 6. Cost data is complete and includes all related costs under the contract.

1.03 ENGINEER'S REVIEW

- A. The Engineer, in evaluating the request for substitution, shall consider all variations of the proposed substitute from that specified to determine the acceptability of the proposal. The Engineer may require the Contractor to furnish additional data about the proposed substitute necessary to make such a determination. The Engineer will be the sole judge of acceptability, and no substitute will be ordered or installed without the Engineer's prior written acceptance. The City may require the Contractor to furnish, at the Contractor's expense, a special performance guarantee or other surety with respect to any substitute. Substitutions will not be considered.
1. Substitutions are indicated or implied on shop drawings or product data submittals without a request submitted in accordance with this section.
 2. Acceptance will require substantial revision to the Contract Documents.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

01630-2

SECTION 01700
CONTRACT CLOSEOUT

PART 1- GENERAL

1.01 SUMMARY:

A. This Section includes administrative and procedural requirements for contract closeout including, but not limited to, the following:

1. Inspection procedures.
2. Project record document submittal.
3. Submittal of warranties.
4. Final cleaning.
5. Contractor's Certification.

B. Related Work Specified Elsewhere:

1. Prerequisites to Substantial Completion and Final Acceptance: GENERAL CONDITIONS.
2. Submittals: SECTION 01300.

1.02 SUBSTANTIAL COMPLETION:

A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following:

1. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents.
2. Obtain and submit releases enabling the City unrestricted use of the Work and access to services and utilities. Include operating certificates, and similar releases.
3. Discontinue and remove temporary facilities from the site, along with mockups, construction tools, and similar elements.
4. Complete final cleanup requirements, including touch up painting.
5. Touch up and otherwise repair and restore marred, exposed finishes.

B. Inspection Procedures: On receipt of a request for inspection, the City will either proceed with inspection or advise the Contractor of unfilled requirements. The City will prepare the Certificate of Substantial Completion following inspection or advise the Contractor of work that must be completed or corrected before the certificate will be issued.

1. The City will reschedule the inspection when in its opinion, the Work is substantially complete.

1.03 FINAL ACCEPTANCE:

A. Preliminary Procedures: Submit certification by Contractor that Work has been completed in accordance with the Contract Documents to the knowledge of the Contractor. Before requesting final inspection, complete the following.

1. Submit the final payment request with releases and supporting documentation. Include insurance certificates for products and completed operations where required.
2. Submit a certified copy of the City's final inspection list of items to be completed or corrected. The certified copy of the list shall state that each item has been completed.
3. Submit consent of surety to final payment.
4. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
5. Release of Liens (from the Prime, and all Subcontractors, Vendors and Suppliers).
6. Submit Maintenance Bond.

B. Re-inspection Procedure: The City will re-inspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed.

1. Upon completion of re-inspection, the City will advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
2. If necessary, re-inspection will be repeated.

PART 2 – PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 FINAL CLEANING:

- A. General: The GENERAL CONDITIONS require general cleaning during construction. Regular site cleaning is included in SECTION 01530.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion.
 - a. Remove debris.
 - b. Clean the site of rubbish, litter, and other foreign substances.
 - c. Remove temporary structures, tools, equipment, supplies, and surplus materials.
 - d. Remove temporary protection devices and facilities which were installed to protect previously completed Work..
- C. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.
- D. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Remove waste materials from the site and dispose of lawfully.
- E. Repairs:
 - 1. Repair damaged protective coated surfaces.
 - 2. Repair roads and other items damaged or deteriorated because of construction operations, including those which have been damaged, but are not located within the project limits.
 - 3. Restore all ground areas affected by construction operations.

END OF SECTION