

**TECHNICAL SPECIFICATIONS**  
**FOR**  
**SINKHOLE REPAIRS AT PIER 1**  
**AT**  
**BROADWAY TERMINAL**  
**FOR**  
**SOUTH JERSEY PORT CORPORATION**  
**CAMDEN, NEW JERSEY 08104**

**PREPARED BY:**

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**856-342-6600**

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INFORMATION FOR BIDDERS

## INFORMATION FOR BIDDERS

### SINKHOLE REPAIRS AT PIER 1 AT BROADWAY TERMINAL of SOUTH JERSEY PORT CORPORATION

#### PERFORMANCE BOND

The Form of Bid Security shall be a Performance Bond “only” in the amount of 10% of the total bid price not to exceed \$20,000.00. Each bid shall also be accompanied by a Letter of Intent form the Bidder’s Bonding Company confirming that, if the Bidder is awarded the Contract, the Bonding Company will furnish the required Performance Bond to the Bidder for the Project.

Each Surety submitted with the bid must be with a company that is rated at least A- or better with AM Best and proof of same must accompany the bid.

The award shall be subject to securing any necessary permits governing the work.

#### ACCESS TO THE BROADWAY TERMINAL

Access to the Broadway Terminal is granted by means of a guarded gateway and requires certain ID as a United States citizen. Unsupervised access is allowed only by means of a Transport Workers Identification Card (TWIC).

#### INSURANCE REQUIREMENTS

##### **A. General Insurance Requirements**

1. The Professional Services shall not commence until the Professional Service Contractor has obtained, at their own expense, all of the insurance as required hereunder and such insurance has been approved by the South Jersey Port Corporation; nor shall the Professional Service Contractor allow any Subcontractor to commence work on any South Jersey Port Corporation projects until all insurance required of the Subcontractor has been so obtained and approved by the Contractor. Approval of insurance required of the Professional Service Contractor will be granted only after submission to the South Jersey Port Corporation, original certificates of insurance signed by authorized representatives of the insurers or, at the South Jersey Port Corporation request, certified copies of the required insurance policies.
2. The Professional Service Contractor shall require all Subcontractors to maintain during the term of the Contract commercial general liability insurance, business auto liability insurance, and workers compensation and employer’s liability insurance at the same limits required of Professional Service Contractor.

3. All insurance policies required hereunder shall be endorsed to provide that the policy is not subject to cancellation and non-renewal until thirty (30) days prior written notice has been given to the Owner by the Professional Service Contractor.
4. No acceptance and/or approval of any insurance by the South Jersey Port Corporation shall be construed as relieving or excusing the Professional Service Contractor (or the Professional Service Contractor's Surety, if applicable) from any liability or obligation imposed upon either or both of them by provisions of this Contract.
5. Any deductibles or retentions of (\$5,000.00) or greater shall be disclosed by the Professional Service Contractor and are subject to South Jersey Port Corporation's written approval. Any deductible or retention amounts elected by the Professional Service Contractor or imposed by the Professional Service Contractor.
6. All insurance coverage shall be with AM Best Rating A-, VIII or better insurance companies licensed to do business in the State of New Jersey.
7. Insurance provided to the South Jersey Port Corporation as specified herein shall be primary, and any other insurance, self-insurance, coverage or indemnity available to the Owner and Owner's shall be excess of and non-contributory with insurance provided.
8. Contractor shall name South Jersey Port Corporation as Additional Insured on all liability policies (except Workers' Compensation and Professional Liability Policy, where applicable), for ongoing operations and completed operations (using ISO Endorsements CG 2010 and CG 2037, or their equivalents) on a primary noncontributory basis. Coverage to include ongoing and completed operations. Each of the Additional Insured's respective directors, officers, partners, members, employees, agents and representatives shall also be afforded coverage as Additional Insured. Coverage should be provided for a period of three years subsequent to the completion of work/final payment.
9. Waiver of Rights of Subrogation: Contractor shall waive all rights of recovery against South Jersey Port Corporation for loss or damage covered by any of the insurance maintained by the Contractor.

**B. Professional Service Contractor Liability Insurance Requirements**

The Professional Service Contractor shall purchase the following:

1. Commercial General Liability insurance for bodily injury, personal injury and property damage including loss of use, with minimum limits of:
  - \$1,000,000 each occurrence;
  - \$1,000,000 personal and advertising injury;
  - \$2,000,000 general aggregate; and
  - \$1,000,000 products/completed operation aggregate.

This insurance shall include coverage of all the following:

- General aggregate limit;
  - Liability arising from premises and operations;
  - Liability arising from the actions of independent contractors;
  - Contractual Liability including protection for the Professional Service Contractor from bodily injury and property damage claims arising out of liability assumed under this Contract.
2. Business Auto Liability insurance with a minimum limit of \$1,000,000 per accident and including coverage for all the following:
- Liability arising out of the ownership, maintenance or use of any auto;
  - Auto non-ownership and hired car coverage.
3. Workers' Compensation insurance with statutory benefits as required by any state or federal law, including standard "other states" coverage; Employers Liability insurance with minimum limits of:
- \$1,000,000 each accident for bodily injury by accident;
  - \$1,000,000 each employee for bodily injury by disease; and
  - \$1,000,000 policy limit for bodily injury by disease.
4. Professional Liability: Professional Service Contractors (such as, but not limited to Architects, Engineers, Attorneys, Physicians, and Risk Management Consultants) shall provide the South Jersey Port Corporation with a certificate of insurance evidencing Professional Liability and/or Malpractice Insurance with minimum limits of \$1,000,000 combined single limit.
5. Umbrella/Excess Liability insurance with minimum limits of:
- \$5,000,000 per occurrence;
  - \$5,000,000 aggregate for other than products/completed operations and auto liability; and
  - \$5,000,000 products/completed operations aggregate.

### **C. Indemnification**

1. The Contractor will protect, defend, indemnify and hold harmless the South Jersey Port Corporation from and against any and all losses, penalties, damages, settlements, costs, charges, professional fees or other expenses or liabilities arising out of or resulting from the performance of the work or the completed operations provided that any such claims, damage, loss or expense is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of the tangible property including loss of the use resulting there from; and is caused in whole or in part by any negligent or willful act or omission of the Contractor, Subcontractor(s), and anyone directly or

indirectly employed by any of them or anyone for whose acts any of them may be liable.

In any and all claims against the South Jersey Port Corporation or any of their agents or employees, by an employee of the Contractor, Subcontractor, or any Sub-subcontractor, or anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable or for any Contractor, Subcontractor or any Sub-subcontractor under Workers' Compensation Acts, Disability Benefits Act, or other Employee.

### EXAMINATION AND RESPONSIBILITY

Bidders must visit the site and become thoroughly aware of the conditions under which the work will be performed. In addition to individual Bidder's visits, there will be a Bidder's Meeting, see Page A-1. Questions raised by Bidders at the time of the visit, or at any other time during the bidding, will only be officially answered by the issuance of Addenda to all bidders. Only such Addenda will be considered part of the Contract Documents.

Bidders must carefully examine, for themselves, the plans, detailed drawings, estimated quantities and the location of the proposed work. They shall exercise their own judgement as to the full scope and nature of the work, the difficulties to be encountered and the accuracy of estimated quantities, when given. Each Bidder will be held fully responsible for having complied with, and thoroughly understood the Contract Documents prior to submitting their bid; and shall not, at any time, thereafter complain of such estimates, nor assert that there was any misunderstanding in regard to the nature or amount of work to be done.

### QUALIFICATIONS OF BIDDERS

The Owner may make such investigation, as is deemed necessary, to determine the ability of the Bidder to perform the work; and the Bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or the investigation of such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligations of the Contract, and to complete the work therein contemplated. Conditional bids will not be accepted. See also paragraphs in these documents relating to subcontract work.

### SUBMISSION OF BIDS

Bids must be submitted at the specified time due in sealed envelopes bearing the name and address of the Bidder on the outside, and also bearing, on the outside, reference to work bid upon. Any bid may be submitted or withdrawn prior to the scheduled time for the opening of bids, or the authorized postponement thereof. Any bid received after the time and date specified in the Advertisement for Bids or Addenda will not be considered. No Bid may be withdrawn within sixty (60) days after the actual date of the opening thereof.

## REJECTION OF BIDS

The Owner reserves the right to reject any or all Bids received. The Owner also reserves the right to receive any and all Bids in whatsoever form they may be, and to waive any informalities in said Bids; or to award the work to whichever Bidder or Bidders it may be considered advantageous so to do, regardless of Bid prices.

## SUBCONTRACT WORK

The Bidder shall submit with their Bid, a description of Contract Work they will not be performing with their organization, if any.

## OBLIGATIONS OF BIDDERS

At the time of the opening of Bids, each Bidder will be presumed to have inspected the site, and to have read, and to be thoroughly familiar with the Plans and Contract Documents, including all Addenda. The failure or omission of any Bidder to receive or examine any form, instrument, or document, shall in no way relieve the Bidder from any obligations in respect to their bid.

## CONDITION OF WORK

Each Bidder must inform themselves fully of the conditions relative to the construction under which the work will be performed. Failure to do so will not relieve a successful Bidder of their obligation to furnish all material and labor necessary to carry out the provisions of the Contract Documents, and to complete the contemplated work for the construction set forth in their Bid.

## PROJECT SCHEDULE

At, or prior to, Contract Award, the Contractor will submit to the Engineer, for approval, a complete schedule for the performance of the contract, incorporating all conditions of the contract, and separating the various segments of work.

## LIQUIDATED DAMAGES

In case the Contractor fails to complete the work contracted for, in a manner satisfactory to and acceptable to the Owner, within the stipulated time limit, then the Contractor shall and will pay to the Owner for each and every day they, the Contractor, shall be in default, the sum of Two Thousand Dollars (\$2,000.00) or the sum equal to 1/20 of one percent (1%) of the total consideration provided for under the contract, whichever sum is the greater, which sum per day is agreed upon, fixed and determined by the parties hereto to be liquidated damages, not a penalty.

The Owner shall recover said damages by deducting the amount thereof out of any monies which may be due or become due to Contractor, or by an action of law against the Contractor or their surety, or by either or both of these methods.



In case the Contractor shall be delayed due to the failure on the part of the Owner to furnish anything on its part to be furnished, or of any other cause beyond the control of the Contractor, they shall be entitled to such an extension of time for the delivery of equipment, materials, work and supplies as is the judgement of the Owner shall be fair and just.



## **South Jersey Port Corporation Application for TWIC Escort Sponsorship**

In accordance with 33 CFR 101.514, all persons requiring unescorted access to restricted South Jersey Port Corporation (SJPC or “Port Corporation”) facilities must possess a Transportation Worker Identification Credential (TWIC) before such access is granted. Persons seeking access to SJPC facilities who do not physically possess a TWIC may only enter SJPC facilities with an SJPC approved TWIC escort as a side-by-side companion. Each designated TWIC escort will be allowed to escort a maximum of five (5) individuals at any one time.

The sponsoring employer making the nomination for TWIC escorts shall submit the application at least seven (7) days prior to assignment as a TWIC escort. Application shall include a full-size color copy of the TWIC of the nominated employee and certification of training as per 33 CFR 105.215. In addition, the sponsoring employer must certify that the nominated TWIC escort is a full-time employee of the company.

In requesting application for TWIC escorts, the sponsoring company assumes all responsibility for each nominated employee to meet the mandated TWIC escorting requirements relating to restricted area access and agrees to assume any liability imposed by competent Federal authorities for failure of such nominated employee to discharge all responsibilities in accordance with all federal law and policy.

### **Sponsoring Company Information**

Company Name: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Contact Person Title: \_\_\_\_\_

Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

Work Phone: \_\_\_\_\_

Mobile Phone: \_\_\_\_\_

Email Address: \_\_\_\_\_

Fax: \_\_\_\_\_

\_\_\_\_\_

**NOTE: The applicant does not sign the TWIC Escort Sponsorship form. The applicant only signs the training acknowledgement.**

**Nominated Employee Information**

Full Name (First, Middle, Last): \_\_\_\_\_

Date of Birth (mm, dd, year): \_\_\_\_\_

Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

Work Phone: \_\_\_\_\_

Mobile Phone: \_\_\_\_\_

Email Address: \_\_\_\_\_

Fax: \_\_\_\_\_

Date Employed by Nominated Employer: \_\_\_\_\_

TWIC escorting privileges are granted at the sole discretion fo the SJPC, for a period determined by the SJPC, and the SJPC reserves the right to deny granting escorting privileges or to suspend, revoke or deny renewal of escorting privileges previously granted as follows:

1. Submittal by an employer or nominated applicant of false or misleading information.
  - Failure to adhere to the policies, rules and regluations of the SJPC or other applicable federal, state or local laws and regulations, including, but not limited to:
    - Any attempt to gain entrance to the SJPC's facilitiles, or restricted areas within its facilities, through fraud or deception;
    - Any attempt to bypass established entry points;
    - Use or attempted use of a credential issued to anyone other than the approved TWIC escort, or loaning of an approved TWIC escort credential to another person;
    - Failure to perform escorting duties in the manner prescribed in this policy.
2. Conviction of an approved TWIC escort of any offense for which he or she would have initially been denied approval in accordance with the policies of the Port Corporation.

3. Failure to present a TWIC upon request, loss of TWIC privileges or an expired TWIC,
4. An employer no longer meets the criteria under which their eligibility was initially established or an approved TWIC escort leaves the employment of the company for which escorting privileges were approved.
5. The **TWIC Escort privileged expire on the expiration of the TWIC card** provided when certified. When the escort's TWIC expires, a new application and retrain is required with the renewal TWIC card.

**Submitted by:**

Full Name (First, Middle, Last): \_\_\_\_\_

Title: \_\_\_\_\_

Date Submitted: \_\_\_\_\_

*I certify that the applicant named in the application has received escort training as per 33 CFR 105.215.*

\_\_\_\_\_  
*Signature*

\_\_\_\_\_  
*Name Printed*

\_\_\_\_\_  
*Date*

*I certify that the applicant named in this application is a full-time employee of the sponsoring company named above.*

\_\_\_\_\_  
**Signature**

\_\_\_\_\_  
**Name Printed**

\_\_\_\_\_  
**Date**

*I certify to the best of my knowledge and belief that this application is correct and complete and I know and accept all terms and conditions contained herein.*

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Name (Printed)

\_\_\_\_\_  
Date

**ATTACH A COLOR COPY OF BOTH SIDES OF THE APPLICANT'S TWIC CARD.**

Return completed Application for TWIC Escort Sponsorship, TWIC Escort Acknowledgment and the copy of the applicant's TWIC card to:

South Jersey Port Corporation  
ATTN: Chuck O'Leary  
Kevin Greenjack  
P.O. Box 129  
Camden, NJ 08101-0129

Or send via email as an attached PDF file to:

[coleary@southjerseyport.com](mailto:coleary@southjerseyport.com)

[kgreenjack@southjerseyport.com](mailto:kgreenjack@southjerseyport.com)

**Questions regarding the SJPC TWIC Escort Training can be directed to the above.**

ADVERTISEMENT FOR BIDS

# **ADVERTISEMENT FOR BIDS**

SINKHOLE REPAIRS AT PIER 1  
BROADWAY TERMINAL  
SOUTH JERSEY PORT CORPORATION  
CAMDEN, NEW JERSEY 08104

Notice is hereby given that sealed bids will be received, opened and read aloud in public at the Board Room of the South Jersey Port Corporation, Broadway Terminal, 2500 Broadway, Camden, NJ 08104 on **November 21<sup>st</sup>, 2019 @ 2:00 PM.**

The project consists of maintenance repairs at sinkholes along the curved crane rail at Pier 1. The work consists of excavation to the timber low deck, installation of reinforced concrete slab/wall, backfill with suitable material and repaving the disturbed pier surface at Pier 1.

**A Mandatory Pre-Bid Conference** will be held in the **Board Room of South Jersey Port Corporation, Broadway Terminal, 2500 Broadway, Camden, NJ at 10:00 AM on November 7<sup>th</sup>, 2019**

The South Jersey Port Corporation reserves the right to reject any or all bids received either in whole or in part, and also to waive any informality in bid or bids so received.

**For Port Entry and Security purposes, participants planning to attend the Pre-Bid Meeting MUST notify in advance the Port Engineer @ [GEnglehardt@southjerseyport.com](mailto:GEnglehardt@southjerseyport.com)**

BID FORM



SINKHOLE REPAIRS AT PIER 1  
 BROADWAY TERMINAL  
 SOUTH JERSEY PORT CORPORATION  
 CAMDEN, NJ

BID FORM

Having carefully examined the Contract Drawings, Technical Specifications, and Agreement for this project, and having examined all conditions affecting the work, the undersigned proposes to complete the work as set forth therein and to furnish all equipment, supervision, transportation, labor, materials and services required to execute the work in accordance with the Contract Drawings and Documents for the following Unit Price Costs, unless noted otherwise:

Item No.	Quantity	U.O.M.	Description	Unit Cost	Line Total
1	LS	LS	MOBILIZATION / DEMOBILIZATION		
2	647	CY	EXCAVATION & BACKFILL		
3	90	CY	CAST-IN-PLACE REINFORCED CONCRETE		
4	100	SY	BITUMINOUS PAVING		
TOTAL BID PRICE					

It is understood and agreed that any incidental work necessary to complete the Project in its entirety will be included in the line items, unit prices and lump sum bid, whether or not the line item or items shall specifically state the nature of the incidental work. The line item or items which the incidental work, and the incidental costs, are included shall be selected by the Bidder. It is also understood and agreed that each line item of work in the Proposal shall include all superintendency costs, markups, and other costs envisioned by the Bidder. In other words, all line item costs bid shall be "all-inclusive". Therefore, the unit prices to be entered on the Bid Form are obtained by dividing the total cost bid to complete the line item by the quantity shown of the form. The bid shall be determined by adding all line item costs for all Bid Items under Base Bid. This grand total Base Bid Price shall constitute the Base Bid Cost of the Project.

Negotiations for the adjustments of the unit price of any item will be completed only when that item and other work or items affecting its quantity have been completed and the total net change in the quantity of such item can be ascertained with sufficient accuracy to determine if it be eligible for consideration in accordance with the foregoing provisions.

The bidder must also furnish a price for all Optional Bids or Alternates requested, as well as all separate unit price items requested. Failure to do so will constitute an incomplete bid, which will be rejected by the South Jersey Port Corporation.

Time Required to Complete All Work in Calendar Days \_\_\_\_\_ Days

Bidder shall provide rough schedule, including estimated start and completion dates.

All work shall be performed on weekdays during daylight hours. Work may be performed on Saturdays and/or other hours pending prior approval by South Jersey Port Corporation.

A. Provide a Field Organizational Chart with Names of Key Personnel

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B. We Acknowledge Receipt of the Following Addenda

a. ADDENDUM NO. \_\_\_\_\_ Dated: \_\_\_\_\_

a. ADDENDUM NO. \_\_\_\_\_ Dated: \_\_\_\_\_

b. ADDENDUM NO. \_\_\_\_\_ Dated: \_\_\_\_\_

If no addenda are received, indicate by writing or typing the word “NONE” in the space for first addenda.

The Contractor agrees that this proposal will be valid for a period of ninety (90) days to allow the Project Engineer time to evaluate and make a decision. The Project Engineer will notify the Contractor of the acceptance of their bid in writing within ninety (90) days following the bid date.

The undersigned accepts responsibility for having completely examined and understood the intent of the Bid Drawings and Documents; for having fully examined the site of the work; and for having obtained all pertinent information affecting the work.

CORPORATE SEAL

Contractor: \_\_\_\_\_

Primary Contact Name: \_\_\_\_\_

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Business Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Phone No.: \_\_\_\_\_

## TECHNICAL SPECIFICATIONS

SECTION 01110	SUMMARY OF WORK
SECTION 02220	SITE DEMOLITION
SECTION 02315	EXCAVATION AND BACKFILL
SECTION 02742	BITUMINOUS PAVING
SECTION 03300	CAST-IN-PLACE CONCRETE
SECTION 05120	STRUCTURAL STEEL

SECTION 01110

SUMMARY OF WORK

## SECTION 01110

### SUMMARY OF WORK

#### 1.0 GENERAL

##### 1.1 Scope of Work

1.1.1 The general description of work to be performed includes, but is not necessarily limited to, the following items and activities listed. All work required to complete the construction and installation as conceived and depicted or delineated on the drawings, and as described in the specifications shall be included.

1.1.2 The work includes the repair and seal gaps in the existing timber low deck and between the low deck and the curved concrete crane rail foundation.

- Layout of underground utilities
- Saw cut asphalt in the area to be removed
- Excavate the area to the depth of the timber low deck. Stockpile material on site at an area designated by the **PROJECT ENGINEER**.
- Install a concrete seal on the timber low deck and tie into the curved crane rail foundation.
- Backfill with stockpiled fill removing oversize material and debris if necessary.
- Install asphalt pavement.

##### 1.2 Continuous Pier Operation

1.2.1 The piers will be in continuous service during the work. Normal facility activities may affect construction activities. The CONTRACTOR will coordinate all work activities with the **PROJECT ENGINEER'S** representatives. The CONTRACTOR will take specific precaution not to have their people, materials, equipment, or construction methods interfere or limit the accessibility of operational personnel to areas of the facility that must be routinely inspected. The CONTRACTOR is to maintain all utilities, conduit, piping, instrumentation, etc. in-service during construction.

##### 1.3 Location

###### 1.3.1 Access to Broadway Terminal

Access to the Broadway Terminal is granted by means of a guarded gateway and requires certain ID as a United States citizen. Unsupervised

access is allowed only by means of a Transport Workers Identification Card (TWIC).

Persons seeking access to SJPC facilities who do not physically possess a TWIC may only enter SJPC facilities with an SJPC approved TWIC escort as a side-by-side companion. Each designated TWIC escort will be allowed to escort a maximum of five individuals at any one time.

The sponsoring employer making the nomination for TWIC escorts shall submit the application at least (7) days prior to assignment as a TWIC escort. Application shall include a full-size color copy of the TWIC of the nominated employee and certification of training as per 33 CFR 105.215. In addition, the sponsoring employer must certify that the nominated TWIC escort is a full-time employee of the company.

In requesting application for TWIC escorts, the sponsoring company assumes all responsibility for each nominated employee to meet the mandated TWIC escorting requirements relating to restricted area access and agrees to assume any liability imposed by competent Federal authorities for failure of such nominated employee to discharge all responsibilities in accordance with all federal law and policy.

1.3.2 All work is located at the Pier 1 at the Broadway Terminal of the South Jersey Port Corporation Facility in Camden, NJ.

#### 1.4 Drawings

Contract Drawings

File No. Sp-1506

No.   Title

C-1   Deck Plan & Recommended Repairs

#### 1.5 Safety

1.5.1 All the work herein specified shall be performed according to applicable OSHA standards, and in accordance with all local, state and federal regulations. It is to be clearly understood that the CONTRACTOR is solely responsible for the safety of their workers, their SUBCONTRACTORS, and equipment.

1.5.2 Absolutely no oil or hydraulic fluid is permitted to spill or dispose of into the waterway.

1.5.3 CONTRACTOR shall submit a Safe Work Plan to **PROJECT ENGINEER** for review and approval at least one (1) week prior to construction kick-off.

#### 1.6 Lines and Grades

1.6.1 The CONTRACTOR shall establish and maintain lines, grades and benchmarks for the duration of the work and for the use of other CONTRACTORS.

#### 1.7 Scheduling

1.7.1 The sequence of construction activities, and methods to be employed, shall be subject to the review and approval of the **PROJECT ENGINEER** to minimize interference with SJPC operations.

1.7.2 CONTRACTOR'S bid shall assume working at the facility eight (8) hours per day, five (5) days per week, during standard daylight hours, Monday through Friday.

1.7.3 Assume the facility will be in-service for the duration of this work.

1.7.4 Assume one (1) mobilization/demobilization to/from the job site (for the base bid).

#### 1.8 Clean Up

1.8.1 Remove from the site all temporary structures, rubbish, unused materials, etc.; and leave the site neat and clean.

#### 1.9 Construction Sequence

1.9.1 The CONTRACTOR shall submit their proposed schedule for approval.

#### 1.10 Submittals

The CONTRACTOR shall submit the following items to the **PROJECT ENGINEER'S** Representative for review and approval prior to each submission, each item shall be checked by the CONTRACTOR for compliance with the contract documents and coordination for compatibility with all other components of the structure. The CONTRACTOR shall stamp and date each submission indicating that they have completed the pre-submission coordination check.



- 1.10.1 Certificates of Compliance, product data, mill certifications and catalog cuts shall be submitted for all material, equipment, etc. used on this project.
- 1.10.2 Additional submittals are listed in each technical section.
- 1.10.3 CONTRACTOR shall submit electronic copies of each submittal to the **PROJECT ENGINEER** for review.
- 1.10.4 All submittals shall be reviewed, dated and stamped as reviewed by the CONTRACTOR.
- 1.10.5 CONTRACTOR shall submit a submittal schedule indicating each submittal with a number and anticipated date of the submittal prior to start of construction. Each submittal shall reference the appropriate technical section number, such as 01, 02, etc.
- 1.10.6 CONTRACTOR shall submit a marked up as built set of construction drawings to the **PROJECT ENGINEER** at the end of the project.

## 2.0 EXECUTION

- 2.1 Any damage to existing structures, utilities and property caused during construction and the costs involved with repair of said damage are the full responsibility of the CONTRACTOR. This includes the work of any SUBCONTRACTORS hired by CONTRACTOR to complete the work.
- 2.2 The CONTRACTOR shall check and verify all conditions and dimensions at the site before proceeding with the work including any fabrication and erection. The CONTRACTOR shall report any discrepancies in writing to the engineer for correction prior to beginning any work. The discovery of discrepancies after the work has commenced shall be the responsibility of the CONTRACTOR.

END OF SECTION 01110

SECTION 02220

SITE DEMOLITION

## SECTION 02220

### SITE DEMOLITION

#### 1.0 GENERAL

##### 1.1 Scope of Work

The work under this section includes the furnishing of all labor, equipment, tools, services and materials necessary for demolition and removals. This work shall include, but not be limited to, the following:

- Remove asphalt paving.
- Remove any other obstructions in the area designated for excavation.
- Provide temporary shoring if needed.

##### 1.2 Salvaged Materials

Excavated material shall be stored on-site at a location designated by the **PROJECT ENGINEER'S** Representative. Materials and equipment which are unsuitable for reuse, in the opinion of the **PROJECT ENGINEER'S** Representative, shall become the property of the CONTRACTOR and shall be removed from site and properly disposed of at the CONTRACTOR'S expense.

#### 2.0 PRODUCTS

NONE

#### 3.0 EXECUTION

3.1 Perform the work without damage to the adjacent retained work; however, if such retained work is damaged, patch, repair or otherwise restore same to its original condition. All existing materials, fixtures, and equipment which are removed but are not indicated or specified for reuse in any of the new work shall become the property of the CONTRACTOR and shall be removed from the site by the CONTRACTOR at their expense. Perform removals in a neat and workmanlike manner to the limits indicated or specified, or to the minimum extent necessary or required for the proper installation of new work.

##### 3.2 Debris

Immediately remove debris from the site, or stockpile neatly within an assigned work area and remove as often as necessary, but not less than at least once a week. Unsuitable excavated fill material shall be removed from the site.

3.3 Protection

Take all necessary precautions to adequately protect personnel and property in the areas of work. Provide approved barriers and warning signs to reroute personnel around areas of dangerous work.

3.4 Paving Demolition

All existing bituminous paving shall be sawcut to a depth of at least 1½-inches. Cut paving along neat straight lines using an approved pneumatic spade.

3.5 Concrete Demolition

All existing concrete shall be sawcut at least 1½-inches.

END OF SECTION 02220

SECTION 02315

EXCAVATION AND BACKFILL

## SECTION 02315

### EXCAVATION AND BACKFILL

#### 1.0 GENERAL

##### 1.1 Scope of Work

The work under this section includes the furnishing of all labor, equipment, tools, services and materials necessary to perform all excavation and install all paving in accordance with the Contract Drawings.

This work includes but is not limited to the following:

- Excavation and Backfill
- Removal of Excess Excavated Soil
- Imported Select Granular Fill
- Compaction and Grading

##### 1.2 References

1.2.1 New Jersey Department of Transportation (referred to herein as NJDOT) standard specifications as amended by the latest supplement.

1.2.2 American Society of Testing and Materials (ASTM) latest edition. Applicable code as listed in this section.

##### 1.3 Submittals

###### 1.3.1 Plain Materials (Select Imported Fill and Sub-Base)

The CONTRACTOR shall submit representative samples of the proposed materials together with lab test reports certifying conformance to the specifications to the **PROJECT ENGINEER** a minimum of two (2) weeks prior to use.

#### 2.0 PRODUCTS

##### 2.1 Reuse of Excavated Material

Products of demolition, such as concrete or bituminous paving, reinforcing steel, non-compatible material and debris will not be allowed in fill areas. Stones larger than 4-inches will also not be allowed within the top 12-inches of compacted fill.

## 2.2 Select Imported Fill

All select imported fill shall consist of inorganic granular material, free of wood, refuse, or other deleterious substances, and shall be sand and gravel. All material shall be smaller than 2-inches (100% passing 2-inch sieve) and no more than 10% by weight shall pass the #200 mesh sieve.

## 3.0 EXECUTION

### 3.1 Unsuitable Material

Products of demolition such as concrete or bituminous paving, reinforcing steel, non-compatible material and debris will not be allowed in fill areas. Stones larger than 4-inches will also not be allowed within the top 12-inches of compacted fill.

### 3.2 Protection

#### 3.2.1 Protection Systems

Provide shoring, bracing and sheeting as required to maintain safe excavations in accordance with governing agencies.

#### 3.2.2 Drainage and Dewatering

Provide for the collections and disposal of surface and subsurface water encountered during construction.

#### 3.2.3 Underground Utilities

Location of the existing utilities indicated is approximate. The CONTRACTOR shall physically verify the location and elevation of the existing utilities indicated prior to starting construction. The CONTRACTOR shall contact the **PROJECT ENGINEER** for assistance in locating existing utilities.

#### 3.2.4 Machinery and Equipment

Movement of construction machinery and equipment over pipes during construction shall be at the CONTRACTOR'S risk. Repair or remove and provide new pipe for existing or newly installed pipe that has been displaced or damaged.

### 3.3 Excavation

Excavate to contours, elevation, and dimensions indicated. reuse excavated materials that meet the specified requirements for the material type required at the intended location. Keep excavations free from water. Excavate soil disturbed or weakened by CONTRACTOR'S operations, soils softened or made unsuitable for subsequent construction due to exposure to weather. Refill with backfill AND BACKFILL material, select material and compact to 95% of ASTM A1557 maximum density.

### 3.4 Filling and Backfilling

Fill and backfill to contours, elevations, and dimensions indicated. Compact each lift before placing overlaying lift.

#### 3.4.1 Common Fill Placement

Provide for general site fill placement; place in 8-inch lifts. Compact areas not accessible to rollers or compactors with mechanical hand tampers. Aerate material excessively moistened by rain to a satisfactory moisture content. Finish to a smooth surface by blading, rolling with a smooth roller, or both.

#### 3.4.2 Backfill and Fill Material Placement

Provide for paved areas and under concrete slabs, except where select material is provided; Place in 8-inch lifts. Place backfill material adjacent to structures as the structural elements are completed and accepted. Place and compact material to avoid loading upon or against the structure.

#### 3.4.3 Select Material Placement

Provide under structures not pile-supported; place in 8-inch lifts. Backfill adjacent to structures shall be placed as structural elements are completed and accepted. Place and compact material to avoid loading upon or against structure.

### 3.5 Compaction

Expressed as a percentage of maximum density. Determine in-place density of existing subgrade; if required density exists, no compaction of existing subgrade will be required.



### 3.5.1 General Site

Compact underneath areas designated for vegetation and areas outside the 5-foot line of the structure to 85% of ASTM D 1557.

### 3.5.2 Paved Areas

Compact top 12-inches of subgrades to 95% of ASTM D 1557. Compact fill and backfill materials to 95% of ASTM D 1557.

END OF SECTION 02315

SECTION 02742

BITUMINOUS PAVING

## SECTION 02742

### BITUMINOUS PAVING

#### 1. GENERAL

##### 1.1 Scope of Work

The work under this section includes the furnishing of all labor, equipment, tools, services and material necessary for all bituminous paving installed on this project.

##### 1.2 References

New Jersey Department of Transportation (referred to herein as NJDOT) Standard Specifications as amended by the latest supplement.

##### 1.3 Submittals

1.3.1 Certificates of Compliance of all material

1.3.2 List of equipment to be used

#### 2. PRODUCTS

##### 2.1 Sub-Base

The sub-base material shall be dense graded aggregate (DGA) that conforms to NJDOT material Designation I-2, Section 208, or NJDOT approved recycled crushed concrete having a gradation conforming to I-5.

##### 2.2 Bituminous Base Course

The bituminous stabilized base course shall conform to NJDOT, Section 304, Mix I-2.

##### 2.3 Bituminous Wearing Course

The bituminous wearing course shall conform to NJDOT Section 903, Mix Number I-4 with the additional requirement that between 10% and 40% by weight of total aggregate shall pass through a #16 sieve, and between 12% and 30% by weight of total aggregate shall pass through a #30 sieve.

3. EXECUTION

3.1 Bituminous Paving

3.1.1 All work for placing bituminous paving shall conform to the requirements of the standard Specifications and latest supplement of the NJDOT. All paving and sub-base thicknesses shall be as indicated.

3.1.2 A tack coat will be required between layers of base course and between base and surface courses of the bituminous paving.

3.1.3 Existing bituminous paving which is damaged by construction operations shall be patched. The edge of the paving shall be sawcut to a minimum depth of 1½-inches in a continuous and straight line encompassing all the broken, cracked or damaged surfaces. The perimeter edges of the existing pavement shall be primed and new paving placed.

3.1.3.1 Bituminous paving patches shall be placed in accordance with NJDOT Standard Specifications.

END OF SECTION 02742

SECTION 03300

CONCRETE-IN-PLACE CONCRETE

## SECTION 03300

### CONCRETE-IN-PLACE CONCRETE

#### 1.0 GENERAL

##### 1.1 Scope of Work

The CONTRACTOR shall furnish all labor, equipment, tools, supervision and materials to furnish, form, place and properly finish reinforced concrete work as indicated on the Contract Drawings.

This work shall include, but not be limited to, the following:

- New concrete slab and wall on the existing timber low deck and anchored into the curved crane rail foundation.

##### 1.2 References

###### 1.2.1 American Concrete Institute Standards (ACI), Latest Editions.

All definitions, details as to fabrication and placement of reinforcement, including shop and placing drawings, and other factors entering into the concrete work shall conform to the latest edition of the American Concrete Institute Standards "Building Code Requirements for Reinforced Concrete (ACI 318)" and "Manual of Standard Practice for Detailing Reinforced Concrete Structures (ACI 316)", except as herein qualified.

Except as herein otherwise specified, the measuring, mixing and placing of concrete shall be in accordance with the latest edition of the American Concrete Institute Standard "Recommended Practice for Measuring, Mixing and Placing Concrete (ACI 614)".

###### 1.2.2 American Society of Testing and Materials (ASTM), Latest Edition

Applicable codes as listed in this section

##### 1.3 Submittals

###### 1.3.1 Shop Drawings

Submit shop drawings for reinforcing steel prepared in accordance with the American Concrete Institute "Manual of Standard Practice for Detailing Concrete Structures", ACI-315. Indicate bending diagrams, assembly diagrams, splicing and laps of rods and shapes, dimensions and

details of reinforcing and accessories. Do not use scaled dimensions from structural drawings to determine length of reinforcing.

### 1.3.2 Concrete Mix Design

Submit a mix design for each type of concrete, including a complete list of materials, including admixtures and the applicable referenced specifications and copies of test reports showing that the mix has been successfully used to produce concrete with the properties specified.

## 2.0 PRODUCTS

### 2.1 Concrete

- 2.1.1 Design of the concrete mix required to meet the strength specified shall be the responsibility of the CONTRACTOR. The **PROJECT ENGINEER** shall approve the design mixture before any concrete is placed. Concrete design mix shall be submitted to the **PROJECT ENGINEER** a minimum of two (2) weeks prior to the placement of first concrete. No changes or additions (particularly water) shall be made to the mix without the **PROJECT ENGINEER'S** approval. Concrete which is held in the mixer for more than 1½-hours after charging water to the mix, or which is otherwise unsuitable for placing, shall be returned to the supplier.
- 2.1.2 All cement used in concrete mixes shall conform to the requirements of ASTM C-150 for Portland Cement, Type I or II.
- 2.1.3 Fine aggregate shall be natural sand conforming to ASTM C-33.
- 2.1.4 Coarse aggregate shall conform to ASTM C-33 and shall be ¾-inch size or a combination of 1½-inch size with either ¾-inch or 5/8-inch size.
- 2.1.5 All concrete, except as noted, to be placed under this Contract shall have a minimum compressive strength of 4,000 psi at twenty-eight (28) days with a minimum water-cement ratio of 0.40.
- 2.1.6 All concrete to be placed under this Contract shall be air-entrained with an air content by volume of at least 3% and not more than 6%.
- 2.1.7 Air entraining agent shall conform to ASTM Designation C-260.
- 2.1.8 Water for concrete shall be free from injurious amounts of oil, acid, alkali, organic matter or other deleterious substances.

2.1.9 Approved ASTM types of admixtures for increasing the plasticity and workability of the concrete may be used, provided the specified minimum cement content and minimum specified 28-day concrete strength is maintained and that the use of the admixtures is at no extra cost to the **PROJECT ENGINEER**. Salts, chemicals, and other foreign materials shall not be mixed with the concrete for the purpose of preventing freezing.

2.1.10 Reinforcing steel shall be deformed steel and conform to ASTM A-615, Grade 60. Reinforcing steel shall be epoxy coated in accordance with ASTM A775.

2.2 Cement based grout shall be Five Star Non-Shrink Grout or an approved equal.

2.3 Preformed bitumastic expansion joint material shall conform to ASTM D1751.

2.4 Joint sealer shall be Sikaflex – 1CSL by Sika or an approved equal.

### 3.0 EXECUTION

#### 3.1 Concrete Mixing at a Central Mixing Plant

Central Plant Mixing shall be done in a batch mixer of an approved type which will insure a uniform distribution of the material throughout the mass. The equipment at the mixing plant shall be so constructed that all materials (including the water) entering the drum can be accurately proportioned and be under control. The entire batch shall be discharged before recharging. The volume of the mixed material per batch shall not exceed the manufacturer's rated capacity of the mixer. Mixing of each batch shall continue for the periods indicated below during which time the drum shall rotate at a peripheral speed of about 200-feet per minute. The mixing periods shall be measured from the time when all the solid materials are in the mixer drum, provided that all of the mixing water shall be introduced before  $\frac{1}{4}$  of the mixing time has elapsed.

Mixing time shall be as follows:

3.1.1 For mixers of a capacity of 1-cubic yard or less: 1-minute.

3.1.2 For mixers of capacities larger than 1-cubic yard, the time of mixing shall be increased 15-seconds for each additional half cubic yard capacity or fraction thereof. Central plant mixed concrete shall be transported to the job site in a truck mixer, agitator, or other approved transportation device and shall be discharged within one (1) hour after the agitator truck is fully loaded with completely mixed concrete. The maximum volume of mixed concrete transported in an agitator shall be in accordance with the specified rating.



## 3.2 Forming

- 3.2.1 Forms shall conform to the shape, lines, grades and dimensions of the concrete as called for on the drawings. Lumber used in forms for exposed surfaces shall be dressed to a uniform thickness and shall be free from loose knots or other defects. Joints in forms shall be horizontal or vertical where appearance of the finished surface is of importance. For unexposed surfaces, rough lumber may be used. Lumber once used in forms shall have nails withdrawn from surfaces to be in contact with concrete and shall be thoroughly cleaned and coated before being used again.
- 3.2.2 Forms shall be sufficiently tight to prevent leakage of fill behind forms; particularly, during tidal changes. They shall be properly braced together so as to maintain the desired position and shape during and after placing concrete.
- 3.2.3 Bolts and rods shall be used for internal ties; they shall be so arranged that when the forms are removed no metal shall be within 1½-inches of any exposed surface.
- 3.2.4 The CONTRACTOR shall examine the drawings and specifications for work of other trades. In laying out their work, they shall coordinate and install all sleeves, conduits, inserts, hangers, etc. in such manner that the construction will not be weakened in any way.
- 3.2.6 The inside of forms shall be coated with non-staining mineral oil or other similar material, approved by the **PROJECT ENGINEER**. The oil shall be applied before the reinforcement is placed.
- 3.2.7 Forms and supports shall be removed unless indicated otherwise. Should the CONTRACTOR want to leave any forms or supports in-place, the CONTRACTOR shall request such in writing to the ENGINEER for approval. Any forms or supports which are approved to be left in-place shall be coated or galvanized. Forms shall not be removed without prior approval of the **PROJECT ENGINEER**. The time limits for removal of forms listed below are minimum age of concrete before removal of forms and may not be decreased.
  - 3.2.7.1 Forms shall not be removed from vertical surfaces earlier than 24-hours after concrete is poured.
  - 3.2.7.2 Forms shall not be removed from horizontal surfaces earlier than 168-hours seven (7) days after concrete is poured.

- 3.2.8 All removal of forms shall proceed with care to avoid disturbing adjacent soil and damage to concrete surfaces which have not fully hardened.
- 3.2.9 CONTRACTOR shall be totally responsible for selection and sizing of timber (and shoring, wales, bracing, kicker blocks, etc.) to be used for sheeting and formwork. All work shall be in full compliance with OSHA and prevailing codes.

### 3.3 Reinforcement

- 3.3.1 Reinforcing bars, before being positioned, shall be free from loose mill and rust scale, from coatings; including ice, that destroys or reduces the bond. Where there is delay in depositing concrete, reinforcement shall be reinspected and cleaned when necessary.
- 3.3.2 Reinforcing bars shall not be spliced by welding. Splices are to be lapped unless noted otherwise with a Class B splice but not less than 12-inches.
- 3.3.3 Reinforcing bars shall be accurately positioned and secured against displacement by using annealed iron wire ties or suitable clips at intersections, and shall be supported by concrete or metal supports, spacers, or metal hangers. Metal clips or supports shall not be placed in direct contact with removable forms. The use of metal supports shall be in accordance with the American Concrete Institute Standard, "Recommended Practice for Use of Metal Supports for Reinforcement (ACI 319)".
- 3.3.4 The minimum clear distance between reinforcement and the face of concrete shall be as follows unless noted otherwise:
  - 3.3.4.1 3-inch minimum clearance for concrete surfaces exposed to the air.
  - 3.3.4.2 3-inch minimum clearance for formed concrete surfaces which, after the removal of forms, will be in contact with the ground and/or water.
  - 3.3.4.3 6-inch minimum clearance for concrete surfaces where no forms are used and the concrete is poured against shaped ground surface.
- 3.3.5 A concrete pour shall not be started until the reinforcement and all anchors, sleeves, inserts, pipes, etc., to be encased are in place and secured.
- 3.3.6 Dowels shall be anchored into existing reinforced concrete as detailed on Contract Drawings, with Sikadur 31 Hi ModGel or approved equal.

### 3.4 Placing of Concrete

- 3.4.1 Water shall be removed from the space to be occupied by the concrete before concrete is deposited, unless otherwise directed by the **PROJECT ENGINEER**. Concrete shall be placed on a falling tide when water level is below the timber deck.
- 3.4.2 Concrete shall not be permitted to drop freely more than 3-feet. To avoid an excessive drop, concrete shall be deposited through drop chutes or through openings placed in the side of forms. Concrete shall be deposited as nearly as practicable in its final position. In general, it shall be placed in horizontal layers of uniform thickness and shall be compacted before placing the next layer.
- 3.4.3 Concrete, during and immediately after depositing, shall be thoroughly compacted by means of suitable vibrators. The concrete shall be thoroughly worked around the reinforcement and around embedded structural steel, and into the corners of the forms.

All concrete shall be compacted using mechanical vibrators. The number and type of vibrators shall be subject to the approval of the **PROJECT ENGINEER**. Mechanical vibrators shall not be used to move concrete into its final position.

- 3.4.4 All concrete placed under these specifications shall be so protected that the temperature at the surface will not fall below 50°F. Before placing the concrete in cold weather, the forms and/or subgrade shall be free from frost and ice, and after the concrete is placed and when directed by the **PROJECT ENGINEER**, it shall be protected on all exposed sides by straw, tarpaulins, or other approved means. During cold weather, the methods of heating of materials and protecting the concrete shall be approved by the **PROJECT ENGINEER**. Salts, chemicals and other foreign materials shall not be mixed with the concrete for the purpose of preventing freezing. Temperature of concrete shall not exceed 90° F.
- 3.4.5 The CONTRACTOR shall not place concrete in weather below 40°F without prior approval of the **PROJECT ENGINEER**.
- 3.4.6 The location of all construction joints not shown on the Contract Drawings and required by the contractor in performance of this work shall be subject to approval of the **PROJECT ENGINEER**.

### 3.5 Finishes

- 3.5.1 The CONTRACTOR shall exercise the necessary care and provide

experienced craftsman to construct the concrete structures to the dimensions as shown on Contract Drawings. Tolerances will be the accepted practice.

- 3.5.2 Exposed surface shall mean those surfaces of structures which will be visible above low waterline. Exposed concrete surface shall be true and even, free from rough areas, depressions, or projections.
- 3.5.3 Immediately after the forms have been removed, all concrete surfaces are to be inspected for defects. All fins, bulges, projections, and honeycombing shall be repaired before the concrete is fully cured. Defected areas shall be cut back to solid concrete for repair.
- 3.5.4 Patching shall be concrete and/or grout having a minimum compressive strength of 4,000 psi at 28-days. The surface shall be cleaned and thoroughly wetted immediately before applying the patch. The patched area shall be properly cured.
- 3.5.5 All top surfaces of concrete structures shall first be leveled by striking off the freshly placed concrete to the elevation desired. The surface shall then be compacted using a screed followed by a wood float.
- 3.5.6 The final finish on the exposed concrete paving surface shall be obtained by using a wood float until the desired texture is reached.
- 3.5.7 Provide a  $\frac{3}{4}$ -inch chamfer on all exposed corners.

### 3.6 Curing (Not applicable to concrete placed below the water level)

- 3.6.1 Protection against loss of moisture from the surface of the concrete shall be accomplished by keeping the surface continuously damp or wet for at least two (2) days after placing when the air temperature is 90°F or less; and seven (7) days when the air temperature is above 90°F at any time during the curing period.

One of the following methods shall be used:

- 3.6.1.1 Surface remaining in contact with the forms.
- 3.6.1.2 Covering with burlap or cotton mats keep continuously wet.
- 3.6.1.3 Covering with paper of suitable type.
- 3.6.1.4 Covering with a 1-inch layer of thoroughly wet sand, earth or sawdust.
- 3.6.1.5 Continuous sprinkling of exposed surfaces.

### 3.7 Testing

The **PROJECT ENGINEER** shall retain and pay for the services of a qualified laboratory to perform all sampling, testing and inspecting in connection with all materials entering into the concrete work, including cement, aggregates, and water and tests of concrete cylinders to determine strength of mix. Any expenses in connection with preparing, handling and storing the specimens and samples, shall be borne by the CONTRACTOR. The CONTRACTOR shall be responsible for the taking of all samples under the direction of the laboratory, and the storage of all cylinders. The CONTRACTOR shall deliver all samples to the testing laboratory, and the testing laboratory shall furnish the **PROJECT ENGINEER** with two (2) copies of the test results.

3.7.1 Concrete test cylinders shall be taken in accordance with ASTM C-31 and tested in accordance with ASTM C-39.

3.7.2 The CONTRACTOR shall provide the personnel to accurately record the following information on laboratory standard forms:

- Cylinder identification number. (Each cylinder shall have a separate number.)
- Concrete mix identification number.
- Date cylinder was made.
- Weather, including average air temperature.
- Truck identification which delivered concrete to site.
- Location of concrete pour on structure and total number of yards in pour for which cylinder was made.
- Method of curing of cylinder.
- Date cylinder is shipped to laboratory.
- Date laboratory is to test cylinder.

3.7.3 The CONTRACTOR shall keep an up-to-date copy of all these records at the job site for the **PROJECT ENGINEER'S** inspection. The CONTRACTOR shall deliver to the **PROJECT ENGINEER** and the testing laboratory a copy of the above listed information and this information shall be delivered within a maximum period of five (5) calendar days after each cylinder is cast.

3.7.3.1 Test cylinders shall be taken in the following quantities:

Five (5) test cylinders for each day's pour, if the total concrete poured in any one (1) day is 50-cubic yards or less.

Five (5) test cylinders for each 50-cubic yards, or portion thereof, where total concrete poured in any one (1) day is greater than 50-cubic yards.

3.7.3.2 Field specimens are to be cured and tested as follows:

Four (4) specimens of each set shall be cured under artificial moist conditions. Test one (1) specimen at three (3) days and one (1) specimen at seven (7) days. Test others at twenty-eight (28) days.

The fifth specimen shall be cured under the same conditions as the structure from which taken and tested at twenty-eight (28) days.

END OF SECTION 03300

SECTION 05120

STRUCTURAL STEEL

## SECTION 05120

### STRUCTURAL STEEL

#### 1.0 GENERAL

##### 1.1 Scope of Work

The work under this section includes the furnishing of all labor, materials, tools, equipment and services to provide the structural steel and miscellaneous metal work shown on the Contract Drawings.

The work includes, but is not limited to, the following:

- Miscellaneous work as may arise.
- Attachments to existing sheet piles.

##### 1.2 References

1.2.1 American Society of Testing and Materials (ASTM), Latest Edition  
Applicable codes as listed in this section.

1.2.2 American Welding Society (AWS), Latest Edition  
AWS D1.1 Structural Welding Code – Steel

1.2.3 American Institute of Steel Construction (AISC), Latest Edition

##### 1.3 Submittals

1.3.1 Shop fabrication drawings.

1.3.2 Certifications of Compliance, mill certification for all material.

#### 2.0 PRODUCTS

2.1 All structural shapes and plates shall conform to ASTM A-36, except as follows:

W AND WT SHAPES:	ASTM A-992, GRADE 50
STEEL SHEET PILES:	ASTM A-572, GRADE 50
H-PILES:	ASTM A-572, GRADE 50

2.2 All bolted connections shall use bolts conforming to ASTM A-325.



### 3.0 EXECUTION

- 3.1 All welding shall be in accordance with the AWS (Spec. D1.1) Structural Welding Code minimum size welds shall be 5/16-inch fillet and continuous unless noted otherwise.
- 3.2 All underwater welding shall be in accordance with AWS (Spec. D3.6) Underwater Welding. Minimum size of welds shall be 5/16-inch fillet and welds shall be continuous unless noted otherwise. No underwater welding is anticipated.
- 3.3 All structural connections are to be welded unless otherwise noted. Temporary walkway connections shall be bolted.
- 3.4 All bolts for structural connections shall be 3/4-inch diameter A325, unless otherwise noted.
- 3.5 All connections as shown on the Contract Drawings for pier work are suggested details only. The CONTRACTOR may request approval of the **PROJECT ENGINEER** to substitute high strength bolts for welding and vice versa. Fabrication drawings shall be submitted for approval whenever the CONTRACTOR proposes to use details other than shown on the drawing. All work shall conform to the American Institute of Steel Construction (AISC), excluding Paragraph 4.2.1 Code of Standard Practice. It is desired to have all materials shop fabricated.
- 3.6 Fabrication drawings shall be submitted for approval for all work.

END OF SECTION 05120