NORTH OGDEN CITY

SETTLED 1851

# 2023 STREET MAINTENANCE PROJECT

# BIDDING DOCUMENTS

CONTRACT DOCUMENTS FOR CONSTRUCTION

of the

**2023 STREET MAINTENANCE PROJECTS**

for

NORTH OGDEN CITY CORPORATION

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for

CONTRACT DOCUMENTS FOR CONSTRUCTION OF

# 2023 STREET MAINTENANCE PROJECTS

for

NORTH OGDEN CITY CORPORATION


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LEGAL AND PROCEDURAL DOCUMENTS

**ADVERTISEMENT FOR BID**

# 2023 STREET MAINTENANCE PROJECTS

**NORTH OGDEN CITY CORPORATION**

Sealed bids will be received at the office of the City Recorder, North Ogden City Office, 505 East 2600 North, until 2:00 pm on February 23, 2023, for the 2023 STREET MAINTENANCE PROJECTS, at which time, bids will be opened publicly.

**Project Description:** The work consists of milling, asphalt patching, 2" asphalt overlay, and chip and seal. Also includes pre-lowering water valve boxes & manholes then raising to grade manholes, water valve boxes, and survey monuments and placing concrete collars.

Contract Documents, including Drawings and Technical Specifications, may be obtained online at https://www.northogdencity.com/rfps. Each bid shall be accompanied by a certified check, cashier's check or bid bond in the amount of five percent (5%) of the total bid price payable to NORTH OGDEN CITY CORPORATION.

The contractor will be selected using the "Choosing by Advantages Decision Making System". The project will be separated into three (3) schedules. The work may be awarded by schedule. All work covered by the contract documents shall be completed by: June 30, 2023.

By: Susan Nance, MMC
City Recorder
NORTH OGDEN CITY CORPORATION

Published:

# Project Information
# 2023 STREET MAINTENANCE PROJECTS
# North Ogden City

RECEIPT OF BIDS: Sealed bids will be received at the office of the City Recorder, North Ogden City Office, 505 East 2600 North, until 2:00 pm on February 23, 2023, for the 2023 STREET MAINTENANCE PROJECT.

DESCRIPTION OF WORK: The work consists of milling, asphalt patching, 2" asphalt overlay, and chip and seal. Also includes pre-lowering water valve boxes & manholes then raising to grade manholes, water valve boxes, and survey monuments and placing concrete collars.

LOCATION OF THE WORK: The work is located on various streets throughout North Ogden City as shown on the project location map.

COMPLETION OF THE WORK: All work covered by the contract documents shall be completed by: June 30, 2023.

OPENING OF BIDS: The bids will be publicly opened at 2:00 p.m. on February 23, 2023 at the above mentioned office of North Ogden City, 505 East 2600 North.

OBTAINING CONTRACT DOCUMENTS: Contract Documents, including Drawings and Technical Specifications, may be obtained at the office of North Ogden City Recorder's Office; Susan Nance, 505 East 2600 North, North Ogden, Utah 84414.

BID SECURITY: Each bid shall be accompanied by a certified check, cashier's check or bid bond in the amount of five percent (5%) of the total bid price payable to NORTH OGDEN CITY CORPORATION as a guarantee that the bidder, if his bid is accepted, will promptly execute the Contract, secure payment of worker's compensation insurance and furnish a satisfactory, faithful performance bond in the amount of one hundred percent (100%) of the contract price and a payment bond in the amount of one hundred (100%) of the contract price.

WAITING PERIOD BEFORE AWARD: A waiting period of 30 calendar days from the date of opening of bids to award of contract may be required. Bidders shall assume full responsibility for and shall guarantee the bid price during this period and make certain the time period is stated in and does not restrict the proposal guarantee.

AWARDING PROCESS: The contract will be awarded using the **"Choosing by Advantages Decision Making System".** In addition to the bid amount, each proposal will be submitted with documentation to support the following factors: (1) Number of years experience as a general contractor (2) List of projects of similar size and scope completed within the past 5-years (3) List of key personnel with their qualifications and experience assigned to this project. (4) List of sub-contractors. (5) List of projects of similar size and scope completed in North Ogden City within the last 10 years. This documentation will be used in the choosing by advantages awarding process.

PROJECT ADMINISTRATION: All questions relative to this project prior to the opening of bids, shall be directed to the Project Engineer. It shall be understood, however, that no specification interpretations will be made by telephone, nor will any "or equal" products be considered for approval prior to award of contract.

OWNER'S RIGHTS RESERVED: The Owner reserves the right to reject any or all bids, to waive an informality in a bid, and to make awards in the interest of the Owner.

Dated this 8th day of February, 2023.

By: Susan Nance, MMC.
City Recorder
NORTH OGDEN CITY CORPORATION

Published: February 8th and February 15th, 2023.

## INSTRUCTION TO BIDDER

### 1. PREPARATION OF PROPOSAL

Proposals must be made on the prescribed forms. Each blank provided in the form titled "Proposal" shall be completed in ink (or typing). Where indicated, amounts are to be both words and figures with amounts extended and totaled. In case of discrepancy between written amounts and figures, the written amounts shall govern.

Any proposal must be deemed informal which contains omissions, erasures, alterations, additions, or irregularities of any kind.

The Bidder shall sign his name in the blank space provided. If the proposal is made by a partnership or corporation, the name and address of the partnership or corporation shall be shown. If the proposal is made by a partnership, it must be acknowledged by one of the partners; if made by a corporation, by one of the officers. The Bidder shall comply with all other specific requirements of the proposal form.

### 2. EXAMINATION OF SITE AND CONDITIONS

Before making a proposal, the Bidder shall examine the site of the work and determine for himself the existing conditions and the extent of which they will affect the proposal. Failure to do so will not relieve him from performing the work in strict accordance with the requirements of the Contract Documents.

No statement made by the Owner, or its officers, agents of employees pertaining to the site of the work or the conditions under which the work must be performed will be binding on the Owner.

### 3. SUBMISSION OF PROPOSAL

Each proposal shall be completely sealed in a package, marked with the name and address of the Bidder and the name of the project. The proposal must be delivered to the place named in the official advertisement and before the specified time.

### 4. MODIFICATION OF DELIVERED PROPOSAL

Change in a proposal already delivered will be permitted only if the request for the privilege of making such modification is made in writing, signed by the Bidder and the specific modification itself is stated prior to the scheduled closing time for the receipt of proposals. To be effective, every modification must be made in writing over the signature of the Bidder. No other form or procedure will be acceptable.

### 5. WITHDRAWAL OF PROPOSAL

A proposal my be withdrawn prior to scheduled closing time if the Bidder appears in person, or upon his telegraphic or written request. A telephoned request for withdrawal will not be recognized for this purpose. No Bidder will be permitted to withdraw his proposal after the scheduled closing time for filing bids, unless the contract has not been awarded before the expiration of the thirty day period immediately following the proposal submittal date. Bids received after the scheduled closing time will be returned to the Bidder unopened.

## 6. OPENING AND REJECTION OF PROPOSALS

All proposals received prior to the scheduled closing time and which are not withdrawn as above provided will be opened and read even though there may be irregularities or informalities therein, except that any proposal which is not signed will not be read and will be rejected without consideration.

The Owner reserves the right before or after opening, to reject any or all proposals or to waive any informalities therein if it is believed that the best interests of the Owner will be served thereby.

## 7. AWARD OF CONTRACT

The contract will either be awarded or all proposals rejected within thirty(30) calendar days of the opening. Unless all proposals are rejected the contract will be awarded using the **"Choosing by Advantages Decision Making System"**, In addition to the bid amount, each bid will be submitted with documentation to support the following factors:(1) Number of years experience as a general contractor (2) List of projects of similar size and scope completed within the past 5-years (3) List of key personnel with their qualifications and experience assigned to this project. (4) List of sub-contractors. (5) List of projects of similar size and scope completed in North Ogden City within the last 10 years. This documentation will be used in the choosing by advantages awarding process.

## 8. INTERPRETATION OF DOCUMENTS

If any person contemplating submitting a proposal is in doubt as to the true meaning of any part of the Contract Documents, or finds discrepancies in or omissions from the drawings or specifications, he may submit to the Engineer a written request for an interpretation or correction thereof and to be given consideration, shall be received at least five (5) days prior to date fixed for opening proposals. The person submitting the request will be responsible for its prompt delivery. Any interpretation or correction of the documents will be made only by addendum duly issued, and a copy of the addendum will be mailed to each person receiving a set of the Contract Documents. Neither the Owner nor the Engineer will be responsible for any other explanation or interpretation of the Contract Documents.

## 9. ADDENDA

Any addenda issued during the time of bidding will be in the form of written addenda to the specifications and will be mailed to each person who has previously received a set of Contract Documents. All addenda so issued shall become a part of the Contract Documents.

## 10. EMPLOYEE STATUS VERIFICATION

Utah Code Annotated Section 63G-12-302 (3) states: "Beginning July 1, 2009, a public employer may not enter into a contract for the physical performance of services within the state with a contractor unless the contractor registers and participates in the Status Verification System to verify the work eligibility status of the contractor's new employees that are employed in the State." All bidders are required to conform with this law and should not submit a bid unless they currently comply with its provisions.

# PROPOSAL

Date:_____

NORTH OGDEN CITY CORPORATION
505 East 2600 North
North Ogden, Utah 84414

Gentlemen:

Complying with your request for bids and the information and instructions to bidders and all documents related thereto, the undersigned hereby proposes to furnish all labor and materials and to perform all work for the **2023 STREET MAINTENANCE PROJECTS** as required by and in strict accordance with drawings and specifications for the prices shown on the bidding schedule(s).

All work covered by the contract documents shall be completed a s follows:

**All Schedules by June 30, 2023**

It is understood and agreed that the Contractor shall pay the Owner, as liquidated damages, the sum of $1,000.00 for each and every day that the work remains uncompleted after the elapse of the contract time, as provided.

Upon written notice, within 10 days after the date of opening of the proposals, or at any time thereafter before this proposal is withdrawn, the undersigned agrees that he, or they, will execute and deliver a contract, a performance bond, and labor and materials payment bond, as specified in accordance with proposals accepted.

Enclosed is _____ as required in the sum of $_____.
Bid Bond or Cashier's Check

Addenda Nos._____ have been received

Proposed Sub-contractors:

| Name: | Type of Work: |
|---|---|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

# Choosing By Advantages

The “Choosing By Advantages System of Decision Making” (CBA) is the process adopted by North Ogden City to aid in awarding the contract. CBA is based on the fundamental rule of decision making that “Decisions must be based on the importance of advantages.” An advantage is defined as a positive difference between two alternatives. CBA uses factors in addition to cost in determining the contractor that will be awarded the contract. Each factor contains advantages. For each proposal the total importance of all the advantages in every factor, along with the cost of that proposal, is compared to the other proposals to determine the preferred proposal. The CBA analysis may result in awarding the project to a contractor other than the low bidder.

The factors that will be used in this advertisement for bid have been listed on prior pages. The City will compare the advantages of each factor in the proposals and will determine the importance of each advantage.

The following tables list each factor. Bidders will supply the information requested in each factor, and the City will determine the respective advantages and their importance, as noted above.

# ***2023 Street Maintenance Project***

**PROJECT:**

**NORTH OGDEN CITY - 2023 STREET MAINTENANCE PROJECT**

**CONTRACTOR:**

_____

The contractor will be selected by a committee appointed by the City using the "Choosing by Advantages" Decision Making Process. The Contractor must provide information for each factor.

The successful bidder will be determined using the following additional factors:

| Factor | Description |
|---|---|
| (1) | List the number of years experience as a general contractor.<br>Years = |
| (2) | List of projects of similar size & scope completed in the last 5 years. |
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| Factor | Description |
|---|---|
| (3) | List below the General Contractors key personnel who will be working on the project. Indicate the qualifications that each individual has and the time he will be committed to the project. |
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| (4) | List of Sub-contractors.. |
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| | |

(5) List of projects of similar size & scope completed in North Ogden City in the last 10 years.

CHOOSING BY ADVANTAGES

**BID SCHEDULE**

**NORTH OGDEN CITY CORPORATION**

**2023 STREET MAINTENANCE PROJECT**

| BASE BID - Schedule No. 1<br>2023 Street Maintenance Project – General Requirements | | | | |
|---|---|---|---|---|
| **Bid Item** | **Bid Item Description** | **Quantity And Unit** | **Unit Price** | **Total Amount** |
| 1 | Traffic Control | 1<br>Lump Sum | N/A | $ |
| 2 | SWPPP and NOI | 1<br>Lump Sum | N/A | $ |
| 3 | Mobilization | 1<br>Lump Sum | N/A | $ |

Subtotal Schedule No. 1 …..….. = $_____

| BASE BID - Schedule No. 2<br>2023 Street Maintenance Project – Fruitland Drive – 2600 N to 2100 N | | | | |
|---|---|---|---|---|
| **Bid Item** | **Bid Item Description** | **Quantity And Unit** | **Unit Price** | **Total Amount** |
| 4 | Mill Roadway Surface – 10’ each side of centerline – 2” Thick | 8,400<br>Square Yards | $ | $ |
| 5 | Asphalt Pavement, 2” Thick, PG58-28 DM ½” 50 Blow | 8,400<br>Square Yards | $ | $ |
| 6 | Chip and Seal with CSS-1 Fog Seal | 14,700<br>Square Yards | $ | $ |
| 7 | Adjust Manhole | 24<br>Each | $ | $ |
| 8 | Adjust Water Valve Box | 16<br>Each | $ | $ |

Subtotal Schedule No. 2…….. = $_____

| BASE BID - Schedule No. 3<br>2023 Street Maintenance Project - 725 E (2600 N to End), 2450 N (725 E to 800 E), 2550 N (725 E to Fruitland Dr.), 800 E (2550 N to End), 750 E Cul-de-sac (2450 N to End), 850 E (1725 N to 1900 N), 800 East (1725 N to 1850 N), 1800 N Cul-de-sac (800 E to End) | | | | |
|---|---|---|---|---|
| **Bid Item** | **Bid Item Description** | **Quantity And Unit** | **Unit Price** | **Total Amount** |
| 9 | Mill Roadway Surface - 7' Wide from Lip of Gutter | 9,950 Square Yards | $ | $ |
| 10 | Asphalt Pavement, 3" Thick, PG58-28 DM ½" 50 Blow – Asphalt Patching | 100 Square Yards | $ | $ |
| 11 | Furnish & Install Untreated Base Course – Asphalt Patch Areas | 15 Tons | $ | $ |
| 12 | Adjust Manhole | 55 Each | $ | $ |
| 13 | Adjust Water Valve Box | 34 Each | $ | $ |
| 14 | Asphalt Pavement, 2" Thick, PG58-28 DM ½" 50 Blow | 29,200 Square Yards | $ | $ |
| 15 | Adjust Survey Monument Box | 14 Each | $ | $ |

Subtotal Schedule No. 3…..….. = $_____

**A. Base Bid**

Schedule No. 1……...……..……=$_____

Schedule No. 2…….…….....=$_____

Schedule No. 3……..……..……....=$_____

Total Base Bid = $_____

It is understood that the quantities stated are approximate only and are for the purpose of comparing bids and fixing the amount of bonds, and the payments will only be made on the basis of the above unit prices in the actual quantities, as determined by the Owner's Engineer in the completed work.

The undersigned have checked carefully all of the above figures and understand that the Owner will not be responsible for any errors or omissions on the part of the undersigned in making up this bid.

**In submitting this bid, it is understood that the right is reserved by the Owner to reject any and all bids and award any and all schedules together or separately in the interest of the Owner.**

It is agreed that the bid may not be withdrawn over a period of thirty (30) days from the opening thereof.

It is understood that the Owner cannot enter into a contract for the physical performance of services within the state with a contractor unless the contractor registers and participates in the Status Verification System to verify the work eligibility status of the contractor's new employees that are employed in the state. Accordingly, by signing below, the Contractor certifies that he or she is a participant in the Status Verification System.

Similarly, each contractor or subcontractor working under the Contractor shall certify to the main contractor by affidavit that the contractor or subcontractor has verified through the Status Verification System the employment status of each new employee of the respective contractor or subcontractor.

Respectfully submitted:

_____ _____
Contractor Contractor's License #

By:_____ _____
Title

_____ _____ _____ _____ Business
Address City State Zip Code

# BID BOND

KNOW ALL MEN BY THESE PRESENTS,

That _____as Principal,

and _____ as Surety,

are held and firmly bound by **NORTH OGDEN CITY CORPORATION**

hereinafter called "Owner", in the sum of _____
(not less than 5% of the total amount)

dollars, for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, said Principal has submitted a bid to said Owner to perform all work required under the

bidding schedule(s) _____ of the

Owner's Contract Documents entitled: **2023 STREET MAINTENANCE PROJECTS**

---

NOW THEREFORE, if said Principal is awarded a contract by said Owner and, within the time and in the manner required under the heading "Instruction to Bidders", enters into a written contract on the form of agreement bound with said Contract Documents, furnishes the required certificates of insurance, and furnishes the required Performance Bond and Payment Bond within 10 calendar days after receipt of contract from said Owner, then this obligation shall be null and void; otherwise, it shall remain in full force and effect. In the event suit is brought upon this bond by said Owner and judgement is recovered, said Surety shall pay all costs incurred by said Owner in such suit, including reasonable attorney's fee to be fixed by the court.

SIGNED AND SEALED, this _____ day of _____, 20 _____ .

_____(SEAL) _____ (SEAL)
Principal Surety

By:_____ By:_____
Signature Signature

(SEAL AND NOTARIAL ACKNOWLEDGMENT OF SURETY

# CONTRACT AGREEMENT

This contract made and entered into the _____day of _____in the year 2023 between **NORTH OGDEN CITY CORPORATION**, hereinafter called the Owner and _____ , hereinafter called the Contractor.

Part I--Statement of Work

CONTRACTOR shall furnish all materials, equipment and personnel necessary to construct the **2023 STREET MAINTENANCE PROJECTS** ("WORK"). The WORK shall be accomplished in accordance with the Plans and Specifications ("SPECIFICATIONS").

SPECIFICATIONS are incorporated herein by reference.

Part II--Period of Performance

The CONTRACTOR shall complete work under this contract as follow a

Contractor and Owner recognize that time is of the essence and that Owner will suffer financial loss if the Work is not completed within the time specified above, plus any approved extensions as outlined in the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner **$1,000.00** per day for each day that expires after the completion time specified in this agreement until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner **$1,000.00** for each day that expires after the contract completion time for completion and readiness for final payment until the Work is completed and ready for final payment..

Part III- Consideration

For and in consideration of the performance of this contract, the CONTRACTOR shall be paid:_____**(Unit price contract-- Contract Price to be adjusted based on actual quantity of the work)**

Part IV--Special Provisions

A. Wage Rate--N/A.

B. Terms and Conditions

(1) The General Conditions of the Contract, EJCDC Document C-700 appended hereto are hereby made part of this contract.

(2) Contractor shall deliver to the Owner certificates of insurance naming the Owner, **NORTH OGDEN CITY CORPORATION, together with it's officials, employees, volunteers, agents, and others working on behalf of the OWNER** as additional insured.

(3) Indemnification: To the fullest extent permitted by law, CONTRACTOR shall indemnify and hold harmless OWNER and ENGINEER and their agents and employees from and against all claims, damages, losses and expenses including but not limited to attorney's fees arising out of or resulting from the performance of the WORK, provided that any such claim, damage, loss or expense (a) is attributed to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the WORK itself) including the loss of use resulting therefrom and (b) is caused in whole or in part by any negligent act or omission of CONTRACTOR, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder.

(4) Utah Code Annotated Section 63G-12-302 (3) states: "Beginning July 1, 2009, a public employer may not enter into a contract for the physical performance of services within the state with a contractor unless the contractor registers and participates in the Status Verification System to verify the work eligibility status of the contractor's new employees that are employed in the State."

**Owner:**
NORTH OGDEN CITY CORPORATION
505 East 2600 North
North Ogden, Utah 84414

Attest

_____
Signature

_____
Title

_____

**Contractor:**

NORTH OGDEN CITY
SETTLED 1851

_____
Signature

_____
Title

Private Employer Affidavit of Compliance Pursuant To Utah Code 63G-12-302

By executing this affidavit, the undersigned private employer verifies its compliance with Utah Code 63G-12-302, stating affirmatively that the individual, firm or corporation has registered with and utilizes the federal work authorization program commonly known as E-Verify, or other authorized Status Verification System, in accordance with the applicable provisions and deadlines established in Utah Code. Furthermore, the undersigned private employer hereby attests that its federal work authorization user identification number and date of authorization are as follows:

_____
Federal Tax ID #

_____
Name of Private Employer on File with E-Verify

I hereby declare under penalty of perjury that the foregoing is true and correct. I also acknowledge that the company will indemnify the City of North Ogden from all fines, penalties, and costs associated with the company's non-compliance with Utah Code 63G-12-302.

_____ _____
Signature of Authorized Officer or Agent Date

_____
Printed Name and Title of Authorized Officer or Agent

STATE OF UTAH )
:SS
County of _____ )

On _____, _____, 2023, personally appeared before me
_____ the signer of the within instrument, who duly acknowledged to me that he/she executed the same.

_____
Notary Public

# PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS,

That _____ as Contractor,

and _____ as Surety,

are held and firmly bound unto **NORTH OGDEN CITY CORPORATION**

hereinafter called "Owner", in the sum of _____
(not less than 100% of the total amount)

dollars, for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, said Contractor has been awarded and is about to enter into the annexed Contract with said Owner to perform all work required under the bidding schedule(s) of the Owners Contract Documents entitled:

**2023 STREET MAINTENANCE PROJECTS**

---

NOW THEREFORE, if said Contractor shall perform all the requirements of said Contract required to perform on his part, at the times and in the manner specified therein, then the obligation shall be null and void; otherwise, it shall remain in full force and effect.

PROVIDED, that any alterations in the work to be done or the materials furnished, or changes in the time of completion, which may be made pursuant to the terms of said Contract, shall not in any way release said Contractor or said Surety thereunder, nor shall any extensions of time granted under the provisions of said Contract release either said Contractor or said Surety, and notice of such alterations or extensions of the Contract is hereby waived by said Surety.

SIGNED AND SEALED, this _____ day of _____, 20 _____.

_____ (SEAL) _____ (SEAL)
Contractor Surety

By:_____ By: _____
Signature Signature

(SEAL AND NOTARIAL ACKNOWLEDGMENT OF SURETY)

# PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS,

That _____ as Contractor,

and _____ as Surety,

are held and firmly bound unto **NORTH OGDEN CITY CORPORATION**

hereinafter called "Owner", in the sum of _____
(not less than 100% of the total amount)

dollars, for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, said Contractor has been awarded and is about to enter into the annexed Contract with said Owner to perform all work required under the bidding schedule(s) of the Owners Contract Documents entitled:

**2023 STREET MAINTENANCE PROJECTS**

NOW THEREFORE, if said Contractor, or subcontractor, fails to pay for all materials, equipment, or other supplied, or for rental of same, used in connection with the performance of work contracted to be done, or for amounts due under applicable State law for any work or labor thereon, said surety will pay for the same in an amount not exceeding the sum specified above, and, in the event suit is brought upon this bond, a reasonable attorney's fee to be fixed by the court. This bond shall inure to the benefit of any persons, companies, or corporations entitled to file claims under applicable State law.

PROVIDED, that any alterations in the work to be done or the materials furnished, or changes in the time of completion, which may be made pursuant to the terms of said Contract, shall not in any way release said Contractor or said Surety thereunder, nor shall any extensions of time granted under the provisions of said Contract release either said Contractor or said Surety, and notice of such alterations or extensions of the Contract is hereby waived by said Surety.

SIGNED AND SEALED, this _____ day of _____, 20 _____ .

_____ (SEAL) _____ (SEAL)
Contractor Surety

By: _____ By:_____
Signature Signature

(SEAL AND NOTARIAL ACKNOWLEDGMENT OF SURETY)

# Part 2

# General Requirements

# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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## ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.

3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidder*—The individual or entity who submits a Bid directly to Owner.

7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).

8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.

9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.


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12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.

16. *Cost of the Work*—See Paragraph 11.01 for definition.

17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *Engineer*—The individual or entity named as such in the Agreement.

20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

21. *General Requirements*—Sections of Division 1 of the Specifications.

22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.

23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.


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27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.

30. *PCBs*—Polychlorinated biphenyls.

31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.

37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.


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40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.

43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.

46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.

47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.

48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

49. *Unit Price Work*—Work to be paid for on the basis of unit prices.

50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an


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addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 *Terminology*

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day:*

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective:*

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

a. does not conform to the Contract Documents; or

b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

c. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. *Furnish, Install, Perform, Provide:*


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1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.

F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

## ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.


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2.04 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference; Designation of Authorized Representatives*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of


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the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

## ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*


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1. *Contractor's Review of Contract Documents Before Starting Work*: Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.

2. *Contractor's Review of Contract Documents During Performance of Work*: If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation , (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

   a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or

   b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;

2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or


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3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or

2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

## ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the


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Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and

2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or


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3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer's Review*: After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

   a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and

   b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

   a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

   b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

   c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other


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professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

   a. reviewing and checking all such information and data;

   b. locating all Underground Facilities shown or indicated in the Contract Documents;

   c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and

   d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price


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or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by


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Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.


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I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

## ARTICLE 5 – BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.


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B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.

E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

   a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or

   b. by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance required by this Paragraph 5.04 shall:


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1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;

4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

6. include completed operations coverage:

    a. Such insurance shall remain in effect for two years after final payment.

    b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:


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1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;

2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;

5. allow for partial utilization of the Work by Owner;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.

B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property


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insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery


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against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.

B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.


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## ARTICLE 6 – CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

6.02 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.


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6.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and

3) it has a proven record of performance and availability of responsive service.

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times; and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.


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2. *Substitute Items:*

   a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

   b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

   c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.

   d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

      1) shall certify that the proposed substitute item will:

         a) perform adequately the functions and achieve the results called for by the general design,

         b) be similar in substance to that specified, and

         c) be suited to the same use as that specified;

      2) will state:

         a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,

         b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and

         c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

      3) will identify:

         a) all variations of the proposed substitute item from that specified, and

         b) available engineering, sales, maintenance, repair, and replacement services; and


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4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

E. *Engineer's Cost Reimbursement*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

F. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or


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other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

   1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor

   2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.


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6.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all


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court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas:*

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor


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shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.


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D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.


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1. *Shop Drawings:*

   a. Submit number of copies specified in the General Requirements.

   b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:*

   a. Submit number of Samples specified in the Specifications.

   b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Submittal Procedures:*

1. Before submitting each Shop Drawing or Sample, Contractor shall have:

   a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

   b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

   c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

   d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop


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Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:


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1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;

6. any inspection, test, or approval by others; or

7. any correction of defective Work by Owner.

6.20 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor,


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Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.


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## ARTICLE 7 – OTHER WORK AT THE SITE

7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and

2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.


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7.03 *Legal Relationships*

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.

C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

## ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

8.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.


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8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

## ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents.

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits


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and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.


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B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.

C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.

D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.


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B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

## ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.


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10.03 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

A. *Engineer's Decision Required*: All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The


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opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

C. *Engineer's Action*: Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

1. deny the Claim in whole or in part;

2. approve the Claim; or

3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

## ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on


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Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

   a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

   b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

   c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

   d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

   e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.


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f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.

C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.


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D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 *Allowances*

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances:*

1. Contractor agrees that:

a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. *Contingency Allowance:*

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.


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D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect to any other item of Work; and

3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

## ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;

b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;


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c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the


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control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

## ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and

3. as otherwise specifically provided in the Contract Documents.


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C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.

F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.


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13.05 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or

2. correct such defective Work; or

3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute


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resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and


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equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

## ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. *Applications for Payments:*

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the


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Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

   a. the Work has progressed to the point indicated;

   b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and

   c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

   a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

   b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

   a. to supervise, direct, or control the Work, or


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b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or

e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

b. the Contract Price has been reduced by Change Orders;

c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or

d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. *Payment Becomes Due:*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. *Reduction in Payment:*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;

b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

c. there are other items entitling Owner to a set-off against the amount recommended; or


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d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities


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pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.


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14.07 *Final Payment*

A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

   a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;

   b. consent of the surety, if any, to final payment;

   c. a list of all Claims against Owner that Contractor believes are unsettled; and

   d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Payment Becomes Due:*


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1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

## ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:


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1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;

3. Contractor's repeated disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.


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F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.


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## ARTICLE 16 – DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or

2. agrees with the other party to submit the Claim to another dispute resolution process; or

3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

## ARTICLE 17 – MISCELLANEOUS

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.


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17.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.


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# SUPPLEMENTARY CONDITIONS

The General Conditions of this contract are hereby modified as follows:

**SC-4.02 Add the following new paragraph(s) immediately after Paragraph 4.02.B:**

C. Contractor is required to visit the Site to become familiar with and satisfied as to the general, local, and Site conditions that may affect cost, progress, performance, and furnishing of the Work. This is to involve an alert, heads-up, eyes-open, reasonable examination of the area and the conditions under which the Work is to be performed (see GC-4.03.C.2.b). It is expected that any special requirements for such examination will be set forth in the Instructions (see I-4 and related Notes to User) or elsewhere in the Contract Documents if the Contract is to be awarded on the basis of negotiation rather than after receipt of Bids. The extent of such an examination will depend to a great extent on the peculiarities of the job and the Site as well as Owner's preference. EJCDC believes, however, that the requirements for any such pre-Bid Site examination should be realistic and clearly stated and that detailed Site and subsurface investigations should ordinarily not be required because of their cost, the constraints of time and other practical considerations.

**SC 4.05 Delete Paragraph 4.05 (Reference Points) in its entirety and insert the following in its place:**

Surveys: the ENGINEER will provide all staking necessary to establish both the line and grade for construction of the project. Restaking required by the ENGINEER as a result of the CONTRACTOR'S carelessness or failure to protect survey marks and stakes shall be accomplished at the expense of the CONTRACTOR. Application for construction stakes must be made by the CONTRACTOR at least three (3) working days before services of a survey party will be required to accomplish the staking.

**SC-4.06 Delete Paragraphs 4.06.A and 4.06.B in their entirety and insert the following:**

A. No reports on drawings related to Hazardous Environmental Conditions are known to Owner or Engineer.

B. Not Used.

**SC-5.04 Add the following new paragraph immediately after Paragraph 5.04.B:**

C. The limits of liability for the insurance required by Paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under Paragraphs 5.04.A.1 and A.2 of the General Conditions:

| | | |
|---|---|---|
| a. | State: | Statutory |
| b. | Applicable Federal (e.g.,Longshoreman's): | Statutory |
| c. | Employer's Liability: | $ 1,000,000 |

2. Contractor's General Liability under Paragraphs 5.04.A.3 through A.6 of the General Conditions which shall include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control of Contractor:

a. General Aggregate $ 1,000,000

b. Products - Completed Operations Aggregate $ 1,000,000

c. Personal and Advertising Injury $ 1,000,000

d. Each Occurrence (Bodily Injury and Property Damage) $ 1,000,000

e. Property Damage liability insurance will provide Explosion, Collapse, and under-ground coverages where applicable.

f. Excess or Umbrella Liability

1) General Aggregate $ 3,000,000

2) Each Occurrence $ 1,000,000

3. Automobile Liability under Paragraph 5.04.A.6 of the General Conditions:

a. Bodily Injury:
Each person $ provided by Contractor_____
Each Accident $ provided by Contractor_____

b. Property Damage:
Each Accident $ 500,000

c. Combined Single Limit of $ 1,000,000

4. The Contractual Liability coverage required by Paragraph 5.04.B.4 of the General Conditions shall provide coverage for not less than the following amounts:

a. Bodily Injury:
Each Accident $ 1,000,000
Annual Aggregate $ 3,000,000

b. Property Damage:
Each Accident $ provided by Contractor_____
Annual Aggregate $ provided by Contractor_____

5. Contractor shall deliver to the Owner certificates of insurance naming the Owner, together with it's officials, employees, volunteers, agents and others working in behalf of the Owner as additional insured.

**SC-5.06.A. Delete Paragraph 5.06.A in its entirety and insert the following in its place:**

A. Contractor shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof.

1. This insurance shall:

   a. include the interests of Owner, Contractor, Subcontractors, Engineer and any other individuals or entities identified herein, and the officers, directors, partners, employees, agents and other consultants and subcontractors of any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;

   b. in addition to the individuals and entities specified, include as additional insureds, the following:

      Contractor shall deliver to the Owner certificates of insurance naming the Owner, together with it's officials, employees, volunteers, agents and others working in behalf of the Owner as additional insured.

   c. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss and damage to the Work, temporary buildings, falsework, and materials and equipment in transit and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

   d. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

   e. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;

   f. allow for partial utilization of the Work by Owner;

   g. include testing and startup; and

   h. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor and Engineer with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

2. Contractor shall be responsible for any deductible or self-insured retention.

3. The policies of insurance required to be purchased and maintained by Contractor in accordance with this Paragraph SC-5.06.A shall comply with the requirements of paragraph 5.06.C of the General Conditions.

**SC-6.06 Add a new paragraph immediately after Paragraph 6.06.G:**

H. Owner or Engineer may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by a particular Subcontractor or Supplier**.**

**SC-7.04 Add the following new paragraph immediately after paragraph GC-7.03:**

SC-7.04 Claims Between Contractors

A. Should Contractor cause damage to the work or property of any other contractor at the Site, or should any claim arising out of Contractor's performance of the Work at the Site be made by any other contractor against Contractor, Owner, Engineer, or the construction coordinator, Contractor shall promptly attempt to settle with such other contractor by agreement, or to otherwise resolve the dispute by arbitration or at law.

B. Contractor shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner, Engineer, the construction coordinator and the officers, directors, partners, employees, agents and other consultants and subcontractors of each and any of them from and against all claims, costs, losses and damages (including, but not limited to, fees and charges of engineers, architects, attorneys, and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any other contractor against Owner, Engineer, Engineer's Consultants, or the construction coordinator to the extent said claim is based on or arises out of Contractor's performance of the Work. Should another contractor cause damage to the Work or property of Contractor or should the performance of work by any other contractor at the Site give rise to any other Claim, Contractor shall not institute any action, legal or equitable, against Owner, Engineer, or the construction coordinator or permit any action against any of them to be maintained and continued in its name or for its benefit in any court or before any arbiter which seeks to impose liability on or to recover damages from Owner, Engineer, or the construction coordinator on account of any such damage or Claim.

C. If Contractor is delayed at any time in performing or furnishing Work by any act or neglect of another contractor, and Owner and Contractor are unable to agree as to the extent of any adjustment in Contract Times attributable thereto, Contractor may make a Claim for an extension of times in accordance with Article 12. An extension of the Contract Times shall be Contractor's exclusive remedy with respect to Owner, Engineer, and construction coordinator for any delay, disruption, interference, or hindrance caused by any other contractor. This paragraph does not prevent recovery from Owner, Engineer, or construction coordinator for activities that are their respective responsibilities.

**SC-8.11 Add the following new paragraph immediately after Paragraph 8.11.A:**

B. On request of Contractor prior to the execution of any Change Order involving a significant increase in the Contract Price, Owner shall furnish to Contractor reasonable evidence that adequate financial arrangements have been made by Owner to enable Owner to fulfill the increased financial obligations to be undertaken by Owner as a result of such Change Order**.**

**SC-11.03.D Delete Paragraph 11.03.D in its entirety and insert the following in its place:**

D. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:

1. if the Bid price of a particular item of Unit Price Work amounts to 50 percent or more of the Contract Price and the variation in the quantity of that particular item of Unit Price Work performed by Contractor differs by more than 50 percent from the estimated quantity of such item indicated in the Agreement; and

2. if there is no corresponding adjustment with respect to any other item of Work; and

3. if Contractor believes that Contractor has incurred additional expense as a result thereof or if Owner believes that the quantity variation entitles Owner to an adjustment in the unit price, either Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Article 10 if the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

**SC-14.02.A.4 Add the following:**

14.02.A.4

Interest on Retainage: If the Contractor seeks to obtain interest on the retainage held by the Owner, it shall be the responsibility of the Contractor to establish an escrow account in the name of the Owner for said retainage. This account shall be established prior to the issuance of notice to proceed. If no account is established by this time, the Contractor hereby waives and forfeits any claim to interest on retainage against the Owner.

As partial payments are made, two checks will be issued by the Owner: one check to the Contractor for the requested amount less retainage and a second check to the escrow account for retainage. At the time of final payment the escrow amount will be released to the Contractor by the Owner. If the Contractor has set up an interest bearing account as described, the accured interest, if any, will also be paid to the Contractor by the Owner as part of the final payment.

# Part 3
# Special Conditions

## SECTION 3.1

## SPECIAL PROJECT CONDITIONS

**3.1.1** **PROJECT LOCATION**: The work is located on various streets throughout North Ogden City.

**3.1.2** **PROJECT DESCRIPTION**: The work consists of milling, asphalt patching, 2" asphalt overlay, and chip and seal. Also includes pre-lowering water valve boxes & manholes then raising to grade manholes, water valve boxes, and survey monuments and placing concrete collars.

**3.1.3** **CONTRACT TIME**: All work covered by the contract documents shall be completed by: **June 30, 2023**. It is agreed that time is the essence of this contract, and if construction is not complete by the end of the contract time, liquidated damages in the amount of **$1000.00** per calendar day shall be assessed on the project for each additional calendar day until construction is certified by the Engineer as being substantially complete.

**3.1.4** **EXCAVATED MATERIAL**: The City requires that any excavated materials that are not needed for construction shall not be taken outside the City limits. Excess materials shall be taken to a City designated location within City Limits (probably the City "green waste" pit @ 2650 North Mountain Rd.) and deposited as directed by a City representative. This provision does not include the dumping of hazardous or toxic soils or materials at these locations. Hazardous or toxic waste shall be disposed of according to State and federal guidelines.

**3.1.5** **SOIL CONDITIONS**: No test holes or pits have been dug in connection with this project, the Contractor should examine the site to make his own judgement concerning soil conditions.

**3.1.6** **EXISTING UTILITIES**: Engineer has attempted to show the location of all known underground utilities, but the accuracy or completeness of the presentation is not guaranteed. It shall be the responsibility of the Contractor to contact utility companies to determine the exact location, type and shall be responsible for the protection of these utilities. In the event these utilities or service lines are damaged, they shall be repaired at no additional expense to the Owner.

**3.1.7** **WORK ON STATE, COUNTY AND CITY ROADS**: The Owner will obtain all required licenses for construction on State, County and City Roads, but securing of digging permits and posting of required bonds will be the responsibility, and at the expense of the Contractor.

Any connection to the existing storm drain system will require a permit obtained from the City. It is the contractor's responsibility to obtain this permit prior to construction.

All survey monuments and markers shall be protected and preserved by the Contractor. In the event the construction requires the removal and re-establishing of survey monuments or markers, the Contractor shall so inform the Engineer.

Restaking by the Engineer as a result of the Contractor's carelessness or failure to protect survey marks and stakes shall be accomplished at the expense of the Contractor. Application for construction stakes must be made by the Contractor at least 72 Hours before the services of a survey party will be required to accomplish the staking.

**3.1.8** **WATER FOR CONSTRUCTION**: Water required for consolidation of trench backfilling, testing, flushing, and other construction purposes shall be provided by the Contractor.

**3.1.09** **PUBLIC CONVENIENCE AND SAFETY**: During the progress of the work, adequate provisions shall be made by the Contractor to accommodate the normal traffic over the road or street being used as to cause a minimum inconvenience to the public. Means of ingress and egress for occupants of property adjacent to the work, with convenient access to driveways, houses and buildings shall be provided when applicable.

The Contractor shall provide and maintain barriers, guards, lights, and temporary bridges and post flagmen and watchmen when and where necessary in order to effectively guard the public from danger involved with the work being done.

If the City is not satisfied with the level of service provided by a particular flagman the contractor shall find a replacement flagman at the City's request.

Any work on public roads or streets shall require a construction signing plan or road closure and detour plan which shall be submitted by the contractor and approved by the City prior to construction.

**3.1.10** **CLEAN-UP**: Throughout all phases of construction, the Contractor shall keep the construction areas in a clean condition free from rubbish and debris. All materials and equipment required in connection with the construction of any portion of the work shall be removed from the site as soon as the use of said materials and equipment at that location in no longer necessary, and the area shall be thoroughly cleaned by sweeping with power and/or hand brooms or by other means which will produce results equal to or better than conditions prior to construction.

Care shall be taken to prevent spillage on streets over which hauling is done and any such spillage or debris deposited on streets due to the Contractor's operations shall be immediately removed and the streets cleaned.

Excess excavated material resulting from excavation shall be removed from the site immediately, except that sufficient material may remain for use as backfill material if such use is permitted by the provisions of the Specifications. Likewise, forms and form lumber shall be removed from the site immediately following the striping operation.

Upon completion of the work and prior to final inspection, the entire site of the operation shall be cleared of equipment, unused materials, and rubbish so as to present a clean and neat appearance satisfactory to the Engineer. All costs of "clean-up" shall be absorbed in the prices bid for the various bid items.

**3.1.11** **SANITARY PROVISIONS**: The Contractor shall provide and maintain in a neat and sanitary condition such accommodations for the use of his employees as may be necessary to comply with all applicable laws, ordinances and regulations pertaining to public health and sanitation.

**3.1.12** **DUST ABATEMENT**: During the performance of the work required by these Specifications or any operations appurtenant thereto, whether on the right-of-way provided by the City or elsewhere, the Contractor shall furnish all labor, equipment, materials, and means required, and shall carry out proper and efficient measures wherever and as often as necessary to reduce the dust nuisance and to prevent dust which is originated from the operations under these Specifications on City right-of-way or elsewhere. The cost of sprinkling or other methods of reducing formation of dust shall be included in the prices bid in the schedules for other items of work.

**3.1.13** **PROTECTION OF EXISTING UTILITIES**: The Contractor shall take all reasonable

precautions to protect all existing utilities at all times during construction under this contract.

**3.1.14** **INSPECTION**: All construction work shall be subject to inspection by the Owner's Engineer or its representatives. Certain types of construction shall have continuous inspections while others may have only periodic inspection. The Contractor shall notify the Owner's Engineer or its representative of timetable when concrete pours are to be made, in advance of pour sufficient to allow inspections of forms, grades, etc.

On construction requiring continuous inspection, the Contractor shall be notified and no work shall be done without the inspector's approval.

No work requiring inspection shall be performed on weekends or holidays without previous approval from the City.

An inspection shall be made by the Engineer after all construction work is completed. Any faulty or defective work shall be corrected by the persons responsible for the work within a period of thirty (30) days of the date of the Engineer's Inspection Report defining the faulty or defective work.

**3.1.15** **CONSTRUCTION THROUGH PRIVATE PROPERTY**: The Contractor shall confine all his operations to the area within the Public Right-of-way or construction easement which has been acquired by the City. In general, the easement or right-ow-way area is intended to provide reasonable access and working area for efficient operation by the Contractor. If additional easement width and/or additional access routes are desired, the Contractor shall negotiate with and compensate the private owners for such use.

**3.1.16** **MEASUREMENT, PAYMENT AND WORK QUANTITIES**: Measurement and payment for all work shall be defined in Section 3.2.

The right is reserved to increase or decrease or to entirely eliminate certain items from the work if found desirable or expedient, and the Contractor is cautioned against unbalancing of his bid by prorating this overhead and profit into one or two items when there are a number of items on the Proposal. The overhead, indirect charges and profit should be prorated on all items in the Proposal.

The Contractor will be allowed no claims for anticipated profits, loss of profits or for damages because of any difference between the estimated and the actual amounts of work done, or materials furnished or used in the completed project.

**3.1.17** **GUARANTEE**: The Contractor warrants and guarantees that the materials and workmanship of the improvements provided for hereunder, and every part thereof, remain in good condition for a period of one (1) year after the date of completion and conditional acceptance by the Owner, which date shall be the date of approval for the final estimate of the work as given by the Engineer, and agrees to make all repairs to, and maintain the improvements and every part thereof, in good condition during the time, with no cost to the Owner; and the bonds shall remain in full force until conditions of this contract are fulfilled.

## SECTION 3.2

## MEASUREMENT AND PAYMENT

**3.2.1** **GENERAL**: Measurement and calculation of quantities for payment will be specified in this section. Unit price bid shall be full compensation for furnishing all labor, materials, tools and equipment, mobilization, all traffic control including pedestrian traffic, and doing all work shown on the Drawings or stipulated in the Specifications.

**3.2.2** **MOBILIZATION (Bid item 3):** Measurement and payment for this item shall be on a lump sum basis for all costs associated with mobilizing and demobilizing equipment and materials to and from the project sites in all schedules. Payment shall also be full compensation for all bond and insurance expenses, permits, and traffic control. Storm water Best Management Practices (SWPPP) will be in effect and will include all necessary labor and materials needed to protect inlets, etc.

**3.2.3** **CHIP & SEAL COAT WITH A CSS-1 FOG SEAL (Bid item 5)**: Measurement and payment for this item shall be on a square yard basis at the unit price bid amount **install only** chip & seal using a type **"A"** light weight aggregate chip ("Utelite" or approved equal) as the cover material.

The contractor shall be responsible to furnish and place the required asphalt emulsion at a uniform rate and application coverage as shown in the Emulsion Application Rate Table shown in Section 4.4.7 of the specifications or as directed by the City's project representative. The emulsion shall be CRS-2P, LMCRS-2, or PASS CR as approved by the City Engineer. The material shall be sprayed over the prepared surface by means of a pressure distributor. The material shall be applied in such a manner that an inspection of the spread can be made and any defects corrected before the cover material is applied. The application of bituminous emulsion material shall not be more than 100 feet in advance of the placing of cover material. The cover material shall be as specified in the bid schedule. Care shall be taken to keep the emulsion from being sprayed on the curb & gutter.

CSS1 shall be used as the **Fog Seal** with a 2 to 1 dilute and shall be applied to the road surface at a rate of 0.10 - 0.12 gal. per square yard. The Fog seal shall be placed on a freshly swept chip & seal surface. The surface of the chipped road shall be swept within 2 or 3 days after placing and compacting the chip and seal cover material. The Fog Seal should be placed immediately after sweeping. If the Fog Seal can't be placed at this time and is placed 2 or 3 weeks after the sweeping, the road surface will need to be swept again to remove any loose chips before placing the fog seal.

Payment for this bid item shall include all related items including, cleaning of streets prior to application **including weed removal**, rock chips, asphalt emulsion with special latex additive as specified, furnishing and installing specified type of chips, placing of the chips on the street surface, rolling and compacting the chips into the emulsion, fog seal coat to be placed on street surface following the final cleaning of the street, required traffic control and the cleaning and disposal of excess chips from the roadway surface and curbs and gutters following application.

**3.2.4** **ASPHALT PATCH (SMALL AREAS): REMOVE AND REPLACE DAMAGED ASPHALT PAVEMENT SECTION (Bid item 10)**: Measurement and payment for this item shall be on a per square yard basis as measured in the field during construction and before any overlay. Payment shall include asphalt saw cut, all labor, materials, equipment, excavation of pavement and base course as needed, loading, hauling and disposing of excavated material. Asphalt

can ***not*** be disposed of at the green waste pit on 2650 North and Mountain Road, but all other materials can. Payment also includes compacting the sub-grade, placement and compaction of roadbase as needed (payment for furnishing and installing roadbase will be paid for under a separate bid item), and furnish & install 3" bituminous asphalt surface course, required tack coat, compaction and rolling of asphalt materials, and cleanup following construction. Contractor shall contact City Public Works Department prior to work commencement**.**

**3.2.5** **FURNISH AND INSTALL UNTREATED BASE COURSE – ASPHALT PATCH AREAS (Bid Item 11):** Measurement and payment for this item shall be on a per ton basis to furnish and install road base as needed in the asphalt patching areas and other areas as directed by City representative according to City Standards. Verification of tonnage shall be documented by delivery tickets supplied by the Contractor to the City inspection representative. All tickets shall indicate the Owner's name, date, type material, truck number, project location, project number, gross weight and net
weight of each material. Delivery tickets are to be turned in daily to the inspection representative or the Owner's office. Payment shall be full compensation to complete the bid item including hauling, furnishing and installing the UTBC, compaction, grading and cleanup following construction. UTBC shall be placed at the thickness in patch areas as determined by a City representative at the time of excavation (excavation paid for under separate bid item). Contractor shall contact City Public Works Department prior to work commencement.

**3.2.6** **MILL ROADWAY SURFACE - 7' WIDE FROM LIP OF GUTTER (Bid Item 9):** Measurement and payment for this item shall be on a per square yard basis as measured in the field following milling and before overlay. Payment shall be full compensation to complete the work associated with milling the asphalt roadway to adjust the roadway elevation in preparation for the bituminous overlays. The work includes but is not limited to the following: milling asphalt in a wedge 1½" below lip of gutter and match the top of existing asphalt 7' away, hauling and disposal of millings at a City designated site within the City limits, and any other labor, equipment, cleanup following construction, and materials necessary for milling the road surface.

**3.2.7** **FURNISH AND INSTALL 1½" & 2" BITUMINOUS SURFACE COURSE — 2017 APWA Spec.**
**(PG 58-28) (Bid item 14):** Payment for level course & 2"overlays, shall be on a per Square Yard basis for all materials delivered to the project site. Use ½" gradation mix for the 1½" and the 2" overlay. Verification of the tonnage shall be documented by delivery tickets supplied by the Contractor to the City inspection representative. All tickets shall indicate the Owner's name, date, type of material, truck number, project location, project number, gross weight and net weight of each material. Delivery tickets shall be turned in daily to the City inspection representative or the City office. Payment shall be at the unit price bid amount and shall be full compensation for completing the work including complete and total cleaning of the streets prior to placement of the materials including weed removal, required tack coat, required tack along the edge of the existing asphalt being matched to, furnishing and installing the required thickness of bituminous surface course, rolling and compacting the surface course materials. ***City inspectors will be collecting samples of the asphalt to determine oil content, air voids, RAP and compaction. Any asphalt determined to be non-compliant with current APWA specifications as specified in the Contract Documents will either be removed &***

# Part 4
# Technical Specifications

# SECTION 4.4

# STREET MAINTENANCE TECHNICAL SPECIFICATIONS

**4.4.0** **GENERAL:** This section covers the requirements for bituminous surface paving on roads. All streets shall be surfaced in accordance with the following specifications, unless otherwise specified by the City Engineer.

A. 8-inch minimum compacted thickness of untreated base course gravel over prepared subgrade. When subgrade soils have a C.B.R. (California Bearing Ratio) less than 10, additional gravel base shall be required as dictated by a pavement design approved by the City Engineer.

B. 3-inch minimum compacted thickness of plant mix bituminous surface course.

C. UDOT Type A, B, or C Bituminous Seal Coat, and Seal, Light Weight Aggregate Chip & Seal ("Utelite" or approved equal) all with a fog seal placed after the chip & seal, or Type III Slurry Seal Coat as directed by the City Engineer.

D. When a geotextile fabric is required on subgrade for stabilization and / or separation purposes, the fabric shall be "Geotex" 315-ST or a City Engineer approved equal.

These pavement thicknesses shall be considered as City Standards and necessary to provide sufficient stability. The designer and/or developer may submit an alternative pavement design based on a detailed soils analysis for approval by the City Engineer which may modify pavement thicknesses, but in no case shall the bituminous surface course be less than 3" thick and the untreated base course less than 4" thick.

**4.4.1** **ROADWAY EXCAVATION:** All roadway excavation shall be accomplished in accordance with North Ogden City Public Works Standards. Roadway excavation shall include the removal of damaged bituminous surface course. In addition to these requirements, the Contractor shall be required to saw cut all bituminous pavements to a clean vertical surface prior to removing the damaged materials in those areas not receiving a bituminous overlay. The limits of the cutting of the damaged pavement areas shall be marked in the field by the City Engineer. Following removal of the specified pavement, the subgrade surface shall be scarified and compacted to 95% of AASHTO T-180. Measurement and payment for the work covered in this section shall be as specified in Section 3.2 of these project specifications.

**4.4.2** **UNTREATED BASE COURSE:** Untreated base course shall be furnished and installed in accordance with North Ogden City Public Works Standards. Untreated base course shall be 3/4-inch or 1-inch gradation. Untreated base course shall be placed at the locations and to the depths specified by the Engineer. Prior to the placement of the material, the subgrade shall be compacted to 95% of AASHTO T-180. All untreated base course shall be placed in lifts not exceeding 6-inches and compacted to 95% if AASHTO T-180. Measurement and payment for the work covered in this section shall as specified in Section 3.2 of these project specifications.

Untreated Base course for all streets shall consist of select material, either natural or crushed, and shall be graded to either one of the following:

**1 Inch Gradation**

| Sieve Size | Ideal Gradation (Percent Passing) | Ideal Gradation (Tolerance) |
|---|---|---|
| 1 inch | 100 | 0 |
| 1/2 inch | 85 | +/- 6 |
| No. 4 sieve | 55 | +/- 6 |
| No. 16 sieve | 31 | +/- 4 |
| No. 200 sieve | 9 | +/- 2 |

**3/4 Inch Gradation**

| Sieve Size | Ideal Gradation (Percent Passing) | Ideal Gradation (Tolerance) |
|---|---|---|
| 3/4 inch | 100 | 0 |
| 3/8 inch | 85 | +/- 7 |
| No. 4 sieve | 61 | +/- 6 |
| No. 16 sieve | 33 | +/- 5 |
| No. 200 sieve | 9 | +/- 2 |

The material shall be deposited and spread in a uniform layer, without segregation of size, with such depth that when compacted the layer will have the required thickness as stated above.

Each layer shall be compacted for the full width and depth. Alternate blading and rolling will be required to provide a smooth even and uniformly compacted course true to cross section and grade. Places unaccessible to rolling shall be compacted with mechanically operated hand tampers.

The gravel base course shall be compacted to not less than 95% maximum dry density as determined by AASHTO T-180. During rolling operation, moisture content of the base course layer shall be maintained at not less than 97% or more than 105% of optimum moisture content. Surfaces shall be true to the established grade with the thickness being not less than 1/4 inch from the required layer thickness and with the surface elevation varying not more than 3/8 inch in ten feet from the true profile and cross section.

**4.4.3** **BITUMINOUS SURFACE COURSE & TACK COAT:** Bituminous surface course shall be furnished and installed in accordance with the APWA 2017 Standards and Specifications. All areas requiring the placement of bituminous surface course shall be marked in the field by the City Engineer prior to construction. Measurement and payment for the work covered in this section shall as specified in Section 3.2 of these project specifications.

**The following APWA Specifications are attached and shall be followed for the placement of the bituminous surface course:**

Section 32 12 05 M - Bituminous Concrete Modified
Section 32 12 05 - Bituminous Concrete
Section 32 12 13.13 - Tack Coat
Section 32 12 16.13 - Plant-Mix Bituminous Paving

**4.4.4 RAISING MANHOLES, VALVE BOXES, AND MONUMENTS TO GRADE:** Raising of existing structures to grade shall be in accordance with North Ogden City Public Works Standards. All structure raised to grade shall be finished with a concrete collar having a minimum thickness of 11-inches and extending a minimum distance of 12-inches from the outer edge of the structure. Prior to the work, the City will mark all manholes, valve boxes and monuments to be raised to grade. Payment shall also include the removal of concrete around any previously collared item to allow for the adjustment to grade of that item ***no matter what the size of the previous collar***, and to pour back the same width of collar as existing to a minimum 12" wide. For new pavement, the outside edge of the concrete collar shall be 1/2" below the top of the finished asphalt and slope 1/4" to the top of the lid. For overlays and slurry seal, the outside edge of the concrete collar shall be 1/4" below the top of the finished asphalt and slope another 1/4" to the top of the lid. The Contractor shall be responsible to relocate these items following paving and adjust to finish grade as required. Measurement and payment for the work covered in this section shall as specified in Section 3.2 of these project specifications.

**4.4.5 CHIP & SEAL COAT**

Following installation of surface course, all completed asphalt areas shall receive a chip & seal coat or slurry seal coat, as specified by the public works director. In no event shall seal coat be placed on newly constructed bituminous surfaces within thirty (30) days after such surfaces are laid and preferably a minimum of 12 months after bituminous paving. Emulsion shall be CRS-2P, LMCRS-2, PASS CR, or other approved equal as directed. Cover material shall consist of clean, hard, rough, durable, and sound fragments of broken stone, crushed gravel, lightweight aggregate or crushed slag conforming to the following requirements:

A. The dry mineral aggregate shall be uniformly graded to the gradation limits specified below, when tested in accordance with AASHTO Designation T-27.

| | Standard Gravel Aggregate | | Lightweight Aggregate | |
|---|---|---|---|---|
| Sieve Size | UDOT Type A | UDOT Type C | Type A | Type C |
| 1/2 inch | 100 | 100 | 100 | 100 |
| 3/8 inch | 85-100 | 70-90 | 90-100 | 70-90 |
| 1/4 inch | - | - | 70-90 | - |
| No. 4 | 0-20 | 0-5 | 5-60 | 0-5 |
| No. 8 | 0-5 | 0-3 | 0-5 | 0-3 |
| No. 200 | 0-1 | 0-2 | 0-1 | 0-1 |

Acceptance of cover material with respect to gradation shall be based on the average gradation of five samples taken from a test lot of 5,000 tons. The samples shall be obtained from the stockpile prior to use. A test lot shall be obtained when the average gradation of the five samples is within the specified gradation band and when the number of individual samples in each test lot outside the gradation band does not exceed two and when they are not outside the band by more than two percentage points on any one sieve.

The total amount of material passing the No. 200 sieve shall be determined by washing with water in accordance with AASHTO Designation T-11.

B. That portion of the aggregate retained on the No. 4 sieve shall be clean and free of clay

coatings and shall have not less than 80 percent by weight, of particles with at least one clean mechanically fractured face, when tested in accordance with UDOT Department Test Procedure 8-929.

C. The aggregate shall have a percentage of wear not exceeding 30 when tested in accordance with AASHTO Designation T-96.

D. The crushed mineral aggregate shall have a weighted percent of loss not exceeding 10 percent by weight when subjected to five cycles of sodium sulfate and tested in accordance with AASHTO Designation T-104.

E. The aggregate shall be of such nature that when the particles are thoroughly coated with the bituminous material specified for the project not less than 90 percent of the coating shall be retained when tested in accordance with Department Test Procedure 8-945.

F. The maximum dry unit weight of standard gravel aggregate material shall not exceed 100 pounds per cubic foot when measured according to the loose weight determination as described in AASHTO Designation T-19 and the moisture content shall be determined according to ASTM D-2216.

**4.4.5.1 SEAL COAT PREPARATION**

Seal coat operations shall not be started until the surface to be sealed has been thoroughly compacted. In no event shall seal coat be placed on newly constructed bituminous surfaces within thirty (30) days after such surfaces are laid and preferably a minimum of 12 months after placing asphalt pavement as directed by the City Engineer. Crack seal should be installed thirty (30) days prior to placing the chip & seal coat.

Two days prior to placing the seal coat, the existing surface shall be swept washed and cleaned of all dirt, sand, dust, or other objectionable material. All weeds to be removed from crack lines and curb lines.

**4.4.5.2 APPLICATION OF EMULSION MATERIAL**

The material shall be sprayed over the prepared surface by means of a pressure distributor. The material shall be applied in such a manner that an inspection of the spread can be made and any defects corrected before the cover material is applied. The rate of application shall be as specified in the table below. Modifications to the application rates indicated may be required as observed in the field and determined by the City inspection representative. Application of emulsion material shall not be more than 100 feet in advance of the placing of cover material.

**Emulsion Application Rate Table (gal/s.y.)**

| | Standard Gravel Aggregate | | Lightweight Aggregate | |
|---|---|---|---|---|
| Emulsion Type | Type A | Type C | Type A | Type C |
| CRS-2P | 0.40± | 0.44± | 0.31 to 0.33 | 0.40 to 0.42 |
| LMCRS-2 | 0.40± | 0.44± | 0.31 to 0.33 | 0.40 to 0.42 |
| PASS CR | 0.37± | 0.40± | 0.28± | 0.36± |

The contractor shall be responsible to cover all existing manholes and valve boxes along with their concrete collars with felt paper prior to the installation of the seal coat to protect these facilities from being covered with the bituminous seal coat materials.

Joints between applications shall be made by starting and stopping the distributor on building paper. Valve action shall be instantaneous, both in starting and cut off. The distributor shall attain the proper application speed at the time the spray bar is opened.

The contractor shall be responsible to furnish and place the required asphalt emulsion at a uniform rate and application coverage consistent with the application rate table above or as directed by the City Engineer. The emulsion shall be CRS-2P, LMCRS-2 or PASS CR as directed by the City Engineer. The material shall be sprayed over the prepared surface by means of a pressure distributor.

The temperature range of the emulsion material at the time of application shall be consistent with manufacturer recommendations.

**4.4.5.3 SPREADING AND COMPACTING OF SEAL COAT COVER MATERIAL**

Prior to the placing of the cover material, the contractor shall perform a test of the spreading equipment at a location approved by the City. The test shall determine the exact rate of application of the emulsion and cover material and provide a means to calibrate the contractors equipment. Aggregate materials shall be moistened prior to use with CRS-2P and LMCRS-2 products as directed by the City Engineer. When using PASS CR the aggregate material shall not be moistened.

The cover material shall be spread immediately after applying the emulsion material by means of an approved spreader which can be adjusted to uniformly spread the required amount of aggregate. Provisions shall be made so that the larger particles will be deposited first. The rate of cover material application, shall be as specified below or as directed by the City inspection representative in the field. Immediately after spreading, the cover material shall be hand broomed, if necessary, to distribute the aggregate uniformly over the surface.

**Cover Material Application Rate Table (lbs/s.y.)**

| | Standard Gravel Aggregate | | Lightweight Aggregate | |
|---|---|---|---|---|
| Emulsion Type | Type A | Type C | Type A | Type C |
| CRS-2P | 18.0± | 22.0± | 11.0± | 16.0± |
| LMCRS-2 | 18.0± | 22.0± | 11.0± | 16.0± |
| PASS CR | 27.0± | 31.0± | 14.0± | 20.0± |

After the cover material has been satisfactorily spread, the surface shall be rolled by pneumatic-tired rollers in a longitudinal direction with a minimum of three (2) 12-ton pneumatic-tired rollers, maintaining 80 PSI in each tire. Rolling performed with pneumatic-tire rollers shall adequately seat the cover material and shall consist of at least three complete coverages. Rolling shall be completed at a maximum speed of 5 mph and be completed before the emulsion breaks, the same day the emulsion and cover material

are applied, approximately 15 minutes to 20 minutes. The rollers are to stay within 500 feet of the chip spreader.

On completion of final rolling, traffic shall be permitted to travel over the seal coat.

**4.4.5.4 SEAL COAT WEATHER AND SEASONAL LIMITATIONS**
Seal coat shall be applied only between June 1 and August 15 and when the air temperature in the shade and the roadbed temperature are above 70° F. Seal coat shall not be applied during rain, fog, or other adverse weather conditions. Seal coat placed after August 15 shall be placed only upon written authorization from the Engineer, and then only when the air temperature in the shade and the roadbed temp. are above 70° F.

**4.4.6 FOG SEAL**
CSS-1 shall be used as the **Fog Seal** with a 2 to 1 dilute and shall be applied to the road surface at a rate of .10 - .12 gal. per square yard. The Fog seal shall be placed on a freshly swept chip & seal surface. The surface of the chipped road shall be swept within 2 or 3 days after placing and compacting the chip and seal cover material. The Fog Seal should be placed immediately after sweeping. If the Fog Seal can't be placed at this time and is placed 1 week or more after the sweeping, the road surface will need to be swept again to remove any loose chips before placing the fog seal.

**4.4.7 SLURRY SEAL COAT**

**4.4.7.1 GENERAL:** The slurry seal coat shall consist of a mixture of emulsified asphalt, mineral aggregate and water. The slurry mixture of proper proportions shall be evenly spread on the surface as specified by the contract or as directed by the Engineer. The slurry shall be such that a rapid setting, homogeneous surface treatment can be applied to the existing bituminous pavement surface and not involve an extended inconvenience to the general public. The mixture shall adhere firmly to the existing pavement, fill cracks and provide a skid resistant wearing surface.

**4.4.7.2 APPLICABLE SPECIFICATIONS:** The following specifications and methods are a part of this specification:

Aggregate and Mineral Filler / Emulsified Asphalt

| | |
|---|---|
| AASHTO T2 | Sampling stone, slag, gravel sand and stone block for use in highway materials. |
| AASHTO T27 | Sieve analysis of fine or course aggregate. |
| AASHTO T11 | Amount of material finer than No. 200 sieve in aggregate. |
| AASHTO T84 | Specific gravity and absorption of fine aggregate. |
| AASHTO T19 | Unit Weight of aggregate. |
| AASHTO T96 | Abrasion of coarse aggregate. |
| AASHTO T37 | Sieve analysis of mineral filler. |
| AASHTO T40 | Sampling of bituminous materials. |

AASHTO T59 Testing emulsified asphalt.

AASHTO T140 Specifications for anionic emulsified asphalt.

AASHTO T208 Specification for cationic emulsified asphalt.

AASHTO T164 Mixture by centrifuge.

AASHTO T30 Mechanical analysis of extracted aggregate.

AASHTO T176 Plastic fines in graded aggregates and soils by use of the sand equivalent test

AASHTO T104 Soundness of aggregate by use of sodium sulfate or magnesium sulfate.

**4.4.7.3 MATERIALS:**

a. Asphalt Emulsions:

The emulsion shall conform to the requirements of ASTM or ISSA specification for type CQS-1h or CSS-1h. Each shipment of emulsified asphalt shall be accompanied by a certificate of analysis / compliance from the manufacturer.

b. Aggregate:

The mineral aggregate shall consist of natural or manufactured sand, slag, crusher fines and others or a combination thereof. It shall be free from dirt, organic matter, clay balls, adherent films of clay, dust, or other objectionable matter. Smother-textured sand of less than 1.25 percent water absorption shall not exceed 50 percent of the total combined aggregate. The aggregate shall be clean and free from vegetation and other deleterious matter. When tested by AASHTO T176, the aggregate blend shall have a sand equivalent of not less than 45. When tested according to AASHTO T104 or T88, the aggregate shall show a loss of not more than 15 percent.

Mineral fillers such as Portland Cement, limestone dust, fly ash and others shall be considered as part of the blended aggregate and shall be used in minimum required amounts. They shall only be used if needed to improve the workability of the mix or gradation of the aggregate.

The combined mineral aggregate shall conform to one of the following gradations when tested by the previous mentioned test:

| **Sieve Size** | **Type I** Percent Passing | **Type II** Percent Passing | **Type III** Percent Passing |
|---|---|---|---|
| ½ | 100 | 100 | 100 |
| 3/8 | 100 | 100 | 100 |

| | | | |
|---|---|---|---|
| #4 | 90-100 | 90-100 | 70-90 |
| #8 | 90-100 | 65-90 | 45-70 |
| #16 | 65-90 | 45-70 | 28-50 |
| #30 | 40-60 | 30-50 | 19-34 |
| #50 | 25-42 | 18-30 | 12-25 |
| #100 | 15-30 | 10-21 | 7-18 |
| #200 | 10-20 | 5-15 | 5-15 |

c. Water:

All water used with slurry seal mixtures shall be potable and free from harmful soluble salts.

**4.4.7.4 APPLICATIONS:**

a. Type I:

The aggregate blend is used to seal cracks, fill slight voids and correct minimal surface conditions. An approximate application rate of 6 to 10 pound per square yard, based on dry aggregate, is used when standard aggregates are utilized. The fineness of this design provides it with maximum crack penetration properties.

b. Type II:

This aggregate blend is used to fill surface voids, correct moderate surface conditions and provide sealing an minimum wearing surface. An approximate application rate of 10 to 15 pounds per square yard based on dry aggregate weight is used when standard aggregates are utilized. The use of Type II slurry material shall be used on pavements with medium textured surfaces which would require this size aggregate to fill in the cracks and provide a minimum wearing surface. This material could also be used on flexible base, stabilized base or soil cement as a sealer prior to final paving.

c. Type III:

The aggregate blend is used to correct severe surface conditions and to fill surface voids and to provide a moderate wearing surface. An approximate application rate of 15-20 pounds per square yard based on dry aggregate weight is used when standard aggregates are utilized.

**4.4.7.5 TESTING:**

Sources of all materials shall be selected and representative samples tested prior to their use in the work. All samples shall be gathered and tested according to procedures

outlined by AASHTO specifications and as directed by the Engineer. All material test reports shall be provided to the Engineer for approval before commencement of the work. The cost of material testing shall be borne by the owner. Should any material testing indicate defective materials, the contractor shall resubmit new samples for testing prior to application. These new materials shall be retested in accordance with the related AASHTO specifications. The cost of retesting rejected or defective materials shall be borne by the contractor.

Recertification of the materials will be required in the following circumstances:

a. A change of material sources or suppliers.
b. A change in the Type of slurry used.
c. If problems occur on the project regarding material quality.
d. At the request of the Engineer.

**4.4.7.6 CONSTRUCTION:**

a. Stockpiling of Aggregates:

The aggregate stockpile shall be protected against contamination with oversized rock, clay, silt or excessive amounts of moisture. The stockpiles shall be located in areas with adequate drainage to avoid damage to the materials by moisture. Storage and loading techniques should be such that segregation of materials is minimized.

b. Emulsion Storage:

The contractor shall provide suitable facilities for the asphalt emulsion. The container shall be a cylindrical shaped, vertical standing tank which will prevent water from contaminating the emulsions. The tank shall be equipped to provide suitable heat and mixing to maintain the stability of the materials.

c. Equipment:

All equipment, tools and machines used to perform the work shall be maintained in satisfactory working order at all times.

1. Slurry Mixing:

The Slurry mixing machine shall be a continuous flow mixing unit capable of distributing an accurate, predetermined proportion of aggregate, water and asphalt emulsion to the mixing chamber and discharging a thoroughly mixed product on a continuous basis. The mixing unit shall be capable of blending all slurry ingredients together without violent mixing and shall have a minimum aggregate capacity of eight (8) cubic yards. The mixer shall be equipped with a calibrated feeder used to provide an accurate metering and delivery of mineral filler into the mixer in conjunction with the aggregate feed. The mixing unit shall be calibrated prior to construction. There shall be no segregation of the fines from the coarse aggregate, and the liquid portion of the mix does not float to the surface.

2. Slurry Spreading Equipment:

Attached to the mixing machine shall be a mechanical squeegee

distributor (spreader box) having a rubber-like material in contact with the surface to prevent unwanted egress of slurry. It shall prevent loss of slurry on varying grades and crown by adjustments to assure uniform spread. An appropriate mechanical device for lateral distribution of the slurry shall be operated within the spreader box. There shall be a steering device, a flexible strikeoff, and a burlap or other approved drag. The spreader box shall be adjustable to widths from eight (8) to fifteen (15) feet to minimize the number of longitudinal joints. Broken slurry seal mixture shall not be allowed to collect in the spreader box or on the flexible strike-off.

3. Auxiliary Equipment:

The spreader box may be equipped with burlap drag material. Hand squeegees, drags and other items may be used to provide even coverage.

d. Placement of the Slurry Seal Coat:

Immediately prior to applying the slurry, the surface shall be cleaned of loose materials, silt spots, vegetation and other objectionable materials. Any standard cleaning method may be used with the exception of water flushing in those areas where considerable cracks are present in the pavement.

The Contractor shall insure that all oversize aggregate and other objectionable matter are removed from the mineral aggregate utilized in the slurry seal mixture. Screening shall be required at the stockpile if there are problems created by oversize materials in the mixture.

The slurry seal surface shall not be applied if either the pavement or air temperature is below 60 degrees F. for more than one third of an eight hour work day. No work shall be permitted during adverse weather conditions. The mixture should not be applied when high relative humidity or the prevailing conditions prolongs curing beyond a reasonable time period. A reasonable time period is understood to be no longer than four (4) hours.

Suitable methods, such as barricades, flagmen, cones, shall be used to control the traffic. The contractor shall be responsible to phase his construction schedule such that local traffic will have reasonable access to the homes and/or businesses.

The surface may be pre-wetted if required by local conditions to prevent rapid breaking of the emulsion. A sufficient amount of slurry shall be applied by the distributor to evenly cover the pavement area with no segregation, lumping or balling. Streaks and seams will not be allowed. The contractor shall recover areas that show streaks, seams or missed areas. Hand work shall be used to spread slurry seal coat in non-accessible areas to the spreader box. Care shall be exercised in leaving no unsightly appearance from handwork.

The Contractor shall have the capability to average a minimum of 20,000 square yards of slurry seal application per working day.

Care shall be taken to insure straight lines along curbs and shoulders. No runoff

on these areas will be permitted. Lines at intersections shall be kept straight to provide a good appearance.

The surface shall be protected from traffic and allowed to cure until the surface will not "scuff" or "ravel" under use.

The Contractor shall have a foreman / supervisor on site during spreading of the slurry seal. The foreman / supervisor will have experience with slurry seal and a working knowledge of the equipment, materials, and application procedures.

Manholes, valve boxes, survey monuments, drop inlets, and other service entrances shall be protected from the slurry seal by placing Fibreen Grade 208-SD-10 reinforced, waterproof, all-purpose paper as manufactured by the Fortifiber Corporation or other suitable material approved by the Project Manager. The paper shall be held in place with spray glue and removed within 24 hours after the slurry seal has cured. The protected area shall extend to the outer edge of the concrete collars surrounding the lid.

e. Traffic Control

The seal coat shall be applied to alternating streets to allow sufficient time for the bituminous material to set and bond to the existing street. Traffic will not be allowed on the newly placed bituminous material until, in the opinion of the Project Manager, the bituminous material has sufficiently set and bonded or the material has been allowed to set and bond for four (4) hours to prevent damage by such traffic. Areas which are subject to an increased rate of sharp-turning vehicles may require additional time to allow for a more complete cure of the slurry seal mat to prevent damage.

f. Public Notification:

A notice must be distributed to every home and/or business at least 24 hours before the slurry seal project begins. The notice must include the name of the company, a telephone number, the day or days of the construction and the latest hour of the day by which vehicles must be moved from the street.

## SECTION 4.5

## RESTORATION OF SURFACE IMPROVEMENTS

**4.5.1** **GENERAL:** The Contractor shall be responsible for the protection and the restoration or replacement of any improvements existing on public or private property at the start of work or placed there during the progress of the work. All restoration of improvements shall comply with the requirements of Section 2 - "Permit Requirements for Work in the Public Way".

Existing improvements shall include but are not limited to permanent surfacing, curbs, gutters, sidewalks, planted areas, ditches, driveways, culverts, fences, and walls. All improvements shall be reconstructed to equal or better conditions in all respects than the existing improvements removed.

**4.5.2** **GRAVEL SURFACE:** Where trenches are excavated through gravel surfaced areas such as roads and shoulders, parking areas, unpaved driveways, etc., the gravel surface shall be restored and maintained as follows:

a. The gravel shall be placed deep enough to provide a minimum of eight inches of material.

b. The gravel shall be placed in the trench at the time it is backfilled. The surface shall be maintained by blading, sprinkling, rolling, adding gravel, etc., to maintain a safe, uniform surface satisfactory to the City Engineer. Excess material shall be removed from the premises immediately.

c. Material for use on gravel surfaces shall be obtained from sound, tough, durable gravel or rock meeting the following requirements for grading:

**1 Inch Gradation**

| Sieve Size | Ideal Gradation (Percent Passing) | Ideal Gradation (Tolerance) |
|---|---|---|
| 1 inch | 100 | 0 |
| 1/2 inch | 85 | +/- 6 |
| No. 4 sieve | 55 | +/- 6 |
| No. 16 sieve | 31 | +/- 4 |
| No. 200 sieve | 9 | +/- 2 |

**4.5.3** **BITUMINOUS SURFACE:** Where trenches are excavated through bituminous surfaced roads, driveways, parking areas, etc., the surface shall be restored and maintained as follows:

A. A temporary gravel surface shall be placed and maintained as required in Paragraph 4.5.2 above after the required backfill and compaction of the trench has been accomplished.

B. The gravel shall be placed to such depth as to provide eight inches thickness below the bottom of the asphalt pavement and shall be brought flush with the paved surface.

C. The area over trenches to be resurfaced shall be graded and rolled to provide a subgrade which is firm and unyielded. Density of the subgrade materials shall be

95% of AASHTO T-180. Mud or other soft or spongy material shall be removed and the void filled with gravel and rolled and tamped thoroughly in layers not exceeding six inches in thickness. The edges of trenches which are broken down during the making of subgrade shall be removed and trimmed neatly before resurfacing.

D. Before any permanent resurfacing is placed, the Contractor shall trim the existing paving to clean, straight lines as nearly parallel to the centerline of the trench as practicable. Said straight lines shall be thirty feet minimum length and no deviations from such lines shall be made except as specifically permitted by the City Engineer.

E. Existing bituminous paving shall be cut back a minimum of six inches beyond the limits of any excavation or cave-in along the trench so that the edges of the new paving will rest on at least six inches of undisturbed soil

F. As soon as is practical, weather permitting, the bituminous surface shall be restored by standard paving practices to the thickness shown on the Drawings and/or defined in the Proposal, or matching the existing pavement cut during excavation.

G. Pavement restoration shall include priming of pavement of edges and sub-base with Type MC-70 bituminous material and placing and rolling plant hot mix bituminous material to the level of the adjacent pavement surfaces.

**4.5.4** **CONCRETE SURFACES:** All concrete curbs, gutters, sidewalks, and driveways shall be removed and replaced to the next joint or scoring line beyond the actually damaged or broken sections; or in the event that joints or scoring lines do not exist or are three or more feet from the removed or damaged section, the damaged portions shall be removed and reconstructed to a neat "saw cut" vertical plane face. All new concrete shall match, as nearly as possible, the appearance of adjacent concrete improvements. Where necessary, lamp black or other pigments shall be added to the new concrete to obtain the desired results.

All concrete work shall conform to the requirements of Section 4.4.10 of these specifications.

# SECTION 32 12 05 M
# BITUMINOUS CONCRETE

Revise Section 2.3 as follows:

**2.3 ADDITIVES**

A. Mineral Filler: None

B. Recycle Agent: None

C. Anti-strip Agent: 1% Lime Slurry

D. RAP or ROSP (By weight or binder, whichever is lesser): Allowed up to 15%

**2.4 MIX DESIGN**

Replace paragraph A with the following:

A.Project Specific Requirements:

a. Road Category: Class II

b. Mix Designator (Compaction Effort): 50 Blow

c. Binder Grade: PG 58-28

d. Master Grading Band: DM-1/2”

# SECTION 32 12 05
# BITUMINOUS CONCRETE

## PART 1 GENERAL

1.1 **SECTION INCLUDES**

A. Composition of a bituminous concrete mix.

1.2 **REFERENCES**

A. **AASHTO Standards**:

M323 Superpave Volumetric Mix Design, Single User Digital Publication

R30 Mixture Conditioning of Hot-Mix Asphalt (HMA)

T324 Hamburg Wheel-Track Testing of Compacted Hot-Mix Asphalt (HMA)

B. **AI Standards**:

MS-2 Asphalt Mix Design Methods.

C. **ASTM Standards**:

C29 Unit Weight and Voids in Aggregate.

C88 Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.

C117 Materials Finer Than 0.075mm (No. 200) Sieve in Mineral Aggregates by Washing.

C131 Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.

C136 Standard Method for Sieve Analysis of Fine and Coarse Aggregate.

C142 Clay Lumps and Friable Particles in Aggregates.

D75 Sampling Aggregates.

D140 Sampling Bituminous Materials.

D242 Mineral Filler for Bituminous Paving Mixtures.

D979 Sampling Bituminous Paving Mixtures.

D995 Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures.

D2041 Theoretical Maximum Specific Gravity of Bituminous Paving Mixtures.

D2419 Sand Equivalent Value of Soils and Fine Aggregate.

D3203 Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures.

D3515 Hot-Mixed, Hot-Laid Bituminous Paving Mixtures.

D3665 Random Sampling of Construction Materials.

D3666 Minimum Requirements for Agencies Testing and Inspecting Bituminous Paving Materials.

D4318 Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

D4552 Classifying Hot-Mix Recycling Agents.

D4791 Flat or Elongated Particles in Coarse Aggregate.

D4867 Effect of Moisture on Asphalt Concrete Paving Mixtures.

D5444 Mechanical Size Analysis of Extracted Aggregate.

D5821 Determining the Percentage of Fractured Particles in Coarse Aggregate.

D6307 Determining Asphalt Content of Hot-Mix Asphalt by Ignition Method.

D6373 Performance Graded Asphalt Binder.

D6927 Marshall Stability and Flow of Bituminous Mixtures.

1.3 **DEFINITIONS**

A. **Mix Designator**: An alphanumeric code that identifies binder grade, aggregate grade, and compaction level for a bituminous concrete mix. For example.

- *PG70-28, SP-1, 75Nd***:** PG70-28 is a Performance Graded Asphalt Binder. SP-1 is the aggregate grade. 75Nd is the compaction level at Superpave mix design.
- *OS/PG, SP-3/4, 75Nd*: OS/PG is a Blended Binder. SP-3/4 is the aggregate grade. 75ND is the compaction level at Superpave mix design.
- *PG64-22, DM-1/2, 50 blow*: PG64-22 is a Performance Graded Asphalt Binder. DM-1/2 is the aggregate grade. 50 blow is the compaction level at Marshall mix design.
- *OS/PG, DM-3/4, 50 blow*: OS/PG is a Blended Binder. DM-3/4 is the aggregate grade. 50 blow is the compaction level at Marshall mix design.

B. **Bituminous Binder**: A cement composed of any of several viscous or solid mixtures of hydrocarbons and their nitrogen and sulfur derivatives.

1. Asphalt Binder: A refined or manufactured bituminous cement known as performance graded asphalt binder (PG or PGAB) whether virgin or contained in RAP.

2. Bitumen Binder: A natural bituminous cement contained in an Oil Sand (OS) or contained in a ROSP.

3. Blended Binder: A Mixture of Asphalt Binder and Bitumen Binder.

C. **Mean of Deviations**: Defined in Section 32 11 23.

D. **Nominal Maximum Size**: One sieve size larger than first sieve size retaining more than 10 percent of the Sample. One hundred percent of the aggregate might be able to pass through the nominal maximum size sieve but not more than 10 percent will be retained on that sieve. The maximum size sieve will be one (1) sieve size larger than the nominal

maximum size.

E. **Oil Sand (OS):** Naturally occurring sediments or sedimentary rock containing gravel, sand, clay, water and bituminous cement.

F. **RAP**: Acronym for reclaimed asphalt pavement. A granular product recovered from a bituminous pavement containing aggregate and an Asphalt Binder.

G. **ROSP**: Acronym for reclaimed Oil Sand pavement. A granular product recovered from a bituminous pavement containing aggregate and a Bitumen Binder.

1.4 **SUBMITTALS**

A. **General**:

1. Pre-approved Mix Design: Submit name and address of Supplier.
2. Allow ENGINEER 10 days to evaluate mixing equipment and mix design submittals.
3. Once a mix design is accepted, a new mix design submittal is required if the following occurs.
   a. Asphalt Binder grade is changed.
   b. Aggregate source is changed. When this occurs, submit a physical properties report on the proposed aggregates.

B. **Quality Assurance**:

1. Independent Laboratory: Submit names, certification levels, and years of experience of testing agency's field technicians that are assigned to the Work. Verify laboratory complies with ASTM D3666. and follows Section 01 45 00 requirements.
2. Mix Production Equipment: Submit verification by an individual acceptable to ENGINEER, that plant equipment complies with requirements of ASTM D995.
3. Testing Report: If requested by ENGINEER, submit a report of source and field quality control testing performed by CONTRACTOR and Suppliers.

C. **Mix Design**: Submit the following.

1. Date of mix design. If the date exceeds the following times, the mix design is invalid and must be redesigned.
   a. One (1) year for non-commercial plants.
   b. Two (2) years for commercial plants if there is no change in the aggregate source. A new mix design will be required if aggregate source is changed.
2. Binder source, type, and grade. Disclose if RAP or ROSP is used in the mix.
3. Optimum compaction temperature at the project site.
4. Theoretical maximum specific gravity.
5. Compaction density at design target air voids.
6. Target Grading Curve for aggregate.

7. Binder target percentage, dust to binder ratio, and the following as applicable.
   a. For Superpave mix design provide 1) voids in the mineral aggregate (VMA), and 2) voids filled with Bituminous Binder also known as VFA, and 3) Hamburg Wheel Tracker results.
   b. For Marshall mix design provide 1) tensile strength ratio (moisture sensitivity), 2) voids in the mineral aggregate (VMA), 3) stability, 4) flow and 5) voids in the bituminous mix, and 6) voids filled with Bituminous Binder also known as VFA.
8. Percentages of 1) mineral filler, 2) anti-strip, 3) reclaimed bituminous pavement (RAP or ROSP), 4) recycle agent in the mix, and 5) virgin aggregate.
9. Aggregate physical properties (this section article 2.2). The information is for suitability of source and not for project control. A new report may be required if aggregate source is changed. Test results shall not be older than two (2) calendar years from the date of submission.

## 1.5 QUALITY ASSURANCE

A. Do not change aggregate source or binder source until ENGINEER accepts new sources and mix design.

## 1.6 ACCEPTANCE

A. **General**:
   1. Acceptance is by Lot. One (1) Lot is one (1) days' production.
   2. If non-complying material has been installed and no price for the material is specified, apply pay adjustment against cost of work requiring material as part of its installation, Section 01 29 00.
   3. If test results are not within this section's limits, options include correction of production procedures or production of an alternate mix design acceptable to ENGINEER.
   4. Observation of CONTRACTOR's field quality control testing does not constitute acceptance. Such testing; however, may be used by ENGINEER for acceptance if requirements in Section 01 35 10 are met.
   5. Dispute resolution, Section 01 35 10.

B. **Mix Sampling and Testing**:
   1. Sub-lot size is 500 tons or part thereof.
   2. Sampling Protocol: ASTM D3665 and ASTM D979. Collect at least one (1) random Sample per sub-lot from behind paver and before compaction. Any sample collected because of non-uniform appearance shall not be used in determining a pay factor for the Lot.
   3. Testing Protocol: Field samples will be compacted in the laboratory and tested for:
      a. Air voids, ASTM D3203.
      b. Voids in the mineral aggregate, AI MS 2.

c. Binder content, ASTM D6307.

d. Aggregate gradation, ASTM D5444.

C. **Pay Reduction**: Lot is acceptable if binder content and aggregate gradation test deviations are within pay factor 1.00 limits in Table 1 or Table 2 as applicable. At ENGINEER's discretion a Lot with a sub-lot test deviation greater than pay factor 0.85 limits may stay in place at 50 percent pay.

**Table 1 – Pay Factors – Superpave Mix Design**

| Criteria | Pay Factor | Range of Mean of Deviations of Tests Results in Percentage Points from Binder and Gradation Targets | | | |
|---|---|---|---|---|---|
| | | 500 Tons | 1,000 Tons | 1,500 Tons | ≥ 2,000 Tons |
| Binder Content | 1.00 | 0.0 – 0.7 | 0.0 – 0.54 | 0.0 – 0.46 | 0.0 – 0.41 |
| | 0.975 | 0.71 – 0.8 | 0.55 – 0.61 | 0.47 – 0.52 | 0.42 – 0.46 |
| | 0.95 | 0.81 – 0.9 | 0.62 – 0.68 | 0.53 – 0.58 | 0.47 – 0.52 |
| | 0.90 | 0.9 – 1.0 | 0.69 – 0.75 | 0.59 – 0.64 | 0.53 – 0.56 |
| | 0.85 | 1.01 – 1.1 | 0.76 – 0.82 | 0.65 – 0.69 | 0.57 – 0.61 |
| 1/2" and larger Sieve | 1.00 | 0.0 – 10.0 | 0.0 – 7.3 | 0.0 – 6.3 | 0.0 – 5.6 |
| | 0.975 | 11.0 – 12.0 | 7.4 – 8.3 | 6.4 – 7.1 | 5.7 – 6.3 |
| | 0.95 | 13.0 – 13.9 | 8.4 – 9.3 | 7.2 – 7.9 | 6.4 – 7.0 |
| | 0.90 | 14.0 – 14.9 | 9.4 – 10.3 | 8.0 – 8.7 | 7.1 – 7.7 |
| | 0.85 | 15.0 – 16.0 | 10.4 – 11.3 | 8.8 – 9.5 | 7.8 – 8.4 |
| 3/8" Sieve | 1.00 | 0.0 – 9.9 | 0.0 – 6.9 | 0.0 – 5.9 | 0.0 – 5.3 |
| | 0.975 | 10.0 – 10.9 | 7.0 – 7.8 | 6.0 – 6.6 | 5.4 – 5.9 |
| | 0.95 | 11.0 – 11.9 | 7.9 – 8.7 | 6.7 – 7.3 | 6.0 – 6.6 |
| | 0.90 | 12.0 – 13.9 | 8.8 – 9.6 | 7.4 – 8.0 | 6.7 – 7.2 |
| | 0.85 | 14.0 – 15.0 | 9.7 – 10.5 | 8.1 – 8.9 | 7.3 – 7.9 |
| No. 4 Sieve | 1.00 | 0.0 – 9.9 | 0.0 – 6.7 | 0.0 – 5.7 | 0.0 – 5.2 |
| | 0.975 | 10.0 – 10.9 | 6.8 – 7.6 | 5.8 – 6.3 | 5.3 – 5.8 |
| | 0.95 | 11.0 – 11.9 | 7.7 – 8.5 | 6.4 – 6.9 | 5.9 – 6.4 |
| | 0.90 | 12.0 – 12.9 | 8.6 – 9.4 | 7.0 – 7.5 | 6.5 – 7.0 |
| | 0.85 | 13.0 – 14.0 | 9.5 – 10.2 | 7.6 – 8.0 | 7.1 – 7.6 |
| No. 8 Sieve | 1.00 | 0.0 – 7.9 | 0.0 – 5.6 | 0.0 – 4.8 | 0.0 – 4.3 |
| | 0.975 | 8.0 – 8.9 | 5.7 – 6.3 | 4.9 – 5.4 | 4.4 – 4.8 |
| | 0.95 | 9.0 – 9.9 | 6.4 – 7.0 | 5.5 – 6.0 | 4.9 – 5.3 |
| | 0.90 | 10.0 – 10.9 | 7.1 – 7.7 | 6.1 – 6.6 | 5.4 – 5.8 |
| | 0.85 | 11.0 – 12.0 | 7.8 – 8.5 | 6.7 – 7.2 | 5.9 – 6.4 |
| No. 200 Sieve | 1.00 | 0.0 – 3.0 | 0.0-2.4 | 0.0 – 2.0 | 0.0 – 1.8 |
| | 0.975 | 3.1 – 3.5 | 2.5 – 2.7 | 2.1 – 2.2 | 1.9 – 2.0 |
| | 0.95 | 3.6 – 4.0 | 2.8 – 3.0 | 2.3 – 2.4 | 2.1 – 2.2 |
| | 0.90 | 4.1 – 4.5 | 3.1 – 3.3 | 2.5 – 2.7 | 2.3 – 2.4 |
| | 0.85 | 4.6 – 5.0 | 3.4 – 3.6 | 2.8 – 3.0 | 2.5 – 2.6 |

NOTES
(a) Test binder content using a burn-off oven, ASTM D6307.
(b) Determine aggregate gradation by extraction, ASTM D5444.

| Table 2 – Pay Factors - Marshall Mix Design | | | | | | |
|---|---|---|---|---|---|---|
| **Criteria** | **Pay Factor** | **Range of Mean of Deviations of Tests Results from the Binder and Gradation Targets in Percentage Points** | | | | |
| | | **500 Tons** | **1,000 Tons** | **1,500 Tons** | **2,000 Tons** | **≥2,500 Tons** |
| Binder Content | 1.00 | 0.00–0.70 | 0.00–0.54 | 0.00–0.46 | 0.00–0.41 | 0.00–0.38 |
| | 0.975 | 0.71–0.80 | 0.55–0.61 | 0.47–0.52 | 0.42–0.46 | 0.39–0.43 |
| | 0.95 | 0.81–0.90 | 0.62–0.68 | 0.53–0.58 | 0.47–0.52 | 0.44–0.47 |
| | 0.90 | 0.91–1.00 | 0.69–0.75 | 0.59–0.64 | 0.53–0.56 | 0.48–0.52 |
| | 0.85 | 1.01–1.10 | 0.76–0.82 | 0.65–0.69 | 0.57–0.61 | 0.53–0.56 |
| 1/2"and larger Sieve | 1.00 | 0.0–10.9 | 0.0–7.3 | 0.0–6.5 | 0.0–5.6 | 0.0–5.2 |
| | 0.975 | 11.0–12.9 | 7.4–8.3 | 6.4–7.1 | 5.7–6.3 | 5.3–5.8 |
| | 0.95 | 13.0–13.9 | 8.4–9.3 | 7.2–7.9 | 6.4–7.0 | 5.9–6.4 |
| | 0.90 | 14.0–14.9 | 9.4– 10.3 | 8.0–8.7 | 7.1–7.7 | 6.5–7.1 |
| | 0.85 | 15.0–16.0 | 10.4–11.3 | 8.8–9.5 | 7.8–8.4 | 7.2–7.7 |
| 3/8" Sieve | 1.00 | 0.0–9.9 | 0.0–6.9 | 0.0–5.9 | 0.0–5.3 | 0.0–4.9 |
| | 0.975 | 10.0–10.9 | 7.0–7.8 | 6.0–6.6 | 5.4–6.9 | 5.0–5.5 |
| | 0.95 | 11.0–11.9 | 7.9–8.7 | 6.7–7.3 | 6.0–6.6 | 5.6–6.1 |
| | 0.90 | 12.0–13.9 | 8.8–9.6 | 7.4–8.0 | 6.7–7.2 | 6.2–6.6 |
| | 0.85 | 14.0–15.0 | 9.7–10.5 | 8.1–8.9 | 7.3–7.9 | 6.7–7.2 |
| No. 4 Sieve | 1.00 | 0.0–9.9 | 0.0–6.7 | 0.0–5.7 | 0.0–5.2 | 0.0–4.8 |
| | 0.975 | 10.0–11.0 | 6.8–7.6 | 5.8–6.3 | 5.3–5.8 | 4.9–5.4 |
| | 0.95 | 11.1–11.9 | 7.7–8.5 | 6.4–6.9 | 5.9–6.4 | 5.5–5.9 |
| | 0.90 | 12.0–12.9 | 8.6–9.4 | 7.0–7.5 | 6.5–7.0 | 6.0–6.5 |
| | 0.85 | 13.0-14.0 | 9.5–10.2 | 7.6–8.0 | 7.1–7.6 | 6.6–7.0 |
| No. 8 Sieve | 1.00 | 0.0–7.9 | 0.0–5.6 | 0.0–4.8 | 0.0–4.3 | 0.0–4.0 |
| | 0.975 | 8.0–8.9 | 5.7–6.3 | 4.9–5.4 | 4.4–4.8 | 4.1–4.5 |
| | 0.95 | 9.0–9.9 | 6.4–7.0 | 5.5–6.0 | 4.9–5.3 | 4.6–4.9 |
| | 0.90 | 10.0–10.9 | 7.1–7.7 | 6.1–6.6 | 5.4–5.8 | 5.0–5.4 |
| | 0.85 | 11.0–12.0 | 7.8–8.5 | 6.7–7.2 | 5.9–6.4 | 5.5–5.8 |
| No. 16 Sieve | 1.00 | 0.0–7.9 | 0.0–5.2 | 0.0–4.6 | 0.0–4.2 | 0.0–3.9 |
| | 0.975 | 8.0–8.9 | 5.3–5.8 | 4.7–5.1 | 4.3–4.6 | 4.0–4.3 |
| | 0.95 | 9.0–9.9 | 5.9–6.4 | 5.2–5.6 | 4.7–5.1 | 4.4–4.7 |
| | 0.90 | 10.0–10.9 | 6.5–7.0 | 5.7–6.1 | 5.2–5.5 | 4.8–5.1 |
| | 0.85 | 11.0–12.0 | 7.1–7.6 | 6.2–6.6 | 5.6–5.9 | 5.2–5.4 |
| No. 50 Sieve | 1.00 | 0.0–6.9 | 0.0–4.3 | 0.0–3.8 | 0.0–3.4 | 0.0–3.2 |
| | 0.975 | 7.0–7.9 | 4.4–4.8 | 3.9–4.1 | 3.5–3.8 | 3.3–3.5 |
| | 0.95 | 8.0–8.9 | 4.9–5.3 | 4.2–4.5 | 3.9–4.1 | 3.6–3.8 |
| | 0.90 | 9.0–9.9 | 5.4–5.8 | 4.6–4.9 | 4.2–4.4 | 3.9–4.1 |
| | 0.85 | 10.0–11.0 | 5.9–6.4 | 5.0–5.5 | 4.5–4.9 | 4.2–4.5 |
| No. 200 Sieve | 1.00 | 0.0–3.0 | 0.0–2.4 | 0.0–2.0 | 0.0–1.8 | 0.0–1.7 |
| | 0.975 | 3.1–3.5 | 2.5–2.7 | 2.1–2.2 | 1.9–2.0 | 1.8–1.9 |
| | 0.95 | 3.6–4.0 | 2.8–3.0 | 2.3–2.4 | 2.1–2.2 | 2.0–2.1 |
| | 0.90 | 4.1–4.5 | 3.1–3.3 | 2.5–2.7 | 2.3–2.4 | 2.2–2.3 |
| | 0.85 | 4.6–5.0 | 3.4–3.6 | 2.8–3.0 | 2.5–2.6 | 2.4–2.5 |

NOTES
(a) Test binder content using a burn-off oven, ASTM D6307.
(b) Determine aggregate gradation by extraction, ASTM D5444.

D. **Installation**: See Section 32 12 16.13 acceptance requirements.

## PART 2 PRODUCTS

### 2.1 BINDER

A. **Performance Graded Asphalt Binder (PGAB)**: See ASTM D6373.

1. Blending with polymers is allowed.
2. Do not use acid blends without documentation supporting need.
3. Adjust binder grade according to AASHTO M323 to account for any binder stiffness caused by adding RAP or ROSP to the mix.

B. **Bitumen Binder**: Oil Sand (OS) source is CONTRACTOR's choice.

C. **Blended Binder**: CONTRACTOR's choice. A blended ratio of Asphalt Binder to Bitumen Binder in the range of about 1:4 to about 4:1 may require patent licensure (Reference: US RE39, 289 E). CONTRACTOR to verify.

### 2.2 AGGREGATE

A. Crushed stone, crushed gravel,slag, sand, or combination.

B. Use Table 3 to determine suitability of aggregate source.

**Table 3 – Aggregate Physical Properties**

| | | Standard | Road Class | |
|---|---|---|---|---|
| | | | I & II | III |
| **Coarse Aggregate** | | | | |
| Angularity, percent, minimum | One Fractured face | D5821 | 90 | 95 |
| | Two Fractured faces | | 90 | 90 |
| Wear (hardness or toughness), percent, maximum | | C131 | 35 | 35 |
| Flats or elongates (3:1 length to width), percent, maximum | | D4791 | -- | 20 |
| **Fine Aggregate** | | | | |
| Angularity (uncompacted void content), percent, minimum | | T304 | 40 | 45 |
| Sand equivalent, percent, minimum | | D2419 | 45 | 60 |
| Plastic limit, maximum | | D4318 | 0 | 0 |
| **Blended Physical Properties** | | | | |
| Dry-rodded Unit Weight, lb/ft$^3$, minimum | | C29 | 75 | 75 |
| Weight Loss (Soundness), percent, maximum | | C88 | 16 | 16 |
| Friable particles, percent, maximum | | C142 | 2 | 2 |

NOTES

(a) Road Class is defined in Section 32 01 31.

(b) Course aggregate does not pass No. 4 sieve. Fine aggregate does pass.

(c) Angularity is determined by weight.

(d) Wear of aggregate may have higher values if aggregate source is known to have higher values.

(e) Sand equivalent is waived for RAP or ROSP aggregate but applies to the

remainder of the aggregate blend.

(f) Plastic limit, passing No. 40 sieve. Aggregate is non-plastic even when filler material is added to the aggregate.

(g) Weight loss, using sodium sulfate.

(g) Friable particles are clay lumps, shale, wood, mica, coal passing the No. 4 sieve, and other deleterious materials.

## 2.3 ADDITIVES

A. Mineral Filler: ASTM D242.

B. Recycle Agent: ASTM D4552.

C. Anti-strip Agent: Heat stable cement slurry, lime slurry, or chemical liquid.

D. RAP or ROSP: Free of detrimental quantities of deleterious materials.

1. Allowed up to 15 percent by weight of RAP or binder, whichever is lesser, with no change in specified binder grade.
2. Allowed from 15 to 30 percent by weight of RAP or binder, whichever is lesser, if the binder grade is adjusted according to AASHTO M323 to meet the specified binder grade.
3. Determine RAP binder content by chemical extraction.

## 2.4 MIX DESIGN

A. **Preparation**:

1. Get the Mix Designator and the Road Class from the OWNER, ENGINEER, or bid documents.
2. Use paragraph 1.4C to determine submittal requirements.

B. **Aggregate Gradation – Superpave Mix Design:** See Table 4. The Target Gradation Curve for the specified aggregate grade must lie within the Master Grading Band limits. The target grading band limits for the Target Grading Curve are the appropriate grading limits for pay factor 1.00 in Table 1. The target grading band limits are allowed to extend outside of the Master Grading Band limits.

**Table 4 - Master Grading Bnds - Superpave Mix Design**

| Sieve | Grade | | | |
|---|---|---|---|---|
| | SP-1 | SP-3/4 | SP-1/2 | SP-3/8 |
| 1.5 inch | 100.0 | – | – | -- |
| 1 inch | 90.0 – 100.0 | 100.0 | – | -- |
| 3/4 inch | < 90 | 90.0 – 100.0 | 100.0 | – |
| 1/2 inch | – | < 90 | 90.0 – 100.0 | 100.0 |
| 3/8 inch | – | – | < 90 | 90.0 – 100.0 |
| No. 4 | – | – | – | < 90 |
| No. 8 | 19.0 – 45.0 | 23.0 – 49.0 | 28.0 – 58.0 | 32.0 – 67.0 |
| No. 200 | 1.0 – 7.0 | 2.0 – 8.0 | 2.0 – 10.0 | 2.0 – 10.0 |

NOTES

(a) Gradation is expressed in percent passing by weight per ASTM C136. Percentage of fines passing No. 200 sieve determined by washing per

ASTM C117.

(b) The alpha portion of the grade designator (SP) represents Superpave mix. The numerical portion ( 1, 3/4, 1/2, 3/8) represents the ***nominal maximum*** sieve size.

C. **Aggregate Gradation – Marshall Mix Design**: See Table 5. The Target Gradation Curve for the specified aggregate grade must lie within the Master Grading Band limits. The target grading band limits for the Target Grading Curve are the appropriate grading limits for pay factor 1.00 in Table 2. The target grading band limits are allowed to extend outside of the Master Grading Band limits.

**Table 5 - Master Grading Band Limits - Marshal Mix Deisgn**

| Sieve | Aggregate Grades | | | | | |
|---|---|---|---|---|---|---|
| | **DM-1** | **DM-3/4** | **DM-/2** | **OM-1/2** | **FM-1** | **FM-1/2** |
| 1 inch | 100 | | | | | |
| 3/4 inch | | 100 | | | 100 | |
| 1/2 inch | 75 - 91 | | 100 | 100 | 90 - 100 | 100 |
| 3/8 inch | | 75 - 91 | | 93 - 100 | 60 - 100 | 90 - 100 |
| No. 4 | 47 - 61 | 46 - 62 | 60 - 80 | 36 - 44 | 15 - 40 | 30 - 50 |
| No. 8 | | | | 14 - 21 | 4 - 12 | 5 - 15 |
| No. 16 | 23 - 33 | 22 - 34 | 28 - 42 | | | |
| No. 50 | 12 - 22 | 11 - 23 | 11 - 23 | | | |
| No. 200 | 3 - 7 | 3 - 7 | 3 - 7 | 2 - 4 | 2 -5 | 2 - 5 |

NOTES

(a) Gradation is expressed in percent passing by weight, ASTM C136. Percentage of fines passing No. 200 sieve determined by washing, ASTM C117.

(b) Friction Mixture, ASTM D3515.

(c) The alpha portion of the grade designator (DM, OM, FM) represents dense mix, open mix and friction mix. The numerical portion ( 1, 3/4, 1/2) represents the ***maximum*** sieve size.

D. Design Parameters: Determined by AI MS-2.

| Table 6 - Mix Design Parameters | | | | | |
|---|---|---|---|---|---|
| | **SuperPave** | | | **Marshall** | |
| Compaction Level (b) | 50Nd | 75Nd | 100Nd | 50 blow | 75 blow |
| Stability, lbs, minimum (c) | -- | | | 1200 | 1800 |
| Flow, in 0.01 inch units (c) | -- | | | 10 - 18 | |
| Design Air Void Target, percent (d) | 3.5 | | | 3.5 | |
| Voids in Mineral Aggregate (VMA) relative to maximum or nominal sieve size grading and calculated using Gsb(dry), percent, minimm | ASTM D3203 | | | ASTM D6927 | |
| | Nominal Grading | | | Maximum Grading | |
| | 1 | | 12.0 | 1 | 13.0 |
| | 3/4 | | 13.0 | 3/4 | 14.0 |
| | 1/2 | | 14.0 | 1/2 | 15.0 |
| | 3/8 | | 15.0 | 3/8 | 16.0 |
| RAP or ROSP specific gravity for calculations | Gsb (dry) by chemical extraction | | | | |
| Dust to Binder Ratio, maximum | 1.4 | | | 1.6 | |
| Tensile Strength Ratio (moisture sensitivity), minimum (e) | - | | | 0.80 | |
| Rutting (Hamburg rut test) (f) | AASHTO T324 | | | | |
| Road Class I | -- | | | -- | -- |
| Road Class II | 15 mm/10,000 passes | | | -- | -- |
| Road Class III | 10 mm/20,000 passes | | | -- | -- |

NOTES

(a) Road Class is defined in Section 32 01 31.

(b) 100Nd mix is for very high traffic applications only as defined by ENGINEER. 100Nd mix is intended for lower lift applications or surface applications with proactive seal coat program.

(c) Design Density Target: See ASTM D2041. Percent of maximum theoretical specific gravity.

(d) Stability, Flow, Voids: See ASTM D6927.

(e) Tensile Strength Ratio (moisture sensitivity): See ASTM D4867. Use freeze thaw conditioning. Compact test specimen to seven (7) percent plus or minus one (1) percent air voids.

(f) With testing performed at temperatures representing the specified binder grade in the Hamburg rut test, the average rut depth of two (2) mix design test Samples is less than the amount shown for the respective Road Classes.

## 2.5 SOURCE QUALITY CONTROL

A. Collect Samples randomly, ASTM D3665. Do not change sampling points:
   1. Sampling aggregate, ASTM D75. Collect samples before the drum mixer.
   2. Sampling binder, ASTM D140.
   3. Sampling bituminous paving mixture, ASTM D979.

B. Validate binder grade received from Supplier, Section 32 12 03.

C. Test mix every production day for the following:
   1. Combined aggregate gradation in the mix, ASTM D5444.
   2. Binder content in the mix, ASTM D6307.
   3. Temperature of mix placed in the transport vehicle at the production plant.
      a. Asphalt Binder mixes.
         1) Hot Mix: 325 deg F maximum.
         2) Warm Mix: 325 deg F maximum.
      b. Bitumen Binder mixes or Blended Binder mixes.
         1) Hot Mix: NOT ALLOWED.
         2) Warm Mix: 230 degrees maximum.

D. Warm Mix Testing: When rutting or moisture susceptibility tests are required on plant produced warm mix, condition the warm mix material before testing for two (2) hours at 275 plus or minus five (5) deg F per AASHTO R30 (short term aging). The material may be cooled to room temperature before conditioning.

# PART 3 EXECUTION

## 3.1 CONSTRUCTION EQUIPMENT

A. Mixing Plant: ASTM D995. Provide.
   1. Positive means to determine the moisture content of aggregate.
   2. Positive means to sample all material components.
   3. Sensors to measure the temperature of the mix at discharge.
   4. Ability to maintain discharge temperature of mix.
   5. Capability of maintaining plus or minus five (5) percent tolerance on component percentages in final mix.
   6. Oil Sand Introduction System: **Do not burn off the light oils in Bitumen Binder (oil sand).**

3.2 **INSTALLATION**

A. Pavement placement, Section 32 12 16.13.

B. Pavement restoration, Section 33 05 25

END OF SECTION

# SECTION 32 12 13.13
# TACK COAT

## PART 1 GENERAL

### 1.1 SECTION INCLUDES

A. Application of asphaltic material to existing bituminous concrete or Portland cement concrete surfaces before placing an bituminous concrete pavement.

### 1.2 SUBMITTALS

A. Certificate showing asphaltic material complies with Section 32 12 03:

1. Identify water/asphalt dilution ratio.
2. Identify tack coat application rate.

B. Identify asphalt material recommended by fabric manufacturer.

### 1.3 WEATHER

A. Apply tack coat only when air and roadbed temperatures in the shade are greater than 40 deg F Temperature restrictions may be waived only with ENGINEER's concurrence.

B. Do not apply tack coat during rain, fog, dust, or other unsuitable weather. Do not apply coat to wet surfaces.

### 1.4 NOTICE

A. Send written notice to residents or business owners 24 hours before applying coat.

## PART 2 PRODUCTS

### 2.1 ASPHALT MATERIAL

A. Select from the following:

1. Emulsified Asphalt: Grade MS-1, SS-1 or SS-1h, Section 32 12 03.
2. Cationic Emulsified Asphalt: Grade CSS-1 or CSS-1h, Section 32 12 03.
3. Rapid Cure Cutback Asphalt: Grade RC-70, Section 32 12 03.

## PART 3 EXECUTION

### 3.1 PREPARATION

A. Select and advise ENGINEER of the type of tack material to be used.

B. Clean surface to be treated free of dust and other foreign material. If flushed, allow surface to dry. If leaves from trees, blow clean.

C. Provide safe pedestrian access across tack coat.

D. Prevent pedestrians, vehicles, pets, etc., access to tack surfaces.

### 3.2 APPLICATION

A. General:

1. Triple coverage by spray bar required. Stop application if any nozzle is not working properly.
2. Apply tack only to area covered with bituminous concrete in the same day.

B. Application Rate: Typically as follows:

1. Emulsions, 0.05 to 0.15 gallons per square yard.
2. Cutback, CONTRACTOR's choice.

C. Tack for Fabric Application: Comply with manufacturer's recommendation. If none, then as follows:

1. Dry pavement surface, 0.20 to 0.30 gallons per square yard. Within street intersections, on steep grades and in zones where vehicle speed changes are commonplace reduce application rate to no less than 0.20 gallons per square yard.
2. Heavy duty fabrics, 0.30 to 0.40 gallons per square yard.

### 3.3 PROTECTION

A. Protect all surfaces exposed to public view from being spattered or marred. Remove any spattering, over-coating, or marring.

B. Do not discharge bituminous material into borrow pits or gutters.

### 3.4 OPENING TO TRAFFIC AND MAINTENANCE

A. Do not permit traffic to travel over the tacked surface until bituminous tack coat has cured or is not picked up by traffic.

B. If detours cannot be provided, restrict operations to a width suitable at least for one-way traffic over the remaining portion of the road.

C. If one-way traffic is provided, control traffic appropriately.

END OF SECTION

# SECTION 32 12 16.13
# PLANT-MIX BITUMINOUS PAVING

## PART 1 GENERAL

### 1.1 SECTION INCLUDES

A. Place a bituminous concrete pavement base course, leveling course, surface course, overlay course, or an inlay course.

### 1.2 REFERENCES

A. **AASHTO Standards**:

R9 Acceptance Sampling Plans for Highway Construction.

TP68 Bulk Specific Gravity and Density of Compacted Asphalt Mixtures Using Automatic Vacuum Sealing Method.

T324 Hamburg Wheel-Track Testing of Compacted Hot-Mix Asphalt (HMA).

B. **ASTM Standards**:

D979 Sampling Bituminous Paving Mixtures.

D1188 Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Coated Samples.

D2041 Theoretical Maximum Specific Gravity of Bituminous Paving Mixtures.

D2725 Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures.

D2950 Density of Bituminous Concrete In Place by Nuclear Method.

D3549 Thickness or Height of Compacted Bituminous Paving Mixture Specimens.

D3665 Random Sampling of Construction Materials.

D5361 Sampling Compacted Bituminous Mixtures for Laboratory Testing.

D6927 Marshall Stability and flow of Bituminous Mixtures.

### 1.3 DEFINITIONS

A. Must Grind: Defined in Section 32 01 31.

B. Road Class: Defined in Section 32 01 31

### 1.4 SUBMITTALS

A. **Before Delivery**: Submit 48 hours before delivery:

1. Location and name of bituminous concrete production facility.
2. Mix design method.
3. Mix identification number or code.

4. Type, grade, and weight of binder.
5. Type, grade, and weight of aggregate.
6. Traffic control plan, Section 01 55 26.
7. Type and number of rollers.
8. Manufacturer's certificate of compliance for paving geotextiles. (Refer to Section 31 05 19).
9. Certification of profilograph and profilograph operator.
10. Cold weather paving plan.

B. **At Delivery**: For each batch delivered to site identify:

1. Date and project description.
2. Producer and plant.
3. Name of contractor.
4. Serial number of ticket.
5. Mix identification number or code.
6. Truck number and time dispatched.
7. Volume of mix delivered.

C. **After Placement**: Before final payment submit summary report describing profile deviation and profile roughness. See Section 32 01 31.

1.5 .**QUALITY ASSURANCE**

A. Do not change aggregate source or binder grade until ENGINEER accepts new source and new mix design.

B. Reject product and work that does not meet requirements of this Section.

C. Remove product found defective after installation and install acceptable product at no additional cost to OWNER.

D. Foreman of paving crew has completed at least three (3) projects of similar size and nature.

E. If requested, submit a quality control and testing report describing source and field quality assurance activities performed by CONTRACTOR and Suppliers.

F. For all equipment and hand tools used to mix, haul, and place the bituminous concrete, use a release agent that does not dissolve asphalt and is acceptable to ENGINEER.

1.6 **WEATHER**

A. Temperature:

1. April 15 to October 15: Place pavement when air temperature in the shade and the roadway surface temperature are above 50 deg F. The ENGINEER determines may provide written approval if it is acceptable to place outside of this temperature limit.
2. Before April 15 and After October 15: Provide a Cold Weather Paving Plan. ENGINEER must accept the plan before proceding.

Include the following details.

a. Haul details.

b. Placement details.

c. Compaction aids used in production.

d. Coordination procedure for acceptance testing.

B. Moisture: Do not place on frozen base, during adverse climatic conditions such as precipitation, or when roadway surface is wet or icy.

1.7 **NOTICE**

A. Follow Laws and Regulations concerning when and to whom notices are to be given. Send written notice at least three (3) days before start of paving.

B. Indicate paving time and when new surface can be used.

C. Warn of potential vehicle tow away and other construction issues affecting neighborhood.

D. Should work not occur on specified day, send a new notice.

1.8 **ACCEPTANCE**

A. **General**:

1. Acceptance is by Lot.

2. If non-complying material has been installed and no price for the material is specified, apply pay adjustment against cost of work requiring complying material as part of its installation, Section 01 29 00.

3. Dispute resolution, Section 01 35 10.

4. Opening a paved surface to traffic does not constitute acceptance.

5. Observation of CONTRACTOR's field quality control testing does not constitute acceptance. Such testing; however, may be used by ENGINEER for acceptance if requirements of Section 01 35 10 are met.

B. **Mix Material**: Accepted as specified for bituminous concrete , Section 32 12 05, or rubberized asphalt concrete, Section 32 12 08.

C. **Mix Temperature at Site:**

1. Reject mixes in the transport material exceeding the following temperatures.

a. Hot mix, 425 deg F.

b. Warm mix, 300 deg F.

c. Oil sand bituminous concrete, 230 deg F.

2. Dispose of cold mix in paver hopper as thin spread underlay.

D. **Grade, Cross Slope**: Verify tolerances are not exceeded.

E. **Compaction**: Options for acceptance are 1) core density, 2) non-destructive test density, or 3) control strip density with visual observation. Use core density unless specified elsewhere. A Lot is acceptable if density tests are within pay factor 1.00 limits. At ENGINEER's discretion, a Lot with deficient sub-lot density tests may be accepted if pay is adjusted using an applicable pay factor in the following table, or accepted at 50 percent pay if a sub-lot is in Reject.

| **Table 1 – Compaction Pay Factors** | | |
|---|---|---|
| **Pay Factor** | **Density, in Percent Relative to ASTM D2041** | |
| | **Average** | **Lowest Test** |
| 0.70 | More than 96 | – |
| **1.00** | **92 to 96** | **89 or greater** |
| 0.90 | 92 to 96 | Less than 89 |
| 0.80 | Less than 92 | 89 or greater |
| Reject | Less than 92 | Less than 89 |

1. **Core Density**: This method compares the average density of cores extracted from a pavement surface to maximum theoretical density:
   a. Lot Size: One (1) day production with 1,000 square yard sub-lots or part thereof.
   b. Sampling Protocol: Use ASTM D3665 to randomly select in each sub-lot at least one (1) surface test location and one (1) longitudinal joint test location. Collect at least two (2) test samples at each test location, ASTM D5361. Samples are full depth or overlay depth in overlay construction.
   c. Testing Protocol: ASTM D2725 for core density and ASTM D2041 (Rice) for maximum theoretical density.
2. **Non-Destructive Density Testing by Gage**:
   a. Lot Size: One (1) day production with 1,000 square yard sub-lots or part thereof.
   b. Sampling Protocol: Use ASTM D3665 to randomly select in each sub-lot at least one (1) surface test location and one (1) longitudinal joint test location.
   c. Testing Protocol: ASTM D2950 (nuclear gage) or AASHTO TP68 (non-nuclear gage) and ASTM D2041 (Rice) for maximum theoretical density.
3. **Control Strip Density with Visual Observation**:
   a. Lot: One (1) day production.
   b. Sampling Protocol: Not required after rolling pattern is determined.
   c. Testing Protocol: ASTM D6927 (Marshall) and D2041 (Rice method) to determine rolling pattern for 94 percent compaction, thereafter visual examination.
4. **Compaction Dispute Resolution**:

a. CONTRACTOR:

1) Provide an Independent Testing Agency, Section 01 45 00.

2) Take two (2) supplement cores midway between deficient acceptance test locations, and midway between a deficient test location and an adjacent acceptable test location.

3) Patch core holes.

4) Conduct testing at no additional cost to OWNER.

b. ENGINEER:

1) Accept Lot at full pay if new information shows compliance, or

2) Accept Lot at pay reduction using new test information, or

3) Reject Lot.

F. **Thickness**: A Lot is acceptable if test deficiencies are within pay factor 1.00 limits. At ENGINEER's discretion, a Lot with sub-lot deficiencies greater than allowed for pay factor 1 in the following table may be accepted if pay is adjusted using one of the following applicable pay factors, or accepted at 50 percent pay if a sub-lot is in Reject.

**Table 2 – Thickness Pay Factor**

| Pay Factors | Deficiency Limits, in Inches |
|---|---|
| 1.00 | 0.00 to 0.375 |
| 0.90 | 0.376 to 0.50 |
| 0.70 | 0.51 to 0.75 |
| Reject | 0.76 to 1.00 |

1. **Lot Size**: One (1) day production with 1,000 square yard sub-lots or part thereof.

2. **Sampling Protocol**: Use ASTM D3665 to randomly select at least one surface test location and one longitudinal joint test location in each sub-lot. Collect at least two (2) core samples at each test location, ASTM D5361. Samples are full depth. Overlay construction measured only on overlay portion of core sample.

3. **Testing Protocol**: ASTM D3549:

a. Minimum Specified Thickness: A Lot specified to have minimum thickness will be accepted if all sub-lot measurements meet or exceed minimum. If thickness is deficient, additional material may be placed over the deficient thickness if there is no pavement feathering; placement matches this section's thickness tolerance; surface continues to drain; and roughness tolerance is met.

b. Actual Specified Thickness: A Lot specified to have actual thickness is acceptable if any sub-lot measurement does not exceed deficiency limits for thickness pay factor 1.00.

4. **Thickness Dispute Resolution**:
   a. CONTRACTOR:
      1) Hire an Independent Testing Agency, Section 01 45 00.
      2) Take two (2) additional cores midway between deficient acceptance test locations, and midway between a deficient test location and the next adjacent acceptable test location.
      3) Patch core holes.
      4) Conduct testing at no additional cost to OWNER.
   b. ENGINEER:
      1) Graph deficient areas by plotting new cores and original cores to define deficient areas assuming the following.
         a) The graph represents the thickness of the pavement.
         b) Thicknesses vary linearly along the pavement length from core depth to core depth.
         c) The pavement is a constant depth in the transverse direction.
      2) Accept Lot at full pay if new information shows compliance, or
      3) Accept Lot at pay reduction using new test information, or
      4) Reject Lot.

G. **Profile Roughness and Profile Deviation**: Section 32 01 31.

1.9 **WARRANTY**

**A**. Joints at Street Fixtures and Portland Cement Concrete Flat Work: If wider than 1/2 inch before end of the correction period seal joints with asphalt rubber or rubberized asphalt; Section 32 01 17.

## PART 2 PRODUCTS

2.1 **MATERIALS**

A. Bituminous concrete, Section 32 12 05.

B. Rubberized asphalt concrete, Section 32 12 08.

C. Tack coat, Section 32 12 13.13.

D. Prime coat, Section 32 12 13.19.

E. Paving geotextile, Section 31 05 19.

F. Paving geogrid, Section 31 05 21.

## PART 3 EXECUTION

## 3.1 CONSTRUCTION EQUIPMENT

A. Paver Machine: Use track equipment when operating on fabrics, geogrids or pavement mats hotter than 180 deg F

B. Compactors: Steel wheel static or vibratory. Use pneumatic tire roller for intermediate rolling only.

## 3.2 PREPARATION

A. General:

1. Locate and preserve utilities Section 01 31 13. Contact utility companies and other agencies, for dangerous concentration of combustible, flammable, or explosive matter.
2. Lower Street Fixtures if paving machine is not capable of passing over the fixtures.
3. Remove vegetation from cracks, edges and joints. Sweep surface clean. Blow cracks clean. Remove leaves.
4. Fill cracks and fix Potholes, Section 32 01 17.
5. Stabilize Portland cement concrete subgrade slabs.

B. Traffic Control:

1. Implement notification and traffic control plan requirements, Section 01 55 26. Do not proceed without certified flaggers.
2. Apply temporary lane marking tape or paint after layout has been verified with ENGINEER.

C. Aggregate Base Course:

1. Verify base course is placed to grade, compacted and dampened.
2. If indicated, follow Section 31 31 19 requirements for herbicide treatment or Section 32 12 13.19 for prime coat applications.

## 3.3 PROTECTION

A. Trees, Plants, Ground Cover:

1. Protect trees, plants and other ground cover from damage.
2. Prune trees to allow equipment passage underneath, Section 32 01 93. Repair tree damage at no additional cost to OWNER.

B. Protect all structures, including curb, gutter, sidewalks, guard rails and guide posts from physical damage. Remove spatter, over-coat, or mar.

C. Do not discharge bituminous materials into borrow pits or gutters.

D. Protect hot pavement from traffic until cool enough not to become marred.

E. Remove saw-cut dust immediately. Protect neighborhood, storm drains and down-stream fish habitat.

## 3.4 TEMPORARY SURFACING

A. Place, roll, maintain, remove and dispose of temporary Pavement surfaces.

B. In sidewalk areas construct temporary pavements at least 1 inch thick and in all other areas at least two (2) inches thick. At major intersections and other critical locations a greater thickness may be required.

## 3.5 LINE AND GRADE CONTROL

A. Provide necessary survey stakes for horizontal and vertical control.

B. Furnish, place, and maintain supports, wire devices, and materials as required to provide continuous line and grade reference controls for placing pavement, matching existing pavement surfaces, etc.

## 3.6 FABRIC PLACEMENT

A. Section 31 05 19.

## 3.7 PAVEMENT PLACEMENT

A. General:

1. Barricade off or eliminate fall off edges.
2. Provide continuous forward paver movement so temperature 10 feet behind paver is as follows:
   a. Warm Mix Placement: 200 deg F minimum.
   b. Hot Mix Placement:

**Table 3 – Minimum Pavement Temperature in Degrees F.**

| Air Temperature Deg F | Compacted Mat Thickness | | | | | |
|---|---|---|---|---|---|---|
| | 3/4" | 1" | 1-1/2" | 2" | 3" | 4"+ |
| 45 – 50 | – | – | – | – | 280 | 265 |
| 50 - 59 | – | – | – | 280 | 270 | 255 |
| 60 - 69 | – | – | 285 | 275 | 265 | 250 |
| 70 - 79 | 285 | 285 | 280 | 270 | 265 | 250 |
| 80 - 89 | 280 | 275 | 270 | 265 | 260 | 250 |
| 90 + | 275 | 270 | 265 | 260 | 250 | 250 |

B. Overlays or Subsequent Lifts:

1. Allow new base pavement or new inlay pavement to cure (harden) before placing overlays.
2. Apply tack coat per Section 32 12 13.13 if inlay or sub-base Pavement surface is dirty or older than 24 hours.

C. Irregular Areas: Handwork is acceptable if specified grade, slope, compaction and smoothness are achieved.

D. Compaction:

1. Test mix placement until a compaction pattern is acceptable to CONTRACTOR. Continue random quality control testing.
2. Do not over compact or under compact.

3. Complete compaction before the following temperature are reached:
   a. 180 deg F for hot mixes.
   b. 140 deg F for warm mixes.

E. Joints:
1. Construct joints to industry standards for texture, density and smoothness.
2. Clean contact surfaces and apply tack coat. Ensure continuous bond between old and new pavements, or between successive day's work.
3. Offset longitudinal joints a minimum of 12 inches in succeeding courses and at least six (6) feet transversely to avoid a vertical joint through more than one course. In the top course restrict longitudinal joint to 1 foot either side of lane lines.
4. Prevent traffic, including construction traffic, from crossing vertical edges. Apply tack coat to vertical edges before making another pass with paver if mix has cooled to 90 deg F

## 3.8 TOLERANCES

A. Compaction: Target is 94 percent of ASTM D2041 (Rice density) plus or minus two (2) percent.

B. Lift Thickness: If not indicated, meet the following tolerances.

**Table 4 – Lift Thickness Tolerance**

| Mix Design Method | Minimum | Maximum |
|---|---|---|
| Marshall | 2 times maximum aggregate size | Not more than limits established by manufacturer of compactor equipment |
| Performance Grade (Superpave) | 4 times *nominal* aggregate size | |
| NOTES<br>(a) Thickness is measured after compaction. | | |

C. Smoothness:
1. Parallel to Centerline: Section 32 01 31.
2. Cross Slope: 1/4 inch in 10 feet except at cross section grade breaks.

## 3.9 REPAIR

A. Repair ride disturbing or unsafe butt joints. Repair expense is at no additional cost to OWNER.

B. If pavement smoothness is deficient, follow Section 32 01 31 repair requirements.

C. Corrective Action for Profile Deviations ("Must Grinds"): Grinding is acceptable. See Section 32 01 26. Apply a fog seal over grind areas. See Section 32 01 13.50. If depressions cannot be corrected by grinding, remove and replace.

D. Corrective Action for Profile Roughness Index: Grinding is acceptable. Re-profile corrected segments to verify ride index meets tolerance. Apply a fog seal over grind areas. See Section 32 01 13.50.

E. When thickness is deficient, place additional material over deficient areas. DO NOT skin patch. Mill for inlay if necessary.

F. Defective Joints, Seams, Edges: Repair.

G. Unacceptable Paving: Remove and replace.

3.10 **OPENING TO TRAFFIC**

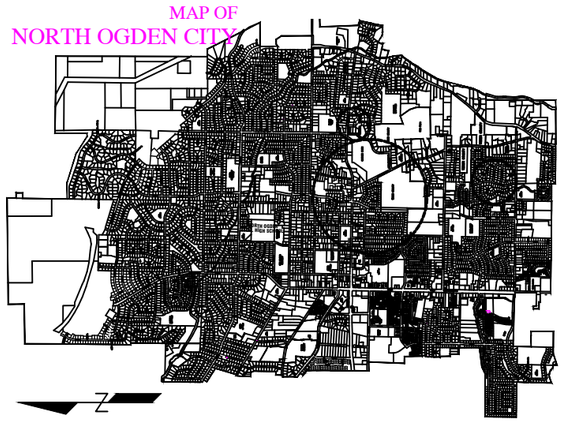
A. Temperature of pavement surface is not more than 180 deg F

END OF SECTION

# Part 5
# Drawings

# NORTH OGDEN CITY CORPORATION

## FY23 STREET MAINTENANCE PROJECT




**VICINITY MAP**

## OWNER / DESIGNER


**DEPARTMENT OF PUBLIC WORKS**

DIRECTOR - DAVE ESPINOZA
CITY ENGINEER - ERIC CASPERSON, P.E.

165 EAST LOMOND VIEW DRIVE
NORTH OGDEN CITY, UTAH 84414
OFFICE - 801.782.8111
FAX - 801.782.6253


## CITY OFFICIALS

| | |
|---|---|
| MAYOR | S. NEAL BERUBE |
| CITY MANAGER/ATTORNEY | JON CALL |
| CITY COUNCIL | RYAN BARKER |
| | BLAKE CEVERING |
| | JAY D DALPIAS |
| | CHARLOTTE EKSTROM |
| | PHILLIP SWANSON |

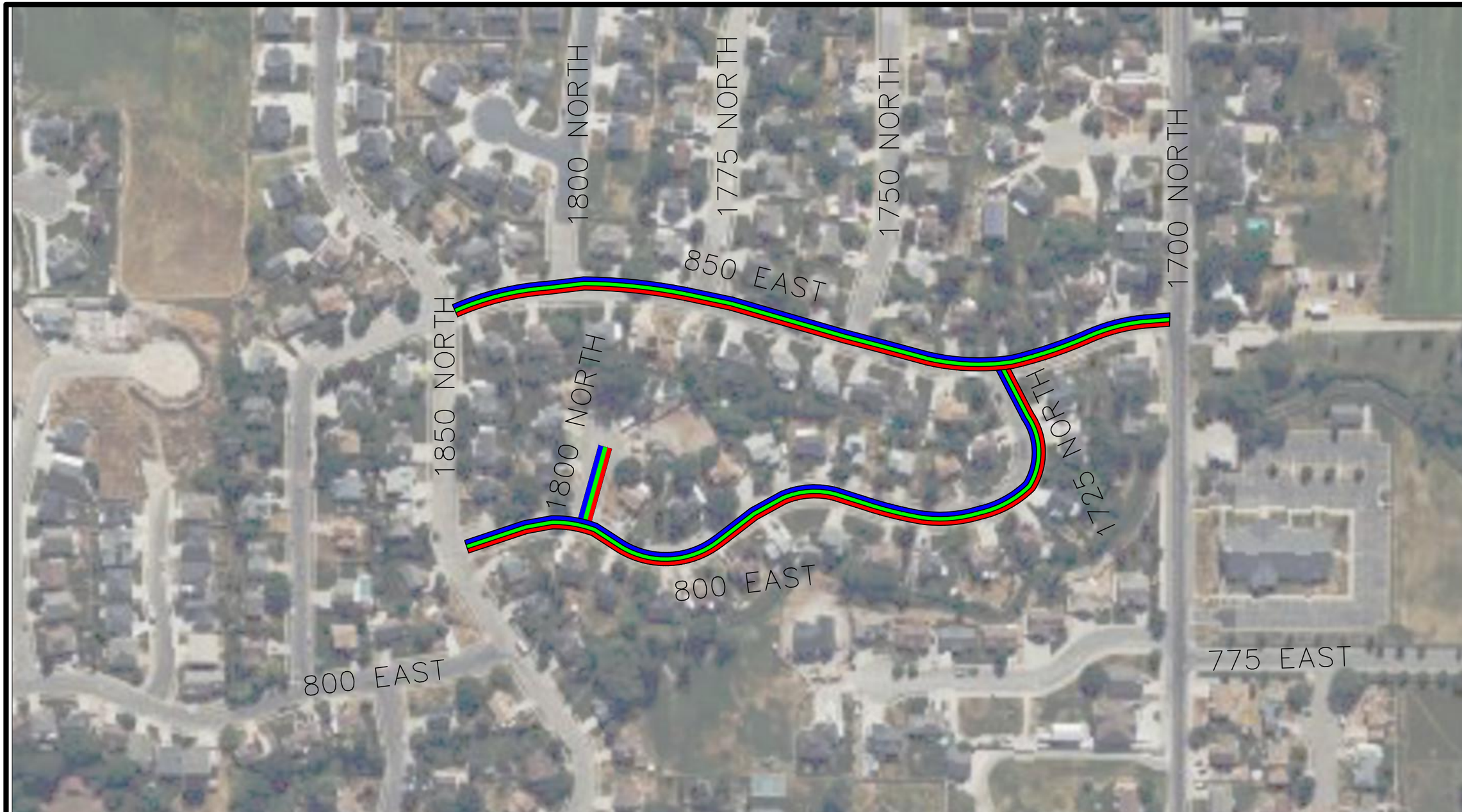
## SHEET SET ASSEMBLY ORDER

| SHEET DESIGNATOR | BINDING ORDER | SHEET TITLE |
|---|---|---|
| CP001 | 1 | ROAD WORK - 1850 N - 1700 N - 800 E - 850 E |
| CP002 | 2 | ROAD WORK - 2600 N - 2100 N - 725 E - FRUITLAND DR |

**REVISIONS**

## SURVEY CONTROL

FY23 STREET MAINTENANCE PROJECT




NOT TO SCALE

STREET MAINTENANCE LEGEND

- CHIP AND SEAL
- EDGE MILL – 7' WIDE
- CENTERLINE MILL
- 2" OVERLAY – ASPHALT

PREPARED BY:

NORTH OGDEN CITY
SETTLED 1851

**NORTH OGDEN CITY CORPORATION**
**PUBLIC WORKS**
**ENGINEERING DIVISION**
165 EAST LOMOND VIEW DRIVE
NORTH OGDEN CITY, UTAH 84414
TELEPHONE: 801-782-8111
FAX: 801-782-6453
E-MAIL: WWW.NORTHOGDENCITY.COM

PROFESSIONAL SEAL:

PROJECT IDENTIFICATION:

**2023 STREET MAINTENANCE PROJECT**

PROJECT OWNER:

**NORTH OGDEN CITY CORPORATION**
505 EAST 2600 NORTH
NORTH OGDEN CITY, UTAH 84414
WWW.NORTHOGDENCITY.COM

| REV | DATE | DESCRIPTION |
|---|---|---|

ENG .JOB #:
P.U. JOB #:
IFAS NO.:
PREPARER #: NOC CORP
DRAWING FILE NAME:
DRAWN BY: E. CASPERSON
CHECKED BY:

SHEET TITLE:

**ROAD WORK 1850 NORTH - 1700 NORTH**

SHEET IDENTIFIER:

**CP001**

BINDING ORDER **1 OF 2**

NOT TO SCALE

STREET MAINTENANCE LEGEND

- CHIP AND SEAL
- EDGE MILL – 7' WIDE
- CENTERLINE MILL
- 2" OVERLAY – ASPHALT

PREPARED BY:

NORTH OGDEN CITY
SETTLED 1851

**NORTH OGDEN CITY CORPORATION**
**PUBLIC WORKS**
**ENGINEERING DIVISION**
165 EAST LOMOND VIEW DRIVE
NORTH OGDEN CITY, UTAH 84414
TELEPHONE: 801-782-8111
FAX: 801-782-6453
E-MAIL: WWW.NORTHOGDENCITY.COM

PROFESSIONAL SEAL:

PROJECT IDENTIFICATION:

**2023 STREET MAINTENANCE PROJECT**

PROJECT OWNER:

**NORTH OGDEN CITY CORPORATION**
505 EAST 2600 NORTH
NORTH OGDEN CITY, UTAH 84414
WWW.NORTHOGDENCITY.COM

| REV | DATE | DESCRIPTION |
|---|---|---|

ENG JOB #:
P.U. JOB #:
IFAS NO.:
PREPARER #: NOC CORP
DRAWING FILE NAME:
DRAWN BY: E. CASPERSON
CHECKED BY:

SHEET TITLE:

**ROAD WORK - 2600 N - 2100 N 725 E - FRUITLAND**

SHEET IDENTIFIER:

**CP002**

BINDING ORDER **2 OF 2**