October 2024

PROJECT MANUAL

Wood River Drainage and Levee District

RAND AVENUE PUMP STATION (RAPS) – EFFLUENT PIPING REPLACEMENT AND REHABILITATION

Wood River, Illinois

Issued for Bid Submittal

DONOHUE

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PROJECT MANUAL

WOOD RIVER DRAINAGE AND LEVEE DISTRICT

RAND AVENUE PUMP STATION
EFFLUENT PIPING REPLACEMENT AND REHABILITATION

WOOD RIVER, ILLINOIS

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PROJECT MANUAL

WOOD RIVER DRAINAGE AND LEVEE DISTRICT

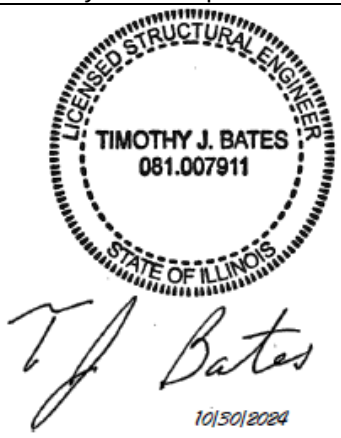
RAND AVENUE PUMP STATIOON – EFFLUENT PIPING REPLACEMENT AND REHABILITATION

WOOD RIVER, ILLINOIS

I hereby certify that the Divisions specification sections listed in the table below were prepared by me or under my direct supervision.

 Jeffrey A. Gratzer License #: 062.069787 Expiration date: 11/30/2025	Division 00 Division 01 Division 31 Division 32 Division 33 Division 40

I hereby certify that the Divisions specification sections listed in the table below were prepared by me or under my direct supervision.

 Timothy J. Bates License #: 081.007911 Expiration date: 11/30/2026	Division 03 Division 05 Division 09

ADVERTISEMENT FOR BIDS

ADVERTISEMENT FOR BIDS

WOOD RIVER DRAINAGE AND LEVEE DISTRICT

RAND AVENUE PUMP STATION
EFFLUENT PIPING REPLACEMENT AND REHABILITATION

WOOD RIVER, ILLINOIS

Sealed Bids for the construction of the Rand Avenue Pump Station Improvements – Effluent Piping Replacement and Rehabilitation will be received by Wood River Drainage and Levee District, at the Wood River Drainage and Levee District office, 543 W. Madison Avenue, Wood River, Illinois 62095, **until 2:00 p.m., Local Time on the 6th day of December 2024**, at which time the Bids received will be opened and read aloud. The Project consists of constructing:

> Providing 36-inch sewers and structures, including new slide gate as shown on the plans. Heavy cleaning and rehabilitation of existing 24-inch and 36-inch Cast Iron Pipes via cured-in-place lining. Maintaining flow in existing sewers and providing dewatering services as required. Obtaining all permits for construction of Work not obtained by Engineer or Owner. Removing all debris and excess materials from Project Site generated by construction Work. Restoring areas disturbed by construction to original condition or as specified by Contract Documents.

The Bidding Documents are on file for inspection at the Wood River Drainage and Levee District office at 543 W. Madison Avenue, Wood River, Illinois 62095. Complete digital project bidding documents are available from the Wood River Drainage and Levee District office by contacting Kevin Williams (618-401-7226 and email kwilliams@wrdld.org) or by downloading the documents at WRLEVEEDIST.org / Public-Notices / Bids-and-RFPs. Paper sets of project documents will not be made available.

Questions regarding the bid documents should be directed to Donohue & Associates attention: Jeffrey Gratzer, PE (Telephone 636-400-7047, email jgratzer@donohue-associates.com).

WAGE RATES: Improvements included in this project will be funded in part by the American Rescue Plan Act (ARPA). During construction of the project, the Contractor will be required to prepare and submit project employment and local impact reports to the Owner weekly. The reports must include the following information:

- The number of employees of contractors and sub-contractors working on the project
- The number of employees on the project hired directly and hired through a third party
- The wages and benefits of workers on the project by classification

PRE-BID CONFERENCE: A non-mandatory pre-bid conference will be held prior to the Bid opening **on November 12, 2024, at 10:00 a.m.** at the Wood River Drainage and Levee District office, 543 W. Madison Avenue, Wood River, Illinois 62095 to familiarize Bidders with this Project. Following the Pre-Bid conference, a site visit will be conducted to allow bidders the opportunity to see the work areas.

BID SECURITY: Bid Security in the amount of not less than 5% of the Bid shall accompany each Bid in accordance with the Instructions to Bidders.

CONTRACT SECURITY: The Bidder to whom a Contract is awarded shall furnish a Performance Bond and a Payment Bond each in an amount equal to the Contract Price.

BID REJECTION/ACCEPTANCE: The Owner reserves the right to reject any and all Bids, waive informalities in bidding, or to accept the Bid or Bids, which best serves the interests of the Owner.

BID WITHDRAWAL: No Bid shall be withdrawn for a period of 60 days after the scheduled opening of the bids without the consent of Owner.

Published by authority of Wood River Drainage and Levee District

By: Kevin Williams, Executive Director (WRDLD)

Prepared by:
Donohue & Associates, Inc.
St. Louis, Missouri

INSTRUCTIONS TO BIDDERS

INSTRUCTIONS TO BIDDERS

ARTICLE 1 – DEFINED TERMS

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

A. *Issuing Office* – The office from which the Bidding Documents are to be issued and where the Bidding procedures are to be administered.

ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

2.01 Complete sets of the Bidding Documents may be obtained (electronically only) as stated in the Advertisement of Bids.

2.02 Complete sets of Bidding Documents issued by the Issuing Office, shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors, omissions, or misinterpretations resulting from the use of incomplete sets of Bidding Documents or documents issued by some entity other than the Issuing Office.

2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.

ARTICLE 3 – QUALIFICATIONS OF BIDDERS

3.01 Each Bid must contain evidence of Bidder's authority and qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the contract.

3.02 To demonstrate Bidder's qualifications to perform the Work, Owner may request Bidder to submit written evidence such as financial data, previous experience, present commitments, and such other data as may be called for below:

A. The address and description of the Bidder's place of business.

B. The number of years engaged in the contracting business under the present firm name, and the name of the state where incorporated.

C. A list of the property and equipment available to the Bidder for this Project to evaluate if the Bidder can complete the Work in accordance with the Bidding Documents.

D. A financial statement of the Bidder showing that the Bidder has the financial resources to meet all obligations incidental to the Work.

E. The Bidder's performance record giving the description, location, and telephone numbers of similar projects constructed by the Bidder.

F. A list of projects presently under contract, the approximate contract amount, and percent of completion of each.

G. A list of contracts, which resulted in lawsuits.

H. A list of contracts defaulted.

I. A statement of the Bidder indicating whether or not the Bidder has ever filed bankruptcy while performing Work of like nature or magnitude.

J. A list of officers of the firm who, while in the employ of the firm or the employ of previous firms, were associated with contracts which resulted in lawsuits, contracts defaulted or filed for bankruptcy.

K. The technical experience of personnel guaranteed to be employed in the responsible charge of the Work stating whether the personnel have or have not performed satisfactorily on other contracts of like nature and magnitude or comparable difficulty at similar rate of progress.

L. Subcontractor or Supplier qualification information.

M. Such additional information as will assist Owner in determining whether the Bidder is adequately prepared to fulfill the contract.

3.03 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of Contract.

3.04 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

3.05 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representation and certifications.

3.06 The object of the request for the qualification of Bidder is not to discourage bidding or make it difficult for qualified Bidders to file Bids. Neither is it intended to discourage beginning contractors. It is intended to make it possible for Owner to have more exact information on financial ability, equipment, and experience in order to reduce the hazards involved in awarding contracts to parties who may not be qualified to perform the Work as specified.

3.07 Owner's decision as to qualification of the Bidders shall be final.

ARTICLE 4 – SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNERS – SAFETY PROGRAM; OTHER WORK AT SITE

4.01 Site and Other Areas

A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by the Contractor.

B. The following information is provided for easements necessary for the Project:

1. None.

4.02 Existing Site Conditions

A. Subsurface and Physical Conditions

1. The Supplementary Conditions identify:

a. Those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site.

b. Those drawings known to Owner of physical conditions in or relating to existing surface and subsurface structures at or contiguous to the Site (except Underground Facilities).

2. Copies of subsurface condition reports and drawings of physical conditions will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon which Bidder is entitled to rely as provided in the General Conditions has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions or information contained in such reports or shown or indicated in such drawings.

B. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.

C. Underground Facilities Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site are set forth in the Contract Documents and are based upon information and data furnished to Owner and Engineer by Owners of such Underground Facilities, including Owner, or others. Owner and Engineer do not assume responsibility for the accuracy or completeness thereof.

D. Adequacy of Data: Provisions concerning responsibilities for the adequacy of data, if any, furnished to prospective Bidders with respect to subsurface conditions, or other physical conditions and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated conditions appear in Paragraphs 5.03, 5.04, and 5.05 of the General Conditions. Provisions concerning responsibilities for the adequacy of data, if any, furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Document to be within the scope of the Work appear in Paragraph 5.06 of the General Conditions.

4.03 Site Visit and Testing by Bidders

A. Bidder shall conduct the required Site visit during normal working hours, and shall not disturb any ongoing operations at the Site.

B. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.

C. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies, as Bidder deems necessary for submission of a Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site.

D. Bidder shall comply with all applicable Laws and Regulations relative to excavation and utility locates, obtain all permits, and comply with all terms and conditions established by Owner or Property Owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.

E. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

ARTICLE 5 – BIDDER'S REPRESENTATIONS

5.01 It is the responsibility of each Bidder before submitting a Bid to:

A. examine and carefully study the Bidding Documents, including any Addenda, and the other related data and reference items identified in the Bidding Documents;

B. visit the Site, conduct a thorough visual examination of the Site and adjacent areas, and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;

C. become familiar with and satisfy Bidder as to all Laws and Regulations that may affect cost, progress, or performance of the Work;

D. carefully study all reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that have been identified in the Supplementary Conditions as containing reliable Technical Data;

E. consider and correlate the information known to the Bidder information commonly known to Bidders doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and all additional or supplementary examinations,

investigations, explorations tests, studies, and data with respect to the effect of such information, observations and documents on (1) the cost, progress and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including any specific means, methods, techniques, sequences and procedures of construction expressly required by the Contract Documents; and (3) Bidder's safety precautions and programs;

F. agree, based on the information and observations referred to in the preceding paragraph, that at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price(s) Bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;

G. become aware of the general nature of the Work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;

H. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder;

I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work; and

J. agree that the submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, that without exception the Bid and all prices in the Bid are: premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents; that Bidder has given Engineer written notice of all conflicts, errors, ambiguities, and discrepancies; that Bidder has discovered in the Bidding Documents and the written resolutions thereof by Engineer are acceptable to Bidder; and that the Bidding Documents are generally sufficient to indicate and convey understanding of all Terms and Conditions for performing and furnishing the Work.

ARTICLE 6 – PRE-BID CONFERENCE

6.01 A non-mandatory Pre-Bid Conference will be held at the time and location stated in the Advertisement for Bids. Following the Pre-Bid conference, a site visit will be conducted to allow bidders the opportunity to see the work areas. Representatives of OWNER and ENGINEER will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

ARTICLE 7 – INTERPRETATIONS AND ADDENDA

7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all parties recorded by Engineer as having received the Bidding Documents. Questions received less than seven days prior to the date for opening for Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

7.02 Addenda may be issued to clarify, correct, supplement, or change the Bidding Documents as deemed advisable by Owner or Engineer.

ARTICLE 8 – BID SECURITY

8.01 A Bid must be accompanied by Bid Security made payable to Owner in an amount of not less than 5% of Bidder's total Bid Price (determined by adding the base Bid and all Alternates) and in the form of a certified check, bank money order, or a Bid Bond (on the Form included in the Bid

Documents) issued by a surety meeting the requirements of Paragraphs 6.01 of the General Conditions.

8.02 The Bid Security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid Security will be released. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults.

8.03 The Bid Security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Agreement or 61 days after the Bid opening, whereupon Bid Security furnished by such Bidders will be released.

8.04 Bid Security of other Bidders whom Owner believes do not have a reasonable chance of receiving the award will be released within seven days after the Bid opening.

ARTICLE 9 – CONTRACT TIMES

9.01 The number of days within which, or the dates by which the Work is to be substantially completed, and completed and ready for final payment are set forth in the Agreement.

ARTICLE 10 – LIQUIDATED DAMAGES

10.01 Provisions for liquidated damages, if any, for failure to timely attain Substantial Completion, or Completion of the Work in readiness for final payment are set forth in the Agreement.

ARTICLE 11 – SUBSTITUTE AND "OR EQUAL" ITEMS

11.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the Bidding and Contract award process of possible substitute or "or equal" items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or "or equal" items of material or equipment, application for such acceptance will not be considered by Engineer until after the Effective Date of the Agreement.

11.02 All prices that Bidder sets forth in its Bid shall be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of "or equal" or substitution requests are made at Bidder's sole risk.

ARTICLE 12 – SUBCONTRACTORS, SUPPLIERS, AND OTHERS

12.01 A Bidder shall be prepared to retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of the Work if required by the Bidding Documents (most commonly in the Specifications) to do so. If a prospective Bidder objects to retaining any such Subcontractor, Supplier, or other individual or entity, and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.

12.02 Subsequent to the Submittal of the Bid, Owner may not require the Successful Bidder or Contractor to retain any Subcontractor, Supplier, or other individual or entity against which Contractor has reasonable objection.

12.03 Bidders shall submit with the Bid a list of proposed Subcontractors having a direct contract with the Contractor.

12.04 If requested by Owner, such list shall be accompanied by an Experience Statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, or other individual or entity. If Owner or Engineer, after due investigation

has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given request apparent Successful Bidder shall submit a substitute. Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

12.05 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, or other individuals, or entities. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid Security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.06 of the General Conditions.

ARTICLE 13 – PREPARATION OF BID

13.01 Only the Bid Form included with the Bidding Documents shall be used. Bidder shall not add any conditions or qualifying statements to the Bid.

13.02 All blanks on the Bid Form shall be completed by printing in ink and the Bid signed in ink. Erasures or deletions shall be initialed in ink by person signing the Bid Form. A Bid price shall be indicated for each section, Bid item, Alternate, adjustment unit price item and unit price item listed therein.

13.03 A Bid by a corporation shall be executed in the corporate name by a corporate officer (whose title must appear under the signature) accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.

13.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown.

13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown.

13.06 A Bid by an individual shall show the Bidder's name and official address.

13.07 A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture must be shown.

13.08 Bids that are signed by an attorney-in-fact for corporations, partnerships, limited liability companies, individuals, or joint ventures shall have attached thereto a power-of-attorney evidencing authority to sign the Bid.

13.09 All names shall be typed or printed in ink below the signatures.

13.10 The Bid shall contain an acknowledgement receipt of all Addenda; the numbers of which shall be filled in on the Bid Form.

13.11 The Bid shall contain the full name, address, telephone number, and e-mail address for communications regarding the Bid.

13.12 The Bid shall contain evidence of Bidder's authority and qualifications to do business in the state where the Project is located or covenant to obtain such qualification in writing prior to award of the Contract. Bidder's state contractor license number for the state of the Project, if any, shall also be shown on the Bid Form.

ARTICLE 14 – BASIS OF BID

14.01 Unit Price

A. Bidders shall submit a Bid on a Unit Price basis for each item of Work listed in the Bid schedule.

B. The “Bid Price” for each “Item” will be the product of the “Qty” for the item and the corresponding “Bid Unit Price” offered by the Bidder. The “Total of all Bid Prices” will be the sum of these “Bid Prices”; and such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.

C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the “Bid Unit Prices”. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

14.02 Bidders shall include a separate price for each Alternate described in the Bidding Documents as provided for in the Bid Form. The price for each Alternate will be the amount added to or deleted from the base Bid if Owner selects the Alternate. Discrepancies between words and figures in the Bid Form will be resolved in favor of the words.

14.03 The Bid Price shall include such amounts as the Bidder deems proper for overhead and profit and other expenses on account of cash allowances, if any, named in the Contract Documents as provided in Paragraph 13.02.B. of the General Conditions.

14.04 Basis of Design:

A. Unless otherwise indicated, design of this Project is based upon the material and equipment named first in the list of Supplier’s in a Specification section. Engineer has performed an evaluation of other listed Supplier’s material and equipment and has determined it to be equal in quality, function and performance to that of the Supplier named first. When other Supplier’s are listed, Contractor may be required to make modifications or adjustments, at Contractor’s expense, to coordinate the installation of the furnished material and equipment with associated elements of Work, such as, but not limited to, piping and electrical connections, or support and mounting provisions.

B. Base Bid Material and Equipment:

1. Bidders shall include in their Bid price the installed cost of material and equipment furnished by either Supplier A, B, or C as named on the Base Bid Material and Equipment Schedule in the Bid Form.

2. Design of selected items of material and equipment on this Project is based upon material and equipment furnished by Supplier A as named in the Base Bid Material and Equipment Schedule. Identified as Supplier B or C, for each scheduled item is the name of Supplier(s) whose material or equipment is considered by Engineer to be equal in quality, function and performance to that of Supplier A.

3. For each scheduled item, circle the named Supplier A, B, or C that has been included in the Bid price. Circle only one of the listed Suppliers.

4. A Substitute to Suppliers A, B, or C may be offered by a Bidder by writing in the name of the Supplier for the proposed substitute in the blank labeled “(substitute)” and the amount to be deducted from the Bid price by Change Order should the proposed substitute be acceptable to Engineer and Owner.

5. The Bid price shall be based on the installed cost of material and equipment furnished by circled Suppliers A, B, or C without consideration of substitutes listed on the Base Bid Material and Equipment Schedule. For any item on the Schedule, if one of Suppliers A, B, or C is not circled, or if more than one of Suppliers A, B, or C are circled, the Bid price shall be based on material and equipment furnished by Supplier A without consideration of Suppliers B or C, or the substitute.

6. Requests for review of the proposed substitutes for items listed in the Base Bid Material and Equipment Schedule will be considered only for Suppliers entered on the Bid Form.

7. Written application and supporting documentation for review of proposed substitutes shall be submitted not later than 2 days after the Effective Date of the Agreement. The procedures for submission and consideration by Engineer for determining the acceptability of substitutes are set forth in the General Conditions and Supplementary Conditions. Should the substitute not be acceptable, Contractor shall provide circled Supplier A, B, or C for the Price Bid.

8. Not more than 30 days after the Effective Date of the Agreement, Owner may select any proposed substitute in lieu of circled Suppliers A, B, or C and Bidder agrees, upon notice of selection, to furnish and install the substitute if it is determined to be acceptable by the Engineer.

ARTICLE 15 – SUBMITTAL OF BID

15.01 With each copy of Bidding Documents, each prospective Bidder is furnished one copy of the Bidding Documents with one separate unbound copy each of the Bid Form and Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid Security and the other documents required to be submitted under the terms of Article 7 of the Bid Form.

15.02 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the Advertisement for Bids and shall be enclosed in a plainly marked package with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid Security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED".

15.03 Bids received after the date and time prescribed for the opening of Bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 16 - MODIFICATION AND WITHDRAWAL OF BID

16.01 A Bid may be withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.

16.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 16.01 and submit a new Bid prior to the date and time for the opening of Bids.

16.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is re-bid, that Bidder will be disqualified from further bidding the Work.

ARTICLE 17 – OPENING OF BIDS

17.01 Bids will be opened at the time and place indicated in the Advertisement for Bids and, unless obviously nonresponsive, read aloud publicly. An abstract of the amounts of the base Bids and major Alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 18 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE

18.01 All Bids will remain subject to acceptance for the period of time stated in the Advertisement for Bids, but Owner may, in its sole discretion, release any Bid and return the Bid Security prior to the end of this period.

ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT

19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible. If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, then the Owner will reject the Bid as nonresponsive. The Owner also reserves the right to waive all minor informalities not involving price, time, or changes in the Work.

19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

19.03 Evaluation of Bids

A. In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such Alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.

B. In evaluating Bidders, Owner will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Bidding Documents.

19.04 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors, or Suppliers.

19.05 In evaluating Bids for lowest Bid price, Owner will consider the Total of All Bid Prices without regard to Alternates, if any.

19.06 If Owner awards the contract for the Work, such award shall be to the responsible Bidder submitting the lowest Bid price.

ARTICLE 20 – CONTRACT SECURITY AND INSURANCE

20.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by such bonds and insurance documentation.

ARTICLE 21 – SIGNING OF AGREEMENT

21.01 When Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unexecuted counterparts of the Agreement with the other Contract Documents, which are identified in the Agreement as attached thereto. Within 15 days thereafter, Successful Bidder shall execute and deliver the required number of counterparts of the Agreement and attached documents to Owner with the required bonds and certificates or policies of insurance as required by the Supplementary Conditions. Within 10 days thereafter, Owner shall deliver one fully executed counterpart of the Agreement to the Successful Bidder and

Engineer, together with printed and electronic copies of the Contract Documents as stated in the General Conditions.

ARTICLE 22 – SALES AND USE TAXES

22.01 Owner is exempt from state sales and use taxes on materials and equipment to be incorporated in the Work. Said taxes shall not be included in the Bid. Refer to Paragraph 7.10 of the Supplementary Conditions for additional information.

ARTICLE 23 – WAGE RATES

23.01 Each Contractor or Subcontractor performing Work on the Project shall comply in all respects with all laws governing the employment of labor, social Security, and Unemployment Insurance of both the state and federal government. There shall be paid each employee engaged in Work under this Contract at the site of the Project, the minimum wage for the classifications of labor employed. Bidders shall make their own investigation locally and satisfy themselves as to availability of labor.

23.02 Improvements included in this project will be funded in part by the American Rescue Plan Act (ARPA). During construction of the project, the Contractor will be required to prepare and submit project employment and local impact reports to the Owner weekly. The reports must include the following information:

- The number of employees of contractors and sub-contractors working on the project.
- The number of employees on the project hired directly and hired through a third party.
- The wages and benefits of workers on the project by classification.

23.03 The wage rates are on file at the office of Owner and incorporated in the Project Manual.

23.04 The wage rates will be incorporated into and made a part of the Contract Documents when the Contract Documents are prepared for execution.

ARTICLE 24 – CONTRACTS TO BE ASSIGNED

24.01 The contract shall not be assigned to any other entity without written approval of the Owner.

END OF INSTRUCTIONS TO BIDDERS

BID FORM

BID FORM

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BID FORM

BIDDER_____
(name – typed or printed)

PROJECT IDENTIFICATION:

WOOD RIVER DRAINAGE AND LEVEE DISTRICT

RAND AVENUE PUMP STATION
EFFLUENT PIPING REPLACEMENT AND REHABILITATION

WOOD RIVER, ILLINOIS

PROJECT NUMBER: 14317-TO2

ARTICLE 1 – BID RECIPIENT

THIS BID IS SUBMITTED TO:

Wood River Drainage and Levee District
543 W. Madison Avenue
Wood River, Illinois 62095

1.01 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Advertisement for Bids and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. Bidder has not added any conditions or qualifying statements to the Bid. The Bid will remain subject to acceptance for the bid withdrawal time stated in the Advertisement for Bids, or for such longer period of time that Bidder may agree to in writing upon request of Owner. Bidder will sign and deliver the required number of counterparts of the Agreement with the Bonds, evidence of insurance coverage, and other documents required by the Bidding Requirements within 15 days after the date of Owner's Notice of Award.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents, as set forth in the Agreement, that:

A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of all which is hereby acknowledged.

Addendum No.	Addendum Date
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and test of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities), if any, that have been identified in Paragraph 5.03 of the Supplementary Conditions as containing reliable Technical Data.

E. Bidder has considered and correlated the information known to the Bidder; information commonly known to bidders doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and all additional or supplementary examinations, investigations, explorations, tests, studies, and data with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) Bidder's safety precautions and programs.

F. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.

G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.

I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

K. Bidder will submit written evidence of its authority to do business in the state where the Project is located not later than the date of its execution of the Agreement.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder further represents that:

A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization or corporation;

B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham bid;

C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and

D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, purposes of which is to establish bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

BASE BID - UNIT PRICE SCHEDULE

No.		Item	Qty	Unit	Bid Unit Price	Bid Price
1		Mobilization / Demobilization / Bonds / Insurance	1	LS	$_____ per LS	$_____
2		Installation of 36-inch Sewer and other appurtenances	404	LF	$_____ per LF	$_____
3		72-inch Diameter Manholes (Manholes 1 and 2)	2	EA	$_____ per EA	$_____
4		72-inch x 72-inch Rectangular Concrete Gate Structure	1	EA	$_____ per EA	$_____
5		Temporary Bulkheads in Pump Station Headbox and Gatewell Structure	1	LS	$_____ per LS	$_____
6		Cleaning, Inspection and CIPP Lining of 24-inch CIP	230	LF	$_____ per LF	$_____
7		Cleaning, Inspection and CIPP Lining of 36-inch CIP	230	LF	$_____ per LF	$_____
8		Abandonment of Existing 24-inch and 30-inch Effluent Pipe and Associated Structure	1	LS	$_____ per LS	$_____
9		Asphalt Trail Restoration	150	LF	$_____ per LF	$_____
10		Rand Avenue Road Restoration	1	LS	$_____ per LS	$_____
11		Any work not included in Bid Items No. 1 through No. 10	1	LS	$_____ per LS	$_____

TOTAL OF ALL BID PRICES (Sum of Bid Price for Each Item)

$_____
(figures)

_____ Dollars
(words)

Qty = Estimated Quantity

Bid Price (for each Item) = Qty x Bid Unit Price (for each item)

LS = Lump Sum
LF = Linear Foot
EA = Each

Unit Prices have been computed in accordance with paragraph 13.03 of the General Conditions.

Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

A. Base Bid Material and Equipment:

1. Bidder has included in the Bid price, the installed cost of material and equipment furnished by the circled Supplier as named in the Base Bid Material and Equipment Schedule, which is included at the end of this Bid Form.

2. The circled Supplier has been selected from Supplier A, B, or C as named in the Base Bid Material and Equipment Schedule in accordance with the Instructions to Bidders.

3. If a substitute is offered, Bidder has included the name of the Supplier and the amount to be deducted from the Bid price for the proposed substitute in the Base Bid Material and Equipment Schedule in accordance with the Instructions to Bidders. Bidder agrees that the procedures for submission and consideration by Engineer for determining the acceptability of substitutes will be as set forth in the General Conditions and the Supplementary Conditions.

ALTERNATES: Include the following alternates as described in Section 01 23 00:

Alternate 1: Alternate 36-inch sewer alignment. Add or Deduct (circle one) _____ Dollars (words) $ _____ (figures)

ARTICLE 6 – TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially completed and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the Contract Times.

ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The following documents are attached to and made a condition of this Bid:

A. Required Bid security in the form of _____
(Certified Check or Bid Bond)

in the amount of _____.
(Dollars or Percent of Lump Sum Bid Price)

B. List of proposed Subcontractors having a direct contract with the Contractor. The Subcontractor listing is included at the end of this Bid Form.

C. Base Bid Material and Equipment Schedule listing included at the end of this Bid Form.

ARTICLE 8 – DEFINED TERMS

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 – BID SUBMITTAL

SUBMITTED ON _____, 20____.

State Contractor License No. _____. (If applicable)

If Bidder is:

An Individual

Name (typed or printed): _____

By: _____ (SEAL)
(Individual's signature)

Doing business as: _____

Business address: _____

_____

Phone No.: _____ FAX No.: _____

A Partnership

Partnership Name: _____ (SEAL)

By: _____
(Signature of general partner – attach evidence of authority to sign)

Name (typed or printed): _____

Business address: _____

_____

Phone No.: _____ FAX No.: _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____

Type (General Business, Professional, Service, Limited Liability): _____

By: _____
(Signature – attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

(CORPORATE SEAL)

Attest: _____
(Signature of Corporate Secretary)

Business Address: _____

Phone No: _____ FAX No.: _____

Date of Authorization to do business is _____

A Joint Venture

Name of Joint Venture: _____

First Joint Venturer Name: _____(SEAL)

By: _____
(Signature of joint venture partner – attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business address: _____

_____

Phone No.: _____ FAX No.: _____

Second Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of joint venture partner – attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business address: _____

_____

Phone No.: _____ FAX No.: _____

Phone and FAX Number, and Address for receipt of official communications:

_____

_____

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

SUBCONTRACTOR LISTING

The following is a listing of proposed Subcontractors having a direct contract with the Contractor.

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

11.

12.

13.

BASE BID MATERIAL AND EQUIPMENT SCHEDULE			
Specification Section	**Item**	**Supplier**	**Amount To Be Deducted From Bid Price**
33 01 30.72	Cured-In-Place Pipe Lining	(A) Insituform	
		(B) Applied Felt, Inc.	
		(C) National Liner	
		(D) In-Liner	
		(substitute)	$
40 05 59.23	Stainless Steel Slide Gates	(A) Whipps, Inc.	
		(B) RW Gate Company	
		(C) Hydro Gate	
		(substitute)	$

BID BOND

BID BOND (PENAL SUM FORM)

Bidder	**Surety**
Name: **[Full formal name of Bidder]** Address *(principal place of business)*: **[Address of Bidder's principal place of business]**	Name: **[Full formal name of Surety]** Address *(principal place of business)*: **[Address of Surety's principal place of business]**
Owner	**Bid**
Name: **[Full formal name of Owner]** Address *(principal place of business)*: **[Address of Owner's principal place of business]**	Project *(name and location)*: **[Owner project/contract name, and location of the project]** Bid Due Date: **[Enter date bid is due]**
Bond Penal Sum: **[Amount]** Date of Bond: **[Date]**	

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

Bidder	Surety
_____ *(Full formal name of Bidder)*	_____ *(Full formal name of Surety) (corporate seal)*
By: _____ *(Signature)*	By: _____ *(Signature) (Attach Power of Attorney)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____
Attest: _____ *(Signature)*	Attest: _____ *(Signature)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title:	Title:

Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond will be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder occurs upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation will be null and void if:
    3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
    3.2. All Bids are rejected by Owner, or
    3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions does not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action will be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond will be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder must be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond will be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

WAGE RATES

WAGE RATE REQUIREMENTS

1. GENERAL

   A. The Contractor and Subcontractors shall pay wages not less than the prevailing hourly wage rate for each classification of employee engaged on the Work as determined by the County of Madison.

   B. The prevailing wage law does not prohibit payment of more than the prevailing rate of wages nor does it limit the hours of Work that may be performed by any employee in any particular period of time.

   C. The Contractor shall post a copy of the wage determination in a prominent place at the site of the Work where the employees can easily see it.

2. WAGE DETERMINATIONS

A. The following wage rate schedule(s) included at the end of this section are the prevailing rate(s) of hourly wage applicable to this Contract. The wage rate schedule(s) cannot be altered during the time the Contract is in force.

END OF WAGE RATE REQUIREMENTS

Madison County Prevailing Wage Rates posted on 5/20/2024

						Overtime										
Trade Title	**Rg**	**Type**	**C**	**Base**	**Foreman**	**M-F**	**Sa**	**Su**	**Hol**	**H/W**	**Pension**	**Vac**	**Trng**	**Other Ins**	**Add OT 1.5x owed**	**Add OT 2.0x owed**
ASBESTOS ABT-GEN	NW	ALL		34.79	35.79	1.5	1.5	2.0	2.0	7.75	19.84	0.00	0.80		13.80	27.59
ASBESTOS ABT-GEN	SE	ALL		34.78	35.78	1.5	1.5	2.0	2.0	8.70	18.90	0.00	0.80		13.80	27.60
ASBESTOS ABT-MEC	All	BLD		34.30	35.30	1.5	1.5	2.0	2.0	10.20	6.80	0.00	0.50	0.00	0.00	0.00
BOILERMAKER	All	BLD		42.50	46.00	1.5	1.5	2.0	2.0	7.07	27.21	0.00	1.06		0.00	0.00
BRICK MASON	All	BLD		36.74	38.94	1.5	1.5	2.0	2.0	9.05	15.68	0.00	0.91	0.00	0.00	0.00
CARPENTER	All	ALL		43.52	46.02	1.5	1.5	2.0	2.0	10.00	10.55	0.00	0.70	0.00	0.00	0.00
CEMENT MASON	All	ALL		38.00	39.00	1.5	1.5	2.0	2.0	11.00	16.80	0.00	0.50	0.00	14.15	28.30
CERAMIC TILE FINISHER	All	BLD		28.08		1.5	1.5	2.0	2.0	9.05	7.69	1.00	0.85	0.00	0.00	0.00
ELECTRIC PWR EQMT OP	NW	ALL		52.57	52.57	1.5	1.5	2.0	2.0	7.25	14.72	0.00	0.53	3.50	0.00	0.00
ELECTRIC PWR EQMT OP	SE	ALL		52.84	63.69	1.5	1.5	2.0	2.0	6.95	14.79	0.00	0.53		11.14	22.27
ELECTRIC PWR GRNDMAN	NW	ALL		34.63	34.63	1.5	1.5	2.0	2.0	7.25	9.70	0.00	0.35	3.50	0.00	0.00
ELECTRIC PWR GRNDMAN	SE	ALL		39.45	63.69	1.5	1.5	2.0	2.0	5.19	11.04	0.00	0.39		8.33	16.62
ELECTRIC PWR LINEMAN	NW	ALL		61.41	64.87	1.5	1.5	2.0	2.0	7.25	17.19	0.00	0.61	3.50	0.00	0.00
ELECTRIC PWR LINEMAN	SE	ALL		60.74	63.69	1.5	1.5	2.0	2.0	7.99	17.02	0.00	0.61		12.81	25.62
ELECTRIC PWR TRK DRV	NW	ALL		39.23	39.23	1.5	1.5	2.0	2.0	7.25	10.99	0.00	0.39	3.50	0.00	0.00
ELECTRIC PWR TRK DRV	SE	ALL		43.13	63.69	1.5	1.5	2.0	2.0	5.67	12.08	0.00	0.43		9.10	18.18
ELECTRICIAN	NW	ALL		49.79	53.54	1.5	1.5	2.0	2.0	11.25	14.55	0.00	0.25	1.25	0.87	1.74
ELECTRICIAN	SE	ALL		47.44	50.29	1.5	1.5	2.0	2.0	8.79	14.49	0.00	1.31	3.10	13.83	27.69
ELECTRONIC SYSTEM TECH	NW	BLD		35.80	38.80	1.5	1.5	2.0	2.0	11.25	8.80	0.00	0.40	0.00	0.54	1.07
ELECTRONIC SYSTEM TECH	SE	BLD		38.42	41.42	1.5	1.5	2.0	2.0	4.00	11.16	0.00	0.40	1.50	0.58	1.15
ELEVATOR CONSTRUCTOR	All	BLD		57.69	64.90	2.0	2.0	2.0	2.0	16.07	20.56	4.61	0.70		0.00	0.00
FLOOR LAYER	All	BLD		38.73	40.23	1.5	1.5	2.0	2.0	10.00	10.55	0.00	0.70	0.00	0.00	0.00
GLAZIER	All	BLD		41.25	43.75	1.5	1.5	2.0	2.0	9.76	14.23	0.00	1.26	0.00	0.00	0.00
HEAT/FROST INSULATOR	All	BLD		41.73	42.73	1.5	1.5	2.0	2.0	11.74	13.50	0.00	1.05		0.00	0.00
IRON WORKER	All	ALL		40.40	42.40	1.5	1.5	2.0	2.0	10.55	19.05	0.00	0.58		15.09	30.18
LABORER	NW	ALL		34.29	35.29	1.5	1.5	2.0	2.0	7.75	19.84	0.00	0.80		13.80	27.59
LABORER	SE	ALL		34.28	35.28	1.5	1.5	2.0	2.0	8.70	18.90	0.00	0.80		13.80	27.60

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MACHINIST	All	BLD		55.74	59.74	1.5	1.5	2.0	2.0	9.93	8.95	1.85	1.47		0.00	0.00
MARBLE FINISHER	All	BLD		28.08		1.5	1.5	2.0	2.0	9.05	7.69	1.00	0.85	0.00	0.00	0.00
MARBLE MASON	All	BLD		33.62		1.5	1.5	2.0	2.0	9.05	9.25	1.00	0.94	0.00	0.00	0.00
MILLWRIGHT	All	ALL		43.52	46.02	1.5	1.5	2.0	2.0	10.00	10.55	0.00	0.70		0.00	0.00
OPERATING ENGINEER	All	BLD	1	43.95	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	BLD	2	42.82	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	BLD	3	38.34	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	BLD	4	44.95	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	BLD	5	45.95	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	BLD	6	46.50	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	BLD	7	46.80	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	BLD	8	47.10	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	BLD	9	47.75	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	BLD	10	48.25	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	BLD	11	45.95	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	BLD	12	46.95	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	BLD	13	43.95	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	BLD	14	38.40	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	HWY	1	42.45	45.45	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	HWY	2	41.32	45.45	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	HWY	3	36.84	45.45	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	HWY	4	43.45	45.45	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	HWY	5	44.45	45.45	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	HWY	6	45.00	45.45	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	HWY	7	45.30	45.45	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	HWY	8	45.60	45.45	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	HWY	9	46.25	45.45	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	HWY	10	46.75	45.45	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	HWY	11	44.45	45.45	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	HWY	12	45.45	45.45	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85

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OPERATING ENGINEER	All	HWY	13	36.90	45.45	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
PAINTER	All	BLD		32.87	34.37	1.5	1.5	2.0	2.0	7.85	14.25	0.00	0.70	0.00	0.00	0.00
PAINTER	All	HWY		34.07	35.57	1.5	1.5	2.0	2.0	7.85	14.25	0.00	0.70	0.00	0.00	0.00
PAINTER OVER 30 FT.	All	BLD		33.87	35.37	1.5	1.5	2.0	2.0	7.85	14.25	0.00	0.70	0.00	0.00	0.00
PAINTER PWR EQMT	All	BLD		33.87	35.37	1.5	1.5	2.0	2.0	7.85	14.25	0.00	0.70	0.00	0.00	0.00
PAINTER PWR EQMT	All	HWY		35.07	36.57	1.5	1.5	2.0	2.0	7.85	14.25	0.00	0.70	0.00	0.00	0.00
PILEDRIVER	All	ALL		43.52	46.02	1.5	1.5	2.0	2.0	10.00	10.55	0.00	0.70		0.00	0.00
PIPEFITTER	N	BLD		50.11	55.12	1.5	1.5	2.0	2.0	5.55	10.90	0.00	0.90	0.00	0.00	0.00
PIPEFITTER	S	BLD		42.55	46.55	1.5	1.5	2.0	2.0	10.21	10.85	0.00	1.75		0.00	0.00
PLASTERER	All	BLD		36.50	38.00	1.5	1.5	2.0	2.0	11.00	12.00	0.00	0.75	0.00	11.88	23.75
PLUMBER	N	BLD		50.11	55.12	1.5	1.5	2.0	2.0	5.55	10.90	0.00	0.90	0.00	0.00	0.00
PLUMBER	S	BLD		42.25	44.75	1.5	1.5	2.0	2.0	10.95	8.40	0.00	1.70		0.00	0.00
ROOFER	All	BLD		38.00	40.50	1.5	1.5	2.0	2.0	9.75	10.60	0.00	0.91		0.00	0.00
SHEETMETAL WORKER	All	ALL		39.53	41.03	1.5	1.5	2.0	2.0	11.05	9.81	2.37	0.71	1.88	0.00	0.00
SPRINKLER FITTER	All	BLD		50.02	54.02	2.0	2.0	2.0	2.0	11.41	15.90	0.00	1.20		0.00	0.00
TERRAZZO FINISHER	All	BLD		28.08		1.5	1.5	2.0	2.0	9.05	7.69	1.00	0.85	0.00	0.00	0.00
TERRAZZO MASON	All	BLD		33.62		1.5	1.5	2.0	2.0	9.05	9.25	1.00	0.94	0.00	0.00	0.00
TRUCK DRIVER	All	ALL	1	42.25	46.61	1.5	1.5	2.0	2.0	15.39	7.73	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	ALL	2	42.83	46.61	1.5	1.5	2.0	2.0	15.39	7.73	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	ALL	3	43.15	46.61	1.5	1.5	2.0	2.0	15.39	7.73	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	ALL	4	43.50	46.61	1.5	1.5	2.0	2.0	15.39	7.73	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	ALL	5	44.61	46.61	1.5	1.5	2.0	2.0	15.39	7.73	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	O&C	1	33.80	37.26	1.5	1.5	2.0	2.0	15.39	7.73	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	O&C	2	34.26	37.26	1.5	1.5	2.0	2.0	15.39	7.73	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	O&C	3	34.52	37.26	1.5	1.5	2.0	2.0	15.39	7.73	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	O&C	4	34.80	37.26	1.5	1.5	2.0	2.0	15.39	7.73	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	O&C	5	35.69	37.26	1.5	1.5	2.0	2.0	15.39	7.73	0.00	0.25	0.00	0.00	0.00

Legend

Rg Region

Madison County Prevailing Wage Rates posted on 5/20/2024

Type Trade Type - All,Highway,Building,Floating,Oil & Chip,Rivers
C Class
Base Base Wage Rate
OT M-F Unless otherwise noted, OT pay is required for any hour greater than 8 worked each day, Mon through Fri. The number listed is the multiple of the base wage.
OT Sa Overtime pay required for every hour worked on Saturdays
OT Su Overtime pay required for every hour worked on Sundays
OT Hol Overtime pay required for every hour worked on Holidays
H/W Health/Welfare benefit
Vac Vacation
Trng Training
Other Ins Employer hourly cost for any other type(s) of insurance provided for benefit of worker.

Explanations MADISON COUNTY

ELECTRICIANS AND ELECTRIC SYSTEMS TECHNICIAN (NORTHWEST) - Townships of Godfrey, Foster and Wood River, and the western one mile of Moro, Ft. Russell and Edwardsville, south to the north side of Hwy. 66 and west to the Mississippi River. This includes SIU-Edwardsville Dental Facility and Alton Mental Health Hospital.

ELECTRICIANS AND ELECTRIC SYSTEMS TECHNICIAN (SOUTHEAST) - Remainder of county not covered by ELECTRICIANS AND ELECTRIC SYSTEMS TECHNICIAN (NW) including SIU-Edwardsville Main Campus.

LABORERS (NORTHWEST) - That area northwest of a diagonal line running from the Mississippi River at the intersection of the waterway known as Wood River at Maple Island, northeast through the highway intersection of Illinois Routes 3 and 143 and following the boundary of Alton/East Alton, then preceding northeast to the county line at a point approximately one mile west of Illinois Route 159.

PLUMBERS AND PIPEFITTERS (SOUTH) - That part of the county South of a line between Mitchell and Highland including the town of Glen Carbon.

The following list is considered as those days for which holiday rates of wages for work performed apply: New Years Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, Christmas Day and Veterans Day in some classifications/counties. Generally, any of these holidays which fall on a Sunday is celebrated on the following Monday. This then makes work performed on that Monday payable at the appropriate overtime rate for holiday pay. Common practice in a given local may alter certain days of celebration. If in doubt, please check with IDOL.

Oil and chip resealing (O&C) means the application of road oils and liquid asphalt to coat an existing road surface, followed by application of aggregate chips or gravel to coated surface, and subsequent rolling of material to seal the surface.

EXPLANATION OF CLASSES

ASBESTOS - GENERAL - removal of asbestos material/mold and hazardous materials from any place in a building, including

mechanical systems where those mechanical systems are to be removed. This includes the removal of asbestos materials/mold and hazardous materials from ductwork or pipes in a building when the building is to be demolished at the time or at some close future date.

ASBESTOS - MECHANICAL - removal of asbestos material from mechanical systems, such as pipes, ducts, and boilers, where the mechanical systems are to remain.

CERAMIC TILE FINISHER AND MARBLE FINISHER

The handling, at the building site, of all sand, cement, tile, marble or stone and all other materials that may be used and installed by [a] tile layer or marble mason. In addition, the grouting, cleaning, sealing, and mixing on the job site, and all other work as required in assisting the setter. The term "Ceramic" is used for naming the classification only and is in no way a limitation of the product handled. Ceramic takes into consideration most hard tiles.

ELECTRONIC SYSTEMS TECHNICIAN

Installation, service and maintenance of low-voltage systems which utilizes the transmission and/or transference of voice, sound, vision, or digital for commercial, education, security and entertainment purposes for the following: TV monitoring and surveillance, background/foreground music, intercom and telephone interconnect, field programming, inventory control systems, microwave transmission, multi-media, multiplex, radio page, school, intercom and sound burglar alarms and low voltage master clock systems.

Excluded from this classification are energy management systems, life safety systems, supervisory controls and data acquisition systems not intrinsic with the above listed systems, fire alarm systems, nurse call systems and raceways exceeding fifteen feet in length.

OPERATING ENGINEER - BUILDING

GROUP I

Cranes, Draglines, Shovels, Skimmer Scoops, Clamshells or Derrick Boats, Pile Drivers, Crane-Type Backhoes, Asphalt Plant Operators, Concrete Plant Operators, Dredges, Asphalt Spreading Machines, Screws on Asphalt Spreading Machines, All Locomotives, Cable Ways or Tower Machines, Hoists, Hydraulic Backhoes, Ditching Machines, or Backfiller, Cherrypickers, overhead Cranes, Roller, Steam or Gas, Concrete Pavers, Excavator Concrete Breakers, Concrete Pumps, Bulk Cement Plants, Cement Pumps, Derrick-Type Drills, Boat Operators, Motor Graders or Pushcats, Scoops or Tournapulls, Bulldozers, Endloaders or Fork Lifts, Power Blade or Elevating Graders, Winch Cats, Boom or Winch Trucks or Boom Tractors, Pipe Wrapping or Painting Machines, Asphalt Plant Engineer, Journeyman Lubricating Engineer, Drills (other than derrick type), Mud Jacks, or Well Drilling Machines, Boring Machines or Track Jacks, Mixers, Conveyors (two), Air Compressors (two) Water Pumps, regardless of size (two), Welding Machines (two), Siphons or Jets (two), Winch Head or Apparatuses (two), Light Plants (two), Waterblasters (two), all Tractors, regardless of size (straight tractor only), Fireman on Stationary Boilers, Automatic Elevators, Form Grading Machines, Finishing Machines, Power Sub-Grader or Ribbon Machines, Longitudinal Floats, Distributor Operators on Trucks, Winch Heads or Apparatuses (one), Mobil Track air and heaters (two to five), Heavy Equipment Greaser, Relief Operator, Assistant Master

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Mechanic and Heavy Duty Mechanic, Autonomous and semi-autonomous equipment, concrete saws of all types and sizes with their attachments, gob-hoppers, excavators all sizes, the repair, greasing, and fueling of all diesel hammers, the operation, set-up and cleaning of bidwells, concrete placement booms, the alterations, repair of all barges, water blasters of all sizes and their clutches, mobile lifts, hydraulic jacks where used for hoisting, diesel or gas powered flashing signs used for traffic control, micro pavers, log skiders, iceolators used on and off of pipeline, condor cranes, drill rigs of all sizes, bow boats, survey boats, ross carriers, bob-cats and all their attachments, skid steer loaders and all their attachments, creter crane, direct drive electric motors the bolting and unbolting the adjusting and shimming, (dewatering jobs, whirley crane, conveyor belts) etc., batch plants (all sizes), roto mills, conveyors systems of any size and any configuration, hydroseeders and straw-blowers all sizes, operation, repair, service of all vibratory hammers, all power pacs and their controls regardless of location, curtains or brush burning machines, stump cutter machines, grout machines regardless of size, Nail Launchers when mounted on a machine or self-propelled, con-cover machines, Goldhofer and similar S.P.M.T. (self-propelled modular transporters) heavy transport units and all Operators (except those listed below).

GROUP II
Assistant Operators

GROUP III
Air Compressors (one), Water Pumps, regardless of size (one), Water-blasters (one), Welding Machine (one), Mixers (one bag), Conveyor (one), Siphon or Jet (one), Light Plant (one), Heater (one), Immobile Track Air (one), and Self-Propelled Walk Behind Rollers.

GROUP IV
CCO-17 ton and below

GROUP V
CCO-17.5 to 35 Ton and Boom to 50'

GROUP VI
CCO-35.5 to 75 Ton and Boom to 100'

GROUP VII
CCO-75.5 to 125 Ton and Boom to 125'

GROUP VIII
CCO- 125.5 to 200 Ton and Boom to 100'

GROUP IX
CCO-200.5 to 300 Ton and Boom to 100'

GROUP X
CCO-300.5 to 450 Ton and Boom to 150'

GROUP XI

Madison County Prevailing Wage Rates posted on 5/20/2024

Master Mechanic

GROUP XII
Operator Foreman, Licensed Boat Pilot

GROUP XIII
Track type hydraulic hoes & crawler gradealls prep time.

GROUP XIV
Fireman on Whirlies and Heavy Equipment Oilers, Truck Cranes, Dredges, Monigans, Large Cranes - (Over 65-ton rated capacity) Concrete Plant Oiler, Blacktop Plant oiler and Creter Crane Oiler (when required), barge tenders, oilers on drill rigs used for caisson or for pile driving and Oiler.

OPERATING ENGINEERS – Highway

GROUP I

Cranes, Draglines, Shovels, Skimmer Scoops, Clamshells or Derrick Boats, Pile Drivers, Crane-Type Backhoes, Asphalt Plant Operators, Concrete Plant Operators, Dredges, Asphalt Spreading Machines, Screws on Asphalt Spreading Machines, All Locomotives, Cable Ways or Tower Machines, Hoists, Hydraulic Backhoes, Ditching Machines, or Backfiller, Cherrypickers, overhead Cranes, Roller, Steam or Gas, Concrete Pavers, Excavator Concrete Breakers, Concrete Pumps, Bulk Cement Plants, Cement Pumps, Derrick¬Type Drills, Boat Operators, Motor Graders or Pushcats, Scoops or Tournapulls, Bulldozers, Endloaders or Fork Lifts, Power Blade or Elevating Graders, Winch Cats, Boom or Winch Trucks or Boom Tractors, Pipe Wrapping or Painting Machines, Asphalt Plant Engineer, Journeyman Lubricating Engineer, Drills (other than derrick type), Mud Jacks, or Well Drilling Machines, Boring Machines or Track Jacks, Mixers, Conveyors (two), Air Compressors (two) Water Pumps, regardless of size (two), Welding Machines (two), Siphons or Jets (two), Winch Head or Apparatuses (two), Light Plants (two), Waterblasters (two), all Tractors, regardless of size (straight tractor only), Fireman on Stationary Boilers, Automatic Elevators, Form Grading Machines, Finishing Machines, Power Sub-Grader or Ribbon Machines, Longitudinal Floats, Distributor Operators on Trucks, Winch Heads or Apparatuses (one), Mobil Track air and heaters (two to five), Heavy Equipment Greaser, Relief Operator, Assistant Master Mechanic and Heavy Duty Mechanic, concrete saws of all types and sizes with their attachments, gob¬hoppers, excavators all sizes, the repair, greasing, and fueling of all diesel hammers, the operation, set-up and cleaning of bidwells, concrete placement booms, the alterations, repair of all barges, water blasters of all sizes and their clutches, mobile lifts, hydraulic jacks where used for hoisting, diesel or gas powered flashing sings used for traffic control, micro pavers, log skiders, iceolators used on and off of pipeline, condor cranes, drill rigs of all sizes, bow boats, survey boats, ross carriers, bob-cats and all their attachments, skid steer loaders and all their attachments, creter crane, direct drive electric motors the bolting and unbolting the adjusting and shimming, (dewatering jobs, whirley crane, conveyor belts) etc., batch plants (all sizes), roto mills, conveyors systems of any size and any configuration, hydroseeders and straw-blowers all sizes, operation, repair, service of all vibratory hammers, all power pacs and their controls regardless of location, curtains or brush burning machines, stump cutter machines, grout machines regardless of size, Nail launchers when mounted on a machine or self-propelled, con-cover machines, Goldhofer and similar S.P.M.T. (self-propelled modular transporters) heavy transport units and all Operators (except those listed below).

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GROUP II
Assistant Operators

GROUP III
Air Compressors (one), Water Pumps, regardless of size (one), Water-blasters (one), Welding Machine (one), Mixers (one bag), Conveyor (one), Siphon or Jet (one), Light Plant (one), Heater (one), Immobile Track Air (one), and Self-Propelled Walk Behind Rollers.
GROUP IV
CCO-17 ton and below

GROUP V
CCO-17.5 to 35 Ton and Boom to 50'

GROUP VI
CCO- 35.5 to 75 Ton and Boom to 100'

GROUP VII
CCO- 75.5 to 125 Ton and Boom to 75'

GROUP VIII
CCO- 125.5 to 200 Ton and Boom to 100'

GROUP IX
CCO- 200.5 to 300 Ton and Boom to 100'

GROUP X
CCO- 300.5 to 450 Ton and Boom to 150'

GROUP XI
Master Mechanic, Working Foreman/Mechanic.

GROUP XII
Operator Foreman, licensed boat pilot.

GROUP XIII
Fireman on Whirlies and Heavy Equipment Oilers, Truck Cranes, Dredges, Monigans, Large Cranes - (Over 65-ton rated capacity) Concrete Plant Oiler, Blacktop Plant Oiler and Creter Crane Oiler (when required), barge tenders, oilers on drill rigs used for caisson or for pile driving, and Oiler.

TRUCK DRIVER - BUILDING, HEAVY AND HIGHWAY CONSTRUCTION Class 1. Drivers on 2 axle trucks hauling less than 9 ton. Air compressor and welding machines and brooms, including those pulled by separate units, truck driver helpers, warehouse employees, mechanic helpers, greasers and tiremen, pickup trucks when hauling materials, tools, or workers to and from and on-the-job site, and fork lifts up to 6,000 lb. capacity.

Class 2. Two or three axle trucks hauling more than 9 ton but hauling less than 16 ton. A-frame winch trucks, hydrolift trucks, vactor trucks or similar equipment when used for transportation purposes. Fork lifts over 6,000 lb. capacity, winch trucks, four axle combination units, and ticket writers.

Class 3. Two, three or four axle trucks hauling 16 ton or more. Drivers on water pulls, articulated dump trucks, mechanics and working forepersons, and dispatchers. Five axle or more combination units.

Class 4. Low Boy and Oil Distributors.

Class 5. Drivers who require special protective clothing while employed on hazardous waste work.

TRUCK DRIVER - OIL AND CHIP RESEALING ONLY.

This shall encompass laborers, workers and mechanics who drive contractor or subcontractor owned, leased, or hired pickup, dump, service, or oil distributor trucks. The work includes transporting materials and equipment (including but not limited to, oils, aggregate supplies, parts, machinery and tools) to or from the job site; distributing oil or liquid asphalt and aggregate; stock piling material when in connection with the actual oil and chip contract. The Truck Driver (Oil & Chip Resealing) wage classification does not include supplier delivered materials.

TERRAZZO FINISHER

The handling of all materials used for Mosaic and Terrazzo work including preparing, mixing by hand, by mixing machine or transporting of pre-mixed materials and distributing with shovel, rake, hoe, or pail, all kinds of concrete foundations necessary for Mosaic and Terrazzo work, all cement terrazzo, magnesite terrazzo, Do-O-Tex terrazzo, epoxy matrix ter-razzo, exposed aggregate, rustic or rough washed for exterior or interior of buildings placed either by machine or by hand, and any other kind of mixture of plastics composed of chips or granules when mixed with cement, rubber, neoprene, vinyl, magnesium chloride or any other resinous or chemical substances used for seamless flooring systems, and all other building materials, all similar materials and all precast terrazzo work on jobs, all scratch coat used for Mosaic and Terrazzo work and sub-bed, tar paper and wire mesh (2x2 etc.) or lath. The rubbing, grinding, cleaning and finishing of same either by hand or by machine or by terrazzo resurfacing equipment on new or existing floors. When necessary finishers shall be allowed to assist the mechanics to spread sand bed, lay tarpaper and wire mesh (2x2 etc.) or lath. The finishing of cement floors where additional aggregate of stone is added by spreading or sprinkling on top of the finished base, and troweled or rolled into the finish and then the surface is ground by grinding machines.

Other Classifications of Work:

For definitions of classifications not otherwise set out, the Department generally has on file such definitions which are available. If a task to be performed is not subject to one of the classifications of pay set out, the Department will upon being contacted state which neighboring county has such a classification and provide such rate, such rate being deemed to exist by reference in this document. If no neighboring county rate applies to the task, the Department shall undertake a special determination, such special determination being then deemed to have existed under this determination. If a project requires these, or any classification not listed, please contact IDOL at 217-782-1710 for wage rates or clarifications.

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LANDSCAPING

Landscaping work falls under the existing classifications for laborer, operating engineer and truck driver. The work performed by landscape plantsman and landscape laborer is covered by the existing classification of laborer. The work performed by landscape operators (regardless of equipment used or its size) is covered by the classifications of operating engineer. The work performed by landscape truck drivers (regardless of size of truck driven) is covered by the classifications of truck driver.

AGREEMENT

AGREEMENT

THIS AGREEMENT is by and between Wood River Drainage and Levee District
(hereinafter called Owner) and
_____(hereinafter called Contractor).

Owner and Contractor, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1 – WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

Providing 36-inch sewers and structures, including new slide gate as shown on the plans. Heavy cleaning and rehabilitation of existing 24-inch and 36-inch Cast Iron Pipes via cured-in-place lining. Maintaining flow in existing sewers and providing dewatering services as required. Obtaining all permits for construction of Work not obtained by Engineer or Owner. Removing all debris and excess materials from Project Site generated by construction Work. Restoring areas disturbed by construction to original condition or as specified by Contract Documents.

ARTICLE 2 – THE PROJECT

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

Wood River Drainage and Levee District

Rand Avenue Pump Station
Effluent Piping Replacement and Rehabilitation

Wood River, Illinois

ARTICLE 3 – ENGINEER

3.01 The Project has been designed by Donohue & Associates, Inc., who is hereinafter called Engineer and who is to act as Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 Time of Essence

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 Days to Achieve Substantial Completion and Final Payment

A. The Work will be substantially completed within 300 calendar days after the date when the Contract Times commence to run as provided in Article 4 of the General Conditions, and completed and ready for final payment in accordance with Article 15 of the General Conditions within 330 calendar days after the date when the Contract Times commence to run.

4.03 Liquidated Damages

A. Contractor and Owner recognize that time is of the essence as stated in paragraph 4.01 above and that Owner will suffer financial loss if the Work is not completed and Milestones not achieved within the times specified in paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding that 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).

1. Substantial Completion: Contractor shall pay Owner $500 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.

2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner $500 for each day that expires after such time until the Work is completed and ready for final payment.

3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.

ARTICLE 5 – CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of that item as indicated the following schedule for Unit Price Work:

BASE BID - UNIT PRICE WORK

No.		Item	Qty	Unit	Bid Unit Price	Bid Price
1		Mobilization / Demobilization / Bonds / Insurance	1	LS	$_____ per LS	$_____
2		Installation of 36-inch Sewer and other appurtenances	404	LF	$_____ per LF	$_____
3		72-inch Diameter Manholes (Manholes 1 and 2)	2	EA	$_____ per EA	$_____
4		72-inch x 72-inch Rectangular Concrete Gate Structure	1	EA	$_____ per EA	$_____
5		Temporary Bulkheads in Pump Station Headbox and Gatewell Structure	1	LS	$_____ per LS	$_____
6		Cleaning, Inspection and CIPP Lining of 24-inch CIP	230	LF	$_____ per LF	$_____
7		Cleaning, Inspection and CIPP Lining of 36-inch CIP	230	LF	$_____ per LF	$_____
8		Abandonment of Existing 24-inch and 30-inch Effluent Pipe and Associated Structure	1	LS	$_____ per LS	$_____
9		Asphalt Trail Restoration	150	LF	$_____ per LF	$_____
10		Rand Avenue Road Restoration	1	LS	$_____ per LS	$_____
11		Any work not included in Bid Items No. 1 through No. 10	1	LS	$_____ per LS	$_____

TOTAL OF ALL BID PRICES (Sum of Bid Price for Each Item) $_____
(figures)

_____ Dollars
(words)

Qty = Estimated Quantity

Bid Price (for each Item) = Qty x Bid Unit Price (for each item)

LS = Lump Sum
LF = Linear Foot
EA = Each

As provided in Article 13 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer as provided in Article 10 of the General Conditions. Unit prices have been computed as provided in Article 13 of the General Conditions.

5.02 Owner accepts / rejects the following alternates as described in Section 01 23 00 and indicated on the Bid Form:

A. Accept / Reject Alternate 1: Alternate 36-inch sewer alignment.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

B. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 Progress Payments; Retainage

A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

B. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Article 15 of the General Conditions:

1. 90% of Work completed (with the balance being retainage). If the Work has been 50% completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, Owner, on recommendation of Engineer, may determine that as long as the character and progress of the Work remain satisfactory to them, there will be no additional retainage on account of Work subsequently completed, in which case the remaining progress payments will be in an amount equal to 100% of the Work completed less the aggregate of previous retainage and payments previously made. At 50% completion, or any time thereafter, when the character and progress of the Work is not satisfactory, additional amounts may be retained, but in no event shall the total retainage be more than 10% of the value of the Work completed.

C. Upon Substantial Completion, the amount of retainage may be reduced from 10% to 5%. Upon Substantial Completion, Owner may make additional payments, retaining at all times an amount sufficient to cover the estimated cost of the work still to be completed or corrected.

6.03 Final Payment

A. Upon final completion and acceptance of the Work in accordance with Article 15 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Article15.

ARTICLE 7 – INTEREST

7.01 Not used.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

8.01 In order to induce Owner to enter into this Agreement Contractor makes the following representations:

A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work

C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

E. Contractor has considered and correlated the information known to the Contractor; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and all additional or supplementary examinations, investigations, explorations, tests, studies, and data with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) Contractor's safety precautions and programs.

F. Contractor does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.

G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 Contents

A. The Contract Documents consist of the following:

1. This Agreement (pages 00 52 13-1 to 00 52 13-9, inclusive);

2. Performance Bond Form (pages 1 to 4, inclusive);

3. Payment Bond Form (pages 1 to 4, inclusive);

4. General Conditions (pages 1 to 70, inclusive);

5. Supplementary Conditions (pages 00 73 00-1 to 00 73 00-20, inclusive);

6. Specifications as listed in the table of contents of the Project Manual;

7. Drawings, not attached hereto, consisting of a cover sheet and sheets numbered 1 through 17, inclusive, with each sheet bearing the following general title: Wood River Drainage and Levee District, Rand Avenue Pump Station, Effluent Piping Replacement and Rehabilitation;

8. Addenda (numbers 1 to ____, inclusive);

9. Exhibits to this Agreement (enumerated as follows):

    a. Exhibit A: "Base Bid Material and Equipment Schedule" from Contractor's Bid (page 00 41 13-11);

    b. List of proposed Subcontractors having a direct contract with the Contractor from the Subcontractor Listing included with the Contractor's Bid (page 00 41 13-10).

10. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:

    a. Notice to Proceed;

    b. Change Orders;

    c. Work Change Directives;

    d. Field Orders;

    e. Engineer's written interpretations and clarifications.

B. The documents listed in Paragraph 9.01.A. are attached to this Agreement (except as expressly noted otherwise above).

C. There are no Contract Documents other than those listed above in this Article 9.

D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 Terms

A. Terms used in this Agreement will have the meanings indicated in the General Conditions and Supplementary Conditions.

10.02 Assignment of Contract

A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and

unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 Successors and Assigns

A. Owner and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 Severability

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 Contractor's Certifications

A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement in triplicate. One counterpart each has been delivered to Owner, Contractor, and Engineer. All portions of the Contract Documents have been signed or identified by Owner and Contractor.

This Agreement will be effective on _____, _____ (which is the Effective Date of the Agreement).

OWNER:

_____

By:_____
(signature)

_____
(typed name and title)

Attest _____
(signature)

Address for giving notices:

_____

_____

_____

Approved as to form and execution this

_____ day of _____, 20___

_____
(attorney for Owner)

Countersigned by:

_____
Comptroller
(or other designated official)

CONTRACTOR:

_____

By:_____
(signature)

_____
(typed name and title)

Attest _____
(signature)

Address for giving notices:

_____

_____

_____

License No. _____
(where applicable)

Agent for service of process:_____

_____

(If Contractor is a corporation or a partnership, attach evidence of authority to sign.)

Designated Representative:

Name: _____

Title: _____

Address: _____

_____

Phone: _____

Email:_____

Designated Representative:

Name: _____

Title: _____

Address: _____

_____

Phone: _____

Email:_____

PERFORMANCE BOND

PERFORMANCE BOND

Contractor Name: **[Full formal name of Contractor]** Address *(principal place of business)*: **[Address of Contractor's principal place of business]**	**Surety** Name: **[Full formal name of Surety]** Address *(principal place of business)*: **[Address of Surety's principal place of business]**
Owner Name: **[Full formal name of Owner]** Mailing address *(principal place of business)*: **[Address of Owner's principal place of business]**	**Contract** Description *(name and location)*: **[Owner's project/contract name, and location of the project]** Contract Price: **[Amount from Contract]** Effective Date of Contract: **[Date from Contract]**

Bond

Bond Amount: **[Amount]**

Date of Bond: **[Date]**

(Date of Bond cannot be earlier than Effective Date of Contract)

Modifications to this Bond form:

☐ None ☐ See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Performance Bond, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

Contractor as Principal	Surety
_____ *(Full formal name of Contractor)*	_____ *(Full formal name of Surety) (corporate seal)*
By: _____ *(Signature)*	By: _____ *(Signature)(Attach Power of Attorney)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____
Attest: _____ *(Signature)*	Attest: _____ *(Signature)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond will arise after:

    3.1. The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice may indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement does not waive the Owner's right, if any, subsequently to declare a Contractor Default;

    3.2. The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

    3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

    5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

    5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

    5.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

    5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment, or the Surety has denied liability, in whole or in part, without further notice, the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner will not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety will not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

   7.1. the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

   7.2. additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

   7.3. liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price will not be reduced or set off on account of any such unrelated obligations. No right of action will accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond must be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and must be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit will be applicable.

12. Notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted therefrom and provisions conforming to such

statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

14. Definitions

    14.1. *Balance of the Contract Price*—The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

    14.2. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

    14.3. *Contractor Default*—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

    14.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

    14.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.

16. Modifications to this Bond are as follows: **[Describe modification or enter "None"]**

PAYMENT BOND

PAYMENT BOND

Contractor	**Surety**
Name: **[Full formal name of Contractor]** Address *(principal place of business)*: **[Address of Contractor's principal place of business]**	Name: **[Full formal name of Surety]** Address *(principal place of business)*: **[Address of Surety's principal place of business]**
Owner	**Contract**
Name: **[Full formal name of Owner]** Mailing address *(principal place of business)*: **[Address of Owner's principal place of business]**	Description *(name and location)*: **[Owner's project/contract name, and location of the project]** Contract Price: **[Amount, from Contract]** Effective Date of Contract: **[Date, from Contract]**

Bond

Bond Amount: **[Amount]**

Date of Bond: **[Date]**

(Date of Bond cannot be earlier than Effective Date of Contract)

Modifications to this Bond form:

☐ None ☐ See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

Contractor as Principal	Surety
_____ *(Full formal name of Contractor)*	_____ *(Full formal name of Surety) (corporate seal)*
By: _____ *(Signature)*	By: _____ *(Signature)(Attach Power of Attorney)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____
Attest: _____ *(Signature)*	Attest: _____ *(Signature)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond will arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.

4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.

5. The Surety's obligations to a Claimant under this Bond will arise after the following:

    5.1. Claimants who do not have a direct contract with the Contractor

        5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

        5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).

    5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).

6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.

7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

    7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

    7.2. Pay or arrange for payment of any undisputed amounts.

    7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

8. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.

9. Amounts owed by the Owner to the Contractor under the Construction Contract will be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfying obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.

11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit will be applicable.

13. Notice and Claims to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.

14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted here from and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. Definitions

    16.1. *Claim*—A written statement by the Claimant including at a minimum:

        16.1.1. The name of the Claimant;

        16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;

        16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;

        16.1.4. A brief description of the labor, materials, or equipment furnished;

16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;

16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;

16.1.7. The total amount of previous payments received by the Claimant; and

16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2. *Claimant*—An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

16.3. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

16.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

16.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.

17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.

18. Modifications to this Bond are as follows: **[Describe modification or enter "None"]**

GENERAL CONDITIONS

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared By

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ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. 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, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.

3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

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

5. *Bidder*—An individual or entity that submits a Bid to Owner.

6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.

7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.

8. *Change Order*—A document 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, or other revision to the Contract, issued on or after the Effective Date of the Contract.

9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.

10. *Claim*

a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the

requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.

b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.

c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.

d. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.

13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.

14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.

15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.

16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.

17. *Cost of the Work*—See Paragraph 13.01 for definition.

18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.

19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.

20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.

21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the

recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

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

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

24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.

    a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.

    b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.

    c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.

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

26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.

27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.

28. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.

29. *Notice to Proceed*—A written notice 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.

30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.

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

32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.

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

35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals.

36. *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.

37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

38. *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, and such other lands or areas furnished by Owner which are designated for the use of Contractor.

39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.

40. *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.

41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers' instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.

42. *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 of such Work.

43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.

44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.

45. *Supplier*—A manufacturer, fabricator, supplier, distributor, 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 a Subcontractor.

46. *Technical Data*

    a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.

    b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.

    c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.

47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.

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

49. *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; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 *Terminology*

A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives*: 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 Article 10 or any other provision of the Contract Documents.

C. *Day*: The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

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

1. does not conform to the Contract Documents;

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

3. 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 15.03 or Paragraph 15.04).

E. *Furnish, Install, Perform, Provide*

1. The word "furnish," when used in connection with services, materials, or equipment, means 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, means 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, means to furnish and install said services, materials, or equipment complete and ready for intended use.

4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words "furnish," "install," "perform," or "provide," then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

F. *Contract Price or Contract Times*: References to a change in "Contract Price or Contract Times" or "Contract Times or Contract Price" or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term "or both" is not expressed.

G. 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 Performance and Payment Bonds; Evidence of Insurance*

A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).

B. *Evidence of Contractor's Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.

C. *Evidence of Owner's Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.

B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), 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;

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.

2.04 *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 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, 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 and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *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 the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will 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 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 the component parts of the Work.

4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.

B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.

C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one Contract Document 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.

C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.

D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.

E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

G. Nothing in the Contract Documents creates:

1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or

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

3.02 *Reference Standards*

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

1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract 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, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer 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 part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements*: Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents*: If, before or 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) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) 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 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.

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 part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:

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

A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.

B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.

C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

A. Contractor and its Subcontractors and Suppliers 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 versions, or 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; or

2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.

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

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract 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 Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

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

4.03 *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.

4.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 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 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.

B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

A. If Owner, Engineer, 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 Contract Price or Contract Times.

B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.

C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:

1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;

2. Abnormal weather conditions;

3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and

4. Acts of war or terrorism.

D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:

1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.

2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.

3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.

E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:

1. The circumstances that form the basis for the requested adjustment;

2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;

3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;

4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and

5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.

Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.

F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.

G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor in writing 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.

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 permanent improvements are to be made 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.

5.02 *Use of Site and Other Areas*

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

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.

2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, 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 any such claim, and against all 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 directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

B. *Removal of Debris During Performance of the Work*: During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will 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 shall remove from the Site and adjacent areas 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 of 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 structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

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

1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;

2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and

3. Technical Data contained in such reports and drawings.

B. *Underground Facilities*: Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

C. *Reliance by Contractor on Technical Data*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.

D. *Limitations of Other Data and Documents*: Except for such reliance on 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;

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

3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or

4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

A. *Notice by Contractor*: If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;

2. is of such a nature as to require a change in the Drawings or Specifications;

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 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

B. *Engineer's Review*: After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.

C. *Owner's Statement to Contractor Regarding Site Condition*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.

D. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

E. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, 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 fall within any one or more of the categories described in Paragraph 5.04.A;

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 Paragraph 13.03; and,

c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:

a. Contractor knew of the existence of such condition at the time Contractor made a 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 otherwise;

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

c. Contractor failed to give the written notice required by Paragraph 5.04.A.

3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.

4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

F. *Underground Facilities; Hazardous Environmental Conditions*: Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 *Underground Facilities*

A. *Contractor's Responsibilities*: Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:

1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;

2. complying with applicable state and local utility damage prevention Laws and Regulations;

3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;

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

5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.

B. *Notice by Contractor*: If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then 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 7.15), notify Owner and Engineer in writing regarding such Underground Facility.

C. *Engineer's Review*: Engineer will:

1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;

2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;

3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and

4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.

During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

D. *Owner's Statement to Contractor Regarding Underground Facility*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.

E. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

F. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown

or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. 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 Paragraph 13.03;

b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and

c. Contractor gave the notice required in Paragraph 5.05.B.

2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.

3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

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

1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;

2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and

3. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on 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;

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 removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.

D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.

E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) 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 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.

G. 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, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.

H. 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, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

I. 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, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

J. 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 failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.

B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.

C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or

Regulations, and must be issued and signed by a surety named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond 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 must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.

E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.

F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.

G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.

H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 *Insurance—General Provisions*

A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.

B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.

C. Alternative forms of insurance coverage, including but not limited to self-insurance and "Occupational Accident and Excess Employer's Indemnity Policies," are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.

D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by

Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.

E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.

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

G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

H. Contractor shall require:

1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and

2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.

I. If either party does not purchase or maintain the insurance required of such party by the Contract, 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.

J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.

K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.

L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.

M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.

N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 *Contractor's Insurance*

A. *Required Insurance*: Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.

B. *General Provisions*: The policies of insurance required by this Paragraph 6.03 as supplemented must:

1. include at least the specific coverages required;

2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;

3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;

4. apply with respect to the performance of the Work, whether such performance is 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; and

5. include all necessary endorsements to support the stated requirements.

C. *Additional Insureds*: The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:

1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;

2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;

3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);

4. not seek contribution from insurance maintained by the additional insured; and

5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

6.04 *Builder's Risk and Other Property Insurance*

A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.

B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.

C. *Property Insurance for Substantially Complete Facilities*: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.

D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.

E. *Insurance of Other Property; Additional Insurance*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against

Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

1. Owner and Contractor waive all rights against each other and the 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, risks, 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 Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, 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.
2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.

B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.

1. 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 all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.

C. The waivers in this Paragraph 6.05 include the waiver of rights 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 insured peril, risk, or cause of loss.

D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, 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 fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.

C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *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.

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

7.03 *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 maintain good discipline and order at the Site.

B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.

C. 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 will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.04 *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, whether or not such items are specifically called for in the Contract Documents.

B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will 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 must 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.

7.05 *"Or Equals"*

A. *Contractor's Request; Governing Criteria*: Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item 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 is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.

1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:

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

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

2) 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;

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

4) is not objectionable to Owner.

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

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

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

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

C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.

E. *Treatment as a Substitution Request*: If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 *Substitutes*

A. *Contractor's Request; Governing Criteria*: Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.

1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.

2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

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

    a. will certify that the proposed substitute item will:

        1) perform adequately the functions and achieve the results called for by the general design;

        2) be similar in substance to the item specified; and

        3) be suited to the same use as the item specified.

    b. will state:

        1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;

        2) 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

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

    c. will identify:

        1) all variations of the proposed substitute item from the item specified; and

        2) available engineering, sales, maintenance, repair, and replacement services.

    d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.

B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.

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

D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. 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.

E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.

F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.

B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.

C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.

D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.

E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.

F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.

G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.

I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.

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

K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.

L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.

M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *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 an 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 will be disclosed 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.

7.09 *Permits*

A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. 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 the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *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.

7.11 *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. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and 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 such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.

C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 *Record Documents*

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

7.13 *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.

B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.

C. 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, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.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 at its expense (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).

E. 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.

F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.

G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.

H. 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.

I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).

J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as 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.

7.15 *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 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 by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

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

a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

b. determine and verify:

1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;

2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;

c. confirm that the Submittal is complete with respect to all related data included in the Submittal.

2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.

3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.

B. *Submittal Procedures for Shop Drawings and Samples*: Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.

1. *Shop Drawings*

a. Contractor shall submit the number of copies required in the Specifications.

b. Data shown on the Shop Drawings must 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 7.16.C.

2. *Samples*

a. Contractor shall submit the number of Samples required in the Specifications.

b. Contractor shall 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 7.16.C.

3. 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. *Engineer's Review of Shop Drawings and Samples*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. 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, comply with the requirements of 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, or to safety precautions or programs incident thereto.

3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.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 will

document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.

6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.

7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. *Resubmittal Procedures for Shop Drawings and Samples*

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.

2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.

3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

E. *Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs*

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:

   a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.

   b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.

   c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.

d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.

2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03. 2.04, and 2.05.

F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 *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 is entitled to rely on Contractor's warranty and guarantee.

B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:

1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and

2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.

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

1. abuse, or improper modification, 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.

D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:

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;

6. The issuance of a notice of acceptability by Engineer;

7. The end of the correction period established in Paragraph 15.08;

8. Any inspection, test, or approval by others; or

9. Any correction of defective Work by Owner.

E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, 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 losses, damages, costs, and judgments (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 from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage 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 7.18.A will 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, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

7.19 *Delegation of Professional Design Services*

A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.

B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.

C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.

D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.

E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:

1. Checking for conformance with the requirements of this Paragraph 7.19;

2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and

3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.

F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.

G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.

B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.

C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.

D. 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.

E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, 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.

F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:

1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;

2. An itemization of the specific matters to be covered by such authority and responsibility; and

3. The extent of such authority and responsibilities.

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

8.03 *Legal Relationships*

A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.

1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.

2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.

C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) 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 any such claims, and against all 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 damage, delay, disruption, or interference.

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

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

9.02 *Replacement of Engineer*

A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

9.03 *Furnish Data*

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

9.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.

B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.

C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *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.

9.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *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 (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

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.

B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *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.

10.02 *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 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 10.07. 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.

10.03 *Resident Project Representative*

A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.

B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

10.04 *Engineer's Authority*

A. Engineer has the authority to reject Work in accordance with Article 14.

B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.

C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.

D. Engineer's authority as to changes in the Work is set forth in Article 11.

E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

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

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, 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, will 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.

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 Contractor under Paragraph 15.06.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 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.

B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.

C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

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

1. Changes in 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;

2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;

3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and

4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.

B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 *Work Change Directives*

A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

B. If Owner has issued a Work Change Directive and:

1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.

2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

A. Engineer may authorize minor changes in the Work if the changes 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. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.

B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 *Owner-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. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.

B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.

C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 *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, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.

B. 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, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);

2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or

3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).

C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit will 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 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;

b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 percent;

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 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;

d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;

e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and

f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

11.08 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.

B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

A. *Purpose and Content*: Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

B. *Change Proposal Procedures*

1. *Submittal*: Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.

2. *Supporting Data*: The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.

    a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.

    b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

    The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

3. *Engineer's Initial Review*: Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.

4. *Engineer's Full Review and Action on the Change Proposal*: Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change

Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.

C. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 *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.

ARTICLE 12—CLAIMS

12.01 *Claims*

A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:

1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;

2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;

3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and

4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.

B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge

and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.

D. *Mediation*

1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.

2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.

E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.

F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.

G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:

1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.

B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will 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 in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will 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 accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will 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, which 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 will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.

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

5. Other costs consisting of 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, 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.

1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. *Construction Equipment Rental*

1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.

2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.

3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed 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.

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 builder's risk or other property insurance established in accordance with Paragraph 6.04), 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 include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will 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 communication 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 that Contractor is required by the Contract Documents to purchase and maintain.

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

1. Payroll costs and other compensation of Contractor's officers, executives, principals, general 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 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.

2. The cost of purchasing, renting, or furnishing small tools and hand tools.

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

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

5. 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.

6. Expenses incurred in preparing and advancing Claims.

7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*

1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:

a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.

b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:

1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.

2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.

2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change

Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 *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*: Contractor agrees that:

1. 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

2. 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 for any of the foregoing will be valid.

C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's 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 for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 *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. Payments to Contractor for Unit Price Work will be based on actual quantities.

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.

D. 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, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:

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

b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.

2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.

3. Adjusted unit prices will apply to all units of that item.

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction 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 with such procedures and programs as applicable.

14.02 *Tests, Inspections, and Approvals*

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

B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.

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, obtaining, and paying for all inspections and tests required:

1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;

2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;

3. by manufacturers of equipment furnished under the Contract Documents;

4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and

5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.

F. 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. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

A. *Contractor's Obligation*: It is Contractor's obligation to assure that the Work is not defective.

B. *Engineer's Authority*: Engineer has the authority to determine whether Work is defective, and to reject defective Work.

C. *Notice of Defects*: Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.

D. *Correction, or Removal and Replacement*: Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.

E. *Preservation of Warranties*: When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

F. *Costs and Damages*: In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs,

losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages 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. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.

C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then 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, and provide all necessary labor, material, and equipment.

1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages 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 pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.

2. 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, 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, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *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, then 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 will 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.

14.07 *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 defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 14.07, 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, and incorporate in the Work all materials and 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 incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. 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 14.07.

ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 *Progress Payments*

A. *Basis for Progress Payments*: The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.

B. *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.

2. 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 must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation

establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

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

C. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, 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 13.03, 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; 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;

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

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

    d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; 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 15.01.C.2.

6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:

    a. the Work is defective, requiring correction or replacement;

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

    c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

    d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

    e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due*

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

E. *Reductions in Payment by Owner*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:

    a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;

c. Contractor has failed to provide and maintain required bonds or insurance;

d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;

e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;

f. The Work is defective, requiring correction or replacement;

g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

h. The Contract Price has been reduced by Change Orders;

i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;

j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;

k. 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; or

l. Other items entitle Owner to a set-off against the amount recommended.

2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, 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, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

15.03 *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 and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time

submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

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 preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.

F. 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 punch list.

15.04 *Partial Use or Occupancy*

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. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be 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 15.03.A through 15.03.E for that part of the Work.

2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work 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 15.03 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 6.04 regarding builder's risk or other property insurance.

15.05 *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, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *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, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.

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

   a. all documentation called for in the Contract Documents;

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

   c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

d. a list of all duly pending Change Proposals and Claims; and

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

3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) 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, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Final Application and Recommendation of Payment*: 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 have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. 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. *Notice of Acceptability*: In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.

D. *Completion of Work*: The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.

E. *Final Payment Becomes Due*: Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

15.07 *Waiver of Claims*

A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim,

appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 *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 Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. correct the defective repairs to the Site or such adjacent areas;
2. correct such defective Work;
3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and
4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.

B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.

C. If, after receipt of a notice of defect within 60 days and within the correction period, 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. Contractor shall pay all 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 repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.

D. 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.

E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, 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.

F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *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 written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:

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);

2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;

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

4. Contractor's repeated disregard of the authority of Owner or Engineer.

B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:

1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and

2. enforce the rights available to Owner under any applicable performance bond.

C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, 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 complete the Work as Owner may deem expedient.

D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.

E. If Owner proceeds as provided in Paragraph 16.02.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 the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects,

attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds 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.

F. 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, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.

G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate for Convenience*

A. Upon 7 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; and

3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.

B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 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 16.03.

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, 7 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 are not intended to preclude Contractor from submitting a Change Proposal 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.

ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

A. *Disputes Subject to Final Resolution*: The following disputed matters are subject to final resolution under the provisions of this article:

1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and

2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.

B. *Final Resolution of Disputes*: For any dispute subject to resolution under this article, Owner or Contractor may:

1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;

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

3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:

1. in person, by a commercial courier service or otherwise, to the recipient's place of business;

2. by registered or certified mail, postage prepaid, to the recipient's place of business; or

3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 *Computation of Times*

A. When any period of time is referred to in the Contract 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.

18.03 *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. 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.

18.04 *Limitation of Damages*

A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

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

18.08 *Assignment of Contract*

A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract.

18.09 *Successors and Assigns*

A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

18.10 *Headings*

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

SUPPLEMENTARY CONDITIONS

SUPPLEMENTARY CONDITIONS

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SUPPLEMENTARY CONDITIONS

GENERAL

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (EJCDC C-700, 2018 Edition). All provisions which are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions will have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

SC - 1.01

Delete subparagraph 1.01.A.18 in its entirety and insert the following in its place.

18. *Drawings* - The part of the Contract Documents that graphically shows the scope, extent, and character of the Work to be performed by the Contractor, as defined in the Agreement.

Delete subparagraph 1.01.A.46.c in its entirety and insert the following in its place.

c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

Delete subparagraph 1.01.A.47 in its entirety and insert the following in its place.

47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

Delete subparagraph 1.01.A.49 in its entirety and insert the following in its place.

49. *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; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, Start-up, and commissioning, all as required by the Contract Documents.

Add the following paragraphs after paragraph 1.01.A.50:

51. *Lump Sum* – A single price quoted for completing the Work. Also known as stipulated sum.

52. *Project Manual* – The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the

Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.

53. *Startup* - Coordinated operation of facilities by the Contractor, Subcontractors, Suppliers, and Owner after installation, and testing, are complete and operation and maintenance data has been submitted and approved. Startup is considered complete when, in the opinion of the Engineer, the facilities have properly operated for 7 continuous days without significant interruption.

ARTICLE 2 – PRELIMINARY MATTERS

SC - 2.02

Delete paragraph 2.02.A. in its entirety and insert the following in its place:

A. Owner shall furnish to Contractor one copy in electronic portable document format (PDF) of the Project Manual and Drawings. Hard copies will not be provided.

Add the following paragraph after paragraph 2.02.BA:

C. Electronic files of the Drawings in AutoCAD format will not be provided.

ARTICLE 3 –DOCUMENTS: INTENT, REQUIREMENTS, REUSE

SC – 3.01

Delete Paragraph 3.01.B. in its entirety and replace it with the following:

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.

SC – 3.03

Delete paragraph 3.03.A.3. in its entirety and replace it with the following:

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 knew or reasonably should have known thereof.

SC – 3.04

Add the following subparagraph after paragraph 3.04.A:

1. A request for written interpretation or clarification of the Contract Documents shall be submitted on the Request for Information (RFI) form provided in the Appendix of this Project Manual.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

SC - 4.01

Delete the last sentence of paragraph 4.01.A. in its entirety and insert the following in its place:

In no event will the Contract Times commence to run later than the 85th day after the day of Bid opening or the 30th day after the Effective Date of the Agreement, whichever date is earlier.

SC – 4.05

Delete paragraph 4.05.A in its entirety and replace with the following:

A. If Owner, Engineer, or other contractors or utility owners performing work for the Owner as contemplated by Article 8, 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 Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete Work within the Contract Times. Except as provided for in paragraph 17.01, Contractor shall make no Claim for damages as delay in the performance of the Work occasioned by acts or neglect by Owner or any of its representatives, including Engineer, or because of any injunction which may be brought against Owner or its representatives, including Engineer, and agrees that any such claim shall be fully compensated for by an extension of time in an amount equal to the time lost due to such delay, and that such time extension shall be Contractor's sole and exclusive remedy for such delay.

Add the following as paragraph immediately after paragraph 4.05.C.4:

5. Weather-Related Delays

   a. If "abnormal weather conditions" as set forth in Paragraph 4.05.C.2 of the General Conditions are the basis for a request for an equitable adjustment in the Contract Times, such request must be documented by data substantiating each of the following: 1) that weather conditions were abnormal for the period of time in which the delay occurred, 2) that such weather conditions could not have been reasonably anticipated, and 3) that such weather conditions had an adverse effect on the Work as scheduled.

Delete paragraph 4.05.D in its entirety and replace with the following:

D. Contractor's entitlement to an adjustment of Contract Times is limited as follows:

   1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.

   2. Contractor shall not be entitled to an adjustment in Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.

   3. Adjustments of Contract Times are subject to the provisions of Article 11.

Delete paragraph 4.05.E in its entirety and replace with the following:

E. Each Contractor request or Change Proposal seeking an increase in Contract Times must be supplemented by supporting data that sets forth in detail the following:

   1. The circumstances that form the basis for the requested adjustment;

   2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;

3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;
4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference.

Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.

Add the following paragraphs immediately after paragraph 4.05.G:

H. Contractor must submit notification to Owner and Engineer of a potential delay which results in an adjustment in Contract Times under this paragraph within 10 days of the commencement of the delaying, disrupting, or interfering event.

I. 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.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

SC – 5.03

Add the following new paragraphs immediately after paragraph 5.03.D.:

E. The following table lists the reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data, and specifically identifies the Technical Data in the report upon which Contractor may rely:

Report Title	Date of Report	Technical Data
Geotechnical Exploration Rand Avenue Pump Station Effluent Pipe Improvements	August 14, 2024	Soil Boring information

F. The following table lists the drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data, and specifically identifies the Technical Data upon which Contractor may rely:

Drawings Title	Date of Drawings	Technical Data
Rand Avenue Pumping Station	January 1956	None

G. Contractor may examine copies of reports and drawings identified in SC 5.03.E and SC 5.03.F that were not included with the Bidding Documents at the Owner's office at 543 W. Madison Avenue, Wood River, Illinois 62095 during regular business hours, or may request copies from Engineer.

SC – 5.04

Delete paragraph 5.04.E.3 in its entirety and replace it with the following:

3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment shall be set forth in a Change Order. 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 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.

Delete paragraph 5.04.E.4 in its entirety and replace it with the following:

4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 10 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

SC – 5.05

Delete Paragraph 5.05.B in its entirety and replace it with the following:

B. Notice by Contractor: If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then 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 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

Delete Paragraph 5.05.C in its entirety and replace it with the following:

C. Engineer's Review: Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

Delete Paragraph 5.05.F.2 in its entirety and replace it with the following:

2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment shall be set forth in a Change Order. 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 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.

Delete Paragraph 5.05.F.3 in its entirety and replace it with the following:

3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 10 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

Delete Paragraph 5.05.F.4 in its entirety and replace it with the following:

4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in field investigations. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

SC – 5.06

Add the following new paragraphs immediately after paragraph 5.06.A.2:

3. The following lists the reports known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and the Technical Data (if any) upon which Contractor may rely:

Report Title	Date of Report	Technical Data
None		

4. The following lists the drawings known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and Technical Data (if any) contained in such Drawings upon which Contractor may rely:

Drawings Title	Date of Drawings	Technical Data
None		

Delete Paragraph 5.06.G in its entirety and replace it with the following:

G. 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, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 10 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.

ARTICLE 6 – BONDS AND INSURANCE

SC – 6.01

Add the following language at the end of paragraph 6.01.E:

In addition, Owner will make no further progress payments under the Agreement until Contractor complies with the provisions of this paragraph.

SC – 6.02

Delete subparagraph 6.02.N in its entirety and replace it with the following:

N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 30 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

SC – 6.03

Add the following language immediately after paragraph 6.03.C:

D. *Other Additional Insureds:* As a supplement to the provisions of Paragraph 6.03.C of the General Conditions, the commercial general liability, automobile liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies must include as additional insureds (in addition to Owner and Engineer) the following:

a. Geotechnology, LLC
b. Sheppard, Morgan & Schwaab, Inc.
c. Madison County Transit

E. *Workers' Compensation and Employer's Liability:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance, including, as applicable, United States Longshoreman and Harbor Workers' Compensation Act, Jones Act, stop-gap employer's liability coverage for monopolistic states, and foreign voluntary workers' compensation (from available sources, notwithstanding the jurisdictional requirement of Paragraph 6.02.B of the General Conditions).

Workers' Compensation and Related Policies	**Policy limits of not less than:**
Workers' Compensation	
State	Statutory
Applicable Federal (e.g., Longshoreman's)	Statutory
Foreign voluntary workers' compensation (employer's responsibility coverage), if applicable	Statutory
Jones Act (if applicable)	
Bodily injury by accident—each accident	$ N/A
Bodily injury by disease—aggregate	$ N/A
Employer's Liability	
Each accident	$ 1,000,000
Each employee	$ 1,000,000
Policy limit	$ 1,000,000
Stop-gap Liability Coverage	
For work performed in monopolistic states, stop-gap liability coverage must be endorsed to either the worker's compensation or commercial general liability policy with a minimum limit of:	$ 1,000,000

F. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against claims for:

1. damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees,

2. damages insured by reasonably available personal injury liability coverage, and

3. damages because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.

G. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy must be written on a 1996 (or later) Insurance Services Organization, Inc. (ISO) commercial general liability form (occurrence form) and include the following coverages and endorsements:

1. Products and completed operations coverage.

   a. Such insurance must be maintained for three years after final payment.

   b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.

2. Blanket contractual liability coverage, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.

3. Severability of interests and no insured-versus-insured or cross-liability exclusions.

4. Underground, explosion, and collapse coverage.

5. Personal injury coverage.

6. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together). If Contractor demonstrates to Owner that the specified ISO endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.

7. For design professional additional insureds, ISO Endorsement CG 20 32 07 04 "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.

H. *Commercial General Liability—Excluded Content:* The commercial general liability insurance policy, including its coverages, endorsements, and incorporated provisions, must not include any of the following:

1. Any modification of the standard definition of "insured contract" (except to delete the railroad protective liability exclusion if Contractor is required to indemnify a railroad or others with respect to Work within 50 feet of railroad property).

2. Any exclusion for water intrusion or water damage.

3. Any provisions resulting in the erosion of insurance limits by defense costs other than those already incorporated in ISO form CG 00 01.

4. Any exclusion of coverage relating to earth subsidence or movement.

5. Any exclusion for the insured's vicarious liability, strict liability, or statutory liability (other than worker's compensation).

6. Any limitation or exclusion based on the nature of Contractor's work.

7. Any professional liability exclusion broader in effect than the most recent edition of ISO form CG 22 79.

I. *Commercial General Liability—Minimum Policy Limits*

Commercial General Liability	Policy limits of not less than:
General Aggregate	$ 2,000,000
Bodily Injury and Property Damage—Each Occurrence	$ 1,000,000

J. *Automobile Liability:* Contractor shall purchase and maintain automobile liability insurance 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. The automobile liability policy must be written on an occurrence basis.

Automobile Liability	Policy limits of not less than:
Bodily Injury	
Each Person	$ 1,000,000
Each Accident	$ 1,000,000
Property Damage	
Each Accident	$ 1,000,000
[or]	
Combined Single Limit	
Combined Single Limit (Bodily Injury and Property Damage)	$ 1,000,000

K. *Umbrella or Excess Liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the Paragraphs above. The coverage afforded must be at least as broad as that of each and every one of the underlying policies.

Excess or Umbrella Liability	Policy limits of not less than:
Each Occurrence	$ 1,000,000
General Aggregate	$ 1,000,000

L. *Using Umbrella or Excess Liability Insurance to Meet CGL and Other Policy Limit Requirements:* Contractor may meet the policy limits specified for employer's liability, commercial general liability, and automobile liability through the primary policies alone, or through combinations of the primary insurance policy's policy limits and partial attribution of the policy limits of an umbrella or excess liability policy that is at least as broad in coverage as that of the underlying policy, as specified herein. If such umbrella or excess liability policy was required under this Contract, at a specified minimum policy limit, such umbrella or excess policy must retain a minimum limit of $ 1,000,000 after accounting for partial attribution of its limits to underlying policies, as allowed above.

M. *Contractor's Pollution Liability Insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage, including cleanup costs, as a result of pollution conditions arising from Contractor's operations and completed operations. This insurance must be maintained for no less than three years after final completion.

Contractor's Pollution Liability	Policy limits of not less than:
Each Occurrence/Claim	$ 1,000,000
General Aggregate	$ 1,000,000

N. *Contractor's Professional Liability Insurance:* If Contractor will provide or furnish professional services under this *Contract*, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance must cover negligent acts, errors, or omissions in the performance of professional design or related services by the insured or others for whom the insured is legally liable. The insurance must be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. The retroactive date on the policy must pre-date the commencement of furnishing services on the Project.

Contractor's Professional Liability	**Policy limits of not less than:**
Each Claim	$ 1,000,000
Annual Aggregate	$ 1,000,000

O. All policies excluding Workers Compensation are endorsed to include Owner as Additional Insureds for ongoing and completed operations and shall be primary and non contributory. As permitted by law, all policies shall be endorsed to grant a waiver of subrogation in favor of Owner.

SC – 6.04

Immediately following paragraph 6.04.E, add the following paragraphs:

F. *Builder's Risk Requirements:* The builder's risk insurance must:

1. be written on a builder's risk "all risk" policy form that at a minimum includes insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment stored and in transit, and must not exclude the coverage of the following risks: fire; windstorm; hail; flood; earthquake, volcanic activity, and other earth movement; lightning; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; and water damage (other than that caused by flood).

    a. Such policy will include an exception that results in coverage for ensuing losses from physical damage or loss with respect to any defective workmanship, methods, design, or materials exclusions.

    b. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake, volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance will be provided through other insurance policies acceptable to Owner and Contractor.

2. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.

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

4. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier). If this coverage is subject to a sublimit, such sublimit will be a minimum of $ 1,000,000.

5. extend to cover damage or loss to insured property while in transit. If this coverage is subject to a sublimit, such sublimit will be a minimum of $ 1,000,000.

6. allow for the waiver of the insurer's subrogation rights, as set forth in this Contract.

7. allow for partial occupancy or use by Owner by endorsement, and without cancellation or lapse of coverage.

8. include testing and start-up, if applicable.

9. be maintained in effect until final payment or until written confirmation of Owner's procurement of property insurance following Substantial Completion, whichever occurs first.

10. include as named insureds the Owner, Contractor, Subcontractors (of every tier), and any other individuals or entities required by this Contract to be insured under such builder's risk policy. For purposes of Paragraphs 6.04, 6.05, and 6.06 of the General Conditions, and this and all other corresponding Supplementary Conditions, the parties required to be insured will be referred to collectively as "insureds." In addition to Owner, Contractor, and Subcontractors of every tier, include as insureds the following:

    a. Donohue & Associates, Inc

12. If debris removal in connection with repair or replacement of insured property is subject to a coverage sublimit, such sublimit will be a minimum of $ 1,000,000.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

SC – 7.03

Delete Paragraph 7.03.C in its entirety and replace it with the following:

C. 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, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent.

SC - 7.04

Add the following new paragraphs after paragraph 7.04.C.:

D. Unless otherwise indicated, design of this Project is based upon the material and equipment named first in the list of Supplier's in a Specification section. Engineer has performed an evaluation of other listed Supplier's material and equipment and has determined it to be equal in quality, function and performance to that of the Supplier named first. When other Supplier's are listed, Contractor may be required to make modifications or adjustments, at Contractor's expense, to coordinate the installation of the furnished material and equipment with associated elements of Work, such as, but not limited to, piping and electrical connections, or support and mounting provisions.

E. For material or equipment listed on the Base Bid Material and Equipment Schedule, Contractor shall provide material and equipment furnished by Supplier A, B, or C as circled

on the Bid Form, except Owner may select identified substitute, in lieu of circled Supplier A, B or C. Written application and supporting documentation for review of identified substitutes shall be submitted not later than 2 days after the Effective Date of the Agreement. If the Owner accepts any substitute, the substitute material and equipment shall be provided and the Contract Price will be adjusted by a Change Order executed within 30 days after the Effective Date of the Agreement, unless mutually agreed upon. The Change Order shall reflect the difference in cost between the installed price for material and equipment furnished by Supplier A, B, or C as circled on the Bid Form, and the installed cost for the substitute. If Owner selects the substitute, the procedures for submission and consideration by Engineer for determining the acceptability of substitutes are set forth in the General Conditions and Supplementary Conditions. Should the substitute not be acceptable, Contractor shall provide material and equipment furnished by Supplier A, B, or C as circled on the Bid Form for the price bid.

SC-7.05

Add the following as the last sentence to Paragraph 7.05.A.

Where the specification or description does not contain or is not followed by words reading “or equal”, other items of material or equipment or material or equipment of other suppliers may be submitted to Engineer for review under the circumstances described for “substitute” items in GC – 7.06.

SC-7.06

Add the following new subparagraph immediately after paragraph 7.06.A.3.d:

e. The application for review of a substitute shall be on the Contractor’s Request For Substitution form provided in the Appendix of the Contract Documents and included with the submittal. The Installation List included with the Request shall include only installations of the proposed substitute in applications of approximately the same size and complexity, and the same design as those to be furnished for this Project. Include in the Installation List, as a minimum, the owner’s name, address, and telephone number; engineer’s name, address and telephone number; location and name of project; installation date, startup date, and date of final acceptance by owner; and application of material or equipment. If the experience indicated by the Installation List does not demonstrate at least 5 years of successful operation of the proposed substitute item, Owner may require Contractor and Supplier to furnish, at Contractor’s expense, a special performance guarantee with surety bond as required by paragraph 7.06.C of the General Conditions with respect to the substitute. Only the time period between final approval of the proposed material or equipment on the referenced project and the Bid date for this Project will count towards the required satisfactory experience of the proposed substitute item. Engineer will be the sole judge of acceptability of experience, time credited, and whether the special performance guarantee will be required for a substitute item. Engineer will notify Contractor which proposed substitute(s) will require a special performance guarantee with surety bond.

Add the following new subparagraph immediately after paragraph 7.06.D.:

1. If a substitute item of material or equipment proposed by Contractor is approved by Engineer, and the substitution requires a change in any of the Contract Documents to adapt the design to the proposed substitute, Contractor shall notify Engineer of the changes and be responsible for the costs involved to revise the design and to make modifications or changes to the construction, including the costs associated with the Work of other contractors due to such variance in design or space requirements. Engineer will prepare redesign and revisions to Drawings and other Contract Documents. Contractor shall reimburse Owner for charges of Engineer for redesign and revisions to Drawings and other Contract Documents. Reimbursement of Engineer shall be based on

Engineer's direct labor costs, indirect labor costs, profit on total labor, and any direct non-labor expenses such as travel and per diem.

SC – 7.10

Add the following new paragraph immediately after paragraph 7.10.A.:

B. Owner is exempt from payment of sales and compensating use taxes of the State of Illinois and of cities and counties thereof on all materials to be incorporated into the Work.

1. Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of supplies and materials to be incorporated into the Work.

2. Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials not incorporated into the Work.

SC – 7.13

Delete Paragraph 7.13.G. in its entirety.

SC – 7.15

Add the following new paragraph immediately after paragraph 7.15.A.:

B. In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, and Contractor cannot be reached, Owner may act to attempt to prevent threatened damage, injury, or loss. Owner will give Contractor and Engineer prompt written notice of such action and the cost of the correction or remedy shall be charged against Contractor. 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 Owner in response to such an emergency, a Work Change Directive or Change Order will be issued.

SC – 7.16

Delete Paragraph 7.16.D.3 and replace it with the following:

3. After Engineer has approved a shop drawing or sample, Engineer will not review subsequent submittals of a different manufacturer or Supplier unless Contractor provides sufficient information to Engineer that the approved material or equipment is unavailable, or time of delivery will delay the construction progress. If Contractor requests a change of a previously approved submittal item under one of the above conditions, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

Delete the last sentence in subparagraph 7.16.E.1.b.

ARTICLE 9 – OWNERS RESPONSIBILITIES

SC – 9.13

Add the following new paragraph immediately after paragraph 9.12:

9.13 Site Representative

A. Owner will furnish a Site Representative, assistants, and other field staff to observe performance of the Work. The duties and responsibilities of Owner's Site Representative are described as follows:

1. Become familiar with the Contract Documents to observe the progress and quality of the executed Work, and to determine, in general, if the Work is proceeding in accordance with the Contract Documents.

2. Promptly forward to Engineer, reports from Contractor indicating conflict, error or discrepancy in the Contract Documents to enable Engineer to issue a written clarification or interpretation as provided for in paragraph 10.06 of the General Conditions.

3. Provide Engineer with copy of Site Representatives' daily log.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

Delete Paragraph 10.03.A. in its entirety and insert the following in its place:

A. Owner will provide a Site Representative whose responsibilities and duties are described in SC - 9.13.

SC – 10.03

Delete paragraph 10.03 in its entirety and insert the following in its place:

10.03 Project Representative

A. The Resident Project Representative (RPR) will be Engineer's representative at the Site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR's actions.

B. General: RPR's dealings in matters pertaining to the Work in general shall be with Engineer and Contractor. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Owner only with the knowledge of and under the direction of Engineer.

C. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and Schedule of Values prepared by Contractor and consult with Engineer concerning acceptability.

D. Conferences and Meetings: Attend appropriate meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings.

E. Liaison:

1. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.

2. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.

3. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.

F. Interpretation of Contract Documents: Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.

G. Shop Drawings and Samples:

1. Advise Engineer and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which RPR believes that the submittal has not been approved by Engineer.

H. Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report such suggestions, together with RPR's recommendations, if any, to Engineer. Transmit to Contractor in writing decisions as issued by Engineer.

I. Review of Work and Rejection of Defective Work:

1. Conduct on-Site observations of Contractor's work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.

2. Report to Engineer whenever RPR believes that any part of Contractor's work in progress is defective, will not produce a completed Project that conforms generally to the Contract Documents, or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

J. Inspections, Tests, and System Start-ups:

1. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.

2. Observe, record, and report to Engineer appropriate details relative to the test procedures and systems start-ups.

K. Records:

1. Prepare a daily report or keep a diary or log book, recording Contractor's hours on the Site, Subcontractors present at the Site, weather conditions, data relative to questions of Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, deliveries of equipment or materials, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.

2. Maintain records for use in preparing Project documentation.

L. Reports:

1. Furnish to Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the Progress Schedule and schedule of Shop Drawing and Sample submittals.

2. Draft and recommend to Engineer proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.

3. Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, force majeure or delay events, damage to property by fire or other causes, or the discovery of any Constituent of Concern or Hazardous Environmental Condition.

M. Payment Requests: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.

N. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Contract Documents to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.

O. Completion:

1. Participate in Engineer's visits to the Site to determine Substantial Completion, assist in the determination of Substantial Completion and the preparation of a punch list of items to be completed or corrected.

2. Participate in Engineer's final visit to the Site to determine completion of the Work, in the company of Owner and Contractor, and prepare a final punch list of items to be completed and deficiencies to be remedied.

3. Observe whether all items on the final list have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the notice of acceptability of the work.

P. The RPR shall not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).

2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.

3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.

4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor's work.

5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.

6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.

7. Accept Shop Drawing or Sample submittals from anyone other than Contractor.

8. Authorize Owner to occupy the Project in whole or in part.

SC - 10.08

Add the following new paragraph immediately after Paragraph 10.08.A.:

B. In the event Engineer determines that Contractor's safety plans, programs, and procedures do not provide adequate protection for Engineer, Engineer may direct its employees to leave the Site or implement additional safeguards for Engineer's protection. If taken, these actions will be in furtherance of Engineer's responsibility to its own employees only, and Engineer will not assume any responsibility for protection of any other persons affected by the Work. In the event Engineer observes situations which appear to have potential for immediate and serious injury to persons, Engineer may warn the persons who appear to be affected by such situations. Such warnings, if issued, shall be given based on general humanitarian concerns,

and Engineer will not, by the issuance of any such warning, assume any responsibility to issue future warnings or any general responsibility for protection of persons affected by the Work.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

SC-11.02

Delete paragraph 11.02.B in its entirety and replace with the following:

B. If Contractor refuses to execute a Change Order that is required to be executed under the terms of the Paragraph 11.02.A, it shall be deemed to be of full force and effect, as if fully executed.

Add the following new paragraph immediately after subparagraph 11.02.B.:

C. Change Orders will be prepared on the form included in the Appendix of this Project Manual.

SC – 11.07

Delete paragraph 11.07.B.2. in its entirety and insert the following in its place:

2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum which includes an allowance for overhead and profit in accordance with Paragraph 11.07.C.2; or

SC – 11.08

Add the following new paragraph immediately after paragraph 11.08.B.:

C. Time extensions provided under paragraph 4.05 of the General Conditions will only be allowed for controlling items of Work (critical path).

SC – 11.09

Amend the first sentence of paragraph 11.09.B.1 by striking out the words “30 days” and inserting the words “10 days” in their place.

ARTICLE 12 – CLAIMS

SC – 12.01

Amend the first sentence or paragraph 12.01.B by striking out both instances of the words “30 days” and inserting the words “10 days” in their place.

ARTICLE 13 – COST OF WORK; ALLOWANCES; UNIT PRICE WORK

SC – 13.01

Delete paragraph 13.01.B.5.c.2) in its entirety.

Delete paragraph 13.01.E in its entirety and insert the following in its place:

E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during

normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a minimum period of three years or as required by state law in which Work is performed after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

SC – 13.03

Delete Paragraph 13.03.E. in its entirety and insert the following in its place:

E. *Adjustments in Unit Price:* Within 30 days of Engineer's written decision under the preceding paragraph, the unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:

1. if the total cost of a particular item of Unit Price Work amounts to 5% 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 25% 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 12 if the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

ARTICLE 14 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

SC – 14.05

Delete Subparagraph 14.05.C.2. in its entirety and insert the following in its place:

2. 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, 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, then Contractor may submit a Change Proposal within 10 days of the determination that the Work is not defective.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

SC – 15.01

Amend the first sentence of subparagraph 15.01.B.1. by striking out the words "20 days" and inserting the words "30 days" in their place.

SC – 15.03

Add the following new subparagraph immediately after paragraph 15.03.A.:

1. Contractor's request for issuance of a Certificate of Substantial Completion shall occur after Contractor has, in the opinion of the Engineer, satisfactorily completed the systems demonstrations, and delivered all guarantees, operation and maintenance data, a complete

set of marked up Drawings as specified in Division 1, General Requirements, and other documents.

SC – 15.06

Add the following new subparagraph immediately after paragraph 15.06.E:

1. In addition to the liquidated damages set forth in the Agreement, Contractor shall be liable for all additional costs for Engineer's services beyond Substantial and Final Completion dates. Owner will deduct these costs from any monies due or that may become due Contractor or Surety and pay Engineer for said services.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

SC – 16.01

Amend paragraph 16.01.A. by striking out the words "30 days" in and inserting the words "ten days" in their place.

SC - 16.02

Add the following to end of paragraph 16.02.D.

"within no more than 30 days of receipt of said notice."

SC-16.04

Amend paragraphs 16.04.A. and 16.04.B. by striking out the words "30 days" in four places and inserting the words "60 days" in their place and by striking out the words "seven days" in two places and inserting the words "ten days" in their place.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

Delete paragraph 17.01.B. in its entirety and insert the following in its place:

B. Final Resolution of Disputes: For any dispute subject to resolution under this Article, Owner or Contractor may:

   1. agree with the other party to submit the dispute to another dispute resolution process.

   2. give written notice of intent to the other party to submit the dispute to a court of competent jurisdiction, or

C. Notwithstanding any applicable statute of limitations, a party giving notice under paragraph 17.01.B shall commence an action on the Claim within one year of giving such notice. Failure to do so shall result in the Claim being time-barred and the action or denial shall become final and binding.

ARTICLE 18 – MISCELLANEOUS

SC – 18.01

Delete Paragraph 18.01.A. in its entirety and revise it to read the following:

A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:

1. in person, by a commercial courier service or otherwise, to the recipient's place of business, and addressed to the specific intended recipient;
2. by registered or certified mail, postage prepaid, to the recipient's place of business, and addressed to the specific intended recipient; or
3. by e-mail to the specific intended recipient, with the words "Formal Notice" or similar in the e-mail's subject line. Written notice shall not be considered accepted until receipt is acknowledged by the intended recipient.

SC – 18.11

Add the following new paragraph immediately after paragraph 18.10:

18.11 Lien Waivers:

A. Owner may at any time require Contractor to furnish lien waivers for labor and materials covered by specified Applications for Payment.

END OF SUPPLEMENTARY CONDITIONS

SPECIFICATIONS

DIVISION 01

GENERAL REQUIREMENTS

SECTION 01 11 00
SUMMARY OF WORK

PART 1 – GENERAL

1.01 SUMMARY

A. The Work of this Contract is generally described as follows:

1. Providing 36-inch sewers and associated structures, including new slide gate as shown on the plans.
2. Heavy cleaning and rehabilitation of existing 24-inch and 36-inch cast iron pipes via cured-in-place lining.
3. Maintaining flow in existing sewers and providing dewatering services as required.
4. Obtaining all permits for construction of Work not obtained by Engineer or Owner.
5. Removing all debris and excess materials from Project Site generated by construction Work.
6. Restoring areas disturbed by construction to original condition or as specified by Contract Documents.

B. Contractor shall coordinate with Owner and Phillips 66 for the work to be completed in the vicinity of the existing lagoon system.

1.02 WORK BY OTHERS

A. None.

1.03 WORK SEQUENCE / SHUT DOWN PLAN

A. Construct Work in accordance with following requirements and to accommodate operation of existing facilities during construction period. Coordinate construction progress schedule and operations with Engineer and Owner. Owner reserves right to place facilities taken out of service by Contractor back into service on emergency basis upon notification to Contractor.

B. Bypassing of untreated or partially treated sewage to surface water or drainage courses is strictly prohibited during construction. In the event accidentally bypassing is caused by the Contractor's operations, the Owner shall immediately be entitled to employ others, at the Contractor's expense, to stop the bypassing without giving written notice to the Contractor.

C. Penalties imposed on the Owner as a result of any bypass caused by the actions of the Contractor, their employees, or subcontractors, shall be borne in full by the Contractor, including legal fees and other expenses to the Owner resulting directly or indirectly from the bypass.

D. Draining, Cleaning, and Dewatering of Tanks, Channels, Conduits and Piping

1. Unless specified otherwise, draining, cleaning, and dewatering of tanks, channels, conduits, piping, and other facilities and proper disposal of removed solids shall be performed by Contractor as required to complete Work.
2. Unless specified otherwise, Owner will not drain, clean, and dewater facilities to enable Contractor to complete Work.
3. Owner will shut down existing pump station for work to be completed in the existing headbox and the existing gatewell structure. Contractor is responsible for dewatering the system to perform necessary Work. Sludge, scum, grit, debris, and other material will

remain on walls and floors. Contractor shall clean and remove remaining material, and maintain dewatering of the structures as required to complete Work.

4. Contractor shall maintain facilities clean and dry as required to complete Work, including control and temporary pumping of leakage from isolation facilities and water resulting from precipitation.
5. Unless specified otherwise, the Contractor shall pump draining, cleaning, and dewatering material to the existing sewer system.

E. Flow through the pump station may be interrupted for the installation of the temporary bulkhead in the existing pump station headbox and the existing gatewell structure. The average flow from the existing pump station is 9 MGD, and the peak flow from the existing pump station is 19.3 MGD.

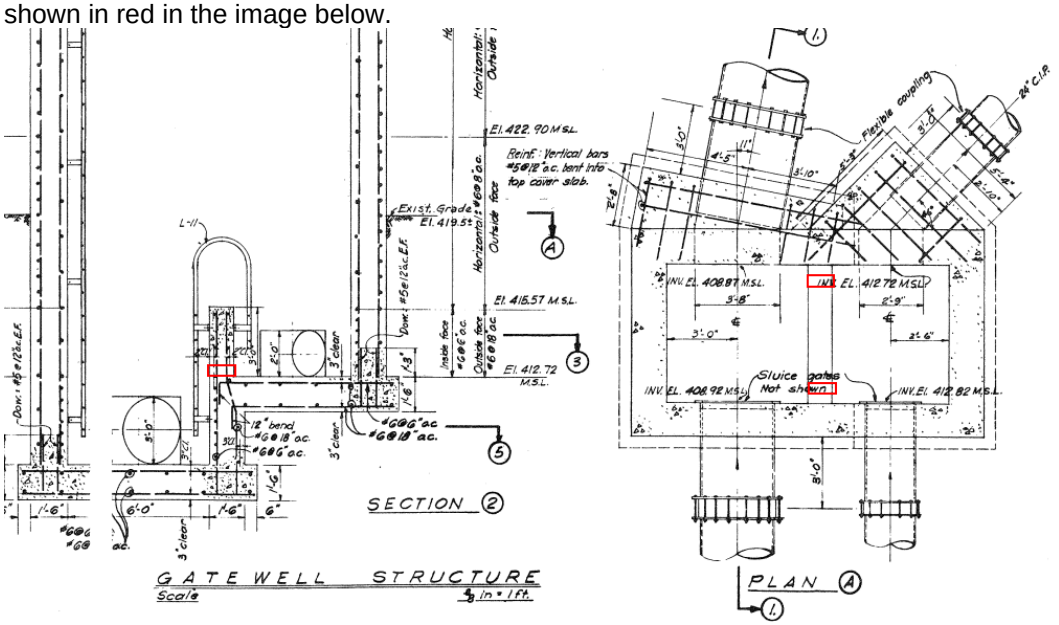
1. Contractor shall not schedule any interruption / shut down until after the Owner and Engineer have approved Contractor's shut down plan.
2. Interruption / shut down shall not be made during peak flow months (March, April, May and June), without prior approval from the Owner.
3. Interruption / shut down shall not be made if rain has occurred in Madison County during 72-hour period ending with planned start of interruption.
4. Interruption / shut down shall not be made if rain is predicted by National Weather Service for Madison County during 72-hour period beginning with planned start of interruption.
5. Pump station flow interruption shall not exceed 8 hours in single day. If needed to complete the work, Contractor can request multiple pump station flow interruptions over multiple days.
6. Contractor shall include the schedule interruptions in their project schedule and shutdown plan.
7. Interruptions / shut down shall not be made without Owner's permission. Contractor shall provide a minimum of 72-hours notice to Owner prior to any shut down.

F. Sequencing Requirements (see below). Note: Pertinent copies of the existing drawings for the Rand Avenue Pump Station are included in the Appendix of the Contract Documents. Contact the Owner for full set of drawings. Note: Elevations referenced in the items below are based on the elevations listed in the existing drawings.

1. Construct temporary bulkhead in existing pump station headbox to isolate existing 36-inch effluent pipe between pump station headbox and gatewell structure. The bulkhead shall be located such that pump #1, pump #2 and pump #3 are able to be operated during construction and directed to the 24-inch diameter effluent pipe. Pump station flow shall be routed through existing 24-inch diameter effluent pipe between the headbox and gatewell structure, and routed through the existing active effluent line between the gatewell structure and polishing lagoons. The bulkhead shall be constructed to a height of 17.5 feet (EL=442 feet) from the bottom of the existing headbox structure (EL = 424.5 feet). Any existing equipment or appurtenances that would conflict with the temporary bulkhead shall be temporarily removed and then re-installed when the temporary bulkhead is removed.
2. Construct temporary bulkhead in existing gatewell structure to isolate existing 36-inch effluent pipe between pump station headbox and gatewell structure. Pump station flow shall be routed through existing 24-inch diameter effluent pipe between the headbox and gatewell structure, and routed through the existing active effluent line between the gatewell structure and polishing lagoons. The bulkhead shall be constructed to a height of 20.1 feet (EL = 429 feet) from the bottom of the existing gatewell structure (EL = 408.9 feet). Any existing equipment or appurtenances that would conflict with the temporary bulkhead shall be temporarily removed and then re-installed when the temporary bulkhead is removed.

3. Complete cleaning and CIPP lining of existing 36-inch effluent pipe between pump station headbox and gatewell structure. Construct new 36-inch effluent pipe from the gatewell structure to the polishing lagoons as shown on plans.
4. Put new 36-inch diameter effluent pipe and rehabilitated 36-inch diameter effluent pipe in service.
5. Route all pump station flow through the new and rehabilitated 36-inch diameter effluent pipes.
6. Remove temporary bulkhead (noted in #1 above) and construct temporary bulkhead in existing pump station headbox to isolate existing 24-inch effluent pipe between pump station headbox and gatewell structure. The bulkhead shall be located such that pump #1, pump #2 and pump #3 are able to be operated during construction and directed to the 36-inch diameter effluent pipe. Pump station flow shall be routed through existing 36-inch diameter effluent pipe between the headbox and gatewell structure, and routed through the new 36-inch effluent line between the gatewell structure and polishing lagoons. The bulkhead shall be constructed to a height of 3 feet (EL=427.5 feet) from the bottom of the existing headbox structure (EL = 424.5 feet). Any existing equipment or appurtenances that would conflict with the temporary bulkhead shall be temporarily removed and then re-installed when the temporary bulkhead is removed.
7. Construct temporary bulkhead in existing gatewell structure to isolate existing 24-inch effluent pipe between pump station headbox and gatewell structure. Pump station flow shall be routed through existing 36-inch diameter effluent pipe between the headbox and gatewell structure, and routed through the new 36-inch effluent line between the gatewell structure and polishing lagoons. The bulkhead shall be constructed to a height of 13.6 feet (EL = 422.5 feet) from the bottom of the existing gatewell structure (EL = 408.9 feet). Any existing equipment or appurtenances that would conflict with the temporary bulkhead shall be temporarily removed and then re-installed when the temporary bulkhead is removed.
8. Complete cleaning and CIPP lining of the existing 24-inch diameter effluent pipe between the headbox and gatewell structure.
9. Abandon existing 24-inch and 30-inch effluent pipe from the gatewell structure to the polishing lagoons.
10. Remove temporary bulkheads in both the existing pump station headbox and existing gatewell structure. Re-install any existing equipment or appurtenances that were temporarily removed.

11. Contractor to core drill two, 6-inch diameter holes in the existing wall of the gatewell structure. The invert of the holes shall match the top of the slab elevation where the existing 24-inch pipe from the headbox enters the gatewell structure. The holes shall be field located to avoid damage to the existing wall reinforcing. See approximate locations shown in red in the image below.



G. Emergency Action Plan for River levels.

1. Project site is located in areas subject to flooding from rising River levels.
2. Contractor shall monitor the Mississippi River water level and forecasts during daily work through the designated website (http://water.weather.gov/ahps/) using the Alton Gauge located at the Mel Price Lock and Dam to monitor the stage of the river.
3. Construction activities shall not commence and/or shall be halted if Mississippi River levels are forecasted to rise at such a rate that the river stage will approach the flood stage, which is considered to be gauge height 21 feet (elevation 416), unless approved by the Owner in writing.
4. Contractor shall provide emergency contact numbers for field and office personnel to Owner and Engineer.
5. Contractor shall provide emergency telephone numbers for fire and police to Owner and Engineer.
6. Contractor shall provide telephone number for ambulance and address and telephone number for closest hospital to Owner and Engineer.
7. Contractor shall prepare an Emergency Action Plan and submit to Owner and Engineer for approval.

1.04 SUBMITTALS

A. Contractor to prepare and submit shut down plan to Owner and Engineer for review and approval a minimum of forty-five (45) days prior to conducting work.

B. Temporary Bulkhead design and calculations, sealed by a Structural Engineer in the state of Illinois.

C. Project Work Plan and Safety Plan in accordance with the General Conditions.

D. Emergency Action Plan per 1.03.G.

E. Submit in accordance with 01 33 00.

1.05 CONTRACTOR'S USE OF PREMISES

A. Utilities / Existing Infrastructure. Phillips 66 operates an existing lagoon system that is located in the project area. Coordinate with Owner for work to be completed in the vicinity of the existing lagoon system. For work to be conducted inside the fence near the existing lagoon system, the Contractor will be required to complete and comply with Phillips 66 safety and security requirements. All employees of the Contractor (and any of Contractor's subs) working inside the fence near existing lagoon must possess, or be able to obtain, a Transportation Worker Identification Credential (TWIC), and sit through site specific training with Phillips 66 that could last up to 8-hours.

B. Conduct operations to ensure least inconvenience to Owner and operation of existing facility. Cooperate with Owner during construction operations to minimize conflict and to facilitate Owner's operations.

C. When keys to locked areas are needed to provide access to perform Work, obtain from Owner. Return keys at end of Project.

D. Due to potential health hazards and requirements of the Illinois EPA, and U.S. EPA, existing wastewater pumping and collection facilities must be maintained in operation during construction.

E. Contractor shall discuss and coordinate with Owner and Engineer prior to removing equipment from service in order to complete Work. Owner will, at Owner's discretion, request equipment to be placed back into service if out of service equipment will cause adverse effects on plant operation.

F. Obtain and pay for use of additional storage or Work areas needed for operations at no additional cost to Owner.

1.06 OWNER FURNISHED MATERIALS OR EQUIPMENT

A. Owner will furnish the following materials or equipment:

1. None.

B. Contractor's Responsibilities:

1. Designate delivery and installation dates for materials and equipment in construction progress schedule.
2. Review Shop Drawings, product data, and samples.
   a. Submit to Owner a list of discrepancies or problems anticipated in use of material or equipment.
3. Handle material and equipment at site, including unloading at site in accordance with manufacturer's instructions.
4. Inspect material and equipment jointly with Owner. Record shortages and damaged or defective items.
5. Protect material and equipment from exposure to the elements, and from damage.
6. Assemble, install, connect, adjust, finish, and test in accordance with manufacturer's written instructions and Contract Documents.
7. Repair or replace items damaged by Contractor.

1.07 OWNER OCCUPANCY OF PREMISES

A. Owner will occupy site and existing facilities during entire construction period for conduct of normal operations.

B. Owner reserves right to partially occupy and to place or install equipment in completed areas of facilities, prior to Substantial Completion, provided that such occupancy does not interfere with completion of Work. Such placing of equipment and partial occupancy shall not constitute acceptance of the Work.

PART 2 – PRODUCTS

(Not Used)

PART 3 – EXECUTION

(Not Used)

END OF SECTION

SECTION 01 22 00
UNIT PRICES

PART 1 – GENERAL

1.01 SUMMARY

A. This Section identifies Unit Price Bid Items by number and lists applicable Specification Sections and method of measurement and payment.

B. Provide labor, materials, equipment, supervision, and other services to complete Work for each Unit Price Bid Item as required by Contract Documents.

1.02 DESCRIPTION OF UNIT PRICE BID ITEMS

A. Bid Item No. 1: Mobilization / Demobilization / Bonds / Insurance.

1. Work as described below.

a. Section 01 11 00: Summary of Work.
b. Section 01 31 19: Project Meetings.
c. Section 01 32 16: Progress Schedule (Bar Chart Method).
d. Section 01 32 33: Construction Photographs.
e. Section 01 33 00: Submittal Procedures.
f. Section 01 41 00: Regulatory Requirements.
g. Section 01 45 29: Testing Laboratory Services.
h. Section 01 52 00: Construction Facilities.
i. Section 01 57 19: Temporary Environmental Controls.
j. Section 01 74 00: Cleaning and Waste Management.
k. Section 01 78 39: Project Record Documents.
l. Other Sections containing pertinent and incidental Work.

2. Include cost of:

a. Job preparation, administration, and project closeout.
b. Submittals.
c. Cleaning and dust control.
d. Temporary facilities.
e. Coordination of Subcontractors and utilities.
f. Moving construction equipment onto and off of Site.
g. Project construction trailers and offices.
h. Temporary Site work construction and removal.
i. Other pertinent and incidental Work.
j. General requirements of Sections listed.

3. Do not include cost of:

a. Work included in other Bid Items.

4. Measurement for Payment:

a. Measure Mobilization / Demobilization / Bonds / Insurance as a lump sum.

5. Payment:

a. Monthly payments will be made in accordance with the following formula.

1) First month payment = 0.20 x Unit Price.
2) Last month payment = 0.10 x Unit Price.
3) Intervening month payment = (0.70 x Unit Price) ÷ (No. of months between first and last months).

B. Bid Item No. 2: Installation of 36-inch Sewer and other appurtenances.

1. Work as described below.

a. Division 03 (concrete) specifications.
b. Section 31 23 33: Trenching and Backfilling.
c. Section 32 11 23: Aggregate Base Courses.
d. Section 32 12 16: Asphalt Paving.
e. Section 32 92 00: Turf and Grasses.
f. Section 32 31 13: Chain Link Fences and Gate.
g. Section 33 04 00: Testing Buried Pipe Systems.
h. Section 33 31 13: Sanitary Sewer Gravity Piping.
i. Other Sections containing pertinent and incidental Work.

2. Include cost of all material, equipment, labor, supervision, and other services for the:

a. Site preparation.
b. Excavation/trenching, piping, any necessary trench boxes/shoring, tracer wire, warning tape, pipe bedding, backfill, any full-depth aggregate backfill, protection of existing utilities, dewatering, testing, and disposal of surplus materials as required by the Construction Drawings. Rock excavation and removal shall be incidental to this bid item.
c. Connection of 36-inch sewer into the existing gatewell structure, as noted on the drawings.
d. Hydro-excavation along path of the proposed sewer, as noted on the drawings.
e. Protecting existing utilities, site objects, and new work which are to remain in service after completion.
f. Surface restoration. Contractor shall take care to reduce disruption to the extent possible through the use of shoring.
g. Clean up.
h. Testing of Sewers.
i. Other pertinent and incidental Work.
j. General requirements of Sections listed.

3. Do not include cost of:

a. Manholes and other precast structures.
b. Trail restoration, as noted on the drawings.
c. Work included in other Bid Items.

4. Measurement for Payment:

a. Linear Feet (LF) measured horizontally over the pipe centerline.

5. Payment:

a. Include cost of Work listed in Unit Price Schedule.

C. Bid Item No. 3: 72-inch Diameter Manholes (Manholes 1 and 2).

1. Work as described below:

    a. Section 31 23 33: Trenching and Backfilling.
    b. Section 33 05 61: Precast Concrete Structures.
    c. Other Sections containing pertinent and incidental Work.

2. Include the cost of all material, equipment, labor, supervision, and other services for the installation of the proposed manholes including but not limited to:

    a. Site preparation.
    b. Excavation, any necessary trench boxes/shoring, pipe bedding, backfill, and disposal of surplus materials. Rock excavation and removal shall be incidental to this bid item.
    c. Manhole, manhole testing, steps, access hatch, inverts, mastic, bituminous coating, compaction and backfill, and gaskets for pipe penetrations. Manhole depth shall be measured from the rim elevation of the manhole to the flowline elevation of the effluent invert.
    d. Protecting existing utilities, site objects, and new work which are to remain in service after completion of restoration.
    e. Clean up.
    f. Surface restoration. Contractor shall take care to reduce disruption to the extent possible through the use of shoring.
    g. Other pertinent and incidental Work.
    h. General requirements of Sections listed.

3. Do not include cost of:

    a. Work included in other Bid items.

4. Measurement for Payment:

    a. Measure as each manhole installed.

5. Payment:

    a. Include cost of Work listed in Unit Price Schedule.

D. Bid Item No. 4: 72-inch x 72-inch Rectangular Concrete Gate Structure.

1. Work as described below:

    a. Division 05 (Metals) specifications.
    b. Section 31 23 33: Trenching and Backfilling.
    c. Section 33 05 61: Precast Concrete Structures.
    d. Section 40 05 59.23: Stainless Steel Slide Gates.
    e. Other Sections containing pertinent and incidental Work.

2. Include the cost of all material, equipment, labor, supervision, and other services for the installation of the concrete gate structure including but not limited to:

    a. Site preparation.
    b. Excavation, any necessary trench boxes/shoring, pipe bedding, backfill, and disposal of surplus materials. Rock excavation and removal shall be incidental to this bid item.
    c. Precast concrete structure (Gate Structure 1), testing, steps, access hatch, railing,

ladder, inverts, concrete fill, bituminous coating, compaction and backfill, and gaskets for pipe penetrations.
d. Stainless steel slide gate and appurtenances.
e. Protecting existing utilities, site objects, and new work which are to remain in service after completion of restoration.
f. Clean up.
g. Surface restoration. Contractor shall take care to reduce disruption to the extent possible through the use of shoring.
h. Other pertinent and incidental Work.
i. General requirements of Sections listed.

3. Do not include cost of:

a. Work included in other Bid items.

4. Measurement for Payment:

a. Measure as each gate structure installed.

5. Payment:

a. Include cost of Work listed in Unit Price Schedule.

E. Bid Item No. 5: Temporary Bulkheads in Pump Station Headbox and Gatewell Structure.

1. Work as described below.

a. Section 01 11 00: Summary of Work
b. Other Sections containing pertinent and incidental Work.

2. Include cost of all material, equipment, labor, supervision, and other services for the:

a. Site preparation.
b. Installation of temporary bulkhead in the existing Rand Avenue Pump Station Headbox and the existing Gatewell Structure.
c. Core drilling two 6-inch diameter holes in existing gatewell structure.
d. Submittals, including design of the bulkheads.
e. Cleaning and restoration.
f. Other pertinent and incidental Work.
g. General requirements of Sections listed.

3. Do not include cost of:

a. Work included in other Bid Items.

4. Measurement for Payment:

a. Measured as lump sum.

5. Payment:

a. Made at the Owner’s discretion to provide a percent complete based on the overall project estimated completion if partial payment is desired.

F. Bid Item No. 6: Cleaning, Inspection and CIPP Lining of 24-inch CIP.

1. Work as described below.

    a. Section 01 11 00: Summary of Work.
    b. Section 33 01 30.72: Cured-in-place Pipe Lining.
    c. Other Sections containing pertinent and incidental Work.

2. Include cost of all material, equipment, labor, supervision, and other services for the:

    a. Site preparation.
    b. Submittals and preliminary work for the cured-in-place pipe (CIPP) liner.
    c. Digital video of existing CIP sewer for the CIPP liner.
    d. Cleaning of existing CIP sewers.
    e. CIPP liner, resin, fabric tube, curing, and connections as described in the specifications.
    f. Cleaning and restoration.
    g. Other pertinent and incidental Work.
    h. General requirements of Sections listed.

3. Do not include cost of:

    a. Work included in other Bid Items.

4. Measurement for Payment:

    a. Linear Feet (LF) measured horizontally over the pipe centerline.

5. Payment:

    a. Include cost of Work listed in Unit Price Schedule.

G. Bid Item No. 7: Cleaning, Inspection and CIPP Lining of 36-inch CIP.

1. Work as described below:

    a. Section 01 11 00: Summary of Work.
    b. Section 33 01 30.72: Cured-in-place Pipe Lining.
    c. Other Sections containing pertinent and incidental Work.

2. Include cost of all material, equipment, labor, supervision, and other services for the:

    a. Site preparation.
    b. Submittals and preliminary work for the cured-in-place pipe (CIPP) liner.
    c. Digital video of existing CIP sewer for the CIPP liner.
    d. Cleaning of existing CIP sewers.
    e. CIPP liner, resin, fabric tube, curing, and connections as described in the specifications.
    f. Cleaning and restoration.
    g. Other pertinent and incidental Work.
    h. General requirements of Sections listed.

3. Do not include cost of:

    a. Work included in other Bid Items.

4. Measurement for Payment:

a. Linear Feet (LF) measured horizontally over the pipe centerline.

5. Payment:

a. Include cost of Work listed in Unit Price Schedule.

H. Bid Item No. 8: Abandonment of Existing 24-inch and 30-inch Effluent Pipe and Associated Structure.

1. Work as described below.

a. Section 01 11 00: Summary of Work.
b. Section 03 62 00: Non-Shrink Grout.
c. Other Sections containing pertinent and incidental Work.

2. Include cost of all material, equipment, labor, supervision, and other services for the:

a. Excavation necessary for access to existing piping or existing structure.
b. Temporary pumping and access within existing lagoon for plugging the existing effluent pipe for grout filling.
c. Grout filling of existing piping and structures.
d. Other pertinent and incidental Work.
e. General requirements of the Sections listed.

3. Do not include cost of:

a. Work included in other Bid Items.

4. Measurement for Payment:

a. Measured as a lump sum.

5. Payment:

a. Made at the Owner's discretion to provide a percent complete based on the overall project estimated completion if partial payment is desired.

I. Bid Item No. 9: Asphalt Trail Restoration.

1. Work as described below.

a. Section 32 11 23: Aggregate Base Course.
b. Section 32 12 16: Asphalt Paving.
c. Appendix: Confluence Trail Improvements Drawings.
d. Appendix: Confluence Trail Improvements Special Provisions.
e. Other Sections containing pertinent and incidental Work.

2. Include cost of all material, equipment, labor, supervision, and other services for the:

a. Asphalt trail restoration per the details on the drawings and in the Appendix.
b. Other pertinent and incidental Work.
c. General requirements of the Sections listed.

3. Do not include cost of:

a. Work included in other Bid Items.
b. Trail signage. This will be completed separately by Madison County Transit.
c. Trail marking / striping. This will be completed separately by Madison County Transit.

4. Measurement for Payment:

a. Linear Feet (LF) measured horizontally over the trail centerline.

5. Payment:

a. Include cost of Work listed in Unit Price Schedule.

J. Bid Item No. 10: Rand Avenue Road Restoration.

1. Work as described below.

a. Appendix: Confluence Trail Improvements Drawings.
b. Appendix: Confluence Trail Improvements Special Provisions.
c. Other Sections containing pertinent and incidental Work.

2. Include cost of all material, equipment, labor, supervision, and other services for the:

a. Road restoration per the details on the drawings and special provisions in the Appendix.
b. Removal of existing bollard assemblies on the trail, as shown on the drawings in the Appendix.
c. Traffic control and trail closure signage per the drawings and special provisions in the Appendix.
d. Other pertinent and incidental Work.
e. General requirements of the Sections listed.

3. Do not include cost of:

a. Work included in other Bid Items.
b. Trail signage. This will be completed separately by Madison County Transit.
c. Trail marking / striping. This will be completed separately by Madison County Transit.
d. Removal and relocation of existing gates. This will be completed separately by Madison County Transit.

4. Measurement for Payment:

a. Measured as a lump sum.

5. Payment:

a. Made at the Owner’s discretion to provide a percent complete based on the overall project estimated completion if partial payment is desired.

K. Bid Item No. 11: Any work not included in Bid Items No. 1 through No. 10.

1. Work as described below.

a. Work not included with other bid items.

2. Include cost of all material, equipment, labor, supervision, and other services for the:

a. Work not included with other bid items.

3. Do not include cost of:

   a. Work included in other Bid Items.

4. Measurement for Payment:

   a. Measured as a lump sum.

5. Payment:

   a. Made at the Owner's discretion to provide a percent complete based on the overall project estimated completion if partial payment is desired.

PART 2 – PRODUCTS

(Not Used)

PART 3 – EXECUTION

(Not Used)

END OF SECTION

SECTION 01 23 00
ALTERNATES

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes Alternates to Work defined in Contract Documents.

B. All Alternates described in this Section are required to be reflected on the Bid Form as submitted by the Bidder.

C. Do not submit Alternates other than as described in this Section.

1.02 DEFINITIONS

A. Alternate: An amount proposed by Bidder and stated on Bid Form for certain Work defined in Bidding Requirements that may be added to or deducted from Contract Price if Owner decides to accept corresponding change in either amount of construction to be completed, or in materials, equipment, or installation methods described in Contract Documents.

B. Cost: Net addition or deduction from Contract Price to incorporate Alternate into Work. No other adjustments will be made to Contract Price.

PART 2 – PRODUCTS

2.01 DESCRIPTION OF ALTERNATES

A. Alternate 1: Alternate 36-inch sewer alignment.

1. Alternate sewer alignment shown on Drawing 002-CP-2-ALT. As noted on the drawing, Contractor shall hydro-excavate along the entire path of the proposed sewer to locate existing utilities. Based on the outcome of that work and the location of the existing utilities, the alignment and depth of the 36-inch sewer may be revised. Owner will not decide on this alternate until after the completion of the hydro-excavation, and if accepted, it would be a change order to the Construction Contract.
2. Pertinent Work specified elsewhere:

    a. Section 31 23 33: Trenching and Backfilling.
    b. Section 32 11 23: Aggregate Base Courses.
    c. Section 32 12 16: Asphalt Paving.
    d. Section 32 92 00: Turf and Grasses.
    e. Section 33 04 00: Testing Buried Pipe Systems.
    f. Section 33 05 61: Precast Concrete Structures.
    g. Section 33 31 13: Sanitary Sewer Gravity Piping.
    h. Drawing: 002-CP-2-ALT.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Coordination:

1. Modify or adjust affected Work as necessary to integrate Work of selected Alternates into Project.
2. Include as part of each Alternate, miscellaneous devices, accessories, and items incidental to or required for complete installation whether or not indicated as part of Alternate.

B. Execute accepted Alternates under same conditions as other Work of Contract.

END OF SECTION

SECTION 01 29 73
SCHEDULE OF VALUES

PART 1 - GENERAL

1.01 SUMMARY

A. Provide a detailed breakdown of the Contract Price showing amounts and quantities allocated to each of the various parts of the Work, as specified herein and as required by General Conditions.

B. Upon request of Engineer, support amounts and quantities with data substantiating their correctness.

1.02 FORM AND CONTENT OF SCHEDULE OF VALUES

A. Schedule shall be typed on 8-1/2-in. by 11-in. white paper. Contractor's standard forms and automated printout will be considered for approval by Engineer upon request. Include following:

1. Project title.
2. Project location.
3. Owner.
4. Engineer.
5. Engineer's project number.
6. Name and address of Contractor.
7. Contract designation.
8. Date.

B. Identify installed value of Work in sufficient detail to serve as basis for computing values for progress payments during construction.

C. Provide a separate listing of general items, such as bonds, insurance, mobilization, field supervision, construction facilities, allowances, and record documents.

D. Follow Project Manual table of contents as format for listing component items. At a minimum, listing shall include material cost and total installed cost for each Specification Section for each structure as listed in this Section.

1. Identify each line item with number and title of respective Specification Division and Section.
2. Include directly proportional amount of Contractor's overhead and profit.
3. For items on which progress payments will be requested for stored materials, break down value into:

a. Cost of materials, delivered and unloaded.
b. Total installed value.

E. Provide listing of items for sitework and for each structure as follows:

1. Contractor's Overhead.

a. Bonds and Insurance
b. Mobilization
c. Office Support

d. Field Supervision
e. Demobilization

2. Sitework, including bypass pumping, if any.
3. Temporary bulkheads.
4. Manholes.
5. Gravity Sewers.
6. Gate Structure, including sluice gate.
7. CIPP Lining of 24-inch and 36-inch Existing Pipes.
8. Connection to Existing Gatewell Structure.
9. Seeding, Mulching and Sodding.

F. Sum of values listed shall equal total Contract Price.

G. Provide additional breakdown as required by Engineer.

PART 2 – PRODUCTS

(NOT USED)

PART 3 – EXECUTION

(NOT USED)

END OF SECTION

SECTION 01 31 19
PROJECT MEETINGS

PART 1 - GENERAL

1.01 SUMMARY

A. Engineer will conduct preconstruction conference in accordance with the General Conditions and this Section.

B. To enable orderly review during progress of the Work, and to provide for systematic discussion of problems, the Contractor shall conduct progress meetings, construction foreman's meetings, and specially called meetings throughout the construction period. Owner and Engineer may attend meetings. Contractor shall:

1. Prepare agenda.
2. Distribute written notice of specially called meetings a minimum of 1 working day in advance of the meeting date. Notice by electronic mail is acceptable.
3. Make physical arrangements for meetings.
4. Preside at meetings.
5. Record meeting minutes.
6. Prepare formal minutes within 3 working days after meeting and distribute electronic copies to:

    a. Meeting participants.
    b. Affected parties.
    c. Engineer and Owner

1.02 QUALIFICATIONS

A. Representatives of Contractor, Subcontractors, and Suppliers attending the meetings shall be authorized to act on behalf of entity each represents.

B. Revisions to Minutes:

1. Unless published minutes are challenged in writing prior to the next regularly scheduled progress meeting; they will be accepted as properly stating the activities and decisions of the meeting.
2. Challenge to the minutes shall be settled at the regularly scheduled meeting.

PART 2 – PRODUCTS

(NOT USED)

PART 3 – EXECUTION

3.01 PRECONSTRUCTION CONFERENCE

A. Location: To be selected by Owner.

B. Attendance:

1. Contractor's Project Manager.
2. Contractor's Resident Superintendent.
3. Contractor's "hands-on" person designated to submit Shop Drawings to Engineer.

4. Subcontractors' or Suppliers' representatives Contractor may desire to invite or Engineer may request.
5. Owner's representatives.
6. Engineer's representatives.
7. Representative from Madison County Transit for work on the trail.
8. Local utility representatives, if applicable.

C. Agenda:

1. Organizational arrangement of Owner's and Engineer's forces.
2. Organizational arrangement of Contractor's, Subcontractors', and material and equipment Suppliers' forces.
3. Contract Documents, including distribution of required copies.
4. Project safety.
5. Preliminary Construction Progress Schedule.
6. Check of required bonds and insurance.
7. Liquidated damages.
8. Preliminary schedule of Shop Drawing submissions.
9. Procedures for handling submittals.
10. O & M submittals.
11. Channels and procedures for communications, correspondence, and project coordination.
12. Weekly and bi-weekly meetings.
13. Equal opportunity requirements.
14. Laboratory and field testing requirements.
15. Provisions for inventory of material stored on-site or off-site.
16. Schedule of values.
17. Application for progress payments.
18. Field Order and Change Order procedures.
19. Project Record Documents.
20. Posting of required signs and notices.
21. Trail and roadway restoration.
22. Other business.

3.02 BI-WEEKLY PROGRESS MEETINGS

A. Schedule bi-weekly meetings.

B. Location: Meetings can be held virtually (Teams, Skype, Zoom, etc.), via phone conference or at the Contractor's field office.

C. Attendance:

1. Contractor's Project Manager.
2. Contractor's Resident Superintendent.
3. Affected Subcontractors.

D. Suggested Agenda:

1. Review of minutes of previous meeting.
2. Review of Work progress since previous meeting.
3. Project safety concerns.
4. Field observations, problems, conflicts.
5. Problems impeding Construction Progress Schedule.
6. Review of off-site fabrication, delivery schedules.

7. Corrective measures and procedures to regain conformance with Construction Progress Schedule.
8. Revisions to Construction Progress Schedule.
9. Issues raised by Owner and Engineer.
10. Proposed progress and schedule for succeeding Work period.
11. Coordination of schedules.
12. Review and update of submittal schedule.
13. Maintenance of quality standards.
14. Pending changes and Substitutions.
15. Effect of proposed changes on Construction Progress schedule.
16. Review of Project Record Documents.
17. Other business.

E. Agenda containing specific subjects to be discussed shall be provided to each attendee and to the Owner and Engineer at least 5 working days before the meeting.

END OF SECTION

SECTION 01 32 16
PROGRESS SCHEDULE
(BAR CHART METHOD)

PART 1 – GENERAL

1.01 SUMMARY

A. Submit preliminary Progress Schedule in accordance with General Conditions.

1.02 SUBMITTALS

A. Three days before the conference to discuss schedules, submit, electronically, preliminary schedule, and subsequent revisions thereof, to Engineer and Owner for review.

B. Three days prior to monthly Project Meetings as required by Section 01 31 19, furnish 4 copies of proposed revised schedule to Owner and Engineer. Furnish revised schedule to Subcontractors as appropriate.

C. Failure to submit schedules on a timely basis shall be considered cause for withholding progress payments.

1.03 WORKING HOURS

A. Comply with requirements of General Conditions.

B. No Work shall be done between 6:00 p.m. and 7:00 a.m., nor on Saturdays, Sundays or legal holidays without written permission of Owner. Emergency work may be done without prior permission.

C. Such permission may be revoked at any time by Owner if Contractor fails to maintain adequate equipment and supervision for proper prosecution and control of Work. Revocation shall not entitle Contractor to change in Contract Price or Contract Time.

PART 2 – PRODUCTS

(NOT USED)

PART 3 – EXECUTION

3.01 FORM OF SCHEDULE

A. Prepare schedule in form of horizontal bar chart.

1. Provide separate horizontal bar for each trade, activity or operation.
2. Provide continuous vertical line to identify first working day of each week.
3. Scale and space to allow for notations and future revisions.

B. Format of Listings: Chronological order of start of each activity or operation.

3.02 CONTENT OF SCHEDULE

A. Show complete sequence of construction by activity or operation.

B. Show dates for beginning and completion of each major element of construction and installation dates for major equipment items. Include:

a. Each individual task of construction.
b. Procurement of equipment and systems including Shop Drawing submittals, Engineer's review of submittals, shop tests, and delivery dates.
c. Identification of Work that will affect existing plant operations.
d. Services of manufacturer's representatives.
e. Startup dates for major equipment.
f. Field tests.
g. Dates of Substantial and Final completion.
h. Subcontractor Work items.
i. Allowance for inclement weather.
j. MBE, WBE, and SBE activities.
k. O&M data activities.
l. Contractor-provided training.

C. Show projected percentage of completion for each activity as of first day of each month.

3.03 REVISIONS TO SCHEDULE

A. Each month Contractor shall receive update information from Subcontractors and Suppliers which shall be included in current schedule. Revised schedule shall indicate changes such as:

1. Major changes in scope.
2. Activities modified since previous submittal.
3. Revised projections of progress and completion.
4. Other identifiable changes.

B. Provide narrative report to define following:

1. Problem area and anticipated delays and their impact on schedule.
2. Corrective action recommended and its effect.

3.04 PROGRESS MEETINGS

A. Bi-weekly, in accordance with Section 01 31 19, Progress Schedule will be reviewed. Progress will be reviewed:

1. To identify those activities started and completed during previous period.
2. For remaining duration required to complete each activity started, but not completed.
3. For durations of selected activities not yet started.
4. For effect of Change Orders and proposed sequencing.

B. Update schedule accordingly.

3.05 DELAYS AND RECOVERY

A. If, at any time during the Project, Contractor fails to complete activity by its latest scheduled completion date, Contractor shall, within 5 working days, submit to Engineer written statement as to how and when work force will be reorganized to return to current Progress Schedule.

B. If, during schedule review meetings, it becomes apparent that milestone completion dates or times established in Section 01 11 00 or Contract completion dates will not be met due to a

delay, disruption, or interference caused by or within the control of Contractor, Contractor shall take some or all of the following actions:

1. Increase construction staffing in such quantities and crafts as shall eliminate backlog of Work.
2. Increase number of working hours per shift, shifts per day, Work days per week, amount of construction equipment or combination of foregoing sufficient to substantially eliminate backlog of Work.
3. Reschedule Work activities to achieve concurrency of accomplishment.

C. Under no circumstances will addition of equipment or construction forces, increasing working hours or other method, manner or procedure to return to current Progress Schedule be considered justification for Contract modification or treated as acceleration.

END OF SECTION

SECTION 01 32 33
CONSTRUCTION PHOTOGRAPHS

PART 1 - GENERAL

1.01 SUMMARY

A. Provide digital-format photographs taken at the specified stages during construction, and in accordance with provisions of this Section.

B. Provide color video of existing facilities taken before commencement of construction.

1.02 SUBMITTALS

A. Submit digital photographs on electronic media acceptable to the Engineer. Digital photographs shall be common retrievable format as specified by Engineer during Preconstruction Conference. Submit with each application for payment.

B. Submit color video of existing facilities using electronic media and format acceptable to the Engineer. Submit prior to commencement of construction.

PART 2 - PRODUCTS

2.01 PHOTOGRAPHS

A. Provide electronic color prints:

1. Electronic files shall be in JPG, TIFF, or other commonly used format. Files shall be named to adequately describe the photo without the need to open the file.
2. Project name.
3. Engineer’s project number.
4. Orientation of view.
5. Date and time of photograph.
6. Photograph number.
7. Contractor’s name and address.

B. Submit approved electronic storage with the appropriate information shown under paragraph 2.01 A. above.

PART 3 - EXECUTION

3.01 PHOTOGRAPHIC REQUIREMENTS

A. Take photographs at each major stage of construction.

1. Before commencement of construction.
2. At intervals sufficient to record construction progress but no less than at bi-weekly intervals during construction of facilities. Photographs need show only new Work for that interval.

B. Make each photograph clear, in focus, with high resolution and sharpness, and with minimum distortion.

3.02 VIEWS

A. Make photographs from three separate locations around Work and for each major structure.

B. Select locations to provide diversified overall views of Work, from positions that are expected to remain accessible throughout progress of Work. Locations shall adequately illustrate condition of construction and state of Project.

C. When directed by Engineer, because of stage of construction, change one or more locations to new locations inside or outside structure.

END OF SECTION

SECTION 01 33 00
SUBMITTAL PROCEDURES

PART 1 – GENERAL

1.01 SUMMARY

A. Requirements for Work-related (non-administrative) submittals including Substitutes and "Or-Equal" items, Shop Drawings, product data, Samples, test results, and other miscellaneous Work-related submittals.

1. Submittals for certification of installation, instructional, and post-startup services are specified in Section 01 61 00.
2. Submittals for record drawings are specified in Section 01 78 39.

B. Administrative Submittals: Procedures concerning items such as listing of manufacturers, Suppliers, Subcontractors, Progress Schedule, bonds, payment applications, insurance certificates, Schedule of Values, and photographs are specified elsewhere.

C. Work–Related Submittals:

1. Substitute and "Or-Equal" Items:

a. Includes material or equipment described in Paragraph 7.04 of General Conditions, Article 7 of the Supplementary Conditions, and Section 01 61 00 which Contractor requests Engineer to accept, after Effective Date of the Agreement.

2. Shop Drawings:

a. As defined in Paragraph 1.01.A.37 of the General Conditions, and in particular includes technical data and drawings specifically prepared for this Project, including fabrication and installation drawings, diagrams, data sheets, schedules, templates, patterns, reports, instructions, design mix formulas, measurements, and similar information not in standard printed form.

3. Product Data:

a. Includes standard catalog type printed information on manufactured materials, equipment and systems that has not been specifically prepared for this Project, including manufactures' product specifications, catalog cut sheets, standard wiring diagrams, printed performance curves, mill reports, and standard color charts.

4. Samples:

a. As defined in Paragraph 1.01.A.34 of the General Conditions, and in particular includes fabricated and manufactured physical examples of materials, products, and units of Work, including complete units, partial cuts of manufactured or fabricated Work, swatches showing color, texture, and pattern, and units of Work to be used for independent inspection and testing.
b. Mock-ups are special forms of Samples too large or otherwise inconvenient for handling in manner specified for transmittal of Sample submittals.

5. Test Results:

a. Includes source and field quality inspection and test reports, actual performance curves, and certifications of results prepared specifically for equipment, material, and systems provided for this Project.

6. Operating and Maintenance Data:

a. Includes information and directions for operating and maintaining equipment provided and installed for this Project. May be standard for equipment or prepared specifically for this Project.

7. Miscellaneous Submittals:

a. Work-related submittals that do not fit in previous categories, including schedules, guarantees, warranties, certifications, maintenance agreements, workmanship bonds, survey data and reports, physical work records, copies of industry standards, field measurements, extra materials, keys, and similar information, devices, and materials applicable to Work.

PART 2 – PRODUCTS

(NOT USED)

PART 3 – EXECUTION

2.01 SUBMITTAL PROCEDURES

A. Scheduling and Register:

1. Provide register (list of anticipated submittals) to Owner.

2. Provide preliminary and final schedule (or register) of submittals in accordance with the General Conditions indicating time requirements for coordination of submittals with performance of Work.

3. Times scheduled shall indicate completion of submittal approval process for Substitute and “Or-Equal” items, Shop Drawings, product data, and Samples. Completion of submittal process for above submittals will have been achieved when submittals have been returned to Contractor with submittal action of either “Approved” or “Approved As Noted”. For planning purposes, Engineer has set a goal of 14 days for review of simple/single discipline submittals, and 28 days for review of complex/multi discipline submittals. Each resubmittal will have same review times.

4. Adjust schedule of submittals periodically to reflect revisions to Progress Schedule.

B. Coordination:

1. Coordinate preparation and processing of submittals with performance of Work. Coordinate each submittal with other submittals and related activities such as substitution requests, testing, purchasing, fabrication, delivery, and similar activities.
2. Coordinate submission of different units of interrelated Work so submittal will not be delayed by Engineer’s need to review related submittal. Engineer may withhold action on submittal requiring coordination with other submittals until related submittals are provided.
3. Prepare and transmit each submittal sufficiently in advance of scheduled performance of related Work and other applicable activities.

C. Submittal Preparation:

1. Stamp and sign each submittal certifying to review and approval of submittal, verification of material and equipment, field measurements, field construction criteria, and coordination of information with Contract Documents in accordance with paragraph 7.16 of the General Conditions.
2. Submittals shall contain sufficient detail to confirm compliance with the requirements of the respective specification section. Submittals shall not contain excessive, non-pertinent information.
3. Submittals shall be complete for all material and equipment specified in each section. Partial submittals are not acceptable.
4. Transmittal Form: Use CONTRACTOR'S SUBMITTAL TRANSMITTAL form included in Appendix. Identify following:

    a. Date
    b. Transmittal and Submittal number
    c. Project
    d. Name and signature of Contractor:
    e. If submittal is for substitute, identify as "Substitute" on transmittal.
    f. Specification section and/or Drawing numbers.
    g. Description of submittal (i.e. equipment identification numbers, motor numbers, etc.)
    h. Variations from Contract Documents

5. The electronic submittal shall be in searchable, bookmarked PDF format.
6. Electronic submittal document shall be created with OCR (Optical Character Recognition) to allow for full alphanumeric recognition of printed characters

D. Resubmittal Preparation:

1. Comply with requirements for Submittal Preparation above, and in addition:

    a. Identify on transmittal form submittal is a resubmission.
    b. Make corrections or changes in submittal required by Engineer's notations on returned submittal.
    c. On transmittal or separate page, answer or acknowledge in writing notations or questions indicated on Engineer's transmittal form of returned submittal.

        1) Identify each response by question or notation number established by Engineer.
        2) If Contractor does not respond to each notation or question, resubmission will be returned without action by Engineer until Contractor provides written response.

    d. Contractor-initiated revisions or variations:

        1) On transmittal form, identify variations or revisions from previously reviewed submittal.

2.02 SPECIFIC SUBMITTAL REQUIREMENTS

A. General:

1. Comply with requirements specified below for each indicated type of submittal. Specific submittal requirements for individual units of work are specified in applicable Specification section.
2. If Engineer has responded to Request for Information submitted by Contractor, include Engineer's response with submittal.

B. Requests for Substitutes:

1. Collect data for items to be submitted for review as Substitute into one submittal for each item of material or equipment in accordance with paragraph 7.06 of the General and Supplementary Conditions.
2. Include completed CONTRACTOR'S REQUEST FOR SUBSTITUTION form as required by Supplementary Conditions. Use the form included in the Appendix.
3. Submit with other scheduled submittals for material and equipment allowing time for Engineer to evaluate additional information required to be submitted.
4. If Contractor requests to substitute for materials or equipment specified, but not identified in Specification as requiring submittal, Contractor shall indicate substitution in Submittal Schedule.

C. Shop Drawings:

1. Maximum size 22 in. by 34 in.
2. Submit graphic information at accurate scale with name of preparer indicated.
3. Show dimensions and note which are based on field measurements.
4. Indicate compliance with standards and notation of coordination requirements.
5. Highlight, encircle or otherwise indicate variation from Contract documents or previous submittals and revisions on resubmittals.
6. Do not use Engineer's Drawings as Shop Drawings.
7. Provide blank space for Contractor stamps.
8. Provide 4-in. by 8-in. blank space for Engineer stamps.

D. Product Data:

1. Collect required data into single submittal for each unit of Work or system. Where product data includes information on several similar materials or equipment, some of which are not require for use in Project, mark copies to show which items are not applicable to Project.

E. Samples:

1. Provide Samples physically identical with proposed materials and equipment to be incorporated into work. Where variations in color, pattern, and texture are inherent in product, submit multiple units (not less than 3) showing approximate limit of variations.
2. Provide full set of option Samples where selection by Owner or Engineer is required.
3. Include information with Sample to show generic description, source, product name, manufacturer, limitations, and compliance with standards.
4. Submit Samples with other related elements of work.
5. Submit two (2) sets of Samples where Specifications indicate Engineer's selection of color, pattern, texture or similar characteristics from manufacturer's range of standard choices is necessary. Neither set will be returned.
6. Maintain set of Samples at Project site, in suitable condition and available for quality control comparisons throughout course of Work.

F. Test Results:

1. Identify each test by Specification section and type of test.
2. Submittal is to confirm that results of tests verify materials, products, and systems comply with Contract Documents and are not for approval.

G. Operating and Maintenance (O&M) Data:

1. Organize operating and maintenance information into suitable sets of manageable size, and bind into individual binders properly identified and indexed. Include emergency instructions, spare parts list, copies of warranties, wiring diagrams, recommended “turn-around” cycles, inspection procedures, Shop Drawings, product data, and similar applicable information.
2. Binders shall be heavy duty 3 ring, vinyl covered, with pocket folders for folded sheet material. Binders shall be of adequate size to easily hold required amount of sheets.
3. Submit after equipment submittal has been returned “Approved” or “Approved as Noted”.
4. Submit two (2) hard copies and one (1) copy in searchable, bookmarked PDF format after approval. Electronic O&M document shall be created with OCR (Optical Character Recognition) to allow for full alphanumeric recognition of printed characters.

H. Miscellaneous:

1. Guarantees, Warranties, Maintenance Agreements, and Workmanship Bonds:

a. Refer to Specification sections for requirements.
b. Provide 2 executed copies. Provide 2 additional copies where required for operation and maintenance data.

2. Survey Data:

a. Refer to Specification sections for requirements of property surveys, building or structure condition surveys, field measurements, quantitative records of actual work, damage surveys, and similar data.

3. Certifications:

a. Refer to Specification sections for requirements.

4. Closeout Submittals;

a. Refer to Specification sections for requirements of spare parts, extra and overrun stock, maintenance tools and devices, keys, and similar units to be submitted.

2.03 ACTION ON SUBMITTALS

A. General:

1. Except for submittals for record and similar purposes, where action and return is not required or requested, Engineer will review each submittal, mark the appropriate action, and return.
2. Where submittal must be held for coordination, Engineer will so advise Contractor without delay.
3. Engineer will stamp each submittal with uniform, self-explanatory action stamp, appropriately marked with submittal action.

B. Unsolicited Submittals:

1. Engineer will return unsolicited submittals without reviewing.

C. Action Stamp:

1. Marking: “Approved”

a. Work covered by submittal may proceed provided it complies with Contract Documents. Acceptance of Work depends on that compliance.

b. After approval, Contractor is to submit two bound copies of all “Approved” submittals to Engineer. Drawings shall be printed at not smaller than 11x17. Engineer, at their discretion, may request drawings printed in 22x34 format. Bound copies shall be stapled, comb bound, or spiral bound. Copies should be in color where required.

2. Marking: “Approved As Noted”

a. Work covered by submittal may proceed provided it complies with Engineer’s notations or corrections on submittal and with Contract Documents. Acceptance of work depends on that compliance. Resubmittal not required.

b. After approval, Contractor is to submit two bound copies of all “Approved As Noted” submittals to Engineer. Drawings shall be printed at not smaller than 11x17. Engineer, at their discretion, may request drawings printed in 22x34 format. Bound copies shall be stapled, comb bound, or spiral bound. Copies should be in color where required.

3. Marking: “Revise and Resubmit”

a. Do not proceed with Work covered by submittal.
b. Revise submittal or prepare new submittal in accordance with Engineer’s notations.

4. Marking: “Not Approved”

a. Work covered by submittal does not comply with Contract Documents. Do not proceed with Work covered by submittal.
b. Prepare new submittal complying with Contract Documents.

5. Marking: “No Action Required”

a. Document has not been reviewed and is only filed for record purposes.

D. General Distribution:

1. Unless required elsewhere, provide distribution of submittals to Subcontractors, Suppliers, governing authorities, and others as necessary for performance of Work.
2. Provide copies of submittals bearing Engineer’s action stamp to:

a. Job site file.
b. Record documents file.

END OF SECTION

SECTION 01 41 00
REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.01 PERMITS

A. Contractor shall obtain the following permits:

1. Other Permits required for construction of the Work which are not listed as being provided by Owner.
2. Contractor shall be responsible for application fees, bond costs, coordination with permitting agencies and review or inspection fees charged by permitting agencies when Contractor obtains permit.
3. Annual or licensing fees which may be charged by permitting agencies for placement of facilities shall be paid for by the Owner.

B. Comply with requirements of permits obtained by Owner. Permits obtained by Owner include:

1. United States Army Corps of Engineers permit.

1.02 NOTICES

A. Provide notices in accordance with requirements of General Conditions and applicable construction permits to following agencies or individuals and to others as required elsewhere in Contract Documents.

1. Engineer:

a. Notice: 10 working days prior to start of construction.
b. Notice: 5 days prior to start of additional crews.

2. Fire, Police, and Sheriff's Department:

a. Notice: 24 hr minimum, or as required by local agencies, prior to closing streets or performing operations affecting vehicular traffic.

3. Utilities: for work which requires excavation.

a. Notice: 72 hr minimum.

5. Others as required in Contract Documents.

1.03 REGULATIONS

A. Comply with local, state, and federal laws, rules, ordinances, and regulations. Give Engineer notice of variations in accordance with General Conditions.

END OF SECTION

SECTION 01 45 29
TESTING LABORATORY SERVICES

PART 1 – GENERAL

1.01 SUMMARY

A. Testing and inspecting to be provided by the Contractor.

B. Provide the services of a testing laboratory approved by Owner.

C. Provide all tests and inspections required by governmental agencies having jurisdiction and required by provisions of the Contract Documents.

D. Perform additional tests as required by Engineer.

E. Perform additional inspections, sampling, and testing required when initial tests indicate Work does not comply with Contract Documents.

F. Specified inspections and/or tests may be waived only by the specific approval of Engineer, and such waivers will result in credit to the Owner equal to normal cost of such inspection and/or test.

1.02 PAYMENT

A. Include within the Contract Price an amount sufficient to cover all testing and inspecting required under this Section, and to cover all testing and inspecting required by governmental agencies.

B. The Owner will pay for additional testing and inspecting specifically requested by the Engineer when such tests indicate conformance with Contract Documents.

C. When additional tests requested by Engineer, or initial tests, indicate noncompliance with the Contract Documents, all inspection, sampling, and testing and subsequent retesting occasioned by the noncompliance shall be performed by the testing laboratory and the costs thereof shall be paid by the Contractor.

1.03 SUBMITTALS

A. Upon completion of each test and/or inspection, promptly submit written report of each test and inspection; one copy each to Engineer, Owner, material supplier, and Contractor, and one copy to record documents file. Each report shall include following:

1. Date issued.
2. Project title and number.
3. Testing laboratory name, address, and telephone number.
4. Name and signature of laboratory inspector.
5. Date and time of sampling or inspection.
6. Temperature and weather conditions if test performed in field.
7. Date of test.
8. Identification of product and Specification section.
9. Location of sample or test in Project.
10. Type of inspection or test.
11. Results of tests and compliance with Contract Documents.
12. Interpretation of test results, when requested by Engineer.

1.04 QUALIFICATIONS OF LABORATORY

A. Meet requirements of ASTM E329.

B. Authorized to operate in state where Project located.

C. Testing equipment calibrated at reasonable intervals by devices of accuracy traceable to either the National Bureau of Standards or other accepted values of natural physical constants.

PART 2 – PRODUCTS

(NOT USED)

PART 3 – EXECUTION

3.01 TAKING SPECIMENS AND TESTING

A. Except as may be specifically otherwise approved by Engineer, testing laboratory shall secure and handle all samples and specimens for testing and conduct testing.

B. Comply with specified standards.

3.02 COOPERATION WITH TESTING LABORATORY

A. Provide access to the Work at all times and at all locations where the Work is in progress. Provide facilities for such access to enable the laboratory to perform its functions properly.

B. Notify laboratory sufficiently in advance of operations to allow laboratory assignment of personnel and scheduling of tests.

1. When tests or inspections cannot be performed due to lack of such notice, reimburse Owner for laboratory personnel, travel expenses, and cost of test normally incurred.

END OF SECTION

SECTION 01 52 00
CONSTRUCTION FACILITIES

PART 1 - GENERAL

1.01 SUMMARY

A. Temporary construction facilities required for the Work, including, but not limited to:

1. Utilities including telephone service, and water.
2. Sanitary facilities.
3. Roads.
4. Security fencing.
5. Parking.
6. Project signs.
7. Field office for Contractor's personnel.

B. Maintain temporary facilities in proper and safe condition throughout progress of Work.

C. Comply with federal, state, and local codes and regulations, and utility company requirements.

1.02 LAYOUT OF TEMPORARY FACILITIES

A. Before starting Work, submit to Engineer, for approval, proposed layout of temporary facilities.

B. Should Contractor require space in addition to that shown on Drawings, Contractor shall make arrangements for storage of materials and equipment in locations off Site.

PART 2 - PRODUCTS

2.01 TEMPORARY LIGHTING AND ELECTRICITY

A. General:

1. Temporary lighting shall be sufficient to enable Contractor and Subcontractors to complete Work and enable Engineer to observe Work. Illumination shall meet or exceed state code requirements.

B. Contractor's responsibilities:

1. Provide, maintain, and remove temporary electric service facilities, as needed.
2. Provide temporary electric systems and components in conformance with requirements of National Electric Code and local authorities.
3. Facilities exposed to weather shall be weatherproof type.
4. Enclosures shall be locked to prevent unauthorized access.
5. Provide lamps, wiring, switches, sockets, and similar equipment required for temporary lighting and power tools.

2.02 TEMPORARY HEAT

A. General:

1. Provide heating required for cold weather protection until structure is enclosed.

2. Provide heating required after enclosure of structure.
3. Except as otherwise called for, temperature shall be kept between 50°F and 75°F.
4. Heat shall be warm air from oil or gas-fired portable heaters suitably vented to outside or with electric heating equipment.
5. Open salamander type heaters are not permitted.

B. Contractor's responsibilities:

1. Provide temporary heat, pay fuel costs and maintain heating units.
2. Provide adequate heat to all parts of structure.
3. Repair or replace materials damaged because of lack of heat.
4. Provide throwaway filters if permanent system used for temporary heat.
5. All temporary heating and ventilation components shall be suitable for the hazardous classification to which they serve.

2.03 WATER FOR CONSTRUCTION

A. Water is not available at Site. Contractor shall make arrangements and shall pay all costs to obtain suitable water for construction.

2.04 WATER FOR TESTING

A. Unless specifically stated otherwise in Specifications, Contractor shall provide water necessary for testing. Comply with requirements specified under WATER FOR CONSTRUCTION in this Section.

2.05 SANITARY FACILITIES

A. Provide temporary sanitary facilities conforming to state and local regulations, in sufficient numbers for use of Contractor's and Subcontractor's employees.

B. Maintain in sanitary condition and properly supply with toilet paper.

2.06 TEMPORARY FIRE PROTECTION

A. Provide and maintain minimum of one fire extinguisher, and other fire protection equipment and devices as would be reasonably effective in extinguishing fires during early stages by personnel at Site.

2.07 TEMPORARY SITE AND OTHER ROADS

A. Construct and maintain temporary roadways in snow free, ice free, driveable condition.

B. Maintain existing roads used during construction free from accumulation of dirt, mud and construction debris. Roads shall be considered "maintained" when material has been removed by a sweeper. Multiple sweeper passes may be required to clean the existing surfaces sufficiently in Engineers opinion. Aggregate surfaced roads and drives will be considered "maintained" when dirt and soil contaminants in excess of 1" diameter have been removed and the total volume of contaminants remaining is estimated to be less than ¼ cubic foot. Contractor shall control dust from operations in all circumstances.

C. Temporary granular paving used prior to final paving shall be maintained in smooth condition. Ruts, holes, washboarding, or other surface deformities shall be corrected immediately by filling or scraping. All maintenance work to maintain traffic on existing roads shall be finished with a vibratory roller to recompact the surface.

D. Contractor shall repair or replace existing roads to original or better condition prior to Final Completion. Survey and record condition of existing roads prior to construction.

E. Temporary access roads used for construction shall be removed when work is completed.

2.08 CONTRACTOR'S STAGING AND WORK AREA

A. Staging area to be located within Owner's property and easements. Coordinate staging area location with Owner and Phillips 66.

B. Prepare staging area and provide minimum of 4-inches crushed stone surface if located in unpaved areas.

C. Work Area:

1. Limit construction operations and storage of equipment and materials to areas shown on Drawings and as determined by Engineer.
2. Except as provided herein, no sidewalk, private property, or other area adjacent to Site shall be used for storage of Contractor's equipment and materials unless prior written approval is obtained from legal owner of the respective locations.
3. Contractor shall maintain staging areas during construction in a manner that will not obstruct operations in any traffic areas. Work shall proceed in an orderly manner, maintaining construction Site and staging area free of debris and unnecessary equipment or materials.

2.09 SECURITY

A. Security will not be provided by Owner.

B. Contractor shall be responsible for loss or injury to persons or property where Work is involved, and shall provide security and take precautionary measures to protect Contractor's and Owner's interests.

C. Provide and maintain temporary fencing of design and type needed to prevent entry onto Site by public. Comply with Phillips 66 requirements regarding fencing and security within the restricted area.

2.10 ENCLOSURES

A. Provide and maintain all enclosures, scaffolds, tarpaulins, canopies, warning signs, steps, platforms, bridges, and other temporary construction necessary for proper completion of Work.

2.11 PARKING

A. Staging area and designated areas within construction limits may be used for parking of construction personnel's private vehicles and Contractor's lightweight vehicles.

B. Do not allow heavy vehicles or construction equipment in parking areas.

C. Make arrangements for additional parking off site as required.

2.12 CONTRACTOR'S FIELD OFFICES AND BUILDINGS

A. If required by Contractor, erect where designated by Owner and Engineer, and maintain temporary field office for Contractor's use.

B. Buildings shall be neat and well constructed, surfaced with plywood, siding, masonite, or other similar material, well painted and void of advertisements.

PART 3 – EXECUTION

3.01 GENERAL

A. Maintain and operate systems to ensure continuous service for duration of construction.

B. Modify and extend systems, as Work progress requires.

C. Material and Equipment provided as part of the project shall not be used for any temporary services.

3.02 FIELD QUALITY CONTROL

A. Testing: Test the Contractor's Field Office grounding system.

3.03 REMOVAL

A. Completely remove temporary materials, equipment, signs, and structures when no longer required.

B. In unfinished areas, clean and repair damaged caused by temporary installations or use of temporary facilities, restore drainage, and evenly grade, seed or plant as necessary to provide appearance equal to or better than original.

C. In finished areas, restore existing or permanent facilities used for temporary services to specified, or original condition.

3.04 DAMAGE TO EXISTING PROPERTY

A. Contractor is responsible for replacing or repairing damage to existing buildings, structures, sidewalks, roads, parking areas, and other existing assets.

B. Contractor shall have option of having Owner contract for such Work and have cost deducted from Contract Price.

END OF SECTION

SECTION 01 57 19
TEMPORARY ENVIRONMENT CONTROLS

PART 1 - GENERAL

1.01 SUMMARY

A. General requirements pertaining to abatement and control of environmental pollution arising from activities of Contractor and Subcontractors in performance of the Work of the Contract.

B. Contractor, in executing Work, shall maintain work areas free from environmental pollution that would be in violation of federal, state or local regulations.

PART 2 – PRODUCTS

(NOT USED)

PART 3 - EXECUTION

3.01 GENERAL

A. The land resources within boundaries of the Project, but outside the limits of permanent Work performed under this Contract shall be preserved in their present condition or be restored to a condition after completion of construction that will appear to be natural and not detract from the appearance of the Project.

B. Insofar as possible, confine activities to pertinent areas defined on the Drawings or elsewhere in the Contract Documents.

1. Return construction areas to their preconstruction elevations except where surface elevations are otherwise noted to be changed.
2. Maintain natural drainage patterns.
3. Conduct construction activities in such a manner that ponding of stagnant water conducive to mosquito breeding habitat will not occur at any time.

C. Land resources:

1. Do not remove, cut, deface, injure, or destroy trees or other vegetation outside the Work area limits.
2. Do not remove, cut, deface, injure, or destroy trees or other vegetation inside the Work area limits, designated to be preserved, except as permitted by Engineer.
3. Land resources damaged by Contractor shall be promptly replaced or repaired to the approval of Engineer at Contractor’s expense.

3.02 ARCHAEOLOGICAL FINDS DURING CONSTRUCTION

A. There are no known archaeological remains at the Project site.

B. Should skeletons, artifacts, or other archaeological remains be uncovered:

1. Suspend operations of this Contract at the site of discovery.
2. Continue operations in other areas.
3. Notify Engineer immediately of the finding.

C. Should the discovery site require archaeological studies resulting in delays and/or additional work, Contractor will be compensated by an adjustment under pertinent provisions of the Contract.

3.03 PROTECTION OF STORM SEWERS

A. Prevent construction materials, concrete, earth or other debris from entering existing storm sewers or sewer construction.

3.04 PROTECTION OF WATERWAYS

A. Observe rules and regulations of State of Illinois and agencies of U.S. government prohibiting pollution of lakes, streams, rivers or wetlands by dumping of refuse, rubbish, dredge material or debris.

B. Disposal of materials into waters of state must conform to requirements of Illinois EPA.

1. Permits shall be obtained by Contractor.

3.05 STORMWATER DISCHARGE

A. Contractor shall comply with Illinois EPA Pollution Discharge Elimination System General Stormwater guidelines.

1. Engineer will inspect construction site and Contractor shall make corrections or repairs required.
2. Contractor shall keep plan on site during the construction.

3.06 DISPOSAL OF EXCESS EXCAVATED AND OTHER WASTE MATERIALS

A. Excess excavated material not required or suitable for backfill and other waste material shall be disposed of in accordance with federal, state, and local regulations.

B. In accordance with the Illinois Environmental Protection Act, 415 ILCS 5/22.51, Contractor shall obtain all certifications required by federal, state, and local regulation and by owner/operator of off-site disposal sites certifying that the excess excavated and other waste materials are uncontaminated. Certifications shall be made by a licensed professional engineer in accordance with federal, state, and local regulations. Contractor shall conduct tests and analyses in order to certify that excess excavated material and other waste materials are uncontaminated.

C. Provide watertight conveyance of liquid, semi-liquid or saturated materials which tend to bleed during transport. Liquid loss from transported materials is not permitted, whether being delivered to construction site or hauled away for disposal.

3.07 PROTECTION OF AIR QUALITY

A. Minimize air pollution by requiring use of properly operating combustion emission control devices on construction vehicles and equipment and encourage shutdown of motorized equipment not in use

B. Do not burn trash on Site.

C. If temporary heating devices are necessary for protection of Work, they shall not cause air pollution.

3.08 THAWING OF FROZEN GROUND

A. Obtain permit from appropriate authority before building fire to thaw frozen ground, and comply with conditions of permit.

B. Use fuel which does not create air pollution or inconvenience public

C. Engineer reserves right to prohibit fires for thawing frozen ground whenever deemed undesirable.

3.09 USE OF CHEMICALS

A. Chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or of other classification, shall be approved by U.S. EPA or U.S. Department of Agriculture or any other applicable regulatory agency.

B. Use and disposal of chemicals and residues shall comply with manufacture's instructions.

3.10 NOISE CONTROL

A. Conduct operations to cause least annoyance to residents and businesses in vicinity of Work, and comply with applicable local ordinances.

B. Equip construction equipment and other apparatus with mechanical devices necessary to minimize noise.

C. Equip compressors with silencers on intake lines.

D. Equip gasoline or oil-powered equipment with silencers or mufflers on exhaust lines.

E. Line storage bins and hoppers with material that will deaden sounds.

F. Route vehicles carrying rock, concrete, or other material over such streets as will cause least annoyance to public and do not operate on public streets between hours of 6:00pm and 7:00am, nor on Saturdays, Sundays or legal holidays, unless approved by Owner.

3.11 DUST CONTROL

A. Take special care in providing and maintaining temporary roads, Owner's existing roads, and public roads used during construction operations in clean, dust free condition.

B. Comply with local regulations for dust control. If Contractor's dust control measures are considered inadequate by Engineer, Engineer may require Contractor to take additional dust control measures.

3.12 FUELS AND LUBRICANTS

A. Comply with local, state, and federal regulations concerning transportation and storage of fuels and lubricants.

B. Fuel storage area location shall be approved by Owner prior to installation.

C. Report spills or leaks from fueling equipment or construction equipment to Owner and cleanup as required.

D. Owner may require Contractor to remove damaged or leaking equipment from Site.

END OF SECTION

SECTION 01 61 00
COMMON PRODUCT REQUIREMENTS

PART 1 – GENERAL

1.01 SUBSTITUTE AND “OR EQUAL” ITEMS

A. When equipment or material is specified by naming one or more manufacturers or suppliers followed by words “No Substitute is Permitted”, Contractor shall provide one of the named manufacturers or suppliers.

B. ”Or Equal” Items: For material or equipment specified by naming one or more suppliers or manufacturers followed by the words “Or Equal”, Contractor shall make submittal in accordance with Section 01 33 00. Engineer will review submittal in accordance with Supplementary Conditions.

C. Substitute Items:

1. For material or equipment specified by naming one or more suppliers or manufactures and not followed by the words “Or equal” or “No Substitute is Permitted”, Contractor shall submit “Request for Substitution” in accordance with General Conditions for material or equipment not specifically named.
2. Requests for Substitution will be considered by Engineer, subject to Contractor’s representations and review provisions of Contract Documents, when one or more of the following conditions are satisfied.

    a. Where required equipment or material cannot be provided within Contract Time, but not as result of Contractor’s failure to pursue Work promptly or coordinate various activities properly.
    b. Where packaging of several items of equipment from single source will provide maintenance and coordination advantages to Owner.
    c. When Contractor proposes to provide Owner with cost savings.

3. If Engineer approves Contractor’s Request for Substitution, Contractor shall make submittal in accordance with Section 01 33 00.

D. Conditions Which Are Not Substitutions:

1. Contractor options provided for in Specifications.
2. Revisions to Contract requested by Owner or Engineer.
3. Contractor’s determination of and compliance with governing regulations, except as provided for in Contract Documents.

1.02 REUSE OF EXISTING MATERIAL

A. Except as specifically indicated or specified, do not use removed materials and equipment in new Work. All material and equipment incorporated into the Work shall be new, and as specified, except as otherwise provided in the Contract Documents.

B. For material and equipment specifically indicated or specified to be reused in new Work:

1. Use special care in removal, handling, storage, and reinstallation to ensure proper function in completed Work.
2. Provide for transportation, storage, and handling of products which require off-site storage, restoration, or renovation.

1.03 MANUFACTURER'S INSTRUCTIONS

A. Installation of equipment and materials shall comply with manufacturer's written instructions. Maintain one set of complete instructions at job site. Distribute printed copies of instructions to parties involved in installation, including 1 copy to Engineer. Provide 1 electronic copy as a searchable, bookmarked PDF document to the Engineer.

B. Handle, store, install, connect, clean, condition, and adjust materials and equipment in accordance with manufacturer's written instructions and in conformance with Specifications.

C. If job conditions or specified requirements conflict with manufacturer's written instructions, consult Engineer for further direction. Do not proceed with Work without written instruction of Engineer.

1.04 TRANSPORTATION AND HANDLING

A. Arrange deliveries of material and equipment in accordance with Construction Progress Schedule.

B. Deliver materials and equipment in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.

C. Protect bright-machined surfaces, such as shafts and valve faces, with heavy coat of grease prior to shipment.

D. Immediately upon delivery, inspect shipments to ensure compliance with Contract Documents and approved submittals, and products have been protected and are undamaged.

E. Provide equipment and personnel to handle materials and equipment by methods recommended by manufacturer to prevent soiling or damage to materials or equipment, or packaging.

1.05 STORAGE, PROTECTION, AND MAINTENANCE

A. Store, protect, and maintain material and equipment in accordance with manufacturer's written instructions.

B. Temporary storage areas and buildings shall conform to Section 01 52 00.

C. Owner assumes no responsibility for damage or loss due to storage of materials and equipment.

D. Interior Storage:

1. Store with seals and labels intact and legible.
2. Store materials and equipment subject to damage by elements in weather tight enclosures.
3. Maintain temperature and humidity within ranges required by manufacturer.

E. Exterior Storage:

1. Store fabricated materials and equipment above ground, on blocking or skids, to prevent soiling or staining. Cover materials and equipment subject to deterioration with impervious sheet coverings. Provide ventilation to avoid condensation.

2. Store loose granular materials in well-drained area on solid surfaces to prevent mixing with foreign matter.
3. Store materials such as pipe, reinforcing steel, structural steel, and equipment on pallets or racks, off ground.

F. Inspection and Maintenance:

1. Arrange storage to provide easy access for inspection, maintenance, and inventory.
2. Make periodic inspections of stored materials and equipment to ensure materials and equipment maintained under specified conditions are free from damage or deterioration, and coverings are in place and in condition to provide required protection.
3. Perform maintenance on stored material and equipment in accordance with manufacturer's written instructions and in presence of Owner and Engineer.

a. Notify Engineer 24 hrs before performing maintenance.
b. Submit report of completed maintenance to Engineer with each Application for Payment.
c. Failure to perform maintenance, to notify Engineer, or to submit report may result in rejection of material or equipment.

G. Assume responsibility for protection of completed construction and repair and restore damage to completed Work.

H. Wheeling of loads over finished floors, with or without plank protection, not permitted in anything except rubber tired wheelbarrows, buggies, trucks or dollies. This applies to finished floors and exposed concrete floors, as well as those covered with other applied surfacing.

I. Where structural concrete is also finished surface, avoid marking or damaging surface.

1.06 SPECIAL TOOLS AND LUBRICATING EQUIPMENT

A. Furnish, in accordance with manufacturer's recommendations, special tools and lubricating equipment required for checking, testing, parts replacement, and maintenance.

B. Instruct Owner's operating personnel in operation, repair, and maintenance of equipment and use of special tools.

1.07 LUBRICATION

A. Where lubrication is required for proper operation of equipment, incorporate necessary and proper provisions in equipment in accordance with manufacturer's requirements. Where possible, lubrication shall be automated and positive.

B. Where oil is used, reservoir shall be of sufficient capacity to supply unit for 24-hr period.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Conform to applicable Specifications and standards. Comply with size, make, type, and quality specified or as approved on submittals.

B. Design, fabricate, and assemble in accordance with engineering and shop practices standard with industry.

C. Manufacture like parts of duplicate units to standard sizes and gauges, to be interchangeable. Two or more items of same kind shall be identical, by same manufacturer.

D. Material and equipment shall be suitable for service conditions. Design so working parts are readily accessible for inspection and repair, and easily duplicated and replaced.

E. Equipment capabilities, sizes, and dimensions shown or specified shall be adhered to, unless specifically approved in accordance with General Conditions.

F. Equipment shall be adapted to best economy in power consumption and maintenance. Parts and components shall be portioned for stresses occurring during continuous or intermittent operation, and for additional stresses occurring during fabrication or installation.

G. Do not use material or equipment for purpose other than for which it is designed or specified. Equipment shall not be used for any purpose, or any reason until manufacturer has completed installation services.

PART 3 – EXECUTION

3.01 GENERAL

A. Include and pay for Supplier's services, including, but not limited to, those specified.

B. Workday is defined as an 8-hr period during a calendar day. Workday for purposes of this section does not include travel to and from the Project Site.

3.02 INSTALLATION SERVICES

A. Where installation services are called for in Specifications, provide competent and experienced technical representatives of manufacturers' equipment and systems to resolve assembly or installation procedures attributable to, or associated with, equipment furnished.

B. After equipment installation, manufacturer's representative shall inspect equipment for proper installation in accordance with manufacturer's instructions, equipment has been serviced with the proper lubricants, applicable safety equipment has been properly installed, and that proper electrical and mechanical connections have been made.

C. Manufacturer's representative shall assist Contractor in performing functional testing.

D. Perform functional testing to determine if equipment has been installed correctly and operates as intended. Functional testing shall include, but not be limited to, checking for proper rotation, alignment, speed, excessive vibration, and noisy operation. Equipment adjustment and calibration shall be performed to conform with Specifications, manufacturer's requirements and instructions, and industry standards.

E. Provide "Certificate of Installation Services" stating that equipment has been properly installed, that functional testing has been performed, that proper adjustment and calibration has been made, and that equipment is ready for Startup and Systems Demonstration. Use form in Appendix and furnish two copies to Engineer.

3.03 INSTRUCTIONAL SERVICES

A. Where training is called for in Specifications, provide competent and experienced technical representative of Supplier to provide detailed instruction to Owner's personnel for operation of equipment. Training services shall include maintenance of instrumentation, maintenance

of equipment, and operation of instrumentation and equipment in classroom setting on-site. Training shall include electrical, mechanical, and safety aspects of equipment.

B. Submit 30 days before scheduled training, for Engineer's review and approval, documentation identifying names of specific instructors, factory authorization, and background of individuals to conduct training.

C. Coordinate training with Engineer.

1. No training shall be conducted unless instructor has been approved by Engineer.
2. Notify Engineer at least 48-hrs in advance so Engineer can make arrangements with Owner's personnel.
3. Cancel training sessions at least 24-hrs in advance.
4. Reschedule canceled training sessions 48-hrs in advance.
5. Failure of instructors to appear for scheduled training, failure to notify Engineer 24-hrs in advance of need to cancel training session, or failure to arrive within 30 minutes of start of scheduled training session shall result in reimbursement to Owner for time lost by Owner's personnel in waiting for arrival of instructor.

D. Similar types of equipment differing in model, size or manufacturer shall require equal service time as specified.

E. Review O&M data contents with Owner's personnel in full detail to explain aspects of operations and maintenance.

F. Provide "Certificate of Instructional Services" cosigned by Owner and instructor, verifying training accomplished to satisfaction of all parties. Use form in Appendix and furnish 2 copies to Engineer.

END OF SECTION

SECTION 01 74 00
CLEANING AND WASTE MANAGEMENT

PART 1 - GENERAL

1.01. SUMMARY

A. Perform cleaning throughout construction period and at completion of Work.

B. Refer to Specification sections for specific cleaning products or Work.

C. Conduct cleaning and disposal operations to comply with codes, ordinances, regulations, and anti-pollution laws.

PART 2 - PRODUCTS

2.01. CLEANING MATERIALS AND EQUIPMENT

A. Use only the cleaning materials and equipment which are compatible with the surface being cleaned, as recommended by the manufacturer of the material.

B. Use only those cleaning materials which will not create hazards to property and persons.

PART 3 - EXECUTION

3.01 DURING CONSTRUCTION

A. Comply with general Conditions.

B. Provide on-site containers for collection and removal of waste materials, debris, and rubbish in accordance with applicable regulations.

C. As required preparatory to installation of succeeding materials, clean the structures or pertinent portions thereof to the degree of cleanliness recommended by the manufacturer of the succeeding material, using equipment and materials required to achieve the necessary cleanliness.

3.02 FINAL CLEANING

A. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from exposed interior and exterior surfaces.

B. Clean out existing or new sewers to remove sediment and other materials that have entered during construction.

C. Clean roads and streets used as haul roads during construction of accumulated material. Clean paved streets with water.

D. Prior to Final Completion or Owner occupancy, Contractor, with Engineer and Owner, shall conduct inspection of work areas to verify Work and Site is clean.

3.03 CLEANING DURING OWNER'S OCCUPANCY

A. Should the Owner occupy the Work or any portion thereof prior to its completion by the Contractor and acceptance by the Owner, responsibilities for interim and final cleaning shall be as determined by Engineer in accordance with the General Conditions.

END OF SECTION

SECTION 01 78 39
PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 SUMMARY

A. Throughout progress of the Work, maintain an accurate record of changes in the Contract Documents.

B. Maintain at Site one record copy of:

1. Drawings.
2. Project Manual.
3. Addenda.
4. Change Orders and other modifications to Contract.
5. Engineer Field Orders, written instructions, or clarifications.
6. Approved Shop Drawings and other Work-related submittals.
7. Field modifications made to equipment by Contractor, Subcontractors and Suppliers.
8. Field test records.
9. Construction photographs.
10. Associated permits.
11. Certificates of inspection and approvals.

1.02 PAYMENTS

A. Progress payments will not be made until the Contractor has demonstrated to the Engineer that a marked up set of Drawings is being satisfactorily maintained on the site and is available for Engineer's review as specified herein.

1.03 SUBMITTALS

A. Prior to Substantial Completion, submit revised operation and maintenance data for field modifications made by Contractor, Subcontractors, and Suppliers.

B. Prior to Substantial Completion, submit revised copies of approved Shop Drawings and other Work-related submittals for equipment modified in field by Contractor, Subcontractors, and Suppliers.

C. Prior to submitting request for Substantial Completion, deliver one complete coordinated marked up set of Drawings to Engineer for use in preparation of record drawings.

D. Prior to submitting request for final payment, submit the remaining Project Record Documents to Engineer for Owner.

E. Accompany submittals with transmittal letter containing following:

1. Date.
2. Project title and number.
3. Contractor's name and address.
4. Title of record document.
5. Signature of Contractor or authorized representative.

PART 2 – PRODUCTS

(NOT USED)

PART 3 - EXECUTION

3.01 MAINTENANCE OF DOCUMENTS AND SAMPLES

A. Store documents and Samples in Contractor's field office apart from documents used for construction.

1. Provide files and racks for storage of documents.
2. Provide secure storage space for storage of Samples.
3. Provide dedicated location for storage of flash drive that contains electronic documentation, including the most up to date Record Drawings. Flash drive shall be made available for Engineer's use to view files at all times.

B. Maintain documents in clean, dry, legible condition and in good order.

C. Do not use record documents for construction purposes.

D. Record documents shall only contain marks pertaining to recorded changes and should not contain notes, calculations, or other stray information.

E. Label each document "PROJECT RECORD" in neat, large letters.

F. Make documents and samples available for inspection by Engineer and Owner.

G. Failure to properly maintain record documents may be reason to delay a portion of progress payments until records comply with Contract Documents.

3.02 RECORD DRAWINGS

A. Maintain one record set of Drawings, in electronic PDF format (one PDF file for each drawing volume), legibly annotated to show all changes made during construction and the final location of all underground piping and utilities.

1. The marked up set of Drawings shall be a compilation of all of the changes made by all of the trades involved. Individual sets from the various subcontractors will not be accepted.
2. The marked up set of Drawings shall graphically show the changes. Reference to RFI's, Change Orders, Field Orders, etc. will not be accepted.
3. The marked up set of Drawings shall incorporate changes made to the primary drawings, and shall include the corresponding changes made to the ancillary drawings.
4. Changes made to the process drawings, electrical drawings, and I&C drawings shall be depicted on the P&ID's.

B. All annotations on Record Drawings shall be done electronically in PDF format.

1. The base drawing used for Record Drawing edits shall be in an original PDF file.
2. Using the following color scheme:

a. RED: For drawing additions or elements to be added to the drawing.
b. GREEN: For items to be removed or deleted from the drawing.
c. BLUE: For descriptive notes, dimensions, arrows, or other labels to provide direction to drafters but that are not specifically intended to be added to the drawings.

3. Coloring scheme, labels, dimensions, and line work shall be consistent throughout the entire Record Drawing set.
4. Use a straight line drawing tool where appropriate.
5. Use text boxes with appropriately sized text for all text work.
6. Drawing changes shall be to scale.
7. All drawing comments shall be “flattened” prior to submitting any Record Drawings to prevent the inadvertent shifting or changing of any comment or mark-up and to provide final documentation of all mark-ups.

C. Record information concurrently with construction progress.

D. Drawings:

1. Graphically depict changes by modifying or adding to plans, details, sections, elevations, or schedules.
2. Note the following:

    a. Horizontal and vertical locations of underground cable, conduit, duct runs, underground utilities and appurtenances, and underground piping referenced to visible and accessible features. These features shall be located where they leave or enter any structure and at changes in horizontal or vertical direction. The invert elevation of piping and the top of conduit or duct banks shall be noted. GPS coordinates may be used.
    b. Field changes.
    c. Details not on original Drawings.
    d. Location and identification of exposed interior piping, including those shown schematically on Drawings.
    e. Location and size of equipment including connections.
    f. Departures from original Drawings.

END OF SECTION

DIVISION 03

CONCRETE

SECTION 03 20 00
CONCRETE REINFORCING

PART 1 – GENERAL

1.01 SUMMARY

A. Provide concrete reinforcement where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

1.02 REFERENCES

A. ACI: American Concrete Institute

B. ASTM: American Society for Testing and Materials

C. CRSI: Concrete Reinforcing Steel Institute

1.03 SUBMITTALS

A. Shop Drawings:

1. Conform to ACI SP-66 showing bending diagrams, assembly diagrams, location diagrams, splicing and laps of bars, shapes, dimensions, and details for reinforcing, and stirrup spacing, accessories, and additional reinforcing at openings.

B. Product Data:

1. Dowel Adhesive manufacturer's product data.

C. Submit in accordance with Section 01 33 00.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver reinforcement to site bundled and tagged.

B. Use necessary precautions to maintain identification after bundles are broken.

C. Store in a manner to prevent excessive rusting and fouling with dirt, grease, and other bond-breaking coatings.

PART 2 – PRODUCTS

2.01 REINFORCEMENT MATERIALS AND ACCESSORIES

A. Deformed Steel Bars: ASTM A615, Grade 60.

B. Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcement in place:

1. Comply with CRSI recommendations.
2. For slabs on grade, use supports with sand plates or horizontal runners where base material will not support chair legs.
3. Exterior exposed surfaces, surfaces in contact with earth or liquid, and interior exposed surfaces in humid areas shall have all plastic or stainless steel supports.

4. When supports bear directly on the ground and it is not practical to use steel or plastic supports, solid precast concrete blocks may be used to support only the bottom mat of reinforcement. Precast blocks must be of equal or greater strength than the concrete being placed.

C. Dowel Adhesive:

1. Epoxy or acrylic adhesive.
2. Manufacturers:

a. HIT-RE 500 V3 or HIT-HY 200-R V3 System by Hilti Corp.
b. Pure 110+, AC200+ Gold by Dewalt.
c. SET-XP Epoxy or AT-XP Acrylic Adhesive System by Simpson Strong-Tie Co., Inc.
d. Red Head A7+ or C6+ by ITW Commercial Construction.

2.02 FABRICATION

A. Fabricate reinforcing bars to conform to the required shapes and dimensions and in accordance with ACI 318 and CRSI Manual.

B. In case of fabricating errors, do not straighten or rebend reinforcement in a manner that will weaken or injure the material.

C. Reinforcement with any of the following defects will not be acceptable.

1. Bar lengths, depths, and/or bends exceeding the specified fabrication tolerances.
2. Bends or kinks not shown on the Drawings.
3. Bars with reduced cross-section due to excessive rusting or other causes.

PART 3 – EXECUTION

3.01 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.02 INSTALLATION

A. Clean reinforcement to remove loose rust and mill scale, earth, and other materials which reduce or destroy bond with concrete.

B. Position, support, and secure reinforcement against displacement by formwork, construction, and concrete placing operations. Unless otherwise noted, provide clear cover as follows:

1. Cast against:

Earth: 3 inches
Mud Slab: 2 inches

2. Exposed to earth, weather, or water:

a. Slabs:

#5 Bars and smaller: 1 ½ inches
#6 through #11 Bars: 2 inches

b. Walls, Beams, and Columns: 2 inches

C. Correct displacement of reinforcement prior to and during concrete placement. Maintain clear cover as noted on Drawings. Tolerances shall be in accordance with ACI 117 and ACI 318, unless noted otherwise.

D. Support reinforcing steel in accordance with CRSI “Placing Reinforcing Bars” with maximum spacing of 4 feet.

E. Tie reinforcing steel at intersections in accordance with CRSI “Placing Reinforcing Bars”.

1. Spacing for Footings, Walls, and Columns: Every third intersection, 3 feet maximum.
2. Spacing for Slabs and Other Work: Every fourth intersection, 3 feet maximum.
3. Tie each dowel in-place.

F. Reinforcement shall be continuous through construction joints.

G. Reinforcement may be sliced at construction joints provided that the entire lap is placed within only 1 pour.

H. Do not field bend bars, including bars partially embedded in concrete unless indicated.

I. Tack welding of, or to, reinforcement prohibited.

J. Placement of reinforcement shall be approved by Engineer before placing concrete.

K. Anchor dowels into drilled holes with epoxy dowel adhesive where noted. Conform to details shown.

3.03 SPLICES

A. Lap reinforcing at splices. Tie securely to prevent displacement of splices during placement of concrete.

B. Welding of reinforcing bars is not permitted.

END OF SECTION

SECTION 03 30 00
CAST-IN-PLACE CONCRETE

PART 1 – GENERAL

1.01 SUMMARY

A. Provide cast-in-place concrete where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

1.02 REFERENCES

A. ASTM: ASTM International

B. NRMCA: National Ready Mixed Concrete Association

C. ACI: American Concrete Institute

D. AASHTO: American Association of State Highway and Transportation Officials

1.03 SUBMITTALS

A. Shop Drawings:

1. Verification of Mix Design:

a. Proposed mix design for each class of concrete to be used as specified using designations indicated. Provide dry weight of cement, saturated dry weight of coarse and fine aggregate, brand name and quantities of admixtures when applicable, fly ash and other supplementary cementitious materials when applicable, gallons of water required for 1 cubic yard of concrete, and chloride ion content.
b. Source and material certificates of cement and fine and coarse aggregate, including sieve analysis that will be used in each class of concrete.
c. Admixture product data.
d. Source and test reports of fly ash and other pozzolans.
e. Source of slag cement and documented ability of supplier to consistently furnish these materials in accordance with applicable ASTM and AASHTO requirements.
f. Test data supporting proportions of design mixes based on laboratory trial batches or past field experience in accordance with ACI specification 301.
g. NRMCA certification, DOT certification, or letter stating plant and equipment complies with industry standard requirements.
h. Mix design shall be approved by Engineer before concrete delivered to site.

B. Product Data:

1. Waterstop: Manufacturer’s literature.
2. Fiber Reinforcement manufacturer’s literature.
3. Patching Mortar manufacturer’s literature.

C. Test Results:

1. Concrete test results.
2. Concrete delivery tickets: With each load of concrete delivered, provide duplicate tickets, one for Contractor, one for Engineer, with following information.

a. Serial number of ticket.
b. Date and truck number.
c. Name of supplier.
d. Class of concrete.
e. Type of cement and cement content in bags/cubic yard.
f. Admixture brand names.
g. Aggregate size.
h. Time loaded.
i. Amount of concrete in load.
j. Gallons of water added at site and slump of concrete after addition of water.
k. Temperature of concrete at delivery.
l. Time unloaded.

D. Submit in accordance with Section 01 33 00.

1.04 QUALITY ASSURANCE

A. Plant Certification: Plant or concrete supplier shall comply with requirements of NRMCA certification plan as regards material storage and handling, batching equipment, central mixer, truck mixers with counters, agitators, nonagitating units, and ticketing system.

B. Do not commence placement of concrete until mix designs have been reviewed and approved by Engineer.

C. Concrete Testing: Testing shall be provided by Contractor in accordance with Section 01 45 29 and this Section.

1. Conduct tests on sample material in accordance with methods listed below:

a. Slump: ASTM C143.
b. Air Content: ASTM C231.
c. Compressive Strength: ASTM C31 and ASTM C39.

1.05 PROJECT / SITE CONDITIONS

A. Hot Weather:

1. Comply with ACI 305.1.
2. Concrete temperature shall not exceed 95°F.
3. At air temperatures of 80°F or above, keep concrete as cool as possible during placement and curing.
4. When concrete temperature exceeds 80°F, water reducing, set-retarding admixtures shall be used.

B. Cold Weather:

1. Comply with ACI 306.1.
2. Cold weather is considered when air temperatures have fallen to, or are expected to fall below, 40°F.
3. Temperature of reinforcement, forms, fillers, and other material in contact with concrete at time of placement shall not be less than 35°F. Preheat if temperature below 35°F.
4. Maintain air and forms in contact with concrete sections having minimum dimension less than 12 inches at temperature above 50°F for at least 3 days and at temperature above 32°F for remainder of specified curing period.

5. Maintain air and forms in contact with concrete in more massive sections at temperature above 40°F for at least 3 days and at temperature above 32°F for remainder of specified curing period.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Cementitious Materials:

1. Portland cement conforming to ASTM C150.

a. Type I or II except tricalcium aluminate (C_3A) content of Type I shall not exceed 8%. If this type of Type I not available, Type I with C_3A content less than 12% shall be used in combination with fly ash.
b. Type II shall be used for mass concrete applications and where heat hydration is a concern.
c. Type III may be substituted for Type I when approved by Engineer and additional requirements for Type I are met.
d. When aggregates determined to be deleteriously reactive, as defined by ASTM C33, alkali content of cement defined by ASTM C150 shall not exceed 0.60%.

2. Blended hydraulic cement conforming to ASTM C595.

a. Type IL, IP, or IS may be used in replacement of ASTM C150 Type I.
b. Type IL (MS), IP (MS), or Type IS (MS) may be used in replacement of ASTM C150 Type II where moderate sulfate expose is anticipated.
c. Type IL (MH), IP (MH), or Type IS (MH) may be used in replacement of ASTM C150 Type II where heat of hydration is a concern.
d. Blended hydraulic cements may not be used in replacement of ASTM C150 Type III or V cements.

3. Fly Ash:

a. ASTM C618, Class C or F including requirements of Table 1A.
b. Supplemental Requirements:

i. Loss on Ignition (maximum): 3%.
ii. Water Requirement (maximum): 100% (as percent of control).
iii. Fineness (maximum retained on No. 325 sieve): 25%.

4. Slag Cement:

a. Slag cement shall conform to the requirements of ASTM C989 Grade 100 or 120.
b. Slag cement from different sources or of different grades shall not be mixed in the same construction.

5. Silica fume conforming to ASTM C1240, amorphous silica.

B. Aggregates:

1. ASTM C33, modified as follows:

a. Fine aggregate: Natural sand.
b. Coarse aggregate: Crushed gravel, crushed stone or gravel, Size 467 (1-1/2 inch maximum), size 67 (3/4 inch maximum), Size 8 (3/8 inch maximum).

2. Potential reactivity of aggregates shall be determined in accordance with ASTM C33.

C. Admixtures:

1. Shall be non-corrosive and shall not contain intentionally added chlorides.
2. Air-Entraining: ASTM C260.
3. Chemical Admixtures:

a. Water-Reducing: ASTM C494, Type A.
b. Mid-Range Water-Reducing: ASTM C494, Type A.
c. Retarding: ASTM C494, Type B or D.
d. Accelerating: ASTM C494, Type C or E.
e. High-Range Water-Reducing: ASTM C494, Type F.
f. Workability-Retaining: ASTM C494, Type S.
g. Corrosion-Inhibiting: A nominal 30 percent solution of calcium nitrite or an amine/ester-based organic corrosion-inhibiting admixture.

D. Fibrillated Synthetic Microfibers:

1. Manufacturers:

a. GCP Applied Technologies (W.R. Grace & Co.)
b. Fibermesh Co.
c. Euclid Chemical Co.
d. Master Builders Solutions

2. ASTM C1116 Type III.

E. Water: Potable.

F. Waterstop:

1. Gasket Type Waterstop:

a. Hydrotite CJ-1020-2K by Greenstreak
b. KBA-1510FP with P-201 by Adeka Corp.
c. AKWASTOP or WATERSTOP-XP by CETCO
d. 3/4 inch SikaSwell S-2 by Sika Corp.

G. Curing and Sealing Compound:

1. Manufacturers:

a. MasterKure CC 300SB by Master Builders Solutions.
b. Dress and Seal 30 by L&M Construction Materials, Inc.
c. Cure & Seal 1315 J22WB by Dayton Superior.
d. Or Equal

2. ASTM C309.
3. ASTM C1315, Type I, Class A.
4. Approved and compatible with scheduled finishes and coatings.

H. Epoxy Bonding Agent:

1. Manufacturers:

a. MasterEmaco ADH Series by Master Builders Solutions.
b. Sikadur 32 Hi-Mod by Sika Corp.
c. Epoxtite 2362 by A.C. Horn.
d. Sure Bond J-58 by Dayton Superior.
e. Epobond by L&M Construction Materials, Inc.
f. Five Star Bonding Adhesive by Five Star Products, Inc.

2. Use when joining new to existing concrete.
3. Conforming to ASTM C881.

I. Non-Epoxy Bonding Agent:

1. Manufacturers:

a. Weld-Crete by Larsen Products Corp.
b. MasterEmaco A660 by Master Builders Solutions.
c. Everbond by L&M Construction Materials, Inc.

2. Use when joining new to existing concrete when bonding agent cannot be placed immediately prior to placement of new concrete.
3. Conforming to ASTM C1059 Type II.

J. Evaporation Retardant:

1. Manufacturers:

a. Econ by L&M Construction Materials, Inc.
b. MasterKure ER 50 by Master Builders Solutions.
c. Sikafilm by Sika Corp.

K. Patching Mortar.

1. Manufacturers:

a. SikaTop-122 Plus by Sika Corp.
b. Concrete-Top Supremem by Euclid Chemical.
c. MasterEmaco T 310CI by Master Builders Solutions.

2. Polymer modified cementitious fast setting mortar for repair of concrete surfaces. Consisting of polymer and selected Portland cements, aggregates, accelerator, admixtures for controlling set, water reducers for workability, and corrosion inhibitor. Shall contain no chlorides, nitrates, gypsum, or lime. Shall not produce vapor barrier. Shall be thermally compatible with concrete and shall be freeze-thaw resistant.

a. Concrete gray.
b. 5000 pounds per square inch minimum compressive strength.
c. 400 pounds per square inch minimum bond strength.

2.02 CONCRETE MIX DESIGN

A. Concrete Mix: Measure and combine cement, aggregate, water, and admixtures in accordance with ASTM C94 and ACI PRC-211.1.

1. Cement: When used in exposed concrete shall be one brand from one source. Do not mix different cements in same element of Work.

2. Water-Cementitious Materials Ratio (if fly ash or slag cement is used, water-cement plus fly ash and slag cement ratio): 0.42 maximum for Class A concrete, 0.50 maximum for Class B concrete.
3. Air-Entrainment: Air-entrain all concrete, unless noted otherwise.
4. Chemical Admixtures: Use is optional to aid concrete properties and allow for efficient placement. Manner of use and amount shall be in accordance with manufacturer's written recommendations and as approved by Engineer. Do not use admixtures that increase early shrinkage or negatively affect finishing.
5. Fly Ash: Use is optional unless otherwise noted. Combine fly ash with cement at rate of 1 pound fly ash for each pound reduction of cement. Amount of fly ash shall not be less than 15% or more than 25% of weight of cementitious material.
6. Slag Cement: Use is optional unless otherwise noted. Combine slag cement with cement at a rate of 1 pound slag cement for each pound reduction of cement. Amount of slag cement shall not be greater than 50% of weight of cementitious material.
7. Fly Ash and Slag Cement Combination: Use is optional unless otherwise noted. Combine fly ash and slag cement with cement at a rate of 1 pound fly ash or slag cement for each pound reduction of cement. Amount of fly ash and slag cement combination shall not be greater than 50% of weight of cementitious material. Amount of fly ash shall not be greater than 25% of weight of cementitious material.
8. Concrete fill shall include fibrillated synthetic microfibers:

    a. Dosage Rate: 1-1/2 pounds per cubic yard minimum or as recommended by the manufacturer.
    b. Use in strict accordance with manufacturer's written recommendation and ASTM C94.

9. Use no admixtures other than specified, unless approved by Engineer.

B. Class of Concrete:

1. Furnish in accordance with table. Cement contents listed are minimum values and shall be increased as required to attain other specified characteristics.
2. Slumps listed are maximum, except when the mix contains an approved admixture. Maximum slump when admixtures are used shall be 10 inches.
3. Chloride ion content shall not exceed values listed in ACI 318.
4. Mid-range water reducer required for Class A1 and A2 concrete.

Class	28-Day Compressive Strength (psi)	Coarse Aggregate (size no.)	Minimum Cementitious Material (lbs/cu yd)	Air Content (%)	Slump (in.)
A1	4500	467	517	5.5±1.5	3±1
A2	4500	67	564	6±1.5	3±1
B1	3000	467	423	5.5±1.5	3±1
B2	3000	67	446	6±1.5	3±1
B3	3000	8	470	7.5±1.5	4 max
psi = pounds per square inch cu yd = cubic yard in. = inch max = maximum					
Note: Interior concrete floor with trowel-finished surface, limit air content to 3% max.					

C. Concrete Usage:

1. Class A: All locations, except where Class B specified.

2. Class B: Concrete fill and where specifically noted.
3. Do not use coarse aggregate Size 467 in sections less than 12 inches thick, where clear cover of reinforcement is less than 1-1/2 inches or where clear spacing between reinforcement bars is less than 3 inches.

2.03 MIXING AND DELIVERY

A. Use ready mixed concrete conforming to ASTM C94.

B. Deliver and complete discharge within 1-1/2 hours of commencing of mixing. Limitations may be waived by Engineer if concrete slump, after 1-1/2 hours, is sufficient so that concrete can be placed without addition of water. In hot weather, time criteria may be reduced by Engineer.

C. Do not add water on-site unless slump and water-cement ratio, after addition of water, is below maximum allowed.

D. Deliver concrete to site having temperature not less than 50°F or greater than 90°F.

PART 3 – EXECUTION

3.01 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.02 FORMS

A. Formwork design, detailing, and installation shall be Contractor's responsibility.

B. Type of forms used is Contractor's option, except as otherwise indicated or shown. Plywood and other wood surfaces shall have smooth, level surfaces treated with form oil or sealer to produce clean release of concrete from forms.

1. Where walls remain exposed use plywood, prefabricated metal or wood forms; do not use boards.
2. Form ties shall be plastic cone snap ties. Cone shall be min 3/4 inch diameter by 1 inch deep. Ties for liquid holding structures or dry structures below grade shall have integral waterstop. Taper tie through-bolt form ties may be used as an alternate to plastic cone snap ties; conform to details shown. Do not use wire ties on exposed concrete.
3. Removal of ties shall leave holes clean cut and without appreciable spalling at face of concrete.
4. Provide 3/4 inch chamfer on external corners of exposed concrete walls, beams, columns, equipment bases and exposed edges of construction joints.

C. Coat plywood and wood forms with non-staining form release agent. Apply release agent before reinforcement is placed.

D. Clean, patch, and repair form material before reuse.

E. Formwork shall prevent leakage of mortar, shall not deflect under weight of concrete and workmen, and shall withstand fluid pressure of concrete.

F. Conform to tolerances as specified in ACI specification 117.

3.03 SUBGRADE PREPARATION

A. Subgrade and bedding shall be compacted and free of frost. If placement occurs at temperatures below freezing, provide temporary heat and protection to remove frost. Do not place concrete on frozen material.

B. Provide mud slabs where noted, where necessary, and when required by Engineer to obtain dry and stable working platform for placement of concrete.

C. Remove standing water, ice, mud, and foreign matter before placing concrete.

3.04 PLACING CONCRETE

A. Notify Engineer 24 hours in advance of placing operations.

B. Place concrete, except as modified herein, in accordance with ACI specification 301.

C. Concrete will not be allowed to drop freely where reinforcing will cause segregation of mix.

1. Concrete containing high-range water reducer: 10 feet maximum drop.
2. Other Concrete: 5 feet maximum drop.

D. If pumping used, do not use aluminum piping for delivery system.

E. When placing concrete temporarily halted or delayed, provide construction joints as shown and as specified.

F. Place in lifts not exceeding 24 inches and compact with internal mechanical vibrator equipment.

G. If in process of pouring wall, pour is stopped unexpectedly, leave surface of joint level but rough. Roughened surface shall have amplitude of 1/4 inch minimum.

H. Provide bonding agent between new and hardened or existing concrete. Existing concrete shall be sandblast cleaned to remove all foreign materials, to expose the coarse aggregate, and result in a roughened surface with minimum amplitude of 1/8 inch.

I. When hot and/or wind conditions will result in evaporation of 0.2 pounds per square foot per hour or more, evaporation retardant shall be used in accordance with manufacturer's written recommendations to minimize plastic shrinkage cracking.

3.05 JOINTS

A. Unless otherwise noted, construction joints shown are optional. Joints not shown on Drawings shall be approved by Engineer. Locate to miss splices in reinforcement.

B. Before concrete placed, construction joints shall be cleaned, laitance removed, and surface wetted. Remove standing water.

C. Construction joints shall have roughened surfaces. Surface shall have amplitude of 1/4 inch minimum.

3.06 WATERSTOP

A. Provide waterstop in construction joints in:

1. Exterior joints of liquid holding structures.

2. Other locations shown on Drawings.

B. Install in accordance with manufacturer's recommendations. Secure as required to prevent deflection or misalignment during the concrete placement.

C. Splice joints in waterstop to form continuous watertight diaphragm. Splice in accordance with manufacturer's recommendations.

D. Gasket type waterstops shall be glued to substrate and mechanically fastened where required.

3.07 EMBEDDED ITEMS

A. Cast pipe and other embedded items into concrete as placement progresses. Do not provide blockouts.

B. Following restrictions shall be adhered to, unless otherwise noted.

1. Duct, conduit, pipe, and fittings, when placed within slabs or walls

a. Shall not be larger than 1/3 thickness of slab or wall.
b. Shall be placed within the middle 1/3 thickness of slab or wall where possible.
c. Shall not be placed closer than 3 outside diameter clear from each other when parallel.
d. Shall cross each other at right angles.
e. Shall be secured to prevent shifting or "floating" during concrete placement.
f. Multiple conduits shall not cross each other at the same location.
g. Except for conduits that must run up a column, keep conduits a minimum of 2 to 3 feet away from columns.
h. Where conditions require conduit to be tied to the inside face of the reinforcing mat, the conduit shall be galvanized steel or PVC, shall not be tied directly adjacent to a parallel reinforcement bar, and shall be placed 3 outside diameter clear away from the parallel reinforcement bar.

2. Reinforcing steel shall be in place before embedded items placed and reinforcing cut or removed shall be replaced with additional reinforcing as indicated.

C. Set items such as bolts, anchors, piping, and frames in concrete as shown.

D. Place items constructed of dissimilar metals to avoid physical contact with reinforcing. Secure item and reinforcing to ensure they will not shift and come into contact during concrete placement. Contact between reinforcing steel and other metal, other than bare, coated, or plated carbon steel not permitted.

3.08 REPAIR OF SURFACE DEFECTS

A. General:

1. Prior to starting repair work, obtain Engineer's approval of proposed repair techniques and materials.
2. Method of repair shall not adversely affect the appearance of the finished structure.
3. Develop repair techniques on portion of as-cast surface selected by Engineer. Surface of repair remaining exposed to view shall match color and texture of adjacent surfaces.
4. Prepare surfaces, apply and install materials, and cure as recommended by material manufacturers.

B. Tie Holes: Fill plastic cone snap tie holes with Patching Mortar. Fill taper tie through-bolt form tie holes with Non-Shrink Grout.

C. Defective Areas:

1. Remove honeycombing, stone pockets, spalls, and other defective concrete down to sound concrete. If chipping required, make edges perpendicular to surface. Do not feather edges.
2. Fill defective area with Patching Mortar.

3.09 FINISHING SLABS AND FLATWORK

A. Slab Finishes:

Description	Concrete Finish
Surfaces to Receive Grout or Topping	Float
Submerged and Buried Slabs	Float
Exterior Exposed Slabs	Float and Broom Finish

B. After placement, screed concrete with straightedges, power strike-offs or vibrating screeds.

C. After screeding, bull float or darby surfaces to eliminate ridges and to fill in voids left by screeding.

D. Float:

1. Use magnesium or aluminum hand floats or power floats with slip on float shoes.
2. Float finish shall result in uniform smooth granular texture.

E. Broom Finish: Use fine, soft-bristled broom and broom at right angles to direction of traffic to give nonskid finish approved by Engineer.

3.10 FINISHING FORMED CONCRETE

A. As-Formed Finish: Finish resulting directly from formwork for surfaces which will be hidden from view by earth, submergence in water, or subsequent construction.

1. Repair surface defects as specified herein.
2. Where joint marks or fins on submerged surfaces exceed 1/4 inch, grind smooth.

B. Smooth Finish: Interior concrete surfaces permanently exposed to view.

1. Repair surface defects as specified herein.
2. Grind joint marks and fins smooth with adjacent surface. Remove stains and rinse.
3. Dampen concrete and paint entire surface with Cement Grout. Work grout into surface with suitable float. When grout has set to where it will not be pulled out of holes or depressions, brush off surface with burlap or carpet.

C. Rubbed Finish: Exterior concrete surfaces permanently exposed to view extending to 6 inches below finished grade.

1. Repair surface defects as specified herein.
2. Grind joint marks and fins smooth with adjacent surface. Remove stains and rinse.
3. Apply heavy coat of Finishing Grout. After first coat has set, apply second coat. When second coat has set, float to uniform texture.
4. Follow manufacturer's written recommendations.
5. Finish color shall be gray.

3.11 PROTECTION AND CURING

A. Protect concrete from frost and keep moist for min curing period of 7 days after placement in accordance with ACI specification 308.1.

B. Formed Surfaces:

1. Wet cure by spraying surfaces as frequently as drying conditions may require to keep concrete surfaces moist.
2. Surfaces may be cured by leaving forms in-place. For vertical surfaces, apply water to run down inside of forms, if necessary, to keep concrete moist.
3. After forms are removed, wet cure for remainder of curing period or apply curing compound.
4. Do not use curing compound where mortar, grout, concrete, or other coatings or adhesives will be applied.

C. Flatwork:

1. Cure using curing compound or wet cure.
2. Do not use curing compound where mortar, grout, concrete, or other coatings or adhesives will be applied.

D. Curing Compound:

1. Apply curing compound at uniform rate sufficient to comply with requirements for water retention as specified and as measured in accordance with ASTM C156.
2. Cover areas subjected to direct sunlight with ambient temperature expected to exceed 80°F with white pigmented compound, other surfaces may be covered with fugitive dye compound.

E. Protect from damaging mechanical disturbances, load stresses, heavy shock, and excessive vibration.

F. Protect finished concrete surfaces from damage caused by construction equipment, materials, and methods, and from rain or running water.

G. Do not load self-supporting structures to overstress concrete.

3.12 REMOVAL OF FORMING AND SHORING

A. Do not remove forming or shoring until member supported has acquired sufficient strength to safely support own weight and any imposed loads. Forming shall remain in place for at least min time recommended by ACI PRC-347. In addition, forming for horizontal members shall remain in place minimum 7 days. In no case shall forming for horizontal members be removed before concrete has reached 70% of specified design strength.

B. Reshore areas as required to carry additional imposed loads.

3.13 FIELD QUALITY CONTROL

A. Obtain samples of concrete in accordance with ASTM C172. Place cylinders on-site where they can be stored under conditions similar to concrete they represent without being disturbed for first 24 hours.

B. Make slump tests daily and when requested by Engineer, in accordance with ASTM C143. Make slump tests from same load from which strength tests are made.

C. Make air content tests daily and when requested by Engineer, in accordance with ASTM C231. Make air content tests from same load from which strength tests are made.

D. Make temperature tests daily and when requested by Engineer, in accordance with ASTM C1064. Make temperature tests from same load from which strength tests are made.

E. If measured slump, air content, or temperature falls outside specified limits, make check test immediately on another portion of same sample. In event of second failure, concrete shall be considered to have failed to meet requirements of Specifications and will be rejected.

F. Make strength test specimens for each of the following conditions for each class of concrete

1. Each day's pour.
2. Each change of source.
3. Each 100 cubic yards poured.

G. Strength test for each class of concrete consists of (5)-cured 4 x 8 in. standard cylinders or (4)-cured 6 x 12 in. standard cylinders made from composite samples secured from same load of concrete in accordance with ASTM C172. Make compressive strength tests on 1 cylinder at 7 days and (3)-standard 4 x 8 in. cylinders or (2)-standard 6 x 12 in. cylinders at 28 days. Test remaining cylinder if needed.

H. Cold Weather Requirements:

1. When air temperatures are expected to fall below 40 degrees F within 48 hours after concrete placement, provide concrete temperature monitoring system.
2. Provide a minimum of three sensors for the first 100 cubic yards poured per each day. Provide an additional sensor for each additional 50 cubic yards poured per each day.
3. Unless otherwise specified, place temperature sensors at the following locations:

    a. Sensor #1: 2 inch depth from midpoint of exterior surface nearest to the center of placement.
    b. Sensors #2 and #3: 2 inch depth from opposite corners of placement furthest from center.
    c. Additional Sensors: 2 inch depth, spaced equally around the perimeter of the placement.

4. Temperature sensors shall be capable of measuring temperature from 0 degrees F to 185 degrees F with an accuracy of +/-1 degree and a precision of 1 degree.
5. Ensure temperature sensors are operational prior to placing concrete.
6. Protect the sensors to prevent damage during placement of the concrete.
7. Unless otherwise specified, monitor temperatures hourly. Provide data to engineer on a daily basis using approved format.
8. Monitor concrete temperatures for a minimum of 7 days, until air temperatures are expected to stay above 40 degrees F for the remainder of the 7 days, or until concrete reaches a minimum of 70% of design strength.

I. Strength of concrete considered satisfactory if following requirements met.

1. Every average of 3 consecutive strength tests equals or exceeds specified 28-day compressive strength (*fc'*).
2. No individual strength test falls below specified 28-day compressive strength by more than 500 psi if *fc'* is 5000 psi or less, or by more than 0.10*fc'* if *fc'* is greater than 5000 psi.

J. If analysis of strength tests indicate above requirements are not being met, make immediate adjustments to mix design and make additional tests as required by Engineer to determine strength of concrete in-place in portion of structure represented by deficient cylinders. If tests verify Work in-place is not in conformance with Specifications, Engineer will determine if Work in-place is adequate for intended use. If Work in-place is determined to be inadequate, Contractor shall follow such remedial or replacement measures which Engineer may require. Contractor shall bear costs associated with testing, engineering analysis, remedial work, and replacement required under terms of this paragraph.

END OF SECTION

SECTION 03 62 00
NON-SHRINK GROUTING

PART 1 – GENERAL

1.01 SUMMARY

A. Cement based grout for setting equipment base plates and where otherwise noted.

1.02 RFERENCES

A. ASTM: American Society for Testing and Materials

1.03 SUBMITTALS

A. Product Data:

1. Manufacturer’s literature.

B. Submit in accordance with Section 01 33 00.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Manufacturers:

1. Five Star Grout by Five Star Products, Inc.
2. SET Grout by BASF.
3. Duragrout by L&M Construction Chemicals, Inc.
4. SikaGrout 212 by Sika Corp.

B. Grout:

1. Preblended, cement based, nonmetallic, nongas forming, nonshrink and shall not bleed.
2. Comply with ASTM C1107 and CRD C621, Grade B.
3. Moderate fluidity.
4. 5000 pounds per square inch minimum compressive strength.

C. Water: Potable.

PART 3 – EXECUTION

3.01 PREPARATION

A. Clean grout contact surfaces of oil, grease, scale, and other foreign matter.

B. Chip away unsound concrete leaving surface rough but level.

C. Clean base plates, rails, anchors, bolts, etc. in contact with grout of oil, grease, dirt, and coatings.

3.02 MIXING AND PLACING

A. Mix and place in accordance with manufacturer’s written instructions.

B. Provide forming materials where necessary to retain grout until hardened.

C. Work grout from one side. Avoid trapping air under base plate.

D. Do not load grout until it has reached a minimum of 3000 pounds per square inch compressive strength.

3.03 CURING

A. Cure as recommended by grout manufacturer.

END OF SECTION

DIVISION 05

METALS

SECTION 05 50 00
METAL FABRICATIONS

PART 1 – GENERAL

1.01 SUMMARY

A. Provide miscellaneous metal work shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Section Includes:

1. Concrete anchors.
2. Ladders.
3. Floor access hatches.
4. Safety grates.
5. Miscellaneous items.

1.02 DEFINITIONS

A. Submerged: At or below level 1 foot 6 inches above maximum water level in water holding structures.

1.03 REFERENCES

A. AISC: American Institute of Steel Construction

B. AA: Aluminum Association

C. AWS: American Welding Society

D. ASTM: American Society for Testing and Materials

E. AISI: American Iron and Steel Institute

F. OSHA: Occupational Safety and Health Administration

1.04 SUBMITTALS

A. Shop Drawings:

1. Indicate materials, sizes, connections, anchors, and finishes.

B. Product Data:

1. Manufacturer’s catalog sheets on premanufactured items.

C. Miscellaneous Submittals:

1. Floor access hatch warranty.

D. Submit in accordance with Section 01 33 00.

1.05 QUALITY ASSURANCE

A. Perform shop and/or field welding required in connection with the work of this Section by certified welders in strict accordance with pertinent recommendations of AWS.

B. Conform to AISC and AA standards.

PART 2 – PRODUCTS

2.01 MATERIALS

A. In fabricating items which will be exposed to view, limit materials to those which are free from surface blemishes, pitting, and roughness.

B. Comply with following standards, as pertinent.

1. Structural Steel Shapes:

a.	W Shapes:	ASTM A992, 50 ksi.
b.	M Shapes:	ASTM A36.
c.	S, C and MC Shapes:	ASTM A36.
d.	L Shapes:	ASTM A36.
e.	HP Shapes:	ASTM A572 Grade 50.
f.	HSS Square and Rectangular Shapes:	ASTM A500, Grade B, 46 ksi.
g.	HSS Round Shapes:	ASTM A500, Grade B, 42 ksi
h.	Pipe Shapes:	ASTM A53, Grade B, 35 ksi.
i.	Plates and Bars:	ASTM A36.

2. Stainless Steel:

   a. Exterior and submerged uses: AISI, Type 316.
   b. Interior uses: AISI, Type 304 or Type 316.

3. Aluminum shapes and plates: Alloy 6061-T6 or 6063-T6.
4. Floor Plate: Checkered surface aluminum plate.
5. Connection Bolts:

   a. For steel members: ASTM F3125 Grade A325, galvanized.
   b. For wood members: ASTM F3125 Grade A325, galvanized.
   c. For aluminum and galvanized steel members: Stainless steel.

6. Cast-in-place Anchor Rods:

   a. 1/2 inch minimum diameter.
   b. Nonsubmerged: ASTM F1554, Grade 36, galvanized.
   c. Submerged: Stainless steel.

7. Nuts and washers:

   a. For carbon steel bolts and rods: ASTM A563 DH nuts and ASTM F436 washers.
   b. For stainless steel bolts and rods: ASTM F593 nuts and washers shall match bolt/rod and nut material.

2.02 CONCRETE ANCHORS

A. Wedge Anchors:

1. Manufacturers:

    a. Power-Stud+ SD1, SD2, SD4 or SD6 by Dewalt.
    b. Kwik Bolt TZ or Kwik Bolt 1 by Hilti Corp.
    c. Strong-Bolt 2 by Simpson Strong-Tie Co., Inc.

2. Usage: In concrete.

    a. 316 stainless steel unless noted otherwise.
    b. Do not use when submerged or subjected to dynamic loads.

B. Expansion Anchors:

1. Manufacturers:

    a. Power-Bolt+ by Dewalt.
    b. HSL-3 by Hilti Corp.

2. Usage: In concrete.

    a. 316 stainless steel unless noted otherwise.
    b. Do not use when submerged, in overhead applications, or subjected to dynamic loads.

C. Adhesive Anchors (Concrete):

1. Manufacturers:

    a. HIT-RE 500 V3 or HIT-HY 200-R V3 System by Hilti Corp.
    b. Pure 110+, AC200+ Gold by Dewalt.

2. Adhesive with 316 stainless steel stud assembly.
3. Usage:

    a. In concrete, submerged.
    b. Do not use in overhead applications.

2.03 FINISHES

A. Primer: Conform to requirements of Section 09 96 00.

B. Galvanizing Repair Paint: High zinc-dust content paint complying with MIL-P-21035.

2.04 FABRICATION

A. Except as otherwise shown on the Drawings or the approved Shop Drawings, use materials of size, thickness, and type required to produce reasonable strength and durability in the work of this Section.

B. Provide clips, lugs, brackets, straps, plates, bolts, nuts, washers, and similar items, as required for fabrication and erection.

C. Fabricate with accurate angles and surfaces which are true to the required lines and levels, with projecting corners clipped, grinding exposed welds smooth and flush, forming exposed connections with hairline joints, and using concealed fasteners wherever possible.

D. Weld shop connections and bolt or weld field connections.

E. Use AISC standard 2-angle web connections or single plate framing connections capable of supporting min of 50% of total uniform load capacity of member.

F. Connections shall consist of minimum two 3/4 inch diameter bolts or welds developing minimum of 10,000 pounds capacity.

G. Prior to shop painting or priming, properly clean metal surfaces as required for the applied finish and for the proposed use of the item. Conform to Section 09 96 00.

1. Do not coat ferrous metal surfaces embedded in concrete.
2. Coating of cast iron or ductile iron floor access hatches and pressure relief valves not required.
3. On surfaces inaccessible after assembly or erection, apply two coats of the specified primer. Change color of second coat to distinguish it from the first.
4. Coat aluminum surfaces in contact with concrete in accordance with AA and Section 09 96 00. Under no circumstances shall aluminum contact dissimilar metal.

H. Galvanizing:

1. Galvanize after fabrication.
2. Galvanize by hot-dip process conforming to ASTM A123 and AHDGA specifications.

2.05 LADDERS

A. Ladders shall conform to OSHA and local building code safety requirements.

B. Construct from aluminum, 6063-T5 or 6060-T6 alloy, mill finish

1. Stringers: 1-1/2 inch diameter schedule 40 pipe (nominal 2 inch outside diameter.), minimum clear spacing 18 inches.
2. Rungs: 2 inch serrated C-channel.
3. Other materials shall be minimum ¼ inch thick.
4. Weld rungs to stringers.
5. Fabricate brackets for fastening ladders to wall, weld to ladder.

2.06 FLOOR ACCESS HATCHES

A. Prefabricated Drainage Channel Type:

1. Manufacturers:

a. Halliday Type W1S.
b. Bilco Type J.

2. Provide access hatches and frames of material, type, and size as shown on Drawings.
3. Door leaves shall be 1/4 inch minimum diamond pattern plate with reinforcing on underside to withstand H20 loading with max deflection of 1/150 span.
4. Frames shall be 1/4 inch minimum thick channel to allow for adequate water drainage with anchor flange around perimeter.
5. Equip hatches with heavy stainless steel hinges with 3/8 inch minimum stainless steel pins bolted to underside and pivot so cover does not protrude into channel frame.
6. Provide compression spring operators enclosed in telescoping tubes for smooth, easy and controlled door operation.

7. Equip hatches with hold-open arm with positive locking device with conveniently positioned release handle for easy and controlled closing.
8. Provide 316 stainless steel snap lock mounted on underside of leaf with removable topside handle and socket recessed in cover.
9. Provide drainage channel coupling.
10. Pipe drain to structure below.
11. Hardware shall be 316 stainless steel.
12. Factory finish on aluminum surfaces shall be mill finish with bituminous coating applied to surfaces in contact with concrete.
13. Manufacturer shall warranty in writing against defects in material and workmanship for 5 years.

2.07 SAFETY GRATE

A. Provide retractable safety grate across hatch openings, unless noted otherwise.

B. Metal Grating Type:

1. Manufacturers:

a. Halliday Protective Safety Grate or Retro-Grate
b. Bilco Fall Protection Grating System

2. Aluminum construction with safety orange powder coat.
3. Spring loaded lifting handle.
4. Stainless steel hold open arm with aluminum latch.
5. Stainless steel hardware throughout.
6. Load rated at 300 pounds per square foot.

2.08 MISCELLANEOUS ITEMS

A. Fabricate miscellaneous framing, supports, and items of structural shapes, plates, bars, and tubing of sizes and arrangements indicated and as required.

PART 3 – EXECUTION

3.01 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.02 INSTALLATION

A. General:

1. Set work accurately into position, plumb, level, true, and free from rack.
2. Tolerance: 1/8 inch in 10 feet.
3. Anchor firmly into position.
4. Where field welding is required, comply with AWS recommended procedures for appearance and quality of weld and for methods to be used in correcting welding work.
5. Grind exposed welds smooth, and touchup shop prime coats.
6. Do not cut, weld, or abrade surfaces which have been hot-dip galvanized after fabrication and which are intended for bolted or screwed field connections.
7. Perform cutting, drilling, and fitting as required for proper installation. Drill field holes for bolts, do not burn holes.

8. Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint the exposed areas with same material used for shop priming.

B. Concrete Anchors:

1. Do not install until concrete or masonry has reached its design strength.
2. Do not install closer than 6 bolt dia to edge of concrete or masonry, or closer than 12 bolt diameter to another anchor unless otherwise shown.
3. Minimum embedment shall be 8 bolt diameter.
4. Install in accordance with manufacturer's recommendations.

3.03 ADJUSTING AND CLEANING

A. Clean exposed surfaces, removing dirt, dust, and other foreign matter.

B. Prepare surfaces for finished painting as specified is Section 09 96 00.

C. Field Repair of Damaged Galvanized Coatings:

1. Repair surfaces damaged during shipping, erection, or construction operations.
2. Use zinc rich paint.
3. Prepare surfaces and apply in accordance with ASTM A780, Annex A2.

END OF SECTION

SECTION 05 52 00
METAL RAILING

PART 1 – GENERAL

1.01 SUMMARY

A. Provide aluminum railing as shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

1.02 REFERENCES

A. OSHA: Occupational Safety and Health Administration

1.03 SUBMITTALS

A. Shop Drawings:

1. Indicate materials, sizes, connections, anchors, and finishes.

B. Product Data:

1. Manufacturer's catalog sheets.

C. Submit in accordance with Section 01 33 00.

1.04 QUALITY ASSURANCE

A. Handrail and railing shall meet requirements of OSHA and local building code.

B. Provide end products of one manufacturer to achieve standardization of appearance.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle components in manner preventing damage to finished surfaces.

B. Pack units in individual plastic shrink-wrap to protect finish, do not remove until after installation.

C. Store in clean, dry condition away from uncured concrete and masonry. Cover with waterproof sheeting.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. BMC-Rail by Breuer Metal Craftsman, Inc.

B. ConnectoRail by Julius Blum Co., Inc.

C. Wesrail by Moultrie Manufacturing Co.

D. Series 500 by Superior Aluminum Products, Inc.

E. Or equal.

2.02 MATERIALS

A. Rails, Posts, and Formed Elbows: 1-1/2 inch diameter schedule 40 aluminum pipe (1.90 inch outside diameter, 0.145 inch wall thickness) alloy 6063-T6.

B. Fittings:

1. Riveted type fabricated from material similar to rails and posts.
2. Connections shall be continuous type to permit sliding of hands.
3. Fittings for open railing extensions shall be welded construction and welded to posts to comply with OSHA loading requirements. Welds shall be ground smooth and finished to match adjacent finish.
4. Base plates flanges shall be aluminum or stainless steel.

C. Toe plate shall be 1/4 inch by 4 inches flat aluminum plate, alloy 6063-T6.

D. Mechanical fasteners shall be stainless steel.

2.03 FINISHES

A. Clear satin anodized finish:

1. Extruded Components: 0.7 mil.
2. Cast Components: 0.4 mil.

B. Light brushed finish on pipe and fittings before anodizing.

2.04 FABRICATION

A. Use materials of size, thickness, and type required to produce required strength and durability.

B. Fabricate with accurate angles and surfaces which are true to the required lines and levels, grinding welds smooth and flush, forming exposed connections with hairline joints, and using concealed fasteners wherever possible.

C. Form connections and changes in direction by using prefabricated fittings or radius bends.

D. Form elbow bends and wall returns to uniform radius, free from buckles and twists, with smooth finished surfaces.

E. Remove burrs from exposed cut edges.

F. Close pipe ends using prefabricated fittings.

G. Fabricate joints of exterior units to exclude water or provide weep holes where water may accumulate.

H. Provide base flange or side mounted base plate.

I. Coat surfaces to be in contact with concrete with bituminous paint.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.02 INSTALLATION

A. Assemble and install in accordance with manufacturer's written instructions.

B. Set posts plumb and align in each direction to within 1/8 inch in 10 feet maximum post spacing 5 feet on center.

C. Set rails horizontal to within 1/8 inch in 10 feet.

D. Provide toe plate unless noted otherwise.

E. Bolt to top of concrete.

3.03 CLEANING

A. Clean as recommended by railing manufacturer. Do not use acid, steel wool, or harsh abrasive.

B. If stains remain after cleaning, remove finish and restore in accordance with manufacturer's recommendations.

END OF SECTION

DIVISION 09

FINISHES

SECTION 09 96 00
HIGH-PERFORMANCE COATINGS

PART 1 – GENERAL

1.01 SUMMARY

A. Coating of surfaces as noted on the Drawings and as specified herein, including:

1. New and existing surfaces described and notes on Drawings.
2. Exposed interior and exterior ferrous metal, ductile iron, or cast iron piping, regardless of factory-applied finish.
3. Exterior and interior equipment, pumps, valves, motors, etc. and all appurtenances.

B. Do not coat the following unless specifically noted otherwise:

1. Factory-finished electrical motor control center (MCC), main instrument panels (MIP), flow indicators, and related equipment.
2. Moving parts of operating units, electrical parts, linkages, sensing devices, and motor shafts.
3. Buried equipment and piping.
4. Surfaces above ceilings.
5. Factory-finished trim.
6. Stainless steel, chrome plate, copper, bronze, galvanized surfaces, and similar finished materials.
7. Aluminum ductwork or aluminum faced insulation.
8. Aluminum louvers and trim.
9. Concrete tanks.
10. Plastic and FRP piping, equipment, and ductwork.

C. Do not coat over any code-required labels such as UL and Factory Mutual, or any equipment identification, performance rating, name, or nomenclature plates.

D. Equipment manufacturers are responsible for surface preparation and coating of equipment, motors, and appurtenances. Equipment to be coated and coating system is identified in the equipment specification sections.

1.02 DEFINITIONS

A. Definitions as used in Coating Schedule included herein.

1. Coatings: Paint or heavy duty finishes for use on surfaces subject to interior and exterior exposure, submergence, high moisture, splash, or chemical environment, including primers, sealers, fillers, and intermediate and finished coats.
2. Submerged NP: Surfaces submerged in non-potable liquid plus 1 foot-6 inches above high liquid level.
3. First Coat: Field primer, factory primer, or shop primer. When only one coat is required, first coat is the finished coat.
4. Second, Third, or Intermediate Coats: Successive finished coats applied over first coat.
5. DFT: Dry film thickness (mils/coat).
6. sfpg: Square feet per gallon (per coat).

1.03 SUBMITTALS

A. Product Data:

1. Manufacturer's literature including application recommendations and generic makeup for each coating scheduled.
2. Factory or shop-applied primer manufacturer's literature including application recommendations and generic makeup shall be submitted with all material and equipment submittals. All primers shall conform to the requirements of this Section.

B. Samples:

1. Actual color samples available for each coating scheduled.

C. Miscellaneous:

1. Schedules:

a. Schedule of proposed coating systems.
b. Schedule of proposed coating systems shall contain all information as indicated in Coating Schedule included herein.

D. Submit in accordance with Section 01 33 00.

1.04 QUALITY ASSURANCE

A. Regulatory Requirements:

1. All coatings shall conform to OSHA requirements for allowable exposure to lead and other hazardous substances.

B. Applicator Qualifications:

1. Engage an experienced applicator who has successfully completed coating system applications similar in material and extent to those indicated.

C. Single-Source Responsibility:

1. Provide coating material produced by same manufacturer for each system.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Materials shall be delivered to site in original containers with labels intact and seals unbroken.

B. Protect and heat or cool material storage location to maintain temperature ranges recommended by coating manufacturers, but not less than 55°F.

C. Avoid danger of fire. Oily rags and waste must be removed from buildings each night or kept in appropriate metal containers. Provide fire extinguishers of type recommended by coating manufacturers in areas of storage and where finishing is occurring. Allow no smoking or open containers of solvent.

D. Empty containers shall have labels canceled and clearly marked as to use.

1.06 PROJECT / SITE CONDITIONS

A. Environmental Requirements:

1. Dry-heat and ventilate areas to obtain conditions recommended by coating manufacturer.

2. Relative humidity conditions as specified by coating manufacturer shall be adhered to.
3. No unprotected, unheated exterior coating shall be undertaken when cold, damp, foggy, or rainy weather appears probable, nor when the temperature of the substrate is below 55°F, unless approved in writing by coating manufacturer.
4. Maintain manufacturer's environmental requirements until coating is fully cured.
5. Apply no coating in areas where dust is being generated.
6. Testing and disposal of any waste and coating shall be the responsibility of the Contractor.

B. Protection:

1. Drop cloths shall be provided in all areas where coating is done to fully protect other surfaces.
2. Remove hardware, accessories, plates, lighting fixtures, and similar items or provide protection by masking. Upon completion, replace items or remove protection and clean.

C. It is the intent of this Section that all ferrous metal items scheduled for coating be shop-primed. If items are not shop-primed, surfaces shall be prepared and coated in the field as specified.

D. Upon Substantial Completion, remaining unused material will become property of Owner. Seal material as required for storage, mark contents with color, type, location, and shelf life, and store on Site where required by Owner. Provide minimum of two gallons of each system component and color used.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Tnemec

B. Carboline

2.02 MATERIALS

A. Coatings shall meet surface burning characteristics as required by code and established by ASTM E84.

B. Coating products listed in the Coating Schedule, are set as a standard of quality. Coatings of substitute manufacturers shall meet or exceed the characteristics of the products listed as established by the flowing ASTM standards; B117, C307, C413, C579, C580, C868, D870, D1014, D1653, D2047, D2240, D2370, D2794, D3363, D4060, D4141, D4541, D4585, D4587, and G85.

C. If the Contractor wishes to offer a substitute to the products specified, the request for a substitute shall conform to the requirements of Section 01 61 00.

D. The Contractor and top coat coating manufacturer shall verify the compatibility of their products with the various primers used on shop primed materials and equipment.

2.03 COLORS

A. Color shall be formed of pigments free of lead, lead compounds, or other materials which might be affected by presence of hydrogen sulfide or other gases likely to be present at Site.

B. Colors shall be as selected by Owner.

2.04 THINNING, MIXING, AND TINTING

A. Where thinning is necessary, only the products of the manufacturer furnishing the coating will be allowed. All such thinning shall be done in strict accordance with coating manufacturer's recommendations.

B. Mix in accordance with manufacturer's recommendations.

C. Each coat shall be slightly darker than preceding coat, unless otherwise noted. Tint undercoats similar to finish coat.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine the areas and conditions under which Work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work.

B. Materials removed and replaced to correct defects due to Work placed on unsuitable surfaces shall be at Contractor's expense.

3.02 SURFACE PREPARATION

A. General:

1. All surfaces to be coated shall be prepared as specified herein and in accordance with coating manufacturer's recommendations. The object shall be to obtain a uniform, clean, and dry surface.
2. Quality of surface preparation described herein is considered a minimum. If coating manufacturer requires a higher degree of preparation, comply with coating manufacturer's recommendations.
3. Where surface dryness is questioned, test with dampness indicating instrument. Do not apply coatings over surfaces where moisture content exceeds that permitted by coating manufacturer.
4. Shop primed surfaces shall be scarified before applying top coats. Conform to top coat manufacturers recommendations.
5. If recoat time between application of primer and second coat or between top coats is exceeded, scarify surface before applying coatings. Conform to top coat manufacturers recommendations.
6. Workmanship for surface preparation shall conform to the following SSPC specifications:

    a. Solvent Clean: SP-1.
    b. Hand Tool Cleaning: SP-2.
    c. Power Tool Cleaning: SP-3.
    d. White Metal Blast Cleaning: SP-5.
    e. Commercial Blast Cleaning: SP-6.
    f. Brush-Off Blast Cleaning: SP-7.
    g. Pickling: SP-8.
    h. Near-White Blast Cleaning: SP-10.
    i. Power Tool Cleaning to Bare Metal: SP-11.
    j. Surface Preparation by Water Jetting: SP-12.
    k. Surface Preparation of Concrete: SP-13.

B. Ferrous Metal:

1. Ferrous metal primed in the shop shall have all rust, dust, scale, and other foreign substances removed by abrasive cleaning conforming to SSPC SP-10. Cleaned metal shall be primed or pretreated immediately after cleaning to prevent new rusting.
2. Ferrous metal not primed in the shop shall be abrasive blast cleaned in the field prior to application of primer, pretreatment, or coating. Blast cleaning shall conform to SSPC SP-10 for submerged service. Blast cleaning shall conform to SSPC SP-6 for non-submerged service.
3. Prior to finish coating, primed areas that are damaged shall be cleaned and spot primed.

C. Existing Surfaces:

1. Remove and replace or mask attachments if attachments are not to be coated.
2. Remove surface contamination such as oil, grease, loose or defective coatings, mill scale, dirt, rust, mold, mildew, mortar, efflorescence, and sealers to assure sound bonding to tightly adhered old coatings. Glossy surfaces of old coatings shall be cleaned and dulled before overcoating.
3. Sand surfaces and feather edges where chips have occurred.
4. Cut out and fill cracks or other defects to match adjacent surface.
5. Exact nature of existing coatings is not known. Check compatibility of new coating by application to small area prior to starting coating. If lifting or other problems occur, notify Engineer for direction.
6. Comply with new coating manufacturer's recommendations for preparation of previously coated surfaces.
7. Prepare surfaces subject to submerged service as specified for new surfaces.

3.03 APPLICATION

A. Surfaces shall be dry at time of application.

B. The minimum surface temperature shall be 55°F and rising.

C. Apply in strict accordance with manufacturer's recommendations by brush, roller, spray, or other application method. The number of coats and thickness required is the same regardless of application method.

D. Each coat shall be allowed to dry in accordance with manufacturer's requirements. Drying time shall be construed to mean "under normal conditions". Where conditions other than normal exist, because of weather or because of confined space, longer times will be necessary. Units shall not be put in service until coatings are thoroughly dry and cured.

E. Surfaces to be coated that will be inaccessible in the completed work shall receive the final coat before enclosure.

F. Coatings shall be applied to provide an opaque, smooth surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, or other surface imperfections will not be acceptable. Areas cut-in by brush prior to rolling shall have uniform appearance in comparison with adjoining surfaces.

G. Make edges of coating adjoining other materials or colors sharp and clean without overlapping.

H. Crevices and other hard-to-apply areas shall be back-rolled/back-brushed in conjunction with application of field applied prime coat or intermediate coat. This includes, but is not limited to: between pipe flanges, pipe flange/barrel joints, equipment fittings, and other narrow openings.

I. Finish edges of doors as specified for faces. Apply first finish coat on edges before fitting. After doors fitted and hung apply second finish coat.

J. Manufacturer-Applied Coatings:

1. Repair abraded areas on factory-finished items in accordance with equipment manufacturer's recommendations.
2. Blend repaired areas into original finish.

3.04 FIELD QUALITY CONTROL

A. Examination of Work on Site by coating manufacturer's representative shall be preformed when requested by Engineer.

B. Sampling of Materials:

1. Engineer reserves the right to select unopened containers of materials furnished for the Project and have the materials tested at an independent laboratory. Owner will pay for first tests.
2. Retests of rejected materials and tests of replacement materials shall be paid for by Contractor.
3. Remainder of contents of containers not required for testing will be returned to Contractor.

C. Coverage:

1. Before beginning Work, finish one complete room, space, surface, and item of each color scheme required, showing selected colors, finished texture, material, and workmanship. After approval, sample room, space, surface, and item shall serve as standard for similar Work.
2. If coverage is not acceptable to Engineer, Engineer reserves the right to require additional application of coating at no extra cost to Owner.

D. Work at Site, where coat of material is to be applied, shall be observed by Engineer after surface has been prepared and before application of specified prime coat and each succeeding coat, otherwise no credit for applied coat will be given and Contractor automatically assumes responsibility to recoat Work in question. Surfaces coated without such observation shall be abrasive blast cleaned, reprepared, and recoated at no addition cost to Owner. Notify Engineer when surface preparation complete, coat applied, and when ready for inspection to comply with above.

3.05 FINAL TOUCH-UP AND CLEANING

A. Prior to Substantial completion, examine coated surfaces and retouch or refinish surfaces to leave in condition acceptable to Engineer.

B. Remove masking, coatings, and other material from floors, glass, and other surfaces not scheduled to be coated.

3.06 COATING SCHEDULE

A. Scheduled thickness or coverage rate is minimum as recommended by manufacturer. Manufacturer's recommendations shall be followed, but in no case shall the thickness or coverage rate be less than scheduled.

B. Coatings shall conform to the following schedule and coating manufacturer's recommendations. Examples of surfaces to be coated may not be all inclusive.

COATINGS SCHEDULE

System No.	Generic Type	Application	Tnemec	Carboline
7	Modified Aromatic Polyurethane - Polyamidoamine Epoxy	Ferrous Metal, Cast Iron, Ductile Iron / Submerged NP / Satin	First Coat – Series N69 Hi Build Epoxoline II @ 3 mils DFT, touch-up primer prior to second coat Second Coat – Series N69 Hi-Build Epoxoline II @ 5 mils DFT Third Coat – Series N69 Hi-Build Epoxoline II @ 5 mils DFT	First Coat – Carbomastic 15 @ 3 mils DFT, touch-up primer prior to second coat Second Coat – Carboguard 635 VOC @ 5 mils DFT Third Coat – Carboguard 635 VOC @ 5 mils DFT
8	Modified Aromatic Polyurethane - Polyamidoamine Epoxy	Ferrous Metal, Cast Iron, Ductile Iron / Interior Non-Submerged / Satin	First Coat – Series N69 Hi Build Epoxoline II @ 3 mils DFT, touch-up primer prior to second coat Second Coat – Series N69 Hi-Build Epoxoline II@ 5 mils DFT Third Coat – Series N69 Hi-Build Epoxoline II @ 5 mils DFT	First Coat – Carbomastic 15 @ 3 mils DFT, touch-up primer prior to second coat Second Coat – Carboguard 890 VOC @ 5 mils DFT Third Coat – Carboguard 890 VOC @ 5 DFT
9	Modified Aromatic Polyurethane - Polyamidoamine Epoxy – Aliphatic Acrylic Polyurethane	Ferrous Metal, Cast Iron, Ductile Iron / Exterior Non-Submerged / Gloss	First Coat – Series N69 Hi Build Epoxoline II @ 3 mils DFT, touch-up primer prior to second coat Second Coat – Series N69 @ 4-6 mils DFT Third Coat – Series 1094 @ 2-3 mils DFT	First Coat – Carbomastic 15 @ 3 mils DFT, touch-up primer prior to second coat Second Coat – Carboguard 890 VOC @ 5 mils DFT Third Coat – Carbothane 134 MC @ 3 mils DFT
10	Polyamide Epoxy – Polyamidoamine Epoxy	Doors, Frames, Motors and other Equipment with Non-Epoxy Primer / Interior / Satin	Lightly Hand Sand Solvent Clean SP-1 First Coat – Series 27-1255 FC Typoxy Beige @ 3 mils DFT Second Coat – Series N69 Hi-Build Epoxoline II @ 5 mils DFT	Lightly hand sand Solvent Clean SP-1 First Coat – Carboguard 890 VOC @ 3 mils DFT Second Coat – Carboguard 890 VOC @ 5 mils DFT
11	Polyamide Epoxy – Aliphatic Acrylic Polyurethane	Doors, Frames, Motors and other Equipment with Non-Epoxy Primer / Exterior / Gloss	Lightly Hand Sand Solvent Clean SP-1 First Coat – Series 27-1255 FC Typoxy Beige @ 3 mils DFT Second Coat – Series 1094 Endura-Shield @ 3 mils DFT	Lightly Hand Sand Solvent Clean SP-1 First Coat – Carboguard 890 VOC @ 3 mils DFT Second Coat – Carbothane 134 MC @ 3 mils DFT

System No.	Generic Type	Application	Tnemec	Carboline
20	Polyamide Epoxy Coal Tar	Dissimilar Metal Protection / Semi-Gloss	Scarify the Surface, SP-1 First Coat – Series 46H-413 Hi-Build Tneme-Tar @ 20 mils DFT	Scarify the Surface, SP-1 First Coat – Bitumastic 300M @ 20 mils DFT

Foot Notes:

1. Tnemec:
   a. Series 49 may be substituted for Series N69 in lower VOC and high solids options.
2. Carboline:
   a. In states who have not adopted Ozone Transport Commission guidelines, Carboguard 890 can be used in place of Carboguard 890 VOC.
   b. In states who have not adopted Ozone Transport Commission guidelines, Carbothane 134 HG can be used in place of Carbothane 134 MC.

END OF SECTION

DIVISION 31

EARTHWORK

SECTION 31 10 00
SITE CLEARING

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Protection of existing surface features
2. Removal of miscellaneous surface features.
3. Clearing and grubbing of site.
4. Stripping topsoil.
5. Locating existing buried utilities.
6. Removal from site and disposal of stockpiled landfill material.

1.02 SUBMITTALS

A. Submit coordinates and elevation of each located underground pipe.

B. Submit in accordance with Section 01 33 00.

PART 2 – PRODUCTS

(NOT USED)

PART 3 – EXECUTION

3.01 PREPARATION

A. Provide a minimum of 3 working days notice, prior to construction, to owners of existing utilities and surface features.

B. Protect existing utilities and surface features indicated to remain. Restore damaged existing utilities and surface features to condition equal to condition prior to construction.

C. Protect trees, shrubs, and other land resources, where indicated to remain. Provide fencing no closer than “drip line” of trees and shrubs and of sufficient height so features will not be damaged. Comply with requirements of Section 01 57 19.

D. Do not remove or cut down trees unless identified for removal on drawings, or located within limits of excavation, proposed structures or paving as indicated on Drawings.

E. Do not trim trees unless shown on Drawings.

F. Use means necessary to prevent dust from becoming a nuisance to the public, to neighbors, and to other work being performed on or near the site.

G. Maintain access to site.

H. Install erosion control measures prior to start of any earth-disturbing activities.

3.02 REMOVALS

A. Remove obstructions such as mounds of dirt, stones, or debris located within construction limits.

B. Remove surface features including pavements, curb and gutter, signs, posts, mailboxes, fences, shrubs, landscaping features, and other miscellaneous items. Street signs, culverts, advertising signs, mail boxes, etc. shall be replaced to original condition.

C. Full depth saw cut all pavement, sidewalk and curbing to be removed.

3.03 STRIPPING TOPSOIL

A. After area has been cleared of vegetation, remove existing topsoil to entire depth in areas where grade is to be adjusted and in areas to be covered by structures or paving.

B. Stripped topsoil shall be free of clay lumps, sand and gravel, stones, vegetation, and debris.

C. Stockpile on site in an area clear of new construction. Strip stockpile areas of vegetation prior to stockpiling.

D. Maintain the stockpile in a manner which will not obstruct the natural flow of drainage.

1. Protect from erosion.
2. Maintain stockpile free from debris and trash.
3. Immediately stabilize stockpiles and surround stockpiles as needed with silt fence or other perimeter control if stockpiles will remain inactive for 7 days or longer.

E. Owner has first right to excess topsoil not used in Work. Obtain Owners approval before removing any topsoil not required for work. Remove excess topsoil not required by Owner from site.

3.04 DISPOSAL

A. Remove brush, grass, roots, trash, and other material from site preparation operations from site.

B. Do not store or permit debris to accumulate on the job site.

C. Do not burn debris at the site.

D. Dispose of materials removed by clearing and grubbing in accordance with applicable regulations.

3.05 EXPLORATION FOR EXISTING UNDERGROUND PIPING AND ELECTRICAL CONDUITS

A. Prior to initiating work, Contractor shall determine exact location and elevation of all crossing utilities along the proposed sewer alignment.

1. Hydroexcavate along the proposed sewer route in a zigzag pattern that crosses the width of the proposed pipe every five feet. Hydroexcavation shall extend to a depth of one foot below the bottom of the proposed sewer pipe.
2. Locate top and outer edges of each utility encountered by surveying with equipment capable of locating each point to within 0.1 ft. accuracy.
3. Tie survey coordinate information to state plane coordinate system shown on drawings.

4. Probing to locate outer edges of piping may be permissible if exposing sides of piping would compromise the structural integrity of the piping, provided the size and invert elevation can be determined from the information available.
5. Each point to be surveyed shall consist of a set of three (3) survey points. One set of points shall consist of coordinates on each side of the pipe or conduit and the top center elevation of pipe or conduit.

B. Submit location survey information in hard copy and electronic form to Engineer. Engineer will evaluate information for its impact on proposed structures and will revise the design as required to avoid impacting the existing piping and conduits.

C. Contractor shall backfill and compact the backfill over the exposed piping and conduits in accordance with the requirements of 31 23 33 Trenching and Backfill as appropriate for the location.

D. Dispose of excess soil material. Conform to the requirements of Section 01 41 00.

END OF SECTION

SECTION 31 23 33
TRENCHING AND BACKFILL

PART 1 – GENERAL

1.01 SUMMARY

A. Trenching and backfilling to elevations shown on Drawings and as needed for installation of underground piping and utilities associated with Work and to meet requirements of Contract Documents.

B. Unanticipated Removal of Unsuitable Material:

1. Description: Excavation and off-site disposal of unsuitable material required to complete the Work that exceeds the amount that could have been reasonably estimated using the information contained in the Drawings and geotechnical report.
2. Cost of removal and disposal of 50 cubic yards of unsuitable material and replacement with trench stabilizing material as described in subparagraph 3.02 of this Section shall be included in the base bid lump sum price.
3. Contract Price will be adjusted if actual quantity of removal of unsuitable material differs from that specified.
4. Pay limits for change in removal of unsuitable material shall be the maximum trench width as defined herein.
5. Unit of Measurement: Cubic yards (CY) of soil excavated, computed using the average end area method based on in-place surveys before and after removal.
6. Unit cost for change in removal of unsuitable material shall include cost of excavation, hauling, disposal, backfill material, and backfilling.

1.02 REFERENCES

A. ASTM: American Society for Testing and Materials

1.03 DEFINITIONS

A. Influence Zone Under Foundations, Pavements, or Sidewalks: Area below foundation or pavement or sidewalk subbase bounded by 1 horizontal to 2 vertical slope extending outward from 1-foot beyond outer edge of foundation or pavement or sidewalk subbase.

B. Influence Zone Under Piping or Electrical Ducts: Area below limits bounded by line 6 in. below pipe or electrical duct and by 1 horizontal to 2 vertical slope extending outward from that line 1-foot beyond outer edge of pipe or duct.

C. Unsuitable Material: Topsoil, peat, organic soils, and materials containing slag, cinders, foundry sand, debris, and rubble or soil with less than required bearing capacity as determined by Engineer.

1.04 SUBMITTALS

A. Test Results.

1. Compaction test results.
2. Proctor test results.

B. Miscellaneous Submittals.

1. Test results to verify fill materials and bedding and cover materials meet Specifications.

C. Submit in accordance with Section 01 33 00.

1.05 QUALITY ASSURANCE

A. Testing shall be provided by Contractor in accordance with this Section.

B. Sheeting, Shoring, and Bracing:

1. Sheeting, shoring, and bracing shall be designed by Structural Engineer registered in state of Illinois.

C. Sheeting, shoring, and bracing shall conform to safety requirements of federal, state, and local agencies.

1.06 PROJECT / SITE CONDITIONS

A. Notify owners of above or below ground utilities encountered during trenching operations.

B. Cap and remove or relocate services in accordance with instructions of owners of such utilities.

C. Protect, support, and maintain conduits, wires, pipes or other utilities that are to remain in accordance with requirements of owners of such utilities.

D. Use means necessary to prevent dust from becoming a nuisance to the public, to neighbors, and to other work being performed on or near the site.

E. Maintain access to adjacent areas at all times.

PART 2 – PRODUCTS

2.01 FILL MATERIALS

A. Trench Stabilization Fill

1. Hard, tough, and durable crushed stone or rock.
2. IDOT Gradation CA-3

B. Bedding Material:

1. Hard, tough, and durable crushed stone or rock.
2. Concrete pipe: IDOT Gradation CA-7
3. Precast concrete structures: IDOT Gradation CA-6

C. Granular Backfill:

1. Hard, tough, and durable crushed stone or rock.
2. IDOT Gradation CA-6

D. Excavated Trench Material:

1. Natural soils resulting from excavation of project trenches.

2. Free of topsoil, wood, peat, cinders, organic and deleterious matter or other rubbish.

E. Controlled Low Strength Material (CLSM): Mix 1 in accordance with IDOT Article 1019.

2.02 GEOTEXTILE FABRIC

A. Porous non-woven fabric with multiple layers of randomly arranged fibers, min 4.0 ounce per square yard (typical).

B. Manufacturers:

1. Mirafi 140N by Mirafi, Inc.
2. Typar 340I by DuPont.
3. C-40NW by Contech.
4. FX-40HS by Carthage Mills.
5. Or Equal.

2.03 SHEETING, SHORING, AND BRACING

A. Type, design, detail, and installation of sheeting, shoring, and bracing shall be determined by and sole responsibility of Contractor.

2.04 SOURCE QUALITY CONTROL

A. Testing:

1. One sieve analysis, plasticity index, and uniformity coefficient for each source of structural fill.
2. One sieve analysis for each source of bedding material and cover material.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work such as areas loosened by frost action or softened by flooding or weather, or existence of unsuitable material. Do not proceed until unsatisfactory conditions are corrected.

3.02 PREPARATION

A. Natural soils or fill softened by frost, flooding or weather shall be removed and replaced.

B. Remove unsuitable material from within trenches. If unsuitable material is encountered, overexcavate to a depth of 6 inches below the bottom of the pipe bedding layer. The geotechnical investigations completed for this project indicate presence of soft silts. This material shall be considered unsuitable if encountered.

C. Stabilize trench bottom and replace overexcavated unsuitable materials with IDOT CA-3.

D. Where placement of IDOT CA-3 coarse aggregate will not provide an adequate foundation for laying pipe due to instability of existing materials and where ordered by Engineer, place geotextile fabric on top of unstable subgrade materials prior to placing coarse aggregate. Sufficient geotextile fabric shall be used to completely enclose the CA-3 coarse aggregate foundation materials and pipe. Provide a minimum overlap of 12 inches for adjoining

geotextile fabric pieces.

3.03 SHEETING, SHORING, AND BRACING

A. Whenever necessary to prevent caving during excavation and to protect adjacent piping, structures, property, workers, and public, trenches shall be sheeted, shored, and braced.

B. When sheeting, shoring, and bracing is required, install to prevent soil from entering excavation below or through sheeting.

C. Remove sheeting, shoring, and bracing after backfilling, or when approved by Engineer as backfill is being placed.

D. Remove sheeting, shoring, and bracing in manner not damaging to facility or permitting voids within backfill.

E. Fill settled areas after sheeting, shoring, and bracing has been removed.

3.04 DEWATERING

A. Dewater excavation site prior to starting trenching and maintain groundwater minimum of 12 inches below bottom of trench. Dewatering system shall be of a sufficient size and capacity as required to control hydrostatic pressure on trench sides and bottom to allow material to be excavated, pipe installed and backfill placed, all in a dry condition.

B. Contractor is responsible for choosing method of groundwater control.

C. If Contractor chooses to use deep wells or well points, wells and well points shall be designed, installed, and operated to prevent removal of in-situ materials.

D. Drill, maintain, and abandon dewatering wells in accordance with federal, state, and local ordinances.

E. Keep construction site free-draining. Keep trenches free of water.

F. Remove soil disturbed by pressure or flow of groundwater.

G. Maintain dewatering system to prevent uplifting of or damage to facilities.

H. Protect adjacent utilities, structures, and properties from damage resulting from dewatering operations.

I. Direct discharge of trench dewatering pumps to sediment traps before conveying to natural drainage channels or storm water drains.

3.05 EXCAVATION

A. Excavate to the lines, grades, and elevations indicated and necessary to complete construction.

B. Method of excavation shall be consistent with soil types encountered and result in undisturbed subgrade. Loosened soils shall be recompacted or removed and replaced.

C. Where possible, excavated materials shall be placed in areas that will not block existing vehicle and pedestrian traffic and drainageways.

D. Conduct excavating operations to carefully expose all in-place underground structures without damage. Wherever excavation extends under or approaches close to an existing structure, precautions and protective measures shall be taken as necessary to preserve the structure and provide temporary support. Use hand excavation methods to probe for and expose such critical or hazardous installations as gas pipe and power or communication cables.

E. Excavation of Rock:

1. Where rock, boulders, or similar material is encountered, and where such material cannot be removed or excavated by conventional earth moving or ripping equipment, remove or excavate such material by means which will neither cause additional cost to the Owner nor endanger buildings or structures on or off site.
2. Do not use explosives without written permission from Engineer.

F. Trench Tolerances:

1. Maximum width of trench at top of pipe shall be outside diameter of pipe plus 24 inches. When sheeting, shoring, and bracing required, width of trench may be increased to allow for their use, provided provisions for excess width of trench are met.
2. Where trench width below top of pipe exceeds specified limit, Contractor, at their expense, shall furnish pipe with strength adequate for actual trench width.
3. Minimum trench width shall be outside diameter of pipe plus 18 inches
4. Trench width at ground surface shall be the minimum allowable based on OSHA standards and soil types.

G. Do not advance excavation of trenches more than 200 feet ahead of completed pipe installation.

H. Do not excavate within influence zone of existing footings or foundations without prior approval of Engineer.

I. Excavation through Rigid Pavement:

1. Remove pavement a minimum of 1 foot beyond anticipated edge of excavation.
2. Saw cut pavement to ensure straight joint.
3. Pavement replacement shall match existing.

J. Excavation, backfill, and pavement replacement of roadways shall conform to requirements of local highway authority. In no case shall the replacement pavement edges bear on less than 12 inches of undisturbed soil.

3.06 FILL USAGE

A. Bedding Material Limits:

1. Bedding material shall be placed over entire width of trench bottom such that after pipe has been placed thereon, imbedded to grade and aligned, there remains a 12-inch minimum depth of material below pipe barrel.
2. Bell holes shall be excavated so that entire pipe barrel rests on bedding. Bell holes and depressions for joints shall be removed and formed so entire barrel of pipe is uniformly supported. Bell hole and depressions for joints shall not be larger than required.
3. Bedding material shall be wrapped in geotextile fabric on all sides, with a minimum 12-inch overlap of material on the top.

B. Cover Material:

1. CLSM.

C. Cover Material Limits:

1. To pipe crown at a minimum, but no more than 24 inches above the top of the most upstream pipe in any reach.

D. Granular Backfill: Final 24 inches of backfill (as measured from bottom of subgrade) within trenches under pavements and sidewalks and within piping, electrical duct or structure influence zone.

E. Excavated Trench Material Backfill: Other areas not previously specified.

F. CLSM Backfill: Where noted.

3.07 PLACING FILL

A. Notify Engineer before placing fill material.

B. Do not use frozen material or place fill on frozen subgrade.

C. Place geotextile fabric where indicated in accordance with manufacturer's recommendations.

D. Do not backfill until concrete is properly cured and has reached design strength, coatings approved, and required tests accepted.

E. Place fill simultaneously on both sides of freestanding structures.

F. Where pipes leave structures, protect by backfilling pipe influence zone down to undisturbed soil with bedding material.

G. Where pipes or electrical ducts cross, protect piping or ducts at higher elevation by backfilling trench within influence zone of higher pipe or duct with bedding material.

H. Where pipes or electrical ducts leave structures, protect by backfilling within influence zone of pipe or duct with bedding material.

I. Provide mechanical compaction. Jetting, flooding, puddling, or vibroflotation methods shall not be used for compaction.

J. Bedding shall be compacted with a minimum of four passes of a vibratory twin-drum walk behind roller, or vibratory plate on a backhoe.

K. Place and compact cover and fill materials in lift thickness and to densities listed below:

1. Degree of compaction: ASTM D698, Standard Proctor.
2. Moisture Content: Within 3% of optimum.

Location	Maximum Loose Lift Thickness	Standard Proctor (%)
Cover Material	6 inches	90 minimum
Fill material under Footing, Foundation Slab, or Floor Slab Influence Zone	8 inches	90 minimum
Fill material under Sidewalk, Pavement, Crushed Aggregate Base Course, Piping, or Electrical Duct Influence Zone	8 inches	95 minimum
Fill material under Lawn and Landscaped Areas	8 inches	90 minimum

3.08 UNDERGROUND MARKING TAPE INSTALLATION

A. During trench backfilling/topsoil placement, for exterior underground utilities, provide continuous detectable underground marking tape located directly above line at 12 inches above the utility.

3.09 FIELD QUALITY CONTROL

A. Testing:

1. Trench Backfill Material – Depth of Cover Less than 14 feet: Take one test every other lift per every 100 feet of trench. Determine in-place density of fill at maximum intervals specified in accordance with ASTM D6398.
2. Recompact and retest areas of backfill tested that did not meet minimum requirements.

3.10 ADJUSTMENT AND CLEANING

A. Stockpile material suitable for backfill where designated by Engineer. Place no fill where trenches for sewers, water line, or other utilities will be located.

B. Remove excess material not required by Owner, material not suitable for backfilling or site grading, and unsuitable materials from site. Conform to the requirements of Section 01 41 00.

END OF SECTION

SECTION 31 25 00
EROSION AND SEDIMENTATION CONTROL

PART 1 – GENERAL

1.01 SUMMARY

A. Section describes requirements for temporary control of erosion and sediment transport on construction sites. Provide necessary materials, equipment, and labor to control erosion by methods specified herein. If no specific quantities are shown on Drawings, Contractor shall use whatever quantities are necessary to prevent sediment transport into adjacent storm water conveyance systems or water bodies.

B. Section includes:

1. Silt Fence
2. Dewatering
3. Erosion Control Blanket
4. Temporary Seeding
5. Mulching
6. Concrete Washout
7. Stabilized Construction Entrance

1.02 REFERENCES

A. Illinois Department of Transportation (IDOT): Standard Specifications for Road and Bridge Construction, Current Edition

B. Illinois Urban Manual (IUM), Current Edition

1.03 PERMITS AND REGULATORY REQUIREMENTS

A. Comply with the Madison County Stormwater Ordinance.

B. Comply with the requirements of the Illinois Environmental Protection Agency (IEPA) General National Pollutant Discharge Elimination System (NPDES) Permit for Stormwater Discharges from Construction Site Activities (General NPDES Permit No. ILR10).

1.04 SUBMITTALS

A. General:

1. Submit Product Data in sufficient detail to confirm compliance with requirements of this Section. Submit Product Data and Shop Drawings in one complete submittal package. Partial submittals are unacceptable.

B. Submit in accordance with Section 01 33 00.

PART 2 – PRODUCTS

2.01 TOPSOIL

A. Conform to Section 32 92 00.

2.02 FERTILIZER

A. Conform to Section 32 92 00.

2.03 MULCH

A. Conform to Illinois Urban Manual Practice Standard 875.

2.04 TEMPORARY SEEDING

A. Temporary seed shall conform to the requirements of Article 1081.15(g) of the IDOT Standard Specifications.

2.05 EROSION CONTROL BLANKET

A. Conform to Section 32 92 00.

2.06 STORM INLET PROTECTION

A. Inlet protection shall be a manufactured storm sewer insert.

1. Inlets with curb box:
   a. Dandy Curb Bag by Dandy Products
   b. Approved equal

2. Inlet without curb box:
   a. Dandy Bag by Dandy Products
   b. Approved equal

2.07 SILT FENCE

A. Geotextile fabric: meet the requirements of IDOT Article 1080.02 for silt fence.
B. Silt fence stakes and posts:

1. Use either wooden stakes or steel posts for fence construction.
2. Minimum length: 5 feet.
3. Wooden posts: 2-inch x 2-inch nominal cross-sectional area.
4. Steel posts: Standard U or T-section, minimum weight of 1.33 pounds per linear foot.
5. Fasteners: staples, zip ties, or wire ties.

2.08 STABILIZED CONSTRUCTION ENTRANCE

A. Aggregate: IDOT gradation CA-1.

B. Geotextile fabric: meet the requirements of IUM Material Specification 592 – Geotextile, Table 1 or 2, Class I, II, or IV.

2.09 CONCRETE WASHOUT FACILITY

A. Prefabricated temporary concrete washout facility designed to contain concrete slurry and solids in accordance with IUM Practice Standard 954.

2.10 Water: Furnished in accordance with Section 01 52 00.

2.11 All other products shall be as specified in current version of Illinois Urban Manual.

PART 3 – **EXECUTION**

3.01 EROSION CONTROL REQUIREMENTS

A. All erosion control measures shall be implemented in accordance with referenced IUM Practice Standards or IDOT Articles:

1. Practice Standard 813: Dewatering
2. Practice Standard 830: Erosion Control Blanket
3. Practice Standard 861: Inlet Protection – Impervious Areas
4. Practice Standard 862: Inlet Protection – Pervious Areas
5. Practice Standard 875: Mulching for Seeding and Soil Stabilization
6. Practice Standard 920: Silt Fence
7. Practice Standard 927: Soil Stockpile
8. Practice Standard 930: Stabilized Construction Entrance
9. Practice Standard 954: Temporary Concrete Washout Facility
10. Practice Standard 965: Temporary Seeding

B. Erosion control devices, disturbed areas of the site that have not achieved final stabilization, and locations where vehicles enter and exit the site shall be inspected by a qualified person at least once every seven (7) calendar days and following a storm event resulting in 0.5 inches or more of rain. Post-rain event inspections shall be completed within 24 hours of the end of the rain event, or by the end of the following work day.

C. Make needed repairs and document findings of inspections in a site erosion control log that includes the date of inspection, name of person conducting inspection, scope of the inspection, major observations relating to sediment and erosion control, and any actions taken.

D. Install perimeter erosion controls and stabilized construction entrance(s) prior to any land-disturbing activities, including clearing and grubbing.

E. Work shall not begin until after initial erosion and sediment control devices are in place and approved by Engineer.

F. Take all possible precautions to prevent sediment from being tracked onto public or private roadways. Any sediment reaching a public or private road shall be removed by street cleaning (not flushing) before end of each workday.

G. All activities on site shall be conducted in a logical sequence to minimize area of bare soil exposed at any one time.

H. Site stabilization measures shall be initiated whenever any clearing, grading, excavating, or other earth disturbing activities have permanently ceased on any portion of the site, or have temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days. Stabilization measures shall be initiated no later than one (1) working day after temporary or permanent cessation of construction activities, except when stabilization is precluded by snow cover. Once initiated, stabilization measures shall be completed as soon as practicable, but no more than 14 days from the initiation of stabilization work in an area.

I. Temporary stabilization is required if disturbed areas are not permanently stabilized with the surface treatment as indicated on the Drawings within the specified timeframe. Temporary stabilization for areas with slopes flatter than 3H:1V shall be achieved by temporary seeding, mulching, or covering with erosion control blankets. Temporary stabilization for areas with slopes equal to or steeper than 3H:1V shall be achieved by temporary seeding and erosion control mats.

J. Immediately stabilize stockpiles and surround stockpiles as needed with silt fence or other perimeter control if stockpiles will remain inactive for 7 days or longer.

3.02 TEMPORARY SEEDING

A. Provide temporary erosion control seeding in accordance with IUM Practice Standard 965.

B. Temporary seeding shall provide protection for no longer than one (1) year.

3.03 TEMPORARY MULCHING

A. Provide temporary mulching in accordance with IUM Practice Standard 875.

3.04 EROSION CONTROL BLANKET

A. Install erosion control blankets in accordance with IUM Practice Standard 830 and IUM Standard Drawing 530.

3.05 SILT FENCE

A. Silt fences shall be placed along all sideslope and downslope sides of site. If a channel or area of concentrated runoff passes through site, sediment control fences shall be placed along channel edges to reduce sediment reaching channel.

B. Install in accordance with the Drawings.

C. Attach geotextile fabric to each post with a minimum of three (3) fasteners per post.

D. Remove sediment from behind silt fences and sediment barriers before sediment reaches a depth that is equal to one-third of the fence and/or barrier height.

3.06 STORM DRAIN INLET PROTECTION

A. Provide inlet protection for existing and new inlets receiving runoff from areas disturbed by construction activities.

B. Install inlet protection prior to land-disturbing activities in the contributing drainage area and/or immediately upon new inlet installation.

C. Install device according to manufacturer’s instructions.

D. The contributing drainage area to inlet protection device shall be one acre or less. In instances where a larger contributing drainage area exists, runoff shall be routed through a sediment trap or settling device upstream of inlet.

3.07 TEMPORARY SOIL STOKPILES

A. Erosion and sediment control measures are required for soil stockpiles to remain in place for more than 24 hours.

B. Soil stockpiles shall be located a minimum of 25 feet from any wetland, stream, creek, ditch, swale, water conveyance system, lake, pond, etc.

C. Perimeter sediment control, such as a silt fence, shall be installed on the down slope side of the stockpile prior to its creation. Perimeter protection shall be placed a minimum of 8 feet from the toe of the stockpile slope.

D. Provide erosion and sediment control measures in accordance with IUM Practice Standard 927.

3.08 DEWATERING

A. Dewatering, surface water control, and temporary diversions shall be used to facilitate work “in the dry.” The Contractor shall make their own calculations and shall plan their work accordingly.

B. Work shall not be allowed in wetlands, flowing water, or in standing water that can discharge directly to Waters of the U.S.

C. Contact owner or operator of municipal separate stormwater system if discharge is to municipal storm water conveyance system.

D. Select best management practice for sediment removal based on predominant soil texture encountered at dewatering site with consideration given to pumping or flow rates to prevent discharge of sediment to the maximum extent practical. General categories include:

1. Geotextile Bags
2. Gravity Based Settling Systems
3. Passive Filtration Systems
4. Pressurized Filtration Systems

E. Water pumped from site shall be treated by temporary sedimentation basins, grit chambers, sand filters, upslope chambers, hydro-cyclones, swirl concentrators, or other appropriate controls designed and used to remove particles of 100 microns or greater for highest dewatering pumping rate. If water is demonstrated to have no particles greater than 100 microns during dewatering operations, then no control is needed before discharge. Water may not be discharged in a manner that causes erosion of site or receiving channels.

F. In accordance with IUM Practice Standard 813.

3.09 TEMPORARY CONCRETE WASHOUT FACILITY

A. Provide temporary concrete washout facility within the staging and laydown area designated on the Drawings.

B. Only liquids and concrete waste generated by washout operations shall be discharged to the concrete washout facility. No other construction waste or debris shall be placed in the concrete washout facility.

C. Washout water shall not be discharged into the environment.

D. Washout facility shall provide adequate holding capacity as required by the Work. Maintain a minimum freeboard of four (4) inches.

END OF SECTION

DIVISION 32

EXTERIOR IMPROVEMENTS

SECTION 32 11 23
AGGREGATE BASE COURSES

PART 1 – GENERAL

1.01 SUMMARY

A. Provide crushed aggregate base course where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

1.02 DEFINITIONS

A. IDOT Specs: Illinois Department of Transportation Standard Specification, latest edition

B. ASTM: American Society for Testing and Materials

C. AASHTO: American Association of State Highway and Transportation Officials

1.03 SUBMITTALS

A. General:

1. Submit Product Data in sufficient detail to confirm compliance with requirements of this Section. Submit Product Data and Shop Drawings in one complete submittal package. Partial submittals are unacceptable.

B. Source of Aggregates

C. Test Results of Quality Assurance Testing

D. Submit in accordance with Section 01 33 00.

1.04 QUALITY ASSURANCE

A. Perform the following testing:

1. Aggregate Gradation in accordance with AASHTO T 27

B. Test Aggregate Gradation during placement at or above the following frequency:

PART 2 – PRODUCTS

2.01 PAVEMENT MATERIALS

A. Aggregate: For aggregate shoulder, and aggregate base courses for asphalt pavement sections, concrete sidewalks, and curb and gutter

1. 100% crushed stone in accordance with IDOT Article 1004.01(3)
2. IDOT Gradation CA-6

PART 3 – EXECUTION

3.01 PREPARATION

A. Check subbase for soundness, outline, and contour. Prepare areas for base course placement

on subbase by scraping down or filling irregularities. Compact subbase prior to basecourse placement.

B. Proof roll the prepared subbase. Make multiple passes to test entire area. Remove and replace areas where displacement in base (yielding, heaving, cracking or other signs of instability), in the opinion of the Engineer, is more than 1 inch under a fully-loaded tandem-axle dump truck. Excavate and backfill displaced areas with new base course material, compact, and retest. Do not begin placement of base course until deficient areas have been corrected.

C. Dispose of excavated material. Conform to requirements of 01 41 00.

3.02 DELIVERY, STORAGE, AND HANDLING

A. Adjust weight, type, capacity, haul routes, and method of operation of hauling vehicles such that there is no damage to existing streets, subgrade, or base course.

B. Owner has final authority to designate haul routes, procedures, and operation times.

3.03 INSTALLATION

A. Construct aggregate base course in two or more layers of approximately equal thickness.

B. Maximum compacted thickness of layer shall not exceed 6 inches.

C. Deposit material on foundation or previously placed layer to minimize segregation and facilitate spreading to uniform layer.

D. Compact after each layer has been placed and spread to thickness, width, and contour to 95% of maximum density, in accordance with ASTM D698 (Standard Proctor), before succeeding layer is placed. Testing shall be in accordance with ASTM D6938.

3.04 FIELD QUALITY CONTROL

A. Check in-place base course for surface irregularities and repair unacceptable areas.

END OF SECTION

SECTION 32 12 16
ASPHALT PAVING

PART 1 – GENERAL

1.01 SUMMARY

A. Provide asphalt pavement where shown on Drawings, as specified herein, and as needed for a complete and proper installation.

1.02 DEFINITIONS

A. IDOT Specifications: Illinois Department of Transportation Standard Specification, latest edition

B. ASTM: American Society for Testing and Materials

C. AASHTO: American Association of State Highway and Transportation Officials

1.03 SUBMITTALS

A. General:

1. Submit Product Data in sufficient detail to confirm compliance with requirements of this Section. Submit Product Data and Shop Drawings in one complete submittal package. Partial submittals are unacceptable.

B. Source of Aggregates from IDOT approved supplier.

C. IDOT approved Asphalt Mix Design, including aggregate gradation.

D. Test Results of Quality Assurance Testing.

E. Submit in accordance with Section 01 33 00.

1.04 QUALITY ASSURANCE

A. Asphalt supplier shall have a minimum of 5 years of experience producing asphalt mixes for the Department of Transportation.

B. Do not commence placement of asphalt until mix design has been reviewed and approved by Engineer.

C. Perform the following testing during asphalt mix production and placement:

1. Aggregate Gradation in accordance with AASHTO T 27
2. Asphalt Content.
3. Air Voids by calculation in accordance with AASHTO T 269.
4. Voids in Mineral Aggregate (VMA) by calculation in accordance with AASHTO R 35.

D. Frequency of testing for Aggregate Gradation, Asphalt Content, Air Voids, and VMA: 1 sample per day.

E. Frequency for density testing: 1 sample per day.

F. Testing shall be provided by Contractor in accordance with this section.

PART 2 – PRODUCTS

2.01 PAVEMENT MATERIALS

A. Aggregate:

1. Aggregate for Bituminous Binder:

a. Sound, angular crushed stone, crushed gravel, or crushed slag, sand, stone or slag screenings.
b. Gradation: Well graded between limits specified and shall conform to IDOT Specifications Article 1004.03 for HMA Binder Course, IL-19.0, N50.

2. Aggregate for Bituminous Surface:

a. Crushed stone, crushed gravel, crushed slag, and sharp-edged natural sand.
b. Sand prepared from stone, blast-furnace slag, gravel, or combinations thereof may be used if required to suit local material availability.
c. Gradation: Well graded between limits specified and shall conform to IDOT Specifications Article 1004.03 for HMA Surface Course, IL-9.5.

5. Mineral Filler: Rock or slag dust, hydraulic cement, or other inert material complying with ASTM D242.

B. Bituminous Materials:

Asphalt Binder: Performance Grade PG 64-22 in accordance with ASTM D946.

C. Mix Design:

Mixture Use	Surface Course	Binder Course
Asphalt Binder	PG 64-22	PG 64-22
Design Air Voids	4.0 @ N50	4.0 @ N50
Mixture Composition (Gradation Mixture)	IL 9.5	IL 19.0
Friction Aggregate	Mix “D”	N/A
Unit Weight	112 lbs/square yard/inch	112 lbs/square yard/inch

D. Tack Coat

1. Bituminous material meeting one of the types listed in IDOT Standard Specifications, Article 406.02.

E. Recycled Asphalt Pavement

1. Permitted only for binder course.

2. Stockpile recycled asphalt pavement separately from virgin materials and list each as individual job mix formula components.

2. Conform to requirements of IDOT Article 1031.06.

PART 3 – EXECUTION

3.01 WEATHER LIMITATION

A. Apply tack coat when ambient temperature is above 35 degrees Fahrenheit. Do not apply when base is wet or contains standing water.

B. Place asphalt material when atmospheric temperature is above 45 degrees Fahrenheit and rising, and when base is dry.

C. Do not place asphalt material on frozen subgrade or base.

3.02 PREPARATION

A. Check base course for soundness, outline, and contour. Prepare base course for areas to be paved by scraping down or filling irregularities. Compact base course prior to paving.

B. Proof roll prepared aggregate base course to check for unstable areas and areas requiring additional compaction. Make multiple passes to test entire area to be paved. Remove and replace any area where displacement in base (yielding, heaving, cracking or other signs of stability), in opinion of Engineer, is more than 1 inch under a fully-loaded tandem-axle dump truck. Excavate and backfill displaced area with new base material, properly compacted and retested. Do not begin paving work until deficient areas have been corrected.

C. Tack Coat:

1. Apply to contact surfaces of previously paved surfaces abutting or projecting into areas to be paved.
2. Apply to surface free of loose dirt, dust or other foreign matter.
3. Apply at a rate of 0.025 gallon per square yard of surface.
4. Apply only to areas expected to be paved in the same day.
5. Allow to dry prior to paving.
6. Avoid tracking or smearing bituminous materials onto adjoining surfaces. Remove material tracked or smeared to adjoining surfaces.

3.03 DELIVERY, STORAGE, AND HANDLING

A. Transport asphalt materials in covered trucks during rainy weather and when air temperature falls below 65 degrees F.

B. Adjust weight, type, capacity, haul routes, and method of operation of hauling vehicles such that no damage results to existing streets, subgrade, or base course.

C. Owner has final authority to designate haul routes, procedures, and operation times.

3.04 PLACING ASPHALT MIX

A. Place asphalt mixture on prepared surface, spread, and strike-off. Spread mixture at a temperature within 20 degrees Fahrenheit of temperature the asphalt material supplier recommends.

B. Place using a self-propelled paver to ensure uniform spreading and strike-off of mix. Provide a smooth mixture free of tearing and segregation. Place mixture to required grade, cross-

section, and compacted thickness.

C. Place inaccessible and small areas by hand. Place mixture to required grade, cross-section, and compacted thickness.

D. Joints: Place asphalt continuously to limit the number of joints. Make joints between old and new pavements and between successive days' work, to ensure continuous bond between adjoining work. Clean contact surfaces and apply tack coat. Construct joints to have same texture, density, and smoothness as other sections of asphalt pavement.

3.05 COMPACTION

A. Compact asphalt mix while still hot. Compact each layer by uniformly rolling.

B. In small areas not accessible by a roller, compact using mechanical tampers.

C. Compact until no further consolidation is visible under action of the compaction equipment.

D. Keep roller wheels moistened to avoid sticking.

E. Compact upper layer to 91.5% of the maximum density. Compact lower layers constructed over aggregate base to 89.5% of the maximum density. Do not re-roll compacted mixtures falling below required densities. If densities fall below the required densities, stop placement and identify and correct problem.

3.06 FIELD QUALITY CONTROL

A. Pavement Testing:

1. General: Test in-place asphalt courses for compliance with requirements for surface smoothness and thickness. Repair or remove and replace unacceptable paving.
2. Thickness Tolerance: In-place compacted thickness will not be acceptable if actual thickness exceeds the following allowable variation from required thickness:

    a. Binder Course: 1/4 inch.
    b. Surface Course: 1/8 inch.

3. Surface Smoothness Tolerances: Test finished surface of each asphalt concrete course for smoothness, using 10 foot straight edge applied parallel with, and at right angles to, the centerline of paved area. Surfaces will not be acceptable if deviations exceed 1/8 inch.

END OF SECTION

SECTION 32 31 13
CHAIN LINK FENCES AND GATES

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Chain link fence

1.02 DEFINITIONS

A. ASTM: American Society for Testing and Materials.

1.03 SUBMITTALS

A. General:

1. Submit Product Data in sufficient detail to confirm compliance with requirements of this Section. Submit Product Data and Shop Drawings in one complete submittal package. Partial submittals are unacceptable.

B. Product Data:

1. Construction details, materials descriptions and finishes for chain link fence:

a. Fence posts
b. Rails, fittings and hardware
c. Fabric
d. Manufacturer installation instructions
e. Accessories

C. Shop Drawings:

1. Installation and assembly details.

D. Submit in accordance with Section 01 33 00.

1.04 QUALITY ASSURANCE

A. Installer Qualifications: Firms experienced in installing chain link fences and equipment similar in material and design indicated that have record of successful in-service performance.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials with manufacturer's tags and labels intact and legible.

B. Store materials in clean, dry location.

PART 2 – PRODUCTS

2.01 GENERAL

A. Height indicated on drawings measured between top and bottom of outer edge of selvage

knuckle or twist.

B. Comply with ASTM A392 and requirements listed in this specification section.

2.02 FABRIC

A. Steel wire helically wound and interwoven to provide continuous mesh without knots or ties, conforming to requirements of ASTM A491.

1. Mesh Size: 2 inch
2. Wire Size: 9 Gauge (0.148 inches)
3. Aluminum Coating: Minimum of 0.40 ounces per square foot in accordance with ASTM A491.
4. Fabric Ties: Minimum 9 gauge aluminum or zinc wire.
5. Selvages: Knuckled at one selvage and twisted at other.

2.03 FRAMEWORK

A. Posts and rails conforming to ASTM F1043 and ASTM F1083 and requirements listed in this specification section.

1. ASTM F1043 Group IA, round steel pipe, Schedule 40 or ASTM F1043 Group IC, round steel pipe, SS40.
2. Post Size (outside diameter):

a. Top Rail: 1.66 inches
b. Line Post: 2.375 inches
c. End, Corner and Pull Post: 2.875 inches

B. Metallic Coating

1. Zinc coating per ASTM A 123 consisting of not less than 1.8 ounces per square foot.

2.04 TENSION WIRE

A. Provide horizontal tension wire along bottom of fence fabric.

B. Metallic Coated wire: 0.177 inches diameter complying with ASTM A 817 and coated with zinc coating of not less than 0.8 ounces per square foot of wire surface.

2.05 FITTINGS

A. Comply with ASTM F 626

B. Provide post and line caps for each post.

C. Steel Tension bars:

1. Length: not less than 2” shorter than full height of chain link fence fabric
2. Provide one bar for each gate and end post, and two for each corner and pull post.

D. Barbed wire arms with means for attaching strands of barbed wire, integral with post cap.

1. Type I, single slanted arm for line posts
2. Corner arms at fence corner posts.

E. Wire Ties:

1. Hot Dip galvanized, 0.106 inch diameter wire.

2.06 BARBED WIRE

A. Zinc Coated Steel Barbed Wire complying with ASTM A 121 Chain link fence grade.

B. Two Stranded with 0.099 inch diameter wire with 2-point round barbs spaced not more than 4 inches o.c.

2.07 CONCRETE

A. Class B2 concrete in accordance with Section 03 30 00.

2.08 GROUNDING

A. Bare Copper, solid wire No. 6 AWG and smaller with No. 30 AWG bare wire bonding jumpers.

B. 5/8 inch by 96 inch grounding rods with Exothermic welded connectors for connections below ground.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Do not begin installation until final grading is complete.

B. Check location of underground work to make sure fence footings clear utilities.

3.02 INSTALLATION

A. Comply with ASTM F 567 and the requirements of this specification.

B. Footings:

1. Set post in concrete at not more than 10 foot apart.
2. Dispose of excavated material in accordance with local, state, and federal requirements in a manner that will not cause environmental pollution.
3. Hold posts plumb, aligned and at correct height while concrete sets.
4. Rod and compact concrete around posts. Slope top of footings above level of adjacent grade and trowel finish.
5. Size:

    a. 12 inch minimum diameter, plus outside dimension of post.
    b. Set corner, end, pull, and gate posts 42 inch into concrete.
    c. Set line posts 36 inch into concrete.
    d. Total depth of concrete 6 inch greater than required for post embedment.

6. Time of Set: 48 hours before rails erected or fabric applied or stretched.

C. Framing:

1. Install line posts not more than 10 foot apart.
2. Install pull posts not more than 600 foot apart where straight run of fence exceeds 600 foot

and fence line changes direction by more than 15°, but less than 30°.
3. Install corner posts where fence line changes direction by more than 30°.
4. Set posts in concrete footings, plumb and true to line.
5. Brace and truss end, pull, corner, and gate posts to adjacent line posts. Provide brace to match top rail spaced midway between top rail and tension wire and extending to adjacent line post. Truss diagonally with 5/16-inch diameter tension rod with turnbuckle.
6. Fasten top rail to end, pull, gate, and corner posts. Pass top rail through fittings of line posts.
7. Provide expansion and contraction joints in top rail for each 100 linear foot of fence.
8. Fasten bottom tension wire to end, pull, gate, corner, and line posts.

D. Fabric:

1. Place fabric on outside of posts and stretch to avoid bulging or buckling.
2. Fasten at line posts, top rail, and bottom tension wire with aluminum or zinc coated ties. Space ties not more than 15 inch apart on line posts and not more than 24 inch apart on rail and tension wire.
3. Fasten at terminal posts at intervals not exceeding 15 inch using flat or beveled galvanized steel bands with 5/16 inch by 1 ¼ inch galvanized carriage bolts and nuts.
4. Make tie connections on interior side of fence.

E. Protective Electrical Ground.

1. Ground continuous fence at intervals not exceeding 1500 feet except as follows:

    a. Within 100 feet of buildings, structures, roadways, and sidewalks, Ground at a maximum interval of 750 feet.
    b. Ground fence on each side of gates or other openings. Bond metal gates to gate posts.
    c. Bond across openings with a No. 2 AWG wire buried a minimum of 18 inches below grade.

2. Ground fence under power line by three grounds, one directly under crossing and one on each side 150 feet on each side of wire. Locate single ground directly under each telephone wire or cable crossing.
3. Ground rod shall terminate 6” below finished grade and be connected to fence with No. 6 AWG conductor. Connect each fence component to the conductor.
4. Ground gates by with bonding jumper between gate post and gate frame.
5. Make connections with clean and bare metal at points of contact.
6. Connect ground wire to fabric and ground rod by mechanical clamp of cast bronze body and bronze or stainless steel bolts and washers.

END OF SECTION

SECTION 32 92 00
TURF AND GRASSES

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Preparing ground surface.
2. Seed.
3. Fertilizer.
4. Maintenance.

B. Except for paved, riprapped, or built-up areas, all areas of site which are disturbed, and areas noted on Drawings shall be seeded.

1.02 REFERENCES

A. ASTM: American Society for Testing and Materials

1.03 SUBMITTALS

A. General:

1. Submit Product Data in sufficient detail to confirm compliance with requirements of this Section. Submit Product Data and Shop Drawings in one complete submittal package. Partial submittals are unacceptable.
2. Mix analysis and names of seed mixes.

B. Test Results:

1. Topsoil test results including fertilizer and lime requirements.

C. Submit in accordance with Section 01 33 00.

1.04 QUALITY ASSURANCE

A. Meet or exceed specifications of Federal, State, and local laws requiring inspection for plant disease and insect control.

B. Seed shall conform to U.S. Department of Agriculture Rules and Regulations under Federal Seed Act and requirements of state seed laws.

C. Contractor shall engage certified soils testing laboratory to perform a soils evaluation of existing and/or imported topsoil to determine fertilizer and lime requirements. Provide a minimum of 1 composite soil sample, consisting of 5 test borings, for every 5 acres to be seeded or sodded.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Provide seed mixture in sealed containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.

B. Deliver fertilizer to site in waterproof bags showing weight, chemical analysis, and name of

manufacturer.

C. Deliver sod in rolls on pallets. Protect exposed roots from dehydration. Do not deliver more sod than can be laid within 24 hours.

1.06 WARRANTY

A. Warranty lawn areas for period of 1 year after acceptance of seeding to be alive and in satisfactory growth at end of warranty period.

1. For purpose of establishing acceptable standard, scattered bare spots, none larger than 1 square foot, will be allowed up to a maximum of 3% of lawn area.

PART 2 – PRODUCTS

2.01 SEED

A. Fresh, recleaned, new crop seed in specified varieties and proportions indicated.

B. Weed content shall not exceed 0.25%.

COMMON NAME	WEIGHT (%)	MINIMUM GERMINATION (%)
Kentucky Bluegrass	50	85
Perennial Ryegrass	30	85
Creeping Red Fescue	20	95

2.02 FERTILIZER

A. Commercial balanced, uniform in composition, free flowing, conforming to state and federal laws.

B. Contain percentage by weight as follows, or as modified by topsoil test recommendations.

1. Prior to seeding or sodding: 6-24-24.
2. After seeding or sodding: 18-5-9.

C. 50% of elements shall be derived from organic sources.

2.03 ACCESSORIES

A. Mulch: Dry oat or wheat straw or wood cellulose fiber free of weeds and foreign matter detrimental to plant life. Hay or chopped corn stacks are not acceptable.

B. Water: Furnished by Owner from existing on-site source. Provide pumps, tankage, hose, piping, and attachments as required to bring water to point of use.

C. Erosion Control Blanket:

1. Short term duration, light duty, organic Erosion Control Revegetative Mat
2. Non-organic photodegradable or biodegradable netting allowed.

3. Manufacturers:

    a. Curlex I, by American Excelsior
    b. S75, DS75, or DS150, by North American Green
    c. Excel SR-1, by Western Excelsior
    d. ECS1, by East Coast Erosion Blankets
    e. Or Equal

PART 3 – EXECUTION

3.01 SURFACE CONDITIONS

A. Examine areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of Work. Do not proceed until unsatisfactory conditions are corrected.

3.02 PLANTING SEASONS

A. Spring Planting Season: From time soil can be satisfactorily worked until following dates.

    1. Seed: April 1st to June 15th.

B. Fall Planting Season:

    1. Seed: August 1st to November 1st.

C. Dormant Seeding: October 21st to November 15th (Soil at 1"<50 degrees Fahrenheit), seed with cover crop of winterwheat at 20 pounds per acre.

D. Perform planting of seed or placement of sod only when weather conditions and soil conditions are acceptable.

E. Planting season limits may be changed when approved by Engineer.

3.03 PREPARATION

A. Grade to 4 inches below finished grade in areas to receive topsoil.

B. Grade to bottom of base course in areas to receive sidewalk or paving.

C. Rough grading, including excavated or filled sections and adjacent transition areas, shall be reasonably smooth, compacted, and free from irregular surface changes.

D. Uniformly grade the areas within limits of grading, including adjacent transition areas, with uniform levels or slopes between points where elevations are shown on the Drawings, or between such points and existing grades.

E. Where a change of slope is indicated on the Drawings, construct a rolled transition section having a minimum radius of approximately 8 ft, unless adjacent construction will not permit such a transition, or if such a transition defeats positive control of drainage.

F. Grade areas adjacent to buildings or structures to achieve drainage away from the structures, and to prevent ponding.

G. Maximum allowable variation from design elevation is 1 inch in 10 feet. Do not plant seed

or place sod until trees, shrubs, and other landscaping completed.

H. Scarify existing topsoil where grade is not being raised, or where topsoil is over compacted, to depth of 2 inches.

I. For topsoil with high acidity, add lime as recommended in topsoil test report.

J. Grade, rake, and roll with roller weighing not more than 100 pounds per foot or less than 25 pounds per foot.

K. Maximum variation from correct elevation is 1/2 inch per 10 feet.

3.04 FERTILIZING

A. Before seeding or sodding, apply 6-24-24 fertilizer at uniform rate of 20 pounds/1000 square feet; make 2 passes at right angles. Incorporate fertilizer into soil to depth of at least 2 inches by discing, harrowing, or other approved method.

B. After completion of required interim mowings, apply 18-5-9 fertilizer at rate of 15 pounds per 1000 square feet; make 2 passes at right angles.

C. Adjust rate of application and type of fertilizer as recommended in topsoil test report.

D. Lightly water to aid dissipation of fertilizer.

3.05 SEEDING

A. Apply seed at a total rate of not less than 5 pounds/1000 square feet; make 2 passes at right angles.

B. Seeding method shall establish smooth, uniform turf.

C. Cover seed with 1/8 inches of soil by light racking.

D. Do not seed following rain, if soil has been compacted by rain, or if ground is too dry.

E. Do not seed when wind velocity exceeds 6 miles per hour.

F. Do not seed areas in excess of that which can be mulched on same day.

G. Immediately after seeding, apply mulch to flat areas and erosion control blanket to areas with greater than 3H to 1V slopes.

H. Place mulch loose to allow some sunlight to penetrate and air to circulate, but thick enough to shade ground, conserve soil moisture, and prevent erosion.

I. Butt ends and edges of erosion control blanket snugly and staple to ground surface with 6-inch staples.

J. Apply water with fine spray immediately after area has been mulched or application of erosion control blanket. Leave area thoroughly soaked at close of each working day.

3.06 PROTECTION

A. Protect turf areas by erecting temporary fences, barriers, signs, and similar protection as

necessary to prevent trampling until acceptance by Owner.

B. Replace, repair, restake, or replant damaged seeding.

C. Protect slopes and embankments against erosion until Work is accepted. Repair eroded areas by refilling, reseeding, and remulching as required.

3.07 FIELD QUALITY CONTROL

A. Acceptance:

1. Notify Engineer when lawn areas are ready for final inspection.
2. Substantial completion will be granted upon conformance with following;

a. Turf reasonable free from weeds, diseases or other visible imperfections.
b. Turf displays uniform color, quality and coverage.
c. Minimum 3 mowings performed.
d. Fertilizer application performed after mowing.

3. After substantial completion, Owner will be responsible for maintenance.

3.08 MAINTENANCE

A. Maintenance shall begin immediately following installation of each portion of lawn. Continue until substantial completion.

B. Maintain lawns by watering, mowing, and repairing or replanting as may be necessary to produce uniform stand of grass until Work accepted.

C. Perform first mowing when average height of grass reaches 3 inches. Perform interim mowings, 2 minimum, as needed to maintain grass height at 2 to 2-1/2 inches. Do not remove more than 1/3 of leaf blade by mowing.

D. After completion of required interim mowings, apply 18-5-9 fertilizer as specified herein.

E. Control weed growth; apply herbicide in accordance with manufacturer’s instructions.

F. Top dress or resod excessive cracks appearing upon soil shrinkage.

END OF SECTION

DIVISION 33

UTILITIES

SECTION 33 01 30.72
CURED-IN-PLACE PIPE LINING

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Preliminary work for preparing sewer section to be rehabilitated with cured-in-place pipe (CIPP) liner.
2. Design and manufacture of the CIPP liner.
3. Placing the CIPP liner into existing sanitary sewer through the use of inversion or pulling methods.
4. Curing the liner.
5. Testing the liner following completion of installation.

1.02 SUBMITTALS

A. Contractor Qualifications:

1. Installer of cured-in-place liner must document through references installation of minimum of 10,000 lineal feet of 24-inch or larger CIPP.
2. 5-years minimum demonstrated successful application of lining process by onsite foreman.

B. Product Data:

1. Manufacturer's literature for materials used in liner.
2. Liner end seals.
3. Design calculations for structural properties of liner in accordance with specifications. Calculations to be prepared under the direction of a Licensed Professional Engineer registered in the State of Illinois. Include design criteria used for liner calculations.

C. Work Plan

1. Installation procedure
2. Construction sequence
3. Method of cure including cure temperature and time to reach cure.
4. Temperature monitoring system
5. Equipment
6. Emergency plan detailing procedures to be followed in event of pump failures, sewer overflows, service backups and sewage spillage. Maintain copy on site for duration of project.
7. Sewer user notification plan and procedures
8. Safety plan.

D. Miscellaneous Submittals:

1. Digital video (submitted electronically) of sewer televising before and after installation of CIPP.
2. Test results and/or certificates of compliance with specifications for the materials used.
3. Liner wet-out reports from the wet-out facility for each liner segment. Wet-out report to contain the following:

a. Resin manufacturer and type of resin being used, including lot number.

b. Size, thickness, and length of tube being wet-out
c. Manufacturer of dry tube
d. Static or drum/barrel mixing quality assurance during wet-out
e. Total amount of resin pumped into the dry tube
f. Vacuum pump connections to the dry tube – document number of connections
g. Vacuum gauge reading
h. Setting or spacing of the calibration rollers
i. Types of patches applied to liner at vacuum and pump insertion points
j. Excess resin, if any
k. Shipping container type
l. Other information as appropriate

4. Liner samples.

E. Submit in accordance with Section 01 33 00.

1.03 QUALITY ASSURANCE

A. Protection from sewage:

1. Finished liner when cured, shall be chemically resistant to domestic sewage including liquids and gases normally found in municipal sewers.

a. Use chemical solution and concentrations shown on ASTM F1216 Table X2.1 for purpose of defining chemical resistance requirements.

B. Testing shall be provided by Contractor in accordance with Section 01 45 29 and this section.

1. Test furnished liner in accordance with Paragraph 3.04.C of this section.

C. Contractor shall provide brief virtual training session with Owner to review continuous curing temperature monitoring data.

1.04 WARRANTY

A. Contractor shall warranty in writing the cured in place pipe lining against defects in material and workmanship for a period of 1 year.

PART 2 – PRODUCTS

2.01 APPROVED METHODS AND MANUFACTURERS

A. Insituform

B. Applied Felt, Inc.

C. National Liner

D. In-Liner

2.02 LINER

A. Resin:

1. Vinyl Ester, Polyester, or epoxy resins allowable. Specify resin used in design and

installation.

2. Resin shall not contain fillers, except those required for viscosity control or fire retardance. Up to 5% by mass thixotropic agent, which will not interfere with visual inspection, may be added for viscosity control.
3. Resins may contain pigments, dyes, or colorants, which shall not interfere with visual inspection of cured liner.

B. Fabric Tube:

1. Needle interlocked polyester felt, or an equivalent nonwoven or woven material, or combination of nonwoven and woven materials compatible with resin system.
2. Bags may be made of single or multiple layer construction. Stagger seams for multiple layers in a single tube.
3. Mechanical strengthener membrane or strips may be sandwiched in between layers where required to control longitudinal stretching.
4. Polyurethane or polyvinyl chloride membrane coating for finished interior of CIPP.
5. Minimum thickness of bonded interior membrane shall be 0.25 mm, +5%, and shall not affect structural dimension requirements of cured liner.
6. Tube must be compatible with the resin system used.

C. Resin and Felt Content:

1. Conform to manufacturer recommendations.
2. Average thickness of cured liner shall meet or exceed minimum design thickness. The minimum wall thickness at any point shall not be less than 90% of the design thickness. Measured thickness shall not include thickness of membrane coatings.

D. Cured liner shall conform to the minimum structural standards listed:

	Standard	**Minimum Value**
Modulus of Elasticity (Minimum)	ASTM D790	250,000 psi
Flexural Strength	ASTM D790	4,500 psi
Modulus of Elasticity (Option)	ASTM D790	400,000 psi

2.03 FABRICATION

A. Fabricate liner to size that when installed, will neatly fit internal circumference of pipe. Allowance shall be made for circumferential stretching during insertion. Contractor shall determine actual circumference of pipes to be lined including sections where deterioration may have increased the internal circumference.

2.04 DESIGN CRITERIA

A. Gravity sewer CIPP liner thickness shall be designed in accordance with ASTM F1216 Appendix X1 and the following additional requirements.

1. Groundwater surface elevations assumed at ground surface.
2. Assume no bonding to original pipe wall.
3. Depth of cover: as shown on Drawings.
4. HS-20 live load.

5. Fully deteriorated “host” pipe.
6. Factor of Safety against buckling: 2.0
7. Ovality: 5%, although higher values should be used if Contractor determines greater ovality exists in the existing host pipes.
8. Long term modulus of elasticity reduced by 50%.
9. Modulus of soil reaction 1000 psi maximum.
10. Soil weight 120 pounds per cubic foot.
11. Water weight 62.4 pounds per cubic foot.
12. Maximum head under normal operating conditions (measured from pipe invert to water surface elevation): 14 feet for 36-inch diameter pipe, 10 feet for 24-inch diameter pipe
13. Maximum possible head (measured from pipe invert to water surface elevation): 36 feet for 36-inch diameter pipe, 32 feet for 24-inch diameter pipe
14. Minimum liner thickness calculated below can used as a check when calculating liner thickness:

Line Segment	Flexural Modulus of Elasticity (psi)	
	250,000	400,000
	Minimum Thickness of CIPP Liner	
	(mm)	(mm)
24-inch diameter CIP	18.2	15.5
36-inch diameter CIP	28	24

Note: calculated liner thickness values in Table do not include the use of fiberglass or carbon fiber reinforcements

15. Minimum 50-year service life

2.05 CLEANING EQUIPMENT

A. Selection:

1. Equipment selected for cleaning shall be capable of removing sludge, grease, debris, roots, deposits, and other deleterious materials and obstructions from sewers without damage to existing lines.
2. Selection of equipment shall be based on conditions of lines at time work commences and at sole discretion of Contractor to achieve removals of materials specified.

2.06 WATER

A. Water used in construction shall conform to requirements of Section 01 52 00.

2.07 LINER END SEALS

A. Rubber hydrophilic seal with mechanical bands in accordance with liner manufacturer recommendations.

B. Meet or exceed water tightness requirements of ASTM C923.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Televise condition of pipe interior on sewers after cleaning but before starting liner work and provide video of inspection to Engineer. Submit video of inspection to Engineer in accordance with section 01 33 00.

B. Television Camera requirements:

1. Specifically designed and constructed for sewerline television.
2. Lighting shall be provided with the camera and be suitable to provide clear picture for periphery of pipe.
3. Operative in 100% relative humidity conditions.
4. Minimum of 600 line resolution.
5. Achieve peak picture quality throughout all conditions encountered, variable intensity control of camera lights and remote control for focus and iris shall be located at monitoring station.
6. Focal distance shall be adjustable through range from 6 inches to infinity.

C. Camera, television monitor, and other components of video system shall be capable of producing picture quality to satisfaction of Engineer. If unsatisfactory picture quality occurs, equipment shall be removed and replaced with equipment meeting the Engineer's approval.

3.02 PREPARATION

A. Prior to CIPP installation, remove sludge, grease, debris, roots, deposits, and other deleterious materials and obstructions from sewer line with sewer cleaning equipment.

B. Cleaning:

1. Clean sanitary sewerline sections. Selection of equipment shall be based on conditions of lines at time work commences. Existing sewer CCTV videos are available by request. Sewer CCTV videos indicate deposits/tuberculation in the existing cast iron sewer lines. Heavy mechanical cleaning will be required.
2. Whenever lines to be cleaned show evidence of being more than one-half filled with solids, bucket machines, rodding machines, and/or vacuum machines may be required.
3. Continue to clean sewers until all debris is removed.

C. Retelevise and reinspect if more than 25% of sewer was filled with debris or numerous repairs were performed to verify liner installation conditions are suitable. Televising during final jetting pass after repairs were performed is acceptable.

3.03 INSTALLATION

A. Preparation of Liner:

1. Designate location where uncured resin in original containers and unimpregnated liner will be vacuum impregnated prior to installation. Contractor shall allow Engineer to inspect materials and "wet out" procedure. Vacuum impregnation of liner will be required unless prior approval from Engineer and Owner is received. Submit wet-out report.
2. Resin and catalyst system compatible with requirement of this method shall be used. Quantities of liquid thermosetting materials shall be to manufacturer's standards to provide lining thickness required.
3. Liner bag shall be impregnated with resin not more than 24 hrs before proposed time of installation and stored out of direct sunlight at temperature less than 40^{o}F (4^{o}C). Longer liner impregnation times will be allowed upon written notification of resin manufacturer.
4. Transport resin impregnated liner to site immediately prior to installation in suitable light-proof container with temperature maintained below 40^{o}F (4^{o}C).

B. Access Points:

1. Prepare access points at existing manholes or other locations as indicated on the Drawings.
2. Remove and store manhole cones, frames and covers, if required to insert liner. Replace

following installation.
3. Backfill and compact access pit excavations and restore all surface features.

C. Installation of Liner:

1. Insert liner through existing access opening at Gatewell Structure and pump station Headbox by either of the following methods:

   a. By means of an inversion process and application of hydrostatic head or air pressure sufficient to fully extend liner to next designated manhole or termination point and firmly into contact with the existing pipe walls, or;
   b. Pulling or winching liner into place and application of hydrostatic head or air pressure sufficient to expand liner bag and place it firmly into contact with the existing pipe walls.
   c. Evidence that liner bag or resins are being damaged in any manner including but not limited to stretching, tearing, and cutting of liner and diluting, removing, and premature setting of resins will be sufficient cause for Engineer to suspend the installation process until the Contractor remedies the cause of the problem.

2. Lubricant may be used if specifically approved by the manufacturer and compatible with the resin system being used.

3. Remove and replace access grates and ladders as required to insert the liner.

D. Curing Liner:

1. After installation is complete, provide heat source and water recirculation equipment. Equipment shall be capable of delivering hot water or steam throughout section to uniformly raise temperature above the temperature required to initiate cure of resin.
2. Provide heat source with suitable monitors to gauge temperature of incoming and outgoing water or steam supply.
3. Place thermocouples between the liner and the invert of the existing pipe at intermediate manholes and termination end.
4. Provide continuous temperature monitoring over the entire length of the liner during curing by installing a fiber optic cable at the invert of the existing pipe.
5. Water or steam temperature in line during cure period shall be as recommended by resin manufacturer.
6. Initial cure shall be complete when inspection of exposed portions of liner reveals liner to be hard and sound and remote temperature sensors indicate that temperature is sufficient to cure the liner. Cure period shall be of duration recommended by resin manufacturer.
7. Cool the CIPP in accordance with manufacturer's recommendations.

E. Manhole/Structure Connections:

1. At connections to manholes or structures, provide watertight end seal between sewer pipe and liner. Install per manufacturer instructions.

3.04 FIELD QUALITY CONTROL

A. Finished Liner:

1. Liner shall be continuous over entire length of segment being lined and be as free as commercially practicable from visual defects such as foreign inclusions, dry spots, pinholes, lifts, and delamination. Visual defects which exist in excess of 5% of liner or any defects which impede flow shall be corrected in accordance with the recommendations of the manufacturer.

2. During curing process, gauge water tightness under positive head.
3. Liner shall conform to shape of pipe existing before installation and not be out of round by more than 5%.
4. If liner does not fit tightly against “host” pipe at termination points, seal space between pipe and liner with resin mixture compatible with liner.

B. Felt and Resin Content of Liner:

1. Visually inspect liner to ensure number of layers of felt conforms to specified number of layers and thickness.
2. Calculate resin to felt ratio by weight on Wet-Out report.
3. Ratio shall meet manufacturer’s recommendation.

C. Testing:

1. Flexural Strength and Modulus of Elasticity:

a. Test in accordance with ASTM D790.
b. Samples and testing required for each segmental liner installation.
c. Samples to be taken from a section of cured CIPP that has been inverted or pulled through a like diameter pipe and held in place with a suitable heat sink. For pipes 18 inches and larger, plate samples cured with the CIPP are required.
d. Specimens tested shall be actual thickness of fabricated liner.
e. Do not machine specimen on surface.
f. Make test with smooth (inner) face in compression using 5 specimens.
g. Maintain liner samples until end of warranty period. Send remaining liner samples to Owner with proper Chain of Custody documentation.

2. Liner Thickness:

a. The method of obtaining CIPP wall thickness measurements should be determined in a manner consistent with ASTM D5813, Paragraph 8.1.2.
b. Thickness measurements should be made in accordance with ASTM Practice D3567 for samples prepared in accordance with ASTM D5813, Paragraph 7.2.
c. For pipes 18 inches and larger, obtain 2-inch diameter sample from the crown of the CIPP a minimum of one diameter length from the end of the CIPP.
d. Make a minimum of 8 measurements at evenly spaced intervals around the sample.
e. Repair sample hole as directed by the manufacturer.

3. Leakage Test

a. Water Exfiltration or Low Pressure Air Test are acceptable methods for testing the CIPP for leakage. Low Pressure Air Test shall only be used for sewers less than 36-inch in diameter. Conform to Section 33 04 00.
b. Perform test on all segments of CIPP installation.

D. Examination:

1. Televise interior of pipe after completion of Work as final test for leakage and provide video to Owner. Conform to Section 33 04 00.
2. Engineer will analyze videos to determine whether replacement sewers rehabilitated under this contract meet requirements of specifications. If defects are found, correct and re-televise sewer at no cost to Owner.

3.05 CLEANING AND RESTORATION

A. At completion of Work, remove rubbish, debris, dirt, equipment, and excess material from site. Clean adjoining surfaces soiled by and during course of Work. Conform to Section 01 74 00.

B. Restore areas disturbed in accordance with Section 32 92 00.

END OF SECTION

SECTION 33 04 00
TESTING BURIED PIPING SYSTEMS

PART 1 – GENERAL

1.01 SUMMARY

A. Leakage testing by infiltration/exfiltration.

B. Low pressure air test.

C. TV inspection.

1.02 SUBMITTALS

A. Test report for each piping system tested. Include following:

1. Date of test.
2. Description and identification of piping system tested.
3. Type of test performed.
4. Test fluid.
5. Test pressure.
6. Type and location of leaks detected.
7. Corrective action taken to repair leaks.
8. Results of retesting.

B. Submit in accordance with Section 01 33 00.

PART 2 – PRODUCTS

(NOT USED)

PART 3 – EXECUTION

3.01 GENERAL

A. Test in presence of Engineer.

B. Contractor shall provide water for testing in accordance with Section 01 52 00 for testing specified herein.

C. Provide pumps and piping required to bring water to point of use.

D. Provide test pressure equipment, meters, pressure gauges, and other equipment, materials, and facilities necessary to perform specified tests.

E. Provide bulkheads, flanges, valves, bracing, blocking, or other temporary sectionalizing devices that may be required.

F. Remove temporary devices after tests complete.

G. Perform tests on exposed piping after completely installed, including supports, hangers, and anchors.

H. Perform tests on piping before insulation installed.

I. Perform tests on piping that is clean and free of dirt, sand, or other foreign material.

J. Plug pipe outlets with test plugs. Brace each plug securely to prevent blowouts.

K. Add test fluid slowly.

L. Include regulator set to avoid over pressurizing and damaging piping.

M. Perform pressure testing in accordance with local, state, and federal requirements.

N. Correct leaks or defects and retest at no additional cost to Owner.

O. Following testing Contractor shall dewater test segments. Flushing prior to usage is not required provided the line is free of sediment and debris.

3.02 LEAKAGE TESTING BY INFILTRATION/EXFILTRATION

A. General:

1. Perform for sanitary or combined sewers 36-inch diameter and larger (concrete pipe).
2. Testing shall follow ASTM C969 and these specifications.
3. Conduct testing from manhole to manhole or between more than two manholes. The length of main tested shall not exceed 700 feet.
4. Determine the groundwater elevation at both ends of the test section. Contractor shall verify groundwater level by measuring water level at no more than 200-foot intervals with piezometers, test pits, well holes or other methods approved by Engineer. Contractor shall provide all necessary equipment, materials, and labor for such verification.
5. If the groundwater elevation can be shown to be less than 2 feet above the crown of the pipe measured from the highest elevation of the sewer, test sewer pipe by exfiltration test. If groundwater elevation for the entire section being tested can be shown to be at least 2 feet above the crown of the pipe, test pipe by infiltration test.
6. Conduct tests in presence of Engineer.
7. Provide weirs, meters, and other equipment, materials, and facilities necessary to make specified tests.
8. Provide bulkheads, blocking, bracing or other temporary sectionalizing devices that may be required.
9. Remove temporary sectionalizing devices after test complete.
10. Sewer segments failing to pass the infiltration or exfiltration test shall be inspected over their entire length to determine if individual spot locations are contributing excessive amounts of infiltration/exfiltration. Leakage which is observed at any single point which is excess of 0.5 gallons per hour in the opinion of the Engineer shall be corrected by removing and replacing the area in question regardless of the results of the test.
11. Sewer segments shall be retested after completion of point repairs. Sewers again failing the infiltration or exfiltration test shall be lined with an approved liner at no cost to the Owner. Chemical or cementious grout will not be allowed.
12. The Contractor is advised that individual joint air testing may be advisable as a part of the installation process to determine proper positioning of the gasket in the assembled joint. This testing however, will not substitute for the infiltration test.

B. Water Infiltration Test:

1. Infiltration test shall not be considered a valid infiltration leakage test unless top surface of groundwater level is minimum 2 feet above crown of pipe during test measurement.
2. Rate of infiltration of water into sewer project, including appurtenances, shall not exceed 25 gpd/in. dia/mile of sewer. Infiltration between any 2 adjacent manholes within the

tested section shall not be greater than 250% of allowable infiltration rate.

3. Infiltration allowance for manholes shall be computed using total number of vertical feet of manhole expressed as equivalent diameter sewer. (Manhole vacuum testing may still be required as applicable)

C. Exfiltration Testing:

1. Plug all pipes discharging into the upstream manhole and plug the test section outlet. Fill the sewer line with water.
2. At the upstream manhole the test head should be established a minimum of 2 feet above the crown of the pipe, or at least 2 feet above existing groundwater, whichever is higher.
3. Allow the pipe to remain saturated for a period long enough to allow water absorption in the pipe, a minimum of 4 hours and up to a maximum of 72 hours. After the absorption period, refill the pipe to the required test head.
4. Measure the leakage loss over a timed test period. The minimum test period shall be 15 minutes and the maximum shall not exceed 24 hours.
5. Rate of exfiltration shall not exceed 200 gallons per day per inch of internal diameter per mile of sewer (gpd/in. dia./mile of sewer) when the average head on the test section is 3 feet or less. When the average head on the test section is greater than 3 feet, the allowable leakage shall be multiplied by the ratio of the square root of the average test head and the square root of the base head of 3 feet.
6. Manholes may be tested separately and independently with an allowance of 0.1 gallons per foot of diameter per foot of head.

3.03 INTERNAL INSPECTION

A. Televise all sewers constructed in this Project.

1. Provide necessary safety equipment, personnel, lighting and materials to inspect sewer.
2. Inspection shall be done jointly by Contractor's representative and Engineer.
3. The Contractor may televise larger diameter sewers as approved by the Engineer.

B. Conduct internal inspections when groundwater is at normal level or above top of pipe, whichever is greater.

C. For purposes of inspection, normal groundwater levels shall be that indicated in soils investigations conducted for design of project.

D. Contractor shall verify groundwater level at no more than 200 ft intervals by measuring water level with piezometers, test pits, well holes or other methods approved by Engineer. Contractor shall provide all necessary equipment, materials, and labor for such verification.

E. Where groundwater is not above top of pipe during inspection, Contractor shall wait for groundwater to rise or raise groundwater level by jetting or water soaking to at least 2 ft above crown of pipe if level is insufficient for testing.

F. Sewer considered to have failed internal inspection if any of following are observed.

1. Visible infiltration at joint or connection.
2. Joints open in excess of ½ in. more than width of opening when joint is "home."
3. Improperly connected lateral or service sewer.
4. Cracked or broken pipe (beyond 0.01 in. for RCP).
5. Variance from design line and grade. Any variations from grade in excess of 0.05 ft or standing water in the pipe in excess of 0.05 ft.
6. Noncompliance with Specifications or requirement of Contract Documents.

G. Repair failed sewers by removing and replacing defective pipe sections or by other approved means.

3.04 LOW PRESSURE AIR TESTING

A. General:

1. Perform low pressure air testing for gravity sewer systems less than 36 inches in diameter.
2. Conform to ASTM F1417 and these specifications.
3. Test pipes between adjacent manholes. Test time for air pressure to drop 1.0 psi.

    a. Comply with Table 1 33 04 00 for CIPP liner.

B. Preparation:

1. Isolate pipe section to be tested by plugging each end with air tight plugs. Plug ends of branches, laterals and wyes which are to be included in test section.
2. Brace plugs to prevent slippage and blowout due to internal pressure.
3. One plug shall have inlet tap or other provision for connecting air supply.
4. Air control equipment shall consist of valves and pressure gauges to control rate at which air flows into test section and gauges to monitor air pressure inside pipe.

C. Testing:

1. If pipe to be tested is submerged in water, determine height of water above spring line of pipe at each end of test section and compute average. For each foot of water above pipe's spring line, increase test pressure by 0.43 psi.
2. Add air slowly to test section until pressure inside pipe is raised to 4.0 psi greater than average back pressure of water that may be over pipe
3. After pressure of 4.0 psi obtained, control supply of air so internal pressure maintained between 3.5 and 4.0 psi (above average water back pressure) for minimum of 2 minutes to allow temperature of air to come into equilibrium with temperature of pipe.
4. Determine rate of air lost by time pressure drop method.

    a. After temperature stabilized for 2 minute period, disconnect air supply. Allow pressure to decrease to 3.6 psi. At this pressure, start stopwatch to determine time required for pressure to drop 1.0 psi. Time required for loss of 1.0 psi is then compared to 33 04 00 Table 1.
    b. If time is equal to or greater than time indicated in table, test shall be acceptable.
    c. If time is less than time indicated in table, make appropriate repairs and retest.

TABLE 1 33 04 00
LOW PRESSURE AIR TEST
Plastic Pipe
Test time required for loss of air pressure of
1.0 psi for size and length of pipe indicated.

Pipe meter, in.	Minimum Time, min:s	Length for Minimum Time, ft	Time for Longer Length, s	Specification Time for Length (L) Shown, min:s						
				100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft
4	1:53	597	0.190 L	1:53	1:53	1:53	1:53	1:53	1:53	1:53
6	2:50	398	0.427 L	2:50	2:50	2:50	2:50	2:50	2:50	2:51
8	3:47	298	0.760 L	3:47	3:47	3:47	3:47	3:48	4:26	5:04
10	4:43	239	1.187 L	4:43	4:43	4:43	4:57	5:56	6:55	7:54
12	5:40	199	1.709 L	5:40	5:40	5:42	7:08	8:33	9:58	11:24
15	7:05	159	2.671 L	7:05	7:05	8:54	11:08	13:21	15:35	17:48
18	8:30	133	3.846 L	8:30	9:37	12:49	16:01	19:14	22:26	25:38
21	9:55	114	5.235 L	9:55	13:05	17:27	21:49	26:11	30:32	34:54
24	11:20	99	6.837 L	11:24	17:57	22:48	28:30	34:11	39:53	45:35
27	12:45	88	8.653 L	14:25	21:38	28:51	36:04	43:16	50:30	57:42
30	14:10	80	10.683 L	17:48	26:43	35:37	44:31	53:25	62:19	71:13
33	15:35	72	12.926 L	21:33	32:19	43:56	53:52	64:38	75:24	86:10
36	17:00	66	15.384 L	25:39	38:28	51:17	64:06	76:55	89:44	102:34
42	19:54	57	20.942 L	34:54	52:21	69:49	87:15	104:42	122:10	139:37
48	22:47	50	27.352 L	45:35	68:23	91:11	113:58	136:46	159:33	182:21
54	25:31	44	34.618 L	57:42	86:33	115:24	144:15	173:05	201:56	230:47
60	28:20	40	42.738 L	71:14	106:51	142:28	178:05	213:41	249:18	284:55

3.05 VACUUM TESTING MANHOLES

A. General:

1. Test manholes as recommended by manufacturer. All manholes shall be tested for leakage/air tightness.
2. Provide equipment such as pumps, gauges, regulators, hoses, pipe plugs, manhole frame plugs, necessary to perform air tests of manholes. Equipment configuration shall be such that there are no valves on or along air line between measuring point at manhole and pressure transducer or sensing device located in control unit on surface. Amount of pressure being exerted on joint shall be readable above ground on pressure gauge.
3. Accuracy and calibration of pressure sensing/monitoring system shall have been certified by reliable testing firm within one-month period preceding use of equipment. Proof of certification shall be submitted.
4. Test sanitary manholes only.

B. Equipment:

1. Pressure meter device shall accurately show PSIG to nearest 1/10 of one pound and shall respond to and record any change in void pressure instantly.
2. Systems which incorporate bladders, hoses, or like for monitoring pressure and which have questionable accuracy will not be allowed.

C. Testing Procedure:

1. Test sanitary manholes prior to installation of chimney seals.
2. Test in accordance with ASTM C1244 and D3753.
3. Isolate manhole to be tested by temporarily plugging al pipes entering the manhole.

4. Draw vacuum of 10 in. of mercury (5 PSIG or 0.03 Bar) within manhole.
5. If required vacuum pressure cannot be developed, manhole shall have failed test. Manhole being tested will also have failed if the time for the vacuum reading to drop from 10 in. of mercury to 9 in. of mercury meets or exceeds the values indicated in Table 1 or ASTM C1244.
6. Failure of manhole indicates need for sealing. Seal in accordance with manufacturer recommendations.
7. Retest until satisfactory results obtained.

END OF SECTION

SECTION 33 05 61
PRECAST CONCRETE STRUCTURES

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Circular and rectangular precast concrete manholes.

1.02 REFERENCES

A. IDOT: Illinois Department of Transportation Standard Specifications Current Edition

B. ASTM: American Society for Testing and Materials

1.03 SUBMITTALS

A. Product data:

1. Manufacturer's specifications and other data needed to prove compliance with specified requirements.
2. Manufacturers recommended installation procedures.

B. Provide certification reports attesting that materials supplied meet referenced specifications.

C. Shop drawings for manholes showing all components to be installed.

D. If manufacturer’s test data is inadequate or unavailable, Engineer reserves right to require cores drilled for compressive strength tests.

1.04 CALCULATIONS

A. A buoyancy calculation for each manhole documenting the following buoyancy criteria is met:

1. Minimum safety factor 1.1
2. Surface friction with backfill materials shall not be included.
3. Submerged soil weight of 55 pounds per cubic foot where soil weight is used to help hold down the manhole. Only soil directly above manhole or any anti-floatation devices may be included.
4. Water table to 100-year flood elevation.
5. No water weight to be included inside structure.
6. Weights for castings, all precast components and any manufacturer supplied fillets in bottom of manhole may be included.

B. Submit in accordance with Section 01 33 00.

1.05 QUALITY ASSURANCE

A. Manufacturer shall conform to requirements of ASTM C478.

PART 2 – PRODUCTS

2.01 PRECAST CONCRETE SECTIONS

A. Circular Precast Structures:

1. Provide reinforced precast concrete manhole sections complying with ASTM C478.
2. No “see through” lift holes shall be allowed on precast concrete manholes and risers 48 inches in diameter or less.
3. All lift holes on structures greater than 48 inches in diameter shall be thoroughly wetted and completely filled with non-shrink mortar or epoxy grout; then smoothed and covered on the outside, with a trowelable grade butyl rubber base backplaster material to minimize leakage.
4. Provide integral anti-floatation collars (extended bases) with a minimum width of 6 inches around bottom of all manholes. Provide larger collars for manholes that calculations indicate have buoyancy safety factors less than 1.2 so that required factor of safety is achieved. Other methods of buoyancy control may also be acceptable upon Engineer’s approval.
5. Provide eccentric cone type precast or flat top slabs as shown on Drawings.
6. Wall Thickness:

Structure/Riser Diameter	**Minimum Wall Thickness**
4 feet	5 inches
5 feet	6 inches
6 feet	7 inches
7 feet	8 inches
8 feet	9 inches
10 feet	11 inches

B. Rectangular Precast Structures:

1. Provide reinforced precast structures complying with ASTM C913.
2. All lift holes shall be thoroughly wetted and completely filled with non-shrink mortar or epoxy grout; then smoothed and covered on the outside, with a trowelable grade butyl rubber base backplaster material to minimize leakage.
3. Provide integral anti-floatation collars (extended bases) with a minimum width of 6 inches around bottom of all manholes. Provide larger collars for manholes that calculations indicate have buoyancy safety factors less than 1.1 so that required factor of safety is achieved. Other methods of buoyancy control may also be acceptable upon Engineer’s approval.

C. Joints:

1. Single off-set with rubber gaskets meeting requirements of ASTM C443.
2. Joints shall be watertight.
3. Joints shall be wrapped in geotextile fabric conforming to Section 31 23 33. Geotextile wrap shall extend 2 feet to each side of joint.

D. Mark each precast section with name or trademark of manufacturer and date of manufacture. Marking shall be indented into manhole section or shall be painted thereon with waterproof paint.

E. Source Quality Control:

1. Test risers and tops in accordance with ASTM C497 for compressive strength compliance by compression tests on cores drilled from 5% of lot.
2. Number of compression tests may be reduced to 1% of lot, with minimum of two cores per lot, for manhole sections fabricated on sewer pipe machine.
3. Manufacturer's core drilling machine shall conform to ASTM C497. Operator shall take test cores as directed by testing laboratory.
4. Stamp base sections, risers and tops, meeting strength requirements, with appropriate monogram.

2.02 STEPS

A. Conform to requirements of ASTM C478 and U.S. Department of Labor Occupational Safety and Health Standards.

B. Steel Reinforced Plastic:

1. Approved plastic such as copolymer polypropylene meeting with requirements of ASTM D4101, Type II, Grade 49108, reinforced with deformed 3/8 inch diameter reinforcing bar which conforms to requirements of ASTM A615, Grade 60.

C. Equally space steps in true vertical alignment to form continuous ladder at distance of 16 in oc. Place steps within allowable tolerance of +/- 1 inch.

D. Manufacturer shall install steps. Embed steps into wall minimum of 3 inches.

2.03 CONCRETE

A. Field constructed concrete benching: Class B2 concrete in accordance with Section 03 30 00.

B. Precast concrete structures: Conform to IDOT Article 602 and 1042.

2.04 MORTAR

A. Comply with ASTM C270, Type M.

2.05 FRAMES AND COVERS

A. Provide hatches in accordance with the Drawings and Section 05 50 00. Hatches shall be cast flush in precast structure flat slab tops.

2.06 PIPE TO MANHOLE CONNECTIONS

A. All connections shall provide for a watertight seal between pipe and manhole.

B. Provide flexible manhole connectors meeting the requirements of ASTM C923.

2.07 BEDDING MATERIAL

A. Conform to Section 31 23 33.

PART 3 – EXECUTION

3.01 SURFACE CONDITIONS

A. Examine areas and conditions under which work of this Section will be performed. Correct

conditions detrimental to timely and proper completion of Work. Do not proceed until unsatisfactory conditions are corrected.

3.02 FIELD MEASUREMENTS

A. Make necessary measurements in the field to assure precise fit of items in accordance with the approved design.

3.03 INSTALLATION

A. Trench, backfill, and compact for work of this Section in accordance with pertinent provisions of Section 31 23 33.

B. Standard Precast Manhole with Integral Base:

1. Excavate deep enough so bottom manhole barrel section with integral base rests on 4 inches minimum of bedding material. Bedding material shall extend 6 inches beyond the footprint of the structure.
2. Set manholes plumb with orientation of cast-in items as shown on Drawings.

3.04 EXTERIOR JOINT WRAP

A. Wrap with geotextile fabric. Wrap shall be centered on the joints a minimum of 24 inches on each side. Ends and edges shall lay flat against the structure.

3.05 BACKFILL

A. Backfill with pipe bedding and cover material to spring line of incoming pipe in accordance with Section 31 23 33.

3.06 MANHOLE BENCH (CONSTRUCTED IN FIELD)

A. Shape invert channels to be smooth and semicircular, conforming to inside of adjacent sewer sections.

B. Make changes in direction of flow with a smooth curve of as large a radius as size of manhole will permit.

C. Make changes in size and grade of channels smoothly and evenly.

D. Form invert channels directly manhole base, with concrete. On manholes with straight through pipe invert may be formed by laying full section sewer pipe through manhole and cleanly breaking out top half after surrounding concrete has hardened.

E. Smooth floor of manhole outside channels, and slope toward channels at not less than 1 inch per foot or more than 2 inches per foot.

F. Construct outside drop at sanitary manholes whenever free drop inside manhole exceeds 24 inches measured from invert of inlet pipe to top of floor of manhole outside channels.

3.07 PIPE TO MANHOLE CONNECTION

A. Support pipe entering manhole above manhole base from wall of manhole back to face of first pipe joint bell with wall of backfill concrete, brick or solid concrete block columns.

B. Connect by means of an approved flexible watertight pipe to manhole seal.

3.08 TESTING AND INSPECTING

A. Do not allow or cause any of Work of this Section to be covered up or enclosed until after it has been inspected.

B. Precast reinforced concrete manholes, inlets, catch basins, risers and tops shall be subject to rejection on account of failure to conform to any specification requirements. In addition, individual sections may be rejected because of any of the following reasons:

1. Fractures or cracks passing through shell, except for single end crack not exceeding depth of joint.
2. Defects indicating imperfect proportioning, mixing, and molding.
3. Surface defects indicating honeycombed or open texture.
4. Damaged ends where such damage would prevent making satisfactory joint.
5. Manhole steps out of line, or not properly spaced.
6. Infiltration into sanitary sewer exceeding 0.0758 gal/vert ft/hr.
7. Internal diameter of section varying more than 1% from nominal diameter.
8. Any continuous crack having surface width of 0.01 in. or more and extending for length of 12 in or more, regardless of position.

C. Manhole seals shall be approved by inspecting Engineer after application and prior to backfilling.

3.09 TESTING AND INSPEECTION

A. Test in accordance with Section 33 04 00.

END OF SECTION

SECTION 33 31 13
SANITARY SEWER GRAVITY PIPING

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Sanitary sewer pipe materials and installation.

1.02 REFERENCES

A. ASTM: American Society for Testing and Materials

B. AASHTO: American Association of State Highway and Transportation Officials

C. AWWA: American Water Works Association

1.03 SUBMITTALS

A. General:

1. Submit Product Data in sufficient detail to confirm compliance with requirements of this Section. Submit Product Data and Shop Drawings in one complete submittal package. Partial submittals are unacceptable.

B. Product data:

1. Manufacturer's specifications and other data needed to prove compliance with specified requirements.
2. Manufacturers recommended installation procedures.

C. Provide certification reports attesting that materials supplied meet referenced specifications

D. Calculations verifying pipe class, installation conditions, and floatation (for depths less than 6 feet).

E. Pipe layout/installation guide from manhole to manhole by pipe diameter and pipe class.

F. Pipe joint certification indicating compliance with specified hydrostatic head rating.

G. Submit in accordance with Section 01 33 00.

H. Results of plant tests shall be included with shipment of materials, with two additional copies of each test result to be furnished to Engineer.

1.04 QUALITY ASSURANCE

A. Pipe manufacturer shall have minimum of five (5) years experience manufacturing pipe in accordance with ASTM Standard Specifications.

B. Plant Testing:

1. Three-edge bearing load test circular reinforced concrete sewer pipe (per ASTM C497) to

0.01-inch crack D-load specified in tables 1 through 5 of ASTM C76 on pipe manufactured for this project.

2. All plant testing shall be in accordance with AWWA C151 for tensile and impact tests. Hydrostatic testing is not required for gravity applications. Testing shall be performed on pipe manufactured for this project.
3. For pipe testing frequency, pipe lot shall be defined as pipe of same diameter and class or D-Load manufactured by same process in one plant, over period not to exceed approximately 2 weeks.
4. Engineer or Engineer's representative will randomly select test pipe from each lot as follows:

    a. For lots of 100 or more pipe, 1% of number of pipe in lot with a minimum of 2 pipes selected.
    b. For lots less than 100 pipe, 1 pipe will be selected.
    c. For lots less than 10 pipes, testing may be waived by Engineer if manufacturing plant has satisfactory specification compliance on other pipe lots.

PART 2 – PRODUCTS

2.01 GRAVITY SEWER PIPE STRENGTH DESIGN

A. All sewer pipe materials provided shall be designed in accordance with the following criteria:

1. Traffic Loading = HS-20 per AASHTO, Traffic impact = 30% for depths less than 5 feet.
2. Soil loading based upon depth and unit weight of 125 pounds per cubic feet.
3. Trenching and Bedding as per details shown in plans for pipe types and per Section 31 23 33.
4. Ground water table assumed to be at the surface.
5. Saturated soil weight for bouyancy calculations = 62.5 pounds per cubic feet.
6. Safety factor for pipe buoyancy calculations =1.3.

B. Reinforced Concrete pipe shall meet following additional design criteria:

1. Concrete pipe ultimate strength = 1.5 times design strength for design strengths under 2000 psf, 1.25 times design strength for design strengths over 3000 psf, and varying linearly between 1.5 and 1.25 for strengths between 2000 and 3000 psf respectively.
2. K*u*= factor = .11
3. Bedding Angle = 90^0; Bedding Constant = 0.096

2.02 REINFORCED CONCRETE PIPE

A. Reinforced Concrete Pipe: ASTM C76, single offset joints and profile gaskets.

1. Wall thickness: Minimum ''B'' wall
2. Pipe class and diameter as shown on the Drawings

B. Pipe joints:

1. Conform to ASTM C361.
2. All joints shall be certified by pipe manufacturer to perform at thirty (30) feet of hydrostatic head.

C. Gaskets

1. Flexible, watertight, rubber

2. ASTM C1619 Class A

D. Handling holes not permitted.

2.03 JOINT WRAP

A. Pipe shall have joints wrapped with geotextile fabric conforming to Section 31 23 33.

B. Wrap pipe joints in accordance with subparagraph 3.03 of this Section.

2.04 UNDERGROUND PIPE TRACER WIRE

A. Tracer Wire: 12 gauge AWG copper-clad steel wire with 30 mil HDPE jacketing for underground installation, as manufactured by Copperhead Industries or approved equal. HDPE jacket color to conform to APWA uniform color code.

B. Connectors:

1. Buried tracer wire connections and splices shall be via moisture displacement connectors. Buried connections made by twisting wires together and taping them is not acceptable.
2. Acceptable products:

a. Copperhead Industries SnakeBite Connectors
b. 3M DBR Connectors
c. 3M Direct Bury Splice Kit No. 09053
d. Or equal.

C. Access Points/Test Stations:

1. Paved, lawn, or other urban or residential areas:

a. Flush mount access box
b. Cast iron plug style lid with standard pentagon bolt
c. Lid marked with lettering according to utility
d. Acceptable products:

i. Snakepit Roadway Access Point with single-terminal cast iron lid, as manufactured by Copperhead Industries or approved equal.

2. Wooded Areas:

a. Marking post type test station
b. Triangular marker post composed of UV resistant plastic
c. Minimum of two stainless steel test terminals
d. Color: green
e. Acceptable products:

i. Rhino TriView Test Station
ii. Approved equal

2.05 DETECTABLE UNDERGROUND LINE WARNING TAPE

A. Permanent, bright colored, continuous printed polyethylene with a sandwiched aluminum core tape with the following features:

1. Size: Not less than 6 inch wide by .005 inch thick (152 millimeter wide by 0.127 millimeter thick).
2. Resistant to acids, alkalis and other destructive agents found in soil.
3. Compounded for permanent direct burial service – 5+ Years buried.
4. Storage Durability – 5+ Years
5. Embedded continuous metallic strip or core.

B. Provide black text over colored background based on service in accordance with APWA Uniform Color Code and as shown below:

Color Code	Swatch
Electric Power Lines, Cables, Conduit, and Lighting Cables	Red
Gas, Oil, Steam, Petroleum or Gaseous Materials	Yellow
Communication, Alarm or Signal Lines, Cable or Conduit	Orange
Potable Water	Blue
Sewers and Drain Lines	Green
Reclaimed Water, Irrigation and Slurry Lines	Purple
Temporary Survey Marking	Pink
Proposed Excavation	White

PART 3 – EXECUTION

3.01 SURFACE CONDITIONS

A. Examine areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.02 FIELD MEASUREMENTS

A. Make necessary measurements in the field to assure precise fit of items in accordance with approved design.

3.03 INSTALLATION

A. Trenching and backfill for Work of this Section shall conform to Section 31 23 33 and pipe manufacturer's recommendations.

B. Pipe laying:

1. Protect pipe during handling against shocks and free fall. Remove extraneous material from pipe interior.
2. Between manholes all gravity pipe shall be of same strength class and as shown on layout/installation guide.
3. Lay pipe by proceeding upgrade with spigot ends of bell-and-spigot pipe pointing in direction of flow.
4. Lay each pipe accurately to indicated line and grade, aligning so sewer has a uniform invert. Noticeable variations from true alignment and grade shall be considered sufficient cause for rejection of Work.
5. Continually maintain interior of pipe free from foreign material. Provide watertight plugs for open ends of pipe when laying not in progress.

6. Before making pipe joints, clean and dry all surfaces of pipe to be joined.
7. Use lubricants recommended by pipe manufacturer.
8. Place, fit, join, and adjust joints to obtain water tight seal.
9. Wrap concrete pipe joints with geotextile fabric. Geotextile fabric shall extend a minimum distance of 2 feet on each side of joint.
10. Lay pipe to line and grade so horizontal and vertical joint deflection will not be more than 50% maximum deflection as recommended by manufacturer.
11. Laying of Pipe in Cold Weather:

    a. Heat pipe and jointing material to prevent freezing of joints, as recommended by manufacturer.
    b. Do not lay pipe on frozen ground.
    c. Pipes with rubber gaskets or resilient type joints: Warm gasket or joint material to facilitate making proper joint.

12. Tracer Wire Installation:

    a. Install on RCP pipe.
    b. Secure tracer wire to pipe, including stubs and dead ends, at top of pipe and tape at 10 ft intervals.
    c. Positively electrically connect wire to terminate at structure.
    d. Where pipe terminates at a structure, bring tracer wire to surface.

13. Underground Marking Tape Installation:

    a. During trench backfilling, for exterior underground utilities, provide continuous detectable underground type plastic line markers located directly above line at 12 to 24 inches above the utility.

3.04 WATER AND SEWER SEPARATION REQUIREMENTS

A. Locate sewer at least 10 feet away, horizontally, from water supply main or service line, as measured from outside edges of pipe.

B. Where water lines cross gravity sewer lines, or run parallel to sewer lines with less than 10 feet of horizontal separation, bottom of water main shall be located at least 18 inches above sewer.

C. Where water and sewer lines cross, the minimum vertical separation shall extend a minimum distance of 10 feet horizontally on each side of the crossing, as measured from the outer edge of the crossing sewer pipe. No joints shall be located within 10 feet of the crossing.

D. When these conditions cannot be met:
   1. Place water or sewer in a water main quality casing pipe. Casing pipe to extend for a distance of ten feet on each side of crossing; or, when sewer and water main are parallel, until a horizontal separation of ten feet is achieved.
   2. Use acceptable pressure rated pipe for sewer with no joint closer horizontally than 10 feet from crossing. Pressure rated sewer pipe shall extend a minimum distance of 10 feet horizontally on each side of the crossing, as measured from the outer edge of the crossing sewer pipe; or when sewer and water main are parallel, until a minimum separation of 10 feet is achieved.

3.05 TESTING AND INSPECTING

A. Do not allow or cause any work of this Section to be covered until after it has been inspected.

B. Provide the following in accordance with Section 33 04 00.

1. Televising of sewer installation
2. Leakage test

END OF SECTION

DIVISION 40

PROCESS INTERCONNECTIONS

SECTION 40 05 59.23
STAINLESS STEEL SLIDE GATES

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Slide Gates.
2. Gate Operators.
3. Gate Accessories.

B. Provide gates as specified in Stainless Steel Gate Schedule.

1.02 DEFINITIONS

A. EPDM: Ethylene Propylene Diene Monomer

B. GPM: Gallons per Minute

C. UHMWPE: Ultra High Molecular Weight Polyethylene

1.03 REFERENCES

A. ASTM: American Society of Testing and Materials

B. AWWA: American Water Works Association

1.04 SYSTEM DESCRIPTION

A. Design and Performance Requirements:

1. Conform to AWWA C561.
2. Proportion for stresses occurring during continuous operation and for additional stresses occurring during fabrication or installation.

B. Field Leakage Criteria:

1. Seating Head: Leakage shall not exceed 0.05 gallon per minute per foot of periphery under design head conditions.
2. Unseating Head: Leakage shall not exceed 0.1 gallon per minute per foot of periphery under design head condition.

1.05 SUBMITTALS

A. General:

1. Submit Product Data in sufficient detail to confirm compliance with requirements of this Section. Submit Product Data and Shop Drawings in one complete submittal package. Partial submittals are unacceptable.

B. Product Data:

1. Catalog cuts and product specifications for gates specified.

2. Coating systems. Submit in accordance with Section 09 96 00.

C. Shop Drawings:

1. Installation and assembly drawings and specifically prepared technical data for gates.
2. Stainless Steel Gate Schedule. Identify all gates by type number, pipeline, location, joint type, manufacturer, and model or catalog number.
3. Slide gate calculations demonstrating compliance with performance data.
4. Stem and operator calculations.
5. Slide gate yoke calculations.

D. Test Results:

1. Certified reports of manufacturers' factory production and final tests indicating compliance of gates with referenced standards.
2. Certified reports of field tests and observations.

E. Submit in accordance with Section 01 33 00.

F. Operation and Maintenance (O&M) Data:

1. Operating instructions and maintenance data for materials and products for inclusion in O&M Manual.
2. Manufacturer's written instructions for periodic tests of gates in service.
3. Submit in accordance with Section 01 33 00.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Firms experienced in manufacturing equipment of types and capacities indicated that have record of successful in-service performance.

B. Single-Source Responsibility: Obtain gate components from single manufacturer with responsibility for entire system. Unit shall be representative product built from components that have proven compatibility and reliability and are coordinated to operate as unit as evidenced by records of prototype testing.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver gates and system components to their final locations in protective wrappings, containers, and other protection that will exclude dirt and moisture and prevent damage from construction operations. Remove protection only after equipment is made safe from such hazards.

B. Store equipment in clean, dry location.

C. Manufacturer shall define the requirements to properly protect the equipment and parts shipped to the job site.

1.08 MAINTENANCE

A. Provide spare parts necessary to maintain the equipment in service for a period of two years.

B. Provide special tools required for checking, testing, parts replacement, and maintenance.

C. Spare parts shall be suitably packaged and labeled with the name and number of the

equipment to which they belong.

PART 2 – PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Whipps, Inc.

B. RW Gate Company

C. Hydro Gate

2.02 STAINLESS STEEL SLIDE GATES

A. Gates:

1. Construct disc of A240, Type 316L stainless steel as specified in Stainless Steel Gate Schedule.
2. Reinforce with A240, Type 316L stainless steel welded to plate. Disc and reinforcement shall have minimum material thickness of 1/4-inch.

    a. Designed for maximum deflection of 1/720th of its span or 1/16-inch whichever is less, under design head.

3. Mount molded resilient rubber seal on bottom of disc or flush-bottom seal mechanically fastened to bottom frame of invert member.

    a. Provide flush bottom closure.
    b. Shape seal to produce seating surface 3/4-in. wide, minimum.
    c. Vertical face of seal shall contact seating surface of guides to properly seal corners.
    d. Seals shall be mechanically fastened to disc or invert member.

4. Side Seals: Provide resilient bulb seals or self-adjusting UHMWPE seals in frame.

B. Guides:

1. Construct guides of A240, Type 316L stainless steel as specified in Stainless Steel Gate Schedule. Guides and frame shall have minimum material thickness of ¼-inch.
2. Frame shall be integral unit of brake form and structural shapes, rigidly assembled to form waterway openings.
3. Weld guides to form rigid, self-contained frame.

    a. Frame invert shall form seating surface for resilient seal mounted on disc or frame.
    b. Guides extending above operating floor shall be sufficiently strong so further reinforcing not required.
    c. Yoke shall support operating bench stand.
    d. Design yoke so disc and stem can be removed without disconnecting yoke.
    e. Form yoke by two angles or channels welded at top of guides to provide one-piece rigid frame.

4. Provide replaceable, UHMWPE seats in guides. All seats and seals shall be mechanically fastened and shall be field replaceable.

    a. Seats shall contact both faces of disc.

2.03 GATE ACCESSORIES

A. Operator:

1. Manual operators shall be sized to permit operation of gate under full operating head with maximum effort of 40 pounds on hand crank and shall be able to withstand, without damage, an effort of 80 pounds.
2. Provide single or double gear reduction, depending upon lifting capacity required. Steel or cast iron gears with machine cut teeth designed for smooth operation.
3. Mount gearing and lift nut in cast aluminum or ductile iron housing and support with cast iron or fabricated 304L stainless steel pedestal to place stainless steel input shaft approximately 36 inches above floor.
4. Provide lubrication fittings in gear housing to permit lubrication of gears and bearings.
5. Hoist nut shall be manganese bronze conforming to ASTM B584 C86500.
6. Hoist nut shall be supported on ball or roller bearings.
7. Lubrication fitting shall be provided for lubrication of hoist bearings without disassembly of hoist.
8. Suitable seals shall be provided to prevent entry of foreign matter.
9. Direction of hand crank rotation to open gate shall be clearly and permanently marked on hoist.
10. All bearings and gears shall be totally enclosed in weather tight housing. Pinion shaft of crank-operated mechanisms shall be constructed of stainless steel and supported by ball, roller, or needle bearings.
11. Pedestals shall be fabricated from 316L stainless steel and shall have a 3/8-inch minimum thick base plate and operator mounting plate.
12. Install pedestals using max. 1-in thick leveling grout pad.
13. Crank shall be cast aluminum and fitted with nylon or brass rotating handle.
14. Maximum crank radius shall be 15 inches.
15. Hand crank shall be removable to allow for operation by portable electrical drill on remaining square nut.

B. Lifting Mechanism

1. Provide gates for manual or hoisting mechanism operation as indicated in the Stainless Steel Gate Schedule.

    a. Provisions for manual operation shall be, reinforced lifting clevis hole, single lift or lifting lug. Reinforced lifting clevis hole shall consist of 1” dia lifting hole with extra thickness welded to gate before drilling hole in order to provide additional surface area clevis pin will contact.
    b. Provide 2 adjustable bronze stop collars on stems of manually operated gates to set open and closing settings.
    c. Bottom of gate in full open position to be at or above top of gate elevation when fully closed.
    d. When in closed position, gates shall seat flush with bottom and be provided with compressible resilient seal mounted on disc or frame. Specially mold and design seal to produce wide sealing surface.
    e. Provide stainless steel operating stem attached to disc with stainless steel or bronze stem connector. Stem shall have minimum diameter of 1½-inches.
    f. Where gate width is in excess of 48 inches and equal to or greater than twice gate height, provide multiple operating stems. Mechanically interconnect multiple operating stems to provide uniform gate operation. Where electrically actuated, provide actuator installation bracket. Coordinate position of actuator, hand crank, and controls with Engineer.

        1) For Dual Stem application, provide bevel gearboxes with electric actuator mounted

to one of the gearboxes or mount the electric actuator and intermediate gearbox to drive bevel gearboxes. Actuator installed where any part of actuator extends beyond outside width of gate frame into walkway area is not acceptable.

2) Provide flexible couplings and an extruded aluminum or Type 316L stainless steel shaft or tubing with stainless steel connecting bolts.
3) Coat exposed portion of bevel gearbox shaft connecting to actuator gearbox to protect from corrosion. Coat shaft in accordance with Section 09 96 00. Protect bevel gear shaft seal from coating. Once connected, provide thin film of grease at shaft and seal interface to protect small area not covered by coating.
4) Provide removable corrosion resistant guard to prevent contact with rotating shaft assembly.
5) All fasteners shall be Type 316 stainless steel.

C. Stem Covers

1. Gate stems shall be provided with clear rigid plastic stem covers to provide indication of gate position, permit inspection of stem threads, and protect stem from contamination.
2. Vent holes shall be provided to prevent condensation.
3. Stem cover shall have cap and condensation vents as well as a clear Mylar position indicating tape. Tape shall be field applied to stem cover after gate has been installed and positioned.

2.04 SPARE PARTS:

A. Provide one (1) bronze operating nut of each size stem.

B. Provide one (1) stop collar of each size stem.

2.05 COATINGS

A. Provide in accordance with Section 09 96 00 unless specified otherwise in this Section.

B. Manufacturer is responsible for surface preparation, prime coat, and second coat of equipment in the factory prior to shipment unless otherwise noted.

C. Manufacturer is responsible for the surface preparation and all motor coatings in the factory prior to shipment.

D. Contractor shall provide final third finish coat for equipment in the field and be responsible for touchup and any additional specified coatings.

E. Final color of exposed equipment and motors shall be selected by Owner.

F. Stainless steel, bronze, and nonmetallic surfaces shall not be coated.

G. Coat machined or bearing surfaces and holes with protective grease.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install gates in accordance with manufacturer's written instructions.

B. Installation of all parts shall be done by Contractor in a workmanlike manner and in accordance with detailed technical installation procedures supplied by gate manufacturer. It shall be

Contractor’s responsibility to handle, store, and install gate operating mechanism and accessories in strict accordance with manufacturer’s drawings and recommendations.

C. Equipment provided under this section shall be fabricated, assembled, erected, and placed in proper operating condition in full conformity with Drawings, Specifications, engineering data, instructions and recommendations of equipment manufacturer unless exceptions are noted by Engineer.

D. Gates and operators shall be supplied with all necessary parts and accessories indicated on Drawings, specified or otherwise required for a complete, properly operating installation.

E. Gates shall be shop inspected for operation before shipping.

F. Install gates in accordance with manufacturer’s written recommendations and approved submittals.

G. Electric actuator orientation and positioning, or rotation of various component heads on actuator may be required to be adjusted in the field after, or during, installation. Contractor shall coordinate with Engineer in positioning actuator to allow best access to controls and allow hand crank to be in lowest position possible and accessible with portable actuator.

H. Electrical connections to actuators shall be located beneath the actuator.

3.02 FIELD QUALITY CONTROL

A. Manufacturer's Field Services:

1. Supplier's or manufacturer's representative for equipment specified herein shall be present at jobsite for workdays indicated, travel time excluded, for assistance during plant construction, plant startup, and training of Owner's personnel for plant operation. Include:

    a. 1 workday for Installation Services.
    b. 1 workday for Instructional Services.
    c. 1 workday for Post Startup Services.

2. Supplier or manufacturer shall direct services to system and equipment operation, maintenance, troubleshooting, and equipment and system-related areas other than wastewater treatment process. See Section 01 61 00.

3. In addition to the services specified above, provide manufacturer’s services as required to successfully demonstrate operation of equipment.

3.03 DEMONSTRATION

A. After installation is complete, test and demonstrate operation of equipment in accordance with manufacturer’s instructions. In addition to services specified above, provide Supplier’s or Manufacturer’s field services as required to successfully demonstrate operation of equipment.

B. After installation has been completed, test slide gates under normal operating conditions in presence of Engineer.

C. Repair leaks or other imperfections found upon testing.

STAINLESS STEEL SLIDE GATE SCHEDULE							
Tag Number	Opening Size (inches by inches)	Material	Design Head from Centerline (feet)	Operator	Installation	Max HP	Notes
N/A	36" W X 36" H	Type 316L Stainless Steel	Seated 13 ft-2in	Floor-Mounted Floor Stand Open-Close Hand Crank Operator with 2" Nut Operator	Wall Mounted Non-Self-Contained Flush Bottom	N/A	Gate Structure 1 Opening Invert: 414.84 Operating Floor: 4280.0 Contractor shall verify all dimensions and elevations prior to fabrication

END OF SECTION

APPENDIX

APPENDIX

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Contractor's Application for Payment

Owner:	Wood River Drainage and Levee District	**Owner's Project No.:**	
Engineer:	Donohue & Associates, Inc.	**Engineer's Project No.:**	14317_TO2
Contractor:		**Contractor's Project No.:**	
Project:	Rand Avenue Pump Station - Effluent Piping Replacement and Rehabilitation		
Contract:			
Application No.:		**Application Date:**	
Application Period:	**From**	**to**	

1. Original Contract Price				$ -
2. Net change by Change Orders				$ -
3. Current Contract Price (Line 1 + Line 2)				$ -
4. Total Work completed and materials stored to date (Sum of Column G Lump Sum Total and Column J Unit Price Total)				$ -
5. Retainage				
a.	X	$ -	Work Completed	$ -
b.	X	$ -	Stored Materials	$ -
c. Total Retainage (Line 5.a + Line 5.b)				$ -
6. Amount eligible to date (Line 4 - Line 5.c)				$ -
7. Less previous payments (Line 6 from prior application)				
8. Amount due this application				$ -
9. Balance to finish, including retainage (Line 3 - Line 4 + Line 5c)				$ -

Contractor's Certification

The undersigned Contractor certifies, to the best of its knowledge, the following:
(1) All previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with the Work covered by prior Applications for Payment;
(2) Title to all Work, materials and equipment incorporated in said Work, or otherwise listed in or covered by this Application for Payment, will pass to Owner at time of payment free and clear of all liens, security interests, and encumbrances (except such as are covered by a bond acceptable to Owner indemnifying Owner against any such liens, security interest, or encumbrances); and
(3) All the Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

Contractor:

Signature: **Date:**

Recommended by Engineer		**Approved by Owner**	
By:		**By:**	
Title:		**Title:**	
Date:		**Date:**	
Approved by Funding Agency			
By:		**By:**	
Title:		**Title:**	
Date:		**Date:**	

Progress Estimate - Lump Sum Work

Contractor's Application for Payment

Owner: Wood River Drainage and Levee District
Engineer: Donohue & Associates, Inc.
Contractor:
Project: Rand Avenue Pump Station - Effluent Piping Replacement and Rehabilitation
Contract:

Owner's Project No.:
Engineer's Project No.: 14317_TO2
Contractor's Project No.:

Application No.:
Application Period: **From** **to**
Application Date:

A	B	C	D	E	F	G	H	I
			Work Completed					
Item No.	Description	Scheduled Value ($)	(D + E) From Previous Application ($)	This Period ($)	Materials Currently Stored (not in D or E) ($)	Work Completed and Materials Stored to Date (D + E + F) ($)	% of Scheduled Value (G / C) (%)	Balance to Finish (C - G) ($)
			Original Contract					
			-			-		-
						-		-
						-		-
						-		-
						-		-
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						-		-
						-		-
						-		-
						-		-
	Original Contract Totals	$ -	$ -	$ -	$ -	$ -		$ -

Progress Estimate - Lump Sum Work

Contractor's Application for Payment

Owner: Wood River Drainage and Levee District
Engineer: Donohue & Associates, Inc.
Contractor:
Project: Rand Avenue Pump Station - Effluent Piping Replacement and Rehabilitation
Contract:

Owner's Project No.:
Engineer's Project No.: 14317_TO2
Contractor's Project No.:

Application No.: **Application Period:** **From** **to** **Application Date:**

A	B	C	D	E	F	G	H	I
			Work Completed					
Item No.	Description	Scheduled Value ($)	(D + E) From Previous Application ($)	This Period ($)	Materials Currently Stored (not in D or E) ($)	Work Completed and Materials Stored to Date (D + E + F) ($)	% of Scheduled Value (G / C) (%)	Balance to Finish (C - G) ($)
			Change Orders					
						-		-
						-		-
						-		-
						-		-
						-		-
						-		-
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						-		-
	Change Order Totals	$ -	$ -	$ -	$ -	$ -		$ -
			Original Contract and Change Orders					
	Project Totals	$ -	$ -	$ -	$ -	$ -		$ -

Progress Estimate - Unit Price Work

Contractor's Application for Payment

Owner: Wood River Drainage and Levee District
Engineer: Donohue & Associates, Inc.
Contractor:
Project: Rand Avenue Pump Station - Effluent Piping Replacement and Rehabilitation
Contract:

Owner's Project No.:
Engineer's Project No.: 14317_TO2
Contractor's Project No.:

Application No.: **Application Period:** **From** **to** **Application Date:**

A	B	C	D	E	F	G	H	I	J	K	L
		Contract Information				Work Completed					
Bid Item No.	Description	Item Quantity	Units	Unit Price ($)	Value of Bid Item (C X E) ($)	Estimated Quantity Incorporated in the Work	Value of Work Completed to Date (E X G) ($)	Materials Currently Stored (not in G) ($)	Work Completed and Materials Stored to Date (H + I) ($)	% of Value of Item (J / F) (%)	Balance to Finish (F - J) ($)
					Original Contract						
					-		-		-		-
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				Original Contract Totals	$ -		$ -	$ -	$ -		$ -

Progress Estimate - Unit Price Work

Contractor's Application for Payment

Owner: Wood River Drainage and Levee District
Engineer: Donohue & Associates, Inc.
Contractor:
Project: Rand Avenue Pump Station - Effluent Piping Replacement and Rehabilitation
Contract:

Owner's Project No.:
Engineer's Project No.: 14317_TO2
Contractor's Project No.:

Application No.: **Application Period:** **From** **to** **Application Date:**

A	B	C	D	E	F	G	H	I	J	K	L
		Contract Information				Work Completed					
Bid Item No.	Description	Item Quantity	Units	Unit Price ($)	Value of Bid Item (C X E) ($)	Estimated Quantity Incorporated in the Work	Value of Work Completed to Date (E X G) ($)	Materials Currently Stored (not in G) ($)	Work Completed and Materials Stored to Date (H + I) ($)	% of Value of Item (J / F) (%)	Balance to Finish (F - J) ($)
Change Orders											
					-		-		-		-
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				Change Order Totals	$ -		$ -	$ -	$ -		$ -
Original Contract and Change Orders											
				Project Totals	$ -		$ -	$ -	$ -		$ -

Stored Materials Summary **Contractor's Application for Payment**

Owner:	Wood River Drainage and Levee District	**Owner's Project No.:**	
Engineer:	Donohue & Associates, Inc.	**Engineer's Project No.:**	14317_TO2
Contractor:		**Contractor's Project No.:**	
Project:	Rand Avenue Pump Station - Effluent Piping Replacement and Rehabilitation		
Contract:			

Application No.: ______ **Application Period:** From ______ to ______ **Application Date:** ______

A	B	C	D	E	F	G	H	I	J	K	L	M
						Materials Stored			Incorporated in Work			
Item No. (Lump Sum Tab) or Bid Item No. (Unit Price Tab)	Supplier Invoice No.	Submittal No. (with Specification Section No.)	Description of Materials or Equipment Stored	Storage Location	Application No. When Materials Placed in Storage	Previous Amount Stored ($)	Amount Stored this Period ($)	Amount Stored to Date (G+H) ($)	Amount Previously Incorporated in the Work ($)	Amount Incorporated in the Work this Period ($)	Total Amount Incorporated in the Work (J+K) ($)	Materials Remaining in Storage (I-L) ($)
								-			-	-
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								-			-	-
					Totals	$ -	$ -	$ -	$ -	$ -	$ -	$ -

EJCDC C-620 Contractor's Application for Payment

CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner:	Wood River Drainage and Levee District	Owner's Project No.:	
Engineer:	Donohue & Associates, Inc.	Engineer's Project No.:	14317_TO2
Contractor:		Contractor's Project No.:	
Project:	Effluent Piping Replacement and Rehabilitation		
Contract Name:			

This ☐ Preliminary ☐ Final Certificate of Substantial Completion applies to:

☐ All Work ☐ The following specified portions of the Work:

[Describe the portion of the work for which Certificate of Substantial Completion is issued]

Date of Substantial Completion: **[Enter date, as determined by Engineer]**

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work must be as provided in the Contract, except as amended as follows:

Amendments to Owner's Responsibilities: ☐ None ☐ As follows:

[List amendments to Owner's Responsibilities]

Amendments to Contractor's Responsibilities: ☐ None ☐ As follows:

[List amendments to Contractor's Responsibilities]

The following documents are attached to and made a part of this Certificate:

[List attachments such as punch list; other documents]

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents, nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract Documents.

ISSUED BY ENGINEER:	AUTHORIZED BY OWNER:	ACKNOWLEDGED BY CONTRACTOR:
By: _____	By: _____	By: _____
(Authorized signature)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title: _____	Title: _____	Title: _____
Date: _____	Date: _____	Date: _____

WORK CHANGE DIRECTIVE NO.: [Number of Work Change Directive]

Owner:	Wood River Drainage and Levee District	Owner's Project No.:	
Engineer:	Donohue & Associates, Inc.	Engineer's Project No.:	14317_TO2
Contractor:		Contractor's Project No.:	
Project:	Effluent Piping Replacement and Rehabilitation		
Contract Name:			
Date Issued:		Effective Date of Work Change Directive:	

Contractor is directed to proceed promptly with the following change(s):

Description:

[Description of the change to the Work]

Attachments:

[List documents related to the change to the Work]

Purpose for the Work Change Directive:

[Describe the purpose for the change to the Work]

Directive to proceed promptly with the Work described herein, prior to agreeing to change in Contract Price and Contract Time, is issued due to:

Notes to User—Check one or both of the following

☐ Non-agreement on pricing of proposed change. ☐ Necessity to proceed for schedule or other reasons.

Estimated Change in Contract Price and Contract Times (non-binding, preliminary):

Contract Price: $ _____ **[increase] [decrease] [not yet estimated]**.

Contract Time: _____ days **[increase] [decrease] [not yet estimated]**.

Basis of estimated change in Contract Price:

☐ Lump Sum ☐ Unit Price ☐ Cost of the Work ☐ Other

	Recommended by Engineer	Authorized by Owner
By:		
Title:		
Date:		

FIELD ORDER NO.: [Number of Field Order]

Owner:	Wood River Drainage and Levee District	Owner's Project No.:	
Engineer:	Donohue & Associates, Inc.	Engineer's Project No.:	14317_TO2
Contractor:		Contractor's Project No.:	
Project:			
Contract Name:	Effluent Piping Replacement and Rehabilitation		
Date Issued:		Effective Date of Field Order:	

Contractor is hereby directed to promptly perform the Work described in this Field Order, issued in accordance with Paragraph 11.04 of the General Conditions, for minor changes in the Work without changes in Contract Price or Contract Times. If Contractor considers that a change in Contract Price or Contract Times is required, submit a Change Proposal before proceeding with this Work.

Reference:

Specification Section(s):

Drawing(s) / Details (s):

Description:

[Description of the change to the Work]

Attachments:

[List documents supporting change]

Issued by Engineer

By: _____ *(signature)*

Title: _____ *(printed name)*

Date: _____

CERTIFICATE OF INSTALLATION SERVICES

Project

Equipment

Specification Section

Contract

I hereby certify the equipment supplier/manufacturer has inspected this equipment and that it has been properly installed, adjusted, and calibrated. I further certify this equipment may now be operated for test purposes and/or normal use.

MANUFACTURER'S REPRESENTATIVE

Signature	Date

Name (print)

Title

Representing

CONTRACTOR

Signature	Date

Name (print)

Title

Comments:

This form shall be completed and submitted to ENGINEER prior to training of OWNER'S personnel in accordance with Section 01 61 00.

CHANGE ORDER NO. ____

CHANGE ORDER DATE OF ISSUANCE _____

COMMENCEMENT OF CONTRACT TIME _____

OWNER Wood River Drainage and Levee District

CONTRACTOR _____

PROJECT Effluent Piping Replacement and Rehabilitation CONTRACT NO. _____

ENGINEER Donohue & Associates, Inc.

YOU ARE DIRECTED TO MAKE THE FOLLOWING CHANGES IN THE CONTRACT DOCUMENTS:
DESCRIPTION:

REASON FOR CHANGE ORDER:

ATTACHMENTS:

CHANGE IN CONTRACT PRICE
Original Contract Price: $_____
Net increase (decrease) from previous Change Orders: $_____
Net increase (decrease) of this Change Order: $_____
Revised Contract Price: $_____

CHANGE IN CONTRACT TIMES
Original Contract Times: *(days or dates)* Substantial Completion: _____ Ready for Final Payment: _____
Net increase (decrease) from previous Change Orders: *(days)* Substantial Completion: _____ Ready for Final Payment: _____
Net increase (decrease) of this Change Order: *(days)* Substantial Completion: _____ Ready for Final Payment: _____
Revised Contract Times: *(days or dates)* Substantial Completion: _____ Ready for Final Payment: _____

CONTRACTOR agrees that this Change Order includes any and all costs associated with or resulting from the change ordered herein, including all impacts, delays, and accelerated costs. Other than the dollar amount and time allowance listed above, there shall be no other dollar or time compensation as a result of this Change Order.

THIS DOCUMENT SHALL BECOME AN AMENDMENT TO THE CONTRACT AND ALL STIPULATIONS AND COVENANTS OF THE CONTRACT SHALL APPLY HERETO.

RECOMMENDED:	APPROVED:	ACCEPTED:
By: _____	By: _____	By: _____
ENGINEER *(signature)*	OWNER *(signature)*	CONTRACTOR *(signature)*
_____	_____	_____
ENGINEER *(printed name)*	OWNER *(printed name)*	CONTRACTOR *(printed name)*
Date: _____	Date: _____	Date: _____

Note: OWNER is required to complete the Change Order Authorization form on the back if change increase or decrease is for $10.000 or more, or time of completion is 30 days or more.

REQUEST FOR INFORMATION

Request No.	Date:
Contractor:	Specification Section / Drawing No.:
Project: Bethalto Interceptor Gate Rehab	
Contract:	

This is a request for a information on the following:

Prepared By:	Date Response Needed:

Response:

Prepared By:	Date:

Response Returned to Contractor On:

cc: Owner:_____
Resident Project Representative:_____

CONTRACTOR'S REQUEST FOR SUBSTITUTION

(Include With Submittal)

Provisions requiring submittal of this form are described in Specification Sections 01 33 00 and 01 61 00 and paragraph 6.05 of the General and Supplementary Conditions.

Substitution Request No.: _____

Project: _Effluent Piping Replacement and Rehabiltation_____

Contract: _____

We hereby apply for consideration of _____
(*Proposed Substitute Manufacturer*)
as a substitute manufacturer to the manufacturer(s) named in Specification Section _____

Paragraph/Drawing No. _____ for the following reasons. (*Check one or more.*)

_____ The specified equipment or material is unavailable or the time of delivery will substantially delay the construction of the project, but not as result of CONTRACTOR'S failure to pursue Work promptly or coordinate various activities. (*Provide supporting information.)*

_____ The proposed equipment or material will provide for packaging and coordination with other equipment from a single source supplier. *(Submit name of source supplier and other equipment to be packaged.)*

_____ The proposed equipment or material is a "Substitute Item" to that specified and the CONTRACTOR will provide the OWNER with a credit of $_____ if the equipment or material is accepted.

We certify that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar in substance to the specified, be suited to the same use as that specified, and will not prejudice CONTRACTOR'S achievement of Substantial Completion on time.

Contractor: _____

Signature: _____ Date: _____

Name (print): _____

Title: _____

NOTE: ENGINEER may require CONTRACTOR to furnish, at CONTRACTOR'S expense, additional data about the proposed substitute including but not limited to, an analysis by CONTRACTOR of the equivalency of the proposed substitute to the named item.

A. Physical Characteristics of Proposed Substitute (if applicable).

Operating Weight:_____ Height:_____ Width:_____ Depth:_____

Voltage:_____ Hertz:_____ KW or HP:_____

B. Will acceptance of the proposed substitute by the OWNER:

1. Require a change in the Drawings or Specifications: Yes_____ No_____
   If yes, attach an explanation and detailed drawings or specifications.

2. Require payment of any license fee or royalty: Yes_____ No_____
   If yes, attach an explanation.

3. Result in a change of contract time: Yes_____ No_____
   If yes, attach an explanation.

C. Variations of proposed substitute from specified material, equipment, methods or procedures include: *(If none, state none. Attach separate listing if more space is needed.)*

1. _____

2. _____

3. _____

4. _____

D. Service Source (Maintenance, Repair, and Replacement) Availability:

1. Name of Business:_____

   Address:_____

   Years in Business:_____ Factory Authorized: Yes_____ No_____

   Parts Stocked: Major: Yes_____ No_____ Minor: Yes_____ No_____

   Field Service Staff Available: Yes_____ No____

2. Name of Business:_____

   Address:_____

   Years in Business:_____ Factory Authorized: Yes_____ No_____

   Parts Stocked: Major: Yes_____ No_____ Minor: Yes_____ No_____

   Field Service Staff Available: Yes_____ No_____

E. Identify costs, direct or indirect, if any, associated with acceptance of this proposed substitute.
   (If none, state none.)

_____

_____

INSTALLATION LIST

Location:_____ Telephone No.:_____

Date Installed:_____ Date Started Up:_____

Owner's Representative to be Contacted:_____

Engineer's Representative to be Contacted:_____

Firm's Name:_____ Telephone No.:_____

*****

Location:_____ Telephone No.:_____

Date Installed:_____ Date Started Up:_____

Owner's Representative to be Contacted:_____

Engineer's Representative to be Contacted:_____

Firm's Name:_____ Telephone No.:_____

*****

Location:_____ Telephone No.:_____

Date Installed:_____ Date Started Up:_____

Owner's Representative to be Contacted:_____

Engineer's Representative to be Contacted:_____

Firm's Name:_____ Telephone No.:_____

*****

Location:_____ Telephone No.:_____

Date Installed:_____ Date Started Up:_____

Owner's Representative to be Contacted:_____

Engineer's Representative to be Contacted:_____

Firm's Name:_____ Telephone No.:_____

CONTRACTOR'S SUBMITTAL TRANSMITTAL

CONTRACT: _____

DONOHUE	**[NTU: INSERT CONTRACTOR OR OWNER LOGO]**
To: Jeffrey Gratzer Donohue & Associates, Inc. 12400 Olive Blvd., Suite 120 St. Louis, MO 63141 Phone: 636-400-7047 Email: jgratzer@donohue-associates.com	**From:** //INSERT CONTRACTOR NAME, ADDRESS, PHONE NUMBER, AND EMAIL//

Specification Section:	<<Section Number>> (same as selected in eCommunication database)
Donohue Title:	<<Section Title from TOC>> (same as selected in eCommunication database)
Description:	Xxxx xxxx xxxx (same as entered in eCommunication database)
Type:	(same as selected in eCommunication database)

Applicable Contract Clarification / Interpretation Request(s) were submitted and response(s) received:

_X_ No ___ Yes If Yes, List RFI Numbers:_____

Submittal includes variations from the requirements of the Contract Documents:

_X_ No ___ Yes If Yes, Variations are identified below and in accordance with paragraph 7.16 of the General Conditions:

Variations are as follows:

1. <<None>>

Contractor certifies that this submittal has been prepared in accordance with paragraph 7.16 of the General Conditions and Contractor has reviewed and approved this submittal in accordance with paragraph 7.16 of the General Conditions:

_X_ Yes ___ No

Contractor:	
Signature:	Date:
Name *(print):*	
Title:	

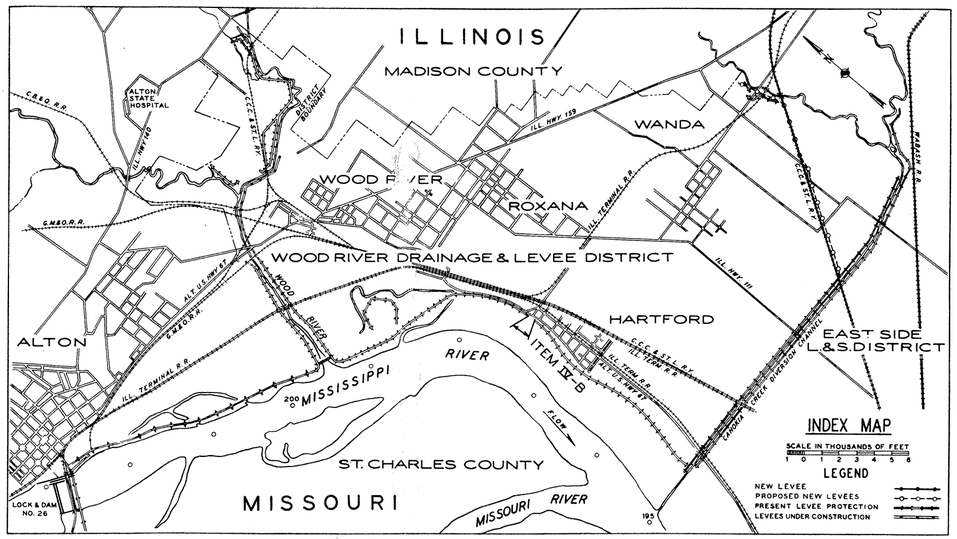
UPPER MISSISSIPPI RIVER LEVEES -- FLOOD CONTROL ACT 1938

RAND AVENUE PUMPING STATION

WOOD RIVER DRAINAGE AND LEVEE DISTRICT
MADISON COUNTY, ILLINOIS

Rand Ave P.H.

ITEM IV-B



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GENERAL PLAN, PROFILE, TYPICAL CROSS SECTIONS AND BORINGS	1
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JUNCTION BOXES AND MANHOLES	10
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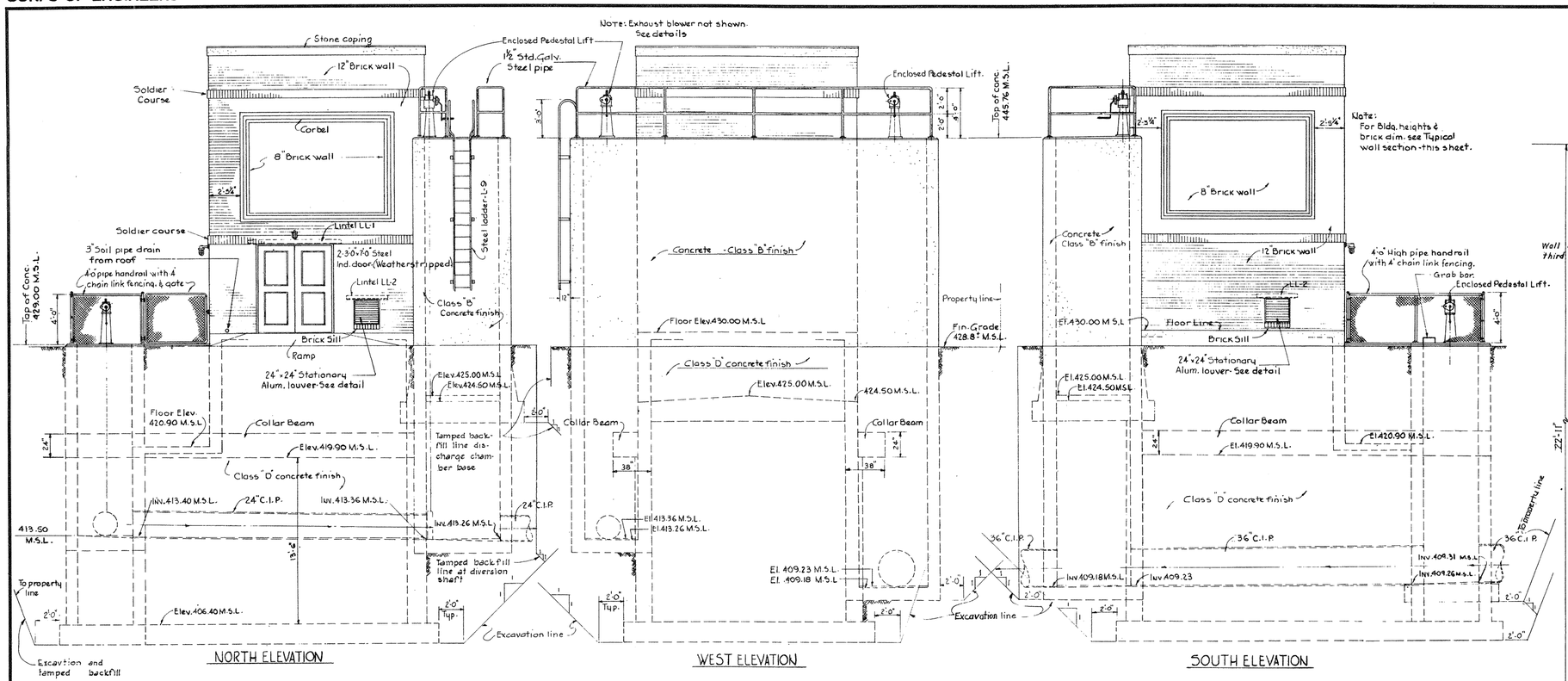
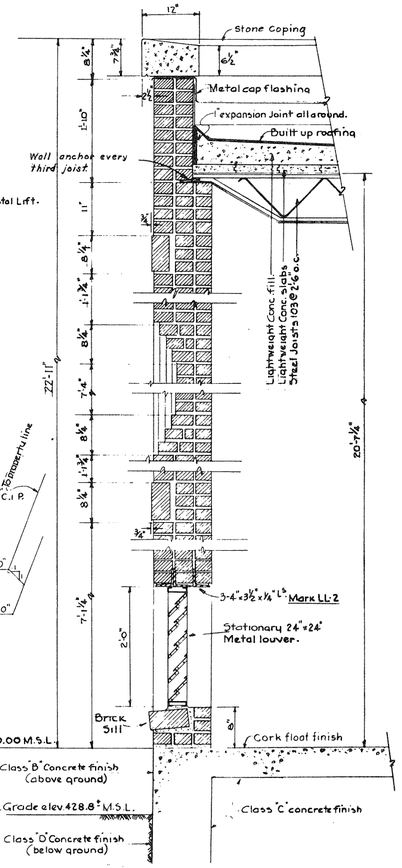
REINFORCING	12 THRU 14

TO ACCOMPANY INVITATION NO. CIVENG-23-065-56-62

CORPS OF ENGINEERS, U.S. ARMY
ST. LOUIS DISTRICT, ST. LOUIS, MISSOURI

DRAWINGS IN THIS FOLIO HAVE BEEN REDUCED TO APPROXIMATELY ONE HALF THE ORIGINAL SCALE.



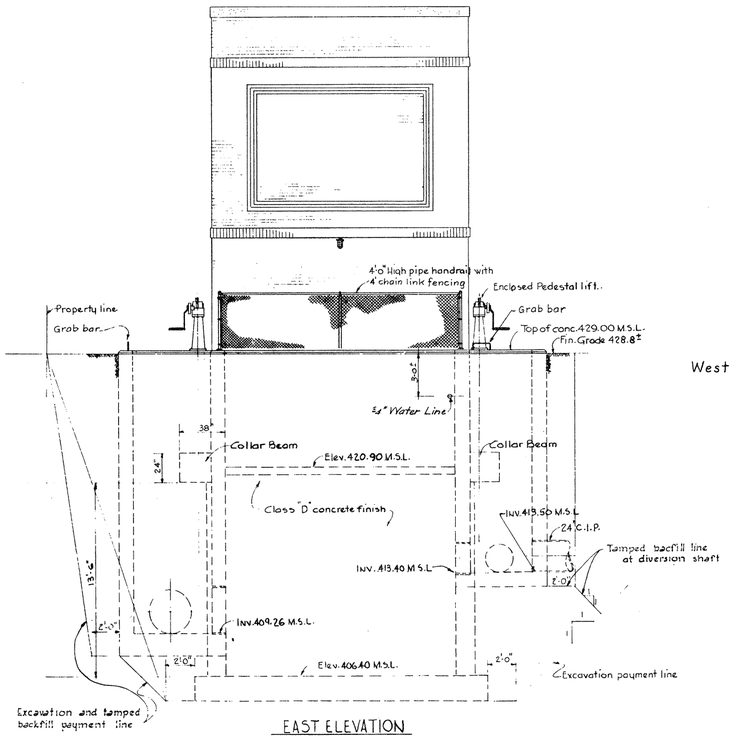


TYPICAL WALL SECTION

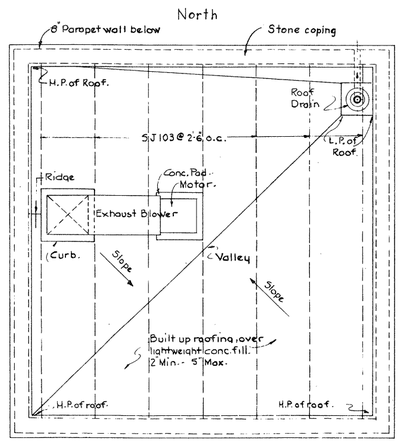
Scale: 1"=1'-0"

—PUMPING STATION ELEVATIONS—

SCALE: ¼"=1'-0"



EAST ELEVATION



ROOF PLAN

Scale: ⅜"=1'-0"

REVISION	DATE	DESCRIPTION	BY

RUSSELL AND AXON
CONSULTING ENGINEERS
ST. LOUIS, MISSOURI

CORPS OF ENGINEERS, U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
ST. LOUIS DISTRICT
ST. LOUIS, MISSOURI

DRAWN BY G. J. G.
TRACED BY G. J. G.
CHECKED BY W. W. W.
SUBMITTED:
SECRETARY, RUSSELL AND AXON
RECOMMENDED:
CHIEF ENGINEERING DIVISION
APPROVED:
COL. CORPS OF ENGINEERS DISTRICT ENGINEER ST. LOUIS DISTRICT
DATE JANUARY 27, 1956

UPPER MISSISSIPPI RIVER LEVEES - FLOOD CONTROL ACT 1938

WOOD RIVER DRAINAGE AND LEVEE DISTRICT
MADISON COUNTY, ILLINOIS

RAND AVENUE PUMPING STATION
ITEM IV-B

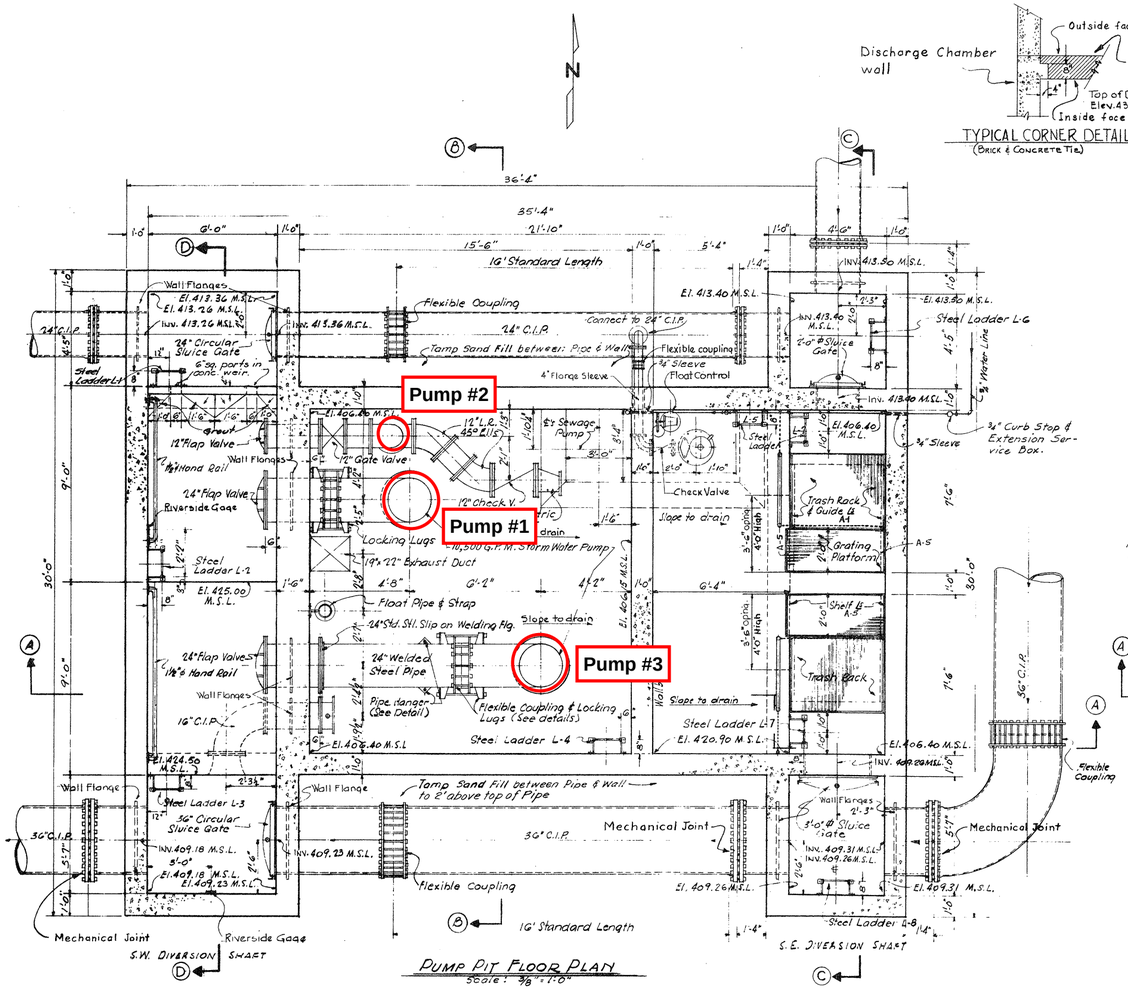
ELEVATIONS

SCALES AS SHOWN

SHEET 4 OF 14 DRAWING NO. 398.1431

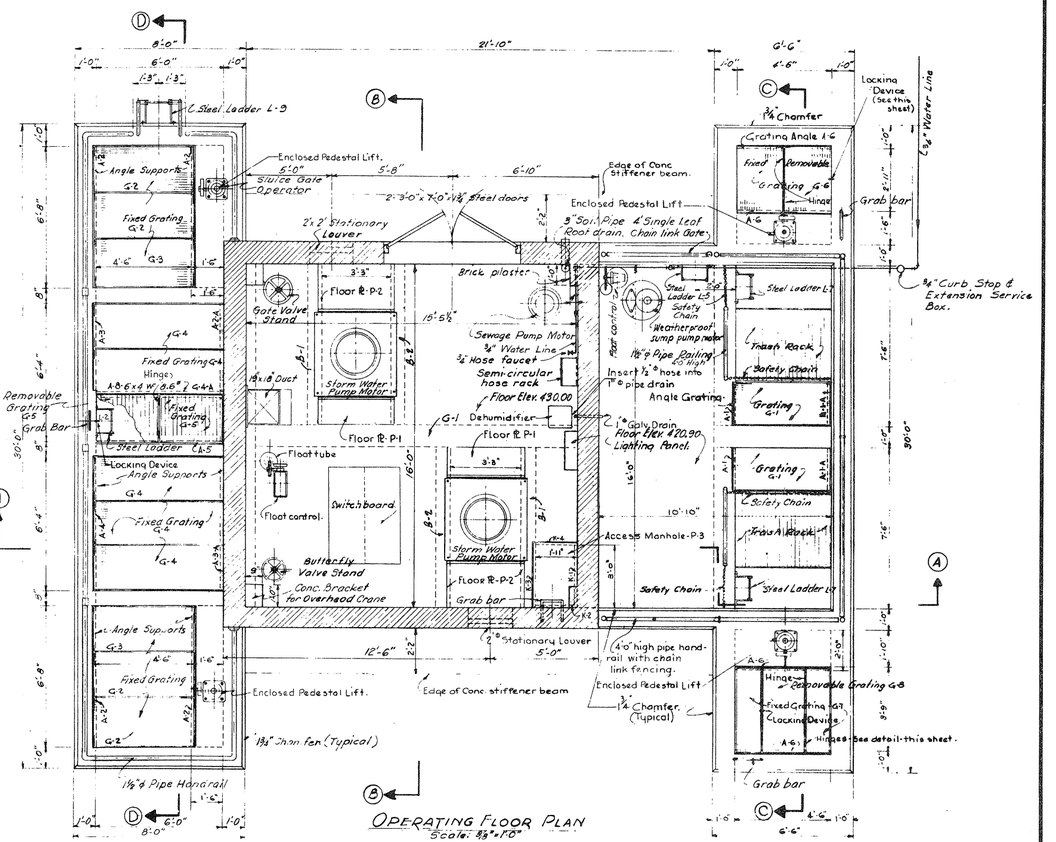
INVITATION NO CIVENG-23-065-56-62

CORPS OF ENGINEERS — U. S. ARMY

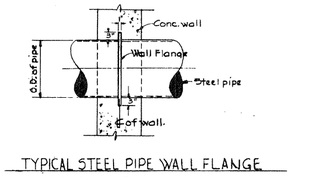


PUMP PIT FLOOR PLAN
Scale: ⅜"=1'-0"

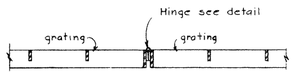
TYPICAL CORNER DETAIL
(BRICK & CONCRETE TIE)



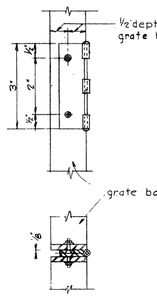
OPERATING FLOOR PLAN
Scale: ⅜"=1'0"



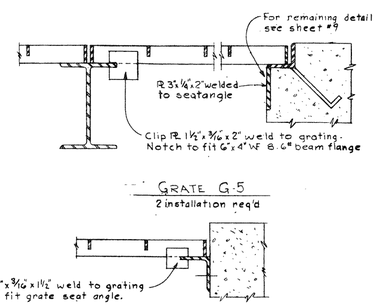
TYPICAL STEEL PIPE WALL FLANGE
Note: For Cast Iron Pipe, provide wall flange on pipe @ center of concrete wall.



TYPICAL GRATE HINGE DETAIL
Scale 3"=1'-0"
Note: All parts to be galvanized
8 req'd - 2 ea removable grate.



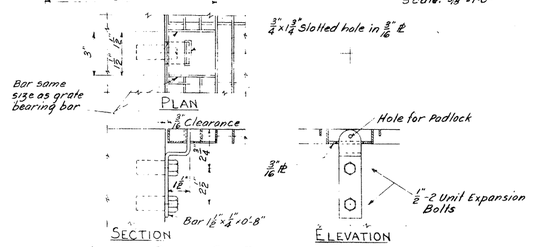
SECTION
Scale ½"=1'-0"



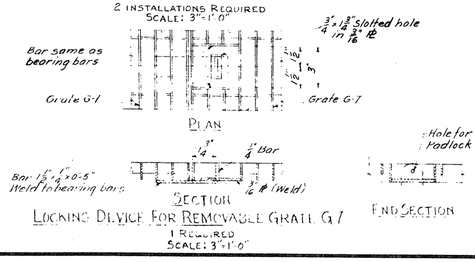
GRATE G-5
2 installation req'd

EAST END GRATE - G-1
2 req'd

GRATE CLAMP DETAILS
Scale: 3"=1'-0"
Note: For all others grate clamps for fixed grates see details for gatewell structure sheet #9



LOCKING DEVICE FOR REMOVABLE GRATE G5 & G6
2 INSTALLATIONS REQUIRED
SCALE: 3"=1'-0"



LOCKING DEVICE FOR REMOVABLE GRATE G-7
1 REQUIRED
SCALE: 3"=1'-0"

Note:-
1. All exposed edges of concrete shall be chamfered ¾-inch, unless otherwise noted

Reference Note:-
1. For Sections A-A and B-B see sheet No. 6
2. For sections C-C and D-D see sheet No. 7

REVISION	DATE	DESCRIPTION	BY

RUSSELL AND AXON
CONSULTING ENGINEERS
ST. LOUIS, MISSOURI

CORPS OF ENGINEERS, U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
ST. LOUIS DISTRICT
ST. LOUIS, MISSOURI

DRAWN BY L. Z. H.
TRACED BY L. M. H.
CHECKED BY W. W. W.
SUBMITTED
SECRETARY, RUSSELL AND AXON
RECOMMENDED:
CHIEF ENGINEERING DIVISION
APPROVED:
COL. CORPS OF ENGINEERS, DISTRICT ENGINEER ST. LOUIS DISTRICT
DATE: JANUARY 27, 1956

UPPER MISSISSIPPI RIVER LEVEES – FLOOD CONTROL ACT OF 1936

WOOD RIVER DRAINAGE AND LEVEE DISTRICT
MADISON COUNTY, ILLINOIS

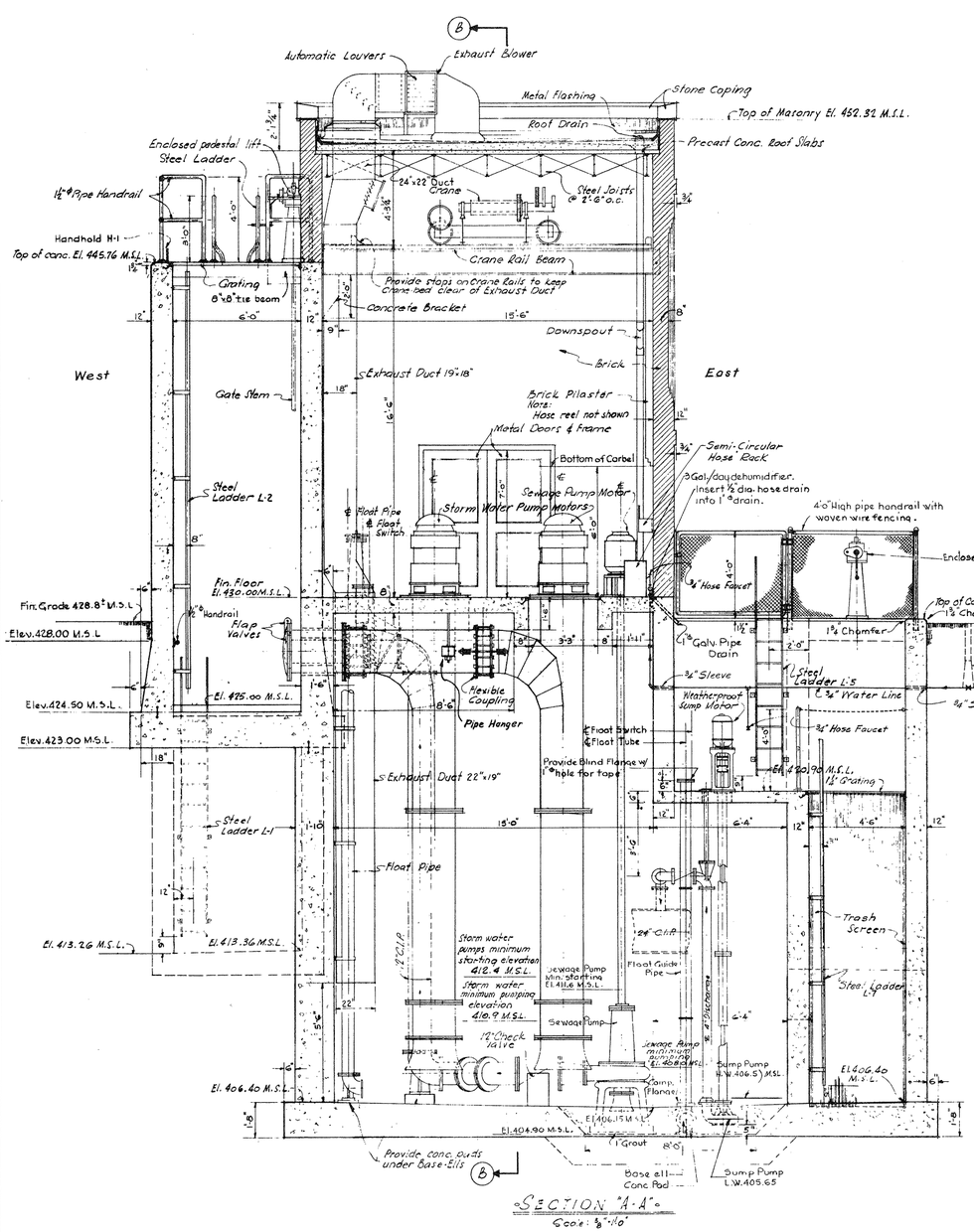
RAND AVENUE PUMPING STATION
ITEM IV-B

FLOOR PLANS

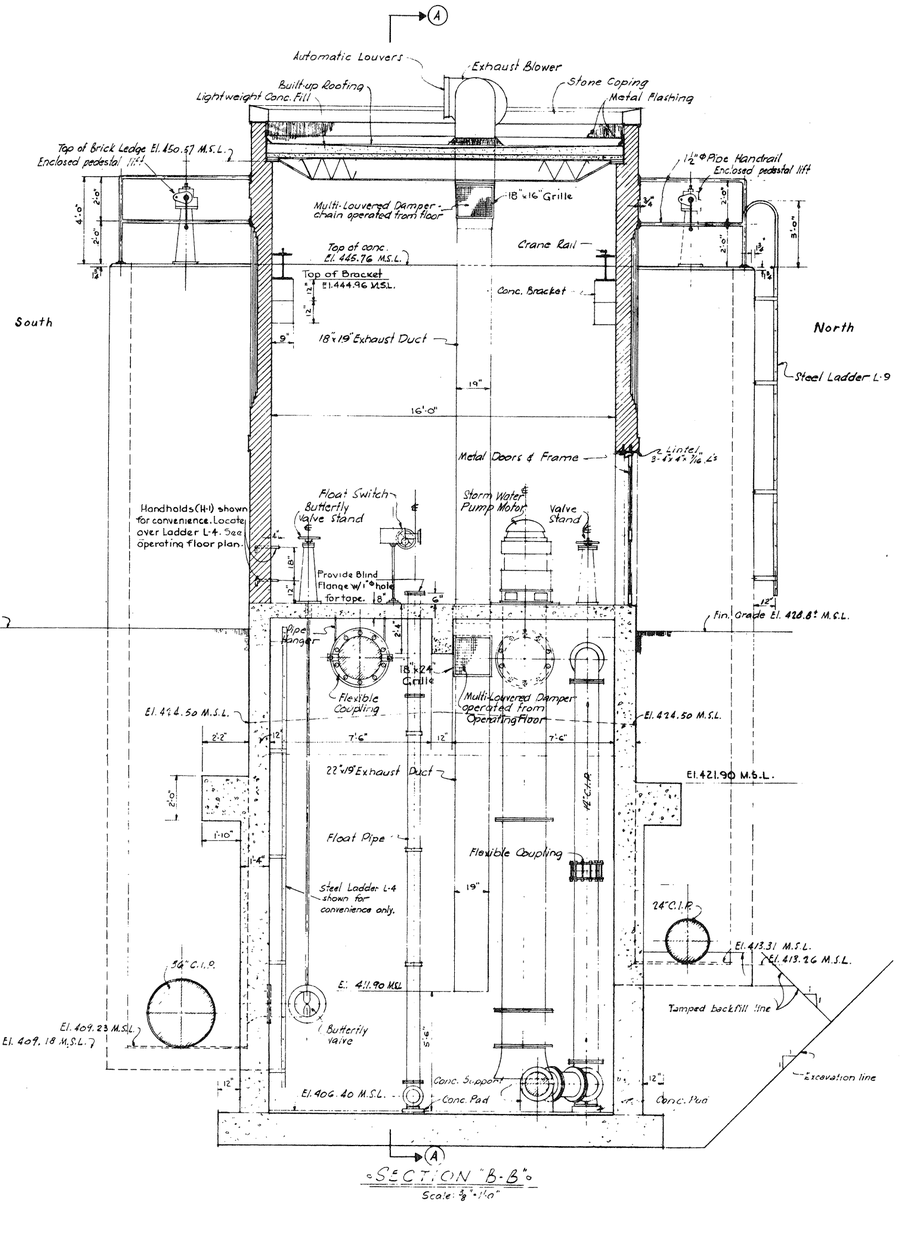
SCALES AS SHOWN

SHEET 5 OF 14 — DRAWING NO. 396.1432

INVITATION NO CIVENG-23-085-58-62



SECTION "A-A"
Scale: ⅜"=1'0"



SECTION "B-B"
Scale: ⅜"=1'0"

Reference Note:-

1. For locations of sections A-A and B-B see sheet No. 5

REVISION	DATE	DESCRIPTION	BY

RUSSELL AND AXON
CONSULTING ENGINEERS
ST. LOUIS, MISSOURI

CORPS OF ENGINEERS, U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
ST. LOUIS DISTRICT
ST. LOUIS, MISSOURI

DRAWN BY L. M. H.
TRACED BY L. M. H.
CHECKED BY W. W. W.
SUBMITTED
W. C. Wolf
SECRETARY, RUSSELL AND AXON
RECOMMENDED
W. J. Rawlins
CHIEF ENGINEERING DIVISION
APPROVED
Col. Corps of Engineers
DISTRICT ENGINEER
ST. LOUIS DISTRICT
DATE JANUARY 27, 1956

UPPER MISSISSIPPI RIVER LEVEES - FLOOD CONTROL ACT OF 1938

WOOD RIVER DRAINAGE AND LEVEE DISTRICT
MADISON COUNTY, ILLINOIS

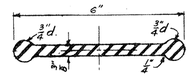
RAND AVENUE PUMPING STATION
ITEM IV-B

SECTIONS

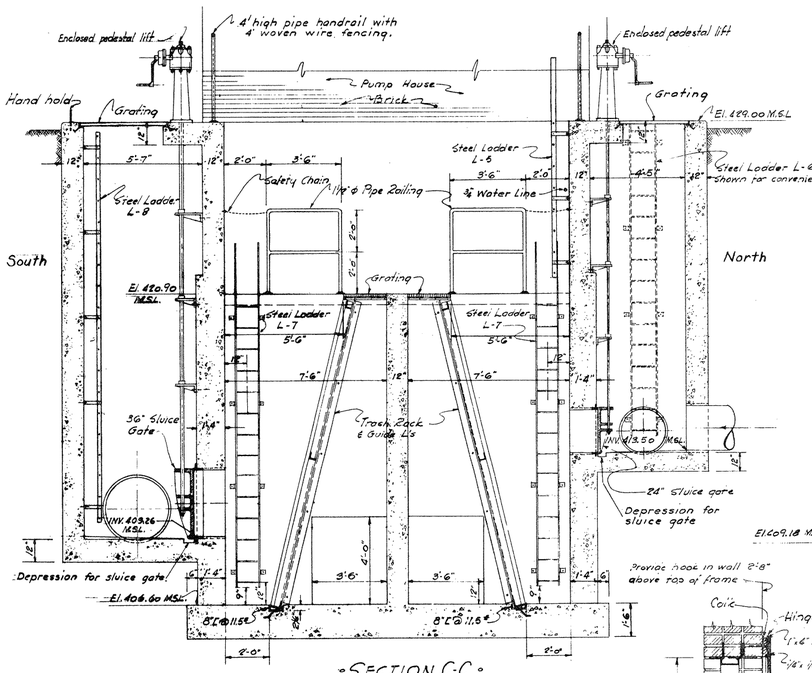
SCALES AS SHOWN

SHEET 6 OF 14 DRAWING NO. 396.1433

INVITATION NO CIVENG-23-065-56-62

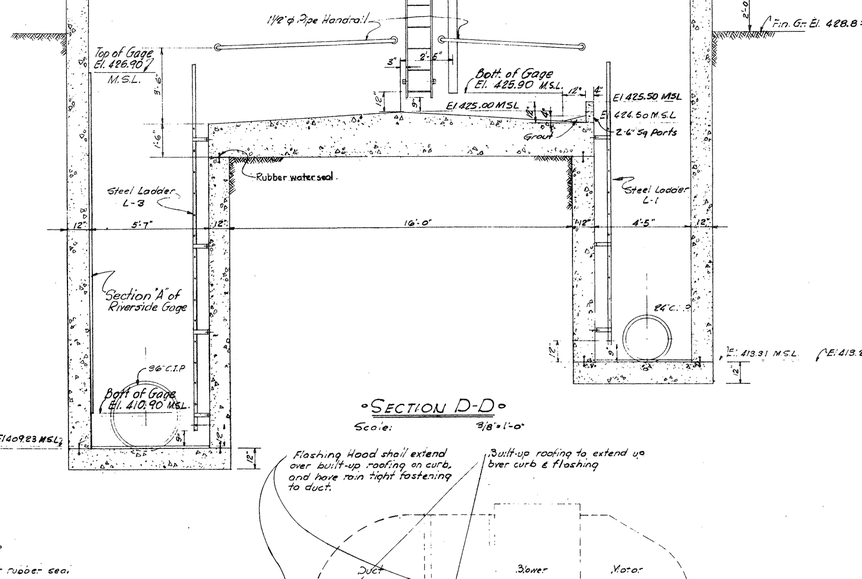


· RUBBER SEAL DETAIL ·
SCALE: 6"=1'-0"

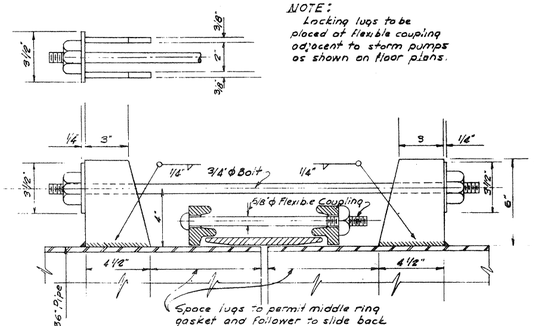


· SECTION C-C ·
Scale: 3/8"=1'-0"

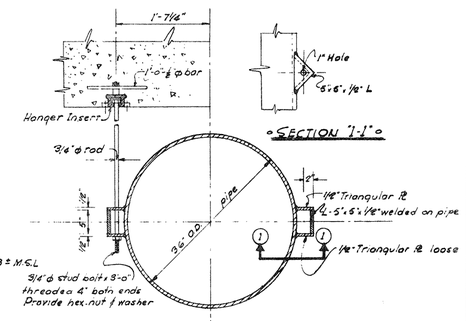
Reference Note:-
1. For locations of Sections C-C and D-D see sheet No. 5



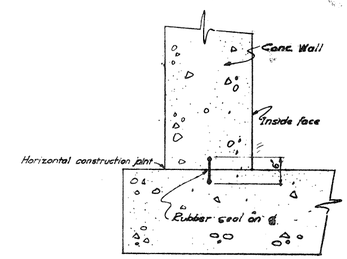
· SECTION D-D ·
Scale: 3/8"=1'-0"



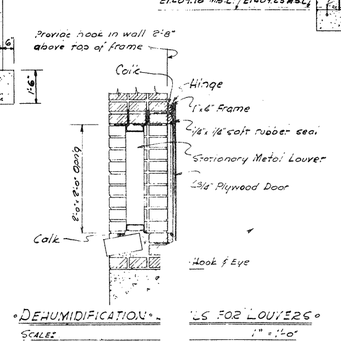
· LUG LOCKING JOINT ·
SCALE: 3"=1'-0"



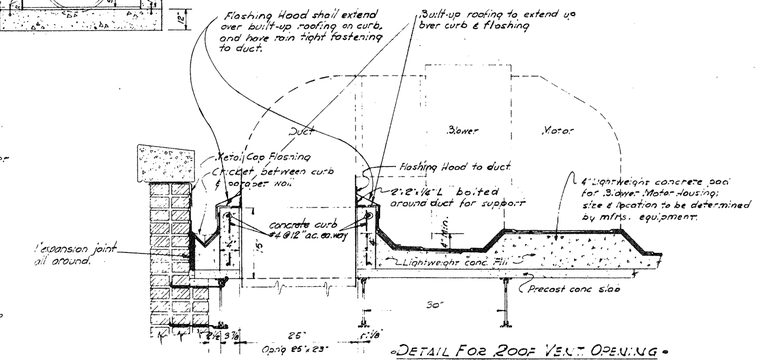
· PIPE HANGER DETAIL ·
SCALE: 1"=1'-0"



· TYPICAL WATER STOP - FOR DISCHARGE CHAMBER ONLY ·
SCALE: 1"=1'-0"



· DEHUMIDIFICATION · LS FOR LOUVERS ·
SCALE: 1"=1'-0"



· DETAIL FOR ROOF VENT OPENING ·
SCALE: 1"=1'-0"

REVISION	DATE	DESCRIPTION	BY

RUSSELL AND AXON
CONSULTING ENGINEERS
ST. LOUIS, MISSOURI

CORPS OF ENGINEERS, U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
ST. LOUIS DISTRICT
ST. LOUIS, MISSOURI

DRAWN BY: G. J. G.
TRACED BY: L. Z.
CHECKED BY: W. W. W.
SUBMITTED:
SECRETARY, RUSSELL AND AXON
RECOMMENDED:
CHIEF, ENGINEERING DIVISION
APPROVED:
COL., CORPS OF ENGINEERS
DISTRICT ENGINEER
ST. LOUIS DISTRICT
DATE: JANUARY 27, 1956

UPPER MISSISSIPPI RIVER LEVEES - FLOOD CONTROL ACT 1928

WOOD RIVER DRAINAGE AND LEVEE DISTRICT
MADISON COUNTY, ILLINOIS

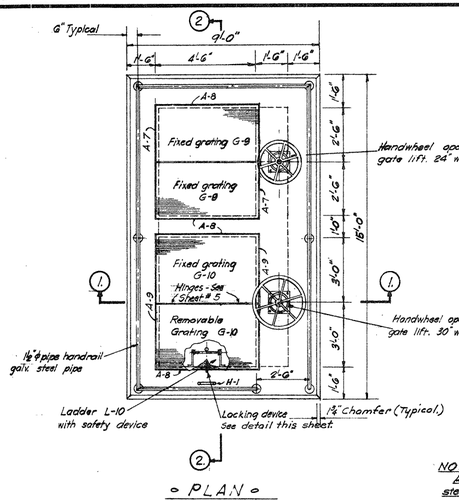
RAND AVENUE PUMPING STATION
ITEM IV-B
SECTIONS

SCALES AS SHOWN

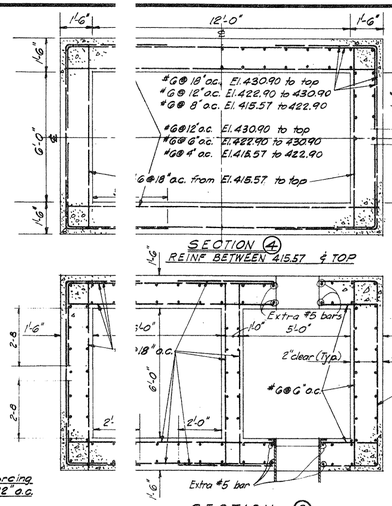
SHEET 7 OF 14 DRAWING NO. 396.14-34

INVITATION NO. CIVENG-23-008-56-52

CORPS OF ENGINEERS U. S. ARMY



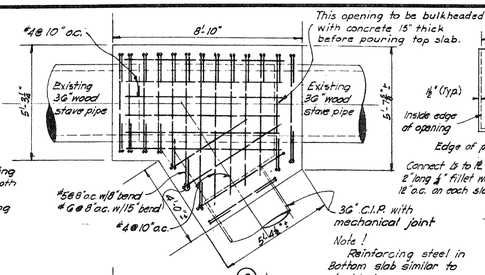
◦ PLAN ◦

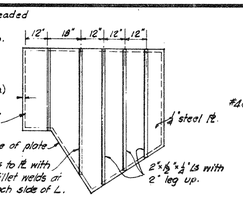


SECTION ④ REINF BETWEEN 415.57 & TOP

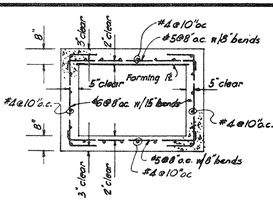
SECTION ③ REINFORCING BETWEEN 412.72 & 415.57

NOTE! All vertical reinforcing steel to be #5@12"o.c.

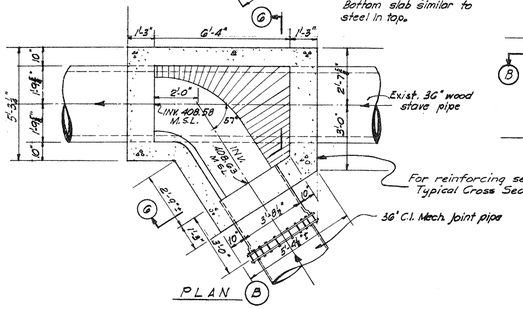




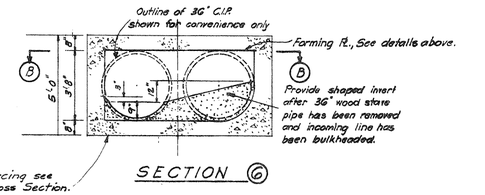
◦ FORMING PLATE ◦



◦ TYPICAL CROSS SECTION ◦



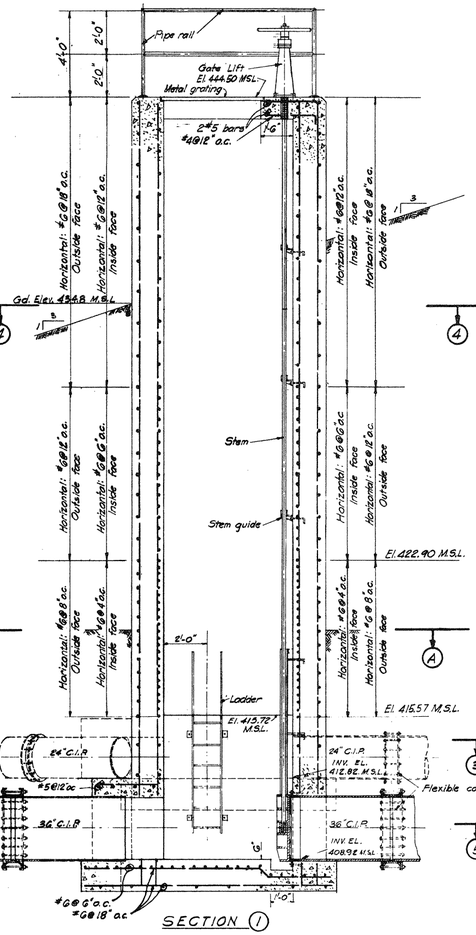
PLAN ⑥



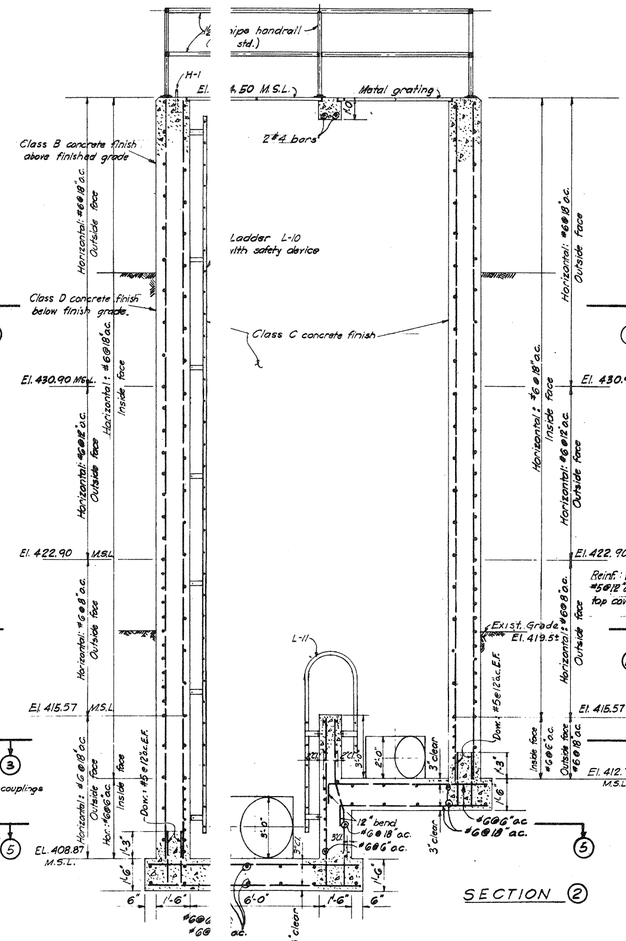
SECTION ⑥

◦ DETAILS OF JUNCTION BOX NO. 3 ◦

SCALE: ⅜ IN. = 1 FT.



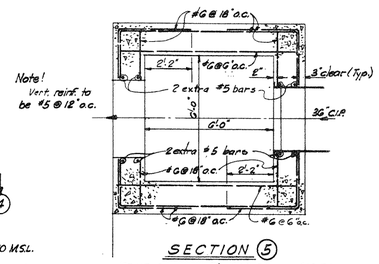
SECTION ①



SECTION ②

GATE WELL STRUCTURE

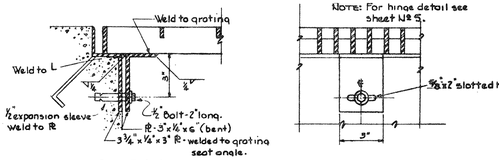
Scale ½ in = 1 ft.



SECTION ⑤

REINFORCING: El. 408.87 TO 412.72

Note! Vert. reinf. to be #5@12"o.c.

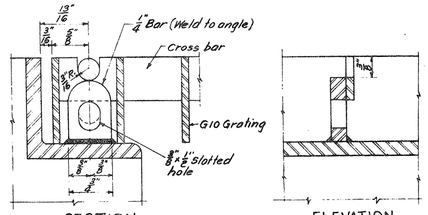


SECTION ELEVATION

GRATE CLAMP FOR FIXED GRATES

Scale: 3"=1'-0"

Note: Provide 4 grate clamps ea. grate.

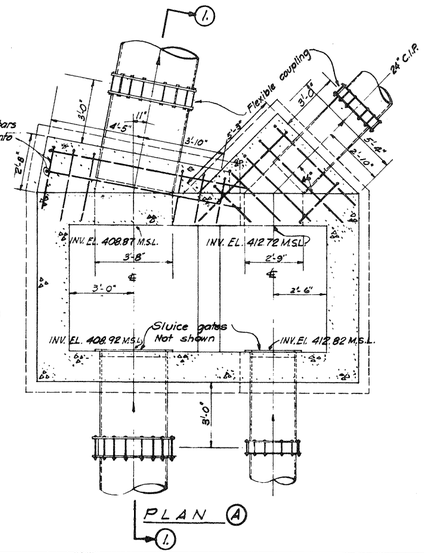


SECTION ELEVATION

LOCKING DEVICE FOR GATEWELL STRUCTURE

1 Required

SCALE Full Size



PLAN ④

REVISION	DATE	DESCRIPTION	BY

RUSSELL AND AXON
CONSULTING ENGINEERS
ST. LOUIS, MISSOURI

CORPS OF ENGINEERS, U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
ST. LOUIS DISTRICT
ST. LOUIS, MISSOURI

DRAWN BY: L. Z. H.
TRACED BY: V. B. B.
CHECKED BY: W. W. W.

SUBMITTED: [signature]
SECRETARY, BOARD OF ENGINEERS FOR RIVERS AND HARBORS

RECOMMENDED: [signature]
CHIEF, ENGINEERING DIVISION

APPROVED: [signature]
COL., CORPS OF ENGINEERS
DISTRICT ENGINEER
ST. LOUIS DISTRICT

DATE: JANUARY 27, 1956

UPPER MISSISSIPPI RIVER LEVEES - FLOOD CONTROL ACT 1936

WOOD RIVER DRAINAGE AND LEVEE DISTRICT

MADISON COUNTY, ILLINOIS

RAND AVENUE PUMPING STATION

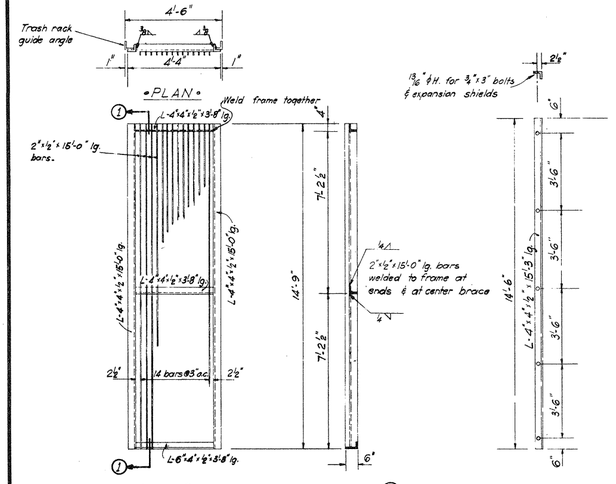
ITEM IV-B

GATEWELL STRUCTURE AND JUNCTION BOX

SCALES AS SHOWN

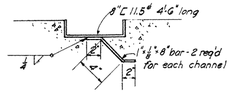
SHEET 9 OF 14 DRAWING NO. 396.1436

INVITATION NO. CIVENG-23-056-56-52

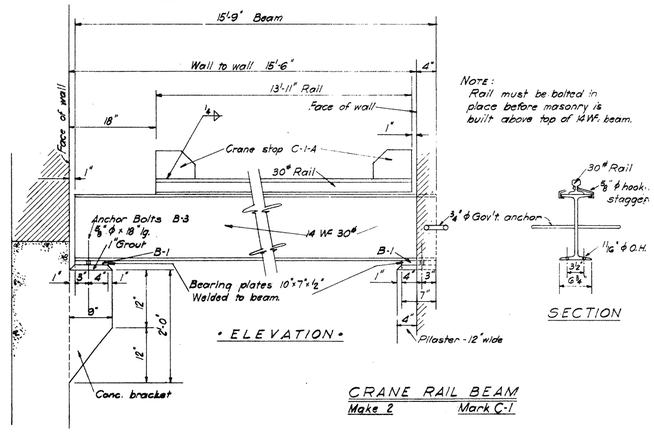


TRASH RACK
Make 2

TRASH RACK GUIDE ANGLE
Make 4



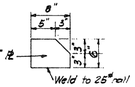
CHANNEL FOR TRASH RACK
Make 2 Scale: 1½"=1'-0"



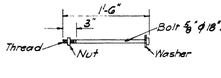
Note:
Rail must be bolted in place before masonry is built above top of 14 WF. beam.

CRANE RAIL BEAM
Make 2 Mark C-1

BEARING PLATE
Make 4 Mark B-1



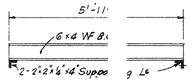
CRANE STOP
Make 4 Mark C-1-A



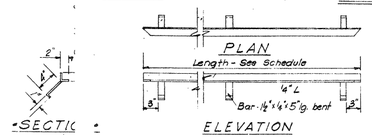
CRANE BEAM ANCHOR BOLT
Make 8 Mark B-3

TYPICAL G... TING

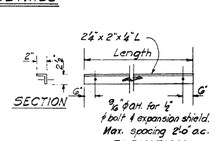
Mark	Make	W
G-1	2	1'-11½"
G-2	4	2'-2"
G-3	2	2'-3"
G-4	5	2'-1"
G-5	2	2'-11½"
G-6	2	3	2'-2½"
G-7	2	3	1'-2½"
G-8	1	3	2'-0"
G-9	2	4	2'-7⅜"
G-10	2	4	3'-1¼"



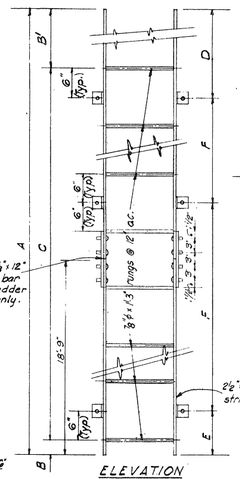
GRATE SUPPO... ING BEAM
Make 1 Mark G-4-A

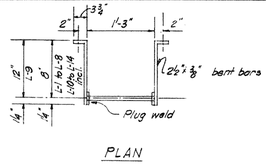


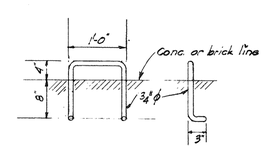
Mark	Make	Length
A-1	2	2'-0"
A-2	4	6'-8"
A-3	1	4'-0"
A-4	1	6'-4"
A-5	1	6'-0"
A-6	4	4'-6"
A-7	2	5'-4"
A-8	4	4'-10"
A-9	2	6'-4"



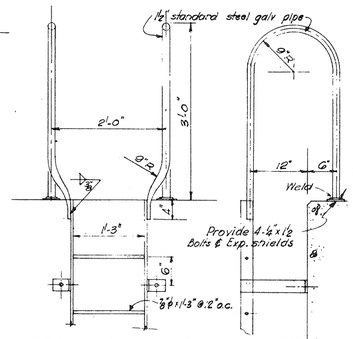
Mark	Make	Length
A-1-A	2	2'-0"
A-2-A	1	4'-0"
A-3-A	1	6'-4"

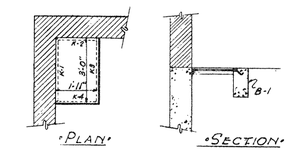


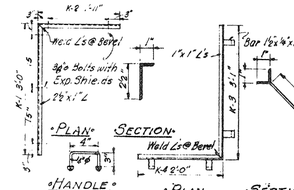


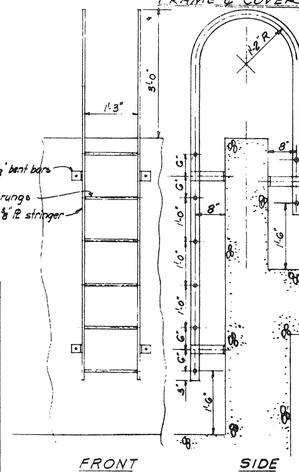


GRAB BAR
Make 6





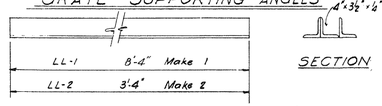




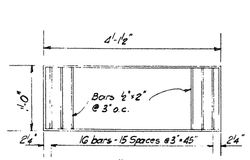
MARK	MAKE	A	B	B'	C Rungs	D	E	F	No of ¾" ϕ x 3" bolts and expansion shields
L-1	1	13'-3"	3"	3'-0"	10'-0" 11	3'-6"	9"	1 space @ 4'-0" 1 spaces @ 5'-0"	6
L-2	1	19'-6"	3"	3"	19'-0" 20	9"	9"	2 spaces @ 4'-0" 2 spaces @ 5'-0"	10
L-3	1	17'-3"	3"	3'-0"	14'-0" 15	3'-6"	9"	1 space @ 5'-0" 2 spaces @ 4'-0"	8
L-4	1	21'-6"	3	3"	21'-0" 22	9"	9"	4 spaces @ 5'-0"	10
L-5	1	10'-3"	3"	3'-0"	7'-0" 8	3'-6"	9"	2 spaces @ 3'-0"	6
L-6	1	14'-6"	3"	3"	14'-0" 15	9"	9"	1 space @ 5'-0" 2 spaces @ 4'-0"	8
L-7	2	16'-3"	3"	3'-0"	13'-0" 14	3'-6"	9"	3 spaces @ 4'-0"	8
L-8	1	18'-6"	3"	3"	18'-0" 19	9"	9"	3 spaces @ 4'-0" 1 space @ 5'-0"	10
L-9	1	15'-3"	3"	1'-0"	14'-0" 15	1'-6"	9"	2 spaces @ 4'-0" 1 space @ 5'-0"	6
L-10	1	33'-6"	3"	3"	33'-0" 34	9"	9"	2 spaces @ 6'-0" 4 spaces @ 5'-0"	14
L-11	SEE DETAILS ON THIS SHEET								
L-12	1	15'-6"	3"	3"	15'-0" 16	9"	9"	1 space @ 4'-0" 2 spaces @ 5'-0"	8
L-13	1	10'-6"	3"	3"	10'-0" 11	9"	9"	1 space @ 4'-0" 1 space @ 5'-0"	6
L-14	1	6'-6"	3"	3"	6'-0" 7	9"	9"	1 space @ 5'-0"	4

Note!
The following items shall be galvanized:
All ladders, Hand holds, Handrails, All embedded metal, Gratings & angle seats, Bar Screens for Overflow Manholes.

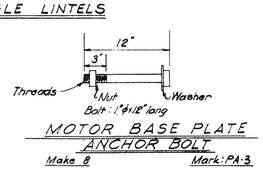
GRATE SUPPORTING ANGLES



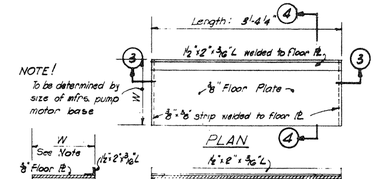
ANGLE LINTELS



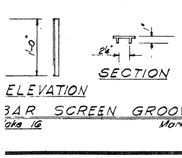
BAR SCREEN FOR MANHOLES NO 1 & 2
Make 8 Mark JB-1
Welded construction

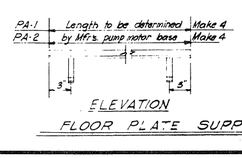


MOTOR BASE PLATE ANCHOR BOLT
Make 8 Mark: PA-3



Mark	Make	L	W
P-1	2	3'-4¼"	SEE NOTE
P-2	2	3'-4¼"	SEE NOTE





REVISION	DATE	DESCRIPTION	BY

RUSSELL AND AXON
CONSULTING ENGINEERS
ST. LOUIS, MISSOURI

CORPS OF ENGINEERS, U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
ST. LOUIS DISTRICT
ST. LOUIS, MISSOURI

DRAWN BY: G. J. G.
TRACED BY: V. B. B.
CHECKED BY: W. W. W.
SUBMITTED:
SECRETARY, RUSSELL AND AXON
RECOMMENDED:
CHIEF, ENGINEERING DIVISION
APPROVED:
COL. CORPS OF ENGINEERS DISTRICT ENGINEER ST. LOUIS DISTRICT
DATE: JANUARY 27, 1955

UPPER MISSISSIPPI RIVER LEVEES - FLOOD CONTROL ACT 1939

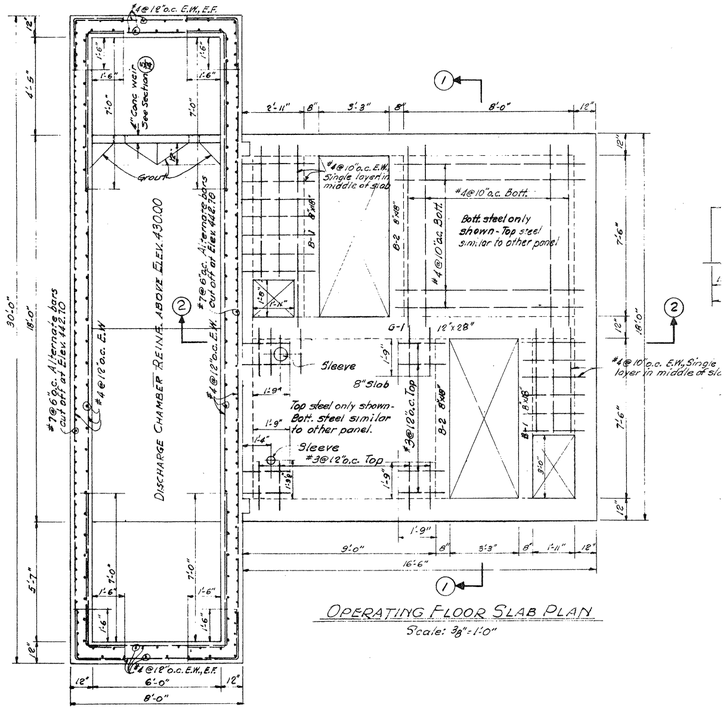
WOOD RIVER DRAINAGE AND LEVEE DISTRICT
MADISON COUNTY, ILLINOIS

RAND AVENUE PUMPING STATION
ITEM IV-B
MISCELLANEOUS STEEL DETAILS

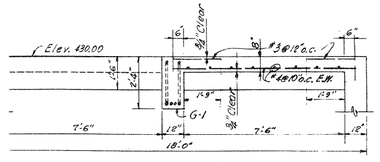
SCALES AS SHOWN

SHEET 11 OF 14 DRAWING NO. 396.1438

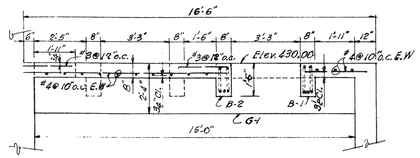
INVITATION NO CIVENG-23-055-54-62



OPERATING FLOOR SLAB PLAN
Scale: 3/8"=1'-0"



SECTION (1)
Scale: 3/8"=1'-0"



SECTION (2)
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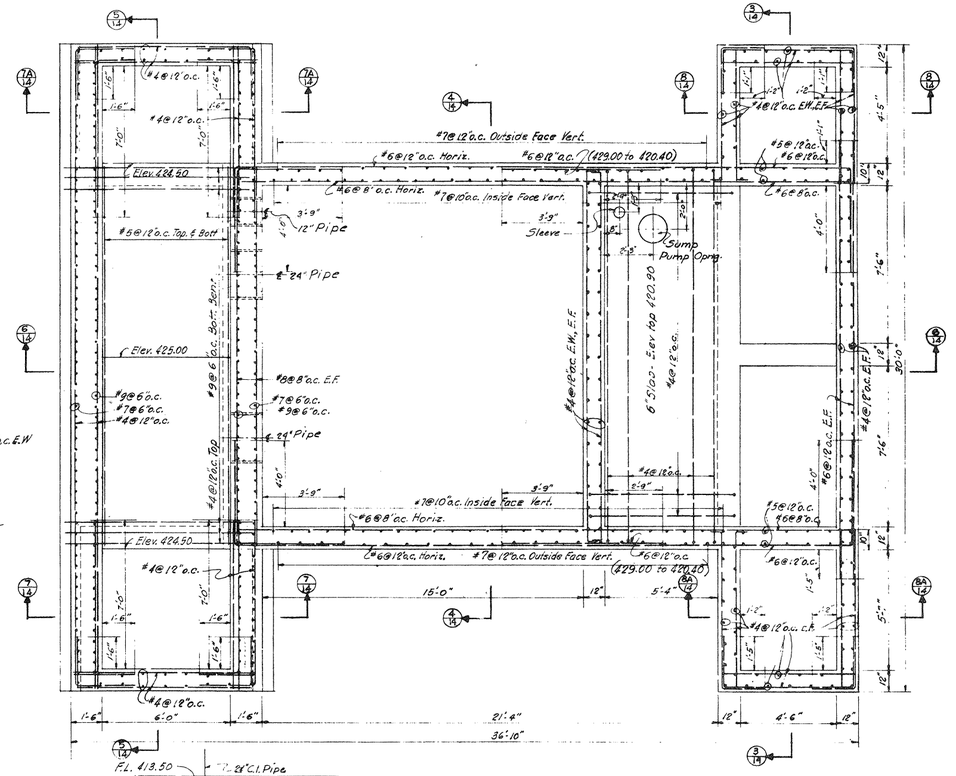
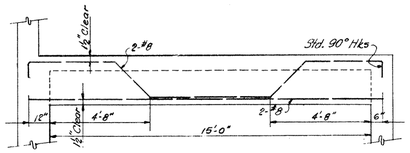
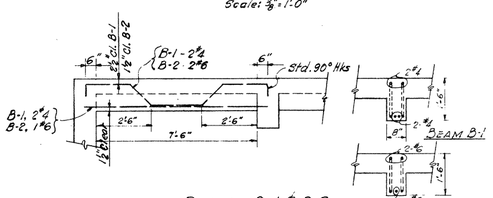


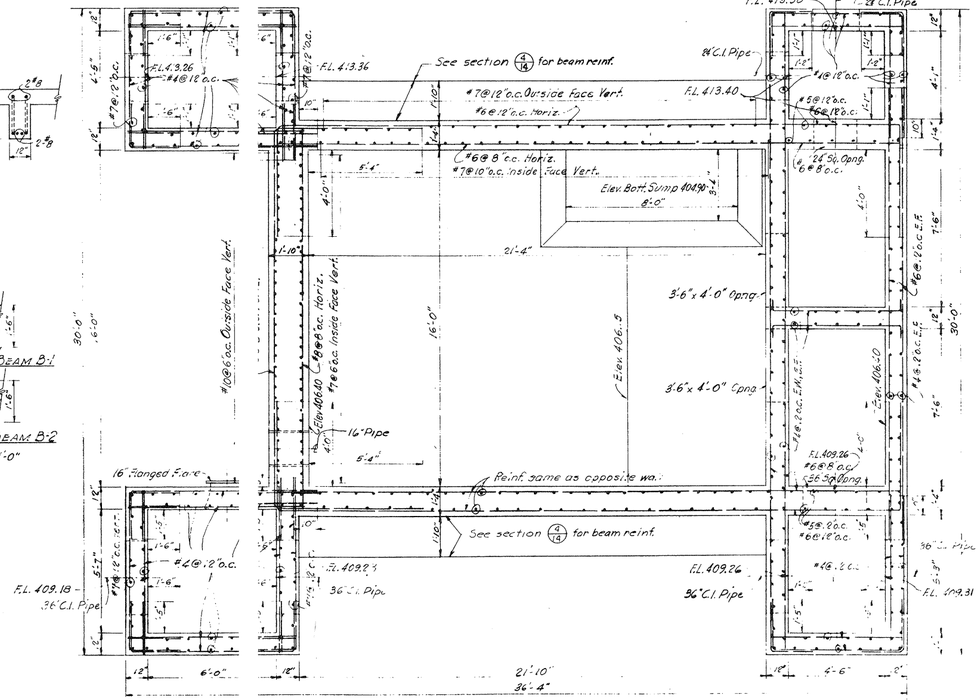
° REINFORCING PLAN ELEV 425.00 to 430.00 °
Scale: 3/8"=1'-0"



° GIRDER G-1 °
Scale: 3/8"=1'-0"



° BEAMS B-1 & B-2 °
Scale 3/8"=1'-0"
Scale 1/2"=1'-0"



REINFORCING PLAN ELEV. 406.40 & 423.00
Scale: 3/8"=1'-0"

Notes:

1. Concrete cover of reinforcing steel should be as follows, except where otherwise indicated:
   a. Bars #6 & larger, 2" clear at forms
   b. Bars #5 & smaller 1½" clear at forms
   c. All bars 3" clear against earth
2. Splices in reinforcement bars should be made by lapping bars 21 diameters, unless otherwise indicated

REVISION	DATE	DESCRIPTION	BY

RUSSELL AND AXON
CONSULTING ENGINEERS
ST. LOUIS, MISSOURI

CORPS OF ENGINEERS, U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
ST. LOUIS DISTRICT
ST. LOUIS, MISSOURI

DRAWN BY: L. Z. H.
TRACED BY: G. L. G.
CHECKED BY: W. W. W.
SUBMITTED:
SECRETARY, RUSSELL AND AXON
RECOMMENDED:
CHIEF, ENGINEERING DIVISION
APPROVED:
COL. CORPS OF ENGINEERS
DISTRICT ENGINEER
ST. LOUIS DISTRICT
DATE JANUARY 27, 1938

UPPER MISSISSIPPI RIVER LEVEES - FLOOD CONTROL ACT 1936

WOOD RIVER DRAINAGE AND LEVEE DISTRICT
MADISON COUNTY, ILLINOIS

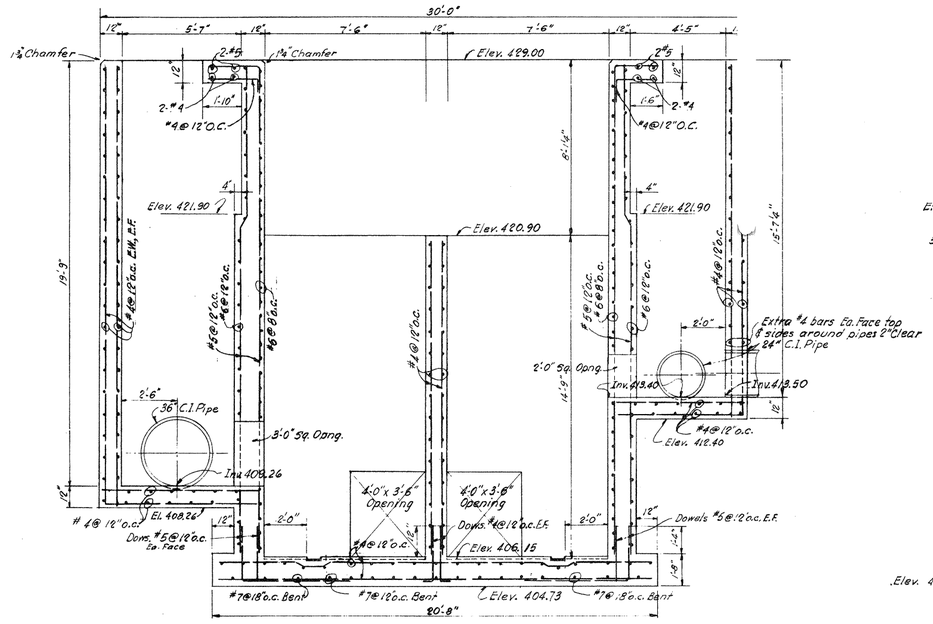
RAND AVENUE PUMPING STATION
ITEM IV-B

REINFORCING

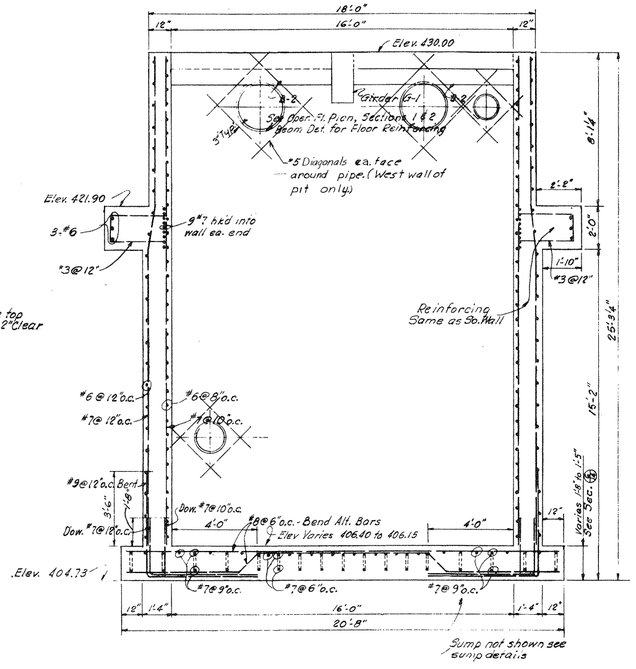
SCALES AS SHOWN

SHEET 12 OF 14 DRAWING NO. 398.1439

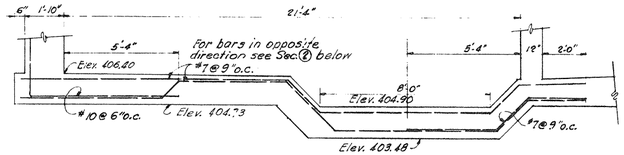
INVITATION NO. CIVENG-23-065-00-82



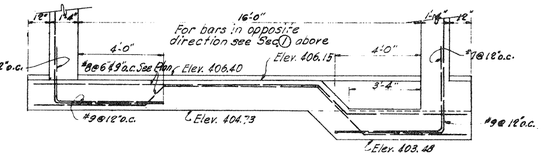
◦ SECTION ③ ◦
Scale ⅜"=1'-0"



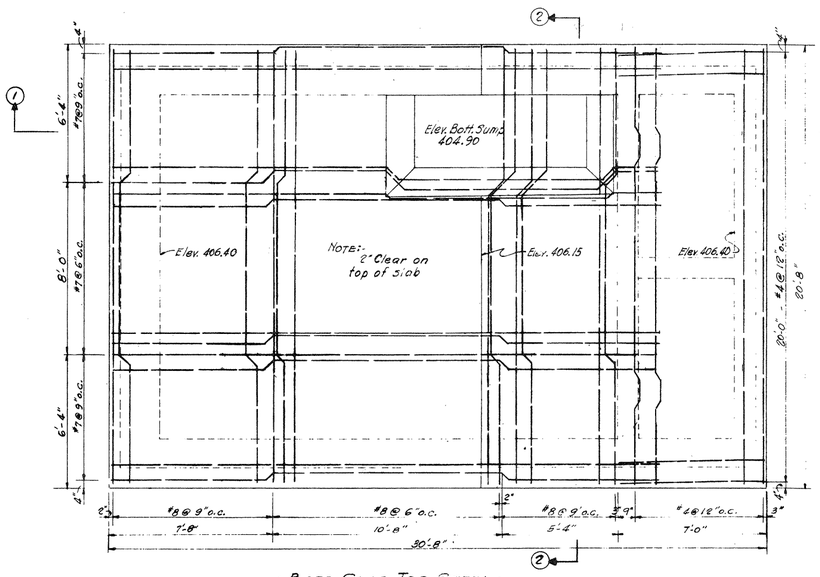
◦ SECTION ④ ◦
Scale: ⅜"=1'-0"



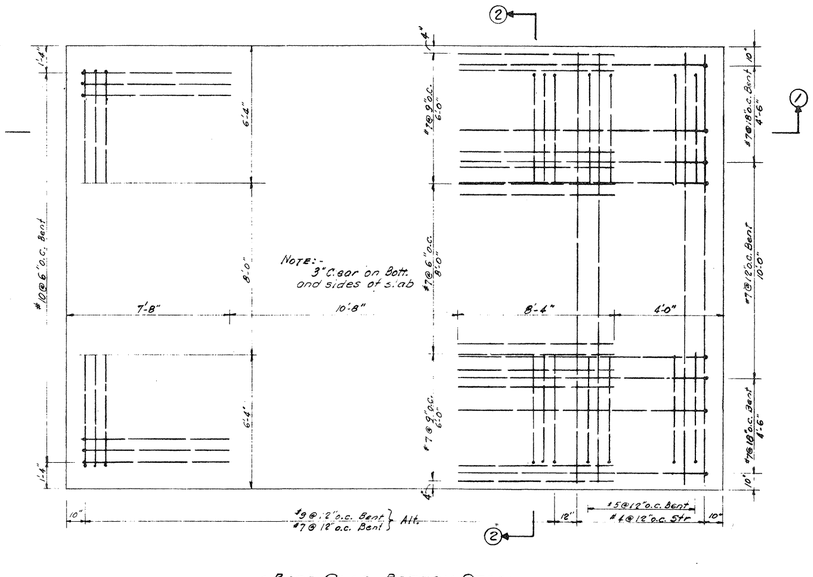
◦ SECTION ① ◦
Scale: ⅜"=1'-0"



◦ SECTION ② ◦
Scale: ⅜"=1'-0"



◦ BASE SLAB-TOP STEEL ◦
Scale: ⅜"=1'-0"



◦ BASE SLAB-BOTTOM STEEL ◦
Scale: ⅜"=1'-0"

REVISION	DATE	DESCRIPTION	BY

RUSSELL AND AXON
CONSULTING ENGINEERS
ST. LOUIS, MISSOURI

CORPS OF ENGINEERS, U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
ST. LOUIS DISTRICT
ST. LOUIS, MISSOURI

DRAWN BY: L. Z. H.
TRACED BY: G. L. G.
CHECKED BY: W. W. W.
SUBMITTED: SECRETARY, RUSSELL AND AXON
RECOMMENDED: CHIEF, ENGINEERING DIVISION
APPROVED: CDR., CORPS OF ENGINEERS DISTRICT ENGINEER ST. LOUIS DISTRICT
DATE: JANUARY 27, 1954

UPPER MISSISSIPPI RIVER LEVEES - FLOOD CONTROL ACT 1936

WOOD RIVER DRAINAGE AND LEVEE DISTRICT
MADISON COUNTY, ILLINOIS

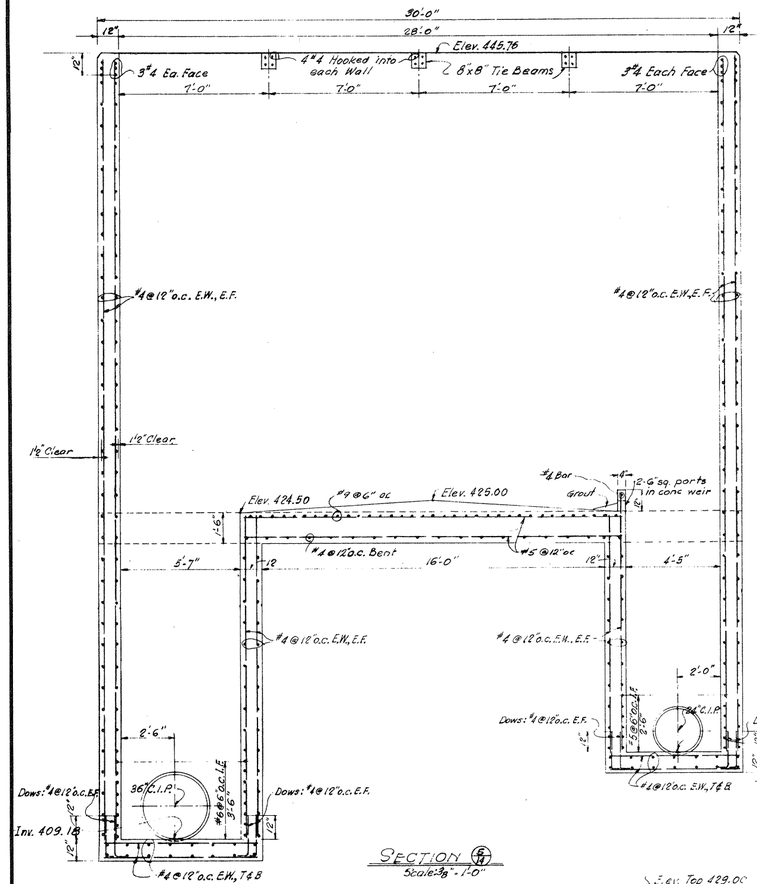
RAND AVENUE PUMPING STATION
ITEM IV-B

REINFORCING

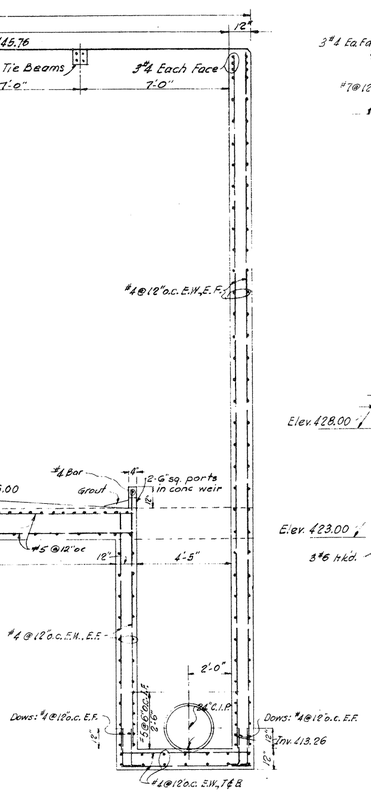
SCALES AS SHOWN

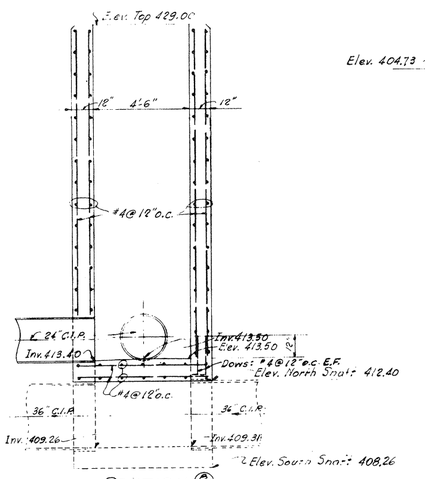
SHEET 13 OF 14 DRAWING NO. 396.1440

INVITATION NO. CIVENG-23-065-56-52

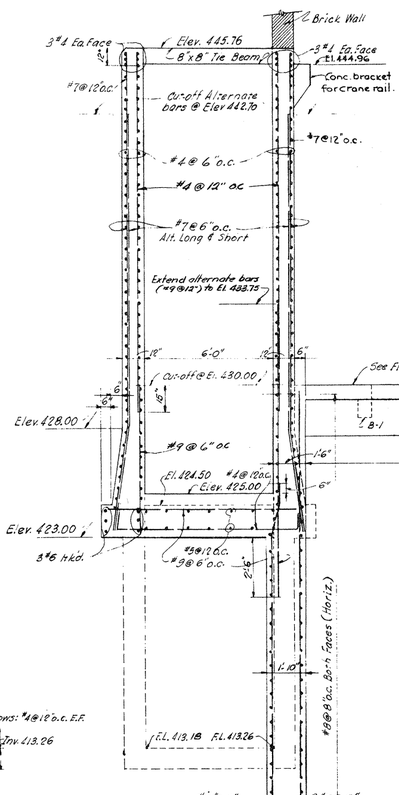


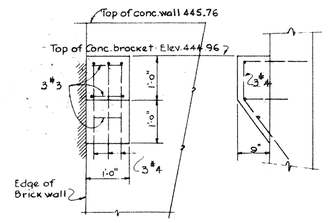
SECTION A
Scale 3/8"=1'-0"



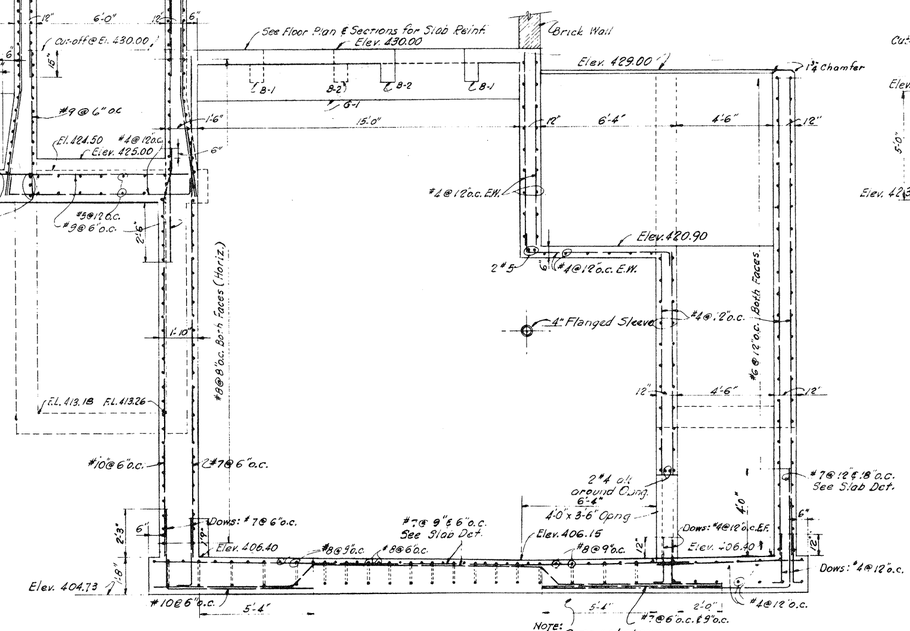


SECTION B
Scale 3/8"=1'-0"
SECTION B-A SIMILAR

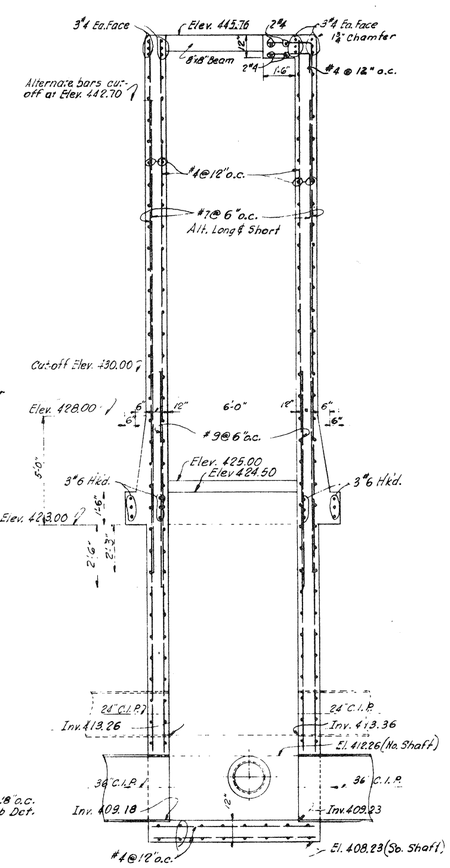




TYPICAL CONC. BRACKET FOR CRANE RAIL
SCALE: 3/4"=1'-0"



SECTION C
Scale 3/8"=1'-0"



SECTION D
Scale 3/8"=1'-0"
SECTION 7-A SIMILAR

A Prig Ser-St Louis, Mo-20500

REVISION	DATE	DESCRIPTION	BY

RUSSELL AND AXON
CONSULTING ENGINEERS
ST. LOUIS, MISSOURI

CORPS OF ENGINEERS, U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
ST. LOUIS DISTRICT
ST. LOUIS, MISSOURI

DRAWN BY L. Z. H.
TRACED BY O. L. G.
CHECKED BY W. W. W.
SUBMITTED:
SECRETARY, RUSSELL AND AXON
RECOMMENDED:
CHIEF, ENGINEERING DIVISION
APPROVED:
COL., CORPS OF ENGINEERS
DISTRICT ENGINEER
ST. LOUIS DISTRICT
DATE JANUARY 27, 1956

UPPER MISSISSIPPI RIVER LEVEES - FLOOD CONTROL ACT 1936

WOOD RIVER DRAINAGE AND LEVEE DISTRICT
MADISON COUNTY, ILLINOIS

RAND AVENUE PUMPING STATION
ITEM IV-B
REINFORCING

SCALES AS SHOWN

SHEET 14 OF 14 DRAWING NO. 398.1441

INVITATION NO. CIVENG-53-065-56-82

GEOTECHNICAL EXPLORATION
RAND AVENUE PUMP STATION EFFLUENT PIPE IMPROVEMENTS
WOOD RIVER, ILLINOIS

Prepared for:

DONOHUE & ASSOCIATES, INC.
ST. LOUIS, MISSOURI

Prepared by:

GEOTECHNOLOGY, LLC, DBA UES
ST. LOUIS, MISSOURI

Date:

SEPTEMBER 6, 2024

Project No.:

J045310.01

SAFETY
TEAMWORK
RESPONSIVENESS
INTEGRITY
VALUE
EXCELLENCE

September 6, 2024 Revised

Mr. Jeffrey Gratzer, P.E.
Donohue & Associates, Inc.
12400 Olive Boulevard, Suite 120
St. Louis, Missouri 63141

Re: Geotechnical Exploration
Rand Avenue Pump Station Effluent Pipe Improvements
Wood River, Illinois
UES Project No. J045310.01

Dear Mr. Gratzer:

Presented in this report are the results of our geotechnical exploration completed for the Rand Avenue Pump Station Effluent Pipe Improvement project in Wood River, Illinois. Our services were performed in general accordance with our Proposal P045310.01, dated February 13, 2024 and authorized on March 21, 2024.

We appreciate the opportunity to provide geotechnical services for this project. If you have questions regarding this report, or if we can be of additional service, please do not hesitate to contact us.

Respectfully submitted,

UES

LICENSED PROFESSIONAL ENGINEER
9/6/24
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Copies submitted: Client (1 pdf)

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GEOTECHNICAL EXPLORATION
RAND AVENUE PUMP STATION EFFLUENT PIPE IMPROVEMENTS
WOOD RIVER, ILLINOIS
September 6, 2024 | UES Project No. J045310.01

1.0 INTRODUCTION

Geotechnology LLC, dba UES, prepared this geotechnical exploration report for Donohue & Associates, Inc. for the Rand Avenue Pump Station Effluent Pipe Improvements project located in Wood River, Illinois. Our services documented in this report were provided in general accordance with our Proposal P045310.01 dated February 13, 2024.

The purpose of the geotechnical exploration was to develop a general subsurface profile at the site and prepare recommendations for the geotechnical aspects of the design and construction of the project as defined in our proposal. Our scope of services included site reconnaissance, geotechnical borings, laboratory testing, engineering analyses, and preparing this report.

A copy of "Important Information about This Geotechnical-Engineering Report," published by the Geotechnical Business Council (GBC) of the Geoprofessional Business Association (GBA), is included in Appendix A for your review. The publication discusses report limitations and ways to manage risk associated with subsurface conditions.

2.0 PROJECT INFORMATION

The project consists of the design and construction of approximately 275 lineal feet of 36-inch diameter PVC lined reinforced concrete effluent pipe, two 72-inch diameter concrete manholes, and rehabilitation of two existing 24 and 36 -inch diameter effluent pipes. The project improvement effluent piping will tie into an existing pump station, gatewell structure, and drain to an existing polishing lagoon.

Site excavations on the order of 6 to 16 feet are anticipated during construction. In general, the site is open, partially grass and gravel surfaced with surrounding pipe racks and facilities. Based on Google Earth® satellite imagery, the site appears to be slightly sloping to relatively flat. The site location and general topography of the area as per the 2021 USGS map of the vicinity is shown on Figure 1 in Appendix B.

3.0 GEOTECHNICAL EXPLORATION

The geotechnical exploration consisted of two borings, designed as Borings B-1 and -2, at the approximate locations shown on Figure 2 - Aerial Photograph of Site and Boring Locations in Appendix B. The boring locations were staked in the field by UES relative to existing site features. The elevations at the boring locations, as shown on the boring logs, were estimated using the United States Geological Survey (USGS) National Map. The boring locations and elevations are approximate and should be surveyed if a higher degree of accuracy is required.

The borings were drilled on July 1, 2024, with an all-terrain rotary drill rig advancing hollow-stem augers, as indicated on the boring logs presented in Appendix C. Sampling of the overburden soils was accomplished ahead of the augers at the depths indicated on the boring logs, with 2-inch-outside-diameter (O.D.) split-spoons and thin-walled Shelby tube samplers in general accordance with the procedures outlined by ASTM D1586 and ASTM D1587, respectively. Standard Penetration Tests (SPTs) were performed on the split-spoon samples using an automatic hammer to obtain the standard penetration resistance or N-value[1] of the sampled material. Observations for groundwater were made in the borings during drilling, and a delayed groundwater reading was taken the next day in Boring B-2.

An engineer from UES provided direction during field exploration, observed drilling and sampling, assisted in obtaining samples, and prepared field logs of the material encountered. Representative portions of the split-spoon samples were placed in glass jars to preserve sample moisture. Shelby tubes were capped and taped at their ends to preserve sample moisture and unit weight, and the tubes were transported and stored in an upright position. The glass jars and Shelby tubes were marked and labeled in the field for identification when returned to our laboratory.

4.0 LABORATORY REVIEW AND TESTING

Laboratory testing was performed on soil samples to assess engineering and index properties. Laboratory testing of selected soil samples included the following: moisture content, Atterberg limits, dry unit weights, unconsolidated-undrained triaxial compression (UU), and a grain size distribution. The results of these tests are presented on the boring logs.

The boring logs were prepared by the project geotechnical engineer from the field logs, visual classification of the soil samples in the laboratory, and laboratory test results. Terms and symbols used on the boring logs are presented on the Boring Log: Terms and Symbols Description Sheets in Appendix C. Stratification lines on the boring logs indicate approximate changes in strata. The transition between strata could be abrupt or gradual.

[1] The standard penetration resistance, or N-value, is defined as the number of blows required to drive the split-spoon sampler 12 inches with a 140-pound hammer falling 30 inches. Since the split spoon sampler is driven 18 inches or until refusal, the blows for the first 6 inches are for seating the sampler, and the number of blows for the final 12 inches is the N-value. Additionally, “refusal” of the split-spoon sampler occurs when the sampler is driven less than 6 inches with 50 blows of the hammer.

5.0 SUBSURFACE CONDITIONS

5.1 Stratigraphy

The soil stratum consists of fill to depths ranging from approximately 3 to 5.5 feet. The fill generally consists of a surface layer of crushed rock underlain by lean clay with variable amounts of gravel. The fill is underlain by alluvial deposits of lean and fat clay, and silt, to the boring termination depth of 20 feet. Additional information regarding the various soil layers are provided below and on the boring logs presented in Appendix C.

Fill. Fill occurred in the borings and generally consists of lean clay variable amounts of gravel. SPT N values in the fill range from 4 to 8 blows per foot (bpf). Moisture contents in the fill range from 23 to 28 percent.

Lean Clay Soil. A thin layer of medium stiff to stiff lean clay occurs in Boring B-1 below the fill and a thin layer of fat clay. The lean clay is medium stiff to medium stiff in consistency. An SPT N-value of 7 and a moisture content of 25 percent was recorded in the lean clay.

Fat Clay Soil. Medium stiff to stiff fat clay occurs in both borings below the fill. The fat clay extends to termination depth in Boring B-1 and approximately 13 feet in Boring B-2. SPT N-values in the fat clay range from 4 to 7 bpf. Undrained shear strengths of 1,380 and 1,860 pounds per square foot (psf) were recorded from UU triaxial compressive strength tests. Moisture content in the fat clay ranges from 27 to 33 percent.

Silt Soil. Soft silt occurs below the fat clay in Boring B-2 to its termination depth. The silt appears to be mixed with appreciable amounts of sand. SPT N-values of 2 and moisture content values of 33 and 36 percent were recorded in the silt.

5.2 Groundwater

Groundwater was not observed during drilling in the borings. A temporary piezometer was installed in Boring B-2 to obtain a delayed groundwater reading the next day. Groundwater was observed in Boring B-2 at an approximate depth of 9.7 feet approximately 24 hours after drilling. Groundwater levels could vary over time due to the effects of seasonal variation in precipitation, recharge of the Mississippi River levels, or other factors not evident at the time of exploration.

6.0 CONCLUSIONS AND RECOMMENDATIONS

UES has prepared the following conclusions and recommendations based on our understanding of the proposed project, the field and laboratory data presented in this report, engineering analyses, and our experience and judgment.

6.1 Excavation

We understand that the anticipated method of construction will be open excavation along the alignment. Soils within anticipated depths of excavation are expected to consist of lean clay, fat clay, and silts.

Soils Suitable for Backfill. On-site soils derived from excavations are expected to include low plasticity lean clays and highly plastic fat clays and silts. The more suitable backfill materials are the lean clays (CL) and silts (ML) because of their comparatively low volume change potential. Highly plastic fat clays may also be used for engineered fill, but should be restricted to a depth of at least 2 feet below pavement subgrade areas (if present) because of the potential for volume change with fluctuations in moisture content; i.e. shrinking and swelling.

Temporary Slopes. We anticipate that space may permit for the sewer excavations to be sloped. The contractor should be aware that slope height, slope inclination, or excavation depths should in no case exceed those specified in local, state or federal safety regulations, e.g., OSHA Health and Safety Standards for Excavations, 29 CFR Part 1926, or successor regulations. Such regulations are strictly enforced and, if not observed, the owner, the contractor, or earthwork or utility subcontractors could be subjected to substantial penalties. Construction site safety is the sole responsibility of the contractor, who shall also be solely responsible for the means, methods, and sequencing of construction operations. Before open cut slopes of any depth are made, an evaluation of their stability and the consequences of their failure should be made by the contractor. Minor sloughing of open excavation slopes may occur. Slopes greater than 20 feet in height, according to OSHA requirements, have to be designed by a registered professional engineer.

It is important to note that soils encountered in the construction excavations may vary significantly across the site and that even if the OSHA criteria is used, there is a potential for slope failure. The cohesive soil within the proposed excavation generally classifies as Type B. Fill materials if encountered should be considered as Type C. The preliminary soil classifications given above are based solely on the materials encountered in widely spaced explorations. The contractor should verify that similar conditions exist throughout the proposed area of excavation. If different subsurface conditions are encountered at the time of construction, they should be evaluated for their potential impact on slope design. Temporary slopes in Type C soil may be constructed at 1V:1.5H, and temporary slopes in Type B soils at 1V: 1H. However, any slope extending below groundwater levels, regardless of the soil type, should be constructed at 1V:1.5H, or flatter.

Retention Systems. If space does not exist for the excavations to be sloped a retention system will be required. While many different types and configurations of retention systems can be used, the more common type of applicable excavation support systems include trench boxes, sheet piling and solder pile/lagging. Trench boxes are often the preferred method for sewer construction. Soldier pile and timber lagging system is an appropriate alternative. Deep excavations with sheet piling or solder piles and lagging, may require tiebacks or bracing. Shoring system designs depend on several factors, including the depth of excavation, type of soil, groundwater elevation at the time of construction, allowable wall movement, and surcharge loads. Design of temporary shoring systems is beyond the scope of our services. The design of the system should be performed by the contractor that performs the work. However, if requested, UES can assist in the design of the shoring system.

The contractor should also be responsible for monitoring the performance of the retention system. OSHA regulations should be followed with respect to bracing requirements. Worker safety and classification of soil type is the responsibility of the contractor.

6.2 Dewatering

Based on the delayed groundwater level reading of 9.7 feet that was recorded in Boring B-2 approximately 24 hours after drilling, and due to the nature of the alluvial deposits and the anticipated depths of excavation during construction, groundwater influx may be of concern.

Depending on the level of groundwater at the time of construction, it may be necessary to dewater the excavations to enable construction to be carried out under relatively dry conditions, to prevent subgrade disturbance, and to provide stability of excavation slopes. The cost of dewatering can be reduced if the construction work be performed when the groundwater levels are comparatively low.

Dewatering using sump pits and pumps might be possible in clayey soils but could be problematic in the softer silt layers. Well points around the perimeter of the sewer excavation should be considered due to the depth of the excavation, groundwater level, and ability to productively excavate silt with sand from below the groundwater level. We recommend the groundwater level be maintained 5 feet below the bottom of the excavation elevation.

The dewatering efforts can be assisted by the installation of perimeter sheetpiling to reduce recharge. Jet grouting can also be considered to construct a “bottom seal” at the base of the excavation to reduce water infiltration from the base. Jet grouting is a method which involves hydraulically eroding the surrounding soils with water jets and mixing the soil with cementitious grout slurry to cement the soil particles together. The resulting mixture is referred to as “soilcrete.”

6.3 Bedding

It is recommended that the sewer be installed on a compacted bedding of 1-inch clean, free-draining, well-graded crushed limestone for effective support. Subgrade preparation should consist of excavating and replacing unsatisfactory loose or soft soil with compacted bedding material. Over-excavation deeper than 6-inches should be backfilled with 2-inch minus compacted crushed limestone. We anticipate soft silts observed in Boring B-2 will require over-excavation if present at the pipe subgrade elevation.

It is not practical to test the 1-inch clean bedding material for compaction using conventional methods. Therefore, compaction of the bedding zone should be measured by a method specification of a minimum of four passes of a vibratory twin-drum walk behind roller, or vibratory plate on a backhoe. If a vibratory plate is used, the maximum loose lift prior to compaction should be limited to 6 inches.

6.4 Fill

Fill and backfill should be placed in level lifts, 6 to 8 inches in loose thickness. Each lift should be moisture-conditioned to within the acceptable moisture content range provided in Table 1 and compacted with a sheepsfoot roller or self-propelled compactor to at least the minimum percent compaction indicated in Table 1. Moisture-conditioning can include: aeration and drying of wetter soils; wetting drier soils; and/or mixing wetter and drier soils into a uniform blend.

Table 1. Compaction Summary

Category	Minimum Compaction [a]
General soil fill	90%
Crushed rock backfill	95%
Floor slab subgrade	90%[b]

[a] Measured as a percent of the maximum dry unit weight as determined by the modified Proctor test in a laboratory (ASTM D 1557).
[b] Moisture content within 3% of optimum moisture content

Trench Backfill. The excavated materials can be reused as backfill if it is a low plasticity material. High plasticity material can be used as described above. Mechanically compacting the trench backfill is the preferred method. In this method, the soil or granular material is placed and compacted in horizontal layers. The degree of compaction should be as recommended above.

6.5 Foundations

Based on provided sewer profiles, we anticipate the bearing elevations of the manholes to be in the range of 7 to 15 feet below existing grades. The weights of manholes are expected to be less than the weights of soil volumes to be replaced, and hence only nominal settlement is anticipated. The structures can be supported on a mat foundation designed for a maximum allowable contact stress between the slab and subgrade not to exceed 1,000 psf. A modulus of subgrade reaction of 75 pounds per cubic inch (pci) may be used in the design analysis of the manhole foundation slabs.

The manholes should be designed to resist buoyant forces by having either anchors or a thickened base slab with a diameter larger than the structure. The weight of the backfill material above the base slab can be utilized for resisting uplift. Buoyant densities should be used when calculating uplift capacities.

Low strength concrete could be placed as a mud mat on the soil subgrade prior to construction of the base slab as a means to reduce disturbance to the subgrade. Areas or subgrades which exhibit soft or unstable characteristics should be overexcavated and backfilled in accordance with recommendations provided in a previous section or Wood River Drainage and Levee District requirements.

Settlement. We expect settlement of manholes to be nominal provided they are proportioned and constructed as recommended above. Estimated values of settlement contained in this report are based on our experience with projects of a similar nature. Consolidation tests and corresponding settlement calculations have not been made.

6.6 Pipes

The sewer pipes should be designed for the effective overburden and hydrostatic pressures. The moist density of the soil may be considered as 120 pcf. Buoyant densities should be used for soil below water table. Surface traffic loads can be neglected if the pipes are at a depth greater than five pipe diameters below the surface. Appropriate safety factors should be applied.

6.7 Lateral Earth Pressures

The below-grade manhole structures should be designed to resist lateral soil loads. Design lateral pressures from surcharge loads shall be added to the lateral earth pressure load. Lateral earth pressures can vary with wall restraint conditions, type of backfill, slope of ground surface behind the wall, and method of backfill compaction.

Design values are given herein for soil lateral loads on walls with horizontal backfill, subject to active and at-rest conditions. Conventional concrete walls may be designed for active earth pressures if the top is permitted to tilt out (after construction) approximately 0.5 percent of its height. Walls with fixed-heads or rigid walls should be designed for at-rest earth pressures.

Table 2. Lateral Earth Pressures for Level (Horizontal) Ground Surface

Description of Backfill	Design soil lateral load (psf per foot of depth)	
	At-Rest	Active
Inorganic clays of low to medium plasticity (CL)	69h + 0.58q	49h + 0.41q
Well graded gravel-sand mix (GW/SW) (e.g. 1-inch-minus, but not screenings)	57h + 0.44q	36h + 0.28q

Where:

h = depth below adjacent grade, feet
q = surcharge load, psf

For these equations to be valid for sand or gravel backfill, the backfill should be placed, in a wedge drawn upward and away from the edge of the wall footing at a 45-degree angle or flatter. If sand and gravel are to be placed within a steeper wedge, the values for low plasticity soil given above should be used. Further, soft uncompacted soil on the excavation slope should be removed prior to placement of backfill. Design drawings should reflect this requirement. Appropriate hydrostatic pressures should be added to the lateral earth pressures recommended herein.

7.0 RECOMMENDED ADDITIONAL SERVICES

The conclusions and recommendations given in this report are based on: UES's understanding of the proposed design and construction, as outlined in this report; site observations; interpretation of the exploration data; and our experience. Since the intent of the design recommendations is best understood by UES, we recommend that UES be included in the final design and construction process, and be retained to review the project plans and specifications to confirm that the recommendations given in this report have been correctly implemented. We recommend that UES be retained to participate in prebid and preconstruction conferences to reduce the risk of misinterpretation of the conclusions and recommendations in this report relative to the proposed construction of the subject project.

Since actual subsurface conditions between boring locations could vary from those encountered in the borings, our design recommendations are subject to adjustment in the field based on the subsurface conditions encountered during construction. Therefore, we recommend that UES be retained to provide construction observation services as a continuation of the design process to confirm the recommendations in this report and to revise them accordingly to accommodate differing subsurface conditions. Construction observation is intended to enhance compliance with project plans and specifications. It is not insurance, nor does it constitute a warranty or guarantee of any type. Regardless of construction observation, contractors, suppliers, and others are solely responsible for the quality of their work and for adhering to plans and specifications.

8.0 LIMITATIONS

This report has been prepared on behalf of, and for the exclusive use of, the client for specific application to the named project as described herein. If this report is provided to other parties, it should be provided in its entirety with all supplementary information. In addition, the client should make it clear that the information is provided for factual data only, and not as a warranty of subsurface conditions presented in this report.

UES has attempted to conduct the services reported herein in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality and under similar conditions. The recommendations and conclusions contained in this report are professional opinions. The report is not a bidding document and should not be used for that purpose.

Our scope for this phase of the project did not include any environmental assessment or investigation for the presence or absence of wetlands or hazardous or toxic materials in the soil, surface water, groundwater, or air, on or below or around this site. Any statements in this report or on the boring logs regarding odors noted or unusual or suspicious items or conditions observed are strictly for the information of our client. Our scope did not include an assessment of the effects of flooding and erosion of creeks or rivers adjacent to or on the project site.

The analyses, conclusions, and recommendations contained in this report are based on the data obtained from the geotechnical exploration. The field exploration methods used indicate subsurface conditions only at the specific locations where samples were obtained, only at the time they were obtained, and only to the depths penetrated. Consequently, subsurface conditions could vary gradually, abruptly, and/or nonlinearly between sample locations and/or intervals.

The conclusions or recommendations presented in this report should not be used without UES's review and assessment if the nature, design, or location of the facilities is changed, if there is a lapse in time between the submittal of this report and the start of work at the site, or if there is a substantial interruption or delay during work at the site. If changes are contemplated or delays occur, UES must be allowed to review them to assess their impact on the findings, conclusions, and/or design recommendations given in this report. UES will not be responsible for any claims, damages, or liability associated with any other party's interpretations of the subsurface data or with reuse of the subsurface data or engineering analyses in this report.

The recommendations included in this report have been based in part on assumptions about variations in site stratigraphy that can be evaluated further during earthwork and foundation construction. UES should be retained to perform construction observation and continue its geotechnical engineering service using observational methods. UES cannot assume liability for the adequacy of its recommendations when they are used in the field without UES being retained to observe construction.

APPENDIX A – IMPORTANT INFORMATION ABOUT THIS GEOTECHNICAL-ENGINEERING REPORT

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical- engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply this report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by*: the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly

problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Environmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold- prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical- engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance

Membership in the Geotechnical Business Council of the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you GBC-Member geotechnical engineer for more information.

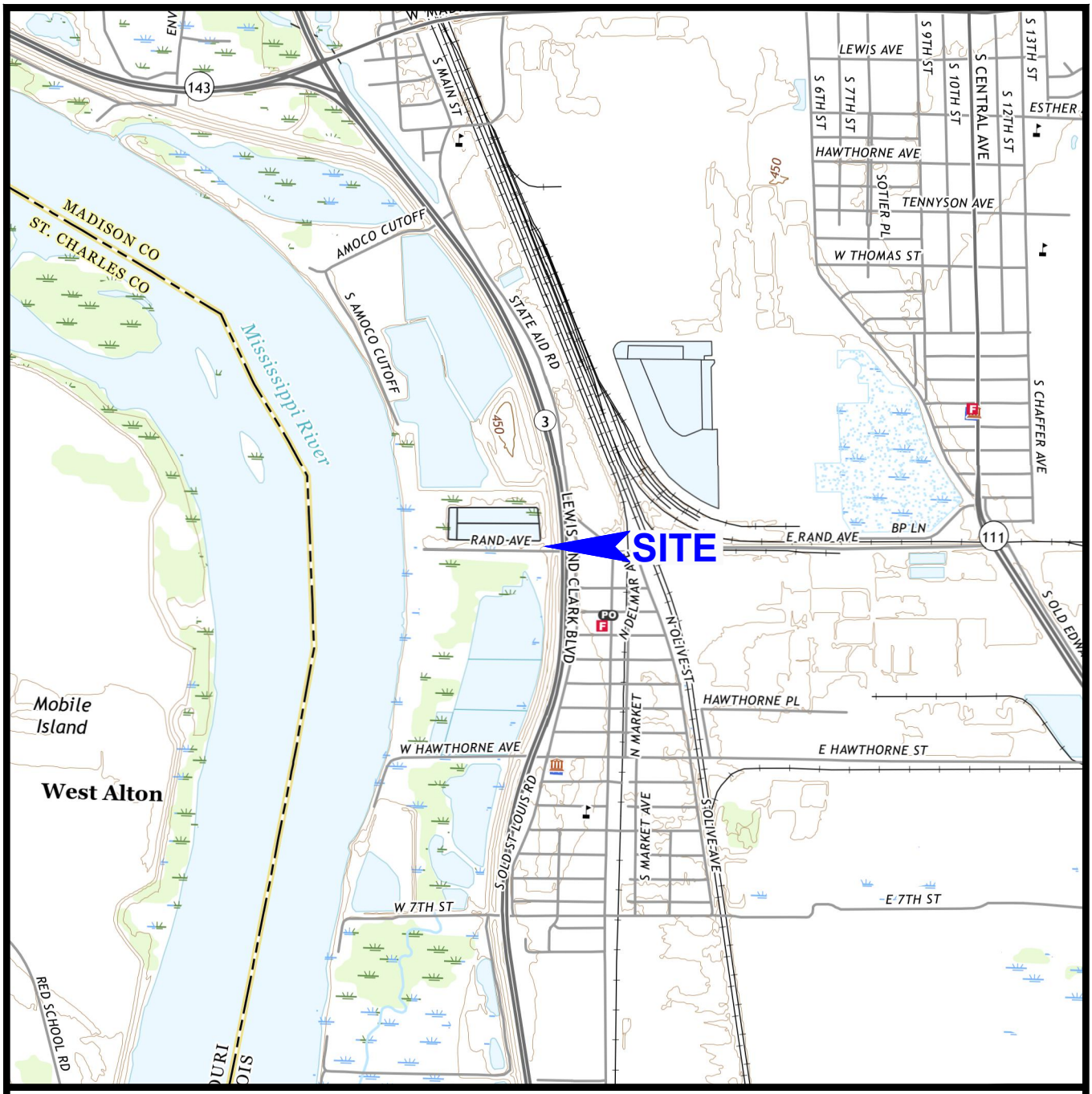
GEOTECHNICAL BUSINESS COUNCIL
of the Geoprofessional Business Association

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@geoprofessional.org www.geoprofessional.org

APPENDIX B – FIGURES

Figure 1 - Site Location and Topography

Figure 2 – Aerial Photograph of Site and Boring Locations



NOTES

1. Plan adapted from a 7.5 minute U.S.G.S. map for Wood River, Illinois-Missouri quadrangle, last revised in 2021.

0 2,000 4,000

SCALE IN FEET

N

Drawn By: WAH	Ck'd By: JWU	App'vd By: JAW
Date: 7-8-24	Date: 8-8-24	Date: 8-12-24

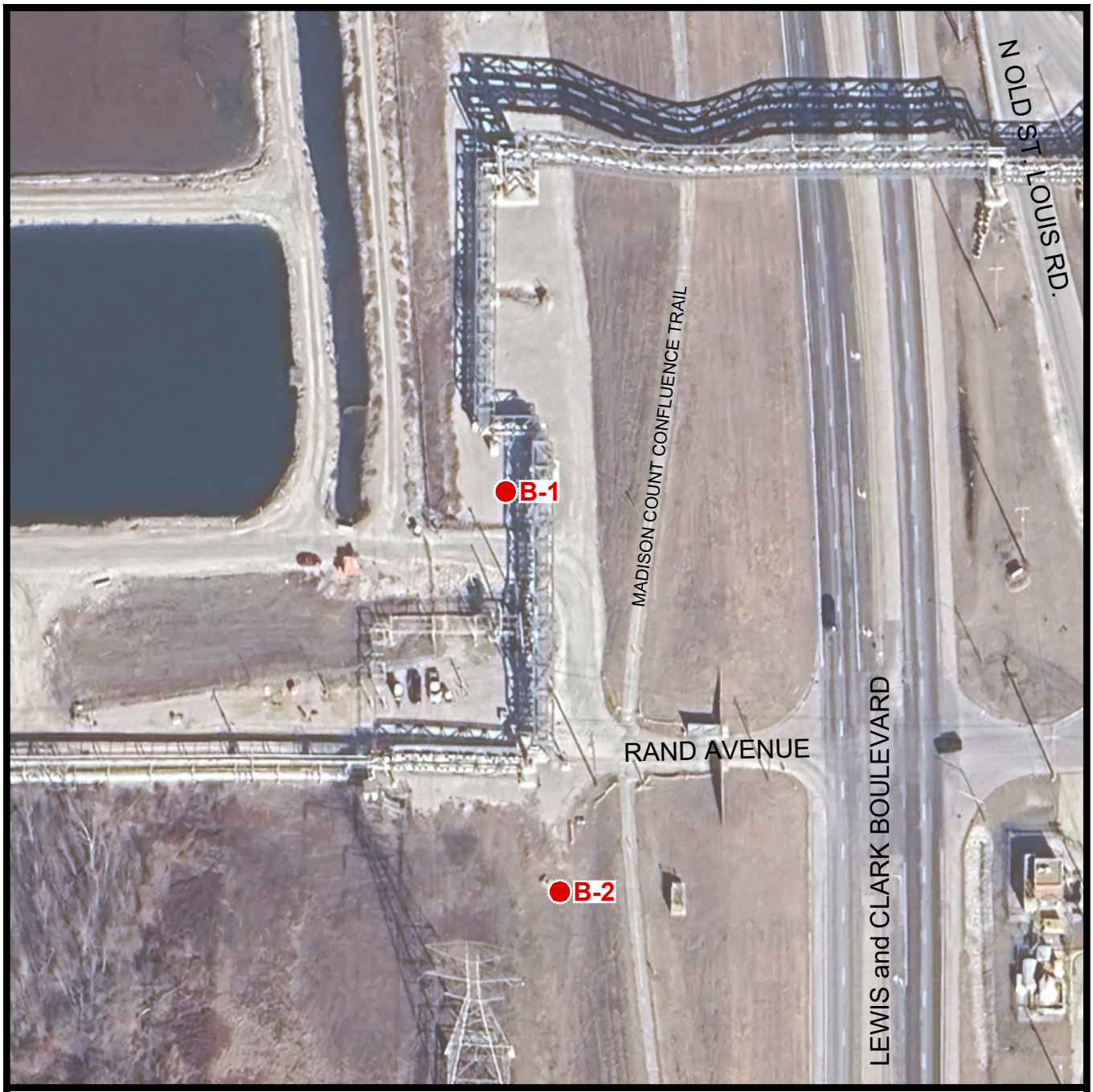
UES™

Rand Avenue Pump Station
Effluent Pipe Improvements
Wood River, Illinois

SITE LOCATION AND TOPOGRAPHY

Project Number J045310.01

FIGURE 1



NOTES

1. Plan adapted from a February 13, 2024 aerial photograph courtesy of Google Earth.

2. Borings were located in the field with reference to site features and are shown approximate only.

LEGEND

● Boring Location

0 100 200

SCALE IN FEET

N

Drawn By: WAH	Ck'd By: JWU	App'vd By: JAW
Date: 7-8-24	Date: 8-8-24	Date: 8-12-24

UES™

Rand Avenue Pump Station
Effluent Pipe Improvements
Wood River, Illinois

AERIAL PHOTOGRAPH OF SITE AND BORING LOCATIONS

Project Number
J045310.01

FIGURE 2

APPENDIX C – BORING INFORMATION

Boring Logs

Boring Log Terms and Symbols

Surface Elevation: 420 Datum: NAVD 88

Completion Date: 7/1/2024

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	SAMPLES
	Crushed rock - 6 inches			
	FILL: gray and brown, lean clay, some gravel		0-4-4	SS1
			3-1-3	SS2
5	Medium stiff to stiff, gray, FAT CLAY - CH			
	Medium stiff to stiff, brown LEAN CLAY, little sand - CL		1-3-4	SS3
	Stiff to medium stiff, brown and gray, FAT CLAY - (CH)		94	ST4
10				
			1-2-4	SS5
15				
	Soft, brown and gray, FAT CLAY - CH		0-2-2	SS6
20	Boring terminated at 20.0 feet			

SHEAR STRENGTH, tsf
△ - UU/2 ○ - QU/2 □ - SV
0.5 1.0 1.5 2.0 2.5

STANDARD PENETRATION RESISTANCE
▲ N-VALUE (BLOWS PER FOOT)
(ASTM D 1586)

WATER CONTENT, %
PL 10 20 30 40 50 LL

ST4: △ at 61 >>

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

GROUNDWATER DATA

X FREE WATER NOT ENCOUNTERED DURING DRILLING

DRILLING DATA

___ AUGER 3 3/4" HOLLOW STEM
WASHBORING FROM 10 FEET
NG DRILLER EER LOGGER
CME 550X DRILL RIG
HAMMER TYPE Auto
HAMMER EFFICIENCY 91 %

REMARKS:

Drawn by: WAH	Checked by: JWU	App'vd. by: JAW
Date: 7/8/2024	Date: 8/8/2024	Date: 8/13/2024

UES™

Rand Avenue Pump Station
Effluent Pipe Improvements
Wood River, Illinois

LOG OF BORING: B-1

Project No. J045310.01

LOG OF BORING 2002.WL J045310.01 BORING LOGS.GPJ 00 CLONE ME.GPJ 8/14/24

Surface Elevation: 421 Datum: NAVD 88

Completion Date: 7/1/2024

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	SAMPLES
	FILL: gray, lean clay and crushed rock			
	FILL: gray, lean clay		2-3-3	SS1
	Medium stiff to stiff, gray and brown, FAT CLAY - (CH)		2-3-4	SS2
5			91	ST3
	Soft, brown and gray, FAT CLAY - CH		1-1-3	SS4
10				
	Soft, brown and gray, SILT, some sand - ML			
	78.1% passing No. 200 sieve		2-1-1	SS5
15				
			0-1-1	SS6
20	Boring terminated at 20.0 feet			

SHEAR STRENGTH, tsf

△ - UU/2 ○ - QU/2 □ - SV

0.5 1.0 1.5 2.0 2.5

STANDARD PENETRATION RESISTANCE

▲ N-VALUE (BLOWS PER FOOT)

(ASTM D 1586)

WATER CONTENT, %

PL 10 20 30 40 50 LL

85 >>

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

GROUNDWATER DATA

X FREE WATER NOT ENCOUNTERED DURING DRILLING

AT 9.7 FEET AFTER 24 HOURS ▼

DRILLING DATA

___ AUGER 3 3/4" HOLLOW STEM

WASHBORING FROM 10 FEET

NG DRILLER EER LOGGER

CME 550X DRILL RIG

HAMMER TYPE Auto

HAMMER EFFICIENCY 91 %

REMARKS:

Drawn by: WAH	Checked by: JWU	App'vd. by: JAW
Date: 7/8/2024	Date: 8/8/2024	Date: 8/13/2024

UES™

Rand Avenue Pump Station
Effluent Pipe Improvements
Wood River, Illinois

LOG OF BORING: B-2

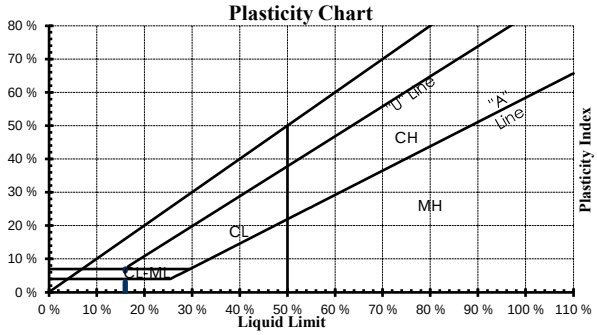
Project No. J045310.01

LOG OF BORING 2002.WL J045310.01 BORING LOGS.GPJ 00 CLONE ME.GPJ 8/14/24

BORING LOG: TERMS AND SYMBOLS

LEGEND

CS	Continuous Sampler
GB	Grab Sample
NQ	NQ Rock Core
PST	Three-Inch Diameter Piston Tube Sample
SS	Split-Spoon Sample (Standard Penetration Test)
ST	Three-Inch Diameter Shelby Tube Sample
*	Sample Not Recovered
PL	Plastic Limit (ASTM D4318)
LL	Liquid Limit (ASTM D4318)
SV	Shear Strength from Field Vane (ASTM D2573)
UU	Shear Strength from Unconsolidated-Undrained Triaxial Compression Test (ASTM D2850)
QU	Shear Strength from Unconfined Compression Test (ASTM D2166)



SOIL GRAIN SIZE

US STANDARD SIEVE

12"	3"	3/4"	4	10	40	200

BOULDERS	COBBLES	GRAVEL		SAND			SILT	CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE		

300	76.2	19.1	4.76	2.00	0.42	0.074	0.005

SOIL GRAIN SIZE IN MILLIMETERS

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions			Symbol	Description
Coarse-Grained Soils (More than 50% Larger than No. 200 Sieve Size)	Gravel and Gravelly Soil	Clean Gravels Little or no Fines	GW	Well-Graded Gravel, Gravel- Sand Mixture
			GP	Poorly-Graded Gravel, Gravel-Sand Mixture
		Gravels with Appreciable Fines	GM	Silty Gravel, Gravel-Sand-Silt Mixture
			GC	Clayey-Gravel, Gravel-Sand-Clay Mixture
	Sand and Sandy Soils	Clean Sands Little or no Fines	SW	Well-Graded Sand, Gravelly Sand
			SP	Poorly-Graded Sand, Gravelly Sand
		Sands with Appreciable Fines	SM	Silty Sand, Sand-Silt Mixture
			SC	Clayey-Sand, Sand-Clay Mixture
Fine-Grained Soils (More than 50% Smaller than No. 200 Sieve Size)	Silts and Clays	Liquid Limit Less Than 50	ML	Silt, Sandy Silt, Clayey Silt, Slight Plasticity
			CL	Lean Clay, Sandy Clay, Silty Clay, Low to Medium Plasticity
			OL	Organic Silts or Lean Clays, Low Plasticity
	Silts and Clays	Liquid Limit Greater Than 50	MH	Silt, High Plasticity
			CH	Fat Clay, High Plasticity
			OH	Organic Clay, Medium to High Plasticity
	Highly Organic Soils		PT	Peat, Humus, Swamp Soil

STRENGTH OF COHESIVE SOILS

Consistency	Undrained Shear Strength (tsf)	Unconfined Comp. Strength (tsf)
Very Soft	less than 0.125	less then 0.25
Soft	0.125 to 0.25	0.25 to 0.5
Medium Stiff	0.25 to 0.5	0.5 to 1.0
Stiff	0.5 to 1.0	1.0 to 2.0
Very Stiff	1.0 to 2.0	2.0 to 3.0
Hard	greater than 2.0	greater than 4.0

DENSITY OF GRANULAR SOILS

Descriptive Term	Approximate N_{60}-Value Range
Very Loose	0 to 4
Loose	5 to 10
Medium Dense	11 to 30
Dense	31 to 50
Very Dense	>50

N-Value (Blow Count) is the last two, 6-inch drive increments (i.e. 4/7/9, N = 7 + 9 = 16). Values are shown as a summation on the grid plot and shown in the Unit Dry Weight/SPT column.

RELATIVE COMPOSITION

Trace	0 to 10%
Little	10 to 20%
Some	20 to 35%
And	35 to 50%

OTHER TERMS

Layer - Inclusion greater than 3 inches thick.

Seam - Inclusion 1/8-inch to 3 inches thick

Parting - Inclusion less than 1/8-inch thick

Pocket - Inclusion of material that is smaller than sample diameter

UES

Relative composition and Unified Soil Classification System (USCS) designations are based on visual descriptions and are approximate only. If laboratory tests were performed to classify the soil, the USCS designation is shown in parenthesis.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CONFLUENCE TRAIL IMPROVEMENTS		MADISON	21	1
	ILLINOIS	CONTRACT NO.		

CONTACT JULIE AT 811
OR 800-892-0123
With the following:

Call Before You Dig JULIE

County MADISON

City / Township VILLAGE OF HARTFORD & CITY OF WOOD RIVER

Sec & 1/4 Sec No.
FRAC. S. 1/2 SECTION 28, T.5N., R.9W.
FRAC. SE. 1/4 SECTION 29, T.5N., R.9W.
FRAC. E. 1/2 SECTION 33, T.5N., R.9W.
FRAC. NE. 1/4 SECTION 4, T.4N., R.9W.

48 HOURS (2 working days) BEFORE YOU DIG

UTILITIES KNOWN TO HAVE FACILITIES WITHIN THE PROJECT AREA ARE AS FOLLOWS:

WATER AND SANITARY SEWER:
HARTFORD PUBLIC WORKS DEPT.
140 WEST HAWTHORNE
HARTFORD, IL 62048
(618) 251-2680

AT&T
203 GOETHE
COLLINSVILLE, IL 62234
(618) 346-6400

GAS:
AMEREN ILLINOIS
2600 N. CENTER STREET
MARYVILLE, IL 62062
(618) 346-1244

ELECTRIC:
AMEREN ILLINOIS
700 OAKWOOD AVENUE
ALTON, IL 62002
(800) 325-7002

CHARTER COMMUNICATIONS
4767 SIGNATURE INDUSTRIAL DRIVE
EDWARDSVILLE, IL 62025
(618) 307-5730

PETROLEUM PIPELINE:
VALERO ENERGY CORPORATION
201 E. HAWTHORNE ST.
HARTFORD, IL 62048
(618)251-2083
24 HOUR EMERGENCY NUMBER:
(866) 423-0898

WOOD RIVER DRAINAGE AND LEVEE DISTRICT
KEVIN WILLIAMS
(618) 401-7226

PROPERTY OWNERS / MANAGING AGENCIES ALONG LEVEE:

7th ST.

VALERO ENERGY CORPORATION
SHERRI MCBRIDE
(618) 980-6661

VILLAGE OF HARTFORD
(618) 251-2680

NATIONAL MAINTENANCE
(618) 334-0273

HAWTHORNE ST. CONTACTS

VALERO ENERGY CORP.
SHERRI MCBRIDE
(618) 980-6661
VILLAGE OF HARTFORD
(618) 251-2680

AMEREN REAL ESTATE
(314) 337-8231

RAND AVE. CONTACTS

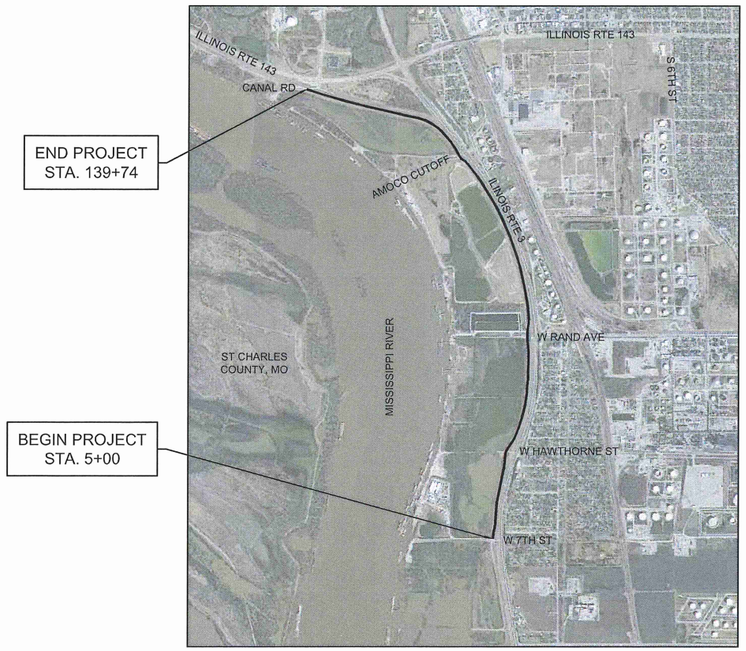
PHILLIPS 66
MIKE CODD
(314) 210-6382

AMOCO CUTOFF RD. CONTACTS

ARCADIS
TOM LENAHAN
(314) 285-7639

CONFLUENCE TRAIL IMPROVEMENTS

MADISON COUNTY MASS TRANSIT DISTRICT
HARTFORD, ILLINOIS / WOOD RIVER, ILLINOIS
MADISON COUNTY
MCT NO. 24-1-21301



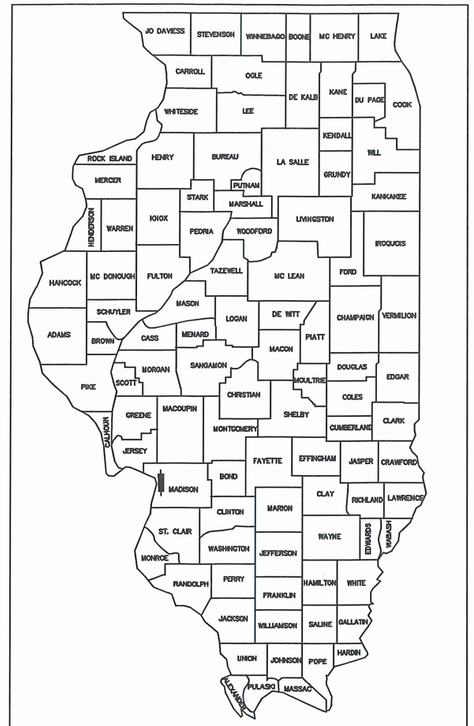
END PROJECT STA. 139+74

BEGIN PROJECT STA. 5+00

LOCATION MAP

NOT TO SCALE

LENGTH OF PROJECT: 13,474 LIN. FT. = 2.552 MILES



LOCATION OF SECTION INDICATED THUS:-

INDEX TO SHEETS

1	COVER SHEET
2	GENERAL NOTES, LEGENDS & SURVEY CONTROL
3	SUMMARY OF QUANTITIES
4-5	SCHEDULES
6	TYPICAL SECTIONS & DETAILS
7-17	PLAN & PROFILE SHEETS
18	INTERSECTION DETAILS
19-20	DETAILS OF CONSTRUCTION
21	TRAFFIC CONTROL

REFERENCE STANDARDS

U.S. DEPARTMENT OF TRANSPORTATION, MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009.

AMERICAN ASSOCIATION OF STATE HIGHWAYS AND TRANSPORTATION OFFICIALS, GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES, 2012.

ILLINOIS DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, JANUARY 1, 2022.

SCALES

1" = 10' 10 0 10 20

1" = 50' 50 0 50 100

FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS THE ABOVE SCALES MAY BE USED.

HIGHWAY STANDARDS

424016-05
701006-05
701301-04
701801-06
701901-09
720001-01

SMS ENGINEERS
Sheppard, Morgan & Schwaab, Inc.
CONSULTING ENGINEERS AND LAND SURVEYORS
215 Market Street, Alton, IL 62002 618/462-9755 E-mail: mail@smsengineers.com
DESIGN FIRM # 184-000992

LICENSED PROFESSIONAL ENGINEER
COEY D. DANIELS
062-063164
STATE OF ILLINOIS

DATE SIGNED 9-10-2024
EXPIRATION DATE 11/30/25

SEPTEMBER, 2024

STANDARD SYMBOL LEGEND

EXISTING

EXISTING GUY POLE –
EXISTING LIGHT POLE –
EXISTING POWER POLE –
EXISTING TELEPHONE POLE –
EXISTING GUY WIRE –
EXISTING TRANSMISSION TOWER –
EXISTING ELECTRIC SPLICE BOX – E
EXISTING TELEPHONE SPLICE BOX –
EXISTING CABLE SPLICE BOX – TV
EXISTING WATER HYDRANT –
EXISTING GAS METER –
EXISTING WATER METER –
EXISTING WATER VALVE –
EXISTING GAS VALVE –
EXISTING FIRE HYDRANT – FH
EXISTING SANITARY MANHOLE TOP –
EXISTING STORM MANHOLE TOP –
EXISTING TELEPHONE MANHOLE TOP – T
EXISTING SANITARY CLEAN OUT –
CONTROL POINT – XXX
BENCHMARK – B.M.
TEST PIT / NUMBER – X
BORING / NUMBER – X
RIGHT-OF-WAY MARKER – MON
AXLE FOUND – AXLE
BOLT FOUND – BOLT
CHISELED "X" FOUND –
PIN FOUND – IP
PINCH PIPE FOUND – IP
PK NAIL FOUND – PK
RAILROAD SPIKE FOUND – RR
STONE FOUND – STONE
BRASS MONUMENT FOUND – MON
IRON PIPE FOUND – IP
MONUMENT FOUND – MON
REBAR FOUND – RBR
EXISTING MAILBOX –
EXISTING FENCE POST –
EXISTING GATE POST –
EXISTING FLAG POLE –
EXISTING GUARD POST – GP
EXISTING ADVERTISING SIGN –
EXISTING TRAFFIC SIGN –
EXISTING PARKING METER – P
EXISTING RAILROAD MILE POST – MP
EXISTING RAILROAD SIGNAL CONTROLLER –
EXISTING RAILROAD CROSSING GATE –
EXISTING TRAFFIC SIGNAL –
EXISTING TRAFFIC SIGNAL CONTROLLER –
EXISTING HANDHOLE –
EXISTING DOUBLE HANDHOLE –
EXISTING MAST ARM BASE –
EXISTING DECIDUOUS TREE / SIZE – XX"
EXISTING EVERGREEN TREE / SIZE – XX"
EXISTING STUMP / SIZE – XX"
EXISTING BUSH –
EXISTING SHRUB –
EXISTING TREE TO BE REMOVED – XX"

PROPOSED

PROPOSED GUY POLE –
PROPOSED LIGHT POLE –
PROPOSED POWER POLE –
PROPOSED TELEPHONE POLE –
PROPOSED GUY WIRE –
PROPOSED TRANSMISSION TOWER –
PROPOSED ELECTRIC SPLICE BOX – E
PROPOSED TELEPHONE SPLICE BOX –
PROPOSED CABLE SPLICE BOX – TV
PROPOSED WATER HYDRANT –
PROPOSED GAS METER –
PROPOSED WATER METER –
PROPOSED WATER VALVE –
PROPOSED GAS VALVE –
PROPOSED FIRE HYDRANT – FH
PROPOSED SANITARY MANHOLE TOP –
PROPOSED STORM MANHOLE TOP –
PROPOSED TELEPHONE MANHOLE TOP –
PROPOSED SANITARY CLEAN OUT –
PROPOSED MAILBOX –
PROPOSED GUARD POST – GP
PROPOSED ADVERTISING SIGN –
PROPOSED TRAFFIC SIGN –
PROPOSED RAILROAD MILE POST – MP
PROPOSED RAILROAD SIGNAL CONTROLLER –
PROPOSED RAILROAD CROSSING GATE –
PROPOSED TRAFFIC SIGNAL –
PROPOSED TRAFFIC SIGNAL CONTROLLER –
PROPOSED HANDHOLE –
PROPOSED DOUBLE HANDHOLE –
PROPOSED MAST ARM BASE –
PROPOSED DECIDUOUS TREE / SIZE – XX"
PROPOSED EVERGREEN TREE / SIZE – XX"
PROPOSED BUSH –
PROPOSED PLANT –

PROPOSED EDGE OF PAVEMENT ELEVATION – + 512.00 EP
PROPOSED PAVEMENT ELEVATION – + 505.50 P
PROPOSED CURB ELEVATION – + 550.25 TC
PROPOSED SIDEWALK ELEVATION – + 515.15 SW
PROPOSED FLOWLINE ELEVATION – + 501.58 FL

COMMITMENTS

1. CONTRACTOR SHALL ADHERE TO ALL CORPS OF ENGINEERS REQUIREMENTS FOR THE PROJECT. SEE SPECIAL PROVISIONS.
2. CONTRACTOR SHALL COORDINATE AND ATTEND A PRE-CONSTRUCTION MEETING WITH PHILLIPS 66 PRIOR TO STARING THE PROJECT. THIS MEETING IS TO BE CONSIDERED SEPARATE FROM THE PROJECT. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR ANY REQUIREMENTS SET FORTH BY PHILLIPS 66. CONTRACTOR SHALL ARRANGE SAID MEETING WITH MIKE CODD OF PHILLIPS 66 AT (314) 210-6382.
3. CONTRACTOR SHALL NOTIFY WOOD RIVER DRAINAGE AND LEVEE DISTRICT 72 HOURS PRIOR TO BEGINNING PROJECT. SEE COVER SHEET FOR CONTACT INFORMATION.

STANDARD LINE TYPE LEGEND

EXISTING FEATURES

EXISTING CENTERLINE
EXISTING BASELINE
EXISTING RIGHT-OF-WAY
EXISTING SECTION LINE
EXISTING PROPERTY LINE – P/L
EXISTING EASEMENT
EXISTING SETBACK
EXISTING MAJOR CONTOUR – 500
EXISTING MINOR CONTOUR – 501
EXISTING DITCH
EXISTING POND, LAKE, BODY OF WATER, ETC.
EXISTING RAILROAD
EXISTING BRUSH / HEDGE / TREE LINE
EXISTING FENCE – X – X – X
EXISTING GUARDRAIL
EXISTING CULVERT
EXISTING STORM SEWER
EXISTING SANITARY SEWER
EXISTING FORCEMAIN – FM – FM
EXISTING WATER – W – W
EXISTING UNDERGROUND ELECTRIC – E – E
EXISTING GAS – G – G
EXISTING UNDERGROUND TELEPHONE – T – T
EXISTING FIBER OPTIC – FO – FO
EXISTING UNDERGROUND CABLE TV – TV – TV
EXISTING OVERHEAD TELEPHONE – OT – OT
EXISTING OVERHEAD ELECTRIC – OE – OE
EXISTING OVERHEAD CABLE TV – OTV – OTV

PROPOSED FEATURES

PROPOSED CENTERLINE
PROPOSED BASELINE
PROPOSED RIGHT-OF-WAY
PROPOSED LOT LINE
PROPOSED EASEMENT
PROPOSED CONSTRUCTION EASEMENT OR TEMPORARY USE PERMIT
PROPOSED CONSTRUCTION LIMITS
PROPOSED SETBACK
PROPOSED MAJOR CONTOUR – 500
PROPOSED MINOR CONTOUR – 501
PROPOSED DITCH
PROPOSED POND, LAKE, BODY OF WATER, ETC.
PROPOSED RAILROAD
PROPOSED FENCE – X – X – X
PROPOSED GUARDRAIL
PROPOSED PERIMETER EROSION BARRIER
PROPOSED CULVERT
PROPOSED STORM SEWER
PROPOSED SANITARY SEWER
PROPOSED FORCEMAIN – FM – FM
PROPOSED WATER – W – W
PROPOSED UNDERGROUND ELECTRIC – E – E
PROPOSED GAS – G – G
PROPOSED UNDERGROUND TELEPHONE – T – T
PROPOSED FIBER OPTIC – FO – FO
PROPOSED UNDERGROUND CABLE TV – TV – TV
PROPOSED OVERHEAD TELEPHONE – OT – OT
PROPOSED OVERHEAD ELECTRIC – OE – OE
PROPOSED OVERHEAD CABLE TV – OTV – OTV

ABBREVIATIONS

ADT	AVERAGE DAILY TRAFFIC	OL	OPEN LID
BK	BACK	PC	POINT OF CURVE
BM	BENCHMARK	PE	PRIVATE ENTRANCE
BVCE	BEGIN VERTICAL CURVE ELEVATION	PI	POINT OF INTERSECTION
BVCS	BEGIN VERTICAL CURVE STATION	PK	PK NAIL
C&G	CURB AND GUTTER	PP	POWER POLE
C/L	CENTER LINE	PRCF	PRECAST REINFORCED CONCRETE FLARED
CE	COMMERCIAL ENTRANCE	PT	POINT OF TANGENT
CI	CAST IRON	PVC	POINT OF VERTICAL CURVE
CL	CLOSED LID	R	RADIUS
CM	CONCRETE MONUMENT	RBR	REBAR
CMP	CORRUGATED METAL PIPE	RDMH	RESTRICTED DEPTH MANHOLE
CONC	CONCRETE	ROW	RIGHT OF WAY
CT	CRIMP TOP PIPE	RR	RAILROAD
CU YD	CUBIC YARD	RRPM	RAISED REFLECTIVE PAVEMENT MARKER
DE	DRAINAGE EASEMENT	RT	RIGHT
DIP	DUCTILE IRON PIPE	S	SOUTH
E	EAST	SE	SOUTHEAST
ELEV	ELEVATION	SL	SECTION LINE
EP	EDGE OF PAVEMENT	SS1	STORM SEWER TYPE 1
EQN STA	EQUATION STATION	SS2	STORM SEWER TYPE 2
ES	EDGE OF SHOULDER	SS3	STORM SEWER TYPE 3
FE	FIELD ENTRANCE	STA	STATION
FH	FIRE HYDRANT	SW	SOUTHWEST
FL	FLOWLINE	TB	TRENCH BACKFILL
FT	FOOT	TBR	TO BE REMOVED
FWD	FORWARD	TC	TOP OF CURB
GP	GUARD POST	TCE	TEMPORARY CONSTRUCTION EASEMENT
HDPE	HIGH DENSITY POLYETHYLENE	TPM	TEMPORARY PAVEMENT MARKING
HMA	HOT-MIX ASPHALT	TPPM	THERMOPLASTIC PAVEMENT MARKING
IP	IRON PIPE	TUP	TEMPORARY USE PERMIT
LT	LEFT	TY	TYPE
MON	MONUMENT	TYP	TYPICAL
MP	MILE POST	VC	VERTICAL CURVE
N	NORTH	VCP	VITRIFIED CLAY PIPE
NE	NORTHEAST	W	WEST
NW	NORTHWEST	WMQ	WATER MAIN QUALITY
O&C	OIL AND CHIP		

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL LAWS INCLUDING THE LATEST EDITION OF THE ILLINOIS DEPARTMENT OF TRANSPORTATION'S, "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" AND "HIGHWAY STANDARDS", AASHTO'S "GUIDE FOR DEVELOPMENT OF BICYCLE FACILITIES", "STANDARDS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS", AND ANY LOCAL APPLICABLE STANDARDS.
2. IF THERE ARE ANY DISCREPANCIES BETWEEN THESE PLANS, SPECIFICATIONS, OR STANDARDS BY GOVERNING BODIES, THE MOST STRINGENT AND RELEVANT REQUIREMENT SHALL BE BINDING AND APPLICABLE.
3. ALL CONSTRUCTION SHALL CONFORM TO THE PLANS AND SPECIFICATIONS. IF THE CONTRACTOR CHOOSES TO MAKE MODIFICATION DURING CONSTRUCTION, EVEN IF THE WORK IS AFFECTED BY OMISSION OR DISCREPANCY, WITHOUT THE APPROVAL OF THE ENGINEER, HE/ SHE IS MAKING SUCH CHANGES AT HIS/ HER OWN RISK. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEER OF ANY CHANGES FROM THE APPROVED DOCUMENTS.
4. THE CONTRACTOR IS RESPONSIBLE FOR KEEPING THE CONSTRUCTION SITE FREE OF DEBRIS AT ALL TIMES AND SHALL KEEP DIRT/ MUD OFF ALL PUBLIC STREETS ADJACENT TO THE CONSTRUCTION SITE.
5. THE CONTRACTOR SHALL CONFINE ALL OPERATIONS TO THE AREA SHOWN ON THE PLANS. ANY AREA DISTURBED BEYOND THESE LIMITS SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
6. THE CONTRACTOR SHALL FERTILIZE, SEED, AND MULCH ALL EARTH SURFACES DISTURBED BY CONSTRUCTION, EXCEPT AS NOTED OTHERWISE IN THE PLANS. FERTILIZE, SEED, AND MULCH WITHIN THE CONSTRUCTION LIMITS AS PROVIDED IN THE CONTRACT. FERTILIZER, SEEDING, AND MULCH OUTSIDE THESE LIMITS DUE TO CONSTRUCTIONENCROACHMENTS SHALL BE RESTORED TO ITS ORIGINAL CONDITION TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST TO THE CONTRACT.
7. FULL DEPTH SAW CUTTING ON PAVEMENT EDGES FROM REMOVAL ITEMS SHALL BE INCLUDED IN THE COST OF THE REMOVAL ITEM.
8. THE PLANS SHOW THE APPROXIMATE LOCATION OF KNOWN UTILITIES. UTILITY INFORMATION PROVIDED IS BASED ON INFORMATION OBTAINED FROM UTILITY COMPANIES AND SHALL NOT BE CONSIDERED TO BE ACCURATE OR COMPLETE. THE CONTRACTOR SHALL USE ALL DUE PRECAUTION NOT TO DAMAGE OR DISTURB ANY UTILITIES AND THE ENTIRE COST OF MAKING REPAIRS TO, OR REPLACEMENT OF, ANY DAMAGED LINE WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
9. PROPOSED ELEVATIONS SHOWN ON THE PLANS AS +/- ARE APPROXIMATE, EXACT ELEVATIONS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD. IF APPLICABLE, ELEVATIONS SHALL BE DETERMINED PRIOR TO FABRICATION OF THE DRAINAGE STRUCTURES.
10. SEE TYPICAL SECTION SHEETS FOR TYPICAL SECTION NOTES.
11. ALL CONSTRUCTION ON THIS PROJECT SHALL COMPLY WITH THE REQUIREMENTS OF THE "PUBLIC RIGHTS-OF-WAY ACCESSIBILITY GUIDELINES" (PROWAG) WITHIN THE PEDESTRIAN ACCESS ROUTE (PAR). THE PAR IS A SPACE WITH A MINIMUM WIDTH OF 4 FEET WITHIN SIDEWALKS, CURB RAMPS, DRIVEWAY PAVEMENTS AND PAVEMENT SURFACE WITHIN CROSSWALKS.
12. PLAN QUANTITIES FOR HOT-MIX ASPHALT ITEMS WERE CALCULATED BASED ON USING 112 LBS. / SQ. YD. / IN.
13. PLAN QUANTITY FOR CEMENT TO BE USED FOR FULL-DEPTH RECLAMATION ASSUMES A HOMOGENOUS MIXTURE OF HOT-MIX ASPHALT AND AGGREGATE WITH A UNIT WEIGHT OF 115 LBS/CU. FT. AND A CEMENT APPLICATION RATE OF 7%.

REMOVALS

1. THE CONTRACTOR SHALL INSPECT AND ACCEPT THE SITE CONDITIONS PRIOR TO MOBILIZATION. DOCUMENTATION FOR ANY CONCERNS SHALL BE PROVIDED TO OWNER IN WRITING AND WITH PHOTOGRAPHS PRIOR TO MOBILIZATION. NO ADDITIONAL PAYMENT WILL BE MADE FOR REPAIR OF DAMAGED EXISTING FEATURES TO REMAIN THAT WERE NOT ADDRESSED BEFORE THE CONTRACTOR ASSUMED THE SITE FROM THE OWNER.
2. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL EXISTING FEATURES SUCH AS SIGNS, PAVEMENT, AND TREES FROM DAMAGE. IF ANY FEATURE TO REMAIN IS DAMAGED, IT SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR'S EXPENSE AS DIRECTED BY THE OWNER OR ENGINEER.
3. ANY UNSUITABLE MATERIAL ENCOUNTERED DURING CONSTRUCTION SHALL BE REMOVED BY THE CONTRACTOR AND REPLACED WITH SUITABLE MATERIAL AS APPROVED BY THE ENGINEER. UNLESS NOTED OTHERWISE IN THE PLANS, THE COST TO REMOVE AND REPLACE UNSUITABLE MATERIAL WILL BE CONSIDERED AN UNFORESEEN CONDITION AND WILL BE PAID FOR AT AN AGREED UPON PRICE OR ON A TIME AND MATERIAL BASIS.

EARTHWORK & GRADING

1. DURING GRADING OPERATIONS, THE SURFACE SHALL BE SMOOTH AND NOT BE LEFT TO IMPOUND WATER IF THERE MAY BE RAIN PRIOR TO THE NEXT WORKING DAY. IF THE SURFACE IS FINISHED SMOOTH FOR ANY REASON, IT SHALL BE SCARIFIED BEFORE PROCEEDING WITH THE PLACEMENT OF SUCCEEDING EARTH LIFTS.
2. THE CONTRACTOR SHALL PROVIDE A SMOOTH TRANSITION FROM NEW AREAS TO ADJACENT, EXISTING AREAS AS NECESSARY.

PAVING & PAVEMENT MARKING

1. PAVEMENT MARKING LOCATIONS SHOWN IN THE PLANS ARE APPROXIMATE. PROPOSED PAVEMENT MARKINGS MAY BE ADJUSTED BY THE CONTRACTOR, AS APPROVED BY THE ENGINEER, TO MATCH FIELD CONDITIONS.
2. ALL SIGNS AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH IDOT HIGHWAY STANDARDS AND THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD).

SURVEY CONTROL POINTS

Point #	Northing	Easting	Elevation	Description
1	796,907.3725	2,312,850.4756	444.098	CORPS OF ENGINEERS MONUMENT FOUND
11	789,077.8359	2,315,669.0180	443.016	CUT "X" FOUND
12	789,068.4178	2,315,665.6771	443.329	CUT "X" FOUND
13	789,083.2879	2,315,623.2181	443.005	ALUMINUM TAB FOUND
14	787,022.0175	2,315,321.5710	443.243	ALUMINUM TAB FOUND

REVISIONS

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DESIGN FIRM # 184-000992

CONFLUENCE TRAIL IMPROVEMENTS
MADISON COUNTY MASS TRANSIT DISTRICT
HARTFORD, ILLINOIS
MADISON COUNTY
MCT NO. 24-1-21301
GENERAL NOTES, LEGENDS & BENCHMARKS

DWG. NO.
1D:\MCT 551288 CONFLUENCE TRAIL\2 GEN NOTES.DWG
REF. BK. 10126 PG. 32
JOB NO. 551288
DSN. BY: CDD
DWN. BY: CAD
CHK. BY: CDD
DATE:
SCALE: N/A

SUMMARY OF QUANTITIES

	CODE NO.	ITEM	UNIT	TOTAL QUANTITY
	25000115	SEEDING, CLASS 2	ACRE	2
	30201700	PORTLAND CEMENT	TON	429
	40201000	AGGREGATE FOR TEMPORARY ACCESS	TON	20
	40600290	BITUMINOUS MATERIALS (TACK COAT)	POUND	3,380
	40603080	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50	TON	1,305
	40604050	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "C", N50	TON	1,280
	40800050	INCIDENTAL HOT-MIX ASPHALT SURFACING	TON	20
	42300200	PCC DRIVEWAY PAVEMENT, 6 INCH	SQ YD	55
	42400200	DETECTABLE WARNINGS	SQ FT	160
	44000100	PAVEMENT REMOVAL	SQ YD	245
	67100100	MOBILIZATION	L SUM	1
	72000100	SIGN PANEL - TYPE 1	SQ FT	77
	72400310	REMOVE SIGN PANEL - TYPE 1	SQ FT	3
	73000100	WOOD SIGN SUPPORT	FOOT	269
	78001100	PAINT PAVEMENT MARKING - LETTERS AND SYMBOLS	SQ FT	198

	CODE NO.	ITEM	UNIT	TOTAL QUANTITY
	78001110	PAINT PAVEMENT MARKING - LINE 4"	FOOT	3,492
	78001150	PAINT PAVEMENT MARKING - LINE 12"	FOOT	40
	78001180	PAINT PAVEMENT MARKING - LINE 24"	FOOT	211
	LR400880	FULL DEPTH RECLAMATION, 8"	SQ YD	17,764
	X2020110	GRADING AND SHAPING SHOULDERS	UNIT	266
	X2020410	EARTH EXCAVATION, SPECIAL	L SUM	1
	X7010216	TRAFFIC CONTROL AND PROTECTION, SPECIAL	L SUM	1
	X7240300	SIGN REMOVAL	EACH	26
	X7240500	RELOCATE EXISTING SIGNS	EACH	15
	X7240505	RELOCATE SIGN PANEL AND POST	EACH	1
		RELOCATE GATE SPECIAL	EACH	14
		PAINT GATE AND GATE POST	EACH	14
		REMOVE BOLLARD ASSEMBLY	EACH	7
		REMOVE & RELOCATE BOLLARD ASSEMBLY	EACH	1
		CONSTRUCTION LAYOUT AND TESTING	L SUM	1
* DENOTES SPECIALTY ITEM				

REVISIONS

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DESIGN FIRM # 184-000992

CONFLUENCE TRAIL IMPROVEMENTS
MADISON COUNTY MASS TRANSIT DISTRICT
HARTFORD, ILLINOIS
MADISON COUNTY
MCT NO. 24-1-21301
SUMMARY OF QUANTITIES

DWG. NO.
D:\MCT 551288 CONFLUENCE TRAIL\3 QUANTITIES.DWG
REF. BK. 10126 PG. 32
JOB NO. 551288
DSN. BY: CDD
DWN. BY: CAD
CHK. BY: CDD
DATE:
SCALE: N/A

SIGNING SCHEDULE

LOCATION STATION	LEGEND OR TYPE	MUTCD SIGN DESIGNATION	SIZE W X H (INCHES)	SIGN REMOVAL (EACH)	RELOCATE EXISTING SIGNS (EACH)	RELOCATE SIGN PANEL AND POST (EACH)	REMOVE SIGN PANEL - TYPE 1 (SQ. FT.)	SIGN PANEL TYPE 1 (SQ. FT.)	WOOD SIGN SUPPORT (FT.)	REMARKS
CONFLUENCE TRAIL										
5+03 RT.	NO PARKING	R8-3A	18" X 24"	1				3	10	
5+05 LT.	STOP SIGN	R1-1	18" X 18"	1				2.25	12	Red
	BIKERS DISMOUNT				1					Reuse bikers dismount sign
	CROSS TRAFFIC DOES NOT STOP				1					Reuse cross traffic does not stop sign
5+50 LT.	DANGEROUS INTERSECTION	W41-1	18" X 18"	1				2.25	10	Flourescent Yellow Green
6+06 LT.	STOP AHEAD	W3-1	18" X 18"	1				2.25	12	Flourescent Yellow Green
	HILL	W7-5	18" X 18"					2.25		Flourescent Yellow Green
22+55 RT.	STOP AHEAD	W3-1	18" X 18"	1				2.25	12	Flourescent Yellow Green
	HILL	W7-5	18" X 18"					2.25		Flourescent Yellow Green
24+40 RT.	DANGEROUS INTERSECTION	W41-1	18" X 18"	1				2.25	10	Flourescent Yellow Green
25+50 RT.	STOP SIGN	R1-1	18" X 18"	1				2.25	12	Red
	BIKERS DISMOUNT				1					Reuse bikers dismount sign
	CROSS TRAFFIC DOES NOT STOP				1					Reuse cross traffic does not stop sign
25+85 RT.	ALTON/GRANITE CITY			1						
25+85 LT.	STOP SIGN	R1-1	18" X 18"	1				2.25	12	Red
	BIKERS DISMOUNT				1					Reuse bikers dismount sign
	CROSS TRAFFIC DOES NOT STOP				1					Reuse cross traffic does not stop sign
26+00 RT.	Bike X-ing	W11-1P	24" X 18"				3	3		Flourescent Yellow Green
26+67 LT.	STOP AHEAD	W3-1	18" X 18"	1				2.25	10	Flourescent Yellow Green
28+52 LT.	HILL	W7-5	18" X 18"	1				2.25	10	Flourescent Yellow Green
49+60 RT.	STOP AHEAD	W3-1	18" X 18"	1				2.25	10	Flourescent Yellow Green
	HILL	W7-5	18" X 18"					2.25		Flourescent Yellow Green
51+84 RT.	DANGEROUS INTERSECTION	W41-1	18" X 18"	1				2.25	10	Flourescent Yellow Green
53+10 RT	STOP SIGN	R1-1	18" X 18"	1				2.25	12	Red
	BIKERS DISMOUNT				1					Reuse bikers dismount sign
	CROSS TRAFFIC DOES NOT STOP				1					Reuse cross traffic does not stop sign
53+50 LT.	STOP SIGN	R1-1	18" X 18"	1				2.25	12	Red
	BIKERS DISMOUNT				1					Reuse bikers dismount sign
	CROSS TRAFFIC DOES NOT STOP				1					Reuse cross traffic does not stop sign
54+77 LT	DANGEROUS INTERSECTION	W41-1	18" X 18"	1				2.25	10	Flourescent Yellow Green
56+85 LT	STOP AHEAD	W3-1	18" X 18"	1				2.25	12	Flourescent Yellow Green
	HILL	W7-5	18" X 18"					2.25		Flourescent Yellow Green
96+40 RT.	STOP AHEAD	W3-1	18" X 18"	1				2.25	12	Flourescent Yellow Green
	HILL	W7-5	18" X 18"					2.25		Flourescent Yellow Green
98+14 RT.	DANGEROUS INTERSECTION	W41-1	18" X 18"	1				2.25	10	Flourescent Yellow Green
98+85 RT.	STOP SIGN	R1-1	18" X 18"	1				2.25	12	Red
	BIKERS DISMOUNT				1					Reuse bikers dismount sign
	CROSS TRAFFIC DOES NOT STOP				1					Reuse cross traffic does not stop sign
98+88 RT.	STOP SIGN	R1-1	30" X 30"	1		1				Relocate to STA 98+75 LT
99+36 LT.	STOP SIGN	R1-1	18" X 18"	1				2.25	12	Red
	BIKERS DISMOUNT				1					Reuse bikers dismount sign
	CROSS TRAFFIC DOES NOT STOP				1					Reuse cross traffic does not stop sign
100+54 LT.	DANGEROUS INTERSECTION	W41-1	18" X 18"	1				2.25	10	Flourescent Yellow Green
102+62 LT.	STOP AHEAD	W3-1	18" X 18"	1				2.25	12	Flourescent Yellow Green
	HILL	W7-5	18" X 18"					2.25		Flourescent Yellow Green
138+97 RT.	YIELD	R1-2	18" X 18" X 18"	1				1	10	Flourescent Yellow Green
SEVENTH STREET										
5+00 RT.	BIKE	W11-1	30" X 30"	1				6.25	15	Flourescent Yellow Green
	TRAIL XING	W11-1P	24" X 18"					3		Flourescent Yellow Green
	SPEED LIMIT				1					Reuse speed limit sign
TOTAL				26	15	1	3	77	269	

PAVEMENT MARKING SCHEDULE

ITEM	QUANTITY	UNIT
PAINT PAVEMENT MARKING - LINE 4" (YELLOW 3' - 9' SKIP DASH)	3,290	FOOT
PAINT PAVEMENT MARKING - LINE 4" (SOLID YELLOW)	202	FOOT
TOTAL PAINT PAVEMENT MARKING - LINE 4"	**3,492**	**FOOT**
PAINT PAVEMENT MARKING - LINE 12" (WHITE STOP BAR)	40	FOOT
TOTAL PAINT PAVEMENT MARKING - LINE 12"	**40**	**FOOT**
PAINT PAVEMENT MARKING - LINE 24" (WHITE CROSSWALK)	211	FOOT
TOTAL PAINT PAVEMENT MARKING - LINE 24"	**211**	**FOOT**
PAINT PAVEMENT MARKING - LETTERS AND SYMBOLS (STOP SIGN ON PAVEMENT)	60	SQ FT
PAINT PAVEMENT MARKING - LETTERS AND SYMBOLS (STOP AHEAD ON PAVEMENT)	138	SQ FT
TOTAL PAINT PAVEMENT MARKING - LETTERS AND SYMBOLS	**198**	**SQ FT**

REVISIONS

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DESIGN FIRM # 184-000992

CONFLUENCE TRAIL IMPROVEMENTS
MADISON COUNTY MASS TRANSIT DISTRICT
HARTFORD, ILLINOIS
MADISON COUNTY
MCT NO. 24-1-21301
SCHEDULES

DWG. NO.
1D:\MCT 551288 CONFLUENCE TRAIL\4 SCHEDULES.DWG
REF. BK. 10126 PG. 32
JOB NO. 551288
DSN. BY: CDD
DWN. BY: CAD
CHK. BY: CDD
DATE:
SCALE: N/A

BOLLARD AND GATE SCHEDULE

LOCATION STATION	RELOCATE GATE SPECIAL (EACH)	PAINT GATE AND GATE POST (LUMP SUM)	REMOVE AND RELOCATE BOLLARD ASSEMBLY (EACH)	REMOVE BOLLARD ASSEMBLY (EACH)	REMARKS
5+00 RT.	1	1			RELOCATE TO 5+07.00 - 9.75' RT
5+04 LT.	1	1			RELOCATE TO 5+19.00 - 9.75' LT
5+13				1	
24+76				1	
25+42 RT.	1	1			RELOCATE TO 25+37.12 - 9.75' RT
25+44 LT.	1	1			RELOCATE TO 25+49.12 - 9.75' LT
25+94 RT.	1	1			RELOCATE TO 25+88.72 - 9.75' RT
25+96 LT.	1	1			RELOCATE TO 26+00.72 - 9.75' LT
26+39				1	
52+67				1	
53+04 RT.	1	1			RELOCATE TO 52+94.26 - 9.75' RT
53+07 LT.	1	1			RELOCATE TO 53+06.26 - 9.75' LT
53+51 RT.	1	1			RELOCATE TO 53+51.63 - 9.75' RT
53+55 LT.	1	1			RELOCATE TO 53+63.63 - 9.75' LT
53+91				1	
98+33				1	
98+64 RT.	1	1			RELOCATE TO 98+62.19 - 9.75' RT
98+67 LT.	1	1			RELOCATE TO 98+74.19 - 9.75' LT
99+41 RT.	1	1			RELOCATE TO 99+44.08 - 9.75' RT
99+44 LT.	1	1			RELOCATE TO 99+56.08 - 9.75' LT
99+87				1	
139+43			1		
TOTAL	**14**	**14**	**1**	**7**	

ENTRANCE / APRON PAVEMENT SCHEDULE

LOCATION STATION	INCIDENTAL HOT-MIX ASPHALT SURFACING (TON)	PCC DRIVEWAY PAVEMENT 6 INCH (SQ YD)	DETECTABLE WARNINGS (SQ FT)
7TH STREET			
NORTH TRAIL ENTRANCE	2	8.9	20
HAWTHORNE AVENUE			
SOUTH TRAIL ENTRANCE	2	6.5	20
NORTH TRAIL ENTRANCE	2	6.3	20
RAND AVENUE			
SOUTH TRAIL ENTRANCE		6.5	20
NORTH TRAIL ENTRANCE		6.5	20
WRDLD ACCESS APRON (STA. 63+80 LT.)	8		
AMOCO CUTOFF			
SOUTH TRAIL ENTRANCE		7.3	20
NORTH TRAIL ENTRANCE	2	7.2	20
MIKES/CANAL ROAD			
SOUTH TRAIL ENTRANCE		5.6	20
OTHER AREAS AS DIRECTED BY ENGINEER	4		
TOTAL	**20**	**55**	**160**

PAVING SCHEDULE

LOCATION STATION	FULL DEPTH RECLAMATION, 8" (SQ YD)	PORTLAND CEMENT (TON)	BITUMINOUS MATERIALS (TACK COAT) (POUND)	HOT-MIX ASPHALT SURFACE COURSE IL-9.5, MIX "C", N50 (TON)	HOT-MIX ASPHALT BINDER COURSE IL-19.0, N50 (TON)	PAVEMENT REMOVAL (SQ YD)
CONFLUENCE TRAIL						
STA. 5+05.00 TO STA. 25+51.12	2728.2	65.9	511.5	191.0	191.0	
STA. 25+86.72 TO STA. 53+08.26	3628.7	87.7	680.4	254.0	254.0	
STA. 53+49.63 TO STA. 98+76.19	6035.2	145.8	1131.6	422.5	422.5	
STA. 99+39.53 TO STA. 139+68.54	5372.0	129.8	1007.3	376.0	376.0	
HAWTHORNE AVENUE	(PROJECT OMISSION DUE TO ADJACENT EPA PROJECT)					
STA. 25+56.69 TO STA. 25+81.44						
RAND AVENUE						
STA. 53+13.25 TO STA. 53+44.58			26.2	19.5	32.6	129.5
AMOCO CUTOFF						
STA. 98+82.36 TO STA. 99+33.85			23.0	17.2	28.6	115.7
TOTAL	**17,764**	**429**	**3,380**	**1,280**	**1,305**	**245**

REVISIONS

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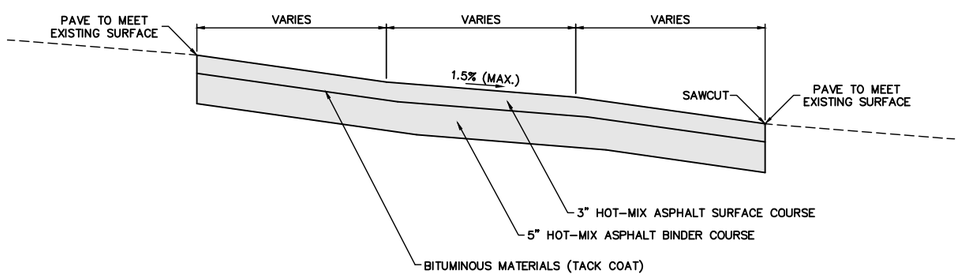
SMS ENGINEERS
DESIGN FIRM # 184–000992

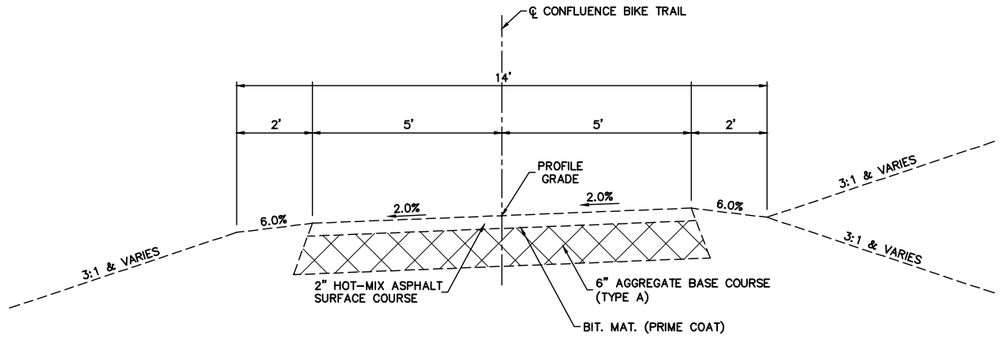
CONFLUENCE TRAIL IMPROVEMENTS
MADISON COUNTY MASS TRANSIT DISTRICT
HARTFORD, ILLINOIS
MADISON COUNTY
MCT NO. 24-1-21301
SCHEDULES

DWG. NO.
D:\MCT 551288 CONFLUENCE TRAIL\4 SCHEDULES.DWG
REF. BK. 10126 PG. 32
JOB NO. 551288
DSN. BY: CDD
DWN. BY: CAD
CHK. BY: CDD
DATE:
SCALE: N/A
SHEET 5 OF 21

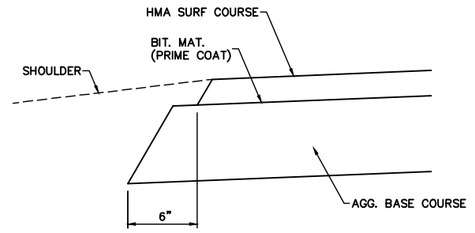
* WIDTH VARIES SEE SHEET 18 FOR INTERSECTION DETAILS



PROPOSED TYPICAL SECTION
SIDE ROAD CROSSINGS
SCALE: 1" = 4' HORZ.
1" = 1' VERT.

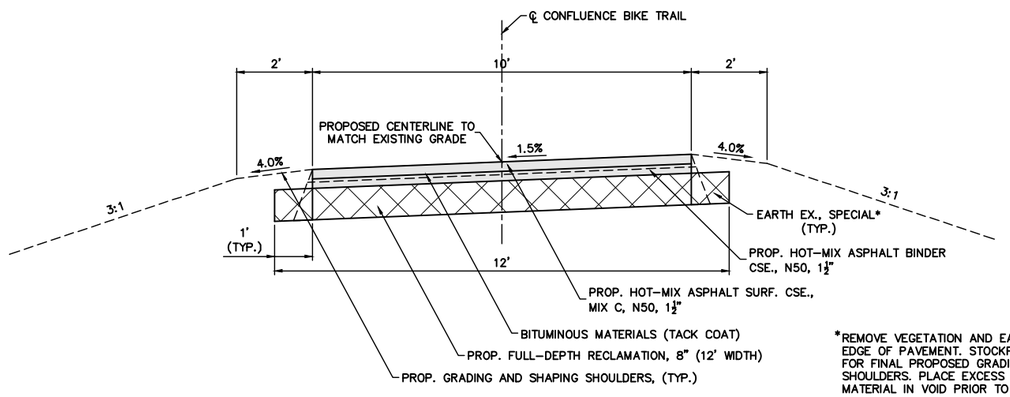


EXISTING TYPICAL SECTION
CONFLUENCE TRAIL
SCALE: 1" = 2' HORZ.
1" = 1' VERT.



EXISTING PAVEMENT EDGE DETAIL
CONFLUENCE TRAIL
NOT TO SCALE

MIXTURE REQUIREMENTS		
MIXTURE USE	SURFACE	BINDER/BASE
PG	PG 64-22	PG 64-22
RAP % (MAX.)	10%	15%
DESIGN AIR VOIDS	4.0% @ Ndes = 50	4.0% @ Ndes = 50
MIX COMPOSITION (GRADATION MIXTURE)	IL-9.5	IL-19.0
FRICTION AGG.	MIXTURE C	MIXTURE B
MIXTURE WEIGHT	112 LB/SQ YD/IN	112 LB/SQ YD/IN



*REMOVE VEGETATION AND EARTH 1 FT. OUTSIDE EDGE OF PAVEMENT. STOCKPILE ALONG PATH FOR FINAL PROPOSED GRADING AND SHAPING SHOULDERS. PLACE EXCESS RECLAIMED MATERIAL IN VOID PRIOR TO MIXING CEMENT.

PROPOSED TYPICAL SECTION
CONFLUENCE TRAIL
STA. 5+00 TO STA. 139+74
SCALE: 1" = 2' HORZ.
1" = 1' VERT.

REVISIONS

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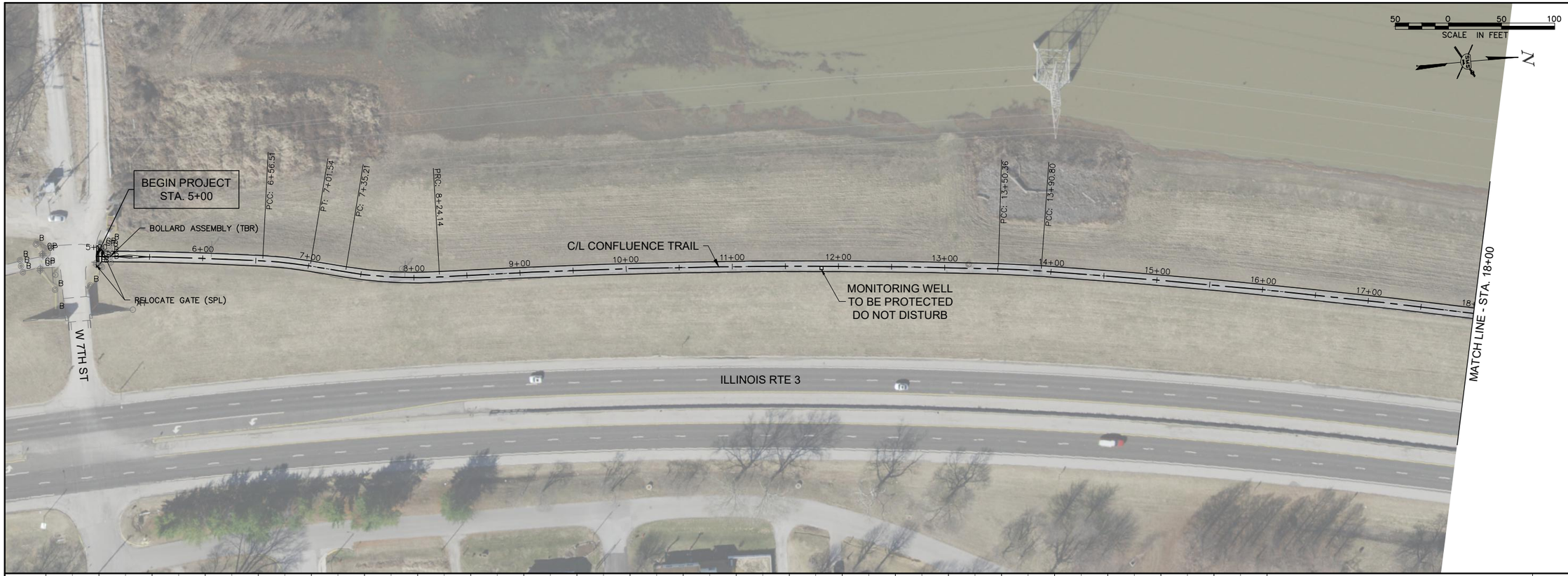
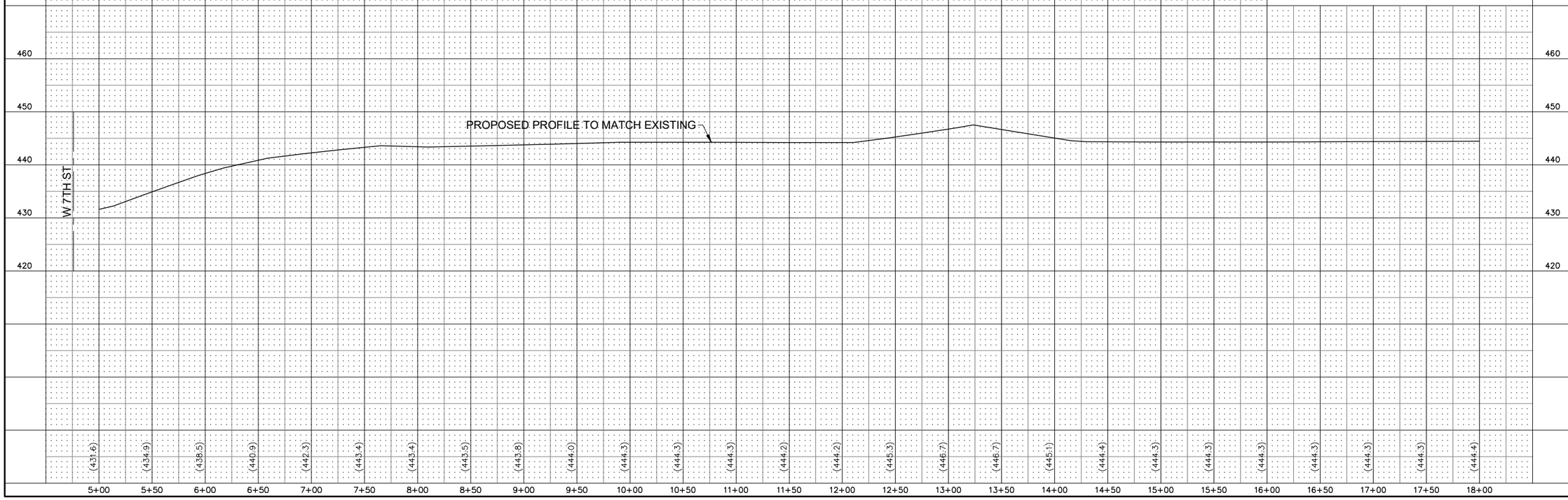
CONFLUENCE TRAIL IMPROVEMENTS
MADISON COUNTY MASS TRANSIT DISTRICT
HARTFORD, ILLINOIS
MADISON COUNTY
MCT NO. 24-1-21301
TYPICAL SECTIONS AND DETAILS

DWG. NO.
1D:\MCT 551288 CONFLUENCE TRAIL\5 TYP SECTS.DWG
REF. BK. 10126 PG. 32
JOB NO. 551288
DSN. BY: CDD
DWN. BY: CAD
CHK. BY: CDD
DATE:
SCALE: AS SHOWN
SHEET 6 OF 21





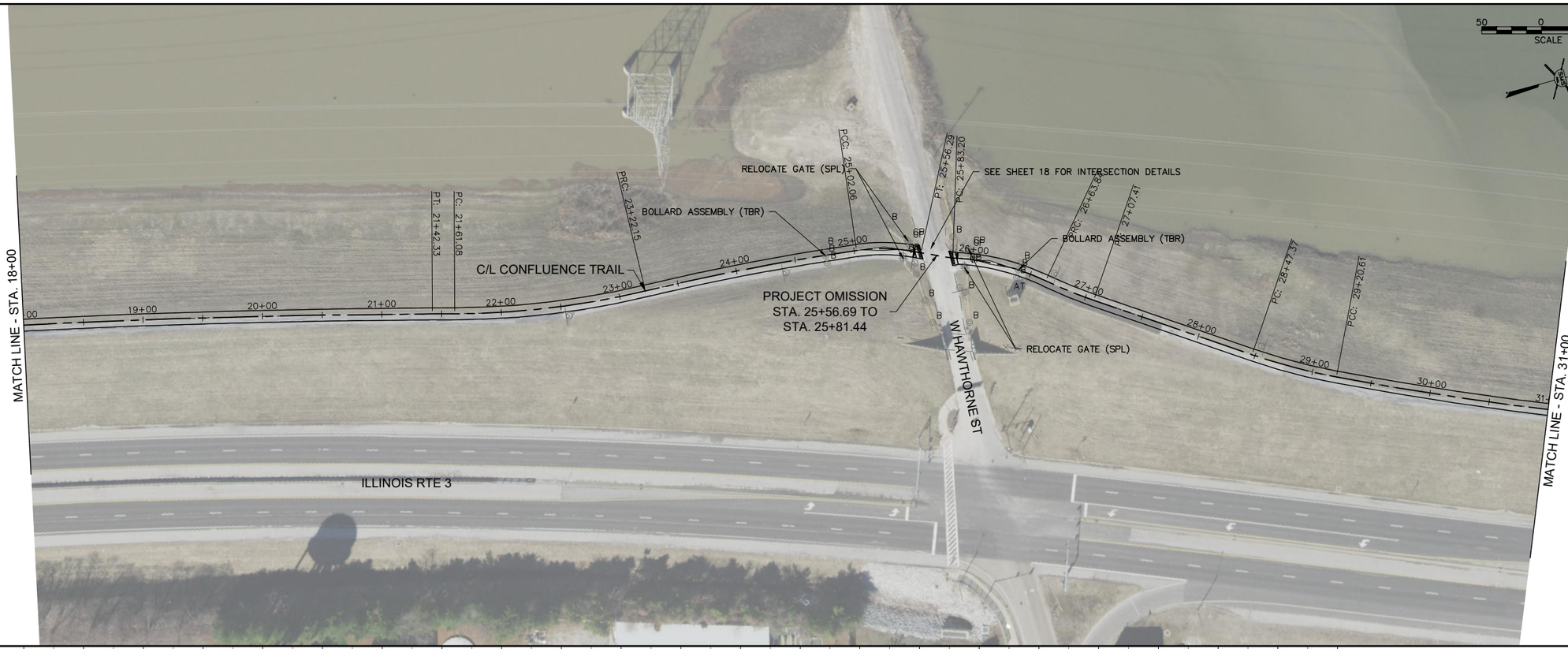
NOTE:
AERIAL IMAGE FOR INFORMATIONAL PURPOSES ONLY AND MAY NOT EXACTLY ALIGN WITH PROPOSED IMPROVEMENTS DUE TO OVERLAPPING IMAGES AND ANGLE OF PHOTOGRAMMETRY.

REVISIONS

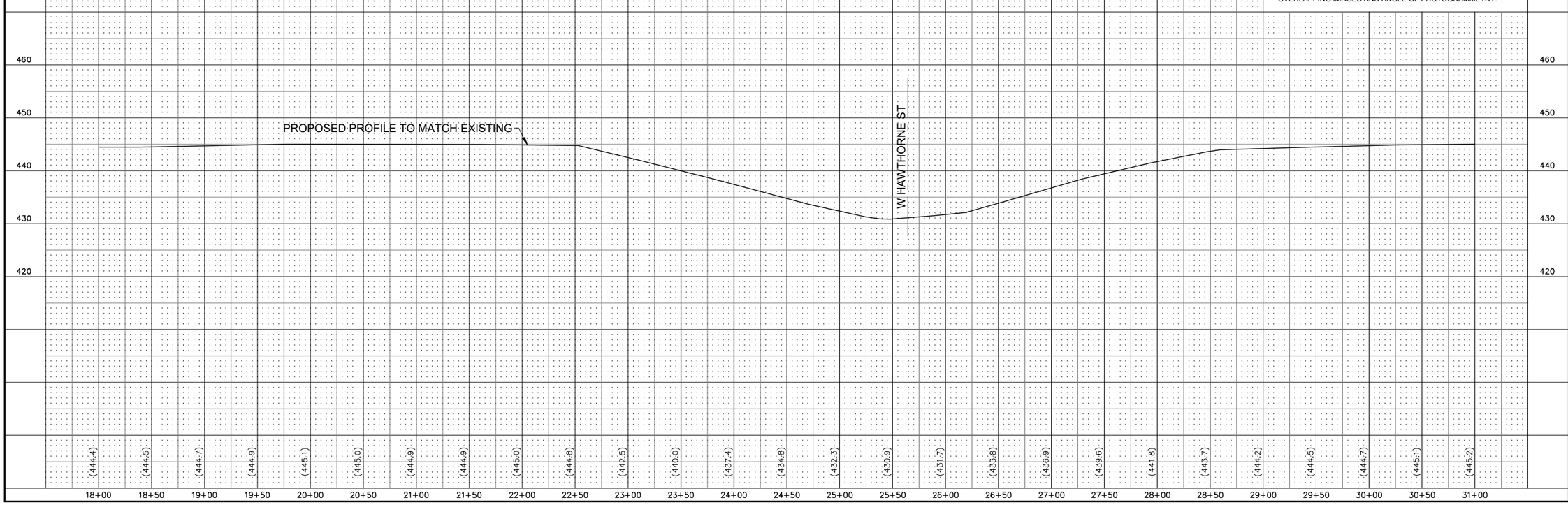
SMS ENGINEERS
Sheppard, Morgan & Schwaab, Inc.
CONSULTING ENGINEERS AND LAND SURVEYORS
215 Market Street Alton, IL 62002 618.462-5755 E-mail: mail@smsengineers.com
DESIGN FIRM # 184-000992

CONFLUENCE TRAIL IMPROVEMENTS
MADISON COUNTY MASS TRANSIT DISTRICT
HARTFORD, ILLINOIS
MADISON COUNTY
MCT NO. 24-1-21301
BIKE TRAIL PLAN & PROFILE

DWG. NO.
D:\MCT 551288 CONFLUENCE TRAIL\MCT BASETOPO.DWG
REF. BK. 10126 PG. 32
JOB NO. 551288
DSN. BY: CDD
DWN. BY: CAD
CHK. BY: CDD
DATE:
SCALE: HORZ. 1" = 50'
VERT. 1" = 10'



NOTE:
AERIAL IMAGE FOR INFORMATIONAL PURPOSES ONLY AND MAY NOT EXACTLY ALIGN WITH PROPOSED IMPROVEMENTS DUE TO OVERLAPPING IMAGES AND ANGLE OF PHOTOGRAMMETRY.



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HARTFORD, ILLINOIS
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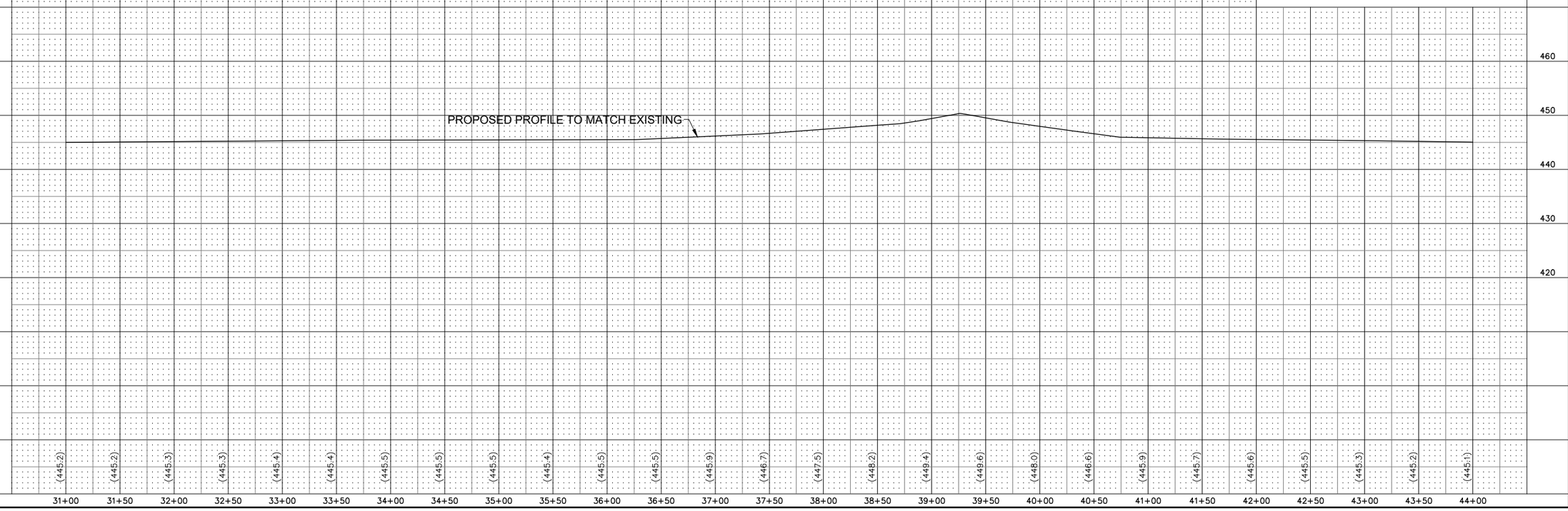

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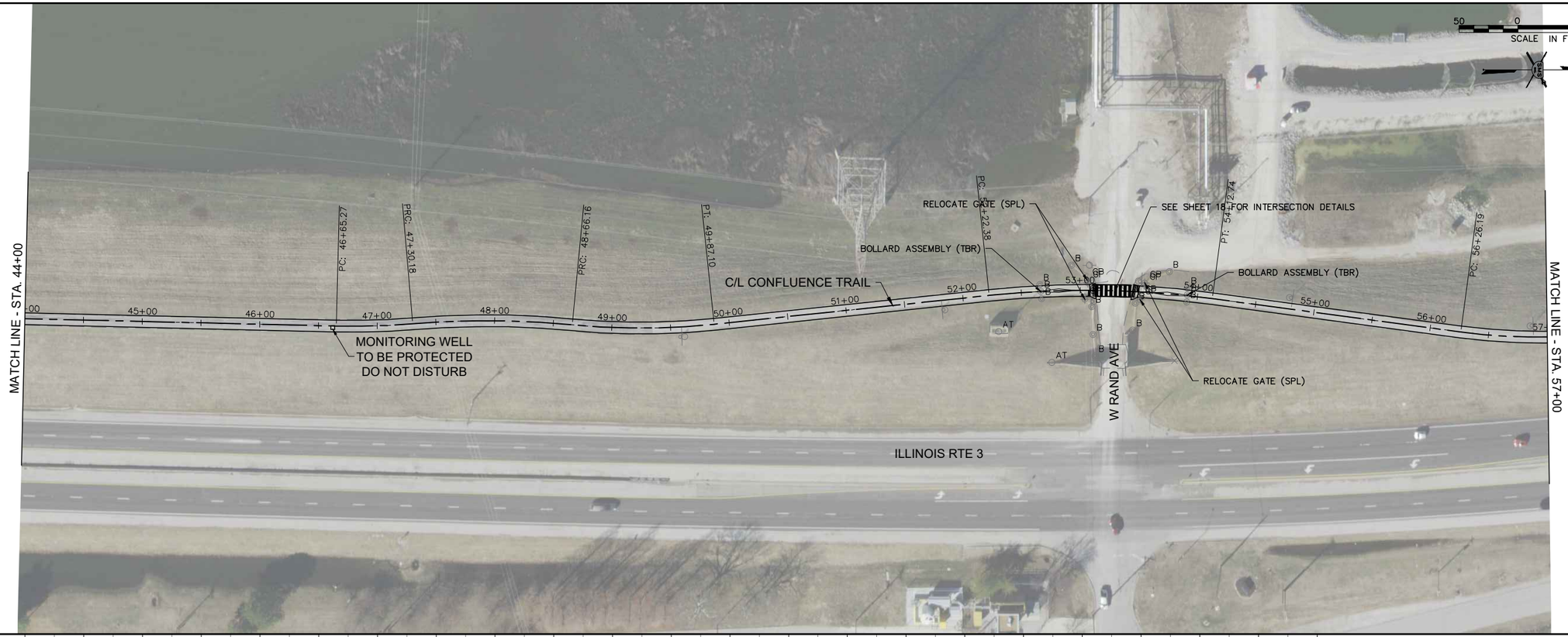

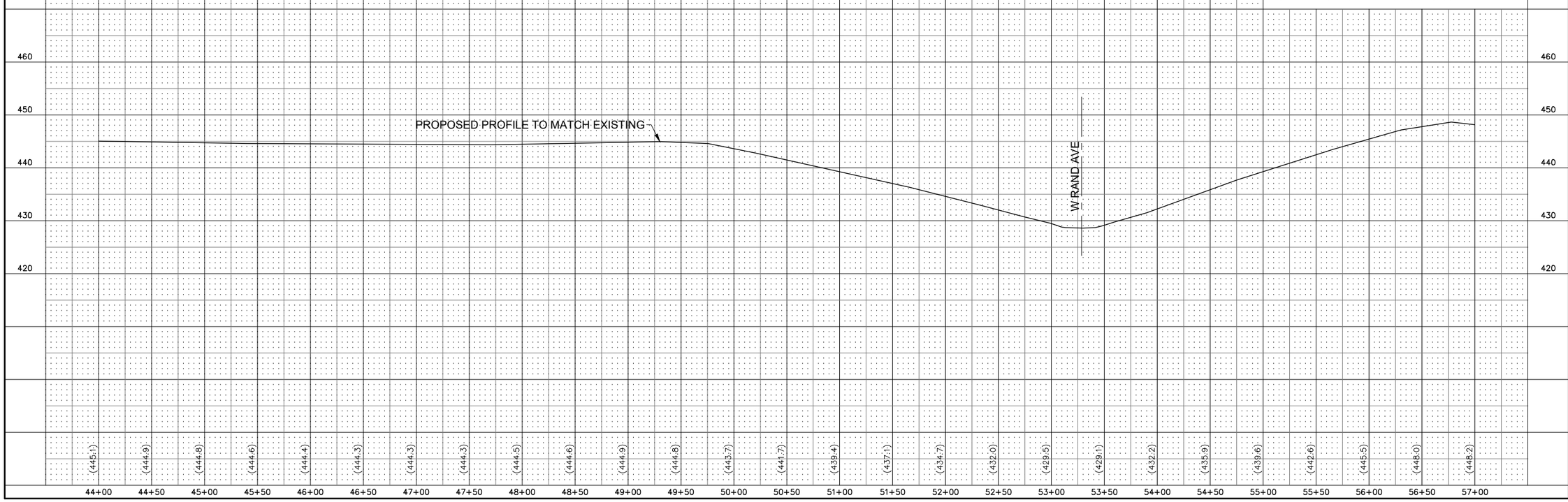

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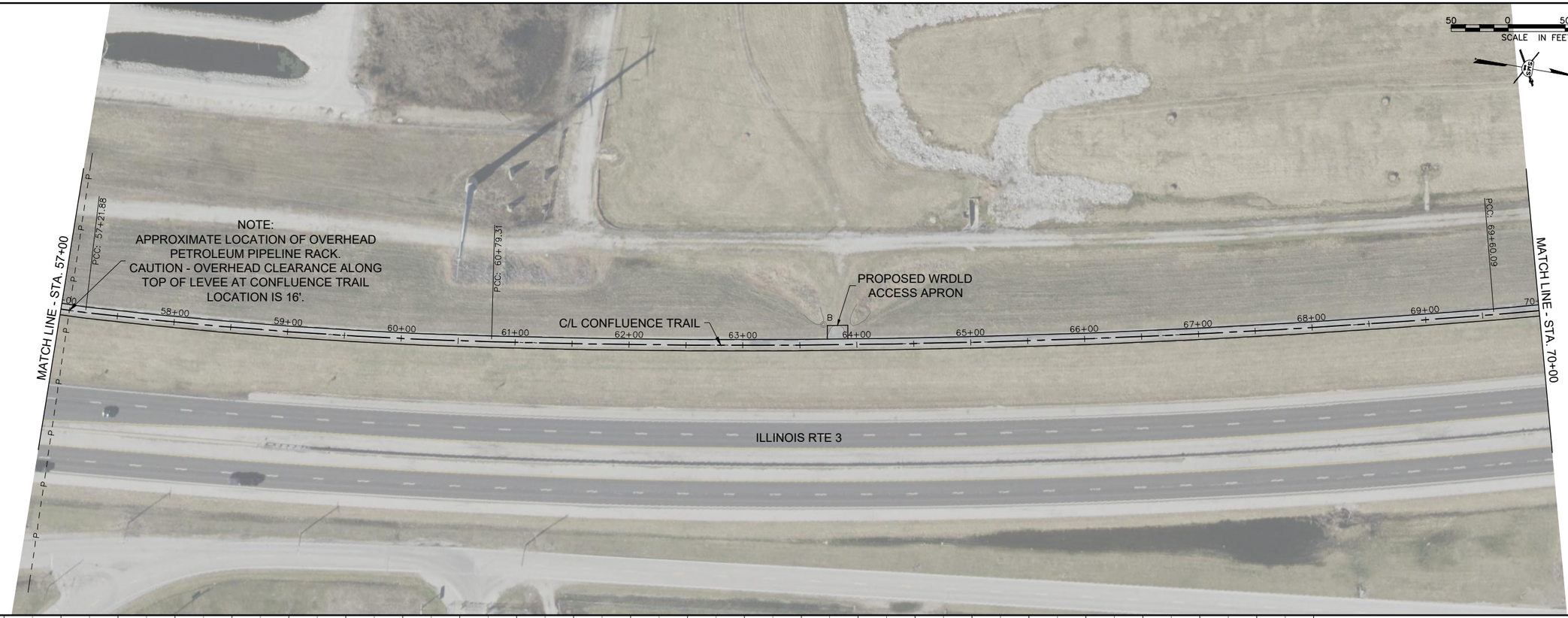

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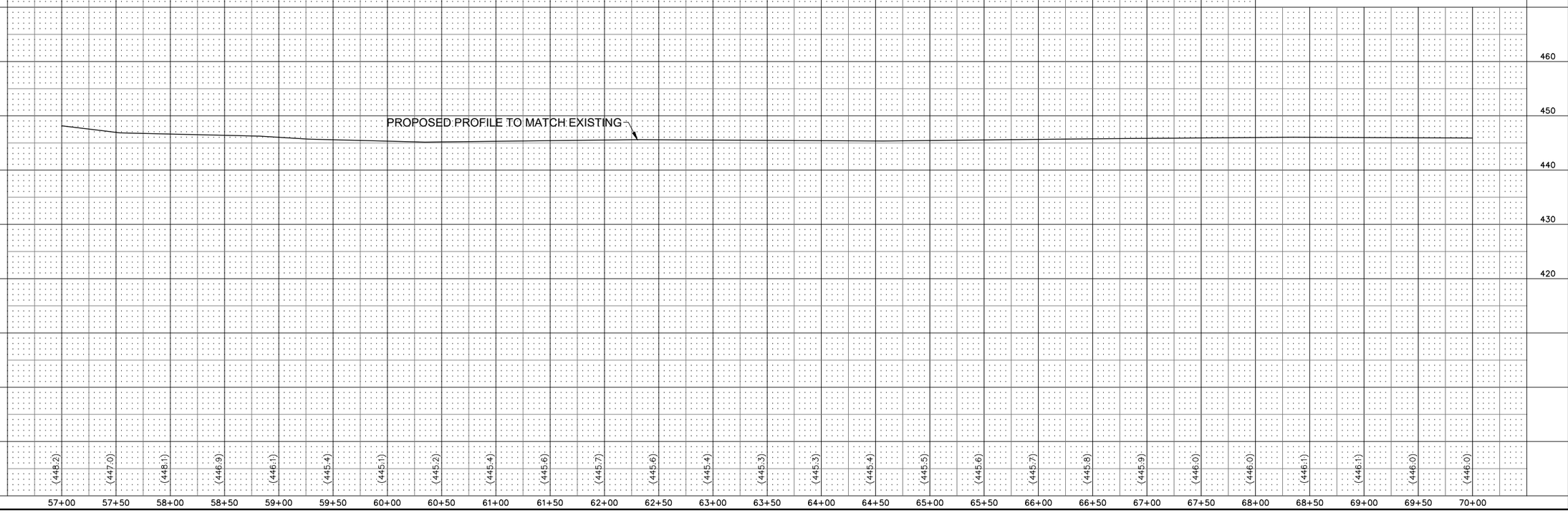

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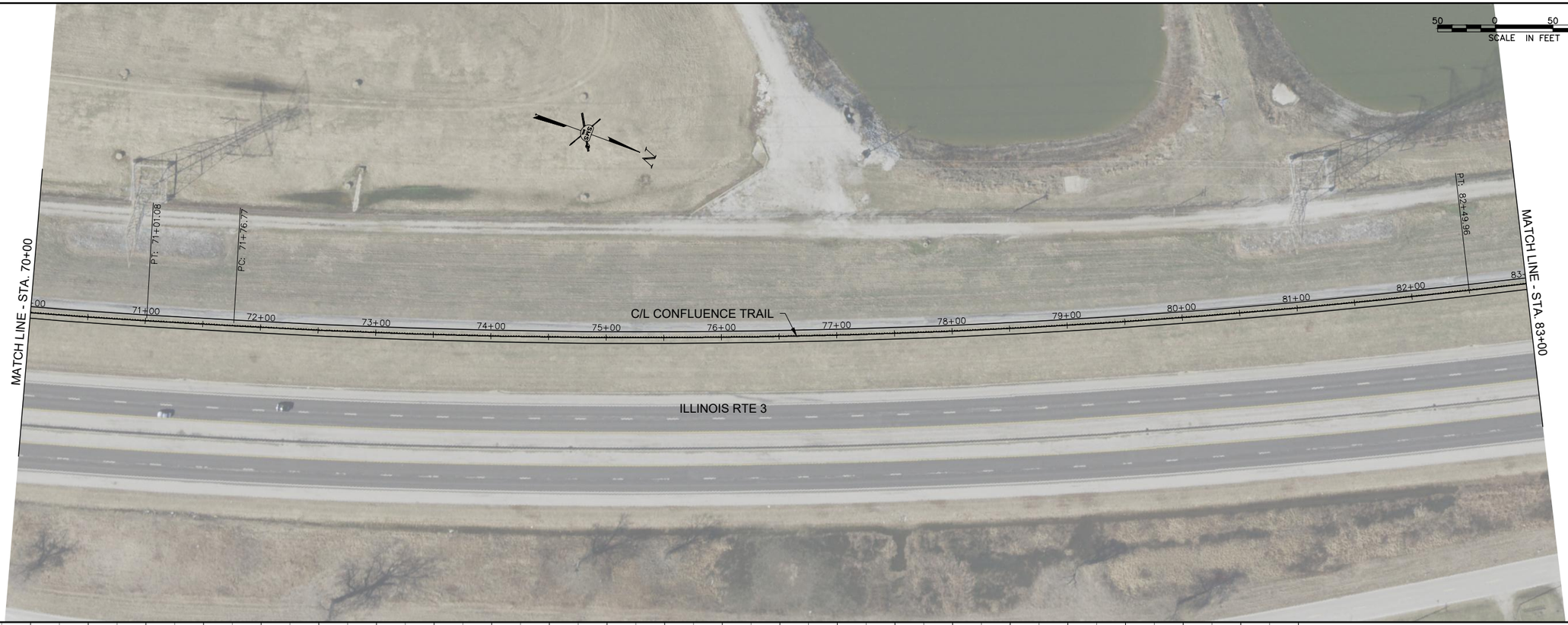

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460
450
440
430
420

PROPOSED PROFILE TO MATCH EXISTING

70+00	70+50	71+00	71+50	72+00	72+50	73+00	73+50	74+00	74+50	75+00	75+50	76+00	76+50	77+00	77+50	78+00	78+50	79+00	79+50	80+00	80+50	81+00	81+50	82+00	82+50	83+00
(446.0)	(445.9)	(445.8)	(445.7)	(445.7)	(445.7)	(445.6)	(445.6)	(445.6)	(445.5)	(445.5)	(445.5)	(445.5)	(445.5)	(445.5)	(445.5)	(445.5)	(445.4)	(445.4)	(445.4)	(445.5)	(445.6)	(445.7)	(445.7)	(445.7)	(445.7)	(445.7)

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HARTFORD, ILLINOIS
MADISON COUNTY
MCT NO. 24-1-21301
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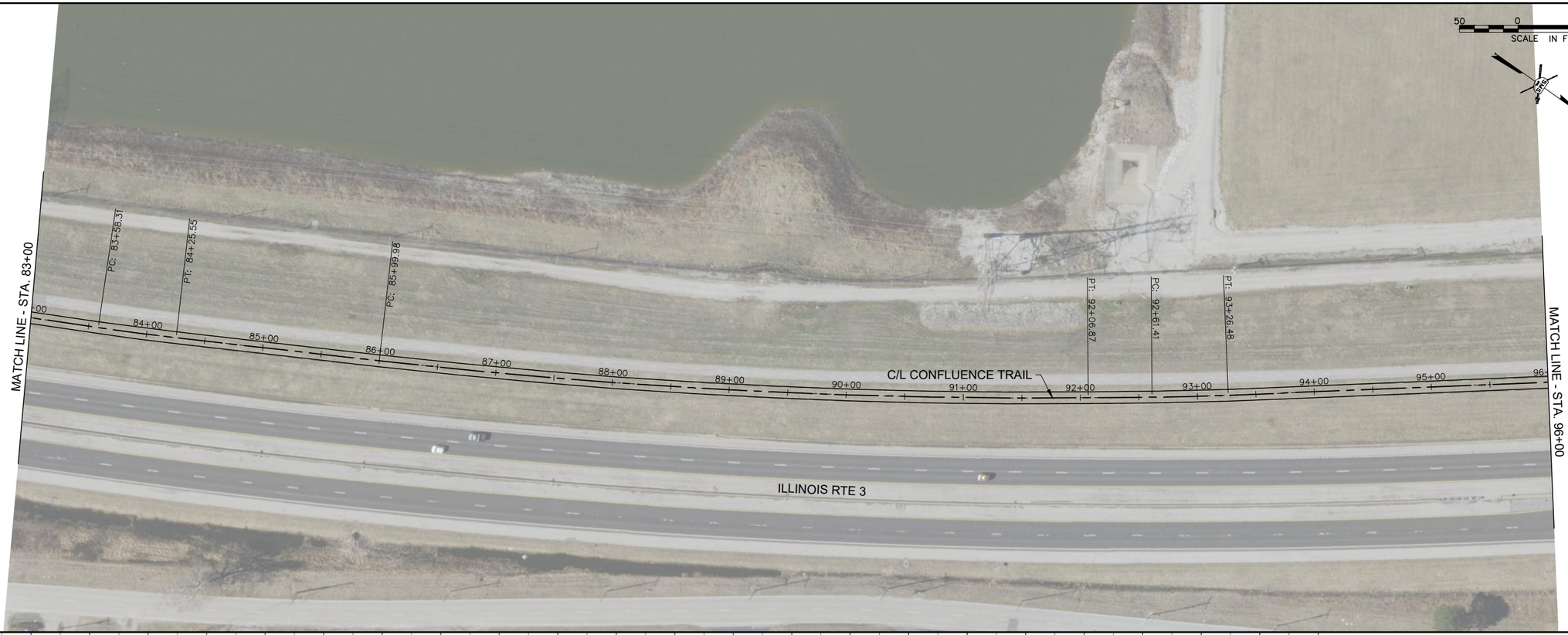

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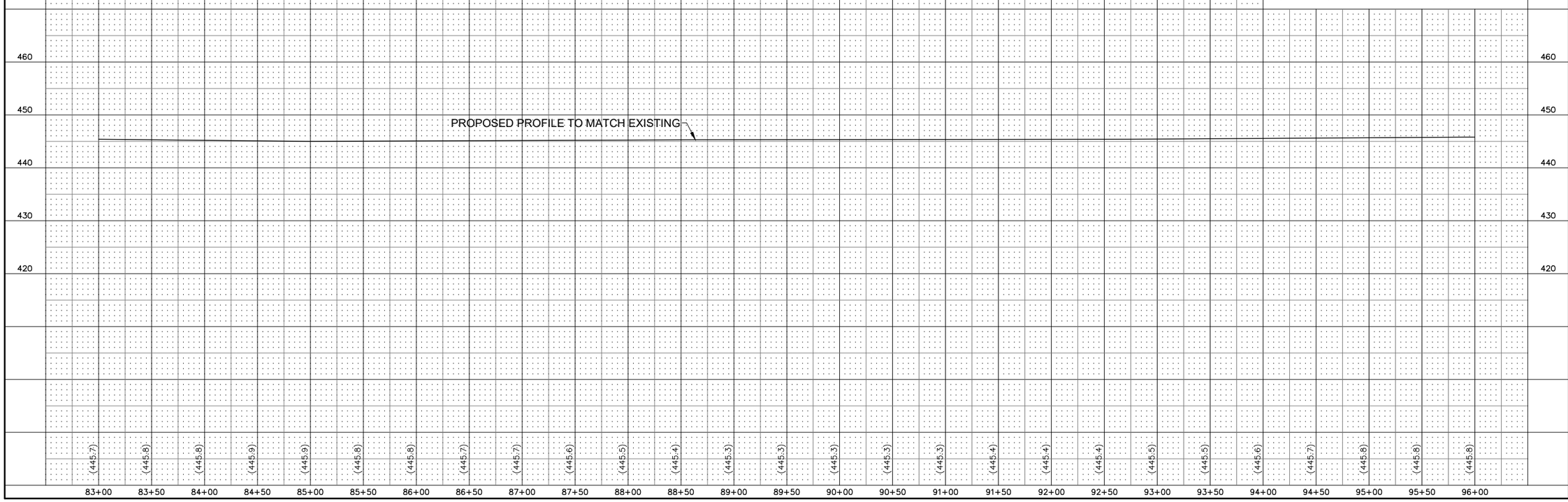

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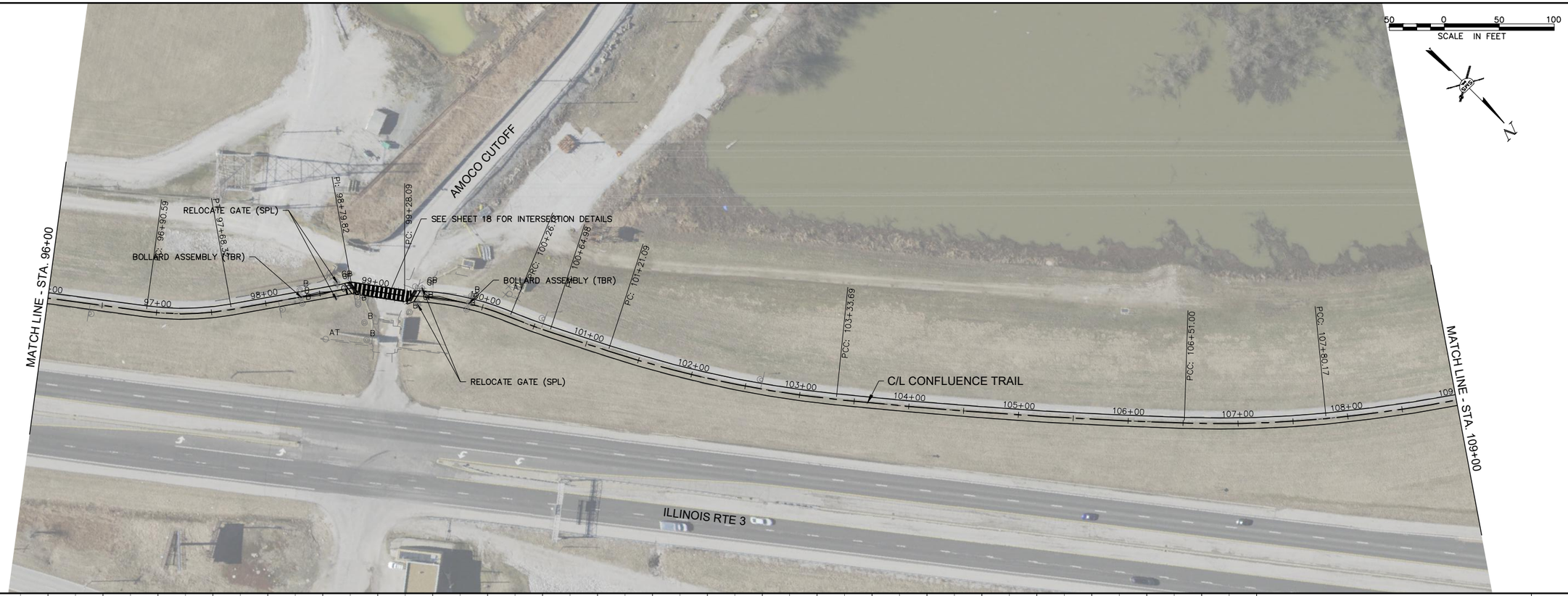

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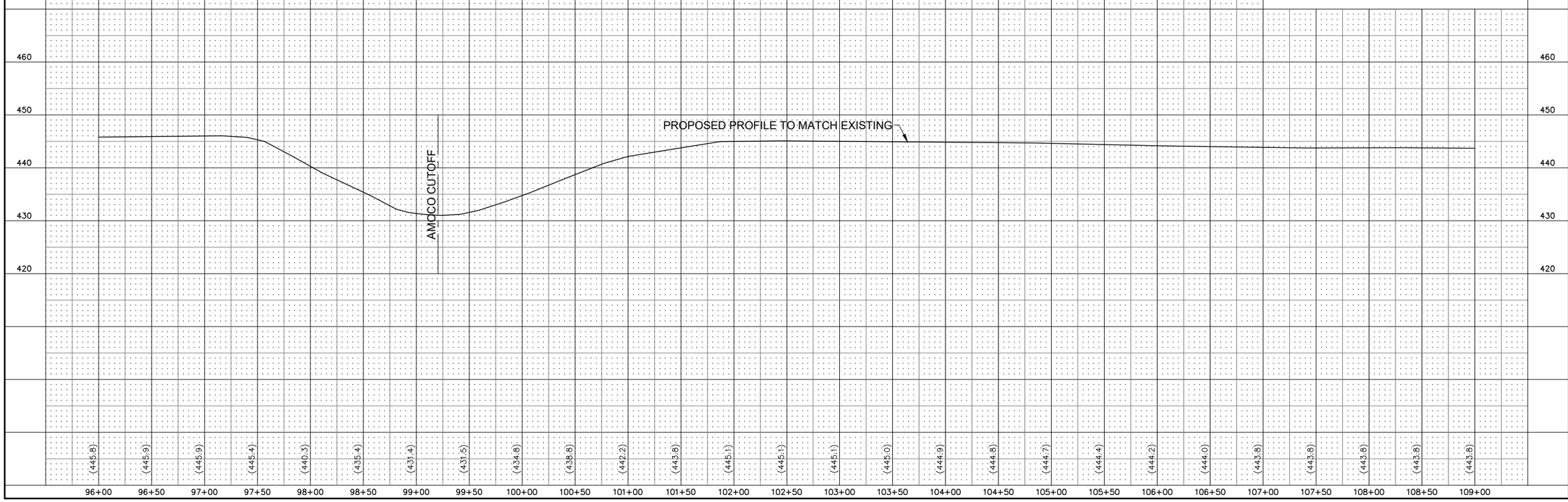

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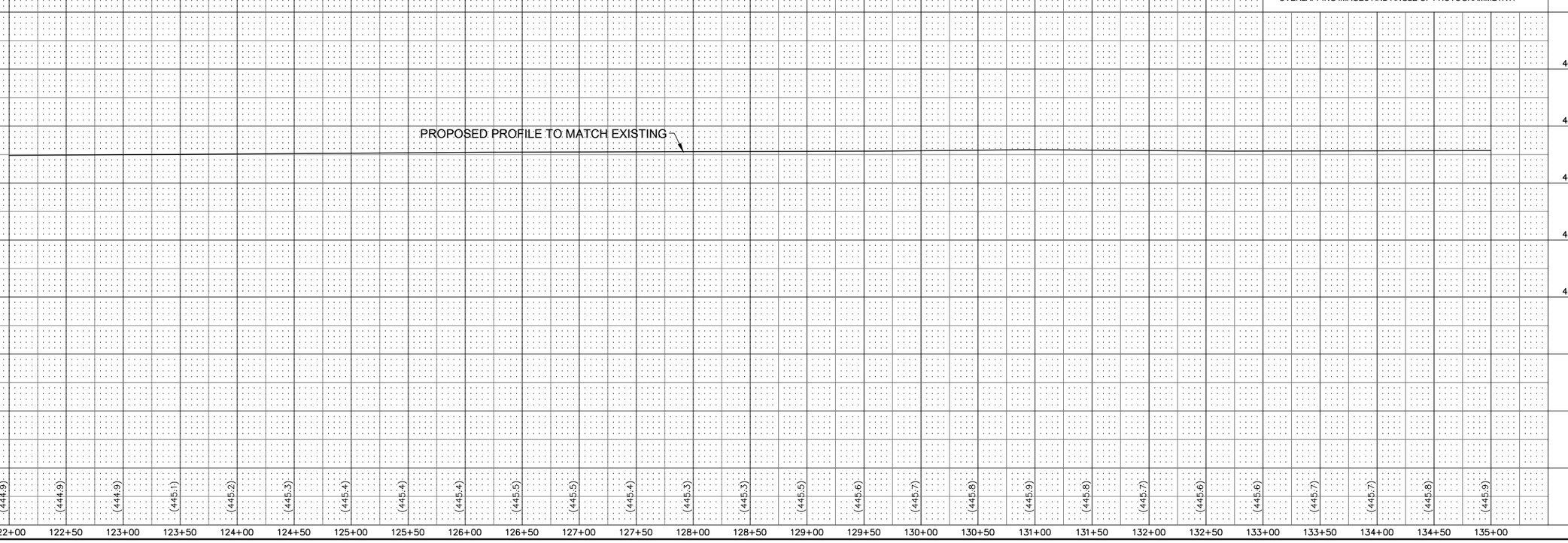

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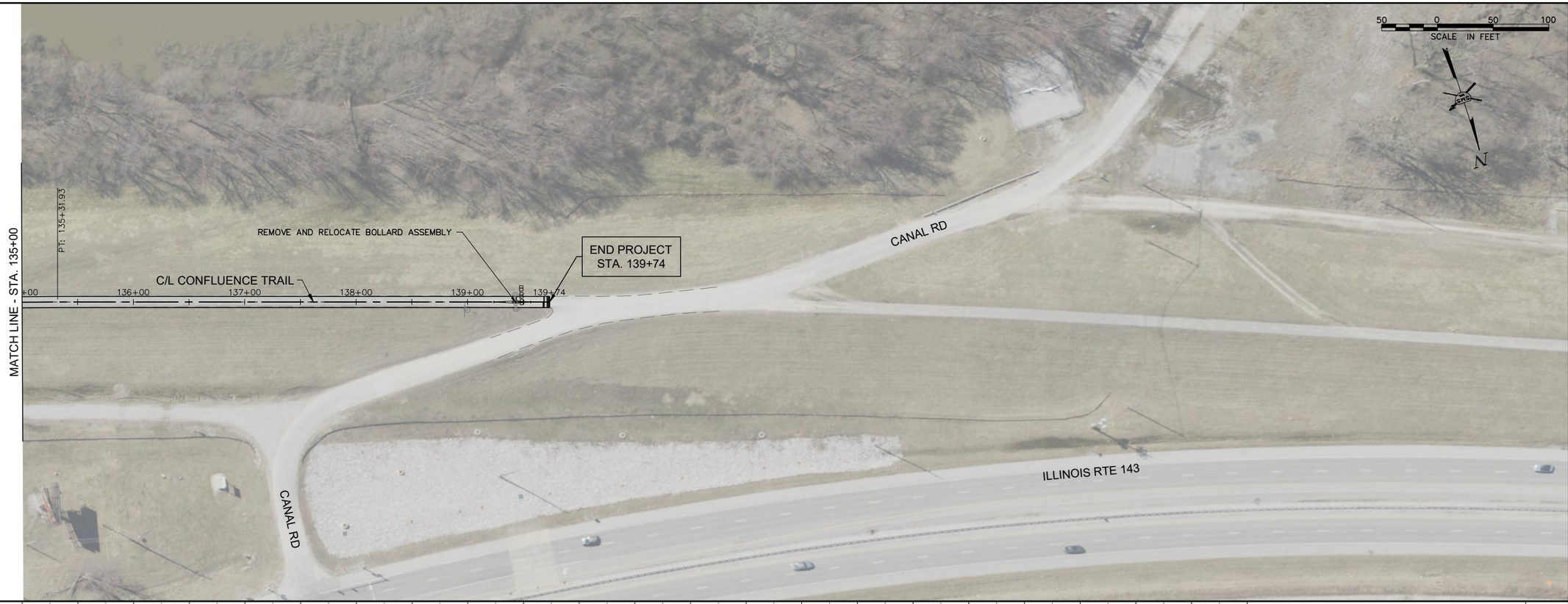

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460
450
440
430
420

PROPOSED PROFILE TO MATCH EXISTING

135+00	135+50	136+00	136+50	137+00	137+50	138+00	138+50	139+00	139+50
(445.9)	(445.9)	(445.8)	(445.8)	(445.8)	(445.8)	(445.8)	(445.8)	(445.7)	(445.8)	(445.9)

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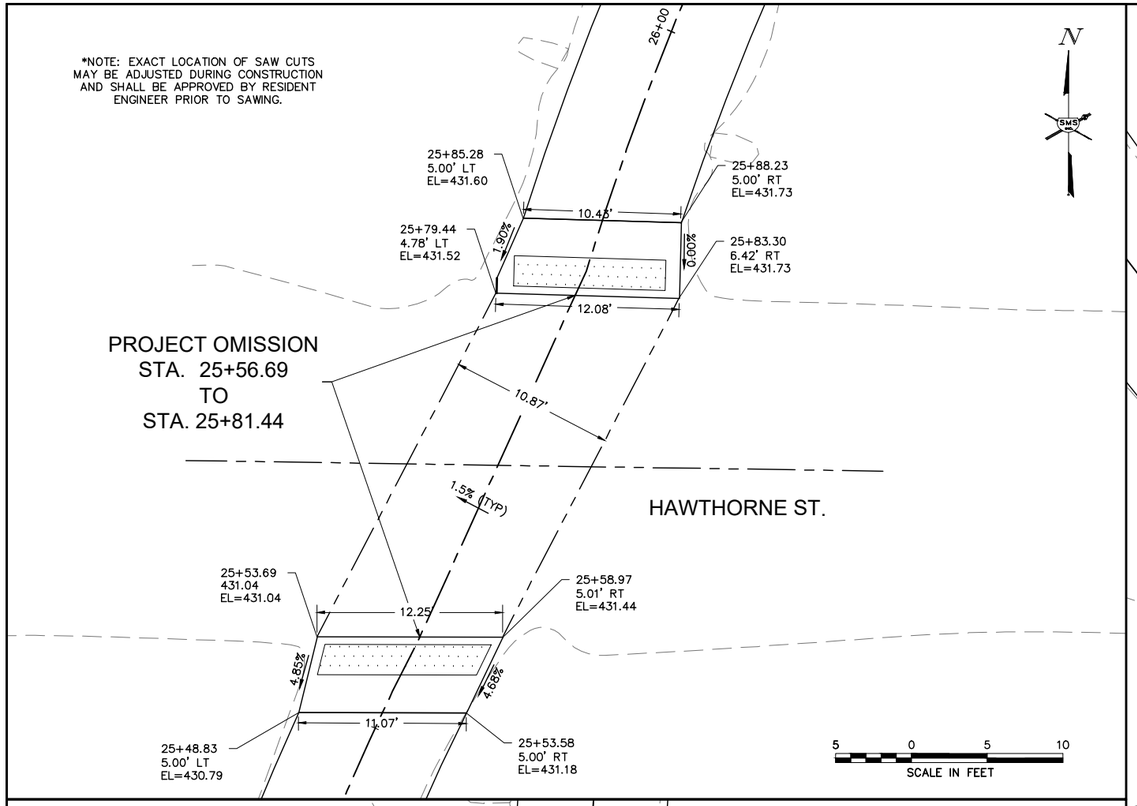
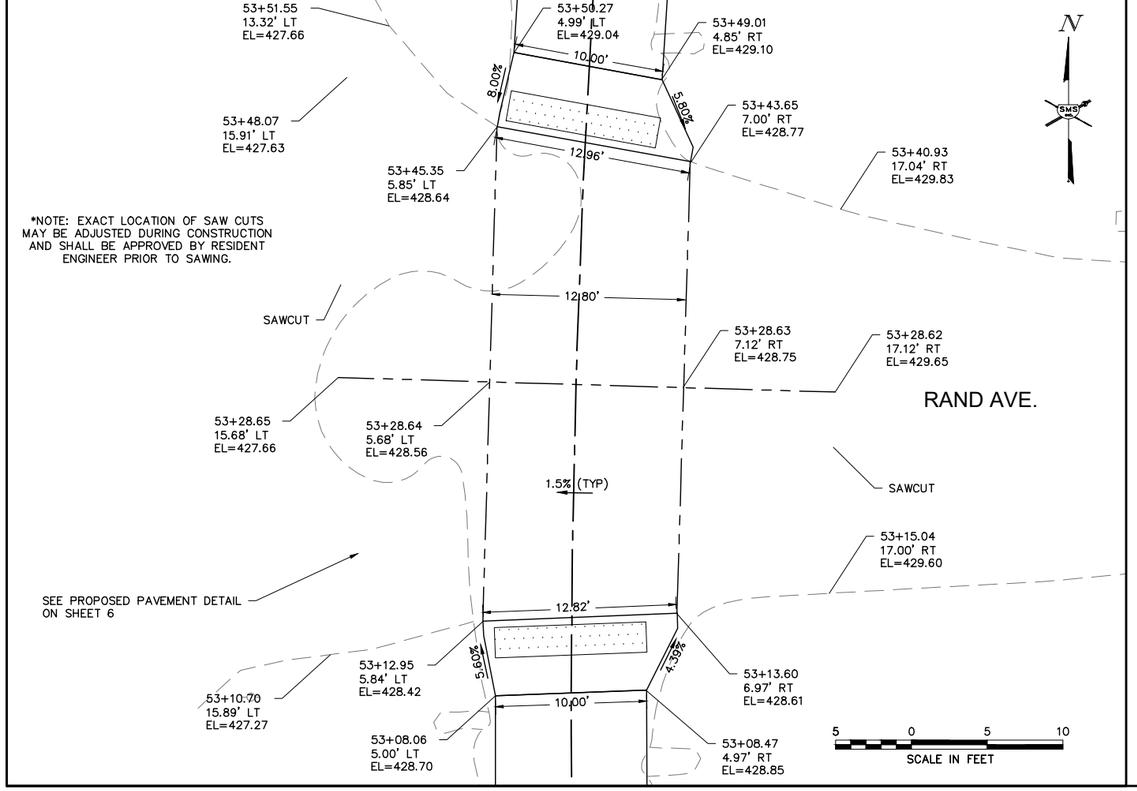
*NOTE: EXACT LOCATION OF SAW CUTS MAY BE ADJUSTED DURING CONSTRUCTION AND SHALL BE APPROVED BY RESIDENT ENGINEER PRIOR TO SAWING.





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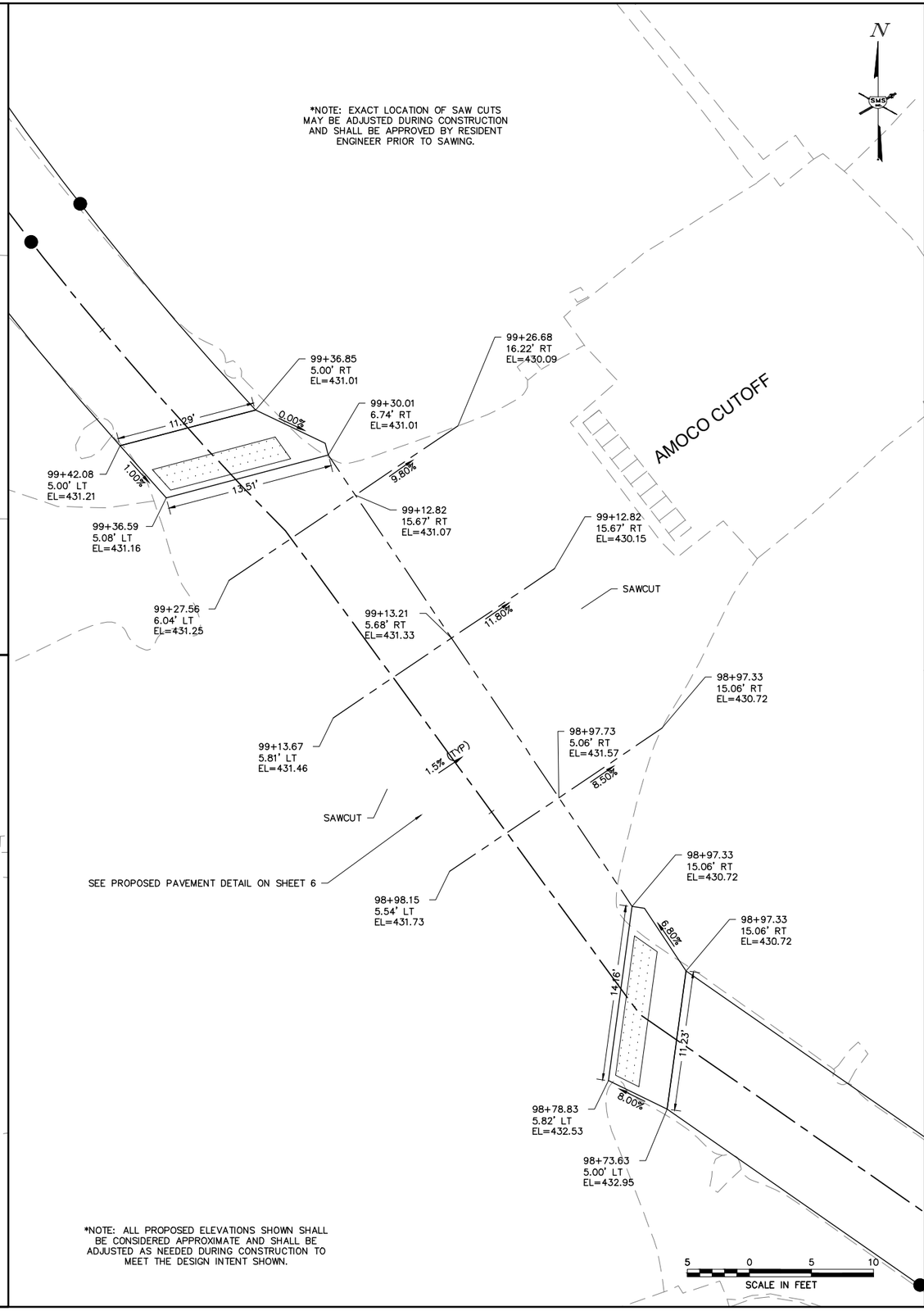

*NOTE: ALL PROPOSED ELEVATIONS SHOWN SHALL BE CONSIDERED APPROXIMATE AND SHALL BE ADJUSTED AS NEEDED DURING CONSTRUCTION TO MEET THE DESIGN INTENT SHOWN.

REVISIONS

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CONFLUENCE TRAIL IMPROVEMENTS
MADISON COUNTY MASS TRANSIT DISTRICT
HARTFORD, ILLINOIS
MADISON COUNTY
MCT NO. 24-1-21301
SIDE ROAD DETAILS

DWG. NO.
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REF. BK. 10126 PG. 32
JOB NO. 551288
DSN. BY: CDD
DWN. BY: CAD
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DATE:
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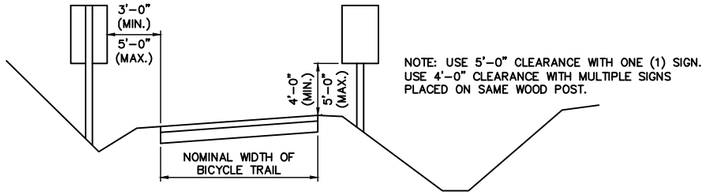
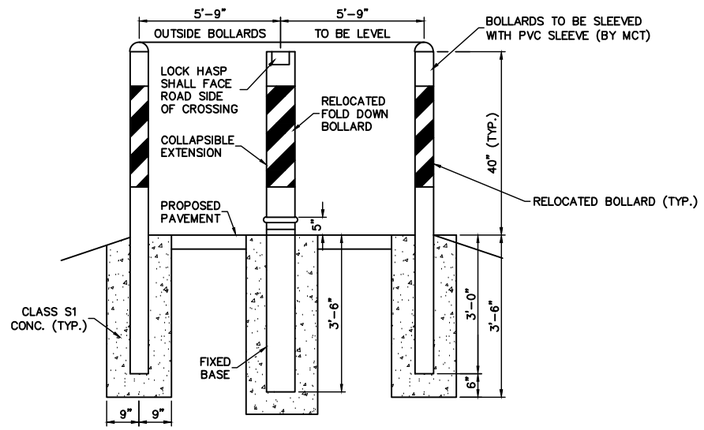
SHEET 18 OF 21



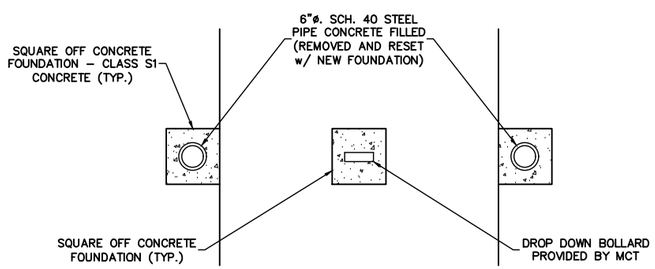
SIGN AND CLEARANCE DETAIL

NOT TO SCALE



BOLLARD GATE DETAIL

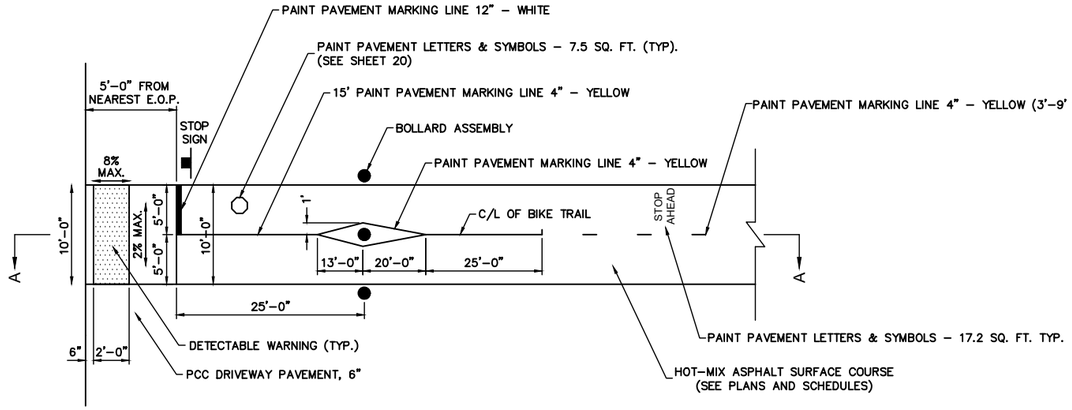
NOT TO SCALE



BOLLARD GATE PLAN VIEW

NOT TO SCALE

NOTE:
ONLY THE EXISTING BOLLARDS AT CANAL RD. ARE TO BE REMOVED/RELOCATED IN THIS PROJECT. RELOCATED BOLLARDS SHALL RECEIVE NEW FOUNDATIONS.

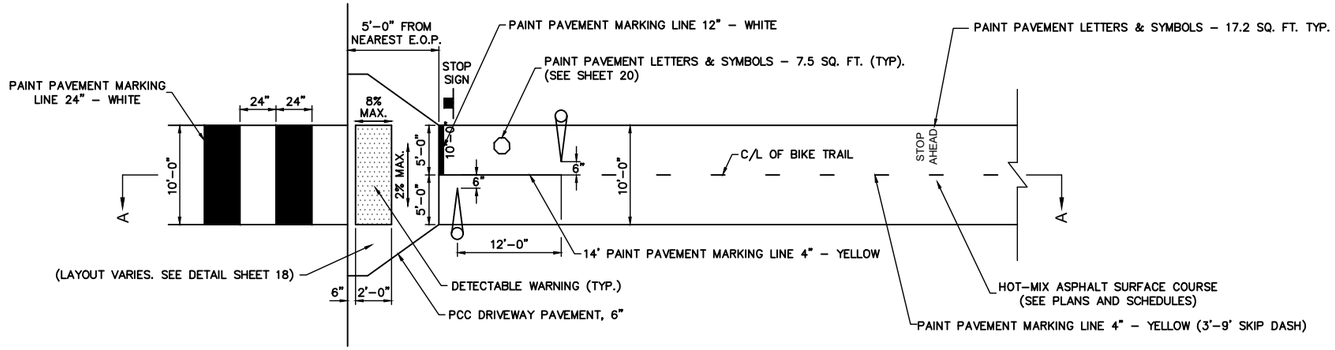


INTERSECTION DETAIL WITH BOLLARDS

CANAL ROAD ONLY

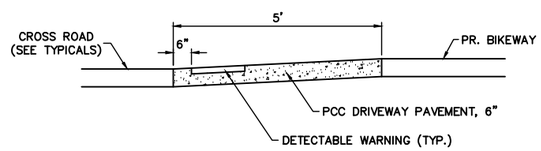
NOT TO SCALE

NOTE: BOLLARDS TO BE REMOVED/REINSTALLED AT CANAL RD. (MIKE'S) ONLY



INTERSECTION DETAIL WITH RELOCATED GATES

NOT TO SCALE



SECTION A-A

REVISIONS

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CONFLUENCE TRAIL IMPROVEMENTS
MADISON COUNTY MASS TRANSIT DISTRICT
HARTFORD, ILLINOIS
MADISON COUNTY
MCT NO. 24-
DETAILS OF CONSTRUCTION

DWG. NO.	
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REF. BK. 10126 PG. 32	
JOB NO. 551288	
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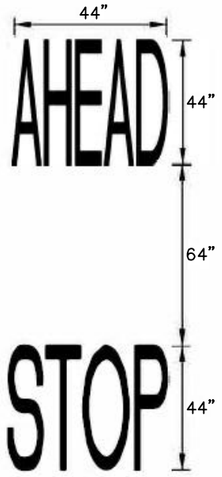
DWN. BY: CAD	
CHK. BY: CDD	
DATE:	
SCALE: AS SHOWN	
SHEET 19 OF 21	

COLOR AND SHAPE SHALL MATCH SIGN R-1 IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES



PAVEMENT MARKINGS

STOP AHEAD – LOCATED 100' IN ADVANCE OF STOP BAR ON EACH SIDE OF CROSSINGS AT W. 7TH ST., W. HAWTHORNE ST., W. RAND AVE., AMOCO CUTOFF AND CANAL RD.

STOP SIGN SYMBOL – LOCATED 5' IN ADVANCE OF STOP BAR ON EACH SIDE OF CROSSINGS AT W. 7TH ST., W. HAWTHORNE ST., W. RAND AVE., AMOCO CUTOFF AND CANAL RD.

NOTE: EXACT LOCATION OF PAVEMENT MARKINGS SHALL BE APPROVED BY ENGINEER PRIOR TO PAINTING.

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CHK. BY: CDD
DATE:
SCALE: AS SHOWN
SHEET 20 OF 21

600 0 600 1200

SCALE IN FEET

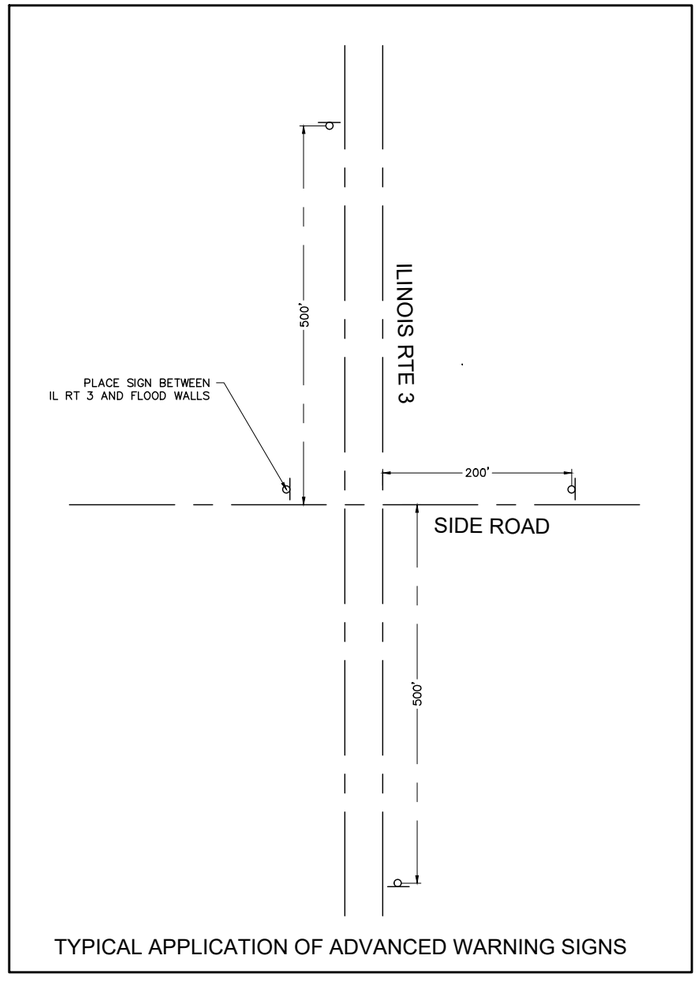
N

TRAFFIC CONTROL LEGEND

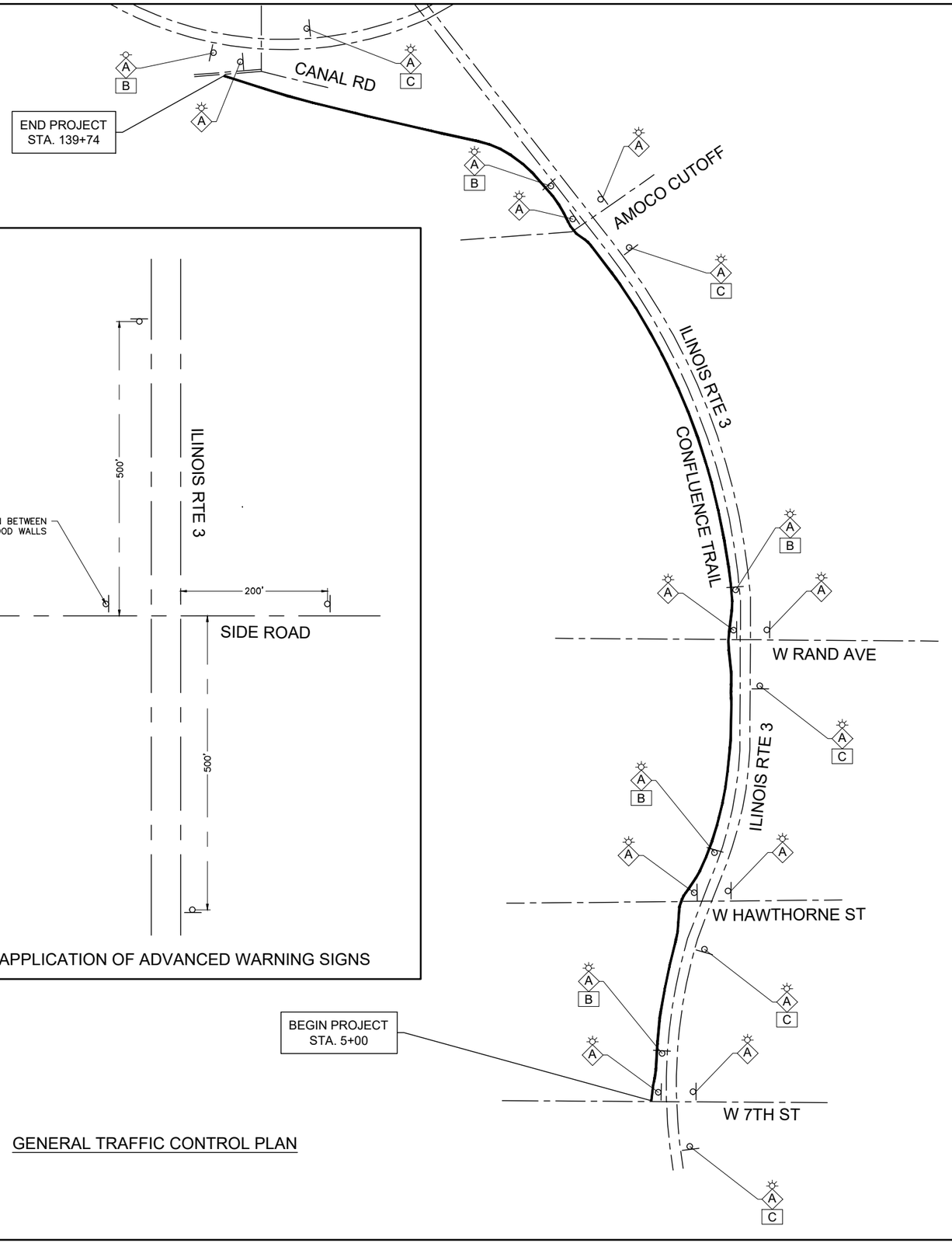
- WORK AREA
- TYPE III BARRICADE WITH REFLECTORIZED STRIPING ON BOTH SIDES WITH FLASHING LIGHTS
- CONE, DRUM OR BARRICADE
- A — SIGN "ROAD CONSTRUCTION AHEAD" W20-1(0) – 48" x 48" WITH MONODIRECTIONAL FLASHING LIGHT
- B — SIGN BLACK ARROW ON ORANGE BACKGROUND 24" x 18"
- C — SIGN BLACK ARROW ON ORANGE BACKGROUND 24" x 18"

TRAFFIC CONTROL NOTES

1. THE CONTRACTOR SHALL PROVIDE THE TRAFFIC CONTROL SHOWN ON THE GENERAL TRAFFIC CONTROL PLAN AT ALL TIMES DURING THE CONSTRUCTION OF THIS PROJECT. ADDITIONAL TRAFFIC CONTROL SHALL BE PROVIDED AS SPECIFIED BELOW AND IN ACCORDANCE WITH THE SPECIFIED HIGHWAY STANDARDS. THE COST FOR ALL TRAFFIC CONTROL REQUIRED FOR THIS PROJECT SHALL BE INCLUDED IN THE COST OF TRAFFIC CONTROL AND PROTECTION, (SPECIAL).
2. SEE SPECIAL PROVISIONS FOR ADDITIONAL TRAFFIC CONTROL REQUIREMENTS.
3. SIDE ROADS SHALL REMAIN OPEN TO THRU TRAFFIC AT ALL TIMES. ONE TRAFFIC LANE WILL BE ALLOWED TO BE CLOSED AS NEEDED. THE CONTRACTOR SHALL NOTIFY THE APPLICABLE AGENCIES ON THE COVER SHEET AT LEAST ONE WEEK PRIOR TO ANY LANE CLOSURE ON THE SIDE ROADS. THE CONTRACTOR SHALL ALSO NOTIFY THESE AGENCIES THE DAY THE ROAD IS RE-OPENED. CONTRACTOR SHALL COORDINATE ANY SPECIFIC TRAFFIC NEEDS OF AGENCIES PRIOR TO WORK ON SIDE STREETS.
4. WHERE A HIGHWAY STANDARD REQUIRES A "ROAD CONSTRUCTION AHEAD" SIGN, THIS REQUIREMENT WILL BE CONSIDERED FULFILLED BY THE SIGNS REQUIRED ON THE GENERAL TRAFFIC CONTROL PLAN.
5. ALL HAZARDS WITHIN WORK ZONES OPEN TO TRAFFIC SHALL BE PROTECTED WITH TYPE I BARRICADES OR DRUMS WITH FLASHING LIGHTS IF LESS THAN 100' IN LENGTH. IF GREATER THAN 100' IN LENGTH, LIGHTS SHALL BE STEADY BURN.
6. ALL CONSTRUCTION SIGNS SHALL MEET THE REQUIREMENTS OF THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS".
7. IF THE CONTRACTOR WISHES TO DEVIATE FROM THIS TRAFFIC CONTROL PLAN, HE SHALL PROVIDE A REVISED TRAFFIC CONTROL PLAN IN WRITING FOR THE REVIEW AND APPROVAL OF THE ENGINEER.
8. DURING CONSTRUCTION, ALL OPEN EXCAVATIONS AT SIDE STREET CROSSINGS DUE TO PAVING OPERATIONS SHALL BE FILLED WITH HOT-MIX ASPHALT BY THE END OF EACH WORK DAY. OPEN EXCAVATION WILL NOT BE ALLOWED TO REMAIN OVERNIGHT.



TYPICAL APPLICATION OF ADVANCED WARNING SIGNS



GENERAL TRAFFIC CONTROL PLAN

REVISIONS

SMS ENGINEERS
Sheppard, Morgan & Schwaab, Inc.
CONSULTING ENGINEERS AND LAND SURVEYORS
215 Market Street, P.O. Box E, Alton, IL 62002 618/462-9755 E-mail: mail@smsengineers.com
DESIGN FIRM # 184-000992

CONFLUENCE TRAIL IMPROVEMENTS
MADISON COUNTY MASS TRANSIT DISTRICT
HARTFORD, ILLINOIS
MADISON COUNTY
MCT NO. 24-1-21301
TRAFFIC CONTROL PLAN

DWG. NO.	
D:\MCT 551288 CONFLUENCE TRAIL\3 QUANTITIES.DWG	
REF. BK. 10126 PG. 32	
JOB NO. 551288	
DSN. BY: CDD	
DWN. BY: CAD	
CHK. BY: CDD	
DATE:	
SCALE: 1" = 600'	
SHEET 21 OF 21	

CONFLUENCE TRAIL IMPROVEMENTS
WEST 7TH STREET – CANAL ROAD
MADISON COUNTY MASS TRANSIT DISTRICT
HARTFORD, ILLINOIS / WOOD RIVER, ILLINOIS
MADISON COUNTY, ILLINOIS
MCT NO. 24-1-21301

SPECIAL PROVISIONS

Prepared by

SHEPPARD, MORGAN & SCHWAAB, INC.
ALTON, ILLINOIS 62002
SEPTEMBER 2024

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IDOT STANDARDS

CONFLUENCE TRAIL IMPROVEMENTS
WEST 7TH STREET – CANAL ROAD
MADISON COUNTY MASS TRANSIT DISTRICT
HARTFORD, ILLINOIS / WOOD RIVER, ILLINOIS
MADISON COUNTY, ILLINOIS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction", Adopted January 1, 2022, the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways", the "Manual of Test Procedures for Materials", and the “Standard Specifications for Water and Sewer Main Construction in Illinois, 5th Edition”, in effect on the date of the invitation for bids; which apply to and govern the construction of the CONFLUENCE TRAIL IMPROVEMENTS, MADISON COUNTY, ILLINOIS and in case of conflict with any part or parts of said specifications, the said Special Provisions shall take precedence and shall govern.

DESCRIPTION OF WORK

This work shall consist of furnishing all labor, equipment and materials necessary to construct the following:

> The work includes cement modified full depth reclamation, hot-mix asphalt binder course, hot-mix asphalt surface course, P.C.C driveway pavement, pavement markings, installation of signs, seeding and other miscellaneous work.

This contract also includes all incidental and collateral work necessary to complete the work in the above-described section in accordance with the plans, specifications and special provisions.

CONSTRUCTION CONTRACTS

The successful bidder, as a condition of this contract, must submit evidence that he has conducted a pre-job conference with his sub-contractors and their employees, or the employee’s duly recognized representatives and union officials, to determine employee jurisdiction, job assignment and work schedules. This requirement is to promote industrial harmony and to eliminate work stoppages and jurisdictional disputes. Said pre-job conference shall be conducted at least fourteen (14) days prior to the commencement of any construction.

CONSTRUCTION STAKING AND TESTING

The Owner by way of its Engineer will provide survey control points, if available, to establish the horizontal and vertical control required for construction of the various items of work.

Construction testing services shall be provided by the Contractor and coordinated with the Owner. Contractor shall provide testing reports within 24 hours of receipt.

The Contractor shall be responsible for his own general layout and shall protect and preserve all staking set by the Owner by way of its Engineer. Construction staking which is removed, disturbed, or otherwise displaced shall be reset by the Owner by way of its Engineer at the Contractor's expense.

EXAMINATION OF THE SITE

It is recommended that the Bidder visit the project site to determine such details of construction that may require handwork or other incidental items affecting the cost of the work to be performed.

The cost of featheredging, meeting existing topographic features, or other incidental work necessary for the successful completion of the project shall be considered incidental to the contract and no additional compensation will be allowed.

SAFETY AND HEALTH

The Contractor shall be responsible for enforcing all O.S.H.A. Safety and Health Standards (29 CFR 1926/1910), pertaining to the construction industry, as established by the United States Department of Labor, Occupational Safety and Health Administration 2207.

SAFETY AND PROTECTION

Contractor shall be responsible for initiating, maintaining and supervising all safety and precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of, and shall provide necessary protection to prevent damage, injury or loss to:

1. All employees on the Work and other persons and organizations who may be affected thereby;

2. All the work and materials and equipment to be incorporated therein, whether in storage on or off site; and

3. Other property at the site 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.

Contractor shall comply with all applicable Laws and Regulations of any public body having jurisdiction for the safety of persons and property or to protect them 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 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.

All damage, injury or loss to any property referred to in paragraph 2 or 3 caused, directly or indirectly, in whole or in part, by Contractor, any subcontractor, Supplier or any other person or organization directly or indirectly employed by any of them to perform or furnish any of the work or for anyone whose acts either 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 either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor). Contractor's duties and responsibilities for the safety and 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 that the Work is acceptable.

Contractor shall designate a responsible representative at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent, unless otherwise designated in writing by Contractor to Owner.

In EMERGENCIES affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, contractor, without special instructions or authorization from Engineer or Owner, 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 is required because of action taken in response to an emergency, a Work Directive Change or Change Order will be issued to document the consequences of the changes or variations.

INSURANCE

In addition to the requirements of Article 107.27 of the Standard Specifications, the CONTRACTOR will, in all insurance policies required by Articles 107.11 and 107.27, name the Madison County Mass Transit District, Sheppard, Morgan & Schwaab, Inc., and Wood River Drainage and Levee District and their officers, agents, and employees as additional insured.

TRAFFIC CONTROL PLAN

Traffic control shall be in accordance with the applicable sections of the Standard Specifications for Road and Bridge Construction, the applicable guidelines contained in the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways", these special provisions, and any special details and Highway Standards contained herein and in the plans.

At the preconstruction meeting, the Contractor shall furnish the name of the individual in his direct employ who is to be responsible for the actual installation and maintenance of the traffic control for this project. If the actual installation and maintenance are to be accomplished by a subcontractor, consent shall be requested of the Engineer at the time of the preconstruction meeting according to Article 108.01 of the Standard Specifications for Road and Bridge Construction. This shall not relieve the Contractor of the foregoing requirement for a responsible individual in his direct employ. The District will provide the Contractor the name of its representative who will be responsible for the administration of the Traffic Control Plan.

Attention is called to Article 107.09 and 107.14 of the Standard Specifications for Road and Bridge Construction and the following Highway Standards: 701006, 701301, 701801, and 701901.

In addition, the following special provision(s) will also govern traffic control for this project:

Traffic Control and Protection
Barricades or Drums
Construction and Maintenance Sign Supports

Type III barricades with “Road Closed” signs shall be placed at road and driveway intersections to prohibit public access to the trail one week prior to closure of the trail and shall be maintained until the construction is complete and accepted by the Owner.

While construction is taking place at the roadway crossings, one (1) lane of traffic must be open at all times during normal working hours, unless otherwise instructed by the Engineer. Two lanes of traffic must be maintained during non-working hours and/or anytime the Contractor is not present.

TRAFFIC CONTROL AND PROTECTION SPECIAL

This work shall conform to the applicable portions of Section 701 of the Standard Specifications and the Traffic Control Plans, which are included in the plans. This item of work shall include the furnishing, installing, maintaining, relocating, and removing all traffic control devices used for the purpose of regulating, warning or directing the traffic during the construction of this project.

All traffic control devices used on this project shall conform to the plans, special provisions, traffic control standards, Standard Specifications for Traffic Control Items, and the Illinois Manual on Uniform Traffic Control Devices for Streets and Highways. No modification of these requirements will be allowed without prior written approval of the Engineer.

Traffic control devices shall include all temporary traffic control and regulatory signs as described herein, and their supports, temporary pavement markings, barricades with sand bags, plastic drums, channelizing devices, warning lights, arrowboards if necessary, flaggers, or any other device used for the purpose of regulating, warning, or guiding traffic through the construction zone and guiding traffic on the detour route.

The Contractor shall be responsible for the proper location, installation, and arrangement of all traffic control devices as shown on the plans or as directed by the Engineer.

The Contractor, when directed by the Engineer shall remove all traffic control devices which were furnished, installed and maintained by him under this contract, and such devices shall remain in place until specific authorization for relocation or removal is received from the Engineer.

The Contractor shall contact the Madison County Transit District at least 72 hours in advance of beginning work, to allow for coordination between the Traffic Control Plan and the various items of work required.

When traveling in lanes open to public traffic, the Contractor's vehicles shall always move with and not against the flow of traffic. These vehicles shall enter or leave work areas in a manner that will not be hazardous to or interfere with traffic and shall not park or stop except within designated work areas. Personal vehicles shall not park within the right-of-way except in specific areas designated for parking.

Any drop off from pavement open to traffic which is greater than three inches, but less than six inches, within eight feet of the pavement edge shall be protected by Type I or Type II barricades equipped with mono-directional steady burn lights at 100-foot center-to-center spacing, unless otherwise shown in the plans. If the drop off within eight feet of the pavement edge exceeds six inches, the barricades mentioned above shall be placed at 50-foot center-to-center spacing, unless otherwise shown in the plans. Other potential hazards located within the project limits shall be protected by Type I or Type II barricades with flashing lights or if the hazard exceeds 100’ in length steady burn bi-directional lights will be required. Barricades that must be placed in excavated areas shall have leg extensions installed such that the top of the barricade is in compliance with the height requirements of Standard

701901. Vertical panels or other delineating devices may be substituted for Type I or Type II barricades with the approval of the Engineer.

This work will be paid for at the contract unit price per lump sum for TRAFFIC CONTROL AND PROTECTION SPECIAL, which price will be payment in full for furnishing, installing, maintaining, relocating and removing all traffic control devices as noted herein and shown on the plans, and no additional compensation or remuneration will be allowed.

CONSTRUCTION AND MAINTENANCE SIGN SUPPORTS

This work shall be done according to Article 701.14 of the Standard Specification for Road and Bridge Construction and Highways Standard 701901 except as herein modified.

All construction signs mounted on permanent support for use in temporary control having an area of 10 square feet or more shall be mounted on two posts.

Type A metal post (two for each sign) conforming to Article 1006.29 of the Standard Specifications for Road and Bridge Construction may be used in lieu of wood posts. Type A metal posts used for these signs may be unfinished.

This item shall be considered included in the various pay items for TRAFFIC CONTROL AND PROTECTION SPECIAL and no additional compensation or remuneration will be allowed.

BARRICADES OR DRUMS

Prior to commencing construction, sufficient barricades or drums conforming to Standard 701901 and the following requirements shall be on the job site ready for use in the stage construction of this project:

Type I or Type II barricades or drums used in channelizing traffic and protection of hazards shall be equipped with one Type C steady burning light meeting the requirements of Article 1106.02 of the Standard Specifications.

Type I or Type II barricades used in channelization shall be stabilized in a manner allowed by Article 701.15.

This item shall be considered included in the various pay items for TRAFFIC CONTROL AND PROTECTION SPECIAL and no additional compensation or remuneration will be allowed.

CONTRACTOR ACCESS

The Contractor shall furnish CA-6 aggregate for temporary access and maintain an all-weather construction access to prevent mud from being deposited onto adjacent roadways. Also at road closure locations, where TYPE III barricades are installed in a manner that will not allow Contractor access to the project without relocation of one or more of the barricades, the arrangement of the barricades at the beginning of each work day may be relocated, when approved by the Engineer, in the manner shown on Highway Standard 701901 for Road Closed to Through Traffic. At the end of each workday, the barricades shall be returned to their in-line positions.

All labor, equipment and material required to perform this task shall be considered included in the contract and no additional compensation will be allowed.

SHOP DRAWINGS

The Contractor shall submit shop drawings of the following items in accordance with Article 105.04 and 505.03 of the Standard Specifications for Road and Bridge Construction and applicable provisions noted elsewhere in the proposal:

- Detectable Warnings
- Sign Panels
- Seeding
- Paint for Gates

The Contractor shall pay the reviewer a fee of $300.00 per shop drawing sheet and $20.00 per computation/detail page (letter and legal size) for the third and subsequent transmittals of a submittal.

JOINT UTILITY LOCATING INFORMATION FOR EXCAVATORS (JULIE)

This work shall be done according to Article 107.31 of the Standard Specifications except as herein modified.

Because a minimum of 48 (forty-eight) hours advance notice is required for notification to utilities, the Contractor will be required to give the Resident Engineer 96 (ninety-six) hours notice, in writing, for a specific area prior to beginning any excavation.

Locations of proposed storm sewers, sign posts, wooden posts, etc. shall be staked by the Engineer and then notice provided as above.

If any of the location markers placed by a utility company in conformance with this procedure are destroyed by Contractor operations, the Contractor shall immediately notify the utility owner and bear the costs of remarking the facilities at his own cost and expense. Compliance with this special provision shall be considered included in the contract and no additional compensation will be allowed for any costs incurred.

Confluence Trail Improvements – West 7th St to Canal Road
County: Madison

Township:	Wood River	Section 28	T5N, R9W
	Wood River	Section 29	T5N, R9W
	Wood River	Section 33	T5N, R9W
	Chouteau	Section 4	T4N, R9W

COOPERATION WITH UTILITIES

The following utility companies may have utility facilities within the limits of this project, which may require adjustment, relocation or removal:

Hartford Public Works Department
AT&T
Ameren Illinois
Charter Communications
Valero Energy Corporation

In addition to the requirements of Article 105.07 of the Standard Specifications, the Contractor shall coordinate his operations with the proposed utility adjustments to minimize delays in construction of the project.

The Contractor's attention is directed to the Status of Utilities contained elsewhere herein and the estimated completion dates for the various relocations and adjustments.

The Contractor shall coordinate his activities to allow for any inconvenience or delay caused by the adjustment of the water valves and telephone manholes, which is expected to be on-going at the start of construction.

Compliance with this special provision shall be according to Article 105.07 of the Standard Specifications, and no additional compensation or remuneration will be allowed for any delays, inconvenience or damage sustained by the Contractor due to any interference from utility appurtenances or the operation of moving them, or on account of any special construction methods required in prosecuting the proposed work due to the existence of said appurtenances either in their present or relocated positions.

STATUS OF UTILITIES TO BE ADJUSTED

Name and Address of Utility	Type	Adjustment Status
Hartford Public Works 140 W Hawthorne Hartford, IL 62048 (618) 251-2680	Water Sanitary	No adjustments anticipated
Ameren Illinois 2600 N. Center St. Maryville, IL 62062 (618) 346-1244	Gas	No adjustments anticipated
Ameren Illinois 700 Oakwood Avenue Alton, IL 62002 (800) 325-7002	Electric	No adjustments anticipated
AT&T 203 Goethe Collinsville, Illinois 62234 (618) 346-6400	Telephone	No adjustments anticipated
Charter Communications 101 Northwest Plaza Dr St Ann, Mo 63074 (618) 307-5730	Communications	No adjustments anticipated
Valero Energy Corp 201 E Hawthorne St. Hartford, IL 62048 (618) 251-2083 24 Hour Emergency Number: (866) 423-0898	Petroleum Pipeline	No adjustments anticipated

The above represents the best information of the Owner and is only included for the convenience of the bidder. The applicable provisions of Article 102, 105.07, and 107.20 of the Standard Specifications for Road and Bridge Construction shall apply.

If any utility adjustment or removal has not been completed when required by the Contractor's operations, the Contractor should notify the Engineer in writing. A request for an extension of time will be considered to the extent the Contractor's operations were affected.

COOPERATION BETWEEN CONTRACTORS

The Contractor shall observe all conditions of Article 105.08 of the "Standard Specifications for Road and Bridge Construction" in the case when other construction will be occurring simultaneously and in close proximity with this project.

EARTH EXCAVATION (SPECIAL)

Earth excavation shall be done in accordance with Section 202 of the Standard Specifications. Embankment construction shall be done in accordance with Section 205 of the Standard Specifications.

This work consists of the removal of the existing earth and vegetation on the edge of the trail at least 1 foot wide and 8 inches deep to allow for the 12' wide FULL DEPTH RECLAMATION. The material shall be stockpiled along the edge of the trail to be used for final grading and shaping of shoulders in the FULL DEPTH RECLAMATION.

Payment for this work shall be made at the contract LUMP SUM price for EARTH EXCAVATION (SPECIAL) and no additional compensation will be allowed. Payment will be based on plan quantity only, and no additional compensation will be allowed.

SEEDING, CLASS 2

At all locations where the ground has been disturbed or filled and no other surface restoration is indicated on the plans, the contractor shall restore the area by Class 2 seeding, as depicted by the plans. This work shall be done according to Section 250 of the Standard Specifications except as described herein.

The application rate for the Seeding, Class 2 mixture shall be as follows:

Tall Fescue:	125 lbs./acre
(Inferno, Tarheel II, Quest, Blade Runner or Falcon IV)	
Perennial Ryegrass:	62.5 lbs./acre
Creeping Red Fescue:	50 lbs./acre
Red Top:	12.5 lbs./acre

Fertilizer nutrients for Seeding, Class 2 shall be applied at a rate of 270 pounds per acre. The fertilizer for Class 2 seeding shall be a ready-mixed material containing the following nutrients shall be applied at 1:1:1 ratio as follows:

Nitrogen Fertilizer Nutrients	90 lbs./acre
Phosphorus Fertilizer Nutrients	90 lbs./acre
Potassium Fertilizer Nutrients	90 lbs./acre

The beginning and termination dates for seeding mixtures specified in Article 250.07 shall be as follows:

Seeding Class 2 – Spring: March 1st to June 1st

Seeding Class 2 – Fall: August 1st to November 15th

The third paragraph of Article 250.04 shall be revised to read as follows:

Mulch shall conform to the requirements of Section 251 of the Standard Specifications. Mulch, Method 2 shall be used. The rate of application of the mulch shall be two tons per acre.

The contractor shall be responsible for the maintenance of the seeded areas until adequate grass cover is achieved. All washouts shall be filled and re-seeded. Any areas that do not attain a grass cover 30 days after seeding shall also be re-seeded. The cost of maintenance of the seeded areas shall be considered incidental to this item of work.

The amount of Seeding, Class 2 shown in the contract has been estimated. The contractor will be paid for the amount actually seeded, at the contract unit price bid per acre, as directed by the Engineer.

The cost for performing this work will be paid at the contract unit price per acre for SEEDING, CLASS 2, which price shall include the fertilizer and mulching and all incidental work as directed by the Engineer, and no additional compensation will be allowed.

WOOD SIGN SUPPORT

The Contractor shall provide and install 4”x6” wood posts in accordance with Article 730.04 of the “Standard Specifications for Road and Bridge Construction” and with the details and notes shown in the plans.

The timber posts shall comply with the requirements of Section 1007.01, 1007.02 and 1007.06. The posts shall be treated in accordance to Section 1007.12 of the Standard Specifications except that the preservative treatment shall only be a “Water-Borne Preservative”.

Timber sign posts that have twisted or warped within 90 days of installation shall be replaced at no additional cost to the contract.

Wood sign supports located within public right-of-way shall be installed in accordance with Article 730.04(b). Concrete foundations will not be paid for separately, but shall be included in the costs of the various wood sign supports. Wood sign supports located outside of public right-of-way shall be installed in accordance with Article 730.04(a).

Payment for this work shall be made at the contract unit price per foot for WOOD SIGN SUPPORT, which shall include all material and labor required to provide and place the posts according to the plans, and no additional compensation will be allowed.

PAINT PAVEMENT MARKINGS

Prior to placing paint pavement markings, the Contractor shall clean the road/trail surface and shoulders of all loose materials.

All paint shall be Sherwin-Williams TM2452 or TM2453 and shall be applied as specified by the manufacturer, unless otherwise approved by the Engineer. Paint shall be applied no sooner than 15 days after the placement of any asphalt surface.

The Contractor shall apply two (2) coats of paint pavement markings two (2) hours apart and will only be paid for one (1) total coat of paint

Payment for this work shall be included in the contract unit price per foot for the various PAINT PAVEMENT MARKING pay items found within the project.

REMOVE BOLLARD ASSEMBLY

The Contractor shall remove bollard assemblies in accordance with the details and notes and at locations as shown in the plans.

The existing center bollards shall be removed and cleaned of existing foundation concrete and returned to MCT to be salvaged. If the Owner or Engineer determines that the center bollards have been damaged during removal operations the Contractor will be responsible for replacement of the center bollard at their expense.

Schedule 40 side bollards shall be removed and disposed of at the Contractor's expense.

Payment for this work will be made at the contract unit price per each for REMOVE BOLLARD ASSEMBLY.

REMOVE AND RELOCATE BOLLARD ASSEMBLY

The Contractor shall remove, relocate, and reconstruct construct bollard assemblies in accordance with the details and notes and at locations as shown in the plans.

The existing center bollards shall be removed and cleaned of existing direct applied markers, tape and foundation concrete. Center bollards will have new reflective sheeting applied and reinstalled per the details on the plans once the hot mix asphalt surface has been constructed. Center bollards that are damaged by the Contractor will not be reused, but shall be replaced by MCT at a cost of $1,200.00 to the Contractor per bollard.
Marking tape shall be Terminal Marker – Direct Applied or as shown in the Highway Standard 725001 and in accordance with Article 1095.06 of the "Standard Specifications for Road and Bridge Construction." Reflective sheeting shall be 3M Scotch lite Diamond Grade with 3" black and yellow lines at 45 degrees.

Bollard foundations shall use Class SI Portland Cement Concrete in accordance with Section

1020 of the “Standard Specifications for Road and Bridge Construction”. Premix bags of concrete will not be allowed.

This work will be paid for at the contract unit price per each for REMOVE AND RELOCATE BOLLARD ASSEMBLY and no additional compensation will be allowed.

GRADING AND SHAPING SHOULDERS

This item of work consists of grading and shaping the shoulders adjacent to the hot-mix asphalt portions of the proposed trail with the material stockpiled from earth excavation, special, as shown on the typical sections in the plans. This work will also consist of supplying and placing additional suitable earth material, as needed, to construct the typical section shown on the plans. The material used shall conform to Article 1081.05 of the Standard Specifications for Road and Bridge Construction.

This work will be paid for at the contract unit price per UNIT (1 UNIT = 100 Linear Foot) for GRADING AND SHAPING SHOULDERS, which price shall include all material and labor to construct as specified, and no additional compensation will be allowed.

SIGN REMOVAL

This work consists of removing the existing posts and any attached signs at the locations shown on the sign schedule in the plans.

This work shall be done in accordance with Section 724 of the Standard Specifications.

The sign posts and attached signs to be removed and not relocated shall be delivered to MCT.

Signs that are to be relocated on a new wood post after removal shall be stored in a safe location determined by the Contractor until they are ready to be relocated.

Any signs or posts that are determined by the Engineer or Owner to have been damaged during the Contractor’s operations shall be replaced at the Contractor’s expense.

Payment for this work shall be made at the contract unit price per each for SIGN REMOVAL.

RELOCATE EXISTING SIGNS

This item of work shall consist of furnishing all labor, equipment and materials necessary to reinstall an existing sign to the proposed location as shown in the plans and as directed by the

Engineer.

The Contractor shall utilize as much of the existing hardware as possible. The new hardware required, if any, to complete the relocation shall be substantially equivalent to the existing hardware. The cost of new hardware and all other related works shall be included in the contract unit price with no additional compensation.

This work will be paid for at the contract unit price per each for RELOCATE EXISTING SIGNS.

RELOCATE SIGN PANEL AND POST

This item of work shall consist of furnishing all labor, material and equipment necessary to remove the existing traffic signs and posts at locations shown in the plans, stockpile these signs at a location determined by the Contractor and reinstall these signs as directed by the Engineer. This work shall be in accordance with the applicable portions of Section 720 and 730 of the Standard Specifications and with the Illinois Manual on Uniform Traffic Control.

Any damage to existing signs shall be the responsibility of the Contractor.

This work will be paid for at the contract unit price per EACH for RELOCATE SIGN PANEL AND POST and no additional compensation will be allowed.

RELOCATE GATE SPECIAL

This item of work shall consist of furnishing all labor, material and equipment necessary to remove the existing gates at locations shown in the plans, stockpile these gates at a location determined by the Contractor and reinstall these gates as directed by the Engineer.

This work shall include the removal and relocation of all components of the existing gate assembly including but not limited to: the gate, gate post, gate stop post, and braided cables with HDPE sleeve.

The Contractor shall utilize as much of the existing hardware as possible. The new hardware required, if any, to complete the relocation shall be substantially equivalent to the existing hardware. The cost of new hardware and all other related works shall be included in the contract unit price with no additional compensation.

Gate post and gate stop post foundations shall use Class SI Portland cement concrete in accordance with Section 1020 of the “Standard Specifications for Road and Bridge Construction”. Premix bags of concrete shall not be allowed.

Any damage to existing gates shall be the responsibility of the Contractor.

This work will be paid for at the contract unit price per EACH for RELOCATE GATE SPECIAL and no additional compensation will be allowed.

PAINT GATE AND GATE POST

This item of work shall consist of furnishing all labor, material and equipment necessary to clean, prime, and paint the relocated gates.

The Contractor shall clean the existing gates in such a manner to remove dust, dirt, oil, rust, loose paint, and other foreign matter. Upon completion of cleaning, rust, paint, and other imperfections are permitted to remain if they cannot be lifted using a dull putty knife.

After cleaning the Contractor shall prime the gates and then paint with two coats of exterior yellow enamel paint. The paint shall be approved by the Engineer prior to painting.

This work will be paid for at the contract unit price per each for PAINT GATE AND GATE POST.

FULL DEPTH RECLAMATION, 8”

This work shall consist of the reclamation of the hot-mix asphalt pavement and aggregate base course of the existing trail.

This work shall be done according to the typical section shown on the plans and the IDOT Local Roads Special Provision LR 400-9 “Full-Depth Reclamation (FDR) With Cement or Cement Slurry”, included and as modified herein. The modifying agent shall be cement.

Sections (a) and (b) in the section Proportioning shall be deleted from LR 400-9.

The dry unit weight of the reclaimed material was estimated to be 115 lbs. / cu. ft. This weight, along with a 7% cement ratio, was used to calculate the tons of cement required for the reclamation.

The Contractor shall proof roll the finished reclaimed surface prior to placing hot-mix asphalt. Any unsuitable areas shall be repaired at the Contractor’s expense. MCT reserves the right to modify the cement ratio and/or reclamation procedures if reclamation results deem necessary.

This work will be paid for at the contract unit price per square yard for FULL DEPTH RECLAMATION, 8”. Cement will be paid for the contract unit price per TON for CEMENT.

CORPS OF ENGINEERS REQUIREMENTS

This project is located on the Corps of Engineers’ Lower Wood River levee system, and is subject to requirements set forth by the agency. The Contractor shall meet the following conditions for the project unless specifically authorized otherwise by the Corps of Engineers or the Wood River Drainage and Levee District:

1. No work shall occur if the river, as measured at the Mel Price Lock and Dam (Tailwater) is forecasted to be above flood stage (elevation 416).
2. The site shall be restored to pre-existing conditions to the satisfaction of the District. Any damage to the levee in the form of rutting, turf damage, etc. shall be repaired at the Contractor's expense and restored to the requirements of the District and Corps specifications.
3. Access to the proposed site is through existing easements with adjacent property owners. No access through District property shall be permitted without prior written authorization.
4. Access shall be maintained throughout construction for District personnel for turf maintenance, herbicide applications, and sluice gate closures during a flood event.
5. The District shall be notified via email prior to commencement of the project. The contact at the District is Kevin Williams, Executive Director, at kwilliams@wrdld.org .
6. All open excavations will not be allowed to remain overnight and shall be filled with hot-mix asphalt (or other approved impervious material) the same day as excavation.

7. Contractor shall demobilize from the levee during flood events. No compensation will be allowed for delays due to flood events. Work shall not impact routine nor emergency O&M procedures.
8. Existing piezometers and monitoring wells along the crown of the levee shall not be disturbed and shall be protected at all times.

State of Illinois
Department of Transportation
Bureau of Local Roads and Streets

SPECIAL PROVISION
For
FULL-DEPTH RECLAMATION (FDR) WITH CEMENT OR CEMENT SLURRY

Effective: May 1, 2021

All references to Divisions, Sections, and Articles in this Special Provision shall be construed to mean specific Divisions, Sections, and Articles in the Standard Specifications for Road and Bridge Construction adopted by the Department of Transportation.

Description. This work shall consist of constructing a base course by pulverizing in-place bituminous surface treatment or hot mix asphalt layers, portions of the aggregate base material, and/or subgrade to a specified depth and maximum size; spreading and mixing cement, water, and additives with the recycled material; and shaping, compacting, and curing the mixture.

Materials. Materials shall be according to the following Articles/Sections of the Standard Specifications.

Item	Article/Section
(a)	Cement (Notes 1 and 2) ..... 1001.01(a)
(b)	Concrete Admixtures (Note 2) 1021
(c)	Water 1002
(d)	Fine Aggregates (Note 3) 1003
(e)	Coarse Aggregates (Note 3) 1004
(f)	Soil for Soil-Cement Base Course (Note 4) 1009.03
(g)	Reclaimed Asphalt Pavement (Note 5) 1031
(h)	Pulverized Material (Note 6)
(i)	Bituminous Materials (Note 7) 1032

Note 1. Bulk cement may be used for the road reclaimer method if the equipment for handling, weighing, and spreading the cement is approved by the Engineer.

Note 2. The type and allowable percentage will be described in the mix design.

Note 3. The mix design will specify gradation and quality of any additional aggregate. 100 percent of any additional aggregate shall pass a 1 1/2 in. (37.5 mm) sieve and shall contain a maximum of 15 percent retained on a 1 in. (25 mm) sieve. Additional fine aggregate shall meet Class B quality as a minimum. Additional coarse aggregate shall meet Class C quality as a minimum.

Note 4. This soil requirement only applies when subgrade material is included in the pulverized material.

Note 5. The RAP material shall not exceed the maximum size requirement of the pulverized material, and when blended with the pulverized material shall produce a product which meets the specifications of the mix design.

Note 6. Pulverized material shall consist of the mixture resulting from pulverizing in-place bituminous surface treatment or hot mix asphalt layers layers, aggregate base material, and/or subgrade to a specified depth. After pulverization, the gradation of the pulverized material shall meet the following requirements.

PULVERIZED MATERIAL GRADATION			
Grad No.	Sieve Size and Minimum Percent Passing		
	3 in. (75 mm)	2 in. (50 mm)	No 4 (4.75 mm)
PM 4	100	95	55

Note 7. The bituminous materials used for curing shall be emulsified asphalt RS-2, CRS-2, HFE 90, or HFE 150; rapid curing liquid asphalt RC-70; or medium curing liquid asphalt MC-70 or MC-250.

Equipment. Equipment shall be according to the following Articles of Division 1100 – Equipment.

(a) Heavy Pneumatic-Tired Rollers .....1101.01(b)
(b) Vibratory Roller (Note 1) .....1101.01(g)
(c) Motor Grader 1101.05
(d) Distributor (Note 2)
(e) Truck Mixer (Note 2) .....1103.01(b)
(f) Road Reclaimer (Note 3)
(g) Tamping Roller (Note 4) .....1101.01(d)
(h) Membrane Curing Equipment .....1101.09(a)
(i) Aggregate Spreaders (Note 5) 1102.04
(j) Water Truck (Note 6)

Note 1. The vibratory steel roller shall have a minimum gross weight of 10 tons (9 metric tons) and shall provide a total applied force not less than 325 lb/in. (57 N/mm).

Note 2. The distributor shall be a mechanical type and shall be approved by the Engineer. The distributors or truck mixers used to apply the cement and/or chemical admixtures for FDR shall be able to demonstrate a consistent and accurate application rate while minimizing dust during construction according to Article 107.36.

Note 3. The road reclaimer shall be self-propelled and capable of fully pulverizing the existing pavement, incorporating the water, and mixing the materials to produce a homogeneous material. The minimum power of the road reclaimer shall be 540 hp (403 kW). The road reclaimer shall be capable of reclaiming not less than 8 ft (2.4 m) wide and up to 12 in. (305 mm) deep in each pass. The road reclaimer shall be capable of injecting water directly into the mixing chamber via an electronic control system that records the amount of water injected. The cutting drum shall be fitted with cutting teeth capable of trimming earth, aggregate, and bituminous surface treatments or hot mix asphalt mixtures, and be accurately adjusted vertically and held in place. The machine shall weigh at least 12.5 tons (11.3 metric tons) and shall not develop a center deflection of more than 1/8 in (0.125 mm).

Note 4. The tamping roller shall be a self-propelled vibratory padfoot roller with a minimum drum width of 7 ft (2.1 m) and gross weight of not less than 10 tons (9 metric tons). A tamping roller shall be required for each road reclaimer.

Note 5. Imported granular material used for FDR shall be spread with an aggregate spreader or placed with a spreading and finishing machine according to Article 1102.03.

Note 6. Water trucks used shall be set up for a controlled and non-eroding spray.

CONSTRUCTION REQUIREMENTS

Proportioning. Proportioning shall be as follows.

(a) Samples. Samples of the cement, chemical admixtures, additional fine and coarse aggregate, reclaimed asphalt pavement, and material to be pulverized (all in-place bituminous surface treatment or hot mix asphalt layers layers, aggregate base material, and/or subgrade through the full design depth) shall be obtained and submitted to the Engineer at least 60 days prior to the construction of the full-depth reclamation with cement. Sample sizes shall be a minimum of 25 lb (11 kg) for the cement, 1 qt or 1 L for the chemical admixtures, and 200 lb (91 kg) for the material to be pulverized. Any additional aggregates or RAP material samples shall be at a minimum the anticipated mix design proportion percentage multiplied by 200 lb (91 kg).

(b) Mix Design. The actual proportions of cement, water, aggregates, RAP, chemical admixtures, and soil will be determined by the Engineer prior to construction using the submitted samples. The Engineer reserves the right to make such adjustments in proportions as are considered necessary during the progress of the work.

A mix design for each distinct change of in-place materials shall be developed prior to construction using all actual materials proposed for the project and submitted to the Department. The mix design shall follow items listed for soil-cement mixtures in the Department's "Geotechnical Manual". The final mix design will be approved by the Engineer.

FDR WITH CEMENT MIX DESIGN REQUIREMENTS	
Test Method	Requirement
Gradation for Pulverized Material, Illinois Test Procedure 27[1], AASHTO T 88	Report
Liquid Limit[2], AASHTO T 89	Report
Plasticity Index[2], AASHTO T 90	Report
Moisture-Density Relationship, Illinois Modified AASHTO T 134 (Method B)[1]	Report
Unconfined Compressive Strength, 7-Day, Illinois Modified AASHTO T 22[1], psi	500 min
Freeze-Thaw Durability *(choose one)*	
Vacuum Saturation Strength (ASTM C 593[3]), psi	350 min
Mass Loss (AASHTO T 136), percent loss	14 max
Additional Additive(s)[4]	
Concrete Admixtures	Report
Coarse Aggregate	Report
Fine Aggregate	Report
RAP	Report
Cement, percentage by dry mass	Report

Notes: *1. Test information contained in the Manual of Test Procedures for Materials.*

2. Only required if subgrade soil is being incorporated into the mixture.

3. Samples will be prepared according to Illinois Modified AASHTO T 134 (Method B), cured according to AASHTO T 136, vacuum saturated according to ASTM C 593, and test for unconfined compressive strength.

4. Report will include type/gradation and producer/supplier.

Weather Limitations. This work shall not be performed when the FDR to be processed is frozen, when the ambient air temperature is less than 40 °F (4 °C) or greater than 95 °F (35 °C), or if the weather is rainy. The weather forecast shall not call for temperatures less than 32 °F (0 °C) within 7 days after placement of any portion of the project.

Preparation of Subgrade. The area to be processed shall have all vegetation and other objectionable material removed. Widening and grade correction areas shall be shaped to the proper grade and cross section. Subgrade in cut or at grade sections shall be prepared according to Article 301.03 and 301.04; except the minimum immediate bearing value (IBV) of the soil shall be 3.0. The IBV will be determined according to Illinois Test Procedure 501 or 502.

Where soft and unstable subgrade material is encountered beneath the area to be pulverized, the Engineer will determine whether the ground and soil conditions warrant more extensive treatments according to the Department's "Subgrade Stability Manual". Soft and unstable material that will not compact when rolled or tamped, shall be removed and disposed of according to Article 202.03, and replaced with material approved by the Engineer according to Articles 205.04 and 205.05.

Initial Pulverization and Shaping. The existing pavement shall be initially pulverized by the road reclaimer and shaped by the motor grader to the required lines, grades, and cross section before the addition of dry cement or cement slurry. Water, fine and/or coarse aggregate, RAP material, or other additives required may be added during this operation. The pulverized and shaped material shall be compacted to support equipment and/or traffic without excessive rutting or shoving and to facilitate depth control during processing.

During the start of pulverization, the Contractor shall complete a strip for evaluation by the Engineer. To ensure the pavement is being pulverized to the specified gradation, the Contractor shall excavate a pulverized area of 10 sq ft (1 sq m), in two separate locations during the first day of pulverizing, as directed by the Engineer. Modifications to the pulverizing procedure must be made if the size and/or gradation requirements are not met. These excavations shall be repaired with by recompacting the pulverized material. If pulverization procedures or conditions change, additional excavations to inspect the pulverized pavement size and gradation shall be made, as directed by the Engineer.

Unsuitable or unstable material encountered during the pulverization and shaping process shall be removed and disposed of according to Article 202.03. Areas of approximately 10 sq ft (1 sq m) or less may be repaired by use of aggregate replacement material. Larger unstable areas require removal and replacement, as directed by the Engineer. Following subgrade repairs, aggregate replacement material shall be placed to the depth of the FDR specified thickness.

After initial pulverization is complete, the pulverized material shall undergo an initial shaping to the proper lines and grades with a motor grader.

Cement Application. Following initial pulverization and shaping, the quantity of dry cement or cement slurry specified in the mix design shall be spread uniformly on the finished surface. The cement spread shall be calculated to provide the required application rate in a manner that minimizes dust or slurry runoff and is satisfactory to the Engineer. The application of the cement shall be limited to that amount which can be mixed and compacted with the pulverized material within 4 hours.

When cement slurry is used, the surface of the pulverized material shall be lightly scarified

or disked prior to slurry application, and berms shall be formed to prevent excessive runoff, unless the Contractor has demonstrated to the satisfaction of the Engineer that the slurry has been proportioned such that it will not run off.

Dry cement shall not be applied when wind conditions are such that blowing cement becomes objectionable to adjacent property owners or creates a hazard to traffic on adjacent roadways, as determined by the Engineer.

Cement slurry shall be produced in a ready mixed concrete plant or other type of mixing device approved by the Engineer and delivered in truck mixers or other approved slurry transport equipment. Cement slurry shall be proportioned such that it contains a minimum 60 percent dry solids content by weight. The cement slurry producer shall supply a record of the amount of cement, water, and chemical admixtures with each truck delivery. The time from first contact of cement with water to application on the prepared surface of the initially pulverized material shall not exceed 60 minutes unless an approved retarding admixture is used, in which case the Engineer may allow a maximum of 90 minutes.

No equipment, except that used in applying cement and mixing, will be allowed to pass over the applied cement, and this equipment shall be operated in such a manner as to avoid displacement of cement.

The Engineer shall be notified any time the cement application rate is changed. The cement application rate shall be checked and recorded for each segment in which the rate is changed.

Mixing. Mixing shall begin as soon as possible after the cement has been applied, but shall not exceed 30 minutes from the time cement has been applied. Mixing shall continue until a uniform mixture of pulverized material, cement, admixtures, aggregate, and water is obtained that passes the gradation and moisture content specified. A final gradation test shall be made at the conclusion of mixing operations.

During mixing, water application shall only be done through the road reclaimer's integrated fluid injection system.

Dry cement or cement slurry which has been disturbed or displaced by rain, the Contractor's equipment or other traffic after application, shall be replaced.

After mixing is complete, the material shall be shaped to the proper lines and grades with a motor grader.

Compaction and Finishing. Compaction shall begin within 30 minutes of the most recent mixing pass and be completed no later than two hours after mixing begins. The mixture shall be compacted according to the following.

(a) Moisture Content. At the start of compaction, the moisture content shall be between 80 to 120 percent of the optimum moisture content determined according to Illinois Modified AASHTO T 134 (Method B) for the mix design.

(b) Density. The compacted, full-depth reclamation base course shall have a minimum dry density of 98 percent of the laboratory standard dry density based on a moving average of five consecutive tests with no test below 95 percent. The in-place dry density will be determined according to Illinois Modified AASHTO T 191, or Illinois Modified AASHTO T 310 (Direct Transmission Density/Backscatter Moisture). The laboratory standard dry density will be determined according to Illinois Modified AASHTO T 134 (Method B) for the mix design.

Any portion of the base course that has a density less than 95 percent of the standard laboratory density shall be corrected by continued compaction within specified time constraints, or removed and replaced.

(c) Rollers. Immediately after processing and final shaping, the FDR base course shall be compacted with equipment meeting the following requirements.

MINIMUM ROLLER REQUIREMENTS FOR FDR		
Initial Roller	Final Roller[1] (one or more of the following)	Density Requirement
Tamping roller	P, V_S	As specified in the Compaction section (b) above

Note(s): 1. Equipment definitions in Table 1 of Article 406.07.

(d) Rolling and Finishing. The initial roller shall be within 500 ft. (150 m) behind all road reclaimer units. The FDR base course shall be uniformly compacted by the tamping roller, applying high amplitude and low frequency. Initial rolling shall be performed until the initial roller walks out of the material and the specified density has been obtained. Walking out for the tamping roller is defined as light being clearly evident between all of the pads at the material-padfoot drum interface and the pads being no more than 3/16 in. (5 mm) deep. Care shall be exercised to ensure satisfactory density along the edges of the section and adjacent to construction joints.

Any unstable material encountered while compacting or under construction trafficking shall be treated as defined in the sections titled Preparation of Subgrade and Initial Pulverization and Shaping. If a large area of unstable material is identified during the compaction process, work on the affected area shall be halted and the Engineer notified.

When initial compaction of the FDR base course is nearing completion, the surface of the base course shall be shaped to the required lines, grades, and cross section with a motor grader. The FDR base course shall be cut no deeper than necessary to remove roller marks from the initial compaction and to achieve desired cross slope.

The bladed recycled material shall be compacted by final rollers until the required density is obtained. The number of passes and order of rollers may be altered to meet density requirements. Finish rolling shall not be done in vibratory mode. The moisture content of the surface material shall be maintained at or slightly above its specified optimum during all finishing operations and until the curing material is applied. Water may be lightly sprayed by a water truck to aid in improving final density and appearance. A second water truck is required if water is also being added at the road reclaimer.

Surface compaction and finishing shall be done in such a manner as to produce a smooth, dense, uniform, closely knit surface, relatively free from cracks, ridges, low spots, or loose material, conforming to the crown, grades, and lines shown on the plans.

Protection and Curing. After the FDR base course has been finished, it shall be protected against drying for a period of 7 days by applying a bituminous material or the surface shall receive continuous moist curing with a non-eroding water spray for a minimum of 7 days, unless a surface course is placed within 7 days, at which point moist curing may be discontinued.

Curing shall be applied as soon as possible after the completion of final rolling. Prior to applying the curing, the FDR base course surface shall be dense, free of all loose and extraneous materials, and contain sufficient moisture to prevent excessive penetration of the curing material. Bituminous material shall be uniformly applied at the rate of 0.20 gal/sq. yd. (0.90 L/sq. m) to the surface of the FDR base course by a pressure distributor to give complete coverage without excessive runoff. The exact rate of application and temperature will be specified by the Engineer. If needed, water shall be applied to fill surface voids immediately before the bituminous material cover is applied. The equipment used for wetting the finished FDR base course with water or to apply the bituminous protective cover shall be of such limited weight that its use will not cause marring or rutting of the base course. Should it be necessary for construction equipment or other traffic to use the bituminous covered surface before the bituminous material has cured sufficiently to prevent pickup, sufficient blotter fine aggregate shall be applied with aggregate spreaders to prevent pickup.

Finished portions of the FDR base course that are traveled on by equipment used in constructing an adjoining section shall be protected in such a manner as to prevent equipment from marring or damaging completed work.

Construction Joints. At the end of each day's construction, a straight transverse construction joint shall be formed by cutting back into the completed work to form a vertical face. Damage to completed work shall be avoided.

Opening to Traffic. The finished FDR base course may be opened immediately to local traffic and to the Contractor's construction equipment once the base has hardened sufficiently to withstand marring or permanent deformation by such traffic and received a bituminous or other approved sealing membrane. The base course may be opened to all traffic after the 7-day protection period, provided the base course is not damaged, marred, or distorted by such traffic, and provided that the protection and curing material specified in the Protection and Curing section above is not impaired.

Maintenance. The Contractor shall maintain the entire FDR base course in a manner satisfactory to the Engineer until the surface course has been constructed. Maintenance shall include immediate repairs of any defective or damaged portions of the base course. Repairs or replacements shall be made in such a manner as to ensure restoration of a uniform surface and durability of the portion repaired or replaced.

Tolerance in Thickness. The FDR base course shall be constructed to the thickness shown on the plans. Base thickness will be based on thickness measurements of cores taken, measured, and recorded according to Article 407.10(a)(2). Any portion of the FDR base course that is less than 90 percent of the specified thickness shall be removed and replaced with new material to the correct thickness.

Quality Control/ Quality Assurance (QC/QA).

(a) Quality Control by the Contractor. The Contractor shall perform or have performed the inspection and tests required to assure conformance to contract requirements. Quality Control includes the recognition of obvious defects and their immediate correction. This may require increased testing, communication of test results to the job site, modification of operations, suspension of the work, or other actions as appropriate.

The Engineer shall be immediately notified of any failing tests and proposed remedial action. Passing tests shall be reported to the Engineer no later than the start of the next work day.

(b) Quality Assurance by the Engineer. The Engineer will conduct independent assurance tests on split samples taken by the Contractor for quality control testing. In addition, the Engineer will witness the sampling and splitting of these samples and will immediately retain witnessed split samples for quality assurance testing.

(c) Test Methods and Frequency. Test methods and test frequencies shall be according to the following table.

QC/QA MINIMUM TESTING FREQUENCY[2]			
Test	Test Method	QC Frequency[1]	QA Frequency[1]
Depth of Pulverization		1 per 500 feet (150 m)	1 per 1000 feet (300 m)
Pulverized Material Gradation	AASHTO T168	1 per 0.5 day of production	1 per day of production
Cement Application Rate	Note 2	1 per 500 feet (150 m)	1 per 1000 feet (300 m)
One-Point Moisture-Density	Illinois Modified AASHTO T272	1 per 0.5 day of production	1 per day of production
Density	Illinois Modified AASHTO T191 or T310	1 per 500 feet (150 m)	1 per 1000 feet (300 m)

Note: 1. The Contractor shall perform all quality control tests within the first 500 ft (150 m) after startup or any change in the mix or depth of pulverization. The Engineer will also run split samples at these locations.

2. Cement application rates shall be verified by calculating the weight of cement contained in the cement tanker/truck mixer and the area covered after application. For slurry application rates, calculate the weight of cement as the weight of slurry minus weight of water.

Method of Measurement. The work will be measured for payment as follows.

(a) Contract Quantities. The requirements for the use of Contract Quantities shall conform to Article 202.07(a).

(b) Measured Quantities. The work will be measured for payment as follows.

(1) Cement incorporated in the full-depth reclamation mixture will be measured for payment in hundredweights (kilograms), but payment will not be made for cement in excess of 105 percent of the amount specified by the mix design or approved by the Engineer.

(2) Any additional aggregate, including RAP, used to meet the requirements of the mix design will be measured for payment in square yard (square meter).

(3) Full-depth reclamation will be measured for payment in place and the area computed in square yards (square meters) of the recycled pavement.

(4) Removal and disposal of unstable and/or unsuitable material will be measured for payment according to Article 202.07(b).

(5) Replacement of unstable and/or unsuitable material will be measured for payment according to Article 204.07(b).

(6) Cement treatment of unstable pulverized base course, when specified by the Engineer, will be measured for payment according to (1) and (3) above.

Basis of Payment. This work will be paid for at the contract unit prices as follows.

(a) The cement material will be paid for at the contract unit price per hundredweight (kilogram) for CEMENT.

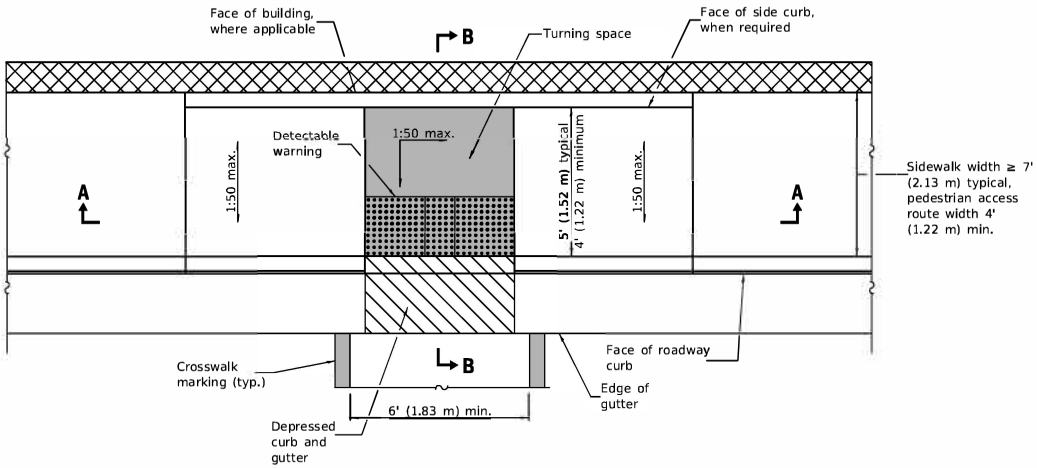
(b) If any additional aggregate, including RAP, is required to meet the requirements of the mix design, the cost will be paid for at the contract unit price per square yard (square meter) for ADD ROCK. The cost incurred introducing the additional aggregate into the FDR base course will not be paid for separately, but shall be considered as included in the contract unit price for FULL-DEPTH RECLAMATION below. No additional compensation will be awarded to the Contractor because of reduced production rates associated with the addition of the additional aggregate.

(c) The full-depth reclamation will be paid for at the contract unit price per square yard (square meter) for FULL-DEPTH RECLAMATION, of the thickness specified.

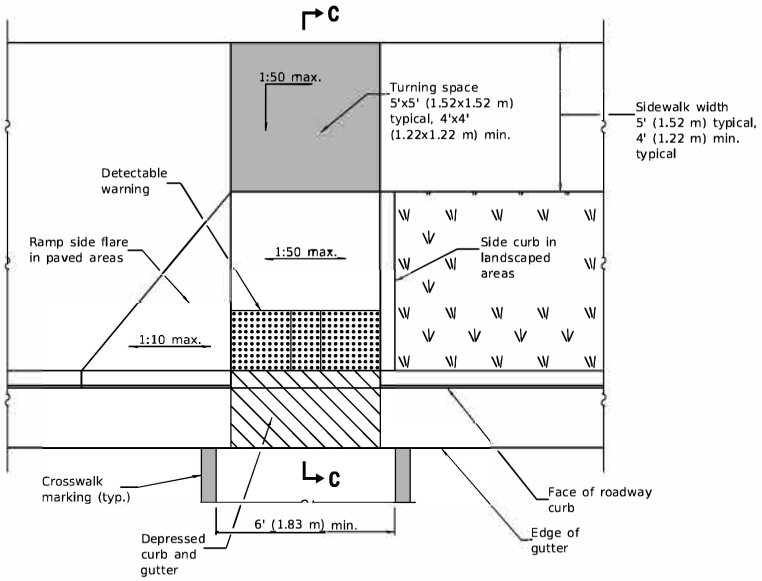
(d) Removal and disposal of unstable and/or unsuitable material will be paid for according to Article 202.08.

(e) Replacement of unstable or unsuitable material will be paid for according to Article 204.08.

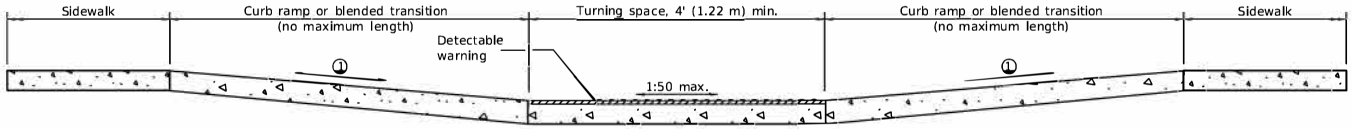
(f) Cement treatment of unstable pulverized base course, when specified by the Engineer, will be paid for at the contract unit prices for (a) and (c) above.



PARALLEL MID-BLOCK CURB RAMP

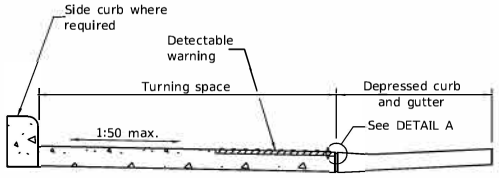


PERPENDICULAR MID-BLOCK CURB RAMP

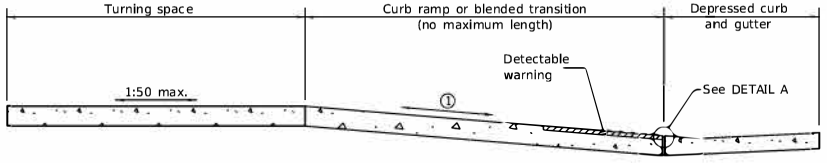


SECTION A-A

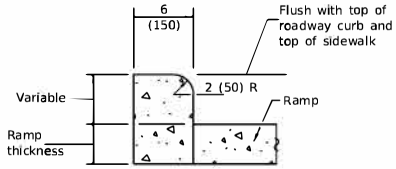
① The running slope of a curb ramp shall be 1:20 min. and 1:12 max. The running slope of a blended transition shall be 1:20 max.



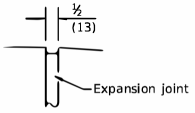
SECTION B-B



SECTION C-C



SIDE CURB DETAIL



DETAIL A

GENERAL NOTES

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

Where the turning space is constrained on a side opposite a ramp, the minimum length of the turning space in the direction of the ramp-run shall be 5' (1.52 m).

Where 1:50 maximum slope is shown, 1:64 is preferred.

Detectable warnings are shown in their ideal locations but the following placement tolerances are allowed.

Side Border - Detectable warnings should extend the full width of the walking surface (excluding flared sides) but a border along each side up to 2 in. (50 mm) in. width is allowed.

Curb Set-Back - Detectable warnings located at the back of curb should closely align with the curb but a gap up to 6 in. (150 mm) behind the curb is allowed.

See Standard 606001 for details of depressed curb adjacent to curb ramp.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2019
ENGINEER OF POLICY AND PROCEDURES

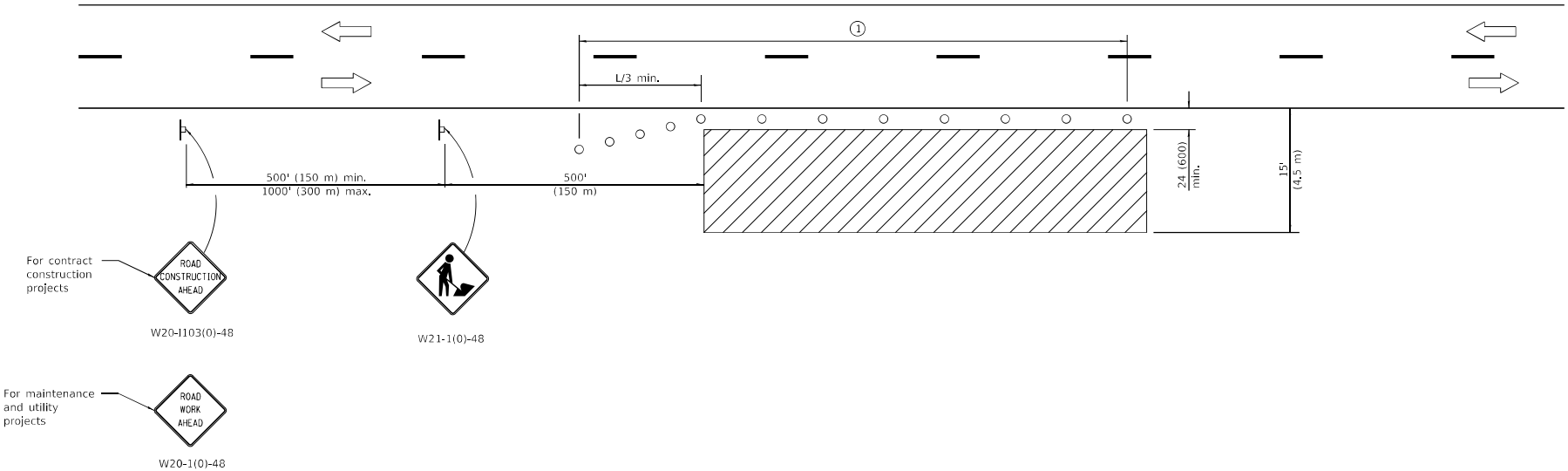
APPROVED January 1, 2019
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-12

DATE	REVISIONS
1-1-19	Removed upper landing, added
	blended transitions and detectable
	warning tolerances.
1-1-18	Omitted diagonal slope at
	turning spaces and upper
	landings.

MID-BLOCK CURB RAMPS FOR SIDEWALKS

STANDARD 424016-05



TYPICAL APPLICATIONS

Utility operations
Culvert extensions
Side slope changes
Guardrail installation and maintenance
Delineator installation
Landscaping operations
Shoulder repair
Sign installation and maintenance

SYMBOLS

Work area

Sign

Cone, drum or barricade

① When the work operation exceeds one hour, cones, drums or barricades shall be placed at 25' (8 m) centers for L/3 distance, and at 50' (15 m) centers through the remainder of the work area.

GENERAL NOTES

This Standard is used where any vehicles, equipment, workers or their activities will encroach in the area 15' (4.5 m) to 24 (600) from the edge of pavement.

Calculate L as follows:

SPEED LIMIT	FORMULAS English	(Metric)
40 mph (70 km/h) or less:	$L=\frac{WS^2}{60}$	$L=\frac{WS^2}{150}$
45 mph (80 km/h) or greater:	$L=(W)(S)$	$L=0.65(W)(S)$

W = Width of offset in feet (meters).

S = Normal posted speed mph (km/h).

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2014
ENGINEER OF SAFETY ENGINEERING

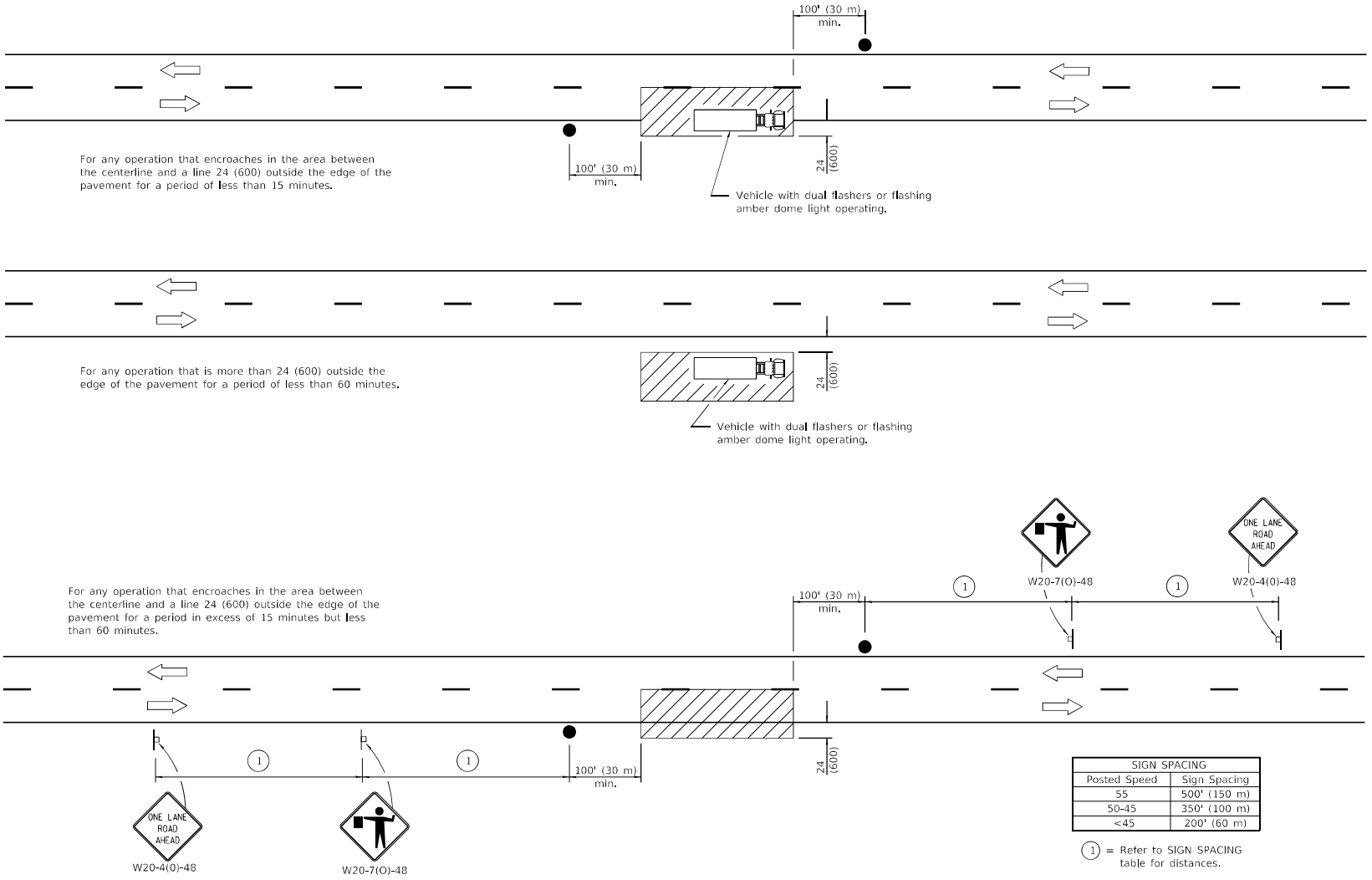
APPROVED January 1, 2014
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-07

DATE	REVISIONS
1-1-14	Revised workers sign
	number to agree with
	current MUTCD.
1-1-13	Omitted text 'WORKERS'
	sign.

OFF-RD OPERATIONS, 2L, 2W, 15' (4.5 m) TO 24" (600 mm) FROM PAVEMENT EDGE

STANDARD 701006-05



SIGN SPACING	
Posted Speed	Sign Spacing
55	500' (150 m)
50-45	350' (100 m)
<45	200' (60 m)

(1) = Refer to SIGN SPACING table for distances.

TYPICAL APPLICATIONS

Marking patches
Field survey
String line
Utility operations
Cleaning up debris on pavement

SYMBOLS

Work area

Sign on portable or permanent support

Flagger with traffic control sign

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2011
ENGINEER OF SAFETY ENGINEERING

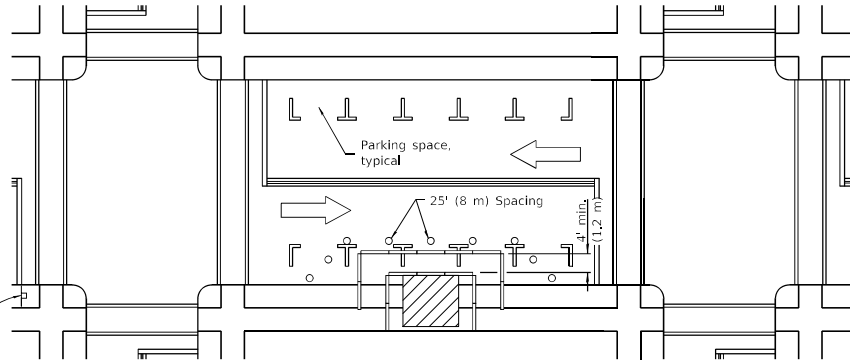
APPROVED January 1, 2011
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-07

DATE	REVISIONS
1-1-11	Revised flagger sign.
1-1-09	Switched units to
	English (metric).

LANE CLOSURE, 2L, 2W, SHORT TIME OPERATIONS

STANDARD 701301-04



① ROAD CONSTRUCTION AHEAD — W20-I103(0)-48 for contract construction projects

Or

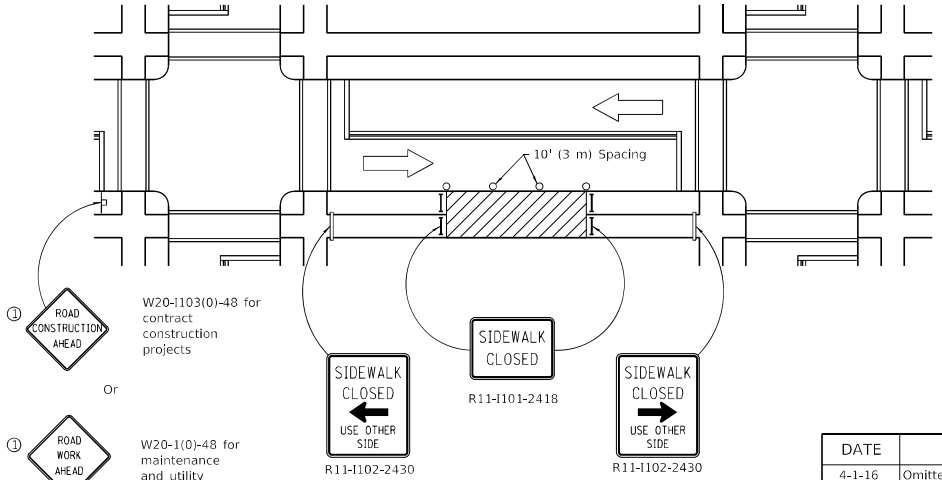
① ROAD WORK AHEAD — W20-1(0)-48 for maintenance and utility projects

SIDEWALK DIVERSION

① Omit whenever duplicated by road work traffic control.

SYMBOLS

- Work area
- Sign on portable or permanent support
- Barricade or drum
- Cone, drum or barricade
- Type III barricade
- Detectable pedestrian channelizing barricade



① ROAD CONSTRUCTION AHEAD — W20-I103(0)-48 for contract construction projects

Or

① ROAD WORK AHEAD — W20-1(0)-48 for maintenance and utility projects

SIDEWALK CLOSURE

GENERAL NOTES

This Standard is used where, at any time, pedestrian traffic must be rerouted due to work being performed.

This Standard must be used in conjunction with other Traffic Control & Protection Standards when roadway traffic is affected.

Temporary facilities shall be detectable and accessible.

The temporary pedestrian facilities shall be provided on the same side of the closed facilities whenever possible.

The SIDEWALK CLOSED / USE OTHER SIDE sign shall be placed at the nearest crosswalk or intersection to each end of the closure. Where the closure occurs at a corner, the signs shall be erected on the corners across the street from the closure. The SIDEWALK CLOSED signs shall be used at the ends of the actual closures.

Type III barricades and R11-2-4830 signs shall be positioned as shown in "ROAD CLOSED TO ALL TRAFFIC" detail on Standard 701901.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED April 1, 2016
ENGINEER OF SAFETY ENGINEERING

APPROVED April 1, 2016
ENGINEER OF DESIGN AND ENVIRONMENT

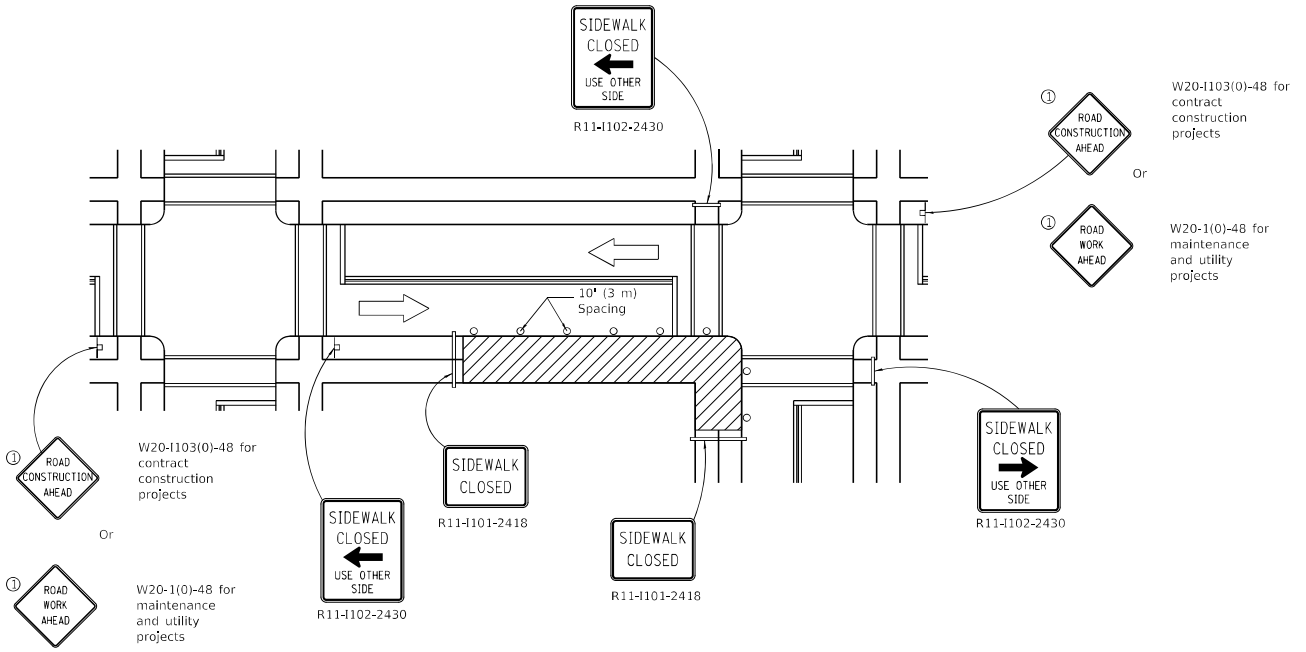
ISSUED 1-1-07

DATE	REVISIONS
4-1-16	Omitted orange safety fence
	from standard as this is
	covered in the std. spec.
1-1-12	Added SIDEWALK DIVERSION.
	Modified appearance of
	plan views. Renamed Std.

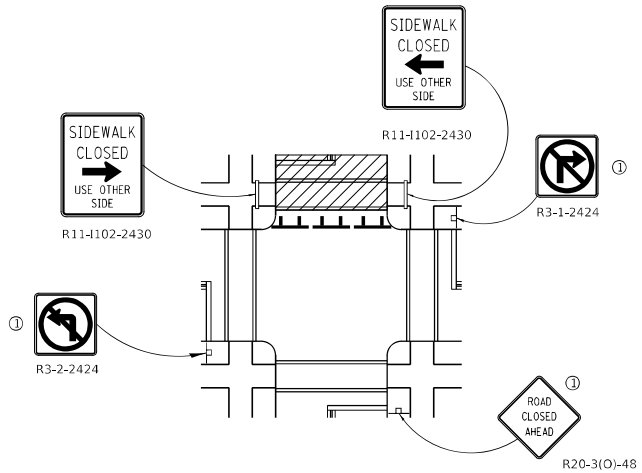
SIDEWALK, CORNER OR CROSSWALK CLOSURE

(Sheet 1 of 2)

STANDARD 701801-06



CORNER CLOSURE



CROSSWALK CLOSURE

Illinois Department of Transportation

PASSED April 1, 2016
ENGINEER OF SAFETY ENGINEERING

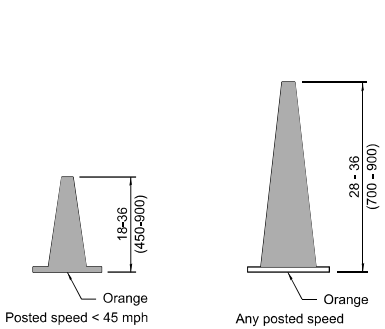
APPROVED April 1, 2016
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-07

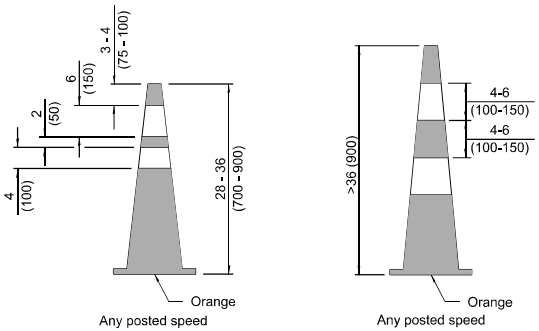
SIDEWALK, CORNER OR CROSSWALK CLOSURE

(Sheet 2 of 2)

STANDARD 701801-06

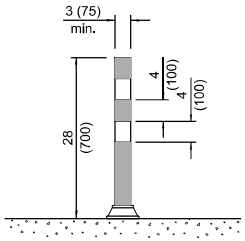


DAYTIME USE

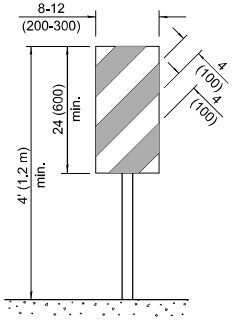


DAY OR NIGHTTIME USE

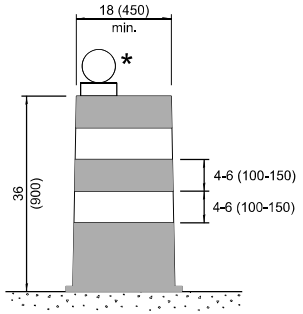
CONES



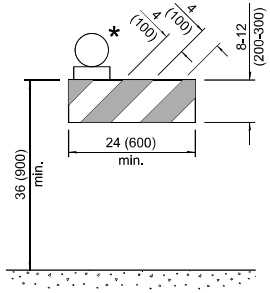
TUBULAR MARKER



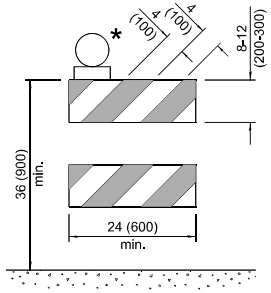
VERTICAL PANEL
POST MOUNTED



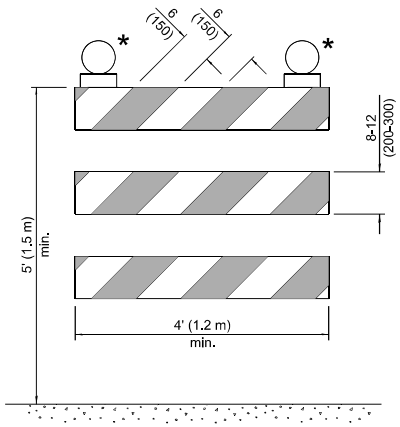
DRUM



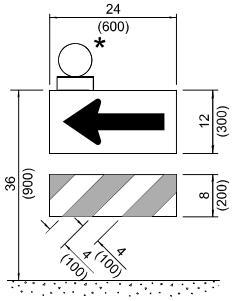
TYPE I BARRICADE



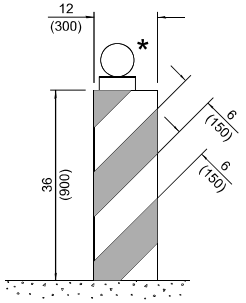
TYPE II BARRICADE



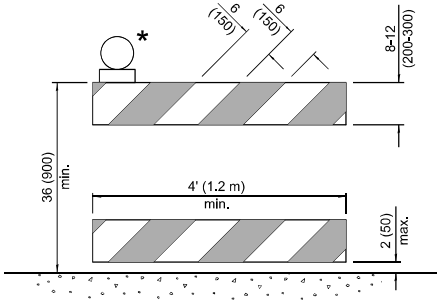
TYPE III BARRICADE



DIRECTION INDICATOR BARRICADE



VERTICAL BARRICADE



DETECTABLE PEDESTRIAN CHANNELIZING BARRICADE

* Warning lights (if required)

GENERAL NOTES

All heights shown shall be measured above the pavement surface.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2024
ENGINEER OF SAFETY PROG. AND ENGINEERING

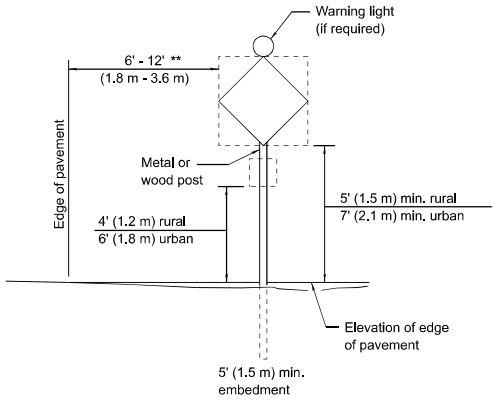
APPROVED January 1, 2024
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-13

DATE	REVISIONS
1-1-24	Revised Type III Barricade notes
	(sht. 3) & moved warning light on
	post mounted signs to top center.
1-1-19	Revised cones usage and added
	cones > 36" (900mm) height

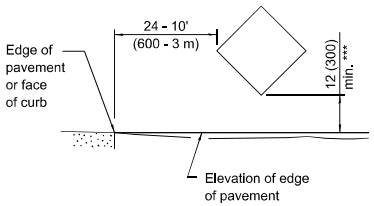
TRAFFIC CONTROL DEVICES

STANDARD 701901-09



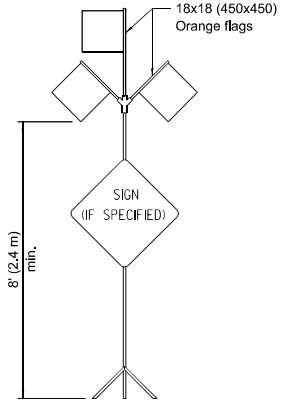
POST MOUNTED SIGNS

** When curb or paved shoulder are present this dimension shall be 24 (600) to the face of curb or 6' (1.8 m) to the outside edge of the paved shoulder.

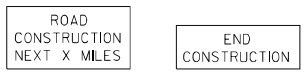


SIGNS ON TEMPORARY SUPPORTS

*** When work operations exceed four days, this dimension shall be 5' (1.5 m) min. If located behind other devices, the height shall be sufficient to be seen completely above the devices.



HIGH LEVEL WARNING DEVICE



G20-I104(0)-6036 G20-I105(0)-6024

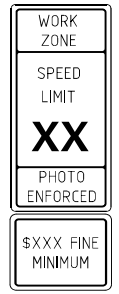
This signing is required for all projects 2 miles (3200 m) or more in length.

ROAD CONSTRUCTION NEXT X MILES sign shall be placed 500' (150 m) in advance of project limits.

END CONSTRUCTION sign shall be erected at the end of the job unless another job is within 2 miles (3200 m).

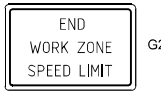
Dual sign displays shall be utilized on multi-lane highways.

WORK LIMIT SIGNING



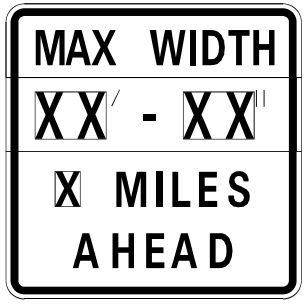
W21-III5(0)-3618
R2-1-3648
R10-I108p-3618 ****
R2-I106p-3618

Sign assembly as shown on Standards or as allowed by District Operations.



G20-I103-6036

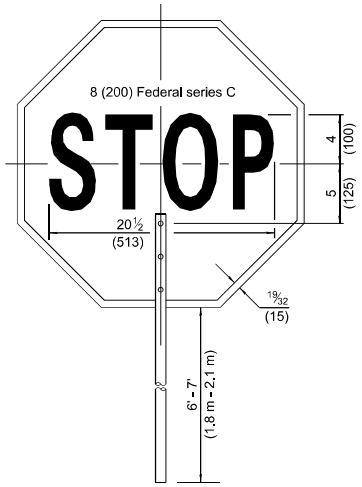
This sign shall be used when the above sign assembly is used.



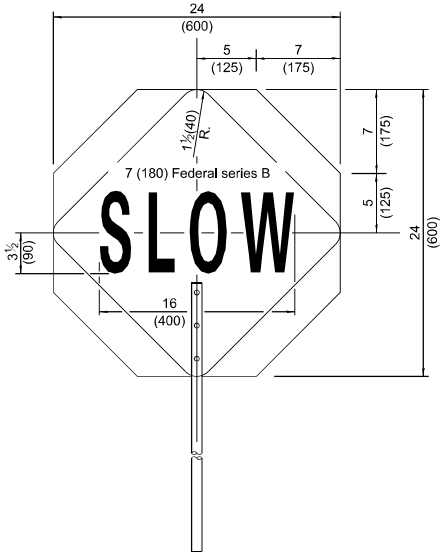
W12-I103-4848

WIDTH RESTRICTION SIGN

XX'-XX" width and X miles are variable.



FRONT SIDE



REVERSE SIDE

FLAGGER TRAFFIC CONTROL SIGN

HIGHWAY CONSTRUCTION SPEED ZONE SIGNS

**** R10-I108p shall only be used along roadways under the juristiction of the State.

Illinois Department of Transportation

PASSED January 1, 2024
ENGINEER OF SAFETY PROG. AND ENGINEERING

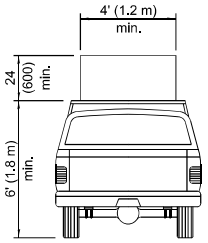
APPROVED January 1, 2024
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-13

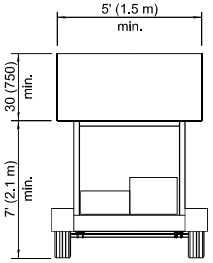
TRAFFIC CONTROL DEVICES

(Sheet 2 of 3)

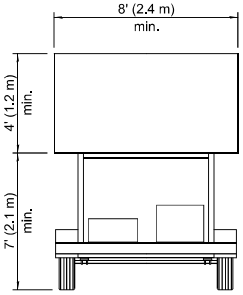
STANDARD 701901-09



TYPE A ROOF MOUNTED

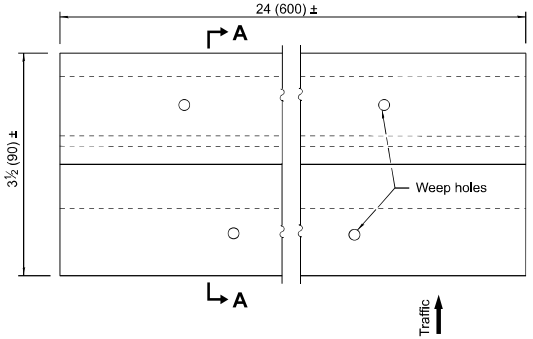


TYPE B ROOF OR TRAILER MOUNTED

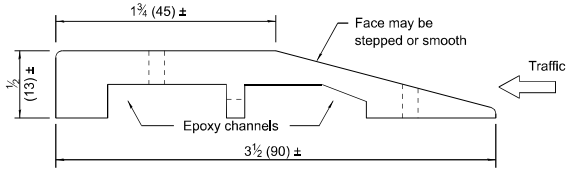


TYPE C TRAILER MOUNTED

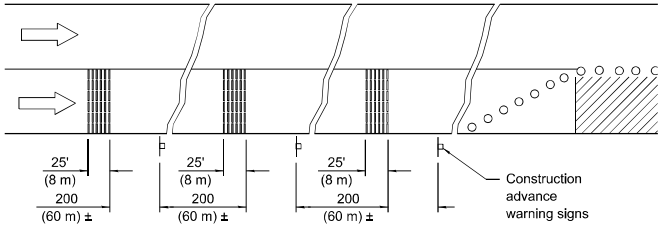
ARROW BOARDS

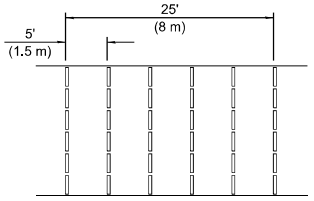


PLAN



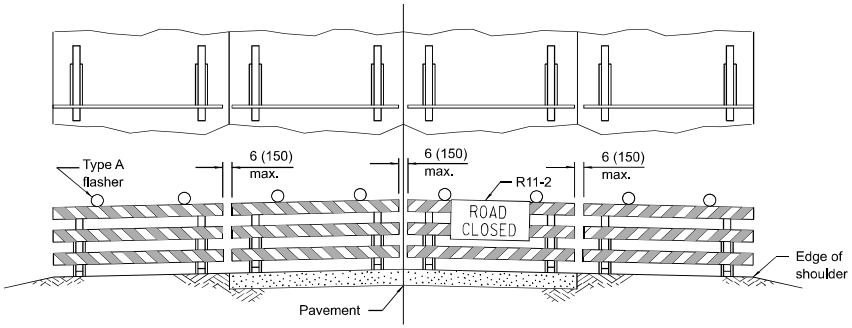
SECTION A-A





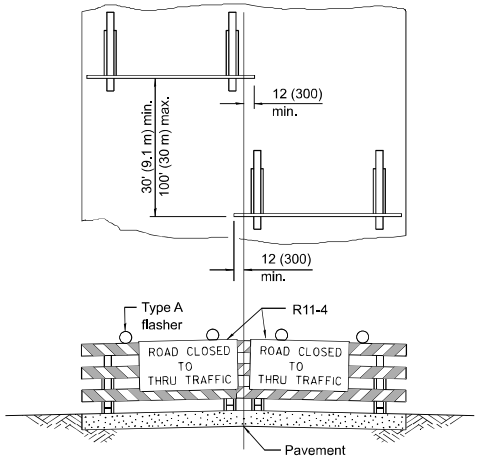
TYPICAL INSTALLATION

TEMPORARY RUMBLE STRIPS



ROAD CLOSED TO ALL TRAFFIC

Reflectorized striping may be omitted on the back side of the barricades.



ROAD CLOSED TO THRU TRAFFIC

Reflectorized striping shall appear on both sides of the barricades.

TYPICAL APPLICATIONS OF TYPE III BARRICADES CLOSING A ROAD

If a Type III barricade with an attached sign panel which meets NCHRP 350 or MASH is not available, the sign may be mounted on an NCHRP 350 or MASH temporary sign support directly in front of the barricade.

Illinois Department of Transportation

PASSED January 1, 2024
ENGINEER OF SAFETY PROG. AND ENGINEERING

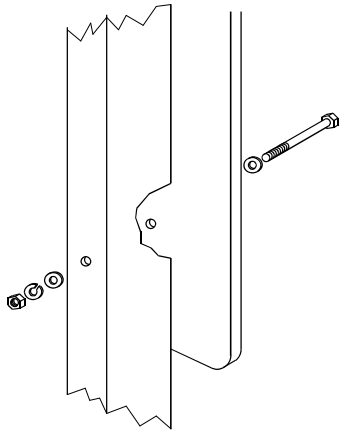
APPROVED January 1, 2024
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-13

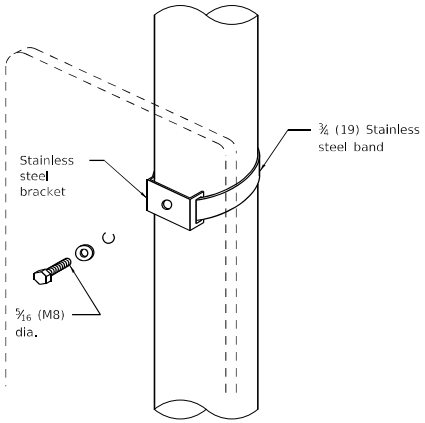
TRAFFIC CONTROL DEVICES

(Sheet 3 of 3)

STANDARD 701901-09

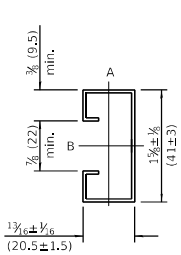


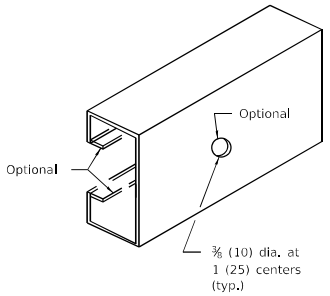
Sign panel 36 (900) wide or less



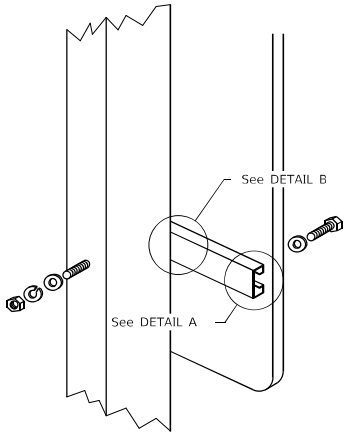
Sign panel 36 (900) wide or less

Section modulus (minimum)	Axis A	Axis B
Steel	0.050 in.³ (819 mm³)	0.105 in.³ (1720 mm³)
Aluminum	0.150 in.³ (2458 mm³)	0.315 in.³ (5162 mm³)



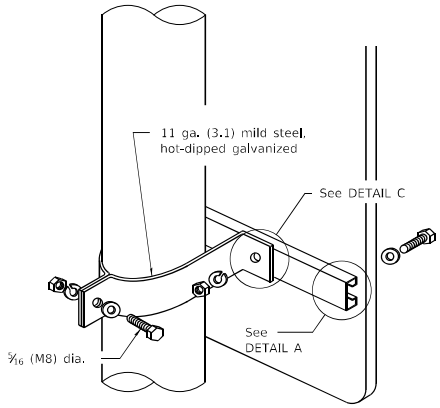


SUPPORTING CHANNEL DETAILS



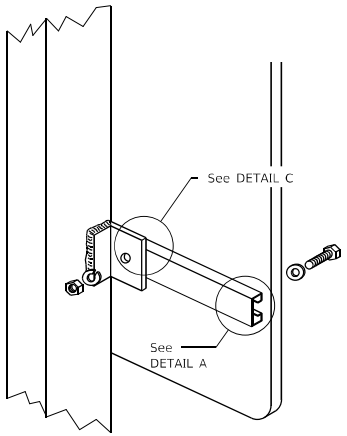
Sign panel over 36 (900) wide

WOOD OR TELESCOPING STEEL POSTS

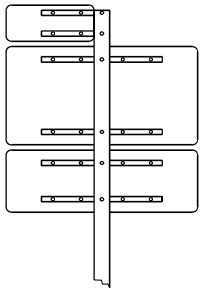


Sign panel over 36 (900) wide

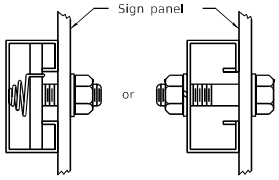
LIGHT OR SIGNAL STANDARDS



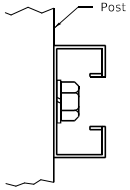
BREAKAWAY STEEL TUBING POSTS
(All sign panel sizes)



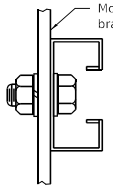
ROUTE MARKER ASSEMBLY



DETAIL A



DETAIL B



DETAIL C

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2009
ENGINEER OF OPERATIONS

APPROVED January 1, 2009
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
1-1-09	Switched units to
	English (metric).
1-1-97	Renum. Standard 2319-6.

SIGN PANEL MOUNTING DETAILS

STANDARD 720001-01