

**TOWNSHIP OF NORTH BETHLEHEM
WASHINGTON COUNTY, PENNSYLVANIA**

**MUNICIPAL BUILDING AND GARAGE
1 Ontario Drive**

Upfront Specifications

NOVEMBER 2025

Prepared For:

**NORTH BETHLEHEM TOWNSHIP
2178 E. National Pike
P.O. Box 112
Scenery Hill, Pa 15360**

Prepared By:

**WIDMER ENGINEERING INC.
225 West Crawford Avenue
Connellsville, PA 15425
(724) 626-1909**

W.E. #24808

Municipal Building and Garage

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PROJECT DRAWINGS

ADVERTISEMENT FOR BIDS

**TOWNSHIP OF NORTH BETHLEHEM
WASHINGTON COUNTY, PENNSYLVANIA
MUNICIPAL BUILDING AND GARAGE**

Sealed Bids for the construction of the **North Bethlehem Municipal Building and Garage** will be received by **Widmer Engineering Inc.**, at **225 West Crawford Avenue, Connellsville PA, 15425**, until **10:00 A.M.** local time on **Monday, June 8, 2026**. The Bids received will be **publicly** opened at **10:30 A.M.** at Widmer's Office and then presented to the public at **3:30 P.M.** during the North Bethlehem Township's regularly scheduled **monthly meeting** located at **2178 E. National Pike, Scenery Hill, PA 15360**.

There will be a pre-bid (MANDATORY) meeting on Monday, June 1, 2026 at 3:00 P.M. at the Building Site of 1 Ontario Road, Scenery Hill, PA 15360. Questions can be made directed to Steve Eby at Widmer Engineering by phone, 724-626-1909 ext. 12

The Issuing Office for the Bidding Documents is: **Widmer Engineering Inc., 225 West Crawford Avenue, Connellsville, PA 15425**. Electronic PDF copies, suitable for printing, of the Contract Documents may be viewed and downloaded at the Widmer Engineering website @ <https://widmerengineering.com/> under the tab "Bids". Electronic PDF documents are available at no charge. Hard copies will not be distributed. Questions can be directed to Widmer Engineering by phone at 724-626-1909 ext. 212.

A 10% Bid Bond is required to execute the agreements for the Project. **Prevailing Wages will be required.**

Addenda, if any, will be issued to only those persons who are registered as having obtained Contract Documents.

Owner: North Bethlehem Township

By: **Rick Cross**

Title: **President**

Dates of Advertisement: **5/22/2026**
5/29/2026

INSTRUCTIONS TO BIDDERS

1. DEFINITIONS

Whenever in these Contract Documents the following words, terms and expressions, or pronouns in place of them are used, the intent and meaning shall be interpreted as follows:

Owner: Party of the First Part or First Party to this Contract, acting directly or through any agency, officer or employee duly authorized to act for the said party in the execution of the work required by this Contract.

Engineer: The person or organization duly authorized by the Owner to observe and inspect the execution of this Contract, acting directly or through properly authorized agents, engineers, assistants, inspectors, superintendents or other representatives acting severally within the scope of the particular duties entrusted to them.

Contractor: Party of the Second Part or Second Party to this Contract, acting directly or through his authorized lawful agents, legal representatives, or employees, appointed to act for said party in the performance of the work under Contract, or the Surety in case of default.

Surety or Sureties: The corporate body or bodies approved by the Owner, who are bound with and for the Contractor and who are primarily liable for the satisfactory and acceptable execution and fulfillment of this Contract, and/or the prompt payment in full for labor and materials as provided in the bonds.

Contract: The written agreement executed by and between the Owner and the successful Bidder including collectively all of the Contract Documents, covering the performance of the work and the furnishing of labor and materials in the construction of the Project. Also, any and all supplemental agreements which could reasonably be required to complete the construction contemplated.

Contract Documents: The Contract Documents consist of the Advertisement for Bids, Instruction to Bidders, Bid Proposal, Certification of Non-Segregated Facilities, Bid Bond, Non-Collusion Affidavit of Prime Bidder, Statement of Bidder's Qualifications, Wage Rates (if any), Addenda (if any), Notice of Award, Agreement, Nondiscrimination Clause, Stipulation Against Liens, Performance Bond, Labor and Material Payment Bond, Detailed Breakdown of Lump Sum Bid (if any), Notice to Proceed, Application and Certificate for Payment, Continuation Sheet, Change Order(s) (if any), Certificate of Substantial Completion, Maintenance Bond, General Conditions, Drawings and Technical Specifications.

Specifications: Collectively, all of the definitions, descriptions, directions, provisions, requirements, terms and stipulations contained in the Contract Documents, and all written supplements thereto, made or to be made, pertaining to the Contract, and the materials and workmanship to be furnished under the Contract.

Drawings or Plans: Collectively, all of the drawings or plans (or reproductions of them) pertaining to the construction of the Project and attached to the Contract or otherwise made a part thereof. Also, such supplementary drawings as the Engineer may issue from time to time in order to elucidate or clarify said Contract Drawings, or for showing details which are not shown thereon, or for the purpose of showing changes in the work as authorized under Article 27 of the section entitled General Conditions.

Contract Price: The lump sum(s) or unit price(s) bid by the Contractor and named in the Proposal, or the total of all payments made or to be made under the Contract at the lump sum(s) or unit price(s), as the case may be.

Bidder: Any individual, firm or corporation submitting a Proposal for the work contemplated herein, acting directly or through a duly authorized representative.

Proposal or Bid or Bid Proposal: The written offer of a Bidder submitted on the approved form prepared for the purpose, to perform the work and to furnish the labor and materials embraced in this Contract, for the consideration of payment at the prices stated.

Proposal Security: The required security furnished with the proposal by a Bidder as guaranty of his ability and intent to qualify for award of the Contract and to enter into a Contract with the Owner for the performance of the work and to furnish satisfactory bonds, as required, if the work involved in the proposal is awarded to him. This may be a money deposit in the form of a draft or a certified check on a solvent bank, or, if permitted, a bid bond.

Certified Check: When the Advertisement indicates that a certified check is required, each Bidder shall submit with his proposal a certified check drawn upon a solvent clearing house bank, and the Bidder who has had the Contract awarded to him and who fails to promptly and properly execute the required Contract and bonds shall forfeit said check.

Bid Bond: When permitted, in lieu of certified checks, bid bonds to be approved by the Owner, may be furnished by the Bidders and their Sureties, conditioned upon the successful Bidder promptly and properly executing the required Contract and bonds.

Performance Bond: The approved and executed form of security furnished by the Contractor and his Surety as a guaranty of good faith to execute and complete the work in accordance with the terms of the Contract Documents.

Labor and Material Payment Bond: The approved and executed form of security furnished by the Contractor and his Surety as a guaranty of good faith to promptly pay or cause to be paid in full such sums as may be due for material furnished and/or labor supplied or performed, services rendered in the prosecution of the work under the Contract.

Notice to Proceed: A written notice to the Contractor, from the Owner or Engineer, of the date on or before which the former is to begin prosecution of the work and on which the Contract period starts.

Project: All the necessary performance and materials required for the satisfactory completion of the work under the Contract as described in the other Contract Documents.

Site: The area which has been secured or reserved by the Owner for use in the performance of the Contract.

Final Estimate: The estimate made by the Engineer to the Owner of the final price of all work performed under the Contract.

Subcontractor: A person, firm or corporation having a direct contract with the Contractor to perform part of the latter's Contract; such as one who installs or furnishes and installs at the site, equipment forming a permanent part of the Contract work, or who furnishes labor at the site for work required by the Contract in accordance with the Contract Documents. This term does not include individual workmen furnishing labor only, nor one who merely furnishes material not worked to a special design.

"Directed", etc.: Wherever in these Contract Documents the words "directed", "required", "permitted", "ordered", "instructed", "designated", "considered necessary", "prescribed", or words of like import are used, it shall be understood that the direction, requirements, permission, order, instruction, designation, or prescription, etc., of the Engineer is intended, unless otherwise specifically stated.

"Approved", etc.: The words "approved", "acceptable", "satisfactory", or words of like import, shall mean approved by, or acceptable or satisfactory to, the Engineer, unless another meaning is plainly intended or otherwise specifically stated.

2. RECEIPT OF BIDS

The place to which Proposals must be delivered, the amount of Proposal Security required, and the date, time and place of opening of Proposals, are stated in the Advertisement. The proposal form indicates the location and description of the project to be constructed, and shows the approximate quantities of work to be performed and materials to be furnished, if a unit price contract.

3. STATEMENT OF BIDDER'S QUALIFICATIONS

Each bidder shall, upon request of the Owner, submit on the form furnished for that purpose a statement of the Bidder's qualifications, his experience record in constructing the type of improvements embraced in the Bid Proposal, and his organization and equipment available for the work contemplated; and, when specifically requested by the Owner, a detailed financial statement. The Owner shall have the right to take such steps as it deems necessary to determine the ability of the Bidder to perform his obligations under the Contract, and the Bidder shall furnish the Owner all such information and data for this purpose as it may request. The right is reserved to reject any Bid where an investigation of the available evidence or information does not satisfy the Owner that the Bidder is qualified to carry out properly the terms of the Contract.

4. COLLUSIVE AGREEMENTS

Each Bidder submitting a Bid to the Owner for any portion of the work contemplated by the Contract Documents on which bidding is based shall execute and attach thereto, an affidavit substantially in the form herein provided, to the effect that he has not colluded with any other person, firm or corporation in regard to any Bid submitted.

5. BIDDER RESPONSIBILITY

The Bidder is required to carefully examine the site of the project, the Contract Documents, and all other forms pertinent to the work contemplated. It will be assumed that he has satisfied himself as to the conditions to be encountered, the character, quality, and quantities of work to be performed and materials to be furnished, and the requirements of the Contract Documents. No allowance or concession will be made for lack of such information on the part of the Contractor.

Whenever information concerning subsurface materials or conditions is given on the Drawings, it is understood, in the absence of any qualifying notation, that it was obtained in the usual manner and the location, depths, and character of the material have been recorded in good faith. There is no expressed or implied agreement that the depths or the character of the material have been correctly indicated and Bidders should take into account the possibility that conditions affecting the cost or quantities of work to be done may differ from those indicated.

6. APPROXIMATE ESTIMATE OF QUANTITIES

The Bidder's attention is directed to the fact that, in contracts based on unit prices the estimate of quantities of work to be done and materials to be furnished is approximate and is given only as a basis of calculation upon which to determine the lowest bidder. The Owner does not assume any responsibility that the quantities shall be obtained in the construction of the Project, nor shall the Contractor plead misunderstanding or deception because of such estimate of quantities, or of the character of the work or location, or other conditions pertaining thereto. The Owner reserves the right to increase or diminish any or all of the above mentioned quantities of work or to omit any of

them, as it may deem necessary and such increase or decrease of the quantities given for any of the items shall not be considered as sufficient grounds for granting an increase in the unit prices bid, except as set forth in Article 27 of the Section entitled General Conditions.

7. PREPARATION OF PROPOSAL

Using the proposal form provided herewith, all bid prices shall be written or typed in ink, in the blank spaces provided for each item, with the amounts extended if a unit price bid, and all amounts totaled. In the event of any discrepancy between the written amounts and the numerals, the written amounts shall govern, and will be considered as being the price bid.

In the unit price bids, the determination of the lowest bid will be based solely on the total results of computations of the estimated quantities and the prices bid including a combination of alternates authorized by the Proposal.

The Bidder shall sign his name and give his business address in the spaces provided therefor. If the Proposal is made by a partnership, it shall be signed by all partners. If made by a corporation, it shall be signed in the name of the corporation by one of the officers thereof and shall have affixed the seal of the corporation.

8. PROPOSAL SECURITY

Each Proposal shall be accompanied by security in the form of a certified check, or, when specifically permitted, a bid bond, payable to the Owner, in the amount indicated in the Advertisement. Within seven (7) days after the opening of bids, the securities therefor will be returned excepting those which the Owner elects to hold until the award is made and the successful bidder qualifies and executes the Contract. Such Proposal Security of the successful Bidder shall be forfeited to the Owner as liquidated damages if the successful Bidder fails to execute and deliver the Contract in conformity with the form of Agreement, and furnish bonds and insurance certificates as specified within ten (10) days after notification by the Owner of the acceptance of his bid. The security of the successful Bidder will be returned to him when the Contract is executed by both parties hereto. If all Proposals are rejected, the securities therefor will be returned immediately after the determination of such rejection.

9. WITHDRAWAL OF PROPOSALS

All Bidders specifically waive any right to withdraw a Proposal after it has been submitted to the Owner, except as hereinafter provide. A Bidder may withdraw a Proposal provided the Bidder makes a request to do so by telephone, telegraph, or in writing to the Owner and provided that such requests reach the office of the Owner not later than the day previous to the date set for opening thereof. Requests by telephone or telegraph must be confirmed in writing, by the Bidder in person, or by an accredited representative of the Bidder before the time set for the opening of Proposals. No bids may be withdrawn for the period of time stipulated in the Proposal.

10. RIGHT TO REJECT PROPOSALS

The unqualified right is reserved by the Owner to waive any informalities in, or reject any or all proposals as may be deemed to the best interest of the Owner. Proposals which contain any omission, erasures, alterations, additions not called for, conditional bids, or irregularities of any kind, or Proposals otherwise regular which are not accompanied by Proposal Security, may be rejected as informal. Proposals in which the bid prices are obviously unbalanced may be rejected.

11. CHANGES PRIOR TO THE OPENING OF BIDS

During the period allowed for preparation of bids, the Bidders may be furnished addenda or bulletins for additions to or alterations of the Contract Documents, which shall be included in the work covered by the proposal and become a part of the Contract Documents. If any prospective bidder is in doubt as to the true meaning of any part of the Contract Documents, he may submit to the Engineer a written request for an interpretation thereof. The Bidder submitting the request will be responsible for its prompt delivery. An interpretation of the Contract Documents will be made only by an addendum duly issued and a copy of such addendum will be mailed or delivered to each prospective bidder on record. The Owner will not be responsible for any other explanations or interpretations of the Contract Documents.

12. SCOPE OF WORK

Unless otherwise provided it is the intent of the Contract Documents to prescribe a complete project which the Bidder proposes to construct, by furnishing all labor, materials, equipment, tools, necessary utilities and other facilities, and performing all work necessary or incidental to such construction, in full compliance with the Contract Documents.

13. SUBMITTING PROPOSAL

Proposals, accompanied by the Proposal Security, and all Addenda, if any, shall be submitted in an opaque, sealed envelope, addressed to the Owner. The name of the Bidder shall appear in the upper left-hand corner of the envelope and the title and number of the Contract shall appear in the lower left-hand corner.

14. AWARD AND EXECUTION OF CONTRACT

When a Proposal received has been determined to be satisfactory, a Contract will be awarded to the lowest responsible Bidder within the time specified in the Proposal.

The Bidder to whom the award is made shall execute the Contract and return it, together with the properly executed Bonds and insurance certificates, to the office of the Owner, within the time specified in the Proposal.

If the Contractor executes his Contract as herein provided and the Contract is not executed by the Owner within thirty (30) days after the receipt thereof from the Contractor, the Owner upon written request of the Contractor will return the Proposal Security. In such event, the award of the Contract shall be considered as annulled.

The Contract, surety bonds, and insurance certificates shall be executed in triplicate or in as many copies as the Owner may require.

15. CANCELLATION OF AWARD

The Owner reserves the right to cancel the award of any Contract at any time prior to its execution by the Owner.

16. SURETY BONDS

With the execution and delivery of this Contract the successful Bidder receiving the Contract award will be required to furnish, within the time specified, in Article 7, a "performance bond" covering faithful and satisfactory performance of the work contracted, in an amount not less than one hundred percent (100%) of the total contract price, and a "labor and material payment bond" in an amount not

less than one hundred percent (100%) of the Contract amount, covering payment in full for all services rendered, and materials furnished. A one-year Maintenance Bond is also to be provided securing the work for one year from the date of completion and acceptance.

17. INDEMNITY AND INSURANCE

The Contractor shall not commence work under this Contract until he has obtained all insurance required under this paragraph and such insurance has been approved by the Owner and Engineer, nor shall the Contractor allow any subcontractor to commence work on a subcontract until all similar insurance required of the subcontractor has been so obtained and approved.

A. Compensation Insurance

The Contractor shall take out and maintain during the life of this contract, Workmen's Compensation Insurance for all of his employees employed at the site of the project, and in case any work is sublet, the Contract shall require the subcontractor similarly to provide Workmen's Compensation Insurance for all the latter's employees unless such employees are covered by the protection afforded by the Contractor. The Contractor, shall at all times, indemnify and save harmless the Owner, of and from all claims for Workmen's Compensation which may be made by any employee of the Contractor or his subcontractors.

B. The Contractor shall take out and maintain during the life of this Contract such Public Liability and Property Damage Insurance as shall protect him, the Owner, and the Engineer from claims for damages for personal injury, including accidental death, as well as from claims for property damages, which may arise from operations under this Contract, whether such operations be by himself or by any subcontractor or by anyone directly or indirectly employed by either of them. Hazards insured against for property damage liability shall include explosion, collapse, underground object, and blasting to the extent that any such exposure exists. The amounts of such insurance shall be non-deductible and as follows:

1) Public Liability

In an amount not less than \$1,000,000.00 for injuries, including accidental death, to any one person, and subject to the same limit for each person, in an amount not less than \$1,000,000.00 on account of one accident.

2) Property Damage

In an amount not less than \$1,000,000.00, with an aggregate of \$1,000,000.00.

The same limits apply to coverage to be provided on any automobiles or trucks used at the site. The policies shall be written on an occurrence basis.

The Contractor shall indemnify and hold harmless the Owner and the Engineer and their agents and employees from and against all claims, damages, losses, and expenses including attorney's fees arising out of or resulting from the performance of the work, provided that any such claim, damage, loss or expense (a) is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the work itself) including the loss of use resulting therefrom and (b) is caused in whole or in part by any negligent act or omission of the Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder.

In any and all claims against the Owner or the Engineer or any of their agents or employees by any employee of the Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them be liable, the indemnification obligation under this Article shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any subcontractor under workmen's compensation acts, disability benefit acts or other employee benefit acts.

The obligations of the Contractor under this Article shall not extend to the liability of the Engineer, his agents or employees arising out of (a) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications or (b) the giving of or the failure to give directions or instructions by the Engineer, his agents or employees provided such giving or failure to give is the primary cause of injury or damage.

C. Builder's Risk Insurance

The Contractor during the progress of the work and until final acceptance by the Owner upon completion of the entire Contract, shall maintain insurance on all work included in the Contract against loss or damage by fire, lightning, wind, explosion, and those perils covered by extended coverage endorsement and vandalism and malicious mischief on the completed value form, in the names of the Owner and the Contractor as their respective interests may appear in an amount equal to one hundred percent (100%) of the insurable value of each building or structure and materials included in this Contract as shall fully protect the interest of the Owner and the Contractor; the risk of damage to the construction work due to the perils covered by said insurance, as well as any other hazards which might result in damage to the construction work, is that of the Contractor and Surety, and no claims for such loss or damage shall be recognized by the Owner, nor will such loss or damage excuse the complete and satisfactory performance of the Contract by the Contractor.

D. Railroad Protective Liability and Property Damage Insurance

When the Contract includes work on or under railroad rights-of-way, properties, or areas adjacent to the Railroad, the Contractor shall take out and maintain during the life of the Contract, Railroad protective liability and property damage insurance in amounts as requested by the railroads.

The Contractor shall submit certificates or other documentary evidence to the Owner for approval, covering Workmen's Compensation Insurance, and Public Liability and Property Damage Insurance, and Builder's Risk Insurance, and Railroad Protective Liability and Property Damage Insurance if required.

Each certificate or other documentary evidence presented shall contain therein or have contained in a rider attached thereto and made a part thereof, a clause to the effect that the insurer will notify the insured and the Owner in writing five (5) days prior to cancellation of the policy. The certificate for each policy shall be executed in triplicate.

18. CANCELLATION OF CONTRACT

As soon as practicable after the satisfactory execution of the Contract by both parties, written notice to proceed with the work will be given to the Contractor. If such notice is not given within ninety (90) days after Contract execution, and the delay is not caused by the Contractor or accepted by him in writing, the Contract may be declared null and void.

If the Contractor incurs any expense in furtherance of the Contract prior to receipt of the Notice to Proceed, he does so on his own responsibility.

19. COMPLETION TIME AND LIQUIDATED DAMAGES

The Bidder shall understand that the time limit indicated for completion of this Contract shall be **150 (One Hundred Fifty) calendar days** from the "Notice to Proceed", and the amount of liquidated damages to be charged against the Contractor shall be **\$100.00 per day**. The amounts deducted are liquidated damages not penalties.

20. WAGES AND SALARIES

Prevailing wage rates applicable per Pennsylvania Department of Labor & Industry, Bureau of Labor Law Compliance (projects in excess of \$25,000).

21. EQUAL EMPLOYMENT OPPORTUNITY

Attention of Bidders is particularly called to the requirement for insuring that employees and applicants for employment are not discriminated against because of race, color, religion, sex or national origin.

22. RESIDENT WORKMEN

According to Section 754, Public School Code of Pennsylvania, 1949, as amended, laborers and mechanics employed shall have been residents of the Commonwealth of at least 90 days prior to their employment. Failure to comply with this provision shall be sufficient legal reason to refuse payment of the contract price to the Contractor.

23. HUMAN RELATIONS ACT

The provisions of the Pennsylvania Human Relations Act, Act 222 of October 27, 1955 (P.L. 744) (43 P.S. Section 951, et. seq.) of the Commonwealth of Pennsylvania prohibits discrimination because of race, color, religious creed, ancestry, age, sex, national origin, handicap or disability by employer, employment agencies, labor organizations, contractors, and others. The Contractor shall agree to comply with the provisions of this Act, as amended.

24. STANDARD OF QUALITY

The various materials and products specified by name or description are given to establish a standard of quality and of cost for bid purposes. It is not the intent to limit the acceptance to any one material or product specified, but rather to name or describe a material or product as minimum standard that is desired and acceptable. Where proprietary names are used, whether or not followed by the words "or approved equal", that shall be subject to equals only as approved by the Engineer.

25. STEEL PRODUCTS PROCUREMENT ACT

In accordance with Act No. 3 of the 1978 General Assembly of the Commonwealth of Pennsylvania, approved March 3, 1978, if any steel products are to be used or supplied in the performance of the Contract, only steel products produced in the United States as defined therein shall be used or supplied in the performance of the Contract or any subcontracts thereunder.

26. MAINTENANCE BOND

Attention to Bidders is particularly called to the requirement that the Contractor must provide the Owner with a one (1) year maintenance bond in the amount of 100% of the Contract amount upon completion of said project. Said bond shall be in effect for a period of one (1) year from the date indicated on the Certificate of Substantial Completion or as required by Articles 9 and 33 in the General Conditions.

SPECIAL INSTRUCTIONS TO BIDDERS

The following items are incidental to the project:

1. Contractor is to field verify all dimensions and conditions prior to beginning work and report to engineer any defects or discrepancies which may alter the scope of work.
2. Contractor must notify Finleyville Volunteer Fire Department a minimum of ten (10) working days prior to start of the project.
3. Contractor shall be responsible for all defects that occur within one (1) year of application.
4. **PA Wage rates are attached and applicable for projects in excess of \$25,000 per PA Bureau of Law Compliance. Certified Payrolls will be requested for this project.**
5. The structural steel framing of the building to be performed on a 'Design-Build' basis. Contractor to provide certified drawings sealed by a professional engineer of the building frame from supplier. Design is to meet 2018 International Building Code. Wind bracing to meet 2018 International Building Code. All other components of this structure to be constructed as per drawings, details and specifications contained herewithin.
6. Contractor to be advised that civil site work (parking lot, stormwater, etc.) to be performed by others. Coordination with contractor will be required.
7. This project is being funded in part through a grant from The Commonwealth of Pennsylvania Covid-19 ARPA Pandemic Response Grant Program. Terms and Conditions that would apply to this project can be found attached. They regard Contractor Integrity Provisions, Responsibility Provisions, Nondiscrimination/Sexual Harassment, Provisions Concerning the Americans with Disabilities Act, Commonwealth Held Harmless Clause, Right to Know Law, Offset Provision, Applicable Law, and Enhanced Minimum Wage Provisions. A Nondiscrimination/Sexual Harassment signable form can be found later in the bid package and should be submitted prior to any awarding of contract.
8. Contractor shall maintain the highest standards of honesty and integrity during the performance of this contract and shall take no action in violation of state or federal laws or regulations or any other applicable laws or regulations, or other requirements applicable to Contractor or that govern contracting or procurement with the Commonwealth.
9. Contractor shall establish and implement a written business integrity policy, which includes, at a minimum, the requirements of these provisions as they relate to the Contractor activity with the Commonwealth and Commonwealth employees and which is made known to all Contractor employees. Posting these Contractor Integrity Provisions conspicuously in easily-accessible and well-lighted places customarily frequented by employees and at or near where the contract services are performed shall satisfy this requirement.
10. Contractor, its affiliates, agents, employees and anyone in privity with Contractor shall not accept, agree to give, offer, confer, or agree to confer or promise to confer, directly or indirectly, any gratuity or pecuniary benefit to any person, or to influence or attempt to influence any person in violation of any federal or state law, regulation, executive order of the Governor of Pennsylvania, statement of policy, management directive or any other published standard of the Commonwealth in connection with performance of work under this contract, except as provided in this contract.
11. Contractor shall not have a financial interest in any other contractor, subcontractor, or supplier providing services, labor, or material under this contract, unless the financial interest is disclosed to the Commonwealth in writing and the Commonwealth consents to Contractor's financial interest prior to Commonwealth execution of the contract. Contractor shall disclose the financial interest to the Commonwealth at the time of bid or proposal

submission, or if no bids or proposals are solicited, no later than Contractor's submission of the contract signed by Contractor.

12. Contractor certifies to the best of its knowledge and belief that within the last five (5) years Contractor or Contractor Related Parties have not:
 - (i) been indicted or convicted of a crime involving moral turpitude or business honesty or integrity in any jurisdiction;
 - (ii) been suspended, debarred or otherwise disqualified from entering into any contract with any governmental agency;
 - (iii) had any business license or professional license suspended or revoked;
 - (iv) had any sanction or finding of fact imposed as a result of a judicial or administrative proceeding related to fraud, extortion, bribery, bid rigging, embezzlement, misrepresentation or anti-trust; and
 - (v) been, and is not currently, the subject of a criminal investigation by any federal, state or local prosecuting or investigative agency and/or civil anti-trust investigation by any federal, state or local prosecuting or investigative agency.

If Contractor cannot so certify to the above, then it must submit along with its bid, proposal or contract a written explanation of why such certification cannot be made and the Commonwealth will determine whether a contract may be entered into with the Contractor. The Contractor's obligation pursuant to this certification is ongoing from and after the effective date of the contract through the termination date thereof. Accordingly, the Contractor shall have an obligation to immediately notify the Commonwealth in writing if at any time during the term of the contract it becomes aware of any event which would cause the Contractor's certification or explanation to change. Contractor acknowledges that the Commonwealth may, in its sole discretion, terminate the contract for cause if it learns that any of the certifications made herein are currently false due to intervening factual circumstances or were false or should have been known to be false when entering into the contract.

13. Contractor shall comply with the requirements of the Lobbying Disclosure Act (65 Pa.C.S. §13A01 et seq.).
14. When Contractor has reason to believe that any breach of ethical standards as set forth in law, the Governor's Code of Conduct, or these Contractor Integrity Provisions has occurred or may occur, including but not limited to contact by a Commonwealth officer or employee which, if acted upon, would violate such ethical standards, Contractor shall immediately notify the Commonwealth contracting officer or the Office of the State Inspector General in writing.
15. Contractor, by submission of its bid or proposal and/or execution of this contract and by the submission of any bills, invoices or requests for payment pursuant to the contract, certifies and represents that it has not violated any of these Contractor Integrity Provisions in connection with the submission of the bid or proposal, during any contract negotiations or during the term of the contract, to include any extensions thereof. Contractor shall immediately notify the Commonwealth in writing of any actions for occurrences that would result in a violation of these Contractor Integrity Provisions. Contractor agrees to reimburse the Commonwealth for the reasonable costs of investigation incurred by the Office of the

State Inspector General for investigations of the Contractor's compliance with the terms of this or any other agreement between the Contractor and the Commonwealth that results in the suspension or debarment of the Contractor. Contractor shall not be responsible for investigative costs for investigations that do not result in the Contractor's suspension or debarment.

16. Contractor shall cooperate with the Office of the State Inspector General in its investigation of any alleged Commonwealth agency or employee breach of ethical standards and any alleged Contractor non-compliance with these Contractor Integrity Provisions. Contractor agrees to make identified Contractor employees available for interviews at reasonable times and places. Contractor, upon the inquiry or request of an Inspector General, shall provide, or if appropriate, make promptly available for inspection or copying, any information of any type or form deemed relevant by the Office of the State Inspector General to Contractor's integrity and compliance with these provisions. Such information may include, but shall not be limited to, Contractor's business or financial records, documents or files of any type or form that refer to or concern this contract. Contractor shall incorporate this paragraph in any agreement, contract or subcontract it enters into in the course of the performance of this contract/agreement solely for the purpose of obtaining subcontractor compliance with this provision. The incorporation of this provision in a subcontract shall not create privity of contract between the Commonwealth and any such subcontractor, and no third-party beneficiaries shall be created thereby.
17. For violation of any of these Contractor Integrity Provisions, the Commonwealth may terminate this and any other contract with Contractor, claim liquidated damages in an amount equal to the value of anything received in breach of these Provisions, claim damages for all additional costs and expenses incurred in obtaining another contractor to complete performance under this contract, and debar and suspend Contractor from doing business with the Commonwealth. These rights and remedies are cumulative, and the use or non-use of any one shall not preclude the use of all or any other. These rights and remedies are in addition to those the Commonwealth may have under law, statute, regulation, or otherwise.
18. Pursuant to the Act of May 11, 2006 (P.L. 173, No. 43), known as the Prohibition of Illegal Alien Labor on Assisted Projects Act, the Contractor shall not knowingly employ, or knowingly permit any of its subcontractors to knowingly employ, the labor services of an illegal alien on activities funded in whole or in part by a grant or loan issued by an executive agency of the Commonwealth of Pennsylvania.

In the event that the Contractor

(A) knowingly employs, or knowingly permits any of its subcontractors to knowingly employ, the labor services of an illegal alien on activities funded in whole or in part by grants or loans issued by an executive agency of the Commonwealth of Pennsylvania; and

(B) the Contractor or any of its subcontractors may be sentenced under Federal law for an offense involving knowing use of labor by an illegal alien on activities funded in whole or in part by grants or loans issued by an executive agency of the Commonwealth of Pennsylvania.

19. Compliance with the State Contractor Responsibility Program:

For the purpose of these provisions, the term Contractor is defined as any person, including, but not limited to, a bidder, offeror, loan recipient, grantee or lessor, who has furnished or performed or seeks to furnish or perform, goods, supplies, services, leased space, construction or other activity, under a contract, grant, lease, purchase order or reimbursement agreement with the Commonwealth of Pennsylvania (Commonwealth). The term Contractor includes a permittee, licensee, or any agency, political subdivision, instrumentality, public authority, or other public entity in the Commonwealth.

(1) The Contractor certifies, in writing, for itself and its subcontractors required to be disclosed or approved by the Commonwealth, that as of the date of its execution of this Bid/Contract, that neither the Contractor, nor any such subcontractors, are under suspension or debarment by the Commonwealth or any governmental entity, instrumentality, or authority and, if the Contractor cannot so certify, then it agrees to submit, along with its Bid/Contract, a written explanation of why such certification cannot be made.

(2) The Contractor also certifies, in writing, that as of the date of its execution of this Bid/Contract it has no tax liabilities or other Commonwealth obligations, or has filed a timely administrative or judicial appeal if such liabilities or obligations exist, or is subject to a duly approved deferred payment plan if such liabilities exist.

(3) The Contractor's obligations pursuant to these provisions are ongoing from and after the effective date of the Contract through the termination date thereof. Accordingly, the Contractor shall have an obligation to inform the Commonwealth if, at any time during the term of the Contract, it becomes delinquent in the payment of taxes, or other Commonwealth obligations, or if it or, to the best knowledge of the Contractor, any of its subcontractors are suspended or debarred by the Commonwealth, the federal government, or any other state or governmental entity. Such notification shall be made within 15 days of the date of suspension or debarment.

(4) The failure of the Contractor to notify the Commonwealth of its suspension or debarment by the Commonwealth, any other state, or the federal government shall constitute an event of default of the Contract with the Commonwealth.

(5) The Contractor agrees to reimburse the Commonwealth for the reasonable costs of investigation incurred by the Office of State Inspector General for investigations of the Contractor's compliance with the terms of this or any other agreement between the Contractor and the Commonwealth that results in the suspension or debarment of the contractor. Such costs shall include, but shall not be limited to, salaries of investigators, including overtime; travel and lodging expenses; and expert witness and documentary fees. The Contractor shall not be responsible for investigative costs for investigations that do not result in the Contractor's suspension or debarment.

(6) The Contractor may search the current list of suspended and debarred Commonwealth contractors by visiting the eMarketplace website at <http://www.emarketplace.state.pa.us> and clicking the Debarment List tab.

BID FORM

North Bethlehem Township
Municipal Building and Garage

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Bid Recipient

1.01 This Bid is submitted to:

Widmer Engineering Inc., 225 West Crawford Avenue, Connellsville, PA 15425

1.02 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

The Bid will remain subject to acceptance for 60 days after the Bid opening, except if the award is delayed by a required approval of another government agency, the sale of bonds, or the award of a grant, the Owner shall reject all bids or award the contract to the lowest responsible and responsive bidder within one hundred twenty (120) days of the bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER’S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

Addendum No.

Addendum, Date

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

- C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, 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; and (3) Bidder's safety precautions and programs.
- E. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- F. 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.
- G. 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.
- H. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- I. 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.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies 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, 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.

ARTICLE 5 – BASIS OF BID

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

A. BASE BID: MUNICIPAL BUILDING AND GARAGE

Municipal/Garage Facility – Base Bid					
Item #	Description	Quantity	Unit	Unit Price	Total Amount
1	Mobilization	1	LS		
2	Earthwork - To include all excavations necessary for Building Construction and all landscaping/restoration of disturbed areas post-construction.	1	LS		
3	Concrete Footings Steel Structure. Complete with Steel Reinforcement, Granular Backfill, etc. as per Drawings and Specifications	1	LS		
4	Design-Build Steel Framing of Municipal/Garage Building - Complete with all Columns, Beams, Trusses, Joists, Headers, Girts, Purlins, Connections, Bracing, etc. for a complete structural building frame	1	LS		
5	Metal Roof System complete with Insulation, Decking, Soffit, Fascia, Gutters, Downspouts, Snow Guards, Leaders to discharge point. (Color by Owner)	1	LS		
6	Finished Exterior Wall Sections Complete with Insulation, Sheathing, Finished Interior Surfacing, Exterior Siding, Flashing, etc. (Color by Owner)	1	LS		
7	Garage Doors as per schedule (Color by owner) along with door motors	7	EA		
8	Windows in Garage with installation	5	EA		
9	Windows in Municipal Building with installation	8	EA		
10	Exterior Man doors Complete with All Hardware (Color of paint by Owner, Door B)	3	EA		
11	Exterior entrance man door complete with all hardware (Door A)	1	EA		
12	Install 6" of 2B stone, vapor barrier, insulation, and 6" of Concrete floor as per drawing	1	LS		
13	Install Floor/Trench Drains with Connection to Waste Line as shown to Oil/Grease separator	1	LS		
14	Furnish and Install Oil/Grease separator as per drawing	1	LS		

15	In floor heating for garage and office as per drawing	1	LS		
16	Furnish and install 50' ceiling mounted electric cords	4	EA		
17	Furnish and install NO2/CO Sensors/gas monitors as per drawings	2	EA		
18	Provide electrical service for building. Complete with meter to accept overhead wire, electric meter, disconnect, grounding, 400 amp breaker panel, breakers, etc. as per drawings and specifications	1	LS		
19	Installation of Water Meter, 1" burial Copper to building, and Backflow Preventer	1	LS		
20	Plumbing and water lines to building (bathrooms and kitchen) includes fixtures/doors/signage & utility sink in garage and venting	1	LS		
21	10# ABC Fire Extinguishers	10	EA		
22	Framing of Municipal Building, all interior doors, walls and ceiling finishes as per drawings	1	LS		
23	Security window in reception office	1	EA		
24	Furnish and Install wall mounted exhaust fan w/ weather hood, damper and bird screen, and 3 fans in garage	1	LS		
25	Furnish and Install wiring, conduits, and connections for all receptacles and switches, lighting, fire alarms, etc. as per drawings and specifications so as to provide complete electrical system throughout municipal building.	1	LS		
26	Furnish and Install wiring, conduits, and connections for all receptacles and switches, lighting, fire alarms, etc. as per drawings and specifications so as to provide complete electrical system throughout garage.	1	LS		
27	Furnish and install exterior lighting	1	LS		
28	Furnish and install exterior boiler	1	LS		
29	Furnish and install HVAC Mini Splits, including startup (14,000 BTU)	2	EA		
30	Furnish and install HVAC Mini Splits, including startup (9,000 BTU)	2	EA		
31	Furnish and install HVAC Mini Splits, including startup (6,000 BTU)	3	EA		

TOTAL BASE BID AMOUNT: \$ _____ (Digits)

TOTAL BASE BID AMOUNT IN WORDS:

TOTAL BASE BID In submitting this Bid, the Bidder understands that the right is reserved by the NEW Time of Completion

- 5.02 Bidder agrees that the Work will be substantially complete 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.
- 5.03 Bidder accepts the provisions of the Agreement as to liquidated damages.
- 6.03 Time frame is 180 days and \$100/day liquidated damages.

ARTICLE 6 – ATTACHMENTS TO THIS BID

- 6.01 The following documents are submitted with and made a condition of this Bid:
 - A. Required Bid security in the form of a Bid Bond of 10% of Bid Total
 - B. List of Proposed Subcontractors;
 - C. List of Proposed Suppliers;
 - D. List of Project References;
 - E. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;
 - F. Contractor’s License No.: [REDACTED] [or] Evidence of Bidder’s ability to obtain a State Contractor’s License and a covenant by Bidder to obtain said license within the time for acceptance of Bids;
 - G. Required Bidder Qualification Statement with supporting data; and
 - H. Disclosure of Lobbying Activities, Standard Form LLL
 - I. Pennsylvania E-Verification Form
 - J. If bid is from a Partnership, Corporation, or Joint Venture, attach evidence of authority to sign the bid documents

ARTICLE 7 – DEFINED TERMS

- 7.01 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 8 – THE BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

By:
[Signature] _____

[Printed name] _____
(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:
[Signature] _____

[Printed name] _____

Title: _____

Submittal Date: _____

Address for giving notices:

Telephone Number: _____

Fax Number: _____

Contact Name and e-mail address: _____

Bidder's License No.: _____
(where applicable)

CERTIFICATION OF NON-SEGREGATED FACILITIES

The Bidder certifies that he does not maintain or provide for his employees, any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The Bidder certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The Bidder agrees that a breach of this certification will be a violation of the Equal Opportunity Clause in any contract resulting from acceptance of this bid. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or natural origin, because of habit, local custom, or otherwise. The Bidder agrees that (except where he has obtained identical certification from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000.00 which are not exempt from the provisions of the Equal Opportunity Clause, and that he will retain such certifications in his files.

Note: The penalty for making false statements in offers is prescribed in 18 U.S.C. ss 1001.

Date: _____, 2024 _____

Name of Bidder

BY _____

TITLE _____

Official Address:

BID BOND

PROJECT: North Bethlehem Township Municipal Building and Garage

BID DATE: _____

PRINCIPAL
(NAME AND MAILING ADDRESS)

SURETY
(NAME AND MAILING ADDRESS)

KNOW ALL MEN BY THESE PRESENTS that the above-named Principal and Surety are held and firmly bound unto **North Bethlehem Township**, hereinafter called the Owner, in the sum of ten percent (10%) of the Principal's Bid on the above Project, for the payment whereof the Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH THAT:

1) If the Principal's Bid is determined by the Owner to be the successful Bid and the Principal shall qualify as the successful Bidder by meeting the Owner's standards regarding financial responsibility, competency, experience, reputation and quality of previous work, and shall duly execute and deliver the Contract prepared by the Owner for the Project, and provide the required bonds and insurance certificate(s), or

2) If the Principal's Bid is determined by the Owner to be an unsuccessful Bid, and this bond is returned to the Principal,

Then this obligation shall be void and of no effect; otherwise to remain in full force and virtue; and,

PROVIDED FURTHER, that in case of default by the Principal in any respect, action on this Bond may be begun forthwith, and the Principal and Surety, jointly and severally, do hereby authorize the empower any attorney of any Court of Record of Pennsylvania, or elsewhere, to appear for and to enter judgment against them, jointly and severally, for the aforementioned sum, with or without defalcation, with costs of suit, release of errors, without stay of execution and with ten percent (10%) attorney fees added for collection; and waiving inquisition on any real estate and exemption of any property whatsoever, authorizing condemnation of the same and immediate issuance of writ of execution, and releasing and waiving relief from any and all appraisement, stay of execution, or exemption laws of any State, now in force or hereinafter to be passed.

Signed, sealed and delivered this _____ day of _____,
20__.

ATTEST OR WITNESS:

_____(SEAL)
(Name of Principal)

Signature Title

BY _____
Signature Title

ATTEST OR WITNESS:

_____(SEAL)
(Name of Surety)

BY _____
Attorney-in-fact

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

State of _____)
) ss:
County of _____)

_____, being first duly sworn, deposes and says that:

(1) He is _____
(Owner, partner, officer, representative or agent)

of _____, the Bidder that has submitted the attached Bid;

(2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid;

(4) Neither the subcontractor nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Proposal in connection with such Contract or to refrain from submitting a Proposal in connection with such Contract, or has in any manner, directly or indirectly sought by unlawful agreement or connivance with any other Bidder, firm or person to fix the price or prices in said subcontractor's Proposal, or to secure through collusion, conspiracy, connivance, or unlawful agreement or any advantage against the Owner or any persons interested in the proposed Contract; and

(5) The price(s) quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties of interest, including this affiant.

(Signed) _____

Title: _____

Subscribed and sworn to before me
this _____ day of _____,
20____.

(Signed) _____

Title: _____

My Commission Expires: _____

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information he desires.

1. Name of Bidder.
2. Permanent main office address.
3. When organized.
4. If a corporation, where incorporated.
5. How many years have you been engaged in the contracting business under your present firm or trade name?
6. Contracts on hand: (Schedule these, showing amount of each contract and the appropriate anticipated dates of completion.)
7. General character of work performed by your company.
8. Have you ever failed to complete any work awarded to you? If so, where and why?
9. Have you ever defaulted on a contract?
If so, where and why?

10. List the more important projects recently completed by your company, stating the approximate cost for each, and the month and year completed.

11. List your major equipment available for this Contract.

12. Experience in construction work similar in importance to this project.

13. Background and experience of principal members of the organization, including the officers.

14. Credit available: \$_____.

15. Provide Bank reference: _____.

16. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the Owner?_____.

17. The undersigned hereby authorizes and requests any person, firm or corporation to furnish any information requested by the Owner in verification of the recitals comprising the Statement of Bidder's Qualifications.

Dated this _____ day of _____, 20__.

Name of Bidder: _____

By: _____

Title: _____



COMMONWEALTH OF PENNSYLVANIA

PUBLIC WORKS EMPLOYMENT VERIFICATION FORM

Date _____

Business or Organization Name (Employer) _____

Address _____

City _____ State _____ Zip Code _____

Contractor Subcontractor (check one)

Contracting Public Body _____

Contract/Project No _____

Project Description _____

Project Location _____

As a contractor/subcontractor for the above referenced public works contract, I hereby affirm that as of the above date, our company is in compliance with the Public Works Employment Verification Act ('the Act') through utilization of the federal E-Verify Program (EVP) operated by the United States Department of Homeland Security. To the best of my/our knowledge, all employees hired post January 1, 2013 are authorized to work in the United States.

It is also agreed to that all public works contractors/subcontractors will utilize the federal EVP to verify the employment eligibility of each new hire within five (5) business days of the employee start date throughout the duration of the public works contract. Documentation confirming the use of the federal EVP upon each new hire shall be maintained in the event of an investigation or audit.

I, _____, authorized representative of the company above, attest that the information contained in this verification form is true and correct and understand that the submission of false or misleading information in connection with the above verification shall be subject to sanctions provided by law.

Authorized Representative Signature

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project Name:	City of Jeannette - Fire Station Garage
General Description:	Construction of a 3,968 SF fire Station Garage at the intersection of Clay Avenue and 2nd Street
Project Locality	2nd Street, City of Jeannette
Awarding Agency:	City of Jeannette
Contract Award Date:	11/14/2024
Serial Number:	24-09376
Project Classification:	Building
Determination Date:	10/23/2024
Assigned Field Office:	Pittsburgh
Field Office Phone Number:	(412)565-5300
Toll Free Phone Number:	(877)504-8354
Project County:	Westmoreland County

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 24-09376 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Asbestos & Insulation Workers	8/1/2023		\$42.40	\$29.01	\$71.41
Asbestos & Insulation Workers	8/1/2024		\$43.40	\$29.51	\$72.91
Boilermakers	6/1/2016		\$40.90	\$27.61	\$68.51
Bricklayer	12/1/2022		\$36.55	\$24.71	\$61.26
Bricklayer	6/1/2024		\$39.80	\$25.11	\$64.91
Carpenters - Piledriver/Welder	1/1/2023		\$40.63	\$21.22	\$61.85
Carpenters - Piledriver/Welder	1/1/2024		\$42.13	\$21.97	\$64.10
Carpenters - Piledriver/Welder	1/1/2025		\$43.38	\$22.72	\$66.10
Carpenters - Piledriver/Welder	1/1/2026		\$44.63	\$23.47	\$68.10
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2023		\$39.69	\$19.93	\$59.62
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2024		\$41.49	\$19.93	\$61.42
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2025		\$43.34	\$19.93	\$63.27
Cement Mason/Concrete Finisher	6/1/2019		\$31.27	\$19.39	\$50.66
Cement Masons	6/1/2023		\$33.07	\$23.59	\$56.66
Cement Masons	7/1/2024		\$34.57	\$25.09	\$59.66
Drywall Finisher	6/1/2023		\$32.39	\$23.75	\$56.14
Drywall Finisher	6/1/2024		\$34.01	\$24.88	\$58.89
Electricians & Telecommunications Installation Technician	12/22/2023		\$48.61	\$31.80	\$80.41
Electricians & Telecommunications Installation Technician	12/27/2024		\$51.76	\$31.80	\$83.56
Electricians & Telecommunications Installation Technician	12/26/2025		\$55.06	\$31.80	\$86.86
Elevator Constructor	1/1/2023		\$56.14	\$42.83	\$98.97
Elevator Constructor	1/1/2024		\$58.55	\$43.87	\$102.42
Glazier	9/1/2021		\$32.61	\$27.19	\$59.80
Glazier	9/1/2023		\$35.65	\$30.05	\$65.70
Iron Workers	6/1/2023		\$38.89	\$35.02	\$73.91
Iron Workers	6/1/2024		\$39.89	\$36.47	\$76.36
Laborers (Class 01 - See notes)	1/1/2023		\$25.82	\$19.46	\$45.28
Laborers (Class 01 - See notes)	1/1/2024		\$26.82	\$19.46	\$46.28
Laborers (Class 01 - See notes)	1/1/2025		\$27.32	\$19.96	\$47.28
Laborers (Class 01 - See notes)	1/1/2026		\$27.82	\$20.46	\$48.28
Laborers (Class 02 - See notes)	1/1/2023		\$25.97	\$19.46	\$45.43
Laborers (Class 02 - See notes)	1/1/2024		\$26.97	\$19.46	\$46.43
Laborers (Class 02 - See notes)	1/1/2025		\$27.47	\$19.96	\$47.43
Laborers (Class 02 - See notes)	1/1/2026		\$27.97	\$20.46	\$48.43
Laborers (Class 03 - See notes)	1/1/2023		\$28.97	\$19.46	\$48.43
Laborers (Class 03 - See notes)	1/1/2024		\$29.97	\$19.46	\$49.43
Laborers (Class 03 - See notes)	1/1/2025		\$30.47	\$19.96	\$50.43
Laborers (Class 03 - See notes)	1/1/2026		\$30.97	\$20.46	\$51.43
Laborers (Class 04 - See notes)	1/1/2021		\$23.57	\$19.32	\$42.89
Landscape Laborer (Skilled)	1/1/2023		\$23.79	\$18.28	\$42.07

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 24-09376 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Landscape Laborer (Skilled)	1/1/2024		\$24.79	\$18.53	\$43.32
Landscape Laborer (Skilled)	1/1/2025		\$25.79	\$18.78	\$44.57
Landscape Laborer (Skilled)	1/1/2026		\$26.79	\$19.03	\$45.82
Landscape Laborer (Tractor Operator)	1/1/2023		\$24.09	\$18.28	\$42.37
Landscape Laborer (Tractor Operator)	1/1/2024		\$25.09	\$18.53	\$43.62
Landscape Laborer (Tractor Operator)	1/1/2025		\$26.09	\$18.78	\$44.87
Landscape Laborer (Tractor Operator)	1/1/2026		\$27.09	\$19.03	\$46.12
Landscape Laborer	1/1/2023		\$23.37	\$18.28	\$41.65
Landscape Laborer	1/1/2024		\$24.37	\$18.53	\$42.90
Landscape Laborer	1/1/2025		\$25.37	\$18.78	\$44.15
Landscape Laborer	1/1/2026		\$26.37	\$19.03	\$45.40
Millwright	6/1/2020		\$41.68	\$20.32	\$62.00
Operators (Class 01 - see notes)	6/1/2022		\$38.89	\$23.69	\$62.58
Operators (Class 01 - see notes)	6/1/2023		\$40.69	\$23.89	\$64.58
Operators (Class 01 - see notes)	6/1/2024		\$41.69	\$24.39	\$66.08
Operators (Class 02 -see notes)	6/1/2022		\$32.82	\$23.69	\$56.51
Operators (Class 02 -see notes)	6/1/2023		\$34.62	\$23.89	\$58.51
Operators (Class 02 -see notes)	6/1/2024		\$35.62	\$24.39	\$60.01
Operators (Class 03 - See notes)	6/1/2022		\$30.03	\$23.69	\$53.72
Operators (Class 03 - See notes)	6/1/2023		\$31.83	\$23.89	\$55.72
Operators (Class 03 - See notes)	6/1/2024		\$32.83	\$24.39	\$57.22
Painters Class 6 (see notes)	6/1/2022		\$29.50	\$22.82	\$52.32
Painters Class 6 (see notes)	6/1/2023		\$30.56	\$24.01	\$54.57
Painters Class 6 (see notes)	6/1/2024		\$32.14	\$24.93	\$57.07
Painters Class 6 (see notes)	6/1/2025		\$34.16	\$25.81	\$59.97
Pile Driver Divers (Building, Heavy, Highway)	1/1/2023		\$58.70	\$21.22	\$79.92
Pile Driver Divers (Building, Heavy, Highway)	1/1/2024		\$60.95	\$21.97	\$82.92
Pile Driver Divers (Building, Heavy, Highway)	1/1/2025		\$62.82	\$22.72	\$85.54
Pile Driver Divers (Building, Heavy, Highway)	1/1/2026		\$64.70	\$23.47	\$88.17
Piledrivers	1/1/2023		\$39.13	\$21.22	\$60.35
Piledrivers	1/1/2024		\$40.63	\$21.97	\$62.60
Piledrivers	1/1/2025		\$41.88	\$22.72	\$64.60
Piledrivers	1/1/2026		\$43.13	\$23.47	\$66.60
Plasterers	6/1/2022		\$31.44	\$19.74	\$51.18
Plasterers	6/1/2023		\$32.14	\$20.54	\$52.68
Plasterers	6/1/2024		\$33.14	\$21.04	\$54.18
Plumbers and Steamfitters	6/1/2023		\$38.57	\$26.26	\$64.83
Plumbers and Steamfitters	6/1/2024		\$40.02	\$27.01	\$67.03
Plumbers and Steamfitters	6/1/2025		\$41.47	\$27.71	\$69.18
Plumbers and Steamfitters	6/1/2026		\$42.92	\$28.45	\$71.37
Pointers, Caulkers, Cleaners	12/1/2022		\$35.47	\$20.88	\$56.35
Pointers, Caulkers, Cleaners	6/1/2024		\$38.59	\$21.36	\$59.95
Roofers	6/1/2023		\$37.00	\$19.92	\$56.92
Roofers	6/2/2024		\$38.00	\$20.67	\$58.67

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 24-09376 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Sheet Metal Workers	7/1/2022		\$39.50	\$31.43	\$70.93
Sheet Metal Workers	8/1/2023		\$41.00	\$32.94	\$73.94
Sheet Metal Workers	7/1/2024		\$43.00	\$33.96	\$76.96
Sign Makers and Hangars	7/15/2023		\$31.76	\$24.63	\$56.39
Sign Makers and Hangars	7/15/2024		\$32.32	\$25.82	\$58.14
Sprinklerfitters	4/1/2023		\$44.33	\$28.04	\$72.37
Sprinklerfitters	4/1/2024		\$46.45	\$28.62	\$75.07
Steamfitters	6/1/2022		\$44.15	\$27.32	\$71.47
Steamfitters	6/1/2023		\$46.10	\$28.37	\$74.47
Steamfitters	6/1/2024		\$48.15	\$29.57	\$77.72
Stone Masons	12/1/2022		\$38.56	\$23.61	\$62.17
Terrazzo Finisher	12/1/2022		\$36.13	\$18.03	\$54.16
Terrazzo Finisher	6/1/2023		\$39.79	\$18.47	\$58.26
Terrazzo Mechanics	12/1/2022		\$35.49	\$20.32	\$55.81
Terrazzo Mechanics	6/1/2024		\$39.14	\$20.77	\$59.91
Tile Finisher	12/1/2022		\$28.76	\$17.34	\$46.10
Tile Finisher	6/1/2024		\$31.56	\$17.74	\$49.30
Tile Setter	12/1/2022		\$35.64	\$21.81	\$57.45
Tile Setter	6/1/2024		\$38.46	\$22.19	\$60.65
Truckdriver class 1(see notes)	1/1/2023		\$33.18	\$22.21	\$55.39
Truckdriver class 1(see notes)	1/1/2024		\$34.93	\$22.71	\$57.64
Truckdriver class 1(see notes)	1/1/2025		\$36.43	\$23.21	\$59.64
Truckdriver class 1(see notes)	1/1/2026		\$37.93	\$23.71	\$61.64
Truckdriver class 2 (see notes)	1/1/2023		\$33.64	\$22.52	\$56.16
Truckdriver class 2 (see notes)	1/1/2024		\$35.39	\$23.02	\$58.41
Truckdriver class 2 (see notes)	1/1/2025		\$36.89	\$23.52	\$60.41
Truckdriver class 2 (see notes)	1/1/2026		\$38.39	\$24.02	\$62.41
Window Film / Tint Installer	10/1/2019		\$25.00	\$2.63	\$27.63

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 24-09376 - Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Carpenter	1/1/2023		\$38.60	\$20.59	\$59.19
Carpenter	1/1/2024		\$40.10	\$21.34	\$61.44
Carpenter	1/1/2025		\$41.35	\$22.09	\$63.44
Carpenter	1/1/2026		\$42.60	\$22.84	\$65.44
Carpenter Welder	1/1/2023		\$40.10	\$20.59	\$60.69
Carpenter Welder	1/1/2024		\$41.60	\$21.34	\$62.94
Carpenter Welder	1/1/2025		\$42.85	\$22.09	\$64.94
Carpenter Welder	1/1/2026		\$44.10	\$22.84	\$66.94
Carpenters - Piledriver/Welder	1/1/2023		\$40.63	\$21.22	\$61.85
Carpenters - Piledriver/Welder	1/1/2024		\$42.13	\$21.97	\$64.10
Carpenters - Piledriver/Welder	1/1/2025		\$43.38	\$22.72	\$66.10
Carpenters - Piledriver/Welder	1/1/2026		\$44.63	\$23.47	\$68.10
Cement Finishers	1/1/2023		\$34.14	\$25.05	\$59.19
Cement Finishers	1/1/2024		\$35.14	\$26.30	\$61.44
Cement Finishers	1/1/2025		\$35.94	\$27.50	\$63.44
Cement Masons	1/1/2020		\$32.84	\$21.10	\$53.94
Electric Lineman	5/27/2019		\$47.38	\$26.30	\$73.68
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	6/1/2023		\$38.89	\$35.02	\$73.91
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	6/1/2024		\$39.89	\$36.47	\$76.36
Laborers (Class 01 - See notes)	1/1/2023		\$29.95	\$25.50	\$55.45
Laborers (Class 01 - See notes)	1/1/2024		\$32.20	\$25.50	\$57.70
Laborers (Class 01 - See notes)	1/1/2025		\$33.70	\$26.00	\$59.70
Laborers (Class 01 - See notes)	1/1/2026		\$34.70	\$27.00	\$61.70
Laborers (Class 02 - See notes)	1/1/2023		\$30.11	\$25.50	\$55.61
Laborers (Class 02 - See notes)	1/1/2024		\$32.36	\$25.50	\$57.86
Laborers (Class 02 - See notes)	1/1/2025		\$33.86	\$26.00	\$59.86
Laborers (Class 02 - See notes)	1/1/2026		\$34.86	\$27.00	\$61.86
Laborers (Class 03 - See notes)	1/1/2023		\$30.50	\$25.50	\$56.00
Laborers (Class 03 - See notes)	1/1/2024		\$32.75	\$25.50	\$58.25
Laborers (Class 03 - See notes)	1/1/2025		\$34.25	\$26.00	\$60.25
Laborers (Class 03 - See notes)	1/1/2026		\$35.25	\$27.00	\$62.25
Laborers (Class 04 - See notes)	1/1/2023		\$30.95	\$25.50	\$56.45
Laborers (Class 04 - See notes)	1/1/2024		\$33.20	\$25.50	\$58.70
Laborers (Class 04 - See notes)	1/1/2025		\$34.70	\$26.00	\$60.70
Laborers (Class 04 - See notes)	1/1/2026		\$35.70	\$27.00	\$62.70
Laborers (Class 05 - See notes)	1/1/2023		\$31.36	\$25.50	\$56.86
Laborers (Class 05 - See notes)	1/1/2024		\$33.61	\$25.50	\$59.11
Laborers (Class 05 - See notes)	1/1/2025		\$35.11	\$26.00	\$61.11
Laborers (Class 05 - See notes)	1/1/2026		\$36.11	\$27.00	\$63.11
Laborers (Class 06 - See notes)	1/1/2023		\$28.20	\$25.50	\$53.70
Laborers (Class 06 - See notes)	1/1/2024		\$30.45	\$25.50	\$55.95
Laborers (Class 06 - See notes)	1/1/2025		\$31.95	\$26.00	\$57.95
Laborers (Class 06 - See notes)	1/1/2026		\$32.95	\$27.00	\$59.95

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 24-09376 - Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Laborers (Class 07 - See notes)	1/1/2023		\$30.95	\$25.50	\$56.45
Laborers (Class 07 - See notes)	1/1/2024		\$33.20	\$25.50	\$58.70
Laborers (Class 07 - See notes)	1/1/2025		\$34.70	\$26.00	\$60.70
Laborers (Class 07 - See notes)	1/1/2026		\$35.70	\$27.00	\$62.70
Laborers (Class 08 - See notes)	1/1/2023		\$32.45	\$25.50	\$57.95
Laborers (Class 08 - See notes)	1/1/2024		\$34.70	\$25.50	\$60.20
Laborers (Class 08 - See notes)	1/1/2025		\$36.20	\$26.00	\$62.20
Laborers (Class 08 - See notes)	1/1/2026		\$37.20	\$27.00	\$64.20
Millwright	6/1/2023		\$45.50	\$23.72	\$69.22
Millwright	6/1/2024		\$47.59	\$23.72	\$71.31
Millwright	6/1/2025		\$49.72	\$23.72	\$73.44
Operators (Class 01 - see notes)	1/1/2023		\$36.79	\$23.58	\$60.37
Operators (Class 01 - see notes)	1/1/2024		\$38.59	\$24.03	\$62.62
Operators (Class 01 - see notes)	1/1/2025		\$40.39	\$24.23	\$64.62
Operators (Class 02 -see notes)	1/1/2023		\$36.53	\$23.58	\$60.11
Operators (Class 02 -see notes)	1/1/2024		\$38.33	\$24.03	\$62.36
Operators (Class 02 -see notes)	1/1/2025		\$40.13	\$24.23	\$64.36
Operators (Class 03 - See notes)	1/1/2023		\$32.88	\$23.58	\$56.46
Operators (Class 03 - See notes)	1/1/2024		\$34.68	\$24.03	\$58.71
Operators (Class 03 - See notes)	1/1/2025		\$36.48	\$24.23	\$60.71
Operators (Class 04 - See notes)	1/1/2023		\$32.42	\$23.58	\$56.00
Operators (Class 04 - See notes)	1/1/2024		\$34.22	\$24.03	\$58.25
Operators (Class 04 - See notes)	1/1/2025		\$36.02	\$24.23	\$60.25
Operators (Class 05 - See notes)	1/1/2023		\$32.17	\$23.58	\$55.75
Operators (Class 05 - See notes)	1/1/2024		\$33.97	\$24.03	\$58.00
Operators (Class 05 - See notes)	1/1/2025		\$35.77	\$24.23	\$60.00
Operators Class 1-A	1/1/2023		\$39.79	\$23.58	\$63.37
Operators Class 1-A	1/1/2024		\$41.59	\$24.03	\$65.62
Operators Class 1-A	1/1/2025		\$43.39	\$24.23	\$67.62
Operators Class 1-B	1/1/2023		\$38.79	\$23.58	\$62.37
Operators Class 1-B	1/1/2024		\$40.59	\$24.03	\$64.62
Operators Class 1-B	1/1/2025		\$42.39	\$24.23	\$66.62
Painters Class 1 (see notes)	6/1/2022		\$34.45	\$22.82	\$57.27
Painters Class 2 (see notes)	6/1/2023		\$36.01	\$24.01	\$60.02
Painters Class 2 (see notes)	6/1/2024		\$38.09	\$24.93	\$63.02
Painters Class 2 (see notes)	6/1/2025		\$40.36	\$25.81	\$66.17
Painters Class 3 (see notes)	6/1/2023		\$38.33	\$24.01	\$62.34
Painters Class 3 (see notes)	6/1/2024		\$40.66	\$24.93	\$65.59
Painters Class 3 (see notes)	6/1/2025		\$43.69	\$25.81	\$69.50
Painters Class 4 (see notes)	6/1/2019		\$28.20	\$20.06	\$48.26
Painters Class 5 (see notes)	6/1/2019		\$22.91	\$20.06	\$42.97
Pile Driver Divers (Building, Heavy, Highway)	1/1/2023		\$58.70	\$21.22	\$79.92
Pile Driver Divers (Building, Heavy, Highway)	1/1/2024		\$60.95	\$21.97	\$82.92
Pile Driver Divers (Building, Heavy, Highway)	1/1/2025		\$62.82	\$22.72	\$85.54

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 24-09376 - Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Pile Driver Divers (Building, Heavy, Highway)	1/1/2026		\$64.70	\$23.47	\$88.17
Piledrivers	1/1/2023		\$39.13	\$21.22	\$60.35
Piledrivers	1/1/2024		\$40.63	\$21.97	\$62.60
Piledrivers	1/1/2025		\$41.88	\$22.72	\$64.60
Piledrivers	1/1/2026		\$43.13	\$23.47	\$66.60
Steamfitters (Heavy and Highway - Gas Distribution)	5/1/2022		\$48.43	\$40.28	\$88.71
Truckdriver class 1(see notes)	1/1/2023		\$33.18	\$22.21	\$55.39
Truckdriver class 1(see notes)	1/1/2024		\$34.93	\$22.71	\$57.64
Truckdriver class 1(see notes)	1/1/2025		\$36.43	\$23.21	\$59.64
Truckdriver class 1(see notes)	1/1/2026		\$37.93	\$23.71	\$61.64
Truckdriver class 2 (see notes)	1/1/2023		\$33.64	\$22.52	\$56.16
Truckdriver class 2 (see notes)	1/1/2024		\$35.39	\$23.02	\$58.41
Truckdriver class 2 (see notes)	1/1/2025		\$36.89	\$23.52	\$60.41
Truckdriver class 2 (see notes)	1/1/2026		\$38.39	\$24.02	\$62.41

DISCLOSURE OF LOBBYING ACTIVITIES

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352

Approved by OMB

0348-0046

(See reverse for public burden disclosure.)

1. Type of Federal Action: <input type="checkbox"/> a. contract <input type="checkbox"/> b. grant <input type="checkbox"/> c. cooperative agreement <input type="checkbox"/> d. loan <input type="checkbox"/> e. loan guarantee <input type="checkbox"/> f. loan insurance	2. Status of Federal Action: <input type="checkbox"/> a. bid/offer/application <input type="checkbox"/> b. initial award <input type="checkbox"/> c. post-award	3. Report Type: <input type="checkbox"/> a. initial filing <input type="checkbox"/> b. material change For Material Change Only: year _____ quarter _____ date of last report _____
4. Name and Address of Reporting Entity: <input type="checkbox"/> Prime <input type="checkbox"/> Subawardee Tier _____, if known: Congressional District, if known: 4c	5. If Reporting Entity in No. 4 is a Subawardee, Enter Name and Address of Prime: Congressional District, if known:	
6. Federal Department/Agency:	7. Federal Program Name/Description: CFDA Number, if applicable: _____	
8. Federal Action Number, if known:	9. Award Amount, if known: \$	
10. a. Name and Address of Lobbying Registrant (if individual, last name, first name, MI):	b. Individuals Performing Services (including address if different from No. 10a) (last name, first name, MI):	
11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.	Signature: _____ Print Name: _____ Title: _____ Telephone No.: _____ Date: _____	
Federal Use Only:		Authorized for Local Reproduction Standard Form LLL (Rev. 7-97)

INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered Federal action. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.
2. Identify the status of the covered Federal action.
3. Identify the appropriate classification of this report. If this is a followup report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.
4. Enter the full name, address, city, State and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
5. If the organization filing the report in item 4 checks "Subawardee," then enter the full name, address, city, State and zip code of the prime Federal recipient. Include Congressional District, if known.
6. Enter the name of the Federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.
8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitation for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Include prefixes, e.g., "RFP-DE-90-001."
9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.
10. (a) Enter the full name, address, city, State and zip code of the lobbying registrant under the Lobbying Disclosure Act of 1995 engaged by the reporting entity identified in item 4 to influence the covered Federal action.

(b) Enter the full names of the individual(s) performing services, and include full address if different from 10 (a). Enter Last Name, First Name, and Middle Initial (MI).
11. The certifying official shall sign and date the form, print his/her name, title, and telephone number.

According to the Paperwork Reduction Act, as amended, no persons are required to respond to a collection of information unless it displays a valid OMB Control Number. The valid OMB control number for this information collection is OMB No. 0348-0046. Public reporting burden for this collection of information is estimated to average 10 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, DC 20503.

**TOWNSHIP OF NORTH BETHLEHEM
WASHINGTON COUNTY, PENNSYLVANIA**

**MUNICIPAL BUILDING AND GARAGE
PROJECT NO. 24808**

ADDENDUM NUMBER ____

DATE _____

All Contractors who may be bidding on the work under this Contract shall read and observe this Addendum and any future Addenda.

Every Bidder shall note that while certain requirements in this Addendum may be specifically noted as applying to a particular page, section, and/or plan in the Contract Documents, such changes shall apply also to any other page, section, and/or plan where the change is relevant.

All Contractors who are bidding on this work shall take cognizance of the revisions, changes, additions, or deletions shown in this and future Addenda and shall provide for the same in their Bid. **PLEASE ACKNOWLEDGE RECEIPT OF THIS ADDENDUM ON THE BID PROPOSAL.**

Please be advised of the following changes:

WIDMER ENGINEERING INC.

**Steven E Eby
Project Manager**

NOTICE OF AWARD

Date of Issuance:

Owner: North Bethlehem Township Owner's Contract No.:
Engineer: Widmer Engineering Inc. Engineer's Project No.: 24808
Project: Municipal Building and Garage Contract Name:

Bidder:

Bidder's Address:

TO BIDDER:

You are notified that Owner has accepted your Bid dated [_____] for the above Contract, and that you are the Successful Bidder and are awarded a Contract for: North Bethlehem Township Municipal Building and Garage Project. The Contract Price of the awarded Contract is: \$ _____

1. [_____] unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically.

a set of the Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

1. Deliver to Owner [_____] counterparts of the Agreement, fully executed by Bidder.
2. Deliver with the executed Agreement(s) the Contract security [*e.g., performance and payment bonds*] and insurance documentation as specified in the Instructions to Bidders and General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any):

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner: North Bethlehem Township	Bidder:
Authorized Signature	Authorized Signature
Signature:	Signature:
By: Rick Cross	By:
Title: Council President	Title:

Copy: Engineer

AGREEMENT

THIS AGREEMENT, made this _____ day of _____ 20____, by and between the North Bethlehem Township, hereinafter called OWNER, and _____, doing business as a Corporation hereinafter called "CONTRACTOR".

WITNESSETH, that the OWNER and the CONTRACTOR mutually agree to the following:

1. The CONTRACTOR, for and in consideration of the payment herein specified and agreed to by the OWNER hereby covenants and agrees to furnish and deliver all the materials and to do and perform all the work, labor and other services necessary for the construction and completion of the PROJECT as described herein.

The OWNER will pay the CONTRACTOR for the performance of the AGREEMENT, in current funds, subject to additions and deductions as provided in the GENERAL CONDITIONS of the CONTRACT AGREEMENT, the sum of _____

(\$ _____).

The Contract Documents prepared by Widmer Engineering Inc., hereinafter called ENGINEER, are made part of this AGREEMENT.

2. The PROJECT location and description being situated as follows:

WE #24808– North Bethlehem Township
Municipal Building and Garage
Washington County, PA

The work includes the construction of a municipal building with a garage per bid drawings and specifications. The project is located at 1 Ontario Road, Scenery Hill, PA. 15360.

3. The CONTRACTOR further covenants and agrees that all work shall be performed in the best and most workmanlike manner. He also agrees that all materials furnished and labor performed shall be in strict and complete conformity in every respect, with all parts of this AGREEMENT and shall be subject to the inspection and acceptance of authorized representatives of the OWNER. In the event that any portion of the work (including materials supplied pursuant thereto) performed by the CONTRACTOR is rejected by the authorized representatives as defective, unsuitable, or unacceptable, the CONTRACTOR agrees to remove and replace all such rejected portions of work in conformance with this AGREEMENT and to the satisfaction of and at no expense to the OWNER. The CONTRACTOR further covenants that prompt payment will be made in full for all labor and materials used in the performance of work on this PROJECT.
4. The CONTRACTOR covenants and agrees that all work (including, but not limited to, all labor performed and all materials supplied) on this PROJECT shall be performed and completed to the satisfaction of the OWNER on or before the expiration of **one hundred eighty (180) calendar days** after written Notice to Proceed with work has been given by the OWNER. If for any reason, except as provided in the GENERAL CONDITIONS, the CONTRACTOR fails to complete all work on this PROJECT to the satisfaction of the ENGINEER within the aforementioned time allowed, the OWNER shall deduct from any sums due or which may become due the CONTRACTOR **one hundred dollars (\$100.00)** for each calendar day used in excess of the aforementioned number of days allowed, or, in

case a completion date is fixed, for each calendar day elapsing between the completion date and the actual date of completion. If no sums are due the CONTRACTOR, the CONTRACTOR agrees to remit to the OWNER the aforementioned sum for each day used in excess of the time allowed for completion of the PROJECT. The amounts deducted or remitted under this paragraph are liquidated damages not penalties.

5. The CONTRACTOR further covenants and warrants that he has had sufficient time to examine the site of the project to determine the conditions to be encountered; that he is fully aware and knows of the conditions to be encountered; and that he has based the BID PROPOSAL prices on his own independent examination and investigation of the project site and conditions, and has not relied on any subsurface information furnished to him by the OWNER, or its agents or its consultants.
6. The CONTRACTOR shall not do any work (including, but not limited to, the supply of labor and/or materials) not covered by the CONTRACT DOCUMENTS, unless such work has been authorized in writing by the ENGINEER. In no event shall the CONTRACTOR incur any liability by reason of refusing to obey any verbal directions or instructions that he might be given to perform additional or extra work. Likewise, the OWNER will not be liable for any work performed as additional or extra work, unless such work is required of the CONTRACTOR in writing by the ENGINEER. All such work which might have been performed by the CONTRACTOR without such written order first being given shall be at the CONTRACTOR'S risk, cost and expense, and the CONTRACTOR hereby covenants and agrees compensation for such unauthorized work.
7. It is further distinctly agreed that the CONTRACTOR shall not assign this AGREEMENT, or any part thereof, nor any right to any sums to be paid him hereunder, nor shall any part of the work to be done or material furnished under this AGREEMENT be sublet, without the consent in writing of the OWNER.
8. The OWNER will pay to the CONTRACTOR in the manner at such times as set forth in the GENERAL CONDITIONS such amounts as required by the CONTRACT DOCUMENTS. When a BID PROPOSAL is made on a Lump Sum Basis, the CONTRACTOR agrees to submit, to the ENGINEER, a detailed breakdown of costs to serve as a basis of estimate for periodic payment during construction.
9. It is also agreed and understood that the acceptance of the final payment by the CONTRACTOR shall be considered as a release in full of all claims against the OWNER arising out of, or by reason of, the work done and materials furnished under this AGREEMENT.
10. In order to secure proper and complete compliance with the terms and provisions of this AGREEMENT, the CONTRACTOR shall provide a bond in a sum equal to one hundred percent (100%) of the contract price of the work to be done. The CONTRACTOR shall also secure an additional bond in the same amount for the prompt payment in full for all labor and materials supplied in performing work on this PROJECT. The CONTRACTOR shall also secure an additional bond in the same amount for maintenance of the completed project for a period of one (1) year from the date of final acceptance by the OWNER. All bonds are attached hereto.
11. The CONTRACTOR in undertaking the work to be performed under the terms of this AGREEMENT, covenants and agrees to comply with the required contract provisions set forth in the Nondiscrimination Clause which is attached.

12. The term "CONTRACT DOCUMENTS" means and includes the following:
- (a) ADVERTISEMENT FOR BIDS
 - (b) INSTRUCTIONS TO BIDDERS
 - (c) SPECIAL INSTRUCTIONS TO BIDDERS
 - (d) BID PROPOSAL
 - (e) CERTIFICATION OF NON-SEGREGATED FACILITIES
 - (f) BID BOND
 - (g) NON-COLLUSION AFFIDAVIT OF PRIME BIDDER
 - (h) STATEMENT OF BIDDER'S QUALIFICATIONS
 - (i) WAGE RATES (if any)
 - (j) ADDENDA (if any)
 - (k) NOTICE OF AWARD
 - (l) AGREEMENT
 - (m) NONDISCRIMINATION CLAUSE
 - (n) STIPULATION AGAINST LIENS
 - (o) AFFIDAVIT RE: ACCEPTING PROVISIONS OF THE WORKMAN'S COMPENSATION ACT
 - (p) PERFORMANCE BOND
 - (q) LABOR AND MATERIAL PAYMENT BOND
 - (r) DETAILED BREAKDOWN OF LUMP SUM BID (if any)
 - (s) NOTICE TO PROCEED
 - (t) APPLICATION AND CERTIFICATE FOR PAYMENT
 - (u) CONTINUATION SHEET
 - (v) CHANGE ORDER(S) (if any)
 - (w) CERTIFICATE OF SUBSTANTIAL COMPLETION
 - (x) MAINTENANCE BOND
 - (y) GENERAL CONDITIONS
 - (z) **TECHNICAL SPECIFICATIONS AND DRAWINGS, PREPARED BY THE ENGINEER**
13. The CONTRACTOR agrees to execute and record a STIPULATION AGAINST LIENS in the form provided herewith prior to commencement of any work required thereby, or the acquisition of any materials therefor.
14. This AGREEMENT, including all CONTRACT DOCUMENTS, shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this AGREEMENT in **three (3) copies** each of which shall be deemed an original on the date first above written.

ATTEST:

Name_____

Title_____

OWNER:

By _____

Name_____

Title_____

(SEAL)

ATTEST:

CONTRACTOR:

Name_____

Name_____

Title_____

Address_____

(SEAL)

(Use only when Contractor is a Corporation)

Certification:

I, _____, certify that I am the _____ of the Corporation named as CONTRACTOR herein; that _____ who signed this AGREEMENT on behalf of the CONTRACTOR, was the _____ of said Corporation; that said AGREEMENT was duly signed for and in behalf of said Corporation by authority of its governing body, and is within the scope of its corporate powers.

(Corporate Seal)

Title:_____

NONDISCRIMINATION/SEXUAL HARASSMENT CLAUSE

During the term of the Contract, the Recipient agrees as follows:

1. In the hiring of any employee(s) for the manufacture of supplies, performance of work, or any other activity required under the grant agreement or any subgrant agreement, contract, or subcontract, the Recipient, a subrecipient, a contractor, a subcontractor, or any person acting on behalf of the Recipient shall not discriminate in violation of the *Pennsylvania Human Relations Act* (PHRA) and applicable federal laws against any citizen of this Commonwealth who is qualified and available to perform the work to which the employment relates.
2. The Recipient, any subrecipient, contractor or any subcontractor or any person on their behalf shall not in any manner discriminate in violation of the PHRA and applicable federal laws against or intimidate any of its employees.
3. The Recipient, any subrecipient, contractor or any subcontractor shall establish and maintain a written nondiscrimination and sexual harassment policy and shall inform their employees of the policy. The policy must contain a provision that sexual harassment will not be tolerated and employees who practice it will be disciplined. Posting this Nondiscrimination/Sexual Harassment Clause conspicuously in easily-accessible and well-lighted places customarily frequented by employees and at or near where the grant services are performed shall satisfy this requirement.
4. The Recipient, any subgrantee, contractor or any subcontractor shall not discriminate in violation of the PHRA and applicable federal laws against any subgrantee, contractor, subcontractor or supplier who is qualified to perform the work to which the grant relates.
5. The Recipient and each subrecipient, contractor and subcontractor represents that it is presently in compliance with and will maintain compliance with all applicable federal, state, and local laws and regulations relating to nondiscrimination and sexual harassment. The Grantee and each subgrantee, contractor and subcontractor further represents that it has filed a Standard Form 100 Employer Information Report ("EEO-1") with the U.S. Equal Employment Opportunity Commission ("EEOC") and shall file an annual EEO-1 report with the EEOC as required for employers subject to *Title VII of the Civil Rights Act of 1964*, as amended, that have 100 or more employees and employers that have federal government contracts or first-tier subcontracts and have 50 or more employees. The Grantee, any subgrantee, any contractor or any subcontractor shall, upon request and within the time periods requested by the Commonwealth, furnish all necessary employment documents and records, including EEO-1 reports, and permit access to

their books, records, and accounts by the granting agency and the Bureau of Small Business Opportunities (BSBO), for the purpose of ascertaining compliance with the provisions of this Nondiscrimination/Sexual Harassment Clause.

6. The Recipient, any subrecipient, contractor or any subcontractor shall include the provisions of this Nondiscrimination/Sexual Harassment Clause in every subgrant agreement, contract or subcontract so that those provisions applicable to subrecipients, contractors or subcontractors will be binding upon each subrecipient, contractor or subcontractor.
7. The Recipient's and each subrecipient's, contractor's and subcontractor's obligations pursuant to these provisions are ongoing from and after the effective date of the grant agreement through the termination date thereof. Accordingly, the Recipient and each subrecipient, contractor and subcontractor shall have an obligation to inform the Commonwealth if, at any time during the term of the grant agreement, it becomes aware of any actions or occurrences that would result in violation of these provisions.
8. The Commonwealth may cancel or terminate the grant agreement and all money due or to become due under the grant agreement may be forfeited for a violation of the terms and conditions of this Nondiscrimination/Sexual Harassment Clause. In addition, the granting agency may proceed with debarment or suspension and may place the Recipient, subrecipient, contractor, or subcontractor in the Contractor Responsibility File.

Contractor Name:

Signature: _____ Date: _____

Project Name:

STIPULATION AGAINST LIENS

<p>North Bethlehem Township OWNER</p> <p style="text-align: center;">VS.</p> <p>Contractor</p>	<p>)</p> <p>)</p> <p>)</p> <p>)</p> <p>)</p> <p>)</p> <p>)</p> <p>)</p>	<p>IN THE COURT OF COMMON PLEAS OF _____ COUNTY, PENNSYLVANIA</p> <p>NO. _____ MECHANICS LIEN DOCKET</p>
--	---	--

WHEREAS, the above-said Owner is about to execute contemporaneously herewith a contract with the above-said Contractor, for the construction of WE #24808 – Municipal Building and Garage as required by the Contract Documents.

NOW THEREFORE, _____ 20__, at the time of and immediately before the execution of the Contract and before any authority has been given by the said Owner, to the said Contractor to commence work on the said project or purchase of materials for the same, in consideration of the making of the said Contract with the Contractor and for the further consideration of one dollar (\$1.00) paid to the said Contractor by the said Owner, it is agreed that no mechanic's claims or other liens shall be filed against the Project or the estate or title of Owner in the System or any part thereof, or the appurtenances thereto by the said Contractor nor any subcontractor, nor by any of the materialmen or workmen or any person for any materials or labor or extra materials or labor purchased or furnished in connection with the construction of the said project or any part thereof, the right to file such claims of liens being expressly waived and relinquished herewith.

(SEAL)

North Bethlehem Township

ATTEST:

BY _____

TITLE _____

CONTRACTOR

(SEAL)

ATTEST:

BY _____

TITLE _____

AFFIDAVIT RE:

ACCEPTING PROVISIONS OF THE WORKMAN'S COMPENSATION ACT

State of _____

SS:

County of _____

(Name of Officer, if Corporation)

(Title of Officer, if Corporation)

(Name of Contractor)

being duly sworn according to law deposed and says that he/they/it has/have accepted the provisions of the Workmen's Compensation Act of 1915 of the Commonwealth of Pennsylvania, with its supplements and amendments, and has/have insured his/their/its liability thereunder in accordance with the terms of said Act with _____ Company.

(Contractor)

Signature of Officer or Agent

SWORN to and subscribed before me this _____ day of _____, 20__.

(Notary Public)

My Commission Expires:

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that we, _____

as Principal, and _____

as Surety, are held and firmly bound unto the Finleyville VFD, its certain attorney, successors, or assigns (hereinafter called Obligee) in the sum of _____

(\$ _____) lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, personal representatives, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, said Principal has entered into a certain contract with said Obligee, dated _____, (hereinafter called the Contract) for WE #24808 – North Bethlehem Township Municipal Building and Garage, which Contract and Specifications for said work shall be deemed a part thereof as fully as if set out herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH that if the Principal shall faithfully perform the contract on his part as of the time and in the manner therein provided and satisfy all claims and demands incurred in or for the same, or growing out of the same, or for injury or damages to persons or property in the performance thereof, and shall fully indemnify and save harmless the said Obligee from any and all cost and damage which the said Obligee may suffer by reason of the Principal's failure to do so, and shall fully reimburse and repay the said Obligee any and all outlay and expense shall be null and void, otherwise it shall remain in full force and virtue.

The said Surety for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to the work to be performed thereunder or the Specifications accompanying the same, shall in any wise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time alteration or addition to the terms of the Contract or to the work or to the Specifications.

SIGNED, SEALED, AND DELIVERED IN THREE (3) ORIGINAL COUNTERPARTS this _____ day of _____, 20__.

Witness:

(Individual Principals sign here)

Title: _____ (SEAL)

Title: _____ (SEAL)

Title: _____ (SEAL)

Title: _____ (SEAL)

Attest:

(Corporate Principal sign here)

By _____

Title: _____

By: _____

Title: _____ (SEAL)

(Surety sign here)

BY: _____

Title: _____ (SEAL)

The rate of the premium charged is \$_____ per thousand.

The total amount of the premium charges is \$_____.

(The above must be filled in by the Corporate Surety.)

It is hereby further stipulated and agreed that if the Principal is non-Pennsylvania corporation neither Principal nor the Surety shall be discharged from liability on this bond, nor the bond surrendered, until such Principal files with the Obligee a certificate from the Pennsylvania Department of Revenue evidencing the payment in full of all taxes, penalties and interest, and a certificate from the Bureau of Employment and Unemployment Compensation of the Pennsylvania Department of Labor and Industry, evidencing the payment of all unemployment compensation contributions, penalties and interest due the Commonwealth of Pennsylvania from the said Principal, or any non-Pennsylvania corporation subcontractor thereunder, or for which liability has accrued, but the time for has not arrived as required by the Act of June 10, 1947, P.O. 493, 8 P.S. Sec. 23, amended.

LABOR AND MATERIAL PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, that we, _____
 _____, as Principal, and
 _____, as Surety, are
 held and firmly bound unto the Finleyville Volunteer Fire Department, its certain attorney, successors, or
 assigns (hereinafter called Obligee) in the sum of _____
 (\$_____) lawful money of the United States, for the payment of which sum well and truly to
 be made, we bind ourselves, our heirs, personal representatives, successors and assigns, jointly and
 severally, firmly by these presents.

WHEREAS, said Principal has entered into a certain contract with said Obligee, dated _____,
 hereinafter called the Contract, for **WE #24808 – North Bethlehem Township Municipal Building and Garage**,
 which Contract and Specifications for said work shall be deemed a part thereof as fully as if set out herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH that if said Principal and all
 subcontractors to whom any portion of the work provided for in said Contract is sublet and all assignees of
 said Principal and of such subcontractors shall promptly make payment for all material furnished, labor
 supplied or performed, rental for equipment employed, and services rendered by public utilities in or in
 connection with the prosecution of the work, whether or not the said material, labor, equipment or services
 enter into and become component parts of the work or improvement contemplated in said Contract, or in
 any amendment or extension of or addition to said Contract, then the above obligation shall be void;
 otherwise to remain in full force and effect. PROVIDED, however, that his bond is subject to the following
 conditions and limitations.

- (a) All person who have performed labor, rendered services or furnished materials or machinery, shall have direct right of action against the Principal and Surety on this bond, which right of action shall be asserted in proceedings instituted in the State in which such labor was performed, services rendered or materials furnished (or where labor has been performed, services rendered or materials furnished under said Contract in more than one state, then in any such state). Insofar as permitted by the laws of such state, such right of action shall be asserted in a proceeding instituted in the name of the Obligee to the use and benefit of the person instituting such action and any or all other persons having claims hereunder, and any other person having claims hereunder shall have the right to be made party to such proceeding (but no later than two years after the complete performance of said Contract and final settlement thereof) and to have such claim adjudicated in such action and judgment rendered thereon.
- (b) The Surety shall not be liable hereunder for any damages or compensation recoverable under any workmen's compensation or employer's liability status.
- (c) In no event shall this Surety be liable for a greater sum than the penalty of this bond, or subject to any suit, action or proceeding thereon that is instituted later than two years after the complete performance of said Contract and final settlement thereof.
- (d) As used herein: The term "person" refers to any individual firm or corporation who has furnished materials or machinery or public utility services to be used on or incorporated in the work or the prosecution thereof provided for in said Contract or in any amendment or extension or addition to said Contract, and/or to any person engaged in the prosecution of the work provided for in said

Contract or in any amendment or extension of or addition to said Contract who is an agent, servant or employee of the Principal or of any subcontractor, or of any assignee of said Principal or of any subcontractor and also anyone so engaged who performs the work of a laborer or of a mechanic regardless of any subcontractor, or any assignees of said Principal or of said subcontractor, and such laborer or mechanic, but shall not include office employees not regularly stationed at the site of the work.

The said Surety for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to the work to be performed thereunder or the Specifications accompanying the same, shall in any wise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time alteration or addition to the terms of the Contract or to the work or to the Specifications.

SIGNED, SEALED, AND DELIVERED IN THREE (3) ORIGINAL COUNTERPARTS this _____ day of _____, 20__.

Witness:

(Individual Principals sign here)

Title: _____ (SEAL)

Title: _____ (SEAL)

Title: _____ (SEAL)

Title: _____ (SEAL)

Attest:

(Corporate Principal sign here)

By _____

Title: _____

By: _____

Title: _____ (SEAL)

(Surety sign here)

BY: _____

Title: _____ (SEAL)

The rate of the premium charged is \$ _____ per thousand.

The total amount of the premium charges is \$ _____.

(The above must be filled in by the Corporate Surety.)

It is hereby further stipulated and agreed that if the Principal is non-Pennsylvania corporation neither Principal nor the Surety shall be discharged from liability on this bond, nor the bond surrendered, until such Principal files with the Obligee a certificate from the Pennsylvania Department of Revenue evidencing the payment in full of all taxes, penalties and interest, and a certificate from the Bureau of Employment and Unemployment Compensation of the Pennsylvania Department of Labor and Industry, evidencing the payment of all unemployment compensation contributions, penalties and interest due the Commonwealth of Pennsylvania from the said Principal, or any non-Pennsylvania corporation subcontractor thereunder, or for which liability has accrued, but the time for has not arrived as required by the Act of June 10, 1947, P.O. 493, 8 P.S. Sec. 23, amended.

NOTICE TO PROCEED

Owner:	North Bethlehem Township	Owner's Contract No.:	
Contractor:		Contractor's Project No.:	
Engineer:	Widmer Engineering Inc.	Engineer's Project No.:	24808
Project:	Municipal Building and Garage	Contract Name:	
		Effective Date of Contract:	

TO CONTRACTOR:

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on [_____, 20__]. *[See Paragraph 4.01 of the General Conditions]*

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work shall be done at the Site prior to such date. In accordance with the Agreement, [the date of Substantial Completion is _____, and the date of readiness for final payment is _____], **or** [the number of days to achieve Substantial Completion is _____, and the number of days to achieve readiness for final payment is _____].

Before starting any Work at the Site, Contractor must comply with the following:
[Note any access limitations, security procedures, or other restrictions]

Owner:	North Bethlehem Township	Bidder:	
By:	Authorized Signature Rick Cross	Authorized Signature	
Title:	Council President	Title:	
Date Issued:		Date Received:	

Copy: Engineer

APPLICATION AND CERTIFICATION FOR PAYMENT

TO (OWNER): PROJECT: APPLICATION NO: 1 Distribution to:
 North Bethlehem Township Municipal Building and Garage OWNER
 2178 E National Pike Training Facility PERIOD TO: ENGINEER
 Scenery Hill, Pa 15360 VIA (ENGINEER): Widmer Engineering Inc. CONTRACTOR
 FROM: VIA (ENGINEER): ENGINEER'S PROJECT NO: WE #24808

CONTRACT FOR: Finleyville Volunteer Fire Department CONTRACT DATE:

CONTRACTOR'S APPLICATION FOR PAYMENT

CHANGE ORDER SUMMARY		
Change Orders approved in	ADDITIONS	DEDUCTIONS
TOTAL		
Approved this Month		
Number	Date Approved	
TOTALS		
Net change by Change Orders		

The undersigned Contractor certifies that to the best of the contractor's knowledge, information and belief the work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payment received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:
 By: _____ Date: _____

Application is made for Payment, as shown below, in connection with the Contract. Continuation Sheet is attached.

1. ORIGINAL CONTRACT SUM	\$ _____
2. Net change by Change Orders	\$ _____
3. CONTRACT SUM TO DATE (Line 1±2)	\$ _____
4. TOTAL COMPLETED & STORED TO DATE	\$ _____
(Column G on Continuation Sheet)	
5. RETAINAGE:	
a. 10 % of Complete Work	\$ 0.00
(Column D+E on Continuation Sheet)	
b. % of Stored Material	\$ _____
Total Retainage (Line 5a+5b or	
Total in Column I on Continuation Sheet)	
6. TOTAL EARNED LESS RETAINAGE	\$ 0.00
(Line 4 less Line 5 Total)	
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)	\$ _____
8. CURRENT PAYMENT DUE	\$ 0.00
9. BALANCE TO FINISH, PLUS RETAINAGE	\$ 0.00
(Line 3 less Line 6)	

State of: _____ County of: _____
 Subscribed and sworn to before me this _____ day of _____, 20____
 Notary Public:
 My Commission expires: _____

ENGINEER'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising the above application, the Engineer certifies to the Owner that to the best of the Engineer's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED \$ _____
 (Attach explanation if amount certified differs from the amount applied for.)
 ENGINEER:

Owner: _____ Date: _____

By: _____ Date: _____
 This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

CONTINUATION SHEET

APPLICATION AND CERTIFICATE FOR PAYMENT, containing Contractor's signed Certification is attached.

APPLICATION NUMBER: 1

APPLICATION DATE:

In tabulations below, amounts are stated to the nearest dollar.

PERIOD TO:

Use Column I on Contracts where variable retainage for line items may apply.

ENGINEER'S PROJECT NO: WE #25678

A	B	C	D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G÷C)	BALANCE TO FINISH (C-G)	RETAINAGE
			FROM PREVIOUS APPLICATION (D+E)	THIS PERIOD					
1									
2									
3									
4									

CHANGE ORDER

OWNER
ENGINEER
CONTRACTOR
FIELD
OTHER

PROJECT:
(name, address)

CHANGE ORDER NUMBER: 1

TO (Contractor)

<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

ENGINEER'S PROJECT NO: WE #24808

CONTRACT FOR:

CONTRACT DATE:

You are directed to make the following changes in this Contract:

The original Contract Sum was	\$	
Net Change by previous Change Orders	\$	
The Contract Sum prior to this Change Order was	\$	
The Contract Sum will be (increased)(decreased)(unchanged) by this Change Order	\$	
The new Contract Sum including this Change Order will be	\$	
The Contract Time will be (increased)(decreased)(unchanged) by		(0) Days
The Date of Completion as of the date of this Change Order therefore is		

ENGINEER

CONTRACTOR

OWNER

Address

Address

Address

BY _____

BY _____

BY _____

DATE _____

DATE _____

DATE _____

CERTIFICATE OF SUBSTANTIAL COMPLETION

OWNER
ARCHITECT
CONTRACTOR
FIELD
OTHER

PROJECT:
(name, address)

ENGINEER: Widmer Engineering Inc.

ENGINEER'S PROJECT NUMBER: WE #24808

TO (Owner):

CONTRACTOR:

CONTRACT FOR:

CONTRACT DATE:

DATE OF ISSUANCE:

PROJECT OR DESIGNATED PORTION SHALL INCLUDE:

The Work performed under this Contract has been reviewed and found to be substantially complete. The date of Substantial Completion of the Project or portion thereof designated above is hereby established as _____ which is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below.

DEFINITION OF DATE OF SUBSTANTIAL COMPLETION

The Date of Substantial Completion of the Work or designated portion thereof is the Date certified by the Engineer when construction is sufficiently complete, in accordance with the Contract Documents, so the Owner can occupy or utilize the Work or designated portion thereof for the use for which it is intended, as expressed in the Contract Documents

A list of items to be completed or corrected, prepared by the Contractor and verified and amended by the Engineer, is attached hereto. 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. The date of commencement of warranties for items on the attached list will be the date of final payment unless otherwise agreed to in writing.

Widmer Engineering Inc.

ENGINEER

BY

DATE

The Contractor will complete or correct the Work on the list of items attached hereto within _____ days from the above Date of Substantial Completion.

CONTRACTOR

BY

DATE

The Owner accepts the Work or designated portion thereof as substantially complete and will assume full possession thereof at _____ (time) on _____ (date).

OWNER

BY

DATE

The responsibilities of the Owner and the Contractor for security, maintenance, heat, utilities, damage to the Work and insurance shall be as follows:

(Note--Owner's and Contractor's legal and insurance counsel should determine and review insurance requirements and coverage; Contractor shall secure consent of surety company, if any.)

MAINTENANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that we, _____,
 as Principal, and _____,
 as Surety, are held and firmly bound unto the Finleyville Volunteer Fire Department, (hereinafter
 called _____ the _____ Obligee), _____ the _____ sum
 of _____ Dollars
 (\$ _____), for payment of which sum will and truly be made, we bind
 ourselves, our heirs, administrators, executors, successors and assigns, jointly and severally, firmly
 by these presents:

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas said Principal has entered into a
 certain Contract, hereto attached, with said Obligee dated _____, 20____,
 for WE #24808-North Bethlehem Township Municipal Building and Garage.

NOW, THEREFORE, if the Principal shall remedy without cost to the Obligee any defects which
 develop during a period of one (1) year from the date of completion and acceptance of the work
 performed under said Contract provided such defects, in the judgment of the Obligee or his
 successor having jurisdiction in the premises, are caused by defective inferior materials or
 workmanship, then this obligation shall be void; otherwise it shall remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their
 several seals this _____ day of _____, 20____, the name and corporate
 seal of each corporate party being hereto affixed and these presented duly signed by its
 undersigned representative, pursuant to authority of its governing body.

Witness:	(Individual Principals sign here)
_____	_____
	Title: _____(SEAL)
_____	_____
	Title: _____(SEAL)
_____	_____
	Title: _____(SEAL)
_____	_____
	Title: _____(SEAL)

Attest:

(Corporate Principal sign here)

By _____

Title: _____

By: _____

Title: _____ (SEAL)

(Surety sign here)

BY: _____

Title: _____ (SEAL)

The rate of the premium charged is \$ _____ per thousand.

The total amount of the premium charges is \$ _____.

(The above must be filled in by the Corporate Surety.)

GENERAL CONDITIONS

1. CONTRACT DOCUMENTS

All of the Contract Documents are complementary, and the requirements of any one shall be considered as the requirements of all.

- A. In the event the Contractor discovers any discrepancy in the Contract Documents, the matter shall immediately be submitted to the Engineer, whose decision therein shall be final. The Contractor will not be held responsible for the discovery of such discrepancies, but any work done on the item involved after such discovery, and prior to authorization by the Engineer, will be done at the Contractor's risk.
- B. In case of any discrepancy between scaled dimensions and figures, figured dimensions shall govern. In case any work dimension is not given on the Drawings, the Contractor shall obtain the figure from the Engineer. In no case shall the Contractor determine such dimensions by scaling the Drawings.
- C. Deviations from the Contract Documents required by the exigencies of construction shall be determined by the Engineer only and authorized in writing.
- D. Supplemental detailed drawings and instructions shall be furnished by the Engineer when and as he determines that such drawings and instructions are required for successful completion of the Project.
- E. Unless otherwise provided, the Contractor will be furnished two (2) copies of the Contract Documents free of charge, with additional copies, if required, being furnished at cost.
- F. At all times, the Contractor shall keep on the Project Site, available to the Engineer and his representatives, one (1) copy of the Contract Documents.

2. ENGINEER'S STATUS DURING CONSTRUCTION

The Engineer shall be the Owner's representative during the construction period. All instructions of the Owner to the Contractor shall be issued through the Engineer. The duties and responsibilities and the limitations of authority of the Engineer as the Owner's representative during construction are set forth in these General Conditions and shall not be extended without written consent of the Owner and Engineer.

The Engineer will make periodic visits to the site 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. He will not be required to make exhaustive or continuous on-site inspections to check the quality of the work nor will he be responsible for the construction means, methods, techniques, sequences or procedures, or the safety precautions incident thereto. His efforts will be directed toward providing assurance for the Owner that the completed Project will conform to the requirements of the Contract Documents, but he will not be responsible for the Contractor's failure to perform the work in accordance with the Contract Documents. On the basis of his on-site observations as an experienced and qualified design professional, he will keep the Owner informed of the progress of the work and will endeavor to guard the Owner against defects and deficiencies in the work of contractors.

The Engineer will have authority to disapprove of or reject work, which is defective; i.e., it is unsatisfactory, faulty or defective, or does not conform to the requirements of the Contract Documents or does not meet the requirements of any inspection, test or approval. He will also have authority to require special inspection or testing of the work, whether or not the work is fabricated, installed or completed.

If the Owner and Engineer agree, the Engineer will provide one or more full time Resident Project Representatives to assist the Engineer in carrying out his responsibilities at the site.

Neither the Engineer's authority to act under this Article nor any decision made by him in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of the Engineer to the Contractor, any subcontractor, any of their agents or employees or any other person performing any of the work.

3. ENGINEER'S INTERPRETATIONS AND DECISIONS

The Engineer will issue with reasonable promptness such written clarifications or interpretations (in the form of drawings or otherwise) as he may determine necessary for the proper execution of the work, such clarifications and interpretations to be consistent with or reasonably inferable from the overall intent of the Contract Documents. If the Contractor believes that a written clarification and interpretation entitles him to an increase in the Contract Price, he may make a claim therefore as provided in Article 27.

The Engineer will be the initial interpreter of the terms and conditions of the Contract Documents and the judge of the performance thereunder. In his capacity as interpreter and judge he will exercise his best efforts to insure faithful performance by both the Owner and the Contractor. He will not show partiality to either and shall not be liable for the result of any interpretation or decision rendered in good faith. Claims, disputes and other matters relating to the execution and progress of the work or the interpretation of or performance under the Contract Documents shall be referred initially to the Engineer for decision, which he shall render in writing within a reasonable time.

Either the Owner or the Contractor may demand arbitration with respect to any such claim, dispute or other matter that has been referred to the Engineer, except any which have been waived by the making or acceptance of final payment, such arbitration to be in accordance with Article 5. However, no demand for arbitration of any such claim, dispute or other matter shall be made until the earlier of (a) the date on which the Engineer has rendered his decision or (b) the tenth day after the parties have presented their evidence to the Engineer if he has not rendered his written decision before that date. No demand for arbitration shall be made later than thirty days after the date on which the Engineer rendered his written decision in respect of the claim, dispute or other matter as to which arbitration is sought, and the failure to demand arbitration within said thirty days' period shall result in the Engineer's decision being final and binding upon the Owner and the Contractor. If the Engineer renders a decision after arbitration proceedings have been initiated, such decision may be entered as evidence but shall not supersede the arbitration proceedings, except where the decision is acceptable to the parties concerned.

4. ORDER OF WORK: USE OF COMPLETED PORTIONS

The Contractor shall complete any portion or portions of the work in such order of time and shall direct the application of forces to any portion of the work, as in the judgment of the Engineer is required. The Owner shall have the right to take possession of and use any completed or partially completed portions of the work even though the time for completing

the entire work or such portions may not have expired, but such taking possession and use shall not be deemed as acceptance of that portion of work by the Owner.

5. ARBITRATION

All decisions of the Engineer shall be final except in cases involving time or financial considerations, which, if no agreement regarding such cases is reached, shall be subject to arbitration. The demand for and procedure of arbitration, and the selection of arbitrators shall conform to the practice recommended by the Joint Conference on Standard Construction Contracts, as set forth in the "Standard General Conditions for Engineering Construction", issued by said Joint Conference.

6. ENGINEERING STAKES

Unless otherwise indicated in other sections of the Contract Documents, the Contractor shall furnish, set and maintain without cost to the Owner, suitable stakes, grade boards, temporary structures, templates and other materials for establishing and maintaining points, marks, and lines, and shall furnish the Engineer with such assistance as he may require in checking such points, marks, or lines and in checking measurements necessary in the prosecution of the work.

The Contractor shall be held responsible for the preservation of all stakes and marks.

7. DEFECTIVE WORK

When any material not conforming to the requirements of the Contract Documents has been delivered upon the site of the Project or incorporated in the work, or when any work performed is of inferior quality, such material or work shall be considered as defective and shall be immediately removed and renewed or made satisfactory as directed by the Engineer, at the expense of the Contractor. Failure or neglect on the Engineer, to condemn or reject any bad or inferior work or materials shall not be construed to imply an acceptance of such work or materials, if such bad or inferior material or work becomes evident at any time prior to the final acceptance of the work and the release of the Contractor by the Owner; nor shall it be construed as barring the Owner at any subsequent time from the recovery of damage in such sum of money as may be needed to build anew all portions of the work in which fraud was practiced or improper materials hidden, whenever found.

The Contractor shall remove at his own expense any work or material condemned, and shall rebuild and replace the same without extra charge, or in case the Engineer should not consider the defect of sufficient importance to require the Contractor to rebuild or replace any imperfect work or material, he shall have the power and is hereby authorized to make an equitable deduction from the stipulated price.

The Contractor shall promptly move from the premises all materials condemned by the Engineer as failing to conform to the Contract Documents whether incorporated in the structure or not, and the Contractor shall promptly replace his own work in accordance with the Contract and without expense to the Owner, and shall bear the expense of making good all work of other contractors destroyed or damaged by such removal or replacement.

If the Contractor does not remove such condemned work and materials within a reasonable time, fixed by written notice, or if materials previously condemned and removed from the site of the work are subsequently found at the same or other site of work, the Owner may remove them and may store the material at the expense of the Contractor. If

the Contractor does not pay the expenses of such removal within ten (10) days thereafter, the Owner may, upon ten (10) days written notice, deduct all the costs and expenses of such removal from any monies that may be due the Contractor.

8. MATERIALS

- A. The Contractor shall furnish the Engineer, promptly after the award or execution of the Contract, with a complete statement of the origin, composition and manufacture of all materials to be used in the construction of the Project. Only materials conforming to the requirements of the Contract Documents and approved by the Engineer shall be used in the work.
- B. Representative preliminary samples of the materials, of the character and quality prescribed in the Contract Documents, shall be submitted when indicated or directed, for advance examination or test, and written approval of the quality of such samples shall be received by the Contractor prior to obtaining materials from the respective sources of supply.
- C. Samples of all materials requiring laboratory tests shall be taken under the direction or supervision of, or in the manner prescribed by the Engineer, and such materials shall not be used until accepted as the result of such tests, and then only so long as the quality of the material remains equal to that of the accepted sample. The acceptance at any time of any material shall not be a bar to its future rejection if it is subsequently found to be defective or inferior in quality of uniformity to the material specified.
- D. Required laboratory tests of materials shall be made by a testing laboratory or agency selected or approved by the Engineer and in accordance with the methods indicated herein. When standard specifications and serial numbers of technical societies and associations are stipulated, the reference shall be construed to be the latest of such specifications and serial numbers.
- E. The Contractor shall be responsible for payment for all laboratory tests, mill inspection and tests conducted by the testing laboratory or agency at the shops or mills of the producers.
- F. For tests or inspections conducted by, and at the option of, the Engineer, at sites other than the testing laboratory and not under the jurisdiction thereof, the Contractor, without cost to the Owner, shall furnish all material, labor, tools, and equipment, and every facility for the verification of the accuracy of all scales, measures and testing equipment, necessary for such tests or inspections.
- G. The Contractor shall permit or arrange with the producer to permit the Engineer or any agent of the testing laboratory to inspect or test any and all material being used or to be used, at any time before, during or after its preparation, or while being used during the progress of the work or after the work has been completed.
- H. Materials shall be stored so as to insure preservation of their specified quality and fitness for the work. When considered necessary, they shall be placed on wooden platforms or other hard and clean surfaces, and not on the ground, and shall be placed under cover when directed. Stored materials shall be located so as to facilitate prompt inspection. Private property shall not be used for storage purposes without permission of the Owner or lease of the property.

- I. If any material intended for use in the construction of this Project has been inspected and rejected after such materials have been delivered to the Site, all such rejected material shall be immediately removed from the property by the Contractor.

9. EQUIPMENT AND MACHINERY

All apparatus, mechanisms, equipment, machinery and manufactured articles for incorporation in the work shall be the new and unused standard products of recognized reputable manufacturers.

Unless otherwise specifically provided in the Contract Documents, all workmanship, equipment, materials, and articles incorporated in the work covered by this Contract are to be of the highest quality and grade of their type. Whenever in the Contract Documents, any material, article, device, product, fixture, form, type of construction, or process is indicated or specified by patent or proprietary name, by name of the manufacturer, or by catalog number, such shall be deemed to be used for the purpose of establishing a standard and shall be deemed to be followed by the words "or approved equal."

Where the Contractor desires to use a non-specified item or method, which is considered to be an "approved equal" to the item or method specified, the approval of the Engineer must be obtained. The Engineer shall be the sole judge as to the quality of the item or method proposed by the Contractor.

All equipment and machinery, and parts and assemblies thereof, entering into the work shall be tested as specified. Unless waived in writing by the Engineer all field and operating tests shall be made in the presence of the Engineer or his authorized representative. When such a waiver is issued, sworn statements in duplicate of the tests made and the results thereof shall be furnished to the Engineer by the Contractor or manufacturer. Costs of all tests and trials, with the exception of the Engineer's expenses, shall be borne by the Contractor and shall be included in the Contract Price. Inspections or tests of apparatus, machinery, or equipment shall be made at the option of the Engineer at the point of production, manufacturer, installation or shipment.

Unless otherwise provided in the Agreement all machinery and equipment, parts and assemblies thereof to be furnished and installed by the Contractor, shall be guaranteed against defective materials and workmanship by the Contractor for a period of one (1) year from the date indicated on the Certificate of Substantial Completion. In the event of failure of any part or parts during the period specified, due to the above causes, the affected part or parts shall be replaced by the Contractor promptly upon notice of the Owner. In the event of failure of prompt replacement by the Contractor, such replacement may be made by the Owner at the Contractor's expense.

10. OBSERVANCE OF LAWS

The Contractor shall at all times observe and comply with all Federal and State laws and local by-laws, ordinances and regulations in any manner affecting the conduct of the work or applying to employees on the Project, as well as all orders or decrees which have been promulgated or enacted, or which may be promulgated or enacted, by any legal bodies or tribunals having authority or jurisdiction over the work, materials, equipment, employees or the Contract.

11. REGULATIONS OF THE DEPARTMENT OF LABOR AND INDUSTRY

Special attention is drawn to the regulations of the State Department of Labor and Industry relating to trenches and excavations, tunnel construction, equipment, materials, labor, safety, sanitation, and other regulations on which the Contractor shall be fully informed and with which he shall fully comply.

The Contractor shall receive no additional compensation for sheeting, bracing and shoring, or other work or materials required on his part solely for the purpose of conforming to the regulations of the State Department of Labor and Industry. Observance of and compliance with said regulations shall be solely and without qualification the responsibility of the Contractor, without reliance or superintendence of or direction by the Owner or Engineer.

12. SANITARY CONVENIENCES

Sanitary conveniences complying with the regulations of the State Health Department or other bodies having jurisdiction therewith, shall be provided for the use of the workmen, and their exclusive use strictly enforced.

13. PERMITS AND LICENSES

With the exception of Pennsylvania Department of Transportation, Pennsylvania Department of Environmental Resources, and Railroad crossing permits, which will be obtained by the Owner, the Contractor shall procure all necessary permits and licenses, pay all charges and fees, therefore, and shall give all notices necessary and incident to the proper and lawful prosecution of the work. The cost thereof shall be included in the prices bid for the various items scheduled in the Proposal.

Where work is to be done by the Contractor in placing any pipe or other construction under or within the right-of-way of the Pennsylvania Department of Transportation, Pennsylvania Department of Environmental Resources or railroad company, the Contractor shall be guided by the requirements of the agency or company involved, and shall consult with the officials thereof, relative to the installation. If the agency or railroad company requires any of their personnel to be on hand for supervisory duties in connection with the work, all charges relative to payment for such services shall be borne by the Contractor.

14. PATENTS AND ROYALTIES

The Contractor agrees to indemnify and save harmless the Owner from all suits or actions of every nature and description brought against him, for or on account of the use of patented appliances, products, or processes, or the infringement of any patent, trademark, or copy-right, and the Contractor shall pay all royalties and license fees in connection therewith.

15. NO WAIVER OF LEGAL RIGHTS

Neither the Owner nor the Engineer shall be precluded or stopped by any measurements, estimate or certificate made or given by them or by their agents or employees, under any provisions or provision of the Contract at any time, either before or after the completion and acceptance of the work and payment thereof pursuant to any measurements, estimate or certificate, from showing the true and correct amount and character of the work performed and materials furnished by the Contractor or from showing at any time, that any such measurement, estimate or certificate is untrue or incorrectly made in any particular,

or that the work or materials or any part thereof, do not conform in fact to the Contract Documents. The Owner shall have the right to reject the whole or any part of the aforesaid work or materials, should the said measurements, estimate, certificate of payments be found, or be known to be inconsistent with the terms of the Contract, or otherwise improperly given, and the Owner shall not be precluded and stopped, notwithstanding any such measurements, estimate, certificate and payment in accordance therewith and from demanding and recovering from the Contractor or his Surety such damages as the Owner may sustain by reason of the Contractor's failure to comply with the terms of the Contract Documents or on account of any overpayment made on any estimate or certificate. Neither the acceptance by the Owner, the Engineer, or any of their agents or employees, nor any certificate by the Owner for payments of money, nor any payments for, or acceptance of the whole or any part of the work by the Owner or Engineer, nor any extension or remission of time, nor any possession taken by the Owner or his employees shall operate as a waiver of any portion of the Contract or any power herein reserved by the Owner, or any right to damages herein provided, nor shall any waiver of any breach of the Contract be held to be a waiver of any other or subsequent breach. All remedies provided in this Contract shall be taken and construed as cumulative; that is, in addition to each and every other remedy provided.

16. CARE OF PUBLIC AND PRIVATE PROPERTY

The Contractor shall take all necessary precaution to prevent damage to all overhead and underground structures and to protect and preserve property within or adjacent to the Project and shall be responsible for damage thereto. Special care must be used by the Contractor in the prosecution of the work in order to avoid interference or damage to any operating utilities or plants. However, where there is a possibility of such interference or damage, the Contractor shall make satisfactory arrangements with responsible officers or with the Owners of the utilities or plants, covering the necessary precautions to be used as safeguards during the performance of the work by the Contractor.

Such arrangement shall be made before work is started and shall be subject to the approval of the Engineer which approval will not be considered as releasing the Contractor from any responsibility for the acts of himself or his employees or representatives. The Contractor shall protect all land monuments and property markers, which will be affected by the construction until they have been correctly referenced. Monuments and markers, which are disturbed by the Contractor during the construction of the Project or otherwise, shall be satisfactorily reset by him at his expense when and as directed. The Contractor shall make good any damage or injury to public or private property and shall promptly make restitution for, or proceed to repair or otherwise restore such damage or injury to property as may be deemed necessary by the Engineer. The Contractor will be held responsible for the protection of or damage done to trees to be left standing and if any are damaged, the Contractor shall have them promptly repaired at his own expense by a qualified tree surgeon, or replaced as required.

17. PRELIMINARY INSPECTION

Unless the requirement is waived by the Engineer, prior to the start of actual construction operations, the Contractor or his authorized representative shall go over the project accompanied by the Engineer or his designated representative and shall observe for himself, with the approved Drawings before him, all pertinent conditions relative to the Contract, including the status of rights-of-way and structures, obstructions, or other objects to be removed, altered or changed.

18. SAFETY AND PROTECTION: EMERGENCIES

The Contractor will be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work. He will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury or loss to:

- A. All employees on the work and other persons who may be affected thereby.
- B. All the work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and
- C. Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

The Contractor will comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. He will erect and maintain, as required by the conditions and progress of the work, all necessary safeguards for safety and protection, including posting danger signs and other warnings against hazards and promulgating safety regulations. He will notify owners of adjacent utilities when prosecution of the work may affect them. When the use or storage of explosives or other hazardous materials is necessary for the prosecution of the work, the Contractor will exercise the utmost care and will carry on such activities under the supervision of properly qualified personnel. All damage, or loss to any property referred to above caused, directly or indirectly, in whole or in part, by the Contractor, any subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, will be remedied by the Contractor, except damage or loss attributable to the fault or drawings or specifications or to the acts or omissions of the Owner or the Engineer or anyone employed by either of them or for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor.

The Contractor will designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This person shall be in the Contractor's superintendent unless otherwise designated in writing by the Contractor to the Owner and the Engineer.

In emergencies affecting the safety of persons or the work or property at the site or adjacent thereto, the Contractor, without special instruction or authorization from the Engineer or Owner, is obligated to act, at his discretion, to prevent threatened damage, injury or loss. He will give the Engineer prompt written notice of any significant changes in the work or deviations from the Contract Documents caused thereby, and a Change Order shall thereupon be issued covering the changes and deviations involved. If the Contractor believes that additional work done by him in an emergency, which arose from causes beyond his control, entitles him to an increase in the Contract Price or an extension of the Contract Time, he may make a claim therefore, as provided in Article 27.

19. VIOLATION OF CONTRACT

The Owner, upon written notice from the Engineer, or other satisfactory proof, and after having given written notice to the Contractor and his Surety of delay, neglect, or default on the part of the Contractor, shall have full power and authority, without violating the

Contract, to declare the Contractor in default on any of the following counts:

- A. Failure to begin work within the time specified in the Notice to Proceed;
- B. Failure to perform the work with sufficient properly skilled workmen and/or proper equipment, or with sufficient materials to insure the completion of said work in accordance with the terms of the Contract;
- C. Neglect or refusal to remove materials or perform anew such work as may be rejected as defective or unsuitable;
- D. Halting prosecution of the work without approval of the Engineer;
- E. Insolvency or bankruptcy, or committing any act of bankruptcy or insolvency;
- F. Allowing a final judgment to stand unsatisfied for a period of forty-eight (48) hours;
- G. Making an assignment for the benefit of creditors;
- H. Failure or refusal, within ten (10) days after written notice, by the Owner, to make payment or show cause why payment should not be made, of any amounts due for labor or materials;
- I. Failure to protect, repair, or make good any damage or injury to property as provided in Article 16;
- J. If a receiver or liquidator shall be appointed for the Contractor or for any of his property and shall not be dismissed within twenty (20) days after such appointment or the proceedings in connection therewith shall not be stayed on appeal within the said twenty (20) days after such appointment;
- K. If the Contractor shall refuse or fail to prosecute the work or any part thereof with such diligence as will insure its completion within the period herein specified (or any duly authorized extension thereof) or shall fail to complete the work within said period; or
- L. If the Contractor should fail or refuse to regard laws, ordinances or the instruction of the Engineers, or otherwise be guilty of a substantial violation of any provisions of this Contract;
- M. If the Contractor should fail to maintain the Insurance required under Article 17 of the Instructions to Bidders for the life of the Contract.

After the Owner has declared the Contractor in default, and given him three (3) days written notice, the Owner shall have authority to take the prosecution of the work out of the hands of the Contractor, and appropriate or use any materials and equipment of the Contractor assembled for the Project, and may enter into a contract for the completion of the work.

Should the Owner elect to take the prosecution of the work out of the hands of the Contractor, the Owner may at its option, notify and require the Surety to complete the Contract according to Contract terms, or the Owner may, at its option, complete the Contract with its own forces, in which case the Owner may take all right, title and interest in and to the equipment and materials owned by the Contractor and assembled for use in the execution of the Contract.

If the completion of the Contract by any of the methods described above results in financial loss to the Owner, the Owner may dispose of any of the remaining equipment and materials taken over without further legal processes. Any equipment or materials not required for completion or recoupment of loss or for legal charges against the Contract, or any balance remaining from the disposition of materials and equipment, after deducting losses by the Owner, shall be turned over to the party legally or equitably entitled thereto.

20. CONTRACTOR'S RIGHT OF TERMINATION

If, after Notice to Proceed is given, the work is stopped by order of the Owner for a continuous period of sixty (60) days for any cause other than weather conditions or any act of the Contractor, the Contractor shall have the right to terminate this Contract after seven (7) days' written notice to the Owner of such action, provided that order to resume work is not issued by the Owner within such period of seven (7) days. Failure by the Owner to make payment to the Contractor within fifteen (15) days after expiration of the time allowed for such payment by the Contract Documents shall give the Contractor the right to suspend work until payment is made, or at his option, after seven (7) days' notice in writing, should the Owner, continue in default, to terminate this Contract. The Owner shall be barred from making any claim against the Contractor for delay in completion of the work due to the suspension or failure to pay.

In the event of such Contract termination, the Contractor shall be paid as provided in the Contract for all work done and completed in accordance therewith and he shall also be paid, as determined by the Engineer for all extra costs incurred by him due to termination of the Contract, but shall not be paid any amount for loss of anticipated profit on any work not done or not completed.

21. RESPONSIBILITY OF CONTRACTOR

The Contractor shall be responsible for the entire Project determined by the Contract Documents, from the date of the starting of the work until it is accepted as evidence by approval of the Completion Certificate by the Owner. He shall be responsible for removals, and replacements due to action of the elements and all other causes except as otherwise provided in the Contract Documents. The Contractor shall keep the Contract under his own control and it shall be his responsibility to see that the work is properly supervised and carried on faithfully and efficiently. The Contractor shall supervise the work personally or shall have a competent superintendent or representative, who shall be on the site of the Project at all working hours to receive orders and directions from the Engineer and who shall be clothed with full authority by the Contractor to execute such orders without delay and make arrangements for all necessary materials, equipment and labor.

Renewals or repairs necessitated because of defective materials or workmanship, or due to action of the elements or other natural causes, including fire and flood, prior to the acceptance as determined by the Completion Certificate, shall be done anew in accordance with the Contract Documents at the expense of the Contractor.

22. CONTRACT TIME

The Contract time for completion of the work based either upon consecutive calendar days or a definite calendar date, shall be as specified in the Agreement.

If a number of calendar days is specified, Sundays and legal holidays shall not be included

in the computation of the number of consecutive calendar days used in completion of the Contract.

On the basis either of calendar days or of date of completion, in computing the time spent in the execution of the work, no allowance will be made for days or parts of days on which work was suspended or delayed in consequence of an act or omission, such as the non-delivery of materials, or breakdowns of equipment, or failure of the Contractor to obtain or employ sufficient labor or equipment to prosecute the work, or other such reasons or causes which are the responsibility of the Contractor.

Adjustments or extensions of the calendar days or the date of completion will be granted only as hereinafter specified.

If the Engineer in writing suspends the work wholly or in part, as set forth in Article 24 of this Section, but not for reasons, which are the responsibility of the Contractor, the time for completion of the work may be extended by the Engineer. After such suspension of work has expired the Contractor shall have a sufficient time to complete the work remaining to be done, at the rate of progress originally determined by the Owner for the performance of the work and extension of contract item may be made accordingly. In the event working time is extended as aforesaid, such action shall not be construed as relieving the Contractor from his responsibility for lack of satisfactory progress prior to such suspension period. In the event the working time is extended as aforesaid and the Contractor was ahead of the schedule, as estimated by the Engineer, at the time work was suspended, due credit will be given for such advanced progress in computing the extension.

If the Contractor shall be delayed in the completion of the work by reason of unforeseeable or inevitable causes beyond his responsibility, without his fault or negligence, the period specified for completion of the work may be extended by such time as shall be determined by the Engineer, provided that application for extension be made, in writing by the Contractor, not later than two (2) weeks following the dates for which said extension is claimed.

The question of whether or not there is a justifiable cause for granting an extension of time as herein provided shall be determined by the Engineer on the basis of the conditions encountered or leading to such causes. No additional payment will be allowed for damage to or reconstruction of work, previously performed by the Contractor, by or on account of such causes. No extensions of time shall be deemed a waiver by the Owner of any obligations of the Contractor under the terms of the Contract nor as relieving the Contractor from full responsibility thereunder.

Suspension of work due to unsuitable weather or unfavorable conditions will be considered as valid causes for extension of the contract working time, with written approval of the Engineer.

23. LIQUIDATED DAMAGES

For each calendar day, with the exception of Sundays and legal holidays, that any work shall remain uncompleted after the time specified for the completion of the work provided for by the Agreement, the sum per calendar day specified in the Agreement, shall be deducted by the Owner from monies due the Contractor, not as a penalty but as liquidated damages. Extensions may be made by the Engineer, at his discretion, over the period specified for the completion of the work, for causes for which the Contractor is not responsible and which must delay the completion of the work, and in such case the

Contractor shall become liable for liquidated damages for delays commencing from the date on which the extended period shall expire.

Liquidated damages when charged as provided herein, shall be deducted from the Final Estimate amount payable to the Contractor or his Surety. If the total amount chargeable as liquidated damages exceeds the amount payable to the Contractor or the Surety, then such excess shall be paid to the Owner by the Contractor or his Surety.

24. TEMPORARY SUSPENSION OF WORK

The Engineer shall have authority to suspend the work wholly or in part, due to unsuitable weather, or such other conditions as are considered unfavorable for the suitable prosecution of the work, or due to the failure on the part of the Contractor to carry out orders given or to perform any provisions of the Contract, or due to unforeseen conditions which had not been provided for in estimating the Contract time required for completion of the work. No claim for damages or loss of profit may be advanced by the Contractor by reason for such temporary suspension.

If the Engineer suspends the work in part, he shall have authority to direct the Contractor to perform such other parts or items of work which, in his opinion, may be performed with favorable results and advantageously for the time of completion of the Project, and shall notify the Contractor accordingly in writing.

If it should become necessary to suspend work for a sustained or an indefinite period, the Contractor shall store all materials satisfactorily, and he shall take every precaution to prevent damage or deterioration of the work performed. The Contractor shall resume work after such suspension upon written notice from the Engineer. All of the work outlined in this article shall be performed at the Contractor's expense.

25. CONTRACTOR'S SUPERVISION AND SUPERINTENDENCE

The Contractor will supervise and direct the work efficiently and with his best skill and attention. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction. Before undertaking the work he will carefully study and compare the Contract Documents and check and verify all figures shown thereon and all field measurements. He will at once report in writing to the Engineer any conflict, error or discrepancy which he may discover. The Contractor will be responsible to see that the finished work complies accurately with the Contract Documents.

The Contractor will keep on the work at all times during its progress a resident superintendent satisfactory to the Engineer. The superintendent shall not be replaced without the consent of the Engineer except under extraordinary circumstances. The superintendent will be the Contractor's representative at the site and shall have authority to act on behalf of the Contractor. All communications given to the superintendent shall be as binding as if given to the Contractor.

The Contractor will provide competent, suitably qualified personnel to survey and layout the work and perform construction as required by the Contract Documents. He will at all times maintain good discipline and order among his employees at the site.

The Engineer will not be responsible for the acts or omissions of the Contractor, or any subcontractors, or any of his or their agents or employees or any other persons performing any of the work.

26. NONCOMPLIANCE OF CONTRACTOR

In addition to the elective measures the Owner may take for violation of the Contract as provided in Article 19, he shall also have the discretionary right to take any or all of the following actions if the Contractor fails, neglects, or refuses to comply with the requirements of Articles 7, 16, 18, 24, 32 or 33.

- A. He may shut down the work until the requirements of the violated articles are met by the Contractor. In such event no remission will be made in working time for the period for which the work is shut down.
- B. He may withhold payment of estimates for work completed until the requirements of the violated article are met by the Contractor.
- C. He may enter upon the Project and perform such work as may be necessary to meet the requirements of the article violated and deduct the cost thereof from monies due or which may become due the Contractor or the Surety, or in the absence of any monies due the Contractor or the Surety, he shall be fully reimbursed for such costs by the Contractor or the Surety.

However, if the Contractor fails to comply with the requirements of Article 24, the Owner shall not proceed as provided herein until three days after written notice to the Contractor and his Surety that such action will be taken.

27. CHANGES IN WORK AND CONTRACT PRICE

A. Change in Work

Without invalidating the Agreement, the Owner may, at any time or from time to time, order additions, deletions or revisions in the work. These will be authorized by Change Orders. If any Change Order causes an increase or decrease in the Contract Price or an extension or shortening of the Contract Time, an equitable adjustment will be made as provided in (B) following.

Additional work performed by the Contractor without authorization of a Change Order will not entitle him to an increase in the Contract Price, except in the case of an emergency affecting the safety of persons or the work or property at the site or adjacent thereto. In such cases the Contractor, without special instruction or authorization from the Engineer or Owner, is obligated to act, at his discretion, to prevent threatened damage, injury or loss. He will give the Engineer prompt written notice of any significant changes in the work or deviations from the Contract Documents caused thereby, and a Change Order shall thereupon be issued covering the changes and deviations involved. If the Contractor believes that additional work done by him in an emergency which arose from causes beyond his control entitles him to an increase in the Contract Price or an extension of the Contract Time, he may make a claim therefore as provided in (B) below.

It is the Contractor's responsibility to notify his Surety of any changes affecting the general scope of the work or change in the Contract Price and the amount of the applicable bonds shall be adjusted accordingly. The Contractor will furnish proof of such adjustment to the Owner upon request.

B. Change in Contract Price

The Contract Price constitutes the total compensation payable to the Contractor for performing the work. All duties, responsibilities and obligations assigned to or undertaken by the Contractor shall be at his expense without change in the Contract Price. The Contract Price may only be changed by a Change Order.

If the Contractor is entitled by the Contract Documents to make a claim for an increase in the Contract Price, his claim shall be in writing delivered to the Owner and the Engineer within 7 days of the occurrence of the event giving rise to the claim. All claims for adjustments in the Contract Price shall be determined by the Engineer if the Owner and Contractor cannot otherwise agree on the amount involved. Any change in the Contract Price resulting from any such claim shall be incorporated in a Change Order.

The value of any work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:

- (1) Where the work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved.
- (2) Where the Contract has been awarded for a lump sum price or where a significant portion of the Contract Price is based on a lump sum price by application of unit prices resulting from the breakdown of the lump sum Contract Price as required by Article 30.
- (3) Where the change in work is not covered by unit prices available from (1) or (2) above, the following methods in the order given shall then apply:
 - a. By mutual acceptance of a lump sum amount.
 - b. By cost and a percentage of these costs to cover overhead and profit. Costs shall only include labor (payroll, payroll taxes, fringe benefits, workman's compensation, etc.) materials, equipment, and other incidentals directly related to the work involved. The addition for overhead and profit shall not exceed twenty (20) percent of these costs.

28. MEASUREMENT

All work completed under this Contract shall be measured by the Engineer according to the United States Standard measures. No extra or customary measurements of any kind shall be allowed in measuring any work, only the actual lengths, areas, solid contents, weights, or numbers, shall be considered and the lengths shall be measured on center lines of the work, whether the same be straight or curved, unless specified differently.

29. PRESENTATION OF CONTRACTOR'S CLAIMS

Neither the Contractor nor the Surety shall be entitled to present any claims to the Owner or the Board of Arbitration, either during the prosecution of the work or upon completion of the Contract, for additional compensation for work performed or any other cause, unless the Contractor or Surety shall have given the Owner notice of intention to present such claims within (10) ten days from the happening of the event, thing, or occurrence giving

rise to the alleged claim. However, the Contractor or Surety shall not be denied the right to present any claim, which is based on differences in measurements or errors of computations which were not disclosed until preparation of the Final Estimate.

30. PAYMENTS TO CONTRACTOR

Partial payments on the Contract will be made during the progress of the work based on the value of the work done except as provided in Article 29, and in accordance with the provisions of the Agreement. These partial payments are merely estimates and subject to correction in any succeeding estimate or in the final payment, and shall not bind the Owner to the acceptance of any materials furnished or work done. Completed additional or extra work which has been approved by the Engineer will be included in partial payments. On lump sum contracts, the Contractor shall prepare an itemized breakdown of the value of the several classes of work, which after approval will be used by the Engineer on computing the value of work done and amounts due on current estimates.

Certain material stored but not yet incorporated into the work may be included in partial payments only when the Contractor provides invoices to show that such material has been received by the Contractor and delivered to an approved location, and when said material will not be stored for more than ninety (90) days. The Contractor may be paid 100% of the cost of the material, less the pro-rata share of the retainage provided that the cost does not exceed ninety percent (90%) of the Contract Price for the contract item and the cumulative costs do not exceed twenty-five percent (25%) of the current Contract amount.

The cost of surplus stored material, which payment previously has been made to the Contractor but has not been incorporated in the final measured work, will not be included in the final payment. Surplus stored material is the property of the Contractor.

Once each month, the Contractor shall prepare and submit to the Engineer an estimate of the value of work completed to the end of the period covered by the estimate. Ninety percent (90%) of such value less the aggregate of previous payments will be normally paid to the Contractor within thirty (30) days following the date of the Owner's regular meeting.

However, in situations where the Project is being funded through state and/or federal funds such as the Community Facilities Program or the Community Development Block Grant Program, the Contractor will be paid at the time when such funding is disbursed to the Owner from the federal or state agency.

When construction is fifty percent (50%) complete, periodic payments will be increased to ninety-five percent (95%) of the value of the work completed less the aggregate of previous payments.

Upon substantial completion of the work and operational and beneficial occupancy has been attained, as determined by the Engineer, the retained amounts shall be reduced to an amount necessary to assure completion of the work as determined by the Engineer.

Upon completion of all work under the Contract, the Engineer will determine whether final payment is in order. Upon such determination by the Engineer, a Final Estimate will be prepared by the Contractor with payment being made in accordance with the procedure and requirements of Article 31.

31. ACCEPTANCE AND FINAL PAYMENT

Unless otherwise provided in the Agreement, upon notification by the Contractor that he has completed the work under the Contract, the Engineer shall make an inspection to determine whether the work is fully completed. The Contractor shall at his own expense, provide the Engineer with all labor, tools or equipment that may be required by the Engineer in making such inspection.

As soon as practicable after such inspection and after the Engineer is satisfied that the work is fully completed, the Contractor will compute the entire amount of each item of work performed and the Contract value thereof, the amount and value of all additions, and the amount and value of all deductions, if applicable; and will from this, prepare a Final Estimate and present it to the Engineer.

The Engineer shall either approve the Final Estimate or request that the Contractor revise the Final Estimate.

If necessary, it shall be the duty of the Contractor to revise and return the Final Estimate to the Engineer within fifteen (15) days from the date the Final Estimate is returned by the Engineer. If the Contractor fails to return the executed Final Estimate or notify the Engineer in writing of his rejection within said fifteen (15) days, the Engineer will consider any objections raised and will direct the Contractor to either resubmit the Final Estimate or submit a revised Final Estimate.

Upon receipt of the Final Estimate from the Contractor, or upon failure of the Contractor to accept or reject the Final Estimate within the time designated, the Engineer shall submit to the Owner said Final Estimate certifying the final price of all work performed under the Contract.

Unless the Owner rejects the Final Estimate, payment will be made to the Contractor based on this Final Estimate normally within thirty (30) days of the Owner's regular meeting at which the Final Estimate is presented to the Owner. However, in situations where the Project is being funded through state and/or federal funds such as the Community Facilities Program or the Community Development Block Grant Program, the Contractor will be paid at the time when such funding is disbursed to the Owner from the federal or state agency.

If liquidated damages have been determined by the Owner to be applicable to this Contract and are to be deducted from the amount due the Contractor under the Final Estimate, the Owner shall inform the Contractor in writing of the deductions to the amount due and of the net amount to be paid, and payment of the net amount will be made to the Contractor.

In the event that the Owner rejects the Final Estimate, the Owner will direct the Contractor to revise the Final Estimate and resubmit it to the Engineer.

In the event mutual agreement on the Final Estimate between the Owner and Contractor cannot be obtained, arbitration procedures in accordance with Article 5 will be used.

The Owner may withhold final payment pending receipt of:

- A. A written statement in a form satisfactory to the Owner and under seal from the Surety that payment of the amount shown in the Final Certificate to the Contractor shall not relieve the Surety of any obligations to the Owner as set forth in the Surety's bonds.
- B. An affidavit and such other satisfactory evidence as may be required that all labor,

material, and indebtedness arising out of performance of the Contract have been paid; and that all other claims against the Contractor or subcontractors arising out of performance of the Contract either have been paid or that the Contractor has in force such Public Liability and Property Damage Insurance as will fully protect him and his subcontractors from any such claims as may be pending or that may there after arise; and

C. A satisfactory Maintenance Bond.

The action of the Owner by which the Contractor is to be bound and work concluded, according to the terms of the Contract, shall be evidenced by payment of the Final Certificate. All prior certificates or estimates upon which payments have been made being partial payments and subject to correction in the final payment.

The acceptance by the Contractor of final payment shall be and shall operate as a release to the Owner of all claims and all liability to the Contractor for all things done or furnished in connection with this work and for every act and neglect of the Owner and others relating to or arising out of this work. No payment, however, final or otherwise, shall operate to release the Contractor or his sureties from any obligations under this Contract or the Performance, Labor and Material Payment or Maintenance Bonds.

32. PAYMENT TO CONTRACTOR AND INDEMNIFICATION

All work covered by partial payment made shall thereupon become the sole property of the Owner, but his provision shall not be construed as relieving the Contractor of the sole responsibility for the care and protection of the work upon which payments have been made or the restoration of any damaged work, or as a waiver of the right of the owner to require the fulfillment of all terms of the Contract Documents.

The Contractor will indemnify and save the Owner or the Owner's agents harmless from all claims growing out of the lawful demands of subcontractors, laborers, workmen, mechanics, material, men, and furnishers of machinery and parts thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of the work. The Contractor shall, at the Owner's request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived.

If the Contractor fails to do so the Owner may, after having notified the Contractor, either pay unpaid bills or withhold from the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the Contractor shall be resumed, in accordance with the terms of the Contract Documents, but in no event shall the provisions of this sentence be construed to impose any obligations upon the Owner to either the Contractor, his Surety, or any third party. In paying any unpaid bills of the Contractor, any payment so made by the Owner shall be considered as a payment made under the Contract documents by the Owner to the Contractor, and the Owner shall not be liable to the Contractor for any such payments made in good faith.

If the Owner fails to make payment within thirty (30) days after approval by the Engineer and the Owner, or within seven (7) days after the Owner receives payment from the state and/or federal funding services, whichever is later, in addition to other remedies available to the Contractor there shall be added to each such payment interest at the maximum legal rate commencing on the first day after said payment is due and continuing until the payment is received by the Contractor.

33. CONTRACTOR'S GUARANTEE

The Contractor shall guarantee his work, and shall remedy without cost to the Owner any defects which may develop therein during the guarantee period. The guarantee period shall be for one (1) year from the date as certified by the Engineer when the Project's construction is substantially complete for the Project to be utilized for the purpose for which it is intended. In the event that the date of substantial completion precedes the date upon which the Owner initiates utilization of the Project, the guarantee period will then commence upon the date which the Owner utilizes the project or the date of final payment, whichever comes first.

Upon written request by the Contractor, the Engineer will consider establishing separate dates of substantial completion and guarantee period for separate parts of the Project which will be utilized prior to other parts of the Project.

If after written notice to the Contractor and his surety, the Contractor fails to remedy such defects, the Owner may declare the Contractor in default and may notify and require the surety to remedy such defects under the terms of the Maintenance Bond.

34. SUBCONTRACTS

The Contractor shall, as soon as practicable after the signing of the Contract, notify the Owner through the Engineer in writing of the names of any subcontractors proposed for the principal parts of the work and for such others as the Engineer may direct, and shall not employ any that the Engineer may, within a reasonable time, object to as incompetent or unfit.

The Engineer shall, on request of any subcontractor, furnish to that subcontractor, wherever practicable, evidence of the amounts certified in his account.

The Contractor agrees that he is as fully responsible to the Owner for the acts and omissions of his subcontractors and of persons either directly or indirectly employed by them as he is for the acts and omissions of persons directly employed by him. Nothing contained in the Contract Documents shall create any contractual relation between any subcontractor and the Owner.

35. RELATIONS OF CONTRACTOR AND SUBCONTRACTORS

The Contractor agrees to bind every subcontractor and every subcontractor agrees to be bound by the following provisions of this article, unless specifically noted to the contrary in a subcontract approved in writing as adequate by the Owner.

- A. The subcontractor agrees:
 - 1) To be bound to the Contractor by the terms of the Contract Documents and to assume toward him all the obligations and responsibilities that he, by these Contract Documents, assumes towards the Owner.
 - 2) To submit to the Contractor applications for payment in such reasonable time as to enable the Contractor to apply for payment.
 - 3) To make all claims for extras, for extensions of time and for damages for delays or otherwise, to the Contractor in the manner provided in these Contract Documents for like claims by the Contractor upon the Owner, except that the time for making claims for extra cost is one (1) week.
- B. The Contractor agrees:

- 1) To be bound to the subcontractor by all the obligations that the Owner assumes to the Contractor under the Contract Documents and by all the provisions thereof affording remedies and redress to the Contractor from the Owner.
- 2) To pay the subcontractor, upon the issuance of certificates, the amount allowed to the Contractor on account of the subcontractor's work to the extent of the subcontractor's interest therein.
- 3) To pay the subcontractor, upon the issuance of certificates, so that at all times the total payments shall be as large in proportion to the value of the work done by the subcontractor as the total amount certified to the Contractor is to the value of the work done by the latter.
- 4) To pay the subcontractor to such extent as may be provided by the Contract Documents or the subcontract, if either of these provides for the earlier or larger payments than the above.
- 5) To pay the subcontractor on demand for his work or materials as far as executed and fixed in place, less the retained percentage, at the time the certificate should issue even though the Engineer fails to issue it for any cause not the fault of the subcontractor.
- 6) To make no demand for liquidated damages or penalty for delay in any sum in excess of such amount as may be specifically named in the subcontract.
- 7) That no claim for services rendered or materials furnished by the Contractor to the subcontractor shall be valid unless written notice thereof is given by the Contractor to the subcontractor during the first ten (10) days of the calendar month following that in which the claim originated.

C. The Contractor and subcontractor agree:

- 1) That nothing in this Article shall create any obligation on the part of the Owner to pay, or to see to the payment of, any sums to any subcontractor.

36. USE OF LANDS

The Owner shall provide the lands upon which the work under this Contract is to be done except that the Contractor shall provide all necessary additional land required for the erection of temporary construction facilities and storage of materials, together with right of access thereto. The Contractor shall conduct no operations outside the lines of the property leased or owned or authorized for such use by the Owner without permission of the Owner.

37. WORKING CONDITIONS

- A. No night, Sunday, or holiday work requiring the presence of the Engineer or his representative will be permitted except in cases of emergency, and then only with the written consent of the Engineer and to such an extent as he may judge necessary.
- B. No work shall be done under this Contract when in the opinion of the Engineer, the weather is unsuitable for good and careful work to be performed. Should the

severity of the weather continue such that the work cannot be prosecuted successfully, the Contractor, upon order of the Engineer, shall cease all such work until directed to resume the same. In the latter case, suitable extension of time shall be allowed to compensate for time actually lost as provided for in Article 22.

- C. The Contractor shall arrange for and be responsible for a sufficient amount of illumination at all times, subject to the direction of the Engineer, to carry on all phases of the work.

38. PROGRESS CHARTS

Unless the requirement is waived by the Engineer, the Contractor shall, within seven (7) days after issuance of Notice to Proceed, prepare and submit to the Engineer for approval, a practicable and feasible schedule showing the order in which the Contractor proposes to carry on the work, the dates on which he will start the several salient features (including procurement of equipment) and the contemplated dates for completing the same. The schedule shall be in the form of a progress chart of suitable scale so as to appropriately indicate the percentage of work completed at any time. The Contractor shall enter the actual progress at the end of each month and shall immediately deliver to the Engineer three (3) copies of the same.

39. NOTICE

The service of any notice by the Owner or Engineer to the Contractor or by either party of the Contract to the Engineer or other party of the Contract, shall be considered accomplished upon completion of any one of the following procedures.

- A. When delivered, in writing, to the person in charge of the office used by the addressee to conduct business as given in the Proposal or Agreement;
- B. When delivered, in writing, to the addressee or any of his authorized agents in person;
- C. When delivered, in writing, to the addressee or any of his agents at the office used by the addressee to conduct the business of this Contract or near the Site of the work;
- D. When deposited in the United States Mail, postpaid, and addressed to the party intended for such service at his office used for conducting the business of this contract at the site of the work, or his last known place of business; or
- E. When filed at any company operated office of the Western Union Telegraph Co. and addressed to the party intended for such service at his last known place of business or for conducting the business of this Contract at the site of the work.

40. CLEANING SITE

The Contractor shall at all times keep the Project Site free from accumulations of waste material or rubbish caused by the work. Before the work will be considered as having been completed, the Contractor shall clean and remove from the Project and adjacent property all surplus and discarded materials, equipment and temporary structures, and restore, where applicable, to the extent as required by other sections of these Contract Documents.

41. PUBLIC CONVENIENCE AND SAFETY

The Contractor shall conduct the work so as to insure the least obstruction to pedestrian

and vehicular traffic. The convenience of the general public and of residents adjacent to the Project shall be provided for in an adequate and satisfactory manner. Unless otherwise directed, sidewalks and crossings shall be kept open for pedestrians. Streets shall not be unnecessarily obstructed and unless the Engineer authorizes the complete closing of a street, road, or alley, the Contractor shall provide for the maintenance of traffic thereon at his own expense.

The Contractor shall construct and maintain without compensation such adequate and approved temporary bridges over excavations as may be necessary or directed for the accommodation of pedestrians and vehicles.

Where fire hydrants are adjacent to the work they shall be at all times readily accessible to fire apparatus, and no material or other obstruction shall be placed within fifteen (15) feet of any such hydrant.

42. PROVISIONS REQUIRED BY LAW DEEMED INSERTED

Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon application of either party, the Contract shall forthwith be physically amended to make such insertion.

43. LIENS

No liens shall be allowed for labor or materials furnished.

44. RIGHT OF PROPERTY IN MATERIALS

Nothing in this Contract shall be considered as vesting in the Contractor any right of property in materials used, after they shall have been attached to or incorporated in the work, nor in materials which have been estimated for partial payment, but all such materials, upon being so attached, incorporated or estimated, shall become the property of the Owner.

45. ADVERTISING

No advertising will be permitted on any part of building, scaffolding, fences, materials, obstructions, barricades, or work.

46. OMITTED

47. COMPLIANCE WITH REGULATORY BODIES

Compliance with the regulations of any State, County, or Municipal Authority or of any Public Utilities such as the railroad, power and telephone companies shall not constitute the basis for additional compensation because of such compliance.

48. DEFENSE COSTS

The Owner and the Contractor agree that in the event either of them institutes a lawsuit against the other under this Contract, the plaintiff in such lawsuit shall pay to the defendant a portion of the defense costs, including investigations, engineering fees, attorney's fees, expert witnesses' fees and any other expenses of defense which may be incurred. Such portion of the defense costs shall bear the same relation to the total defense costs as the dollar amount of the plaintiff's claims which were not sustained by the court bears to the total dollar amount of the plaintiff's claims. The plaintiff shall pay such portion of the defense costs to the defendant within thirty (30) days after the defendant furnished the plaintiff with an itemized listing of the defense costs incurred.

**TOWNSHIP OF NORTH BETHLEHEM
WASHINGTON COUNTY, PENNSYLVANIA**

**MUNICIPAL BUILDING AND GARAGE
1 Ontario Drive**

Technical Specifications

MAY 2026

Prepared For:

**NORTH BETHLEHEM TOWNSHIP
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Scenery Hill, Pa 15360**

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W.E. #24808

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END OF SECTION

SECTION 01090

REFERENCE STANDARDS

PART I

GENERAL

1.01 Section Includes

- A. Quality assurance.
- B. Schedules of references.

1.02 Quality Assurance

- A. For products or workmanship specified by association, trade, or Federal Standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current on date of Contract Documents.
- C. Obtain copies of standards when required by Contract Documents.
- D. Should specified reference standards conflict with Contract Documents, request clarification from the Engineer before proceeding.
- E. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.03 References

- AA Aluminum Association
818 Connecticut Avenue, N.W.
Washington, DC 20006

1000 Vermont Avenue, N.W.
Washington, DC 20005
- AASHTO American Association of State

REFERENCE STANDARDS

Highway and Transportation Officials
444 North Capitol Street, N.W.
Washington, DC 20001

- ACI American Concrete Institute
Box 19150
Reford Station
Detroit, MI 48219
- ADC Air Diffusion Council
230 North Michigan Avenue
Chicago, IL 60601
- AIA American Institute of Architects
1735 New York Avenue, N.W.
Washington, DC 20006
- AISC American Institute of Steel Construction
400 North Michigan Avenue
Eighth Floor
Chicago, IL 60611
- AISI American Iron and Steel Institute
1000 16th Street, N.W.
Washington, DC 20036
- AMCA Air Movement and Control Association
30 West University Drive
Arlington Heights, IL 60004
- ANSI American National Standards Institute
1430 Broadway
New York, NY 10018
- APA American Plywood Association
Box 11700
Tacoma, WA 98411
- ARI Air-Conditioning and Refrigeration Institute
1815 North Fort Myer Drive
Arlington, VA 22209

REFERENCE STANDARDS

ASHRAE American Society of Heating, Refrigerating
and Air Conditioning Engineers
1791 Tullie Circle, N.E.
Atlanta, GA 30329

ASME American Society of Mechanical Engineers
345 East 47th Street
New York, NY 10017

ASTM American Society for Testing and Materials
1916 Race Street
Philadelphia, PA 19103

AWWA American Water Works Association
6666 West Quincy Avenue
Denver, CO 80235

AWI Architectural Woodwork Institute
2310 South Walter Reed Drive
Arlington, VA 22206

AWPA American Wood-Preservers' Association
7735 Old Georgetown Road
Bethesda, MD 20014

AWS American Welding Society
550 LeJeune Road
Miami, FL 33135

CRSI Concrete Reinforcing Steel Institute
933 Plum Grove Road
Schaumburg, IL 60195

EJMA Expansion Joint Manufacturers Association
707 Westchester Avenue
White Plains, NY 10604

FGMA Flat Glass Marketing Association
3310 Harrison
White Lakes Professional Building
Topeka, KS 66611

REFERENCE STANDARDS

FM	Factory Mutual System 1151 Boston-Providence Turnpike Norwood, MA 02062
FS	Federal Specification General Services Administration Specifications and Consumer Information Distribution Section (WFSIS) Washington Navy Yard, Bldg. 197 Washington, DC 20407
GA	Gypsum Association 1603 Orrington Avenue Evanston, IL 60201
IEEE	Institute of Electrical and Electronics Engineers 345 East 47th Street
IMIAC	International Masonry Industry All-Weather Council International Masonry Institute 815 15th Street, N.W. Washington, DC 20005
MIL	Military Specification Naval Publications and Forms Center 5801 Tabor Avenue Philadelphia, PA 19120
ML/SFA	Metal Lath/Steel Framing Association 221 North LaSalle Street Chicago, IL 60601
NAAMM	National Association of Architectural Metal Manufacturers 221 North LaSalle Street Chicago, IL 60601
NEMA	National Electrical Manufacturers' Association 2101 L Street, N.W. Washington, DC 20037
NFPA	National Fire Protection Association

REFERENCE STANDARDS

1619 Massachusetts Avenue, N.W.
Washington, DC 20036

PennDOT Commonwealth of Pennsylvania
Department of Transportation

PCA Portland Cement Association
5420 Old Orchard Road
Skokie, IL 60077

PS Product Standard
U.S. Department of Commerce
Washington, DC 20203

SDI Steel Deck Institute
Box 3812
St. Louis, MO 63122

SDI Steel Door Institute
712 Lakewood Center North
Cleveland, OH 44107

SMACNA Sheet Metal and Air Conditioning Contractors'
8224 Old Court House Road
Vienna, VA 22180

SSPC Steel Structures Paint Council
4400 Fifth Avenue
Pittsburgh, PA 15213

TAS Technical Aid Series
Construction Specifications Institute
601 North Madison Street
Alexandria, VA 22314

UL Underwriters' Laboratories, Inc.
333 Pfingston Road
Northbrook, IL 60062

WCLIB West Coast Lumber Inspection Bureau
Box 23145
Portland, OR 97223

REFERENCE STANDARDS

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

PART 4 BASIS OF PAYMENT

Not Used

END OF SECTION

REFERENCE STANDARDS

SECTION 01150MEASUREMENT AND PAYMENT - FOR LUMP SUM CONTRACTS

PART 1 - GENERAL

1.01 SCOPE

- A. This Section defines procedures for calculation, measurement and payment for additional or deleted work on the basis of unit prices either included in the bidder's Form of Proposal or otherwise determined in accordance with procedures set forth in the Contract Documents.

1.02 UNIT PRICES

A. Unit price requirements:

1. The Contractor, prior to execution of the Contract Agreement, shall submit a listing of unit prices for lump sum contracts, which unit prices shall be used as a basis of payment and also applied to changes in the scope of the work to arrive at the cost of added or deducted work. Appropriate adjustment in the Contract amount will be arrived at by multiplying the measured quantity of work by the agreed upon unit price. The net difference of like work items on a given change order shall apply.

B. Unit price rejection:

1. On a lump sum bid, if the Engineer perceives any of the unit prices offered by the Contractor to be unbalanced or unreasonable, he may reject such unit prices. should the scope of work be changed with regard to items so rejected, and a revised unit price be not accepted by all parties, the work shall be performed on the basis of another method of payment as provided in the General Conditions.

C. Change in scope of work:

1. Work based on a specific change in scope of work front that included in the Contract Documents shall be executed by the Contractor until complete in every respect. It shall include not only labor, materials, tools, and equipment, but also the following without limitation: preparatory work; supervision; layout; insurance; bonds; clean-up; overhead; profit; and all other items as may be necessary for completing the work as shown on the Drawings and/or specified or required by Contract Documents.
2. Measurement and payment for the foregoing items, if unit prices are acceptable, shall be made on the basis of the quantities added and/or deducted and the units specified in the Proposal Form and in accordance with Paragraph 1.03 of this Section.

1.03 MEASUREMENT AND PAYMENT

A. General:

1. This paragraph sets forth the methods to be used for measurement of and payment for work performed in addition to or deducted from the scope of work of this Project, as more fully described in the Contract Documents.
2. All additional work performed on the basis of the various unit prices shall be furnished and installed to conform to these Specifications to the extent that they relate to and address like items of work.
3. All work shall, at the discretion of the Engineer, be measured in place or be estimated from drawings and shall be described in terms of the units noted on the Proposal Form. A complete record of the work item shall be kept and, if it is a continuing item, daily progress of the work must be specifically noted in the job diary in terms of the applicable units.
4. The payment for, or Contract adjustment for, all unit price items will be calculated as the agreed total quantity of added or deducted work multiplied by the Contractor's unit price(s). In determining the total quantity, only the net difference of like items shall be used.

1.04 PROGRESS PAYMENTS

A. Certain items of equipment furnished for this Project are recognized, in their respective Sections, as having significant value in the work and as being specifically manufactured for this project. For these items only, the Contractor furnishing the item shall be entitled to progress payments in accordance with the following schedule:

1. Upon delivery and unloading of the item at the job site or protected storage area of the Contractor, the invoice price (less retainage) shall be paid provided the Contractor furnishes Certificates of Insurance and Title to the Owner for the delivered items and adequately insures and protects same.
2. Ninety-five percent (95%) of the Contractor's quoted installed price to the Owner for the particular item, reduced by any previous payments made under Items 1 above, shall be due to the Contractor furnishing the item, upon completion of installation and successful start-up services.
3. The balance of the Contractor's quoted installed price to the Owner for the particular item shall become due upon the Contractor furnishing the item; upon satisfactory demonstration of compliance with the performance requirements of these specifications; and upon furnishing to the Owner with all required documentation, reports, approvals, certificates, bonds, extended guarantees, warranties and other items as may be specifically required herein.

B. For payment for Items 1 above, the Contractor shall furnish proof of the claimed pricing in the form of manufacturer's invoices, written confirmations from the Manufacturer, and such

other documentation as may be required by the Engineer to satisfactorily prove the amount of the claimed pricing.

- C. Retainage shall be withheld from each monthly payment request in accordance with the percentages set forth within the General Conditions Item 15.01B which are part of these Contract Documents.

PART 4 – BASIS OF PAYMENT

4.01 Measurement and Payment - Incidental. No additional compensation.

END OF SECTION

SECTION 01300SUBMITTALS AND SUBSTITUTIONS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included:

1. To assure that the products furnished and methods of construction/ installation provided under the various Contracts of this Project are in conformance with the intent of the Drawings and these Specifications, each Contractor shall submit sufficient testing data; Manufacturer's data and pertinent information; certifications; installation drawings and instructions; shop drawings; samples; and/or requests for substitutions as required by and in strict conformance with the provisions of this Section.
2. The General Contractor is responsible for all scheduling for all trades. He shall not allow or direct materials of any trade to be installed prematurely or when it is obvious that such materials may be damaged by subsequent work of other trades. In case of disputes as to timeliness of any installation, the Engineer shall make the determination including any protective measures required.

B. Related Work described elsewhere:

1. It is the intent of this Section to establish minimum standards of procedure for submittals and/or substitutions regarding all products, materials and/or methods furnished or provided under the various Contracts of this Project. Therefore, the provisions of this Section shall apply equally to all other Sections of these Specifications and shall be deemed a part of all other Sections as if reproduced entirely within each Section whether or not this Section is specifically referred to therein. In certain instances, particular other Sections may specify standards of procedure covering submittals and/or substitutions, which parallel those of this Section. This duplication is not meant to impart a greater or lesser degree of importance to any of the parties involved in this Project or to provide further clarification of specific additional information required. In the event that any conflict exists between any standards of procedure established in this Section and those of any other Section, the stricter requirement shall govern.
2. Wherever possible throughout the Contract Documents, the minimum acceptable quality of workmanship and materials has been defined either by Manufacturer's name and catalog number or by reference to recognized industry standards.

PART 2 - PRODUCTS

2.1 SHOP DRAWINGS AND SPECIFICATIONS

A. Equipment plans and specifications:

1. Prior to the fabrication of equipment to be furnished under these Contracts, the Contractors shall submit to the Engineer for approval the Manufacturer's detailed specifications and drawings covering the equipment proposed. The specifications and drawings shall show the materials and details of construction of the equipment, illustrations, scale details, sizes, dimensions, capacities, and layout in sufficient detail to indicate its relative location and/or incorporation with adjacent concrete or other facilities.
2. Such drawings shall show the principal dimensions, weight, structural and operating features, performance characteristics, control and wiring diagrams, space required, clearances, type and/or brand of finish or shop coat, grease fittings and other such items depending on the subject of the drawings. When it is customary to do so, when the dimensions are of particular importance, or when so specified, the drawings shall be certified in writing by the Manufacturer as correct for this Project.
3. When so specified or if considered by the Engineer to be acceptable, Manufacturer's specifications, catalog data, descriptive matter, illustrations and other products may be submitted for approval in place of shop and working drawings. In such case the requirements shall be as specified for shop and working drawings, insofar as applicable.

B. Type of prints required:

Unless otherwise specifically directed by the Engineer, all shop drawing prints shall be rendered in blue or black line on white background.

C. Number of prints required:

The Contractors shall submit three (3) copies plus the number of copies to be returned of all shop drawings, specifications, and other items submitted under this Section.

2.2 SAMPLES

A. Accuracy of sample:

Unless otherwise specifically directed by the Engineer, all samples shall be of the precise article proposed to be furnished and shall show the maximum variations in color, texture and/or permissible defects.

B. Number of samples required:

The Contractor shall submit all samples in the quantity which is required to be returned plus one which will be retained by the Engineer. All samples shall be identified by an appropriate tag or label listing the name of the Project; the Owner's name; the Engineer and the Contractor as well as the exact identification of the sample. Tags or labels shall be large enough to provide a blank space for approval stamps.

2.3 COLORS AND PATTERNS

A. General:

Unless the precise color and pattern is specifically described in the Contract Documents and whenever a choice of color or pattern is available in a specified product, the Contractor shall submit accurate color charts and pattern charts to the Engineer for his review and selection of color and/or pattern.

B. Comparative analyses:

Unless all available colors and patterns have identical costs and identical wearing capabilities and are identically suited for the installation, the Contractor shall provide the relative costs and capabilities of each.

2.4 APPROVED EQUAL MATERIALS AND PRODUCTS

A. Engineer's approval required:

1. The various materials and products specified in the Contract Documents by name and description are provided to establish a standard of quality. It is not the intent to limit the acceptance to any one material or product specified, but rather to name or describe a material or product as a minimum standard that is desired and acceptable. Where proprietary names are used, whether or not followed by the words "or approved equal", "equal to", or "or equal" equal materials and products may be approved by the Engineer provided that the alternate meets the approved minimum.

B. Availability of specified items:

1. The Contractor shall verify prior to bidding that all specified items will be available in time for installation during orderly and timely progress of the Work.

2. In the event specified items will not be available, the Contractor shall so notify the Engineer prior to the opening of bids.

3. Costs of delays because of non-availability of specified items, when the Engineer determines that such delays could have been avoided by the Contractor, will be charged to the Contractor as necessary and shall not be

borne by the Owner. When such delays could not have been avoided by the Contractor, an appropriate extension of Contract Time will be granted to the Contractor. There shall be no additional costs charged to the Owner by the Contractors for such time extensions.

2.6 OPERATION AND MAINTENANCE INSTRUCTIONS AND MANUALS

The various Sections of these Specifications require submittal of three (3) or more copies of various installation, operation and maintenance instructions and other data relative to the equipment and other items requiring any degree of operation and/or maintenance.

PART 3 - EXECUTION

3.1 IDENTIFICATION OF SUBMITTALS

The Contractor shall completely identify each submittal and resubmittal by showing at least the following information:

- A. Name and address of submitter, plus name and telephone number of the individual who may be contacted for further information.
- B. Name of Project as it appears on these Specifications and the Contract Name and Number to which the submittal applies.
- C. Drawing number and Specifications Section number to which the submittal applies.
- D. Whether this is an original submittal or a resubmittal.

3.2 COORDINATION OF SUBMITTALS

A. General:

Prior to submittal for the Engineer's review, the Contractor shall use all means necessary to fully coordinate all material, including the following procedures:

- 1. Determine and verify all field dimensions and conditions, materials, catalog numbers, and similar data.
- 2. Coordinate as required with all trades and with all public agencies involved.
- 3. Secure all necessary approvals from public agencies and others and signify by stamp or other means that they have been secured.
- 4. Clearly indicate all deviations from the Contract Documents.
- 5. Submittals shall be marked with the date, the checker's name and stamped "Approved for Submittal," or bear some other indication of the Contractor's approval. Submittals not marked in this manner will be returned for correction without action by the Engineer.

B. Grouping of Submittals:

Unless otherwise specifically permitted by the Engineer, the Contractor shall make all submittals in groups containing all associated items. The Engineer may reject partial submittals as not complying with the provisions of the Contract Documents.

3.3 TIMING OF SUBMITTALS

A. General:

1. The Contractor shall make all submittals far enough in advance of scheduled dates of installation to provide all required time for reviews, for securing all necessary approvals, for possible revision and resubmittal, and for placing orders and securing delivery.
2. No material shall be purchased or fabricated especially for this Project until the required shop and working drawings have been submitted and approved by the Engineer as conforming to the Contract requirements. All materials and Work involved in the construction shall then be as represented by said drawings.
3. The Engineer's approval of shop and working drawings will follow a general check made to ascertain conformance with the design concept and functional result desired of the information given in the Contract Documents. The Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the Work of all trades.
4. The Engineer's review will be made as soon as practical following receipt of each submittal. In scheduling, at least ten (10) full working days shall be allowed for the Engineer's review following his receipt of each submittal.

B. Delays:

Costs of delays occasioned by tardiness of submittals may be backcharged as necessary and shall not be borne by the Owner.

3.4 CERTIFICATIONS AND TESTS

Certifications and reports of tests, when required under the various sections of these Specifications, shall be submitted in the same quantities as specified for shop drawings in 2.2-C above.

PART 4 – BASIS OF PAYMENT

- 4.1 Submittals and Substitutions – Incidental. No separate payment will be made for Submittals and Substitutions.

END OF SECTION

SUBMITTALS AND SUBSTITUTIONS

SECTION 01500

MOBILIZATION

PART 1 GENERAL

1.1 Section Includes

- A. Mobilization.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 This work is the assembly and set-up of the general plant required to comply with the contract and with local and state laws and regulations. General plant includes contractor's offices, shops, plants, storage areas, and sanitary or other facilities, if required. The work includes obtaining the required permits, insurance, bonds, and any other initial items required for the start of the work.

3.2 Provide adequate material and furnishings required. These material and furnishings will not be considered a part of the other completed contract items.

PART 4 BASIS OF PAYMENT

4.1 Mobilization – Incidental. No additional compensation.

END OF SECTION

SECTION 01505

CONSTRUCTION STAKE-OUT

PART 1 - GENERAL

1.1 Section Includes

- A. Construction Stake-Out.

1.2 Submittals

- A. Submit proof of professional registration of the Professional Engineer or Registered Surveyor employed or subcontracted to perform construction stake-out services.
- B. Submit one (1) copy of all field notes to the Engineer.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

- 3.1 Using generally accepted surveying methods, the Contractor's Registered Surveyor or Professional Engineer shall stake-out all horizontal and vertical elements as required by the Plans and prepare grade sheets as required.

PART 4 - BASIS OF PAYMENT

- 4.1 Construction Stake-Out – Incidental. No additional compensation.

END OF SECTION

SECTION 01700CONTRACT CLOSE-OUT

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This Section describes the general requirements and documents necessary to complete the Project and/or to effect Contract Close-Out for each prime Contractor performing Work on this Project.
- B. The requirements specified herein are general and are provided solely for the convenience of the Contractors to serve as a basic reference check-list of the minimum requirements for Project completion and Contract Close-Out. This Section is not intended to eliminate or supersede other requirements which may be specified in the various and several other Sections of these Specifications nor to waive any of the specific requirements set forth therein. All such requirements shall be compiled with and all documents must be submitted as specified prior to Project completion and Contract Close-Out.

PART 2 - PRODUCTS

2.01 RECORD DRAWINGS

- A. In addition to the prints furnished for construction and for public bodies, each Contractor will be furnished, without charge, one set of Blue Prints for record purposes.
- B. These prints shall be marked "Record Set" and shall be maintained at the Project Site. Each Contractor shall record on these prints all deviations from the Contract Drawings, at the time that such deviation is made. All changes made in process, sewer and water lines; equipment; utilities; partitions; doors; or in arrangements or construction of the Project, as well as a complete record of the exact manner in which mechanical and electrical work items are installed, shall be recorded on these prints. Dimensions shall be included where necessary to accurately locate piping and other items which will be concealed in the finished work and which may later be necessary to locate for service, including underground piping and electrical facilities.

PART 3 - EXECUTION

3.01 FINAL CLEAN-UP

In addition to the various requirements of the General Conditions and Division 1 of these Specifications and the requirements for special cleaning in the various trade sections of these Specifications, the General Contractor shall perform final cleaning as follows:

- A. Sweep and, if necessary, wash and buff resilient floors and bases.

- B. Dust and, if necessary, wash all plumbing and electrical fixtures and remove all tags and stickers except those giving operating instructions or safety precautions.
- C. Clean all surfaces.
- D. Clean, polish and wax, as required, all finished products that are not specified to be cleaned, etc., under the various trade sections of these Specifications.
- E. Remove smears and paint and wash all glass.
- F. Final cleaning shall be performed after the work of all trades is completed and immediately before turning the Work over to the Owner.
- G. Cleaning materials shall be free from harmful abrasives and shall be acceptable to the manufacturers of the materials, equipment and/or surfaces on which they are used.

3.02 CLOSE-OUT DOCUMENTS

- A. Before approval of the final payment and issuance of the certificate of completion, each Contractor shall be required to submit to the Engineer the following documents, completed and executed in every detail as required:
 - 1. The "Record Set" of prints.
 - 2. Statement of Surety Company.
 - 3. Contractor's Release.
 - 4. Contractor's Affidavit.
 - 5. Maintenance Bond.
 - 6. Other bonds and warranties as specified in the various Sections of these Specifications.
 - 7. Certificates of Approval from all governing approval agencies if required (Plumbing, Building, Electrical, Pressure Vessel, Underwriters, etc.).
 - 8. Spare parts and tools.
 - 9. Such additional items as may be required in the various Sections of these Specifications.

PART 4 – BASIS OF PAYMENT

- 4.01 Contract Close-Out – Incidental. No additional compensation.

END OF SECTION

SECTION 02010**SUBGRADE****PART 1 - GENERAL**

This work is preparation of the structural foundation(s) subgrade and roadbed subgrade areas.

PART 2 – PRODUCTS

Not Used.

PART 3 - CONSTRUCTION**3.01 General:**

Form subgrade to the established subgrade elevation and compact to specified density requirements, using equipment specified in PennDOT Form 408 Specifications latest edition.

3.02 Density Requirements:

Compact subgrade to not less than 95% of the determined dry-weight density. Dry-weight density for material in place in the field will be determined, in accordance with PTM No. 106 or ASTM D-1557 (Modified Proctor). In-place density or compaction will be determined based on non-movement of material under compaction equipment specified in PennDOT Form 408 Specifications, latest edition. Field compaction test including reference tests in number not to exceed one (1) compaction test per 8" layer per 2000 square feet.

At the time of compaction, maintain the subgrade material's moisture content not more than 2 percentage points above optimum moisture for that material. However, on subgrades displaying pronounced elasticity or deformation under rolling, maintain a moisture content to greater than optimum at the time of compaction or at the time of placing the overlaying construction. When the specified stability cannot be obtained, excavate material in the area to a depth that, when replaced and recompacted at a moisture content not exceeding optimum, the subgrade will have required stability.

3.03 Subgrade Requirements:

Protect subgrade sufficiently in advance of the succeeding operation. Prior to placement of pavement or concrete structures, promptly and satisfactorily reshape and recompact, or remove and replace, damaged or unsatisfactory areas.

Check subgrade for grade and slope. However, where subgrade is constructed using an automatic grading machine which cuts the subgrade and is controlled by reference line or lines, templates for checking grade and slope will not be required.

Test the finished surface for irregularities by using approved measuring instruments. Test the cross section for surface irregularities at intervals of not more than 25 feet.

Correct all surface irregularities exceeding 1 inch by loosening the surface and removing or adding material as required. Compact the corrected area and surrounding surface by rolling.

PART 4 – BASIS OF PAYMENT

- 4.01 Subgrade – Incidental. No additional compensation will be provided for Subgrade. The cost associated with Subgrade shall be included in the Lump Sum price bid for the items specified in the Bid Schedule.

END OF SECTION

SECTION 02100**DEMOLITION, CLEARING AND GRUBBING**

PART 1 - GENERAL

1.1 SCOPE

A. Work included:

Demolition, clearing and grubbing required for this Work includes, but is not necessarily limited to: removal of concrete, cutting, patching, etc.; site clearing; demolition and removal of miscellaneous items which are designated to be removed and/or are not necessary for the proper functioning of the new facilities, unless these items are designated to remain or so directed by the Engineer; removal of various items as is necessary for the proper performance of the Work; and removal of all debris.

B. Definitions:

The term "demolition, clearing and grubbing" as used herein includes the removal of all existing objects (except for those objects designated to remain) down to the existing ground level or removal of existing structures both above and below ground and disposal of same, plus such other Work as is indicated on the Drawings and/or required by these Specifications.

1.2 RESPONSIBILITY AND LIABILITY FOR INTERFERENCE WITH UTILITIES AND OTHER STRUCTURES

- A. It is the responsibility of the Contractor to contact the Owners of the various utilities in this area prior to starting work on this Project, and also during construction, and to determine the exact location of any structures, gas or water mains, electric or telephone conduits, sewer lines, drainage facilities and all service lines the utilities may have at the site of the Work so that he may locate and protect them, whether or not such structures or utilities are shown on the Drawings.
- B. The Contractor shall assume full responsibility and liability for all property damage and bodily injury that may result from his damaging or disturbing any structures, drainage facilities, water and gas mains, electric conduits, sewer lines, or other facilities of the utilities present at the site of the work.
- C. The Contractor shall be responsible for all damages to utilities, structures, power lines, gas, water and drain lines, sewers, underground conduits, or other facilities that may result from his operations and shall restore same to their original condition as soon as possible.
- D. In some cases, it may be found that the existing utility mains are in such a location that construction of the proposed work cannot proceed until the utility has been

relocated. If, in the opinion of the Engineer, such a condition exists, and if the main is larger than 4 inches in internal diameter, the cost of such relocation shall be relocated, if necessary, at the Contractor's expense. Failure of the Contractor to notify the Owner of such interference's far enough in advance of his construction Work will not make the Owner liable for any additional expenses incurred by the Contractor, including the costs due to time delays, while the utility is being relocated. Utility relocation costs will be paid only in the event that the utility directly conflicts with the sanitary sewer alignment and is not meant to include repair or replacement of utilities or drains which lie above, below, or parallel to the sanitary sewer.

1.3 PROPERTY RESTORATION

The Contractor shall be responsible for all damages to public and private properties, structures, fences, lawns, landscape plantings, sidewalks, or other surface features of the Owner's property or that of others that may result from his operations and shall restore same to their original condition as soon as possible and prior to completion of his Contract.

1.4 JOB CONDITIONS

A. The Contractor shall use all means necessary to prevent the spread of dust during performance of the Work of this Section and shall thoroughly moisten all surfaces as required to prevent dust from being a nuisance to the public, neighbors or concurrent performance of other Work on the site.

B. Burning:

On-site burning will not be permitted without advance approval of the Owner and the Engineer.

PART 2 - PRODUCTS

2.1 TEMPORARY BARRICADES

Unless otherwise specifically approved by the Owner, the Contractor shall use only new and solid lumber of utility grade or better to construct temporary barricades around open excavations, new construction work, around the objects designated to remain, or where otherwise required.

PART 3 - EXECUTION

3.1 PREPARATION

A. Electric power lines:

The Contractor is hereby notified that the proposed work may be in close proximity to overhead high voltage power lines. It is the Contractor's responsibility to take such precautions as are necessary or required and to inform his personnel and any Subcontractors of and enforce all safety rules, regulations and procedures as

necessary or required to protect the workmen and the facilities or operations of the respective utilities when working near such power lines. The Contractor shall assume full responsibility and liability for all property damage and bodily injury that may result from his or his Subcontractor's personnel contacting directly or indirectly overhead high voltage electric lines.

B. Notification:

The Contractor shall notify the Owner at least two (2) full working days prior to commencing the work of this Section.

C. Site Inspection:

1. Prior to all Work of this Section, the Contractor shall carefully inspect the entire site and all objects designated to be removed or to be preserved.
2. The Contractor shall locate all existing utility lines and determine all requirements for disconnecting and capping.
3. The Contractor shall locate all existing active utility lines traversing the site and determine the requirements for their protection.

D. Clarification:

1. The Drawings do not purport to show all objects existing on the site.
2. Before commencing the Work of this Section, the Contractor shall verify with the Engineer all objects to be removed and all objects to be preserved.

E. Scheduling:

1. The Contractor shall schedule all Work in a careful manner with all necessary consideration for neighbors and the public.
2. The Contractor shall avoid interference with the use of, and passage to and from, adjacent buildings and facilities.

F. Protection of utilities:

The Contractor shall preserve in operating condition all active utilities traversing the site.

3.2 DEMOLITION OF STRUCTURES

- A. The Contractor shall demolish and remove all sections of structures or complete structures designated for demolition or as required for the performance of the Work.
- B. Care shall be exercised not to damage structures or facilities designated to be

preserved or not specifically designated for demolition. Any such damage shall be promptly repaired by the Contractor to restore the damaged structures or facilities to a condition at least as good as existed prior to such damage.

- C. The Contractor shall note that certain structures or facilities designated for demolition may be required to be kept in service until completion of all or certain portions of the other Work of this Project and the Contractor shall schedule his demolition work in an appropriate manner to avoid disruptions or discontinuity of service of these facilities due to premature demolition work.

3.3 SALVAGED MATERIALS

- A. No materials salvaged from the demolition Work will be reused in this Project without the expressed permission of the Engineer.
- B. All other materials salvaged from demolition work shall become the property of the Contractor and he shall dispose of them in a legal and responsible manner, off the site, as he sees fit. No on-site disposal or sales will be permitted.

3.4 PROCEDURES

- A. The Contractor shall comply with all applicable local, State and Federal safety regulations and shall furnish, install, erect and/or remove all fences, guard rails, enclosure chutes, catch platforms and shoring necessary for human safety and property protection. The Contractor shall be especially careful where Work being demolished is adjacent to Work, structures or facilities which are to remain.
- B. The Contractor shall note that certain facilities which are to be abandoned in place following completion will require cleaning and sealing and shall perform such Work as may be required to accomplish this with regard to the Work Schedule, particularly as it relates to maintaining such facilities in service until new Work is completed and placed into service.
- C. After demolition of substructure facilities, the Contractor shall fill any cavities and bring the grade to the elevations indicated on the Drawings, all in accordance with the requirements of these Specifications.
- D. Any damage to structures or facilities which are to remain in use shall be the responsibility of the Contractor and he shall repair same to the satisfaction of the Engineer.
- E. In clearing the Work site of trees, shrubs and surface vegetation, the Contractor shall observe care not to damage any structures, utilities, property or persons. Only those trees, shrubs, etc. which are absolutely required to be removed to permit construction activities to proceed shall be removed. The Contractor shall preserve as many existing trees and shrubs as possible and shall not remove any trees larger than 3 inches in diameter measured at one foot above the ground without the advance approval of the Engineer.

PART 4 – BASIS OF PAYMENT

DEMOLITION, CLEARING AND GRUBBING

- 4.1 Demolition, Clearing and Grubbing – Incidental. No separate payment will be made for Demolition, Clearing and Grubbing. The cost associated with Demolition, Clearing and Grubbing shall be included in the Lump Sum price bid for the items specified in the Bid Schedule.

END OF SECTION

SECTION 02200**EXCAVATION, BACKFILLING AND GRADING**

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work included:

Excavating, backfilling and grading required for this Work includes, but is not necessarily limited to: excavating, filling and backfilling for structures, footings, foundations, slabs, utilities, drainage, etc.; trenching and trench backfilling; rough and finish grading of the site; restoration of disturbed surfaces; dewatering; furnishing and installing all required shoring, sheeting and bracing; furnishing and installing granular cushion or fill under all interior and exterior concrete slabs; furnishing of sub-base and base courses for paving; furnishing and installing rip-rap; and such other Work as shown on the Drawings, as required by these Specifications, or as may be reasonably inferred there from.

B. Classification:

The Contractor shall make a personal examination of the sites in which the improvements are to be installed and determine for himself the extent and character of any Work that may be required. All excavation shall be unclassified and no additional payment shall be made for hand excavation or for removal of rock, shale, masonry or other materials encountered in this Project.

C. Underground utilities:

1. Attention is directed to the fact that there may be underground utilities located in the vicinity of the Work. Some of these have been indicated on the Drawings; however, the completeness and accuracy of the information presented therein or elsewhere in these Specifications is not guaranteed.
2. The Contract shall comply with Pennsylvania Act 287-1974 which requires the Contractor to notify all utilities serving the site three (3) days before starting to excavate. The utilities, in turn, are required to respond within two (2) days of receipt of notification and give the location of their lines.

D. O.S.H.A.:

The Contractor shall perform his Work so as to comply fully with the regulations of O.S.H.A. (Occupational Safety and Health Administration) of the U.S. Department of Labor, latest revision.

1.02 QUALITY CONTROL

- A. Testing and inspection of fill materials and compaction Work shall be performed in accordance with the provisions of these Specifications.
- B. Test results shall be submitted to the Engineer in accordance with the provisions of Section 01300 of these Specifications.

1.03 JOB CONDITIONS

- A. Dust control:
 - 1. The Contractor shall use all means necessary to control dust on or near the Work and on or near all off-site borrow areas, if such dust is caused by the Contractor's operations during performance of the Work or if results from the condition in which the Contractor leaves the site.
 - 2. The Contractor shall thoroughly moisten all surfaces as required to prevent dust from being a nuisance to the public, neighbors, and concurrent performance of other Work on the site.
- B. Protection:
 - 1. The Contractor shall use all means necessary to protect all materials of this Section before, during, and after installation and to protect all objects designated to remain.
 - 2. In the event of damage, the Contractor shall immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Owner.

PART 2 - PRODUCTS

2.01 FILL MATERIAL, GENERAL

- A. All fill material shall be in accordance with these Specifications and subject to approval of the Engineer.
- B. For approval or imported fill material, the Contractor shall notify the Engineer at least four (4) working days in advance of his intention to import material; designate the proposed borrow area; and shall have the approved testing laboratory analyze samples as necessary from the borrow area and make sufficient acceptance tests to prove the quality of the material.

2.02 FILL MATERIAL

- A. In general, unless other material is indicated on the Drawings or required by these Specifications, material from the excavation may be used for backfilling trenches and around structures provided that it meets the applicable requirements set forth herein. Materials needed in addition to that available from construction operations

shall be obtained from approved borrow pits or deposits at no additional cost to the Owner.

- B. All backfill material shall be generally well-graded from fine to coarse and free from large clods; roots; cinders; vegetation; ashes; refuse; boulders, large rock, shale pieces or lumps larger than 6 inches in any dimension with no more than 15 percent of the rocks or lumps larger than 2-1/2 inch in any dimension; organic material or any other deleterious substances. Backfill material shall not be frozen or excessively wet so as to impair proper field compaction. All backfill material shall be of such nature that, after it has been placed and compacted, it will make a dense, stable fill.
- C. Where layers of crushed stone, screened gravel or sand are called for on the Drawings or required by these Specifications for granular cushion beneath certain structures, slabs pipes or other facilities, material conforming to the following particle size gradation shall be provided.

Percent Passing by Weight

<u>Square Mesh Sieve Size</u>	<u>Crushed Stone or Screened Gravel</u>	<u>Sand</u>
1-1/2 inch	100	100
1 inch	90-100	100
3/4 inch	---	100
1/2 inch	25-60	100
Number 4	0-15	95-100
Number 8	0-5	80-100
Number 16	1	50-85
Number 30	---	25-60
Number 50	---	10-30
Number 100	---	2-10
Number 200	---	0-5

- D. Other types of fill materials will be considered by the Engineer for use on a case-by-case basis provided that the Contractor submits sufficient evidence as to the suitability and acceptability of the particular materials for the intended application.
- E. Suitable or selected fill materials shall be kept separated from unsuitable materials and shall not be permitted to be contaminated therewith. Contaminated materials shall not be used for trench or structural backfill and shall be removed from the site or used for site grading as required herein.
- F. Imported fill materials shall conform to Paragraph 2.02 (B) above and, in addition, shall be predominantly granular with max. particle size of two inches and a plasticity index of 12 or less. Imported cohesionless materials shall conform generally to the gradation requirements listed above for sand.

- G. All fill material placed within 3 feet of the base of buildings, footings and/or slabs shall conform to Paragraph 2.02 (F) above and, shall have a plasticity index of 15 or less.

2.03 RIP-RAP

Rip-rap where called for on the Drawings shall conform to the requirements of these Specifications.

2.04 OTHER MATERIALS

All other materials not specifically described but required for proper completion of the Work of this Section shall be as selected by the Contractor subject to the approval of the Engineer.

PART 3 - EXECUTION

3.01 GENERAL

- A. Prior to all Work of this Section, the Contractor shall become thoroughly familiar with the site, the site conditions, and all portions of the Work falling within this Section.
- B. The Contractor shall not allow or cause any of the Work performed or installed to be covered up or enclosed by Work of this Section prior to all required inspections, tests and approvals. Should any of the Work has been completely tested, inspected and approved, the Contractor shall restore the Work by enclosing or covering as required, all at no additional cost to the Owner.
- C. Before beginning excavation and/or filling Work, the topsoil from all areas to be affected shall be stripped to a depth of 6 inches and shall be stored at a location designated by the Engineer. After completion of the major construction Work, the topsoil shall then be replaced as the upper layer of backfill to a depth of not less than six (6) inches so that the final grade shall be as required by the Drawings. If additional topsoil over and above that salvage from the site is required in order to maintain the 6 inches of depth specified, the Contractor shall furnish and install same at no cost to the Owner.
- D. Backfill around all structures and in all trenches shall be carried to the grade indicated on the Drawings and/or specified herein.
- E. All open excavation, piles of material, freshly backfilled or uncompacted areas which present hazards to personnel or equipment on the construction site shall be adequately barricaded and posted with battery-operated warning lights, signs and other safety-related items as required by any local, state, or federal regulations governing same or, in the absence of any such regulation, to the satisfaction of the Owner.

- F. Backfill under structures or pavements shall, in general, be compacted to 95 percent of Standard Proctor Density, and all other backfill shall be compacted to 90 percent of Standard Proctor Density unless otherwise noted herein.
- G. All excavation materials not used in backfill or final grading operations shall be disposed of by the Contractor on the WWTP site at his own expense.
- H. No blasting shall be permitted to be performed in relation to this Work.

3.02 FINISH ELEVATIONS AND LINES

For setting and establishing finish elevations and lines, the Contractor shall secure the services of a qualified engineer or surveyor acceptable to the Engineer and shall carefully preserve all data and all monuments set by such engineer or surveyor and, if displaced or lost, immediately replace them to the satisfaction of the Engineer and at no additional cost to the Owner.

3.03 SHEET PILING, SHORING AND BRACING

- A. The Contractor shall furnish, install and maintain such sheeting, shoring and bracing as may be required to facilitate dewatering; to support the sides of the excavations; to prevent the movement of earth which could in any way diminish the width of the excavation below that necessary for construction or otherwise injure persons in or about the Work; endanger adjacent structures; cause excavations to extend beyond the Owner's property lines; or delay Work.
- B. Whenever possible, sheeting shall be driven ahead of the excavation to avoid loss of material from behind the sheeting. If it is necessary to excavate below the sheeting, care shall be taken to avoid trimming behind the face along which the sheeting will be driven. Care should be taken to prevent voids outside the sheeting, but if voids are formed, they shall be filled immediately with sand and compacted.
- C. The Engineer may require that sheeting, shoring and/or bracing installed for excavation be left in place in order to protect adjacent facilities or structures. Where such is not required in these Specifications or shown on the Drawings, the Contractor will be reimbursed as stipulated in the General Conditions of these Specifications. All other sheeting may be salvaged when the removal of same will not present a hazard to the adjacent facilities or to the safety of the Contractor's personnel.
- D. All sheeting, shoring and bracing not to be left in place shall be carefully removed in such a manner as not to present a hazard to the safety of the workmen or to endanger the construction of other structures. All voids left or caused by withdrawal of sheeting shall be immediately backfilled and well-compacted. The Contractor shall be fully responsible and liable for any bodily injury or property damage resulting from any improper or premature removal of sheeting, shoring or bracing.

3.04 DEWATERING

- A. At all times during construction the Contractor shall provide, place, operate and maintain ample means and devices with which to remove promptly, and dispose properly all water entering trenches and other excavations, or water that may flow along or across the site of the Work and shall keep said excavations dry until the structures and appurtenances to be built therein have been completed to such extent that they will not be damaged by the discontinuance of dewatering operations. At that time, such temporary means and devices shall be removed.
- B. The Contractor shall provide, install and operate pumping equipment of suitable capacity as necessary to maintain all excavations free of surface and subsurface water. He shall dispose of pumped water in accordance with approved E & S plan. Standby pumps will be required to be maintained at the site of the Work of this Section.

3.05 EXCAVATION NEAR EXISTING STRUCTURES/FACILITIES

- A. The Drawings show those underground utility lines and appurtenances for which such location information was either made available to the Engineer or was observed by the Engineer in the field. Neither the number of such underground facilities nor their respective types, sizes and/or locations can be assured or guaranteed. It is therefore the responsibility of the Contractor to obtain such additional information as is required to properly complete the Work in compliance with these Specifications and to contact the owners of the various utilities in the area prior to starting and to maintain communications with these owners during performance of the Work.
- B. The location of all power and telephone poles along the route of the Work and the overhead lines supported by all such poles shall be observed and located by the Contractor prior to commencement of the Work.
- C. The Contractor shall be completely and solely responsible and liable for any and all property damages, bodily injuries, financial losses and interruption of service that result from or are attributable to his construction activities and that affect gas lines, electric lines, telephone lines, drain lines and storm sewer lines, and all appurtenances and service facilities connected thereto. Restoration of all damaged or disturbed facilities shall be accomplished immediately after such facilities have been found to be damaged or disturbed, in accordance with the directions of the respective utility company or private owner and at no cost to the Owner.
- D. Gas, power and telephone service shall be maintained with a minimum of interruption throughout the construction of the Project. No such service shall be intentionally interrupted without the approval of the respective utility company concerned and without first giving due warning to any affected parties.
- E. The proposed Work is in proximity to overhead power lines which transmit electric current at high voltages and which, if disturbed or contacted during construction, would be hazardous to construction personnel and/or other persons. The

Contractor shall therefore properly protect such wire, pole supports, or other power line appurtenances to avoid disturbances to those facilities, and shall operate all machinery and conduct all other construction activities in a manner which will assure protection of all construction personnel and other person against said hazards. Work in the vicinity of the existing underground gas lines and appurtenances is also hazardous because, under certain conditions, such materials are flammable and/or explosive, and the Contractor shall avoid disturbance and/or displacement of those facilities and shall provide all temporary and permanent supports and other required protection to prevent exposure of same to construction personnel and/or other persons. Where such lines are exposed during construction and leakage is detected, construction Work in those areas shall be immediately suspended, the owner or owners of the affected lines shall be immediately advised of the condition, and the construction Work shall not resume until all repairs have been properly completed.

- F. The Contractor shall thoroughly instruct all his personnel and those of any subcontractor or materialsman involved in the Work so that appropriate and complete safety Work practices are observed at all times. He shall also provide all personnel with all tools, clothing, protective glasses, mechanical air blowing equipment to ventilate manholes and other chambers, explosive atmosphere detectors, ladders, harnesses and other safety-related equipment. No Work shall be performed under any unsafe conditions and, if same is detected at any time, the Contractor shall suspend operations immediately and not resume his activities until remedial measures have been taken or until the unsafe situation has otherwise been completely overcome.
- G. The Contractor's attention is directed to the fact that some of the proposed Work may interfere with existing underground utilities. The Contractor shall provide all temporary and permanent supports and other required protection or relocate these utilities. The Contractor shall be completely responsible for the cost of protection, relocating, repairing, or the reconstruction of all existing underground piping and utilities, regardless of size, that are disturbed because of his construction activities. There shall be no extra cost to the Owner for any relocation, reconstruction or repair of existing underground piping and utilities.
- H. After the appropriate utility companies and the Owner have located their lines, ducts, conduits, structures and other facilities in the field, the Contractor shall locate precisely the position, orientation and depth of all lines, ducts, conduits and other facilities that might conflict with his Work. Any unexpected conflict that becomes evident shall be immediately reported to the Engineer. Failure of the Contractor to notify the Engineer of such interference's far enough in advance will render the Owner not liable for any additional expenses incurred by the Contract while the utility is being relocated.
- I. The cost of supporting or protecting conflicting lines or other obstructions shall be at the Contractor's expense whether performed by him, the utility or the Owner.
- J. As the excavation approaches pipes, conduits, or other underground structures, digging by conventional trenching machine methods shall be done with extreme

care. No extra compensation shall be given if manual excavation is necessary to locate or construct utilities and/or underground structures.

3.06 PROTECTION OF EXISTING STRUCTURES/FACILITIES

- A. The Contractor shall maintain in place or remove and replace all interfering pipes, manholes, poles, wires, curbing, property line markers, survey monuments and other structures of facilities throughout the performance of the Work.
- B. If such structures and/or utilities are preserved in place, they shall be carefully supported and protected from injury or damage by the Contractor. In the event they are injured or damaged, the Contractor shall notify the appropriate party so that acceptable steps may be taken to repair any and all damage due to temporary provisions, or if not properly restored by him, the Owner may have the repairs made at the expense of the Contractor.
- C. If, due to the nature of their installation or policy, any utility requires the restoration Work to be done by its own forces, the cost of such Work shall be at the Contractor's expense.
- D. In addition to temporary support of utilities and structures, the Contractor shall provide for permanent support of these items by backfilling and thorough compacting with special material. This fill shall be placed and compacted to a height which will insure the stability of the pipe or obstruction to be supported.
- E. In an emergency affecting the safety of persons or the Work or property at the site or adjacent thereto, the Contractor, without special instruction or authorization by or from the Owner, is obligated to act immediately to prevent such threatened damage, injury or loss. If the Contractor believes that the additional Work done by him in such an emergency, which arose from causes beyond his control, entitles him to an increase in the Contract Price and/or an extension of the Contract Time, he may make a claim therefore as provided in the General Conditions of these Specifications.
- F. In the event of bodily injury to anyone due to the Contractor's Work, he shall secure prompt medical assistance. In the event of property damage, or an evident hazard of possible property damage the Contractor shall act without notice immediately to restore the damaged property or service or to act to prevent the damage whenever property is damaged or imperiled or important services are interrupted or imperiled.
- G. If the Contractor is notified by the Owner to correct such service disruptions or to act to prevent an apparent possible interruption, which notification shall be confirmed in writing, he shall so act immediately. If the Contractor fails to so act within three (3) working days after any such notice, the Owner may act to restore such important service or to prevent the disruption of a service and charge the cost thereof to the Contractor if the situation is due to his Work.
- H. The Contractor shall notify the Owner immediately, for his review and

determination of treatment, in any of the following events:

1. Discovery of an unforeseen obstruction.
2. The occurrence of the need to make permanently stable any nearby or adjacent pipe, pole, manhole, structure, or other facility.
3. The failure of any temporary support of a pipe, pole, manhole, structure, or other facility.
4. The discovery of a particular area where undesirable settlement may occur.

3.07 EXCAVATION AND BACKFILL FOR STRUCTURES

A. General Description of Work:

The Work under this item shall include the furnishing of all materials, labor, supervision, tools and equipment necessary to perform all excavation, backfill and disposal or storage, as required, of all surplus material or material required for the proper execution of Work. This Work will include but not necessarily be limited to the following:

1. Removal of existing construction and facilities where necessary.
2. Clearing and grubbing.
3. The loosening, loading, removing, transporting and disposing of all existing structures designated to be removed and wet or dry materials necessary to be removed for the purpose of construction.
4. The construction of ditches required for collection and drainage of surface and subsurface water.
5. All excavation and backfill Work incidental to the proper construction of structures.
6. Furnishings and installation of required sheeting, shoring and bracing; all pumping, bailing and removing of water; and any and all protective Work required.
7. Disposal of excess excavated material and/or spoil.
8. Rough and finish grading of the site.

B. Excavation for Structures:

1. Cut limits:
 - a. The excavation for all structures shall be to the lines, grades, and

limits as shown on the Drawings and/or as required for proper installation of construction, and shall be sufficient to allow for construction and removal of all formwork; for dewatering purposes; and for other construction needs. No additional compensation will be allowed for additional excavation or backfill that might be necessary to eliminate stoppages or the Work caused by slides due to the nature of the excavated materials, due to movement of equipment, or such other conditions. The Contractor must determine the extent of excavation and backfill required for execution of the Work.

- b. The Contractor will be permitted to machine excavate to within three (3) inches of the bottom of footings, floors and foundations, but shall excavate to final grade by the use of hand shovels in order to insure undisturbed final grade. Any foundation areas which are overcut, disturbed or made unsuitable as a result of the Contractor's operations shall be repaired as required below, at no additional cost to the Owner.

2. Unsuitable Bottom:

In the event that the material encountered at the bottom of the excavation is not suitable for foundations or other Work, as determined by the Engineer, the excavation shall be carried to such additional depth as ordered by the Engineer. The Contractor will be reimbursed for such additional Work as stipulated in the General Conditions of these Specifications, provided that the unsuitable nature of the bottom material did not result from the Contractor's operations.

3. Overcutting:

- a. The Contractor shall excavate to the exact elevations necessary unless otherwise directed by the Engineer.
- b. If excavated below the elevations shown for footings, pilings, foundation walls and other structures, the excavation may, subject to the discretion and advance approval of the Engineer on a case-by-case basis, be backfilled with select fill materials as described under Paragraph 2.02 (C) of this section or Class C concrete. In some cases, the structure design may be revised in order that it bear on undisturbed soil.
- c. Any increase in cost resulting from backfilling or increasing the size of the footings or foundations because of overcutting shall be borne by the Contractor.

4. Slabs on earth:

- a. Where slabs occur on earth, all loose, shattered or spongy materials and all loam, organic or other undesirable materials shall be removed to a depth sufficient to encounter solid material of suitable load-bearing capacity.
 - b. Where slabs on fill occur, the fill shall be placed in accordance with Paragraph 3.07 (C) below.
- C. Backfilling for Structures:
- 1. General:
 - a. Placement and compaction of material shall be only after permission has been given by the Engineer. No material shall be placed or compacted when it is too wet or frozen or when the subgrade of previously placed material is too wet or frozen. The Engineer shall determine when conditions are suitable for placing and compacting material. All loam, topsoil and other material judged to be unsuitable by the Engineer shall be removed before any material is placed and compacted.
 - b. Where excavated material or any portion thereof is deemed unsuitable for use as backfilling material, the Contractor shall procure and place approved "special" backfill materials, such as crushed stone, screened gravel or sand. The backfill around structures shall be placed in layers not exceeding six (6) inches in thickness, each of which shall be thoroughly compacted by mechanical means sufficient to prevent subsequent settlement. Machine backfilling will not be permitted.
 - 2. Structural Fill:
 - a. Structural fill material shall be compacted by suitable power equipment sufficient to bring the field density, as determined by "Test for Density of Soil in Place by the Sand Cone Method" (ASTM D1556-64), to within the following percentage of the maximum density as determined by the "Tests for Moisture-Density Relations of Soils, Using 10 lb. Rammer and 18-inch Drop" (ASTM D1557-70 Modified Proctor Compaction Test).
 - 1. Soil - Not less than 95 percent.
 - 2. Granular Material - Not less than 97 percent.
 - 3. The moisture content of the material at the time of compaction shall not be more than 2 percentage points above the optimum moisture content.
 - b. Material which is deposited in one day shall spread, shaped, brought

to optimum moisture content and compacted the same day unless otherwise directed by the direct by the Engineer.

- c. In the event inclement weather or unforeseen circumstances render impractical the spreading and compaction of the material during the first 24-hour period, the material shall be spread and scarified as directed by the Engineer.

3. Backfill around structures:

- a. The placement of material shall be carried out symmetrically around structures in lifts not to exceed eight (8) inches of loose material, which shall be maintained as nearly horizontal as is possible to avoid differential or non-uniform loading of exterior walls. In this regard, the maximum permissible differential elevation of backfill at any given time will be four (4) feet.
- b. Compaction of material shall be at a moisture content equal to or slightly above optimum as determined by the Modified Proctor Compaction Test. It shall be done by mobile mechanical equipment not closer to the structure than the depth of the structure below finished grade unless otherwise approved by the Engineer.
- c. Each layer of material shall be compacted to an in-place density greater than 95 percent of the maximum as determined by the Modified Proctor Compaction Test.
- d. At points which cannot be reached by mobile mechanical equipment, suitable power-driven tampers shall be used to achieve the same degree of compaction. Backfilling around concrete structures shall start only after the concrete has reached the specified 28-day compressive strength and finishes have been applied and appropriately cured.
- e. Backfill against structure foundation walls shall begin only after the top slab is in place and has obtained sufficient strength to give support to the walls.

4. Testing:

- a. The optimum moisture content and the maximum density of each type of material used for structural fill and backfill shall be determined by "Tests for Moisture Density Relations of Solid, Using 1-0lb. Rammer and 18-inch Drop" (ASTM D1557-70 or AASHTO T-180-60).
- b. The field moisture content of materials being compacted shall be determined by "Laboratory Determination of Moisture Content of Soil" (ASTM D2216-71). The field density of compacted material shall be determined by either "Test for Density of Soil in Place by

the Sand-Cone Method" (ASTM D1556-64) or "Test for Density of Soil by the Rubber Balloon Method" (ASTM D2167-66).

- c. The Contractor shall perform field density and field moisture content tests on each lift of material to insure to the satisfaction of the Engineer that the requirements of this Section of these Specifications are being complied with. Field compaction test including reference tests in number not to exceed one (1) compaction test per 2000 square feet
 - d. Reports verifying these test results shall be submitted to the Engineer and the Contractor shall notify the Engineer when and where the tests are to be made so that the Engineer can observe the tests.
5. All structures designed to contain water shall be tested for water-tightness, using standard approved procedures, before any backfill is placed above the respective footings.

3.08 EXCAVATION AND BACKFILL FOR PIPE LINES

A. Open excavation:

- 1. Unless otherwise indicated on the Drawings, all pipe lines shall be laid in open trenches. The depth of such trenches shall be such that the pipe, in its installed position, will comply with the lines and grades shown on the Drawings, or with the lines and grade established by the Engineer in the field. Unless otherwise indicated on the Drawings, the minimum cover for pipe lines conveying liquids shall be four (4) feet. Minimum cover for gas lines shall be two (2) feet.
- 2. The Contractor shall make personal examination of the locations in which the pipe lines are to be constructed to determine for himself the extent and character of any rock which may be encountered. The Contractor shall not at any time a misunderstanding in regard to depth or character of the excavation to be made or in the nature of the materials to be encountered. All excavation shall be classified and no extra payment will be made for hand excavation or for rock, masonry, paving, boulders, shale, timbers or other natural or artificial materials encountered in the trenching operations.
- 3. Where excavation is to be made along roads or traveled ways, the Contractor shall familiarize himself with the requirements of the governing body having jurisdiction of said property and shall pattern his operations accordingly. In the event that the governing body has established no requirements, the Contractor shall limit his trench excavation to the limits hereinafter described. He shall schedule his operations so that at least one lane of traffic is always open unless he is specifically permitted to do otherwise by both the governing body having jurisdiction over the roadway and the Engineer. Where the flow of traffic must be restricted, or rerouted

due to activities of the Contractor, the Contractor shall be responsible for providing all barriers, signage, temporary traffic surfaces and traffic control personnel necessary to insure the safe movement of traffic around the site of the Work and sufficient to the requirements of any governing body of jurisdiction.

4. The Contractor shall shape trenches which are located adjacent to existing above-ground or underground structures and/or facilities or in other confined areas so that such structures and facilities are properly protected against damage or disturbance resulting from settlement or displacement. Adequate sheeting, shoring and/or bracing shall be installed and maintained to provide such protection and the Contractor shall be responsible for all damages resulting to such structures and/or facilities as the result of his failure to use adequate supports as well as those resulting from any other construction activities.
5. Should the Contractor's operations imperil foundations for new or existing structures, he shall provide concrete underpinning piers or supports for such structures at no additional cost to the Owner. Concrete used for underpinning piers shall consist of materials as described in Division 3 of these Specifications.
6. Any excavation where the depth of a trench with vertical sides is four (4) feet or greater or which presents a hazard to personnel working in the trench because of embankments, stockpiling of excavated materials along the top of the trench or other such condition, the Contractor shall provide adequate and suitable means of shoring, sheeting and/or bracing to prevent the trench walls from collapsing and to protect his personnel working in the trench. The system of shoring shall be as required in Paragraph 3.03 of this Section.
7. In excavation for all pipelines where made in open cut and where space permits, the banks of the trench from the ground surface to a depth not closer than 1 foot above the top of the pipe may be excavated to non-vertical and non-parallel planes. In no case shall the side walls of the trench in the pipe zone, defined as all that trench area below a point of 12 inches above the top of the pipe in its installed position, be permitted to be other than vertical and parallel planes equidistant from the pipe centerline.

The horizontal distance between the vertical planes shall be no greater than the outside diameter of the pipe plus 24 inches. The Contractor is cautioned that if the pipe zone trench widths are exceeded, he shall install the pipe in a concrete cradle or provide other special trench backfilling procedures which will result in a final installation equal to that specified, subject to the approval of the Engineer.

8. Where the available space does not permit where the trench is through paved areas or where existing or proposed above ground or underground structures may be endangered, the sides of the trench above the pipe zone

shall be excavated to vertical and parallel planes. The horizontal distance between the vertical planes shall be no greater than necessary to permit construction of the pipeline with all required sheeting, shoring and bracing in place.

9. No pipe shall be installed under any circumstances which bears on rock or a rock projection. All bell holes shall be excavated before the pipe is lowered in the trench. Bell holes shall be no larger than required to permit proper jointing.
 10. For all pipelines, the bottom of the trenches shall be excavated and overcut a minimum of six (6) inches below the bottom of the outside of the pipe as determined from the finished grade shown on the Drawings or established in the bottom of the pipe barrel with sand, crushed stone or other similar material approved by the Engineer. In all other respects, the requirements of this Section shall apply.
 11. Where muck, quicksand, soft clay, swampy or other material is encountered in the trench bottom which, in the opinion of the Engineer, is unsuitable for pipe foundation subgrade or backfill, such material shall be removed to a depth satisfactory to the Engineer. The trench shall then be backfilled to grade with acceptable material and mechanically compacted in successive layers of not greater than four (4) inches. For the removal and replacement of such unsuitable materials to a depth greater than six (6) inches below the bottom of the pipe, and when authorized by the Engineer, the Contractor shall be reimbursed in accordance with the General Conditions.
 12. Materials excavated from trenches shall be stored or deposited within the rights-of-way established for this Work unless the Contractor secures permission writing from adjacent property owners to use their property for this purpose.
 13. The Contractor shall schedule his excavation and backfill operations so that no more than 100 feet of trench remains open at one time. All such open trench and piles of deposited materials and all freshly backfilled or uncompacted trench areas shall be adequately barricaded and posted with suitable battery-operated warning lights, signs and other safety-related equipment provided in accordance with local, state or federal governmental requirements, or in the absence of same, to the satisfaction of the Engineer.
- B. Excavation in paved areas:
1. The Contractor shall at all times care not to excavate beyond the temporary construction lines where such are shown on the Drawings unless otherwise authorized by the Engineer.
 2. When it is necessary during trenching for pipe laying to cut and remove paving, the removal shall be done by or under the direction of the Contractor responsible for replacing the paving.

3. The pavement to be removed shall be saw-cut through the wearing and base courses if bituminous, and through the concrete course if concrete. The removal of pavement and disposal of spoil shall be accomplished before and not coincidentally with the excavation Work.

C. Concrete cradle and/or encasement:

1. Concrete cradle and/or encasement is required to be furnished and installed at the locations shown on the Drawings and under all sewer pipe within the excavated areas around manholes and other structures or where the specified trench widths are exceeded. Said cradle and encasement material shall consist of concrete as described in Division 3 of these Specifications. Care shall be exercised in placing encasement or cradle to provide adequate anchorage for the sewer pipe lines in order to preclude flotation and/or displacement of the pipe.
2. The Contractor shall provide and install all reinforcing steel that may be required or shown on the Drawings to assure adequate strength for concrete cradle or encasement.

3.09 PIPE BEDDING AND EMBEDMENT

A. Pipe bedding:

All pipe lines shall be supported on a granular bedding material approved by the Engineer. The minimum thickness shall be six (6) inches at the bottom of the pipe, and it shall be installed for the full width of the trench, beginning at a minimum of six (6) inches below the bottom of the pipe and along the sides of the pipe to the horizontal centerline of the pipe. This bedding material shall be placed on both sides of the pipe simultaneously for the full width of the trench and shall be mechanically tamped in layers not to exceed four (4) inches, to not less than 97 percent of the maximum density as specified under Paragraph 3.07 (C) of this Section.

B. Flexible water pipe (PVC and ABS/PVC composite pipe) shall have Class I bedding, as described in ASTM D-2321 and modified here:

1. All water pipe shall be supported on an embedded in granular bedding material as described in Part 2.02 of this section. The bedding and embedment shall be deposited in four (4) inch layers on both sides of, six (6) inches below and to 12 inches above the top of the pipe and carefully compacted. Tamping within 12 inches of the pipe shall be by hand tamping. Subsequent compaction shall be performed with mechanical tampers which have a zone of influence less than the depth from the point of usage to the top of the pipe. In no case shall compactors of the hydrohammer type be

utilized within 48 inches of the pipe surface and shall be utilized more than such distance from the pipe surface only if pipe embedment has previously been compacted to at least 85% of Standard Proctor Density.

Bell holes in the bedding shall be provided at each joint to permit proper assembly of the joint while maximizing uniform pipe support.

In cold or freezing weather, the max. size of aggregate in the special materials shall be 3/4-inch.

2. Embedment and backfill shall be such that diametric deflection of the pipe due to the pressure of backfill shall not exceed 7.5 percent of the actual inside pipe diameter for PVC pipe and 5 percent of the actual inside pipe diameter for PVC pipe and 5 percent of same for ABS/PVC composite pipe. Due to the importance of proper bedding and embedment of PVC and ABS composite pipe, the Contractor shall lay and backfill not less than 200 feet of pipe and test it for compliance with the max. 7.5 percent for PVC pipe and 5 percent for ABS/PVC composite pipe allowable vertical ring deflection. This procedure will demonstrate if the Contractor's bedding and embedment procedure is adequate. The Contractor shall furnish the pipe Manufacturer's written approval of his method of installation as developed from his initial installation.

C. Pipe Zone backfill:

Backfill in the pipe zone above the pipe bedding material to an elevation of one (1) foot above the top of the respective pipe shall be of selected excavated and compactable material free from rocks, boulders, and stones greater than 3/4 inch in maximum dimension. The material shall be uniformly placed on both sides of the pipe in 4-inch layers for the full trench width and shall be mechanically tamped in place. If necessary to achieve thorough compaction, the material shall be moistened during the tamping process.

D. Backfill above the pipe zone:

1. Insofar as is practical, the material excavated during the trenching operations shall be utilized as backfill above the pipe zone to an elevation equal to the bottom of top soil or other special surface treatments. The Engineer shall determine whether material is unsuitable and, upon the Engineer's notice, unsuitable material shall be disposed of and suitable selected fill materials shall be brought in from an outside source, at no additional cost to the Owner.
2. Those trenches which are located along or across traveled ways, or in the berms of streets, roads, parking areas or other traffic use area which must be made safe for vehicular traffic as soon as possible, shall be backfilled above the pipe zone with compactable material, free from rocks or boulders greater than four (4) inches in

maximum dimension. The materials shall be placed and tamped with mechanical tampers in successive layers not to exceed four (4) inches in vertical depth. Where permanent type pavement is required, a temporary fill shall be placed thereon prior to paving.

3. Where excavation is made through planted, cultivated, lawned or similar areas, the topsoil shall be removed and separately stored. Backfill material and placement shall be the same as previously specified, except that the backfill shall be carried to within six inch of the final grade. The topsoil salvaged from the excavation (or brought in from an outside source) shall then be placed to approximately one (1) inch above the adjacent grade, rolled with a light roller, and seeded or planted to a condition equivalent to that existing before the commencement of construction.
4. Trenches which are located in areas not specified in these Specifications or noted on the Drawings to be seeded or sodded, or for which surface settlement is not important in the opinion of the Engineer, may be filled above the pipe zone with a compatible material free from rocks or boulders larger than eight (8) inches in maximum dimension. However, the Contractor shall place the material in layers no greater than 12 inches in vertical depth and shall tamp as required to assure that no excessive voids are present in the backfill. He shall carry the backfill in this manner to grade. He shall then add backfill neatly rounded over the trench to a sufficient height to allow for settlement to grade after consolidation. Future settlements within a period of one year following Contract close-out shall immediately rectified by adding material to bring the surface to a little above the grade.
5. The Contractor shall make up all deficiency in backfill material at his own expense.
6. In the event that the Contractor desires to attain compaction by flooding the backfill, such methods may be approved by the Engineer, subject to demonstration by the Contractor that satisfactory end results can be achieved. In any event, any trench settlements occurring within one (1) year after the date of Contract close-out shall be required to be rectified by the Contractor at no extra cost to the Owner.
7. Particular care shall be exercised by the Contractor in backfilling trenches located along or crossing roadways, roadway berms, parking areas, and other traveled ways, such that the resumption of normal traffic patterns will occur reasonably soon after the pipe in those areas has been installed.

3.10 DISPOSAL OF UNSATISFACTORY AND/OR EXCESS EXCAVATED MATERIAL

Where the Contractor encounters boulders, rocks, spongy or swampy materials, old paving materials, masonry, debris, or other materials determined by the Engineer to be unsatisfactory for use as backfill or backfill becomes excessively wet, frozen, or otherwise unsuitable, the same shall be disposed of at the WWTP site by the Contractor at no extra cost to the Owner. All excess material remaining after completion of trench backfilling and all excavated material replaced by special backfill shall be similarly disposed of by the Contractor in the same manner at no extra cost to the Owner.

3.11 ROUGH AND FINISH GRADING OF THE SITE:

- A. Fill material shall be installed up to subgrades to accommodate finish grades as shown on the Drawings for pavements, grass or other surface treatments. Prior to placing the fill, the area shall be compacted in the manner described under Part 3.07 of this Section.
- B. The fill material shall be spread in 6 inch layers. Each layer shall be compacted using equipment such as vibrating rollers, equipment with caterpillar treads having traction lugs, or sheepsfoot rollers. Hand air tampers are acceptable in confined quarters. The compacted area shall be covered at least twice by the equipment.

3.12 INSTALLATION OF RIP-RAP

Rip-rap shall be furnished and installed where shown on the Drawings, in accordance with the provisions of these Specifications.

PART 4 – BASIS OF PAYMENT

- 4.01 Excavation, Backfilling and Grading – Incidental. No additional compensation will be provided for Excavation, Backfilling and Grading. The cost associated with Excavation, Backfilling and Grading shall be included in the Lump Sum price bid for the items specified in the Bid Schedule.

END OF SECTION

SECTION 02270

SOIL EROSION AND SEDIMENTATION CONTROL

PART 1 GENERAL

1.01 Section Includes

A. Soil Erosion and Sedimentation Control

1.02 Submittals

A. Submit manufacturer's certifications of materials to the Engineer.

PART 2 PRODUCTS

2.01 All materials shall meet the requirements of the latest edition of the Erosion and Sediment Pollution Control Program Manual published by the Commonwealth of Pennsylvania Department of Environmental Resources, Office of Resources Management, Bureau of Soil and Water Conservation, Division of Soil Resources and Erosion Control.

PART 3 EXECUTION

3.01 Construct and maintain all measures required by the Soil Erosion and Sedimentation Control Plan attached to these Specifications and as indicated in the Plans. Approved Soil Erosion and Sedimentation Control Plans are to be kept on site at all times during construction.

PART 4 BASIS OF PAYMENT

4.01 Soil Erosion and Sedimentation Control - Incidental

END OF SECTION

SOIL EROSION AND SEDIMENTATION CONTROL

SECTION 02480**LANDSCAPING****PART 1 - GENERAL****1.01 DESCRIPTION**

- A. The Contractor shall furnish all labor, materials, tools, equipment and products for final grading, application of topsoil, soil and amenders, fertilizer, mulch, seeding and/or sodding as shown on the Drawings and/or herein specified.
- B. The Contractor shall furnish all labor, materials, tools, supervision, equipment and services necessary to complete fully this portion of the work as shown on the drawings or herein specified or both, as follows:
1. Finish Grading - Removal of trash and stones, grading to specified slope and contour, and furnishing and applying topsoil.
 2. Preparation of Planting Areas - Furnishing and applying lime, fertilizer, and physical conditioning materials and incorporating same into the soil.
 3. Planting Materials - Supplying plant materials of quality and species and/or varieties specified. Planting shall be performed in an approved manner and maintenance shall be supplied for a specified period.
- C. Related Work described elsewhere:
- | | |
|---|---------------|
| 1. Erosion and Sedimentation Control Measures | Section 01060 |
| 2. Demolition, Clearing and Grubbing | Section 02100 |
| 3. Excavation, Backfilling, and Grading | Section 02200 |

1.02 QUALITY ASSURANCE

The Contractor shall procure from the local Agricultural Agent a pH analysis of the topsoil to be applied to the site and his recommendations as to the amount of limestone (agricultural) screenings, if any, needed to bring the pH of the soil up to a value between 6 and 8. The sample of the topsoil submitted to the Agricultural Agent shall be a composite of not less than 10 site samples.

PART 2 - PRODUCTS**2.01 TOPSOIL AND SOIL CONDITIONING MATERIALS**

- A. Topsoil shall be natural surface soil from well-drained areas of loam or sandy loam nature containing less than 30% silt and less than 12% clay. It shall be free of weeds, roots, sticks, stones or other extraneous matter.

- B. Fertilizers shall be delivered to site in original bags and protected at all times prior to application against mechanical or weather damage.
 - 1. Superphosphate shall be of standard quality containing not less than 20% available phosphate.
 - 2. Basic fertilizer shall be a 0-20-20 analysis: 20% available phosphate derived from superphosphate and 20% water-soluble potash derived from muriate of potash.
 - 3. Starter fertilizer shall be 10-5-5 complete analysis fertilizer with 10% nitrogen having 35% or more of the total nitrogen as water-insoluble nitrogen. Nitrogen may be derived from a natural organic material or a ureaform compound (38% N, Minimum Availability Index = 45). The 5% available phosphate shall be derived from superphosphate and 5% water-soluble potash derived from muriate of potash.
- C. Lime shall be standard ground limestone containing a minimum of 50% lime oxides (calcium oxide plus magnesium oxide), 98% passing a 20 mesh sieve and a minimum of 40% passing a 100 mesh sieve.
- D. Reed-Sedge Peat or Sphagnum Moss Peat shall have an organic matter content of 80% minimum and a water holding capacity of 400% minimum.
- E. Mushroom manure shall be composed of well-rotted cattle or stable manure with an admixture of 15% to 30% topsoil and shall have been used for the commercial growing of at least one crop of mushrooms. It shall be free of sawdust, refuse, shavings and harmful chemicals.
- F. Wood chips shall be the by-product of twigs and branches that have been processed through a chipper.
- G. Straw shall be either wheat or oat straw, clean and free of weeds and other extraneous matter.

2.02 SEED

- A. In seeding operations conducted as part of the Work of this Section, the Contractor shall use seed exclusively which conforms to the Pennsylvania Seed Act of 1965, Act No. 187, and applicable regulations of the Pennsylvania Department of Agriculture, Bureau of Plant Industry.
- B. In selecting seed to be used in this Work, the Contractor shall adhere to the following requirements:
 - 1. Have the Pennsylvania Department of Agriculture, Bureau of Plant Industry, conduct purity and germination analysis, following the current Rules for Testing Seeds of the Association of Official Seed Analysis.

2. Use certified Crownvetch, Kentucky Bluegrass, Perennial Rye Grass, Pennsylvania Red Fescue, or Red Fescue seed.
 3. Use Penngift crownvetch seed, pretested by the Pennsylvania Department of Agriculture, in 10-pound (net) waterproof containers, with a tag attached to each bag showing a Pennsylvania Department of Transportation number to verify pretesting and conformance to specifications.
 4. Use a premixed seed with an inspection tag stamped, dated and signed by the Department of Agriculture inspector and sewn into the inside top of each bag. Seed from containers that are not sealed or that have been stored with herbicides or seed which has a test date older than nine months shall not be used. Seed to be used in the Work of this Section shall have been inspected and sampled as specified, or sampled by individual species and lot number and mixed on the Project site under Department supervision.
- C. Seed inoculation employed by the Contractor shall be a standard acceptable commercial product for treating leguminous seed and shall consist of a suitable carrier containing a culture of nitrogen-fixing bacteria specific for the seed to be inoculated. Inoculant containers shall be kept sealed until they are empty. At all times, suitable storage at a moderate temperature must be provided. The Contractor shall not use inoculant after the expiration date shown on the container.

PART 3 - EXECUTION

3.01 GENERAL

- A. All areas shall be tilled to a depth of four (4) inches prior to placement of topsoil. The entire subgrade shall be raked and all stones and debris over 1-1/2 inches in maximum dimension must be removed.
- B. Topsoil as specified shall be placed to a minimum depth of four (4) inches and brought to grades indicated on the Drawings. Trash, lumps and stones exceeding 1-1/2 inches in maximum dimension shall be removed from all areas prior to seeding or sodding.
- C. Peat as specified (2-1/2 cubic yards per 1000 sq. ft.), lime (65 pounds per 1000 sq. ft.) and basic fertilizer (50 pounds per 1000 sq. ft.) shall be thoroughly incorporated into the soil to a depth of five (5) inches.
- D. Starter fertilizer (25 pounds per 100 sq. ft.) shall be applied and worked to a depth of one (1) inch. All areas shall be fine-graded and firmed with a light roller.
- E. Seeding shall be done at such time of the year when climatic conditions of temperature and moisture are suitable for growth within the following seeding dates:

Spring

March 15 - June 1

Fall

August 15 - October 15

If required, the Engineer may modify these dates upon receipt of a written request from the Contractor.

- F. Seed shall be Blue Tag Certified. It shall have been tested for germination and purity by acceptable methods within a period of 9 months prior to delivery. Seed tag shall show date of germination test, germination and purity as indicated below:

SPECIES	% MIX	APPLICATION RATE lbs/100 sq. yd.
Kentucky Bluegrass (use 2 or more varieties)	60%	4
Creeping Red Fescue	40%	
Ryegrass	55%	

- G. Seed for each area shall be divided into two equal parts, each area to be seeded in two passes, with the second seeding to be over the first at a right angle to it.
- H. If a distributor is used which deposits seed on the surface, the seed shall be covered by smoothing harrow, hand rake or cultipacker.
- I. Unless a cultipacker seeder has been employed, areas shall be firmed after seeding by light rolling or cultipacking.
- J. Straw mulch as specified shall be applied uniformly at a rate of 100 pounds per 1000 sq. ft.
- K. Seeded areas shall be maintained by watering, weeding, reseeding, mowing and other operations for at least 45 days and as much longer as necessary to establish a close stand of grass at an average height of 2-1/2 inches.

3.02 INOCULATING LEGUMES

The Contractor shall inoculate leguminous seed with the proper cultures in accordance with the Manufacturer's directions. Prior to sowing, inoculated seed shall be protected from prolonged exposure to sunlight. Seed not sown within 24 hours shall be reinoculated. When seed is applied by hydraulic seeders, four (4) times the Manufacturer's recommended rate shall be utilized.

3.03 WEED CONTROL

Approved herbicide shall be applied at a rate recommended by the Manufacturer after the grass is planted as soon as a new growth of weeds appears.

3.04 MAINTENANCE

The Contractor shall water, weed, mow, prune and otherwise promote healthy growth, maintain and protect seeded and sodded areas, until final acceptance by the Owner.

3.05 REPLACEMENTS

At the beginning of the next planting season after that in which the permanent grass crop is sown, the seeded and sodded areas will be inspected. If grass growth is unacceptable over one-fourth or more of the total area, the total unacceptable area shall again be prepared and reseeded or sodded as described above and maintained by watering and mowing through the planting periods.

PART 4 – BASIS OF PAYMENT

4.01 Landscaping – Incidental. No additional compensation will be provided for Landscaping. The cost associated with Landscaping shall be included in the Lump Sum price bid for the items specified in the Bid Schedule.

END OF SECTION

SECTION 02825

TOPSOIL, SEEDING, MULCHING, AND MAINTENANCE

PART 1 - GENERAL

1.1 Section Includes

- A. Topsoil
- B. Seeding
- C. Mulching
- D. Maintenance

1.2 Applicable Standard Tables

- A. Seeding Restoration Table (attached)

1.3 References

- A. Commonwealth of Pennsylvania, Department of Transportation, Publication 408 Specifications current edition with all supplements. (PennDOT Publication 408)
- B. Pennsylvania Seed Act of 1965, Act 187, as amended.
- C. Agricultural Liming Materials Act of 1978, P.L.15, No. 9 (3P.S.132.1), as amended.
- D. Pennsylvania Soil Conditioner and Plant Growth Substance Law, Act of December 1, 1977, P.L. 258, No. 86 (3P.S.68.2), as amended.
- E. Rules for Testing Seeds of the Association of Official Seed Analysts.
- F. AASHTO T194.

1.4 Definitions

- A. Weeds: Includes Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

1.5 Regulatory Requirements

- A. Comply with regulatory agencies for seed mixture, fertilizer, and herbicide composition.

1.6 Quality Assurance

- A. Provide seed mixture in containers showing percentage of seed mix, date of production, net weight, date of packaging, and location of packaging.

- B. The Contractor has the option of using soil testing to justify decreasing lime and fertilizer rates. When soil testing is selected by the Contractor, the soil and soil supplement testing shall be performed by a Soils Testing Laboratory engaged and paid for by the Contractor and approved by the Engineer. The Contractor shall collect soil samples under the direction of the Engineer.

If soil tests are performed to justify decreased liming and fertilizer rates, the Contractor shall submit certified soil sample analysis, including the laboratory's recommended soil supplement formulation.

PART 2 - PRODUCTS

2.1 Topsoil

- A. Having a pH of between 6.0 and 7.0, containing not less than 2% nor more than 10% organic matter as determined by AASHTO T194.
- B. Fertile friable loam, sand loam, or clay loam which will hold a ball when squeezed with the hand, but which will crumble shortly after being released.
- C. Free of clods, grass, roots, or other debris harmful to plant growth.
- D. Free of pests, pest larvae, matter toxic to plants, and weeds.
- E. Topsoil removed under Section 02300-Earthwork may be reincorporated into this work. Additional topsoil, as required, shall be furnished by the Contractor at no additional cost to the Owner.

2.2 Seed

- A. Fresh, clean, dated material from the last available crop and within the date period specified with a date of test not more than 9 months prior to the date of sowing. Percentage of pure seed present shall represent freedom from inert matter and from other seeds distinguishable by their appearance. All seeds will be subject to analysis and testing.

TABLE 1 - GRASS AND AGRICULTURAL SEEDS			
Species	Minimum Guaranteed Purity (Percent)	Maximum Weed Seed (Percent)	Minimum Guaranteed Germination (Percent)
Kentucky Bluegrass (<i>Poa pratensis</i>) Domestic Origin; min. 21 lb. per bushel	90	0.20	80
Perennial Ryegrass (<i>Lolium perenne</i> , var. Pennfine)	95	0.15	90
Kentucky 31 Fescue (<i>Festuca elatior arundinacea</i>)	98	0.25	85
Crownvetch (<i>Coronilla varia</i> , var. Penngift)	99	0.10	70
Pennlawn Red Fescue (<i>Festuca rubra</i> , var. Pennlawn)	98	0.25	90
Annual Rye Grass (<i>Lolium multiflorum</i>)	95	0.15	90
Timothy (<i>Phleum pratense</i>)	98	0.25	95

2.3 Seed Mixtures

- A. See "Seeding Restoration Table" at end of this Section.

2.4 Inoculant

- A. Inoculant leguminous seed before seeding with nitrogen fixing bacteria culture prepared specifically for the species.
- B. Do not use inoculant later than the date indicated by the manufacturer.
- C. Protect Inoculated seed from prolonged exposure to sunlight prior to sowing.
- D. Reinoculate seed not sown within 24 hours following initial inoculation.

2.5 Fertilizer

- A. Basic Dry Formulation Fertilizer
1. Analysis 0-20-20 and as defined by the Pennsylvania Soil Conditioner and Plant Growth Substance Law.
- B. Starter Fertilizer
1. Analysis 10-5-5 or 12-6-6 as defined by the Pennsylvania Soil Conditioner and Plant Growth Substance Law.

2.6 Lime

- A. Raw ground limestone conforming to Section 804.2(a), of PennDOT Publication 408.

2.7 Mulching Materials

- A. Mulches for seeded areas shall be one, or a combination of, the following:
1. Hay
 - a. Cured to less than 20% moisture content by weight.
 - b. Contain no stems of tobacco, soybeans, or other coarse or woody material.
 - c. Timothy hay or mixed clover and timothy hay.
 2. Straw
 - a. Cured to less than 20% moisture content by weight.
 - b. Contain no stems of tobacco, soybeans, or other coarse or woody material.
 - c. Wheat or oat straw.
 3. Wood Cellulose
 - a. No growth or germination inhibiting substances.
 - b. Green, air dried. Packages not exceeding 100 pounds.
 - c. Requirements:

Moisture Content:	12% \pm 3%
Organic Matter:	98.6% \pm 0.2% on the oven dry basis.
Ash Content:	1.4% \pm 0.2%
Minimum Water-Holding Capacity:	1,000%

4. Mushroom Manure
 - a. Organic origin, free of foreign material larger than 2" and substances toxic to plant growth.
 - b. Organic Matter: 20% minimum
 - c. Water-Holding Capacity: 120% minimum
 - d. pH: 6.0

2.8 Accessories

- A. Water: Clean, fresh and free of substances or matter which could inhibit vigorous growth of grass.
- B. Erosion Fabric: Jute matting, open weave.
- C. Stakes: Softwood lumber, chisel pointed.
- D. String: Inorganic fiber.

PART 3 - EXECUTION

3.1 Preparation of Subgrade

- A. "Hard pan" or heavy shale
 1. Plow to a minimum depth of 6".
 2. Loosen and grade by harrowing, discing, or dragging.
 3. Handrake subgrade. Remove stones over 2" in diameter and other debris.
- B. Loose loam, sandy loam, or light clay
 1. Loosen and grade by harrowing, discing, or dragging.
 2. Handrake subgrade. Remove rocks over 2" in diameter and other debris.

3.2 Placing Topsoil

- A. Place topsoil and spread over the prepared subgrade to obtain the required depth and grade elevations. Final compacted thickness of topsoil not less than 3 1/2". Compact with a roller weighing not over 120 pounds per foot width of roller or by other acceptable means, as directed.
- B. Handrake topsoil and remove all materials unsuitable or harmful to plant growth.
- C. Do not place topsoil when the subgrade is frozen, excessively wet, or extremely dry.
- D. Do not handle topsoil when frozen or muddy.

3.3 Tillage

- A. After seed bed areas have been brought to proper compacted elevation, thoroughly loosen to a minimum depth of 5" by discing, harrowing, or other approved methods. Do not work topsoiled areas when frozen or excessively wet.

- B. Liming
 - 1. Distribute limestone uniformly at a rate of 100 pounds per 1,000 square feet.
 - 2. Thoroughly incorporate into the topsoil to a minimum depth of 4".
 - 3. Incorporate as a part of the tillage operation.
- C. Basic Fertilizer
 - 1. Distribute basic fertilizer uniformly at a rate of 50 pounds per 1,000 square feet.
 - 2. Incorporate into soil to a depth of 4" by approved methods.
 - 3. Incorporate as a part of the tillage operation.
- D. Liming and Fertilizer rates may be decreased if lesser rates are indicated by soil tests provided by the Contractor.

3.4 Finish Grading

- A. Remove unsuitable material larger than 2" in any dimension.
- B. Uniformly grade surface to the required contours without the formation of water pockets.
- C. Rework areas which puddle by the addition of topsoil and fertilizer. Rerake.
- D. Distribute starter fertilizer at the following rates:
 - 10-5-5: 50 pounds per 1,000 square feet.
 - 12-6-6: 33 pounds per 1,000 square feet.
- E. Incorporate starter fertilizer into the upper 1" of soil.

3.5 Seeding

- A. Uniformly sow specified seed mix by use of approved hydraulic seeder, power-drawn drill, power-operated seeder, or hand-operated seeder or by hand. Do not seed when winds are over 15 mph.
- B. Upon completion of sowing, cover seed to an average depth of 1/4" by hand raking or approved mechanical methods.

3.6 Mulching

- A. Mulch within 48 hours of seeding.
- B. Place hay and straw mulch in a continuous blanket at a minimum rate of 1,200 pounds per 1,000 square yards.
 - 1. Anchor hay or straw mulch by use of twine, stakes, wire staples, paper, or plastic nets.
 - 2. Emulsified asphalt may be used for anchorage provided it is applied uniformly at a rate not less than 31 gallons per 1,000 square yards.
 - 3. Apply approved chemical mulch binders at the manufacturer's

- recommended rate.
- C. Chemical mulch binders or a light covering of topsoil may be used for anchorage when the size of the area precludes the use of mechanical equipment.
 - D. Apply wood cellulose fiber hydraulically at a rate of 320 pounds per 1,000 square yards.
 - 1. Incorporate as an integral part of the slurry after seed and soil supplements have been thoroughly mixed.
 - E. Spread mushroom manure uniformly to a minimum depth of 1/2" or to the depth indicated on the drawings.
 - F. When mulch is applied to grass areas by blowing equipment, the use of cutters in the equipment will be permitted to the extent that a minimum of 95% of the mulch is 6" or more in length. For cut mulches applied by the blowing methods, achieve a loose depth in place of not less than 2".
 - G. When mulching by the asphalt mix method, apply the mulch by blowing. Spray the asphalt binder material into the mulch as it leaves the blower. Apply the binder to the mulch in the proportion of 1.5 to 2.0 gallons per 45 pounds of mulch.
 - 1. Protect structures, pavements, curbs, and walls to prevent asphalt staining.
 - 2. Erect warning signs and barricades at intervals of 50 feet or less along the perimeter of the mulched area.
 - 3. Do not spray asphalt and chemical mulch binders onto any area within 100 feet of a stream or other body of water.

3.7 Seed Protection

- A. Cover seeded slopes where grade is 4 inches per foot or greater with erosion fabric. Roll fabric onto slopes without stretching or pulling.
- B. Lay fabric smoothly on surface, bury top end of each section in 6 inch (150 mm) deep excavated topsoil trench. Provide 12 inch (300 mm) overlap of adjacent rolls. Backfill trench and rake smooth, level with adjacent soil.
- C. Secure outside edges and overlaps at 36 inch (900 mm) intervals with stakes.
- D. Lightly dress slopes with topsoil to ensure close contact between fabric and soil.

3.8 Maintenance

- A. Maintenance includes watering, weeding, cleanup, edging and repair of depressions, washouts or gullies.
- B. Those areas which do not show a prompt catch of grass within 14 days of seeding shall be reseeded until complete grass catch occurs.

PART 4 - BASIS OF PAYMENT

- 4.1 Topsoil, Seeding, Mulching, and Maintenance – Incidental.
No separate payment will be made for topsoil, seeding, mulching, and maintenance.

END OF SECTION

SEEDING RESTORATION TABLE

Restoration Condition	Topsoil	Lime*	Basic Fertilizer	Starter Fertilizer	Seed Mix & Sowing Rate (% By Weight)
Temporary Condition (**)	N/A	N/A	N/A	N/A	100% Annual Ryegrass Sow 9# per 1,000 Sq. Yds. Mar. thru May/Aug. thru Sept.
Roadside; Non-mowed	Yes	100# per 1,000 Sq. Ft.	No	10-5-5 @ 50# per 1,000 Sq. Ft. <u>or</u> 12-6-6 @ 33# per 1,000 Sq. Yds.	80% Kentucky 31, Fescue 20% Pennlawn Red Fescue Sow 21# per 1,000 Sq. Yds. Mar. thru May/Aug. thru Sept.
Roadside; Mowed	Yes	100# per 1,000 Sq. Ft.	No	10-5-5 @ 50# per 1,000 Sq. Ft. <u>or</u> 12-6-6 @ 33# per 1,000 Sq. Yds.	50% Kentucky Bluegrass 30% Pennlawn Red Fescue 20% Perennial Ryegrass Sow 21# per 1,000 Sq. Yds. Mar. thru May/Aug. thru Sept.
Bank Areas	Yes	100# per 1,000 Sq. Ft.	No	10-5-5 @ 50# per 1,000 Sq. Ft. <u>or</u> 12-6-6 @ 33# per 1,000 Sq. Yds.	45% Crownvetch 55% Annual Ryegrass Sow 9# per 1,000 Sq. Yds. Anytime except Sept. & Oct.
Lawns	Yes	100# per 1,000 Sq. Ft.	0-20-20 @ 50# per 1,000 Sq. Ft.	10-5-5 @ 50# per 1,000 Sq. Ft. <u>or</u> 12-6-6 @ 33# per 1,000 Sq. Yds.	50% Kentucky Bluegrass 30% Pennlawn Red Fescue 20% Perennial Ryegrass Sow 21# per 1,000 Sq. Yds. Mar. thru May/Aug. thru Sept.
Open Fields	No	No	No	10-5-5 @ 50# per 1,000 Sq. Ft. <u>or</u> 12-6-6 @ 33# per 1,000 Sq. Yds.	100% Timothy Sow 9# per 1,000 Sq. Yds. Mar. thru May/Aug. thru Sept.
Open Fields; Cultivated	No	No	No	10-5-5 @ 50# per 1,000 Sq. Ft. <u>or</u> 12-6-6 @ 33# per 1,000 Sq. Yds.	100% Annual Ryegrass Sow 9# per 1,000 Sq. Yds. Mar. thru May/Aug. thru Sept.
Wood: Sparse	No	No	No	10-5-5 @ 50# per 1,000 Sq. Ft. <u>or</u> 12-6-6 @ 33# per 1,000 Sq. Yds.	100% Red Fescue Sow 36# per 1,000 Sq. Yds. Mar. thru May/Aug. thru Sept.

* Unless lesser rate indicated by soils tests.

** Unless otherwise specified in the Erosion and Sedimentation Control Plan

SECTION 03100
CONCRETE FORMWORK

PART 1 - GENERAL

1.1 Description.

A. Work includes:

The erection of forms for all cast-in-place concrete indicated on the Drawings and the subsequent removal of all such forms except those earth forms described in this Section.

B. Related Sections:

1. Section 03200 – Concrete Reinforcement
2. Section 03300 – Cast-In-Place Concrete

1.2 Quality Assurance.

In addition to complying with all pertinent codes, standards and regulations, the Contractor shall comply with all pertinent recommendations contained in "Recommended Practice for Concrete Formwork", ACI 347, and "Specifications for Structural Concrete", ACI 301.

PART 2 - PRODUCTS

2.1 Form Materials.

Form sheathing for exposed surfaces may be composed of tongue and groove lumber, ship lap, plywood, concrete form board or steel. Steel lining on wood lagging will not be permitted.

Tongue and groove ship lap when used shall conform to the American Lumber Standards for No. 2 boards. Plywood used for sheathing or lining shall be Grade B-B, exterior or better, as described in U.S. Product Standard PS1-74 of the American Plywood Association. The forms used shall produce a concrete surface with "abrupt" irregularities less than 1/4 inch in 5 feet and gradual irregularities less than 1/2 inch in 5 feet. All form sealers shall be first quality of their respective kinds and subject to the approval of the Engineer.

2.2 Ties and Spreaders.

A. All form ties shall be of a type which does not leave an open hole through the concrete and which permits neat and solid patching at every hole. All concrete form ties shall be of the water stop design.

B. Embedded metal rods of a design approved by the Engineer shall be used for internal form-ties. They shall be so designed and arranged that when the forms are removed, no metal shall be within 3/4 inch of any concrete surface. The ties used shall be manufactured in such a way that installation will not necessitate a hole in the form larger than the tie rod. Waterstops are required for all form-ties used in wall construction of all structures designed to hold water. Ordinary wire ties, wood spreaders and ties that require removal from the concrete will not be permitted.

2.3 Waterstops.

A. Premolded waterstops shall be of polyvinyl chloride and comply with U.S. Corps of

Engineers Specification Number CRD-C572. The stop shall be of the serrated fin type with large end projections and shall be at least 6 inches in width and 3/8 inch in thickness.

- B. Where indicated on the Drawings, Waterstop RX101 manufactured by American Colloid Company, Arlington Heights, Illinois, or approved equal, shall be used. A minimum of 3 inches of concrete cover shall be provided to the waterstop.

2.4 Other Material.

All other materials not specifically described but required for proper completion of concrete formwork shall be as selected by the Contractor subject to the advance approval of the Engineer.

PART 3 - EXECUTION

3.1 Construction of Forms.

- A. Forms shall be constructed in accordance with ACI 301 and shall conform to the shape, lines, grades, and dimensions of the concrete as indicated on the Drawings. All lumber used for forms shall be thoroughly cleaned and treated with an approved form oil. Lumber used in forms for surfaces requiring a rubbed finish shall be dressed to a uniform thickness; shall be free from loose knots or other defects; shall be faced with coated plywood; and shall be used only one time for forming surfaces requiring a rubbed finish. For surfaces not requiring a rubbed finish and for rough Work, undressed lumber, free of nails and clean of hardened concrete or other foreign material, may be used.
- B. Forms shall be sufficiently tight to prevent leakage of mortar. They shall be properly braced or tied together so as to maintain the desired position and shape during and after placement of concrete and so they will not tremble or distort in a high wind. Chamfer strips, placed in the corners of forms to produce beveled edges on permanent exposed surfaces, shall have a minimum dimension of 3/4 inch unless otherwise shown on the Drawings.
- C. Temporary openings shall be provided at the base of wall forms and at other points where necessary to facilitate cleaning and inspection immediately before depositing concrete.
- D. The Contractor shall exercise particular care in the layout of forms to avoid necessity for setting of concrete after it is in place; shall make proper provision for all openings, offsets, recesses, anchorage, blockage, embedded items and other features of the Work as shown on the Drawings or required for Work of other trades and do all cutting and repairing of forms required to permit such installation. The Contractor shall carefully examine the Drawings and Specifications and consult with other trades as required relative to provision for openings, reglets, chases, and other items in the forms.
- E. The Contractor shall set all required sleeves, frames, angles, grilles, bolts, inserts, waterstops and other such items required to be anchored in the concrete before the concrete is placed. Waterstops shall be installed in all construction, expansion or any other joints (where there is exposure to hydrostatic pressure) and as shown on the Drawings. Joints shall be made by heating the material ends until they melt or by applying a compatible adhesive to the ends and then pressing the two sections

neatly together forming a continuous water stop. All corners shall be made by cutting mitered corners and joining together or by the use of preformed corners. Bending of the waterstop at corners will not be permitted. Tee intersections shall be formed by use of preformed tees.

- F. The forms shall be properly braced and tied together so as to maintain position and shape and to ensure safety to personnel. Forms shall be properly spaced apart with spreaders or spreader ties that provide accurate spreading. The Contractor shall construct all bracing, supporting members and centering of ample size and strength to safely carry all dead and live loads to which they may be subjected, without deflection in any form member in excess of one in 360 where the concrete surfaces are exposed, or in excess of one in 240 elsewhere.
- G. The Contractor shall construct all forms straight, true, plumb and square, within a tolerance horizontally of one in 200 and a tolerance vertically of one in 500.
- H. All forms shall be sufficiently wetted or coated with an approved form oil in accordance with the Manufacturer's recommendations before concrete is placed.

3.2 Plywood Forms.

Plywood form panels shall be nailed directly to studs and applied in a manner to minimize the number of joints. The Contractor shall make all panel joints tight butt joints with all edges true and square.

3.3 Reuse of Forms.

- A. Reuse of forms shall be subject to advance approval of the Engineer. Lumber once used in forms shall have nails withdrawn, and surfaces to be in contact with concrete shall be thoroughly cleaned before being used again.
- B. Except as specifically approved in advance by the Engineer, reuse of forms shall in no way delay or change the schedule for placement of concrete from the schedule obtainable if all forms were new and shall in no way impart less structural stability to the forms nor less acceptable appearance to finished concrete.
- C. Reuse of forms will not be permitted for forming surfaces requiring a rubbed finish.

3.4 Removal of Forms.

- A. No form or form support shall be removed from the formed surface for at least 24 hours. Forms shall be removed in such a manner as to insure the complete safety of the structure. Vertical wall forms may be removed only after the compressive strength of the concrete has reached a minimum of 70% of its design compressive strength. (i.e. 70% X 4000 psi or 2800 psi).
- B. Responsibility for the removal of forms shall be with the Contractor; however, the following minimum requirements shall be adhered to:
 - 1. In cold or inclement weather the requirement for removal of forms shall be as specified in Section 03300-Cast-in-Place Concrete under "Placing Concrete in Cold or Hot Weather".
 - 2. Forms for supporting weight of concrete shall not be removed nor form supports slackened for a period of 14 days or until the concrete has attained 70% of the specified 28-day compressive strength based on testing of field

cured cylinders. The cost of all compressive tests shall be the responsibility of the General Contractor. Testing of the concrete shall be performed at an independent laboratory as directed by the Engineer that is PennDOT approved.

3. Portions of the structure which will be subject to construction loads or backfill shall have attained sufficient strength to withstand these loads before being so loaded. No construction loads exceeding the structural design loads shall be supported upon any unshored portion of the structure under construction.
- C. The Contractor shall cut nails and tie wires or form ties off flush, and leave all surfaces smooth and clean. The Contractor shall remove metal spreader ties on exposed concrete by removing or snapping off inside the wall surface and pointing up and rubbing the resulting pockets to match the surrounding areas.
 - D. The Contractor shall flush with water all holes resulting from the use of spreader rods and sleeve nuts and the solidly pack throughout the wall thickness with cement grout applied under pressure by means of a grouting gun immediately after removing forms. Grout shall be one part Portland Cement to 2 1/2 parts sand.
 - E. In case the Contractor shall remove any form or slacken any supports before the above conditions have been met, the concrete elements may be condemned even though there is no apparent defect.

PART 4 – BASIS OF PAYMENT

4.1 Concrete Formwork – Incidental.

Concrete Formwork is considered incidental to cast-in-place concrete and will not be paid for separately.

END OF SECTION

SECTION 03200
CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.1 Description.

A. Work includes:

The Contractor shall furnish and install all reinforcement and associated items required and/or indicated on the Drawings for all cast-in-place concrete.

B. Related Sections:

1. Section 03100 – Concrete Formwork
2. Section 03300 - Cast-In-Place Concrete

1.2 Quality Assurance.

In addition to complying with all pertinent codes, standards and regulations, the Contractor shall comply with all standards referenced in these Specifications and applicable portions of the following standards:

- A. "Manual of Standard Practice for Detailing Reinforced Concrete Structures", ACI 315.
- B. "Manual of Standard Practice", Concrete Reinforcing Steel Institute (CRSI).
- C. "Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement", ASTM A-615.
- D. "Standard Specification for Cold-Drawn Steel Wire for Concrete Reinforcement", ASTM A-82.
- E. "Standard Specification for Welded Steel Wire Fabric for Concrete Reinforcement", ASTM A-185.
- F. "Building Code Requirements for Reinforced Concrete", ACI 318.

1.3 Submittals.

- A. Before any concrete reinforcement materials are delivered to the job site, shop drawings shall be submitted in accordance with Section 01300-Approved Equal Materials and Products and Submittals of these Specifications.
- B. The Contractor shall provide certified mill tests of the reinforcing steel in accordance with the standards referenced in these Specifications sufficient to demonstrate compliance with the requirements set forth herein.

PART 2 - PRODUCTS

2.1 Concrete Reinforcement

All concrete reinforcement materials shall be new and free from rust and shall comply with the following standards:

- A. Bars for reinforcement - ASTM A-615, Grade 60.
- B. Wire Fabric - ASTM A-185.
- C. Dowels - Richmond Dowel Bar Splices.

2.2 Other Materials.

All other materials, not specifically described but required for a complete and proper installation of concrete reinforcement, shall be as selected by the Contractor subject to the approval of the Engineer.

PART 3 - EXECUTION

3.1 Fabrication.

- A. Reinforcement shall be accurately formed to the dimensions required. Stirrups, ties, bars and hooks shall be bent around a pin and shall have a minimum bend diameters in accordance with ACI 318. All bars shall be bent cold.
- B. Metal reinforcement shall not be straightened or rebent in a manner that will injure the material. Bars with kinks, or with bends not shown on the Drawings, shall not be used. Heating of the reinforcement will not be permitted.

3.2 Placement.

- A. Metal reinforcement shall be placed in accordance with ACI 318, except as otherwise noted herein, and accurately positioned in accordance with the information on the Drawings. Protective concrete cover and tolerances shall be as required by ACI 318 except as modified herein. Reinforcement shall be secured against displacement by using annealed iron wire ties or suitable clips at intersections and shall be supported by concrete or metal supports, spacers, or metal hangers.
- B. Metal reinforcement before being positioned shall be free from loose mill scale, rust, mud, oil or coatings, including ice, any of which may destroy or reduce the bond. Where there is delay in depositing concrete, reinforcement shall be reinspected and cleaned when necessary.
- C. Clear space shall be preserved between bars of not less than 1-1/2 times the nominal diameter of round bars. In no case shall the clear distance be less than 1-1/2 inches nor less than 1-1/3 times the maximum size of aggregate. Concrete deposited against earth shall have minimum of 3 inches concrete cover between the reinforcement and the earth. Unless otherwise noted, reinforcement shall be placed and maintained at the minimum clear distances given in ACI 318.
- D. Place bars in horizontal members with minimum laps at splices sufficient to develop the strength of the bars. Bars may be wired together at laps except at points of support of the member, at which points the clear space described above shall be preserved. Wherever possible, the splices of adjacent bars shall be staggered, with splices of 30 bar diameters minimum unless otherwise specified on Drawings.
- E. All laps of wire mesh shall be one width of wire spacing, and adjoining sheets shall be securely tied together with No. 14 tie wire, one tie for each two running feet. At laps, wires shall be staggered and tied in such a manner that they cannot slip.
- F. The Contractor shall make only those splices that are indicated on the approved shop drawings or specifically approved by the Engineer.

PART 4 – BASIS OF PAYMENT

4.1 Concrete Reinforcement – Incidental. No additional compensation.

Concrete Reinforcement is considered incidental to cast-in-place concrete and will not be paid for separately.

END OF SECTION

SECTION 03300CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 Description.

A. Work Includes:

Cast-in-place concrete required for the Work is indicated on the Drawings and includes, but is not necessarily limited to: footings and foundations; slabs on grade; concrete equipment bases; etc.; and such other concrete as shown on the Drawings and/or as required by these Specifications or as may be reasonably inferred from either.

1.2 Quality Assurance.

In addition to complying with all pertinent codes, standards and regulations, the Contractor shall comply with all standards referenced in these Specifications and applicable portions of the following standards:

- A. "Specifications for Structural Concrete", ACI 301.
- B. "Recommended Practice for Measuring, Mixing and Placing Concrete", ACI 304.
- C. "Recommended Practice for Hot Weather Concreting", ACI 305.
- D. "Recommended Practice for Cold Weather Concreting", ACI 306.
- E. "Building Code Requirements for Reinforced Concrete", ACE 318.
- F. "Standard Specification for Portland Cement", ASTM C-150.
- G. "Standard Specification for Concrete Aggregates", ASTM C-33.
- H. "Test for Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing", ASTM C-88.
- I. "Test for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate", ASTM C-88.
- J. "Test for Resistance to Abrasion of Small Size Coarse Aggregate by Use of the Los Angeles Machine", ASTM C-131.
- K. "Standard Specification for Air-Entraining Admixtures for Concrete", ASTM C-260.
- L. "Standard Specification for Chemical Admixtures for Concrete", ASTM C-494.
- M. Deleted.
- N. "Standard Specification for Ready-Mixed Concrete", ASTM C-94.
- O. "Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction", ASTM D-1752.
- P. "Method for Making and Curing Concrete Test Specimens in the Field", ASTM C-31.
- Q. "Test for Compressive Strength of Cylindrical Concrete Specimens", ASTM C-39.
- R. "Method of Sampling Fresh Concrete", ASTM C-172.
- S. "Method of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete", ASTM C-42.

1.3 Submittals.

A. Materials List.

Before any concrete is delivered to the job site, the Contractor shall submit concrete mix design proportions; certified test results for the proposed mix; a complete list of all materials proposed to be furnished and installed under this portion of the Work, showing Manufacturer's name and catalog number of all items such as admixture and membrane; the name and address of the transit-mix concrete supplier; and sufficient additional evidence that the proposed concrete mix of mixes will meet the requirements set forth herein.

B. Transit-mix delivery slips.

A record shall be kept at the job site showing outdoor temperature, time and place of each pour of concrete, together with transit-mix delivery slips certifying the contents of the pour and that all materials conform to the requirements of these Specifications. The delivery slip shall indicate the mix; maximum size of aggregate; amount of mix water; design strength of the concrete; the time when the mix was made and such other information as may be required by the Engineers. Failure to render such slip to the General Contractor job superintendent shall automatically be cause for rejection of the concrete. The General Contractor's job superintendent shall write on the back of the slip: 1) the time of arrival of the truck mixer on the site; 2) the time of deposit of the concrete from the truck mixer; and 3) the place of deposit of the concrete from the truck mixer. This record shall be made available to the Owner for his inspection upon request. Upon completion of each portion of the Work, the Contractor shall deliver the record and the delivery slips to the Owner. Repeated failure to deliver this information to the Owner may be cause for the Owner to reject the deposited concrete at any time and to require that it be removed and replaced at the Contractor's expense.

PART 2 - PRODUCTS

2.1 Materials.

A. Cement shall be Portland Cement, conforming to ASTM C-150, Type IA, or in the event that field conditions require, and where approved, high-early strength Portland Cement, Type IIIA. All cement shall be obtained from one source. Cement used in the Work shall correspond to that upon which the selection of concrete proportions was based.

B. Aggregates shall conform to ASTM C-33, except as revised herein. Aggregates failing to meet the aforementioned standard, but which have been shown by special test or actual service to produce concrete of adequate strength and durability, may be used when specifically approved by the Engineer. Additional specific requirements for aggregates are as follows:

1. Fine aggregates shall be clean, hard, natural sand. When tested in accordance with ASTM C-117, the weight removed by the test shall not exceed 3%. The amount of coal and clay shall not exceed 0.25% and 1% respectively.
2. Coarse aggregates shall consist of crushed stone or crushed gravel. When tested in accordance with ASTM C-88, the loss shall not exceed 10%, and when tested in accordance with ASTM C-131, the loss shall not exceed 45%.

- 3. The nominal maximum size of coarse aggregate shall not be larger than one-fifth the narrowest dimension between sides of forms; nor one-third the depth of slabs; nor three-fourths the minimum clear spacing between individual reinforcing bars or wires, bundles of bars, or prestressing tendons or ducts. In no case shall the maximum size exceed 1-1/2 inches. For section of 12 inch thickness or less, the maximum size shall not exceed 1 inch. Coarse aggregate gradations shall conform to ASTM C-33 for the types of concrete being used in this Work as described hereafter.
- C. Water used in mixing and curing concrete shall be fresh, clean and free from injurious amounts of sewage, oil, acid, alkali, organic matter or other deleterious substances. Water shall be approved for human consumption.
- D. Admixtures to be used in concrete shall be subject to prior approval by the Owner. Air-entraining admixtures shall conform to ASTM C-260. Water reducing admixtures, retarding admixtures, accelerating admixtures, water-reducing and retarding admixtures, and water-reducing and accelerating admixtures shall conform to ASTM C-494. Fly ash will not be permitted on this Project. Other pozzolans such as plasticizers used as admixtures shall conform to ASTM C-618. Admixture proportions shall be in strict accordance with the Manufacturer's recommendations and must approved by the Engineer prior to using same.

2.2 Concrete.

- A. For the purposes of this Project, the following minimum criteria for the various classes of concrete shall be established:

<u>Class of Concrete</u>	<u>Compressive Strength</u>	<u>Coarse Aggregate ASTM C-33 Size No.</u>	<u>Bags of Portland Cement Per CY of Concrete</u>
Class A	4,000 psi	No. 467 or 57	6 1/2 Bag Mix

- B. Proportions of materials for concrete shall be established to provide adequate workability and proper consistency to permit concrete to be worked readily into the forms and around reinforcement under conditions of placement to be employed without excessive segregation bleeding; to provide resistance to freezing and thawing and other aggressive actions; and to provide conformance with the strength requirements as established by these Specifications. Methods of determining proportions and design mixes shall conform to ACI 318. All concrete, unless otherwise approved, shall be transit-mixed in accordance with ASTM C-94. Concrete shall, unless otherwise specified or approved, be air-entrained conforming to ACI 318. The slump of the concrete mix shall not in any case exceed 3 inches for heavy sections or suspended or at-grade floors, or 4 inches elsewhere.
- C. The use of admixtures will be considered provided that the Contractor submits sufficient evidence that the concrete produced will meet the requirements of these Specifications and that such admixtures are capable of maintaining essentially the same composition and performance throughout the Work as the project used in establishing concrete proportions. Admixtures containing chloride ions shall not be used in concrete containing aluminum embedments if their use will produce a deleterious concentration of chloride ions in the mixing water. The use of fly ash will not be permitted in concrete for this Project.

- D. Concrete shall be Class A at all locations unless otherwise specified. Class B concrete shall be used in walls and slabs 6 inches or less in thickness; and for closing openings in walls around pipes. Class C concrete shall be used for pipe cradle backfill or as shown on the Drawings.

2.3 Membranes.

- A. All vapor barrier membrane under concrete slabs shall be 6-mil weight sheet plastic in sheet as wide as possible to minimize joints.
- B. All curing membrane shall be sheet plastic as specified for vapor barrier, a combination sheet plastic and paper, or an equal approved in advance by the Engineer.
- C. All cement or tape used for sealing membrane joints shall be only as recommended by the Manufacturer of the membrane being joined.

2.4 Other Materials.

- A. Preformed expansion joint filler shall be a self-expanding cork conforming to ASTM D-1752, Type III as manufactured by Serviced Products Division, W.R. Grace & Co., Sonoflex Cork as manufactured by Sonneborn-Contech, or approved equal.
- B. Epoxy bonding compounds shall be Sikastik 370 as manufactured by Sika Chemical Corporation; Concrecive 1001-LPL or 1180 as manufactured by Adhesive Engineering Company; Sonobond as Manufactured by Sonneborn-Contech; or approved equal. Products shall be suitable for use on horizontal or vertical surfaces as required for the Work and applied in accordance with the Manufacturer's recommendations.
- C. Premixed non-shrink grout shall be Vibro Foil as manufactured by W.R. Grace & Co.; Embeco 636 as manufactured by Master Builders; or approved equal.
- D. Materials for repair of existing concrete surfaces shall be Colma Dur LV, Colma Dur Gel and/or Colma Fix LV as manufactured by Sika Chemical Corporation, similar products as manufactured by American Metaseal Company, or approved equal, and shall be installed in accordance with the Manufacturer's recommendations and the requirements of this Section.
- E. All other materials not specifically described but required for a complete and proper installation of cast-in-place concrete shall be as selected by the Contractor subject to the approval of the Engineer. Materials identified on the Drawings by Manufacturer or product name shall conform to the standard specifications for the particular manufactured product.

PART 3 - EXECUTION

3.1 Preparation.

Preparation of equipment and place of deposits of concrete shall conform to ACI 318 and ACI 614. The Contractor shall notify the Engineer at least 48 hours before placing concrete.

3.2 Mixing and Placing Concrete.

- A. Mixing and placing concrete shall be done in accordance with appropriate portions of ASTM C-94, ACI 318 and/or ACI 304, except as modified or revised by these Specifications.

- B. Before deposition of concrete, all debris shall be removed from the space to be occupied by the concrete. Forms, if constructed of lumber, shall be thoroughly wetted except in freezing weather. Reinforcement, pipe sleeves and other materials to be embedded in the concrete shall be thoroughly secured in position and cleaned of ice or other deleterious substances. Water shall be removed from the space to be occupied by the concrete before concrete is deposited.
- C. Forms for walls or thin sections of considerable height shall be provided with openings or other devices that will prevent segregation and accumulation of hardened concrete on the forms or on the metal reinforcement above the level of the concrete.
- D. Where concrete is conveyed to chutes, the equipment shall be of such size and design as to insure a continuous flow in the chute. The chutes shall be of metal, or metal-lined, and if two or more lengths are used, they shall have approximately the same slope. The slope shall not be less than one vertical to three horizontal nor more than one vertical to two horizontal and shall be such as to prevent the segregation of the ingredients. The discharge end of the chute shall be provided with a baffle plate to prevent segregation. If the distance of the discharge end of the chute above the surface of the concrete is more than 3 times the thickness of the layer being deposited, or more than 4 feet above the surface of the concrete, a spout or "elephant trunk" shall be used, and the lower end maintained as near to the surface of deposit as practical. When the operation is intermittent, the chute shall discharge into a hopper. The chute shall be thoroughly cleaned before and after each run and the debris from any water used shall be discharged outside the forms.
- E. Before depositing new concrete on or against concrete which has hardened and to which it is to bond, the forms shall be re-tightened. The surface of the hardened concrete shall be roughened in a manner that will not leave loosened particles of aggregate or damaged concrete at the surface. It shall be thoroughly cleaned of foreign matter and laitance, and saturated with water. To insure an excess of mortar at the juncture of the hardened and newly deposited concrete, the cleaned and saturated surface, including inclined surfaces, shall be first thoroughly covered with a coating of mortar or neat cement grout against which the new concrete shall be placed before the grout has attained its initial set. Epoxy bonding compound shall be used where new concrete is to be deposited on or against existing concrete surfaces and/or where indicated on the Drawings. It shall be applied in accordance with the Manufacturer's recommendations.
- F. Concrete during and immediately after deposition shall be thoroughly compacted by means of vibration. The number of vibrators used shall at all times be subject to the approval of the Engineer. The concrete shall be thoroughly worked around the reinforcement, around embedded fixtures, and into the corners of the forms. The accumulation of water on the surface of the concrete due to water gain, segregation, or other causes during placement and compacting shall be prevented as far as possible by adjustments in the mixture. Provision shall be made for the removal of such accumulated water so that under no circumstances will concrete be placed in such accumulation.
- G. To minimize the formation of laitance, great care shall be exercised to disturb the concrete as little as possible while it is being deposited. Upon completion of a

section of concrete, all laitance shall be entirely removed before Work is resumed. The Contractor shall submit to the Engineer, prior to start of Work, the details of procedures he proposes to use to minimize and control the development of shrinkage cracks.

- H. Sufficient time must elapse after depositing concrete in the walls for the walls to obtain sufficient strength before depositing concrete in beams, girders, or slabs supported thereon. Beams and girders shall be considered as part of the floor system and shall be placed monolithically therewith.

3.3 Sampling and Testing Requirements.

- A. The Contractor shall provide and pay for sampling and testing of the concrete incorporated into the Work by an approved Independent Testing Laboratory (ITL). All test results must be furnished to the Engineer within five (5) days following the date of testing. Failure to submit test results in accordance with this provision will be deemed sufficient cause for the Engineer to reject the respective concrete incorporated in the Work.
- B. One test shall be made for each pour and each 25 cubic yards of concrete placed. The laboratory shall maintain records showing brands of cement, brand and quality of admixtures, time and location of the batch from which the test was made, air content, slump and compressive strength. The laboratory shall supply the test cylinders, slump cones, field technicians and all equipment necessary for performance of field and laboratory testing specified herein.
- C. One strength test shall consist of four field specimens, one (1) specimen for testing at seven (7) days, one (1) specimen for testing at fourteen (14) days, and two (2) specimens for testing at twenty-eight (28) days. The samples for strength tests shall be taken in accordance with ASTM C0-172. Cylinders for acceptance tests shall be molded and laboratory cured in accordance with ASTM C-31 and tested in accordance with ASTM C-39. Each strength test result shall be the average of two cylinders from the same sample tested at seven (7), fourteen (14), and twenty-eight (28) days.
- D. When the frequency of testing will provide less than five strength tests for a given class of concrete, test shall be made from five randomly selected batches or from each batch if fewer than five are used. When the total quantity of a given class of concrete is less than 50 cubic yards, the strength tests may be waived by the Engineer if, in his judgment, adequate evidence of satisfactory strength is provided.
- E. Strength tests of specimens cured under field conditions in accordance with ASTM C-31 may be required by the Engineer to check the adequacy of curing and protection of the concrete in the structure. Such specimens shall be molded at the same time and from the same samples as the laboratory-cured acceptance test specimens. Procedures for protecting and curing the concrete shall be improved when strength of field-cured cylinders at the test age designated for measuring specified strength ($f'c$) is less than 85% of that of the companion laboratory-cured cylinders. When the laboratory-cured cylinder strengths are appreciably higher than specified strength ($f'c$) the field-cured cylinder strengths need not exceed $f'c$ by more than 500 psi, even though the 85% criterion is not met.

- F. Non-compliance and/or non-satisfactory strength test results shall be determined by the Engineer and/or Contractor and such information will be relayed expeditiously to the concrete supplier and confirmed promptly in writing. Test results of concrete furnished subsequent to such notification shall comply or a second warning will be issued. Non-compliance after two warnings will be sufficient cause to refuse additional concrete from the non-complying concrete supplier.
- G. Reinstatement of a disqualified concrete supplier may be permitted only upon certification by an independent qualified engineer, retained by the concrete supplier and acceptable to the Engineer, attesting to the fact that adequate corrective measures have been taken. Failure after this point will result from the job. Any additional cost resulting therefrom will be the responsibility of the General Contractor.
- H. Should individual test of laboratory-cured specimens produce strengths more than 500 psi below specified strength ($f'c$), or should tests of field cured cylinders indicate deficiencies in protection and curing, steps shall be taken to assure that load-carrying capacity of the structure is not jeopardized. If the likelihood of low strength concrete is confirmed and computations indicate that the load-carrying capacity may have been significantly reduced, tests of cores drilled from the area in question may be required in accordance with ASTM C-42. Three cores shall be taken for each cylinder test more than 500 psi below specified strength ($f'c$).

If the concrete in the structure will be dry under service conditions, the cores shall be air-dried (temperature 60°F to 80°F., relative humidity less than 60%) for 7 days before the test and shall be tested dry. If the concrete in the structure will be more than superficially wet under service conditions, the cores shall be immersed in water for at least 48 hours and then tested wet.
- I. Concrete represented by the core tests will be considered structurally adequate if the average of the three cores is equal to at least 85% of specified strength ($f'c$) and if no single core is less than 75% of $f'c$. To check testing accuracy, locations represented by erratic core strengths may be retested. If these strength acceptance criteria are not met by the core tests, and if structural adequacy remains in doubt, the Engineer may order load tests for the questionable portion of the structure, or take other appropriate action, which may include the complete replacement of the defective portion.
- J. Costs of all sampling and testing as specified herein shall be paid for by the Contractor.

3.4 Placing Concrete in Cold or Hot Weather.

- A. When the temperature of the surrounding air is below 40°F or above 90°F, concrete placement shall be performed in accordance with the provisions of ACI 306 or ACI 305, respectively, except as modified or revised by these Specifications.
- B. During cold weather, the concrete shall be maintained at a temperature of 55°F for Class B concrete and 50°F for Class A or Class C concrete for a minimum of five days after placing. During this period concrete and adjacent form surfaces shall be kept moist at all times. When heated enclosures are to be provided, care shall be taken to provide adequate space around the other edges and top of the concrete structure to permit circulation of the heated air, so that neither freezing nor excessive heating of these extremities can occur. All facilities for protection and

heating must be on hand before the concrete is placed.

- C. After the required protection period is over, the heat shall be removed gradually and uniformly so that there will be a temperature differential of no more than 40°F over any 24-hour period.
- D. Forms shall not be removed from the concrete surface during the protection period of three (3) days during those seasons of the year when the difference between the daily high and low temperatures may reasonably be expected to exceed 40°F.
- E. At air temperatures of 90°F or above, concrete should be kept as cool as possible during placing and curing. Concrete surfaces shall be kept continuously moist by wet-curing for at least 24 hours after the concrete has been placed and water shall be applied to formed surfaces while forms are still in place. After the period of wet curing, a suitable heat-reflecting plastic membrane or white-pigmented curing compound may be used.

3.5 Defective Concrete.

- A. Defective concrete is defined as concrete, in place which does not conform to the strength, shapes, alignments or elevations as shown on the Drawings and/or which presents faulty surface areas.
- B. All defective concrete shall be removed and replaced in a manner meeting with the approval of the Engineer or, should only surface imperfections occur, may be patched at the discretion of and in a manner satisfactory to the Engineer; however, permission to patch the Work shall not be considered as a waiver of the Owner's right to require complete removal and replacement of such defective concrete should the patching fail to satisfactorily restore the required quality and/or appearance of the surface.
- C. Surface defects that require replacement or repair are those that consist of honeycomb; damage due to stripping forms; loose pieces of concrete; surface holes caused by bolts and ties; excessive ridges at form joints; and bulges due to movement of the forms. Ridges and bulges shall be removed by chipping, tooling or grinding on finished surfaces. Honeycomb and other defective concrete shall be chipped out and filled with mortar, the chipped openings having sharp edges and shaped so that the mortar filling will be keyed in place. All holes shall be kept thoroughly moistened for several hours before mortar filling is placed.
- D. Imperfections, bolt and tie-rod holes, and chipped-out honeycomb areas to be repaired shall be filled with drypatching mortar composed of one part of Portland Cement to two parts of regular concrete sand (volume measurement) and just enough water so that, after the ingredients are mixed thoroughly, the mortar will stick together on being molded into a ball by slight pressure of the hands, and not exude free water. Mortar repairs shall be placed in thin layers thoroughly compacted by suitable tools. Care shall be taken in filling rod and bolt holes so that the entire depth of the hole is completely filled with compacted mortar. "Embeco", or equal, shall be added to all patching mortar in an amount as recommended by the Manufacturer for the mix to be used except for unpainted, exposed surfaces.

3.6 Construction Joints.

The Contractor shall make and locate construction joints so as not to impair the strength of the structure. The Contractor shall obtain the Engineer's approval of the locations of all

construction joints and control joints in the Work prior to the start of concrete placement.

3.7 Concrete Finishing.

- A. All concrete surfaces shall be finished as specified as soon after the placing of concrete and removal of forms as conditions will permit. All patching and pointing shall be performed immediately after the forms have been removed and rubbing of concrete surfaces shall be performed as soon as possible thereafter.
- B. All exposed formed concrete surfaces on the interior of structures or on the exterior of structures or appendages from the top to a depth of 1 foot below finished grade shall receive a rubbed finish. Unless otherwise specified, all other formed concrete surfaces shall be pointed with mortar as described herein and shall be pointed with mortar as described herein and shall have all fins and projections in excess of 1/8 inch removed. Form ties shall be removed to a depth of a least 1 inch beneath the surface and all air bubbles, cavities, stone pockets, honeycombing and tie and bolt holes shall be pointed with mortar. The mortar mix shall be determined by trial to obtain a good color match with the concrete when both the patch and concrete are cured and dry.

The amount of mixing water shall be the minimum possible consistent with the requirements for handling and placing the mortar. Fins, form marks, projections and uneven spots shall be removed by rubbing or grinding and surfaces left smooth, dense and free of grain marking and bulges or depressions more than 1/8-inch in 4 feet. When the mortar pointing has set and when rubbed finish is required, the entire exposed surface shall be thoroughly covered with water and rubbed with a carborundum brick or other approved means to remove all blemishes and provide a smooth finish of uniform texture and appearance.

- C. Unless otherwise indicated, the tops of all exposed walls or steps and all slabs or flat unformed concrete surfaces shall be struck off to establish grade and floated with a wood float until all irregularities are removed, as a minimum, to produce a relatively smooth, level and even textured surface without sharp ridges. All interior floors, platforms and flume bottoms which are exposed to view shall receive a steel trowel finish once all excess water has evaporated from the floated surface. Tolerance from finish surface lines shall be a maximum of 1/8-inch in 10 feet with maximum high and low variances not occurring in less than 20 feet and with 1/16-inch tolerances in any one running foot with no abrupt variations. Floors shall slope uniformly to floor drains where they are provided.
- D. Additional finishing shall be provided as required in Division 9 for those surfaces which are to receive paints or protective coatings, dampproofing and other treatments, and be in accordance with the recommendations of the coating Manufacturer.
- E. All concrete stairs, steps, platforms, landings and sidewalks and shall receive an application of 1/2-pound per square foot of silicon carbide grit. Surfaces receiving grit shall be finished with a wood float to provide a non-skid walking surface.

3.8 Concrete Curing.

- A. Protection against loss of moisture from the surface of the concrete shall be accomplished by keeping the surface continuously wet. One of the following methods shall be used: surface remaining in contact with the form; the covering

with burlap or motton mats kept continuously wet and covered with polyethylene plastic; or continuous sprinkling of the expose surfaces.

- B. No curing compounds shall be used on any surfaces to which pneumatic mortar is to be applied, or on which any other type of concrete mortar, paint or chemical waterproofing coating is to be used unless they are compatible with the intended coating and approved by the Engineer. In addition, curing compounds shall not be used on any concrete which will be used to store potable water.
- C. During cold or hot weather, curing shall be as specified under "Placing Concrete in Cold or Hot Weather".

3.9 Repair of Existing Concrete Surfaces.

- A. All existing surfaces, particularly those to be painted and/or surfaces roughened or damaged by demolition, cutting or patching shall be patched and/or repaired as required to produced a uniform surface suitable for the application of coatings and in accordance with the coating manufacturer's recommendations. Non-shrinking grout shall be used to fill all holes in existing surfaces; holes left due to the removal of existing equipment and facilities; or holes made as required for the installation of new equipment for the facilities. The methods of patching and/or repairing shall conform to the recommendations of the Manufacturer of the patching compounds or sealers used.

PART 4 – BASIS OF PAYMENT

- 4.1 Cast-in-Place Concrete – Incidental. No additional compensation will be provided for Cast-in-Place Concrete. The cost associated with Cast-in-Place Concrete shall be included in the Lump Sum price bid for the items specified in the Bid Schedule.

END OF SECTION

SECTION 05500

MISCELLANEOUS METALS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work included:

1. All miscellaneous metal items not specifically described in other Sections of these Specifications but required for a complete and operable facility.

1.02 QUALITY ASSURANCE

A. The Contractor shall use only certified welders and the shielded arc process for all iron and steel welding performed in connection with the Work of this Section. All aluminum welding shall be done in accordance with the standards of the Aluminum Association.

B. Codes and standards:

In addition to complying with all pertinent codes and regulations, the Contractor shall comply with:

1. "Specification for the Design, Fabrication, and Erection of Structural Steel for Building" of the American Institute of Steel Construction.
2. "Code for Welding in Building Construction" of the American Welding Society.
3. Standards and Publications of the Aluminum Association:
 - a. Aluminum Standards and Data.
 - b. Designation System for Aluminum Finishes.
 - c. Standards for Aluminum Sand and Permanent Mold Castings.
 - d. Standards for Anodized Architectural Aluminum.
 - e. Welding Aluminum.
 - f. Care of Aluminum.

1.03 SUBMITTALS

A. Shop drawings:

Before any miscellaneous metal is delivered to the job site, the Contractor shall submit Shop Drawings to the Engineer for approval in accordance with Section 01300 of these Specifications and shall show all locations, markings, quantities, materials, sizes and shapes and indicate all methods of connecting, anchoring, fastening, bracing, and attaching to the Work of other trades.

B. Proof of compliance:

Upon completion of this portion of the Work, and as a condition of its acceptance, the Contractor shall deliver to the Engineer a letter signed by an official of the

miscellaneous metal fabricating and installing firm or firms certifying that all miscellaneous metal was furnished and installed in complete accordance with the Drawings and with this Section of these Specifications.

PART 2 - PRODUCTS

2.01 STEEL PRODUCTS

- A. Steel tubing - new, free from rust, and conforming to ASTM A-501 (hot formed), welder or seamless.
- B. Structural steel shapes and plates - new, free from rust, and conforming to ASTM A-36.

2.02 ALUMINUM PRODUCTS

- A. Aluminum sheet and plate - Alloy 6061-T6, mill finish.
- B. Aluminum extruded structural shapes, anchors, clips - Alloy 6061-T6, mill finish.
- C. Aluminum stop plates:

Aluminum stop plate guides shall be fabricated of Alloy 6061-T6. Guide frames shall have aluminum shop anchors welded to the frames for embedment in concrete.

2.03 FASTENINGS

- A. The Contractor shall furnish all bolts, nuts, screws, clips, washers and any other fastenings necessary for proper erection of all items provided.
- B. Fastenings shall, in general, match adjacent materials in color, finish and appearance and shall conform to the following:
 - 1. For ferrous metal - new, free from rust and conforming to ASTM A-307.
 - 2. For aluminum - Alloy 2024-T3 or 6061-T6 except concealed fasteners shall be Alloy 2024-T3 or 300 Series Stainless Steel.
- C. Where exposed screws are required, they shall be Phillips flat head and countersunk unless otherwise noted.
- D. Expansion Bolts:
 - 1. Bolts shall be "Wej-It" concrete anchors as manufactured by Wej-It Corporation, Broomfield, Colorado, or "Taper Bolt" as manufactured by U.S. Expansion Bolt Company, York, Pennsylvania, or approved equal. Self-drilling expansion anchors where called for on the plans shall be "Red Heads" as manufactured by ITT, Phillips Drill Division, Michigan City, Indiana. Contractor shall submit certified test reports establishing shear and tensile loads for the anchors used.

2. Bolts shall be the same material as the members which they support, that is, Type 2024-T6 Alloy for aluminum shapes and hot-dipped galvanizes steel for structural steel shapes. Stainless steel bolts shall be used in all process units.

2.04 MISCELLANEOUS ITEMS

- A. The Contractor shall furnish and install all miscellaneous metal items as indicated on the Drawings or as reasonably implied to provide a complete and suitable installation.
- B. Structural steel frames shall be constructed to sizes indicated using rolled shapes and/or plates as detailed. All frames shall be square, corners mitered or coped as required, all intersections fully welded and ground flush. Wall and sill anchors shall be included for construction indicated. Removable spreaders shall be provided at sill to maintain alignment and dimensions: remove after frames are securely anchored in place.

2.05 SCHEDULE OF MATERIALS

All items furnished and installed under this Section shall be steel, unless indicated otherwise on the Drawings or in these Specifications.

PART 3 - EXECUTION

3.01 FABRICATION

- A. The Contractor shall fabricate all miscellaneous metal in strict accordance with the approved Shop Drawings and the referenced standards. Insofar as possible, the Contractor shall shop-prefabricate all items complete and ready for installation.
- B. Welding:
 1. Unless otherwise indicated on the Drawings, the Contractor shall weld all shop connections. Welds shall be uniformly made and ground smooth to match and with finish of adjacent parent material.
 2. All joints and intersections of metal shall be tightly fitted and securely fastened.
 3. All Work shall be square, plumb, straight, true, rigid and neatly trimmed out. Corners and angles of exposed moldings and frames shall be mitered unless otherwise indicated.
 4. All aluminum welding shall be done by the inert gas, shielded arc or fluxless resistance techniques. Structural welds shall be made by qualified welders and shall conform to the general recommendations and regulations of the referenced

Aluminum Association publications. Dirt, grease, lubricant, or other organic material shall be removed by vapor degreasing or suitable solvent. Joints rejected because of welding defects may be repaired only by rewelding. Defective welds shall be removed by chipping or machining. Flame cutting shall not be use.

- C. The Contractor shall drill or punch all holes required for the attachment of Work of other trades and for bolted connections. Burned holes are not acceptable.

3.02 SHOP PAINTING AND PROTECTIVE COATINGS

- A. The Contractor shall thoroughly clean all metal as described in Section 09800 of these Specifications and shall provide all required protection for metal to be encased in concrete to prevent accumulation of deleterious foreign material.
- B. The Contractor shall shop prime steel except steel to be encased in concrete; surfaces to be welded; contact surfaces to be high strength bolted; and steel Work which will be concealed by interior finish. Primer paint shall be in accordance with Section 09800 of these Specifications.
- C. Galvanizing shall conform to ASTM A-123 for rolled, pressed and forged shapes, plates, bar stripe; A-153 for hardware items and A-368 for assembled steel products. Galvanizing shall also conform to ASTM A-384 and A-385 (Recommended Practices) pertaining to galvanizing assembled steel products. Unless otherwise permitted, all galvanizing must be done after fabrication, in largest sections practicable. Where galvanizing is removed by welding or other assembly procedure, touch-up abraded areas with molten zinc or zinc-rich paint.
- D. Where aluminum is placed in contact with or fastened to dissimilar metals (excepting galvanized steel, zinc, or small areas of stainless steel or nickel silver), the contact surfaces shall be treated by one of the following methods. If drainage from dissimilar metals passes over aluminum work, the dissimilar metal shall be painted as specified in Item 1 below.
 1. Apply prime coat of zinc chromate primer (Fed. Spec. TT-P-645) to the dissimilar metals followed by one or two coats of aluminum metal and masonry paint.
 2. Apply a coat of bituminous paint (Fed. Spec TT-C-494 or MIL-P-6883A) to the dissimilar metals.
 3. Separate contact surfaces with transparent vinyl plastic pressure tape or approved non-absorptive gaskets.
- E. Where aluminum is placed in contact with, or built with, or will receive drainage from masonry, including lime mortar, concrete or plaster, apply a heavy coat of bituminous paint (Fed. Spec. TT-C-494 or MIL-P-6883A) to the aluminum areas affected.

3.03 GENERAL REQUIREMENTS

- A. Expansion and Contraction: Work shall be so designed and anchored that there will be no objectionable distortion or serious stress of fastenings as the metal expands and contracts.
- B. Castings subject to foot or street traffic shall have bearing surfaces machined to prevent rocking and rattling.
- C. Where items must be incorporated or built into adjacent Work, they shall be delivered

to trade responsible for such Work in sufficient time that progress of Work is not delayed. The Contractor shall be responsible for proper location of such items.

- D. All dissimilar metals shall be protected from galvanic corrosion by pressure tapes, coatings or isolators as specified herein.
- E. All grouting of frames, plates, sill, bolts, and similar items shall be done with non-shrink grout.
- F. The Contractor shall get all railings and similar items shown or required to be set in sleeves or cans with molten lead or Carlstadt Anchor Cement or equal. Unless otherwise noted, sleeves shall be sized for approximately 1/4-inch clearance all around. Where railings are designated to be removable, they shall be securely set in sleeves or cans and held in place with suitable gasketed flanges which shall provide a strong, non-rocking installation firmly bolted or otherwise fastened in place. They shall be removable only in the sense that such removal will possibly be required for unusual maintenance activities and shall not be readily removable by quick disconnect devices or slip removal means. They shall be essentially vandal-proof with special keyed fastenings or similar devices.

3.04 ERECTION

- A. The Contractor shall erect and install all miscellaneous metal in strict accordance with the Drawings, the approved Shop Drawings, and the referenced standards, aligning straight, plumb, and level within a tolerance of one in 200.

PART 4 – BASIS OF PAYMENT

- 4.01 Miscellaneous Metals – Incidental. No additional compensation will be provided for Miscellaneous Metals. The cost associated with Miscellaneous Metals shall be included in the Lump Sum price bid for the items specified in the Bid Schedule.

END OF SECTION

SECTION 08500

WINDOWS

PART 1 GENERAL

1.01 WINDOWS

MATERIALS: Windows for this project shall consist of hopper windows as manufactured by “Broga Window and Door”, or approved equal and shall comply with the following:

FINISH: Exterior color by Owner. Interior finish by Owner.

SCREEN: shall consist of fiberglass screen cloth set in aluminum frame, supplied complete with all necessary hardware.

1.02 FINISH

All exposed framing members shall be free of scratches and other serious surface blemishes. All aluminum shall be given a caustic etch and anodic oxide treatment to conform to Alumilite 204A1R1 standards (AA-M21C22A31).

1.03 ERECTION

All items under this heading shall be set in their correct locations as shown in the details and shall be level, square, plumb, and alignment with other work.

All joints between interior metal and masonry and between interior glass framing and mullion members shall be tightly caulked in order to secure a watertight job. All materials shall be screwed in place using backing, masonry, plugs, or anchor straps as required.

Where moldings are joined, they shall be accurately cut and fitted to result in a tightly closed joint.

After erection, the General Contractor shall adequately protect exposed portions of the grid framing from damage by grinding and polishing machines, plaster, lime, acid, cement, or other harmful compounds.

WINDOWS

1.04

CLEANING:

The General Contractor shall be responsible for removal of protective materials and cleaning of all finished wood surfaces. The General Contractor shall be held responsible for damages resulting from the use of other cleaning materials.

END OF SECTION

WINDOWS

08500-2

SECTION 06000CARPENTRY AND MILLWORK

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work included:

The Contractor shall provide all labor, supervision, material and equipment necessary to furnish and install all carpentry and millwork shown on the Drawings, and as herein specified, including but not limited to the following:

1. All rough carpentry as shown, indicated, or noted on the Drawings.
2. Wood grounds, blocking and furring.
3. All framing hardware, anchors, clips and fasteners required to erect, fasten and hold all rough hardware.
4. All required drilling, tapping, or other means of fastening woodwork to metal or masonry.
5. All millwork as indicated on the Drawings.
6. Pipe enclosures.
7. Temporary enclosures.
8. Temporary protection of finished work.

1.02 APPLICABLE SPECIFICATIONS

- A. The grades of materials used under this Section shall be defined by the rules of the recognized as of lumber Manufacturers producing the materials specified herein and used in the Work. Where grades of lumber are specified, it shall mean that the best quality of that particular grade shall be required.
- B. "Grade Mark", "Trade Mark" or "Mill Identification Mark" of the Associations having jurisdiction shall appear on each piece of standard yard dimension lumber (not boards), except that shipments may be accompanied by a certificate of inspection identifying the shipment and certifying compliance with the requirements of this Specification. This certificate of inspection shall be issued by an agency authorized to grade by the Manufacturers' association recognized as responsible for the grading rules of the species involved.
- c. All millwork shall conform to the quality standards of the Architectural Woodwork Institute for Premium Grade Work. Finished woodwork shall be dressed and sanded, free from machine and tool marks, abrasions, raised grain or other defects on surfaces exposed to view in the finished work. Exposed wood surfaces shall be uniform in color and grain.

- D. Grading and general requirements for lumber shall conform to American Lumber Standards "Simplified Practice Recommendation R-16"; and Federal Specifications MM-L-751C for Lumber and Timber, Soft Woods. The grading rules of the following shall also govern:
1. Southern Pine.....Southern Pine Association
 2. White Pine (Northern Pine).
 3. Idaho White Pine.....Western Pine Association
 4. Douglas Fir..... West Coast Lumberman's Assn.
 5. Western Hemlock..... West Coast Lumberman's Assn.
 6. Plywood, Douglas Fir.....American Plywood Assn.
 7. Plywood, Hardwoods..... U.S. Plywood Corp.
 8. Domestic Hardwoods..... Nat'l Hardwood Lumber Assn.
 9. Miscellaneous.....Nat'l Woodwork Mfgr's Assn.
- E. All lumbers shall conform to materials design specifications for stress grade lumber and its fastenings of the American Standards Simplified Practice Recommendations, R-16, latest edition.
- F. Plywood shall conform to grades of the Department of Commerce Publication CS 35-49.

1.03 GENERAL REQUIREMENTS

- A. Pinus ponderosa shall not be accepted as a substitute for Northern or Idaho White Pine.
- B. Trim in connection with operable walls shall be plain sawn solid stock of yellow birch - "Natural". Plywood face veneer shall be rotary cut yellow birch "Natural".
- C. All framing materials shall be No. 1 dimensioned Douglas Fir or equal. Lumber shall not contain more than 12% moisture.
- D. Interior finish lumber and millwork shall be Grade "A" all kiln dried, white pine finished as called for on finish schedule with a maximum moisture content of 12%.
- E. All construction lumber shall be air-dried to a moisture content not to exceed 19% for 90% of each shipment and not to exceed 22% for the remaining 10%. Kiln-dried lumber meeting the moisture content requirements for air-dried lumber may be used in lieu of the air-dried lumber.
- F. All materials for finished work shall be free from knots and other imperfections.

1.04 STORAGE AND PROTECTION

- A. All lumber and plywood materials, when delivered to the site, shall be piled to insure proper drainage and ventilation. Suitable provisions to prevent excessive absorption of moisture and provide protection from the elements shall be made.
- B. Millwork and finished woodwork shall be protected against dampness during and after delivery and shall be stored in well-ventilated spaces and where not exposed to extreme changes in temperature and humidity.

- C. Materials shall not be stored directly on concrete slabs or cement floors. Supports to keep material at least 6 inches above the floor. Finished or finishing material shall not be stored below grade or in unventilated spaces.

PART 2 - PRODUCTS

2.01 LUMBER

- A. Framing Lumber, joists, studs, plates and bracing shall be Western Hemlock, Douglas Fir, or Southern Pine, construction grade.
- B. Grounds shall generally be 3/4" x 2" unless otherwise shown on Details or as required.
- C. Blocking lumber:
 - 1. Lumber of blocking, nailing strips, etc. shall be No. 1 common fir or Southern Pine. Materials shall be S4S and dressed to size.
 - 2. All lumber for blocking, nailing, strips, etc., concerned with roofing work and roof openings shall be kiln dried and pressure-treated with salt preservative, chromated zinc chloride or tanalith in accordance with American Wood Preserver's Association Specification P-5 to a minimum retention of 0.35 lb. per cu. ft. of wood. Redwood and cypress need not be treated.
- D. Lumber shall be surfaced on four sides to conform to Simplified Practice Recommendation SR-16, current. Sizes stated in these Specifications are nominal sizes unless otherwise noted.

2.02 ROUGH HARDWARE

- A. General:
 - 1. All rough hardware and metal fastening, except for blocking, required for proper installation or carpentry and millwork shall be included. Nails, spikes, screws, bolts and similar items shall be of sizes and types to rigidly secure members in place.
 - 2. Miscellaneous anchors shall be best quality and of the proper size to securely anchor the Work in place.
- B. Blocking rough hardware:

Nails, bolts, connectors, etc. shall be galvanized and sized for proper fastening.

PART 3 - EXECUTION

3.01 ERECTION GENERAL

- A. The Contractor shall layout, cut, fit and erect framing for rough and finished work, blocking, nailers, furring and all other rough carpentry and cutting Work in connection with carpentry and finish for other trades. All carpentry shall be set straight, plumb, level and in true alignment. All Work shall be neatly fitted and rigidly fastened into place with sufficient nails, spikes, screws and bolts as necessary. Defects which render any piece or part unable to serve its intended purpose shall be discarded or, if in place, cut out and replaced. Joints shall be tight

and so formed as to conceal shrinkage.

- B. Workmanship shall be of the best quality and all joints shall be tight and secure. Openings shall be formed where required for other trades and all necessary blocking, nailing strips, protections, etc., shall be provided and secured.
- C. Lumber and millwork delivered to site shall be protected from the effects of heat, moisture and weather.
- D. The Contractor shall take measurements and fit the Work correctly and shall introduce filler pieces of otherwise attempt to remedy unsatisfactory installation. The Contractor shall do all Work in proper sequence and cooperate with other trades and other contractors in preparing proper surfaces for their installation, where required.
- E. The Contractor shall back prime all exposed woodwork items herein provided, both for painted and natural finish and before delivering these materials to the site and after trimming or fitting, reseal immediately so that no raw wood is left exposed. This includes cuts made in the Work for hardware items.
- F. All nailing shall be done in accordance with acceptable building practice. All trim and finished hardware shall be installed in strict accordance with the details of the Drawings. Joints shall be made in an approved manner to conceal shrinkage and be tight. Hardware shall be installed in accordance with the outlined procedures of the hardware Manufacturer.
- G. Permanent or temporary grounds shall be provided wherever required to provide proper fastening of all carpentry, forming, metal and other Work.
- H. Wood supporting or contacting all millwork, finish carpentry and custom woodwork shall be of type and dryness that will not affect the finish.
- I. The Contractor shall protect all masonry inclined to damage during Work, including edges of copings, sills, concrete steps, platforms and similar items. Such protective covering shall be removed when directed and special precautions as masonry openings and corners of the building shall be taken.
- J. Wood centering or other necessary supports for openings in masonry walls shall be accurately and strongly made, properly braced and secured into position until masonry has thoroughly set.
- K. All bracing, supports and shoring required to support construction during the formative stages shall be provided.
- L. The Contractor shall treat all grounds, blocking, plates, curbs, exterior wall furring or any woodwork that is subject to dampness or in contact with masonry or concrete with an approved non-staining preservative complying with Federal Specification TT-W-570, latest issue.
- M. The Contractor shall furnish and install rough framing for door openings; blocking around metal windows; furring as required for thin-coat plastering; blocking and rough framing for cabinets, mullion trim, ceiling trim. See drawings of special sizes of material required and for full extent of rough carpentry.

- N. The Contractor shall furnish and install all required block at fascias, windows, gravel strips, cants, nailing strips, frames and blocking for louver, and ducts to receive metal Work.

3.02 FINISHED MILLWORK

- A. Finished woodwork shall be properly framed, closely fitted and accurately set to the required lines and levels and rigidly secured in place.
- B. The Contractor shall make joints in woodwork tight, formed to conceal shrinkage. Interior corners shall be coped and external angle joints shall be mitered. All joints shall be mitered except where shown to be butt-jointed, in which case an approved device to prevent separation shall be used.
- C. The Contractor shall make the minimum number of splices in running finish, beveled and jointed where solid fastening can be made. Butt joints in running finish will not be permitted.
- D. All millwork shall be carefully put up in the best and most rigid manner, straight, plumb, level and in true alignment; shall be neatly and accurately fitted and scribed; and shall be thoroughly secured. Mitered or other fitted joints shall be planed and sanded. Nails and screws, where possible, shall be concealed. All nails shall be blind-nailed wherever possible, otherwise the nailing shall be located and driven so as not to be visible in the finish. Nail and screw heads exposed in the Work shall be countersunk except where nature or thickness of the wood does not permit. Face screws shall be countersunk and plugged with matching wood.
- E. All Work shall be left clean and free from warp, twist, open joints and other defects. The Contractor shall neatly scribe around pipes and other obstructions to fit the Work and furnish and install fillers as necessary.
- F. All cutting and repairing of this work for the accommodations of the Work of others shall be done as part of the Work of this section unless otherwise specified.
- G. All millwork, trim and finish shall be primed and back painted thoroughly with lead and oil. All built-in surfaces of millwork, which will be concealed after erection, shall be protected with two coats of aluminum paint.
- H. Grilles, register faces and like items applied to woodwork will be supplied under other Sections but shall be finally set and installed under this Section. the Contractor shall furnish and install all metal items such as angles, braces, lintels, clips, plates and stiffeners required in the construction and installation of the millwork items. All metal items exposed in the finished Work shall be smooth, without burrs or irregularities. Screws or bolts shall be countersunk.
- I. The Contractor shall not deliver millwork to any part or section of the building until all concrete, cement, thin-coat plastering, tile masonry and other similar Work has been completed and is thoroughly dried out; outside door openings are made watertight; exterior windows are glazed; and, in case of temperatures dropping below 60°F., until temporary heat and ventilation has been supplied. Millwork shall not be delivered in foggy, rainy or otherwise damp weather.

3.03 CLEAN-UP

The Contractor shall keep the Work site clean and free from rubbish, debris and all non-construction materials, and shall upon notification by either the Engineer or Owner, immediately remove any accumulation thereof. Should the Contractor fail to promptly remove such material, the Owner may have the material removed by others and the cost concurred thereby deducted from monies due or to become due the Contractors.

PART 4 – BASIS OF PAYMENT

4.01 Carpentry and Millwork – Incidental. No additional compensation will be provided for Carpentry and Millwork. The cost associated with Carpentry and Millwork shall be included in the Lump Sum price bid for the items specified in the Bid Schedule.

END OF SECTION

SECTION 07600FLASHING AND SHEET METAL

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included:

The Contractor shall furnish and install all flashing and sheet metal not specifically described in other Sections of these Specifications but required to prevent penetration of water through the exterior shell of the building. This includes, but is not limited to, roof flashing, wall flashing, counter flashing, and other masonry openings, aluminum caps, and such other Work as shown on the Drawings or required herein.

1.2 QUALITY ASSURANCE

In addition to complying with all pertinent codes, standards and regulations, the Contractor shall comply with all pertinent recommendations contained in "Architectural Sheet Metal Manual", latest revision, of the Sheet Metal and Air Conditioning Contractors National Association, Inc.

1.3 SUBMITTALS

Before any flashing and sheet metal is delivered to the job site, the Contractor shall submit complete Shop Drawings of all flashing and sheet metal proposed to be furnished and installed to the Engineer in accordance with Section 01300 of these Specifications.

PART 2 - PRODUCTS

2.1 MATERIALS AND GAUGES

Where sheet metal is required and no material or gauge is indicated on the Drawings, the Contractor shall furnish and install the highest quality and lowest gauge commensurate with the referenced standards.

2.4 OTHER MATERIALS

A. All fastenings shall be of stainless steel.

PART 3 - EXECUTION

3.1 WORKMANSHIP

A. All sections shall be installed plumb, straight, square, level and in proper elevation,

FLASHING AND SHEET METAL

plane, location and alignment with other Work. All workmanship and finishes shall be first-class in every particular, strictly in accordance with the best practices. All work shall be complete in every detail and finished work shall be approved by the Engineer before the job will be accepted. Field connections and erection shall be made with stainless steel fasteners. All internal and external angles shall be fabricated and erected as fully closed miters all along the profile of the miters and then ground smooth to form a neat hairline jointure. The Contractor shall finish watertight and weathertight at all locations.

- B. The Contractor shall furnish the Engineer with shop drawings of installations showing all details, sections, miters, cover plates and erection around all buildings for approval before commencing the work.

3.2 EMBEDMENT

The Contractor shall embed all metal in connection with roofs in a solid bed of caulking, using materials and methods described in these Specifications.

3.4 PROTECTIVE COATING OF ALUMINUM

- A. Where aluminum cap comes in contact with wood or metal incompatible with aluminum, the Contractor shall keep aluminum surfaces from direct contact with such parts by painting the dissimilar metal or wood with a coat of heavy-bodied bituminous paint. The Contractor shall also paint aluminum surfaces in contact with concrete and other masonry materials with alkaline-resistant coatings, such as one coat of heavy-bodied bituminous paint or two coats of water-white methacrylate lacquer.

3.5 TESTS

Upon request of the Engineer, the Contractor shall demonstrate by hose or standing water that all flashing and sheet metal is completely watertight.

PART 4 – BASIS OF PAYMENT

- 4.1 Flashing and Sheet Metal – Incidental. No additional compensation will be provided for Flashing and Sheet Metal. The cost associated with Flashing and Sheet Metal shall be included in the Lump Sum price bid for the items specified in the Bid Schedule.

END OF SECTION

SECTION 07610**ARCHITECTURAL METAL ROOFING**

PART 1 - GENERAL

1.01 DESCRIPTION

A. General

1. Furnish all labor, material, tools, equipment, and services for all preformed as indicated, in accordance with provisions of Contract Documents.
2. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
3. Install drip edge at all outer edging and necessary flashing at all other edges.

1.02 QUALITY ASSURANCE

A. Applicable Standards:

1. SMACNA: "Architectural Sheet Metal Manual" Sheet Metal and Air Conditioning Contractors National Association, Inc.
2. AISC: "Steel Construction Manual" American Institute of Steel Construction.
3. AISI: "Cold Form Steel Design Manual" American Iron and Steel Institute.
4. ASTM A792-89: Standard Specification for Steel Sheet, Aluminum Zinc Alloy Coated by the Hot Dip Process, General Requirements.
5. ASTM A527-90: Standard Specification for Steel Sheet, Zinc Coated (Galvanized) by the Hot Dip Process, Lock-Forming Quality.
6. ASTM A526-90: Standard Specification for Steel Sheet, Zinc, Coated (Galvanized) by the Hot Dip Process, Commercial Quality.
7. ASTM A446-91: Standard Specification for Steel Sheet, Zinc Coated (Galvanized) by the Hot Dip Process, Structural (Physical) Quality.
8. UL2218: Class 4 Impact Resistance Rating
9. ASTM E 1592-95: "Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference", American Society for Testing and Materials

B. Manufacturer's Qualifications:

1. Manufacturer has a minimum of three (3) years experience in manufacturing panels of this nature in a permanent, stationary, indoor production facility.

C. Installer's Qualifications:

1. Installation of panels and accessories by installers with a minimum of three (3) years experience in panel projects of this nature.

1.03 SUBMITTALS

A. Shop Drawings:

1. Submit complete shop drawings and erection details to Engineer for review. Do not proceed with manufacture prior to review of shop drawings. Do not use drawings prepared by Engineer for shop or erection drawings.
2. Shop Drawings show methods of erection, elevations, and plans of roof panels, sections and details, anticipated loads, flashings, roof curbs, vents, sealants, interfaces with all materials not supplied and proposed identification of components parts and their finishes.

B. Samples:

1. Submit samples and color strips for all proposed finishes.
 - a. Submit two (2) color chip samples in color selected by the Engineer.

C. Warranty(s):

1. Metal panel manufacturer, upon final acceptance for project, furnish a warranty covering bare metal against rupture, structural failure, and perforation due to normal atmospheric corrosion exposure for a period of 20 years.
2. Covering panel finish against cracking, checking, blistering, peeling, flaking, chipping, chalking, and fading for a period of twenty (20) years.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Delivery: Deliver panels to job site properly packaged to provide protection against transportation damage.

- B. Handling: Exercise extreme care in unloading, storing, and erecting panels to prevent bending, warping, twisting, end and surface damage.
- C. Storage: Store all materials and accessories above ground on well skidded platforms. Store under waterproof covering. Provide proper ventilation to panels to prevent condensation buildup between each panel.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Panel Profile:

1. 1-3/4 in high rib x 16 in. wide panel.

All accessory items such as soffit, fascia, gutters, and downspouts shall be provided by the same manufacturer as the metal roof panel system. All of this trim and accessories shall match in color and material.

B. Panel Style:

1. Narrow rib, vertical leg, concealed fastener, positive snap lock standing seam, utilizing male and female rib configurations, with factory applied hot melt mastic in female rib.
2. Narrow rib, concealed fastener, positive snap lock standing seam, utilizing male and female rib configurations.

4. Panels shall be equipped with Colorgard® snow guards.

C. Gauge:

1. 26 gauge (#UL-90 Rated – Underwriters Laboratories.)

D. Substrate:

1. Galvalume steel sheet, 0.55 ounces/square foot, minimum yield of 50,000 psi.

E. Clip:

1. 18 gauge UL-rated clip with two fasteners to structural UL-90 rated – Underwriters Laboratories.

F. Texture:

1. Smooth.
- G. Safety
1. Snow guards mounted completely around building on all downslopes.
 2. Snow guards are to be non-penetrating. Color to match that of roof panels.
- H. Finish:
1. Premium fluorocarbon coating produced with Kynar-500 or Hylar 5000 resin (20 year warranty).
- I. Color:
1. Color to be decided by Owner.
- J. Acceptable Manufacturers:
1. Erie Metal Roofing, Pittsburgh, PA; Metal Sales Manufacturing Corp., Jefferson, Ohio; Union Corrugating Company, Fayetteville, NC; Steelox Systems, Mason, OH; MBCI, Houston, TX; or equal.

2.02 FABRICATION

- A. Roll form panels in continuous lengths, full length of detailed runs.
- B. Fabricate trim, flashing and accessories to detailed profiles.
- C. Fabricate trim and flashing from same material as panel. This includes all soffit, fascia, ridge vent, gutters, and downspouts.

PART 3 – EXECUTION

3.01 SURFACE CONDITIONS

- A. Inspection:
 1. Inspect installed work of other trades and verify that such work is complete to a point where this work may continue.
 2. Verify that installation may be made in accordance with approved shop drawings and manufacturer's instructions.
- B. Discrepancies:
 1. In event of discrepancy, notify Engineer.

2. Do not proceed with installation until discrepancies have been resolved.

3.02 INSTALLATION

- A. Install panels so that they are weathertight, without waves, warps, buckles, fastening, stresses or distortion, allowing for expansion and contraction. Any panels having dents, chips, or other defects will be rejected by the Engineer.
- B. Install panels in accordance with manufacturer's instructions and shop drawings.
- C. Provide concealed anchors at all panel attachment locations.
- D. Install panels plumb, level, and straight with seams and ribs/battens parallel, conforming to design as indicated.
- E. Assure that all roof penetrations are sealed to manufacturers specification.

3.03 CLEANING, PROTECTION

- A. Dispose of excess materials and remove debris from site.
- B. Clean work in accordance with manufacturer's recommendations.
- C. Protect work against damage until final acceptance. Replace or repair to the satisfaction of the Engineer, any work that becomes damaged prior to final acceptance.
- D. Touch up minor scratches and abrasions.

The Contractor shall furnish and install all flashing and sheet metal not specifically described in other Sections of these Specifications but required to prevent penetration of water through the exterior shell of the buildings. This includes, but is not limited to, wall flashing, counter flashing, covering of exposed steel flanges, sills at glass block panels and other masonry openings, aluminum caps, flashing over glass block panels and doors, and such other Work as shown on the Drawings or required herein.

PART 4 – BASIS OF PAYMENT

- 4.1 Architectural Metal Roofing – Incidental. No additional compensation will be provided for Architectural Metal Roofing. The cost associated with Architectural Metal Roofing shall be included in the Lump Sum price bid for the items specified in the Bid Schedule.

END OF SECTION



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**S-5! STANDING SEAM CLAMPS AND
 COLORGARD® 2.0 METAL ROOF SNOW
 GUARD**

CSI Division and Section:
 05 00 00 METALS
 05 05 23 Metal Fastenings

1.0 RECOGNITION

The S-5! Standing Seam Clamps have been evaluated for attachment methods to standing seam roofs. The S-5! ColorGard® 2.0 system recognized in this report has been evaluated for use as a roof mounted snow retention system. The structural performance properties of the ColorGard® 2.0 snow retention system and S-5! Standing Seam Clamps comply with the intent of the provisions of the following codes and regulations:

- 2024, 2021, 2018, 2015, and 2012 International Building Code® (IBC)
- 2024, 2021, 2018, 2015, and 2012 International Residential Code® (IRC)
- 2023 Florida Building Code, Building (FBC, Building) – Supplement attached (Includes HVHZ)
- 2023 Florida Building Code, Residential (FBC, Residential) – Supplement attached (Includes HVHZ)

2.0 LIMITATIONS

Use of the S-5! ColorGard® 2.0 system and S-5! Standing Seam clamps recognized in this report is subject to the following limitations:

- 2.1 The ColorGard® 2.0 system shall be installed in accordance with the applicable code, the manufacturer’s published installation instructions, and this report. Where there is a conflict, the most restrictive requirements shall govern.
- 2.2 The registered design professional shall prepare calculations and drawings when required by the statutes of the jurisdiction in which the project is to be constructed.

2.3 The ColorGard® 2.0 system and standing seam clamps shall be structurally compatible with the standing seam metal roof. Compatibility shall be determined by an independent engineering review. Galvanic compatibility shall be determined based on engineering judgment, the snow retention system, the standing seam metal roof system, the building configuration, and in-service environmental conditions. The independent engineering review shall include, but is not limited to, verification of the panel material properties specified and the panel material properties values found in this report for compatibility. Schematics and drawings for S-5! products are the responsibility of the design engineer and shall be presented to the building official for approval.

2.4 System components, including attachment fasteners, shall be fabricated from corrosion-resistant metals having a service life expectancy at least equivalent to the roof itself.

2.5 Linear thermal expansion of the snow retention system shall be considered and accommodated by system design. Thermal cycling of the metal roof system shall not be impeded by the snow retention system attachment.

2.6 The performance of the S-5! Standing Seam clamps when used to install equipment which introduces vibration is outside the scope of this report.

2.7 The ColorGard® 2.0 system and standing seam clamps recognized in this report are represented by S-5! in Colorado Springs, Colorado, and produced by S-5! manufacturing facility in Iowa Park, TX.

3.0 PRODUCT USE

3.1 **General:** The S-5! ColorGard® 2.0 system is used to retain or restrain the movement of snow and ice, also known as snow-guard system.

3.2 **Design:** The S-5! ColorGard® 2.0 system and standing seam clamps allowable stress design (ASD) capacities are indicated in Tables 1 and 2 of this report. Table 1 details the allowable loads for the seam clamps which attach to standing seam roof. The clamps may also be used to attach to cross members in the ColorGard® 2.0 system. Table 2 details the allowable loads for the VersaClip™ 2.0. Tables 3 through 8 of this report detail the allowable loads for the cross members for various lengths, span conditions, and profiles. The system design capacity shall be limited to the least design capacity of the specified cross member, clamps, and VersaClip™ 2.0, as applicable to the design and installation. The snow rail values found in this report have been evaluated for roof snow loads of 20 psf (0.96 kPa) to 140 psf (6.7 kPa) and roof slopes of 0 degrees to 45 degrees.

The product described in this Uniform Evaluation Service (UES) Report has been evaluated as an alternative material, design or method of construction in order to satisfy and comply with the intent of the provision of the code, as noted in this report, and for at least equivalence to that prescribed in the code in quality, strength, effectiveness, fire resistance, durability and safety, as applicable, in accordance with Section 104.2.3 of the 2024 IBC and Section 104.11 of previous editions. This document shall only be reproduced in its entirety.

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ColorGard® 2.0 Crossmembers and their splices are designed for a deflection of $L/60$. ColorGard® 2.0 Crossmember splices, with crossmembers, utilize a minimum of two clamps (single span), and within a distance of $L/4$ from any attachment where L is the crossmember span. ColorGard® 2.0 Crossmember splices, with crossmembers, utilizes a minimum of three (3) clamps (double span), shall not be installed within a distance of $L/8$ from the center roof attachment and within a distance of $L/4$ from any attachment where L is the crossmember span. ColorGard® 2.0 Crossmember splices, with crossmembers, utilizes a minimum of four (4) or more clamps (three (3) or more span), shall not be installed within a distance of $L/8$ or $L/4$ from the center roof attachment and within a distance of $L/6$ from any end attachment where L is the crossmember span. A splice may be placed at any location in the span when the crossmember is continuous over two attachments on either side of the splice. ColorGard® 2.0 Crossmembers may have a maximum cantilever length of 8 inches (203 mm).

Design load forces imposed on metal roof standing seam panels and their connections are assumed to be accounted for in the structural design and attachment of the roof panels. Snow retention systems shall not be used where the Roof Slope Factor, C_s , for unobstructed slippery surfaces was/is used in roof structure design in accordance with Section 7.4 of ASCE 7.

Standing seam clamps described in this report may be used in applications which require the attachment of nonstructural components when the design is in accordance with this report. Fasteners used to attach nonstructural components to the clamps shall have a minimum embedment of 0.375 inches and designed in accordance with Section 2.2 and 2.3 of this report.

3.3 Installation:

3.3.1 S-5! ColorGard® 2.0 Crossmembers: The S-5! ColorGard® 2.0 Crossmembers shall be attached to the clamps with a minimum of 13 ft-lbs (18 Nm). Where splices are required, the dimple in the splice piece allows for a 0.175-inch (4.5 mm) space between adjoining sections to allow for linear thermal expansion of the cross members.

3.3.2 Clamps: Clamps' set screws shall be installed to the torque specified in Table I of this report. The calibration certificate of the torque wrench installing clamp set screws shall be available at the job site for review. Clamps used in the ColorGard® 2.0 system shall not exceed a spacing of 42 inches (813 mm).

4.0 PRODUCT DESCRIPTION

4.1 ColorGard® 2.0 System: The ColorGard® 2.0 system is manufactured from 6000 series aluminum. The ColorGard® 2.0 Crossmembers are manufactured from 6005A T61 Aluminum with a minimum yield strength of 35 ksi (6.89 mPa). The hardware is manufactured from A2-70

stainless steel. The system is illustrated in Figure 1 of this report.

4.2 ColorGard® 2.0 Snow Rail Crossmembers: The ColorGard® 2.0 Crossmembers are manufactured from 6005A T61 Aluminum with a minimum yield strength of 35 ksi. The crossmembers come in nominal 92 inch (2,337 mm) long sections. ColorGard® 2.0 Crossmembers are illustrated in Figure 2 of this report. The cross members may be inter-connected through the use of a splice.

4.2.1 Punched ColorGard® 2.0 Snow Rail Crossmember: The Punched ColorGard® 2.0 Crossmember is slotted every 4 inches (102 mm) on center for roof seams spaced divisible by 4 inches (102 mm). The slotted configuration is attached directly to S-5! Clamps using the M8-1.25 x 17mm (0.67 inch) (13mm/T30 Torx Drive) AISI 304 bolt provided with the clamps.

4.2.2 Unpunched ColorGard® 2.0 Snow Rail Crossmember: The Unpunched ColorGard® 2.0 Crossmember can be used with any roof seams spaced width which is not divisible by 4 inches (102 mm) or if the roof seam is untrue. The unpunched roof seam utilizes the VersaClip™ and M8-1.25 x 17 mm (0.67 inch) (13mm/T30 Torx Drive) AISI 304 bolt provided with the clamps to attach the crossmember to a S-5! Clamp.

4.3 VersaClip™ 2.0: The VersaClip™ 2.0 slides onto the Unpunched ColorGard® 2.0 Crossmember and is used to attach the clamp to crossmember. The VersaClip™ 2.0 is manufactured from 6005a T61 Aluminum and utilizes the clamp bolt for attachment. The VersaClip™ 2.0 is illustrated in Figure 3 of this report.

4.4 S-5! Clamps and Mini Clamps: The S-5! clamps are manufactured from 6061 T6 Aluminum with a minimum yield strength of 35 ksi (241 Mpa). The clamps utilize a set (2) screws to attach the clamp to the standing seam of metal roofs. Clamps are illustrated in Figure 4 of this report.

4.4.1 S-5-E and S-5-E Mini Clamps: The S-5-E and S-5-E Mini are the S-5! Clamps used on double folded standing seam metal roof profiles common in Europe and other countries. The "E" in the product name stands for "European".

4.4.2 S-5-H and H Mini Clamps: The S-5-H and S-5-H mini are the S-5! Clamps used on standing seam panels with single folded seams having a horizontal seam dimension less than $\frac{3}{4}$ inches (19 mm). The "H" in the product name stands for "horizontal seam".

4.4.3 S-5-H90 and S-5-H90 Mini Clamps: The S-5-H90 and S-5-H90 Mini are the S-5! Clamps used on standing seam panels with single folded seams having a horizontal seam dimension greater than 0.65 inches (16.5 mm). The "H" in the product name stands for "horizontal seam".



4.4.4 S-5-MX and S-5-MX Mini Clamps: The S-5-MX and S-5-MX Mini Clamps are the S-5! Clamps used on standing seams panels with single folded horizontal seams of 1 inch (25 mm) and 1½-inches (38 mm) seam height dimensions. This clamp can be used on standing seam double fold seams having a vertical dimensions of 1½-inches (38 mm) and 1¾ inches (44 mm).

4.4.5 S-5-N and S-5-N Mini Clamp: The S-5-N and S-5-N Mini Clamps are the S-5! Clamp used on standing seams panels with 1-inch (25 mm) nail strip profiles. The “N” in the product name stands for “nail strip”.

4.4.6 S-5-N1.5 and S-5-N1.5 Mini Clamp: The S-5-N1.5 and S-5-N1.5 Mini Clamps are the S-5! Clamp used on standing seams panels with 1½-inches (38 mm) nail strip profiles. The “N” in the product name stands for “nail strip”.

4.4.7 S-5-NH1.5 and S-5-NH1.5 Mini Clamp: The S-5-NH1.5 and S-5-NH1.5 Mini Clamps are the S-5! Clamps used on standing seams panels with 1½-inches (38 mm) nail strip profiles that have a horizontal base dimension greater than 0.475 inches (12.065 mm) and less than 0.801 inches (20.345 mm) using a hinge insert to form to the shape of the seam. The “N” in the product name stands for “nail strip”.

4.4.8 S-5-S and S-5-S Mini Clamps: The S-5-S and S-5-S Mini are the S-5! Clamps designed for vertical snap together profiles with vertical dimensions of 1½-inches (38 mm) and 1¾ inches (44 mm). This clamp can be used for traditional single-folded (angle-seam) horizontal profiles of 1 inch (25 mm) and 1½-inches (38 mm) seam height dimensions. The “S” in the product name stands for “snap-lock”.

4.4.9 S-5-T and S-5-T Mini Clamps: The S-5-T and S-5-T Mini are the S-5! Clamps specifically designed for profiles featuring a “T shaped seam configuration. The two-piece design allows it to be installed anywhere along the seam.

4.4.10 S-5-V and S-5-V Mini Clamps: The S-5-V and the S-5-V Mini are the S-5! Clamps designed for most machine-folded seams in the vertical orientation. The “V” in the product name stands for “vertical”.

4.4.11 S-5-Z and S-5-Z Mini Clamps: The S-5-Z and S-5-Z Mini are the S-5! Clamps designed for round “bulb” seam configurations. The “Z” stands for “Zip Rib”.

4.5 Accessories: Optional accessories such as the SnoClip™ II and SnoClip™ III can be used to retard migration of snow beneath the crossmembers. The performance and interaction between the clips and crossmembers are outside the scope of this report.

5.0 IDENTIFICATION

The ColorGard® 2.0 system and S-5! Standing Seam Clamps are identified by the (S-5!) name and trademark (S-5!), product name, and evaluation report number (IAPMO UES ER-805). The IAPMO Uniform Evaluation Service Mark of Conformity may also be used as shown below:



IAPMO UES ER-805

6.0 SUBSTANTIATING DATA

6.1 Test reports are from laboratories in compliance with ISO/IEC 17025.

6.2 Data in accordance with IAPMO UES Evaluation Criteria for Metal Roof Attachment Methods for Photovoltaic Module Mounting Systems, Snow Retention Systems and Other Accessories (EC-29), Reapproved March 2025.

6.3 Engineering Analysis.

6.4 Load testing for standing seam clamps.

7.0 STATEMENT OF RECOGNITION

This evaluation report describes the results of research completed by IAPMO Uniform Evaluation Service on the S-5! ColorGard® 2.0 and S-5! Standing Seam Clamps to assess conformance to the codes shown in Section 1.0 of this report and serves as documentation of the product certification. Products are manufactured at locations noted in Section 2.7 of this report under a quality control program with periodic inspection under the supervision of IAPMO UES.

For additional information about this evaluation report please visit www.uniform-es.org or email us at info@uniform-es.org



EVALUATION REPORT

805

Originally Issued: 10/10/2023

Revised: 09/15/2025

Valid Through: 10/31/2026

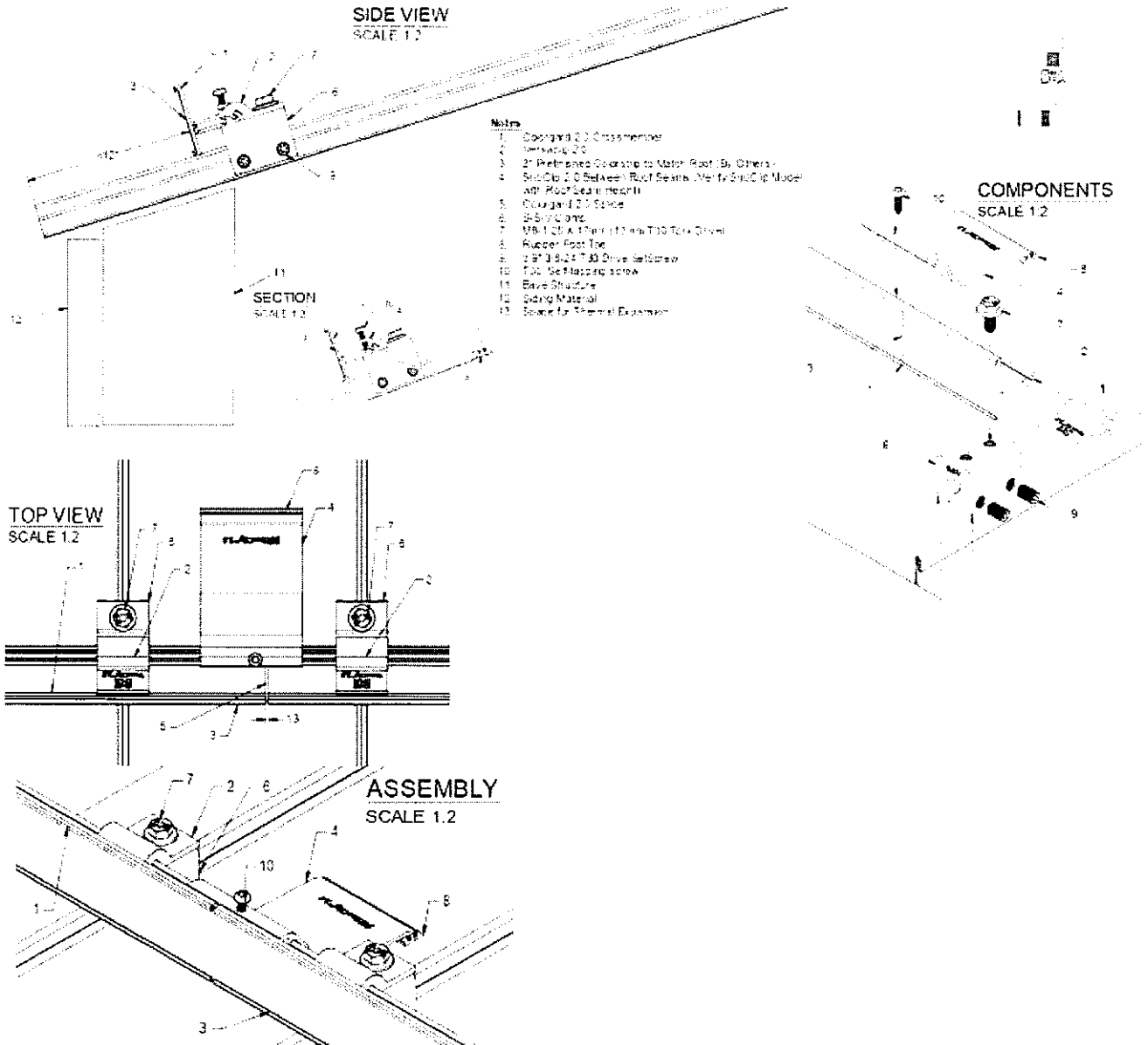


FIGURE 1 – General Assembly of ColorGard® 2.0

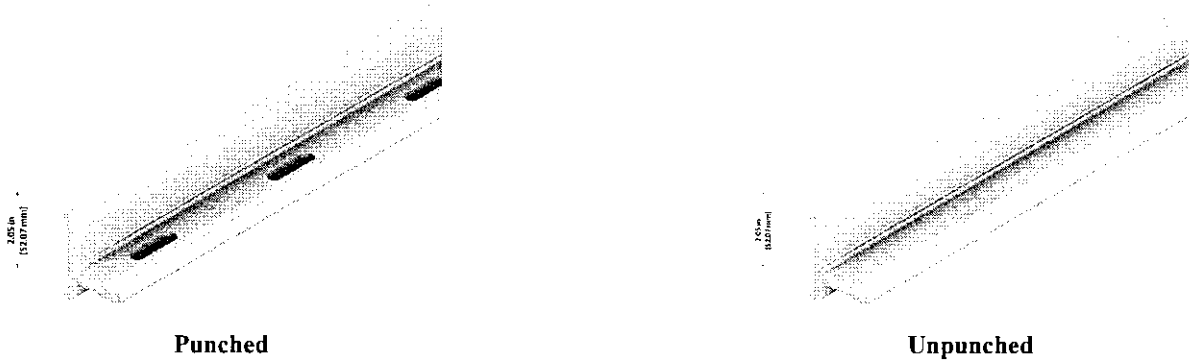


FIGURE 2 – ColorGard® 2.0 Crossmembers and Splice

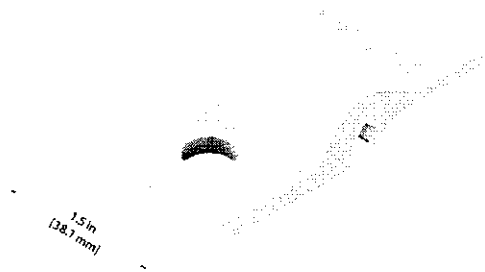


FIGURE 3 – VersaClip™ 2.0



EVALUATION REPORT

805

Originally issued: 10/10/2023

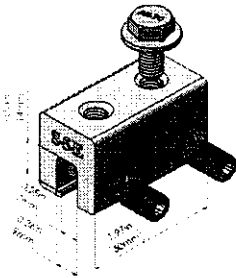
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Valid Through: 10/31/2026

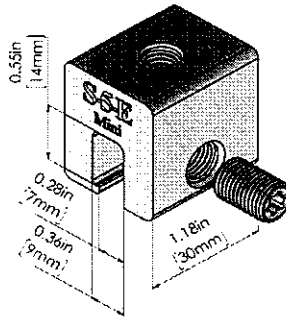
M8-1.25 X 16 mm
Hex Flange Bolt

(2x) M8-1.25
Threaded Hole

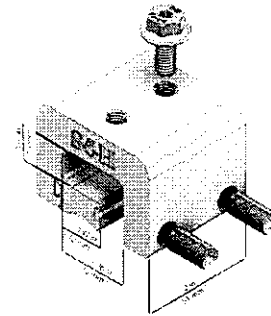
Two 3/8-24 X 0.60"
Round-Point
Setscrews



S-5-E



S-5-E Mini

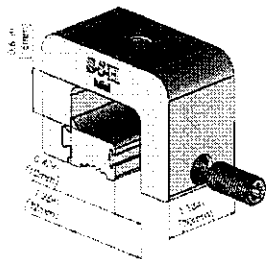


S-5-H

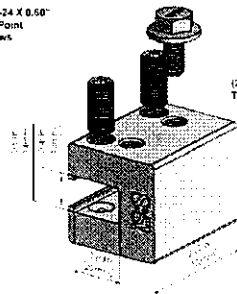
Two 3/8-24 X 0.60"
Round-Point
Setscrews

M8-1.25 X 16 mm
Hex Flange Bolt

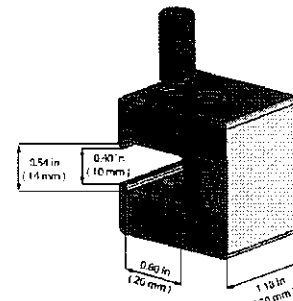
(2x) M8-1.25
Threaded Hole



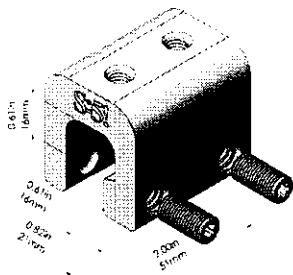
S-5-H Mini



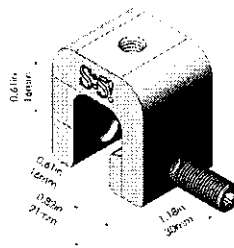
S-5-H90



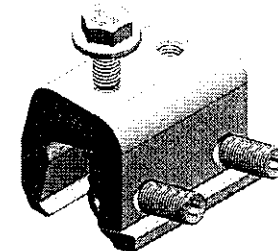
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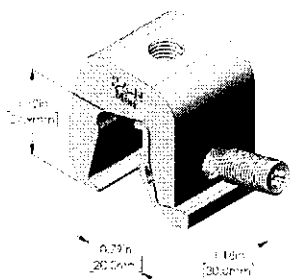
S-5-MX



S-5-MX Mini



S-5-N

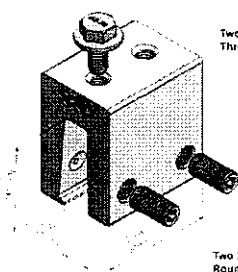


S-5-N Mini

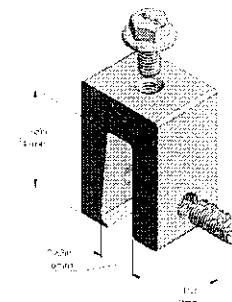
M8-1.25 X 16.00 mm
Hex Flange Bolt

Two M8-1.25
Threaded Holes

Two 3/8-24 X 0.60"
Round Point
Setscrews



S-5-N1.5



S-5-N1.5 Mini

FIGURE 4 S-5! Clamps



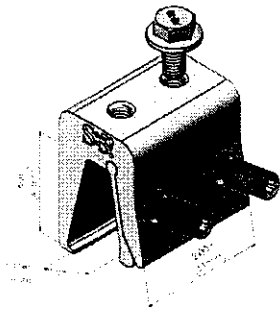
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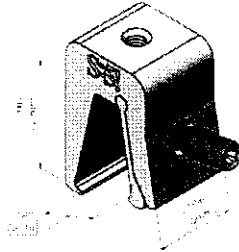
Originally Issued: 10/10/2023

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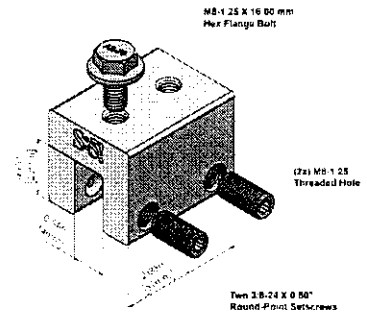
Valid Through: 10/31/2026



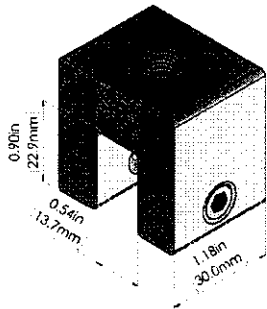
S-5-NH1.5



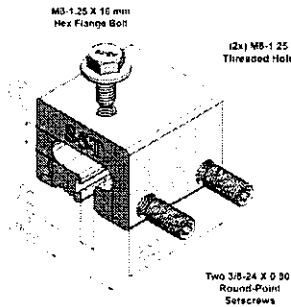
S-5-NH1.5 Mini



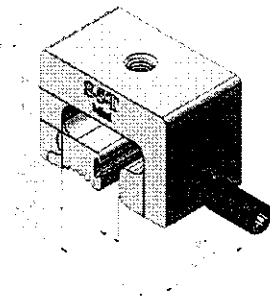
S-5-S



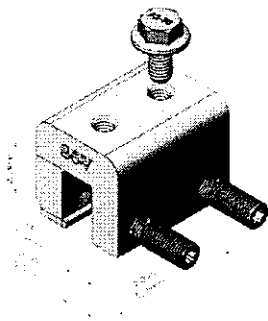
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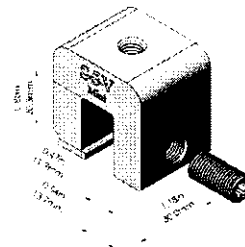
S-5-T



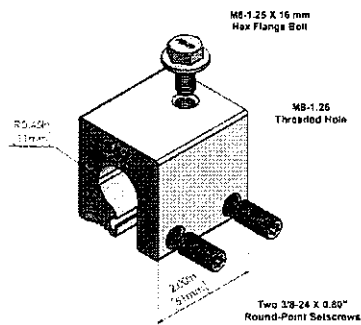
S-5-T Mini



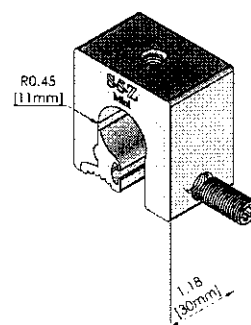
S-5-V



S-5-V Mini



S-5-Z



S-5-Z Mini

FIGURE 4 – S-5! Clamps (continued)



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TABLE 1 - S-5! Seam Clamps Allowable Loads
(continued on two pages)

S-5! Clamp	Standing Seam Metal Roof Information			Uncoated Base Metal Thickness (inches)	Installed Torque (in-lb)	Allowable Connection Capacity Parallel to Seam (lbs)	Allowable Connection Capacity Perpendicular to Seams- Uplift (lbs)
	Roof Manufacturer	Manufacturer Product Designation	Yield Strength (ksi)				
S-5-N	ASC Building Products	Skyline Roofing 26 Ga	48.4	0.0208	130-150	552	-
S-5-N	Agway	NS25 26 Ga Steel	52.0	0.0161	130-150	389	-
S-5-N	Berridge	Tee Panel 24 Ga	55.9	0.0223	130-150	418	-
S-5-S	Bridger Steel	Tru Snap 24 Ga	57.1	0.0258	130-150	741	560
S-5-S		Tru Snap 26 Ga	45.8	0.0203	130-150	637	-
S-5-N		SL-16 24Ga	56.3	0.0259	130-150	685	-
S-5-N		SL-16 26Ga	45.1	0.0207	130-150	578	-
S-5-H	Dynamic Metals	DM1500(SF) -0.032 Alum PVDF	18.7	0.032	130-150	481	528
S-5-H		DM1500(SF_) 24Ga Steel AZ50	47.1	0.022	130-150	-	1095
S-5-N	Englert	A1101 24 24Ga	57	0.0223	130-150	492	-
S-5-N 1.5	The Bryer Company	Truloc 24 Ga	45.8	0.023	130-150	480	900
S-5-N 1.5		Truloc 26 Ga	53.5	0.0174	130-150	407	581-
S-5-N		Proseam 24 Ga	53.5	0.0216	130-150	626	1147-
S-5-N		Proseam 26 Ga	56.8	0.017	130-150	445	753-
S-5-T	Garland	R-mer Span 0.04 inch Aluminum	25.9	0.04	130-150	1125	862
S-5-T		R-Mer Span 24 Ga G90 PVDF	52.3	0.024	130-150	845	-
S-5-MX	Knudson Building Systems	KR-18 Single Fold 24 Ga	48.4	0.0208	130-150	880	1446
S-5-MX		KR-18 Double Fold 24 Ga	48.4	0.0208	130-150	1024	1546
S-5-H90	MBCI	BattenLok HS 22ga Steel w AZ55 and Galvalume Plus	54.1	0.0304	160-180	953	1436
S-5-H90		BattenLok HS 24ga Steel w AZ55 and Galvalume Plus	62.3	0.024	130-150	866	1427
S-5-V		UltraDeck 24Ga Steel w AZ55 and Galvalume Plus	54.8	0.024	130-150	808	915
S-5-V		UltraDeck 22Ga Steel w AZ55 and Galvalume Plus	54	0.03	160-180	788	-
S-5-V		SuperLok 22ga Steel w AZ55 and Galvalume Plus	54	0.03	160-180	1151	1692
S-5-V		SuperLok 24ga Steel w AZ55 and Galvalume Plus	63.2	0.024	130-150	916	-
S-5-V		Double-Lok 22ga Steel w AZ55 and Galvalume Plus	55.2	0.03	160-180	1324	1261
S-5-V		Double-Lok 24ga Steel w AZ55 and Galvalume Plus	60.1	0.024	130-150	1173	-
S-5-S		LokSeam 22Ga W/AZ55	53.1	0.03	160-180	1205	1081
S-5-S		LokSeam 24Ga W/AZ55	54.5	0.024	130-150	910	941
S-5-N	McElroy Metals	Meridian 26 ga	50.2	0.0207	130-150	495	488
S-5-N		Meridian 24 ga	58	0.0253	130-150	578	708
S-5-E	Merchant and Evans	Ziplock 1.5" 0.04 Aluminum	20	0.04	130-150	720	840
S-5-E		Ziplock 1.5" 0.032 Aluminum	25	0.0328	130-150	647	-
S-5-V		Ziplock 2" 22 Ga	52.9	0.0318	160-180	1132	1934
S-5-V		Ziplock 2" 24Ga	53.6	0.0245	130-150	996	1254
S-5-V		Ziplock 2" 0.04 Aluminum	20.4	0.0397	130-150	872	-
S-5-V		Ziplock 2" 0.032 Aluminum	25	0.0328	130-150	696	-
S-5-Z		Zip Rip 20 Ga steel	50.6	0.0393	160-180	1249	1680
S-5-Z		Zip Rip 22 Ga steel PVDF	51.4	0.0333	160-180	1161	1382
S-5-Z		Zip Rip 24 Ga Galvalume Steel	51.9	0.0248	130-150	948	921
S-5-Z		Zip Rip 0.050 Al	31.2	0.0495	130-150	1243	1298
S-5-Z		Zip Rip 0.04 Al	30.4	0.0413	130-150	1079	1093
S-5-Z		Zip Rip 0.032 Al	29.7	0.0321	130-150	-	897
S-5-N	Metal Sales	Image II 26 Ga Steel	53.8	0.0161	130-150	413	553

For SI: 1-inch=25.4 mm; 1psf=0.0479 kPa, 1 lb=4.45 N, 1 in-lb =112.98 Nmm

1 Values in this table shall be used in the system capacity and general performance as defined in Sections 3.2 of this report.



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TABLE 1 –S-5! Seam Clamps Allowable Loads- Mini Clamps (continued)

S-5! Clamp	Standing Seam Metal Roof Information			Uncoated Base Metal Thickness (inches)	Installed Torque (in-lb)	Allowable Connection Capacity Parallel to Seam (lbs)	Allowable Connection Capacity Perpendicular to Seams- Uplift (lbs)
	Roof Manufacturer	Manufacturer Product Designation	Yield Strength (ksi)				
S-5-N	New Tech Machinery Corp.	FF 100 24 Ga	60.8	0.024	130-150	561	540
S-5-N		FF 100 26 Ga	60.8	0.0143	130-150	459	-
S-5-NH 1.5	Scheffe Roofing	FF150 26 Ga Steel AZ55	55	0.016	130-150	324	512
S-5-1.5		FF150 24 Ga Steel AZ50	55	0.0163	130-150	-	780.5
S-5-N	Sheet Metal Supply	NS-1 24 Ga Steel w/G90 and PVDF	45.8	0.024	130-150	676	862
S-5-NH1.5	Vicwest	Prestige 24 Ga Steel	49.8	0.0208	130-150	-	329
S-5-NH1.5		Prestige 26 Ga Steel	48.4	0.0143	130-150	460	335
S-5-T		Tradition 150 22 Ga	47.1	0.0306	160-180	1303	-
S-5-S		Tradition 150 24 Ga	57	0.0246	130-150	545	-
S-5-N Mini	The Bryer Company	Proseam 24 Ga	53.5	0.0210	130-150	-	767
S-5-N Mini		Proseam 26 Ga	56.8	0.0150	130-150	329	522
S-5-N 1.5 Mini		Truloc 24 Ga	45.8	0.0210	130-150	-	730
S-5-N 1.5 Mini		Truloc 26 Ga	53.5	0.0150	130-150	329	455
S-5-H Mini	Dynamic Metals	DM1500(SF_)0.032 Aluminum	18.7	0.032	130-150	364	265
S-5-N Mini	Englert	A1101 24 24Ga	57	0.0223	130-150	-	372
S-5-N Mini		A1101 0.040 Aluminum	26.4	0.04	130-150	-	267
S-5-N Mini	Agway	NS25 26 Ga Steel	52.1	0.0161	130-150	-	377
S-5-T Mini	Garland	R-mer Span 0.04 inch Aluminum	25.9	0.04	130-150	798	693
S-5-T-Mini		R-Mer Span 24 Ga G90 PVDF	52.3	0.021	130-150	-	658
S-5-N Mini	New Tech Machinery	FF 100 22 Ga Steel	53.2	0.0268	160-180	-	405
S-5-MX Mini	Knudson Building Systems	KR-18 Single Fold 24 Ga	48.4	0.0208	130-150	635	680
S-5-MX Mini		KR-18 Double Fold 24 Ga	48.4	0.0208	130-150	854	769
pleS-5-H90 Mini	MBCI	BattenLok HS 22ga Steel w AZ55 and Galvalume Plus	54.1	0.0304	160-180	711	1309
S-5-H90 Mini		BattenLok HS 24ga Steel w AZ55 and Galvalume Plus	62.3	0.024	130-150	657	1149
S-5-V Mini		UltraDeck 24Ga Steel w AZ55 and Galvalume Plus	54.8	0.024	130-150	-	559
S-5-V Mini		SuperLok 22ga Steel w AZ55 and Galvalume Plus	54	0.03	160-180	787	1398
S-5-V Mini		SuperLok 24ga Steel w AZ55 and Galvalume Plus	63.2	0.024	130-150	638	1170
S-5-V Mini		Double-Lok 22ga Steel w AZ55 and Galvalume Plus	55.2	0.03	160-180	893	-
S-5-V Mini		Double-Lok 24ga Steel w AZ55 and Galvalume Plus	60.1	0.024	130-150	762	-
S-5-S Mini		LokSeam 22Ga W/AZ55	53.1	0.03	160-180	805	-
S-5-S Mini		LokSeam 24Ga W/AZ55	54.5	0.024	130-150	-	660
S-5-N Mini		McElroy Metals	Meridian 26 ga	50.2	0.0163	130-150	342
S-5-N Mini	Meridian 24 ga		58	0.0223	130-150	464	533
S-5-E Mini	Ziplock 1.5" 0.04 Aluminum		20	0.04	130-150	-	557
S-5-E Mini	Ziplock 1.5" 0.032 Aluminum		25	0.0328	130-150	556	607
S-5-V Mini	Ziplock 2" 22 Ga		52.9	0.0318	160-180	724	1580
S-5-V Mini	Ziplock 2" 0.04 Aluminum		20.4	0.0397	130-150	713	728
S-5-V Mini	Ziplock 2" 0.032 Aluminum		25	0.0328	130-150	527	-
S-5-Z Mini	Zip Rip 20 Ga steel		50.6	0.0393	160-180	1015	937
S-5-Z Mini	Zip Rip 22 Ga steel PVDF		51.4	0.0333	160-180	-	769
S-5-Z Mini	Zip Rip 24 Ga Galvalume Steel		51.9	0.0248	130-150	-	633
S-5-Z Mini	Merchant and Evans	Zip Rip 0.050 Al	31.2	0.0495	130-150	854	766
S-5-Z Mini		Zip Rip 0.04 Al	30.4	0.0413	130-150	820	689
S-5-Z Mini		Zip Rip 0.032 Al	29.7	0.0321	130-150	726	554
S-5-N Mini		Metal Sales	Image II 26 Ga Steel	53.8	0.0161	130-150	344



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TABLE 1 –S-5! Seam Clamps Allowable Loads- Mini Clamps (continued)

S-5! Clamp	Standing Seam Metal Roof Information			Uncoated Base Metal Thickness (inches)	Installed Torque (in-lb)	Allowable Connection Capacity Parallel to Seam (lbs)	Allowable Connection Capacity Perpendicular to Seams- Uplift (lbs)
	Roof Manufacturer	Manufacturer Product Designation	Yield Strength (ksi)				
S-5-S Mini	Sheet Metal Supply	Tradition 100 22 Ga	57	0.0246	130-150	-	285
S-5-N Mini		NS-1 24 Ga Steel w/G90 and PVDF	45.8	0.0208	130-150	415	-
S-5_NH 1.5-Mini	Vicwest	Prestige 24 Ga Steel	49.8	0.0208	130-150	384	325
S-5_NH 1.5-Mini		Prestige 26 Ga Steel	48.4	0.0143	130-160	305	244

For SI: 1-inch=25.4 mm; 1psf=0.0479 kPa, 1 lb=4.45 N, 1 in-lb =112.98 Nmm

¹ Values in this table shall be used in the system capacity and general performance as defined in Section 3.2 of this report.

TABLE 2 - ColorGard® 2.0 VersaClip™ 2.0 Allowable Loads¹

Product	Allowable Connection Capacity to Crossmember to clamp parallel to seams (lbs)
VersaClip™ 2.0	1295

¹ Values in this table shall be used in the system capacity and general performance as defined in Sections 2.4 and Section 3 of this report.

SECTION 07900CAULKING AND WEATHERSTRIPPING

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work included:

1. The purpose of caulking and weather-stripping in this Project is to provide a positive barrier against penetration of air and moisture at joints between items where caulking is essential to continued integrity of the barrier.
2. Such caulking and weather-stripping will normally be performed under the Work of various Sections of these Specifications but shall be performed in strict accordance with the provisions of this Section.

B. Related Work described elsewhere:

Individual requirements for caulking and weather-stripping are described in various other Sections of these Specifications and/or shown on the Drawings.

PART 2 - PRODUCTS

2.01 CAULKING AND WEATHERSTRIPPING MATERIALS:

- A. Caulking compounds - Sonolac ready-to-use acrylic latex compounds as manufactured by Sonneborn Building Products.
- B. Or Approved Equal.

2.02 CAULKING EQUIPMENT

All caulking equipment shall be only such equipment as is specifically recommended by the Manufacturer of the caulking material being installed.

PART 3 - EXECUTION

3.01 CHOICE OF CAULKING MATERIAL

The Contractor shall use only that caulking material which is best suited to the installation and is so recommended by the caulking material Manufacturer.

3.02 BACK-UP MATERIALS

- A. The Contractor shall verify the compatibility of filler material with caulking before installation and shall use filler about 1/3 to 1/2 wider than width of joint so sufficient pressure is exerted by filler to provide substantial resistance to displacement.
- B. All filler materials shall be non-oily, non-staining back-up filler such as polyethylene foam rod, expanded polyurethane, neoprene, or other filler completely compatible with the caulking material.

3.03 APPLICATION OF CAULKING

- A. Joints and spaces shall be clean and dry prior to caulking. All sides of joints shall be caulked, except where glass or metal shall be primed prior to caulking. Joints more than 3/4 inch deep shall be packed with an approved backing to within 1/2 inch of the surface prior to applying caulking.
- B. The Contractor shall install caulking in strict accordance with the Manufacturer's recommendations, taking care to produce beads of proper width and depth, to tool as recommended by the Manufacturer, and to immediately remove all surplus caulking.
- C. Joints shall be completely filled and caulking shall have a smooth and even finish, free of wrinkles. All caulked joints shall be completely watertight.
- D. Materials adjacent to caulked joints which become soiled shall immediately be cleaned.

3.04 CAULKING SCHEDULE

The Contractor shall carefully study the Drawings and furnish and install the proper caulking at each point where called for on the Drawings, plus at all other points where caulking is essential to maintaining the continued integrity of the airtight or watertight barrier. This includes, but is not limited to, all junctions between masonry and windows, doors, grilles, louvers, vents, sleeves and all openings in exterior walls. In addition, all openings through the floors of the building and roof penetrations for piping, conduit, equipment operators, ventilation ducts and other items are to be caulked air-tight around the perimeter of these openings unless other measures, such as the installation of special gaskets, are specifically called for on the Drawings.

3.05 WEATHERSTRIPPING

All exterior doors shall be provided with weather-stripping, properly installed per manufacturer's recommendations.

PART 4 – BASIS OF PAYMENT

- 4.01 Caulking and Weatherstripping – Incidental. No additional compensation will be provided for Caulking and Weatherstripping. The cost associated with Caulking and Weatherstripping shall be included in the Lump Sum price bid for the items specified in the Bid Schedule.

END OF SECTION

SECTION 08100**METAL DOORS AND FRAMES****PART 1 - GENERAL****1.01 DESCRIPTION****A. Work included:**

The metal doors and frames required for this Work are indicated on the Drawings and include hollow metal doors and frames.

1.02 QUALITY ASSURANCE

In addition to complying with all pertinent codes, standards and regulations, the Contractor shall:

- A. In guarantee and shop drawings, comply with nomenclature established in American National Standards Institute publication A123.1-1967, "Nomenclature for Steel Doors and Steel Door Frames".
- B. Provide doors and frames of construction and design having the approval of Factory Mutual Engineering Division and passing the requirements of ASTM E-152. Certificates of compliance shall be furnished in accordance with Section 01300 - Submittals.
- C. Assure that the finish on all doors and frames shall be capable of passing a 200 hour Salt Spray Test and a 200 hour Humidity Test as certified by an independent testing laboratory and in accordance with Federal Standard 141, Methods 6061 and 6201. Certificates of compliance shall be submitted in accordance with Section 01300 - Submittals.

1.03 SUBMITTALS

Before any metal doors and frames are delivered to the job site, submit shop drawings of all metal doors and frames to the Engineer for review and approval in accordance with the provisions of Section 01300 of these Specifications.

PART 2 - PRODUCTS**2.01 METAL DOORS**

- A. All metal doors and frames shall be the product of one Manufacturer. Design is referenced to products of Steelcraft, Inc., of Cincinnati, OH. Republic Building Products, McKenzie, TN, and Amweld Building Products, LLC, Garrettsville OH are equal. Equal products will be acceptable as substitutes provided the submittals required under this Section of these Specifications conclusively prove the equality of the substitute to the satisfaction of the Engineer. Door accessories, including

weather seals, weather-stripping, thresholds, louvers, panic hardware, etc., shall be furnished as shown on the Door Schedule and in accordance with these Specifications.

- B. All metal doors shown on the Drawings shall be of welded seamless design in 16 gauge hot-dipped galvanized (both sides) sheet steel and shall be properly reinforced for the finish hardware described in Section 08700 of these Specifications. Face sheets as well as lock and hinge edges shall have a smooth and unbroken surface.
- C. Doors shall be chemically washed, rinsed and dried prior to receiving one primer coat at least 1.5 mils in thickness. Finish coats shall be factory-applied in a standard color as selected by the Engineer.
- D. Templates shall be secured from the finish hardware supplier and all finished hardware shall be accurately installed, or provisions made for, at the factory.

2.02 METAL FRAMES

- A. All metal frames shall be accurately fabricated to match the doors to be installed in them.
- B. All metal frames shall be the types and sizes shown on the Drawings, 14 gauge hot-dipped galvanized (both sides) sheet, and shall be properly reinforced for the finish hardware described in Section 08700 of these Specifications.
- C. Frames shall be chemically washed, rinsed and dried before receiving one shop coat of baked-on metallic primer. Finish coats shall be factory-applied in a standard color as selected by the Engineer.

2.03 GARAGE DOORS

Garage doors for the proposed Building shall be Thermacore Insulated Door, Series 591, as manufactured/supplied by the Overhead Door Co. of Pittsburgh (Clopay Building Products and Wayne-Dalton Corp. Mt. Hope, OH are equals) and as specified below:

Sizes:	24 ft. (w) x 14 ft. (h); Qty. = 2
Color:	By Owner
Panel	
Thickness:	1-5/8" (exterior steel thickness = .016")
Insulation:	Rigid Foamed-in-place, R-Value = 14.86
Operator:	Model SEL + Plus with Drawbar, 1/3 HP, 115 V, single phase
Track:	2" Standard with support angles as required.
Required	
Options:	<ul style="list-style-type: none"> - Push-Button Control Station (1 per door) - Radio Receiver with 3 channel transmitter (1 per door) - Pneumatic Bottom Sensing Edge - Thermal Glazing (3 per door) - Flexible Vinyl Jamb Seal

General Contractor shall supply 2" x 12" lumber framing around each door opening for mounting door track, etc.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. The Contractor shall install all metal doors and frames in strict accordance with all pertinent codes and regulations, the approved shop drawings, and the manufacturer's recommendations, anchoring all components firmly in position for long life under hard use.

- B. The Contractor shall install all finish hardware in strict accordance with the manufacturer's recommendations, eliminating all bound conditions and making all items smoothly operating and firmly anchored into position.

PART 4 – BASIS OF PAYMENT

- 4.01 Metal Doors and Frames – Incidental. No additional compensation will be provided for Metal Doors and Frames. The cost associated with Metal Doors and Frames shall be included in the Lump Sum price bid for the items specified in the Bid Schedule.

END OF SECTION

SECTION 08700**FINISH HARDWARE****PART 1 - GENERAL****1.01 DESCRIPTION****A. Work included:**

1. Unless otherwise approved by the Engineer, the Contractor shall furnish and install all finish hardware described in the Door Schedule and as shown on the Drawings and all other finish hardware not described but required for a complete and operable facility.

B. Related Work described elsewhere:

1. Metal Doors and Frames Section 08100

1.02 SUBMITTALS

- A. Before any finish hardware is ordered or purchased for this Work, the Contractor shall submit to the Engineer for his approval a complete list of all finish hardware proposed to be furnished for this Work, giving Manufacturer's name, catalog number, copies of Manufacturer's dimension drawings, catalog cuts, material specifications and related data for each item. This shall in no way be construed as permitting substitutions of items for the items specified. All submittals, and resubmittals if necessary shall be made in accordance with the provisions of Section 01300 of these Specifications.
- B. Prior to installation, the Contractor shall deliver to all installing personnel complete recommendations from the Manufacturers regarding installation methods.

PART 2 - PRODUCTS**2.01 FASTENINGS**

- A. The Contractor shall furnish all finish hardware with all necessary screws, bolts, and other fasteners of suitable size and type to anchor the hardware in position for long life under hard use.
- B. The Contractor shall furnish fastenings where necessary with expansion shields, toggle bolts, hex bolts, and other anchors approved by the Engineer, according to the material to which the hardware is to be applied and the recommendations of the hardware Manufacturer.
- C. All fastenings shall harmonize with the hardware as to material and finish.

2.02 ACCEPTANCE MANUFACTURERS

Catalog numbers used in the Door Schedule are of products of Steelcraft, Inc., Cincinnati, Ohio. All finish hardware shall be either the hardware specifically described or an equal product approved by the Engineer. Products manufactured by Steelcraft, Inc. of Cincinnati, OH. or approved equal.

2.03 OTHER MATERIALS

All other materials, not specifically described but required for a complete and proper installation of finish hardware, shall be new, first quality of their respective kinds, and subject to approval of the Engineer.

PART 3 - EXECUTION

3.01 INSTALLATION

Hardware shall be installed in strict conformance with the Manufacturer's recommendations. Door locks and cylinders shall be set up for the Owner's existing master keying system. Three (3) keys shall be provided for each door lock.

PART 4 – BASIS OF PAYMENT

4.01 Finish Hardware – Incidental. No additional compensation will be provided for Finish Hardware. The cost associated with Finish Hardware shall be included in the Lump Sum price bid for the items specified in the Bid Schedule.

END OF SECTION

SECTION 15400**PLUMBING****1.00 PLUMBING - GENERAL**

This specification governs the plumbing work required for potable water supply, including the furnishing and installation of plumbing fixtures.

1.01 SCOPE OF WORK

- A. This specification and drawings describe installation of domestic water, waste and vent lines.
- B. Work under this contract includes, but is not limited to:
 - 1. Restrooms – plumbing and fixtures
 - 2. Install cold-water tubing.
 - 3. Installing ample number of cleanouts on waste piping.
 - 4. Installation of sewer lateral and connection to manhole
 - 5. Installing drains.
 - 6. Clean and flush all new piping.
 - 7. Mark and tag all new piping.

1.02 PLUMBING FIXTURES

The General Contractor shall furnish and install the following fixtures within the Restrooms:

Restroom:

Refer to Plumbing Drawings and Fixture Schedule for all items.

1.03 QUALITY ASSURANCE

- A. Codes and Standards
 - 1. All work shall be executed according to the current requirements plus amendments of the plumbing code and regulations of the municipality, in which construction is taking place. All work shall also meet the minimum standard as set forth in the latest National Plumbing Code and OSHA standards.
 - 2. The contents of this specification shall not be construed to conflict with the codes and standards.
- B. Review of Materials and Drawings
 - 1. Before ordering any material or doing any work, the plumbing contractor shall verify all measurements at the building and shall be responsible for the

correctness of same.

2. No extra compensation will be allowed on account of differences between actual dimensions and measurements and those indicated.

C. Minor Deviations

1. Minor deviations as to the location of lines and runs shall be permitted as long as the overall design intent is maintained. The location of all work shall be coordinated between the General Contractor and the Engineer.

D. Materials and Equipment

1. All materials and equipment shall be new and of the standards specified herein.
2. All equipment offered under this specification shall be limited to products regularly produced and recommended for service rated in accordance with engineering data or other comprehensive literature made available to the public and in effect at the time of the bid openings.
3. Equipment shall be installed in strict accordance with the manufacturer's instructions for type and capacity of each unit of equipment used.

- E. The contractor shall guarantee (as provided with the required one (1) year maintenance bond) the erection and installation of the work as herein specified, and shall make good any defects due to faulty materials or workmanship, which become apparent within one (1) year from date of final acceptance of completed work by the owner.

F. Execution - Workmanship and Methods

1. All work under this contract shall be complete in a first class workman like manner and shall conform to the best standards of the industry.

1.04 PIPE AND PIPE FITTINGS

A. Description

1. Potable water supply piping system.
2. Floor drain piping.
3. Sewer Clean Outs.
4. Vent pipes.

B. Execution

1. The contractor shall locate all existing piping and protect it from damage

during construction. New piping connections shall be made where indicated on the plans.

C. Installation

1. All piping shall be installed so as not to interfere with any services or utilities, electric lighting, etc.
2. No pipe shall pass in front of or interfere with any door or window opening.
3. All piping must be installed in a neat and orderly fashion.
4. Water lines to be protected by installing in the walls or protective coating.
5. All excavated material to be hauled away and backfill with 2B stone.
6. Tubing shall be cut squarely and reamed. Fittings shall be mechanically cleaned.
7. Mitered joints for elbows and notching of straight runs of pipe for tees will not be permitted.
8. All changes in size of piping shall be made with reducing fittings or reducing sockets; no bushings will be permitted.
9. All tubing shall be run below the ceiling. Tubing shall be fastened to ceiling or walls with approved fasteners and at spacings in compliance with Plumbing Code.

D. Materials

1. Domestic Water Piping
 - a. Type K Copper or Pex tubing shall be required.
2. Domestic Water Fittings
 - a. 1/2" quarter turn valves on all accessories.
 - b. Plastic supply lines on all accessories.
3. Installation
 - a. All piping shall be run parallel to the lines of the building. Pipes shall be cut accurately and shall be worked into place without springing or forcing. All burrs shall be removed after cutting proper allowances shall be made for expansion and contraction of pipe.

- b. Valves will be placed in the most accessible positions.
- c. After water lines are completely installed and tested, they shall be thoroughly flushed free of all foreign matter and residue.

4. Materials - Ball Valves

Ball Valves:

- a. Bronze body ASTM B-62.
- b. Full port, 3 piece construction.
- c. 150 SWP, 400, WOG, non-shock.
- d. Equal to Nibco S595-Y, equivalent Apollo, Crane or equal.

5. Materials - Waste Piping

- a. Waste piping shall be P.V.C. Schedule 40 or A.B.S.

1.05 MARKING AND TAGGING

- A. Color code and mark all piping, exposed or concealed, covered or uncovered, installed in this contract.
- B. Hot water to be Red.
Cold water to be Blue.

2.0 BASIS OF PAYMENT

Plumbing – Incidental. No additional compensation will be provided for Plumbing. The cost associated with Plumbing shall be included in the Lump Sum price bid for the items specified in the Bid Schedule.

END OF SECTION

SECTION 16000ELECTRICAL

PART 1 GENERAL

1.01 DESCRIPTION

- A.. The work to be performed under this Contract includes all labor, tools and material necessary to furnish, install, test, and place in operation a complete operable electric system as specified herein and as indicated on applicable drawings. Only that equipment or material which is specifically so designated herein or on the drawings will be furnished by others.
- B. The work shall include complete installation of building lighting and grounding system and other miscellaneous items as indicated on the drawings and specifications herein.

1.02 EXAMINATION OF PLANS AND SPECIFICATIONS

- A. Carefully examine the Architectural, Structural, Heating-Ventilation and Electrical Drawings. If any discrepancies occur among the Drawings or between the Drawings and the Specifications, report such discrepancies to the Engineer in writing and obtain written instructions. No departures from the Drawings or Specifications may be made without prior written approval.
- B. Any discrepancies shall be reported at least fifteen (15) days prior to submission of bids. If such discrepancies are not reported and claims for extra charges to any Contract result, such claims will be allocated to and paid by the Contractor who, in the opinion of the Engineer, is the responsible party.

1.03 EXAMINATION OF ACTUAL CONDITIONS

- A. Before submitting a bid, visit the site and become familiar with all pertinent facilities and conditions.
- B. Before ordering any material or doing any work, verify all measurements at the site. No extra compensation will be allowed because of differences between actual measurements at the site and those indicated on the Drawings.

ELECTRICAL

1.04 SHOP DRAWINGS AND CATALOG CUTS

- A. Submit within thirty (30) days of Contract award six (6) copies of manufacture's detailed shop drawings, catalog cuts and installation and operating instructions where applicable on all equipment including the following for the approval of the Owner:
 - 1. Breakers and Enclosures
 - 2. Lighting Fixtures complete with outlet boxes and hangers.
 - 3. Ground Connectors and Ground Rod
 - 4. Device Switches
 - 5. Receptacles
 - 6. Boxes
 - 7. Conduit
 - 8. Wire

- B. Drawings of related or interconnected equipment must be submitted together. Incomplete or insufficient sets of Drawings will not be considered.

- C. Submit additional shop drawings, catalog cuts and samples as the Owner may require.

- D. Install no material or equipment that has not been approved by the Owner.

1.05 SINGULAR NUMBER

- A. All reference made to any item in the singular number shall apply equally to as many identical items as the work may require.

1.06 SUBSTITUTIONS

- A. The Contractor shall prove the equality of any item offered in substitution for a specified item. He shall also receive approval of each item substituted prior to its use.

1.07 STANDARDS

- A. The following established standards, rules and regulations (insofar as they apply) are part of this Section and shall have the same force as if printed herein in full:
 - 1. National Electrical Code (NFPA)
 - 2. National Board of Fire Underwriters'

3. National Electric Manufacturer's Association
4. I.E.S. Lighting Handbook
5. Insulated Power Cable Engineer's Association
6. Institute of Electrical and Electronic Engineers
7. National Bureau of Standards
8. A.C.I. Building Code
9. National Electrical Safety Code

B. The foregoing rules and regulations shall be followed by the Electrical Contractor as minimum requirements. They shall not receive the Electrical Contractor from furnishing and installing higher grades of material and workmanship, which are herein specified.

1.08 TRADE INTERFERENCE

- A. Check the Architectural and equipment features of the building to insure proper placement of the electrical equipment and avoid interference.
- B. Confer with all other Contractors, especially the heating and ventilating contractors, on the location of their lines, pipes and ducts and other obstructions before erecting the work. Avoid interference.
- C. Cooperate with all trades for the proper securing and anchoring of the electrical work.

1.09 PROTECTION AND RESPONSIBILITY FOR DAMAGE

- A. Effectively protect all electrical work, materials and equipment. All openings into any part of the conduit system as well as all fixtures and equipment both before and after being set in place shall be securely covered or otherwise protected to prevent obstruction of the conduit or injury due to carelessly or maliciously dropped tools or materials, dirt or any foreign matter. Cover conduit ends with capped bushings during construction. The Contractor is responsible for all damage to his work until the electrical installation is fully and finally accepted.

1.10 ELECTRICAL EQUIPMENT BY OTHERS

- A. All electrical equipment furnished and installed by other than the Electrical Contract shall be furnished with a full complement of control equipment necessary for operation of this equipment.

- B. The Electrical Contractor shall be responsible for proper rotation and final connections to all electric motors.

1.11 PERFORMANCE OF EQUIPMENT

- A. All materials, equipment and appurtenances of any kind required for the satisfactory completion of the work shall be provided and shall be completely satisfactory and acceptable in operation, performance and capacity. No approval either written or verbal of any drawings, descriptive data or appurtenances relieves the Contractor of the responsibility to turn over the system to the Owner in perfect working order.

1.12 SPECIAL ENGINEERING SERVICES

- A. In the instance of complex or specialized electrical systems the installation, final connections and testing of such systems shall be made under the direct supervision of competent authorized service engineers who shall be in the employ of the respective equipment manufacturer.

1.13 PERMITS, TESTS AND INSPECTIONS

- A. Give required notices, obtain and pay for all permits, and pay all deposits and fees necessary for the installation, tests, and inspection of all electrical work. Make such tests as may be require by local and state authorities and the Engineer. Supply all testing equipment personnel.
- B. All connections at panels, switches and equipment must be made, all fuses in place, all circuits continuous from point of service to switches, receptacles, and outlets at the time of final inspection.
- C. Each circuit must be free from short circuits and grounds. Minimum insulation resistance between conductors and the ground shall be not less than that recommended by the National Electrical Code.
- D. Set and adjust all overload devices (including equipment furnished under other contracts) to suit the load conditions.

1.14 CLEANING AND REMOVING RUBBISH

- A. Keep premises free from accumulated rubbish during construction.

- B. At the completion of the electrical work, remove from the building and site all rubbish and accumulated materials of whatever nature (not caused by other trades).
- C. Leave all work equipment in a clean, orderly and acceptable condition, free from dust, dirt, rust, and finger marks.

1.15 WORKMANSHIP

- A. Complete all work neatly and in conformance with the best electrical trade practice.
- B. Any work that in the judgement of the Owner is not so installed shall be removed and replaced to his satisfaction and at the expense of the Contractor.
- C. Employ only mechanics skilled in the trade.

PART 2 METHOD AND MATERIALS

2.01 MATERIAL AND EQUIPMENT

- A. All material and equipment shall be new and the latest standard products as advertised in printed catalogs by reputable manufacturers.
- B. Equipment shall be the best grade and quality used for the purpose of commercial practice and shall have the manufacturer's name, address and catalog number on a plate securely affixed in a convenient place. All electrical equipment or apparatus of any one system shall be the product of one manufacturer, or equivalent products of a number of manufacturers which are suitable for use in a unified system .
- C. All equipment, including component parts, must be the product of a manufacturer who has a successful record of use for at least five (5) years.
- D. Any material, equipment or appurtenances, the operation, capacity or performance of which does not comply with the intent of the Drawings or Specifications or which is damaged prior to acceptance by the Engineer and Owner, will be held to be defective material and must be removed and replaced or put in proper and acceptable working order without additional cost to the Engineer or Owner.

- E. Equipment must match or be compatible with existing equipment.
- F. Where applicable, all materials and equipment must bear the label of approval of the Underwriters' laboratories, Inc.
- G. All electrical wiring shall be run in conduit as required by National Electric Code, or any other state or local codes.

2.02 LAYOUT

- A. Exact routing or raceways and locations of outlets and equipment are governed by structural conditions and obstructions.
- B. Locate and install equipment requiring maintenance so that it will be readily accessible.

2.03 INSERTS

- A. Install insets or anchors of an approved type for all hangers. Where two or more parallel lines of conduits are installed, continuous inserts may be used. The load shall be equally distributed on the supporting steel. The Owner shall check to ensure this is accomplished in an approved manner.

2.04 SLEEVES

- A. Install sleeves where required to protect equipment or facilities in the installation. Extend each sleeve through the floor, wall or partition and cut it flush with each surface unless noted otherwise.
- B. Sleeve all conduits coming out of the slab or decking with Schedule 40 PVC. Extend the sleeve 1" above the finished floor. Caulk the space between the sleeve and the conduit with graphite packing and caulking compound.
- C. Follow the procedure of Paragraph B above for all conduits passing through exterior walls below grade and through waterproofed walls and floors. Caulk both ends of wall sleeves.

2.05 FASTENINGS, SUPPORTS, HANGERS

- A. All fastenings, supports, hangers, clamps and anchors shall be of a type made for the specific purpose intended. All hardware shall be hot dipped galvanized, or silicon bronze.
- B. Use machine screw anchors (lead sleeve, steel cone), for solid masonry fastening. Fiber or plastic plugs not permitted. Use machine screws for structural steel fastening.
- C. Rigidly support all conduits by clamps or fabricated steel supports of approved design. Do not use perforated strap iron for supports.
- D. Use ¼” spacers behind all surface mounted sheet steel equipment enclosures to permit air circulation. This includes panels.

2.06 PAINTING

- A. Manufactured equipment (panels, switchgear, starters, etc.) is to be prime painted and finished in baked enamel by the manufacturer. Normally, this equipment need not be painted in the field except for touch up of marred or scratched surfaces.

2.07 CONDUIT

- A. Wherever the terms “conduit” or “raceway” appear hereafter it shall be understood to mean any one, or combination of the following types:
 1. Hot dip galvanized rigid steel, type IMC or EMT, as manufactured by Youngstown Steel or approved equal.
 2. Liquid-tight, flexible metallic, interlocked steel.

2.08 INTERIOR CONDUIT

- A. Type EMT may be used instead of rigid in all areas except:
 1. Underground
 2. In gravel or other subbase floor fills
 3. In concrete floor slabs that are below the finished grade level.
 4. In masonry and concrete walls below finished grade
 5. Horizontally in poured concrete walls
 6. Exposed to the weather
 7. Where subject to damage
 8. Where forbidden by applicable codes
 9. Damp areas

2.09 UNDERGROUND AND EXTERIOR CONDUITS

- A. All wiring in underground or exterior areas shall be rigid steel conduit or schedule 40 PVC and encased as specified herein and indicated on the Drawings. Schedule 87 PVC may be used without encasement only where noted.
- B. The use of conduit smaller than one (1) inch trade size Will not be permitted unless specifically shown on the Drawings or specified.
- C. All conduit shall conform to Federal Specification, WW-C-581

2.10 CONDUIT INSTALLATION

- A. Install conduits at least thirty (30) inches below final grade unless otherwise noted. Where changes in direction are required to miss obstructions, make the changes gradual. These requirements also apply to conduits encased in concrete.
- B. Factory bent elbows shall be used.
- C. Install all wiring as required by code in conduit. Conduit may not be exposed or concealed in the floor slab as indicated on drawings. Generally, follow the building lines.
- D. Wiring for various systems may be grouped in conduit only when indicated on drawings.
- E. Keep conduits at least six inches away from hot water, steam, and heating equipment. Do not install conduit horizontally in masonry for more than two (2) feet.
- F. Terminate rigid conduit with approved locknuts inside and outside the box. Install bushings in all boxes – OZ Type B 9molded phenolic in a malleable steel collar), or approved equal on conduits above 1”; OZ Type a, plain phenolic, on conduits one (1) inch and smaller.
- G. Use Appleton “Clamps-backs” or equal to space conduit at least ¼” from walls, floors, and ceilings in damp or wet areas.

- H. Do not use threadless fittings on rigid steel conduit, except by special permission. Conduit joints shall be made up with an approved electrically conductive waterproof joint compound. Do not use red lead paint.
- I. Where a flexible raceway is installed in outdoor locations, or indoors where exposed to continuous or intermittent moisture, the conduit shall be the liquid-tight type – Underwriter’s Laboratories, Inc. listed. It shall be installed in such a manner that liquids tend to run off the surface and not drain toward the fittings. Sufficient slack shall be provided to reduce the effects of vibration. Where the fittings are brought into an enclosure with knock out, a gasket assembly consisting of an “O” and retainer shall be installed on the outside. The fittings shall be nylon insulated throat type as manufactured by Thomas and Betts, Series 5331.
- J. Where rigid galvanized steel conduit is installed in outdoor and indoor locations and is exposed to continuous or intermittent moisture, connections at enclosures shall provide a liquid-tight seal. HUB fittings shall be made of steel or malleable iron and including a recessed sealing ring and nylon insulated throat as manufactured by Thomas and Betts, Series 370.
- K. All conduits which are to remain empty for future introduction of conductors shall be provided with 200-lb. polypropylene line.
- L. Concrete envelopes shall provide a minimum of three (3) inch enclosures around each conduit in a duct bank. Concrete shall be reinforced at all points where duct banks cross vehicular traffic areas, fill, loose soil or water, gas or sewage mains. Reinforcing shall extend not less than four (4) feet beyond area requiring reinforcing.
- M. Conduits shall not be bedded or placed in cinder fill unless encased in a concrete envelope.
- N. Conduits through expansion joints shall be provided with approved slip joint fittings where they pass through the building extension provided with a copper bond jumper or approved grounding devices.
- O. Horizontal runs of conduit shall be supported from overhead construction at intervals not exceeding six (6) feet, using clevis type hangers and threaded steel rods. Perforated straphangers will not be permitted, where two (2) or more raceways are run parallel in a group, trapeze hanger rods, may be used. Raceways shall be

strapped to every third hanger and the first hanger on both sides of each bend.

- P. Install approved slip joint fittings where conduit passes through the building expansion joint. (Not required on the ground floor slab).
- Q. All interior conduit installed shall be surface mounted unless otherwise noted.
- R. Conduits in office walls and ceilings shall be concealed and devices shall be flush mounted.

2.11 JUNCTION AND PULL BOXES

- A. Install junction or pull boxes where required to facilitate pulling wires or making connections. Boxes shall be equal to Hoffman Bulletin A-51 with lift-off covers.
- B. Junction boxes installed outside the building and in floor pit shall be heavy-duty, galvanized steel or aluminum, weatherproof, Hoffman, Keystone, or approved equal.

2.12 FLEXIBLE METALLIC CONDUIT

- A. Flexible metallic conduit of the liquid-tight type shall be used for connections to motors and equipment as required. This conduit shall be sized in accordance with the National Electrical Code and shall not exceed twenty-four (24) inches in length.

2.13 WIRING SYSTEM

- A. Circuiting as shown on the Drawings is a diagrammatic and is not intended to show all conduits or the exact routing. Connect outlets only to the circuits shown.
- B. Following installation and with the system in operation, check the load balance and rearrange connections so that the KW demand on each phase of the main bus does not vary more than 10 percent from the others.

2.14 WIRE AND CABLE

- A. All conductors must be of the proper voltage rating (min. 600V.) and manufactured according to the latest Federal Specifications. Conductors shall be copper, Type THWN or equal to ITT, Triangle or Crescent.

- B. Maintain the same wire size throughout the circuit, including same size neutral.
- C. Unless otherwise shown on the Drawings, use No. 12 minimum for all branch circuits. No. 14 wire shall be used for signal and control circuits except as noted on the drawings. All sizes are American Wire Gauge.
- D. All wire AWG No. 8 and larger will be stranded.
- E. All interior wiring shall be run in metallic conduit as required by codes.

2.15 WIRE INSTALLATION

- A. Pull wire into conduit only after all work that could injure the wire has been completed. Use only U.L. approved wire pulling compound.

2.16 SPLICES

- A. Keep slices to a minimum especially in pull boxes.
- B. In general, use solderless pressure connectors for taps and splices on all except branch circuit wire.
- C. For branch circuit splices use a floating spring sleeve type connector, Scotch-Lok, Buchanon "B" Caps, Thomas & Betts, PT-1 or approved equal. Choose the correct size and install so that the wires cannot be loosened.
- D. Plastic tape shall be equal to Scotch Brand 88.
- E. Stranded copper conductors No. 10 AWG and smaller shall be terminated with Thomas & Betts STA-KON compression connectors. The manufacturer's recommended tooling shall be used to apply. Where compression terminals are not safely isolated from other metallic parts and equipment, the nylon self-insulated type as manufactured by the Thomas & Betts shall be used.

2.17 WIRE IDENTIFICATION

- A. Color coded all wires per National Electric Code. Wires may be identified at the terminals by colored tape, wrapped from point of entry into box. Painting or dipping is not permitted.
- B. Identify wires by the actual circuit and panel number at all troughs and boxes.

2.18 NAMEPLATES

- A. All switchgear, panels, relays, cabinets, safety switches, and similar items shall be identified by a nameplate furnished and installed by this Contractor.
- B. Switchgear and panels shall have 1" x 3" or larger nameplates (with characters not less than ¼") made up of two (2) laminated black plastic and characters engraved on one black sheet to the depth of the white plastic. Submit a typewritten list of plastic nameplates for the Engineer's approval before ordering.
- C. Show voltage on all nameplates.

2.19 FACE PLATES

- A. Surface mounted switch, receptacles and other device plates shall be of cast rust-resisting metal and furnished with required gaskets.

2.20 GROUNDING

- A. Furnish and install electrical system grounds as required by the latest Edition of the National Electrical Code, Article 250-94
- B. All non-current carrying metal parts are to be grounded. This includes all metal conduits, metal raceways, outlet boxes, cabinets, switchboard enclosures, metal enclosures and other frame and metallic cases of all electric equipment and electrically operated equipment.
- C. The main building ground system will be extended to equipment installed in this project, utilizing bolted connections only. Welding to structural members is strictly prohibited. The new structure will be grounded to new ground rod at each column.

2.21 MOUNTING HEIGHTS

- A. Mount all switches and appurtenances at ADA approved heights.

2.22 LIGHTING SWITCHES

- A. Local wall switches shall be heavy duty, flush specification grade, quiet operating tumbler type, rated 20 amperes, 120/240 volts. All switches shall have plaster ears and shall be single pole or three way as indicated on the Drawings.

	<u>Hubbell</u>	<u>G.E.</u>	<u>Arrow Hart</u>	<u>Leviton</u>
Single Pole	1221W	5911-1	1991 SL	18221-W
3-Way	1223W	5913-1	1993 SL	18223-W

- B. Where wall switches operate vertically, single and double pole switches shall be "ON" in the upper position. If operated horizontally, single and double switches shall be "ON" in the left position. Where more than one (1) switch is installed at one (1) outlet, location, install them under one (1) plate in the order appropriate to the location of outlets controlled, unless forbidden by the National Electrical Code.

2.23 PANELS

- A. Panels shall be dead-front with molded case thermal magnetic circuit breakers, bolt-on type. Breakers shall be readily removable from the front of the panel board without disturbing adjacent breakers.
- B. Breakers shall have quick-make and quick-break contacts with thermal inverse time and instantaneous magnetic short circuit characteristics and be ambient compensated for at least 80% of the trip rating at 50 degrees C.
- C. Bus bars and all current carrying parts shall be made of hard drawn copper.
- D. Main bus bars shall be sized on basis of temperature rise in accordance with the latest NEMA and AIEE standards. Buses shall be extended for future breakers where indicated on the Drawings.
- E. Panels shall have the number and size of branch circuit breakers shown in the panelboard schedules.
- F. Furnish one handle lock-off device for every three-branch circuit breakers. Install as directed.

- G. Panels shall be manufactured by Cutler Hammer, GE, or approved equal.
- H. Tandem or “Thin” circuit breakers are not acceptable.
- I. All breakers shall be 20 A trip unless indicated otherwise.
- J. Panels shall have a 10,000 A.I.C. minimum.
- K. Enclosures shall be NEMA 12 unless otherwise noted.

2.24 ENCLOSED SAFETY SWITCHES

- A. Furnish and install additional safety switches as may be required by the National Electrical Code.
- B. Switches that serve as motor disconnects only and not as circuit protection shall be non-fusible.
- C. Safety Switches: Safety Switches shall be of size noted on the Drawings, fusible or non-fusible and contained in a NEMA 12 enclosure. Unless otherwise shown, all switches shall be Siemens: “General Duty” Type 1 Fusible, or an approved equal, and be quick-make, quick break, with an interlocking door and a lockable handle.

2.25 LIGHTING FIXTURES

- A. Furnish and install lighting fixtures and lamps as indicated on the Drawings and Schedules.
- B. All fixtures shall be as specified or approved equal. Catalog Cuts, Photometric Data and Manufacturing Specifications must be approved in writing by the Owner before fixtures are shipped.
- C. Lamp all fixtures with type and wattage’s indicated.
- D. Furnish all necessary additional auxiliary supporting steel for fixtures not mounted on building framework.

END OF SECTION

SECTION 16100**CONDUIT****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Conduit, fittings and conduit bodies.

1.02 RELATED SECTIONS

- A. Section 16060 - Grounding and Bonding.
- B. Section 16070 - Hangers and Supports.
- C. Section 16075 - Electrical Identification.
- D. Section 16138 - Boxes.

1.03 REFERENCES

- A. NECA 1 - Standard Practices for Good Workmanship in Electrical Contracting; National Electrical Contractors Association; 2000.
- B. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; National Electrical Manufacturers Association; 2003.
- C. NFPA 70 - National Electrical Code; National Fire Protection Association; 2005.

1.04 SUBMITTALS

- A. See Section - General Conditions.
- B. Product Data: Provide for metallic conduit, liquidtight flexible metal conduit, nonmetallic conduit, fittings, and conduit bodies.

1.05 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.
- B. Products: Listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Accept conduit on site. Inspect for damage.
- B. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.
- C. Protect PVC conduit from sunlight.

PART 2 PRODUCTS

2.01 CONDUIT REQUIREMENTS

- A. Conduit Size: Comply with NFPA 70.
 - 1. Minimum Size: 3/4 inch unless otherwise specified.
- B. Underground Installations:
 - 1. More than Five Feet from Foundation Wall: Use rigid steel conduit, plastic coated conduit, or thickwall non-metallic conduit.
 - 2. Within Five Feet from Foundation Wall: Use rigid steel conduit, plastic coated conduit, or thickwall nonmetallic conduit.
- C. Outdoor Locations Above Grade: Use rigid steel conduit or rigid aluminum conduit.
- D. In Slab Above Grade:
 - 1. Use rigid steel conduit or thickwall nonmetallic conduit.
 - 2. Maximum Size Conduit in Slab: 1 inch; 3/4 inch for conduits crossing each other.
- E. Wet and Damp Locations: Use rigid steel conduit, rigid aluminum conduit, or thickwall nonmetallic conduit.
- F. Dry Locations:
 - 1. Concealed: Use intermediate metal conduit.
 - 2. Exposed: Use rigid steel conduit, rigid aluminum conduit, or intermediate metal conduit.

2.02 METAL CONDUIT

- A. Rigid Steel Conduit: ANSI C80.1.
- B. Rigid Aluminum Conduit: ANSI C80.5.
- C. Intermediate Metal Conduit (IMC): Rigid steel.
- D. Fittings and Conduit Bodies: NEMA FB 1; material to match conduit.

2.03 PVC COATED METAL CONDUIT

- A. Description: NEMA RN 1; rigid steel conduit with external PVC coating, 20 mil thick.
- B. Fittings and Conduit Bodies: NEMA FB 1; steel fittings with external PVC coating to match conduit.

2.04 LIQUIDTIGHT FLEXIBLE METAL CONDUIT

- A. Description: Interlocked steel construction with PVC jacket.
- B. Fittings: NEMA FB 1.

2.05 ELECTRICAL METALLIC TUBING (EMT)

- A. Description: ANSI C80.3; galvanized tubing.
- B. Fittings and Conduit Bodies: NEMA FB 1; steel or malleable iron compression type.

2.06 NONMETALLIC CONDUIT

- A. Description: NEMA TC 2; Schedule 40 PVC.
- B. Fittings and Conduit Bodies: NEMA TC 3.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as shown on drawings.
- B. Verify routing and termination locations of conduit prior to rough-in.
- C. Conduit routing is shown on drawings in approximate locations unless dimensioned. Route as required to complete wiring system.

3.02 INSTALLATION

- A. Install conduit securely, in a neat and workmanlike manner, as specified in NECA 1.
- B. Install steel conduit as specified in NECA 101.
- C. Install nonmetallic conduit in accordance with manufacturer's instructions.
- D. Arrange supports to prevent misalignment during wiring installation.
- E. Support conduit using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.
- F. Group related conduits; support using conduit rack. Construct rack using steel channel; provide space on each for 25 percent additional conduits.
- G. Fasten conduit supports to building structure and surfaces under provisions of Section 16070.
- H. Do not support conduit with wire or perforated pipe straps. Remove wire used for temporary supports.
- I. Do not attach conduit to ceiling support wires.
- J. Arrange conduit to maintain headroom and present neat appearance.
- K. Route exposed conduit parallel and perpendicular to walls.
- L. Route conduit installed above accessible ceilings parallel and perpendicular to walls.
- M. Maintain adequate clearance between conduit and piping.
- N. Cut conduit square using saw or pipecutter; de-burr cut ends.
- O. Bring conduit to shoulder of fittings; fasten securely.
- P. Install no more than equivalent of three 90 degree bends between boxes. Use conduit bodies to make sharp changes in direction, as around beams. Use hydraulic one shot bender to fabricate bends in metal conduit larger than 2 inch size.

- Q. Avoid moisture traps; provide junction box with drain fitting at low points in conduit system.
- R. Provide suitable pull string in each empty conduit except sleeves and nipples.
- S. Use suitable caps to protect installed conduit against entrance of dirt and moisture.
- T. Ground and bond conduit under provisions of Section 16060.
- U. Identify conduit under provisions of Section 16075.

3.03 INTERFACE WITH OTHER PRODUCTS

- A. Install conduit to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 16000.

END OF SECTION

SPECIFICATIONS

1. 4" Plain End inlet/outlet, 3" Plain End vents, H20 traffic-rated cast iron cover standard.
2. Certified max flow rate: 75 GPM.
3. Liquid capacity: 110 Gallons (14.7 cu. ft.).
4. Oil capacity: 27.5 Gallons.
5. Solids capacity: 11 Gallons.
6. Unit weight w/ standard cover: 180 lbs.
7. Maximum operating temperature 140°F continuous.

NOTES

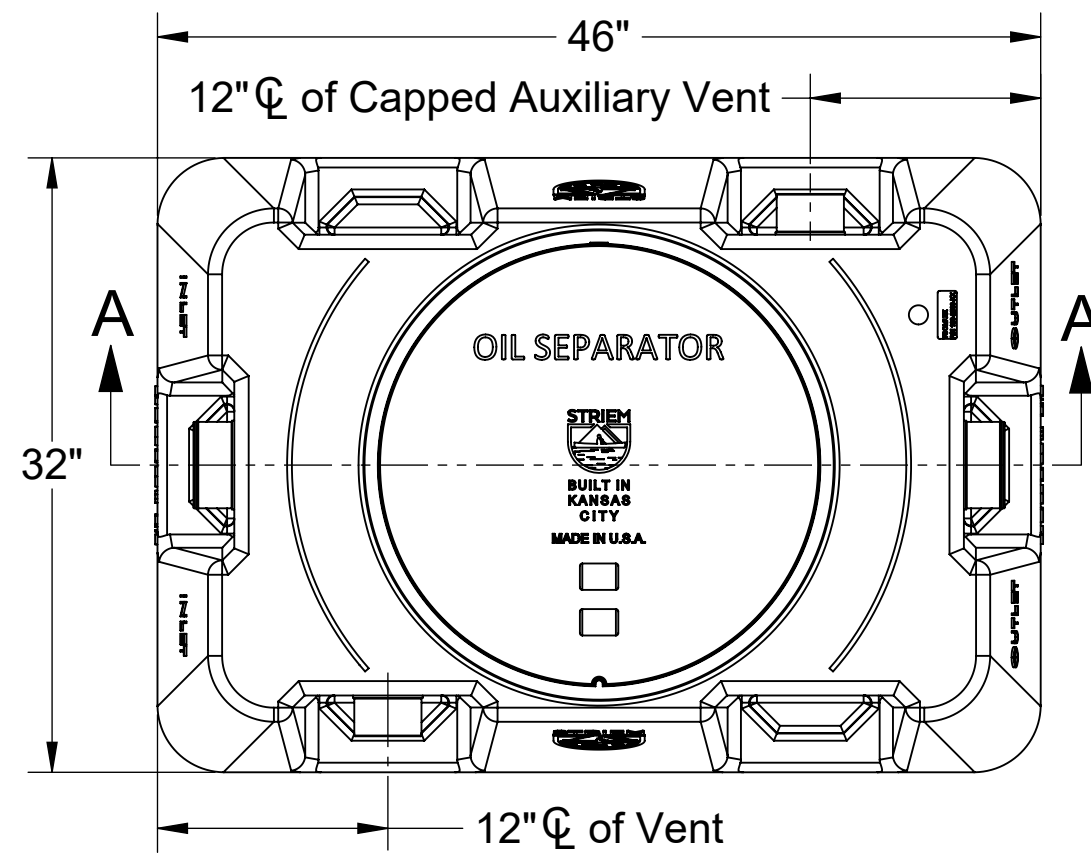
1. Engineered inlet diffuser efficiently separates oil from water.
2. Capped auxiliary vent provided to allow flexibility with vent piping and design. Provided cap can be moved to unused vent location, or discarded if two chamber vents are required per local code.
3. For gravity drainage applications only.
4. Do not use for pressure applications.
5. Cover placement allows full access to tank for proper maintenance.
6. Maximum burial depth: 72" from standard cover height.

ENGINEER SPECIFICATION GUIDE

Striem high efficiency oil/water separator model OS-75 shall be lifetime guaranteed and made in the USA. Separator shall be certified to IAPMO IGC 325 and carry a UPC listing. Separator shall be constructed of polyethylene. Separator shall be manufactured for above- or below-grade installation. Field-adjustable riser system is available as an option to bring manhole cover to grade. Separator flow rate shall be 75 GPM. Separator liquid holding capacity shall be 110 gallons and oil capacity shall be 27.5 gallons. Solids capacity shall be 11 gallons. Cover shall be H20 traffic-rated pickable cast iron.

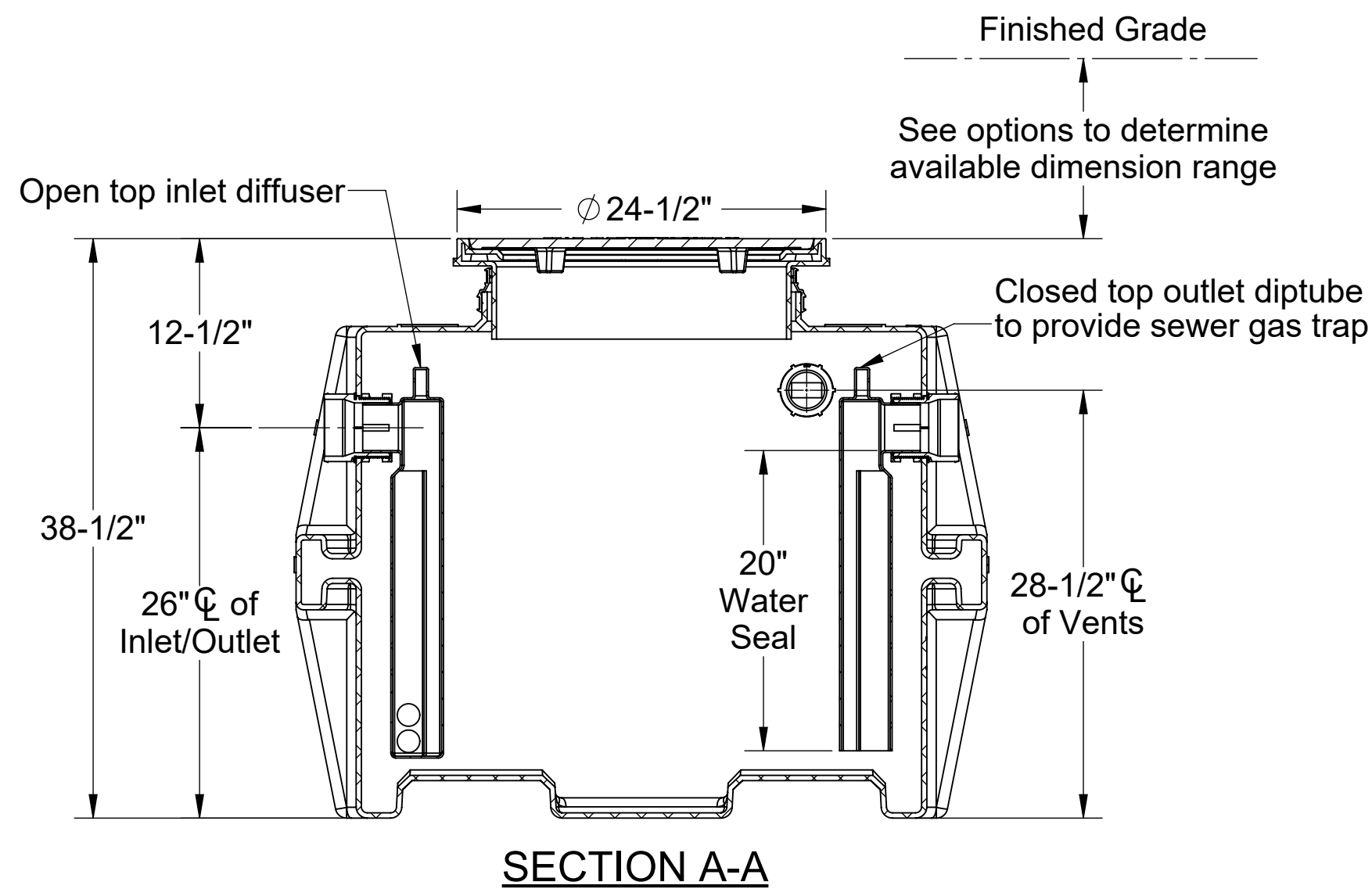
IAPMO IGC 325 CERTIFICATION

The OS-75 has been third-party certified by IAPMO to the IGC 325 standard. The OS-75 achieved an average 99% efficiency with 2.1 mg/L effluent quality at 75 GPM up to the maximum oil capacity of 27.5 gallons. The structural design has been approved and stamped by a licensed structural engineer for direct burial in accordance with Striem's installation instructions.

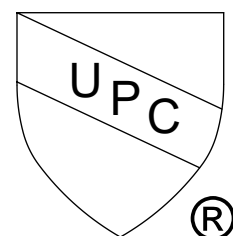
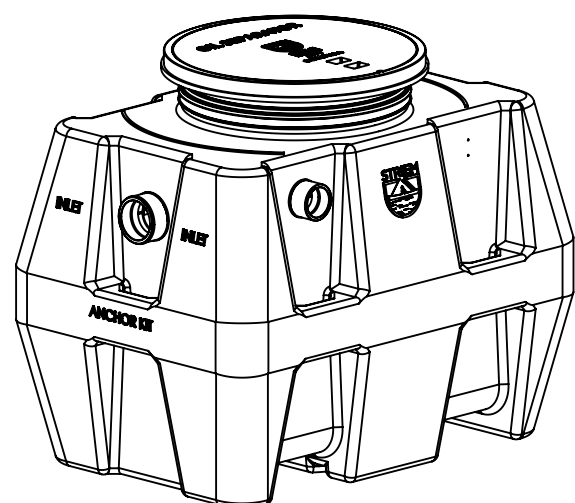


TOP VIEW

OPTIONS	
Connection Options (Plain End Only)	
Inlet / Outlet	
<input type="checkbox"/>	4"
<input type="checkbox"/>	6"
Riser Options	
From Factory: Up to 5"	
<input type="checkbox"/>	Up to 24": SR24
<input type="checkbox"/>	Up to 39": LR24
<input type="checkbox"/>	Up to 43": SR24 (2)
<input type="checkbox"/>	Up to 58": SR24 + LR24
<input type="checkbox"/>	Up to 72": LR24 (2)
-OR-	
<input type="checkbox"/>	CPRK: 11" - 72" (See specification for more detail.)
Additional Options	
<input type="checkbox"/>	HDK-2: High Water Table Hold Down Kit
<input type="checkbox"/>	C24-M: 2,000 lbs. Rated Bolted Composite Cover
<input type="checkbox"/>	SS: Slick Stick™ Oil Level Monitoring System*
*Monitoring system will raise covers by 3".	



SECTION A-A



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MODEL NUMBER:	OS-75
DESCRIPTION:	75 GPM POLYETHYLENE HIGH EFFICIENCY OIL/WATER SEPARATOR
DWG BY:	ENG
DATE:	2/26/2026
REV:	3

SPECIFICATION SHEET

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Made in the U.S.A

