GB
454
.B3
N56
1989
DEC 9 1997

PROJECT MANUAL
FOR
SHADES BEACH IMPROVEMENTS

HARBORCREEK TOWNSHIP
PENNSYLVANIA

U.S. DEPARTMENT OF COMMERCE NOAA
COASTAL SERVICES CENTER
2234 SOUTH HOBSON AVENUE
CHARLESTON, SC 29405-2413

BREAKWATERS
BOAT LAUNCH RAMP
BEACH SAND FILL

DER FILE # CZ1: C7E
ME # 87339
Grant Task # 87-PE.06

Coastal Zone

Funded and Coordinated through Department of Environmental Resources, Office of Resources Management, Bureau of Resources Management, Division of Coastal Zone Management and the Erie County Department of Planning.

Prepared by:

NORTHWEST ENGINEERING, INC.
CONSULTING ENGINEERS AND SURVEYORS
R.D. #1, P.O. BOX Q
TIDIOUTE, PENNSYLVANIA 16351

JUNE 1989

GB
454
.B3
N66
1989

Property of CSC Library

SHADES BEACH IMPROVEMENTS
INDEX

Advertisement for Bids
Information to Bidders
Bid
Bid Bond
Certification of Non-Segregated Facilities
Compliance Statement
Nondiscrimination Clause
Agreement
Performance Bond
Payment Bond
Notice of Award
Notice to Proceed
Certificate of Insurance
Construction Change Order
Contract Pay Estimate and Invoice
Certificate of Substantial Completion
General Conditions
Solicitation Provisions
*Representations and Certification (RC)
*Instructions to Bidders (IB)
Wage Rates
Contract Clauses
Specifications Part I - Special Clauses (SC)
Specifications Part II - Technical Provisions

SECTION	TITLE
	DIVISION 1
1A	ENVIRONMENTAL PROTECTION
	DIVISION 2
2A	STONE PROTECTION
2B	BREAKWATER, EXCAVATION & BACKFILL
2C	GEOTEXTILE USED AS FILTERS
2D	NAVIGATION LIGHT STANDARDS AND FOUNDATIONS
2E	DREDGING
2F	BEACH SAND FILL
2G	FLOATING DOCKS
	DIVISION 3
3A	CONCRETE
3B	STEEL BARS & ACCESSORIES FOR CONCRETE REINFORCEMENT
3C	FORM WORK FOR CONCRETE
3D	EXPANSION, CONTRACTION & CONSTRUCTION JOINTS IN CONCRETE

*Applicable to Section 103 and/or 107 funding only

DIVISION 4

NOT USED

DIVISION 5

5A	MISCELLANEOUS METAL MATERIALS, STANDARD ARTICLES AND SHOP FABRICATED ITEMS
5B	METAL WORK FABRICATION & MISCELLANEOUS PROVISIONS

ADVERTISEMENT FOR BIDS

(To be prepared when permits
and project funding are available)

ADVERTISEMENT FOR BIDS

The _____

_____

will receive bids for construction of _____

_____

until _____prevailing time, on _____,

1989 at the offices of _____

at _____

at which time and place, all bids will be publicly opened and read aloud.

Bids are invited on the following:

Contract documents, including drawings and technical specifications may be reviewed at the office of the _____

_____

and at Northwest Engineering, Inc., RD 1, Route 62, Tidioute, Pennsylvania 16351.

Copies of the contract documents may be obtained by a non-refundable deposit of $ _____ with Northwest Engineering, Inc. for each set of contract documents so obtained. Addenda, if any, will be issued to only those persons whose name and address are on record with the Owner of having obtained the contract documents.

Bid Bond in an amount equal to 10% of the total of the bid shall be submitted with each bid.

Attention is called to the fact that not less than the minimum salaries and wages as set forth in the contract documents must be paid on this project; that the contractor must ensure that employees and applicants for employment are not discriminated against because of their race, age, color, religion, sex, national origin or handicap; that a mandatory ratio of apprentices and trainees to journeyman is required in each craft and the contractor (and any subcontractor) is obliged to make a

"diligent effort" to achieve these ratios; and that to the greatest extent feasible, opportunities for training and employment be given lower income of the project area and must, to the greatest extent feasible, utilize project area businesses located in or owned in substantial part by project area residents.

The contractor, in accordance with Executive Orders 11625 and 12138, must utilize to the greatest extent feasible, minority and/or women owned business concerns which are located within the municipality, county or the general trade area.

The owner reserves the right to reject any or all bids or to waive any informalities in the bidding.

Bids may be held by the owner for a period not to exceed 60 days from the date of opening bids for the purpose of reviewing the bids and investigating the qualifications of bidders, prior to awarding the contract.

_____

INFORMATION FOR BIDDERS

Bids will be received by _____

_____

(herein called Owner), at the offices of the _____

_____

_____

until _____on _____, 1989 and then at said office publicly opened and read aloud.

Each bid must be submitted in a sealed envelope, addressed to

_____

_____

at _____

Each sealed envelope containing a bid must be plainly marked on the outside as bid for _____

_____

and the envelope should bear on the outside the name of the bidder, his address, and the name of the project for which the bid is submitted. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed to the Owner at the above address.

All bids must be made on the required bid form. All blank spaces for bid prices must be filled in, in ink or typewritten, and the bid form must be fully completed and executed when submitted. Only one copy of the bid form is required.

The Owner may waive any informalities or minor defects or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered.

The award of the contract and the issuance of the Notice to Proceed shall be contingent upon the approval of the Performance Bond, Payment Bond, Agreement and the Certificates of Insurance. Therefore, no bidder may withdraw his bid within 120 days after the actual date of opening thereof. Should there be reasons why the contract cannot be awarded within the specified period, 30 day extensions of the date for the award may be made by mutual written agreement between the Owner and the bidder.

Bidders must satisfy themselves of the accuracy of the estimated quantities in the Bid Schedule by examination of the site and review of the drawings and specifications including Addenda. After bids have been submitted, the bidder shall not assert that there was a misunderstanding concerning the quantities of work or of the nature of the work to be done.

The Owner shall provide to bidders prior to bidding, all information which is pertinent to, and delineates and describes, the land owned and rights of way acquired or to be acquired.

The contract documents contain the provisions required for the construction of the project. Information obtained from an officer, agent, or employee of the Owner or any other person shall not affect the risks or obligations assumed by the contractor or relieve him from fulfilling any of the conditions of the contract.

Each bid must be accompanied by a bid bond payable to the Owner for 10% of the total amount of the bid. As soon as the bid prices have been compared, the Owner will return the bonds of all except the three lowest responsible bidders. When the Agreement is executed these bonds also will be returned. A certified check may be used in lieu of a Bid Bond.

A Performance Bond and a Payment Bond, each in the amount of 100% of the contract price, with a corporate surety approved by the Owner, will be required for the faithful performance of the contract.

Attorneys-in-fact who sign Bid Bonds or Payment Bonds and Performance Bonds must file with each bond a certified and effective dated copy of their Power-of-Attorney.

The party to whom the Award is given will be required to obtain the Performance Bond and Payment Bond within 10 calendar days from the date of receipt of the Notice of Award. The Notice of Award shall be accompanied by the necessary bond forms. In case of failure of the bidder to execute and deliver the bonds, the Owner may at his option consider the bidder in default, in which case the Bid Bond accompanying the proposal shall become the property of the Owner.

Notice of Award shall be accompanied by the necessary Agreement form. The party to whom the Notice of Award is given will be required to execute the Agreement and deliver it together with the Certificates of Insurance to the Owner within 10 calendar days from the date when the Notice of Award is delivered to the bidder. In case of the failure of the bidder to execute the Agreement, the Owner may at his option consider the bidder in default in which case the Bid Bond accompanying the proposal shall become the property of the Owner.

The Notice to Proceed shall be issued to the contractor within 30 days of the award of the contract unless the time is extended by mutual written consent of the Owner and the Contractor.

In case the Performance Bond, Payment Bond, Agreement and/or the Certificate of Insurance submitted by the bidder do not meet the requirements of the contract documents and changes are to be made before it can be accepted by the Owner the bidder is obligated to accept an extension of the date of award of the contract and/or the date of issue of Notice to Proceed for that period of additional time required to furnish acceptable documents.

The Owner may make such investigations as he deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the Agreement and to complete the work contemplated therein.

A conditional or qualified bid will not be accepted.

Award will be made to the lowest responsible bidder.

All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout.

Each bidder is responsible for inspecting the site and for reading and being thoroughly familiar with the contract documents. The failure or omission of any bidder to do any of the foregoing shall in no way relieve any bidder from any obligation in respect to his bid.

Further, the bidder agrees to abide by the requirements under Executive Order No. 11246, as amended, including specifically the provisions of the equal opportunity clause set forth in supplemental general conditions.

The low bidder shall supply the names and addresses of major material suppliers and subcontractors when requested to do so by the Owner.

The Engineer is NORTHWEST ENGINEERING, INC., his address is RD 1, P.O. Box Q, Tidioute, Pennsylvania 16351.

BID DOCUMENTS

BID

Proposal of _____
(hereinafter called BIDDER), organized and existing under the laws

of the State of _____

doing business as _____*
To the _____
(hereinafter called OWNER).

In compliance with your Advertisement for Bids, bidder hereby

proposes to perform all work for the construction of _____

_____
in strict accordance with the contract documents, within the time set forth therein, and at the prices stated below.

By submission of this bid, each bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, communication, or Agreement as to any matter relating to this bid with any other bidder or with any competitor.

Bidder hereby agrees to commence work under this contract on or before a date to be specified in the Notice to Proceed and to fully complete the project within _____ consecutive calendar days thereafter. Bidder further agrees to pay as liquidated damages, the sum of $ _____ for each consecutive calendar day thereafter as provided in Section 15 of the General Conditions.

Bidder acknowledges receipt of the following Addendum:

NO._____ Dated _____

NO._____ Dated _____

NO._____ Dated _____

* Insert "a corporation", "a partnership", or "an individual" as applicable.

Bidder agrees to perform all the work described in the contract documents for the following unit prices or lump sum:

BID SCHEDULE

NOTE: BIDS SHALL INCLUDE SALES TAX AND ALL OTHER APPLICABLE TAXES AND FEES.

NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE
1.	Rubble Mound Breakwater (Sec. 2A,2B,2C,2E)	LS	1	_____	_____
2.	Breakwater Navigation Light Foundations (Sec.2D, Div. 3)	EA	2	_____	_____
3.	Breakwater Navigation Light (Sec.2D, Div. 3)	EA	2	_____	_____
4.	Concrete Boat Launch (Div. 3)	LS	1	_____	_____
5.	Floating Docks (Sec. 2G, Div. 5)	LS	1	_____	_____
6.	Beach Sand Fill (Sec. 2F)	LS	1	_____	_____

TOTAL OF BID ..... _____

Respectfully submitted,

_____ _____
Signature Address

_____ _____
Title

_____ _____
Telephone No. Date

(SEAL: if bid by corporation)

BID BOND

Know all men by these presents, that we, the undersigned

_____

as principal, and _____

as surety, are hereby held and firmly bound unto _____

_____

as Owner in the penal sum of _____
for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

Signed this _____ day of _____, 1989.

The condition of the above obligation is such that whereas the

principal has submitted to _____
a certain bid, attached hereto and hereby made a part hereof to enter into a contract in writing, for the _____

_____

NOW, THEREFORE,

(a) If said bid shall be rejected, or

(b) If said bid shall be accepted and the principal shall execute and deliver a contract in the form of contract attached hereto (properly completed in accordance with said bid) and shall furnish a bond for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said bid, then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The surety, for value received, hereby stipulates and agrees that the obligations of said surety and its bond shall be in no way impaired or affected by any extension of the time within which the Owner may accept such bid, and said surety does hereby waive notice of any such extension.

In Witness Whereof, the principal and surety have hereunto set their hands and seals, and such of them as are corporations have caused their proper officers, the day and year first set forth above.

_____
Principal

_____
Surety

BY:_____

IMPORTANT: Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENTS FOR CERTIFICATIONS OF NON-SEGREGATED FACILITIES

A certification of Non-Segregated Facilities, as required by the May 9, 1967, Order (32 F.R. 7439, May 19, 1967) on Elimination of Segregated Facilities, by the Secretary of Labor, must be submitted prior to the award of a subcontract exceeding $ 10,000 which is not exempt from the provisions of the Equal Opportunity Clause. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semi-annually, or annually).

NOTE: THE PENALTY FOR MAKING FALSE STATEMENTS IN OFFERS IS PRESCRIBED IN 18 USC 1001.

DATE _____ _____

Signature of Bidder or
Prospective Contractor

_____

Address (including zip code)

* U.S. GPO: 1978-0-765-093/1531

COMPLIANCE STATEMENT

This statement relates to a proposed contract with _____

_____

(Name of Borrower or Grantee)

I am the undersigned bidder or prospective contractor. I represent that...

1. I _____ have, _____ have not participated in a previous contract or subcontract to Executive Order 11246 (regarding Equal Employment Opportunity) or a preceding similar Executive Order.

2. If I have participated in such a contract or subcontract, I ____ have, ____ have not, filed all compliance reports that I have been required to file in connection with the contract or subcontract.

If the proposed contract is for $ 50,000 or more and I have 50 or more employees, I also represent that ...

3. I ____ have, ____ have not previously had contracts subject to the written Affirmative Action Program requirements of the Secretary of Labor.

4. If I have participated in such a contract or subcontract, I ____ have, ____ have not, developed and placed on file at each establishment Affirmative Action Programs as required by the rules and regulations of the Secretary of Labor.

I understand that if I have failed to file any compliance reports that have been required of me, I am not eligible and will not be eligible to have my bid considered or to enter into the proposed contract unless and until I make an arrangement regarding such reports that is satisfactory to the Farmers Home Administration or to the office where the reports are required to be filed.

I also certify that I do not maintain or provide for my employees any segregated facilities at any of my establishments, and that I do not permit my employees to perform their services at any location, under my control, where segregated facilities are maintained. I certify further that I will not maintain or provide for my employees any segregated facilities at any of my establishments, and that I will not permit my employees to perform their services at any location, under my control, where segregated facilities are maintained. I agree that a breach of this certification is a violation of the Equal Opportunity clause in my contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing 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, creed, color or national origin, because of habit, local custom, or otherwise. I further agree that (except where I have obtained identical certifications for proposed subcontractors for specific time periods) I will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $ 10,000 which are not exempt from the provisions of the Equal Opportunity clause; that I will retain such certifications in my files; and that I will forward the following notice to such proposed subcontractors (except where the proposed subcontractors have submitted identical certifications for specific time periods):

Name of Contractor

Authorized Signature

NONDISCRIMINATION CLAUSE

During the term of this contract, Contractor agrees as follows:

1. Contractor shall not discriminate against any employee, applicant for employment, independent contractor, or any other person because of race, color, religious creed, ancestry, national origin, age or sex. Contractor shall take affirmative action to insure that applicants are employed, and that employees or agents are treated during employment, without regard to their race, color, religious creed, handicap, ancestry, national origin, age, or sex. Such affirmative action shall include, but is not limited to: employment, upgrading, demotion or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training. Contractor shall post in conspicuous places, available to employees, agents, applicants for employment and other persons, a notice to be provided by the contracting agency setting forth the provisions of this nondiscrimination clause.

2. Contractor shall, in advertisements or requests for employment placed by it or on its behalf, state that all qualified applicants will receive consideration for employment without regard to race, color, religious creed, handicap, ancestry, national origin, age or sex.

3. Contractor shall send each labor union or workers' representative with which it has a collective bargaining agreement or other contract or understanding, a notice advising said labor union or workers' representative of its commitment to this nondiscrimination clause. Similar notice shall be sent to every other source of recruitment regularly utilized by the Contractor.

4. It shall be no defense to a finding of noncompliance with this nondiscrimination clause that Contractor had delegated some of its employment practices to any union, training program, or other source of recruitment which prevents it from meeting its obligations. However, if the evidence indicates that the Contractor was not on notice of the third-party discrimination or made a good faith effort to correct it, such factor shall be considered in mitigation in determining appropriate sanctions.

5. Where the practices of a union or any training program or other source of recruitment will result in the exclusion of minority group persons, so that Contractor will be unable to meet its obligations under this nondiscrimination clause, Contractor shall then employ and fill vacancies through other nondiscriminatory employment procedures.

6. Contractor shall comply with all state and federal laws prohibiting discrimination in hiring or employment opportunities. In the event of Contractor's noncompliance with the nondiscrimination clause of this contract or with any such laws, this contract may be terminated or suspended, in whole or in

part, and Contractor may be declared temporarily ineligible for further Commonwealth contracts, and other sanctions may be imposed and remedies invoked.

7. Contractor shall furnish all necessary employment documents and records to, and permit access to its books, records, and accounts by the contracting agency for purposes of investigation to ascertain compliance with the provisions of this clause. If Contractor does not possess documents or records reflecting the necessary information requested, it shall furnish such information on reporting forms supplied by the contracting agency.

8. Contractor shall actively recruit minority and women subcontractors or subcontractors with substantial minority representation among their employees.

9. Contractor shall include the provisions of this nondiscrimination clause in every subcontract, so that such provisions will be binding upon each Subcontractor.

10. Contractor obligations under this clause are limited to the Contractor's facilities within Pennsylvania or, where the contract is for purchase of goods manufactured outside of Pennsylvania, the facilities at which such goods are actually produced.

_____

Contractor

_____

OWNER

CONTRACT DOCUMENTS

AGREEMENT

This Agreement, made this _____ day of _____ , 1989, by and between _____

hereinafter called Owner and _____ doing business as (an individual, partnership or corporation) hereinafter called Contractor.

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

1. The Contractor will commence and complete the construction of _____

_____

2. The Contractor will furnish all of the material, supplies, tools, equipment, labor and other services necessary for the construction and completion of the project described herein.

3. The Contractor will commence the work required by the contract documents within _____ calendar days after the date of the Notice to Proceed and will complete the same within _____ calendar days unless the period for completion is extended otherwise by the contract documents.

4. The Contractor agrees to perform all of the work described in the contract documents and comply with the terms therein for the sum of $ _____ or as shown in the Bid Schedule.

5. The term "Contract Documents" means and includes the following:

a. Advertisement for Bids
b. Information for Bidders
c. Bid
d. Bid Bond
e. Agreement
f. General Conditions
g. Supplemental General Conditions
h. Payment Bond
i. Performance Bond
j. Notice of Intent to Award & Notice of Award
k. Notice to Proceed
l. Change Order
m. Drawings prepared by NORTHWEST ENGINEERING, INC._ numbered ___ through ____ and dated _____
n. Specifications prepared or issued by NORTHWEST ENGINEERING, INC. dated _____

o. Addenda:

No. _____ Dated _____

No. _____ Dated _____

No. _____ Dated _____

6. The Owner will pay to the Contractor in the manner and at such times as set forth in the General Conditions such amounts as required by the contract documents.

7. This Agreement 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 four (4) copies, of which shall be deemed an original on the date first above written.

OWNER:

_____

BY_____

NAME_____

TITLE_____

SEAL
ATTEST:

_____

NAME_____

TITLE_____

CONTRACTOR:

_____

BY_____

NAME_____

SEAL

ADDRESS_____

_____

ATTEST:

_____

_____

NAME_____

PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS: That

_____
Name of Contractor

_____
Address of Contractor

a _____, hereinafter (Corporation, Partnership or Individual) called Principal,

and _____
Name of Surety

_____
Address of Surety

hereinafter called Surety, are held and firmly bound unto

_____
Name of Owner

_____
Address of Owner

hereinafter called Owner in the total aggregate penal sum of

_____

_____

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

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal submitted a certain bid to the Owner, dated the _____ day of _____, 1989, a copy of which is hereto attached and made a part hereof and intends to enter into a certain agreement with the Owner for the construction of _____

_____

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the Owner, with or without notice to the Surety and during the one year guaranty period and if the Principal shall satisfy all claims and demands incurred under such contract, and shall fully

indemnify and save harmless the Owner from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the Owner all outlay and expense which the owner may incur in making good any default, then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alterations or addition to the terms of the contract or to work to be performed thereunder or the specifications accompanying same shall in any way affect its obligation 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 the specifications.

PROVIDED, FURTHER, that it is expressly agreed that the bond shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the contract not increasing the contract price more than 20%, so as to bind the Principal and the Surety to the full and faithful performance of the contract as so amended. The term "Amendment", wherever used in this bond, and whether referring to this bond, the contract or the loan documents shall include any alteration, addition, extension, or modification of any character whatsoever.

PROVIDED, FURTHER, that no final settlement between the Owner and the Principal shall abridge the right of the other beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of which shall be deemed an original, this the _____ day of _____ , 1989.

ATTEST:

_____
Principal

_____
Principal Secretary

SEAL:

BY_____

_____
Address

_____

_____
Witness as to Principal

_____
Address

_____

_____
Surety

ATTEST:

_____
Surety Secretary

SEAL:

_____ BY_____
Witness as to Surety Attorney-in-Fact

_____ _____
Address Address

NOTE: DATE OF BOND MUST NOT BE PRIOR TO DATE OF NOTICE OF INTENT TO AWARD. IF CONTRACTOR IS PARTNERSHIP, ALL PARTNERS SHOULD EXECUTE BOND.

IMPORTANT: SURETY COMPANIES EXECUTING BONDS MUST APPEAR ON THE TREASURY DEPARTMENT'S MOST CURRENT LIST (Circular 570, as amended) AND BE AUTHORIZED TO TRANSACT BUSINESS IN THE STATE WHERE THE PROJECT IS LOCATED.

PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS: That

_____
Name of Contractor

_____
Address of Contractor

a _____, hereinafter
(Corporation, Partnership or Individual)
called Principal,

and _____
Name of Surety

_____
Address of Surety

hereinafter called Surety, are held and firmly bound unto

_____
Name of Owner

_____
Address of Owner

hereinafter called Owner in the total aggregate penal sum of

_____

_____

Dollars $_____ in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal submitted a certain bid to the Owner, dated the _____ day of_____ , 1989, a copy of which is hereto attached and made a part hereof and intends to enter into a certain agreement with the Owner for the construction of_____

_____

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the Owner, with or without notice to the Surety and during the

one year guaranty period and if the Principal shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the Owner from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the Owner all outlay and expense which the owner may incur in making good any default, then this obligation shall be void, otherwise to remain in full force and effect.

Provided, that beneficiaries or claimants hereunder shall be limited to the subcontractors, and persons, firms and corporations having a direct contract with the principal or its subcontractors.

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alterations or addition to the terms of the contract or to work to be performed thereunder or the specifications accompanying same shall in any way affect its obligation 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 the specifications.

Provide, further that no suit or action shall be commenced hereunder by any claimant: (a) unless claimant, other than one having a direct contract with the principal shall have given written notice to any two of the following: The Principal, the Owner or the Surety above named within 90 days after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Principal, Owner or Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the aforesaid project is located, save that such service need not be made by a public officer. (b) after the expiration of one year following the date of which Principal ceased work on said contract, it being understood, however, that if any limitation embodied in the bond is prohibited by any law controlling the construction hereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

PROVIDED, FURTHER, that it is expressly agreed that the bond shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the contract not increasing the contract price more than 20%, so as to bind the Principal and the Surety to the full and faithful performance of the contract as so amended. The term "Amendment", wherever used in this bond, and whether referring to this bond, the contract or the loan documents shall include any alteration, addition, extension, or modification of any character whatsoever.

PROVIDED, FURTHER, that no final settlement between the Owner and the Principal shall abridge the right of the other beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of which shall be deemed an original, this the _____ day of _____, 1989.

ATTEST:

_____
Principal

_____
Principal Secretary

SEAL:

BY_____

_____
Address

_____
Witness as to Principal

_____
Address

_____

_____
Surety

ATTEST:

_____
Surety Secretary

SEAL:

_____
Witness as to Surety

BY_____
Attorney-in-Fact

_____
Address

_____
Address

NOTE: DATE OF BOND MUST NOT BE PRIOR TO DATE OF NOTICE OF INTENT TO AWARD. IF CONTRACTOR IS PARTNERSHIP, ALL PARTNERS SHOULD EXECUTE BOND.

IMPORTANT: SURETY COMPANIES EXECUTING BONDS MUST APPEAR ON THE TREASURY DEPARTMENT'S MOST CURRENT LIST (Circular 570, as amended) AND BE AUTHORIZED TO TRANSACT BUSINESS IN THE STATE WHERE THE PROJECT IS LOCATED.

NOTICE OF AWARD

TO: _____

_____

_____

Project Description: _____

_____

The Owner has considered the bid submitted by you for the above described work in response to its Advertisement for Bids dated _____, 1989 and Information for Bidders.

You are hereby notified that your bid has been accepted for items in the amount of $ _____.

You are required by the Information for Bidders to execute the Agreement and furnish the required certificates of insurance within 10 calendar days from the date of this notice to you.

If you fail to execute said Agreement within 10 days from the date of this notice, said Owner will be entitled to consider all your rights arising out of the Owner's acceptance of your bid as abandoned and as a forfeiture of your bid bond. The Owner will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this Notice of Award to the Owner.

Dated this _____ day of _____ , 1989.

OWNER:

_____

BY_____

TITLE_____

ACCEPTANCE OF NOTICE

Receipt of the above Notice of Award is hereby acknowledged.

BY_____

This the _____ day of _____ , 1989.

BY_____

Title_____

NOTICE TO PROCEED

TO: _____ DATE: _____

_____ PROJECT: _____

_____ _____

_____ _____

You are hereby notified to commence work in accordance with the Agreement dated _____, 19____ on or before _____, 19____, and you are to complete the work within _____ consecutive calendar days thereafter. The date of completion of work is therefore _____.

OWNER:

_____

BY _____

TITLE _____

ACCEPTANCE OF NOTICE

Receipt of the above Notice to Proceed is hereby acknowledged by

_____ this the _____ day of _____, 19____.

BY _____

Title _____

acord

Certificate of Insurance

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES LISTED BELOW.

ME AND ADDRESS OF AGENCY	COMPANIES AFFORDING COVERAGES
	COMPANY LETTER **A**
	COMPANY LETTER **B**
ME AND ADDRESS OF INSURED	COMPANY LETTER **C**
	COMPANY LETTER **D**
	COMPANY LETTER **E**

is to certify that policies of insurance listed below have been issued to the insured named above and are in force at this time. Notwithstanding any requirement, term or condition any contract or other document with respect to which this certificate may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the rms, exclusions and conditions of such policies.

ANY ER	TYPE OF INSURANCE	POLICY NUMBER	POLICY EXPIRATION DATE	Limits of Liability in Thousands (000)	EACH OCCURRENCE	AGGREGATE
	GENERAL LIABILITY [X] COMPREHENSIVE FORM [X] PREMISES—OPERATIONS [X] EXPLOSION AND COLLAPSE HAZARD [X] UNDERGROUND HAZARD [X] PRODUCTS/COMPLETED OPERATIONS HAZARD [X] CONTRACTUAL INSURANCE [X] BROAD FORM PROPERTY DAMAGE [X] INDEPENDENT CONTRACTORS [X] PERSONAL INJURY			BODILY INJURY	$	$
				PROPERTY DAMAGE	$	$
				BODILY INJURY AND PROPERTY DAMAGE COMBINED	$	$
				PERSONAL INJURY		$
	AUTOMOBILE LIABILITY [X] COMPREHENSIVE FORM [X] OWNED [X] HIRED [X] NON-OWNED			BODILY INJURY (EACH PERSON)	$	
				BODILY INJURY (EACH ACCIDENT)	$	
				PROPERTY DAMAGE	$	
				BODILY INJURY AND PROPERTY DAMAGE COMBINED	$	
	EXCESS LIABILITY [X] UMBRELLA FORM [ ] OTHER THAN UMBRELLA FORM			BODILY INJURY AND PROPERTY DAMAGE COMBINED	$	$
	WORKERS' COMPENSATION and EMPLOYERS' LIABILITY			STATUTORY		
					$	(EACH ACCIDENT)
	OTHER BUILDER'S RISK ALL RISK					

SAMPLE

CRIPTION OF OPERATIONS/LOCATIONS/VEHICLES

In regards Builder's Risk - Owner is Additional Insured

Cancellation: Should any of the above described policies be cancelled before the expiration date thereof, the issuing company will ~~XXXXXXX~~ mail 30 days written notice to the below named certificate holder ~~XXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX~~

NAME AND ADDRESS OF CERTIFICATE HOLDER:	DATE ISSUED: ______
	______ AUTHORIZED REPRESENTATIVE

Northwest Engineering Inc.

CONSTRUCTION CHANGE ORDER
OR
DATA SHEET COVERING AMENDMENTS

CONTRACTOR	CHANGE NO.
CONTRACT NO.	CONTRACT AMOUNT
PROJECT NAME	

OWNER

ITEM NO.	ITEM	ORIGINAL CONTRACT QUANTITY	QUANTITY AS CHANGED TO DATE	CHANGES THIS ORDER (+ OR –)	UNIT PRICE	UNIT	AMOUNT INCREASE (+) OR DECREASE (–)

NET AMOUNT OF CHANGE ON THIS ORDER (+ or —)	$
NET AMOUNT OF CHANGE ON PREVIOUS ORDERS—NOS.	$
TOTAL NET AMOUNT OF CHANGES TO DATE (INCLUDING THIS ORDER)	$
NEW CONTRACT TOTAL	$

TOTAL NUMBER DAYS CONTRACT TIME TO DATE	NO. DAYS INCREASED	NO. DAYS DECREASED	NEW TOTAL (DAYS)

If and when approved, I hereby accept this order both as to work to be performed and prices on which payment shall be based.

CONTRACTOR	SIGNATURE (Contractor or his representative)	TITLE	DATE

RECOMMENDED	DATE	SIGNATURE	Northwest Engineering Auth. Rep.
APPROVED FOR OWNER	DATE	SIGNATURE	TITLE
APPROVED FOR	DATE	SIGNATURE	TITLE

NORTHWEST ENGINEERING, INC.
CONTRACT PAYMENT ESTIMATE AND INVOICE

CONTRACT NO.	INCLUSIVE DATES	ESTIMATE NO.
CONTRACTOR		
OWNER	CONTRACT DATE	ORIGINAL CONTRACT AMOUNT / REVISED CONTRACT AMOUNT
FROM Station / TO Station	PROJECT NAME	

ITEM NO.	ITEM	UNIT	QUANTITIES						UNIT PRICE	TOTAL EARNED TO DATE
			CONTRACT	CHANGES	REVISED TOTAL	PREVIOUS ESTIMATES	THIS ESTIMATE	TOTAL TO DATE		

REMARKS

TOTAL		$
DEDUCTIONS (Explain under "Remarks")		
___% RETENTION		
PREVIOUS PAYMENTS (Last Vouch. No. _____)		
TOTAL DEDUCTIONS		
AMOUNT TO BE PAID THIS ESTIMATE		$

I certify that this bill is correct and just and that payment therefor has not been received.

DATE	SIGNATURE (Payee or his representative)	TITLE

PAYMENT RECOMMENDED	DATE	Signature of Authorized Rep.	Payment Approved

DATE	SIGNATURE OF OWNER OR REP.

TITLE

CERTIFICATE OF SUBSTANTIAL COMPLETION

OWNER's Project No. . . . . ENGINEER's Project No. . . . . .

Project . . . . . .

CONTRACTOR . . . . . .

Contract For . . . . . Contract Date . . . . . .

This Certificate of Substantial Completion applies to all Work under the Contract Documents or to the following specified parts thereof:

To . . . . . .
OWNER

And To . . . . . .
CONTRACTOR

The Work to which this Certificate applies has been inspected by authorized representatives of OWNER, CONTRACTOR and ENGINEER, and that Work is hereby declared to be substantially complete in accordance with the Contract Documents on

. . . . . .
Date of Substantial Completion

A tentative list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include an item in it does not alter the responsibility of CONTRACTOR to complete all the Work in accordance with the Contract Documents. When this Certificate applies to a specified part of the Work the items in the tentative list shall be completed or corrected by CONTRACTOR within _____ days of the above date of Substantial Completion.

NSPE-ACEC 1910-8-D (1978 Edition)

© 1978. National Society of
Professional Engineers

The date of Substantial Completion is the date upon which all guarantees and warranties begin, except as follows:

The responsibilities between OWNER and CONTRACTOR for security, operation, safety, maintenance, heat, utilities and insurance shall be as follows:

RESPONSIBILITIES:

OWNER: _____

_____

_____

CONTRACTOR: _____

_____

_____

The following documents are attached to and made a part of this Certificate:

Executed by ENGINEER on . . . . . , 19. . . . . .

. . . . . .
ENGINEER

By . . . . . .

The CONTRACTOR accepts this Certificate of Substantial Completion on . . . . . , 19. . . . . .

. . . . . .
CONTRACTOR

By . . . . . .

GENERAL CONDITIONS

TABLE OF CONTENTS

1. Definitions
2. Additional Instructions and Detail Drawings
3. Schedules, Reports & Records
4. Drawings and Specifications
5. Shop Drawings
6. Materials, Services and Facilities
7. Inspection and Testing
8. Substitutions
9. Patents
10. Surveys, Permits, Regulations
11. Protection of Work, Property, Persons
12. Supervision by Contractor
13. Changes in the Work
14. Changes in Contract Price
15. Time for Completion and Liquidated Damages
16. Correction of Work
17. Subsurface Conditions
18. Suspension of Work, Termination and Delay
19. Payments to Contractor
20. Acceptance of Final Payment as Release
21. Insurance
22. Contract Surety
23. Assignments
24. Indemnification
25. Separate Contracts
26. Subcontracting
27. Engineer's Authority
28. Land and Rights of Way
29. Guaranty
30. Arbitration
31. Taxes
32. Additional Insurance

GENERAL CONDITIONS

1. DEFINITIONS

1.1 Wherever used in the contract documents, the following terms shall have the meanings indicated which shall be applicable to both the singular and plural thereof.

1.2 Addenda - Written or graphic instruments issued prior to the execution of the Agreement which modify or interpret the contract documents, drawings and specifications, by additions, deletions, clarifications or corrections.

1.3 Bid - The offer or proposal of the bidder submitted on the prescribed form setting forth the prices for the work to be performed.

1.4 Bidder - Any person, firm or corporation submitting a bid for the work.

1.5 Bonds - Bid, Performance Bond, Payment Bond and other instruments of security, furnished by the contractor and his surety in accordance with the contract documents.

1.6 Change Order - A written order to the contractor authorizing an addition, deletion or revision in the work within the general scope of the contract documents, or authorizing an adjustment in the contract price or contract time.

1.7 Contract Documents - The contract, including Advertisement for Bids, Information for Bidders, Bid, Bid Bond, Agreement, Payment Bond, Performance Bond, Notice of Intent to Award, Notice of Award, Notice to Proceed, Change Order, Drawings, Specifications, General Conditions, Supplementary General Conditions, and Addenda.

1.8 Contract Price - The total monies payable to the contractor under the terms and conditions of the contract documents.

1.9 Contract time - The number of calendar days stated in the contract documents for completion of the work.

1.10 Contractor - The person, firm, or corporation with whom the Owner has executed the Agreement.

1.11 Drawings - The part of the contract documents which show the characteristics and scope of the work to be performed and which have been prepared or approved by the Engineer.

1.12 Engineer - The person, firm or corporation named as such in the contract documents.

1.13 Field Order - A written order affecting a change in the work not involving an adjustment in the contract price or an extension of the contract time, issued by the Engineer to the contractor during construction.

1.13a Materials - Means materials and equipment used or to be used in the project.

1.14 Notice of Award - The written notice of the acceptance of the bid from the Owner to the successful bidder.

1.15 Notice to Proceed - Written communication issued by the Owner to the contractor authorizing him to proceed with the work and establishing the date of commencement of the work.

1.16 Owner - A public or quasi-public body or authority, corporation, association, partnership, or individual for whom the work is to be performed.

1.17 Project - The undertaking to be performed as provided in the contract documents.

1.18 Resident Project Representative - The authorized representative of the Owner who is assigned to the project site or any part thereof.

1.19 Shop Drawings - All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the contractor, a subcontractor, manufacturer, supplier or distributor, which illustrate how specific portions of the work shall be fabricated or installed.

1.20 Specifications - A part of the contract documents consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards and workmanship.

1.21 Subcontractor - An individual, firm or corporation having a direct contract with the contractor or with any other subcontractor for the performance of a part of the work at the site.

1.22 Substantial Completion - That date as certified by the Engineer when the construction of the project or a specified part thereof is sufficiently completed, in accordance with the contract documents so that the project or specified part can be utilized for the purposes for which it is intended. In no event shall a project be certified as substantially complete until at least 90% of the work on the project is completed.

1.23 Supplemental General Conditions - Modifications to General Conditions required by a federal agency for participation in the project and approved by the agency in writing prior to inclusion in the contract documents, or such requirements that may be imposed by applicable state laws.

1.24 Supplier - Any person or organization who supplies materials or equipment for the work, including that fabricated to a special design, but who does not perform labor at the site.

1.25 Work - All labor necessary to produce the construction required by the contract documents, and all materials and equipment incorporated or used or to be incorporated or used in the project.

1.26 Written Notice - Any notice to any party of the Agreement relative to any part of this Agreement in writing and considered delivered and the service thereof completed, when posted by certified or registered mail to the said party at his last given address, or delivered in person to said party or his authorized representative on the work.

2. ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS

2.1 The contractor may be furnished additional instructions and detail drawings, by the Engineer, as necessary to carry out the work required by the contract documents.

2.2 The additional drawings and instruction thus supplied will become a part of the contract documents. The contractor shall carry out the work in accordance with the additional detail drawings and instructions.

3. SCHEDULES, REPORTS AND RECORDS

3.1 The contractor shall submit to the Owner such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data where applicable as are required by the contract documents for the work to be performed.

3.2 Prior to the first partial payment estimate the contractor shall submit construction progress schedules showing the order in which he proposes to carry on the work, including dates at which he will start the various parts of the work, estimated date of completion of each part and, as applicable:

3.2.1 The dates at which special detail drawings will be required; and

3.2.2 Respective dates for submission of shop drawings, the beginning of manufacture, the testing and the installation of materials, supplies and equipment.

3.3 The contractor shall also submit a schedule of payments that he anticipates he will earn during the course of the work.

4. DRAWINGS AND SPECIFICATIONS

4.1 The intent of the drawings and specifications is that the contractor shall furnish all labor, materials, tools, equipment, and transportation necessary for the proper execution of the work in accordance with the contract documents and all incidental work necessary to complete the project in an acceptable manner, ready for use, occupancy or operation by the Owner.

4.2 In case of conflict between the drawings and specifications, the specifications shall govern. Figure dimensions on drawings shall govern over scale dimensions, and detailed drawings shall govern over general drawings.

4.3 Any discrepancies found between the drawings and specifications and site conditions or any inconsistencies or ambiguities in the drawings or specifications shall be immediately reported to the Engineer, in writing, who shall promptly correct such inconsistencies or ambiguities in writing. Work done by the contractor after his discovery of such discrepancies, inconsistencies or ambiguities shall be done at the contractor's risk.

5. SHOP DRAWINGS

5.1 The contractor shall provide shop drawings as may be necessary for the prosecution of the work as required by the contract documents. The Engineer shall promptly review all shop drawings. The Engineer's approval of any shop drawing shall not release the contractor from responsibility for deviations from the contract documents. The approval of any shop drawings which substantially deviates from the requirement of the contract documents shall be evidenced by a change order.

5.2 When submitted for the Engineer's review, shop drawings shall bear the contractor's certification that he has reviewed, checked and approved the shop drawings and that they are in conformance with the requirements of the contract documents.

5.3 Portions of the work requiring a shop drawing or sample submission shall not begin until the shop drawing or submission has been approved by the Engineer. A copy of each approved shop drawing and each approved sample shall be kept in good order by the contractor at the site and shall be available to the Engineer.

6. MATERIALS, SERVICES AND FACILITIES

6.1 It is understood that, except as otherwise specifically stated in the contract documents, the contractor shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, supervision, temporary construction of any nature, and all other services and facilities of any nature whatsoever necessary to execute, complete, and deliver the work within the specified time.

6.2 Materials and equipment shall be so stored as to insure the preservation of their quality and fitness for the work. Stored materials and equipment to be incorporated in the work shall be located so as to facilitate prompt inspection.

6.3 Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer.

6.4 Materials, supplies and equipment shall be in accordance with samples submitted by the contractor and approved by the Engineer.

6.5 Materials, supplies or equipment to be incorporated into the work shall not be purchased by the contractor or the subcontractor subject to a chattel mortgage or under the conditional sale contract or other agreement by which an interest is retained by the seller.

7. INSPECTION AND TESTING

7.1 All materials and equipment used in the construction of the project shall be subject to adequate inspection and testing in accordance with generally accepted standards, as required and defined in the contract documents.

7.2 The Owner shall provide all inspection and testing services not required by the contract documents.

7.3 The contractor shall provide at his expense the testing and inspection services required by the contract documents.

7.4 If the contract documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any work to specifically be inspected, tested or approved by someone other than the contractor, the contractor will give the Engineer timely notice of readiness. The contractor will then furnish the Engineer the required certificates of inspection, testing or approval.

7.5 Inspections, tests or approvals by the Engineer or others shall not relieve the contractor from his obligations to perform the work in accordance with the requirements of the contract documents.

7.6 The Engineer and his representatives will at all times have access to the work. In addition, authorized representatives and agents of any participating federal or state agency shall be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records. The contractor will provide proper facilities for such access and observation of the work and also for any inspection, or testing thereof.

7.7 If any work is covered contrary to the written instructions of the Engineer it must, if requested by the Engineer, be uncovered for his observation and replaced at the contractor's expense.

7.8 If the Engineer considers it necessary or advisable that covered work be inspected or tested by others, the contractor, at the Engineer's request, will uncover, expose or otherwise make available for observation, inspection or testing as the Engineer may require, that portion of the work in question, furnishing all necessary labor, materials, tools, and equipment. If it is found that such work is defective, the contractor will bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction. If, however, such work is not found to be defective, the contractor will be allowed an increase in the contract price or an extension of the contract time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction and an appropriate Change Order shall be issued.

8. SUBSTITUTIONS

8.1 Whenever a material, article or piece of equipment is identified on the drawings or specifications by reference to brand name or catalog number, it shall be understood that this is referenced for the purpose of defining the performance or other salient requirements and that other products of equal capacities, quality and function shall be considered. The contract may recommend the substitution of a material, article or piece of equipment of equal substance and function for those referred to in the contract documents by reference to brand name or catalog number, and if in the opinion of the Engineer, such material, article or piece of equipment is of equal substance and function to that specified, the Engineer may approve its substitution and use by the contractor. Any cost differential shall be deductible from the contract price and the contract documents shall be appropriately modified by change order. The contractor warrants that if substitutes are approved, no major changes in the function or general design of the project will result. Incidental changes or extra component parts required to accommodate the substitute will be made by the contractor without a change in the contract price or contract time.

9. PATENTS

9.1 The contractor shall pay all applicable royalties and license fees. He shall defend all suits or claims for infringement or any patent rights and save the Owner harmless from loss on account thereof, except that the Owner shall be responsible for any such loss when a particular process, design, or the product of a particular manufacturer or manufacturer's is specified, however, if the contractor has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the Engineer.

10. SURVEYS, PERMITS AND REGULATIONS

10.1 The Owner shall furnish all boundary surveys and establish all base lines for locating the principal component parts of the work together with a suitable number of benchmarks adjacent to the work as shown in the contract documents. From the information provided by the Owner, unless otherwise specified in the contract documents, the contractor shall develop and make all detail surveys needed for construction such as slope stakes, batter boards, stakes for pile locations and other working points, lines, elevations and cut sheets.

10.2 The contractor shall carefully preserve benchmarks, reference points and stakes and, in case of willful or careless destruction, he shall be charged with the resulting expense and shall be responsible for any mistakes that may be caused by their unnecessary loss or disturbance.

10.3 Permits and licenses of a temporary nature necessary for the prosecution of the work shall be secured and paid for by the contractor unless otherwise stated in the Supplemental General Conditions. Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the Owner, unless otherwise specified. The contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the work as drawn and specified. If the contractor observes that the contract documents are at variance therewith, he shall promptly notify the Engineer in writing, and any necessary changes shall be adjusted as provided in Section 13, Changes in the Work.

11. PROTECTION OF WORK, PROPERTY AND PERSONS

11.1 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 all employees on the work and other persons who may be affected thereby, all the work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and 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.

11.2 The contractor will comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction. He will erect and maintain, as required by the conditions and progress of the work, all necessary safeguards for safety and protection. He will notify owners of adjacent utilities when prosecution of the work may affect them. The contractor will remedy all damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by the contractor, any subcontractor or any one directly or indirectly

employed by any of them or anyone for whose acts any of them be liable, except damage or loss attributable to the fault of the contract documents or to the acts or omissions of the Owner or the Engineer or anyone employed by either of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the contractor.

11.3 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, shall act 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.

12. SUPERVISION BY CONTRACTOR

12.1 The contractor will supervise and direct the work. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction. The contractor will employ and maintain on the work a qualified supervisor or superintendent who shall have been designated in writing by the contractor as the contractor's representative at the site. The supervisor shall have full authority to act on behalf of the contractor and all communications given to the supervisor shall be as binding as if given to the contractor. The supervisor shall be present on the site at all times as required to perform adequate supervision and coordination of the work.

13. CHANGES IN THE WORK

13.1 The Owner may at any time, as the need arises, order changes within the scope of the work without invalidating the Agreement. If such changes increase or decrease the amount due under the contract documents, or in the time required for performance of the work, an equitable adjustment shall be authorized by Change Order.

13.2 The Engineer, also, may at any time, by issuing a Field Order, make changes in the details of the work. The contractor shall proceed with the performance of any changes in the work so ordered by the Engineer unless the contractor believes that such Field Order entitles him to a change in contract price or time, or both, in which event he shall give the Engineer written notice thereof within 7 days after the receipt of the ordered change. Thereafter the contractor shall document the basis for the change in contract price or time within 30 days. The contractor shall not execute such changes pending the receipt of an executed Change Order or further instruction from the Owner.

14. CHANGES IN CONTRACT PRICE

14.1 The contract price may be changed only by a Change Order. The value of any work covered by a Change Order or of any claim for increase or decrease in the contract price shall be determined by one or more of the following methods in the order or precedence listed below:

(a) unit prices previously approved
(b) an agreed lump sum

The amount of profit and general overhead included in (b) above shall not exceed 15% of the actual cost of the work.

15. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

15.1 The date of beginning and the time for completion of the work are essential conditions of the contract documents and the work embraced shall be commenced on a date specified in the Notice to Proceed.

15.2 The contractor will proceed with the work at such rate of progress to insure full completion within the contract time. It is expressly understood and agreed, by and between the contractor and the owner, that the contract time for the completion of the work described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the work.

15.3 If the contractor shall fail to complete the work within the contract time, or extension of time granted by the Owner, then the contractor will pay to the Owner the amount for liquidated damages as specified in the bid for each calendar day that the contractor shall be in default after the time stipulated in the contract documents.

15.4 The contractor shall not be charged with liquidated damages or any excess cost when the delay in completion of the work is due to the following and the contractor has promptly given written notice of such delay to the Owner or Engineer:

15.4.1 To any preference, priority or allocation order duly issued by the Owner.

15.4.2 To unforeseeable causes beyond the control and without the fault or negligence of the contractor, including but not restricted to acts of God or of the public enemy, acts of the Owner, acts of another contractor, in the performance of a contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and abnormal and unforeseeable weather; and

15.4.3 To any delays of subcontractors occasioned by any of the causes specified in paragraphs 15.4.1 and 15.4.2 of this article.

16. CORRECTION OF WORK

16.1 The contractor shall promptly remove from the premises all work rejected by the Engineer for failure to comply with the contract documents, whether incorporated in the construction or not, and the contractor shall promptly replace and re-execute the work in accordance with the contract documents 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.

16.2 All removal and replacement work shall be done at the contractor's expense. If the contractor does not take action to remove such rejected work within 10 days after receipt of written notice, the Owner may remove such work and store the materials at the expense of the contractor.

17. SUBSURFACE CONDITIONS

17.1 The contractor shall promptly, and before such conditions are disturbed except in the event of an emergency, notify the Owner by written notice of:

17.1.1 Subsurface or latent physical conditions at the site differing materially from those indicated in the contract documents; or

17.1.2 Unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the contract documents.

17.2 The Owner shall promptly investigate the conditions, and if he finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or in the time required for, performance of the work, an equitable adjustment shall be made and the contract documents shall be modified by a Change Order. Any claims of the contractor for adjustment hereunder shall not be allowed unless he has given the required written notice; provided that the Owner may, if he determines the facts so justify, consider and adjust any such claims asserted before the date of final payment.

18. SUSPENSION OF WORK, TERMINATION AND DELAY

18.1 The Owner may suspend the work or any portion thereof for a period of not more than 90 days or such further time as agreed upon by the contractor, by written notice to the contractor and the Engineer which notice shall fix the date on which work shall be resumed. The Contractor will resume that work on the date so fixed. The contractor will be allowed an increase in the contract price or an extension of the contract time, or both, directly attributable to any suspension.

18.2 If the contractor is adjudged as bankrupt or insolvent, or if he makes a general assignment for the benefit of his creditors, or if a trustee or receiver is appointed for the contractor or for any of his property, or if he files a petition to take advantage of any debtor's act,or to reorganize under the bankruptcy or applicable laws, or if he repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or if he repeatedly fails to make prompt payments to subcontractors, or for labor, materials or equipment or if he disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction of the work or if he disregards the authority of the Engineer, or if he otherwise violates any provision of the contract documents, then the Owner may, without prejudice to any other right or remedy and after giving the contractor and his surety a minimum of 10 days from delivery of a written notice terminate the services of the contractor and take possession of the project and of all materials, equipment, tools, construction equipment and machinery thereof owned by the contractor, and finish the work by whatever method he may deem expedient. In such case the contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the contract price exceeds the direct and indirect costs of completing the project, including compensation for additional professional services, such excess shall be paid to the contractor. If such costs exceed such unpaid balance, the contractor will pay the difference to the Owner. Such costs incurred by the Owner will be determined by the Engineer and incorporated in a Change Order, but contractor's signature not required.

18.3 Where the contractor's services have been so terminated by the owner, said termination shall not affect any right of the Owner against the contractor then existing or which may thereafter accrue. Any retention or payment of monies by the Owner due the contractor will not release the contractor from compliance with the contract documents.

18.4 After 10 days from delivery of a written notice to the contractor and the Engineer, the Owner may, without cause and without prejudice to any other right or remedy, elect to abandon the project and terminate the contract. In such case, the contractor shall be paid for all work executed and any expense sustained plus reasonable profit.

18.5 If, through no act or fault of the contractor, the work is suspended for a period of more than 90 days by the owner or under an order of court or other public authority, or the Engineer fails to act on any request for payment within 30 days after it is submitted, or the Owner fails to pay the contractor substantially the sum approved by the Engineer or awarded by arbitrators within 30 days of its approval and presentation, then the contractor may, after 10 days from delivery of a written notice to the Owner and the Engineer, terminate the contract and recover from the Owner payment for all work executed and all expenses sustained. In addition and in lieu of terminating the

contract, if the Engineer has failed to act on a request for payment or if the owner has failed to make any payment as aforesaid, the contractor may upon 10 days written notice to the Owner and the Engineer stop the work until he has been paid all amounts then due, in which event and upon resumption of the work, Change Orders shall be issued for adjusting the contract price or extending the contract time or both to compensate for the costs and delays attributable to the stoppage of the work.

18.6 If the performance of all or any portion of the work is suspended, delayed, or interrupted as a result of a failure of the Owner or Engineer to act within the time specified in the contract documents, or if no time is specified, within a reasonable time, an adjustment in the contract price or an extension of the contract time, or both, shall be made by Change Order to compensate the contractor for the costs and delays necessarily caused by the failure of the Owner or Engineer.

19. PAYMENT TO CONTRACTOR

19.1 At least 10 days before each progress payment falls due (but not more often than once a month) the contractor will submit to the Engineer a partial payment estimate filled out and signed by the contractor covering the work performed during the period covered by the partial payment estimate and supported by such data as the Engineer may reasonably require. Owner shall not pay for material and/or equipment which is stored or otherwise received on site and not incorporated into the construction. The Engineer will, within 10 days after receipt of each partial payment estimate, either indicate in writing his approval of payment and present the partial payment estimate to the owner, or return the partial payment estimate to the contractor indicating in writing his reasons for refusing to approve payment. In the latter case, the contractor may make the necessary corrections and resubmit the partial payment estimate. The Owner will, within 30 days of presentation to him of an approved partial payment estimate, pay the contractor a progress payment on the basis of the approved partial payment estimate less the retainage. The retainage shall be an amount equal to 10% of said estimate until 50% of the work has been completed. After 50% completion, further retainage withheld by the Owner shall not exceed 5% of the amount due the contractor on the remaining work. When the contract is 50% completed, one-half of the amount retained by the contracting body shall be returned to the contractor; provided, that the Engineer approves the application for payment; and provided further that the contractor is making satisfactory progress and there is not specific cause for greater withholding. The sum or sums withheld by the contracting body from the contractor after the contractor is 50% completed shall not exceed 5% of the (amount due the contractor on the remaining work) value of completed work based on monthly progress payment requests.

Within 30 days following the date of substantial completion, the contractor shall be paid in full, less only one and one-half times such amount as is required to complete any then remaining, uncompleted, minor items, which amount shall be certified by the Engineer. In the event a dispute arises between the contracting body and any prime contractor, which dispute is based on increased costs claimed by one prime contractor occasioned by delays or other actions of another prime contractor, additional retainage in the sum of one and one-half times the amount of any possible liability may be withheld until such time as a final resolution is agreed to by all parties directly or indirectly involved, unless the contractor causing the additional claim furnishes a bond satisfactory to the owner to indemnify the owner against the claim. The certificate given by the Engineer shall list in detail each and every uncompleted item and a reasonable cost of completion. Final payment of any amount so withheld for the completion of the minor items shall be paid forthwith upon completion of all the items in the certificate of the Engineer.

19.2 The request for payment may also include an allowance for the cost of such major materials and equipment which are suitably stored either at or near the site.

19.3 Prior to substantial completion, the Owner, with the approval of the Engineer and with the concurrence of the contractor, may use any completed or substantially completed portions of the work. Such use shall not constitute an acceptance of such portions of the work.

19.4 The Owner shall have the right to enter the premises for the purpose of doing work not covered by the contract documents. This provision shall not be construed as relieving the contractor of the sole responsibility for the care and protection of the work, or the restoration of any damaged work except such as may be caused by the agents or employees of the Owner.

19.5 Upon completion and acceptance of the work, the Engineer shall issue a certificate attached to the final payment request that the work has been accepted by him under the conditions of the contract documents.

The entire balance found to be due the contractor including the retained percentages, but except such sums as may be lawfully retained by the Owner, shall be paid to the contractor within 30 days of completion and acceptance of the work.

19.6 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, materialmen 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 contractors'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.

19.7 If the Owner fails to make payment 30 days after approval by the Engineer and Owner in addition to other remedies available to the contractor, there shall be added to each payment interest at the rate applicable under existing Pennsylvania law, commencing on the first day after said payment is due and continuing until the payment is received by the contractor.

20 ACCEPTANCE OF FINAL PAYMENT AS RELEASE

20.1 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 other than claims in stated amounts as may be specifically excepted by 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. Any payment, however, final or otherwise, shall not release the contractor or his sureties from any obligations under the contract documents or the Performance Bond and Payment Bonds.

21. INSURANCE (See Amendments to General Conditions which follow).

21.1 The contractor shall purchase and maintain such insurance as will protect him from claims set forth below which may arise out of or result from the contractor's execution of the work, whether such execution be by himself or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable.

21.1.1 Claims under, workmen's compensation, disability benefit and other similar employee benefit acts;

21.1.2 Claims for damages because of bodily injury, occupational sickness or disease, or death of his employees;

21.1.3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than his employees;

21.1.4 Claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the contractor, or (2) by any other person; and

21.1.5 Claims for damages because of injury to or destruction of tangible property, including loss of use resulting therefrom.

21.2 Certificates of Insurance approved by the Owner shall be required before any Notice to Proceed is issued by the Owner. These certificates shall contain a provision that coverages afforded under the policies will not be canceled unless at least 15 days prior written notice has been given to the Owner.

21.3 The contractor shall procure and maintain, at his own expense, during the contract time, liability insurance as hereinafter specified.

21.3.1 Contractor's general public liability and property damage insurance including vehicle coverage issued to the contractor and protecting him from all claims for personal injury, including death, and all claims for destruction of or damage to property, arising out of or in connection with any operations under the contract documents, whether such operations be by himself or by any subcontractor under him, or anyone directly or indirectly employed by the contractor or by a subcontractor under him, insurance shall be written with a limit or liability of not less than $ 500,000 for all damages arising out of bodily injury, including death, at any time resulting therefrom, sustained by any one person in any one accident, and a limit of liability of not less than $ 1,000,000 aggregate for any such damages sustained by two or more persons in any one accident. Insurance shall be written with a limit of liability of not less than $500,000 for all property damage sustained by any one person in any one accident; and a limit of liability of not less than $1,000,000 aggregate for any such damage sustained by two or more persons in any one accident.

21.4 The contractor shall procure and maintain at his own expense, during the contract time, in accordance with the provisions of the laws of the state in which the work is performed. Workmen's Compensation Insurance, including occupational disease provisions, for all of his employees at the site of the project and in case any work is sublet, the contractor shall require such subcontractor similarly to provide Workmen's Compensation Insurance, including occupational disease provisions for all of the latter's employees unless such employees are covered by the protection afforded by the contractor. In case any class of employees engaged in hazardous work under this contract at the site of the project is not protected under Workmen's Compensation statute, the contractor shall provide, and shall cause each subcontractor to provide, adequate and suitable insurance for the protection of his employees not otherwise protected.

If blasting is undertaken on this project, contractor shall obtain special blasting insurance with limits not less than prescribed herein.

21.5 The contractor shall secure "All Risk" type Builder's Risk Insurance for work to be performed. Unless specifically authorized by the Owner, the amount of such insurance shall not be less than the contract price totaled in the Bid. The policy shall cover not less than the losses due to fire, explosion, hail, lightning, vandalism, malicious mischief, wind, collapse, riot, aircraft and smoke during the contract time and until the work is accepted by the Owner. The policy shall name as the insured the contractor, Owner and Engineer.

22. CONTRACT SURETY

22.1 The contractor shall within 10 days after the receipt of the Notice of Intent to Award furnish the Owner with a Performance Bond and a Payment Bond in penal sums equal to the amount of the contract price, conditioned upon the performance by the contractor of all undertakings, covenants, terms, conditions and agreements of the contract documents, and upon the prompt payment by the contractor to all persons supplying labor and materials in the prosecution of the work provided by the contract documents. Such bonds shall be executed by the contractor and a corporate bonding company licensed to transact such business in the state in which the work is to be performed and named on the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Treasury Department Circular Number 570. The expense of these bonds shall be borne by the contractor. If at any time a surety on any such bond is declared a bankrupt or loses its right to do business in the state in which the work is to be performed or is removed from the list of Surety Companies accepted on Federal Bonds, contractor shall within 10 days after the notice from the Owner to do so, substitute an acceptable bond (or bonds) in such form and sum and signed by such other surety or sureties as may be satisfactory to the Owner. The premiums on such bonds shall be paid by the contractor. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished an acceptable bond to the Owner.

23. ASSIGNMENTS

23.1 Neither the contractor nor the Owner shall sell, transfer, assign or otherwise dispose of the contract or any portion thereof, or of his right, title or interest therein, or his obligations thereunder, without written consent of the other party.

24. INDEMNIFICATION

24.1 The contractor will 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 claims, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property including the loss of use resulting therefrom; and is caused in whole or in part by any negligent or willful act or omission of the contractor, and subcontractor anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.

24.2 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 may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the contractor or any subcontractor under workmen's compensation acts, disability benefit acts or other employee benefits acts.

24.3 The obligation of the contractor under this paragraph shall not extend to the liability of the Engineer, his agents or employees arising out of the preparation or approval of maps, drawings, opinions, reports, surveys, Change Orders, Designs or Specifications.

25. SEPARATE CONTRACTS

25.1 The Owner reserves the right to let other contracts in connection with this project. The contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate his work with theirs. If the proper execution or results of any part of the contractor's work depends upon the work of any other contractor, the contractor shall inspect and promptly report to the Engineer any defects in such work that render it unsuitable for such proper execution and results.

25.2 The Owner may perform additional work related to the project by himself, or he may let other contracts containing provisions similar to these. The contractor will afford the other contractors who are parties to such contracts (or the Owner, if he is performing the additional work himself), reasonable opportunity for the introduction and storage of materials and equipment and the execution of work, and shall properly connect and coordinate his work with theirs.

25.3 If the performance of additional work by other contractors or the Owner is not noted in the contract documents prior to the execution of the contract, written notice thereof shall be given to the contractor prior to starting any such additional work. If the contractor believes that the performance of such additional work by the Owner or others involves him in additional expense or entitles him to an extension of the contract time, he may make a claim therefore as provided in Sections 14 and 15.

26. SUBCONTRACTING

26.1 The contractor may utilize the services of specialty subcontractors on those parts of the work which, under normal contracting practices, are performed by specialty subcontractors.

26.2 The contractor shall not award work to subcontractor(s), in excess of 50% of the contract price, without prior written approval of the Owner.

26.3 The contractor shall be 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.

26.4 The contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the contractor by the terms of the contract documents insofar as applicable to the work of subcontractors and to give the contractor the same power as regards terminating any subcontract that the Owner may exercise over the contractor under any provision of the contract documents.

26.5 Nothing contained in this contract shall create any contractual relation between any subcontractor and the Owner.

27. ENGINEER'S AUTHORITY

27.1 The Engineer shall act as the Owner's representative during the construction period. He shall decide questions which may arise as to quality and acceptability of materials furnished and work performed. He shall interpret the intent of the contract documents in a fair and unbiased manner. The Engineer will make visits to the site and determine if the work is proceeding in accordance with the contract documents.

27.2 The contractor will be held strictly to the intent of the contract documents in regard to the quality of materials, workmanship and execution of the work. Inspections may be made at the factory or fabrication plant of the source of material supply.

27.3 The Engineer will not be responsible for the construction means, controls, techniques, sequences, procedures, or construction safety.

27.4 The Engineer shall promptly make decisions relative to interpretation of the contract documents.

28. LAND AND RIGHTS OF WAY

28.1 Prior to issuance of Notice to Proceed, the Owner shall obtain all land and rights of way necessary for carrying out and for the completion of the work to be performed pursuant to the contract documents, unless otherwise mutually agreed.

28.2 The owner shall provide to the contractor information which delineates and describes the lands owned and rights of way acquired.

28.3 The contractor shall provide at his own expense and without liability to the Owner any additional land and access thereto that the contractor may desire for temporary construction facilities, or for storage of materials.

29. GUARANTY

29.1 The contractor shall guarantee all materials and equipment furnished and work performed for a period of 1 year from the date of substantial completion. The contractor warrants and guarantees for a period of 1 year from the date of substantial completion of the system that the completed system is free of all defects due to faulty materials or workmanship and the contractor shall promptly make such corrections as may be necessary by reason of such defects including the repairs of any damage to other parts of the system resulting from such defects. The Owner will give notice of observed defects with reasonable promptness. In the event that the contractor should fail to make such repairs, adjustments, or other work that may be made necessary by such defects, the Owner may do so and charge the contractor the cost thereby incurred. The Performance Bond shall remain in full force and effect through the guarantee period.

30. ARBITRATION BY MUTUAL AGREEMENT

30.1 All claims, disputes and other matters in question arising out of, or relating to, the contract documents or the breach thereof, except for claims which have been waived by the making and acceptance of final payment as provided by Section 20, may be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association. Any agreement to arbitrate shall be specifically enforceable under the prevailing arbitration law. The award rendered by the arbitrators shall be final, and judgment may be entered upon it in any court having jurisdiction thereof.

30.2 Notice of the request for arbitration shall be filed in writing with the other party to the contract documents and with the American Arbitration Association, and a copy shall be filed with the Engineer. Request for arbitration shall in no event be made on any claim, dispute or other matter in question which would be barred by the applicable statute of limitations.

30.3 The contractor will carry on the work and maintain the progress schedule during any arbitration proceedings, unless otherwise mutually agreed in writing.

31. TAXES

31.1 The contractor will pay all sales, consumer, use and other similar taxes required by the law of the place where the work is performed.

32. ADDITIONAL INSURANCE

3.21 The contractor shall obtain and pay for Owner and Engineer protective liability damage insurance specifically naming the Owner, and Owner's Engineer as insured for all incidents occurring during the life of the contract and the subsequent maintenance bond; regardless of when liability is established and judgment is obtained for all matters requiring "indemnification: as defined by the General Conditions, Paragraph 24.

Coverage shall be written with a limit of liability of not less than $ 500,000 for all damages arising out of bodily injury, including death, at any time resulting therefrom, sustained by one person in any one accident and a limit of liability of not less than $ 1,000,000 for any such damages sustained by two or more persons in any one accident. Insurance shall be written with a limit of liability of not less than $ 500,000 for all property damage sustained by any one person in any one accident; and a limit of not less than $ 1,000,000 for any such damages sustained by two or more persons in any one accident.

32.2 Additional coverage pertaining to Paragraphs 21.3.1, 21.4 and 32.1 shall be provided by the Contractor in the form of blanket protection consisting of $ 2,000,000 umbrella compensation with general liability providing excess coverage over the limits set forth in said paragraphs.

EXHIBIT "A" TO GENERAL CONDITIONS

DUTIES, RESPONSIBILITIES & LIMITATIONS OF THE AUTHORITY OF RESIDENT PROJECT REPRESENTATIVE

A. GENERAL

Resident Project Representative is Engineer's agent and shall act as directed by and under the supervision of Engineer. He shall confer with Engineer regarding his actions. His dealings in matters pertaining to the on-site work will in general be only with Engineer and contractor. His dealings with subcontractors will only be through or with the full knowledge of contractor or his superintendent. He shall generally communicate with Owner only through or as directed by Engineer.

B. DUTIES & RESPONSIBILITIES

Resident Project Representative shall:

1. Schedules

Review the progress schedule, schedule of Shop Drawing submissions, schedule of values and other schedules prepared by Contractor and consult with Engineer concerning their acceptability.

2. Conferences

Attend preconstruction conferences. Arrange a schedule of progress meetings and other job conferences as required in consultation with Engineer and notify in advance those expected to attend. Attend meetings and maintain and circulate copies of minutes thereof.

3. Liaison

a. Serve as Engineer's liaison with Contractor, working principally through Contractor's superintendent and assist him in understanding the intent of the contract documents. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-site operations.

b. As requested by Engineer, assist in obtaining from Owner additional details or information, when required at the job site for proper execution of work.

c. In the interest of preserving the proper channels of communication, advise Engineer of any direct communication between Owner and Contractor.

4. Shop Drawings & Samples

a. Receive and record date of receipt of shop drawings and samples which have been approved by Engineer.

b. Receive samples which are furnished at the site by contractor for Engineer's approval, and notify Engineer of their availability for examination.

c. Advise Engineer and contractor or his superintendent immediately of the commencement of any work requiring a shop drawing or sample submission if the submission has not been approved by Engineer.

5. Review of Work, Rejection of Defective Work, Inspections & Tests

a. Conduct on-site observations of the work in progress to assist Engineer in determining that the project is proceeding in accordance with the contract documents and that completed work will conform to the contract documents.

b. Report to Engineer whenever he believes that any work is unsatisfactory, faulty or defective or does not conform to the contract documents, or has been damaged, or does not meet the requirements of any inspections, tests or approvals required to be made: and advise Engineer when he believes work should be corrected or rejected or should be uncovered for observation, or requires special testing or inspection.

c. Verify that tests, equipment and system start-ups and operating and maintenance instructions are conducted as required by the contract documents and in presence of the required personnel, and that contractor maintains adequate records thereof: observe, record and report to Engineer appropriate details relative to the test procedures and start-ups.

d. Accompany Owner and visiting inspectors representing public or other agencies having jurisdiction over the project, record the outcome of these inspections and report to Engineer.

6. Interpretation of Contract Documents

Transmit to contractor clarification and interpretation of the contract documents as issued by Engineer.

7. Modifications

Consider and evaluate Contractor's suggestions for modifications in drawings or specifications and report them with recommendations to Engineer.

8. **Records**

a. Maintain at the job site orderly files for correspondence, reports of job conferences, shop drawings and sample submissions, reproductions of original contract documents including all addenda, change orders, field orders, additional drawings issued subsequent to the execution of the contract, Engineer's clarifications and interpretations of the contract documents, progress reports and other project related documents.

b. Keep a diary or log book, recording hours on the job site, weather conditions, data relative to questions of extras or deductions, list of principal visitors, daily activities, decisions, observations in general and specific observations in more detail as in the case of observing test procedures. Send copies to Engineer.

c. Record names, addresses and telephone numbers of all contractors, subcontractors and major suppliers of equipment and materials.

d. Advise Engineer whenever contractor is not currently maintaining an up-to-date copy of record drawings at the site.

9. **Reports**

a. Furnish Engineer periodic reports as required of progress of work and of contractor's compliance with the approved progress schedule, schedule of shop drawing submissions and other schedules.

b. Consult with Engineer in advance of scheduled major tests, inspections or start of important phases of the work.

10. **Payment Requisitions**

Review applications for payment with contractor for compliance with established procedure for their submission and forward them with recommendations to Engineer, noting particularly their relation to the schedule of values, work completed and materials and equipment delivered at the site.

11. **Guarantees, Certificates, Maintenance & Operation Manuals**

During the course of the work verify that guarantees, certificates, maintenance and operation manuals and other data required to be assembled and furnished by contractor are applicable to the items actually installed; and deliver these data to Engineer for his review and forwarding to Owner prior to final acceptance of the project.

12. Completion

a. Before Engineer issues a Certificate of Substantial Completion, submit to contractor a list of observed items requiring correction.

b. Conduct final inspection in the company of Engineer, Owner an contractor and prepare a final list of items to be corrected.

c. Verify that all items on final list have been corrected and make recommendations to Engineer concerning acceptance.

C. LIMITATIONS OF AUTHORITY

Except upon written instructions of Engineer, Resident Project Representative:

1. Shall not authorize any deviation from the contract documents or approve any substitute materials or equipment.

2. Shall not undertake any of the responsibilities of Contractor, subcontractors or Contractor's superintendent.

3. Shall not expedite work for the Contractor.

4. Shall not advise on or issue directions relative to any aspect of the means, methods, techniques, sequences or procedures of construction unless such is specifically called for in the contract documents.

5. Shall not advise on or issue directions as to safety precautions and programs in connection with the work.

6. Shall not authorize Owner to occupy the project in whole or in part.

7. Shall not participate in specialized field or laboratory tests or inspections conducted by others.

8. Shall not assist Contractor in maintaining up-to-date copy of record drawings.

SOLICITATION PROVISIONS

REPRESENTATIONS AND CERTIFICATIONS

TABLE OF CONTENTS

Paragraph	Description	Page
1	CERTIFICATE OF INDEPENDENT PRICE DETERMINATION	RC-1
2	CONTINGENT FEE REPRESENTATION AND AGREEMENT	RC-2
3	TYPE OF BUSINESS ORGANIZATION-SEALED BIDDING	RC-2
4	PARENT COMPANY AND IDENTIFYING DATA	RC-3
5	AFFILIATED BIDDERS	RC-3
6	SMALL BUSINESS CONCERN REPRESENTATION	RC-4
7	WOMEN-OWNED SMALL BUSINESS REPRESENTATION	RC-4
8	PREFERENCE FOR LABOR SURPLUS AREA CONCERNS	RC-5
9	CERTIFICATION OF NONSEGREGATED FACILITIES	RC-5
10	PREVIOUS CONTRACTS AND COMPLIANCE REPORTS	RC-6
11	CLEAN AIR AND WATER CERTIFICATION	RC-7
12	SMALL DISADVANTAGED BUSINESS CONCERN REPRESENTATION	RC-7
13	CERTIFICATION OR DISCLOSURE OF OWNERSHIP OR CONTROL BY A FOREIGN GOVERNMENT THAT SUPPORTS TERRORISM	RC-8
14	DEBARRED/SUSPENDED OR INELIGIBLE CONTRACTORS	RC-8

SOLICITATION PROVISIONS

Representations & Certifications, Construction Contracts

1. CERTIFICATE OF INDEPENDENT PRICE DETERMINATION

(a) The offeror certifies that--

(1) The prices in this offer have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other offeror or competitor relating to (i) those prices, (ii) the intention to submit an offer, or (iii) the methods or factors used to calculate the prices offered;

(2) The prices in this offer have not been and will not be knowingly disclosed by the offeror, directly or indirectly, to any other offeror or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a negotiated solicitation) unless otherwise required by law; and

(3) No attempt has been made or will be made by the offeror to induce any other concern to submit or not to submit an offer for the purpose of restricting competition.

(b) Each signature on the offer is considered to be a certification by the signatory that the signatory--

(1) Is the person in the offeror's organization responsible for determining the prices being offered in this bid or proposal, and that the signatory has not participated and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above; or

(2) (i) Has been authorized, in writing, to act as agent for the following principals in certifying that those principals have not participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above _____. (Insert full name of person(s) in the offeror's organization responsible for determining the prices offered in this bid or proposal, and the title of his or her position in the offeror's organization);

(ii) As an authorized agent, does certify that the principals named in subdivision (b)(2)(i) above have not participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above; and

Representations & Certifications, Construction Contracts

(iii) As an agent, has not personally participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above.

(c) If the offeror deletes or modifies subparagraph (a)(2) above, the offeror must furnish with its offer a signed statement setting forth in detail the circumstances of the disclosure.

2. CONTINGENT FEE REPRESENTATION AND AGREEMENT

(a) Representation. The offeror represents that, except for full-time bona fide employees working solely for the offeror, the offeror--
(Note: The offeror must check the appropriate boxes. For interpretation of the representation, including the term "bona fide employee", see Subpart 3.4 of the Federal Acquisition Regulation.)

(1) _____ has, _____ has not employed or retained any person or company to solicit or obtain this contract; and

(2) _____ has, _____ has not paid or agreed to pay to any person or company employed or retained to solicit or obtain this contract any commission, percentage, brokerage, or other fee contingent upon or resulting from the award of this contract.

(b) Agreement. The offeror agrees to provide information relating to the above Representation as requested by the Owner and, when subparagraph (a)(1) or (a)(2) is answered affirmatively, to promptly submit to the Owner a completed Corps of Engineer Standard Form 119, Statement of Contingent.

3. TYPE OF BUSINESS ORGANIZATION--SEALED BIDDING

The bidder, by checking the applicable box, represents that--

(a) It operates as _____ a corporation incorporated under the laws of the State of _____, _____ an individual, _____ a partnership, _____ a nonprofit organization, or _____ a joint venture; or

(b) If the bidder is a foreign entity, it operates as _____ an individual, _____ a partnership, _____ a nonprofit organization, _____ a joint venture, or a corporation, registered for business in _____.
(country)

4. PARENT COMPANY AND IDENTIFYING DATA

(a) A "parent" company, for the purpose of this provision, is one that owns or controls the activities and basic business policies of the bidder. To own the bidding company means that the parent company must own more than 50 percent of the voting rights in that company. A company may control a bidder as a parent even though not meeting the requirement for such ownership if the parent company is able to formulate, determine, or veto basic policy decisions of the offeror through the use of dominant minority voting rights, use of proxy voting, or otherwise.

(b) The bidder _____ is, _____ is not, (check applicable box) owned or controlled by a parent company.

(c) If the bidder "is" in paragraph (b) above, it shall provide the following information:

Name and Main Office Address of Parent Company (include zip code)	Parent Company's Employer's Identification Number
_____	_____
_____	
_____	

5. AFFILIATED BIDDERS

(a) Business concerns are affiliates of each other when, either directly or indirectly, (1) one concern controls or has the power to control the other, or (2) a third party controls or has the power to control both.

(b) Each bidder shall submit with its bid an affidavit stating that it has no affiliates, or containing the following information:

Representations & Certifications, Construction Contracts

(1) The names and addresses of all affiliates of the bidder.

(2) The names and addresses of all persons and concerns exercising control or ownership of the bidder and any or all of its affiliates, and whether they exercise such control or ownership as common officers, directors, stockholders holding controlling interest, or otherwise.

6. SMALL BUSINESS CONCERN REPRESENTATION

The offeror represents and certifies as part of its offer that it _____ is, _____ is not a small business concern and that _____ all, _____ not all end items to be furnished will be manufactured or produced by a small business concern in the United States, its territories or possessions, Puerto Rico, or the Trust Territory of the Pacific Islands. "Small business concern", as used in this provision, means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the size standards in this solicitation.

7. WOMEN-OWNED SMALL BUSINESS REPRESENTATION

(a) Representation. The offeror represents that it _____ is, _____ is not a women-owned small business concern.

(b) Definitions.

"Small business concern", as used in this provision, means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria and size standards in 13 CFR 121.

"Women-owned", as used in this provision, means a small business that is at least 51 percent owned by a woman or women who are U.S. citizens and who also control and operate the business.

Representations & Certifications, Construction Contracts

8. PREFERENCE FOR LABOR SURPLUS AREA CONCERNS

(a) This acquisition is not a set aside for labor surplus area (LSA) concerns. However, the offeror's status as such a concern may effect (1) entitlement to award in case of tie offers or (2) offer evaluation in determine whether the offeror is entitled to a preference under (1) or (2) above, the offeror must identify, below, the LSA in which the costs to be incurred on account of manufacturing or production (by the offeror or the first-tier subcontractors) amount to more than 50 percent of the contract price.

_____ _____

_____ _____

(b) Failure to identify the locations as specified above will preclude consideration of the offeror as an LSA concern. If the offeror is awarded a contract as an LSA concern and would not have otherwise qualified for award, the offeror shall perform the contract or cause the contract to be performed in accordance with the obligations of an LSA concern.

9. CERTIFICATION OF NONSEGREGATED FACILITIES

(a) "Segregated facilities", as used in this provision, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin because of habit, local custom, or otherwise.

(b) By the submission of this offer, the offeror certifies that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The offeror agrees that a breach of this certification is a violation of the Equal Opportunity clause in the contract.

Representations & Certifications, Construction Contracts

(c) The offeror further agrees that (except where it has obtained identical certifications from proposed subcontractors for specific time periods) it will--

(1) Obtain identical certifications from proposed subcontractors before the award of subcontracts under which the subcontractor will be subject to the Equal Opportunity clause;

(2) Retain the certifications in the files; and

(3) Forward the following notice to the proposed subcontractors (except if the proposed subcontractors have submitted identical certifications for specific time periods):

NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENT FOR CERTIFICATIONS OF NONSEGREGATED FACILITIES.

A Certification of Nonsegregated Facilities must be submitted before the award of a subcontract under which the subcontractor will be subject to the Equal Opportunity clause. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

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

10. PREVIOUS CONTRACTS AND COMPLIANCE REPORTS

The offeror represents that--

(a) It _____ has, _____ has not participated in a previous contract or subcontract subject either to the Equal Opportunity clause of this solicitation, the clause originally contained in Section 310 of executive Order No. 10925, or the clause contained in Section 201 of Executive Order No. 11114;

(b) It _____ has, _____ has not, filed all required compliance reports; and

(c) Representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained before subcontract awards.

Representations & Certifications, Construction Contracts

11. CLEAN AIR AND WATER CERTIFICATION

The Offeror certifies that--

(a) Any facility to be used in the performance of this proposed contract is _____, is not _____ listed on the Environmental Protection Agency List of Violating Facilities;

(b) The Offeror will immediately notify the Owner, before award, of the receipt of any communication from the Administrator, or a designee, of the Environmental Protection Agency, indicating that any facility that the Offeror proposes to use for the performance of the contract is under consideration to be listed on the EPA List of Violating Facilities; and

(c) The Offeror will include a certification substantially the same as this certification, including this paragraph (c), in every nonexempt subcontract.

12. SMALL DISADVANTAGED BUSINESS CONCERN REPRESENTATION

(a) CERTIFICATION. The Offeror represents and certifies, as part of its offer, that it _____ is, _____ is not a small disadvantaged business concern.

(b) REPRESENTATION. The Offeror represents, in terms of section 8 (d) of the Small Business Act, that its qualifying ownership falls in the following category:

_____Asian-Indian Americans	_____Hispanic Americans
_____Asian-Pacific Americans	_____Native Americans
_____Black Americans	_____Other Minority

(c) The Offeror represents and certifies that the above information is true and understands that whoever for the purpose of securing a contract or subcontract under subsection (a) of section 1207 of Public Law 99-661, the FY 1987 National Defense Authorization Act, misrepresents the status of any concern or person as a small business concern owned and controlled by a minority [as described in subsection (a)] shall be punished by a fine of not less $10,000 or by imprisonment for not more than a year, or both.

SOLICITATION PROVISIONS

Representations & Certifications, Construction Contracts

13. CERTIFICATIONS OR DISCLOSURE OF OWNERSHIP OR CONTROL BY A FOREIGN GOVERNMENT THAT SUPPORTS TERRORISM

(a) Except as listed in paragraph (b) below, the bidder (offeror) certifies that no country identified by the Secretary of State as having repeatedly provided support for acts of international terrorism (i.e., Cuba, Iran, Libya, Syria or South Yemen) has a significant interest in the bidder (offeror) or in the entity which has mined, produced, or manufactured the product to be furnished under any contract resulting from this solicitation.

(b)

Firm/Country

14. DEBARRED/SUSPENDED OR INELIGIBLE CONTRACTORS

The Offeror certifies that--

It _____ is, _____ is not debarred and/or suspended, or is otherwise declared ineligible from soliciting bids, or otherwise excluded from Government Contracting pursuant to statutory, Executive Order, or regulatory authority by a Department or Agency of the Government, to include, but not limited to: The Department of Defense (DoD), the General Services Administration (GSA), or Housing and Urban Development (HUD).

SOLICITATION PROVISIONS

INSTRUCTIONS TO BIDDERS

TABLE OF CONTENTS

Paragraph	Description	Page
1	PLACE OF BID OPENING	IB-1
2	BID DEPOSITORY	IB-1
3	WORK PERFORMED BY CONTRACTOR	IB-1
4	WAGE DETERMINATION	IB-1
5	INQUIRIES	IB-1
6	SYNOPSIS OF SUBCONTRACT OPPORTUNITIES	IB-2
7	BIDDER'S QUALIFICATIONS	IB-2
8	ARITHMETIC DISCREPANCIES	IB-2
9	MODIFICATIONS PRIOR TO DATE SET FOR OPENING BIDS	IB-3
10	SMALL BUSINESS SIZE STANDARD	IB-3
11	BID BONDS	IB-4
12	PERFORMANCE AND PAYMENT BONDS	IB-4
13	DATA UNIVERSAL NUMBERING SYSTEM (DUNS) NUMBER REPORTING	IB-4
14	AVAILABILITY OF SPECIFICATIONS LISTED IN THE DOD INDEX OF SPECIFICATIONS AND STANDARDS (DODISS)	IB-4
15	SOLICITATION DEFINITIONS--SEALED BIDDING	IB-5
16	ACKNOWLEDGMENT OF AMENDMENTS TO INVITATIONS FOR BIDS	IB-5
17	FALSE STATEMENT IN BIDS	IB-5
18	SUBMISSION OF BIDS	IB-6
19	EXPLANATION TO PROSPECTIVE BIDDERS	IB-6
20	LATE SUBMISSIONS, MODIFICATIONS, AND WITHDRAWALS OF BIDS	IB-6

Paragraph	Description	Page
21	PREPARATION OF BIDS--CONSTRUCTION	IB-7
22	CONTRACT AWARD--SEALED BIDDING-CONSTRUCTION	IB-8
23	NOTICE OF TOTAL SMALL BUSINESS SET-ASIDE	IB-8
24	NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY	IB-9
25	BID GUARANTEE	IB-10
26	AVAILABILITY OF FUNDS	IB-11
27	SERVICE OF PROTEST	IB-11
28	EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE	IB-11
29	OWNER'S PRIVILEGE IN MAKING AWARDS	IB-12

SOLICITATION PROVISIONS

Instructions to Bidders (Construction Contract)

1. PLACE OF BID OPENING

Bids shall be publicly opened (Location, Time & Date to be determined).

2. BID DEPOSITORY

Hand carried bids must be deposited (Location to be determined).

3. WORK PERFORMED BY CONTRACTOR

The successful offeror must furnish the Owner within 10 days after the award, the items of work which he will perform with his own forces, the percentage of the total work this represents, and the estimated cost thereof. (See Special Clause entitled "Performance of Work by the Contractor").

4. WAGE DETERMINATION

(a) The Department of Labor Wage Determination Decisions referred to in the Contract Clauses of the contract is at the end of the Special Clauses. (Wage Rates to be obtained prior to advertising for bids).

(b) Classifications and rates applicable to this work are those used in the local area in the performance of Building construction.

5. INQUIRIES

For information regarding this Procurement, write or call (to be determined)

Instructions to Bidders (Construction Contract)

6. SYNOPSIS OF SUBCONTRACT OPPORTUNITIES

Prime contractors and subcontractors are encouraged to use the Commerce Business Daily to publicize opportunities in the field of subcontracting stemming from defense business. Mail subcontract information directly to the U.S. Department of Commerce, Commerce Business Daily, P.O. Box 5999, Chicago, IL 60680, under the heading "Subcontracting Assistance Wanted" in the following format:

"XYZ CO. ATTN: JOHN Z SMITH, TELE. NO.: RANDOLPH 6-1111, 102 FIRST AVE., CHICAGO, IL 60607, seeks Subcontractor on items to be used in connection with Contract No. _____ awarded _____ date _____.

COILS, INDUCTION, DWG. NO. 10-742 ..10,000 ea. (Name, description, and quantity of other items of services may be included as long as contract assistance is desired under the same contract number)--if interested, make inquiry before _____(date) _____ to above contractor.

7. BIDDER'S QUALIFICATIONS

Before an offer is considered for award, the offeror may be requested by the Government to submit a statement regarding his previous experience in performing comparable work, his business and technical organization, financial resources, and plant available to be used in performing the work.

8. ARITHMETIC DISCREPANCIES

(a) For the purpose of initial evaluation of bids, the following will be utilized in resolving arithmetic discrepancies found on the face of the bidding schedule as submitted by bidders:

(1) Obviously misplaced decimal points will be corrected;

(2) In case of discrepancy between unit price and extended price, the unit price will govern;

(3) Apparent errors in extension of unit prices will be corrected; and

(4) Apparent errors in addition of lump-sum and extended prices will be corrected.

(b) For the purposes of bid evaluation, the Owner will proceed on the assumption that the bidder intends his bid to be evaluated on the basis of the unit prices, extensions, and totals arrived at by resolution of arithmetic discrepancies as provided above and the bid will be so reflected on the abstract of bids.

9. MODIFICATIONS PRIOR TO DATE SET FOR OPENING BIDS

The right is reserved, as the interest of the Owner may require, to revise or amend the specifications or drawings or both prior to the date set for opening bids. Such revisions and amendments, if any, will be announced by an amendment or amendments to this Invitation for Bids. If the revisions and amendments are of a nature which require material changes in quantities or prices offered or both, the date set for opening proposals may be postponed by such number of days as in the opinion of the Owner will enable offerors to revise their offers. In such cases, the amendment will include an announcement of the new date for opening of proposals.

10. SMALL BUSINESS SIZE STANDARD

MAJOR GROUP 15 - BUILDING CONSTRUCTION--GENERAL CONTRACTORS AND OPERATIVE BUILDERS

For the purposes of this solicitation, the small business size standard is $17.0 million. SIC: 1541.

Annual receipts of a concern which has been in business for 3 or more complete fiscal years means the annual average gross revenue of the concern taken for the last 3 fiscal years. Annual receipts of a concern that has been in business for less than 3 complete fiscal years means its total receipts for the period it has been in business, divided by the number of weeks including fractions of a week that it has been in business, and multiplied by 52.

SOLICITATION PROVISIONS

Instructions to Bidders (Construction Contract

11. BID BONDS

Each bidder shall submit with his bid a Bid Bond with good and sufficient surety or sureties acceptable to the Owner, or other security as provided in the paragraph entitled "Bid Guarantee", in the form of twenty percent (20%) of the bid price or $3,000,000 whichever is lesser. The bid bond penalty may be expressed in terms of a percentage of bid price or may be expressed in dollars and cents.

12. PERFORMANCE AND PAYMENT BONDS

Within 10 days after the prescribed forms are presented to the bidder to whom award is made for signature, a written contract on the form prescribed by the specifications shall be executed and two bonds, each with good and sufficient surety or sureties acceptable to the Owner, furnished; namely a Performance Bond and a Payment Bond. The penal sum of each bond will be as follows:

I. Performance Bond. The penal sum of the performance bond shall equal one hundred percent (100%) of the contract price.

II. Payment Bond. The penal sum of the Payment bond shall equal one hundred percent (100%) of the contract price.

13. DATA UNIVERSAL NUMBERING SYSTEM (DUNS) NUMBER REPORTING

In the block with its name and address, the offeror should supply the Data Universal Numbering System (DUNS) Number applicable to that name and address. The DUNS Number should be preceded by "DUNS:". If the offeror does not have a DUNS Number, it may obtain one from any DUN and Bradstreet branch office. No offeror should delay the submission of its offer pending receipt of a DUNS Number.

14. AVAILABILITY OF SPECIFICATIONS LISTED IN THE DOD INDEX OF SPECIFICATIONS AND STANDARDS

Single copies of specifications cited in this solicitation may be obtained by submitting a written request to the supply point listed below. The request must contain the title of the

specification, its number, date, applicable amendment(s), and the solicitation or contract number. In case of urgency, telephone or telegraphic requests are acceptable. Voluntary standards, which are not available to offerors and contractors from Government sources, may be obtained from the organization responsible for their preparation, maintenance, or publication.

Commanding Officer
U.S. Naval Publication and Forms Center
5801 Tabor Avenue
Philadelphia, PA 19120
Telex Number.....834295
Western Union Number....710-670-1685
Telephone Number.....(215) 697-3321

15. SOLICITATION DEFINITIONS--SEALED BIDDING

"Offer" means "bid" in sealed bidding.

"Solicitation" means on invitation for bids in sealed bidding.

"Government" means United States Government.

"Owner" means Harborcreek Township, PA.

16. ACKNOWLEDGMENT OF AMENDMENTS TO INVITATIONS FOR BIDS

Bidders shall acknowledge receipt of any amendment to this solicitation (a) by signing and returning the amendment, (b) by identifying the amendment number and date in the space provided for this purpose on the form for submitting a bid, or (c) by letter or telegram. The Owner must receive the acknowledgment by the time and at the place specified for receipt of bids.

17. FALSE STATEMENT IN BIDS

Bidders must provide full, accurate, and complete information as required by this solicitation and its attachments. The penalty for making false statements in bids is prescribed in 18 U.S.C. 1001.

SOLICITATION PROVISIONS

Instructions to Bidders (Construction Contract)

18. SUBMISSION OF BIDS

(a) Bids and bid modifications shall be submitted in sealed envelopes or packages (1) addressed to the office specified in the solicitation and (2) showing the time specified for receipt, the solicitation number, and the name and address of the bidder.

(b) Telegraphic bids will not be considered unless authorized by the solicitation; however, bids may be modified or withdrawn by written or telegraphic notice, if such notice is received by the time specified for receipt of bids.

19. EXPLANATION TO PROSPECTIVE BIDDERS

Any prospective bidder desiring an explanation or interpretation of the solicitation, drawings, specifications, etc., must request it in writing soon enough to allow a reply to reach all prospective bidders before the submission of their bids. Oral explanations or instructions given before the award of a contract will not be binding. Any information given a prospective bidder concerning a solicitation will be furnished promptly to all other prospective bidders as an amendment to the solicitation, if that information is necessary in submitting bids or if the lack of it would be prejudicial to other prospective bidders.

20. LATE SUBMISSIONS, MODIFICATIONS, AND WITHDRAWALS OF BIDS

(a) Any bid received at the office designated in the solicitation after the exact time specified for receipt will not be considered unless it is received before award is made and it--

(1) Was sent by registered or certified mail not later than the fifth calendar day before the date specified for receipt of bids (e.g., a bid of the month must have been mailed by the 15th); or

(2) Was sent by mail (or was a telegraphic bid if authorized), and it is determined by the Owner that the late receipt was due solely to mishandling by the Owner after receipt by the Owner.

(b) Any modification or withdrawal of a bid is subject to the same conditions as in paragraph (a) above.

(c) The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal sent either by registered or certified mail is the U.S. or Canadian Postal Service postmark on the wrapper or on the original receipt from the U.S. or Canadian Postal Service. If neither postmark shows a legible date, the bid, modification, or withdrawal shall be processed as if mailed late. "Postmark" means a printed, stamped, or otherwise placed impression (exclusive of a postage meter machine impression) that is readily identifiable without further action as having been supplied and affixed by employees of the U.S. or Canadian Postal Service on the date of mailing. Therefore, bidders should request the postal clerks to place a hand cancellation bull's-eye postmark on both the receipt and the envelope or wrapper.

(d) The only acceptable evidence to establish the time of receipt by the Owner is the time/date stamp of that by the Owner on the bid wrapper or other documentary evidence of receipt maintained by the installation.

(e) Notwithstanding paragraph (a) above, a late modification of an otherwise successful bid that makes its terms more favorable to the Owner will be considered at any time it is received and may be accepted.

(f) A bid may be withdrawn in person by a bidder or its authorized representative if, before the exact time set for receipt of bids, the identity of the person requesting withdrawal is established and that person signs a receipt for the bid.

21. PREPARATION OF BIDS--CONSTRUCTION

(a) Bids must be (1) submitted on the forms furnished by the Owner or on copies of those forms, and (2) manually signed. The person signing a bid must initial each erasure or change appearing on any bid form.

(b) The bid form may require bidders to submit bid prices for one or more items on various bases, including--

(1) Lump sum bidding;

(2) Alternate prices;

(3) Units of construction; or

(4) Any combination of subparagraphs (1) through (3) above.

(c) The solicitation requires bidding on all items, failure to do so will disqualify the bid.

22. CONTRACT AWARD--SEALED BIDDING--CONSTRUCTION

(a) The Owner will evaluate bids in response to this solicitation without discussions and will award a contract to the responsible bidder whose bid, conforming to the solicitation, will be most advantageous to the Owner, considering only price and the price-related factors specified elsewhere in the solicitation.

(b) The Owner may reject any or all bids, and waive informalities or minor irregularities in bids received.

(c) The Owner may accept any item or combination of items, unless doing so is precluded by a restrictive limitation in the solicitation or the bid.

23. NOTICE OF TOTAL SMALL BUSINESS SET-ASIDE

(a) Definition.

"Small business concern", as used in this clause, means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the size standards in this solicitation.

(b) General. (Subject to change)

(1) Offers are solicited only from small business concerns. Offers received from concerns that are not small business concerns shall be considered nonresponsive and will be rejected.

(2) Any award resulting from this solicitation will be made to a small business concern.

(c) Agreement. A manufacturer or regular dealer submitting an offer in its own name agrees to furnish, in performing the contract, only end items manufactured or produced by small business concerns inside the United States its territories and possessions, the Commonwealth of Puerto Rico, the Trust Territory of the Pacific Islands, or the District of Columbia. However, this requirement does not apply in connection with construction or service contracts.

24. NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY

(a) The offeror's attention is called to the Equal Opportunity clause and the Affirmative Action Compliance Requirements for Construction clause of this solicitation.

(b) The goals for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Goals for minority participation for each trade	Goals for female participation for each trade
(To be determined after advertising for bids)	

These goals are applicable to all the Contractor's construction work performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, the Contractor shall apply the goals established for the geographical area where the work is actually performed. Goals are published periodically in the Federal Register in notice form, and these notices may be obtained from any Office of Federal Contract Compliance Programs Office.

(c) The Contractor's compliance with Executive Order 11246, as amended, and the regulations in 41 CFR 60-4 shall be based on (1) its implementation of the Equal Opportunity clause, (2) specific affirmative action obligations required by the clause entitled "Affirmative Action Compliance Requirements for Construction", and (3) its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade.

SOLICITATION PROVISIONS

Instructions to Bidders (Construction Contract)

The Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor, or from project to project, for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, Executive Order 11246, as amended, and the regulations in 41 CFR 60-4. Compliance with the goals will be measured against the total work hours performed.

(d) The Contractor shall provide written notification to the Director, Office of Federal Contract Compliance Programs, within 10 working days following award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the--

(1) Name, address, and telephone number of the subcontractors;

(2) Estimated dollar amount of the subcontract;

(3) Estimated starting and completion dates of the subcontract; and

(4) Geographical area in which the subcontract is to be performed.

(e) As used in this Notice, and in any contract resulting from this solicitation, the "covered area" is Erie, PA and Erie County.

25. BID GUARANTEE

(a) Failure to furnish a bid guarantee in the proper form and amount, by the time set for opening of bids, may be cause for rejection of the bid.

(b) The offeror (bidder) shall furnish a bid guarantee in the form of a firm commitment, such as a bid bond, postal money order, certified check, cashier's check, irrevocable letter of credit, or, under Treasury Department regulations, certain bonds or notes of the United States. The Owner will return bid guarantees, other than bid bonds, (1) to unsuccessful bidders as

soon as practicable after the opening of bids, and (2) to the successful bidder upon execution of contractual documents and bonds (including any necessary coinsurance or reinsurance agreements), as required by the bid as accepted.

(c) If the successful bidder, upon acceptance of its bid by the Owner within the period specified for acceptance, fails to execute all contractual documents or give a bond(s) as required by the solicitation within the time specified, the Owner may terminate the contract for default.

(d) Unless otherwise specified in the bid, the bidder will (1) allow 60 days for acceptance of its bid and (2) give bond within 10 days after receipt of the forms by the bidder.

(e) In the event the contract is terminated for default, the bidder is liable for any cost of acquiring the work that exceeds the amount of its bid, and the bid guarantee is available to offset the difference.

26. AVAILABILITY OF FUNDS

Funds are not presently available for this contract. The Owner's obligation under this contract is contingent upon the availability of appropriated funds from which payment for contract purposes can be made. No legal liability on the part of the Owner for any payment may arise until funds are made available to the Owner for this contract and until the Contractor receives notice of such availability, to be confirmed in writing by the Owner.

27. SERVICE OF PROTEST

Protests, as defined in section 33.101 of the Federal Acquisition Regulation, shall be served on the Owner.

28. EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE

Whenever a contract or modification of contract price is negotiated, the contractor's cost proposals for equipment ownership and operating expenses shall be determined in accordance with the requirements of the paragraph entitled EQUIPMENT

OWNERSHIP AND OPERATING EXPENSE SCHEDULE, contained in the Special Contract Requirements section of the specifications. A copy of EP 1110-1-8 "Construction Equipment Ownership and Operating Expense Schedule: is available for review at the Department of the Army, U.S. Army Engineer District, Buffalo, 1776 Niagara Street, Buffalo, NY 14207-3199; Foot of East 9th Street, Cleveland, OH 44114, and Summit Street, Bay View Park, Toledo, OH 43611.

29. OWNER'S PRIVILEGE IN MAKING AWARDS

The Owner further reserves the right to make award of any or all schedules of any bid/offer, unless the bidder/offeror qualifies such bid/offer by specific limitation; also to make award to the bidder/offeror whose aggregate bid/offer on any combination of bid schedules is low. For the purpose of this Invitation for Bids/Request for Proposals, the word "item" as used in the paragraph entitled "Contract Award--Sealed Bidding--Construction", shall be considered to mean "schedule".

WAGE RATES

INDEX OF

CONTRACT CLAUSES

	TITLE
1.	DEFINITIONS
2.	OFFICIALS NOT TO BENEFIT
3.	GRATUITIES
4.	COVENANT AGAINST CONTINGENT FEES
5.	ANTI-KICKBACK PROCEDURE
6.	PRIORITIES, ALLOCATIONS, AND ALLOTMENTS
7.	VARIATION IN ESTIMATED QUANTITY
8.	SUSPENSION OF WORK
9.	AUDIT-SEALED BIDDING
10.	PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA--MODIFICATION--SEALED BIDDING
11.	SUBCONTRACTOR COST OR PRICING DATA--MODIFICATION--SEALED BIDDING
12.	EXAMINATION OF RECORDS BY COMPTROLLER GENERAL
13.	UTILIZATION OF SMALL BUSINESS CONCERNS AND SMALL DISADVANTAGED BUSINESS CONCERNS
14.	SMALL BUSINESS AND SMALL DISADVANTAGED BUSINESS SUBCONTRACTING PLAN (ALTERNATE I)
15.	UTILIZATION OF WOMEN-OWNED SMALL BUSINESSES
16.	NOTICE TO THE GOVERNMENT OF LABOR DISPUTES
17.	CONVICT LABOR
18.	DAVIS-BACON ACT
19.	CONTRACT WORK HOURS AND SAFETY STANDARDS ACT--OVERTIME COMPENSATION
20.	APPRENTICES AND TRAINEES
21.	PAYROLLS AND BASIC RECORDS

TITLE

22. COMPLIANCE WITH COPELAND ACT REQUIREMENTS

23. WITHHOLDING OF FUNDS

24. SUBCONTRACTS

25. CONTRACT TERMINATION; DEBARMENT

26. DISPUTES CONCERNING LABOR STANDARDS

27. COMPLIANCE WITH DAVIS-BACON AND RELATED ACT REQUIREMENTS

28. CERTIFICATION OF ELIGIBILITY

29. EQUAL OPPORTUNITY

30. AFFIRMATIVE ACTION COMPLIANCE REQUIREMENTS FOR CONSTRUCTION

31. AFFIRMATIVE ACTION FOR SPECIAL DISABLED AND VIETNAM ERA VETERANS

32. AFFIRMATIVE ACTION FOR HANDICAPPED WORKERS

33. CLEAN AIR AND WATER

34. BUY AMERICAN ACT--CONSTRUCTION MATERIALS

35. AUTHORIZATION AND CONSENT

36. NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT

37. PATENT INDEMNITY--CONSTRUCTION CONTRACTS

38. ADDITIONAL BOND SECURITY

39. INSURANCE--WORK ON A GOVERNMENT INSTALLATION

40. FEDERAL, STATE, AND LOCAL TAXES

41. PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS

42. INTEREST

43. ASSIGNMENT OF CLAIMS

44. DISPUTES

45. PROTEST AFTER AWARD

46. DIFFERING SITE CONDITIONS

TITLE

47.	SITE INVESTIGATION AND CONDITIONS AFFECTING THE WORK
48.	MATERIAL AND WORKMANSHIP
49.	SUPERINTENDENCE BY THE CONTRACTOR
50.	PERMITS AND RESPONSIBILITIES
51.	OTHER CONTRACTS
52.	PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS
53.	OPERATIONS AND STORAGE AREAS
54.	USE AND POSSESSION PRIOR TO COMPLETION
55.	CLEANING UP
56.	ACCIDENT PREVENTION (ALTERNATE I)
57.	SCHEDULE FOR CONSTRUCTION CONTRACTS
58.	SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION
59.	CHANGES
60.	SUBCONTRACTS (FIXED-PRICE CONTRACTS)
61.1	GOVERNMENT PROPERTY (FIXED-PRICE CONTRACTS)
61.2	GOVERNMENT-FURNISHED PROPERTY (SHORT FORM)
62.	INSPECTION OF CONSTRUCTION
63.	PREFERENCE FOR PRIVATELY OWNED U.S.-FLAG COMMERCIAL VESSELS (ALTERNATE II)
64.	VALUE ENGINEERING - CONSTRUCTION
65.	TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (SHORT FORM)
66.	TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (FIXED-PRICE) (ALTERNATE I)
67.	DEFAULT (FIXED-PRICE CONSTRUCTION)
68.	AUTHORIZED DEVIATIONS IN CLAUSES
69.	COMPOSITION OF CONTRACTOR

	TITLE
70.	MODIFICATION OF PROPOSALS - PRICE BREAKDOWN
71.	CERTIFICATION OF REQUESTS FOR ADJUSTMENT OR RELIEF EXCEEDING $100,000
72.	CONTRACT PRICES - BIDDING SCHEDULES
73.	PRICING OF ADJUSTMENTS
74.	ALTERATIONS IN CONTRACT
75.	PERFORMANCE EVALUATION OF CONTRACTOR
76.	ENVIRONMENTAL LITIGATION

CONTRACT CLAUSES

1. DEFINITIONS

(a) "Owner" means a person with the authority to enter into, administer, and/or terminate contracts and make related determinations and findings. The term includes certain authorized representatives of the Owner acting within the limits of their authority as delegated by the Owner.

2. OFFICIALS NOT TO BENEFIT

No member of or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this contract, or to any benefit arising from it. However, this clause does not apply to this contract to the extent that this contract is made with a corporation for the corporation's general benefit.

3. GRATUITIES

(a) The right of the Contractor to proceed may be terminated by written notice if, after notice and hearing, the agency head or a designee determines that the Contractor, its agent, or another representative--

(1) Offered or gave a gratuity (e.g., an entertainment or gift) to an officer, official, or employee of the Owner; and

(2) Intended, by the gratuity, to obtain a contract or favorable treatment under a contract.

(b) The facts supporting this determination may be reviewed by any court having lawful jurisdiction.

(c) If this contract is terminated under paragraph (a) above, the Owner is entitled--

(1) To pursue the same remedies as in a breach of the contract.

(d) The rights and remedies of the Owner provided in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law or under this contract.

4. COVENANT AGAINST CONTINGENT FEES

(a) The Contractor warrants that no person or agency has been employed or retained to solicit or obtain this contract upon an agreement or understanding for a contingent fee, except a bona fide employee or agency. For breach or violation of this warranty, the Government shall have the right to annul this contract without liability or, in its discretion, to deduct from the contract price or consideration, or otherwise recover, the full amount of the contingent fee.

(b) "Bona fide agency", as used in this clause, means an established commercial or selling agency, maintained by a contractor for the purpose of securing business, that neither exerts nor proposes to exert improper influence to solicit or obtain Government contracts nor holds itself out as being able to obtain any Government contract or contracts through improper influence.

"Bona fide employee", as used in this clause, means a person, employed by a contractor and subject to the contractor's supervision and control as to time, place, and manner of performance, supervision and control as to time, place, and manner of performance, who neither exerts nor proposes to exert improper influence to solicit or obtain Government contracts nor holds out as being able to obtain any Government contract or contracts through improper influence.

"Contingent fee", as used in this clause, means any commission, percentage, brokerage, or other fee that is contingent upon the success that a person or concern has in securing a Government contract.

"Improper influence", as used in this clause, means any influence that induces or tends to induce a Government employee or officer to give consideration or to act regarding a Government contract on any basis other than the merits of the matter.

5. ANTI-KICKBACK PROCEDURES

(a) Definitions.

"Kickback", as used in this clause, means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided, directly or indirectly, to any Prime Contractor, Prime Contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a subcontract relating to a prime contract.

"Person", as used in this clause, means a corporation, partnership, business association of any kind, trust, joint-stock company, or individual.

"Prime Contract", as used in this clause, means a contract or contractual action entered into by the United States for the purpose of obtaining supplies, materials, equipment, or services of any kind.

"Prime Contractor Employee", as used in this clause, means any officer, partner, employee, or agent of a Prime Contractor.

"Subcontract", as used in this clause, means a contract or contractual action entered into by a Prime Contractor or subcontractor for the purpose of obtaining supplies, materials, equipment, or services of any kind under a prime contract.

"Subcontractor", as used in this clause,

-means any person, other than the Prime Contractor, who offers to furnish or furnishes any supplies, materials, equipment, or services of any kind under a prime contract; and

-includes any person who offers to furnish or furnishes general supplies to the Prime Contractor or a higher tier subcontractor.

"Subcontractor Employee", as used in this clause, means any officer, partner, employee, or agent of a subcontractor.

(b) The Anti-Kickback Act of 1986 (41 U.S.C. 51-58) (The Act), prohibits any person from:

(1) providing or attempting to provide or offering to provide any kickback;

(2) soliciting, accepting or attempting to accept any kickback; or

(3) including, directly or indirectly, the amount of any kickback in the contract price charged by a Prime Contractor to the United States or in the contract charged by a subcontractor to a Prime Contractor or higher tier subcontractor.

(c) (1) The Contractor shall have in place and follow reasonable procedures designed to prevent and detect possible violations described in paragraph (b) above in its own operations and direct business relationships.

(2) When the Contractor has reasonable grounds to believe that a violation described in paragraph (b) above may have occurred, the Contractor shall promptly report in writing the possible violation. Such reports shall be made to the Owner or the Department of Justice.

(3) The Contractor shall cooperate fully with any Federal Agency investigating a possible violation described in paragraph (b) above.

(4) Regardless of the contract tier at which a kickback was provided, accepted or charged under the contract in violation of paragraph (b) above, the Owner may--

(i) offset the amount of the kickback against any monies owed under this contract; and

(ii) direct that the Contractor withhold from sums owed the subcontractor, the amount of the kickback.

(5) The Contractor agrees to incorporate the substance of this clause, including this paragraph (5), in all subcontracts.

6. PRIORITIES, ALLOCATIONS, AND ALLOTMENTS

Not Applicable.

7. VARIATION IN ESTIMATED QUANTITY

Not Applicable.

8. SUSPENSION OF WORK

(a) The Owner may order the Contractor, in writing, to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Owner determines appropriate.

(b) If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted (1) by an act of the Owner in the administration of the contract, or (2) by the Owner's failure to act within the time specified in this contract (or within a reasonable time if not specified), an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) necessarily caused by the unreasonable suspension, delay, or interruption, and the contract modified in writing accordingly. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent that performance would have been so suspended, delayed, or interrupted by any other cause including the fault or negligence of the Contractor, or for which an equitable adjustment is provided for or excluded under any other term or condition of this contract.

(c) A claim under this clause shall not be allowed (1) for any costs incurred more than 20 days before the Contractor shall

have notified the Owner in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order), and (2) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of the suspension, delay, or interruption, but not later than the date of final payment under the contract.

9. AUDIT-SEALED BIDDING

(a) **Cost or Pricing Data.** If the Contractor has submitted cost or pricing data in connection with the pricing of any modification to this contract, unless the pricing was based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the general public, or prices set by law or regulation, the Owner or a representative who is an employee of the Owner shall have the right to examine and audit all books, records, documents, and other data of the Contractor (including computations and projections) related to negotiating, pricing or performing the modification, in order to evaluate the accuracy, completeness, and currency of the cost or pricing data.

(b) **Availability.** The Contractor shall make available at its office at all reasonable times the materials described in paragraph (a) above, for examination, audit, or reproduction, until 3 years after final payment under this contract.

(1) If this contract is completely or partially terminated, the records relating to the work terminated shall be made available for 3 years after any resulting final termination settlement.

(2) Records pertaining to appeals under the Disputes clause or to litigation or the settlement of claims arising under or relating to the performance of this contract shall be made available until disposition of such appeals, litigation, or claims.

(c) The Contractor shall insert a clause containing all the provisions of this clause, including this paragraph (c), in all subcontracts over $10,000 under this contract, altering the clause only as necessary to identify properly the contracting parties and the Owner.

10. PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA--MODIFICATIONS--SEALED BIDDING

(a) This clause shall become operative only for any modification to this contract involving aggregate increases and/or decreases in costs, plus applicable profits, of more than $100,000 except that this clause does not apply to any modification for which the price is-- clause does not apply to any modification for which the price is--

(1) Based on adequate price competition;

(2) Based on established catalog or market prices of commercial items sold in substantial quantities to the general public; or

(3) Set by law or regulation.

(b) If any price, including profit, negotiated in connection with any modification under this clause, was increased by any significant amount because (1) the Contractor or a

subcontractor furnished cost or pricing data that were not complete, accurate, and current as certified in its Certificate of Current Cost or Pricing Data, (2) a subcontractor or prospective subcontractor furnished the Contractor cost or pricing data that were not complete, accurate, and current as certified in the Contractor's Certificate of Current Cost or Pricing Data, or (3) any of these parties furnished data of any description that were not accurate, the price shall be reduced accordingly and the contract shall be modified to reflect the reduction. This right to a price reduction is limited to that resulting from defects in data relating to modifications for which this clause becomes operative under paragraph (a) above.

(c) Any reduction in the contract price under paragraph (b) above due to defective data from a prospective subcontractor that was not subsequently awarded the subcontract shall be limited to the amount, plus applicable overhead and profit markup, by which (1) the actual subcontract or (2) the actual cost to the Contractor, if there was no subcontract, was less than the prospective subcontract cost estimate submitted by the Contractor; provided, that the actual subcontract price was not itself affected by defective cost or pricing data.

11. SUBCONTRACTOR COST OR PRICING DATA--MODIFICATION-SEALED BIDDING

(a) The requirements of paragraphs (b) and (c) of the clause shall (1) become operative only for any modification to this contract involving aggregate increases and/or decreases in costs, plus applicable profits, expected to exceed $100,000 and (2) be limited to such modifications.

(b) Before awarding any subcontract expected to exceed $100,000 when entered into, or pricing any subcontract modification involving aggregate increases and/or decreases in costs, plus applicable profits, expected to exceed $100,000, the Contractor shall require the subcontractor to submit cost or pricing data (actually or by specific identification in writing), unless the price is--

(1) Based on adequate price competition;

(2) Based on established catalog or market prices of commercial items sold in substantial quantities to the general public; or

(3) Set by law or regulation.

(c) The Contractor shall require the subcontractor to certify in substantially the form prescribed in subsection 15.804-4 of the Federal Acquisition Regulation that, to the best of its knowledge and belief, the data submitted under paragraph (b) above were accurate, complete, and current as of the date of agreement on the negotiated price of the subcontract or subcontract modification.

(d) The Contractor shall insert the substance of this clause, including this paragraph (d), in each subcontract that exceeds $100,000 when entered into.

12. EXAMINATION OF RECORDS BY COMPTROLLER GENERAL

Not Applicable.

13. UTILIZATION OF SMALL BUSINESS CONCERNS AND SMALL DISADVANTAGED BUSINESS CONCERNS

(a) It is the policy of the United States that small business concerns and small business concerns owned and controlled by socially and economically disadvantaged individuals shall have the maximum practicable opportunity to participate in performing contracts let or funded by any Federal agency, including contracts and major systems. It is further the policy of the United States that its prime contractors further the policy of the United States that its prime contractors establish procedures to ensure the timely payment of amounts due pursuant to the terms of their subcontracts with small business concerns and small business concerns owned and controlled by socially and economically disadvantaged individuals.

(b) The Contractor hereby agrees to carry out this policy in the awarding of subcontracts to the fullest extent consistent with efficient contract performance. The Contractor further agrees to cooperate in any studies or surveys as may be conducted by the United States Small Business Administration or the awarding agency of the United States as may be necessary to determine the extent of the Contractor's compliance with this clause.

(c) As used in this contract, the term "small business concern" shall mean a small business as defined pursuant to section 3 of the Small Business Act and relevant regulations promulgated pursuant thereto. The term "small business concern owned and controlled by socially and economically disadvantaged individuals" shall mean a small business concern--

(1) Which is at least 51 percent owned by one or more socially and economically disadvantaged individuals; or, in the case of any publicly owned business, at least 51 per centum of the stock of which is owned by one or more socially and economically disadvantaged individuals; and

(2) Whose management and daily business operations controlled by one or more of such individuals.

The Contractor shall presume that socially and economically disadvantaged individuals include Black Americans, Hispanic Americans, Native Americans, Asian-Pacific Americans, Asian-Indian Americans and other minorities, or any other individual found to be disadvantaged by the Administration pursuant to section 8(a) of the Small Business Act.

(d) Contractors acting in good faith may rely on written representations by their subcontractors regarding their status as either a small business concern or a small business concern owned and controlled by socially and economically disadvantaged individuals.

14. SMALL BUSINESS AND SMALL DISADVANTAGED BUSINESS SUBCONTRACTING PLAN

(The following clause is applicable if this contract (1) offers subcontracting possibilities, (2) is expected to exceed $500,000, or $1,000,000 in the case of construction of any public facility, (3) is required to include the clause in FAR 52.219-8 and (4) is formally advertised.)

(a) This clause does not apply to small business concerns.

(b) "Commercial product", as used in this clause, means a product in regular production that is sold in substantial quantities to the general public and/or industry at established catalog or market prices. It also means a product which, in the opinion of the Owner, differs only insignificantly from the Contractor's commercial product.

"Subcontract", as used in this clause, means any agreement (other than one involving an employer-employee relationship) entered into by a prime Contractor or subcontractor calling for supplies or services required for performance of the contract or subcontract.

(c) The apparent low bidder, upon request by the Owner, shall submit a subcontracting plan, where applicable, which addresses separately subcontracting with small business concerns and small disadvantaged business concerns, and which shall be included in and made part of the resultant contract. The subcontracting plan shall be submitted within the time specified by the Owner. Failure to submit the subcontracting plan shall make the bidder ineligible for the award of a contract.

(d) The offeror's subcontracting plan shall include the following:

(1) Goals, expressed in terms of percentages of total planned subcontracting dollars, for the use of small business concerns and small disadvantaged business concerns as subcontractors. The offeror shall include all subcontracts that contribute to contract performance, and may include a proportionate share of products and services that are normally allocated as indirect costs.

(2) A statement of

(i) Total dollars planned to be subcontracted;

(ii) Total dollars planned to be subcontracted to small business concerns; and

(iii) Total dollars planned to be subcontracted to small disadvantaged business concerns.

(3) A description of the principal types of supplies and services to be subcontracted, and an identification of the types planned for subcontracting to (i) small business concerns and (ii) small disadvantaged business concerns.

(4) A description of the method used to develop the subcontracting goals in (1) above.

(5) A description of the method used to identify potential sources for solicitation purposes (e.g., existing company source lists, the Procurement Automated Source System (PASS) of the Small Business Administration, the National Minority Purchasing Council Vendor Information Service, the Research and Information Division of the Minority Business Development Agency in the Department of Commerce, or small and small disadvantaged business concerns trade associations.)

(6) A statement as to whether or not the offeror included indirect costs in establishing subcontracting goals, and a description of the method used to determine the proportionate share of indirect costs to be incurred with (i) small business concerns and (ii) small disadvantaged business concerns.

(7) The name of the individual employed by the offeror who will administer the offeror's subcontracting program, and a description of the duties of the individual.

(8) A description of the efforts the offeror will make to assure that small business concerns and small disadvantaged business concerns have an equitable opportunity to compete for subcontracts.

(9) Assurances that the offeror will include the clause in this contract entitled "Utilization of Small Business Concerns and Small Disadvantaged Business Concerns" in all subcontracts that offer further subcontracting opportunities, and that the offeror will require all subcontractors (except small business concerns) who receive subcontracts in excess of $500,000 ($1,000,000 for construction of any public facility), to adopt a plan similar to the plan agreed to by the offeror.

(10) Assurances that the offeror will (i) cooperate in any studies or surveys as may be required, (ii) submit periodic reports in order to allow the Government to determine the extent of compliance by the offeror with the subcontracting plan, (iii) submit Standard Form (SF) 294, Subcontracting Report for Individual Contracts, and/or (SF) 295, Summary Subcontract Report, in accordance with the instructions on the forms, and (iv) ensure that its subcontractors agree to submit Standard Forms 294 and 295.

(11) A recitation of the types of records the offeror will maintain to demonstrate procedures that have been adopted to comply with the requirements and goals in the plan, including establishing source lists; and a description of its efforts to locate small and small disadvantaged business concerns and award subcontracts to them. The records shall include at least the following (on a plant-wide or company-wide basis, unless otherwise indicated):

(i) Source lists, guides, and other data that identify small and small disadvantaged business concerns.

(ii) Organizations contacted in an attempt to locate sources that are small or small disadvantaged business concerns.

(iii) Records on each subcontract solicitation resulting in an award of more than $100,000, indicating (A) whether small business concerns were solicited and if not, why not, (B) whether small disadvantaged business concerns were solicited and if not, why not, and (C) if applicable, the reason award was not made to a small business concern.

(iv) Records of any outreach efforts to contact (A) trade associations, (B) business development organizations, and (C) conferences and trade fairs to locate small and small disadvantaged business sources.

(v) Records of internal guidance and encouragement provided to buyers through (A) workshops, seminars, training, etc., and (B) monitoring performance to evaluate compliance with the program's requirements.

(vi) On a contract-by-contract basis, records to support award data submitted by the offeror to the Government, including the name, address, and business size of each subcontractor. Contractors having company or division-wide annual plans need not comply with this requirement.

(e) In order to effectively implement this plan to the extent consistent with efficient contract performance, the Contractor shall perform the following functions:

(1) Assist small business and small disadvantaged business concerns by arranging solicitations, time for the preparation of bids, quantities, specifications, and delivery schedules so as to facilitate the participation by such concerns. Where the Contractor's lists of potential small business and small disadvantaged subcontractors are excessively long, reasonable effort shall be made to give all such small business concerns an opportunity to compete over a period of time.

(2) Provide adequate and timely consideration of the potentialities of small business and small disadvantaged business concerns in all "make-or-buy" decisions.

(3) Counsel and discuss subcontracting opportunities with representatives of small and small disadvantaged business firms.

(f) A master subcontracting plan on a plant or division-wide basis which contains all the elements required by (d) above, except goals, may be incorporated by reference as a part of the subcontracting plan required of the offeror by this clause; provided, (1) the master plan has been approved, (2) the offeror provides copies of the approved master plan and evidence of its approval to the Owner, and (3) goals and any deviations from the master plan deemed necessary by the Owner to satisfy the requirements of this contract are set forth in the individual subcontracting plan.

(g) (1) If a commercial product is offered, the subcontracting plan required by this clause may relate to the offeror's production generally, for both commercial and noncommercial products, rather than solely to the Government contract. In these cases, the offeror shall, with the concurrence of the Owner, submit one company-wide or division-wide annual plan.

(2) The annual plan shall be reviewed for approval by the agency awarding the offeror its first prime contract requiring a subcontracting plan during the fiscal year, or by an agency satisfactory to the Owner.

(3) The approved plan shall remain in effect during the offeror's fiscal year for all of the offeror's commercial products.

(h) Prior compliance of the offeror with other such

subcontracting plans under previous contracts will be considered by the Owner in determining the responsibility of the offeror for award of the contract.

(i) The failure of the Contractor or subcontractor to comply in good faith with (1) the clause of this contract entitled "Utilization of Small Business Concerns and Small Disadvantaged Business Concerns", or (2) an approved plan required by this clause, shall be a material breach of the contract.

15. UTILIZATION OF WOMEN-OWNED SMALL BUSINESSES

(a) "Women-owned small businesses", as used in this clause, means businesses that are at least 51 percent owned by women who are United States citizens and who also control and operate the business.

"Control", as used in this clause, means exercising the power to make policy decisions.

"Operate", as used in this clause, means being actively involved in the day-to-day management of the business.

"Small Business concern", as used in this clause, means a concern including its affiliates, that is independently owned and operated, not dominate in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria and size standards in 13 CFR 121.

(b) It is the policy of the United States that women-owned small businesses shall have the maximum practicable opportunity to participate in performing contracts awarded by an Federal agency.

(c) The Contractor agrees to use its best efforts to give women-owned small businesses the maximum practicable opportunity to participate in the subcontracts it awards to the fullest extent consistent with the efficient performance of its contract.

(d) The Contractor may rely on written representations by its subcontractors regarding their status as woman-owned businesses.

16. NOTICE TO THE GOVERNMENT OF LABOR DISPUTES

(a) If the Contractor has knowledge that any actual or potential labor dispute is delaying or threatens to delay the timely performance of this contract, the Contractor shall immediately give notice, including all relevant information, to the Owner.

(b) The Contractor agrees to insert the substance of this clause, including this paragraph (b), in any subcontract to which a labor dispute may delay the timely performance of this contract; except that each subcontract shall provide that in the event its timely performance is delayed or threatened by delay by any actual or potential labor dispute, the subcontractor shall immediately notify the next high tier subcontractor or the prime Contractor, as the case may be, of all relevant information concerning the dispute.

17. CONVICT LABOR

The Contractor agrees not to employ any person undergoing sentence of imprisonment in performing this contract except as

provided by 18 U.S.C. 4082(c) (2) and Executive Order 11755, December 29, 1973.

18. DAVIS-BACON ACT

(a) Minimum wages.

(1) All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalent thereof due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b) (2) of the Davis-Bacon Act on behalf of laborers or mechanics, subject to the provisions of paragraph (a) (4) of this clause; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in the clause entitled "Apprentices and Trainees". Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; provided, that the employee's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a) (2) of this clause) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(2) (A) The Owner shall require that any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The Owner shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the Owner agree on the classification and wage rate (including the amount designated for fringe benefits, where appropriate), a report of the action taken shall be sent by the Owner to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt or will notify the Owner within the 30-day period that additional time is necessary.

(C) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and the Owner do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the Owner shall refer the questions, including the views of all interested parties and the recommendation of the Owner, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the Owner or will notify the Owner within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits, where appropriate) determined pursuant to subparagraphs (a) (2) (B) and (a) (2) (C) of this clause shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(3) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit of any hourly cash equivalent thereof.

(4) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of costs reasonably anticipated in providing bona fide fringe benefits under a plan or program; provided, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

19. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT--OVERTIME COMPENSATION

(a) Overtime requirements. No Contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborers or mechanics (see Federal Acquisition Regulation (FAR) 22.300) in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than 1-1/2 times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(b) Violation; liability for unpaid wager; liquidated damages. In the event of any violation of the provisions set forth in paragraph (a) of this clause, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the Owner for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic employed in violation of the provisions set forth in paragraph (a) of this clause in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the provisions set forth in paragraph (a) of this clause.

(c) Withholding for unpaid wages and liquidated damages. The Owner shall, upon his or her own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from any moneys payable on account of work performed by the Contractor or subcontractor under the contract, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the provisions set forth in paragraph (b) of this clause.

(d) Payrolls and basic records. (1) The Contractor or subcontractor shall maintain payrolls and basic payroll records during the course of contract work and shall preserve them for a period of 3 years from the completion of the contract for all laborers and mechanics working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Nothing in this paragraph shall require the duplication of records required to be maintained for construction work by Department of Labor regulations at 29 CFR 5.5 (a) (3) implementing the Davis-Bacon Act.

(2) The records to be maintained under paragraph (d) (1) of this clause shall be made available by the Contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the Owner or the Department of Labor. The Contractor or subcontractor shall permit such representatives to interview employees during working hours on the job.

(e) **Subcontracts.** The Contractor or subcontractor shall insert in any subcontracts the provisions set forth in paragraphs (a) through (e) of this clause and also a clause requiring the subcontractors to include these provisions in any lower tier subcontracts. The prime Contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the provisions set forth in paragraphs (a) through (e) of this clause.

20. *APPRENTICES AND TRAINEES*

(a) **Apprentices.** Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days or probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractors's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no

longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(b) **Trainees.** Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(c) **Equal employment opportunity.** The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

21. PAYROLLS AND BASIC RECORDS

(a) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b) (2) (B) of the Davis-Bacon Act), daily and weekly number of hours

worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under paragraph (a) (4) of the clause entitled "Davis-Bacon Act" that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b) (2) (B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB control numbers 1215-0140 and 1215-0017.)

(b) (1) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Owner if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to the Owner. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under paragraph (a) of this clause. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, D.C. 20402. The Prime Contractor is responsible for the submission of copies of payrolls by all subcontractors.

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance", signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be maintained under paragraph (a) of this clause and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR Part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification as set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph (b) (2) of this clause.

(4) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1991 of Title 18 and Section 231 of Title 31 of the United States Code.

(c) The Contractor or subcontractor shall make the records required under paragraph (a) of this clause available for inspection, copying, or transcription by authorized representatives of the Owner or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

22. COMPLIANCE WITH COPELAND ACT REQUIREMENTS

The Contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

23. WITHHOLDING OF FUNDS

The Owner shall upon his or her own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same Prime Contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same Prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages, required by the contract. In the event of failure to pay any laborer or mechanic , including any apprentice, trainee, or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing At of 1949 in the construction or development of the project), all or part of the wages required by the contract, the Owner may, after written notice to the Contractor's sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of

any further payment, advance, or guarantee of funds until such violations have ceased.

24. SUBCONTRACTS

The Contractor or subcontractor shall insert in any subcontracts the clauses entitled "Davis-Bacon Act", "Contract Work Hours and Safety Standards Act-- Overtime Compensation", "Apprentices and Trainees", "Payrolls and Basic Records", "Compliance with copeland Act Requirements", "Withholding", "Subcontracts", "Contract Termination-Debarment", "Disputes Concerning Labor Standards", "Compliance with Davis-Bacon and Related Act Requirements", and "Certification or Eligibility", and such other clauses as the Owner may, by appropriate instructions, require; and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The Prime Contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses cited above.

25. CONTRACT TERMINATION; DEBARMENT

A breach of the contract clauses entitled "Davis-Bacon Act", "Contract--Work Hours and Safety Standards Act-- Overtime Compensation", "Apprentices and Trainees", "Payrolls and Basic Records", "Compliance with Copeland Act Requirements", "Withholding", "Subcontractors', "Compliance with Davis-Bacon and Related Act Requirements", and "Certification of Eligibility", may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

26. DISPUTES CONCERNING LABOR STANDARDS

Disputes arising out of the labor standards provisions of this contract shall not be subject to the general Disputes Clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of the clause include disputes between the Contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

27. COMPLIANCE WITH DAVIS-BACON AND RELATED ACT REQUIREMENTS

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

28. CERTIFICATION OF ELIGIBILITY

(a) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section3(a) off the Davis-Bacon Act or 29 CFR 5.12 (a) (1).

(b) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12 (a) (1).

(c) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

29. EQUAL OPPORTUNITY

(a) If, during any 12-month period (including the 12 months preceding the aware of this contract), the Contractor has been or is awarded nonexempt Federal contracts and/or subcontracts that have an aggregate value in excess of $10,000, the Contractor shall comply with subparagraphs (b) (1) through (11) below. Upon request, the Contractor shall provide information necessary to determine the applicability of this clause.

(b) During performing this contract, the Contractor agrees as follows:

(1) The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin.

(2) The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. This shall include, but not be limited to, (i) employment, (ii) upgrading, (iii) demotion, (iv) transfer, (v) recruitment or recruitment advertising, (vi) layoff or termination, (vii) rates of pay or other forms of compensation, and (viii) selection for training, including apprenticeship.

(3) The Contractor shall post in conspicuous places available to employees and applicants for employment the notices to be provided by the Owner that explain this clause.

(4) The Contractor shall, in all solicitations or advertisement for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(5) The Contractor shall send, to each labor union or representative of workers with which it has a collective bargaining agreement of other contract or understanding, the notice to be proved by the Owner advising the labor union or workers' representative of the Contractor's commitments under this clause, and post copies of the notice in conspicuous places available to employees and applicants for employment.

(6) The Contractor shall comply with Executive Order 11246, as amended, and the rules, regulations, and orders of the Secretary of Labor.

(7) The Contractor shall furnish to the contracting agency all information required by Executive Order 11246, as amended, and by the rules, regulations, and orders of the Secretary of Labor, Standard Form 100 (EEO-1), or any successor form, is the prescribed form to be filed with 30 days following the award, unless filed within 12 months preceding the date of award.

(8) The Contractor shall permit access to its books, records, and accounts by the contracting agency or the Office of Federal Contract Compliance Programs (OFCCP) for the purposes of investigation to ascertain the Contractor's compliance with the applicable rules, regulations, and orders.

(9) If the OfCCP determines that the Contractor is not in compliance with this clause or any rule, regulation, or order of the Secretary of Labor, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts, under the procedures authorized in Executive Order 11246, as amended. In addition, sanctions may be imposed and remedies invoked against the Contractor as provided in executive Order 11246, as amended, the rules, regulations, and orders of the Secretary of Labor, or as otherwise provided by law.

(10) The Contractor shall include the terms and conditions of subparagraph (b) (1) through (11) of this clause in every subcontract or purchase order that is not exempted by the rules, regulations, or orders of the Secretary of Labor issued under Executive Order 11246, as amended, so that these terms and conditions will be binding upon each subcontractor or vendor.

(11) The Contractor shall take such action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing these terms and conditions, including sanctions for noncompliance; provided, that if the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of any direction, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

(c) Notwithstanding any other clause in this contract, disputes relative to this clause will be governed by the procedures in 41 CFR 60-1.1.

30. AFFIRMATIVE ACTION COMPLIANCE REQUIREMENTS FOR CONSTRUCTION

(a) **Definitions.** "Covered area", as used in this clause, means the geographical area described in the solicitation for this contract.

"Director", as used in this clause, means director, Office of Federal Contract Compliance Programs (OFCCP), United States Department of Labor, or any person to whom the Director delegates authority.

"Employer identification number", as used in this clause, means the Federal Social Security number used on the employer's quarterly federal tax return, U.S. Treasury Department Form 941.

"Minority", as used in this clause, means--

(1) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

(2) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(3) Black (all persons having origins in any of the black African racial groups not of Hispanic origin);

(4) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race);

(b) If the Contractor, or a subcontractor at any tier, subcontracts a portion of the work involving any construction trade, each such subcontract in excess of $10,000 shall include

this clause and the Notice containing the goals for minority and female participation stated in the solicitation for this contract.

(c) If the Contractor is participating in a Hometown Plan (41 CFR 60-4) approved by the U.S. Department of Labor in a covered area, either individually or through an association, its affirmative action obligations on all work in the plan area (including goals) shall comply with the plan for those trades that have unions participating in the plan. Contractors must be able to demonstrate participation in, and compliance with, the provisions of the plan. Each Contractor or subcontractor participating in an approved plan is also required to comply with its obligations under the Equal Opportunity clause, and to make a good faith effort to achieve each goal under the plan in each trade in which it has employees. The overall good-faith performance by other Contractors or subcontractors toward a goal in an approved plan does not excuse any Contractor's or subcontractor's failure to make good-faith efforts to achieve the plan's goals.

(d) The Contractor shall implement the affirmative action procedures in subparagraphs (g) (1) through (16) of this clause. The goals stated in the solicitation for this contract are expressed as percentages of the total hours of employment and training of minority and female utilization that the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for the geographical area where that work is actually performed. The Contractor is expected to make substantially uniform progress toward its goals in each craft.

(e) Neither the terms and conditions of any collective bargaining agreement, nor the failure by a union with which the Contractor has a collective bargaining agreement, to refer minorities or women shall excuse the Contractor's obligations under this clause, Executive Order 11246, as amended, or the regulations thereunder.

(f) In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

(g) The Contractor shall take affirmative action to ensure equal employment opportunity. The evaluation of the Contractor's compliance with this clause shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully and implement affirmative action steps at least as extensive as the following:

(1) Ensure a working environment free of harassment, intimidation, and coercion at all sites and in all facilities where the Contractor's employees are assigned to work. The Contractor, if possible, will assign two or more women to each construction project. The Contractor shall ensure that foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at these sites or facilities.

(2) Establish and maintain a current list of sources for minority and female recruitment. Provide written notification to minority and female recruitment sources and community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

(3) Establish and maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant, referrals of minorities or females from unions, recruitment sources, or community organizations, and the action taken with respect to each individual. If an individual was sent to the union hiring hall for referral and not referred back to the Contractor by the union or, if referred back, not employed by the Contractor, this shall be documented in the file, along with whatever additional actions the Contractor may have taken.

(4) Immediately notify the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred back to the Contractor a minority or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

(5) Develop on-the-job training opportunities and/or participate in training programs for the area that expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under subparagraph (g) (2) above.

(6) Disseminate the Contractor's equal employee policy by--

(i) Providing notice of the policy to unions and to training, recruitment and outreach programs, and requesting their cooperation in assisting the Contractor in meeting its contract obligations;

(ii) Including the policy in any policy manual and in collective bargaining agreements;

(iii) Publicizing the policy in the company newspaper, annual report, etc.;

(iv) Reviewing the policy with all management personnel and with all minority and female employees at least once a year; and

(v) Posting the policy on bulletin boards accessible to employees at each location where construction work is performed.

(7) Review, at least annually, the Contractor's equal employment policy and affirmative action obligations with all employees having responsibility for hiring, assignment, layoff, termination, or other employment decisions. Conduct review of this policy with all onsite supervisory personnel before initiating construction work at a job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

(8) Disseminate the Contractor's equal employment policy externally by including it in any advertising in the news media, specifically including minority and female news media. Provide written notification to, and discuss this policy with, other Contractors and subcontractors with which the Contractor does or anticipates doing business.

(9) Direct recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students, and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than 1 month before the date for acceptance of applications for apprenticeship or training by any recruitment source, send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

(10) Encourage present minority and female employees to recruit minority persons and women. Where reasonable, provide after-school, summer, and vacation employment to minority and female youth both on the site and in other areas of the Contractor's work-force.

(11) Validate all tests and other selection requirements where required under 41 CFR 60-3.

(12) Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities. Encourage these employees to seek or to prepare for, through appropriate training, etc., opportunities for promotion.

(13) Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment-related activities to ensure that the Contractor's obligations under this contract are being carried out.

(14) Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

(15) Maintain a record of solicitations for subcontracts for minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

(16) Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's equal employment policy and affirmative action obligations.

(h) The Contractor is encouraged to participate in voluntary associations that may assist in fulfilling one or more of the affirmative action obligations contained in subparagraphs (g)(1) through (16). The efforts of a contractor association, joint contractor-union, contractor-community, or similar group of which the contractor is a member and participant may be asserted as fulfilling one or more of its obligations under subparagraphs (g)(1) through (16), provided the Contractor--

(1) Actively participates in the group;

(2) Makes every effort to ensure that the group has a positive impact on the employment of minorities and women in the industry;

(3) Ensures that concrete benefits of the program are reflected in the Contractor's minority and female workforce participation;

(4) Makes a good-faith effort to meet its individual goals and timetables; and

(5) Can provide access to documentation that demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply is the Contractor's, and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

(i) A single goal for minorities and a separate single goal for women shall be established. The Contractor is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and nonminority. Consequently, the Contractor may be in violation of Executive Order 11246, as amended, if a particular group is employed in a substantially disparate manner.

(j) The Contractor shall not use goals or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

(k) The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts under Executive Order 11246, as amended.

(l) The Contractor shall carry out such sanctions and penalties for violation of this clause and of the Equal Opportunity Clause, including suspension, termination, and cancellation of existing subcontracts, as may be imposed or ordered under Executive Order 11246, as amended, and its implementing regulations, by the OFCCP. Any failure to carry out these sanctions and penalties as ordered shall be a violation of this clause and Executive Order 11246, as amended.

(m) The Contractor in fulfilling its obligations under this clause shall implement affirmative action procedures at least as extensive as those prescribed in paragraph (g) above, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of Executive Order 11246, as amended, the implementing regulations, or this clause, the Director shall take action as prescribed in 41 CFR 60-4.8.

(n) The Contractor shall designate a responsible official to--

(1) Monitor all employment-related activity to ensure that the Contractor's equal employment policy is being carried out;

(2) Submit reports as may be required by the Government; and

(3) Keep records that shall at least include for each employee the name, address, telephone number, construction trade, union affiliation (if any), employee identification number, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, separate records are not required to be maintained.

(o) Nothing contained herein shall be construed as a, limitation upon the application of other laws that establish different standards of compliance or upon the requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

31. AFFIRMATIVE ACTION FOR SPECIAL DISABLED AND VIETNAM ERA VETERANS

This clause is applicable pursuant to 41 C.F.R. 60-250, if this contract is for $10,000 or more.

(a) **Definitions.** "Appropriate office of the State employment service system", as used in this clause, means the local office of the Federal-State national system of public employment offices assigned to serve the area where the employment opening is to be filled, including the District of Columbia, Guam, Puerto Rico, Virgin Islands, American Samoa, and the Trust Territory of the Pacific Islands.

"Openings that the Contractor proposes to fill from within its own organization", as used in this clause, means employment openings for which no one outside the Contractor's organization (including any affiliates, subsidiaries, and the parent companies) will be considered and includes any openings that the Contractor proposes to fill from regularly established "recall" lists.

"Openings that the Contractor proposes to fill under a customary and traditional employer-union hiring arrangement", as used in this clause, means employment openings that the Contractor proposes to fill from union halls, under their customary and traditional employer-union hiring relationship.

"Suitable employment openings", as used in this clause-- (1) Includes, but is not limited to, openings that occur in jobs categorized as--

(i) Production and nonproduction;
(ii) Plant and office;
(iii) Laborers and mechanics;
(iv) Supervisory and nonsupervisory;

(v) Technical; and

(vi) Executive, administrative, and professional positions compensated on a salary basis of less than $25,000 a year; and

(2) Includes full-employment, temporary employment of over 3 days, and part-time employment, but not openings that the Contractor proposes to fill from within its own organization or under a customary and traditional employer-union hiring arrangement, nor openings in an educational institution that are restricted to students of that institution.

(b) **General.**

(1) Regarding any position for which the employee or applicant for employment is qualified, the Contractor shall not discriminate against the individual because the individual because the individual is a special disabled or Vietnam Era veteran. The Contractor agrees to take affirmative action to employ, advance in employment, and otherwise treat qualified special disabled and Vietnam Era veterans without discrimination based upon their disability or veterans' status in all employment practices such as--

(i) Employment;

(ii) Upgrading;

(iii) Demotion or transfers;

(iv) Recruitment;

(v) Advertising;

(vi) Layoff or termination;

(vii) Rates of pay or other forms of compensation; and

(viii) Selection for training, including apprenticeship.

(2) The Contractor agrees to comply with the rules, regulations, and relevant orders of the Secretary of Labor (Secretary) issued under the Vietnam Era Veterans' Readjustment Assistance Act of 1972 (the Act), as amended.

(c) **Listed openings.**

(1) The Contractor agrees to list all suitable employment openings existing at contract award or occurring during contract performance, at an appropriate office of the State employment service system in the locality where the opening occurs. These openings include those occurring at any Contractor facility, including one not connected with performing this contract. An independent corporate affiliate is exempt from this requirement.

(2) State and local government agencies holding Federal contracts of $10,000 or more shall also list all their suitable openings with the appropriate office of the State employment service.

(3) The listing of suitable employment openings with the State employment service system is required at least concurrently with using any other recruitment source or effort and involves the obligations of placing a bona fide job order, including accepting referrals of veterans and nonveterans. This listing does not require hiring any particular job applicant or hiring from any particular group of job applicants and is not

intended to relieve the Contractor from any requirements of Executive orders or regulations concerning nondiscrimination in employment.

(4) When the Contractor becomes contractually bound to the listing terms of this clause, it shall advise the State employment service system, in each state where it has establishments, of the name and location of each hiring location in the State. As long as the Contractor is contractually bound to these terms and has so advised the State system, it need not advise the State system of subsequent contracts. The Contractor may advise the State system when it is no longer bound by this contract clause.

(5) Under the most compelling circumstances, an employment opening may not be suitable for listing, including situations when:

(i) the Government's needs cannot reasonably be supplied,

(ii) listing would be contrary to national security, or

(iii) the requirement of listing would not be in the Government's interest.

(d) **Applicability.**

(1) This clause does not apply to the listing of employment openings which occur and are filled outside the 50 states, the District of Columbia, Puerto Rico, Guam, Virgin Islands, American Samoa, and the Trust Territory of the Pacific Islands.

(2) The terms of paragraph (c) above of this clause do not apply to openings that the Contractor proposes to fill from within its own organization or under a customary and traditional employer-union hiring arrangement. This exclusion does not apply to a particular opening once an employer decides to consider applicants outside of its own organization or employer-union arrangement for that opening.

(e) **Postings.**

(1) The Contractor agrees to post employment notices stating (i) the Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified special disabled veterans and veterans of the Vietnam era, and (ii) the rights of applicants and employees.

(2) These notices shall be posted in conspicuous places that are available to employees and applicants for employment. They shall be in a form prescribed by the Director, Office of Federal Contract compliance Programs, Department of Labor (Director), and provided by or through the Owner.

(3) The Contractor shall notify each labor union or representative of workers with which it has a collective bargaining agreement or other contract understanding, that the Contractor is bound by the terms of the Act, and is committed to take affirmative action to employ, and advance in employment, qualified special disabled and Vietnam Era veterans.

(f) **Noncompliance.** If the Contractor does not comply with the requirements of this clause, appropriate actions may be taken under the rules, regulations, and relevant orders of the Secretary issued pursuant to the Act.

(g) **Subcontracts.** The Contractor shall include the terms of this clause in every subcontract or purchase order of $10,000 or more unless exempted by rules, regulations, or orders of the Secretary. The Contractor shall act as specified by the Director to enforce the terms, including action for noncompliance.

32. AFFIRMATIVE ACTION FOR HANDICAPPED WORKERS

(Contracts and subcontracts are exempt from the requirements of the following clause with regard to work performed outside the United States by employees who were not recruited within the United States).

(a) **General.**

(1) Regarding any position for which the employee or applicant for employment is qualified, the Contractor shall not discriminate against any employee or applicant because of physical or mental handicap. The Contractor agrees to take affirmative action to employ, advance in employment, and otherwise treat qualified handicapped individuals without discrimination based upon their physical or mental handicap in all employment practices such as --

(i) Employment;
(ii) Upgrading;
(iii) Demotion or transfer;
(iv) Recruitment;
(v) Advertising;
(vi) Layoff or termination;
(vii) Rates of pay or other forms of compensation; and
(viii) Selection for training, including apprenticeship.

(2) The Contractor agrees to comply with the rules, regulations, and relevant orders of the Secretary of Labor (Secretary) issued under the Rehabilitation Act of 1973 (29 U.S.C. 793) (the Act), as amended.

(b) **Postings.**

(1) The Contractor agrees to post employment notices stating (i) the Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified handicapped individuals and (ii) the rights of applicants and employees.

(2) These notices shall be posted in conspicuous places that are available to employees and applicants for employment. They shall be in a form prescribed by the Director, office of Federal Contract Compliance Programs, Department of Labor (Director), and provided by or through the Owner.

(3) The Contractor shall notify each labor union or representative of workers with which it has a collective bargaining agreement or other contract understanding, that the Contractor is bound by terms of Section 503 of the Act and is committed to take affirmative action to employ, and advance in employment, qualified physically and mentally handicapped individuals.

(c) **Noncompliance.** If the Contractor does not comply with the requirements of this clause, appropriate actions may be taken under the rules, regulations and relevant orders of the Secretary issued pursuant to the Act.

(d) **Subcontracts.** The Contractor shall include the terms of this clause in every subcontractor purchase order in excess of $2,500 unless exempted by rules, regulations, or orders of the Secretary. The Contractor shall act as specified by the Director to enforce the terms, including action for noncompliance.

33. CLEAN AIR AND WATER

(a) "Air Act", as used in this clause, means the Clean Air Act (42 U.S.C. 7401 et seq.).

"Clean air standards", as used in this clause, means--

(1) Any enforceable rules, regulations, guidelines, standards, limitations, orders, controls, prohibitions, work practices, or other requirements contained in, issued under, or otherwise adopted under the Air Act or Executive Order 11738;

(2) An applicable implementation plan as described in section 110(d) of the Air Act (42 U.S.C. 7410(d));

(3) An approved implementation procedure or plan under section 111(c) or section 111(d) of the Air Act (42 U.S.C. 7411(c) or (d); or

(4) An approved implementation procedure under section 112(d) of the Air Act (42 U.S.C. 7412(d)).

"Clean water standards, as used in this clause, means any enforceable limitation, control, condition, prohibition, standard, or other requirement promulgated under the Water Act or contained in permit issued to a discharger by the Environmental Protection Agency or by a State under an approved program, as authorized by section 402 of the Water Act (33 U.S.C. 1342), or by local government to ensure compliance with pretreatment regulations as required by section 307 of the Water Act (33 U.S.C. 1317).

"Compliance", as used in this clause, means compliance with--

(1) Clean air or water standards; or

(2) A schedule or plan ordered or approved by a court of competent jurisdiction, the Environmental Protection Agency, or an air or water pollution control agency under the requirements of the Air Act or Water Act and related regulations.

"Facility", as used in this clause, means any building, plant, installation, structure, mine, vessel or other floating craft, location, or site of operations, owned, leased, or supervised by a Contractor or subcontractor, used in the performance of a contract or subcontract. When a location or site of operations includes more than one building, plant, installation, or structure, the entire location or site shall be deemed a facility except when the Administrator, determines that designee, of the Environmental Protection Agency, determines that independent facilities are collocated in one geographical area.

"Water Act", as used in this clause, means Clean Water Act (33 U.S.C. 1251 et seq.).

(b) (1) To comply with all the requirements of section 114 of the Clear Air Act (42 U.S.C. 7414) and section 308 of the

Clean Water Act (33 U.S.C. 1318) relating to inspection, monitoring, entry, reports, and information, as well as other requirements specified in section 114 and section 308 of the Air Act and the Water Act, and all regulations and guidelines issued to implement those acts before the award of this contract;

(2) That no portion of the work required by this prime contract will be performed in a facility listed on the Environmental Protection Agency List of Violating Facilities on the date when this contract was awarded unless and until the EPA eliminates the name of he facility from the listing;

(3) To use best efforts to comply with clean air standards and clean water standards at the facility in which the contract is being performed: and

(4) To inset the substance of this clause into any nonexempt subcontract, including this subparagraph (b) (4).

34. BUY AMERICAN ACT--CONSTRUCTION MATERIALS

(a) The Buy American Act (41 U.S.C. 10) provides that the Government give preference to domestic construction material.

"Components", as used in this clause, means those articles, materials, and supplies incorporated directly into construction materials.

"Construction materials", as used in this clause, means articles, materials, and supplies brought to the construction site for incorporation into the building or work.

"Domestic construction material", as used in this clause, means (1) an unmanufactured construction material mined or produced in the United States, or (2) a construction material manufactured in the United States, if the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind as the construction materials determined to be unavailable pursuant to subparagraph 25.202(a)(3) of the Federal Acquisition Regulation (FAR) shall be treated as domestic.

(b) The Contractor agrees that only domestic construction material will be used by the Contractor, subcontractors, materialmen,, and suppliers in the performance of this contract, except for foreign construction materials, if any, listed in this contract.

(The foregoing requirements are administered in accordance with Executive Order No. 10582, dated December 17, 1954, as amended, and Subpart 25.2 of the FAR)

35. AUTHORIZATION AND CONSENT

Not Applicable.

36. NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT

(a) The Contractor shall report to the Owner promptly and in reasonable written detail, each notice or claim of patent or copyright infringement based on the performance of this contract of which the Contractor has knowledge.

(b) In the event of any claim or suit against the Owner on account of any alleged patent or copyright infringement arising out of the performance of this contract or out of the use of any supplies furnished or work or services performed under this contract, the Contractor shall furnish to the Owner all evidence and information in possession of the Contractor pertaining to such suit or claim. Such evidence and information shall be furnished at the expense of the Contractor.

(c) The Contractor agrees to include, and require inclusion of, this clause in all subcontracts or any tier for supplies or services (including construction and architect-engineer subcontracts and those for mateial, supplies, models, samples, or design or testing services) expected to exceed the dollar amount set forth in 13.000 of the Federal Acquisition Regulation (FAR).

37. PATENT INDEMNITY--CONSTRUCTION CONTRACTS

Except as otherwise provided, the Contractor agrees to indemnify the Owner and its officers, agents,and employees against liability, including costs and expenses, for infringement upon any United States patent (except a patent issued upon an application that is now or may hereafter be withheld from issue pursuant to a Secretary Order under 35 U.S.C. 181) arising out of performing this contract or out of the use or disposal by or for the account of the Owner of supplies furnished or work performed under this contract.

38. ADDITIONAL BOND SECURITY

The Contractor shall promptly furnish additional security required to protect the Owner and persons supplying labor or materials under this contract if--

(a) Any surety upon any bond furnished with this contract becomes unacceptable to the Government;

(b) Any surety fails to furnish reports on its financial condition as required by the Government; or

(c) The contract price is increased so that the penal sum of any bond becomes inadequate in the opinion of the Owner.

39. INSURANCE--WORK ON A GOVERNMENT INSTALLATION

(a) The Contractor shall, at its own expense, provide and maintain during the entire performance period of this contract at least the kinds and minimum amounts of insurance required in the Schedule or elsewhere in the contract.

(b) Before commencing work under this contract, the Contractor shall certify to the Owner in writing that the required insurance has been obtained. The policies evidencing required insurance shall contain and endorsement to the effect that any cancellation or any material change adversely affecting the Government's interest shall not be effective (1) for such period as the laws of the State in which this contract is to be performed prescribe or (2) until 30 days after the insurer or the Contractor gives written notice to the Owner, whichever period is longer.

(c) The Contractor shall insert the substance of this clause, including this paragraph (c), in subcontracts under this contract and shall require subcontractors to provide and maintain

the insurance required in the schedule or elsewhere in the contract. At least 5 days before entry of each such subcontractor's personnel on the installation, the Contractor shall furnish (or ensure that there has been furnished) to the Owner a current certificate of insurance, meeting the requirements of paragraph (b) above, for each such subcontractor.

40. FEDERAL, STATE, AND LOCAL TAXES

(a) "Contract date", as used in this clause, means the date set for bid opening or, if this is a negotiated contract or a modification, the effective date of this contract or modification.

"All applicable Federal, State, and local taxes and duties", as used in this clause, means all taxes and duties, in effect on the contract date, that the taxing authority is imposing and collecting on the transactions or property covered by this contract.

"After-imposed Federal tax", as used in this clause, means any new or increased Federal excise tax or duty, or tax that was exempted or excluded on the contract date but whose exemption was later revoked or reduced during the contract period, on the transactions or property covered by this contract that the Contractor is required to pay or bear as the result of legislative, judicial, or administrative action taking effect after the contract date. It does not include social security tax or other employment taxes.

"After-relieved Federal tax", as used in this clause, means any amount of Federal excise tax or duty, except social security or other employment taxes, that would otherwise have been payable on the transactions or property covered by this contract, but which the Contractor is not required to pay or bear, or for which the Contractor obtains a refund or drawback, as the result of legislative, judicial, or administrative action taking effect after the contract date.

(b) The contract price includes all applicable Federal, State, and local taxes and duties.

(c) The contract price shall be increased by the amount of any after-imposed Federal tax, provided the Contractor warrants in writing that no amount for newly imposed Federal excise tax or duty or rate increase was included in the contract price, as a contingency reserve or otherwise.

(d) The contract price shall be decreased by the amount of after-relieved Federal tax.

(e) The contract price shall be decreased by the amount of any Federal excise tax or duty, except social security or other employment taxes, that the Contractor is required to pay or gear, or does not obtain a refund of, through the Contractor's fault, negligence, or failure to follow instruction of the Owner.

(f) No adjustment shall be made in the contract price under this clause unless the amount of the adjustment exceeds $100.

(g) The Contractor shall promptly notify the Owner of all matters relating to any Federal excise tax or duty that reasonably may be expected to result in either an increase or decrease in the contract price and shall take appropriate action as the Owner directs.

(h) The Owner shall, without liability, furnish evidence appropriate to establish exemption from any Federal, State, or local tax when the Contractor requests such evidence and a reasonable basis exists to sustain the exemption.

41. PAYMENTS UNDER FIXED PRICE CONSTRUCTION CONTRACTS

(a) The Government shall pay the Contractor the contract price as provided in this contract.

(b) The Government shall make progress payments monthly as the work proceeds, on estimates of work accomplished which meets standards of quality established under the contract as approved by the Owner. If requested by the Owner, the Contractor shall furnish a breakdown of the total contract price showing the amount included therein for each principal category of the work, in such detail as requested, to provide a basis for determining progress payments. In the preparation of estimates the Owner may authorize mateial delivered on the site and preparatory work done to be taken into consideration. Material delivered to the Contractor at locations other than the site may also be taken into consideration if--

(1) consideration is specifically authorized by this contract; and

(2) The Contractor furnishes satisfactory evidence that it has acquired title to such material and that the material will be used to perform this contract.

(c) In making these progress payments, the Owner may retain a maximum of ten percent (10%) of the approved estimated amount until final completion and acceptance of the contract work. If the Owner finds that satisfactory progress was achieved during any period for which a progress payment is to be made, the Owner may authorize payment to be made in full without retention of a percentage. However, by the time the work is substantially complete, the Owner shall have retained an amount that the Owner considers adequate protection portion of any excess amount. Also, on completion and acceptance of each separate building, public work, or other division of the contract, for which the price is stated separately in the contract, payment may be made for the completed work without retention of a percentage.

(d) All material and work covered by progress payments made shall, at the time of payment, become the sole property of the Owner, but this shall not be construed as--

(1) Relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work; or

(2) Waiving the right of the Owner to require the fulfillment of all of the terms of the contract.

(e) In making these progress payments the Owner shall, upon request, reimburse the Contractor for the entire amount of premiums paid for performance and payment bonds (including coinsurance and reinsurance agreements, when applicable) after the Contractor has furnished evidence of full payment to the surety.

(f) The Government shall pay the amount due the Contractor under this contract after--

(1) Completion and acceptance of all work;

(2) Presentation of a properly executed voucher; and

(3) Presentation of release of all claims against the Owner arising by virtue of this contract, other than claims, in stated amounts, that the Contractor has specifically excepted from the operation of the release. A release may also be required of the assignee if the Contractor's claim to amounts payable under this contract has been assigned under the Assignment of Claims Act of 1940 (31 U.S.C. 203 and 41 U.S.C. 15).

(g) Not withstanding any other provision of this contract, progress payments shall not exceed eighty percent (80%) on work accomplished on undefinitized contract actions. A "contract action" is any action resulting in a contract, as defined in FAR Subpart 2.1, including contract modifications for additional supplies or services, but not including contract modifications that are within the scope and under the terms of the contract, such as contract modifications issued pursuant to the Changes clause, or funding and other administrative changes.

42. INTEREST

(a) Notwithstanding any other clause of this contract, all amounts that become payable by the Contractor to the Owner under this contact (net of any applicable tax credit under the Internal Revenue Code (26 U.S.C. 1481)) shall bear simple interest from the date due until paid unless paid within 30 days of becoming due. The interest rate shall be the interest rate established by the Secretary of the Treasury as provided in Section 12 of the Contract Disputes Act of 1978 (Public Law 95-563), which is applicable to the period in which the amount becomes due, as provided in paragraph (b) of this clause, and then at the rate applicable for each six-month period as fixed by the Secretary until the amount is paid.

(b) Amounts shall be due at the earliest of the following dates:

(1) The date fixed under this contract.

(2) The date of the first written demand for payment consistent with this contract, including any demand resulting from a default termination.

(3) The date the Owner transmits to the Contractor a proposed supplemental agreement to confirm completed negotiations establishing the amount of debt.

(4) If this contract provides for revision of prices, the date of written notice to the Contractor stating the amount of refund payable in connection with a pricing proposal or a negotiated pricing agreement not confirmed by contract modification.

(c) The interest charge made under this clause may be reduced under the procedures prescribed in 32.614-2 of the Federal Acquisition Regulation in effect on the date of this contract.

43. ASSIGNMENT OF CLAIMS

(a) The Contractor, under the Assignment of Claims Act, as amended, 31 U.S.C. 3727, 41 U.S.C. 15 (hereafter referenced to as the "the Act"), may assign its rights to be paid amounts due or to become due as a result of the performance of this contract to a bank, trust company, or other financing institution, including any Federal lending agency. The assignee under such an assignment may thereafter further assign or reassign its right under the original assignment to any type of financing institution described in the preceding sentence.

(b) Any assignment or reassignment authorized under the Act and this clause shall cover all unpaid amounts payable under this contract, and shall not be made to more than one party, except that an assignment or reassignment may be made to one party as agent or trustee for two or more parties participating in the financing of this contract.

(c) The Contractor shall not furnish or disclose to any assignee under this contract any classified document (including this contract) or information related to work under this contract until the Owner authorizes such action in writing.

44. DISPUTES

(a) This contract is subject to the Contract Disputes Act of 1978 (41 U.S.C. 601-613) (the Act).

(b) Except as provided in the Act, all disputes arising under or relating to this contract shall be resolved under this clause.

(c) "Claim", as used in this clause, means a written demand or written assertion by one of the contracting parties seeking, as a matter of right, the payment of money in a sum certain, the adjustment or interpretation of contract terms, or other relief arising under or relating to this contract. A claim arising under a contract, unlike a claim relating to that contract, is a claim that can be resolved under a contract clause that provides for the relief sought by the claimant. However, a written demand or written assertion by the Contractor seeking the payment of money exceeding $50,000 is not a claim under the Act until certified as required by subparagraph (d)(2) below. A voucher, invoice, or other routine request for payment that is not in dispute when submitted is not a claim under the Act. The submission may be converted to a claim under the Act, by complying with the submission and certification requirements of this clause, if it is disputed either as to liability or amount or is not acted upon in a reasonable time.

(d) (1) A claim by the Contractor shall be made in writing and submitted to the Owner for a written decision. A claim by the Owner against the Contractor shall be subject to a written decision by the Owner.

(2) For Contractor claims exceeding $50,000, the contractor shall submit with the claim a certification that--

(i) The claim is made in good faith;

(ii) Supporting data are accurate and complete to the best of the Contractor's knowledge and belief; and

(iii) The amount requested accurately reflects the contract adjustment for which the Contractor believes the Owner is liable.

(3) (i) If the Contractor is an individual, the certification shall be executed by that individual.

(ii) If the Contractor is not an individual, the certification shall be executed by--

(A) A senior company official in charge at the Contractor's plant or location involved; or

(B) An officer or general partner of the Contractor having overall responsibility for the conduct of the Contractor's affairs.

(e) For Contractor claims of $50,000 or less, the Owner must, if requested in writing by the Contractor, render a decision within 60 days of the request. For Contractor-certified claims over $50,000, the Owner must, within 60 days, decide the claim or notify the Contractor of the date by which the decision will be made.

(f) The Owner's decision shall be final unless the Contractor appeals or files a suit as provided in the Act.

(g) The Owner shall pay interest on the amount found due and unpaid from (1) the date the Owner receives the claim (properly certified if required), or (2) the date payment otherwise would be due, if that date is late, until the date of payment. Simple interest on claims shall be paid at the rate, fixed by the Secretary of the Treasury as provided in the Act, which is applicable to the period during which the Owner receives the claim and then at the rate applicable for each 6-month period as fixed by the Treasury Secretary during the pendency of the claim.

(h) The Contractor shall proceed diligently with performance of this contract, pending final resolution of any request for relief, claim, appeal, or action arising under the contract, and comply with any decision of the Owner.

45. PROTEST AFTER AWARD

(a) Upon receipt of a notice of protest (as defined in 33.101 of the FAR) the Owner may, be written order to the Contractor, direct the Contractor to stop performance of the work called for by this contract. The order shall be specifically identified as a stop-work order issued under this clause. Upon receipt of the order, the Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the order during the period of work stoppage. Upon receipt of the final decision in the protest, the Owner shall either--

(1) Cancel the stop-work order; or

(2) Terminate the work covered by the order as provided in the Default, or the Termination for Convenience of the Government, clause of this contract.

(b) If a stop-work order issued under this clause is canceled either before or after a final decision in the protest, the Contractor shall resume work. The Owner shall make an equitable adjustment in the delivery schedule or contract price, or both, and the contract shall be modified, in writing, accordingly, if-

(1) The stop-work order results in an increase in the time required for, or in the Contractor's cost properly allocable to, the performance of any part of this contract; and

(2) The Contractor requests an adjustment within 30 days after the end of the period of work stoppage; **provided**, that if the Owner decides the facts justify the action, the Owner may receive and act upon the request at any time before final payment under this contract.

(c) If a stop-work order is not canceled and the work covered by the order is terminated for the convenience of the Owner, the Owner shall allow reasonable costs resulting from the stop-work order in arriving at the termination settlement.

(d) If a stop-work order is not canceled and the work covered by the order is terminated for default, the Owner shall allow, by equitable adjustment or otherwise, reasonable costs resulting from the stop-work order.

(e) The Owner's rights to terminate this contract at any time are not affected by action taken under this clause.

46. DIFFERING SITE CONDITIONS

(a) The Contractor shall promptly, and before the conditions are disturbed, give a written notice to the Owner of (1) subsurface or latent physical conditions at the site which differ materially from those indicated in this contract, or (2) unknown physical conditions at the site, of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the contract.

(b) The Owner shall investigate the site conditions promptly after receiving the notice. If the conditions do materially so differ and cause an increase of decrease in the Contractor's cost of, or the time required for, performing any part of the work under this contract, whether on not changed as a result of the conditions, an equitable adjustment shall be made under this clause and the contract modified in writing accordingly.

(c) No request by the Contractor for an equitable adjustment to the contract under this clause shall be allowed, unless the Contractor has given the written notice required; provided, that the time prescribed in (a) above for giving written notice may be extended by the Owner.

(d) No request by the Contractor for an equitable adjustment to the contract for differing site conditions shall be allowed if made after final payment under this contract.

47. SITE INVESTIGATION AND CONDITIONS AFFECTING THE WORK

(a) The Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the

general and local conditions which can affect the work or its cost, including but not limited to (1) conditions bearing upon transportation, disposal, handling, and storage of materials; (2) the availability of labor, water, electric power, and roads; (3) uncertainties of weather, river stages, tides, or similar physical conditions at the site; (4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. The Contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including all exploratory work done by the Owner, as well as from the drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the Owner.

(b) The Owner assumes no responsibility for any conclusions or interpretations made by the Contractor based on the information made available by the Owner. Nor does the Owner assume responsibility for any understanding reached or representation made concerning conditions which can affect the work by any of its officers or agents before the execution of this contract, unless that understanding or representation is expressly stated in this contract.

48. MATERIAL AND WORKMANSHIP

(a) All equipment, material, and articles incorporated into the work covered by this contract shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in this contract. References in the specifications to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. The Contractor may, at its option, use any equipment, material, article, or process that, in the judgment of the Owner, is equal to that in the specifications, unless otherwise specifically provided in this contract.

(b) The Contractor shall obtain the Owner's approval of the machinery and mechanical and other equipment to be incorporated into the work. When requesting approval, the Contractor shall furnish to the Owner the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature, and rating of the machinery and mechanical and other equipment. When required by this contract or by the Owner, the Contractor shall also obtain the Owner's approval of the material or articles which the Contractor contemplates incorporating into the work. When requesting approval, the Contractor shall provide full information concerning the material or articles. When directed to do so, the Contractor shall submit samples for approval at the Contractor's expense, with all

shipping charges prepaid. Machinery, equipment, material, and articles that do not have the required approval shall be installed or used at the risk of subsequent rejection.

(c) All work under this contract shall be performed in a skillful and workmanlike manner. The Owner may require, in writing, that the Contractor remove from the work any employee the Owner deems incompetent, careless, or otherwise objectionable.

49. SUPERINTENDENCE BY THE CONTRACTOR

At all times during performance of this contract and until the work is completed and accepted, the Contractor shall directly superintend the work or assign and have on the work a competent superintendent who is satisfactory to the Owner and has authority to act for the Contractor.

50. PERMITS AND RESPONSIBILITIES

The Contractor shall, without additional expense to the Owner, be responsible for obtaining any necessary licenses and permits, and for complying with any Federal, State, and municipal laws, codes, and regulations applicable to the performance of the work. The Contractor shall also be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence, and shall take proper safety and health precautions to protect the work, the workers, the public, and the property of others. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire work, except for any completed unit of work which may have been accepted under the contract.

51. OTHER CONTRACTS

The Owner may undertake or award other contracts for additional work at or near the site of the work under this contract. The Contractor shall fully cooperate with the other contractors and with the Owner's employees and shall carefully adapt scheduling and performing the work under this contract to accommodate the additional work, heeding any direction that may be provided by the Owner. The Contractor shall not commit or permit any action that will interfere with the performance of work by any other contractor or by the Owner's employees.

52. PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS

(a) The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed and which do not unreasonably interfere with the work required under this contract. The Contractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during contract performance, or by the careless operation of equipment, or by workmen, the Contractor shall trim those limbs or branches with a clean cut and paint the cut with a tree-pruning compound as directed by the Owner.

(b) The Contractor shall protect from damage all existing improvements and utilities (1) at or near the work site and (2) on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. The Contractor shall repair any damage to those facilities, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Owner may have the necessary work performed and charge the cost to the Contractor.

53. OPERATIONS AND STORAGE AREAS

(a) The Contractor shall confine all operations (including storage of materials) on the Owner's premises to areas authorized or approved by the Owner. The Contractor shall hold and save the Owner, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance.

(b) Temporary buildings (e.g., storage sheds, shops, offices) and utilities may be erected by the Contractor only with the approval of the Owner and shall be built with labor and materials furnished by the Contractor without expense to the Owner. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Owner, the buildings and utilities may be abandoned and need not be removed.

(c) The Contractor shall, under regulations prescribed by the Owner, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Owner. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any Federal, State, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.

54. USE AND POSSESSION PRIOR TO COMPLETION

(a) The Owner shall have the right to take possession of or use any completed or partially completed part of the work. Before taking possession of or using any work, the Owner shall furnish the Contractor a list of items of work remaining to be performed or corrected on those portions of the work that the Owner intends to take possession of or use. However, failure of the Owner to list any item of work shall not relieve the Contractor of responsibility for complying with the terms of the contract. The Owner's possession or use shall not be deemed an acceptance of any work under the contract.

(b) While the Owner has such possession or use, the Contractor shall be relieved of the responsibility for the loss of or damage to the work resulting from the Owner's possession or use, notwithstanding the terms of the clause in this contract entitled "Permits and Responsibilities". If prior possession or

use by the Owner delays the progress of the work or causes additional expense to the Contractor, an equitable adjustment shall be made in the contract price or the time of completion, and the contract shall be modified in writing accordingly.

55. CLEANING UP

The Contractor shall at all times keep the work area, including storage areas, free from accumulations of waste materials. Before completing the work, the Contractor shall remove from the work and premises any rubbish, tools, scaffolding, equipment, and materials that are not the property of the Owner. Upon completing the work, the Contractor shall leave the work area in a clean, neat, and orderly condition satisfactory to the Owner.

56. ACCIDENT PREVENTION

(a) In performing this contract, the Contractor shall provide for protecting the lives and health of employees and other persons; preventing damage to property, materials, supplies, and equipment; and avoiding work interruptions. For these purposes, the Contractor shall--

(1) Provide appropriate safety barricades, signs, and signal lights;

(2) Comply with the standards issued by the Secretary of Labor at 29 CFR Part 1926 and 29 CFR Part 1910; and

(3) Ensure that any additional measures the Owner determines to be reasonably necessary for this purpose are taken.

(b) If this contract is with any Department of Defense agency or component, the Contractor shall comply with all pertinent provisions of the U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, dated April 1981, as revised.

(c) The Contractor shall maintain an accurate record of exposure data on all accidents incident to work performed under this contract resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies, or equipment. The Contractor shall report this data in the manner prescribed by the Owner.

(d) The Owner shall notify the Contractor of any noncompliance with these requirements and of the corrective action required. This notice, when delivered to the contractor or the Contractor's representative at the site of the work, shall be deemed sufficient notice of the noncompliance and corrective action required. After receiving the notice, the Contractor shall immediately take corrective action. If the Contractor fails or refuses to take corrective action promptly, the Owner may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall not base any claim or request for equitable adjustment for additional time or money on any stop order issued under these circumstances.

(e) The Contractor shall be responsible for its subcontractor's compliance with this clause.

(f) Before commencing the work, the Contractor shall--

(1) Submit a written proposal for implementing this clause; and

(2) Meet with representatives of the Owner to discuss and develop a mutual understanding relative to administration of the overall safety program.

57. SCHEDULE FOR CONSTRUCTION CONTRACTS

(a) The Contractor shall, within five days after the work commences on the contract or another period of time determined by the Owner, prepare and submit to the Owner for approval three copies of a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work (including acquiring materials, plant, and equipment). The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. If the Contractor fails to submit a schedule within the time prescribed, the Owner may withhold approval of progress payments until the Contractor submits the required schedule.

(b) The Contractor shall enter the actual progress on the chart as directed by the Owner, and upon doing so shall immediately deliver three copies of the annotated schedule to the Owner. If, in the opinion of the Owner, the Contractor falls behind the approved schedule, the Contractor shall take steps necessary to improve its progress, including those that may be required by the Owner, without additional cost to the Owner. In this circumstance, the Owner may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit for approval any supplementary schedule or schedules in chart form as the Owner deems necessary to demonstrate how the approved rate of progress will be regained.

(c) Failure of the Contractor to comply with the requirements of the Owner under this clause shall be grounds for a determination by the Owner that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within the time specified in the contract. Upon making this determination, the Owner may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the default terms of this contract.

58. SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION

(a) The Contractor shall keep on the work site a copy of the drawings and specifications and shall at all times give the Owner access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall govern. In case of discrepancy in the figures, in the drawings, or in the specifications, the matter shall be promptly submitted to the

Owner, who shall promptly made a determination in writing. Any adjustment by the Contractor without such a determination shall be at its own risk and expense. The Owner shall furnish from time to time such detailed drawings and other information as considered necessary, unless otherwise provided.

(b) Wherever in the specifications or upon the drawings the words "directed", "required", "ordered", "designated", "prescribed", or words of like import are used, it shall be understood that the "direction", "requirement", "order", "designation", or "prescription", of the Owner is intended and similarly the words "approved", "acceptable", or "satisfactory", or word of like import shall mean "approved by", or "acceptable to", or "satisfactory to" the Owner, unless otherwise expressly stated.

(c) Where "as shown", "as indicated", "as detailed", or words of similar import are used, it shall be understood that the reference is made to the drawings accompanying this contract unless stated otherwise. The word "provided" as used herein shall be understood to mean "provide complete in place", that is "furnished and installed:.

(d) Shop drawings means drawings, submitted to the Owner by the Contractor, subcontractor, any lower tier subcontractor pursuant to a construction contract, showing in detail (1) the proposed installation (i.e., form, fit, and attachment details) of materials of equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the Contractor to explain in detail specific portions of the work required by the contract. The Owner may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

(e) If this contract requires shop drawings, the Contractor shall coordinate all such drawings, and review them for accuracy, completeness, and compliance with contract requirements and shall indicate its approval thereon as evidence of such coordination and review. Shop drawings submitted to the Owner without review. Shop drawings submitted to the Owner without evidence of the Contractor's approval may be returned for resubmission. The Owner will indicate an approval or disapproval of the shop drawings and if not approved as submitted shall indicate the Owner's reasons therefor. Any work done before such approval shall be at the Contractor's risk. Approval by the Owner shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract, except with respect to variations described and approved in accordance with (f) below.

(f) If shop drawings show variations from the contract requirements, the Contractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the Owner approves any such variation, the Owner shall issue an appropriate contract modification, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued.

(g) The Contractor shall submit to the Owner for approval four copies (unless otherwise indicated) of all shop drawings as called for under the various headings of these specifications. Three sets (unless otherwise indicated) of all shop drawings, will be retained by the Owner and one set will be returned to the Contractor.

(h) This clause shall be included in all subcontracts at any tier.

59. CHANGES

(a) The Owner may, at any time, without notice to the sureties, if any, by written order designated or indicated to be a change order, make changes in the work within the general scope of the contract, including changes--

(1) In the specifications (including drawings and designs);

(2) In the method or manner of performance of the work;

(3) In the Owner-furnished facilities, equipment, materials, services, or site; or

(4) Directing acceleration in the performance of the work.

(b) Any other written or oral order (which, as used in this paragraph (b), includes direction, instruction, interpretation, or determination) from the Owner that causes a change shall be treated as a change order under this clause; provided, that the Contractor gives the Owner written notice stating (1) the date, circumstances, and source of the order and (2) that the Contractor regards the order as a change order.

(c) Except as provided in this clause, no order, statement, or conduct of the Owner shall be treated as a change under this clause or entitle the Contractor to an equitable adjustment.

(d) If any change under this clause causes an increase or decrease in the Contractor's cost of, or the time required for, the performance of any part of the work under this contract, whether or not changed by any such order, the Owner shall make an equitable adjustment and modify the contract in writing. However, except for a "proposal for adjustment" (hereafter referred to as proposal) based on defective specifications, no proposal for any change under paragraph (b) above shall be allowed for any costs incurred more than 20 days before the Contractor gives written notice as required. In the case of defective specifications for which the Owner is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the Contractor in attempting to comply with the defective specifications.

(e) The Contractor must submit any proposal under this clause within 30 days after (1) receipt of a written change order under paragraph (a) above or (2) the furnishing of a written notice under paragraph (b) above, by submitting to the Owner a written statement describing the general nature and amount of the proposal, unless this period is extended by the Owner. The statement of proposal for adjustment may be included in the notice under paragraph (b) above.

(f) No proposal by the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.

60. SUBCONTRACTS

(a) This clause does not apply to firm-fixed-price contracts and fixed-price contracts with economic price adjustment. However, it does apply to subcontracts resulting from unpriced modifications to such contracts.

(b) "Subcontract", as used in this clause, includes but is not limited to purchase orders, and changes and modifications to purchase orders. The Contractor shall notify the Owner reasonably in advance of entering into any subcontract if the Contractor does not have an approved purchasing system and if the subcontract--

(1) Is to be a cost-reimbursement, time-and-materials, or labor-hour contract estimated to exceed $25,000 including any fee:

(2) Is proposed to exceed $100,000; or

(3) Is one of a number of subcontracts with a single subcontractor, under this contract, for the same or related supplies or services, that in the aggregate are expected to exceed $100,000.

(c) The advance notification required by paragraph (b) above shall include--

(1) A description of the supplies or services to be subcontracted;

(2) Identification of the type of subcontract to be used;

(3) Identification of the proposed subcontractor and an explanation of why and how the proposed subcontractor was selected, including the competition obtained;

(4) The proposed subcontract price and the Contractor's cost or price analysis;

(5) The subcontractor's current, complete, and accurate cost or pricing data and Certificate of Current Cost or Pricing Data, if required by other contract provisions;

(6) The subcontractor's Disclosure Statement or Certificate relating to Cost Accounting Standards when such data are required by other provisions of this contract; and

(7) A negotiation memorandum reflecting--

(i) The principal elements of the subcontract price negotiations;

(ii) The most significant considerations controlling establishment of initial or revised prices;

(iii) The reason cost or pricing data were or were not required;

(iv) The extent, if any, to which the Contractor did not rely on the subcontractor's cost or pricing data in determining the price objective and in negotiating the final price;

(v) The extent, if any, to which it was recognized in the negotiation that the subcontractor's cost or pricing data were not accurate, complete, or current; the action taken by the contractor and subcontractor; and the effect of any such defective data on the total price negotiated;

(vi) The reasons for any significant difference between the Contractor's price objective and the price negotiated; and

(vii) A complete explanation of the incentive fee or profit plan when incentives are used. The explanation shall identify each critical performance element, management decisions used to quantify each incentive element, reasons for the incentives, and a summary of all trade-off possibilities considered.

(d) The Contractor shall obtain the Owner's written consent before placing any subcontract for which advance notification is required under paragraph (b) above. However, the Owner may ratify in writing any such subcontract. Ratification shall constitute the consent of the Owner.

(e) Even if the Contractor's purchasing system has been approved, the Contractor shall obtain the Owner's written consent before placing subcontracts that have been selected for special surveillance and so identified in the Schedule of this contract.

(f) Unless the consent or approval specifically provides otherwise, neither consent by the Owner to any subcontract nor approval of the Contractor's purchasing system shall constitute a determination (1) of the acceptability of any subcontract terms or conditions, (2) of the acceptability of any subcontract price or of any amount paid under any subcontract, or (3) to relieve the Contractor of any responsibility for performing this contract.

(g) No subcontract placed under this contract shall provide for payment on a cost-plus-a-percentage-of-cost basis, and any fee payable under cost-reimbursement subcontracts shall not exceed the fee limitations in subsection 15.903(d) of the Federal Acquisition Regulation (FAR).

(h) The Government reserves the right to review the Contractor's purchasing system as set forth in FAR Subpart 44.3.

61.1 GOVERNMENT PROPERTY

Not Applicable.

61.2 GOVERNMENT-FURNISHED PROPERTY

Not Applicable.

62. INSPECTION OF CONSTRUCTION

(a) **Definition.** "Work" includes, but is not limited to, materials, workmanship, and manufacture and fabrication of components.

(b) The Contractor shall maintain an adequate inspection system and perform such inspection as will ensure that the work performed under the contract conforms to contract requirements. The Contractor shall maintain complete inspection records and make them available to the Owner. All work shall be conducted under the general direction of the Owner and is subject to the Owner's inspection and test at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the contract.

(c) Owner inspections and tests are for the sole benefit of the Owner and do not--

(1) Relieve the Contractor of responsibility for providing adequate quality control measures;

(2) Relieve the Contractor of responsibility for damage to or loss of the material before acceptance;

(3) Constitute or imply acceptance; or

(4) Affect the continuing rights of the Owner after acceptance of the completed work under paragraph (i) below.

(d) The presence or absence of an Owner's inspector does not relieve the Contractor from any contract requirement, nor is the inspector authorized to change any term or condition of the specification without the Owner's written authorization.

(e) The Contractor shall promptly furnish, without additional charge, all facilities, labor, and material reasonably needed for performing such safe and convenient inspections and tests as may be required by the Owner. The Owner may charge to the Contractor any additional cost of inspection or test when work is not ready at the time specified by the Contractor for inspection or test, or when prior rejection makes reinspection or retest necessary. The Owner shall perform all inspections and tests in a manner that will not unnecessarily delay the work. Special, full size, and performance tests shall be performed as described in the contract.

(f) The Contractor shall, without charge, replace or correct work found by the Owner not to conform to contract requirements, unless in the public interest the Owner consents to accept the work with an appropriate adjustment in contract price. The Contractor shall promptly segregate and remove rejected material from the premises.

(g) If the Contractor does not promptly replace or correct rejected work, the Owner may (1) by contract or otherwise, replace or correct the work and charge the cost to the Contractor or (2) terminate for default the Contractor's right to proceed.

(h) If, before acceptance of the entire work, the Owner decides to examine already completed work by removing it or tearing it out, the Contractor, on request, shall promptly furnish all necessary facilities, labor, and material. If the work is found to be defective or nonconforming in any material respect due to the fault of the Contractor or its subcontractors, the Contractor shall defray the expenses of the examination and of satisfactory reconstruction. However, if the work is found to meet contract requirements, the Owner shall make an equitable

adjustment for the additional services involved in the examination and reconstruction, including, if completion of the work was thereby delayed, an extension of time.

(i) Unless otherwise specified in the contract, the Owner shall accept, as promptly as practicable after completion and inspection, all work required by the contract or that portion of the work the Owner determines can be accepted separately. Acceptance shall be final and conclusive except for latent defects, fraud, gross mistakes amounting to fraud, or the Owner's rights under any warranty or guarantee.

63. PREFERENCE FOR PRIVATELY OWNED U.S.-FLAG COMMERCIAL VESSELS
Not Applicable.

64. VALUE ENGINEERING - CONSTRUCTION
Not Applicable.

65. TERMINATION FOR CONVENIENCE OF THE GOVERNMENT
Not Applicable.

66. TERMINATION FOR CONVENIENCE OF THE GOVERNMENT

(a) The Owner may terminate performance of work under this contract in whole or, from time to time, in part if the Owner determines that a termination is in the Owner's interest. The Owner shall terminate by delivering to the Contractor a Notice of Termination specifying the extent of termination and the effective date.

(b) After receipt of a Notice of Termination, and except as directed by the Owner, the Contractor shall immediately proceed with the following obligations, regardless of any delay in determining or adjusting any amounts due under this clause:

(1) Stop work as specified in the notice.

(2) Place no further subcontracts or orders (referred to as subcontracts in this clause) for materials, services, or facilities, except as necessary to complete the continued portion of the contract.

(3) Terminate all subcontracts to the extent they relate to the work terminated.

(4) Assign to the Owner, as directed by the Owner, all right, title, and interest of the Contractor under the subcontracts terminated, in which case the Owner shall have the right to settle or to pay any termination settlement proposal arising out of those terminations.

(5) With approval or ratification to the extent required by the Owner, settle all outstanding liabilities and termination settlement proposals arising from the termination of subcontracts; the approval or ratification will be final for purposes of this clause.

(6) As directed by the Owner transfer title and deliver to the Owner (i) the fabricated or unfabricated parts, work in process, completed work, supplies, and other material produced or acquired for the work terminated, and (ii) the completed or partially completed plans, drawings, information, and other to be furnished to the Owner.

(7) Complete performance of the work not terminated.

(8) Take any action that may be necessary, or that the Owner may direct, for the protection and preservation of the property related to this contract that is in the possession of the Contractor and in which the Owner has or may acquire an interest.

(9) Use its best efforts to sell, as directed or authorized the Owner, any property of the types referred to in subparagraph (6) above; provided, however, that the Contractor (1) is not required to extend credit to any purchaser and (ii) may acquire the property under the conditions prescribed by, and at prices approved by, the Owner. The proceeds of any transfer or disposition will be applied to reduce any payments to be made by the Owner under this contract, credited to the price or cost of the work, or paid in any other manner directed by the Owner.

(c) After expiration of the plant clearance period as defined in Subpart 45.6 of the Federal Acquisition Regulation, the Contractor may submit to the Owner a List, certified as to quantity and quality, of termination inventory not previously disposed of, excluding items authorized for disposition by the Owner. The Contractor may request the Owner to remove those items or enter into an agreement for their storage. Within 15 days, the Owner will accept title to those items and remove them or enter into a storage agreement. The Owner may verify the list upon removal of the items, or if stored, within 45 days from submission of the list, and shall correct the list, as necessary, before final settlement.

(d) After termination, the Contractor shall submit a final termination settlement proposal to the Owner in the form and with the certification prescribed by the Owner. The Contractor shall submit the proposal promptly, but no later than 1 year from the effective date of termination, unless extended in writing by the Owner upon written request of the Contractor within this 1-year period. However, if the Owner determines that the facts justify it, a termination settlement proposal may be received and acted on after 1 year or any extension. If the Contractor fails to submit the proposal within the time allowed, the Owner may determine, on the basis of information available, the amount, if any, due the Contractor because of the termination and shall pay the amount determined.

(e) Subject to paragraph (d) above, the Contractor and the Owner may agree upon the whole or any part of the amount to be paid because of the termination. The amount may include a reasonable allowance for profit on work done. However, the agreed amount, whether under this paragraph (e) or paragraph (f) below, exclusive of costs shown in subparagraph (f) (3) below, may not exceed the total contract price as reduced by (a) the amount of payments previously made and (2) the contract price of work not terminated. The contract shall be amended, and the Contractor paid the agreed amount. Paragraph (f) below shall not limit, restrict, or affect the amount that may be agreed upon to be paid under this paragraph.

(f) If the Contractor and the Owner fail to agree on the whole amount to be paid the Contractor because of the termination of work, the Owner shall pay the Contractor the amounts

determined as follows, but without duplication of any amounts agreed upon under paragraph (e) above:

(1) For contract work performed before the effective date of termination, the total (without duplication of any items) of--

(i) The cost of this work;

(ii) The cost of settling and paying termination settlement proposals under terminated subcontracts that are properly chargeable to the terminated portion of the contract if not included in subdivision (i) above; and

(iii) A sum, as profit on (i) above, determined by the Owner under 49.202 of the Federal Acquisition Regulation, in effect on the date of this contract, to be fair and reasonable; however, if it appears that the Contractor would have sustained a loss on the entire contract had it been completed, the Owner shall allow no profit under this subdivision (iii) and shall reduce the settlement to reflect the indicated rate of loss.

(2) The reasonable costs of settlement of the work terminated, including--

(i) Accounting, legal, clerical, and other expenses reasonably necessary for the preparation of termination settlement proposals and supporting data;

(ii) The termination and settlement of subcontracts (excluding the amounts of such settlements); and

(iii) Storage, transportation, and other costs incurred, reasonably necessary for the preservation, protection, or disposition of the termination inventory.

(g) Except for normal spoilage, and except to the extent that the Owner expressly assumed the risk of loss, the Owner shall exclude from the amounts payable to the Contractor under paragraph (f) above, the fair value, as determined by the Owner, of property that is destroyed, lost, stolen, or damaged so as to become undeliverable to the Owner or to a buyer.

(h) The cost principles and procedures of Part 31 of the Federal Acquisition Regulation, in the effect on the date of this contract, shall govern all costs claimed, agreed to, or determined under this clause.

(i) The Contractor shall have the right of appeal, under the Disputes clause, from any determination made by the Owner under paragraph (d), (f), or (k), except that if the Contractor failed to submit the termination settlement proposal within the time provided in paragraph (d) or (k), and failed to request a time extension, there is no right of appeal. If the Owner has made a determination of the amount due under p0paragraph (d), (f), or (k), the Owner shall pay the Contractor (1) the amount determined by the Owner if there is no right of appeal or if no

timely appeal has been taken, or (2) the amount finally determined on an appeal.

(j) In arriving at the amount due the Contractor under this clause, there shall be deducted--

(1) All unliquidated advance or other payments to the contractor under the terminated portion of this contract;

(2) Any claim which the Owner has against the Contractor under this contract; and

(3) The agreed price for, or the proceeds of sale of, materials, supplies, or other things acquired by the Contractor or sold under the provisions of this clause and not recovered by or credited to the Owner.

(k) If the termination is partial, the Contractor may file a proposal with the Owner for an equitable adjustment of the price(s) of the continued portion of the contract. The Owner shall make any equitable adjustment agreed upon. Any proposal by the Contractor for an equitable adjustment under this clause shall be requested within 90 days from the effective date of termination unless extended in writing by the Owner.

(l) (1) The Owner may, under the terms and conditions it prescribes, make partial payments and payments against costs incurred by the Contractor for the terminated portion of the contract, if the Owner believes the total of these payments will not exceed the amount to which the Contractor will be entitled.

(2) If the total payments exceed the amount finally determined to be due, the Contractor shall repay the excess to the Owner upon demand, together with interest computed at the rate established by the Secretary of the Treasury under 50 U.S.C. App. 1215(b)(2). Interest shall be computed for the period from the date the excess payment is received by the Contractor to the date the excess is repaid. Interest shall not be charged on any excess payment due to a reduction in the Contractor's termination settlement proposal because of retention or other disposition of termination inventory until 10 days after the date of the retention or disposition, or a later date determined by the Owner because of the circumstances.

(m) Unless otherwise provided in this contract or by statute, the Contractor shall maintain all records and documents relating to settlement. This includes all books and other evidence bearing on the Contractor's costs and expenses under this contract. The Contractor shall make these records and documents available to the Owner, at the Contractor's office, at all reasonable times, without any direct charge. If approved by the Owner, photographs, microphotographs, or other authentic reproductions may be maintained instead of original records and documents.

67. DEFAULT

(a) If the Contractor refuses or fails to prosecute the work or any separable part, with the diligence that will insure its completion within the time specified in this contract including any extension, or fails to complete the work within this time, the Owner may, by written notice to the Contractor, terminate the right to proceed with the work (or the separable part of the work) that has been delayed. In this event, the

Owner may take over the work and complete it by contract or otherwise, and may take possession of and use any materials, appliances, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to the Owner resulting from the Contractor's refusal or failure to complete the work within the specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the Owner in completing the work.

(b) The Contractor's right to proceed shall not be terminated nor the contractor charged with damages under this clause, if--

(1) The delay in completing the work arises from unforseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include (i) acts of God or of the public enemy, (ii) acts of the Owner in either its sovereign or contractual capacity, (iii) acts of another Contractor in the performance of a contract with the Owner, (iv) fires, (v) floods, (vi) epidemics, (vii) quarantine restrictions, (viii) strikes, (ix) freight embargoes, (x) unusually severe weather, or (xi) delays of subcontractors or suppliers at any tier arising from unforseeable causes beyond the control and without the fault or negligence of both the Contractor and the subcontractors or suppliers; and

(2) The Contractor, within 10 days from the beginning of any delay, notifies the Owner in writing of the causes of delay. The Owner shall ascertain the facts and the extent of delay. If, in the judgment of the Owner, the findings of fact warrant such action, the time for completing the work shall be extended. The findings of the Owner shall be final and conclusive on the parties, but subject to appeal under the Disputes clause.

(c) If, after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the termination had been issued for the convenience of the Owner.

(d) The rights and remedies of the Owner in this clause are in addition to any other rights and remedies provided by law or under this contract.

68. AUTHORIZED DEVIATIONS IN CLAUSES

(a) The use in this solicitation or contract of any Federal Acquisition Regulation (48 CFR Chapter 1) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the date of the clause.

69. COMPOSITION OF CONTRACTOR

If the Contractor hereunder is comprised of more than one legal entity, each such entity shall be jointly and severally liable hereunder.

70. MODIFICATION OF PROPOSALS - PRICE BREAKDOWN

The Contractor, in connection with any proposal he makes for a contract modification, shall furnish a price breakdown, itemized as required by the Owner. Unless otherwise directed, the breakdown shall be in sufficient detail to permit an analysis of all material, labor, equipment, subcontract, and overhead costs, as well as profit, and shall cover all work involved in the modification, whether such work was deleted, added or changed. Any amount claimed for subcontracts shall be supported by a similar price breakdown. In addition, if the proposal includes a time extension, a justification therefore shall also be furnished. The proposal, together with the price breakdown and time extension justification, shall be furnished by the date specified by the Owner.

71. CERTIFICATION OF REQUESTS FOR ADJUSTMENT OR RELIEF EXCEEDING $100,000

(The following clause is applicable if this contract is expected to exceed $100,000 and the procurement instrument identification number is prefixed by the letters "DACA.")

(a) Any contract claim, request for equitable adjustment to contract terms, request for relief under Public Law 85-804, or other similar request exceeding $100,000 shall bear, at the time of submission, the following certification given by a senior company official in charge at the plant or location involved:

> I certify that the claim is made in good faith, that the supporting data are accurate and complete to the best of my knowledge and belief; and that the amount requested accurately reflects the contract adjustment for which the Contractor believes the Owner is liable.

_____
(Official's Name)

_____
(Title)

(b) The certification in paragraph (a) requires full disclosure of all relevant facts, including cost and pricing data.

(c) The certification requirement in paragraph (1) does not apply to:

(1) requests for routine contract payments; for example, those for payment for accepted supplies and services, routine vouchers under cost-reimbursement type contracts, and progress payment invoices; and

(2) final adjustments under incentive provisions of contracts.

(d) In those situations where no claim certification for the purposes of Section 813 has been submitted prior to the inception of a contract dispute, a single certification, using the language prescribed by the Contract Disputes Act signed by a

senior company official in charge at the plant or location involved, will be deemed to comply with both statutes.

72. CONTRACT PRICES - BIDDING SCHEDULES

Payment for the various items listed in the Bidding Schedule shall constitute full compensation for furnishing all plant, labor, equipment, appliances, and materials, and for performing all operations required to complete the work in conformity with the drawings and specifications. All costs for work not specifically mentioned in the Bidding Schedule shall be included in the contract prices for the items listed.

73. PRICING OF ADJUSTMENTS

When costs are a factor in any determination of a contract price adjustment pursuant to the Changes clause or any other clause of this contract, such costs shall be in accordance with Part 31 of the Federal Acquisition Regulation and the DoD FAR Supplement in effect on the date of this contract.

74. ALTERATIONS IN CONTRACT

Portions of this contract are altered as follows:

(a) The following clauses are hereby ADDED:

75. PERFORMANCE EVALUATION OF CONTRACTOR

As a minimum, the Contractor's performance will be evaluated upon final acceptance of the work. However, interim evaluation may be prepared at any time during contract performance when determined to be in the best interest of the Owner.

The form for the evaluation will be Standard Form 1421, and the contractor will be rated either outstanding, satisfactory, or unsatisfactory in the areas of Contractor Quality Control, Timely Performance, Effectiveness of Management, Compliance with Labor Standards, and Compliance with Safety Standards. The Contractor will be advised of any unsatisfactory rating, either in an individual element or in the overall rating, prior to completing the evaluation, and all Contractor comments will be made part of the official record. Performance Evaluation Reports will be available to all DoD Contracting Offices for their future use in determining contractor responsibility, in compliance with DFARS 36.201 (c)(1).

76. ENVIRONMENTAL LITIGATION

(a) If the performance of all or any part of the work is suspended, delayed, or interrupted due to an order of a court of competent jurisdiction as a result of environmental litigation, as defined below, the Owner, at the request of the Contractor, shall determine whether the order is due in any part to the acts or omissions of the Contractor or Subcontractor at any tier not required by the terms of this contract. If it is determined that the order is not due in any part to acts or omissions of the Contractor or Subcontractor at any tier other than as required by the terms of this contract, such suspension, delay or interruption shall be considered as if ordered by the Owner in the administration of this contract under the terms of the "Suspension of Work" clause of this contract. The period of such

suspension, delay or interruption shall be considered unreasonable, and an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) as provided in that clause, subject to all the provisions thereof.

(b) The term "environmental litigation", as used herein, means a law-suit alleging that the work will have an adverse effect on the environment or that the Owner has not duly considered, either substantively or procedurally, the effect of the work on the environment.

SPECIFICATIONS
PART I
SPECIAL CLAUSES

TABLE OF CONTENTS

Paragraph	Description	Page
1	COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK	SC-1
2	EXCLUSION OF PERIODS IN COMPUTING COMPLETION SCHEDULES	SC-1
3	LIQUIDATED DAMAGES - CONSTRUCTION	SC-1
4	CONTRACT DRAWINGS, MAPS AND SPECIFICATIONS	SC-1
5	PERFORMANCE OF WORK BY THE CONTRACTOR	SC-2
6	PHYSICAL DATA	SC-2
7	QUANTITY SURVEYS	SC-3
8	MISPLACED MATERIAL	SC-4
9	SUPERINTENDENCE OF SUBCONTRACTORS	SC-4
10	LAYOUT OF WORK	SC-4
11	CERTIFICATES OF COMPLIANCE	SC-5
12	WORK IN QUARANTINED AREA	SC-6
13	EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE	SC-6
14	DAMAGE TO WORK	SC-6
15	CONTINUITY OF WORK	SC-7
16	INSPECTION	SC-7
17	FINAL EXAMINATION AND ACCEPTANCE	SC-8
18	SHOALING	SC-8
19	CONTRACTOR SUBMITTAL PROCEDURES	SC-8
20	CONTRACTOR QUALITY CONTROL	SC-9
21	DAMAGE TO EXISTING STRUCTURE	SC-14
22	DISPOSAL AREA	SC-14
23	STONE AND AGGREGATE MATERIAL SOURCES	SC-15

24	MARKING OF EQUIPMENT	SC-15
25	PLAN OF OPERATION	SC-16
26	PRE-CONSTRUCTION CONFERENCE	SC-16
27	PROJECT CONSTRUCTION SIGN	SC-16
28	REAL ESTATE	SC-17
29	SAFETY REQUIREMENTS	SC-17
30	SIGNAL LIGHTS	SC-17
31	TEMPORARY FIELD OFFICE	SC-18
32	TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER	SC-18
33	UNAVAILABILITY OF UTILITY SERVICE	SC-19

SPECIFICATIONS
PART I
SPECIAL CLAUSES

1. COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK

The Contractor shall be required to commence work under this contract within ten (10) calendar days after the date Notice to Proceed, prosecute said work diligently, and complete the entire work ready for use not later than one hundred eighty (180) calendar days after receipt by him of written Notice to Proceed. The time stated for completion shall include final cleanup of the premises.

2. EXCLUSION OF PERIODS IN COMPUTING COMPLETION SCHEDULES

No work will be required during the period between 1 December and 30 April inclusive and such period has not been considered in computing the time allowed for completion. The Contractor may, however, perform work during all or any part of this period upon giving prior written notice to the Contracting Officer. If the work performed during such period is less than the average monthly work necessary to complete the contract within the time specified and the owner maintains an inspection force during this period to inspect the work, the Contractor will be charged the percentage of the cost of maintaining such force that his work is less than the average monthly work necessary to complete the contract within the time specified.

3. LIQUIDATED DAMAGES - CONSTRUCTION

If the Contractor fails to complete the work within the time specified in the contract, or any extension, the Contractor shall pay to the Owner as liquidated damages, the sum of three hundred dollars ($300.00) for each day of delay.

4. CONTRACT DRAWINGS, MAPS AND SPECIFICATIONS

(a) One set of sepia of large scale contract drawings, maps and specifications will be furnished the Contractor without charge except applicable publications incorporated into the technical provisions by reference. Additional sets will be furnished on request at the cost of reproduction. The work shall conform to the contract drawings and maps, all of which form a part of these specifications.

(b) Omissions from the drawings or specifications or the misdescription of details of work which are manifestly necessary to carry out the intent of the drawings and specifications, or which are customarily performed, shall not relieve the Contractor

from performing such omitted or misdescribed details of the work but they shall be performed as if fully and correctly set forth and described in the drawings and specifications.

(c) The Contractor shall check all drawings furnished him immediately upon their receipt and shall promptly notify the Owner of any discrepancies. Figures marked on drawings shall in general be followed in preference to scale measurements. The Contractor shall compare all drawings and verify the figures before laying out the work and will be responsible for any errors which might have been avoided thereby.

5. PERFORMANCE OF WORK BY THE CONTRACTOR

The Contractor shall perform on the site, and with its own organization, work equivalent to at least twenty (20) percent of the total amount of work to be performed under this contract.

6. PHYSICAL DATA

Data and information furnished or referred to below is for the contractor's information. The Owner and his Engineer shall not be responsible for any interpretation of or conclusion drawn from the data or information by the Contractor.

(a) The indications of physical conditions on the drawings and in the specifications are the results of site investigations by surveys, soundings and subsurface explorations. The physical condition shown on the drawings are indicative of those that prevailed at the time of the site investigations and may be different than those at the time of construction. Significant variations that would require changes to the facility or specifications shall be reported to the Owner immediately. Information shown on the drawings of logs or borings is from borings located within or near the work areas. While the borings are representative of subsurface conditions at their respective locations and for their respective vertical reaches, localized variations of characteristics of the subsurface materials of this region are anticipated and, if encountered, such variations will not be considered as differing materially within the purview of clause "Differing Site Conditions" of the Contract Clauses. Groundwater elevations shown on the borings are those encountered at the time when the borings were taken and will fluctuate due to factors such as rainfall, lake and/or river stages. Field logs or borings taken in the project area are included in these contract documents.

(b) Weather Conditions. The contractor shall investigate and satisfy himself as to all hazards likely to arise from weather conditions during the performance of his work. Climatological data may be obtained from the Department of Commerce, National Oceanic & Atmospheric Administration and National Weather Service.

(c) Transportation Facilities. The project is accessible by water and highway. The contractor shall investigate and obtain the necessary information and data as to the availability and use of access roads, dock facilities and highways to the site of the work. The contractor shall, without additional expense to the Owner, be responsible for obtaining any necessary permits to operate on or cross public highways and roads in connection with the prosecution of the contract work.

(d) Lake Conditions. The site of work is subject to wave action.

(e) Lake Levels. Data and forecasts are available through a publication "Monthly Bulletin of Lake Levels" by the Department of the Army, Detroit District, Corps of Engineers, P.O. Box 1027, Detroit, Michigan 49231.

(f) The contractor shall acquaint himself with all information and regulations pertaining to navigation and vessel traffic within the waterway at the project site. The contractor shall coordinate with the U.S. Coast Guard to assure that a "NOTICE TO MARINERS" is issued prior to his work activity at the project. The contractor will be required to conduct his work in such manner as to obstruct navigation as little as possible. Upon completion of the work the contractor shall promptly remove his plant, including ranges, buoys, piles, and other marks placed by him under the contract in navigable waters or on the other marks placed by him under the contract in navigable waters or on shore.

(g) Navigation. Information and regulations pertaining to navigation may be obtained from the current issue of the "United States Coast Pilot 6" issued annually by the Department.

7. QUANTITY SURVEYS

(a) Quantity surveys shall be conducted, and the data derived from these surveys shall be used in computing the quantities of work performed and the actual construction completed and in place for interim payment, and to verify quantities at final payment.

(b) The Owner shall conduct the original and final surveys and make the computations based on them. The Contractor shall conduct the surveys for any periods for which progress payments are requested and shall make the computations based on these ducted under the direction of a representative of the Owner.

(c) Promptly upon completing a survey, the Contractor shall furnish the originals of all field notes and all other records relating to the survey or to the layout of the work to the Owner, who shall use them as necessary to determine the amount of progress payments. The Contractor shall retain copies of all such material furnished.

8. MISPLACED MATERIAL

Should the Contractor during the progress of the work, lose, dump, throw overboard, sink or misplace any material, plant, machinery, or appliance, which in the opinion of the Owner may be dangerous to or obstruct navigation, the Contractor shall recover and remove the same with the utmost dispatch. The Contractor shall give immediate notice, with description and location of such obstructions, to the Owner or inspector, and when required shall mark or buoy such obstructions until the same are removed. Should he refuse, neglect, or delay compliance with the above requirements, such obstructions may be removed by the Owner, and the cost of such removal may be deducted from any money due or to become due to the Contractor, or may be recovered under his bond.

9. SUPERINTENDENCE OF SUBCONTRACTORS

(a) The Contractor shall be required to furnish the following, in addition to the superintendence required by the Contract Clause entitled "SUPERINTENDENCE BY THE CONTRACTOR":

(i) If more than 50 % and less than 70% of the value of the contract work is subcontracted, one superintendent shall be provided at the site and on the Contractor's payroll to be responsible for coordinating, directing, inspecting and expediting the subcontract work.

(ii) If 70% or more of the value of the work is subcontracted, the Contractor shall be required to furnish two such superintendents to be responsible for coordinating, directing, inspecting and expediting the subcontract work.

(b) If the Owner, at any time after 50% of the subcontracted work has been completed, finds that satisfactory progress is being made, he may waive all or part of the above requirement for additional superintendence subject to the right to reinstate such requirements if at any time during the progress of the remaining work the Owner finds that satisfactory progress is not being made.

10. LAYOUT OF WORK

(a) The Owner has established bench marks and horizontal control points at the site of the work. These are described and indicated on contract drawings.

(b) From these control points the contractor shall lay out the work by establishing all lines and grades at the site necessary to control the work and shall be responsible for all measurements that may be required for the execution of the work to the location and limit marks prescribed in the specifications

or on the contract drawings. The contractor shall establish and maintain at the site of the work the following horizontal and vertical controls:

See Contract Drawings and Technical Provisions

The above are minimum requirements and the contractor shall place and establish such additional stakes and markers as may be necessary for control and guidance of his construction operations. All survey data shall be recorded in accordance with standard and approved methods. All field notes, sketches, recordings and computations made by the contractor in establishing above horizontal and vertical control points shall be available at all times during the progress of the work for ready examination by the Owner or his duly authorized representative.

(c) The contractor shall furnish, at his own expense, all such stakes, spikes, steel pins, templates, platforms, equipment, tools and material and all labor as may be required in laying out any part of the work from the control points established by the Owner. It shall be the responsibility of the contractor to maintain and preserve all stakes and other markers established by him until authorized to remove them. If any of the control points established at the site by the Owner are destroyed by or through the negligence of the contractor prior to their authorized removal, they may be replaced by the Owner, and the expense of replacement will be deducted from any amount due or which may become due the contractor. The Owner may require that work be suspended at any time when horizontal and vertical control points established at the site by the contractor are not reasonably adequate to permit checking the work. Such suspension will be withdrawn upon proper replacement of the control points.

11. CERTIFICATES OF COMPLIANCE

Any Certificates required for demonstrating proof of compliance of materials with specification requirements shall be executed in five (5) copies. Each certificate shall be signed by an official authorized to certify in behalf of the manufacturing company and shall contain the name and address of the contractor, the project name and location, and the quantity and date or dates of shipment or delivery to which the certificates apply. Copies of laboratory test reports submitted with certificates shall contain the name and address of the testing laboratory and the date or dates of the tests to which the report applies. Certification shall not be construed as relieving the contractor from furnishing satisfactory material, if, after tests are performed on selected samples, the material is found not to meet the specific requirements.

12. WORK IN QUARANTINED AREA

The work called for by this contract involves activities in counties quarantined by the Department of Agriculture to prevent the spread of certain plant pests which may be present in the soil. The Contractor agrees that all construction equipment and tools to be moved from such counties shall be thoroughly cleaned of all soil residues at the construction site with water under pressure and that hand tools shall be thoroughly cleaned by brushing or other means to remove all soil. In addition, if this contract involves the identification, shipping, storage, testing, or disposal of soils from such a quarantined area, the Contractor agrees to comply with the provisions of ER 1110-1-5 and attachments, a copy of which will be made available by the Corps of Engineers upon request. The Contractor agrees to assure compliance with this obligation by all subcontractors.

13. EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE

(a) Allowable cost for construction and marine plant and equipment in sound workable condition owned or controlled and furnished by a contractor or subcontractor at any tier shall be based on actual cost data when the Owner can determine both ownership and operating costs for each piece of equipment or equipment groups of similar serial and series from the contractor's accounting records. When both ownership and operating costs cannot be determined from the contractor's accounting records, equipment costs shall be based upon the applicable provisions of EP 1110-1-8, "Construction Equipment Ownership and Operating Expense Schedule", Region I. Working conditions shall be considered to be average for determining equipment rates using the schedule. For equipment not included in the schedule, rates for comparable pieces of equipment may be used or a rate may be developed using the formula provided in the schedule. For forward pricing, the schedule in effect at the time of negotiations shall apply. For retrospective pricing, the schedule in effect at the time the work was performed shall apply.

(b) Equipment rental costs are allowable, subject to certified copies of pay invoices. Rates for equipment rented from an organization under common control, lease-purchase or sale-leaseback arrangements will be determined using the schedule except that rental costs leased from an organization under common control that has an established practice of leasing the same or similar equipment to unaffiliated lessees are allowable. Costs for major repairs and overhaul are unallowable.

14. DAMAGE TO WORK

The responsibility for damage to any part of the permanent work shall be as set forth in the clause of the contract entitled "Permits and Responsibilities". However, if, in the judgment of

the Owner, any part of the permanent work performed by the contractor is damaged by flood or earthquake, which damage is not due to the failure of the contractor to take reasonable precautions or to exercise sound engineering and construction practices in the conduct of the work, the contractor will make the repairs as ordered by the Owner and full compensation for such repairs will be made at the applicable contract unit or lump sum prices as fixed and established in the contract. If, in the opinion of the Owner, there are no contract unit or lump sum prices applicable to any part of such work an equitable adjustment pursuant to the Contract Clause entitled "Changes", of the contract, will be made as full compensation for the repairs of that part of the permanent work for which there are no applicable contract unit or lump sum prices. Except as herein provided damage to all work (including temporary construction), utilities, materials, equipment and plant shall be repaired to the satisfaction of the Owner at the contractor's expense, regardless of the cause of such damage.

15. CONTINUITY OF WORK

No payment will be made for work done in any area designated by the Owner until the full depth required under the contract is secured in the whole of such area, unless prevented by ledge rock, nor will payment be made for excavation in any area not adjacent to and in prolongation of areas where full depth has been secured except by decision of the Owner. Should any such nonadjacent area be excavated to full depth during the operations carried on under the contract, payment for all work therein may be deferred until the required depth has been made in the area intervening. The contractor may be required to suspend dredging at any time when for any reason the gages or ranges cannot be seen or properly followed.

16. INSPECTION

The inspectors will direct the maintenance of the gauges, ranges, location marks and limit marks in proper order and position; but the presence of the inspector shall not relieve the contractor of responsibility for the proper execution of the work in accordance with the specifications. The contractor will be required:

(a) To furnish, on the request of the Owner or any inspector, the use of such boats, boatmen, laborers, and material forming a part of the ordinary and usual equipment and crew of the dredging plant as may be reasonably necessary in inspecting and supervising the work.

(b) To furnish, on the request of the Owner or any inspector, suitable transportation from all pints on shore designated by the Owner to and from the various pieces of plant, and to and from the dumping grounds.

Should the contractor refuse, neglect, or delay compliance with these requirements, the specific facilities may be furnished and maintained by the Owner, and the cost thereof will be deducted from any amounts due or to become due the contractor.

17. FINAL EXAMINATION AND ACCEPTANCE

(a) As soon as practicable after the completion of the entire work or any section thereof (if the work is divided into sections) as in the opinion of the Owner will not be subject to damage by further operations under the contract, such work will be thoroughly examined at the cost and expense of the contractor by sounding or by sweeping, or both, as determined by the Owner. Should any shoals, lumps, or other lack of contract depth be disclosed by this examination the contractor will be required to remove same by dragging the bottom or by dredging at the contract rate for dredging, but if the bottom is soft and the shoal areas are small and form no material obstruction to navigation, the removal of such shoal may be waived by the discretion of the Owner. The contractor or his authorized representative will be notified when soundings and/or sweepings are to be made, and will be permitted to accompany the survey party. When the area is found to be in a satisfactory condition, it will be accepted finally.

(b) Final acceptance of the whole or a part of the work and deductions or corrections of deductions made thereon will not be reopened after having once been made, except on evidence of collusion, fraud, or obvious error, and the acceptance of a completed section shall not change the time of payment of the retained percentages of the whole or any part of the work.

18. SHOALING

If, before the contract is completed, shoaling occurs in any section previously accepted, including shoaling in the finished channel, because of the natural lowering of the side slopes, redredging, within the limit of available funds, may be done if agreeable to both the contractor and the Owner, at a unit cost to be mutually agreed upon.

19. CONTRACTOR SUBMITTAL PROCEDURES

Within 10 days after receipt of notice to proceed, the contractor shall submit to the Owner, in duplicate, a listing of all submittals and dates. In addition to those items listed, the contractor will furnish submittals for any deviation from the plans and specification. The scheduled need dates must be recorded on the document for each item for control purposes. In preparing the document, adequate time (minimum 30 days) will be allowed for review and approval and possible resubmittal. Scheduling shall be coordinated with the approved progress schedule. The Contractor's Quality Control representative shall

review the listing at least every 30 days and take appropriate action to maintain an effective system. Payment will not be made for any material or equipment which does not comply with contract requirements.

20. CONTRACTOR QUALITY CONTROL (CQC)

(a) GENERAL. The Contractor shall establish and maintain an effective quality control system. The quality control system shall consist of plans, procedures and organization necessary to provide materials, equipment, workmanship, fabrication, construction and operations which comply with contract requirements. The system shall cover construction operations both onsite and offsite, and shall be keyed to the proposed construction sequence.

(b) COORDINATION MEETING. Before start of construction, the contractor shall meet with the Owner or his authorized representative and discuss the contractor's quality control system. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of contractor's inspection and control with the Owner's inspection. Minutes of the meeting shall be prepared and signed by the contractor.

(c) QUALITY CONTROL PLAN

(1) General. The Owner will consider an interim plan for the first days of operation. However, the contractor shall furnish for acceptance by the Owner, not later than ten (10) days after receipt of the Notice to Proceed, the Contractor Quality Control (CQC) Plan with which he proposes to implement the requirements of the Contract Clause entitled "Inspection of Construction". The plan shall identify personnel, procedures, instructions, records and forms to be used. If the contractor fails to submit an acceptable QC plan within the time herein prescribed, the Owner may refuse to allow construction to start if an acceptable interim plan is not furnished or withhold funds from progress payments in accordance with the Contract Clause entitled "Payments Under Fixed-Price Construction Contracts" until such time as the contractor submits and acceptable final plan.

(2) The Quality Control Plan. This plan shall include as minimum, the following:

(a) A description of the quality control organization, including a chart showing lines or authority and acknowledgement that the CQC staff shall implement the

three phase control system for all aspects of the work specified and shall report to the project manager or someone higher in the contractor's organization.

(b) The name, qualifications, duties, responsibilities and authorities of each person assigned a QC function.

(c) A copy of the letter to the QC manager signed by an authorized official of the firm, which describes the responsibilities and delegates the authorities of the QC manager shall be furnished.

(d) Procedures for scheduling and managing submittals, including those of subcontractors, offsite fabricators, suppliers and purchasing agents.

(e) Control testing procedures for each specific test. (Laboratory facilities will be approved by the Owner).

(f) Reporting procedures including proposed reporting formats.

(g) Quantity Monitoring and Notification. The Contractor is responsible for monitoring and controlling his operations in removing the total quantity of pay material dredged. The Contractor shall address his method of monitoring the daily quantity of material removed (i.e. actual surveys augmented by daily production rates) and shall provide written daily notices to the Contracting Officer's Representative of the total estimated amount of pay material removed.

(3) Acceptance of Plan. Acceptance of the contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Owner reserves the right to require the contractor to make changes in his CQC plan and operations as necessary to obtain the quality specified.

(4) Notification of Changes. After acceptance of the QC plan, the contractor shall notify the Owner in writing of any proposed change. Proposed changes are subject to acceptance by the Owner.

(d) QUALITY CONTROL ORGANIZATIONS

(1) CQC System Manager. The contractor shall identify an individual, within his organization at the site of the work, who shall be responsible for overall management

of CQC and have the authority to act in all CQC matters for the contractor. This CQC System Manager shall be acceptable to the Owner.

(2) Personnel. A staff shall be maintained under the direction of the system manager to perform all QC activities. The actual strength of the staff during any specific work period may vary to cover work phase needs, shifts, and rates of placement. The personnel of this staff shall be fully qualified by experience and technical training to perform their assigned responsibilities and shall be directly hired by and work for the prime contractor.

(e) SUBMITTALS. Submittals shall be as specified in the Special Contract Requirement entitled "Contractor Submittal Procedures". The CQC organization shall be responsible for certifying that all submittals are in compliance with the contact requirements.

(f) CONTROL. Contractor Quality Control is the means by which the contractor assures himself that his construction complies with the requirements of the contract plans and specifications. The controls shall be adequate to cover all construction operations, including both onsite and offsite fabrication, and shall be keyed to the proposed construction sequence. The controls shall include at least three phases of control for all definitive features of work as follows:

(1) Preparatory Phase. This phase shall occur prior to beginning any work on any definable feature of work. It shall include a review of contract requirements; a check to assure that all materials and/or equipment have been tested, submitted and approved; a check to assure that provisions have been made to provide required control testing; examination of the work area to ascertain that all preliminary work has been completed; and a physical examination of materials, equipment and sample work to assure that they conform to approved shop drawings or submittal data and that all materials and/or equipment are on hand. The Owner shall be notified at least twenty-four (24) hours in advance of beginning any of the required action of the preparatory phase. The results of the preparatory phase actions shall be made a matter of record in the contractor's quality control documentation as required below. Subsequent to the preparatory phase and prior to the commencement of work, the contractor shall instruct applicable workers as to the acceptable level of workmanship required in his CQC plan in order to meet contract specifications.

(2) Initial Phase. This phase starts as soon as a representative portion of the particular feature of work has been accomplished. This phase shall include examination of the quality of workmanship and a review of control testing for compliance with contract requirements. The work shall be inspected for use of damaged or defective materials, omissions, and dimensional requirements. The Owner shall be notified at least 24 hours in advance of the inspection of the initial phase. The inspection results shall be made a matter of record in the CQC documentation as required below. The initial phase should be repeated for each new crew to work on site, or if acceptable standards of workmanship are not being met.

(3) Follow-up Phase. Daily inspections shall be performed to assure continuing compliance with contract requirements, including control testing, until completion of the particular feature of work. The inspections shall be made a matter of record in the CQC documentation as required below. Final follow up inspections shall be conducted and all deficiencies corrected prior to the start of addition features of work.

(g) TESTS

(1) Testing Procedure. The contractor shall perform tests specified or required to verify that control measures are adequate to provide a product which conforms to contract requirements. The contractor shall procure the services of an industry recognized testing laboratory or he may establish an approved testing laboratory at the project site. A list of tests which the contractor understands he is to perform shall be furnished as a part of the CQC plan to the Owner. The list shall give the test name, specification paragraph containing the test requirements, and the personnel and laboratory responsible for each type of test. The contractor shall perform the following activities and record and provide the following data:

(a) Verify that testing procedures comply with contract requirements.

(b) Verify that facilities and testing equipment are available and comply with testing standards.

(c) Check test instrument calibration data against certified standards.

(d) Verify that recording forms, including all of the test documentation requirements, have been prepared.

(2) Testing

(a) Capability Check. The Owner will have the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques.

(b) Project Laboratory. The Owner will have the right to utilize the contractor's control testing laboratory and equipment to make assurance tests and to check the contractor's testing procedures, techniques, and test results at no additional cost to the Owner.

(c) Transportation of Samples for Testing. Costs incidental to the transportation of samples or materials will be borne by the contractor.

(h) COMPLETION INSPECTION. At the completion of all work or any increment thereof established by a completion time stated in the Special Clause entitled "Commencement, Prosecution and Completion of Work" or stated elsewhere in the specifications, the CQC System Manager shall conduct a completion inspection of the work and develop a 'punch list' of items which do not conform to the approved plans and specifications. Such a list of deficiencies shall be included in the CQC documentation, as required by paragraph (i) below, and shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or his staff shall make a second completion inspection to ascertain that all deficiencies have been corrected and so notify the Owner. The completion inspection and any deficiency corrections required by this paragraph will be accomplished within the timed stated for completion of the entire work or any particular increment thereof if the project is divided into increments by separate completion dates.

(i) DOCUMENTATION.

(1) The contractor shall maintain current records of quality control operations, activities, and tests performed including the work of suppliers and subcontractors. These records shall be on an acceptable form and indicate a description of trades working on the project, the numbers of personnel working, the weather conditions encountered, any delays encountered, and acknowledgement of deficiencies noted along with the corrective actions taken on current and previous deficiencies. In with the corrective actions taken on current and previous deficiencies. In addition, these records shall include factual evidence that required activities or tests have been performed, including but not limited to the following:

(a) Type and number of control activities and tests involved.

(b) Results of control activities or tests.

(c) Nature of defects, causes for rejection etc.

(d) Proposed remedial action.

(e) Corrective actions taken.

(2) These records shall cover both conforming and defective or deficient features and shall include a statement that supplies and materials incorporated in the work comply with the contract. Legible copies of these records shall be furnished to the Owner.

(3) A sample copy of the form required, entitled "Construction Quality Control Management Report", is included at the end of the Special Clauses. The Contractor may reproduce this form for his use.

(j) NOTIFICATION OF NONCOMPLIANCE. The Owner will notify the contractor of any noncompliance with the foregoing requirements. The contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the contractor or his representative at the site of the work, shall be deemed sufficient for the purpose of notification. If the contractor fails or refuses to comply promptly, the Owner may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the contractor.

21. DAMAGE TO EXISTING STRUCTURE

Any damage caused by the contractor's operations shall be repaired at his expense to a condition equal to or better than prior to his construction. Approval of method and materials by the Owner is required to start of repair.

22. DISPOSAL AREA

The Contractor shall be responsible for disposing of excess or unsuitable materials excavated from the project site, disposing of materials from the clearing operation, and disposing of any other waste materials encountered during the prosecution of the work. Environmental protection requirements regarding disposal of waste material shall be as specified in the Technical Provisions entitled "Environmental Protection". Location of the designated disposal area for work under this contract is the responsibility of the contractor.

23. STONE AND AGGREGATE MATERIAL SOURCES

(a) After award of a contract, the Contractor shall designate in writing a source of one combination of sources from which he proposes to furnish each type of stone and aggregate materials. Additional information including: (1) areas and lifts of the quarry and/or pit to be worked, (2) the specific geological stratum or strata to be utilized, (3) available laboratory testing records and (4) previous use records shall be provided by the Contractor for review. Samplings, shipping and testing of materials from sources shall be as follows:

(1) Sampling and Shipping. The Contractor shall provide a suitable sample(s) of the material proposed to be furnished for testing and approval. Stone and aggregate sample(s) shall be furnished and delivered to the laboratory ninety (90) calendar days prior to the need of such material at the site of the work. The ninety (90) calendar days time shall begin at the time the samples are actually received at the laboratory. Samples for acceptance testing shall be provided as required by the Technical Provision entitled "Stone Protection". Samples shall be representative of the size and quality of materials to be used on the project. Material actually furnished under the contract shall be of quality at least as good, in the judgment of the Owner, as sample(s) furnished. The Owner's representative shall be present during sampling and approve the selection of all samples before shipment. The Owner's representative may personally select all samples if he so elects. Sampling and shipping of sample(s) shall be at the Contractor's expense. Sample(s) shall be selected from the proposed sources of supply and shall be shipped and/or delivered to the laboratory selected by the contractor subject to the Owner's approval.

(2) Testing. Necessary testing required to evaluate one proposed source or combination of sources under this paragraph will be made at the expense of the contractor. Testing will be in accordance with the Technical Provision entitled "Stone Protection".

(3) Completion Time. A maximum of sixty (60) calendar days will be allowed to complete evaluation of stone materials. The stated contract completion time will not be extended for sampling and testing.

24. MARKING OF EQUIPMENT

(a) When not in use, all booms and similar unusually high equipment shall be lowered to below the equipment's fixed highest point.

(b) Top fifteen (15) feet of booms shall be painted with fluorescent orange Federal Standard 595A, color 38903 or equal.

(c) All Contractor work vehicles shall be identified by company name.

25. PLAN OF OPERATION

The work shall be performed in accordance with an approved Plan of Operations submitted by the Contractor. The plan shall include the information required to be submitted in the Contract Clauses, Special Contract Requirements, and Technical Provisions. Work schedules shall be included in the plan, and the Contracting Officer shall be notified at least 48 hours in advance of changes in work schedules. The plan shall provide for the coordination of construction activities indicated in the specifications and shown on the contract drawings and include optional roadway and access ramps and traffic control plan.

26. PRECONSTRUCTION CONFERENCE

After award of contract, a conference will be arranged by the Owner between responsible personnel of the Contractor, Owner and their engineer. At this conference, the Contractor will be oriented with respect to procedures and line authority for contractual, administrative, and construction matters.

27. PROJECT CONSTRUCTION SIGN

The Contractor shall provide a project construction sign, as hereinafter specified, which shall be erected within 10 days after the start of work, and, after completion of the contract shall be removed from the site by him. The maintenance of the sign shall be the responsibility of the Contractor during the entire period of the project construction operations. The construction sign is to be located at or immediately adjacent to the pertinent worksite as directed by the Owner. The sign shall be of the design shown on the illustration attached at the end of these Special Clauses, approximately 4 feet by 7 to 8 feet in size, constructed of 3/4-inch exterior grade type A-C plywood. Braced support shall be No. 1 dimension, constructed to the details indicated. Prior to assembly, all wood surfaces of both sign and support shall be primed with one coat of white paint conforming to Federal Specification TT-P-25E, followed by one body and one finish coat of white exterior semi-gloss enamel conforming to Federal Specification TT-E-489G. No separate measurement or payment will be made for the project construction sign. Costs for work required will be considered as being included in the items listed on the bidding schedule. The "NAME OF PROJECT" shall be "SHADE'S BEACH BREAKWATER".

28. REAL ESTATE

(a) Real Estate Rights. Rights for the use of the work areas under the contract have been provided, and the general limits of the areas are shown on the contract drawings.

(b) Additional Real Estate Rights. Any additional real estate rights desired by the Contractor shall be obtained by the Contractor at his own expense. Copies of any such agreements shall be furnished to the Owner for approval before entering thereon. Such agreements shall clearly relieve the Owner of any responsibility for damages resulting from the use of such real estate.

29. SAFETY REQUIREMENTS

(a) General. Contract Clause entitled "Accident Prevention" of this contract requires compliance with all pertinent provisions of Corps of Engineers Manual, EM 385-1-1 dated April 1981, with all current revisions to date of contract, entitled "Safety and Health Requirements Manual". The Contractor will be required to comply with OSHA standards.

(b) Activity Hazard Analysis. The "Accident Prevention Plan" required by EM 385-1-1 shall include, as a separate attachment, a detailed Activity Hazard Analysis of each major phase of work. This analysis shall list all anticipated hazards and specific actions to be taken by the Contractor to prevent injury to personnel or property damage from such hazards. For projects involving major phases of work in successive stages, separate analysis shall be submitted for each such phase immediately prior to commencement of that phase. The analysis for the first phase or in the case of smaller projects, the analysis for the entire project shall be submitted with the "Accident Prevention Plan" required by Contract Clauses prior to the preconstruction conference. The Contractor's submittals will be reviewed for acceptance by designated Owner's personnel prior to the start of any work under this contract.

30. SIGNAL LIGHTS

The Contractor shall display signal lights and conduct his operations in accordance with the General Regulations of the Department of the Army and of the Coast Guard governing lights and day signals to be displayed by towing vessels with tows on which no signals can be displayed, vessels working on wrecks, dredges, and vessels engaged in laying cables or pipe or in submarine or bank protection operations, lights to be displayed on dredge pipe lines, and day signals to be displayed by vessels of more than 65 feet in length moored or anchored in a fairway or channel, and the passing by other vessels or floating plant

working in navigable channels, as approved by the Commandant, U.S. Coast Guard (33 C.F.R. 80.18-80.31a and 33 C.F.R. 95.51-95-70).

31. TEMPORARY FIELD OFFICE

The Contractor shall furnish a field office. The field office shall have a floor area of approximately 300 square feet and shall be of watertight construction, properly insulated and provided with suitable windows and doors. The office shall be heated and electrically lighted and furnished with hot and cold drinking water and include a lavatory and toilet suitably enclosed. A portable chemical toilet may be adequate to meet the requirements for a sanitary facility office shall include a lavatory and toilet suitable office type chairs, drafting table stool, drafting table, copier, four (4) drawer legal size filing cabinet with lock and key, and map rack to the satisfaction of the Owner. During the period of the contract, the Contractor shall furnish janitorial services and all utility services except telephone to the field office. The field office shall remain the property of the Contractor. The Contractor shall submit to the Owner for approval two (2) copies of drawings indicating the type, layout, and location of the field office to be furnished. Payment for the temporary field office will be incidental to the contract work.

32. TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER

1. This provision specifies the procedures for determination of time extensions for unusually severe weather in accordance with the contract clause entitled "Default (Fixed Price Construction)". The listing below defines the monthly anticipated adverse weather for the contract period and is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the geographic location of the project.

MONTHLY ANTICIPATED ADVERSE WEATHER CALENDAR DAYS

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
(31)	(28)	(31)	(30)	(7)	(8)	(4)	(7)	(7)	(7)	(11)	(31)

2. a. The above schedule of anticipated adverse weather will constitute the base line monthly weather time evaluations. Upon acknowledgement of the Notice to Proceed (NTP) and continuing throughout the contract each month, actual adverse weather days will be recorded on a calendar day basis (including weekends and holidays) and compared to the monthly anticipated adverse weather in paragraph 1. above. The term actual adverse weather days shall include days impacted by actual adverse weather days.

b. The number of actual adverse weather days shall be calculated chronologically from the first to the last day in each month. Adverse weather days must prevent work for 50 percent or

more of the contractor's work day and delay work critical to the timely completion of the project. If the number of actual adverse weather days exceeds the number of days anticipated in paragraph 1. above, the Owner will determine whether the contractor is entitled to a time extension. The Owner will convert any qualifying delays to calendar days and issue a modification in accordance with the contract clause entitled "Default (Fixed Price Contraction)".

3. The contractor's schedule must reflect the above anticipated adverse weather delays on all weather dependent activities.

33. UNAVAILABILITY OF UTILITY SERVICES

The responsibility shall be upon the Contractor to provide and maintain at his own expense, adequate utilities for his use for construction and domestic consumption, and to install and maintain necessary connections and lines for same, but only at such locations and in such manner as may be approved by the Owner. Before final acceptance, temporary connections and lines installed by the Contractor shall be removed in a manner satisfactory to the Owner.

OMB NO. 9000-00

BOND

(See Instructions on reverse)

DATE BOND EXECUTED *(Must not be later than bid opening date)*

PRINCIPAL *(Legal name and business address)*

TYPE OF ORGANIZATION *("X" one)*

☐ INDIVIDUAL ☐ PARTNERSHIP

☐ JOINT VENTURE ☐ CORPORATION

STATE OF INCORPORATION

SURETY(IES) *(Name and business address)*

PENAL SUM OF BOND					BID IDENTIFICATION	
PERCENT OF BID PRICE	AMOUNT NOT TO EXCEED				BID DATE	INVITATION NO.
	MILLION(S)	THOUSAND(S)	HUNDRED(S)	CENTS	FOR *(Construction, Supplies or Services)*	

OBLIGATION:

We, the Principal and Surety(ies) are firmly bound to the United States of America (hereinafter called the Government) in the above penal sum. For payment of the penal sum, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally. However, where the Sureties are corporations acting as co-sureties, we, the Sureties, bind ourselves in such sum "jointly and severally" as well as "severally" only for the purpose of allowing a joint action or actions against any or all of us. For all other purposes, each Surety binds itself, jointly and severally with the Principal, for the payment of the sum shown opposite the name of the Surety. If no limit of liability is indicated, the limit of liability is the full amount of the penal sum.

CONDITIONS:

The Principal has submitted the bid identified above.

THEREFORE:

The above obligation is void if the Principal — (a) upon acceptance by the Government of the bid identified above, within the period specified therein for acceptance (sixty (60) days if no period is specified), executes the further contractual documents and gives the bond(s) required by the terms of the bid as accepted within the time specified (ten (10) days if no period is specified) after receipt of the forms by the principal; or (b) in the event of failure so to execute such further contractual documents and give such bonds, pays the Government for any cost of procuring the work which exceeds the amount of the bid.

Each Surety executing this instrument agrees that its obligation is not impaired by any extension(s) of the time for acceptance of the bid that the Principal may grant to the Government. Notice to the surety(ies) of extension(s) are waived. However, waiver of the notice applies only to extensions aggregating not more than sixty (60) calendar days in addition to the period originally allowed for acceptance of the bid.

WITNESS:

The Principal and Surety(ies) executed this bid bond and affixed their seals on the above date.

PRINCIPAL

Signature(s)	1. *(Seal)*	2. *(Seal)*	*Corporate Seal*
Name(s) & Title(s) *(Typed)*	1.	2.	

INDIVIDUAL SURETIES

Signature(s)	1. *(Seal)*	2. *(Seal)*
Name(s) *(Typed)*	1.	2.

CORPORATE SURETY(IES)

SURETY A	Name & Address		STATE OF INC.	LIABILITY LIMIT $	*Corporate Seal*
	Signature(s)	1.	2.		
	Name(s) & Title(s) *(Typed)*	1.	2.		

CORPORATE SURETY(IES) *(Continued)*

SURETY B	Name & Address		STATE OF INC.	LIABILITY LIMIT $	*Corporate Seal*
	Signature(s)	1.	2.		
	Name(s) & Title(s) *(Typed)*	1.	2.		
SURETY C	Name & Address		STATE OF INC.	LIABILITY LIMIT $	*Corporate Seal*
	Signature(s)	1.	2.		
	Name(s) & Title(s) *(Typed)*	1.	2.		
SURETY D	Name & Address		STATE OF INC.	LIABILITY LIMIT $	*Corporate Seal*
	Signature(s)	1.	2.		
	Name(s) & Title(s) *(Typed)*	1.	2.		
SURETY E	Name & Address		STATE OF INC.	LIABILITY LIMIT $	*Corporate Seal*
	Signature(s)	1.	2.		
	Name(s) & Title(s) *(Typed)*	1.	2.		
SURETY F	Name & Address		STATE OF INC.	LIABILITY LIMIT $	*Corporate Seal*
	Signature(s)	1.	2.		
	Name(s) & Title(s) *(Typed)*	1.	2.		
SURETY G	Name & Address		STATE OF INC.	LIABILITY LIMIT $	*Corporate Seal*
	Signature(s)	1.	2.		
	Name(s) & Title(s) *(Typed)*	1.	2.		

INSTRUCTIONS

1. This form is authorized for use when a bid guaranty is required. Any deviation from this form will require the written approval of the Administrator of General Services.

2. Insert the full legal name and business address of the Principal in the space designated "Principal" on the face of the form. An authorized person shall sign the bond. Any person signing in a representative capacity (e.g., an attorney-in-fact) must furnish evidence of authority if that representative is not a member of the firm, partnership, or joint venture, or an officer of the corporation involved.

3. The bond may express penal sum as a percentage of the bid price. In these cases, the bond may state a maximum dollar limitation (e.g., 20% of the bid price but the amount not to exceed _____ dollars).

4. (a) Corporations executing the bond as sureties must appear on the Department of the Treasury's list of approved sureties and must act within the limitation listed herein. Where more than one corporate surety is involved, their names and addresses shall appear in the spaces (Surety A, Surety B, etc.) headed "CORPORATE SURETY(IES)". In the space designated "SURETY(IES)" on the face of the form, insert only the letter identification of the sureties.

(b) Where individual sureties are involved, two or more responsible persons shall execute the bond. A completed Affidavit of Individual Surety (Standard Form 28), for each individual surety shall accompany the bond. The Government may require these sureties to furnish additional substantiating information concerning their financial capability.

5. Corporations executing the bond shall affix their corporate seals. Individuals shall execute the bond opposite the word "Corporate Seal"; and shall affix an adhesive seal if executed in Maine, New Hampshire, or any other jurisdiction requiring adhesive seals.

6. Type the name and title of each person signing this bond in the space provided.

7. In its application to negotiated contracts, the terms "bid" and "bidder" shall include "proposal" and "offeror".

☆ U.S. Government Printing Office: 1985—481-648/39343

PAYMENT BOND

(See instructions on reverse)

DATE BOND EXECUTED *(Must be same or later than date of contract)*

PRINCIPAL *(Legal name and business address)*

TYPE OF ORGANIZATION *("X" one)*

☐ INDIVIDUAL ☐ PARTNERSHIP

☐ JOINT VENTURE ☐ CORPORATION

STATE OF INCORPORATION

SURETY(IES) *(Name(s) and business address(es))*

PENAL SUM OF BOND

MILLION(S)	THOUSAND(S)	HUNDRED(S)	CENTS

CONTRACT DATE	CONTRACT NO.

OBLIGATION:

We, the Principal and Surety(ies), are firmly bound to the United States of America (hereinafter called the Government) in the above penal sum. For payment of the penal sum, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally. However, where the Sureties are corporations acting as co-sureties, we, the Sureties, bind ourselves in such sum "jointly and severally" as well as "severally" only for the purpose of allowing a joint action or actions against any or all of us. For all other purposes, each Surety binds itself, jointly and severally with the Principal, for the payment of the sum shown opposite the name of the Surety. If no limit of liability is indicated, the limit of liability is the full amount of the penal sum.

CONDITIONS:

The above obligation is void if the Principal promptly makes payment to all persons having a direct relationship with the Principal or a subcontractor of the Principal for furnishing labor, material or both, in the prosecution of the work provided for in the contract identified above, and any authorized modifications of the contract that subsequently are made. Notice of those modifications to the Surety(ies) are waived.

WITNESS:

The Principal and Surety(ies) executed this payment bond and affixed their seals on the above date.

PRINCIPAL

Signature(s)	1. *(Seal)*	2. *(Seal)*	*Corporate Seal*
Name(s) & Title(s) *(Typed)*	1.	2.	

INDIVIDUAL SURETY(IES)

Signature(s)	1. *(Seal)*	2. *(Seal)*
Name(s) *(Typed)*	1.	2.

CORPORATE SURETY(IES)

SURETY A	Name & Address		STATE OF INC.	LIABILITY LIMIT $	*Corporate Seal*
	Signature(s)	1.	2.		
	Name(s) & Title(s) *(Typed)*	1.	2.		

CORPORATE SURETY(IES) *(Continued)*

SURETY B	Name & Address		STATE OF INC.	LIABILITY LIMIT $	*Corporate Seal*
	Signature(s)	1.	2.		
	Name(s) & Title(s) *(Typed)*	1.	2.		
SURETY C	Name & Address		STATE OF INC.	LIABILITY LIMIT $	*Corporate Seal*
	Signature(s)	1.	2.		
	Name(s) & Title(s) *(Typed)*	1.	2.		
SURETY D	Name & Address		STATE OF INC.	LIABILITY LIMIT $	*Corporate Seal*
	Signature(s)	1.	2.		
	Name(s) & Title(s) *(Typed)*	1.	2.		
SURETY E	Name & Address		STATE OF INC.	LIABILITY LIMIT $	*Corporate Seal*
	Signature(s)	1.	2.		
	Name(s) & Title(s) *(Typed)*	1.	2.		
SURETY F	Name & Address		STATE OF INC.	LIABILITY LIMIT $	*Corporate Seal*
	Signature(s)	1.	2.		
	Name(s) & Title(s) *(Typed)*	1.	2.		
SURETY G	Name & Address		STATE OF INC.	LIABILITY LIMIT $	*Corporate Seal*
	Signature(s)	1.	2.		
	Name(s) & Title(s) *(Typed)*	1.	2.		

INSTRUCTIONS

1. This form, for the protection of persons supplying labor and material, is used when a payment bond is required under the Act of August 24, 1935, 49 Stat. 793 (40 U.S.C. 270 a–270e). Any deviation from this form will require the written approval of the Administrator of General Services.

2. Insert the full legal name and business address of the Principal in the space designated "Principal" on the face of the form. An authorized person shall sign the bond. Any person signing in a representative capacity (e.g., an attorney-in-fact) must furnish evidence of authority if that representative is not a member of the firm, partnership, or joint venture, or an officer of the corporation involved.

3. (a) Corporations executing the bond as sureties must appear on the Department of the Treasury's list of approved sureties and must act within the limitation listed therein. Where more than one corporate surety is involved, their names and addresses shall appear in the spaces (Surety A, Surety B, etc.) headed "CORPORATE SURETY(IES)". In the space designated "SURETY(IES)" on the face of the form, insert only the letter identification of the sureties.

(b) Where individual sureties are involved, two or more responsible persons shall execute the bond. A completed Affidavit of Individual Surety (Standard Form 28), for each individual surety, shall accompany the bond. The Government may require these sureties to furnish additional substantiating information concerning their financial capability.

4. Corporations executing the bond shall affix their corporate seals. Individuals shall execute the bond opposite the word "Corporate Seal"; and shall affix an adhesive seal if executed in Maine, New Hampshire, or any other jurisdiction regarding adhesive seals.

5. Type the name and title of each person signing this bond in the space provided.

☆GPO : 1983 O – 381-526 (9058)

PERFORMANCE BOND

(See Instructions on reverse)

PRINCIPAL *(Legal name and business address)*	DATE BOND EXECUTED *(Must be same or later than date of contract)*
	TYPE OF ORGANIZATION ("X" one) ☐ INDIVIDUAL ☐ PARTNERSHIP ☐ JOINT VENTURE ☐ CORPORATION
	STATE OF INCORPORATION
SURETY(IES) *(Name(s) and business address(es))*	PENAL SUM OF BOND: MILLION(S) / THOUSAND(S) / HUNDRED(S) / CENTS
	CONTRACT DATE / CONTRACT NO.

OBLIGATION:

We, the Principal and Surety(ies), are firmly bound to the United States of America (hereinafter called the Government) in the above penal sum. For payment of the penal sum, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally. However, where the Sureties are corporations acting as co-sureties, we, the Sureties, bind ourselves in such sum "jointly and severally" as well as "severally" only for the purpose of allowing a joint action or actions against any or all of us. For all other purposes, each Surety binds itself, jointly and severally with the Principal, for the payment of the sum shown opposite the name of the Surety. If no limit of liability is indicated, the limit of liability is the full amount of the penal sum.

CONDITIONS:

The Principal has entered into the contract identified above.

THEREFORE:

The above obligation is void if the Principal —

(a)(1) Performs and fulfills all the undertakings, covenants, terms, conditions, and agreements of the contract during the original term of the contract and any extensions thereof that are granted by the Government, with or without notice to the Surety(ies), and during the life of any guaranty required under the contract, and (2) perform and fulfills all the undertakings, covenants, terms conditions, and agreements of any and all duly authorized modifications of the contract that hereafter are made. Notice of those modifications to the Surety(ies) are waived.

(b) Pays to the Government the full amount of the taxes imposed by the Government, if the said contract is subject to the Miller Act, (40 U.S.C. 270a-270e), which are collected, deducted, or withheld from wages paid by the Principal in carrying out the construction contract with respect to which this bond is furnished.

WITNESS:

The Principal and Surety(ies) executed this performance bond and affixed their seals on the above date.

PRINCIPAL			
Signature(s)	1. *(Seal)*	2. *(Seal)*	*Corporate Seal*
Name(s) & Title(s) *(Typed)*	1.	2.	

INDIVIDUAL SURETY(IES)		
Signature(s)	1. *(Seal)*	2. *(Seal)*
Name(s) *(Typed)*	1.	2.

CORPORATE SURETY(IES)					
SURETY A	Name & Address		STATE OF INC.	LIABILITY LIMIT $	*Corporate Seal*
	Signature(s)	1.	2.		
	Name(s) & Title(s) *(Typed)*	1.	2.		

CORPORATE SURETY(IES) *(Continued)*

SURETY B	Name & Address		STATE OF INC.	LIABILITY LIMIT $	*Corporate Seal*
	Signature(s)	1.	2.		
	Name(s) & Title(s) *(Typed)*	1.	2.		
SURETY C	Name & Address		STATE OF INC.	LIABILITY LIMIT $	*Corporate Seal*
	Signature(s)	1.	2.		
	Name(s) & Title(s) *(Typed)*	1.	2.		
SURETY D	Name & Address		STATE OF INC.	LIABILITY LIMIT $	*Corporate Seal*
	Signature(s)	1.	2.		
	Name(s) & Title(s) *(Typed)*	1.	2.		
SURETY E	Name & Address		STATE OF INC.	LIABILITY LIMIT $	*Corporate Seal*
	Signature(s)	1.	2.		
	Name(s) & Title(s) *(Typed)*	1.	2.		
SURETY F	Name & Address		STATE OF INC.	LIABILITY LIMIT $	*Corporate Seal*
	Signature(s)	1.	2.		
	Name(s) & Title(s) *(Typed)*	1.	2.		
SURETY G	Name & Address		STATE OF INC.	LIABILITY LIMIT $	*Corporate Seal*
	Signature(s)	1.	2.		
	Name(s) & Title(s) *(Typed)*	1.	2.		

BOND PREMIUM ▶	RATE PER THOUSAND	TOTAL
	$	$

INSTRUCTIONS

1. This form is authorized for use in connection with Government contracts. Any deviation from this form will require the written approval of the Administrator of General Services.

2. Insert the full legal name and business address of the Principal in the space designated "Principal" on the face of the form. An authorization person shall sign the bond. Any person signing in a representative capacity (e.g., an attorney-in-fact) must furnish evidence of authority if that representative is not a member of the firm, partnership, or joint venture, or an officer of the corporation involved.

3. (a) Corporations executing the bond as sureties must appear on the Department of the Treasury's list of approved sureties and must act within the limitation listed therein. Where more than one corporate surety is involved, their names and addresses shall appear in the spaces (Surety A, Surety B, etc.) headed "CORPORATE SURETY(IES)". In the space designated "SURETY(IES)" on the face of the form insert only the letter identification of the sureties.

(b) Where individual sureties are involved, two or more responsible persons shall execute the bond. A completed Affidavit of Individual Surety (Standard Form 28), for each individual surety, shall accompany the bond. The Government may require these sureties to furnish additional substantiating information concerning their financial capability.

4. Corporations executing the bond shall affix their corporate seals. Individuals shall execute the bond opposite the word "Corporate Seal", and shall affix an adhesive seal if executed in Maine, New Hampshire, or any other jurisdiction requiring adhesive seals.

5. Type the name and title of each person signing this bond in the space provided.

CONSTRUCTION QUALITY CONTROL MANAGEMENT REPORT

DATE_____ Report No._____

CONTRACTOR_____ CONTRACT NO._____

PROJECT NAME_____ LOCATION_____

WEATHER: TYPE_____ TEMP. MAX_____ MIN_____ RAINFALL_____ GAUGE READING_____

EMPLOYEES: SUPV._____ SKILLED_____ LABORERS_____ LENGTH OF SHIFT_____ HRS.

WORK RESPONSIBILITY: NAME (PRIME OR SUBCONTRACTOR) AND AREA OF RESPONSIBILITY.

a._____

b._____

c._____

d._____

e._____

WORK PERFORMED TODAY: LOCATION, DESCRIPTION, QUANTITY AND RESPONSIBILITY BY LETTER REF.
(Relate to Items on the Progress Chart or CPM)

INSPECTION: (Description of Inspection and Location. Include Off-Site, Materials, and Equipment Inspection.)

a. PREPARATORY PHASE:

b. INITIAL PHASE:

c. CONTINUOUS PHASE:

RESULTS OF INSPECTION: (Include Findings Deficiences Observed & Corrective Action)

(OVER)

RESULTS OF INSPECTIONS CONTINUED:

TEST PERFORMED: Type, Location, Results Including Failures & Remedial Action. (Attach copy of test report or notation when it will be furnished.)

WORK ITEMS BEHIND SCHEDULE: Reason, Effect on Progress Schedule and Actions Taken.

JOB SAFETY: (Report conditions, deficiencies, corrective action & results.)

REMARKS: List Attachments and Other Management Actions Taken to Assure Quality construction.

IF INSPECTIONS & RESULTS ARE NOT LISTED THAN IT IS ASSUMED THAT QUALITY CONTROL IS NOT BEING IMPLEMENTED.

The above report is complete and correct and all materials & supplies incorporated in work are in compliance with the terms of the contract except as noted:

CONTRACTOR'S APPROVED REPRESENTATIVE SIGNATURE

SHADES BEACH
HARBORCREEK TOWNSHIP, PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS

INDEX

SECTION	TITLE
	DIVISION 1
1A	ENVIRONMENTAL PROTECTION
	DIVISION 2
2A	STONE PROTECTION
2B	BREAKWATER AND REVETMENT EXCAVATION AND REVETMENT BACKFILL
2C	GEOTEXTILE USED AS FILTERS
2D	NAVIGATION LIGHT STANDARDS AND FOUNDATIONS
2E	DREDGING
2F	BEACH SAND FILL
2G	FLOATING DOCKS
	DIVISION 3
3A	CONCRETE
3B	STEEL BARS AND ACCESSORIES FOR CONCRETE REINFORCEMENT
3C	FORMWORK FOR CONCRETE
3D	EXPANSION, CONTRACTION, AND CONSTRUCTION JOINTS IN CONCRETE
	DIVISION 4
	NOT USED
	DIVISION 5
5A	MISCELLANEOUS METAL MATERIALS, STANDARD ARTICLES AND SHOP FABRICATED ITEMS
5B	METALWORK FABRICATION AND MISCELLANEOUS PROVISIONS

SHADES BEACH
HARBORCREEK TOWNSHIP,PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS
DIVISION 1
SECTION 1A

ENVIRONMENTAL PROTECTION

TABLE OF CONTENTS

PARAGRAPH	DESCRIPTION	PAGE
1	SCOPE	1A-1
2	QUALITY CONTROL	1A-1
3	SUBMITTALS	1A-1
4	SUBCONTRACTORS	1A-2
5	NOTIFICATION	1A-2
6	PROTECTION OF ENVIRONMENTAL RESOURCES	1A-2
7	POST CONSTRUCTION CLEANUP	1A-4
8	RESTORATION OF LANDSCAPE DAMAGE	1A-4
9	MAINTENANCE OF POLLUTION CONTROL FACILITIES	1A-5
10	TRAINING OF CONTRACTOR PERSONNEL IN POLLUTION CONTROL	1A-5
11	PAYMENT	1A-5

SHADES BEACH
HARBORCREEK TOWNSHIP, PA

SPECIFICATIONS
PART II
DIVISION I
SECTION 1A

ENVIRONMENTAL PROTECTION

1. SCOPE. This section covers prevention of environmental damage as the result of the construction operations under this contract and for those measures set forth in other Technical Provisions of these specifications. For the purpose of this specification, environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for aesthetic, cultural and/or historical purposes. The control of environmental pollution and damage requires consideration of air, water, and land, and includes management of visual aesthetics, noise, solid waste, as well as other pollutants.

2. QUALITY CONTROL. The Contractor shall establish and maintain quality control for environmental protection of all items set forth herein. The Contractor shall record on daily reports any problems in complying with laws, regulations and ordinances, and corrective action taken.

3. SUBMITTALS. The Contractor shall submit an environmental protection plan in accordance with provisions as herein specified.

3.1 Environmental Protection Plan shall include but not be limited to the following:

(1) A list of Federal, State and local laws, regulations and permits concerning environmental protection, pollution control and abatement that are applicable to the Contractor's proposed operations and the requirements imposed by those laws, regulations and permits.

(2) Methods for protection of features to be preserved within authorized work areas. The Contractor shall prepare a listing of methods to protect resources needing protection, i.e., trees, shrubs, vines, grasses and ground cover, landscape features, air and water quality, fish and wildlife, soil, historical, archaeological and cultural resources.

(3) Procedures to be implemented to provide that required environmental protection and to comply with the applicable laws and regulations. The Contractor shall set out the procedures to be followed to correct pollution of the environment due to accident, natural causes or failure to follow the procedures set out in accordance with the environmental protection plan.

(4) Environmental monitoring plans for the job site, including land, water, air, and noise monitoring.

(5) Methods of protecting surface and ground water during construction activities.

3.2 Implementation. After receipt of Notice to Proceed, the Contractor shall submit in writing the above Environmental Protection Plan within 15 days of said receipt. Approval of the Contractor's plan will not relieve the Contractor of his responsibility for adequate and continuing control of pollutants and other environmental protection measures.

4. SUBCONTRACTORS. Assurance of compliance with this section by subcontractors will be the responsibility of the Contractor.

5. NOTIFICATION. The Owner will notify the Contractor in writing of any observed noncompliance with the aforementioned Federal, State or local laws or regulations, permits, and other elements of the Contractor's environmental protection plan. The Contractor shall, after receipt of such notice, inform the Owner of proposed corrective action and take such action as may be approved. If the Contractor fails to comply promptly, the Owner may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions shall be granted or costs or damages allowed to the Contractor for any such suspension.

6. PROTECTION OF ENVIRONMENTAL RESOURCES. The environmental resources within the project boundaries and those affected outside the limits of permanent work under this contract shall be protected during the entire period of this contract. The Contractor shall confine his activities to areas defined by the drawings and specifications. Environmental protection shall be as stated in the following subparagraphs.

6.1 Protection of Land Resources. Prior to the beginning of any construction, the Contractor shall identify all land resources to be preserved within the Contractor's work area. The Contractor shall not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, top soil, and land forms without special permission from the Owner. No ropes, cables, or guys shall be fastened to or attached to any trees for anchorage unless specifically authorized. Where such special

emergency use is permitted, the Contractor shall provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs.

6.1.1 Work Area Limits. Prior to any construction, the Contractor shall mark the areas that are not required to accomplish all work to be performed under this contract. Monuments and markers shall be protected before construction operations commence. Where construction operations are to be conducted during darkness, the markers shall be visible. The Contractor shall convey to his personnel the purpose of marking and/or protection of all necessary objects.

6.1.2 Protection of Landscape. Trees, shrubs, vines, grasses, land forms, and other landscape features indicated and defined on the drawings to be preserved shall be clearly identified by marking, fencing, or wrapping with boards, or any other approved techniques.

6.1.3 Reduction of Exposure of Unprotected Erodible Soils. Earthwork brought to final grade shall be finished as indicated and specified. Side slopes and back slopes shall be protected as soon as practicable upon completion of rough grading. All earthwork shall be planned and conducted to minimize the duration of exposure of unprotected soils.

6.1.4 Location of Field Offices, Storage, and Other Contractor Facilities. The Contractor's field offices, staging areas, stockpile storage, and temporary buildings shall be placed in areas as approved by the Owner. Temporary movement or relocation of Contractor facilities shall be made only on approval by the Owner.

6.1.5 Temporary Excavations and Embankments for plant and/or work areas shall be controlled to protect adjacent areas from despoilment.

6.1.6 Disposal of Solid Waste. Solid wastes (excluding clearing debris) shall be placed in containers which are emptied on a regular schedule. All handling and disposal shall be conducted to prevent contamination.

6.2 Preservation and Recovery of Historical, Archaeological and Cultural Resources. If during construction activities the Contractor observes unusual items that might have historical or archaeological value, such observations shall be reported as soon as practicable to the Owner.

6.3 Protection of Water Resources. The Contractor shall keep construction activities under surveillance, management, and control to avoid pollution of surface and ground waters. Special management techniques as set out below shall be implemented to control water pollution by the listed construction activities

which are included in this contract. The Contractor shall practice water conservation during all operations.

6.3.1 Washing and Curing Water. Water used in concrete curing, concrete lift cleanup or other wastewater shall not be allowed to reenter public waters if a significant increase in the turbidity of the public water will result therefrom.

6.3.2 Stream Crossings shall be controlled during construction. Crossings shall provide movement of materials or equipment which do not violate water pollution control standards of the Federal, State or local Government.

6.3.3 Monitoring of Water Areas Affected by Construction Activities shall be the responsibility of the Contractor. All water areas affected by construction activities shall be monitored by the Contractor.

6.4 Protection of Fish and Wildlife Resources. The Contractor shall keep construction activities under surveillance, management, and control to minimize interference with, disturbance to and damage of fish and wildlife.

6.5 Protection of Air Resources. The Contractor shall keep construction activities under surveillance, management and control to minimize pollution of air resources. All activities, equipment, processes, and work operated or performed by the Contractor in accomplishing the specified construction shall be in strict accordance with State laws and all Federal emission and performance laws and standards. Ambient Air Quality Standards set by the Environmental Protection Agency shall be maintained for those construction operations and activities specified in this section. Special management techniques as set out below shall be implemented to control air pollution by the construction activities which are included in the contract.

6.5.1 Particulates. Dust particles from all construction activities, processing and preparation of materials, shall be controlled at all times, including weekends, holidays and hours when work is not in progress.

6.5.1.1 Particulates Control. The Contractor shall maintain all excavations, stockpiles, haul roads, permanent and temporary access roads, spoil areas, and all other work areas within or outside the project boundaries free from particulates which would cause the air pollution standards mentioned in paragraph 6.5 above to be exceeded or which would cause a hazard or a nuisance. Sprinkling, chemical treatment of an approved type or a light bituminous treatment, or other methods as approved will be permitted to control particulates in the work area. Sprinkling, to be efficient, must be repeated at such

intervals as to keep the disturbed area damp at all times. The Contractor must have sufficient competent equipment available to accomplish this task. Particulate control shall be performed as the work proceeds and whenever a particulate nuisance or hazard occurs.

6.5.2 Hydrocarbons and Carbon Monoxide. Hydrocarbons and carbon monoxide emissions from equipment shall be controlled to Federal and State allowable limits at all times.

6.5.3 Odors. Odors shall be controlled at all times for all construction activities, processing and preparation of materials.

6.5.4 Monitoring of Air Quality shall be the responsibility of the Contractor. All air areas affected by the construction activities shall be monitored by the Contractor.

6.6 Protection of Sound Intrusions. The Contractor shall keep construction activities under surveillance and control to minimize damage to the environment by noise.

7. POST CONSTRUCTION CLEANUP. The Contractor shall clean up all areas used for construction.

8. RESTORATION OF LANDSCAPE DAMAGE. The Contractor shall restore all landscape features damaged or destroyed during construction operations outside the limits of the approved work areas. Such restoration shall be in accordance with the plan submitted by the Contractor to the Owner for approval. This work will be accomplished at tthe Contractor's expense.

9. MAINTENANCE OF POLLUTION CONTROL FACILITIES. The Contractor shall maintain all constructed facilities and portable pollution control devices for the duration of the contract or for that length of time construction activities create the particular pollutant.

10. TRAINING OF CONTRACTOR PERSONNEL IN POLLUTION CONTROL. The Contractor shall train his personnel in all phases of environmental protection. The training shall include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual, and installation and care of facilities (vegetative covers, and instruments required for monitoring purposes) to ensure adequate and continuous environmental pollution control.

11. PAYMENT. No separate payment or direct payment will be made for the cost of the work covered under his section, and such work will be considered as a subsidiary obligation of the Contractor.

SHADES BEACH
HARBORCREEK TOWNSHIP, PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS
DIVISION 2
SECTION 2A

STONE PROTECTION

TABLE OF CONTENTS

PARAGRAPH	DESCRIPTION	PAGE
1	SCOPE	2A-1
2	APPLICABLE PUBLICATIONS	2A-1
3	MATERIALS	2A-4
4	GRADATION	2A-7
5	PLACEMENT	2A-9
6	CONTRACTOR QUALITY CONTROL	2A-11
7	DEBRIS	2A-16
8	MEASUREMENT	2A-16
9	PAYMENT	2A-16

SHADES BEACH
HARBORCREEK TOWNSHIP, PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS
DIVISION 2
SECTION 2A

STONE PROTECTION

1. SCOPE. The work covered by this section consists of furnishing all plant, labor, equipment and materials and performing all operations in connection with the construction of the rubblemound breakwaters and other miscellaneous stone protection, shown on the contract drawings and in accordance with these specifications and conditions of the contract.

2. APPLICABLE PUBLICATIONS. The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of his specification to the extent indicated by references thereto:

2.1 The Corps of Engineers' Handbook for Concrete and Cement (CRD), and both the corresponding American Society for Testing and Materials (ASTM) Publications and the Corps of Engineers' Rock Testing Handbook (RTH) test numbers where applicable.

CRD-C 107-82, ASTM C127-84, and RTH 107-80.	Standard Method of Test for Specific Gravity, Absorption and Unit Weight of Coarse Aggregate and Riprap.
CRD-C 127-85 and ASTM C295-85.	Standard Practice for Petrographic Examination of Aggregates for Concrete.
CRD-C 137-77 and ASTM C88-83.	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.
CRD-C 144-73.	Method of Testing Stone for Resistance to Freezing and Thawing.

CRD-C 145-81, ASTM C535-81 and RTH 115-80.	Standard Test Method for Resistance to Degradation of Large Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
CRD-C 148-69.	Method of Testing Stone for Expansive Breakdown on Soaking in Ethylene Glycol.

2.2 American Society for Testing and Materials (ASTM) Publications.

ASTM D653-86	Standard Terms and Symbols Relating to Soil and Rock.
ASTM D2664-86	Standard Test Method for Triaxial Compressive Strength of Undrained Rock Core Specimens Without Pore Pressure Measurements.
ASTM D2845-83	Standard Method for Laboratory Determination of Pulse Velocities and Ultrasonic Elastic Constants of Rock.
ASTM D2936-84	Standard Test Method for Direct Tensile Strength of Intact Rock Core Specimens.
ASTM D2938-86	Standard Test Method for Unconfined Compressive Strength of Intact Rock Core Specimens.

2.3 U.S. Department of Commerce National Bureau of Standards Handbook.

H44 (1985)	Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices.

2.4 <u>The Corps of Engineers Rock Testing Handbook (RTH) and corresponding American Society for Testing and Materials (ASTM) where applicable.</u>

RTH 102-80.	Recommended Practice for Petrographic Examination of Rock Cores.
RTH 103-80.	Preparation of Test Specimens.
RTH 106-80.	Method for Determination of the Water Content of a Rock Sample.
RTH 108-80.	Method of Determining Specific Gravity of Solids.
RTH 109-80	Method of Determining Effective (as Received) and Dry Unit Weights and Total Porosity of Rock Cores.
RTH 201-80 and ASTM D3148-86	Standard Test Method for Elastic Moduli of Intact Rock Core Specimens in Uniaxial Compression.
RTH 203-80	Direct Shear Strength of Rock Specimens.

3. MATERIALS.

3.1 General. The materials to be furnished shall meet all requirements specified in this section of the specifications. The Owner, at any time during the contract, shall reject materials at the source or job site not meeting the specified requirements. Inspection of materials at the quarry and/or job site by the Owner will be as specified in paragraph 6.5, "Quality assurance." Inspection and testing of materials by the Contractor will be as stated in paragraph 6, "CONTRACTOR QUALITY CONTROL". Materials which have been delivered to the project site and are rejected, whether in stockpile or in place in the structure, shall be removed from the project site at the Contractor's expense.

3.2 Sources. All stone shall be produced from approved sources.

3.3 Alternative Sources. If it is found during the contract that acceptable materials and quantities of materials cannot be obtained by the Contractor from the approved source(s) presently being used, the Contractor may request approval to use an alternate source(s). Obtaining and furnishing materials from the substitute source(s) shall be at no additional cost to the Owner.

3.4 Material Sampling and Shipping. All stone shall be tested for quality prior to the start of placement when directed by the Owner. Additionally, if before or during the course of the quarry operations conditions are such that, in the Owner's opinion, testing to ensure the quality of the production material is warranted, the following action will be taken:

3.4.1 Test samples shall be obtained by the Contractor at his own expense. Samples selected for testing shall be representative of rock formations in the quarry to be used or being used on the project. The Owner must be present and approve the selection of all test samples before shipment. The Owner may personally select all samples if he so elects. Individual rock samples shall be the size of the largest stone specified. The exact number of test samples will be determined by the Owner during the pre-production quarry inspection.

3.4.2 The samples shall be shipped or delivered by the Contractor, at his expense, to a laboratory selected by the Contractor and approved by the Owner as capable and experienced based upon past experience of the laboratory. Tests performed will be as described in paragraph 3.5, "Material Tests".

3.5 Material Tests. Tests to which the material shall be subjected, include the following tests: petrographic examination, specific gravity, abrasion, absorption, wetting and

drying, freezing and thawing, soundness, compressive strength, expansion, tensile strength, pulse velocity, gradation, water content, dry unit weight and total porosity, elastic moduli, direct sheer, and any others determined necessary to assure acceptable material. All tests shall be performed in accordance with the applicable portion of the CRD, RTH and/or ASTM tests listed in paragraph 2, "APPLICABLE PUBLICATIONS", except some variations of these tests developed by the Ohio River Division (ORD) may be used if applicable to local conditions. All tests shall be made by the laboratory approved by the Owner and at the Contractor's expense.

3.6 Material Quality. All stone shall be of a quality to insure permanence of the structure in the climate in which it is to be used. The stone shall be durable, sound, free from detrimental cracks, seams, and other defects which tend to increase deterioration from natural causes or cause breakage during handling and/or placing. It shall be highly resistant to weathering and disintegration under freezing and thawing and wetting drying conditions. Acceptability of stone material will be determined by the Owner from suitable laboratory tests, visual inspection, and service records. Tests which the material may be subjected to are given in paragraph 3.5, "Material Tests". Inspection for cracks, fractures, seams, defects, and deterioration shall be made by visual examination. Service records shall be presented by the Contractor that include documentation to show the stone has performed satisfactorily in the recent past on similar structures. Inclusion of objectionable quantities of dirt, sand, clay, chert and rock fines or other deleterious material will not be permitted. Selected granite, quartzite, rhyolite, traprock (basalt), limestone, some dolomitic limestone, and certain sandstone will generally meet the requirements of these specifications if suitable blasting and handling techniques are utilized.

3.6.1 Cover stone layer thickness, as shown in sections on plans, is based on stone with a specific gravity of 2.48(155 pcf). Stone weights for various classifications of stone have been computed for a range of specific gravities and are shown in Table on the drawings and in paragraph 4, "GRADATION". The gradation of Type B2 bedding is the same for any specific gravity.

3.6.2 Quantity determinations are contingent upon the bulk specific gravity (saturated surface dry (SSD) of stone to be supplied. Therefore, immediately after award of the contract, the Contractor shall make an investigation to determine the average specific gravity (SSD) of the stone available at each quarry he proposes to utilize. If a listed quarry which has been previously tested by the Government, is to be used, new specific gravity tests may be waived with the consent of the Owner. The

Contractor shall submit records of laboratory tests performed on the proposed stone source(s) indicating the average bulk specific gravity (SSD) of the stone source(s) within fifteen (15) days after "Notice to Proceed" is received. The laboratory test shall have been performed by a Owner approved commercial laboratory.

3.6.3 The least dimension of any piece of armor stone shall not be less than one-third of its greatest dimension. Stone for underlayer or bedding material may contain up to 15 percent by weight of elongated pieces. An elongated piece is defined as a piece of stone for which the ratio of the longest edge dimension to the shortest edge dimension of its circumscribing rectangular prism is greater than 3.

3.6.4 All armor and underlayer stone shall have angular faces that have fractured, split, sawed, or bedding plane surfaces. The bedding stone shall consist of quarried stone or crushed gravel. If this stone is furnished from a natural gravel source, the Contractor shall demonstrate that the material has been crushed and 75 percent of the pieces have a minimum of one fractured or split face.

3.7 Quarry Operations and Handling. Quarry operations shall be conducted by the Contractor/Supplier in a manner that will produce stone conforming to the requirements specified and may involve selective quarrying, handling, processing, blending, and loading as necessary. Blasting and handling of rock shall be controlled by the Contractor/Supplier to produce rock of the size ranges and quality specified. Techniques such as the use of proper hole diameter, hole depth, hole angle, burden and spacing distances, types and distribution of explosives, delay intervals and sequence, removal of muck piles between each shot, and special handling techniques will be required as necessary to produce the specified materials. All aspects of blasting operations shall be specifically designed so that the end product is not damaged from the blasting technique and that the stone is suitable for the intended purpose. The Owner shall be advised in writing, for information only, of quarrying, blasting, processing, handling, and loading methods proposed prior to the start of work and when changes are made to these operations during the contract period. The shot data and other information shall be submitted in a complete, clear manner.

3.7.1 Trial Blasts - Prior to production blasting, the Contractor/Supplier and his consultant, shall demonstrate to the Owner by the performance, evaluation, and results of trial blasting that his proposed shot designs and quarry procedures can produce material meeting the quality, gradation, elongation, and other requirements specified herein. If material from the initial trial blast fails to meet requirements, the Contractor/Supplier shall adjust his operations and repeat the trial blasts as required until acceptable stone is produced. Detailed blasting data from trial blasts including shot design

and calculations, the results of the trial blasts, and the evaluation of those designs and trial blasts shall be submitted to the Owner. The Owner shall be notified well in advance of all trial blasts and invited to participate as an observer.

3.7.2 Blasting Consultant. The Contractor and/or his Supplier shall employ an independent blasting consultant approved by the Owner to advise on blasting and handling of rock in order to assist in producing the size, range, and quality of material specified. The blasting specialist shall recommend to the Contractor in writing all proper techniques including, but not limited to, hole diameter, hole depths, hole angle, burden and spacing distances, types and distribution of explosives, delay intervals and sequence, as well as handling method necessary to produce undamaged stone suitable for the intended purpose. A copy of this report shall be submitted to the Owner for information only, not later than 30 days prior to the commencement of trial blasts. The employment of a consultant by the Contractor and/or his supplier does not relieve the Contractor of full responsibility of producing stone of the size and quality specified.

3.8 Curing Stone. Armor, revetment, and underlayer stone shall be stockpiled at the quarry 90 days prior to delivery at the project site to insure that unloading-type fractures caused by the release of stored energy concentrations will not take place and/or for case hardening purposes if some sandstones are used. This requirement may be waived by the Owner when service records and/or other evidence is submitted by the Contractor which indicates that rock from his selected source(s) has or will perform satisfactorily without stockpiling.

3.8.1 Curing stone quarried in freezing weather. It has been found that stone from some sources is subject to considerable fracturing due to freeze-thaw or climate changes, if its original moisture is present when quarried during winter months. Therefore, all stone shall be delivered to the job site during the period 15 April to 15 September. If delivered later than 15 September, the rock shall have been quarried prior to 15 September. Rock quarried after 15 September will not be considered for acceptance until after the following 15 April. The requirement may be waived for rock sources whose histories show conclusively that the stone is durable irrespective of the time of year that it was quarried.

4. GRADATION. Stone material shall have the gradations listed below and shall be placed in the work at locations indicated on the drawings. Gradation limits are in-place requirements. Adjustments in production methods shall be made as necessary to assure final placed materials are within specified ranges.

4.1 Armor Stone. The type of armor stone and the corresponding minimum and maximum size ranges, by weight, shall be as follows:

Armor Stone						
Type	Size Range					
	Specific Gravity 2.13-2.35		Specific Gravity 2.36-2.60		Specific Gravity 2.61-2.88	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
A1	8.5 Ton	18.0 Ton	5.4 Ton	12.0 Ton	3.7 Ton	8.0 Ton

4.2 Cover and/or Underlayer Stone. The type of cover and/or underlayer stone and the corresponding minimum and maximum size ranges, by weight, shall be as follows:

Cover and /or Underlayer Stone						
Type	Size Range					
	Specific Gravity 2.13-2.35		Specific Gravity 2.36-2.60		Specific Gravity 2.61-2.88	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
U1	1.2 Ton	2.8 Ton	0.8 Ton	1.8 Ton	0.5 Ton	1.2 Ton

4.3 Bedding Material.

4.3.1 Type B1 Bedding Material. The minimum and maximum size ranges shall be as follows:

Size Range					
Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
2 lbs.	185 lbs.	2 lbs.	120 lbs.	2 lbs.	80 lbs.

4.3.2 Type B2 Bedding Material. The gradation shall be as shown below and on the gradation curve at the end of this section.

Sieve Designations (U.S. Standard Square Mesh)	Percent Finer By Weight
6-Inch	100
3-Inch	60-100
1-1/2-Inch	45-65
3/8-Inch	20-40
No. 8	0-25
No. 50	0-5

4.3.3 Gradation of Bedding Material, Type B2. The bedding material shall be reasonably well-graded, and shall conform to the specified gradation range and gradation curve at the end of this section. All points on individual grading curves obtained from representative samples of material shall lie between the boundary limits as defined by smooth curves drawn through the tabulated grading curves within these limits shall not exhibit abrupt changes in slope denoting skip grading, scalping of certain sizes or other irregularities.

5. PLACEMENT.

5.1 General. All material shall be placed uniformly within the slope lines and grades indicated on the drawings or as directed by the Owner. Material shall be placed by equipment suitable for handling materials of the size specified. All stone shall be placed beginning at the bottom of the section and in such a manner as to produce a graded mass of stone with maximum interlocking and minimum voids.

5.2 Temporary Storage. Storage of stones on the lake bottom, prior to permanent placement, shall be subject to approval of the Owner and shall include appropriate weight adjustments for losses, which shall be at the Contractor's expense. Storage in other areas of the project shall be subject to approval of the Owner.

5.3 Limitations of Placement Procedures. Breakwater construction in advance of completed permanent stone protection shall be at the Contractor's risk. In the event an unprotected breakwater is damaged, or causes damage to a completed section, the damaged portion shall be replaced or reshaped, as approved by the Owner, at no additional cost to the Owner. The Contractor shall keep the Owner advised as to any and all situations that may result in a possible interruption of the work. Any material used for protecting the exposed ends of the breakwaters shall be the property of the Contractor and shall be removed after the need has ended. Minimum protection shall equal permanent construction.

5.4 Stone Materials.

5.4.1 Underlayer Stone. Underlayer stone for head and trunk breakwater sections shall be placed on bedding stone, shale, and existing lake bottom, as shown on the drawings. The underlayer stone shall be placed in a manner to produce a resultant graded mass of stone with minimum voids. Rearranging of individual stones will be required to achieve this result. Placement by any method which is likely to cause segregation of the various sizes will not be permitted. Unsegregated stone shall be lowered in a bucket or container and placed in a systematic manner. Placement shall begin at the bottom of the slope and proceed upward. Casting or dropping of stone over two (2) feet or moving by drifting and manipulating down the slope will not be permitted. Final finish of slope shall be done as the material is placed. Stockpiling of stone on the breakwater will not be permitted. A maximum tolerance of plus or minus 12 inches of grades shown on the drawings measured perpendicular to the theoretical surface will be allowed, but the extreme limits of tolerance shall not be continuous over an area greater than 1,000 square feet of structure surface.

5.4.2 Armor Stone shall be placed individually and in a manner to avoid displacing underlying materials, placing undue impact force on underlying material, and to minimize chipping of stones. Stones at the toe of slope shall be placed directly on existing lake bottom. The stones shall be placed with minimum voids and with maximum interlocking of stones. All stone when placed shall be stable, keyed, and interlocked, with no overhanging or "floaters". Rehandling of individual stones after initial placement will be required to achieve the above requirements. Equipment proposed for use shall be capable of placing the stone near its final position before release and capable of moving the stone if necessary to its final position. Dragline buckets and skips shall not be used for placement of stone. Placement shall begin at the bottom of the slope. Casting or dropping of stone over one (1) foot or moving by drifting or manipulating down the slope will not be permitted. Final shaping of the slope shall be performed during placement of stones. A tolerance of 18 inches above or below the neat line shown on the contract drawings will be permitted. The outer surfaces shall be even, with the extreme limits of tolerance not continuous over an area greater than 1,000 square feet of structure surface.

5.4.3 Bedding Stone. Soft and organic materials in excavated earth embankments shall be removed and replaced with backfill before placement of the bedding stone. Soft and organic materials on existing lake bottom to be displaced outward towards and beyond the extreme outside toes of the required sections of the structure and in the direction of construction. The material shall be handled and placed in such a manner as to minimize

segregation and provide a well graded mass. If the materials are placed by clam shell, dragline or other similar equipment, the stone shall not be dropped from a height exceeding two (2) feet above the existing ground surface, lake bottom, or previously placed material. The finished surface of the material shall be free of mounds or windrows and constructed to the slope and grade shown on the drawings with a tolerance of plus or minus 2 inches and the extremes of tolerance shall not be continuous over an area greater than 100 square feet as approved by the Owner.

5.4.4 Cover Stone shall be placed to the thickness shown on the drawings in a manner to avoid displacing underlying materials or placing undue impact force on underlying material that would cause the breaking of stones. The equipment used in placing stone shall be suitable for handling material of the size required including the ability to place the stone over its final position before release and if necessary pick up and reposition the stone. Dragline buckets and skips shall not be used for placement. Placement shall begin at the bottom of the slope. Moving stone by drifting or manipulating down the slope will not be permitted. Stone shall not be dropped from a height of greater than one (1) foot. Adjacent stones shall be set in contact with each other so that interstices between adjacent stones shall be as small as the character of the stone will permit. The face of stone having the largest area shall be placed against the surface of the underlayer stone or bedding stone. Each stone shall be butted against the adjacent stone.

5.4.5 Slides. In the event of the sliding or failure of any part of the rubblemound breakwater or other areas of stone protection prior to its acceptance, the Contractor shall, upon written order of the Owner, cut out and remove the slide and then rebuild that portion or reuse the material if deemed appropriate. The Owner shall determine the nature and cause of slide. In case the slide is caused through fault or negligence of the Contractor, the foregoing operations shall be performed without cost to the Owner. In case the slide is caused through fault or negligence of the Contractor, the foregoing operations shall be performed without cost to the Owner. In case the slide is due to no fault or negligence of the Contractor, the work will be paid for under clause entitled "Changes" of the CONTRACT CLAUSES.

6. CONTRACTOR QUALITY CONTROL.

6.1 General. The Contractor shall establish and maintain quality control for all work performed at the quarry and job site under this section to assure compliance with contract requirements. He shall maintain records of his quality control tests, inspections and corrective actions. Quality control measures shall cover all materials, equipment, tests and construction operations including but not limited to the following:

6.1.1 Testing and inspection during start up operations and during production of materials for quality and gradations of stone materials. Adjustment shall be made in methods and/or procedures as necessary to provide in place stone material sizes conforming with the contract requirements.

6.1.2 Placement of all materials to the slope and grade lines shown on the contract drawings in accordance with this section of the specifications.

6.1.3 Conducting all operations in compliance with "ENVIRONMENTAL PROTECTION" requirements of the Technical Provisions.

6.1.4 The Contractor shall prepare and maintain daily quarry blasting and quality control reports and furnish copies thereof to the Owner in accordance with the paragraph "CONTRACTOR QUALITY CONTROL" of the Special Clauses.

6.2 Check Surveys.

6.2.1 General. Surveys made by the Contractor, will be required on each layer for determining that these materials are acceptably placed in the work. The Contractor shall make checks as the work progresses to verify lines and grades established on completed work. At least one (1) check survey as specified below shall be made by the Contractor each day that stone is placed. A copy of the record of the check survey shall be provided to the Owner each day. Before placement of each zone and following placement of cover material, the cross section of the underlying material and finished structure, respectively, shall be approved by a representative of the Owner. Approval of cross sections shall not constitute final acceptance. Cross sections shall be taken by the Contractor perpendicular to the axis of the breakwater at twenty-five (25) foot intervals with readings at five (5) foot intervals (horizontal) and at breaks along the lines. Additional elevations shall be taken as the Owner may deem necessary or advisable. The surveys shall be conducted in the presence of a representative of the Owner, unless waived.

6.2.2 Above Water. Elevations of stone above the water surface shall be determined by the use of a leveling instrument and a rod having a base twelve (12) inches in diameter.

6.2.3 Below Water. For portions of the work that are under water, sounding surveys shall be performed as specified below.

6.2.3.1 Lead Line. If the lead line method is used, each survey will consist of soundings taken by means of a sounding basket weighing about 8-1/2 pounds and measuring twelve (12) inches in diameter at the base, or by a sounding pole having an equivalent base.

6.2.3.2 Electronic Depth Recorder Method. When using an electronic depth recorder, the following procedures shall be used. The depth recorder will be calibrated and adjusted for the gage, with check bar, at least six (6) times within a normal eight (8) hour work day. Normal calibration times shall be at the beginning of the work day, mid-morning, end of morning, beginning of afternoon, mid-afternoon, and the end of the work day. Further calibrations will be taken whenever there is any malfunction within the depth recorder or transducer which might affect the soundings, a major gage change, or change in water temperature due to industrial discharge. The check bar will be set at approximately the deepest sounding in the area to be sounded.

The depth recorder will be calibrated to read at low water datum. When checking the calibration at mid-morning, end of morning, mid-afternoon and end of work, the same settings used for the previous calibration will be used. If the calibration check does not agree with the previous calibration, the depth recorder will be calibrated to the proper setting. Under no circumstances shall the setting of the depth recorder be changed between calibrations.

(1) Tagline Method of Horizontal Location Along Station. If a tagline is used with a depth recorder, the soundings will be marked with a fix every five (5) feet.

(2) Predetermined Transit Angle Method or Ranges Method. The interval between predetermined angles or ranges along a sounding line shall not exceed two hundred (200) feet along the entire length of the sounding line. No predetermined angle shall form an intersection with the sounding of less than forty-five (45) degrees.

(3) The Speed of the Sounding Boat. When sounding, the speed of the sounding boat shall be as constant as possible, preferably between one hundred eighty (180) feet per minute and two hundred twenty (220) feet per minute.

(4) Checking Gage. The gage will be checked prior to each calibration and recorded on the sounding chart or in the field notes.

(5) Electronic Depth Recorder. The survey depth recorder used must be a standard model acceptable to the Owner using a sounding chart that can be read directly to the nearest foot and estimated to the nearest one-tenth (0.1) of a foot. Accuracy shall be better than 1/2 of 1 percent.

6.3 Quarry Tests, Inspections and Samples.

6.3.1 General. All tests specified herein shall be performed by, and at the expense of the Contractor as part of his

"Quality Control Program". Samples for testing shall be selected by the Contractor with the concurrence of the Owner's representative. Tests shall be made as specified below and any adjustments to the Contractor's operation necessary to provide material meeting these contract requirements shall be at the Contractor's expense. Prior to starting production of any materials, the Contractor shall submit in writing, for approval, the detailed methods of testing he plans to follow. The details shall include the Contractor's methods to be used in processing, loading, and handling each test sample. Stone materials which do not meet these specification requirements shall be placed in a separate area of the quarry to assure they do not get mixed in with good material or disposed of at no additional cost to the Owner.

6.3.2 Start-Up Testing. Stone materials produced during start-up operations at the quarry shall be tested for quality, weight and/or gradations to assure compliance with the specifications. Three (3) consecutive tests shall pass all requirements, and be witnessed by the Owner's representative, prior to full production operations or shipment of any material to the project site.

6.3.3 Quarry Samples. Prior to delivery of any stone to the job site and after start-up testing is complete, the Contractor and the Owner's representative shall meet at each quarry designated to supply stone material and select stones, with required quality and weight, to be set aside at the quarry, as reference samples of the material to be shipped to the project site. These samples shall be retained until completion of the project. All stones shall be sampled. Samples shall consist of a least one (1) stone representing each size in the gradation range. Basic quarry and material inspections shall be provided by the Contractor as part of his "Quality Control Program".

6.3.4 Production Testing. Production quality control test shall be accomplished at the quarry prior to shipment of materials to the project site and shall be performed at uniform intervals throughout the project construction. The following testing will be required.

Stone	Type of Test	Minimum Size of Sample	Minimum Number of Tests*
A1	Visual Inspection	Individual stones	All stones
	Measurement	Individual stones	15% of all material produced
U1	Visual Inspection	Individual stones	All stones
	Measurement	Individual stones	5 percent of all material produced

B1	Measurement	Individual stones	1 percent of all material produced
B2	Gradation Test	1 ton	One for each 250 tons of material produced

*Tests which do not pass are not counted as number of tests required. Testing shall be increased as necessary to maintain quality control during production and shall be at the Contractor's expense.

6.3.4.1 Visual Inspections. A visual check of all stone weighing over 500 pounds shall be made at the quarry for elongation, cracks, deterioration and other defects visible to the naked eye on at least 2/3 of the surface area of the stone. Five percent of the stone checked for cracks shall be wetted and reinspected for minute cracks to determine if they would be detrimental to the stone quality and if additional inspections are necessary on all stone. Stones with cracks that are detrimental to a long-lasting product shall not be shipped to the project site.

6.3.4.2 Measurement. Stones shall be measured on three mutually perpendicular axes and weight computed. Computed weights and measurements shall be recorded. Weight of stones shall be recorded. Weighing of stones shall be performed only as necessary to verify questionable computed weights. Stone selected for measurement shall represent all sizes specified in order to verify conformance with the specified weight limits.

6.3.4.3 Gradation Test. Stone shall be weighed and tabulated in a manner approved by the Owner for comparison with specified gradation. Test results shall be plotted on ENG. Form 4056.

6.4 Project Site Inspection and Tests. Any materials broken, cracked, out of gradation or improperly placed in the work shall be removed and replaced with new stones or corrected as directed by the Owner at no additional expense to the Owner.

6.4.2 In-Place Tests. Two (2) in-place tests on completed sections of armor stone placed above water shall be made during initial placement operations to assure that the proposed procedures, methods, and equipment will provide a layer of stone with minimum voids and maximum interlocking. The Contractor will be required to make any necessary adjustment, prior to proceeding with placement of material, to provide a project in full compliance with these specifications. In-place tests shall be as directed and witnessed by the Owner. For any in-place test that fails, the area shall be reworked as necessary and retested at the Contractor's expense. Work shall not continue until these

initial placement tests are acceptable to the Owner. These areas shall be used as samples for all the remaining work. Follow-up in-place testing as deemed necessary during construction of the project will be accomplished as directed by the Owner under the paragraph of the Contract Clause entitled "INSPECTION OF CONSTRUCTION". Size of sample area shall be 20 X 20 feet with each stone being measured and weight calculated. When all the materials have been measured, the sizes shall be tabulated to assure compliance with this section. Areas to be tested will be selected by the Owner.

6.4.3 Retests. The Owner reserves the right to test or retest any of the material produced from the sources listed or used on the project at it's expense.

6.5 Quality Assurance. During the contract period, both prior to and after materials are delivered to the job site, visual inspections of the stone materials may be performed by the Owner. If the Owner, during the inspections, suspects that the stone quality, gradation or weights of stone being furnished are not as specified, supplemental sampling and testing by the Contractor shall be required. Samples of the delivered stone for testing and the manner in which the test is to be performed shall be as directed by the Owner. This additional sampling and testing shall be performed at the Contractor's expense, when test results indicate that the materials meet specified requirements, equitable adjustment for the sampling and testing will be made in accordance with the clause entitled "CHANGES," of the Contract Clauses. Any material rejected shall be removed from the job site at the Contractor's expense.

7. DEBRIS. Any timbers and other unsuitable debris within the reaches of construction shall be removed. All materials shall be spoiled in a manner and location approved by the Owner.

8. MEASUREMENT. All quantities are lump sum.

9. PAYMENT. Payment will be at the contract lump sum price in place which price shall include all costs of furnishing and placing materials and labor and equipment, required to complete the work as specified herein and shown on the contract drawings, for the following items:

ITEM NO.	DESCRIPTION
1	Rubble Mound Breakwater

SHADE'S BEACH
HARBORCREEK TOWNSHIP, PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS
DIVISION 2
SECTION 2B

BREAKWATER EXCAVATION

TABLE OF CONTENTS

PARAGRAPH	DESCRIPTION	PAGE
1	SCOPE	2B-1
2	LIMITS OF WORK	2B-1
3	DIFFERING SITE CONDITIONS	2B-1
4	EXCAVATION PROCEDURE	2B-1
5	DISPOSAL OF WASTE EXCAVATION	2B-1
6	QUALITY CONTROL	2B-1
7	MEASUREMENT	2B-2
8	PAYMENT	2B-2

SHADES BEACH
HARBORCREEK, PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS
DIVISION 2
SECTION 2B

BREAKWATER EXCAVATION

1. SCOPE. The work covered by this section consists of furnishing all plant, labor, and material and performing all operations necessary for excavation required under the breakwaters as required for the construction of the breakwater as shown on the drawings or as otherwise directed by the Owner.

2. LIMITS OF WORK. Material to be measured and paid for under BREAKWATER EXCAVATION, will be defined as unclassified and include all material removed from Lake Erie and its shoreline beyond the dredging limits.

3. DIFFERING SITE CONDITIONS. Explorations to determine the character of materials to be removed have been made by the Owner and reports of said explorations are available for review in accordance with Special Clause entitled "PHYSICAL DATA".

4. EXCAVATION PROCEDURE.

4.1 General. Excavation shall be considered unclassified (including possible canal barge) and regardless of material encountered, within the grading limits of the project, shall be performed to the lines and grades indicated. Excavation, backfill and disposal operations shall be performed in such a manner and sequence that adequate drainage will be maintained at all times.

5. DISPOSAL OF WASTE EXCAVATION. All excavated material not otherwise incorporated in the project shall be transported and disposed of by the Contractor.

6. QUALITY CONTROL. The Contractor shall establish and maintain a quality control system for all operations performed under this Section to assure compliance with contract requirements and maintain records of his quality control for all operations performed, including, but not limited to the following:

6.1 Classification of material as suitable for backfill.

6.2 Establishment of alignment and grade.

6.3 Protection of existing service lines, utilities, and structures.

6.4 Finishing of subgrade.

6.5 Disposal procedure.

6.6 Observance of safety regulations

6.7 Records. A copy of the records of inspections and tests, as well as records of any corrective action taken, shall be furnished to the Owner in accordance with the Special Clause entitled, "CONTRACTOR QUALITY CONTROL".

7. MEASUREMENT.

7.1 Required Excavation. Required excavation under the breakwaters and revetment will be measured by the cubic yard. Cross sections will be taken by the contractor before excavation operations are begun and upon completion of the excavation operations. The volume will be computed by the average end area method and will be the volume of material actually removed within the prescribed limits.

8. PAYMENT.

8.1 Excavation. Required excavation will be incidental to the contract lump sum price for "Rubble Mound Breakwater", Item No. 1. Progress payments shall be based upon the cubic yard measured volume removed versus the total required excavation as indicated in the contractor's Schedule of Values or other method approved by the Owner. Should shoaling occur since soundings were taken for establishing the required excavation, and excavation shall exceed 20% of the original volume required, a negotiated price shall be determined between the Owner and contractor, on a cubic yard basis, to compensate the contractor for excavation in excess of 20%.

SHADES BEACH
HARBORCREEK, PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS
DIVISION 2
SECTION 2C

GEOTEXTILE USED AS FILTERS

TABLE OF CONTENTS

PARAGRAPH	DESCRIPTION	PAGE
1	SCOPE	2C-1
2	APPLICABLE PUBLICATIONS	2C-1
3	MATERIALS	2C-1
4	SHIPMENT AND STORAGE	2C-2
5	INSTALLATION OF THE GEOTEXTILE	2C-2
6	MEASUREMENT AND PAYMENT	2C-3

SHADES BEACH
HARBORCREEK TOWNSHIP, PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS
DIVISION 2
SECTION 2C

GEOTEXTILE USED AS FILTERS

1. SCOPE. The work provided for herein consists of furnishing all plant, labor, materials, and equipment and performing all operations required for furnishing, hauling, and placing the geotextile, complete, as specified herein and shown on the contract drawings, and maintaining the geotextile until construction is complete and accepted.

2. APPLICABLE PUBLICATIONS. The current issues of the publications listed below, but referred to thereafter by basic designation only, for a part of this specification to the extent indicated by the references thereto:

2.1 American Society for Testing and Materials (ASTM) Publications.

D 123-84	Definitions of Terms Relating to Textile
D 3787-80a	Bursting Strength of Knitted Goods: Constant-Rate-of Traverse (CRT), Ball Burst Test
D 3884-80	Abrasion Resistance of Textile Fabrics (Rotary Platform, Double-Head Method)
D 1682-64 (R-1975)	Breaking Load and Elongation of Textile Fabrics
D 1683-81	Failure in Sewn Seams of Woven Fabric
D 4491-85	Test Methods for Water Permeability of Geotextiles
D 1117-80	Nonwoven Fabrics (Trapezoidal Tear Test)

2.2 U.S. Army Corps of Engineers Publication.

EM 1110-2-1906	Laboratory Soils Testing

3. MATERIALS.

3.1 Geotextile. The geotextile shall be a woven pervious sheet of plastic yarn as defined by ASTM D-123. The geotextile shall meet the physical requirements listed in Table No. 1 of the specifications. The geotextile fiber shall consist of a long-chain synthetic polymer composed of at least 85 percent by weight of propylene, ethylene, ester, amide, or vinylidene-chloride, and shall contain stabilizers and/or inhibitors added to the base plastic if necessary to make the filaments resistant to deterioration due to ultra-violet and heat exposure. The edges of the geotextile shall be finished to prevent the outer fiber from pulling away from the geotextile.

3.2 Seams. The seams of the geotextile shall be sewn with thread of a material meeting the chemical requirements given above for geotextile yarn or shall be bonded by cementing or by heat. The sheets of geotextile shall be attached at the factory or another approved location, if necessary, to form sections not less than six (6) feet wide. Seams shall be tested in accordance with method ASTM D 1683, using 1-inch square jaws and 12 inches per minute constant rate of traverse. The strengths shall be not less than 90 percent of the required tensile strength (Table 1) of the unaged geotextile in any principal direction.

3.3 Acceptance Requirements. All brands of geotextile and all seams to be used shall be accepted on the following basis. The Contractor shall furnish the Owner, in duplicate, a mill certificate or affidavit signed by a legally authorized official from the company manufacturing the geotextile. The mill certificate or affidavit shall attest that the geotextile meets the chemical, physical, and manufacturing requirements stated in this specification. If requested by the Owner, the Contractor shall provide to the Owner geotextile samples for testing to determine compliance with any or all of the requirements in this specification. When samples are to be provided, they shall be submitted a minimum of 60 days prior to the beginning of installation of the same geotextile. All samples provided shall be from the same production lot as will be supplied for the contract, and shall be the full manufactured width of the geotextile by at least 10 feet long, except that samples for seam strength may be a full width sample folded over and the edges stitched for a length of at least 5 feet. Samples submitted for testing shall be identified by manufacturers lot designation.

4. SHIPMENT AND STORAGE. During all periods of shipment and storage, the geotextile shall be protected from direct sunlight, ultra-violet rays, temperatures greater than 140°F, mud, dirt, dust, and debris. To the extent possible, the fabric shall be maintained wrapped in a heavy-duty protective covering.

5. INSTALLATION OF THE GEOTEXTILE. The geotextile shall be placed in the manner and at the locations shown on the

drawings. At the time of installation, the geotextile shall be rejected if it has defects, rips, holes, flaws, deterioration, or damage incurred during manufacture, transportation or storage. The geotextile shall be placed with the long dimension parallel to the centerline of the breakwater. The geotextile will be draped over the stones in loose folds so that it will not be stretched or torn during placement of adjacent and overlying stones as the work progresses. The strips shall be placed to provide a minimum width of 36 inches of overlap for each joint. The geotextile shall be placed so that the lakeward strip of geotextile will overlap the landward strip. Any damage to the geotextile during its installation or during placement of stone materials shall be replaced by the Contractor at no cost to the Owner. The work shall be scheduled so that the covering of the geotextile with a layer of the specified material is accomplished within 30 days after placement of the geotextile. Failure to comply shall require replacement of geotextile. The geotextile shall be protected from damage due to the placement of stone materials by limiting the height of drop of the material. Before placement of stone materials, the Contractor shall demonstrate that the placement technique will prevent damage to the geotextile.

6. MEASUREMENT AND PAYMENT. This work shall be incidental to the lump sum price for "Rubble Mound Breakwater", Item No. 1.

Table 1 - Physical Requirements

Physical Property	Test Procedure	Acceptable Values ++
Tensile Strength +(unaged geotextile)	ASTM D 1682 Grab Test Method using 1-inch square jaws and a 12-inches per minute constant rate of traverse.	200-pound minimum in any principle direction.
Breaking Elongation (unaged geotextile)	ASTM D 1682 Determine Apparent Breaking Elongation.	15 percent minimum in any principle direction.
Puncture Strength +(unaged geotextile)	ASTM D 3787 except polished steel ball replaced with a 5/16-inch diameter solid steel cylinder with a hemispherical tip centered within the ring clamp.	80 pound minimum.
Abrasion Resistance	ASTM D 3884 Rubber-base abrasive wheels equal to CS-17 "Calibrase" by Taber Instrument Co.; 1 kilogram load per wheel; 1,000 revolutions, determine residual breaking load.	55 pound minimum Residual Breaking Load in any principle direction.
Equivalent Opening Size (EOS)	Specification paragraph titled "Determination of Equivalent Opening Size (EOS)."	No finer than the U.S. Standard Sieve No. 100 and no coarser than the U.S. Standard Sieve No. 70.
Percent Open Area (POA)	Specification paragraph titled "Determination of Percent Open Area."	The percent of open area shall not be less than 4 percent.
Tear Strength	ASTM D 1117 Trapezoidal tear strength.	30 pounds minimum in any principle directive.

+ Unaged geotextile is defined as geotextile in the condition received from the manufacturer or distributor.

++ All numerical values represents minimum average roll values (i.e., any roll in a lot should meet or exceed the minimum in the table).

SHADES BEACH
HARBORCREEK TOWNSHIP, PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS
DIVISION 2
SECTION 2D

NAVIGATION LIGHT STANDARDS AND FOUNDATIONS

TABLE OF CONTENTS

PARAGRAPH	DESCRIPTION	PAGE
1	SCOPE	2D-1
2	RELATED WORK SPECIFIED ELSEWHERE	2D-1
3	FOUNDATIONS	2D-1
4	LIGHT STANDARDS	2D-1
5	COMPLETION	2D-1
6	MEASUREMENT AND PAYMENT	2D-2

SHADES BEACH
HARBORCREEK TOWNSHIP, PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS
DIVISION 2
SECTION 2D

NAVIGATION LIGHT STANDARDS AND FOUNDATIONS

1. SCOPE. The work covered by this section of specifications consists of furnishing all plant, labor , and materials, and performing all operations required to fabricate and install the navigation light standards and foundations.

2. RELATED WORK SPECIFIED ELSEWHERE.

2.1 Concrete, Section 3A, CONCRETE.

2.2 Metal Materials, Section 5A, MISCELLANEOUS METAL MATERIALS, STANDARD ARTICLES, AND SHOP FABRICATED ITEMS.

2.3 Metalwork Fabrication, Section 5B, METALWORK FABRICATION AND MISCELLANEOUS PROVISIONS.

3. FOUNDATIONS. The Contractor shall coordinate work on the foundation with work on the rubblemound structure so that each concrete foundation is completed prior to placing of any armor material or underlayer material around it. The foundations shall be constructed to the lines shown on the contract drawings. Concrete and non-shrink grout shall be in accordance with the Technical Provision entitled "CONCRETE".

4. LIGHT STANDARDS. The Contractor shall fabricate, transport, and install the light standards on their foundations. The exact orientation of the light standards shall be as shown on the contract drawings, unless directed otherwise by the Owner. Light standard fabrication, assembly, and anchorage details are shown on the contract drawings.

5. COMPLETION. Each navigation light standard shall be completed within 30 calendar days after work on the core stone of the rubblemound structure has been completed in its vicinity.

6. MEASUREMENT AND PAYMENT.

6.1 Measurement.

6.1.1 No separate measurement will be made for payment of fabrication and installation of the navigation light standards and foundations.

6.2 Payment.

6.2.1 Each navigation light standard foundation will be paid for at the contract unit price for Item No. 2, "Breakwater Navigation Light Foundations". Such price includes the cost of all plant, labor and materials required to complete the foundations including the concrete, non-shrink grout, anchor bolts, reinforcement, polyethylene liner and geotextile.

6.2.2 Each navigation light standard will be paid for at the contract unit price for Item No. 3, "Breakwater Navigation Lights". Such price includes all plant, labor, and material necessary to fabricate and install each navigation light standard as specified herein and shown on the contract drawings.

SHADES BEACH
HARBORCREEK TOWNSHIP, PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS
DIVISION 2
SECTION 2E

DREDGING

PARAGRAPH	DESCRIPTION	PAGE
1	SCOPE	2E-1
2	LIMITS OF WORK	2E-1
3	DIFFERING SITE CONDITIONS	2E-1
4	ORDER OF WORK	2E-1
5	DISPOSAL OF DREDGED MATERIAL	2E-1
6	QUALITY CONTROL	2E-1
7	MEASUREMENT AND PAYMENT	2E-2

SHADES BEACH
HARBORCREEK TOWNSHIP, PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS
DIVISION 2
SECTION 2E

DREDGING

1. SCOPE. The contract work for dredging shall include the cost of removal and disposal of all material as specified herein or indicated on the drawings. Blasting of material to be dredged is prohibited.

2. LIMITS OF WORK. Material shall be considered unclassified and will be defined as all material removed from within the dredging limits in Lake Erie as shown on the drawings. Removal of unclassified material; including rock, concrete ramp, etc.; will be considered dredging.

3. DIFFERING SITE CONDITIONS. Explorations to determine the character of materials to be removed have been made by the Owner and reports of said explorations and probes are available for review in accordance with Special Clause entitled "PHYSICAL DATA".

4. ORDER OF WORK. Dredging operations to commence only after construction of breakwaters has been completed. Any dredging required for the placement of plant utilized for other construction shall meet prior approval of the Owner.

5. DISPOSAL OF DREDGED MATERIAL. All dredged material shall be transported and disposed of by the Contractor.

5.1 Deleterious material such as organics, timbers, logs, or other debris shall be disposed of in spoil areas approved by the Owner off the site at the Contractor's expense and responsibility.

5.2 Placement of approved material at an on-site disposal area shall be on-shore, uniformly graded, and meeting the approval of the Owner.

6. QUALITY CONTROL. The Contractor shall establish and maintain a quality control system for dredging operations to assure compliance with contract requirements and record his inspection under this system. The Contractor will be required to provide the inspection to assure proper dredging and disposal of the dredged material within the spoil area. A copy of the records of inspections, as well as records of corrective action

taken, will be furnished the Owner. The Contractor will be required to prepare and maintain a daily report of operations and furnish copies thereof to the Owner's representative. A copy of the form which prescribes the minimum information is included at the end of the Special Clauses.

7. MEASUREMENT OF PAYMENT.

7.1 The work under this section shall be incidental to "Rubble Mound Breakwater", Item No. 1.

7.2 Original and final surveys shall be performed by the Contractor and witnessed by the Owner to determine the quantities of work performed. Soundings will be taken at 20± foot intervals along parallel lines 50 feet apart. If necessary, this data shall be used to determine interim payment to the contractor for the proportion of work completed.

SHADES BEACH
HARBORCREEK TOWNSHIP, PA

PART II
TECHNICAL PROVISIONS
DIVISION 2
SECTION 2F

BEACH SAND FILL

TABLE OF CONTENTS

Paragraph	Description	Page
1	GENERAL	2A-1
2	APPLICABLE PUBLICATIONS	2A-1
3	ACCESS TO WORK AREAS	2A-2
4	MATERIALS	2A-2
5	MATERIAL TESTING	2A-3
6	PLACEMENT OF SAND	2A-4
7	HYDRAULIC PLACED SAND	2A-5
8	FINAL CLEANUP	2A-5
9	QUALITY CONTROL	2A-5
10	MEASUREMENT & PAYMENT	2A-6
11	PLATE 1 - GRADATION CURVE-TYPE B BEACH SAND FILL	2A-7

SHADES BEACH
HARBORCREEK TOWNSHIP, PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS
DIVISION 2
SECTION 2F

BEACH SAND FILL

1. GENERAL

1.1 Scope. The work covered by this section consists of furnishing all plant, labor, materials and equipment and performing all work required for the placement of beach sand fill, construction of required haul roads, and removal and offsite disposal of debris from beach areas to be replenished, as indicated on the contract drawings, in accordance with these specifications, or as directed by the Owner.

2. APPLICABLE PUBLICATIONS. The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by references thereto:

2.1 American Society for Testing and Materials (ASTM) Publications.

C 29-78	Test Method for Unit Weight and Voids in Aggregate
C 40-84	Test Method for Organic Impurities in Fine Aggregates for Concrete
C 117-87	Test Method for Material Finer than 75 um (#200) Sieve in Mineral Aggregates by Washing
C-136-84a	Method for Sieve Analysis of Fine and Coarse Aggregates
C 295-85	Practice for Petrographic Examination of Aggregates for Concrete
C 566-84	Test Method for Total Moisture Content of Aggregate by Drying

2.2 The Corps of Engineers' Handbook for Concrete and Cement (CRD).

CRD-C 120-55	Method of Test for Flat and Elongated Particles in Fine Aggregate

3. ACCESS TO WORK AREAS

3.1 Any damage to roads or other park areas by Contractor vehicles or equipment shall be repaired by the Contractor to the satisfaction of the Owner without cost to the Owner.

4. MATERIALS

4.1 General. The material to be furnished shall meet all requirements specified in this section of the specifications. The Owner, at any time during the contract, shall reject material at the commercial supplier or job site not meeting the specified requirements. Inspection and testing of material by the Contractor will be as stipulated in paragraph 5, "MATERIAL AND TESTING." Upon notification by the Owner that material delivered to the project site does not meet the requirements of this specification, the Contractor shall stop delivery until he proves to the Owner that future delivered material will meet all requirements. Unapproved material delivered after this rejection notification, whether in stockpile on-site, in hopper dredge or in-place, is at the Contractor's expense and removal and off-site disposal may be required at the discretion of the Owner.

4.2 Source. Beach sand fill shall be obtained from an approved commercial supplier.

4.3 Beach Sand Fill. Beach sand fill shall be reasonably well-graded, sound, hard, free of organics and other foreign and objectionable materials, and be approved by the Owner. The Owner, as part of his Quality Assurance program, will periodically test the beach sand fill stockpiles (on land and in dredge hopper) and placed material on the beaches to insure that the beach sand fill meets the specified gradation and that the sand is not in violation of USEPA and/or Commonwealth of Pennsylvania standards for bacterial and chemical contamination. Should the beach sand fill be found to be contaminated, the Owner shall direct the Contractor to halt any additional sand placement until the Contractor is able to furnish uncontaminated sand approved by the Owner. Prior to delivery of material to the project site by truck, the test results from testing required in paragraph 5 entitled "MATERIAL TESTING," shall be submitted to the Owner for approval. Samples of material to be placed directly on the beach from a hopper dredge shall be acquired from the hopper and in-place on the beach in accordance with paragraph 5, "MATERIAL TESTING". The beach sand fill shall meet the gradation limits (ASTM tests C117 and C 136) as plotted on ENG Form 2087, attached hereto as Plate 1.

4.3.2 Type "B" Beach Sand Fill. Type "B" fill shall be natural sand meeting the gradation requirements listed below.

TYPE "B" - BEACH SAND FILL

U.S. Standard Sieve Size	Gradation - Percent Finer by Weight
No. 8	100
No. 16	85-100
No. 30	50-90
No. 50	15-50
No. 100	0-15
No. 200	0-2

5. MATERIAL TESTING

5.1 The Contractor shall provide at his expense the services of a recognized testing laboratory, approved by the Owner, located in the general geographic vicinity of the project for all material testing.

5.2 The Contractor shall submit to the Owner for approval the name, address and experience record of the testing laboratory the Contractor proposes to use. The Owner reserves the right to inspect and/or reject the proposed testing laboratory.

5.3 No separate payment shall be made for the testing and other requirements of this paragraph. All costs in connection with the above shall be included in the overall cost of the work.

5.4 Access to the beach sand fill stockpiles, hopper dredge, and placement areas shall be provided to the Owner and the Erie County Department of Health, and their agents, for the purpose of collecting samples for gradation, chemical and bacteriological testing.

5.5 Commercial Source and Stockpiled Material Testing (Off-Site). Prior to hauling any sand to the job site, the Owner will select three samples of each type of sand from each supplier. These samples shall be sent by the Contractor to the testing laboratory for the following tests: sieve analysis (ASTM C 136 and ASTM C 117); unit weight determination (ASTM C 29); flat and elongated particles determination (CRD-C120); and petrographic and foreign or objectionable material examination (including but not limited to ASTM C 40 and ASTM C 295). Results of the Contractor-performed tests shall be submitted to the Owner within ten days of sampling for material source approval. No material shall be delivered to the project site until it meets the approval of the Owner.

5.6 Offshore Lake Source Material Testing. Prior to delivery of sand to the project site by hopper dredge, the Contractor shall obtain all necessary permits and approvals to dredge Lake source materials at a site selected by the Contractor. The Contractor shall then select a minimum of three

samples of the type of sand to be supplied from his selected offshore borrow area. The acquisition of all samples shall be witnessed by the Owner, and the Contractor shall schedule arrangements and provide a minimum 48 hours notice. These lake bottom samples shall be sent by the Contractor to the testing laboratory for the following tests: sieve analysis (ASTM C 136 and ASTM C 117); unit weight determination (ASTM C 29); and petrographic and foreign or objectionable material examination (including but not limited to ASTM C 40 and ASTM C 295). Results of the Contractor-performed tests shall be submitted to the Owner within ten days of sampling for material source approval. No material shall be delivered to the project site until it meets the approval of the Owner.

5.7 In-Place Material Testing. In addition to the above source testing, a minimum of one sample of sand per day from each source for each day of truck placement and three representative samples of sand per hopper dredge for pumped placement shall be selected from the recently placed material and sent by the Contractor for sieve analysis (ASTM C 136 and ASTM C 117). All sieve analyses performed must include tests in accordance with both ASTM C 136 and C 1117. Results of the sieve analyses shall be submitted to the Owner within the same working day on which the sample was taken. Gradation results to be placed on ENG Form 3841 and graphed on ENG Form 2087. ENG forms will be provided by the Owner. The Owner reserves the right to select all samples and conduct its own quality assurance testing program.

6. PLACEMENT OF SAND. Prior to placement of beach sand fill, the Contractor shall dispose of any downed trees and other debris from the beaches within the limits of work. Beach sand fill material shall be placed within the project area and limits as shown in detail on the drawings. The actual limits of beach sand fill placement may be adjusted in the field by the Owner to accommodate the physical conditions existing at the time of placement at no additional cost to the Owner. The lake side slope may be the natural slope of the material. The landward side of the berm shall be sloped such as to gradually slope and blend the newly placed beach sand fill no steeper than one vertical on two horizontal to the existing ground surface. The Contractor shall construct the level berm to the limits as shown on the drawings or as directed by the Owner and submit a schedule and sequence of his work to the Owner for approval.

6.1 EXCAVATION. Prior to placement of beach sand fill, the Contractor shall excavate and dispose of stone and cobbles to the limits indicated on the drawings. This material may be used for fill, on shore, at the boat launch ramp area.

6.2 Tolerances. A tolerance of one-tenth (0.1) of 1 foot below and one-tenth (0.1) of 1 foot above the prescribed berm grade and slopes, above the wave zone, will be permitted in the

final surface. Any material placed above the prescribed tolerance may be left in place at the discretion of the Owner; however, this material will not be included in the pay quantities.

6.3 Misplaced Materials. If any material is deposited elsewhere than in places designated or approved, the Contractor may be required to remove such misplaced material and redeposit it where directed at his expense.

7. HYDRAULIC PLACED SAND

7.1 Discharge Pipeline. The Contractor shall maintain a tight discharge pipeline for the pumpout operations at all times. Water used for pumping beach sand fill directly on the beach or into a stockpile area shall meet the Water Quality Standards of the Commonwealth of Pennsylvania. The joints shall be so constructed as to preclude spillage and leakage. The development of a leak shall be promptly repaired or the pumpout operations shall be shut down until complete repair has been made to the satisfaction of the Owner. The Contractor shall be required to maintain barricades, warning signals and flagmen to insure public safety in the vicinity of the pipe discharge. Placement of discharge piping shall meet the approval of the Owner and end at point of discharge shall be no greater than thirty-five (35) feet lakeward from existing structure or berm. Any damages to private or public property resulting from the Contractor's operations shall be repaired by the Contractor at his expense.

7.2 Grading. Upon completion of all filling operations, the fill shall be graded and dressed so as to eliminate any undrained pockets and abrupt humps and depressions in the beach fill surfaces and as necessary to comply with paragraph 62 "Tolerances."

8. FINAL CLEANUP. Final cleanup shall include the removal of all of the Contractor's plant and equipment either for disposal or reuse. Plant and/or equipment to be disposed of shall only be disposed of in a manner and at locations approved by the Owner. Unless otherwise approved in writing by the Owner, the Contractor will not be permitted to abandon pipelines, pipeline supports, pontoons, or other equipment in the beach fill area, pipeline access areas, water areas, or other areas adjacent to the work site.

9. QUALITY CONTROL.

9.1 General. The Contractor shall establish and maintain a quality control system for all operations performed under this section to assure compliance with contract requirements and maintain records of his quality control for all operations performed, including, but not limited to the following:

9.1.1 Conducting all required material testing in paragraph 5 above and furnish copies of all test results to the Owner's representative.

9.1.2 Placement of beach sand fill to the limits and grades as shown on the contract drawings, or as directed by the Owner and in accordance with this section of the specifications.

9.1.3 Conducting all operations in compliance with Section 1A, "ENVIRONMENTAL PROTECTION" of these Technical Provisions.

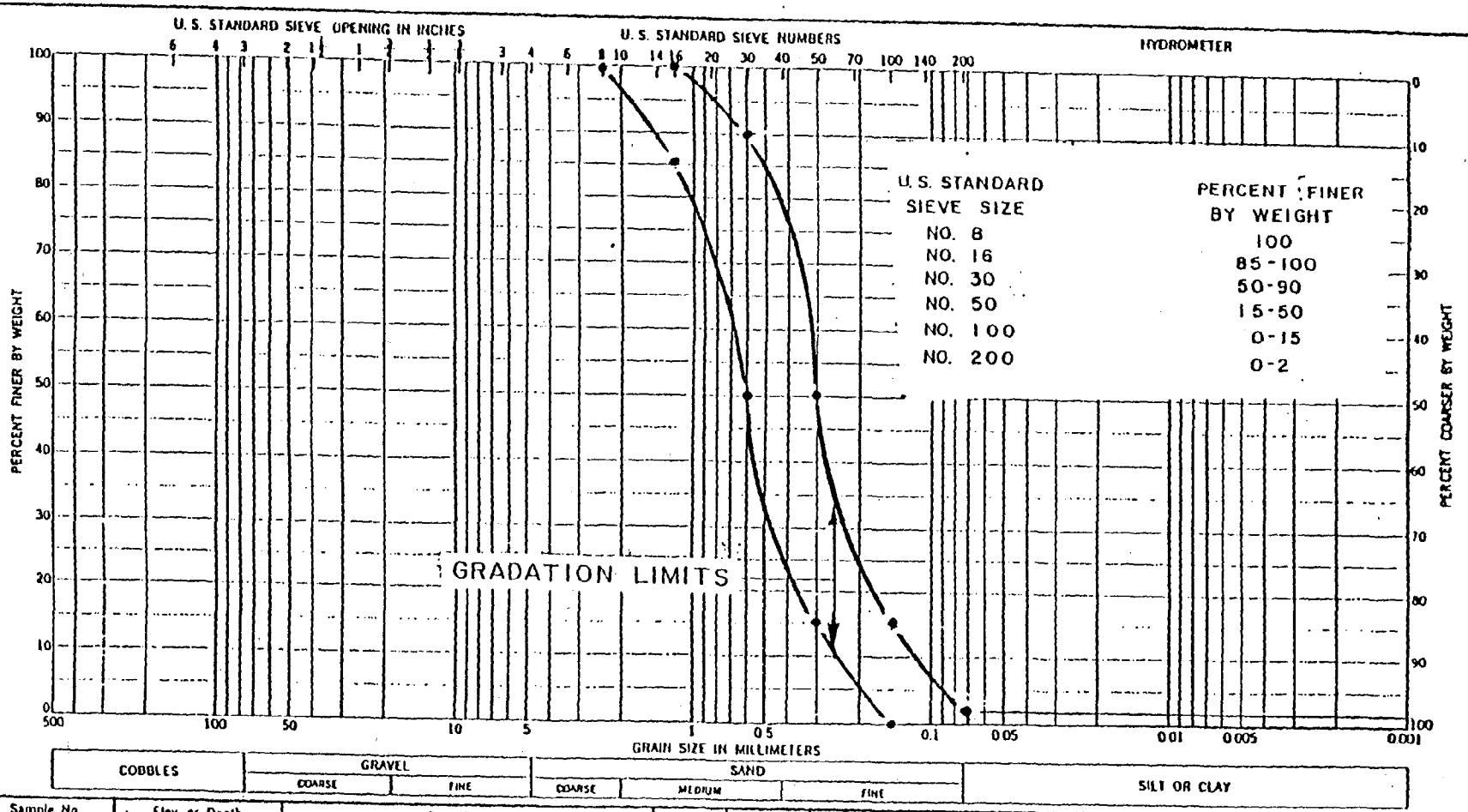
9.1.4 Removal of beach debris and excavation to the limits indicated on the drawings prior to placement of beach sand fill.

9.1.5 The Contractor will be required to prepare and maintain a "Daily Construction Quality Control Report" and furnish copies thereof to the Owner's representative as provided in the Special Clause entitled, "CONTRACTOR QUALITY CONTROL."

9.1.6 Contractor's method of controlling and minimizing turbidity at both the offshore borrow area and project site. The plan must be approved by the Owner prior to start of work and a copy shall be maintained at the site.

10. MEASUREMENT AND PAYMENT

Payment will be made at the contract lump sum price in place which shall include all costs for furnishing and placing Beach Sand Fill, excavation and disposal of stone and cobbles, laboratory analysis and other related work as described in this section, indicated on the drawings, or as necessary to complete the work.



Sample No.	Elev or Depth	Classification	Nat w %	LL	PL	PI

GRADATION CURVES

SHADES BEACH
HARBORCREEK TOWNSHIP
PENNSYLVANIA

TYPE "B"
BEACH SAND FILL

ENG FORM 1 MAY 63 2087

PLATE 1

2F-7

PLATE 1

SHADES BEACH
HARBORCREEK TOWNSHIP, PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS
DIVISION 2
SECTION 2G

FLOATING DOCKS

TABLE OF CONTENTS

Paragraph	Description	Page
1	SCOPE	2G-1
2	APPLICABLE PUBLICATIONS	2G-1
3	PRODUCTS	2G-2
4	INSTALLATION	2G-2
5	PAYMENT	2G-3

SHADES BEACH
HARBORCREEK TOWNSHIP, PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS
DIVISION 2
SECTION 2G

FLOATING DOCKS

1. SCOPE. The work provided for herein consists of furnishing all plant, labor, materials and equipment and performing all operations required to install five (5) floating docks complete as specified herein and shown on the contract drawings until construction is complete and accepted.

2. APPLICABLE PUBLICATIONS. The current issues of the publications listed below, but referred to thereafter by basic designation only, for the part of this specification to the extent indicated by the references thereto:

2.1 American Society for Testing and Materials (ASTM) Publications

A 123-84	Zinc (Hot-Dipped Galvanized) Coatings on Iron and Steel Products
A 499	Steel bars and shapes
A 449	Steel bolting materials
D 703	Polystyrene Plastics
D 1625	Wood Preservatives (CCA)

2.2 American Welding Society Inc. (AWS) Code

D 1.1-85	Structural Welding Code-Steel

2.3 Military Specifications (Mil. Spec.)

DOD-P-21035A	Paint, High Zinc Dust Content, Galvanizing Repair

3. PRODUCTS. The floating docks and bridges shall be Meeco Marinas Inc., Meeco Commodore or approved equal. Each of five identical systems shall consist of a 6'-0" wide, 16'-0" long bridge hinged at its respective concrete bulkhead, with two 6'-0" wide, 20'-0" long floating dock units field bolted together forming a single 40'-0" floating dock. Each bridge shall also be hinged at its connection to the floating dock assemblies while the opposite end of the floating dock shall be located by telescopic anchorage.

3.1 Framing. Box truss galvanized steel frames with corner bracing consisting of 2"x2"x1/4" angles, 1/2" rods and 1/4"x1" straps. Hot dipped galvanized (4 oz./sy) members and fasteners. Design by manufacturer.

3.2 Flotation. One piece rotational molded high density cross-linked polyethylene encasement, 0.188" minimum wall thickness, with 100% polystyrene molded in place flotation at 1.10 pounds per cubic foot. Design for 30 pounds per square foot of deck area live load with freeboard of 18", ± 1/2".

3.3 Decking. 2"x6" Southern Pine, No. 1S4S - 4PCF (CCA) preservative, longitudinal laying with 1/4" - 3/8" spacing, attached with galvanized self-tapping 1/4" x 2" screws.

3.4 Bumpering and Cleats. 4" vinyl fendering at floating dock perimeter. Standard bolted galvanized "S" cleats (10") at 6'-0" C-C, both sides of floating docks.

3.5 Access Bridge. Design for thirty (30) pounds per square foot live load, wood decking identical to floating docks, galvanized hardware.

3.6 End Anchorage. Telescoping anchors, each system consisting of 3" diameter high strength drill stem fixed anchor and 4" diameter high strength drill stem telescope attached to flotation unit frame. Hot dipped galvanized (4 oz./sy) with galvanized bolts, nuts and washers.

3.7 Submittals. Shop drawings indicating all materials, fabrication details, dimensions, hardware, anchorage system specific for this installation, maintenance requirements, etc.

3.8 Warranty. Five (5) year material replacement for all components, two (2) year labor.

4. INSTALLATION. Install in strict accordance with manufacturer's requirements. Manufacturer's representative to provide not less than one full 8 hour day, on site, to instruct contractor's personnel in proper field assembly and system installation prior to construction. This representative shall also inspect and provide written approval of the completed

installation of system. Deficiencies, if any, noted by the manufacturer's representative shall be corrected by the contractor at no additional cost to the owner, to the written satisfaction of the representative prior to payment for the work under this section.

5. PAYMENT. Payment will be at the contract lump sum price in place which shall include all costs for furnishing and installing the materials and products required under this section, as indicated on the drawings and as necessary for the proper and complete performance of the work for Item No. 5: FLOATING DOCKS.

SHADES BEACH

HARBORCREEK TOWNSHIP, PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS
DIVISION 3
SECTION 3A

CONCRETE

PARAGRAPH	DESCRIPTION	PAGE
	PART I - GENERAL	
1	RELATED WORK SPECIFIED ELSEWHERE	3A-1
2	APPLICABLE PUBLICATIONS	3A-1
3	QUALITY ASSURANCE	3A-3
4	EVALUATION AND ACCEPTANCE	3A-3
5	SUBMITTALS	3A-3
	PART II - PRODUCTS	
6	MATERIALS	3A-5
	PART III - EXECUTION	
7	PRODUCTION OF CONCRETE	3A-7
8	PREPARATION FOR PLACING	3A-7
9	PLACING	3A-8
10	FINISHING	3A-9
11	CURING AND PROTECTION	3A-11
12	CONTRACTOR QUALITY CONTROL	3A-12
13	MEASUREMENT AND PAYMENT	3A-13

SHADES BEACH
HARBORCREEK TOWNSHIP, PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS
DIVISION 3
SECTION 3A

CONCRETE

PART I - GENERAL

1. RELATED WORK SPECIFIED ELSEWHERE.

1.1 Reinforcing Steel. Section 3B, STEEL BARS AND ACCESSORIES FOR CONCRETE REINFORCEMENT

1.2 Formwork. Section 3C, FORMWORK FOR CONCRETE

1.3 Joints. Section 3D, EXPANSION, CONTRACTION, AND CONSTRUCTION JOINTS.

2. APPLICABLE PUBLICATIONS. The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by the references thereto.

2.1 American Concrete Institute (ACI) Standards.

ACI 304-73 (R 1983)	Measuring, Mixing, Transporting and Placing Concrete
ACI 305R-77	Hot Weather Concreting (Revised 1982)
ACI 306R-78	Cold Weather Concreting

2.2 American Society for Testing and Materials (ASTM) Standards With Corresponding CRD Standard Indicated Where Available.

C 31-85 (CRD-C 11)	Making and Curing Concrete Test Specimens in the Field
C 33-86 (CRD-C 133)	Concrete Aggregates
C 39-86 (CRD-C 14)	Compressive Strength of Cylindrical Concrete Specimens
C 94-86a (CRD-C 31)	Ready-Mixed Concrete

C 143-78 (CRD-C 5)	Slump of Portland Cement Concrete
C 150-85a (CRD-C 201)	Portland Cement
C 171-69 (R 1986) (CRD-C 310)	Sheet Materials for Curing Concrete
C 172-82 (CRD-C 4)	Sampling Freshly Mixed Concrete
C 231-82 (CRD-C 41)	Air Content of Freshly Mixed Concrete by the Pressure Method
C 260-86 (CRD-C 13)	Air-Entraining Admixtures for Concrete
C 309-81	Liquid Membrane-Forming Compounds for Curing Concrete
C 494-86 (CRD-C 87)	Chemical Admixtures for Concrete
C 685-86 (CRD-C 98)	Concrete Made by Volumetric Batching and Continuous Mixing
C 881-78 (R 1983) (CRD-C 595)	Epoxy-Resin-Base Bonding Systems for Concrete
D 98-80 (CRD-C 505)	Calcium Chloride
D 2103-86	Polyethylene Film and Sheeting

2.3 Concrete Plant Manufacturer's Bureau (CPMB).

1981 Printing (CRD-C 95)	Concrete Plant Standards (6th Rev.)

2.4 Pennsylvania Department of Transportation (PENNDOT).

Specifications, Publication 408, Current edition and amendments.

2.5 U.S. Army Corps of Engineers Handbook for Cement and Concrete (CRD).

CRD-C 621-83	Non-Shrink Grout

3. QUALITY ASSURANCE.

3.1 Construction Testing by Owner. The Owner may sample and test aggregates and concrete to determine compliance with the specifications. The Contractor shall provide facilities and labor as may be necessary for procurement of representative test samples. Samples of aggregates will be obtained at the point of batching. Concrete will be sampled in accordance with ASTM C 172. Slump and air content will be determined in accordance with ASTM C 143 and ASTM C 231, respectively. Compression test specimens will be made and cured in accordance with ASTM C 31 and compression test specimens tested in accordance with ASTM C 39. If pumpcrete is to be used, samples for testing will be obtained at the point of final placement. This does not relieve the Contractor of his responsibilities under the "Contractor Quality Control" provisions of this specifications.

4. EVALUATION AND ACCEPTANCE.

4.1 Construction Tolerances. Variation in alignment, grade and dimensions of the structure from the established alignment, grade and dimensions shown on the drawings shall be within the following tolerances:

(1) Departure from established alignment----------1-inch

(2) Departure from established grades----------1-inch

(3) Variation from the plumb or the specified batter in lines and surfaces, in 10 feet:
Exposed----------1/2-inch
Backfilled----------1-inch

(4) Variation in cross-sectional dimensions:
Minus----------1/4-inch
Plus----------1/2-inch

(5) Variation in size and location of openings-----1/2-inch

4.2 Strength. The strength of the concrete will be considered satisfactory so long as the average of all sets of three consecutive individual strength tests (two cylinders per strength test) equals or exceeds the required specified strength f'c and no individual strength test (average of two cylinders) falls below the specified strength f'c by more than 500 pounds per square inch.

5. SUBMITTALS

5.1 Test Reports.

5.1.1 Cementitious Material will be accepted on the basis of a manufacturer's certificate of compliance.

5.1.2 Aggregates will be accepted on the basis of test reports with accompanying certifications that show the material meeting the requirements of the specifications under which it is furnished.

5.1.3 Non-shrink Grout.

5.1.3.1 General. Descriptive literature of the grout proposed for use shall be furnished together with a certificate from the manufacturer stating that it is suitable for the application or exposure for which it is being considered. In addition, a detailed plan shall be submitted for approval, showing equipment and procedures proposed for use in mixing and placing the grout.

5.1.3.2 Prepackaged material requiring only the addition of water will be accepted on the basis of certified laboratory test results showing that the material meets the requirements of CRD-C 621. When fine aggregate is to be added, the Contractor shall also furnish for approval the design mix proportions together with certified copies of laboratory test results indicating that the mix is in conformance with the requirements of CRD-C 621.

5.1.2.2 Mixture proportions using a volume-change controlling ingredient shall be submitted for approval. The submittal shall include the design mix proportions of all ingredients and certified copies of laboratory test results indicating that the materials and the mix is in conformance with the requirements of CRD-C 621.

5.2 Manufacturer's Literature. Literature from suppliers which demonstrates compliance with applicable specifications for the following materials:

Air-entraining agent
Accelerating agents
Retarding admixture
Water-reducing admixture
Curing materials

5.3 Review of Plant, Equipment and Methods.

5.3.1 Batching and Mixing Equipment will be accepted on the basis of manufacturer's data which demonstrates compliance with the applicable specifications.

5.3.2 Cold Weather Requirements. If concrete is proposed to be placed under cold weather conditions, the materials and methods proposed to accomplish it will be in accordance with the requirements of ACI 306, and Paragraphs 9.4 and 11.2 and shall require approval by the Owner.

5.3.3 Hot Weather Requirements. If concrete is proposed to be placed under hot weather conditions, the materials and methods proposed to accomplish it will be in accordance with the requirements of ACI 305, and Paragraphs 9.3 and 11.1 and shall require approval by the Owner.

5.4 Concrete Proportions. The proportions of the concrete materials in the mix shall be the responsibility of the Contractor. Prior to placement of concrete, the Contractor shall submit for approval, mixture proportions that will produce concrete of the qualities required. Mixture proportions shall include dry weights of cement, saturated surface-dry weights of fine and coarse aggregates, and quantities, type and name of admixtures (if any) and quantity of water per cubic yard of concrete. Also, satisfactory evidence shall be given that the materials to be used and the proportions selected will produce concrete of the quality specified. All materials included in the mixture proportions shall be of the same type and from the same source as will be used on the project.

PART II - PRODUCTS

6. MATERIALS.

6.1 Cement shall be portland cement and shall conform to ASTM C150, Type I, IA, II, IIA, III or IIIA Low alkali cement is required when the aggregates contain potentially reactive chert in excess of 5 percent.

6.2 Aggregates shall be produced from the sources which have demonstrated past compliance with PENNDOT aggregate specification requirements. In addition, the aggregates shall conform to the deleterious substance requirements of PENNDOT. Aggregates containing more than 5 percent potentially reactive chert will require the use of low alkali cement (total alkali content - 0.60 percent or less).

6.2.1 Fine Aggregate. The fine aggregate shall conform to the Material Requirements of PENNDOT Publication 408 for concrete. The gradation as delivered to the mixer shall conform to the following requirements and as shown on Plate 1 at the end of this section. The aggregate shall be reasonably well-graded between the limits shown.

Sieve Designations (U. S. Standard Square Mesh)	Percent Finer by Weight
3/8 inch	100
No. 4	90-100
No. 8	75-100
No. 16	50-85
No. 30	25-60

No. 50	10-30
No. 100	1-10
No. 200 (Wet)	0-3

6.2.2 Coarse Aggregate. The coarse aggregate shall conform to the Material Requirements of PENNDOT Publication 408 for class AA concrete. The aggregate shall be reasonably well-graded between the limits shown.

Sieve Designations (U. S. Standard Square Mesh)	Percent Finer by Weight
1-1/2 inches	100
1-inch	93-100
1/2-inch	27-58
1/4-inch	0-8

The gradation requirements of ASTM C 33, Table 2, Size Number 57, is an acceptable alternative.

6.3 Admixtures to be used, when required or approved, shall conform to the appropriate specification listed below:

6.3.1 Air-Entraining Admixture. ASTM C 260.

6.3.2 Accelerating Admixture. Calcium chloride shall conform to ASTM D 98. When approved or directed, the Contractor shall use not more than 1 percent of calcium chloride, by weight, of the cement, added to the batch in solution in a portion of the mixing water. Other accelerators shall meet the requirements of ASTM C 494, type C or E.

6.3.3 Water-Reducing or Retarding Admixtures. ASTM C 494, Type A, B or D.

6.4 Curing Materials.

6.4.1 Impervious Sheet Materials. ASTM C 171, type optional, except polyethylene film, if used, shall be white opaque.

6.4.2 Membrane-Forming Curing Compound. ASTM C 309, Type 1-D or Type 2.

6.5 Water for mixing shall be fresh and free from injurious amounts of oil, acid, salt, alkali, organic matter, or other deleterious substances.

6.6 Epoxy Bonding System. ASTM C 881, Type II, Grade 2, Class B or C.

6.7 Non-Shrink Grout. Non-shrink grout shall conform to CRD-C 621.

6.8 Polyethylene Film or Sheeting. Polyethylene used as liner for concrete shall conform to ASTM D 2103 and shall be 6 mils thick and black in color.

6.9 Concrete Quality. Specified compressive strength f'c shall be 3,750 pounds per square inch at 28 days. The maximum nominal size coarse aggregate shall be 1-1/2 inches. The air content shall be 5.5± 1.5 percent except that when the nominal maximum size coarse aggregate is 3/4 inch it shall be 6.0± 1.5 percent. Slump shall be 2-1/2 inches ± 1-1/2 inch. The maximum water/cement ratio shall be 0.46. Conform to PENNDOT 408 Type AA concrete requirements.

PART III - EXECUTION

7. PRODUCTION OF CONCRETE.

7.1 Ready-Mixed Concrete shall conform to ASTM C 94, except as otherwise specified.

7.2 Volumetric Batching and Continuous Mixing shall conform to ASTM C 685, except as otherwise specified.

7.3 On-Site Batching and Mixing. If the Contractor elects to provide an on-site batching and mixing plant, a batch-type plant will be provided of sufficient capacity to prevent cold joints. The method of measuring materials, the batching plant, and the mixer shall comply with the applicable provisions of ASTM C 94 except as otherwise specified.

8. PREPARATION FOR PLACING.

8.1 Concrete Bonding. Concrete surfaces to which other concrete is to be bonded shall be prepared for receiving the next lift or adjacent concrete by cleaning with either wet sandblasting, high pressure water jet, or other approved method. An epoxy corresponding to ASTM C 881 will be used to bond freshly mixed concrete to hardened new or existing concrete. The epoxy shall be placed according to the manufacturer's specifications. All surfaces shall meet the approval of the Owner prior to placement of concrete.

8.1.1 High-Pressure Water Jet. A stream of water under a pressure of not less than 3,000 psi may be used for cleaning. Its use shall be delayed until the concrete is sufficiently hard so that only the surface skin or mortar is removed, and there is no undercutting of coarse aggregate particles. Where the cleaning occurs more than 2 days prior to placing the next lift, or where the work in the area subsequent to the cleaning causes dirt or debris to be deposited on the surface, the surface shall be cleaned again as the last operation prior to placing the next lift. If the water jet is incapable of a satisfactory cleaning, the surface shall be cleaned by wet sandblasting.

8.1.2 Wet Sandblasting. When employed in the preparation of construction joints, wet sandblasting shall be performed as the final operation completed before placing the following lift. The operation shall be continued until all accumulated laitence, coatings, stains, debris, and other foreign materials are removed. The surface of the concrete shall then be washed thoroughly to remove all loose material. The surface shall again be washed just prior to placing the succeeding lift.

8.1.3 Waste Disposal. The method used in disposing of waste water employed in cutting, washing, and rinsing of concrete surfaces shall be such that the waste water does not stain, discolor, or affect exposed surfaces of the structures, or damage the environment of the project area. Method of disposal shall be subject to approval.

8.2 Embedded Items. Before placing concrete, care shall be taken to determine that all embedded items are firmly and securely fastened in place as indicated on the drawings, or as required. Embedded items shall be free of oil and other foreign matter such as loose coatings of rust, paint and scale. The embedding of wood in concrete will be permitted only when specifically authorized or directed. Required voids shall be filled temporarily with readily removable materials to prevent the entry of concrete into the voids.

9. PLACING.

9.1 General. Concrete placement shall not be permitted when weather conditions prevent proper placement and consolidation. Concrete shall be conveyed from the mixer to the forms as rapidly as practicable, by methods which prevent segregation or loss of ingredients. Concrete shall be in place within 30 minutes after discharge from the mixer. Concrete shall be deposited as close as possible to its final position in the forms and be so regulated that it may be effectively consolidated in horizontal layers 18 inches or less in thickness. The placement shall be carried on at such a rate that the formation of cold joints will be prevented. Each layer of concrete shall be consolidated by internal vibrating equipment. Vibration shall be systematically accomplished by inserting the vibrator through the fresh concrete into the layer below at a uniform spacing over the entire area of placement. The distance between insertions shall be approximately 1-1/2 times the radius of action of the vibrator and overlay the adjacent, just vibrated area by a few inches. The vibrator shall penetrate rapidly to the bottom of the layer and at least 6 inches into the layer below if such exists. It shall be held stationary until the concrete is consolidated (normally 4 to 6 seconds, but some mixes may require more time) and then withdrawn slowly.

9.2 Pumping Placement. Concrete may be conveyed by positive displacement pump when approved. The pumping equipment shall be piston or squeeze pressure type. The pipeline shall be rigid steel pipe or heavy duty flexible hose. Aluminum pipe will not be permitted. The inside diameter of the pipe shall be at least three times the nominal maximum size coarse aggregate in the concrete mixture to be pumped but not less than 4 inches. The maximum size coarse aggregate shall be as specified. The concrete quality shall be as previously specified. The distance to be pumped shall not exceed limits recommended by the pump manufacturer. The concrete shall be supplied to the concrete pump continuously. When pumping is completed, concrete remaining in the pipeline shall be ejected without contamination of concrete in place. After each operation, equipment shall be thoroughly cleaned, and flushing water shall be wasted off the work site at a location approved by the Owner.

9.3 Hot Weather Placing. Concrete shall be properly placed and finished with approved procedures in accordance with Paragraph 5.3.3. The Concrete placing temperature shall not exceed 90° F. Cooling of the mixing water and/or aggregates will be required to obtain an adequate placing temperature. An approved retarder may be used to facilitate placing and finishing. Steel forms and reinforcement shall be cooled prior to concrete placement when steel temperatures are greater than 120° F. Conveying and placing equipment shall be cooled if necessary to maintain proper concrete placing temperatures.

9.4 Cold Weather Placing. Concrete shall not be placed without a procedure approved in accordance with Paragraph 5.3.2 when the concrete is likely to be subjected to freezing temperatures before the expiration of the curing period. The ambient temperature of the space adjacent to the concrete placement and surfaces to receive concrete shall be maintained at not less than 40° F. The placing temperature of the concrete having a minimum dimension less than 12 inches shall be between 60° and 75° F. The placing temperature of concrete having a minimum dimension greater than 12 inches shall be between 50° and 75° F. Heating of the mixing water or aggregates will be required to regulate the concrete placing temperatures. Materials entering the mixer shall be free from ice, snow, or frozen lumps. Salt, chemicals, or other materials shall not be mixed with the concrete to prevent freezing, except that calcium chloride may be used as an accelerator. The amount of calcium chloride in the concrete shall not exceed one percent by weight of cement being used, and it shall be introduced into the concrete in solution.

10. FINISHING.

10.1 General. No finishing or repairs will be done when either the concrete or the ambient temperature is below 50° F.

10.2 Finishing Formed Surfaces. Beginning no more than 24 hours after form removal, all fins and loose materials shall be removed and surface defects, including tie holes, shall be filled. All honeycomb and other defects shall be repaired. All unsound concrete shall be removed from areas to be repaired. Surface defects greater than 1/2 inch in diameter and holes left by removal of tie rods in all surfaces not to receive additional concrete shall be reamed or chipped and filled with dry pack mortar. Areas to be repaired shall be dampened, brush-coated with a neat cement grout and filled with mortar or concrete. The cement used in mortar or concrete for repairs to all surfaces permanently exposed to view shall be a blend of Portland Cement and white cement properly proportioned so that the final color, when cured, will be the same as adjacent concrete.

10.3 Finishing Unformed Surfaces. All unformed surfaces, that are not to be covered by additional concrete or backfill, shall be float-finished to elevations shown on the drawings. Surfaces to receive additional concrete or backfill shall be brought to the elevations shown on the drawing and left as a true and regular surface. Exterior surfaces shall be sloped for drainage unless otherwise shown on the drawings. Joints shall be carefully made with a jointing tool. Unformed surfaces shall be finished to a tolerance of 1/4 inch for a float finish as determined by a 10 foot straightedge placed on surfaces shown on the plans to be level, or having a constant slope. Finishing shall not be performed while there is excess moisture or bleeding water on the surface.

10.3.1 Floated Finish. Surfaces to be float-finished shall be screeded and darbied or bullfloated to eliminate the ridges and fill in the voids left by the screed. In addition, the darby or bullfloat shall fill all surface voids and only slightly embed the coarse aggregate. When the water sheen disappears and the concrete will support a man, floating should be completed. Floating should embed large aggregates just beneath the surface, remove slight imperfections, humps, and voids to produce a plane surface and compact the concrete and consolidate mortar at the surface.

10.3.2 Trowel Finish. Surface blemishes shall be trowel finished, after surface moisture has disappeared.

10.3.3 Broom Finish. A slip-resistant broomed surface, meeting the approval of the Owner, shall be applied to the top of banquette, top of ramp, lookout slab and walkway. The concrete surface shall be finished with a float finish prior to brooming. Floated surface, with surface blemishes troweled, to be broomed with a fiber-bristle brush in a direction transverse to that of the main traffic.

11. CURING AND PROTECTION. Beginning immediately after placement, and continuing for at least 7 days, all concrete shall be cured and protected from premature drying, extremes in temperature, rapid temperature change, freezing, mechanical damage, and exposure to rain or flowing water. All materials and equipment needed for adequate curing and protection shall be available and at the site of the placement prior to start of concrete placement. Preservation of moisture for concrete surfaces not in contact with forms shall be accomplished by one of the following methods:

a. Ponding or continuous sprinkling.

b. Application of absorptive mats or fabrics kept continuously wet.

c. Application of sand kept continuously wet.

d. Application of impervious sheet material conforming for ASTM C 171.

e. Application of membrane-forming curing compound conforming to ASTM C 309, Type I-D on surfaces permanently exposed to view or Type 2 on other surfaces, in accordance with manufacturer's instructions.

The preservation of moisture for concrete surfaces placed against wooden forms shall be accomplished by keeping the forms continuously wet for 7 days. If forms are removed prior to 7 days, other curing methods shall be used for the balance of the 7 day period. During the period of protection removal, the temperature of the air in contact with the concrete shall not be allowed to drop more than 25° F in 24 hours.

11.1 Hot Weather. When the rate of evaporation of surface moisture, as determined by use of Fig 2.1.5 of ACI 305R, may reasonably be expected to exceed 0.2 lb per square foot per hour, provision for windbreaks, shading, fog spraying, or wet covering with a light-colored material shall be made in advance of placement, and such protective measures shall be taken as quickly as finishing operations will allow.

11.2 Cold Weather. When the mean daily outdoor temperature is less than 40° F, the temperature of the concrete shall be maintained between 50° F and 70° F for the required curing period. In addition, during the period of protection removal, the air temperature adjacent to the concrete surfaces shall be controlled so that concrete near the surface will not be subjected to a temperature differential of more than 25° F as determined by observation of ambient and concrete temperatures indicated by suitable thermometers installed adjacent to the concrete surface and 2 inches inside the surface of the

concrete. The installation of the thermometers shall be made by the Contractor at such locations as may be directed. Curing compounds shall not be used on concrete surfaces which are maintained at curing temperature by use of free steam.

12. CONTRACTOR QUALITY CONTROL.

12.1 General. Contractor quality control is that system by which a Contractor regulates, tests, and inspects his procedures, equipment, materials, and personnel so that the completed project will comply with the requirements of the project specifications.

12.2 Inspection Details and Frequency of Testing.

12.2.1 Preparations for Placing. Joints, forms, and embedded items shall be inspected in sufficient time prior to each concrete placement by the Contractor, in order to certify to the Owner that it is ready to receive concrete.

12.2.2 Air Content. Entrained air content will be checked at least twice during each shift that concrete is placed. Samples will be obtained in accordance with ASTM C 172 and tested in accordance with ASTM C 231. If pumped concrete will be used, samples will be obtained at the point of final placement.

12.2.3 Slump. Slump will be checked at least twice during each shift that concrete is produced. Slump will be check in accordance with ASTM C 143. If pumped concrete will be used, samples will be obtained at the point of final placement.

12.2.4 The Contractor shall insure that the concrete is properly consolidated, finished, protected, and cured.

12.2.5 Cylinders for Testing. Concrete test cylinders shall be obtained and cured in accordance with ASTM C 31. At least three cylinders shall be obtained during each shift of concrete placement. Concrete cylinders shall be tested in accordance with ASTM C 39.

12.2.6 Curing.

12.2.6.1 Curing Compound. No curing compound shall be applied until it has been verified that the compound is properly mixed and ready for spraying. At the end of each operation, the quantity of compound used and the area of concrete surface covered shall be reported and the rate of coverage in square feet per gallon shall be computed. The report shall state whether coverage is uniform.

12.2.6.2 Impervious Sheeting Curing. At least once each shift, an inspection shall be made of all areas being cured using impervious sheets. The condition of the covering and the tightness of the laps and tapes shall be noted and recorded.

12.2.6.3 Protection. At least once each shift, an inspection shall be made of all areas subject to cold weather protection. Deficiencies shall be noted. During removal of protection, measurement of concrete and ambient temperature shall be made at least hourly.

12.3 Reports. All results of tests and inspections conducted at the project site shall be reported in writing daily, and shall be delivered to a designated representative of the Owner. During periods of cold weather protection, reports of pertinent temperatures shall be made daily. These requirements do not relieve the Contractor of the obligation to report any failures immediately. Such reports of failures and the action taken shall be confirmed in writing in the routine reports. The Owner has the right to examine all Contractor quality control records.

13. MEASUREMENT AND PAYMENT.

Payment will be at the contract lump sum price in place which shall include all costs for furnishing and placing materials required under Division 3 and the Drawings as necessary to complete the work for the following items:

Item No. 4: Concrete Boat Launch

SHADES BEACH
HARBORCREEK TOWNSHIP, PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS
DIVISION 3
SECTION 3B

STEEL BARS AND ACCESSORIES FOR CONCRETE REINFORCEMENT

TABLE OF CONTENTS

PARAGRAPH	DESCRIPTION	PAGE
1	SCOPE	3B-1
2	RELATED WORK SPECIFIED ELSEWHERE	3B-1
3	APPLICABLE PUBLICATIONS	3B-1
4	QUALITY ASSURANCE	3B-2
5	SUBMITTALS	3B-2
6	MATERIALS	3B-3
7	PLACEMENT	3B-3
8	MEASUREMENT AND PAYMENT	3B-4

SHADES BEACH
HARBORCREEK TOWNSHIP, PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS
DIVISION 3
SECTION 3B

STEEL BARS AND ACCESSORIES FOR CONCRETE REINFORCEMENT

1. SCOPE. The work covered by this section consists of furnishing all equipment, materials, and labor for providing and placing steel bars, steel welded wire fabric, and accessories for concrete reinforcement.

2. RELATED WORK SPECIFIED ELSEWHERE.

2.1 Concrete. Section 3A, CONCRETE

2.2 Formwork. Section 3 C, FORMWORK FOR CONCRETE

2.3 Joints. Section 3 D, EXPANSION, CONTRACTION, AND CONSTRUCTION JOINTS

3. APPLICABLE PUBLICATIONS. The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by the references thereto:

3.1 American Concrete Institute (ACI) Standards.

ACI 315-80	Details and Detailing of Concrete Reinforcement
ACI 318-83	Building Code Requirements for Reinforced Concrete

3.1 American Society for Testing and Materials (ASTM) with Corresponding CRD Standard Indicated Where Available.

A 185-85 (CRD-C 510)	Steel Welded Wire Fabric, Plain, for Concrete Reinforcement
A 370-86a	Mechanical Testing of Steel Products
A 615-86	Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
A 497-86	Steel Welded Wire Fabric, Deformed, For Concrete Reinforcement

3.3 American Welding Society (AWS) Code.

D 1.4-79 Structural Welding Code-Reinforcing Steel

4. QUALITY ASSURANCE. The Contractor shall have required material tests performed by an approved laboratory and certified to demonstrate that the materials are in conformance with the specifications. Tests shall be performed and certified at the Contractor's expense.

4.1 Reinforcement Steel Tests. Mechanical testing of steel shall be in accordance with ASTM A 370 except as otherwise specified herein or required by the material specifications. Tension tests shall be performed on full cross-section specimens using a gage length that spans the extremities of specimens with welds or sleeves included. The ladle analysis shall show the percentages of carbon, phosphorous, manganese, and sulfur present in the steel.

5. SUBMITTALS.

5.1 Shop Drawings. The Contractor shall prepare and submit complete shop drawings to the Owner for approval in accordance with specified requirements. Shop drawings shall include the following:

(1) Reinforcement steel schedules complete with the quantity, shape and size, dimensions, weight per foot and total weights, and bending details.

(2) Details of bar supports including types, sizes, spacing, and sequence.

5.2 Test Reports. Certified test reports of reinforcement steel showing that the steel complies with the applicable specifications shall be submitted to the Owner by the Contractor. Reports shall be furnished for each steel shipment and shall be identified with specific lots prior to use of the steel in the work.

5.2.1 Chemical Composition of Reinforcement Steel. The Contractor shall provide the Owner three copies of the ladle analysis of each lot of reinforcement steel. The ladle analysis shall be obtained from the manufacturer and the Contractor shall certify that the steel furnished conforms to the ladle analysis.

5.3 Disposition Records. A system of identification which shows the disposition of specific lots of approved materials in the work shall be established and submitted to the Owner before completion of the contract.

6. MATERIALS.

6.1 Steel Bars shall conform to Grade 60, and shall be the size and length shown on the drawings.

6.1.1 Billet-Steel Bars shall conform to ASTM A 615, Grade 60, deformed.

6.2 Steel Welded Wire Fabric shall conform to ASTM A 185, or A 497, wire spacing and sizes as indicated on the drawings. For wire with a specified yield strength (f_y) exceeding 60,000 psi, (f_y) shall be the stress corresponding to a strain of 0.35 percent.

6.3 Accessories.

6.3.1 Bar Supports ACI 315. Supports for formed surfaces exposed to view or to be painted shall be plastic protected wire, stainless steel or precast concrete supports. Precast concrete bar supports shall be wedge-shaped, not larger than 3-1/2 x 3-1/2 inches, of thickness equal to that indicated for concrete cover, and have an embedded hooked tie wire for anchorage. If formed surface is exposed to view, precast concrete bar supports shall be the same quality, texture and color as the finish surface.

6.3.2 Wire Ties shall be 16-gage or heavier black annealed wire.

7. PLACEMENT. Reinforcement steel and accessories shall be placed as specified and as shown on contract drawings and approved shop drawings. Placement details of steel and accessories not specified or shown on the drawings shall be in accordance with ACI 315 and ACI 318 or as directed by the Owner. Steel shall be fabricated to shapes and dimensions shown, placed where indicated within specified tolerances, and adequately supported during concrete placement. At the time of concrete placement all steel shall be free from loose, flaky rust, scale (except tight mill scale), mud, oil, grease or any other coating that might reduce the bond with the concrete.

7.1 Hooks and Bends. Steel may be mill or field bent. All steel shall be bent cold unless otherwise authorized. No steel bars shall be bent after being partially embedded in concrete unless indicated on the drawings or otherwise authorized.

7.2 Welding of steel will be permitted only where indicted on the drawings or as otherwise directed by the Owner. Welding shall be performed in accordance with AWS D 1.4, except where otherwise specified or indicated on the drawings.

7.3 Placing Tolerances.

7.3.1 Spacing. The spacing between adjacent bars and the distance between layers of bars may not vary from the indicted position by more than one bar diameter nor more than one inch.

7.3.2 Concrete Cover. The minimum concrete cover of main reinforcement steel shall be as shown on the drawings. The allowable variation for minimum cover shall be as follows:

MINIMUM COVER	VARIATION
3-Inch	+ 3/8-Inch

7.4 Splicing. Splices in steel shall be made only as required. Bars may be spliced at alternate or additional locations at no additional cost to the Government, subject to the approval of the Owner.

7.4.1 Lap Splices shall be used only for bars smaller than size #14 and welded wire fabric. Lapped bars may be placed in contact and securely tied or spaced transversely apart to permit the embedment of the entire surface of each bar in concrete. Lapped bars shall not be spaced farther apart than one-fifth the required length of lap or 6-inches.

8. MEASUREMENT AND PAYMENT.

The work under this section shall be incidental to section 3A-Concrete.

SHADES BEACH
HARBORCREEK TOWNSHIP, PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS
DIVISION 3
SECTION 3C

FORMWORK FOR CONCRETE

TABLE OF CONTENTS

PARAGRAPH	DESCRIPTION	PAGE
	PART I - GENERAL	
1	SCOPE	3C-1
2	RELATED WORK SPECIFIED ELSEWHERE	3C-1
3	APPLICABLE PUBLICATIONS	3C-1
4	SUBMITTALS	3C-1
	PART II - PRODUCTS	
5	DESIGN	3C-2
6	MATERIALS	3C-2
	PART III - EXECUTION	
7	INSTALLATION	3C-3
8	CHAMFERING	3C-3
9	COATING	3C-3
10	REMOVAL	3C-4
11	FIELD QUALITY CONTROL	3C-4
12	PAYMENT	3C-4

SHADES BEACH
HARBORCREEK TOWNSHIP, PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS
DIVISION 3
SECTION 3C

FORMWORK FOR CONCRETE

PART I- GENERAL

1. SCOPE. The work covered by this section consists of furnishing all plant, labor, material, and equipment and performing all operations necessary to construct the concrete forms in accordance with these specifications.

2. RELATED WORK SPECIFIED ELSEWHERE.

2.1 Concrete. Section 3A, CONCRETE

2.2 Reinforcing Steel. Section 3B, STEEL BARS AND ACCESSORIES FOR CONCRETE REINFORCEMENT

2.3 Joints. Section 3D, EXPANSION, CONTRACTION, AND CONSTRUCTION JOINTS

3. APPLICABLE PUBLICATIONS. The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by the references thereto:

3.1 American Concrete Institute (ACI) Standards.

ACI 347-78	Recommended Practice for Concrete Formwork

3.2 U.S. Department of Commerce, National Bureau of Standards (NBS) Product Standard.

PS 1-83	Construction and Industrial Plywood

4. SUBMITTALS.

4.1 Shop Drawings. Drawings and computations for all formwork required shall be submitted at least 30 days before either fabrication on site or before delivery of prefabricated forms. The drawing and data submitted shall include the type, size, quantity, and strength of all materials of which the forms are made, the plan for jointing of facing panels, details affecting the appearance and the assumed design values and loading conditions.

4.2 Manufacturer's Literature shall be submitted for plywood, concrete form hard board, form accessories, prefabricated forms and form coatings.

PART II - PRODUCTS

5. DESIGN. The design and engineering of the formwork, as well as its construction, shall be the responsibility of the Contractor. The formwork shall be designed for loads, lateral pressure, and allowable stresses in accordance with Chapter 1 of ACI Standard 347. Forms shall have sufficient strength to withstand the pressure resulting from placement and vibration of the concrete and shall have sufficient rigidity to maintain specified tolerances.

6. MATERIALS.

6.1 Forms shall be fabricated with facing materials that produce the specified construction tolerance requirements of Section 3A, CONCRETE.

6.1.1 Class "C" Finish. This class of finish shall apply to all surfaces. The sheathing shall be composed of tongue-and-groove lumber, plywood conforming to NBS Product Standards PS-1 exterior type, grade B-B plyform, tempered concrete form hardboard, or steel. Steel lining on wood sheathing will not be permitted.

6.1.2 Surface Requirements. Allowable irregularities are designated "abrupt" or "gradual" for purposes of providing for surface variations. Offsets resulting from displaced, misplaced, or mismatched forms, sheathing, loose knots in sheathing, or other similar defects, shall be considered "abrupt" irregularities. Irregularities resulting from warping, unplaneness, or similar uniform variations from planeness, or true curvature, shall be considered "gradual" irregularities. "Gradual" irregularities will be checked for compliance with the prescribed limits with a 5-foot template, consisting of a straightedge for plane surfaces and a shaped template for curved or warped surfaces. In measuring irregularities, the straightedge or template may be placed anywhere on the surface in any direction, with the testing edge held parallel to the intended surface.

Class of Finish - Type C required.

Irregularities

Abrupt, inches	Gradual, inches
None	1/4

6.2 Form Accessories. Ties and other similar form accessories to be partially or wholly embedded in the concrete shall be of a commercially manufactured type. After the ends or end fasteners have been removed, the embedded portion of metal ties shall terminate not less than 2 inches from any concrete surface either exposed to view or exposed to water. Plastic snap ties may be used in locations where the surface will not be exposed to view. Form ties shall be constructed so that the ends or end fasteners can be removed without spalling the concrete.

6.3 Form coating shall be a commercial formulation of satisfactory and proven performance that will not bond with, stain or adversely affect concrete surfaces and will not impair subsequent treatment of concrete surfaces depending upon bond or adhesion nor impede the wetting of surfaces to be cured with water or curing compounds.

PART III - EXECUTION

7. INSTALLATION. Forms shall be mortar tight, properly aligned and adequately supported to produce concrete surfaces meeting the surface requirements of paragraph "SURFACE REQUIREMENTS" (this Section), and conforming to construction tolerance of Section 3A, CONCRETE. Where concrete surfaces are to be permanently exposed to view, joints in form panels shall be arranged to provide a pleasing appearance. Where forms for continuous surfaces are placed in successive units, care shall be taken to fit the forms and to prevent leakage of mortar. Forms shall not be reused if there is any evidence of surface wear and tear or defects which would impair the quality of the surface. All surfaces of forms and embedded materials shall be cleaned of any mortar from previous concreting and of all other foreign material before concrete is placed in them.

8. CHAMFERING. All exposed joints, edges, and external corners shall be chamfered by molding placed in the forms unless the drawings specifically state that chamfering is to be omitted or as otherwise specified. Chamfered joints shall not be permitted where earth or rockfill is placed in contact with concrete surfaces. Chamfered joints shall be terminated a sufficient distance outside the limit of the earth or rockfill so that the end of the joints will be clearly visible.

9. COATING. Forms for exposed or painted surfaces shall be coated with form oil or a form-release agent before the form or reinforcement is placed in final position. The coating shall be used as recommended in the manufacturer's printed or written instructions. Forms for unexposed surfaces may be wet with water in lieu of coating immediately before placing concrete, except that in cold weather with probable freezing temperatures coating shall be mandatory. Surplus coating on form surfaces and coating on reinforcing steel and construction joints shall be removed before placing concrete.

10. REMOVAL. Forms shall not be removed without approval and all removal shall be accomplished in a manner which will prevent injury to the concrete. Formwork for vertical type forms not supporting the weight of concrete shall not be removed in less than 24 hours. The time depends on temperature, lift heights, and type and amount of cementitious material in the concrete.

11. FIELD QUALITY CONTROL. Forms and embedded items shall be inspected in sufficient time prior to each concrete placement by the Contractor in order to certify to the Owner that they are ready to receive concrete. The results of each inspection shall be reported in writing.

12. PAYMENT. No separate payment will be made for formwork and all costs in connection therewith shall be included in the contract unit or lump sum prices for the items of work to which the work is incidental.

SHADES BEACH
HARBORCREEK TOWNSHIP, PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS
DIVISION 3
SECTION 3D

EXPANSION, CONTRACTION, AND CONSTRUCTION JOINTS IN CONCRETE

TABLE OF CONTENTS

PARAGRAPH	DESCRIPTION	PAGE
1	SCOPE	3D-1
2	RELATED WORK SPECIFIED ELSEWHERE	3D-1
3	APPLICABLE PUBLICATIONS	3D-1
4	QUALITY ASSURANCE	3D-2
5	SUBMITTALS	3D-2
6	MATERIALS	3D-2
7	INSTALLATION	3D-2
8	PAYMENT	3D-3

SHADES BEACH
HARBORCREEK TOWNSHIP, PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS
DIVISION 3
SECTION 3D

EXPANSION, CONTRACTION, AND CONSTRUCTION JOINTS IN CONCRETE

1. SCOPE. This section covers the materials, techniques, and workmanship requirements for forming expansion, contraction, and construction joints in concrete structures.

2. RELATED WORK SPECIFIED ELSEWHERE.

2.1 Concrete. Section 3A, CONCRETE

2.2 Reinforcing Steel. Section 3B, STEEL BARS AND ACCESSORIES FOR CONCRETE REINFORCEMENT

2.3 Formwork. Section 3C, FORMWORK FOR CONCRETE

3. APPLICABLE PUBLICATIONS. The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by the references thereto:

3.1 American Society for Testing and Materials (ASTM) Publications with Corresponding CRD Standard.

C 578-85	Preformed, Cellular Polystyrene Thermal Insulation
D 1190-74	Concrete Joint Sealer, Hot Poured Elastic Type
D 1751-83 (CRD-C508)	Preformed Expansion Joint Fillers For Concrete Paving and Structural Construction (Nonextruding and (Resilient Bituminous Types)

3.2 Federal Specifications (Fed. Spec.) with Corresponding CRD Standard Indicated Where Available.

HH-F-341F	Fillers, Expansion Joint; Bituminous (Asphalt and Tar) and Nonbituminous (Performed for Concrete)
SS-C-153C	Cement, Bituminous, Plastic

TT-S-00227E (CRD-C 506)	Sealing Compound, Elastomeric Type, Multi-Component (for Caulking, Sealing, and Glazing in Buildings and Other Structures).

4. QUALITY ASSURANCE.

4.1 Material Tests.

4.1.1 Bituminous Cement and Sealing Compound. Samples of cement and sealant compound, as required in Para. 5.2.1 below, shall be tested by and at the expense of the Owner for compliance with Fed. Spec. SS-C-153 and Fed. Specs. SS-S-1401 or ASTM D 1190, respectively. If samples fail to meet specification requirements, new samples shall be provided, and the cost of retesting will be deducted from payments due the Contractor.

5. SUBMITTALS.

5.1 Test Reports. Certified manufacturer's test reports shall be provided for preformed, expansion-joint filler strips to verify compliance with the applicable specification.

5.2 Samples.

5.2.1 Bituminous Cement and Sealing Compound. One gallon each of bituminous cement and sealant shall be provided for testing.

6. MATERIALS.

6.1 Expansion Joint Filler shall conform to ASTM D 1751 or Fed. Spec. HH-F-341, Type I.

6.2 Joint Sealer shall conform to Fed. Spec. TT-S-227.

6.3 Bituminous Material for vertical surfaces of contraction joints shall conform to Fed. Spec. SS-C-153.

6.4 Rigid Extruded Polystyrene Foam Joint Material shall conform to ASTM C 578, Type II (Styrofoam as manufactured by Dow or approved equal).

7. INSTALLATION. Joint locations and details, including materials and methods of installation of joint fillers, and bituminous cement, shall be as specified, shown on the drawings and as directed. In no case, shall any fixed metal be continuous through an expansion or contraction joint.

7.1 Expansion Joints. All expansion joints shall be constructed perpendicular and straight. Preformed filler strips shall be accurately positioned in the joints to their full depth and secured against displacement to clean, smooth concrete

surfaces. After the concrete has hardened, a saw-cut shall be made in the top portion of the joint with a diamond cutting blade or equivalent. A formed groove with the same dimensions will be permitted in lieu of saw-cutting at locations where saw-cuts cannot be made. Material used to secure preformed fillers and groove form to concrete shall not harm the concrete and shall be compatible with the joint sealer. The groove shall be thoroughly cleaned of all laitence, curing compound, foreign materials, protrusions of hardened concrete, and any dust which shall be blown out of the groove with oil-free compressed air.

7.1.1 Joint Sealer. Joints shall be sealed when the air and concrete temperatures are greater than 40° F. Joints shall be primed and filled flush with joint sealer in accordance with the manufacturer's recommendations.

7.2 Contraction Joints. All contraction joints shall be constructed perpendicular and straight. The entire surface of the joint shall be painted with the bituminous cement material as shown on the contract drawings. Joints requiring a bond breaker shall be coated with curing compound or with bituminous paint.

7.3 Construction Joints. Where vertical construction joints are used, they shall be located at either an expansion or contraction joint. Horizontal construction joints shall be located as noted on the contract drawings. The preparation of concrete surfaces at construction joints before placing concrete is specified in Section 3A, CONCRETE.

8. PAYMENT.

8.1 Expansion, Contraction and Construction Joints. No separate payment will be made for expansion, contraction and construction joints, and all costs in connection therewith shall be included in the contract unit or lump sum prices for the items of work to which the work is incidental.

SHADES BEACH
HARBORCREEK TOWNSHIP, PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS
DIVISION 5
SECTION 5A

MISCELLANEOUS METAL MATERIALS, STANDARD ARTICLES AND SHOP FABRICATED ITEMS

TABLE OF CONTENTS

PARAGRAPH	DESCRIPTION	PAGE
1	SCOPE	5A-1
2	APPLICABLE PUBLICATIONS	5A-1
3	QUALITY ASSURANCE	5A-2
4	SUBMITTALS	5A-2
5	MISCELLANEOUS METAL MATERIALS AND STANDARD ARTICLES	5A-2
6	SHOP FABRICATED METAL ITEMS	5A-3
7	PAYMENT	5A-3

SHADES BEACH
HARBORCREEK TOWNSHIP, PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS
DIVISION 5
SECTION 5A

MISCELLANEOUS METAL MATERIALS, STANDARD ARTICLES AND SHOP FABRICATED ITEMS

1. SCOPE. The work covered by this section consists of providing all equipment, materials, and labor for fabricating, furnishing and installing miscellaneous metal materials, standard articles and shop fabricated items. Additional fabrication requirements and workmanship provisions for items specified in this section shall conform with the requirements of Section 5B, METALWORK FABRICATION AND MISCELLANEOUS PROVISIONS.

2. APPLICABLE PUBLICATIONS. The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by the references thereto or as required:

2.1 American Society for Testing and Materials (ASTM) Publications.

A 36-84a	Structural Steel
A194-85	Carbon and Alloy Steel Nuts for Bolts for High Pressure and High Temperature Service
A276-86a	Stainless and Heat-Resisting Steel Bars and Shapes
A320/A320M-85a	Alloy Steel Bolting Materials for Low Temperature Service
A 475-78 (R1984)	Zinc-Coated Steel Wire Strand
A615-84a	Deformed and Plain Billet-Steel Bars for Concrete Reinforcement

2.2 Federal Specifications (Fed. Spec.)

FF-C-450D & AM-1	Clamp-Wire Rope
Ff-T-791B & AM-1	Turnbuckle

3. QUALITY ASSURANCE. Tests, workmanship and other applicable quality control requirements for quality assurance for materials and items contained herein shall be as specified in Section 5B, METALWORK FABRICATION AND MISCELLANEOUS PROVISIONS.

4. SUBMITTALS.

4.1 Shop Drawings. Shop drawings shall be submitted for approval in accordance with the SPECIAL CLAUSES. Drawings shall include catalog cuts, templates, fabrication and installation details and type, grade and class of materials, as appropriate. Any component part of fabricated items omitted on contract drawings shall be detailed by the fabricator on the shop drawings.

4.2 Samples. Samples shall be submitted as required. Samples of standard or fabricated items shall be full size and complete as required for installation in the work. Approved samples may be installed in the work, provided each sample is clearly identified and its location recorded.

4.3 Certificates for materials test and analysis shall be submitted for approval as required.

5. MISCELLANEOUS METAL MATERIALS AND STANDARD ARTICLES. Materials and standard articles shall conform to the respective specifications and other designated requirements. Where requirements are not specified, materials for specific items shall be suitable for the intended use of the item.

5.1 Structural Steel. ASTM A36.

5.2 Anchor Bolts, Nuts and Washers. Anchor bolts, nuts, and washers shall be of the mateial, grade, type, class, style, and finish indicted or best suited for intended use. Bolt shanks shall be at least equal to nominal bolt size shown or specified.

5.2.1 Anchor Bolts - ASTM A276, Type 304 (UNS Designation S30400).

5.2.2 Nuts - ANS1 B18.2.2, ASTM A194 - Grade 8.

5.2.3 Plain Washers - ANS1 B18.22.1, ASTM A320.

5.3 Wire Rope. ASTM A475, Common Grade, Class A coating.

5.4 Turnbuckles. Turnbuckles shall be galvanized forged steel with positive grip wire rope fittings, and conforming to Fed. Spec. FF-T-791.

5.5 Wire Rope Clamps. Fed. Spec. FF-C-450, Type 1 - Class 1.

6. SHOP FABRICATED METAL ITEMS. Shop fabricated metal items shall conform to the requirements and details as specified or shown on the drawings and to the workmanship provisions and other applicable fabrication requirements as specified in the Technical Provision entitled METALWORK FABRICATION AND MISCELLANEOUS PROVISIONS.

7. PAYMENT. No separate payment will be made for furnishing and installing miscellaneous metal materials, standard articles and shop fabricated items. All costs in connection therewith shall be included in the contract unit or lump sum prices for the items of work which involve these materials.

SHADES BEACH
HARBORCREEK TOWNSHIP, PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS
DIVISION 5
SECTION 5B

METALWORK FABRICATION AND MISCELLANEOUS PROVISIONS

TABLE OF CONTENTS

PARAGRAPH	DESCRIPTION	PAGE
1	SCOPE	5B-1
2	APPLICABLE PUBLICATIONS	5B-1
3	QUALITY ASSURANCE	5B-1
4	SUBMITTALS	5B-2
5	STRUCTURAL FABRICATION	5B-3
6	WELDING	5B-3
7	BOLTED CONNECTIONS	5B-4
8	MISCELLANEOUS PROVISIONS	5B-4
9	INSTALLATION	5B-5
10	PAYMENT	5B-5

SHADES BEACH
HARBORCREEK TOWNSHIP, PA

SPECIFICATIONS
PART II
TECHNICAL PROVISIONS
DIVISION 5
SECTION 5B

METALWORK FABRICATION AND MISCELLANEOUS PROVISIONS

1. SCOPE. This section specified the general workmanship standards applicable to the fabrication, assembly and testing of various items of metalwork to insure conformance with the specifications and miscellaneous requirements incident to the work. The requirements are in addition to those contained in the sections pertaining to the specific items of work or indicated on the drawings.

2. APPLICABLE PUBLICATIONS. The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by the references thereto or as required:

2.1 American Society for Testing and Materials (ASTM) Publications.

A 123-84	Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

2.2 American Welding Society, Inc. (AWS) Code.

D 1.1-85	Structural Welding Code-Steel

2.3 Military Specifications (Mil. Spec.).

DOD-P-21035A	Paint, High Zinc Dust Content, Galvanizing Repair (Metric)

3. QUALITY ASSURANCE.

3.1 Tests of Materials. The Contractor shall, at his expense, perform analyses and tests to demonstrate that all material is in conformity with the specifications. Should the Contractor desire to use stock materials not manufactured specifically for the work covered by these specifications, he shall submit evidence, satisfactory to the Owner, that such material conforms to the requirements of the specifications. Detailed tests of these materials will then not be required, if so approved by the Owner. Tests, except where modified, shall be made as indicated in the respective detailed specifications or on the drawings and, unless otherwise authorized, in the presence of the Owner. The Contractor shall furnish the Owner certified

reports of all required analyses and tests in accordance with paragraph "CONTRACTOR SUBMITTAL PROCEDURES" of the Special Clauses. The Contractor shall furnish the Owner, upon request, specimens and samples for independent analyses and tests. These specimens and samples shall be properly labeled and prepared for shipment.

3.2 Special Test Requirements.

3.2.1 Nondestructive Testing. When doubt exists as to the soundness of any material part, such part may be subjected to any form of nondestructive testing as determined by the Owner. This may include ultrasonic, magnaflux, dye penetrant, x-ray, gamma ray, or any other test that will thoroughly investigate the part in question. The cost of such investigation will be borne by the Owner. Any defects will be cause for rejection, and rejected parts shall be replaced and retested at the Contractor's expense.

3.3 Workmanship.

3.3.1 General. Workmanship shall be of the highest grade in accordance with the best modern practices to conform to the specifications for the item of work being furnished.

3.3.2 Quality Control. The Contractor shall establish and maintain a quality control system to assure compliance with the contract requirements and shall maintain records of his quality control of all operations covered by these specifications.

4. SUBMITTALS. Contractor submittals shall be in accordance with the requirements of the particular sections of these specifications for the respective items and as herein specified.

4.1 Shop Drawings. Shop Drawings shall be submitted for approval in accordance with the SPECIAL CLAUSES. Drawings shall include catalog cuts, templates, fabrication and assembly details, and type, grade, and class of materials, as appropriate. Elements of fabricated items inadvertently omitted on contract drawings shall be detailed by the fabricator and indicated on the shop drawings.

4.2 List of Materials. The Contractor shall furnish the Owner with three copies of all purchase and mill orders, shop orders for materials and work orders, including all new orders placed by Contractor and old orders extended by each supplier. The Contractor, at the time of submittal of shop drawings, shall furnish a list designating the material to be used for each item. Where mill tests are required, the purchase orders shall contain the test site address and the name of the testing agency.

5. STRUCTURAL FABRICATIONS.

5.1 General. Material must be straight before being laid off or worked. If straightening is necessary, it shall be done by methods that will not impair the metal. Sharp kinks or bends shall be cause for rejection of the material. Material with welds will not be accepted, except where welding is definitely specified, indicated on the drawings, or otherwise approved. Bends shall be made by approved dies, press brakes, or bending rolls, Where heating is required, precautions shall be taken to avoid overheating the metal and it shall be allowed to cool in a manner that will not impair the original properties of the metal. Flame cutting of material other than structural steel shall be subject to approval and, where proposed, shall be indicated on shop drawings submitted to the Owner. Shearing shall be accurately done and all portions of the work shall be neatly finished. Corners shall be square and true unless otherwise shown on the drawings. Reentrant cuts shall be filleted to a minimum radius of 3/4-inch unless otherwise approved. Finished members shall be free from twists, bends, and open joints. All bolts and nuts shall be tight.

5.2 Dimensional Tolerances for Structural Work. Dimensions shall be measured by means of an approved calibrated steel tape of approximately the same temperature as the material being measured at the time of measurement. The overall dimensions of an assembled structural unit shall be within the tolerances indicated on the drawings or as specified in the section pertaining to the specific item of work. Except as required to meet the requirements above, an allowable variation of 1/32-inch is permissible in the overall length of individual component members with both ends milled; individual component members without milled ends shall not deviate from the dimensions shown on the drawings by more than 1/16-inch for members 30 feet or less in length and by more than 1/8-inch for members over 30 feet in length.

5.3 Structural Steel Fabrication. Structural steel may be cut by mechanically guided or hand guided torches, provided an accurate profile with a smooth surface, free from cracks and notches, is obtained. Surfaces and edges to be welded shall be prepared in accordance with AWS D1.1, Subsection 3.2. Where structural steel is not to be welded, chipping or grinding will not be required except as necessary to remove slag and sharp edges of mechanically guided cuts or hand guided cuts not exposed to view. Hand guided cuts which are to be exposed or visible shall be chipped, ground, or machined to sound metal.

6. WELDING.

6.1 Structural Steel.

6.1.1 General. Unless otherwise authorized or specified, welding of structural steel shall be by an electric arc welding process, using a method which excludes the atmosphere from the molten metal. Welding, unless specified otherwise, shall conform to the applicable provisions of Sections 1 through 7 and Sections 9 through 11 of AWS D1.1.

6.1.2 Welding Equipment. All items of welding equipment shall conform to the requirements of AWS D1.1.

6.1.3 Filler Metal. The electrode, electrode-flux combination and grade of weld metal shall conform to the appropriate AWS specification for the base metal and welding process being used. Only low hydrogen electrodes shall be used for manual shielded metal-arc welding regardless of the thickness of the steel. The AWS designation of the electrodes to be used shall be included in the schedule of welding procedure to be furnished by the Contractor. To maintain low moisture of low hydrogen electrodes, a controlled AWS D1.1, Subsection 4.5.

6.1.4 Inspection

6.1.4.1 General. Welding shall be subject to inspection by the Owner to determine conformance with the requirements of AWS D1.1, the approved welding procedures, and provisions stated elsewhere in these specifications. The Contractor shall maintain an adequate inspection system and perform the necessary inspections in accordance with the "INSPECTION OF CONSTRUCTION" paragraph of the Contract Clauses of this contract.

7. BOLTED CONNECTIONS.

7.1 Structural Steel Connections.

7.1.1 General. Bolts, nuts, and washers shall be of the type specified or indicated on the drawings. All nuts shall be equipped with washers. Beveled washers shall be used where bearing faces have a slope of more than 1:20 with respect to a plane normal to the bolt axis.

7.1.2 Bolt Holes. All bolt holes shall be acurately located, smooth, perpendicular to the member and cylindrical.

7.1.2.1 Holes for regular bolts shall be drilled or subdrilled and reamed in the shop and not more than 1/16-inch larger than the diameter of the bolt.

8. MISCELLANEOUS PROVISIONS.

8.1 Zinc Coatings. Zinc coatings hall be applied in a manner and of a thickness and quality conforming to ASTM A 123. In all cases where zinc coatings are destroyed by cutting, welding, or other causes, the affected areas shall be

regalvanized by the following methods. Coatings two ounces or heavier shall be regalvanized with a suitable low-melting zinc base alloy similar to the recommendations of the American Hot-Dip Galvanizers Association to the thickness and quality specified for the original zinc coating. Coatings less than two ounces shall be regalvanized by a repair compound conforming to Mil. Spec. DOD-P-21035.

9. INSTALLATION.

9.1 General. Where units or items are shipped as assemblies, they will be inspected by the Owner prior to installation. Pipe wrenches, cold chisels, or other tools likely to cause damage to the surfaces of rods, nuts, or other parts shall not be used for the work of assembling and tightening parts. Bolts and screws shall be tightened firmly and uniformly, but care shall be taken not to overstress the threads. When a half nut is used for locking a full nut, the half nut shall be placed first and followed by the full nut. Threads of all bolts shall be lubricated by graphite and oil before assembly. Driving and drifting bolts or keys will not be permitted.

9.2 Alignment and Setting. Each structural unit shall be acurately aligned by the use of steel shims or other approved method so that no distortion of any member occurs before it is finally fastened in place. The alignment of all parts with respect to each other shall be true within the respective tolerances required.

10. PAYMENT. No separate payment will be made for the material and work covered under this section and all costs in connection therewith shall be included in the applicable contract price for the item to which the material and work pertains.

DATE DUE

GAYLORD	No. 2333		PRINTED IN U.S.A.

NOAA COASTAL SERVICES CENTER LIBRARY

3 6668 14107 8362