



**CONTRACT DOCUMENTS FOR
CONTRACT NO. 08-017C-400.000
ENGLEWOOD DAM RELIEF WELLS
MONTGOMERY COUNTY, ENGLEWOOD, OHIO**

June 2008

**The Miami Conservancy District
38 East Monument Avenue
Dayton, Ohio 45402-1265**

**(937) 223-1271
Fax (937) 223-4730
www.miamiconservancy.org**

TABLE OF CONTENTS

Page No.

LEGAL AND BIDDING DOCUMENTS (WHITE PAGE SECTION)	6
LEGAL ADVERTISEMENT	7
INSTRUCTIONS TO BIDDERS	8
IB1. Use of Bid Forms	9
IB2. Interpretations or Addenda.....	9
IB3. Bids	9
IB4. Bid Guaranty	10
IB5. Corrections	11
IB6. Time for Receiving Bids.....	11
IB7. Opening of Bids	11
IB8. Withdrawal of Bids	11
IB9. Award of Contract: Rejection of Bids.....	12
IB10. Performance Bond	12
IB11. Competency of Bidders	12
IB12. Form of Contract/Amendments to Contract	13
IB13. Examination of Site	13
IB14. Subsurface Conditions.....	13
IB15. Extra Copies of Contract Drawings and Documents	13
PROPOSAL FORMS	14
PROPOSAL FOR CONTRACT NO. 08-017C-400.000	15
SCHEDULE OF ITEMS AND PRICES.....	17
RECEIPT OF ADDENDA.....	18
EXPERIENCE STATEMENT	19
NON-COLLUSION AFFIDAVIT	20
CERTIFICATION OF BIDDER REGARDING PREVAILING WAGE REQUIREMENTS	21
CONTRACT	22
NOTICE OF COMMENCEMENT	25
NOTICE OF FURNISHING.....	27
CHANGE ORDER	28
GENERAL CONDITIONS (YELLOW PAGE SECTION)	29
GC-1. Definitions	30
GC-2. Nondiscrimination in Employment.....	31
GC-3. Prevailing Wages.....	32
GC-4. Contractor's Insurance	33
GC-5. Compliance with Laws	34
GC-6. Permits	34
GC-7. Posting Requirements	34
GC-8. Direction of Work and Interpretation of Drawings and Specifications	34
GC-9. Assignment	34
GC-10. The Miami Conservancy District's Right to Withhold Certain Amounts	35
GC-11. The Right of The Miami Conservancy District to Terminate Contract	36
GC-12. The Miami Conservancy District's Right to Perform Work and to Award Separate Contracts ..	36
GC-13. Changes in the Work and Unclassified Work.....	36
GC-14. Extension of Time	37

GC-15.	Partial Payments	38
GC-16.	Final Payment	39
GC-17.	Work Schedule	39
GC-18.	Personal Attention of Contractor	39
GC-19.	Contractor's Address	40
GC-20.	Methods and Equipment	40
GC-21.	Layout of Work	40
GC-22.	Utility Services	40
GC-23.	Demolition and Title to Property	40
GC-24.	Safety and Protection	41
GC-25.	Emergencies	41
GC-26.	Protection of Work and Property	42
GC-27.	Quality of Work	42
GC-28.	Guarantee	42
GC-29.	Cleaning Up	42
GC-30.	Access to the Project Site	43
GC-31.	Contract Drawings and Specifications	43
GC-32.	Subcontracting	43
GC-33.	Control of Work	44
 DETAILED SPECIFICATIONS (PINK PAGE SECTION)		45
 PART 1 PROJECT NOTES		46
Location		46
Summary		46
Payment		47
Pay Items		47
Non-Pay Items		47
Submittals		47
Aquifer Material		48
Location of Existing Utilities		48
Availability of Construction Utilities		48
Materials and Equipment to be Furnished by The Miami Conservancy District		48
Materials and Equipment Furnished by the Contractor		48
Definitions		49
 PART 2 PROJECT SPECIFICATIONS		51
Item 1 Mobilization and Restoration		51
Item 2 Drilling		52
Previous Borings		52
Daily Driller's Reports		52
Temporary Well Casing		52
Subsidence Control		53
Item 3 Relief Well Construction		53
Well Screen Installation		54
Gravel Pack		54
Well Plumbness and Alignment		54
Finish of Wells—Tops		55
Finish of Wells—Sumps		55
Item 4 Stainless Steel Well Screen		55
Design Criteria		56
Item 5 Blank Pipe		56
Welds		57
Item 6 Well Development		57
Item 7 Pump Test		58

FIGURES AND APPENDICES (White Page Section)..... 61
Figure 1—Englewood Dam Relief Well Locations 62
Figure 2—Englewood Dam Relief Well Typical Construction 63
Appendix 1—Englewood Dam Relief Well Specifications 64
Appendix 2—Englewood Dam Subsurface Exploration..... 69

STATE PREVAILING WAGES (GREEN PAGE SECTION).....79

LEGAL AND BIDDING DOCUMENTS (White Page Section)

The Miami Conservancy District

LEGAL ADVERTISEMENT

Sealed proposals will be received at the office of The Miami Conservancy District (MCD), 38 East Monument Avenue, Dayton, Ohio 45402-1265, until 2:00 p.m., local time, Wednesday, July 16, 2008, for 08-017C-400.000, Englewood Dam Relief Wells project in Montgomery County, Englewood, Ohio.

Bids must be submitted on MCD Proposal Forms, and must be accompanied by a bid guaranty. At the option of the bidder, the bid guaranty may be a certified check, bank draft, negotiable U.S. Government Bond (at par value) or a bid bond. All certified checks, bank drafts or negotiable U.S. Government Bonds shall be in an amount equal to ten percent (10%) of the amount of the bid. A bid bond shall be in an amount equal to one hundred percent (100%) of the amount of the bid. The bid bond shall be secured by a guaranty or a surety company licensed as surety by the Ohio Department of Insurance. No bid will be considered unless it is accompanied by the required guaranty, drawn to the Treasurer of The Miami Conservancy District, as a guarantee that the bidder, after such acceptance, will furnish an approved surety bond for the faithful performance of the Contract. The right is reserved to reject any or all bids and to waive any technical defects, as the interests of MCD may require.

Copies of the bidding documents may be examined at the Dayton Builders Exchange 2077 Embury Park Rd Dayton OH 45414; Dodge Plan Room—McGraw Hill Construction 3077 Kettering Blvd Ste 301 Dayton OH 45439; and Allied Construction Industries 3 Kovach Dr Cincinnati OH 45215.

Specifications and Proposal blanks may be obtained in the office of the Chief Engineer of The Miami Conservancy District, Monday through Friday between the hours of 8:00 AM and 5:00 PM or downloaded on-line at no charge. MCD's telephone number is 937-223-1271 and Web site is www.miamiconservancy.org. They will be shipped upon request using the Contractor's Federal Express No.

Sincerely,

Kurt A. Rinehart
Chief Engineer

KAR:JH:vl

Advertised: Dayton Daily News: Tuesday, July 1 & 8, 2008

INSTRUCTIONS TO BIDDERS

IB1. Use of Bid Forms

These Contract Documents include a complete set of bidding and Contract forms, which are for the convenience of the **BIDDER** and are not to be detached from the Contract Documents. Extra copies of the bid forms are inserted loose in the Specifications for submission by the **BIDDER** (Proposal Forms, pages 14-21) as instructed in IB3. Bids.

IB2. Interpretations or Addenda

No oral interpretation will be made to any **BIDDER** as to the meaning of the Contract Documents or any part thereof. Every request for such an interpretation shall be made in writing to the Chief Engineer. Any inquiry received seven or more days prior to the date fixed for opening of bids will be given consideration. Every interpretation made to a **BIDDER** will be in the form of an Addendum to the Contract Documents, and when issued, will be on file in the office of the Chief Engineer at least five (5) days before bids are opened. In addition, all Addenda will be mailed to each person holding Contract Documents, but it shall be the **BIDDER'S** responsibility to make inquiry as to the Addenda issued. All such Addenda shall become part of the Contract and all **BIDDERS** shall be bound by such Addenda whether or not received by the **BIDDERS**.

THE MIAMI CONSERVANCY DISTRICT (MCD) reserves the right to revise or amend the Contract Documents prior to the date set for the receipt of bids. Such revisions and amendments, if any, will be announced by an Addendum or Addenda to the Contract Documents. Such Addendum or Addenda will be made available in the same manner as specified hereinbefore.

BIDDERS are required to acknowledge receipt of all Addenda by listing such Addenda on the form provided in the Proposal.

If any modification of the Plans or Specifications is issued within 72 hours prior to the published time for opening of bids, exclusive of Saturdays, Sundays, or holidays, and the same is mailed or otherwise furnished to persons who have obtained Plans or Specifications for the project, the time for opening of bids shall be extended one week, with no further advertising of bids required.

IB3. Bids

All bids must be submitted on **MCD** Proposal Forms and shall be subject to all requirements of the Contract Documents, including the drawings and these Instructions to **BIDDERS**. All bids must be regular in every respect and no interlineations, excisions, or special conditions shall be made or included in the bid form by the **BIDDERS**.

Bid documents shall be submitted in a sealed envelope. The envelope shall be marked with **BIDDER'S** return address, and shall be addressed as follows:

TO: Mr. Kurt A. Rinehart
Chief Engineer
The Miami Conservancy District
38 East Monument Avenue
Dayton, Ohio 45402-1265

BID DOCUMENTS FOR: Contract No. 08-017C-400.000
Englewood Dam Relief Wells
Montgomery County, Englewood, Ohio

BID OPENING: Wednesday, July 16, 2008, 2:00 p.m.

The envelope shall include the Proposal, Schedule of Items and Prices, Receipt of Addenda, Experience Statement, Non-Collusion Affidavit, Certification of Bidder Regarding Prevailing Wage Requirements, Bid Guaranty, and Certificate of Compliance.

Procedures for bid opening are given in article IB7, Opening of Bids.

The engineer's estimate is \$1,365,660.00.

IB4. Bid Guaranty

The bid must be accompanied by a bid guaranty. At the option of the **BIDDER**, the bid guaranty may be a certified check, bank draft, negotiable U.S. Government Bond (at par value) or a bid bond. All certified checks, bank drafts or negotiable U.S. Government Bonds shall be in an amount equal to ten percent (10%) of the amount of the bid. A bid bond shall be in an amount equal to one hundred percent (100%) of the amount of the bid. The bid bond shall be secured by a guaranty or a surety company licensed as surety by the Ohio Department of Insurance. No bid will be considered unless it is accompanied by the required guaranty.

A certified check or bank draft must be drawn on an acceptable bank and must be made payable to the order of the Treasurer of The Miami Conservancy District. Cash deposits will not be accepted. The bid guaranty shall ensure the execution of the Contract and the furnishing of the surety bond or bonds by the successful **BIDDER**, all as required by the Contract Documents.

All Bid Bonds and Contract Bonds shall be furnished in accord with the provisions of the Ohio Revised Code (ORC) 153.54. The form of Bid Guaranty Bond is specified in Section ORC 153.571. The **BIDDER** shall submit a Certificate of Compliance issued by the State of Ohio Department of Insurance indicating that the issuer of the bond is authorized to transact business as a surety.

Certified checks or bank drafts for the amount thereof, bid bonds, and negotiable U.S. Government Bonds of unsuccessful **BIDDERS** will be returned as soon as practical after the opening of the bids.

IB5. Corrections

Erasures or other changes in the bids must be explained or noted over the signature of the **BIDDER**.

IB6. Time for Receiving Bids

Bids received prior to the advertised hour of opening will be kept securely sealed. The officer whose duty it is to open them will decide when the specified time has arrived, and no bid received thereafter will be considered; except that when a bid arrives by mail after the time fixed for opening, but before the reading of all other bids is completed, and it is shown to the satisfaction of **MCD** that the non-arrival on time was due solely to delay in the mail for which the **BIDDER** was not responsible, such bid will be received and considered.

BIDDERS are cautioned that, while telegraphic modification of bids may be received, such modifications, if not explicit and if in any sense subject to misinterpretation, shall make the bid so modified or amended, subject to rejection.

IB7. Opening of Bids

At the time and place fixed for the opening of bids, **MCD** will cause to be opened and publicly read aloud every bid received within the time set for receiving bids, irrespective of any irregularities therein. **BIDDERS** and other persons properly interested may be present, in person or by representative.

The time and place for opening the within bid may not be changed unless **MCD**, within seventy-two (72) hours prior to the published time for opening of bids, excluding Saturdays, Sundays, and legal holidays, extends the same.

If any modification of the Plans or Specifications is issued within seventy-two (72) hours prior to the published time for opening of bids, excluding Saturdays, Sundays, and legal holidays, and the same is mailed or otherwise furnished to persons who have obtained Plans or Specifications for the project, the time for opening of bids shall be extended one week, with no further advertising of bids required.

IB8. Withdrawal of Bids

Bids may be withdrawn by written or telegraphic request dispatched by the **BIDDER** in time for delivery in the normal course of business to the time fixed for opening, provided that written confirmation of any telegraphic withdrawal over the signature of the **BIDDER** is placed in the mail and postmarked prior to the time set for bid opening. The bid guaranty of any **BIDDER** withdrawing his bid in accordance with the foregoing conditions will be returned promptly. No bid may be withdrawn for a period of 60 calendar days thereafter.

IB9. Award of Contract: Rejection of Bids

The Contract will be awarded to the responsible **BIDDER** submitting the lowest bid complying with the conditions of the Invitation for Bids and the conditions and requirements stated on the Schedule of Items and Prices.

The **BIDDER** to whom the award is made will be notified at the earliest possible date. **MCD**, however, reserves the right to reject any and all bids and to waive any informality or technical defects in bids received whenever such rejection or waiver is in its interest.

MCD reserves the right to defer acceptance of any bid for a period not to exceed 60 calendar days after receipt of bids.

The bids to be submitted are done so pursuant to Section 153.12 Ohio Revised Code. That section requires that the Contract must be awarded and executed within 60 days after the date on which the bids are opened unless extended by mutual consent of **MCD** and the **BIDDER**.

In accordance with Section 153.12 of the Ohio Revised Code, no Contract shall be entered into if the price of the Contract, or, if the project involves multiple Contracts where the total price of all Contracts for the project is in excess of ten percent (10%) above the entire estimate thereof.

The successful **BIDDER** will be required to submit two (2) signed copies of the Contract after the project has been approved.

The Notice of Award will be provided to the bonding company of the successful **BIDDER**.

IB10. Performance Bond

Prior to execution of the Contract by **MCD**, a Surety Bond in an amount equal to the estimated total Contract price shall be furnished on an approved bond form with a bonding company acceptable to **MCD**. Such bond includes, among other things, provisions for the payment of all persons performing labor and furnishing materials in connection with this Contract and ensures the satisfactory remedy of any defective work that develops within one year from the date of acceptance of the work. The form of the performance bond is specified in ORC 153.57. The **BIDDER** shall submit a Certificate of Compliance issued by the State of Ohio Department of Insurance indicating that the issuer of the bond is authorized to transact business as a surety.

IB11. Competency of Bidders

MCD requires that the **BIDDERS** furnish satisfactory evidence that they have the necessary resources to fulfill the conditions of the Contract Documents. The evidence shall be listed in the form, "Experience Statement."

Contracts shall be awarded only to responsible prospective **CONTRACTORS** who:

- a) Have adequate financial resources or the ability to obtain such resources as required during performance of the Contract.
- b) Have a satisfactory record of performance. **CONTRACTORS**, who are delinquent in current Contract performance, when the number of Contracts and the extent of delinquencies of each are considered, shall be presumed to be unable to fulfill this requirement.
- c) Must conform to the requirements of the Anti-Discrimination Clause.
- d) Do not have a Finding for Recovery per O.R.C. 9.24.
- e) Are otherwise qualified and eligible to receive an award under applicable laws and regulations.

IB12. Form of Contract/Amendments to Contract

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

IB13. Examination of Site

BIDDERS are required to satisfy themselves by personal examination at the site of work and by examination and study of the Contract Documents as to the conditions existing and the difficulties likely to be encountered in the construction of the work.

The **CONTRACTOR** will be required to fulfill in every way all the requirements of the Contract. No claim for extra compensation or for an extension of time will be accepted based on the failure of the **CONTRACTOR** to make field examinations or for omissions made because of lack of familiarization with the Contract Documents.

IB14. Subsurface Conditions

Subsurface exploration may be done by prospective **BIDDERS**, at their own expense, and as approved and in the presence of **MCD** personnel.

IB15. Extra Copies of Contract Drawings and Documents

MCD will provide one (1) free copy to each prospective **BIDDER** of the Contract Documents. Extra copies of any of the Contract Documents may be obtained on-line at www.miamiconservancy.org at no charge.

PROPOSAL FORMS

The Miami Conservancy District
PROPOSAL FOR CONTRACT NO. 08-017C-400.000

_____, 2008

Board of Directors
The Miami Conservancy District
38 East Monument Avenue
Dayton, Ohio 45402-1265

Pursuant to your Legal Advertisement dated Tuesday, July 1, 2008, for bids for Contract No. 08-017C-400.000 for the Englewood Dam Relief Wells project and works appurtenant thereto, the **BIDDER** agrees to furnish all labor, material, tools and equipment to do all work required by and as set forth in the Contract Documents at the prices named in the following "Schedule of Items and Prices."

The **BIDDERS** agree that, if their Proposal is accepted, they will furnish the necessary Contract Bond within five (5) days after notice of acceptance, and they agree that in case of their failure to furnish such Bond within the specified time, the Proposal Bond drawn to the order of the **Treasurer of The Miami Conservancy District**, accompanying this Proposal, shall be and will remain the property of **The Miami Conservancy District (MCD)**, as liquidated damages for such failure.

The **BIDDERS** further agree that, if awarded the Contract, they will complete the work within 270 calendar days, from the date of Notice of Commencement unless the period of completion is extended otherwise under terms of the Contract Documents.

It being further understood and agreed, that if this Proposal is accepted, **MCD** agrees to pay, and the **CONTRACTOR** agrees to accept as full compensation, satisfaction and discharge for all work done and all materials furnished, and for all costs and expenses incurred and damages sustained, and for each and every matter, thing or act performed, furnished or suffered, and all risks entailed in the full and complete performance and completion of the work in accordance with the conditions and provisions thereof, and of the instructions, orders and directions of the **ENGINEER**, a sum which shall be the total Contract price plus additional work or deletions which actual quantity as finally established by the **ENGINEER** multiplied by the applicable unit price in the "Schedule of Items and Prices."

The undersigned **BIDDER** declares that the only person or parties interested in this Proposal as principals are named herein; that the Proposal is made without collusion with any other person, firm or corporation; that he/she has examined the location of the proposed work and is informed as to the proposed form of Contract, the Specifications for doing this work, and to conditions affecting the proposed work.

The right is reserved to reject any and all bids, and to waive any technical defects, as the intents of **MCD** may require. Any bid, which shows evidence of being unbalanced, may be rejected without further consideration.

(Company Name)

Bidder's Signature

Bidder's Mailing Address

(Title)

This Proposal is hereby accepted this ____ day of _____, 2008.

THE MIAMI CONSERVANCY DISTRICT

By: _____

Approved as to Form:

Counsel for The Miami Conservancy
District

**SCHEDULE OF ITEMS AND PRICES
 CONTRACT NO. 08-017C-400.000
 ENGLEWOOD DAM RELIEF WELLS**

Item	Description	Qty.	Unit	Unit or Lump Sum Prices	Total Estimated Cost
1	Mobilization & Restoration	1	LS	_____	_____
2	Drilling	2,812	LF	_____	_____
3	Relief Well Construction	2,904	LF	_____	_____
4	Stainless Steel Well Screen	622	LF	_____	_____
5	Blank Pipe	2,282	LF	_____	_____
6	Well Development	622	LF	_____	_____
7	Pump Test	5	EA	_____	_____
Total Bid Price					_____

Total bid in words: _____
 _____ Dollars.

Submitted By:	
Title:	
Company:	
Address:	
Telephone No.:	
Fax No.:	
E-Mail Address:	

The Miami Conservancy District
RECEIPT OF ADDENDA
CONTRACT NO. 08-017C-400.000

Addendum No.	Date Received	Signature
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

NON-COLLUSION AFFIDAVIT

STATE OF _____

ss.

COUNTY OF _____

_____, being first and duly sworn, deposes and says

that he/she is _____ (sole owner, partner, president, secretary, etc.)

of _____,
the party making the foregoing Proposal or bid; that such bid is genuine and not collusive or sham; that said **BIDDER** has not colluded, conspired, connived, or agreed, directly or indirectly, with any **BIDDER** or person, to put in a sham bid, or that such other person shall refrain from bidding, and has not in any manner, directly or indirectly, sought by agreement or collusion, or communication or conference, with any person, to fix the bid price of affiant or any other **BIDDER**, or to fix any overhead, profit or cost element of said bid price, or of that of any other **BIDDER**, or to secure any advantage against **The Miami Conservancy District** or any person or persons interested in the proposed Contract; and that all statements contained in said Proposal or bid are true; and further, that such **BIDDER** has not, directly or indirectly, submitted this bid, or the contents thereof, or divulged information or data relative thereto to any association or to any member or agent thereof.

Affiant

Sworn to and subscribed before me this _____ day of _____ 2008.

Notary Public in and for

County, _____

My commission expires _____

**CERTIFICATION OF BIDDER REGARDING PREVAILING WAGE
REQUIREMENTS**

Prevailing wages shall be paid in accordance with the Ohio Department of Commerce Division of Labor and Worker Safety Wage and Hour Bureau effective during the period of the Contract as provided for in Chapter 4115 of the Ohio Revised Code (O.R.C.) and are included in the State Prevailing Wages Section of this Document.



Contractor's Prevailing Wage

Contact Person:

Title:

Phone:

Fax:

E-mail Address:

The **CONTRACTOR** acknowledges that this Contract is subject to the State of Ohio prevailing wage laws (Chapter 4115 of the Ohio Revised Code) and the **CONTRACTOR** is familiar with the requirements and procedures necessary to comply with the law.

Name and Title of Bidder (Please Type)

Signature

Date

Title

CONTRACT

THIS CONTRACT, signed this _____ day of _____, 2008 by and between **The Miami Conservancy District**, hereinafter called "**MCD**" and

doing business as (an individual,) or (a partnership,) or (a 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 Contract No. 08-017C-400.000, Englewood Dam Relief Wells in Montgomery County, Englewood, Ohio.

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

3. The **CONTRACTOR** will commence the work required by the Contract Documents within ten (10) calendar days after the date of the Notice Of Commencement and will complete the same within 270 calendar days, unless the period for completion is extended otherwise under terms of the Contract Documents.

4. The **CONTRACTOR** agrees to pay or, to have deducted from the Contract price, the actual amount of the inspection and Contract administration costs for each day past the final completion date in the Contract, plus additional days agreed to for approved Change Orders. The cost for the inspection and Contract administration services will be based on invoices paid by **MCD** for such services.

5. The **CONTRACTOR** affirmatively represents to **MCD** that neither it nor any of its **SUBCONTRACTORS** are subject to a finding for recovery under O.R.C. 9.24, or that it has taken the appropriate remedial steps required under O.R.C. 9.24 or otherwise qualifies under that section. The **CONTRACTOR** agrees that if this representation is deemed to be false, the Contract shall be void ab initio as between the parties to this Contract, and any funds paid by **MCD** hereunder shall be immediately repaid to **MCD**, or an action for recovery may be immediately commenced by **MCD** for recovery of said funds.

6. The **CONTRACTOR** and all its **SUBCONTRACTORS** will comply with federal, state, and local laws pertaining to non-discrimination in employment practices, facility and area use, prevailing wages, conflict of interest, solicitations for Contract bids, bid awards, etc. No person will be discriminated against or be excluded from participating in any program or activity on the grounds of race, color, sex, religion, national origin, ancestry, age, or handicap. Such action shall include, but is not limited to, the following: employment, upgrading demotion, or transfer; recruitment or recruitment advertising; lay-off or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeships.

7. The **CONTRACTOR** and all its **SUBCONTRACTORS** will pay a prevailing rate of wage as required in Section 4115.06, Ohio Revised Code. The **CONTRACTOR** and all its **SUBCONTRACTORS** shall comply strictly with the wage provisions of the Contract Documents.

8. The **CONTRACTOR** agrees to perform all of the work described in the Contract Documents and comply with the terms therein for the sum of _____ \$ _____ and as shown in the Schedule of Items and Prices.

9. The term Contract Documents means and includes the following:

- a) Legal Advertisement
- b) Instructions to Bidders
- c) Proposal
- d) Schedule of Items and Prices
- e) Experience Statement
- f) Non-Collusion Affidavit
- g) Certification of Bidder Regarding Prevailing Wage Requirements
- h) Contract
- i) Notice of Commencement
- j) Notice of Furnishing
- k) Change Order
- l) General Conditions
- m) Detailed Specifications
- n) Prevailing Wages
- o) Performance Bond
- p) Drawings/Plans
- q) Addenda:
 - No. _____, date _____, 2008
 - No. _____, date _____, 2008
 - No. _____, date _____, 2008

10. **MCD** will pay to the **CONTRACTOR** in the manner and at such times as set forth in the General Conditions such amounts as are required by the Contract Documents.

11. This Contract 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 Contract in two (2) copies each of which shall be deemed an original on the date first above written.

THE MIAMI CONSERVANCY DISTRICT

By: _____

Title: _____

ATTEST

By: _____

Title: _____

CONTRACTOR

By: _____

Title: _____

ATTEST

By: _____

Title: _____

Reviewed for Compliance:

By: _____

Stephen M. McHugh,
Counsel for The Miami Conservancy District

**NOTICE OF COMMENCEMENT
UNDER SECTION 1311.252 OF THE OHIO REVISED CODE**

STATE OF OHIO
MONTGOMERY COUNTY, SS:

Kurt A. Rinehart, being first duly cautioned and sworn, deposes and says that he is the Chief Engineer of The Miami Conservancy District; and that this notice is hereby given pursuant to Section 1311.252 of the Ohio Revised Code relating to the hereinafter described public improvement for which the following information is being given:

- 1) The name of the project is Englewood Dam Relief Wells.
- 2) The location of the project is Englewood Dam, Englewood, Ohio 45322.
- 3) The project number is 08-017C-400.000.
- 4) The name and address of the public authority is The Miami Conservancy District, 38 East Monument Avenue Dayton, Ohio 45402-1265.

- 5) The name and address of all principal **CONTRACTORS**, as well as the trade of each:

- 6) The name and address of the sureties for all principal **CONTRACTORS**:

- 7) The name and address of the representative of the public authority upon whom service may be made for the purposes of serving an affidavit pursuant to section 1311.26 of the Revised Code: Kurt A. Rinehart, Chief Engineer, The Miami Conservancy District, 38 East Monument Avenue, Dayton, Ohio 45402-1265
- 8) The **CONTRACTOR**, _____ is hereby notified to commence work in accordance with the Contract dated _____ on or before _____, and is to complete the work within 270 calendar days thereafter. The date of completion of all work is therefore _____.

Further, Affiant saith naught.

THE MIAMI CONSERVANCY DISTRICT

Kurt A. Rinehart
Chief Engineer

Sworn to before me and subscribed in my presence by _____

this _____ day of _____, 20_____.

Notary Public

**NOTICE OF FURNISHING
FOR USE IN CONNECTION WITH PUBLIC IMPROVEMENTS AS PROVIDED
FOR IN SECTION 1311.261 OHIO REVISED CODE**

To: _____
(Name of Principal **CONTRACTOR**)

(Address of Principal **CONTRACTOR**)

The undersigned notifies you that the undersigned has furnished or performed or will furnish or perform.

(Describe labor, work, or materials) for the improvement of real property identified as

(property description or address) under order given by

(name of Subcontractor or Materialperson).

The labor, work, or materials were first furnished or performed or will be furnished or performed on _____ (date).

(Signature of Subcontractor or Materialperson)

Address of Subcontractor or Materialperson)

(Date)

THE MIAMI CONSERVANCY DISTRICT
ENGLEWOOD DAM RELIEF WELLS
CHANGE ORDER

Change Order No.: _____ Date: _____
Contract No. 08-017C-400.000 Contractor: _____

The Following Changes Are Hereby Made To The Contract Document:

Reasons For Change:

Change To Contract Price
Original Contract Price

Current Contract Price, As Adjusted by Previous Change Orders

The Contract Price Due To This Change Order Will Be
[Increased] [Decreased] By:

The New Contract Price Due To This Change Order Will Be:

Change To Contract Time:

The Contract Time Will Be [Increased] [Decreased] By _____ Days

The Date For Completion Of All Work Will Be

All costs and expenses directly or indirectly related to this Change Order are reflected in the price of this Change Order, unless specifically stated above.

APPROVALS

THE MIAMI CONSERVANCY DISTRICT

CONTRACTOR

By: _____	Date: _____	By: _____
By: _____	Date: _____	Date: _____
By: _____	Date: _____	

GENERAL CONDITIONS (Yellow Page Section)

GC-1. Definitions

Wherever the words herein defined, or pronouns, or abbreviations used in their stead, occur in this Contract and Specifications, unless another meaning is specifically implied, shall have the meanings here given:

MCD: Shall mean **THE MIAMI CONSERVANCY DISTRICT** or properly authorized agents.

Board: Shall mean the Board of Directors of **THE MIAMI CONSERVANCY DISTRICT** or any agent or officer duly authorized to act for it in the execution of the work required by this Contract.

Directors: Shall mean the individual members of the Board of Directors acting in their official capacity.

Engineer: Shall mean the Chief Engineer of **THE MIAMI CONSERVANCY DISTRICT** or properly authorized agents, **ENGINEERS**, assistants, and superintendents, acting severally within the scope of the particular duties entrusted to them.

Contractor: Shall mean the person, persons, partnership, or corporation entering into this Contract for the performance of the work required by it, or the agent appointed to act for said party in the performance of the work.

Subcontractor: Shall mean any individual, firm, or corporation undertaking any part of the obligation of the **CONTRACTOR**.

Contract: Shall mean, collectively, all of the covenants, terms and stipulations contained in the various portions of this Contract, to wit: Legal Advertisement, Instructions to Bidders, Proposal, Schedule of Items and Prices, Experience Statement, Non-Collusion Affidavit, Certification of Bidder Regarding Prevailing Wage Requirements, Addendum, Contract, Notice of Commencement, Notice of Furnishing, Change Order, General Conditions, Detailed Specifications, Prevailing Wages, Performance Bond, and Drawings/Plans identified as **THE MIAMI CONSERVANCY DISTRICT** Contract No. 08-017C-400.000, Englewood Dam Relief Wells in Montgomery County, Englewood, Ohio.

Work: Shall mean labor, material, equipment, or any combination thereof forming a part of or is incident to the construction covered by this Contract.

Addendum: Shall mean letter, drawings, Specifications, form or other document clarifying, amending or interpreting the Contract

Documents issued, generally before the receipt of bids and in every case prior to signing the Contract for construction.

Change Order: Shall mean form, letter, or other document, which is an amendment to the Contract and alters, adds to, or deducts from the work or extends the Contract completion date.

Notice of Furnishing: Shall mean the form establishing materials or services and date provided to the **CONTRACTOR** by a Subcontractor or Material Supplier (Materialperson) to preserve the lien rights.

Specifications: Shall mean, collectively, all the terms and stipulations contained in those portions of Contract known as the General Conditions and Detailed Specifications.

Drawings/Plans: Shall mean, collectively, all of the drawings attached to the Contract and made a part thereof, and also such supplementary drawings as the **ENGINEER** may issue from time to time in order to elucidate said Contract drawings or for showing details which are not shown thereon. The terms "Drawings," "Plans" are equivalent.

Shop Drawings: All drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for **CONTRACTOR** to illustrate some portion of the work and all illustrations, brochures, standard schedules, performance charts, diagrams and other information prepared by a supplier and submitted by **CONTRACTOR** to illustrate material or equipment for some portion of the work.

State or ODOT Specifications: Shall mean the State of Ohio Department of Transportation, Construction and Materials Specifications, Columbus, Ohio, January 1, 2005.

Wherever the words "Directed," "Required," "Permitted," "Ordered," "Instructed," "Designated," "Considered Necessary," "Prescribed" or words of like import are used, it shall be understood that the direction, requirement, permission, order, instruction, designation or prescription, etc., of the **ENGINEER** is intended and similarly, the words "Approved," "Acceptable," "Satisfactory," or words of like import, shall mean approved by, acceptable to, or satisfactory to the **ENGINEER**, unless another meaning is plainly intended.

GC-2. Nondiscrimination in Employment

The **CONTRACTOR** and all its **SUBCONTRACTORS** will comply with federal, state, and local laws pertaining to non-discrimination in employment practices, facility and area use, prevailing wages, conflict of interest, solicitations for Contract bids, bid awards, etc. No person will be discriminated against or be excluded from participating in any program

or activity on the grounds of race, color, sex, religion, national origin, ancestry, age, or handicap. Such action shall include, but is not limited to, the following: employment, upgrading demotion, or transfer; recruitment or recruitment advertising; lay-off or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeships.

GC-3. Prevailing Wages

Prevailing wages shall be paid in accordance with the Ohio Department of Commerce Division of Labor and Worker Safety Wage and Hour Bureau effective during the period of the Contract as provided for in Chapter 4115 of the Ohio Revised Code (O.R.C.) and are included in these Contract Documents. The Web site address is <http://www.com.ohio.gov/laws/>. Prevailing wage forms included in these Specifications can be found at this Web site under the link, prepare bid packet. Procedures have been established to ensure compliance by **CONTRACTORS** and **SUBCONTRACTORS**.

The **CONTRACTOR** shall designate a prevailing wage contact person and that name shall be submitted to **MCD** and encouraged to attend the pre-construction meeting. Prevailing wage guidelines will be discussed at the pre-construction meeting. The prevailing wage rate shall be paid per classification and each time a new rate is established and updated for each employee on the job site. Instructions, guidelines, forms, and prevailing wage rates are included in the State Prevailing Wage section of these Contract Documents.

The **CONTRACTOR** shall supply a list of all **SUBCONTRACTORS** including the name, mailing address, telephone number, and e-mail address to **MCD**. **CONTRACTORS** are responsible for their **SUBCONTRACTORS'** compliance. The same procedures need to be followed by the **SUBCONTRACTORS**. Out-of-State Corporations must submit to the Ohio Secretary of State the full name and address of their Statutory Agent in Ohio.

Before employees start work on the project, the **CONTRACTOR** and **SUBCONTRACTOR** shall supply the employee with a Prevailing Wage Notification to Employee form. This included form is telling the employee his or her actual wages and benefits including other required information about the prevailing wage job.

Apprentices must be registered with the Ohio State Apprenticeship Council. A copy of the Apprenticeship Agreement for each apprentice on the project needs to be submitted to **MCD**.

Project dates to schedule reporting of the **CONTRACTOR'S** and **SUBCONTRACTOR'S** payroll reports need to be submitted to **MCD**. The first certified payroll report needs to be submitted within two (2) weeks after the initial pay period. The required information for the certified payroll reports and form are included in the State Prevailing Wage section. The use of this form is not mandatory. **CONTRACTORS** and **SUBCONTRACTORS** may submit their own forms provided that all of the required information is included. All certified payroll reports shall be submitted and certified by the **CONTRACTOR**, **SUBCONTRACTOR**, or duly appointed agent stating that the payroll is correct and complete; and that the wage rates shown are not less than those required by the O.R.C. 4115.

MCD will not make partial payments per GC-15. Partial Payments until all certified payroll reports are received for the periods of work covered by the invoices.

The Affidavit of Compliance for Prevailing Wages form shall be submitted to **MCD** from each **CONTRACTOR** and **SUBCONTRACTOR** upon completion of the project. Project dates shall include the complete period for work on the job site.

GC-4. Contractor's Insurance

The **CONTRACTOR** or any **SUBCONTRACTOR** shall not commence any work until it has given satisfactory evidence that:

- a) It has complied with all the provisions of and is carrying all coverage required under the State of Ohio Worker's Compensation Laws.
- b) It is carrying public liability and property damage insurance, satisfactory as to form, amount and carrier, insuring and agreeing to pay and satisfy any liability incurred by the **CONTRACTOR**, or any **SUBCONTRACTOR**, for injury to any and all persons whomsoever, including death, and for damage to or destruction of property, arising out of, or because of, or incurred during the progress of the work to be performed under this Contract. This insurance shall be written for not less than \$6,000,000 combined single limit per occurrence or location, or such limits of liability as may be required by law, whichever is greater, and shall include contractual liability insurance.
- c) The **CONTRACTOR** shall procure an **OWNER'S** Protective Liability policy in the name of **THE MIAMI CONSERVANCY DISTRICT (OWNER)** with limits of \$6,000,000 combined single limit.
- d) The **CONTRACTOR** shall secure, if applicable, "All Risk" type Builder's Risk Insurance for work to be performed. Unless specifically authorized by **MCD**, 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 **MCD**. The policy shall name as the insured, the **CONTRACTOR**, all **SUBCONTRACTORS**, and **THE MIAMI CONSERVANCY DISTRICT** as their interests may appear.
- e) The **CONTRACTOR** shall procure and maintain during the life of this contract, Motor Vehicle Liability Insurance, including applicable No-Fault coverage, with limits of liability of not less than \$6,000,000 per occurrence combined single limit Bodily Injury and Property Damage. Coverage shall include all owned vehicles, all non-owned vehicles, and all hired vehicles.

The **CONTRACTOR** agrees to carry such coverage and insurance during the life of the Contract.

GC-5. Compliance with Laws

The **CONTRACTOR** shall keep itself fully informed of all laws, ordinances and regulations in any matter affecting those engaged or employed in the work, or the materials and appliances used in the work, or in anyway affecting the conduct of the work, and of all orders and decrees of bodies or tribunals having jurisdiction or authority over the same. The **CONTRACTOR** shall at all times observe and comply with, and shall cause its agents and employees to observe and comply with such existing and future laws, ordinances, regulations, orders and decrees; and shall protect **THE MIAMI CONSERVANCY DISTRICT** and **CONSULTANTS** against any claim or liability arising from the **CONTRACTOR'S** act or omission, or arising from or based upon the violation of any such law, ordinance, regulation, order or decree, whether by itself or its employees.

GC-6. Permits

The **CONTRACTOR** shall be responsible for obtaining and paying for any building and/or construction permits required by state and local regulatory agencies for construction of the improvements required under this Contract.

GC-7. Posting Requirements

The **CONTRACTOR** shall be responsible for posting the required information prior to starting work on the project. Specific information includes the copy of the State Construction Site permit (if applicable), Notice of Commencement, and Prevailing Wage Rate classifications for **CONTRACTORS** and **SUBCONTRACTORS** on the job site where it is accessible to all employees. These classifications are updated each time a new rate is established. The posting requirements do not exclude other information required by law.

GC-8. Direction of Work and Interpretation of Drawings and Specifications

It is mutually agreed that the **ENGINEER** shall have the right to direct the manner in which all work under this Contract is to be conducted, insofar as may be necessary to secure the safe and proper progress and quality of the work. Upon all questions concerning the execution of the work, interpretation of the Specifications and Drawings, determination of all quantities and amounts of work done, the decision of the **ENGINEER** shall be final and binding on both parties, and compliance with its estimates and decisions shall be a condition precedent to the right of the **CONTRACTOR** to receive any payment under the Contract.

GC-9. Assignment

Every **SUBCONTRACTOR** and material supplier must provide a "Notice of Furnishing" on the principal **CONTRACTOR** within 21 days after the date that the

SUBCONTRACTOR or material supplier first performed labor or work or furnished materials to the project. A sample "Notice of Furnishing" is included with the bidding documents.

The principal **CONTRACTOR** and each **SUBCONTRACTOR**, on the date of entering into an agreement with a **SUBCONTRACTOR** or material supplier, must provide, in writing, to the **SUBCONTRACTOR** or material supplier the name and address of **MCD**. Each such principal **CONTRACTOR** and **SUBCONTRACTOR** shall also provide, in writing, to the **SUBCONTRACTOR** or material supplier the name and address of the principal **CONTRACTOR**.

GC-10. The Miami Conservancy District's Right to Withhold Certain Amounts

The **CONTRACTOR** may be required by **MCD** to furnish from time to time, satisfactory evidence that all persons who have done work or furnished materials under this Contract, or who may have suffered, or claimed damage on account of the **CONTRACTOR'S** operations, have been fully paid or secured; and in case such evidence is not furnished as aforesaid, **MCD** may in addition to the portion of any estimate retained under the preceding provisions of these Contract Documents, also withhold sufficient amount of any payment otherwise due to the **CONTRACTOR** to cover:

- a) Payments that may be past due or payable for just claims for labor or materials furnished in and about the performance of the work or for damages sustained under this Contract;
- b) For defective work not remedied as herein before provided; and
- c) For failure of the **CONTRACTOR** to make proper payments to its **SUBCONTRACTORS** or material suppliers.

Any **SUBCONTRACTOR**, material supplier, or laborer who is performing or has performed labor or work or furnished material for this project at any time not to exceed 120 days from the performance of the last labor or work or furnishing of the last material, may serve **THE MIAMI CONSERVANCY DISTRICT** with an affidavit stating the amount due and unpaid, when the last work was performed or the last material was furnished with all credits and the post office address of the claimant. If such an affidavit is received by **THE MIAMI CONSERVANCY DISTRICT**, **MCD** is then required to detain from the principal **CONTRACTOR**, or from the balance of funds remaining in the Contract, an amount up to the balance remaining in the Contract that does not in the aggregate exceed the claim or claims. **MCD** shall not recognize the claim of a claimant unless the claimant has served the public authority with a copy of the Notice of Furnishing and a sworn statement as to the date the copy was provided to the principal **CONTRACTOR**. Any detained funds shall be placed in escrow by **MCD** and released in accordance with the terms of Section 1311.26 O.R.C.

It is mutually agreed by and between the parties hereto that time is an essential part of this Contract, and if the **CONTRACTOR** shall fail to carry on the work with such force and in such manner and order, and at such points, within the time set out in its Proposal,

the whole work to be performed including testing and restoration in accordance with the terms of these Contract Documents, **MCD** may retain from the monies that are due, or which may become due said **CONTRACTOR**, **MCD'S** estimated daily cost of the completed work, for each and every calendar day the completion of the work be delayed beyond the time specified herein for such completion; or such extensions thereto as may be approved in writing by **MCD** upon written request from the **CONTRACTOR**. The **CONTRACTOR** shall not be entitled to a bonus for early completion.

CONTRACTOR acknowledges that time is of the essence. By this it is meant that the maintenance of construction schedules is critical to the success of the Project. Accordingly, **CONTRACTOR** hereby agrees that if its performance hereunder is not completed within the time provided for completion, it shall reimburse and indemnify **MCD** for and against any and all loss and expense of any and every kind, whether direct or consequential, including reasonable attorney fees.

GC-11. The Right of The Miami Conservancy District to Terminate Contract

In the event that any of the provisions of these Contract Documents are violated by the **CONTRACTOR** or any of its **SUBCONTRACTORS**, **MCD** may serve written notice upon the **CONTRACTOR** and the Surety, of its intention to terminate such Contract, such notices to contain the reasons for such intention to terminate the Contract, and unless within 10 days after the serving of such notice upon the **CONTRACTOR** said violation shall cease and satisfactory arrangements for corrections be made, the Contract shall, upon the expiration of said 10 days cease and terminate. In the event of any termination, **MCD** shall immediately serve notice thereof upon the Surety and the **CONTRACTOR**, and the Surety shall have the right to take over and perform the Contract, provided, however, that if the Surety does not commence performance thereof within 30 days from the date of the mailing to such Surety of Notice of Termination, **MCD** may take over the work and prosecute same to completion by Contract for the amount and at the expense of the **CONTRACTOR**, and the **CONTRACTOR** and its Surety shall be liable to **MCD** for any excess cost occasioned **MCD** thereby, and in such event **MCD** may take possession of and utilize in completing the work, such materials, appliances, and shop drawings as may be on the site of the work and necessary therefore.

GC-12. The Miami Conservancy District's Right to Perform Work and to Award Separate Contracts

MCD reserves the right to perform work related to the project with its own forces, and to award separate Contracts in connection with other portions of the project or other work on the site under these or similar conditions of the Contract. If the **CONTRACTOR** claims that delay or additional cost is involved because of such action by **MCD**, it shall make such claim as provided elsewhere in the Contract Documents.

GC-13. Changes in the Work and Unclassified Work

MCD without invalidating the Contract, reserves the right to make changes altering, adding to, or deducting from the work. The Contract sum will be adjusted in accordance

with methods established herein. No such changes shall be made unless in pursuance of a written Change Order by the **ENGINEER**, and no claim for an addition to the Contract sum shall be valid unless so ordered.

If, during the performance of this Contract, it shall become necessary or desirable for the proper completion of the work hereunder to order additional work done or materials furnished, the **CONTRACTOR** shall, if ordered in writing by the **ENGINEER**, do and perform such work and furnish such materials. The **CONTRACTOR** shall be paid therefore by one of the following methods:

- a) By an agreed lump sum.
- b) By an agreed unit price, quantities for which shall be determined by the **ENGINEER**.
- c) In case of failure to agree under either (a) or (b), payment for such work shall be at the actual cost of labor, materials, compensation insurance and payroll taxes, plus ten percent, with the **CONTRACTOR** supplying all facilities and tools, and general supervision without cost to **MCD**.

If the **CONTRACTOR** is required to prosecute extra work ordered by **MCD**, and additional equipment and/or personnel are required for the additional work, mobilization costs will be included in the price and **MCD** will determine if the price submitted by the **CONTRACTOR** justifies performing the work.

GC-14. Extension of Time

Delays due to causes beyond the control of the **CONTRACTOR**, other than such as reasonably would be expected to occur, may entitle the **CONTRACTOR** to an extension of time; however, the **CONTRACTOR** declares that it has familiarized itself with weather and local conditions and other circumstances which may, or are likely to, affect the performance and completion of the work, and agrees that it will prosecute the work in such manner that it will be completed without undue delay, even though the most adverse conditions which reasonably could be expected to occur do prevail during the performance of the work.

If the work of **MCD** is enjoined by legal proceedings, which prevent the **CONTRACTOR** from prosecuting any of the work of this Contract, an extension of time may be granted sufficient, in the opinion of the **ENGINEER**, to compensate for such delay. But no injunction as to a part of the work shall entitle the **CONTRACTOR** to an extension of time, unless such injunction delays the completion of the whole Contract.

No extension of time shall be granted for any cause, unless the **CONTRACTOR** shall within 15 days from the initiation of the delay, notify the **ENGINEER** in writing of such delay, and of its cause and time of beginning, and the **CONTRACTOR'S** assessment of the extent of the delay, and the **ENGINEER** will make an independent assessment. If **MCD** agrees to grant a time extension, it will issue a Change Order amending the Contract completion date.

The **CONTRACTOR** shall pay or, to have deducted from the Contract price, the actual amount of the inspection and Contract administration costs for each day past the final completion date in the Contract, plus additional days agreed to for approved Change Orders. The cost for the inspection and Contract administration services will be based on invoices paid by **MCD** for such services.

GC-15. Partial Payments

The **CONTRACTOR** shall prepare its request for partial payments as of the last day of each month, and submit it to the Chief Engineer for approval. Partial payments to the **CONTRACTOR** for work performed and materials properly stored at the site, shall be made at the rate of 92 percent of the estimates, prepared by the **CONTRACTOR** and approved by the **ENGINEER**. All work performed after the job is 50 percent complete based on the original contract shall be paid for at the rate of 100 percent of the estimates submitted by the **CONTRACTOR** and approved by the **ENGINEER**. Partial payment requests shall be submitted on forms approved by **MCD**. The monthly payment is approximate only, and all partial estimates and payments shall be subject to correction in the final estimate and payment.

The total value of work completed shall be based on the estimated quantities of work completed on each item in the Schedule of Items and Prices and adjusted in accordance with the value of work performed under approved change orders.

The **CONTRACTOR** shall maintain an accurate inventory of materials properly stored at the site. The **CONTRACTOR** shall also maintain an accurate record of stored materials removed from inventory and incorporated in the work. **MCD** may require a materials inventory balance sheet be submitted to the Chief Engineer for approval along with its monthly partial payment request.

Payment for materials properly stored at the site will be made (less retained percentage) at the **CONTRACTOR'S** invoice price for said materials. The **CONTRACTOR** shall submit along with its partial payment request, copies of delivery slips and invoices for materials upon which it is requesting payment.

The **CONTRACTOR** may be compensated for material or equipment required for completion of this Contract, which has been manufactured and subsequently stored off-site. All such material or equipment shall remain the property of the **CONTRACTOR** until installed in the project and accepted by **MCD**. The **CONTRACTOR** shall retain insurance coverage in the full amount of the invoice value of the material or equipment, with **THE MIAMI CONSERVANCY DISTRICT** named as a beneficiary to the extent of its interest. The **CONTRACTOR** shall supply to **MCD** all documentation and assurances before payment is made.

The **CONTRACTOR** shall be responsible for the care and protection of all materials and work upon which payments have been made until final acceptance of such work and materials by **MCD**. Such payments shall not constitute a waiver of the right of **MCD** to require the fulfillment of all terms of the Contract and the delivery of all improvements embraced in the Contract complete and satisfactory to **MCD** in every detail. **MCD**

requires that all payroll reports for the work included on an invoice must be submitted before payments are made.

GC-16. Final Payment

The quantities included in the bid are estimates only and do not represent a guarantee of the actual quantities of work to be performed. The final payment will be based on the actual quantities realized and unit prices of items (Including any change orders).

Before the final payment is made, the **CONTRACTOR** shall furnish releases of all claims against **THE MIAMI CONSERVANCY DISTRICT** from all **SUBCONTRACTORS** and material suppliers. The **CONTRACTOR** shall also furnish all payroll reports and necessary forms to provide evidence that Prevailing Wage requirements have been met. **MCD**, however, may, if it deems such action advisable, make payment in part or in full to the **CONTRACTOR** without requiring the furnishing of such releases or receipts and any payments so made shall in no way impair the obligations of any surety or sureties furnished under this Contract.

GC-17. Work Schedule

Prior to commencing any work, the **CONTRACTOR** shall submit its proposed schedules of furnishing materials, daily/weekly work hours, and construction of improvements, for approval by the Chief Engineer.

Work shall be performed in accordance with daily working hours, as approved by **MCD**. No work shall be performed on Sundays or holidays except in emergencies and as approved by **MCD**. The **CONTRACTOR**, if requested by **MCD**, shall submit monthly updates of the construction schedule.

MCD reserves the right to request and/or require changes in the **CONTRACTOR'S** proposed schedule to protect the interests of **MCD**.

In the event of a work delay caused by unfavorable weather conditions, equipment breakdown, or for some other unforeseeable reason, the **CONTRACTOR** shall immediately notify **MCD** and give a notification of an anticipated start-up date. Any reasonable costs associated with delaying or accelerating the **CONTRACTOR'S** schedule, if required for **MCD'S** convenience, will be administered under GC-13 Changes in the Work and Unclassified Work.

GC-18. Personal Attention of Contractor

The **CONTRACTOR**, or if a Corporation, an officer thereof shall give personal attention constantly to the faithful prosecution of the work, and shall be present, either in person or by a duly authorized representative, who shall be authorized to receive and obey directions and orders given by the **ENGINEER**.

GC-19. Contractor's Address

The address given in the Proposal, or such other address as the **CONTRACTOR** may designate in writing in lieu thereof, is hereby designated as the place to which notices, letters, and other communications to the **CONTRACTOR** shall be mailed or delivered.

GC-20. Methods and Equipment

The **CONTRACTOR** shall be responsible for the methods and equipment used in fulfilling the Contract, but, when required, they shall have the approval of the **ENGINEER**.

The general character and scope of the work is shown by the drawings and described in the Specifications. Where a portion of the work is fully drawn and the remainder is merely indicated, the fully drawn portion shall apply to all similar parts of the work. Figured dimensions shall be followed in preference to scaled measurements. Dimensions on drawings are subject to field verification to suit adjacent elements.

GC-21. Layout of Work

The **ENGINEER** shall establish horizontal and vertical control for the improvements as shown on the Plans. The **CONTRACTOR** shall be responsible for additional staking, offsets, establishing grades, and any other control staking required to construct the improvements as shown on the Plans. The **CONTRACTOR** shall be responsible for protecting and maintaining horizontal and vertical control points established by the **ENGINEER**. If re-establishment of any of these points is required due to negligence on the part of the **CONTRACTOR**, the **CONTRACTOR** shall be billed for, and shall pay **MCD'S** cost of the required work.

GC-22. Utility Services

The responsibility shall be upon the **CONTRACTOR** to provide at its own expense all water, electric, gas, sanitary disposal, and all other utility services required for the performance of work.

GC-23. Demolition and Title to Property

All materials, items, etc. indicated for demolition or removal shall be removed from the site and disposed by the **CONTRACTOR** with the exception of those items to be relocated, remodeled, or reconditioned for reuse.

All demolition shall be done in a careful manner. Any and all items, not scheduled for removal, damaged during demolition shall be replaced with new.

All material and equipment removed shall be considered scrap, will become the **CONTRACTOR'S** property, and shall be removed from the property. Debris shall be disposed of in accordance with all federal, state, and local regulations on health, safety, and environmental quality.

GC-24. Safety and Protection

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

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

The **CONTRACTOR** shall comply with all applicable Laws and Regulations of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. The **CONTRACTOR** shall notify owners of adjacent property and of Underground Facilities and utility owners when prosecution of the work may affect them, and shall cooperate with them in the protection, removal, relocation and replacement of their property. All damage, injury or loss to any property referred to in paragraph b. or c. caused, directly or indirectly, in whole or in part, by **CONTRACTOR**, any **SUBCONTRACTOR**, Supplier or any other person or organization directly or indirectly employed by any of them to perform or furnish any of the work or anyone for those acts any of them may be liable, shall be remedied by **CONTRACTOR** (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of **MCD** 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 **CONTRACTOR**). The **CONTRACTOR'S** duties and responsibilities for the safety and protection of the work shall continue until such time as all the work is completed and **ENGINEER** has issued a notice to the **CONTRACTOR** that the work is acceptable.

The **CONTRACTOR** shall designate a responsible representative at the site whose duty shall be the prevention of accidents. This person shall be the **CONTRACTOR'S** superintendent unless otherwise designated in writing by the **CONTRACTOR** to **MCD**.

GC-25. Emergencies

In emergencies affecting the safety or protection of persons or the work or property at the site or adjacent thereto, **CONTRACTOR**, without special instruction or authorization

from **ENGINEER** or **MCD**, is obligated to act to prevent threatened damage, injury or loss. The **CONTRACTOR** shall give **ENGINEER** prompt written notice if the **CONTRACTOR** believes that any significant changes in the work or variations from the Contract Documents have been caused thereby. If **ENGINEER** determines that a change in the Contract Documents is required because of the action taken in response to an emergency, a work directive change or change order will be issued to document the consequences of the changes or variation.

GC-26. Protection of Work and Property

All gates to project site shall be locked when the **CONTRACTOR** is not working. When appropriate, the **CONTRACTOR** will be loaned a key for duration of the project. The **CONTRACTOR** shall continuously maintain adequate protection of all of its work from damage and shall protect the property of **MCD** and private and public property from injury or loss arising out of or incurred in connection with this Contract.

The **CONTRACTOR** shall notify the Ohio Utility Protection Service and all non-member utilities at least 48 hours prior to commencing excavation activities. The underground utilities shown are plotted from existing records, but neither their accuracy nor their completeness is guaranteed. The **CONTRACTOR** shall bear all responsibility for protection of all existing underground utilities.

GC-27. Quality of Work

All work and materials shall conform to the State of Ohio, Department of Transportation, Construction and Material Specifications dated January 1, 2005, unless otherwise modified by the Plans or Specifications.

Qualified workers shall execute the work in the best and most workmanlike manner. Unless otherwise specified all materials to be incorporated in the work will be new, unused, and of recent manufacture.

GC-28. Guarantee

The **CONTRACTOR** shall guarantee that all work under this Contract is free from defects in workmanship and material. The **CONTRACTOR** further guarantees that if any such defects appear within one year of final acceptance of the work such defects will be remedied without cost to **MCD**.

GC-29. Cleaning Up

The **CONTRACTOR** at all times shall keep the premises free from accumulation of any and all waste materials or rubbish caused by its presence or operations, especially considering the public use of the area as a park. Before final acceptance, all borrow and waste areas, storage sites, temporary plant sites, haul roads, and other ground occupied by the **CONTRACTOR** in connection with the work shall be cleaned of all rubbish,

excess materials, temporary structures, and equipment. These areas shall have suitable vegetative cover established by seeding and mulching as specified in the Detailed Specifications, at no additional cost to **MCD**, and all parts of the work shall be left in an acceptable condition.

GC-30. Access to the Project Site

The **CONTRACTOR** shall be responsible for the maintenance of any access roads to be used and shall be approved by **MCD** before construction is started.

The **CONTRACTOR** shall provide and maintain suitable parking areas for the use of all workers and others performing work or furnishing services in connection with this contract. The **CONTRACTOR** is not to interfere with **MCD** operations or activities or with use of the area by the public.

If any existing pavements (asphalt, gravel, or earth) are damaged due to the **CONTRACTOR'S** operations, such damages as determined by **MCD**, shall be repaired by at its own expense and such repairs shall be acceptable to **MCD'S** requirements and/or directions.

GC-31. Contract Drawings and Specifications

Four sets of Contract Drawings and Specifications will be furnished to the **CONTRACTOR** without charge.

GC-32. Subcontracting

The **CONTRACTOR** may utilize the services of specialty **SUBCONTRACTORS** on those parts of the **WORK**, which, under normal contraction practices, are performed by specialty **SUBCONTRACTORS**.

The **CONTRACTOR** shall not award **WORK** to **SUBCONTRACTOR(s)**, in excess of (50%) percent of the Contract Price, without prior written approval of **MCD**.

The **CONTRACTOR** shall be fully responsible to **MCD** for the act and omissions of its **SUBCONTRACTORS**, and of persons either directly or indirectly employed by them, as they are for the acts and omissions of persons directly employed by them. The **CONTRACTOR** shall provide the names, mailing addresses, and phone numbers of all **SUBCONTRACTORS** to **MCD**.

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 or regards terminating any subcontract that **MCD** may exercise over the **CONTRACTOR** under any provision of the Contract Documents.

Nothing contained in this Contract shall create any contractual relation between any **SUBCONTRACTOR** and **THE MIAMI CONSERVANCY DISTRICT**.

GC-33. Control of Work

The documents forming the Contract Documents, as listed in the Contract, are complementary, and the work called for by one is as binding upon the parties as if it was called for by all. In the event of conflict between the Contract Documents, the interpretation of the **ENGINEER** shall govern. Generally, the **ENGINEER** will resolve conflicts in a manner, which will yield the greater quality in Work. In the interpretation of any conflict between the Contract Documents, the following order of precedence shall govern:

- Contract
- Proposal
- Change Orders
- Addenda
- Instructions to Bidders
- Detailed Specifications
- Drawings/Plans
- General Conditions
- ODOT Specifications
- Other documents included in the Contract Documents by specific reference in the Contract.

DETAILED SPECIFICATIONS (Pink Page Section)

PART 1 PROJECT NOTES

Location

All drilling is to be on lands owned or controlled by The Miami Conservancy District at Englewood Dam, Montgomery County, Ohio. The site location and general location of the relief wells are shown in Figure 1. The specific location of each well will be staked in the field by **MCD**.

Summary

All work shall be performed under the direction of an experienced well driller/builder. The work to be done under these Specifications includes:

- A. The drilling of forty-six (46) relief wells, ER27 through ER67, 18 inches or more in diameter, to depths ranging from 13 to 109 feet, using the cable tool drilling method. The total drilling is approximately 2,812 feet. Figure 2 shows a typical relief well design.
- B. Thirty-eight of the wells are considered Primary wells, and are to be constructed at 50-foot spacing across the toe of the dam. **MCD** used test borings and sieve analysis performed in these locations in 2000 to design these Primary wells. Design information for Primary wells is available in Appendix 1.

The remaining eight wells are considered Secondary wells, and are to be drilled at 25-foot spacing in designated locations between the Primary wells. The **CONTRACTOR** shall design and build the eight (8) Secondary wells as described in these Specifications.

- C. Furnish and install 12-inch diameter stainless steel screen and steel blank riser pipe. Screen may be manufactured by the Johnson Screens / a Weatherford Company or approved equal.
- D. Finish well tops and sumps as described in these Specifications.
- E. Develop the wells by the appropriate methods as described in these Specifications depending on whether screens are submerged.
- F. Perform step drawdown tests in five (5) selected wells.
- G. Furnish, install, and complete all other incidentals required or as shown on the drawings.

Payment

Payment will be full compensation for furnishing all labor, materials, tools, equipment, transportation, services, and incidentals and for performing all work necessary for completing the item or work classification.

Pay Items

Payment will be made at the applicable unit price or lump sum price as detailed in the Schedule of Items and Prices for the payment items listed in these Specifications. Measurement for payment for items of work of this Contract, as included in these Specifications, will be based on the number of units of measurement constructed and/or furnished and installed and/or performed as specified or directed.

Non-Pay Items

No separate payment will be made for other required work not included in the Schedule of Items and Prices, and the cost of such other work shall be included in the prices of the pay items. Such other work includes, but is not limited to well design, report submittals, site preparation and cleaning, erosion control, and prevention of pollution.

No payment will be made for efforts or products which do not meet the requirements of these Specifications.

Submittals

Submit to **ENGINEER** two (2) copies of the required shop drawings, logs, and product data. Mark and clearly label each copy to identify applicable products, models, options, and other data; supplement manufacturers' standard data to provide information unique to the work.

List of submittals required:

1. Work schedule information (See GC-17 Work Schedule). **CONTRACTOR** shall provide to the **ENGINEER** a detailed schedule for Contract activity fifteen (15) days from the Notice of Commencement. The schedule shall show the major work items and the time frame and order of performing items.
2. Screen and well design, including transmission capacity for each of the eight Secondary wells to be designed by the **CONTRACTOR** and approved by **MCD**.
3. Screen product information and gravel pack specifications including sieve analysis.
4. Driller logs and reports as described in Item 2 of these Specifications.

5. As-built diagrams of completed wells showing the dimensions as constructed.
6. Copies of all reports filed to appropriate agencies as required by law.

Aquifer Material

All drilling will be in glacial and alluvial deposits adjacent to the Stillwater River. The formation consists of sand and gravel with layers of silt, clay, and glacial till. A summary of results of the sieve analyses is included in these Specifications (Appendix 2, Tables I–IX). The actual logs of exploratory borings and full results of the sieve analyses and plots of particle size distribution are available for inspection at **MCD** office and a copy will be provided to the successful **CONTRACTOR**. Only strata considered suitable and appropriate for relief well construction were laboratory tested for grain size. Samples which were obviously clay or silt were excluded from the sieve analyses. Cobbles have been encountered at the site. Drilling into bedrock will not be required. Any subsurface information and data furnished for these Specifications are for information only and are not intended as representation or warranties of actual conditions.

Location of Existing Utilities

It shall be the **CONTRACTOR'S** responsibility to satisfy itself as to the location of all known pipelines, sewers, and buried or overhead utilities.

Availability of Construction Utilities

The **CONTRACTOR** shall be responsible for furnishing all utilities—water, electric, and sanitary required by him/her at the specific drill site.

Materials and Equipment to be Furnished by The Miami Conservancy District

MCD shall provide water level recording equipment for use during the pumping step drawdown tests of five (5) selected wells.

Materials and Equipment Furnished by the Contractor

The drilling, development, and pump testing equipment used for the work must be adequate in all respects to ensure expeditious and proper execution of the work. If the drilling, development, and pump testing equipment, in the opinion of **MCD**, proves to be inadequate or not in proper repair for the proper execution of the work, **MCD** may order that proper repairs be made immediately or that more adequate equipment be furnished immediately by the **CONTRACTOR**.

Definitions

Incorporated into these standards are definitions of selected terms.

Abandoned Well. A well whose original purpose and use has been permanently discontinued or which is in such a state of disrepair that its original purpose cannot be reasonably achieved.

Air Line. The smaller vertical air pipe usually extending from the surface submerged to within a few feet of the bottom of the educator pipe. The length of the air line below the static water level is used in calculating the air pressure required to start the air-lift.

Aquifer. A geologic formation, group of formation, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Bailer. A long narrow bucket made of pipe with a valve in the bottom used to remove cuttings from the hole.

Bailer. (flat bottom). A type of Bailer (or sampler) that has a length of plunger so that an upward pull on the plunger produces a partial vacuum that opens a valve and sucks sand or slurred cuttings into the bailer tube.

Bentonite. A highly plastic, colloidal clay composed largely of mineral montmorillonite.

Casing. A tubular retaining structure, generally metal, which is installed in the excavated hole to temporarily maintain the well opening.

Cementing. (positive emplacement). A technique of installation of cementing materials whereby emplacement is achieved by positive pressure extended from the bottom of the zone upward via a grout pipe extending from the surface.

Conductor Pipe or Casing. A tubular retaining structure installed between the drilled hole and the inner casing, in the upper portion of a well.

Drawdown. The difference in levels between the static water level and the surface of the cone of depression.

Drilled Well. A well for which the hole is generally excavated by mechanical means such as the rotary or cable tool methods.

Drilling Mud. A fluid composed of water and bentonite used in the drilling (primarily rotary) operation to remove cuttings from the bore to clean and cool the bit, to reduce friction between the drill stem and the sides of the hole, and to plaster the sides of the hole. Such fluids range from relatively clear water to carefully prepared mixtures of special purpose compounds.

Drive Shoe. A forged steel collar with a cutting edge fastened onto the bottom of casing to shear off irregularities in the hole as the casing advances, and to protect the lower edge of the casing as it is driven.

Eductor. The vertical discharge pipe usually submerged about two-thirds of its length below the pumping water level in the well.

Formation Stabilizer. Clean coarse sand, or sand and gravel mixture, used to fill the annular space around a well screen installed in a well by the hydraulic rotary method, reverse circulation method or bail down method. Formation stabilizer is placed before completing a naturally developed well.

Gel. A colloidal suspension in which shearing stresses below a certain value fail to produce permanent deformation.

Gel-Strength. A measure of the ability of colloids to form gels.

Gravel Pack. Specially graded uniform material selected appropriately to coordinate the grain size of the formation to the selected slot size of the screen to fill the annular space around a well screen and create a productive well.

Grout. A fluid mixture of cement and water (neat cement) of a consistency that can be forced through a pipe and placed as required. Various additives, such as sand, bentonite, and hydrated lime, are included in the mixture to meet certain requirements. For example, sand is added when a considerable volume of grout is needed.

Lift. The vertical distance from the pumping level to the point of discharge of the water plus the friction loss in the eductor pipe.

Surge Block. A plunger consisting of one or more stiff rubber discs fitting appropriately inside the well screen and attached to a heavy movable shaft.

Surging. Moving water in and out of the screen using the up and down motion of the surge block through short sections of the screen.

Test Hole. Hole designed to obtain information on groundwater quality and/or geological and hydrological conditions.

Tremie Pipe. A device, usually a small diameter pipe, that carries grouting materials to the bottom of the hole and which allows pressure grouting from the bottom up without introduction of appreciable air pockets.

Well Screen. Serves as the intake section of the well that obtains water from an aquifer of unconsolidated materials such as sand. It allows water to flow freely into the well from water saturated sand, prevents sand from entering with the water, and serves as a structural retainer to support the bore hole in unconsolidated material. Numerous types are available and their application depends on the specific hydrogeologic conditions present.

PART 2 PROJECT SPECIFICATIONS

Item 1 Mobilization and Restoration

Mobilization shall consist of moving drilling equipment to Englewood Dam, setting up of drilling equipment and starting the drilling operation. Mobilization is considered complete when a minimum of one rig has been moved to the work site and has started drilling.

Payment for this item shall be made partially (50 percent) when all materials and supplies are on site for the initiation of work and the remainder when final cleanup is completed. Final payment for this item will be approved when all work has been completed including all required submittals, and the area restored to the satisfaction of the **ENGINEER**.

In the event high water or other weather conditions causes the **CONTRACTOR** to cease operations temporarily including temporary removal of equipment, materials, and personnel during such event(s), no additional payment for Mobilization and Restoration will be made.

The **CONTRACTOR** shall replace all disturbed surfaces to a condition equal to that existing before the work was started, furnishing all materials, labor, equipment, etc. at no additional cost to **MCD**.

The **CONTRACTOR** shall remove all signs of temporary construction facilities such as haul roads, work areas, structures, foundations of temporary structures, stockpiles of excessive waste materials, or any other vestiges of construction as directed by **MCD**. The area shall be restored to near natural conditions that will permit the growth of vegetation thereon. Restoration to original contours will be required and all restored areas shall be smoothly and evenly dressed and sloped to drain.

Six inches of topsoil shall be added to all areas to be repaired and the areas shall then be seeded, fertilized, mulched, and watered in accordance with Item 659 of the ODOT 2005 Specifications and the following stipulations: (1) Seed mix shall be 40 percent Kentucky Bluegrass, 40 percent Creeping Red Fescue, and 20 percent Annual Rye grass, and (2) Fertilizer shall be applied at the rate of 10 pounds per 1,000 square feet and shall be the 10-20-10 composition as specified in ODOT 659.04.

Upon final completion of all work previously described herein, all accumulated debris, casing, excess materials, and equipment shall be removed from the site and disposed of in a satisfactory manner. **MCD** may at any time during construction order that debris be picked up and removed if in its opinion, an unsightly or hazardous condition exists.

Any material excavated from the wells and adjacent structures that are not suited or needed for backfill shall be spoiled in an area designated by **MCD**.

Any holes and temporary excavations or temporary roads or wheel tracks made by the **CONTRACTOR** shall be restored and smoothed in a slightly manner to conform to the adjoining ground surface.

After the above work is completed, the **CONTRACTOR** shall remove all tools and other property belonging to it, leaving the entire site in good condition.

Item 2 Drilling

Drilling shall be performed with the Cable Tool method.

Previous Borings

Borings have been made along the alignment of the Primary relief wells. Logs of borings performed previously and the results of the sieve analyses and plots of particle size distribution are available for inspection at **MCD** and will be provided to the successful **CONTRACTOR**. Various logs of borings relating to construction of the dam and subsequent evaluations are also available for inspection at **MCD** headquarters. Cobbles have been encountered at the site. No drilling into bedrock will be required.

Daily Driller's Reports

During the drilling of relief wells, a daily, detailed driller's report shall be maintained and available for review by **MCD**. The report shall give a complete description of all formations encountered, number of feet drilled, number of hours on the job, shutdown due to breakdown, the water level in the well at the beginning and end of each shift, water level at each change of formation if readily measurable with the drilling method used, feet of casing set, and such other pertinent data as may be requested by **MCD**. The Daily Driller's Report must be accurate and complete enough to be used for the preparation of well logs, as-built well dimensions, and other information required by or useful to **MCD**.

Temporary Well Casing

The **CONTRACTOR** must have on hand sufficient casing with coupling bands applied to one end so that the remainder of a hole(s) can be temporarily cased in the event that mechanical failure or natural calamity (flood) prevents the completion of the well.

MCD may at any time direct that temporary casing be used if in their judgment excess material is being removed and undermining of the dam may occur. **MCD** may direct filling of temporary casing with granular material if necessary to protect the integrity of the dam. Such material will be re-bailed after the threat has passed. All temporary well casing for relief wells shall be new or used in good condition. Used casing must be smooth on the interior and free of all burrs, welding slag, or obstructions. The casing shall be steel water well casing, 18 inches or larger in diameter, with wall thickness 0.375 inches or greater.

Subsidence Control

The integrity of the foundation at the toe of the dam is of critical importance. **MCD** may require that shoring be installed in any excavation which in its opinion may be in danger of collapse. The removal of material during construction of the well shall be carefully controlled to limit the quantity of material it is necessary to remove for the installation of the temporary casing. Excessive bailing to "loosen up the casing" will not be permitted. Where subsidence is evident by settling around the well casing, the **CONTRACTOR** will be directed to excavate to a depth of 6 feet out to the limits of subsidence and to backfill the hole with impermeable material. The backfill shall be compacted in 8-inch lifts with a kneading type compactor.

Measurement for Relief Well Drilling will be based on the number of linear feet of hole drilled as indicated in the Specifications. Payment will be made based on the measured number of linear feet of hole drilled and at the unit price bid for Relief Well Drilling which price shall include all costs for drilling the hole, all logging, and Drillers Reports.

Item 3 Relief Well Construction

The **CONTRACTOR** shall use the Cable Tool—pull back method of well construction.

Drilling of each Primary relief well shall not begin until the well screens and steel blanks are on site and available for installation. The intention is to drill and install each relief well prior to start of drilling for succeeding relief wells. The number of open and uncompleted holes shall be kept to a minimum.

The method used to begin the well construction will indicate the finish of the well. If a backhoe is used to make an excavation to set the temporary casing, then the **CONTRACTOR** shall complete the well by excavating a hole around the top of the well, wider and deeper than the original excavation, and shall backfill the excavation with impermeable material. All backfill material shall not be less than 50 percent clay or silt and shall be compacted in 8-inch lifts.

The **CONTRACTOR** may use 18-inch or 24-inch temporary casing to construct the well. Gravel pack must be added concurrently with the pullback of the temporary casing.

Sand and gravel removed during construction of the relief wells should be retained. Gravel pack shall be extended 2 feet above and below each screen in addition to throughout the length of the screen. The annular space remaining around the well casing above elevation of the gravel pack shall be backfilled with well cuttings. **MCD** will supply the discharge piping and anti-seepage collars at a later date, and separately from the requirements of this Contract.

It shall be the **CONTRACTOR'S** responsibility to utilize the equipment he/she deems suitable to ensure that the well will maintain alignment, plumbness, and roundness during installation.

Casing lengths shall be joined to form structurally sound and watertight welded joints using a method appropriate to the material used, as selected by the **CONTRACTOR** and approved by **MCD**, so that the resulting joint shall have the same structural integrity as the casing itself. The standards of the American Welding Society shall apply.

At all times during the progress of the work the **CONTRACTOR** shall use reasonable precautions to prevent either tampering with the well or the entrance of foreign material into it. The suggested method of securing the well is by tack welding a plate to the top of the casing during intervals when work on the well is not in progress.

Well Screen Installation

Well screen shall be provided in accordance with Item 4 Stainless Steel Well Screen of these Specifications. Well screen shall be installed at locations provided in Appendix 1 for the Primary relief wells and as designed by the **CONTRACTOR** and approved by **MCD** for the Secondary relief wells.

The screen shall be installed according to the method deemed appropriate by the **CONTRACTOR** and approved by **MCD**.

Gravel Pack

Gravel pack shall be extended 2 feet above and below each screened zone.

Material used as gravel pack shall be clean, washed sand or sand and gravel mixture of a grading about the same as, or slightly coarser than the water bearing formation itself. Sieve analyses of the proposed gravel pack materials shall be submitted to **MCD** as part of the well design. The gravel pack material and its gradation shall be submitted to and approved by **MCD** before its placement as part of the well design process.

The **CONTRACTOR** shall be responsible for storing gravel pack in such a manner that dirt and other contamination are not introduced to the well bore.

The **CONTRACTOR** shall be responsible for devising the methods and equipment used to place the gravel pack in the well bore in such a manner as to ensure proper completion of a highly efficient well.

Well Plumbness and Alignment

The completed well shall be sufficiently plumb and straight so there will be no interference with installation and removal of a test pump.

The well must pass a 10-foot length of 10-inch diameter pipe.

Finish of Wells—Tops

Each well shall be extended above existing land surface a distance of two feet. The well tops shall consist of heavy steel plates tack welded to the top of each 2-foot above-land-surface blank riser pipe to cover the open hole. Each well's plate shall have a 1-inch hole drilled in the top to permit access for monitoring purposes. The hole shall be smooth, free of burrs and other rough surfaces, so it will not damage monitoring devices inserted into the 1-inch holes.

Finish of Wells—Sumps

The well bottoms shall consist of heavy circular steel plates welded to the bottom of each well to create a solid bottom. The bottom of each well shall include a blank pipe sump of the same dimension as the riser pipe. Sumps for each well shall extend 3 feet below the bottom of the bottom screen where possible. One exception to construction of a 3-foot sump is known to exist. Relief well ER37, due to the close proximity of bedrock to the bottom of the bottom screen, has room only for a 1-foot section of blank pipe with solid sump bottom. The expected sump length to be added to each well's bottom screen is provided in Appendix 1 for the Primary relief wells whose designs have been provided as part of these Specifications. For Secondary relief wells, the **CONTRACTOR** shall include the sump design as part of the well design submittal for **MCD** approval.

Relief Well Construction shall be measured for payment based on the number of linear feet of completed well from the 2-foot riser of casing above land surface to the bottom of the sump below the bottom screen. Payment for Relief Well Construction will be made based on the number of linear feet measured and at the unit price bid for Relief Well Construction which price shall include design of screens for the specific wells based on the gradation analyses, furnishing all pipe and screens, all welding, temporary casing, casing retained, drilling and removal of casing after installation of the well, and furnishing and installing gravel pack.

Item 4 Stainless Steel Well Screen

The well screen shall be of the continuous V-slot wire-wound rod base design. The outer winding of wire shall circumscribe the O.D. in a helical fashion thus forming the screen surface. The wrap wire shall be essentially triangular with the apex pointing inward, thus creating a "V" shaped slot opening between wires. An array of equally spaced round or tear drop bars shall span the interior length of the screen. Each wire/bar intersection shall be joined together by the resistance welding process. Screen may be manufactured by the Johnson Screens/a Weatherford Company or approved equal.

All screen material shall be AISI 18-8 Type 304 or Type 316 stainless steel. The screen shall have collapse strength of not less than 50 psi. The screen shall be 12-inch pipe size screen having dimensions of 12.75-inch OD and 12.0-inch ID.

The Designs of each of the thirty-eight (38) Primary wells designed by **MCD** are included in these Specifications as Appendix 1. The width of the slot opening and length of the screens and connecting riser pipe for each of the thirty-eight (38) wells was designed based on the previously performed test borings and soil analyses.

The Design of each of the eight (8) Secondary wells which will be designed from drilling results shall be submitted for **MCD** approval prior to ordering screen and well installation. It is anticipated that the screen may be in multiple sections separated by blank pipe. Actual design shall be based upon the materials obtained while drilling these Secondary relief wells.

Design Criteria

Typical relief wells at **MCD** dams include screen installed in several segments separated by blank pipe so that all the highly permeable formations will be relieved. Since the purpose of these wells is to relieve pressure at the toe of the dam caused by underseepage, each well should be designed to produce as much water as permeable foundation materials reasonably allow.

The screen slot size selected by the **CONTRACTOR** shall be based on sieve analyses from the test borings. The screen shall be designed for a minimum collapse pressure of 50 psi. All screen materials shall be AISI 18-8 Type 304 stainless steel or approved equal.

Maximum entrance velocity should not exceed 0.1 feet per second. The diameter of the well shall be 12 inches (ID) from land surface to the bottom of the well. Typical relief well screen slot sizes are selected to retain 50% of the formation, based on the sieve analysis completed from the test boring soil samples. The position and lengths of the screens shall be designed by the **CONTRACTOR** to give the most productive well.

Final design of each Secondary relief well shall be submitted to **MCD** for review and approval. The submittal shall include information about the screen product, calculations of open area, and projected capacity of the well. Design and gradation curves of proposed gravel pack shall be included as part of the design.

Measurement for 12-inch diameter Stainless Steel Well Screen including Weld Rings will be based on the number of linear feet of screen including weld rings installed in the wells. Payment will be made based on the measured number of linear feet of Stainless Steel Well Screen provided and installed at the unit price bid for Stainless Steel Well Screen which shall include all costs of installation.

Item 5 Blank Pipe

The blank pipe riser material shall be standard weight or heavier steel pipe, with wall thickness of at least 0.375 inches, and dimensions of at least 12.75-inch O.D. and 12.00-inch I.D.

Welds

The end fittings or weld rings attached to the screen shall be fabricated from the same material as the screen. All intermediate fittings and end fittings shall be butt-weld rings.

All welds between screen and riser pipe shall be made with Type 308-weld rod. All welds shall conform to American Welding Society standards.

Measurement for 12-inch diameter Steel Blank Pipe will be based on the number of linear feet of blank pipe installed in the well, including the specified three-foot or other specified length sump with steel plate bottom at the bottom of each well and the 2-foot riser pipe with steel plate surface at the top of each well. No separate measurement or payment will be made for fittings, welds, or lids. Payment will be made based on the measured number of linear feet of blank pipe supplied and installed at the unit price bid for Relief Blank Pipe which price shall include all costs to complete the installation.

Item 6 Well Development

The wells shall be developed by surge blocks, hydraulic jetting, and pumping. The equipment and procedures to be used shall be approved by **MCD**. During the development, if it becomes apparent that the well may be damaged, development operations shall be immediately curtailed or modified. **MCD** may require a change in method if the initial method selected does not accomplish the desired results. **MCD** may order that if the well continues to produce excessive amounts of fines after development for six hours be abandoned, plugged and backfilled, and may require the **CONTRACTOR** to construct a new well nearby.

A combination of methods shall be used to develop the wells. Each area of the screen shall be systematically worked to achieve the goal of cleaning the fines out of the screen, gravel pack, and surrounding formation to produce a productive well until turbidity or sand content in the well is minimal.

All water exiting the well being developed, by pumping or compressed air lifting, shall be through an eductor, to an appropriate distance away from the well site. Such water shall not be allowed to spill onto the ground surrounding the well.

Any screen above the water table shall be developed by a device which sprays water into that screened zone. Such a device may be simple such as water pumped under pressure through a pipe in which slots have been cut, or by using a technically designed jetting tool. The minimum exit velocity of the jetting fluid at the jet nozzle shall be 150 feet per second. It shall be positioned at one level for not less than four minutes and then shall be moved to the next level that shall be no more than 6 inches vertically from the preceding jetting level. The jetting shall proceed from the bottom of the screen to the top. Two (2) complete passes shall be made through each screen. The total time shall be 16 minutes or more per foot of screen. Water to be used for jetting must contain less than 10 ppm suspended solids. The jetting pump shall be capable of developing 150 psi at the jets at a flow of 150 gpm.

Submerged screens should be developed with surge blocks. Surging should begin with a slow and gentle motion above the well screen and continue with more vigor from the top of the screen downward. The surging block should be pulled at approximately 2 feet per second for effective surging. Surge pads shall be tight in the well so as to maximize effectiveness, and shall be changed as often as necessary to maintain a tight plunge action. Development shall continue in each zone being developed until the discharged water is free from turbidity in that zone.

Final well development will be completed by installing a pump in the well and pumping water from the well sufficiently to "clear up" the water and to indicate the possible capacity range of the well. This information will be used to establish the rates for the step and constant rate testing. The pump shall be started and run for a few minutes, then stopped until the water level recovers, then started again. The pumping rate should equal or exceed the design flow of the well. Any sand brought into the well during final development or subsequent performance tests shall be removed from the well after the pump is removed and before the well is considered complete.

MCD may choose to eliminate some wells from Well Development if wells are dry and have no water to accomplish the development throughout the time period of the job. The quantity listed in the Schedule of Items and Prices for Well Development is an estimate of the maximum linear feet of Well Development.

Measurement for Relief Well Development will be based on the number of linear feet of screen developed as indicated in the Specifications. Payment will be made based on the measured number of linear feet of screen developed and at the unit price bid for Relief Well Development which price shall include all costs, mobilize and install all equipment, and provide all labor specified and required for operation of necessary development equipment, including furnishing pumps, hoses and pipe, jetting nozzles, eductor pipe, and other equipment for well development and setup of equipment on the location of the drilled relief well.

No measurement will be made for time required for changing from one equipment set to another during the well development period or for down time due to breakdowns or improper operation of the equipment, or for time required for fueling, startup, or other time required in advance of or after completion of equipment operation. The cost of the time required for these items shall be included in the per foot bid price for Well Development.

Item 7 Pump Test

The **CONTRACTOR** shall furnish a pump capable of discharging at least the design capacity of the well at the required head. The pump may be powered by a diesel gasoline engine or an electric motor and portable generator. The test pumping equipment shall be capable of continuous operation for a period of eight hours or more without interruption.

Discharge of the pump shall be controlled by a gate valve if electrically driven, and by both a gate valve and engine throttle if engine driven. Gasoline and diesel power units for direct drive pumps shall be equipped with an accurate tachometer. The discharge

shall be controlled and maintained at approximately the desired discharge for each step with an accuracy of plus or minus five percent. The flow rate shall be measured using an orifice weir with manometer, or equivalent method acceptable to **MCD**. The **CONTRACTOR** shall furnish pipe to conduct the water away from the well being tested. The **CONTRACTOR** shall provide protection measure to prevent the pumped water from eroding the land surface of the dam.

A $\frac{3}{4}$ inch diameter or larger PVC pipe shall be installed from a point 2 feet above the pump intake to the well head. The top of the pipe shall be readily accessible to insert, remove, and read the depth to water using an electronic water level indicator. A clearly marked convenient reference point shall be set at the top of the pipe. The water level indicator will be furnished by **MCD**.

Payment for Pump Test including all equipment and manpower indicated in the Specifications, including mobilization and installation of the temporary test pump, discharge piping, measuring equipment, and all other manpower and equipment required, and all other associated equipment and items required to begin operation of pump test equipment, and setup of equipment on the location of the drilled relief well, and including all costs to operate the equipment mobilized, and set up on the drilled relief well will be made based on the lump sum price in the Schedule of Items and Prices. No measurement will be made for time required for down time due to breakdowns or improper operation of the equipment, or for time required for fueling, startup, or other time required in advance of or after completion of equipment operation. No payment will be made for Tests which stop prematurely due to equipment failure of any sort. It is the **CONTRACTOR'S** responsibility to provide equipment which meets the objectives of the test.

FIGURES AND APPENDICES (White Page Section)

Appendix 1—Englewood Dam Relief Well Specifications

Appendix 2—Englewood Dam Subsurface Exploration

STATE PREVAILING WAGES (Green Page Section)

