CONTRACT DOCUMENTS

FOR

ARBOR OAKS WATER MAIN REPLACEMENT PROJECT

December, 2010

FILE NO.: 2009-032
BID NO.: 4100
DWRF PROJECT NO.: 7333-01

PUBLIC SERVICES AREA
PROJECT MANAGEMENT SERVICE UNIT

CITY OF ANN ARBOR
100 North Fifth Avenue
Ann Arbor, Michigan 4810

TABLE OF CONTENTS

APPENDIX A – SOIL BORING LOGS

ADVERTISEMENT FOR

ARBOR OAKS WATER MAIN REPLACEMENT PROJECT

FOR THE

CITY OF ANN ARBOR, MICHIGAN

BID NO. 4100

Sealed Bids will be received by the Procurement Unit, Fifth Floor, City Hall, on or before **2:00 p.m., January 14, 2010** for construction of the **Arbor Oaks Water Main Replacement Project**. Bids will be publicly opened and read aloud at this time.

Work to be done includes the construction of approximately 6,150 feet of 8-inch and approximately 3,500 feet of 12-inch ductile iron water main encased in polyethylene within Champagne Drive, Hemlock Drive, Stratton Court, Downing Court, Englewood Court, Manitou Court, Metroview Court, Faust Court, Trowbridge Court, Kilbrennan Court, W. Eden Court, E. Eden Court, Rockland Court, and Plainview Court, and all related work.

Bid Documents may be obtained online for no charge on or after December 10, 2010 at www.govbids.com. Click on "The Michigan MITN System", and search for the bid number to receive plans & specifications in pdf format. The pdf plans can be taken to any print shop for printing. When turning in proposals, include the entire printed specification book. Paper plans are not available from the city.

Each proposal shall be accompanied by a certified check, or Bid Bond by a recognized surety, in the amount of 5% of the total of the bid price. A proposal, once submitted, becomes the property of the City. In the sole discretion of the City, the City reserves the right to allow a bidder to reclaim submitted documents provided the documents are requested and retrieved no later than 48 hours prior to the scheduled bid opening.

The successful Bidder will be required to furnish satisfactory performance and labor and material bonds in the amount of 100% of the bid price and satisfactory insurance coverage.

Precondition for entering into a contract with the City of Ann Arbor: (i) compliance with Chapter 112 of Title IX of the Code of the City of Ann Arbor. (ii) compliance with applicable prevailing wage and CUB Agreement and living wage requirements of Chapter 23 of Title I of the Code of the City of Ann Arbor. Further information is outlined in the contract documents.

After the time of opening, no Bid may be withdrawn for a period of 90 days. The City reserves the right to accept any Bid, to reject any or all Bids, to waive irregularities and/or informalities in any Bid, and to make the award in any manner the City believes to be in its best interest.

Any further information may be obtained from the Ann Arbor Procurement Office, which can be reached at (734) 794-6500 ext. 45206.

CITY OF ANN ARBOR, MICHIGAN

City of Ann Arbor Procurement Office

INSTRUCTIONS FOR CONTRACTORS

For Completing CONTRACT COMPLIANCE FORM

City Policy

The "non discrimination in contracts" provision of the City Code, (Chapter 112, Section 9:161) requires contractors/vendors/grantees doing business with the City not to discriminate on the basis of actual or perceived race, color, religion, national origin, sex, age, condition of pregnancy, marital status, physical or mental limitations, source of income, family responsibilities, educational association, sexual orientation, gender identity or HIV status against any of their employees, any City employee working with them, or any applicant for employment. It also requires that the contractors/vendors/grantees include a similar provision in all subcontracts that they execute for City work or programs.

This Ordinance further requires that each prospective contractor/vendor submit employment data to the City showing current total employee breakdown by occupation, race and gender. This allows the Human Rights Office to determine whether or not the contractor/vendor has a workforce that is reflective of the availability of women and under-represented minorities within the contractor's labor recruitment area (the area where they can reasonably be expected to recruit employees). ***This data is provided to the City on the Human Rights Contract Compliance Forms (attached).***

To complete the form:

1) **If a company has more than one location, then that company must complete 2 versions of the form.**

- **Form #1** should contain the employment data for the **entire corporation**.
- **Form #2** should contain the employment data for those employees:
  - who will be working on-site;
  - in the office responsible for completing the contract; or,
  - in the case of non-profit grantees, those employees working on the project funded by the City grant(s).

2) If the company has only one location, fill out Form #1 only.

3) Complete all data in the upper section of the form including the name of the person who completes the form and the name of the company/organization's president.

4) Complete the Employment Data in the remainder of the form. Please be sure to complete all columns including the Total Columns on the far right side of the form, and the Total row and Previous Year Total row at the bottom of the form.

5) Return the completed form(s) to *your contact* in the City Department for whom you will be conducting the work.

For assistance in completing the form, contact:
Procurement Office of the City of Ann Arbor
734/994-2719

If a contractor is determined to be out of compliance, the Procurement Office will work with them to assist them in coming into compliance.

CITY OF ANN ARBOR PROCUREMENT OFFICE
HUMAN RIGHTS CONTRACT COMPLIANCE FORM

Form #1

Entire Organization (Totals for All Locations where applicable)

Name of Company/Organization_____ Date Form Completed_____

Name and Title of Person Completing this Form_____ Name of President _____

Address_____ County_____ Phone #_____
(Street address) (City) (State) (Zip) (Area Code)

Fax#_____ Email Address_____
(Area Code)

EMPLOYMENT DATA

Job Categories	Number of Employees (Report employees in only one category)												
	Male						Female						
	White	Black or African American	Asian	Hispanic or Latino	Native Hawaiian or Other Pacific Islander	American Indian or Alaska Native	White	Black or African American	Asian	Hispanic or Latino	Native Hawaiian or Other Pacific Islander	American Indian or Alaskan Native	TOTAL COLUMNS A-M
	A	B	C	D	F	G	H	I	J	K	L	M	
Exec/Sr. Level Officials													
Supervisors													
Professionals													
Technicians													
Sales													
Admin. Support													
Craftspeople													
Operatives													
Service Workers													
Laborers/Helper													
Apprentices													
Other													
TOTAL													
PREVIOUS YEAR TOTAL													

AAF-2

Questions about this form? Call Procurement Office: (734) 994-2719

CITY OF ANN ARBOR PROCUREMENT OFFICE
HUMAN RIGHTS CONTRACT COMPLIANCE FORM

Form #2

Local Office (Only those employees that will do local or on-site work, if applicable)

Name of Company/Organization_____ Date Form Completed_____

Name and Title of Person Completing this Form_____

Fax#_____ Email Address_____
(Area Code)

EMPLOYMENT DATA

Job Categories	Number of Employees (Report employees in only one category)												
	Male						Female						
	White	Black or African American	Asian	Hispanic or Latino	Native Hawaiian or Other Pacific Islander	American Indian or Alaska Native	White	Black or African American	Asian	Hispanic or LatinO	Native Hawaiian or Other Pacific Islander	American Indian or Alaskan Native	TOTAL COLUMNS A-M
	A	B	C	D	F	G	H	I	J	K	L	M	
Exec/Sr. Level Officials													
Supervisors													
Professionals													
Technicians													
Sales													
Admin. Support													
Craftspeople													
Operatives													
Service Workers													
Laborers/Helper													
Apprentices													
Other													
TOTAL													
PREVIOUS YEAR TOTAL													

AAF-3

6/06

Questions about this form? Call Procurement Office: (734) 994-2719

→ RATE EFFECTIVE APRIL 30, 2010-ENDING APRIL 29, 2011←

LIVING WAGE ORDINANCE – CITY OF ANN ARBOR

$11.71 per hour
if the employer provides health care benefits*****

$13.06 per hour
if the employer does ***NOT*** provide health care benefits*****

Employers providing services to or for the City of Ann Arbor or recipients of grants or financial assistance from the City of Ann Arbor for a value of more than $10,000 in a twelve-month period of time ***must pay those employees performing work on a City of Ann Arbor contract or grant, the above living wage.***

ENFORCEMENT

The City of Ann Arbor may recover back wages either administratively or through court action for the employees that have been underpaid in violation of the law. Persons denied payment of the living wage have the right to bring a civil action for damages in addition to any action taken by the City.

Violation of this Ordinance is punishable by fines of not more than $500/violation plus costs, with each day being considered a separate violation. Additionally, the City of Ann Arbor has the right to modify, terminate, cancel or suspend a contract in the event of a violation of the Ordinance.

***** *Health Care benefits include those paid for by the employer or making an employer contribution toward the purchase of health care. The employee contribution must not exceed $.50 an hour for an average work week; and the employer cost or contribution must equal no less than $1/hr for the average work week.*

The Law Requires Employers to Display This Poster Where Employees Can Readily See It.

For Additional Information or to File a Complaint Contact:

Dee Lumpkin, Procurement Assistant
734/794-6576 or dlumpkin@a2gov.org

City of Ann Arbor

LIVING WAGE ORDINANCE
DECLARATION OF COMPLIANCE

The Ann Arbor Living Wage Ordinance (Section 1:811-1:821 of Chapter 23 of Title I of the Code) requires that employers providing services to the City or recipients of grants for financial assistance (in amounts greater than $10,000 in a twelve-month period of time) pay their employees who are working on the City project or grant, a minimum level of compensation known as the **Living Wage**. This wage must be paid to the employees for the length of the contract/project.

Companies employing fewer than 5 persons and non-profits employing fewer than 10 persons are exempt from the Ordinance. If this exemption applies to your firm, please check below:

_____ This company is exempt due to the fact that we employ or contract with fewer than 5 individuals.
_____ This **non-profit agency** is exempt due to the fact that we employ or contract with fewer than 10 employees.

The Ordinance requires that all contractors/vendors and/or grantees agree to the following terms:

a) To pay each of its employees performing work on any covered contract or grant with the City, no less than the living wage, which is defined as $11.71/hour when health care is provided, or no less than $13.06/hour for those employers that do *not* provide health care. It is understood that the Living Wage will be adjusted each year on April 30, and covered employers will be required to pay the adjusted amount thereafter. The rates stated above include any adjustment for 2010.

b) Please check the boxes below which apply to your workforce:

☐ Employees who are assigned to *any covered* City project or grant will be paid at or above the applicable living wage without health benefits Yes_____ No_____

OR

☐ Employees who are assigned to *any covered* City project or grant will be paid at or above the applicable living wage with health benefits Yes_____ No_____

c) To post a notice approved by the City regarding the Living Wage Ordinance in every work place or other location in which employees or other persons contracting for employment are working.

d) To provide the City payroll records or other documentation as requested; and,

e) To permit access to work sites to City representatives for the purposes of monitoring compliance, investigating complaints or non-compliance.

The undersigned authorized representative hereby obligates the contractor/vendor or grantee to the above stated conditions under penalty of perjury and violation of the Ordinance.

Company Name	Address City State Zip
Signature of Authorized Representative	Phone (area code)
Type or Print Name and Title	Email address
Date signed	

Questions about this form? Please contact:
Procurement Office City of Ann Arbor
Phone: 734/794-6576 Fax:734/994-1795

- Effective February 1, 2010-

CITY OF ANN ARBOR RESOLUTION R-09-459
CUB AGREEMENT REQUIREMENT

NOTICE TO ALL CONTRACTORS AND SUBCONTRACTORS PERFORMING CONSTRUCTION WORK FOR THE CITY OF ANN ARBOR ON ANY CITY CONSTRUCTION PROJECT

Any labor used on a City construction project bid and awarded by the City of Ann Arbor must be governed by the current collective bargaining agreement of the appropriate Local Unions of the Washtenaw County Skilled Building Trades Council (SBTC).

All invitations to bid on construction contracts include, as a condition of award, the requirement that all contractors and subcontractors execute a CUB agreement with the SBTC. Each contractor and subcontractor at all tiers of a project shall, prior to beginning work on the project, become signatory parties to the respective current collective bargaining agreements of the appropriate Local Unions of the SBTC. Alternately, when no other agreement exists, a Contractor may sign a one-time project agreement for the CUB project, covering that construction project only.

All potential bidders and contractors must contact the current CUB representative, Bart Nickerson at 734-944-5317 (office) or 734-320-2227 (cell) for a complete summary of the procedures and requirements pursuant to the CUB Memorandum of Understanding

CONTRACTORS SHALL DISPLAY THIS NOTICE WHERE EMPLOYEES CAN READILY SEE IT.

Questions Contact

D. Lumpkin, Procurement Assistant
dlumpkin@a2gov.org

MEMORANDUM OF UNDERSTANDING

1. WORK DISPUTES

In return for the promise made in paragraph (3) below, the parties agree that there will be no strike, work stoppage or lock-out for the duration of this Memorandum. Any jurisdictional dispute shall be resolved through normal procedures.

There will be a job conference with all contractors and sub-contractors prior to starting work.

2. COFFEE BREAKS

There shall be no organized coffee breaks.

3. PAYMENT OF FRINGES

Any Union having a claim against a contractor or subcontractor for unpaid wages and/or fringe benefits for work performed on the project shall give written notice of such claim to such contractor or subcontractor (with a copy of the notice to the Construction Manager or General Contractor) within three (3) business days after such claim has become known. Upon receipt of such written notice, the Construction Manager or General Contractor involved shall withhold an amount equal to the claim from the next disbursement payable to the contractor, pending resolution of the dispute satisfactory to the Construction Manager or General Contractor. In the event of any such dispute, the Union agrees to use its best efforts to pursue any legal remedies available, including litigation by Fund Trustees. It is understood that the intent to this section is to accomplish prompt and effective resolution of any disputes between the Union and any contractor or subcontractor over payment of wages and fringes.

4. UNION WORK

The parties understand and agree that each contractor and subcontractor at all tiers of this project shall, prior to beginning work on the project, become signatory parties to the respective current collective bargaining agreements of the appropriate Local Unions of the Washtenaw County Skilled Building Trades Council.

_____	_____
(Contractor, Owner or Construction Manager)	(Representative of Washtenaw County Skilled Building Trades Council)
_____	_____
_____	_____
_____	_____
_____	_____
(Project Description)	(Date)

THIS MEMORANDUM APPLIES ONLY TO THE PROJECT AND/OR CONSTRUCTION ABOVE DESCRIBED.

WHITE — Union Copy
GREEN — Contractor or Construction Manager Copy
CANARY - Owner Copy
PINK — CUB Copy
GOLD — Project Copy

Printed On Site

CUB BUILDING TRADES AFFILIATES

Below is a list of trades that fall under the CUB agreement requirement. Any type of work not listed below is not required to be signatory to the CUB agreement or a one-time Project Agreement with a Union. If, as a prospective bidder, you are unsure if a type of work is exempt, please contact **Bart Nickerson at 734-944-5317 (office) or 734-320-2227 (cell).**

BRICKLAYERS LOCAL 9

CEMENT MASONS LOCAL 514

ELECTRICIANS LOCAL 252

ELEVATOR CONSTRUCTORS LOCAL 85

GLAZIERS LOCAL 357

HEAT & FROST WORKERS LOCAL 25

IRON WORKERS LOCAL 25

LABORERS LOCAL 499

OPERATING ENGINEERS LOCAL 324

PAINTERS LOCAL 687

PLASTERERS LOCAL 67

PLUMBERS & PIPEFITTERS LOCAL 190

ROOFERS LOCAL 70

SHEET METAL LOCAL 80

SPRINKLERS FITTERS LOCAL 704

TEAMSTERS LOCAL 247

TILE MARBLE LOCAL 1

NOTICE OF PRE-BID CONFERENCE

A pre-bid conference for this project will be held on **January 4, 2011 at 2:00 p.m.** in the 4th Floor Conference Room City Hall, 100 North Fifth Avenue, Ann Arbor, Michigan.

Attendance at this conference is optional, but highly recommended. Administrative and technical questions regarding this project will be answered at this time. If any questions arise whose answers constitute modifications to the bid documents, an addendum will be issued.

INSTRUCTIONS TO BIDDERS

General

Work to be done under this Contract is generally described through the detailed specifications and must be completed fully in accordance with the contract documents. All work to be done under this Contract is located in or near the City of Ann Arbor.

The City shall make available to all prospective Bidders, prior to receipt of the Bids, access to the area in which the work is to be performed. Advance notice should be given to the Administering Service Area/Unit in cases where access to the site must be arranged by the City.

Any proposal which does not conform fully with these instructions may be rejected.

Proposals

Proposals must be submitted on the "Proposal Forms" and "Bid Forms" provided, with each blank properly filled in. Sealed proposals will be received by the City of Ann Arbor Purchasing Division, Third Floor, City Hall, Ann Arbor, Michigan, at the time stipulated in the Advertisement, promptly after which proposals will be publicly opened and read aloud. Each proposal must be enclosed in a sealed envelope, endorsed across one end:

BID NO.: 4100, Proposal: Arbor Oaks Water Main Replacement Project

The City intends to award a Contract(s) to the lowest responsible Bidder(s). On multi-divisional contracts, separate divisions may be awarded to separate Bidders. The City may also utilize discounts offered in the Bid Forms, if any, to determine the lowest responsible Bidder on each division, and award multiple divisions to a single Bidder, so that the lowest total cost is achieved for the City. For unit price bids, the contract will be awarded based upon the lump sum and unit prices stated by the bidder for the work items specified in the bid documents, with consideration given to any alternates selected by the City. If the City determines that the unit price for any item is materially different for the work item bid than either other bidders or the general market, the City, in its sole discretion, in addition to any other right it may have, may reject the bid as not responsible or non-conforming.

The acceptability of major subcontractors will be considered in determining if a Bidder is responsible. In comparing proposals, the City will give consideration to alternate proposals for items listed in the forms, or other alternates which the Bidder may wish to submit, but preference will be given to Base Bid Proposals.

The City reserves the right to accept any Bid, to reject any or all Bids, to waive irregularities and/or informalities in any Bid, and to make the award in any manner the City believes to be in its best interest.

Bid Security

Each proposal must be accompanied by a certified check, or Bid Bond by a surety licensed and authorized to do business within the State of Michigan, in the amount of 5% of the total of the bid price.

Withdrawal of Bids

After the time of opening, no Bid may be withdrawn for the period of days specified in the Advertisement.

Contract Time

Time is of the essence in the performance of the work under this Contract. The available time for work under this Contract is indicated on page C-1, Article III of the Contract. If these time requirements cannot be met, the Bidder must stipulate on Bid Form Section 3 - Time Alternate its schedule for performance of the work. Consideration will be given to time in evaluating bids.

Liquidated Damages

A liquidated damages clause, as given on page C-2, Article III of the Contract, provides that the Contractor shall pay the City as liquidated damages, and not as a penalty, a sum certain per day for each and every day that the Contractor may be in default of completion of the specified work, within the time(s) stated in the Contract, or written extensions.

Liquidated damages clauses, as given in the General Conditions, provide further that the City shall be entitled to impose and recover liquidated damages for breach of the obligations under Chapter 112 of the City Code.

The liquidated damages are for the non-quantifiable aspects of any of the previously identified events and do not cover actual damages that can be shown or quantified nor are they intended to preclude recovery of actual damages in addition to the recovery of liquidated damages.

Human Rights Information

Section 5, beginning at page GC-3, outlines the requirements for fair employment practices under City of Ann Arbor Contracts. To establish compliance with this Ordinance, the Bidder must complete and return with its bid completed copies of the Form 1 and Form 2 of the Human Rights Division Contract Compliance Forms (copy attached) or an acceptable equivalent.

Wage Requirements

Section 4, beginning at page GC-1, outlines the requirements for payment of prevailing wages or of a "living wage" to employees providing service to the City under this contract. In addition Section 4 outlines the requirement for execution of a CUB Agreement with the Washtenaw County Skilled Building Trades Council (SBTC). The successful bidder must comply with all applicable requirements and provide documentary proof of compliance when requested.

Major Subcontractors

The Bidder shall identify each major subcontractor it expects to engage for this Contract if the work to be subcontracted is 15% or more of the bid sum or over $50,000, whichever is less. The Bidder also shall identify the work to be subcontracted to each major subcontractor.

PROPOSAL

City of Ann Arbor
Guy C. Larcom Municipal Building
Ann Arbor, Michigan 48107

Ladies and Gentlemen:

The undersigned, as Bidder, declares that this Bid is made in good faith, without fraud or collusion with any person or persons bidding on the same Contract; that this Bidder has carefully read and examined the bid documents, including Advertisement, Human Rights Division Contract Compliance Forms, CUB Agreement, Notice of Pre-Bid Conference, Instructions to Bidders, Proposal, Bid Forms, Contract, Bond Forms, General Conditions, Standard Specifications, Detailed Specifications, all Addenda, and the Plans and understands them. The Bidder declares that it conducted a full investigation at the site and of the work proposed and is fully informed as to the nature of the work and the conditions relating to the work's performance. The Bidder also declares that it has extensive experience in successfully completing projects similar to this one.

The Bidder acknowledges that it has not received or relied upon any representations or warrants of any nature whatsoever from the City of Ann Arbor, its agents or employees, and that this Bid is based solely upon the Bidder's own independent business judgment.

The undersigned proposes to perform all work shown on the plans or described in the bid documents, including any addenda issued, and to furnish all necessary machinery, tools, apparatus, and other means of construction to do all the work, furnish all the materials, and complete the work in strict accordance with all terms of the Contract of which this proposal is one part.

In accordance with these bid documents, and Addenda numbered _____, the undersigned, as Bidder, proposes to perform at the sites in and/or around Ann Arbor, Michigan, all the work included herein for the amounts set forth in the Bid Forms.

The Bidder declares that it has become fully familiar with the provisions of Ann Arbor City Council Resolution R-09-459, and that it understands and agrees that any labor used on this Bid to be awarded by the City shall be governed by the current collective bargaining agreement of the appropriate Local Unions of the Washtenaw County Skilled Building Trades Council (SBTC). The Bidder further acknowledges and agrees that if awarded the bid Bidder, and any and all subcontractors employed by it in performance of contract shall as a condition of award be required to execute a CUB Agreement with SBTC. Bidder further agrees that the cited City Council Resolution forms a part of this Contract.

The Bidder declares that it has become fully familiar with the liquidated damage clauses for completion times and for compliance with City Code Chapter 112, understands and agrees that the liquidated damages are for the non-quantifiable aspects of non-compliance and do not cover actual damages that may be shown and agrees that if awarded the Contract, all liquidated damage clauses form part of the Contract.

The Bidder declares that it has become fully familiar with the provisions of Chapter 14, Section 1:319 (Prevailing wages) and Chapter 23 (Living Wage) of the Code of the City of Ann Arbor and that it understands and agrees to comply, to the extent applicable to employees providing services to the City under this Contract, with the wage and reporting requirements stated in the City Code provisions cited. Bidder further agrees that the cited provisions of Chapter 14 and Chapter 23 form a part of this Contract.

The Bidder encloses a certified check or Bid Bond in the amount of 5% of the total of the Bid Price. The Bidder agrees both to contract for the work and to furnish the necessary Bonds and insurance documentation within 10 days after being notified of the acceptance of the Bid.

If this Bid is accepted by the City and the Bidder fails to contract and furnish the required Bonds and insurance documentation within 10 days after being notified of the acceptance of this Bid, then the Bidder shall be considered to have abandoned the Contract and the certified check or Bid Bond accompanying this Proposal shall become due and payable to the City.

If the Bidder enters into the Contract in accordance with this Proposal, or if this Proposal is rejected, then the accompanying check or Bid Bond shall be returned to the Bidder.

In submitting this Bid, it is understood that the right is reserved by the City to accept any Bid, to reject any or all Bids, to waive irregularities and/or informalities in any Bid, and to make the award in any manner the City believes to be in its best interest.

SIGNED THIS _____ DAY OF _____, 2010.

_____
Bidder's Name

_____
Official Address

_____
Telephone Number

_____
Authorized Signature of Bidder

_____
(Print Name of Signer Above)

LEGAL STATUS OF BIDDER

(The Bidder shall fill out the appropriate form and strike out the other two.)

Bidder declares that it is:

* A corporation organized and doing business under the laws of the state of _____, for whom _____, bearing the office title of_____, whose signature is affixed to this proposal, is authorized to execute contracts.

* A partnership, list all members and the street and mailing address of each:

Also identify the County and State where partnership papers are filed:

County of _____, State of

* An individual, whose signature with address, is affixed to this proposal: _____
(initial here)

BID FORM - SECTION 1
PROJECT: Arbor Oaks Water Main Project
File No. 2009-032 Bid No. 4100

ITEM	DESCRIPTION	UNITS	ESTIM. QUANT.	UNIT PRICE ($)	AMOUNT ($)
111	Type II Lighted Barricade (Drum), Furnished	Each	350	$	$
112	Type II Lighted Barricade (Drum), Operated	Each	350	$	$
113	Type III Lighted Barricade, Furnished & Operated	Each	25	$	$
115	Temporary Type B Signs	SF	350	$	$
140	Exploratory Excavation (0'-10'), TD-I (modified)	Each	10	$	$
200	General Conditions	LS	1	$	$
201	Project Supervision	LS	1	$	$
202	Minor Traffic Devices	LS	1	$	$
203	Audiovisual Tape Coverage	LS	1	$	$
204	Clean-Up & Restoration, Special	LS	1	$	$
206	"No Parking" Signs	Each	290	$	$
208	Water Main Pipe Abandonment, Modified	LS	1	$	$
209	Fire Hydrant Assembly Abandonment	Each	13	$	$
210	2" Permanent Blow-Off Assembly	Each	1	$	$
220	Remove HMA Pavement	SYD	26,500	$	$
221	Curb Reveal Milling	Tons	120	$	$
222	Subgrade Undercutting - Type II	C.Y.	1,000	$	$
223	HMA Finish Wedging	Tons	150	$	$
224	HMA Pvmnt., Base or Leveling, 13A	Tons	5,800	$	$
225	HMA Pvmnt., Wearing, 13A	Tons	3,350	$	$
230	Rem. Conc. Curb & Gutter - Any Type	L.F.	9,300	$	$
231	Remove Concrete Sidewalk & Drive - Any Thickness	S.F.	17,550	$	$
232	Concrete Curb & Gutter - Any Type	L.F.	8,370		
233	Concrete Curb & Gutter - Any Type - High Early	L.F.	930	$	$

TOTAL THIS PAGE $ _____

(Also to be entered on Page BF-4)

BID FORM - SECTION 1
PROJECT: Arbor Oaks Water Main Project
File No. 2009-032 Bid No. 4100

ITEM	DESCRIPTION	UNITS	ESTIM. QUANT.	UNIT PRICE ($)	AMOUNT ($)
235	4" Sidewalk Or Ramp	S.F.	8,600	$	$
236	6" Drive Approach, Ramp, or Sidewalk	S.F.	8,100	$	$
237	6" Drive Approach, Ramp, or Sidewalk - High Early	S.F.	900	$	$
238	Detectable Warning, Cast in Place	S.F.	570	$	$
239	Integral Sidewalk Ret. Wall (6" or less)	S.F.	100	$	$
240	Integral Sidewalk Ret. Wall (6"-18")	S.F.	20	$	$
254	Manhole Flange & Cover (Type A)	Each	120	$	$
255	Inlet Structure Covers	Each	12	$	$
257	6" Wrapped Underdrain	L.F.	4,400	$	$
258	Remove Sewer Pipe, TD-I (modified)	L.F.	130	$	$
305	SDR 35 PVC Pipe, 8-inch, TD-I (Modified)	L.F.	40	$	$
320	12" RCP CL IV Storm Sewer, Trench Detail I (Modified)	L.F.	525	$	$
360	Type I Manhole, 0'-10' deep, with sump	Each	6	$	$
362	Type II Manhole, 6' Diameter, 0'-10' deep, with sump	Each	10	$	$
363	Type II Manhole, 7' Diameter, 0'-10' deep, with sump	Each	2	$	$
367	Single Inlet	Each	55	$	$
386	Sewer Structure Abandonment	Each	3	$	$
391	Pipe Undercut & Refill (Class II)	C.Y.	500	$	$
392	Pipe Undercut & Refill (6A)	C.Y.	500	$	$
400	12" Class 50 DIP w/ Polywrap, Trench Detail I (Modified)	L.F.	3,500	$	$
402	6" Class 50 DIP w/ Polywrap, Trench Detail VI (Modified)	L.F.	60	$	$
404	8" Class 50 DIP w/ Polywrap, Trench Detail I (Modified)	L.F.	6,150	$	$

TOTAL THIS PAGE $ _____

(Also to be entered on Page BF-4)

BID FORM - SECTION 1
PROJECT: Arbor Oaks Water Main Project
File No. 2009-032 Bid No. 4100

ITEM	DESCRIPTION	UNITS	ESTIM. QUANT.	UNIT PRICE ($)	AMOUNT ($)
410	8" x 6" Class 50 DIP Reducer	Each	25	$	$
414	8" Class 50 DIP 11.25° Bend	Each	4	$	$
415	8" Class 50 DIP 22.5° Bend	Each	16	$	$
416	8" Class 50 DIP 45° Bend	Each	30	$	$
419	12" Class 50 DIP 22.5° Bend	Each	4	$	$
420	12" Class 50 DIP 45° Bend	Each	13	$	$
430	12"x12"x12" Class 50 DIP Tee	Each	2	$	$
431	12"x12"x8" Class 50 DIP Tee	Each	20	$	$
433	16"x16"x12" Class 50 DIP Tee	Each	1	$	$
436	8" x 8" x 8" Class 50 DIP Tee	Each	6	$	$
440	Fire Hydrant Assembly	Each	22	$	$
442	12" Gate Valve-in-Box	Each	11	$	$
443	8" Gate Valve-in-Box	Each	9	$	$
446	12" Gate Valve-in-Well	Each	4	$	$
447	8" Gate Valve-in-Well	Each	1	$	$
460	Excavate & Backfill for Water Service Tap and Lead, Trench Detail I (mod.)	LF	3,300	$	$
525	21AA Limestone - C.I.P.	C.Y.	1,000	$	$
526	Aggreate Base Course - 22A - C.I.P.	C.Y.	750	$	$
560	Lowering Existing Structure	Each	140	$	$
561	Lowering Existing Monument/GVB	Each	10	$	$
564	Reconstruct Structure	Each	5	$	$
566	Adjust Drainage Structure Covers	Each	140	$	$
567	Adjust Monument or Gate Valve Box	Each	10	$	$
596	Hot Applied, Thermoplastic Pvmt. Marking, 6" White	L.F.	1,900	$	$
597	Hot Applied, Thermoplastic Pvmt. Marking, 24" White	L.F.	700	$	$

TOTAL THIS PAGE $ _____

(Also to be entered on Page BF-4)

BID FORM - SECTION 1
PROJECT: Arbor Oaks Water Main Project
File No. 2009-032 Bid No. 4100

TOTAL FROM PAGE BF-1 $ _____

TOTAL FROM PAGE BF-2 $ _____

TOTAL FROM PAGE BF-3 $ _____

TOTAL BASE BID: $ _____

BID FORM

Section 2 - Material and Equipment Alternates

The Base Bid proposal price shall include materials and equipment selected from the designated items and manufacturers listed in the bidding documents. This is done to establish uniformity in bidding and to establish standards of quality for the items named.

If the Contractor wishes to quote alternate items for consideration by the City, it may do so under this Section. A complete description of the item and the proposed price differential must be provided. Unless approved at the time of award, substitutions where items are specifically named will be considered only as a negotiated change in Contract Sum.

Item Number	Description	Add/Deduct Amount

If the Bidder does not suggest any material or equipment alternate, the Bidder **MUST** complete the following statement:

For the work outlined in this request for bid, the bidder does NOT propose any material or equipment alternate under the contract.

Signature of Authorized Representative of Bidder

BID FORM

Section 3 - Time Alternate

If the Bidder takes exception to the time stipulated in Article III of the Contract, Time of Completion, page C-1, it is requested to stipulate below its proposed time for performance of the work. Consideration will be given to time in evaluating bids.

If the Bidder does not suggest any time alternate, the Bidder **MUST** complete the following statement:

For the work outlined in this request for bid, the bidder does NOT propose any time alternate under the contract.

Signature of Authorized Representative of Bidder

BID FORM

Section 4 - Subcontractors

For purposes of this contract, a Subcontractor is anyone (other than the Contractor) who performs work (other than or in addition to the furnishing of materials, plans or equipment) at or about the construction site, directly or indirectly for or on behalf of the Contractor (and whether or not in privity of contract with the Contractor), but shall not include any individual who furnishes merely the individual's own personal labor or services.

For the work outlined in these documents the Bidder expects to engage the following subcontractors to perform the work identified and warrants that any subcontractor identified shall as a condition of employment execute a CUB Agreement with the Washtenaw County Skilled Building Trades Council:

Subcontractor (Name and Address)	Work	Amount

If the Bidder does not expect to engage any major subcontractor, the Bidder **MUST** complete the following statement:

For the work outlined in this request for bid, the bidder does NOT expect to engage any major subcontractor to perform work under the contract.

Signature of Authorized Representative of Bidder

CONTRACT

THIS AGREEMENT is made on the _____ day of _____, 2001, between the CITY OF ANN ARBOR, a Michigan Municipal Corporation, 100 N. Fifth Avenue, Ann Arbor, Michigan 48104 ("City") and _____ ("Contractor") _____ _____

_____

(An individual/partnership/corporation, include state of incorporation) (Address)

Based upon the mutual promises below, the Contractor and the City agree as follows:

ARTICLE I - Scope of Work

The Contractor agrees to furnish all of the materials, equipment and labor necessary; and to abide by all the duties and responsibilities applicable to it for the project titled "_____" in accordance with the requirements and provisions of the following documents, including all written modifications incorporated into any of the documents, which are incorporated as part of this Contract:

Human Rights Division Contract Compliance Forms
Living Wage Declaration of Compliance Forms (if applicable)
CUB Agreement (if applicable)
Bid Forms
Proposal
Contract and Exhibits
Bonds
General Conditions
Standard Specifications
Detailed Specifications
Plans
Addenda

ARTICLE II - Definitions

Administering Service Area/Unit means Project Management Services Unit.

Supervising Professional means Homayoon Pirooz, P.E. or other persons acting under the authorization of the Manager of the Project Management Services Unit.

Project means the Arbor Oaks Water Main Replacement Project, Bid No. 4100.

ARTICLE III - Time of Completion

(A) The work to be completed under this Contract shall begin immediately after the Contractor's receipt of a fully executed Contract.

(B) The entire work for this Contract shall be completed within 224 consecutive calendar days. Shorter completion times for certain portions of the work are specified in the Detailed Specification for Project Schedule & Payment.

(C) Failure to complete all the work within the time specified above, including any extension granted in writing by the Supervising Professional, shall obligate the Contractor to pay the City, as liquidated damages and not as a penalty, an amount equal to $500.00 for each calendar day of delay in the completion of all the work. If any liquidated damages are unpaid by the Contractor, the City shall be entitled to deduct these unpaid liquidated damages from the monies due the Contractor.

As an independent requirement, where the Detailed Specifications identify certain portions of the work to be completed within a shorter period of time and the Contractor fails to complete each portion within the shorter period specified for each portion, including any extension granted in writing by the Project Supervisor, the City is entitled to deduct from the monies due the Contractor, as liquidated damages and not as a penalty, the amount identified in the Detailed Specifications for each portion of the work not timely completed for each calendar day of delay in completion of each portion of the work.

The liquidated damages are for the non-quantifiable aspects of any of the previously identified events and do not cover actual damages that can be shown or quantified nor are they intended to preclude recovery of actual damages in addition to the recovery of liquidated damages.

Liquidated damages under this section are in addition to any liquidated damages due under Section 5 of the General Conditions.

ARTICLE IV - The Contract Sum

(A) The City shall pay to the Contractor for the performance of the Contract, the unit prices as given in the Bid Forms for the estimated total of:

_____ Dollars ($_____)

(B) The amount paid shall be equitably adjusted to cover changes in the work ordered by the Supervising Professional but not required by the contract documents.

ARTICLE V - Assignment

This Contract may not be assigned or subcontracted without the written consent of the City.

ARTICLE VI - Choice of Law

This Contract shall be construed, governed, and enforced in accordance with the laws of the State of Michigan. By executing this agreement, the Contractor and the City agree to venue in a court of appropriate jurisdiction sitting within Washtenaw County for purposes of any action arising under this Contract.

Whenever possible, each provision of the contract will be interpreted in a manner as to be effective and valid under applicable law. The prohibition or invalidity, under applicable law, of any provision will not invalidate the remainder of the contract.

ARTICLE VII - Relationship of the Parties

The parties of the Contract agree that it is not a contract of employment but is a contract to accomplish a specific result. Contractor is an independent contractor performing services for the City. Nothing contained in this Contract shall be deemed to constitute any other relationship between the City and the Contractor.

Contractor certifies that it has no personal or financial interest in the project other than the compensation it is to receive under the Contract. Contractor certifies that it is not, and shall not become, overdue or in default to the City for any contract, debt, or any other obligation to the City including real or personal property taxes. City shall have the right to set off any such debt against compensation awarded for services under this agreement.

ARTICLE VIII - Notice

All notices given under this contract shall be in writing, and shall be by personal delivery or by certified mail with return receipt requested to the parties at their respective addresses as specified in the contract documents or other address the Contractor may specify in writing.

ARTICLE IX - Indemnification

To the fullest extent permitted by law, for any loss not covered by insurance under this contract, Contractor shall indemnify, defend and hold harmless the City, its officers, employees and agents harmless from all suits, claims, judgments and expenses including attorney=s fees resulting or alleged to result, in whole or in part, from any act or omission, which is in any way connected or associated with this contract, by the Contractor or anyone acting on the Contractor=s behalf under this contract. Contractor shall not be responsible to indemnify the City for losses or damages caused by or resulting from the City=s sole negligence.

ARTICLE X - Entire Agreement

This Contract represents the entire understanding between the City and the Contractor and it supersedes all prior representations or agreements whether written or oral. Neither party has relied on any prior representations in entering into this Contract. This Contract may be altered, amended or modified only by written amendment signed by the City and the Contractor.

FOR CONTRACTOR

By_____

Its: _____

FOR THE CITY OF ANN ARBOR

By_____
John Hieftje, Mayor

By_____
Jacqueline Beaudry, City Clerk

Approved as to substance

By_____
Roger W. Fraser, City Administrator

By_____
Sue F. McCormick,
Public Services Area Administrator

Approved as to form and content

By_____
Stephen K. Postema, City Attorney

PERFORMANCE BOND

(1) _____ of _____ (referred to as "Principal"), and _____, a corporation duly authorized to do business in the State of Michigan (referred to as "Surety"), are bound to the City of Ann Arbor, Michigan (referred to as "City"), for $, the payment of which Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by this bond.

(2) The Principal has entered a written contract with the City dated _____, 2010, for: Arbor Oaks Water Main Replacement Project, File No.: 2009-032, Bid No.: 4100 and this bond is given for that contract in compliance with Act No. 213 of the Michigan Public Acts of 1963, as amended, being MCL 129.201 et seq.

(3) Whenever the Principal is declared by the City to be in default under the contract, the Surety may promptly remedy the default or shall promptly:

(a) complete the contract in accordance with its terms and conditions; or

(b) obtain a bid or bids for submission to the City for completing the contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, arrange for a contract between such bidder and the City, and make available, as work progresses, sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which Surety may be liable hereunder, the amount set forth in paragraph 1.

(4) Surety shall have no obligation to the City if the Principal fully and promptly performs under the contract.

(5) Surety agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder, or the specifications accompanying it shall in any way affect its obligations on this bond, and waives notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work, or to the specifications.

SIGNED AND SEALED this _____ day of _____, 2010.

_____
(Name of Surety Company)

_____
(Signature)

Its_____
(Title of Office)

_____
(Name of Principal)

By_____
(Signature)

Its_____
(Title of Office)

Name and address of agent:

_____

_____

Approved as to form:

By_____
Stephen K. Postema, City Attorney

LABOR AND MATERIAL BOND

(1) _____ of _____, (referred to as "Principal"), and _____, a corporation duly authorized to do business in the State of Michigan, (referred to as "Surety"), are bound to the City of Ann Arbor, Michigan (referred to as "City"), for the use and benefit of claimants as defined in Act 213 of Michigan Public Acts of 1963, as amended, being MCL 129.201 et seq., in the amount of

$ _____, for the payment of which Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by this bond.

(2) The Principal has entered a written contract with the City, dated _____, 2010, for Arbor Oaks Water Main Replacement Project, File No.: 2009-032, Bid No.: 4100; and this bond is given for that contract in compliance with Act No. 213 of the Michigan Public Acts of 1963 as amended;

(3) If the Principal fails to promptly and fully repay claimants for labor and material reasonably required under the contract, the Surety shall pay those claimants.

(4) Surety's obligations shall not exceed the amount stated in paragraph 1, and Surety shall have no obligation if the Principal promptly and fully pays the claimants.

SIGNED AND SEALED this _____ day of _____, 2010.

_____
(Name of Surety Company)

_____
(Signature)

Its_____
(Title of Office)

_____
(Name of Principal)

By_____
(Signature)

Its_____
(Title of Office)

Name and address of agent:

_____

_____

Approved as to form:

By_____
Stephen K. Postema, City Attorney

GENERAL CONDITIONS

Section 1 - Execution, Correlation and Intent of Documents

The contract documents shall be signed in 2 copies by the City and the Contractor.

The contract documents are complementary and what is called for by any one shall be binding. The intention of the documents is to include all labor and materials, equipment and transportation necessary for the proper execution of the work. Materials or work described in words which so applied have a well-known technical or trade meaning have the meaning of those recognized standards.

In case of a conflict among the contract documents listed below in any requirement(s), the requirement(s) of the document listed first shall prevail over any conflicting requirement(s) of a document listed later.

(1) Addenda in reverse chronological order; (2) Detailed Specifications; (3) Standard Specifications; (4) Plans; (5) General Conditions; (6) Contract; (7) Bid Forms; (8) Bond Forms; (9) Proposal.

Section 2 - Order of Completion

The Contractor shall submit with each invoice, and at other times reasonably requested by the Supervising Professional, schedules showing the order in which the Contractor proposes to carry on the work. They shall include the dates at which the Contractor will start the several parts of the work, the estimated dates of completion of the several parts, and important milestones within the several parts.

Section 3 - Familiarity with Work

The Bidder or its representative shall make personal investigations of the site of the work and of existing structures and shall determine to its own satisfaction the conditions to be encountered, the nature of the ground, the difficulties involved, and all other factors affecting the work proposed under this Contract. The Bidder to whom this Contract is awarded will not be entitled to any additional compensation unless conditions are clearly different from those which could reasonably have been anticipated by a person making diligent and thorough investigation of the site.

The Bidder shall immediately notify the City upon discovery, and in every case prior to submitting its Bid, of every error or omission in the bidding documents that would be identified by a reasonably competent, diligent Bidder. In no case will a Bidder be allowed the benefit of extra compensation or time to complete the work under this Contract for extra expenses or time spent as a result of the error or omission.

Section 4 - Wage and CUB Agreement Requirements

Under this Contract, the Contractor shall conform to Chapter 14 of Title I of the Code of the City of Ann Arbor as amended; which in part states "...that all craftsmen, mechanics and laborers employed directly on the site in connection with said improvements, including said employees of subcontractors, shall receive the prevailing wage for the corresponding classes of craftsmen, mechanics and laborers, as determined by statistics for the Ann Arbor area compiled by the

United States Department of Labor. At the request of the City, any contractor or subcontractor shall provide satisfactory proof of compliance with the contract provisions required by the Section."

Where the Contract and the Ann Arbor City Ordinance are silent as to definitions of terms required in determining contract compliance with regard to prevailing wages, the definitions provided in the Davis-Bacon Act as amended (40 U.S.C. 278-a to 276-a-7) for the terms shall be used.

Further, to the extent that any employees of the Contractor providing services under this contract are not part of the class of craftsmen, mechanics and laborers who receive a prevailing wage in conformance with Section 1:319 of Chapter 14 of Title I of the Code of the City of Ann Arbor, the Contractor agrees to conform to Chapter 23 of Title I of the Code of the City of Ann Arbor, as amended, which in part states:

1:814. Applicability.

(1) This Chapter shall apply to any person that is a contractor/vendor or grantee as defined in Section 1:813 that employs or contracts with five (5) or more individuals; provided, however, that this Chapter shall not apply to a non-profit contractor/vendor or non-profit grantee unless it employs or contracts with ten (10) or more individuals.

(2) This Chapter shall apply to any grant, contract, or subcontract or other form of financial assistance awarded to or entered into with a contractor/vendor or grantee after the effective date of this Chapter and to the extension or renewal after the effective date of this Chapter of any grant, contract, or subcontract or other form of financial assistance with a contractor/vendor or grantee.

1:815. Living Wages Required.

(1) Every contractor/vendor or grantee, as defined in Section 1:813, shall pay its covered employees a living wage as established in this Section.

(a) For a covered employer that provides employee health care to its employees, the living wage shall be $9.42 an hour, or the adjusted amount hereafter established under Section 1:815(3).

(b) For a covered employer that does not provide health care to its employees, the living wage shall be $10.91 a hour, or the adjusted amount hereafter established under Section 1:815(3).

(2) In order to qualify to pay the living wage rate for covered employers providing employee health care under subsection 1:815(1)(a), a covered employer shall furnish proof of said health care coverage and payment therefor to the City Administrator or his/her designee.

(3) The amount of the living wage established in this Section shall be adjusted upward no later than April 30, 2002, and every year thereafter by a percentage equal to the percentage increase, if any, in the federal poverty guidelines as published by the United States Department of Health and Human Services for the years 2001 and 2002. Subsequent annual adjustments shall be based upon the percentage increase, if any, in the United States Department of Health and Human Services poverty guidelines when

comparing the prior calendar year's poverty guidelines to the present calendar year's guidelines. The applicable percentage amount will be converted to an amount in cents by multiplying the existing wage under Section 1.815(1)(b) by said percentage, rounding upward to the next cent, and adding this amount of cents to the existing living wage levels established under Sections 1:815(1)(a) and 1:815(1)(b). Prior to April 1 of each calendar year, the City will notify any covered employer of this adjustment by posting a written notice in a prominent place in City Hall, and, in the case of a covered employer that has provided an address of record to the City, by a written letter to each such covered employer.

Contractor agrees that all subcontracts entered into by the Contractor shall contain similar wage provision covering subcontractor's employees who perform work on this contract.

Ann Arbor City Council Resolution R09-459. CUB Agreement Required.

Contractor further agrees to execute for itself, and to require as a condition of employment the execution by any and all subcontractors, a project labor agreement as provided by the Washtenaw County Skilled Building Trades Council Construction Unity Board ("CUB Agreement"). Failure to comply with this Article shall be deemed a material breach of the contract and grounds for termination.

Section 5 - Non-Discrimination

The Contractor agrees to comply with the nondiscrimination provisions of Chapter 112 of the Ann Arbor City Code and to take affirmative action to assure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity and tends to eliminate any inequality based upon race, national origin or sex. The Contractor agrees to comply with the provisions of Section 9:161 of Chapter 112 of the Ann Arbor City Code and in particular the following excerpts:

9:161 NONDISCRIMINATION BY CITY CONTRACTORS

(1) All contractors proposing to do business with the City of Ann Arbor shall satisfy the nondiscrimination administrative policy adopted by the City Administrator in accordance with the guidelines of this section. All contractors shall receive approval from the Director prior to entering into a contract with the City, unless specifically exempted by administrative policy. All City contractors shall take affirmative action to insure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity and tends to eliminate inequality based upon race, national origin or sex.

(2) Each prospective contractor shall submit to the City data showing current total employment by occupational category, sex and minority group. If, after verifying this data, the Director concludes that it indicates total minority and female employment commensurate with their availability within the contractor's labor recruitment area, i.e., the area from which the contractor can reasonably be expected to recruit, said contractor shall be accepted by the Director as having fulfilled affirmative action requirements for a period of one year at which time the Director shall conduct another review. Other contractors shall develop an affirmative action program in conjunction with the Director. Said program shall include specific goals and timetables for the hiring and promotion of minorities and females. Said goals shall reflect the availability of minorities and females

within the contractor's labor recruitment area. In the case of construction contractors, the Director shall use for employment verification the labor recruitment area of the Ann Arbor-Ypsilanti standard metropolitan statistical area. Construction contractors determined to be in compliance shall be accepted by the Director as having fulfilled affirmative action requirements for a period of six (6) months at which time the Director shall conduct another review.

(3) In hiring for construction projects, contractors shall make good faith efforts to employ local persons, so as to enhance the local economy.

(4) All contracts shall include provisions through which the contractor agrees, in addition to any other applicable Federal or State labor laws:

(a) To set goals, in conference with the Human Resources Director, for each job category or division of the work force used in the completion of the City work;

(b) To provide periodic reports concerning the progress the contractor has made in meeting the affirmative action goals it has agreed to;

(c) To permit the Director access to all books, records and accounts pertaining to its employment practices for the purpose of determining compliance with the affirmative action requirements.

(5) The Director shall monitor the compliance of each contractor with the nondiscrimination provisions of each contract. The Director shall develop procedures and regulations consistent with the administrative policy adopted by the City Administrator for notice and enforcement of non-compliance. Such procedures and regulations shall include a provision for the posting of contractors not in compliance.

(6) All City contracts shall provide further that breach of the obligation not to discriminate shall be a material breach of the contract for which the City shall be entitled, at its option, to do any or all of the following:

(a) To cancel, terminate, or suspend the contract in whole or part and/or refuse to make any required periodic payments under the contract;

(b) Declare the contractor ineligible for the award of any future contracts with the City for a specified length of time;

(c) To recover liquidated damages of a specified sum, said sum to be that percentage of the labor expenditure for the time period involved which would have accrued to minority group members had the affirmative action not been breached;

(d) Impose for each day of non-compliance, liquidated damages of a specified sum, based upon the following schedule:

Contract Amount	Assessed Damages Per Day of Non-Compliance
$ 10,000 - 24,999	$ 25.00
25,000 - 99,999	50.00
100,000 - 199,999	100.00
200,000 - 499,999	150.00
500,000 - 1,499,999	200.00
1,500,000 - 2,999,999	250.00
3,000,000 - 4,999,999	300.00
5,000,000 - and above	500.00

(e) In addition the contractor shall be liable for any costs or expenses incurred by the City of Ann Arbor in obtaining from other sources the work and services to be rendered or performed or the goods or properties to be furnished or delivered to the City under this contract.

Section 6 - Materials, Appliances, Employees

Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation, and other facilities necessary or used for the execution and completion of the work. Unless otherwise specified, all materials incorporated in the permanent work shall be new, and both workmanship and materials shall be of the highest quality. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

The Contractor shall at all times enforce strict discipline and good order among its employees, and shall seek to avoid employing on the work any unfit person or anyone not skilled in the work assigned.

Adequate sanitary facilities shall be provided by the Contractor.

Section 7 - Qualifications for Employment

The Contractor shall employ competent laborers and mechanics for the work under this Contract. For work performed under this Contract, employment preference shall be given to qualified local residents.

Section 8 - Royalties and Patents

The Contractor shall pay all royalties and license fees. It shall defend all suits or claims for infringements of any patent rights and shall hold the City harmless from loss on account of infringement except that the City shall be responsible for all infringement loss when a particular process or the product of a particular manufacturer or manufacturers is specified, unless the City has notified the Contractor prior to the signing of the Contract that the particular process or product is patented or is believed to be patented.

Section 9 - Permits and Regulations

The Contractor must secure and pay for all permits, permit or plan review fees and licenses necessary for the prosecution of the work. These include but are not limited to City building permits, right-of-way permits, lane closure permits, right-of-way occupancy permits, and the like. The City shall secure and pay for easements shown on the plans unless otherwise specified.

The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the work as drawn and specified. If the Contractor observes that the contract documents are at variance with those requirements, it shall promptly notify the Supervising Professional in writing, and any necessary changes shall be adjusted as provided in the Contract for changes in the work.

Section 10 - Protection of the Public and of Work and Property

The Contractor is responsible for the means, methods, sequences, techniques and procedures of construction and safety programs associated with the work contemplated by this contract. The Contractor, its agents or sub-contractors, shall comply with the "General Rules and Regulations for the Construction Industry" as published by the Construction Safety Commission of the State of Michigan and to all other local, State and National laws, ordinances, rules and regulations pertaining to safety of persons and property.

The Contractor shall take all necessary and reasonable precautions to protect the safety of the public. It shall continuously maintain adequate protection of all work from damage, and shall take all necessary and reasonable precautions to adequately protect all public and private property from injury or loss arising in connection with this Contract. It shall make good any damage, injury or loss to its work and to public and private property resulting from lack of reasonable protective precautions, except as may be due to errors in the contract documents, or caused by agents or employees of the City. The Contractor shall obtain and maintain sufficient insurance to cover damage to any City property at the site by any cause.

In an emergency affecting the safety of life, or the work, or of adjoining property, the Contractor is, without special instructions or authorization from the Supervising Professional, permitted to act at its discretion to prevent the threatened loss or injury. It shall also so act, without appeal, if authorized or instructed by the Supervising Professional.

Any compensation claimed by the Contractor for emergency work shall be determined by agreement or in accordance with the terms of Claims for Extra Cost - Section 15.

Section 11 - Inspection of Work

The City shall provide sufficient competent personnel for the inspection of the work.

The Supervising Professional shall at all times have access to the work whenever it is in preparation or progress, and the Contractor shall provide proper facilities for access and for inspection.

If the specifications, the Supervising Professional's instructions, laws, ordinances, or any public authority require any work to be specially tested or approved, the Contractor shall give the Supervising Professional timely notice of its readiness for inspection, and if the inspection is by an authority other than the Supervising Professional, of the date fixed for the inspection.

Inspections by the Supervising Professional shall be made promptly, and where practicable at the source of supply. If any work should be covered up without approval or consent of the Supervising Professional, it must, if required by the Supervising Professional, be uncovered for examination and properly restored at the Contractor's expense.

Re-examination of any work may be ordered by the Supervising Professional, and, if so ordered, the work must be uncovered by the Contractor. If the work is found to be in accordance with the contract documents, the City shall pay the cost of re-examination and replacement. If the work is not in accordance with the contract documents, the Contractor shall pay the cost.

Section 12 - Superintendence

The Contractor shall keep on the work site, during its progress, a competent superintendent and any necessary assistants, all satisfactory to the Supervising Professional. The superintendent will be responsible to perform all on-site project management for the Contractor. The superintendent shall be experienced in the work required for this Contract. The superintendent shall represent the Contractor and all direction given to the superintendent shall be binding as if given to the Contractor. Important directions shall immediately be confirmed in writing to the Contractor. Other directions will be confirmed on written request. The Contractor shall give efficient superintendence to the work, using its best skill and attention.

Section 13 - Changes in the Work

The City may make changes to the quantities of work within the general scope of the Contract at any time by a written order and without notice to the sureties. If the changes add to or deduct from the extent of the work, the Contract Sum shall be adjusted accordingly. All the changes shall be executed under the conditions of the original Contract except that any claim for extension of time caused by the change shall be adjusted at the time of ordering the change.

In giving instructions, the Supervising Professional shall have authority to make minor changes in the work not involving extra cost and not inconsistent with the purposes of the work, but otherwise, except in an emergency endangering life or property, no extra work or change shall be made unless in pursuance of a written order by the Supervising Professional, and no claim for an addition to the Contract Sum shall be valid unless the additional work was ordered in writing.

The Contractor shall proceed with the work as changed and the value of the work shall be determined as provided in Claims for Extra Cost - Section 15.

Section 14 - Extension of Time

Extension of time stipulated in the Contract for completion of the work will be made if and as the Supervising Professional may deem proper under any of the following circumstances:

(1) When work under an extra work order is added to the work under this Contract;

(2) When the work is suspended as provided in Section 20;

(3) When the work of the Contractor is delayed on account of conditions which could not have been foreseen, or which were beyond the control of the Contractor, and which were not the result of its fault or negligence;

(4) Delays in the progress of the work caused by any act or neglect of the City or of its employees or by other Contractors employed by the City;

(5) Delay due to an act of Government;

(6) Delay by the Supervising Professional in the furnishing of plans and necessary information;

(7) Other cause which in the opinion of the Supervising Professional entitles the Contractor to an extension of time.

The Contractor shall notify the Supervising Professional within 7 days of an occurrence or conditions which, in the Contractor's opinion, entitle it to an extension of time. The notice shall be in writing and submitted in ample time to permit full investigation and evaluation of the Contractor's claim. The Supervising Professional shall acknowledge receipt of the Contractor's notice within 7 days of its receipt. Failure to timely provide the written notice shall constitute a waiver by the Contractor of any claim.

In situations where an extension of time in contract completion is appropriate under this or any other section of the contract, the Contractor understands and agrees that the only available adjustment for events that cause any delays in contract completion shall be extension of the required time for contract completion and that there shall be no adjustments in the money due the Contractor on account of the delay.

Section 15 - Claims for Extra Cost

If the Contractor claims that any instructions by drawings or other media issued after the date of the Contract involved extra cost under this Contract, it shall give the Supervising Professional written notice within 7 days after the receipt of the instructions, and in any event before proceeding to execute the work, except in emergency endangering life or property. The procedure shall then be as provided for Changes in the Work-Section l3. No claim shall be valid unless so made.

If the Supervising Professional orders, in writing, the performance of any work not covered by the contract documents, and for which no item of work is provided in the Contract, and for which no unit price or lump sum basis can be agreed upon, then the extra work shall be done on a Cost-Plus-Percentage basis of payment as follows:

(1) The Contractor shall be reimbursed for all reasonable costs incurred in doing the work, and shall receive an additional payment of 15% of all the reasonable costs to cover both its indirect overhead costs and profit;

(2) The term "Cost" shall cover all payroll charges for employees and supervision required under the specific order, together with all worker's compensation, Social Security, pension and retirement allowances and social insurance, or other regular payroll charges on same; the cost of all material and supplies required of either temporary or permanent character; rental of all power-driven equipment at agreed upon rates, together with cost of fuel and supply charges for the equipment; and any costs incurred by the Contractor as a direct result of executing the order, if approved by the Supervising Professional;

(3) If the extra is performed under subcontract, the subcontractor shall be allowed to compute its charges as described above. The Contractor shall be permitted to add an additional charge of 5% percent to that of the subcontractor for the Contractor's supervision and contractual responsibility;

(4) The quantities and items of work done each day shall be submitted to the Supervising Professional in a satisfactory form on the succeeding day, and shall be approved by the Supervising Professional and the Contractor or adjusted at once;

(5) Payments of all charges for work under this Section in any one month shall be made along with normal progress payments. Retainage shall be in accordance with Progress Payments-Section 16.

No additional compensation will be provided for additional equipment, materials, personnel, overtime or special charges required to perform the work within the time requirements of the Contract.

When extra work is required and no suitable price for machinery and equipment can be determined in accordance with this Section, the hourly rate paid shall be 1/40 of the basic weekly rate listed in the Rental Rate Blue Book published by Dataquest Incorporated and applicable to the time period the equipment was first used for the extra work. The hourly rate will be deemed to include all costs of operation such as bucket or blade, fuel, maintenance, "regional factors", insurance, taxes, and the like, but not the costs of the operator.

Section 16 - Progress Payments

The Contractor shall submit each month, or at longer intervals, if it so desires, an invoice covering work performed for which it believes payment, under the Contract terms, is due. The submission shall be to the City's Finance Department - Accounting Division. The Supervising Professional will, within 10 days following submission of the invoice, prepare a certificate for payment for the work in an amount to be determined by the Supervising Professional as fairly representing the acceptable work performed during the period covered by the Contractor's invoice. To insure the proper performance of this Contract, the City will retain a percentage of the estimate in accordance with Act 524, Public Acts of 1980. The City will then, following the receipt of the Supervising Professional's Certificate, make payment to the Contractor as soon as feasible, which is anticipated will be within 15 days.

An allowance may be made in progress payments if substantial quantities of permanent material have been delivered to the site but not incorporated in the completed work if the Contractor, in the opinion of the Supervising Professional, is diligently pursuing the work under this Contract. Such materials shall be properly stored and adequately protected. Allowance in the estimate shall be at the invoice price value of the items. Notwithstanding any payment of any allowance, all risk of loss due to vandalism or any damages to the stored materials remains with the Contractor.

In the case of Contracts which include only the Furnishing and Delivering of Equipment, the payments shall be; 60% of the Contract Sum upon the delivery of all equipment to be furnished, or in the case of delivery of a usable portion of the equipment in advance of the total equipment delivery, 60% of the estimated value of the portion of the equipment may be paid upon its delivery in advance of the time of the remainder of the equipment to be furnished; 30% of the Contract Sum upon completion of erection of all equipment furnished, but not later than 60 days after the date of delivery of all of the equipment to be furnished; and payment of the final 10%

on final completion of erection, testing and acceptance of all the equipment to be furnished; but not later than l80 days after the date of delivery of all of the equipment to be furnished, unless testing has been completed and shows the equipment to be unacceptable.

With each invoice for periodic payment, the Contractor shall enclose a Contractor's Declaration - Section 43, and an updated project schedule per Order of Completion - Section 2.

Section 17 - Deductions for Uncorrected Work

If the Supervising Professional decides it is inexpedient to correct work that has been damaged or that was not done in accordance with the Contract, an equitable deduction from the Contract price shall be made.

Section 18 - Correction of Work Before Final Payment

The Contractor shall promptly remove from the premises all materials condemned by the Supervising Professional as failing to meet Contract requirements, whether incorporated in the work or not, and the Contractor shall promptly replace and re-execute the work in accordance with the Contract and without expense to the City and shall bear the expense of making good all work of other contractors destroyed or damaged by the removal or replacement.

If the Contractor does not remove the condemned work and materials within l0 days after written notice, the City may remove them and, if the removed material has value, may store the material at the expense of the Contractor. If the Contractor does not pay the expense of the removal within 10 days thereafter, the City may, upon 10 days written notice, sell the removed materials at auction or private sale and shall pay to the Contractor the net proceeds, after deducting all costs and expenses that should have been borne by the Contractor. If the removed material has no value, the Contractor must pay the City the expenses for disposal within 10 days of invoice for the disposal costs.

The inspection or lack of inspection of any material or work pertaining to this Contract shall not relieve the Contractor of its obligation to fulfill this Contract and defective work shall be made good. Unsuitable materials may be rejected by the Supervising Professional notwithstanding that the work and materials have been previously overlooked by the Supervising Professional and accepted or estimated for payment or paid for. If the work or any part shall be found defective at any time before the final acceptance of the whole work, the Contractor shall forthwith make good the defect in a manner satisfactory to the Supervising Professional. The judgment and the decision of the Supervising Professional as to whether the materials supplied and the work done under this Contract comply with the requirements of the Contract shall be conclusive and final.

Section 19 - Acceptance and Final Payment

Upon receipt of written notice that the work is ready for final inspection and acceptance, the Supervising Professional will promptly make the inspection. When the Supervising Professional finds the work acceptable under the Contract and the Contract fully performed, the Supervising Professional will promptly sign and issue a final certificate stating that the work required by this Contract has been completed and is accepted by the City under the terms and conditions of the Contract. The entire balance found to be due the Contractor, including the retained percentage, shall be paid to the Contractor by the City within 30 days after the date of the final certificate.

Before issuance of final certificates, the Contractor shall file with the City:

(1) The consent of the surety to payment of the final estimate;
(2) The Contractor's Affidavit in the form required by Section 44.

In case the Affidavit or consent is not furnished, the City may retain out of any amount due the Contractor, sums sufficient to cover all lienable claims.

The making and acceptance of the final payment shall constitute a waiver of all claims by the City except those arising from:

(1) unsettled liens;
(2) faulty work appearing within 12 months after final payment;
(3) hidden defects in meeting the requirements of the plans and specifications;
(4) manufacturer's guarantees.

It shall also constitute a waiver of all claims by the Contractor, except those previously made and still unsettled.

Section 20 - Suspension of Work

The City may at any time suspend the work, or any part by giving 5 days notice to the Contractor in writing. The work shall be resumed by the Contractor within 10 days after the date fixed in the written notice from the City to the Contractor to do so. The City shall reimburse the Contractor for expense incurred by the Contractor in connection with the work under this Contract as a result of the suspension.

If the work, or any part, shall be stopped by the notice in writing, and if the City does not give notice in writing to the Contractor to resume work at a date within 90 days of the date fixed in the written notice to suspend, then the Contractor may abandon that portion of the work suspended and will be entitled to the estimates and payments for all work done on the portions abandoned, if any, plus 10% of the value of the work abandoned, to compensate for loss of overhead, plant expense, and anticipated profit.

Section 21 - Delays and The City's Right to Terminate Contract

If the Contractor refuses or fails to prosecute the work, or any separate part of it, with the diligence required to insure completion, ready for operation, within the allowable number of consecutive calendar days specified plus extensions, or fails to complete the work within the required time, the City may, by written notice to the Contractor, terminate its right to proceed with the work or any part of the work as to which there has been delay. After providing the notice the City may take over the work and prosecute it to completion, by contract or otherwise, and the Contractor and its sureties shall be liable to the City for any excess cost to the City. If the Contractor's right to proceed is terminated, the City may take possession of and utilize in completing the work, any materials, appliances and plant as may be on the site of the work and useful for completing the work. The right of the Contractor to proceed shall not be terminated or the Contractor charged with liquidated damages where an extension of time is granted under Extension of Time - Section 14.

If the Contractor is adjudged a bankrupt, or if it makes a general assignment for the benefit of creditors, or if a receiver is appointed on account of its insolvency, or if it persistently or

repeatedly refuses or fails except in cases for which extension of time is provided, to supply enough properly skilled workers or proper materials, or if it fails to make prompt payments to subcontractors or for material or labor, or persistently disregards laws, ordinances or the instructions of the Supervising Professional, or otherwise is guilty of a substantial violation of any provision of the Contract, then the City, upon the certificate of the Supervising Professional that sufficient cause exists to justify such action, may, without prejudice to any other right or remedy and after giving the Contractor 3 days written notice, terminate this Contract. The City may then take possession of the premises and of all materials, tools and appliances thereon and without prejudice to any other remedy it may have, make good the deficiencies or finish the work by whatever method it may deem expedient, and deduct the cost from the payment due the Contractor. The Contractor shall not be entitled to receive any further payment until the work is finished. If the expense of finishing the work, including compensation for additional managerial and administrative services exceeds the unpaid balance of the Contract Sum, the Contractor and its surety are liable to the City for any excess cost incurred. The expense incurred by the City, and the damage incurred through the Contractor's default, shall be certified by the Supervising Professional.

Section 22 - Contractor's Right to Terminate Contract

If the work should be stopped under an order of any court, or other public authority, for a period of 3 months, through no act or fault of the Contractor or of anyone employed by it, then the Contractor may, upon 7 days written notice to the City, terminate this Contract and recover from the City payment for all acceptable work executed plus reasonable profit.

Section 23 - City's Right To Do Work

If the Contractor should neglect to prosecute the work properly or fail to perform any provision of this Contract, the City, 3 days after giving written notice to the Contractor and its surety may, without prejudice to any other remedy the City may have, make good the deficiencies and may deduct the cost from the payment due to the Contractor.

Section 24 - Removal of Equipment and Supplies

In case of termination of this Contract before completion, from any or no cause, the Contractor, if notified to do so by the City, shall promptly remove any part or all of its equipment and supplies from the property of the City, failing which the City shall have the right to remove the equipment and supplies at the expense of the Contractor.

The removed equipment and supplies may be stored by the City and, if all costs of removal and storage are not paid by the Contractor within 10 days of invoicing, the City upon 10 days written notice may sell the equipment and supplies at auction or private sale, and shall pay the Contractor the net proceeds after deducting all costs and expenses that should have been borne by the Contractor and after deducting all amounts claimed due by any lien holder of the equipment or supplies.

Section 25 - Responsibility for Work and Warranties

The Contractor assumes full responsibility for any and all materials and equipment used in the construction of the work and may not make claims against the City for damages to materials and equipment from any cause except negligence or willful act of the City. Until its final acceptance, the Contractor shall be responsible for damage to or destruction of the project (except for any

part covered by Partial Completion and Acceptance - Section 26). The Contractor shall make good all work damaged or destroyed before acceptance. All risk of loss remains with the Contractor until final acceptance of the work (Section 19) or partial acceptance (Section 26). The Contractor is advised to investigate obtaining its own builders risk insurance.

The Contractor shall guarantee the quality of the work for a period of one year. The Contractor shall also unconditionally guarantee the quality of all equipment and materials that are furnished and installed under the contract for a period of one year. At the end of one year after the Contractor's receipt of final payment, the complete work, including equipment and materials furnished and installed under the contract, shall be inspected by the Contractor and the Supervising Professional. Any defects shall be corrected by the Contractor at its expense as soon as practicable but in all cases within 60 days. Any defects that are identified prior to the end of one year shall also be inspected by the Contractor and the Supervising Professional and shall be corrected by the Contractor at its expense as soon as practicable but in all cases within 60 days.

The Contractor shall assign all manufacturer or material supplier warranties to the City prior to final payment. The assignment shall not relieve the Contractor of its obligations under this paragraph to correct defects.

Section 26 - Partial Completion and Acceptance

If at any time prior to the issuance of the final certificate referred to in Acceptance and Final Payment - Section 19, any portion of the permanent construction has been satisfactorily completed, and if the Supervising Professional determines that portion of the permanent construction is not required for the operations of the Contractor but is needed by the City, the Supervising Professional shall issue to the Contractor a certificate of partial completion, and immediately the City may take over and use the portion of the permanent construction described in the certificate, and exclude the Contractor from that portion.

The issuance of a certificate of partial completion shall not constitute an extension of the Contractor's time to complete the portion of the permanent construction to which it relates if the Contractor has failed to complete it in accordance with the terms of this Contract. The issuance of the certificate shall not release the Contractor or its sureties from any obligations under this Contract including bonds.

If prior use increases the cost of, or delays the work, the Contractor shall be entitled to extra compensation, or extension of time, or both, as the Supervising Professional may determine.

Section 27 - Payments Withheld Prior to Final Acceptance of Work

The City may withhold or, on account of subsequently discovered evidence, nullify the whole or part of any certificate to the extent reasonably appropriate to protect the City from loss on account of:

(1) Defective work not remedied;

(2) Claims filed or reasonable evidence indicating probable filing of claims by other parties against the Contractor;

(3) Failure of the Contractor to make payments properly to subcontractors or for material or labor;

(4) Damage to another Contractor.

When the above grounds are removed or the Contractor provides a Surety Bond satisfactory to the City which will protect the City in the amount withheld, payment shall be made for amounts withheld under this section.

Section 28 - Contractor's Insurance

A. The Contractor shall procure and maintain during the life of this Contract, including the guarantee period and during any warranty work, such insurance policies, including those set forth below, as will protect itself from all claims for bodily injuries, death or property damage which may arise under this Contract; whether the acts were made by the Contractor or by any subcontractor or anyone employed by them directly or indirectly. The following insurance policies are required:

1. Worker's Compensation Insurance in accordance with all applicable state and federal statutes. Further, Employers Liability Coverage shall be obtained in the following minimum amounts:

   Bodily Injury by Accident - $500,000 each accident
   Bodily Injury by Disease - $500,000 each employee
   Bodily Injury by Disease - $500,000 each policy limit

2. Commercial General Liability Insurance equivalent to, as a minimum, Insurance Services Office form CG 00 01 07 98. The City of Ann Arbor shall be named as an additional insured. There shall be no added exclusions or limiting endorsements including, but not limited to: Products and Completed Operations, Explosion, Collapse and Underground coverage or Pollution. Further, the following minimum limits of liability are required:

   $1,000,000 Each occurrence as respect Bodily Injury Liability or Property Damage Liability, or both combined.

   $2,000,000 Per Job General Aggregate

   $1,000,000 Personal and Advertising Injury

   $2,000,000 Products and Completed Operations Aggregate

3. Motor Vehicle Liability Insurance, including Michigan No-Fault Coverages, equivalent to, as a minimum, Insurance Services Office form CA 00 01 07 97. The City of Ann Arbor shall be named as an additional insured. There shall be no added exclusions or limiting endorsements. Coverage shall include all owned vehicles, all non-owned vehicles and all hired vehicles. Further, the limits of liability shall be $1,000,000 for each occurrence as respects Bodily Injury Liability or Property Damage Liability, or both combined.

4. Umbrella/Excess Liability Insurance shall be provided to apply excess of the Commercial General Liability, Employers Liability and the Motor Vehicle coverage enumerated above, for each occurrence and for aggregate in the amount of $1,000,000.

B. Insurance required under Section A.2 and A.3 of this Contract shall be considered primary as respects any other valid or collectible insurance that the City may possess, including any self-insured retentions the City may have; and any other insurance the City does possess shall be considered excess insurance only and shall not be required to contribute with this insurance. Further, the Contractor agrees to waive any right of recovery by its insurer against the City.

C. In the case of all Contracts involving on-site work, the Contractor shall provide to the City before the commencement of any work under this Contract documentation demonstrating it has obtained the above mentioned policies. Documentation must provide and demonstrate an unconditional 30 day written notice of cancellation in favor of the City of Ann Arbor. Further, the documentation must explicitly state the following: (a) the policy number; name of insurance company; name and address of the agent or authorized representative; name and address of insured; project name; policy expiration date; and specific coverage amounts; (b) any deductibles or self-insured retentions which shall be approved by the City, in its sole discretion; (c) that the policy conforms to the requirements specified. An original certificate of insurance may be provided as an initial indication of the required insurance, provided that no later than 21 calendar days after commencement of any work the Contractor supplies a copy of the endorsements required on the policies. Upon request, the Contractor shall provide within 30 days a copy of the policy(ies) to the City. If any of the above coverages expire by their terms during the term of this Contract, the Contractor shall deliver proof of renewal and/or new policies to the Administering Service Area/Unit at least ten days prior to the expiration date.

D. Any Insurance provider of Contractor shall be admitted and authorized to do business in the State of Michigan and shall carry and maintain a minimum rating assigned by A.M. Best & Company=s Key Rating Guide of AA-≅ Overall and a minimum Financial Size Category of AV≅. Insurance policies and certificates issued by non-admitted insurance companies are not acceptable unless approved in writing by the City.

Section 29 - Surety Bonds

Bonds will be required from the successful bidder as follows:

(1) A Performance Bond to the City of Ann Arbor for the amount of the bid(s) accepted;
(2) A Labor and Material Bond to the City of Ann Arbor for the amount of the bid(s) accepted.

Bonds shall be executed on forms supplied by the City in a manner and by a Surety Company satisfactory to the City Attorney.

Section 30 - Damage Claims

The Contractor shall be held responsible for all damages to property of the City or others, caused by or resulting from the negligence of the Contractor, its employees, or agents during the progress of or connected with the prosecution of the work, whether within the limits of the work or elsewhere. The Contractor must restore all property injured including sidewalks, curbing, sodding, pipes, conduit, sewers or other public or private property to not less than its original condition with new work.

Section 31 - Refusal to Obey Instructions

If the Contractor refuses to obey the instructions of the Supervising Professional, the Supervising Professional shall withdraw inspection from the work, and no payments will be made for work performed thereafter nor may work be performed thereafter until the Supervising Professional shall have again authorized the work to proceed.

Section 32 - Assignment

Neither party to the Contract shall assign the Contract without the written consent of the other. The Contractor may assign any monies due to it to a third party acceptable to the City.

Section 33 - Rights of Various Interests

Whenever work being done by the City's forces or by other contractors is contiguous to work covered by this Contract, the respective rights of the various interests involved shall be established by the Supervising Professional, to secure the completion of the various portions of the work in general harmony.

The Contractor is responsible to coordinate all aspects of the work, including coordination of, and with, utility companies and other contractors whose work impacts this project.

Section 34 - Subcontracts

The Contractor shall not award any work to any subcontractor without prior written approval of the City. The approval will not be given until the Contractor submits to the City a written statement concerning the proposed award to the subcontractor. The statement shall contain all information the City may require.

The Contractor shall be as fully responsible to the City for the acts and omissions of its subcontractors, and of persons either directly or indirectly employed by them, as it is for the acts and omissions of persons directly employed by it.

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 General Conditions and all other contract documents applicable to the work of the subcontractors and to give the Contractor the same power to terminate any subcontract that the City may exercise over the Contractor under any provision of the contract documents.

Nothing contained in the contract documents shall create any contractual relation between any subcontractor and the City.

Section 35 - Supervising Professional's Status

The Supervising Professional has the right to inspect any or all work. The Supervising Professional has authority to stop the work whenever stoppage may be appropriate to insure the proper execution of the Contract. The Supervising Professional has the authority to reject all work and materials which do not conform to the Contract and to decide questions which arise in the execution of the work.

The Supervising Professional shall make all measurements and determinations of quantities. Those measurements and determinations are final and conclusive between the parties.

Section 36 - Supervising Professional's Decisions

The Supervising Professional shall, within a reasonable time after their presentation to the Supervising Professional, make decisions in writing on all claims of the City or the Contractor and on all other matters relating to the execution and progress of the work or the interpretation of the contract documents.

Section 37 - Storing Materials and Supplies

Materials and supplies may be stored at the site of the work at locations agreeable to the City unless specific exception is listed elsewhere in these documents. Ample way for foot traffic and drainage must be provided, and gutters must, at all times, be kept free from obstruction. Traffic on streets shall be interfered with as little as possible. The Contractor may not enter or occupy with agents, employees, tools, or material any private property without first obtaining written permission from its owner. A copy of the permission shall be furnished to the Supervising Professional.

Section 38 - Lands for Work

The Contractor shall provide, at its own expense and without liability to the City, any additional land and access that may be required for temporary construction facilities or for storage of materials.

Section 39 - Cleaning Up

The Contractor shall, as directed by the Supervising Professional, remove at its own expense from the City's property and from all public and private property all temporary structures, rubbish and waste materials resulting from its operations unless otherwise specifically approved, in writing, by the Supervising Professional.

Section 40 - Salvage

The Supervising Professional may designate for salvage any materials from existing structures or underground services. Materials so designated remain City property and shall be transported or stored at a location as the Supervising Professional may direct.

Section 41 - Night, Saturday or Sunday Work

No night or Sunday work (without prior written City approval) will be permitted except in the case of an emergency and then only to the extent absolutely necessary. The City may allow night work which, in the opinion of the Supervising Professional, can be satisfactorily performed at night. Night work is any work between 8:00 p.m. and 7:00 a.m. No Saturday work will be permitted unless the Contractor gives the Supervising Professional at least 48 hours but not more than 5 days notice of the Contractor's intention to work the upcoming Saturday.

Section 42 - Sales Taxes

Under State law the City is exempt from the assessment of State Sales Tax on its direct purchases. Contractors who acquire materials, equipment, supplies, etc. for incorporation in City projects are not likewise exempt. State Law shall prevail. The Bidder shall familiarize itself with the State Law and prepare its Bid accordingly. No extra payment will be allowed under this Contract for failure of the Contractor to make proper allowance in this bid for taxes it must pay.

CONTRACTOR'S DECLARATION

I hereby declare that I have not, during the period _____, 20____, to _____, 20_____, performed any work, furnished any materials, sustained any loss, damage or delay, or otherwise done anything in addition to the regular items (or executed change orders) set forth in the Contract Arbor Oaks Water Main Replacement Project, File No.: 2009-032, Bid No.: 4100 for which I shall ask, demand, sue for, or claim compensation or extension of time from the City, except as I hereby make claim for additional compensation or extension of time as set forth on the attached itemized statement. I further declare that I have paid all payroll obligations related to this Contract that have become due during the above period and that all invoices related to this Contract received more than 30 days prior to this declaration have been paid in full except as listed below.

There is/is not (Contractor please circle one and strike one as appropriate) an itemized statement attached regarding a request for additional compensation or extension of time.

_____ _____
Contractor Date

By_____
(Signature)

Its_____
(Title of Office)

Past due invoices, if any, are listed below.

CONTRACTOR'S AFFIDAVIT

The undersigned Contractor,_____, represents that on , 20___, it was awarded a contract by the City of Ann Arbor, Michigan to construct_____ under the terms and conditions of a Contract titled Arbor Oaks Water Main Replacement Project, File No.: 2009-032, Bid No.: 4100. The Contractor represents that all work has now been accomplished and the Contract is complete.

The Contractor warrants and certifies that all of its indebtedness arising by reason of the Contract has been fully paid or satisfactorily secured; and that all claims from subcontractors and others for labor and material used in accomplishing the project, as well as all other claims arising from the performance of the Contract, have been fully paid or satisfactorily settled. The Contractor agrees that, if any claim should hereafter arise, it shall assume responsibility for it immediately upon request to do so by the City of Ann Arbor.

The Contractor, for valuable consideration received, does further waive, release and relinquish any and all claims or right of lien which the Contractor now has or may acquire upon the subject premises for labor and material used in the project owned by the City of Ann Arbor.

This affidavit is freely and voluntarily given with full knowledge of the facts.

_____
Contractor

By_____
(Signature)

Its_____
(Title of Office)

Subscribed and sworn to before me, on this _____ day of _____, 200
_____ , _____ County, Michigan
Notary Public
My commission expires on: _____

STANDARD SPECIFICATIONS

All work under this contract shall be performed in accordance with the Public Services Department Standard Specifications in effect at the date of availability of the contract documents stipulated in the Advertisement. All work under this Contract which is not included in these Standard Specifications, or which is performed using modifications to these Standard Specifications, shall be performed in accordance with the Detailed Specifications included in these contract documents.

A copy of the Public Services Department Standard Specifications may be purchased from the Engineering Division, (Fourth Floor, City Hall, Ann Arbor, Michigan), for $35.00 per copy. In addition, a copy of these Standard Specifications is available for public viewing at the Engineering Division office, for review Monday through Friday between the hours of 8:30 a.m. and 4:00 p.m. Copies of the Standard Specifications can also be obtained on the web from:

http://www.a2gov.org/government/publicservices/project_management/privatedev/Pages/StandardSpecificationsBook.aspx

DETAILED SPECIFICATION
FOR
PROJECT SCHEDULE AND PAYMENT

The entire work under this Contract shall be completed in accordance with, and subject to, the scheduling requirements as outlined below, and all other requirements of the Contract Documents.

1. The Contractor shall begin the work of this project on or before **March 14, 2011**, and only upon receipt of the fully executed Contract and Notice to Proceed. Appropriate time extensions shall be granted if the Notice to Proceed is delayed beyond this date.

2. The entire work under this Contract, including but not limited to the stabilization of all disturbed areas, permanent placement of hot mix asphalt or concrete, as needed, and the removal of any and all traffic control devices shall be completed within two hundred and twenty four **(224) consecutive calendar days** from issuance of Notice to Proceed.

The Contractor is expected to be furnished with two (2) copies of the Contract, for his/her execution, on or before **February 22, 2011**. The Contractor shall properly execute both copies of the Contract and return them, with the required Bonds and Insurance Certificate, to the City within **seven (7) days**. The Contractor shall not begin the work before the applicable date(s) as describes herein without approval from the Project Engineer, and in no case before the receipt of the fully executed Contract. City Council approval is expected on **February 21, 2011**.

Time is of the essence in the performance of the work of this contract. The Contractor is expected to mobilize sufficient personnel and equipment and work throughout all authorized hours to complete the project by the final completion date. Should the Contractor demonstrate that they must work on some Sundays in order to maintain the project schedule, they may do so between the hours of 9:00 a.m. and 5:00 p.m. with prior approval from the City. The Contractor shall not interrupt water service to any residences for any period of time on Sundays. There will be no additional compensation due to the Contractor for work performed on Sundays.

PHASING SEQUENCE

The work of this Contract is separated into three phases, each with various sub-phases. The Contractor must obtain from the Engineer a written Notice to Proceed prior to beginning work on each sub-phase. The construction sequence for this project shall be as follows:

Phase I shall consist of the eastern portion of Champagne Drive (Sta 29+00 to Phase Line), Hemlock Drive, and the associated Courts: Trowbridge, Rockland, Plainview, Eden (W & E), Kilbrennan, and Champagne Courts #2 & 3.

Phase IA: Water main installation on Champagne from Shadowood to Sta 29+00, including W. Eden and E. Eden Courts (approx. 1280'). Estimated date for the new water main to be in service: April 5, 2011.

Phase IB: Water main installation on Champagne from Sta 29+00 to Phase Line, including Trowbridge Ct., Kilbrennan Ct., and Champagne Courts #2 & 3 (approx. 1500'). Estimated date for the new water main to be in service: April 28, 2011.

Phase IC: Water main installation on Hemlock from Shadowood to Sta 7+00 (approx. 845'). Estimated date for the new water main to be in service: May 18, 2011.

Phase ID: Water main installation on Hemlock from Sta 7+00 to Champagne, including Rockland Ct. and Plainview Ct. (approx. 1200'), followed by testing & services. Estimated date for the new

water main to be in service: June 15, 2011.

Begin road construction on Champagne & adjacent courts once all new water main has passed all required hydrostatic and bacteriological testing and all service leads have been transferred and are in operation.

All water main for Phase I must pass all required hydrologic and bacteriological testing requirements and be placed into service prior to beginning any work on Phase II. The contractor is expected to complete all water main installation on Phase I by **June 15, 2011**. If all water main on Phase I has not been placed into service by this date, the Engineer may elect to postpone Phase II of the project until 2012, or eliminate it from this contract entirely.

Phase II shall consist of the western portion of Champagne Drive (Stone School Rd. to Phase Line) and all the associated Courts: Faust, Metroview, Englewood, Manitou, Downing, Stratton, and Champagne Court #1.

Phase IIA: Water main installation on Champagne from Phase Line to Sta 17+00, including Faust Ct. and Metroview Ct. (approx. 1440'). Estimated date for the new water main to be in service: July 1, 2011.

Phase IIB: Water main installation on Champagne from Sta 17+00 to 12+50, including Englewood Ct., Manitou Ct., and Downing Ct. (approx. 1340'). Estimated date for the new water main to be in service: July 23, 2011.

Phase IIC: Water main installation on Champagne from Sta 12+50 to Stone School Road, including Stratton Ct. and Champagne Court #1 (approx. 1600'). Estimated date for the new water main to be in service: August 15, 2011.

Phase IID: Road construction for Phase II up through leveling course. Estimated date for the new water main to be in service: October 14, 2011.

Phase III shall consist of adjustment of structures to grade; placement of the HMA wearing course; removal of all signs, traffic control devices, and erosion control devices; and final cleanup. Anticipated completion date: October 24, 2011.

The Contractor may elect to begin installing new water main for a subsequent sub-phase while the required testing is being conducted on the preceding phase. However, the Contractor may not begin installing any new water main or appurtenances further than one sub-phase in advance until the current sub-phase has passed all required hydrostatic and bacteriological testing and been placed in service. All water main for Phase I must pass all required hydrostatic and bacteriological testing and be placed into service prior to beginning any work on Phase II.

Prior to the start of any construction, the Contractor shall submit a detailed schedule of work for the Engineer's review and approval. Work shall not be started until a schedule is approved in writing by the Engineer. The proposed schedule must fully comply with the scheduling requirements contained in this Detailed Specification. The Contractor shall update the approved work schedule each week and present it to the Engineer at the weekly progress meeting.

Failure to complete all work as specified herein within the times specified herein, including time extensions granted thereto as determined by the Engineer, shall entitle the City to deduct from the payments due the Contractor, **$500.00** in Liquidated Damages, and not as a penalty, for delays in the completion of the work for each and every calendar day beyond the "Calendar Days to Complete" for each sub-phase, as detailed in the table shown below. Liquidated damages shall not be assessed for phases on which the Contractor has not received Notice to Proceed.

	Calendar Days to Complete*
Phase I	
Phase IA water main work	13
Phase IB water main work	14
Phase IC water main work	11
Phase ID water main work	12
Phase I road work	60
Phase II	
Phase IIA water main work	14
Phase IIB water main work	13
Phase IIC water main work	14
Phase IID road work	60
Phase III	10

* Number of calendar days allowed to install pipe, pressure test, swab, chlorinate, and flush the new water main pipe.

Liquidated Damages will be assessed until the required work is completed in the current construction season. If, with the Engineer's approval, work is extended beyond seasonal limitations, the assessment of Liquidated Damages will be discontinued until the work is resumed in the following construction season.

In order to allow sufficient time to complete the road construction phase of the project, any water main installation not begun by August 15, 2011 may, at the sole discretion of the Engineer, be postponed until the following construction season, or eliminated from this Contract entirely. If any portion of the project is postponed or eliminated, the Contractor must still complete all work on the remaining portion of the project, including paving up through the wearing course, within the current construction season. The Contractor will not be entitled to receive any additional compensation for the elimination or postponement of work from the enactment of this contract clause.

MEASUREMENT AND PAYMENT

If the construction contract is not completed within the estimated 224 consecutive calendar days, and any extensions of time granted thereto, at the sole discretion of the City of Ann Arbor, this Contract may be terminated with no additional compensation due to the Contractor, and the Contractor may be forbidden to bid on future City of Ann Arbor projects for a period of at least three (3) years. If the Engineer elects to terminate the Contract, contract items paid for on a Lump Sum basis shall be paid up to a maximum percentage equal to the percentage of the contract work that has been completed.

Costs for the Contractor to organize, coordinate, and schedule all of the work of the project, will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."

Payment for all water main pipe shall be as follows:

The Contractor shall be paid for 50% of the water main pipe installed upon satisfactory completion of the installation and backfilling of the water main pipe. The remaining 50% shall be paid upon successful completion of all required hydrologic and bacteriological testing, the water main has been placed into service, and all water service leads have been connected and are in service.

DETAILED SPECIFICATION
FOR
ITEM #200 – GENERAL CONDITIONS

DESCRIPTION

This item shall include all work described and required by the Plans and Specifications for which no item of work is listed in the Bid Form, including but not limited to:

- Scheduling and organization of all work, subcontractors, suppliers, testing, inspection, surveying, and staking
- Coordination of, and cooperation with, other contractors, agencies, departments, and utilities
- Protection and maintenance of Utilities
- Placing, maintaining, and removing all soil erosion and sedimentation controls, including stone inlets filers (as shown on project plants)
- Maintaining drainage
- Maintaining driveways drive openings, sidewalks, bike paths, mail deliveries, and solid waste/recycle pick-ups. This includes the placement and maintenance of gravel in driveway openings as directed by the Engineer
- Storing all materials and equipment off lawn areas
- Temporary relocation and final replacement/re-setting of mailboxes
- Site clean-up
- Coordination efforts to furnish various HMA mixtures as directed by the Engineer
- Coordination efforts to furnish and operate various-size vehicles/equipment as directed by the Engineer
- Furnishing and operating vacuum-type street cleaning equipment a minimum of once per week or more frequently as directed by the Engineer
- Furnishing and operating vacuum-type utility structure cleaning equipment
- Furnishing and operating both vibratory plate and pneumatic-type ("pogo-stick") compactors
- Furnishing and operating a backhoe during all work activities
- Furnishing and operating a jackhammer and air compressor during all work activities
- Noise and dust control
- Mobilization(s) and demobilization(s)
- Furnishing submittals and certifications for materials and supplies
- Disposing of excavated materials and debris
- All miscellaneous and incidental items such as overhead, insurance, and permits.
- Meeting all requirements relating to Debarment Certification, Davis Bacon Act, and Disadvantaged Business Enterprise, and providing the necessary documentation.

MEASUREMENT AND PAYMENT

This item of work will be paid for on a pro rata basis at the time of each progress payment. Measurement will be based on the ratio between work completed during the payment period and the total contract amount. When all of the work of this Contract has been completed, the measurement of this item shall be 1.0 Lump Sum, minus any deductions incurred for inadequate performance as described herein. This amount will not be increased for any reason, including extensions of time, extras, and/or additional work.

The completed work as measured for this item of work will be paid for at the Contract Unit Price for the following Contract (Pay) Item:

PAY ITEM	PAY UNIT
General Conditions	Lump Sum

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

DETAILED SPECIFICATION
FOR
ITEM #201 – PROJECT SUPERVISION

DESCRIPTION

The Contractor shall designate a full-time Project Supervisor to act as the Contractor's agent/representative, and to be responsible for scheduling and coordination of all subcontractors, suppliers, other governmental agencies, and all public and private utility companies.

The Project Supervisor shall not be an active crew member of the Contractor, shall not be an active member or employee of any subcontractor's work force, and shall not perform general or specialized labor tasks.

The Project Supervisor shall work exclusively on this project, and shall put forth his/her full effort into the organization and coordination of the work of this project.

Prior to the pre-construction meeting, the Contractor shall designate a proposed Project Supervisor by name, and shall furnish the City with a current, thorough, detailed summary of the proposed Project Supervisor's work history, outlining all previous supervisory experience on projects of a similar size and nature. The detailed work history shall include personal and professional references (names and phone numbers) of persons (previous owners or agents) who can attest to the qualifications and work history of the proposed Project Supervisor. Proposed candidates for Project Supervisor shall have a demonstrated ability to work harmoniously with the City, the public, subcontractors, and all other parties typically involved with work of this nature. The Supervising Professional will have the authority to reject a proposed Project Supervisor whom he/she considers unqualified.

The Project Supervisor shall be available 24 hours-per-day to provide proper supervision, coordination and scheduling of the project for the duration of the Contract. The Contractor shall furnish the City with telephone numbers of the Project Supervisor in order to provide 24 hour-per-day access during business and non-business hours, including weekends and holidays.

The Project Supervisor shall be equipped by the Contractor with a mobile telephone to provide the City with 24 hour-per-day access to him/her during daily construction activities, during transit to and from the construction site, and during all non-business hours including weekends and holidays.

The Project Supervisor shall be equipped with assistants as necessary to provide project supervision as specified herein, and in accordance with the Contract.

DUTIES AND RESPONSIBILITIES

The Project Supervisor work harmoniously with the City, the public, subcontractors, and all other parties typically involved with work of this nature.

The Project Supervisor shall have a thorough, detailed understanding and working knowledge of all construction practices and methods specified elsewhere herein, as well as the handling, placement, testing and inspection of aggregates, aggregate products, HMA concrete, and portland cement concrete materials.

The Project Supervisor shall be responsible for all of the work of all of the Contractor's, subcontractors' and suppliers' work forces.

The Project Supervisor shall be responsible for proper and adequate maintenance (emissions, safety, and general operation) of all of the Contractor's, subcontractors' and suppliers' equipment and vehicles.

The Project Supervisor shall be responsible for the legal, proper and safe parking/storage of all of the Contractor's, subcontractors' and suppliers' equipment, work vehicles, and employee's vehicles.

The Project Supervisor shall schedule and coordinate the work of all parties involved in the project, including utility companies, testing agencies, governmental agencies, all City departments (such as Utilities and Transportation), and City inspectors.

The Project Supervisor shall coordinate and schedule the work of any independent survey crews that may be retained by the City to witness and reset existing and new geographic/benchmark monuments. Failure to have existing monuments witnessed and reset may result in delays to the Contractor's work. Costs for such delays will be the Contractor's sole responsibility.

The Project Supervisor shall coordinate and schedule both Testing inspectors and City inspectors in a timely manner, to assure proper and timely testing and inspection of the work.

The Project Supervisor shall review the Inspector's Daily Reports (IDRs) for accuracy, and shall sign all IDRs on a daily basis as the representative of the Contractor. Items to be reviewed include descriptions, locations and measurements of quantities of work performed, workforce, equipment, and weather. The Project Supervisor shall also be responsible for its subcontractors' review and initialing of IDRs containing work items performed by each respective subcontractors.

The Project Supervisor shall submit to the Engineer, an updated, detailed schedule of the proposed work on a weekly basis, and an update of all proposed changes on a daily basis, all in accordance with the Detailed Specification for Project Schedule contained elsewhere herein.

The Project Supervisor shall schedule and chair a weekly progress meeting with the Engineer and all subcontractors to discuss the work. Upon the completion of each meeting, the Project Supervisor shall prepare and distribute, to all present, a written summary of the meeting's minutes. Those in attendance shall review the minutes and, if necessary, comment on any deficiencies or errors prior to or at the next scheduled progress meeting.

ADDITIONAL PERFORMANCE REQUIREMENTS

If, in the sole opinion of the Supervising Professional, the Project Supervisor is not adequately performing the duties as outlined in this Detailed Specification, the following system of notices will be given to the contractor with the associated penalties:

First Notice – A warning will be issued in writing to the contractor detailing the deficiencies in the Project Supervision. The contractor must respond within 7 calendar days in writing with a plan to correct the stated deficiencies. Failure to respond within 7 calendar days will result in the issuing of a second notice.

Second Notice – A second warning will be issued in writing to the contractor further detailing the deficiencies in the Project Supervision. The contractor must respond within 7 calendar days in writing with a plan to correct the stated deficiencies. Failure to respond within 7 calendar days will result in the issuing of a third notice. A deduction of 10% will be made from the original Project Supervision contract amount. At this time, the City reserves the right to meet with personnel with the necessary authority within the Contractor's organization to discuss the deficiencies in the Project Supervision.

Third Notice – An additional deduction of 25% will be made from the original Project Supervision contract amount, and the Project Supervisor shall be removed from the project, and replaced immediately with another individual to be approved by the Supervising Professional.

Should, in the sole opinion of the Supervising Professional, the Project Supervisor fail to perform his/her duties and responsibilities as described herein to such a degree that the successful completion of the project is put in jeopardy, the above system of notices may be foregone, and the Contractor shall immediately replace the Project Supervisor upon receipt of written notice. Failure to provide adequate project supervision, as determined by the Engineer, shall be considered basis for the Supervising Professional to suspend work without extension of contract time or additional compensation.

MEASUREMENT AND PAYMENT

This item of work will be paid for on a pro rata basis at the time of each progress payment. Measurement will be based on the ratio between work completed during the payment period and the total contract amount. When all of the work of this Contract has been completed, the measurement of this item shall be 1.0 Lump Sum, minus any deductions incurred for inadequate performance as described herein. This amount will not be increased for any reason, including extensions of time, extras, and/or additional work.

The completed work as measured for this item of work will be paid for at the Contract Unit Price for the following Contract (Pay) Item:

PAY ITEM	PAY UNIT
Project Supervision	Lump Sum

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

DETAILED SPECIFICATION
FOR
ITEM #202 – MINOR TRAFFIC DEVICES

DESCRIPTION

The work of Minor Traffic Devices shall include, but not be limited to:

- The furnishing and operating of miscellaneous signs, warning devices, flag-persons, and cones;
- The operation of additional signs furnished by the City;
- Furnishing and installing meter bags;
- Coordinating with the City to have meter heads removed and reinstalled;
- Maintaining pedestrian traffic;
- Temporarily covering traffic controls;
- Temporarily covering existing signs as directed;
- Any and all other miscellaneous and/or incidental items which are necessary to properly perform the work.

The Contractor shall maintain vehicular and pedestrian traffic during the work by the use of flag-persons, channelizing devices, and signs as necessary, as directed by the Engineer, and in accordance with MMUTCD. Typical applications for maintaining pedestrian traffic in accordance with the MMUTCD are included in this detailed specification.

In order to maintain areas of on-street parking available for residents, the Engineer may direct the contractor to cover and uncover temporary No Parking signs within the project limits multiple times throughout the course of the project. Such repeated covering and uncovering of signs shall be included in this item of work and shall not be paid for separately.

MEASUREMENT AND PAYMENT

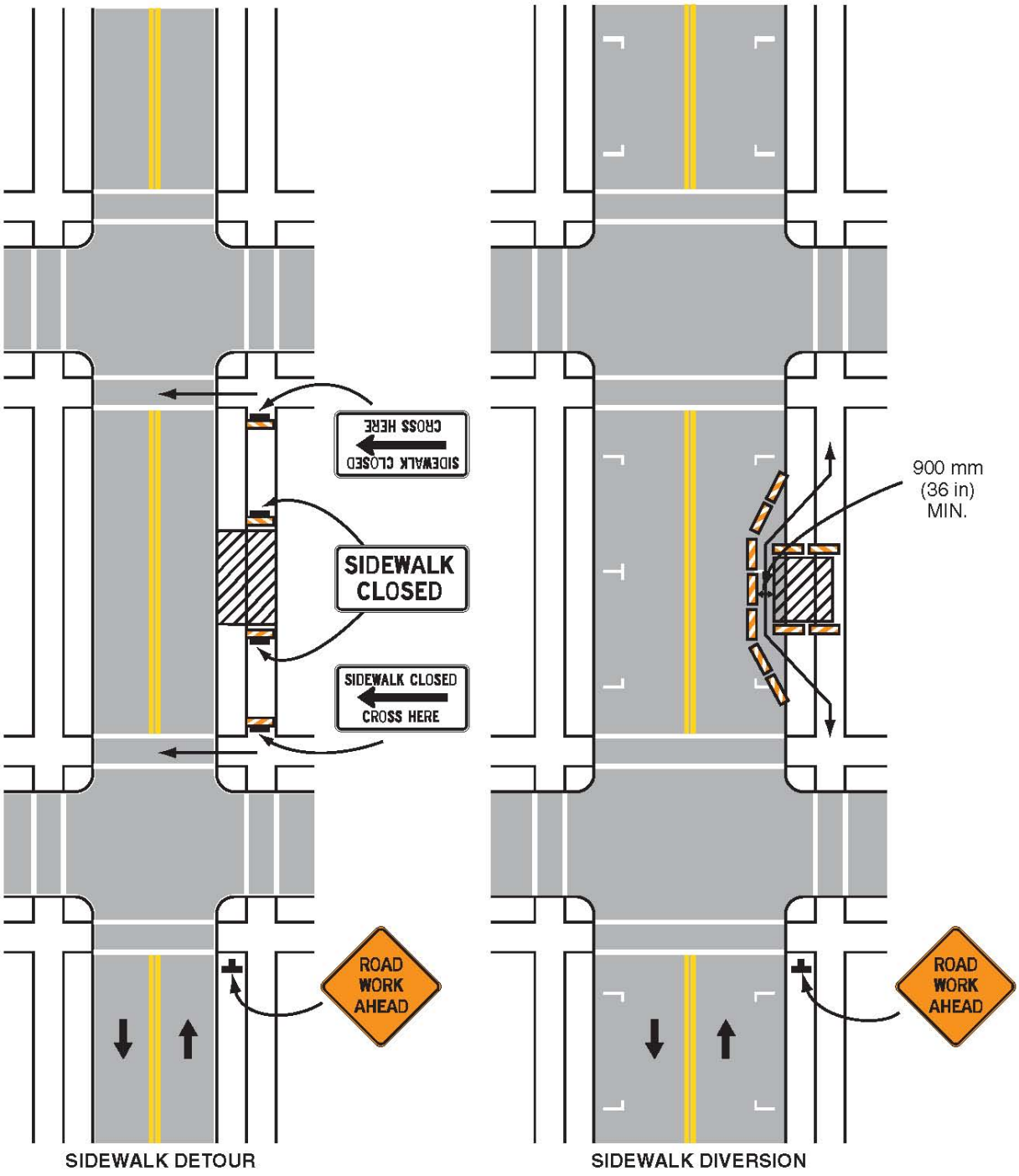
will be paid for on a pro rata basis at the time of each progress payment. Measurement will be based on the ratio between work completed during the payment period and the total contract amount. When all of the work of this Contract has been completed, the measurement of this item shall be 1.0 Lump Sum, minus any deductions incurred for inadequate performance as described herein. This amount will not be increased for any reason, including extensions of time, extras, and/or additional work.

The completed work as measured for this item of work will be paid for at the Contract Unit Price for the following Contract (Pay) Item:

PAY ITEM	PAY UNIT
Minor Traffic Devices	Lump Sum

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

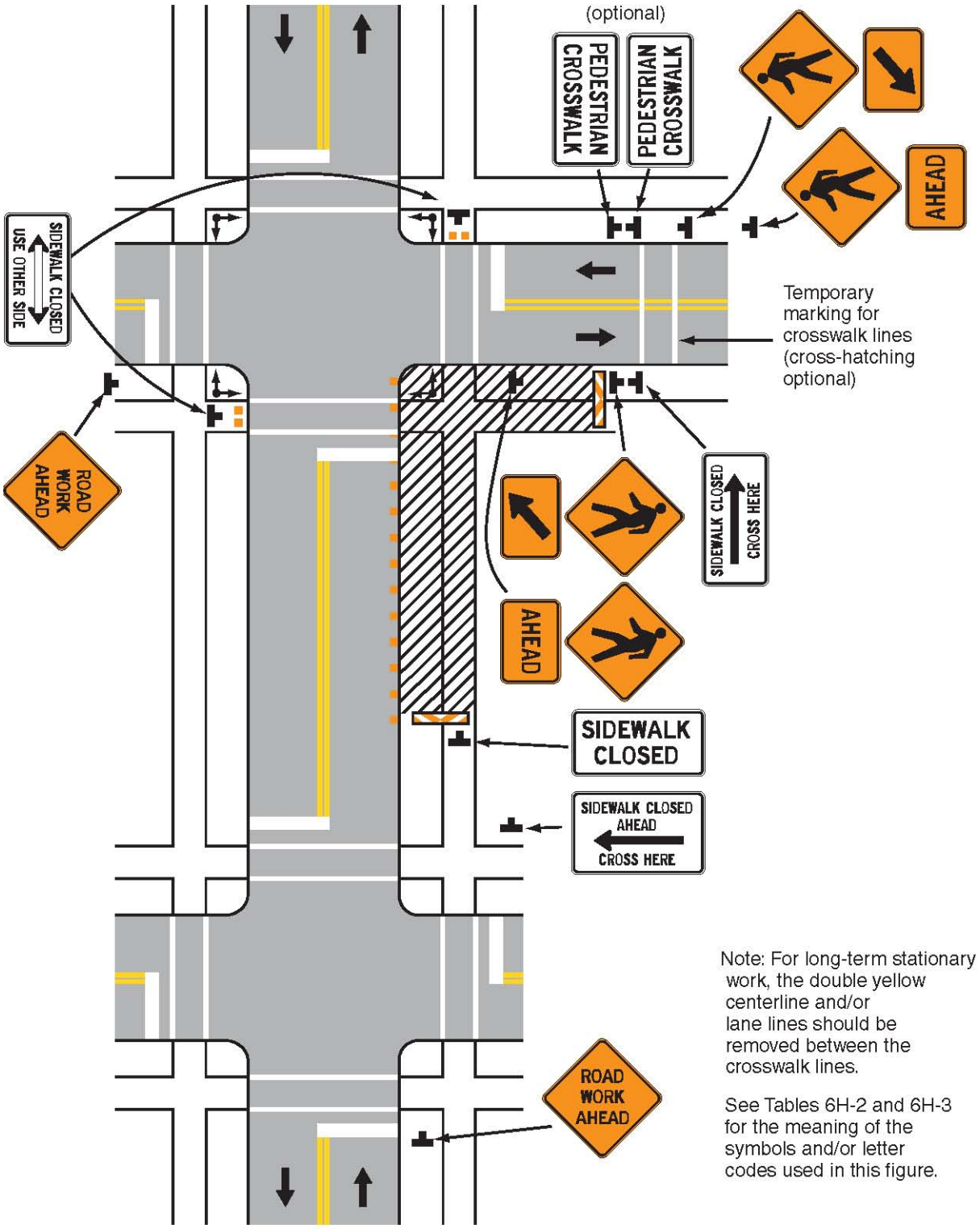
Figure 6H-28. Sidewalk Detour or Diversion (MI) (TA-28)



Typical Application 28

Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

Figure 6H-29. Cross walk Closures and Pedestrian Detours (MI) (TA-29)



Typical Application 29

Page 6H-64 (MI) 2003 Edition

DETAILED SPECIFICATION
FOR
ITEM #203 – AUDIO VISUAL TAPE COVERAGE

DESCRIPTION

This work shall include digital audiovisual record of the physical, structural, and aesthetic conditions of the construction site and adjacent areas as provided herein. This work will be performed for the entire project limits prior to the start of construction.

The audio-visual filming shall be:

1. Of professional quality, providing a clear and accurate audio and visual record of existing conditions.
2. Prepared within the four (4) week period immediately prior to the start of construction
3. Furnished to the Engineer a minimum of one (1) week prior to bringing any materials or equipment within the areas described in this Detailed Specification.
4. Carried-out under the supervision of the Engineer.

The Contractor shall furnish one (1) copy of the completed audiovisual record to the Engineer. An index of the footage shall be included, which will enable any particular area of the project to be easily found. **This includes indexing the files according to street and Station number as applicable.** The Contractor shall retain a second copy of the audiovisual record for his/her own use.

Any portion of the film determined by the Engineer to be unacceptable for the documentation of existing conditions shall be filmed again at the Contractor's sole expense prior to mobilizing onto the site.

PRODUCTION

The audio-visual filming shall be completed in accordance with the following minimum requirements:

1. DVD Format, No Editing - The filming shall be done in color using equipment that allows audio and visual information to be recorded. Splicing or editing of the tape shall not be allowed and the speed and electronics of the videotaping equipment and DVD shall be equal to that which is standard to the videotaping industry.

2. Perspective / Speed / Pan / Zoom - To ensure proper perspective, the distance from the ground to the camera lens shall not be less than 10 feet and the filming must proceed in the general direction of travel at a speed not to exceed 48 feet per minute. Pan and zoom rates shall be controlled sufficiently so that playback will ensure quality of the object viewed.

3. Display - The recording equipment shall have transparent time, date stamp and digital annotation capabilities. The final copies of the tape shall continuously and simultaneously display the time (hours:minutes:seconds) and the date (month/date/year) in the upper left-hand corner of the frame. Accurate project stationing, where applicable, shall be included in the lower half of the frame in standard format (i.e. 1+00). Below the stationing periodic information is to be shown, including project name, name of area shown, street address, direction of travel, viewing direction, etc. If in the event, the stationing has not been established on-site, refer to the plans and approximate the proposed stationing

4. Audio Commentary / Visual Features. Locations relative to project limits and landmarks must be identified by both audio and video means at intervals no longer than 100 feet along the filming route. Additional audio commentary shall be provided as necessary during filming to describe streets, buildings, landmarks, and other details, which will enhance the record of existing conditions.

5. Visibility / Ground Cover - The filming shall be performed during a time of good visibility. Filming shall not be performed during periods of precipitation or when snow, leaves, or other natural debris obstruct the area being filmed. The Contractor shall notify the Engineer in writing in the event that the weather or snow cover is anticipated to cause a delay in filming.

COVERAGE

The audio-visual film coverage shall include the following:

1. General Criteria - This general criteria shall apply to all filming and shall include all areas where construction activities will take place or where construction vehicles or equipment will be operated or parked and or where materials will be stored. The filming shall extend an additional 50 feet outside of all areas. The filming shall include all significant, existing man-made and natural features such as driveways, sidewalks, utility covers, utility markers, utility poles, other utility features, traffic signal structures and features, pubic signs, private signs, fences, landscaping, trees, shrubs, other vegetation, and other similar or significant features.

2. Other Areas - The Contractor shall film at his sole expense other areas where, in his/her opinion, the establishment of a record of existing conditions is warranted. The Contractor shall notify the Engineer in writing of such areas.

The Engineer may direct the filming of other minor areas not specified herein at the Contractor's sole expense.

AUDIOVISUAL FILMING SERVICES

The following companies are known to be capable of providing the filming services required by this Detailed Specification and shall be utilized, unless the Contractor receives prior written approval from the Engineer to utilize another company of comparable or superior qualifications.

Construction Video Media
Midwest Company
Topo Video, Inc.
Video Media Corp.

MEASUREMENT AND PAYMENT

The completed work as measured for these items of work will be paid for at the Contract Unit Prices for the following Contract (Pay) Items:

PAY ITEM	PAY UNIT
Audiovisual Tape Coverage	Lump Sum

Audiovisual Tape Coverage shall include all labor, equipment, and materials required to perform the filming and to provide the finished videotape the Engineer. The unit price includes filming the entire project limits, for each and every street, as described above.

DETAILED SPECIFICATION
FOR
ITEM #204 – CLEAN-UP AND RESTORATION, SPECIAL

DESCRIPTION

This item of work shall conform to Division IX, Section II, Item No. 891, Clean-Up & Restoration of the Public Services Area Standard Specifications, except as specified herein.

This work shall include the removal of all surplus materials from the site including; but not limited to; tools, dirt, rubbish, construction debris, and excess excavated material. This work shall also include the restoration of all existing lawn areas, road surfaces, culverts, drives, and sidewalks disturbed by the work. This work includes placing topsoil, fertilizer, seeding, and furnishing and installing mulch blankets on all disturbed areas as approved by the Engineer. Mulch blankets are required on all seeded areas.

MATERIALS

The materials shall meet the requirements specified in the MDOT 2003 Standard Specifications as designated, as specified herein, and as approved by the Engineer:

- Seed shall be THM seed mixture as described in Table 8 16-1.
- Fertilizers shall be a Class A. The percentages by weight shall be 12- 12- 12, or as approved by the Engineer.
- Water used shall be obtained from fresh water sources and shall be free from injurious chemicals and other toxic substances.
- Mulch blankets shall be High Velocity Straw Mulch Blankets as specified in MDOT section 917.

MAINTENANCE AND ACCEPTANCE

It is the responsibility of the Contractor to establish a dense lawn of permanent grasses, free from mounds and depressions prior to final acceptance and payment of this project. Any portion of a seeded area that fails to show a uniform germination shall be reseeded. Such reseeding shall be at the Contractor's expense and shall continue until a dense lawn is established. The Contractor is responsible for restoring all areas disturbed by his construction.

The Contractor shall maintain all lawn areas until they have been accepted by the Engineer. Lawn maintenance shall begin immediately after the grass seed is in place and continue until final acceptance with the following requirements:

Lawns shall be protected and maintained by watering, mowing, and reseeding as necessary, until the period of time when the final acceptance and payment is made by the Engineer for the project, to establish a uniform, weed-free, stand of the specified grasses. Maintenance includes furnishing and installing additional topsoil, and reseeding all as may be required to correct all settlement and erosion until the date of final acceptance.

Damage to seeded areas resulting from erosion shall be repaired by the Contractor at the Contractor's expense. Scattered bare spots in seeded areas will not be allowed over three (3) percent of the area nor greater than 6"x 6" in size.

When the above requirements have been fulfilled, the Engineer will accept the lawn.

Cleanup and Restoration must be performed upon the completion of each sub-phase of work (as described in the Detailed Specification for Project Schedule), and not as one single operation at the completion of the entire project.

MEASUREMENT AND PAYMENT

Measurement and payment for this item of work shall conform to Division IX, Section 2, Item No. 891, Clean-Up & Restoration of the Public Services Area Standard Specifications except as modified herein.

The completed work for "Clean-Up & Restoration, Special" will be paid for on a lump sum (LS) basis. 80% of said lump sum shall be paid upon completion and approval of the site by the Engineer. By May 31st of the year following the completion of the project, the Engineer will inspect the seeded turf to ensure that the end product is well established; weed free, and in a growing and vibrant condition. If the Engineer determines that the restored areas meet the project requirements, the remaining 20% of the lump sum will be paid. If the Engineer determines that the restored areas do not meet the project requirements, the Contractor will continue with any and all measures necessary to meet the project requirements. All costs associated with the remedial measures shall be borne entirely by the Contractor.

Pay Item	Pay Unit
Clean-Up & Restoration, Special	LS

DETAILED SPECIFICATION
FOR
ITEM #206 – "NO PARKING" SIGNS

DESCRIPTION

This work shall consist of installing, maintaining and removing of "No Parking" signs and posts, as outlined herein and as referenced on the plans. "No Parking" signs shall be installed in accordance with the Public Services Department Standard Specifications and the Michigan Manual of Uniform Traffic Control Devices (MMUTCD), 1994 Revised.

MATERIAL

All materials for this work shall conform to the requirements of the Public Services Department Standard Specifications.

CONSTRUCTION METHODS

Prior to the commencement of any construction activity, the Contractor will be required to place "No Parking" signs where directed by the Engineer. The Contractor shall obtain a permit for "Permission to Prohibit On-Street Parking" from the City of Ann Arbor Project Management Unit. This permit shall be obtained a minimum of 48 hours prior to the posting of "No Parking" signs.

The City will furnish "No Parking" signs to the Contractor at no cost. The Contractor shall furnish the signposts and shall securely bolt the signs to the signposts as directed by the Engineer. The Contractor shall install the signposts at least two feet deep into the ground, and there shall be a minimum 6-foot and maximum 7-foot clearance maintained between the bottom of the sign and the ground. The signs are to be placed at 150-foot intervals (or as necessary) to eliminate parking in the construction area.

The installation of "No Parking" signs shall be in accordance with the permit. "No Parking" signs shall be installed by the Contractor, as directed by the Engineer, at least 24 hours prior to the proposed start-of-work/enforcement date. "No Parking" signs shall be returned to the City at the completion of the work. The cost of unreturned signs will be backcharged to the Contractor. "No Parking" signs shall be covered by the Contractor, thereby allowing on-street parking, until between 24 and 36 hours prior to the start of the work. "No Parking" signs shall be covered by the Contractor whenever there is no work being performed for a period of time longer than 72 hours.

MEASUREMENT AND PAYMENT

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

"No Parking" signs will be measured as the maximum number installed on each street at any one time. The unit price includes the removal and return of "No Parking" signs to the City upon completion of the project. The Contractor shall be backcharged for the replacement costs for damaged or unreturned signs.

PAY ITEM	PAY UNIT
"No Parking" Signs	Each

DETAILED SPECIFICATION
FOR
WATER MAIN INSTALLATION AND TESTING

DESCRIPTION

This Detailed Specification is intended to supplement the current City of Ann Arbor Standard Specifications for Construction with regard to water main installation and hydrologic and bacteriologic testing. It is also intended to establish minimum requirements for the work that the Contractor is responsible to follow.

CONSTRUCTION METHODS

During the delivery, handling, installation, and testing of the water main, the Contractor shall comply with the following requirements:

1. Keep all pipe clean and neatly stacked a minimum of six-inches off of the ground at all times. Ends of pipe shall be covered to prevent entry of dust, dirt, small animals, and any other objectionable matter at all times. During installation of the water main and all appurtenances no dirt, soil, or non-potable water shall be allowed to enter the pipe. If dirt, soil, or non-potable water does enter the pipe, the Contractor shall completely remove it prior to installing the next segment of pipe. Segments of pipe that are have visible signs of contamination including, but not limited to; soil, dirt, mud, oil, grease, solvents, animal droppings, etc. shall have all visible traces of the offending substance completely removed by the Contractor in a manner acceptable to the Engineer. Sections of pipe or fittings that have been marked by the Engineer for cleaning shall not be approved for installation until such time as the Engineer has again approved them for use on the project. Acceptable methods of cleaning include flushing and/or power washing, compressed air, or other methods that the Engineer may approve. Approval by the Engineer of a cleaning method shall not be construed by the Contractor to include acceptance of the water main for the purposes of placing it into service. Water main pipe and fittings that have been placed shall remain covered on the advancing end until the next segment of pipe is connected. The Contractor may uncover no more than three segments of pipe in advance of placement. Water main pipe and fittings that have been laid out further in advance of the installation operation must remain covered.

2. Gasket lubricant shall only be applied immediately before connection to the next segment of pipe. Pipe with lubricant applied shall not come in contact with the ground. If the lubricated portion of the pipe end contacts the ground, it shall be thoroughly cleaned to the satisfaction of the Engineer, prior to its installation.

3. All water main shall be swabbed in accordance with the requirements of Section 3H, Flushing and Swabbing, of the current edition of the City of Ann Arbor Public Services Department Standards. During swabbing of the water main, the swab shall be flushed through the pipe in accordance with the manufacturer's recommendations and in a manner that is acceptable to the Engineer. The Contractor shall submit the product data of the swab from the manufacturer, for review and approval by the Engineer, at or before the pre-construction meeting.

4. Swabbing of the water main shall be followed immediately by flushing of the pipe so that any disturbed particles are washed out before they can resettle. The pipe shall be flushed in accordance with Section 3H, Flushing and Swabbing, of the current edition of the City of Ann Arbor Public Services Department Standard Specifications. The pipe shall be flushed until the water runs clear for a minimum of fifteen minutes or until two full pipe volumes have been flushed (whichever is longer.) Flushing from the existing water main that is to be replaced shall not be allowed.

5. During the chlorination process, the proper level of chlorination must be achieved throughout the entire length pipe. Chlorine levels shall be checked at intermediate locations as directed by the Engineer and the Contractor shall add chlorine until such time as the required levels are achieved at all points. The "plug method" of chlorinating the pipe shall not be allowed. The Contractor shall chlorinate the proposed water main to a minimum residual concentration of 100 parts per million with commercial liquid chlorine solution. The chlorine concentrate shall be a minimum of 10% chlorine (sodium hypochlorite) by volume. Solid chlorine "pellets" or powder shall not be allowed. Any chlorine containing compound used on the project shall be approved by the Engineer. The minimum recommended dosage of chlorine (sodium hypochlorite) is as follows (based on 10% available chlorine):

Recommended Minimum Chlorine Dosage to Disinfect 100 L.F. of Pipe

Pipe Diameter	10% Chlorine Solution (gallons)
6	0.306
8	0.544
10	0.852
12	1.226
16	2.180
20	3.406
24	4.904

6. Bacteriological testing shall be performed by the City with the Contractor present. The Engineer shall determine the number, location, and type of testing points for each section of water main being tested. Bacteriological samples shall only be drawn from copper or brass sampling points. The use of galvanized steel blow-offs or sampling points are strictly prohibited. Obtaining bacteriological samples from fire hydrants will not be allowed.

7. If a new water main fails two consecutive sets of bacteriological tests, the Engineer may require the Contractor to re-swab the water main in accordance with Section 3H, Flushing and Swabbing, as described above. Additional flushing, prior to subsequent bacteriological sampling will also be required. The required additional swabbing and flushing of the water main by the Contractor shall be performed at no additional cost to the City of Ann Arbor.

MEASUREMENT AND PAYMENT

Payment for all labor, materials, and equipment that is required to comply with this Detailed Specification shall be considered as part of the unit price as bid for each respective water main pipe and fitting and will not be paid for separately.

DETAILED SPECIFICATION
FOR
ASPHALTIC SEAL COATINGS
DUCTILE IRON PIPE FITTINGS

DESCRIPTION

The Contractor may not operate City water main valves. For valve operation, contact the City of Ann Arbor Public Services Area. It is recommended that the Contractor request that the existing valves, which will need to be operated in order to perform the water main work, are checked in advance of the work to ensure that they operate properly.

Several items of work on this project require coordination with the City of Ann Arbor Public Services Area (The City). The Contractor shall notify the City three (3) full working days in advance of any items requiring coordination with the City.

The Contractor shall complete the water main work in a manner which minimizes the disruption of water service. Water quality issues arise and treatment costs increase when the well field system is taken off line. No shut downs at the well field shall occur on Saturdays or Sundays. Shut downs shall not be for longer than 8.0 hours for any given shutdown event. Liquidated damages as detailed and described on page C-2 of these documents shall apply to any shut downs that occur on Saturday or Sunday or for a period of time longer than 8.0 hours in any given 24 hour period.

The Contractor shall be responsible for coordination with the City of Ann Arbor Public Services Area for the installation of 1-inch corporations in the gate wells to be used for testing and filling of new main. The Contractor shall pay the City of Ann Arbor's Field Operations Unit all costs associated with installing the corporations.

The Contractor must have all materials, fittings, pumps and other miscellaneous equipment, and personnel on site before the City of Ann Arbor Public Services Area personnel will prepare and shutdown an existing main.

The Contractor shall dig-up and expose utility crossings 60-feet in advance of laying any water main pipe in their vicinity. This will allow the Engineer to adjust the grade of the water main, if possible, to avoid the existing utilities. The costs of the advance excavations, and related costs, shall be included in the respective items of work listed in the Bid Form. Some dig-ups may need to occur out of Phase.

All ductile iron pipe and fittings shall have an asphaltic seal coat on their cement-mortar linings. The coatings shall meet the requirements of ANSI/NSF Standard 61, Drinking Water System Components - Health Effects, and be approved for contact with drinking water.

MEASUREMENT AND PAYMENT

Asphaltic seal coat for ductile iron pipe and fittings shall not be measured or paid for separately. This work shall include all labor, materials and equipment costs necessary to provide asphaltic seal coat of ductile iron pipe and fittings. Payment for this work shall be considered as part of the unit price for each respective ductile iron pipe and fitting unit price.

DETAILED SPECIFICATION
FOR
ITEM #208 – WATER MAIN PIPE ABANDONMENT, MODIFIED
ITEM #209 – FIRE HYDRANT ASSEMBLY ABANDONMENT

DESCRIPTION

This work shall include abandoning existing water mains, valves, valve wells, valve boxes, and fire hydrant assemblies of various sizes as required by the Plans. All work shall be done in accordance with the City of Ann Arbor Public Services Department Standard Specifications, and as directed by the Engineer.

MATERIALS

All materials shall meet the requirements specified in Division 7 and 9 of the MDOT 2003 Standard Specifications for Construction as follows:

Mortar Type II ..... Section 702
MDOT Class II Sand ..... Section 902
Masonry Units ..... Section 913

Push-on joint plugs, caps, air relief assemblies (for grouting purposes), and thrust blocks shall conform to the City of Ann Arbor Standard Specifications.

METHODS OF CONSTRUCTION

The Construction Methods shall meet all requirements of the City of Ann Arbor Standard Specifications.

In locations as shown on the Plans or where abandoned water main, valves or valve wells are within 2.5 feet of the proposed subgrade, the pipe, valves or valve wells shall be removed completely. The resulting hole or trench shall be backfilled with Class II Sand, in maximum lifts of 12 inches, and be compacted to 95% of its maximum unit weight, if located within the influence paved surfaces or structures. Otherwise, backfill shall be Engineer approved native material, compacted to 90% of its maximum unit weight, in lifts of 12 inches or less, unless otherwise noted on the plans. Caps or plugs shall be installed in accordance with plans or as specified by Engineer.

For all water mains to be abandoned that are greater than 10 inches in diameter, the Contractor shall drain water from abandoned pipe to an adjacent storm sewer, fill the abandoned pipe with 400 psi (minimum) concrete grout, and backfill and compaction of the trench at all access points.

Abandoned (salvaged) valve operating nuts, fire hydrant assemblies and structure covers shall be delivered to the City of Ann Arbor Field Services Unit located at the W.R. Wheeler Service Center at 4251 Stone School Road, Ann Arbor, MI 48108 within two days of their removal. Valve boxes should be disposed of at the contractor's sole expense.

MEASUREMENT AND PAYMENT

The unit price for the pay "Water Main Pipe Abandonment, Modified" shall be paid for on a lump sum (LS) basis and includes all labor, material and equipment costs necessary to abandon or remove the pipe including, but not limited to, excavation, cutting of pipe, push-on joint plugs, caps and thrust blocks, brick and mortar bulkheads, grouting, the furnishing, placement, and compaction of approved granular backfill material, as required, and the removal and proper disposal off-site of excess materials. In addition, this pay item includes the removal and salvage of valves, valve boxes, and manhole rings and covers, the removal of the top 4 feet of valve wells, and breaking out the valve well base.

The unit price for the pay item "Fire Hydrant Assembly Abandonment," includes all labor, material and equipment costs associated with the complete removal of the existing fire hydrant assembly, as specified herein, including but not limited to, excavation MDOT CL II Backfill and compaction; pipe cutting; thrust block removal; pipe plug; thrust block; salvaging of fire hydrant, valve and valve box and delivery of fire hydrant, valve and valve box to the City of Ann Arbor Field Services Unit located at the W.R. Wheeler Service Center at 4251 Stone School Road, Ann Arbor, MI 48108.

PAY ITEM	**PAY UNIT**
Water Main Pipe Abandonment, Modified	Lump Sum
Fire Hydrant Assembly Abandonment	Each

The Item of work “Water Main Pipe Abandonment, Modified” will be paid for on a pro rata basis at the time of each progress payment. Measurement will be based on the ratio between work completed during the payment period and the total contract amount. When all of the work of this Contract has been completed, the measurement of this item shall be 1.0 Lump Sum, minus any deductions incurred for inadequate performance as described herein. This amount will not be increased for any reason, including extensions of time, extras, and/or additional work.

DETAILED SPECIFICATION
FOR
ITEM #210 – 2-INCH PERMANENT BLOW-OFF ASSEMBLY

DESCRIPTION

This work shall consist of the complete installation of permanent blow-off assemblies, including but not limited to: excavation and proper removal off-site of all exhumed materials; installation of a permanent cap, Type "K" copper 90 degree bend, copper riser and cap, and thrust blocks; and backfill and compaction in accordance with the trench detail specified for that location of main. The work shall be as indicated on the Plans, as detailed in the Specifications, and as directed by the Engineer.

The Contractor shall furnish all labor, materials, tools and equipment required to perform the work. It shall also include coordination with, and payment to, the Field Services Unit for the tapping of the main, and installation of the corporation, pipe and fittings between the corporation and curb stop, and the curb stop and box, required for the blow-off assembly, as needed. Labor and materials for the installation of the tap, pipe and fittings between the corporation and curb stop, curb stop, and curb stop box for the air-relief assembly will be furnished by the City. The Contractor will **not** be entitled to extra compensation due to delays caused by the Utilities Department performing work on the project.

MATERIALS

The Contractor shall furnish the Type "K" copper 90 degree bend, copper riser, and cap. Thrust blocks shall be constructed of Class A Portland cement concrete or approved equal.

MEASUREMENT AND PAYMENT

Permanent blow-off assemblies shall be measured per unit constructed and paid for on the basis of unit price. The unit price shall include all labor, materials, tools and equipment required to perform the work; and, coordination with, and payment to, the Field Service Unit for the tap required for the blow-off assembly. The payment to the Field Services Unit will be the same amount charged for a standard water service tap of the same size.

PAY ITEM	PAY UNIT
2-Inch Permanent Blow-off Assembly	Each

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

DETAILED SPECIFICATION
FOR
ITEM #220 - REMOVE HMA PAVEMENT

DESCRIPTION

This work shall consist of removing HMA surface/base as described in the City of Ann Arbor Standard Specifications, except as modified herein, and as directed by the Engineer.

CONSTRUCTION METHOD

The Contractor shall remove HMA surfaces, HMA bases, and brick bases of any thickness from any aggregate and/or concrete base course, without the removal of the aggregate or concrete base, all as shown on the Plans, as marked in the field, and as directed by the Engineer.

The Contractor shall remove, salvage, deliver to any location within the City limits or City-owned property, and neatly stack/stockpile all bricks, if present, as directed by the Engineer.

The Contractor shall remove and properly dispose of all excavated material and debris, including all asphalt and concrete. The Contractor shall not stockpile excavated material overnight on, or adjacent to, the site.

In areas where HMA pavement removal is to be performed adjacent to existing HMA pavement that is to remain, the pavement shall be saw cut prior to removal. Backhoe teeth, jackhammers equipped with spike points, milling machines, and backhoe mounted wheel cutters shall not be used.
Damage to adjacent pavement, pavement base, subbase, curb, gutter, sidewalk, utility structures, or other site features, due to removal operations shall be repaired by the Contractor, at the Contractor's expense, as directed by the Engineer.

The Contractor shall remove pavement/pavement base full-depth or to a depth of 3-inches, whichever is greater. Removal of all granular or clay material located within the 3-inch minimum thickness is included in this item of work. Any additional aggregate or clay base removed without written approval of the Engineer shall be replaced by the Contractor at the Contractor's expense with 21AA Aggregate compacted-in-place, or with HMA asphalt, as directed by the Engineer.

The Contractor shall remove and/or re-shape, re-grade, and re-compact the existing roadbed materials, and shall construct the roadway to the cross-section(s) as indicated on the Plans, as detailed in the Specifications, and as directed by the Engineer. The Contractor shall use blade graders, maintainers, vibratory rollers, and/or other equipment as necessary, and as directed by the Engineer. Use of each specific piece of equipment is subject to the approval of the Engineer.

The Engineer may direct aggregate base materials to be either removed from or added to the job-site, to properly complete the work. Where the Engineer directs the addition of such materials, they shall be paid for as either the Item of Work: "Aggregate Base Course 22A - C.I.P.". Where the Engineer directs such materials to be removed, they will not be paid for separately, but shall be included in this Item of Work

The Contractor shall construct butt-joints, and trim butt-joints just prior to HMA paving as shown on the Plans, and as directed by the Engineer.

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, in order to protect the grade and/or adjacent areas. The Contractor shall not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

MEASUREMENT AND PAYMENT

The areas to be removed shall be marked and measured prior to the removal of any material. Measurement shall take place with both the Engineer and the Contractor (or their agents) present. Both parties shall come to an agreement regarding removal quantities prior to the actual removal of HMA pavement.

The completed work as measured for these items of work will be paid at the Contract Unit Prices for the following Contract (Pay) Item:

PAY ITEM	PAY UNIT
Remove HMA Pavement	Square Yard

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

DETAILED SPECIFICATION
FOR
ITEM #221 - CURB REVEAL MILLING

DESCRIPTION

This work shall consist of removing HMA pavement above curb & gutter areas by use of cold milling equipment.

CONSTRUCTION METHODS

The Contractor shall perform localized cold milling at the edge-of-metal to reveal a vertical face at the edge-of-metal of the curb. Subsequent handwork and machine work to remove and dispose of existing HMA overlays from the gutter pan will not be paid for separately, but will be paid for with this item.

Handwork required to remove the HMA overlay from around stormwater inlets will not be paid for separately, however the tonnage of material removed by handwork will be paid for as this item of work.

EQUIPMENT

Cold milling machines shall have continuously variable depth controls, capable of removing, in a single pass, HMA, aggregate, and concrete materials having a combined thickness of up to 4-inches. Cold milling machines shall be capable of accurately removing the HMA overlay in one or more passes.

The equipment shall have enclosed cutting drums with a water sprinkling system around the reduction chamber for pollution control, and shall remove excess material from the surface, while preventing dust from escaping into the air.

MEASUREMENT AND PAYMENT

The completed quantities of these items of work will be measured by weighing the millings at a location approved by the Engineer. The Contractor shall provide the Engineer with computerized weight tickets for milled material. Each load ticket must include the truck number; gross, tare, and net weight; time of day, and date. The Contractor shall provide a daily tabulation of tare weights for all trucks used. The tare weights on each load ticket will be checked against the tare weights provided on the daily tabulation, and their compliance will also represent basis for payment. All trucks shall have their tare weight checked daily.

The completed work as measured for this item of work will be paid for at the Contract Unit Price for the following Contract (Pay) Item:

PAY ITEM	PAY UNIT
Cold Milling Pavement, Curb Reveal	Ton

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

DETAILED SPECIFICATION
FOR
ITEM #222 - SUBGRADE UNDERCUTTING - TYPE II

DESCRIPTION

This work includes removal of unsuitable granular base, subbase or clay material(s) to depths as specified by the Engineer.

CONSTRUCTION METHOD

After the pavement has been removed, and/or after rough/finish grading, and/or at the time of proofrolling, the Engineer may inspect the grade to determine the need for, and the limits of, undercuts. After undercut areas are excavated to the depths as directed by the Engineer, the areas shall be trimmed, shaped, evenly graded and recompacted to not less than 95% of the soils maximum unit weight as determined by the AASHTO T-180 test. The Contractor shall properly dispose of all excess materials.

Subgrade Undercutting - Type II shall be backfilled with 21AA Limestone as directed by the Engineer. The backfill material shall be compacted to not less than 98% of its maximum unit weight as determined by the AASHTO T-180 test. The fill material(s) for Subgrade Undercutting Type II shall be paid at the Contract unit price for "21AA Limestone - C.I.P.".

The Contractor shall remove, salvage, deliver to any location within the City limits, and neatly stack/stockpile all bricks, if present, as directed by the Engineer.

The Contractor shall remove, add to, re-shape, re-grade, and re-compact the existing roadbed materials, and shall construct the roadway to the cross-section(s) as indicated on the Plans, as detailed in the Specifications, and as directed by the Engineer. The Contractor shall use blade graders, maintainers, vibratory rollers, and/or other equipment as necessary, and as directed by the Engineer, for this work. Use of each specific piece of equipment is subject to the approval of the Engineer.

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, in order to protect the grade and/or adjacent areas. The Contractor shall not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

MEASUREMENT AND PAYMENT

This item of work shall be measured for payment by calculating the volume of the undercut excavation prior to the placement of backfill.

The completed work as measured for this item of work will be paid for at the Contract Unit Price for the following Contract (Pay) Item:

PAY ITEM	PAY UNIT
Subgrade Undercutting - Type II	Cubic Yard

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

DETAILED SPECIFICATION
FOR
ITEM #223 - HMA FINISH WEDGING

DESCRIPTION

This work shall consist of constructing HMA finish wedges at drive approaches, sidewalk ramps, and any other locations, in accordance with Division 5 of the 2003 edition of the MDOT Standard Specifications, current supplemental MDOT specifications, and the City of Ann Arbor Standard Specifications, except as modified herein, and as directed by the Engineer.

MATERIALS AND EQUIPMENT

The HMA mixture to be used for this work shall be MDOT No. 1300T-36A, 1300T-36A (Modified), or an acceptable substitute as directed by the Engineer.

Asphalt Binders shall be grade PG 52-28, PG 58-22, PG 58-28, or PG 64-22, as directed by the Engineer, and shall meet the requirements specified in Section 904 of the 2003 edition of the MDOT Standard Specifications, and any current supplemental MDOT specifications.

The Aggregate Wear Index (AWI) number for this project is 260. This AWI number applies to all aggregates used in all top course mixtures. Blending aggregates to achieve this AWI requirement is permitted in accordance with current MDOT Standards, and Supplemental Specifications.

CONSTRUCTION METHOD

The Contractor shall complete all finish wedging within two days of placement of the wearing course.

The Contractor shall have a 10-foot long straight-edge, backhoe, air-compressor and jackhammer available during all paving operations.

Finish wedges shall provide good vertical and horizontal transitions between old and new construction, shall eliminate areas of standing water in the wearing surface, and shall provide positive drainage.

MDOT SS-1h bond coat shall be applied at a uniform rate of 0.05 gallons/square yard, on all concrete surfaces which will come in contact with the new HMA material. The Contractor shall take extra care to avoid covering surfaces which are not to be paved. After September 15, SS-1h bond coat shall not be diluted by more than 25%.
The Contractor shall construct feather joints at the edges of all finish wedges (including the raking out of all large pieces of aggregate), so as to provide a high quality, smooth riding surface.

Prior to placement of wedging material, the surface shall be cleaned with compressed air and/or vacuum type street cleaning equipment.

Each layer of HMA mixture shall be compacted to between 92 to 96 percent (or as determined acceptable by the engineer) of the theoretical maximum density, as listed on the approved Job Mix Formula.

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, in order to protect the grade and/or adjacent areas. The Contractor shall not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

MEASUREMENT AND PAYMENT

Measurement shall be by the ton, in place. Unused portions of material loads shall be returned to the plant and re-weighed and the corrected weight slip shall be provided to the Engineer. All weight slips must include type of mixture delivered to the site (codes are not acceptable), as well as vehicle number, gross weight, tare weight and net weight.

The completed work as measured for this item of work will be paid for at the Contract Unit Price for the following Contract (Pay) Item:

PAY ITEM	PAY UNIT
HMA Finish Wedging	Ton

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

DETAILED SPECIFICATION
FOR
ITEM #224 - HMA PAVEMENT, BASE OR LEVELING, 13A
ITEM #225 - HMA PAVEMENT, WEARING, 13A

DESCRIPTION

This work shall consist of constructing HMA pavement base, leveling, and surface courses in accordance with Division 5 and Section 806 of the 2003 edition of the MDOT Standard Specifications, current supplemental MDOT specifications, and the City of Ann Arbor Standard Specifications, except as modified herein, and as directed by the Engineer.

MATERIALS AND EQUIPMENT

General

The HMA mixture to be used for this work shall be MDOT 13A.

Asphalt Binders shall be grade PG 52-28, PG 58-22, PG 58-28, or PG 64-22, as directed by the Engineer, and shall meet the requirements specified in Section 904 of the 2003 edition of the MDOT Standard Specifications, and any current supplemental MDOT specifications. Binders for Superpave mixes shall be PG 58-22 for base and leveling courses, and PG 70-28(p) for the wearing course.

The Aggregate Wear Index (AWI) number for this project is 260. This AWI number applies to all aggregates used in all top course mixtures. Blending aggregates to achieve this AWI requirement is permitted in accordance with current MDOT Standards, and Supplemental Specifications.

Reclaimed Asphalt Pavement (RAP) in HMA Mixtures

The use of Reclaimed Asphalt Pavement (RAP) in HMA mixtures shall be in accordance with Section 501.02.A.2 of the 2003 edition of the MDOT Standard Specifications, and the City of Ann Arbor Standard Specifications.

CONSTRUCTION METHODS

All concrete work shall be completed prior to placing HMA mixtures.

The Contractor shall have a 10-foot long straight-edge, backhoe, air-compressor and jackhammer available during all paving operations.

Prior to placing the bond coat, the Contractor shall kill all vegetation (within the area to be paved) by applying an approved weed killer ("Round-Up" by Monsanto, or equal), shall thoroughly clean all joints & cracks in the existing pavement (and any gutter to be overlaid) with compressed air and/or vacuum-type street cleaning equipment to remove all dirt and debris to a depth of at least 1-inch, and shall thoroughly clean the entire surface to be paved, with a Vac-All or similar vacuum-type street cleaning equipment.

MDOT SS-1h bond coat shall be applied at a uniform rate of 0.05 gallons/square yard, on all exposed, existing HMA and concrete surfaces which will come in contact with the new HMA material. The Contractor shall take extra care to avoid covering surfaces which are not to be paved. After September 15, SS-1h bond coat shall not be diluted by more than 25%.

The Contractor shall place HMA wedges using the base, leveling, and wearing mixtures specified herein, as directed by the Engineer, prior to placing the wearing course. Such wedging shall be measured and paid for at the respective unit price of the appropriate HMA Pavement item.

Construction of butt joints, where directed by the Engineer, shall be measured and paid for as "Remove HMA Pavement."

The Contractor shall schedule the paving operation to avoid longitudinal cold joints.

HMA wearing and leveling courses shall be placed in lifts of 2-inches or less; base courses shall be placed in lifts of 3-inches or less.

All specified HMA thickness dimensions are compacted-in-place.

The Contractor shall construct the pavement courses to provide the final cross-slopes (crowns) specified by the Engineer.

The Contractor shall construct feather joints, and shall feather the leveling and wearing courses at structures, in drive approaches, and at intersection joints, as directed by the Engineer. Feather joints shall vary the thickness of the asphalt from 0.0-inches to the required full paving thickness (approximately 1½-inches) over a 5-foot to 15-foot distance, or as directed by the Engineer. The Contractor shall rake all large aggregates out of the HMA mixture in feather joints, prior to compaction.

The Contractor shall provide a minimum of two rakers during the placement of all wearing and leveling courses. Further, the Contractor shall provide, when directed by the Engineer, a second "Break-Down" roller in order to achieve the specified asphalt densities.

The Contractor shall provide a minimum of 24-hours notice to the Engineer prior to paving, and shall obtain a "Permit To Pave" from the Engineer in advance of scheduling paving.

The Contractor and Engineer shall carefully observe the paving operation for signs of faulty mixtures. Points of weakness in the surface shall be removed or corrected by the Contractor, at his/her expense, prior to paving subsequent lifts of HMA material. Such corrective action may include the removal and replacement of thin or contaminated sections of pavement, including sections that are weak or unstable. Once the Contractor or his representative is notified by the Engineer that the material being placed is out of allowable tolerances, or there is a problem with the paving operation, the Contractor shall stop the paving operation at once, and shall not be permitted to continue placing HMA material until again authorized by the Engineer.

During the placement of leveling and wearing courses, the speed of the paving machine(s) shall not exceed 50-feet per minute.

The Contractor shall furnish and operate enough materials and equipment so as to keep the paving machine(s) moving continuously at all times. Failure to do so shall be cause for the suspension of the paving operation until the Contractor can demonstrate to the satisfaction of the Engineer, that sufficient resources have been dedicated to perform the work in accordance with the specifications.

Each layer of HMA mixture shall be compacted to between 92 to 96 percent (or as determined acceptable by the engineer) of the theoretical maximum density, as listed on the approved Job Mix Formula.

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, in order to protect the grade and/or adjacent areas. The Contractor shall not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

MEASUREMENT AND PAYMENT

Measurement of these HMA paving items shall be by the ton, in place. Unused portions of material loads shall be returned to the plant and re-weighed, and the corrected weight slip shall be provided to the Engineer. All weight slips must include the type of mixture (codes are not acceptable), as well as vehicle number, gross weight, tare weight and net weight.

Price adjustments shall be enforced as described at Section 4.00.19 MDOT Standard Specifications (1990 edition) and will be based on the City's testing reports.

All costs for furnishing and operating vacuum-type street cleaning equipment, backhoes, jackhammers, and air compressors shall be included in the bid prices for these items of work or in the item of work "General Conditions."

The completed work as measured for these items of work will be paid for at the Contract Unit Prices for the following Contract (Pay) Items:

PAY ITEM	PAY UNIT
All HMA Pavement Items	Ton

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

DETAILED SPECIFICATION
FOR
ITEM #230 - REMOVE CONCRETE CURB OR CURB & GUTTER - ANY TYPE
ITEM #231 - REMOVE CONCRETE SIDEWALK AND DRIVE - ANY THICKNESS

DESCRIPTION

This work shall consist of removing concrete curb, gutter, curb and gutter, sidewalk, sidewalk ramps, drive openings, and drives as shown on the Plans, as detailed in the Specifications, and as directed by the Engineer, in accordance with Section 204 of the 2003 edition of the MDOT Standard Specifications for Construction, except as specified herein, and as directed by the Engineer.

CONSTRUCTION METHOD

All sidewalk, sidewalk ramps, drive openings, and drives shall be replaced the same day they are removed.

The Contractor shall remove concrete curb, gutter, curb & gutter, integral curb, pavement, sidewalk, sidewalk ramps, drive openings, and drives, all regardless of the type and thickness, and all as shown on the Plans, as detailed in the Specifications, and as directed by the Engineer.

Prior to the start of removals, the Engineer and Contractor together shall field measure all removals.

The Contractor shall perform full-depth saw cutting at removal limits, including those necessary to construct 2-foot wide MDOT Type M drive openings, and including those necessary to provide for the partial removal of existing drive approaches as shown on the Plans, as directed by the Engineer, and as marked for removal. The Contractor shall cut steel reinforcement bars as directed by the Engineer at all areas of removal.

The Contractor shall remove, salvage, deliver to any location within the City limits, and neatly stack/stockpile all bricks, if present, as directed by the Engineer.

The Contractor shall excavate, cut, remove stumps, remove brush, grade, and trim as needed and as directed, and shall import, furnish, fill, place, grade, and compact granular material as needed to: construct new concrete items; to repair or replace existing concrete items; to relocate existing concrete items to their new specified/directed elevations/locations, including all necessary grading at elevation changes of curb and gutter, sidewalks and ramps; and at locations where existing concrete items are to be removed and turf is to be established in its place.

The Contractor shall coordinate with the City Forester prior to the removal of any tree roots.

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, in order to protect the grade and/or adjacent areas. The Contractor shall not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

The Contractor shall re-shape, re-grade, and re-compact the existing roadbed materials to the cross-section(s) as indicated on the Plans, as detailed in the Specifications, and as directed by the Engineer. The Contractor shall use blade graders, maintainers, vibratory rollers, and/or other equipment as necessary, and as directed by the Engineer. The use of each specific piece of equipment is subject to the approval of the Engineer.

Excavated/removal areas shall be adequately protected with barricades or fencing at all times.

Removed or excavated materials which are not incorporated into the work shall become the property of the Contractor and shall be immediately removed and properly disposed of off-site. Removed or excavated materials may not be stockpiled overnight on, or adjacent to, the site.

Subbase or subgrade removed without authorization by the Engineer, shall be replaced and compacted by the Contractor at the Contractor's expense, with materials specified by the Engineer.

MEASUREMENT AND PAYMENT

Sidewalk ramp removal shall be measured and paid for as "Remove Concrete Sidewalk and Driveways - Any Thickness".

Payment for saw cutting to create or modify Type M openings, and to allow for the partial removal of existing drives shall be included in the price of the item of work, "Remove Concrete Sidewalk & Driveways - Any Thickness", and will not be paid for separately.

All sawcutting required for removals shall be included in the appropriate item of work, and will not be paid for separately.

Concrete removal items shall be field measured and paid for at the Contract Unit Prices for their respective Contract (Pay) Items as follows:

PAY ITEM	PAY UNIT
Remove Concrete Curb or Curb & Gutter - Any Type	Lineal Foot
Remove Concrete Sidewalk & Driveways - Any Thickness	Square Foot

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

DETAILED SPECIFICATION
FOR
ITEM #232 - CONCRETE CURB OR CURB & GUTTER – ANY TYPE
ITEM #233 - CONCRETE CURB OR CURB & GUTTER – ANY TYPE – HIGH EARLY
ITEM #235 - 4-INCH SIDEWALK OR RAMP
ITEM #236 - 6-INCH DRIVE APPROACH, RAMP, OR SIDEWALK
ITEM #237 - 6-INCH DRIVE APPROACH, RAMP, OR SIDEWALK – HIGH EARLY

DESCRIPTION

This work shall consist of constructing concrete items including curb, gutter, curb and gutter, sidewalks, drive approaches, MDOT Type M drive openings, all of any type and/or dimensions, all of either regular and/or high-early concrete, in accordance with Sections 601, 602, 603, 801, 802, and 803 of the 2003 edition of the MDOT Standard Specifications for Construction, except as specified herein, as shown on the Plans, as shown in this Detailed Specification, and as directed by the Engineer.

The Contractor is responsible to construct all sidewalks, sidewalk ramps, curbs, and all other concrete items within ADAAG compliance. All sidewalks and curb ramps must be constructed in accordance with MDOT Standard Detail R-28-G (version in place at time of the bid letting).

MATERIALS

Concrete mixtures shall be as follows (or as directed by the Engineer), and concrete materials shall meet the requirements specified in the referenced sections of the MDOT Standard Specifications:

Concrete Item	Concrete Mixture	MDOT Section
Curb or Curb & Gutter	P1, 6-sack	601
Curb or Curb & Gutter - High-Early	HE, 8.4-sack	601
4" or 6" Sidewalk or Ramp	P1, 6-sack	601
6" Sidewalk/Ramp/Drive - High-Early	HE, 8.4-sack	601

CONSTRUCTION METHODS

General

All sidewalk, sidewalk ramps, drive openings, and drives shall be replaced the same day they are removed.

Concrete items, including sidewalk, non-integral curb/gutter, drives, and structure adjustments shall be completed prior to the placement of pavement.

All subgrade work shall be completed prior to placing concrete items, unless directed or approved by the Engineer.

The subbase shall be trimmed to final elevation before placing curb. Curb shall not be placed on a pedestal or mound.

The Contractor shall excavate, cut, remove stumps, remove brush, remove pavement, grade, and trim as needed and as directed, and shall import, furnish, fill, place, grade, and compact Class II granular material and 21AA Aggregate material as needed to: construct new concrete items; to repair or replace existing concrete items; to relocate existing concrete items to their new specified/directed elevations/locations, including all necessary grading at elevation changes of curb and gutter, sidewalks and ramps; and at locations where existing concrete items are to be removed and turf is to be established in its place.

At locations where the subgrade, subbase or base becomes either disturbed, saturated or otherwise damaged, and where directed by the Engineer, the Contractor shall remove a minimum 6-inch thick layer of the subgrade, subbase or base, and replace it with approved 21AA Aggregate material, compacted in place.

The Contractor shall coordinate with the City Forester prior to the removal of any tree roots.

The Contractor is responsible for any damage to concrete items, including but not limited to vandalism; vehicular, pedestrian and/or miscellaneous structural damage; surface texture damage; and rain damage.

The Contractor shall maintain on-site at all times, a sufficient quantity of adequate materials to protect concrete items. The Engineer may suspend or defer concrete placement if rain protection is not available. The Contractor shall not be entitled to any additional compensation due to work suspension or deferral resulting from a lack of adequate rain protection.

The subbase and adjacent concrete shall be sufficiently wet-down with water prior to placing concrete, to prevent water loss from the new concrete, and to form a better bond between old and new concrete. If a cold-joint becomes necessary, (the) existing concrete surface(s) shall be cleaned with compressed air to expose the aggregate in the concrete.

Where it is necessary to remove existing pavement to provide space for concrete formwork, a sufficient amount of the existing pavement shall be removed to allow for the use of a vibratory plate compactor in front of the curb.

Where concrete items are placed in areas adjacent to existing pavement that is beyond the general resurfacing (pavement removal and/or milling) limits, the adjacent pavement area shall be backfilled and permanently patched within 48-hours of the removal of concrete formwork. The backfill material shall be MDOT 21AA aggregate compacted in place to 95%, up to the elevation of the proposed bottom of pavement. The pavement patching material(s) shall be as specified and as directed by the Engineer.

Where concrete items are placed adjacent to existing pavement that is within areas scheduled for subsequent pavement removal and/or milling, the adjacent pavement area shall, within 48-hours of the removal of concrete formwork, be backfilled with MDOT 21AA aggregate compacted in place to 95% up to the elevation of the bottom of the adjacent pavement.

Prior to compacting backfill in front of curb and gutter, the back of curb shall be backfilled with approved material and compacted by mechanical means to 95%.

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, in order to protect the grade and/or adjacent areas. The Contractor shall not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

Restoration

The Contractor shall restore all disturbed areas to better than or equal to their original condition within two calendar days from the date of concrete placement. This includes the placement and compaction of 2.5 inches of topsoil, followed by the placement of grass seed, followed by the placement of 0.5 inches of topsoil, at all turf restoration locations, and at locations where concrete items are removed and turf is to be established. **Restoration shall also include the replacement of any brickwork, decorative stone, or other adjacent materials.** All restoration work and materials shall be in accordance with the City Standard Specifications.

Contraction Joints in Sidewalk

Contraction joints shall be placed at 5-foot intervals and may be tooled or sawed. The method of forming joints and spacing shall be approved by the Engineer prior to construction.

Expansion Joints in Sidewalks

¾-inch wide expansion joints shall be placed through concrete sidewalks in line with the extension of all property lines, at all expansion joints in the abutting curb, gutter, and combination curb and gutter, and as directed by the Engineer. Transverse expansion joints shall be placed through the sidewalks at uniform intervals of not more than 300-feet.

½-inch wide expansion joints shall be placed between the sidewalk and back of abutting curb or gutter, at the juncture of two sidewalks, between the sidewalk and buildings and other rigid structures, and as directed by the Engineer.

Expansion Joints in Curb and Gutter

¾-inch wide expansion joints shall be placed at all street returns, at all expansion joints in an abutting pavement, at each side of all driveways (at radius points), elsewhere at 300-foot maximum intervals, and as directed by the Engineer.

Expansion joint material shall extend to the full depth of the joint. After installation, the top shall not be above the concrete nor be more than ½-inch below it. No reinforcing steel shall extend through expansion joints.

Plane of Weakness Joints in Curb and Gutter

Intermediate plane of weakness joints shall be placed to divide the structure into uniform sections, normally 10-feet in length, with a minimum being 8-feet in length, and shall be placed opposite all plane of weakness joints in the abutting concrete base course.

Plane of weakness joints shall be formed by narrow divider plates, which shall extend 3-inches into the exposed surfaces of the curb or curb and gutter. Plates shall be notched, if necessary, to permit the steel reinforcement to be continuous through the joint.

MEASUREMENT AND PAYMENT

No additional compensation will be paid for the removal of a 6-inch thick layer of the subgrade, subbase or base, and replacement with approved 21AA aggregate material, compacted in place.

A deduction in length for catch basins and inlet castings will be made to measurements of Curb and Gutter.

Curb, gutter, curb and gutter, and MDOT type M openings, shall be paid as "Curb & Gutter – Any Type"

Payment for saw cutting for Type M openings and for partial removal of existing drives shall be included in the price for the item of work, "Remove Concrete Sidewalk & Driveways - Any Thickness", and will not be paid for separately.

Payment for the removal of HMA pavement and aggregate base to provide space for concrete formwork and vibratory plate compactor shall be included in the price for the item of work, "Remove Concrete Curb and Gutter - Any Type", and will not be paid for separately.

Completed work as measured for these items of work will be paid for at Contract Unit Price for the following Contract (Pay) Items:

PAY ITEMS	PAY UNIT
Concrete Curb or Curb & Gutter - ALL TYPES	Lineal Foot
4 or 6-Inch Sidewalk, Ramp, or Drive	Square Foot
6-Inch Drive Approach, Ramp or Sidewalk - High Early	Square Foot

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

DETAILED SPECIFICATION
FOR
ITEM #238 –DETECTABLE WARNING, CAST IN PLACE

DESCRIPTION

This work shall consist of furnishing and installing cast in place detectable warning units in compliance to the Americans with Disability Act (ADA). All work shall be in accordance with MDOT Standard Detail R-28- G (version in place at time of the bid letting).

MATERIALS AND CONSTRUCTION METHODS

The detectable warning tiles shall be ceramic cement or composite polymer concrete (CRC), colored as Federal Number 22144 (frequently referred to as "Colonial Red" or "Brick Red"). The detectable warning tiles shall meet the following dimensions and tolerances:

1. Dimensions: Cast In Place Detectable/tactile Warning Surface Tiles shall be held within the following dimensions and tolerances:

   Length: 24"
   Width: The full width of the approaching walk (60" for typical sidewalk)
   Depth: 1.375 (1-3/8") (+/-) 5% max.
   Face Thickness: 0.1875 (3/16") (+/-) 5% max. Warpage of Edge: 0.5% max.
   Embedment Flange Spacing: shall be no greater than 3.1"

2. Water Absorption of Tile when tested by ASTM D 570-98 not to exceed 0.05%.
3. Slip Resistance of Tile when tested by ASTM C 1028-96 the combined Wet and Dry Static Co-Efficients of Friction not to be less than 0.80 on top of domes and field area.
4. Compressive Strength of Tile when tested by ASTM D 695-02a not to be less than 28,000 psi.
5. Tensile Strength of Tile when tested by ASTM D 638-03 not to be less than 19,000 psi.
6. Flexural Strength of Tile when tested by ASTM D 790-03 not to be less than 25,000 psi.
7. Chemical Stain Resistance of Tile when tested by ASTM D 543-95 (re approved 2001) to withstand without discoloration or staining - 10% hydrochloric acid, urine, saturated calcium chloride, black stamp pad ink, chewing gum, red aerosol paint, 10% ammonium hydroxide, 1% soap solution, turpentine, Urea 5%, diesel fuel and motor oil.
8. Abrasive Wear of Tile when tested by BYK - Gardner Tester ASTM D 2486-00 with reciprocating linear motion of 37± cycles per minute over a 10" travel. The abrasive medium, a 40 grit Norton Metallite sand paper, to be fixed and leveled to a holder. The combined mass of the sled, weight and wood block is to be 3.2 lb. Average wear depth shall not exceed 0.060 after 1000 abrasion cycles when measured on the top surface of the dome representing the average of three measurement locations per sample.
9. Resistance to Wear of Unglazed Ceramic Tile by Taber Abrasion per ASTM C501-84 (re approved 2002) shall not be less than 500.
10. Fire Resistance of Tile when tested to ASTM E 84-05 flame spread shall be less than 15.
11. Gardner Impact to Geometry "GE" of the standard when tested by ASTM D 5420-04 to have a mean failure energy expressed as a function of specimen thickness of not less than 550 in. Ibf/in. A failure is noted when a crack is visible on either surface or when any brittle splitting is observed on the bottom plaque in the specimen.
12. Accelerated Weathering of Tile when tested by ASTM G 155-05a for 3000 hours shall exhibit the following result -ΔE <4.5, as well as no deterioration, fading or chalking of surface.
13. Accelerated Aging and Freeze Thaw Test of Tile and Adhesive System when tested to ASTM D 1037-99 shall show no evidence of cracking, delamination, warpage, checking, blistering, color change, loosening of tiles or other detrimental defects.
14. Salt and Spray Performance of Tile when tested to ASTM B 117-03 not to show any deterioration or other defects after 200 hours of exposure.

15. AASHTO HB-17 single wheel HS20-44 loading "Standard Specifications for Highways and Bridges". The Cast In Place Tile shall be mounted on a concrete platform with a ½" airspace at the underside of the tile top plate then subjected to the specified maximum load of 10,400 lbs., corresponding to an 8000 lb individual wheel load and a 30% impact factor. The tile shall exhibit no visible damage at the maximum load of 10,400 lbs.
16. Embedment flange spacing shall be no greater than 3.1" center to center spacing as illustrated on the product Cast In Place drawing.

CONSTRUCTION METHODS

The contractor shall follow manufacturer specifications for installation, except where they conflict with MDOT Standard Detail R-28- G (version in place at time of the bid letting).

MEASUREMENT AND PAYMENT

The completed work as measured for this item of work will be paid for at the Contract Unit Prices for the following Contract (Pay) Item:

PAY ITEM	PAY UNIT
Detectable Warnings, Cast In Place	Square Foot

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

DETAILED SPECIFICATION
FOR
ITEM #239 – INTEGRAL SIDEWALK RETAINING WALL (6" OR LESS)
ITEM #240 – INTEGRAL SIDEWALK RETAINING WALL (6"-18")

DESCRIPTION

This work shall consist of constructing concrete retaining walls adjacent to sidewalks, in accordance with Sections 802 and 803 of the 2003 edition of the MDOT Standard Specifications for Construction, except as specified herein, as shown in this Detailed Specification, and as directed by the Engineer.

MATERIALS

Concrete mixtures shall be High Early, 8.4-sack concrete (or as directed by the Engineer), and concrete materials shall meet the requirements specified in the appropriate sections of the MDOT Standard Specifications.

CONSTRUCTION METHODS

General

The Contractor shall construct the Item "Integral Sidewalk Retaining Wall (6" or less)" in accordance with MDOT standard plan R-30-E, detail E2. Curb face exposure shall be 6 inches or less.

The Contractor shall construct the Item "Integral Sidewalk Retaining Wall (6"-18")" as shown on the following Detail.

All subgrade work shall be completed prior to placing concrete items, unless directed or approved by the Engineer.

The Contractor shall excavate, cut, remove stumps, remove brush, remove pavement, grade, and trim as needed and as directed, and shall import, furnish, fill, place, grade, and compact any materials needed to perform the work.

At locations where the subgrade, subbase or base becomes either disturbed, saturated or otherwise damaged, and where directed by the Engineer, the Contractor shall remove a minimum 6-inch thick layer of the subgrade, subbase or base, and replace it with approved 21AA Aggregate material, compacted in place.

The Contractor shall coordinate with the City Forester prior to the removal of any tree roots 2 inches in diameter or greater.

The Contractor is responsible for any damage to concrete items, including but not limited to vandalism; vehicular, pedestrian and/or miscellaneous structural damage; surface texture damage; and rain damage.

The Contractor shall maintain on-site at all times, a sufficient quantity of adequate materials to protect concrete items. The Engineer may suspend or defer concrete placement if rain protection is not available. The Contractor shall not be entitled to any additional compensation due to work suspension or deferral resulting from a lack of adequate rain protection.

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, in order to protect the grade and/or adjacent areas. The Contractor shall not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

Restoration

The Contractor shall restore all disturbed areas to better than or equal to their original condition within two calendar days from the date of concrete placement. This includes the placement of any fill necessary to match the grade of the retaining wall, placement and compaction of 2.5 inches of topsoil, placement of grass seed, followed by the placement of 0.5 inches of topsoil, at all turf restoration locations, and at locations where concrete items are removed and turf is to be established. **Restoration shall also include the replacement of any miscellaneous brickwork, decorative stone, or other adjacent materials.**

All restoration work and materials shall be in accordance with the City Standard Specifications.

MEASUREMENT AND PAYMENT

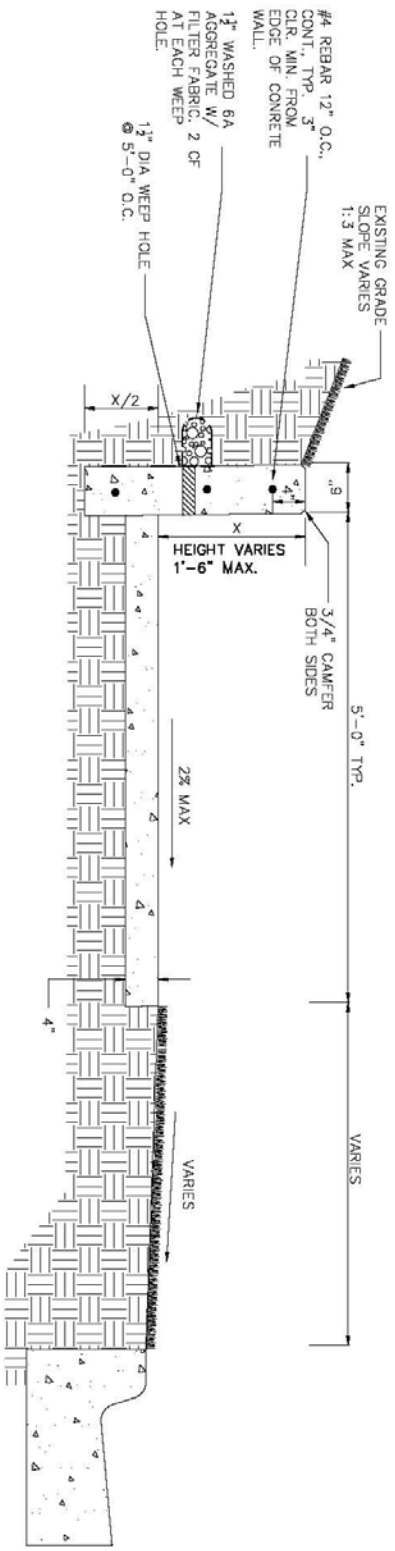
Payment shall be measured by the exposed face area of the retaining wall in square feet. The sidewalk section will be paid for separately under the appropriate item. If grade separations are less than 6" in vertical height, construction of a concrete barrier shall be paid for as the appropriate Concrete Curb & Gutter item.

Completed work as measured for this item of work will be paid for at Contract Unit Price for the following Contract (Pay) Item:

PAY ITEMS	PAY UNIT
Integral Sidewalk Retaining Wall (6" or less)	Square Foot
Integral Sidewalk Retaining Wall (6"-18")	Square Foot

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

INTEGRAL SIDEWALK RETAINING WALL (6" – 18") DETAIL



DETAILED SPECIFICATION
FOR
ITEM #254 – MANHOLE FLANGE & COVER (MDOT TYPE A)
ITEM #255 – INLET STRUCTURE COVER (MDOT TYPE K)

DESCRIPTION

This work shall consist of the replacing, salvaging and transporting of new and existing metal covers, and/or castings in accordance with Division 4 of the 2003 edition of the MDOT Standard Specifications for Construction, and the City Standard Specifications, except as specified herein, and except as directed by the Engineer.

MATERIALS

Materials shall meet the requirements of sections 403 and 601 of the 2003 edition of the MDOT Standard Specifications.

CONSTRUCTION METHODS

Materials shall be stored by the Contractor at locations arranged by the Contractor, subject to the approval of the Engineer. The Contractor shall not store materials or equipment, including metal castings and steel plates, on any lawn area.

This item shall consist of replacing covers and/or castings for structures as shown on the Plans and as directed by the Engineer. All covers and/or castings shall conform to the model(s) specified, as follows:

Type of Casting	MDOT Designation	NEENAH No. (Weight, Lbs)	EJIW No. (Weight, Lbs)
Manhole Flange and Cover	A	R-1642 w/ Type C cover Type D cover (380 lbs.)	1040 w/ Type A cover Type M1 (300 lbs.)
Curb Inlet or Catch Basin	K	R-3249F (410 lbs.)	7045 (500 lbs.)

Frames and covers shall have machined bearing surfaces. Covers shall have two, 1-inch vent holes located opposite each other and 6-inches from the edge. Each cover shall have "SEWER" or "W" cast in the surface, whichever is applicable.

Castings and covers for monument and water-valve boxes will be provided by the City. The Contractor shall transport these new castings and covers to the site from the City Utilities Department yard at 4251 Stone School Road (Wheeler Center).

The Contractor shall deliver all salvaged covers and castings to the Wheeler Center within two days of their removal.

MEASUREMENT AND PAYMENT

Payment for transporting new and salvaged castings and covers to and from the Wheeler Center is included in the appropriate items of work.

Completed work as measured for these items of work will be paid for at Contract Unit Price for the following Contract (Pay) Items:

PAY ITEM	PAY UNIT
Manhole Flange & Cover (MDOT Type A)	Each
Inlet Structure Cover (MDOT Type A)	Each

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

DETAILED SPECIFICATION
FOR
ITEM #257 - 6-INCH WRAPPED UNDERDRAIN

DESCRIPTION

This work shall consist of furnishing and installing 6-inch diameter geotextile-wrapped, perforated or slotted underdrain pipe, using MDOT 2NS and MDOT 21AA, as directed by the Engineer, for all backfill material.

MATERIALS

The materials shall meet the requirements referenced in Section 404 of the 2003 edition of the MDOT Standard Specifications, except as specified herein.

The Geotextile Filter Fabric for encasing the underdrain pipe shall be an approved material such as nylon, polypropylene, fiberglass, or polyester, and shall be either woven, heat bonded, knitted, or of continuous fibers. The geotextile shall completely cover and be secured to the pipe. In an un-stretched condition, knitted polyester fabrics shall weigh at least 3.0 ounces per square yard, and all other geotextiles shall weigh at least 3.5 ounces per square yard. The fabric shall be strong and tough and have a porosity such that the fabric will retain soil particles larger than 0.106 mm (no. 140 sieve) and shall pass aggregate particles finer than 0.025 mm. Geotextiles shall be stored and handled carefully and in accordance with the both the manufacturer's recommendations and the Engineer's direction, and shall not be exposed to heat or direct sunlight. Torn or punctured geotextiles shall not be used.

CONSTRUCTION METHODS

Geotextile wrapped underdrain shall be installed as shown on the Plans or as directed by the Engineer, and in accordance with Section 404 of the 2003 edition of the MDOT Standard Specifications, except as specified herein.

The installation of underdrain shall precede all other construction activities including but not limited to pavement milling, pavement pulverization, pavement removal, pavement patching, and curb repair.

The Contractor shall excavate, cut, remove stumps, remove brush, remove pavement, grade, and trim as needed and as directed, and shall import, furnish, fill, place, grade, and compact MDOT 2NS fine aggregate, Class II granular, and 21AA coarse aggregate materials as needed to construct underdrain as specified on the Plans, and as directed by the Engineer.

HMA pavement shall be cut full-depth, vertically straight, and horizontally straight, to the specified width by means of saw, jackhammer or other cutting method(s) approved by the Engineer. The use of backhoe mounted wheel-type pavement cutters may not be used on this project.

The trench shall be constructed to have a minimum width of 18-inches, and shall be typically excavated to a depth of between 36 and 54 inches, or to the depth specified in the Plans or directed by the Engineer.

The underdrain shall be installed at the line, grade, and depth specified on the Plans or as directed by the Engineer. The minimum percent grade shall be 0.5%, and the minimum cover from top-of-pipe to finished top-of-pavement grade shall be 2-feet. The Contractor shall maintain line and grade by means of a laser. The Engineer will not provide line, grade or staking.

Upgrade ends of the pipe shall be closed with suitable plugs to prevent entrance of trench backfill material. All couplings, tees, plugs, and other fittings shall be manufactured and installed so as to prevent any infiltration of trench backfill material.

The Contractor shall tap at least one end of the underdrain into a storm sewer structure, as directed by the Engineer.

During the construction of underdrain runs, the Engineer may direct the Contractor to terminate or modify underdrain construction due to conflicts with buried obstructions or if the minimum 2-foot cover cannot be maintained. There will be no adjustment to the Contract Unit Price due to changes in quantity.

The first lift (bedding) of backfill shall be MDOT 2NS material to a maximum thickness of 3-inches. Subsequent lifts shall be MDOT 2NS material to a maximum thickness of 12 inches. The final lift of backfill shall consist of a layer of MDOT 21AA crushed limestone, and shall extend a minimum of 8 inches below the bottom of the adjacent pavement elevation.
When compacted, the top of this final lift shall be at the same elevation as the adjacent pavement. All materials shall be compacted as specified in the City Standard Specifications.

Removed or excavated materials which are not incorporated into the work shall become the property of the Contractor and shall be immediately removed and properly disposed of off-site. Removed or excavated materials may not be stockpiled overnight on, or adjacent to, the site.

All structures, inlets and manholes shall be maintained free of accumulations of silt, debris, and other foreign matter throughout construction, until the time of final acceptance.

MEASUREMENT AND PAYMENT

Connecting (tapping) underdrain(s) into drainage structure(s) will not be paid for separately, but shall be included in the bid price for this item of work.

Pavement removal to construct underdrain will not be paid for separately, but shall be included in the bid price for this item of work. Backfilling of the excavation to the top of the adjacent pavement will not be paid for separately, but shall be included in the bid price for this item of work.

Underdrain will be measured in-place by length in lineal feet.

The completed work as measured for this item of work will be paid for at the Contract Unit Price for the following Contract (Pay) Item:

PAY ITEM	PAY UNIT
6-Inch Wrapped Underdrain	Lineal Foot

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

DETAILED SPECIFICATION
FOR
ITEM #258 – REMOVE SEWER PIPE, TRENCH DETAIL I (MODIFIED)

DESCRIPTION AND MATERIALS

This work shall consist of excavating and removing existing sewer pipe of any size or diameter, bulkheading existing structures and pipe, and backfilling the excavation as specified herein, as shown on the Plans, and as directed by the Engineer.

Materials shall meet the requirements of the City of Ann Arbor Standard Specifications.

CONSTRUCTION METHODS

The Contractor shall remove and properly dispose of all excavated materials, sewer pipe, and debris. The Contractor shall bulkhead or abandon existing pipe and structures as directed by the Engineer.

Upon removal of the sewer pipe, the Contractor shall backfill the excavation in accordance with Trench Detail I (Modified) as shown in the Plans.

MEASUREMENT AND PAYMENT

The completed work as measured for these items of work will be paid for at the Contract Unit Price for the following Contract (Pay) Items:

PAY ITEM	PAY UNIT
Remove Sewer Pipe, Trench Detail I (Modified)	Lineal Foot

The unit prices for this item of work shall include, but not be limited to; all excavation; pipe removal; disconnection from pipe and structures; bulkheading of existing pipe and structures; backfill; compaction; and all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

DETAILED SPECIFICATION
FOR
COORDINATION AND COOPERATION WITH OTHERS
AND
WORK BY OTHERS

The Contractor is reminded as to the requirements of article 104.07 of the 2003 edition of the MDOT Standard Specifications, "Cooperation by the Contractor."

The Contractor shall directly coordinate his/her work with individual City Departments/Divisions/Units.

The Contractor is hereby notified that the City of Ann Arbor Field Services Unit may be installing traffic control conduits, traffic signal sensors, and the like, at various locations.

The following Utility Owners may have overhead and/or underground facilities located within the Right-of-Way:

The City of Ann Arbor
DTE - MichCon (Michigan Consolidated Gas Company)
DTE - Edison (Detroit Edison Company)
SBC - (Ameritech)
Comcast
MCI Communications
Sprint Communications
The University of Michigan

On all projects:

"3 Working Days before you Dig - Call MISS DIG - Toll Free" Phone No. 1-800-482-7171.

The Owners of public or private utilities which will not interfere with the completed project and which do not present a hazard to the public or an extraordinary hazard to the Contractor's operations will not be required to move their facilities on or from the street right-of-way.

The existing utilities structures, features, and site conditions above and underground are shown on the Contract Drawings from the best available information. These include, but are not limited to, pipelines, conduits, and the like. It is the Contractor's sole responsibility to perform his own site investigations and/or research and to incorporate in his bid necessary costs to insure that any extra costs arising from the work are planned for. If any utilities, structures, features and/or site conditions are discovered by the Contractor to be different than shown on the plans, as a result of the Contractor's investigations and/or research prior to the bid, the Contractor is obligated to notify the Engineer immediately in writing so an addendum may be issued and/or the bid date may be revised. In any case, no payments in excess of the bid price will be paid.

No additional compensation will be paid to the Contractor, and no adjustments to contract unit prices will be made, due to delays and/or the failure of others in the performance of their work, nor for delays due to the encountering of existing utilities that are, or are not, shown on the Plans.

The Contractor is solely responsible for any delays, damages, costs, and/or charges incurred due to and/or by reason of any utility, structure, feature, and/or site conditions whether shown on the plans or not, and the Contractor shall repair and/or replace, at his sole expense, to as good or better condition, any and all utilities, structures, features and/or site conditions which are impacted by reason of the work or injured during the operation of his subcontractors or suppliers.

Stoppages created solely by the operations of the utility companies which delay utility revisions on any portion of this project may be considered as a basis of claim for an extension of time for project completion.

Costs for this work will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."

DETAILED SPECIFICATION
FOR
DISPOSING OF EXCAVATED MATERIAL

The Contractor shall dispose of, at the Contractor's expense, all excavated material. Costs for this work will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."

DETAILED SPECIFICATION
FOR
PROTECTION OF UTILITIES

Damages to utilities by the Contractor's operations shall be repaired by the utility owner at the Contractor's expense.
Delay's to the work due to utility repairs are the sole responsibility of the Contractor.

The Contractor shall keep construction debris out of utilities at all times. The Contractor shall be back charged an amount of $50.00 per day for each manhole/inlet/utility pipe that contains construction debris caused as a result of the Contractor's (including subcontractors and suppliers) work.

The Contractor is solely responsible for any damages to the utilities or abutting properties due to construction debris.

Certain sanitary and storm sewers within the influence of construction may have been cleaned and videotaped prior to construction. The City may also choose to videotape utility line(s) during or after the work of this Contract to inspect them for damages and/or construction debris. If such inspection shows damage and/or debris, then all costs of such inspection, cleaning, repairs, etc, shall be the Contractor's sole responsibility. If such inspection is negative, the City will be responsible for the costs of such inspection.

Costs for this work will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."

DETAILED SPECIFICATION
FOR
SOIL EROSION CONTROL

The Contractor shall furnish, place, maintain and remove soil erosion and sedimentation control measures, including but not limited to, fabric filters at all drainage structures, all in accordance with all applicable City (and other governmental agencies) codes and standards, as directed by the Engineer, as detailed in the Standard Specifications, and as shown on the Plans.

Costs for this work will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."

DETAILED SPECIFICATION
FOR
VACUUM TYPE STREET AND UTILITY STRUCTURE CLEANING EQUIPMENT

The Contractor shall furnish and operate throughout the construction period, vacuum type street cleaning and utility structure cleaning equipment (Vac-All, Vactor, etc.) approved by the Engineer, as and when directed by the Engineer for dust control, for dirt/debris control, and for street cleaning immediately prior to, and for street and utility structure cleaning after any and all paving. The cleaning equipment shall be of sufficient power to remove dust, dirt, and debris from the pavement and from utility structures in and adjacent to the construction area.

Costs for this work will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."

DETAILED SPECIFICATION
FOR
MATERIALS AND SUPPLIES CERTIFICATIONS

The following materials and supplies shall be certified by the manufacturer or supplier as having been tested for compliance with the Specifications:

HMA materials
Hot-poured Joint Sealants
Cements, coatings, admixtures and curing materials
Sands and Aggregates
Steel and Fabricated metal
Portland Cement Concrete Mixtures
Reinforcing Steel for Concrete
Reinforcing Fibers for Concrete
Pre-cast Concrete products
Sanitary Sewer Pipe
Storm Sewer Pipe
Water Main Pipe
Corrugated Metal Pipe
High Density Polyethylene Pipe
Timber for retaining walls
Modular Concrete Block for retaining walls
Edge Drain and Underdrain Pipe
Geotextile Filter Fabric and Stabilization Fabric/Grids

The Contractor shall submit all certifications to the Engineer for review and approval a minimum of three business days prior to any scheduled delivery, installation, and/or construction of same.

Costs for this work will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."

DETAILED SPECIFICATION
FOR
CONTRACT DRAWINGS/PLANS

Bidders shall carefully check and review all Drawings, plans, and specifications, and advise the Engineer of any errors or omissions discovered. The Drawings/Plans may be supplemented by such additional Drawings/Plans and sketches as may be necessary or desirable as the work progresses. The Contractor shall perform all work shown on any additional or supplemental Drawings/Plans issued by the Engineer.

Bidders shall carefully examine the Bid Form, preliminary layouts, specifications, and the work sites until the Bidder is satisfied as to all local conditions affecting the contract and the detailed requirements of construction. The submission of the bid shall be considered prima facie evidence that the Bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and all requirements of the contract.

DETAILED SPECIFICATION
FOR EXISTING
SOIL BORING AND PAVEMENT SECTION DATA

Data pertaining to existing soil borings and pavement sections which may be included in these Contract Documents are provided to help the Engineer and Contractor determine the soil conditions existing within the construction area. The City in no way guarantees existing conditions to be the same as shown in the data. The Contractor is solely responsible for any and all conclusions he/she may draw from the data.

DETAILED SPECIFICATION
FOR
WORKING IN THE RAIN

The Contractor shall not work in the rain unless authorized in writing by the Engineer.

The Engineer may delay or stop the work due to threatening weather conditions.

The Contractor shall not be compensated for unused materials or downtime due to rain, or the threat of rain.

The Contractor is solely responsible for repairing all damages to the work and to the site, including road infrastructures, road subgrades, and any adjacent properties, which are caused as a result of working in the rain.

DETAILED SPECIFICATION
FOR
WORKING IN THE DARK

The Contractor shall not work in the dark except as approved by the Engineer and only when lighting for night work is provided as detailed elsewhere in this contract.

The Engineer may stop the work, or may require the Contractor to defer certain work to another day, if, in the Engineer's opinion, the work cannot be completed within the remaining daylight hours, or if inadequate daylight is present to either properly perform or inspect the work.

The Contractor will not be compensated for unused materials or downtime, when delays or work stoppages are directed by the Engineer for darkness and/or inadequate remaining daylight reasons.

The Contractor is solely responsible for repairing all damages to the work and to the site, including road infrastructures, road subgrades, and any adjacent properties, which are caused as a result of working in the dark.

DETAILED SPECIFICATION
FOR
QUANTITIES AND UNIT PRICES

Quantities as given are approximate and are estimated for bidding purposes. Quantities are not guaranteed and may vary by any amount. While it is the City's intent to complete the project substantially as drawn and specified herein, quantities may be changed or reduced to zero for cost savings or other reasons. **The City reserves the right to change the quantities, delete streets, or add streets, and no adjustment in unit price will be made for any change in any quantity.**

DETAILED SPECIFICATION
FOR
GENERAL CONSTRUCTION NOTES

The following notes pertain to all Plan sheets issued as part of this Contract, and these notes shall be considered part of each Plan sheet or Detailed Information Sheet.

1. All work shall conform to latest revision of the City Standard Specifications.

2. The Contractor shall maintain access to all drives throughout the course of construction. Drives shall never be closed during non-working hours, unless otherwise authorized in writing by the Engineer.

3. The Contractor shall completely restore all existing site features to better than, or equal to, their existing condition.

4. The Contractor shall be aware that there are above-ground and below-ground utilities existing in and on these streets which include, but are not limited to: gas mains and service leads; water mains and service leads; storm sewer mains and service leads; sanitary sewer mains and service leads; telephone poles, wires, cables and conduits; electrical poles, wires, cables and conduits; cable television wires, cables and conduits, and other various utilities. The Contractor shall conduct all of its work so as not to damage or alter in any way, any existing utility, except where specified on the Plans or where directed by the Engineer. The City has videotaped and cleaned all sanitary and storm sewers, including storm sewer inlet leads, and has found all of these facilities to be in good condition, with the exception of those shown on the Plans for repairs or replacement.

5. The Contractor is solely responsible for any delays, damages, costs and/or charges incurred due to and/or by reason of any utility, structure, feature and/or site condition, whether shown on the Plans or not, and the Contractor shall repair and/or replace, at its sole expense, to as good or better condition, any and all utilities, structures, features and/or site conditions which are impacted by reason of the work, or injured by its operations, or injured during the operations of its subcontractors or suppliers.

6. No extra payments or adjustments to unit prices will be made for damages, delays, costs and/or charges due to existing utilities, structures, features and/or site conditions not shown or being incorrectly shown or represented on the Plans.

DETAILED SPECIFICATION
FOR
CONCRETE DURABILITY

DESCRIPTION

The Contractor shall furnish a Portland cement concrete mixture for this project that has been tested under this specification and shown to be resistant to excessive expansion caused by alkali-silica reactivity (ASR) and provides adequate air entrainment for freeze thaw durability. The Contractor shall construct the project with practices outlined in this specification.

MATERIALS

The materials provided for use on this project shall conform to the following requirements:

Portland cement	ASTM C 150
Fine Aggregate	ASTM C 33*
Coarse Aggregate	ASTM C 33*
Fly Ash, Class F	ASTM C 618
Slag Cement, Grade 100, 120	ASTM C 989
Silica Fume	ASTM C 1240
Blended Cements	ASTM C-595
Air Entraining Admixtures	ASTM C-260
Chemical Admixtures	ASTM C-494
White Membrane Cure	ASTM C-309 Type 2

* Fine and coarse aggregates shall consist of natural aggregates as defined in the 2003 MDOT Standard Specifications Section 902.02.A.1.

The Contractor shall provide documentation that all materials to be incorporated into proposed mixed designs meet the requirements of this section.

Alkali-Silica Reactivity

The Contractor shall supply to the Engineer preliminary concrete mix designs including a list and location of all suppliers of concrete materials. The Contractor shall evaluate the mixtures for the potential for excessive expansion caused by ASR and provide documentation to the Engineer. The Contractor's evaluation shall include a review of any previous testing of the material sources intended to be used for both the fine and coarse aggregates for the concrete mixtures. The previous testing may be from other projects or records provided by the material suppliers.

Aggregates shall be tested under ASTM C-1260. If the expansion of the mortar bars is less than 0.10%, at 14 days, the aggregates shall be considered innocuous and there are no restrictions for ASR mitigation required with this material.

Previous aggregate test data may be used. If no previous test data is available, for the concrete mix, that shows that it is resistant to ASR, a concrete mixture that will mitigate the potential for ASR must be designed using either method 1 or 2 as described below.

Method 1. Substitution of a portion of the cement with Class F Fly Ash, Slag Cement Grade 100 or 120 or a ternary mix (blended cement) containing a blend of Portland cement and slag cement, or Class F fly ash, or silica fume.

The maximum substitution of cement with the fly ash permitted shall be 25% by weight of total cementitious material (cement plus fly ash). Additional requirements for the Fly Ash, Class F are that the Calcium Oxide (CaO) percent shall be less than 10 % and the available alkalis shall not exceed a maximum of 1.5%. A copy of the most recent mill test report shall be submitted to verify. Note: a Class C fly ash with a minimum total oxides ($SiO_2 + Al_2O_3 + Fe_2O_3$) of 66% and a minimum SiO_2 of 38% may be used in lieu of Type F fly ash.

The maximum substitution of cement with the Slag Cement permitted shall be 40% by weight of total cementitious material (cement plus Slag Cement). The minimum replacement rate with Slag Cement shall be 25%.

For a ternary blend the total replacement of supplementary cementitious materials is 40% with a blend consisting of a maximum of 15% type F fly ash, and/or 8% silica fume and/or slag cement.

For method 1, the effectiveness of the proposed mix combination to resist the potential for excessive expansion caused by ASR shall be demonstrated using current or historic data. To demonstrate the effectiveness of the proposed mix the Contractor shall construct and test mortar bars per ASTM C1567 (14 day test) using both the fine and coarse aggregate along with the proposed cementitious material for the concrete mixture. If a mortar bar constructed of these materials produces an expansion of less than 0.10%, concrete mixture will be considered to be resistant to excessive expansion due to ASR.

If a mortar bar constructed produces an expansion of 0.10% or greater, concrete mixtures containing these materials shall not be considered resistant to the potential for excessive expansion due to ASR and shall be rejected. Additional testing, including alternate proportions or different materials will be required.

Method 2. Use low alkali cement and maintain the total alkali content from the cementitious at no more than 3.0 lbs/cyd (Na_2Oeq). The total alkali contribution is calculated by the quantity contained in the Portland cement only.

Requirements for Low Alkali Cement are that the alkali content does not exceed 0.60% expressed as Na_2O equivalent. Equivalent sodium oxide is calculated as: (percent Na_2O + 0.658 x percent K_2O).

For either method 1 or 2, if the Contractor intends to change any component material supplied after the mix design has been approved all concrete work will be suspended with no cost to the project or extensions of time, unless approved, until evaluation of the new mixtures and testing of the new materials demonstrates that it is resistant to excessive expansion due to ASR.

The Engineer and Contractor shall monitor the concrete that is delivered to the project site so as to insure that the approved mix design is being followed. The supplier shall include on the delivery ticket for each batch of concrete delivered to the job, the identification and proportions of each material batched.

When concrete is placed during cold weather, defined for the purposes of this Detailed Specification to be, air temperatures below 40º F, the use of accelerators, heated aggregates, silica fume and/or additional forms of cold weather protection will be required. Cold weather will not eliminate the requirement for furnishing and placing a concrete mix that is considered resistant to ASR attack.

Prior to cool weather placement, defined for the purposes of this detailed specification to be, air temperatures between 40º and 60º F, the set time of the proposed mix shall be verified under anticipated field conditions. This information shall be used when scheduling pours and saw crews.

Air Entrainment

Air entrainment shall be accomplished by addition of an approved air entraining agent. Air content as determined by ASTM C 231 or ASTM C 173, shall be determined on each day of production as early and as frequently as necessary until the air content is consistently acceptable. If during the period of time while adjustments are being made to the concrete to create a mixture that is consistently acceptable, concrete is produced that does not meet the requirements of this Detailed Specification, the Engineer may reject the material and direct it to be removed from the jobsite. Any rejected material shall be removed from the jobsite at the Contractor's sole expense. Quality Control testing performed by the Contractor to ensure compliance with the project specifications shall be performed on the grade ahead of the placement operation.

Paver placement: During production, the plastic concrete material shall be tested for acceptance at a point ahead of the paver. The air content of the concrete mixture that the Contractor shall provide shall be known as the Acceptance Air Content (AAC). The Contractor shall also provide additional entrained air in the concrete mixture to account for the air loss which occurs in the concrete mixture experienced during transportation, consolidation and placement of the concrete. The "air loss" shall be added to the air content of the concrete mixture as established on the approved concrete mix design. The AAC for the project will be 6.0% plus an amount equal to the air loss.

For up to the first four loads, the air content measured on-site prior to placement shall be at least 8.0% and no more than 12.0%. To establish the initial AAC on the first day of paving, the air content of the first load shall be tested at the plant. After initial testing at the plant the Contractor shall provide at least two sample sets to determine the actual air loss during placement. A sample set shall consist of two samples of concrete from the same batch, one taken at the point of discharge and the other from the in-place concrete behind the paver. The air loss from the two sample sets shall be averaged and added to 6.0% to establish the AAC (rounded to the next higher 0.5%). After the testing and adjustment procedure(s) have been completed, the project acceptance air tests shall be taken prior to placement. The Contractor shall provide concrete to the jobsite that has an air content of plus 2.0%, or minus 1.0%, of the AAC.

After the AAC has been established, it shall be verified and/or adjusted through daily checks of the air loss through the paver. The Contractor shall check the air loss through the paver a minimum of two times a day. A Revised AAC shall be required to be established by the Contractor if the average air loss from two consecutive tests deviates by more than 0.5% from the current accepted air loss. The testing operations performed by the Contractor to establish a revised AAC shall be performed to the satisfaction of the Engineer. The Contractor shall be solely responsible for any delays and/or costs that occur to the project while establishing revised AACs.

Hand placed concrete: The air content for non-slip-form paving shall be 7.0% plus 1.5%, or minus 1.0%, at the point of placement.

CONSTRUCTION METHODS

Aggregate Control

Gradation control – The supplier shall provide a detailed stockpile management plan, describing their process control procedure for shipping, handling, and stockpiling of each aggregate including workforce training.

Moisture control – All aggregate materials must be conditioned to a moisture content of not less than saturated surface dry (SSD) prior to batching. A watering process using an effective sprinkler system designed and operated by the Contractor shall be required on all coarse aggregate material stockpiles.

The Contractor shall provide verification that these processes have been performed by the supplier. The Engineer reserves the right to independently verify that the supplier has complied with these standards.

Mixing

Central mix plants - The total volume of the batch shall not exceed the designated size of the mixer or the rated capacity as shown on the manufacturer's rating plate.

Drum Mix Plants: After all solid materials are assembled in the mixer drum; the mixing time shall be a minimum of 60 seconds and a maximum of 5 minutes. The mixing time may be decreased if the ASTM C-94 11.3.3 mixer efficiency tests show that the concrete mixing is satisfactory. The Engineer may require an increase in the minimum mix time if the mixer efficiency test determines that the concrete is not being mixed satisfactorily. The minimum mixing time shall start after the mixer is fully charged. Mixers shall be operated at the speed recommended by the manufacturer as mixing speed. The mixer shall be charged so that a uniform blend of materials reached the mixer through out the charging cycle. Any additional slump water required shall be added to the mixing chamber by the end of the first 25% of the specified mixing time. Mixers shall not be used if the drum is not clean or if the mixing blades are damaged or badly worn

Ribbon mixers: After all solid materials are assembled in the mixer; the mixing time shall be a minimum of 30 seconds and a maximum of 2.5 minutes. The mixing time may be decreased if the ASTM C-94 11.3.3 mixer efficiency tests show that the concrete mixing is satisfactory. The Engineer may require an increase in the minimum mix time if the mixer efficiency test determines that the concrete is not being mixed satisfactorily. The minimum mixing time shall be indicated by an accurate timing device which is automatically started when the mixer is fully charged. Mixers shall be operated at the speed recommended by the manufacturer as mixing speed. The mixer shall be charged so that a uniform blend of materials reached the mixer through out the charging cycle. After any additional slump water is added to the mixing chamber the mixing shall continue for a minimum of 10 seconds. Mixers shall not be used if the mixer is not clean or if the mixing blades are damaged or badly worn.

Truck Mixers -The capacities and mixing capabilities shall be as defined in ASTM C 94, and each unit shall have an attached plate containing the information described therein. The plate may be issued by the Truck Mixer Manufacturer. The mixer capacity shall not be exceeded, and the mixing speeds shall be within the designated limits. Truck mixers shall be equipped with a reliable reset revolution counter. If truck mixers are used for mixing while in transit, the revolution counter shall register the number of revolutions at mixing speed.

An authorized representative of the concrete producer shall certify that the interior of the mixer drum is clean and reasonably free of hardened concrete, that the fins or paddles are not broken or worn excessively, that the other parts are in proper working order, and that the unit has been checked by the representative within the previous 30 calendar day period to substantiate this certification. The current, signed certification shall be with the unit at all times.

The required mixing shall be between 70 and 90 revolutions. The mixing shall be at the rate designated by the manufacturer and shall produce uniform, thoroughly mixed concrete.

The Engineer may inspect mixer units at any time to assure compliance with certification requirements, and removal of inspection ports may be required. Should the Engineer question the quality of mixing, the Engineer may check the slump variation within the batch. Should the slump variation between two samples taken, one after approximately 20% discharge and one after approximately 90% discharge of the batch, show a variation greater than 3/4 inch (20 mm) or 25% of the average of the two, whichever is

greater, the Engineer may require the mixing to be increased, the batch size reduced, the charging procedure be modified or the unit removed from the work.

The practice of adding water on the site shall be discouraged. After the slump of the concrete in the first round of trucks has been adjusted on-site, the amount of water added at the plant shall be adjusted accordingly for that day's work. All additions of water on site shall be approved by the Engineer.

Curing

Apply liquid curing compound in a fine atomized spray to form a continuous, uniform film on the horizontal surface, vertical edges, curbs and back of curbs immediately after the surface moisture has disappeared, but no later than 30 minutes after concrete placement. With approval of the Engineer, the timing of cure application may be adjusted due to varying weather conditions and concrete mix properties.

The cure system shall be on site and tested prior to concrete placement.

Apply a curing compound at a rate of application not less than 2 gallons per 25 square yards. The Contractor shall keep the material thoroughly mixed per the Manufacturer's recommendations. The curing compound shall not be diluted.

The finished product shall appear as a uniformly painted solid white surface. Areas exhibiting a blotchy or spotty appearance shall be recoated immediately.

COMPLIANCE WITH STANDARDS

The Engineer will review and approve all material test reports and mix designs supplied by the Contractor before any placement of concrete. The Engineer will visually inspect the placed concrete and review the concrete test reports prior to final acceptance.

Acceptance sampling and testing will be performed using the sampling method and testing option selected by the Engineer. Acceptance testing will be performed at the frequency specified by the Engineer. Quality control measures to insure job control are the responsibility of the Contractor. The Engineer's testing and/or test results will not relieve the Contractor from his/her responsibilities to produce, deliver, and place concrete that meets all project requirements. The Engineer's test results are for acceptance purposes only.

If the results of the testing are not in compliance with the project specifications, the Engineer shall determine appropriate corrective action(s). Time extensions will not be granted to the Contractor during the time that the Engineer is determining the necessary corrective actions.

If, in the Engineer's judgment, the rejected material must be replaced, the material in question will be removed and replaced at the Contractor's sole expense. The removal costs will be deemed to include all relevant and associated costs including, but not limited to; re-mobilization, traffic control, re-grading the aggregate base course, if required, placement of material meeting the project specifications, and all other expenses. Time extensions will not be granted to the Contractor for any required repair work to meet the requirements of this specification.

If the Engineer decides that the material in question can remain in place, an adjustment to the contract unit price(s) may be made of up to 100% of the bid price(s) for the affected items of work.

MEASUREMENT AND PAYMENT

The cost associated with complying with the requirements as described herein, including any required remedial action(s), shall be included in the cost of other items of work and shall not be paid for separately.

DETAILED SPECIFICATION
FOR
DISADVANTAGED BUSINESS ENTERPRISES

Description

Disadvantaged Business Enterprises (DBE)

Prime contractors bidding on this project must follow, document, and maintain documentation of their Good Faith Efforts as listed below to ensure that Disadvantage Business Enterprises (DBEs) have the opportunity to participate in the project by increasing DBE awareness of procurement efforts and outreach. Bidders must make the following Good Faith Efforts for any work that will be subcontracted.

1. Ensure DBEs are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities; including placing DBEs on solicitation lists and soliciting DBEs whenever they are potential sources.

2. Make information on forthcoming opportunities available to DBEs and arrange time frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in the competitive process. This includes, whenever possible, posting solicitation for bids or proposals for a minimum of 30 calendar days before the bid or proposal closing date.

3. Consider in the contracting process whether firms completing for large contracts could be subcontracted with DBEs. This will include dividing total requirements when economically feasible into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.

4. Encourage contracting' with a consortium of DBEs when a contract is too large for one DBE firm to handle individually.

5. Use the services and assistance of the Small Business Administration and the Minority Business Development Agency of the U.S. Department of Commerce.

Subsequent to compliance with the *Good* Faith Efforts, the following conditions also apply under the DBE requirements. (Note: Item Nos. 2 and 3 must be submitted with your bid proposal.)

1. The prime contractor must provide *EPA Form 6100-2 DBE Program Subcontractor Participation Form* (attached to this detailed specification) to all of its DBE subcontractors. DBE subcontractors may send completed Form 6100-2 directly to the Region 5 DBE Coordinator listed below:

   Region 5 MBE/WBE Coordinator
   USEPA, Acquisition and Assistance Branch
   77 West Jackson Boulevard (MC-10J)
   Chicago, Illinois 60604

2. The prime contractor must have its DBE subcontractors complete *EPA Form 6100-3 - DBE Program Subcontractor Performance Form* (attached to this detailed specification). The prime contractor must also include all completed forms as part of the prime contractor's bid or proposal package to the owner/applicant.

3. The prime contractor must complete and submit *EPA 6100-4 DBE Program Subcontractor Utilization Form* (attached to this detailed specification) as part of the prime contactor's bid or proposal package to the owner or applicant.

4. The prime contractor must pay its subcontractor for satisfactory performance no more than 30 days from the prime contractor's receipt of payment from the owner.

5. The prime contractor must notify the owner in writing prior to the termination of any DBE subcontractor for convenience by the prime contractor.

6. If a DBE contractor fails to complete work under the subcontract for any reason, the prime contractor must employ the Good Faith Efforts if soliciting a replacement contractor.

7. The prime contractor must employ the Good Faith Efforts even if the prime contractor has achieved its fair share objectives.

Frequently Asked Questions Regarding Contractor Compliance

Q: What is the 6100-3 form and how is it to be completed?
A: This form is a DBE Subcontractor Performance Form and captures an intended DBE subcontractor's description of work to be performed for the prime contractor and the price of the work. This form is to be provided by the prime contractor to each DBE subcontractor for completion and requires signatures from both the prime and the sub. Only DBE subcontractors are required to complete this form.

Q: Can non-certified DBEs be used?
A: While non-certified DBEs can be used, only DBEs, MBEs, and WBEs that are certified by EPA, SBA, or MDOT (or by tribal, state and local governments, as long as their standards for certification meet or exceed the standards in EPA policy) can be counted toward the fair share goal. Proof of certification by one of these recognized and approved agencies should be sought from each DBE.

Q: How does a DBE get certified?
A: Applications for certification under MDOT can be found at http://mdot270.state.mi.us:8080/UCP/FormsServlet.
Applications for certification under EPA can be found on EPA's Small Business Programs website at http://www.epa.gov/osbp/grants.htm under Certification Forms.

Q: What is the 6100-4 form and how is it to be completed?
A: This form is a DBE Subcontractor Utilization Form and captures the prime contractor's intended use of an identified DBE subcontractor and estimated dollar amount of the work. This form is to be completed by the prime contractor by listing each subcontract, the intended subcontractor, and whether the firm is a certified DBE. It is important that this form contain a complete listing of all subcontracts including non DBEs.

Q: Must the 6100-3 and 6100-4 forms be turned in with the bid proposals?
A: Yes. This is a requirement to document that the contractor has complied with the DBE requirements and the six good faith efforts. These compliance efforts must be done during the bidding phase and not after-the-fact. It is highly recommended that the need for these efforts and the submittal of the forms with the bid proposals be emphasized at the pre-bid meetings. Owners should also be instructing prospective bidders that documentation of good faith efforts must be available and provided upon request.

Q: What kinds of documentation should a contractor have available to document solicitation efforts?
A: Documentation can include: fax confirmation sheets, copies of solicitation letters/e-mails, printouts of online solicitations, printouts of online search results, affidavits of publication in newspapers, etc.

Q: How much time will compliance with the good faith efforts require in terms of structuring an adequate bidding period?
A: Due to the extent of the efforts required, a minimum of 30 calendar days is recommended between bid posting and bid opening to ensure adequate time for contractors to locate certified DBEs and solicit quotes.

Q: How does a contractor locate certified DBEs?
A: The Michigan Department of Transportation has a directory of all Michigan certified entities located at http://mdot270.state.mi.us:8080/UCP/HomePageServlet. Additionally, the Central Contractor Registration (CCR) database is another place to search and can be found at www.ccr.gov

Q: If the bidder does not intend to subcontract any work, what forms, if any, must be provided with the bid proposal?
A: The bidder should complete the 6100-4 form with a notation that no subcontracting will be done. However, if the bidder is awarded the contract and then decides to subcontract work at any point, then the good faith efforts must be made to solicit DBEs.

Q: In the perfect world, forms are required to be turned in with the proposal. What if no forms are turned in with the bid proposal or forms are blank or incomplete? Should this be cause to determine that the bidder is non-responsive?
A: While the forms are important, it is more critical to confirm that the contractor complied with the DBE requirements prior to bid opening. The owner should contact the bidder as soon as deficiencies are noted for a determination/documentation of efforts taken to comply with the DBE requirements. Immediate submittal of the completed forms will be acceptable provided the good faith efforts were made and it is just a matter of transferring information to the forms.

Q: What if no DBEs provided quotes but there is subcontracted work?
A: The owner will need to follow up with the bidder for documentation of good faith efforts. The bottom line is that the owner cannot award a contract to a bidder that has not complied with the DBE requirements.

Q: What if the 6100-3 forms are completed by DBE subcontractors but the 6100-4 form shows no intent to award contract work to a DBE?
A: While the bidder is not required to award to a DBE, the owner needs to follow up with the bidder to identify the rationale for the selection of a non-DBE firm (i.e. price; ability to perform the work, etc.).

Q: If the prime contractor is a DBE, does he have to solicit DBE subcontractors?
A: Yes, the DBE requirements still apply if the prime intends to subcontract work out. Good Faith efforts must be used to solicit DBEs.

Measurement and Payment:

Any added expenses that the Contractor incurs to satisfy the requirements of this Detailed Specification will not be paid for separately, but shall be deemed to be included in the Item of Work "General Conditions".

Environmental
Protection Agency
OMB Control No.; 2090-0030
Approved: 05/01/2008
Approval Expires: 01/31/2011

Disadvantaged Business Enterprise Program
DBE Subcontractor Participation Form

NAME OF SUBCONTRACTOR[1]	**PROJECT NAME**
ADDRESS	**CONTRACT NO.**
TELEPHONE NO.	**EMAIL ADDRESS**
PRIME CONTRACTOR NAME	

Please use the space below to report any concerns regarding the above EPA-funded project (e.g., reason for termination by prime contractor, late payment, etc.).

_____
_____
_____
_____
_____

CONTRACT ITEM NO.	**ITEM OF WORK OR DESCRIPTION OF SERVICES RECEIVED FROM THE PRIME CONTRACTOR**	**AMOUNT SUBCONTRACTOR WAS PAID BY PRIME CONTRACTOR**
_____ Subcontractor Signature	_____ Title/Date	

[1]Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

EPA FORM 6100-2 (DBE Subcontractor Participation Form)

Environmental
Protection Agency
OMB Control No: 2090-0030
Approved: 05/01/2008
Approval Expires: 01/31/2011

Disadvantaged Business Enterprise Program
DBE Subcontractor Performance Form

NAME OF SUBCONTRACTOR[1]	**PROJECT NAME**
ADDRESS	**CONTRACT NO.**
TELEPHONE NO.	**EMAIL ADDRESS**
PRIME CONTRACTOR NAME	

CONTRACT ITEM NO.	**ITEM OF WORK OR DESCRIPTION OF SERVICES BID TO PRIME CONTRACTOR**	**PRICE OF WORK SUBMITTED TO PRIME CONTRACTOR**

Currently certified as an MBE or WBE under EPA's DBE Program? _____ Yes _____ No

_____ _____
Signature of Prime Contractor Date

_____ _____
Print Name Title

_____ _____
Signature of Subcontractor Date

_____ _____
Print Name Title

[1]Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

EPA FORM 6100-3 (DBE Subcontractor Performance Form)

Environmental
Protection Agency
OMB Control No: 2090-0030
Approved: 05/01/2008
Approval Expires: 01/31/2011

Disadvantaged Business Enterprise Program
DBE Subcontractor Utilization Form

NAME OF SUBCONTRACTOR[1]	**PROJECT NAME**
ADDRESS	**CONTRACT NO.**
TELEPHONE NO.	**EMAIL ADDRESS**
PRIME CONTRACTOR NAME	

COMPANY NAME, ADDRESS, PHONE NUMBER, AND E-MAIL ADDRESS	**TYPE OF WORK TO BE PERFORMED**	**ESTIMATED DOLLAR AMOUNT**	**CURRENTLY CERTIFIED AS AN MBE OR WBE?**

I certify under penalty of perjury that the forgoing statements are true and correct. In the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302(c).

_____ _____
Signature of Prime Contractor Date

_____ _____
Print Name Title

[1]Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

EPA FORM 6100-4 (DBE Subcontractor Utilization Form)

DETAILED SPECIFICATION
FOR
DEBARMENT CERTIFICATION

Description

This project will receive financial assistance from the Clean Water Revolving Funds. Therefore, a completed and signed debarment certification form attached herein ("Certification Regarding Debarment, Suspension, and Other Responsibility Matters") is required from each contractor or sub-contractor who will provide a service of $25,000 or more prior to commencing work on this project.

Measurement and Payment

All costs associated with complying with the requirements of this Detailed Specification will not be paid for separately, but shall be included in the item of work "General Conditions."

Certification Regarding
Debarment, Suspension, and Other Responsibility Matters

The prospective participant certifies, to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in transactions under federal non procurement programs by any federal department or agency;

(2) Have not, within the three year period preceding the proposal, had one or more public transactions (federal, state, or local) terminated for cause or default; and

(3) Are not presently indicted or otherwise criminally or civilly charged by a government entity (federal, state, or local) and have not, within the three year period preceding the proposal, been convicted of or had a civil judgment rendered against it:

(a) For the commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public transaction (federal, state, or local) or a procurement contract under such a public transaction;

(b) For the violation of federal or state antitrust statutes, including those proscribing price fixing between competitors, the allocation of customers between competitors, or bid rigging; or

(c) For the commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property.

I understand that a false statement on this certification may be grounds for the rejection of this proposal or the termination of the award. In addition, under 18 U.S.C. §1 001, a false statement may result in a fine of up to $10,000 or imprisonment for up to five years, or both.

_____

Name and Title of Authorized Representative

_____

Name of Participant Agency or Firm

_____

Signature of Authorized Representative Date

□ I am unable to certify to the above statement. Attached is my explanation.

DETAILED SPECIFICATION
FOR
DAVIS-BACON

Description

This project will receive financing with assistance from the State of Michigan Clean Water Revolving Funds and must comply with P.L. 111-88, which requires compliance with the Davis Bacon Act and adherence to the current U.S. Department of Labor Wage Decision. Attention is called to the fact that not less than the minimum salaries and wages as set forth in the Contract Documents (see General Decision included herein) must be paid on this project. The Contractor on the job site must post the General Wage Decision, including modifications. A copy of the Federal Labor Standards Provisions is included and is hereby a part of this contract.

The appropriate Wage Decision was obtained from the United States Department of Labor (DOL) at: http://www.access.gpo.gov/davisbacon/index.html.

At the request of the City, any contractor or subcontractor shall provide satisfactory proof of compliance with this specification, including certified payrolls and wage rate interviews.

Notwithstanding any other provision of this contract, any failure to comply with the requirements of this Detailed Specification by the Contractor, shall permit the City to recover as damages, and not as penalty, against the Contractor any loss, expense or cost (including without limitation, attorney's fees) incurred by the City resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State or any damages owed to the State by the City).

Measurement and Payment

All costs associated with complying with the requirements of this Detailed Specification will not be paid for separately, but shall be included in the item of work "General Conditions."

Please note that the following documents are attached to this Detailed Specification:

Attachment #1: 29 CFR Part 5 – Labor Standards Provisions for Federally Assisted Projects
Attachment #2: GENERAL DECISION: MI20100060 MI60

Attachment #1

29 CFR Part 5 – Labor Standards Provisions for Federally Assisted Projects

§ 5.5 Contract provisions and related matters.

(a) The Agency head shall cause or require the contracting officer to insert in full in any contract in excess of $2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a public building or public work, or building or work financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in Sec. 5.1, the following clauses (or any modifications thereof to meet the particular needs of the agency, *Provided*, That such modifications are first approved by the Department of Labor):

(1) *Minimum wages*. (i) All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in Sec. 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

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

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

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

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

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

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

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii) (B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

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

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

(2) *Withholding*. The (write in name of Federal Agency or the loan or grant recipient) shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any

subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, the (Agency) may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) *Payrolls and basic records*. (i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the (write in name of appropriate federal agency) if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to the (write in name of agency). The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (*e.g.*, the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at *http://www.dol.gov/esa/whd/forms/wh347instr.htm* or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the (write in name of appropriate federal agency) if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit them to the applicant, sponsor, or owner, as the case may be, for transmission to the (write in name of agency), the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, sponsor, or owner).

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

(1) That the payroll for the payroll period contains the information required to be provided under Sec. 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under Sec. 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

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

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

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the ``Statement of Compliance'' required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the (write the name of the agency) or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) *Apprentices and trainees*--(i) *Apprentices.* Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a

payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

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

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

(5) *Compliance with Copeland Act requirements*. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) *Subcontracts.* The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the (write in the name of the Federal agency) may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) *Contract termination: debarment.* A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) *Compliance with Davis-Bacon and Related Act requirements*. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

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

(10) *Certification of eligibility.* (i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

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

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

(b) *Contract Work Hours and Safety Standards Act.* The Agency Head shall cause or require the contracting officer to insert the following clauses set forth in paragraphs (b)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by Sec. 5.5(a) or 4.6 of part 4 of this title. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) *Overtime requirements*. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) *Violation; liability for unpaid wages; liquidated damages.* In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible there for shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) *Withholding for unpaid wages and liquidated damages*. The (write in the name of the Federal agency or the loan or grant recipient) shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) *Subcontracts.* The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

(c) In addition to the clauses contained in paragraph (b), in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in Sec. 5.1, the Agency Head shall cause or require the contracting officer to insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Agency Head shall cause or require the contracting officer to insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job

Attachment #2

GENERAL DECISION: MI20100060 12/03/2010 MI60

Date: December 3, 2010
General Decision Number: MI20100060 12/03/2010

Superseded General Decision Number: MI20080060

State: Michigan

Construction Types: Building and Heavy

County: Washtenaw County in Michigan.

BUILDING CONSTRUCTION PROJECTS (does not include residential construction consisting of single family homes and apartments up to and including 4 stories); HEAVY CONSTRUCTION PROJECTS (does not include airport or bridge construction projects, or sewer or water line work if it is incidental to a highway construction project)

Modification Number	Publication Date
0	03/12/2010
1	04/16/2010
2	05/07/2010
3	06/04/2010
4	07/02/2010
5	08/06/2010
6	08/13/2010
7	09/03/2010
8	09/24/2010
9	10/01/2010
10	11/05/2010
11	12/03/2010

ASBE0025-006 06/01/2010

Townships of Ann Arbor, Augusta, Lodi, Northfield, Pittsfield, Salem, Saline, Scio, Superior, Webster, Ypsilanti & York

	Rates	Fringes
ASBESTOS WORKER/INSULATOR Includes the application of all insulating materials, protective coverings, coatings, and finishings to all types of mechanical systems	$ 31.07	23.88

FOOTNOTE: Work requiring a spray coating in the application: Five percent (5%) per hour additional.

ASBE0047-003 07/01/2010

Townships of Bridgewater, Dexter, Freedom, Lims, Lyndon, Manchester, Sharon & Sylvan

	Rates	Fringes

ASBESTOS WORKER/INSULATOR
Includes the application of all insulating materials, protective coverings, coatings and finishings to all types of mechanical systems.....$ 28.42 15.48

BOIL0169-001 07/01/2008

	Rates	Fringes
BOILERMAKER.....$	31.953	20.869

BRMI0009-019 10/01/2009

	Rates	Fringes
BRICKLAYER.....$	31.30	16.16
CEMENT MASON/CONCRETE FINISHER...$	30.34	14.39
PLASTERER.....$	29.12	13.95

FOOTNOTES: Sand blasting: $0.25 per hour additional. Two point swing stage: $0.50 per hour additional.

BRMI0032-001 06/01/2009

	Rates	Fringes
MARBLE FINISHER.....$	24.86	16.51
MARBLE SETTER.....$	31.34	16.51
TERRAZZO FINISHER.....$	25.33	16.51
TERRAZZO WORKER.....$	30.80	16.51
TILE FINISHER.....$	24.88	16.51
TILE SETTER.....$	30.75	16.51

FOOTNOTES:
Work on scaffolding over 15 ft.: $1.25 per hour additional.

Swing stage work: $1.50 per hour additional.

Terrazzo grinding: $0.50 per hour above the terrazzo finisher rate.

Terrazzo work grinding vertical work and stairs: $1.50 per hour above the terrazzo finisher rate.

CARP0687-003 06/01/2010

	Rates	Fringes
CARPENTER		
DRYWALL HANGER.....$	29.07	20.222
Diver.....$	21.73	12.05
Piledriver.....$	29.07	20.102

FOOTNOTES:
Piledrivers:
Loftsperson or sticker: $0.55 per hour additional.

Loftsperson or sticker on heights over 150 feet: $0.80 per hour additional.
Welder: $0.55 per hour additional.

CARP1045-003 06/01/2008

	Rates	Fringes
LATHER	$ 23.69	13.52

CARP1045-007 06/01/2010

	Rates	Fringes
FLOOR LAYER: Carpet	$ 27.50	17.37

CARP1102-003 05/31/2010

	Rates	Fringes
MILLWRIGHT	$ 28.35	22.74

ELEC0252-003 06/01/2010

	Rates	Fringes
ELECTRICIAN		
Electrician	$ 38.57	18.59
Inside Sound & Telcommunications: Work on TV monitoring and surveillance, background-foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multi media, multiplex, radio page, school intercom and sound, burglar alarms and low voltage master clock systems. EXCLUDES: raceway systems, energy management systems other than residential, life safety systems (all buildings having floors located more than 75 ft. above the lowest floor level having building access), SCADA (Supervisory Control and Data Acquisition) where not intrinsic to the above listed systems (in the scope), fire alarm systems other than residential, and nurse call systems)	$ 24.83	11.86

ELEC0876-003 06/07/2010

	Rates	Fringes
LINE CONSTRUCTION		
Cable Splicer	$ 36.09	14.04
Light Equipment Operator/Groundman/Truck Driver/Groundman (winch, A-frame, diggers when used for distribution line truck and used for distribution work. Distribution truck driver, 5th wheel type trucks, bucket trucks, ladder trucks and all live boom trucks, all equipment 85 hp. or under)	$ 22.83	10.62
Lineman/Line Technician	$ 34.66	13.68
Operator/Groundman (digger, tractor and setting rig with tracks or rough terrain vehicle, large bombardier, backhoe over 85 hp, hydraulic crane 10 ton or over)	$ 26.06	11.46
Truck driver/Groundman (trucks with winch or boom or dump, other than distribution work)	$ 21.74	10.34

FOOTNOTE: Operators of 5/8 yd. rated capacity backhoe or over, and operators of 25 ton, rated capacity, crane or over, and operators of heavy duty tension or pulling machinery on 345 KV and above, shall receive the line technician rate of pay.

ELEV0085-006 01/01/2010

	Rates	Fringes
ELEVATOR MECHANIC	$ 42.73	20.035

FOOTNOTE:

Vacation Pay: 8% with 5 or more years of service, 6% for 6 months to 5 years service.

Paid Holidays: New Years Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day and Friday after, and Christmas Day.

ENGI0324-008 10/01/2009

ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GENESEE, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA,

IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LIVINGSTON, LUCE, MACKINAC, MACOMB, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MONROE, MUSKEGON, NEWAYGO, OAKLAND, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLARE, ST. JOSEPH, SANILAC, SCHOOLCRAFT, SHIAWASSEE, TUSCOLA, VAN BUREN, WASHTENAW, WAYNE AND WEXFORD COUNTIES

	Rates	Fringes
OPERATOR: Power Equipment (Sewer Relining)		
GROUP 1	$ 28.65	11.64
GROUP 2	$ 27.12	11.64

SEWER RELINING CLASSIFICATIONS

GROUP 1: Operation of audio-visual closed circuit TV system, including remote in-ground cutter and other equipment used in connection with the CCTV system

GROUP 2: Operation of hot water heaters and circulation systems, water jetters and vacuum and mechanical debris removal systems

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ENGI0324-011 09/01/2010

	Rates	Fringes
OPERATOR: Power Equipment (Steel Erection)		
GROUP 1	$ 42.37	18.45
GROUP 2	$ 43.37	18.45
GROUP 3	$ 40.87	18.45
GROUP 4	$ 41.87	18.45
GROUP 5	$ 39.37	18.45
GROUP 6	$ 40.37	18.45
GROUP 7	$ 39.10	18.45
GROUP 8	$ 40.10	18.45
GROUP 9	$ 38.65	18.45
GROUP 10	$ 39.65	18.45
GROUP 11	$ 37.92	18.45
GROUP 12	$ 38.92	18.45
GROUP 13	$ 37.56	18.45
GROUP 14	$ 38.56	18.45
GROUP 15	$ 36.92	18.45
GROUP 16	$ 30.11	18.45
GROUP 17	$ 28.70	18.45
GROUP 18	$ 35.47	18.45

FOOTNOTE:

Paid Holidays: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Engineer when operating combination of boom and jib

400' or longer

GROUP 2: Engineer when operating combination of boom and jib 400' or longer on a crane that requires an oiler

GROUP 3: Engineer when operating combination of boom and jib 300' or longer

GROUP 4: Engineer when operating combination of boom and jib 300' or longer on a crane that requires an oiler

GROUP 5: Engineer when operating combination of boom and jib 220' or longer

GROUP 6: Engineer when operating combination of boom and jib 220' or longer on a crane that requires an oiler

GROUP 7: Engineer when operating combination of boom and jib 140' or longer

GROUP 8: Engineer when operating combination of boom and jib 140' or longer on a crane that requires an oiler

GROUP 9: Tower crane and derrick operator (where operator's work station is 50 ft. or more above first sub-level)

GROUP 10: Tower crane and derrick operator (where operator's work station is 50 ft. or more above first sub-level) on a crane that requires an oiler

GROUP 11: Engineer when operating combination of boom and jib 120' or longer

GROUP 12: Engineer when operating combination of boom and jib 120' or longer on a crane that requires an oiler

GROUP 13: Crane operator; job mechanic; 3 drum hoist and excavator

GROUP 14: Crane operator on a crane that requires an oiler

GROUP 15: Hoisting operator; 2 drum hoist and rubber tire backhoe

GROUP 16: Compressor or welder operator

GROUP 17: Oiler

GROUP 18: Forklift and 1 drum hoist

ENGI0324-019 09/01/2010

ZONE 1: Livingston, Washtenaw, Wayne, Macomb, Monroe and Oakland

ZONE 2: Ingham, Lenawee and Shiawassee

	Rates	Fringes

OPERATOR: Power Equipment
(Underground construction-
includes sewer)

AREA 1		
GROUP 1	$ 29.28	18.95
GROUP 2	$ 24.55	18.95
GROUP 3	$ 23.82	18.95
GROUP 4	$ 23.25	18.95

Power equipment operators -
underground construction
(includes sewer):

AREA 2		
GROUP 1	$ 27.57	18.95
GROUP 2	$ 22.68	18.95
GROUP 3	$ 22.18	18.95
GROUP 4	$ 21.90	18.95

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Backfiller tamper; Backhoe; Batch plant operator (concrete); Clamshell; Concrete paver (2 drums or larger); Conveyor loader (Euclid type); Crane (crawler, truck type or pile driving); Dozer; Dragline; Elevating grader; Endloader; Gradall (and similar type machine); Grader; Mechanic; Power shovel; Roller (asphalt); Scraper (self-propelled or tractor drawn); Side boom tractor (type D-4 or equivalent and larger); Slip form paver; Slope paver; Trencher (over 8 ft. digging capacity); Well drilling rig; Concrete pump with boom operator and Hydro Excavator

GROUP 2: Boom truck (power swing type boom); Crusher; Hoist; Pump (1 or more-6-in. discharge or larger-gas or diesel-powered or powered by generator of 300 amperes or more-inclusive of generator); Side boom tractor (smaller than type D-4 or equivalent); Tractor (pneu-tired, other than backhoe or front end loader); Trencher (8-ft. digging capacity and smaller) and Vac Truck

GROUP 3: Air compressors (600 cfm or larger); Air compressors (2 or more-less than 600 cfm); Boom truck (non-swinging, non- powered type boom); Concrete breaker (self-propelled or truck mounted - includes compressor); Concrete paver (1 drum-l/2 yd. or larger); Elevator (other than passenger); Maintenance person; Pump (2 or more-4-in. up to 6-in. discharge-gas or diesel powered-excluding submersible pumps); Pumpcrete machine (and similar equipment); Wagon drill (multiple); Welding machine or generator (2 or more-300 amp. or larger-gas or diesel powered)

GROUP 4: Boiler; Concrete saw (40 hp or over); Curing machine (self-propelled); Farm tractor (with attachment); Finishing machine (concrete); Fire person; Hydraulic pipe pushing machine; Mulching equipment; Oiler; Pumps (2 or more up to 4-in. discharge, if used 3 hours or more a day, gas or diesel powered - excluding submersible pumps); Roller (other than asphalt); Stump remover; Trencher (service); Vibrating compaction equipment, self-propelled (6 ft. wide or over); End dump operator; Sweeper (Wayne type and similar equipment); Water Wagon; Extend-a boom-forklift

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ENGI0324-020 06/01/2010

	Rates	Fringes
OPERATOR: Power Equipment		
GROUP 1	$ 37.99	18.90
GROUP 2	$ 36.49	18.90
GROUP 3	$ 34.99	18.90
GROUP 4	$ 34.69	18.90
GROUP 5	$ 33.87	18.90
GROUP 6	$ 33.01	18.90
GROUP 7	$ 32.04	18.90
GROUP 8	$ 30.33	18.90
GROUP 9	$ 23.02	18.90
GROUP 10	$ 21.99	18.90

FOOTNOTES:

Tower cranes: to be paid the crane operator rate determined by the combined length of the mast and the boom. If the worker must climb 50 ft. or more to the work station, $.25 per hour additional.

Derrick and cranes where the operator must climb 50 ft. or more to the work station, $.25 per hour additional to the applicable crane operator rate.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Crane with boom and jib or leads 400' or longer

GROUP 2: Crane with boom and jib or leads 300' or longer

GROUP 3: Crane with boom and jib or leads 220' or longer

GROUP 4: Crane with boom and jib or leads 140' or longer

GROUP 5: Crane with boom and jib or leads 120' or longer

GROUP 6: Regular crane operator, job mechanic, and concrete pump with boom operator

GROUP 7: Regular enginee, Hydro-Excavator, Remote Controlled Concrete Breaker

GROUP 8: Engineer when operating forklift, lull, extend-a-boom forklift

GROUP 9: Engineer when operating compressor or welding machine

GROUP 10: Fire tender or oiler

ENGI0325-003 10/01/2009

AREA 1: LIVINGSTON, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES
AREA 2: INGHAM, LENAWEE AND SHIAWASSEE COUNTIES

	Rates	Fringes
Power equipment operators - hazardous waste removal: (AREA 1)		
LEVEL A:		
Crane operator, mechanic, dragline operator, boom truck operator and concrete pump with boom operator,power shovel operators	$ 32.80	17.80
Engineer when operating crane with boom and jib or leads 140' or longer	$ 34.48	17.80
Engineer when operating crane with boom and jib or leads 220' or longer	$ 34.78	17.80
GROUP 1	$ 31.83	17.80
GROUP 2	$ 27.60	17.80
LEVEL B AND C:		
Crane operator, mechanic, dragline operator, boom truck operator, concrete pump with boom operator, power shovel operator	$ 31.85	17.80
Engineer when operating crane with boom and jib or leads 140' or longer	$ 33.53	17.80
Engineer when operating crane with boom and jib or leads 220' or longer	$ 33.83	17.80
GROUP 1	$ 30.88	17.80
GROUP 2	$ 26.65	17.80
LEVEL D WHEN CAPPING LANDFILL:		
Crane operator, mechanic, dragline operator, boom truck operator and concrete pump with boom operator,power shovel operator	$ 29.68	17.80
Engineer when operating crane with boom and jib or leads 140' or longer	$ 31.98	17.80
Engineer when operating crane with boom and jib or leads 220' or longer	$ 32.28	17.80
GROUP 1	$ 29.33	17.80
GROUP 2	$ 25.10	17.80
LEVEL D:		
Crane operator, mechanic, dragline operator, boom truck operator and concrete pump with boom operator,power shovel operator	$ 30.55	17.80
Engineer when operating crane with boom and jib		

or leads 220' or longer....$ 32.53 17.80
Engineer when
OperatingCrane with Boom
and Jib or Leads 140' or
Longer.....$ 32.23 17.80
GROUP 1.....$ 29.58 17.80
GROUP 2.....$ 25.35 17.80
Power equipment operators -
hazardous waste removal:
(AREA 2)
LEVEL A:
Crane operator, mechanic,
dragline operator, boom
truck operator and
concrete pump with boom
operator, power shovel
operator.....$ 31.09 17.80
Engineer when operating
crane with boom and jib
or leads 140' or longer....$ 32.77 17.80
Engineer when operating
crane with boom and jib
or leads 220' or longer....$ 33.07 17.80
GROUP 1.....$ 30.12 17.80
GROUP 2.....$ 25.72 17.80
LEVEL B AND C:
Crane operator, mechanic,
dragline operator, boom
truck operator and
concrete pump with boom
operator, power shovel
operator.....$ 30.14 17.80
Engineer when operating
crane with boom and jib
or leads 140' or longer....$ 31.71 17.80
Engineer when operating
crane with boom and jib
or leads 220' or longer....$ 32.03 17.80
GROUP 1.....$ 29.17 17.80
GROUP 2.....$ 24.78 17.80
LEVEL D WHEN CAPPING
LANDFILL:
Crane operator, mechanic,
dragline operator, boom
truck operator and
concrete pump with boom
operator,power shovel
operator.....$ 28.59 17.80
Engineer when operating
crane with boom and jib
or leads 140' or longer....$ 30.27 17.80
Engineer when operating
crane with boom and jib
or leads 220' or longer....$ 30.57 17.80
GROUP 1.....$ 27.62 17.80
GROUP 2.....$ 23.23 17.80
LEVEL D:
Crane operator, mechanic,
dragline operator, boom

truck operator and
concrete pump with boom
operator,power shovel
operator.....$ 28.84 17.80
Engineer when operating
crane with boom and jib
or leads 220' or longer....$ 30.82 17.80
Engineer when
OperatingCrane with Boom
and Jib or Leads 140' or
Longer.....$ 30.52 17.80
GROUP 1.....$ 27.87 17.80
GROUP 2.....$ 23.48 17.80

HAZARDOUS WASTE REMOVAL CLASSIFICATIONS

GROUP 1: Backhoe, batch plant operator, clamshell, concrete breaker when attached to hoe, concrete cleaning decontamination machine operator, concrete pump, concrete paver, crusher, dozer, elevating grader, endloader, farm tractor (90 h.p. and higher), gradall, grader, heavy equipment robotics operator, loader, pug mill, pumpcrete machines, pump trucks, roller, scraper (self-propelled or tractor drawn), side boom tractor, slip form paver, slope paver, trencher, ultra high pressure waterjet cutting tool system operator, vactors, vacuum blasting machine operator, vertical lifting hoist, vibrating compaction equipment (self-propelled), well drilling rig, hydro excavator

GROUP 2: Air compressor, concrete breaker when not attached to hoe, elevator, end dumps, equipment decontamination operator, farm tractor (less than 90 h.p.), forklift, generator, heater, mulcher, pigs (portable reagent storage tanks), power screens, pumps (water), stationary compressed air plant, sweeper, welding machine and water wagon

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ENGI0325-016 05/01/2010

	Rates	Fringes
OPERATOR: Power Equipment (Gas Distribution and Duct Installation Work)		
GROUP 1	$ 25.98	18.90
GROUP 2	$ 25.85	18.90
GROUP 3	$ 24.72	18.90
GROUP 4	$ 24.15	18.90

SCOPE OF WORK:
The construction, installation, treating and reconditioning of pipelines transporting gas vapors within cities, towns, subdivisions, suburban areas, or within private property boundaries, up to and including private meter settings of private industrial, governmental or other premises, more commonly referred to as "distribution work," starting from the first metering station, connection, similar or related facility, of the main or cross country pipeline and including duct installation.

POWER EQUIPMENT - GAS DISTRIBUTION CLASSIFICATIONS

GROUP 1: Backhoe, crane, grader, mechanic, dozer (D-6 equivalent or larger), side boom (D-4 equivalent or larger), trencher(except service), endloader (2 yd. capacity or greater)

GROUP 2: Dozer (less than D-6 equivalent), endloader (under 2 yd. capacity), side boom (under D-4 capacity), backfiller, pumps (1 or 2 of 6-inch discharge or greater), boom truck (with powered boom), tractor (wheel type other than backhoe or front endloader)

GROUP 3: Tamper (self-propelled), boom truck (with non-powered boom), concrete saw (20 hp or larger), pumps (2 to 4 under 6-inch discharge), compressor (2 or more or when one is used continuously into the second day) and trencher (service).

GROUP 4: Oiler, hydraulic pipe pushing machine, grease person and hydrostatic testing operator

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IRON0025-011 09/01/2009

	Rates	Fringes
Ironworker - pre-engineered metal building erector		
EAST OF US #23	$ 21.10	20.72
WEST OF US #23	$ 19.88	19.72

IRON0025-012 06/01/2009

	Rates	Fringes
IRONWORKER		
Ornamental and Structural	$ 29.26	27.62
Reinforced	$ 26.83	24.26

LABO0005-017 10/01/2008

	Rates	Fringes
Laborers - hazardous waste abatement:		
Work performed inside the building and up to and including 5 ft. outside the building:		
Level A, B or C	$ 27.21	11.34
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;		
Also, Level D	$ 26.21	11.34
Work performed over 5 ft. outside the building:		
Level A, B or C	$ 23.02	9.74

Work performed in
conjunction with site
preparation not requiring
the use of personal
protective equipment;
Also, Level D.....$ 22.02 9.74

LABO0259-002 08/01/2010

	Rates	Fringes
Asbestos Laborer Includes removing and disposing of all insulation materials from walls, ceilings, floors, columns, and all other non-mechanical surfaces; and removal of insulating materials from mechanical systems that are to be demolished; loading/unloading of bagged and tagged materials at the disposal site (includes lead paint abatement clean-up).....	$ 25.09	11.94

LABO0259-007 09/01/2010

	Rates	Fringes
Laborers - tunnel, shaft and caisson:		
GROUP 1.....	$ 21.43	11.49
GROUP 2.....	$ 21.52	11.49
GROUP 3.....	$ 21.62	11.49
GROUP 4.....	$ 21.78	11.49
GROUP 5.....	$ 22.04	11.49
GROUP 6.....	$ 22.35	11.49
GROUP 7.....	$ 14.62	11.49

SCOPE OF WORK:
Tunnel, shaft and caisson work of every type and description and all operations incidental thereto, including, but not limited to, shafts and tunnels for sewers, water, subways, transportation, diversion, sewerage, caverns, shelters, aquafers, reservoirs, missile silos and steel sheeting for underground construction.

TUNNEL LABORER CLASSIFICATIONS

GROUP 1: Tunnel, shaft and caisson laborer, dump, shanty, hog house tender, testing (on gas), watchman

GROUP 2: Manhole, headwall, catch basin builder, bricklayer tender, mortar and material mixer

GROUP 3: Air tool operator (jackhammer, bush hammer and

grinder), first bottom, second bottom, cage tender, car pusher, carrier, concrete, concrete form, concrete repair, cement invert laborer, cement finisher, concrete shoveler, conveyor, floor, gasoline and electric tool operator, gunite, grout operator, welder, heading dinky person, inside lock tender, pea gravel operator, pump person, outside lock tender, scaffold, top signal person, switch person, track, tugger, utility person, vibrator, winch operator, pipe jacking, wagon drill and air track operator and concrete saw operator (under 40 h.p.)

GROUP 4: Tunnel, shaft and caisson mucker, bracer, liner plate, long haul dinky driver and well point

GROUP 5: Tunnel, shaft and caisson miner, drill runner, key board operator, power knife operator, reinforced steel or mesh (e.g. wire mesh, steel mats, dowel bars, etc.)

GROUP 6: Dynamite and powder

GROUP 7: Restoration laborer, seeding, sodding, planting, cutting, mulching and top soil grading; and the restoration of property such as replacing mailboxes, wood chips, planter boxes, flagstones, etc.

LABO0334-003 09/01/2010

	Rates	Fringes
Laborers - open cut:		
GROUP 1	$ 21.08	11.49
GROUP 2	$ 21.19	11.49
GROUP 3	$ 21.31	11.49
GROUP 4	$ 21.38	11.49
GROUP 5	$ 21.53	11.49
GROUP 6	$ 18.83	11.49
GROUP 7	$ 15.47	11.49

SCOPE OF WORK:

Open cut construction work shall be construed to mean work which requires the excavation of earth including industrial, commercial and residential building site excavation and preparation, land balancing, demolition and removal of concrete and underground appurtenances, grading, paving, sewers, utilities and improvements; retention, oxidation, flocculation and irrigation facilities, and also including but not limited to underground piping, conduits, steel sheeting for underground construction, and all work incidental thereto, and general excavation.

Open cut construction work shall also be construed to mean waterfront work, piers, docks, seawalls, breakwalls, marinas and all incidental work. Open cut construction work shall not include any structural modifications, alterations, additions and repairs to buildings, or highway work, including roads, streets, bridge construction and parking lots or steel erection work and excavation for the building itself and back filling inside of and within 5 ft. of the building and foundations, footings and piers for the

building. Open cut construction work shall not include any work covered under Tunnel, Shaft and Caisson work.

LABORER CLASSIFICATIONS

GROUP 1: Construction laborer

GROUP 2: Mortar and material mixer, concrete form person, signal person, well point person, manhole, headwall and catch basin builder, headwall, seawall, breakwall and dock builder

GROUP 3: Air, gasoline and electric tool operator, vibrator operator, driller, pump person, tar kettle operator, bracer, rodder, reinforced steel or mesh person (e.g., wire mesh, steel mats, dowel bars, etc.), welder, pipe jacking and boring person, wagon drill and air track operator and concrete saw operator (under 40 h.p.), windlass and tugger person and directional boring person, cement finisher

GROUP 4: Trench or excavating grade person

GROUP 5: Pipe layer (including crock, metal pipe, multi-plate or other conduits)

GROUP 6: Grouting person, audio-visual television operations and all other operations in connection with closed circuit television inspection, pipe cleaning and pipe relining work, installation and repair of water service pipe and appurtenances

GROUP 7: Restoration laborer, seeding, sodding, planting, cutting, mulching and top soil grading; and the restoration of property such as replacing mailboxes, wood chips, planter boxes, flagstones, etc.

LABO0334-006 07/01/2010

	Rates	Fringes
Landscape Laborer		
GROUP 1	$ 19.81	6.25
GROUP 2	$ 15.59	6.25

LANDSCAPE LABORER CLASSIFICATIONS

GROUP 1: Landscape specialist, including air, gas and diesel equipment operator and lawn sprinkler installer

GROUP 2: Landscape laborer: small power tool operator, material mover, truck driver and lawn sprinkler installer tender

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LABO0499-001 07/01/2010

Livingston County: Only South of M-59 and east of Pinckney Road and Dexter-Pinckney Road south of Howell to and including Pinckney

	Rates	Fringes
Plasterer tender(including Plastering Machine Operator).....$	26.57	13.97

LABO0499-007 08/01/2010

	Rates	Fringes
Laborers:		
GROUP 1.....$	26.21	12.45
GROUP 2.....$	26.41	12.45
GROUP 3.....$	26.71	12.45
GROUP 4.....$	26.53	12.45
GROUP 5.....$	25.42	12.45
GROUP 6.....$	23.21	12.45

FOOTNOTE:
Work on 2 point swing stage, scaffold supported from above: $.20 per hour additional.

LABORER CLASSIFICATIONS

GROUP 1: Construction laborers except for classifications falling within specified groups, and drywall handlers, Jobsite clean up , Demolition laborer

GROUP 2: Mortar mixer; material mixer (whether done by hand or machine); air, gas, electric tool operator; power buggy operator; scaffold builder or dismantler; windlass operator; tar and kettle operator; stone setter, tender

GROUP 3: All jack hammering and chipping on concrete

GROUP 4: Crock or pipe laborer, caisson worker

GROUP 5: Rod person

GROUP 6:"Final Cleaning" Washing or cleaning of walls, partitions, ceiling, windows, bathrooms, kitchen, laboratory and all fixtures and facilities therein; clean-up, mopping, washing, waxing, and polishing or dusting of all floors or areas, final clean up

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LABO1076-006 04/01/2010

ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GENESEE, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LIVINGSTON, LUCE, MACKINAC, MACOMB, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MONROE, MUSKEGON, NEWAYGO, OAKLAND, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLARE, ST. JOSEPH, SANILAC, SCHOOLCRAFT, SHIAWASSEE, TUSCOLA, VAN BUREN, WASHTENAW, WAYNE AND WEXFORD COUNTIES

	Rates	Fringes
LABORER (DISTRIBUTION WORK)		
Zone 1	$ 18.18	11.49
Zone 2	$ 16.80	11.49
Zone 3	$ 15.03	11.49
Zone 4	$ 14.40	11.49
Zone 5	$ 14.40	11.49

DISTRIBUTION WORK - The construction, installation, treating and reconditioning of distribution pipelines transporting coal, oil gas, or other similar materials, vapors or liquids, including portions of such pipelines within private property boundaries, up to and including the meter settings on residential, commercial, industrial, institutional, private and public structures. All work covering pumping stations and tank farms not covered by the Building Trades Agreement. Other distribution lines with the exception of sewer, water and cable television are included.

Underground Duct Layer Pay: $.40 per hour above the base pay rate.

Zone 1-Macomb,Oakland and Wayne
Zone 2-Monroe and Washtenaw
Zone 3-Bay, Genesee, Lapeer, Midland, Saginaw, Sanilac, Shiawassee and St. Clair
Zone 4-Alger, Baraga, Chippewa, Delta, Dickinson,Gogebic, Houghton, Iron, Keweenaw, Luce, Mackinaw, Marquette, Menominee, Ontonagon and Schoolcraft
Zone 5-Remaining counties in Michigan

PAIN0022-006 07/01/2009

	Rates	Fringes
DRYWALL FINISHER/TAPER	$ 25.75	15.90
PAINTER	$ 25.06	14.75

FOOTNOTES:

Drywall finisher:
Work spraying texture: $0.50 per hour additional.

Painter:
For all spray work and journeyman rigging for spray work, also blowing off, $0.80 per hour additional (applies only to workers doing rigging for spray work on off the floor work. Does not include setting up or moving rigging on floor surfaces, nor does it apply to workers engaged in covering up or tending spray equipment.
For all sandblasting and spray work performed on highway bridges, overpasses, tanks or steel, $0.80 per hour additional.
For all brushing, cleaning and other preparatory work (other than spraying or steeplejack work) at scaffold heights of fifty (50) feet from the ground or higher, $0.50 per hour additional.

For all preparatorial work and painting performed on open steel under forty (40) feet when no scaffolding is involved, $0.50 per hour additional.
For all swing stage work - window jacks and window belts - exterior and interior, $0.50 per hour additional.
For all spray work and sandblaster work to a scaffold height of forty (40) feet above the floor level, $0.80 per hour additional.
For all preparatorial work and painting on all highway bridges or overpasses up to forty (40) feet in height, $0.50 per hour additional.
For all steeplejack work performed where the elevation is forty (40) feet or more, $1.25 per hour additional.

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* PAIN0357-005 06/01/2010

	Rates	Fringes
GLAZIER	$ 29.20	15.96

PAID HOLIDAYS: New Year's Day, Decoration Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day; provided that the employee has worked the last full regular scheduled work day prior to the holiday, and the first full regular scheduled work day following the holiday, provided the employee is physically able to work.

PLUM0190-004 06/01/2010

	Rates	Fringes
PLUMBER/PIPEFITTER	$ 37.19	19.30

PLUM0190-006 05/01/2010

	Rates	Fringes
Gas Distribution Pipeline		
Welding in conjunction with gas distribution pipeline work	$ 27.68	18.29
All other work	$ 20.72	11.15

ROOF0070-007 06/01/2009

	Rates	Fringes
ROOFER, Including Built Up, Composition and Single Ply Roofs	$ 29.37	12.72

FOOTNOTE: Work on jobs being monitored for asbestos or while required to wear asbestos-related clothing or equipment: $0.50 per hour additional.

SFMI0704-001 08/01/2010

	Rates	Fringes

SPRINKLER FITTER (Fire Sprinklers).....$ 39.38 22.54

SHEE0080-004 08/01/2010

	Rates	Fringes
SHEET METAL WORKER.....$	33.77	23.42

TEAM0247-001 04/01/2010

	Rates	Fringes
TRUCK DRIVER		
GROUP 1.....$	21.82	a
GROUP 2.....$	21.96	a
GROUP 3.....$	22.15	a

PAID HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. If any of the above holidays fall on a Sunday, the following Monday shall be considered the holiday and, if work is performed, the rate shall be double time.

FOOTNOTE:
a. $327.95 per week, plus $46.20 per day.

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Truck driver on all trucks except semi trucks or tractor trailers, pole trailers, lowboys, straddle carriers, double bottom and special load permit vehicles

GROUP 2: Truck driver on semi trucks or tractor trailers except pole trailer driver, lowboy driver, straddle carriers, double bottom and special load permit vehicles

GROUP 3: Pole trailer driver, lowboy driver, straddle carriers, double bottom driver and special permit driver, fuel truck driver, bus driver and water truck driver

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TEAM0247-011 04/01/2010

	Rates	Fringes
TRUCK DRIVER (Underground construction)		
GROUP 1.....$	21.82	a
GROUP 2.....$	21.96	a
GROUP 3.....$	22.15	a

PAID HOLIDAYS: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day.

SCOPE OF WORK: Excavation, site preparation, land balancing, grading, sewers, utilities and improvements; also including, but not limited to, tunnels, underground piping, retention, oxidation, flocculation facilities, conduits, general excavation and steel sheeting for underground

construction. Underground construction work shall not include any structural modifications, alterations, additions and repairs to buildings or highway work, including roads, streets, bridge construction and parking lots or steel erection.

FOOTNOTE:
a. $327.95 per week+$46.20 per day.

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Truck driver on all trucks (EXCEPT dump trucks of 8 cubic yards capacity or over, pole trailers, semis, low boys, Euclid, double bottom and fuel trucks)

GROUP 2: Truck driver on dump trucks of 8 cubic yards capacity or over, pole trailers, semis and fuel trucks

GROUP 3: Truck driver on low boy, Euclid and double bottom

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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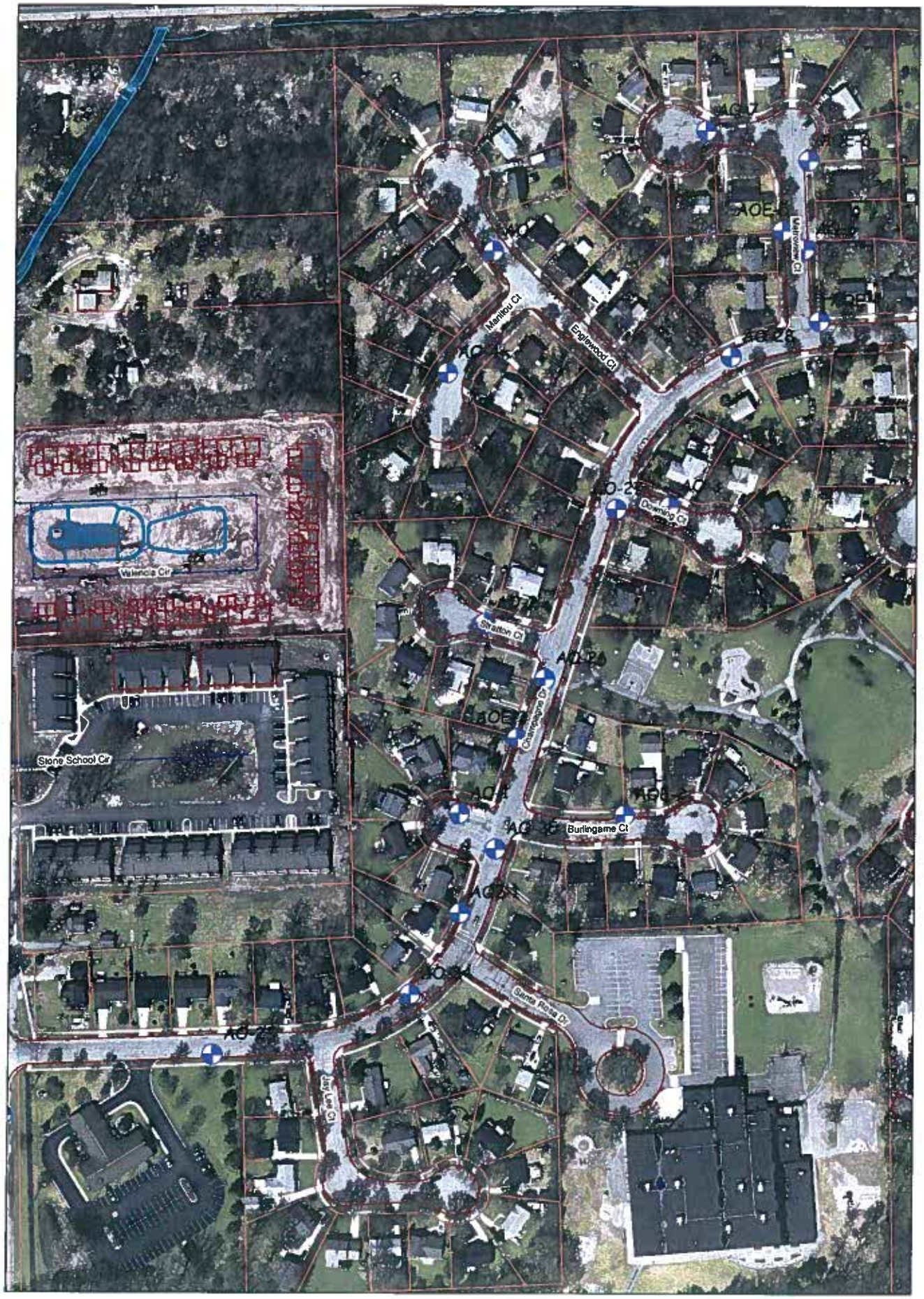
END OF GENERAL DECISION

APPENDIX A

SOIL BORINGS

Arbor Oaks 1


Manitou Ct
Englewood Ct
Valencia Cir
Stone School Cir
Burlingame Ct
Santa Rosa Ct
Jay Lee Ct
0 50 100 200 300 400
Feet

Arbor Oaks 2


WB 194
EB 194
Faust Ct
Trowbridge Ct
Rockford Ct
Primrose Ct
Lucerne Ct
AO-30
AO-31
AO-12
Kilbrennan Ct
Champagne Dr
Hemlock Dr
W Eden Ct
E Eden Ct
AOE-8
AOE
Elbin Ct
Shadowood Dr
Laurelwood Cir
Hemlock Ct
Hardyke Ct
0 50 100 200 300 400
Feet

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-1	psi Professional Service Industries, Inc.
	Sheet: 1 of 1		
Project: 2010 Road Construction Projects Champagne Drive	Location: City of Ann Arbor, Washtenaw County, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					2.5" of ASPHALT 6" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist						
2SS					CLAYEY SILT (ML) - some sand, occasional sand seams, mottled brown and orangish brown, moist, medium dense		10 5,5,5	17			
3SS						5	8 5,4,4	18			
4SS					SILTY CLAY (CL) - some sand, mottled brown, orangish brown and gray, moist, very stiff to hard		15 4,5,10	16			
5SS						10	13 4,6,7	17			
					END OF BORING						

"N" Blows Per Foot: 0 20 40 60

Unconfined Compressive Strength (tsf)

Calibrated Hand Penetrometer (tsf): 0 2 4 6

3.5

4.5+

4.5+

Boring Location:

Champaign Drive (Court)
~6' South of Curb, 30' East of Driveway
Centerline to #2059 Champaign Drive

Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling Dry

▼ Water Level At Completion Dry

After Completion

Boring Started: 10/26/2009	Completed: 10/26/2009		Engineer: KFD
Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 10.5	Approved:

Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-2
	Sheet: 1 of 1	
Project: 2010 Road Construction Projects Stratton Court	Location: City of Ann Arbor, Washtenaw County, Michigan	

Professional Service Industries, Inc.

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					4.3" of ASPHALT						
					8.5" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist						
					CLAYEY SILT (ML) - mottled brown and orangish brown, moist, loose						
2SS							5 (2,2,3)	16			
3SS						5	6 (2,3,3)	15			
					SILTY CLAY (CL) - some sand, few gravel, mottled brown, orangish brown and gray, moist, hard						
4SS					SILTY CLAY (CL) - some sand, few gravel, gray, moist, hard		12 (3,5,7)	13			
5SS						10	7 (3,3,4)	15			
					END OF BORING						

⊗ "N" Blows Per Foot (0 20 40 60)

○ Unconfined Compressive Strength (tsf)

Calibrated Hand Penetrometer (tsf) (0 2 4 6)

Boring Location:

Stratton Court
~6' South of Curb, 20' East of Driveway
Centerline to #2099 Stratton Court

Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling Dry

▼ Water Level At Completion Dry

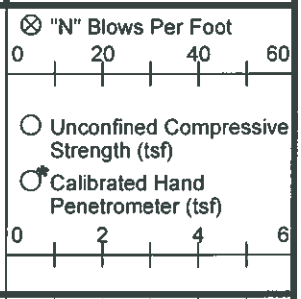
After Completion

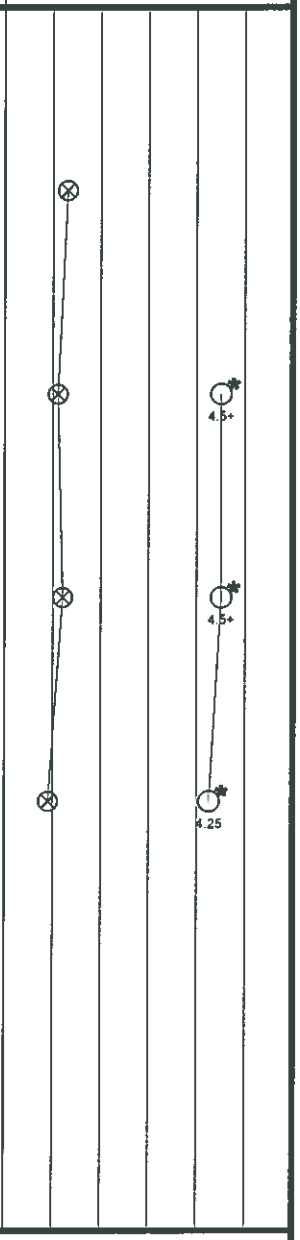
Boring Started: 10/20/2009	Completed: 10/20/2009	Engineer: KFD
Drilling Method: 3.25" HSA	Office: Plymouth	Drawn By: KFD
Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 10.5	Approved: MVL

Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-3	Professional Service Industries, Inc.
	Sheet: 1 of 1		
Project: 2010 Road Construction Projects Downing Court	Location: City of Ann Arbor, Washtenaw County, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					5" of ASPHALT						
					13" of SAND and GRAVEL BASE, fine to medium, some silt, brown, moist						
					SILTY CLAY - some sand, gray, moist						
2SS					CLAYEY SILT (ML) - some sand, mottled brown and orangish brown, moist, medium dense		13 (4,6,7)	13			
3SS					SILTY CLAY (CL) - some sand, few gravel, occasional silt partings, brown, moist, hard	5	11 (3,5,6)	15			
4SS					SILTY CLAY (CL) - few gravel, trace sand, gray, moist, hard		12 (5,5,7)	15			
5SS						10	9 (3,4,5)	16			
					END OF BORING						





Boring Location:

Downing Court
~6' South of Curb, 40' West of Driveway
Centerline to #3 Downing Court

Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

Water Level While Drilling Dry

Water Level At Completion Dry

After Completion

Boring Started: 10/20/2009	Completed: 10/20/2009		Engineer: KFD
Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 10.5	Approved:

Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-4
	Sheet: 1 of 1	
Project: 2010 Road Construction Projects Manitou Court	Location: City of Ann Arbor, Washtenaw County, Michigan	

Professional Service Industries, Inc.

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					3.3" of ASPHALT						
					6" of SAND and GRAVEL BASE, fine to medium, some silt, brown, moist						
2SS					SANDY CLAY (CL) - few gravel, occasional silt partings, mottled brown, orangish brown and gray, moist, very stiff		7 (3,3,4)	17			
3SS						5	6 (4,3,3)	17			
4SS					SANDY CLAY (CL) - few gravel, occasional silt partings, mottled brown, gray, moist, hard		9 (4,4,5)	12			
5SS						10	11 (3,5,6)	14			
					END OF BORING						

⊗ "N" Blows Per Foot (0, 20, 40, 60)

○ Unconfined Compressive Strength (tsf)

○* Calibrated Hand Penetrometer (tsf) (0, 2, 4, 6)

2.5 2.75 4.0 4.5+

Boring Location:

Manitou Court
~6' East of Curb, 20' North of Driveway
Centerline to #6 Manitou Court

Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling Dry

▼ Water Level At Completion Dry

_____ After Completion

Boring Started: 10/20/2009	Completed: 10/20/2009		Engineer: KFD
Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 10.5	Approved: MJS

Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-5	Professional Service Industries, Inc.
	Sheet: 1 of 1		
Project: 2010 Road Construction Projects Englewood Court	Location: City of Ann Arbor, Washtenaw County, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					3" of ASPHALT 9.8" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist						
2SS					SANDY SILT (ML) - fine, brown, moist, medium dense		15 4,8,9	15			
3SS						5	12 5,5,7	19			
4SS					CLAYEY SANDY SILT (ML) - fine, gray, moist, medium dense		11 4,5,6	17			
5SS					SILTY CLAY (CL) - some sand, few gravel, gray, moist, hard	10	8 3,4,4	14			
					END OF BORING						

"N" Blows Per Foot: 0 20 40 60

Unconfined Compressive Strength (tsf)

Calibrated Hand Penetrometer (tsf): 0 2 4 6

4.5+

Boring Location:

Englewood Court
~6' Northeast of Curb, 15' Northwest of Sidewalk Entrance to #11 Englewood Court

Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

Water Level While Drilling Dry

Water Level At Completion Dry

After Completion

Boring Started: 10/20/2009	Completed: 10/20/2009		Engineer: KFD
Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 10.5	Approved:

Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-6
	Sheet: 1 of 1	
Project: 2010 Road Construction Projects Metroview Court	Location: City of Ann Arbor, Washtenaw County, Michigan	

Professional Service Industries, Inc.

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					3.5" of ASPHALT 9" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist						
2SS					SANDY SILT (ML) - mottled brown, orangish brown and gray, moist, medium dense.		10 4,5,5	16			
3SS					SILTY CLAY (CL) - some sand, few gravel, mottled brown, orangish brown and gray, moist, hard	5	11 4,5,6	17			
4SS					SANDY SILT (ML) - fine, gray, moist, medium dense		10 4,4,6	13			
5SS					SILTY SAND (SM) - fine, gray, wet, medium dense	10	16 5,8,8	16			
					END OF BORING						

"N" Blows Per Foot: 0 20 40 60

Unconfined Compressive Strength (tsf)

Calibrated Hand Penetrometer (tsf): 0 2 4 6

4.5+

Boring Location:

Metroview Court
~6' East of Curb, 40' South of Driveway
Centerline to #5 Metroview Court

Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling 9.5'

▼ Water Level At Completion 9.5'

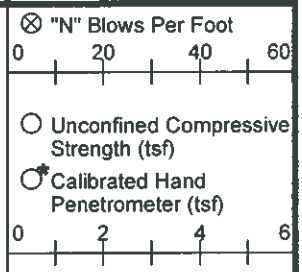
_____ After Completion

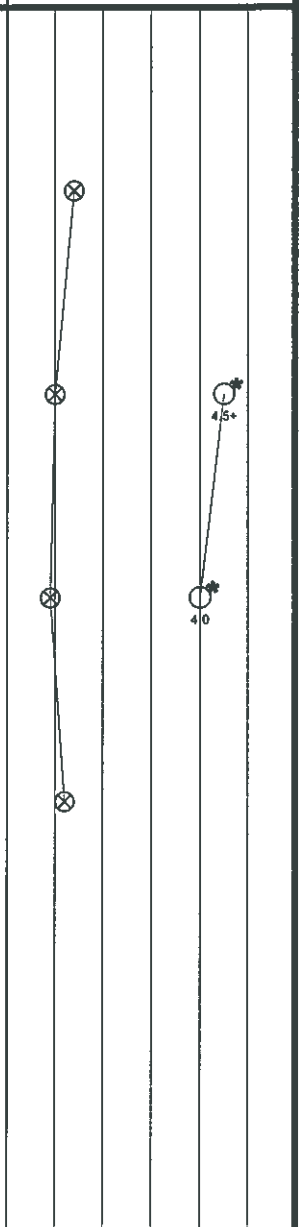
Boring Started: 10/20/2009	Completed: 10/20/2009		Engineer: KFD
Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 10.5	Approved: MEL

Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-7	Professional Service Industries, Inc.
	Sheet: 1 of 1		
Project: 2010 Road Construction Projects Metroview Court	Location: City of Ann Arbor, Washtenaw County, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					3.5" of ASPHALT 7" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist FILL - SANDY CLAY, few gravel, trace brick, mottled brown and orangish brown, moist						
2SS							14 5,6,8	11			
3SS					SILTY CLAY (CL) - some sand, few gravel, mottled brown, orangish brown and gray, moist, hard	5	10 4,5,5	16			
4SS							9 3,4,5	16			
5SS					CLAYEY SILT (ML) - some sand, mottled brown and orangish brown, occasional sand partings, moist, medium dense	10	12 4,5,7	18			
					END OF BORING Boring Location: Metroview Court ~6' South of Curb, 20' West from Driveway Centerline to #7 Metroview Court						





Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

Water Level While Drilling Dry

Water Level At Completion Dry

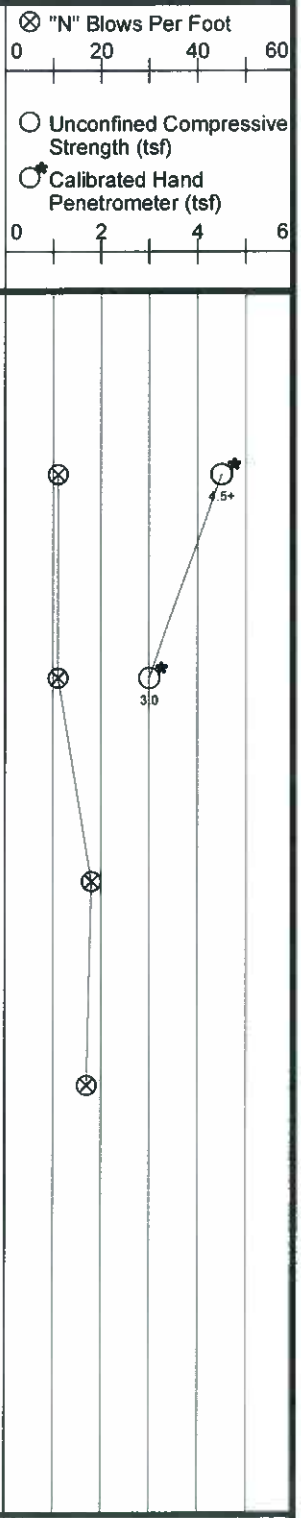
After Completion

Boring Started: 10/20/2009	Completed: 10/20/2009		Engineer: KFD
Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 10.5	Approved:

Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-8	Professional Service Industries, Inc.
	Sheet: 1 of 1		
Project: 2010 Road Construction Projects Lucerne Court	Location: City of Ann Arbor, Washtenaw County, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					2" of ASPHALT 9.7" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist						
2SS					SILTY CLAY (CL) - few gravel, trace sand, occasional silt partings, mottled brown, orangish brown and gray, moist, hard		11 4,5,6	14			
3SS					SILTY CLAY (CL) - some sand, mottled brown and orangish brown, moist, very stiff	5	11 5,5,6	17			
4SS					SILTY SAND (SM) - fine, brown, moist to wet, medium dense		18 6,9,9	20			
5SS					SILTY SAND (SM) - fine, gray, wet, medium dense	10	17 7,8,9	18			
					END OF BORING						



Boring Location:

Lucerne Court
~6' East of Curb, 40' North of Driveway
Centerline to #5 Lucerne Court

Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

Water Level While Drilling 8'

Water Level At Completion _____
Cave @ 4' After Completion

Boring Started: 10/20/2009	Completed: 10/20/2009		Engineer: KFD
Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 10.5	Approved:

Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-9	psi Professional Service Industries, Inc.
	Sheet: 1 of 1		
Project: 2010 Road Construction Projects Faust Court	Location: City of Ann Arbor, Washtenaw County, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					4" of ASPHALT 7" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist						
2SS					SILTY CLAY (CL) - few gravel, trace sand, occasional silt partings, mottled brown and gray, moist, hard		14 5,6,8	14			
3SS						5	11 4,5,6	15			
4SS							12 3,5,7	15			
5SS						10	12 3,5,7	17			
					SILTY CLAY (CL) - few gravel, trace sand, occasional brown silt partings, gray, moist, hard						
					END OF BORING						
					Boring Location: Faust Court ~6' West of Curb, 20' South of Driveway Centerline to #4 Faust Court						

"N" Blows Per Foot: 0 20 40 60
Unconfined Compressive Strength (tsf)
Calibrated Hand Penetrometer (tsf): 0 2 4 6

Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling Dry	Boring Started: 10/20/2009	Completed: 10/20/2009	Engineer: KFD
▼ Water Level At Completion Dry	Drilling Method: 3.25" HSA	Office: Plymouth	Drawn By: KFD
After Completion	Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 10.5
	Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.		Approved:

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-10
	Sheet: 1 of 1	
Project: 2010 Road Construction Projects Trowbridge Court	Location: City of Ann Arbor, Washtenaw County, Michigan	

Professional Service Industries, Inc.

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					1.3" of ASPHALT 7" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist						
2SS					FILL - SILTY CLAY, some sand, few gravel, occasional seams of topsoil, gray, moist *Organic Content = 4.6%		6 3,3,3	15			
3SS						5	4 3,2,2	30			
4SS					SILTY SAND (SM) - fine to medium, occasional clay seams, gray, moist, loose to medium dense		6 3,3,3	14			
5SS						10	11 4,5,6	15			
					END OF BORING						
					Boring Location: Trowbridge Court ~6' Northeast of Curb, 60' South of Champagne Drive						

"N" Blows Per Foot: 0 20 40 60

Unconfined Compressive Strength (tsf)

Calibrated Hand Penetrometer (tsf): 0 2 4 6

Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling Dry

▼ Water Level At Completion Dry

After Completion

Boring Started: 10/20/2009	Completed: 10/20/2009		Engineer: KFD
Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 10.5	Approved: MU

Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

Client: City of Ann Arbor	PSI Project #: 0381193 Sheet: 1 of 1	Boring Log Number: AO-11	Professional Service Industries, Inc.
Project: 2010 Road Construction Projects Trowbridge Court	Location: City of Ann Arbor, Washtenaw County, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					3" of ASPHALT 5" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist						
2SS					SILTY CLAY (CL) - few gravel, trace sand, mottled brown, orangish brown and gray, moist, hard		11 4,5,6	13			
3SS						5	16 4,7,9	14			
4SS							19 5,9,10	15			
5SS					SILTY CLAY (CL) - few gravel, trace sand, gray, moist, hard	10	11 4,5,6	16			
					END OF BORING						

"N" Blows Per Foot: 0 20 40 60

Unconfined Compressive Strength (tsf)

Calibrated Hand Penetrometer (tsf): 0 2 4 6

4.5+ 4.5+ 4.5+ 4.5+

Boring Location:

Champaign Drive (Court)
~6' east of Curb, 168' North of Champaign Drive

Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

Water Level While Drilling Dry

Water Level At Completion Dry

After Completion

Boring Started: 10/28/2009	Completed: 10/28/2009		Engineer: KFD
Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 10.5	Approved:

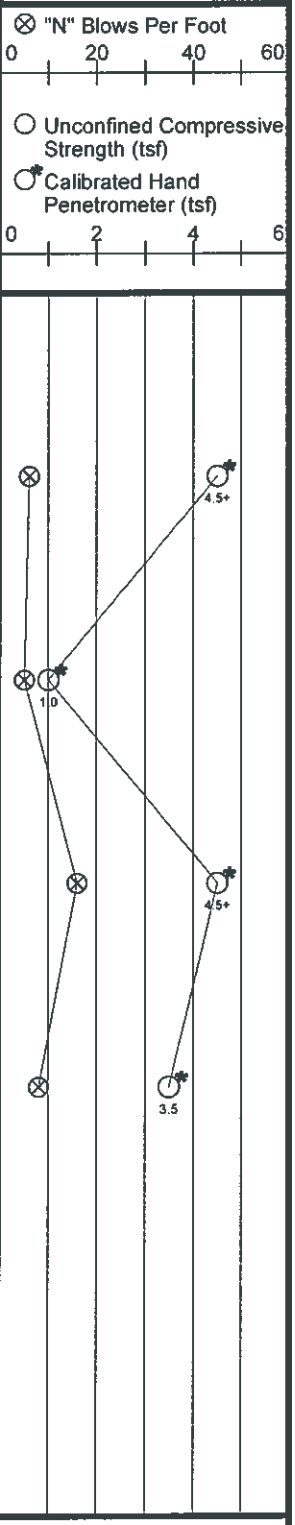
Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-12	PSI Professional Service Industries, Inc.
	Sheet: 1 of 1		
Project: 2010 Road Construction Projects Kilbrennan Court	Location: City of Ann Arbor, Washtenaw County, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					4.5" of ASPHALT						
					4" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist						
2SS					SILTY CLAY (CL) - few gravel, trace sand, occasional silt partings, mottled brown, orangish brown and gray, moist, hard		6 (2,3,3)	17			
3SS					SANDY CLAY (CL) - mottled orangish brown and gray, moist, stiff	5	5 (2,2,3)	16			
4SS					SILTY CLAY (CL) - few gravel, trace sand, occasional silt partings, mottled brown, orangish brown and gray, moist, hard		16 (4,7,9)	17			
5SS					SILTY CLAY (CL) - few gravel, trace sand, occasional silt partings, gray, moist, very stiff	10	8 (3,4,4)	16			
					END OF BORING						

Boring Location:

Champagne Drive (Court)
~40' East of Curb, 12' South of Centerline to Kilbrennan Court



Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling Dry	Boring Started: 10/28/2009 Completed: 10/28/2009		Engineer: KFD
▼ Water Level At Completion Dry	Drilling Method: 3.25" HSA	Office: Plymouth	Drawn By: KFD
____ After Completion	Driller: M. Dubnicki	Drill Rig: CME-75 Hole Depth (ft): 10.5	Approved:
	Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.		

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-13
	Sheet: 1 of 1	

Project: **2010 Road Construction Projects Kilbrennan Court**

Location: **City of Ann Arbor, Washtenaw County, Michigan**

Professional Service Industries, Inc.

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					3" of ASPHALT 4" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist SILTY CLAY (CL) - trace sand, few gravel, mottled brown, orangish brown and gray, moist, hard						
2SS							15 4,7,8	14			
3SS					CLAYEY SAND (SC) - fine to coarse, some gravel and silt, brown, moist, medium dense	5	15 5,6,9	8			
4SS					CLAYEY SAND (SC) - fine to coarse, some gravel and silt, occasional clay seams, gray, moist, medium dense		18 7,8,10	16			
5SS						10	16 5,7,9	13			
					END OF BORING Boring Location: Kilbrennan Court ~40' West of Curb from Dead End						

"N" Blows Per Foot: 0, 20, 40, 60

Unconfined Compressive Strength (tsf)

Calibrated Hand Penetrometer (tsf): 0, 2, 4, 6

4.5+

Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

Water Level While Drilling Dry

Water Level At Completion Dry

After Completion

Boring Started: **10/28/2009** Completed: **10/28/2009** Engineer: **KFD**

Drilling Method: **3.25" HSA** Office: **Plymouth** Drawn By: **KFD**

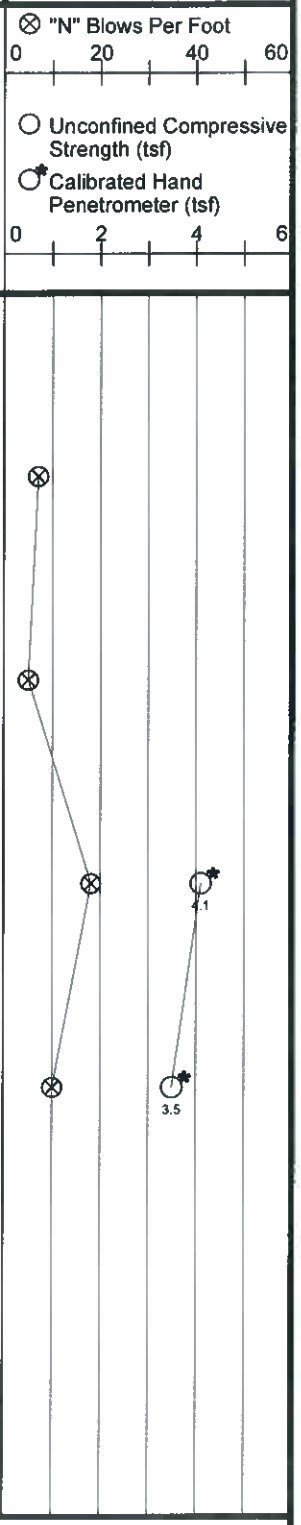
Driller: **M. Dubnicki** Drill Rig: **CME-75** Hole Depth (ft): **10.5** Approved:

Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-14
	Sheet: 1 of 1	
Project: 2010 Road Construction Projects W. Eden Court	Location: City of Ann Arbor, Washtenaw County, Michigan	

Professional Service Industries, Inc.

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					2.1" of ASPHALT 7" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist FILL - SANDY CLAY, few gravel, occasional silt and sand partings, brown, moist						
2SS							7 (3,3,4)	12			
3SS						5	5 (2,2,3)	13			
4SS					SANDY CLAY (CL) - some gravel, brown, moist, hard		18 (3,8,10)	10			
5SS					SANDY CLAY (CL) - some gravel, occasional sand seams, gray, moist, very stiff	10	10 (3,4,6)	9			
					END OF BORING						
					Boring Location: W. Eden Court ~6' North of Curb, In-Front of Driveway Centerline to #6 W. Eden Court						



Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

Water Level While Drilling Dry

Water Level At Completion Dry

After Completion

Boring Started: 10/28/2009 Completed: 10/28/2009 Engineer: KFD

Drilling Method: 3.25" HSA Office: Plymouth Drawn By: KFD

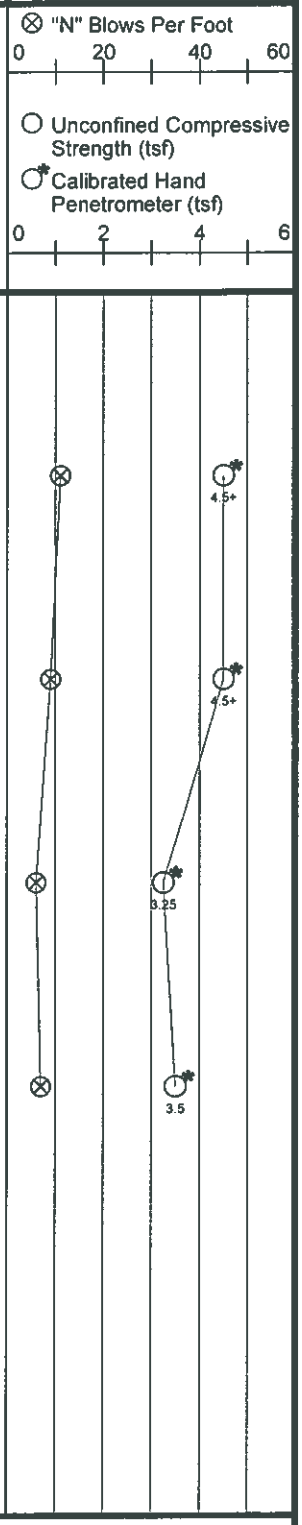
Driller: M. Dubnicki Drill Rig: CME-75 Hole Depth (ft): 10.5 Approved:

Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-15
	Sheet: 1 of 1	
Project: 2010 Road Construction Projects E. Eden Court	Location: City of Ann Arbor, Washtenaw County, Michigan	

Professional Service Industries, Inc.

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					2.5" of ASPHALT 8.5" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist SILTY CLAY (CL) - few gravel, trace sand, mottled brown and orangish brown, moist, hard						
2SS							11 4,5,6	15			
3SS						5	9 4,4,5	34			
4SS					SILTY CLAY (CL) - few gravel, trace sand, gray, moist, very stiff		6 3,3,3	19			
5SS						10	7 2,3,4	18			
					END OF BORING Boring Location: E. Eden Court ~6' South of Curb, 88' West of Centerline to Champagne Drive						



Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

Water Level While Drilling Dry

Water Level At Completion Dry

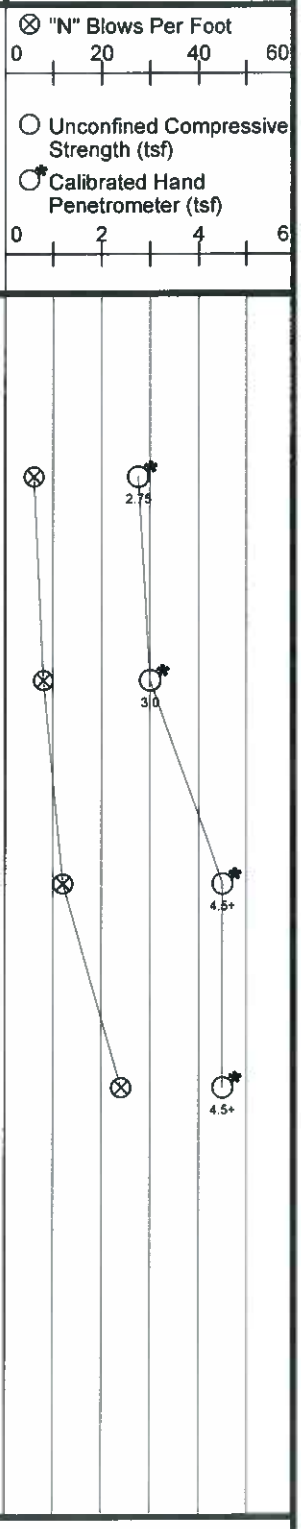
After Completion

Boring Started: 10/27/2009	Completed: 10/27/2009		Engineer: KFD
Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 10.5	Approved: MSS

Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-16	Professional Service Industries, Inc.
	Sheet: 1 of 1		
Project: 2010 Road Construction Projects Rockland Court	Location: City of Ann Arbor, Washtenaw County, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					2.6" of ASPHALT 7" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist SANDY CLAY (CL) - few gravel, mottled orangish brown and gray, moist, very stiff						
2SS							6 3,3,3	18			
3SS						5	8 3,4,4	20			
					SILTY CLAY (CL) - few gravel, trace sand, mottled brown and orangish brown, moist, hard						
4SS							12 5,6,6	15			
5SS						10	24 7,11,13	15			
					END OF BORING						
					Boring Location: Rockland Court ~6' West of Curb, 88' North of Centerline to Hemlock Drive						



Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

Water Level While Drilling Dry

Water Level At Completion Dry

After Completion

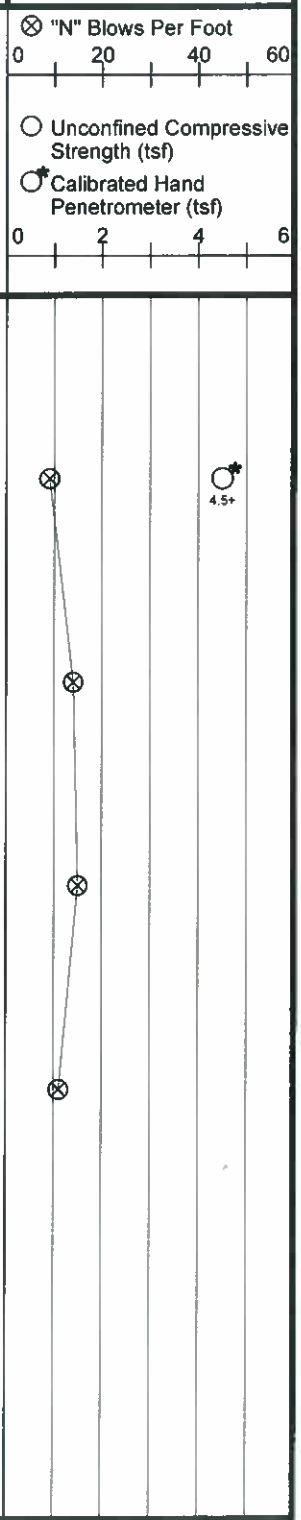
Boring Started: 10/26/2009	Completed: 10/26/2009		Engineer: KFD
Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 10.5	Approved:

Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-17
	Sheet: 1 of 1	
Project: 2010 Road Construction Projects Plainview Court	Location: City of Ann Arbor, Washtenaw County, Michigan	

Professional Service Industries, Inc.

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					2" of ASPHALT 7.3" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist						
2SS					SILTY CLAY (CL) - few gravel, trace sand, mottled brown, orangish brown and gray, moist, hard		9 4,4,5	13			
3SS					CLAYEY SAND (CL) - fine to coarse, some gravel and silt, brown, moist, medium dense	5	14 5,7,7	11			
4SS					CLAYEY SAND (CL) - fine to coarse, some gravel and silt, gray, wet, medium dense		15 7,8,7	14			
5SS						10	11 6,6,5	13			
					END OF BORING						
					Boring Location: Plainview Court ~6' West of Curb, 128' North of Centerline to Hemlock Drive						



Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

Water Level While Drilling 7'

Water Level At Completion 7'

Cave @ 7' After Completion

Boring Started: 10/26/2009	Completed: 10/26/2009	Engineer: KFD
Drilling Method: 3.25" HSA	Office: Plymouth	Drawn By: KFD
Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 10.5	Approved:

Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-18	Professional Service Industries, Inc.
	Sheet: 1 of 1		
Project: 2010 Road Construction Projects Blain Court	Location: City of Ann Arbor, Washtenaw County, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					2.5" of ASPHALT 7" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist						
2SS					SILTY CLAY (CL) - some sand, few gravel, mottled brown, orangish brown and gray, moist, hard		11 4,4,7	17			
3SS						5	16 5,7,9	15			
4SS					SILTY CLAY (CL) - some sand, few gravel, gray, moist, hard to very stiff		19 3,8,11	16			
5SS						10	10 4,5,5	17			
					END OF BORING						

⊗ "N" Blows Per Foot (0, 20, 40, 60)

○ Unconfined Compressive Strength (tsf)

Calibrated Hand Penetrometer (tsf) (0, 2, 4, 6)

4.5+ 4.5+ 4.5+ 3.5

Boring Location:

Blain Court
~6' South of Curb, 12' West of Driveway
Centerline to #12 Blain Court

Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling Dry

▼ Water Level At Completion Dry

After Completion

Boring Started: 10/28/2009	Completed: 10/28/2009		Engineer: KFD
Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 10.5	Approved:

Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-19
	Sheet: 1 of 1	
Project: 2010 Road Construction Projects Hemlock Drive	Location: City of Ann Arbor, Washtenaw County, Michigan	

Professional Service Industries, Inc.

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					3.8" of ASPHALT						
					10" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist						
2SS					SILTY CLAY (CL) - few gravel, trace sand, mottled brown, orangish brown and gray, moist to wet, hard		12 (4,5,7)	13			
3SS						5	16 (5,8,10)	18			
4SS							16 (7,7,9)	17			
					SILTY CLAY (CL) - few gravel, trace sand, gray, wet, hard						
5SS						10	12 (5,6,6)	17			
					END OF BORING						

"N" Blows Per Foot: 0 20 40 60

Unconfined Compressive Strength (tsf)

Calibrated Hand Penetrometer (tsf): 0 2 4 6

4.5+ 4.5+ 4.5+ 4.5+

Boring Location:

West Bound Champaign Drive
~6' South of Curb, 24' East of Centerline to Rockland Court

Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling 6'

▼ Water Level At Completion 6'
Cave @ 5' After Completion

Boring Started: 10/26/2009	Completed: 10/26/2009		Engineer: KFD
Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 10.5	Approved:

Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

Client: City of Ann Arbor	PSI Project #: 0381193 Sheet: 1 of 1	Boring Log Number: AO-20	Professional Service Industries, Inc.
Project: 2010 Road Construction Projects Hemlock Drive	Location: City of Ann Arbor, Washtenaw County, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					4" of ASPHALT 6.5" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist FILL - SILTY CLAY, some sand, occasional sand seams, brown, moist						
2SS							7 (3,3,4)	16			
3SS						5	7 (3,3,4)	16			
4SS					SILTY SAND (SM) - fine, trace clay, gray, very moist, loose		4 (3,2,2)	19			
5SS					SILTY CLAY (CL) - some sand, occasional silt partings, gray, moist, stiff	10	3 (2,1,2)	22			
					END OF BORING Boring Location: West Bound Hemlock Drive ~6' South of Curb, 88' East of Centerline to Plainview Court						

"N" Blows Per Foot: 0 20 40 60

Unconfined Compressive Strength (tsf)

Calibrated Hand Penetrometer (tsf): 0 2 4 6

1.0

Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

Water Level While Drilling Dry

Water Level At Completion Dry

After Completion

Boring Started: 10/27/2009	Completed: 10/27/2009		Engineer: KFD
Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 10.5	Approved: MJR

Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-21	Professional Service Industries, Inc.
	Sheet: 1 of 1		
Project: 2010 Road Construction Projects Hemlock Drive	Location: City of Ann Arbor, Washtenaw County, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					4" of ASPHALT						
					8.5" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist						
					FILL - SANDY CLAY, few gravel, trace organics, mottled brown and dark brown, moist						
2SS							9 (3,4,5)	13			
3SS						5	6 (2,3,3)	20			
					SILTY CLAY (CL) - few gravel, trace sand, gray, moist, very stiff						
4SS							5 (2,3,2)				
5SS						10	6 (2,3,3)	19			
					END OF BORING						

⊗ "N" Blows Per Foot (0, 20, 40, 60)

○ Unconfined Compressive Strength (tsf)

♂ Calibrated Hand Penetrometer (tsf) (0, 2, 4, 6)

♂ 2.25

Boring Location:

North Bound Hemlock Drive
~6' West of Curb, 24' South of Driveway
Centerline to #2175 Hemlock Drive

Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling Dry

▼ Water Level At Completion Dry

After Completion

Boring Started: 10/27/2009	Completed: 10/27/2009		Engineer: KFD
Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 10.5	Approved: MEL

Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-22	Professional Service Industries, Inc.
	Sheet: 1 of 1		
Project: 2010 Road Construction Projects Hemlock Drive	Location: City of Ann Arbor, Washtenaw County, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					4.9" of ASPHALT						
					5" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist						
2SS					FILL - SANDY CLAY, few gravel, trace organics, mottled brown and olive and dark brown, moist		7 (3,3,4)	15			
3SS					SILTY CLAY (CL) - some sand, few gravel, mottled brown and dark brown, moist, hard	5	9 (4,4,5)	16			
4SS							15 (4,7,8)	18			
5SS						10	12 (4,5,7)	21			
					END OF BORING						

Boring Location:

South Bound Hemlock Drive
~6' East of Curb, 5' North of Driveway
Centerline to #2188 Hemlock Drive

"N" Blows Per Foot: 0 20 40 60

Unconfined Compressive Strength (tsf)

Calibrated Hand Penetrometer (tsf): 0 2 4 6

4.5+ 4.5+ 4.5+

Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

Water Level While Drilling Dry

Water Level At Completion Dry

After Completion

Boring Started: 10/27/2009 Completed: 10/27/2009 Engineer: KFD

Drilling Method: 3.25" HSA Office: Plymouth Drawn By: KFD

Driller: M. Dubnicki Drill Rig: CME-75 Hole Depth (ft): 10.5 Approved:

Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-23	Professional Service Industries, Inc.
	Sheet: 1 of 1		
Project: 2010 Road Construction Projects Champagne Drive	Location: City of Ann Arbor, Washtenaw County, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					3.5" of ASPHALT 14.3" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist						
2SS					SILTY SAND (SM) - fine to medium, few gravel, trace clay, mottled brown and orangish brown, moist, medium dense		16 5,7,9	13			
3SS					SILTY SAND (SM) - fine, brown, wet, medium dense	5	13 5,8,7	18			
4SS					SILTY SAND (SM) - fine, gray, wet, medium dense to loose		10 3,4,6	21			
5SS						10	4 2,2,2	26			
					END OF BORING						
					Boring Location: East Bound Champagne Drive ~6' North of Curb, 172' South of Centerline to Jay Lee Court						

"N" Blows Per Foot: 0 20 40 60

Unconfined Compressive Strength (tsf)

Calibrated Hand Penetrometer (tsf): 0 2 4 6

Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

Water Level While Drilling 4.5'

Water Level At Completion 4.5'

Cave @ 3' After Completion

Boring Started: 10/20/2009	Completed: 10/20/2009		Engineer: KFD
Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 10.5	Approved:

Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-24
	Sheet: 1 of 1	
Project: 2010 Road Construction Projects Champagne Drive	Location: City of Ann Arbor, Washtenaw County, Michigan	

Professional Service Industries, Inc.

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					3.4" of ASPHALT						
					3.8" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist						
					SILTY SAND - fine to medium, brown, moist						
2SS					SILTY SAND (SM) - fine, few gravel, moist to wet, gray, medium dense		12 (5,5,7)	14			
3SS						5	12 (4,6,6)	22			
4SS					SILTY CLAY (CL) - few gravel, trace sand, gray, moist, hard		11 (4,5,6)	15			
5SS						10	7 (2,3,4)	16			
					END OF BORING						

"N" Blows Per Foot: 0 20 40 60

Unconfined Compressive Strength (tsf)

Calibrated Hand Penetrometer (tsf): 0 2 4 6

4.5+ 4.5+

Boring Location:

South Bound Champagne Drive
~6' Southeast of Curb, 92' Southwest of Centerline to Santa Rosa Drive

Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling 4'

▼ Water Level At Completion

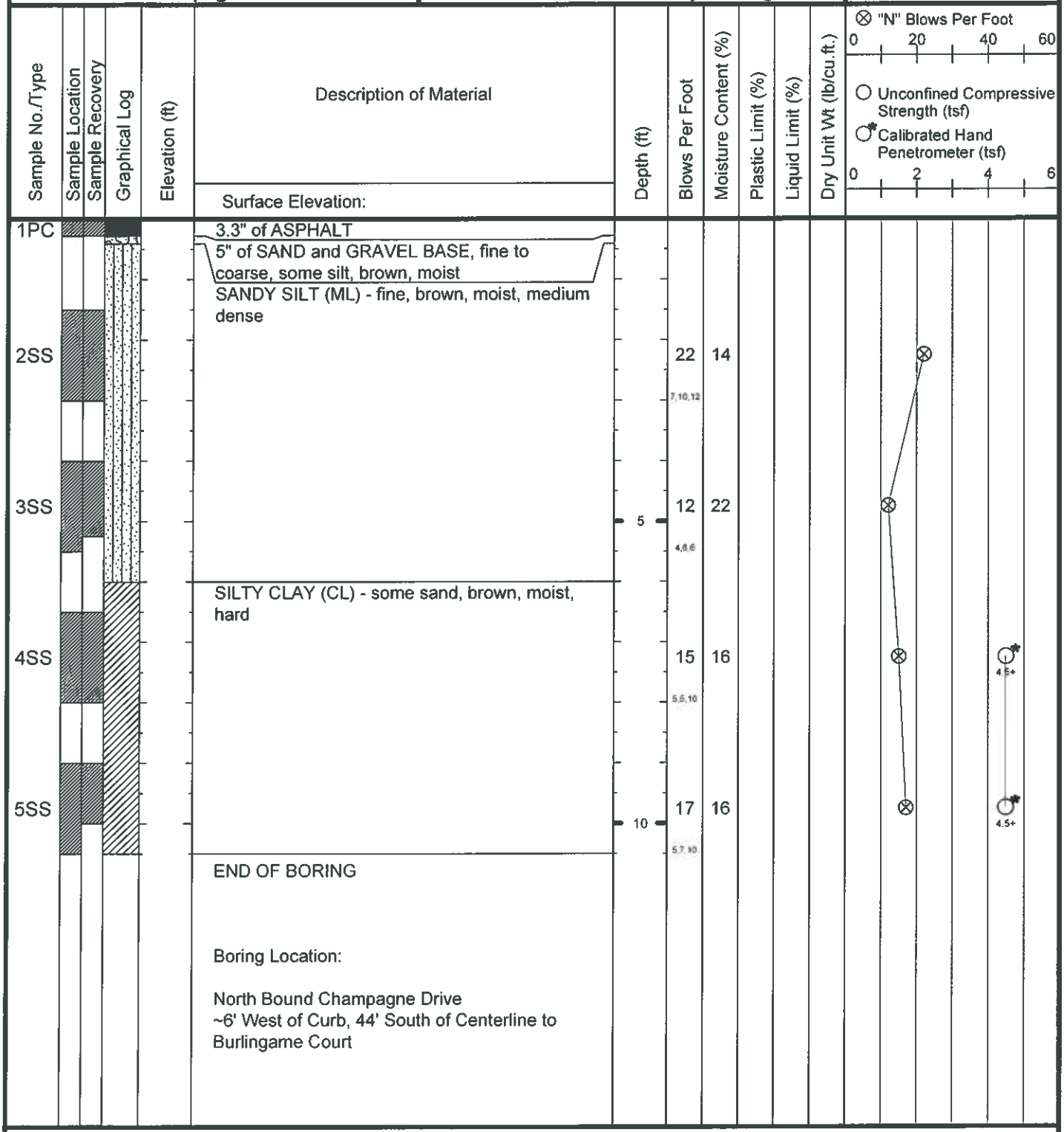
Cave @ 4' After Completion

Boring Started: 10/26/2009	Completed: 10/26/2009		Engineer: KFD
Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 10.5	Approved:

Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-25
	Sheet: 1 of 1	
Project: 2010 Road Construction Projects Champagne Drive	Location: City of Ann Arbor, Washtenaw County, Michigan	

Professional Service Industries, Inc.



Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling Dry	Boring Started: 10/26/2009	Completed: 10/26/2009	Engineer: KFD
▼ Water Level At Completion Dry	Drilling Method: 3.25" HSA	Office: Plymouth	Drawn By: KFD
After Completion	Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 10.5
	Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.		Approved: MES

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-26
	Sheet: 1 of 1	
Project: 2010 Road Construction Projects Champagne Drive	Location: City of Ann Arbor, Washtenaw County, Michigan	

Professional Service Industries, Inc.

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					5" of ASPHALT						
					7" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist						
					SANDY CLAY (CL) - few gravel, mottled brown, orangish brown and gray, moist, hard						
2SS							11 (3,4,7)	16			
					SANDY SILT (ML) - fine, brown, moist, loose to medium dense						
3SS						5	9 (3,4,5)	19			
4SS							19 (7,7,12)	16			
					SILTY CLAY (CL) - few gravel, trace sand, occasional silt partings, gray, hard						
5SS						10	16 (5,7,9)	14			
					END OF BORING						

"N" Blows Per Foot: 0 20 40 60

Unconfined Compressive Strength (tsf)

Calibrated Hand Penetrometer (tsf): 0 2 4 6

4.5+ 4.5+

Boring Location:

South Bound Champagne Drive
~6' East of Curb, 48' South of Centerline to Straton Court

Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

Water Level While Drilling Dry

Water Level At Completion Dry

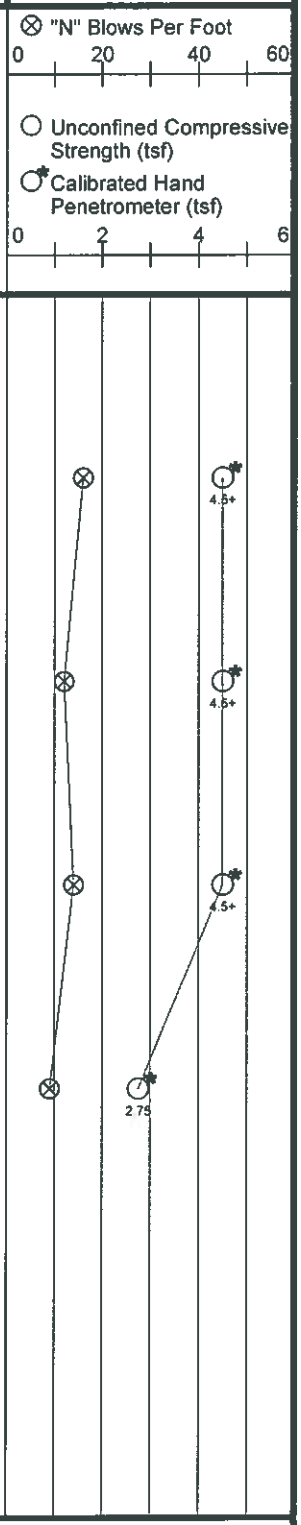
After Completion

Boring Started: 10/26/2009	Completed: 10/26/2009		Engineer: KFD
Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 10.5	Approved:

Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-27	Professional Service Industries, Inc.
	Sheet: 1 of 1		
Project: 2010 Road Construction Projects Champagne Drive	Location: City of Ann Arbor, Washtenaw County, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					4.8" of ASPHALT						
					6" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist						
					SILTY CLAY (CL) - few gravel, trace sand, occasional silt partings, mottled brown, orangish brown and gray, moist, hard						
2SS							16 (5,8,10)	10			
3SS						5	12 (4,5,7)	13			
					SILTY CLAY (CL) - few gravel, trace sand, occasional silt partings, mottled brown and gray, moist, hard to very stiff						
4SS							14 (5,6,8)	14			
5SS						10	9 (3,4,5)	15			
					END OF BORING						
					Boring Location:						
					North Bound Champagne Drive ~6' West of Curb, 24' South of Centerline to Downing Court						



Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling Dry	Boring Started: 10/26/2009	Completed: 10/26/2009		Engineer: KFD
▼ Water Level At Completion Dry	Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
_____ After Completion	Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 10.5	Approved:
	Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.			

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-28	Professional Service Industries, Inc.
	Sheet: 1 of 1		
Project: 2010 Road Construction Projects Champagne Drive	Location: City of Ann Arbor, Washtenaw County, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					5.5" of ASPHALT						
					9" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist						
					SILTY CLAY (CL) - some sand, mottled brown and dark brown, moist, hard						
2SS							11 (4,5,6)	14			
					SILTY CLAY (CL) - trace sand, few gravel, occasional sand partings, mottled brown, orangish brown and gray, moist, hard						
3SS						5	10 (3,5,5)	14			
					SANDY SILT (ML) - fine, gray, moist, medium dense						
4SS							13 (5,5,8)	16			
					SILTY SAND (SP-SM) - fine, gray, moist, medium dense						
5SS						10	12 (4,6,6)	13			
					END OF BORING						
					Boring Location: West Bound Champagne Drive ~6' South of Curb, 112' West of Centerline to Metroview Court						

"N" Blows Per Foot: 0 20 40 60

Unconfined Compressive Strength (tsf)

Calibrated Hand Penetrometer (tsf): 0 2 4 6

4.5+ 4.5+

Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling Dry

▼ Water Level At Completion Dry

After Completion

Boring Started: 10/26/2009 Completed: 10/26/2009 Engineer: KFD

Drilling Method: 3.25" HSA Office: Plymouth Drawn By: KFD

Driller: M. Dubnicki Drill Rig: CME-75 Hole Depth (ft): 10.5 Approved: MEL

Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-29
	Sheet: 1 of 1	
Project: 2010 Road Construction Projects Champagne Drive	Location: City of Ann Arbor, Washtenaw County, Michigan	

Professional Service Industries, Inc.

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					7" of ASPHALT						
					8" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist						
2SS					FILL - SILTY CLAY, some sand, few gravel, trace organics, mottled brown, dark brown and gray, moist *Organic Content = 3.3%		10 4,5,5	12			
3SS						5	6 2,3,3	15			
4SS					SILTY CLAY (CL) - few gravel, trace sand, brown, moist, hard		7 2,3,4	13			
5SS						10	7 2,3,4				
					END OF BORING						

"N" Blows Per Foot: 0 20 40 60

Unconfined Compressive Strength (tsf)

Calibrated Hand Penetrometer (tsf): 0 2 4 6

4.5+

Boring Location:

East Bound Champaign Drive
~6' North of Curb, 20' West of Centerline to Faust Court

Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

Water Level While Drilling Dry

Water Level At Completion Dry

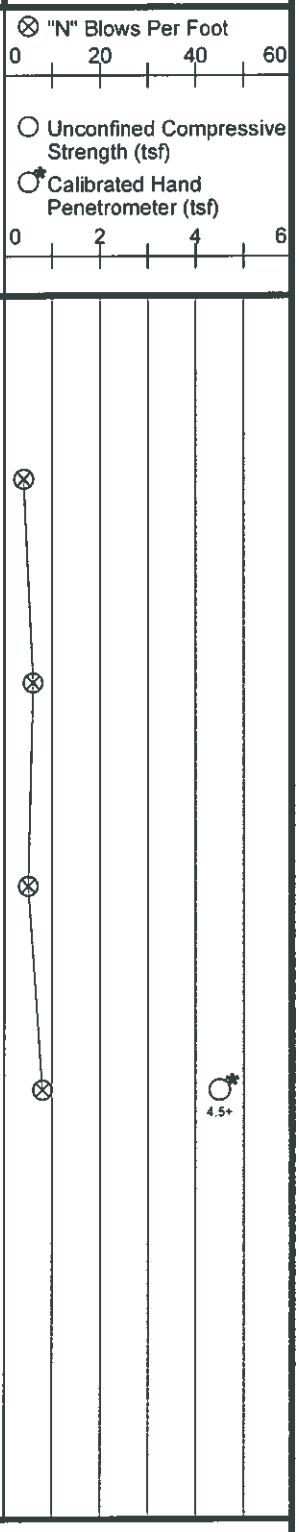
After Completion

Boring Started: 10/26/2009	Completed: 10/26/2009		Engineer: KFD
Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 10.5	Approved:

Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

Client: City of Ann Arbor	PSI Project #: 0381193 Sheet: 1 of 1	Boring Log Number: AO-30	psi Professional Service Industries, Inc.
Project: 2010 Road Construction Projects Champagne Drive	Location: City of Ann Arbor, Washtenaw County, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					5" of ASPHALT 5" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist						
2SS					FILL - SILTY CLAY, some sand, few gravel, some organics, trace wood, mottled brown, dark brown and black, moist *Organic Content = 4.0% to 5.0%		4 2,2,2	18			
3SS					FILL - SILTY CLAY, few gravel, trace sand and organics, mottled brown, dark brown and gray, moist *Organic Content = 3.5%	5	6 3,3,3	24			
4SS							5 2,2,3	21			
5SS					SILTY CLAY (CL) - few gravel, trace sand, occasional sand seams, brown, moist, hard	10	8 3,3,4	15			
					END OF BORING Boring Location: North Bound Champaign Drive ~6' South of Curb, 20' East of Centerline to Trowbridge Court						



Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling Dry	Boring Started: 10/26/2009 Completed: 10/26/2009		Engineer: KFD
▼ Water Level At Completion Dry	Drilling Method: 3.25" HSA	Office: Plymouth	Drawn By: KFD
____ After Completion	Driller: M. Dubnicki	Drill Rig: CME-75 Hole Depth (ft): 10.5	Approved: MK
	Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.		

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-31
	Sheet: 1 of 1	

Project: **2010 Road Construction Projects Champagne Drive**

Location: **City of Ann Arbor, Washtenaw County, Michigan**

Professional Service Industries, Inc.

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					3.9" of ASPHALT						
					6" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist						
2SS					SILTY CLAY (CL) - few gravel, trace sand, mottled brown, orangish brown and gray, moist, hard		10 (3,4,6)	18			
3SS					CLAYEY SAND (SC) - fine to coarse, few gravel, trace silt, brown, moist, loose	5	6 (2,3,3)	13			
4SS					SANDY CLAY (CL) - few gravel, mottled brown and orangish brown, moist, stiff		4 (2,2,2)	15			
5SS					SANDY CLAY (CL) - few gravel, gray, moist, hard	10	6 (2,3,3)	12			
					END OF BORING						

"N" Blows Per Foot: 0, 20, 40, 60

Unconfined Compressive Strength (tsf)

Calibrated Hand Penetrometer (tsf): 0, 2, 4, 6

4.5+ 1.5 4.5+

Boring Location:

South Bound Champagne Drive
~6' East of Curb, 48' North of Centerline to Kilbrennan Court

Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

Water Level While Drilling Dry

Water Level At Completion Dry

After Completion

Boring Started: 10/28/2010	Completed: 10/28/2010		Engineer: KFD
Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 10.5	Approved:

Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

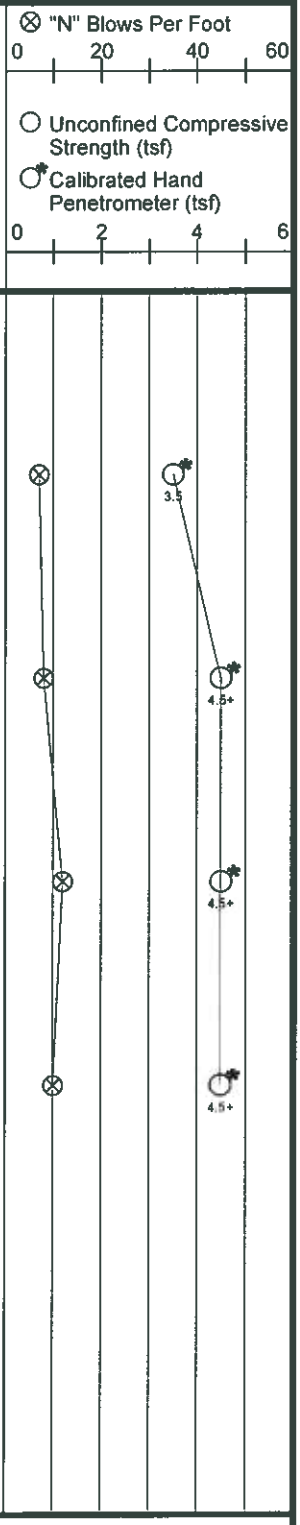
Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AO-32
	Sheet: 1 of 1	
Project: 2010 Road Construction Projects Champagne Drive	Location: City of Ann Arbor, Washtenaw County, Michigan	

Professional Service Industries, Inc.

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1PC					4.3" of ASPHALT						
					8" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist						
					SANDY CLAY (CL) - few gravel, occasional sand seams, mottled brown and orangish brown, moist, very stiff to hard						
2SS							7 (3,3,4)	16			
3SS						5	8 (3,4,4)	13			
4SS							12 (3,5,7)	15			
					SANDY CLAY (CL) - few gravel, occasional sand seams, gray, moist, hard						
5SS						10	10 (4,5,5)	17			
					END OF BORING						

Boring Location:

South Bound Champagne Drive
~6' East of Curb, 40' North of Centerline to W. Eden Court

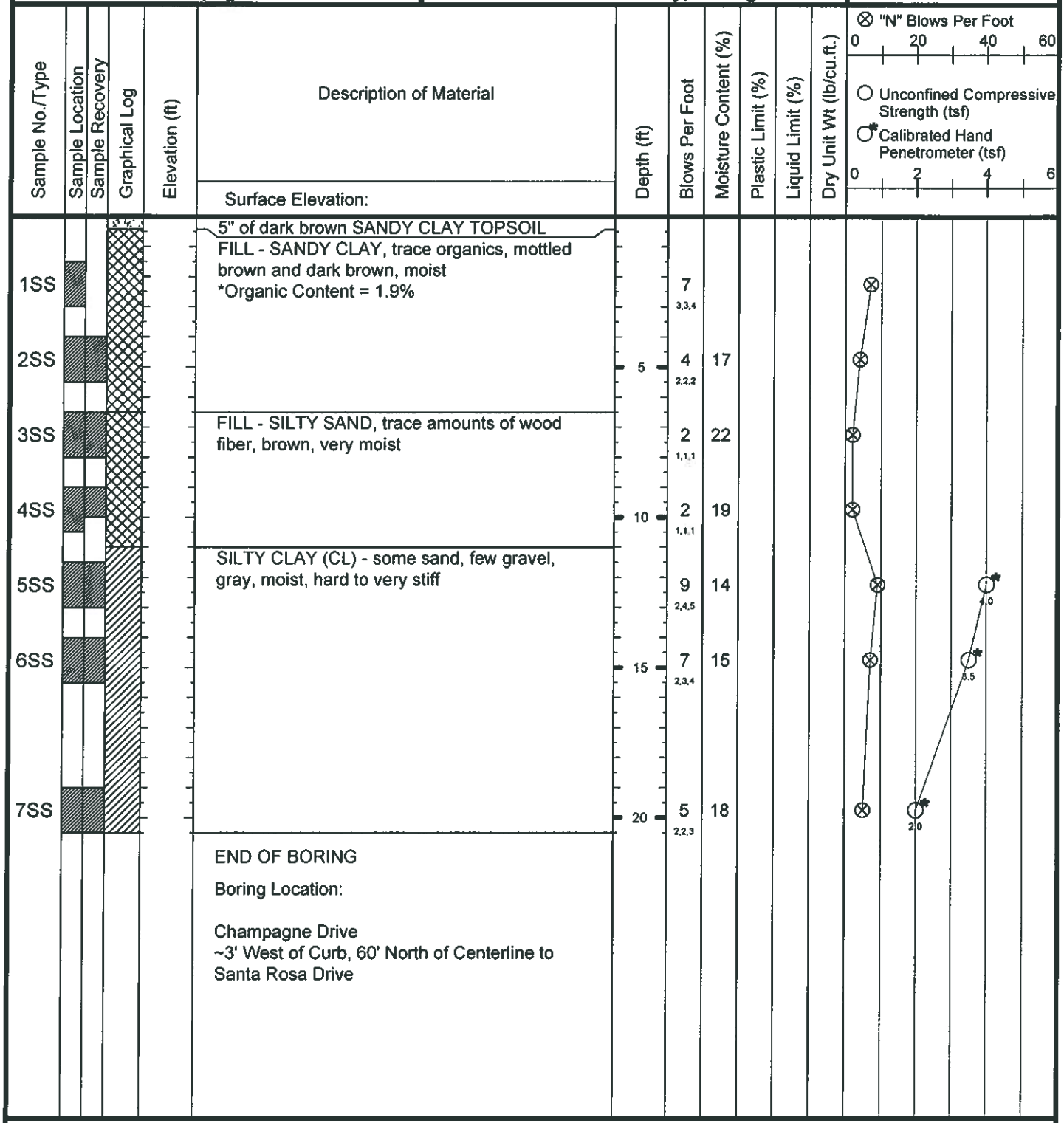


Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling Dry	Boring Started: 10/27/2010	Completed: 10/27/2010	Engineer: KFD
▼ Water Level At Completion Dry	Drilling Method: 3.25" HSA	Office: Plymouth	Drawn By: KFD
After Completion	Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 10.5
	Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.		Approved:

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AOE-1
	Sheet: 1 of 1	
Project: 2010 Road Construction Projects Champagne Drive	Location: City of Ann Arbor, Washtenaw County, Michigan	

Professional Service Industries, Inc.

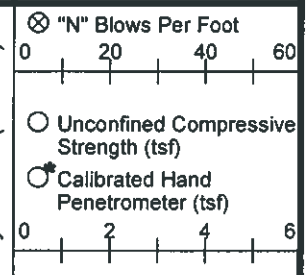


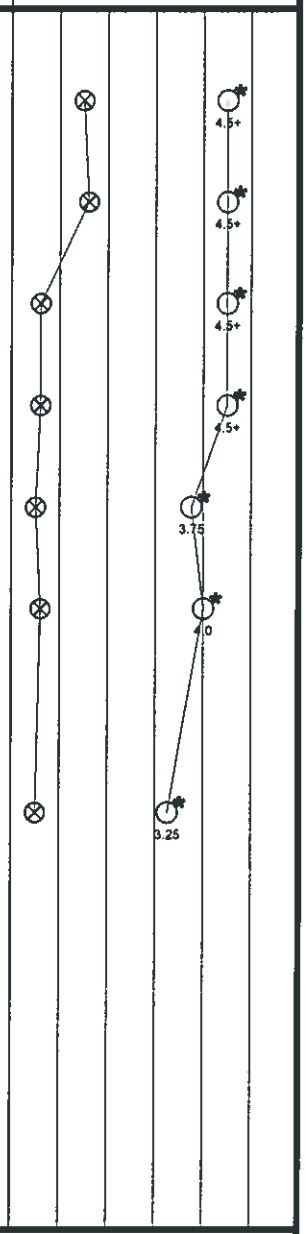
Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling Dry	Boring Started: 10/26/2009	Completed: 10/26/2009		Engineer: KFD
▼ Water Level At Completion Dry	Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
_____ After Completion	Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 20.5	Approved:
	Note: Boring backfilled with auger cuttings unless otherwise noted.			

Client: **City of Ann Arbor**	PSI Project #: **0381193** Sheet: **1** of **1**	Boring Log Number: **AOE-2**	*Professional Service Industries, Inc.*
Project: **2010 Road Construction Projects** **Burlingame Court**	Location: **City of Ann Arbor,** **Washtenaw County, Michigan**		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
					2.5" of dark brown SANDY CLAY TOPSOIL						
1SS					SILTY CLAY (CL) - trace hair roots, mottled brown, orangish brown and gray, moist, hard		15 (5,8,9)	21			
2SS					SILTY CLAY (CL) - some sand, few gravel, mottled brown and orangish brown, moist, hard	5	16 (8,8,8)	21			
3SS					SILTY CLAY (CL) - some sand, few gravel, gray, moist, hard to very stiff		6 (3,3,3)	16			
4SS						10	6 (3,3,3)	14			
5SS							5 (2,2,3)	18			
6SS						15	6 (2,3,3)	15			
7SS						20	5 (2,2,3)	18			
					END OF BORING						
					Boring Location: Burlingame Court ~3' North of Curb, 52' West of Driveway Centerline to #5 Burlingame Court						



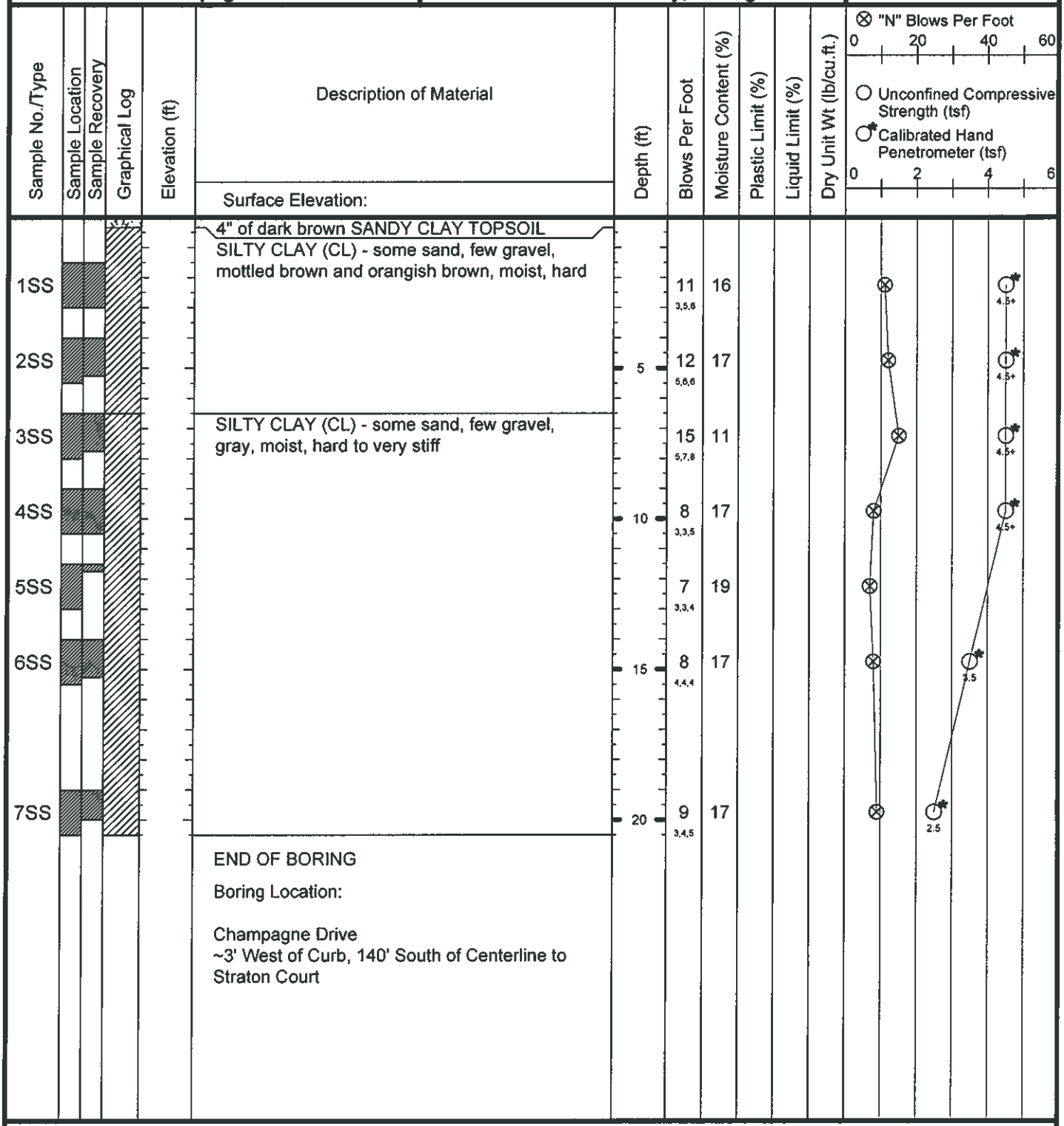


Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling **Dry**	Boring Started: **10/20/2009**	Completed: **10/20/2009**		Engineer: **KFD**
▼ Water Level At Completion **Dry**	Drilling Method: **3.25" HSA**		Office: **Plymouth**	Drawn By: **KFD**
_____ After Completion	Driller: **M. Dubnicki**	Drill Rig: **CME-75**	Hole Depth (ft): **20.5**	Approved:
	Note: Boring backfilled with auger cuttings unless otherwise noted.			

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AOE-3
	Sheet: 1 of 1	
Project: 2010 Road Construction Projects Champagne Drive	Location: City of Ann Arbor, Washtenaw County, Michigan	

Professional Service Industries, Inc.

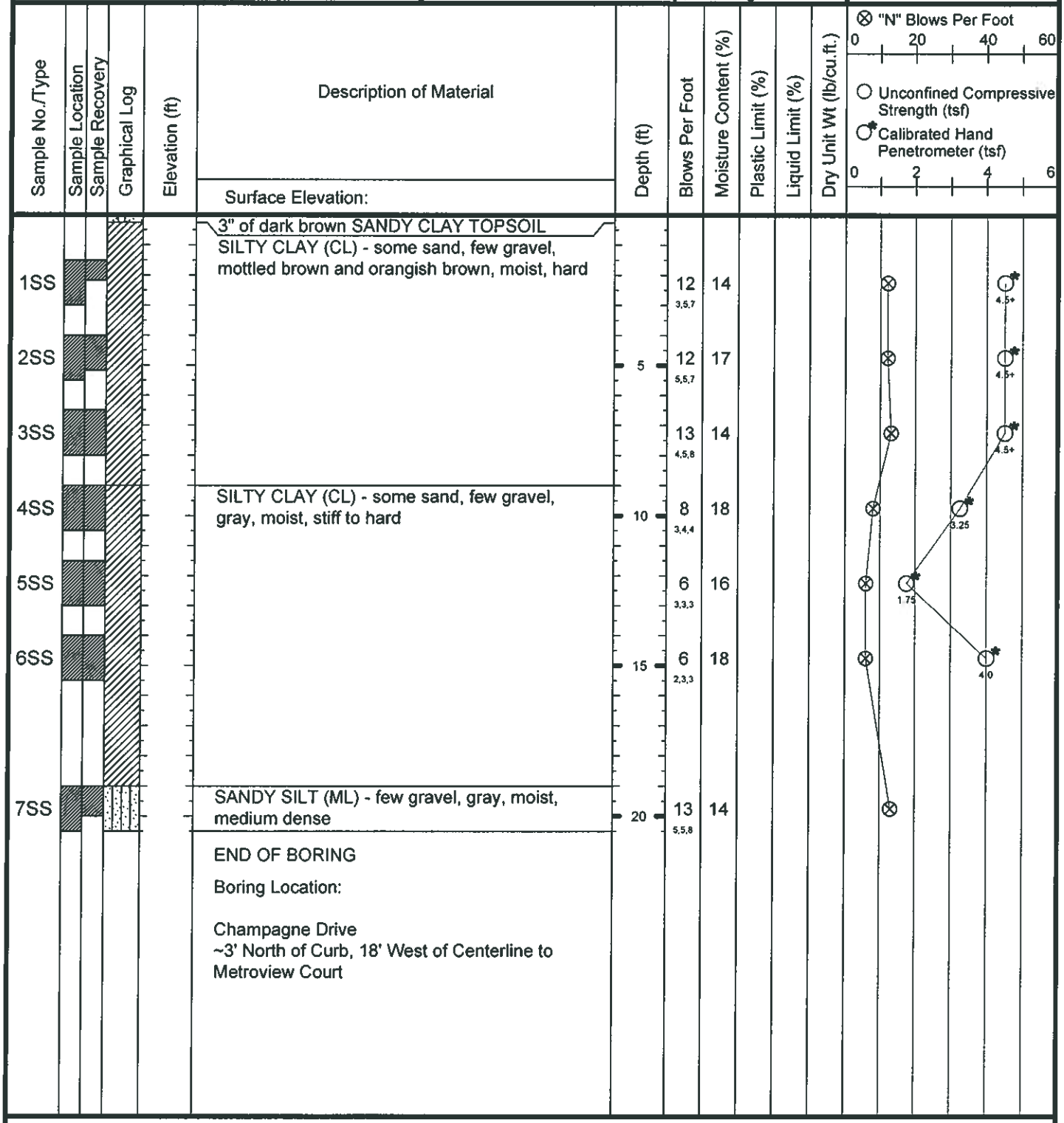


Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling Dry	Boring Started: 10/19/2009	Completed: 10/19/2009		Engineer: KFD
▼ Water Level At Completion Dry	Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
_____ After Completion	Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 20.5	Approved:
	Note: Boring backfilled with auger cuttings unless otherwise noted.			

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AOE-4
	Sheet: 1 of 1	
Project: 2010 Road Construction Projects Champagne Drive	Location: City of Ann Arbor, Washtenaw County, Michigan	

Professional Service Industries, Inc.

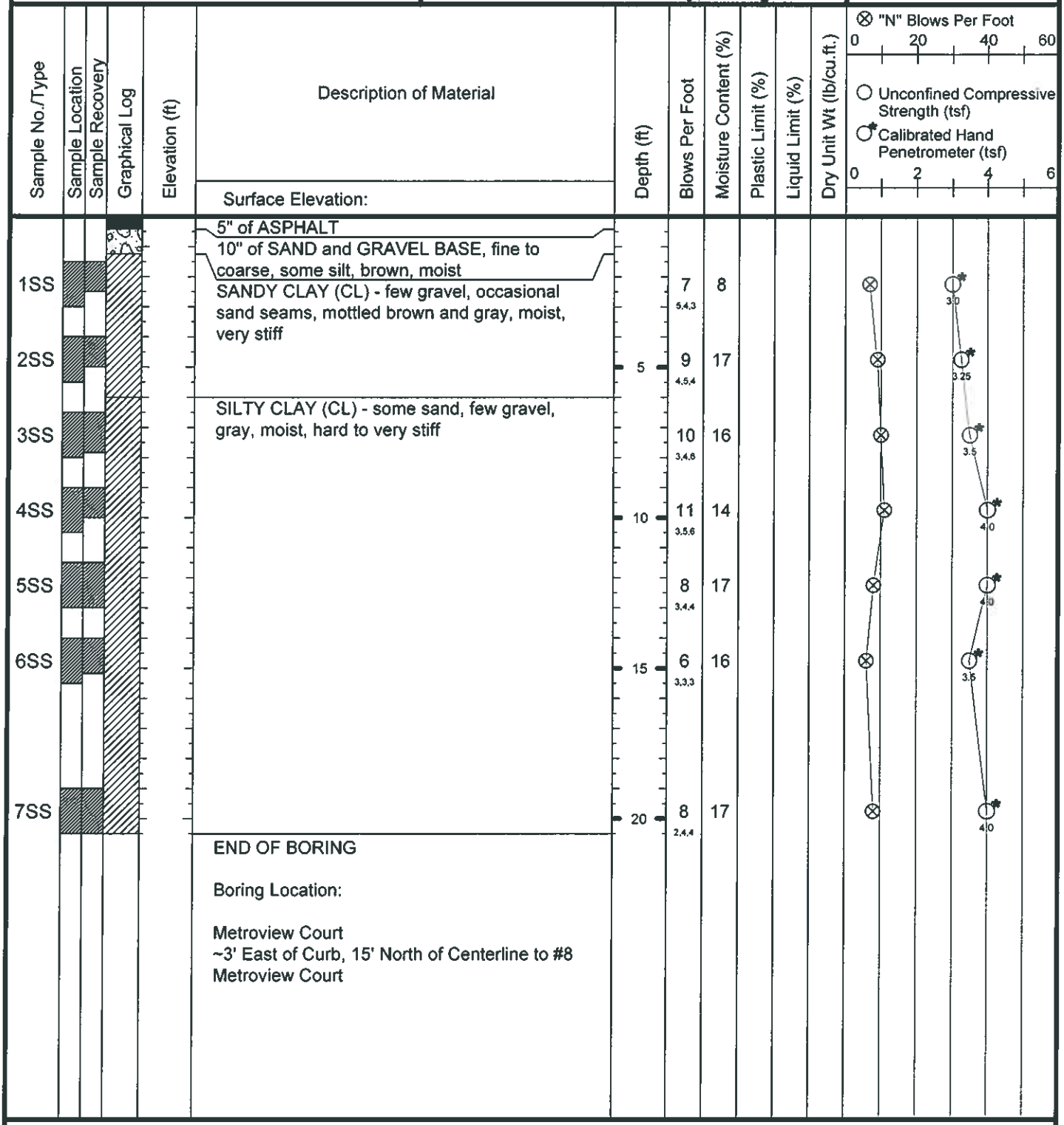


Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling Dry	Boring Started: 10/19/2009	Completed: 10/19/2009		Engineer: KFD
▼ Water Level At Completion Dry	Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
After Completion	Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 20.5	Approved:
	Note: Boring backfilled with auger cuttings unless otherwise noted.			

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AOE-6
	Sheet: 1 of 1	
Project: 2010 Road Construction Projects Metroview Court	Location: City of Ann Arbor, Washtenaw County, Michigan	

Professional Service Industries, Inc.

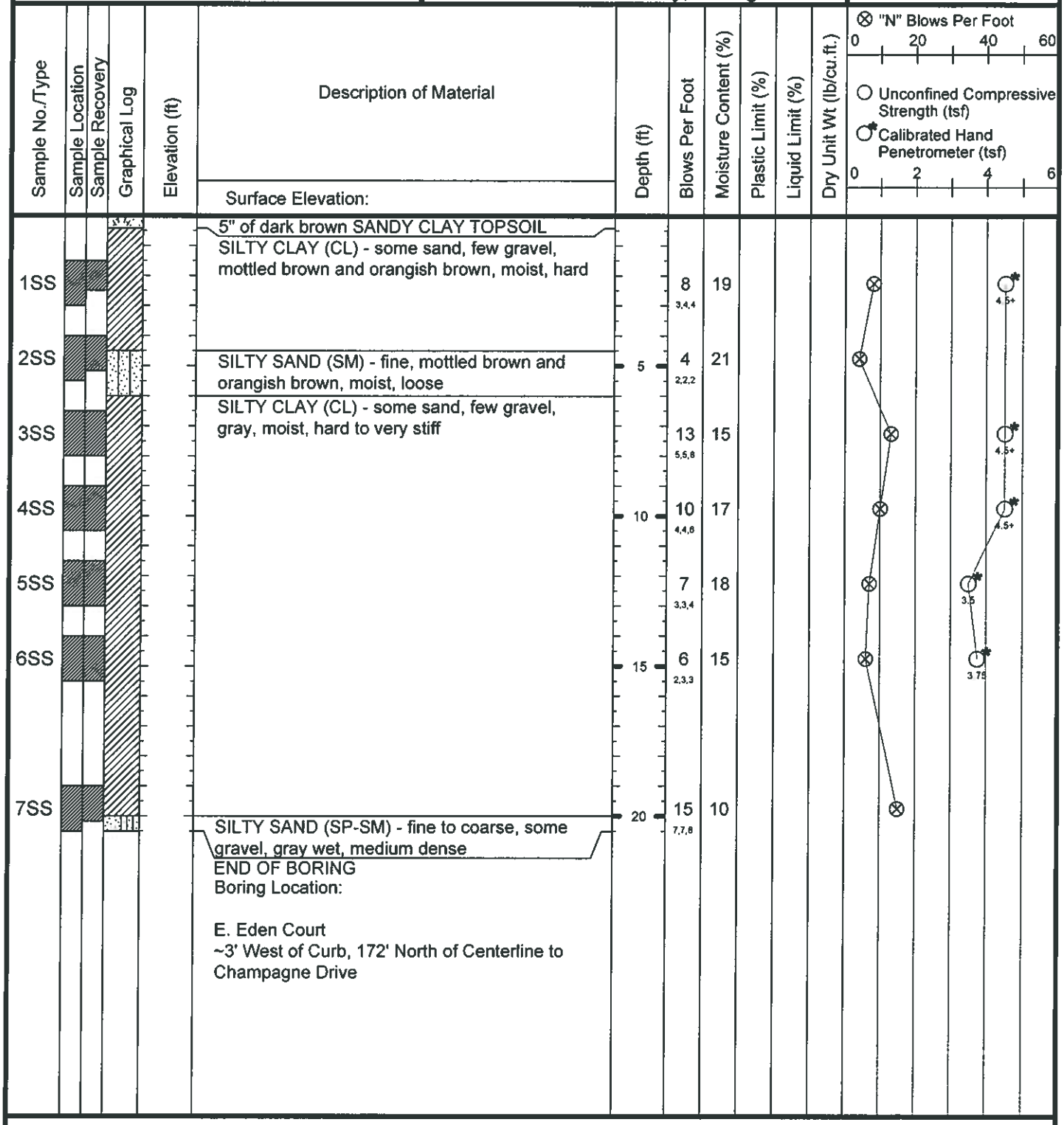


Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling Dry	Boring Started: 10/27/2009 Completed: 10/27/2009		Engineer: KFD
▼ Water Level At Completion Dry	Drilling Method: 3.25" HSA	Office: Plymouth	Drawn By: KFD
____ After Completion	Driller: M. Dubnicki	Drill Rig: CME-75 Hole Depth (ft): 20.5	Approved:
	Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.		

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AOE-5
	Sheet: 1 of 1	
Project: 2010 Road Construction Projects Metroview Court	Location: City of Ann Arbor, Washtenaw County, Michigan	

PSI — Professional Service Industries, Inc.

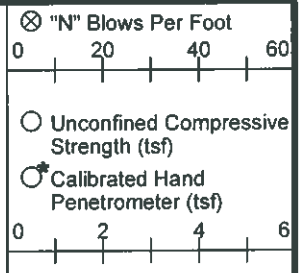


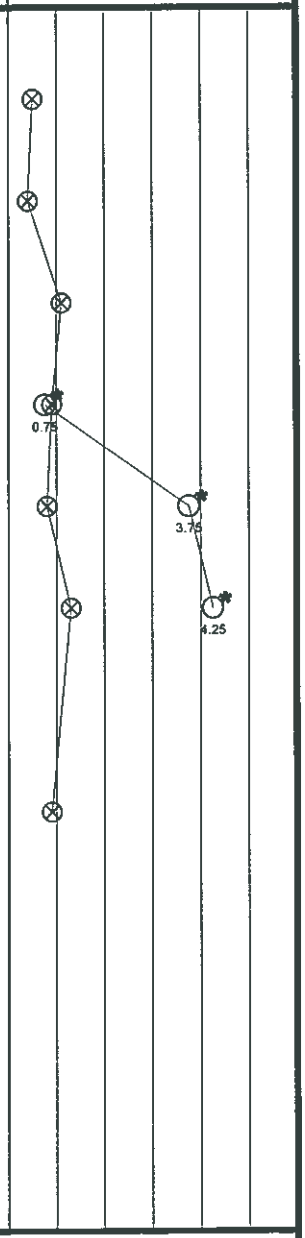
Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling Dry	Boring Started: 10/27/2009	Completed: 10/27/2009	Engineer: KFD
▼ Water Level At Completion Dry	Drilling Method: 3.25" HSA	Office: Plymouth	Drawn By: KFD
_____ After Completion	Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 20.5
	Note: Boring backfilled with auger cuttings unless otherwise noted.		Approved:

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AOE-12	Professional Service Industries, Inc.
	Sheet: 1 of 1		
Project: 2010 Road Construction Projects Hemlock Drive	Location: City of Ann Arbor, Washtenaw County, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
					4.5" of ASPHALT						
					6.5" of SAND and GRAVEL BASE, fine to coarse, some silt, brown, moist						
1SS					SANDY SILT (ML) - mottled orangish brown and brown, moist, loose		5 (3,2,3)	17			
2SS						5	4 (3,2,2)	22			
3SS							11 (7,6,5)	15			
					SILTY SAND (SP-SM) - fine to coarse, some gravel, trace cobble, brown, very moist, medium dense						
4SS					SANDY CLAY (CL) - occasional fine to coarse wet sand seams, gray, very moist, medium stiff	10	9 (5,5,4)	17			
					SILTY CLAY (CL) - some sand, few gravel, occasional sand seams, gray, moist, very stiff to hard						
5SS							8 (3,4,4)	18			
6SS						15	13 (4,6,7)	12			
					▽						
7SS					SILTY SAND (SM) - fine to coarse, some gravel, gray, wet, loose	20	9 (4,5,4)	17			
					END OF BORING						
					Boring Location:						
					Hemlock Drive ~6' South of Curb, 28' West of Centerline to Plainview Court						





Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling 19.5

▼ Water Level At Completion Dry

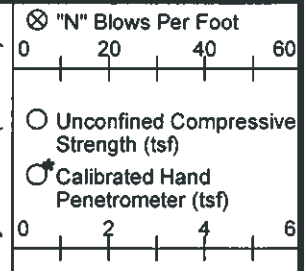
After Completion

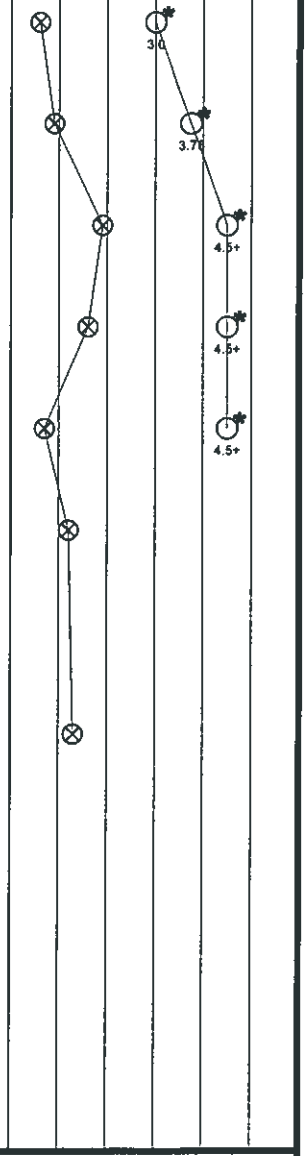
Boring Started: 10/26/2009	Completed: 10/26/2009		Engineer: KFD
Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 20.5	Approved: MSE

Note: Boring backfilled with auger cuttings and patched with cold bituminous patch.

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AOE-7	Professional Service Industries, Inc.
	Sheet: 1 of 1		
Project: 2010 Road Construction Projects Champagne Drive	Location: City of Ann Arbor, Washtenaw County, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
					6" of dark brown SANDY CLAY TOPSOIL						
1SS					SILTY CLAY (CL) - some sand, few gravel, occasional sand seams, mottled brown and orangish brown, moist, very stiff		6 (2,3,3)	18			
2SS						5	9 (3,4,5)	15			
3SS					SILTY CLAY (CL) - some sand, few gravel, mottled brown and gray, moist, hard		19 (5,9,10)	17			
4SS						10	16 (4,7,9)	17			
5SS					SILTY CLAY (CL) - some sand, few gravel, gray, moist, hard		7 (2,3,4)	17			
6SS					SANDY SILT (ML) - occasioanl clay seams, wet, medium dense	15	12 (4,5,7)	16			
7SS					SILTY SAND (SM) - fine to medium, gray, wet, medium dense	20	13 (3,6,7)	21			
					END OF BORING						
					Boring Location:						
					Champagne Drive ~3' West of Curb, 140' North of Centerline to W. Eden Court						



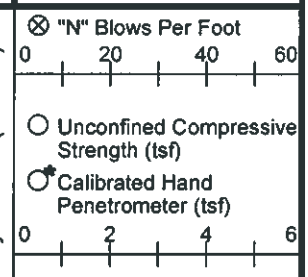


Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling 14.5	Boring Started: 10/28/2009	Completed: 10/28/2009		Engineer: KFD
▼ Water Level At Completion 14.5	Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
14.5 After Completion	Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 20.5	Approved: MEE
	Note: Boring backfilled with auger cuttings unless otherwise noted.			

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AOE-9	Professional Service Industries, Inc.
	Sheet: 1 of 1		
Project: 2010 Road Construction Projects E. Eden Court	Location: City of Ann Arbor, Washtenaw County, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
					4" of dark brown SANDY CLAY TOPSOIL						
1SS					SILTY CLAY (CL) - some sand, few gravel, mottled brown and orangish brown, moist, hard		10 (4,5,5)	15			
2SS						5	11 (5,5,6)	15			
3SS					SILTY CLAY (CL) - some sand, few gravel, gray, moist, hard		9 (3,4,5)	17			
4SS						10	7 (2,3,4)	16			
5SS					SILTY SAND (SM) - fine, gray, wet, medium dense		18 (3,7,11)	16			
6SS					SANDY SILT (ML) - gray, wet, medium dense	15	12 (3,5,7)	15			
7SS						20	10 (4,5,5)	17			
					END OF BORING						
					Boring Location:						
					E. Eden Court ~3' South of Curb152' East of Centerline to Champagne Drive						

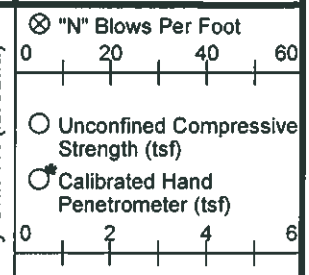


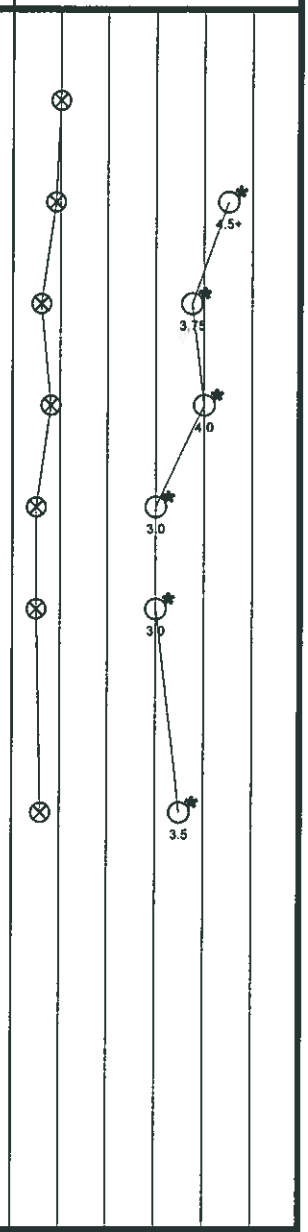
Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling 12	Boring Started: 10/28/2009 Completed: 10/28/2009		Engineer: KFD
▼ Water Level At Completion 12	Drilling Method: 3.25" HSA	Office: Plymouth	Drawn By: KFD
_____ After Completion	Driller: M. Dubnicki	Drill Rig: CME-75 Hole Depth (ft): 20.5	Approved:
	Note: Boring backfilled with auger cuttings unless otherwise noted.		

Client: **City of Ann Arbor**	PSI Project #: **0381193**	Boring Log Number: **AOE-10**	Professional Service Industries, Inc.
	Sheet: **1** of **1**		
Project: **2010 Road Construction Projects Blain Court**	Location: **City of Ann Arbor, Washtenaw County, Michigan**		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
1SS					4" of dark brown SANDY CLAY TOPSOIL FILL - SILTY SAND, fine to medium, few gravel, brown, moist		10 (3,5,5)	11			
2SS					SILTY CLAY (CL) - some sand, few gravel, mottled brown and orangish brown, moist, hard to very stiff	5	9 (3,4,5)	16			
3SS					SILTY CLAY (CL) - some sand, few gravel, gray, moist, hard to very stiff		6 (2,3,3)	17			
4SS						10	8 (2,4,4)	17			
5SS							5 (1,2,3)	15			
6SS						15	5 (2,2,3)	19			
7SS						20	6 (2,3,3)	19			
					END OF BORING Boring Location: Blain Court ~3' South of Curb, 88' West of Driveway Centerline to #7 Blain Court						



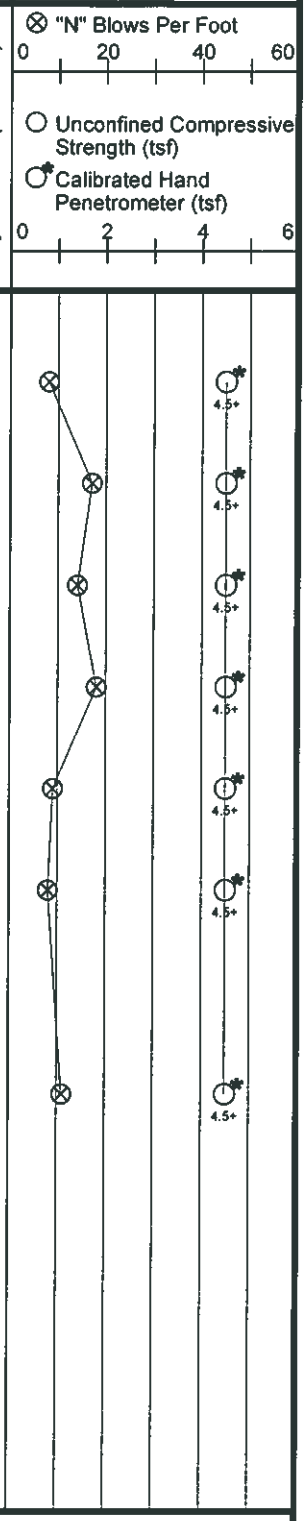


Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling Dry	Boring Started: **10/28/2009** Completed: **10/28/2009**		Engineer: **KFD**
▼ Water Level At Completion Dry	Drilling Method: **3.25" HSA**	Office: **Plymouth**	Drawn By: **KFD**
_____ After Completion	Driller: **M. Dubnicki**	Drill Rig: **CME-75** Hole Depth (ft): **20.5**	Approved: MCL
	Note: Boring backfilled with auger cuttings unless otherwise noted.		

Client: City of Ann Arbor	PSI Project #: 0381193 Sheet: 1 of 1	Boring Log Number: AOE-11	Professional Service Industries, Inc.
Project: 2010 Road Construction Projects Hemlock Drive	Location: City of Ann Arbor, Washtenaw County, Michigan		

Sample No./Type	Sample Location	Sample Recovery	Graphical Log	Elevation (ft)	Description of Material	Depth (ft)	Blows Per Foot	Moisture Content (%)	Plastic Limit (%)	Liquid Limit (%)	Dry Unit Wt (lb/cu.ft.)
					Surface Elevation:						
					4" of dark brown SANDY CLAY TOPSOIL						
1SS					SILTY CLAY (CL) - some sand, few gravel, mottled brown and orangish brown, moist, hard		8 (3,4,4)	19			
2SS						5	17 (4,7,10)	17			
3SS							14 (5,7,7)	18			
4SS						10	18 (5,8,10)	15			
5SS					SILTY CLAY (CL) - some sand, few gravel, occasional sand seams, gray, moist, hard		9 (4,4,5)	13			
6SS						15	8 (3,3,5)	16			
7SS						20	11 (4,5,6)	14			
					END OF BORING						



Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

Water Level While Drilling Dry

Water Level At Completion Dry

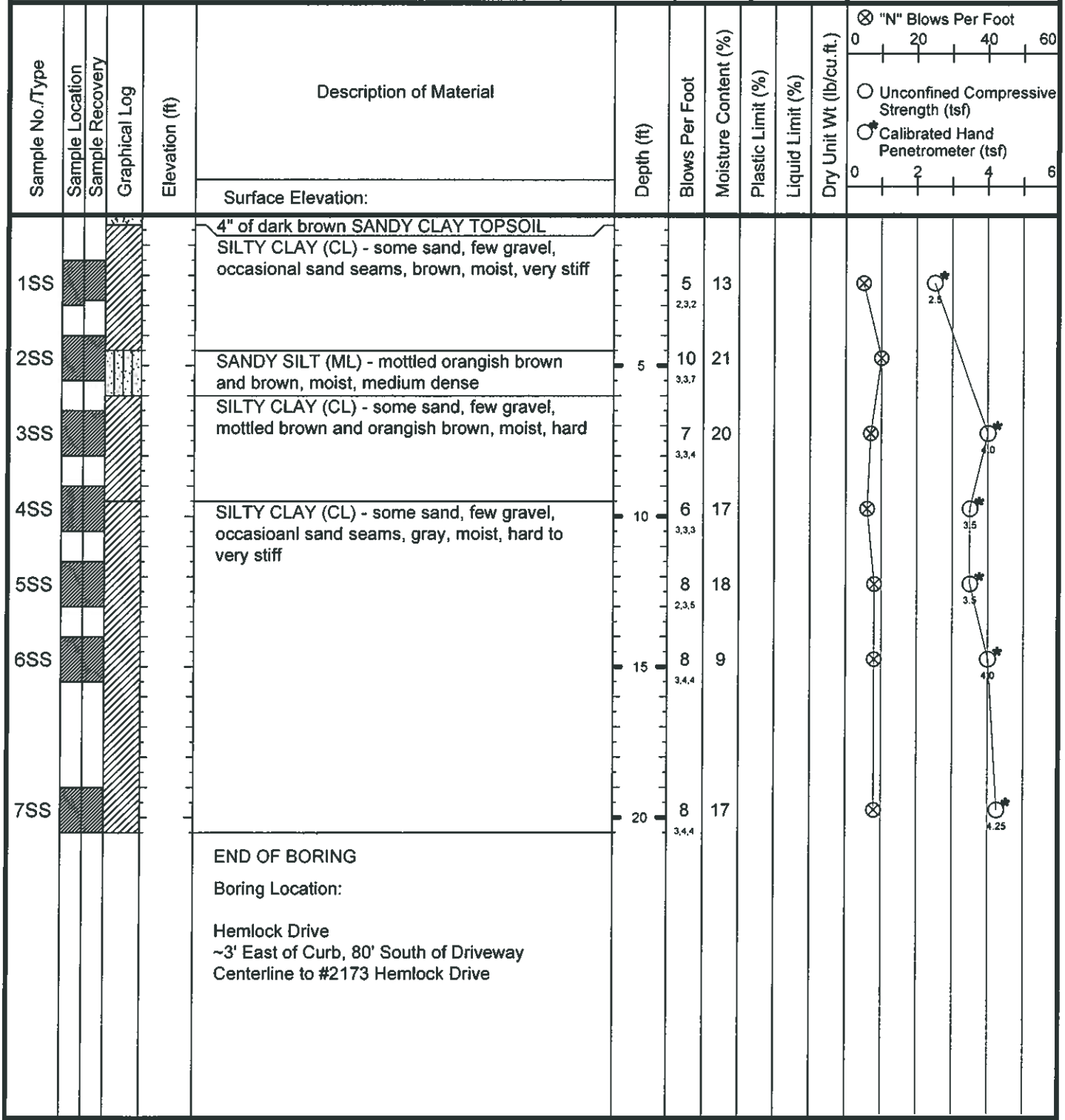
_____ After Completion

Boring Started: 10/26/2009	Completed: 10/26/2009		Engineer: KFD
Drilling Method: 3.25" HSA		Office: Plymouth	Drawn By: KFD
Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 20.5	Approved:

Note: Boring backfilled with auger cuttings unless otherwise noted.

Client: City of Ann Arbor	PSI Project #: 0381193	Boring Log Number: AOE-13
	Sheet: 1 of 1	
Project: 2010 Road Construction Projects Hemlock Drive	Location: City of Ann Arbor, Washtenaw County, Michigan	

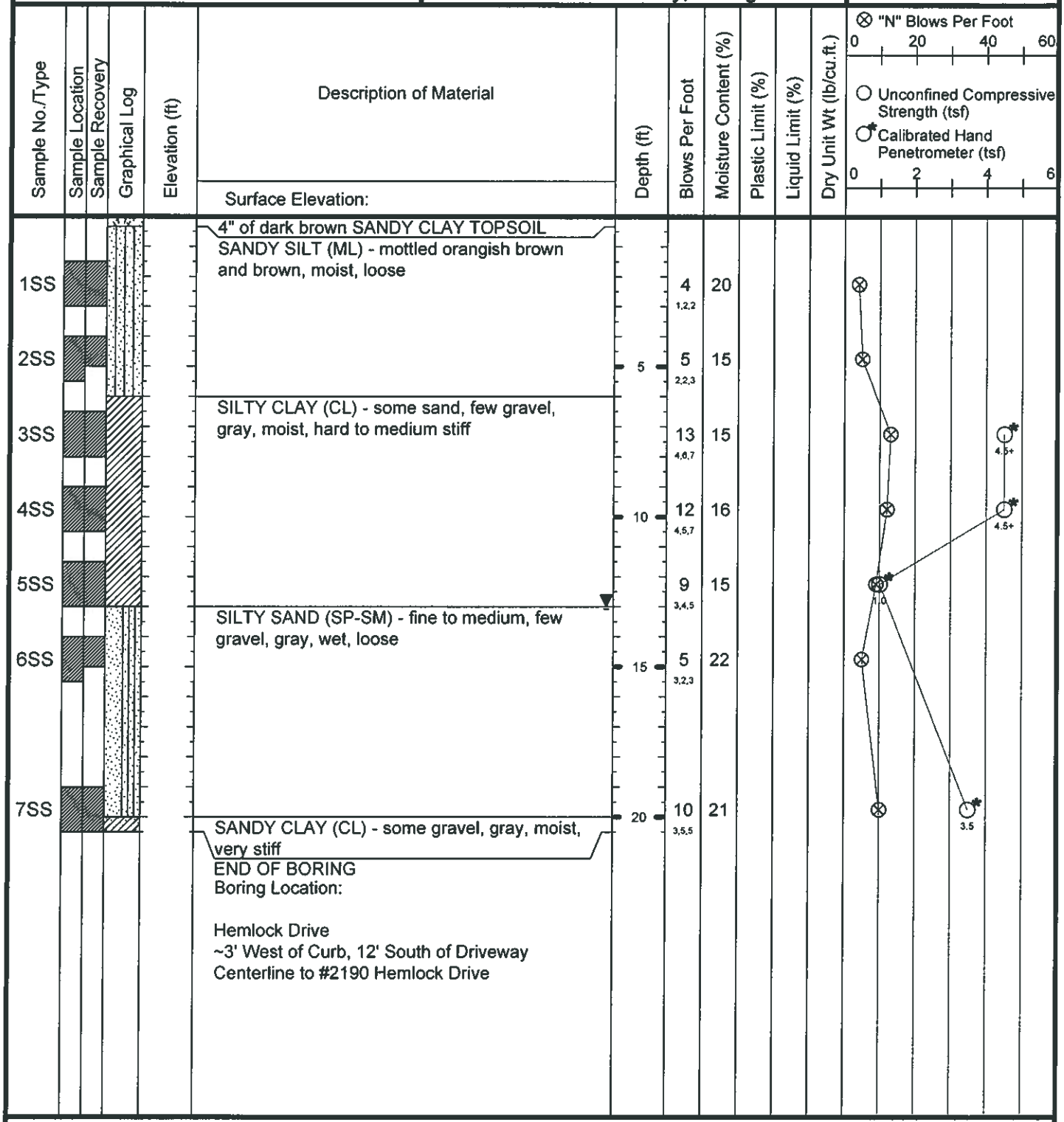
Professional Service Industries, Inc.



Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling Dry	Boring Started: 10/27/2009	Completed: 10/27/2009	Engineer: KFD
▼ Water Level At Completion Dry	Drilling Method: 3.25" HSA	Office: Plymouth	Drawn By: KFD
After Completion	Driller: M. Dubnicki	Drill Rig: CME-75	Hole Depth (ft): 20.5	Approved:
	Note: Boring backfilled with auger cuttings unless otherwise noted.		

Client: **City of Ann Arbor**	PSI Project #: **0381193** Sheet: **1** of **1**	Boring Log Number: **AOE-14**	PSI Professional Service Industries, Inc.
Project: **2010 Road Construction Projects Hemlock Drive**	Location: **City of Ann Arbor, Washtenaw County, Michigan**		



Note: The stratification lines indicated here are approximate. In-situ, the transition between soil types may be gradual.

▽ Water Level While Drilling **13**	Boring Started: **10/27/2009** Completed: **10/27/2009**		Engineer: **KFD**
▼ Water Level At Completion **13**	Drilling Method: **3.25" HSA**	Office: **Plymouth**	Drawn By: **KFD**
_____ After Completion	Driller: **M. Dubnicki**	Drill Rig: **CME-75** Hole Depth (ft): **20.5**	Approved:
	Note: Boring backfilled with auger cuttings unless otherwise noted.		

GENERAL NOTES

SAMPLE IDENTIFICATION

The Unified Soil Classification System is used to identify the soil unless otherwise noted.

SOIL PROPERTY SYMBOLS

N:	Standard Penetration Resistance "N": Blows per foot of a 140-pound hammer falling 30 inches on a 2 inch O.D. split-spoon
Qu:	Unconfined Compressive Strength, TSF
Qp:	Pocket penetrometer value, unconfined compressive strength, TSF
Mc:	Water Content, %
LL:	Liquid Limit, %
PI:	Plasticity Index, %
γd:	Dry Density, PCF
▼:	Observed groundwater level at time noted after completion of boring

DRILLING AND SAMPLING SYMBOLS

SS:	Split-Spoon – 1 3/8" I.D., 2" O.D., except where noted
ST:	Shelby Tube – 3" O.D., except where noted
AU:	Auger Sample
DB:	Diamond Bit
CB:	Carbide Bit
WS:	Washed Sample

RELATIVE DENSITY AND CONSISTENCY CLASSIFICATIONS

NON-COHESIVE SOILS	RELATIVE DENSITY, %	SPT, N BLOWS PER FOOT
Very Loose	0 – 15	0 – 4
Loose	15 – 35	4 – 10
Medium	35 – 65	10 – 30
Dense	65 – 85	30 – 50
Very Dense	85 – 100	Over 50

COHESIVE SOILS	Qu – (TSF)	SPT, N BLOWS PER FOOT
Very Soft	0 – 0.25	0 – 2
Soft	0.25 – 0.50	2 – 4
Medium Stiff	0.50 – 1.00	4 – 8
Stiff	1.00 – 2.00	8 – 15
Very Stiff	2.00 – 4.00	15 – 30
Hard	Over 4.00	Over 30

PARTICLE SIZES

Boulders		Over 12 in. (305 mm)
Cobbles		3 in. (76 mm) – 12 in. (305 mm)
Gravel –	Coarse	3/4 in. (19 mm) – 3 in. (76 mm)
	Fine	0.19 in. (4.75 mm) – 3/4 in. (19 mm)
Fines –	Silt	0.0002 in. (0.005 mm) – 0.0029 in. (0.075 mm)
	Clay	Less than 0.0002 in. (0.005 mm)
Sand –	Coarse	0.079 in. (2 mm) – 0.19 in. (4.75 mm)
	Medium	0.017 in. (0.425 mm) – 0.079 in. (2mm)
	Fine	0.0029 in. (0.075 mm) – 0.017 in. (0.425 mm)

SOIL CONSTITUENTS

Trace	Less than 5%
Few (Gravel & Cobbles)	Less than 5%
Some	5 – 12%
With	12 – 30%