

RFB NO. 316041



CONSTRUCTION DOCUMENTS PROJECT MANUAL

DANE COUNTY DEPARTMENT OF PUBLIC WORKS,
HIGHWAY AND TRANSPORTATION

PUBLIC WORKS SOLID WASTE DIVISION
1919 ALLIANT ENERGY CENTER WAY
MADISON, WISCONSIN 53713

**REQUEST FOR BIDS NO. 316041
STAGE 3 – GEOSYNTHETIC FINAL COVER SYSTEM
DANE COUNTY LANDFILL SITE #2
7102 U.S. HIGHWAY 12 & 18
MADISON, WISCONSIN, 53718**

Due Date / Time: **TUESDAY, JANUARY 31, 2017 / 2:00 P.M.**

Location: **PUBLIC WORKS OFFICE**

Performance / Payment Bond: **100% OF CONTRACT AMOUNT**

Bid Deposit: **5% OF BID AMOUNT**

FOR INFORMATION ON THIS REQUEST FOR BIDS, PLEASE CONTACT:

JOHN WELCH, SOLID WASTE MANAGER
TELEPHONE NO.: 608/516-4154
FAX NO.: 608/267-1533
E-MAIL: WELCH@COUNTYOFDANE.COM

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LEGAL NOTICE

INVITATION TO BID

Dane County Public Works, Highway & Transportation Dept., 1919 Alliant Energy Center Way, Madison, WI 53713, will receive sealed Bids until:

2:00 P.M., TUESDAY, JANUARY 31, 2017

REQUEST FOR BIDS NO. 316041

STAGE 3 – GEOSYNTHETIC FINAL COVER SYSTEM

DANE COUNTY LANDFILL SITE #2

7102 U.S. HIGHWAY 12 & 18

MADISON, WISCONSIN, 53718

Dane County is inviting Bids for construction services of geosynthetic final cover system over approximately 13 acres. Only firms with capabilities, experience & expertise with similar projects should obtain this Request for Bids document & submit Bids.

Request for Bids document may be obtained after **2:00 p.m. on Tuesday, January 10, 2017** by downloading it from countyofdane.com/pwbids. Please call John Welch, Solid Waste Manager, at 608/516-4154, or our office at 608/266-4018, for any questions or additional information.

All Bidders must be a registered vendor with Dane County & pay an annual registration fee & must be pre-qualified as a Best Value Contractor before award of Contract. Complete Vendor Registration Form at danepurchasing.com/Account/Login? or obtain one by calling 608/266-4131. Complete Pre-qualification Application for Contractors at countyofdane.com/pwht/BVC_Application.aspx or obtain one by calling 608/266-4029.

A pre-bid site tour will be held Thursday, January 19, 2017 at 10:00 a.m. at Dane County Landfill Site #2, starting at the Scale House. Bidders are encouraged to attend this optional tour.

**PUBLISH: TUESDAY, JANUARY 10 & 17, 2017 - WISCONSIN STATE JOURNAL
TUESDAY, JANUARY 10 & 17, 2017- THE DAILY REPORTER**



DANE COUNTY DEPARTMENT of PUBLIC WORKS, HIGHWAY and TRANSPORTATION

County Executive
Joseph T. Parisi

1919 Alliant Energy Center Way • Madison, Wisconsin 53713
Phone: (608) 266-4018 • FAX: (608) 267-1533

Commissioner / Director
Gerald J. Mandli

BEST VALUE CONTRACTING APPLICATION

CONTRACTORS / LICENSURE APPLICANTS

The Dane County Department of Public Works requires all contractors to be pre-qualified as a best value contractor with the County prior to being awarded a contract. In addition, the County pre-qualifies potential contractors and sub-contractors who wish to work on County contracts. Subcontractors must become pre-qualified ten (10) days prior to commencing work under any Dane County Public Works Contract. Potential subcontractors are urged to become pre-qualified as early as possible. This document shall be completed, properly executed, along with the necessary attachments and additional information that the County requires for the protection and welfare of the public in the performance of a County contract.

Contractors or subcontractors of any tier who attain pre-qualification status will retain that status for a period of two (2) years from the date of qualification. Contractors shall notify the Dane County Department of Public Works, Highway & Transportation within fifteen (15) days of any changes to its business or operations that are relevant to the pre-qualification application. Failure to do so could result in suspension, revocation of the contractor's pre-qualification, debarment from County contracts for up to three (3) years and / or other sanctions available under the law.

No contracts will be awarded for construction work performed on Dane County projects unless the contractor is currently approved as a Wisconsin Trade Trainer or has applied for approval as an Apprenticeship Trade Trainer to the Wisconsin Department of Workforce Development and agrees to an acceptable apprenticeship program. If you are not currently approved as a Wisconsin Trade Trainer, or have not applied for approval as an Apprenticeship Trade Trainer, please contact the Department of Workforce Development - Bureau of Apprenticeship Standards at 608/266-3133 or visit their web site at: dwd.wisconsin.gov/apprenticeship/.

EXEMPTIONS

- Contractors who employ less than five (5) apprenticeable trade workers are not required to pre-qualify.
- Contractors performing work that does not apply to an apprenticeable trade, as outlined in Appendix A.
- The contractor / subcontractor provides sufficient documentation to demonstrate one or more of the following:
 - apprentices are not available in a specific geographic area;
 - the applicable apprenticeship program is unsuitable or unavailable; or
 - there is a documented depression of the local construction market which prevents compliance.

SEC.	PROOF OF RESPONSIBILITY	CHECK IF APPLICABLE
1	Does your firm possess all technical qualifications and resources, including equipment, personnel and financial resources, necessary to perform the work required for any project or obtain the same through the use of responsible, pre-qualified subcontractors?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
2	Will your firm possess all valid, effective licenses, registrations or certificates required by federal, state, county, or local law, which are necessary for the type of work to be performed including, but not limited to, those for any type of trade work or specialty work?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
3	Will your firm meet all bonding requirements as required by applicable law or contract specifications?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
4	Will your firm meet all insurance requirements as required by applicable law or specifications, including general liability insurance, workers compensation insurance and unemployment insurance requirements?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
5	Will your firm maintain a substance abuse policy for employees hired for public works contracts that comply with Wis. Stats. Sec. 103.503?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
6	Does your firm acknowledge that it must pay all craft employees on public works projects the wage rates and benefits required under Section 66.0903 of the Wisconsin Statutes?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
7	Will your firm fully abide by the equal opportunity and affirmative action requirements of all applicable laws, including County ordinances?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
8	In the past three (3) years, has your firm had control or has another corporation, partnership or other business entity operating in the construction industry controlled it? If so, please attach a statement explaining the nature of the firm relationship?	Yes: <input type="checkbox"/> No: <input type="checkbox"/> If Yes, attach details.
9	In the past three (3) years, has your firm had any type of business, contracting or trade license, certification or registration revoked or suspended?	Yes: <input type="checkbox"/> No: <input type="checkbox"/> If Yes, attach details.
10	In the past three (3) years, has your firm been debarred by any federal, state or local government agency?	Yes: <input type="checkbox"/> No: <input type="checkbox"/> If Yes, attach details.
11	In the past three (3) years, has your firm defaulted or failed to complete any contract?	Yes: <input type="checkbox"/> No: <input type="checkbox"/> If Yes, attach details.
12	In the past three (3) years, has your firm committed a willful violation of federal, state or local government safety laws as determined by a final decision of a court or government agency authority.	Yes: <input type="checkbox"/> No: <input type="checkbox"/> If Yes, attach details.
13	In the past three (3) years, has your firm been in violation of any law relating to your contracting business where the penalty for such violation resulted in the imposition of a penalty greater than \$10,000?	Yes: <input type="checkbox"/> No: <input type="checkbox"/> If Yes, attach details.
14	Is your firm Executive Order 108 precertified with the State of Wisconsin?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
15	Is your firm an active Wisconsin Trade Trainer as determined by the Wisconsin Bureau of Apprenticeship Standards?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
16	Is your firm exempt from being pre-qualified with Dane County?	Yes: <input type="checkbox"/> No: <input type="checkbox"/> If Yes, attach reason for exemption.
17	Does your firm acknowledge that in doing work under any County Public Works Contract, it will be required to use as subcontractors only those contractors that are also pre-qualified with the County or become so ten days prior to commencing work?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
18	Contractor has been in business less than one year?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
19	Is your firm a first time Contractor requesting a one time exemption, but, intend to comply on all future contracts and are taking steps typical of a "good faith" effort?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
20	Not applicable. My firm does not intend to work on Best Value Contracts. Note: Best Value Contracting is required to bid on most Public Works Contracts (if unclear, please call Jan Neitzel Knox 608-266-4029).	Yes: <input type="checkbox"/> No: <input type="checkbox"/>

SIGNATURE SECTION

Your firm's Officer, or the individual who would sign a bid and / or contract documents must sign this document.

I do hereby certify that all statements herein contained are true and correct to the best of my knowledge:

Signature

Date

Printed or Typed Name and Title

NAME AND ADDRESS OF CONTRACTOR	
Name of Firm:	
Address:	
City, State, Zip:	
Telephone Number:	
Fax Number:	
E-mail Address:	

REMEMBER!

Return all to forms and attachments, or questions to:

JAN NEITZEL KNOX
EMAIL: NEITZEL-KNOX@COUNTYOFDANE.COM
OFFICE: (608)266-4029, FAX: (608)267-1533

**DANE COUNTY DEPARTMENT OF PUBLIC WORKS,
HIGHWAY & TRANSPORTATION
1919 ALLIANT ENERGY CENTER WAY
MADISON, WI 53713**

APPENDIX A

APPRENTICEABLE TRADES

Bricklayer
Carpenter
Cement Mason (Concrete Finisher)
Cement Mason (Heavy Highway)
Construction Craft Laborer
Data Communications Installer
Electrician
Elevator Mechanic / Technician
Environmental Systems Technician / HVAC Service Technician / HVAC Install & Service
Glazier
Heavy Equipment Operator / Operating Engineer
Insulation Worker (Heat & Frost)
Iron Worker (Assembler, Metal Buildings)
Painter / Decorator
Plasterer
Plumber
Roofer / Waterproofer
Sheet Metal Worker
Sprinkler Fitter
Steamfitter (Service & Refrigeration)
Taper & Finisher
Telecommunications (Voice, Data & Video) Installer / Technician
Tile Setter

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1. GENERAL

- A. Before submitting Bid, bidder shall thoroughly examine all Construction Documents. Successful Bidder shall be required to provide all the Work that is shown on Drawings, set forth in Specifications, or reasonably implied as necessary to complete Contract for this project.
- B. Bidder shall visit site to become acquainted with adjacent areas, means of approach to site, conditions of actual site and facilities for delivering, storing, placing, and handling of materials and equipment.
- C. Pre-bid meeting is scheduled on Thursday, January 19, 2017 at 10:00 a.m. at Dane County Landfill Site #2, starting at the Scale House. Attendance by all bidders is optional, however bidders and subcontractors are strongly encouraged to attend.
- D. Failure to visit site or failure to examine any and all Construction Documents will in no way relieve successful Bidder from necessity of furnishing any necessary materials or equipment, or performing any work, that may be required to complete the Work in accordance with Drawings and Specifications. Neglect of above requirements will not be accepted as reason for delay in the Work or additional compensation.

2. DRAWINGS AND SPECIFICATIONS

- A. Drawings and Specifications that form part of this Contract, as stated in Article 1 of General Conditions of Contract, are enumerated in Document Index of these Construction Documents.

- B. Complete sets of Drawings and Specifications for all trades will be available to all Bidders, irrespective of category of work to be bid on, in order that all Bidders may be familiar with work of other trades as they affect their bid.

3. INTERPRETATION

- A. No verbal explanation or instructions will be given in regard to meaning of Drawings or Specifications before Bid Due Date. Bidders shall bring inadequacies, omissions or conflicts to Department or Architect / Engineer's attention at least ten (10) calendar days before Bid Due Date. Prompt clarification will be available to all bidders by Addendum.
- B. Failure to so request clarification or interpretation of Drawings and Specifications will not relieve successful Bidder of responsibility. Signing of Contract will be considered as implicitly denoting that Contractor has thorough understanding of scope of the Work and comprehension of Construction Documents.
- C. Department will not be responsible for verbal instructions.

4. QUALIFICATIONS OF BIDDER (CONTRACTOR AND SUBCONTRACTOR)

- A. Before award of Contract can be approved, Department shall be satisfied that Bidder involved meets following requirements:
 - 1. Has completed at least one (1) project of at least fifty percent (50%) of size or value of Division of work being bid and type of work completed is similar to that being bid. If greater magnitude of experience is deemed necessary, other than size or value of work, such requirements will be described in appropriate section of Specifications.
 - 2. Maintains permanent place of business.
 - 3. Can be bonded for terms of proposed Contract.
 - 4. Has record of satisfactorily completing past projects and supplies list of no more than three (3) most recent, similar projects, with architect or engineer's and owner's names, addresses and telephone numbers for each project. Submit to Public Works Project Engineer with Bid, within three (3) business days after Bid Due Date. Criteria which will be considered in determining satisfactory completion of projects by bidder will include:
 - a. Completed contracts in accordance with drawings and specifications.
 - b. Diligently pursued execution of work and completed contracts according to established time schedule unless Department grants extensions.
 - c. Fulfilled guarantee requirements of construction documents.
 - d. Is not presently on ineligible list maintained by County's Department of Administration for noncompliance with equal employment opportunities and affirmative action requirements.
 - e. Authorized to conduct business in Wisconsin. By submitting Bid, bidder warrants that it has: complied with all necessary requirements to do business in State of Wisconsin; that persons executing contract on its behalf are authorized to do so; and, if corporation, that name and address of bidder's registered agent are as set forth in Contract. Bidder shall notify Department immediately, in writing, of any change in its registered agent, their address, and bidder's legal status. For partnership, term "registered agent" shall mean general partner.
- B. County's Public Works Project Engineer will make such investigations as are deemed necessary to determine ability of bidder to perform the Work, and bidder shall furnish to

County's Public Works Project Engineer or designee all such information and data for this purpose as County's Public Works Project Engineer may request. Department reserves right to reject Bid if evidence submitted by, or investigation of, bidder fails to satisfy Department that bidder is responsible and qualified to carry out obligations of Contract and to complete the Work contemplated therein.

5. BID GUARANTEE

- A. Bank certified check, cashier's check or Bid Bond, payable to County in amount not less than five percent (5%) of maximum bid, shall accompany each Bid as guarantee that if Bid is accepted, Bidder will execute and return proposed Contract and Performance and Payment Bonds within ten (10) business days after being notified of acceptance of Bid. Company issuing bonds must be licensed to do business in Wisconsin.
- B. Any bid, which is not accompanied by bid guarantee, will be considered "No Bid" and will not be read at Bid Due Date.
- C. If successful Bidder so delivers Contract, Certificate of Insurance, and Performance and Payment Bonds, check will be returned to Bidder. In case Bidder fails to deliver such Contract, insurance, and bond, amount of bid guarantee will be forfeited to County as liquidated damages.
- D. All checks tendered as bid guarantee, except those of three (3) lowest qualified, responsible bidders, will be returned to their makers within three (3) business days after Bid Due Date. All such retained checks will be returned immediately upon signing of Contract and Performance and Payment Bonds by successful Bidder.

6. WITHDRAWAL OF BIDS

- A. Bids may be withdrawn by written request received from bidder or authorized representative thereof prior to time fixed for Bid Due Date, without prejudice to right of bidder to file new Bid. Withdrawn Bids will be returned unopened. Negligence on part of bidder in preparing their Bid confers no right for withdrawal of Bid after it has been opened.
- B. No Bid may be withdrawn for period of sixty (60) calendar days after Bid Due Date.
- C. If Bid contains error, omission or mistake, bidder may limit liability to amount of bidder's guarantee by giving written Notice of Intent not to execute Contract to Department within seventy-two (72) hours of Bid Due Date.

7. CONTRACT FORM

- A. Sample copy of contract that successful Bidder will be required to enter into is included in these Construction Documents and bidders are required to familiarize themselves with all conditions contained therein.

8. CONTRACT INTERESTS BY COUNTY PUBLIC OFFICIALS

- A. In accordance with Wisconsin Statute 946.13, county official may not bid for or enter into any contract involving receipts or disbursements of more than \$15,000.00 in a year, in which they have private pecuniary interest, direct or indirect if at same time they are authorized to take official action with respect to making of this Contract. Any contract entered into in violation of this Statute is void and County incurs no liability thereon. This subsection does not affect application and enforcement of Wisconsin Statute 946.13 by state prosecutors in criminal courts of this state.

9. EMERGING SMALL BUSINESS PROVISIONS

- A. **Emerging Small Business Definition.** For purposes of this provision, ESB is defined as:
1. Independent business concern that has been in business minimum of one year;
 2. Business located in State of Wisconsin;
 3. Business comprised of less than twenty-five (25) employees;
 4. Business must not have gross sales in excess of three million dollars (\$3,000,000.00) over past three years; and
 5. Business does not have history of failing to complete projects.
- B. **Emerging Small Business (ESB) Involvement.** Bidder shall make good faith effort to award minimum of ten percent (10%) of the Work to ESBs. Bidder shall submit report to Dane County Contract Compliance Officer within ten (10) business days of Bid Due Date demonstrating such efforts. Good faith efforts means significant contact with ESBs for purposes of soliciting bids from them. Failure to make or demonstrate good faith efforts will be grounds for disqualification.
- C. **Emerging Small Business Report.** Emerging Small Business Enterprise Report is to be submitted by Bidder in separate envelope marked "Emerging Small Business Report". This report is due by 2:00 p.m. following specified ten (10) business days after Bid Due Date. Bidder who fails to submit Emerging Small Business Report shall be deemed not responsive.
- D. **ESB Goal.** Goal of this project is ten percent (10%) ESB participation. ESB utilizations are shown as percentage of total Bid. If Bidder meets or exceeds specified goal, Bidder is only required to submit Form A - Certification, and Form B - Involvement. Goal shall be met if Bidder qualifies as ESB.
- E. **Report Contents.** Following award of Contract, Bidder shall submit copies of executed contracts for all Emerging Small Businesses. Emerging Small Business Report shall consist of these:
1. Form A - Certification;
 2. Form B - Involvement;
 3. Form C - Contacts;
 4. Form D - Certification Statement (if appropriate); and
 5. Supportive documentation (i.e., copies of correspondence, telephone logs, copies of advertisements).
- F. **ESB Listing.** Bidders may solicit bids from this ESB listing: pdf.countyofdane.com/commissions/2013-2015_Targeted_Business_Directory.pdf.
- G. **ESB Certification.** All contractors, subcontractors and suppliers seeking ESB certification must complete and submit Emerging Small Business Report to Dane County Contract Compliance Program.
- H. **Certification Statement.** If ESB firm has not been certified by County as ESB prior to submittal of this Bid, ESB Report cannot be used to fulfill ESB goal for this project unless

firm provides "Form D - Certification Statement". Certification statement must be completed and signed by ESB firm.

I. **Questions.** Questions concerning Emerging Small Business provisions shall be directed to:

Dane County Contract Compliance Officer
City-County Building, Room 421
210 Martin Luther King, Jr. Blvd.
Madison, WI 53703
608/266-5623

J. **Substituting ESBs.** In event of any significant changes in subcontract arrangements or if need arises to substitute ESBs, Bidder shall report such proposed changes to Contract Compliance Officer to making any official changes and request authorization to substitute ESB firm. Bidder further agrees to make every possible effort to replace ESB firm with another qualified ESB firm.

K. **Good Faith Efforts.** Good faith efforts can be demonstrated by meeting all of these obligations:

1. Selecting portions of the Work to be performed by ESBs in order to increase likelihood of meeting ESB goal including, where appropriate, breaking down Contract into smaller units to facilitate ESB participation.
2. Advertising in general circulation, trade associations and women / minority focus media concerning subcontracting opportunities.
3. Providing written notices to reasonable number of specific ESBs that their interest in Contract was being solicited in sufficient time to allow ESBs to participate effectively.
4. Following up on initial solicitations of interest by contacting ESBs within five (5) business days prior to Bid Due Date to determine with certainty whether ESB were interested, to allow ESBs to prepare bids.
5. Providing interested ESB with adequate information about Drawings, Specifications and requirements of Contract.
6. Using services of available minority, women and small business organizations and other organizations that provide assistance in recruitment of MBEs / WBEs / ESBs.
7. Negotiating in good faith with interested ESBs, not rejecting ESBs as unqualified without sound reason based on thorough investigation of their capabilities.
8. Submitting required project reports and accompanying documents to County's Contract Compliance Officer within twenty-four (24) hours after Bid Due Date.

L. **Appeals Disqualification of Bid.** Bidder who is disqualified may appeal to Public Works & Transportation Committee and Equal Opportunity Commission.

10. METHOD OF AWARD - RESERVATIONS

A. Following will be basis of award of Contract, providing cost does not exceed amount of funds then estimated by County as available to finance Contract(s):

1. Lowest dollar amount submitted by qualified responsible bidder on Base Bid for all work comprising project, combined with such additive Department accepted alternates.
2. Department reserves right to reject all bids or any bid, to waive any informality in any bid, and to accept any bid that will best serve interests of County.
3. Unit Prices and Informational Bids will not be considered in establishing low bidder.

11. SECURITY FOR PERFORMANCE AND PAYMENTS

- A. Simultaneous with delivery of signed Contract, Bidder shall be required to furnish Performance and Payment Bonds as specified in Article 29 of General Conditions of Contract, "Contract Security". Surety Company shall be licensed to do business in Wisconsin. Performance and Payment Bonds must be dated same date or subsequent to date of Contract. Performance and Payment Bonds must emulate information in Sample Performance and Payment Bonds in Construction Documents.
- B. Provide certified copy of power of attorney from Surety Company showing that agent who signs Bond has power of attorney to sign for Surety Company. Secretary or Assistant Secretary of company must sign this certification, not attorney-in-fact. Certification must bear same or later date as Bond. Power of Attorney must emulate model power of attorney information detailed in Sample Performance and Payment Bonds.
- C. If Bidder is partnership or joint venture, State certified list, providing names of individuals constituting partnership or joint venture must be furnished. Contract itself may be signed by one partner of partnership, or one partner of each firm comprising joint venture, but Performance and Payment Bonds must be signed by all partners.
- D. If Bidder is a corporation, it is necessary that current certified copy of resolution or other official act of directors of corporation be submitted showing that person who signs Contract is authorized to sign contracts for corporation. It is also necessary that corporate seal be affixed to resolution, contract, and performance and payment bonds. If your corporation has no seal, it is required that above documents include statement or notation to effect that corporation has no seal.

12. TAXES

- A. Wisconsin Statute 77.54 (9m) allows building materials that become part of local unit government facilities to be exempt from sales & use tax. Vendors & materials suppliers may not charge Bidders sales & use tax on these purchases.
- B. In accordance with Wisconsin Statute 71.80(16)(a), successful nonresident bidder, whether incorporated or not, and not otherwise regularly engaged in business in this state, shall file surety bond with State of Wisconsin Department of Revenue payable to Department of Revenue, to guarantee payment of income taxes, required unemployment compensation contributions, sales and use taxes and income taxes withheld from wages of employees, together with any penalties and interest thereon. Amount of bond shall be three percent (3%) of Contract or subcontract price on all contracts of \$50,000 or more.

13. SUBMISSION OF BIDS

- A. All Bids shall be submitted on standard Bid Form bound herein and only Bids that are made on this Bid Form will be considered. Entire Bid Form and other supporting documents, if any, shall be removed or copied from Construction Documents, filled out, and submitted in manner specified hereinafter. Submit completed Bid Bond with Bid as well.

- B. No bids for any subdivision or any sub-classification of this Work, except as indicated, will be accepted. Any conditional Bid, amendment to Bid Form or appended item thereto, or inclusion of any correspondence, written or printed matter, or details of any nature other than that specifically called for, which would alter any essential provision of Construction Documents, or require consideration of unsolicited material or data in determining award of Contract, will disqualify Bid. Telecommunication alterations to Bid will not be accepted.
- C. Bidders must submit single Bid for all the Work.
- D. Bid amounts shall be inserted in words and in figures in spaces provided on Bid Form; in case of conflict, written word amounts will govern.
- E. Addenda issued after Bid Letting shall become part of Construction Documents. Bidders shall acknowledge receipt of such addenda in appropriate space provided on Bid Form. Bid may be rejected if receipt of any particular addendum applicable to award of Contract has not been acknowledged on Bid Form.
- F. Bids shall be signed, placed in envelope, sealed and delivered before due time to place designated in Invitation to Bid, and identified with project name, bid number, location, category of work being bid upon, Bid Due Date, name and address of bidder.
- G. Bidder shall be responsible for sealed Bid being delivered to place designated for Bid Due Date on or before date and time specified. Bids received after time of closing will be rejected and returned to bidder unopened.
- H. Bid will be considered invalid and will be rejected if bidder has not signed it.
- I. Faxed or emailed Bids will not be accepted.
- J. Bidder's organization shall submit completed with Bid, Fair Labor Practices Certification form, included in these Construction Documents.

14. SUBCONTRACTOR LISTING

- A. Not Applicable

15. ALTERNATE BIDS

- A. Not Applicable.

16. INFORMATIONAL BIDS

- A. Not Applicable.

17. UNIT PRICES

- A. Provide unit prices where requested on Bid Form. Unit prices will include all costs for materials, labor, insurance, taxes, overhead and profit necessary to perform specified work. Estimated quantities are approximate only. Payment will be based upon actual quantities placed, provided or installed. Failure to provide requested unit prices may result in rejection of entire Bid.
- B. Department reserves right to accept or reject any unit prices as given in Bid.

- C. Bidder shall refer to Bid Form and applicable specification section to determine basis of unit measure and detailed information related to each unit price item requested.

18. COMMENCEMENT AND COMPLETION

- A. Successful Bidder shall commence work when schedule and weather permit, but no later than stated in Bid Form. Contractor shall pursue the Work regularly and continuously at reasonable rate to insure completion of the Work within time stated in Bid.
- B. Should it be found impossible to complete the Work on or before time specified for completion, written request may be submitted for extension of time setting forth reasons believed to justify granting of such request. Refer to Article 20 of General Conditions of Contract, titled "Time for Completion".

19. WORK BY DEPARTMENT

- A. This work will be accomplished by Department or will be let under separate contracts and will not be included under this Contract:
 - 1. All earthwork leading up to reinforced geosynthetic clay liner.
 - 2. All earthwork after geocomposite and gas/leachate headwell penetration.
- B. Dane County will be responsible for the unloading and storage of material on-site. Material will be placed on a well-drained surface free from precipitation. Material shall not be delivered until 15 days prior to installation due to limited space. Assuming installation is August 15, 2017, the material cannot be delivered prior to August 1, 2017. Bidder is responsible for delivery and material until installation.

20. SPECIAL HAZARDS COVERAGE

- A. Not Applicable.

FORM A

**DANE COUNTY
EMERGING SMALL BUSINESS REPORT - CERTIFICATION**

In accordance with General Conditions of Contract, submit this Emerging Small Business Report within ten (10) days after Bid Due Date.

PROJECT NAME: _____

BID NO.: _____ BID DUE DATE: _____

BIDDER INFORMATION

COMPANY NAME: _____

ADDRESS: _____

TELEPHONE NO.: _____

CONTACT PERSON: _____

EMAIL ADDRESS: _____

FORM B

Page ___ of ___

DANE COUNTY

(Copy this Form as necessary to provide complete information)

EMERGING SMALL BUSINESS REPORT - INVOLVEMENT

COMPANY NAME: _____

PROJECT NAME: _____

BID NO.: _____ BID DUE DATE: _____

ESB NAME: _____

CONTACT PERSON: _____

ADDRESS: _____

PHONE NO & EMAIL.: _____

Indicate percentage of financial commitment to this ESB: _____ % Amount: \$ _____

ESB NAME: _____

CONTACT PERSON: _____

ADDRESS: _____

PHONE NO & EMAIL.: _____

Indicate percentage of financial commitment to this ESB: _____ % Amount: \$ _____

FORM C

Page ___ of ___

**DANE COUNTY
EMERGING SMALL BUSINESS REPORT - CONTACTS**

(Copy this Form as necessary to provide complete information)

COMPANY NAME: _____

PROJECT NAME: _____

BID NO.: _____ BID DUE DATE: _____

	<u>ESB FIRM NAME CONTACTED</u>	<u>DATE</u>	<u>PERSON CONTACTED</u>	<u>DID ESB BID?</u>	<u>ACC- EPT BID?</u>	<u>REASON FOR REJECTION</u>
1)	_____	_____	_____	_____	_____	_____
2)	_____	_____	_____	_____	_____	_____
3)	_____	_____	_____	_____	_____	_____
4)	_____	_____	_____	_____	_____	_____
5)	_____	_____	_____	_____	_____	_____
6)	_____	_____	_____	_____	_____	_____
7)	_____	_____	_____	_____	_____	_____
8)	_____	_____	_____	_____	_____	_____

FORM D

**DANE COUNTY
EMERGING SMALL BUSINESS REPORT - CERTIFICATION STATEMENT**

I, _____, _____ of
Name Title

_____ certify to best of my knowledge and
Company

belief that this business meets Emerging Small Business definition as indicated in Article 9 and
that information contained in this Emerging Small Business Report is true and correct.

Bidder's Signature

Date

Name of Bidding Firm: _____

BID NO. 316041

**PROJECT: STAGE 3 – GEOSYNTHETIC FINAL COVER SYSTEM
DANE COUNTY LANDFILL SITE #2**

**TO: DANE COUNTY DEPARTMENT OF PUBLIC WORKS, HIGHWAY &
TRANSPORTATION PROJECT MANAGER
1919 ALLIANT ENERGY CENTER WAY
MADISON, WISCONSIN 53713**

**NOTE: WISCONSIN STATUTE 77.54 (9M) ALLOWS FOR NO SALES & USE TAX ON
THE PURCHASE OF MATERIALS FOR COUNTY PUBLIC WORKS PROJECTS.**

BASE BID - LUMP SUM:

Construction services of geosynthetic final cover system over approximately 13 acres. The undersigned, having examined the site where the Work is to be executed and having become familiar with local conditions affecting the cost of the Work and having carefully examined the Drawings and Specifications, all other Construction Documents and Addenda thereto prepared by Dane County Department of Public Works, Highway & Transportation hereby agrees to provide all labor, materials, equipment and services necessary for the complete and satisfactory execution of the entire Work, as specified in the Construction Documents, for the Base Bid stipulated sum of:

_____ and _____ /100 Dollars
Written Price

\$ _____
Numeric Price

For the following price(s) in accordance with the Contract Documents:

Item	Unit	Quantity	Unit Price	Total
Mobilization	Lump Sum	1		
Reinforced Geosynthetic Clay Liner (GCL)	SF	566,000		
40 Mil HDPE Textured Geomembrane	SF	566,000		
Geocomposite	SF	566,000		
Surface Penetration	Each	15		
Sideslope Penetration	Each	10		
TOTAL BID PRICE				

NOTE: Dane County, weather dependent, may add additional area to geosynthetic final cover system. Unit prices shall be used to determine additional cost. Dane County will make final decision and notify winning bidder by June 30, 2017.

Receipt of the following addenda and inclusion of their provisions in this Bid is hereby acknowledged:

Addendum No(s). _____ through _____

Dated _____

Dane County – Solid Waste Division must have this project completed by September 15, 2017. Assuming this Work can be started by August 14, 2017, what dates can you commence and complete this job?

Commencement Date: _____ Completion Date: _____
(final, not substantial)

I hereby certify that all statements herein are made on behalf of:

(Name of Corporation, Partnership or Person submitting Bid)

Select one of the following:

1. A corporation organized and existing under the laws of the State of _____, or
2. A partnership consisting of _____, or
3. A person conducting business as _____;

Of the City, Village, or Town of _____ of the State of _____.

I have examined and carefully prepared this Bid from the associated Construction Documents and have checked the same in detail before submitting this Bid; that I have full authority to make such statements and submit this Bid in (its) (their) (my) behalf; and that the said statements are true and correct. In signing this Bid, we also certify that we have not, either directly or indirectly, entered into any agreement or participated in any collusion or otherwise taken any action in restraint of free competition; that no attempt has been made to induce any other person or firm to submit or not to submit a Bid; that this Bid has been independently arrived at without collusion with any other bidder, competitor, or potential competitor; that this Bid has not been knowingly disclosed prior to the Bids Due Date to another bidder or competitor; that the above statement is accurate under penalty of perjury.

The undersigned further agrees to honor the Base Bid and the Alternate Bid(s) for sixty (60) calendar days from date of Award of Contract.

SIGNATURE: _____
(Bid is invalid without signature)

Print Name: _____ Date: _____

Title: _____

Address: _____

Telephone No.: _____ Fax No.: _____

Email Address: _____

Contact Person: _____

THIS PAGE IS FOR BIDDERS' REFERENCE AND NEED NOT BE SUBMITTED WITH BID FORM.

BID CHECK LIST:

These items **must** be included with Bid:

- Bid Form Bid Bond Fair Labor Practices Certification
 Project Experience / Reference Summary

BIDDERS SHOULD BE AWARE OF THE FOLLOWING:

DANE COUNTY VENDOR REGISTRATION PROGRAM

Any person bidding on any County contract must be registered with the Dane County Purchasing Division & pay an annual registration fee. A contract will not be awarded to an unregistered vendor. Obtain a *Vendor Registration Form* by calling 608/266-4131 or complete a new form or renewal online at:

www.danepurchasing.com/registration

DANE COUNTY BEST VALUE CONTRACTING PRE-QUALIFICATION

Contractors must be pre-qualified as a Best Value Contractor with the Dane County Public Works Engineering Division before the award of contract. Obtain a *Best Value Contracting Application* by calling 608/266-4018 or complete one online at:

www.countyofdane.com/pwht/BVC_Application.aspx

EQUAL BENEFITS REQUIREMENT

By submitting a Bid, the contractor acknowledges that a condition of this contract is to provide equal benefits as required by Dane County Code of Ordinances Chapter 25.016. Contractor shall provide equal benefits as required by that Ordinance to all required employees during the term of the contract. Equal Benefits Compliance Payment Certification shall be submitted with final pay request. For more information:

www.danepurchasing.com/partner_benefit.aspx

FAIR LABOR PRACTICES CERTIFICATION

The undersigned, for and on behalf of the BIDDER, APPLICANT or PROPOSER named herein, certifies as follows:

- A. That he or she is an officer or duly authorized agent of the above-referenced BIDDER, APPLICANT or PROPOSER, which has submitted a bid, application or proposal for a contract or agreement with the county of Dane.

- B. That BIDDER, APPLICANT or PROPOSER has (check one):

_____ not been found by the National Labor Relations Board (“NLRB”) or the Wisconsin Employment Relations Commission (“WERC”) to have violated any statute or regulation regarding labor standards or relations in the seven years prior to the signature date of this Certification.

_____ been found by the National Labor Relations Board (“NLRB”) or the Wisconsin Employment Relations Commission (“WERC”) to have violated any statute or regulation regarding labor standards or relations in the seven years prior to the signature date of this Certification.

Officer or Authorized Agent Signature Date

Printed or Typed Name and Title

Printed or Typed Business Name

NOTE: You can find information regarding the violations described above at: www.nlrb.gov and werc.wi.gov.

For reference, Dane County Ordinance 25.11(28)(a) is as follows:
(28) BIDDER RESPONSIBILITY. (a) Any bid, application or proposal for any contract with the county, including public works contracts regulated under chapter 40, shall include a certification indicating whether the bidder has been found by the National Labor Relations Board (NLRB) or the Wisconsin Employment Relations Committee (WERC) to have violated any statute or regulation regarding labor standards or relations within the last seven years. The purchasing manager shall investigate any such finding and make a recommendation to the committee, which shall determine whether the conduct resulting in the finding affects the bidder’s responsibility to perform the contract.

If you indicated that the NLRB or WERC have found you to have such a violation, you must include copies of any relevant information regarding such violation with your proposal, bid or application.

Include this completed Certification with your bid, application or proposal.

COUNTY OF DANE

PUBLIC WORKS CONSTRUCTION CONTRACT

Contract No. _____ Bid No. 316041

Authority: 2016 RES - _____

THIS CONTRACT, made and entered into as of the date by which authorized representatives of both parties have affixed their signatures, by and between the County of Dane (hereafter referred to as "COUNTY") and _____ (hereafter, "CONTRACTOR"), and

WITNESSETH:

WHEREAS, COUNTY, whose address is c/o Assistant Public Works Director, 1919 Alliant Energy Center Way, Madison, WI 53713, desires to have CONTRACTOR provide Phase 8 – Geosynthetic Construction at Dane County Landfill Site #2 ("the Project"); and

WHEREAS, CONTRACTOR, whose address is _____ is able and willing to construct the Project, in accordance with the Construction Documents;

NOW, THEREFORE, in consideration of the above premises and the mutual covenants of the parties hereinafter set forth, the receipt and sufficiency of which is acknowledged by each party for itself, COUNTY and CONTRACTOR do agree as follows:

1. CONTRACTOR agrees to construct, for the price of \$_____ the Project and at the CONTRACTOR'S own proper cost and expense to furnish all materials, supplies, machinery, equipment, tools, superintendence labor, insurance, and other accessories and services necessary to complete the Project in accordance with the conditions and prices stated in the Bid Form, General Conditions of Contract, the drawings which include all maps, plats, plans, and other drawings and printed or written explanatory matter thereof, and the specifications therefore as prepared by Dane County Dept. of Public Works, Highway & Transportation (hereinafter referred to as "the Architect / Engineer"), and as enumerated in the Project Manual Table of Contents, all of which are made a part hereof and collectively evidence and constitute the Contract.
2. COUNTY agrees to pay the CONTRACTOR in current funds for the performance of the Contract subject to additions and deductions, as provided in the General Conditions of Contract, and to make payments on account thereof as provided in Article entitled, "Payments to Contractor" of the General Conditions of Contract.
3. During the term of this Contract, CONTRACTOR agrees to take affirmative action to ensure equal employment opportunities. The CONTRACTOR agrees in accordance with Wisconsin Statute 111.321 and Chapter 19 of the Dane County Code of Ordinances not to discriminate on the basis of age, race, ethnicity, religion, color, gender, disability, marital status, sexual orientation, national origin, cultural differences, ancestry, physical appearance, arrest record or conviction record, military participation or membership in the national guard, state defense force or any other reserve component of the military forces of the United States, or political beliefs. Such equal opportunity shall include, but not be limited to, the following: employment, upgrading, demotion, transfer, recruitment, advertising, layoff, termination, training, rates of pay, and any other form of compensation. CONTRACTOR agrees to post in conspicuous places,

available to all employees and applicants for employment, notices setting forth the provisions of this paragraph.

4. CONTRACTOR shall file an Affirmative Action Plan with the Dane County Contract Compliance Officer in accord with Chapter 19 of the Dane County Code of Ordinances. CONTRACTOR must file such plan within fifteen (15) business days of the effective date of this Contract. During the term of this Contract CONTRACTOR shall also provide copies of all announcements of employment opportunities to COUNTY'S Contract Compliance Office, and shall report annually the number of persons, by race, ethnicity, gender, and disability status, which apply for employment and, similarly classified, the number hired and number rejected.

5. During the term of this Contract, all solicitations for employment placed on CONTRACTOR'S behalf shall include a statement to the effect that CONTRACTOR is an "Equal Opportunity Employer".

6. CONTRACTOR agrees to comply with provisions of Chapter 25.016 of the Dane County Code of Ordinances, which pertains to domestic partnership benefits.

7. CONTRACTOR agrees to furnish all information and reports required by COUNTY'S Contract Compliance Officer as the same relate to affirmative action and nondiscrimination, which may include any books, records, or accounts deemed appropriate to determine compliance with Chapter 19, Dane County Code of Ordinances, and the provisions of this Contract.

8. CONTRACTOR agrees that all persons employed by CONTRACTOR or any subcontractor shall be paid no less than the minimum wage established under Chapter 40, Subchapter II, Dane County Code of Ordinances. CONTRACTOR agrees to abide by and comply with the provisions of Chapter 40, Subchapter II of the Dane County Code of Ordinances, and said Subchapter is fully incorporated herein by reference.

9. This Contract is intended to be a Contract solely between the parties hereto and for their benefit only. No part of this Contract shall be construed to add to, supplement, amend, abridge or repeal existing rights, benefits or privileges of any third party or parties including, but not limited to, employees of either of the parties.

10. The entire agreement of the parties is contained herein and this Contract supersedes any and all oral agreements and negotiations between the parties relating to the subject matter hereof. The parties expressly agree that the express terms of this Contract shall not be amended in any fashion except in writing, executed by both parties.

11. CONTRACTOR must be pre-qualified as a Best Value Contractor with Dane County Public Works Engineering Division before award of Contract. Subcontractors must be pre-qualified ten (10) business days prior to commencing Work under this Contract.

IN WITNESS WHEREOF, COUNTY and CONTRACTOR, by their respective authorized agents, have caused this Contract and its Schedules to be executed, effective as of the date by which all parties hereto have affixed their respective signatures, as indicated below.

* * * * *

FOR CONTRACTOR:

Signature Date

Printed or Typed Name and Title

Signature Date

Printed or Typed Name and Title

NOTE: If CONTRACTOR is a corporation, Secretary should attest. In accordance with IRS Regulations, unincorporated entities are required to provide either their Social Security or Employer Number in order to receive payment for services rendered.

* * * * *

This Contract is not valid or effectual for any purpose until approved by the appropriate authority designated below, and no work is authorized until the CONTRACTOR has been given notice to proceed by COUNTY'S Assistant Public Works Director.

FOR COUNTY:

Joseph T. Parisi, County Executive Date

Scott McDonell, County Clerk Date

AIA[®] Document A310[™] – 2010

Bid Bond

CONTRACTOR:

(Name, legal status and address)

SURETY:

(Name, legal status and principal place of business)

OWNER:

(Name, legal status and address)

BOND AMOUNT:**PROJECT:**

(Name, location or address, and Project number, if any)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this _____ day of _____

_____	(Contractor as Principal)	(Seal)
(Witness)	_____	(Title)
_____	(Surety)	(Seal)
(Witness)	_____	(Title)

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

AIA[®] Document A312[™] – 2010

Performance Bond

CONTRACTOR:

(Name, legal status and address)

SURETY:

(Name, legal status and principal place of business)

OWNER:

(Name, legal status and address)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

AIA Document A312–2010 combines two separate bonds, a Performance Bond and a Payment Bond, into one form. This is not a single combined Performance and Payment Bond.

CONSTRUCTION CONTRACT

Date:

Amount:

Description:

(Name and location)

BOND

Date:

(Not earlier than Construction Contract Date)

Amount:

Modifications to this Bond: None See Section 16

CONTRACTOR AS PRINCIPAL

Company: *(Corporate Seal)*

SURETY

Company: *(Corporate Seal)*

Signature: _____

Name _____
and Title: _____

Signature: _____

Name _____
and Title: _____

(Any additional signatures appear on the last page of this Performance Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:

OWNER'S REPRESENTATIVE:

(Architect, Engineer or other party:)

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

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

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

- .1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;
- .2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
- .3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

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

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

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

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

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

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

- .1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
- .2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

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

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

- .1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
- .2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and
- .3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

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

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

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

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

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

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

§ 14 Definitions

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

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

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

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

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

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

§ 16 Modifications to this bond are as follows:

Sample

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL

SURETY

Company: _____

(Corporate Seal)

Company: _____

(Corporate Seal)

Signature: _____
Name and Title: _____
Address _____

Signature: _____
Name and Title: _____
Address _____

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.



AIA® Document A312™ – 2010

Payment Bond

CONTRACTOR:

(Name, legal status and address)

SURETY:

(Name, legal status and principal place of business)

OWNER:

(Name, legal status and address)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

AIA Document A312–2010 combines two separate bonds, a Performance Bond and a Payment Bond, into one form. This is not a single combined Performance and Payment Bond.

CONSTRUCTION CONTRACT

Date:

Amount:

Description:

(Name and location)

BOND

Date:

(Not earlier than Construction Contract Date)

Amount:

Modifications to this Bond: None See Section 18

CONTRACTOR AS PRINCIPAL

Company: *(Corporate Seal)*

SURETY

Company: *(Corporate Seal)*

Signature: _____

Name _____
and Title: _____

Signature: _____

Name _____
and Title: _____

(Any additional signatures appear on the last page of this Payment Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:

OWNER'S REPRESENTATIVE:

(Architect, Engineer or other party:)

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

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

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

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

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

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

- .1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
- .2 have sent a Claim to the Surety (at the address described in Section 13).

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

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

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

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

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

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

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

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

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

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

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

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

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

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

§ 16 Definitions

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

- .1 the name of the Claimant;
- .2 the name of the person for whom the labor was done, or materials or equipment furnished;
- .3 a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- .4 a brief description of the labor, materials or equipment furnished;
- .5 the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- .6 the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- .7 the total amount of previous payments received by the Claimant; and
- .8 the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

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

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

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

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

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

§ 18 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL

Company: _____

(Corporate Seal)

SURETY

Company: _____

(Corporate Seal)

Signature: _____

Name and Title: _____

Address _____

Signature: _____

Name and Title: _____

Address _____

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

EQUAL BENEFITS COMPLIANCE PAYMENT CERTIFICATION FORM

PURPOSE

25.016(8) of the Dane County Ordinance requires that each contractor receiving payment for contracted services must certify that he or she has complied fully with the requirements of Chapter 25.016 “Equal Benefits Requirement” of the Dane County Ordinances. Such certification must be submitted prior to the final payment on the contract.

This form should be included with a copy of the final contract invoice forwarded to your contract representative at Dane County.

CERTIFICATION

I, _____ certify that
Printed or Typed Name and Title

Printed or Typed Name of Contractor

has complied fully with the requirements of Chapter 25.016 of the Dane County Ordinances “Equal Benefits Requirements”.

Signed _____

Date _____

For questions on this form, please contact Chuck Hicklin at 608-266-4109 or your contract representative at Dane County.

GENERAL CONDITIONS OF CONTRACT

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1. CONSTRUCTION DOCUMENTS

- A. Construction Documents, listed in Table of Contents of this Specification volume shall form part of this Contract and provisions of Construction Documents shall be as binding upon parties as if they were fully set forth in Contract itself.
- B. These shall also be considered as part of Construction Documents: Addenda, including additions and modifications incorporated in such addenda before execution of Contract; requests for information; construction bulletins; change orders; and written interpretations by Architect / Engineer or Public Works Project Manager that are made after execution of Contract.
- C. Construction Documents are complementary, and what is required by one shall be as binding as if required by all. Intent of Construction Documents is to include all labor, materials and equipment necessary for proper execution of the Work.

2. DEFINITIONS

- A. These terms as used in this Contract are respectively defined as follows:
 - 1. All uses of term “County” in Construction Documents shall mean Dane County.
 - 2. All uses of term “Department” in Construction Documents shall mean Department of Public Works, Highway & Transportation, which is a unit of Dane County government. Department is County agency overseeing Contract with Contractor.
 - 3. Public Works Project Manager is appointed by and responsible to Department. Public Works Project Manager has authority to act on behalf of Department and will sign change orders, payment requests and other administrative matters related to projects.
 - 4. Public Works Project Manager is responsible for supervision, administration and management of field operations involved in construction phase of this Work.
 - 5. Term “Work” includes all labor, equipment and materials necessary to produce project required by Construction Documents.
 - 6. Term “Substantial Completion” is date when project or specified area of project is certified by Architect / Engineer that construction is sufficiently completed, in accordance with Construction Documents, and as modified by any subsequent changes agreed to by parties, so that County may occupy project or specified area of project for use for which it was intended subject to permit approval for occupancy.
 - 7. Contractor is person, firm, or corporation with whom County makes Contract. Though multiple contracts may be involved, Construction Documents treat them throughout as if each were of singular number.

3. ADDITIONAL INSTRUCTIONS AND DRAWINGS

- A. Contractor may be furnished additional instructions and detail drawings as necessary to carry out the Work included in Contract. Additional drawings and instructions thus supplied to Contractor will coordinate with Construction Documents and will be so prepared that they can be reasonably interpreted as part thereof. Contractor shall carry out the Work in accordance with additional detail drawings and instructions.

4. SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- A. Unless otherwise specified, Contractor shall submit three (3) copies of all Shop Drawings for each submission, until receiving final approval. After final approval, provide five (5) additional copies for distribution and such other copies as may be required.
- B. Contractor shall submit, on an on-going basis and as directed, Product Data such as brochures that shall contain catalog cuts and specifications of all furnished mechanical and electrical equipment. After Architect / Engineer's approval, one (1) copy shall remain in Architect / Engineer's file, one (1) kept at Department's office and one (1) kept at job site by Contractor for reference purposes.
- C. Samples shall consist of physical examples furnished by Contractor in sufficient size and quantity to illustrate materials, equipment or workmanship, and to establish standards to compare the Work.
 - 1. Submit Samples in sufficient quantity (minimum of two (2)) to permit Architect / Engineer to make all necessary tests and of adequate size showing quality, type, color range, finish, and texture. Label each Sample stating material, type, color, thickness, size, project name, and Contractor's name.
 - 2. Submit transmittal letter requesting approval, and prepay transportation charges to Architect / Engineer's office on samples forwarded.
 - 3. Materials installed shall match approved Samples.
- D. Contractor shall review Shop Drawings and place their dated stamp thereon to evidence their review and approval and shall submit with reasonable promptness and in orderly sequence to cause no delay in the Work or in work of any other contractor. At time of submission, Contractor shall inform Architect / Engineer in writing of any deviation in Shop Drawings or Samples from requirements of Construction Documents. Architect / Engineer will not consider partial lists.
- E. Architect / Engineer will review and approve or reject Shop Drawings with reasonable promptness to cause no delay. Architect / Engineer's approval shall not relieve Contractor from responsibility for errors or omissions in Shop Drawings.
- F. Contractor shall not commence any work requiring Shop Drawing, Product Data or Sample submission until Architect / Engineer has approved submission. All such work shall be in accordance with approved Shop Drawings, Product Data and Samples.
- G. Contractor shall keep on site of the Work, approved or conformed copy of Shop Drawings and shall at all time give Department access thereto.
- H. By stamping and submitting Shop Drawings, Product Data and Samples, Contractor thereby represents that he or she has or will determine and verify all field measurements, field construction criteria, materials, catalog numbers, and similar data and that he or she has checked and coordinated each Shop Drawing, Product Data and Sample with requirements of the Work and of Construction Documents. Architect / Engineer shall return without examination, Shop Drawings, Product Data and Samples not so noted.
- I. All Shop Drawings from any one Contractor should be numbered consecutively and on cover sheet shall bear name and location of project, name of Contractor, date of submittal and date of each correction or revision and associated Specification section and page number.

5. CUTTING AND PATCHING

- A. Contractor shall be responsible for all cutting, fitting or patching required to complete the Work or to make its parts fit together properly.
- B. Contractor shall not damage or endanger portion of the Work or fully or partially completed construction of County or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. Contractor shall not cut or otherwise alter such construction by County or separate contractor except with written consent of County and of such separate contractor; such consent shall not be unreasonably withheld. Contractor shall not withhold unreasonably from County or separate contractor, Contractor's consent to cutting or otherwise altering the Work.

6. CLEANING UP

- A. Contractor shall keep premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under Contract. Contractor shall remove from and about the Work waste materials, rubbish, Contractor's tools, construction equipment, machinery, and surplus materials at completion of the Work. Contractor shall remove all spillage and prevent tracking of spillage arising from performance of the Work, into, out of, and within the Work site. Contractor shall establish regular maintenance program of sweeping, vacuuming and / or hosing to minimize accumulation of dirt and dust upon such areas.
- B. If Contractor fails to clean up as directed in Construction Documents, County may do so and shall charge Contractor cost thereof.

7. USE OF SITE

- A. Contractor shall provide County and Architect / Engineer access to the Work under all circumstances.
- B. Contractor shall confine operations at site to areas permitted by County, law, ordinance, permits and Construction Documents and shall not unreasonably encumber site with materials or equipment. Contractor shall assure free, convenient, unencumbered, direct and safe access to all properties adjacent to the Work for County, its employees, invitees and guests.

8. MATERIALS AND WORKMANSHIP

- A. Contractor shall perform all work and furnish all supplies and materials, machinery, equipment, facilities and means, necessary to complete the Work required by this Contract, within time specified, in accordance with provisions of Construction Documents.
- B. All equipment and materials incorporated in the Work covered by this Contract are to be new; use recycled and / or recovered materials to extent that such use is technically and economically feasible. Recovered materials are products recovered from solid waste in form identical to original form for use that is same as, or similar to original use. Recycled materials are products manufactured from solid waste.
- C. If requested, Contractor shall furnish satisfactory evidence as to kind and quality of construction materials proposed or used. Contractor shall furnish to Architect / Engineer, for approval, manufacturer name and model, performance capacities and other pertinent

information of machinery, mechanical, electrical or other types of equipment, which Contractor plans to install.

- D. If not otherwise provided, materials and labor called for in this Contract shall be provided and performed in accordance with established practice and standards recognized by Architects, Engineers, Department, and construction industry.
- E. Reference to “Standard” specifications of any association or manufacturer, or codes of County authorities, intends most recent printed edition or catalog in effect on date that corresponds with date of Construction Documents.
- F. Whenever reference is made in Specifications that work shall be “performed”, “applied”, in accordance with “manufacturer’s directions or instructions”, Contractor to whom those instructions are directed shall furnish three (3) printed copies of such instructions to Architect / Engineer before execution of the Work.

9. CONTRACTOR’S TITLE TO MATERIALS

- A. Contractor or any subcontractor shall not purchase materials or supplies for the Work subject to any chattel mortgage or under conditional sale contract or other agreement by which seller retains interest. Contractor warrants that all materials and supplies used in the Work are free from all liens, claims or encumbrances and Contractor has good title to them.

10. “OR EQUAL” CLAUSE

- A. Whenever equipment or materials are identified on Drawings or in Specifications by reference to manufacturer’s or vendor’s name, trade name, catalog number, and other identifying information, it is intended to establish standards; and any equipment or material of other manufacturers and vendors which will perform adequately duties imposed by general design will be considered equally accepted provided equipment or material so proposed is, in opinion of Architect / Engineer, of equal substance and function. Architect / Engineer and Department shall provide written approval before Contractor may purchase or install it.
- B. Equipment or materials of manufacturers, other than those named, may be used only upon following conditions:
 - 1. That, in opinion of Architect / Engineer and Department, proposed material or equipment item is fully equal or superior (in design, materials, construction, workmanship, performance, finish, etc.) to named item. No compromise in quality level, however small, is acceptable.
 - 2. That, in substituting materials or equipment, Contractor assumes responsibility for any changes in system or for modifications required in adjacent or related work to accommodate such substitution despite Architect / Engineer’s and Department’s approval, and all costs growing out of approval of “or equal” items shall be responsibility of Contractor. No extra costs resulting from such approval shall become responsibility of Department, Architect / Engineer or any other separate Contractor.
 - 3. It shall be understood that use of materials or equipment other than those specified, or approved equal by Architect / Engineer and Department, shall constitute violation of Contract, and that Architect / Engineer and Department shall have right to require removal of such materials or equipment and their replacement with specified materials or equipment at Contractor’s expense.
 - 4. Product and manufacturer named first in Specifications or on information shown on Drawings is basis of selection of manufactured items and equipment, particularly mechanical equipment. In using other than first named products or manufacturers,

including those specified as additionally approved or acceptable, Contractor assumes responsibility for any changes in system and for modifications in any work required to accommodate them. Architect / Engineer's approval of such additionally acceptable products or manufacturers, either in Specifications or in Addendum, does not relieve Contractor from obligation to coordinate such optional products with other Contractors, whose work may be affected by them, and to pay all additional costs resulting from their inclusion into the Work. Contractor's liability shall include payment of Architect / Engineer's fees for any additional services made necessary by or directly connected to such product changes. No extra costs resulting from such changes shall become responsibility of Department, Architect / Engineer or any other separate Contractor.

- C. No request for approval of "or equal" materials will be entertained except from Contractor. Identify any request for substitution as substitution on Contractor's letter of transmittal and give reasons for substitution. Department may in its sole discretion allow substitutions of materials.

11. PATENTS AND ROYALTIES

- A. If Contractor uses any design, device or material covered by letters, patent or copyright, it is mutually agreed and understood, that, without exception, contract prices shall include all royalties or costs arising from use of such design, device or materials, in any way involved in the Work.
- B. Contractor shall indemnify and save harmless County from any and all claims for infringement by reason of use of such patent or copyright in connection with the Work agreed to be performed under this Contract, and shall indemnify County for any cost, expense or damage which it may be obliged to pay by reason of such infringement at any time during prosecution of the Work or after completion of the Work.

12. SURVEYS, PERMITS, REGULATIONS AND TAXES

- A. Department will furnish to Contractor all site, topography and property surveys necessary for execution of the Work.
- B. Contractor shall procure all permits, licenses and approvals necessary for execution of this Contract.
- C. Contractor shall give all notices and comply with all State of Wisconsin, Federal and local laws, codes, rules and regulations relating to performance of the Work, protection of adjacent property, and maintenance of passageways, guard fences or other protective facilities.
- D. Contractor shall pay all Sales, Consumer, Use and other similar taxes required by law.
- E. Contractor shall promptly notify Architect / Engineer of any variances of Drawings or Specifications with that of any State of Wisconsin, federal or local law, code, rule or regulation. Upon such notification, Architect / Engineer will require correction of variance to comply with applicable law, code, rule or regulation at no additional cost to Contractor.
- F. Work under this Contract shall comply with all applicable State of Wisconsin, Federal and local laws, codes and regulations.
- G. Contractor shall pay charges for water, sewer and other utility connections made by municipalities where required by Specifications.

13. CONTRACTOR'S OBLIGATIONS AND SUPERINTENDENCE

- A. Contractor shall provide and pay for all materials, labor, tools, equipment, transportation and superintendence necessary to execute, complete and deliver the Work within specified time. Contractor agrees to secure at their own expense all personnel necessary to carry out the Work. Such personnel shall not be deemed County employees nor shall they have or be deemed to have any direct contractual relationship with County.
- B. Performance of any work necessary after regular working hours, on Sundays or Legal Holidays shall be without additional expense to County. Performance of any work at site at other than normal working hours must be coordinated with Public Works Project Manager.
- C. Contractor shall furnish, erect, maintain and remove such temporary works as may be required.
- D. Contractor shall observe, comply with, and be subject to all terms, conditions, requirements and limitations of Construction Documents.
- E. At the Work site, Contractor shall give personal superintendence to the Work or shall employ construction superintendent or foreman, experienced in character of work covered by Contract, who shall have full authority to act for Contractor. Understand that such superintendent or foreman shall be acceptable to Architect / Engineer and Department.
- F. Remove from project or take other corrective action upon notice from Architect / Engineer or Department for Contractor's employees whose work is considered by Architect / Engineer or Department to be unsatisfactory, careless, incompetent, unskilled or otherwise objectionable.
- G. Contractor and subcontractors shall be required to conform to Labor Laws of State of Wisconsin and various acts amendatory and supplementary thereto and to other laws, ordinances and legal requirements applicable to the Work.
- H. Presence and observation of the Work by Architect / Engineer or Public Works Project Manager shall not relieve Contractor of any obligations.

14. WEATHER CONDITIONS

- A. In event of temporary suspension of work, or during inclement weather, or whenever Architect / Engineer shall direct, Contractor shall, and shall cause subcontractors to protect carefully all work and materials against damage or injury from weather. If, in opinion of Architect / Engineer or Department, any work or materials that have been damaged or injured due to failure on part of Contractor or any subcontractors so to protect the Work, such materials shall be removed and replaced at expense of Contractor.

15. PROTECTION OF WORK AND PROPERTY

- A. Contractor shall at all times safely guard County's property from injury or loss in connection with this Contract. Contractor shall at all times safely guard and protect the Work, and adjacent property, from damage. Contractor shall replace or make good any such damage, loss or injury unless such is caused directly by errors contained in Contract, or by County, or County's duly authorized representative.

- B. Contractor may act diligently, without previous instructions from Architect / Engineer and / or Department, in emergency that threatens loss or injury of property, or safety of life. Contractor shall notify Architect / Engineer and / or Department immediately thereafter. Promptly submit any claim for compensation by Contractor due to such extra work to Architect / Engineer and / or Department for approval as provided for in Article 18 herein.

16. INSPECTION AND TESTING OF MATERIALS

- A. Authorized representatives and agents of County government shall have access at all times to the Work wherever it is in preparation or progress and Contractor shall provide facilities for such access and for inspection.
- B. Should it be considered necessary or advisable at any time before final acceptance of the Work to make examination of work already completed, by removing or tearing out same, Contractor shall upon request, promptly furnish all necessary facilities, labor and materials. If such work is found to be defective in any aspect, due to fault of Contractor or subcontractors thereof, Contractor shall assume all expenses of such examination and of satisfactory reconstruction.
- C. If Specifications, Architect / Engineer's, or Public Works Project Manager's instructions require any work to be specially tested or approved, Contractor shall give Architect / Engineer and Public Works Project Manager timely notice of its readiness for testing or inspection. Test all materials and equipment requiring testing in accordance with accepted or specified standards, as applicable. Department shall recommend laboratory or inspection agency and will select and pay for all conformance testing. Should retesting be required, due to failure of initial testing, cost of such retesting shall be borne by Contractor.

17. REPORTS, RECORDS AND DATA

- A. Contractor shall submit to Architect / Engineer and Public Works Project Manager such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, invoices, records and other data as either may request concerning work performed or to be performed under this Contract.

18. CHANGES IN THE WORK

- A. Make no changes, except in cases of emergency, in the Work covered by approved Construction Documents without having prior written approval of Department. Charges or credits for the Work covered by approved change shall be determined by one of these methods:
 - 1. Unit bid prices previously approved.
 - 2. Agreed lump sum based on actual cost of:
 - a) Labor, including foremen, and all fringe benefits that are associated with their wages.
 - b) Materials entering permanently into the Work.
 - c) Ownership or rental cost of construction tools and equipment during time of use on extra work.
 - d) Power and consumable supplies for operation of power equipment.
 - e) Workmen's Compensation Insurance, Contractor's Public Liability and Property Damage Insurance, and Comprehensive Automobile Liability Insurance.
 - f) Social Security and old age and unemployment contributions.
 - g) Add to cost under (2), fixed fee to be agreed upon, but not to exceed fifteen percent (15%) of actual cost of work performed with their own labor force. Fee shall be

compensation to cover cost of supervision, overhead, bond, profit and any other general expense.

- h) On that portion of the Work under (2) done under subcontract, Contractor may include not over seven and one-half percent (7½%) for supervision, overhead, bond, profit and any other general expense.
 - i) Department may require correct amount of costs with supporting vouchers; Contractor shall keep and present in such form as directed.
3. Cost-plus work, with not-to-exceed dollar limit, based on actual cost of:
- a) Labor, including foremen, and all fringe benefits that are associated with their wages.
 - b) Materials entering permanently into the Work.
 - c) Ownership or rental cost of construction tools and equipment during time of use on extra work. Rental cost cannot exceed fifty percent (50%) replacement value of rented equipment.
 - d) Power and consumable supplies for operation of power equipment.
 - e) Workmen's Compensation Insurance, Contractor's Public Liability and Property Damage Insurance, and Comprehensive Automobile Liability Insurance.
 - f) Social Security and old age and unemployment contributions.
 - g) To cost under (3), there shall be added fixed fee to be agreed upon but not to exceed fifteen percent (15%) of actual cost of work performed with their own labor force. Fee shall be compensation to cover cost of supervision, overhead, bond, profit, and any other general expense.
 - h) On that portion of the Work under (3) done under subcontract, Contractor may include not over seven and one-half percent (7½%) for supervision, overhead, bond, profit, and any other general expense.
 - i) Contractor shall keep and present, in such form as directed, correct amount of cost together with such supporting vouchers as may be required by Department.
- B. If Contractor claims that by any instructions given by Architect / Engineer, Department, by drawings or otherwise, regarding performance of the Work or furnishing of material under Contract, involves extra cost, Contractor shall give Department written notice of cost thereof within two (2) weeks after receipt of such instructions and in any event before proceeding to execute work, unless delay in executing work would endanger life or property.
- C. No claim for extra work or cost shall be allowed unless it was done in pursuance of written Change Order from Architect / Engineer and approved by Department, as previously mentioned, and claim presented with payment request submitted after changed or extra work is completed.
- D. Negotiation of cost for change in the Work shall not be cause for Contractor to delay prosecution of the Work if Contractor has been authorized in writing by Public Works Project Manager to proceed.

19. EXTRAS

- A. Without invalidating Contract, Department may order extra work or make changes by altering, adding to or deducting from the Work, contract sum being adjusted in accordance with Article 18 herein.

20. TIME FOR COMPLETION

- A. Contractor agrees that the Work shall be prosecuted regularly and diligently and complete the Work as stated in Construction Documents.

21. CORRECTION OF WORK

- A. All work, all materials whether incorporated in the Work or not, and all processes of manufacture shall at all times and places be subject to inspection of Architect / Engineer and Public Works Project Manager who shall be judge of quality and suitability of the Work, materials, and processes of manufacture for purposes for which they are used. Should they fail to meet Architect / Engineer's and Public Works Project Manager's approval they shall be reconstructed, made good, replaced or corrected, by Contractor at Contractor's expense. Immediately remove all rejected material from site.
- B. If Contractor defaults or neglects to carry out the Work in accordance with Construction Documents or fails to perform any provision of Contract, Department may, after ten (10) business days' written notice to Contractor and without prejudice to any other remedy County may have, make good such deficiencies. In such case, appropriate Change Order shall be issued deducting from Contractor's payments then or thereafter, cost of correcting such deficiencies, including cost of Architect / Engineer's additional services made necessary by such default, neglect or failure.

22. SUBSURFACE CONDITIONS FOUND DIFFERENT

- A. If Contractor encounters subsurface or latent conditions at site materially differing from those shown on Drawings or indicated in Specifications, Contractor shall immediately give notice to Architect / Engineer and Public Works Project Manager of such conditions before they are disturbed. Architect / Engineer will thereupon promptly investigate conditions, and if Architect / Engineer finds that they materially differ from those shown on Drawings or indicated in Specifications, Architect / Engineer will at once make such changes as necessary, any increase or decrease of cost resulting from such changes to be adjusted in manner provided in above Article 18 entitled "Changes in the Work".

23. RIGHT OF DEPARTMENT TO TERMINATE CONTRACT

- A. In event that any provisions of this Contract are violated by Contractor or by any subcontractors, County may serve written notice upon Contractor and Surety of its intention to terminate Contract, such notice to contain reasons for such intention to terminate Contract, and unless within ten (10) business days after serving of such notice upon Contractor, such violation or delay shall cease and satisfactory arrangement or correction be made, Contract shall, upon expiration of said ten (10) business days, cease and terminate.
- B. In event of any such termination, County shall immediately serve notice thereof upon Surety and Contractor, and Surety shall have right to take over and perform Contract subject to County's approval; provided, however, that if Surety does not commence performance thereof within ten (10) business days from date of mailing to such Surety of notice of termination, County may take over the Work and prosecute same to completion by contract, or by force account, at expense of Contractor; Contractor and Surety shall be liable to County for any excess cost occasioned County thereby, and in such event County may take possession of and utilize in completing the Work, such materials and equipment as may be on the Work site and therefore necessary.

24. CONSTRUCTION SCHEDULE AND PERIODIC ESTIMATES

- A. Contractor shall be responsible for Construction Schedule and coordination. Immediately after execution and delivery of Contract and before making first payment, Contractor shall

notify all subcontractors to furnish all required information to develop Construction Schedule. Contractor and all subcontractors associated with the Work shall furnish following information from each Division of Specifications:

1. List of construction activities;
 2. Start, finish and time required for completion of each activity;
 3. Sequential relationships between activities;
 4. Identify all long lead-time items, key events, meetings or activities such as required submittals, fabrication and delivery, procurement of materials, installation and testing;
 5. Weekly definition of extent of work and areas of activity for each trade or Subcontract; and
 6. Other information as determined by Public Works Project Manager.
- B. In addition to above requested items, Contractor shall request delivery dates for all County-furnished equipment, materials or labor. This shall include any work handled by Department under separate contracts such as asbestos abatement, air and water balancing, etc. Indicate on Construction Schedule these associated delivery and installation dates.
- C. Progress Reporting:
1. Contractor shall update and publish Construction Schedule on bi-weekly basis. Revisions to Schedule shall be by Contractor and made in same detail as original Schedule and accompanied by explanation of reasons for revision; and shall be subject to approval by Department.
 2. Failure of Contractor to keep Schedule in updated format shall result in County hiring firm specializing in construction schedule development and deducting those costs associated with updating process from payments due Contractor.
 3. Contractor shall submit actual percentage of each activity completed, estimated future progress, and anticipated completion time.
- D. Responsibility for timely completion requires:
1. Contractor and subcontractors understand that performance of each is interdependent upon performance of others.
 2. Whenever it becomes apparent from current schedule, that phasing or progress completion dates will not be met, Contractor must take some or all following actions at no additional cost to County:
 - a) Increase construction labor in such quantities and crafts as will eliminate backlog of work.
 - b) Increase number of working hours per shift, shifts per working day, working days per week, amount of construction equipment, or any combination of foregoing to eliminate backlog of work.
 - c) Reschedule work (yet remain in conformance with Drawings and Specifications).
 3. Prior to proceeding with any of above actions, Contractor shall notify Public Works Project Manager.
- E. Maintain current Construction Schedule at all times. Revise Construction Schedule in same detail as original and accompany with explanation of reasons for revision. Schedule shall be subject to approval by Architect / Engineer and Public Works Project Manager.

25. PAYMENTS TO CONTRACTOR

- A. Contractor shall provide:
1. Detailed estimate giving complete breakdown of contract price by Specification Division; and

2. Periodic itemized estimates of work done for purpose of making partial payments thereon.
- B. Submit these estimates for approval first to Architect / Engineer, then to Public Works Project Manager. Costs employed in making up any of these schedules are for determining basis of partial payments and not considered as fixing basis for additions to or deductions from Contract price.
- C. County will make partial payments to Contractor for value, proportionate to amount of Contract, of all labor and material incorporated in the Work during preceding calendar month upon receipt of Application and Certificate for Payment form from Architect / Engineer and approval of Department.
- D. Contractor shall submit for approval first to Architect / Engineer, and then to Public Works Project Manager all Application and Certificate for Payment forms. If requested, Application and Certificate for Payment shall be supported by such additional evidence as may be required, showing Contractor's right to payment claimed.
- E. Application and Certificate for Payment for preparatory work and materials delivered and suitably stored at site to be incorporated into the Work at some future period, will be given due consideration. Requesting payment for materials stored off site, may be rejected, however, if deemed essential for reasons of job progress, protection, or other sufficient cause, requests will be considered, conditional upon submission by Contractor of bills of sale, photographs and such other procedures as will adequately protect County's interest such as storage in bonded warehouse with adequate coverage. If there is any error in payment, Contractor is obligated to notify Department immediately, but no longer than ten (10) business days from receipt of payment.
- F. Payments by County will be due within forty-five (45) business days after receipt by Department of Application and Certificate for Payment.
- G. County will retain five percent (5%) of each Application and Certificate for Payment until final completion and acceptance of all the Work covered by Contract. However, anytime after fifty percent (50%) of the Work has been furnished and installed at site, County will make remaining payments in full if Architect / Engineer and Public Works Project Manager find that progress of the Work corresponds with Construction Schedule. If Architect / Engineer and Public Works Project Manager find that progress of the Work does not correspond with Construction Schedule, County may retain up to ten percent (10%) of each Application and Certificate for Payment for the Work completed.
- H. All material and work covered by partial payments made shall become sole property of County, but this provision shall not be construed as relieving Contractor from sole responsibility for care and protection of materials and work upon which payments have been made, or restoration of any damaged work, or as waiver of right of County to require fulfillment of all of terms of Contract.
- I. County will make final payment within sixty (60) calendar days after final completion of the Work, and will constitute acceptance thereof. Submit Equal Benefits Compliance Payment Certification with final pay request. Payment may be denied if Certification is not included.
- J. County may make payment in full, including retained percentages and less authorized deductions, upon completion and acceptance of each Division where price is stated separately in Contract.

- K. Every contractor engaged in performance of any contract for Department of Public Works, Highway & Transportation shall submit to this Department, as requested and with final application for payment for work under said contract, affidavit(s) as required to prove that all debts and claims against this Work are paid in full or otherwise satisfied, and give final evidence of release of all liens against the Work and County. If Wisconsin Prevailing Wage Rate Determination is required for this Work, use “Prime Contractor Affidavit of Compliance with Prevailing Wage Rate Determination” and “Agent or Subcontractor Affidavit of Compliance with Prevailing Wage Rate Determination” (if applicable). If Wisconsin Prevailing Wage Rate Determination is not required for this Work, use “Dane County, Wisconsin Contractor Wage Affidavit”. Forms of such affidavits are included in Supplementary Conditions.

26. WITHHOLDING OF PAYMENTS

- A. County, after having served written notice on said Contractor, may either pay directly any unpaid bills of which Department has written notice, or withhold from Contractor’s unpaid compensation sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged; whereupon, payment to Contractor shall be resumed in accordance with terms of this Contract, but in no event shall these provisions be construed to impose any obligations upon County to either Contractor or Contractor’s Surety.
- B. In paying any unpaid bills of Contractor, County shall be deemed agent of Contractor, and any payment so made by County, shall be considered as payment made under Contract by County to Contractor and County shall not be liable to Contractor for any such payment made in good faith.
- C. Contractor shall indemnify, hold harmless and defend Dane County, its boards, commissions, agencies, officers, employees and representatives from all claims growing out of lawful demands of subcontractors, laborers, workers, mechanics, material men, and furnishers of machinery and parts thereof, equipment, power tools, and all supplies, including commissary, incurred in performance of this Contract.
- D. At Department’s request, Contractor shall furnish satisfactory evidence that all obligations of nature designated above have been paid, discharged or waived.

27. ACCEPTANCE OF FINAL PAYMENT AS RELEASE

- A. Making of final payment shall constitute waiver of all claims by County except those arising from:
1. Unsettled lien;
 2. Faulty or defective work appearing after substantial completion;
 3. Failure of the Work to comply with requirements of Construction Documents; or
 4. Terms of any special guarantees required by Construction Documents.
- B. Acceptance of final payment shall constitute waiver of all claims by Contractor.

28. PAYMENTS BY CONTRACTOR

- A. Contractor shall pay following not later than fifth (5th) business day following each payment received from County:
1. All transportation and utility services rendered;

2. All materials, tools, and other expendable equipment that have been delivered at site of the Work to extent of ninety percent (90%) of cost thereof, and balance of cost thereof when said balance is paid to Contractor; and
3. Each subcontractor, respective amount allowed Contractor because of work performed by subcontractor to extent of subcontractor's interest therein.

29. CONTRACT SECURITY

- A. Contractor shall furnish Performance and Payment Bonds in amount at least equal to one hundred percent (100%) of Contract price as security for faithful performance of this Contract and payment of all persons performing labor on project under this Contract and furnishing materials in connection with this Contract.
- B. Sample Performance and Payment Bonds that Contractor will be required to execute is bound into these Construction Documents. Before construction Contract is consummated, completed Performance and Payment Bonds must be approved by Department.

30. ASSIGNMENTS

- A. Contractor shall not assign whole or any part of this Contract or any moneys due or to become due hereunder without written consent of Department. In case Contractor assigns all or any part of any moneys due or to become due under this Contract, instrument of assignment shall contain clause substantially to effect that it is agreed that right of assignee in and to any moneys due or to become due to Contractor shall be subject to prior claims of all persons, firms and corporations for services rendered or materials supplied for performance of the Work called for in this Contract.

31. MUTUAL RESPONSIBILITY OF CONTRACTORS

- A. If, through acts of neglect on part of Contractor or any subcontractor shall suffer loss or damage on the Work, Contractor agrees to settle with such subcontractor by agreement or arbitration if such other subcontractor will so settle. If such subcontractor shall assert any claim against County on account of any damage alleged to have been sustained, Department shall notify Contractor, who shall indemnify, hold harmless and defend Dane County, its boards, commissions, agencies, officers, employees and representatives against any such claim.

32. SEPARATE CONTRACTS

- A. Department may award other contracts for the Work and all Contractors shall fully cooperate with each other and carefully adjust their work to that provided under other contracts as may be directed by Department. No Contractor shall commit or permit any act that will interfere with performance of the Work by any other Contractor.
- B. Contractor shall coordinate the Work with those of other Contractors. Cooperation will be required in arrangement for storage of materials and in detailed execution of the Work. Contractor, including subcontractors, shall keep informed of progress and detail work of others and shall notify Architect / Engineer or Department immediately of lack of progress or defective workmanship on part of others. Failure of Contractor to keep informed of the Work progressing on site and failure to give notice of lack of progress or defective workmanship by others shall be construed as acceptance by Contractor of status of the Work as being satisfactory for proper coordination with Contractor's own work.

33. SUBCONTRACTS

- A. Contractor may use services of specialty subcontractors on those parts of the Work that, under normal contracting practices, are performed by specialty subcontractors.
- B. Contractor shall not award any work to any subcontractor without prior approval of Department. Qualifications of subcontractors shall be same as qualifications of Contractor. Request for subcontractor approval shall be submitted to Department fifteen (15) business days before start of subcontractor's work. If subcontractors are changed or added, Contractor shall notify Department in writing.
- C. Contractor shall be as fully responsible to County for acts and omissions of subcontractors, and of persons either directly or indirectly employed by them, as Contractor is for acts and omissions of persons directly employed by Contractor.
- D. Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the Work to bind subcontractors to Contractor by terms of General Conditions of Contract and other Construction Documents insofar as applicable to work of subcontractors and to give Contractor same power as regards terminating any subcontract that Department may exercise over Contractor under any provision of Construction Documents.
- E. Nothing contained in this Contract shall create any contractual relation between any subcontractor and County.
- F. Contractor shall insert in all subcontracts, Articles 26, 33, 43 and 45, respectively entitled: "Withholding of Payments", "Subcontracts", "Affirmative Action Provision and Minority / Women / Disadvantaged Business Enterprises", and "Minimum Wages", and shall further require all subcontractors to incorporate physically these same Articles in all subcontracts.

34. PUBLIC WORKS PROJECT MANAGER'S AUTHORITY

- A. Public Works Project Manager shall:
 - 1. Administer and ensure compliance with Construction Documents;
 - 2. Provide responsible on-site observations of construction and have authority to request work and to stop work whenever necessary to insure proper enforcement of Construction Documents;
 - 3. Convene and chair project meetings and foreman's coordination meetings when necessary to coordinate resolution of conflicts between Contractors, Architects, Engineers, Consultants, and Department; and
 - 4. Check and inspect material, equipment and installation procedures of all trades for proper workmanship and for compliance with Drawings, Specifications and Shop Drawings, permit no material on project site that is not satisfactory and reject work not in compliance with Construction Documents.

35. ARCHITECT / ENGINEER'S AUTHORITY

- A. Architect / Engineer is retained by, and is responsible to Department acting for County.
- B. Architect / Engineer shall determine amount, quality, acceptability, and fitness of several kinds of work and materials that are provided under this Contract and shall decide all questions that may arise in relation to said work and construction thereof.

- C. Architect / Engineer shall decide meaning and intent of any portion of Specifications and of any Drawings where they may be found obscure or be in dispute.
- D. Architect / Engineer shall provide responsible observation of construction. Architect / Engineer has authority to stop the Work whenever such stoppage may be necessary to insure proper execution of Construction Documents.
- E. Architect / Engineer shall be interpreter of conditions of Construction Documents and judge of its performance.
- F. Within reasonable time, Architect / Engineer shall make decisions on all matters relating to progress of the Work or interpretation of Construction Documents.
- G. Architect / Engineer's decisions are subject to review by Public Works Project Manager.

36. STATED ALLOWANCES

- A. Stated allowances enumerated in Instructions to Bidders shall cover net cost of materials or equipment, and all applicable taxes. Contractor's cost of delivery and unloading at site, handling costs on site, labor, installation costs, overhead, profit and any other incidental costs shall be included in Contractor's bid, but not as part of cash allowance.
- B. Department will solicit at least two (2) bids on materials or equipment for which allowance is stated and select on basis of lowest qualified responsible bid. Contractor will then be instructed to purchase "Allowed Materials". If actual price for purchasing "Allowed Materials", including taxes, is more or less than "Cash Allowance", Contract price shall be adjusted accordingly. Adjustment in Contract price shall not contain any cost items excluded from cash allowance.

37. ESTIMATES OF QUANTITIES

- A. Whenever estimated quantities of work to be done and materials to be furnished under this Contract are shown in any of Construction Documents, they are given for use in comparing bids and right is especially reserved to increase or diminish them as they may be deemed reasonably necessary or desirable by Department to complete the Work included in this Contract, and cost for such increase or diminution shall be adjusted in manner provided for in General Conditions of Contract Article 18 entitled "Changes in the Work".

38. LANDS AND RIGHTS-OF-WAY

- A. Prior to start of construction, County shall furnish all land and rights-of-way necessary for carrying out and completion of the Work to be performed under this Contract.

39. GENERAL GUARANTEE

- A. Neither final certificate of payment nor any provision in Construction Documents nor partial or entire occupancy of premises by County shall constitute acceptance of work not done in accordance with Construction Documents or relieve Contractor of liability in respect to any expressed warranties or responsibility for faulty materials or workmanship.
 - 1. In no event shall making of any payment required by Contract constitute or be construed as waiver by County of any breach of covenants of Contract or waiver of any default of

Contractor and making of any such payment by County while any such default or breach shall exist shall in no way impair or prejudice right of County with respect to recovery of damages or other remedy as result of such breach or default.

- B. Contractor shall remedy and make good all defective workmanship and materials and pay for any damage to other work resulting there from, which appear within period of one (1) year from date of substantial completion, providing such defects are not clearly due to abuse or misuse by County. Department will give notice of observed defects with reasonable promptness.
- C. Guarantee on work executed after certified date of substantial completion will begin on date when such work is inspected and approved by Architect / Engineer and Public Works Project Manager.
- D. Where guarantees or warranties are required in sections of Specifications for periods in excess of one (1) year, such longer terms shall apply; however, Contractor's Performance and Payment Bonds shall not apply to any guarantee or warranty period in excess of one (1) year.

40. CONFLICTING CONDITIONS

- A. Any provision in any of Construction Documents which may be in conflict or inconsistent with any Articles in these General Conditions of Contract or Supplementary Conditions shall be void to extent of such conflict or inconsistency.
- B. In case of ambiguity or conflict between Drawings and Specifications, Specifications shall govern.
- C. Printed dimensions shall be followed in preference to measurements by scale. Large-scale drawings take precedence over small-scale drawings. Dimensions on Drawings and details are subject to field measurements of adjacent work.

41. NOTICE AND SERVICE THEREOF

- A. Any notice to Contractor from Department relative to any part of this Contract shall be in writing and considered delivered and service thereof completed, when said notice is posted, by certified or registered mail, to Contractor at Contractor's last given address, or delivered in person to said Contractor, or Contractor's authorized representative on the Work.

42. PROTECTION OF LIVES AND HEALTH

- A. In order to protect lives and health of Contractor's employees under Contract, Contractor shall comply with all pertinent provisions of Wisconsin Administrative Code, Rules of Department of Commerce, relating to Safety and Health.
- B. Contractor alone shall be responsible for safety, efficiency and adequacy of Contractor's tools, equipment and methods, and for any damage that may result from their failure or their improper construction, maintenance or operation.

43. AFFIRMATIVE ACTION PROVISION AND MINORITY / WOMEN / DISADVANTAGED BUSINESS ENTERPRISES

- A. Affirmative Action Provisions.

1. During term of their Contract, Contractor agrees not to discriminate on basis of race, religion, color, sex, handicap, age, sexual preference, marital status, physical appearance, or national origin against any person, whether recipient of services (actual or potential), employee, or applicant for employment. Such equal opportunity shall include but not be limited to following: employment, upgrading, demotion, transfer, recruitment, advertising, layoff, termination, training, rates of pay, and any other form of compensation or level of service(s). Contractor agrees to post in conspicuous places, these affirmative action standards so as to be visible to all employees, service recipients and applicants for this paragraph. Listing of prohibited bases for discrimination shall not be construed to amend in any fashion state or federal law setting forth additional bases and exceptions shall be permitted only to extent allowable in state or federal law.
2. Contractor is subject to this Article only if Contractor has ten (10) or more employees and receives \$10,000.00 or more in annual aggregate contracts with County. Contractor shall file and Affirmative Action Plan with Dane County Contract Compliance Officer in accord with Chapter 19 of Dane County Code of Ordinances. Such plan must be filed within fifteen (15) business days of effective date of this Contract and failure to do so by said date shall constitute ground for immediate termination of Contract by County. Contractor shall also, during term of this Contract, provide copies of all announcements of employment opportunities to County's Contract Compliance Office, and shall report annually number of persons, by race, sex and handicap status, who apply for employment, and, similarly classified, number hired and number rejected.
3. Contact Dane County Contract Compliance Officer at Dane County Contract Compliance Office, 210 Martin Luther King, Jr. Blvd., Room 421, Madison, WI 53703, 608/266-4114.
4. In all solicitations for employment placed on Contractor's behalf during term of this Contract, Contractor shall include statement to affect Contractor is "Equal Opportunity Employer". Contractor agrees to furnish all information and reports required by County's Contract Compliance Officer as same relate to affirmative action and nondiscrimination, which may include any books, records, or accounts deemed appropriate to determine compliance with Chapter 19, Dane County Code of Ordinances, and provision of this Contract.

B. Minority / Women / Disadvantaged / Emerging Small Business Enterprises.

1. Chapter 19.508 of Dane County Code of Ordinances is official policy of Dane County regarding utilization of, to fullest extent of, Minority Business Enterprises (MBEs), Women Business Enterprises (WBEs) Disadvantage Business Enterprises (DBEs) and Emerging Small Business Enterprises (ESBEs).
2. Contractor may utilize MBEs / WBEs / DBEs / ESBEs as subcontractors or suppliers. List of subcontractors will be required of low bidder as stated in this Contract. List shall indicate which are MBEs / WBEs / DBEs / ESBEs and percentage of subcontract awarded, shown as percentage of total dollar amount of bid.

44. COMPLIANCE WITH FAIR LABOR STANDARDS

- A.** During term of this Contract, Contractor shall report to County Contract Compliance Officer, within ten (10) business days, any allegations to, or findings by National Labor Relations Board (NLRB) or Wisconsin Employment Relations Commission (WERC) that Contractor has violated statute or regulation regarding labor standards or relations. If investigation by Contract Compliance Officer results in final determination that matter adversely affects Contractor's responsibilities under this Contract, and which recommends termination, suspension or cancellation of this Contract, County may take such action.

- B. Contractor may appeal any adverse finding by Contract Compliance Officer as set forth in Dane County Ordinance 25.015(11)(c) through (e).
- C. Contractor shall post this statement in prominent place visible to employees: “As condition of receiving and maintaining contract with Dane County, this employer shall comply with federal, state and all other applicable laws prohibiting retaliation or union organizing.”

45. DOMESTIC PARTNERSHIP BENEFITS

- A. Contractor agrees to provide same economic benefits to all of its employees with domestic partners as it does to employees with spouses, or cash equivalent if such benefit cannot reasonably be provided. Contractor agrees to make available for County inspection Contractor’s payroll records relating to employees providing services on or under this Contract or subcontract. If any payroll records of Contractor contain any false, misleading or fraudulent information, or if Contractor fails to comply with provisions of Chapter 25.016, Dane County Ordinances, contract compliance officer may withhold payments on Contract; terminate, cancel or suspend Contract in whole or in part; or, after due process hearing, deny Contractor right to participate in bidding on future County contracts for period of one year after first violation is found and for period of three years after second or subsequent violation is found.

46. USE AND OCCUPANCY PRIOR TO ACCEPTANCE

- A. Contractor agrees to use and occupancy of portion or unit of the Work before formal acceptance by Department, provided Department:
 - 1. Secures written consent of Contractor; except when in opinion of Public Works Project Manager, Contractor is chargeable with unwarranted delay in final cleanup of punch list items or other Contract requirements.
 - 2. Secures endorsement from insurance carrier and consent of Surety permitting occupancy of building or use of the Work during remaining period of construction, or, secures consent of Surety.
 - 3. Assumes all costs and maintenance of heat, electricity and water.
 - 4. Accepts all work completed within that portion or unit of the Work to be occupied, at time of occupancy.

47. MINIMUM WAGES

- A. Contractor shall post, at appropriate conspicuous point on site of project, schedule showing all determined minimum wage rates for various classes of laborers and mechanics to be engaged in the Work under this Contract and all deductions, if any, required by law to be made from unpaid wages actually earned by laborers and mechanics so engaged.
- B. Supplementary Conditions section in Construction Documents lists minimum wages as required by Dane County Ordinance.
- C. If, after award of Contract, it becomes necessary to employ any person in trade or occupation not classified in wage determinations, such person shall be paid at not less than such rate as shall be determined by Wisconsin Department of Workforce Development. Such approved minimum rate shall be retroactive to time of initial employment of such person in such trade or occupation. Contractor shall notify Department of Contractor’s intention to employ persons in trades or occupations not so classified in sufficient time for Department to obtain approved rates for such trades or occupations.

- D. Specified wage rates are minimum rates only, and Department will not consider any claims for additional compensation made by Contractor because of payment by Contractor of any wage rate in excess of applicable rate contained in this Contract. Contractor shall adjust any disputes in regard to payment of wages in excess of those specified in this Contract.
- E. Submit "Dane County, Wisconsin Contractor Wage Affidavit", included in Supplementary Conditions, to Department of Public Works, Highway & Transportation, as requested and with final application for payment for work under said contract.

48. CLAIMS

- A. No claim may be made until Department's Assistant Public Works Director has reviewed Architect / Engineer's decision as provided for in Article 35 of General Conditions of Contract. If any claim remains unresolved after such review by Department's Assistant Public Works Director the claim may be filed under Wisconsin Statute 893.80. Work shall progress during period of any dispute or claim. Unless specifically agreed between parties, venue will be in Dane County, Wisconsin.

49. ANTITRUST AGREEMENT

- A. Contractor and County recognize that in actual economic practice, overcharges resulting from antitrust violations are in fact usually borne by County. Therefore, Contractor hereby assigns to County any and all claims for such overcharges as to goods and materials purchased in connection with this Contract, except as to overcharges which result from antitrust violations commencing after price is established under this Contract and any change order thereto.

50. INSURANCE

- A. Contractor Carried Insurance:
 - 1. Contractor shall not commence work under this Contract until Contractor has obtained all insurance required under this Article and has provided evidence of such insurance to Risk Manager, 425 City-County Building, 210 Martin Luther King Jr. Blvd., Madison, WI 53703. Contractor shall not allow any subcontractor to commence work until insurance required of subcontractor has been so obtained and approved. Company providing insurance must be licensed to do business in Wisconsin.
 - 2. Worker's Compensation Insurance:
 - a) Contractor shall procure and shall maintain during life of this Contract, Worker's Compensation Insurance as required by statute for all of Contractor's employees engaged in work at site of project under this Contract and, in case of any such work sublet, Contractor shall require subcontractor similarly to provide Worker's Compensation Insurance for all of latter's employees to be engaged in such work unless such employees are covered by protection afforded by Contractor's Worker's Compensation Insurance.
 - b) If any claim of employees engaged in hazardous work on project under this Contract is not protected under Worker's Compensation Statute, Contractor shall provide and shall cause each subcontractor to provide adequate Employer's Liability Insurance for protection of such of Contractor's employees as are not otherwise protected.
 - 3. Contractor's Public Liability and Property Damage Insurance:
 - a) Contractor shall procure and maintain during life of this Contract, Contractor's Public Liability Insurance and Contractor's Property Damage Insurance in amount not less than \$1,000,000 bodily injury, including accidental death, to any one person,

and subject to same limit for each person, in amount not less than \$1,000,000 on account of one accident, and Contractor's Property Damage Insurance in amount not less than \$1,000,000 or combined single limit of at least \$1,000,000 with excess coverage over and above general liability in amount not less than \$5,000,000.

Contractor shall add "Dane County" as additional insured for each project.

- b) Contractor's Public Liability and Property Damage Insurance shall include Products, Completed Operation, and Contractual Liability under Insurance Contract.
"Contractor shall in all instances save, defend, indemnify and hold harmless County and Architect / Engineer against all claims, demands, liabilities, damages or any other costs which may accrue in prosecution of the Work and that Contractor will save, defend, indemnify and hold harmless County and Architect / Engineer from all damages caused by or as result of Contractor's operations" and each shall be listed as additional insured on Contractor's and sub-contractors' insurance policies.
 - c) Obligations of Contractor under Article 50.A.2.b) shall not extend to liability of Architect / Engineer, agents or employees thereof, arising out of:
 - 1) Preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications; or
 - 2) Giving of or failure to give directions or instructions by Architect / Engineer, agents or employees thereof provided such giving or failure to give is primary cause of injury or damage.
 - d) Contractor shall procure and shall maintain during life of this Contract, Comprehensive Automobile Liability Insurance covering owned, non-owned and hired automobiles for limits of not less than \$1,000,000 each accident single limit, bodily injury and property damage combined with excess coverage over and above general liability in amount not less than \$5,000,000.
 - e) Contractor shall either:
 - 1) Require each subcontractor to procure and to maintain during life of subcontract, subcontractor's Public Liability Property Damage Insurance, and Comprehensive Automobile Liability Insurance of type and in same amount specified in preceding paragraphs; or
 - 2) Insure activities of subcontractors in Contractor's own policy.
4. Scope of Insurance and Special Hazards: Insurance required under Article 50.A.2 & 50.A.3. hereof shall provide adequate protection for Contractor and subcontractors, respectively, against damage claims which may arise from operations under this Contract, whether such operation be by insured or by anyone directly or indirectly employed by insured and also against any of special hazards which may be encountered in performance of this Contract as enumerated in Supplementary Conditions.
5. Proof of Carriage of Insurance: Contractor shall furnish Risk Manager with certificates showing type, amount, class of operations covered, effective dates, dates of expiration of policies and "Dane County" listed as additional insured. Such certificates shall also contain (substantially) following statement: "Insurance covered by this certificate will not be canceled or materially altered, except after ten (10) business days written notice has been received by Risk Manager."

B. Builder's Risk:

1. Contractor shall provide Builder's Risk insurance coverage for its insurable interests in construction or renovation projects on all risks for amount equal to full completed value of covered structure or replacement value of alterations or additions. Any deductible shall not exceed \$25,000 for each loss. Policy shall include occupancy clause and list Dane County as loss payee.

C. Indemnification / Hold Harmless:

1. Contractor shall indemnify, hold harmless and defend Dane County, its boards, commissions, agencies, officers, employees and representatives from and against all

- claims, damages, losses and expenses including attorneys' fees arising out of or resulting from performance of the Work, provided that any such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including loss of use resulting therefrom, and is caused in whole or in part by any act or omission of Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by part indemnified hereunder.
2. In any and all claims against Dane County, its boards, commissions, agencies, officers, employees and representatives or by any employee of Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, indemnification obligation under this Contract shall not be limited in any way by any limitation on amount or type of damages, compensation or benefits payable by or for Contractor or any subcontractor under worker's compensation acts, disability benefits or other employee benefit acts.
 3. Obligations of Contractor under this Contract shall not extend to liability of Architect / Engineer, its agents or employees arising out of:
 - a) Preparation or approval of maps, drawings, opinion, reports, surveys, change orders, designs or specifications; or
 - b) Giving of or failure to give directions or instruction by Architect / Engineer, its agents or employees provided such giving or failure to give is primary cause of injury or damage.
 4. Dane County shall not be liable to Contractor for damages or delays resulting from work by third parties or by injunctions or other restraining orders obtained by third parties.


51. WISCONSIN LAW CONTROLLING

- A. It is expressly understood and agreed to by parties hereto that in event of any disagreement or controversy between parties, Wisconsin law shall be controlling.

SUPPLEMENTARY CONDITIONS

1. APPLICATION & CERTIFICATE FOR PAYMENT

- A. Every contractor engaged in performance of any contract for Department of Public Works, Highway & Transportation shall submit partial and final Application & Certificate for Payment for work under said contract. Form shall provide similar information as shown on AIA G702™ and G703™ forms (samples shown below). Forms shall be submitted to [project Architect / Engineer, Public Works Project Manager] for approval.


AIA Document G702™ – 1992

Application and Certificate for Payment

TO OWNER:	PROJECT:	APPLICATION NO:	Distribution to:
FROM CONTRACTOR:	VIA ARCHITECT:	PERIOD TO:	OWNER <input type="checkbox"/>
		CONTRACT FOR:	ARCHITECT <input type="checkbox"/>
		CONTRACT DATE:	CONTRACTOR <input type="checkbox"/>
		PROJECT NOS:	FIELD <input type="checkbox"/>
			OTHER <input type="checkbox"/>

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract. AIA Document G703™, Continuation Sheet, is attached.

1. ORIGINAL CONTRACT SUM \$ _____

2. NET CHANGE BY CHANGE ORDERS \$ _____

3. CONTRACT SUM TO DATE (Line 1 ± 2) \$ _____

4. TOTAL COMPLETED & STORED TO DATE (Column G on G703) \$ _____

5. RETAINAGE:

a. _____ % of Completed Work
(Columns D + E on G703) \$ _____

b. _____ % of Stored Material
(Column F on G703) \$ _____

Total Retainage (Lines 5a + 5b, or Total in Column I of G703) \$ _____

6. TOTAL EARNED LESS RETAINAGE \$ _____
(Line 4 minus Line 5 Total)

7. LESS PREVIOUS CERTIFICATES FOR PAYMENT \$ _____
(Line 6 from prior Certificate)

8. CURRENT PAYMENT DUE \$ _____

9. BALANCE TO FINISH, INCLUDING RETAINAGE \$ _____
(Line 3 minus Line 6)

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	\$ _____	\$ _____
Total approved this month	\$ _____	\$ _____
TOTAL	\$ _____	\$ _____
NET CHANGES by Change Order	\$ _____	

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

CONTRACTOR: _____ Date: _____

By: _____ State of: _____
Country of: _____
Subscribed and sworn to before me this _____ day of _____

Notary Public: _____
My commission expires: _____

ARCHITECT'S CERTIFICATE FOR PAYMENT

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

AMOUNT CERTIFIED \$ _____
(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

ARCHITECT: _____ Date: _____

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

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

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Continuation Sheet

AIA Document G703™-1992, Application and Certificate for Payment, or G732™-2009, Application and Certificate for Payment, Construction Manager as Adviser Edition, containing Contractor's signed certification is attached. In tabulations below, amounts are in US dollars. Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO:
APPLICATION DATE:
PERIOD TO:
ARCHITECT'S PROJECT NO:

A ITEM NO.	B DESCRIPTION OF WORK	C SCHEDULED VALUE	D WORK COMPLETED		F MATERIALS PRESENTLY STORED <i>(Not in D or E)</i>	G TOTAL COMPLETED AND STORED TO DATE <i>(D+E-F)</i>	H BALANCE TO FINISH <i>(C-G)</i>	I RETAINAGE <i>(if variable rate)</i>
			FROM PREVIOUS APPLICATION <i>(D-E)</i>	THIS PERIOD				
GRAND TOTAL								

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

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2. CONTRACTOR WAGE AFFIDAVIT

- A. Every contractor engaged in performance of any contract for Department of Public Works, Highway & Transportation shall submit to this Department, as requested and with final application for payment for work under said contract, affidavit in form as hereinafter set forth in this section. Affidavit affirms that all persons employed by contractor or by any of contractor's subcontractors on such contract have been paid no less than minimum wages established under Dane County Ordinances, Chapter 40, Subchapter II (Minimum Wage Ordinance) and in effect at date of execution of contract, that full payment of wages earned has been made, and that no rebates either directly or indirectly have been made. Form of such affidavit is included in this section.
- B. Form should be included with a copy of the final contract invoice forwarded to your contract representative at Dane County.

DANE COUNTY, WISCONSIN
CONTRACTOR WAGE AFFIDAVIT

COMPANY NAME: _____

ADDRESS: _____

CONTRACT NO.: _____ DIVISION(S) OF WORK: _____

AFFIDAVIT

STATE OF WISCONSIN)
) ss.
DANE COUNTY)

I, _____, being
name and title of person signing affidavit
first duly sworn at _____,
city & state of company incorporation

on oath, depose and say that with respect to the payment of the persons employed by the
_____, subcontractors on the _____,
contractor company name division(s) of work

_____, at the _____,
building or site of project
that during the period commencing _____, and ending _____,
date date

all persons employed on said project have been paid the full wages earned, that no rebates have been or will be made either directly or indirectly by said contractor or subcontractor from the full weekly wages earned by any person, and that no deductions have been made either directly or indirectly from the full weekly wages earned by any person, other than authorized legal deductions (including taxes such as Federal Income Withholding and Social Security, State and

_____,
state any other legal deductions such as union dues, unemployment insurance, 401k contributions, etc., or fill in "N/A"

and that there is full compliance with the provisions and intent of the requirements of Dane County Ordinances, Chapter 40, Subchapter II (Minimum Wage Ordinance). This affidavit is made to induce Dane County to approve the application for payment to which this affidavit is attached.

Contractor Company Name

Signature _____
Title

Sworn to before me this _____ day of _____, 20__.

Notary Public

My Commission expires _____
Date

DEPARTMENTSECTION 02409
GEOSYNTHETIC CLAY LAYER (GCL)

PART1 GENERAL

1.1 Scope

This specification covers the technical requirements for the furnishing and installation of the geosynthetic clay cap described herein. (GCL) a manufactured hydraulic barrier consisting of clay bonded to a layer or layers of geosynthetics. All materials used shall meet the requirements of this specification, and all work shall be performed in accordance with the procedures provided herein and the contract drawings.

1.2 REFERENCES

American Society for Testing and Materials (ASTM)

- A. ASTM D5890 – Test Method for Bentonite Free Swell Index.
- B. ASTM D3776 - Test Methods for Mass Per Unit Area (weight) of Woven Fabric.
- C. ASTM D4595 - Test method of tensile properties of geotextiles by wide-width strip method.
- D. ASTM D4632 - Test Method for Grab Breaking Load and Elongation of Geotextiles.
- E. ASTM D4643 - Test Method for Determination of Water (Moisture) Content of Soil by the Microwave Oven Method.
- F. ASTM D5084 - Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter.
- G. ASTM D5261 - Test Method for Measuring Mass Per Unit Area of Geotextiles.
- H. ASTM D5321 - Test Method for Determining the Coefficient of Soil and Geosynthetic or Geosynthetic and Geosynthetic Friction by the Direct Shear Method.
- I. ASTM D5887 - Test Method for Measurement of Index Flux through Saturated Geosynthetic Clay Liner Specimens Using Flexible Wall Permeameter
- J. ASTM D 5891 – Test Method for Bentonite Fluid Loss
- K. ASTM D 5893 – Test Method for Bentonite Mass Per Unit Area.

1.3 Unit Prices

Measurement will be made of the total surface area in square feet covered by the GCL as shown on the contract drawings. Final quantities will be based on as-built conditions. Allowance will be made for GCL in anchor and drainage trenches but no allowance will be made for waste, overlap, or materials used for the convenience of the Contractor. GCL installed and accepted will be paid for at the respective contract unit price in the bidding schedule.

1.4 Submittals

- A. With the bid, the Contractor shall furnish the following information:
 - 1. Conceptual description of the proposed plan for placement of the GCL panels over the area of installation.
 - 2. GCL manufacturer's MQC Plan for documenting compliance to Sections 2.1 and 2.2 of these specifications.
 - 3. GCL manufacturer's historical data for reinforced GCL from 10,000-hour creep shear testing per Section 2.1 D.

- B. At the Engineer's or DEPARTMENT's request the Contractor shall furnish:
 - 1. A representative sample of the GCL.
 - 2. A project reference list for the GCL consisting of the principal details of at least ten projects totaling at least 1 million square feet (100,000 square meters) in size.
- C. Upon shipment, the Contractor shall furnish the GCL manufacturer's Quality Assurance/Quality Control (QA/QC) certifications to verify that the materials supplied for the project are in accordance with the requirements of this specification.
- D. As installation proceeds, the Contractor shall submit certificates of subgrade acceptance, signed by the Contractor and CQA Inspector (see Section 1.7) for each area that is covered by the GCL.

1.5 Qualifications

- A. GCL Manufacturer must have produced at least 10 million square feet (1 million square meters) of GCL, with at least 8 million square feet (800,000 square meters) installed.
- B. The GCL Installer must either have installed at least 1 million square feet (100,000 square meters) of GCL, **or** must provide to the Engineer satisfactory evidence, through similar experience in the installation of other types of geosynthetics, that the GCL will be installed in a competent, professional manner.

1.6 Construction Quality Assurance (CQA)

- A. The DEPARTMENT and Engineer shall provide a third-party inspector for CQA of the GCL installation. The inspector shall be an individual or company who is independent from the manufacturer and installer, who shall be responsible for monitoring and documenting activities, related to the CQA of the GCL, throughout installation. The inspector shall have provided CQA services for the installation of the proposed or similar GCL for at least 5 completed projects totaling not less than 1 million square feet (100,000 square meters).
- B. Testing of the GCL, as necessary to support the CQA effort, shall be performed by a third party laboratory retained by the Contractor and independent from the GCL manufacturer and installer. The laboratory shall have provided GCL CQA testing of the proposed or similar GCL for at least 5 completed projects totaling not less than 1 million square feet (100,000 square meters).
- C. CQA shall be provided in accordance with the GCL manufacturer's guidance and project specifications.

2.0 PRODUCTS

- A. The GCL shall consist of a layer of natural sodium bentonite clay encapsulated between two geotextiles and shall comply with all of the criteria listed in this Section. Prior to using an alternate GCL, the Contractor must furnish independent test results demonstrating that the proposed alternate material meets all requirements of this specification. The Contractor also must obtain prior approval of the alternative GCL by the Project Engineer.
- B. Reinforced GCL must be used on all areas of the project.

2.1 Materials

- A. Acceptable reinforced GCL products are manufactured by CETCO, GSE or an engineer-approved equal.
- B. Areas requiring reinforced GCL shall be agreed by the Installer and the Engineer prior to installation.
- C. The reinforced GCL and its components shall have the properties shown in Table 02409-1t.

- D. The reinforced GCL shall have 10,000 hour test data for large-scale constant-load (creep) shear testing under hydrated conditions. The constant shear load shall be 0.56 kN and the normal load shall be 1.1 kN.
- E. The minimum acceptable dimensions of full-size GCL panels shall be 150 feet (45.7 m) in length. Short rolls [(those manufactured to a length greater than 70 feet (21 m) but less than a full-length roll)] may be supplied at a rate no greater than 3 per truckload or 3 rolls every 36,000 square feet (3,500 square meters) of GCL, whichever is less.
- F. A 6-inch (150 mm) overlap guideline shall be imprinted on both edges of the upper geotextile component of the GCL as a means for providing quality assurance of the overlap dimension. Lines shall be printed in easily visible, non-toxic ink.

2.2 Product Quality Documentation

The GCL manufacturer shall provide the Contractor or other designated party with manufacturing QA/QC certifications for each shipment of GCL. The certifications shall be signed by a responsible party employed by the GCL manufacturer and shall include:

- A. Certificates of analysis for the bentonite clay used in GCL production demonstrating compliance with the parameters swell index and fluid loss shown in Tables 02409-1.
- B. Manufacturer's test data for finished GCL product(s) of bentonite mass/area, GCL tensile strength and GCL peel strength (reinforced only) demonstrating compliance with the index parameters shown in Table 02409-1.
- C. GCL lot and roll numbers supplied for the project (with corresponding shipping information).
- D. GCL shall be certified needle-free through magnetic metal detection tests.

Manufacturer's test data for finished GCL product(s) including GCL index flux, permeability and hydrated internal shear strength data demonstrating compliance with the performance parameters shown in Tables 02409-1 is available upon request of the manufacturer.

2.3 Product Labeling

- A. Prior to shipment, the GCL manufacturer shall label each roll, identifying:
 - 1. Product identification information (Manufacturer's name and address, brand product code).
 - 2. Lot number and roll number.
 - 3. Roll length, width and weight.

2.4 Packaging

- A. The GCL shall be wound around a rigid core whose diameter is sufficient to facilitate handling. The core is not necessarily intended to support the roll for lifting but should be sufficiently strong to prevent collapse during transit.
- B. All rolls shall be labeled and bagged in packaging that is resistant to photodegradation by ultraviolet (UV) light.

2.5 Accessory Bentonite

- A. The granular bentonite sealing clay used for overlap seaming, penetration sealing and repairs shall be made from the same natural sodium bentonite as used in the GCL and shall be as recommended by the GCL manufacturer. Seaming of GCLs shall be conducted in accordance with the manufacturer's guidelines for each particular GCL.

3.0 EXECUTION

3.1 Delivery, Storage, and Handling

- A. Transportation of GCL is the responsibility of INSTALLER, who shall be liable for all damages to GCL prior to and during transportation to site. The manufacturer assumes responsibility for initial loading of the GCL. Shipping will be the responsibility of INSTALLER. Unloading and storage of the GCL are the responsibility of the DEPARTMENT.
- B. DEPARTMENT shall unload and handle GCL rolls by appropriate means as recommended by Manufacturer so as to cause no damage. Inspect each roll as it is unloaded to identify if the packaging has been damaged. Rolls with damaged packaging shall be marked and set aside for further inspection. Repair packaging before being placed in storage.
- C. On-Site Storage: DEPARTMENT shall provide storage for the GCL at the site as recommended by Manufacturer. The GCL at a minimum shall be stored off the ground. Protect from direct sunlight, moisture, mud, dirt, debris, and excessive heat or cold. It is anticipated that storage will be within 2,000 feet from the edge of construction site.
- D. On-Site Handling:
 - 1. INSTALLER shall use appropriate handling equipment when moving rolls of GCL from one place to another. Provide instructions for moving.
 - 2. Handling, storage, and care of GCL on-site is the responsibility of INSTALLER during and after GCL installation. DEPARTMENT shall provide adequate storage space on-site. INSTALLER shall be liable for all damages to GCL incurred prior to final acceptance of installation by DEPARTMENT.
- E. DEPARTMENT is responsible for unloading the GCL and INSTALLER should contact the Manufacturer prior to shipment to ascertain the appropriateness of the proposed unloading methods and equipment.

3.2 Storage

- A. Storage of the GCL rolls shall be the responsibility of the DEPARTMENT. A dedicated storage area shall be selected at the job site that is away from high traffic areas and is level, dry and well drained.
- B. Rolls should be stored in a manner that prevents sliding or rolling from the stacks and may be accomplished by the use of chock blocks. Rolls should be stacked at a height no higher than that at which the lifting apparatus can be safely handled (typically no higher than four).
- C. All stored GCL materials and the accessory bentonite must be covered with a plastic sheet or tarpaulin until their installation.
- D. The integrity and legibility of the labels shall be preserved during storage.

3.3 Earthwork

- A. Any earthen surface upon which the GCL is installed shall be prepared and compacted in accordance with the project specifications and drawings. The surface shall be smooth, firm, and unyielding, and free of:
 - 1. Vegetation.
 - 2. Construction Debris.
 - 3. Sticks.
 - 4. Sharp rocks.
 - 5. Void spaces.
 - 6. Ice.

7. Abrupt elevation changes.
8. Standing water.
9. Cracks larger than one-quarter inch (6 mm) in width.
10. Any other foreign matter that could contact the GCL.

- B. Immediately prior to GCL deployment, the subgrade shall be final-graded to fill in all voids or cracks and then smooth-rolled to provide the best practicable surface for the GCL. At completion of this activity, no wheel ruts, footprints or other irregularities shall exist in the subgrade. Furthermore, all protrusions extending more than one-half inch (12 mm) from the surface shall either be removed, crushed or pushed into the surface with a smooth-drum compactor.
- C. On a continuing basis, the project CQA inspector shall certify acceptance of the subgrade before GCL placement.
- D. It shall be the installer's responsibility thereafter to indicate to the Engineer any change in the condition of the subgrade that could cause the subgrade to be out of compliance with any of the requirements listed in this Section.

3.4 GCL Placement

- A. Reinforced GCL shall be placed on all of the project areas. The Installer and Project engineer shall review and agree upon which GCL shall be placed on these areas prior to installation.
- B. GCL rolls should be delivered to the working area of the site in their original packaging. Immediately prior to deployment, the packaging should be carefully removed without damaging the GCL. The orientation of the GCL (i.e., which side faces up) should be in accordance with the Engineer's recommendations.
- C. Equipment, which could damage the GCL, shall not be allowed to travel directly on it. If the installation equipment causes rutting of the subgrade, the subgrade must be restored to its originally accepted condition before placement continues.
- D. Care must be taken to minimize the extent to which the GCL is dragged across the subgrade in order to avoid damage to the bottom surface of the GCL. A temporary geosynthetic subgrade covering commonly known as a slip sheet or rub sheet may be used to reduce friction damage during placement.
- E. The GCL panels shall be placed parallel to the direction of the slope.
- F. All GCL panels should lie flat on the underlying surface, with no wrinkles or fold, especially at the exposed edges of the panels.
- G. Only as much GCL shall be deployed as can be covered at the end of the working day with geomembrane, or a temporary waterproof tarpaulin. The GCL shall not be left uncovered overnight. If the GCL is hydrated when no confining stress is present, it may be necessary to remove and replace the hydrated material..
- H. All GCL panels shall be installed in a relaxed condition and shall be free of tension or stress upon completion of the installation.

3.5 Anchorage

- A. As directed by the project drawings and specifications, the end of the GCL roll shall be placed in an anchor trench. When utilizing an anchor trench design, the front edge of the trench should be rounded so as to eliminate any sharp corners. Loose soil should be removed from the floor of the trench. The GCL should cover the entire trench floor but does not extend up the rear trench wall.

3.6 Seaming

- A. The GCL seams are constructed by overlapping their adjacent edges. Seams at the ends of the panels should be constructed such that they are shingled in the direction of the grade to prevent the potential for runoff flow to enter the overlap zone. Care should be taken to ensure that the overlap zone is not contaminated with loose soil or other debris.
- B. The minimum dimension of the longitudinal overlap should be 6 inches (150 mm). If the GCL is manufactured with a grooved cut in the nonwoven geotextile that allows bentonite to freely extrude into the longitudinal overlap then no supplemental bentonite is required for this overlap. If the GCL does not have a grooved cut in the nonwoven geotextile overlap, then supplemental bentonite is required as described below:
 - 1. End-of-roll overlapped seams should be constructed with a minimum overlap of 24 inches (600 mm).
 - 2. End-of-roll overlapped seams for all reinforced GCL seams require supplemental bentonite as described below.
- C. Bentonite-enhanced seams are constructed between the overlapping adjacent panels described above. The underlying edge of the longitudinal overlap is exposed and then a continuous bead of granular sodium bentonite is applied along a zone defined by the edge of the underlying panel and the 6-inch (150-mm) line. A similar bead of granular sodium bentonite is applied at the end-of-roll overlap. The granular bentonite shall be applied at a minimum application rate of one quarter pound per lineal foot (0.4 kg/m).

3.7 Detail Work

- A. The GCL shall be sealed around penetrations and embedded structures embedded in accordance with the design drawings and the GCL Manufacturer.
- B. Cutting the GCL should be performed using a sharp utility knife. Frequent blade changes are recommended to avoid damage to the geotextile components of the GCL during the cutting process.

3.8 Damage Repair

- A. If the GCL is damaged (torn, punctured, perforated, etc.) during installation, it may be possible to repair it by cutting a patch to fit over the damaged area. The patch shall be obtained from a new GCL roll and shall be cut to size such that a minimum overlap of 12 inches (300 mm) is achieved around all of the damaged area. Granular bentonite or bentonite mastic should be applied around the damaged area prior to placement of the patch. It may be desirable to use an adhesive to affix the patch in place so that it is not displaced during cover placement.

3.9 Cover Placement

- A. Although direct vehicular contact with the GCL is to be avoided, lightweight, low ground pressure vehicles (such as 4-wheel all-terrain vehicles) may be used to facilitate the installation of any geosynthetic material placed over the GCL. The GCL supplier or CQA engineer should be contacted with specific recommendations on the appropriate procedures in this situation.
- B. When a textured geomembrane is installed over the GCL, a temporary geosynthetic covering known as a slip sheet or rub sheet should be used to minimize friction during placement and to allow the textured geomembrane to be more easily moved into its final position
- C. The GCL shall be covered with a geomembrane the same day it is unpacked and placed in position. The GCL shall not be installed in standing water or during rain. The GCL shall be dry when installed and covered. GCL exhibiting unconfined swelling shall be replaced.

**Table 02409-1
Reinforced GCL**

MATERIAL PROPERTY	TEST METHOD	TEST FREQUENCY, ft ² (m ²)	REQUIRED VALUES
Bentonite Swell Index ¹	ASTM D 5890	1 per 100,000 ft ²	24 mL/2g min.
Bentonite Fluid Loss ¹	ASTM D 5891	1 per 100,000 ft ²	18 mL max.
Bentonite Mass/Area ²	ASTM D 5993	40,000 ft ²	0.75 lb/ft ² (3.6 kg/m ²) min
GCL Grab Strength ³	ASTM D 4632	100,000 ft ²	90 lbs (400 N) MARV
GCL Peel Strength ³	ASTM D 4632	100,000 ft ²	15 lbs (65 N) min.
GCL Index Flux ⁴	ASTM D 5887	100,000 ft ²	1 x 10 ⁻⁸ m ³ /m ² /sec max.
GCL Permeability ⁴	ASTM D 5887	Weekly	5 x 10 ⁻⁹ cm/sec max.
GCL Hydrated Internal Shear Strength ⁵	ASTM D 5321	Periodic	500 psf (24 kPa) typical

Reinforced GCL consisting of a layer of sodium bentonite between a woven and a non-woven geotextile, which are needlepunched together.

Notes

- ¹ Bentonite property tests performed at bentonite processing facility before shipment to GCL production facilities.
- ² Bentonite mass/area reported at 0 percent moisture content.
- ³ All tensile testing is performed in the machine direction, with results as minimum average roll values unless otherwise indicated.
- ⁴ Index flux and permeability testing with deaired distilled/deionized water at 80-psi (551 kPa) cell pressure, 77 psi (531 kPa) headwater pressure and 75 psi (517 kPa) tailwater pressure. Reported value is equivalent to 925 gal/acre/day. This flux value is equivalent to a permeability of 5x10⁻⁹ cm/sec for typical GCL thickness. This flux value should not be used for equivalency calculations unless the gradients used represent field conditions. A flux test using gradients that represent field conditions must be performed to determine equivalency. The last 20 weekly values prior the end of the production date of the supplied GCL may be provided.
- ⁵ Peak value measured at 200-psf (10 kPa) normal stress. Site-specific materials, GCL products, and test conditions must be used to verify internal and interface strength of the proposed design.

SECTION 02410
HIGH DENSITY POLYETHYLENE GEOMEMBRANES (HDPE)

PART 1 GENERAL

1.01 WORK INCLUDED

- A. INSTALLER will furnish all labor, supervision, transportation, and equipment to install the 40 mil textured geomembrane including, but not limited to geomembrane layout, deployment, seaming, patching, field QC, and all necessary and incidental items required to complete the WORK, in accordance with the drawings, specifications, state requirements, and Quality Assurance Plan (QAP).
- B. INSTALLER will provide DEPARTMENT with material order quantities and be responsible for coordinating delivery or required quantities to the site to complete INSTALLER'S work.
- C. DEPARTMENT will furnish all labor, materials, supervision, and equipment to excavate and backfill the anchor trenches for the geomembrane.
- D. DEPARTMENT will be responsible for unloading and storage of geomembrane delivered to the site.
- E. UNIT PRICES: Measurement will be made of the total surface area in square feet covered by the Geomembrane as shown on the contract drawings. Final quantities will be based on as-built conditions. Allowance will be made for geomembrane in anchor and drainage trenches but no allowance will be made for waste, overlap, or materials used for the convenience of the Contractor. Geomembrane installed and accepted will be paid for at the respective contract unit price in the bidding schedule.

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM D638-89 - Standard Test Method for Tensile Properties of Plastics.
 - 2. ASTM D746-79 - Standard Test Method for Brittleness Temperature of Plastics and Elastomers by Impact.
 - 3. ASTM D751-89 - Standard Test Methods for Coated Fabrics.
 - 4. ASTM D792-86 - Standard Test Methods for Specific Gravity (Relative Density) and Density of Plastics by Displacement.
 - 5. ASTM D1004-66 - Standard Test Method for Initial Tear Resistance of Plastic Film and Sheeting.
 - 6. ASTM D1117-80 - Methods of Testing Nonwoven Fabrics.
 - 7. ASTM D1204-84 - Standard Test Method for Linear Dimensional Changes of Nonrigid Thermoplastic Sheeting or Film at Elevated Temperatures.
 - 8. ASTM D1238-89 - Standard Test Method for Flow Rates of Thermoplastics by Extrusion Plastometer.
 - 9. ASTM D1505-85 - Standard Test Method for Density of Plastics by the Density-Gradient Technique.
 - 10. ASTM D1603-76 - Standard Test Method for Carbon Black in Olefin Plastics.
 - 11. ASTM D1682-64 - Standard Test Methods for Breaking Load and Elongation of Textile Fabrics.
 - 12. ASTM D1693-70 - Standard Test Method for Environmental Stress-Cracking of Ethylene Plastics.
 - 13. ASTM D3015-72 - Standard Practice for Microscopical Examination of Pigment Dispersion in Plastic Compounds.

1.03 SUBMITTALS

A. Shop Drawings:

1. Installation layout identifying placement patterns, panel numbers and seams.
2. Variance or additional details deviating from Drawings.
3. Layout shall be adequate for use as construction plan and include information such as dimensions and details.
4. As built record drawing installation layout identifying placement patterns, panel numbers and seams in acceptable electronic format.

B. Miscellaneous:

1. Raw Materials:

- a. Copy of quality control certificates issued by HDPE resin supplier.
- b. Production date(s) of HDPE resin.
- c. Reports on tests conducted to verify quality of HDPE resin used to manufacture geomembrane rolls assigned to considered facility. Report shall indicate compliance with requirements of Specifications.
- d. Certificate that 2% maximum reclaimed polymer added to resin during manufacture of actual geomembrane to be used in this Project.

2. Geomembrane Roll Production:

- a. Copy of quality control certificates indicating compliance with requirements of Specification.
- b. Certify geomembrane produced for Project has same chemical compatibility properties as geomembrane previously tested by DEPARTMENT for chemical compatibility.

3. Fabrication and Calibration:

- a. Copy of quality control certificates indicating compliance with requirements of Specification.
- b. Provide documentation of tensile machine (mechanical or electronic). Calibration testing equipment shall be calibrated to meet requirements of Preconstruction Report 3 months prior to start of geomembrane installation.

4. List of personnel performing field seaming operation, with pertinent experience information.

5. Copy of clay cover surface acceptance by installer.

6. Description of seaming apparatus to be used and certification's test.

7. Submittal During Installation:

- a. Quality control documentation.

8. Submittal After Completion of Installation:

- a. Geomembrane installation certification.

9. Copy of warranty obtained from manufacturer, fabricator, and installer.

1.04 QUALITY ASSURANCE

A. Qualifications:

1. Manufacturer:

- a. Manufacturer shall have minimum 5 yrs continuous experience in manufacture of HDPE geomembrane or experience totaling 2,000,000 sq ft of manufactured HDPE geomembrane for minimum of 10 completed facilities.

2. Fabricator (if applicable):

- a. Fabricator shall have minimum 5 yrs continuous experience in fabrication of HDPE geomembrane or experience totaling 2,000,000 sq ft of fabricated HDPE geomembrane for minimum of 10 completed facilities.

3. Installer:

- a. Installer shall have minimum 5 yrs continuous experience in installation of HDPE geomembrane or experience totaling 2,000,000 sq ft of installed HDPE geomembrane for minimum of 10 completed facilities.
- b. Personnel performing seaming operations shall be qualified by experience or successfully passing seaming tests. Minimum of one seamer shall have experience seaming minimum 1,000,000 sq ft of HDPE geomembrane using same type of seaming apparatus in use at site. Most experienced seamer, "master seamer," shall provide direct supervision, as required, over less experienced seamers.

B. Quality Assurance Program:

1. Manufacturer, fabricator, installer, and CONTRACTOR shall agree to participate in and conform to items and requirements of quality assurance plan (QAP) as outlined in this section.

C. Manufacturer and Fabricator Plant Visit at DEPARTMENT'S Request:

1. Manufacturer and fabricator shall permit DEPARTMENT to observe manufacturing plant and fabrication facility's, and shall provide necessary personnel and information as described below. At DEPARTMENT'S discretion, full-time quality assurance personnel may be assigned at fabricator's plant.
2. DEPARTMENT may visit manufacturer's plant and fabricator's facility to review manufacturing/fabrication process, quality control, and laboratory facilities and testing procedures. Visits will be conducted annually to review manufacturer/fabricator facilities. Report will be prepared and retained by DEPARTMENT.
 - a. Visits shall verify following.
 - 1) Properties guaranteed by manufacturer/fabricator meet Specifications.
 - 2) Measurements of properties by manufacturer/fabricator are properly documented and test methods used are acceptable.
 - 3) Packaging and transportation procedures are not damaging to geomembrane.
 - 4) Roll/panel packages have label indicating name of manufacturer/fabricator, type of geomembrane, thickness, and roll number.

- b. Alternatively, DEPARTMENT may elect to have full-time quality assurance inspectors at fabricator's factory during fabrication.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Transportation:

- 1. Handle geomembrane rolls so as to cause no damage.

B. On-Site Storage:

- 1. Protect geomembrane from direct sunlight and heat to prevent degradation of material and adhesion of individual rolls or layers.
- 2. Protect geomembrane from mud, dirt, dust, cutting or other damaging or deleterious conditions.

C. On-Site Handling:

- 1. Use appropriate handling equipment when moving rolled or folded geomembrane from one place to another. Instructions for moving geomembrane shall be given by manufacturer and fabricator.

1.06 PROJECT/SITE CONDITIONS

A. Weather Conditions for Seaming:

- 1. Unless authorized in writing by DEPARTMENT, seaming shall not be attempted below 0°C (32°F) or above 40°C (104°F) measured at the surface when membrane is installed.
- 2. Between 0°C (32°F) and 10°C (50°F), seaming shall be possible if geomembrane preheated by sun or hot air device, and if there is not excessive cooling resulting from wind.
- 3. Above 10°C (50°F), preheating not required.
- 4. Geomembrane shall be dry and protected from wind damage.
- 5. Event of seaming below 0°C (32°F), Installer certify in writing that low temperature seaming procedure does not cause physical or chemical modification to geomembrane that will generate short- or long-term damage to geomembrane.

1.07 WARRANTY

- A. Provide written 2-yr warranty from date of Substantial Completion from manufacturer, fabricator, and installer. Warranty shall address quality of material and workmanship.

PART 2 PRODUCTS

2.01 GEOMEMBRANE

A. Manufacturers:

- 1. GSE.
- 2. Poly-Flex, Inc
- 3. SOLMAX.
- 4. Or equal.

- B. Manufacture geomembrane of new, first-quality resin, designed and manufactured specifically for intended purpose.

- 1. HDPE resin shall meet following specifications.

- a. Density: ASTM D1505, Method A, ≥ 0.93 g/cc with carbon black added.
 - b. Melt index: ASTM D1238, Condition 190/2.16, 1 g/10 minute maximum.
2. Do not add reclaimed polymer to resin; however, use of polymer recycled during manufacturing process permitted if performed with appropriate cleanliness and if recycled polymer does not exceed 2% by weight.

C. Rolls:

1. (40-mil) thick HDPE textured geomembranes shall meet or exceed following.
 - a. Sheet thickness: ASTM D751 as modified by NSF S4, 40 mils, average minimum roll value and 36 mils, minimum value.
 - b. Force/Unit width at yield: ASTM D638 greater than 88 lbs/in.
 - c. Force/Unit width at break: ASTM D638 greater than 88 lbs/in.
 - d. Density: ASTM D1505 > 0.94 g/cc.
 - e. Carbon Black Content: ASTM D1603, 2 to 3%.
 - f. Carbon Black Dispersion: ASTM D3015, A1 or A2.
 - g. Puncture Resistance: ASTM D4833, 72 lb.
2. In addition, geomembrane shall:
 - a. Consist of unreinforced HDPE containing 3% by weight maximum additives, fillers or extenders.
 - b. 2 - 3% contain carbon black for ultraviolet light resistance.
 - c. Not have striations, pinholes or bubbles on surface.
 - d. Be produced free of holes, blisters, undispersed raw materials or signs of contamination by foreign matter.
 - e. Textured on both sides.
3. Supply geomembrane in rolls.
4. Panel size shall be determined by approved Shop Drawings showing layout and dimensions of panels in structure.
5. Panel Label and Identification:
 - a. Labels on each roll or blanket shall identify thickness of material, length and width of roll, manufacturer, and directions to unroll material.
 - b. Designate each roll or blanket with panel number (identification code) consistent with layout plan. Panel is unit area of geomembrane to be seamed in field (e.g., one roll may be cut into several panels). Position panels on-site as shown on approved Shop Drawings.
 - c. Follow instructions on boxes or wrapping containing geomembrane materials to ensure panels are unrolled in proper direction for seaming.
 - d. Panels or rolls without identification labels will be rejected.

D. Fabricated Seams and Field Seams:

1. Fabricated seams (if applicable) and field seams for (40 mils) thick geomembrane shall meet following.
 - a. Seam strength: ASTM D4437 (as modified in NSF Appendix A), 88 lbs/in. film tear bond.
 - b. Peel adhesion: ASTM 4437 (as modified in NSF Appendix A), film tear bond and minimum of 60 lb/in. fusion and 52 lb/in. for extrusion.
 - c. Tests shall be run on 5 replicate specimens. To be acceptable, 4 out of 5 replicates shall pass

- film tear bond and average of all 5 shall pass stated lb/in. values for seam strength and peel adhesion criteria. Test shall fail if any replicate completely disbonds under required strength or adhesion criteria.
2. Approved seaming processes are extrusion and fusion welding. Document and submit proposed alternate processes for approval.
 - a. Each installer, including those utilizing extrusion or fusion methods, shall submit details of specific apparatus to be used for approval.
 3. Resin used for extrusion welding shall be HDPE-produced from same resin type as geomembrane. Physical properties shall be same as those of resin used in manufacture of HDPE geomembrane.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Installer shall certify in writing that surface on which geomembrane to be installed is acceptable.
- B. After supporting soil accepted by installer, it shall be installer's responsibility to indicate to DEPARTMENT changes in supporting soil condition that may require repair work. Maintain prepared soil surface. Soil surface shall be observed daily to evaluate desiccation cracking. Daily observations shall ascertain effects of surface desiccation cracking upon integrity of soil cap. Damage to clay layer caused by installation shall be repaired at installer's expense.
- C. Do not place geomembrane in area softened by precipitation, i.e., unconfined compressive strength less than 100 kPa (1.0 tsf).

3.02 CREST ANCHORAGE SYSTEM

- A. Unless otherwise specified, if anchor trench will be excavated in clay layer susceptible to desiccation, no more than amount of trench required for geomembrane to be anchored in one day shall be excavated by Department to minimize desiccation potential of anchor trench clay soils.
- B. Backfilling of Anchor Trench:
 1. DEPARTMENT shall backfill anchor trench and compact in accordance with soil material specifications and as shown on Drawings.

3.03 GEOMEMBRANE PLACEMENT

- A. Install panels using one of following.
 1. Place panels prior to seaming panel joints.
 2. Place panels one at a time and seam each panel immediately after placement.
 3. Combination of above.
- B. Weather Conditions:
 1. Do not place panels at ambient temperature below 0°C (32°F).
 2. Do not place during precipitation, in presence of excessive moisture (e.g., fog, dew), in area of ponded water or during excessive winds.
- C. Placement:

1. Equipment used shall not damage geomembrane by handling, trafficking, leakage of hydrocarbons or other means.
2. Personnel working on geomembrane shall not smoke, wear damaging shoes or engage in other activities which could damage geomembrane.
3. Method used to unroll panels shall not cause scratches or crimps in geomembrane and shall not damage supporting soil.
4. Method used to place panels shall minimize wrinkles (especially differential wrinkles between adjacent panels).
5. Place adequate loading (e.g., sand bags, tires), not likely to damage geomembrane, to prevent uplift by wind (in case of high winds, continuous loading recommended along edges of panels to minimize risk of wind flow under panels).
6. Direct contact with geomembrane shall be minimized; i.e., geomembrane in traffic areas shall be protected by geotextiles, extra geomembrane or other suitable materials.

D. Damage:

1. Panels seriously damaged (torn or twisted permanently) shall be replaced at no cost to DEPARTMENT. Repair less serious damage.
2. Remove rejected damaged panels or portions of rejected damaged panels from Work area.

3.04 GEOMEMBRANE FIELD SEAMING

A. Seam Layout:

1. In general, orient seams parallel to line of maximum slope, i.e., oriented along, not across slope, unless otherwise approved by DEPARTMENT.
2. In some cases DEPARTMENT may approve membrane panel across slope (seam perpendicular to slope) if slopes are less than 10%.
3. In corners and odd-shaped geometric locations, minimize number of field seams.
4. No horizontal seam shall be less than 1.5 m (5 ft) from toe of slope.

B. Overlapping and Temporary Bonding:

1. Overlap panels by minimum of 75 mm (3 in.) for extrusion welding and 125 mm (5 in.) for fusion welding.
2. Procedure used to temporarily bond adjacent panels together shall not damage geomembrane; in particular, control temperature of air at nozzle of spot welding apparatus so geomembrane not damaged.
3. No solvent or adhesive shall be used.

C. Seam Preparation:

1. Prior to seaming, seam area shall be clean and free of moisture, dust, dirt, debris, and foreign material.
2. If seam overlap grinding required, complete in accordance with manufacturer's instructions and in way not damaging geomembrane.
3. Align seams with fewest possible number of wrinkles and "fish mouths."

D. Seaming Equipment and Products:

1. General:
 - a. Approved processes for field seaming are extrusion and fusion welding. Proposed alternate processes shall be documented and submitted for approval.

- b. Use only apparatus specifically approved (by make and model) and submit certification on seaming equipments.
 - c. Seams shall meet specified requirements for fabricated seams.
 - d. Submit calibration of shear and peel testing in equipment prior to start of geomembrane installation in accordance with Article 1.03(B) 3.
2. Extrusion Process:
- a. Equip welding apparatus with gauges giving temperature in apparatus and at nozzle.
 - b. Provide documentation regarding HDPE extrudate and certify extrudate compatible with Specifications.
 - c. Maintain one spare operable seaming apparatus on-site. Equipment used for seaming shall not damage geomembrane and protect geomembrane from damage in heavily trafficked areas.
3. Fusion Process:
- a. Automated, vehicular-mounted fusion welding apparatus which produces double seam with enclosed space.
 - b. Equip seaming apparatus with gauges indicating applicable temperatures and pressures.
 - c. Maintain one spare operable seaming apparatus on-site. Equipment used for seaming shall not damage geomembrane; protect geomembrane from damage in heavily trafficked areas.
 - d. Use movable protective layer directly below each overlap of geomembrane that is to be seamed to prevent build-up of moisture between sheets.

E. General Seaming Procedures:

- 1. For fusion welding, provide temporary sacrificial or protective layer of geomembrane placed directly below each overlap of geomembrane to be seamed to prevent moisture build-up between sheets to be welded.
- 2. Seaming shall extend to outside edge of panels to be placed in anchor trench.
- 3. If required, provide firm substrate by using flat board, conveyor belt or similar hard surface directly under seam overlap to achieve proper support.
- 4. Cut fish mouths or wrinkles at seam overlaps along ridge of wrinkle in order to achieve flat overlap. Seam cut fish mouths or wrinkles and portions where overlap is inadequate shall then be patched with oval or round patch of same geomembrane extending minimum of 150 mm (6 in.) beyond cut in each direction.

3.05 MATERIALS IN CONTACT WITH GEOMEMBRANE

A. General:

- 1. Carefully install on rough surfaces such as concrete to minimize damage. Additional loosely placed textile sections may be used as protection for geomembrane, if approved by DEPARTMENT.

B. Granular Materials:

- 1. Placement of granular materials on geomembrane shall not proceed at ambient temperature below 0°C (32°F).
- 2. Equipment used for placing granular material shall not be driven directly on geomembrane.
- 3. Place granular material to not damage geomembrane.
- 4. DEPARTMENT will cover installed geomembrane/geocomposite by earthen material within 30 days of completing quality control and quality assurance testing of installation.

3.06 SUMPS AND APPURTENANCES:

- A. Install geomembrane around pipes, piers, concrete pits or other appurtenances protruding through geomembrane as detailed on Drawings. Unless otherwise specified, initially install geomembrane sleeve or shield around each appurtenance prior to geomembrane installation.
- B. After material placed and seamed, complete final field seam connection between appurtenance sleeve or shield and geomembrane. Maintain sufficient initial overlap of appurtenance sleeve so shifts in location of geomembrane can be accommodated.
- C. Extreme care shall be taken while welding around appurtenances since nondestructive and destructive testing might not be feasible. Do not damage geomembrane while making connections to gas wells and appurtenances.

3.07 FIELD QUALITY CONTROL

A. Test Seams:

- 1. Test seams shall be made on fragment pieces of geomembrane liner to verify seaming conditions adequate. Test seams shall be made at beginning of each seaming period, at DEPARTMENT'S discretion, and at least once each 4 hrs for each seaming apparatus used that day. Each seamer shall make minimum of one test seam each day work is performed.
- 2. Test seam sample shall be minimum 0.6 m (2 ft) long by 0.3 m (1 ft) wide with seam centered lengthwise. Cut 2 adjoining specimens 25 mm each (1.0 in.) wide from test seam sample. Test specimens in field respectively in shear and peel, by tensiometer, specimen shall not fail in seam. If test seam fails, repeat entire operation. If additional test seam fails, seaming apparatus or seamer shall not be accepted and not used for seaming until deficiencies corrected and 2 consecutive successful full test seams achieved.

B. Nondestructive Seam Continuity Testing:

- 1. Nondestructively test field seams over their full length using vacuum test unit or air pressure (fusion process). Continuity testing shall be done as seaming work progresses, not at completion of field sampling.
- 2. Complete required repairs.
- 3. Following procedures shall apply to locations where seams cannot be nondestructively tested, as determined by DEPARTMENT.
 - a. Such seams shall be cap-stripped with same geomembrane where possible.
 - b. If seam is inaccessible to testing equipment prior to final installation, seam shall be nondestructively tested prior to final installation (such as boots).
 - c. If seam cannot be tested prior to final installation, seaming and cap-stripping operations shall be observed by DEPARTMENT for uniformity and completeness.

C. Vacuum Testing:

1. Equipment:

- a. Vacuum box assembly consisting of rigid housing, transparent viewing window, soft neoprene gasket attached to bottom, port hole or valve assembly, and vacuum gauge.
- b. Steel vacuum tank and pump assembly equipped with pressure controller and pipe connections.
- c. Rubber pressure/vacuum hose with fittings and connections.
- d. Bucket and wide paint brush.
- e. Soapy solution.

2. Procedures:

- a. Energize vacuum pump and reduce tank pressure to approximately 35 kPa (10 in. of mercury, i.e., 5 psi gauge).
- b. Wet strip of geomembrane approximately 0.3 m by 1.2 m (12 in. by 48 in.) with soapy solution.
- c. Place box over wetted area.
- d. Close bleed valve and open vacuum valve.
- e. Ensure leaktight seal created.
- f. For period of not less than 10 sec, examine geomembrane through viewing window for presence of soap bubbles.
- g. If no bubble(s) appear after 10 sec, close vacuum valve and open bleed valve, move box over next adjoining area with minimum 75-mm (3-in.) overlap, and repeat process.
- h. Mark areas where soap bubbles appear and repair.

D. Air Pressure Testing (for double fusion seam only):

1. Equipment:

- a. Air pump (manual or motor driven) equipped with pressure gauge capable of generating and sustaining pressure of between 0 and 60 psi.
- b. Rubber hose with fittings and connections.
- c. Sharp hollow needle or other approved pressure feed device.

2. Procedures:

- a. Seal both ends of seam to be tested.
- b. Insert needle or other approved pressure feed device into tunnel created by fusion weld.
- c. Energize air pump to pressure of approximately 30 psi, close valve, stabilize and sustain pressure for approximately 5 min.
- d. If pressure loss greater than 4 psi, locate faulty area and repair and retest.
- e. Remove needle or other approved pressure feed device and seal.

E. Destructive Seam Strength Testing:

1. If fusion process used, INSTALLER will be provided opportunity to prove air pressure test or other test results are equivalent to destructive test results.
2. Location and Frequency:
 - a. Conduct minimum of 1 test location/150 m (500 ft) of seam length. Any variation from this frequency must be approved by DEPARTMENT.
 - b. Maximum frequency of test locations shall be agreed upon by INSTALLER and DEPARTMENT prior to commencement of installation.
 - c. Additional test locations, not to exceed agreed upon maximum frequency, shall be determined during seaming at DEPARTMENT'S discretion. Selection of such locations may be prompted by suspicion of excess crystallinity, contamination, offset welds or other potential cause of imperfect welding.
 - d. INSTALLER shall not be informed in advance of locations where seam samples will be taken.

3. Sampling Procedure:
 - a. Cut samples as seaming progresses in order to obtain laboratory test results prior to completion of liner installation. Number each sample and identify sample number and location on panel layout drawing.
 - b. Immediately repair holes in geomembrane resulting from destructive seam sampling. Test continuity of new seams in repaired area according to Nondestructive Seam Continuity Testing.
4. Sample Size:
 - a. Samples shall be 0.4 m (16 in.) wide by 1.1 m (44 in.) long with seam centered lengthwise. Cut one 25 mm (1 in.) wide strip from each end of sample and test in field, or tensiometer, for peel and shear respectively. Tested sample shall not fail in seam. Cut remaining sample into 3 equal parts (minimum 0.33 m (13 in.) each) and distribute as follows.
 - 1) One portion to installer for laboratory testing, 0.40 m by 0.38 m (16 in. by 15 in.).
 - 2) One portion for independent laboratory testing, 0.40 m by 0.38 m (16 in. by 15 in.).
 - 3) One portion to DEPARTMENT for archive storage, 0.40 m by 0.30 m (16 in. by 12 in.).
5. Installer's Laboratory Testing:
 - a. Submit test results to DEPARTMENT as soon as they become available.
6. Procedures for Destructive Test Failure:
 - a. Following procedures shall apply when sample fails field destructive test.
 - 1) Reconstruct seam between any two passing test location; or
 - 2) Retrace welding path to intermediate location, at 3 m (10 ft) minimum from location of failed test, and take small sample for additional field test. If additional sample passes test, then full laboratory sample are taken. If laboratory test pass, the seam shall be reconstructed between that location and original failed location. If sample fails, repeat process.
 - b. In any case, acceptable seams shall be bounded by 2 passed test locations (i.e., above procedure shall be followed in both directions from original failed location), and one sample for destructive testing shall be taken within reconstructed area.

F. Defects and Repairs:

1. Identification: Broom or wash geomembrane if amount of dust or mud inhibits inspection.
2. Evaluation: Nondestructively test each suspect location in seam and nonseam areas. Repair each location failing nondestructive testing.
3. Repair Procedures:
 - a. Repair defective seams by reconstruction.
 - b. Repair tears or pinholes by seaming or patching.
 - c. Repair blisters, larger holes, undispersed raw materials, and contamination by foreign matter by patches.
 - d. Surfaces of HDPE to be patched shall be abraded no more than 1 hr prior to repair.
 - e. Seams used in repairing patches shall be approved extrusion welded seams and may be subjected to same destructive test procedures as outlined for other seams.
 - f. Patches shall be round or oval in shape, made of same geomembrane, extend minimum of

150 mm (6 in.) beyond edge of defects, and applied using approved methods only.

4. Seam Reconstruction Procedures:
 - a. Seam reconstruction for extrusion welding process shall be achieved by grinding existing seam and rewelding new seam.
 - b. Seam reconstruction for fusion process shall be achieved by cutting out existing seam and welding in replacement strip.
5. Verification of Repairs: Test each repair nondestructively. Repairs passing nondestructive test shall be taken as indication of adequate repair. Failed tests indicate repair shall be redone and retested until passing test results.

3.08 GEOMEMBRANE ACCEPTANCE

- A. Geomembrane liner will be accepted by DEPARTMENT when:
 1. Written certification letter, including record drawings, sealed by Registered Professional Engineer, are received by DEPARTMENT.
 2. Installation is complete.
 3. Documentation of installation completed, including DEPARTMENT'S final report.
 4. Verification of adequacy of field seams and repairs, including associated testing, is complete.

*** END OF SECTION ***

SECTION 02411
GEOCOMPOSITE

PART 1. GENERAL

1.1 WORK INCLUDED

- A. INSTALLER will furnish all material, labor, supervision, transportation, and equipment to install the geocomposite including, but not limited to geocomposite, geocomposite layout, deployment, seaming, patching, field QC, and all necessary and incidental items required to complete the WORK, in accordance with the drawings, specifications, state requirements, and Quality Assurance Plan (QAP).
- B. INSTALLER will provide DEPARTMENT with material order quantities and be responsible for coordinating delivery or required quantities to the site to complete INSTALLER'S work.
- C. DEPARTMENT will furnish all labor, materials, supervision, and equipment to excavate and backfill the anchor trenches for the geosynthetics
- D. DEPARTMENT will be responsible for unloading and storage of geocomposite delivered to the site.
- E. UNIT PRICES: Measurement will be made of the total surface area in square feet covered by the Geocomposite as shown on the contract drawings. Final quantities will be based on as-built conditions. Allowance will be made for geocomposite in anchor and drainage trenches but no allowance will be made for waste, overlap, or materials used for the convenience of the Contractor. Geocomposite installed and accepted will be paid for at the respective contract unit price in the bidding schedule.

1.2 Reference Standards

- A. ASTM D413 Standard Test Methods for Rubber Property - Adhesion to Flexible Substrate.
- B. ASTM D751 - Method of Testing Coated Fabrics.
- C. ASTM D792 - Test Method for Density and Specific Gravity (Relative Density) of Plastics by Displacement.
- D. ASTM D1238 - Standard Test Method for Flow Rates of Thermoplastic by Extrusion Plastometer.
- E. ASTM D1 248 - Standard Specifications for Polyethylene Plastic Molding and Extrusion Materials.
- F. ASTM D505 - Test Method for Density of Plastics by the Density-Gradient Technique.
- G. ASTM D1603 - Test Method for Carbon Black in Olefm Plastics.
- H. ASTM D1777 - Standard Method for Thickness of Textile Materials.
- I. ASTM D3776 - Test Method for Mass for Unit Area (Weight) of Woven Fabric.
- J. ASTM D3786 - Standard Test Method for Hydraulic Bursting Strength of Knitted Goods and Nonwoven Fabrics - Diaphragm Bursting Strength Tester Method.
- K. ASTM D4355 - Standard Test Method for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus).
- L. ASTM D4491 - Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
- M. ASTM D4533 - Standard Test Method for Trapezoidal Tearing Strength of Geotextiles.

- N. ASTM D4632 - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.
- O. ASTM 4716 - Standard Test Method for Determining the (In-place) Flow Rate per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head.
- P. ASTM D4751 - Standard Test Method for Determining Apparent Opening Size of a Geotextile.
- Q. ASTM D4833 - Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembrane, and Related Products.
- R. ASTM D4873 - Standard Guide for Identification, Storage, and Handling of Geotextiles.
- S. ASTM F904 - Standard Test Method for Comparison of Bond Strength of Ply Adhesion of Similar Laminates Made From Flexible Materials.

1.3 DEFINITIONS

- A. INSTALLER-INSTALLER is the organization hired by DEPARTMENT to install the geocomposite.
- B. MANUFACTURER-MANUFACURER is the company hired by INSTALLER to provide the geocomposite.
- C. ENGINEER-ENGINEER is the official representative of DEPARTMENT. ENGINEER or designated Construction Quality Assurance Monitor (CQA Monitor) will be responsible for observing and documenting that activities related to the quality assurance of the construction conform to the Plans State Regulations and Specifications.
- D. GEOCOMPOSITE-Geocomposite is a factory manufactured drainage system consisting of three-dimensional drainage net made by extruding two sets of HDPE strands together and with a non-woven geotextile fabric heat-laminated to both sides.

1.4 QUALITY ASSURANCE

- A. Qualifications and Responsibilities:
 1. DEPARTMENT: Provide the services of Geocomposite MANUFACTURER and INSTALLER who meet the following specifications:
 2. MANUFACTURER: Provide references to ENGINEER indicating at least 3 years of continuous experience in the manufacturing of Geocomposite and have produced a minimum of 5,000,000 square feet of Geocomposite with at least 5,000,000 square feet installed. Submit a Manufacturer Quality control plan (MQCP) as described in Subsection 1.5. Submit a statement to DEPARTMENT indicating production capacity available and projected dates for delivery.

INSTALLER: INSTALLER shall provide references to DEPARTMENT indicating at least 5 years of continuous experience in the installation of Geocomposite and have installed a minimum of 1,000,000 square feet of Geocomposite for at least 10 completed facilities, or must provide to DEPARTMENT satisfactory evidence, through similar experience in the installation of other types of geo synthetics, that the geocomposite will be installed in a competent, professional manner.

The INSTALLER shall be responsible for field handling, storing, deploying, seaming, and joining, temporary restraining (against wind), anchoring systems, and other site aspects or the geocomposite drainage layer.

- B. Quality Assurance Program: DEPARTMENT, MANUFACTURER, and INSTALLER shall agree to participate in, and conform with, all items and requirements of the quality assurance program as outlined in this Specification and in the Construction Quality Assurance Plan (QAP). Installation of the geocomposite shall be monitored and all activities outlined in the (QAP) shall be accounted for in the installation schedule.
- C. Quality Assurance:
1. Geocomposite shall be free of defects, rips, holes, and flaws.
 2. It shall be manufactured in widths and lengths that will permit installation of geocomposite with as few laps as possible.
 3. During shipment and storage, geocomposite shall be wrapped in relatively impermeable and opaque protective covers.
 4. Geocomposite shall be marked with Manufacturer's name, product identification, lot number, roll number, and roll dimensions.
 5. If any special handling is required, it shall be so marked on the geocomposite itself.

1.5 MANUFACTURERS' QUALITY CONTROL PLANS (MQCP)

- A. Geonet Manufacturer - The Geonet Manufacturer shall have a MQCP that describe the procedures for accomplishing quality in the final product. Manufacturer shall sample and test the geonet and at a minimum, the test will demonstrate that the materials conform to the requirements shown in Table 02411 (test shall be performed by Manufacturer or an independent laboratory hired by Manufacturer).
- B. Geotextile Supplier - The geotextile supplier shall have a MQCP that describes the products for accomplishing quality in the final product. The Manufacturer shall sample and test the geotextile and at a minimum, the test will demonstrate that the materials conform to the requirements shown in Table 02078 (test shall be performed by Manufacturer or independent laboratory hired by Manufacturer). This plan shall include the following provisions:
1. Certification that the material is made of specified polymeric material.
 2. Certification that the material meets certain minimum average roll values
- C. Geocomposite Manufacturer
1. MANUFACTURER shall have a MQCP that describes the procedures for accomplishing quality in the final product. At a minimum, the tests shown in Table 02411 shall be performed by Manufacturer (or an independent laboratory lured by Manufacturer).
 2. The geocomposite shall be manufactured with quality control procedures that meet or exceed generally accepted industry standards.
 3. The MQCP shall also dictate that
 - a. completed rolls are to be securely wrapped in plastic;
 - b. completed rolls are to be stored indoors, and provisions are to be in place to prevent rolls from being stacked too high, damaged during handling, and from becoming wet; and
 - c. Quality Control certificates shall be provided for each geocomposite roll.

1.6 SUBMITTALS

- A. Submittals to DEPARTMENT prior to shipment and installation
 - 1. Geocomposite Manufacturer/Production Information:
 - a. Corporate background information.
 - b. MQCPs for geotextile/geonet manufacturers.
 - c. Project reference list consisting of the principal details of at least 10 projects totaling at least 5 million square feet of geocomposite installation.
 - d. Test results conducted by the geotextile/geonet supplier to document the quality of the materials used to manufacture the geocomposite rolls assigned to this project.
 - e. Certification that no reclaimed polymer is added to the resin during manufacturer of the geocomposite drainage layers to be used in this project.
 - f. Copy of quality control certificates for suppliers of the geotextile and geonet material used, and a quality control certificate issued by the resin supplier for the geonet including production dates of the resin, signed by a responsible entity of these Manufacturers. Each quality control certificate shall include product identification numbers, lot number, roll number, and the results of quality control tests, including descriptions of the test methods used.
 - g. Geocomposite Manufacturer's written certification that the geocomposite meets the project specifications, that the geocomposite has continuously been inspected and found to be needle free. A quality control certification for each shift's production, signed by responsible parties employed by the manufacturer, and notarized. The certificate shall include roll numbers, sampling procedures; and results of quality control test, including method of test used.
 - 2. GEOCOMPOSITE INSTALLER Information
 - a. Corporate background information
 - b. Project reference list consisting of the principal details of at least 10 projects totaling at least 1 million square feet
 - c. Submit written documentation to DEPARTMENT that the geocomposite has been installed according to the design plans and specifications and that in-place materials meet generally accepted standards of practice.
- B. Submittals during installation:
 - 1. Daily records/logs prepared by INSTALLER documenting work performed, personnel involved, general working conditions, and any problems encountered or anticipated on the project, to be submitted at a minimum, on a weekly basis
 - 2. Quality control documentation
- C. Submittals after completion of installation:
 - 1. Installation Certification certifying that the geocomposite was installed in accordance with the plans and specifications and the (QAP).
 - 2. Copy of warranty obtained from Manufacturer/Installer.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Transportation of geocomposite is the responsibility of INSTALLER, who shall be liable for all damages to geocomposite prior to and during transportation to site. The manufacturer assumes responsibility for initial loading the geocomposite. Shipping will be the responsibility of INSTALLER. Unloading and storage of the geocomposite are the responsibility of the Department.
- B. DEPARTMENT shall unload and handle geocomposite rolls by appropriate means as recommended by Manufacturer so as to cause no damage. Inspect each roll as it is unloaded to identify if the packaging has been damaged. Rolls with damaged packaging shall be marked and set aside for further inspection. Repair packaging before being placed in storage.
- C. On-Site Storage: DEPARTMENT shall provide storage for the geocomposite at the site as recommended by Manufacturer. The geocomposite at a minimum shall be stored off the ground. Protect from direct sunlight, moisture, mud, dirt, debris, and excessive heat or cold. It is anticipated that storage will be within 2,000 feet from the edge of construction site.
- D. On-Site Handling:
 - 1. INSTALLER shall use appropriate handling equipment when moving rolls of geocomposite from one place to another. Provide instructions for moving.
 - 2. Handling, storage, and care of geocomposite on-site is the responsibility of INSTALLER during and after geocomposite installation. DEPARTMENT shall provide adequate storage space on-site. INSTALLER shall be liable for all damages to geocomposite incurred prior to final acceptance of installation by DEPARTMENT.
- E. The party responsible for unloading the geocomposite should contact the Manufacturer prior to shipment to ascertain the appropriateness of the proposed unloading methods and equipment.

1.8 WARRANTY

- A. Provide written 2-year warranty from date of substantial completion. Warranty shall address quality of material and workmanship.

PART 2. PRODUCTS

2.1 MANUFACTURERS

- A. Drainage Composite:

Tenax Corporation
4800 East Monument Street
Baltimore, MD 21205
800-874-7437

GSE
19103 Gundle Road
Houston, TX 77073
800-435-2008

Poly-Flex, Inc.
2000 W. Marshall Drive
Grand Prairie, TX. 75051
888-765-9359

Or equal

- B. Substitutions: Submit request to DEPARTMENT with complete supporting technical information.

2.2 MATERIALS

- A. The geocomposite shall meet the material specifications as shown in Table 02411 and the minimum requirements of the MQCP.
- B. Geotextile: The geotextile portion of the geocomposite is to be comprised of polyester or polypropylene. Provide a nonwoven needle-punched geotextile for the geocomposite having the minimum average roll values given in Table 02411.
- C. Geonet: Provide products for the geonet portion of the geocomposite to be comprised of HDPE. The geonet shall be manufactured by extruding two sets of stands to form a three dimensional structure to provide planer flow and shall meet the minimum average roll values given in Table 02411.
- D. Fabrication:
 - 1. Geocomposite panels shall be supplied to the site in factory-produced rolls. Manufacturer shall supply geocomposite panels to the job site in standard factory roll dimensions.
 - 2. Each roll of geocomposite supplied to the site shall be labeled with the following information:
 - a. Name of manufacturer
 - b. Product type and identification number (if any)
 - c. Lot (Batch) number
 - d. Date of manufacture
 - e. Roll number and dimensions
 - 3. The geocomposite shall retain their structure during handling, placement, and long-term service.
 - 4. Be capable of withstanding outdoor exposure for a minimum of 60 days with no measurable deterioration.
 - 5. Be chemically inert when immersed in the site leachate.

2.3 Acceptance Testing Requirements

- A. The geocomposite rolls shall be tested and evaluated prior to acceptance. In general, testing of the geocomposite shall be conducted by Manufacturer and a manufacturing quality control plan (MQCP), as discussed in Section 1.5, with test results shall be submitted to DEPARTMENT prior to shipping rolls. DEPARTMENT or a designated, independent geosynthetics laboratory may perform additional testing (i.e., conformance testing), as required by these detailed Specifications (see Table 02411) or as required in the judgment of DEPARTMENT to document that the geocomposite meets the specifications.
- B. Conformance Testing:
 - 1. Any geocomposite sample that does not comply with this specification shall result in rejection of the roll from which the sample was obtained. Replace any rejected rolls at no additional cost to DEPARTMENT.
 - 2. If a geocomposite sample fails to meet the quality control requirements of this specification, MANUFACTURER shall sample and test each roll manufactured in the same lot or batch, or at the same time, as the failing roll. Sampling and testing of rolls shall continue until a pattern of acceptable test results is established.
 - 3. Additional sample testing may be performed, at the geocomposite MANUFACTURER's discretion and expense, to more closely identify any non-complying rolls and/or to quality individual rolls.

4. Sampling shall, in general, be performed on sacrificial portions of the material such that repair of the materials is not required. The geocomposite MANUFACTURER shall sample and test the geocomposite to demonstrate that its properties conform to the values specified in Table 02411.
5. The geocomposite MANUFACTURER shall comply with the certification and submittal requirements of the (QAP).

PART 3. EXECUTION

3.1 Geocomposite Placement And Handling

- A. Prepare the geomembrane surface that will support the geocomposite DEPARTMENT shall excavate and backfill anchor trenches as shown on the Drawings.
- B. On slopes, anchor geocomposite at the top as shown on the drawings and then roll down the slope in such a manner as to continually keep the geonet in tension.
- C. Prior to the deployment of the geocomposite, visually inspect the receiving geomembrane surface to confirm that it is suitable for geocomposite deployment. The inspection shall document the geomembrane surface is free of stones and clay clods, and all other deleterious debris. If the surface is found to be unsuitable for the geocomposite deployment, clean the surface.
- D. Take any necessary precautions to prevent damage to underlying layers during placement of the geocomposite.
- E. INSTALLER shall handle all geocomposite in such a manner as to ensure it is not damaged in any way.
- F. If necessary, the geocomposite shall be positioned by hand after being unrolled to minimize wrinkles.
- G. In the presence of wind, geocomposite shall be weighted with sandbags or equivalent. Such sandbags shall be installed during placement and shall remain until replaced with cover material.
- H. During placement, care shall be taken not to entrap any stones, excessive dust, or moisture that could cause clogging of the drainage system and/or stones that could damage the geomembrane.
- I. Geocomposite shall be cut using MANUFACTURER's recommended procedures. If in place, special care must be taken to protect any geomembrane (if used with geocomposite) from damage which could be caused by cutting of geocomposites.
- J. Examination of geocomposite over entire surface, after installation, shall be conducted to ensure that no potentially harmful foreign objectives, such as needles, are present. Any foreign objectives encountered shall be removed by INSTALLER, or geocomposite shall be replaced.
- K. Geocomposite shall not be welded or tack welded to the underlying geomembrane liner.
- L. The geocomposite placed on the sideslopes shall be placed with no horizontal seams along the slope. The geocomposite panels shall extend a minimum of 5 feet beyond the toe of slope as shown on the Drawings.
- M. The geonet portion of the geocomposite shall be overlapped approximately 4 inches. The geonet shall be joined by white or brightly colored plastic ties every 5 feet along the slope, every 12 inches across the slope, and every 6 feet on horizontal surfaces.
- N. Place the material located on top of geocomposite in such a manner as to ensure:
 1. No damage of geocomposite

2. Minimal slippage of geocomposite on underlying layers.
 3. No excess tensile stresses in geocomposite.
0. Unless otherwise specified by the DEPARTMENT, all equipment operating on soil material overlying the geocomposite shall comply with the following:
1. Do not drive equipment used for placing soil over the geocomposite.
 2. A minimum thickness of 1 foot of soil is specified between low ground pressure equipment (maximum contact pressure is 5 psi) and the geocomposite.
 3. A minimum thickness of 2 feet of soil is specified between all other tracked or floatation wheeled equipment and the geocomposite.
 4. A minimum thickness of 3 feet of soil is specified between all other rubber-tired vehicles and the geocomposite
- P. Deploy geocomposite over the geomembrane surface as soon as practicable after the geomembrane has been completed and deemed suitable for deployment.

3.2 Installation - Panel Deployment

- A. Prior to beginning geocomposite installation, the INSTALLER shall become thoroughly familiar with all portions of the work related to the geocomposite installation and the (QAP).
- B. Prior to beginning geocomposite installation, the INSTALLER shall inspect and document that all work is complete to the point where the installation of geocomposite may properly commence without any adverse impacts.
- C. If the INSTALLER has any concerns regarding the site preparation done prior to the installation, the INSTALLER shall notify DEPARTMENT in writing within 48 hours of his site inspection. Failure to inform the DEPARTMENT in writing prior to installation of the geocomposite will be construed as INSTALLER's acceptance of the site as ready for geocomposite installation.
- D. Install the geocomposite according to the drawings as approved. Notify DEPARTMENT of any revisions or modifications of the approved plan prior to installing the geocomposite in the area of the revision.
- E. Maintain construction progress documentation in the daily installation records, and provide such documentation to DEPARTMENT.
- F. Use sandbags to temporarily secure the geocomposite panels prior to placement of the overlying material.
- G. Document the following:
 1. The equipment used does not damage the geocomposite by handling.
 2. The prepared surface underlying the geocomposite has not deteriorated since previous acceptance, and that it is still acceptable at the time of geocomposite placement.
 4. Personnel working on the geocomposite do wear damaging clothing, or engage in other activities that could damage the geocomposite.
 4. The method used to unroll the geocomposite does not cause damage to the geocomposite, and/or the subgrade.
 5. The method used to place the rolls minimizes wrinkles (especially wrinkles between adjacent panels).

Immediately notify DEPARTMENT if any of these conditions are being, or have been, violated, and take immediate steps to mitigate any damage.

- H. Examine each roll for damage after placement and prior to connecting to adjacent panels. Inform DEPARTMENT as to which rolls, or portions of rolls, should be rejected or repaired. Mark and remove from the site damaged rolls or portions of rolls that have been rejected, at no risk, cost, or expense to DEPARTMENT. Notify DEPARTMENT when such removal occurs.

3.3 Installation - Panel Seaming

- A. The geocomposite panels shall have no horizontal seams on slopes steeper than 5 horizontal to 1 vertical. On slope steeper than 5 horizontal to 1 vertical, continuous rolls shall be installed unless preapproved by the DEPARTMENT.
- B. Geocomposite geotextile shall be continuously sewn. The geotextile must be over lapped a minimum of 6 inches.
- C. Adjust the edges of the geocomposite panels to smooth out any wrinkles, creases, or 'fishmouths' to maximize contact with the underlying panel.
- D. The geonet portion of the geocomposite panels shall overlap a minimum of 4 inches and fastening shall be with plastic fasteners or polymer braid. Fastening devices shall be white or brightly colored for easy inspection.
- E. Fastening of the geonet portion of the geocomposite shall be every 5 feet along the slope, every 12 inches across the slope (see note A), every 6 inches in the anchor trench and every 6 feet on horizontal surfaces.

3.4 Defects And Repairs

- A. Examine and document geocomposite for identification of damage, defects, bores, and any signs of contamination by any foreign matter. The surface of the geocomposite shall be clean at the time of examination.
- B. Do not proceed with work with any materials that will cover locations that have been repaired or replaced until these locations are examined by DEPARTMENT.
- C. Identify and repair any damage in the geocomposite by cutting a patch from unused geocomposite and placing it over the damaged area. Clear all dirt and debris from the damaged area. Extend the patch a minimum of 12 inches in all directions beyond the damaged area. Repair geonet portion of the geocomposite by securing the patch with connecting devices in accordance with Subsection 3.3(C) a minimum of 6 inches around the entire patch. Repair the geotextile portion of the geocomposite by thermally bonding the patch in place with a minimum of 12 inches overlap in all direction.
- D. Include documentation of defects and repairs in daily records/logs.

Table 02411
Geocomposite Test and Acceptance Specifications

Property	Units	Value	Test	Criterion
Geotextile Properties				
Apparent opening size	mm	0.54	ASTM D4751	Maximum
Grab strength	lb	180	ASTM D4632	Minimum
Grab strength elongation	percent	50	ASTM D4632	Minimum
Trapezoidal tear	lb	50	ASTM D4533	Minimum
Puncture strength	lb	80	ASTM D4833	Minimum
Mullen burst strength	lb/sq in.	290	ASTM D3786	Minimum
Permittivity	Sec ⁻¹	0.1	ASTM D4491	Minimum
Geonet Properties				
Melt Flow Index	g/10 min	1.0	ASTM D1238	Maximum
Density	g/cc	0.93	ASTM D1505 or ASTM D 792	Minimum
Carbon black content	percent	2-3	ASTM D1603	Range
Wide width tensile strength	lbs/in	40 MD, 20 XD	ASTM D4595	Minimum
Transmissivity	m ² /sec	5X10 ⁻⁴	ASTM D4716	Minimum
Geocomposite Properties				
Transmissivity	m ² /sec	5X10 ⁻⁵	ASTM D4716	Minimum
Ply Adhesion	lbs/in	1	ASTM D413	Minimum

NOTES:

The geocomposite shall be manufactured by heat bonding the geotextile to the geonet on both sides. No burn through geotextiles nor glue or adhesive shall be permitted.

The bond between the geotextile and the geonet shall exhibit a minimum peel strength of 1 pound per inch (ASTM D413).

The transmissivity (ASTM D4716) of the geocomposite shall measure using a hydraulic gradient of 0.1, and tested between two geomembranes under a normal stress of 14.5 psi.

END OF SECTION



DANE COUNTY LANDFILL SITE #2

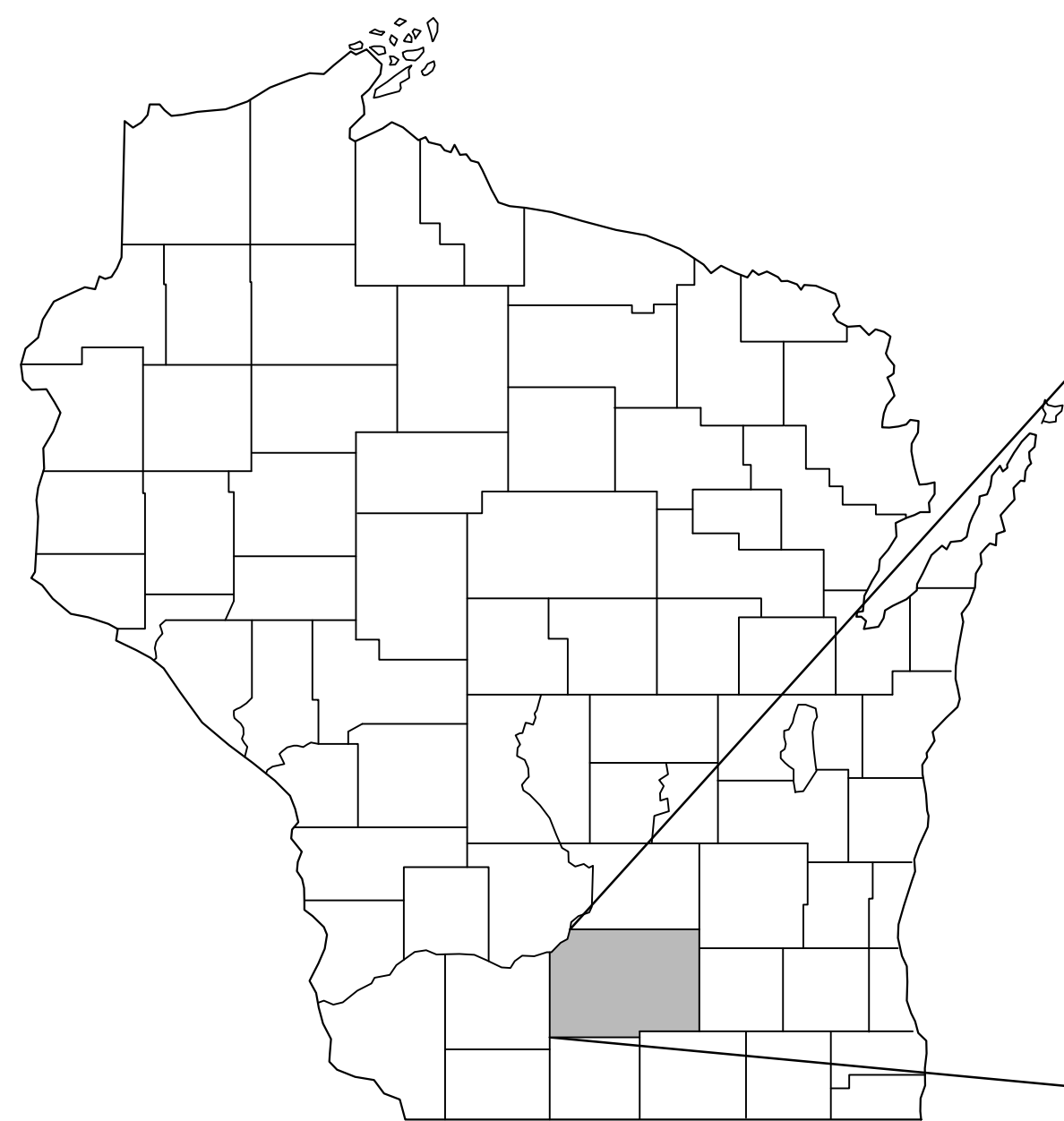
BID # 316041 - STAGE 3 GEOSYNTHETIC FINAL COVER SYSTEM

PREPARED BY: DANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SOLID WASTE DIVISION
MADISON, WISCONSIN

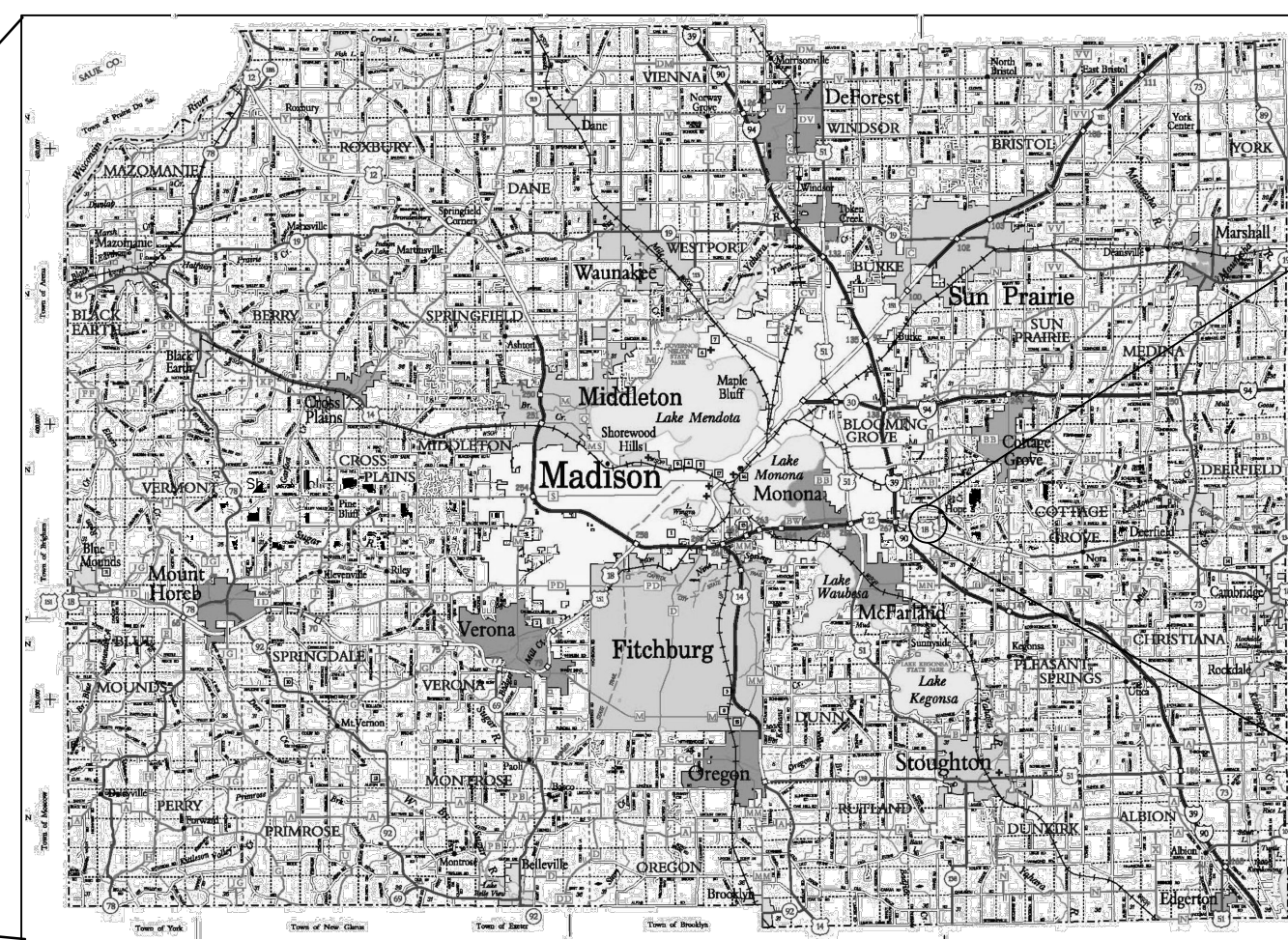
DATE: JANUARY 2017

INDEX

<u>SHEET NUMBER</u>	<u>SHEET TITLE</u>
1	TITLE SHEET
2	FINAL GRADES
3	GCL FINAL COVER SYSTEM
4	SURFACE PENETRATION
5	SIDESLOPE PENETRATION
6	PHASE DELINEATION BERM
7	ANCHOR TRENCH



WISCONSIN



DANE COUNTY



SITE LOCATOR

NOTE: THESE PLANS ARE ACCOMPANIED BY A PROJECT MANUAL OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

STAGE 3 LIMITS OF FINAL COVER

STAGE 3 LIMITS OF FINAL COVER

SHEET 2 - FINAL GRADES

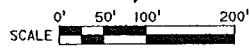
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2. HORIZONTAL DATUM IS BASED ON WISCONSIN STATE PLANE COORDINATE SYSTEM. SITE GRID COORDINATE SYSTEM DERIVED BY TRUNCATING STATE PLANE COORDINATE SYSTEM AND USING THE LAST FOUR DIGITS.
N SITE GRID + 380,000=N STATE PLANE COORDINATE
E SITE GRID + 2,190,000=E STATE PLANE COORDINATE
PREVIOUS SITE GRID SHOWN IN PARENTHESES.
3. LANDFILL PROPERTY BOUNDARY INFORMATION FURNISHED BY THE DANE COUNTY PUBLIC WORKS DEPARTMENT.
4. PERMITTED LIMITS OF WASTE AND FINAL COVER GRADES FROM "DANE COUNTY LANDFILL CITY OF MADISON ROCHEFELD SITE PLAN OF OPERATION" PREPARED BY RMT, INC. DATED SEPTEMBER, 1984.
5. PROPOSED GRADES REPRESENT TOP OF 6" TOPSOIL LAYER OF FINAL GRADES.

LEGEND

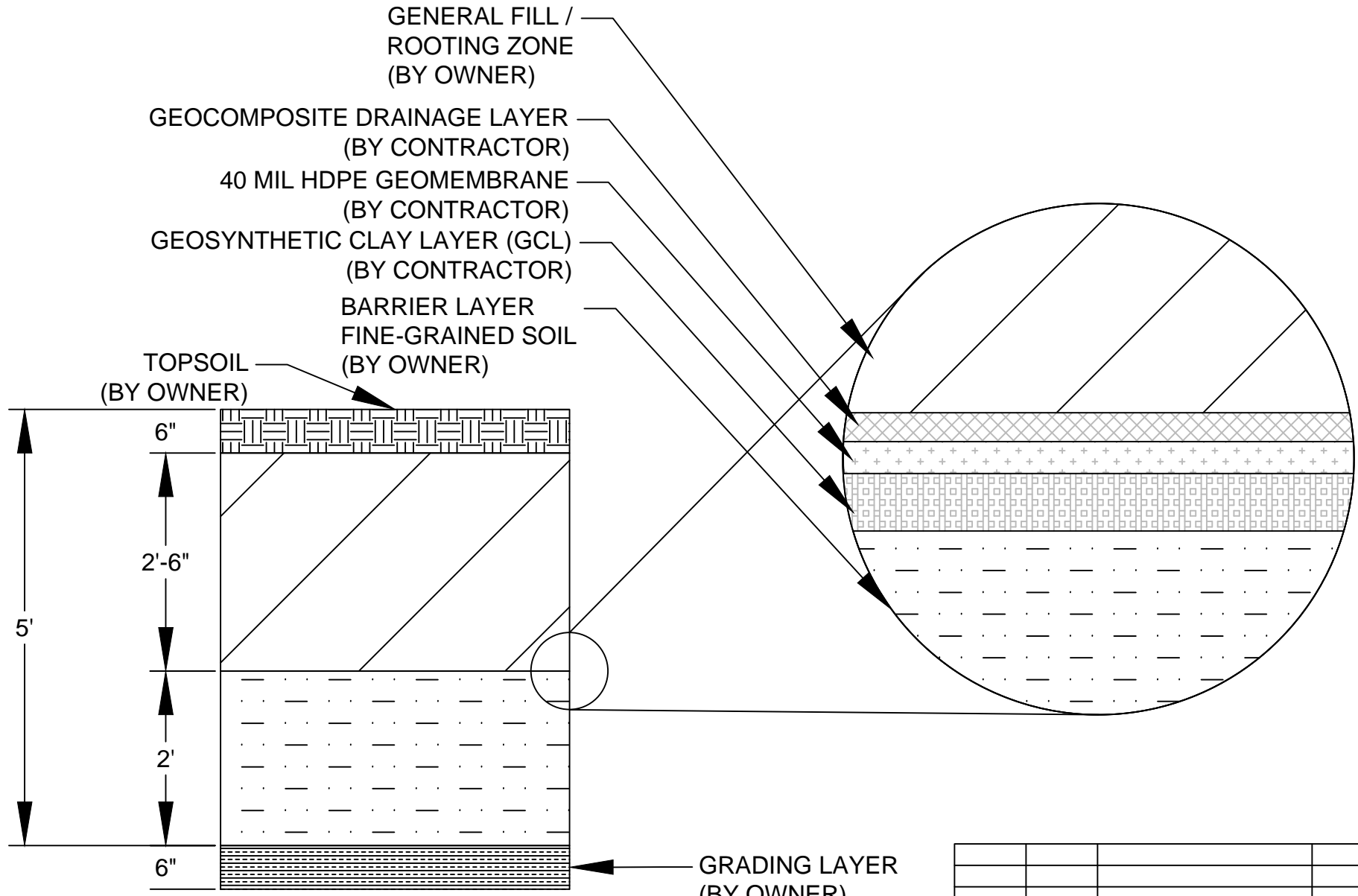
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- PERMITTED GRADE
- PROPOSED GRADE
- APPROXIMATE PROPERTY LINE
- PERMITTED LIMITS OF WASTE
- EXPANSION LIMITS OF WASTE
- PHASE LIMIT
- GROUND WATER MONITORING WELL
- GROUND WATER WELL NEST
- DRAINAGE DITCH
- EXISTING CONTROL MONUMENT
- MANHOLE
- LEACHATE CLEANOUT
- LH-2A LEACHATE HEADWELL
- LEACHATE EXTRACTION RISER
- SLOPE INDICATOR
- COLLECTION LYSIMETER RISER
- SITE ROAD
- CULVERT
- x HP HIGH POINT SPOT ELEVATION
- LT LEACHATE TRANSFER PIPE

RUST ENVIRONMENT & INFRASTRUCTURE

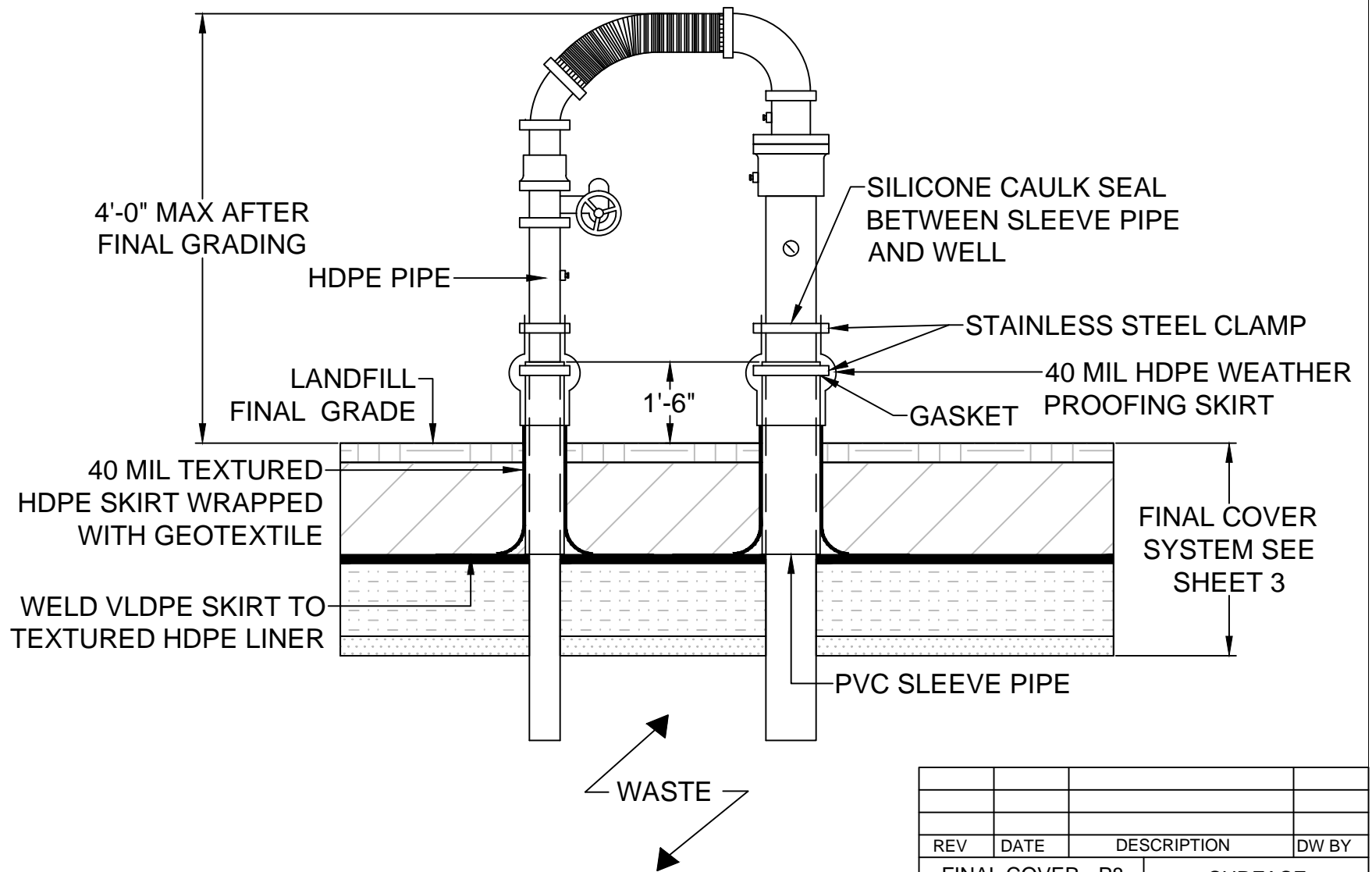


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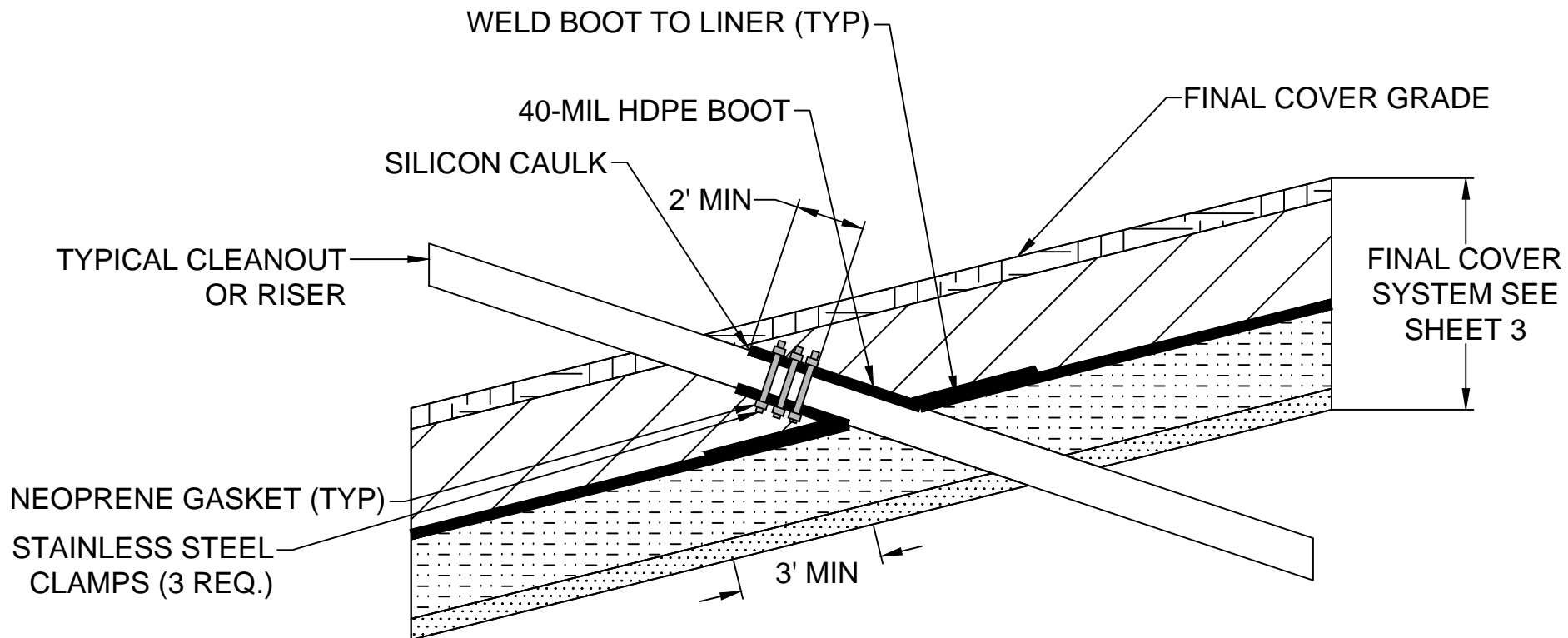
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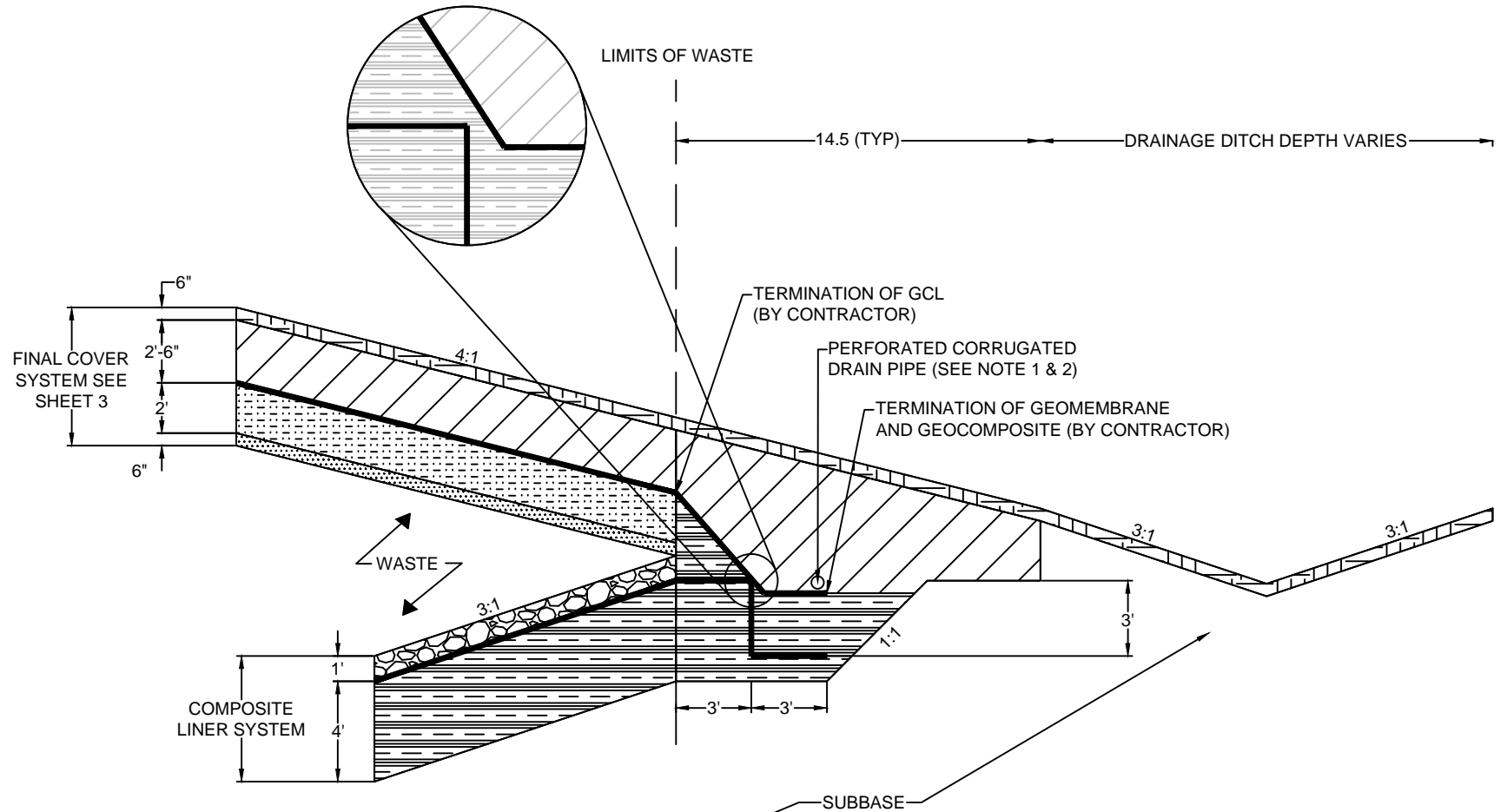
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FINAL COVER - P8 DANE COUNTY LANDFILL SITE #2 7102 U.S. HIGHWAY 12 & 18		GCL FINAL COVER SYSTEM SHEET 3 JANUARY 2017	



REV	DATE	DESCRIPTION	DW BY
FINAL COVER - P8 DANE COUNTY LANDFILL SITE #2 7102 U.S. HIGHWAY 12 & 18		SURFACE PENETRATIONS SHEET 4 JANUARY 2017	



REV	DATE	DESCRIPTION	DW BY
FINAL COVER - P8 DANE COUNTY LANDFILL SITE #2 7102 U.S. HIGHWAY 12 & 18		SIDESLOPE PENETRATIONS SHEET 5 JANUARY 2017	



NOTE:

1. PROVIDE DRAIN OUTLET TO DRAINAGE DITCH EVERY 300 FEET AROUND LANDFILL PERIMETER. SLOPE CORRUGATED HDPE PIPE AT A MINIMUM OF 0.5% PARALLEL TO LANDFILL AND OUTLET TO ADJACENT DRAINAGE DITCH (BY OWNER).
2. ALL EARTHWORK ABOVE AND BELOW FINAL COVER GEOSYNTHETICS WILL BE DONE BY OWNER

REV	DATE	DESCRIPTION	DW BY
FINAL COVER - P8 DANE COUNTY LANDFILL SITE #2 7102 U.S. HIGHWAY 12 & 18		ANCHOR TRENCH SHEET 7 JANUARY 2017	