DEPARTMENT OF RESOURCES RECYCLING AND RECOVERY

6/16/2021
INVITATION FOR BIDS (IFB)

NOTICE TO BIDDERS

NO: **DRR21001**
TITLE: **BONZI SANITATION LANDFILL CLOSURE CONSTRUCTION**

You are invited to review and respond to this Invitation for Bids (IFB), titled Bonzi Sanitation Landfill Closure Construction. In submitting your bid, you must comply with the instructions herein.

SERVICES NEEDED:
Construction and installation of composite cover system.

PROCESS SCHEDULE: This process will be conducted according to the following tentative schedule where all times are Pacific Standard Time:

Advertisement Date	**June 16, 2021**
Mandatory Pre-Bid Site Inspection	**June 24, 2021 @ 10:00 A.M.**
Written Questions Due by 5:00 P.M. PST	**July 01, 2021**
Bid Submittal Deadline	**July 13, 2021 @ 2:00 P.M.**
Bid Opening @ 2:15 P.M.	**July 13, 2021**

MINIMUM QUALIFICATIONS TO BID: The Bidder shall have the experience, qualifications, and resources to perform the scope of services as described herein.

CSLB License: Prime Contractor (or the joint venture if the bid is submitted by a joint venture) must possess a valid and active Contractors State License Board (CSLB) General Class A, General Engineering Contractor Classification issued by the State of California.

DIR Registration: The Prime Contractor (and each individual member of a joint venture, if the bid is submitted by a joint venture) must be currently registered with the Department of Industrial Relations (Labor Code sections 1725.5, 1771.1)

INSTALLER: Must have successfully installed a minimum of 10,000,000 square feet of welded polyethylene geomembrane with documented references.

MASTER WELDER: Must have completed a minimum of 5,000,000 square feet of polyethylene geomembrane seaming work using the type of seaming apparatus proposed for use on this project.

OTHER SEAMER'S QUALIFICATIONS: Must have seamed a minimum of 1,000,000 square feet of LLDPE geomembrane.

MANDATORY PRE-BID SITE INSPECTION: Bid Packages will only be accepted from those Bidders having attended the MANDATORY pre-bid site inspection with representatives of CalRecycle at the date and time indicated in the Process Schedule. (See Section 1, 2.5)

SEALED BIDS: CalRecycle will accept sealed bids at 1001 I Street, Sacramento, California, before the time indicated in the Process Schedule above. The bids shall include all work described herein, and in any Bid Addenda issued prior to the bid opening date.

BID OPENING: The qualified sealed bids will be opened publicly via webcast at the time and date set in the NOTICE TO BIDDERS, Process Schedule. CalRecycle will announce the webcast link for the Public Bid Opening prior to the bid opening date.

CONTRACT BUDGET: This Contract is valid and enforceable only if sufficient funds are made available by the Budget Act of the appropriate fiscal year for the purposes of this program. Subject to availability of funds and approval by CalRecycle, there is a current maximum budget of $6,077,000.00. Furthermore, CalRecycle reserves the right to amend the budget for this Agreement not to exceed 30% of the original contract if required for an unanticipated increase in needed services or completion of services contingent upon budget availability. The Contractor is advised that the amount identified on the Bid Sheet (Attachment 1) may not be changed and will remain in effect for the life of the Agreement, including amendments.

CONTRACT TERM: The term of this Agreement will span an estimated eight (8) months and is expected to begin in approximately July of 2021. CalRecycle reserves the right to amend the term of the Agreement for completion of services, if required.

This Agreement may be amended to extend the term for completion of services or to add funding upon budget availability not to exceed 30% of the original contract if required for an unanticipated or increased service needs at the rates submitted with Bid.

LABOR CODE: Where applicable, pursuant to Labor Code, Section 1774, the Contractor to whom the contract is awarded, and any subcontractor hired by the Contractor, shall pay not less than the specified general prevailing wage rates of per diem to all workers employed in the execution of the contract.

PAYMENT WITHHOLD: The provisions for payment under the resulting Agreement will be subject to a ten percent (10%) withholding per separate and distinct task. Any funds withheld with regard to a particular task may be released upon completion of that task to the satisfaction of CalRecycle.

REQUIRED DVBE PARTICIPATION: Participation in Disabled Veterans Business Enterprises (DVBE) program ***IS*** required for this project.

DVBE Participation Requirement is set at a minimum of three percent (3%). Refer to Section 3 for information.

DVBE INCENTIVE: Bidder may claim a DVBE bid incentive for voluntary DVBE Participation of 1% to 5%. Refer to Section 3 for information.

SMALL BUSINESS PREFERENCE: A five percent (5%) small business preference will be granted to Bidders certified as "Small Business" in accordance with Section 1896 et. seq, Title 2 California Code of Regulations. Refer to Section 3 for information.

NON-SMALL BUSINESS SUBCONTRACTOR PREFERENCE: The application of the five percent (5%) small business bidding preference is extended to a bidder, whose business is not certified as a small business but commits to subcontracting at least twenty-five percent (25%) of its net bid price to businesses that are California certified small businesses and/or microbusinesses. Refer to Section 3 for information.

IFB CONTACT INFORMATION: It is the opinion of CalRecycle that this IFB is complete and without need of explanation. However, if you have questions, or should you need any clarifying information, the contact person for this IFB is:

Jennifer Bannon, Contracts Analyst
contracts@calrecycle.ca.gov
Phone: (916) 341-6104
Fax: (916) 319-7345

Please note that no *verbal* information given will be binding upon the State unless such information is issued in writing as an official addendum.

Jennifer Bannon
Contract Administrator

TABLE OF CONTENTS

ABBREVIATIONS AND DEFINITIONS

General

Unless the context otherwise requires, wherever in this IFB or bid addenda, the following abbreviations and terms, or pronouns in place of them, are used, the intent and meaning shall be interpreted as provided in this Section.

Working titles having a masculine gender, such as “draftsman” and “journeyman” and the pronoun “he”, are utilized in these provisions for the sake of brevity and are intended to refer to persons of either sex.

Abbreviations

ADA	Americans with Disabilities Act
CAL EPA	California Environmental Protection Agency
CALRECYCLE	Department of Resources Recycling and Recovery
CCR	California Code of Regulations
DVBE	Disabled Veteran Business Enterprise
EPA	Environmental Protection Agency (Federal Government)
GC	Government Code
HDPE	High-Density Polyethylene
IFB	Invitation for Bid
LLDPE	Linear Low-Density Polyethylene
OSDS	The Department of General Services (DGS), Procurement Division (PD), Office of Small Business and DVBE Services (OSDS)
PCC	Public Contract Code
SB	Small Business
SOW	Scope of Work
WMU	Waste Management Unit

Definitions

Agreement: The written agreement covering the performance of the work and furnishing of labor, materials, tools, and equipment in providing the work. The Agreement shall include the IFB, Bid, general and specific terms and conditions, Work Orders, and supplemental agreements, which may be required to complete the work in a substantial and acceptable manner. It may also be referred to as “Contract.”

Cal EPA: The California Environmental Protection Agency

CalRecycle: Department of Resources Recycling and Recovery

CalRecycle Staff: Staff of CalRecycle involved in the implementation of this Contract or representatives of Consultant to CalRecycle as designated in the Work Orders.

Consultant: The person or persons, firm, partnership, corporation, or combination thereof, which may enter into an Agreement with CalRecycle to provide work in support of this IFB or his or their legal representatives.

Contract: A legally binding agreement between the State and another entity, public or private, for the provision of goods or services. May also be referred to as “Agreement”.

Contract Manager: A person designated by the responsible state agency or department to manage performance under a Contract.

Contractor: A party contracting with the awarding agency. Vendor is often used synonymously with Contractor.

Director: The Director of CalRecycle, or his/her designees. Any references to Executive Officer shall mean the Director and/or designated officer.

Disabled Veteran Business Enterprise (DVBE Certified): A business that meets all of the following criteria: (1) at least 51% of the business is owned by one or more disabled veterans or, in a business whose stock is publicly held, at least 51% or more of the stockholders are disabled veterans (2) the management and control of the business are exercised by one or more disabled veterans; (3) the business is domestically owned and its home office is in the United States; and (4) the business has been certified as a DVBE by the State of California, Department of General Services (DGS), Procurement Division (PD), Office of Small Business and DVBE Services (OSDS).

Legal Holiday: Those days designated as State holidays in the Government Code.

Project Manager: Contractor's representative for all work performed under this Agreement. All official correspondence, reports, submittals, billings, and other work done under this Agreement shall be reviewed and signed by the Project Manager prior to submittal to CalRecycle.

Scope of Work: The description of work required of a Contractor by the awarding agency.

Small Business (Certified): A business that has been certified by the Department of General Services (DGS), Procurement Division (PD), Office of Small Business and DVBE Services (OSDS), as a small business as defined in GC 14837 and 2 CCR 1896.

State: The State of California.

State Contract Law: The Public Contract Code and other applicable laws that form and constitute a part of the provisions of this Agreement to the same extent as if set forth herein in full.

Subcontractor: A person or entity which contracts with the Contractor to perform all or a portion of the work as specified in the Scope of Work.

SECTION 1

INSTRUCTIONS TO BIDDERS

There are conditions with which this IFB, submitting Bidders, bids, and resulting Agreements are subject to and/or required to comply.

Bidder shall examine these instructions carefully and respond to the solicitation requirements prior to bid.

All costs resulting from the Contractor's participation in the IFB process are at the firm's expense. No costs incurred by the Contractor participating in the IFB process will be reimbursed by CalRecycle.

Bidders shall be aware of the requirements of codes referenced in the Bidding Requirements and in the Contract documents. Bidders may access the codes included in California law through publications or through the internet at https://leginfo.legislature.ca.gov/faces/codes.xhtml

1. Commitment

Upon submittal of Bid, the Bidder commits to comply with the following requirements if awarded an Agreement resulting from this IFB:

- General Terms and Conditions (GTC) included by reference and can be viewed at https://www.dgs.ca.gov/OLS/Resources/Page-Content/Office-of-Legal-Services-Resources-List-Folder/Standard-Contract-Language
- Special Terms and Conditions included as Exhibit D of the Sample Standard Agreement (Attachment B).
- Contractor Certification Clauses included by reference and can be viewed at https://www.dgs.ca.gov/OLS/Resources/Page-Content/Office-of-Legal-Services-Resources-List-Folder/Standard-Contract-Language. Refer to Attachment 5.
- Construction Drawings and Construction Quality Assurance Plan for Bonzi Sanitation Landfill, WMU II-IV Final Closure Construction included as part of Attachment B, Sample Standard Agreement.

The above terms, conditions, and/or requirements are not subject to negotiation. Any Bidder that reserves a right to negotiate or expresses any exception to the above terms, conditions, and/or requirements will be disqualified.

If the Bidder fails to meet any of the requirements or comply with CalRecycle requests, CalRecycle may reject, disqualify, or remove the firm from the process. CalRecycle is not committed to award an Agreement resulting from this IFB.

2. Competence of Bidders

2.1. Business Entity

Bidder and/or Bidder's firm must be in good standing and currently hold any/all required licenses and permits to perform/conduct business in the State of California. If a sole proprietorship, be registered with the city, county, or other local government entity in which the principal place of business is located.

2.2. Licenses

Bidder may only bid on work for which the Bidder is properly licensed. Refer to NOTICE TO BIDDERS for License Requirements to submit a bid.

2.3. CalRecycle Unreliable List

Any Contractor or subcontractor currently on the CalRecycle Unreliable List is ineligible to apply for or participate in this contract: https://www.calrecycle.ca.gov/funding/unreliability

2.4. Prohibition on Tax Delinquents Bidding

Public Contract Code section 10295.4 provides that a state agency shall not enter into any contract for goods or services with a contractor whose name appears on either list of the 500 largest tax delinquencies pursuant to Section 7063 or 19195 of the Revenue and Taxation Code.

Contractors listed on the California Department of Tax and Fee Administration (CDTFA) and Franchise Tax Board (FTB) top 500 list of tax diligent businesses are not eligible to bid.

FTB List: (https://www.ftb.ca.gov/about-ftb/newsroom/top-500-past-due-balances/index.html)

CDTFA List: (https://www.cdtfa.ca.gov/taxes-and-fees/top500.htm)

2.5. Mandatory Pre-Bid Site Inspection

Prospective Bidders shall arrive at the site location below prior to the date and time noted in the NOTICE TO BIDDERS, Process Schedule, to allow ample time to find parking and sign the Mandatory Pre-Bid Sign-In Sheet.

Bidders are advised that Bidder, or representative of Bidder, must be listed on the sign-in sheet as having attended in order to be eligible to bid.

Bidders shall meet at the Main Entrance and Parking lot for sign-in at:

Bonzi Sanitation Landfill
2650 West Hatch Road
Modesto, CA 95351

2.6. Qualifying Project Experience and References

Bidder must demonstrate the Minimum Qualifications as stated in the NOTICE TO BIDDERS by documenting qualifying project experience with verifiable references and providing proof of proposed personnel qualifications.

3. Bid Considerations

3.1. Bidder Responsibility

Bidder shall carefully examine the Sample Standard Agreement (Attachment B), Exhibit A, Scope of Work, and Exhibit A-1 and A-2, Technical Specifications and Construction Drawings.

By submitting a bid, Bidder acknowledges that the Bidder understands the character, quality, and quantity of Work insofar as this information is reasonably ascertainable from site inspection and inspection of the Scope of Work.

3.2. Bidders Cost

All costs resulting from the Contractor's participation in the IFB process are at the firm's expense. No costs incurred by the Contractor participating in the IFB will be reimbursed by CalRecycle.

3.3. Public Information

All materials submitted in response to this IFB will become the property of CalRecycle and, as such, are subject to the Public Records Act (Government Code sections 6250 et seq.). CalRecycle will disregard any language purporting to render all or portions of any IFB package confidential.

All information obtained or produced during the course of the Agreement will be made available to CalRecycle.

Any information obtained or produced during the course of the Agreement that qualifies as confidential or a trade secret(s) under the Public Records Act (PRA) or the Public Contract Code (PCC) and is thus exempt from disclosure under those statutes shall be so marked by the firm prior to submission to CalRecycle. Any claims of confidentiality or trade secret(s) except as to information that qualifies as such under the PRA or PCC may result in disqualification.

CalRecycle will hold information obtained or produced during the course of the Agreement deemed confidential or trade secret(s) by the firm to the extent allowable by the California PRA and the PCC.

3.4. Small Business (SB) and Disabled Veterans Business Enterprise (DVBE) and Programs

Refer to Section 3 below for more detailed information, instructions, and resources regarding the Small Business (SB) Preference, the Non-SB (Non-SB) Subcontractor Preference, the Disabled Veterans Business Enterprise (DVBE) Participation Requirement, and the DVBE Incentive Program.

The Awarded Contractor who has participated in the Non-SB Preference Program, the required DVBE participation program, and/or the DVBE Incentive Program shall, upon completion and final payment, certify that payments have been made to the SB and/or DVBE subcontractor firm(s). Refer to Section 3, Reporting Requirements, for information on compliance with Government Code section 14841 and Military and Veteran Code section 999.1 and 999.5.

Bidder shall note that the Office of Small Business and Disabled Veterans Business Enterprise (OSDS) Small Business designation of “SB-PW” (Public Works) will not apply to this IFB.

4. Bid Package Documents

4.1. Attachment A, Required Bid Package Checklist

Bidder’s attention is directed to Attachment A, Bid Attachment Checklist, for a list of all required Bid Package documentation to submit in response to this IFB. Failure to submit any of the required documents may be deemed non-responsive and bid may be rejected.

Deviation of the order of bid submittal documents may result in your bid being deemed non-responsive.

4.2. Required Forms

Bidder must submit the bid information on the forms provided by CalRecycle and included in this IFB, as indicated on Attachment A, Required Bid Package Checklist.

Bid Packages not submitted on the provided forms will be considered non-responsive. All required signatures must be original “wet” signatures by the individual who is legally authorized

to contractually bind the Bidder. Electronic signatures are not permitted for bid package documents.

4.3. Additional Bid Documents Required

Additional Bid documents must be submitted by the Bidder to establish the responsibility of the Bidder. Section 2, Bid Submittal Items and Description, for details regarding the additional bid submittal documents.

5. Bid Submittal Information

Failure to follow the instructions contained in this document may be grounds for rejection of a Bid. CalRecycle may reject any Bid if it is conditional, incomplete or contains irregularities.

CalRecycle may waive an immaterial deviation in a Bid, if deemed in the best interest of CalRecycle. Waiver of an immaterial deviation shall in no way modify the IFB requirements or excuse the Contractor from full compliance with the Agreement requirements.

Failure to submit any of the required documents may be deemed non-responsive and bid may be rejected. Deviation of the order of bid submittal documents may result in your bid being deemed non-responsive.

5.1. Written Questions and Answers

Bidders needing clarification of the requirements of this solicitation may submit questions to CalRecycle's Contracts Office prior to the deadline for submitting questions. Refer to the NOTICE TO BIDDERS for Question-and-Answer deadline requirements.

All inquiries must be received no later than the date and time as indicated on NOTICE TO BIDDERS, regardless of postmark. Electronic inquires shall be made using contact email indicated on the NOTICE TO BIDDERS.

Oral communications with CalRecycle officers and employees shall be non-binding on the State and shall in no way excuse the Bidder of any obligations as set forth in this package. If Bidders have any questions pertaining to this particular solicitation, all communication should go through CalRecycle's Contracts Office.

All questions or inquiries regarding this solicitation shall be submitted using the IFB contact information provided in the NOTICE TO BIDDERS.

E-mails MUST be clearly marked:

"Questions Relating to SOLICITATION DRR21001"

The questions and answers will be published in an Addendum to the IFB.

5.2. Bid Addenda

CalRecycle reserves the right to amend, alter, or change the rules and conditions of this IFB.

Any ambiguity, conflict, discrepancy, omission, or other error discovered in the IFB should immediately be reported to CalRecycle prior to the deadline for submission of written questions. CalRecycle will issue Bid Addenda to address such issues. Bid Addenda will be available on the CalRecycle webpage for this particular solicitation at http://www.calrecycle.ca.gov/contracts.

5.3. Submission of Bid Package

It is the sole responsibility of the Bidder to see that its bid is received in proper time. Bid Packages received after the scheduled closing time for receipt of bids will be returned to Bidder unopened.

Bid Packages shall be submitted under sealed cover, must clearly state that it is in response to this IFB.

All documents must be submitted double-sided on paper with a minimum of 100% post-consumer recycled content fiber.

Bid Packages shall be submitted as directed below:

SINGLE SEALED PACKAGE CONTAINING:

1. One (1) unbound reproducible original Bid Package containing all Bid Submittal Requirements **with ATTACHMENT 1 under separate sealed cover.**
2. One (1) electronic copy of entire Bid Package in Adobe Acrobat Portable File Document (PDF) format stored on a USB drive. (Bidder is responsible to ensure that the electronic copy is formatted in Adobe Acrobat Reader and viewable by CalRecycle.)

   Bid Package delivered via postal mail or other courier service to the address noted in the NOTICE TO BIDDERS must have the following identifier printed clearly on the package:

   IFB DRR21001, BONZI SANITATION LANDFILL CLOSURE CONSTRUCTION
   Attention Mailroom: BID - DO NOT OPEN

   Bid Packages delivered in person may be submitted at the CalEPA Headquarters building at 1001 I Street, in the Visitor`s & Environmental Service Center (Main Lobby), Sacramento, CA 95814, and must have the following identifier printed clearly on the package:

   IFB DRR21001, BONZI SANITATION LANDFILL CLOSURE CONSTRUCTION
   BID - DO NOT OPEN

   Failure to do so may result in a premature opening of, or failure to open such bid. Bid Packages improperly marked may be disregarded. Bids received after the deadline, will be considered late and returned to the Bidder unopened.

5.4. Withdrawal and Modification of Bid Package

Bids may be withdrawn prior to the time noted in the NOTICE TO BIDDERS for the opening of bids, provided that a request in writing, executed by Bidder or Bidder's authorized representative, for withdrawal of such bid is filed with CalRecycle via electronic submission or at the location of the bid opening as indicated in the NOTICE TO BIDDERS. Withdraw of a bid shall not prejudice the right of a Bidder to file a new bid.

A Bid Package submitted prior to the submittal deadline may be modified by the submitting Bidder. The Bidder must:

- Provide a written request to the contact person listed in the NOTICE TO BIDDERS.
- Identify the requesting individual and their association to the Bidder.

Bids cannot be withdrawn or modified after the submittal deadline has passed.

5.5. Errors in Submittals

An error in a Bid Package may be cause for rejection of that Bid. CalRecycle may make certain corrections, if the Bidder's intent is clearly established based on review of the complete Bid.

6. Public Bid Opening and Reading of the Bids

The qualified bids (sealed) will be opened publicly via webcast at the time and date set in the NOTICE TO BIDDERS, Process Schedule.

The webcast link will be announced via Addendum available on the CalRecycle site for this particular solicitation at http://www.calrecycle.ca.gov/contracts prior to bid open date

7. Evaluation and Award

7.1. Evaluation of Bids

CalRecycle will perform a review process to ensure that the Bidder has included all required documentation in the Bid submittal and has included the necessary information for CalRecycle to determine that the Contractor is responsive and responsible.

7.2. Rejection of Bids

All bids may be rejected whenever the determination is made that the bids received are not competitive, when the cost is not reasonable, when the cost exceeds the amount expected, or when it is determined to be in the best interest of the State.

Additionally, a bid may be rejected if:

- The bid submittal is unsigned.
- All published bid addenda are not acknowledged.
- There are undisclosed, inaccurate, or incomplete disclosures of conflicts of interest.
- Conditions or alterations made to the documents.
- The Bidder has been prohibited from contracting with the State by the Department of Fair Employment and Housing.
- Non-compliance with Labor Code section 1771.1(a) (DIR registration for Prime and Subcontractors required).
- The Bidder has received a substantive negative contract performance from the State.

CalRecycle reserves the right to reject a bid as nonresponsive if the prices in the bid are materially unbalanced between line items or sub-line items, as applicable. A bid is materially unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated in relation to cost for other work, and if there is a reasonable doubt that the bid will result in the lowest overall cost to CalRecycle even though it may be the low evaluated bid, or if it is so unbalanced as to be tantamount to allowing an advance payment.

No bid may be rejected arbitrarily or without reasonable cause.

7.3. Award of Contract

Award of the Contract will be to the lowest responsive responsible Bidder meeting all of the IFB requirements after preferences are applied (see Section 3, SB/DVBE Information and Resources for preference and incentive information).

In the event of a tie, CalRecycle shall utilize a tie breaker to determine the winning Bidder. The tie breaker will be determined based on which bidder has the most SB and/or DVBE participation identified in the bid package.

CalRecycle reserves the right to not make an award.

7.4. Award to Other than Low Bidder – Notice of Intent to Award

Pursuant to Public Contract Code section 10345, whenever a contract is awarded under a procedure providing for competitive bidding, but the contract is not to be awarded to the low bidder, the low bidder shall be given notice five (5) working days prior to the award of the contract by telegram, electronic facsimile transmission, overnight courier, Internet transmission, or personal delivery. Email may also be used to notify such a bidder.

Upon written request by any bidder who has submitted a bid, CalRecycle will post an Intent to Award notice on the CalRecycle site https://calrecycle.ca.gov/contracts. The public posting shall remain for at least five (5) working days.

Any bidder may, within those five (5) working days, file a protest with CalRecycle protesting the award of the contract on the grounds that he or she is the lowest responsible bidder meeting the specifications of the bid and contract requirements.

7.5. Protest procedures

A Bidder may protest the proposed award by filing an official protest with the Department of General Services (DGS). The protest must be filed after the Notice of Intent to Award of the contract, but before the actual award.

Within five (5) **calendar** days of the initial protest filing, the Bidder must submit a detailed written statement with information that supports that the Bidder would have been awarded the Contract and the grounds for that position.

The Agreement will not be awarded until a decision has been made on the filed protest.

The detailed written statement protest document shall be sent via registered mail to the following two parties:

1) Department of Resources Recycling and Recovery
Attn: Contracts Unit
1001 I Street, MS-19A
Sacramento, CA 95814
Email contracts@calrecycle.ca.gov

2) Department of General Services
Office of Legal Services
Attention: Bid Protest Coordinator
707 Third Street, 7th Floor, Suite 7-330
West Sacramento, CA 95605
Bid Protest Coordinator Email address: OLSProtests@dgs.ca.gov

8. Post-Award and Contract Execution

Awarded Contractor and the resulting contract will be subject to the provisions in this IFB and the Sample Standard Agreement (Attachment B).

8.1. Governance

If any provisions of the Agreement resulting from this IFB are found to be unlawful or unenforceable, such provisions will be voided and severed from the Agreement without affecting any other provision of the Agreement. To the full extent, however, that the provisions of such applicable law may be waived, they are hereby waived to the end that the Agreement be deemed to be a valid and binding agreement enforceable in accordance with its terms.

The Agreement is governed by and shall be interpreted in accordance with the laws of the State of California.

All proceedings concerning the validity and operation of this IFB or the Agreement and the performance of the obligations imposed upon the parties hereunder shall be held in Sacramento County, California. The parties hereby waive any right to any other venue. The place where the Agreement is entered into and place where the obligation is incurred is Sacramento County, California.

8.2. Post-Award Documentation

Upon Award, awarded Contractor shall submit and comply with the following:

Surveyor Qualifications: Contractor shall supply to the CalRecycle Contract Manager the name, address, telephone number, and qualifications of the surveyor, crew chief, and all other persons proposed to perform surveys or survey-related duties.

Payee Data Form (STD 204): Required when receiving payment from the State of California in lieu of IRS W-9 or W-7. A completed Payee Data Record, STD 204 form, is required for all payees (non-governmental entities or individuals) entering into a transaction that may lead to a payment from the state. Each state agency requires a completed, signed, and dated STD 204 on file. http://www.calrecycle.ca.gov/Contracts/Forms/default.htm

Insurance: Awarded Contractor shall furnish to the State, concurrently with award of the Contract, evidence of the required insurance meeting the conditions set forth in the Sample Standard Agreement (Attachment B), Exhibit D, Insurance Requirements.

Performance and Payment Bonds: Awarded Contractor shall furnish bonds, each in the amount of 100 percent (100%) of the Contract Total, covering faithful performance of the Contract and payment of obligations arising thereunder.

8.3. Contractor Signature

The Contract shall not be binding upon the State until it is executed by the Contractor and the State. Contract documents required for execution of the Contract consist of the finalized version of the document included herein as Sample Standard Agreement (Attachment B).

Should Contractor begin work in advance of receiving notice that the Contract has been approved, any work performed in advance of the approval date shall be considered as having been done at risk as a volunteer.

8.4. Completion of Services Documentation

Upon completion of services under the Agreement, Contractor shall submit and comply with the following (as applicable):

Postconsumer-Content Certification Form: The Contractor receiving award of this Contract will be required to report all State Agency Buy Recycled Campaign (SABRC) reportable purchases and the recycled content of those purchases. The Postconsumer-Content

Certification Form (CalRecycle 74) is required to be submitted with each invoice or annually as determined by the CalRecycle Contract Manager. The fillable form may be downloaded at: https://www.calrecycle.ca.gov/buyrecycled/stateagency/certify

SB and DVBE Subcontractor Payment Certification: If Contractor made a commitment to DVBE and/or SB subcontractors, then Contractor must within 60 days of completion of this Contract (or within such other time period as may be specified elsewhere in this Contract) submit SB and DVBE Subcontractor Payment Certification to the awarding department in compliance to Government Code 14841 and Military and Veterans Code 999.5(d) and 999.7. See Section 3, Reporting Requirements, for more information.

A reference sample of the SB and DVBE Subcontractor Payment Certification is included as part of Section 3.

9. Bidder Certifications and Acknowledgements

By submitting a bid, Bidder certifies and acknowledges the terms, conditions, and/or requirements set forth in this IFB and the contract documents located in the Sample Standard Agreement attached hereto (Attachment B). Bidder is advised to read these provisions carefully prior to submitting a bid. Contract terms, conditions, and/or requirements are not subject to negotiation.

If the Bidder fails to meet any of the requirements or comply with CalRecycle requests, CalRecycle may reject, disqualify, or remove the firm from the process. CalRecycle is not committed to award an Agreement resulting from this IFB.

SECTION 2

BID SUBMITTAL ITEMS AND DESCRIPTIONS

1. Required Bid Package Checklist

Bidder's attention is directed to Attachment A, Required Bid Package Checklist, for a list of all required Bid Package documentation. Attachment A is for Bidders use and is NOT a required bid submittal item.

2. Description of Bid Package Forms

Bid Package must contain the following:

Attachment 1: Bid Worksheet:

Bidders are instructed to use the included Bid Worksheet. Reference "Description of Bid Schedule Items" in Attachment 1 for detailed description of each bid item and other bid considerations.

Attachment 1 must be submitted under separate sealed cover in the bid package submittal.

Attachment 2: Bid Certification

Includes the required bid acknowledgements and certifications and must be signed by the individual who is legally authorized to contractually bind the Bidder.

Bidder acknowledges that by signing the Bid Certification, the Bidder certifies to all requirements contained therein.

Attachment 3: Proposed Subcontractor List

List the name, location, license number, and registration number of all subcontractors who will be employed, and the kind of work which each will perform in the completion of the Work in an amount in excess of one-half of one percent (1/2 of 1%) of total bid. All subcontractor licenses must be current and active at time of bid. Listed subcontractors must be registered with the DIR in order to be listed for and to engage in the performance of the Work.

Bidders utilizing subcontractors to meet the DVBE requirement and/or claiming the DVBE Incentive must indicate if the listed subcontractor is being utilized for the incentive, the percentage of the total bid amount the subcontractor will perform, the subcontractor OSDS certification number.

Bidders claiming the Non-Small Business Subcontractor Preference must indicate if the listed subcontractor is being utilized for the preference, the percentage of the total bid amount the subcontractor will perform, the subcontractor OSDS certification number.

By submitting bid, Bidder certifies that all subcontractors listed for the purposed this section provide a commercially useful function as defined in Military and Veterans Code section 999 for DVBEs and Government Code section 14837(d)(4)(A) for small businesses.

Attachment 4: Darfur Contracting Act Certification

Public Contract Code sections 10475 -10481 applies to any company that currently or within the previous three years has had business activities or other operations outside of the United States. For such a company to bid on or submit a proposal for a State of California contract, the company must certify that it is either a) not a scrutinized company; or b) a scrutinized company that has been granted permission by the Department of General Services to submit a proposal.

Attachment 5: Contractor Certification Clauses (CCC-4/2017)

Bidder must sign and submit page one (1) of the Contractor Certification Clauses.

Attachment 6: Unruh Civil Rights Certification

Prior to bidding on, submitting a proposal or executing a contract or renewal for a State of California contract for goods or services bidder must certify to Public Contract Code section 2010.

Attachment 7: Iran Contracting Act Certification

Prior to bidding on, submitting a proposal or executing a contract or renewal for a State of California contract for goods or services of $1,000,000 or more, a bidder must certify to Public Contract Code sections 2202 through 2208.

Attachment 8: Qualifying Project Experience and Reference Form

Bidder shall use Attachment 8 to provide the details of at a minimum of three (3) construction projects completed within the last five (5) years in which Bidder was a Prime Contractor and that involved the installation of a LLDPE or HDPE geomembrane liner for a project liner area minimum of 2 acres or more in size, and involved the installation of geomembrane liner on top of soil (i.e. construction of new landfill cells or closure caps, agricultural or wastewater treatment lagoons, tank farms, etc.).

Bidder shall include a minimum of one (1) verifiable reference for each qualifying project experience who can confirm Bidder's project experience description and performance.

3. Description of Additional Bid Submittal Documents

Bidder is required to supply the following additional submittals as part of the Bid Package:

Preliminary Construction Schedule

Bidder shall prepare and submit a preliminary construction schedule in compliance with Exhibit A, Division 1, Section 01300 of the Sample Standard Agreement (Attachment B). If Awarded, Contractor's preliminary construction schedule may be incorporated into the overall project schedule.

Bidders Bond

Bidders shall furnish Bidder's Bond in an amount equal to at least 10 percent (10%) of the amount bid. Bidder's Bond which shall be executed by an admitted surety insurer, authorized to issue surety bonds in the State of California. Bonds shall be made payable to the Director of CalRecycle.

SECTION 3

SB AND DVBE PROGRAM INFORMATION AND RESOURCES

This IFB **includes a DVBE** participation requirement to be eligible to bid. Refer to the NOTICE TO BIDDERS for specific DVBE participation requirements and percentage.

Regardless of DVBE requirements, Bidders may participate in the SB preference and DVBE incentive programs as described below.

SB and/or DVBE firms must be certified by the State of California, Department of General Services (DGS), Procurement Division (PD), Office of Small Business and DVBE Services (OSDS)

Reporting Requirements, as described below, apply to all Enterprise Program participation.

1. SB Preference and Non-SB Subcontractor Preference Programs

The following information shall apply to both Small Businesses (SBs) and Microbusinesses (MBs)

Bidder shall note that the Office of Small Business and Disabled Veterans Business Enterprise (OSDS) Small Business designation of “SB-PW” (Public Works) will not apply to this IFB.

1.1. SB Preference

A five percent (5%) small business preference will be granted to Bidders certified as “Small Business” in accordance with 2 CCR section 1896 et seq. Certification must be provided by OSDS.

Pursuant to 2 CCR section 1896.14, in order to receive the small business preference, bidders must have a completed application (including proof of annual receipts) on file with OSDS. In no event shall the SB preference exceed $100,000 in any single bid.

If claiming the SB Preference, include your OSDS number as instructed in bid submittal items

For award based on low price, the preference is applied by reducing the bid price by the five percent (5%) preference as computed from the lowest responsive and responsible bid price (not to exceed $100,000). The computation is for evaluation purposes only and does not include the DVBE Incentive; however, the DVBE Incentive may be applied and may affect the application of the preference and the outcome of the ranking.

The combined preference and incentive is applied up to an established cap of $100,000.00. The preference is used only for evaluation purposes and does not alter the amounts of the actual bids.

For contracts to be awarded based on low bid, the five percent (5%) preference amount is equal to a percentage of the lowest responsive and responsible bid based. (see example, Table A below).

The following example shows how the 5% preference computation works, and how it is used to determine a successful bidder.

Table A – Invitation for Bids (IFB) (Low Bid Method)

Bidder Name	Low Bid	2nd Low Bid	3rd Low Bid
Original Bid Price	$98,000.00	$102,100.00	$100,000.00
Bidder is a Certified SB	No	No	Yes
Preference Applied	n/a	n/a	5%
Incentive Amount (% x Lowest Responsive and Responsible Bid Price)	n/a	**n/a**	**$4,900** (5% x $98,000)
Adjusted Bid Price (Bidder's Price - Bidder's Incentive Amount)	n/a	**n/a**	**$93,100.00** ($100,000 - $4,900)
			Awarded Bidder

A Certified Small Business may only be displaced by another certified Small Business with a higher percentage of DVBE participation and a lower adjusted bid price.

The preference may be combined with other incentives and preferences up to an established cap of $100,000.00. The preference is used only for evaluation purposes and does not alter the amounts of the actual bids.

1.2. Non-SB Subcontractor Preference

In accordance with GC § 14838(b)(1)(2), the application of the five percent (5%) small business bidding preference is extended to a bidder whose business is not certified as a small business but commits to subcontracting at least twenty-five percent (25%) of its net bid price to businesses that are California certified small businesses and/or microbusinesses.

If requesting the Non-SB Subcontractor Preference, Bidder must indicate as instructed in bid submittal items, and certify participation in Attachment 3, Proposed Subcontractor List, by indicating a minimum 25% of the net bid price to OSDS Certified SB firms.

For award based on low price, computation of the five percent (5%) preference is identical to the above example. A Non-SB may not displace a certified SB.

The preference may be combined with other incentives and preferences up to an established cap of $100,000.00. The preference is used only for evaluation purposes and does not alter the amounts of the actual bids.

2. Disabled Veterans Business Enterprise (DVBE) Requirement

To be considered a Disabled Veteran Business Enterprise (DVBE), contractors must be certified with the State of California, Department of General Services (DGS), Procurement Division (PD), Office of Small Business and DVBE Services (OSDS) in accordance with California Code of Regulations, Title 2, Section 1896.94. Please see the following website for more information about DVBE certification benefits and eligibility requirements: https://caleprocure.ca.gov/pages/sbdvbe-index.aspx.

2.1. Participation Requirement

This IFB includes a DVBE participation requirement to be eligible to bid. Bids will only be accepted from those Bidders that certify they have achieved the required percentage participation as set forth in the NOTICE TO BIDDERS.

Pursuant to Section 10115 et seq. of the Public Contract Code, and Section 999 et seq. of the Military and Veterans Code, CalRecycle has established an overall goal of not less than 3% participation by DVBE.

Meet or exceed the DVBE participation requirements for the proposed contract by one of the following two (2) methods:

1) Bidder is a Certified DVBE: If your firm is an OSDS Certified DVBE, include your OSDS number where indicated on Attachment 2, Bid Certification.
2) Bidder is a Non-DVBE Bidder: If your firm is not a OSDS Certified DVBE and will use proposed OSDS Certified DVBE subcontractors to meet the required goals, indicate as instructed in bid submittal items, and certify participation in Attachment 3, Proposed Subcontractor List, by indicating the required percentage of the net bid price to Certified DVBE subcontractor firms.

2.2. DVBE Incentive Program

This program is separate from the DVBE Participation Program. The incentive is designed to encourage bidders to partner with DVBE subcontractors and is made available to bidders regardless of DVBE participation requirements.

A DVBE Incentive will be granted to Bidders in accordance with section 999.5(a) and (d) of the Military and Veterans Code and the 2 CCR section 1896.98 et seq.

If requesting the DVBE Incentive, Bidder must indicate as instructed in bid submittal items, and certify participation in Attachment 3, Proposed Subcontractor List, by subcontracting a minimum one percent (1%) and a maximum of five percent (5%) of the net bid price to OSDS Certified DVBE firms.

For award based on low price, incentive is applied by reducing the bid price by the amount of incentive as computed from the lowest responsive and responsible bid price (not to exceed $100,000). The computation is for evaluation purposes only and does not include the small business preference; however, the small business preference may be applied and may affect the application of the incentive and the outcome of the ranking. Application of the incentive shall not displace an award to a certified SB.

The combined incentive and preference are applied up to an established cap of $100,000.00. The incentive is used only for evaluation purposes and does not alter the amounts of the actual bids.

For contracts to be awarded based on low bid, the incentive amount is equal to a percentage of the lowest responsive and responsible bid based on the amount of DVBE participation in the bid being evaluated (see example, Table B below).

Table B – Invitation for Bids (IFB) (Low Bid Method)

DVBE Participation for Incentive	DVBE Incentive Amount for computation purposes
5% or more	5% of lowest responsive and responsible bid
4% - 4.99%	4% of lowest responsive and responsible bid
3% - 3.99%	3% of lowest responsive and responsible bid
2% - 2.99%	2% of lowest responsive and responsible bid
.01% - 1.99%	1% of lowest responsive and responsible bid

Computation Method

Bidder Name	Low Bid	2nd Low Bid	3rd Low Bid
Original Bid Price	$98,000.00	$102,100.00	$100,000.00
DVBE Participation Level Achieved	0%	8%	4.5%
DVBE Incentive (from Table A)	n/a	5%	4%
Incentive Amount (% x Lowest Responsive and Responsible Bid Price)	n/a	**$4,900.00** (5% x $98,000)	**$3,920.00** (4% x $98,000)
Adjusted Bid Price (Bidder's Price - Bidder's Incentive Amount)	n/a	**97,100.00** ($102,100 - $4,900)	**96,080.00** ($100,000 - $3,920)
			Awarded Bidder

3. Commercially Useful Function

For purposes of meeting or exceeding the DVBE participation requirements and/or participating in the preference/incentive programs using subcontractors, Bidders shall ensure listed subcontractors perform a commercially useful function as defined in the Military and Veterans Code (M&VC) section 999.9 and GC section 14842.

For more information regarding Commercially Useful Function for Certified Firms, please visit DGS website located at https://www.dgs.ca.gov/PD/Resources/Page-Content/Procurement-Division-Resources-List-Folder/Commercially-Useful-Function-for-Certified-Firms.

4. Reporting Requirement

In compliance with Government Code 14841, awarded Contractor shall, within 60 days of completion of an awarded contract for which a commitment to small business subcontractors, report to CalRecycle the actual percentage of small business participation that was achieved.

In compliance with Military and Veterans Code 999.5(d) and 999.7, awarded Contractor shall, within 60 days of completion of an awarded contract for which the Contractor made a commitment to achieve the DVBE participation goal and entered into a subcontract with a DVBE, certify to CalRecycle all of the following:

1. The total amount the prime contractor received under the contract.
2. The name and address of the DVBE that participated in the performance of the contract and the contract number.
3. The amount and percentage of work the prime contractor committed to provide to one or more DVBEs under the requirements of the contract and the amount each DVBE received from the prime contractor.
4. That all payments under the contract have been made to the DVBE. Upon request by the awarding department, the prime contractor shall provide proof of payment for the work.
5. The actual percentage of DVBE participation that was achieved. Upon request, the prime Contractor shall provide proof of payment for the work.

A sample of the *Small Business (SB) and Disabled Veteran Business Enterprise (DVBE) Subcontractor Payment Certification* is provided as a reference at the end of this Section.

After being awarded, Contractor shall use the DVBE subcontractors or suppliers proposed in the bid to the state unless a substitution is requested and approved. Contractor shall request the substitution in writing to CalRecycle and receive approval from both the CalRecycle and the Department of General Services (DGS) in writing prior to the commencement of any work by the proposed subcontractor or supplier. A DVBE subcontractor may only be replaced by another DVBE subcontractor. Changes to the scope of work that impact the DVBE subcontractor(s) identified in the bid or offer and approved DVBE substitutions will be documented by contract amendment.

If for this Contract, Contractor made a commitment to achieve the DVBE participation goal, CalRecycle will withhold $10,000 from the final payment, or the full final payment if less than $10,000, until the Contractor complies with the certification requirements above, A Contractor that fails to comply with the certification requirement shall, after written notice, be allowed to cure the defect. Notwithstanding any other law, if, after at least 15 calendar days but not more than 30 calendar days from the date of notice, the prime contractor refuses to comply with the certification requirements, the CalRecycle shall permanently deduct $10,000 from the final payment, or the full payment if less than $10,000.

A person or entity that knowingly provides false information shall be subject to a civil penalty for violation (Mil. & Vets. Code § 999.5(d); Govt. Code § 14841). Contractor agrees to comply with the rules, regulations, ordinances, and statutes that apply to the DVBE program as defined in Section 999 of the Military and Veterans Code, including, but not limited to, the requirements of Section 999.5(d). (PCC Code 10230.)

5. Resources

The following may be used to locate DVBE Suppliers:

AWARDING DEPARTMENT: Contact the department's contracting official named in this solicitation for any DVBE suppliers who may have identified themselves as potential subcontractors, and to obtain suggestions for search criteria to possibly identify DVBE suppliers for the solicitation.

STATE: State of California, Department of General Services, Procurement Division, Office of Small Business and DVBE Services (OSDS) offers many services that assist contractor/business owners with a variety of information designed to streamline the State contracting process. OSDS also certifies DVBE contractors. For more information, please contact OSDS to find out more:

Office of Small Business and DVBE Services
Department of General Services
Procurement Division
707 Third Street
West Sacramento, CA 95605
Phone: (916) 375-4940
Email: OSDSHelp@dgs.ca.gov

Access the list of Focus-Trade Papers and Referral Organizations at: https://www.dgs.ca.gov/PD/Resources/Page-Content/Procurement-Division-Resources-List-Folder/Commercially-Useful-Function-for-Certified-Firms or SB.DVBECompliance@dgs.ca.gov

Access the list of all certified DVBEs by using the Department of General Services, Procurement Division (DGS-PD) online certified firm database at: https://caleprocure.ca.gov/pages/PublicSearch/supplier-search.aspx

Search by “Keywords” or United Nations Standard Products and Services Codes (UNSPSC), that apply to the elements of work you want to subcontract to a DVBE.

Check for subcontractor ads that may be placed on the California State Contracts Register (CSCR) for this solicitation prior to the closing date. You may access the CSCR at: https://www.caleprocure.ca.gov/pages/index.aspx

FEDERAL: Search the U.S. Small Business Administration’s (SBA) PRO-Net Database at https://pro-net.sba.gov/textonly/pro-net/search.html to identify potential DVBEs and click on the "Search Using These Criteria" button. Search options and information are provided on the PRO-Net Database site. First time users should click on the “help” button for detailed instructions. Remember to verify each firm’s status as a California certified DVBE.

SAMPLE
Small Business (SB) and Disabled Veteran Business Enterprise (DVBE) Subcontractor Payment Certification

As Contractor of record for the Department of Resources Recycling and Recovery, Contract number _____, I certify, in accordance with Government Code 14841 and Military and Veteran Code § 999.5, that pursuant to the terms and conditions of the contract, all payments have been made to the SB or DVBE firm(s) listed below for commodities or services rendered as the SB or DVBE subcontractor(s) of record. I understand certification must be made to the Department of Resources Recycling and Recovery within 60 days of receiving final payment under this Agreement. I further understand and acknowledge that falsification of this Certification may result in the imposition of civil or criminal penalties for not less than $2,500 or more than $25,000 for each violation. *Please copy this form to include as many SB or DVBE firms as necessary. Authorized signatures and information are required on each separately submitted form. Return to: Department of Re*sources Recycling and Recovery*, Contracts Unit- MS 19-A, Attn: SB/DVBE Advocate, P.O. Box 4025, Sacramento, CA 95812-4025*

State Department Name	Department of Resources Recycling and Recovery 1001 I Street, Sacramento, CA 95814		
Dept. Contact Name, Phone#			
Prime Contractor Name		FEIN Number:	
Prime Contractor Contact (Address, Phone #, Email)			
Date Contract Entered:		**Date Contract Completed:**	
Total Amount Received Under this Contract	$	**Date Final Payment Received:**	

List all Certified Small Business Subcontractor firms involved with this contract.

SB Subcontractor	Street Address, City, State, Zip	Amount Paid	Participation Achieved
			%
			%
			%
			%

List all Disabled Veteran Business Enterprise Subcontractor firms involved with this contract.

DVBE Subcontractor	Address	Cert. #	% Committed	Total $ Committed	Total Payment Amount	Difference in Amount Paid	Difference between % and Amount Paid
			%	$	$	$	
			%	$	$	$	
			%	$	$	$	
			%	$	$	$	
			%	$	$	$	
			%	$	$	$	
			%	$	$	$	
			%	$	$	$	
			%	$	$	$	
Comments/ Explanations							

Printed Name		**Signature:**	
Title:		**Report Date:**	

ATTACHMENT A - REQUIRED ATTACHMENT CHECKLIST

Attachment A is for Bidder's use. It is not a required bid submittal.

Bidder shall submit Bid Documents the in the order listed below:

_____ ATTACHMENT 1 – BID WORKSHEET

_____ ATTACHMENT 2 – BID CERTIFICATION

_____ ATTACHMENT 3 – PROPOSED LIST OF SUBCONTRACTORS

_____ ATTACHMENT 4 – DARFUR CONTRACTING ACT CERTIFICATION

_____ ATTACHMENT 5 – CCC-4/2017 CONTRACTOR CERTIFICATION CLAUSES
Bidder may use the include form or obtain form via the Internet at:
https://www.dgs.ca.gov/OLS/Resources/Page-Content/Office-of-Legal-Services-Resources-List-Folder/Standard-Contract-Language

_____ ATTACHMENT 6 – UNRUH CIVIL RIGHTS CERTIFICATION

_____ ATTACHMENT 7 – IRAN CONTRACTING ACT CERTIFICATION

_____ ATTACHMENT 8 – QUALIFYING PROJECT EXPERIENCE AND REFERENCE FORM

Additional Bid Submittals (to be supplied by bidder):

_____ PRELIMINARY CONSTRUCTION SCHEDULE

_____ BIDDERS BOND

BID PACKAGE SUBMITTAL INSTRUCTIONS

SINGLE PACKAGE CONTAINING:

1. One (1) unbound reproducible original Bid Package containing All Bid Submittal Requirements **with ATTACHMENT 1 submitted under separate sealed cover.**
2. One (1) Electronic copy of Bid Package in Adobe Acrobat format containing **All Bid Submittal Requirements. (**Bidder is responsible to ensure that the electronic copy is formatted in Adobe Acrobat Reader and viewable by CalRecycle.)

The following documents included in this IFB are Reference Documents and are not required at time of bid but must be adhered to by the successful Contractor during the contract period:

ATTACHMENT B – SAMPLE STANDARD AGREEMENT

ATTACHMENT 1 – BID WORKSHEET

Complete all portions of the below Bid Worksheet. The undersigned hereby proposes and agrees to perform all services required in accordance with the services outlined in Attachment B, Sample Standard Agreement, which will be incorporated into the resulting Agreement.

Prices shall be submitted in accordance with prevailing wage rates ascertained by the Department of Industrial Relations and set forth on the DIR web site (https://www.dir.ca.gov/Public-Works/Prevailing-Wage.html) for General Prevailing Wage Rates as currently determined by the February 2021 DIR prevailing wage published rates. Contractor shall be responsible for any future adjustments to prevailing wage rates including but not limited to, base hourly rates and employer payments as determined by the Department of Industrial Relations. The Contractor is responsible for paying the appropriate rate, including escalations that take place during the term of the Agreement.

Item	Description	Unit	Quantity	Bid Unit Cost	Total
1	Mobilization/Demobilization	LS	1	$	$
2	Prepare and Implement Stormwater Pollution Prevention Plan	LS	1	$	$
3	Layout of Work and Surveys	LS	1	$	$
4	Clearing and Stripping	AC	74	$	$
5	Selective Demolition	LS	1	$	$
6	Disposal of Existing Trash in Borrow Area	TN	20	$	$
7	Excavation and Placement as Foundation Layer	CY	117,500	$	$
8	Geomembrane Subgrade Preparation	SF	2,322,900	$	$
9	40-mil LLDPE Double Sided Textured Geomembrane	SF	2,495,600	$	$
10	Double Sided Geocomposite	SF	0	$	$
11	Excavation and Placement as Vegetative/Protective Cover	CY	132,700	$	$
12	Hydroseeding	AC	54	$	$
13	Straw Wattles	LF	9,510	$	$
14	Geocell Flood Control Armor	SF	74,500	$	$
15	Drainage Gravel	TN	200	$	$

Item	Description	Unit	Quantity	Bid Unit Cost	Total
16	Rock Slope Protection	TN	300	$	$
17	Settlement Monuments	EA	5	$	$
18	Extension of Existing Gas Extraction Wells and Horizontal Collector Trench Risers	EA	35	$	$
19	Extension of Existing Gas Probes	EA	2	$	$
20	Landfill Gas System Maintenance and Modification	LS	1	$	$
21	Type 1 Fence	LF	6,840	$	$
22	Type 2 Fence	LF	1,860	$	$
23	Gates	EA	3	$	$
24	Signage	LS	1	$	$
25	Geocell Lined Channel and Spillway	SF	2,410	$	$
26	24" HDPE Culvert	LF	70	$	$
				Subtotal	$
				20% Contingency	$
				TOTAL BID	**$**

Acknowledgement/Authorization

The undersigned acknowledges the submittal of this Bid constitutes an irrevocable offer for a ninety (90) day period for CalRecycle to award an Agreement. Additional acknowledgement is made of receipt of all competitive documents, including Bid Addenda, relating to this Agreement.

The undersigned acknowledges that the Bidder has read all of the requirements set forth in CalRecycle documents and will comply with said provisions.

The undersigned hereby authorizes and requests any person, firm, agency, or corporation to furnish any information requested by CalRecycle in verification of the recitals comprising this Bid and also hereby authorizes CalRecycle to contact such persons, firms, etc., in order to obtain information regarding the undersigned.

I declare under penalty of perjury that the foregoing is true and correct.

Contractor Name:	
Name & Title of Authorized Representative:	
Address:	
City, State Zip:	
Telephone #	Email:
Signature of Authorized Representative:	Date Signed:

ATTACHMENT 1 – DESCRIPTION OF BID SCHEDULE ITEMS

Bid Considerations

Bidder shall take into consideration the below items in the calculation of their bid:

A. Approximately 20,000 gallons a day of construction water is available from the existing groundwater treatment system retention pond.

   Bidder shall determine his construction water requirements prior to bidding and shall be responsible for supplying an adequate amount of water during the term of the Contract. CalRecycle will not be responsible for providing additional water, nor does it guarantee the quality or quantity of water from the on-site source. Any additional water shall be provided by the Contractor at his expense.

B. Bidder is advised that the construction of this project may entail working adjacent to buried wastes and refuse. As buried organic materials decompose anaerobically, they generate landfill gas (LFG). This LFG (or biogas) normally consists of about 45% carbon dioxide (CO_2) 55% methane (CH_4), and minor quantities of other gases dependent on the composition of the buried materials. Occasionally hydrogen sulfide (H_2S) or other toxic gases have been encountered at some landfills, even though the site was not classified as a hazardous waste disposal site.

C. Bid shall include all costs for overhead and profit and for supplying materials, labor, equipment, and tools, necessary to complete the Work in accordance with the Specifications (Exhibit A, Scope of Work), Construction Drawings, and Contract Conditions.

D. The number of units and quantities contained in the Bid Schedule are approximate only, and final payment will be made for the actual number of units and quantities incorporated in the work or made necessary to complete the project.

Description of Bid Schedule Items

(Bid Item 1)

1. Mobilization/Demobilization
   a. Measurement by lump sum (LS), based on mobilizing equipment and labor to perform work and demobilizing from and cleaning the site after all work and testing has been performed and accepted by the OWNER.
   b. Payment includes all costs for mobilizing and demobilizing equipment, living expenses, bonds, insurance, office and field overhead, and any other administrative costs necessary to complete the work. Includes work described in Section 01400, 01560, and 01600; as well as all sitework.

(Bid Item 2)

2. Prepare and Implement Stormwater Pollution Prevention Plan
   a. Measurement by lump sum (LS).
   b. Payment includes all costs to implement permit conditions during construction, including Notice of Intent and to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP).

(Bid Item 3)

3. Layout of Work and Surveys
    c. Measured by Lump Sum (LS).
    d. Payment includes all costs to perform construction control and staking, surveys to complete quantities, surveys to document as-built conditions of the Final Closure Construction, and the preparation of Record Drawings as described in the Specifications.

(Bid Item 4)

4. Clearing and Stripping
    e. Measured by the acre (AC) and will be based on a perimeter survey of the staked construction area as shown on the Construction Drawings and where clearing and stripping is required.
    f. Payment includes all costs to clear, grub, strip, chip and grind (as necessary), and stockpile. The clearing and stripping shall include the areas within the foundation layer and vegetative/protective cover areas, intermediate cover, geocell flood control armor areas, and excavation area within the borrow area and retention basin (construction areas) as described in Section 02110.

(Bid Item 5)

5. Selective Demolition
    a. Measured by lump sum (LS), based on removal, demolition or repairs of the site features as shown on the Construction Drawings.
    b. Payment includes full compensation for furnishing all labor, materials, equipment, tools, and accessories to decommission, disassemble, remove, and dispose of delineated site features, including removal of the, perimeter fence, concrete block wall, and any other features necessary for completion of the work.

(Bid Item 6)

6. Disposal of Existing Trash in Borrow Area
    a. Measured by TONS (TN) based on the supplied disposal/scale tickets(s).
    b. Payment includes all costs to locate, blade, excavate, load, haul, and transport existing waste within the borrow area boundary, delineated on the Construction Drawings, to an approved offsite location. Payment does not include waste generated by the Contractor during construction.

(Bid Item 7)

7. Excavation and Placement as Foundation Layer
    a. Measured by the cubic yard (CY). Measurement will be made by comparing pre-construction topography and post-foundation/top of foundation topography of the construction area. Topography will be established by the Contractor by an aerial survey of grades at 2-ft contours or field survey of grades at a maximum 25-foot grid and major grade breaks.
    b. Payment includes all costs to excavate, haul, process, moisture condition, place, compact, and grade the foundation layer material as shown on the Construction Drawings and described in Sections 02221 and 02222.

(Bid Item 8)

8. Geomembrane Subgrade Preparation
    a. Measurement by the square foot (SF). Measurement based on perimeter survey of the closure area; sloped areas will be equated based on actual surface area, not plan area.
    b. Payment includes all costs to prepare the subgrade, including but not limited to moisture conditioning compaction, grading, rock removal, and smooth drum rolling in preparation for geosynthetic installation in accordance with Section 02223.

(Bid Item 9)

9. 40-mil LLDPE Double Sided Textured Geomembrane
    a. Measured by the square foot (SF). Measurement will be based on a perimeter survey of the completed installation. Surveys for measurement quantities will be performed by the Contractor, however, the Owner may verify the quantity using a third-party surveyor. No adjustment will be made for uneven contours or for overlap at seams or waste material. No measurement will be made for any geomembrane lost due to damage resulting from either the fault or the negligence of the Contractor.
    b. Payment includes all costs to furnish and install double-sided textured geomembrane as shown on the Construction Drawings and described in the Specifications. The cost shall include full compensation for furnishing all labor, materials, equipment, tools, accessories, and incidentals, and for performing all work necessary including, but not limited to, anchor trench construction, ballast tubes, source quality control, installing, seaming, material for seam overlaps, quality control testing (destructive and nondestructive), repairing any defects, and all documentation required to complete the work consistent with the Construction Drawings and as described in Section 02778.

(Bid Item 10)

10. Double Sided Geocomposite
    a. Measured by the square foot (SF). Measurement will be based on a perimeter survey of the completed installation within the closure area. Surveys for measurement quantities will be performed by the Contractor, however, the Owner may verify the quantity using a third-party surveyor. No adjustment will be made for uneven contours or for overlap at seams or waste material. Measurement for the basin vent strips will be based on the neat line dimensions shown on the Construction Drawings. No measurement will be made for any geocomposite lost due to damage resulting from either the fault or the negligence of the Contractor.
    b. Payment includes all costs to furnish and install the geocomposite as shown on the Construction Drawings and described in the Specifications. The cost shall include full compensation for furnishing all labor, materials, equipment, tools, accessories, and incidentals, and for performing all work necessary including, but not limited to, source quality control, installing, seaming, quality control testing, repairing, and all documentation required to complete and document the work consistent the Construction Drawings and as specified in Section 02774.

(Bid Item 11)

11. Excavation and Placement as Vegetative/Protective Cover
    a. Measurement by the in-place cubic yard (CY) of vegetative/protective cover layer placed. Measurement will be based on the surveyed area multiplied by the neat line thickness shown on the Construction Drawings. Contractor will be responsible for verifying the thickness is within specified tolerances by survey methods. No adjustments

will be made in the area for uneven contours or for overfilling beyond the vertical neat lines as shown on the Drawings.

b. Payment includes all costs to excavate, haul, process, moisture condition, place, compact, and finish grade the vegetative/protective cover material including perimeter channels as shown on the Construction Drawings and described in Sections 02221 and 02229. Also includes all costs for providing, hauling, blending, chipped, green waste into the top 6 inches of the vegetative/protective cover as described in Section 02229.

(Bid Item 12)

12. Hydroseeding
    a. Measured by the acre (AC). Measurement will be based on a perimeter survey of the hydroseeding area as shown on the Construction Drawings.
    b. Payment includes full compensation for providing all labor, material, equipment, tools, and incidentals required to hydroseed the areas shown on the Construction Drawings as described in Section 02936.

(Bid Item 13)

13. Straw Wattles
    a. Measured by lineal foot (LF). Measurement based on actual surveyed length installed.
    b. Payment includes all costs to purchase, supply, and install the straw wattles as shown on the Construction Drawings and described in Section 02270.

(Bid Item 14)

14. Geocell Flood Control Armor
    a. Measured by the square foot (SF). Measurement will be based on a perimeter survey of the completed installation. Surveys for measurement quantities will be performed by the Contractor, however, the Owner may verify the quantity using a third-party surveyor. No adjustment will be made for uneven contours or for overlap at seams or waste material. No measurement will be made for any geocell lost due to damage resulting from either the fault or the negligence of the Contractor.
    b. Payment includes all costs to furnish and install geocells as shown on the Construction Drawings and described in Section 02230.

(Bid Item 15)

15. Drainage Gravel
    a. Measurement shall be in tons (TN). Measurement based the quantity placed in tons within the limits and to the neat line dimensions shown on the Construction Drawings. No adjustments will be made in the area for uneven contours or for overfilling beyond the neat line dimensions as shown on the Drawings.
    b. Payment includes full compensation for providing all labor, surveying, material, tools, and incidentals required to supply and place drainage gravel and install the 8-oz geotextile as shown on the Construction Drawings.

(Bid Item 16)

16. Rock Slope Protection
    a. Measured in tons (TN). Measurement based the quantity placed in tons within the limits and to the neat line dimensions shown on the Construction Drawings. Contractor will be responsible for verifying the thickness of the material placed. No adjustments will be

made in the area for uneven contours or for overfilling beyond the neat lines as shown on the Drawings.

b. Payment includes full compensation for providing all labor, surveying, material, tools, excavation, grading, and incidentals required to supply and install rock slope protection as shown on the Construction Drawings and as specified herein. Payment includes all costs to supply and install the 8-oz geotextile as shown on the Construction Drawings.

(Bid Item 17)

17. Settlement Monuments
    a. Measured by each (EA).
    b. Payment includes all costs to furnish materials and install settlement monuments and install recycled concrete blocks as shown on the Construction Drawings and Section 02285.

(Bid Item 18)

18. Extension of Existing Gas Extraction Wells and Horizontal Collector Trench Risers
    a. Measurement by each (EA) of the existing gas extraction wells and horizontal collector trench risers as shown on the Construction Drawings.
    b. Payment also includes the purchase, supply, and installation of extension of existing gas extraction wells and horizontal collector trench risers, as shown on the Construction Drawings and described in Section 02781 and Section 02710.

(Bid Item 19)

19. Extension of Existing Gas Probes
    a. Measurement by each (EA) of the extension of the existing gas probes as shown on the Construction Drawings.
    b. Payment includes the purchase, supply, and installation of the extension of existing gas probes as shown on the Construction Drawings and as described in Section 02781 and Section 02710.

(Bid Item 20)

20. Landfill Gas System Maintenance and Modifications
    a. Measured by Lump Sum (LS).
    b. Payment includes all costs for temporary shut-downs, operation and maintenance during construction, and management of the landfill gas system in order to maintain its function throughout final cover construction. Payment included all costs to disconnect reconnect, and extend piping as necessary, to maintain full functionality of the system before and after construction. Payment also includes the purchase, supply, trenching, backfill, compaction and installation of landfill gas piping, valves, knockout flanges, and boxes as necessary to carry out the work as described in the Construction Drawings and Specifications.

(Bid Item 21)

21. Type 1 Fence
    a. Measured by linear feet (LF). Measurement based on actual surveyed length installed.
    b. Payment includes full compensation for providing all labor, material, equipment, tools, and incidentals required to construct the perimeter fence shown on the Construction Drawings as described in Section 02208.

(Bid Item 22)

22. Type 2 Fence
    a. Measured by linear feet (LF). Measurement based on actual surveyed length installed.
    b. Payment includes full compensation for providing all labor, material, equipment, tools, and incidentals required to construct the perimeter fence with barricade shown on the Construction Drawings as described in Section 02208.

(Bid Item 23)

23. Gates
    a. Measured by Each (EA).
    b. Payment includes full compensation for providing all labor, material, equipment, tools, and incidentals required to construct the fence gates as shown on the Construction Drawings as described in Section 02208.

(Bid Item 24)

24. Signage
    a. Measured by Lump Sum (LS).
    b. Payment includes full compensation for providing all labor, material, equipment, tools, and incidentals required to supply and install signage as shown on the Construction Drawings.

(Bid Item 25)

25. Geocell Lined Channel and Spillway
    a. Measured by the square foot (SF). Measurement will be based on a perimeter survey of the completed installation. Surveys for measurement quantities will be performed by the Contractor, however, the Owner may verify the quantity using a third-party surveyor. No adjustment will be made for uneven contours or for overlap at seams or waste material. No measurement will be made for any geocell lost due to damage resulting from either the fault or the negligence of the Contractor.
    b. Payment includes all costs to furnish and install geocells as shown on the Construction Drawings and described in Section 02230.

(Bid Item 26)

26. 24” HDPE Culvert
    a. Measurement by the lineal foot (LF) of culvert will be based on the field survey of the culvert.
    b. Payment includes all costs to trench, backfill, and compact and purchase, supply, and install the HDPE pipe, bedding, and backfill materials for the culvert as shown on the Construction Drawings and described in Section 02230.

ATTACHMENT 2 – BID CERTIFICATION

THE STATE OF CALIFORNIA Name of Bidding Firm: _____
DEPARTMENT OF RESOURCES
RECYCLING AND RECOVERY (CALRECYCLE)
CONTRACTS UNIT

DELIVER TO: CalRecycle Contracts Unit
1001 I Street, MS-19A
Sacramento, CA 95814
Attention: Jennifer Bannon
FOR: DRR21001

Plainly mark outside of envelope with “Bid For”; followed by the above title and IFB Number.

The undersigned hereby proposes and agrees to furnish all labor, materials, and tools, and equipment necessary to perform all work required in the manner and time prescribed in the work specifications contained herein and such Bid Addenda thereto as may be issued prior to bid opening date. For contracts that required prevailing wage, the undersigned agrees a work shall be done in accordance with prevailing wage rates ascertained by the Department of Industrial Relations and set forth on the DIR web site (https://www.dir.ca.gov/Public-Works/Prevailing-Wage.html) for General Prevailing Wage Rates as determined by the February 2021 DIR prevailing wage published rates. The Bid Price set forth in Attachment 1, Bid Worksheet, includes the cost of insurance, sales tax, and every other item of expense, direct or indirect, incidental to the Bid Price.

The undersigned Bidder certifies and agrees to provide the information and comply with the requirements contained in Items 1 through 7 on the following pages of BID CERTIFICATION. By signing, Bidder swears under penalty of perjury that the conditions of all Items are true.

Legal Name of Bidder: _____Federal I.D. No.: _____

Business Address: _____
(Street and/or P.O. Box) (City) (State) (Zip)

E-Mail Address: _____

Business Telephone No.: _____Other Telephone No.: _____

Authorized Representative:

SIGN HERE -----→ _____

Printed Name of Signer and Title: _____

Date: _____

ITEM 1 – BIDDER'S BUSINESS IDENTIFICATION

This Bid is submitted by (check one)

___Individual ___Partnership Business Entity Number: _____

___Joint Venture ___Corporation

(State in which incorporated) _____

If bid is submitted by partnership joint venture, the members are:

_____

_____

ITEM 2 – REQUIRED DVBE PARTICIPATION GOALS

If this IFB requires DVBE Participation as stated in the NOTICE TO BIDDERS, Bidder must complete the following:

Failure to meet the full percentage of the required DVBE participation will cause the bid to be deemed non-responsive and the bid will be rejected by the State.

DVBE Bidder: Bidder meets the DVBE Participation Goal requirement as an OSDS Certified DVBE.

____**YES, OSDS Certification No.:** _____ ____ **NO**

Non-DVBE: Bidder is NOT an OSDS Certified DVBE, therefore Bidder meets the DVBE Participation Goal by subcontracting with OSDS Certified DVBE firms and claims credit for achieving the stated goal by DVBE subcontractor participation as shown on Attachment 3, Proposed Subcontractor List.

____ **YES**

Any DVBE person, firm, corporation, or organization committed to by the bidder to fulfill DVBE Participation must perform or provide a Commercially Useful Function as defined in Military and Veterans Code Section 999. Failure to comply with these requirements will deem the bid non-responsive and the bid will be rejected by the State.

ITEM 3 – PREFERENCES AND INCENTIVES

Small Business Preference: By checking "yes" below, Bidder claims to be an OSDS Certified SB/MB and requests a preference as a "Small Business" and further certifies under penalty of perjury, that the firm still meets the requirements of Section 1896 et. seq. Title 2, of the California Code of Regulations.

Special attention is direction to Section 1896.16 for penalties for furnishing incorrect supporting information in obtaining preference.

Bidder shall note that OSDA Small Business designation of "SB-PW" (Public Works) *will not apply to this IFB.*

SB Preference Claimed? ____YES, **OSDS Certification No.: _____ ____ NO**

Non-Small Business Subcontractor Preference: By checking "yes" below Bidder requests preference as a Non-Small Business and claims credit for achieving 25% or greater of SB/MB subcontractor participation as shown on Attachment 3, Proposed Subcontractor List and requests that the preference be applied to this bid.

Special attention is direction to Section 1896.16 for penalties for furnishing incorrect supporting information in obtaining preference.

Non-SB Subcontractor Preference Claimed? ____YES ____NO

Disabled Veteran Business Enterprise Bid Incentive: The Incentive program may be activated for Bidders who exceed the mandatory 3% DVBE Participation Requirements.

Bidder may claim a DVBE Incentive for voluntary DVBE Participation of 1% to 5% beyond the required participation.

By checking "Yes" below, Bidder certifies and claims credit for achieving 1% or greater of DVBE Participation on this bid as is shown Attachment 3, Proposed Subcontractor List and requests that the corresponding DVBE Incentive be applied to this bid.

DVBE Incentive Claimed? ____YES @ %____ ____NO

Bidder shall note that the Office of Small Business and Disabled Veterans Business Enterprise (OSDS) SB/DVBE "Public Works" (PW) designation will *not apply to this IFB.*

ITEM 5 – BID ADDENDA

In submitting this bid, Bidder represents that Bidder has examined copies of all the Contract Documents and acknowledges receipt of any Bid Addenda as may have been issued prior to the Public Bid Open date.

Bid Addendum No.: _____ Date: _____ Bid Addendum No.: _____ Date: _____

Bid Addendum No.: _____ Date: _____ Bid Addendum No.: _____ Date: _____

ITEM 6 – QUALIFICATION CERTIFICATION

Bidder certifies that Bidder or Liner subcontractor(s) and their employees have the qualifications as described below:

> **INSTALLER (Company):** Successfully installed a minimum of 10,000,000 square feet of welded polyethylene geomembrane with documented references.

MASTER WELDER: Completed a minimum of 5,000,000 square feet of polyethylene geomembrane seaming work using the type of seaming apparatus proposed for use on this project.

OTHER SEAMER'S QUALIFICATIONS: Seamed a minimum of 1,000,000 square feet of LLDPE geomembrane.

ITEM 7 – COMPLIANCE WITH GOVERNMENT CODE SECTION 87100

Government Code section 87100 provides: No public official at any level of state or local government will make, participate in making or in any way attempt to use his official position to influence a governmental decision in which he knows or has reason to know he or she has a financial interest. Contractors that provide recommendations and advice that may influence decision-making are required to comply with the disclosure requirements of the conflict-of-interest laws promulgated under the Political Reform Act.

The prospective contractors and subcontractors, if any, shall disclose any present or prior (within the last two years) financial, business, or other relationship with CalRecycle. These disclosures will be made under penalty of perjury.

In addition to the disclosures required above, list current clients subject to any discretionary action by CalRecycle, or who may have a financial interest in the policies and programs of CalRecycle and describe any current or planned work activities the contractor is performing for such clients. These disclosures will be made under penalty of perjury. The Contractor and its subcontractors (if any) will be required to file statements of economic interests with CalRecycle upon award of the Contract. CalRecycle will keep copies of the statements of economic interest and forward the originals to the Fair Political Practices Commission.

CURRENT CLIENTS MEETING ABOVE CRITERIA (Identify as "NA" if no conflict exists)

Client Name	Contract	Address	Phone

A determination by CalRecycle that a conflict of interest exists as a result of the disclosed relationships may be grounds for disqualification.

ATTACHMENT 3 – PROPOSED SUBCONTRACTOR LIST

PROPOSED SUBCONTRACTOR LIST, NON-SB PREFERENCE & DVBE INCENTIVE

Listed hereinafter are the name, location, license number, and registration number of all first-tier subcontractors who will perform work or labor or render service in the completion of the Work as described herein in an amount in excess of one-half of one percent (1/2 of 1%) of total bid, and the kind of work which each will perform if the contract if awarded to the Bidder.

Bidders who meet the DVBE participation requirements and/or claim the DVBE Incentive by committing to DVBE subcontractors must indicate by checking "DVBE" below and enter DVBE Certification Number and percentage/amount of total bid that will be performed by each DVBE subcontractor.

Bidders who claim the Non-Small Business Subcontractor Preference must indicate by checking "SB" below and enter SB (or MB) Certification Number and percentage/amount of total bid that will be performed by each Small Business subcontractor.

Bidder certifies that all subcontractors listed for the purposed of claiming incentive or preference provide a commercially useful function as defined in Military and Veterans Code section 999 for DVBEs and Government Code section 14837(d)(4)(A) for small businesses. (Note: In case more than one subcontractor is named for the same kind of work, state the portion that each will perform.)

Name/Contact: _____**Telephone:** _____**SB___ or DVBE ___**

Location _____Email Address: _____

DIR Registration No.:_____

Work to be Performed: _____

For Required DVBE Participation, % or $ of total bid: _____Cert. #: _____

For DVBE Incentive, % or $ of total bid: _____Cert. #: _____

For Non-SB Preference, % or $ of total bid: _____Cert. #: _____

Name/Contact: ____Telephone: _________________________SB___ or DVBE ___

Location ____Email Address: ____

DIR Registration No.:___________________________________

Work to be Performed: ____

For Required DVBE Participation, % or $ of total bid: _____________Cert. #: ________________

For DVBE Incentive, % or $ of total bid: _____________Cert. #: ________________

For Non-SB Preference, % or $ of total bid: __________Cert. #: ________________

Name/Contact: ____Telephone: _________________________SB___ or DVBE ___

Location ____Email Address: ____

DIR Registration No.:___________________________________

Work to be Performed: ____

For Required DVBE Participation, % or $ of total bid: _____________Cert. #: ________________

For DVBE Incentive, % or $ of total bid: _____________Cert. #: ________________

For Non-SB Preference, % or $ of total bid: __________Cert. #: ________________

Name/Contact: ____Telephone: _________________________SB___ or DVBE ___

Location ____Email Address: ____

DIR Registration No.:___________________________________

Work to be Performed: ____

For Required DVBE Participation, % or $ of total bid: _____________Cert. #: ________________

For DVBE Incentive, % or $ of total bid: _____________Cert. #: ________________

For Non-SB Preference, % or $ of total bid: __________Cert. #: _______________

For more space, copy this page and attach hereto to be made a part of the Bid Package: #____ Add'l pages are attached.

ATTACHMENT 4 – DARFUR CONTRACTING ACT CERTIFICATION

Pursuant to Public Contract Code section 10478, if a Bidder or Proposer currently or within the previous three years has had business activities or other operations outside of the United States, it must certify that it is not a "scrutinized" company as defined in Public Contract Code section 10476.

Therefore, to be eligible to submit a bid or proposal, please complete only **one** of the following three paragraphs (via initials for Paragraph # 1 or Paragraph # 2, or via initials and certification for Paragraph # 3):

1. _____ Initials — We do not currently have, or we have not had within the previous three years, business activities or other operations outside of the United States.

OR

2. _____ Initials — We are a scrutinized company as defined in Public Contract Code section 10476, but we have received written permission from the Department of General Services (DGS) to submit a bid or proposal pursuant to Public Contract Code section 10477(b). A copy of the written permission from DGS is included with our bid or proposal.

OR

3. _____ Initials + certification below — We currently have, or we have had within the previous three years, business activities or other operations outside of the United States, but we certify below that we are not a scrutinized company as defined in Public Contract Code section 10476.

CERTIFICATION For # 3.

I, the official named below, CERTIFY UNDER PENALTY OF PERJURY that I am duly authorized to legally bind the prospective Proposer/Bidder to the clause listed above in # 3. This certification is made under the laws of the State of California.

Proposer/Bidder Firm Name (Printed)	*Federal ID Number*
By (Authorized Signature)	
Printed Name and Title of Person Signing	
Date Executed	*Executed in the County and State of*

YOUR BID OR PROPOSAL WILL BE DISQUALIFIED UNLESS YOUR BID OR PROPOSAL INCLUDES THIS FORM WITH EITHER PARAGRAPH # 1 OR # 2 INITIALED OR PARAGRAPH # 3 INITIALED AND CERTIFIED.

ATTACHMENT 5 – CONTRACTOR CERTIFICATION CLAUSES

CCC 04/2017 CERTIFICATION

Bidder must complete and submit the form available at:

https://www.dgs.ca.gov/OLS/Resources/Page-Content/Office-of-Legal-Services-Resources-List-Folder/Standard-Contract-Language

ATTACHMENT 6 – CALIFORNIA CIVIL RIGHTS LAWS CERTIFICATION

Pursuant to Public Contract Code section 2010, if a bidder or proposer executes or renews a contract over $100,000 on or after January 1, 2017, the bidder or proposer hereby certifies compliance with the following:

1. CALIFORNIA CIVIL RIGHTS LAWS: For contracts over $100,000 executed or renewed after January 1, 2017, the contractor certifies compliance with the Unruh Civil Rights Act (section 51 of the Civil Code) and the Fair Employment and Housing Act (section 12960 of the Government Code); and

2. EMPLOYER DISCRIMINATORY POLICIES: For contracts over $100,000 executed or renewed after January 1, 2017, if a Contractor has an internal policy against a sovereign nation or peoples recognized by the United States government, the Contractor certifies that such policies are not used in violation of the Unruh Civil Rights Act (Section 51 of the Civil Code) or the Fair Employment and Housing Act (section 12960 of the Government Code).

CERTIFICATION

<table>
<tr><td colspan="2">I, the official named below, certify under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Proposer/Bidder Firm Name (Printed)</td><td>Federal ID Number</td></tr>
<tr><td colspan="3">By (Authorized Signature)</td></tr>
<tr><td colspan="3">Printed Name and Title of Person Signing</td></tr>
<tr><td>Date Executed</td><td colspan="2">Executed in the County and State of</td></tr>
</table>

ATTACHMENT 7 - IRAN CONTRACTING ACT VERIFICATION FORM

STATE OF CALIFORNIA
DGS PD 3 (Rev. 12/19) DEPARTMENT OF GENERAL SERVICESPRCUREMENT DIVISION

Public Contract Code sections 2202-2208

Prior to bidding on, submitting a proposal or executing a contract or renewal for a State of California contract for goods or services of $1,000,000 or more, a vendor must either: a) certify it is **not** on the current list of persons engaged in investment activities in Iran created by the California Department of General Services ("DGS") pursuant to Public Contract Code section 2203(b) and is not a financial institution extending twenty million dollars ($20,000,000) or more in credit to another person, for 45 days or more, if that other person will use the credit to provide goods or services in the energy sector in Iran and is identified on the current list of persons engaged in investment activities in Iran created by DGS; or b) demonstrate it has been exempted from the certification requirement for that solicitation or contract pursuant to Public Contract Code section 2203(c) or (d). The DGS list of entities prohibited from contracting with public entities in California per the Iranian

Contracting Act, 2010, can be found at:

Department of General Services Procurement Division Iran Contracting Act List

To comply with this requirement, please insert your vendor or financial institution name and Federal ID Number (if available) and complete **one** of the options below. Please note: California law establishes penalties for providing false certifications, including civil penalties equal to the greater of $250,000 or twice the amount of the contract for which the false certification was made; contract termination; and three-year ineligibility to bid on contracts. (Public Contract Code section 2205.)

OPTION #1 - CERTIFICATION

I, the official named below, certify I am duly authorized to execute this certification on behalf of the vendor/financial institution identified below, and the vendor/financial institution identified below is **not** on the current list of persons engaged in investment activities in Iran created by DGS and is not a financial institution extending twenty million dollars ($20,000,000) or more in credit to another person/vendor, for 45 days or more, if that other person/vendor will use the credit to provide goods or services in the energy sector in Iran and is identified on the current list of persons engaged in investment activities in Iran created by DGS.

Vendor Name/Financial Institution (Printed)	*Federal ID Number (or n/a)*
By (Authorized Signature)	Date
Printed Name and Title of Person Signing	

OPTION #2 – EXEMPTION

Pursuant to Public Contract Code sections 2203(c) and (d), a public entity may permit a vendor/financial institution engaged in investment activities in Iran, on a case-by-case basis, to be eligible for, or to bid on, submit a proposal for, or enters into or renews, a contract for goods and services.

If you have obtained an exemption from the certification requirement under the Iran Contracting Act, please fill out the information below, and attach documentation demonstrating the exemption approval.

Vendor Name/Financial Institution (Printed)	*Federal ID Number (or n/a)*
By (Authorized Signature)	Date
Printed Name and Title of Person Signing	

ATTACHMENT 8 – QUALIFYING PROJECT EXPERIENCE AND REFERENCE FORM

Name of Bidder/Bidder Firm:

Use the below to provide a minimum of three (3) qualifying experiences and references.

By completing this form, Bidder certifies that Bidder/Bidder Firm has completed the below construction projects within the last five (5) years in which Bidder was a Prime Contractor and that involved the installation of a LLDPE or HDPE geomembrane liner for a project liner area minimum of 2 acres or more in size, and involved the installation of geomembrane liner on top of soil (i.e. construction of new landfill cells or closure caps, agricultural or wastewater treatment lagoons, tank farms, etc.).

Provide the information below for qualifying project experience #1:

Project Name:		
Location:		
Owner/Contact:		
Owner Contact (Reference)	**Telephone:**	
	Email:	
Secondary Reference (optional)	**Telephone:**	
	Email:	

Description of Project, Scope, and Work Performed:

Provide the information below for qualifying project experience #2:

Project Name:		
Location:		
Owner/Contact:		
Owner Contact (Reference)	**Telephone:**	
	Email:	
Secondary Reference (optional)	**Telephone:**	
	Email:	

Description of Project, Scope, and Work Performed:

Provide the information below for qualifying project experience #3:

Project Name:		
Location:		
Owner/Contact:		
Owner Contact (Reference)	**Telephone:**	
	Email:	
Secondary Reference (optional)	**Telephone:**	
	Email:	

Description of Project, Scope, and Work Performed:

ADDITIONAL BID SUBMITTALS

PRELIMINARY CONSTRUCTION SCHEDULE

Bidder shall prepare and submit a preliminary construction schedule in compliance with Exhibit A, Division 1, Section 01300 of the Sample Standard Agreement (Attachment B). If Awarded, Contractor's preliminary construction schedule may be incorporated into the overall project schedule.

BIDDERS BOND

Bidder shall furnish Bidder's Bond in an amount equal to at least 10 percent (10%) of the amount bid. Bidder's Bond which shall be executed by an admitted surety insurer, authorized to issue surety bonds in the State of California. Bonds shall be made payable to the Director of CalRecycle.

ATTACHMENT B – SAMPLE STANDARD AGREEMENT

The following pages contain the Sample Standard Agreement that includes:

STD213 Agreement Document (Face Sheet)

Exhibit A, Scope of Work

Exhibit A-1, Construction Drawings

Exhibit A-2, Construction Quality Assurance Plan

Exhibit B, Budget Details and Payment Provisions

Reference to Exhibit C, General Terms and Conditions

Exhibit D, Special Terms and Conditions

Bidder shall review the Sample Standard Agreement thoroughly when formulating bid.

Do not return Attachment B with Bid Submittal.

SCO ID: 3970-DRR21001

STATE OF CALIFORNIA - DEPARTMENT OF GENERAL SERVICES

STANDARD AGREEMENT

STD 213 (Rev. 04/2020)

AGREEMENT NUMBER	PURCHASING AUTHORITY NUMBER (If Applicable)
DRR21001	

1. This Agreement is entered into between the Contracting Agency and the Contractor named below:

CONTRACTING AGENCY NAME

Department of Resource Recycling and Recovery

CONTRACTOR NAME

TBD

2. The term of this Agreement is:

START DATE

July 1, 2021 or TDB

THROUGH END DATE

December 2021 or TBD

3. The maximum amount of this Agreement is:

$TBD Bid

4. The parties agree to comply with the terms and conditions of the following exhibits, which are by this reference made a part of the Agreement.

	Exhibits	Title	Pages
	Exhibit A	Scope of Work, Exhibit A-1, Construction Drawings, Exhibit A-2, Construction Quality Assurance Plan	199
	Exhibit B	Budget Detail and Payment Provisions	2
	Exhibit C *	General Terms and Conditions	
+ -	Exhibit D	Special Terms and Conditions	9
+ -		Attachment 1 Recycled Content Certification	2
+ -	Exhibit E*	IFB DRR21001 (incorporated by reference)	
+ -	Exhibit G*	Bid from TBD in response to Solicitation IFB DRR21001 (incorporated by reference)	

Items shown with an asterisk (*), are hereby incorporated by reference and made part of this agreement as if attached hereto.
These documents can be viewed at https://www.dgs.ca.gov/OLS/Resources

IN WITNESS WHEREOF, THIS AGREEMENT HAS BEEN EXECUTED BY THE PARTIES HERETO.

CONTRACTOR

CONTRACTOR NAME (if other than an individual, state whether a corporation, partnership, etc.)

TBD

CONTRACTOR BUSINESS ADDRESS	CITY	STATE	ZIP

PRINTED NAME OF PERSON SIGNING	TITLE

CONTRACTOR AUTHORIZED SIGNATURE	DATE SIGNED

SAMPLE

STATE OF CALIFORNIA - DEPARTMENT OF GENERAL SERVICES
STANDARD AGREEMENT
STD 213 (Rev. 04/2020)

AGREEMENT NUMBER	PURCHASING AUTHORITY NUMBER (If Applicable)
DRR21001	

STATE OF CALIFORNIA

CONTRACTING AGENCY NAME			
Department of Resource Recycling and Recovery			
CONTRACTING AGENCY ADDRESS	**CITY**	**STATE**	**ZIP**
1001 I Street, MS 19-A	Sacramento	CA	95814
PRINTED NAME OF PERSON SIGNING	**TITLE**		
Noah Valadez	Administrative Services Branch Chief		
CONTRACTING AGENCY AUTHORIZED SIGNATURE	**DATE SIGNED**		
CALIFORNIA DEPARTMENT OF GENERAL SERVICES APPROVAL	**EXEMPTION (If Applicable)**		
	PRC Section 48011(d)		

SAMPLE

EXHIBIT A

SCOPE OF WORK

1. TBD (Contractor) shall provide the Department of Resources Recycling and Recovery (CalRecycle), with the construction services in the closure cover for the Bonzi Sanitation Landfill as described herein.

2. The Project Coordinators during the term of this Agreement will be:

CalRecycle Contract Manager	TBD
Name: Phillip Kovacs	Name:
Phone: (916) 341-6620	Phone:
Email: phillip.kovacs@calrecycle.ca.gov	Email:

Direct all Agreement inquiries to:

CalRecycle Contract Analyst	TBD
Contracts Unit	
Attention: Jennifer Bannon	Attention:
Address: 1001 I St., MS 19-A Sacramento, CA 95814	Address:
Phone: (916) 341-6304	Phone:
Email: jennifer.bannon@calrecycle.ca.gov	Email:

3. Background

The closure of the unlined landfill is an essential part of reducing the site's environmental and public health and safety impact. The site is ranked by CalRecycle as an environmental priority site. As such, the closure of the landfill is a task that supports the CalEPA mission of environmental protection and ensuring public health.

4. Work to be Performed

The work to be performed in this Agreement is as specified herein as Division 1 and Division 2, Exhibit A-1 (WMU II-IV Final Closure Construction design drawings), and Exhibit A-2 (Construction Quality Assurance Plan).

EXHIBIT A - DIVISION 1

SECTION 01010
SUMMARY OF WORK

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. Construction water

B. Contractor's use of site

C. Description of work

D. Contractor's Work Scope

1.2. CONSTRUCTION WATER

A. Approximately 20,000 gallons a day of construction water is available from the existing groundwater treatment system retention pond. The Contractor shall be responsible for supplying an adequate amount of water. CalRecycle will not be responsible for providing additional water nor does it guarantee the quality or quantity of water from the on-site source. Any additional water shall be provided by the Contractor at his expense.

B. The Contractor shall be responsible for transporting and/or conveying, all required construction water.

C. The Contractor shall maintain and re-establish pre-construction conditions at completion of project.

1.3. CONTRACTOR'S USE OF SITE

A. The Contractor shall limit activities to the project area, as shown on the Construction Drawings unless approved in writing by CalRecycle.

1.4. DESCRIPTION OF WORK

A. The work to be performed for this contract includes, but is not necessarily limited to, the construction of a perimeter drainage channel, flood protection, placement of foundation layer, installation of geomembrane liner, installation of geocomposite, placement of a minimum of 1.5-feet of vegetative/protective cover. Soil for construction of the perimeter drainage channel, foundation layer, and vegetative/protective cover is to be obtained from the borrow area and construction and lining of Storm Water Retention Basin #2 as shown on Construction Drawings. Other components include demolition, landfill gas system

adjustments, fencing, signage, stormwater controls, erosion controls, and installation of settlement monuments.

1.5. CONTRACTOR'S WORK SCOPE

A. Contractor shall furnish all labor, materials, tools, equipment, supervision, transportation, and installation services required for the following tasks as summarized below, and outlined herein and in the Construction Drawings, Exhibit A-1:

1. Mobilization and demobilization of Contractor equipment and labor force.

2. The Contractor shall prepare a site-specific Health and Safety Plan and Emergency Response and Contingency Plan (subject to approval by CalRecycle), furnish health and safety equipment and decontamination materials as specified in the Health and Safety Plan, and implement provisions of the Emergency Response and Contingency Plan as necessary.

3. The Contractor shall prepare Stormwater Pollution Prevention Plan (SWPPP) (subject to approval by the CalRecycle), prior to the start of work. The SWPPP will be implemented under the Contractor's Construction General Permit.

4. Demolition and disposal of existing site features and scattered debris as identified on the Construction Drawings including, fences, block wall, scattered waste within the borrow area, etc.

5. Clearing and stripping vegetation in areas of foundation layer, geocell flood control armor, intermediate cover, borrow soil area, and retention basin.

6. Removal and trimming of trees, shrubs, and bushes as indicated on the Construction Drawings.

7. Excavation, hauling, placement, and compaction of foundation layer material.

8. Installation of LLDPE geomembrane, geocomposite, and geotextile.

9. Excavation, hauling, placement, and compaction of vegetative/protective cover layer material.

10. Installation of geocell flood control armor.

11. Installation of culverts, drainage channels, and erosion controls.

12. Extension of landfill gas extraction wellheads and horizontal collection trench risers along with operation and maintenance of the landfill gas extraction system during construction.

13. Temporarily disconnecting and reconnecting portions of the landfill gas system as necessary to construct final cover. The Contractor shall prepare and submit to CalRecycle for approval a Landfill Gas Maintenance Plan. This plan shall describe, in detail, the Contractor's plans and methods for maintaining system functionality during closure construction. Individual landfill gas collection system components must remain operational and connected to the existing landfill gas collection system to the extent possible and can only be disconnected for a period of seven (7) consecutive days at a time unless approved by CalRecycle.

14. Extension of existing landfill gas monitoring probes.

15. Installation of settlement monuments.

16. Installation of fencing and gates.

17. Site cleanup and restoration.

18. Providing all necessary construction staking to lay out the work and other surveying to compute quantities, verify compliance with the design tolerances, and prepare as-built drawings.

1.6. EXISTING SITE CONDITIONS

A. The Contractor is advised that there are existing survey monuments, underground utilities, landfill gas collection system components, fencing, and landfill gas and groundwater monitoring wells on the Project Site. The Contractor shall be responsible for the repair or replacement of any existing facilities and equipment damaged by the Contractor's personnel, equipment, subcontractors, or material suppliers.

B. The Contractor is advised that the construction of this project may entail working adjacent to buried wastes and refuse. As buried organic materials decompose anaerobically, they generate landfill gas (LFG). This LFG (or biogas) normally consists of about 45% carbon dioxide (CO_2) 55% methane (CH_4), and minor quantities of other gases dependent on the composition of the buried materials. Occasionally hydrogen sulfide (H_2S) or other toxic gases have been encountered at some landfills, even though the site was not classified as a hazardous waste disposal site.

1.7. CONSTRUCTION DRAWINGS

A. Where "as shown," "as detailed," "as noted," or words of like meaning are used in the Contract Documents, it shall be understood that reference is being made to the Construction Drawings unless otherwise specified.

1.8. MANUFACTURER'S SPECIFICATIONS AND INSTRUCTIONS

A. Unless otherwise indicated or specified, all manufactured materials, products, processes, equipment, or the like shall be installed or applied consistent with the Manufacturer's instructions, directions, or specifications. Said installation or application shall be in accordance with printed instructions furnished by the Manufacturer of the material or equipment concerned for use under conditions similar to those at the Project Site. Two copies of such instructions shall be furnished to CalRecycle and his acceptance thereof obtained before work is begun.

B. Any deviation from the Manufacturer's printed recommendations shall be explained and acknowledged as correct for the circumstances, in writing, by the particular Manufacturer. The Contractor will be held responsible for all installations not conforming to the Manufacturer's recommendations. If any item of material or equipment is found to be installed inconsistent with the Manufacturer's recommendations, the Contractor shall make all changes necessary to achieve such compliance at no additional cost to CalRecycle.

C. Contractor shall secure all field measurements required for proper and accurate fabrication and installation of the work included in this Contract. Exact measurements are the Contractor's responsibility. The Contractor shall also furnish or obtain all templates, patterns, and setting instructions required for the installation of all work. All dimensions shall be verified by the Contractor in the field.

1.9. WORK QUALITY

A. Shop and field work shall be performed by mechanics and workers skilled and experienced in the fabrication and installation of the work feature involved. All work under this Contract shall be performed consistent with the best practices of the various trades involved and consistent with the Drawings, reviewed shop drawings, and these Specifications.

B. All work shall be erected and installed plumb, level, square and true, or true to indicated angle, and in proper alignment and relationship to the work of other trades. All finished work shall be free from defects and damage.

C. CalRecycle reserves the right to reject any and all materials and work quality that is not considered to be up to the general standards of the various trades involved. Such inferior material or work quality shall be repaired or replaced, as directed, at no additional cost to CalRecycle.

1.10. ACCESS TO WORK

A. The authorized representatives of the following agencies will also have the right of access to inspect the work covered by these Contract Documents during the

performance of this Contract:

1. California Regional Water Quality Control Board, Central Valley Region
2. San Joaquin Valley Air Pollution Control District
3. California Department of Resources Recycling and Recovery (CalRecycle)
4. Stanislaus County Environmental Resources Department
5. Other local, state, and federal agencies

B. These inspections will be performed in the presence of CalRecycle. Reasonable facilities for the proper handling and inspection of the materials and the work shall be furnished by the Contractor.

SECTION 01019
CONTRACT CONSIDERATIONS

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. References and abbreviations of various industry associations, trade associations, societies, organizations, and regulatory agencies, as referenced in the Contract Documents.

1.2. DESCRIPTIONS

A. Contained herein are references to various standard Specifications, codes, practices, and requirements for materials, workmanship, installation inspections, and tests. These references are published and issued by the organizations, societies, and associations listed below by abbreviation and name. Such references are hereby made a part of the Agreement to the extent cited.

B. Any material, method, or procedure specified by reference to the number, symbol, or title of a specific Specification or standard, such as a Commercial Standard, American National Standard, Federal or State Specification, Industry or Government Code, a trade association code or standard, or other similar standard, shall comply with the requirements of the edition in effect on the date of Award.

C. The code, specification, or standard referred to, except as modified in these Specifications, shall have full force and effect as though printed in these Specifications. These Specifications and standards are not furnished to bidders since manufacturers and trades involved are assumed to be familiar with their requirements. CalRecycle will furnish, upon request, information as to how copies of the Specifications and standards referred to may be obtained.

1.3. ABBREVIATIONS

A. Whenever in the Contract the following abbreviations are used, their meanings shall be as follows:

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
ANSI	American National Standards Institute
ASCE	American Society of Civil Engineers
ASTM	ASTM International
AWWA	American Water Works Association GRI Geosynthetics Research Institute
FS	Federal Specifications
NSF	National Sanitation Foundation
OSHA	Occupational Safety and Health Administration
PPI	Plastic Pipe Institute
SSPWC	Standard Specifications for Public Works Construction

SECTION 01025
MEASUREMENT AND PAYMENT

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. Measurement and payment methods for contract bid schedule items.

1.2. MEASUREMENT OF QUANTITIES

A. Performed according to United States Measures.

B. Based on actual units installed or neat line dimensions of work completed.

1.3. CALCULATION OF QUANTITIES

A. Progress Payment Quantities: See Exhibit B

1.4. PAYMENT

A. In accordance with unit prices as shown Exhibit B, Budget Details and Payment Provisions.

1.5. VALUES OF UNIT PRICES

A. In the event that work and materials or equipment are required to be furnished to a greater or lesser extent than is indicated by the Contract Documents, such work and materials or equipment shall be furnished in greater or lesser quantities.

1.6. CHANGES AND EXTRA WORK

A. Changes and extra work will be measured and paid for in accordance with the requirements of this Section.

1.7. REJECTED MATERIALS

A. Quantities of material wasted or disposed in a manner not called for in the Specifications; rejected loads of material, including material rejected after it has been placed by reasons of the failure of Contractor to conform to the provisions of the Specifications; material not unloaded from the transporting vehicle; material placed outside the limits indicated by the Construction Drawings or established by CalRecycle; or material remaining on hand after completion of the Work, will not be paid for, and such quantities will not be included in the final total quantities. No compensation will be made for loading, hauling, and disposing of rejected material.

1.8. FORCE ACCOUNT WORK

Not Used

1.9. PAY ITEMS

A. See Invitation for Bids (IFB) No.: DRR21001

SECTION 01035
MODIFICATION PROCEDURES

1. PART 1 GENERAL

NOT USED

SECTION 01052
SURVEYING

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. Section includes requirements for survey work to be provided by the Contractor for the following:

1. Setting offset stakes, slope stakes, and grade stakes for field layout of features for performance of the Work

2. Surveys for measurement of quantities for payment

3. Record Drawings

1.2. GENERAL

A. Contractor is responsible for correcting lines, grades, or measurements which do not comply with specified or proper tolerances, or which are otherwise defective, and for any resultant defects in the Work. Contractor will be required to conduct re-surveys or check surveys to correct errors indicated by review of the field notebooks or otherwise detected.

B. CalRecycle reserves the right to perform any desired checking and correction of the Contractor’s layout work relative to CalRecycle's surveys, but this does not relieve the Contractor of the responsibility for adequate performance of their Work.

C. CalRecycle may at any time use line and grade points and markers established by the Contractor.

1.3. SUBMITTALS

A. Surveyor Qualifications: Submit to CalRecycle the name, address, telephone number, and qualifications of the surveyor, crew chief, and all other persons who are proposed to perform surveys or survey-related duties prior to commencing field work.

B. Field Notes and/or Data Collector Output: Within 48 hours of completing and reducing the notes, or downloading, for a survey or portion of survey, submit reduced data to CalRecycle.

1.4. PROJECT RECORD DOCUMENTS

A. Maintain onsite a complete, accurate log of control of survey work as it progresses.

1.5. SURVEYS FOR LAYOUT AND PERFORMANCE OF WORK

A. Contractor will perform all surveys for layout of the Work, reduce the field notes, make necessary calculations, and prepare drawings necessary to carry out such work. Contractor's layout work will include the following.

1. Slope staking for grading at 25-foot grid and grade breaks.
2. Control staking at 25-foot grid and grade breaks.
3. All as-built surveys specified herein.
4. Surveys to measure completed units of work specified herein.

B. Contractor must perform all additional slope staking, offsetting and other control staking necessary to perform the Work.

1.6. SURVEYS FOR RECORD DRAWINGS AND MEASUREMENT AND PAYMENT

A. Provide CalRecycle with Record Drawings and associated point lists (with accurate descriptors) that show the following items:

1. Topography that depicts the preconstruction conditions of the construction area including borrow area.
2. Topography that depicts the grade following excavation and foundation layer placement.
3. Topography that depicts the grade following excavation and engineered fill placement.
4. Topography that depicts the grade following excavation and vegetative/protective cover placement.
5. Topography of all constructed channels.
6. Perimeter survey of all geosynthetics
7. Geomembrane Panel Layout (Prepared by Installer).
8. Invert and top elevation of HDPE landfill gas piping at 25-foot intervals.
9. Invert and top elevation of drop inlets.
10. Survey of installed culverts at 25-foot intervals at invert elevation.
11. Invert elevation of all constructed stormwater channels at 25-foot intervals.

12. The Surveyor shall measure final elevations and horizontal coordinates at 25 ft (15 m) centers along the centerline of all pipe alignments, roads and ditches. The Surveyor shall measure elevations and horizontal coordinates on a 25-foot grid pattern on the graded area of the landfill for top of foundation layer and top of vegetative/protective layer for thickness verification.

B. Submit survey information for items listed above to the CalRecycle before the items are covered.

C. Provide surveys to measure the following items:

1. Volume of excavation

2. Actual surface area (corrected for slope) of geosynthetics (geomembrane, geocomposite, geotextile, geocell)

3. Volume of foundation layer

4. Volume of vegetative/protective cover

5. Volume of installed toe drain gravel

6. Length of pipes

7. Length of channels and berms

8. Installed rock slope protection

D. Provide Record Drawings on 22" x 34" size drawings, and on USB flash drive in a version of AutoCAD approved by CalRecycle. Use the coordinate system shown on the Drawings.

1.7. SURVEYING ACCURACY AND TOLERANCES IN SETTING OF SURVEY STAKES

A. Perform control traverse field surveys and computations to an accuracy of at least 1:10,000.

B. The tolerances applicable in setting survey stakes are as set forth below. Such tolerances cannot supersede stricter tolerances required by the Drawings or Specifications and cannot otherwise relieve the CONTRACTOR of responsibility for measurements in compliance therewith.

Type of Mark	Horizontal Position	Elevation
Existing control points	1 in 10,000	±.01 ft.
General excavation and earthwork	1 in 2,000	±.10 ft.

C. Tolerances for the thickness of earthen layers shown on Drawings and for elevations shown on the Drawings are ±0.20 foot unless otherwise specified.

2. PART 2 PRODUCTS

2.1. EQUIPMENT AND MATERIALS

A. Provide all equipment and materials as required to properly perform the surveys. All material shall be of good professional quality and in first-class condition.

B. All instruments (conventional or electronic) shall be calibrated according to the manufacturer's recommendations and maintained in accurate calibration throughout the execution of the Work.

3. PART 3 EXECUTION

3.1. GENERAL

A. All surveying work shall be performed and sealed by a qualified land surveyor registered in the State of California.

B. Before commencing any surveys, Contractor will give CalRecycle 10 working days advance notice.

C. The constructed layers will not be considered completed until the as-built record drawings are accepted by CalRecycle. CalRecycle may take up to 10 working days to process survey data submitted.

3.2. INSPECTIONS

A. Verify with CalRecycle locations of site reference and survey control points prior to starting Work. Promptly notify CalRecycle of any discrepancies discovered. In the event of discrepancy, request clarification before proceeding with Work. Verify layouts periodically during construction.

3.3. SURVEY REFERENCE POINTS

A. The coordinate system and the Basis of Elevations are shown on the Drawings.

B. Protect survey points prior to starting Work and preserve permanent reference points during construction.

C. Promptly report to CalRecycle the loss, damage, or destruction of any reference point or relocation required because of changes in grades or other reasons. Replace dislocated survey control points based on original survey control.

3.4. SURVEY REQUIREMENTS

A. Reference survey monuments or establish new survey monuments referenced to the Project horizontal coordinate grid system as shown on the Drawings and the National Geodetic Vertical Datum.

B. Reference survey and site reference points to the provided control monuments and record locations of survey control points, using horizontal Project coordinate grid system and National Geodetic Vertical Datum, on Record Drawings.

C. Establish lines, levels, and locate and lay out site features to be constructed, including necessary stakes for cut, fill, placement, and grading operations and stakes for utility locations, slopes, and invert elevations. When it is necessary to remove a grade marker for construction operations, appropriate offset staking shall be used.

D. All existing monuments, markers, or stakes shall be carefully preserved and, if destroyed or removed by the Contractor without CalRecycle’s approval, they shall be reset, if necessary, at no additional cost to this Contract.

E. It shall be the duty of the Contractor to keep CalRecycle informed of the times and places at which he intends to work in order that CalRecycle may have an ample opportunity to furnish and/or to check the lines and elevations with a minimum of inconvenience or delay to the Contractor.

SECTION 01090
REFERENCES

1. PART 1 GENERAL

1.1. SUMMARY

A. Section includes Standard Specifications, definitions, references, and abbreviations of various industry associations, trade associations, societies, organizations, and regulatory agencies, as referenced in the Contract Documents.

1.2. DESCRIPTIONS

A. The Contract Documents contain references to various standard Specifications, codes, practices, and requirements for materials, workmanship, installation inspections, and tests, which references are published and issued by the organizations, societies, and associations listed below by abbreviation and name. Such references are hereby made a part of the Contract Documents to the extent cited.

B. Any material, method, or procedure specified by reference to the number, symbol, or title of a specific specification or standard, such as a Commercial Standard, American National Standard, Federal or State Specification, Industry or Government Code, a trade association code or standard, or other similar standard, shall comply with the requirements in the latest revision thereof and any amendments or supplements thereto in effect on the date of Award of the Contract, except as limited to type, class, or grade, or modified in such reference.

C. The code, Specification, or standard referred to, except as modified in these Specifications, shall have full force and effect as though printed in these Specifications. These Specifications and standards are not furnished to Bidders since Manufacturers and trades involved are assumed to be familiar with their requirements. CalRecycle will furnish, upon request, information as to how copies of the referenced Specifications and standards may be obtained.

D. Whenever the abbreviation is specified, it shall be understood to mean the full name of the respective organization as listed below.

1.3. ABBREVIATIONS

A. Whenever in the Contract the following abbreviations are used, their meanings shall be as follows:

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AISE	Association of Iron and Steel Engineers
AISC	American Institute of Steel Construction

AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	ASTM International
AWPA	American Wood Preservers Association
AWPI	American Wood Preservers Institute
AWS	American Welding Society
AWWA	American Water Works Association
Caltrans	California Department of Transportation
CRSI	Concrete Reinforcing Steel Institute
USEPA	U. S. Environmental Protection Agency
FS	Federal Specifications
GRI/GSI	Geosynthetics Research Institute
MIL	U.S. Military Specifications
NFPA	National Fire Protection Association
NSF	National Sanitation Foundation
OSHA	Occupational Safety and Health Administration
PPI	Plastic Pipe Institute
SSPC	Steel Structures Painting Council
SSPWC	Standard Specifications for Public Works Construction
UBC	Uniform Building Code
UL	Underwriter's Laboratories, Inc.
UMC	Uniform Mechanical Code
UPC	Uniform Plumbing Code
USBR	U.S. Bureau of Reclamation
WCRSI	Western Concrete Reinforcing Steel Institute

1.4. DEFINITIONS

A. Whenever in the Contract the following abbreviations are used, their meanings shall be as follows:

Caltrans - Caltrans (aka California Department of Transportation), 1120 N Street, P.O. Box 942873, Sacramento, California 94273-0001; also, the numerical designation of a standard specification, test method, or practice established by Caltrans.

Contract Documents - The official document set issued for the project, including bidding requirements, contract forms, contract conditions, Construction Drawings, Construction Specifications, addenda and contract modifications.

Contractor - A person or persons, firm, partnership, corporation, or combination, whether private, municipal, or public, who, as an independent contractor, has entered into a contract with CalRecycle to perform the construction activities for the project. This includes but is not limited to the earthwork contractor(s), geosynthetic installer(s), or their subcontractor(s).

Construction Drawings - The official plans, profiles, cross-sections, elevations, notes, and details, as well as their amendments and supplemental drawings, showing the locations, character, dimensions, and details of liner construction and grading.

Construction Manager - The designated representative of the CalRecycle on the site, responsible for construction contract administration.

Construction Quality Assurance - A planned series of observations and tests to verify and document that quality control functions have been performed adequately and to assess compliance with contract drawings.

Construction Quallity Assurance Consultant (CQA Cosultant) – The party, independend from County or Contractor, that is responsible for observing and documenting activities related to the quality of material manufacturing, material installation, and other construction activities related to the project. Also responsible for issuing a CQA report sealed by a Professional Engineer registered in the State of California.

Construction Quality Assurance (CQA) Laboratory - A laboratory capable of conducting materials testing required by this CQA Plan.

Construction Specifications - The official quality requirements for products, materials, and workmanship upon which the design and construction of the project are based. The Construction Specifications are on the plans and in the Technical Specifications document.

CQA Engineer/Officer - A civil engineer, registered in the State of California as required by 27 CCR 20324(b)(2), who is responsible for observing, verifying, and documenting the construction and for preparing, signing, and sealing the Construction Completion Report.

CQA Monitor - A designated site representative of the CQA Engineer responsible for observing and documenting field conditions and tests.

Design Engineer/Engineer - The individual(s) or firm(s) responsible for designing the liner and preparing the Construction Drawings and Construction Specifications, either by or under the direct supervision of a civil engineer registered in the State of California. The Design Engineer for this project is Geo-Logic Associates, Inc., 143E Spring Hill Drive, Grass Valley, California 95945.

CalRecycle – Department of Resources Recycling and Recovery (CalRecycle).

Project Document - Any document, either required or incidental, prepared to further the construction of the liner, including (but not limited to) Contractor submittals, Construction Drawings, Construction Specifications, Technical Specification, Record Drawings, shop drawings, construction quality control and quality assurance plans, safety plans, and project schedules.

Quality Assurance - A planned and systematic program of procedures and documents to show that items of work or service meet the requirements of the Construction Drawings and Construction Specifications. Quality assurance does not include quality control, and will be performed by the CQA Engineer, acting through the CQA Monitor when appropriate.

Quality Control - Actions that provide a means of measuring and regulating the characteristics of items of work or service so that they comply with the requirements of the Construction Drawings and Construction Specifications. Quality control shall be performed by the Contractor, Subcontractors, manufacturers, and suppliers, as appropriate.

Record Drawings - Drawings recording the dimensions, details, coordinates, and characteristics of the project as they were actually constructed; informally referred to as "as-builts".

Surveyor - The individual(s) or firm(s) responsible for locating project features, staking grades to establish required elevations, and measuring construction quantities as needed to carry out; and produce the data on which the record drawings are based and payment quantities are estimated. All such work being performed by or under the continuous supervision of a licensed land surveyor registered in the State of California.

SECTION 01121
HEALTH AND SAFETY

1. PART 1 GENERAL

1.1. SUMMARY

A. Section includes general requirements for the following:

1. Protection of health and safety of personnel.

2. Additional considerations for Contractor's safety program.

B. The provisions of this section are supplementary to other provisions specified elsewhere in the Contract Documents.

C. Nothing in this section shall preclude the Contractor from complying with the more stringent requirements of the applicable federal, state, county, and industry standards, rules, and regulations.

1.2. RELATED SECTIONS

A. Section 01560 - Temporary Controls

1.3. SPECIAL SAFETY PRECAUTIONS

A. Because this project is located at a landfill site and possibly in an area subject to landfill gas migration, the Contractor shall become familiar with the potential hazards associated with landfill gas.

B. The following landfill and gas related information is included to assist the Contractor and is not intended to encompass all aspects to protect the workers or to comply with applicable regulations.

1.4. POTENTIAL FOR HAZARDS

A. Landfill gases usually vent to the atmosphere through the cover soils but may migrate laterally to adjacent areas depending on site and weather conditions.

B. Landfill gases have the potential to create the following hazardous conditions if not controlled or recognized:

1. Fires may start spontaneously from exposed and/or decomposing refuse.

2. Fires and explosions may occur from the presence of methane gas.

3. Landfill gases may cause an oxygen deficiency in underground trenches,

vaults, conduits, and structures.

4. Hydrogen sulfide, a highly toxic and flammable gas, or other toxic gases may be present.

5. Possible caving of trenches and excavations may occur when working over or in refuse fills.

1.5. SAFETY PRECAUTIONS

A. In addition to conforming to the safety rules and regulations of governmental authorities having jurisdiction, the Contractor shall take the following precautionary measures:

1. Smoking shall be prohibited on the landfill property.

2. The use of explosives or firearms shall not be permitted on the site.

3. If refuse is exposed during construction activities, CalRecycle shall be notified immediately.

B. The Contractor may encounter explosive and/or toxic gases during construction. If gases are encountered within the project area the Contractor will stop work and notify CalRecycle, OSHA, Cal-OSHA and all other agencies requiring notification.

C. Contractor's site-specific safety program shall include the following measures:

1. Shall comply with the requirements of OSHA, Cal-OSHA, and all other regulatory agency requirements.

2. Inhalation of landfill gases shall be avoided. Such gases or oxygen deficient air may cause nausea and dizziness, which could lead to accidents. Work should proceed in a direction upwind of the excavation where possible, unless the excavation is constantly monitored and declared safe.

3. Workers shall avoid contact with exposed refuse, condensate, or leachate. Irritants or hazardous materials may be present.

4. Fire extinguishers with a rating of at least A, B, and C shall be available at all times on the Site.

5. Start-up and shutdown of equipment shall be avoided in areas of exposed refuse.

SECTION 01200
PROJECT MEETINGS

1. PART 1 GENERAL

1.1. REQUIREMENTS INCLUDED

A. Representatives of Contractor, subcontractors, and suppliers attending meetings must be authorized to act on behalf of organizations they represent.

1.2. PRE-CONSTRUCTION MEETING

B. Meeting will be held at a location selected by CalRecycle.

C. Attendance:

1. Contractor's Office Representative
2. Contractor's On-Site Field Superintendent
3. Any Subcontractors or Supplier's representatives whom Contractor may desire to invite or CalRecycle may request.
4. Engineer and CQA Consultant
5. CalRecycle's Representative

D. A suggested format would include, but not be limited to, the following subjects:

1. Presentation of a proposed construction progress schedule and submittals as required by the Contract Documents
2. Procedures for handling submittals
3. Direction of correspondence, and coordinating responsibility between Contractor and CalRecycle
4. Request or scheduling of a weekly job meeting for all involved
5. Laboratory testing of construction materials
6. Applications for payment and progress payment procedures

E. The meeting will be documented by CalRecycle or person designated by CalRecycle. Copies of the minutes and relevant documents will be provided to all parties.

1.3. WEEKLY PROGRESS MEETINGS

A. CalRecycle's Representative will schedule and administer weekly progress meetings and such additional meetings as required, or as requested by CalRecycle. CalRecycle's Representative may elect to reduce the frequency of meetings depending on current work schedule.

B. Attendance:

1. CalRecycle's Representative
2. Design Engineer (optional)
3. CQA Officer
4. Contractor's superintendent
5. Subcontractors as appropriate to agenda
6. Suppliers as appropriate to agenda

C. Meeting requirements:

1. CalRecycle's Representative or CQA Consultant will administer the following general requirements for progress meetings:

    a. Prepare agenda for meetings.
    b. Make physical arrangements for meetings.
    c. Preside at meetings.

2. CalRecycle's Representative or CQA Consultant will administer the following general requirements for progress meetings:

    a. Record significant proceedings and decisions of meeting.
    b. Reproduce and distribute copies of meeting record within 7 days after each meeting to participants in meeting and to parties affected by decisions made at meeting. Furnish one copy of minutes to participants. Revise and distribute revisions to meeting minutes as necessary.

D. Suggested Agenda:

1. Review and approval of record of previous meeting
2. Review of Work progress since previous meeting
3. Field observations, problems, and conflicts

4. Problems that impede Work Schedule

5. Review of off-site delivery schedules

6. Corrective measures and procedures to regain projected schedule if a review of the schedule deems it necessary

7. Revisions to Construction Progress Schedule

8. Coordination of schedules between contractors

9. Review submittal schedules; expedite as required

10. Maintenance of quality and safety standards

11. Pending changes and substitutions

12. Review proposed changes for effect on construction schedule and completion date, and on other contracts of projects

13. Review of drawings and specifications that govern the next 2 weeks of work

14. Review of bid item quantities relative to original estimates

15. Review and update of as-built drawings

16. Other business

1.4. DAILY PROGRESS MEETINGS

A. An informal progress meeting will be held daily before the start of work. At a minimum, this meeting will be attended by the Contractor's Project Manager or Superintendent, Job Foreman, and other Contractor staff. It may also be attended by the CalRecycle Representative or CQA Monitor. The purpose of this meeting is to:

1. Review safety topics

2. Review scheduled work activities

3. Discuss problems and resolutions

4. Review test data

5. Discuss the Contractor's personnel and equipment assignments for the day

6. Review the previous day's activities and accomplishments

B. This meeting will be documented by the Contractor

SECTION 01300
SUBMITTALS

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. This section describes the general requirements and procedures for submitting and processing submittals.

1.2. CONTRACTOR SUBMITTAL PROCEDURES

A. Transmit each submittal with a transmittal form in electronic format, such as pdf.

B. Sequentially number each transmittal. For revised submittals, add an alphabetic suffix to the original submittal number.

C. Provide a transmittal form template at the Pre-Construction Meeting for review and approval by CalRecycle. As a minimum, transmittal form shall identify:

1. Project Title
2. Contractor Name and Subcontractor if applicable to submittal
3. Material Supplier Name
4. Submittal Number
5. Submittal Name
6. Date
7. Reference to Specification Section or Drawing to which submittal applies
8. Deviations or variations from Contract Documents and Product or system limitations
9. Space allocated for review response.
10. If re-submitting, identify all changes made since previous submission

D. Apply Contractor’s stamp, signed or initialed certifying review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements contained herein.

E. Submittals not requested will not be recognized or processed.

F. Do not combine submittals under one transmittal form.

G. Present in a clear and thorough manner and in sufficient detail to show kind, size, arrangement, and function of components, materials, and devices and compliance with Contract Documents.

1.3. PROCESSING TIME

A. Schedule submittals to expedite review by the CalRecycle, and delivery in the time frame specified. Coordinate submission of related items.

B. Time for review shall commence on receipt of submittal.

C. Allow 14 calendar days of review time for each submittal, excluding delivery time to and from the Contractor.

D. Resubmittals will be subject to the same review time.

E. No adjustments of Contract Time or Price will be allowed due to delays in progress of Work caused by rejection and subsequent resubmittals.

1.4. SUBMITTAL REVIEW PROCEDURE

A. CalRecycle will review, mark, and stamp as appropriate and will distribute marked-up copies as noted:

1. Approved

2. Approved as Noted.

3. Partial Approval, Resubmit as Noted

4. Revise and Resubmit.

1.5. CONSTRUCTION PROGRESS SCHEDULES

A. Submit initial schedule in duplicate within 5 days after date of Agreement.

B. Revise and resubmit as required but no less than every 7 days. The revised schedule must show the original target schedule.

C. Submit revised schedules during weekly progress meetings. If revisions to the schedule affect work by others (i.e. Liner Installer), CalRecycle must be notified 2

weeks prior to the change. No changes may be initiated without the written approval of CalRecycle.

D. Submit a computer-generated schedule with separate line for each item of work or operation identifying first workday of each week.

E. Show complete sequence of construction by activity, identifying work of separate stages and other logically grouped activities. Indicate the critical path, start, and finish, float dates, and duration.

F. Indicate estimated percentage of completion for each item of work at each submission.

G. Indicate submittal dates and review periods required for shop drawings, product data, samples, and product delivery dates.

1.6. PROPOSED PRODUCT LIST

A. Within 5 days after date of Award, submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.

B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.7. SHOP DRAWINGS

A. Submit the number of copies which Contractor requires, plus 2 copies.

B. Shop Drawings: Submit for review. After review, produce copies and distribute in accordance with the SUBMITTAL PROCEDURES article above and for record documents purposes described in Section 01700.

1.8. PRODUCT DATA

A. Submit the number of copies which the Contractor requires, plus 2 copies.

B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information unique to this Project.

C. After review, distribute in accordance with the Submittal Procedures article above and provide copies for record documents described in Section 01700.

1.9. SAMPLES

A. Submit a sample of the drainage gravel and any other imported soil material that

represents the specified products. Coordinate sample submittals for interfacing work.

B. For the soil and gravel samples, submit each sample in an air-tight sealed 5-gallon bucket and provide at least 50 pounds, unless otherwise stated in the individual specification sections.

C. Include identification on each sample, including source identification and full project information.

D. Submit the number of samples specified in individual specification sections. CalRecycle may retain all or a portion of each sample as a record of the submittal.

1.10. MANUFACTURER INSTALLATION INSTRUCTIONS

A. When specified in individual specification sections, submit three copies of printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing.

B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.11. MANUFACTURER CERTIFICATES

A. When specified in individual specification sections, submit manufacturer’s certificates in specified quantities.

B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting data, affidavits, certifications, and quality control testing.

C. Certificates must be specific to the material or product delivered to the site.

SECTION 01310
CONSTRUCTION SCHEDULE

1. PART 1 GENERAL

1.1. DESCRIPTION

A. Prepare and submit a preliminary construction schedule in compliance with Section 01300.

B. CalRecycle will review the preliminary construction schedule and incorporate it into their overall project schedule.

1.2. DELAYS AND RECOVERY

C. If, at any time during Project, Contractor fails to complete an activity by its latest scheduled completion date, Contractor must submit within 2 working days a written statement as to how and when Contractor will reorganize its work force to return to the current construction schedule.

D. Whenever it becomes apparent from the progress evaluation and updated schedule data that milestone completion dates and/or contract completion dates will not be met, some or all of the following actions must be taken:

1. Increase construction staffing in such quantities and crafts to substantially eliminate backlog of work.

2. Increase number of working hours per shift, shifts per workday, workdays per week, or amount of construction equipment, or combination of foregoing to substantially eliminate backlog of work.

3. Reschedule work items to achieve concurrence of accomplishment.

E. Under no circumstances will the addition of equipment or construction forces, increased working hours, or any other method, manner or procedure to return to current the Construction Progress Schedule be considered justification for contract modification or treated as an acceleration.

1.3. PROJECT UPDATES

A. Update schedule weekly, or as requested by the CalRecycle.

B. Provide details for scheduled activities over the 2 weeks following the current day of the schedule. Changes affecting work by others shall be addressed per Section 01300.

SECTION 01400
QUALITY CONTROL

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. Acceptance or quality assurance testing by CalRecycle

B. Quality control testing by Contractor

C. Certificates of compliance

1.2. SOURCE OF MATERIALS

A. Contractor must notify CalRecycle in writing of the sources from which it proposes to obtain material requiring approval, certification, or testing. Such notification must be made as soon as possible after award of Contract but no later than 5 days after receipt of the Notice to Proceed.

1.3. ACCEPTANCE TESTING OR QUALITY ASSURANCE TESTING

A. Acceptance testing is the testing of materials prior to their use in the Work and also any testing deemed necessary by CalRecycle/Engineer for acceptance of the completed Work. CalRecycle will perform acceptance testing of materials and workmanship in accordance with the Contract Documents and reserves the right to perform additional testing at any time to determine conformance with the requirements of the Contract Documents.

B. Acceptance testing by CalRecycle is not to be considered as a replacement for control testing conducted by Contractor or a manufacturer producing materials for Contractor. Acceptance testing will be at the expense of the CalRecycle.

1.4. QUALITY CONTROL TESTING

A. Quality control testing is the testing of materials prior to their delivery from a manufacturer, or during construction, such as geomembrane liner seam testing, and such other tests as are specified in the various sections of the Specifications to ensure compliance with the Contract Documents. Contractor must assume full responsibility for quality control testing and give sufficient notice to CalRecycle to permit it to witness the tests. Quality control testing is at the expense of Contractor and, where specifically required, performed by an independent testing firm.

B. Submit the name, address, and qualifications, together with the scope of proposed services of the proposed testing firm(s) to CalRecycle for approval at least 5 days prior to the scheduled commencement of any work involving such

testing.

C. Within five days after completion of testing performed by or for the Contractor, submit test results to the CalRecycle. Identify test reports with the information specified for samples in Section 01300 and additionally, the name and address of the organization performing the test, and the date of the tests.

1.5. CERTIFICATES OF COMPLIANCE

A. Contractor may use certificates of compliance for certain materials and products in lieu of the specified sampling and testing procedures. Submit certificates required to demonstrate proof of materials compliance with specification requirements. Submit certificates in duplicate with each lot of material delivered to the Work or prior to delivery as required by the Contract. The lots so certified must be clearly identified by the certificate. Certificates must be signed by an authorized representative of the producer or manufacturer, and state that the material complies in all respects with the requirements of the Contract Documents. In the case of multiple shipments, each shipment must be accompanied or preceded by a Certificate of Compliance.

B. The Certificate of Compliance must be accompanied by a certified copy of test results or state that such test results are on file with the producer or manufacturer and must be furnished to CalRecycle on request. The certificate must give the information specified for samples in Section 01300, the name and address of the organization performing the tests, the date of the tests, and the quantity of material shipped.

C. Materials used on the basis of a Certificate of Compliance may be sampled and tested at any time. The fact that material is used on the basis of a Certificate of Compliance does not relieve Contractor of responsibility for incorporating material in the Work, which conforms to the requirements of the Contract. Any such material not conforming to such requirements will be subject to rejection, whether in place or not.

D. CalRecycle reserves the right to refuse to permit the use of certain materials on the basis of a Certificate of Compliance.

SECTION 01500
CONSTRUCTION FACILITIES

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. This section defines the mobilization, operation, maintenance, and removal of temporary facilities required during execution of the work of this Contract.

B. Work of this section also includes furnishing all equipment, materials, tools, accessories, incidentals, labor, and for construction maintenance, operation, and

1.2. SUBMITTALS

A. Copies of permits and approvals for construction as required by Laws and Regulations and governing agencies.

B. Temporary Utility Submittals:

1. Electrical power supply and distribution plans
2. Water supply and distribution plans
3. Drainage plans
4. Sanitary

C. Temporary Construction Submittals:

1. Access Roads; Routes, cross-sections, and drainage facilities
2. Parking area plans
3. Contractor’s field office, storage yard, and storage building locations and plans, including gravel surfaced area
4. Temporary, secure access gate location, details, and scheduled mobilization/demobilization
5. Fencing and protective barrier locations and details
6. Staging area location plan
7. Traffic Control and Routing Plans; as specified herein, and proposed revisions thereto

1.3. REFERENCES

A. Construct/install, maintain and operate construction facilities in accordance with the applicable federal, state, and local laws, rules, and regulations.

1.4. MOBILIZATION

A. Mobilization shall include, but not be limited to, these principal items:

1. Obtaining require permits.

2. Brining in and making operational Contractor's field office and equipment required for first month operations onto Site.

3. Installing temporary access gate, construction power, wiring, and lighting facilities

4. Providing onsite communication facilities, including telephones

5. Providing onsite sanitary facilities and potable water facilities as specified and as required by Laws and Regulations, and governing agencies.

6. Arranging for and erecting Contractor's work and storage yard

7. Posting OSHA required notices and establishing safety programs and procedures.

8. Having Contractor's superintendent at Site full time

1.5. PROTECTION WORK AND PROPERTY

A. General:

1. Perform Work in a systematic manner that minimizes inconvenience to adjacent property CalRecycles and the public.

2. Do not damage or impact adjacent properties or facilities. All damage shall be repaired at Contractor's expense.

3. No residence or businesses shall be cut off from vehicular traffic.

4. Maintain in continuous service all existing underground power, telephone or communication cable, water mains, irrigation lines, sewers, poles and overhead power, and all other utilities encountered as part of completing the work, unless other arrangements satisfactory to CalRecycles of said utilities have been made.

5. Where completion of the work requires temporary or permanent removal or relocation of an existing utility, coordinate all activities with CalRecycle of said utility and perform all work to their satisfaction.

1.6. GENERAL REQUIREMENTS

A. Locate and maintain construction facilities in a clean, safe, and sanitary condition at all times until completion of the Contract.

B. The requirements specified herein are in addition to any requirements specified elsewhere in the Contract Documents. Construction facilities must meet the requirements for all weather service.

C. Minimize land disturbances related to the construction facilities to the greatest extent possible and restore the land to pre-construction conditions by grading to provide positive drainage and by seeding the area to match with existing vegetation, or as specified elsewhere. All debris or other disturbances resulting from the Contractor's actions shall be removed by the Contractor to the satisfaction of CalRecycle.

D. The Contractor cannot interfere with ongoing operations, including the allowance of sufficient water supply for dust control and operational measures.

E. The Contractor should limit activities to the project area, as shown on the Drawings, stockpiles, staging area, and haul road as identified by CalRecycle.

F. Keep ditches, culverts, and natural drainages continuously free of construction materials and debris.

2. PART 2 PRODUCTS

2.1. CONTRACTOR'S FIELD OFFICE

A. Contractor may provide an office for his own staff at a location approved by CalRecycle.

2.2. TEMPORARY ROADS AND PARKING AREAS

A. Temporary roads are existing roads that are improved, or new roads constructed by Contractor for convenience of Contractor in the performance of the Work under the Contract.

B. Coordinate construction with CalRecycle. If requested by CalRecycle, leave temporary access/haul roads in a condition suitable for future use.

C. If applicable, coordinate all road construction activities with local utilities, fire, and police departments.

D. Keep erosion to a minimum and maintain suitable grade and radii of curves to facilitate ease of movement of vehicles and equipment.

E. Furnish and install longitudinal and cross drainage facilities including, but not limited to, ditches, structures, and culvert of adequate strength to resist construction loads.

F. Clean equipment so that mud or dirt is not carried onto public roads. Clean any mud or dirt transported by equipment onto paved roads both on site and off site.

G. Provide parking area for maintenance and delivery vehicles, CalRecycle's, and Contractor's representatives, and other authorized visitors.

H. Control vehicular parking to preclude interference with public traffic or parking, access by emergency vehicles and CalRecycle's representatives, or construction operations.

I. Provide parking facilities for personnel working on the Project.

J. Use areas designated by CalRecycle for parking of Contractor's and Contractor's employees' vehicles.

2.3. VEHICULAR TRAFFIC

A. Comply with Laws and Regulations regarding closing or restricting use of public streets or highways. No public or private road shall be closed, except by written permission of proper authority. Ensure that there is no obstruction to public traffic, whether vehicular or pedestrian, and normal commercial pursuits.

B. When flaggers and guards are required by regulation or when deemed necessary for safety, furnish them with approved orange wearing apparel and other regulation traffic control devices.

C. Coordinate traffic routing with that of others working in same or adjacent areas.

D. Contractor must coordinate the delivery of materials with all vendors. Parking of trucks outside the Project gate before the start of the workday will not be allowed.

2.4. STORAGE OF MATERIALS AND EQUIPMENT

A. Make arrangements for storage areas for materials and equipment. Locations and configurations of such facilities are subject to the acceptance of CalRecycle.

B. Confine all operations, including storage of materials, to the approved area. Contractor is liable for any and all damage caused during such use of property of CalRecycle or others. Store materials in accordance with Manufacturer's instructions, when applicable.

C. Store construction materials and equipment within boundaries of designated areas. Storage of gasoline or similar fuels must conform to state and local regulations and be limited to the areas approved for this purpose by CalRecycle.

2.5. CONSTRUCTION EQUIPMENT

A. Erect, equip, and maintain all construction equipment in accordance with all applicable statutes, laws, ordinances, rules, and regulations of CalRecycle or other authority having jurisdiction.

B. Provide and maintain scaffolding, staging, runways, hoists, barricades, and similar equipment required for performance of the Contract. Provide hoists or similar equipment with operators and signals, as required.

C. Provide, maintain, and remove upon completion of the Work, all temporary rigging, scaffolding, hoisting equipment, debris boxes, barricades around openings and excavations, fences, ladders, and all other temporary work, as required for all work hereunder unless otherwise directed by CalRecycle.

D. Construction equipment and temporary work must conform to all the requirements of state, county, local authorities, OSHA, and underwriters which pertain to operation, safety, and fire hazard. Furnish and install all items necessary for conformity with such requirements, whether or not called for under separate sections of these Specifications.

2.6. TEMPORARY SANITARY FACILITIES

A. Provide temporary sanitary facilities for use by all employees and persons engaged in the work, including subcontractors, their employees, and authorized visitors.

B. Sanitary facilities include enclosed chemical toilets and washing facilities. These facilities must meet the requirements of local public health standards. Provide secondary containment for enclosed chemical toilets. Open pit or trench latrines are not permitted.

C. Locate sanitary facilities as approved by CalRecycle and maintain in a sanitary condition during the entire course of the work.

2.7. TEMPORARY ELECTRIC POWER

A. No electric power is available at Site. Make arrangements to obtain and pay for electrical power used until final payment and acceptance by CalRecycle.

B. Provide and maintain during the course and progress of the Work all electrical power and wiring requirements to facilitate the work of all trades and services associated with the Work. Make arrangements with the applicable serving utility company or provide generators and pay all charges for providing and maintaining electrical service, including usage costs at the site unless otherwise approved by CalRecycle. Furnish all temporary wiring, feeders, and connections.

C. Routing of temporary conductors, including welding leads, must not create a safety

hazard nor interfere with the operation and maintenance of existing facilities.

D. Install all temporary wiring in accordance with the applicable requirements of the local electrical code.

E. Provide power and lighting to field office, and for work as required, at no extra cost to CalRecycle.

F. Lighting: Provide temporary lighting to meet applicable safety requirements to allow erection, application, or installation of materials and equipment, and observation or inspection of the Work.

2.8. TEMPORARY WATER

A. Approximately 20,000 gallons a day of construction water is available from the existing groundwater treatment system retention pond. The Contractor shall be responsible for supplying an adequate amount of water. CalRecycle shall not be responsible for providing additional water, nor does it guarantee the quality or quantity of water from the on-site source. Any additional water shall be provided by the Contractor at his expense.

2.9. FIRST AID FACILITIES

A. Provide first aid equipment and supplies to serve all Contractor personnel at the site.

2.10. FIRE PROTECTION

A. Furnish and maintain on Site adequate firefighting equipment capable of extinguishing incipient fires.

3. PART 3 EXECUTION

3.1. CONTRACTORS TRAILERS/OFFICES

A. Locate trailers/offices within approved Work limits only. Level, block, tie down, skirt, provide stairways. Construct on proper foundations and provide proper surface drainage and connections for utility services.

B. Trailer/office location shall not impede Site drainage or operations or traffic patterns.

C. Trailer/office shall not be located adjacent to residential areas.

3.2. MAINTENANCE

A. Maintain all construction facilities, utilities, temporary roads, services to office, and the like in good working condition as required by CalRecycle during the term of the Contract.

3.3. STATUS AT COMPLETION

A. Upon completion of the work, or prior thereto, when so required by CalRecycle:

1. Repair damage to roads caused by or resulting from the Contractor's work.

2. Remove and dispose of all construction facilities, including office trailers, and other facilities and utilities, including all concrete foundations. Similarly, return all areas utilized for temporary facilities to substantially their near original, natural state, or as otherwise indicated or directed.

B. Obliterate temporary roads built for Contractor's convenience and restore the area to near original conditions to the extent practicable unless otherwise approved by CalRecycle.

SECTION 01560
TEMPORARY CONTROLS

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. Temporary controls required during the term of the Contract for the protection of the environment and the health and safety of workers and general public.

B. Furnishing all equipment, materials, tools, accessories, incidentals, and labor, and performing all work for the installation of equipment and construction of facilities, including their maintenance and operation during the term of the Contract.

C. Temporary controls include, but are not limited, to the following:

1. Dust control

2. Pollution and erosion control

3. Traffic and safety controls

4. Air pollution control

5. Protection of landfill gas system (LFG) components

6. Protection of existing monitoring systems

D. The work shall be performed as specified in this Specification and as required by the CalRecycle/Engineer. The equipment and accessories shall be maintained in clean, safe, and sanitary condition at all times until completion of the Contract.

E. The requirements specified herein are in addition to requirements specified elsewhere in the Contract Documents. Temporary controls shall meet the requirements for all-weather service.

F. All land disturbances related to the temporary controls shall be minimized to the greatest extent possible and the land restored, to the extent reasonable and practical, to its original contours by grading to provide positive drainage.

1.2. RELATED SECTION

A. Section 01500 – Construction Facilities

1.3. APPLICABLE PUBLICATIONS

A. All required facilities, equipment, and utilities shall also be constructed, installed, maintained, and operated consistent with applicable federal, state, county, and utility laws, rules, and regulations. Notwithstanding contrary provisions of General Conditions and Special Conditions, nothing in the Construction Drawings and Specifications shall be construed to permit work not conforming to such laws, rules, and regulations.

1.4. DUST CONTROL

A. The Contractor shall be responsible for providing adequate dust control measures during the term of the Contract. Dust palliatives shall not be used without the written authorization of the CalRecycle.

B. Dust control shall consist of furnishing water supply, required equipment, additives, accessories, and incidentals, and carrying out proper and efficient measures wherever and as often as necessary to reduce dust nuisance, and to prevent dust originating from construction operations during the completion of the Contract, as required by the CalRecycle.

C. Water shall be applied by means of pressure type distributors or pipelines equipped with a spray system or hoses with nozzles that will ensure a uniform application of water.

D. All equipment used for the application of water shall be equipped with a positive means of shut-off.

E. Unless otherwise permitted by the CalRecycle or unless all the water is applied by means of pipelines, at least one mobile unit with a minimum capacity of 5,000 gallons shall be available at the Site in operating condition for applying water at the Site during construction.

1.5. STORMWATER POLLUTION CONTROL

A. The contractor shall maintain existing and new surface water drainage controls to maintain positive drainage on and adjacent to the work areas.

B. Surface water shall be pumped from excavation areas to surrounding channels. Contractor shall maintain flooding to designated areas.

C. A Stormwater Pollution Prevention Plan (SWPPP) shall be prepared by the Contractor prior to the start of work. The SWPPP will be implemented under the Contractor’s Construction General Permit.

1.6. POLLUTION CONTROL

A. Pollution of Waterways: Perform work using methods that prevent entrance or

accidental spillage of solid or liquid matter, contaminants, debris and other objectionable pollutants and wastes into streams, watercourses, flowing or dry, and underground water sources. Such pollutants and wastes will include, but will not be restricted to refuse, earth and earth products, garbage, cement, concrete, sewage effluent, industrial waste, radioactive substances, hazardous chemicals, oil and other petroleum products, aggregate processing tailings, and mineral salts. Dispose of pollutants and wastes in accordance with applicable permit provisions or in a manner acceptable to and approved by the CalRecycle.

B. Storage and Disposal of Petroleum Products:

1. Petroleum products covered by this section include gasoline, diesel fuel, lubricants, heating oils, and refined and used oil. During project construction, store all petroleum products in such a way as to prevent contamination of all ground and surface waters.

2. Lubricating oil may be brought into the project area in steel drums or other means, as Contractor elects. Store used lubricating oil in steel drums, or other approved means, and return to the supplier for disposal. Do not burn or otherwise dispose of it in the project area.

3. If the total capacity volume of stored petroleum products is greater than 1,320 gallons in total and/or 660 gallons in any single container and these products are stored above ground, Contractor shall prepare and adhere to a Spill Prevention Control and Countermeasure Plan (SPCC Plan) in accordance with applicable EPA and other state regulations.

4. All chemicals stored on-site must be appropriately labeled as to its content and hazard rating.

1.7. TRAFFIC AND SAFETY CONTROLS

A. Post construction areas and roads with traffic control signs or devices used for protection of workmen, the public and equipment. The signs or devices must conform to the American National Standards Institute, Manual on Uniform Traffic Control Devices for Streets and Highways.

B. Remove signs or traffic control devices as soon as they have served their purpose. It is particularly important to remove any markings on road surfaces, which under conditions of poor visibility could cause a driver to turn off the road or into traffic moving in the opposite direction.

C. Barricades for the protection of employees must conform to the portions of the American National Standards Institute, Manual on Uniform Traffic Control Devices for Streets and Highways, relating to barricades.

D. Material Haul on Public Roads: Follow all requirements stated in the permits for using public roads for hauling materials to the site.

E. Provide flag persons, properly equipped with International Orange protective clothing and flags, as necessary, to direct or divert pedestrian or vehicular traffic.

F. Construct and maintain fences, planking, barricades, lights, shoring, and warning signs as required by local authorities, federal and state safety ordinances, and as required to protect CalRecycle's property from injury or loss, and as necessary for the protection of the public, and provide walks around any obstructions made in a public place for carrying on the Work covered in this Contract. Leave all such protection in place and maintained until removal is authorized.

G. Guard and protect all workers, pedestrians, and the public from excavations, blasting operations, construction equipment, all obstructions, and other dangerous items or areas by means of adequate railings, guard rails, temporary walks, barricades, warning signs, sirens, directional signs, overhead protection, planking, decking, danger lights, etc.

1.8. AIR POLLUTION CONTROL

A. The Contractor shall comply with all air pollution control rules, regulations, ordinances, and statutes that apply to any work performed pursuant to the contract, including, but not limited to, any air pollution control rules, regulations, ordinances, and statutes.

1.9. MAINTENANCE

A. Maintain all temporary controls in good working conditions during the term of the Contract for the safe and efficient transport of equipment and supplies, and for construction of permanent works, as required by CalRecycle.

1.10. STATUS AT COMPLETION

A. Upon completion of the Work, or prior thereto, when so required by CalRecycle, remove all temporary controls and restore disturbed areas as required by CalRecycle.

SECTION 01600
MATERIAL AND EQUIPMENT

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. Products

B. Transportation and handling

C. Storage and protection

1.2. PRODUCTS

A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work. It does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.

B. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.

C. Provide interchangeable components of the same manufacturer, for similar components.

1.3. TRANSPORTATION AND HANDLING

A. Transport and handle products in accordance with manufacturer's instructions.

B. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, and/or damage.

D. Any damaged materials, whether as originally shipped or as a result of handling, shall be replaced at no additional cost to the CalRecycle and with no extension of contract time.

1.4. STORAGE AND PROTECTION

A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate-controlled enclosures.

B. For exterior storage of fabricated products, place aboveground on sloped supports, if in accord with manufacturer's handling instructions.

C. Provide off-site storage and protection when the site does not permit on-site storage or protection.

D. Cover products subject to deterioration with an impervious sheet covering. Provide ventilation to avoid condensation.

E. Store loose granular materials on solid flat surfaces in a well-drained area.

F. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

G. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

H. Any products that become damaged during storage shall be replaced at no additional cost to the CALRECYCLE and with no extension of contract time.

SECTION 01630
PRODUCT OPTIONS AND SUBSTITUTIONS

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. This Section describes Contractor procedures for securing approval of proposed product options and substitutions.

1.2. PRODUCT OPTIONS

A. The Contract is based on standards of quality established in the Contract Documents.

1. In agreeing to the terms and conditions of the Contract, the Contractor has accepted a responsibility to verify that the specified products will be available and to place orders for all required materials in such a timely manner as is needed to meet his agreed construction schedule.

2. CalRecycle does not agree to the substitution of materials or methods called for in the Contract Documents, except as they may specifically otherwise state in writing.

B. Materials and/or methods specified by name:

1. Where materials and/or methods are specified by naming one single manufacturer and/or model number, without stating that equal products will be considered, only the material and/or method named is approved for incorporation into the work.

2. Should the Contractor demonstrate to the approval of CalRecycle that a specified material or method was ordered in a timely manner and will not be available in time for incorporation into this work, the Contractor shall submit to CalRecycle such data on proposed substitute materials and/or methods as are needed to help CalRecycle determine suitability of the proposed substitution.

C. Where materials and/or methods are specified by name and/or model number followed by the words "or an equal approved in advance by CalRecycle " or similar wording:

1. The material and/or method specified by name establish the required standard of quality.

2. Materials and/or methods proposed by the Contractor to be used in lieu of materials and/or methods so specified by name must in all ways be equal or

exceed the qualities of the named materials and/or methods.

D. The following products do not require further approval except for interface within the work:

   1. Products specified by reference to standard specifications such as ASTM and similar standards.

   2. Products specified by manufacturer's name and catalog model number.

E. Where the phrase "or equal," or "or equal as approved by CalRecycle," occurs in the Contract Documents, do not assume that the materials, equipment, or methods will be approved as equal unless the item has been specifically so approved in writing for this work by CalRecycle.

F. The decision of CalRecycle shall be final.

1.3. DELAYS

A. Delays in construction arising by virtue of the non-availability of a specified material and/or method will not be considered by CalRecycle as justifying of the agreed Time of Completion.

SECTION 01700
CONTRACT CLOSEOUT

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. Preparation, maintenance, completion, and submission of all project Record Drawings, Specifications, and related documents.

1.2. RELATED SECTIONS

A. Section 01300 — Submittals

B. Section 01560 — Temporary Controls

1.3. MAINTENANCE OF RECORD DOCUMENTS

A. Maintain at the job site one copy of the following Project or Contract Documents for record purposes:

1. Drawings
2. Specifications
3. Addenda
4. Change Orders and Work Change Directives
5. Field Orders
6. Reviewed Shop Drawings
7. Clarifications or Explanatory Drawings and Specifications
8. Inspection Reports
9. Laboratory Test Records
10. Field Test Records

B. Store documents used for record purposes in the field office or other approved location, apart from documents used for construction.

C. File documents in accordance with the Specification sections.

D. Maintain documents in clean, dry, legible condition.

E. Do not use record documents for construction purposes.

F. Make documents available at all times for inspection by CalRecycle and his authorized representatives.

1.4. RECORD DRAWINGS

A. Project Drawings:

1. Maintain Record Drawings of all work and subcontracts continuously as the job progresses. Keep a separate set of prints, for this purpose only and at the job site at all times.

2. Keep these drawings up-to-date.

3. During the course of construction, identify on the drawings, the actual locations for all runs of mechanical and electrical work, including all site utilities and services installed underground or otherwise concealed. Show deviations from the drawings in detail. Locate all main runs, whether piping, or drain lines by dimension and elevation.

4. During the course of the construction record as-built information outlined in Section 01052.

5. Deliver the final and record set of "as-built" drawings to CalRecycle prior to his acceptance of the Work.

B. Addenda and Change Orders:

1. Incorporate changes to the Drawings affected by Addenda, Change Orders, or Field Orders. Identify change by Addendum, Change Order, or Field Order (minor design plan adjustment made in the field) number and effective date.

2. When revised drawings are issued as the basis of or along with addenda or change order, incorporate these revised drawings into the record set with appropriate annotation.

C. Shop Drawings:

1. Collect and maintain one complete set of reviewed shop drawings, including manufacturer's printed catalog cuts and data, for record purposes.

2. Shop drawings must be filed and maintained separately from project drawings. Shop drawings must be filed in 9 inch by 12 inch file folders to the greatest extent possible and be indexed in accordance with the format as herein specified.

1.5. RECORD SPECIFICATIONS

A. Project Specifications:

1. Information, changes, and notes must be recorded in the Specifications in blank areas, such as page margins or the backs of opposite pages, or on separate sheets inserted in the binder. All such information, changes, and notes must be recorded with red pen or red ink.

2. In each section, in an appropriate location, record the manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.

3. The record specifications book must be complete and include all documents and forms listed under Bidding Requirements, Contract Forms, Contract Conditions, and Specifications.

B. Addenda, Change Orders, Work Change Directives, and Field Orders:

1. All Addenda, Change Orders, Work Change Directives, and Field Orders must be incorporated into the front of the specifications book in reverse chronological order. Use appropriate page dividers to identify addenda, change orders, and to separate addenda from the specifications.

2. In addition, the changes to the specifications affected by Addenda, Change Order, Work Change Directives, or Field Order must be annotated on the affected page or pages of the specifications or adjacent thereto.

1.6. SUBMISSION OF DOCUMENTS

A. At completion of the project, and before submitting invoice for final payment, deliver record documents to CalRecycle. A copy shall be submitted to the CQA Officer for inclusion in the CQA Report.

B. Record documents must be delivered neatly and efficiently packaged.

C. Submission of record documents must be accompanied with a transmittal letter, containing the following information:

1. Date of submission

2. Project title and number

3. Contractor's name and address

4. Title and number of each record document (Shop drawings may be grouped in basic categories or divisions of work)

5. Certification that each document as submitted is complete and accurate

6. Signature of Contractor or his authorized representative

EXHIBT A - DIVISION 2 SITEWORK

SECTION 02110
CLEARING AND STRIPPING

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. Clearing and stripping grass, roots, brush, and other organic material from the borrow area, retention basin, intermediate cover, geocell flood control armored area and areas that will be subgrade for foundation layer, as defined on the Construction Drawings.

B. Removing and pruning trees.

C. Stockpiling cleared and stripped material.

1.2. RELATED SECTIONS

A. Section 02221 – Excavating and Stockpiling

B. Section 02222 – Engineered Fill and Foundation Layer

C. Section 02223 – Geomembrane Subgrade Preparation

D. Section 02229 – Vegetative/Protective Cover

2. PART 2 PRODUCTS (Not Used)

3. PART 3 EXECUTION

3.1. PREPARATION

A. Set required lines, levels, contours, and datum by construction staking.

B. Locate, identify, and protect existing closed landfill areas.

C. Protect plant growth and any features designated to remain.

D. Notify utility company to locate utilities, if applicable.

E. Provide for dust control.

F. Protect benchmarks, existing structures, and fences from excavation equipment

and vehicular traffic.

G. Provide for dewatering as necessary for the work.

H. Contractor shall note that topography shown on the Construction Drawings may differ from topography at time of construction. The Contractor shall perform a pre-commencement survey to document site conditions prior to starting work.

3.2. CLEARING AND STRIPPING

A. Clear the existing trees, stumps, brush, grass, roots, surface vegetation, and other deleterious materials prior to excavating and performing other work within the construction limits as shown on the Construction Drawings.

B. Strip (as needed) roots and organic soils to a maximum depth of 6-inches below existing ground surface to remove unsuitable materials in areas designated by CalRecycle, and in the areas shown on the Construction Drawings.

C. Remove all trees and shrubs within 5' of the existing fences before demolition. For all remaining trees on site, trim/prune or remove limbs to maintain a clearance of 12’ from existing ground to first tree branch.

D. Transport and place all materials in the designated stockpile location as directed by CalRecycle, and in accordance with Section 02221

SECTION 02208
CHAIN LINK FENCING

1. PART 1 GENERAL

1.1. SECTION INCLUDES:

A. Remove existing fence and install new chain link fencing and appurtenances as complete units, including necessary erection accessories, fittings, and fastenings as shown on Construction Drawings.

1.2. RELATED SECTIONS

A. Section 02110 – Clearing and Stripping

B. Section 02222 – Engineered Fill and Foundation Layer

2. PART 2 PRODUCTS

2.1. TYPE 1 FENCE

A. Fabric: No. 9 gauge (0.148 in.) finished size steel wires, 2-in. mesh, with top salvages knuckled and bottom salvages twisted.

1. Height: As shown on the Construction drawings.

2. Fabric finish: Galvanized, ASTM A 392, Class II, with not less than 2.0 oz. zinc per sq. ft. of surface.

B. Fittings and Accessories:

1. Galvanized with zinc weights per Table I of ASTM A 153.

C. Framing and Accessories:

1. End, Corner and Pull Posts: Minimum sizes and weights as follows:
   a. 4.0-in. OD galvanized steel pipe.

2. Line Posts: Space 10' on center maximum, unless otherwise indicated, of following minimum sizes and weights:
   a. 2.375-in. OD steel pipe, 3.65 lbs. per lf.

3. Tension Wire: 7-gage, coated coil spring wire, metal and finish to match fabric. Locate at bottom and top of fabric.

4. Truss Rod: 0.375-in. galvanized steel rod and adjustable tightener.

5. 3 rows of Barbed Wire.

D. Wire Ties: For tying fabric to line posts, use wire ties spaced 12 in. on center. For typing fabric to rails and braces to tension wire, use hog rings spaced 24 in. on center. Manufacture's standard procedure will be accepted if of equal strength and durability.

E. Concrete: Provide concrete consisting of Portland cement, ASTM C 150, aggregates ASTM C 33, and clean water. Mix materials to obtain concrete with a minimum 28-day compressive strength of 2500 psi, maximum 3-in. slump.

F. Signs: Supply securing signs meeting general requirements detailed on the Construction Drawings.

2.2. TYPE 2 FENCE

A. Caltrans M60 Barrier Rail – as shown on Caltrans Standard Detail A76A.

B. Fabric: No. 9 gauge (0.148 in.) finished size steel wires, 2-in. mesh, with top salvages knuckled and bottom salvages twisted.

1. Height: As shown on the Construction drawings.

2. Fabric finish: Galvanized, ASTM A 392, Class II, with not less than 2.0 oz. zinc per sq. ft. of surface.

C. Fittings and Accessories:

1. Galvanized with zinc weights per Table I of ASTM A 153.

D. Framing and Accessories:

2. End, Corner and Pull Posts: Minimum sizes and weights as follows:
   a. 4.0-in. OD galvanized steel pipe.

3. Line Posts: Space 10' on center maximum, unless otherwise indicated, of following minimum sizes and weights:
   a. 2.375-in. OD steel pipe, 3.65 lbs. per lf.

4. Tension Wire: 7-gage, coated coil spring wire, metal and finish to match fabric. Locate at bottom and top of fabric.

5. Truss Rod: 0.375-in. galvanized steel rod and adjustable tightener.

6. 3 rows of Barbed Wire.

E. Wire Ties: For tying fabric to line posts, use wire ties spaced 12 in. on center. For typing fabric to rails and braces to tension wire, use hog rings spaced 24 in. on

center. Manufacture’s standard procedure will be accepted if of equal strength and durability.

F. Signs: Supply securing signs meeting general requirements detailed on the Construction Drawings.

3. PART 3 EXECUTION

3.1. PREPARATION

A. Verify that any existing plant life designated to remain is tagged and identified.

B. Verify that plants to be salvaged are tagged or identified.

3.2. INSTALLATION

A. Install in accordance with ASTM F 567 and written installation instructions of fencing Manufacturer to provide secure and aligned installation.

B. Construction of the six-foot-high chain link fence shall be performed in a manner that conforms to the applicable provisions of Section 80-3, "Chain Link Fence," of the California Department of Transportation (Caltrans) Standard Specifications.

C. The fence line locations shall be located as shown on the Construction Drawings.

D. Concrete within post-holes shall be mounded and crowned to shed water away from the post.

E. The chain link fabric shall be fastened on the side of the posts facing the outside of the property.

F. The new chain link fence shall be permanently fastened to the existing fence in an appropriate manner, subject to approval by the Engineer.

G. Signs shall be installed at designated locations established by CalRecycle.

H. If conflicts between the Construction Drawings, ASTM Standards, or State Specifications arise, the more stringent standard shall apply.

SECTION 02221
EXCAVATING AND STOCKPILING

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. Excavating soil for engineered fill, foundation layer, and vegetative/protective cover soils.

B. Excavating to construct stormwater retention basin, and conveyance improvements, including ditches and diversion berms.

1.2. RELATED SECTIONS

A. Section 02222 — Engineered Fill and Foundation Layer

B. Section 02223 – Geomembrane Subgrade Preparation

C. Section 02229 – Vegetative/Protective Cover

2. PART 2 PRODUCTS

2.1. ENGINEERED FILL OR FOUNDATION LAYER

A. Soil meeting requirements of Section 02222, Part 2.1.

2.2. VEGETATIVE/PROTECTIVE COVER

A. Soil meeting requirements of Section 02229, Part 2.1.

3. PART 3 EXECUTION

3.1. PREPARATION

A. Set required lines, levels, contours, and datum by construction staking.

B. Locate, identify, and protect existing phase areas.

C. Notify utility company to locate utilities, if applicable.

D. Provide for dust control.

E. Protect benchmarks, existing structures, and fences from excavation equipment and vehicular traffic.

F. Provide for dewatering as necessary for finish excavation and fill placement.

G. Contractor shall note that topography shown on the Construction Drawings may differ from topography at time of construction. The Contractor shall perform a pre-commencement survey to document site conditions prior to starting work.

3.2. EXCAVATION

A. Excavate soil and rock as required to the lines, grades, and elevations to construct the landfill, roads, surface waste drainage systems, and other structures as necessary as shown on the Construction Drawings.

B. Machine grade slopes and base to design grades.

C. Grade top perimeter of excavation to prevent surface water from draining into excavation.

D. Notify CalRecycle of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.

E. Correct areas over excavated by placing engineered fill per Section 02222 and as approved by the CalRecycle.

F. Selectively excavate engineered fill, foundation layer, vegetative/protective cover and stockpile as necessary.

G. Haul unsuitable material, remaining material, surplus soils, to stockpile(s) or location designated by CalRecycle.

3.3. SOIL STOCKPILING

A. Coordinate selective soil stockpiling with CalRecycle.

B. Place soil such that the maximum slope is 3H:1V, and the minimum slope is 5 percent.

C. Placement and mass configuration of soil stockpiles shall be performed at the direction of the CalRecycle.

D. Provide uniform final graded surface for all soil stockpiles.

3.4. CONSTRUCTION QUALITY ASSURANCE

A. Construction quality assurance (CQA) will be performed in accordance with the construction CQA Plan.

B. The CalRecycle may perform testing to determine the conformance of the materials with these Construction Specifications and Drawings.

SECTION 02222
ENGINEERED FILL AND FOUNDATION LAYER

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. Engineered Fill Placement

B. Foundation Layer Placement

1.2. RELATED SECTIONS

A. Section 02221 – Excavating and Stockpiling

B. Section 02223 – Geomembrane Subgrade Preparation

1.3. REFERENCES

A. ASTM C136 – Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

B. ASTM D422 – Standard Test Method for Particle-Size Analysis of Soil.

C. ASTM D1557 – Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort.

D. ASTM D1556 – Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.

E. ASTM D2216 – Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.

F. ASTM D2487 – Classification of Soils for Engineering Purposes (Unified Soil Classification System).

G. ASTM D6938 – Standard Test Methods for In-Place Density and Water Content of Soil by Nuclear Methods (Shallow Depth).

1.4. SUBMITTALS

A. Contractor’s surveyor shall prepare and submit for approval a grid layout for the determination of the soil cover thickness over the construction area.

B. Contractor shall prepare and submit a Workplan for approval to protect, dismantle, salvage and reconstruct the landfill gas collection and flare system

such that the system remains operational to the maximum extent possible during construction activities.

2. PART 2 PRODUCTS

2.1. ENGINEERED FILL

A. Soil obtained from designated borrow area on site, approved by CalRecycle.

B. Free of organic material.

C. Free of frozen material, ice, snow, or excessive moisture.

D. Maximum particle size of 4 inches.

2.2. FOUNDATION LAYER

A. Soil obtained from designated borrow area on site, approved by CalRecycle.

B. Free of organic material.

C. Free of frozen material, ice, snow, or excessive moisture.

D. Maximum particle size of 1 inch.

3. PART 3 EXECUTION

3.1. ENGINEERED FILL AND FOUNDATION LAYER PREPARATION

A. Scarify subgrade soils to a 6-inch depth prior to soil placement.

B. Prior to placement of engineered fill and foundation layer, verify that no substantial thickness of loose or uncompacted soil is present in the fill area.

C. Begin engineered fill and foundation layer only when the Engineer has accepted the underlying subgrade.

3.2. ENGINEERED FILL PLACEMENT

A. Place engineered fill to the lines and grades shown on the Construction Drawings.

B. Place engineered fill in excavated unsuitable subgrade areas.

C. Place in loose lift thickness not exceeding 8 inches.

D. Compact each lift to a minimum of 90 percent relative compaction at a moisture

content adequate to achieve compaction as determined by ASTM D1557. Completed lifts of fill cannot yield under equipment loads.

E. Grade final surface to a vertical tolerance of ± 0.1 foot.

3.3. FOUNDATION LAYER PLACEMENT

A. Place foundation layer to the lines and grades shown on the Construction Drawings.

B. Place in loose lift thickness not exceeding 8 inches.

C. Compact each lift to a minimum of 90 percent relative compaction at a moisture content adequate to achieve compaction as determined by ASTM D1557. Completed lifts of fill cannot yield under equipment loads.

D. Grade final surface to a vertical tolerance of ± 0.1 foot.

3.4. CONSTRUCTION QUALITY ASSURANCE

A. Construction's quality assurance (CQA) will be performed in accordance with the CQA Plan.

B. CalRecycle will determine optimum moisture content and maximum density for all engineered fills and foundation layer in accordance with ASTM D1557.

C. CalRecycle will determine in-place density and moisture content by one or more of the following methods or approved equal: ASTM D1556, ASTM D2216, and ASTM D6938.

D. CalRecycle may perform additional testing to determine the conformance of the materials with these Specifications and the Construction Drawings.

E. Frequency of and criteria for testing are included in the CQA Plan.

F. CalRecycle may perform sampling and testing of excavated materials as they are stockpiled.

G. The Contractor shall cooperate fully with CalRecycle in performance of sampling and testing. Include costs for assistance in unit or lump sum prices.

SECTION 02223
GEOMEMBRANE SUBGRADE PREPARATION

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. Final grading and compaction of finished subgrade in preparation for geomembrane liner placement.

B. Geomembrane subgrade is defined as the intermediate cover over existing waste, the top of foundation layer over intermediate cover, and existing soil outside of the waste footprint to receive geomembrane.

1.2. RELATED SECTIONS

A. Section 02110 – Clearing and Stripping

B. Section 02221 – Excavating and Stockpiling

C. Section 02222 – Engineered Fill and Foundation Layer

D. Section 02778 – Linear Low Density Polyethylene (LLDPE) Geomembrane

1.3. REFERENCES

A. ASTM D 1557 – Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort.

B. ASTM D1556 – Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.

C. ASTM D2216 – Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.

D. ASTM D2937 – Standard Test Method for Density of Soil in Place by the Drive Cylinder Method.

E. ASTM D6938 – Standard Test Method for In-Place Density and Water Content of Soil by Nuclear Methods (Shallow Depth).

2. PART 2 PRODUCTS

2.1. SUBGRADE

A. Prior to placement of geomembrane liner, the subgrade surface is prepared in accordance with Section 3.2 and smooth drum rolled to provide a firm smooth

surface.

B. Subgrade shall not contain any deleterious materials, debris, organic matter, ice, snow or frozen material.

C. The subgrade soils shall have a maximum particle size of 1 inch at the uppermost surface.

2.2. SOURCE QUALITY CONTROL

A. Perform quality control planning and procedures to assure that deleterious or waste materials are not incorporated into the subgrade soils.

B. Coordinate source quality control program with CalRecycle.

3. PART 3 EXECUTION

3.1. EXAMINATION

A. Verify that subgrade is complete and in compliance with slopes and dimensions shown on the Construction Drawings and with Paragraph 3.2 of this section.

B. Examine surface to determine whether unsuitable materials are present.

C. Verify surface is free of ponded water.

D. The subgrade surface will be examined and accepted in writing by the CalRecycle prior to placement of geomembrane.

3.2. FINISHED GRADING AND COMPACTION OF SUBGRADE

A. Once the subgrade is placed to the foundation layer grades shown on the Construction Drawings, scarify, moisture condition and recompact the top 6-inch layer of subgrade soils to relative compaction of at least 90% of maximum density at moisture content near optimum as determined by ASTM D1557.

B. Finish subgrade within a vertical tolerance of ± 0.1 feet of design grade.

C. Fill voids and cracks.

D. Smooth drum roll completed subgrade.

E. After compaction is complete, CalRecycle will accept the subgrade only if and when all criteria of this Section are met or satisfied.

F. Sections of subgrade used as haul roads may be subjected to re-finishing at direction CalRecycle.

G. Protect and maintain approved subgrade in finished condition until covered with geosynthetics. Damage to the approved subgrade will be repaired at Contractor's expense.

3.3. CONSTRUCTION QUALITY ASSURANCE

A. Construction quality assurance (CQA) will be performed in accordance with the CQA plan.

B. CalRecycle may perform additional testing to determine the conformance of the materials with these Construction Specifications and the Drawings.

SECTION 02227
DRAINAGE GRAVEL

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. Work includes furnishing, loading, hauling, and placing of the drainage gravel for the toe drain collection trench.

1.2. RELATED SECTIONS

A. Section 02772 – Engineered Fill and Foundation Layer

B. Section 02771 – Geotextile

C. Section 02774 – Drainage Geocomposite

D. Section 02778 – Linear Low Density Polyethylene LLDPE Geomembrane

1.3. REFERENCES

A. ASTM C136 - Standard Method for Sieve Analysis of Fine and Coarse Aggregates.

B. ASTM D2434 - Standard Method for Permeability of Granular Soils (Constant Head).

C. ASTM D2488 - Standard Practice for Description and Identification of Soils (Visual-Manual Procedure).

1.4. SUBMITTALS

A. Submit a 50-pound representative sample of the proposed drainage gravel within 10 days after contract award.

2. PART 2 PRODUCTS

2.1. DRAINAGE GRAVEL

A. Clean rounded to subrounded with a maximum particle size of 1-1/2 inches with less than 25 percent passing the 1/2-inch sieve and less than 2% passing the No. 200 sieve

B. Material obtained and imported from off-site.

C. Free of organic or other deleterious material.

D. Material must be hard, durable and not subject to grain crushing.

3. PART 3 EXECUTION

3.1. PREPARATION

A. Verify that all underlying components such as geosynthetics have been installed, tested, and accepted CalRecycle in accordance with the Construction Drawings and Specifications.

B. Establish lines and grades for placement of the drainage gravel in accordance with the Construction Drawings.

3.2. PLACEMENT

A. Place to lines and grades shown on the Construction Drawings.

B. Place to the thickness shown on the Construction Drawings.

C. Place without damaging underlying geosynthetics.

SECTION 02229
VEGETATIVE/PROTECTIVE COVER

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. Processing, moisture conditioning, and placement of the vegetative/protective Cover.

B. Organic material added in the top 6 inches of the vegetative/protective cover.

1.2. RELATED SECTIONS

A. Section 02771 – Geotextile

B. Section 02774 – Drainage Geocomposite

C. Section 02778 – LLDPE Geomembrane

1.3. REFERENCES

A. ASTM D422 - Standard Method for Particle Size Analysis of Fine and Coarse Aggregates.

B. ASTM D4318 - Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soil.

C. Caltrans Standard Specifications – Current Edition

1.4. SUBMITTALS

A. Contractor’s surveyor shall prepare and submit for approval a grid layout for the determination of the soil cover thickness over the construction area.

B. Contractor shall prepare and submit a Workplan for approval to protect, dismantle, salvage and reconstruct the landfill gas collection and flare system such that the system remains operational to the maximum extent possible during construction activities.

2. PART 2 PRODUCTS

2.1. VEGETATIVE/PROTECTIVE COVER

A. Soil material obtained from on-site sources or material imported from off-site sources meeting the requirements of this Section.

B. Maximum particle size of 1 inch.

C. Containing no sharp rocks, sticks, or other material that may damage the underlying geosynthetic materials.

D. Containing no ice, snow, or frozen material.

E. The top 6 inches of the vegetative/protective layer shall contain approximately 15% organic material by volume. Organic material shall be chipped green waste (max particle size of 3 inches). The organic mixture shall be preblended into the vegetative/protective layer soil prior to placement within the closure area unless approved by the Engineer.

3. PART 3 EXECUTION

3.1. PREPARATION

A. Verify that all underlying components such as geosynthetics, gravel, and collection piping have been installed, tested, surveyed, and accepted CalRecycle in accordance with the Construction Drawings and Specifications.

B. Verify that all necessary pre-construction submittals, such as conformance testing of the vegetative/protective cover materials has been performed prior to placement.

C. Establish lines and grades by field survey for placement of the vegetative/protective cover in accordance with the Construction Drawings and this Section.

3.2. PLACEMENT OF VEGETATIVE/PROTECTIVE COVER

A. Excavate from the borrow site or approved stockpile, screen, or otherwise process the protective cover material to the gradation requirements of this Section.

B. Place only when underlying geosynthetic installations are complete in accordance with the Specifications and accepted by CalRecycle.

C. On the top deck, place in an uphill or cross-slope direction (not in a downhill direction) to prevent putting tension in the underlying geosynthetics.

D. On the side slopes, place in an uphill direction (not in a downhill or cross-slope direction) to prevent putting tension in the underlying geosynthetics.

E. Place in the cooler part of the day when underlying geosynthetics contain minimal wrinkles that will not fold over as determined by CalRecycle and when the ambient temperature is no greater than 90°

F. Place in a manner that prevents the development of wrinkles in the underlying geosynthetics in front of the advancing vegetative/protective cover. Remove wrinkles in a manner approved by CalRecycle. If folding does occur, repair at no additional cost to the CalRecycle.

G. Do not cause underlying geosynthetics to bridge or trampoline at the toes of slopes, benches, across ditch or pipe alignments. If bridging does occur, repair at no additional cost to the CalRecycle.

H. Place to a minimum thickness of 3 feet over the geomembrane in haul roads or in traffic areas where heavy rubber-tired equipment (scrapers, dump trucks, etc.) will be used during construction.

I. The vegetative/protective layer material shall be compacted to at least 85 percent of the maximum dry unit weight as measured according to ASTM D1557. The moisture content shall be maintained within the range of 4% of optimum as determined by ASTM D1557. The Contractor will need to moisture condition or dry out cover soil that is too wet or too dry prior to placement.

J. Place vegetative/protective cover to the thickness, lines and grades shown on the Construction Drawings.

K. Equipment used for placing vegetative/protective cover material shall not be driven directly over geosynthetics. A minimum thickness of 1 ft of material is required between a low ground pressure (LGP) grading dozer (less than or equal to 5 psi ground pressure) and underlying geosynthetics as detailed in Table 02229-1. A minimum thickness of 3 ft of material is required between rubber-tired vehicles and underlying geosynthetics. Unless otherwise approved in writing by the Engineer, Table 02229-1 shall be complied with during construction.

TABLE 02229-1
REQUIREMENTS FOR EQUIPMENT CONTACT PRESSURE AND LIFT THICKNESS

Maximum Equipment Ground Pressure (psi)	Minimum Initial Lift Thickness (ft)
5 (LGP)	1.0
10	1.5
20	2.0
>20	>3.0

L. Spread and place materials (to the greatest extent possible) in a single lift meeting the minimum depth shown on the Construction Drawings. In no event, shall the lift thickness of the material being spread be less than 1.0-foot.

M. Do not damage underlying geosynthetic materials, drainage gravel, or piping installations.

N. Track-walk the final surface of the vegetative/protective cover at the completion of placement.

3.3. FIELD QUALITY CONTROL

A. Do not use pointed stakes as grade control devices over lined areas. Only use devices that will not puncture underlying geosynthetics.

B. Perform as-built surveys as required to document the vegetative/protective cover limits and to measure vegetative/protective cover quantities for payment.

C. At the completion of construction, the Contractor shall provide an as-built survey drawing in digital form to CalRecycle that includes the survey point data and the contoured topography of the finished surface.

3.4. FIELD QUALITY ASSURANCE

A. Sampling and testing of materials to determine material type may be performed by CalRecycle at the stockpile, at the material source, or at the place of use in accordance with the CQA Plan.

B. CalRecycle may perform gradation tests of materials before and during placement in accordance with ASTM D422.

C. Assist CalRecycle as necessary in collecting material samples and conducting tests.

SECTION 02230
SURFACE WATER DRAINAGE SYSTEMS

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. Installation of surface water features as shown on the Construction Drawings.

1.2. RELATED SECTIONS

A. Section 02110 – Clearing and Stripping

B. Section 02221 – Excavating and Stockpiling

C. Section 02222 – Engineered Fill and Foundation Layer

D. Section 02229 – Vegetative/Protective Cover

E. Section 02779 – Geocell Flood Control Armor

2. PART 2 PRODUCTS

2.1. GEOCELL FLOOD CONTROL ARMOR

A. Geocell as specified in Section 02779.

2.2. CORRUGATED HDPE PIPE

A. Corrugated HDPE pipe as specified in Section 02711.

2.3. PIPE ZONE BACKFILL

A. Pipe zone backfill shall be Class I, II, or III backfill material as defined by the Plastic Pipe Institute. Earthfill may be used as pipe zone backfill if it meets the requirements for Class I, II, or III material.

B. Pipe zone backfill shall be material free of organic material or other deleterious material with a maximum particle size of 3/4-inch.

2.4. PIPE BEDDING MATERIAL

A. Bedding material for pipes shall consist of clean sand or gravel with a maximum particle size of 1/2 inch.

2.5. 8-OZ GEOTEXTILE

A. Use of 8-oz Geotextile under rock slope protection shall be in accordance with the Construction Drawings and Section 02771 of the Specifications.

2.6. ROCK SLOPE PROTECTION

A. Free of organic or other deleterious material.

B. Meet the requirements of Caltrans Standard Specifications (2015) 72-2.02B Type B No. 2 rock.

C. Material must be hard, durable and not subject to grain crushing or weathering.

3. PART 3 EXECUTION

3.1. PREPARATION

A. Set required lines, levels, contours, and datum by construction staking.

B. Notify utility company to locate utilities, if applicable.

C. Provide for dust control.

D. Protect benchmarks, existing structures, and fences from excavation equipment and vehicular traffic.

E. Perform clearing and stripping in accordance with Section 02110.

3.2. INSTALLATION OF DRAINAGE STRUCTURES

A. Excavate the drainage channels and spillway to the lines, grades, and dimensions shown on the Construction Drawings.

B. Install structures in accordance with the Construction Drawings and Specifications.

C. Place pipe bedding materials for culverts.

D. Install the culverts, and all associated appurtenances by fastening all parts together as shown on the Construction Drawings, the Specifications, and as recommended by the suppliers.

E. Anchor the structures as shown on the Construction Drawings.

F. Backfill the HDPE culverts with compacted pipe zone backfill as shown on the Construction Drawings and specified this section.

G. Cast-in-place concrete or shotcrete shall be placed as shown on the Construction Drawings.

1. Concrete shall be placed in a workmanlike manner in accordance with current industry standards.

2. The concrete shall be formed, placed, vibrated in place, and struck level with the lines and grades shown on the Construction Drawings.

3. The Contractor shall remove any excess materials, so that the concrete or shotcrete does not obstruct the flow of the drainage structure.

4. Sufficient time shall be allowed in the schedule for proper curing of the concrete or shotcrete before placement of the backfill materials.

H. Contractor shall take care as not to damage the structures during installation and compaction. Any damage shall be repaired, or the materials replaced (if necessary) by the Contractor at no additional cost to CalRecycle.

3.3. PIPE BEDDING AND PIPE ZONE BACKFILL

A. Take special care in bedding and backfilling operations to not damage pipe and pipe coatings.

B. Pipe bedding and pipe zone backfill should both be placed in dry states to allow materials to be properly placed.

C. Place bedding material at trench bottom, level fill materials in one continuous layer not exceeding compacted depth shown on Construction Drawings and graded to ±0.1 foot.

D. Place initial pipe zone backfill into the trench and tamp material under pipe haunches to compact.

E. Place pipe zone backfill material to completely surround pipe without voids.

F. Place backfill material in accordance with the Construction Drawings.

G. Place and compact each lift of backfill material by wheel rolling with rubber-tired equipment or using approved compaction equipment.

H. No jetting is allowed.

3.4. ROCK SLOPE PROTECTION PLACEMENT

A. Place 8-oz geotextile as shown on the Construction Drawings to the dimensional cross-section shown.

B. Place rock slope protection in uniform graded mass. Distribute rock slope protection to produce uniform graded mass.

C. Do not contaminate rock slope protection with other soil materials prior to, during, or after construction.

D. Provide uniform transition from channel into rock slope protection.

E. Do not damage underlying geosynthetics during installation. Repair damaged geosynthetics at no additional cost to CalRecycle.

SECTION 02270
EROSION AND SEDIMENT CONTROL

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. Implement and install erosion and sediment control measures as shown on the Constriction Drawings and as required by the Stormwater Pollution Prevention Plan (SWPPP) or Water Pollution Control Plan (WPCP).

1.2. RELATED SECTIONS

A. Section 02229 – Vegetative/Protective Cover

B. Section 02230 – Surface Water Drainage Systems

C. Section 02936 – Hydroseeding

1.3. REFERENCES

A. California Department of Transportation (Caltrans) Standard Specifications, Section 66 – Subsurface Drains and Section 72 – Slope Protection.

1.4. REQUIREMENTS

A. Submit an Erosion Control Plan which describes all materials and methods proposed to minimize erosion damage to the working area and to prevent unwanted discharge of sediment laden waters from the project site. The Erosion Control Plan must be submitted and approved prior to the start of work. The Contractor shall also submit a temporary erosion control plan specifying type and location of the temporary control devices as noted below in Section 02270, 1.6.A.

B. Meet regulatory requirements for construction of this project. Implement erosion control practices and procedures. If the erosion control measures are inadequately maintained, or are found to be inadequate in the field, install additional measures to prevent sediment laden runoff from leaving the site.

1.5. SEQUENCING AND SCHEDULING

A. All erosion control features must be approved by CalRecycle before beginning site earthwork.

B. Route runoff from cleared or disturbed areas. Route through temporary sediment traps, straw bale barriers, or silt fences. Place erosion control facilities prior to any earthwork, clearing, and grubbing. It is preferable for construction to progress in an upstream direction starting with downstream erosion control

facilities as the first items of construction.

C. Stabilize disturbed ground at the end of each work day. Perform surface roughening immediately upon reaching final grades by uniformly track-walking up and down the slope with a crawler tractor or sheepsfoot roller, leaving a pattern of cleat imprints that parallel the slope contours. Implement permanent soil stabilization and erosion/sedimentation controls upon reaching final grade.

D. Notify CalRecycle of any soils showing signs of erosion.

E. Ensure that all waters from any dewatering operations reaching existing water courses meet or exceed the existing quality of the water course.

1.6. PLACEMENT AND REMOVAL OF EROSION CONTROL FACILITIES

A. In the event ongoing construction activities prevent the full installation of all erosion control improvements, the Contractor shall provide temporary controls as necessary to prevent detrimental runoff from the site during construction of the vegetative/protective cover and the associated drainage facilities. These improvements may include straw wattles, erosion blanket products, sandbags, straw, etc., as approved by CalRecycle for temporary controls.

B. Remove all temporary control facilities, 30 days after final completion of work or upon approval CalRecycle. Dispose of used silt fence and supports, straw bales, and sediment traps. Costs for removal of erosion control features are incidental, and shall be included in lump sum or unit costs.

2. PART 2 PRODUCTS

2.1. SILT FENCE

A. Woven geotextile supplied in minimum 3.5-foot widths and meeting the requirements of Table 02270-1.

B. Support Fence: 2-inch by 2-inch by 14-gage wire mesh fencing in 3-foot-wide rolls.

C. Posts: 2-inch by 2-inch by 4.5-foot-long standard (or better) hardwood posts or 4.5-foot-long steel fence posts weighing 1.33 pounds per linear foot.

D. Fasteners: Heavy duty wire staples at least 1-inch-long, tie wires, or hog rings.

E. Gravel Backfill: Caltrans Class 1, Type A.

TABLE 02270-1
WOVEN GEOTEXTILE PROPERTIES

TEST	TEST DESIGNATION	UNIT	REQUIREMENT
Grab Tensile Elongation	D4632	%	50 - 114
Grab Tensile Strength	D4632	lbs	100 min.
Puncture Resistance	D4833	lbs	60 min.
Permittivity	D4491	Sec -1	0.1 - 0.5
Apparent Opening Size	D4751	mm	0.5 - 0.85
Burst Strength	D3786	psi	190 min

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2.2. STRAW WATTLE

A. Straw wattles: Straw wrapped in tubular plastic netting to a density of 2.75 pcf, 6-10 inch diameter. Posts: Per Section 2.1.C or as approved by the Engineer.

3. PART 3 EXECUTION

3.1. PREPARATION AND APPLICABILITY

A. Construction within environmentally sensitive areas shall be performed in such a manner as to minimize surface disturbance and protect all endangered or protected species of plants and wildlife. In some instances, equipment shall not be permitted in these areas as discussed on the Construction Drawings or as designated by CalRecycle.

3.2. SILT FENCE INSTALLATION

A. Drive fence posts a maximum of 18 inches below the soil surface elevation (outside of finish cover system) at a maximum spacing of 6 feet in areas requiring silt fence. The fence line should be at a constant elevation for each continuous length of silt fence.

B. Place wire mesh support fencing and fabric back-to back (fabric on the upslope side) and extend 12 inches into the trench, leaving 24 inches of fencing and fabric above ground level. Fasten filter fabric and wire mesh support fencing to posts using heavy-duty 1-inch wire staples for wood posts, or wire rings for steel posts. At each post, place fasteners at the top of the fence, at ground level, and halfway in between.

C. Join wire support fence ends by overlapping a minimum of 6 inches and

connecting the two sections with wire rings in four places. If fabric joints are necessary, cut the wire support fence, sandwich the wire and fabric ends between two wood posts, and bind the posts tightly together.

D. Lengthwise along the top of the silt fence and at ground level, tie fabric to wire support fencing with wire rings at a maximum spacing of 3 feet. Backfill trench with Caltrans Class 1, Type A material.

3.3. STRAW WATTLE INSTALLATION

A. Contractor shall install straw wattles in accordance with the SWPPP, Construction Drawings, and Manufacturer’s guidelines.

3.4. MAINTENANCE

A. General Requirements: Observe the facilities during the first storm following construction to ensure that the facilities are properly located, constructed, and operating as designed. Maintain and repair facilities as needed to ensure that they continue to work as designed.

B. Silt Fence: Check for sagging fences, torn fabric, and signs of erosion and/or sedimentation down slope of the fence. Make repairs as necessary. If the silt fence fails due to storm water runoff inundating the fence, construct additional erosion and sediment control measures to remove sediment from and convey the runoff to downstream drainage facilities. Remove accumulated sediment behind silt fences whenever it reaches approximately one third the height of the fence.

C. Straw Wattles: Check for undercutting, damaged wattles, evidence of erosion or sedimentation between wattles, and "end run" erosion at the ends of the barrier. Make repairs, replace wattles, and remove sediment before it reaches approximately one-half the height of the wattle.

SECTION 02285
SETTLEMENT MONUMENTS

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. Installation of settlement monuments as shown on the Construction Drawings.

1.2. RELATED SECTIONS

A. Section 02222 – Engineered Fill and Foundation Layer

B. Section 02229 – Vegetative/Protective Cover

C. Section 02936 – Hydroseeding

1.3. SUBMITTALS

A. Upon completion of the installation, the Contractor shall provide as-built documentation showing the final survey monument elevations and site coordinates, and other data pertinent to the work performed.

2. PART 2 PRODUCTS

2.1. GENERAL

A. This portion of the Specifications describes the permanent survey markers for use in survey monument construction.

2.2. SURVEY MARKERS

A. The permanent survey markers shall be standard brass caps specifically manufactured for use in survey monument construction. Each cap shall be a minimum of 2 inches in diameter.

2.3. CONCRETE

A. The concrete used for the monuments shall be a standard mix of Portland Cement, sand, gravel, and water shall conform to the requirements of the concrete mix used for the chain-link fence post. Refer to Section 02208 Part 2.1.E or as approved by CalRecycle.

2.4. PROTECTIVE CONCRETE BLOCKS

A. Protective concrete blocks shall be 2’x2’x3’ recycled concrete blocks with lifting ring.

3. PART 3 EXECUTION

3.1. GENERAL

A. This portion of the Specifications describes the procedures to be followed for installation of the settlement monuments. The materials and locations shall be as shown on the Construction Drawings and in these Specifications.

3.2. SETTLEMENT MONUMENT

A. Upon completion of the final cover, the Contractor shall construct a square concrete form to the size shown on the Construction Drawings.

B. The mixed concrete shall be placed in the form and the brass cap set such that the cap is flush with the surface of the concrete.

C. Once the concrete has cured to sufficient hardness, each cap shall be engraved with a cross mark in the center and engraved with a label (identification mark) that differentiates each monument location from the other.

D. Any monument outside of the landfill footprint that is designated as a benchmark shall also be engraved with the monument coordinates (northing, easting, and elevation in feet above mean sea level (amsl) as determined by the final survey.

E. Place protective concrete blocks around settlement monument as shown on the Construction Drawings.

3.3. FINAL SURVEY

A. Upon completion of the settlement monuments, the Contractor shall survey and record the coordinates (northing, easting, and elevation amsl) of each brass cap monument. The coordinates of the benchmarks shall also be engraved directly on the brass cap for future reference. The final survey information of the monuments shall be submitted to CalRecycle as described in these Specifications.

SECTION 02710
HIGH DENSITY POLYETHYLENE PIPE

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. Furnish and install High Density Polyethylene (HDPE) solid pipe, and associated pipe fittings for landfill gas collection system per the Construction Drawings.

1.2. RELATED SECTIONS

A. Section 02781 – Polyvinyl Chloride (PVC) Pipe

1.3. REFERENCES

A. American Society for Testing and Materials (ASTM).

1. ASTM D638 - Standard Test Method for Tensile Properties of Plastics.
2. ASTM D696 - Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics.
3. ASTM D746 - Standard Test Method for Brittleness Temperature of Plastics and Elastomers by Impact.
4. ASTM D790 - Standard Test Method for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
5. ASTM D1238 - Standard Test Method for Flow Rates of Thermoplastics by Extrusion Plastometer.
6. ASTM D1248 - Specification for Polyethylene Plastics Molding and Extrusion Materials.
7. ASTM D1505 - Standard Test Method for Density of Plastics by the Density-Gradient Technique.
8. ASTM D1525 - Standard Test Method for Vicat Softening Temperature of Plastics.
9. ASTM D1599 - Standard Test Method for Short-Time Hydraulic Failure Pressure of Plastic Pipe, Tubing and Fittings.
10. ASTM D1603 - Standard Test Method for Carbon Black in Olefin Plastics.
11. ASTM D1693 - Standard Test Method for Environmental Stress-Cracking of

Ethylene Plastics.

12. ASTM D2122 - Method for Determining Dimensions of Thermoplastic Pipe and Fittings.

13. ASTM D2240 - Standard Test Method for Rubber Property Durometer Hardness.

14. ASTM D2657 - Practice for Heat Joining of Polyolefin Pipe and Fittings.

15. ASTM D2837 - Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials.

16. ASTM D3035 - Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Controlled Outside Diameter.

17. ASTM D3261 - Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing.

18. ASTM D3350 - Specification for Polyethylene Plastics Pipe and Fittings Materials.

19. ASTM F1248 - Determination of Environmental Stress Crack Resistance (ESCR) of Polyethylene Pipe.

20. ASTM F714 - Specification for Polyethylene (PE) Plastic Pipe (SDR PR) Based on Outside Diameter.

21. ASTM F1473 – Standard Test Method for Notch Tensile Test to Measure the Resistance to Slow Crack Growth of Polyethylene Pipes and Resins.

B. National Sanitation Foundation (NSF). NSF Standard Number 14 - Plastics Piping Components and Related Materials.

C. PPI - Plastic Pipe Institute.

D. ANSI - American National Standards Institute.

1.4. SUBMITTALS

A. Submit a Manufacturer's certification of compliance with specified requirements of this Section. Submit catalog cut sheet of pipe and fittings to be supplied prior to commencing work.

B. Provide written certification for qualified HDPE pipe fusion welders.

2. PART 2 PRODUCTS

2.1. PIPE AND FITTINGS

A. High density polyethylene (HDPE) manufactured for pipe meeting the following minimum standards.

1. Material Designation: PE 3608 / PE 3408.

2. Cell Classification: 345464 C.

B. All pipe sizes shown on the Construction Drawings and specified in this Section reference nominal diameter, unless otherwise indicated on the Construction Drawings or in this Section. Pipe sizing and workmanship to be in accordance with ASTM F714 and ASTM D3035.

C. Unless otherwise specified on the Construction Drawings, compressed air lines shall be SDR 9, liquid lines shall be SDR 11, and LFG lines shall be SDR 17, HDPE pipe and fittings shall be manufactured from PE 3608/ PE 3408 resin. Fittings shall have the same SDR as the pipe to which they are fused. Pipe specifications shall be factory stenciled on the pipe for ease of inspection.

D. Conforming to the minimum requirements of Table 02710-1.

E. Containing no recycled compound except that generated in the Manufacturer's own plant and from resin of the same specification from the same raw material supplier.

F. Resin for pipe and fittings to be listed by both N.S.F. and P.P.I. and manufactured in accordance with ASTM D3350 and ASTM F714.

TABLE 02710-1
POLYETHYLENE PIPE MATERIAL PROPERTIES

PROPERTY	ASTM TEST DESIGNATION	UNIT	REQUIREMENTS
Density	D1505	gm/cm3	0.955 min.
Melt Index	D1238	gm/10 minutes	0.1 (typ).
Flexural Modulus	D790	psi	110,000 min.
Tensile Strength	D638	psi	3,000 min.
Hydrostatic Design Basis at 73°F (23°C)	D2837	psi	1,600 (typ.)
UV Stabilizer	D1603	% Carbon Black	2% to 3%
Elastic Modulus	D638	psi	110,000 min.
Brittleness Temperature	D746	°F	-103°F (typ.)

PROPERTY	ASTM TEST DESIGNATION	UNIT	REQUIREMENTS
PENT (Pennsylvania Notch Test)	F1473	hours	100 min.
Thermal Expansion Coefficient	D696	in/in/°F	1x10-4 max.

G. Homogeneous throughout and free of visible cracks, holes (except where specified or shown), foreign inclusions or other injurious defects. Being uniform in color, capacity, density, and other physical properties.

H. Provide pipe with the following information continuously marked on the pipe or spaced at intervals not exceeding 5 feet.

1. Name and/or trademark of the pipe Manufacturer.
2. Nominal pipe size.
3. Standard Dimensional Ratio (SDR).
4. PE 3608 or PE 3408.
5. Manufacturer's Standard Reference.
6. A production code from which the date and place of manufacture can be determined.

2.2. FITTINGS

A. Provide fittings, manufactured from the same class of materials and fully compatible with the HDPE pipe.

B. Provide fittings manufactured in accordance with ASTM D3350 and ASTM D3261. Provide fabricated fittings with pressure ratings matching or exceeding the HDPE pipe.

3. PART 3 EXECUTION

3.1. PIPE INSTALLATION GENERAL REQUIREMENTS

A. When shipping, delivering, and installing pipe, fittings, and accessories, do so in such manner to ensure a sound, undamaged installation.

B. Provide adequate storage for all materials and equipment delivered to the job site.

C. Handle and store pipe and fittings in accordance with the Manufacturer's recommendations.

3.2. PLACING AND LAYING PIPE

A. Below-grade LFG piping shall be graded to a minimum of 2% in the direction of gas flow and 3% against the direction of gas flow. Pipe grades not meeting the minimums as confirmed by as built surveying (by CalRecycle) shall be regraded and resurveyed at the Contractor's expense.

B. On-grade LFG piping shall be graded to a minimum of 1% in the direction of gas flow and 3% against the direction of gas flow. Pipe grades not meeting the minimums as confirmed by as built surveying (by CalRecycle) shall be regraded and resurveyed at the Contractor's expense.

C. Provide required maintenance of all such materials and equipment used to handle, place, and lay pipe.

D. Follow the Manufacturer's recommendations when hauling, unloading and stringing the pipe.

E. Take precautions to prevent damage to the pipe.

F. Do not push, pull, or drag pipe and fittings over sharp projections, or drop, or have objects dropped on the pipe and fittings.

G. Inspect for defects before and during installation. Remove any piping showing kinks, buckles, cuts, gouges, or any other damage, which in the opinion of the Engineer will affect performance of the pipe.

H. Replace material found to be defective before or after laying with sound material at no additional expense to CalRecycle.

I. Remove all dirt, gravel, cobwebs, plastic shavings, and debris before and after placement. The pipe shall be clean prior to acceptance by CalRecycle.

J. Carefully lower pipe and accessories into their final resting location and when moving them around the site.

K. Under no circumstances drop or dump materials onto the pipe.

L. Rest the full length of each section of pipe solidly upon the pipe bedding.

M. Take up or relay pipe that has had the grade disturbed while joining or laying the pipe.

3.3. JOINING PIPE

A. Join the HDPE pipe using the thermal butt fusion method or thermal coupling method, in accordance with the procedures established by the pipe

Manufacturer.

B. Use fusion pressures, temperatures, and cycle times according to pipe Manufacturer's recommendations.

C. The ends of the pipes to be joined shall be trimmed, ground, butted flush together and held in place such that the gap does not exceed 1/8 inch after coupling.

D. Only use personnel adequately trained and qualified in the technique involved.

E. Do not perform pipe joining (unless by mechanical means) in water or when conditions are unsuitable for the work.

F. Keep water out of the work area until joining is completed.

G. Secure open ends of pipe and close valves when work is not in progress, so that no water, earth, animals, or other substance will enter the pipe or fittings.

H. Plug, cap or valve off pipe ends left for future connections as shown on the Construction Drawings.

I. Clear and grade fusion welding sites, if necessary, to provide enough space for pipe storage and fusion equipment.

J. Keep the site free of rocks, stumps and debris which could cut, scar, or gouge the pipe.

K. Remove all dirt, gravel, cobwebs, plastic shavings, and debris before and after joining. The pipe shall be clean prior to acceptance by CalRecycle.

L. When two pipes of different diameters must be joined, the Contractor shall join the pipe with an appropriate transition fitting. Transition fittings shall be beveled and reamed, if necessary, to provide a relatively smooth inner surface at the joint.

M. Backfill pipes with the materials (gravel, soil, etc.) shown on the Construction Drawings and in accordance with the appropriate section of these Specifications.

3.4. QUALITY CONTROL

A. For pressurized pipe, all joints shall undergo a pressure test at 5 psig for a minimum of 2 hours, with no more than 0.2 psig pressure drop within that time frame measured on a gauge reading 0 to 10 psig. A soap and water solution (leak detection fluid) must be applied to all joints and the joints inspected for leakage by the formation of bubbles at the point of leakage. All joints and connections shall be visually inspected for leaks after applying the leakage

detecting fluid. Any leaks detected must be repaired even if the test meets the set requirements. They shall be identified and re-joined, followed by another pressure test until all joints pass the test. The pressure indicator shall be divided into increments not exceeding 0.2 psi.

B. Pressure tests shall be witnessed by the third party CQA Monitor and certified by the Contractor.

SECTION 02711
CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE) PIPE

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. Furnish and install Corrugated High Density Polyethylene (HDPE) pipe per the Construction Drawings. Pipe sizes are shown on the Construction Drawings.

1.2. RELATED SECTIONS

A. Section 02222 – Engineered Fill and Foundation layer

B. Section 02230 – Surface Water Drainage Systems

1.3. REFERENCES

A. American Society for Testing and Materials (ASTM)

1. ASTM D746 - Standard Test Method for Brittleness Temperature of Plastics and Elastomers by Impact.

2. ASTM D1238 - Standard Test Method for Flow Rates of Thermoplastics by Extrusion Plastometer.

3. ASTM D1248 - Specification for Polyethylene Plastics Molding and Extrusion Materials.

4. ASTM D1505 - Standard Test Method for Density of Plastics by the Density-Gradient Technique.

5. ASTM D1603 - Standard Test Method for Carbon Black in Olefin Plastics.

6. ASTM D1693 - Standard Test Method for Environmental Stress-Cracking of Ethylene Plastics.

7. ASTM D2412 – Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading.

B. National Sanitation Foundation (NSF). NSF Standard Number 14 -Plastics Piping Components and Related Materials

C. PPI - Plastic Pipe Institute

D. ANSI - American National Standards Institute

2. PART 2 PRODUCTS

2.1. PIPE

A. The collection piping shall be high quality, heavy-duty, corrugated HDPE pipe; containing no recycled compound except that generated in the Manufacturer's own plant and from resin of the same specification from the same raw material supplier.

B. Pipe shall be homogeneous throughout and free of visible cracks, holes (except where specified or shown), foreign inclusions or other injurious defects.

C. The pipe shall be uniform in color, capacity, density, and meeting the general physical properties shown in the following table.

TABLE 02711-1 HDPE PIPE PROPERTIES

PROPERTY	TEST DESIGNATION	UNIT	REQUIREMENTS
Density	D1505	gm/cm3	0.94 – 0.96
Melt Index	D1238	gm/10 min(E)	< 0.15
Environmental	Stress	Crack Resistance	D1693
UV Stabilizer	D1603	% Carbon Black	2 – 3
Brittleness Temp.	D746	□F	<-112
Pipe Stiffness	D2412	Psi	>30

D. The Contractor shall submit Manufacturer's data and certifications to CalRecycle for approval prior to construction.

E. Provide pipe with the following information continuously marked on the pipe or spaced at intervals not exceeding 5 feet.

1. Name and/or trademark of the pipe manufacturer.

2. Nominal pipe size.

3. Manufacturer's Standard Reference.

4. A production code from which the date and place of manufacture can be determined.

2.2. FITTINGS

A. Sections of the piping shall be joined with external couplers manufactured of high- quality HDPE as provided by the pipe manufacturer.

B. Contractor shall provide fittings, manufactured from the same class of materials and fully compatible with the HDPE pipe.

C. The fabricated fittings shall have pressure ratings matching or exceeding the HDPE pipe.

3. PART 3 EXECUTION

3.1. PIPE INSTALLATION GENERAL REQUIREMENTS

A. When shipping, delivering, and installing pipe, fittings, and accessories, do so in such manner to ensure a sound, undamaged installation.

B. Provide adequate storage for all materials and equipment delivered to the job site.

C. Handle and store pipe and fittings in accordance with the Manufacturer's recommendations.

3.2. PLACING AND LAYING PIPE

A. Provide required maintenance of all such materials and equipment used to handle, place, and lay pipe.

B. Follow the Manufacturer's recommendations when hauling, unloading and stringing the pipe.

C. Take precautions to prevent damage to the pipe.

D. Do not push, pull, or drag pipe and fittings over sharp projections, or drop, or have objects dropped on the pipe and fittings.

E. Inspect for defects before and during installation. Remove any piping showing kinks, buckles, cuts, gouges, or any other damage, which in the opinion of CalRecycle will affect performance of the pipe.

F. Replace material found to be defective before or after laying with sound material at no additional expense to the CalRecycle.

G. Carefully lower pipe and accessories onto the ground or liner.

H. Under no circumstances drop or dump materials onto the ground or liner.

I. Rest the full length of each section of pipe solidly upon the pipe bedding, or on rub- sheets.

J. Take up or relay pipe that has had the grade disturbed while joining or laying the pipe.

3.3. JOINING PIPE

A. Join the HDPE pipe using the external couplers supplied by the Manufacturer.

B. When two pipes of different diameters must be joined, the Contractor shall join the pipe with an appropriate transition fitting. Transition fittings shall be beveled and reamed, if necessary, to provide a relatively smooth inner surface at the joint.

SECTION 02771
GEOTEXTILE

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. Furnishing and installation of geotextile.

1.2. RELATED SECTIONS

A. Section 02230 – Surface Water Drainage Systems

B. Section 02227 – Drainage Gravel

C. Section 02778 – Linear Low Density (LLDPE) Geomembrane

D. Section 02779 – Geocell Flood Control Armor

1.3. REFERENCES

A. GRI GT12(a) - Test Methods and Properties for Nonwoven Geotextiles Used as Protection (or Cushioning) Materials.

B. GRI GT13 - Test Methods and Properties for Geotextiles Used as Separation Between Subgrade Soil and Aggregate.

C. ASTM D885 - Methods for Testing Industrial Filament Yarns Made from Man-made Fibers.

D. ASTM D1777 - Method for Measuring Thickness of Textile Materials.

E. ASTM D4355 - Standard Test Method for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water.

F. ASTM D4491 - Standard Test Method for Water Permeability of Geotextiles by Permittivity.

G. ASTM D4533 - Standard Test Method for Trapezoid Tearing Strength of Geotextiles.

H. ASTM D4595 - Standard Test Method for Tensile Properties by the Wide-width Strip Method.

I. ASTM D4632 - Standard Test Method for Breaking Load and Elongation of Geotextiles (grab method).

J. ASTM D4751 - Standard Test Method for Determining Apparent Opening Size of a Geotextile.

K. ASTM D4833 - Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products.

L. ASTM D5261 - Standard Test Method for Mass Per Unit Area (weight) of Woven Fabric.

2. PART 2 PRODUCTS

2.1. GENERAL

A. Product comprised of a nonwoven, needle punched polypropylene fabric; oriented into a stable network that maintains its structure during handling, placement, and long-term service.

B. Resistant to soil, landfill gas condensate, and leachate chemicals.

C. New product made from virgin materials.

2.2. GEOTEXTILE

A. Unless otherwise specified in the Construction Drawings, geotextile used for cushioning and filtration shall conform to the minimum average roll values (MARV), as defined in Table 02771-1.

TABLE 02771-1
GEOTEXTILE PROPERTIES

TEST	ASTM TEST DESIGNATION	UNIT	REQUIREMENT
Mass per Unit Area	D5261	oz/yd2	>8
Grab Tensile Strength	D4632	lbs	>200
Puncture Resistance	D4833	lbs	>100
Trapezoidal Tear	D4533	lbs	>80
Permittivity	D4491	s-1	>1.2
Apparent Opening Size (AOS)	D4751	mm	0.18 to 0.21
UV Resistance	D4355	%	50@500 hrs

B. CalRecycle will reject rolls for which quality control requirements are not met.

C. Certify the quality of the rolls of geotextile.

D. Provide quality control certificates for each lot and each shift's production. The quality control certificates must include:

1. Roll numbers and identification
2. Sampling procedures
3. Results of quality control tests, including a description of test methods used

2.3. LABELING

A. Mark or tag geotextile rolls with the following information:

1. Manufacturer's name
2. Product identification
3. Lot number or date
4. Roll number
5. Roll dimensions

B. Mark special handling requirements on rolls.

3. PART 3 EXECUTION

3.1. EXAMINATION

A. Prior to installation of geotextile, examine underlying construction for conformance with specifications.

3.2. PROTECTION

A. When placing soil materials over geotextile ensure the following:

1. No damage to geotextile
2. No slippage of geotextile on underlying layers
3. No excessive tensile stresses in the geotextile Ensure that geotextile is covered within 30 days.

3.3. DELIVERY, STORAGE, AND HANDLING

A. Protect geotextile from ultraviolet light exposure, precipitation, inundation, mud, dirt, dust, puncture, cutting, and other damaging or deleterious condition.

B. Ship geotextile in closed trailer.

C. Immediately restore damaged protective covering.

3.4. DEPLOYMENT

A. Follow Manufacturer's recommendations, standards, and guidelines.

B. Roll geotextile down slope keeping the geotextile sheet in sufficient tension to prevent folds and wrinkles.

C. Cut geotextile using approved cutter only. Take care to protect other in-place geosynthetic materials when cutting geotextile.

D. Do not trap excessive dust, stones, or moisture in geotextile that could damage or clog drains or filters, or hamper subsequent seaming.

E. Examine geotextile over entire completed surface to ensure that no potentially harmful foreign objects, such as needles, are present. Remove any foreign objects.

3.5. SEAMS AND OVERLAPS

A. Overlap geotextile as required by the seaming technique and as recommended by Manufacturer prior to seaming.

B. Ensure that no soil materials are inadvertently inserted beneath the seams of geotextiles.

C. Geotextiles can be either sewn or heat welded.

D. Heat welded seaming shall be performed in a manner that does not damage the underlying geosynthetics and prevents burn-outs in the geotextile. All damaged geosynthetics and burn-outs shall be repaired as provided in these specifications.

E. Sew with polymeric thread having chemical resistance and strength properties equal to or exceeding those of the geotextile.

F. For sewing, use a 401 two-thread chain stitch, or equivalent.

3.6. REPAIRS

A. Repair holes, burn-outs or tears in geotextiles with a patch from the same geotextile material, by sewing or heat welding (as described above) in place with a minimum seam overlap of 12 inches in all directions.

B. Sew the geotextile within 1 inch of the outside edge of the patch materials.

C. No patches will be allowed within 1 inch of a panel edge.

D. Remove any soil or other material which may have penetrated the torn geotextile.

E. CalRecycle and CQA Consultant of all repairs.

SECTION 02774
DRAINAGE GEOCOMPOSITE

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. Furnishing all labor, materials and equipment necessary for installing the Drainage Geocomposite in accordance with the Specifications and the Construction Drawings.

1.2. RELATED SECTIONS

A. Section 02222 - Engineered Fill and Foundation Layer

B. Section 02222 - Vegetative/Protective Cover

C. Section 02771 - Geotextile

D. Section 02778 – Linear Low Density (LLDPE) Geomembrane

1.3. REFERENCES

A. GRI GC7 - Standard Guide for the Determination of Adhesion and Bond Strength of Geocomposites.

B. ASTM D792 - Standard Test Method for Density and Specific Gravity (Relative Density) of Plastics by Displacement.

C. ASTM D1603 - Standard Test Method for Carbon Black in Olefin Plastics.

D. ASTM D4491 - Standard Test Methods for Water Permeability of Geotextiles by Permittivity.

E. ASTM D4533 - Standard Test Method for Trapezoid Tearing Strength of Geotextiles.

F. ASTM 4632 – Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.

G. ASTM D4716 - Standard Test Method for Constant Head Hydraulic Transmissivity of Geotextiles and Geotextile Related Products.

H. ASTM D4751 - Standard Test Method for Determining Apparent Opening Size of a Geotextile.

I. ASTM D4833 - Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products.

J. ASTM D4873 - Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples.

K. ASTM D5035 - Standard Test Method for Breaking Strength and Elongation of Textile Fabrics (Strip Method).

L. ASTM D5199 - Standard Test Method for Measuring Nominal Thickness of Geotextiles and Geomembranes.

M. ASTM D5261 - Standard Test Method for Measuring Mass per Unit Area of Geotextiles.

N. ASTM D7005 – Standard Test Method for Determining the Bond Strength (Ply Adhesion) of Geocomposites.

1.4. DEFINITIONS

A. Batch: A quantity of resin, usually the capacity of one railcar, used in the fabrication of high-density polyethylene (HDPE) geocomposite. A roll number corresponding to the particular quantity of resin used will identify the finished product.

B. Construction Quality Assurance (CQA) Laboratory: The party, independent from CalRecycle, Manufacturer, Fabricator, and Installer, responsible for conducting tests on samples of geosynthetics obtained at the site.

C. Geocomposite Manufacturer: The party responsible for the production of the geocomposite rolls from resin and for the quality control of the resin.

D. Geocomposite Subsurface: The surface on which the geocomposite lies.

E. Installer: The party responsible for field handling, transporting, storing, deploying, seaming, temporarily restraining (against wind), and installing the geocomposite.

1.5. SUBMITTALS

A. Product Data: Submit the following to CalRecycle prior to confirmation of CalRecycle Contractor Agreement.

1. Resin Data.
    a. Statement of production date or dates.
    b. Certification stating that the geonet resin meets the product requirements (see Paragraph 2.3).
    c. Certification stating that all resin is from the same Manufacturer.
    d. Copy of quality control certificates issued by Manufacturer.
    e. Test reports from Manufacturer.

2. Geocomposite Rolls.
   a. Statement of production date or dates, and Manufacturer’s certificates for each day's production.
   b. Laboratory test results and certification stating that the geocomposite meets the product requirements of Part 2.
   c. Certification stating that all geocomposite rolls are furnished by one supplier, and that all rolls are manufactured from one resin type obtained from one resin supplier.
   d. Copy of quality control certificates issued by the Manufacturer, including designation of test methods used. Also include roll numbers, batch numbers, lot numbers, and roll identification.
   e. Test reports from the Manufacturer.
   f. Geocomposite delivery, storage, and handling instructions.
   g. Geocomposite installation instructions.

1.6. QUALIFICATIONS

A. INSTALLER: Must have successfully installed a minimum of 1,000,000 square feet of drainage geocomposite with documented references.

1.7. QUALITY ASSURANCE

A. CalRecycle will engage and pay for the services of (1) Construction Quality Assurance Consultant (CQAC), and (2) Construction Quality Assurance (CQA) Laboratory for monitoring the quality of the geocomposite.

1.8. DELIVERY, STORAGE, AND HANDLING (MANUFACTURER)

A. General: Conform to the Manufacturer's requirements.

B. Delivery.

1. Deliver materials to the site only after the CalRecycle accepts the required submittals.

2. Separate damaged rolls from undamaged rolls and store at locations designated by CalRecycle until CalRecycle determines proper disposition of material.

3. CalRecycle will determine if rolls are considered damaged.

4. Deliver in rolls, do not fold.

C. Storage on Site: (Installer).

   1. Store geocomposite rolls in the space allocated by CalRecycle.

2. geocomposite rolls to protect from puncture, dirt, grease, water, moisture, mud, mechanical abrasions, excessive heat or other damage.

3. Store geocomposite rolls on prepared surface (not on wooden pallets).

4. Stack geocomposite rolls as per the manufacturer's recommendation.

D. Handling on Site: (Installer).

1. Use appropriate handling equipment to load, move, and deploy geocomposite rolls. Appropriate handling equipment includes cloth chokers and spreader bars for loading, and spreader and roll bars for deployment. Dragging panels on the ground surface will not be permitted.

2. Do not fold geocomposite; folded material will be rejected.

3. Contractor is responsible for off-loading, storage, and transporting material from storage area to installation site.

2. PART 2 PRODUCTS

2.1. MANUFACTURERS

A. Submit substitutions in accordance with Section 01630, Product Options and Substitutions.

2.2. GEOCOMPOSITE LABELING

A. Provide the following information on the geocomposite roll labels:

1. Length, width, and weight.
2. Name of Manufacturer.
3. Directions for unrolling.
4. Product identification; lot number, batch number, and roll number.

2.3. GEONET

A. The resin shall be first quality High Density Polyethylene (HDPE), manufactured specifically for producing geonet for use in drainage systems. Mixing of different resin types, recycled materials, or seconds will not be allowed.

B. The geonet shall meet the requirements as described in Table 02774-1.

2.4. GEOTEXTILE

A. Geotextile used for filtration conforming to the following minimum average roll values (MARV) as defined by the Federal Highway Administration.

B. The geotextile shall meet the requirements as described in Table 02774-1.

2.5. GEOCOMPOSITE

A. Geonet shall be heat bonded to two layers of geotextile, one on each side.

B. No delamination (separation between the geonet and geotextile) greater than 6-square inch area within a 6-foot radius of any point shall be allowed.

C. Unlaminated edge: 6 inches MAXIMUM allowable.

D. The geocomposite shall meet the requirements as described in Table 02774-1.

TABLE 02774-1
GEOCOMPOSITE PROPERTIES

PHYSICAL PROPERTIES	UNITS	ASTM TEST METHOD	REQUIRED VALUE	QUALIFIER
Geonet				
Thickness	mil	D5199	250	Minimum
Tensile Strength	lb/in	D5035	45	Minimum
Hydraulic Transmissivity	m2/sec.	D4716	4 × 10-3	MARV(1)
Geotextile				
Mass Per Unit Area	oz/yd2	D5261	6	MARV
Grab Strength	lbs.	D4632	160	MARV
Grab Elongation	%	D4632	50	MARV
Permittivity	sec-1	D4491	1.6	MARV
Apparent Opening Size (AOS)	mm	D4751	0.18 to 0.21	Range
Composite				
Ply Adhesion (Minimum)	lb/in	D7005	0.5	MARV
Ply Adhesion (Average)	lb/in	D7005	1	MARV
Hydraulic Transmissivity(2)	m2/sec.	D4716	8 × 10-4	MARV

Notes:
1. MARV is statistically defined as mean minus two standard deviations and it is the value exceeded by 97.5% of all the test data.
2. Geocomposite measured at a load of 200 psf and a gradient of 0.5 sandwiched

PHYSICAL PROPERTIES	UNITS	ASTM TEST METHOD	REQUIRED VALUE	QUALIFIER
between a bottom layer of 60-mil LLDPE geomembrane and a top layer of sand.				

2.6. MANUFACTURER SOURCE QUALITY CONTROL

A. Perform the following quality control tests at the manufacturing plant or other laboratories on geonet, geotextile, and geocomposite products:

TABLE 02774-2
MANUFACTURER'S QUALITY CONTROL TESTING REQUIREMENTS

TEST	TEST DESIGNATION	FREQUENCY (SEE FOOTNOTES)
Geonet		
Thickness	ASTM D5199	(2)
Tensile Strength	ASTM D5035	(2)
Hydraulic Transmissivity	ASTM D4716	(1)
Geotextile		
Mass per Unit Area	ASTM D5261	(2)
Grab Tensile and Elongation	ASTM D4632	(2)
Permittivity	ASTM D4491	(1)
Apparent Opening Size	ASTM D4751	(1)
Geocomposite		
Ply Adhesion	GRI GC7	(2)
TEST	TEST DESIGNATION	FREQUENCY (SEE FOOTNOTES)
Hydraulic Transmissivity	ASTM D4716	(1)

Notes:
1. One per 500,000 square feet produced or one per resin batch, whichever results in the greatest number of tests.
2. One per 50,000 square feet produced or one per resin batch, whichever results in the greatest number of tests.

3. PART 3 EXECUTION

3.1. PREPARATION

A. After CalRecycle approves the geocomposite, it shall be placed over the geomembrane as shown on the Drawings.

B. Installation shall be in accordance with the Manufacturer's instructions and these

Specifications. Where a conflict arises, these Specifications will prevail.

3.2. GEOCOMPOSITE INSTALLATION

A. Deployment

1. Daily Panel Deployment: Deploy no more panels in one shift than can be secured during that same shift.

2. Do not damage geocomposite by handling, by vehicular traffic, leakage of hydrocarbons, or any other means.

3. Unroll geocomposite panels using methods that will not damage, stretch or crimp geocomposite. Protect underlying surface from damage.

4. Do not allow any vehicular traffic directly on geocomposite.

5. Visually inspect geocomposite for imperfections. Mark faulty or suspect areas for repair.

B. Connections (net) shall be overlapped a minimum of 6 inches along the length and one foot along the width.

C. Connections (net) shall be made using nylon ties secured at 3-foot intervals along the length and 1-foot centers along the width.

D. Edge of geotextile shall be sewn for the entire length of geotextile. No geonet shall be exposed.

E. Defects and Repairs.

1. Examine areas of the geocomposite for defects, holes, blisters, undispersed raw materials, and any sign of contamination by foreign matter. The surface of the geocomposite must be clean at the time of the examination.

2. Damaged geocomposite shall be removed and repaired according to Part 3.3. of this Section.

3.3. REPAIR PROCEDURES

A. Remove damaged geocomposite and replace with acceptable geocomposite materials if damage cannot be satisfactorily repaired.

B. Repair, removal, and replacement are at Contractor's expense if the damage results from the Contractor's, Installer's, or the Contractor's subcontractor activities.

C. Repair any portion of the geocomposite exhibiting a flaw. Agreement upon the appropriate repair method will be determined between CalRecycle, the CQAC and the Installer. Repair procedures available include:

    1. Patching: Used to repair large holes, tears, by overlapping geocomposite 6 inches in all directions and tying.

3.4. QUALITY CONTROL AND CONSTRUCTION QUALITY ASSURANCE

A. Manufacturer, Installer, and Contractor will participate and conform with all terms and requirements of CalRecycles construction quality assurance program. The Contractor is responsible for assuring this participation.

B. Field construction quality control and CQA requirements shall be performed as specified in the CQA Plan.

C. CalRecycle may perform additional testing to determine the conformance of the materials with these Specifications and the Construction Drawings.

3.5. GEOCOMPOSITE ACCEPTANCE

A. Contractor retains all CalRecycleship and responsibility for the geocomposite until acceptance by CalRecycle.

B. CalRecycle will accept geocomposite installation when:

    1. All required documentation from the Manufacturer and Installer has been received and accepted.

    2. The installation is finished.

SECTION 02228
LINER LOW DENSITY POLYETHYLENE (LLDPE) GEOMEMBRANE

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. Furnishing and installing the 40-mil double-side textured black liner low density polyethylene (LLDPE) geomembrane in accordance with the Specifications and the Construction Drawings.

1.2. RELATED SECTIONS

A. Section 02221 – Excavating and Stockpiling

B. Section 02222 – Engineered Fill and Foundation Layer

C. Section 02229 – Vegetative/Protective Cover

D. Section 02223 – Geomembrane Subgrade Preparation

1.3. REFERENCES

A. GRI-GM12 - Standard Specification for Asperity Measurement of Textured Geomembranes using a Depth Gage.

B. GRI-GM17 - Standard Test Methods, Test Properties and Testing Frequency for Linear Low Density Polyethylene (LLDPE) Smooth and Textured Geomembranes.

C. ASTM D792 - Standard Test Methods for Specific Gravity (Relative Density) and Density of Plastics by Displacement.

D. ASTM D1004 - Standard Test Method for Initial Tear Resistance of Plastic Film and Sheeting.

E. ASTM D1505 - Standard Test Method for Density of Plastics by the Density Gradient Technique.

F. ASTM D1603 - Standard Test Method for Carbon Black in Olefin Plastics.

G. ASTM D3895 - Standard Test Method for Copper Induced Oxidative Induction Time of Polyolefins by Thermal Analysis.

H. ASTM D4218 – Standard Test Method for Determination of Carbon Black Content in Polyethylene Compounds by the Muffle-Furnace Technique.

I. ASTM D4833 - Standard Test Method for Index Puncture of Geotextiles,

Geomembranes, and Related Products.

J. ASTM D4873 - Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples.

K. ASTM D5199 - Standard Test Method for Measuring Nominal Thickness of Geotextiles and Geomembranes.

L. ASTM D5321 – Standard Test Method for Determining the Shear Strength of Soil- Geosynthetic and Geosynthetic-Geosynthetic Interfaces by Direct Shear.

M. ASTM D5397 - Standard Test Method for Evaluation of Stress Crack of Polyolefin Geomembranes Using Notched Constant Tensile Load Test.

N. ASTM D5596 - Standard Test Method for Microscopic Evaluation of Dispersion of Carbon Black in Polyolefin Geosynthetics.

O. ASTM D5617 - Standard Test Method for Multi-Axial Tension Test for Geosynthetics.

P. ASTM D5885 - Standard Test Method for Oxidation Induction Time of Polyolefin Geosynthetics by High Pressure Differential Scanning Calorimetry.

Q. ASTM D5994 - Standard Test Method for Measuring Core Thickness of Textured Geomembranes.

R. ASTM D6392 - Standard Test Method for Determining the Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods.

S. ASTM D6693 - Standard Test Method for Determining Tensile Properties of Nonreinforced Polyethylene and Nonreinforced Flexible Polypropylene Geomembranes.

T. ASTM D7238 – Standard Test Method for Effect of Exposure of Unreinforced Polyolefin Geomembrane Using Fluorescent UV Condensation Apparatus.

U. ASTM D7466 – Standard test Method for the Asperity Height of Textured Geomembrane.

1.4. DEFINITIONS

A. Batch: A quantity of resin, usually the capacity of one rail car, used in the manufacture of linear low-density polyethylene (LLDPE) geomembrane sheet. A roll number corresponding to the particular lot of resin used will identify the finished sheet.

B. Bridging: The condition when geomembrane becomes suspended over its subgrade due to contraction of the material or poor installation.

C. Construction Quality Assurance (CQA) Laboratory: The party, independent from CalRecycle, Manufacturer, and Installer, responsible for conducting tests on samples of geosynthetics obtained at the site.

D. Extrudate: The molten polymer that is emitted from an extruder during seaming using either extrusion fillet or extrusion flat methods. The polymer is initially in the form of a ribbon rod, bead or pellets.

E. Geomembrane Manufacturer: The party responsible for the production of the geomembrane rolls from resin and for the quality of the resin.

F. Geomembrane: An essentially impermeable membrane used as a solid or liquid barrier. Synonymous term for flexible membrane liner (FML).

G. Geomembrane Subsurface: The soil or geosynthetic surface on which the geomembrane lies.

H. Installer: The party responsible for field handling, transporting, storing, deploying, seaming, temporary restraining (against wind), and installation of the geomembrane.

I. Panel: The unit area of geomembrane that will be seamed in the field. A panel is identified as a roll or portion of a roll without any seams.

1.5. PRE-CONSTRUCTION SUBMITTALS (MANUFACTURER AND INSTALLER)

A. Submit the following to CalRecycle, 7 days prior to receiving material at the site.

B. Resin Data (Manufacturer)

1. Statement of production date or dates.

2. Certification stating that the resin meets the product requirements (see Part 2.2).

3. Certification stating that all resin is from the same Manufacturer.

4. Copy of quality control certificates issued by Manufacturer.

5. Test reports from Manufacturer.

C. Geomembrane Roll. (Manufacturer)

1. Statement of production date or dates.

2. Laboratory test results and certification stating that the geomembrane meets the product requirements in the CQA Plan.

3. Certification stating that all geomembrane rolls are furnished by one supplier,

and that all rolls are manufactured from one resin type obtained from one resin supplier.

4. Copy of the quality control certificates issued by Manufacturer.

5. Test reports from the Manufacturer.

6. Statement certifying that no reclaimed polymer is added to the resin.

7. Statement listing percentages of processing aids, antioxidants, and other additives other than carbon black added to or in the resin.

8. Geomembrane delivery, storage, and handling instructions.

9. Geomembrane installation instructions.

10. Sample warranties for review.

D. Extrudate Beads and/or Rod. (Manufacturer)

1. Statement of the production date or dates.

2. Laboratory certification stating that the extrudate meets the product requirements.

3. Certification stating that one Manufacturer manufactures all extrudate and one supplier supplies the resin.

4. Copy of the quality control certificates issued by Manufacturer.

5. Test reports from the Manufacturer.

6. Certification stating that the extrudate bead or rod resin is the same type, from the same Manufacturer and compatible with the resin used to manufacture the geomembrane supplied for this project.

E. Schedules and drawings (Installer).

1. Work schedule: Submit the installation schedule one week prior to installation. Include hours worked per day, per week and per shift. Indicate all weather delays built into schedule.

2. Installation layout drawings: Two weeks prior to installation of the geomembrane, submit drawings showing the panel layout indicating field seams and details not conforming to the Drawings. Upon acceptance, use these drawings for installation of geomembrane.

F. Qualifications (Installer)

1. Submit, two weeks prior to installation, the name of Installer, and résumé of installation supervisor/field Engineer to be assigned to the project.

2. Submit, two weeks prior to installation, résumé of master seamer(s).

G. Equipment and Personnel: Submit the following two weeks prior to installation: (Installer).

1. Equipment list stating quantity and types.

2. List of personnel to perform field seaming operations.

1.6. SUBMITTALS DURING CONSTRUCTION (INSTALLER)

A. Submit quality control documentation prepared during the installation.

B. Submit daily prior to the start of installation, subgrade acceptance certificate signed by the installation supervisor for each area to be covered by geosynthetics.

1.7. SUBMIT UPON COMPLETION OF THE INSTALLATION (INSTALLER)

A. Certificate stating the liner has been installed in accordance with the Construction Drawings and Specifications.

B. The warranty obtained from the Manufacturer and the installation warranty.

C. As built drawings showing location of panels, seams, repairs, patches, and destructive samples, including measurements.

D. Copies of seam test results and statistical analysis of each welder's performance.

1.8. QUALIFICATIONS BID REQUIREMENTS

A. Reference IFB

1.9. QUALITY ASSURANCE

A. CalRecycle will engage and pay for the services of (1) Construction Quality Assurance Consultant (CQAC), and (2) Construction Quality Assurance (CQA) Laboratory for monitoring the quality and installation of geomembrane material being installed unless otherwise specified.

1.10. DELIVERY, STORAGE, AND HANDLING (MANUFACTURER)

A. General: Conform to the Manufacturer's requirements.

B. Delivery.

1. Deliver materials to the site only after CalRecycle accepts required submittals.

2. Separate damaged rolls from undamaged rolls and store at locations designated by CalRecycle until CalRecycle determines proper disposition of material.

3. CalRecycle will determine the extent of damage to geomembrane.

4. Deliver in rolls, do not fold.

C. Storage on Site: (Installer).

1. Store geomembrane rolls in the space allocated by CalRecycle or Engineer.

2. Store geomembrane rolls to protect from puncture, dirt, grease, water, moisture, mud, mechanical abrasions, excessive heat or other damage.

3. Store geomembrane rolls on prepared surface (not on wooden pallets).

4. Stack geomembrane no more than three rolls high.

D. Handling on Site: (Installer).

1. Use appropriate handling equipment to load, move, or deploy geomembrane rolls. Appropriate handling equipment includes cloth straps and spreader bar for loading, spreader, and roll bars for deployment. Dragging panels on ground surface will not be permitted.

2. Do not fold geomembrane material; folded material will be rejected.

3. Contractor is responsible for off loading, storage, and transporting material from storage area to installation site.

1.11. WARRANTY (MANUFACTURER)

A. Provide Manufacturer's warranty for geomembrane material in compliance with provisions of the Conditions of the Contract. Provide a minimum 20-year pro rata warranty for the material against deterioration due to exposure to the elements, either exposed or buried. The warranty for material must cover costs of material replacement and installation; assuming the area is rendered in a clean, dry, unencumbered condition. In the event the area cannot be rendered as such, compensation for defective material will be provided to CalRecycle on a pro rata basis for the estimated cost to CalRecycle at that time of supplying and installing material to a clean, dry, and unencumbered condition by a third-party Installer.

B. Installation: Provide an installation warranty for geomembrane material in compliance with the conditions of the Contract. Provide a minimum of 2-year, non-pro rata warranty for the installation against defects.

2. PART 2 PRODUCTS (MANUFACTURER)

2.1. GEOMEMBRANE RESIN

A. Linear Low-Density Polyethylene (LLDPE), new, first quality, and manufactured specifically for producing LLDPE geomembrane.

B. Do not mix resin types during manufacturing.

C. Do not use recycled materials or seconds in manufacturing.

D. Meeting the following requirements unless otherwise approved:

TABLE 02778-1
LLDPE RESIN PROPERTIES

TEST	TEST DESIGNATION	REQUIREMENT
DENSITY(1)	ASTM D792 Method A or ASTM D1505	0.92 to 0.93 g/cm3
Notes: 1. Measured on resin prior to addition of carbon black. Maximum of 0.939 g/cm3 with carbon black.		

2.2. LINEAR LOW-DENSITY POLYETHYLENE (LLDPE) DOUBLE-SIDE TEXTURED GEOMEMBRANES

A. Manufacturing

1. The resin supplied for the geomembrane will consist of compounded polyethylene specifically produced for geomembrane production and shall not include pipe resin or other resins not formulated for hydraulic containment. No recycled polymers or polymers mixed with other types of resin shall be accepted unless the recycling program has been approved and the plant inspected by the Engineer.

2. Use only resins and additives produced in the United States, Canada or Western Europe from approved suppliers and manufacturers. All resin, masterbatch, anti-oxidant and other additives, as well as the complete formulation, to be approved by the Engineer.

3. The base resin is to be pure material with no modifications. Factory blending of resins will only be allowed if the facility has been inspected and approved by the Engineer and in which case only when fully automated batching and control systems are used.

4. All resin for each type of geomembrane shall be manufactured by one single Manufacturer and supplied by one single supplier. Each type of additive will also be manufactured and supplied by one single supplier.

5. The additive package, at a minimum, must include carbon black, antioxidants and a Hindered Amine Light Stabilizer (HALS) component. Non-slip agents shall not be used. The total combined percentage for all the additives, including carbon black, antioxidants, HALS, and others, shall be less than 3.5% of the geomembrane weight. From this 3.5%, no more than 1% shall correspond to additives other than carbon black.

6. All the additives shall be uniformly dispersed throughout the geomembrane. Additives shall not be extractable under water by leaching. There shall be no visual streaking or variation in additive distribution or dispersion.

7. Do not exceed a combined maximum total of 1 percent by weight of additives other than carbon black or pigment.

8. The geomembrane shall be produced in rolls, and shall be free of holes, bumps, clumped material, cuts, bents, and any other signs of foreign material. Every roll shall be identified with labels that supply information as to the thickness, length, width, roll number, and plant location.

9. The Manufacturer shall carry out laboratory tests on the geomembrane's quality control, in the frequency indicated in the CQA Plan.

10. The 40-mil LLDPE double-sided textured geomembrane shall meet the minimum requirements of Table 02778-2.

11. In addition to the requirements of Table 02778-2, the LLDPE geomembrane shall have an interface friction between the geomembrane and geocomposite that has a minimum post-peak strength of 17 degrees and an adhesion of 50 psf. The interface friction angle shall be measured in accordance with Part 2.6 of these specifications. The geocomposite shall be as per Section 02774 – Drainage Geocomposite.

2.3. EXTRUDATE ROD OR BEAD

A. Meeting the geomembrane Manufacturer requirements and using the same base resin as the geomembrane.

B. Made from same resin as the geomembrane.

C. Thoroughly disperse additives throughout rod or bead.

D. Containing 2 to 3 percent carbon black.

E. Free of contamination by moisture or foreign matter.

2.4. WELDING EQUIPMENT FOR INSTALLATION

A. Maintain sufficient operational seaming apparatus to continue work without delay.

B. Use power source capable of providing constant voltage under combined line load.

C. Provide protective lining and splash pad large enough to catch spilled fuel under the electric generator, if located on the liner.

D. Tensiometers capable of measuring seam strength, calibrated and accurate within 2 pounds.

E. Dies for cutting seam samples.

TABLE 02778-2
PROPERTIES FOR 40 MIL TEXTURED DOUBLE-SIDED LLDPE GEOMEMBRANE(1)

PHYSICAL CHARACTERISTIC	UNITS	ASTM TEST METHOD	REQUIREMENT
Density	g/cc	D1505	40 mils minus 10% for any measurement and the average of all measurements for any roll, not less than 40 mils (does not include textured surface)
Density	g/cc	D1505	<0.939
Asperity Height	mil	D7466	20 mils (8 of 10 readings □20 mils, and lowest individual reading □16 mils)
Tensile Strength at Break	lb/in	D6693	>90
Elongation at Break	%	D6693	>250
Tear Resistance	lb	D1004	>22
Puncture Resistance	lb	D4833	>44
Carbon Black Content	%	D4218	2.0-3.0
Carbon Black Dispersion	Category	D5596	9 of 10 different views in Categories 1 or 2, and 1 of 10 in Category 3.
HP-OIT (High Pressure- Oxidative Induction Time)	hours	D5885	≥400
UV Resistance(2)	%	UV	D7238Min. Avg. 35%

PHYSICAL CHARACTERISTIC	UNITS	ASTM TEST METHOD	REQUIREMENT
		Resistance(2)	@1600 hrs.

Notes:
1. Requirements for LLDPE -Geocomposite interface strength testing is provided in Part 2.6 of Section 02778 of these specifications.
2. UV resistance is based on percent retained value regardless of the original HP-OIT value.

2.5. MANUFACTURER SOURCE QUALITY CONTROL

A. The Manufacturer shall perform source quality control testing on the geomembrane at the manufacturing plant as indicated on Table 02778-3.

TABLE 02778-3
MANUFACTURING LLDPE GEOMEMBRANE QUALITY CONTROL TESTS

TEST	ASTM TEST METHOD	MINIMUM FREQUENCY
Sheet Thickness	D5994	1 per roll
Asperity Height	D7466	1 per roll
Density	D1505	See Note 3
Tensile Strength at Break	D6693	See Note 1
Elongation at Break	D6693	See Note 1
Tear Resistance	D1004	See Note 2
Puncture Resistance	D4833	See Note 2
Carbon Black Content	D4218	See Note 1
Carbon Black Dispersion	D5596	See Note 2

Notes:
1. One per 20,000 pounds, or one per resin batch, whichever results in the greatest number of tests.
2. One per 45,000 pounds, or one per resin batch, whichever results in the greatest number of tests.
3. One test per resin batch on typical sheet.

B. The objective of the Manufacturer's source quality control testing shall be to confirm the Manufacturer's published material characteristics and demonstrate the materials compliance with this Specification.

C. The Manufacturer shall reject rolls for which quality control requirements are not met.

D. The Manufacturer shall certify the quality of all rolls of geomembrane shipped to the site.

E. The Contractor shall provide the results of the Manufacturer's source quality control tests to CalRecycle for all rolls of geomembrane shipped to site.

2.6. SHEAR STRENGTH TESTING REQUIREMENTS

A. The geomembrane shall meet the interface shear strength requirements of Table 02778-4 and tested at a frequency of one set of tests per test configuration using the following procedures:

1. Upon award of the contract, the Contractor's Manufacturer and/or Installer shall provide to the Geosynthetics Accreditation Institute (GAI) accredited third-party interface shear testing laboratory a minimum 3- foot long by roll width samples of the geomembrane and other geosynthetic components of the liner system as directed by the CQA Engineer. These samples are required for shear testing of liner interfaces (interface testing).

2. The interface testing shall be "sandwich"-based. Representative samples of the cap cover system shall be tested as follows:
   a. 40-mil LLDPE geomembrane against the geocomposite against vegetative cover layer soil.

3. Prior to the interface testing, the third-party laboratory shall test textured geomembrane for asperity height, carbon black content, and tensile strength. The testing should be in accordance with the product Specifications and applicable ASTM and GRI standards.

4. The interface testing of the liner system shall be performed by the third-party interface testing laboratory. The testing should be performed in accordance with ASTM D5321 standards using properly calibrated testing equipment and shall incorporate the following test parameters unless approved otherwise by the Engineer.
   a. Interface strengths shall be established using three test specimens tested under three normal loads: 100 psf, 300 psf, and 500 psf. These loads shall be used as the consolidation loading.
   b. The test against the geocomposite material shall be set up with the geomembrane clamped to the upper box and the vegetative cover layer soil in the lower box of the direct shear apparatus with the geocomposite floating and the "lower" non-woven geotextile component of the geocomposite in contact with the geomembrane.
   c. The geomembrane shall be supported in the box using a rigid substrate with the contact unit consisting of a truss plate or other high friction grip plate approved by the Engineer.
   d. The vegetative cover layer soil in contact with the geocomposite shall be from a representative borrow source, compacted to 85% of maximum dry density and optimum water content as determined by ASTM D1557.
   e. The 40-mil geomembrane against the geocomposite shall be tested in a "flooded" or wet condition.
   f. "Flooding" of the test specimens shall be completed immediately after placement of the initial consolidating load and shall be maintained throughout the specimen consolidation and testing periods.

5. Unless otherwise specified by the Engineer, each specimen used for sandwich testing shall be consolidated for a minimum of 24 hours prior to shearing.

6. Each specimen shall be sheared at a maximum strain rate of 0.04 inches per minute.

7. Each test shall be terminated after 3 inches of displacement has occurred. The third-party laboratory shall note if the test was terminated prematurely for any cause.

8. At the completion of each test, the third-party laboratory shall photograph the sample and also document the location where the sample shearing occurred and the general condition of the samples on the test report. The photographs shall be included on the test report or as a separate attachment.

9. The shear load and the shear displacement shall be logged continuously throughout the duration of the test.

10. The results of the test shall be reported in graphical and tabular forms including:
    a. Shear force versus shear displacement curves for all specified normal loads.
    b. Peak and large displacement (i.e. at 3 inches shear displacement) shear strengths should be reported in tabulated form (in psf) and as a Mohr-Coulomb chart (in psf).
    c. Best-fit straight lines to the shear versus normal stress curves.
    d. Actual values of normal stresses along with peak and post-peak shear strengths for each normal load.
    e. Friction angle and adhesion determined from the best fits to peak and post-peak shear strengths versus normal stress curves.

11. Upon receipt of all testing results from the third-party laboratory, the CQA Engineer shall submit to the Engineer, for review and interpretation, the results of the interface shear testing. The results shall be used for comparison to project shear strength requirements presented in Table 02778-4.

TABLE 02778-4
INTERFACE SHEAR STRENGTH TESTING REQUIREMENTS 1,2,3,4,5,6

Normal Load (psf)	Required Shear Strength (Minimum) (psf)
100	81
300	142
500	203

Notes:

1. Interface shear testing is not a manufacturer's test and shall be performed prior to final approval of the geomembrane by the CQA Engineer.
2. The orientation of the 40-mil LLDPE geomembrane against the geocomposite shall be completed with the materials oriented as they would be in the field. The CQA Engineer shall inform the third party testing lab of the required orientations when submitting samples.
3. Test the sample configuration according to ASTM D5321 under normal loads shown in Table 02778-4.
4. Shear at rates listed in the appropriate ASTM standard.
5. Minimum specified post peak strengths (at 3 inches deformation) or the lower value between peak and the strength at 3 inches deformation.
6. Submit to CQA Engineer representative samples of all the materials to be used for interface strength testing. Submitted geosynthetic samples shall be a minimum dimension of one foot by one foot square and come from the same roll as the actual samples used in the interface strength test.

3. PART 3 EXECUTION (INSTALLER)

3.1. EXAMINATION OF GEOMEMBRANE SUBSURFACE

A. Verify that the liner subgrade has been prepared in accordance with Section 02223 and approved prior to placement of the 40-mil LLDPE geomembrane.

3.2. PREPARATION

A. Repair damage caused to the underlying materials during deployment.

B. Round edges of anchor trenches.

3.3. PERFORM TRIAL SEAM WELDS AS FOLLOWS:

A. Perform trial welds on samples of geomembrane to verify the performance of welding equipment, seaming methods, and conditions.

B. No seaming equipment or welder will be allowed to perform production welds until equipment and welders have successfully completed trial weld.

C. Frequency of trial welds:

1. Minimum of two trial welds per day per equipment and welder, with one prior to the start of work and one at mid shift.
2. When directed by the CQA Monitor.
3. Every two hours when using a wedge weld to weld across seams.
4. Minimum one trial weld per person per shift.
5. When ambient temperature changes more than 20°F since previous trial weld.

D. Make trial welds in the same surroundings and environmental conditions as the production welds, i.e., in contact with subgrade.

E. Make trial weld sample at least 2 feet long, 3 feet long for double wedge welding machines and 12 inches wide with the seam centered lengthwise.

F. Cut four, one-inch wide test strips randomly selected across the length of the trial weld. Test specimens for peel adhesion and for bonded seam strength (shear) (ASTM D6392).

G. A specimen is considered passing when the following results are achieved. For double wedge welding, both welds must pass in peel and shear.

1. The break is a film tear bond (FTB).
2. The break is ductile.
3. The peel strength is a minimum of 70 percent of the specified sheet strength at yield for wedge welds or flat welds and a minimum of 60 percent of the specified sheet strength at yield for extrusion welds.
4. There is no more than 10 percent separation of the weld. For wedge welds, the width of the weld must be equal to the width of the nip roller.
5. The shear strength is 90 percent of the specified sheet strength at yield for all weld types. Minimum elongation between the grips is 2 inches based on an initial grip separation of 2 inches from the edge of the weld.

H. A trial weld sample is considered passing when all specimens pass peel and shear tests.

I. Repeat the trial weld in its entirety when any of the trial weld samples fail in either peel or shear.

J. When repeated trial welds fail, do not use welding apparatus and welder until deficiencies or conditions are corrected and two consecutive successful trial welds are achieved.

3.4. DEPLOYMENT

A. Ambient Conditions: Give careful consideration to the timing and temperature during deployment. The CQA organization will focus on verifying that (a) there is no bridging or stresses in the geomembrane and (b) there are no wrinkles in the geomembrane that will fold over when covering with soil material. Ideally, deployment, welding, and covering would all occur at the same temperature. In a practical sense, the Contractor should strive to perform these activities within as

narrow a temperature range as practical, and avoid these activities during peak hot or cold conditions.

B. Panel Identification: Assign each panel an identifying code number or letter consistent with the Contractor's submitted panel layout drawing. The coding is subject to approval by the CQA Monitor. The installer is responsible to place the identification code on the installed liner that consists of panel number, roll number, and panel length.

C. Daily Panel Deployment: Deploy no more panels in one shift than can be welded or secured during that same day.

D. Do not deploy in the presence of excessive moisture, precipitation, ponded water, or high winds.

E. Do not damage geomembrane by handling, by vehicular traffic, or leakage of hydrocarbons or any other means.

F. Do not wear damaging shoes or engage in activities that could damage the geomembrane.

G. Unroll geomembrane panels using methods that will not damage, stretch or crimp geomembrane. Protect underlying surface from damage.

H. Use methods that minimize wrinkles and differential wrinkles between adjacent panels.

I. Place ballast on geomembrane to prevent uplift from wind.

J. Use ballast that will not damage geomembrane, such as sandbags or equivalent.

K. Protect the geomembrane in areas of equipment or repeated foot traffic by placing protective cover that is compatible with and will not damage geomembrane.

L. Repair damage to the subgrade or other underlying materials prior to completing deployment of the geomembrane.

M. Do not allow any vehicular traffic directly on unprotected geomembrane.

N. Remove wrinkled or folded material.

O. Visually inspect geomembrane for imperfections. Mark faulty or suspect areas for repair.

P. Install material to account for shrinkage and contraction while avoiding wrinkles. Install material stress-free with no bridging before it is covered. Add material, such as compensation wrinkles at the toe of slopes, as needed to avoid bridging.

Q. Before wrinkles fold over, attempt to push them out. For wrinkles that cannot be pushed out, cut them out and repair cuts prior to burial or at the direction of CalRecycle.

3.5. SEAM LAYOUT

A. Orient seams parallel to the line of maximum slope, i.e., orient down not across slopes unless approved by the Engineer.

B. Minimize the number of field seams in corners, odd shaped geometric locations, and outside corners.

C. Keep horizontal seams (seams running approximately parallel to slope contours) at least 6 feet away from toe or crest of slopes unless otherwise approved by the Engineer.

D. Use a seam numbering system consistent with panel number system.

E. Shingle panels on all slopes and grades as directed by CalRecycle.

3.6. SEAM WELDING PERSONNEL

A. Provide at least one welder (master welder) who has experience welding over 5 million square feet of geomembrane using the same type of welding apparatus in use at site.

B. Qualify personnel performing welding operations by experience and by successfully passing field welding tests performed on site.

C. The master welder will provide direct supervision over other welders.

3.7. SEAM WELDING EQUIPMENT

A. Extrusion welder: equipped with gauges showing temperatures in extruder apparatus at the barrel and nozzle of the extruder. External temperature gauges may measure temperature at nozzle.

B. Hot wedge welder: Automated variable speed vehicular mounted devices equipped with the means for adjusting and measuring the wedge temperature. Pressure controlled by spring, pneumatic, or other system that allows for variation in sheet thickness. Rigid frame fixed position equipment is not acceptable.

C. Maintain adequate quality of welding apparatus in order to avoid delaying the project.

D. Use a power source capable of providing constant voltage under combined line load.

3.8. GENERAL WELDING PROCEDURES

A. Do not commence welding with welding equipment until the trial weld test samples, made by that equipment, passes the test weld.

B. Clean all geomembrane surfaces of grease, moisture, dust, dirt, debris, or other foreign material.

C. Overlap panels a minimum of 3 inches for extrusion welding and 4 inches for hot wedge welding.

D. Do not use solvents or adhesives.

E. Provide adequate material on each weld to allow peel testing of both sides of double wedge welds and extrusion welds.

F. Extend welding to the outside edge of all panels.

G. If required, provide a firm substrate by using a geomembrane rub sheet, a flat board, a conveyor belt, or similar hard surface directly under the weld overlap to achieve firm support.

H. Provide adequate illumination if welding operations are carried out at night.

I. Cut fishmouths or wrinkles along the ridge of the wrinkle in order to achieve a flap overlap. Extrusion weld the cut fishmouths or wrinkles where the overlap is more than 3 inches. When there is less than 3 inches overlap, patch with an oval or round patch extending a minimum of 6 inches beyond the cut in all directions.

3.9. INSTALLATION QUALITY CONTROL

A. Log the following every two hours:

1. Temperature directly on the geomembrane surface being welded.
2. Extrudate temperatures in barrel and at nozzle (extrusion welder).
3. Operating temperature of hot wedge (hot wedge welder) and any pressure adjustments made.
4. Preheat temperature.
5. Speed of hot wedge welder in feet per minute.

B. Weld only when ambient temperature, measured 6 inches above the geomembrane, is between 32°F and 130°F.

C. If the Installer wishes to use methods which may allow seaming at ambient temperatures below 32°F or above 130°F, the Installer shall demonstrate and certify that such methods produce seams which are entirely equivalent to seams produced at ambient temperatures above 32°F and below 130°F, and that the overall quality of the geomembrane is not adversely affected. Then, the temperatures in the above quality assurance procedure shall be modified

accordingly.

3.10. DEFECTS AND REPAIRS

A. Examine all welds and non-weld areas of the geomembrane for defects, holes, blisters, undispersed raw materials, and any sign of contamination by foreign matter. The surface of the geomembrane shall be clean at the time of the examination.

B. Repair and non-destructively test each suspect location in both weld and non-weld areas. Do not cover geomembrane at locations that have been repaired until test results with passing values are available.

C. Extrusion weld a patch over all “cross” or “tee” welds.

3.11. EXTRUSION TYPE OF WELDING

A. Use procedures to tack bond adjacent panels together that do not damage the geomembrane and allow quality control tests to be performed.

B. Purge welding apparatus of heat degraded extrudate before welding.

C. Bevel the top edges of top geomembrane a minimum of 45° and full thickness of the geomembrane before extrusion welding.

D. Clean seam welding surfaces of oxidation by disc grinder or equivalent not more than 30 minutes before extruding weld. Change grinding discs frequently. Do not use clogged discs.

E. Do not remove more than 4 mils of material when grinding.

F. Grind across, not parallel to, welds.

G. Cover the entire width of grind area with extrudate.

H. When restarting welding, grind ends of all welds that are more than five minutes old.

3.12. HOT WEDGE WELDING

A. Place a smooth insulating plate or fabric beneath hot welding apparatus after usage to not damage the geomembrane.

B. Protect against moisture build up between panels.

C. If welding cross seams, conduct field test welds at least every two hours, otherwise, once prior to start of work and once at midday.

D. Bevel edges of top and bottom panels on cross seams.

E. Do not weld on geomembrane until equipment has passed trial weld test.

F. Extrusion weld a repair patch over all seam intersections as described in Part 3.10.

3.13. FIELD QUALITY CONTROL AND QUALITY ASSURANCE

A. Manufacturer and Installer will participate in and conform with all terms and requirements of CalRecycle's quality assurance program. The Contractor is responsible for assuring this participation. Quality control and quality assurance requirements are as specified in this paragraph.

3.14. CONFORMANCE TESTING (PERFORMED BY CONSTRUCTION QUALITY ASSURANCE LABORATORY)

A. Allow 3 days for conformance testing following the date material is available to the CQA Laboratory.

B. Perform conformance testing on geomembrane rolls at the frequency described in the CQA Plan.

C. Obtain 3-feet samples across entire roll width, not including the first 3 feet of material. Conformance samples should be obtained directly from the Manufacturer.

D. Forward samples to Construction Quality Assurance Laboratory.

E. Test samples for conformance with design specifications and guaranteed properties in accordance with the CQA Plan.

3.15. FIELD TESTING (PERFORMED BY INSTALLER)

A. General: Non-destructively test all field seams over their full length using a vacuum test unit, air pressure (for double fusion seams only), spark testing, or other approved methods. Perform testing as the seaming progresses and not at the completion of all the field seaming. Complete all required repairs in accordance with this specification.

B. Vacuum Testing Equipment

1. A vacuum box assembly consisting of a rigid housing, a transparent viewing window, a soft neoprene gasket attached to the bottom, port hole, or valve assembly, and a vacuum gauge.
2. A vacuum pump assembly equipped with a pressure control.
3. A rubber pressure/vacuum hose with fittings and connections.
4. A soapy solution and an applicator.

C. Vacuum Box Test Procedures

1. Place the box over the wetted seam area (soapy solution).
2. Ensure that a leak tight seal is created.
3. Energize the vacuum pump and reduce the vacuum box pressure to approximately 10 inches of mercury, i.e., five-psi gauge.
4. Examine the geomembrane through the viewing window for the presence of soap bubbles for a period of not less than ten seconds.
5. All areas where soap bubbles appear shall be marked and repaired in accordance with repair procedures described in this specification.

D. Air pressure testing for seaming processes producing a double seam with an enclosed channel.

1. Equipment, comprised of the following:
   a. An air pump (manual or motor driven) equipped with a pressure gauge capable of generating and sustaining a pressure over 40 psi and mounted on a cushion to protect the geomembrane.
   b. A rubber hose with fittings and connections.
   c. A sharp hollow needle, or other approved pressure feed device.
   d. A pressure gauge with an accuracy of plus or minus one psi.

2. Test Procedures.
   a. Seal both ends of the welded seam to be tested.
   b. Insert needle or other approved pressure feed device into the tunnel created by the weld.
   c. Energize the air pump to a minimum pressure of 30 psi or 1/2 psi per mil of liner thickness, whichever is greater, close valve and sustain pressure for at least five minutes.
   d. If loss of pressure exceeds three psi (ten mm mercury), or otherwise approved, or does not stabilize, locate faulty area and repair in accordance with repair procedures described in this specification.
   e. Puncture opposite end of seam to release air. If blockage is present, locate and test seam on both sides of blockage.
   f. Remove needle or other approved pressure feed device and seal the penetration holes.

E. Spark Testing for penetrations or other difficult areas not accessible to vacuum testing.

1. Equipment and Materials.
   a. 24-gauge copper wire.
   b. Low-amperage electric detector, 20,000 to 30,000 volts, with brush-type electrode capable of causing visible arc up to ¾ inch from copper wire.

2. Procedures.
   a. Place copper wire within 1/4 inch of the edge of the extrusion seam or clamp seal.
   b. Pass electrode over the seam or clamp the area and observe for a spark. If a spark is detected, perform a repair.

3.16. LABORATORY DESTRUCTIVE TESTING (PERFORMED BY CALRECYCLE AND THE INSTALLER)

A. Location and Frequency of Testing.

1. Collect destructive test samples at a minimum frequency of one test location per 500 feet of seam length.

2. Determine test locations during welding. Locations may be prompted by suspicion of excess crystallinity, contamination, offset welds, or suspected defect. The CQA Monitor will be responsible for choosing the locations. The CQA Monitor will not notify the Installer in advance of selecting locations where weld samples will be taken.

3. CalRecycle may increase the test frequency based on marginal results.

B. Sampling Procedures.

1. Cut samples at locations designated by the CQA Monitor as the welding progresses. Verify that laboratory test results have been obtained before the geomembrane is covered by another material.

2. The CQA Monitor will number each sample and mark sample number and location in compliance with the CQA program.

3. Immediately repair all holes in the geomembrane resulting from destructive test sampling. Repair in accordance with repair procedures described in this Section. Test the continuity of the repair in accordance with this Section.

4. Size of Samples: minimum 12 inches wide by 42 inches long with the seam centered lengthwise. Cut a one-inch wide strip from each end of the sample and test these for (shear and peel) in the field. Cut the remaining sample into three parts for distribution as follows:
   a. One portion for the Installer: 12 inches by 12 inches.
   b. One portion for Construction Quality Assurance Laboratory: 12 inches by 18 inches.
   c. One portion to CalRecycle for archive storage: minimum 12 inches by 12 inches.

3.17. FIELD TESTING (PERFORMED BY INSTALLER)

A. Test the two, one-inch wide strips specified in Part 3.16, B, by tensiometer for peel and shear, respectively.

B. Both test strips must meet peel and shear requirements for welded seams specified in Part 3.3.

C. If any field test sample fails, follow failed test procedures outlined in this Section.

3.18. LABORATORY TESTING PERFORMED INDEPENDENTLY BY CONSTRUCTION QUALITY ASSURANCE (CQA) LABORATORY

A. Test "seam strength" and "peel adhesion" (ASTM D6392).

B. Minimum acceptable values to be obtained for these tests are specified in Part 3.3.G.

C. Test at least five specimens for each test method. Five of five specimens must meet minimum requirements. None of the specimens may peel 100 percent apart.

D. Select specimens alternately by test from the samples (i.e., peel, shear, peel, shear...).

E. Provide test results no more than 48 hours after receiving samples.

F. For double wedge welded samples, test both sides in peel.

3.19. FAILED WELD PROCEDURES

A. Follow these procedures when there is a destructive test failure. Procedures apply when test failure is determined by the Construction Quality Assurance Laboratory, the Installer, or by field tensiometer. Follow one of the following two options:

1. First Option.
   a. Reconstruct the seam or cap the seam between any two passing test locations (cap strip).

2. Second Option.
   a. Trace the weld at least 10 feet minimum in both directions from the location of the failed test, or to the end of the weld.
   b. Obtain a small sample at both locations for an additional field test.
   c. If these additional test samples pass field tests, then take laboratory samples.
   d. If the laboratory samples pass, then reconstruct the weld or cap strip the seam between the two test sample locations that bracket the failed test location.
   e. If any sample fails, then repeat the process to establish the zone in which the weld must be reconstructed.

3.20. ACCEPTABLE WELDED SEAMS

A. Bracketed by two locations from which samples have passed destructive tests.

B. For reconstructed seams exceeding 50 feet, a sample taken from within the reconstructed weld passes destructive testing.

C. Whenever a sample fails, provide additional testing for seams that were welded by the same welder and welding apparatus or welded during the same time shift.

3.21. SEAMS THAT CANNOT BE NON-DESTRUCTIVELY TESTED, PERFORM THE FOLLOWING:

A. If the weld is accessible to testing equipment prior to final installation, non-destructively test the weld prior to final installation.

B. If the weld cannot be tested prior to final installation, cap strip the weld. CalRecycle and the Installer must observe the welding and cap stripping operations for uniformity and completeness.

3.22. REPAIR PROCEDURES

A. Remove damaged geomembrane and replace with acceptable geomembrane materials if damage cannot be satisfactorily repaired.

B. Repair, removal, and replacement are at Contractor's expense if the damage results from the Contractor's, the Installer's, or the Contractor's Subcontractor activities.

C. Repair any portion of the geomembrane exhibiting a flaw, or failing a destructive or non-destructive test. Agreement upon the appropriate repair method will be determined between CalRecycle's Representative and the Installer. Do not commence welding on liner until trial weld test sample, made by that equipment and operator, passes trial test. Repair procedures available include:

1. Patching: Used to repair large holes (over 3/8- inch diameter), tears (over 2 inches long), undispersed raw materials, contamination by foreign matter, and to cover cross and tee connections.

2. Abrading and re-welding: Used to repair small sections of seams.

3. Spot welding or seaming: Used to repair small tears (less than 2 inches long), pin holes or other minor, localized flaws.

4. Capping: Used to repair large lengths of failed seams.

5. Removing the seam and replacing with a strip of new material.

D. In addition, satisfy the following procedures:

1. Abrade geomembrane surfaces to be repaired (extrusion welds only) no more than 30 minutes prior to the repair.

2. Clean and dry all surfaces at the time of repair.

3. CalRecycle's representative, the Engineer, and the Installer must accept the repair procedures, materials, and techniques in advance of the specific repair.

4. Extend patches or caps at least 6 inches beyond the edge of the defect, and round all corners of material to be patched and the patches to a radius of at least 3 inches.

E. Verification of repair:

1. Number and log each patch repair.

2. Non-destructively test each repair using methods specified in Part 3.15 of this Section.

3. Destructive tests may be required at the discretion of the CQA Monitor CalRecycle

4. Reconstruct repairs until tests indicate passing results.

3.23. GEOMEMBRANE ACCEPTANCE

A. Contractor retains all CalRecycleship and responsibility for the geomembrane until acceptance by CalRecycle.

B. CalRecycle will accept geomembrane installation when:

1. All required documentation from the Manufacturer, Fabricator, and Installer has been received and accepted.

2. The installation is finished.

3. Test reports verifying completion of all field seams and repairs, including associated testing, is in accordance with this Section.

4. CalRecycle has received written certification documents and drawings.

SECTION 02779
GEOCELL FLOOD CONTROL ARMOR

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. Providing all material, labor, tools and equipment for installation of the Geocell as shown in the Contract Documents and as specified in this Section.

1.2. RELATED SECTIONS

A. Section 02110 – Clearing and Stripping

B. Section 02221 – Excavating and Stockpiling

C. Section 02229 – Vegetative/Protective Cover

D. Section 02230 – Surface Water Drainage Systems

E. Section 02774– Drainage Geocomposite

F. Section 02778 – Linear Low Density (LLDPE) Geomembrane

G. Section 02771 - Geotextile

H. Section 02936 – Hydroseeding

1.3. REFERENCES

A. Latest version of ASTM International (ASTM) standards:

1. ASTM D792 - Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement.

2. ASTM D1505 – Standard Test Method for Density of Plastics by the Density-Gradient Technique.

3. ASTM D1603 – Standard Test Method for Carbon Black Content in Olefin Plastics.

4. ASTM D5394 – Standard Test Method for Environmental Stress Cracking of Ethylene Plastics.

5. ASTM D5397 – Standard Test Method for Evaluation of Environmental Stress Crack Resistance of Polyolefin Geomembranes Using Notched Constant Tensile Load Test.

6. ASTM D5199-12 – Standard Test Method for Measuring the Nominal Thickness of Geosynthetics.

2. PART 2 PRODUCTS

2.1. GEOCELL

A. Base Materials

1. Polyethylene Stabilized with Carbon Black
   a. Density shall be 0.935 to 0.965 g/cm3, measured in accordance with ASTM D1505.
   b. Environmental Stress Crack Resistance (ESCR) shall be <1000 hours in accordance with ASTM D5397.
   c. Ultraviolet light stabilization with carbon black. HP-OIT (High Pressure-Oxidative Induction Time) >400 hr.
   d. Carbon Black content shall be 1.5 to 2 percent by weight.
   e. Carbon black shall be homogeneously distributed throughout material.

B. Cell Properties

1. Individual cells shall be uniform in shape and size when expanded.

2. Individual cell dimensions shall be nominal dimensions □10%.

3. Geocell shall have the following dimensions:
   a. Each cell shall be 10 - 12 inches long.
   b. Each cell shall be 12 - 14 inches wide.
   c. Nominal depth shall be:
      i. 4 inches – as shown on plans.

C. Strip Properties

1. Perforated Textured Strip/Cell
   a. Strip sheet thickness shall be 50-mil in accordance with ASTM D5199. Determine thickness flat, before surface disruption.
   b. Perforated with horizontal rows of 0.4-inch diameter holes.
   c. Perforations within each row shall be 0.5 to 1.0 inch on-center.
   d. Edge of strip to nearest edge of perforation shall be a minimum of 0.3 inches.
   e. Centerline of spot weld to nearest edge of perforation shall be a minimum of 0.7 inches.

D. Cell Seam Strength Tests

1. Seam Peel-Strength Test

a. Cell seam strength shall be uniform over full depth of cell.
b. Minimum seam peel strength shall be:
    i. 320 lb for 4-inch geocell depth.

2.2. ACCESSORIES

A. Hooks, Clips, or Keys

1. Material with sufficient strength to support and anchor geocells.

2. Fiberglass Reinforced Polymer (FRP) Reinforcing Hooks, Keys, or Clips, as per Manufacturer's recommendations.

3. Metal staples and plastic zip ties are not an acceptable panel connection method.

3. PART 3 EXECUTION

3.1. EXAMINATION

A. Verify that the geocomposite installation is complete as indicated on the Construction Drawings. Notify the Engineer, before proceeding, if site conditions are not acceptable.

B. Verify that the substrate acceptability has been agreed between the Engineer, Installer, and CQA Consultant.

3.2. INSTALLATION OF THE GEOCELL

A. Prepare subgrade and install geocell in accordance with Manufacturer's recommendations.

B. Subgrade Preparation:

1. Subgrade must be approved by CalRecycle and CQA Consultant prior to installation of geocell system.

C. Geocell Anchorage

1. Anchorage requirements for the geocell shall be per Manufacturer's recommendations.

D. Expand geocell sections down the slope as described below.

E. Verify all geocell sections are expanded uniformly to the required dimensions and that outer cells of each section are correctly aligned. Interleaf or overlap edges of adjacent sections. Ensure upper surfaces of adjoining geocell sections are flush

at joint and adjoining cells are fully aligned at each cell wall slot.

F. Fill the geocell with the specified material and compact as required by the Construction Drawings.

G. Vegetative/Protective Cover Placement

1. Place protective cover (backfill) in expanded cells with suitable material handling equipment, such as a backhoe or front-end loader, conveyor, or crane-mounted skip.

2. Limit drop height to a maximum of 2 feet to avoid damage or displacement of the cell walls.

3. Fill geocell sections from the crest of the slope to toe or in accordance with Engineer’s direction.

4. Evenly spread backfill and ensure the backfill is flush with the geocell walls.

SECTION 02781
POLYVINYL CHLORIDE (PVC) PIPE

1. PART 1 GENERAL

1.1. SECTION INCLUDES

A. Furnish and install Polyvinyl Chloride (PVC) pipe and associated pipe fittings for the landfill gas well and horizontal collector trench riser extensions as indicated on the Construction Drawings.

1.2. RELATED SECTIONS

A. Section 02221 – Excavating and Stockpiling

B. Section 02222 – Engineered Fill and Foundation Layer

C. Section 02229 – Vegetative/Protective Cover

D. Section 02710 – High Density Polyethylene Pipe

E. Section 02778 – Linear Low Density (LLDPE) Geomembrane

1.3. REFERENCES

A. American Society for Testing and Materials (ASTM).

1. ASTM D638 - Standard Test Method for Tensile Properties of Plastics.

2. ASTM D696 - Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics.

3. ASTM D746 - Standard Test Method for Brittleness Temperature of Plastics and Elastomers by Impact.

4. ASTM D790 - Standard Test Method for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

5. ASTM D1238 - Standard Test Method for Flow Rates of Thermoplastics by Extrusion Plastometer.

6. ASTM D1505 - Standard Test Method for Density of Plastics by the Density-Gradient Technique.

7. ASTM D1525 - Standard Test Method for Vicat Softening Temperature of Plastics.

8. ASTM D1599 - Standard Test Method for Short-Time Hydraulic Failure

Pressure of Plastic Pipe, Tubing and Fittings.

9. ASTM D1784 - Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds, Class 1245B- for polyvinyl chloride.

10. ASTM D1785 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120

11. ASTM D2240 - Standard Test Method for Rubber Property Durometer Hardness.

12. ASTM 2467 – Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.

13. ASTM D2564 – Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC_ Plastic Piping Systems.

14. ASTM F656 - Standard Specification for Primers for Use in Solvent Cement Joints of Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fitting

B. American Water Works Association - AWWA Standard C504 – Rubber-seated butterfly valves

C. National Sanitation Foundation (NSF). NSF Standard Number 14 - Plastics Piping Components and Related Materials.

D. PPI - Plastic Pipe Institute.

E. ANSI - American National Standards Institute.

1.4. SUBMITTALS

A. Contractor shall submit to the CalRecycle seven (7) days prior to pipe delivery a letter of certification from the PVC pipe manufacturer stating the material and physical properties of the pipe are in accordance with requirements of this section. The certificate shall be signed and sealed by an authorized corporate officer.

B. Provide the CalRecycle for approval:

1. Details of special fittings.
2. Copy of the manufacturer's quality control check of pipe material and production.
3. Certified test records for PVC pipe.
4. Valve type, manufacturer, and model number that contractor proposes for isolation valves.

2. PART 2 PRODUCTS

2.1. PIPE

A. All Polyvinylchloride (PVC) pipes shall be Schedule 80 for all gas well casings and screens, and Schedule 40 for other pipes unless noted or specified otherwise elsewhere in other sections of the specifications or on the Drawings. PVC pipes shall conform to ASTM D1785, PVC 1120. The rigid unplasticized compound from which PVC pipe, fittings, and appurtenances is manufactured shall conform to ASTM D1784, Class 1245B for polyvinyl chloride.

B. All pipe sizes shown on the Construction Drawings and specified in this Section reference nominal diameter, unless otherwise indicated on the Construction Drawings or in this Section.

C. Containing no recycled compound except that generated in the Manufacturer's own plant and from resin of the same specification from the same raw material supplier.

D. Homogeneous throughout and free of visible cracks, holes (except where specified or shown), foreign inclusions or other injurious defects. Being uniform in color, capacity, density, and other physical properties.

E. Provide pipe with the following information continuously marked on the pipe or spaced at intervals not exceeding 5 feet.

   1. Name and/or trademark of the pipe manufacturer.
   2. Nominal pipe size.
   3. Manufacturer's Standard Reference.
   4. A production code from which the date and place of manufacture can be determined.

F. Provide solid pipe as shown on the Construction Drawings.

2.2. FITTINGS

A. Schedule 40 fittings shall conform to the requirements of ASTM D2467 for socket type joints and shall have a minimum pressure rating of 100 psig at 73°F. Large diameter fittings may be fabricated provided they conform to the above pressure rating.

2.3. SOLVENT CEMENT

A. Socket type connections shall only be joined by heavy duty solvent cement furnished by the supplier of the PVC pipe and fittings, and shall conform to ASTM D2564.

2.4. SOLVENT PRIMER

A. Socket type connections shall be primed with primer meeting ASTM F656 standards and recommended by the supplier of the PVC pipe and fittings.

2.5. FLANGE GASKETS

A. Neoprene full-face gaskets 1/8 inch-thick of 45 to 60-durometer (shore “A”) hardness are required for flanged joints.

2.6. FLANGE BOLTING

A. Bolts, washers, and nuts for making up flanged joints on PVC pipe shall be 316 Stainless Steel.

2.7. BUTTERFLY VALVES

A. Shall conform to AWWA Standard C504 for rubber seated butterfly valves, except the seats shall be mounted securely for complete immobility under all operating conditions.

B. Construction:

1. Valve seat shall be mounted on the body only. Mounting on the disk will not be acceptable.

2. Manufacturers: Muessco, Keystone, Flow-Seal, Asahi, Demco or acceptable equivalent.

3. Body of butterfly valve to be of lug design, cast iron, and bolt pattern compatible with 150 lb. ANSI flanges. Lug body shall be drilled for mounting bolts.

4. Disk shall be type 304 or 316 stainless steel.

5. Seats and seals shall be Viton.

6. Shaft shall be type 304 or 316 stainless steel. Either one-piece unit extending completely through the valve disk or stub shaft comprising two separate shafts inserted into valve disk hubs shall be utilized.

C. Manual Operators:

1. All valves shall be provided with a manual operator unless otherwise noted on the Construction Drawings or Specifications. The direction of rotation of the wheel, wrench nut, or lever to open each valve shall be to left

(counterclockwise). Each valve body or operator shall have cast thereon the word OPEN and an arrow indicating the direction to open and shall be visible to the operator when the valve is in its final position.

2. Operator mounting arrangements and handwheel positions shall be as shown on the Drawings or as directed by the Engineer.

3. Unless otherwise shown on the Construction Drawings or specified herein, above grade 8 inch-diameter and smaller butterfly valves shall have a position locking lever, and below grade valves 8 inch and smaller shall be provided with a square nut type operator. All valves shall be equipped with a visual position indicator.

4. Wrench nuts shall be provided on all buried valves where shown on the Drawings. Not less than two operating keys shall be furnished for operation of the square nut operated valves.

2.8. BACKFILL MATERIALS

A. Soil backfill shall meet the requirements of engineered fill in accordance with Section 02222.

B. Vegetative/Protective Cover backfill shall meet the requirements of vegetative/protective cover soil in accordance with Section 02229.

3. PART 3 EXECUTION

3.1. PIPE INSTALLATION GENERAL REQUIREMENTS

A. When shipping, delivering, and installing pipe, fittings, and accessories, do so in such manner to ensure a sound, undamaged installation.

B. Provide adequate storage for all materials and equipment delivered to the job site.

C. Handle and store pipe and fittings in accordance with the Manufacturer's recommendations.

3.2. PLACING AND LAYING PIPE

A. Provide required maintenance of all such materials and equipment used to handle, place, and install pipe.

B. Follow the Manufacturer's recommendations when hauling, unloading and stringing the pipe.

C. Take precautions to prevent damage to the pipe.

D. Do not push, pull, or drag pipe and fittings over sharp projections, or drop, or have objects dropped on the pipe and fittings.

E. Inspect for defects before and during installation. Remove any piping showing kinks, buckles, cuts, gouges, or any other damage, which in the opinion of the Engineer will affect performance of the pipe.

F. Replace material found to be defective before or after laying with sound material at no additional expense to CalRecycle.

G. Remove all dirt, gravel, cobwebs, plastic shavings, and debris before and after placement. The pipe shall be clean prior to acceptance by CalRecycle.

H. Carefully lower pipe and accessories into their final resting location and when moving them around the site. Do not drop the pipe on the geomembrane or other geosynthetic materials.

I. Under no circumstances drop or dump materials onto the pipe.

J. Rest the full length of each section of pipe solidly upon the pipe bedding, geomembrane, or on rub-sheets.

K. Take up or relay pipe that has had the grade disturbed while joining or laying the pipe.

3.3. JOINING PIPE

A. Join the PVC pipe using the appropriate pipe primer and cement, in accordance with the procedures established by the pipe Manufacturer.

B. Allow the required dry time according to pipe Manufacturer’s recommendations.

C. The ends of the pipes to be joined shall be cut square and burrs removed

D. Only use personnel adequately trained and qualified in the technique involved.

E. Do not perform pipe joining in water or when conditions are unsuitable for the work.

F. Keep water out of the work area until joining is completed.

G. Secure open ends of pipe and close valves when work is not in progress, so that no water, earth, animals, or other substance will enter the pipe or fittings.

H. Plug, cap or valve off pipe ends left for future connections as shown on the Construction Drawings.

I. Keep the site free of rocks and debris which could cut, scar, or gouge the pipe.

J. Remove all dirt, gravel, cobwebs, plastic shavings, and debris before and after joining. The pipe shall be clean prior to acceptance by CalRecycle.

K. When two pipes of different diameters must be joined, the Contractor shall join the pipe with an appropriate transition fitting.

L. Backfill pipes with the materials (gravel, soil, etc.) shown on the Construction Drawings and in accordance with the appropriate section of these Specifications.

3.4. PAINTING AND PROTECTION

A. PVC piping and flex hoses installed above ground shall be protected against the effects of ultra violet (UV) light by the application of a heavily pigmented water-based latex paint formulated for exterior use. The color shall be as determined by CalRecycle.

SECTION 02936
HYDROSEEDING

1. PART 1 GENERAL

1.1. SECTION SUMMARY

A. Hydroseeding vegetative/protective cover within the closure area, storm water retention basin, and other disturbed areas as shown on Construction Drawings and as required by the SWPPP. Hydroseeding materials include seed mix, fertilizer, mulch, and tackifier.

1.2. RELATED SECTIONS

A. Section 02221 – Excavation and Stockpiling

B. Section 02229 – Vegetative/Protective Cover

C. Section 02270 – Erosion and Sediment Control

1.3. SUBMITTALS

A. Submit the following 21 days prior to hydroseeding operations.

1. Product data sheet and 1 lb. sample of seed mix.
2. Product data sheet and 1 lb. sample of fertilizer.
3. Product data sheet and 0.5 lb. sample of mulch.
4. Product data sheet for tackifier.
5. Certifications that seed mix is free of noxious seed.

2. PART 2 PRODUCTS

2.1. SEED MIX

A. Approved native low profile grass seed mix that has been used previously within the local area that is certified free of noxious seed and consisting of the following:

1. Pine Bluefgrass (Poa Scabrella): .5 lbs/acre
2. Idaho Fescue (Festuca Idahoensis): 2 lbs/acre
3. Soft Chess Blando (Brome/Bromus Hordeaceus): 6 lbs/acre
4. Annual Fescue (Festuca Megalura, Vulpia Myuros): 3 lbs/acre
5. Kentucky Bluegrass (Poa Pretensis): 2 lbs/acre

B. All seed shall be in conformance with the California State Seed Law of the Department of Food and Agriculture. Each bag shall be delivered sealed and marked with the species, purity, percent, germination, dealer’s guarantee and dates of test.

C. Rice straw mulch that is applied at 4,000 lbs/acre or other approved combination of rice straw and degradable green-dyed wood cellulose fiber specifically blended

for hydromulching.

D. Tackifier that is derived from natural organic plant sources containing no growth or germination inhibiting material, hydrates in water, readily blends with other slurry materials. Stabilizing emulsion shall meet or exceed the requirements of Caltrans Standard Specification 21-1.02.

E. Fertilizer containing 22% nitrogen, 17% potassium, 11% phosphorous, and 8% sulfur shall be applied at 300 lbs/per acre or as recommended by the seed mix supplier. Fertilizer shall conform to requirements of the California Food and Agriculture code.

F. Water shall be clean and suitable for agricultural use. Water may be obtained from the on-site water supply.

G. Proportioning of the final seed mix, mulch, and fertilizer shall be in accordance with local regulatory guidelines and California Food and Agriculture code.

H. Alternate seed mixes, application, rates, fertilizers may be approved by CalRecycle.

2.2. HYDROSEEDING EQUIPMENT

A. Hydroseeder that utilizes water as carrying agent and maintains continuous agitation of seed mix.

B. Hydroseeder with operating capacity sufficient to agitate, suspend, and mix specified products into a homogeneous slurry.

C. Distribution and discharge lines large enough to prevent clogging.

D. Spray nozzles which provide a uniform distribution of slurry.

E. Alternative application methods other than hydroseeding method described herein may be proposed.

3. PART 3 EXECUTION

3.1. PREPARATION AND EXAMINATION

A. Notify CalRecycle 2 days prior to hydroseeding operations.

B. Verify areas to receive hydroseed are graded and the top 2 to 4 inches are roughened by scarifying, disking, harrowing, or track-walked with dozer cleats perpendicular to slope.

C. Verify hydroseed areas are not damaged by construction activity. Correct damaged areas at no additional cost to CalRecycle.

D. Do not hydroseed when winds affect the distribution of seed application.

E. Do not hydroseed when the ground is frozen, excessively wet, otherwise unsuitable.

3.2. APPLICATION RATES

A. Mix and proportion hydroseed mix in accordance with the supplier's recommendations.

3.3. HYDROSEED APPLICATION

A. Mix and proportion hydroseed mix in accordance with the supplier's recommendations.

B. Apply hydroseed and achieve a uniform visible coat distributed over entire seeding areas in specified proportions.

C. Do not drive equipment on completed areas.

D. Hand seed where hydroseeding is impractical or is inaccessible to equipment.

E. Apply straw mulch with tackifier over completed hydroseeding areas.

F. Hydroseed areas during the timeframe specified in approved Erosion Control Plan.

3.4. CLEANING AND REPAIR

G. Remove excess material and waste from site.

H. Repair damaged areas at no additional cost to CalRecycle.

3.5. WARRANTY AND ACCEPTANCE

A. Completed areas will be inspected after hydroseeding operations. Completed areas will conditionally accepted based on compliance with specified materials, application rates, execution, and maintenance.

B. All completed areas must be guaranteed for one year from the date of conditional acceptance to be in healthy, stable, and flourishing conditions.

C. At the end of the one-year warranty period, CalRecycle and Contractor will perform additional inspection of completed areas. Repair and/or replace defective areas noted.

EXHIBIT B

BUDGET DETAIL AND PAYMENT PROVISIONS

1. INVOICING AND PAYMENT:
   A. For services satisfactorily rendered and upon receipt and approval of the invoices, the State agrees to compensate the Contractor for completed work in accordance with the rates specified herein.
   B. Itemized invoices shall be submitted with one set of supporting documentation (i.e., receipts, timesheets, etc.), not more frequently than monthly in arrears to:

      contractpayments@calrecycle.ca.gov

   C. Each complete invoice package submitted to CalRecycle must include the below information. CalRecycle will not process incomplete invoice packages:
      1) Contractor's company name and address
      2) Date invoice was submitted
      3) Billing Period
      4) Contract Number and Project Name
      5) Overall total of invoice (Including retainage if applicable. Retention invoices must reference invoice numbers for which retention was withheld.)
      6) Contract line item number/ID
      7) Contract line item description
      8) Quantity of contract line item
      9) Rate of contract line item
      10) Overall total of contract line item (for services billed within invoice period)
      11) Standard Form 209 (STD 209), where a dispute has been made and resolved

2. BUDGET CONTINGENCY CLAUSE:
   A. It is mutually agreed that if the Budget Act of the current year and/or any subsequent years covered under this Agreement does not appropriate sufficient funds for the program, this Agreement shall be of no further force and effect. In this event, the State shall have no liability to pay any funds whatsoever to the Contractor or to furnish any other considerations under this Agreement and the Contractor shall not be obligated to perform any provisions of this Agreement.
   B. If funding for any fiscal year is reduced or deleted by the Budget Act for purposes of this program, the State shall have the option to either: cancel this Agreement with no liability occurring to the State, or offer an Agreement Amendment to the Contractor to reflect the reduced amount.
3. PROMPT PAYMENT CLAUSE: Payment will be made in accordance with and within the time specified in Government Code, Chapter 4.5 (commencing with section 927). Contractor agrees with CalRecycle that for purposes of compliance with the Prompt Payment Act, the Prompt Payment Act begins according to CalRecycle's Mission Task Finance Unit's "Received Date Stamp."

4. TAXES: The State of California is exempt from Federal Excise Taxes, and no payment will be made for any taxes levied on employees' wages. The State will pay for any applicable State of California or local sales or use taxes on the services rendered or equipment or parts supplied pursuant to this Agreement. California may pay any applicable sales or use tax imposed by another state.
5. COST BREAKDOWN: TBD from IFB BID SHEET
6. CONTRACTOR'S RESPONSIBILITY: The Contractor shall be responsible for all work, and all persons and entities engaged in the performance of work, pursuant to this Agreement, including, but not limited to, employees, Contractors, subcontractors, suppliers, and providers of services. The Contractor shall be responsible for responding to any claims, controversies, and disputes arising from its contracts for work on the Operation, including the costs of attorney or legal fees. CalRecycle will not facilitate, mediate, or arbitrate disputes between the Contractor and another entity; nor will it determine responsibility for the performance of work. Additionally, in the event that CalRecycle determines the Contractor is responsible for any unapproved delay, loss, harm or other damages to CalRecycle, the Contractor shall immediately implement all measures directed by the Contract Manager to remedy the issue at the Contractor's sole expense. CalRecycle reserves the right to retain withheld funds in order to remedy any unapproved delay, loss, harm or other damages it determines attributable to the Contractor.
7. PROGRESS PAYMENT AND PAYMENT WITHHOLD: The provisions for payment under this Agreement will be subject to a ten percent (10%) withholding per separate and distinct task. Any funds withheld with regard to a particular task may be released upon completion of that task to the satisfaction of CalRecycle.
    1) Progress Payment Quantities:
        a. Contractor will compute all quantities of Work performed, or of materials delivered to the site for progress payment purposes.
        b. CalRecycle may at any time verify quantities calculated by Contractor.
    2) Final Payment Quantities: Contractor will compute all quantities of Work performed, or of materials delivered and installed for final payment purposes. CalRecycle may perform an independent computation of all quantities of work performed, and of materials and equipment installed.

EXHIBIT D

SPECIAL TERMS AND CONDITIONS

1. AGENCY LIABILITY: The Contractor warrants by execution of this Agreement, that no person or selling agency has been employed or retained to solicit or secure this Agreement upon agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty, CalRecycle shall, in addition to other remedies provided by law, have the right to annul this Agreement without liability, paying only for the value of the work actually performed, or otherwise recover the full amount of such commission, percentage, brokerage, or contingent fee.

2. AMENDMENT: No amendment or variation of the terms of this Agreement shall be valid unless made in writing, signed by the parties and approved as required. No oral understanding or agreement not incorporated in this Agreement is binding on any of the parties. CalRecycle reserves the right to amend this Agreement through a formal written amendment signed by both parties, for additional time and/or funding.

3. CALIFORNIA WASTE TIRES: Unless otherwise provided for in this contract, in the event the Contractor and/or Subcontractor(s) purchases waste tires or waste-tire derived products for the performance of this Agreement, only California waste tires and California waste tire-derived products shall be used. As a condition of payment under this Agreement, the Contractor must provide documentation substantiating the source of the tire materials used during the performance of this Agreement to the Contract Manager.

   All formal notices required by this Agreement must be given in writing and sent by prepaid certified mail, fax, personal delivery or telex.

4. CONTRACT MANAGEMENT: The Contractor and the agents and employees of the Contractor, in the performance of this Agreement, shall act in an independent capacity and not as officers or employees or agents of the State of California. The Contractor may change the designated Project Director, but CalRecycle reserves the right to approve any substitution of the Project Director. Contractor's key personnel may not be substituted without CalRecycle's Contract Manager's prior written approval. CalRecycle may change the Contract Manager by notice given to the Contractor at any time. CalRecycle staff will be permitted to work side by side with the Contractor's staff to the extent and under conditions that may be directed by the Contract Manager. In this connection, CalRecycle's staff will be given access to all required data, working papers, etc. The Contractor will not be permitted to utilize the CalRecycle's staff for the performance of services, which are the responsibility of the Contractor unless the Contract Manager previously agreed to such utilization in writing, and any appropriate adjustment in price is made. No charge will be made to the Contractor for the services of CalRecycle's staff for coordination or monitoring functions.

5. CONTRACTOR EVALUATIONS: If this Agreement is for consulting services, CalRecycle will evaluate the Contractor's performance within sixty days of the completion of this Agreement and shall remain on file by CalRecycle for a period of thirty-six months. If the Contractor does not satisfactorily perform the work or service specified in this Agreement, CalRecycle will submit a copy of the negative evaluation to the Department of General Services (DGS), Office of Legal Services, within five (5) working days of the completion of the evaluation. Upon filing an unsatisfactory evaluation with the DGS, CalRecycle shall notify and send a copy of the

evaluation to the Contractor within fifteen days. The Contractor shall have thirty days to prepare and send a written response to CalRecycle and the DGS. CalRecycle and the DGS shall file the Contractor's statement with the evaluation. (PCC section 10369).

6. CONFIDENTIALITY/PUBLIC RECORDS: The Contractor and CalRecycle understand that each party may come into possession of information and/or data, which may be deemed confidential or proprietary by the person or organization furnishing the information or data. Such information or data may be subject to disclosure under the California Public Records Act, commencing with GC section § 6250, or the PCC. CalRecycle agrees not to disclose such information or data furnished by Contractor and to maintain such information or data as confidential when so designated by Contractor in writing at the time it is furnished to CalRecycle, only to the extent that such information or data is exempt from disclosure under the California Public Records Act and the PCC.

7. CONFLICT-FUTURE BIDDING LIMITATION: Pursuant to Public Contracts Code section 10365.5:

   (a) No person, firm, or subsidiary therefore who has been awarded a consulting services contract may submit a bid for, nor be awarded a contract for, the provision of services, procurement of goods or supplies, or any other related action that is required, suggested, or otherwise deemed appropriate in the end product of the consulting services contract.
   (b) Subdivision (a) does not apply to any person, firm, or subsidiary thereof who is awarded a subcontract of a consulting services contract that amounts to no more than ten (10) percent of the total monetary value of the consulting services contract.
   (c) Subdivisions (a) and (b) do not apply to consulting services contracts subject to Chapter 10 (commencing with section 4525) of Division 5 of Title 1 of the Government Code.

8. CONSULTING SERVICES: If this Agreement is for consulting services, the Contractor is hereby advised of its duties, obligations and rights under PCC sections 10335 through 10381.

9. COPYRIGHTS AND TRADEMARKS: The Contractor shall assign to CalRecycle any and all rights, title and interests to any copyrightable material or trademarkable material created or developed in whole or in any part as a result of this Agreement, including the right to register for copyright or trademark of such materials. The Contractor shall require that its subcontractors agree that all such materials shall be the property of CalRecycle. Such title will include exclusive copyrights and trademarks in the name of CalRecycle.

   For contracts of $5,000 or more, any document or written report prepared for or under the direction of CalRecycle, shall include a notation on the inside cover as follows:

   "Prepared as part of CalRecycle contract number [DRR (Insert)], Total Contract Amount $[Insert] pursuant to Government Code Section 7550."

10. DELIVERABLES: All documents and/or reports drafted for publication by or for CalRecycle in accordance with this contract shall adhere to CalRecycle's Contractor Publications Guide at www.calrecycle.ca.gov/Contracts/PubGuide/ and shall be reviewed by CalRecycle's Contract Manager in consultation with CalRecycle editor.

11. ENTIRE AGREEMENT: This Agreement supersedes all prior agreements, oral or written, made with respect to the subject hereof and, together with the Attachments and/or Exhibits hereto, contains the entire Agreement of the parties.

12. ENVIRONMENTAL JUSTICE: In the performance of this Agreement, the Contractor shall conduct its programs, policies, and activities that substantially affect human health or the

environment in a manner that ensures the fair treatment of people of all races, cultures, and income levels, including minority populations and low income populations of the State. (Government Code section 65040.12(e)).

13. FORCE MAJEURE: Neither CalRecycle nor the Contractor, including the Contractor's subcontractor(s), if any, will be responsible hereunder for any delay, default or nonperformance of this Agreement, to the extent that such delay, default or nonperformance is caused by an act of God, weather, accident, labor strike, fire, explosion, riot, war, rebellion, sabotage, or flood, or any other cause beyond the reasonable control of such party.

14. GRATUITIES: CalRecycle may terminate this Agreement if gratuities were offered or given by the Contractor, or any agent or representative of the Contractor, to any employee of CalRecycle, with a view toward securing a contract or securing favorable treatment with respect to awarding or amending or making a determination with respect to performance of this Agreement.

15. IMPRACTICABILITY OF PERFORMANCE: This Agreement may be suspended or cancelled, without notice at the option of the Contractor, if the Contractor's or CalRecycle premises or equipment is destroyed by fire or other catastrophe, or so substantially damaged that it is impractical to continue service or in the event the Contractor is unable to render service as a result of any action by any governmental authority.

16. INSURANCE: Contractor shall procure and maintain for the duration of the contract, insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, or employees.

    a. Minimum Scope of Insurance

        Coverage shall be at least as broad as:
        1. Insurance Services Office Commercial General Liability coverage (occurrence Form CG 0001).
        2. Insurance Services Office Form Number CA 0001 covering Automobile Liability, Code 1 (any auto).
        3. Workers' Compensation insurance as required by the State of California and Employer's Liability Insurance.

    b. Minimum Limits of Insurance

        Contractor shall maintain limits no less than:

General Liability: *(Including operations, products & completed operations, as applicable.)*	**$2,000,000** per occurrence for bodily injury, personal injury and property damage. If Commercial General Liability Insurance or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to this operation/location or the general aggregate limit shall be twice the required occurrence limit.
Automobile Liability:	**$1,000,000** per accident for bodily injury and property damage.
Employer's Liability:	**$1,000,000** per accident for bodily injury or disease.

c. Deductibles and Self-Insured Retentions

Any deductibles or self-insured retentions applying to General Liability and Automobile Liability must be declared to and approved by the State. At the option of the State, either: the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the State, its officers, officials, employees and volunteers; or the Contractor shall provide a financial guarantee satisfactory to the State guaranteeing payment of losses and related investigations, claim administration and defense expenses.

d. Commercial general liability and automobile liability policies are to contain, or be endorsed to contain, the following provisions:

1. The State, its officers, officials, employees and volunteers are to be covered as insured as respects: liability arising out of work or operations performed by or on behalf of the Contractor; or automobiles owned, leased, hired or borrowed by the Contractor.

2. For any claims related to this operation, the Contractor's insurance coverage shall be primary insurance as respects the State, its officers, officials, employees and volunteers. Any insurance or self-insurance maintained by the State, its officers, officials, employees or volunteers shall be excess of the Contractor's insurance and shall not contribute with it.

3. Each insurance policy required by this clause shall be endorsed to state that coverage shall not be canceled by either party, except after thirty (30) days' prior written notice by U.S. mail.

e. The workers' compensation and employer's liability policy shall be endorsed to contain the following provisions:

The insurer waives any right of recovery the insurer may have against the State, its officers, officials, employees and volunteers because of payments the insurer makes for injury or damage arising out of the work done under contract with the State.

f. Verification of Coverage: Contractor shall furnish the State with original certificates and amendatory endorsements effecting coverage as required in this section. All certificates and endorsements are to be received and approved by the State before work commences. The State reserves the right to require complete, certified copies of all required insurance policies, including endorsements affecting the coverage required by these specifications at any time. Any required endorsements requested by the State must be physically attached to all requested certificates of insurance and not substituted by referring to such coverage on the certificate of insurance.

g. Insurance companies issuing any of the policies required by these provisions shall have a rating classification of "A-" or better and a financial size category rating of "VII" or better according to the latest edition of the A.M. Best Key Rating Guide. Any other rating classification requires State approval.

h. Contractor shall ensure that all Subcontractors procure insurance meeting the requirements of these provisions.

i. State Remedies: If Contractor fails to maintain the insurance required to be carried by these provisions in full force and effect at all times, the State, in its sole discretion, may terminate this contract.

j. Any required insurance contained in this Agreement shall be primary, and not excess or contributory, to any other insurance carried by the State.

k. Inadequate or lack of insurance does not negate the Contractor's obligations under this Agreement. In the event the insurance coverages obtained by the Contractor is broader in scope or the limits are higher than those required under this Agreement, such scope and limits available to the Contractor shall also be available and applicable to the State.

17. LIABILITY FOR NONCONFORMING WORK: The Contractor will be fully responsible for ensuring the completed work conforms to the agreed upon terms. If nonconformity is discovered prior to the Contractor's deadline, the Contractor will be given a reasonable opportunity to cure the nonconformity. If the nonconformity is discovered after the deadline for the completion of the operation, CalRecycle, in its sole discretion, may use any reasonable means to cure the nonconformity. The Contractor shall be responsible for reimbursing CalRecycle for any additional expenses incurred to cure such defects.

18. LICENSE OR PERMITS: The Contractor shall be an individual or firm licensed to do business in California and shall obtain at his/her expense all license(s) and permit(s) required by law for accomplishing any work required in connection with this Agreement.

    In the event the Contractor fails to keep in effect at all times all required license(s) and permit(s), CalRecycle may, in addition to other remedies it may have, terminate this Agreement upon occurrence of such event.

19. LIQUIDATED DAMAGES: It is the intent of this Contract that individual projects proceed in an uninterrupted manner from the date of commencement until all work contemplated in the Contract/Work Order has been completed. The Contract/Work Order authorized by CalRecycle Staff and accepted by the Contractor shall include the number of days authorized to complete the project. All parties to the Contract agree that CalRecycle will sustain damage for any day on which the Contractor arbitrarily suspends operations, or fails to prosecute the work. It is and will be impracticable and extremely difficult to ascertain and determine the actual damage which CalRecycle will sustain in the event of and by reason of such delay; and it is therefore agreed that the Contractor will pay to CalRecycle the sum of $1,000 for each day on which the Contractor fails to perform work in accordance with the approved schedule without the approval of CalRecycle staff. The Contractor agrees to pay said liquidated damages herein provided for, and further agrees that CalRecycle may deduct the amount thereof from any moneys due or that may become due the Contractor under the Contract. The Contractor shall not be assessed liquidated damages when the delay in completing the project is caused by the state.

20. ORDER OF PRECEDENCE: In the event of conflict or inconsistency between the articles, exhibits, attachments, specifications or provisions that constitute this Agreement, the following order of precedence shall apply: STD 213; GTC 04/2017 - General Terms and Conditions (incorporated by reference); Exhibit A – Scope of Work; Exhibit B – Budget Detail and Payment Provisions; Exhibit D – Special Terms and Conditions; Other exhibits in alphabetical order, beginning with E; Attachments in numerical order, beginning with 1.

21. OWNERSHIP OF DRAWINGS, PLANS AND SPECIFICATIONS: CalRecycle will have separate and independent ownership of all drawings, design plans, specifications, notebooks, tracings, photographs, negatives, reports, findings, recommendations, data and memoranda of every description or any part thereof, prepared under this Agreement. The originals and all copies thereof will be delivered to CalRecycle upon request. CalRecycle will have the full right

to use said originals and copies in any manner when and where it may determine without any claim on the part of the Contractor, its vendors or subcontractors to additional compensation.

22. PATENTS: The Contractor assigns to CalRecycle all rights, title, and interest in and to each invention or discovery that may be capable of being patented, that is conceived of or first actually reduced to practice in the course of or under this Agreement.

23. PREVAILING WAGE EMPLOYEES: The Contractor shall comply with Labor Code sections 1774 and 1775. Pursuant to section 1774, the Contractor and every subcontractor, regardless of tier, shall pay not less than the specified prevailing wage rates to all workers employed in the execution of the Contract. In accordance with section 1775, the Contractor shall forfeit to the State up to $200 for each day, or portion thereof, for each worker paid less than the prevailing wage rates for the work or craft in which the worker is employed for any work executed under the Contract by the Contractor or by any subcontractor, regardless of tier, in violation of the provisions of the Labor Code; and, in particular, Labor Code sections 1770 to 1780, inclusive. In addition to such forfeiture, the difference between such stipulated prevailing wage rates and the amount paid to each worker for each day, or portion thereof, shall be paid to each underpaid worker by the Contractor. This provision shall not apply to properly registered apprentices.
    a. Pursuant to Labor Code section 1770, the Director of the Department of Industrial Relations has ascertained the general prevailing rate of per diem wages and a general prevailing rate for legal holiday and overtime work for each craft required for execution of the Contract. The Contractor shall obtain copies of the prevailing rate of per diem wages from the Department of Industrial Relations, Division of Labor Statistics & Research, PO Box 420603, San Francisco, CA 94142-0603, (415) 703-4780; or wage rates may be accessed on the internet at https://www.dir.ca.gov/Public-Works/Prevailing-Wage.html.The Contractor is responsible to read, understand and comply with all the guidelines, including the fine print in the prevailing wage determinations; and shall post a copy of the prevailing wage rates, specific to the Operation, at the Operation site.

    b. Wage rates set forth are the minimum that may be paid by the Contractor. Nothing herein shall be construed as preventing the Contractor from paying more than the minimum rates set. No extra compensation will be allowed by the State due to the inability of the Contractor to hire labor at minimum rates, nor for necessity for payment by the Contractor of subsistence, travel time, overtime, or other added compensations, all of which possibilities are elements to be considered and ascertained to the Contractor's own satisfaction in preparing the Bid Form. Contractor shall be responsible for any future adjustments to prevailing wage rates including but not limited to, base hourly rates and employer payments as determined by the Department of Industrial Relations. The Contractor is responsible for paying the appropriate rate, including escalations that take place during the term of the Agreement.

    c. If it becomes necessary to employ crafts other than those listed in the General Prevailing Wage Rate booklet, the Contractor shall contact the Division of Labor Statistics and Research as noted above. The rates thus determined shall be applicable as minimum for the contract and incorporated in the bid. When the wage determination shows an expiration date (noted by a double asterisk**), to expire during the term of the contract, the Contractor must call or write the DIR to obtain the new rates and incorporate them in the bid to be applicable for the term of the contract.

d. The Contractor and each subcontractor, regardless of tier, shall keep an accurate payroll record showing the names, addresses, social security numbers, work classifications, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by the Contractor and/or subcontractor in connection with the Work. Payroll records shall be certified and shall be on forms provided by the Division of Labor Standards Enforcement, or shall contain the same information as those forms. The Contractor's and subcontractor's certified payroll records for each employee shall be submitted with each payment request, covering the period of the payment request unless requested otherwise by the Labor Commissioner of the Department of Industrial Relations pursuant to Labor Code section 1771.4(c)(2)(b) monthly payrolls should be sent directly to the Department of Industrial Relations in the current prescribed electronic format. Refer to https://www.dir.ca.gov/public-works/certified-payroll-reporting.html for access to the electronic Certified Payroll (eCRP) Application.

e. Labor Compliance Monitoring and Enforcement: This Operation is subject to monitoring and enforcement by the Department of Industrial Relations (DIR), Compliance Monitoring Unit. All Contractors and subcontractors, regardless of tier, shall be required to comply with the Monitoring and Enforcement Program, including, but not limited to, Contractor registration, submittal of electronic certified payroll reports directly to the DIR and cooperation with on-site monitoring by DIR personnel.

f. Pursuant to Labor Code section 1771.1(a), Contractor and subcontractors listed in the bid submittal, if any, must be registered with the Department of Industrial Relations to engage in the performance of work on Public Works projects. Non-compliance shall result in rejection of submitted bids. Prime Contractors and all subcontractors shall maintain DIR registration throughout the life of the contract.

g. Potential bidders are advised to consult with the Department of Industrial Relations for questions regarding prevailing wage or skilled and trained workforce requirements' applicability to this Operation.

24. PUBLICITY AND ACKNOWLEDGEMENT: The Contractor agrees that it will acknowledge CalRecycle's support whenever operations funded, in whole or in part, by this Agreement are publicized in any news media, brochures, or other type of promotional material.

25. RECYCLED-CONTENT PRODUCT PURCHASING: In the performance of this Agreement, the Contractor shall purchase used and/or recycled-content products as set forth on the back of the Recycled-Content Certification Form (Exhibit D, Attachment 1). For assistance in locating recycled-content products, please search the recycled-content product database available at: www.calrecycle.ca.gov/RCP. If after searching the database, Contractors are unable to find the recycled-content products they are looking for, please notify CalRecycle's Contract Manager. All recycled content products purchased or charged/billed to CalRecycle that are printed upon such as promotional items, publications, written materials, and other educational brochures shall have both the total recycled content (TRC) and the post-consumer (PC) content clearly printed on them.

In addition, any written documents such as, publications, letters, brochures, and/or reports shall be printed double-sided on 100% post-consumer (PC) paper. Specific pages containing full-color photographs or other ink-intensive graphics may be printed on photographic paper. The paper should identify the post-consumer recycled content of the paper (i.e., "printed on

100% post-consumer paper"). When applicable, the Contractor shall provide the Contract Manager with an electronic copy of the document and/or report for CalRecycle's uses. When appropriate, only an electronic copy of the document and/or report shall be submitted and no hard copy shall be provided.

26. REMEDIES: Unless otherwise expressly provided herein, the rights and remedies hereunder are in addition to, and not in limitation of, other rights and remedies under the Agreement, at law or in equity, and exercise of one right or remedy will not be deemed a waiver of any other right or remedy.

27. SETTLEMENT OF DISPUTES: In the event of a dispute, the Contractor shall file a "Notice of Dispute" with CalRecycle's Director or his/her designee within ten (10) days of discovery of the problem. Within ten (10) days, the Director or his/her designee shall meet with the Contractor and CalRecycle Contract Manager for the purpose of resolving the dispute.

28. STOP WORK NOTICE: Immediately, upon receiving a written notice to stop work, the Contractor shall cease all work under this Agreement.

29. SUBCONTRACTORS: All Subcontractors previously identified in the bid/proposal submitted are considered to be acceptable to CalRecycle. Any change or addition of Subcontractors will be subject to the prior written approval of the Contract Manager or the Director or his/her designee. Upon termination of any Subcontract, the Contractor shall notify the Contract Manager or the Executive Director immediately. If CalRecycle or the Contractor determines that the level of expertise or the services required are beyond that provided by the Contractor or its routine Subcontractors, The Contractor will be required to employ additional Subcontractors. Nothing contained in this Agreement or otherwise, shall create any contractual relation between CalRecycle and any Subcontractors, and no Subcontract shall relieve the Contractor of its responsibilities and obligations hereunder. The Contractor agrees to be as fully responsible to CalRecycle for the acts and omissions of its Subcontractors and of persons either directly or indirectly employed by any of them as it is for the acts and omissions of persons directly employed by the Contractor. The Contractor's obligation to pay its Subcontractors is an independent obligation from CalRecycle obligation to make payments to the Contractor. As a result, CalRecycle shall have no obligation to pay or to enforce the payment of any moneys to any Subcontractor.

30. SUCCESSORS: The provisions of this Agreement will be binding upon and inure to the benefit of CalRecycle, the Contractor, and their respective successors.

31. TERMINATION FOR CONVENIENCE: TERMINATION: CalRecycle shall have the right to terminate this Agreement at its sole discretion at any time upon thirty days written notice given to the Contractor. In the case of early termination, a final payment will be made to the Contractor upon approval by the Contract Manager of a financial report, invoices for costs incurred to date of termination and a written report describing all work performed by the Contractor to date of termination.

32. UNRELIABLE LIST: Prior to authorizing a Subcontractor(s) to commence work under this Agreement, the Contractor shall submit to CalRecycle a declaration from the Subcontractor(s), signed under penalty of perjury, stating that within the preceding three years, none of the events listed in 14 CCR section 17050 have occurred with respect to the subcontractor(s).

    Placement of Contractor on CalRecycle Unreliable List any time after award of this Agreement may be grounds for termination of Agreement. If a Subcontractor is placed on CalRecycle

Unreliable List after award of this Agreement, the Contractor may be required to terminate the Subcontract.

33. WASTE REDUCTION: In the performance of this Agreement, the Contractor shall take all reasonable steps to ensure that materials purchased or consumed in the course of the Operation are utilized both effectively and efficiently to minimize the generation of waste. The steps should include, but not necessarily be limited to, the use of reusable products, the use of recyclable and compostable products, discretion in the amount of materials used, the provision of alternatives to disposal for materials consumed, and the practice of other waste reduction measures where feasible and appropriate.

STATE OF CALIFORNIA
Department of Resources Recycling and Recovery (CalRecycle)
CalRecycle 74C (Rev. 06/10 for Contracts)
Recycled-Content Certification

To be completed by Contractor	
Name of Contractor:	
Contract #:	Work Order #:

☐Check this box if no products, materials, goods, or supplies were purchased with contract dollars and submit to the CalRecycle Contract Manager.

This form to be completed by Contractor. The form must be completed and returned to CalRecycle with a row completed for each product purchased with contract dollars. Attach additional sheets if necessary. Information must be included, even if the product does not contain recycled-content material. Product labels, catalog/website descriptions, or bid specifications may be attached to this form as a method of providing that information. Add additional rows as needed.

Contractor's Name_____ **Date**_____
Address_____ **Phone**_____
Fax_____ **E-mail**_____ **Web site**_____

Product Manufacturer	**Product Description / Brand**	**Purchase Amount ($)**	**[1]Percent Postconsumer Material**	**[2]SABRC Product Category Code**	**Meets SABRC**

Public Contract Code sections 12205 (a) (1) (2) (3) (b) (1) (2) (3).

I certify that the above information is true. I further certify that these environmental claims for recycled content regarding these products are consistent with the Federal Trade Commission's Environmental Marketing Guidelines in accordance with PCC Section 12205.

Print name Signature Company Date

(See footnotes on the back of this page)

Postconsumer material comes from products that were bought by consumers, used, and then recycled. For example: a newspaper that has been purchased and read, next recycled, and then used to make another product would be postconsumer material.

If the product does not fit into any of the product categories, enter "N/A." Common N/A products include wood products, natural textiles, aggregate, concrete, electronics such as computers, TV, software on a disk or CD, or telephone.

1. Product category refers to one of the product categories listed below, into which the reportable purchase falls. For products made from multiple materials, choose the category that comprises most of the product by weight, or volume.

Note: For reused or refurbished products, there is no minimum content requirement.

For additional information visit www.calrecycle.ca.gov/BuyRecycled/

Code	Description Product Categories (11)	Minimum content requirement
1	Paper Products - Recycled	30 percent postconsumer fiber, by fiber weight
2	Printing and Writing - Recycled	30 percent postconsumer fiber, by fiber weight
3	Compost, Co-compost, and Mulch – Recycled	80 percent recovered materials. i.e., material that would otherwise be normally disposed of in a landfill
4	Glass – Recycled	10 percent postconsumer, by weight
5	Rerefined Lubricating Oil - Recycled	70 percent re-refined base oil
6a	Plastic – Recycled	10 percent postconsumer, by weight
6b	Printer or duplication cartridges	a. Have 10 percent postconsumer material, or b. Are purchased as remanufactured, or c. Are backed by a vendor-offered program that will take back the printer cartridges after their useful life and ensure that the cartridges are recycled and comply with the definition of recycled as set forth in Section 12156 of the Public Contract Code.
7	Paint – Recycled	50 percent postconsumer paint (exceptions when 50% postconsumer content is not available or is restricted by a local air quality management district, then 10% postconsumer content may be substituted)
8	Antifreeze – Recycled	70 percent postconsumer material
9	Retreated Tires - Recycled	Use existing casing that has undergone retreading or recapping process in accordance with Public Resource Code (commencing with section 42400).
10	Tire- Derived - Recycled	50 percent postconsumer tires
11	Metals – Recycled	10 percent postconsumer, by weight