

ADDENDUM #1



CONTRA COSTA COMMUNITY COLLEGE DISTRICT

C-4016, INC. 3, DEMO AND ABATEMENT OF PHYSICAL SCIENCE AND BIOLOGICAL SCIENCE BUILDINGS AND OTHER STRUCTURES

Contra Costa College
2600 Mission Bell Drive, San Pablo, CA 94806

Date: November 24, 2021

NOTICE TO ALL CONTRACTORS

You are hereby notified of the following changes, clarifications and/or modifications to the original Contract Documents, Project Manual, Drawings, Specifications and/or previous Addenda. This Addendum shall supersede the original Contract Documents and previous Addenda wherein it contradicts the same, and shall take precedence over anything to the contrary therein. All other conditions remain unchanged.

This Addendum forms a part of the Contract Documents and modifies the original Contract Documents dated **November 6, 2021**. Acknowledge receipt of this Addendum in space provided on the Bid Proposal Form. Failure to acknowledge may subject Bidder to disqualification.

A. DELETIONS, ADDITIONS, CHANGES, REVISIONS

Item:

1. **Delete:** Regarding Volume 1, delete duplicate pages
Appendix 1 was inadvertently attached twice in the PDF of Volume 1. The “second version” of Appendix 1 can be deleted; the “second version” of Appendix 1 consists of PDF pages 573 - 821.
2. **Add:** Regarding SECTION 00210 INFORMATION AVAILABLE TO BIDDERS, Part 1.2.E AS-BUILT DRAWINGS (FOR REFERENCE)
ADD: 1.2.E9 CCC Humanities-Natural Sciences Drwgs., 1954
3. **Revise:** Regarding SECTION 1140 WORK RESTRICTIONS, Part 1.2(c)
Revise SECTION 1140 WORK RESTRICTIONS, Part 1.2(c) to read: *Contractor shall construct dust partitions and other barriers as required by the Contract Documents prior to the start of abatement or demolition activities, and they must remain in place until the completion of that abatement and demolition activity where required.*

ADDENDUM #1

4. **Add:** Meeting Minutes from Mandatory Pre-Bid Meeting, dated November 16, 2021.

5. **Add:** Questions from prospective bidders (RFIs), and District responses.

B. If you have any questions regarding this Addendum, please contact:

Mr. Ben Cayabyab, Contracts Manager
Contra Costa Community College District
500 Court St., Martinez, CA 94553
Email: bcayabyab@4cd.edu
Facsimile: 925-370-7512;

All other terms and conditions of BID are to remain the same.

ATTACHMENTS

Meeting Minutes from Mandatory Pre-Bid Meeting
Pre-bid RFIs and District responses

MINUTES



PROJECT NUMBER/NAME:	C-4016, Increment 3
CAMPUS:	Contra Costa College, San Pablo, CA
DSA #:	Not Applicable

MANDATORY C-4016, Increment 3 - PRE-BID MEETING and SITE WALK

Date: November 16, 2021
Time: 11:00 a.m.
Location: Contra Costa College
Building and Grounds Department Conference Room
2600 Mission Bell Drive
San Pablo, CA 94806

IMPORTANT NOTE: An on-site job walk/field presentation followed the meeting. Attendance at this meeting and job walk was mandatory. At completion of the site walk, attendees were given a Certification of Site Visit (Section 00450), signed by the District. This signed form must be submitted with any bid.

I. Project Team Members:

Ines Zildzic	Vice Chancellor, Facilities Planning and Construction – CCCCC
Kathleen Halaszynski	Director of Construction Program Control – CCCCC
Ben M. Cayabyab	Contracts Manager – CCCCC
Ron Johnson	Project Manager – Critical Solutions, Inc. (CSI)
Johnny Wong	Architect of Record (AOR) – SmithGroupJJR
Gaile Suarez	Asst. Project Manager – Critical Solutions, Inc. (CSI)
Robert Bagany	Sr. Project Engineer – Critical Solutions, Inc. (CSI)
Dayne Johnson	BKF – Civil Engineer of Record
Wilson Wong	Forensic Analytical Consulting Services (FACS) – Abatement Consultant
Bruce King	Buildings & Grounds Manager – Contra Costa College (CCC)

II. Welcome and Introductory Remarks

- Team Introductions. Team members present introduced themselves.
- Public Safety, Noise, and Parking. Discussed the importance of public safety, noise generation and areas to park for construction workers.
- COVID-19 Guidelines
 - ✦ Refer to Contra Costa County Health website
 - ✦ 4CD COVID-19 Information can be found on www.4cd.edu
- Project Stabilization Agreement DOES apply to this project.
- EADOC Web-Based Construction Management System will be utilized on this project.

III. Brief Project Description

- Increment 3 scope includes abatement and demolition of the Biology Building, Physical Sciences Buildings and other structures as noted on the Contract Drawings or in the Specifications. Other related Work includes but is not limited to: removal of some trees, site grading, capping or removing utilities, disconnecting the fire alarm system and other active systems. Ron Johnson noted the importance of bidders to contact Siemens to obtain a quote

to disconnect the fire alarm system of the buildings scheduled for demolition. All buildings are connected to the main panel located in the nearby AA Building.

IV. Summary of Work

- In general, the Work consists of the following, but not limited to installation of temporary facilities, safety signage, wayfinding signage, temporary fencing, and temporary lighting; storm water pollution prevention; abatement of hazardous materials; removal of some trees and brush; demolition and removal of multiple buildings and structures, a pedestrian bridge foundation, and above-ground and below-ground utilities; and all related work.

V. Project Work Restrictions (SECTION 01140) & Temp Facilities and Controls (Section 01500)

The items below were all discussed.

- Temporary Work Activity Plan
- Temporary Fencing
- Temporary Lighting
- Utility Shutdowns, Exterior Lights, etc.
- Truck Access and One-Way Road. Contractor vehicles going the wrong way on the one-way road will be ticketed by Police Services.
- Fire Lane Access for Fire District. When demolishing the structure just above the Fire Access Road, the Contractor will be required to protect the asphalt pavement that will be installed prior to the start of Increment 3. Contractor will be responsible to repair any damaged caused by the Contractor or its subcontractors.
- Storm Water Pollution Prevention (Section 01572).

VI. Bid Phase Communications & Correspondence:

- All questions related to this Project must be submitted via email, to:

Ben M. Cayabyab, Contracts Manager
Contra Costa Community College District
500 Court St., Martinez, CA 94553
Email: bcayabyab@4cd.edu

VII. Addenda Update:

1. Addendum #1 – Most likely will be issued on approximately November 24, 2021.

VIII. Bid Phase Schedule Milestones

- **Last day for RFI: December 6, 2021, prior to 5:00 p.m.**
- Last Addendum Issued:December 10, 2021
- **Bid Opening:..... December 16, 2021, 2:00 p.m.**
- Award of Contract:January 13, 2021(approximate)
- Notice to Proceed.....January 31, 2021 (approximate)
- **Work Starts on Site.....February 1, 2021 (approximate).** See Work Restrictions

IX. Bid Opening:

- **Bids must be received at the Contra Costa Community College District Office, 500 Court St, Martinez, CA, by December 16, 2021, prior to 2:00 PM.**
- All bids will be time stamped at the reception counter in the building lobby.
- Any bid received after the bid opening time will be rejected.
- An announcement will be made at the two-minute mark prior to the bid opening deadline.

X. Bid Package:

- Review your bid package carefully before submitting it. Be sure to include all required documentation, or bid will be rejected.
 - ✦ Completed Bid Proposal Form (Section 00300), to include bidder's name and signature.
 - ✦ An active CLSB license number, as required in the bid documents.
 - ✦ Acknowledgement of any addenda issued.
 - ✦ Listing of actively-licensed subcontractors, including license numbers and DIR numbers.
 - ✦ Bid Bond – 10% of bid Amount.
 - ✦ Bid bond must accompany bid; company checks can be accepted, but no cash will be accepted.
 - ✦ Statement of Bidder's Qualifications (Section 00400), signed by an authorized officer of the Bidder.
 - ✦ Non-Collusion Affidavit, fully executed.
 - ✦ Completed and signed Certification of Site Visit (Section 00450).
 - ✦ Other documents as required by the Contract Documents.
- Contact Ben M. Cayabyab, Contracts Manager, if you have additional questions.

XI. Contract Duration Discussion

- Take note of SECTION 00600, CONSTRUCTION AGREEMENT.
- **200 Calendar Days** from Notice to Proceed (NTP) to Substantial Completion (SC).
- **35 Calendar Days** between SC and Final Completion (FC).
- Work on Site Can't Start Until - See Project Work Restrictions for specific limitations.

XII. Substitution requests MUST comply with Contract Documents

- SECTION 00700, GENERAL CONDITIONS, Article 3.11.4
- Sample Substitution Request form is included in bid package. It is not anticipated any substitution requests will be needed since this is a demolition project.

XIII. DSA (CA Division of the State Architect)

- This is NOT a DSA-monitored project and a DSA Inspector of Record has not been hired to monitor progress.

XIV. Site Job Walk/ Field Presentation

- Reviewed Construction Site.
- Reviewed Staging Areas. Unless otherwise noted, all staging by the Contractor and its subcontractors must be within the area of the temporary fencing.
- Walked Inside the Buildings. Limited access due to classes in session. **However, Contractors who attended the mandatory pre-bid meeting that want to walk inside the buildings again are invited to do so on Friday, December 3, 2021, at 11:00 am. Meet in front of Buildings and Grounds and then we will walk to the buildings with Bruce King.**
- Certification of Site Visit (Section 00450) forms, signed by District Representative, were distributed to each Contractor, in attendance, at the conclusion of the Site Walk.

XV. Questions following Meeting and Site Walk

1. **Import Fill.** A couple of the bidders mentioned they reviewed the drawings and think that it will require import fill for the holes left by the removal of the foundations, etc. They wanted to know if they are required

to include in their bid the cost to import fill. The District will review with the Architect of Record/Civil Engineer of Record and will address in an addendum.

2. **Piles:** One bidder mentioned that they observed foundation drawings that included foundation piles. They wanted to know if they are required to pull them all out. The District will review with the Architect of Record/Civil Engineer of Record and will address in an addendum. Similar to the Increment 0 project, any foundation files will be cut-off a certain number of feet below the new grade and will be addressed in an addendum.
3. **Trees.** When walking the site, some trees were close to the exterior of buildings that extended out from the foundation but were outside of five feet of the foundation. The District will review with the Architect of Record/Civil Engineer of Record and will address in an addendum.
4. **Siemens:** When bidders were informed that the disconnection of the fire alarm system will require contracting with Siemens, one bidder requested their contact information. The contact information for Siemens is:

Siemens Industry, Inc.

Jacob Curtiss 209-483-9312 jacob.curtiss@siemens.com

Pre-Bid Meeting Sign-in Sheet

PROJECT TITLE: C-4016, Inc. 3, Demo/Abatement of PS, BS & Other Structures

DATE / TIME: November 16, 2021, at 11:00 AM

LOCATION: Building and Grounds Conference Room, Contra Costa College, San Pablo

Evans Brothers Inc.

Company Name

Chris Geiss

Attendee Name

Estimator

Title / Role In This Project

**Please provide
business card**

Office Phone

925.443.0225

Cell Phone

925.667.8037

Email Address

Chris@evansbrothers.com

Eco Bay

Company Name

CHRIS DAVINI

Attendee Name

PM/ESTIMATOR

Title / Role In This Project

**Please provide
business card**

Office Phone

415-643-7777

Cell Phone

415-308-6264

Email Address

cdavini@ecobayservices.com

Mar-Con Builders

Company Name

Gene Santolun

Attendee Name

PE

Title / Role In This Project

**Please provide
business card**

Office Phone

510-639-1914

Cell Phone

Email Address

bids@marconcompany.com

Company Name

Attendee Name

Title / Role In This Project

**Please provide
business card**

Office Phone

Cell Phone

Email Address

Pre-Bid Meeting Sign-in Sheet

PROJECT TITLE: C-4016, Inc. 3, Demo/Abatement of PS, BS & Other Structures

DATE / TIME: November 16, 2021, at 11:00 AM

LOCATION: Building and Grounds Conference Room, Contra Costa College, San Pablo

Clavis Construction Benny S. Garam Superintendent
Company Name Attendee Name Title / Role In This Project

Please provide business card

Office Phone 619-390-4940

Cell Phone 619-792-9873

Email Address benny@clavisconstruction.com

ASBESTOS MANAGEMENT GROUP ANDRES ARCE PROJECT MANAGER
~~ANDRES ARCE~~ Attendee Name Title / Role In This Project

Please provide business card

Office Phone (510) 654-8441

Cell Phone (510) 715-0061

Email Address ARCE@AMGOFCA.COM

B BROS IZET PAZDA PRESIDENT
Company Name Attendee Name Title / Role In This Project

Please provide business card

Office Phone 510-351-3048

Cell Phone 351-9515

Email Address bids@bbroscon.com

Angotti & Reilly Domenic Reilly Project Manager
Company Name Attendee Name Title / Role In This Project

Please provide business card

Office Phone 415-575-3700

Cell Phone 415-516-3921

Email Address estimating@angotti-reilly.com

over →

Bayview Environmental) Dave Davis

PM

office 510-561-6181

cell 510-772-8772

ddavis@bayviewservices.com

Pre-Bid Meeting Sign-in Sheet

PROJECT TITLE: C-4016, Inc. 3, Demo/Abatement of PS, BS & Other Structures

DATE / TIME: November 16, 2021, at 11:00 AM

LOCATION: Building and Grounds Conference Room, Contra Costa College, San Pablo

AMPCO NORTH. CCN Rafael Solonio Estimator
Company Name Attendee Name Title / Role In This Project

**Please provide
business card**

Office Phone 510) 772-9224

Cell Phone _____

Email Address RSolonio@AMPCO NORTH. CCN
gvalenzuela@AMPCO NORTH. CCN

KM 106 INC. AARON RAMIREZ PRESIDENT
Company Name Attendee Name Title / Role In This Project

**Please provide
business card**

Office Phone (510) 512-6799

Cell Phone (510) 512-6799

Email Address aaron@km106.com

S and H Construction Inc. Juan Aguilera Mgr.
Company Name Attendee Name Title / Role In This Project

**Please provide
business card**

Office Phone 510-589-7382

Cell Phone 510-258-5138

Email Address shconstructioninc@sbccglobal.net

Company Name Attendee Name Title / Role In This Project

**Please provide
business card**

Office Phone _____

Cell Phone _____

Email Address _____

Pre-Bid Meeting Sign-in Sheet

PROJECT TITLE: C-4016, Inc. 3, Demo/Abatement of PS, BS & Other Structures

DATE / TIME: November 16, 2021, at 11:00 AM

LOCATION: Building and Grounds Conference Room, Contra Costa College, San Pablo

CVE DUSTIN DRAKE ESTIMATOR
Company Name Attendee Name Title / Role In This Project

Please provide business card

Office Phone 559-222-1149

Cell Phone 559-282-7588

Email Address DUSTIND@CUECORP.COM

CVE Jeff Wilson Estimator
Company Name Attendee Name Title / Role In This Project

Please provide business card

Office Phone 559-222-1122

Cell Phone 559-500-9936

Email Address jeffw@cvecorp.com

Brannon Corporation Aminia Tariqab Estimating Engineer
Company Name Attendee Name Title / Role In This Project

Please provide business card

Office Phone 408-898-6315

Cell Phone 415-410-7832

Email Address Aminia@brannondemo.com

SV Group DAN GROSS SENIOR ESTIMATOR
Company Name Attendee Name Title / Role In This Project

Please provide business card

Office Phone _____

Cell Phone 101-292-2414

Email Address DAN.GROSS@SVGROUP.COM

Pre-Bid Meeting Sign-in Sheet

PROJECT TITLE: C-4016, Inc. 3, Demo/Abatement of PS, BS & Other Structures

DATE / TIME: November 16, 2021, at 11:00 AM

LOCATION: Building and Grounds Conference Room, Contra Costa College, San Pablo

MAG Engineering Juan Morelos Super Intendant
Company Name Attendee Name Title / Role In This Project

**Please provide
business card**

Office Phone
Cell Phone 559-470-4547 / Pablo: 559-999-3380
Email Address pablo@magcompanies.net

Siron Don Texeira Pm/FS
Company Name Attendee Name Title / Role In This Project

**Please provide
business card**

Office Phone 408 286 1288
Cell Phone 650 888 9599
Email Address DONTE@SCMINC.COM

D-LINE CONSTRUCTORS MATT CERTA EUP
Company Name Attendee Name Title / Role In This Project

**Please provide
business card**

Office Phone 510-251-6400
Cell Phone 510-470-1002
Email Address bids@dlineconstructors.com

AZUL WORKS INC CHRIS KAHNEY ESTIMATOR
Company Name Attendee Name Title / Role In This Project

**Please provide
business card**

Office Phone 415 557-1508
Cell Phone 415 235 0041
Email Address ESTIMATING@AZULWORKS.COM

Pre-Bid Meeting Sign-in Sheet

PROJECT TITLE: C-4016, Inc. 3, Demo/Abatement of PS, BS & Other Structures

DATE / TIME: November 16, 2021, at 11:00 AM

LOCATION: Building and Grounds Conference Room, Contra Costa College, San Pablo

Silverado
Company Name

Dennis Luchay
Attendee Name

Estimator
Title / Role In This Project

Please provide business card

Office Phone (707) 771-6111

Cell Phone _____

Email Address Dennis@Silveradocontractors.com

Demolition Services
Company Name

Sarah meyer
Attendee Name

estimator
Title / Role In This Project

Please provide business card

Office Phone _____

Cell Phone 209-456-9741

Email Address Smeyer@dsji.co

GARRISON DEMOLITION/ENGAGING
Company Name

KRIS HUFF
Attendee Name

PRESIDENT
Title / Role In This Project

Please provide business card

Office Phone (925) 242-2133

Cell Phone 925 785 7504

Email Address KHUFF@GARRISONAIBE.COM

Company Name

Attendee Name

Title / Role In This Project

Please provide business card

Office Phone _____

Cell Phone _____

Email Address _____

REQUEST FOR INFORMATION #1

C-4016, INC. 3, DEMO AND ABATEMENT OF PHYSICAL SCIENCE AND BIOLOGICAL SCIENCE BUILDINGS AND OTHER STRUCTURES

Contra Costa College, 2600 Mission Bell Dr, San Pablo, CA 94806

=====

1) **QUESTION:**

Regarding the PSA: It appears there is no "core employee" clause. Does this mean non-union contractors may only be able to use their supervisors, with no key employees in the crafts?

RESPONSE:

All covered workers (including all foreman) must come out of the union's hiring halls (no non-union workers allowed).

2) **QUESTION:**

I am curious to whether contractors wishing to bid this project have to already have been prequalified to be allowed to bid or will they be allowed to bid as long as they have their prequalification forms in to the district and approved by the bid date?

RESPONSE:

The District is not prequalifying bidders for this project.

3) **QUESTION:**

At the CCCCD website location to download plans, Items #13 and #14 are identical/duplicates. Please upload correct drawings for each file.

RESPONSE:

The correct Reference item #14 has been uploaded to the CCCCD website.

4) **QUESTION:**

Sheet C2.00; Utility Demolition Notes #3. Please provide CCCCD's contact for Siemens for pricing.

RESPONSE:

Siemens Industry, Inc.

Jacob Curtiss 209-483-9312 jacob.curtiss@siemens.com

5) **QUESTION:**

Sheet C2.00; Demolition Notes #2, #14 and #15. These notes are in conflict with each other regarding the removal of trees. Please describe the scope of work AND identification/location of each tree to be removed to ensure a level playing field for all contractors.

RESPONSE:

This issue will be addressed in Addendum #2 regarding the specific trees to be removed.

6) **QUESTION:**

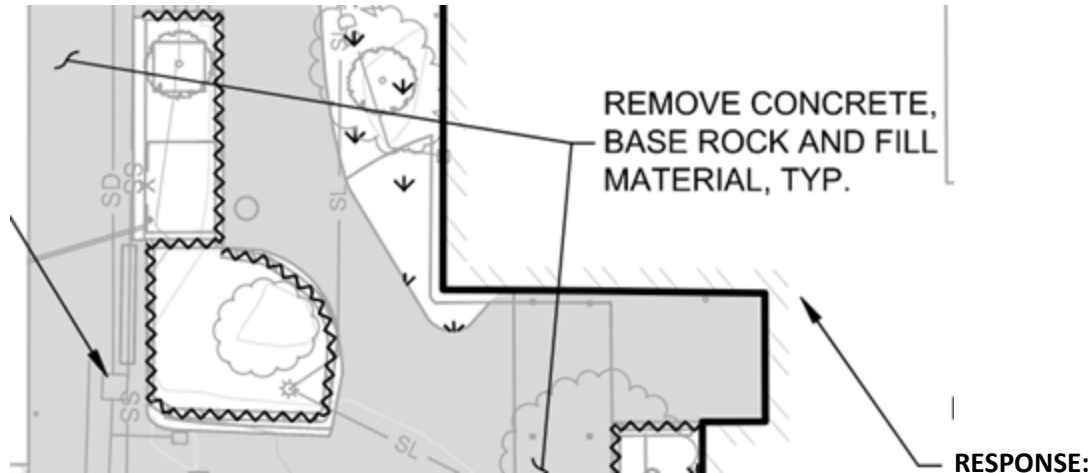
Sheet C2.00; Demolition Note #18. This note is incomplete. Please provide a complete note.

RESPONSE:

The complete note is as follows: "18. THE CONTRACTOR WILL BE REQUIRED TO PROTECT THE FIRE ACCESS ROAD IF THEY USE IT TO ACCESS THE SITE. CONTRACTOR WILL BE LIABLE FOR ANY DAMAGE THEY CAUSE TO THE FIRE ACCESS ROAD."

7) QUESTION:

Sheet C2.00; Demolition of concrete flatwork. The note associated with the demolition of concrete flatwork states "Remove Concrete, Base Rock and Fill material, TYP." What is the assumed thickness of walkways, base rock, and fill material to be removed to ensure a level playing field.



RESPONSE:

Concrete flatwork is nonstructural hardscape and will be sidewalks, driveways and ancillary elements of existing conditions. Use the information shown on the as-builts uploaded on the District web site to confirm the existing depths. If not shown on the as-builts, Contractors shall assume the removal of 4" of concrete/AC with 2" of ancillary material (subbase).

8) QUESTION:

Sheet C2.00; Demolition of Biological Science Building. The notes state to remove the foundations for the building. Per the as built drawings Sheets S1 (Page 19 of 23), there are numerous piles located in the NE corner. Please provide a scope of work for the removal of existing piles. If piles are to be removed to a specific depth. please provide a depth of removal from the newly PROPOSED grade.

RESPONSE:

The Contractor will be required to remove the piles to a depth of three feet below the proposed final grade and to use on-site materials for backfilling the holes.

9) QUESTION:

Sheet C2.00. What is the overall maximum depth of removal for the existing foundations that is required?

RESPONSE:

The Contractor is required to remove all existing foundations other than the concrete piles as noted above in Questions #9. The Contractor shall refer to the as-built drawings uploaded to

the District web site to obtain information on the depth of existing foundations. Contactor shall also refer to the C-633 Seismic Upgrade project foundation drawings for additional seismic work that was performed that shall be removed as part of this scope of work.

10) QUESTION:

Sheet C5.00. The proposed disturbed areas are to be left in a hydroseeded condition. Within specification section 31 25 00, there is no provided hydroseed mix to be placed and installed. Please provide.

RESPONSE:

The hydroseed mix shall meet the requirements as outlined in the prepared SWPPP documentation; Specifically, Section EC-4, attached at the end of this addendum.

11) QUESTION:

Available Drawings. As built drawings have been provided for the Addition to the Natural Sciences (Phys Sci) building. Are any drawings available for the original Natural Science building?

RESPONSE:

Yes, as noted in Addendum #1, these drawings have been uploaded to the District's Bid website, as "reference" drawings: CCC Humanities-Natural Sciences Drwgs., 1954

12) QUESTION:

Volume 1 Specifications Section 1140, 1.2 (C). This is a vague statement requesting specific work. Please provide further details as to what is expected to be installed by the contractor, what constitutes the need, acceptable practices, etc...

RESPONSE:

See Addendum 1 for a revision to SECTION 1140 WORK RESTRICTIONS, Part 1.2(c).

13) QUESTION:

Volume 1 Specifications Section 1500, 1.2 (B), 3 - Which water district is providing water to the existing on-site hydrants?

RESPONSE:

East Bay Municipal Water District.

14) QUESTION:

Volume 1 Specifications Section 1500, 1.2 (B), 4 - Please confirm all fencing to be removed at completion of Contractor's work and not left in place.

RESPONSE:

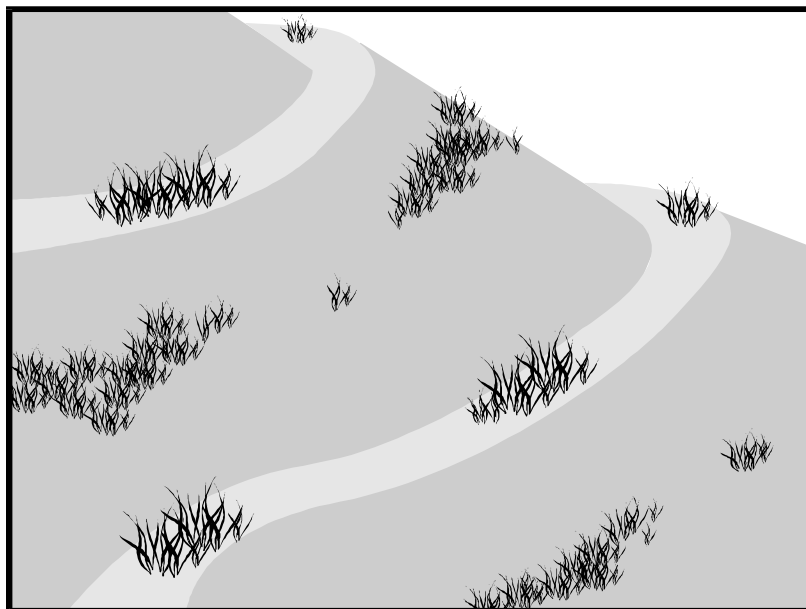
Confirmed. The Contactor will be required to remove temporary fencing.

15) QUESTION:

Will the Contractor be required to import fill to fill voids created by the removal of foundations, hardscape, foundation piles, etc.?

RESPONSE:

Per the Civil Engineer of Record, the intent is to use on site soils to re-grade the areas where said foundation and hardscape materials have been removed from the Project Site.



Description and Purpose

Hydroseeding typically consists of applying a mixture of a hydraulic mulch, seed, fertilizer, and stabilizing emulsion with a hydraulic mulcher, to temporarily protect exposed soils from erosion by water and wind. Hydraulic seeding, or hydroseeding, is simply the method by which temporary or permanent seed is applied to the soil surface.

Suitable Applications

Hydroseeding is suitable for disturbed areas requiring temporary protection until permanent stabilization is established, for disturbed areas that will be re-disturbed following an extended period of inactivity, or to apply permanent stabilization measures. Hydroseeding without mulch or other cover (e.g. EC-7, Erosion Control Blanket) is not a stand-alone erosion control BMP and should be combined with additional measures until vegetation establishment.

Typical applications for hydroseeding include:

- Disturbed soil/graded areas where permanent stabilization or continued earthwork is not anticipated prior to seed germination.
- Cleared and graded areas exposed to seasonal rains or temporary irrigation.
- Areas not subject to heavy wear by construction equipment or high traffic.

Categories

EC	Erosion Control	<input checked="" type="checkbox"/>
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	<input checked="" type="checkbox"/>
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

- ☒ **Primary Category**
- ☒ **Secondary Category**

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

- EC-3 Hydraulic Mulch
- EC-5 Soil Binders
- EC-6 Straw Mulch
- EC-7 Geotextiles and Mats
- EC-8 Wood Mulching
- EC-14 Compost Blanket
- EC-16 Non-Vegetative Stabilization

If User/Subscriber modifies this fact sheet in any way, the CASQA name/logo and footer below must be removed from each page and not appear on the modified version.



Limitations

- Availability of hydroseeding equipment may be limited just prior to the rainy season and prior to storms due to high demand.
- Hydraulic seed should be applied with hydraulic mulch or a stand-alone hydroseed application should be followed by one of the following:
 - Straw mulch (see Straw Mulch EC-6)
 - Rolled erosion control products (see Geotextiles and Mats EC-7)
 - Application of Compost Blanket (see Compost Blanket EC-14)

Hydraulic seed may be used alone only on small flat surfaces when there is sufficient time in the season to ensure adequate vegetation establishment and coverage to provide adequate erosion control.

- Hydraulic seed without mulch does not provide immediate erosion control.
- Temporary seeding may not be appropriate for steep slopes (i.e., slopes readily prone to rill erosion or without sufficient topsoil).
- Temporary seeding may not be appropriate in dry periods without supplemental irrigation.
- Temporary vegetation may have to be removed before permanent vegetation is applied.
- Temporary vegetation may not be appropriate for short term inactivity (i.e. less than 3-6 months).
- This BMP consists of a mixture of several constituents (e.g., fibers/mulches, tackifiers, and other chemical constituents), some of which may be proprietary and may come pre-mixed by the manufacturer. The water quality impacts of these constituents are relatively unknown and some may have water quality impacts due to their chemical makeup. Additionally these constituents may require non-visible pollutant monitoring. Refer to specific chemical properties identified in the product Material Safety Data Sheet; products should be evaluated for project-specific implementation by the SWPPP Preparer. Refer to factsheet EC-05 for further guidance on selecting soil binders.

Implementation

In order to select appropriate hydraulic seed mixtures, an evaluation of site conditions should be performed with respect to:

- | | |
|---|----------------------------------|
| - Soil conditions | - Maintenance requirements |
| - Site topography and exposure (sun/wind) | - Sensitive adjacent areas |
| - Season and climate | - Water availability |
| - Vegetation types | - Plans for permanent vegetation |

The local office of the U.S.D.A. Natural Resources Conservation Service (NRCS), Resource Conservation Districts and Agricultural Extension Service can provide information on appropriate seed mixes.

The following steps should be followed for implementation:

- Where appropriate or feasible, soil should be prepared to receive the seed by disking or otherwise scarifying (See EC-15, Soil Preparation) the surface to eliminate crust, improve air and water infiltration and create a more favorable environment for germination and growth.
- Avoid use of hydraulic seed in areas where the BMP would be incompatible with future earthwork activities.
- Hydraulic seed can be applied using a multiple step or one step process.
 - In a multiple step process, hydraulic seed is applied first, followed by mulch or a Rolled Erosion Control Product (RECP).
 - In the one step process, hydraulic seed is applied with hydraulic mulch in a hydraulic matrix. When the one step process is used to apply the mixture of fiber, seed, etc., the seed rate should be increased to compensate for all seeds not having direct contact with the soil.
- All hydraulically seeded areas should have mulch, or alternate erosion control cover to keep seeds in place and to moderate soil moisture and temperature until the seeds germinate and grow.
- All seeds should be in conformance with the California State Seed Law of the Department of Agriculture. Each seed bag should be delivered to the site sealed and clearly marked as to species, purity, percent germination, dealer's guarantee, and dates of test. The container should be labeled to clearly reflect the amount of Pure Live Seed (PLS) contained. All legume seed should be pellet inoculated. Inoculant sources should be species specific and should be applied at a rate of 2 lb of inoculant per 100 lb seed.
- Commercial fertilizer should conform to the requirements of the California Food and Agricultural Code, which can be found at http://www.leginfo.ca.gov/.html/fac_table_of_contents.html. Fertilizer should be pelleted or granular form.
- Follow up applications should be made as needed to cover areas of poor coverage or germination/vegetation establishment and to maintain adequate soil protection.
- Avoid over spray onto roads, sidewalks, drainage channels, existing vegetation, etc.
- Additional guidance on the comparison and selection of temporary slope stabilization methods is provided in Appendix F of the Handbook.

Costs

Average cost for installation and maintenance may vary from as low as \$1,900 per acre for flat slopes and stable soils, to \$4,000 per acre for moderate to steep slopes and/or erosive soils. Cost of seed mixtures vary based on types of required vegetation.

BMP	Installed Cost per Acre
Hydraulic Seed	\$1,900-\$4,000

Source: Cost information received from individual product manufacturers solicited by Geosyntec Consultants (2004).

Inspection and Maintenance

- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Areas where erosion is evident should be repaired and BMPs re-applied as soon as possible. Care should be exercised to minimize the damage to protected areas while making repairs, as any area damaged will require re-application of BMPs.
- Where seeds fail to germinate, or they germinate and die, the area must be re-seeded, fertilized, and mulched within the planting season, using not less than half the original application rates.
- Irrigation systems, if applicable, should be inspected daily while in use to identify system malfunctions and line breaks. When line breaks are detected, the system must be shut down immediately and breaks repaired before the system is put back into operation.
- Irrigation systems should be inspected for complete coverage and adjusted as needed to maintain complete coverage.

References

Soil Stabilization BMP Research for Erosion and Sediment Controls: Cost Survey Technical Memorandum, State of California Department of Transportation (Caltrans), July 2007.

Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Guidance Document: Soil Stabilization for Temporary Slopes, State of California Department of Transportation (Caltrans), November 1999.