ZONE 7 WATER AGENCY 2023 STORM DAMAGE REPAIRS – PHASE 1 DUBLIN & PLEASANTON, CALIFORNIA Project 313-24 ADDENDUM NO. 2 June 10, 2025

This Addendum No. 2 ("Addendum") is dated June 10, 2025, and modifies certain Bidding Documents issued by the Alameda County Flood Control and Water Conservation District, acting by and through its Zone 7 Water Agency ("District") in connection with the District's project: *2023 Storm Damage Repairs – Phase 1*. All capitalized terms not otherwise defined herein shall have the meanings provided in the Bidding Documents. There are no amendments other than Addendum 1, and Addendum 2. The bid submission date remains unchanged.

The following clarifications and/or modifications shall be incorporated into plans and
specifications for the above-referenced project and shall become part of the Contract
Documents. All other provisions and requirements shall remain unchanged.

CONTRACT DOCUMENTS AND SPECIFICATIONS			
Addendum Item	Document/ Section	Location and Description of Change	
1	Document 00010A	Replace Document 00010A – Table of Contents with Attachment Document 00010B – Table of Contents. Additionally, all references in the Contract to "Document 00010" shall refer to "Document 00010B".	
		The attached Document 00010B shall be included as part of the bid documents.	
2	Document 00400	Replace Document 00400 – Bid Form with Attachment Document 00400B – Bid Form. Additionally, all references in the Contract to "Document 00400" shall refer to "Document 00400B".	
		The attached Document 00400B shall be included as part of the bid documents.	
3	Document 00821	Replace Document 00821 – Insurance with Attachment Document 00821B – Insurance. Additionally, all references in the Contract to "Document 00821" shall refer to "Document 00821B".	
		documents.	

ZONE 7 WATER AGENCY 2023 STORM DAMAGE REPAIRS – PHASE 1 DUBLIN & PLEASANTON, CALIFORNIA Project 313-24 ADDENDUM NO. 2 June 10, 2025

4	Section 01100	Replace Section 01100 – Summary of Work with Attachment Section 01100B – Summary of Work. Additionally, all references in the Contract to "Section 01100" shall refer to "Section 01100B".The attached Section 01100B shall be included as part of the bid documents.
5	Plans	 Replace Sheet G-3 – Sheet Index with Attachment Sheet G-3B – Sheet Index. Additionally, all references in the Contract to "Sheet G-3" shall refer to "Sheet G-3B". The attached Sheet G-3B shall be included as part of the bid documents.
6	Plans	Replace Sheet D-1– Typical Repair Type Designs with Attachment Sheet D-1B – Typical Repair Type Designs. Additionally, all references in the Contract to "Sheet D-1" shall refer to "Sheet D-1B". The attached Sheet D-1B shall be included as part of the bid documents.
7	Plans	Replace Sheet D-3 – Typical Repair Type Designs, Graded Filter and Excavation Benching Detail with Attachment Sheet D-3B – Typical Repair Type Designs, Graded Filter and Excavation Benching Detail. Additionally, all references in the Contract to "Sheet D-3" shall refer to "Sheet D-3B". The attached Sheet D-3B shall be included as part of the bid documents.
8	Plans	 Replace Sheet D-5 – Typical Cross Sections, Zone 7 Typical Road and Utility Details with Attachment Sheet D-5B – Typical Cross Sections, Zone 7 Typical Road and Utility Details. Additionally, all references in the Contract to "Sheet D-5" shall refer to "Sheet D-5B". The attached Sheet D-5B shall be included as part of the bid documents.

ZONE 7 WATER AGENCY 2023 STORM DAMAGE REPAIRS – PHASE 1 DUBLIN & PLEASANTON, CALIFORNIA Project 313-24 ADDENDUM NO. 2 June 10, 2025

9	Plans	 Replace Sheet D-6 – Upstream/Downstream Transition Details with Attachment Sheet D-6B – Upstream/Downstream Transition Details. Additionally, all references in the Contract to "Sheet D-6" shall refer to "Sheet D-6B". The attached Sheet D-6B shall be included as part of the bid documents.
10	Appendix A	Appendix A – Project Questions and Answers added to bid documents.
11	Appendix B	Appendix B – Quantity Estimates added to bid documents.
12	Appendix C	Appendix C – Geotechnical Data added to bid documents.

Please be reminded that all bidders shall acknowledge receipt of this Addendum No. 2 in Document 00400B (Bid Form) and failure to acknowledge addendum in the Bid Form shall render the bid non-responsive and may be cause for its rejection.

Acknowledgment of receipt of Addendum No. 2 for the 2023 Storm Damage Repairs – Phase 1, Project No 313-24

Please also sign and email a copy of this page to Adolfo Perez, Zone 7 Water Agency, at <u>aperez@zone7water.com</u> to acknowledge receipt of Addendum No. 2 for this project.

Signature and Print Name

Date

Company

DOCUMENT 00010B

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DIVISION 0

Pages

INTRODUCTORY INFORMATION

Document	Title		
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00010 <mark>B</mark>	Table of Contents	00010 <mark>B</mark> -1	- 00010 <mark>B</mark> -4

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00210	Indemnity and Release Agreement	00210-1	-	00210-2
00320	Geotechnical Data and Existing Conditions	00320-1	-	00320-4
00335	Hazardous Materials Documentation	00335-1	-	00335-2
00400 <mark>B</mark>	Bid Form	00400 <mark>B</mark> -1	-	00400 <mark>B</mark> -8
00411	Bond Accompanying Bid	00411-1	-	00411-2
00420	Bidder Registration Form	00420-1	-	00420-2
00430	Subcontractors List	00430-1	-	00430-2
00450	Statement of Qualifications for Construction Work	00450-1	-	00450-16
00460	Schedule of Major Equipment and Materials Suppliers	00460-1	-	00460-2
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00821 <mark>B</mark>	Insurance	00821 <mark>B</mark> -1	-	00821 <mark>B</mark> -6
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01200	Measurement and Payment	01200-1	-	01200-8
01250	Modification Procedures	01250-1	-	01250-12
01315	Project Meetings	01315-1	-	01315-4
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01330	Submittal Procedures	01330-1	-	01330-16
01330A	Appendix 1 Instructions	01330A-1	-	01330A-12
01350	Special Procedures	01350-1	-	01350-2
01410	Regulatory Requirements	01410-1	-	01410-4
01420	References and Definitions	01420-1	-	01420-14
01455	Testing and Inspection	01455-1	-	01455-6
01500	Temporary Facilities and Controls	01500-1	-	01500-6
01510	Traffic Control	01510-1	-	01510-4
01540	Site Security and Safety	01540-1	-	01540-4
01540	Appendix 1 – Site Specific Safety Measures	01540-5	-	01540-6
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APPENDIX B	Estimated Quantities	APP B-1	- APP B-3
APPENDIX C	Geotechnical Data	APP C-1	- APP C-60

END OF DOCUMENT

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DOCUMENT 00400B

BID FORM

To be submitted as part of Bidder's Envelope by the time and date specified in Document 00200 (Instructions to Bidders), paragraph 1.

TO THE HONORABLE BOARD OF DIRECTORS OF THE ZONE 7 WATER AGENCY OF THE ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

THIS BID IS SUBMITTED BY:

(Firm/Company Name)

Re: Project No. 313-24 2023 STORM DAMAGE REPAIRS – PHASE 1

- 1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with the Alameda County Flood Control and Water Conservation District, acting by and through its Zone 7 Water Agency, a public agency of the State of California ("District") in the form included in the Contract Documents, Document 00520 (Agreement), to perform and furnish all Work as specified or indicated in the Contract Documents for the Contract Sum and within the Contract Time indicated in this Bid and in accordance with all other terms and conditions of the Contract Documents.
- 2. Bidder accepts all of the terms and conditions of the Contract Documents, Document 00100 (Advertisement for Bids), and Document 00200 (Instructions to Bidders), including, without limitation, those dealing with the disposition of Bid Security. This Bid will remain subject to acceptance for 90 Days after the day of Bid opening.
- 3. In submitting this Bid, Bidder represents:
 - (a) Bidder has examined all of the Contract Documents and the following Addenda (receipt of all of which is hereby acknowledged).

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Addendum Number	Addendum Date	Signature of Bidder

- (b) Bidder has presumably visited the Site and performed all tasks, research, investigation, reviews, examinations, and analysis and given notices, regarding the Project and the Site, as set forth in Document 00520 (Agreement), Article 5.
- (c) Bidder has given District prompt written notice of all conflicts, errors, ambiguities, or discrepancies that it has discovered in or among the Contract Documents and as-built drawings and actual conditions and the written resolution thereof through Addenda issued by District is acceptable to Contractor.
- (d) In accordance with California Public Contract Code Section 2200 et seq., ("Iran Contracting Act of 2010"), for bids of one million dollars (\$1,000,000) or more, Bidder certifies that Bidder is not identified on the list created by the California Department of General Services (DGS) in accordance with California Public Contract Code Section 2203(b) as a Person engaging in investment activities in Iran.
- (e) Bidder shall comply with California Executive Order No. N-6-22, regarding sanctions in response to Russian aggression in Ukraine.
- 4. Based on the foregoing, Bidder proposes and agrees to fully perform the Work within the time stated and in strict accordance with the Contract Documents for the following sums of money listed in the following Schedule of Bid Prices:

SCHEDULE OF BID PRICES

All Bid items, including lump sums and unit prices, must be filled in completely. Bid items are described in Section 01100 (Summary of Work). Quote in figures only, unless words are specifically requested.

The District intends to implement the Work in multiple groups and construction seasons as specified in Document 00400 (Bid Form). The final scope of Work to be performed in each group/construction season shall be determined solely by the District and will be specified prior to the issuance of the Notice of Award.

At the District's discretion, construction of any site may be deferred to a subsequent construction season, or moved up to an earlier construction season, subject to funding availability and other considerations deemed appropriate by the District.

<u>Group A</u>

ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL
0 A	Mobilization / De- Mobilization 2025	N/A	Lump Sum	N/A	\$
1A	(B)-2	N/A	Lump Sum	N/A	\$
2A	(B)-2A	N/A	Lump Sum	N/A	\$
3A	(E)-1	N/A	Lump Sum	N/A	\$
4A	(E)-4	N/A	Lump Sum	N/A	\$
5A	(F)-1	N/A	Lump Sum	N/A	\$
6A	(G)-4	N/A	Lump Sum	N/A	\$
7A	(J)-4	N/A	Lump Sum	N/A	\$
8A	(J)-7 & (J)-8	N/A	Lump Sum	N/A	\$
A9	(J)-9	N/A	Lump Sum	N/A	\$
10A	(J)-10	N/A	Lump Sum	N/A	\$
11A	(J)-14	N/A	Lump Sum	N/A	\$
12A	(J)-15 & (J)-18	N/A	Lump Sum	N/A	\$
13A	(K)-6	N/A	Lump Sum	N/A	\$
14A	SWPPP Preparation & Implementation	1	Lump Sum	\$	\$
15A	Extra Work Allowance	N/A	Lump Sum	N/A	\$800,000

<u>Group B</u>

ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL
0B	Mobilization / De- Mobilization 2026	N/A	Lump Sum	N/A	\$
1B	(F)-2	N/A	Lump Sum	N/A	\$
2B	(F)-8	N/A	Lump Sum	N/A	\$
3B	(F)-9	N/A	Lump Sum	N/A	\$
4B	(F)-10	N/A	Lump Sum	N/A	\$
5B	(F)-15	N/A	Lump Sum	N/A	\$
6B	(F)-16	N/A	Lump Sum	N/A	\$
7B	(F)-17,(F)-27, & (F)- 28	N/A	Lump Sum	N/A	\$
8B	(G)-11	N/A	Lump Sum	N/A	\$
9B	(J)-23	N/A	Lump Sum	N/A	\$
10B	902-1	N/A	Lump Sum	N/A	\$

11B	902-2	N/A	Lump Sum	N/A	\$
12B	(K)-8	N/A	Lump Sum	N/A	\$
13B	(K)-11	N/A	Lump Sum	N/A	\$
14B	(K)-12 & (K)-13	N/A	Lump Sum	N/A	\$
15B	SWPPP Preparation & Implementation	1	Lump Sum	\$	\$
16B	Extra Work Allowance	N/A	Lump Sum	N/A	\$700,000

Group C

ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL
0C	Mobilization / De- Mobilization 2027	N/A	Lump Sum	N/A	\$
1C	(B)-8	N/A	Lump Sum	N/A	\$
2C	(B-5)-1	N/A	Lump Sum	N/A	\$
3C	(E)-6	N/A	Lump Sum	N/A	\$
4C	(E)-9	N/A	Lump Sum	N/A	\$
5C	(E)-10	N/A	Lump Sum	N/A	\$
6C	(F)-24	N/A	Lump Sum	N/A	\$
7C	(F-4)-1	N/A	Lump Sum	N/A	\$
8C	(F-4)-2	N/A	Lump Sum	N/A	\$
9C	(F-4)-2A	N/A	Lump Sum	N/A	\$
10C	(G-1)-1	N/A	Lump Sum	N/A	\$
11C	(G-1)-2	N/A	Lump Sum	N/A	\$
12C	(G-1)- 2A	N/A	Lump Sum	N/A	\$
13C	(G-1)-3	N/A	Lump Sum	N/A	\$
14C	(G-1)-4	N/A	Lump Sum	N/A	\$
15C	(G-1)-5	N/A	Lump Sum	N/A	\$
16C	(G-1)-8 & (G-1)-9	N/A	Lump Sum	N/A	\$
17C	(J)-26	N/A	Lump Sum	N/A	\$
18C	SWPPP Preparation & Implementation	1	Lump Sum	\$	\$
19C	Extra Work Allowance	N/A	Lump Sum	N/A	\$600,000
		TOTAL BID P	RICE		\$

- 5. Descriptions of Bid Items are in Document 01100 (Summary of Work).
- 6. Items 15A, 16B and 19C: Extra Work Allowance is allocated for potential changes solely at the engineer's discretion.
- 7. Items 14A, 15B and 18C: Payment for this item shall be made on a lump sum basis and shall include full compensation for all labor, materials, equipment, and reporting required to prepare and implement the Stormwater Pollution Prevention Plan (SWPPP), as required by the SWPPP and as directed by the District. Actual costs will be based on time and materials used as required by the SWPPP and directed by the District. This item includes any materials and labor as well as reporting required to prepare and implement the SWPPP.
- 8. The Contract lump sum price paid for Item 0: Mobilization/De-Mobilization shall not exceed **ten percent (10%)** of the total bid price for each site and shall include full compensation for obtaining of all bonds, insurance, permits, and licenses; furnishing all labor, materials, tools, equipment, and incidentals; and for doing all work involved in mobilization as specified herein. All bids that have an individual bid price for Item 0 that exceeds the 10% will be rejected.
- 9. Subcontractors for work included in all Bid items are listed on the attached Document 00430 (Subcontractors List).
- 10. The undersigned Bidder understands that District reserves the right to reject all Bids.
- 11. If written notice of the acceptance of this Bid, hereinafter referred to as Notice of Award, is mailed or delivered to the undersigned Bidder within the time described in paragraph 2 of this Document 00400 or at any other time thereafter before it is withdrawn, the undersigned Bidder will execute and deliver the documents required by Document 00200 (Instructions to Bidders) within the times specified therein. These documents include, but are not limited to, Document 00520 (Agreement), Document 00610 (Construction Performance Bond), Document 00620 (Construction Labor and Material Payment Bond) and insurance certificates and endorsements required by Document 00700 (General Conditions).
- 12. Notice of Award or request for additional information may be addressed to the undersigned Bidder at the address set forth below.
- 13. The undersigned Bidder herewith encloses cash, a cashier's check, or certified check of or on a responsible bank in the United States, or a corporate surety bond furnished by a surety authorized to do a surety business in the State of California, in the form specified in Document 00200 (Instructions to Bidders), in the amount of ten percent (10%) of the Total Bid Price and made payable to "Zone 7 Water Agency."

- 14. The undersigned Bidder agrees to commence Work under the Contract Documents on the date established in Document 00700 (General Conditions) and to complete all work within the time specified in Document 00520 (Agreement). The undersigned Bidder acknowledges that District has reserved the right to delay or modify the commencement date without an adjustment to the Bid amount. The undersigned Bidder further acknowledges District has reserved the right to perform independent work at the Site, the extent of such work may not be determined until after the opening of the Bids, and that the undersigned Bidder will be required to cooperate with such other work in accordance with the requirements of the Contract Documents.
- 15. The undersigned Bidder agrees that, in accordance with Document 00700 (General Conditions), liquidated damages for failure to complete all Work in the Contract within the time specified in Document 00800 (Supplementary Conditions Division 0) shall be as set forth in Document 00800 (Supplementary Conditions Division 0).
- 16. The names of all persons interested in the foregoing Bid as principals are:

(IMPORTANT NOTICE: If Bidder or other interested person is a corporation, give the legal name of corporation, state where incorporated, and names of president and secretary thereof; if a partnership, give name of the firm and names of all individual co-partners composing the firm; if Bidder or other interested person is an individual, give first and last names in full).

NAME OF BIDDER:

Licensed in accordance with an act for the registration of Contractors, and with license number: ______ Expiration: ______

Where incorporated, if applicable

Contractor Registration Number & Expiration Date

Principals

I certify (or declare) under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Signature of Bidder

NOTE: If Bidder is a corporation, set forth the legal name of the corporation together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation. If

Bidder is a partnership, set forth the name of the firm together with the signature of the partner or partners authorized to sign contracts on behalf of the partnership.

Business Address:	
Contractor's Representative(s), (name, title):	
Officers authorized to sign contracts:	
Telephone Number(s):	
Fax Number(s):	
Date of Bid:	

END OF DOCUMENT

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DOCUMENT 00821B

INSURANCE

Minimum Scope and Limits of Insurance: Contractor shall procure and maintain for the duration of the contract, *and for 5 years thereafter*, insurance against claims for injuries or death 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, employees, or subcontractors.

Coverage - Coverage shall be at least as broad as the following:

- 1. **General Liability Commercial General Liability (CGL)** Insurance Services Office (ISO) Commercial General Liability Coverage (Occurrence Form CG 00 01) including products and completed operations, property damage, bodily injury, personal and advertising injury with limit of at least five million dollars (\$5,000,000) per occurrence or the full per occurrence limits of the policies available, whichever is greater. If a general aggregate limit applies, either the general aggregate limit shall apply separately to this project/location (coverage as broad as the ISO CG 25 03, or ISO CG 25 04 endorsement provided to District) or the general aggregate limit shall be twice the required occurrence limit.
- 2. **Automobile Liability** Insurance Services Office (ISO) Business Auto Coverage (Form CA 00 01), covering Symbol 1 (any auto) with limit of one million dollars (\$1,000,000) for bodily injury and property damage each accident.
- 3. Workers' Compensation Insurance The Contractor shall provide workers' compensation coverage as required by the State of California, with Statutory Limits, and Employer's Liability Insurance with limit of no less than \$1,000,000 per accident for bodily injury or disease. Waiver of Subrogation (also known as Transfer of Rights of Recovery Against Others to Us): The Contractor hereby agrees to waive rights of subrogation to obtain endorsement necessary to affect this waiver of subrogation in favor of the District, its directors, officers, employees, and authorized volunteers, for losses paid under the terms of this coverage which arise from work performed by the Named Insured for the District; this provision applies regardless of whether or not the District has received a waiver of subrogation from the insurer.
- 4. Installation Floater insurance utilizing an "All Risk" (Special Perils) coverage form. See Responsibility of Work. Builder's Risk – (Course of Construction) – insurance utilizing an "All Risk" (Special Perils) coverage form with limits equal to the completed value of the project and no coinsurance penalty provision. See Responsibility of Work
- 5. **Contractor's Pollution Liability** with limits no less than \$5,000,000 per occurrence or claim, and \$10,000,000 policy aggregate.
- 6. Aviation Liability Insurance (required when scope of work includes the use of drones) on an "occurrence" basis, including products and completed operations, property damage, bodily injury with limits no less than \$1,000,000 per occurrence, and \$2,000,000 in the aggregate or the full per occurrence limits of the policies available, whichever is

greater. This coverage may also be provided by endorsement to a **Commercial General Liability** policy. In that event then:

a. **Commercial General Liability (CGL)** - Insurance Services Office (ISO) Commercial General Liability Coverage (Occurrence Form CG 00 01) including, property damage, bodily injury, personal and advertising injury with limit of at least two million dollars (\$2,000,000) per occurrence or the full per occurrence limits of the policies available, whichever is greater. If a general aggregate limit applies, either the general aggregate limit shall apply separately to this project/location (coverage as broad as the ISO CG 25 03, or ISO CG 25 04 endorsement provided to the District) or the general aggregate limit shall be twice the required occurrence limit.

If the Contractor maintains broader coverage and or/higher limits than the minimums shown above, the District requires and shall be entitled to the broader coverage and/or higher limits maintained by the Contractor. Any available insurance proceeds in excess of the specified minimum of insurance and coverage shall be available to the District)

Other Required Provisions – The Commercial General Liability policy, Aviation Liability and Contractors Pollution are to contain, or be endorsed to contain, the following provisions:

- 1. **Additional Insured Status**: Zone 7 Water Agency, its directors, officers, employees, and authorized volunteers are to be given insured status (at least as broad as ISO Form CG 20 10 11 85 or if not available, through the addition of both CG 20 10 10 01 and CG 20 37 10 01, with respect to liability arising out of work or operations performed by or on behalf of the Contractor including materials, parts, or equipment furnished in connection with such work or operations. General liability coverage can be provided in the form of an endorsement to the Contractor's insurance.
- 2. **Primary Coverage:** For any claims related to this project, the Contractor's insurance coverage shall be primary at least as broad as ISO CG 20 01 04 13 as respects to the Zone 7 Water Agency, its directors, officers, employees, and authorized volunteers. Any insurance or self-insurance maintained by the Zone 7 Water Agency, its directors, officers, employees, and authorized volunteers shall be excess of the Contractor's insurance and shall not contribute with it.

Notice of Cancellation: Each insurance policy required above shall provide that coverage shall not be canceled, except with notice to the District.

Acceptability of Insurers - Insurance is to be placed with insurers having a current A.M. Best rating of no less than A: VII or equivalent or as otherwise approved by the District.

The Contractor agrees and he/she will comply with such provisions before commencing work. All of the insurance shall be provided on policy forms and through companies satisfactory to the District. The Member Water Agency reserves the right to obtain complete, certified copies of all required insurance policies, including the policy declarations page with endorsement number. Failure to continually satisfy the Insurance requirements is a material breach of contract.

Responsibility for Work - Until the completion and final acceptance by the District of all the work under and implied by this agreement, the work shall be under the Contractor's responsible care and charge. The Contractor shall rebuild, repair, restore and make good all injuries, damages, re-erections, and repairs occasioned or rendered necessary by causes of any nature whatsoever.

The Contractor shall provide and maintain builder's risk (course of construction) an Installation Floater covering all risks of direct physical loss, damage or destruction to the work, including the value of all materials to be installed and contractor's equipment used in the performance of the work, in an the amount equal to the completed value of the project, and with no coinsurance penalty provision specified in the General Conditions, to insure against such losses until final acceptance of the work by the District. Such insurance shall insure at least against the perils of fire and extended coverage, theft, vandalism and malicious mischief, and collapse. The Policy shall be endorsed with the District, its directors, officers, employees, and authorized volunteers named as loss payee, as their interest may appear. The making of progress payments to the Contractor shall not be construed as creating an insurable interest by or for the District or be construed as relieving the Contractor or his/her subcontractors of responsibility for loss from any direct physical loss, damage or destruction occurring prior to final acceptance of the work by the District .

Deductibles and Self-Insured Retentions - Insurance deductibles or self-insured retentions must be declared by the Contractor, and approved by the District. At the election of the District the Contractor shall either cause the insurer to reduce or eliminate such self-insured retentions as respects the District, its directors, officers, employees, and authorized volunteers or the Contractor shall provide a financial guarantee satisfactory to the District guaranteeing payment of losses and related investigations, claim administration, and defense expenses. The policy language shall provide, or be endorsed to provide, that the self-insured retention may be satisfied by either the named insured or the District.

Verification of Coverage - Evidences of Insurance Contractor shall furnish the District with copies of certificates and amendatory endorsements effecting coverage required by this contract. All certificates and endorsements are to be received and approved by the District before work commences. However, failure to obtain the required documents prior to the work beginning shall not waive the Contractor's obligation to provide them. The District reserves the right to require complete, certified copies of all required insurance policies, including policy Declaration pages and Endorsement pages, required by these specifications, at any time. Failure to continually satisfy the Insurance requirements is a material breach of contract.

Continuation of Coverage - The Contractor shall, upon demand of Member Water Agency deliver evidence of coverage showing continuation of coverage for at least (5) years after completion of the project. Contractor further waives all rights of subrogation under this agreement When any of the required coverages expire during the term of this agreement, the Contractor shall deliver the renewal certificate(s) including the general liability additional

insured endorsement and evidence of waiver of rights of subrogation against the District (if builder's risk insurance is applicable) to the District at least ten (10) days prior to the expiration date.

Sub-Contractors - In the event that the Contractor employs other Contractors (subcontractors) as part of the work covered by this agreement, it shall be the Contractor's responsibility to require and confirm that each sub-contractor meets the minimum insurance requirements specified above (via as broad as ISO CG 20 38 04 13). The Contractor shall, upon demand of the District, deliver to District copies of such policy or policies of insurance and the receipts for payment of premiums thereon.

Other Considerations/Exceptions:

If scope includes Design/Build exposures include:

Professional Liability - with limits no less than \$1,000,000 per occurrence or claim, and \$2,000,000 policy aggregate.

Professional Liability maybe Claims Made Policies – include the following provisions.

- 1. The Retroactive Date must be shown and must be before the date of the contract or the beginning of contract work.
- 2. Insurance must be maintained and evidence of insurance must be provided for at least five (5) years after completion of the contract of work.
- If coverage is canceled or non-renewed, and not replaced with another claimsmade policy form with a Retroactive Date prior to the contract effective date, the Consultant must purchase "extended reporting" coverage for a minimum of five (5) years after completion of contract work.

GENERAL CONDITIONS

Safety - In the performance of this contract the Contractor shall comply with all applicable federal, state and local statutory and regulatory requirements including, but not limited to California Department of Industrial Relations (Cal/OSHA) regulations; and the U.S. Department of Transportation Omnibus Transportation Employee Testing Act, related to their scope of work and operations. In case of conflict in regulations, the most stringent shall apply. The Contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. Safety precautions shall include but shall not be limited to: adequate life protection and lifesaving equipment; adequate illumination; instructions in accident prevention for all employees, such as the use of machinery guards, safe walkways, scaffolds, ladders, bridges, gang planks, confined space procedures, trenching and shoring, fall protection, and other safety devices; equipment and wearing apparel as are necessary or lawfully required to prevent accidents, injuries, or illnesses (including but not limited to exposure to the Coccidioides fungus and Valley Fever); and adequate facilities for the proper inspection and maintenance of all safety measures

Contractor must obtain all applicable Division of Occupational Safety and Health (CAL-OSHA) permit(s) and others required by California Labor Code and California Government Code, prior to the initiation of any practices, work, method, operation, or process related to the work covered in the contract. Permits required by governmental authorities will be obtained at Contractor's expense.

It is a condition of this contract, and shall be made a condition of each subcontract which the Contractor enters into pursuant to this contract, that the Contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under Cal/OSHA safety and health standards.

The Contractor shall be responsible for the safeguarding of all utilities. At least two working days before beginning work, the Contractor shall call the Underground Service Alert (USA) in order to determine the location of sub-structures. The Contractor shall immediately notify Member Water Agency and the utility owner if he/she disturbs, disconnects, or damages any utility.

In accordance with Section 6705 of the California Labor Code, the Contractor shall submit to Member Water Agency specific plans to show details of provisions for worker protection from caving ground during excavations of trenches of five feet or more in depth. The excavation/trench safety plan shall be submitted to and accepted by Member Water Agency prior to starting excavation. The trench safety plan shall have details showing the design of shoring, bracing, sloping or other provisions to be made for worker protection from the hazard of caving ground. If such a plan varies from the shoring system standards established by the Construction Safety Orders of the California Department of Industrial Relations (Cal/OSHA), the plan shall be prepared by a California registered civil or structural engineer. As part of the plan, a note shall be included stating that the registered civil or structural engineer certifies that the plan complies with the Cal/OSHA Construction Safety Orders, or that the registered civil or structural engineer certifies that the plan is not less effective than the shoring, bracing, sloping or other provisions of the Safety Orders. In no event shall the Contractor use a shoring, sloping, or protective system less effective than that required by said Construction Safety Orders. Submission of this plan in no way relieves the Contractor of the requirement to maintain safety in all areas. If excavations or trench work requiring a Cal/OSHA permit are to be undertaken, the Contractor shall submit his/her permit with the excavation/trench work safety plan to Member Water Agency before work begins.

END OF DOCUMENT 00821

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DIVISION 1 GENERAL REQUIREMENTS

SECTION 01100B

SUMMARY OF WORK

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes summary of Work including:
 - 1. Work Covered By Contract Documents
 - 2. Bid Items
 - 3. Work Days and Hours
 - 4. Cooperation of Contractor and Coordination with Other Work
 - 5. Future Work
 - 6. Work Sequence
 - 7. Maintenance, Product Handling, and Protection
 - 8. Contractor Use of Premises
 - 9. Permits
 - 10. Actual Damages for Violations
 - 11. Site Administration
 - 12. Equipment
 - 13.Labor
 - 14. Construction Foreman
 - 15. Materials & Supplies
 - 16. Haul Routes
 - 17. Additional Contractor Responsibilities
 - 18. Subcontracting
 - 19. Standby Time and Downtime
 - 20. District Written Notification
 - 21. Compensation

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. Work consists generally of repairing and grading eroded banks, constructing timber crib walls, installing rock slope protection including geogrid, replacing access roads, replacing outlet pipes and structures, hydroseeding, and planting. Individual repair sites are itemized in the plan documentation coinciding with the bid form schedule. Approximately 4,700 ft of bank repairs will be performed as part of this project. Work shall be performed at sites along the following creek segments:
 - Line B: Arroyo de la Laguna
 - Line B-5: Pleasanton Canal

- Line E: Arroyo del Valle/Arroyo del Valle (North Bank)
- Line F: (Dublin): Alamo Creek
- Line F: (Pleasanton): Alamo Canal
- Line F-4: Old South San Ramon Creek
- Line G: Arroyo Mocho
- Line G-1: Chabot Canal
- Line J: South San Ramon Creek
- Line J-6: South San Ramon Creek Tributary
- Line K: Tassajara Creek
- B. Furnish all labor, materials, equipment, services, permits, temporary controls and construction facilities, and all general conditions, general requirements and incidentals required to complete the Work in its entirety as described in the Contract Documents.
- C. The Work of this Contract comprises construction of all the Work indicated, described in the Specifications, or otherwise required by the Contract Documents. Such other items or details not mentioned above, but required by the Drawings and Specifications, shall be performed, placed, constructed, removed, or installed in accordance with the Contract Documents.
- D. Unless provided otherwise in the Contract Documents, all risk of loss to Work covered by Contract Documents shall rest with Contractor until Final Acceptance of the Work.
- E. Contractor's use of the premises for Work and storage (staging area) is limited to the areas indicated on the plans.
- F. Existing materials and equipment removed and not reused as a part of the Work shall be returned to the District. Contractor shall carefully remove, in a manner to prevent damage, all materials and equipment specified or indicated to be salvaged and reused or to remain the property of District. Contractor shall store and protect salvaged items specified or indicated to be reused in the Work.
- G. The Bidder is advised that issuance of the Notice to Proceed (NTP) is contingent upon receipt of all required environmental permits by the District. The estimated date for issuing the NTP for Group A is on or before **August 1, 2025**. However, this date is subject to change based on permitting timelines. The District will issue the NTP as soon as practicable following permit approvals. The Bidder acknowledges that the timing of permit approvals is uncertain. The Bidder shall not be entitled to delay damages, escalation, or any other claims due to a delay in issuance of the NTP or a shift in construction season.

- H. If the NTP is issued **after August 1, 2025**, Substantial Completion and Final Completion dates shall follow the dates for Group B. The Bidder shall coordinate closely with the District to maximize the amount of in-channel work that can be completed between the NTP date and **October 15, 2025**, in compliance with environmental permit restrictions.
- I. All work will be paid as set forth in Document 00520 (Agreement).
- J. The Contractor shall supply all labor and operated equipment to be used for this contract. Contractor must establish, to the satisfaction of the District Representative, access to all types of equipment to be used so as to ensure availability of the equipment.

1.3 BID ITEMS

- A. Any Bid Item may be deleted from the Work and Contract Sum, in total or in part, prior to or after award of Contract without compensation in any form or adjustment of other Bid Items or prices therefore.
- B. Payment of all items is subject to provisions of Contract Documents, including without limitation Section 01200 (Measurement and Payment).
- C. Work and requirements applicable to each individual Bid Item, or unit of Work, shall be deemed incorporated into the description of each Bid Item (whether Lump Sum, or Unit Price).
- D. Description of pre-bid, lump sum, and unit price Bid Items: Bid items are not intended to be exclusive description of work categories and Bidder shall determine and include in its pricing all materials, labor and equipment necessary to complete each Bid Item as shown and specified:
 - <u>Item 0A,B,C Mobilization/Demobilization</u>: The lump sum price paid under this item shall be full payment for initial mobilization at Project commencement, including, but not limited to, payment for all Bonds and Insurance required by Document 00700 (General Conditions), providing the Safety Plan; applicable permits, as required by Document 00550 (Notice to Proceed) and Document 00700 (General Conditions); mobilization, existing utilities identification and protection, winterization of the site; demobilization before the rainy season and remobilization in the second year, if any; site restoration and clean up and demobilization, as described in Section 02041 (Mobilization); and record drawings at Final Completion of Payment. Progress payments shall be 50% to be paid upon completion of mobilization and 50% upon final demobilization, unless agreed to otherwise in the Schedule of Values.

- 2. <u>Item 1A-13A, 1B-14B, 1C-17C:</u> The lump sum price paid under these items shall be used for payment as work is deemed complete. This item includes the materials, use of equipment, and labor necessary to complete the repairs as shown in the project plan set.
- 3. Item 14A,15B,18C SWPPP Preparation & Implementation: This item is for the preparation and implementation of the a Stormwater Pollution Prevention Plan (SWPPP), as required by Section 001570 (Stormwater Management and Erosion Control), creation and implementation of the Monitoring and Reporting Plan (M&RP), and installing, inspecting, and maintaining all supplemental storm water Best Management Practices (BMPs) that the Contractor deems necessary for SWPPP creation and compliance during construction. in accordance with Section 01570 (Stormwater Management and Erosion Control), and as required by State Water Resources Control Board Order No. 2009-0009-DWQ. The SWPPP shall be prepared by a certified Qualified SWPPP Developer (QSD), and the Contractor shall install, inspect, and maintain all stormwater Best Management Practices (BMPs) necessary to ensure compliance with the SWPPP throughout construction. This includes the development and implementation of the Monitoring and Reporting Plan (M&RP), as well as all associated reporting and coordination required to maintain stormwater permit compliance. The lump sum price paid under this item shall be full payment for all work required to prepare and implement the SWPPP and Monitoring and Reporting Plan (M&RP), including all labor, materials, equipment, BMP installation and maintenance, and any reporting necessary to comply with the applicable stormwater regulations and permit conditions. Actual costs will be based on time and materials used as required by the SWPPP and directed by the District. This item includes any materials and labor as well as reporting required to implement the SWPPP.
- 4. <u>Item 15A, 16B, 19C– Extra Work Allowance</u>: This Allowance is allocated for potential changes solely at the Engineer's discretion. Actual costs will be based on time and materials used as directed by the engineer.
- E. Work Days and hours: Work shall be conducted only on Business Days as defined in Section 01420, Monday-Friday inclusive, 8:00 a.m.-5:00 p.m. local time. Work at the Site on weekends or holidays is not permitted, unless Contractor requests otherwise from Project Engineer in writing at least 48 hours in advance and Project Engineer and municipalities approve at their discretion. In the case of Work by Contractor after normal working hours, Contractor shall be responsible for any additional inspection costs incurred by the District and municipalities. Such costs may be withheld from any succeeding monthly progress payment.
- F. The following are holidays recognized by District and Alameda County:
 - a. New Year's Day, January 1;
 - b. Martin Luther King Jr.'s Birthday, third Monday in January;
 - c. Lincoln's Birthday, February 12;

- d. Presidents' Day, third Monday in February;
- e. Memorial Day, last Monday in May;
- f. Juneteenth, June 19;
- g. Independence Day, July 4;
- h. Labor Day, first Monday in September;
- i. Veterans' Day, November 11;
- j. Thanksgiving Day, as designated by the President;
- k. The Day following Thanksgiving Day;
- I. Christmas Day, December 25; and
- m. Each day appointed by the Governor of California and formally recognized by the Alameda County Board of Supervisors as a day of mourning, thanksgiving, or special observance.

1.4 COOPERATION OF CONTRACTOR AND COORDINATION WITH OTHER WORK – NOT USED

1.5 FUTURE WORK – NOT USED

1.6 WORK SEQUENCE

- A. Sequence and schedule work as needed to complete all heavy equipment work, including demolition, grading, rock structures construction, hydroseeding, and installation of other erosion control measures as specified in Section 00800 (Supplementary Conditions – Division 0).
- B. Notice to Proceed with Work is subject to receipt of all regulatory permits. All heavy equipment in-channel work may be performed during the construction season of June 1 October 15, of the respective year, or as directed by the Project Engineer.
- C. Each site shall be sequenced to be constructed and completed within the same construction season.
- D. Work below top of bank may not begin until regulatory permits are secured and notice to proceed is provided by the District.
- E. In general, perform the Work in the following sequence, unless approved otherwise by the Project Engineer:
 - 1. Mobilization, submittals, installation of coffer dams and/or temporary flow diversion.
 - 2. Perform the following sequentially for each site:

- a. Clearing, grubbing, and demolition
- b. Earthwork and rock and native backfill placement
- c. Hydroseeding and erosion control measures
- F. Sequence and time the work at each site as needed to:
 - 1. Minimize overall site disturbance
 - 2. Allow for safe and efficient progress of the work
 - 3. Comply with all permits
 - 4. Complete within specified milestone dates and number of contract days
 - 5. Comply with any additional construction sequencing and constraints as indicated on the Drawings and as specified. Coordinate all items with the District.

1.7 MAINTENANCE, PRODUCT HANDLING, AND PROTECTION

- A. Transport, deliver, handle, and store materials and equipment at the Site in such a manner as to prevent the breakage, damage or intrusions of foreign matter or moisture, and otherwise to prevent damage.
- B. Hazardous substance compliance: Provide District with copies of the OSHA Material Safety Data Sheets (MSDS) for all products containing a hazardous substance, examples: Adhesives, paints, sealants, and the like.
- C. Packaging: Provide packaged material in manufacturer's original containers with seals unbroken and labels intact until incorporated into the Work.
- D. Remove all damaged or otherwise unsuitable material and equipment promptly from the Site.

1.8 CONTRACTOR USE OF PREMISES

- A. Confine operations at Site to areas as directed by District Representative and permitted by Contract Documents, permits, ordinances, and laws.
- B. Do not unreasonably encumber Project Site with materials or equipment.
- C. Assume full responsibility for protection and safekeeping of products stored on premises.
- D. Move any stored products that interfere with operations of District or other contractor.
- E. Parking, storage, staging, and work areas shall be coordinated with the District, and comply with all other Contract documents requirements.

1.9 PERMITS

Contractor shall refer to Document 00700(General Conditions) and Document 00800 (Supplementary Conditions -Division 0), Section 01410 (Regulatory Requirements) and Section 01800 (Supplementary Conditions -Division 1).

1.10 ACTUAL DAMAGES FOR VIOLATIONS

- A. District may incur actual damages, including fines imposed by any regulatory agency resulting from loss of use of any permit described in this Section 01100, or from use in violation of legal or regulatory requirements where the violations result solely and directly from Contractor's activities. Continuous operation of District's flood protection facilities in compliance with legal or regulatory requirements is essential to avoid violating applicable regulations or permitting requirements. Violations or threatened violations may subject the District to fines and/or other costs or civil liabilities.
- B. Contractor shall be liable for and shall pay District the amount of any actual losses.
- C. Any money due or to become due to Contractor may be retained by District to cover the actual damages described above and, should such money not be sufficient to cover such damages, District shall have the right to recover the balance from Contractor or its sureties.
- D. Contractor, if not sole operator, shall assign a construction foreman to the Project for the entire duration of the Project. Construction foreman shall assume full responsibility for day-to-day maintenance operations, ensuring that resources required to successfully complete Project are applied in a timely manner. There shall be no change in construction foreman without written approval by District.

1.11 SITE ADMINISTRATION

A. Contractor shall be responsible for all areas of the Site used by it and by all Subcontractors in the performance of the Work. Contractor shall exert full control over the actions of all employees and other persons with respect to the use and preservation of property and existing facilities, except such controls as may be specifically reserved to District or others. Contractor shall have the right to exclude from the Site all persons who have no purpose related to the Work or its inspection, and may require all persons on the Site (except District's employees) to observe the same regulations as Contractor requires of its employees. Contractor shall at all times limit access to the Site to necessary personnel only. All personnel associated with construction of the Project shall enter the Site through access gate, at the location indicated on the Drawings.

1.12 EQUIPMENT – NOT USED

1.13 LABOR - NOT USED

1.14 CONSTRUCTION FOREMAN

A. Contractor, if not sole operator, shall assign a construction foreman to the Project for the entire duration of the Project. Construction foreman shall assume full responsibility for day-to-day maintenance operations, ensuring that resources required to successfully complete Project are applied in a timely manner. There shall be no change in construction foreman without written approval by District.

1.15 MATERIALS & SUPPLIES - NOT USED

1.16 HAUL ROUTES

- A. See plans for approved haul routes. Construction vehicles are not allowed on the following existing access bridges listed below:
 - 1. In the City of Dublin:
 - a. Across South San Ramon Creek at Dublin High School
 - b. Across Alamo Creek at South San Ramon Creek
 - c. Across Alamo Creek at Alamo Park
 - d. Across Line G-1-1 at Dublin Blvd
 - 2. In the City of Pleasanton:
 - a. Across Line G -1-1 at Alamo Canal
 - b. Across Arroyo Mocho at Arroyo de la Laguna
 - c. Across Pleasanton Canal at Arroyo de la Laguna
 - d. Across Pleasanton Canal at Hopyard Road
 - e. Across Tassajara Creek at Stoneridge Drive

1.17 ADDITIONAL CONTRACTOR RESPONSIBILITIES

A. Contractor, Subcontractor or Material Supplier under the direction of Contractor shall conform to California Code of Regulations, Title 8, Subchapter 4, and Construction Safety Orders.

- B. Contractor shall take all necessary measures to protect Work or Emergency Work and prevent accidents during any and all phases of work.
- C. Contractor shall maintain all books, documents, papers, employee time sheets, accounting records including certified payrolls and such other evidence pertaining to costs incurred for at least a period of three (3) years. Contractor shall not purge any records without the prior approval of District. Upon termination of the Contract, or at District's request, all such records shall be provided to District, including records, certified payroll records, and hard copies of any other computer records pertaining to Project.
- D. Performance Standard: The Contractor shall perform all services required pursuant to this Contract in the manner and according to the standards observed by a competent practitioner of the profession in which Contractor is engaged in the geographical area. All instruments of service of whatsoever nature which Contractor delivers to District pursuant to this Contract shall conform to the standard of quality normally observed by a person practicing in Contractor's area of work.
- E. Inclement Weather: The Contractor shall maintain Best Management Practices on all sites during construction and should inclement weather be anticipated, stabilize all active construction site to prevent damage / erosion to flood protection facilities.

1.18 SUBCONTRACTING

- A. Notification of the Work pertinent to this Contract shall be subcontracted with prior written authorization by District. Contractor does not need to obtain District's authorization for subcontractors listed in the Bid Proposal.
- B. Subcontractors shall be treated as a part of the work force and equipment provided by Contractor. No additional percentage markup and compensation will be allowed under this Contract. Contractor shall not subcontract any portion of this Contract without authorization by the District Representative.

- 1.19 STANDBY TIME AND DOWNTIME NOT USED
- **1.20 DISTRICT WRITTEN NOTIFICATION NOT USED**
- **1.21 COMPENSATION NOT USED**

PART 2 PRODUCTS

- 2.1 **PRODUCTS ORDERED IN ADVANCE – NOT USED**
- 2.2 **DISTRICT-FURNISHED PRODUCTS – NOT USED**
- **PART 3 EXECUTION NOT USED**

END OF SECTION

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SHEET NUMBER	DRAWING NUMBER	DESCRIPTION
GENERAL		
1	G-1	TITLE SHEET
2	G-2	GENERAL NOTES
3	G-3	SHEET INDEX
4	G-4 G-5	SITE PLAN PLEASANIUN SITE PLAN DURUN
6	G-6	HAUL ROUTES AND SITE ACCESS 1
7	G-7	HAUL ROUTES AND SITE ACCESS 2
8	G-8	HAUL ROUTES AND SITE ACCESS 3
9 10	G-9 G-10	HAUL ROUTES AND SITE ACCESS 4
11	G-11	HAUL ROUTES AND SITE ACCESS 6
SURVEY		
12	V-1	SURVEY CONTROL DUBLIN
13	V-2	SURVEY CONTROL PLEASANTON
DETAILS		
1 /		TYPICAL DESIGN DETAILS
15		TYPICAL DESIGN DETAILS
16	Λ D-3B	TYPICAL DESIGN DETAILS
17		TYPICAL REPAIR TYPE SELECTION TABLE
18	1 D - 5B 1 D - 6B	UPSTREAM DOWNSTREAM TRANSITION DETAILS
20	D-7	SURFACE ANCHOR DETAIL
CIVIL		
21	C-1.0	SITE (B)–2 PLAN VIEW
22	C-1.1	SITE $(B)-2$ CROSS SECTIONS
23	C-1.2	SITE $(B)-2$ CROSS SECTIONS
24	C-2.0	SITE $(B) - 2A$ PLAN VIEW
20 26	C = 2.1	SITE (B)-ZA CRUSS SECTIONS SITE (B)-8 PLAN VIEW
20	C-3.1	SITE (B)-8 CROSS SECTIONS
28	C-3.2	SITE (B)-8 CROSS SECTION
29	C-4.0	SITE (B-5)-1 PLAN VIEW
30	C-4.1	SITE $(B-5)-1$ CROSS SECTIONS
31	C-5.0	SITE $(E) = 1$ PLAN VIEW SITE $(E) = 1$ CROSS SECTIONS
32	C = 5.1	SITE $(E) = I CROSS SECTIONS$ SITE $(F) = A PLAN VIFW$
34	C-6.1	SITE (E)-4 CROSS SECTIONS
35	C-7.0	SITE (E)–6 PLAN VIEW
36	C-7.1	SITE (E)-6 CROSS SECTIONS
37	C-7.2	SITE $(E) - 6$ CROSS SECTION
38	C-8.0	SILE (E) -9 PLAN VIEW
7U 2A	U-8.1 C-8.2	SITE $(E) - 9$ CRUSS SECTIONS SITE $(F) - 9$ CROSS SECTION
40	C-9.0	SITE $(E) - 10$ PLAN VIEW
42	C-9.1	SITE (E)-10 CROSS SECTIONS
43	C-10.0	SITE (G)-4 PLAN VIEW
44	C-10.1	SITE (G)-4 CROSS SECTIONS
45	C-11.0	SITE (G)-11 PLAN VIEW
46	C-11.1	SITE $(G) = 11$ CRUSS SECTIONS SITE $(G) = 11$ CRUSS SECTION
47 18		SITE (G-1)-1 PLAN VIFW
49	C-12.1	SITE (G-1)-1 CROSS SECTIONS
50	C-13.0	SITE (G-1)-2 PLAN VIEW
2/2025 BP CM MH	D-18, D-38, D-58, D-68	DE-AM
		NEW OF CONTRACTOR

DATE: ____

DESCRIPTION

REV. DATE BY CHK. APPR.

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50	C 14.0	SITE $(C-1)$ - 3 PLAN VIEW
57	C = 14.0	SITE $(0-1) = 3$ TEAN VIEW
55	C = 14.1	SITE $(G-1)$ - 5 CRUSS SECTIONS
54	C-15.0	SITE $(G-1)-4$ PLAN VIEW
55	C-15.1	SITE (G-1)-4 CROSS SECTIONS
56	C-16.0	SITE $(G-1)-2A \& (G-1)-5$ PLAN VIEW
57	C-16.1	SITE (G-1)-2A CROSS SECTIONS
58	C-16.2	SITE (G-1)-5 CROSS SECTIONS
59	C-17.0	SITE (G-1)-9 & (G-1)-8 PLAN VIEW
60	C-17.1	SITE $(G-1)-9$ & $(G-1)-8$ CROSS SECTIONS
61	C - 17.2	SITE $(G-1)-9$ & $(G-1)-8$ CROSS SECTION
62	C = 18.0	SITE $(K) = 6$ PLAN VIEW
67	C = 18.1	SITE $(K) = 6$ CROSS SECTIONS
0.5	C = 10.1	SITE $(K) = 0$ CROSS SECTIONS SITE $(K) = 0$ DIAN VIEW
64	C-19.0	SITE $(K) = 0$ FLAN VIEW
65	C-19.1	SITE $(K) = 8$ CRUSS SECTIONS
66	C-20.0	SITE (K)-11 PLAN VIEW
67	C-20.1	SITE (K)-11 CROSS SECTIONS
68	C-21.0	SITE (K)–13 & (K)–12 PLAN VIEW
69	C-21.1	SITE (K)–13 & (K)–12 CROSS SECTIONS
70	C-21.2	SITE (K)–13 & (K)–12 CROSS SECTION
71	C-22.0	SITE $(F)-17$, $(F)-27$, AND $(F)-28$ PLAN VIEW
72	C - 22 1	SITE $(F) = 28$ $(F) = 27$ AND $(F) = 17$ CROSS SECTIONS
72	-22.1	SITE $(F) = 28$ $(F) = 27$ AND $(F) = 17$ CROSS SECTIONS
75	C = 22.2	SITE (Γ) 20, (Γ) 27, AND (Γ) 17 CROSS SECTIONS SITE (Γ)-10 DLAN VIEW
/4 7c	C = 23.0	SITE $(F) = 10$ FLAN VIEW
/5	C-23.1	SITE $(F) = 10$ CRUSS SECTIONS
/6	C-24.0	SITE $(F) - 9$ PLAN VIEW
77	C-24.1	SITE (F)-9 CROSS SECTIONS
78	C-25.0	SITE (F)–8 PLAN VIEW
79	C-25.1	SITE (F)-8 CROSS SECTIONS
80	C-26.0	SITE (F)–16 PLAN VIEW
81	C-26.1	SITE (F)-16 CROSS SECTIONS
82	C-27.0	SITE (F)-24 PLAN VIEW
83	C - 27.1	SITE (F) -24 CROSS SECTIONS
84	C = 28.0	SITE $(F) - 2$ PLAN VIEW
85	C = 28.0	SITE $(F) = 2$ CROSS SECTIONS
00	C = 20.1	SITE (Γ) 2 CROSS SECTIONS SITE (Γ) 15 DLAN VIEW
00	C-29.0	SITE $(F) = FS$ FLAN VIEW
8/	C-29.1	SITE $(F) = 15$ CRUSS SECTIONS
88	C-30.0	SILE $(F) - 1$ PLAN VIEW
89	C-30.1	SITE (F)-1 CROSS SECTIONS
90	C-31.0	SITE (F–4)–2A PLAN VIEW
91	C-31.1	SITE (F-4)-2A CROSS SECTIONS
92	C-32.0	SITE (F-4)-2 PLAN VIEW
93	C-32.1	SITE (F-4)-2 CROSS SECTIONS
94	C-33.0	SITE (F-4)-1 PLAN VIEW
95	C-33.1	SITE $(F-4)-1$ CROSS SECTIONS
96	C = 34.0	SITE $(1)-26$ AND $(1)-23$ PLAN VIEW
98 97	C = 34.0	SITE $(1) - 26$ CROSS SECTIONS
<i>37</i>	-54.1	SITE (1) 20 CROSS SECTIONS
90	0 75 0	SITE $(J) = 25$ CRUSS SECTIONS SITE (J) 15 AND (J) 18 DLAN VIEW
99	C-35.0	SITE $(J) = 15$ AND $(J) = 18$ PLAN VIEW
100	C-35.1	SILE $(J) = 15$ CRUSS SECTIONS
101	C-35.2	SITE (J)-18 CROSS SECTIONS
102	C-36.0	SITE (J)-14 PLAN VIEW
103	C-36.1	SITE (J)-14 CROSS SECTIONS
104	C-36.2	SITE (J)-14 CROSS SECTION
105	C-37.0	SITE (J)–9 PLAN VIEW
106	C-37.1	SITE (J)-9 CROSS SECTIONS
107	C-37.2	SITE (J) -9 CROSS SECTION
108	C = 38.0	SITE $(J) - 7$ AND $(J) - 8$ PLAN VIFW
109	C = 38.1	SITE $(1) - 8$ CROSS SECTIONS
110	0-00.1 C_70 0	SITE $(0) = 0$ on observations SITE $(1) = 7$ order sections
	0-30.2	SITE $(J)^{-1}$ URUSS SECTIONS



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111	C-39.0	SITE $(J)-4$ PLAN VIEW
112	C-39.1	SITE $(J)-4$ CROSS SECTIONS
113	C-40.0	SITE $(J)-10$ PLAN VIEW
114	C-40.1	SITE $(J)-10$ CROSS SECTIONS
115	C-40.2	SITE $(J)-10$ CROSS SECTION
116	C-41.0	SITE 902-1 PLAN VIEW
117	C-41.1	SITE 902-1 CROSS SECTIONS
118	C-42.0	SITE 902-2 PLAN VIEW
119	C-42.1	SITE 902-2 CROSS SECTIONS
119	C-42.0 C-42.1	SITE 902-2 CROSS SECTIONS

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120	CD-1	TREE REMOVAL TABLE

ONE 7 WATER AGENCY	PROJECT NO.	
23 STORM DAMAGE REPAIRS - PHASE 1	8849006	
SHEET INDEX	DRAWING NO.	SHEET
CALIFORNIA	G-3B	3



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1. SLOPE IS 2:1 (TYP) UNLESS OTHERWISE NOTED IN THE SITE SPECIFIC SECTION VIEW. 2. ENGINEERED FILL SHOULD BE INSTALLED PER SPECIFICATION. 3. ALL FINISHED SURFACES AND ADJOINING AREAS SHALL BE COVERED WITH COCONUT FIBERNET OR APPROVED EQUAL AND HYDROSEEDED PER SPECIFICATION. 4. TURBIDITY CONTROL SHALL BE USED IN CONJUNCTION WITH SILT FENCE ON ALL SITES WHERE IN-WATER WORK IS EXPECTED. 5. $\frac{1}{2}$ TON RIP RAP SHALL EXTEND A MINIMUM OF 0.5 FT ABOVE THE WSE ATC. 6. A LAYER OF ASTM NO. 3 AGGREGATE WILL BE PLACED ON TOP OF THE $\frac{1}{2}$ TON RIP-RAP TO FILL VOID SPACES AND CREATE A UNIFORM LEVEL SURFACE PRIOR TO PLACEMENT OF FILTER LAYER. 7. LIVE STAKES SHALL BE PROCURED AND INSTALLED BY THE CONTRACTOR IN ACCORDANCE WITH SECTION 02805 OF THE SPECIFICATIONS, UNDER THE DIRECTION OF THE DISTRICT'S ENGINEER OR

AUTHORIZED REPRESENTATIVE.

ONE 7 WATER AGENCY 23 STORM DAMAGE REPAIRS - PHASE 1	ргојест NO. 8849006		roductiondata/
PICAL REPAIR TYPE DESIGNS	DRAWING NO.	SHEET	loers loc \ n
CALIFORNIA	D-1B	14	V woodrod



100% DESIGN 1. DRAWING ADAPTED FROM NRCS STANDARD LOG CRIB STRUCTURE DATED 2. SEE DETAIL A FOR LONGITUDINAL VIEW AND DETAIL B FOR REBAR 3. TIMBER CRIB WALL SHALL EXTEND ABOVE THE 10-YR WSE A MINIMUM OF 1 FT OR AS DIRECTED BY THE ENGINEER. 4. TURBIDITY CONTROL SHALL BE USED IN CONJUNCTION WITH SILT FENCE ON ALL SITES WHERE IN-WATER WORK IS EXPECTED. 5. CLASS VII ($\frac{1}{2}$ TON) RIP RAP SHALL EXTEND A MINIMUM OF 0.5 FT 6. A LAYER OF ASTM NO. 3 AGGREGATE SHALL BE PLACED ON TOP OF THE CLASS VII AND CLASS III RIP RAP TO FILL VOID SPACES AND CREATE A UNIFORM SURFACE PRIOR TO PLACEMENT OF SUBSEQUENT MATERIALS. THE SURFACE OF THE NO 3. AGGREGATE LEVELING LAYER SHALL BE INCLINED AT A MINIMUM OF 5 DEGREES INTO THE BANK 7. USE REDWOOD FOR ALL TIMBERS, TAPERING NO MORE THAN 1 INCH PER 10 FEET. TIMBERS SHALL BE STRIPPED OF BARK AND FREE OF ROT, DECAY AND INSECT INFESTATION. 8. TRANSVERSE LOGS SHALL BE SIZED TO SUIT SITE SPECIFIC DESIGN REQUIREMENTS. LONGITUDINAL LOGS SHALL BE 8" X 20'-0". FOOTER LOGS SHALL BE 14" X 20'-0". 9. LAY SUCCESSIVE LONGITUDINAL AND TRANSVERSE LOGS PERPENDICULAR 10. COVER ROCK IN THE FIRST COURSE WITH ASTM NO. 3 AGGREGATE UNTIL LEVEL WITH TOP OF PARALLEL LOG BEFORE PLACING NEXT LAYER 11. TRANSVERSE LOGS SHALL BE TRIMMED AT THE EXPOSED END SO THEY DO NOT EXTEND PAST PLANE OF REPAIRS INTO CHANNEL. 12. LIVE STAKES SHALL BE PROCURED AND INSTALLED BY THE CONTRACTOR IN ACCORDANCE WITH SECTION 02805 OF THE SPECIFICATIONS, UNDER THE DIRECTION OF THE DISTRICT'S ENGINEER OR AUTHORIZED REPRESENTATIVE. 13. ALL FINISHED SURFACES AND ADJOINING AREAS SHALL BE COVERED WITH COCONUT FIBERNET OR APPROVED EQUAL AND HYDROSEEDED PER 14. SECURE FRONT FOOTER LOG WITH ANCHOR PER SPECIFICATION SECTION A. EXCAVATION BENCHING TO BE STEPPED WITH 1 FT VERTICAL STEPS WITH HORIZONTAL WIDTHS MATCHING THE REPAIR SLOPE INDICATED ON THE SITE SPECIFIC SECTION VIEW. (EXAMPLE 2:1, HORIZONTAL STEPS OF 2 FT AND VERTICAL STEPS OF 1 FT) B. UPPER MOST BENCHED STEP SHOULD BE EXTENDED IF FULL STEP CANNOT BE COMPLETED. C. BENCHED STEPS TO BE BACKFILLED WITH ASTM NO. 9 AGGREGATE EXCEPT FOR SECTIONS OF SLOPE BACKFILLED WITH ENGINEERED FILL/SUITABLE MATERIAL WHERE NO FILTER MATERIAL IS REQUIRED. PROJECT NO. ZONE 7 WATER AGENCY 8849006 2023 STORM DAMAGE REPAIRS - PHASE 1 TYPICAL REPAIR TYPE DESIGN DRAWING NO. SHEET GRADED FILTER AND EXCAVATION BENCHING DETAIL **D-3B** 16 CALIFORNIA

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No.	QUESTIONS	ANSWERS
1	Are the repair limits at each site limited to just the erosion?	The repair limits are indicated on the project Plans, which also show a transition zone of approximately 15 feet on either side of the repair area, unless otherwise specified on the plans.
2	For this project, are there specific tree species recommended for the logs used in the timber crib walls?	The species specified for the timber crib walls on this project is redwood, in the form of de-barked logs, as specified in Section 02480 and in the Plans.
3	Can willows be harvested from the creeks?	Yes, Section 02805 specifies potential areas within the watershed and/or channels where the contractor may harvest the live stakes. However, it is the Contractor's responsibility to provide the willows, if the District-designated areas are not viable and do not meet the Specifications.
4	Does all vegetation that gets removed from the site get disposed?	Stripped materials, including but not limited to weeds, grass, shrubs, and bushes, shall be disposed of in accordance with Section 02110 of the Project Specifications.
5	Is construction water available?	Per Section 01800, Construction water may be available from the District near the El Charro Staging Area. The Contractor must complete training with Operations staff and maintain a log of water usage. A water truck and hydrant meter assembly shall be provided by the Contractor. Water may also be obtained from City hydrants with the required City permits.
6	Will the District be awarding all sites to be constructed?	Yes, the District plans to award all sites for construction.
7	Are there turnarounds at narrow access roads?	Haul routes within the District's right-of-way are shown in the Plans. Some routes include designated turnarounds near their endpoints; however, at certain facilities, the Contractor may need to back out to the entrance due to the absence of suitable turnaround areas.
8	Will the Iron Horse Trail remain open?	Yes, the Iron Horse Trail will remain open during construction. The Contractor shall provide a safe, clearly marked detour for pedestrians and cyclists around the work area and shall be ADA compliant, stable, and slip resistant, per the City's guidelines.
9	Is the Contractor responsible for repairing the paved trail?	Per Section 02041, 2.02 Protection of Existing Property and Conditions, contractor shall protect all trails and shall repair damaged trails. Zone 7 will conduct pre and post condition LiDAR surveys to document existing conditions of trails. Damage to paved trails within Zone 7 right of way shall be restored to Zone 7 standard road section as shown on sheet D-5, detail 1.
10	The trail might be damaged by construction activity. Will it need to be repaired?	See Response to Question #9.
11	Will water be in the creeks at all times?	Yes, water is expected to be present during the June 1 - October 15 construction window, though at lower levels than in winter and spring.
12	Are Contractor's responsible for materials testing during earthwork activites?	Yes, per Section 02200, the Contractor shall establish and maintain field quality control, including but not limited to inspection and material testing. The District will independently perform quality assurance testing at its discretion.
13	Due to each site being a lump sum bid, we are requesting additional cross sections of each site be provided by the agency to assist the contractor with quantity estimates.	See Response to Question #15.
14	Will the contractor be allowed make changes to the order of sites to be completed each season?	Contractor may propose changes to the schedule but the order of site repairs may only be modified at the District's discretion. Sites have been grouped to prioritize those with higher urgency, while the remaining groups are scheduled for repair in subsequent years. The repair schedule has been carefully coordinated around other ongoing projects, including USACE repairs, with limited flexibility for modification.
15	We are requesting that estimated quantities of excavation, engineered fill, aggregates, riprap, geogrid, timber crib wall, live stakes, coconut blanket and hydroseeding be provided for each site?	Quantities from the engineers estimate are included in the Addendum. These quantities are meant as a guide and should not be used as final quantites. The Contractor shall be responsible for calculating their own quantities.
16	Could the agency please provide access to locked gates for site inspection by Bidders? For instance, the F-4 line cannot be inspected due to locked gates. The bid documents emphasize that independent investigation for bidding must be done by the Bidding Contractors.	Please coordinate directly with the Project Engineer to schedule a visit to any site that is not publicly accessible. If possible, provide at least 48 hours' notice to allow sufficient time for necessary arrangements. Please follow procedures specified in Document 00200 for more involved explorations.
17	Could the agency consider providing an expanded or a second staging area? – This could be within the same vicinity as the first but somewhere adjacent?	The Agency cannot commit to a secondary or expanded staging area at this time, but we are exploring potential adjacent options and will coordinate with the Contractor if any become available.
	How is SWPPP paid?	
18	a. The bid sheet states Lump Sum, however, note 7 states time and materials. What is to prevent a bidder from putting (\$1) into SWPPP. If the Agency will be paying SWPPP, Inspections and BMP's on a T&M basis please consider changing these bid items to an ALLOWANCE dictated by the Agency that would level the playing field for bidders.	See Addendum No. 2, Document 00400B - Bid Form and Document 01100B - Summary of Work.
19	Would the agency consider allowing the use of a launchable	No.
20	toe in lieu of a rock toe for the various structures? Is the mandatory 20'x20' Test section for the vegetated RSP mandatory for each site or only once?	Only one site, completed to the satisifaction of the District Engineer, is required. This will need to be completed as part of the first vegetated RSP repair site.
21	As jetting, flooding is prohibited under section 02506, however Vegetated RSP is to avoid segregation and to form a dense well graded interlocking mass, does the Agency have any suggestions for achieving this spec? a. Spec Section 02805 Specifies jetting What is the Agency expecting with these details? b. It is typical to see the option of jetting due to the interstitial void scenario in these details.	The gradation of the soil and allowance for 'sluicing' should be suffcient to allow the Contractor to fill the void space in accordance with the specification.
22	What is the quantity of Live stakes? There appears to be no details for the placement of willow stakes within the various details. Specs say provided by District and horizontal and vertical spacing. Design drawings do not have details for size, spacing, etc. for various details (Veg. rock slope, VSL's, etc.).	The quanity of live stakes can be determined from information provided in the drawings and the specification (02805).

No.	QUESTIONS	ANSWERS
23	How are live stakes to remain alive without Irrigation?	Live Stakes shall be temporarily irragated by the contractor until project phase
25		completion. See specification 02805 for Living Stakes.
24	For locations with vegetated rock slopes it states that rock is to be placed first then the stakes, installed (under 02805 Methods). In order for this sequencing to work the Contractor must install a void tube for each stake filled with soil. Could the district please provide a detail and specification for this.	Live stakes are only intended for repair Types 2 and 5. Live stakes are not required for vegetated rock slope protection.
25	Is permanent Irrigation system necessary for Live Stake locations? a. This is mentioned in spec section 02805	See Response to Question #26.
26	Is temporary Irrigation System necessary for Live stake locations? a.This is mention in Spec Section 02805 b.What is the watering rate requirements c.Where is our water source located for Temp. Irrigation	Please reference Section 02805 3.06D "Temporary Irrigation – Water to keep soil moist until soaking winter rains occur."
27	How long is the Contractor Responsible for maintaining Live Stakes? i. Will Agency sign off on live stake installation after each year (e.g. 2025 planting signed off after install in late season) ii.Would the agency expect contractor to temp. irrigate live stakes installed in 2025 for 2 additional years? iii.Could the Agency consider striking the phrasing in the specs about replacement of live stakes after storm event? 1.This is an act of God and cannot be anticipated by bidding Contractors.	Please refer to Section 02805 - Live Stakes for maintenance of Live Stakes.
28	Can equipment be left on-site (all sites) during construction?	Equipment may be left on-site during construction. If staged near the public trail, the area must be closed to the public if it is unsafe for pedestrian access. If the site is safe to use the trail or maintenance road, and there is sufficient space, equipment shall be staged in a way that allows continued access through the trail, including District maintenance vehicles. Generally, equipment should be stored at the designated staging area. See Section 02041, 2.05 Staging Areas.
29	SWPPP / SQPP for each site?	Sites can be grouped by construction phase.
30	What are the typical summer flows on all streams/channels?	Flows observed during Pre-Bid site walk are typical of spring flows. Summer flows are
31	When will all permits be secured?	usually less. Mid-August is the earliest estimated timeframe based on typical agency permit approval durations: however, this timeline is not guaranteed.
32	Can vegetation / trees be lopped and scattered or chipped on-site or will material need to be off-hauled and disposed of?	The Contractor should assume all vegetation and trees removed from the site must be off- hauled and disposed of. Zone 7 is evaluating options for on-site lopping, scattering, or chipping and will coordinate with the Contractor during construction if suitable areas are identified.
33	Will the contractor be compensated for additional quantities/scope from altered site conditions related to future storm damage? If so, will compensation be based on additional square footage of the site footprint or by cubic yards of cut/fill? What procedures will be used to track overages?	Compensation for additional quantities or scope resulting from altered site conditions due to future storm damage will be evaluated in accordance with the contract's provisions for changed conditions. If determined to be a compensable change, payment will be based on agreed-upon unit prices or negotiated rates, depending on the nature of the work—either by additional square footage or cubic yards, as appropriate. The contractor will be required to submit detailed documentation, including daily reports and quantity tracking, subject to review and approval by the Engineer prior to payment.
34	Will liquidated damages be applied in accordance with the "schedule by site" or by season?	Liquidated Damages will be applied based on the completion schedule for each group of sites. Each group (A,B, and C) has specific Substantial and Final Completion dates outlined in the specifications. These dates are not tied to the overlall construction season alone, but also to the milestones established for each group.
35	Is a Site Specific Safety Plan required for each individual site?	Since certain bank repairs are located within similar reaches of the channel, a single Safety Plan may be submitted to cover those sites, provided it addressess safety requirements for each location. For sites in different reaches, separate Safety Programs are required. All safety measures must be appropriately tailored to the conditions of each site or group of sites covered.
36	Is the contractor responsible for visible damage to trails, asphalt/concrete, curbs/gutters?	See Response to Question #9.
37	Are there any weight restrictions on any of the site access/hauling routes & city roads?	Zone 7 does not have specific weight restrictions within its site access roads beyond what is typical for standard construction equipment. For hauling routes on City streets, it is the Contractor's responsibility to verify weight limits and obtain necessary approvals from the respective jurisdictions.
38	What are the rates charged for construction water?	Zone 7 may be able to provide construction water at no cost; water source located near the El Charro staging area. However, if the Contractor plans to obtain water from a City source, it is their responsibility to determine any applicable rates or fees with the respective agency.
39	Will the city provide water at no cost to the contractor for temporary irrigation of the	See Response to Question #38.
40	WIIIUW SLAKES / SEED / Will the contractor be responsible for any maintenance after construction is completed in 2027?	No maintenance work is required after construction completion but there are warranty provisions as specified in the contract documents. See Document 00630 - Guaranty.

No.	QUESTIONS	ANSWERS
41	Will the district provide for pre-con surveys & monitoring during construction?	Zone 7 will provide pre-construction LiDAR surveys to establish existing conditions at the work sites. During construction, Zone 7 construction manager may conduct periodic monitoring; however, the contractor remains responsible for compliance with all contract requirements and protecting existing facilities throughout the work.
42	Will the contractor be responsible for water quality / turbidity testing?	Zone 7's biomonitor will be responsible for turbidity monitoring and ensuring levels are within acceptable limits.
43	Will any of the streams/channels need water diversions? If so, will each site need a water diversion plan?	No diversions are considered necessary, however compliance with the Turbidity Control Specification, Section 02570, will be required for all in-water work.
44	Will the contractor need to create barriers to prevent sediment and debris from entering the water?	Yes, slope material will need to be prevented from entering the water during construction. his should be addressed as part of the SWPPP.
45	Will the District request a sequence of work based on site priorities shown on Plan Sheets 5?	The current sequence of work is based on the site grouping (A, B, C) shown in Document 400- Bid Form. The sequence of work may be modified, subject to considerations deemed appropriate by the District.
46	Please specify the Rock type & Various Sections in the following details: a. A/D-6 (Upstream Transition) b. B/D-6 (Downstream Transition) D/D-6 Upstream/Downstream Edge Key	 a. A/D-6 (Upstream Transition): Repair Type 1 &2 will use engineered fill. Repair Types 3 & 4 will use Vegetated Rock slope protection. Repair Type 5 will tranistion to the adjoining slope without deepening at the upstream transition. A note has been added to Detail A/D-6 to clarify. b. B/D-6 (Downstream Transition): Material for the downstream transition is engineered fill for all repair types. c. D/D-6 Upstream/Downstream Edge Key: Material in the key trench is Class VII Rip Rap per the Rip Rap Key Trench specification.
47	Please specify the section for the Top Soil – Various Details a.Repair type 1 – Type 5	Top Soil thickness is 6" for all repair types. See updated Typical Repair Drawings in Addendum No. 2
48	Would the Agency consider adding the following line items as Alternates to the Bid? a.GROUP A Watering Site Visits b.GROUP B Watering Site Visits c.GROUP C Watering Site Visits	If referring to watering of Live Stakes, the amount is expected to be included within the Lump Sum bid price for each site. Therefore, separate line items for Group A, B, or C watering site visits will not be added as alternates.
49	We are requesting clarification regarding the establishment phase for willow plantings and hydroseeding specified in remote areas of the project where piped water access is unavailable. Given the critical importance of maintaining soil moisture for successful germination and root establishment, and the highly variable environmental conditions affecting moisture retention, it is not feasible to provide an accurate lump sum or unit rate pricing without defined parameters. To cover the risk and variables the Bidding Contractors would likely add considerably too much cost or not enough cost.	Please refer to Section 02805 - Live Stakes for maintenance of Live Stakes.
50	Please confirm whether the Agency would revise the bid sheet to include watering events, and whether such events will be compensated on a time-and-materials or unit-price basis. We propose that watering events be addressed using a per-event pricing format, consisting of: •One (1) 2,000-gallon water truck (Lighter truck reduces potential damage of paved trails) •One (1) driver •One (1) laborer For one (1) 8-hour shift per event	See Response to Question #48.
51	Could the Agency please confirm that ASTM No. 9 will not be installed below WSE elevation. a. Detail 6/D-3 states not to install below WSE Detail 1/D-1 shows the assumed ASTM No. 9 below ASTM No. 3 that is below WSE Elevation.	Detail 6/D-3 is correct, and ASTM No.9 aggregate is not needed below the WSE ATC. Detail 1/D-1 will be revised in Addendum No. 2
52	What is the scope of work and details for Asphalt and PCC Sidewalk repair if surfaces are damaged during construction? There are a number of areas with existing AC paving that is likely to be damaged. The specifications, Section 01715 5.1D indicate new AC paving where damaged. However discussion on the Job walk indicated AC paving may be done by EB Regional parks (at least on their trails). There are also PCC Sidewalks that are adjacent to repairs (e.g. Southern most repairs on Line E).	Section 01715 5.1D applies to roadways, not recreational trails. The contractor's responsibility is to replace damaged AC trail sections in Zone 7's Right-of-Way up to Zone 7's standard. Repairs to damages outside Zone 7's jurisdiction must be coordinated with the respective property owner.
53	Could Zone 7 provide a detail for Asphalt Trail Repairs? a.New Base Rock Section & Specifications i.There is a sentence in the specs that state EBRP does not accept recycled AB for base rock b.New HMA Section & Specifications c.Existing HMA Sections d.Existing Base Rock Section	Please see Exhibit D in Section 01800 of the specifications.
54	Could Zone 7 provide a detail for PCC Sidewalk repairs?	PCC sidewalk repair details are typically governed by the standards of the respective local municipality. Zone 7 recommends the Contractor request the applicable standard detail directly from the appropriate agency or owner (e.g., City or County) for each location where sidewalk repairs are a concern.
55	Can the Redwood Logs be from a burn scar area?	No.

No.	QUESTIONS	ANSWERS
56	Could the Agency define the reason Sheets G-4 and G-5 were given with the Bid Documents? What is the meaning behind the High / Medium / Low Priority Sites? Is Zone 7 considering not doing or postponing medium or low priority sites? Do the High / Medium / Low priority sites have any implications on how we might schedule the work?	See Response to Question #45
57	Is this project enrolled under the Construction General Permit? a.If yes, could Zone 7 provide the WDID and SWPPP Requirements. b.If Not, do you intend to enroll or expect the Contractor to do so.	The District will enroll the project and provide the WDID before proceeding with construction. The Contractor is responsible for preparing and implementing the SWPPP.
58	Will the Contractor be required to design an overall Project SWPPP and Individual SQPP's for each site?	See Response to Question #29. Contractor is responsible for preparing the project SWPPP. Sites can be grouped by construction phase.
59	Will each winter season require maintaining full CGP coverage or can the Contractor Close and reopen the NOI each season?	The Contractor is responsible for ensuring continuous compliance with the Construction General Permit (CGP) requirements. Whether to maintain full coverage through the winter or to close and later reopen the NOI is at the Contractor's discretion, provided all CGP obligations are met and coordination with the State Water Board is maintained.
60	Could the Designer please expand on detail 3/D-5? We are unclear as to what this detail is asking for, What the J-shaped piece is and what is it's specifications? If we are removing and replacing concrete, or placing new concrete what is the specifications and design details for the concrete (section, PSI, etc).	The J shaped detail represents the interface of the slope repair with existing structures (e.g. concrete outfalls). The intent is that the contractor smoothly transition the repair to exisitng structures within the repair area. See Addendum No. 2 Sheet D-5B for clarification.
61	Please confirm that the image below (Detail 1/D-6B) is the correct depiction for design of the key trenches:	Yes, this is correct.
	Please see question below regarding Detail A/D-6.	
62	1.Does the Key Trench as depicted in Detail C/D-6 extend 2 FT below the Vegetative Rock Slope Elevation? a.Extending below would be a 3 FT wide x 6'-4" ($3.5' + 2' + 10''$) Rock Key b.If above it would be 3 FT wide x 2'-4" ($3.5' - 2' + 10''$) Rock Key	The intent of the deepened section at the transition is to extend 2 below the base of the VRSP as shown in Detail A/D-6.
	Regarding Repair Type 5 and the upstream transition detail:	
63	Could the Agency please confirm that we are interpreting the details correctly regarding a typical Crib Wall Repair and an Upstream Transition Detail: If we are to match the top elevation of the Crib Wall (Similar to the Veg. Rock Slope) The key trench for (Site E-1) would be $18' \times 3'$; Is this correct?	There doesn't need to be deepening at the upstream transition for repair Type 5. A note has been added to Detail A/D-6 to clarify. See Addendum No. 2 Sheet D-6B.
	Could the District please make the Geotechnical Data (if any) available to the bidding	
64	a.Spec Section 00320 alludes to the presence of existing Geotechnical data that the District may or may not have for the various sites. Is there information available that we could review?	This information will be issued as part of the addendum.
65	Does the Engineer have any guidance as to how much NO.3 Aggregate might be needed to fill the voids in the Class VII = $(1/2 \text{ TN}) \text{ RSP}$?	No.
66	Does the Engineer have any guidance as to how much Specially Graded Soil Backfill for the Vegetated Rock Slope may be needed to fill voids in the Class V RSP (Vegetated Rock Slope)?	Refer to Vegetated Rock Slope Protection Specification, Section 02506.
67	Could the District confirm that there are no stockpile size limitations at the Staging area? a.Section 02200 Earthwork restricts soil stockpiling to 10 CY at any given time at each site – However is silent on the staging area.	No specific stockpile size limit; stockpiles must remain within the designated staging area boundaries.
68	Could the District consider increasing the stockpile size limitations at any given site from 10 CY to 100 CY? a.This will be helpful to Contractors on the more "spacious" sites with considerable import volumes (e.g. Iron Horse Trail).	Yes, depending on site constraints.
69	Can the District confirm whether any recent topographic surveys (Within the past 4 months), site-specific volume estimates, or geotechnical evaluations were conducted to support the design assumptions for rock / riprap and soil quantities? Additionally, will the Client provide a description of the intended mechanism for equitable adjustment in cases where actual field conditions materially deviate from the provided design quantities or existing site conditions?	There has not been any topographic surveys in the past 4 months. The District will survey excavated profiles, finished profiles, and monitor truck tickets to track in-place material quantities.
70	Could the Client please provide a compiled list of all bidder questions along with their corresponding responses, including the original question wording, as part of the addendum documentation? a.The context embedded in each question is often critical for understanding the intent, scope, and implications of the response. Without the original question; amended language in the Contract docs can lead to misinterpretation or incomplete clarification.	Yes, the compiled list of all bidder questions along with their exact original wording and corresponding responses are provided herein. This ensures full context is maintained to avoid any misinterpretation or incomplete clarifications.
71	Could the District please confirm that Class III RSP will not be used to backfill the entire Crib Wall void. Class III RSP would only be required to fill the void within the first log lift (Per Detail 5/D-3) a.Spec Section 02200 1.02 H reads as if the entire Crib Wall is backfilled with Class III RSP.	Class III should only be used for the first traverse log layer.
72	Regarding Compaction Testing: Will the Agency require compaction testing of the "Suitable Soil" lifts? a.Per Spec Section 02220A-3 Part 4 – Contractor is responsible for material compaction testing during Engineered Fill placement. Please confirm that compaction testing for Suitable Soil fill area is not required.	Compaction testing of Suitable Soil backfill will be required.

DESCRIPTION	<u>UNIT TYPE</u>	<u>(B)-2</u>	<u>(B)-2A</u>	<u>(B)-8</u>	<u>(B-5)-1</u>	<u>(E)-1</u>	<u>(E)-10</u>	<u>(E)-4</u>	<u>(E)-6</u>	<u>(E)-9</u>	<u>(G)-11</u>	<u>(G)-4</u>	<u>(G-1)- 2A</u>	<u>(G-1)-1</u>	<u>(G-1)-2</u>	<u>(G-1)-3</u>
CLEARING AND GRUBBING	SQFT	4018	5731	13109	874	4171	5186	3769	8177	3398	13556	4335	2185	1861	4596	3347
SOIL EXCAVATION (REMEDIAL GRADING)	CY	1574	1024	2260	178	1829	863	1170	2164	953	2203	702	317	275	724	564
ENGINEERED FILL (BACKFILL & FINAL GRADING)	CY	322	180	652	31	457	146	473	1014	253	1119	363	289	256	673	524
GRADED FILTER (NO.3 AGGREGATE)	CY	86	124	215	21	50	104	39	56	27	210	67	15	13	34	26
GRADED FILTER (NO.9 AGGREGATE)	CY	86	124	215	21	50	104	39	56	27	210	67	15	13	34	26
COCONUT FIBRENET (BLANKET) & HYDROSEED	CY	2232	3184	6903	486	1849	2881	1907	4330	1888	6928	2146	970	786	2106	1470
MIRAGRID 3XT GEOGRID OR APPROVED EQUAL	SQFT	0	0	8276	0	0	0	0	0	0	22008	4817	2224	2358	7500	5208
CLASS 2 AGGREGATE ROAD (MATERIAL, PLACEMENT, AND GRADING)	СҮ	0	0	99	0	48	0	51	77	0	107	47	39	25	0	0
VEGETATED ROCK SLOPE PROTECTION 1/4 TON (MATERIAL AND PLACEMENT) - DOUBLE HANDLE FOR RIP RAP	СҮ	307	504	1156	76	0	401	0	0	0	824	241	0	0	0	0
ROCK SLOPE PROTECTION 1/2 TON (MATERIAL AND PLACEMENT) - DOUBLE HANDLE	СҮ	272	349	586	72	874	322	530	145	294	391	139	78	62	165	129
VEGATED SOIL LIFTS (BIO D-BLOCKS 16-400)(INSTALLATION AND MATERIALS)	PER 16" LIFT/ FT	0	0	0	0	0	0	0	1433	589	0	0	0	0	0	0
CRIB WALL (PLACEMENT, AGGREGGATE, TIMBER)	СҮ	895	0	0	0	855	0	382	0	0	0	0	0	0	0	0
LIVING STAKES	UNIT	290	0	0	0	290	0	110	300	120	0	0	0	0	0	0
Notes: This quantity estimate is prepared as a guide only. It ha to a standard of accuracy which, to the best of our knowledge sufficient to satisfy our understanding of the purposes of this q requested.	s been prepared and judgment, is uantities															



DESCRIPTION	<u>UNIT TYPE</u>	<u>(G-1)-4</u>	<u>(G-1)-5</u>	<u>(G-1)-8 & (G-</u> <u>1)-9</u>	<u>(K)-11</u>	<u>(К)-12 & (К)-</u> <u>13</u>	<u>(K)-6</u>	<u>(K)-8</u>	<u>(F)-28 & (F)-</u> <u>27</u>	<u>(F)-17</u>	<u>(F)-10</u>	<u>(F)-9</u>	<u>(F)-8</u>	<u>(F)-16</u>	<u>(F)-24</u>	<u>(F)-2</u>
CLEARING AND GRUBBING	SQFT	2738	2052	5019	1599	2915	1520	2030	4430	4293	5362	3347	1766	1830	2105	3701
SOIL EXCAVATION (REMEDIAL GRADING)	СҮ	422	267	787	272	501	250	351	673	1223	1159	834	506	467	620	1188
ENGINEERED FILL (BACKFILL & FINAL GRADING)	СҮ	378	236	734	48	269	42	57	137	449	190	137	114	115	318	754
GRADED FILTER (NO.3 AGGREGATE)	СҮ	19	12	36	33	48	30	42	81	117	140	101	61	57	59	25
GRADED FILTER (NO.9 AGGREGATE)	СҮ	19	12	36	33	48	30	42	81	117	140	101	61	57	59	25
COCONUT FIBRENET (BLANKET) & HYDROSEED	СҮ	1119	805	2213	888	1191	844	1128	2461	1810	2979	1860	981	982	893	2056
MIRAGRID 3XT GEOGRID OR APPROVED EQUAL	SQFT	3410	1724	9789	0	4729	0	0	0	81	0	0	0	0	51	0
CLASS 2 AGGREGATE ROAD (MATERIAL, PLACEMENT, AND GRADING)	СҮ	50	36	75	0	47	0	0	0	0	0	0	0	24	27	0
VEGETATED ROCK SLOPE PROTECTION 1/4 TON (MATERIAL AND PLACEMENT) - DOUBLE HANDLE FOR RIP RAP) CY	0	0	0	141	126	127	184	380	647	700	448	267	246	230	33
ROCK SLOPE PROTECTION 1/2 TON (MATERIAL AND PLACEMENT) - DOUBLE HANDLE	СҮ	111	73	177	86	136	83	113	162	200	278	255	129	110	110	301
VEGATED SOIL LIFTS (BIO D-BLOCKS 16-400)(INSTALLATION AND MATERIALS)	PER 16" LIFT/ FT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CRIB WALL (PLACEMENT, AGGREGGATE, TIMBER)	СҮ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	348
LIVING STAKES	UNIT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	70
Notes: This quantity estimate is prepared as a guide only. It has to a standard of accuracy which, to the best of our knowledge sufficient to satisfy our understanding of the purposes of this o requested.	as been prepared and judgment, is quantities															



DESCRIPTION	<u>UNIT TYPE</u>	<u>(F)-15</u>	<u>(F)-1</u>	<u>(F-4)-2A</u>	<u>(F-4)-2</u>	<u>(F-4)-1</u>	<u>(J)-26</u>	<u>(J)-23</u>	<u>(J)-15 & (J)-</u> <u>18</u>	<u>(J)-14</u>	<u>(J)-9</u>	<u>(J)-7 & (J)-8</u>	<u>(J)-4</u>	<u>(J)-10</u>	<u>902-1</u>	<u>902-2</u>
CLEARING AND GRUBBING	SQFT	2841	3813	1372	1724	1074	1174	1321	5800	5983	4448	6572	1926	4227	3665	1581
SOIL EXCAVATION (REMEDIAL GRADING)	СҮ	592	1154	294	332	230	358	348	1120	1083	844	1228	439	782	679	319
ENGINEERED FILL (BACKFILL & FINAL GRADING)	СҮ	88	656	153	138	155	224	203	522	459	364	555	211	320	294	140
GRADED FILTER (NO.3 AGGREGATE)	СҮ	72	26	28	32	11	34	33	107	103	80	117	42	75	65	30
GRADED FILTER (NO.9 AGGREGATE)	СҮ	72	26	28	32	11	34	33	107	103	80	117	42	75	65	30
COCONUT FIBRENET (BLANKET) & HYDROSEED	СҮ	1578	2115	401	522	299	652	393	2943	2884	2164	3630	1070	2194	1163	587
MIRAGRID 3XT GEOGRID OR APPROVED EQUAL	SQFT	0	0	31	21	0	41	38	98	100	75	107	31	67	51	21
CLASS 2 AGGREGATE ROAD (MATERIAL, PLACEMENT, AND GRADING)	СҮ	0	36	20	25	18	0	24	0	0	0	91	0	0	83	34
VEGETATED ROCK SLOPE PROTECTION 1/4 TON (MATERIAL AND PLACEMENT) - DOUBLE HANDLE FOR RIP RAP	СҮ	289	29	42	94	11	59	60	396	414	313	453	156	328	88	77
ROCK SLOPE PROTECTION 1/2 TON (MATERIAL AND PLACEMENT) - DOUBLE HANDLE	СҮ	220	325	116	119	100	96	105	269	275	216	293	99	180	338	121
VEGATED SOIL LIFTS (BIO D-BLOCKS 16-400)(INSTALLATION AND MATERIALS)	PER 16" LIFT/ FT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CRIB WALL (PLACEMENT, AGGREGGATE, TIMBER)	СҮ	0	380	0	0	0	0	0	0	0	0	0	0	0	0	0
LIVING STAKES	UNIT	0	70	0	0	0	0	0	0	0	0	0	0	0	0	0
Notes: This quantity estimate is prepared as a guide only. It ha to a standard of accuracy which, to the best of our knowledge sufficient to satisfy our understanding of the purposes of this q requested.	l is been prepared and judgment, is juantities															







PAGE	1	OF	1

H		DRICH			BORI	NG	NU	MB	ER	WR PAGE	2_E ≞ 1 0	E-1 DF 1		
CLIE	NT Zo	ne 7	PROJECT NAM	IE Storr	n Water Da	amage								
PRO		UMBER _0209267	PROJECT LOC		Pleasantor	n, Calif	ornia							
DATE	E STAR	TED _5/31/2024 COMPLETED _5/31/2024	GROUND ELE		C		WG	iS84	н		SIZE _	3 in.		
DRIL	LING C	ONTRACTOR _ Exploration Geoservices, Inc.	COORDINATES: LATITUDE LONGITUDE											
DRIL	LING R	IG/METHOD _4-in. Solid Flight Auger	${ar ar \Box}$ groundw	ATER AT		RILLI	NG _2	5.0 ft						
LOG	GED B	C. Minard CHECKED BY	GROUNDW	ATER AT	END OF D	RILLIN	IG	- N/A						
HAM	MER T	/PE _70 lb hammer with 30 in. manual	GROUNDW	ATER AF	TER DRILL	ING _	N/A	۱						
o DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE	BLOW COUNTS (FIELD VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC PLASTIC NUMBER	PLASTICITY ² INDEX (%)	FINES CONTENT (%)		
		Soft brown silty clay. Low plasticity and dry material. Some material present. Difficult to determine if the sands are con the top of the hole. Approximately 0 to 1 ft is sandy and gra for the maintenance trail. (CL-ML)	e coarse hing in from avel material	MC SPT	13-9-8 1-2-2	-								
<u> </u>		Soft brown silty to sandy clay. Low to Medium plasticity and (CL-ML)	d dry material.	MC SPT	3-3-6 2-3-3	-								
<u> </u>		Very Soft Dark Brown clay or silty clay. Low plasticity and c (CL-ML)	dry material.	MC SPT	5-7-9 5-4-7	-								
<u>15</u> - ·		Brown clay or silty clay. Low plasticity and dry material. (Cl	ML)	MC SPT	8-6-8 4-5-10	-								
		Dark Brown clay. Low to medium plasticity and moist mate (No Recovery)	— — — — — — — rial. (CL-CH)	SPT	3-4-6	-								
_ 25		☑ Dark Brown clay. Low to medium plasticity and wet materia damp and assumed to be at the approximate toe of the cree Bottom of borehole at 27.5 ft. Borehole backfilled with n	al. Material is ek. (CL-CH) eat cement	SPT	6-9-9	-								
		grout.												

BORING NUMBER WR3_B-2 PAGE 1 OF 1

HAL	DRICH			BORII	NG	NU	MBI	ER	NR PAGE	3_B ≟ 1 0	i-2 ⊮F 1		
CLIENT 7	one 7	PROJECT NAM	//E Storn	n Water Da	mage								
	IUMBER 0209267	PROJECT LOC	ATION	Pleasanton	. Calif	ornia							
DATE STAF	COMPLETED 6/3/2024	GROUND ELEV		D		I WG	iS84	н	OLE S	SIZE	3 in.		
DRILLING C	CONTRACTOR Exploration Geoservices. Inc.	COORDINATES: LATITUDE LONGITUDE											
DRILLING F	RIG/METHOD 4-in. Solid Flight Auger		ATER AT		RILLI	NG 1	9.0 ft						
LOGGED B	Y C. Minard CHECKED BY	GROUNDW	ATER AT	END OF D	RILLIN	IG	- N/A						
HAMMER T	YPE 70 lb hammer with 30 in. manual	GROUNDW		TER DRILL	ING	N/A	\ \						
		-		-	_			ATT	ERBE	RG	F		
DEPTH (ft) GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE	BLOW COUNTS (FIELD VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	PLASTICITY INDEX (%)	INES CONTEN (%)		
	Soft brown clay or silty clay.Low plasticity and moist mate dark brown to grey materials. Some sandy and drier mate present in the top foot of material. Difficult to determine v	erial. Mottled erials were vether sample	MC SPT	3-4-7 2-3-4	-						H		
	collected with material was sand that fell into the hole du of auger to SPT and ModCal whether material was actua (CL-ML) Brown clay or silty clay. Low plasticity and moist material	ring switch out Ily sandier clay.	мс	8-10-13	-								
 - 10	coming out as cuttings and at the top of the top of the SF sand but the majority of material is cohesive low to mediu clay. (CL-ML)	T seem to have um plasticity	SPT	5-5-8									
	Dark Brown clay or silty clay. Low to Medium plasticity ar material. (CL-CH)	nd moist	MC SPT	13-18-23 6-10-11									
15	Dark Brown clay or silty clay. Low placticity and moiet mo		мс	8-14-26									
	has a higher moisture out of the samples coleicted (CL-N	AL)	SPT	14-14-11	-								
	Dark Brown clay. Low to medium plasticity and moist ma	terial. Material	мс	5-13-21									
	is wet and below groundwater table. At this point we are near the toe elevation (CL-CH)	assumed to be		6-8-9 8-11-18									
	Dark Brown clay. Low to medium plasticity and moist ma is wet and below groundwater table. At this point we are below the toe elevation (CL-CH) Bottom of borehole at 27.0 ft. Borehole backfilled with	terial. Material assumed to be	SPT	6-15-21	-		<u> </u>						
	grout.												

BORING NUMBER WR4_G-4 PAGE 1 OF 1

H		DRICH				BORI	NG	NUI	MBI	ER ۱	NR 4 PAGE	4_G ∶1 0	i-4 ⊮F 1	
CLIEN	NT Zo	ne 7	PROJECT NAM	NE S	Storn	n Water Da	mage							
PROJ	ECT N	UMBER 0209267	PROJECT LOC		DN I	Pleasanton	, Calif	ornia						
DATE	STAR	TED 6/3/2024 COMPLETED 6/3/2024	GROUND ELEV	VATIO	- 2N	D	ATUM	I WG	S84	н	OLE S	SIZE	3 in.	
DRILL	ING C	ONTRACTOR Exploration Geoservices, Inc.	COORDINATES: LATITUDE LONGITUDE											
DRILL	ING R	IG/METHOD 4-in. Solid Flight Auger	GROUNDW	ATER	R AT		RILLI	NG	Not	Encou	ntered			
LOGO	ED B	C. Minard CHECKED BY	GROUNDW	ATER	R AT	END OF D	RILLIN	IG	- N/A					
HAMN	IER T	/PE _70 lb hammer with 30 in. manual	mer with 30 in. manual GROUNDWATER AFTER DRILLING N/A											
o DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPI F TYPF		BLOW COUNTS (FIELD VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)		PLASTIC NUT (%) TIMIT	PLASTICITY D INDEX (%)	FINES CONTENT (%)	
 		Soft brown clay or silty clay. Low plasticity and dry materia material coming out as cuttings and at the top of the top of seem to have sand but the majority of material is cohesive medium plasticity clay. (CL-ML)	al. Some of the SPT e low to	N ► S	MC SPT	7-8-10 4-6-7								
		Soft dark brown clay or silty clay. Low plasticity and moist (CL-ML)	: material.	M ► s	MC SPT	5-12-15 7-7-10								
 		Very Soft Dark Brown clay or silty clay. Low to Medium pl moist material. (CL-CH) (No Recovery)	asticity and	s	MC SPT	1-1-2 3-3-10								
 		Firm Dark Brown clay or silty clay. Low to medium plastic dry material. Mottling of light brown softer material in the s taken. (CL-CH)	ity and moist to SPT sampling	N ► S	иС SPT	8-11-15 4-5-8								
		Dark Brown clay. Low to Medium plasticity and moist to w Groundwater not found on this test. (CL-CH) Bottom of borehole at 23.0 ft. Borehole backfilled with	vet material. neat cement	N N S	NC SPT	9-10-14 8-7-9								
		grout.												



PAGE	1	OF	1

H	DRICH			BOR	ING	NU	MB	BER	HA PAGE	. _F- ≣ 1 0	01 F 1
CLIENT Z	one 7	PROJECT NAM	E Storn	n Damage	Flood	Protec	tion F	acility			
PROJECT	IUMBER _0209267-001	PROJECT LOC	ATION	Pleasantor	n, Calif	ornia		, in the second s			
DATE STAF		GROUND ELEV	ATION	331 ft 🛛 🗖	ATUM	WG	S84	н		SIZE	4 in.
DRILLING C	CONTRACTOR Exploration Geoservices, Inc.	COORDINATES	: LATI	TUDE 37	7.7101	15	LONG		E -12	21.923	3599
DRILLING F	RIG/METHOD _4-in. Solid Flight Auger	$\overline{\mathbb{V}}$ groundwa	ATER AT		RILLI	NG 1	5.0 ft /	Elev	316.0	ft	
LOGGED B	Y D. Gomez CHECKED BY	GROUNDWA	ATER AT	END OF D	RILLIN	IG	N/A				
HAMMER T	YPE 140 lb hammer with 30 in. autotrip	GROUNDWA	ATER AF	TER DRILL	ING _	N/A					
DEPTH (ft) GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE	BLOW COUNTS (FIELD VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)		PLASTIC BEINE (%) TIMIT (%)	LASTICITY ² NDEX (%)	INES CONTENT (%)
	Silty CLAY (CL), grayish brown, moist, soft to firm		MC SPT MC SPT	5-10-8 2-3-5 7-8-10 5-7-7	2 1.25 1.5 1						L
	Lean CLAY (CL), grayish brown, moist, soft to firm Wet		MC SPT	5-9-11 4-6-8	1.5						
15	∑ Bottom of borehole at 16.5 ft. Borehole backfilled witt	h neat cement	мс	4-9-12	1.5						
	grout.	oct comon									

BORING NUMBER HA_F-08 PAGE 1 OF 1

H		DRICH			BOR	ING	NU	IME	ER	HA PAGE	∖_F- ≣ 1 c	- 08)F 1
CLIE	NT _Zo	ne 7	PROJECT NA	ME Storr	<u>n Dam</u> age	<u>Floo</u> d	<u>Protec</u>	<u>tion</u> F	acility			
PRO		UMBER _0209267-001	PROJECT LO	CATION	Pleasantor	n, Calif	ornia					
DATE	E STAR	TED COMPLETED	GROUND ELE		332 ft	ATUM	WG	S84	н	IOLE \$	SIZE _	4 in.
DRIL	LING C	ONTRACTOR _ Exploration Geoservices, Inc.	COORDINATE	S: LATI	TUDE <u>37</u>	7.7009	02	LONG	ITUDE	E1	21.920	0082
DRIL	LING R	IG/METHOD _4-in. Solid Flight Auger	GROUNDW	ATER AT		RILLI	NG	- Not	encou	ntered	1	
LOG	GED B	D. Gomez CHECKED BY	GROUNDW	ATER AT	END OF D	RILLIN	IG	N/A				
HAM	MER T	/PE 140 lb hammer with 30 in. autotrip	GROUNDW	ATER AF	TER DRILL	ING _	N/A	1				
o DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE	BLOW COUNTS (FIELD VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC (%) TIMIT (%)	PLASTICITY ² INDEX (%)	FINES CONTENT (%)
		Lean to Fat CLAY (CL-CH); very dark brown, moist, hard, sand, few subangular gravel up to 1/4 in. (Levee Fill)	some coarse	MC	10-14-20 7-24-14	2.5						
5		CONCRETE encountered at approximately 3.75 ft				-						
		Lean CLAY (CL); dark gray, moist, hard, few fine rounded 1/4 in., few concrete fragments	gravel up to		2-3-3	2.25						
_ 10		Lean CLAY (CL), dark gray, moist, hard, few fine gravel up	o to 1/4 in.	MC SPT	18-18-22	4.5+						
- <u>15</u> 		SILT (ML) grades to Silty Lean CLAY, dark gray, moist, firm	m	мс	10-12-14	1						
				MC	5-7-9 8-12-18	1.25						
	<u>x/////</u>	Bottom of borehole at 21.5 ft. Borehole backfilled with r grout.	neat cement	_/ \	<u> </u>	1.5	 	<u> </u>	L	<u>I</u>	<u> </u>	<u>I</u>

		Append	lix C									
HZ		DRICH			BOR	ING	i NU	JME	BER	HA PAGE	F-	15)F 1
CLIEN	Т <u>Zo</u> i	ne 7	PROJECT NAM	IE Storn	n Damage	Flood	Protec	ction F	acility			
PROJI		UMBER 0209267-001	PROJECT LOC		Pleasantor	n, Calif	ornia					
DATE	STAR	TED COMPLETED O		ATION _	<u>386 ft</u> D	ATUN	WG	S84	H	IOLE S	SIZE _	<u>4 in.</u>
	ING CO	ONTRACTOR Exploration Geoservices, Inc.		S: LATI	TUDE37	7.7267	5	LONG		E <u>-12</u>	21.912	2474
	ING RI	G/METHOD _4-in. Solid Flight Auger		ATER AT			NG <u>1</u>	6.0 ft /	Elev	370.0	ft	
HAMM	IER TY	PE 140 lb hammer with 30 in. autotrip	GROUNDW	ATER AF	TER DRILL	ING _	N/A					·
РТН ft)	PHIC DG	MATERIAL DESCRIPTION		Е ТҮРЕ	OW JNTS VALUE)	ET PEN. sf)	NIT WT. ocf)	STURE ENT (%)			RG ∑ L(%)	CONTENT
0 0	GRA			SAMPI	(FIELD	POCKI	DRY U	MOIS	LIMIT	PLAS ¹ LIMIT	PLASTI(INDEX	FINES O
				мс	5-9-11	-						
-				SPT	5-6-11	4.5+						
5		Silty CLAY with sand, brown, slightly moist, friable, caliche		мс	6-11-15	4.5+						
-				SPT	6-11-15	4.5+						
						-						
_				мс	10-17-25	1.75						
_		SILT brownish gray moist frighle caliche iron stains little	verv fine	SPT	8-12-13	2.25						
15		sand				-						
_		⊻ 		мс	14-19-29	-						
-		Silty SAND, brown, moist, medium-dense										
20				SPT	7-14-23	-						
		grout.	at cement									

		BO	RIN	G N	UM	BE		A_	J-7
ALDRICH							FAGL		<i>/</i>
	PROJECT NAME Stor	m Damage	Flood	Prote	ction F	acility			
	PROJECT LOCATION	Pleasanto	n, Calif	fornia	<u> </u>				4 in
		<u>344 II</u> ITUDE 3	7 7200	1 <u>we</u> 85	1 ONG	ר החודוו	IOLE 3	21.92	<u>4 m.</u> 0354
RILLING RIG/METHOD 4-in. Solid Flight Auger			DRILLI	NG 1	5.0 ft	/ Elev	329.0		0004
DGGED BY D. Gomez CHECKED BY	GROUNDWATER A		RILLIN	NG	- N/A				
AMMER TYPE _ 140 lb hammer with 30 in. autotrip		FTER DRILI	LING _	19.5 fi	t / Elev	/ 324.	5 ft		
	Е ТҮРЕ	LOW JNTS VALUE)	ET PEN. tsf)	NIT WT. ocf)	STURE ENT (%)	АТ (%)		RG ∑ ↓LD	CONTENT
	SAMPI	(FIELD	POCK	DRY U (I	CONT	LIQU	PLAS ⁻ PLAS	PLASTI INDEX	FINES (
		5-7-11	_						
			1.25						
	SPT	2-5-6	1.25						
5	мс	6-12-16	_						
- Fat CLAY (CH), black, moist, soft to firm	SPT	4-6-8	1.25						
	мс	6-11-14	1.75						
	SPT	5-7-11	1.75						
<u>15</u>			_						
Lean Silty CLAY (CL), brownish gray, moist, mottled, ca	che MC	6-11-16	2.25						
Wet at tip			2.75						
20 ¥									
Lean Silty CLAY (CL), brownish gray, wet, soft		5-8-11	.75						
Bottom of borenole at 21.5 ft. Borehole backfilled wi grout.	neat cement			•					







					/000		<u>''</u>				
CTL Job #:		715 110		Project #:		8	84000	6		By:	MD
CTL JUD #. Client:		Jaley & Aldric	n	_ FIOJECL#. _ Date:		7	16/202	0 24	—	Dy. Checked	
Project Name:	Zone	7 Phase 1 Re	nairs	_ Date.			10/202			oneckeu.	15
i rojeot i tame.		ecimen Data	puilo	Remolaring into.	Dhi	(doc	<u></u>		1.11+	Phi (dog)	
			3	4		(นะเ	<u> </u>			i ili (deg)	
Boring:	G-4	2	0		Cohes	sion (p	sf)		Ult. 0	Cohesion (psf)	
Sample:											
Depth (ft):	5 5-6										
Visual	Dark Olive							3	near Stre	ss vs. Delo	rmation
Description:	Brown CLAY				12	200 -		1			Sample 1
											→ Sample 3
											—×— Sample 4
					10	00 -					
Normal Load (psf)	600						1				
Dry Mass of Specimen (g)	95.1				_		Ŧ.				
Initial Height (in)	1.01				8 St)	00 +					
Initial Diameter (in)	2.42				s (b		Į.				
	1.161				e tres						
Initial Moisture (%)	37.8				ars						
Initial Wet Density (pcf)	78.0				She						
	78.0				4	00 👖					
Initial Saturation (%)	87.9	<u> </u>				T	•				
∆Height Consol (in)	-0.0091										
At Test Void Ratio	1.181				2	:00 +					
At Test Moisture (%)	42.3										
At Test Wet Density (pcf)	110.0										
At Test Dry Density (pcf)	77.3					0.0	Ę	5.0	10.0	15.0	20.0 25.0
At Test Saturation (%)	96.8							Relative	Lateral Di	splacement (%)
Strain Rate (%/min)	1.1										
Strengths Picked at	Peak										
Snear Stress (pst)	999						ç	Shear St	ress vs	Normal Loa	h
Liltimate Stress (psf)										•	Peak
Olumate Stress (psi)		<u> </u>				8000	-				- Shear Stress
	C	hange in Height	:				1				Ultimate
0.0000				Sample 1							
0.0000				Sample 2		6000	1				
0.2000				Sample 3	*						
(ij				Sample 4	s, ps		1				
te 0.4000					tres:	4000					
L L L L L L L L L L L L L L L L L L L					arS						
<u>a</u> 0.6000					She		1				
						0000	1				
						2000					
ع 1.0000											
1.2000						0	0	2000	4000	000	8000
0.0	5.0 Re l	10.0 Iative Lateral Disp!	15.0 20 acement (%)	J.U 25.0			~	_000 Ni	ormal Loa	d. psf	0000
Pemarka		ully undrained	condition m	av not be attai	nod in	thic	test		ot moo	eured duri	na
iteillains.	undrained di	rect shear teef	sonuluon ma S	ay not be allall	ieu III	1115	1031. 1	ווכווב	ormed	Sureu uull	чя
©											
~	L										



		L			00000	.,			_
CTL Job #:		715 110		Project #:	5	2840004	3	By	· MD
CIL JOD #.		Haley & Aldric	h	_ Floject #.	7	/16/202	<u>л</u>	_ Dy Checked	
Project Name:	Zone	7 Phase 1 Re	nairs	_ Date.		10/202			. 13
	<u></u>	ecimen Data	pano	rtemolung into.	Phi (do	a)		Ullt Phi (dog	1
	<u> </u>		3	4	T III (ue	9/			/
Borina:	G-4	2	0		Cohesion (p	osf)		Ult. Cohesion (psf)
Sample:	• •	1							
Depth (ft):	20.5-21						Sho	ar Strace ve. Det	ormation
Visual	Olive Gray						31160	ai Stress vs. Dei	
Description:	CLAY				1400 -				Sample 1
									Sample 3
					1200				—×— Sample 4
					1200	1			
Normal Load (psf)	2000					4			
Dry Mass of Specimen (g)	100.6				1000 +	÷			
Initial Height (in)	1.01				sf)	+			
Initial Diameter (in)	2.42				a s 800	•			
Initial Void Ratio	1.072				tres	+			
Initial Moisture (%)	37.4				ar S				
Initial Wet Density (pcf)	82.0				She She				
Initial Dry Density (pci)	02.9								
Initial Saturation (%)	90.1	<u> </u>			400 -				
∆Height Consol (in)	0.0149					•			
At Test Void Ratio	1.041				200 -				
At Test Moisture (%)	37.5								
At Test Wet Density (pcf)	115.7								
At Test Dry Density (pcf)	84.1				0.0) 5	.0 10	0.0 15.0	20.0 25.0
At Test Saturation (%)	99.2					I	Relative Lat	eral Displacement	(%)
Strain Rate (%/min)	1.1								
Strengths Picked at	Peak								
Shear Stress (psf)	1224					9	hoar Stro	ss vs. Normal I d	had
Areight (in) at Peak									Peak
Olumate Stress (psi)					8000)]			Shear Stress
	c	Change in Heigh	t						Ultimate
0.0000			Г	Sample 1		1			
0.0000				Sample 2	6000	,			
0.2000				Sample 3	*				
Ē				Sample 4	è, ps				
te 0.4000					šej 4000				
Eee					л С				
<u>a</u> 0.6000					She				
					2000	,			
ع 1.0000							•		
]			
1.2000					C	0	2000	4000 600	0 8000
0.0	5.0 Re	10.0 Iative Lateral Disp	15.0 20 acement (%)	0.0 25.0		÷	Norn	nal Load. psf	- 0000
Pemarkai		fully undrainer	condition m	av not be attai	ned in this	toot 1	H is not	measured du	ring
itemarks.	undrained di	rect shear test	s sonulion m	ay not be attall		5 1831. L	101	measureu uu	''''Y
©									
~									



						,]
CTL Job #:		715 110		Project #:		8840	0006		By	MD
CIL JOD #.	L	Jolov & Aldric	<u>h</u>	_ FIUJECL#.		7/10/	2024		Chockod	
Project Name:	 Zone	7 Phase 1 R	naire	- Dale.		1/19/	2024		Checkeu	. <u> </u>
	20110	r mase r ra		Remolaring into.	Dhi (d	oa)		111	lt Dhi (dog	
			3	4	FIII (U	ey)			it. Fill (deg	/
Boring:	G-1-1	۲	0		Cohesion	(psf)		Uli	t. Cohesion (psf	
Sample:	011									
Denth (ft):	Backscarn								/	
Visual	Dark Olive							Snear St	ress vs. Det	ormation
Description:	Gray CLAY				400					
					350					
								A		
Normal Load (psf)	500				300		and the second			
Dry Mass of Specimen (g)	98.3					-				
Initial Height (in)	1.00				G 250	+				Sample 1
Initial Diameter (in)	2.42				sd) :	Ì				Sample 2
Initial Void Ratio	1.071				ress	+				—×— Sample 4
Initial Moisture (%)	30.8				ຮ 200	•				
Initial Wet Density (pcf)	106.5				Shea	4				
Initial Dry Density (pcf)	81.4				• 150					
Initial Saturation (%)	77.7					I				
∆Height Consol (in)	0.0045				100	+				
At Test Void Ratio	1.062									
At Test Moisture (%)	36.1				50	1				
At Test Wet Density (pcf)	111.2									
At Test Dry Density (pcf)	81.8				0		5.0	10.0	15.0	20.0 25.0
At Test Saturation (%)	91.7						D.0	ivo Latoral I		(%)
Strain Rate (%/min)	1.1						Relat		Displacement	(70)
Strengths Picked at	Peak									
Shear Stress (psf)	367									
∆Height (in) at Peak							Shea	r Stress ve	s. Normal Lo	ad
Ultimate Stress (psf)					80	00				Peak Shear Stress
					000					Ult. Stress
	C	hange in Height	1			1				Ultimate
0.0000				→ Sample 1						
				Sample 2	600	00				
0.2000				Sample 4	psf	1				
					ss,					
La 0.4000					400 Str	00				
<u>9</u> 0.6000					lear					
Disp					S					
0008.0 g					20	00 📒				
Voru						1				
- 1.0000										
1 2000						0				
0.0	5.0	10.0	15.0 20	0.0 25.0		0	200	00 40	600	0008 0
	Rel	ative Lateral Displ	acement (%)					Normal L	oad, psf	
Remarks:	*DS-CU* A f	ully undrained	l condition ma	ay not be attai	ned in th	is tes	t. ΔH i	s not me	asured du	ring
	undrained dir	ect shear test	S.							
©										



				(/ (0 /) /)			•••					
CTL Job #:		715 110		Project #:			8840	0006			By:	MD
CIL JUD #.	F	Jaley & Aldric	h	Date:			7/10/	2024		Chi	by	
Project Name:	Zone	7 Phase 1 Re	nairs	Remolding Info:			1131	2024		. Che		FJ
	20110	7 Thase The	pans	Remoluting into.	D	hi (da	<u>(a)</u>					
			2	4	F	iii (ue	;y)				i (ueg)	
Boring:		2	5		Co	hesion (psf)			Ult. Cohe	sion (psf)	
Somplo:										L		
Depth (ft):	Backscarn											
Visual	Yellowish								Shear	Stress	vs. Deto	rmation
Description:	Brown Sandy					600 T						Sample 1
	CLAY w/											Sample 2
	Gravei											—×— Sample 4
						500 -						
Normal Load (psf)	500									a alas.		
Dry Mass of Specimen (g)	121.0								ľ		- Sharthan	•
Initial Height (in)	1.00				Ĵ.	400 -						
Initial Diameter (in)	2.42				sd) :		Ţ					
Initial Void Ratio	0.682				ress	200	Ţ					
Initial Moisture (%)	12.1				ır St	300 -						
Initial Wet Density (pcf)	112.3				Shea		+					
Initial Dry Density (pcf)	100.2					200 -	1					
Initial Saturation (%)	47.9						I					
∆Height Consol (in)	-0.0023						T					
At Test Void Ratio	0.686					100						
At Test Moisture (%)	22.5											
At Test Wet Density (pcf)	122.5											
At Test Dry Density (pcf)	100.0					0 1	.0	5.0	10.0) 1	5.0	20.0 25.0
At Test Saturation (%)	88.5							Relat	tive Later	ral Displa	cement (%	%)
Strain Rate (%/min)	1.1											
Strengths Picked at	Peak											
Shear Stress (psf)	497							Chas		N		-1
ΔHeight (in) at Peak								Shea	r Stress	s vs. Nor		u Daak
Ultimate Stress (psf)						800	0 _				·	- Shear Stress
	C	hange in Height	•									Ult. Stress Ultimate
	•	nango in noigin	· 									
0.0000				Sample 1		600	0					
0 2000				Sample 3	·							
Ē				× Sample 4	, ps		1					
t 0.4000					ress	400						
, me					ır St	400						
0.000.0					shea		1					
Dis					0,							
						200						
<u><u></u></u>												
1.0000												
1.2000							0	20	00	4000	6000	
0.0	5.0	10.0 Iative Lateral Displ	15.0 20	0.0 25.0			U	20	Norma	4000	0000	0000
Develop						in 41.1	. 1.	T VII.		n ∟uau, ρ	ə d - ¹ · · · '	
Remarks:	US-CU" At	undrained	i condition ma	ay not be attail	ned	in thi	s tes	ι. ΔΗ Ι	s not r	neasur	ea auri	ig
0	unuraineu dir	eor snear test	.ə.									
⊌												



				(/ (0 / / / / / / / / / / / / / / / / /		J				1
CTL Job #:		715-110		Project #		884	9006		By	· MD
Client:	F	Haley & Aldrick	h	Date:		7/16	/2024		Checked	· <u>RI</u>
Project Name:	Zone	7 Phase 1 Re	epairs	 Remolding Info		1/10	/2021		onoonou	
	Sp	ecimen Data		. tomorung inter	Phi (dea)			Ult. Phi (dea	
		2	3	4	(uog/			0.0.1 (209	/
Boring:	E-4				Cohesic	on (psf)			Ult. Cohesion (psf)
Sample:										
Depth (ft):	6-6.5							Shoar	Stross vs. Dot	ormation
Visual	Yellowish							onear	011033 V3. Del	
Description:	Brown Clayey				500)				Sample 1
	SAND									Sample 3
					450)				—×— Sample 4
					400					
Normal Load (psf)	600									
Dry Mass of Specimen (g)	108.1				350) <mark></mark>				
Initial Height (in)	1.00				sf)	+			The second se	
Initial Diameter (in)	2.40				<u>ය</u> 300 ග)				
	0.852				s 1, 250	,				
	23.3				ars					
Initial Wet Density (pci)	91.0				e 200	ס <mark>ו</mark> ו				
Initial Dry Density (pci)	72.0									
Initial Saturation (%)	73.9	<u> </u>			150)				
∆Height Consol (in)	0.0094				100	, 				
At Test Void Ratio	0.835									
At Test Moisture (%)	26.8				50) 				
At Test Wet Density (pcf)	116.5									
At Test Dry Density (pcf)	91.9					0.0	5.0	10.0	15.0	20.0 25.0
At Test Saturation (%)	86.6						Rela	tive Later	al Displacement	(%)
Strain Rate (%/min)	1.1									
Strengths Picked at	Peak									
Shear Stress (psf)	470						Shor	r Stroce	ve Normal L	ad
ΔHeight (in) at Peak							Silea	ii Suess		Peak
Ultimate Stress (pst)					8	000 _				Shear Stress
	c	hange in Height	•							Ultimate
	-	inange in norgin				1				
0.0000				Sample 1	6	000				
0 2000				Sample 3	<u> </u>	-				
<u> </u>				Sample 4	, psi	-				
t 0.4000					ress					
eme					rst					
0.6000 -					shea					
Dis					0					
0.008.0					2	2000				
<u>ē</u> 10000						1				
1.0000							•			
1.2000						0		00	4000 000	
0.0	5.0	10.0	15.0 20	0.0 25.0		U	20		4000 600	u 8000
Ļ			acement (%)					Norma	i Load, pst	
Remarks:	DS-CU* Af	ully undrained	i condition ma	ay not be attai	ned in t	nis te	st. ∆H	is not n	neasured du	ring
	undrained dir	ect snear test	5.							
ullet										



						•••				
CTL Job #:		715-110		Project #:		8849	006		By:	MD
Client:	F	Haley & Aldric	h	Date:	· · ·	7/16/2	2024	Che	cked:	P.I
Project Name:	Zone	7 Phase 1 Re	epairs	Remolding Info		1110/2	.024			- 10
	Sn	ecimen Data		rtoniolung ino.	Phi (de	au)		Illt Phi	(ded)	
		2	3	4	1 III (at	<u>'9/</u>			(uog)	
Borina:	E-4	_			Cohesion	(psf)		Ult. Cohes	ion (psf)	
Sample:									1	
Depth (ft):	15.5-16						Sh	oar Stross v	e Defor	mation
Visual	Gray CLAY						010		3. Deloi	fination
Description:					1800 -					Sample 2
										— <u>∔</u> Sample 3
					1600 -					—×— Sample 4
Normal Load (psf)	1500				1400 -					
Dry Mass of Specimen (g)	118.9				4000	4				
Initial Height (in)	1.00				(js	Ť				
Initial Diameter (in)	2.42				<u>ອ</u> ສຸ 1000 -	Ŧ				
Initial Void Ratio	0.744				stres	Į				
Initial Wot Density (pof)	20.0				- 008 ga					
Initial Ory Density (pcf)	98.4				She					
Initial Dry Density (pc)	04.8				600 -					
	94.0	<u> </u>				Į.Į.				
ΔHeight Consol (in)	0.0115				400 -					
At Test Void Ratio	0.724				000	•				
At Test Moisture (%)	26.2				200 -	Ì				
At Test Wet Density (pcf)	125.7				0 -					
At Test Dry Density (pcf)	99.6				0	.0	5.0	10.0 15	.0 2	.0.0 25.0
At Test Saturation (%)	99.7	<u> </u>					Relative La	ateral Displac	ement (%	,)
Strain Rate (%/min)	I.U Peak									
Shear Stress (nsf)	1608									
AHeight (in) at Peak	1000						Shear Str	ess vs. Nori	mal Load	t
Ultimate Stress (psf)								[•	Peak
					800	⁰⁰]				Shear Stress Ult. Stress
	c	hange in Height	t			1			-	Ultimate
0.0000				Sample 1		-				
				Sample 2	600	00				
0.2000				Sample 3	St					
j.					ss, t	-				
ē 0.4000					400 ti	00 =				
					ear	-				
					sh					
- 0008.0 g					200	00]				
- I I I I I I I I I I I I I I I I I I I							•			
2 1.0000						-				
1 2000						0				
0.0	5.0	10.0	15.0 20	0.0 25.0		0	2000	4000	6000	8000
	Rel	ative Lateral Displ	acement (%)				No	rmal Load, ps	f	
Remarks:	*DS-CU* A f	ully undrained	l condition ma	ay not be attai	ned in thi	is test	. ΔH is no	t measure	ed durir	ıg
	undrained dir	rect shear test	S.							
C										



					00001	•••			
		715 110		Draigat #		0040	006	Dy #	MD
CIL JOD #:		/ 13-110		_ Project #:	-	8849	000	_ By:	
Broject Name:	<u></u> 7оро	7 Phase 1 P		Danelding Info:		/10/2	2024		PJ
				Remolaing into:	Dh: /da	<u></u>			
			2	4	Phi (de	<u>(g)</u>		Ult. Phi (deg)	
Boring			3	4	Cohesion (psf)		Ult. Cohesion (psf)	
Bonng.	E-1								
Sample.	665								
Deptin (it).	Dark Yellowish						She	ar Stress vs. Defo	rmation
Description:	Brown Sandy				450 -				Sample 1
Description.	CLAY				100				Sample 2
					400 -				Sample 4
Normal Load (psf)	600				350 -				
Dry Mass of Specimen (g)	111.3								1
Initial Height (in)	1.00				300	1			***
Initial Diameter (in)	2.42				(psf	+			
Initial Void Ratio	0.829				% 250 -				
Initial Moisture (%)	23.8				Str	+			
Initial Wet Density (pcf)	114.1				- 002 Hear				
Initial Dry Density (pcf)	92.2				<i>S</i>	T			
Initial Saturation (%)	77.4				150 -	•			
∆Height Consol (in)	0.0100				100 -				
At Test Void Ratio	0.811								
At Test Moisture (%)	27.3				50	•			
At Test Wet Density (pcf)	118.5								
At Test Dry Density (pcf)	93.1				0 1	0	5.0	10.0 15	.0 20.0
At Test Saturation (%)	90.8		<u> </u>				Relative Lat	teral Displacement (%)
Strain Rate (%/min)	1.2								-,
Strengths Picked at	Peak								
Shear Stress (psf)	407						•		
∆Height (in) at Peak							Shear Stre	ss vs. Normal Loa	d
Ultimate Stress (psf)					800	0		•	Peak — Shear Stress
	0	hanga in Usiah							Ult. Stress
	C	nange in neign				-			Olimate
0.0000				Sample 1	600				
0.0000				Sample 2	000				
0.2000 I				——————————————————————————————————————	psf				
E 0 4000					ess,				
a children a					5 400	0			
0.6000					hear				
Disp					S	-			
- 0008.0 ja					200	0			
Nor						-			
1.0000									
1.2000	2.0 4.0	6.0 8.0 1 [/]	0.0 12.0 14	.0 16.0 18.0		0	2000	4000 6000	8000
	Rel	ative Lateral Disp	acement (%)				Norr	nal Load, psf	
Remarks:	*DS-CU* A f	ully undrained	I condition m	nay not be attai	ned in thi	s test	. ΔH is not	measured duri	ng
	undrained dir	ect shear tes	ts.						
©									



				(7.001111		•••		
CTL Job #:		715 110		Droject #:		8840006	By:	MD
CTL JOD #.	I	10-110	<u></u>	- Project #.	-	0049000	Dy Cheeked:	
Droject Name:	7000	7 Phase 1 Pr	naire	- Dale.		19/2024		FJ
	20110		epairs	Remolaing into:	Dist (da			
	Sp	ecimen Data	2	4	Phi (de	eg)	Ult. Phi (deg)	
Deviner		2	3	4	Cohesion (psf)	Ult. Cohesion (psf)	
Boring:	E-1							
Sample:	45 5 40							
	15.5-16 Vollowich						Shear Stress vs. Defo	mation
Visual	Brown Silty							Sample 1
Description:	SAND				2500 -			Sample 2
								Sample 3
								- Sample 4
Normal Load (nof)	1500				2000 -			
Normal Load (psi)	120.9					- A		
Dry Mass of Specimen (g)	1.00							
Initial Height (III)	1.00				(jsc 1500	4		
Initial Void Patio	2.42				1300 T			
	17.9				stres	, i i i i i i i i i i i i i i i i i i i		
Initial Wet Density (nof)	17.0				ar S	, J		
Initial Wet Density (pcl)	127.0				eg 1000 -			
Initial Dry Density (pci)	100.0							
Initial Saturation (%)	00.3	<u> </u>						
∆Height Consol (in)	0.0148				500 -			
At Test Void Ratio	0.533							
At Test Moisture (%)	19.3							
At Test Wet Density (pcf)	131.1							
At Test Dry Density (pcf)	109.9				0.1	0 5.0) 10.0 15.	0 20.0
At Test Saturation (%)	97.6					Relat	tive Lateral Displacement (9	() ()
Strain Rate (%/min)	1.1							0)
Strengths Picked at	Peak							
Shear Stress (psf)	1915							
∆Height (in) at Peak						Shea	r Stress vs. Normal Loa	d
Ultimate Stress (psf)					800	0	•	Peak Shear Stress
					000			Ult. Stress
	C	hange in Height	1					Ultimate
0.0000				Sample 1				
				Sample 2	600	0		
0.2000				Sample 3	osf			
i)					ss, p			
<u>e</u> 0.4000					400 gt	0		
					ear 9			
					She			
					200			
E.					200			
ž 1.0000								
1.2000				0 10 0 10 5		0 20	00 4000 6000	8000
0.0	∠.∪ 4.∪ Re l	o.u 8.0 10 lative Lateral Displ	acement (%)	.u 10.0 18.0		0	Normal Load. psf	
Pemarka		ully undrained	L condition m	av not be attai	ned in thi	e toet ∧⊔:	is not measured duri	na
rtemarks.	undrained di	rect shear test	e conuniuon m	ay not be allal		ອ ເຮອເ. ΔΠΙ	is not measured duri	ัษ
©								
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CTL Job #:		715-110		Project #			8840	9006			By:	M	0
Client:	F	Haley & Aldric		_ Date:			7/19/	2024		- Ch	ecked:	P.	<u></u>
Project Name:	Zone	7 Phase 1 Re	epairs	- Remolding Info:			.,,			- 0	oonou.		
	Spe	ecimen Data			P	hi (de	eu)			Ult. Pł	ni (dea)		
		2	3	4			9/				(aog)		
Boring:	B-2A				Co	hesion	(psf)			Ult. Cohe	esion (psf)		
Sample:													
Depth (ft):	Тор								Shoa	r Stross	vs Defo	rmation	
Visual	Dark Yellowish								onea	1 011000	10. 2010		ample 1
Description:	Brown Sandy					300 -							ample 2
	organics											<u></u> Sa	ample 3
													ample 4
						250				and the second second			
Normal Load (psf)	500						1						
Dry Mass of Specimen (g)	109.7					200	+						
Initial Height (In)	1.01				(Jsu	200	•						
Initial Diameter (in)	2.42				d) ss		1						
Initial Moisture (%)	17.0				Stree	150 ·	1						
Initial Wet Density (ncf)	106.0				ear (Ì						
Initial Dry Density (pcf)	89.9				Š		+						
Initial Saturation (%)	55.2					100						-	
ΔHeight Consol (in)	0.0051						ľ						
At Test Void Ratio	0.865					50							
At Test Moisture (%)	27.2												
At Test Wet Density (pcf)	115.0												
At Test Dry Density (pcf)	90.4					0 ·	0	5.0	10	0 1	5.0	20.0	 25.0
At Test Saturation (%)	85.1					0	.0	Rela	ative I ate	aral Displa	o.o	20.0 %)	20.0
Strain Rate (%/min)	1.2									nui Biopio		,,,,	
Strengths Picked at	Peak												
Shear Stress (psf)	261							<u>Oha</u>					
ΔHeight (in) at Peak								Sne	ar Stres	S VS. NO	rmai Loa	Baak	
Ultimate Stress (pst)						800	00]				·	Shear St	ress
	с	hange in Heigh	ŀ									Ult. Stres Ultimate	is
	-												
0.0000				Sample 1		600	00						
0.2000				Sample 3	Ŧ		1						
(ij				Sample 4	s, ps		1						
t 0.4000					tres	400							
cem					ar St	100							
ag 0.6000					She		-						
						200							
E 0.0000						200							
ž 1.0000 –							1						
1 2000							0	•					
0.0	5.0	10.0	15.0 20	0.0 25.0			0	2	000	4000	6000	800	00
	Rel	ative Lateral Displ	acement (%)						Norm	al Load, p	osf		
Remarks:	*DS-CU* A f	ully undrained	condition m	ay not be attai	ned	in thi	is tes	st. ΔH	is not	measur	red duri	ng	
	undrained dir	rect shear test	IS.										
C													



							•••						
CTL lob #:		715-110		Project #:			8840	206			By:	МГ	<u> </u>
Client:	F	Haley & Aldric	h	Date:			7/15/2	200		Che	ocked.	P.I	
Project Name:	Zone	7 Phase 1 Re	epairs	Remolding Info			1/10/2	.02+		One	Jonea.		
- rejectriane.	Sn	ecimen Data		rtoniolung ino.	P	hi (de	au)			lllt Ph	i (dea)		
		2	3	4	-		<u>, a)</u>			010.111	r (acg)		
Borina:	B-2				Co	ohesion (psf)			Ult. Cohes	sion (psf)	1	
Sample:													
Depth (ft):	25.5-26								Shoar	Strose	ve Dofo	rmation	
Visual	Olive Brown								Sileai	011635	vs. Deiu		mpla 1
Description:	CLAY w/ Sand					1600 -						——— Sar	mple 2
	& Gravei											— ⊥ — Sar	mple 3
						1400 -						Sar	nple 4
								1					
Normal Load (psf)	2500					1200 -							_
Dry Mass of Specimen (g)	117.6						ļ						
Initial Height (in)	1.00				(Js	1000 -						_	
Initial Diameter (in)	2.42				d) se								
Initial Moisture (%)	26.0				Stree	800 -							
Initial Wet Density (pcf)	122.0				ear (•						
Initial Dry Density (pcf)	97.4				sh	600 -							
Initial Saturation (%)	93.8												
ΔHeight Consol (in)	0.0305					400 -							_
At Test Void Ratio	0.709						ł						
At Test Moisture (%)	25.2					200 -							
At Test Wet Density (pcf)	125.8												
At Test Dry Density (pcf)	100.4					0.	.0	5.0	10.0	15	5.0	20.0	25.0
At Test Saturation (%)	97.8							Relat	ive Later	al Displa	cement (%)	
Strain Rate (%/min)	1.1												
Strengths Picked at	Peak												
Shear Stress (pst)	1501							Shea	r Stress	vs Nor	mal I oa	d	
Liltimate Stress (nsf)								eneu			•	Peak	
Olimate Offess (psi)						800	10 -					- Shear Street	ess
	с	hange in Heigh	t				1					Ultimate	,
0.0000 -				→ Sample 1			3						
0.0000				Sample 2		600	io <u> </u>						
0.2000 —				Sample 3	sf								
(ii)				Sample 4	s, p		1						
te 0.4000					stres	400	0						
					ear S								
					Sh								
						200							
L L L							1		•				
2 1.0000 -													
1.2000							0		~~	4000			
0.0	5.0 Rel	10.0 ative Lateral Disp	15.0 20 acement (%)	0.0 25.0			U	20	Norma	4000 I Load. p	sf	800	U
Remarke	*DS-CU* A f	ully undrained	condition me	av not he attai	ned	in thi	s tect	ΛHi	s not n	1easur	ed duri	na	
Romaino.	undrained dir	rect shear test	S.	ay not be attai	100	ni ull	5 1031	. םיים	o not n	Joubul	ou uun	9	
©													



						•••••					
CTL lob #:		715-110		Project #:		884	9006			By:	MD
Client:	F	Haley & Aldric	h	_ Toject#. _ Date:		7/19	/2024		– Ch	ecked:	P.I
Project Name:	Zone	7 Phase 1 Re	pairs	Remolding Info ⁻		1/10	/2024		_ 011		
	Sn	ecimen Data		rtemerang me.	Phi ((pap	1			ni (dea)	
		2	3	4	(ucg/					
Borina:	B-2A				Cohesio	on (psf)			Ult. Cohe	esion (psf)	
Sample:											
Depth (ft):	Backscarp							Sho	ar Stroce	ve Defo	rmation
Visual	Yellowish							Oned	ai Stiess	vs. Delo	Sample 1
Description:	Brown CLAY w/				45	0					Sample 1
	Sand										— <u>↓</u> Sample 3
					40	0				+	—×— Sample 4
Normal Load (psf)	500				35						
Dry Mass of Specimen (g)	11/./				20						
Initial Height (in)	1.00				(isi)						
Initial Diameter (in)	2.42				d s 25	0					
Initial Volu Ratio	0.730				Stres						
Initial Wet Density (ncf)	121.8				20 ga	0					
Initial Dry Density (pcf)	97.5				She	I			Jun.		
Initial Saturation (%)	92.6				15	0					
Alloight Consol (in)	0.0073										
At Test Void Patio	0.0073				10						
At Test Volu Ratio	25.6				5	0					
At Test Wet Density (ncf)	123.3										
At Test Dry Density (pcf)	98.2									<u> </u>	
At Test Saturation (%)	96.2					0.0	5.0	10).0 1	5.0	20.0 25.0
Strain Rate (%/min)	1.1						Rei	ative Lat	erai Dispia	acement (*	'o)
Strengths Picked at	Peak										
Shear Stress (psf)	383										
∆Height (in) at Peak							She	ear Stres	ss vs. No	rmal Loa	d
Ultimate Stress (psf)					8	3000 -				•	Peak — Shear Stress
	C	hongo in Uoigh									Ult. Stress
	C C	nange in Heigin				1					Onimale
0.0000				Sample 1	6	3000					
0 2000				Sample 3							
<u></u>					, pst	1					
ਦੂ 0.4000 –					ress	1000					
Sem of					ar St						
<u>ق</u> 0.6000 –					She	1					
E 0.8000					4						
ž 1.0000						1					
							•				
1.2000	5 0	10.0	15.0 20	0.0 25.0		0	2	2000	4000	6000	8000
	Rel	ative Lateral Displ	acement (%)					Norm	nal Load, p	osf	
Remarks:	*DS-CU* A f	ully undrained	l condition m	ay not be attai	ned in t	this te	st. ΔH	is not	measu	red duri	ng
	undrained dir	ect shear test	S.								
©											



						•••				J
CTL Job #:		715 110		Project #:		8840	006		By	MD
CTL JOD #.		Haley & Aldric	h	Date:		7/15/	2024		Checked:	
Project Name:	Zone	7 Phase 1 Re	enairs	Remolding Info:		1/10/	2024		Checked.	
		ecimen Data	spans	Remotaling into.	Dhi (de	<u>a)</u>			Illt Phi (dog)	
	<u> </u>		3	4	1 111 (00	·9/			on. I in (deg)	+
Boring:	B-2		0		Cohesion	psf)			Ult. Cohesion (psf)	
Sample:										<u>.</u>
Depth (ft):	15.5-16							Shoor	Stroop vo Dof	ormation
Visual	Dark Brown							Sileai	Stress vs. Der	
Description:	Sandy CLAY				3500 -					Sample 1
	w/ Gravel									Sample 3
					3000 -					—×— Sample 4
					5000					
Normal Load (psf)	1500									
Dry Mass of Specimen (g)	138.7				2500 -					
Initial Height (in)	1.00				sf)					
Initial Diameter (in)	2.42				່ອ ເສັ2000 -					
	0.468				tres					
Initial Moisture (%)	14.0				ar S		1			
Initial Wet Density (pcf)					2 1500 -		1			
	04.5									
Initial Saturation (%)	84.5	<u> </u>			1000 -					
∆Height Consol (in)	0.0117					1				
At Test Void Ratio	0.451				500 -	¥.				
At Test Moisture (%)	15.3					1				
At Test Wet Density (pcf)	134.0									
At Test Dry Density (pcf)	116.2				0 -	.0	5.0	0	10.0 1	5.0 20.0
At Test Saturation (%)	91.9						Rela	tive Latera	al Displacement	(%)
Strain Rate (%/min)	1.1									
Strengths Picked at	Peak									
Shear Stress (psf)	3211						Sho	or Stragg	vo Normal Lo	ad
ΔHeight (in) at Peak							Snea	ar Stress	vs. Normai Lo	Baak
Ultimate Stress (pst)		<u> </u>			800	0 _				
	c	hange in Heigh	ŀ							Ultimate
			• r							
0.0000				Sample 1	600					
0 2000				Sample 3	-					
Ē				Sample 4	bs	1				
t 0.4000					s 400					
eme					รั ⁴⁰⁰					
0.6000					Shea	1	•			
Dis					0)					
					200	10				
Ž										
1.0000										
1.2000 -						0	~	200	4000 0000	
0.0	5.0	10.0 Jative Lateral Dice	15.0	20.0		U	20	Normal	Hood not	0000
Ļ					1			Normal	Luau, psi	
Remarks:	US-CU^ A	ully undrained	a condition m	iay not be attail	nea in thi	s tes	ι. ΔΗ	is not m	leasured dui	ing
0	unurained di	rect shear test	15.							
⊌										



					///	5001	•••				_	
CTL Job #:		715 110		Project #:			8840	006			Bv:	MD
CTL JUD #. Client:	F	Jaley & Aldric	h	_ FIOJECL#. _ Date:			7/10/2	2000		Che	by ckod:	
Project Name:	Zone	7 Phase 1 Re	nairs	_ Date.			1/13/2	.024		One	ckeu	13
i rojeot i tame.		ecimen Data	,puilo	Remolaring into.	D	hi (da	<u>a)</u>			Illt Phi	(dog)	
			3	4		iii (ue	, 9)			011. 1 111	(deg)	
Boring:	К-8	2	0		Co	hesion (psf)			Ult. Cohesi	on (psf)	
Sample:												
Depth (ft):	Тор								Ohaan	C4		
Visual	Olive Gray								Snear	Stress v	s. Delor	nation
Description:	CLAY w/ Sand					1200 -						Sample 1
												Sample 3
												×— Sample 4
						1000 -						
Normal Load (psf)	500											
Dry Mass of Specimen (g)	113.4						Ĭ					
Initial Height (in)	1.00				sf)	800 -	Ť					
Initial Diameter (in)	2.42				s (p:		Ŧ					
Initial Void Ratio	0.795				tres	600 -						
Initial Moisture (%)	25.9				arS	000	1					
Initial Wet Density (pcf)	118.2				She		1					
Initial Dry Density (pcf)	93.9					400 -	•				And the second s	
Initial Saturation (%)	88.0	<u> </u>					+					
∆Height Consol (in)	0.0017						+					
At Test Void Ratio	0.792					200 -						
At Test Moisture (%)	27.2											
At Test Wet Density (pcf)	119.7											
At Test Dry Density (pcf)	94.1					0	.0	5.0	10.0) 15.	0 2	0.0 25.0
At Test Saturation (%)	92.8							Relat	tive Later	al Displace	ement (%)
Strain Rate (%/min)	1.2											,
Strengths Picked at	Peak											
Shear Stress (psf)	969											_
∆Height (in) at Peak								Shea	r Stress	s vs. Norn	nal Load	l
Ultimate Stress (psf)						800	0				•	Peak — Shear Stress
	C	hongo in Uoigh										Ult. Stress
	C	nange in Heighi					-				-	Utimate
0.0000				Sample 1		600						
0.0000				Sample 3		000						
0.2000 I				——————————————————————————————————————	psf		1					
₩ ₩ 0.4000					ess,		1					
e e e e e e e e e e e e e e e e e e e					Str	400	0					
0.6000 -					hear							
Disk					S		-					
0008.0						200	0					
1.0000												
1 2000 -							0					
0.0	5.0	10.0	15.0 20	0.0 25.0			0	20	00	4000	6000	8000
	Rel	ative Lateral Displ	acement (%)						Norma	I Load, psi	f	
Remarks:	*DS-CU* A f	ully undrained	l condition m	ay not be attaiı	ned	in thi	s test	. ΔH i	s not r	neasure	d durir	g
	undrained dir	rect shear test	S.									
C												



				(7.001111			,						
CTL lob #:		715 110		Project #:			8840	2006			By:	M	`
CIL JUD #.		Haley & Aldric		Date:			7/15/	2024		- Che	Dy		ן ו
Project Name:	Zone	7 Phase 1 R	enairs	Date.			1/10/	2024		- 0110	ereu.		<u>,</u>
Trojoot Hamo.		ecimen Data		rtemolang inte.	D	hi (da) ()			Lillt Dhi	i (dog)		
			3	4	-		<i>y</i> y)				i (deg)		
Boring:	B-2		<u> </u>		Co	hesion (psf)			Ult. Cohes	sion (psf)		
Sample:													
Depth (ft):	5 5-6	+							Ohaa				
Visual	Dark Red Silty	+							Snea	r Stress v	/s. Delo	mation	
Description:	SAND					450 -						Sa	ample 1 ample 2
												Sa	ample 3
						400 -						<u> </u>	ample 4
Normal Load (psf)	600					350 -							
Dry Mass of Specimen (g)	114.1						*						
Initial Height (in)	1.00				Ĵ	300 -	1						
Initial Diameter (in)	2.42	L			sd) s	050	1						
Initial Void Ratio	0.783	Ļ			ress	250 -							
Initial Moisture (%)	11.4	<u> </u>			r St	200 -							
Initial Wet Density (pcf)	105.4				Shea	200							
Initial Dry Density (pcf)	94.5			_	Ű	150 -							
Initial Saturation (%)	39.5	<u> </u>											
∆Height Consol (in)	0.0067					100 -							
At Test Void Ratio	0.771					•							
At Test Moisture (%)	23.8					50 -							_
At Test Wet Density (pcf)	117.9	1											
At Test Dry Density (pcf)	95.2					0 -	0		<u> </u>	10.0	15	0	20.0
At Test Saturation (%)	83.5					0	.0	Pola	tivo Lato	ral Display	comont (6 ()	20.0
Strain Rate (%/min)	1.1							Itela			zement ()	0)	
Strengths Picked at	Peak												
Shear Stress (psf)	411												
∆Height (in) at Peak								Shea	ar Stres	s vs. Nor	mal Loa	d	
Ultimate Stress (psf)						800	0				•	Peak — Shear Sí	ress
						000	Ĩ					Ult. Stree	55
	Ĺ	inange in Heigh	It				1			l		Ultimate	
0.0000				Sample 1									
				Sample 2		600							
<u>-</u> 0.2000				Sample 4	psf		1						
					ess,								
under State					Stre	400	0						
0.6000					near		1						
Disp					ŝ		1						
- 0008.0 g						200	10]						
Aor							1						
- 1.0000 -							1						
1 2000							o 📒	•					
1.2000	5.0	10.0	15.0) 20.0			0	20	000	4000	6000	800	00
	Relative Lateral Displacement (%)								Norm	al Load, ps	sf		
Remarks:	*DS-CU* A	fully undraine	d condition n	nay not be attai	ned	in thi	s tes	t. ΔH	is not i	measure	ed duri	ng	
	undrained di	rect shear tes	sts.										
©													

Appendix C



Appendix C



Appendix C



Appendix C



Appendix C



APP C-28

	PER	Mo Co	i sture-De oper Testin	e nsity-Po Ig Labs, Inc	Drosity R c. (ASTM D72	eport ^{263b)}									
CTL Job No: Client: Project Name:	715-109a Haley & Ald ^{Wood-Rodgers}	rich /Zone 7 Storm I	Damage Repair	Project No. Date: Remarks:	0209267-001-03 07/15/24	By:	RU	-							
Boring: Sample: Depth, ft:	F1 F1-5 6														
Visual Description:	Brown Sandy CLAY														
Actual G _e								<u> </u>							
Assumed G	2.70							1							
Moisture, %	26.0							1							
Wet Unit wt. pcf	122 7							1							
Dry Unit wt. pcf	97.4							1							
Dry Bulk Dens ob (g/cc)	1.56							1							
Saturation. %	96.0							1							
Total Porosity %	42.2							1							
Volumetric Water Cont Aw %	40.5							<u>†</u>							
Volumetric Air Cont. On %	10.0														
Void Patio	0.73														
Sorios	0.75	2	3	1	5	6	7	Q							
Note: All reported parame	eters are from the	∠ as-received samp	le condition unles	s otherwise noted	. If an assumed sp	ecific gravity (Gs)	was used then the	e saturation,							
Zero Air-voi	should be conside	c Gravity	Мо	isture-Density											
130.0		\searrow	2.6		The Ze represe 100% s	ro Air-Voids curve ent the dry density saturation for each	s at value	Series 1							
120.0					of spec	ific gravity		×Series 3							
נק ו 110.0								x Series 4							
5 100.0								+ Series 6							
80.0								-Series 7 -Series 8							
70.0	5.0	10.0	15.0 2 Moisture	20.0 2 Content, %	5.0 30.0	0 35.0	40.0								
1			٦.	1		Χ	1	Г	٦	Т			Т	٦	۱.
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			1				۱)	1	_	(┡	~	
														•	
•			1	•		•									•
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Moisture-Density-Porosity Report Cooper Testing Labs, Inc. (ASTM D7263b)

			•	<u> </u>	<u> </u>			
	745 400					_		
CTL JOB NO:	715-109			Project No.	0209267-001-03	By:	RU	
Client:	Haley & Ald	rich		Date:	07/03/24			
Project Name:	Wood-Rodgers	/Zone 7 Storm [Damage Repair	Remarks:				
Boring:	F-15	F-15	F-15	F-1	F-1	J-7	F-8	F-8
Sample:	F15-1	F15-4	F15-10	F1-2	F1-8	J7-7	F8-5	F8-14
Depth, ft:	2	6	16	2	11	11	6	21
Visual	Olive	Brown	Olive	Olive Gray	Dark Gray	Dark Gray	Dark Olive	Dark Olive
Description:	Brown	Sandy	Brown	Sandy	CLAY w/	CLAY w/	Gray	Gray
	Sandy	SILT	Clayey	SILT	Gravel	Sand	Sandy	Sandy
	CLAY,		SAND				CLAY w/	CLAY w/
	trace						Gravel	Gravel
	Gravel							
Actual G _s								
Assumed G _s	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70
Moisture, %	19.2	13.4	19.7	22.6	33.0	29.6	14.8	23.2
Wet Unit wt, pcf	125.6	109.7	129.5	119.4	114.8	120.5	136.7	127.1
Dry Unit wt, pcf	105.4	96.8	108.2	97.3	86.3	93.0	119.1	103.2
Dry Bulk Dens.pb, (g/cc)	1.69	1.55	1.73	1.56	1.38	1.49	1.91	1.65
Saturation, %	86.4	48.6	95.3	83.5	93.5	98.4	96.1	98.8
Total Porosity, %	37.4	42.6	35.8	42.3	48.8	44.9	29.4	38.8
Volumetric Water Cont, Ow, %	32.4	20.7	34.1	35.3	45.6	44.1	28.2	38.3
Volumetric Air Cont., ⊖a,%	5.1	21.9	1.7	7.0	3.2	0.7	1.1	0.5
Void Ratio	0.60	0.74	0.56	0.73	0.95	0.81	0.42	0.63
Series	1	2	3	4	5	6	7	8
N					16	10 11 (0)	1.11 .1	

Note: All reported parameters are from the as-received sample condition unless otherwise noted. If an assumed specific gravity (Gs) was used then the saturation, porosities, and void ratio should be considered approximate.





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Moisture-Density-Porosity Report Cooper Testing Labs, Inc. (ASTM D7263b)

			•	<u> </u>	<u> </u>			
	745 400					_		
CTL JOB NO:	715-109			Project No.	0209267-001-03	By:	RU	
Client:	Haley & Ald	rich		Date:	07/03/24			
Project Name:	Wood-Rodgers	Zone 7 Storm [Damage Repair	Remarks:				
Boring:	F-15	F-15	F-15	F-1	F-1	J-7	F-8	F-8
Sample:	F15-1	F15-4	F15-10	F1-2	F1-8	J7-7	F8-5	F8-14
Depth, ft:	2	6	16	2	11	11	6	21
Visual	Olive	Brown	Olive	Olive Gray	Dark Gray	Dark Gray	Dark Olive	Dark Olive
Description:	Brown	Sandy	Brown	Sandy	CLAY w/	CLAY w/	Gray	Gray
	Sandy	SILT	Clayey	SILT	Gravel	Sand	Sandy	Sandy
	CLAY,		SAND				CLAY w/	CLAY w/
	trace						Gravel	Gravel
	Gravel							
Actual G _s								
Assumed G _s	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70
Moisture, %	19.2	13.4	19.7	22.6	33.0	29.6	14.8	23.2
Wet Unit wt, pcf	125.6	109.7	129.5	119.4	114.8	120.5	136.7	127.1
Dry Unit wt, pcf	105.4	96.8	108.2	97.3	86.3	93.0	119.1	103.2
Dry Bulk Dens.pb, (g/cc)	1.69	1.55	1.73	1.56	1.38	1.49	1.91	1.65
Saturation, %	86.4	48.6	95.3	83.5	93.5	98.4	96.1	98.8
Total Porosity, %	37.4	42.6	35.8	42.3	48.8	44.9	29.4	38.8
Volumetric Water Cont, Ow, %	32.4	20.7	34.1	35.3	45.6	44.1	28.2	38.3
Volumetric Air Cont., ⊖a,%	5.1	21.9	1.7	7.0	3.2	0.7	1.1	0.5
Void Ratio	0.60	0.74	0.56	0.73	0.95	0.81	0.42	0.63
Series	1	2	3	4	5	6	7	8
N					16	10 11 (0)	1.11 .1	

Note: All reported parameters are from the as-received sample condition unless otherwise noted. If an assumed specific gravity (Gs) was used then the saturation, porosities, and void ratio should be considered approximate.





Appendix C



Appendix C



Appendix C



Appendix C



Appendix C



Appendix C



Appendix C



		i	#200 Si	eve Was ASTM D 2	sh Anal 1140	ysis		
Job No.:	715-109			Project No.:	0209267-00	1-03	Run By:	MD
Client:	Haley & Aldri	ich	-	Date:	7/9/2024		Checked By:	DC
Project:	Wood-Rodgers/	Zone 7 Storm	_ Damage Repai	r				
Boring:	J-7							
Sample:	J7-11							
Depth. ft.:	20.5							
Soil Type:	Olive							
	Yellowish Brown Sandy Lean CLAY							
Wt of Dish & Dry Soil, gm	536.0							
Weight of Dish, gm	173.7							
Weight of Dry Soil, gm	362.4							
Wt. Ret. on #4 Sieve, gm	0.0							
Wt. Ret. on #200 Sieve, gm	127.6							
% Gravel	0.0							
% Sand	35.2							
% Silt & Clay	64.8							
Remarks: As an added be it is included is depend of gravel. The gravel is separately to determine	nefit to our lent upon bot always incl the percenta	clients, t h the techn uded in the ge, especia	he gravel f ician's tim percent re lly if ther	raction may b e available a tained on the e is only a	be included and if there e #200 sieve trace amount	in this rep is a signi but may no , (5% or le	ort. Whether ficant enough t be weighed ss).	or not amount

		Mo Co	isture-De	e nsity-Po ng Labs, Inc				
CTL Job No: Client: Project Name:	715-110b Haley & Ald Zone 7 Pha	rich se 1 Repiar	- - S	Project No. Date: Remarks:	8849006 07/22/24	By:	RU	_
Boring: Sample: Depth, ft:	G-1-1 Backscarp							
Visual Description:	Dark Olive Brown CLAY							
Actual G _s								
Assumed G _s								
Moisture, %	33.4							
Wet Unit wt, pcf								
Dry Unit wt, pcf								
Dry Bulk Dens.pb, (g/cc)							
Saturation, %								
Total Porosity, %								
Volumetric Water Cont, Ow, 9	6							
Volumetric Air Cont., Oa,	6							
Void Ratio								
Series	1	2	3	4	5	6	7	8
Note: All reported paran porosities, and void ration	neters are from the a should be conside	as-received samp red approximate.	le condition unles	s otherwise noted	. If an assumed sp	ecific gravity (Gs)	was used then t	he saturation,
Zero Air-vo	oids Curves, Specific	c Gravity	Мо	isture-Density				
130.0			2.6		The Ze	ro Air-Voids curve ont the dry density	s at	■Series 1
120.0			$\displaystyle \qquad \qquad$		of spec	ific gravity		▲Series 2 ×Series 3
b 110.0				\leq				X Series 4
itty								
S 100.0								Series 5
								+ Series 6
50.0								-Series 7
80.0								-Series 8
70.0 0.0	5.0	10.0	15.0 2	20.0 2	5.0 30.0) 35.0	40.0	

Moisture-Density-Porosity Report Cooper Testing Labs, Inc. (ASTM D7263b)								
CTL Job No: Client: Project Name:	715-110a Haley & Alo Zone 7 Pha	lrich ise 1 Repairs		Project No. Date: Remarks:	8849006 07/15/24 No ratio; me	By: d's only.	RU	_
Boring: Sample: Depth, ft:	G-4 6-6.5	G-4 16-16.5						
Visual Description:	Dark Grayish Brown CLAY	Dark Olive Gray CLAY w/ Sand						
Actual G.				<u> </u>				
Assumed G	2 70	2 70						
Moisture. %	38.4	27.4						
Wot Unit wt. ncf	113.6	122.1						
Dry Unit wt. pcf	82.0	95.9						
Dry Bulk Done ob (g/oo)	1 31	1 54						
Saturation %	98.4	07 /						
Tatal Darasity %	51.2	37.4 12.1						
Total Porosity, %	50.5	43.1						
Volumetric Water Cont, Ow, %	50.5	42.0						
Volumetric Air Cont., Oa,%	0.8	1.1						
Void Ratio	1.05	0.76			- <u>-</u>	0		
Series	toro oro from the		3	4	lf on accumed or	b	/	8
Zero Air-void	should be conside	c Gravity	Мо	isture-Density		(UU)		
120.0			2.6	1	The Ze	ro Air-Voids curve	s at	■Series 1
120.0				2.8	100% s of spec	saturation for each cific gravity	value	∆ Series 2
								×Series 3
້ອີ110.0				\searrow				x Series 4
								●Series 5
								+ Series 6
90.0								-Series 7
80.0								-Series 8
70.0 +	5.0	10.0	15.0 2 Moisture	20.0 29 Content, %	5.0 30.	0 35.0	40.0	

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Moisture-Density-Porosity Report Cooper Testing Labs, Inc. (ASTM D7263b)

		<u>[</u>		-				
CTL Job No:	715-110			Project No.	8849006	By:	RU	
Client:	Haley & Ald	rich		Date:	06/27/24			
Project Name:	Zone 7 Pha	se 1 Repairs	5	Remarks:				
Boring:	B-2	B-2	G-4	E-4	E-1	E-6	B-2A	K-8
Sample:								
Depth, ft:	6.5-8	26.5-28	21.5-23	11.5-13	11.5-13	0-1	Backscarp	Тор
Visual	Dark	Dark	Dark Olive	Dark	Olive	Olive	Yellowish	Olive Gray
Description:	Reddish	Yellowish	Gray Fat	Brown	Brown	Brown	Brown	Lean
	Brown	Brown Fat	CLAY	Lean	Sandy	Sandy Fat	Lean	CLAY w/
	Sandy	CLAY		CLAY	Lean	CLAY w/	CLAY w/	Sand &
	Lean				CLAY	organics	Sand	organics
	CLAY							
Actual G _s								
Assumed G _s								
Moisture, %	20.3	29.6	32.3	24.9	14.0	23.5	32.3	21.8
Wet Unit wt, pcf								
Dry Unit wt, pcf								
Dry Bulk Dens.pb, (g/cc)								
Saturation, %								
Total Porosity, %								
Volumetric Water Cont, Ow, %								
Volumetric Air Cont., Өа,%								
Void Ratio								
Series	1	2	3	4	5	6	7	8
Note: All reported parame porosities, and void ratio s	ters are from the should be conside	as-received sampl red approximate.	e condition unless	otherwise noted	If an assumed sp	ecific gravity (Gs)	was used then the	saturation,

Moisture-Density



Appendix C



Appendix C



Appendix C



Appendix C



WOOD RODGERS

EXCERPTS FROM HISTORICAL DOCUMENTS



CONSOLIDATED ENGINEERING

June 7, 2004

Zone 7 Water Agency 5997 Parkside Drive Pleasanton, California 94558

Attention: Mr. Craig Mayfield

Subject: Geotechnical Study Report Slope Failure - West Bank of Alamo Canal (Station 71+53 – 72+57) Pleasanton, CA CEL No. 10-01006PP – Task Order #17

Gentlemen:

In accordance with your authorization, Consolidated Engineering Laboratories (CEL) Geotechnical Division has prepared geotechnical recommendations pertaining to the slope failure along the west bank of the Alamo Canal in the vicinity of Station 72+00 (maintained by Zone 7 Water Agency). The location of the site is shown on Figure 1 – Vicinity Map. Based on discussions with Zone 7 personnel, it is our understanding that the subject slide area was not repaired in 1994, when an adjacent slope section to the south was buttressed. The slope failed in March 2004, thereby causing concern regarding preservation of the maintenance road located at the top of slope. A Slope Stability Study was prepared by Kleinfelder, Inc. for the 1994 repairs made to adjacent slope sections and was provided to CEL for reference, along with As-Built construction plans (dated March, 1994) and supplementary handwritten notes forwarded by Zone 7 personnel.

INTRODUCTION

Purpose and Scope

The purpose of this study was to identify possible causes for the slope failure, identify various repair alternatives, and provide recommendations to restore the slope to a stable condition and preserve the maintenance road. Our scope of work included the review of available reports, as-built drawings and other geotechnical literature pertinent to the site; a subsurface investigation (soil borings); laboratory testing; slope stability analyses, and recommendations for repair of the slope.

Site Description

The area of the slope failure is located approximately 200 feet north of the Las Positas Road overcrossing on the west bank of the Alamo Canal. The as-built slope is inclined at a 2:1 (horizontal:vertical) ratio and is approximately 29 feet high. The current slide is approximately 100 feet long, between Stations 71+53 and 72+57. It appears that the slope failed by means of a rotational slump through deposits of clay soil. The head scarp is located approximately 11 feet from the edge of the Zone 7 Maintenance Road. The slide has pushed bank material toward the canal centerline such that the toe of the slope is located up to approximately six feet from its original location. Vegetation on the slope is well-established and is mostly composed of tall grasses. A geosynthetic turf mat is visible near the surface and has ruptured in a direction parallel to the canal alignment in numerous locations in response to shearing stresses induced by the failure.



The Zone 7 As-Built Drawings for repairs performed in 1994/1995, show a buttress composed of ¼-ton broken concrete riprap that was constructed at the toe of the slope to the south and north of the subject slope in an effort to provide additional shear resistance and increase stability of the slope. Some of this riprap is visible at the ground surface. It appears that this repair has been effective in stabilizing the slopes over an approximate 10-year period.

SUBSURFACE CONDITIONS

Subsurface Investigation

Two soil borings and two hand augers were performed at the locations shown on Figure 2-Site Plan. The soil borings were drilled on the eastern half of the maintenance road to a maximum depth of 30 feet and the hand augers were excavated within the slide mass near the head scarp to a depth of approximately 10 feet. Soils encountered in the borings and hand augers consisted of a thin layer of stiff sandy lean clay overlying relatively thick deposits of dark brown and gray fat clay. Relatively undisturbed tube samples and bulk samples were retrieved and transported to our soils laboratory for testing. Boring/hand auger logs are included in the appendix.

Laboratory Testing

Laboratory tests were performed on selected samples of the native bank soil to determine some of the physical and engineering properties of the subsurface soils. The results of the laboratory testing program are contained in the boring logs and presented in the appendix. The following soil tests were performed:

Dry Density and Moisture Content (ASTM D2216 and D2937) – In-situ density and moisture tests are conducted to determine the in-place dry density and moisture content of the subsurface materials. These properties provide information for evaluating the physical characteristics of the subsurface soil. Average dry density and moisture content for the fat clay were *83 pcf and 38 percent*, respectively.

Atterberg Limits (ASTM D4318 and CT204) - Liquid Limit, Plastic Limit, and Plasticity Index are useful in the classification and characterization of the engineering properties of soil, helps to evaluate expansive characteristics of the soil, and in determining the soil type according to the USCS. The fat clay had liquid limits ranging from 42 to 89 and plasticity indices ranging from 26 to 53. This indicates a soil with a high affinity for moisture and high expansion potential.

Direct Shear (modified ASTM D3080) - Direct shear testing is performed on samples to determine the angle of internal friction and cohesion of soil or rock materials. This data can be utilized in determining allowable bearing capacity, retaining wall design parameters, and strength characteristics of the materials. Direct shear specimens are saturated under a 100 psf surcharge for a period of 24 hours prior to testing. Friction angles on the order of five and six degrees were calculated, however, these values were not used in the stability analyses as they are significantly lower than those contained in the geotechnical literature for the project area.

Particle Size Analysis (Wet and Dry Sieve) and Hydrometer (ASTM D422, D1140, and CT202) - Sieve analysis and hydrometer testing is conducted on selected samples to determine the soil particle size distribution. This information is useful for the evaluation of shear strength and characterizing the soil type according to USCS.



Slope Stability Analyses

The computer program STABL6H was used to generate trial failure surfaces and compute critical factors of safety (F.S.=1.0) for the as-built slope configuration utilizing the modified Janbu method for irregularly shaped failure surfaces. An idealized cross-section of the slope was input to the program with the following soil parameters for the native bank soil in order to back-calculate the observed failure surface:

• F=21; c = 0 psf; U_{moist}= 120 pcf; U_{saturated}= 125 pcf

The water surface was varied in the analysis to determine its effect on the slope's critical failure surface and factor of safety. One water surface was located to coincide with the channel bottom (toe of slope) and the other was located midway up the slope, representing a temporary period of high runoff. Use of these parameters produced a deeper critical failure surface when the ground water level was input at the toe of the slope and a relatively shallow critical failure surface when the ground water level was raised 15 feet.

Using the back-calculated friction angle stated above, stability analyses were subsequently performed for the proposed slope repair configuration. The proposed slope configuration, shown on Figure 3, consists of a toe buttress comprised of ¼-ton broken concrete riprap and a zone that parallels the slope from top to bottom comprised of select fill. The following soil parameters were used:

- Existing broken concrete buttress: F=50; c = 0 psf, U(unit weight) = 125 pcf
- Select backfill: F=50; c = 0 psf, $U_{moist}= 130 \text{ pcf}$; $U_{saturated}= 135 \text{ pcf}$
- F=21 ; c = 0 psf; U_{moist}= 120 pcf; U_{saturated}= 125 pcf

Using the low water level (channel bottom) resulted in a deeper failure surface. The depth of the toe buttress (measured from toe of slope to bottom of buttress) was varied from 7 to 10 feet. The following table summarizes results of the slope stability analyses for the proposed slope repair configuration:

Depth of Buttress (feet)	Water Level	Computed Factor of Safety
7-feet deep	Channel bottom	1.2
	Mid-slope (temporary)	1.2
10-feet deep	Channel bottom	1.4
	Mid-Slope (temporary)	1.2

CONCLUSIONS

Based on our review of the geotechnical literature, and the results of our geotechnical study, it is our opinion that the slope failed due to inherent weakness (low shear strength) of the bank material.

The results of the stability analysis for the as-built slope configuration emphasize the need for a repair strategy that will provide both surficial stability and guard against a deeper shear failure. Results of the slope stability analyses for the proposed slope repair configuration indicate that a rock/concrete filled toe buttress and compacted zone of select fill paralleling the slope will add stability by increasing shear resistance along potential failure planes. Use of a toe buttress has proven to be effective in stabilizing adjacent slope sections in 1994. Deepening the toe buttress marginally increases the factor of safety to



1.4. A factor of safety between 1.3 and 1.5 is considered acceptable for long-term stability under static conditions

RECOMMENDATIONS

We recommend the following to restore the slope to its as-built configuration:

- Remove slide debris to the excavation limit shown on Figure 3, approximately eight feet below the original slope
- Excavate for toe buttress with maximum 1:1 temporary cut slopes
- Place Rock Slope Protection Fabric (Type B) at the base, sides, and ends of the excavation, in accordance with the Caltrans Standard Specifications, Section 88.
- Backfill buttress with ¼-ton broken concrete riprap, as utilized previously in adjacent slope section repairs
- Place Select Fill above the toe buttress to the top of slope. Select Fill should have a minimum Sand Equivalence of 20 and a maximum Plasticity Index of 15. The Select Fill should be compacted in maximum eight inches lifts to 90% relative compaction (Modified Proctor).

It is recommended that Consolidated Engineering Laboratories be retained to provide a plan review, and to provide grading observation and testing during construction. This is to observe compliance with the design concepts, specifications and recommendations, and to allow for possible changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.

We hope this provides the necessary information at this time. Should you have any questions pertaining to this letter please contact Marty Skyrman at (916) 568-6700 or Mike Sorgenfrei at (925) 485-1055.

Sincerely, CONSOLIDATED ENGINEERING LABORATORIES

The Sala Fri mes

Martin L. Skyrman, CE 58241, GE 2559 Senior Engineer

- Figures: Figure 1 - Site Vicinity Figure 2 - Site Plan Figure 3 – Proposed Repair
- Appendices: Boring Logs Laboratory Test Results Slope Stability Analysis Output
- Copies: 2 plus email to addressee (925-484-2600 ext 240; fax 925-461-1765) CEL Sacramento

MLS/MMS:pmf

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Project Engineer



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WOOD RODGERS

Lab Testing Interpretations

Zone 7 Phase 1 Repair Project Prepared by:

	ASTM D4767m with Pore Pressure												
			Moisture	Boring	_								
Identifier	Soil Type	PI PI	Content	Location	P	Q	Phi	C (Psf)	Eff Phi	Eff C (Psf)			
CL	Sandy Clay	8	31.2	F-8, 16 ft	2.167	1.245	15	550	21.6	500			
CL	Sandy Clay	8	31.2	F-8, 16 ft	3.48	1.733	15	550	21.6	500			
CL	Sandy Clay	8	31.2	F-8, 16 ft	4.849	2.221	15	550	21.6	500			
СН	Clay with Sand	22	12.7	F-8, 11 ft	1.247	0.905	27.7	200	35	200			
СН	Clay with Sand	22	12.7	F-8, 11 ft	2.442	1.577	27.7	200	35	200			
СН	Clay with Sand	22	12.7	F-8, 11 ft	4.537	2.746	27.7	200	35	200			

								-	
			Moisture				Delta	PHI	
Identifier	Soil Type	PI	Content	Boring Location	Р	Q	(Degrees)	(degrees)	Cohesion (PSF)
					0	0			
CL (Clay with Sand/Gravel	10	18.6	B-2, 16 ft	2.08	1.039	24.0	26.5	113.5
CL		10	17.7	B-2, 16 ft	3.873	1.809			
CL		10	17.1	B-2, 16 ft	5.668	2.639			
					0	0			
СН	Clay w/ Sand	32	26	B-2, 26 ft	3.49	1.604	19.9	21.2	363.9
СН		32	24.5	B-2, 26 ft	6.657	2.742			
СН		32	23.3	B-2, 26 ft	9.766	3.874			
					0	0			
CL	Clay	10	29	E-4, 16 ft	2.139	1.198	26.3	29.6	145.3
CL		10	28	E-4, 16 ft	4.147	2.147			
CL		10	27.3	E-4, 16 ft	6.122	3.167			
					0	0			
Sa	andy Clay (No Plasticity)	8	23.9	E-1, 16 ft	2.377	1.385	31.8	38.2	0.0
		8	23	E-1, 16 ft	4.851	2.88			
		8	22.4	E-1, 16 ft	7.559	4.591			
					0	0			
СН	Clay	31	34.7	G-4, 21 ft	3.457	1.408	14.8	15.3	529.3
СН		31	32.9	G-4, 21 ft	6.24	2.197			
СН		31	31.4	G-4, 21 ft	8.847	2.833			

Interpretation of Lab Results (Shown on P vs Q Plots)

Bounding	ldentifier	Delta (Degrees)	PHI (degrees)	Cohesion (PSF)
Upper Bound	CL	30.70	36.42	150.00
Upper Bound	СН	27.92	32.01	400.00
Lower Bound	CL	22.72	24.76	150.00
Lower Bound	СН	15.64	16.26	300.00

	Effect	ive	Undrained		
Assumed Stability Parameters	C' (Psf)	PHI' (degrees)	C (Psf)	PHI (degrees)	
Native (Medium to High Plasticity Clay, CH)	300	19	400	12	
Native (Low Plasticity Clay, CL)	150	30	250	19	

Appendix C P vs. Q Determination for Native (Low Plasticity Clay, CL)



AP**[**�**;<u>C</u>±5**55)/2

Appendix C P vs Q Determination for Native (Medium to High Plasticity Clay, CH)



AP**[**&7**C±5%**)/2

Direct Shear Testing Results

Location	Depth	Р	Q	Soil Type	Fines Content	Ы	Moisture Content	Test Type
G-4	21	2000	1224	Clay		31	37.4	CU
G-4	6	600	999	Clay			37.8	CU
G-1-1	BackScarp	500	367	Clay		38	30.8	CU
E-4	16	1500	1608	Clay		10	25.6	CU
B-2A	BackScarp	500	383	Clay with Sand		20	25	CU
B-2	26	2500	1501	Clay with Sand		32	26	CU
K-8	Тор	500	969	Clay with Sand		20	25.9	CU
E-4	6	600	470	Clayey Sand			23.3	CU
E-6	BackScarp	500	497	Sandy Clay		29	12.1	CU
B-2A	Тор	500	261	Sandy Clay		20	17.9	CU
E-1	6	600	407	Sandy Clay		8	23.8	CU
B-2	16	1500	3211	Sandy Clay			14.6	CU
E-1	16	1500	1915	Silty Sand			17.8	CU
B-2	6	600	411	Silty Sand		10	14.5	CU
F-15	11	500	313	Silty Sand	57		24.1	CU
F-15	11	1000	833	Silty Sand	57		23.7	CU
F-15	11	2000	1430	Silty Sand	57		22	CU

Soil Strength Determinations From Direct Shear

Clay								
Upper Bound	Р	Q	Delta (Degrees)	PHI (degrees)	Cohesion (PSF)			
	0	750	29	34	750			
	2500	2150						
Lower Bound			Delta (Degrees)	PHI (degrees)	Cohesion (PSF)			
	0	110	29	34	110			
	2500	1500						

Silty Sand							
Upper Bound	Р	(Q	Delta (Degrees)	PHI (degrees)	Cohesion (PSF)	
		0	50	35.75389	46.05448	5	0
		2500	1850				
Lower Bound	Р	(Q	Delta (Degrees)	PHI (degrees)	Cohesion (PSF)	
		0	0	33.02387	40.5416		0
		2500	1625				

P vs. Q Direct Shear Test Results for Clay



P vs. Q Direct Shear Test Results for Silty Sand

