

San Diego Regional Water Quality Control Board

April 11, 2018

Mr. Mark Pelley
Pardee Homes San Diego
13400 Sabre Springs Parkway
San Diego, CA 92128

CERTIFIED MAIL
7009 1410 0002 2347 7498
In reply refer to:
SM-843203:CArias

SUBJECT: OFFER TO SETTLE ADMINISTRATIVE CIVIL LIABILITY FOR ALLEGED VIOLATIONS OF THE CONSTRUCTION GENERAL STORM WATER PERMIT, ORDER R9-2018-0072, CASTLEROCK WESTON CONSTRUCTION SITE, WDID 9 37C374922

Mr. Pelley:

This letter contains an offer from the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) Prosecution Team to settle potential claims for administrative civil liability arising out of alleged violations of the *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities*, (Order No. 2009-0009-DWQ, as amended; herein referred to as the General Permit). Pardee Homes allegedly violated multiple provisions of the General Permit at the Castlerock Weston construction site located at 8738 Mast Boulevard in the City of Santee. Pardee Homes is the Legally Responsible Person under the General Permit because on December 16, 2015, Pardee Homes submitted a Notice of Intent to begin construction of the 204-acre Castlerock Weston housing project, and on December 17, 2015, Castlerock received coverage under the General Permit. Hereafter, this letter will be the "Settlement Offer."

This Settlement Offer provides Pardee Homes with an opportunity to resolve the alleged violations through payment of two hundred ninety-one thousand two hundred and eighty-six dollars (\$291,286). Please read this letter carefully and respond no later than April 25, 2018.

Description of Alleged Violations

The San Diego Water Board Prosecution Team (Prosecution Team) alleges the following violations of the General Permit. The alleged violations are described below; the evidence for these allegations are described in the enclosed three documents: San Diego Water Board Facility Inspection Report for inspections occurring on January 19, February 2, and February 17, 2017 (Exhibit 1), Best Management Practice (BMP) Notices from the City of San Diego (Exhibit 2), and a Notice of Violation dated May 10, 2017 from the City of Santee (Exhibit 3).

1. Failure to implement erosion and sediment controls on active areas (Provision E.3 of Attachment D of the General Permit).

2. Failure to minimize pollutants in storm water discharges through the use of controls, structures, and management practices that achieve Best Conventional Pollutant Control Technology (BCT) for conventional pollutants (Provision A.1.b of Attachment D of the General Permit).
3. Failure to minimize pollutants in storm water discharges from the construction site (Provision A.1.b of Attachment D of the General Permit). Violation 2.b alleges the failure to minimize pollutants in storm water discharges through the use of controls, structures, and management practices that achieve BCT and instead using a pump to discharge ponded sediment-laden storm water from the construction site to the City of Santee's municipal storm separate sewer system (MS4), in excess of the numeric action levels (NALs) specified in the General Permit.

Statutory Liability

Pursuant to section 13385 of the California Water Code, Pardee Homes is liable for administrative civil liabilities of up to \$10,000 per violation for each day in which the violation occurs and \$10 per gallon discharged in excess of the first 1,000 gallons. The statutory minimum civil liability is the economic benefit resulting from the violations. The State Water Resources Control Board's Water Quality Enforcement Policy (Enforcement Policy¹) states that the minimum penalty is to be the economic benefit plus 10 percent. For the violations described in the attachments, the maximum potential liability is \$1,690,000 and the minimum liability is \$118,250.

Proposed Settlement Offer

The Prosecution Team proposes to resolve the alleged violations with this Settlement Offer of \$291,286. This Settlement Offer was determined based on an assessment of the factors set forth in California Water Code section 13385(e) using the penalty methodology set forth in the Enforcement Policy. The enclosed "Penalty Calculation Methodology" describes in detail how the penalty amount was calculated (Exhibit 4). The Prosecution Team believes that the proposed resolution of the alleged violations is fair and reasonable, fulfills the San Diego Water Board's enforcement objectives, and is in the best interest of the public.

Should Pardee Homes choose *not* to accept this Settlement Offer, please be advised that the Prosecution Team reserves the right to seek a higher liability amount, up to the maximum allowed by statute, either through issuance of a formal administrative civil liability complaint or by referring the matter to the Attorney General's Office. The Prosecution Team also reserves the right to conduct additional investigation, including issuance of investigation orders and/or subpoenas to determine if additional violations occurred. Any additional violations subjecting Pardee Homes to liability may be included in a formal enforcement action. Pardee Homes can avoid the risks inherent in a formal enforcement action and settle the alleged violations by accepting this Settlement Offer. The Prosecution Team reserves the right to take further enforcement actions against Pardee Homes for all past violations not identified in this

¹ The 2009 Water Quality Enforcement Policy is available on-line at:
https://www.waterboards.ca.gov/water_issues/programs/enforcement/docs/enf_policy_final111709.pdf

The 2009 Water Quality Enforcement Policy is used in calculating the proposed penalties because the alleged violations occurred prior to October 5, 2017, when the 2017 Water Quality Enforcement Policy went into effect.

Settlement Offer and future violations against the General Permit or subsequently adopted orders.

Options for Responding to the Settlement Offer

Option A: Accept the Offer

If Pardee Homes chooses to accept this Settlement Offer, then the enclosed *Acceptance of Settlement Offer and Waiver of Right to Hearing (Acceptance and Waiver)* shall be completed and submitted, via email, no later than **April 25, 2018** to the following address:

California Regional Water Quality Control Board, San Diego Region
Attention: Chiara Clemente, Supervisor, Compliance Assurance Unit
Email: SanDiego@waterboards.ca.gov

Important! Upon receipt of the *Acceptance and Waiver*, this settlement will be publically noticed for a 30-day comment period as required by federal regulations. If no substantive comments are received within the 30 days, the Prosecution Team will ask the San Diego Water Board's Executive Officer to formally endorse the *Acceptance and Waiver* as an Order of the San Diego Water Board. An invoice will then be mailed to Pardee Homes requiring payment of the **\$291,286** administrative civil liability within 30 days of the date of the invoice.

If, however, substantive comments are received in opposition to this settlement or the Executive Officer declines to accept the settlement, then the Settlement Offer may be withdrawn. In this case, Pardee Homes will be notified and Pardee Homes' waiver pursuant to the *Acceptance and Waiver* will also be treated as withdrawn. The unresolved violation(s) will be addressed in a formal enforcement action. An administrative civil liability complaint may be issued and the matter may be set for a hearing.

Option B: Contest the Alleged Violations

If Pardee Homes wishes to contest the violations or the methodology used to calculate the proposed liability, they must submit a written response identifying the basis for the challenge, including any evidence to support their claims. Pardee Homes' response must be received by the San Diego Water Board no later than **April 25, 2018**. The Prosecution Team will evaluate Pardee Homes' basis for a challenge and may seek clarifying information or schedule an in-person meeting. The Prosecution Team will inform Pardee Homes whether a reduction in the settlement amount is warranted, or whether the original settlement amount is appropriate. Pardee Homes will be provided a final opportunity to accept the revised/original settlement amount before proceeding to formal enforcement.

Option C: Reject Offer

If Pardee Homes chooses to reject this Settlement Offer or does not complete and return the *Acceptance and Waiver*, Pardee Homes should expect that the Prosecution Team would conduct further investigation of the violations, issue an assessment of civil liabilities complaint, and schedule a hearing. Pardee Homes will receive notice of any deadlines associated with that action. As previously stated, in such an action, the liability amount sought or imposed may exceed the liability amount set forth in this Settlement Offer.

If you have any questions about this settlement offer, please contact Ms. Chiara Clemente at (619) 521-3371 or at chiara.clemente@waterboards.ca.gov.

Respectfully,



JAMES G. SMITH
Assistant Executive Officer

cc (via email): Chris Nichols, Pardee Homes chris.nichols@pardeehomes.com
Liz Belloso, Pardee Homes liz.belloso@pardeehomes.com
Erika Horn, KCM Group, ehorn@kcmgroup.net
Julie Ballesteros, City of San Diego, BallesterosJ@sandiego.gov
Andrew Kleis, City of San Diego, AKleis@sandiego.gov
Cecilia Tipton, City of Santee, CTipton@CityofSanteeCa.gov
Catherine Hawe, SWRCB Office of Enforcement,
Catherine.Hawe@waterboards.ca.gov
David Boyers, SWRCB Office of Enforcement,
David.Boyers@waterboards.ca.gov

Enclosures: Acceptance of Settlement Offer and Waiver of Right to a Hearing

Exhibit 1 – San Diego Water Board Inspection Reports – January 19, 2017,
February 2, 2017, February 17, 2017 (with Attachments)

Exhibit 2 – BMP Notices from the City of San Diego to Pardee Homes
(November 18, 2016--February 16, 2017)

Exhibit 3 – May 10, 2017 Notice of Violation from the City of Santee to Pardee
Homes, including photos of a discharge occurring on May 7, 2017

Exhibit 4 – Settlement Offer Calculations

Exhibit 5 – California Department of Transportation (Caltrans) Study: Soil
Stabilization BMP Research for Erosion and Sediment Controls/Cost
Survey Technical Memorandum, July 2007

Tech Staff Info & Use	
Enforcement ID	427222
Violation ID	862436, 862681, 862683, 862687
WDID	9 37C374922
NPDES No.	CAS000002
Inspection ID	2032508, 2033045, 2033062

ORDER NO. R9-2018-0072

**ACCEPTANCE OF SETTLEMENT OFFER AND WAIVER OF RIGHT TO A HEARING
FOR**

PARDEE HOMES

SAN DIEGO COUNTY

By signing below and returning this *Acceptance of Settlement Offer and Waiver of Right to Hearing (Acceptance and Waiver)* to the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board), Pardee Homes hereby accepts the Settlement Offer described in the letter dated April 11, 2018 and titled *Offer to Settle Administrative Civil Liability for Alleged Violations of the Construction General Storm Water Permit, Order No. R9-2018-0072, Castlerock Construction Site, WDID: 9 37C374922*. Pardee Homes also hereby waives the right to a hearing before the San Diego Water Board to dispute the alleged violations described in the Settlement Offer and its enclosures.

Pardee Homes agrees that the Settlement Offer shall serve as a complaint pursuant to Article 2.5 of the California Water Code (Water Code) and that no separate complaint is required for the San Diego Water Board to assert jurisdiction over the alleged violations. Pardee Homes agrees to perform the following:

- Pay an administrative civil liability in the sum of two hundred ninety-one thousand, two hundred eighty-six dollars (\$291,286) by cashier's check or certified check made payable to the "State Water Resources Control Board Cleanup and Abatement Account." This payment shall be deemed payment in full of any civil liability pursuant to Water Code section 13385 that might otherwise be assessed for violations described in the Settlement Offer and its enclosures.
- Fully comply with the conditions of the *National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000002 for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ, as amended (General Permit)* at the Castlerock construction site in Santee, California.

Pardee Homes understands that by signing this *Acceptance and Waiver*, Pardee Homes has waived its rights to contest the allegations in the Settlement Offer and the civil liability amount for the alleged violations. Pardee Homes understands that this *Acceptance and Waiver* does not address or resolve any liability for any violation not specifically identified in the Settlement Offer and its enclosures.

Upon execution by Pardee Homes, the *Acceptance and Waiver* shall be returned to the following address:

California Regional Water Quality Control Board, San Diego Region
Attention: Chiara Clemente, Supervisor, Compliance Assurance Unit
Email: SanDiego@waterboards.ca.gov

Pardee Homes understands that federal regulations require the San Diego Water Board Prosecution Team (Prosecution Team) to publish notice of and provide at least 30 days for public comment on any proposed resolution of an enforcement action for violations of an

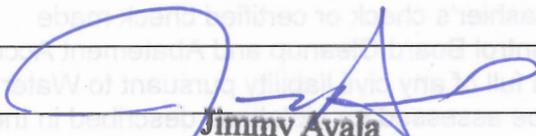
NPDES permit. Accordingly, this *Acceptance and Waiver*, prior to being formally endorsed by the San Diego Water Board Executive Officer (acting as head of the Advisory Team), will be published as required by law for public comment.

If no comments are received within the notice period that cause the Prosecution Team to reconsider the Settlement Offer, then the Prosecution Team will present this *Acceptance and Waiver* to the San Diego Water Board's Executive Officer for formal endorsement on behalf of the San Diego Water Board.

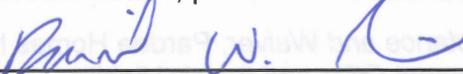
Pardee Homes understands that if significant comments are received in opposition to the settlement, then the offer may be withdrawn by the Prosecution Team. If the Settlement Offer is withdrawn, then Pardee Homes will be notified and Pardee Homes' waiver pursuant to the *Acceptance and Waiver* will also be treated as withdrawn. The unresolved violation(s) will be addressed in a formal enforcement action. An administrative civil liability complaint may be issued and the matter may be set for a hearing.

Pardee Homes understands that once this *Acceptance and Waiver* is formally endorsed and an Order Number is inserted, then the full payment is a condition of this *Acceptance and Waiver*. An invoice will be sent upon endorsement, and full payment will be due within 30 days of the date of the invoice.

I hereby affirm that I am duly authorized to act on behalf of and to bind Pardee Homes in the making and giving of this *Acceptance and Waiver*.

By: 
Jimmy Ayala
Title: Division President
Date: 4-23-18

IT IS SO ORDERED, pursuant to Water Code section 13385.

By: 
David W. Gibson, Executive Officer, San Diego Water Board
Date: 4 June 2018

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD - SAN DIEGO REGION
WATERSHED PROTECTION PROGRAM

EXHIBIT 1

PLUS
ATTACHMENT
1-7

FACILITY INSPECTION REPORT

FACILITY: Pardee Homes/Castlerock INSPECTION DATE/TIME: 1/19/17, 2/2/17, 2/17/17

WDID/FILE NO.: 9 37C374922

REPRESENTATIVE(S) PRESENT DURING INSPECTION:

NAME: <u>Christina Arias, lead inspector</u>	AFFILIATION: <u>San Diego Water Board</u>
NAME: <u>see discussion</u>	AFFILIATION: _____
NAME: _____	AFFILIATION: _____
NAME: _____	AFFILIATION: _____
NAME: _____	AFFILIATION: _____

Pardee Homes San Diego
NAME OF OWNER, AGENCY OR PARTY RESPONSIBLE FOR DISCHARGE

same
FACILITY OR DEVELOPER NAME (if different from owner)

13400 Sabre Springs Parkway
OWNER MAILING ADDRESS

8738 Mast Blvd., San Diego
FACILITY ADDRESS

Mark Pelley; mark.pelley@pardeehomes.com
OWNER CONTACT NAME AND PHONE #

FACILITY OR DEVELOPER CONTACT NAME AND PHONE #

APPLICABLE WATER QUALITY LICENSING REQUIREMENTS:

- | | |
|---|---|
| <input type="checkbox"/> MS4 URBAN RUNOFF REQUIREMENTS | <input type="checkbox"/> GENERAL OR INDIVIDUAL WASTE DISCHARGE REQUIREMENTS OR NPDES |
| <input checked="" type="checkbox"/> CONSTRUCTION GENERAL PERMIT | <input type="checkbox"/> GENERAL OR INDIVIDUAL WAIVER OF WASTE DISCHARGE REQUIREMENTS |
| <input type="checkbox"/> CALTRANS GENERAL PERMIT | <input type="checkbox"/> SECTION 401 WATER QUALITY CERTIFICATION |
| <input type="checkbox"/> INDUSTRIAL GENERAL PERMIT | <input type="checkbox"/> CWC SECTION 13264 |

INSPECTION TYPE (Check One):

- "A" TYPE COMPLIANCE--COMPREHENSIVE INSPECTION IN WHICH SAMPLES ARE TAKEN. (EPA TYPE S)
- "B" TYPE COMPLIANCE--A ROUTINE NONSAMPLING INSPECTION. (EPA TYPE C)
- NONCOMPLIANCE FOLLOW-UP--INSPECTION MADE TO VERIFY CORRECTION OF A PREVIOUSLY IDENTIFIED VIOLATION.
- ENFORCEMENT FOLLOW-UP--INSPECTION MADE TO VERIFY THAT CONDITIONS OF AN ENFORCEMENT ACTION ARE BEING MET.
- COMPLAINT--INSPECTION MADE IN RESPONSE TO A COMPLAINT.
- PRE-REQUIREMENT--INSPECTION MADE TO GATHER INFO. RELATIVE TO PREPARING, MODIFYING, OR RESCINDING REQUIREMENTS.
- NO EXPOSURE CERTIFICATION (NE C) - VERIFICATION THAT THERE IS NO EXPOSURE OF INDUSTRIAL ACTIVITIES TO STORM WATER.
- NOTICE OF TERMINATION REQUEST FOR INDUSTRIAL FACILITIES OR CONSTRUCTION SITES - VERIFICATION THAT THE FACILITY OR CONSTRUCTION SITE IS NOT SUBJECT TO PERMIT REQUIREMENTS.
- COMPLIANCE ASSISTANCE INSPECTION - OUTREACH INSPECTION DUE TO DISCHARGER'S REQUEST FOR COMPLIANCE ASSISTANCE.

INSPECTION FINDINGS:

YES WERE VIOLATIONS NOTED DURING THIS INSPECTION? (YES/NO/PENDING SAMPLE RESULTS)

I. PURPOSE OF INSPECTION/BACKGROUND

This inspection report documents findings from San Diego Water Board inspections occurring on January 19, February 2, and February 17, 2017.

January 19, 2017

San Diego Water Board inspector Christina Arias conducted a routine inspection of the Castlerock residential development construction site. The purpose of the inspection was to follow-up on enforcement actions taken by the City of San Diego. At the time of the inspection, the City of San Diego had issued at least two administrative citations to Pardee Homes for discharges of sediment from the Castlerock construction site to the MS4 occurring on September 20, 2016 and December 16, 2016. Attendees for this inspection included Daniel Lottermoser with the City of San Diego, Chris Nichols, Liz Belloso and Joe Giedemon with Pardee Homes, and Erika Horn with KCM Group (site QSP).

Castlerock is a Risk Level 2 site and is located at the boundary of the City of San Diego and the City of Santee. Castlerock is under the jurisdiction of the City of San Diego; however, all discharges from the construction site flow into the City of Santee's MS4. According to the SWPPP, the entire project footprint is roughly 200 acres. According to site operators, roughly 100 acres had been disturbed as of January 2017. The site is nestled between hilly open space areas to the north and west, Mast Blvd. to the south, and houses along Medina Dr. to the east. The site is about 0.8 mi long along Medina Dr., and land disturbance ends at a tributary to Sycamore Canyon Creek on the north side. A site map is included as Attachment 1.

In the days prior to the inspection, there was significant rainfall, and no construction activity had been taking place. The inspection was limited in scope because conditions were extremely wet, making it unsafe to cover much of the site. Therefore we made observations at the construction site entrance at Medina Dr. and Pecan Valley Dr., and walked up the construction access road to the main mesa.

Findings:

1. The exterior slopes along Medina Dr. and the construction entrance on Pecan Valley Dr. and Medina Dr. appeared to have adequate erosion control and sediment control BMPs. However, within the construction site on the interior mesa, there were little to no BMPs. There were no erosion or sediment control BMPs on the construction access roads and surrounding disturbed soil (see Attachment 2, Figure 1). A drain inlet, located on the west side of the access road, was surrounded by ponded turbid water (see Attachment 2, Figure 2). No erosion controls were visible, there were inadequate sediment control BMPs in this area and those standing around the inlet could hear the sound of water draining into it. The QSP did not identify this inlet as a discharge point; therefore no water quality samples had been taken from this location.
2. Approximately 100 acres had been rough graded, yet little to no erosion or linear sediment control BMPs had been implemented on the site's interior mesa area (see Attachment 2, Figures 3-5).
3. Rather than utilize a "treatment train" approach to storm water BMPs, including soil stabilization, erosion and linear sediment control BMPs in tandem, the Castlerock construction

site operators chose to use several depressions within the site to collect and retain the runoff. In addition, site operators excavated 4 large temporary "capture holes" onsite intended to hold large volumes of water (up to 68,000 CY). This is described in SWPPP Amendment #4. A description of the capture hole dimensions and volume capacity, provided to the San Diego Water Board in an email, is shown in Attachment 3. For purposes of documenting this inspection report, the capture holes are referred to as 1, 2, 3, and 4 based on the order of their description in Attachment 3. A modified site map showing the capture holes in red and the tributary drainage areas in blue arrows is provided as Attachment 4. Figure 5 of Attachment 2 shows capture hole #3 from the vantage point on the west side of the construction site mesa.

February 2, 2017

San Diego Water Board inspectors Christina Arias and Erica Ryan conducted a follow up inspection of Castlerock. The purpose of this inspection was to see and understand the functionality of the capture holes, and evaluate the performance of the BMPs during the previous storm event occurring on January 20, 2017. Attendees included Daniel Lottermoser with the City of San Diego, Chris Nichols, Liz Beloso, and Joe Giedemon with Pardee Homes, and Erika Horn with KCM Group (site QSP). This inspection followed a January 23, 2017 San Diego Water Board Staff Enforcement Letter sent to Castlerock via email, for an illegal discharge of sediment occurring on January 20, 2017 (see Attachment 5). The City of Santee also provided photos of discharges occurring on January 20, 2017 at 3 separate locations: 1) Mast Blvd. across from West Hills High School, 2) the corner of Mast Blvd. and Medina Dr., and 3) an inlet behind a house on Medina Dr. (see Attachment 6).

The inspection covered the construction entrance at Pecan Valley Rd., the site interior to the north, the site perimeter on the east (up to the boundary of work to the north), and the southeast corner of the site. Findings from the inspection are described below.

Findings:

1. As a result of having no soil stabilization or erosion control BMPs, the interior slopes and graded areas showed signs of erosion (see Attachment 2, Figures 6-13).
2. Due to the rainfall, hillsides to the west were continuing to weep water onto the construction site. This water continued to drain into the capture holes (see Attachment 2, Figures 9-10). Capture hole #1 is located on the west side and receives most of the water from the open space area (see Attachment 2, Figures 10-11). This capture hole also receives runoff from other graded areas in the site interior, which showed signs of erosion and did not have erosion or sediment control BMPs (see Attachment 2, Figures 12-13).
3. Capture hole #2 is located several yards to the east of capture hole #1. Capture hole #2 is intended to drain the construction site areas to the north (see Attachment 2, Figures 14-15).
4. The terraced slopes adjacent to the houses on Medina Dr. had erosion and sediment controls on them. However, the road/trail visible from this vantage point did not have adequate erosion control BMPs in the form of adequate coverage of soil tackifier or bonded fiber matrix or linear sediment controls, therefore, erosion rills were visible (see Attachment 2, Figures 16-17).
5. The terraced slope on the north perimeter of the property had no erosion or sediment control BMPs. At the time of the inspection, fiber rolls were being installed. A construction worker

was using a pick to make trenches for the fiber rolls. Stakes were lying on the ground, indicating that the fiber rolls had not been trenched in yet. There was evidence that there had been a sizeable discharge at this location during the previous storms. Construction workers had erected a plastic spillway to drain a series of ponds on the mesa, towards the site perimeter. As a result, the silt fence had been overtopped and water discharged into a creek tributary to Sycamore Canyon Creek on the north side of the construction site (see Attachment 2, Figures 18-21). The drainage pattern in this area is in disagreement with the map as shown in Attachment 4. The map shows capture of all runoff in one of four capture holes, yet the northernmost area of the construction site was graded to drain north, towards the creek.

6. The last capture hole was situated in this area with a spillway towards an inlet to the MS4 (see Attachment 2, Figures 22-23).
7. During the inspection debrief with Castlerock site operators, San Diego Water Board inspectors Erica Ryan and Christina Arias explained that storing water in ponds and capture holes as the sole strategy to managing storm water run-on and runoff was not compliant with the Construction General Permit, Order No. 2009-0009-DWQ (CGP). All Risk Level 2 sites are required to have erosion and sediment controls throughout the site. We also asked site operators to provide more information regarding the sizing of the capture holes. We asked if they were meant to function as sediment basins (as described in the CASQA Construction BMP Guidance Handbook, BMP sheet #SE-2) or sediment traps (as described in the CASQA Construction BMP Guidance Handbook, BMP sheet #SE-3). In short, we wanted to understand to what criteria or standard the capture holes were constructed. We also questioned the capacity of the capture holes and a concern that 1) some of the capture holes were constructed over partial or complete fill material, which could possibly cause collapse if the soil became saturated, and 2) the functionality of the overflow mechanism to drain the capture holes in the event of an emergency. Site operators deferred to their project engineers and agreed to provide this information at a later date. San Diego Water Board inspector Christina Arias received this information in a memo emailed on February 17, 2017.

In addition, we discussed at length why a more traditional approach to storm water management was not utilized (soil stabilization in the form of adequate coverage of soil tackifier, erosion controls in the form bonded fiber matrix, linear sediment controls in the form of fiber rolls, gravel bag chevrons, or silt fencing, and a sediment basin with overflow per CASQA standards). Site operators explained that a sediment basin would likely require more space than was available considering the amount of heavy equipment traffic, and that mass grading was taking longer than expected, due to project delays in permitting and an excessive rainy season. Site operators also explained that bringing baker tanks to the facility was not possible due to the extremely wet and possibly unsafe conditions.

We informed them that an enforcement action from the San Diego Water Board was likely due to the discharges that had occurred so far, and the lack of erosion and linear sediment control BMPs to date. On February 8, 2017, San Diego Water Board inspector Christina Arias sent another Staff Enforcement Letter to Castlerock for discharges occurring on the north side of the construction site observed during the inspection on February 2, 2017.

February 17, 2017

San Diego Water Board inspectors Christina Arias and Erica Ryan conducted a follow up inspection at Castlerock. The purpose of the inspection was to evaluate pre-rain preparations as a greater than 50% chance of rain was forecasted within 48 hours. Attendees included Daniel Lottermoser with the City of San Diego, Chris Nichols with Pardee Homes, and Carlos Oliver with KCM Group (QSP designee).

Findings:

1. According to Mr. Nichols, the entire site had been sprayed with soil tackifier to serve as erosion control. This product is not easily visible in most places. Several large sloped areas including construction access roads had linear sediment control BMPs in the form of gravel bag chevrons (see Attachment 2, Figure 24-25). This was a significant improvement over previous inspections.
2. In order to reduce erosion, a large plastic spillway had been erected to direct run-on from the open space area into capture hole #1 (see Attachment 2, Figures 26-27).
3. According to the information about the capture holes provided by Ms. Horn via email, capture hole #2 is 12 feet deep. Only about 3 feet of freeboard was visible at the time of the inspection (see Attachment 2, Figure 28). Construction workers were pumping water from the north part of the construction site into capture hole #2 (see Attachment 2, Figure 29). The discharge hose is visible.
4. Construction workers had begun BMP repair and installation on the slope on the north side of the construction site, where there had previously been a direct discharge of sediment laden storm water into the creek.
5. Construction workers had erected a temporary gunnite channel to route run-on from open space areas on the north side of the construction site to the creek, without comingling with run-off from the site (see Attachment 2, Figure 33).
6. Construction workers were pumping ponded water from the north side of the construction site to capture hole #2 (see Attachment 2, Figure 34). The intake for the pump is visible.
7. Three of the four large capture holes are adjacent to an inlet to the MS4. At this point in time, they serve as emergency outlets for the capture holes. As we were heading south on the site walk, we asked to see the emergency overflow outlets. The first one we saw consisted of a concrete box. The others consisted of small basins with riser pipes. These are visible in Attachment 2, Figures 35-38. Only one of the four inlets shown had bonded fiber matrix as erosion control (however, all disturbed areas were sprayed with soil tackifier). None of the small basins had adequate linear sediment controls to stabilize the walls of the basin, which were also prone to erosion.
8. The inspection concluded with observations of capture hole #4 (see Attachment 2, Figure 39). This capture hole is situated on a fill slope erected above several houses on Medina Dr. Mr. Nichols stated that he had previously used a pump to dewater the capture hole into the MS4 inlet, and that the water was visibly clear. This was done out of concern for possible slope failure due to the volume of water being stored on the fill slope. We discussed that the CGP

allows release of stored storm water runoff as long as the site is in full compliance and the quality of the discharge is within the numeric action levels.

9. San Diego Water Board inspectors, Ms. Ryan and Ms. Arias told Mr. Nichols and Mr. Oliver that overall the BMPs looked significantly better than during the previous site visit but that improvements were still required on the small basins serving as emergency overflow for the capture holes.

II. ADDITIONAL COMMENTS

1. In regards to the slope failure that San Diego Water Board inspectors Ms. Ryan and Ms. Arias observed on the north side of the construction site during the inspection occurring on February 2, 2017 (see Attachment 2, Figures 18, 21), Ms. Arias asked Mr. Nichols to verify that BMPs had not been in place at that location. Mr. Nichols verified that erosion and sediment control BMPs on the north side of the disturbed area had not been installed immediately upon completion of rough grading. According to an email to Ms. Arias from Ms. Horn dated February 10, 2017, the fill slope on the north side was completed on December 9, 2016 to a slope height of 21 feet, and BMP repair and installation in the area was completed on February 8, 2017.
2. On February 15, 2017, in response to an email Ms. Arias sent to Ms. Horn regarding concerns over the capacities of the capture holes and upcoming rain, Ms. Horn responded that the capture holes "are below grade and have adequate capacity." In the memo about the sizing of the capture holes emailed to Ms. Arias on February 17, 2017, the memo states that the capture holes "can be considered modified SE-2 sedimentation basins" and that "the outlet risers are sized adequately to convey high flows." However, during storms at the end of February 2017, the emergency overflow mechanism on capture hole #3 failed.

On March 2, 2017, the City of San Diego informed Ms. Arias via phone that construction workers at Castlerock were using pumps to discharge turbid water (exceeding numeric action levels) from one of the capture holes into the City of Santee's MS4 via an inlet within the construction site. Ms. Arias spoke with Ms. Horn later that day and she confirmed that Castlerock had discharged turbid water into the MS4 on March 1, 2017 and again on March 2, 2017. Ms. Horn explained that this was done for safety reasons as the capture hole had reached capacity and the emergency overflow was not draining the water fast enough, and there was concern regarding the water coming too close to the edge of the slope. In a memo dated January 26, 2017, Castlerock's geotechnical engineer stated "Provided water is not allowed to flow over the top of slopes, it is our opinion that the capture basins on the project, as currently constructed, do not impact the stability of the adjacent slopes". Therefore it was imperative that site operators drain the capture hole to prevent overflow and possible catastrophic slope failure.

The City of San Diego's photos showing the pumping operation are included as Attachment 7. In an email dated March 23, 2017, Ms. Horn stated that the maximum flow rate for the pump is 250 gallons per minute but the actual flow rate during operation would vary.

3. As of the date of this inspection report, there are 5 known occurrences of discharges from Castlerock where pollutants were not minimized through the use of controls, structures, and management practices to achieve the best conventional pollutant control technology (BCT) standard:

management practices to achieve the best conventional pollutant control technology (BCT) standard:

- 1) September 20, 2016 (per City of San Diego documentation),
 - 2) December 20, 2017 (per City of San Diego documentation),
 - 3) January 20, 2017 (per City of Santee photos),
 - 4) a storm occurring before the inspection on February 2, 2017, (per Attachment 2, Figures 18 and 21), and
 - 5) March 1-2, 2017 (per City of San Diego photos).
4. The San Diego Water Board will consider issuance of a formal enforcement action against Pardee Homes for failure to meet the discharge prohibitions and the relevant BMP requirements in the CGP.

III. SIGNATURE SECTION

Christina Arias
STAFF INSPECTOR


SIGNATURE

Jan/Feb 2017
INSPECTION DATE

Laurie Walsh
REVIEWED BY SUPERVISOR


SIGNATURE

3-24-17
DATE

LEGEND

- PROPOSED
- STABILIZED CONSTRUCTION DISTANCE
- 30' FENCE
- 20' SIG. BLD
- 20' SIG. SIG. PILET PROTECTION
- 7' FISH WALL
- 10' FISH WALL
- UNDERTAKE BLD DIST
- NON-IMPACTED FOREST



CASTLEROCK
SWPPP WALL MAP



© 1987-2008 - OUTLINED PERMITS MAPS/ENGINEERING/PLANNING/DESIGN/CONSTRUCTION/COMPOSITE PLANNING/SCALE: ALL MAPS/DESIGN/CONSTRUCTION

Photos from January 19, 2017 -- Flow direction indicated by red arrows



Figure 1.
Construction access road in site interior, looking North. No erosion controls BMPs in the form of bonded fiber matrix, soil tackifier or sediment control BMPs in the form of fiber rolls, gravel bag chevrons, or silt fencing implemented



Figure 2.
Discharge point (open pipe connected to MS4) within construction site. Photo taken facing east. Turbid water was flowing into pipe but this discharge point had not been sampled for discharge quality per CGP.
No erosion/sediment BMPs implemented on disturbed soil surrounding this discharge point.

Attachment 2 – Castlerock Inspection Report Photo Log
Photos from January 19, 2017



Figure 3.

Photo looking northeast from construction site service road. Several acres of area were disturbed. No erosion controls BMPs in the form of bonded fiber matrix, soil tackifier or sediment control BMPs in the form of fiber rolls, gravel bag chevrons, or silt fencing implemented.



Figure 4.

Photo looking north at northern area of construction site. Area had been rough graded. Storm water run-on from open space area, as well as runoff generated onsite, are directed into depressions throughout the site. No erosion control BMPs in the form of bonded fiber matrix, soil tackifier or sediment control BMPs in the form of fiber rolls, gravel bag chevrons, or silt fencing implemented.



Figure 5.

Photo looking north at capture hole #3 and construction service road. Capture hole has standing water. No erosion control BMPs in the form of bonded fiber matrix, soil tackifier or sediment control BMPs in the form of fiber rolls, gravel bag chevrons, or silt fencing implemented.

Photos from February 2, 2017 – Flow direction indicated by red arrows



Figure 6.

Photo looking North at northern area of construction site (same angle as Figure 4). . No erosion control BMPs in the form of bonded fiber matrix, soil tackifier or sediment control BMPs in the form of fiber rolls, gravel bag chevrons, or silt fencing implemented. Erosion rills are visible.

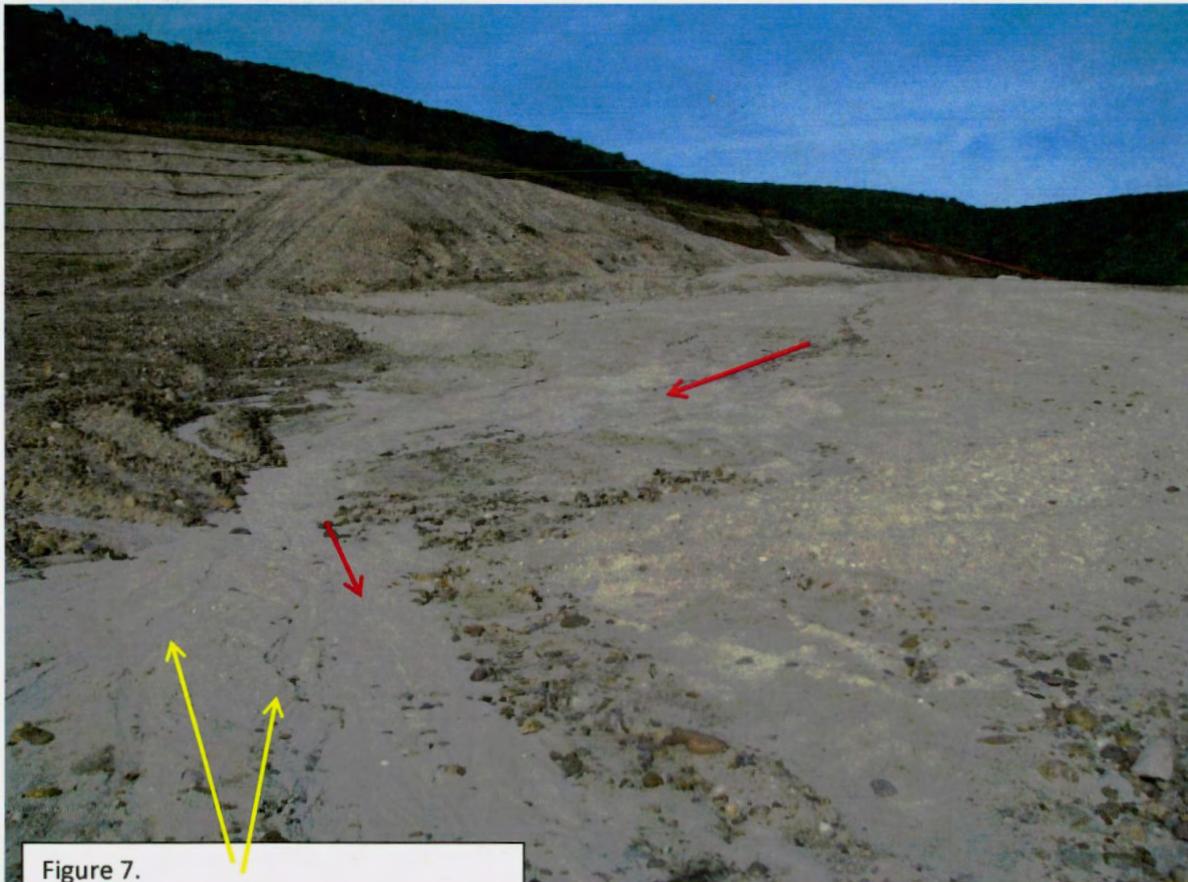


Figure 7.

Close-up of rills shown in Figure 6.



Figure 8.
Photo looking at western boundary of construction site. Days after rain occurring on January 20, 2017 ceased, hillsides were weeping water onto construction site (run-on). Erosions rills are visible despite this finished slope having been sprayed with soil tackifier several weeks before.



Figure 9.
Photo looking at capture hole #3 shown in Figure 5. This hole receives the drainage from the areas shown in Figures 7 and 8.



Figure 10.
Photo looking northeast at capture hole #1. This capture hole receives run-on from open space area to the west (shown by red arrow). This area was being mined for material used elsewhere on the site.



Figure 11.
Photo looking upstream at source of run-on into capture hole #1 shown in Figure 10. No erosion control BMPs in the form of bonded fiber matrix, soil tackifier or sediment control BMPs in the form of fiber rolls, gravel bag chevrons, or silt fencing implemented.

Attachment 2 – Castlerock Inspection Report Photo Log
Photos from February 2, 2017



Figure 12.

Photo looking northeast at construction site. Rough graded area drains to the left to capture hole #1 pictured in Figure 10. No erosion control BMPs in the form of bonded fiber matrix, soil tackifier or sediment control BMPs in the form of fiber rolls, gravel bag chevrons, or silt fencing implemented.



Figure 13.

Photo looking southwest towards open space area. This area drains to the capture hole #1 shown in Figure 10. No erosion control BMPs in the form of bonded fiber matrix, soil tackifier or sediment control BMPs in the form of fiber rolls, gravel bag chevrons, or silt fencing implemented.

Attachment 2 – Castlerock Inspection Report Photo Log
Photos from February 2, 2017



Figure 14.
Capture hole #2 located east of capture hole #1. This photo is facing south. No erosion control BMPs in the form of bonded fiber matrix, soil tackifier or sediment control BMPs in the form of fiber rolls, gravel bag chevrons, or silt fencing implemented.

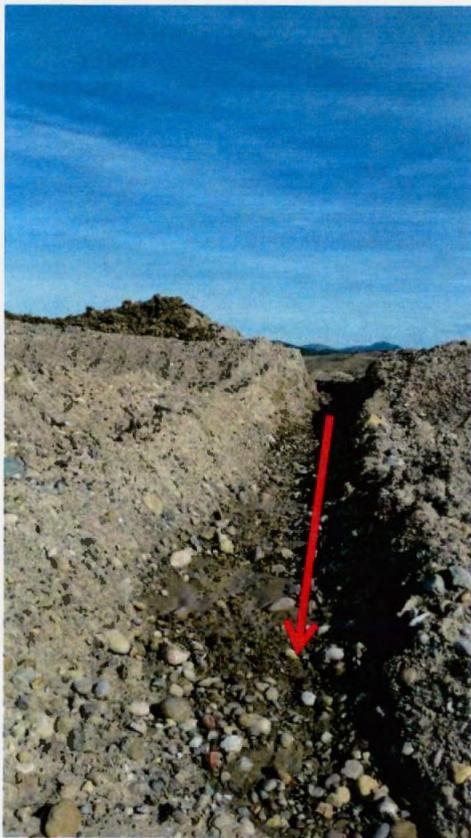
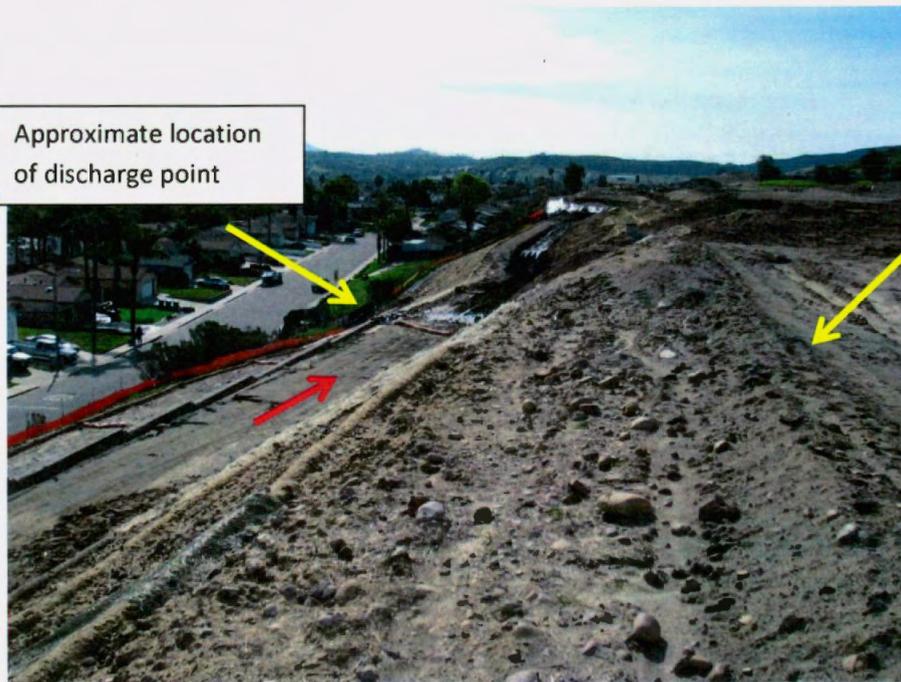


Figure 15.
Runoff from north eastern area of construction site mesa is directed into capture hole # 2 shown in Figure 14 via this channel.



Earthen berm to keep storm water runoff on the mesa

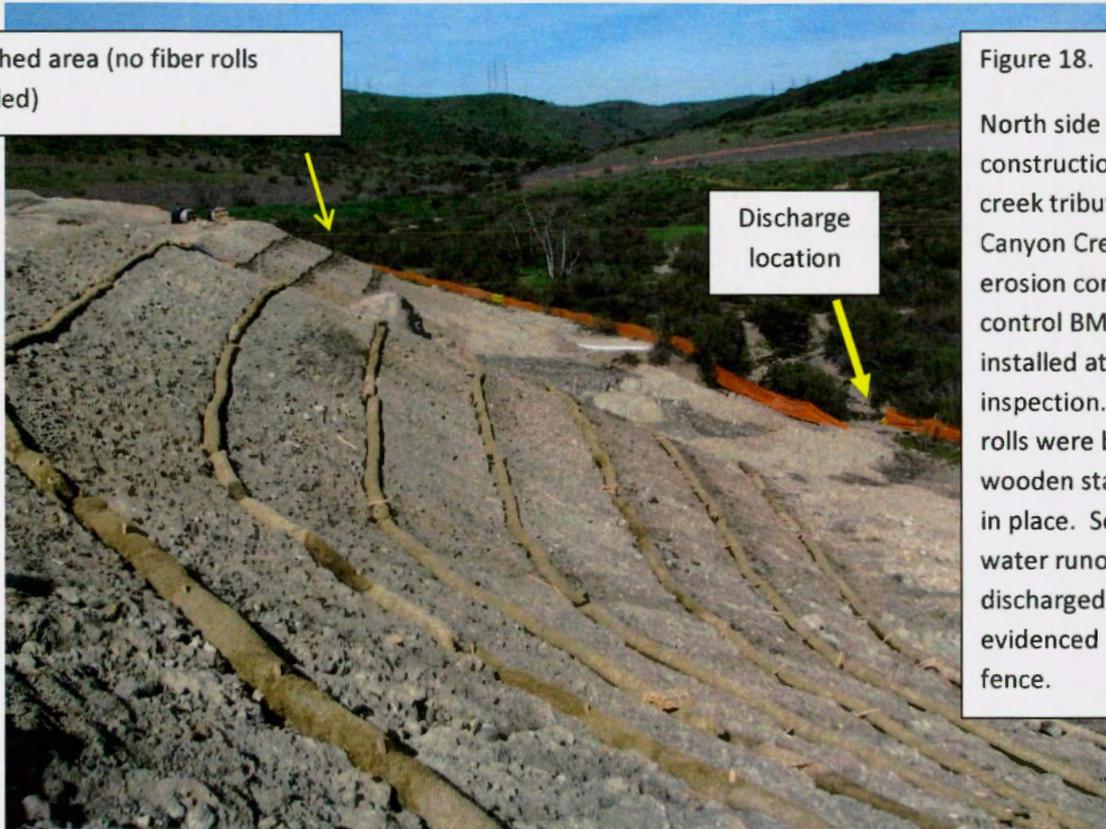
Figure 16.
Photo at edge of fill slope and eastern boundary of site, looking South at Medina Dr. The terraced area had erosion and sediment control BMPs (bonded-fiber matrix, fiber rolls); however, the road/ trail area that was graded towards the discharge point (along the retaining wall) only had one line of gravel bag chevrons. Linear sediment control BMPs are required at least every 20 feet.



Figure 17.
Photo at edge of fill slope and eastern boundary of site, looking north. The terraced area had erosion and sediment control BMPs in the form of bonded fiber matrix and fiber rolls; however, the road/trail area that was graded towards the discharge point (direction of flow indicated by red arrow) did not have adequate BMPs. Linear sediment control BMPs are required at least every 20 feet. Rills are evident on this trail.

Attachment 2 – Castlerock Inspection Report Photo Log
Photos from February 2, 2017

Trenched area (no fiber rolls installed)



Discharge location

Figure 18.
North side (boundary of work) of construction site, adjacent to creek tributary to Sycamore Canyon Creek. There were no erosion controls, and sediment control BMPs were being installed at the time of inspection. Locations for fiber rolls were being trenched, and wooden stakes are not yet staked in place. Sediment-laden storm water runoff was illegally discharged at this area, evidenced by the collapsed silt fence.



Figure 19.
During previous storm, storm water runoff was directed from this area of ponded water at the top of the fill slope down sheet plastic towards the creek. The plastic was placed to prevent collapse of the slope.



Figure 20.

Pond near northern boundary of construction site. In previous storms, runoff was diverted from this pond via sheet plastic into pond shown in Figure 19.

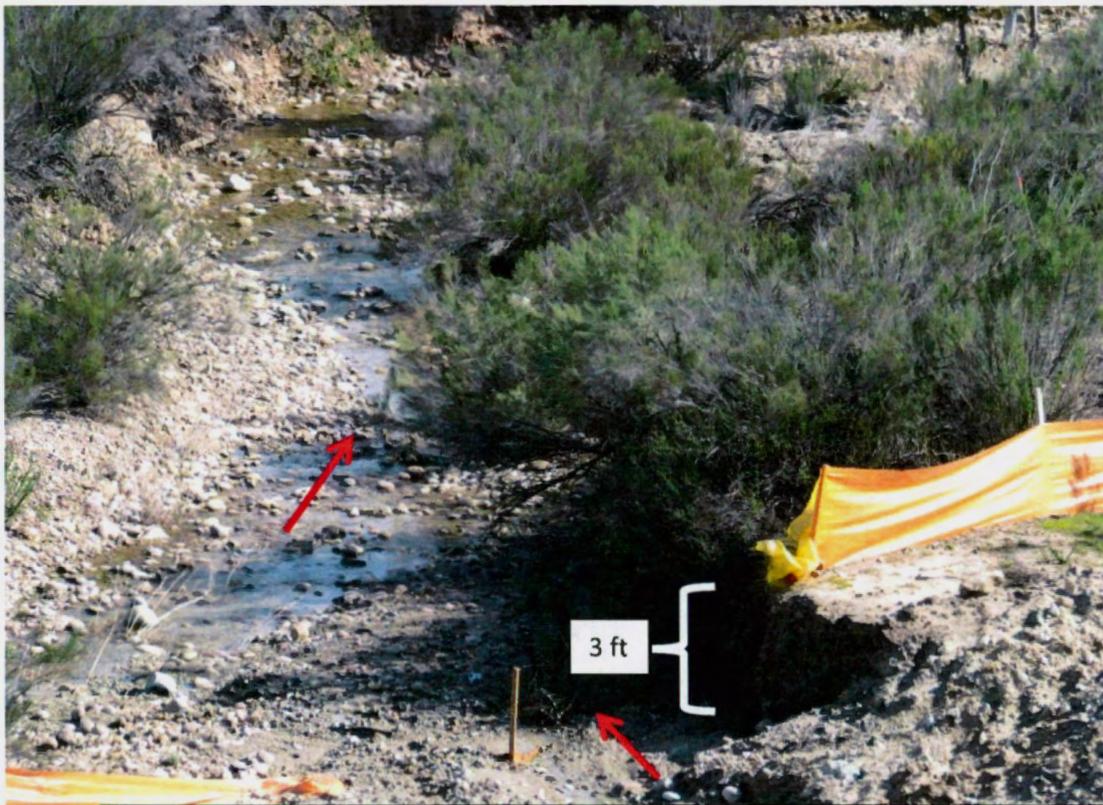


Figure 21.

Close up of perimeter breach shown in Figure 18. During previous storm, storm water was diverted to this area causing erosion of the slope and an illegal discharge into the creek (unnamed tributary to Sycamore Canyon Creek). Vertical drop where fence is torn is approximately 3 feet.

Attachment 2 – Castlerock Inspection Report Photo Log
Photos from February 2, 2017



Figure 22

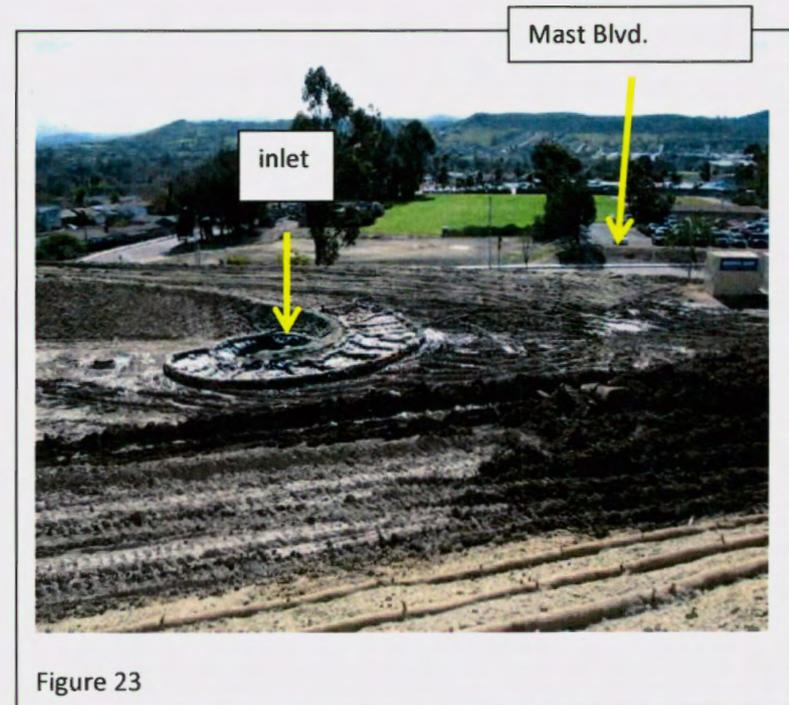


Figure 23

Figures 22 and 23.

Capture hole # 4 on the southeast area of the construction site, photo taken facing southeast. Figure 23 shows an inlet that is connected to the City of Santee MS4.

Photos from February 17, 2017 Inspection – Flow direction indicated by red arrows



Figure 24.

Photo showing road depicted in Figure 1. In preparation for the oncoming storm, construction site personnel had placed temporary sediment controls in place, and the disturbed areas had been sprayed with soil tackifier (erosion control). Some areas had also been sprayed with hydromulch (slopes with tan-colored bonded fiber matrix).



Figure 25.

Photo showing disturbed area depicted in Figure 7. In preparation for the oncoming storm, construction site personnel had placed temporary sediment controls in place, and a non-visible soil tackifier (erosion control).



Figure 26.

Photo showing spillway to direct run-on from open space area into capture hole #1. This is a retrofit of drainage pathway shown in Figure 11.



Figure 27.

Spillway discharge point into capture hole #1.



Figure 28.
Photo showing capture holes #2 (foreground) and #3 (background). Note the capture holes in this photo have been dug to a depth of 12 feet, approximately 3 feet of freeboard is visible. A storm was approaching at the time of inspection.



Figure 29.
Photo showing north side of capture hole #2. The area had been graded so that water drained from pools on the north side of the property into this capture hole. A hose was also used to pump water from the pools on the north side into this capture hole.

Attachment 2 – Castlerock Inspection Report Photo Log
Photos from February 17, 2017



Figure 30.

Photo showing north boundary of construction site disturbed area (facing west). The slope had been repaired from previous storms and erosion control BMPs in the form of bonded fiber matrix and sediment control BMPs in the form of fiber rolls had been implemented.



Figure 31.

Photo showing north boundary of construction site disturbed area (facing north). The perimeter silt fence had been repaired from previous storms and bonded-fiber matrix and fiber rolls had been implemented.



Figure 32.

In addition to making repairs on the slope, construction site personnel installed a temporary gunnite channel to route run-on from the open space areas to the unnamed creek, without collecting disturbed sediment from the construction site itself.



Figure 33.

Photo looking upstream at temporary gunnite channel to route run-on from open space through the construction site without contacting disturbed sediment.



Figure 34.
Photo showing one of several pooled areas that had collected water from previous storms. At the time of the inspection, a pump was being used to transfer water from this area to the capture hole shown in Figures 28-29.



Figure 35.
Photo showing one of several “emergency overflows” for capture holes. This inlet is connected to the City of Santee MS4 and is intended to prevent flooding should the capture holes reach capacity. Note erosion control consists of soil tackifier only, no linear sediment controls such as fiber rolls or gravel bag chevrons in place.

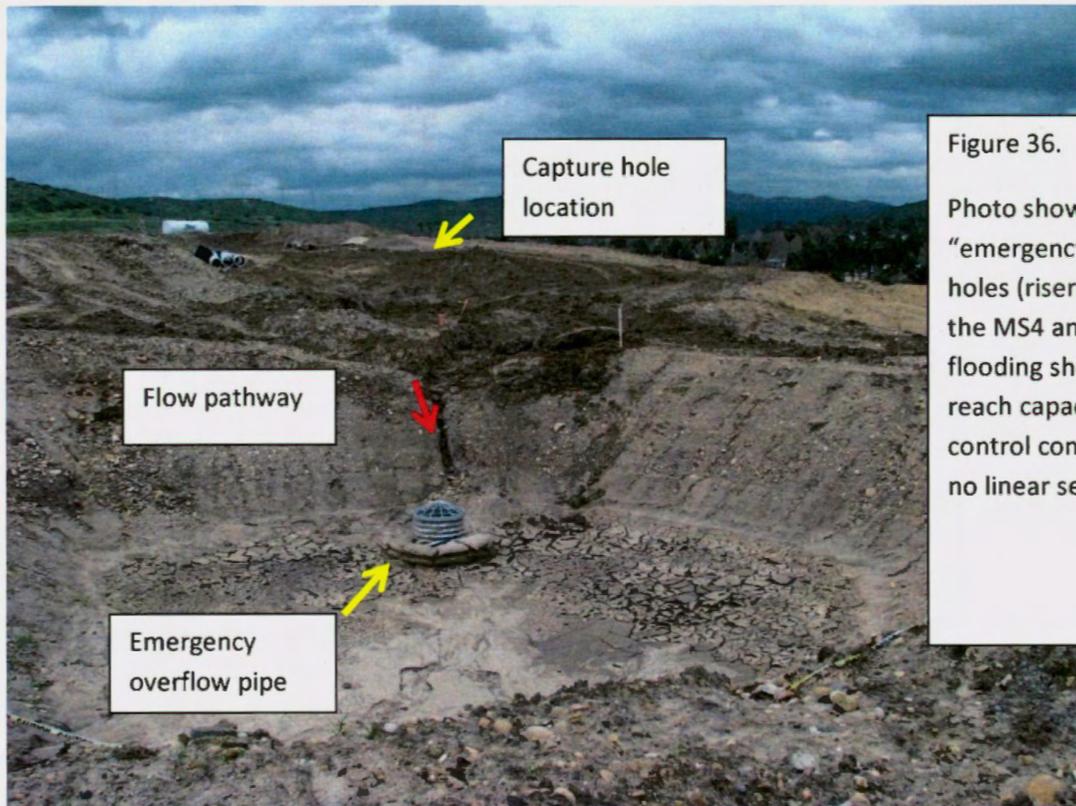


Figure 36.

Photo showing one of several “emergency overflows” for capture holes (riser pipe that is connected to the MS4 and is intended to prevent flooding should the capture holes reach capacity). Note erosion control consists of soil tackifier only, no linear sediment controls in place.



Figure 37.

Photo showing one of several “emergency overflows” for capture holes. This inlet is connected to the City of Santee MS4 and is intended to prevent flooding should the capture holes reach capacity. Note erosion control consists of soil tackifier only, with a few gravel bags (sediment control BMPs) around the riser pipe.



Figure 38.
Photo showing one of several “emergency overflows” for capture holes. This inlet is connected to the City of Santee MS4 and is intended to prevent flooding should the capture holes reach capacity. This one had hydromulch in addition to soil tackifier as erosion control BMPs, but no linear sediment control BMPs along the walls.

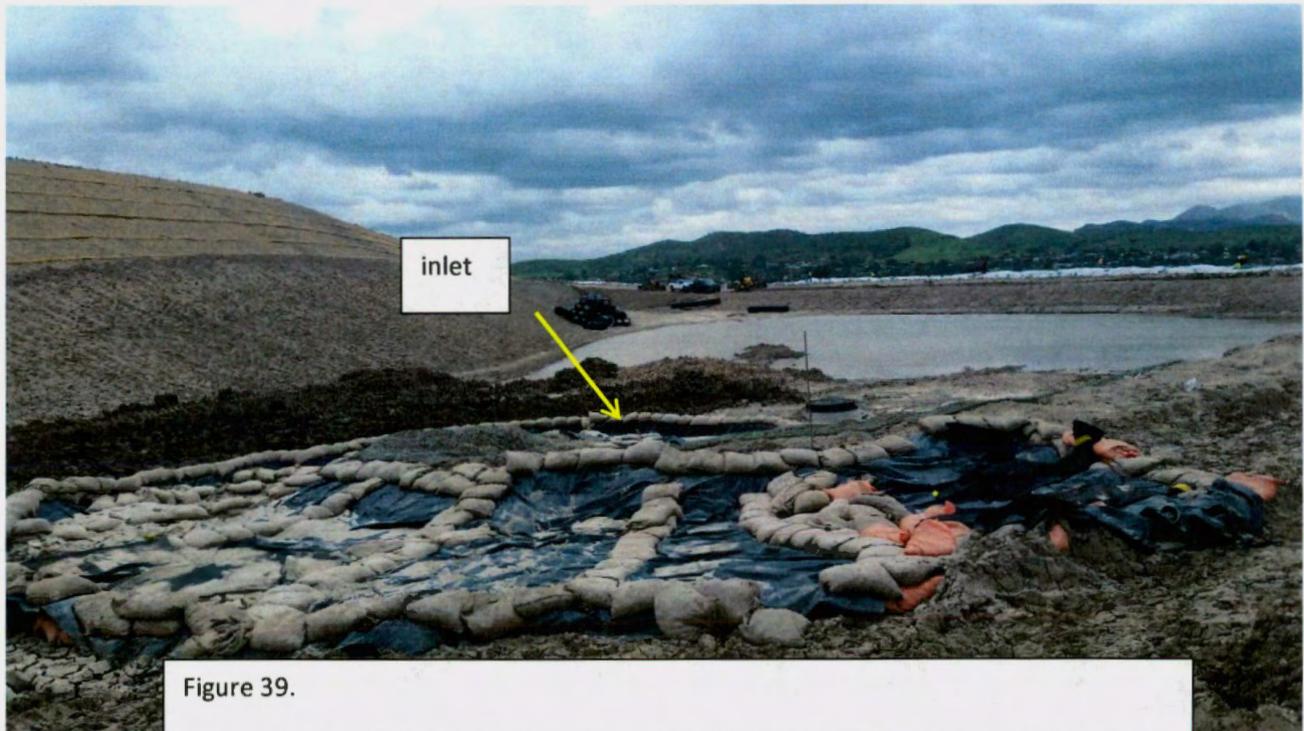
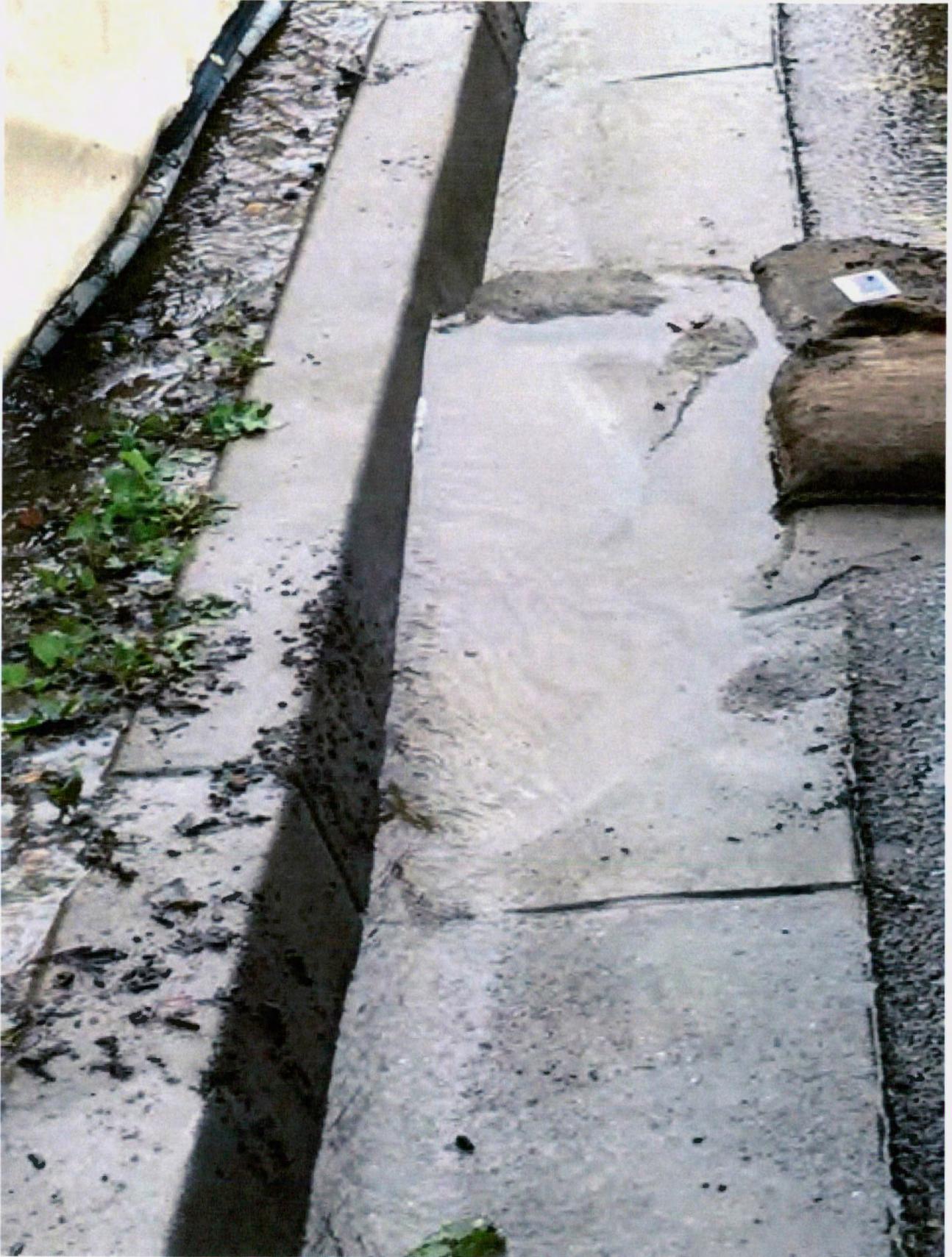


Figure 39.
Photo showing capture hole #4 located on southeast area of construction site. Plastic is used as spill way to route runoff to the inlet, in the event that the capture hole reaches capacity. Check dams are used to settle out particulates.

Attachment 4 – Photo of Castlerock from CBS local news

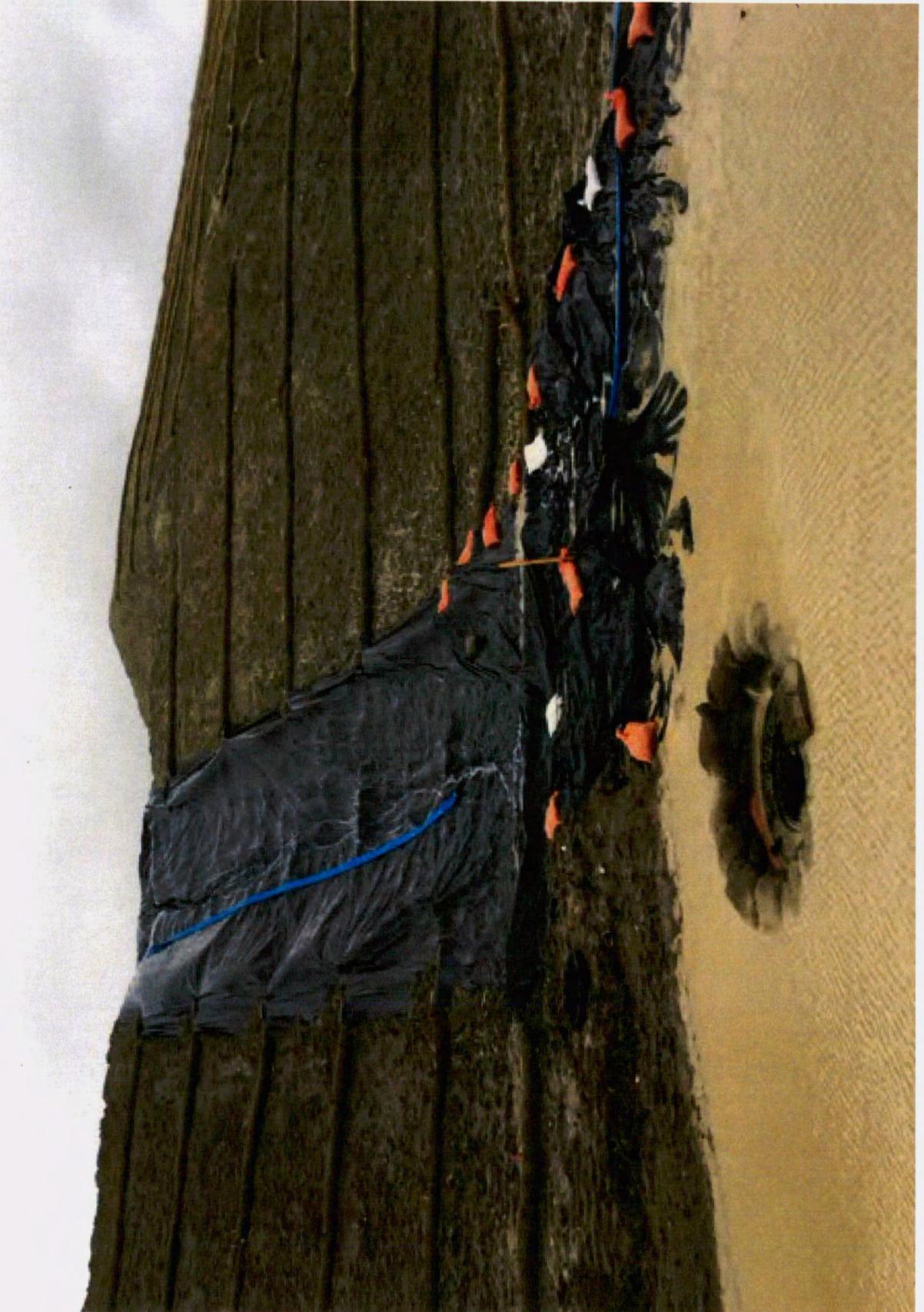


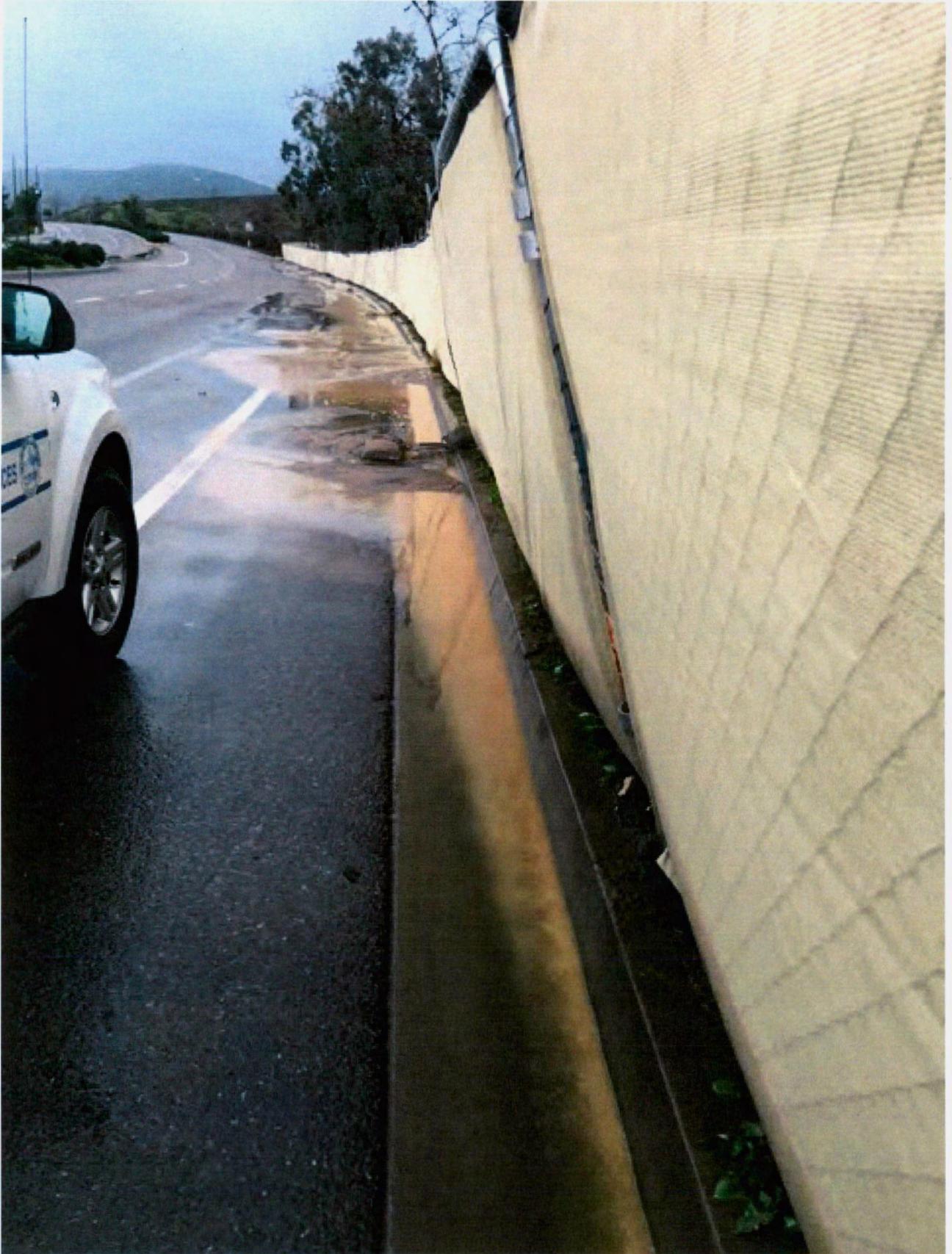
Source: <http://www.cbs8.com/story/34311606/wall-of-mud-threatening-homes-in-santee>

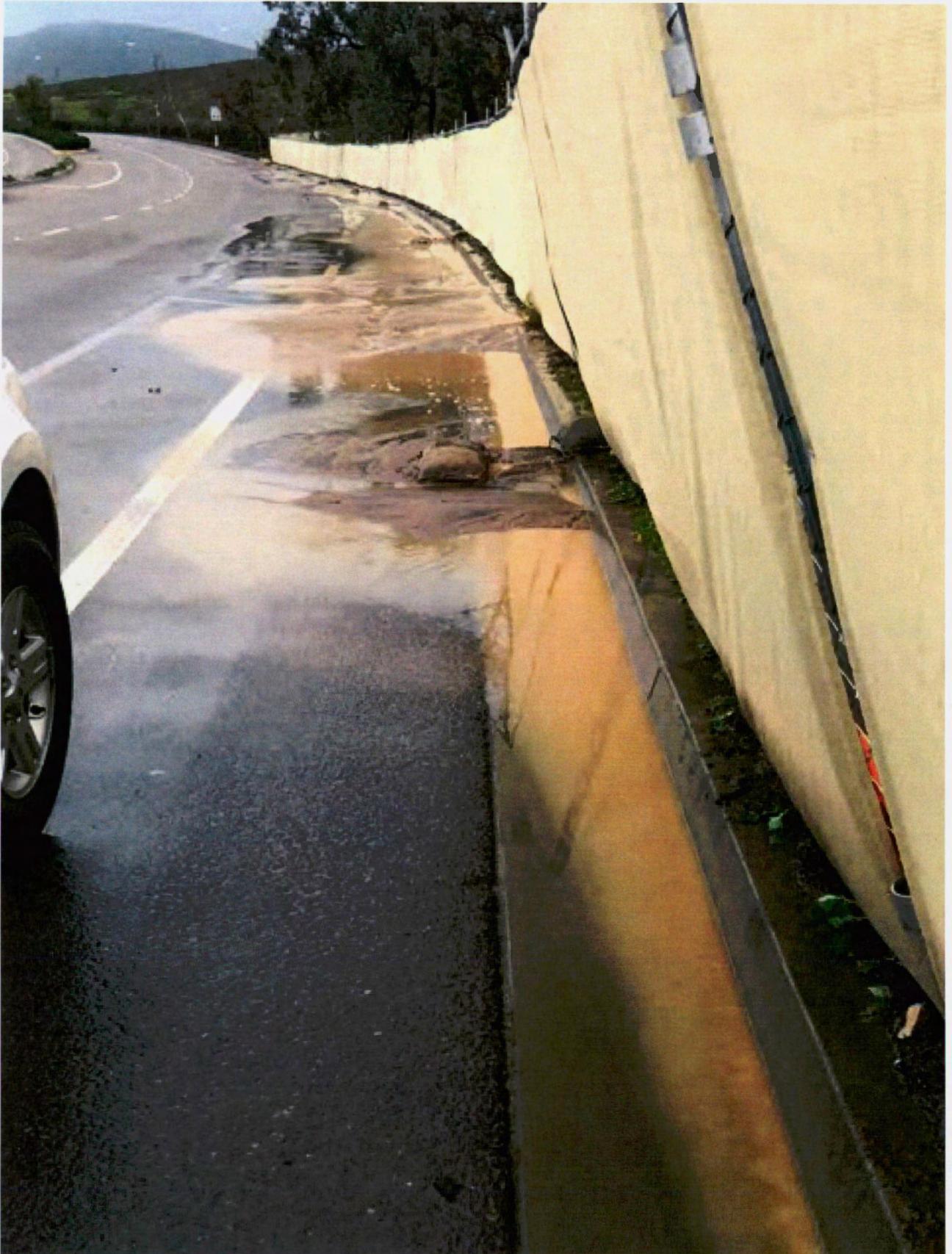










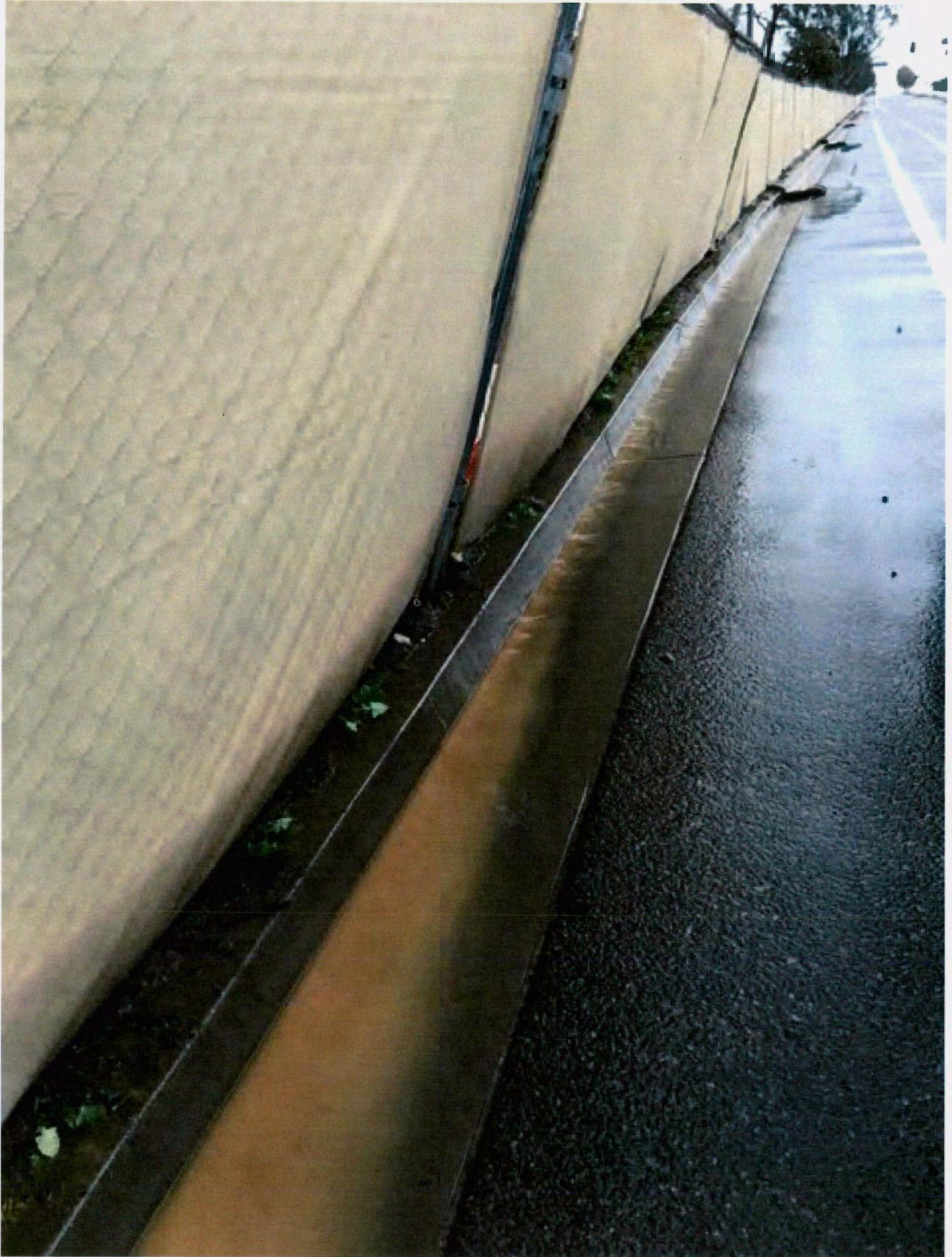


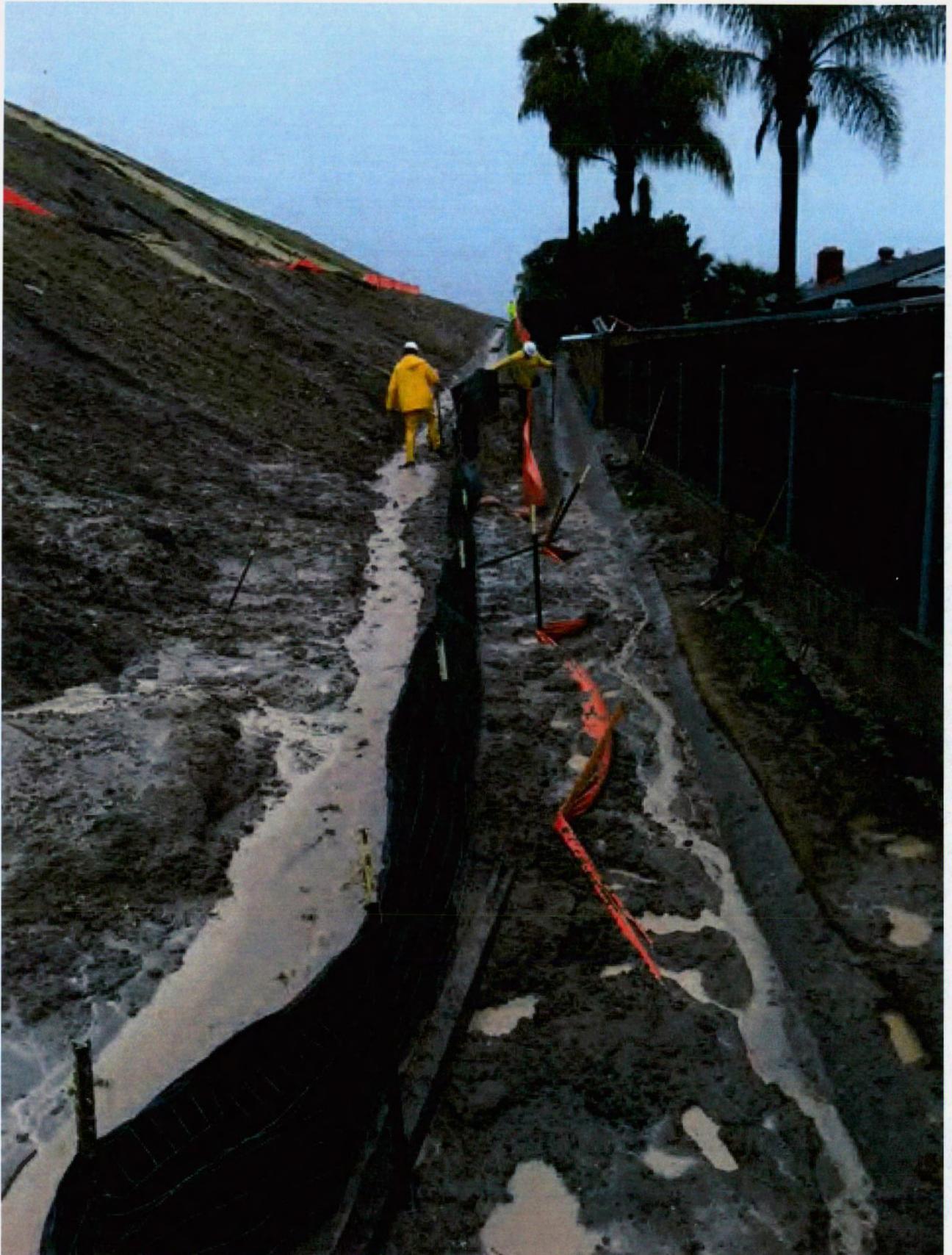


Attachment 6



Attachment 6











ATTACHMENT 16



ATTACHMENT 6

Attachment 7 – Photos from City of San Diego

Photos of Castlerock (WDID 9 37C374922) provided by the City of San Diego, taken March 2, 2017



Attachment 7 – Photos from City of San Diego





The City of San Diego
BMP NOTICE

STORM WATER POLLUTION PREVENTION INSPECTION

Public Works - Engineering and Capital Projects
 Construction Management & Field Services Division
 (858) 627-3200

DATE: 11/18/2016

NAME: Jarrell, Wayne

WEATHER: Clear

PRIORITY: High

PROJECT: 24004857 - castlerock south phase I

CONTRACTOR: Chris Nichols

PHONE: 858 342-0060

SITE CONTACT

PHONE:

OWNER: Pardee

PERMIT NUMBER

WBS /
I.O. 24004857

ADDRESS: Mast blvd and Medina Dr

LOCATION: Mast Boulevard and Medina Drive

SITE STATUS: Mass Grading

NOTICE OF VIOLATION:

FOLLOW UP
REQUIRED:

STOP WORK ORDER:

See San Diego Municipal Codes Sections 43.0304, 43.0307, 43.0308, and 142.0220

CORRECTIVE ACTIONS: nadequate, adjustments needed
 mprove Erosion Control BMP

COMMENTS:

This is a pre-rain inspection performed by Daniel Lottermoser. 858-573-5011

Porta Potties must have secondary containment.

Daniel visited the site today and discussed the Erosion Control issue (Section E.3. of Attachment D) with management. After the City's two interactions with Regional Board staff, we are still concerned that the retention solution is still not fully complying with the requirements of the Construction General Permit.

The City is hereby requiring Castlerock to fully stabilize the entire site, including the pads, prior to the upcoming rain event as required by the CGP or obtain some form of approval from Regional Board staff that retention for the pads is an acceptable alternative to pads being protected with erosion control.

**CONTRACTOR
SIGNATURE:**



The City of San Diego
BMP NOTICE
STORM WATER POLLUTION PREVENTION INSPECTION
 Public Works - Engineering and Capital Projects
 Construction Management & Field Services Division
 (858) 627-3200

DATE: 12/2/2016

NAME: Jarrell, Wayne

WEATHER: Clear

PRIORITY: High

PROJECT: 24004857 - castlerock south phase I

CONTRACTOR: Chris Nichols

PHONE: 858 342-0060

SITE CONTACT

PHONE:

OWNER: Pardee

PERMIT NUMBER

WBS /
I.O. 24004857

ADDRESS: Mast blvd and Medina Dr

LOCATION: Mast Boulevard and Medina Drive

SITE STATUS: Mass Grading

NOTICE OF VIOLATION: FOLLOW UP
REQUIRED: STOP WORK ORDER:

See San Diego Municipal Codes Sections 43.0304, 43.0307, 43.0308, and 142.0220

CORRECTIVE ACTIONS: BMP inadequate, adjustments needed
 Improve Erosion Control BMP
 Improve Sediment Control BMP

COMMENTS:

The construction BMP inspection was performed by Daniel Lottermoser. If you have any questions regarding the information in this BMP notice please contact him at 858-573-5011.

Per the Construction General Permit (Section E. 3. of Attachment D) all disturbed surfaces are to be stabilized with appropriate Erosion Control BMPs. Additionally, linear sediment controls are required along the toe of the slope, face of the slope, and at the grade breaks of exposed slopes to comply with sheet flow lengths in accordance with Table 1, Attachment D of the CGP. Sediment basins or other construction BMPs cannot be substituted in lieu of these requirements.

While the site had extensive Erosion and Sediment Controls in place it did not have enough to be in compliance with the CGP. The City of San Diego is requiring the entire site to be covered with the appropriate Erosion Control and Sediment Control prior to the next rain event.

CONTRACTOR
SIGNATURE:



The City of San Diego
BMP NOTICE

STORM WATER POLLUTION PREVENTION INSPECTION

Public Works - Engineering and Capital Projects
 Construction Management & Field Services Division
 (858) 627-3200

DATE: 12/16/2016

NAME: Jarrell, Wayne

WEATHER: Rain

PRIORITY: High

PROJECT: 24004857 - castlerock south phase I

CONTRACTOR: Chris Nichols

PHONE: 858 342-0060

SITE CONTACT

PHONE:

OWNER: Pardee

PERMIT NUMBER

WBS /
I.O. 24004857

ADDRESS: Mast blvd and Medina Dr

LOCATION: Medina and Mast

SITE STATUS: mass grading

NOTICE OF VIOLATION:

FOLLOW UP
REQUIRED:

STOP WORK ORDER:

See San Diego Municipal Codes Sections 43.0304, 43.0307, 43.0308, and 142.0220

- CORRECTIVE ACTIONS:
- BMP inadequate, adjustments needed
 - Improve Erosion Control BMP
 - Improve Sediment Control BMP
 - Improve Perimeter Control BMP

COMMENTS:

Discharges were observed at the inlets along the East side of the property. One is the new curb inlet west of Moana Kia Ln and the other is where the browditches tie into the inlet behind the curb along Medina Drive.

All Stockpiles must be protected with the proper Erosion Control and Perimeter Protection.

Finally, per Attachment D of the CGP the entire site must be protected with Erosion and Sediment Control. This is especially true before rain events.

CONTRACTOR
SIGNATURE:



The City of San Diego
BMP NOTICE

STORM WATER POLLUTION PREVENTION INSPECTION
 Public Works - Engineering and Capital Projects
 Construction Management & Field Services Division
 (858) 627-3200

DATE: 12/19/2016

NAME: Jarrell, Wayne

WEATHER: Clear

PRIORITY: High

PROJECT: 24004857 - castlerock south phase I

CONTRACTOR: Chris Nichols

PHONE: 858 342-0060

SITE CONTACT

PHONE:

OWNER: Pardee

PERMIT NUMBER

WBS /
I.O. 24004857

ADDRESS: Mast blvd and Medina Dr

LOCATION: Mast and Medina

SITE STATUS: mass grading

NOTICE OF VIOLATION:

FOLLOW UP
REQUIRED:

STOP WORK ORDER:

See San Diego Municipal Codes Sections 43.0304, 43.0307, 43.0308, and 142.0220

CORRECTIVE ACTIONS:

- Maintenance of existing BMP needed
- Improve Erosion Control BMP
- Improve Sediment Control BMP
- Improve Perimeter Control BMP

COMMENTS:

The site did not have adequate Erosion and Sediment Control BMP's during the rain on 12/16/2016. Two discharges were observed and multiple stock piles were not properly covered.

Prior to the next rain event the following BMPs must be implemented

The entire site (including pads) must be stabilized with the appropriate Sediment and Erosion Control BMPs. Any sprayed substance utilized for erosion control must be installed a minimum of 24 hours before the forecasted rain event. Significant portions of the site were observed to be under construction less than 8 hours before the rain came. This usually does not allow sufficient time for the erosion control substance to properly dry and may have partially contributed to the discharges at Moana Kia Lane and west of Medina Drive.

All Stockpiles must be protected with both Erosion Control and Perimeter Protection

All slopes directly adjacent to brow ditches must be graded to ensure they are not too steep. Slopes immediately upstream of some browditches were observed to be sloughing off into the ditch during the last rain event.

CONTRACTOR
SIGNATURE:



The City of San Diego
BMP NOTICE

STORM WATER POLLUTION PREVENTION INSPECTION

Public Works - Engineering and Capital Projects
 Construction Management & Field Services Division
 (858) 627-3200

DATE: 12/30/2016

NAME: Jarrell, Wayne

WEATHER: Drizzle

PRIORITY: High

PROJECT: 24004857 - castlerock south phase I

CONTRACTOR: Chris Nichols

PHONE: 858 342-0060

SITE CONTACT

PHONE:

OWNER: Pardee

PERMIT NUMBER

WBS /
I.O. 24004857

ADDRESS: Mast blvd and Medina Dr

LOCATION: Medina and Mast

SITE STATUS: Mass Grading

NOTICE OF VIOLATION:

FOLLOW UP
REQUIRED:

STOP WORK ORDER:

See San Diego Municipal Codes Sections 43.0304, 43.0307, 43.0308, and 142.0220

CORRECTIVE ACTIONS: BMP inadequate, adjustments needed
 Improve Erosion Control BMP
 Improve Sediment Control BMP

COMMENTS:

BMP Inspection was performed by Daniel Lottermoser. If you have any questions regarding this BMP Notice contact him at 858-573-5011 or dlottermoser@sandiego.gov

The project does not have adequate Erosion or Sediment Control for rain events.

Please ensure the entire project is protected with the appropriate Erosion and Sediment Control BMPs prior to the next rain.

CONTRACTOR
SIGNATURE:



The City of San Diego
BMP NOTICE

STORM WATER POLLUTION PREVENTION INSPECTION
 Public Works - Engineering and Capital Projects
 Construction Management & Field Services Division
 (858) 627-3200

DATE: 1/17/2017

NAME: Jarrell, Wayne

WEATHER: Ptly Cldy

PRIORITY: High

PROJECT: 24004857 - castlerock south phase I

CONTRACTOR: Chris Nichols

PHONE: 858 342-0060

SITE CONTACT

PHONE:

OWNER: Pardee

PERMIT NUMBER

WBS /
I.O. 24004857

ADDRESS: Mast blvd and Medina Dr

LOCATION: Mast and Medina

SITE STATUS: Mass Grading

NOTICE OF VIOLATION:

FOLLOW UP
REQUIRED:

STOP WORK ORDER:

See San Diego Municipal Codes Sections 43.0304, 43.0307, 43.0308, and 142.0220

CORRECTIVE ACTIONS: BMP inadequate, adjustments needed

Improve Erosion Control BMP

COMMENTS:

Per the CGP all Risk level two projects are required to have erosion and sediment control deployed prior to every rain event. This hasn't happened the last few rain events and while we understand the ground is too saturated to get spray rigs onsite between storms it doesn't alleviate you of the requirement.

Per an email dated 1/4/2017 we are confident that Castlerock understands this requirement and plans to comply with it by applying some form of erosion control over all exposed areas prior to the next rain event. In order for the City of San Diego to have confidence this will happen (as required) we're requesting the following information.

How much land is currently exposed (acreage)?
 How many acres can a spray truck spray in a day?
 How many spray trucks do you have access to?
 How many bales of hydro mulch are required per acre?
 How many bales of hydro mulch do you have on hand?

The City wants to see that Castlerock has the necessary equipment and materials to apply the required erosion control prior to the next rain event. Please provide this requested information by Wednesday the 18th.

CONTRACTOR
SIGNATURE:



The City of San Diego
BMP NOTICE

STORM WATER POLLUTION PREVENTION INSPECTION

Public Works - Engineering and Capital Projects
 Construction Management & Field Services Division
 (858) 627-3200

DATE: 1/19/2017

NAME: Jarrell, Wayne

WEATHER: Rain

PRIORITY: High

PROJECT: 24004857 - castlerock south phase I

CONTRACTOR: Chris Nichols

PHONE: 858 342-0060

SITE CONTACT

PHONE:

OWNER: Pardee

PERMIT NUMBER

WBS / I.O. 24004857

ADDRESS: Mast blvd and Medina Dr

LOCATION: Just east of SDG&E Substation

SITE STATUS: Mass Grading

NOTICE OF VIOLATION:

FOLLOW UP REQUIRED:

STOP WORK ORDER:

See San Diego Municipal Codes Sections 43.0304, 43.0307, 43.0308, and 142.0220

- CORRECTIVE ACTIONS:
- BMP inadequate, adjustments needed
 - Improve Erosion Control BMP
 - Improve Sediment Control BMP

COMMENTS:

An inlet draining water from the interior of the site was noted during our short visit with the Regional Board. The inlet was taking water from a very small basin and did not drain into one of the larger retention basins. This small basin must have Sediment and Erosion control BMP's ensuring any water that leaves the site is clean.

CONTRACTOR
 SIGNATURE:



The City of San Diego
BMP NOTICE
STORM WATER POLLUTION PREVENTION INSPECTION
 Public Works - Engineering and Capital Projects
 Construction Management & Field Services Division
 (858) 627-3200

DATE: 1/27/2017

NAME: Jarrell, Wayne

WEATHER: Clear

PRIORITY: High

PROJECT: 24004857 - castlerock south phase I

CONTRACTOR: Chris Nichols

PHONE: 858 342-0060

SITE CONTACT

PHONE:

OWNER: Pardee

PERMIT NUMBER

WBS /
I.O. 24004857

ADDRESS: Mast blvd and Medina Dr

LOCATION: Mast and Medina

SITE STATUS: Mass Grading

NOTICE OF VIOLATION: FOLLOW UP
REQUIRED: STOP WORK ORDER:

See San Diego Municipal Codes Sections 43.0304, 43.0307, 43.0308, and 142.0220

CORRECTIVE ACTIONS:

- Maintenance of existing BMP needed
- Improve Erosion Control BMP
- Improve Sediment Control BMP
- Improve Perimeter Control BMP

COMMENTS:

Any gas cans and pumps themselves must be in secondary containment.

Per the CGP the entire site must be protected with the appropriate Sediment and Erosion control BMP's prior to every rain event. This especially includes all small drainage basins with inlets at the bottom of the basin that have the potential to discharge offsite. These must be protected with the appropriate Sediment and Erosion Control regardless of whether or not wheeled spray rigs can access the site.

Reminder – Pumping without sampling is acceptable only if water stays on site (from pond to pond). If it is being pumped offsite the appropriate Sediment Control BMPs must be utilized and sampling is required to demonstrate the discharge is below limits in the CGP.

Erosion and Sediment Control on slopes facing Mast Boulevard need to be maintained prior to the next rain event.

CONTRACTOR
SIGNATURE:



The City of San Diego
BMP NOTICE

STORM WATER POLLUTION PREVENTION INSPECTION

Public Works - Engineering and Capital Projects
 Construction Management & Field Services Division
 (858) 627-3200

DATE: 2/2/2017

NAME: Jarrell, Wayne

WEATHER: Sunny

PRIORITY: High

PROJECT: 24004857 - castlerock south phase I

CONTRACTOR: Chris Nichols

PHONE: 858 342-0060

SITE CONTACT

PHONE:

OWNER: Pardee

PERMIT NUMBER

WBS /
I.O. 24004857

ADDRESS: Mast blvd and Medina Dr

LOCATION: Mast and Medina

SITE STATUS: Mass Grading

NOTICE OF VIOLATION:

FOLLOW UP
REQUIRED:

STOP WORK ORDER:

See San Diego Municipal Codes Sections 43.0304, 43.0307, 43.0308, and 142.0220

- CORRECTIVE ACTIONS:
- BMP inadequate, adjustments needed
 - Improve Erosion Control BMP
 - Improve Sediment Control BMP
 - Improve Perimeter Control BMP

COMMENTS:

Per the CGP the entire site must be protected with the appropriate Sediment and Erosion Control BMP's prior to every rain event. This especially includes all small drainage basins (with inlets at the bottom of the basin) that have the potential to discharge offsite. These must be protected with the appropriate Sediment and Erosion Control regardless of whether or not wheeled spray rigs can access the site.

All gas cans and pumps themselves must be in secondary containment.

Slopes along the northern boundary of the project must be stabilized with the appropriate Sediment and Erosion Control and perimeter protection reestablished by the end of Wednesday, February 8th. These slopes do not drain into the capture hold system and there is evidence of a discharge occurring at this location. The mesa area above these slopes must be graded in such a way that water is not allowed to collect, and the top of slopes need to be bermed so that water drains inward (similar to the entire east facing slope).

At the meeting between Pardee representatives and City staff Pardee said it was planning to focus on stabilizing the portion of the site north of the SDG&E sub-station. This is a critical issue with the City of San Diego as it will reduce the area of exposed soil to an area more manageable for pre rain stabilization. Please submit a schedule describing what forms are stabilization are to be utilized and when they are expected to be installed. Exact dates are not necessary but City expects the majority of the area (70-90% of the area) to be fully stabilized within three weeks (weather permitting).



The City of San Diego
BMP NOTICE

STORM WATER POLLUTION PREVENTION INSPECTION
 Public Works - Engineering and Capital Projects
 Construction Management & Field Services Division
 (858) 627-3200

DATE: 2/16/2017

NAME: Jarrell, Wayne

WEATHER: Clear

PRIORITY: High

PROJECT: 24004857 - castlerock south phase I

CONTRACTOR: Chris Nichols

PHONE: 858 342-0060

SITE CONTACT

PHONE:

OWNER: Pardee

PERMIT NUMBER

WBS /
I.O. 24004857

ADDRESS: Mast blvd and Medina Dr

LOCATION: Mast Boulevard and Medina Drive

SITE STATUS: Mass Grading

NOTICE OF VIOLATION:

FOLLOW UP
REQUIRED:

STOP WORK ORDER:

See San Diego Municipal Codes Sections 43.0304, 43.0307, 43.0308, and 142.0220

CORRECTIVE ACTIONS: BMP inadequate, adjustments needed
 Improve Erosion Control BMP
 Improve Sediment Control BMP

COMMENTS:

This storm water inspection was performed by Daniel Lottermoser. If you have any questions please contact him at 858-573-5011.

Per to Attachment D of the CGP the entire site is to be stabilized with Sediment and Erosion Control prior to every rain event. prioritization should be given to any areas that do not drain into the capture hold basins. Specifically all small basins with CMP risers and slopes that drain onto Mast Boulevard or Medina Drive.

Ensure all porta potties are located a minimum of 20 feet outside of areas where water may pond. One porta potty north east of the SDG&E substation is too close to standing water.

All Pumps and fuel cans must be located within secondary containment.

Sweep out the brownditches.

CONTRACTOR
SIGNATURE:



The City of San Diego
BMP NOTICE

STORM WATER POLLUTION PREVENTION INSPECTION

Public Works - Engineering and Capital Projects
 Construction Management & Field Services Division
 (858) 627-3200

DATE: 3/2/2017

NAME: Jarrell, Wayne

WEATHER: Sunny

PRIORITY: High

PROJECT: 24004857 - castlerock south phase I

CONTRACTOR: Chris Nichols

PHONE: 858 342-0060

SITE CONTACT

PHONE:

OWNER: Pardee

PERMIT NUMBER

WBS /
I.O. 24004857

ADDRESS: Mast blvd and Medina Dr

LOCATION: West of Mona Kai Ln

SITE STATUS: Mass Grading

NOTICE OF VIOLATION:

FOLLOW UP
REQUIRED:

STOP WORK ORDER:

See San Diego Municipal Codes Sections 43.0304, 43.0307, 43.0308, and 142.0220

CORRECTIVE ACTIONS: BMP inadequate, adjustments needed

COMMENTS:

This storm water inspection was performed by Daniel Lottermoser. If you have any questions please contact him at 858-573-5011.

The City of San Diego observed the pumping of storm water into an active storm drain system and the discharge exceeded the NTU limits identified in the Construction General Permit (CGP). The City of San Diego is going to be issuing a Stop Work Order for the project until the pumping complies with the CGP.

The City of Santee is also being notified due to the potential impacts to their drainage system.

The City is requesting a meeting at the Castlerock construction trailer tomorrow at 9:30 am.

CONTRACTOR
SIGNATURE:



CITY OF SANTEE

MAYOR
John W. Minto

CITY COUNCIL
Ronn Hall
Stephen Houlahan
Brian W. Jones
Rob McNelis

5th NOTICE OF VIOLATION (NOV)

May 10, 2017

Allen Kashani
Pardee Homes San Diego
13400 Sabre Springs Parkway, Suite 200
San Diego, CA 92128

RE: **Castlerock Development**
NWC Mast Blvd & Medina Dr.

Dear Mr. Kashani:

This letter is to notify you that the City of Santee (City) has identified violations of the Santee Municipal Code (SMC) at the above referenced project site. On May 7, 2017, Development Services staff became aware of sediment laden storm water discharging to the City's storm water conveyance system (MS4). Photos were submitted to the City showing the discharge, and accumulated sediment on the street (enclosed).

On May 9, 2017, the City notified the City of San Diego (as the permitting jurisdiction) of the conditions at the site. City of San Diego staff stated that they would address the deficiencies on-site, but **not** the discharge to Santee's MS4. City of San Diego staff stated that Santee should address this item separately; therefore, the City of Santee is issuing this NOV *only* for the discharge of polluted storm water runoff to the MS4.

Concern or Problem Identified:

As the property owner's representative, you are responsible for making sure that discharges to the storm drain system or conveyances do not occur and that minimum best management practices (BMPs) are implemented at all times. This property is currently in violation of Santee's Municipal Code (SMC) section 13.42.060 – Discharge of Pollutants Prohibited.

Corrective Actions Required:

The following are the key actions that must be achieved by the dates indicated herein:

1. Immediately clean up and remove all sediment resulting from this discharge, accumulated on the City's curb gutter and roadways. Due by May 12, 2017.
2. Clean the City's underground storm drain network from the point of entry to the point of discharge (Sycamore Creek). Cleaning of the underground systems must be completed no later than by May 31, 2017.

Notice of Violation
Castlerock – Pardee Homes
Page 2 of 2

We have not been able to access the monitoring results posted for this construction project on the SMARTS public database. We hereby request copies of all 2017 monitoring records and results. Due by May 12, 2017.

Please submit documentation to the City demonstrating that items #1& 2 have been completed by May 31, 2017.

By this notice, you are hereby advised in accordance with Santee's Municipal code. Should this violation reoccur, administrative citations and civil fines ranging from \$100 to \$1,000 per violation per day will be issued.

Sincerely,



Cecilia Tipton
Storm Water Program Manager

Enclosures: Photos

Copy: Christina Arias, WRC Engineer, Regional Water Quality Control Board
Melanie Kush, Director of Development Services
Scott Johnson, Principal Civil Engineer
City Attorney
PARDEE HOMES (Assessor's Record Owner Address): 177 E Colorado Blvd. #500,
Pasadena, CA 91105
Via Email: ehorn@kcmgroup.net, Chris.Nichols@pardeehomes.com









**NO
PARKING**
CONSTRUCTION AREA
TOW AWAY ZONE

NO PARKING	AM
MON	MONDAY
TUES	THRU
WED	FRIDAY
THUR	7:00AM
FRI	TO
	3:30PM

SCHILLING



Exhibit 4 - Settlement Offer Calculations

Abbreviations used in Settlement Offer

BAT	Best Available Technology
BCT	Best Conventional Technology
BMP	Best Management Practice
General Permit	Order No. 2009-0009-DWQ, as amended
MS4	Municipal Separate Storm Sewer System
NAL	Numeric Action Level

Alleged Violation No. 1: Failure to Implement Erosion and Sediment Controls on Active Areas (Provision E.3 of Attachment D of the General Permit)

Risk Level 2 dischargers shall implement appropriate erosion control best management practices (BMPs; runoff control and soil stabilization) in conjunction with sediment control BMPs for areas under active construction.

Pardee Homes violated Provision E. 3 of Attachment D of the General Permit for failing to implement appropriate erosion control BMPs in conjunction with sediment control BMPs throughout the construction site. The period of non-compliance was 91 days.

PENALTY FACTOR	VALUE	DISCUSSION
Discharge Violations	n/a	This step is not applicable because the violation is not a discharge violation.
Potential for Harm	Moderate	<p>The Prosecution Team assigned a Potential for Harm score of "moderate" to this violation because San Diego Water Board inspectors observed the failure to install effective soil cover on the slope on the north side of the construction site during an inspection on February 2, 2017. This failure to implement erosion controls likely contributed to a discharge of sediment-laden water directly into a tributary to Sycamore Canyon Creek as described in the inspection report for January and February, 2017 (Exhibit 1). Further, failure to install appropriate erosion control BMPs, in conjunction with sediment control BMPs, throughout the construction site likely contributed to the discharge of sediment-laden water into the City of Santee's MS4 on several occasions. Suspended sediment in surface waters can cause a significant risk or threat to aquatic organisms by abrasion of surface membranes, interference with respiration, and sensory perception in aquatic fauna. Suspended sediment can also reduce photosynthesis in and survival of aquatic flora by limiting the transmittance of light in receiving waters. Excess settleable solids can smother benthic communities and alter the hydrology of a water body, which in turn can cause habitat type conversion. Implementation of erosion controls, in accordance with the General Permit, reduces or eliminates the discharge of sediment from construction sites.</p> <p>Castlerock is located adjacent to an unnamed tributary to Sycamore Canyon Creek in the San Diego River Hydrologic Unit. Sycamore Canyon Creek and the unnamed tributary are Environmentally Sensitive Areas. Beneficial uses include warm freshwater habitat, wildlife habitat, and rare, threatened, or endangered species habitat.</p>
Deviation from Requirement	Moderate	The Prosecution Team assigned a Deviation from Requirement score of "moderate" because Pardee Homes failed to implement appropriate erosion control and sediment controls on several acres of active disturbed areas, despite having been told to do so repeatedly by the City of San Diego. However, in limited areas of the site, BMPs were adequately implemented.
Per Day Factor	0.4	Determined from Table 3 in the Enforcement Policy. The Prosecution Team is using the highest value in the table because the lack of erosion control BMPs contributed to a substantial discharge of sediment to the creek on the north side of the construction site. Photos and discussion of the illegal discharge of sediment-laden water is included in Exhibit 1. From the time the slope was rough graded to final elevation (December 9, 2016) to the time BMPs were fully implemented (February 8, 2017), there were 5 Qualifying Rain Events (NOAA Santee rain gauge). Therefore the evidence of the discharge observed by San Diego Water Board inspectors on February 2, 2017 was most likely the result of multiple storm events. The Per Day Factor is therefore set at the maximum as allowed in Table 3.
Days of Violation	40	The City of San Diego issued 10 BMP Notices between November 18, 2016 and February 16, 2017 (Exhibit 2), repeatedly stating that erosion and sediment controls were needed. The San Diego Water Board observed substantial compliance with this Provision on February 17, 2017, amounting to 91 days of non-compliance. The Prosecution Team proposes to reduce the number of days of violation from 91 to 40 because this violation did not cause daily detrimental impacts to the environment or to the regulatory program.
Initial Liability for Alleged Violation No. 1	\$160,000	The initial liability is calculated as a per day factor multiplied by the number of days multiplied by the maximum liability per day.
Culpability	1.3	Pardee was diligent in maintaining erosion control BMPs along the easterly facing slope, an area adjacent to Santee residents and highly visible from Medina Drive. However, erosion control BMPs were solely inadequate on the north boundary of construction, an area not easily visible nor accessible to storm water inspectors. Further, instead of using industry standard erosion and sediment controls as required by the provisions of the General Permit, Pardee Homes chose to install multiple "capture holes" and depressions throughout the construction site to capture runoff and mobilized sediment. Use of "capture holes" does not meet the best available technology industry standard and reliance on this approach resulted in discharges of sediment-laden water from the construction site into the City of Santee's MS4 on multiple occasions. Pardee Homes has over 10 active construction sites in the San Diego Region, and 15 terminated sites since 2010. Therefore, Pardee Homes should be aware of the erosion control requirements of General Permit.
Cleanup and Cooperation	1	Pardee Homes made improvements to erosion and sediment controls following the San Diego Water Board site inspections.

History of Violations	1	To date the San Diego Water Board has not taken formal enforcement against Pardee Homes.
Total Base Liability for Alleged Violation No. 1	\$208,000	The total base liability is calculated as the initial liability multiplied by the culpability, cleanup and cooperation, and history of violation factors.
Ability to Pay	Yes	Based on publicly available information, the Prosecution Team concludes that Pardee Homes should have the ability to pay the Total Base Liability Amount.
Other Factors as Justice May Require	\$5,000	The cost of investigation and enforcement is considered part of "other factors as justice may require," and is added to the liability amount. The San Diego Water Board has incurred over \$5,000 in staff costs associated with the investigation and enforcement of the alleged violations.
Maximum Liability	\$910,000	Based on California Water Code section 13385: \$10,000 per day per violation and \$10 per gallon. The proposed penalty is less than the maximum liability.
Minimum Liability	\$118,250	Based on California Water Code section 13385: civil liability must be at least the economic benefit of non-compliance. Per the Enforcement Policy, the minimum liability must be the economic benefit plus 10 percent. The Prosecution Team asserts that erosion controls on the active and inactive areas of the Castlerock construction site as required by the General Permit would have helped prevent sediment-laden discharges. Assuming roughly 50 acres were not adequately protected with erosion controls during the timeframe alleged above, the economic benefit of non-compliance is estimated to be \$107,500 (This value assumes an installation cost of \$2150/acre for temporary hydroseed (see Exhibit 5); roughly 50 acres without adequate erosion controls). Adding 10 percent = \$118,250. Since the alleged violations in this Settlement Offer are related to the failure to adequately implement erosion controls on active areas of the construction site, \$118,250 represents the minimum liability for all of the violations combined. The proposed total liability for all of the alleged violations is greater than the minimum liability.
Final Liability for Alleged Violation No. 1	\$208,000	The final liability amount is the total base liability plus any adjustment for the ability to pay, economic benefit, and other factors. The final liability must be more than the minimum liability and less than the maximum liability.

Exhibit 4 - Settlement Offer Calculations

Alleged Violation No. 2.a: Failure to Minimize Pollutants in Storm Water Discharges (Provision A.1.b of Attachment D of the General Permit)

Dischargers shall minimize or prevent pollutants in storm water discharges and authorized non-storm water discharges through the use of controls, structures, and management practices that achieve best available technology (BAT) for toxic and non-conventional pollutants and best conventional technology (BCT) for conventional pollutants.

Pardee Homes violated Provision A.1.b of Attachment D of the General Permit for failing to minimize pollutants in storm water discharges through the use of controls, structures, and management practices to achieve BCT for sediment. Sediment-laden runoff discharged from the Castlerock construction site directly into a creek or the City of Santee's MS4 on at least 5 occasions during the 2016-2017 rainy season.

PENALTY FACTOR	VALUE	DISCUSSION
Potential for Harm	4	<p>During an inspection on February 2, 2017, San Diego Water Board inspectors observed evidence of an illegal discharge of sediment-laden storm water runoff from the construction site into a tributary to Sycamore Canyon Creek. The perimeter silt fence placed between the construction site and the creek had torn and fallen down, parts of it were completely submerged in sediment. The force of the discharge caused visible erosion along the creek edge (a 3 ft. shelf had been created). Sycamore Canyon Creek and the unnamed tributary are Environmentally Sensitive Areas. Beneficial uses of Sycamore Canyon Creek include warm freshwater habitat, wildlife habitat, and rare, threatened, or endangered species habitat. The discharge was reasonably expected to have an above moderate threat (temporary restrictions) to beneficial uses.</p> <p>In addition to the discharge described above, the record shows there were at least 4 additional days of sediment discharges from Castlerock into the City of Santee's MS4 during the 2016-2017 rainy season.</p>
Physical, Chemical, Biological, or Thermal Characteristics of the Discharge	2	Discharges of sediment can cloud the receiving water (which reduces the amount of sunlight reaching aquatic plants), clog fish gills, and smother aquatic habitat and spawning areas.
Susceptibility to Cleanup or Abatement	1	The sediment discharged was dispersed by storm water over a long distance and cleanup or abatement of 50% or more of the material would not be possible.
Final Score: Potential for Harm	7	
Per Gallon and Per Day Factor for Discharge Violations	0.2	The "Deviation from Requirement" is moderate because the Discharger failed to comply with erosion control requirements of the General Permit, rendering the BAT/BCT effluent standard ineffective. The value of 0.2 was determined from Table 1 of the Enforcement Policy.
Volume Discharged	n/a	The Prosecution Team is choosing not to calculate the volume of discharge from this area of the construction site at this time.
Adjustment for High Volume Discharges	n/a	The Prosecution Team is choosing not to calculate the volume of discharge from the construction site at this time.
Days of Discharge	5	Days of known discharge: September 20, 2016, December 16, 2016, January 20, 2017, a storm prior to February 2, 2017, and May 7, 2017. With the exception of the May 7, 2017 discharge, all of these alleged discharge dates are referenced in Exhibit 1. The evidence in support of the alleged discharge occurring on May 7, 2017 is included in Exhibit 3.
Initial Liability for Alleged Violation No. 2.a	\$10,000	The liability is calculated as a per day factor multiplied by the number of days multiplied by the maximum liability per day (\$10,000/day).
Culpability	1.3	<p>Pardee Homes failed to install erosion and sediment controls in a timely manner on Castlerock's north border, which caused severe erosion of the finished slope and a discharge of sediment-laden water into the adjacent creek, as described in Alleged Violation #1.</p> <p>In the construction site interior, Pardee Homes chose to install multiple "capture holes" and depressions throughout the construction site to capture runoff and mobilized sediment instead of using industry standard erosion and sediment controls as required by the Provisions of the General Permit and described in Allegations 1 and 2. Use of "capture holes" does not meet the BCT industry standard and reliance on this approach resulted in discharges of sediment-laden water from the construction site into the City of Santee's MS4 on multiple occasions. Pardee Homes has over 10 active construction sites in the San Diego Region, and 15 terminated sites since 2010. Therefore, Pardee Homes should be aware of the erosion control requirements of the General Permit.</p>

Cleanup and Cooperation	1	Pardee Homes made improvements to erosion and sediment controls following the San Diego Water Board site inspections.
History of Violations	1	To date the San Diego Water Board has not taken formal enforcement against Pardee Homes.
Total Base Liability for Alleged Violation No. 2.a	\$13,000	The total base liability is calculated as the initial liability multiplied by the culpability, cleanup and cooperation, and history of violation factors.
Ability to Pay	Yes	Based on publicly available information, the Prosecution Team concludes that Pardee Homes should have the ability to pay the Total Base Liability Amount.
Other Factors as Justice May Require	\$5,000	The cost of investigation and enforcement is considered part of "other factors as justice may require," and is added to the liability amount. The San Diego Water Board has incurred over \$5,000 in staff costs associated with the investigation and enforcement of the alleged violations.
Maximum Liability	\$50,000	Based on California Water Code section 13385: \$10,000 per day per violation and \$10 per gallon. The proposed penalty is less than the maximum liability.
Minimum Liability	\$118,250	Based on California Water Code section 13385: civil liability must be at least the economic benefit of non-compliance. Per the Enforcement Policy, the minimum liability must be the economic benefit plus 10 percent. The Prosecution Team asserts that erosion controls on the active and inactive areas of the Castlerock construction site as required by the General Permit would have helped prevent sediment-laden discharges. Assuming roughly 50 acres were not adequately protected with erosion controls during the timeframe alleged above, the economic benefit of non-compliance is estimated to be \$107,500 (This value assumes an installation cost of \$2150/acre for temporary hydroseed (see Exhibit 5); roughly 50 acres without adequate erosion controls). Adding 10 percent = \$118,250. Since the alleged violations in this Settlement Offer are related to the failure to adequately implement erosion controls on active areas of the construction site, \$118,250 represents the minimum liability for all of the violations combined. The proposed total liability for all of the alleged violations is greater than the minimum liability.
Final Liability for Alleged Violation No. 2.a	\$13,000	The final liability amount is the total base liability plus any adjustment for the ability to pay, economic benefit, and other factors. The final liability must be more than the minimum liability and less than the maximum liability.

Alleged Violation No. 2.b: Failure to Minimize Pollutants in Storm Water Discharges (Provision A.1.b of Attachment D of the General Permit)

Dischargers shall minimize or prevent pollutants in storm water discharges and authorized non-storm water discharges through the use of controls, structures, and management practices that achieve BAT for toxic and non-conventional pollutants and BCT for conventional pollutants.

Pardee Homes violated Provision A.1.b of Attachment D of Order No. 2009-0009-DWQ (as amended) for failing to minimize pollutants in storm water discharges through the use of controls, structures, and management practices to achieve BCT for sediment. On at least two days, Pardee Homes de-watered the "capture holes" onsite using pumps, and this water exceeded the numeric action levels (NALs) specified in Order No. 2009-0009 (as amended).

PENALTY FACTOR	VALUE	DISCUSSION
Potential for Harm	4	Pardee Homes used pumps to discharge sediment-laden water, with turbidity values above the NALs, from the "capture holes" into the City of Santee's MS4. The City of Santee's MS4 drains directly to Sycamore Canyon Creek. According to an email dated March 23, 2017 from Pardee Homes to the San Diego Water Board, this discharge occurred over at least 8 hours over two days. Sycamore Canyon Creek and the unnamed tributary are Environmentally Sensitive Areas. Beneficial uses of Sycamore Canyon Creek include warm freshwater habitat, wildlife habitat, and rare, threatened, or endangered species habitat. The discharge was reasonably expected to have an above moderate threat (temporary restrictions) to beneficial uses.
Physical, Chemical, Biological, or Thermal Characteristics of the Discharge	2	Discharges of sediment can cloud the receiving water (which reduces the amount of sunlight reaching aquatic plants), clog fish gills, and smother aquatic habitat and spawning areas.
Susceptibility to Cleanup or Abatement	1	The sediment discharged was dispersed by storm water over a long distance and cleanup or abatement of 50% or more of the material would not be possible.
Final Score: Potential for Harm	7	
Per Gallon and Per Day Factor for Discharge Violations	0.31	The "Deviation from Requirement" is major because the Discharger failed to comply with erosion control requirements of the General Permit, and as a result, discharged turbid water using a pump (in excess of the numeric action levels). The value of 0.31 was determined from Table 1 of the Enforcement Policy.
Volume Discharged (gal)	71,000	In an email dated March 23, 2017 from Pardee Homes to the San Diego Water Board, between March 1-2 2017, there were 8 known hours of purposeful discharge, at a pump rate of about 150 gal/min (max pump rate is 250 gal/min). This resulted in a discharge of 72,000 gallons. Liability is calculated using the number of gallons in excess of the first 1,000 gallons, as allowed by California Water Code section 13385.
Adjustment for High Volume Discharges	\$2/gal	The Enforcement Policy recommends using \$2/gal maximum.
Days of Discharge	2	According to an email dated March 23, 2017 from Pardee Homes, this discharge occurred over at least 8 hours over two days.
Initial Liability for Alleged Violation No. 2.b	\$50,220	The liability is calculated by adding the per gallon factor multiplied by the number of gallons discharged in excess of 1,000 gallons, and the per day factor times the number of days of liability times the maximum liability.
Culpability	1.3	The San Diego Water Board became aware of this discharge as a result of communication with the City of San Diego. The discharger could have prevented the need to pump water from the "capture holes" with proactive measures, such as implementation of erosion and sediment controls throughout the site, use of storage tanks, Active Treatment Systems, or discharge to sanitary sewer. The Prosecution Team is choosing a value of 1.3 rather than 1.5 because Pardee Homes was draining the "capture holes" in order to avoid catastrophic failure of the underlying fill slope, possibly impacting private property downstream. Further, Pardee Homes attempted to discharge the least turbid water (i.e. skimming off the surface).
Cleanup and Cooperation	1	Pardee Homes ceased pumping operations when instructed by the City of San Diego.
History of Violations	1	To date the San Diego Water Board has not taken formal enforcement against Pardee Homes.
Total Base Liability for Alleged Violation No. 2.b	\$65,286	The total base liability is calculated as the initial liability multiplied by the culpability, cleanup and cooperation, and history of violation factors.

Ability to Pay	Yes	Based on publicly available information, the Prosecution Team concludes that Pardee Homes should have the ability to pay the Total Base Liability Amount.
Other Factors as Justice May Require	\$5,000	The cost of investigation and enforcement is considered part of "other factors as justice may require," and is added to the liability amount. The San Diego Water Board has incurred over \$5,000 in staff costs associated with the investigation and enforcement of the alleged violations.
Maximum Liability	\$730,000	Based on California Water Code section 13385: \$10,000 per day per violation and \$10 per gallon discharged in excess of 1,000 gallons. The proposed penalty is less than the maximum liability.
Minimum Liability	\$118,250	Based on California Water Code section 13385: civil liability must be at least the economic benefit of non-compliance. Per the Enforcement Policy, the minimum liability must be the economic benefit plus 10 percent. The Prosecution Team asserts that erosion controls on the active and inactive areas of the Castlerock construction site as required by the General Permit would have helped prevent sediment-laden discharges. Assuming roughly 50 acres were not adequately protected with erosion controls during the timeframe alleged above, the economic benefit of non-compliance is estimated to be \$107,500 (This value assumes an installation cost of \$2150/acre for temporary hydroseed (see Exhibit 5); roughly 50 acres without adequate erosion controls). Adding 10 percent = \$118,250. Since the alleged violations in this Settlement Offer are related to the failure to adequately implement erosion controls on active areas of the construction site, \$118,250 represents the minimum liability for all of the violations combined. The proposed total liability for all of the alleged violations is greater than the minimum liability.
Final Liability for Alleged Violation No. 2.b	\$65,286	The final liability amount is the total base liability plus any adjustment for the ability to pay, economic benefit, and other factors. The final liability must be more than the minimum liability and less than the maximum liability.

Exhibit 4 - Settlement Offer Calculations

Compressed Administrative Civil Liability
Settlement Offer Calculator Summary
Order No. R9-2017-0137

Allegation of Violation	Civil Liability				
	Maximum	Minimum	Initial	Base	Final
Alleged Violation No. 1: Failure to Implement Erosion and Sediment Controls on Active Areas (Provision E.3 of Attachment D of the General Permit)	\$910,000	\$118,250	\$160,000	\$208,000	\$208,000
Alleged Violation No. 2.a: Failure to Minimize Pollutants in Storm Water Discharges (Provision A.1.b of Attachment D of the General Permit)	\$50,000	\$118,250	\$10,000	\$13,000	\$13,000
Alleged Violation No. 2.b: Failure to Minimize Pollutants in Storm Water Discharges (Provision A.1.b of Attachment D of the General Permit)	\$730,000	\$118,250	\$50,220	\$65,286	\$65,286
Reimbursement of Staff Costs					\$5,000

Total Maximum Civil Liability	\$1,690,000
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Total Minimum Civil Liability	\$118,250
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Total Final Civil Liability	\$291,286
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FINAL

**Soil Stabilization BMP Research for
Erosion and Sediment Controls
Cost Survey Technical Memorandum**

July 2007

CTSW-TM-07-172.35.1



California Department of Transportation

Division of Environmental Analysis

Stormwater Program

1120 N Street

Sacramento, CA 95814

<http://www.dot.ca.gov/hq/env/stormwater/index.htm>

For individuals with sensory disabilities, this document is available in alternate formats upon request. Please call or write to Stormwater Liaison, Caltrans Division of Environmental Analysis, P.O. Box 942874, MS-27, Sacramento, CA 94274-0001. (916) 653-8896 Voice, or dial 711 to use a relay service.

EXECUTIVE SUMMARY

Executive Summary

A survey of erosion and sediment control contractors in California was conducted in order to update cost data for twelve soil stabilization techniques common to Caltrans projects. The purpose of this Technical Memorandum is to provide Caltrans with a matrix of the average installed costs for soil stabilization Best Management Practices (BMPs) as well as supporting graphics of the distribution of the installed cost information. The results of the survey are intended to help designers estimate costs for standard versus more difficult applications and for small and large size projects as well.

The project was accomplished through the development of a contractor/vendor questionnaire and incorporation of the questionnaire results in a comprehensive matrix that includes a summary table for ease of use. The design of the questionnaire separated the BMP installed cost information into small or large projects, depending on size of project and slope length. A slope inclination of 2:1 (horizontal: vertical) was used for both project sizes. The project size was then separated into two categories, standard versus more difficult, that differentiated each project by staging and application characteristics (i.e. distance from home base, availability of staging and length of hose runs).

Thirty contractor/vendors were polled for their responses. Of that number, ten supplied the requested information; sixteen were non-responsive; and four declined participation. Responses from the contractors were averaged and are presented in a matrix.

The matrix shows that the average installation costs for most of the BMPs were distributed over a wide range. Boxplots were utilized to graphically provide some indication of the estimated installed cost's symmetry and skewness. The boxplots show that there was consistency in pricing for the more commonly used soil stabilization BMPs, such as temporary hydroseeding, bonded fiber matrix, polyacrylamide and straw with tackifier, but not for the less common BMPs such as pneumatically-applied wood bark mulch and rolled erosion control products (i.e. blankets and netting). The boxplots also indicate that there were outliers in the price for each of the BMPs, suggesting that a contractor's cost estimate for a particular soil stabilization practice that they do not specialize in, or may not routinely bid on projects involving these particular methods, may not be representative of competitive costs (e.g. wood (bark) mulching, refer to Table 3-2). Price outliers may also reflect particular stabilization methods that may not be as readily available in a certain geographic areas.

Overall, the results of the Contractor Survey should be useful to Caltrans' engineers and designers in updating the cost information currently used to derive estimates for soil stabilization BMPs for Caltrans' projects.

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1. Introduction

The purpose of this Technical Memorandum is to provide Caltrans with a matrix of installed costs for twelve soil stabilization BMP techniques common to Caltrans projects. Cost information was obtained from surveys of erosion and sediment control contractors in California. Costs are presented for standard versus more difficult applications and for small and large size projects. The mean, average and range of installed costs for each of the BMPs are presented in Tables 3-1 through 3-3. The installed cost information is also presented as boxplots (Figures 3-1 through 3-8) to graphically illustrate the provided cost distribution.

The results of this survey are intended to update the cost information currently used by Caltrans' engineers and designers to derive estimates for soil stabilization BMPs for Caltrans' projects. As such, the information from this study can be used to update Caltrans Field Guide "Soil Stabilization for Temporary Slopes" (Caltrans 1999).

1.1 Project Description

The first step in the data acquisition process was a review and evaluation of existing data in the document "Soil Stabilization for Temporary Slopes" (Caltrans 1999). From this document and the related Scope of Work for Caltrans Storm Water Contract #43A0172, a list of the erosion control BMPs and candidate erosion control contractors was established. Twelve soil stabilization techniques common to Caltrans projects were selected as the candidate BMPs and thirty erosion control contractors, representing a broad range of geographic and project experience were selected to be interviewed.

A contractor questionnaire (Table 1-1) was developed to acquire cost data from the various erosion control contractors located throughout California. The design of the questionnaire separated the BMP installed cost information into small (0.12 acres) or large projects (2.0-5.0 acres), depending on size of project and slope length. A slope inclination of 2:1 (horizontal: vertical) was used for both project sizes. The project size was then separated into two categories, standard versus more difficult, that differentiated each project by staging and application characteristics (i.e. distance from home base, availability of staging and length of hose runs). The questionnaire was used to assemble cost data, which was collected via phone interviews and faxed or emailed forms. The data is presented in Tables 3-1 through 3-3, showing each BMP and its related installed costs.

SECTION ONE

Introduction

Table 1-1. Contractor/Vendor Questionnaire Form

BMP Type & Description	Installed Cost (cost/acre)			
	Small Project ¹		Large Project ²	
	Category 1 ³	Category 2 ⁴	Category 1 ³	Category 2 ⁴
Wood (bark) Mulching				
Straw with Tackifier				
Crimped or Punched Straw				
Hydraulic Mulch Fiber with Polyacrylamide (PAM)				
Temporary Hydroseed				
Temporary Hydraulic Mulch				
Bonded Fiber Matrix				
Caltrans Erosion Control Type C				
Caltrans Erosion Control Type D				
Erosion Control Blanket				
Erosion Control Netting				
Temporary Cementitious Binder				

NOTES:

¹ Small Projects: 0.12 acres (5,000 sq ft) to 0.5 acres (22,000 sq ft); slope inclination of 2:1 and slope length that does not exceed 30 feet

² Large Projects: 2.0 - 5.0 acres; 2:1 slope and slope length from 50 - 100 feet

³ Category 1: Within 20 miles; access from top or bottom (but not both); shooting from the tower; no long hose runs.

⁴ Category 2: Further than 20 miles; access from top or bottom (but not both); long hose runs will likely be required

2. Data Base Preparation (Contractor Questionnaire)

2.1 Project Type

The project types were broken down into two types, small and large projects, as defined below:

Small:

- The BMP is to be applied to an area between 0.12 acre (5,000 SF) and 0.5 acre (22,000 SF).
- The area has a slope inclination of 2(horizontal):1(vertical) and a slope length that does not exceed 30 ft.

Large:

- The BMP is to be applied to an area between 2.0 acres and 5.0 acres.
- The area has a slope inclination of 2(horizontal):1(vertical) and a slope length that varies between 50 ft and 100 ft.

2.2 Project Category

Installation costs for the candidate BMPs were further broken down into two categories, standard and more difficult jobs as defined below:

Standard:

- The project is located within 20 miles of the contractor's home base
- Access to the top or bottom of the slope is available
- Long hose runs will not be required
- Staging within the project site is available.

More Difficult:

- The project is located more than 20 miles from the contractor's home base.
- Access is only available to the top or bottom of the slope.
- Long hose runs will likely be required.
- Staging within the project site is not available.

SECTION TWO***Data Base Preparation*****2.3 Candidate BMPs**

Data was collected for the following types of erosion control BMPs:

- 1) **Wood Mulching:** Wood and bark mulch or unscreened compost is applied in a 2-inch thick layer. Application method can be pneumatic (blower), mechanical (dozer or conveyer), or by hand.
- 2) **Straw and Tack:** Straw is applied at a rate of 2 tons per acre. Application method can be pneumatic (blower) or by hand. Hydraulically applied tackifier consisting of guar or equivalent at a rate of 150 lbs per acre and fiber (paper, wood, or both) at 1200 lbs per acre shall be applied to affix the straw.
- 3) **Punched Straw:** Straw is applied at a rate of 2 tons per acre. Application method can be pneumatic (blower) or by hand. Straw is crimped into the soil using a self propelled or dragged finned roller or crimper (not tracked dozer).
- 4) **PAM and Fiber:** A polyacrylamide (PAM) formulated for erosion control is hydraulically applied at 10 gallons per acre along with 1800 lbs of fiber (paper, wood, or both). The PAM shall be EarthGuard, Earthbound L or equivalent.
- 5) **Temporary Hydroseed:** This is a single-application treatment. It consists of hydraulically applying the following mixture at a per acre rate: fiber (paper, wood, or both) at 1800 lbs, guar or equivalent tackifier at a rate of 150 lbs, and cereal grass seed at 50 lbs.
- 6) **Temporary Hydraulic Mulch:** This is a single-application treatment although multiple passes may be required. It consists of hydraulically applying the following mixture at a per acre rate: wood fiber at 1800 lbs and guar or equivalent tackifier at a rate of 150 lbs.
- 7) **Bonded Fiber Matrix:** This is a single-application treatment although multiple passes may be required. A commercially available bonded fiber matrix (BFM) product such as EcoAegis II, SoilGuard, or equivalent shall be hydraulically applied at a rate of 3500 lbs per acre.
- 8) **Caltrans Erosion Control (Type C):** This is a two-application treatment. The first application consists of hydroseeding the following mixture at a per acre rate: wood fiber at 900 lbs, compost such as Hydropost at 1500 lbs, native seed at 40 lbs, commercial fertilizer at 100 lbs. The second application consists of applying straw at a rate of 2 tons per acre. Application method can be pneumatic (blower) or by hand. Straw is crimped into the soil using a self propelled or dragged finned roller or crimper (not tracked dozer).
- 9) **Caltrans Erosion Control (Type D):** This is a three-application treatment. The first application consists of hydroseeding the following mixture at a per acre rate: fiber (paper, wood, or both) at 900 lbs, compost such as Hydropost at 1500 lbs, native seed at 40 lbs, and commercial fertilizer at 100 lbs. The second application consists of applying straw at a rate of 2 tons per acre. Application method can be pneumatic (blower) or by hand. The third application consists of hydraulically applying the following mixture at a per acre rate: fiber (paper, wood, or both) at 900 lbs, compost such as Hydropost at 1500 lbs, and guar or equivalent tackifier at a rate of 150 lbs.
- 10) **Erosion Control Blanket:** This is a two-application treatment. The first application consists of hydroseeding the following mixture at a per acre rate: wood fiber at 900 lbs, compost such as Hydropost at 1500 lbs, native seed at 40 lbs, commercial

SECTION TWO***Data Base Preparation***

fertilizer at 100 lbs. The second application consists of applying a blanket composed of 30 percent coir fiber and 70 percent straw (ECTC Category 2D), such as North American Green SC150, American Excelsior Premier, or RoLanka StrawCocoMat.

11) **Erosion Control Netting:** This is a two-application treatment. The first application consists of applying an open weave textile consisting of 100 percent coir fiber yarn (ECTC Category 4) such as DeKowe 400. The second application consists of hydroseeding the following mixture at a per acre rate: wood fiber at 900 lbs, compost such as Hydropost at 1500 lbs, native seed at 40 lbs, commercial fertilizer at 100 lbs through the netting.

12) **Temporary Cementitious Binder:** This is a single-application treatment although multiple passes may be required. It consists of hydraulically applying the following mixture at a per acre rate: a formulated gypsum-based product such as Airtrol Geobinder at 6000 lbs and wood fiber at 1800 lbs.

3. Summary of Results

Thirty contractor/vendors were polled for their responses. Of that number, ten supplied the requested information; sixteen were non-responsive; and four declined participation. Responses from the contractors are presented in Tables 3-1 through 3-3. All Tables utilized data obtained from a minimum of at least three contractors. It is significant to note that the widest ranges of cost data appear to have occurred for the BMPs that had the least response by the contractors, e.g., wood mulch and cementitious binders. In addition, the contractors installed cost estimates for “wood mulching” showed a wide range of values suggesting that a contractor may not specialize in that particular soil stabilization practice or may not routinely bid on a project involving these particular methods, therefore their estimates may not be representative of actual competitive market costs. Furthermore, contractors installed cost estimates for “erosion control blanket” and “erosion control netting” increased for “Large Projects” compared to “Small Projects”. The increased costs are most likely due to increased labor costs associated with installation around existing vegetation in the form of ornamental or containerized planting that requires increased labor and irrigation.

3.1 Installed Mean Costs for Soil Stabilization BMPs

Table 3-1 presents the installed mean costs for the candidate BMPs. Costs are presented in dollars per acre for small and large projects as well as less difficult (Category 1) versus difficult (Category 2) sites.

SECTION THREE**Summary of Results****Table 3-1. Installed Mean Costs for Soil Stabilization BMPs**

BMP Type & Description	Installed Cost (cost/acre)			
	Small Project ¹		Large Project ²	
	Category 1 ³	Category 2 ⁴	Category 1 ³	Category 2 ⁴
Wood (bark) Mulching	\$13,363	\$15,701	\$10,952	\$13,288
Straw with Tackifier	\$3,955	\$4,802	\$1,823	\$2,172
Crimped or Punched Straw	\$3,879	\$5,375	\$2,458	\$2,778
Hydraulic Mulch Fiber with Polyacrylamide (PAM)	\$4,337	\$5,610	\$2,537	\$3,083
Temporary Hydroseed	\$3,477	\$3,964	\$1,951	\$2,150
Temporary Hydraulic Mulch	\$3,210	\$3,625	\$1,688	\$1,861
Bonded Fiber Matrix	\$6,151	\$6,880	\$3,901	\$4,219
Caltrans Erosion Control Type C	\$6,791	\$7,325	\$2,816	\$3,284
Caltrans Erosion Control Type D	\$7,291	\$8,286	\$3,390	\$3,841
Erosion Control Blanket	\$14,998	\$16,443	\$16,325	\$18,247
Erosion Control Netting	\$20,082	\$22,329	\$21,746	\$24,158
Temporary Cementitious Binder	\$5,865	\$6,799	\$3,012	\$3,179

NOTES:

¹ Small Projects: 0.12 acres (5,000 sq ft) to 0.5 acres (22,000 sq ft); slope inclination of 2:1 and slope length that does not exceed 30 feet

² Large Projects: 2.0 - 5.0 acres; 2:1 slope and slope length from 50 - 100 feet

³ Category 1: Within 20 miles; access from top and bottom (but not both); shooting from the tower; no long hose runs.

⁴ Category 2: Further than 20 miles; access from top or bottom (but not both); long hose runs will likely be required

COMMENTS:

- PAM is assumed to be in the dry form and not the emulsified form for the cost estimates

- Two of the ten contractors did not make a distinction between small and large projects (pricing was the same for the two categories).

- Cost estimates are based on information from 10 contractors

3.2 Data Ranges for Large, Small, Difficult and Less Difficult Sites

Table 3-2 presents the range of the candidate BMP installation costs per acre for both small and large projects in for less difficult (Category 1) and more difficult (Category 2) sites.

SECTION THREE**Summary of Results****Table 3-2 Range of BMP Installation Costs: Small and Large Projects in Each of the Two Categories**

BMP Type	Small - Category 1 ¹		
	Low	High	No. of Submittals
Wood Mulch	\$70	\$30,000	3
Straw Tackifier	\$1,195	\$10,500	8
Crimped Straw	\$1,895	\$10,000	5
PAM	\$2,396	\$11,000	7
Hydroseed	\$1,525	\$6,100	9
Hydraulic Mulch	\$1,495	\$6,000	9
Bonded Fiber	\$3,703	\$11,500	8
Caltrans Type C	\$1,895	\$13,000	7
Caltrans Type D	\$1,742	\$14,000	8
EC Blanket	\$3,595	\$32,250	9
EC Netting	\$9,995	\$41,000	9
Cementitious Binder	\$2,396	\$11,500	3

BMP Type	Small - Category 2 ³		
	Low	High	No. of Submittals
Wood Mulch	\$84	\$37,000	3
Straw Tackifier	\$1,495	\$14,500	8
Crimped Straw	\$1,895	\$10,000	5
PAM	\$2,396	\$19,000	7
Hydroseed	\$1,525	\$7,900	9
Hydraulic Mulch	\$1,525	\$7,800	9
Bonded Fiber	\$3,703	\$15,000	8
Caltrans Type C	\$1,995	\$15,000	7
Caltrans Type D	\$2,003	\$20,000	8
EC Blanket	\$3,895	\$36,750	9
EC Netting	\$10,995	\$48,000	9
Cementitious Binder	\$2,396	\$14,000	3

BMP Type	Large - Category 1 ²		
	Low	High	No. of Submittals
Wood Mulch	\$54	\$23,000	3
Straw Tackifier	\$1,000	\$2,381	8
Crimped Straw	\$1,000	\$5,009	7
PAM	\$2,178	\$4,356	7
Hydroseed	\$1,000	\$3,088	9
Hydraulic Mulch	\$1,200	\$2,791	9
Bonded Fiber	\$3,485	\$5,900	8
Caltrans Type C	\$1,340	\$4,282	7
Caltrans Type D	\$1,340	\$5,548	8
EC Blanket	\$3,395	\$56,420	9
EC Netting	\$9,495	\$56,420	9
Cementitious Binder	\$2,287	\$3,650	3

BMP Type	Large - Category 2 ⁴		
	Low	High	No. of Submittals
Wood Mulch	\$62	\$30,000	3
Straw Tackifier	\$1,269	\$3,150	8
Crimped Straw	\$1,395	\$5,009	7
PAM	\$2,178	\$4,356	8
Hydroseed	\$1,416	\$3,685	10
Hydraulic Mulch	\$1,400	\$2,791	10
Bonded Fiber	\$3,485	\$6,600	9
Caltrans Type C	\$1,514	\$5,800	7
Caltrans Type D	\$1,514	\$6,400	8
EC Blanket	\$8,276	\$60,760	9
EC Netting	\$9,995	\$60,760	9
Cementitious Binder	\$2,287	\$3,850	3

NOTES:

¹ Small Projects: 0.12 acres (5,000 sq ft) to 0.5 acres (22,000 sq ft); slope inclination of 2:1 and slope length that does not exceed 30 feet

² Large Projects: 2.0 – 5.0 acres; 2:1 slope and slope length from 50-100 feet

³ Category 1: Within 20 miles; access from top and bottom (but not both); shooting from the tower; no long hose runs.

⁴ Category 2: Further than 20 miles; access from top or bottom (but not both); long hose runs will likely be required.

3.3 Summary Matrix

Table 3-3 summarizes the mean installed costs and ranges for each of the candidate BMP types. Costs are presented in dollars per acre for small and large projects as well as less difficult (Category 1) versus difficult (Category 2) sites.

SECTION THREE**Summary of Results****Table 3-3 Summary Matrix Representing the Mean Installed Costs and Ranges for Soil Stabilization BMPs**

BMP Type & Description	Installed Cost (cost/acre)							
	Small Project ¹				Large Project ²			
	Category 1 ³		Category 2 ⁴		Category 1 ³		Category 2 ⁴	
	Mean	Range	Mean	Range	Mean	Range	Mean	Range
Wood (bark) Mulching	\$13,363	\$70 — \$30,000	\$15,701	\$84 — \$37,000	\$10,952	\$54 — \$23,000	\$13,288	\$62 — \$30,000
Straw with Tackifier	\$3,955	\$1,195 — \$10,500	\$4,802	\$1,495 — \$14,500	\$1,823	\$1,000 — \$2,381	\$2,172	\$1,269 — \$3,150
Crimped or Punched Straw	\$3,879	\$1,895 — \$10,000	\$5,375	\$1,895 — \$10,000	\$2,458	\$1,000 — \$5,009	\$2,778	\$1,395 — \$5,009
Hydraulic Mulch Fiber with Polyacrylamide (PAM)	\$4,337	\$2,396 — \$11,000	\$5,610	\$2,396 — \$19,000	\$2,537	\$2,178 — \$4,356	\$3,083	\$2,178 — \$4,356
Temporary Hydroseed	\$3,477	\$1,525 — \$6,100	\$3,964	\$1,525 — \$7,900	\$1,951	\$1,000 — \$3,088	\$2,150	\$1,416 — \$3,685
Temporary Hydraulic Mulch	\$3,210	\$1,495 — \$6,000	\$3,625	\$1,525 — \$7,800	\$1,688	\$1,200 — \$2,791	\$1,861	\$1,400 — \$2,791
Bonded Fiber Matrix	\$6,151	\$3,703 — \$11,500	\$6,880	\$3,703 — \$15,000	\$3,901	\$3,485 — \$5,900	\$4,219	\$3,485 — \$6,600
Caltrans Erosion Control Type C	\$6,791	\$1,895 — \$13,000	\$7,325	\$1,995 — \$15,000	\$2,816	\$1,340 — \$4,282	\$3,284	\$1,514 — \$5,800
Caltrans Erosion Control Type D	\$7,291	\$1,742 — \$14,000	\$8,286	\$2,003 — \$20,000	\$3,390	\$1,340 — \$5,548	\$3,841	\$1,514 — \$6,400
Erosion Control Blanket	\$14,998	\$3,595 — \$32,250	\$16,443	\$3,895 — \$36,750	\$16,325	\$3,995 — \$56,420	\$18,247	\$8,276 — \$60,760
Erosion Control Netting	\$20,082	\$9,995 — \$41,000	\$22,329	\$10,995 — \$48,000	\$21,746	\$9,495 — \$56,420	\$24,158	\$9,995 — \$60,760
Temporary Cementitious Binder	\$5,865	\$2,396 — \$11,500	\$6,799	\$2,396 — \$14,000	\$3,012	\$2,287 — \$3,650	\$3,179	\$2,287 — \$3,850

NOTES:

¹ Small Projects: 0.12 acres (5,000 sq ft) to 0.5 acres (22,000 sq ft); slope inclination of 2:1 and slope length that does not exceed 30 feet

² Large Projects: 2.0 - 5.0 acres; 2:1 slope and slope length from 50 - 100 feet

³ Category 1: Within 20 miles; access from top and bottom (but not both); shooting from the tower; no long hose runs.

⁴ Category 2: Further than 20 miles; access from top or bottom (but not both); long hose runs will likely be required

3.4 Boxplots

Figures 3-1 through 3-8 include boxplots that were developed to graphically present the data obtained from the contractor surveys. The boxplots also illustrate the symmetry and skewness of the installed cost data. Boxplots were generated for each project combination: small project – less difficult (Category 1); small project – difficult (Category 2); large project – less difficult (Category 1); and large project – difficult (Category 2). Each of these combinations was further divided based on the range of surveyed costs.

Figure 3-1 (also Table 4-1 in the “Conclusions”) present installed cost for soil stabilization techniques on small – less difficult (Category 1) projects and small, difficult (Category 2) projects, respectively, where the range of surveyed installed costs was less than \$15,000/acre. Nine of the surveyed soil stabilization techniques fell into this price category. Figures 3-2 and 3-3 presents installed cost for soil stabilization techniques on small – less difficult (Category 1) projects and small difficult (Category 2) projects,

SECTION THREE

Summary of Results

respectively, where the range of surveyed installed costs was greater than \$15,000/acre. Three of the soil stabilization techniques surveyed fell into this price category.

Figures 3-5 and 3-7 present installed cost for soil stabilization techniques on large – less difficult (Category 1) projects and large, difficult (Category 2) projects, respectively, where the range of surveyed installed costs was \$6,000/acre or less. Nine of the soil stabilization techniques surveyed fell into this price category. Figures 3-6 and 3-8 present installed cost for soil stabilization techniques on large standard (Category 1) projects and large, greater difficulty (Category 2) projects, respectively, where the range of surveyed installed costs greater than \$6,000/acre. Three if the soil stabilization techniques fell into this price category.

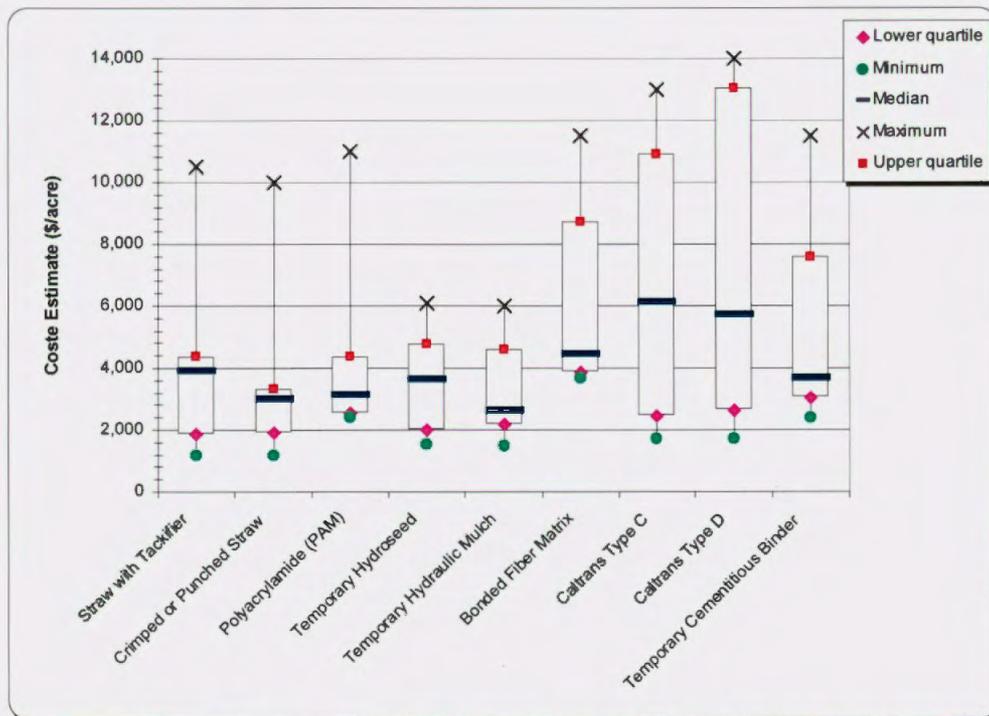


Figure 3-1. Small Project – Category 1 boxplots for BMPs where installed costs had ranges less than \$15,000/acre.

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Summary of Results

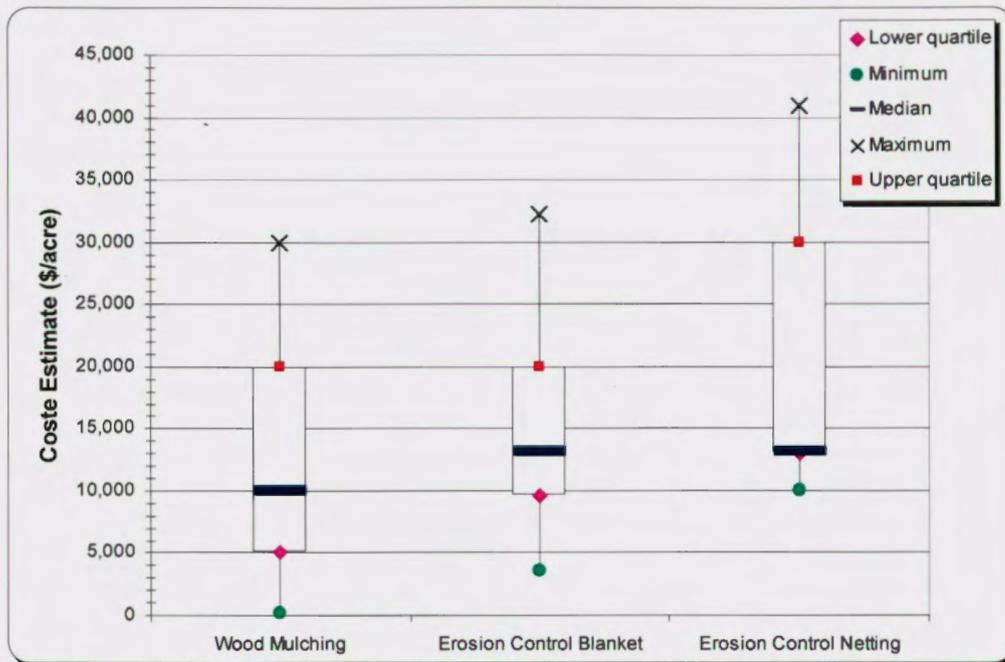


Figure 3-2. Small Project – Category 1 boxplots for BMPs where installed costs had ranges above \$15,000/acre.

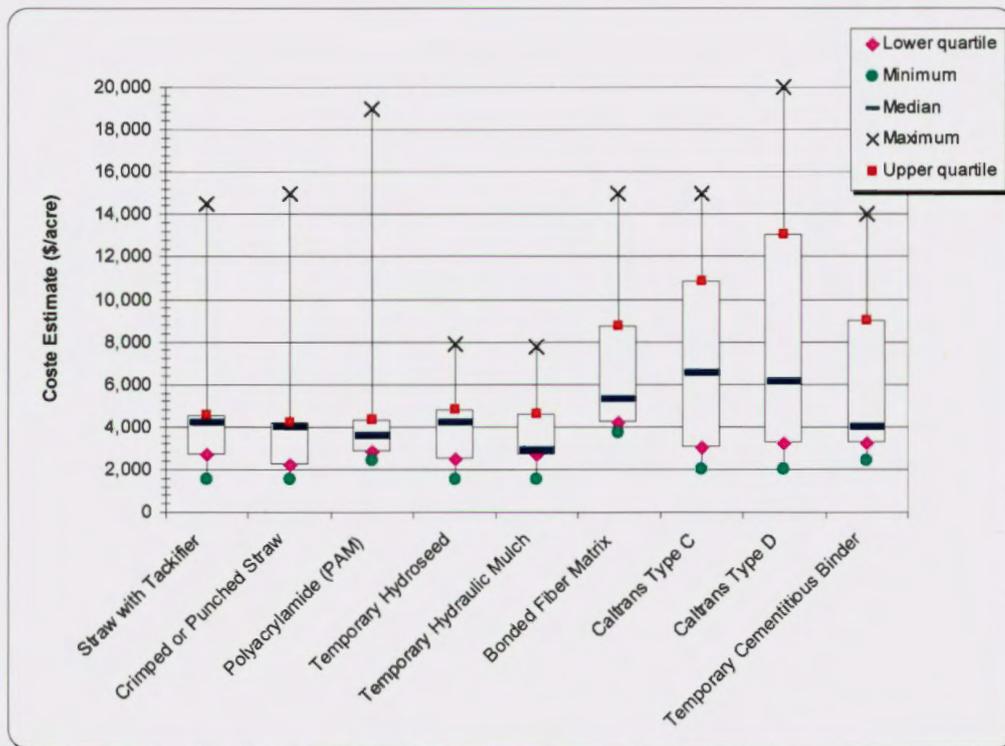


Figure 3-3. Small Project – Category 2 boxplots for BMPs where installed costs had ranges of \$15,000/acre or less.

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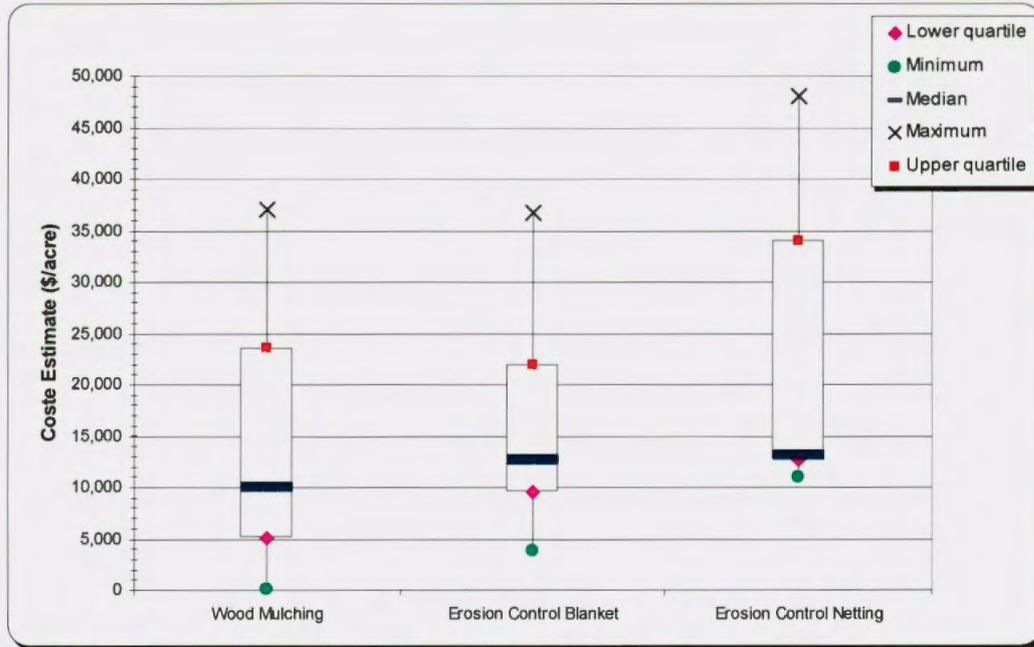


Figure 3-4. Small Project – Category 2 boxplots for BMPs where installed costs had ranges above \$25,000/acre.

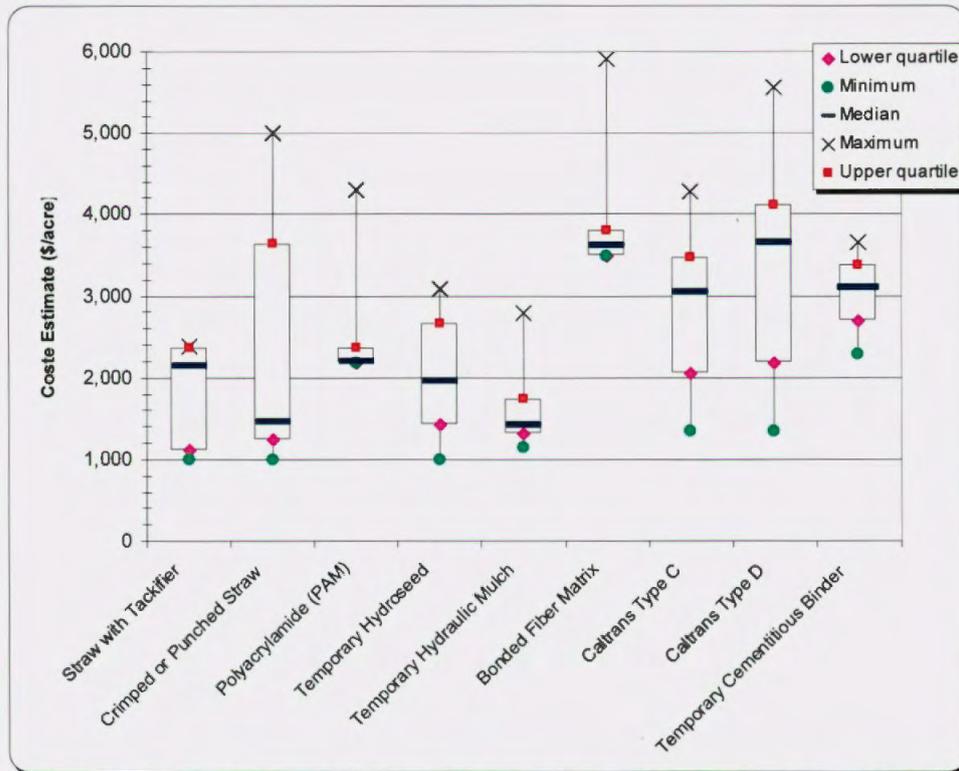


Figure 3-5. Large Project – Category 1 boxplots for BMPs where installed costs had ranges of \$6,000/acre or less.

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Summary of Results

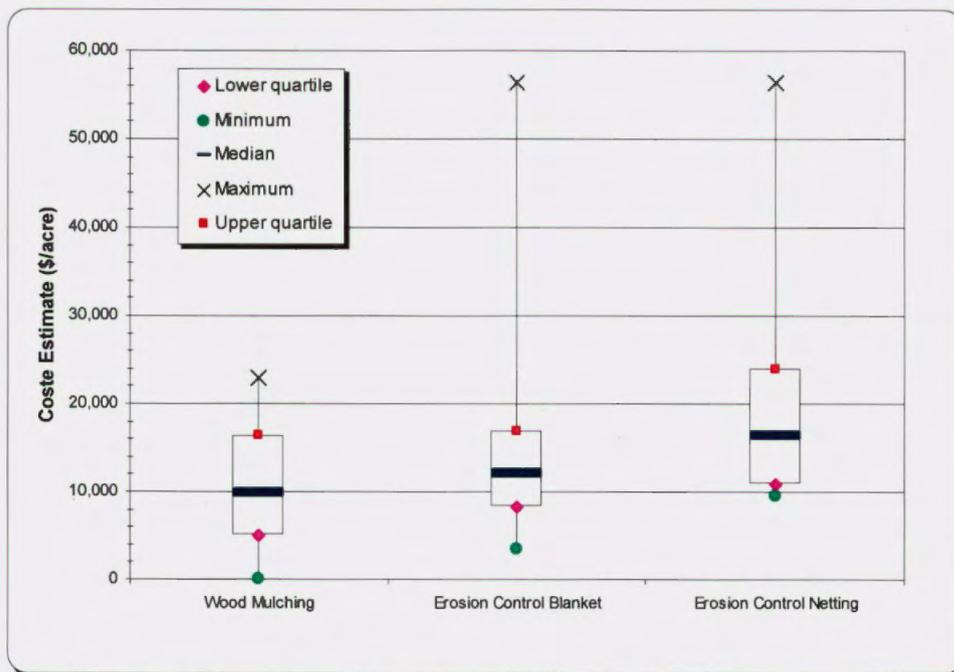


Figure 3-6. Large Project – Category 1 boxplots for BMPs where installed costs had ranges above \$6,000/acre.

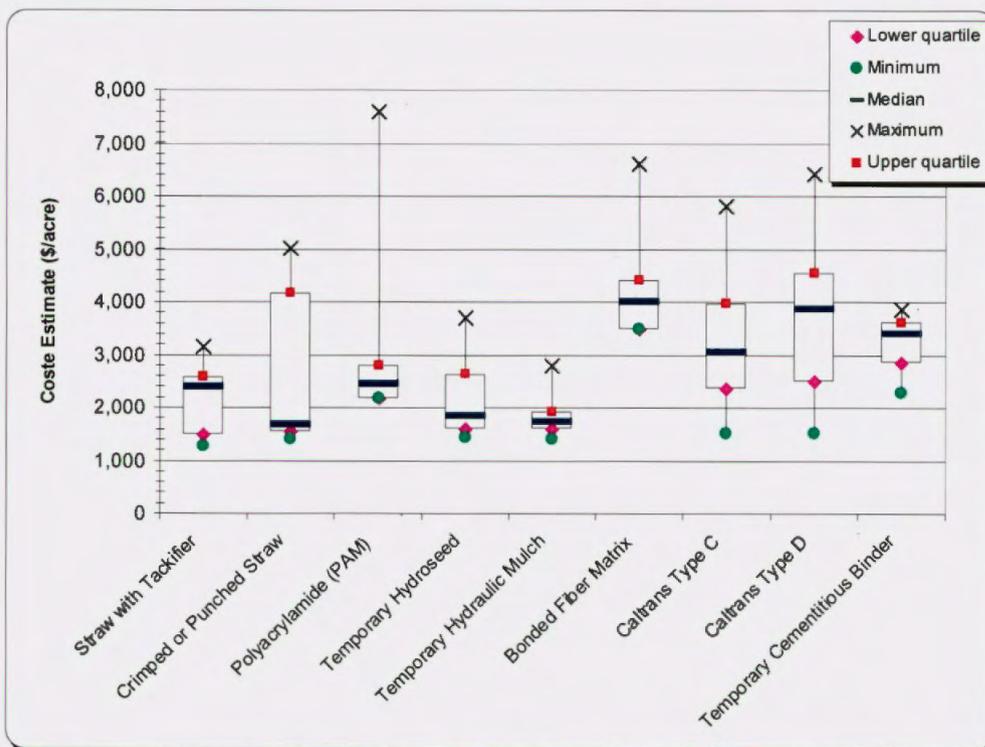


Figure 3-7. Large Project – Category 2 boxplots for BMPs where installed costs had median values of \$5,000/acre or less.

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Summary of Results

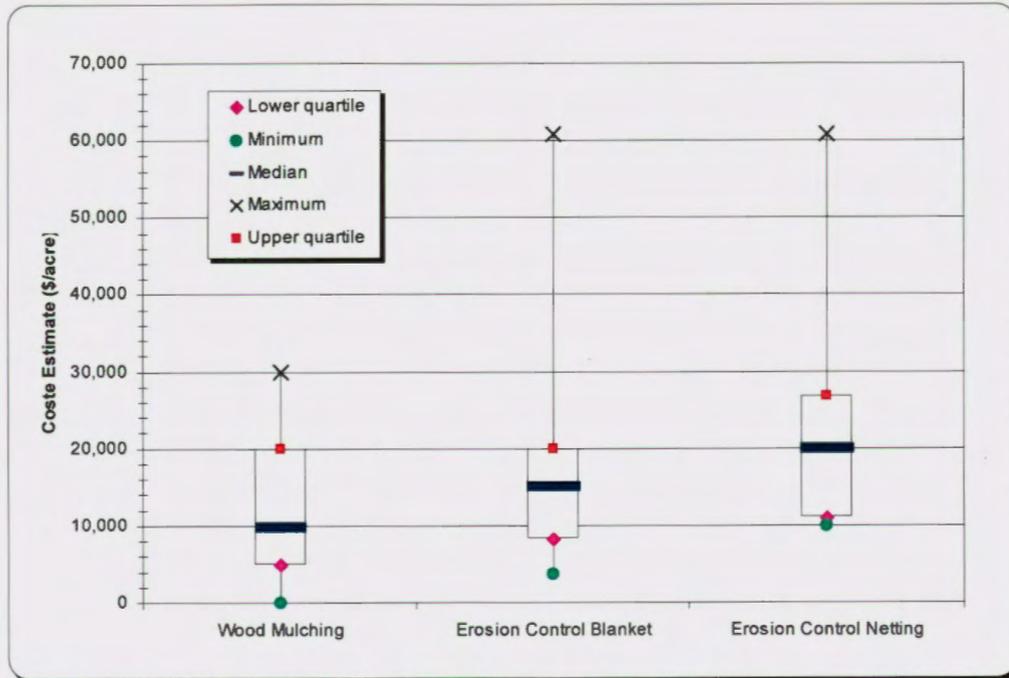


Figure 3-8. Large Project – Category 2 boxplots for BMPs where installed costs had ranges above \$6,000/acre.

4. Conclusions

The summary matrix (Section 3.3, Table 3-3) shows that the average installation costs for most of the BMPs were distributed over a wide range. The boxplots (Section 3.4) show that there was consistency in pricing for the more commonly used soil stabilization BMPs, such as temporary hydroseeding, bonded fiber matrix, polyacrylamide and straw with tackifier but not for the less common BMPs such as pneumatically-applied wood bark mulch, erosion control blankets and netting.

The boxplots also indicate that there were outliers in the price for each of the BMPs, suggesting that a contractor's cost estimate for a particular soil stabilization practice that they do not specialize in, or may not routinely bid on projects involving these particular methods, may not be representative of competitive costs (e.g. wood (bark) mulching, refer to Table 3-2). Price outliers may also reflect particular stabilization methods that may not be as readily available in a certain geographic areas.

Skewness was also observed in the installed cost estimates, suggesting that either there was not enough cost information provided or that the contractor was not as familiar with the particular soil stabilization practice. For example, there were only three submittals out of the ten vendors interviewed for the wood mulching BMP, which suggested that the practice is not as commonly applied. Additionally, the boxplots showed that the installed cost values for wood mulch were distributed over a large range. For example, the lowest installed cost for a small project was indicated as \$70 per acre with the highest being \$30,000 per acre.

In order to reduce the skewness of the distributed installed costs, outliers were excluded and a new mean was established (Table 4-1). The outliers were determined using the box plots as well as professional judgment. Box plot values that showed an abnormal distance from other values (deemed more "normal" or common) were generally excluded. New ranges of installed costs for the candidate BMPs were then determined using 20% above and below the new mean for the high and low values, respectively.

Finally, it should be noted that most of the contractors interviewed felt that the Category 1 and 2 criteria (less difficult versus difficult projects) had less bearing on pricing than the actual size of the project. This can be interpreted as meaning that few contractors bid and/or complete projects beyond a certain distance from their home base. A consistent comment was that more difficult projects are not necessarily those that require long hose deployments or areas that have steeper slopes, but consist of those projects that have existing vegetation in the form of ornamental or containerized planting that need to be "worked around."

Table 4-1. Installed Cost Ranges for Soil Stabilization BMPs

BMP Type & Description	Installed Cost (cost/acre)							
	Small Project ¹				Large Project ²			
	Category 1 ³		Category 2 ⁴		Category 1 ³		Category 2 ⁴	
	Mean ⁵	Range	Mean ⁵	Range	Mean ⁵	Range	Mean ⁵	Range
Wood (bark) Mulching	\$20,000	\$16,000 — \$24,000	\$23,000	\$18,400 — \$27,600	\$13,676	\$10,941 — \$16,411	\$19,901	\$15,921 — \$23,881
Straw with Tackifier	\$3,020	\$2,416 — \$3,624	\$3,417	\$2,734 — \$4,100	\$1,823	\$1,458 — \$2,187	\$2,172	\$1,738 — \$2,607
Crimped or Punched Straw	\$2,349	\$1,879 — \$2,819	\$2,968	\$2,374 — \$3,562	\$2,033	\$1,626 — \$2,440	\$2,778	\$2,223 — \$3,334
Hydraulic Mulch Fiber with Polyacrylamide (PAM)	\$3,226	\$2,581 — \$3,871	\$3,378	\$2,702 — \$4,054	\$2,537	\$2,030 — \$3,044	\$2,438	\$1,950 — \$2,926
Temporary Hydroseed	\$3,149	\$2,519 — \$3,779	\$3,473	\$2,778 — \$4,168	\$1,951	\$1,561 — \$2,341	\$2,150	\$1,720 — \$2,580
Temporary Hydraulic Mulch	\$2,862	\$2,290 — \$3,434	\$3,103	\$2,482 — \$3,724	\$1,688	\$1,351 — \$2,026	\$1,861	\$1,488 — \$2,233
Bonded Fiber Matrix	\$4,057	\$3,246 — \$4,868	\$5,222	\$4,178 — \$6,266	\$3,901	\$3,121 — \$4,682	\$4,219	\$3,375 — \$5,063
Caltrans Erosion Control Type C	\$4,705	\$3,764 — \$5,646	\$5,077	\$4,062 — \$6,092	\$2,816	\$2,253 — \$3,380	\$3,284	\$2,627 — \$3,940
Caltrans Erosion Control Type D	\$7,291	\$5,833 — \$8,749	\$5,537	\$4,430 — \$6,644	\$3,390	\$2,712 — \$4,069	\$3,841	\$3,073 — \$4,610
Erosion Control Blanket	\$14,162	\$11,330 — \$16,994	\$15,334	\$12,267 — \$18,401	\$12,445	\$9,956 — \$14,934	\$14,238	\$11,390 — \$17,086
Erosion Control Netting	\$17,468	\$13,974 — \$20,962	\$19,120	\$15,296 — \$22,944	\$14,971	\$11,977 — \$17,965	\$16,523	\$13,218 — \$19,828
Temporary Cementitious Binder	\$3,048	\$2,438 — \$3,658	\$3,198	\$2,558 — \$3,838	\$3,012	\$2,410 — \$3,615	\$3,179	\$2,543 — \$3,815

NOTES:

¹ Small Projects: 0.12 acres (5,000 sq ft) to 0.5 acres (22,000 sq ft); slope inclination of 2:1 and slope length that does not exceed 30 feet

² Large Projects: 2.0 - 5.0 acres; 2:1 slope and slope length from 50 - 100 feet

³ Category 1: Within 20 miles; access from top and bottom (but not both); shooting from the tower; no long hose runs.

⁴ Category 2: Further than 20 miles; access from top or bottom (but not both); long hose runs will likely be required

⁵ Mean was established by eliminating outlier data using professional judgement. Value ranges set at 20% above and below the mean installed costs.

ADDITIONAL NOTES:

Contractors indicated that Category 1 & 2 (less difficult versus more difficult) had less bearing on pricing than the actual size of the project. A consistent comment was that more difficult projects are not necessarily those that require long hose deployments or areas that have steeper slopes, but consist of those projects that have existing vegetation in the form of ornamental or containerized plantings that need to be "worked around".

SECTION FOUR

4.1 Company Name of Questionnaire Participants

- Acacia Hydroseeding
- Hanford Applied Restoration
- Hydro-Plant, Inc.
- Hydrosprout, Inc.
- Inland Erosion Control
- J & M Land Restoration
- Nature-Gro
- Nitta Construction Inc.
- Pacific Erosion Control
- Selby Erosion Control

5. References

California Department of Transportation (Caltrans). 1999. *Field Guide: Soil Stabilization for Temporary Slopes*. (Caltrans Contract No. 43A0004C, Task Order 17, Prepared by URS Greiner Woodward Clyde), Caltrans Document Number: CTSW-RT-99-082, Sacramento, CA., November, 30