

**Draft Permit Attachment F:**

**U.S.EPA Inspection Report for Sonoma County and the Sonoma  
County Water Agency**

**County of Sonoma and the Sonoma County Water Agency  
Municipal Separate Storm Sewer System (MS4)  
Inspection Report**

**Background**

PG Environmental, LLC, a USEPA Region IX contractor, with assistance from the California Regional Water Quality Control Board, North Coast Region (Regional Board), conducted an inspection of the County of Sonoma's Municipal Separate Storm Sewer System (MS4) program and the Sonoma County Water Agency's MS4 program from November 27, 2007 through November 28, 2007. Discharges from the permittees MS4's are regulated by Regional Board Order No. R1-2003-0062 (NPDES Permit No. CA0025054) issued June 26, 2003.

The purpose of the inspection was to determine the County of Sonoma's and the Sonoma County Water Agency's (hereafter, permittees) compliance with requirements contained within Regional Board Order No. R1-2003-0062. Additionally, the inspectors assessed the permittees' current implementation status with respect to their individual Storm Water Management Plans. The inspection focused specifically on the following sections of the Order: (1) Private Construction Element; (2) Industrial/Commercial Program; (3) Municipal Operations Program (including Public Construction Activities Management, Vehicle Maintenance/Material Storage Facilities/Corporation Yards Management, Landscape and Recreational Facilities Management, Storm Drain Operation and Maintenance, and Streets and Road Maintenance); (4) Illicit Discharge Detection and Elimination Program; and (5) Santa Rosa Area-Standard Urban Storm Water Mitigation Plan requirements. The inspectors did not evaluate or assess compliance with the following Provisions: Program Management, Legal Authority, Parking Facilities Management, Emergency Procedures, Public Education and Outreach, Effectiveness Evaluation, Fiscal Analysis, or Monitoring Plan. As such, the inspection was not intended to be a comprehensive evaluation of all components and requirements associated with the entire MS4 program.

The County of Sonoma was represented by four separate organizational entities during the course of the inspection as follows: the Permit and Resource Management Department (PRMD), the Department of Transportation and Public Works (TPW), the Regional Parks Department (Regional Parks), and the Division of Environmental Health (EH). The primary MS4 Program representatives for the County of Sonoma on November 27, 2007 were: Nathan Quarles (Engineering Division Manager, PRMD); Reg Cullen (Senior Engineer, PRMD); Janice Gilligan (Engineering Technician II, PRMD); John Maitland (Engineering Division Manager, TPW); Robert Jensen (Stormwater Coordinator, Regional Parks); and Ken Krout (Maintenance Worker II, Regional Parks). Kevin Booker (Engineer) served as the primary MS4 Program representative for the Sonoma County Water Agency (hereafter, Water Agency or SCWA). The weather on this day was sunny and dry.

The primary MS4 Program representatives for the permittees on November 28, 2007 were: Kevin Booker (Engineer, SCWA); Nathan Quarles (Engineering Division Manager, PRMD); Reg Cullen (Senior Engineer, PRMD); Janice Gilligan (Engineering Technician II, PRMD); Jennifer Sylvester (REHS II, Environmental Health); John Maitland (Engineering Division Manager, TPW); John Esposti (Maintenance Superintendent, TPW); Robert Jensen (Stormwater Coordinator, Regional Parks); and Ken Krout (Maintenance Worker II, Regional Parks). The weather on this day was sunny and dry.

Mr. Wesley Ganter and Mr. Scott Coulson of PG Environmental, LLC led the inspection on both days. The inspection schedule was as follows:

<b>Tuesday, November 27</b>	<b>Wednesday, November 28</b>
<p style="text-align: center;"><i><b>All Parties</b></i></p> <p>9:00 AM – Inspection kick-off meeting outlining objectives and logistics</p> <p>9:30 AM – Office discussion on Public/Private Construction</p> <p>10:00 AM – Field visits to Public/Private Construction and SRA-SUSMP sites</p> <p>1:00 PM – Office discussion on SRA-SUSMP</p> <p>2:00 PM – Field visits to additional Public/Private Construction sites</p> <p>5:00 PM – Conclude for the day</p>	<p style="text-align: center;"><i><b>All Parties</b></i></p> <p>8:00 AM – Brief office discussion outlining inspection objectives and logistics</p> <p style="text-align: center;"><i><b>Sonoma County Permittee</b></i></p> <p>8:30 AM – <i>Team 1</i> Municipal Operations field visits (Corporate Yards, Landscape and Recreational Facilities, Storm Drain Operation and Maintenance, Streets and Road Maintenance).</p> <p style="text-align: center;"><i><b>Water Agency Permittee</b></i></p> <p>8:30 AM– <i>Team 2</i> Municipal Operations field visits (All applicable from the above list)</p> <p style="text-align: center;"><i><b>Sonoma County Permittee</b></i></p> <p>1:00 PM –Office discussion on Industrial/ Commercial and Illicit Discharge Detection and Elimination Programs</p> <p>2:00 PM – Additional discussion on SRA-SUSMP</p> <p>3:15 PM – Meeting among inspection team members</p> <p>4:00 PM – Closing conference and presentation of preliminary findings</p>

## **Findings**

### **Private Construction Element**

1. **County of Sonoma:** Regional Board Order No. R1-2003-0062, Provision 14.d. requires the County to “use its legal authority to promptly and effectively enforce its storm water ordinance(s) to correct any noncompliance observed during inspections.” The Sonoma County Code, Chapter 11, Article III. Section 11-32. Reduction of pollutants in storm water, states that “all activities that do actually, or *may potentially*, result in the deposit of pollutants in or on the County’s stormwater system, ...and *all land which drains to either this system or any of its tributaries* shall be construed as activities which may result in pollutants entering the County’s stormwater system [emphasis added]” in violation of the County’s storm water ordinance. It was observed during the inspection that BMPs were not adequately installed, inspected, or maintained to prevent the discharge of pollutants from the 5540 Villa Porta Azzuro and 5491 Skylane Blvd. construction sites (see specifically Findings 2, 3, and 4 below). As a result, the County exhibited a lack of adequate private construction oversight to prevent the discharge of pollutants from these locations. Findings 2, 3, and 4 were considered collectively in making this determination. The County must correct Findings 2, 3, and 4 through prompt and effective enforcement of its storm water ordinance(s). To facilitate the oversight and enforcement process, it is strongly recommended that the County formally designate and require the implementation of a minimum set of specifications and design criteria for construction site BMPs. Formal adoption of such minimum BMP standards would provide a more enforceable basis to the County staff in making inspection determinations and would alleviate the burden of providing compliance assistance in an ad-hoc manner. Adoption of minimum BMP standards on a county-wide basis would ideally serve as a coordinated interdepartmental standard and may deliver a clear message to the development community on the County’s expectations for BMP implementation.

Site: 5540 Villa Porta Azzuro located in unincorporated Santa Rosa, CA

2. **County of Sonoma:** Regional Board Order No. R1-2003-0062, Provision 14.a.ii. requires the County to ensure adequate control of construction-related materials, wastes, spills, or residues at project sites. It was observed during the inspection that chemicals were improperly stored at the material storage and staging area located in the central portion of the project site (see attached Photograph 1). Examples included a container of muriatic acid which was stored in several inches of standing water (see attached Photograph 2). A container of concrete form release chemical was stored without adequate protection to prevent and contain potential spills from contributing pollutants to storm water runoff (see attached Photograph 3). In addition, a fuel can filled with gasoline was stored outdoors where it could be exposed to storm water contact (see attached Photograph 4). Adequate BMPs for pollution prevention, housekeeping, and spill prevention and response must be implemented to prevent any contribution of pollutants to storm water. Moreover, the County must ensure adequate

control of construction-related materials, wastes, spills, or residues at the Villa Porta Azzuro project site.

Site: Light Industrial Buildings located at 5491 Skylane Blvd. in unincorporated Santa Rosa, CA 95403

3. **County of Sonoma:** Regional Board Order No. R1-2003-0062, Provision 14.a.ii. requires the County to ensure adequate control of construction-related materials, wastes, spills, or residues at project sites. It was observed during the inspection that several pounds of lime spillage and/or over-application were present throughout the project site. Exposed lime was observed along the construction site boundary near the southwest perimeter fenceline (see attached Photographs 5 and 6). The straw wattle BMPs installed along the perimeter fenceline are not effective at controlling this type of pollutant. As a result, there was a potential for the discharge of pollutants beyond the project site boundary. Adequate BMPs for pollution prevention, housekeeping, and spill prevention and response must be implemented to prevent the discharge of pollutants offsite and any contribution of pollutants to storm water. Moreover, the County must ensure adequate control of construction-related materials, wastes, spills, or residues at the 5491 Skylane Blvd. project site.
  
4. **County of Sonoma:** Regional Board Order No. R1-2003-0062, Provision 14.a.i. requires the County to ensure adequate source control and/or structural BMPs to control sediments generated at project sites. It was observed during the inspection that the straw wattle BMPs implemented along the boundary of the project site were not installed in accordance with the requirements specified in the Sonoma County Erosion Prevention and Sediment Control Notes dated June 2004 (hereafter, Standard Grading Notes). Specifically, the straw wattle BMPs were not properly entrenched in the ground to retain sediment (see attached Photographs 7 and 8), and gaps were visible between the wattles (see attached Photographs 9 and 10). In addition, soil had overtopped the straw wattle in one location (see attached Photograph 11). Temporary structural BMPs were only present along the perimeter of the project site and source control BMPs were not observed. As a result, there was a potential for the discharge of sediment beyond the project site boundary. The County must ensure adequate source control and/or structural BMPs to control sediments generated at the 5491 Skylane Blvd. project site.

### **Industrial/Commercial Program**

**County of Sonoma:** There were no findings or deficiencies identified with respect to this program element. Based on an office discussion, the County appeared to be effectively regulating industrial and commercial activity with the goal of reducing pollutant contact with storm water.

## **Municipal Operations Program**

### **a. Public Construction Activities Management**

Site: Matanzas Creek Reservoir Sediment Removal Project located off Bennett Valley Rd. in unincorporated Santa Rosa, CA 95404

5. **Sonoma County Water Agency:** The Sonoma County Water Agency Storm Water Management Plan dated October 2002 (hereafter, SCWA Management Plan), Section 4.1.2 states that the Water Agency will comply with the General Construction Permit–Discharges of Storm Water Runoff Associated with Construction Activity (NPDES General Permit No. CAS000002). Mr. Booker, the Water Agency’s primary MS4 Program representative, was unaware that the Matanzas Creek Reservoir Sediment Removal Project site had active coverage under the General Construction Permit. As discussed on-site, the Water Agency should develop a formal inventory of Water Agency-owned construction sites within its jurisdiction. Successful public construction program development and implementation will require the Water Agency to track jurisdictional construction sites as a tool for verifying compliance with both the General Construction Permit and MS4 Permit (Regional Board Order No. R1-2003-0062).
  
6. **Sonoma County Water Agency:** The Water Agency had initiated project completion activities intended to finalize the Matanzas Creek Reservoir Sediment Removal Project. At the request of the Water Agency, Sonoma County had approved termination of the project’s Grading Permit on September 25, 2007. Furthermore, the Water Agency planned to submit a Notice of Termination Form (NOT) to the Regional Board in order to terminate its coverage under the General Construction Permit. The SCWA Management Plan, Section 4.1.2 states that the Water Agency will comply with the General Construction Permit. For purposes of submitting a NOT under the General Construction Permit, final stabilization is reached when all soil disturbing activities at the site have been completed, and a uniform vegetative cover has been established with a density of 70 percent of pre-disturbance levels, or equivalent permanent, physical erosion reduction methods have been employed. It was observed during the inspection that final stabilization had not been reached on the site. Although soil disturbing activities associated with the General Construction Permit were completed and temporary BMPs were removed, a uniform vegetative cover was not established across the entire site. Specific examples include the following locations: (a) the area along Matanzas Creek where a instream BMP had previously been installed (see attached Photograph 12), and (b) the soil stockpile area adjacent to the main access road (see attached Photograph 13). As a result, there was a potential for the discharge of sediment from the unstabilized areas of the site. The Water Agency needs to achieve final stabilization across the entire site prior to initiating additional project completion activities (e.g., submitting a NOT as intended). The criteria for final stabilization, as defined in the General Construction Permit, should be used as a basis for project completion determinations. The inventory of Water Agency-owned construction sites which was discussed in Finding

6, could be used to track the status of projects through the development timeline and to aid in these types of project oversight decisions.

Site: Schopflin Fields Phase 3 located at 4351 Old Redwood Highway in unincorporated Santa Rosa, CA 95402

7. **County of Sonoma:** The County of Sonoma Storm Water Management Plan as adopted June 26, 2003 (hereafter, County Management Plan), Section 4.1.1 references the use of the California Regional Water Quality Control Board, San Francisco Bay Region, Erosion and Sediment Control Field Manual dated July 1999 (hereafter, ESC Field Manual). It was observed during the inspection that the straw wattle BMPs implemented in and near a grassy swale located on the boundary of the project site were not installed in accordance with best engineering practice requirements in general, or those specified in the ESC Field Manual. Specifically, the straw wattle BMPs were not properly entrenched in the ground to retain sediment (see attached Photograph 14). In addition, the straw wattles were badly deteriorated and were no longer necessary or protective of the adjacent wetland (see attached Photograph 15). Moreover, the straw wattles implemented in the grassy swale were not installed to adequately dissipate flow velocity in the swale. Specifically, the wattles were placed in a manner that would direct flows beyond the swale rather than maintaining flow in the grass-lined channel (see attached Photograph 16). These issues suggest the need for stronger County oversight and guidance, particularly related to BMP installation, inspection, and maintenance. As discussed in Finding 1, it is strongly recommended that the County formally designate and require the implementation of a minimum set of specifications and design criteria for construction site BMPs on both public and private projects.

#### **b. Storm Drain Operation and Maintenance**

Site: Grange Bridge Project located near the intersection of Grange Rd. and Bennett Valley Rd. in unincorporated Santa Rosa, CA

8. **County of Sonoma:** The Grange Bridge was a public construction project which was completed in approximately 2005. Regional Board Order No. R1-2003-0062, Provision 16.d.iv.(c) requires the County to implement a program for the removal of trash and debris from identified open channels, detention basins, and storm drains prior to the wet weather season. Pursuant to this provision, the County Management Plan, Section 4.3.3 states that the County will inspect roadside ditches on an annual basis and remove trash and debris to prevent or minimize flooding and erosion. It was observed during the inspection that the storm drainage system was not adequately inspected and maintained to prevent the discharge of rock and debris from the site to Matanzas Creek. As provided by Mr. Maitland, the roadside ditch (see attached Photograph 17), and subsequent culvert pipe (see attached Photograph 18) are located in the County's jurisdictional right of way (ROW). Evidence of a previous runoff event discharging rock and debris to the culvert was observed; including pollutant accumulation in the culvert outfall over Matanzas Creek (see attached Photograph

19). As a result, there was a potential for the discharge of pollutants from the roadside ditch and culvert pipe to Matanzas Creek. Although the large-sized rock did not pose a significant threat to water quality, this issue is indicative of an MS4 program lacking an adequate means to ensure long-term maintenance of the storm drainage system. The County must ensure that the storm drainage system is adequately inspected and maintained to prevent the discharge of rock and debris from the site to Matanzas Creek.

**c. Vehicle Maintenance/Material Storage Facilities/Corporation Yards Management**

9. **Sonoma County Water Agency and County of Sonoma:** Regional Board Order No. R1-2003-0062, Provision 16.b.ii. requires the permittees to prepare and implement Storm Water Pollution Prevention Plans (SWPPPs) for their municipal facilities by June 26, 2008. The permittees had not yet prepared SWPPPs for any of their municipal facilities and appeared unaware of this permit requirement. As a result, the permittees did not demonstrate reasonable progress in meeting this compliance date. The permittees must prepare and implement SWPPPs for their municipal facilities by June 26, 2008. Based on previous work developing municipal facility SWPPPs and providing associated training, implementation is far more challenging than simply preparing a SWPPP document. Successful SWPPP implementation will rely on direct, hands-on collaboration with facility staff to instill ownership of the SWPPP and ensure its full deployment. Findings 11 and 12 are primarily a result of a lack of storm water awareness and may have been avoided if the County had developed and deployed SWPPPs for its fixed facilities and offsite municipal activities using adequate hands-on training.

Site: Sonoma County Healdsburg Corporate Yard located in unincorporated Healdsburg, CA

10. **County of Sonoma:** Regional Board Order No. R1-2003-0062, Provision 16.b.iii.(a) states that “all vehicle and equipment wash areas (except for fire stations) shall either be self-contained, equipped with a clarifier; equipped with an alternative pre-treatment device; plumbed to the sanitary sewer” or utilize alternative measures to prevent the discharge of pollutants to the MS4 by June 26, 2008. Furthermore, Regional Board Order No. R1-2003-0062, Discharge Prohibition A requires the County to eliminate non-storm water discharges (i.e., materials other than storm water). It was observed during the inspection that vehicle washing activities (see attached Photograph 20) had the potential to cause a non-storm water discharge to a drainage culvert located at the facility boundary (see attached Photographs 21 and 22). As provided by John Esposti (Maintenance Superintendent, TPW), the Healdsburg Corporate Yard is not equipped with structural BMPs for vehicle and equipment washing. In addition, Mr. Esposti was not sure where the culvert drains to but described that it likely flows to the adjacent winery property. As a result, there was a potential to cause an illicit non-storm water discharge to the drainage culvert



and offsite property. If vehicle and equipment washing is conducted at the Healdsburg Corporate Yard, the County must implement the aforementioned BMPs.

Site: Sonoma County Road Stock Yard located at 2175 Airport Blvd. in unincorporated Santa Rosa, CA

11. **County of Sonoma:** Regional Board Order No. R1-2003-0062, Provision 16.b.i. requires the County “to implement BMPs to minimize pollutant discharges in storm water” in association with corporation yards management. It was observed during the inspection that adequate BMPs were not implemented to prevent the discharge of pollutants from a number of recycled asphalt stockpiles located near the facility entrance along Airport Blvd. Specifically, placement of the stockpiles was inadequate as they were located in the roadway drainage ditch, a component of the MS4 drainage infrastructure (see attached Photograph 23 and 24). As provided by Mr. Esposti, an inexperienced maintenance worker from the Sonoma County Road Stock Yard had likely placed the stockpiles in the drainage flow-line due to ROW constraints. As a result, there was an imminent potential for the discharge of recycled asphalt product in the MS4 drainage infrastructure during the next precipitation event. The County must ensure that BMPs are adequately implemented to prevent the discharge of pollutants to its MS4 drainage infrastructure. Additionally, the County must ensure that the storm drainage system is adequately inspected and maintained as described in Finding 9 above.

#### **d. Landscape and Recreational Facilities Management**

There were no findings or deficiencies identified with respect to this component of the Municipal Operations program element. Based on field exercises and discussion, the permittees appeared to be effectively reducing pollutants in runoff associated with these activities. Specifically, adequate BMPs were observed at the Spring Lake Regional Park, the Water Agency’s West College facility, and the County owned and operated golf course.

#### **e. Streets and Road Maintenance**

12. **County of Sonoma:** Regional Board Order No. R1-2003-0062, Provision 16.e.i. requires the County to designate streets and/or street segments within its jurisdiction as Priority A, B, or C based on the level of trash and debris generated. Neither Mr. Esposti (Maintenance Superintendent, TPW) nor the interviewed street sweeper operator was aware of any such prioritization. As a result, it is unclear whether the County schedules its street sweeping activities in accordance with the required prioritization. A written statement and/or graphic clarifying the designated prioritization and corresponding street sweeping schedule must be submitted to the Regional Board.

## **Illicit Discharge Detection and Elimination Program**

13. **County of Sonoma:** Previous inspections have indicated that the most successful MS4 programs have developed extensive preventive measures to actively seek and eliminate illicit discharges and connections. A logical basis for preventive activities is the development of a MS4 drainage infrastructure map or inventory including both closed and open drainage systems along with their corresponding drainage area. The MS4 map should inventory all outfalls, their physical attributes, and dry weather characteristics. Dry weather screening and analytical monitoring of outfalls or targeted locations within the MS4 system can utilize the drainage infrastructure map as a tool for investigation and identification of any illicit pollutant sources using appropriate response criteria and procedures for follow-up. The County is strongly encouraged to further the development of preventive measures to actively seek and eliminate illicit discharges and connections, particularly related to MS4 mapping and dry weather characterization.
  
14. **County of Sonoma:** Regional Board Order No. R1-2003-0062, Provision 17.b.iii. requires the County to “ensure that all employees responsible for identification, investigation, termination, cleanup, and reporting of illicit connections and discharges are sufficiently trained.” Pursuant to this provision, the County Management Plan, Section 5.8 states that TPW staff are trained on emergency response to minor illicit discharges. Neither Mr. Esposti (Maintenance Superintendent, TPW) nor the interviewed street sweeper operator were aware of the designated spill reporting phone number or who to contact in the event that illicit discharges are identified in routine road maintenance activities. The County must ensure that all employees responsible for identification, investigation, termination, cleanup, and reporting of illicit connections and discharges are sufficiently trained. Based on the inspection team’s experience gained in evaluating Phase I and II programs across the country, the County would also benefit from the development of a unified public education message or storm water protection slogan that is integrated with its public and municipal employee spill reporting efforts. As provided by Nathan Quarles (Engineering Division Manager, PRMD), an average of only 3 to 4 spill reporting calls are received annually. A storm water protection message can serve as an effective tool to facilitate and prompt active spill reporting.

## **Santa Rosa Area-Standard Urban Storm Water Mitigation Plan**

15. **County of Sonoma:** Regional Board Order No. R1-2003-0062, Provision 30 requires that the Santa Rosa Area-Standard Urban Storm Water Mitigation Plan (hereafter SRA-SUSMP) include consideration of pollutants of concern (POCs) in the selection of appropriate BMPs for new development or significant redevelopment projects. The Guidelines for the Standard Urban Storm Water Mitigation Plan dated June 3, 2005 (hereafter, SRA-SUSMP Manual), Attachment 2-4 Pollutants of Concern Worksheet was revised and replaced by the Preliminary Storm Water Mitigation Plan Worksheet denoted NPD-005 and dated March 21, 2006 (hereafter, County SUSMP Worksheet). The County SUSMP Worksheet is an improvement over the original version as it

requires project proponents to identify the proposed land use, corresponding POCs, and to generally propose BMPs. However, the SRA-SUSMP Manual itself does not provide adequate guidance on the selection of specific BMPs which are effective for the identified POCs. As a result, the PRMD plan review staff does not have adequate resources to ensure that appropriate BMPs are selected. The selection of BMPs which are protective of POC levels will be vitally important as TMDLs continue to be adopted and implemented in the permittees' jurisdictions.

16. **County of Sonoma:** The County lacks a strong communication feedback mechanism connecting the PRMD plan review staff to the infrastructure, maintenance, and construction personnel tasked with implementation of the approved SRA-SUSMP BMPs. Previous inspections have indicated that the most successful MS4 programs have developed strong communication between these parties. As discussed on-site, the County should develop a mechanism to ensure that field constraints are fully communicated to plan review staff for self learning purposes and to ensure that proposed changes remain consistent with the SRA-SUSMP requirements.

17. **County of Sonoma:** Regional Board Order No. R1-2003-0062, Provision 25 requires the County to develop measures to ensure that approved SRA-SUSMP BMPs are implemented, operated, and maintained. Although the County's Permits Plus® database is a useful tool to track SUSMP information, it is not being used to inventory the specific locations where BMPs are implemented, the corresponding maintenance obligations or records demonstrating that maintenance has been performed. As a result, the County cannot ensure adequate long-term maintenance of the BMPs. The County must develop measures to ensure that approved SRA-SUSMP BMPs are implemented, operated, and maintained.

## **Conclusion**

All findings made in this inspection report are subject to enforcement action by the Regional Board. The information gathered during the inspection indicates that the permittees' programs are being implemented, but that program element improvements are needed to ensure compliance.

**County of Sonoma and the Sonoma County Water Agency -  
Municipal Separate Storm Sewer Systems (MS4)  
(Order No. R1-2003-0062)  
Photograph Log**

Inspected by: Wes Ganter and Scott Coulson (PG Environmental, LLC)



Photograph 1: View of material storage and staging area located in the central portion of the project site



Photograph 2: Container of muriatic acid which was stored in several inches of standing water

**County of Sonoma and the Sonoma County Water Agency -  
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Photograph 3: A container of concrete form release chemical was stored where it could be knocked over and released into the environment



Photograph 4: A fuel can filled with gasoline was stored where it could be exposed to storm water contact

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Photograph 5: Lime spillage and/or over-application was observed along the construction site boundary



Photograph 6: Lime spillage and/or over-application was present where it could be discharged directly offsite

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Photograph 7: View showing straw wattle BMPs implemented along the majority of the project site boundary



Photograph 8: Straw wattle BMPs were not properly entrenched in the ground to retain sediment

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Photograph 9: View of gaps between the lengths of straw wattle BMPs



Photograph 10: Additional gaps between the straw wattle BMPs



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Photograph 11: View showing soil that had overtopped the straw wattle BMP



Photograph 12: Unstabilized area along Matanzas Creek where a instream BMP had previously been installed

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Photograph 13: Unstabilized soil stockpile area adjacent to the main access road



Photograph 14: Straw wattle BMPs were not properly entrenched in the ground to retain sediment

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Photograph 15: Straw wattles were badly deteriorated and were no longer necessary or protective of the adjacent wetland (located to the right of photograph)



Photograph 16: Straw wattles were not installed to adequately dissipate flow velocity in the swale

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Photograph 17: View of roadside ditch leading to Matanzas Creek



Photograph 18: Culvert pipe outfall to Matanzas Creek

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Photograph 19: View of rock and debris near the terminus of the culvert pipe outfall



Photograph 20: Wash equipment used in the absence of structural vehicle and equipment washing BMPs at the Healdsburg Corporate Yard

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Photograph 21: View of wetted area in the foreground and adjacent property beyond the fenceline



Photograph 22: Close-up view of culvert and associated straw wattle in need of maintenance

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Photograph 23: Recycled asphalt stockpiles located in the roadway drainage ditch, a component of the MS4 drainage infrastructure



Photograph 24: View showing stockpiles and flow direction in the roadway drainage ditch