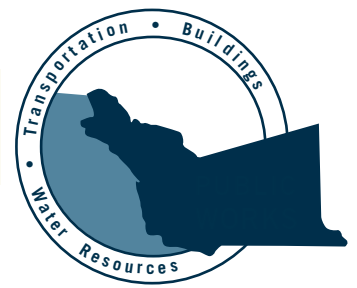


Pollution Prevention Practices

for the Construction Industry
Alameda County Unincorporated Area Clean Water Program



Construction sites are common sources of stormwater pollution. Materials and wastes that blow or wash into a gutter, sidewalk, street, or storm drain, have a direct impact on local creeks and the San Francisco Bay. Stormwater pollution is a serious problem for Bay Area wildlife dependent on waterways. Common sources of this pollution are oil, fuel and fluids from vehicles and heavy equipment; vehicle maintenance and washing; construction debris, paint/solvents; soil from site erosion and tire tracking; concrete and mortar.

Water Pollution Prevention - It's the Law

The United States Federal Clean Water Act and the California Porter/Cologne Act through the State Water Resources Control Board and the Regional Water Quality Control Board require cities and counties to reduce pollutants flowing to waterways. Alameda County's Stormwater Discharge Control Ordinance (County Code Section 13.08) prohibits discharges from construction sites. As a contractor, site supervisor, owner or operator of a site or project, you are responsible for any violation of this ordinance by your employees or subcontractors. Adherence with this ordinance is a condition of your building permit. Stop work orders, fines and fees may apply if violations occur.

This publication is intended to assist contractors to reduce or eliminate pollutants being discharged from work sites. Also see the publication *Blueprint for a Clean Bay* available at the Building Permit office and through the Clean Water Division.

This brochure is one in a series of five brochures entitled:

- General Construction & Site Supervision
- Roadwork & Paving Activities
- Heavy Equipment & Operation
- Fresh Concrete & Mortar Application
- Painting & Application of Solvents & Adhesives

For more information on ways your company can stay within the law and help prevent water pollution, call:

Clean Water Division

510. 670.5543

Grading Permits

510. 670.5568

Building Permits

510. 670.5440

Construction sites are common sources of stormwater pollution. Materials and wastes that blow or wash into a storm drain, gutter, or street have a direct impact on local creeks and the Bay. As a contractor, site supervisor, owner or operator of a site, you are responsible for any environmental damage caused by your subcontractors or employees.

The following practices can reduce pollution significantly. Compliance with environmental regulations can be as simple as minimizing contact with rainwater (covering the source), limiting the area of the source, protecting materials and waste from runoff, and maintaining a "clean" site using good housekeeping practices or Best Management Practices.

Best Management Practices

- Schedule excavation, grading, and paving activities for dry weather periods.
- Control the amount of runoff crossing your construction site. Use berms or drainage ditches to divert water flow around the site.
- Identify potential pollution sources from materials and wastes that will be used, stored or disposed of on the job.
- Inform your employees and subcontractors about the clean storm water requirements and their responsibilities in pollution prevention.
- Design site to protect storm water quality; allow areas for chemical and equipment storage away from drains or channels.
- Use one area of the site for auto parking, vehicle refueling, and routine equipment maintenance. This designated area should be well away from streams or storm drain inlets, and bermed and rocked if necessary. Make major repairs off site.
- Keep materials out of the rain—prevent runoff contamination at the source. Cover exposed piles of soil or construction materials with plastic sheeting or temporary roofs. Before it rains, sweep and remove materials from paved surfaces that drain to storm drains, creeks, or channels.
- Keep work areas clean. Remove trash, litter, and debris on a regular basis.
- Clean up leaks, drips and other spills immediately so they do not pollute the soil or leave residue on paved surfaces that can be washed away when it rains.
- Maintain all vehicles and equipment in good working order. Inspect frequently for leaks and repair promptly.
- Never wash down "dirty" pavement or surfaces where materials have been spilled; use dry cleanup method whenever possible (absorbent materials, cat litter and/or rags).
- Place dumpsters under roofs or cover with tarps or plastic sheeting. Never clean out a dumpster by washing it down.
- Make sure portable toilets are in good working order. Check frequently for leaks.
- Prevent erosion by using practices outlined in ABAG's "Manual of Standards for Erosion and Sediment Control Measures."

Materials and Waste Handling

- Practice source reduction by ordering only the amount you need to finish the job.
- Use recyclable materials whenever possible.
- Dispose of all wastes properly. Many construction materials and wastes, including solvents, water-based paints, vehicle fluids, broken asphalt and concrete, wood, and cleared vegetation can be recycled. Materials that cannot be recycled must be taken to an appropriate landfill or disposed of as hazardous waste. Never bury waste materials.

Roadwork & Paving Activities

Prevent Water Pollution

Road construction involves excavation and grading which can cause soil erosion and deposition of sediments in storm drains. During road paving, surfacing, and pavement removal operations, there are numerous opportunities for storm drain pollution from asphalt, saw-cut slurry, or excavated material. Extra planning is required to store and dispose of materials properly and guard against pollution of the storm drains and creeks.

Best Management Practices

- Develop and implement erosion/sediment control plans.
- Schedule excavation and grading work for dry weather.
- Perform major equipment repairs at your yard, not at the construction site.
- Inspect and repair leaking equipment. Wash vehicles and equipment at a site equipped to properly handle wastewater.
- Refuel and maintain vehicles and equipment away from storm drains and creeks.
- Do not use diesel oil to lubricate or clean equipment or parts.
- Recycle used oil, concrete, broken asphalt, etc. whenever possible. Train employees in using these BMPs.

During Construction

- Do not pave or seal coat in wet weather, or when rain is forecast.
- Cover and seal catch basins and manholes when applying seal coat, slurry seal, fog seal, etc.
- Divert runoff around work areas.
- Never wash excess material from exposed aggregate concrete or similar treatments into a street or storm drain.
- Cover stockpiles (asphalt, sand, etc.) and other materials with plastic tarps to protect from rain. Use berms around the stockpile to prevent run-on.
- Store all materials away from creeks and storm drains.
- Clean up all spills and leaks using "dry" methods (absorbent materials and/or rags). If spills occur on dirt areas, dig up and remove contaminated soil.
- Collect and recycle or properly dispose of excess gravel or sand.
- Never wash down streets to clean up tracked dirt. Sweep up and dispose of properly. Use as little water as necessary for dust control.
- Catch drips from paving equipment with pans or absorbent material placed under the machines.

Asphalt/Concrete Removal

- Avoid creating excess dust when breaking asphalt or concrete. If water is used for dust-control, use as little water as possible.
- After breaking old pavement, remove all chunks and pieces to avoid contact with rainfall or runoff.
- Block or berm around storm drain inlets during saw-cutting to contain slurry. Shovel or vacuum saw-cut slurry and remove from site.

Concrete & Mortar Application

Prevent Water Pollution

Improper disposal of fresh concrete and mortar to storm drains or creeks causes serious problems and is punishable by law. These materials end up in streams, lakes, or the Bay and are toxic to fish, invertebrates and the aquatic environment.

Best Management Practices

- Store wet and dry materials under cover to protect from wind and rain both at your yard and the construction site.
- Secure bags of cement after opening. Keep cement powder blowing or washing into gutters, storm drains, creeks.
- Train employees to be use these practices to properly use and dispose of concrete/mortar wastes and washwaters.

Concrete Waste Management

- Pick up all the pieces when breaking up paving. Sweep the area to remove small debris. Be sure to dispose properly.
- Recycle large chunks of broken or hardened concrete at a landfill.
- Dispose of small amounts of excess dry concrete, grout, and mortar in the trash. Never bury waste material.

Small Weekend Jobs

- Remove all excess concrete from the chute by using a squeegee or similar tool. Use a minimum amount of water to wash.
- Direct wash water to dirt area to allow water to infiltrate. Remove concrete after it hardens.
- Allow washwater to collect in bermed area and evaporate. If no dirt or suitable unpaved area is available, block or berm gutter or nearby storm drain inlet using sandbags.
- Remove the concrete sediment around the sandbags before it hardens completely

During Construction

- Don't mix up more fresh concrete, mortar or plaster than you will use in a day.
- Set up and operate small mixers on tarps or heavy plastic drop cloths. Store all materials away from creeks and storm drains.
- Designate an area on-site for dumping excess concrete, do not allow random dumping around the site.
- Never dispose of washout into the street, storm drains, drainage ditches, or streams.
- Direct washout to a containment pond, pit, or bermed area large enough for liquid and solid waste. Pump back into mixer for reuse whenever possible. Allow water to evaporate or infiltrate into soil. Let concrete harden and place in trash.
- During saw cutting operations, slurry must not be discharged to storm drain system. Vacuum up slurry and pump it to a holding tank for disposal, or pump it to a containment pond/dirt area where water can filter or evaporate, allowing the concrete to set.
- Avoid discharging to the storm drain by directing the water to a bermed or dirt area when washing concrete to remove fine particles or expose the aggregate.
- Do not wash sweepings from exposed aggregate concrete into the street or storm drain. Collect and return aggregate sweepings to base stockpile, or dispose in the trash.
- When cleaning up after driveway or sidewalk construction, wash fines onto dirt areas, not down the driveway or into the street.

Paints Solvents & Adhesives

Prevent Water Pollution

All paints, solvents, and adhesives contain chemicals that are harmful to the wildlife in our creeks and Bay. These toxic chemicals may come from liquids, solid products, cleaning residues, or rags. Liquid residues from paint thinners, solvents, glues and cleaning fluids are hazardous wastes.

Best Management Practices ■

- Keep all liquid paint products and wastes away from the gutter and storm drain facilities. Do not clean brushes, rollers or containers into any storm drain facility. When thoroughly dry, empty paint cans, spent brushes, rags, and drop cloths may be disposed of as trash.

Paint Removal ■

- Collect and dispose of residue at a hazardous waste collection facility. Chemical paint stripping residue is a hazardous waste.
- When stripping or cleaning building exteriors with high-pressure water, block storm drains and direct wash water onto a dirt area. If there is no sizeable landscape or dirt area, check with your local waste water treatment authority for permission to discharge to sanitary sewer.
- When cleaning rain gutters - use a sock of geotextile fabric at downspouts to filter out chips and particles.
- Use plastic sheeting or drop cloth to collect chips and dust from non-hazardous dry stripping and sand blasting. Sweep up and dispose of debris as trash.
- Chips and dust from marine paints or paints containing lead or tributyl tin are hazardous wastes. Dry sweep and dispose of appropriately.

Paint Operation ■

- Train employees and subcontractors in these methods. Follow directions carefully.
- Mix paints indoors if possible and always on a drop cloth or tarp. Buy only the amount of paint needed for the job.
- Use latex or the least hazardous paint. Don't spray in windy conditions.
- Use equipment that is most efficient at getting paint on the surface (minimize overspray). When possible, enclose paint operation with scaffolding close to the job. Use drop cloths draped over scaffolding to reduce area of paint spray.
- When sealants are used on wood, pavement, roofs, quickly clean up any spills. Remove excess liquid with absorbents or rags.

Painting Cleanup & Disposal ■

- Never clean brushes or rinse paint containers into a street gutter, storm drain, stream, or on the ground. For water-based paints, paint out brushes and rinse to the sanitary sewer.
- For oil-based paints, paint out brushes before cleaning in a thinner or solvent. Filter and reuse thinners and solvents. Dispose of excess liquids and residue as hazardous waste.
- Completely use up or recycle excess water-based paint. Paint can be recycled at the Household Hazardous Waste Center by calling for an appointment.
- Dispose of excess oil based paint, solvents and sludges as hazardous waste. Water based paints can be painted onto a drop cloth and disposed of in the trash when dry. NEVER pour any paint into the storm drain or the sanitary sewer.

Poorly maintained vehicles and heavy equipment leaking fuel, oil, antifreeze or other fluids on the construction site are common sources of storm water pollution. Soil excavation and grading operations loosen large amounts of soil that can end up in storm drains in not handled properly. Soil erodes during construction due to the forces of wind and water unless controlled. Some of the most effective erosion control practices reduce the amount of runoff crossing a site and slow the flow with check dams or roughened ground surfaces.

For more information on controlling erosion see A.B.A.G.s "Manual of Standards for Erosion and Sediment Control Measures."

Best Management Practices

Prevent spills and leaks, isolate equipment from drainage channels, and watch for leaks and other maintenance problems. Remove construction equipment from the site as soon as possible.

Site Planning and Preventative Vehicle Maintenance

- Schedule excavation and grading work for dry weather.
- Train employees in using these BMPs.
- Designate one area of the construction site, well away from streams or storm drain inlets, for auto and equipment parking, refueling, and routine maintenance. Use berms around staging areas to prevent runoff to streams or drainage facilities.
- Maintain all vehicles and heavy equipment. Inspect frequently for leaks. Repair leaks promptly.
- Perform major equipment repairs or maintenance at your yard, not at the construction site.
- If you must drain and replace motor oil, radiator coolant, or other fluids on site, use drip pans or drop cloths to catch drips and spills. Collect all used fluids, store in separate containers, and recycle whenever possible. Do not mix different types of fluids or they may not be recyclable.

General Business Practices

- If equipment is washed on-site, prevent wash water from entering a storm drainage facility. Direct wash water to low point where it can infiltrate or evaporate.
- Store all materials away from creeks and storm drains.
- Remove existing vegetation only when absolutely necessary.
- Recycle used oil, concrete, broken asphalt, etc. whenever possible.
- Do not use diesel oil to lubricate or clean equipment or parts.

Clean up spills as soon as they happen

- Never wash down "paved surfaces" where fluids have been spilled. Use dry cleanup methods (absorbent materials, cat litter, and/or rags), whenever possible.
- Sweep up dry spilled materials immediately. Never "wash them away" with water.
- Clean up spills of hazardous materials on dirt areas by digging up and properly disposing of contaminated soil.
- Keep a stockpile of clean-up supplies on-site and readily accessible.
- Remove any contaminated soil from the construction site to an appropriate disposal facility.