The Monthly Dirt

A monthly newsletter on the California Construction General Permit

LAST LINE OF DEFENSE

Where storm water leaves the property, we want to have a final line of defense. But, sometimes this pollution prevention asset also becomes a liability.

While we all know water runs downhill, many take it for granted where it goes from there. Storm water runoff will typically find its way to a drain inlet. From there, water can flow to many different locations—to municipal drainage systems, retention basins, rivers, streams, and even the ocean. Drain inlets (DIs) not only act as the exit gate for storm water, but they also present as many unique sediment control challenges as the number of shapes and sizes they come in. In this edition of **The Monthly Dirt**, we will cover the logistics of protecting DIs, the selection of the right type of DI protection and when to change from one type to another. We will also talk about dry season configurations versus wet season installations and how to keep them from becoming a pollutant source.

Not all drain inlets are created equal. Each type has its own unique place and function. DIs change as site conditions change. They can start as a place where sheet water flows off the site, then be converted to a stubbed-up pipe once the drainage system is installed, and end up as a grate and frame drain surrounded by concrete and asphalt. As each DI goes through this metamorphosis, it is important to adjust the type of sediment control implemented at it during each phase of development.

Some SWPPP writers will circle DIs on the SWPPP map and call out for DI protection specifying either the CASQA SE-10 or the Caltrans SC-10 specification. But, often, that is as far as they go with their specification. If they took the time to read the BMP fact sheet, they would have noticed that each specification includes multiple types of DI protection. Let's take a look as some of the most common ones and discuss when and where they are used.

Type 1-Silt Fence: This design is best used when there are heavy sediment loads present in the area. Typically, we will see this type utilized during the grading phase of a project. Although the shape is not

extremely important (it can be square or triangular), it is a good idea to include geotextile fabric inside the silt fenced area and cover it with some rock. (This particular photo also includes a compost sock or Type 7.) However, please remember that silt fence is not very permeable and you could get some flooding outside it. TIP: to alleviate this, make the fence perimeter longer which allows more linear feet of fence to accommodate a higher pass-through flow rate.

Type 2-Excavated Drop Inlet Sediment Trap: An excellent time to utilize Type 2 is after the storm drainage system has been installed but before paving has occurred. Remember, the location of each DI is a low spot on the site, and, before paving, the storm drainage piping is typically stubbed-up. TIP: You can achieve excellent sediment control by excavating down a little farther (if necessary) and stabilizing the area

around the pipe stub with geotextile and rock.

Type 3-Gravel Bag: Probably the most common DI protection method is gravel bags. This can be a fairly effective method of sediment control for areas that are paved and where sediment loads are light. While there are different thoughts on how best to configure them, the main idea is to slow the flow and allow particles to settle out.

Type 5-Sediment Filter Bag: Sometimes we call these "witches hats"- because if you turn them upside down they can look like a giant felt hat someone would wear on Halloween. Although they have their place and can be good in some applications, we tend to not be a big fan of these devices. They are good at catching big stuff, such as leaves, trash, and large sediment particles. But, they also tend to be forgotten (since they are out of sight), fill up with sediment, and then either break and fall to the bottom of the DI or become a real hassle to remove from the DI.

Type 7-Compost Socks: This is one of our preferred DI protection methods because compost socks not only slow the flow to facilitate sedimentation but they also treat the water by filtering out solids. Treating the water is important because many times DIs are sampling locations. While compost socks will typically reduce turbidity numbers, there are limitations to where compost socks can be used. They are not ideal for areas of high traffic—although they can handle being run over by a pickup truck or car, heavy equipment will usually destroy them in a couple of passes. They are best suited for paved or smooth compacted soil surfaces—unless you stack them up, loose non-compacted soil can overwhelm them.

Maintenance and Use: All of these DI protection types are sediment control devices. Their job is to knock out sediment before water goes down the drain. That means there will be an accumulation of sediment around them. It does not take long for your sediment control asset to become a sediment source liability. To avoid this, maintenance is needed. The following are some maintenance and use tips:

- Drain inlet protection is needed during the wet season **and** dry season. DI protection will stop wind blown sediment as well as water borne particles. The photo below shows an accumulation of dry weather sediment (that needs to be cleaned-up).

- During dry weather, try wrapping the drain grate with plastic sheeting and placing it back on the drain frame. This will keep sediment at the surface where it is easier to clean.
- Shake out gravel bags and compost socks to remove sediment and sweep or vacuum up the removed particles.
- Inspect drain bags monthly and remove accumulated sediment.
- Replace torn or damaged bags and socks.
- Check local municipal ordinances about what sediment control devices are allowed to be placed in the street.

TRAINING OPPORTUNITIES

Upcoming Live Online Events:

Jul. 27- 29, 2021: Online QSP/QSD Class

Register at https://secure.wgr-sw.com/training/live-courses/

Sep. 27– Oct. 1, 2021: Storm Water Awareness Week (*a week of free storm water education!*)

Don't Put Fiber Rolls Here!

While there are many good places to use fiber rolls on a construction site, they should not be used at drain inlets. Whether properly installed or not, they tend to become sources of sediment. Fiber rolls don't filter, they merely act as dams. Turbidity testing performed at this type of DI protection will often have higher results inside the fiber roll perimeter than outside the perimeter where all the "untreated" water is. This is caused by the turbulent water jetting under or cascading over the fiber roll. It should be noted that CASQA does not include fiber rolls in their BMP fact sheets as a DI protection option. Check out this video for more information on this phenomenon and a better DI protection option.

Please contact us if you have any questions ...

The Monthly Dirt

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The Monthly Dirt
A monthly newsletter on the California Construction General Permit

Dear Monthly Dirt Readers,
To encourage each of you to also submit comments to the Water Board on the proposed Construction General Permit, we are including with this newsletter our comment letter that we have submitted to the Water Board. Comments must be received by the Water Board by 12 Noon on August 13, 2021.
--- Monthly Dirt Editor

July 13, 2021

Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
P.O. Box 100, Sacramento, CA 95812-2000
commentletters@waterboards.ca.gov

RE: Comment Letter – Proposed Construction Stormwater General Permit Reissuance.

Dear State Water Resources Control Board,

The Monthly Dirt is a monthly newsletter that is published by WGR Southwest, Inc. The newsletter covers a variety of subjects relevant to the California Construction General Permit (CGP) and has a distribution of over 20,000 subscribers. As a service to our readers and clients, we have been covering the proposed CGP renewal. Our January 2021 edition covered the December 2020 administrative draft of the permit; and the June 2021 edition covered the May 2021 draft permit. Our last newsletter largely applauded the Water Board's revisions in the May 2021 draft permit from the earlier administrative draft version. However, there are a few items on which we would like to make formal comment.

1. We are concerned about how numeric action levels (NALs) are proposed to be applied to a construction site in the draft CGP. The draft language states, "*An NAL exceedance for pH is the analytical result of the median or calculated average value of at least three samples per sampling location per day of each qualifying precipitation event, taken at the site's discharge location(s), that is below the lower NAL or above the upper NAL … An exceedance of the turbidity NAL occurs when the analytical result of the mean value of at least three samples, taken at the site's discharge location(s), is over 250 NTU.*" We are pleased that the Water Board departed from the single sample NAL exceedance proposed in the administrative draft. While the language is pretty clear that, for pH, the NAL exceedance is for each sampling location and not the whole project; the turbidity NAL language is unclear about whether it is per discharge location or for the entire project. When we asked Water Board staff during one of the recent workshops if NAL exceedances were based on a single discharge point or the average of all results from all of the project's discharge points, the staff responded that it is per discharge location. **We suggest that the Water Board consider doing two things.** **First,** we recommend the Water Board consider an NAL exceedance to be based on an average of all analytical results for all discharge testing points on each day of discharge (as in the current permit). By having NALs for each discharge point and not the entire site, the incentive is largely removed for the discharger to take immediate action to try to average down the value for the site on that day. The current system of using daily site-wide averages as NALs seems to be working. It provides the discharger the opportunity and incentive to quickly rectify the situation and avoid an NAL exceedance. It is a positive behavioral incentive. The potential for an NAL exceedance at each discharge point is not only a negative behavioral incentive but it removes the incentive to take immediate action and to quickly improve water quality. **Second,** we recommend that the permit language be clarified. For example, the draft language seems to state we only have to average at least three samples per location per day. If we have five testing results, does this mean we can throw out the two highest and only average the best three? Should the turbidity requirement read "*of the mean value of at least three samples taken from each of the site's discharge locations*" or does it mean that we are averaging daily turbidity data for the entire site? As a Trainer-of-Record, I would appreciate the sampling requirements and NAL guidance to be stated very clearly in the permit.

2. We are concerned about the mandated timing and spacing of field testing. The draft permit states: "*Risk Level 2 [and 3] discharger[s] shall obtain a minimum of 3 samples per sampling location per day of each qualifying precipitation event,* ***with at least 15 minutes between samples****. The Risk Level 2 [and 3] discharger[s] shall record the time the discharge ends in the monitoring report.* ***The first sample must be taken within the first two hours of discharge during site operating hours if possible****; otherwise, as close in time to the beginning of the storm event as practicable.*" We do approve of the new Qualifying Precipitation Event definition, "*Any weather pattern that results in 0.5 inches of precipitation within a 24-hour period. The event begins on the calendar day when 0.5 inches has accumulated and continues on subsequent days where 0.25 inches of precipitation or more occur. The event ends when there are two sequential calendar days with less than 0.25 inches of precipitation on each day.*" However, we are concerned the Water Board is being overly prescriptive on the timing of the sampling. Since QSPs are required to take two full days of training, pass an exam, and maintain an underlying certification, let's allow QSPs to make a best professional judgement as to when they sample at each site and for each storm event. There are sites and drainage management areas (DMAs) which have a

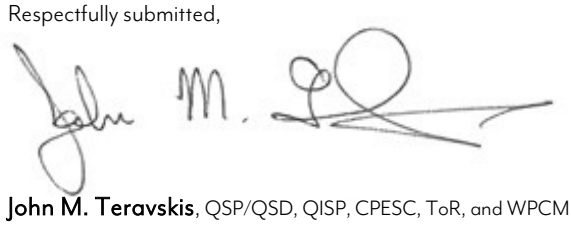
larger Time of Concentration (TOC), where a representative sample is best collected after the first two hours of discharge. Other DMAs with smaller TOCs, need to be sampled more quickly. I have been sampling sites for 30 years. In my experience, for each sampling event, the site location, DMA characteristic, storm event, and phase of construction combine to present a unique sampling situation that must be carefully assessed by the sampling professional. Prescriptive regulations about when to sample can interfere with getting the most representative sampling results. Please let the QSP and QSD professionals do their job by determining these logistics for each site.

3. We are opposed to mandatory BMPs that are unnecessary, have little or no scientific basis, or will inevitably be ignored. An example, of this is how concrete washout is addressed in the current and the proposed permit. The newly proposed language states, "*Secure and contain concrete washout areas and other washout areas that may contain additional pollutants so there is no discharge into the underlying soil and onto surrounding areas.* ***Washout areas shall be covered at the end of every business day and during a precipitation event.***" We fail to see the logic concerning why it is necessary to cover concrete washout areas at the end of every business day if there is no rain forecasted. In addition, we would like the Water Board to give more definition as far as when concrete washout can be discharged to the ground and when it cannot be discharged to the ground. The prevalent interpretation of the current permit by the regulatory community is that concrete washout should never be discharged to the ground. Clearly the intent of the permit is that washout should not be done in a manner that will threaten groundwater quality. However, many times as a Trainer-of-Record for the QSP/QSD program or in explaining the permit requirements to a contractor, we are asked about why a concrete chute cannot be washed out onto an area that will imminently be poured in concrete. How is a few gallons of concrete washout going to present any more threat to groundwater than the multiple yards of wet concrete that will soon be placed in the same location? We have similar concerns with other prescriptive BMPs for trash containers, portable sanitary facilities, perimeter controls, and stockpiles. We understand what the permit requires (and the intent of the permit), but when trying to address the rationale with the contractor or discharger we are many times at loss to be able to support it with sound water quality reasoning and are left with telling the contractor, "*Because the Water Board requires it.*" To echo our previous comment about the requirement to utilized trained QSP and QSD professionals, we suggest the Water Board either relax some of the prescriptiveness of these BMPs or that a caveat be added to the CGP stating that a QSP or QSD can over-ride mandatory BMPs when good engineering and science methods indicate that it does not present a threat to water quality and is not needed in a particular situation or location.

We appreciate your consideration of these items. In order to encourage the storm water industry to provide comments to the Water Board regarding this draft CGP, we are publishing these comments as an open letter in our July 2021 Monthly Dirt newsletter. As a result, we are hopeful you will receive good feedback from our readers.

Feel free to contact me if you would like further clarification or details regarding the above comments.

Respectfully submitted,



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ONLINE QSP/QSD TRAINING

JOIN US FOR OUR NEXT ONLINE COURSE
JULY 27-29, 2021

QSP TRAINING (2-DAY): $375 | QSP/QSD TRAINING (3-DAY): $550
QSD-ONLY (1-DAY): $250

The first 12 people to register will receive a $25 gift card to Chipotle to enjoy during the course.

save the date

STORM WATER AWARENESS WEEK

SEPTEMBER 27 - OCTOBER 1, 2021

BMP SHOPPING HAS NEVER BEEN EASIER

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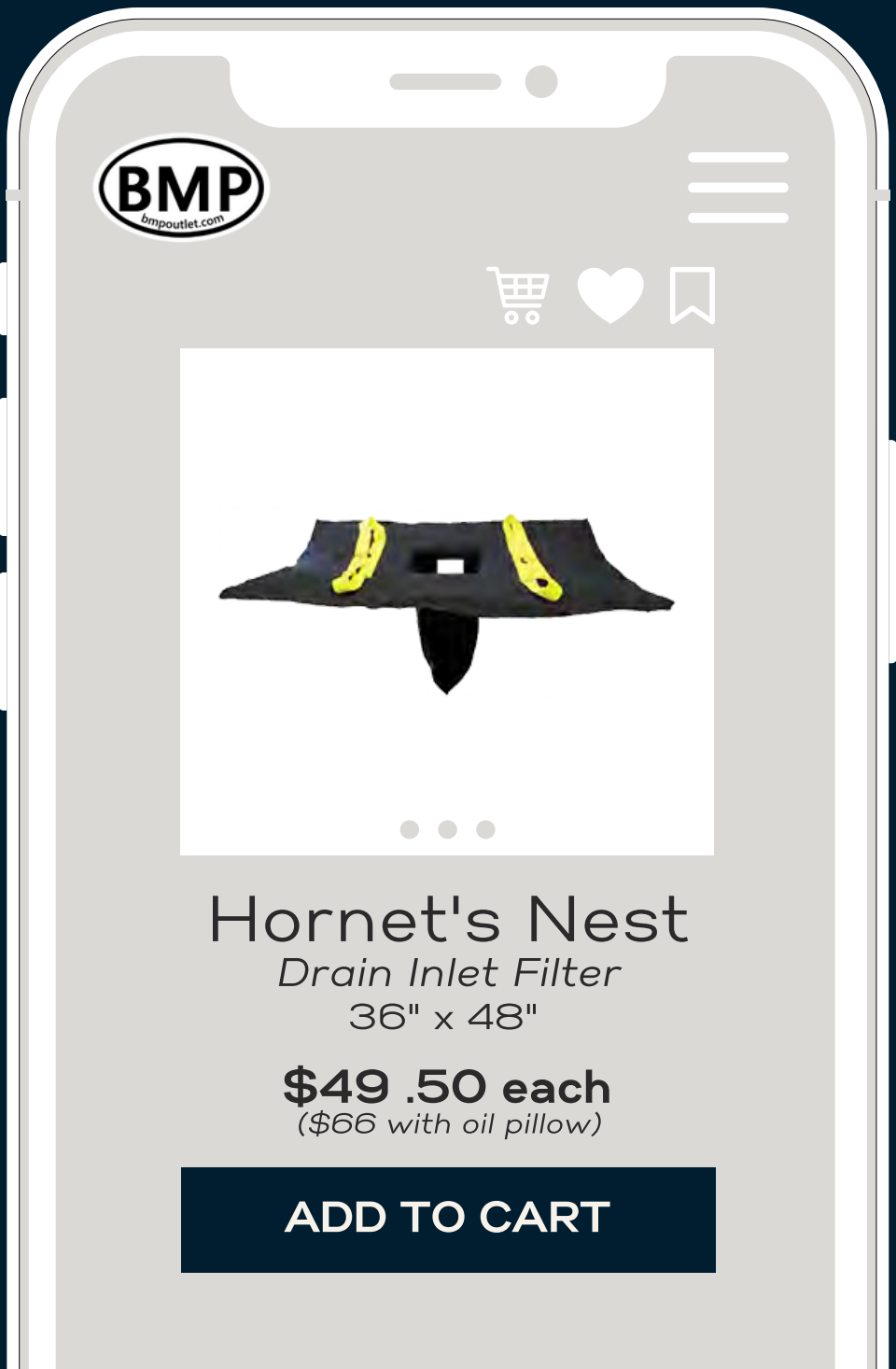
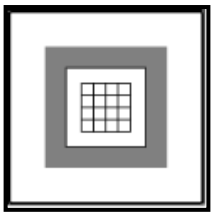


Temporary Drainage Inlet Protection SC-10



Standard Symbol

Definition and Purpose

Temporary drainage inlet protection consists of devices used at storm drain inlets that detain and/or filter sediment-laden runoff prior to discharge into storm drainage systems. This is achieved by allowing sediment to settle and/or filtering sediment upstream of a linear sediment barrier.

Appropriate Applications

Where ponding will not encroach into highway traffic.

Where sediment laden surface runoff may enter an inlet.

Where disturbed drainage areas have not yet been permanently stabilized.

Where the drainage area is 1 ac or less.

Used year-round.

Limitations

Requires an adequate area for water to pond without encroaching upon traveled way and should not present an obstacle to oncoming traffic.

May require other methods of temporary protection to prevent sediment-laden stormwater and non-stormwater discharges from entering the storm drain system.

Sediment removal may be difficult in high flow conditions or if runoff is heavily sediment laden. If high flow conditions are expected, use other on-site sediment trapping techniques, such as SC-4 “Check Dams,” in conjunction with temporary drainage inlet protection.

Frequent maintenance is required.

Silt fence inlet protection is appropriate in open areas that are subject to sheet flow and for flows not exceeding 0.5 cfs.

Gravel bag barriers for inlet protection are applicable when sheet flows or concentrated flows exceed 0.5 cfs, and it is necessary to allow for overtopping to prevent flooding.

Fiber rolls and foam barriers are not appropriate for locations where they cannot be properly anchored to the surface.

Excavated drop inlet sediment traps are appropriate where relatively heavy flows are expected and overflow capability is needed.

For drainage areas larger than 1 ac, runoff should be routed to a sediment trapping device designed for larger flows. See BMPs SC-2, "Sediment/Desilting Basin," and SC-3 "Sediment Trap/Curb Cutback."

Standards and Specifications

General Requirements

Refer to Standard Specifications Section 13-6.03C for "Temporary Drainage Inlet Protection" and 13-6.03F for "Rigid Plastic Barriers."

Identify existing and/or planned storm drain inlets that have the potential to receive sediment-laden surface runoff. Determine if storm drain inlet protection is needed, and which method or combination of methods to use. Update inlet protection as site conditions change.

Use a linear sediment barrier to redirect runoff and control ponding in order to prevent ponding from encroaching on the traveled way or overtopping the curb or dike.

Prior to installation, clear the area around each inlet of obstructions, including rocks, clods, and debris greater than 1-in. in diameter.

Install linear sediment barriers upstream of the inlet and parallel with the curb, dike, or flow line to keep sediment from entering the inlet.

Remove accumulated sediment according to Maintenance and Inspection recommendations. Accumulated sediment may be disposed of outside the highway right-of-way in conformance with the Standard Specifications Section 14-10.

Type 1: Silt Fence

This method should be used for drain inlets requiring protection in areas where finished grade is established and erosion control seeding has been applied or is pending. The silt fence (Type 1) protection is illustrated on Page 6. Do not place filter fabric underneath the inlet grate since the collected sediment may fall into the drain inlet when the fabric is removed or replaced.

Type 2 - Excavated Drop Inlet Sediment Trap

This method may be used for drainage inlets requiring protection in areas that have been cleared and grubbed, and where exposed soil areas are subject to grading. The excavated drop inlet sediment trap (Type 2) is illustrated on Page 7. Similar to constructing a temporary silt fence; see BMP SC-1, "Silt Fence." Size the excavated trap to provide a minimum storage capacity calculated at the rate of 67 yd3/ac of drainage area.

Type 3A: Gravel Bag Berm for Combined Inlets

This method may be used for drain inlets surrounded by AC or paved surfaces. The gravel bag berm for combined inlets (Type 3A) is illustrated on Pages 8-9. Flow from a severe storm must not overtop the curb. In areas of high clay and silts, use filter fabric and gravel as additional filter media. Construct gravel bags in accordance with BMP SC-6, "Gravel Bag Berm." Gravel bags are used due to their high permeability.

Type 3B: Gravel Bag Berm for Grate Inlets

This method may be used for drainage inlets surrounded by AC or paved surfaces. The gravel bag berm for grate inlets (Type 3B) is illustrated on Page 10. In areas of high clay and silts, use filter fabric and gravel as additional filter media. Place gravel bags in accordance with BMP SC-6, "Gravel Bag Berm." Gravel bags are used due to their high permeability.

Type 4A – Flexible Sediment Barrier for Grate Inlets

This method may be used for drainage inlets requiring protection in areas that have been cleared and grubbed, and where exposed soil areas subject to grading. Flexible Sediment Barrier for Grate Inlets (Type 4A) is placed around the inlet and keyed and anchored to the surface. Flexible Sediment Barriers are intended for use as inlet protection where the area around the inlet is unpaved and the foam barrier or fiber roll can be secured to the surface. Place fiber rolls over the erosion control blanket. RE or appropriate licensed professional approval is required.

Type 4B – Flexible Sediment Barrier for Combined Inlets

This method may be used for drainage inlets requiring protection in areas that have been cleared and grubbed, and where exposed soil areas subject to grading. Flexible Sediment Barrier for Combined Inlets (Type 4B) is placed in rows upstream of the inlet and along the curb or dike. The barriers are keyed and anchored to the surface. Flexible Sediment Barriers are intended for use as inlet protection where the area around the inlet is unpaved and the foam barrier or fiber roll can be secured to the surface. Place the barrier to provide a tight joint with the curb or dike. Cut the cover fabric or jacket to ensure a tight fit. RE and Construction Storm Coordinator approval is required.

Type 5 – Sediment Filter Bag

This method may be used in areas with vehicle and equipment traffic that could damage aboveground inlet protection devices. The Sediment Filter Bags are installed as follows: (1) Remove the drainage inlet grate, (2) Place the sediment filter bag in the opening, and (3) Replace the grate to secure the sediment filter bag in place.

Type 6A – Catch Basin with Grate

Catch Basin with Grate (Type 6A) is shown on page 16. Cover grate inlet with rigid plastic barrier and secure on each end with gravel-filled bags. If using a rigid sediment barrier and the grated inlet does not have a curb opening, placed the barrier using a gasket to prevent runoff from flowing under the barrier. Secure the barrier to the pavement with nails and adhesive, gavel-filled bags, or a combination of both.

Type 6B – Curb Inlet without Grate

Curb Inlet without Grate (Type 6B) is shown on page 16. Place the flexible sediment barrier across the curb inlet opening and secure with gravel-filled bags.

Maintenance and Inspection

General Requirements

Inspect all drainage inlet protection devices before and after every rainfall event and weekly year round. During extended rainfall events, inspect inlet protection devices at least once every 24 hours.

Inspect the storm drain inlet after severe storms to check for bypassed material.

Remove all drainage inlet protection devices within thirty days after the site is stabilized, or when the inlet protection is no longer needed.

- Bring the disturbed area to final grade and smooth and compact it. Appropriately stabilize all bare areas around the inlet.
- Clean and re-grade area around the inlet and clean the inside of the storm drain inlet as it must be free of sediment and debris at the time of final inspection.

Type 1 - Filter Fabric Fence

Make sure the stakes are securely driven in the ground and are structurally sound (i.e., not bent, cracked, or splintered, and are reasonably perpendicular to the ground). Replace damaged stakes.

Replace or clean the fabric when the fabric becomes clogged with sediment. Make sure the fabric does not have any holes or tears. Repair or replace fabric as needed or as directed by the RE.

At a minimum, remove the sediment behind the fabric fence when accumulation reaches one-third the height of the fence or barrier height.

Type 2 – Excavated Drop Inlet Sediment Trap

Remove sediment from basin when the volume of the basin has been reduced by one-half.

Type 3A - Gravel Bag Berm for Combined Inlets

Inspect bags for holes, gashes, and snags.

Check gravel bags for proper arrangement and displacement. Remove the sediment behind the barrier when it reaches one-third the height of the barrier.

Type 3B - Gravel Bag Berm for Grate Inlets

Inspect bags for holes, gashes, and snags.

Check gravel bags for proper arrangement and displacement. Remove the sediment behind the barrier when it reaches one-third the height of the barrier.

Type 4A Flexible Sediment Barrier for Grate Inlets

Check flexible sediment barrier for proper arrangement and displacement. Remove the sediment behind the barrier when it reaches one-third the height of the barrier.

Type 4B Flexible Sediment Barrier for Combined Inlets

Check flexible sediment barrier for proper arrangement and displacement. Remove the sediment behind the barrier when it reaches one-third the height of the barrier.

Type 5 Sediment Filter Bag

Change sediment filter bag carefully ensuring not to spill captured sediment into the drainage inlet.

Type 6A Catch Basin with Grate

Check barrier and gravel-filled bags for proper arrangement and displacement. Routinely remove accumulated sediment

Type 6B Curb Inlet without Grate

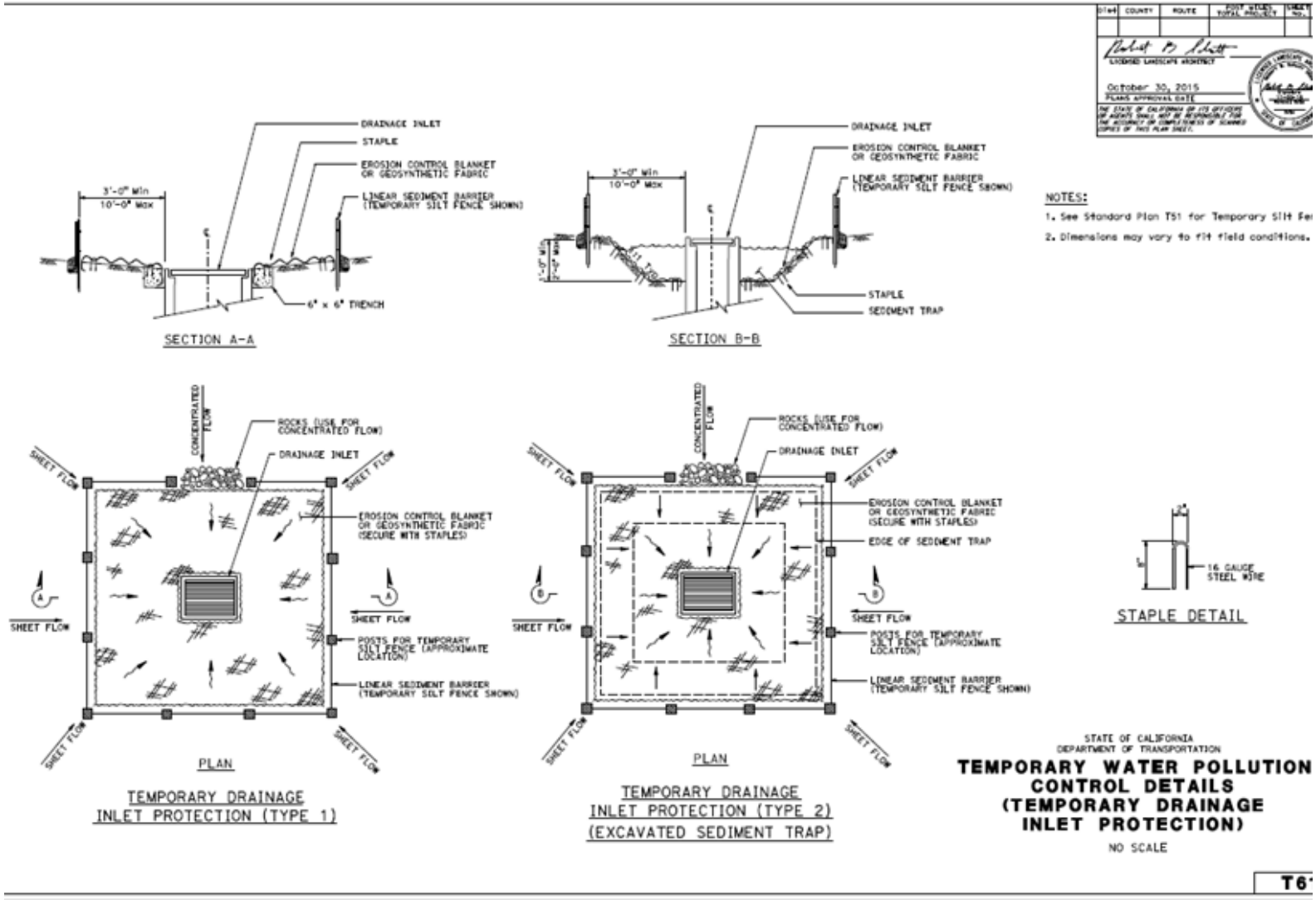
Check barrier and gravel-filled bags for proper arrangement and displacement.

Remove the sediment behind the barrier when it reaches one-third the height of the barrier.

SWPPP or WPCP

Temporary Drainage Inlet Protection must be discussed in Section 500.3.2 of SWPPP and/or Section 30.2.2 of the WPCP. Temporary Drainage Inlet Protection placement type must be shown on the WPCDs and reflect site temporary conditions.

Temporary Drainage Inlet Protection SC-10



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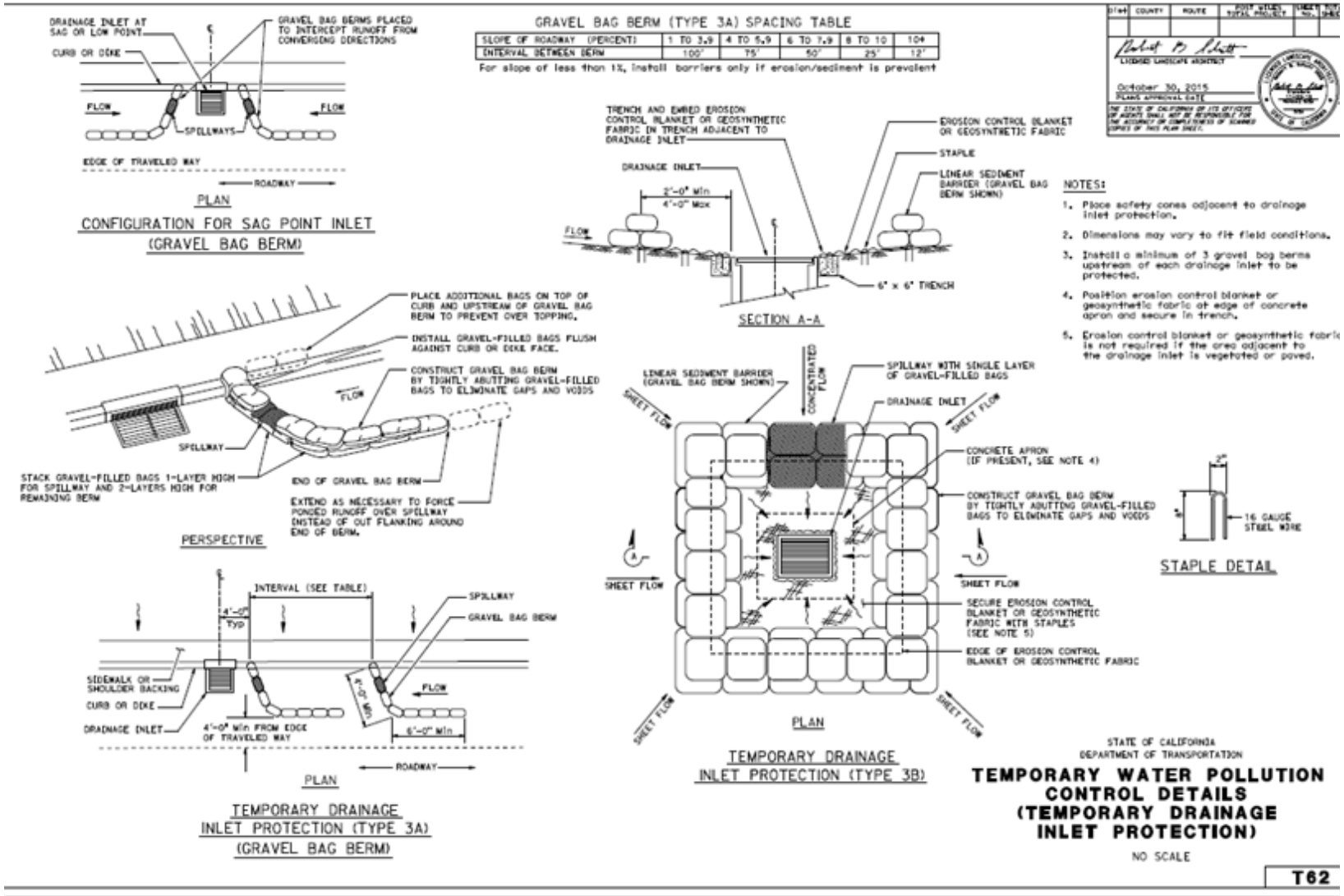

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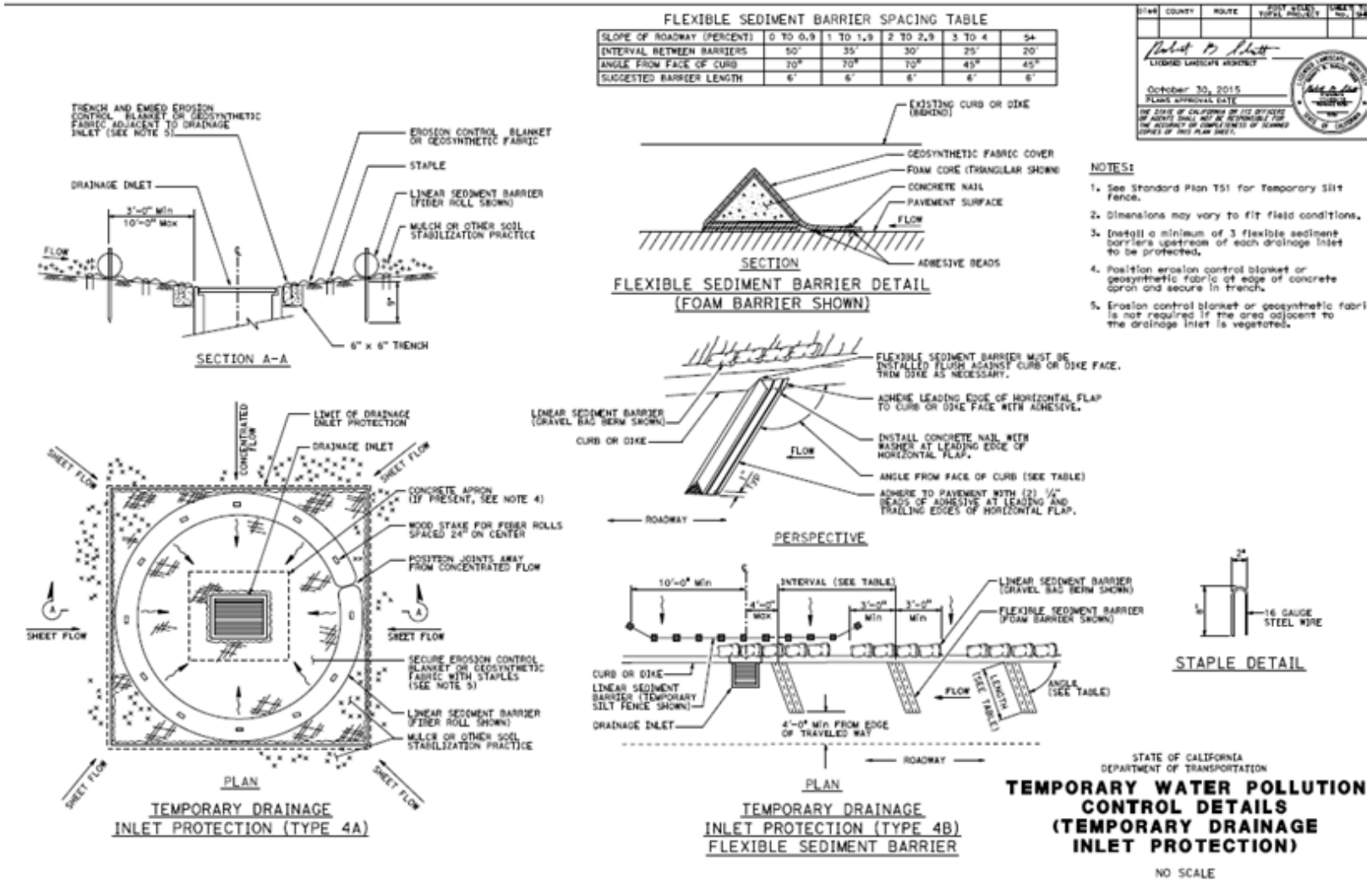

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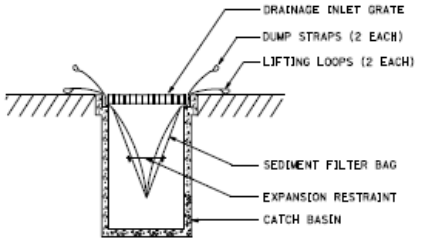
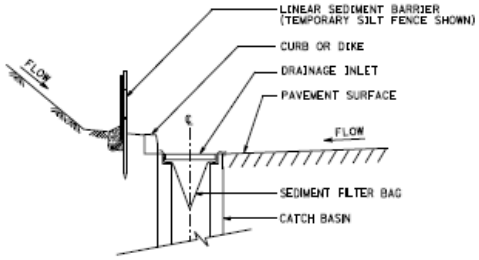
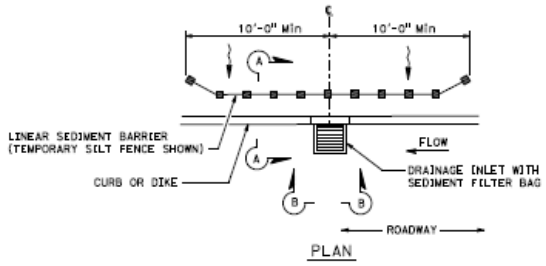


SECTION B-B

SEDIMENT FILTER BAG DETAIL

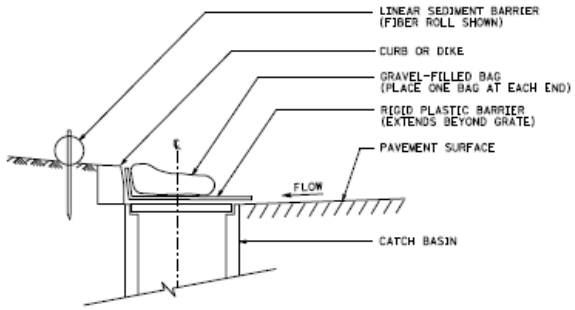


SECTION A-A



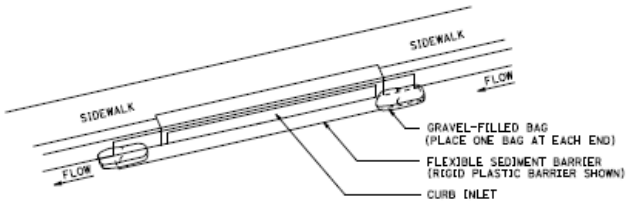
PLAN

TEMPORARY DRAINAGE INLET PROTECTION (TYPE 5) (SEDIMENT FILTER BAG)



SECTION

TEMPORARY DRAINAGE INLET PROTECTION (TYPE 6A) (CATCH BASIN WITH GRATE)



PERSPECTIVE

TEMPORARY DRAINAGE INLET PROTECTION (TYPE 6B) (CURB INLET WITHOUT GRATE)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

Robert B. Schutt
LICENSED LANDSCAPE ARCHITECT

October 30, 2015
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NOTES:
1. See Standard Plan T51 for Temporary Silt Fence.
2. Dimensions may vary to fit field conditions.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY DRAINAGE INLET PROTECTION)

NO SCALE

T64

2015 STANDARD PLAN T64