

CARTOGRAPHY

The Lost Art of Map Making



What do Claudius Ptolemy, Leonardo da Vinci, and Amerigo Vespucci (who America was named after) have in common? They were all famous cartographers ... map makers. And, how did these guys do it? How were they able to pen such accurate maps by just eye witness accounts or by sailing past the coast lines? They didn't have GPS, satellite imagery, or even Google Earth, but their maps were not only accurate but also great works of art. Well for starters, they were some of history's greatest intellects, superb mathematicians, and dedicated scientists. As SWPPP writers we need to rediscover the **Art of Cartography**. This edition of **The Monthly Dirt** will provide some tips on how to become better map makers.

It has been said and is probably very true, the SWPPP map is the only thing 90% of the QSPs, contractors, and, possibly, even regulators read in the SWPPP document. If that statement is even partially true, it means that it is vitally important to communicate as much as possible on the SWPPP map about the project site and its control measures. The goal of the SWPPP map or maps is to give in a single image a concise and comprehensive understanding of the dynamics of the construction project, the characteristics of the site, and the proposed best management practices (BMPs).

Often SWPPP maps that we review, are difficult to decipher. It is almost as if they were trying to hide buried treasure and are only giving vague clues as to its whereabouts. The maps lack detail, specifics, and logistics. Good SWPPP maps that would make Amerigo proud, need to be clear, bold, colorful, and well defined.

The map needs to include:

[Attachment B](#) of the Construction General Permit provides guidance about what should be included in a SWPPP map (or maps). It states that the maps should contain the following:

- The project's surrounding area (vicinity);
- Site layout;

- Construction site boundaries;
- Drainage areas;
- Discharge locations;
- Sampling locations;
- Areas of soil disturbance (temporary or permanent);
- Active areas of soil disturbance (cut or fill);
- Locations of all runoff BMPs;
- Locations of all erosion control BMPs;
- Locations of all sediment control BMPs;
- ATS location (if applicable);
- Locations of sensitive habitats, watercourses, or other features which are not to be disturbed;
- Locations of all post-construction BMPs; and
- Locations of storage areas for waste, vehicles, service, loading/unloading of materials, access (entrance/exits) points to construction site, fueling, and water storage, water transfer for dust control and compaction practices.

Some of these items are customary to find on SWPPP maps, but there are also a few of the above items that we rarely, if ever, see on a SWPPP map. For example, when was the last time you saw a SWPPP map indicating where the water

storage tank or filling hydrant was located? Sediment control BMPs are easy to depict, because they are linear, and are usually on SWPPP maps. But, many SWPPP maps lack detail about erosion control (i.e. the temporary and permanent covering) placed on disturbed soils. It is vital to show the contractor where, when, and how to cover soils both temporarily and on a permanent basis for final stabilization. This can be accomplished through the use of shading with transparent color layers or with a pattern fill. A site cannot be thoroughly understood, unless it is apparent what areas are to be paved, landscaped, or covered with crushed rock. Text box notes can also be used on the SWPPP map to provide direction as to when temporary erosion control methods should be deployed and to what specifications (e.g. 3,500 lbs./acre of bonded fiber matrix containing 60 lbs./acre of native erosion control grass seed mix and 10 lbs./acre of native wildflower seed mix). It is also good to include a legend, scale, north arrow, and construction site boundary line to provide helpful information for the person who is viewing the map and/or site for the very first time. Another very important feature to include on a SWPPP map is information about surface flow direction, discharge points, and drainage management areas. This information is not only vital for site monitoring activities but also important for responding to spill and other problems.

How many maps?

In general, there should always be at least two—a vicinity map and a site map. However, beyond that, there should be as many maps as it takes to adequately tell **"the SWPPP story"**. Sometimes, SWPPP writers make the mistake of showing too much of a zoomed out view—in which drain inlets are barely visible and detail on slopes and swales are lost. Remember, this may be the only part of the SWPPP document that a contractor implementing BMPs is going to read; so, we want to provide adequate detail for them to be able to understand what needs to be installed. Usually projects having demolition will need a SWPPP map just for that phase of work, because the configuration of BMPs will typically be very different from the other phases of work. According to [Attachment A of the CGP](#), Linear Utility Projects (LUPs) require at least three maps showing the starting point, the ending point, and a zoomed out view of the overall project. However, again in the interest of showing sufficient detail, we have had LUP projects with more than 100 individual SWPPP maps.

What format to use?

AutoCAD, Google Earth, Microsoft Word, or purchased mapping programs ... any of these can be used to create maps. The main criteria in selecting a mapping tool is that it is easy to use, easy to edit, and easy to use in the field. Obviously, efficiency is important to SWPPP writers, so having mapping tools that are relatively easy to use to create or edit maps is very important. But, regardless of what you use to create a map, make sure that it is readily legible to the end user—the person in the field. Choose lines and colors that are bold, contrasting, and easy to distinguish from one another. You want the person in the field to easily identify where fiber roll should be installed and where compost socks need to be placed. Sometimes maps are too subtle in their selection of color and symbols. Also, select backgrounds that are not overly busy or have too much non-relevant data. This can cloud the control measures that you are specifying and cause errors in implementation of the BMPs. **MD**

Upcoming Training

Got SWPPP? Classes coming to Lodi:

QSP/QSD Training, July 16-18, 2019

(To register for the class, go to

<http://www.gotswppp.com/events.html>)



Watch part of the SWPPP Writing Course
to learn more about making SWPPP maps.

"Ask the Expert" Corner

David Franklin, QSP/QSD, ToR, is a nationwide presenter, international consultant and award-winning landscape professional with over 35 years experience in the Green Industry, including 20 years in the erosion control and water quality sectors. He has worked on stormwater issues as a consultant, specifier, SWPPP writer/manager, contractor and inspector on projects including vineyards, mines & quarries, river restoration, freeway & railroad and home construction. In addition, he is a good friend of WGR and the person who taught many of us. We recently caught up with him at a post-fire seminar in Paradise, CA. David continued to teach us new terminology, which we call **Davidisms** and include the following:

Gawk & Ponder—meaning slow down to observe and think it out.

The Book No One Reads – referring to how almost no one reads the valuable information in the CASQA manual.

Comfort Food BMPs—a name for over-used and under thought-out BMPs like silt fence and fiber rolls.

Let Jr. Go! – referring to Jr. Raindrop and that project operators should not be afraid to discharge water that is properly controlled.

Slurpification—happens when fiber rolls are keyed in on sandy slopes, causing saturated soils and slope failure.

Cush, Bump, and Gang– is a good erosion control strategy for handling Jr. Raindrop and his gang of hoodlums.

To find out more about David's training events, go to:
<https://stormwatermanagement.biz/>

Please contact us if you have any questions

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The Monthly Dirt Newsletter Editor:

John Teravskis, QSP/QSD, CPESC, QISP, ToR
jteravskis@wgr-sw.com

(209) 334-5363 ext. 110 or (209) 649-0877

Technical Questions about Environmental Compliance?

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