



[www.wash-water-treatment.com](http://www.wash-water-treatment.com)

- Wash Water Recycling and Treatment Systems
- Detergent • Accessories • Replacement parts

# Washbay Solutions

Wash Rack facility Planning & Design

## Washbay Solutions: Design Concepts

Washbay, washpad and collection sump system design is an entire subject matter in and of itself and we are unable to cover all aspects in this catalog.

The washpad is an important part of your wash & treatment facility as solids will usually be a large part of the treatment process. The more solids you can reduce at the washpad/sump the less you have to remove at the treatment system and this will also reduce system maintenance and downtime.

The washpad, collection troughs and collection sumps are an integral part of the treatment system and should be considered as the initial water treatment effort and will provide the following pretreatment operations:

- Reduction of heavy solids load at washpad.
- Settles solids in the collection sump(s)
- Assists self-breaking detergents to break emulsions prior to the VEW system.
- Provides a working water volume for biological treatment and recycling hydraulic demands.

When designing keep the following rules of thumb in mind:

- The bigger the better (make room for equipment, operator movement and vehicle size)
- Eliminate rainwater runoff to the pad
- Locate drain/trough along pad center, side or end opposite from the wash area to allow solids to stay on the washpad surface, thereby reducing accumulation in the drain/trough/sump system.
- Pitch pad drainage to drain/trough
- Don't use an aggressive pitch on pad or trough, help the solids stay on the pad and in the trough, fast moving water moves solids. A 1/8" per foot drop may be sufficient to limit water velocity.

The washpad should provide a controlled runoff design with pad pitch toward the trough or drain, which will encourage proper draining of the pad.

The most common designs are shown in this catalog. Larger and/or heavy equipment wash racks often use a sump design that allows for high solids concentrations and ease of solids removal as in a sump with a ramp design.

**Collection Sump** design is important as it begins your treatment process by providing a place for bulk solids to drop out prior to finer treatment by the VEW system.

Probably THE most popular sump design is the triple or double basin that provides multiple chambers to increase the settlement of solids and also provides a final sump point where pumpout of the water to the VEW system is performed.

**Be Aware:** that large water collection tanks and chambers also pose an odor creation issue due to the solids settling out and accumulating. Be sure to use our **EnBio™** and **SuperAerator™** treatment systems to eliminate odor problems.

**Centrally Pitched Drain Designs** – For small to medium size wash racks where concrete surface loadings are not an issue.

**Side Drain Designs** – For sites with limited space and high mud and dirt volumes are expected.

**Entrance and Exit Drain Designs** - For limited space facilities.

**Pre-Wash & Final Wash Designs** - For high volume facilities requiring pre-wash. Separation of de-mucking operation from final wash will reduce water treatment costs by not allowing heavy solids loadings to reach the treatment system.

**Heavy Solids Designs** - These designs incorporate a heavy solids de-watering and handling area. Used where excessive amounts of mud and dirt are anticipated.

**High Vehicle Volume Facility** – Where heavy wash traffic is planned, multiple, parallel wash bays can be designed.

Drawings are conceptual only. They are not PE engineered and/or certified documents. These are for layout and site planning only and serve as a guide to visualize the final design.

PAE recommends wash and treatment equipment to be enclosed or covered to prevent weather damage and to protect from freezing and long term UV effects.

Pan America Environmental recommends the use of a professional facility engineer to review your facility plans and for proper design and construction per state and local codes.

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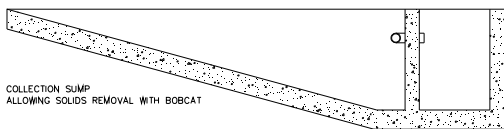
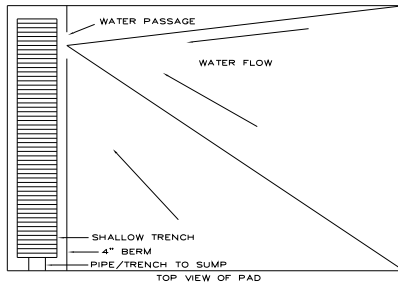
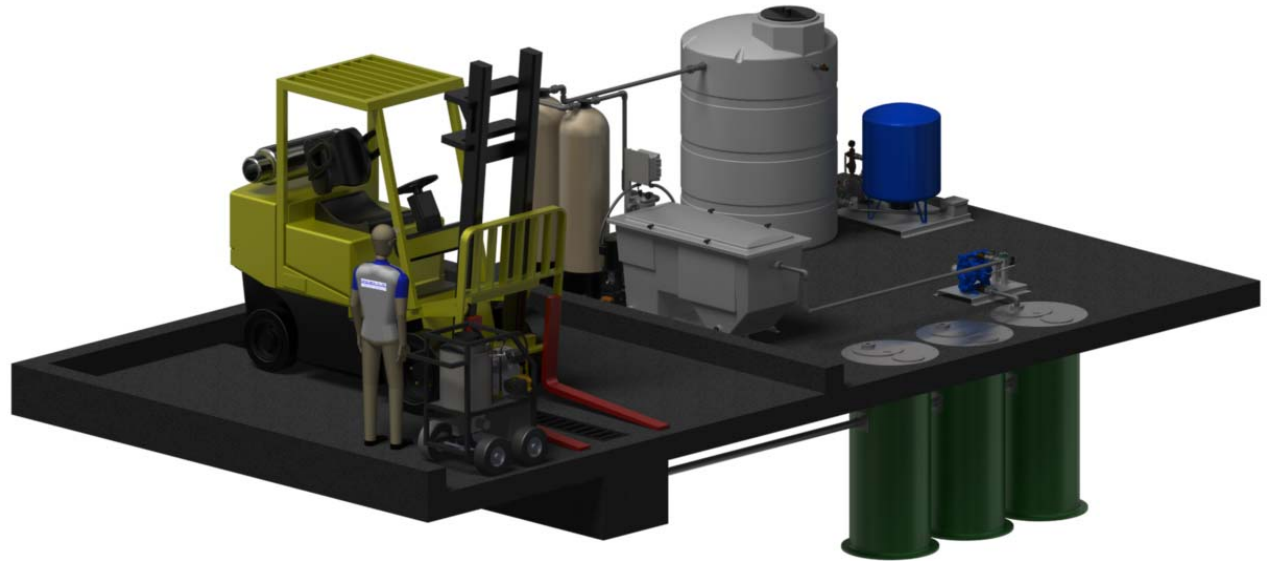
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A few wash bay design concepts are provided to give you a direction in design. As there are a multitude of configurations that could be used you will need to review your facility for the best layout. **More layouts and ideas are available at the VEW website in more detail for your reference. Go to <http://www.wash-water-treatment.com>**

### Facility Design Assistance

Pan America can assist in the initial washpad/washbay, sump and treatment system layout if desired. We can produce a 3D drawing set to give a full design concept then you can work with your engineer to make sure the facility is designed and built to your vision. *Contact PAE for a quote on this service.*



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