The Poultry Engineering, Economics & Management
NEWSLETTER
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Site and Pad Preparation: Critical in New House Construction for Long Service Life

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Getting quality dirt work done is the first major phase of construction for a new poultry house or farm and it sets the stage for the building contractor. Starting the farm off on the right foot is important. This newsletter focuses on the dirt work involved with site preparation and building house pads, loading areas, and access roads that will serve the grower for the life of the farm. In new house construction in the U.S. Broiler Belt, the work of site clearing and pad construction is often contracted by the grower. For this reason especially, growers must understand what is involved in site and pad preparation and make sure it is done right. Mistakes can be costly, up front and over time.

One of the most important factors in getting a quality poultry house is choosing a good, experienced grading operator or contractor. Poultry houses are typically built on compacted earth pads which are leveled and raised slightly above the surrounding terrain to assure good drainage. Most poultry house pads are over 500 feet long, and in combination with the load out area it is not uncommon to need a site that is level and over 600 feet long. This can require tremendous grading with lots of cutting and filling. Too many poultry houses built on fill dirt have settled over time, causing extensive structural damage that is expensive and very difficult to repair.

It is also very important that the pad be built to proper size to accommodate the house (or houses) and associated elements such as cool cell rooms, control rooms, feed bins, and standby generator sheds. If these are forgotten during site preparation, it becomes very difficult for the grower or house builder to get this done, and done properly, before or during construction of the house itself, and might delay house construction from the beginning. It is a good idea to have the house builder periodically inspect the pad construction process so that the construction of buildings can start without delays.

Land Clearing

Most farms require some type of land or tree clearing. The future site of construction must be free from all tree stumps, major roots, clearing piles, existing buildings, or any other obstructions prior to pad construction. The pad contractor must not bury clearing debris under pads or roads.

The near end of this house has settled significantly because fill dirt was not properly compacted. Uneven settling can cause structural damage in the building, along with causing problems with equipment such as feed and water lines, all of which are very expensive to fix. Photo shows how important proper site preparation and pad construction are.

Pad Preparation

The grading contractor should have considerable experience with site preparation for poultry housing. Building pads must provide the builder with adequate space, leveling, and compaction for constructing the houses. House pads should be at least 10 feet wider and 10 feet longer than the house dimensions, built up at least 12 inches above the surrounding grade, and graded within three inches of level from end to end and side to side. A poultry house that is 40 ft x 500 ft will need a pad that is 50 ft x 510 ft of usable leveled area. Pads must be designed and constructed to withstand erosion from weather and heavy equipment travel.

Failure to size house pads properly so they extend at least 5 feet from all sides of the house and projections such as evaporative cooling doghouses is a common serious problem in pad construction. This pad was not prepared properly, and should have been rejected by the grower and house contractor. Erosion is likely to cause (or has caused) serious damage here.

At what will be the back end of a house, pads must have a shallow slope that descends away from the house and will allow access for cleaning equipment and tractors into the back of the house (if applicable). The sides of the house pads must also have gradual slopes that can be mowed. The loading areas constructed at the front of poultry houses must begin level with the house pad and slope away from the houses at 12 inches per 100 feet of fall.

Proper Back Fill

Most house pads require large amounts of backfill to accommodate the size of the house. Where filling is necessary, be certain that dirt is packed in not more than 6-inch increments using a sheep's foot roller or other suitable compacting device. In some areas, large tractors and pans are used. Rubber-tired tractors or bulldozers are not recommended for packing fill dirt. All backfill must be within 3 inches of level end to end and must be compacted with proper equipment in thin layers to provide a quality foundation for the house. Offsite soil may be needed for the final floor finishing. Insufficient packing causes houses to settle.

Associated Additional Pads

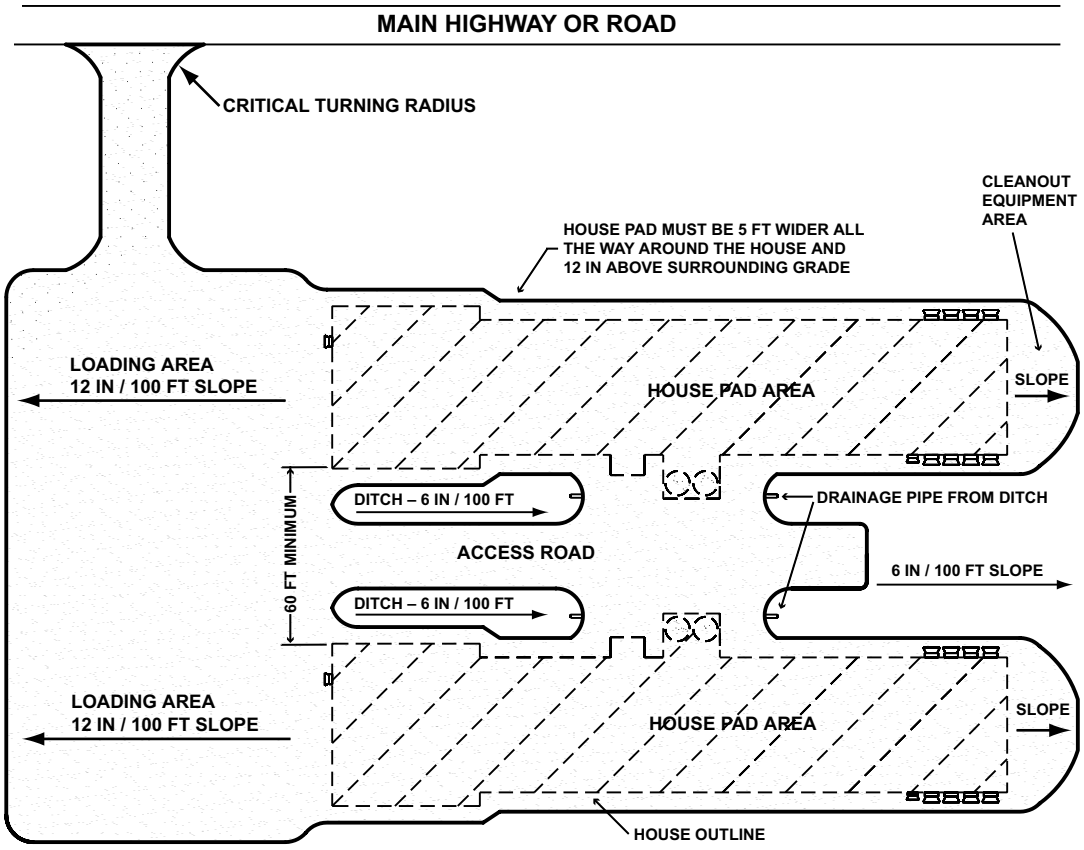
Control rooms, evaporative cooling rooms, feed bins and standby generator sheds must also have adequate building pads. These pads must be built at the same time the house pads are constructed. These pads should be a minimum of 6 feet wider and 6 feet longer than the actual footprint of the building that will be constructed. Drainage tiles may need to be installed under control rooms or feed bin pads to allow for proper drainage from isolated areas. The grading contractor's job should not be considered complete until final approval from the integrator, the builder, and grower is given.

Proper Drainage and Erosion Control

All graded areas must provide proper drainage in all weather conditions without erosion. This means that pads must not hold water and roads must be passable in any weather conditions. Preventing erosion may require installing drainage tile where necessary, and establishing a good ground cover around the perimeter of the house pads, loading areas, and access roads. It is usually the grower's responsibility to establish and maintain grass cover around houses. A mix of cool weather and warm weather grasses is ideal. This is especially critical in highly erosive soils.

The pad builder should dress the entire perimeter of the site so the farmer is able to operate mowing equipment around all houses. If the site is left unmanageable, the grower will often times spray a harsh herbicide on the area, resulting in total loss of all vegetation and causing erosion in the next good rainfall. Planting low-growing grass varieties can reduce maintenance requirements. If herbicides must be

TYPICAL TWO-HOUSE SITE PLAN



Top 10 Pad, Load-Out Area, and Road Construction Tips

1. The load-out area finished grade height must be level to the house pad finished grade height upon completion of the site.
2. Usable pad area must be a minimum of 10 feet wider and 10 feet longer than the house dimensions. This allows for 5 feet of pad space around the perimeter of each house. For example, the pad for a 40 ft x 500 ft poultry house must be a minimum 50 ft x 510 ft of leveled pad area.
3. Pads for houses must be squared to accommodate the dimensions of the house.
4. House pads, access roads, and load-out areas must be built up a minimum of 12 inches higher than the surrounding grade.
5. House pads must be completely free from any existing or new topsoil, vegetation, or any other existing non-compactable earth prior to pad acceptance for construction.
6. House pads must be properly compacted in layers over the whole pad area in increments of approximately 6 inches between compactions. Special attention to compaction and fill must be taken when pad fill exceeds 5 feet. When motor graders are used to dress up pads, note that they can sometimes hide poorly compacted areas that may not be noticeable prior to rainfall over the pads.
7. The full usable area of the pad must be within 3 inches of level from end to end and side to side.
8. Load out pads should be a minimum of 100 ft x 100 ft usable area with approximately 12 inches per 100 feet of slope away from the house for drainage purposes.
9. All-weather roads to farms must be a minimum of 16 feet wide of usable graveled road area at the top and the road base a minimum of 20 feet. It is imperative that the minimum requirements are met with respect to turn-off road radius.
10. Drainage ditches between and beside all houses must begin at load-out areas and slope approximately 6 inches per 100 feet toward and past the end of the pads for adequate drainage.

used, they should be targeted for broad-leaf weeds only rather than all vegetation. In any case, the integrator must be consulted as to restrictions on what type of herbicides are allowed for use around the poultry farm.

Roads and Graveled Areas

Access roads, loading areas and turn-around areas must provide safe and adequate all-weather access for heavy equipment such as feed trucks, live haul trucks, propane trucks, catch crews, etc. These areas must meet requirements for size, compaction and grading. Integrators may require particular widths of roads, minimum turn-in radius, and surfacing (gravel, etc.). Suggested minimums for access roads might be 16 feet of usable graveled road top. Loading areas and turn-around areas might use approximately 100 ft x 100 ft of graveled area in front of each house.

The turning radius for roads is critical and must be coordinated with the road builder prior to construction. If the pad and road builder have trouble getting their trucks in and out of the roads to the farm, then live haul trucks, feed trucks, and building contractors will also have trouble. Sharp turns must be avoided at all costs. The integrator should be able to supply the grading contractor with turn-off road requirements if necessary.

The Bottom Line

If the house builder arrives at the site to begin house construction and finds that pad and site preparation are inadequate, repairs may cost the grower thousands of dollars. Such unplanned expenses, that will not be included in the budget of the farm loan, can be a significant immediate cash expense for the grower.

If site and pad preparation problems, especially in compacting fill dirt, are not detected before the house is built, subsequent problems caused by house settling, erosion, flooding, etc., can cause a serious cash flow drain for years down the road.

Cutting corners to save money on site preparation and pad construction is not recommended. It is a good idea to hold back final payment to the pad contractor until after the builder begins construction on the houses or accepts the pad quality. Also, be sure to include all site preparation costs in your overall total costs when planning and negotiating your loan.

U.S. Poultry & Egg ASSOCIATION

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