

ASSESSING DIFFICULT SITES

by Donald Brandes

**Bargain sites can make
ideal development projects,
but do your homework
before you buy**



Large developers are getting larger and small (under 99 lots per year) developers are getting smaller, according to a recent survey of 2,300 builders conducted by the National Association of Homebuilders. The survey also found growing fears about rising development costs, increasing regulation, uncertain

future housing demand, and the availability of financing.

Given these concerns, how does the small guy compete against the larger developer? One evolving notion is to select land that appears less desirable, pay less for it, and make a good profit by building housing that adapts to the site

in an economical fashion. In fact, these difficult sites are generally all that the smaller developer can afford.

A Quick Assessment

Besides the high cost and low availability of prime ground, other factors frustrate the small developer. One that seems to mutate daily is the profusion of local, regional, and federal regulations directly affecting the cost, scheduling, and design of development projects.

There are two ways to approach this. The first is to ignore the regulations until you have purchased your ground, zoned it, and begun to process the project through the final platting. This, however, is a form of Russian roulette. You might make it through without having to pay for a variety of "unnecessary" studies, reports, and tests. But more typically, the developer today who ignores subdivision, zoning, or environmental regulations, ends up with a delayed project that requires a small army of specialists to save it from doom.

For example, a local planning director recently told me of a developer who cut a spine road through a steep site with 20- to 30-percent grades, without consulting a land planner or engineer. Only after the road was done did he discover that the site was virtually destroyed by the location and severe cuts of the road, and that the sites were not marketable. Six months later, after working with a competent planner, the developer had approval for a cluster development better suited to the site, and requiring less utilities and roadway. Ultimately, the circuitous spine road was vacated and reseeded in native grasses—a reminder that the quickest and more obvious solutions are often the most costly and inefficient.

This was a lucky save. More typically this type of rescue operation yields a project that fails both aesthetically and financially.

The second choice is to carefully and quickly assess the major regulatory requirements. Admit to yourself that you are selecting a bargain site. And then spend time trying to discover how you can turn the negatives into positives.

A common example of this is the presence of water on a site. Many developers would rather not have to deal with a historic drainage way, wetlands, or low area on their site. The fact is, by channelling, detaining, or releasing the water, you can often turn these drainage improvements into a strong central amenity. Regulations, complaints, or lawsuits will ultimately require you to examine the site drainage anyway. So use the design phase to examine using the water as a feature. Don't simply assume a sub-drainage system. While this may sound obvious, it is seldom done by developers or planning consultants.

Another example is the steep site. Many land planners assume that a flat site will be less expensive to develop and require less time to process for planning approvals. In our experience, just the opposite is more often true. Typically, the flatter the site the more difficult it becomes to design for positive drainage and run-off. In addition, the more level the site the more important it becomes to do extensive landscaping to create visual interest.

Pre-Purchase Evaluation

To help evaluate marginal sites, we have developed a cost-effective process that quickly evaluates their "developability." We found that it was not cost-effective at this stage to do exhaustive detailed site planning and analysis.

First, quickly assess the major costs and development constraints of your site. In the old days, if you instructed your planners and engineers to spend three months examining the suitability of a prospective site, chances are they would take three months. Most sites, however, can be evaluated within two weeks. We use a detailed computer program that quickly evaluates approximately 175 development cost items. These range from land cost, overhead (administration), permitting, and fees, to earthwork, utilities, paving, and construction. This is done without preparing massive planning and engineering documents.

Based on our experience the pre-purchase evaluation should examine the following existing conditions:

Topographic and drainage features. A slope analysis helps you quickly recognize which areas are appropriate for buildings, roadways, parking and other site improvements. Typically, grades between 0 and 10 percent are acceptable for almost all types of improvements. Grades of 10 to 15 percent should be carefully evaluated for the type of proposed use and the extent of earth moving needed. Grades between 20 and 25 percent are not necessarily prohibitive to develop—but they require more extensive analysis. For slopes in excess of 25 percent, your planner should carefully examine soils, geology, existing vegetation, and the proposed building and foundation types.

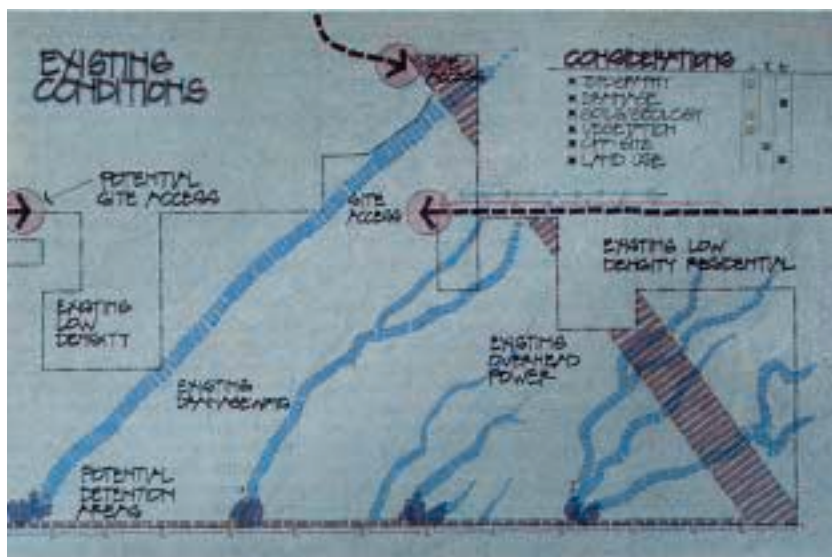
In addition to an analysis of topographic conditions, the planner should quickly examine the drainage patterns on the site and surrounding property. All water bodies, rivers, streams, wetlands, and drainage channels should be traced to their source and a determination made as to their legal status, use, capacity and ability or inability to be modified. Most cities, counties, and regional planning and engineering agencies have this material readily available.

In summary, you should identify and

Project Summary Report

Total project costs	\$18,104,000
Total project revenues	24,629,308
Total interest	634,964
Total profit	5,890,000 (24%)
Peak loan amount	\$11,134,000
Peak loan period	Period 3
Loan paid off	Period 10
Project close-out	Period 12

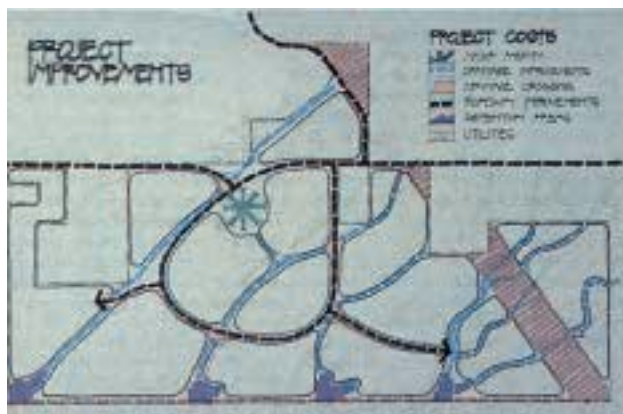
By comparing projected monthly expenses and income from sales, the computer projects monthly cash flow



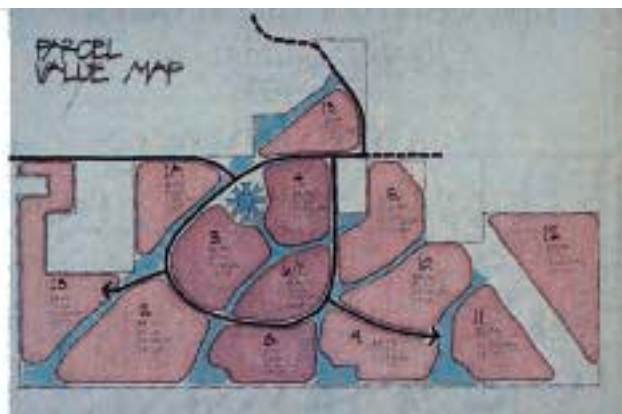
Existing Conditions Considerations

- Topographic and Drainage Features**
 - Steep slopes
 - Historic drainage through site
 - Wet areas
- Soils and Subsurface Features**
 - Extremely expansive soils
 - Unstable soils
 - Shallow bedrock
 - Shallow groundwater
- Vegetation and Wildlife Habitats**
 - Clearing
 - Preservation
 - Replacement
- Infrastructure**
 - Off-site road improvements
 - Off-site utility improvements
- Existing Land Use**
 - Buffer zone requirement
 - Existing and future easement requirements

The first step in a pre-purchase feasibility study is to quickly assess the existing conditions of the site and its development constraints and opportunities.



The next step is to quickly project the costs and monthly spending schedule for approximately 175 development items—shown in summary form. The major site improvements are shown conceptually on the project-improvement map.



The feasibility study also looks at sales. The projected revenue per parcel based on market studies shows up on the parcel value map. Parcels with views or nearer to amenities are priced higher.

understand the *steep slopes, wet areas, and drainage (both past and current)* through the site.

Soils and subsurface features. More than any other existing condition, the geotechnical or subsurface conditions of a site are most often overlooked and underestimated. Too often the expected profits of a land development project are consumed by contractors demanding change orders or additional work orders to remove bedrock and poor unconsolidated fill, or to de-water shallow groundwater areas. But subsurface conditions are understandable and can be evaluated accurately today at a reasonable cost.

It used to be that developers would begrudgingly submit to test borings on their site—only to find (as they often predicted) that the soils were fine and that there was no shallow bedrock and groundwater. Over the years we have found that drilling individual borings for soil and subsurface profiles is better than nothing but still a gamble. Your engineering geologist may select the right test hole locations and he may not. If he is familiar with the soils and geologic hazards of the area, however, and depending on many site variables—size, proposed use, previous history of the surrounding land—borings may be the most cost-effective approach.

An alternative to the drilling technique is to use a relatively new technology called seismic refraction, which uses a sonar device to measure the relative density of subsurface features. This method produces a contour map of any significant bedrock conditions, which can then be used to lay out road, utilities, and building foundations without the fear of hitting bedrock. Seismic refraction can typically be done by two individuals with no site disturbance, and at a fraction of the cost of drilling. This technology can also be used to determine shallow groundwater conditions.

Regardless of your method, you

should ask your planner and engineer to determine if any of the following exist on your site: *extremely expansive soils, unstable soils, shallow bedrock, and shallow groundwater.*

Vegetation and wildlife habitats. Once again, by quickly evaluating the type of vegetation you can often predict unstable slopes, the presence of wet areas, wildlife, and other site characteristics. It is ironic that some developers choose to grade over a lot and clear a site of mature trees—only to be forced by regulations to purchase new, much smaller trees.

Carefully review local requirements

Project Cash Flow												
Cost/Revenues (x \$1000)	Periods											
	1	2	3	4	5	6	7	8	9	10	11	12
Project Costs	10,243	233	393	343	1,471	1,449	1,916	1,485	124	124	124	124
Project Revenues	0	0	0	1,900	933	3,114	4,428	1,258	3,169	4,803	1,974	2,942
Monthly Interest	85	88	92	79	84	71	51	53	28	0	0	0
(Cost) Revenue	(10,328)	(10,649)	(11,134)	(9,656)	(10,279)	(8,655)	(6,194)	(6,474)	(3,457)	1,221	3,072	5,890
										Loan Termination		Project Close-out

(right) and the bottom line (left).

regarding landscaping, wildlife habitat, and ecological criteria. Depending on the type and density of the development, determine whether you should preserve some portions of the site or replace plant materials if they are removed.

Most importantly, remember that plants can successfully and cost-effectively be used for wind protection, shade, buffer zones, privacy, screens, and visual backdrops. All too often built structures (fences, walls, buildings, etc.) are used in place of the natural features of a site, adding unnecessary development costs and rarely accomplishing what nature had already provided.

Once again, quickly review your proposed site for the density, type, and condition of vegetation. Determine whether you should *clear*, *preserve*, or *replace*.

Infrastructure. There are many off-site improvements which need to be provided to any new development—unless the site is an infill project. Assuming that off-site improvements will be needed, you should make certain that the governmental agency, utility, or road district has the technical and financial ability to extend roadways and utilities.

Roadway extension and utility improvements are not often overlooked, but are underestimated in terms of their cost and time. Have your planner obtain “letters of understanding” from the roadway and utility departments indicating the terms and conditions of *off-site road improvements*, or *off-site utility improvements*.

Existing land use. Most delays in the planning review and approval process are related to land use rather than a technical or engineering issue. It is important to carefully examine each adjacent land use and confirm that your proposed use is compatible or can be made acceptable by creating buffer areas, easements, access, or other modifications. The power and influence of public opinion cannot be underestimated. Your planner should clearly identify controversial issues related to your proposed project and a range of alternatives. Specifically, you should examine *buffer zones*, *existing and future easement requirements*.

Based on this very brief assessment your planner should prepare a *project improvement map*, which indicates all proposed major costs, including roadways, detention areas, utility corridors, and major amenities (parks, club house, etc.). All this is done using existing and readily available information. The planners and engineers are not designing the project—they are simply examining outstanding physical (man-made) and natural (ecological) constraints to development. Once these have been identified, they prepare a conceptual layout of major roadways, development parcels, utility corridors, and other significant improvements.

These costs are then incorporated as a part of the overall project cost schedule. Once again, the computer program identifies some 175 potential cost items and then calculates the entire project buildout cost for each item of construction.

Compare Costs and Revenues

With a clear picture of your project costs, you can now project potential sales and revenues. Assuming that you have more than one housing product and perhaps several parcels that you want to develop over time, it is impor-

tant to assign relative values to the different parcels. One parcel may be located near the project amenity (lake, stream, exceptional views, clubhouse, etc.). Other parcels may have relatively less value due to undesirable factors (overhead power lines, noise from nearby roadways, distance from project amenities).

In addition, we will have an outside market survey of comparable lot and/or housing prices prepared to make certain that we have not over- or undervalued the development.

While this may seem like a monumental task, the use of computers and the elimination of detailed planning and engineering studies allows this process to proceed quickly. Two important products are developed during this *pre-purchase feasibility* phase:

1. A quick and accurate determination of total project costs and when these costs will be incurred over the length of the project. This basically determines your project expenditure ledger.

2. A parcel- and/or lot-pricing schedule, which allocates approximate densities, relative product and lot values, and profits per parcel. This determines your revenue per parcel.

Combined, you can then determine, based upon your market studies, probable sales over time. Given that there is, in fact, reasonable demand, you can identify your peak loan amount, when you expect to retire your development loan, total interest on the loan, and total profit. Not only do you determine project costs, revenues, interest, and profit, but you are able to determine key project events or milestones over time, such as: when your loan is expected to be paid off and when the project is likely to close out.

To Proceed or Not

The pre-purchase feasibility study should provide you with a clear and realistic view of a potential project. At this point you should decide whether to proceed, modify the program, or abandon it.

For a moment, consider each alternative decision and its consequence:

Proceed. If the decision is to proceed, you have proven to your satisfaction that there is reasonable profit in the project based on reasonable cost estimates and conservative sales projections. As an aside, the pre-purchase feasibility report should be all you need to submit for your development loan. It is a detailed, quantitative, and impartial cost/revenue summary, which most lending institutions tend to favor.

Modify. The pre-purchase feasibility study clearly indicates when you will fall short and by how much you need to reduce costs or increase revenues. This could be a simple matter of modifying your development program to better suit your site. However, if you need to drastically alter your product you should start over.

Abandon. For whatever reason, most builder/developers do not want to believe that their projects are not feasible. Most will sell themselves on the fact that this is the best site and the ideal product.

The fact is, if the pre-purchase feasibility proves hopeless, you may have lost a few thousand dollars on consultants—but saved several thousands or millions by not proceeding. Go look for another difficult, inexpensive site and try again. ■

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