

## Land Use Backgrounder

### The Big Picture

Development and construction projects are often destructive to local ecology. For example, stormwater runoff from developed areas can impact water quality in receiving waters, hinder navigation and recreation, and disrupt aquatic life. Site clearing and earth moving during construction often results in significant erosion problems because adequate environmental protection strategies are not employed. In addition, development activities may encroach on productive agricultural land areas and open space. Fortunately, steps can be taken to reduce impacts on previously undeveloped lands and to improve previously contaminated sites.

Brownfields -- abandoned, idled, or underutilized industrial and commercial sites where expansion or redevelopment is complicated by real or perceived toxic contamination -- are increasingly attractive as potential development sites. For companies whose portfolio contains one or more of these apparent white elephants -- many located in urban cores, near rivers, rail hubs, and interstate highways -- there is new hope for turning them into productive assets. Though they present several challenges, these environmental millstones may offer competitive advantages and benefits for firms seeking to acquire or relocate sites.

### Context

Increasingly, land developers are recognizing the long-term financial benefits of selecting sustainable sites for their projects. These range from access to money-saving building technologies to avoidance of liability and risk associated with the environmental impact of the site.

Site selection is the basis of site design and affects all aspects of the site, including transportation amenities, natural areas, stormwater management, amount of impervious surfaces, and site lighting requirements. Water supply and management issues, especially landscape irrigation and stormwater reuse, are dependent on project location. Opportunities to increase the building's energy performance can be realized by locating the project in areas where natural ventilation and solar gains can be managed and based on the angle and location of the sun. The local climate and marketplace should influence choices of materials. Natural ventilation and daylight can benefit indoor environmental quality.

As non-urban development has increased, the importance of prudent site selection has increased as well. The best strategy for selecting a building site is to choose a previously developed site. Since these sites have already been disturbed, damage to the environment is limited and sensitive land areas can be preserved. For this reason, there has been a surge in the number of brownfields being targeted by companies for redevelopment.

In recent years, government agencies have begun providing incentives, working to remove regulatory and legal barriers, and coordinating cleanup and redevelopment efforts among federal and local bureaucracies. More than half the U.S. states have passed legislation or developed policies to ease liability and cleanup requirements for brownfield buyers. Meanwhile, the marketplace is developing its own solutions to encourage brownfield redevelopment.

Finally, prudent site selection can enhance property values within the community when development is integrated into the surrounding ecosystem. For example, by clustering buildings in a neighborhood, green space can be set aside for parks and community gathering spaces. Thoughtful site selection and planning can also allow the developer to integrate unique neighborhood characteristics during project design.

## Getting Down to Business

Companies are just beginning to recognize the potential value of sustainable site solutions. A few examples:

- At the University of California at Santa Barbara's **Donald Bren School of Environmental Science and Management**, builders instituted an erosion control plan to prevent contaminated runoff from leaving the site boundary. Construction stormwater controls included temporary silt fencing and straw-bale catch basins. Project specifications and plans included requirements to preserve topsoil and limit site disturbance. During construction, grading activities were scheduled in accordance with weather conditions. Construction materials stored on-site were protected from the elements to prevent contamination of stormwater volumes, and construction workers were informed of the stormwater control program. During building occupancy, stormwater system inspections are scheduled to occur annually, before and after storm events, and weekly to ensure proper operation of stormwater controls.
- **Whitehall-Robins Healthcare** created hundreds of new jobs in northern Richmond, Va., the result of a collaboration with the city and the U.S. EPA. The city provided a 4.5-acre parcel of municipally-owned land to Whitehall-Robins, Richmond's 25th-largest private employer, so the company could retain, consolidate, and expand its pharmaceutical research facility. The land was formerly the site of an armory, a use that left the soil contaminated with lead and mercury. Though Whitehall-Robins had been interested in the property for years, the site sat idle until a U.S. EPA grant provided the city with environmental consultants to advise on detailed assessment and cleanup techniques. Completed in 1998, Whitehall-Robins' research center includes office, laboratory, and light industrial areas for 350 employees, including some 250 new jobs.
- The **KSBA Architects office building**, located in the Lawrenceville section of Pittsburgh, Penn., is a rehabilitation project of a building originally constructed in 1888 and is part of a decade-long neighborhood revitalization program involving several local jurisdictions and community planning agencies. The two-story building is located in a neighborhood that includes a variety of businesses and industries, all within close proximity to downtown Pittsburgh. The location benefits the building occupants by providing a neighborhood that is conducive to walking, eating, entertainment, transportation, and living.
- **Quad/Graphics**, a Wisconsin-based printer, turned an abandoned manufacturing facility just outside Milwaukee's depressed urban core into a bustling business center. The company wanted a site that afforded cost-effective distribution capabilities for its other Wisconsin plants. Aided by a state law that allows a company to buy previously used industrial property without assuming liability for undiscovered environmental contamination, Quad rehabilitated enough of the site to open a state-of-the-art, 600,000-square-foot facility. The move gave Quad/Graphics instant access to Milwaukee's large and available labor pool, but the company was also able to inhabit the new facility faster than if it had built one elsewhere from the ground up -- two months, compared to six months for new construction.

## Key Players

- **Landscape architects, ecologists, environmental engineers and civil engineers**, who may provide site-specific expertise in site selection.
- **Government officials** and other qualified professionals, who can perform a site survey to inventory the important environmental characteristics, including wetlands, sloped areas, unique habitat areas, and forested areas.

- **Manufacturers and related businesses**, which view brownfields as potential sites to locate facilities. Other industries include warehouse, distribution facilities, shopping malls, even schools, housing, and recreational facilities.
- **Real estate developers and bankers**, who stand to profit from site development.
- **Regulators**, who are both eager to put abandoned sites into productive (tax-generating) use, and who must guard against overzealous development that endangers public health.
- **Environmental justice organizations** representing low-income communities where many brownfields and urban redevelopment areas are located, which, like regulators, support cleanup of inner-city and rural sites but wish to ensure that the type of redevelopment that takes place will benefit their constituencies through new jobs and improved, healthier communities.
- **Members of the community** -- including building occupants, the general public and site neighbors, and the general public -- who all have a stake in the site's environmental impact.

### The Upside

- **Minimized risk.** Appropriate site selection can reduce the risk of property damage due to natural events such as landslides, floods, sinkholes, and soil erosion. Higher first costs may be encountered due to site survey and selection activities. Increased property values can offset these costs in the future. Proper site selection can also avoid potential loss of property due to litigation resulting from harm to endangered species.
- **Improved stakeholder relations.** While the public often is skeptical of new development, in the case of brownfields communities and governments encourage redevelopment. Benefits may include more cooperative labor relations, positive media coverage, appreciative customers, supportive community groups, and agreeable government agencies.
- **Financial benefits of green-building technologies.** Integrating environmental considerations such as natural daylighting and ventilation from the beginning of the site selection and design process reduces operating costs over the long term.
- **Reduced costs for redevelopment.** Using an existing infrastructure, including buildings and services, can be less expensive than starting from scratch and may cut the time it takes to go from acquisition to occupancy.
- **Access to labor.** Brownfield and urban redevelopment allows companies ready access to large pools of urban workers. Selecting an appropriate project location can reduce the need for private automobile use and reduce urban sprawl.
- **Prime locations.** Many urban redevelopment areas are on waterfront properties or near rail hubs and convenient to city centers and transportation corridors. The infrastructure to service your development may already be in place.
- **Tax incentives.** Federal and state tax laws are aimed at easing the cleanup burden. For example, the federal government has declared cleanup expenses to be fully deductible for the year in which they are spent. Additional tax breaks may be available for redevelopment of economical depressed urban areas.

### Reality Check

Developing toxic industrial sites can be a challenge, one not for the timid. It offers rewards, but also risks. Funding can be a problem, though it is becoming less so. Liability concerns loom large. The uncertainty over cleanup standards -- how clean is clean? -- can stymie projects. Communities can be barriers, too, if they feel the proposed brownfield development will not benefit local residents' personal or economic well-being.

## Action Plan

When considering site alternatives, it is important to consider environmental criteria throughout the site selection process. The major ecological features of the site should be identified, including the site geology, hydrology, vegetation, wildlife, and prior site history. Here are some specific considerations:

- Most successful brownfields projects involve an interdisciplinary team. Such projects can involve analysis of law, engineering, environmental, and real estate matters. Pull together individuals from a variety of parts of the company, supplemented with outside experts, to create a team that will manage the project from beginning to end.
- Bring local politicians and citizens groups into the process at the earliest possible stage. Earnestly solicit their opinions and feedback and incorporate them into the plan. Engage both friendly and less-friendly groups to ensure you are getting the full range of opinions. When appropriate, enlist local nonprofits as partners in a development project. Communication with these groups can be facilitated through public meetings, design charrettes, and organized comment processes.
- Whenever possible, choose development sites that already exist within an established community.
- Consider the proposed use of the building, and set a preference for previously developed sites that complement the use, thereby reducing associated parking needs and vehicular miles traveled.
- Consider how employees will travel to the site, availability of bike and bus routes.
- Pay attention to the culture and history of the community as well as past uses of the building.
- Research regulations that facilitate green design and financial incentives.
- Check with national, state, and local authorities about laws regulating development of contaminated sites. Many of the organizations and Web sites described below can serve as good starting points.
- Choose a building footprint and location that minimize disturbance to the existing ecosystem. Design a master plan for the project area, survey existing ecosystems and identify soil types on the site. Document existing water elements, soil conditions, ecosystems, wildlife corridors, trees and other vegetation, and map all potential natural hazards. Consider the impacts of the proposed development on existing natural and built systems and propose strategies to mitigate negative impacts.
- Choose a building site with access to natural light and shade.
- Investigate the local watershed and where runoff/pollution from construction will flow.
- Shade constructed surfaces (e.g. roof, roads and sidewalks) on the site with landscape features and minimize the overall building footprint. Consider replacing constructed surfaces with vegetated and/or permeable surfaces such as garden roofs and open grid paving or specify high-albedo materials to reduce heat absorption.
- Utilize water conservation practices, such as use of rainwater for irrigation.

- Excessive landscaping may require maintenance over time, resulting in additional operation costs. Use of native plants reduces both watering and maintenance requirements.
- Finally, it is also important to minimize project impacts on surrounding areas after construction is complete and the building is occupied. For example, by addressing heat island effects and reducing light pollution on the site, the site can become integrated into its surroundings and serve as a considerate and beneficial neighbor for the lifetime of the building.

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