A LOOK TOWARD THE FUTURE:
ENVIRONMENTAL EDUCATION
AT THE
BLACKFORD COUNTY LANDFILL

KNOWLEDGE

UNDERSTANDING

INTEREST

APPRECIATION

ACTION

RESPONSIBILITY

RESPECT

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A LOOK TOWARD THE FUTURE:  
ENVIRONMENTAL EDUCATION  
AT THE  
BLACKFORD COUNTY LANDFILL  
HARTFORD CITY, INDIANA

by  
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ABSTRACT

How can a full sanitary landfill, in Blackford County, Indiana, be reclaimed to be used as an environmental education area? It has become a growing public concern to be more environmentally sensitive. This is visible through the creation of many programs or events such as paper recycling drives, Earth Day, waste reduction plans, plant a tree programs, and commercial and television programs aimed at teaching people to take care of their environment, in many homes, cities, and states throughout the US. These programs and plans have used recycling, composting, and other things to reduce the production of garbage and become more sensitive to the environment. However we still throw away and waste thousands of tons of garbage each year, of which much could be reused again. More education is needed to form and strengthen a more environmentally sensitive attitude to reduce current and prevent future wastefulness.

This project used a completed landfill as the site for an educational center which will become one of the many new places to house programs to teach the public the importance and benefits of waste reduction and how to become more environmentally sensitive. In the design, where applicable, recycled or reusable materials were used in the construction of the site to set an example of what can be done in the design profession to reduce and reuse garbage. Education programs were provided for all ages, but were focused on school children to instill an environmentally sensitive attitude early in their life. The Landscape Architect, through the processes of design and reclamation, created a model program and introduced a model solution to teach the public the importance of waste reduction and ways to decrease the amount of garbage that we create.
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I. INTRODUCTION

PERSONAL BACKGROUND WHICH LED THE DESIGNER TO CHOOSE THIS PROJECT:

When the designer was growing up at home, he was taught to not waste things, especially by his dad. His dad, Ray, would try to reuse things as much as he could. If something broke, such as a lawnmower, Ray tried to fix it. If Ray could not fix it, he would save it and use it for spare parts. There was a shed full of parts of different things. Several times those parts became useful when something else broke and a part was needed to fix it. Food was another thing that the designer was taught not to waste. Scraps from the table were given to the cats or dogs or put on the garden for fertilizer. At times when the designer complained about what he had to eat or that he did not have something, Ray reminded him that people in the less developed countries barely have the necessities of life that we take for granted.

The designer first became interested in the impacts that our society has on our environment in Natural Resources 101. There he realized the destruction that we have caused to the environment to supply materials to produce goods that we use every day. At times he was frightened from the readings in Living in the Environment by G. Tyler Miller, Jr. which was the text for the class. The first chapter compared world population and natural resource use. It stated that 30% of the population, which are the industrial nations, are using 70% of the resources being used in the world. And 70% of the world population, which are the unindustrialized countries, are only using 30% of the resources being used in the world. Energy consumption is growing rapidly worldwide as unindustrialized countries are becoming industrialized. This puts additional strains on the world’s natural resources, which has a limit to the population it can support.

After that class, the designer saw the world in a new light. He began noticing things at school and elsewhere that bothered him that he did not notice before. Some of these things include: people using the electric door when they can open the door fine by themselves, lights being left on when no one was in the room and aluminum cans and newspapers being thrown in the trash when a recycling can was adjacent to the trash can.

In the fall of 1993 and the spring of 1994, the designer worked for the grounds crew at Ball State. Part of his job was to pick up garbage and change garbage bags on campus and dump them out in a large dumpster at the Heath Farm. At times he became disgusted at the amount of garbage that people threw on the ground and what they threw away. The disregard for the environment and the wastefulness of our society has directed his energies to alter these attitudes through the efforts of the Landscape Architect.

Also, in the spring of 1994 the designer took an LA elective taught by Martha Hunt, Landscape Architecture Professor at Ball State University, in which the students were to make master plans for the Reclamation of a Sand, Gravel,
and Limestone Quarry. This project was very interesting, but in general quarries have not received as much public attention as landfills have. The designer feels that landfills need immediate attention because they are of public concern as to what to do with them and how to make the life of the landfill extend over a period of time by reducing the need for landfill space.

II. PROBLEM STATEMENT

Current attitudes toward the production of garbage are threatening our children’s future. In the U.S., we are using natural resources to supply the demand for products that we use every day. Our use of our natural resources has grown over time, which is reducing the amount available for future generations. Through the production and use of these products we make garbage. Our throwaway mentality has resulted in the doubling of waste production from the 1960’s to the 1990’s while our population has only increased by 38% (Savan 80). The average American throws away enough garbage to fill 100 garbage cans a year (Savan 80). The price of disposing of all of this garbage is $30 billion a year. Most of this garbage will end up in a landfill. In 1990 67% of our garbage went to one of 6,000 landfills in the U.S., while 16% went to incinerators and waste-to-energy plants, and 17% was composted (Murphy 4).

Landfills are a good way to safely dispose of garbage. They were developed in response to garbage dumps, which was the previous form of garbage disposal. The problem with garbage dumps was that they caused many different types of pollution. In recent years the number of landfills which are closing all across the country has been increasing, since 1979 the number of operating landfills has dropped from nearly 20,000 to approximately 5,300 in 1993. There are two main reasons why so many landfills close. The first reason is that the Environmental Protection Agency (EPA) has placed new regulations which place restrictions on the landowner pertaining to safety and pollution control requirements. The second is that the increased amount of garbage is filling the existing landfills to capacity (Murphy 93-94).

We are running out of socially and politically acceptable sites to put landfills. According to Murphy, “Federal, state, and local rules for siting and operating waste facilities, particularly landfills, are growing more stringent. EPA regulations require landfill owners to comply with a minimum set of standards.” Because of the new rules old landfills are closing and new landfills are expected to increase in price (Murphy 6).

Social attitudes toward landfills are negative due to the fear of health risks from pollution and the belief that garbage is dirty, bad, and socially unacceptable. A basic summary of our attitude toward garbage is we do not care about it as long as it is out of site, and out of mind. We do not think about garbage because we believe it is someone else’s job to take care of it. However when we are faced with situations where
the garbage is not properly taken care of, or when someone wants to put a landfill near our home, we become disgusted and we are ready to fight against it.

As our society has grown, we have had the luxury of abundant natural resources and the financial resources to obtain those resources. We have grown accustomed to getting what we want when we can afford it. However, we fail to see that we have a problem with the rate at which we use our resources and the rate at which we dispose of them. Because we are for the most part separated from the processes of obtaining our resources and disposing of our garbage. As Mungall states "We must strike a balance between the needs of the present and those of the future."(278)

In order to create a balance between the needs of the present and those of the future, we must restrict or ration the amount of resources we use and the amount of products that we can create. This is not a new idea. The U.S. and other countries have done this in the past. It was done during W.W.I and W.W.II. Many resources and products were rationed, such as petroleum products and certain types of food. These products were rationed so that our country could have the necessary supplies to defend itself and help its allies. People were encouraged to recycle, reuse, and limit the products that they used in order for our country to win the wars.

After W.W.II, technology allowed us to exploit our resources more easily. Therefore it made it easier and cheaper to make things. Tempted by this technology and it's products, we grabbed this great opportunity and did not look back. Over time we became accustomed to and enjoyed all of what our resources and technology could offer us. However, the majority of us failed to realize what we were actually doing to our resource base. The majority of our society does not comprehend the magnitude of destruction that we cause our environment to obtain the resources to provide the products that we think we "need" or "want". We have become dependent on many of our resources to sustain our current way of life.

With the ever increasing technology, we are finding more ways to use our resources than we did not have before. We are spreading the reliance upon our natural resources over a broad spectrum. The further we stretch this spectrum, the less resources will be available for each area of the spectrum. Therefore, the next "war" will be fought to restrict the amount of resources that will be allowed to be used in order to create the balance necessary to provide resources for the needs of the present and those needs of the future.

Currently, practices of recycling and making reusable goods are increasing throughout the country, but we are still throwing away what we could use again, again, and again. Nature is efficient because the outputs of one system are inputs to another system (Berger 200-201). We need to be more like nature to limit the destruction we cause throughout the world.
The earth is blessed with an abundance of resources; however, these resources are limited! We can only take so much from the Earth before we use up our resources. We think about ourselves too much and do not consider what we are actually doing to the environment. According to Jennifer Wilson (1986) "...we borrow the natural from our children". If we do not control our wastefulness of our resources, our "children" will pay the price!

III. PURPOSES OF THE STUDY:

There are four main purposes to this project. The first was to develop a master plan for the end use of the Blackford County Landfill. The designer was informed that Blackford County was looking into what can be done with the landfill after it is finished. The clients representing Blackford County are Mr. Harold Rogers, the landfill supervisor, and Mr. Fred Walker, The President of the Blackford County Commission.

The second purpose was to create a model program and introduce a model solution to teach the public the importance of waste reduction and ways to decrease the amount of garbage that we create.

The third purpose is to create a positive image for the landfill and improve relations with the public.

The fourth purpose is to suggest how the programming and development of the site could be used to inform the public about the current problems of the garbage cycles, the cause of these problems, and suggest solutions to alleviate these problems.

IV. ASSUMPTIONS:

A. SITE RELATED:

1. The chosen sanitary landfill does not contain any hazardous materials.
2. The chosen landfill can be reclaimed and developed.
3. The Blackford County Conservation Club will terminate their current lease of some of the project area.

B. GENERAL:

1. Volunteers can be used to assist in the reclamation process.
2. Volunteers will want to help reclaim the site.
3. Money, labor, and resources are available to complete the project.
4. Appropriate reclamation methods, based on the characteristics of the site and project goals, will be used to reclaim the site.
5. This project can not itself change the attitudes of people towards waste reduction, recycling, etc. It can however, influence them to consider this view, and possibly can be a catalyst for people to change to be more environmentally friendly in their state of mind.
6. Success of the site was determined by how many people use the site, how seriously they take the information provided on the site, and how much of the information they incorporate into their everyday lives. This project is a continuation of current activities to reduce our wastefulness as a society. We can not continue to separate ourselves from many of the harsh realities of our everyday lives. Change for a better environment is eminent; however, how quickly that change comes depends on what we do to assist or oppose that change.

C. PERSONAL:
1. The view that the designer sees our society as a wasteful society in the way we use our natural resources. Also he believes that we are living beyond what our resources can support.
2. The user participation in the design process is a key factor in the success of the project.
3. The realization that attitudes toward changing our current lifestyle will be strongly opposed and will take many years and hardships to achieve a more environmentally sensitive attitude. In some respects our attitudes have already begun to change. More people are trying to find solutions to our wastefulness. Some of these solutions are to recycle paper, plastic, aluminum, compost yard waste, and to create recyclable products to reduce the need to use virgin materials.
4. It is easier to learn something through participation than by just reading something or being told something.
5. It is important to reduce solid waste, to decrease waste disposal problems and to stop the excessive use of our natural resources.

V. PERSONAL PHILOSOPHY
We cannot deny that our world is running out of energy and resources. We must use and reuse what we have in order to lengthen the time we can exist on this planet. We need to be more responsive to our environment, learn more from it, and live by that knowledge. Limitations must be set to our materialistic lifestyles in order be more with ourselves and our environment. We need to become a beneficial factor in nature and reduce our destruction and attempt to control it. We cannot control nature!

People are more comfortable in environments that we know and are used to being in. We have been raised, for the most part, separated from our natural environment and have surrounded ourselves with material goods stripped from the natural environment. In order to be more environmentally sensitive, we must first understand our natural environment so that we can learn from it. One of the best ways to learn about and remember something is to be exposed to it and experience it. We must experience our natural environment so that we
can learn how it works, know where we fit it the bigger picture, and understand how to take care of it.

VI. DEFINITIONS:

Clients of this project are primarily children in grades K-12. Reclamation is the process of returning the disturbed site to a condition in which it can be redeveloped for other purposes. Sanitary landfill also known as a solid waste landfill is described by the Indiana Code (1993) as a waste disposal facility at which solid waste is deposited on or beneath the surface of the ground as an intended place of final location.

Transfer Station is defined by the Indiana Administrative Code "means a facility for the acceptance, holding, and loading of solid waste into a vehicle for the movement to a facility for processing, recycling, or disposal".

VII. GENERAL GOALS:

1. **Goal**: To stimulate the users interest into learning about the environment.

   **Method**: The program was developed from first looking at the characteristics of the site and determining how the features of the site can be used to fulfill the goals of the project. In addition to these characteristics, other built features to add to the site were suggested to fill in the educational gaps that the site does not sufficiently provide.

   Elements of the program include:

   A. Provide an education center on the site to house programs which would teach the public what we can do to reduce the creation of waste.

   B. Set an example for the public by using recycled and reused materials on the site for building materials.

   Also ways at which the user can use and experience the site were used to introduce the user to the user to the environment. Some of these ways include:

   A. Use volunteer programs to aid in the construction process involved with reclamation.

   B. Provide access through the site and encourage participation activities on the site.

   C. Use play and recreation as a teaching element on the site.

2. **Goal**: To comply with existing federal, state, and local laws in developing the site.

   **Method**: The laws and regulations of the U.S., Indiana, and the chosen county that dictate the requirements for reclamation of a sanitary landfill were retrieved and used as guidelines for what could and could not be done on the site.
3. **Goal:** To develop a program which would identify ways to teach current problems of the trash cycle, the cause of these problems, and suggest solutions to alleviate these problems.

**Method:** The program was made by first looking at the characteristics of the site and determining how features of the site can be used as program elements. In addition to these elements other built features to add to the site were suggested to fill in the educational gaps that the site does not sufficiently provide.

**VIII. PERSONAL GOALS:**
1. Develop a solid and creative design project with good graphics to support the project.
2. The second personal goal is to be organized and efficient in the design process.

**IX. REVIEW OF THE LITERATURE**

The designer's first step was to go to the library and use OPAC to search for books and articles on reclamation. In the beginning of this project, he was going to concentrate on a sand and gravel mine, because he did a reclamation project on one in the spring. Then he decided that he wanted to do something different, but still in the reclamation area. So he chose landfills, because of the growing public concern of landfills becoming full and where new landfills will be located.

While talking with Colin Reynolds, the designer was informed of a landfill near Muncie, Indiana, that he could possibly use as a site for his project. With this in mind, he continued his search in the library. During this search, he found several texts and articles on reclamation, but few sources specifically on landfill reclamation. The few articles that he did find stated that some reclaimed landfills have been developed as parks, golf courses, residential areas, and industry. One reclaimed landfill had been developed into a residential subdivision; however, in time, the whole subdivision began sinking into the landfill, because of the decomposition of materials in the landfill. Everyone in the subdivision had to be moved and the subdivision was destroyed (Stramm 18-19). Another reclaimed landfill had been turned into a ski resort (Carlile 38).

With further search of the literature, the designer located some of the laws which govern the operation of a sanitary landfill, but little data found about laws governing reclamation of a landfill. There were two laws that he found that deal with closed landfills. The first is under the Resource Conservation and Recovery Act Subtitle D. It stated that plans for the closure of a landfill should include provisions to properly cover the landfill with a 4' soil cap or other combinations of soil and synthetic material. The second law stated the plan should include provisions for the monitoring of the landfill for leaks for at least 30 years (Murphy 96-97).
Landfills have been developed over time in response to pollution caused from open dumps, a previous waste disposal method. The main function of a landfill is to form a sealed container underground. Materials to form the container are of two basic types: 1. Soil, primarily clay soil types, which can be formed into a dense barrier to prevent leaking of waste materials. 2. Polyurethane, a synthetic material used in locations where soil types are insufficient to function as a safe barrier. See Figure 1 below.

This paragraph is a brief description of the landfill process used at the Blackford County Landfill. Once the site had been approved, existing vegetation and the topsoil were stripped from the area. Then a large trench was dug to the desired depth. The bottom of the trench was compacted then a layer of garbage was put in and compacted to a 2' layer. On top of that layer at the end of each work day a 6" layer of compacted clay was put over the garbage. Additional layers were added until the garbage layer was within 2' of the original grade of the area. Then a 2' layer of compacted clay, was put over the garbage. On top of that 6" of topsoil was added and then vegetated with a mixture of grasses to prevent erosion. The 2' of clay, 6" of topsoil, and grass is called the landfill cap.

Figure 1
SECTION OF A LANDFILL

SCALE: 1/4" = 1'

8
The cap over the landfill is very important to keep it sealed and prevent pollution. Also what is planted on the cap is important. Since the cap is relatively thin, deep rooted plants are highly discouraged because the roots can penetrate the cap and reach the waste in the landfill. The roots can then potentially transport some of the contaminants to the soil surface (Caldwell 285). Additional pollution could be caused by erosion of the landfill cap exposing materials in the landfill and invasion of the landfill by other organisms, such as ground hogs and other burrowing animals (Caldwell 265). The vegetation chosen for a sanitary landfill should be shallow rooted unless additions or modifications to the cap are made to accommodate deeper rooted plants (Caldwell 114-116).

A little discouraged, the designer tried to think of something which could give a "twist" to his project (as suggested by his Professor, John Russell). The designer brainstormed for ideas to add that "twist", and came up with the idea of using the reclamation of a landfill as an educational tool to teach people how to reclaim a landfill and why it is important to reclaim it. Also, he wanted the site to be used both to educate the public on ways to reduce waste and as a recreational area. Other ideas included ways to get the users of the site to participate and or experience the features of the site. One idea to include participation in the project was to have recycling contests, games, or class projects for children on the site. According to Gregory Smith it is important to get children away from their schools out into their environment in order to expose themselves to it and become related to the processes and become more responsible for their actions. The children can help teach others by sharing their findings and observations with their classmates and family. This is important because as Gregory puts it, "... it is important to break away from the classroom and root themselves into the broader environment" (95).

Another idea to experience the site was to remove an actual portion of the landfill and enclose it in a glass or plastic structure so that people can see what is in the landfill and what happens to the materials in the landfill. Or, if possible to cut a portion of the landfill out large enough for people to go down into to experience what it is really like in a landfill.

Next the designer added the topics of recycling, composting, and waste management to his search. These additions in his search created many sources of data, several texts, and many articles in BioCycle and American City and County about the new topics. While skimming some of these articles, he began thinking of how his project would be constructed and what materials would be used. He wanted to carry the theme of recycling, reusing, and waste reduction throughout the project, including in the construction and materials that would be used for the project. Materials to be used on the site would be recycled or reused materials, found in East-Central Indiana.

Public participation could be incorporated in the project by asking for volunteers and equipment to help build the project, and by asking people to donate reusable or recyclable
materials which could be used in the project. It is very important to get people involved into waste reduction so that we can preserve energy for future generations. According to Al Gore, "When politicians see enough people demanding action on the environment, then the laws will change (Murphy 149)". One of the most important groups to get involved is school children, because they are our future leaders. They need to learn from our mistakes about waste so they will not make the same ones. Nilson states that children have limited experience with natural systems and ecological processes. This site could provide programs to give children the opportunity to participate in solving problems in the environment (Nilson 126). The site could also strengthen existing school programs which teach the children about recycling and waste reduction and other environmentally sensitive approaches.

Through a discussion about the project with Professor Ron Spangler, Ron informed the designer of a landfill near Hartford City, Indiana which was near completion. The designer contacted Mr. Harold Rogers, Supervisor of the Blackford County Landfill and asked about the landfill and if he could do a reclamation project on for it. Mr. Rogers informed the designer that it was all right with him, but the Designer should contact Mr. Fred Walker, President of the Blackford County Commission. The designer contacted Mr. Walker and received an interested response for the project. Some of the ideas that Mr. Walker had were to make the site into a park and have some nature trails and picnic areas on it.

Next, the designer obtained maps and other specific information about the site from Mr. Rogers. Some of the important facts about the landfill included: the existing conditions of the landfill, methane tests have been low or 0, Indiana House Bill 1240 stated that Indiana's goal is reduce garbage by 30% by 1996 and by 50% by 2001, and part of the site is currently being leased by the Blackford County Conservation Club.

The research process continued by focusing on environmental education, recycling, experiments for kids, and nature trails. Many resources were found on all of these topics. One source noted possible federal funding up to $25,000 for similar projects throughout the country. (ABC's 20) The designer met with Mr. Rogers and Mr. Walker again to discuss the program for the site. Mr. Rogers suggested talking with Mr. Fred Tobey, Former President of the Blackford County Conservation Club (BCCC), to see what ideas they had for the site and what he thought of the designers ideas.

Through a discussion with Mr. Tobey, the designer discovered that the BCCC was in indecision about whether to continue using the site for its functions. They wanted to put trails on the site and enhance the natural features on the site by planting trees, and adding wildlife to the wetland areas. They expressed interest in my ideas in how the suggested features could serve a double function by allowing them to use those facilities too. Specifically they were interested in the Environmental Learning Center and how it could serve as
their meeting facility. As of 2/95 they were using the old storage shed on the site as their meeting place.

The BCCC was planning on putting a shooting range, the main fund raiser for the club, on the site. However, the shooting range idea was ruled out by the local government and neighboring residents. Therefore, the designer assumed that the BCCC would not stay on the site.

Next the designer went to the Indiana Department of Environmental Management (IDEM) to inquire about the specific locations of the landfill areas on the project site and information on other landfills that are being reclaimed and what can be done on landfills. The designer found out that the Munster landfill near Gary, Indiana that was being reclaimed into a wildlife park with trails going through the site. There are no guidelines as to what can be done on landfills. It is determined on a site to site basis.

The designer also discovered that there are many other types of waste facilities besides landfills. See figure 2 on the next page.

In Indiana there were 152 active solid waste facilities as of January 1995. Of those facilities, 43 are landfills and 43 are transfer stations. Before 1990, 104 landfills were closed in Indiana. Between 1990 and 1994, 35 landfills were closed in Indiana (IDEM).

From here the designer looked more closely at the site and defined the users of the site to determine what should be done with the site.
Figure 2
INDIANA SOLID WASTE FACILITIES

KEY

C  County Transfer Station
D  District Transfer Station
M  Municipal Transfer Station
P  Private Transfer Station
△ Private Landfill
△ County Landfill
△ Municipal Landfill
CD Landfill
△ District Landfill
□ Collection Container System
⊕ Tire Processing Facility
● Ash Monofil
○ Sludge Monofil
⊙ Other RWS
◆ Paper Processing Facility
■ Municipal Waste Incinerator
□ Industrial Incinerator
+ Hospital Incinerator
○ Medical Waste Processing Facility
X. CLIENTS/USERS:

The primary clients of this project were school children, in grades K-12. This project focused on children because they are more easily influenced in the early stages of their lives. As we grow and develop we are taught how to do things a certain way. We do the same thing over and over until we develop a habit. Then we start doing things without really thinking about them, because we were taught to do it that way. It is hard to change a habit, because it is a habit and we do not really think about what we are doing. Therefore it is important to focus on children to create new habits which will benefit them and the world around them in the present and future generations.

According to Confucius,

\[
\text{If your plan is for 1 year,}\]
\[
\text{plant rice;}\]
\[
\text{If your plan is for ten years,}\]
\[
\text{plant trees;}\]
\[
\text{If your plan is for 100 years,}\]
\[
\text{educate children. (ABC's)}\]

To identify the children who could potentially use the site via school trips, school corporations within a 45 mile radius from the site were identified and listed below. See figure 3 on the next page.
A. REGIONAL SCHOOLS

School Corporations within a 15 mile radius from the site:
1 Blackford Corp Sch 5 Jay School Corp
2 Delaware Comm Sch 6 Muncie Comm Sch
3 Eastbrook Comm Sch Corp 7 Southern Wells Comm Sch
4 Harrison-Washington Comm Sch Corp

School Corporations within a 30 mile radius from the site:
8 Alexandria Comm Sch Corp 17 Monroe Comm Sch Corp
9 Anderson Comm Sch 18 Mt Pleasant Township Comm Sch
10 Bluffton-Harrison M S D 19 Muncie Comm Sch Corp
11 Elwood Comm Sch Corp 20 Northern Wells Comm Sch
12 Huntington Co Comm Sch Corp 21 Oak Hills United Sch
13 Liberty-Perry Comm Sch Corp 22 Randolph Central Sch Corp
14 Madison-Grant United Sch Corp 23 Salem Comm Sch
15 Marion Comm Sch 24 South Adams Sch
16 Monroe Central Sch Corp 25 Union Sch Corp

School Corporations within a 45 mile radius from the site:
26 Adams Central Comm Schs 41 Noblesville Schs
27 Blue River Valley Schs 42 North Adams Comm Schs
28 Charles A. Beard Memorial Sch Corp 43 Northeastern Wayne Schs
29 Eastern-Howard Comm Sch Corp 44 Northern Comm Sch of Tipton Co
30 Fort Wayne Comm Sch 45 Northwestern Sch Corp of Henry Co
31 Hamilton Heights Sch Corp 46 Peru Comm Schs
32 Hamilton Southeastern Sch Corp 47 Randolph Eastern Sch Corp
33 Jefferson Twp Schs 48 Randolph Southern Sch Corp
34 Kokomo-Center Twp Sch 49 South Henry Sch Corp
35 Logansport Sch Corp 50 South Madison Comm Sch Corp
36 Manchester Comm Schs 51 Taylor Comm Sch
37 M S D of Southwest Allen Co 52 Tipton Comm Sch Corp
38 M S D of Wabash Co 52 Sch City of Wabash
39 Nettle Creek Sch Corp 53 Washington Twp Schs
40 New Castle Comm Sch Corp 54 West Central Comm Sch Corp

The 45 mile radius translates into a maximum of a one hour driving distance from the site, which can be considered as a reasonable driving distance for a field trip for elementary school children. It is important to teach children what mistakes we have made, such as the production of so much garbage and the misuse of our natural resources, and teach them how to solve these problems.

The secondary clients were people who will live in the community around the site and professionals in the design profession and the business world. These people should also be given the opportunity to learn how to live a more environmentally sensitive life. It is important to show them how their actions affect the trash cycle and how they can change those actions by reducing waste, recycling, choosing reusable materials and resources when constructing things, and buying and manufacturing environmentally friendly goods.
XI. SCOPE OF THE PROJECT

1. The project focused upon the approximately 114 acres of the Hartford City Landfill and the Blackford County Landfill.

2. A master plan was developed for the end use of the property mentioned above. The project drawings were limited to location map, context map, site inventory and site analysis, conceptual master plans, details, and a final paper explaining the project. Construction detail drawings were not a part of this project.

3. Building footprints were suggested, but detail drawings were not provided.

4. An engineering survey was not performed for this project. Topography, roadways, outlines of wetlands, and outlines of vegetated areas were documented using maps received from the landfill supervisor, aerial photographs, USGS maps, and on site observation. Therefore, outlines of such areas may be approximate.

5. Each step of this project was restricted to the time that the designer had to complete it. Certain steps of the process took longer than the time available. It was critical not to spend too much time on an individual step, because it took time away from other steps of the processes that were also important to the project as a whole.

XII. DESIGN PRINCIPLES:

1. The use of IDEM regulations on Landfill reclamation as a guideline for what can and can not be done on the site.

2. The characteristics of the site were important in the considerations of what should be constructed and what should not be constructed on the site.

3. To use an environmentally sensitive design and consider the compatibility of features on the site with its context.

4. To use materials which were recyclable and or reusable in the construction of the site.

5. To use reclamation methods which were proven to work and are environmentally safe.
XIII. PROCESS
A. SITE LOCATION

The Blackford County Landfill is located in East Central Indiana, near the South-eastern edge of Hartford City. The landfill is part of the Mideast Indiana Solid Waste District of Blackford, Jay, and Wells Counties. *See figure 4.*

The landfill was started on approximately 20 acres in the late 1960's and continued to grow to use nearly 114 acres to accommodate the growing needs of the community. Plans are to close the landfill by the end of 1995.
B. SITE CONTEXT

The site is the Blackford County Landfill, near the South-eastern edge of Hartford City, Indiana. It is located 1-1/4 miles East of State Road 3, East of the intersection of 100 S and Willman Road.

The is located East of the intersection of 100 South and Willman Road. The site is bordered by the Penn. Central RR on the Northeast, Willman Road on the West, and agricultural fields and woodlots along its other borders.

A Transfer Station was constructed to handle the continuing needs to dispose of the communities garbage. The garbage will be collected and hauled to the Jay County landfill.

The Landfill is a sanitary landfill and does not contain hazardous waste. Of the approximate 114 acres, 40 acres of the site contains waste. The rest of the site consists of water bodies, roads, borrow areas, service areas, and an open field.

The site is surrounded by agricultural area with patches of woodlands and small water bodies. To the west of the site there are some single family residences. See figure 5 on the next page.
C. SITE INVENTORY

Next a site inventory was done to identify and label the characteristics of the site. The existing conditions of the site include which were identified but not limited to:

1. Site location
2. Surrounding land uses
3. Existing site features: topography, hydrology, structures, wildlife
4. Land use
5. Visual quality

See figure 6 on the next page.
D. PROJECT GOALS

After the designer finished site inventory, the following goals were developed as specific goals for the project site.
1. MAINTAIN THE SOLID WASTE TRANSFER STATION ON THE SITE
2. PROTECT THE LANDFILL CAP FROM BEING DISTURBED
3. PROVIDE EDUCATIONAL OPPORTUNITIES FOR THE USER TO LEARN ABOUT THE:
   a. History of landfills
   b. Effects of landfills on the environment
   c. How to reduce the need for landfills
   d. Environmental education
   e. Characteristics of the site and its context

E. PROGRAM

A program was developed to identify the elements needed to fulfill the needs of the project goals. The client requested the following to be placed or be maintained on the site:
- Solid Waste Transfer Station
- Currently in the process of being built on the southern part of the site.
- Environmental Learning Center (E.L.C.)
- Building containing: Classrooms, Museum, restrooms, display areas, offices, and meeting rooms
- Outdoor areas to gather, picnic area, drop off/pick up area
- Playground and play field
- Parking for 2-4 school buses and 10-20 cars
- Recycling bins or facilities
- Adequate road system for provided facilities
- Path system through the site
  - trails for recreational and educational uses
  - handicap accessible pathways, these should also accommodate maintenance vehicles
  - Display or experiment areas along the trail for teaching and participatory activities
- User control system:
  - Facilities were to have scheduled hours
  - Access through the site is restricted to the provided trail system and scheduled time periods
  - No hunting on the site
  - Posted Rules to protect the user and the inhabitants of the site
- Display and experimental areas should include:
  - Composting areas: yard and food waste
  - Methane testing areas
  - Solar Studies
    - greenhouse
    - garden areas
  - Water Quality testing areas
    - precipitation measurement facilities
  - Information panels
  - Areas for active participation in the reclamation of the site
- Plant identification areas and appropriate marking system
- Air quality testing areas
- Landfill display
- Dump Display
- Temperature monitoring facilities
- Vegetation cover monitoring to prevent erosion and disruption of the landfill cap
- Wildlife habitats to be created, enhanced, or maintained
  - Wetland areas
  - Woodland areas
  - Pasture/grassland areas
  - Edge areas (the areas around woodlands, roads, wetlands)
  - Aquatic areas created from small fresh water pond(s)
- Plant and animal species may be introduced to their respected habitat

F. RELATIONSHIP MATRIX

From the program, a relationship matrix was created to identify the relationships between program elements. Relationships between elements were rated from poor to good to best. See table 1.

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G. CRITERIA

With the completion of the relationship matrix, it was easier to see how certain program elements should be located next to or away from other program elements. To sum up these relationships, a list of criteria was formed to identify the most positive and most negative relationships between certain program elements. Other important considerations were obtained through a discussion with Alisa Coffin, Landscape Architecture Professor at Ball State University. Some of these main points include:

1. The diversity of the wildlife species that can and will live in an area is directly related to the size of their respective habitat.

2. Human access through the site was limited. Certain wildlife are very sensitive and can not tolerate interaction with humans. Others can adapt to human contact within their habitat.

3. Pets, especially dogs and cats, was limited or restricted from access through the site. They can easily disrupt animal habitats and prevent certain species from living on the site. For instance, song birds nests are around 3’ off of the ground. Their nests can be easily disturbed or destroyed by a dog or cat. A vegetated buffer along the edge of the property could provide an area for the dogs or cats to hunt in to distract them from entering further into the site.

4. To obtain the most the most interesting and influential educational area, human access through the site and participation were crucial elements.

5. It was very important to have rules for the users of the site. They must know what they have to do so they do not disturb the wildlife habitats or display areas.

6. The Environmental Learning Center should be located near the site entrance. The parking lot and picnic area were located near the E.L.C. for easy access.

7. A garbage truck schedule should be made and posted to inform the users, especially the younger children, of when they should be away from the haul road.

8. Truck drivers should be informed of the schedule of field trips to the site so they can be extra cautious when driving through the site.

9. Display areas should be located out on the site to utilize the site’s potential as an educational tool.

10. Materials used to construct different program elements on the site should be made from recycled or reusable materials to set an example and educate the users on how materials can be recycled or reused. Examples of this include using recycled asphalt paving, reused wood for signs and displays, and reused tires as play equipment.

This information was then used to locate were certain program elements should be placed on the site.
H. SITE ANALYSIS

The conditions identified in the inventory and the criteria that were developed from the matrix and program were then analyzed to determine what the opportunities and constraints of the site were. The opportunities were analyzed to see how they can be used to help achieve the purpose of the project.  
See figure 7 on the next page.
Figure 8
CONCEPT 1: WILDLIFE ENHANCEMENT

SCALE:  

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27
2. **CONCEPT 2**

The second concept is called the "**Hands On**" concept. It focused on the education and participation of the user, with a minor focus on wildlife habitats. This concept utilized existing or potential site features as teaching elements. It also provided the opportunity for the users to actively participate with the elements on the site to strengthen the learning experience. Active participation included water testing, gardening, planting areas for wildlife habitats, physically experiencing the site as though you were an animal living on the site, walking through and seeing a landfill waste cell, and making your own landfill to see what happened to things that were buried.

The Environmental Learning Center, was used as the information center, a gathering area, and a place to house temporary and special displays that could not be incorporated onto the site. *See figure 9 on the next page.*

**Constraints** of this concept included:

a. Potentially limited the variety of wildlife species that would live on or use the site as part of their habitat because of the amount of human disturbance or presence on the site.

b. High cost of construction and maintenance of display areas and Environmental Learning Center.

c. Increased human access on the site, especially near the haul road, increased the potential for conflict between the users and transfer station traffic.

**Opportunities** this concept included:

a. Provided many opportunities for active participation on the site.

b. Utilized existing or potential site features as teaching elements.

c. Provides the user with many different types of experiences on the site.
Figure 9
CONCEPT 2: HANDS ON

SCALE: 100'  200'  300'  400'

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29
3. **CONCEPT 3**

The third concept is called the "*Combination of 1 and 2*" concept. It focused on bringing the best of the first two concepts together and assimilating more of a balance between wildlife habitats and education. It focused primarily on education with wildlife habitat as a secondary importance. It utilized the most important existing or areas with the most potential to be used as wildlife areas.

It uses existing site features as teaching elements, and connects them with a trail system. Existing woody vegetation on the landfill is removed from the landfill areas to protect the landfill cap. The landfill area will be used to grow and harvest hay, which then can be used to help control erosion on other projects. *See figure 10 on the next page.*

**Opportunities** of this concept included:

a. Provided human access to the more important features of the site.

b. Provided areas which are restricted from human access to allow space for wildlife habitats.

c. Visually outlined the border of the landfill areas by restricting trees from being planted on the landfill. This allowed the user to easily see where the landfill is and strengthened the idea of using features of the site as teaching elements.

d. Visually and physically joined the site to its context by extending the neighboring woodland areas onto the site.

e. Protected the landfill cap by restricting types of vegetation grown on the landfill.

**Constraints** of this concept included:

a. Cost of construction and maintenance of the displays and Environmental Learning Center.

b. Increased human access on the site, especially near the haul road, increases the potential for conflict between the users and transfer station traffic.

c. Additional displays caused the construction and maintenance costs to increase.
Figure 10
CONCEPT 3: COMBINATION OF 1 & 2

SCALE: 100’ 200’ 300’ 400’
4. **CONCEPT 4**

This concept further develops the combination concept. It is called the *Educational Zones* Concept. It also uses existing site features as teaching elements and existing natural areas as wildlife areas. It is different in that it divides the site into education zones. In areas along the trail where the site does not have an outstanding or interesting feature, this concept added the element to maintain interest and provide additional features to maintain users' interest and enhance the educational experience. Additional elements were chosen and placed on the site depending on the relationship they had with the existing educational zones that were defined in the concept. *See figure 11 on the next page.*

**Opportunities** of this concept included:

a. It added other educational opportunities for the users.
b. It organized the site into educational zones to provide a more extensive learning opportunity for the users.
c. Provided human access to the more important features of the site.
d. Provided areas which are restricted from human access to allow space for wildlife habitats.
e. Visually outlined the border of the landfill areas by restricting trees from being planted on the landfill. This allowed the user to easily see where the landfill is and strengthened the idea of using features of the site as teaching elements.
f. Visually and physically joins into its context by extending the neighboring woodland areas onto the site.

**Constraints** of this concept included:

a. Cost of construction and maintenance of the displays and Environmental Learning Center.
b. Increased human access on the site, especially near the haul road, increased the potential for conflict between the users and transfer station traffic.
c. Additional displays caused the construction and maintenance costs to increase.
Figure 11
CONCEPT 4: EDUCATIONAL ZONES

SCALE: 100' 200' 300' 400'

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FRESHWATER INTERACTIVE ZONE
J. SCHEMATICS

From the 4 concepts, the educational zones concept was chosen to be developed into the master plan because it fulfilled the needs of the goals better than the other three concepts. The following paragraphs describe what will be placed in each of the specified educational zones.

INTRODUCTION ZONE

The Environmental Learning Center was located in this zone to be a gathering point for the user which gave them an overview of what could be done on the site. Other features included in this zone include a playground, picnic areas, parking, play field, trails, woodland succession area, and a fishing pond.

Where applicable recycled or reused materials were used for the construction of the built features on the site.

WOODLAND SUCCESSION ZONE

In this zone the user could learn about the different types of plants, animals, and birds that live in this type of a habitat. The user could also learn other natural processes such as decaying wood and plant energy cycles.

DUMP ZONE

The user could learn how we used to dispose of our garbage by viewing an existing dump area. Other educational opportunities included identifying what is in the dump, where it may have come from, and what could it be used for today, by recycling or reusing it.

WETLAND ZONE

The user could learn about the types of plants and animals that live in a wetland, how wetlands work, and the importance of wetlands to natural cycles. The user could experience the site from different vantage points from on a hill to walking over the wetland on a boardwalk. Active participation in this area includes testing the water for pollution and gathering samples to see some of the smaller wildlife species such as the insects that live in the wetland.

MONITORING WELLS

The user could test the groundwater to test for pollution from the landfill. The user could also test for methane production at the well.

At these wells, basic concepts of landfills could be explained, such as decomposition, methane production, landfill cap settling, and why there were restrictions to what you could and could not do on a landfill.

WOODLAND ACTIVE ZONE

In this zone the user could experience what it is like to be many different kinds of animals. For example, an observation tower was located in this zone so the user could climb it or be elevated up to see a birds vantage point from 20' up in the trees. An outdoor seating area was also provided.

In other areas the users would be instructed to lay on the ground and dig their hands into the leaves and earth. Then they will be asked to be still and see if they felt anything moving. This experience was mentioned by Van Matre in Acclimatization. It was designed to help the user understand
how a woodland grows and help the user to develop an interest and respect for natural systems.

**LANDFILL ZONE**

In this zone the user could be exposed to how much land a landfill uses and the limits to what you could do on a landfill. A garbage tower was constructed on top of the landfill to represent the depth of the landfill. Also the user could learn about what types of wildlife and plant life could live on a landfill.

**GROWING ZONE**

In this zone schools and other groups were be able to grow small gardens to introduce concepts of plant growth. A greenhouse was constructed to provide year around growing opportunities and a place to start plants for the gardens and other revegetation projects on the site.

A weather monitoring station was located in this zone to teach the user about the climate of the area. The weather station included a thermometer, rain gauge, and a wind direction and velocity gauge.

A compost area was provided to teach the users how to compost at home, what could be composted, how could the compost be used as fertilizer. Other growing areas were provided to grow woody and grass species.

**GARBAGE ZONE**

In this zone the user could learn how we are currently disposing of our garbage. In this case emphasis was placed on the fact that the garbage was sent to the transfer station was sent to Jay County Landfill and filling it up.

A record of the garbage trucks was displayed so the user could compare to previous years to see if the county was reducing or increasing the amount of garbage that it created.

A recycling area was provided to show what we were recycling and record how much Blackford County was recycling.

**LANDFILL INTERPRETIVE ZONE**

This zone allowed the user to walk through a landfill trench. The walls of the trench were constructed to include windows in it so the user could see the garbage in the landfill and to see what happened to the garbage over time. Also in this area schools were allowed to make their own small landfill to demonstrate what materials decomposed and what did not decompose.

**POND INTERACTIVE ZONE**

This zone allowed the user to experience a shallow pond area by having an area where the user could walk into the pond which provided a different learning experience. The area was restricted to adult supervised visits only for the safety of the users.

**EDGE ZONES**

In these zones, the user could learn about the different types of edge habitats and what types of plants and animals lived in them.

**WILDLIFE ZONE**

These zones were restricted to the user which provided undisturbed areas for wildlife habitats.
1. EDUCATIONAL ZONES SCHEMATIC 1

This schematic offered the user with two ways to experience the site. The first way was to walk through the site on the provided trail system. The second way was to ride on a shuttle system through the site. The shuttle system was designed for users that had a limited amount of time or capabilities to walk through the site. The main constraint of this schematic was the high cost of the necessary roads and shuttle for the vehicular transportation service. Another constraint was to get the approval of the IDEM for the construction of the necessary road system which extended around the edge of the landfill. See figure 12 on the next page.
Figure 12
EDUCATIONAL ZONES SCHEMATIC 1

SCALE:

100'  200'  300'  400'

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2. EDUCATIONAL ZONES SCHEMATIC 2

This schematic still provided the user with two ways to experience the site, but it restricted the vehicular system to the existing haul road and monitoring well access drives. The vehicular access in the introduction zone had been changed to a more amebic form to offer a alternative to the formal drive in the first schematic.

A picnic shelter and dock had been added to the pond which provided a unique place for the user to learn, eat lunch, fish and have social gatherings.

The main constraints of this schematic was that the access drive in the introduction zone reduced the size of the area available for the open play field and other features. It also required the user to cross another road when walking along the trail, potentially caused additional vehicular/pedestrian conflicts. See figure 13 on the next page.
Figure 13
EDUCATIONAL ZONES SCHEMATIC 2

SCALE:

100'  300'  400'

N

W  E  S

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3. **EDUCATIONAL ZONES SCHEMATIC 3**

This schematic was a combination of the first two schematics. It used the introduction zone layout of the first schematic and modifications of the other zones in the second schematic.

It also added a small island in the middle of the large wetland for a wildlife reserve. Waterfowl nests were added on the island and around the wetland to attract more waterfowl to the wetland.

Experimental planting zones were placed on the smaller landfill areas to test the tolerance of different species of plants. The cover in these areas was increased to protect the landfill cap.

The areas to be planted on were on the northern part of the site. The goals of this experiment was to teach the user what plants could live on a landfill, to create a more unified site, and to increase the size of the wildlife habitat areas. *See figure 14 on the next page.*
Figure 14
EDUCATIONAL ZONES SCHEMATIC 3

SCALE:

100' [ ] 200' [ ] 300' [ ] 400' [ ]
Figure 15

K. EDUCATIONAL ZONES MASTER PLAN

The Educational zones master plan was a adaptation of Schematic 3.
L. SITE DETAILS

In order to give the reader a more descriptive idea of what it would be like to experience the site, follow the red trail on the master plan and look at the following figures and read the following text to get the experience the designer intended for the user. The first details are of entrance signs into the park. See details 1 and 2 below. Details are adaptations of signs in Ashbough's Trail Planning and Layout (58-59).

**DETAIL 1: PARK ENTRANCE SIGN**

![Image of a sign welcoming to Willman Park & Learning Center]

**DETAIL 2: TRANSFER STATION ENTRANCE SIGN**

![Image of a sign indicating Blackford County Transfer Station]

Field trip in session sign was hung to alert the garbage truck drivers of the presence of children in the park so they could be extra cautious when driving through the site.
DETAIL 3: ENVIRONMENTAL LEARNING CENTER

Detail 3 is an adaptation from an Interpretive Education Building in Ashbough's *Planning a Nature Center* (40).
DETAIL 4: PLAN OF THE ENVIRONMENTAL LEARNING CENTER

Detail 4 is an adaptation from an Interpretive Education Building in Ashbough's Planning a Nature Center (40).
DETAIL 5: PLAYGROUND

To set an example on how materials could be reused, tires were used to create different play experiences for the children as shown in detail 5 below.
**DETAIL 6: TRAIL SECTION**

SCALE: 1/2"=1'

Information panel

Trails over the landfill areas were made of asphalt paving to allow proper drainage while maintaining a seal over the landfill cap.

**DETAIL 7: TRAIL SECTION**

Other trails were made of crushed limestone from a local quarry.

**DETAIL 8: SECTION-ELEVATION A-A'**

Topography is exaggerated
7. **WILDLIFE HABITAT IDENTIFICATION**

Along the trails in the woodland areas there will be areas to learn about and information panels to describe different wildlife habitats such as the ones described in details 9 and 10 below. Details are from Rossman's pamphlet titled "Home is where the habitat is"(4,5).

**DETAIL 9**

- Trees
- Birds
- Chipmunks
- Mammals

**DETAIL 10**

- Leaves
- Birds
- Insects
- Fungi

- Bark
- Nests
- Earthworms

Around the roots:
- Short-tailed Shrews
- Insects
- Mushrooms
DETAIL 11: SECTION OF DUMP
INTERPRETIVE AREA

SCALE: 1/4' = 1'

At this display the user could learn how we used to dispose of our garbage, what is being done or could be done with the materials in the dump today. It can also be and game for the user to identify garbage, guess where it came from, and what should we do with it today. The user could also learn how nature reclaims dump areas.
DETAIL12: BOARDWALK ALONG THE WETLAND

The user could learn about the types of plants and animals that live in a wetland, how wetlands work, and the importance of wetlands to natural cycles. The user could experience the site from different vantage points from on a hill to walking over the wetland on a boardwalk. Active participation in this area includes testing the water for pollution and gathering samples to see some of the smaller wildlife species such as the insects that live in the wetland.

DETAIL13: SECTION-ELEVATION B-B'

Topography is exaggerated
DETAIL 14: LOG RING SEATING AREA

In order to encourage education of and in the natural environment, a seating area was placed in the woodland active zone. Detail 14 is from Ashbough's *Trail Planning and Layout* (44).
DETAIL 15: SECTION OF GARBAGE TOWER

The garbage tower is 20' tall which is a representation of the deepest part of the landfill. The tower contains items similar to those that were buried in the landfill.

SCALE: 1/4"=1'

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4' \\
5' \\
6' \\
7' \\
8'
\end{array} \]
DETAIL 16: SECTION OF GREENHOUSE

Garden    Greenhouse    Compost bins

In the growing zone schools and other groups were able to grow small gardens to introduce concepts of plant growth. A greenhouse was constructed to provide year-around growing opportunities and a place to start plants for the gardens and other revegetation projects on the site.

A compost area was provided to teach the users how to compost at home, what could be composted, how could the compost be used as fertilizer. Other growing areas were provided to grow woody and grass species.

DETAIL 17: EXAMPLES OF HOME COMPOST BINS

Details are from Diaz's Composting and Recycling Municipal Solid Waste (170).
 DETAILS 18 & 19: COMPOSTING PROCESS
Details were from Diaz's Composting and Recycling Municipal Solid Waste (124, 126).

DETAIL 18

DETAIL 19

FOOD WEB OF THE COMPOST PILE

ORGANIC RESIDUEs

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DETAIL 20: SECTION OF POND
INTERACTIVE AREA

SCALE: 1/2"=1'

The pond interactive area allowed the user to experience a shallow pond area by having an area where the user could walk into the pond. In the pond the user could learn about the development of ponds, the types of plant and animal life that could live in a pond, and how ponds change over time.

This experience was mentioned by Van Matre in *Acclimatization*. It was designed to help the user understand how a pond grows and help the user to develop an interest and respect for water systems. The area was restricted to adult supervised visits only for the safety of the children.
DETAIL 21: SECTION OF LANDFILL
INTERPRETIVE AREA

SCALE: 1/4"=1'

This display allowed the user to walk through a landfill trench. The walls of the trench were constructed to include windows in it so the user could see the garbage in the landfill and to see what happened to the garbage over time. Also in this area schools were allowed to make their own small landfill to demonstrate what materials decomposed and what did not decompose. This idea would most likely not be approved by IDEM; however, the model landfill idea is possible and could be safely constructed.
DETAIL 22: TRANSFER STATION

The transfer station was located at the end of this tour to illustrate and remind the users how we are currently disposing of our garbage and emphasize the fact that the garbage that was sent to the transfer station would be was sent to Jay County Landfill and help fill it up.

A record of the garbage trucks was displayed at the transfer station so the user could compare to previous years to see if the people in the county were reducing or increasing the amount of garbage that they created.

A recycling area, not pictured here, was provided adjacent to the transfer station to record what and how much the people in the county were recycling from year to year.
XIV. CONCLUSIONS

There are thousands of sanitary landfills in the United States. They are created to dispose of the waste produced by human activities. Sanitary landfills should be reclaimed in order to be reused by present and future communities. There are many possibilities for the development of existing landfills. However, it is more important to reduce the need for landfills by reducing the amount of waste that we produce.

Our society is abusing the use of our natural resources to benefit ourselves without regard for future generations. It is important for the success of future generations to teach today's society how to reduce its wastefulness. We are slowly changing our ways to reduce wastefulness. Recycling, composting, and other programs are reducing the amount of waste we are creating. Predicting the life of our resources is nearly impossible, but we can not continue to abuse our resources forever. There is a limit to our resources and we must reuse what we can to preserve some resources for future generations.

This project will help change the attitudes of the users of the site by giving them the opportunity to experience first hand about the problems of our current attitudes toward our environment. It will show the user present solutions on how we can be more sensitive to our environment. Also it will show the user how you can be more environmentally sensitive in the things you do everyday.
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