

REGIONAL PARTNERS



South Kingstown
180 High Street
Wakefield RI 02879
Phone 401-789-9331
Fax 401-789-5280

STEPHEN A. ALFRED
Town Manager

JON R. SCHOCK
Public Services Director



Narragansett
25 Fifth Avenue
Narragansett RI 02882
Phone 401-789-1044
Fax 401-783-9637

MAURICE J. LOONTJENS, JR.
Town Manager

JEFFRY CEASRINE, P.E.
Town Engineer

November 17, 2003

RECEIVED
D.E.M. / 11/17/03

Rose Hill
64
64934

Mr. Gary Jablonski, Engineer
RI Department of Environmental Management 2003 NOV 20 A 11: 56
235 Promenade Street
Providence, RI 02908-5767

Subject: Rose Hill Regional Landfill Beneficial Reuse Plan

Dear Mr. Jablonski:

As required by the Rose Hill Superfund Landfill Consent Decree (CD), a beneficial reuse study must be completed for the landfill. This study provides a conceptual design plan and recommendations for the reuse of the Rose Hill Landfill site.

In August 2003, the Town hired Camp, Dresser & McKee (CDM) to prepare a beneficial reuse study. Subsequent to CDM being hired, the Towns of Narragansett and South Kingstown and the RI Department of Environmental Management (RIDEM) met with CDM to define what reuse options could be incorporated into the remedial design (RD) for the landfill site. Tim Wolken, Parks & Recreation Director also participated in meetings with CDM to discuss what needs the Parks Department had for future recreational facilities.

An acceptable reuse must recognize the inherent limitations imposed by the previous use as both an excavated gravel pit and a municipal landfill. Reuse must recognize that the site is a US Environmental Protection Agency (USEPA) designated Superfund site and reuse must be consistent with restrictions placed on the site because of this designation. Additionally, an acceptable reuse plan must be consistent with the surrounding residential neighborhoods. Local government officials have insisted that reuse not alter the existing risk assessment developed by the USEPA. Beneficial reuse will consist of a future use that will not increase the cost of the close out remedy approved by the USEPA.

Concept Options

As identified in the USEPA's "Proposed Plan" for the site, the Bulky Waste Area (BWA) will be excavated and consolidated to the Solid Waste Area (SWA). This work will consequently raise the existing elevations of the SWA and provide a flat BWA once the material is removed.

In an effort to provide for any possible future beneficial reuse, finish grades must be designed and constructed now in order to accommodate future uses. Therefore, the primary mission of the beneficial reuse study is not to design and construct the final reuse option(s), but rather to provide a conceptual design so final grading does not have to be significantly altered in the future.

Given the aforementioned premise, the Parks and Recreation Department identified various recreational uses based upon recent survey results. Survey results indicated that a golf driving range, Dog Park and additional athletic fields were of greatest interest to the community. Based upon the potential future needs of the Town, CDM prepared a beneficial reuse study (copy attached hereto) with two- (2) reuse options which are as follows:

Reuse Concept 1

- Golf driving range utilizing proposed 5:1 SWA finish landfill slopes
- Nature trails
- Dog Park (Approx. 2 acres)

Reuse Concept 1 Advantages

- Gentle 5:1 slope SWA cap; less concern for landfill liner movement
- Incorporates SWA air stacks into driving range pin placement
- Moves SWA access road from front (Rose Hill Road side) of landfill to the back-side
- Provides for additional expansion of transfer station facility
- Provides for much requested Dog Park

Reuse Concept 1 Disadvantages

- Driving range is very narrow; limits golfer's ability due to narrow width
- SWA drainage swale remains (high maintenance feature)
- Expansion of transfer station activities not desirable
- Does not include recreational fields

Reuse Concept 2

- Golf driving range utilizing proposed 3:1 SWA finish landfill slopes
- Nature trails
- Dog Park (Approx. 2 acres)
- Active play spaces (potential multi-use fields) on former BWA site

Mr. Gary Jablonski, Engineer
November 17, 2003
Page 3

Reuse Concept 2 Advantages

- Much wider golf driving range area
- Incorporates SWA air stacks into driving range pin placement
- Moves SWA access road from front (Rose Hill Road side) of landfill to the back-side
- Eliminates SWA drainage swale
- Provides for additional recreational fields
- Athletic fields would incorporate a beneficial north/south orientation and have sloped stadium seating from the finish BWA grades
- Provides for much requested Dog Park

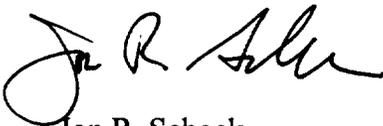
Reuse Concept 2 Disadvantages

- Steeper 3:1 slope SWA cap required; greater concern for landfill liner movement

Recommendation

Based upon the aforementioned narrative, it is the collective opinion of the Towns that Reuse Option 2 provides the greatest options and flexibility for a future beneficial reuse for the site. It is important to note that any future park development project will have to go through the Town's capital improvement program (CIP) budget process.

The recommendation before you now is to simply provide a final grading plan to allow for a number of future uses. To this end, the Towns of South Kingstown and Narragansett respectfully request the RI Department of Environmental Management (RIDEM) to proceed with design grading to accommodate Reuse Concept 2 in accordance with the recommendations outlined in the Towns beneficial reuse study as prepared by Camp, Dresser & McKee. We ask that RIDEM's consultant (Louis Berger Group) pay particular attention to grading and surface soil composition issues identified for Reuse Concept 2.



Jon R. Schock
Public Services Director



Jeffrey Ceasrine, PE
Town Engineer

Enc.: Reuse Study

cc: Mr. Stephen A. Alfred, Town Manager
Mr. Tim Wolken, Parks and Recreation Director

Town of South Kingstown,
Rhode Island

**Rose Hill Landfill
Beneficial Reuse Study**

November 2003

Rose Disposal
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1.0 Introduction

As land becomes more valuable, reuse of landfills becomes more attractive. In addition, when a community is spending significant funds closing a landfill the benefit of reuse of the site is also an important consideration. Typically, the cost for reuse when compared to closure costs is only a small incremental cost over and above the cost for remediation. Creative reuse of landfills provides unique opportunities and benefits; however communities often view landfills as liabilities, and the limitations on their development can be significant. For reuse projects to succeed, the community, regulators, and other interested parties must be convinced that reuse will not threaten public health and safety or the environment, the reuse provides the community with a unique opportunity and the project's owner and design consultant must establish and implement special monitoring and design approaches to address concerns and illustrate the sites potential. The key issues which need to be addressed are:

- Public health and safety
- Analyze existing conditions and site potential, "create a vision"
- Identify community needs that the site may address
- Evaluate closure approach and reuse alternatives
- Coordinate remediation design and desired reuse plan.

Based on the potential benefits of reuse, the Town of South Kingstown (Town) and the Rhode Island Department of Environmental Management (RIDEM) engaged Camp Dresser & McKee Inc. (CDM) to explore the potential options to reuse the Rose Hill Landfill prior to finalizing the design of the selected remedial action for the site. The Town and RIDEM outlined criteria they felt were important that the reuse of the site address to be considered acceptable and are as follows:

- The inherent limitations imposed by the previous use of the of the site as both an excavated gravel pit and a municipal landfill;
- The reuse must be consistent with restrictions placed on the site because of this designation as an EPA designated Super Fund site;
- Be consistent with the surrounding residential neighborhoods;
- Must not alter or increase the existing risk assessment developed by the EPA;
- Reuse will not increase the cost of close out remedy approved by the EPA;
- Reuse could be accomplished at a later date in phases by the Town.

In May 2003 the Town of South Kingstown, Town of Narragansett and the RIDEM solicited proposals for a consultant to develop a reuse study for the landfill site. CDM was selected to perform the beneficial reuse study for the site

In an effort to provide for any possible future reuse, finish remediation grades must be designed and constructed now in order to accommodate potential future reuse of the site. Therefore, the primary mission of the reuse study is not to design and construct the final reuse option(s), but rather to provide a conceptual design so final grading can accommodate reuse and site grading does not have to be significantly altered in the future.

This report summarizes the reuse planning process utilized to evaluate the site's reuse potential and details the preferred end use plan for the site, and considerations for implementations.

2.0 Site Background

The Rose Hill Landfill Site is a former municipal landfill located in the Town of South Kingstown. The Town leased the land as a municipal solid waste disposal facility, which operated from 1967 to 1983. A transfer station for municipal waste is also located on a portion of the site and became operational in 1983 once the landfill was closed.

The site is approximately 70 acres and consists of three separate and inactive disposal areas: solid waste area (SWA); bulky waste area (BWA) and sewage sludge area (SSA) (see Figure 1). The sewage sludge area has been closed and is not part of this study although, this site might add to the reuse potential of the area in the future. The site study area is bordered by the Saugatucket River to the east, Rose Hill Road to the West; Mitchell Brook flows through the site.

Based on site assessment activities, the site was placed on EPA's Superfund National Priority List in 1989, and a Record of Decision was signed in 1999. In April 2003, the Rhode Island Department of Environmental Management (RIDEM) in cooperation with United States Environmental Protection Agency (USEPA) began the remedial design activities. The Louis Berger Group, Inc. in association with Shaw Environmental developed the preliminary 30% design report and plans dated August 2003 to remediate the site.

The major components of the selected remedial design consist of the following:

- Excavate and consolidate the Bulky Waste Area (BWA) onto the Solid Waste Area (SWA);
- Construct a landfill cap over the limits of the SWA;
- Control and collect landfill gas emissions from the solid waste area;



Town of South Kingstown, RI
Rose Hill Landfill
Beneficial Reuse Study
Figure 1
Aerial Site Plan

3.0 Review of the 30% Remedial Design

Since CDM considered the grading associated with the 30 % remediation design plans as the site's existing conditions which a reuse option would be built, CDM reviewed the 30% design to determine if there were anything that could be revised on the 30% design that would increase the reuse potential of the site. CDM's reuse comments dated September 10, 2003 are attached. The comments only focused on the design and how it limited (grading, drainage, etc.) the potential future reuse of the site.

On October 7, 2003 a meeting was held at RIDEM's offices to discuss the status of the reuse Master Plan and to discuss in detail CDM's design comments. The outcome of that meeting was that further study is required prior to changing the design of the solid waste area; however the final grading of the Bulky waste area could be adjusted to allow for future reuse of this area, and the Town needs to identify a preferred reuse plan for possible coordination with final site remediation design.

4.0 Potential Risks Associated with Reuse of Solid Waste Area

The proposed landfill gas control system for the solid waste area is being based on a phased approach. Since the current data indicates that a passive system will meet emission ARARs, the system is being designed to initially operated as a passive collection and venting system to release landfill gas and for off site gas migration controls. Since there is a potential that the system may not achieve ARARs, an active system could be added at a later date. Operation of the post closure landfill gas controls will be based upon the human health risks of chemical exposure to the emissions from the passive system and to the potential explosive conditions from landfill gas for both on and off site locations. Results of the post closure monitoring of the site will determine if the active landfill gas system will need to be activated.

The design report states that post-closure monitoring will occur to determine if an active system is required. The post-closure monitoring and evaluation plan needs to be developed with the potential reuse in mind. If an active landfill gas system is required for the site, based on future monitoring data, then the reuse of the site may not be considered cost effective. The monitoring plan should develop sufficient data to answer the following questions prior to making the decision to install the active landfill gas system.

- How much post closure monitoring emissions data is required prior to making the decision on the need to activate the active portion of the landfill gas control system? This will answer the public question on when they might start using the site.
- Can reuse occur if access to the passive vents is limited by fencing the area immediately around each vent?

- Can limiting access to the solid waste area, by installing a perimeter fence around the SWA eliminate the need for an active landfill gas system and allow reuse of the remaining portion of the site?
- Can point source treatment (carbon canisters, individual vent flares, etc) be utilized to control emissions from the passive landfill vents?

Based on this uncertainty of the need of the active system until post closure monitoring and modeling of the site occurs, and if an active landfill gas system is required only if a reuse of the site is considered, the final remediation design needs to also consider the following:

- Locate passive landfill gas vents outside of potential future reuse areas which will have public access such as parking lots, golf driving range teeing areas, etc.
- Install and monitor landfill gas vents as early in the construction process as possible so if the solid waste area is required to be fenced in to meet the emission ARARs the security fence can be located properly.

5.0 Analysis/Alternatives Evaluation

On September 8, 2003, CDM conducted a site walk of the Rose Hill landfill site to review existing site conditions prior to the proposed remediation activities and to better understand the proposed 30% remediation design, adjacent land uses and onsite conditions that will be retained upon completion of the remediation project. Our site visit was followed with a meeting with Jon Schock, Public Services Director and Tim Wolken, Parks and Recreation Director for the Town of South Kingstown and Jeffrey Ceasrine, Narragansett Town Engineer to discuss our site observations and discuss community needs that might be accomplished on-site upon completion of remediation work. Potential needs that were identified included golf driving range, or at a minimum golf teaching area, dog park (2 acres), sports fields (soccer and softball), nature trails and potential expansion area for transfer operations. Existing conditions as well as post remediation site change were discussed and are illustrated on the existing conditions plan - Figure 2.

The 70 acre site is divided into two parts by Mitchell Brook which divides the site in a North South direction. North of the site is limited residential and municipal sewerage sludge disposal area. West of the site is Rose Hill Road with mixed uses including residential dwellings, a 9 hole, par 3 executive golf course and private gravel operation. The South side of the site is bordered by the transfer station, transfer station access road, and the Eastern border of the site is the Saugatucket River. The Saugatucket River and Mitchell Brook are buffered by existing woodland and wetlands as illustrated on the existing conditions plan.

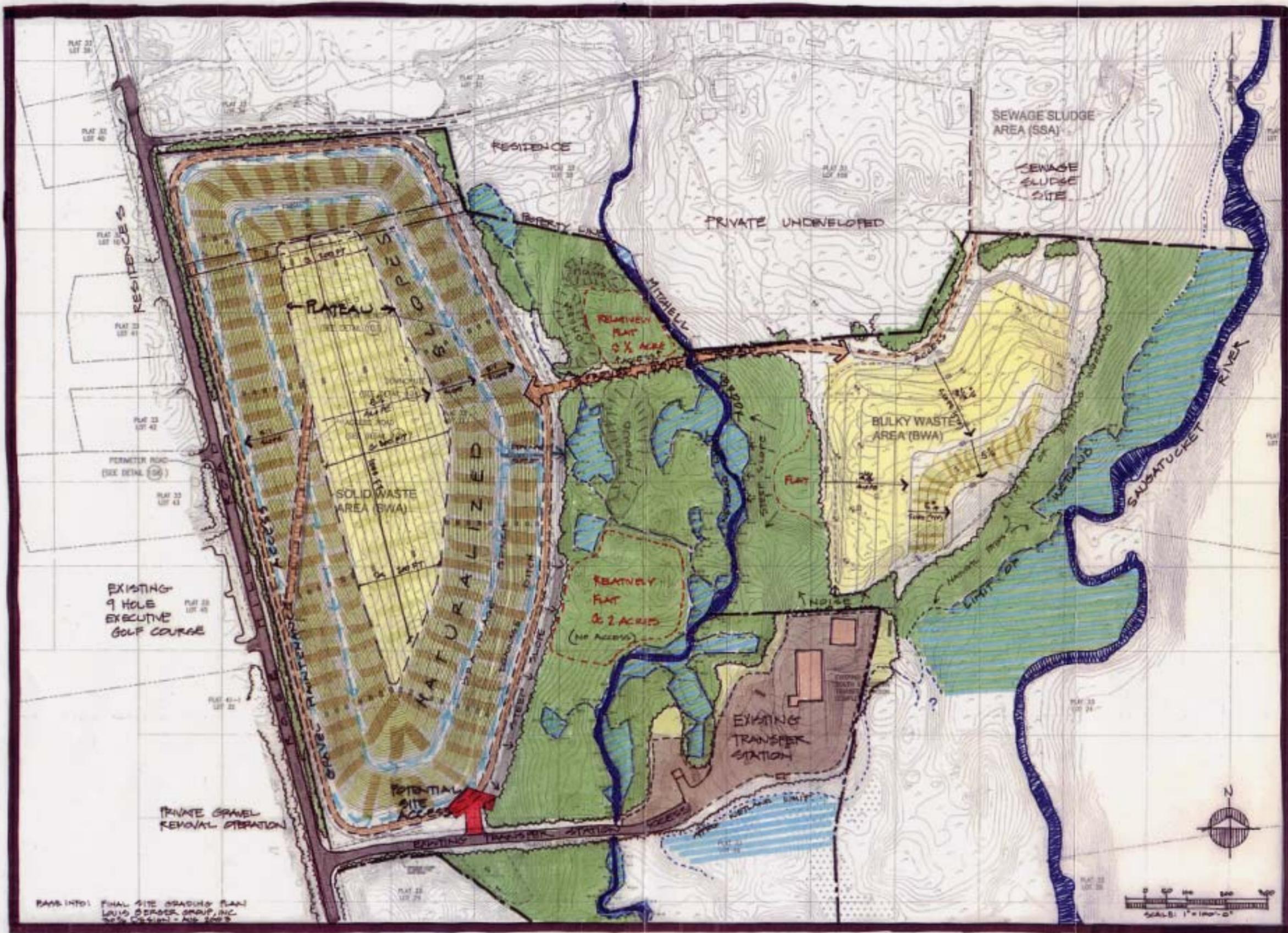


Figure 2

ROSEHILL LANDFILL KINGSTOWN RI.
EXISTING CONDITIONS
 CAMP DRESSER & MITCHELL INC. OCTOBER, 2005

5.1 Solid Waste Area (SWA)

The remediation work will create a new mounded landform approximately 30 feet in height along the entire 1800 ft. frontage of Rose Hill Road and limit site access to the existing transfer station access road along the Southern border. The capped landfill as currently designed with 5:1 side slopes will create a 5 plus acre, 5% sloping plateau on top 200 to 300 ft. in width and approximately 1000 ft. in length.

5.2 Bulky Waste Area (BWA)

The BWA, where waste will be removed is proposed to be regraded at 2^{1/2} % -5% grade creating an approximate 8 acre meadow area just north of the existing transfer station and Southwest of the sewerage sludge site. The remediation activities will require road improvements to the transfer station access and an East/West haul road between the SWA and BWA. A significant portion of the site (approximately 50%), is undeveloped woodlands with flat to mounded topography and wetlands bordering the two water courses. The site with remediation offers significant reuse opportunities, especially with the diversity of landform, vegetation and habitat. With the site visit and existing conditions analysis complete CDM began to evaluate site reuse potential based on Town needs identified and 30% remediation design.

6.0 Site Reuse Opportunities and Preferred Reuse Plan

6.1 Reuse Concept One

In developing reuse concepts for the site, it was not clear what impact this reuse study might have in modifying 30% design approach. Therefore, reuse concept 1 as illustrated in Figure 3, assumes the site remediation is completed in accordance with current 30% remediation design plans for the site with only minor modifications.

6.1.1 Solid Waste Area (SWA)

Based on 30% design plan limitations, the sloping 5 plus acre plateau of the SWA is too small to accommodate a full size driving range but could provide the opportunity for a small teaching/practice golf range. This practice area would have limited use potential because of its width (maximum 300 ft. at 150 yards from teeing area) and would likely serve only the needs of the Town for teaching golf and possibly instructional use by the adjacent 9 hole executive course. Access to the top of the plateau would be along the toe of the new landfill slope on an expanded maintenance road width, being constructed as part of the capping project. Parking would be at the North end of the plateau behind the teeing area which could be natural or artificial turf and sized based on instructional needs. An 8 ft. chain link fence would be constructed at the limits of the plateau/range area to reduce golf balls from rolling into naturalized slope areas.

6.1.2 Bulky Waste Area

The BWA as graded with 2 1/2 -5% slopes could be used for future transfer station activities and a 2 acre +/- Dog Park. The Dog Park meadow area could be fenced and separated from transfer station activities by earth mouths and plantings. This area would be accessed with roadway improvements associated with the haul road required

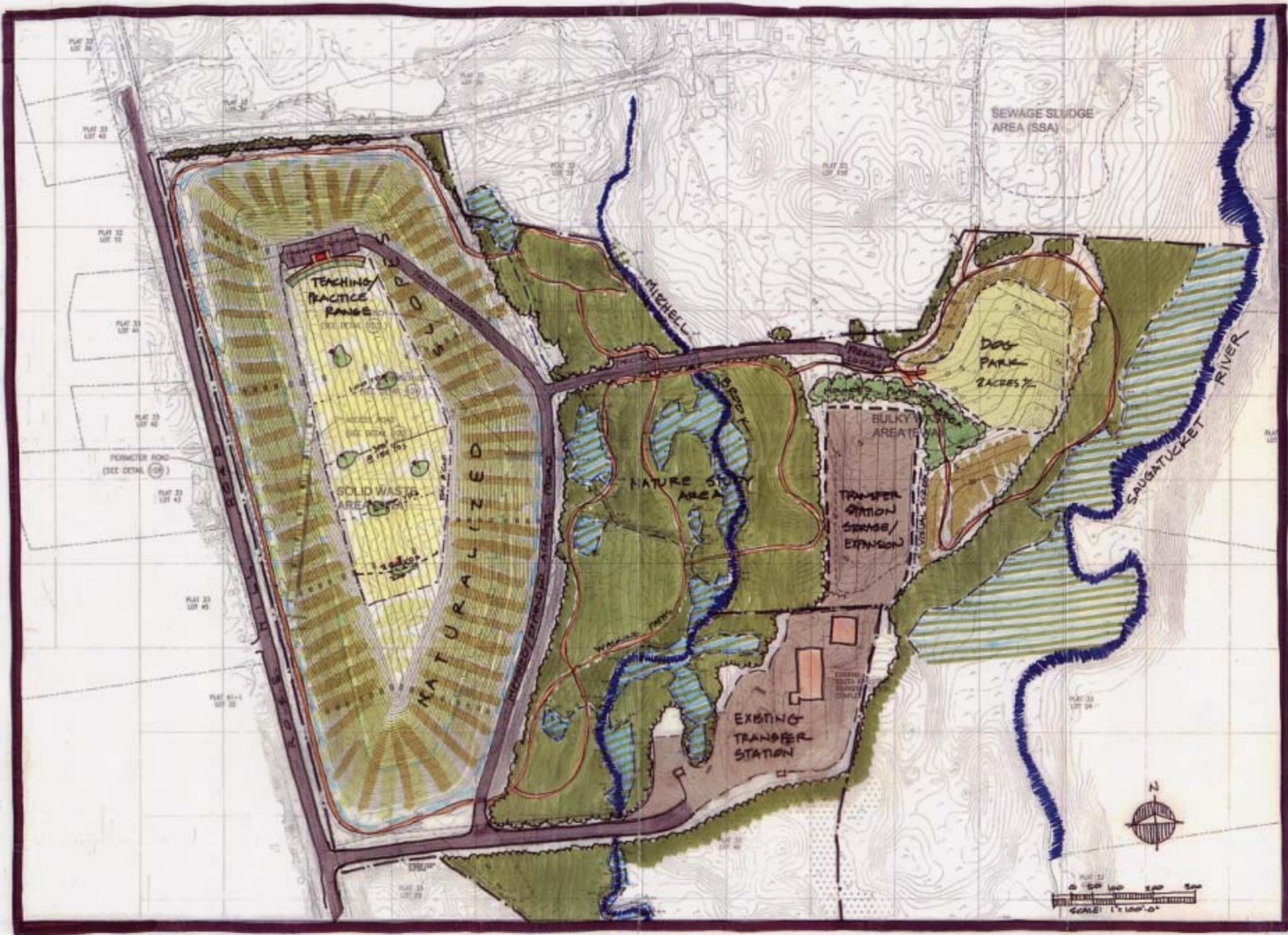


Figure 3

ROSBILL LANDFILL S. KINGSTOWN R.I.
REUSE CONCEPT ONE
 CAMP DREAGER & MCKEE INC. OCTOBER 2009

for site remediation activities. The woodland areas along Mitchell Brook and the Saugatucket River could be developed with walking, jogging and nature study pathways. A walking path could also be included along the maintenance path of the toe of slope of the SWA, if desired.

6.2 Reuse Concept Two

Reuse Concept Two as illustrated in Figure 4 recommends some modifications to 30% remediation plan grading of both the SWA and BWA (as outlined in the appended CDM Memo) to increase reuse potential.

6.2.1 Solid Waste Area- (SWA)

6.2.1.1 Top of SWA Reuse

The SWA along Rose Hill Road could accommodate a full-size driving range, if the side slopes of the proposed landfill cap were increased from 5:1 to 3:1. By increasing the side slopes of the landfill, the sloping landfill plateau could be increased to over 10 acres and its width at 150 yards from teeing area would increase from 300 ft. to over 500 ft. Increasing the steepness of the side slopes would also likely reduce the height of the landfill, eliminate the need for a bench storm water drain, and reduce the visual impact of the naturalized landfill slope by almost 50%. Although not illustrated on the reuse concept, if the proposed gravel maintenance road at the toe of slope were eliminated, additional space on the landfill plateau would be gained, or slightly flatter slopes (3 ½ :1) might be possible.

The proposed golf teaching range would include a stone parking area. Access to the driving range could be provided from the transfer station access road, along an expanded and improved gravel maintenance road, constructed as part of landfill capping and relocated maintenance access to the landfill cap as shown on the reuse concept. The driving range should be enclosed with a fence to limit potential of balls rolling from the plateau into the naturalized slope. An 8 ft. chain link fence along the top of the slope could be accommodated using a continuous curb footing above the cap. If taller fencing or netting is desired, undesirable cap penetration would be required. The driving range orientation to the South would provide for excellent usability, with summer prevailing winds from the Southwest limiting ball flight especially toward Rose Hill Road and low sun angles to the west for seasonal late afternoon/evening use not impacting users. It is not anticipated that the range landing area would need to be irrigated, but a dwarf fescue blend of grass is recommended due to its low maintenance requirements and drought tolerance.

6.2.1.2 Adjacent SWA Reuse

Northeast of the improved access road, a two acre flat upland area exists within the existing woodland west of Mitchell Brook. The proposed SWA will limit access to this area with a 7 to 10' bank along the landfill gravel maintenance road. If a graded access is provided off the maintenance access, this location with some selective clearing and seeding could provide an ideal area for a two acre dog park, with parking for 12-15 vehicles. The parking might also serve the proposed to walking, jogging and nature



Figure 4

ROSEHILL LANDFILL S. KINGSTOWN R.I.
REUSE CONCEPT TWO
 CAMP DRESSER & MCKEE INC. OCTOBER 2003

study pathway system which could be constructed in the remaining woodland area around Mitchell Brook. Reuse Concept Two also proposes construction of an East West access road from the SWA to back SWA in area of the anticipated haul road.

6.2.2 Bulky Waste Area- BWA

This new access road would provide vehicular access to a second small parking area for the pathway system and a larger vehicle parking area to support the proposed active recreation complex in the footprint of the BWA. To accomplish active play areas on the grades of the remediate site would need to be reduced from currently proposed 2 ½ -5% to 1 ½ % and the remediation grading coordinated with parking, pathway and active play areas. Based on proposed 1 ½ % grades starting at elevation 50 on the Southeast edge of the fields it appears that several large active play areas could be constructed. To make this facility service all age groups we have also recommended a children's play area (tot lot) and exercise center for warm-up and cool down of walkers and joggers. Additional paved pathways are proposed around the fields for handicapped and maintenance access, as well as potential to provide pedestrian access to sewerage sludge area if reuse is desired in the future. Tree plantings have been proposed to create shade for play area and visual separation between fields and between park and existing transfer facility. If transfer station expansion is required, it appears there is upland to the East and South of the current facility. It is likely that in final grading of the site at 1 ½ % slopes for the fields; a grass bank will be created along the North edges of the fields that could provide for spectator seating.

6.2.3 Required Changes to 30% Design

Upon completion of the two reuse concepts a meeting was held on October 7, 2003, with representatives of Towns, RIDEM, EPA and remediation consultant to discuss 30% remediation and reuse options. Based on the meeting it was determined that adjustments to the 30% remediation design could be made to allow for the implementation of Reuse Concept Two, if desired by the Towns. There appears to be no problem with revising grades of the BWA, since material is being removed and site could require less fill under this reuse concept. The remediation consultant was requested by RIDEM and EPA to review layout and grading of the SWA including increase of side slope, removal of drainage bench, modification of gravel maintenance access including ramp location to plateau and increase in plateau area. The remediation consultant indicated that exact grades at the top of the landfill could not be determined until remediation construction activities were almost complete, since exact quantities of materials requiring excavation from rear landfill would need to be determined based on field conditions. The consultant also questioned side slope steepness of 3:1 since that is considered the maximum permissible, but said it was possible.

Based on further discussions by Town representatives, it was determined that Reuse Concept Two was the preferred option, providing the Town with significant reuse potential for the site.

7.0 Implementation of Reuse Concept

Based on discussions with the Town, it is our understanding that the preferred reuse concept will not likely be implemented for at least 5 years. Any recreational improvements would require formal approval through the Town's capital improvement program (CIP) budget process, and is likely to be constructed in phases as needs and budget permit. To ensure cost effective implementation, the remediation design and reuse elements must be coordinated so that in future years the Town does not have to demolish or alter remediation construction in order to accomplish reuse. In addition, the Town working with RIDEM, EPA and the remediation consultant should identify opportunities where use of components or preparation for these elements might be accomplished at no additional cost to the remediation contract. Examples of these activities could include:

- Proper location design and grading for construction and maintenance roads with dense graded stone surfaces that could later be paved by the town.
- In the case of the driving range, placement of 8 inch layer of dense graded stone in place of loam and seed in area of future parking lot and pathways.
- Potential to install 8' chain link fence at the edge of the landfill plateau for restricting access to gas vents rather than perimeter of site.
- Increase in side slope steepness and deletion of mid slope bench for drainage.
- Widening maintenance access road and East West haul road to 24 ft. to accommodate site construction as well as design for future park use, and placement of dense graded stone for future pavement by town.
- Placement of construction staging areas with dense graded stone that could become future parking areas as shown on plan.
- The selective clearing of dog park area for use in construction activities, namely construction staging. Site repairs after use for staging would include loam and seed
- Regrading BWA from elevation 50 at 1 ½ % grades and shaping site for future parking area and active play areas. It would be desirable for town to provide RIDEM/ EPA with a more detailed layout and grading plan for this recreational area. If a more detailed plan was developed, crushed stone for pathway base and gravel base for tot lot might be placed now instead of loam and seed in these areas.
- If active play areas are to be constructed, town might consider paying premium to get proper sports field loam (75% sand blend with 5-8% organics) installed now for future fields. Irrigation, although an additional cost, would aid in turf establishment and could be less expensive if installed now.
- If a flare system for the SWA is required, its location and sizing of power supply should consider site reuse needs, especially for sports field for irrigation.

- Selection of proper turf seed mixes for future intended uses, especially use of the fescue seed on the landfill plateau.

Some items for reuse cannot be justified as part of remediation construction and their costs will need to be born by the Town. It is difficult if not impossible to provide a cost estimate for implementation of the preferred reuse concept. Costs will be dependent on what can be accomplished under remediation contract, when reuse elements are constructed and how they are packaged.

In summary, the reuse potential for the Rose Hill Landfill offers the Town significant opportunities to satisfy a number of identified needs. If the Town intends to implement the reuse plan in the future and wants to maximize its investment from remediation, it would be in the Town's interest to engage a consultant to review remediation plans as they progress and make recommendations on approaches to ensure cost effective future implementation of the preferred reuses identified.

Appendix



Memorandum

*To: Jon Schock, South Kingstown
Jeffry Ceasrine, Narragansett
Tim Wolken, South Kingstown*

From: Rick Spieler  John Kissida, CDM

Date: September 10, 2003

*Subject: Rose Hill Landfill Beneficial Reuse Study: 30% Remedial Design
Comments*

Based on our site visit and discussions of potential reuse options for the landfill site at the project kick-off meeting held on September 8, 2003, Camp Dresser & McKee, Inc (CDM) has reviewed the 30% Remedial Design submission dated August 2003 and has the following comments/questions:

- Consider increasing the final sideslopes of the SWA to 3:1 from the proposed 5:1 slopes. Making the sideslopes steeper will increase the flatter (5%) top area, which will improve the use potential of the top of the landfill.
- Current design calls for a 50-foot section around the entire perimeter of the landfill to be excavated and consolidated into the landfill. Consider leaving the waste and capping in-place. This change will reduce the final proposed elevation of the landfill by leaving the landfill footprint the same and will also increase the flat top area. If this area is excavated would it make sense to install a perimeter landfill gas barrier wall (extend the 60 mil geomembrane to the bottom of the excavation) to help prevent the migration of landfill gas from the landfill.
- Reconsider they need for a perimeter road around the entire site. Access to the site on the west and south can possibly be made from the existing roads.
- Move the landfill access road (detail 102) shown going to the top of the landfill to the east side of the landfill and going to the north corner.
- All landfill cross-sections; Sheets 11-17 should show both vertical and horizontal limits of waste.

- Need to show location of proposed landfill gas vents, both on the landfill and along the perimeter to address during reuse study and for risk assessment.
- Since there is a potential that the passive landfill gas system may become an active system the layout of the active system should be shown. Where will the landfill gas system components (headers, condensate collection, flare, power, etc.) be located? The proposed flare location should be identified for potential impact during reuse planning.
- Final cap detail (detail 106) shows the landfill gas header (LFG) located below the composite low permeability barrier. Will the header system be install at that time or will a latter study decide if an active gas system is actually required and the header system will be located above the low permeability barrier layer.
- Relook at the final grading of the BWA and create a 1% plateau around elevation 50 for increase usability of this area. .
- After the BWA area is excavated how will this area be restored? (i.e. rough graded with common fill and 6 inches of plantable soils?)
- Suggest that new gas migration wells be installed on the west side of Rose Hill Road and sampled to determine if landfill gas is still migrating towards this area.

This review was focused on the portion of the remediation design that may impact the reuse potential of the site. CDM will continue with the development of the existing conditions analysis and the schematic reuse alternatives as discussed.