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September 25 2008

Mr. David Fredette, PE
City of New Bedford
Department of Environmental Stewardship
133 William Street
New Bedford, Massachusetts 02740

Subject: Fall 2008 Cap Inspection
Keith Middle School
New Bedford, Massachusetts

Dear Mr. Fredette:

At the request of the City of New Bedford (City), TRC performed the third inspection of the protective cap installed at the Keith Middle School Site located at 225 Hathaway Boulevard in New Bedford, Massachusetts. TRC conducted the inspection on September 11, 2008 in accordance with the inspection protocol outlined in Long-term Monitoring and Maintenance Implementation Plan (LMMIP) dated October 20, 2006 prepared by the BETA Group, Incorporated (BETA). The LMMIP requires three inspections per year in April, August and November to confirm that the cap is being properly maintained to prevent exposure to the impacted fill beneath.

The inspection consisted of a walking traverse of the entire Site with visual observations of the entire cap including the first floor concrete slab of the building, the courtyard within the building footprint, and concrete, asphalt and landscaped surfaces outside the building. Access to locked rooms within the building was provided by the facility engineer, Gary Gomes. The inspection was documented in a log book. Copies of the log book pages are presented as Attachment 1. The findings of the inspection are documented in a site-specific Cap Inspection Form (Attachment 2) provided in the LMMIP. Annotated photographs taken during the inspection are presented as Attachment 3.

Based on TRC's inspection, the concrete floor within the footprint of the building is currently acting to prevent exposure to the impacted fill beneath. The courtyard within the building and pavement and concrete surfaces outside the building were also acceptable.

269

The landscaped areas outside the building were acceptable with the exception of the following:

- Sparse vegetation located on the steep slope at the southeastern corner of the Site property. The amount of vegetation has increased since the previous inspection, however, relatively minor erosion rills are still visible, leaving this area at risk for further erosion during significant weather events (i.e., rain, wind).
- A shallow slope failure located on the steep slope between the wetland to the west and the southern parking lot to the east. A photograph of the slope failure prior to the temporary repair is presented in Attachment 4. A temporary repair has been implemented and a permanent solution is currently being planned.
- Sloughing riprap stabilization stone that is undermining the concrete fence support at the top of the slope and filling the outlet of the storm water drainage culvert on the west side of the Site. Design and planning of a permanent solution is currently underway.
- The cap slope (outside the perimeter fence) is becoming overgrown causing an increased potential for deep rooting vegetation and/or burrowing animals to become established. However, neither is presently an issue.

At this time the erosion and shallow slope failure are minor (six inches deep or less) and the orange snow fence warning layer has been exposed in only one small area. A minimum of 2.5 feet of clean imported fill remains over all areas of the of the black separation fabric that demarcates the underlying contaminated fill material below. These areas should be repaired in order to prevent further erosion or cap damage that could eventually expose the separation fabric. Please refer to the attached Cap Inspection Form for additional details concerning observed conditions.

If you have any questions, please contact me at 978-656-3569.

Sincerely,



Gregory A. Mischel, P.E.
Senior Geotechnical Engineer

Attachments

Attachment 1

Log Book



9/1/08

9/1/08
 0650 TRC onsite (J. Saunders) at KMS
 for LTMMIP cap inspection
 JS prep. and to meet Gr. Games
 (KMS).

0655 Gr. Games not onsite. JS starts
 inspection:

- o Rm 048 = ok (closet)
- o Rm 067 = confirm previous observed separation of tiles in north end of rm. (photos x 3 collected / stage room)
- o Hallway along gym = sl. chipping of concrete along wall base (settling) in various spots. Surficial (photo x1)
- o Rm. 070 = ok (custodial closet)
- o Cafeteria = confirm previous observed smelly settling cracks along north side of rm. (photo x1) Note a tile separation in SE corner as well (photo x1) SW

0720 Meet Gr. Games and continue
 first floor (interior inspection)

- o Rm. 139/141 = ok (PT/OT)
- o Rm. 150/151 = ok (classroom)
- o Rm. 128/129 = ok (classroom)

(cont):

- o Rm 121 = ok (small storage)
- o Rm. 125/127 = ok (classroom)
- o Rm. 119/120 = ok (classroom)
- o Rm. 117/118 = ok (classroom)
- o Rm. 113 = ok (office w/ carpet)
- o Rm. 151 = ok (Health Suite)
- o Rm. 174/175 = ok (classroom)
- o Main Office = ok (same carpet)
- o Rm. 172/173 = ok (classroom)
- o Rm 169/171 = ok (classroom)
- o Rm 167 = ok (small group)
- o Rm 162/164 = ok (classroom)
- o Rm 163/161 = ok (classroom)
- o Rm 150/153 = ok (classroom)
- o Rm 149 = ok (computer room)
- o Rm. 142 = ok (language)
- o Rm. 076 = ok (storage)
- o Rm. 071 = ok (small group)
- o Rm 006/007 = ok (auditorium & stage)
- o Rm 028 = ok (Music)
- o Rm. 022 = ok (Band)
- o Rm. 014 = ok (Community Rm / Lounge)
- o 060 = ok (Kitchen + storage)

9/11/68

(cont):

- Rm 049 = ok (Custodial Office)
 - Rm 053 = ok (Generator)
 - Rm 051 = Generally ok, conf. in minor crack previous identified.
- Note minor standing water near one pipe penetration (photos collected)
- Rm. 029 = ok (Cym)
 - Bathrooms = ok throughout
 - Stairs = ok, w/ small tile separation in stair #5 (photo)
 - Entrances = ok throughout
 - Hallways = Generally ok, w/ some minor settling along base. Also note settling cracks in wall near center of bldg (Rm. 145) (photos collected). All minor
 - Courtyard = ok, w/ v. minor cracks in concrete
 - Rm. 046 = ok (engineer office)

0655 continue w/ inspection around bldg exterior (inside fence first)

9/11/68

- Back roadway/sidewalk (west side of bldg) appears to be in good shape w/ no obvious cracking. Vegetation is full in most areas w/ longest only ~ 3' tall
- Southern exterior entrance, sidewalks, fire lane & flagpole island have no obvious signs of cracking. Grass looks good. Some minor poorly vegetated areas around flagpole & also a few larger shrubs (5.5-6' tall).
- Southern parking lot, driveway and surrounding grass = ok. Only a couple of minor areas w/ stressed vegetation. No erosion to slope b/t Hathaway Blvd. & parking lot.
- East side of Bldg, sidewalks, fire lane & stairs all in good shape. Vegetation also looks good.
- North side of Bldg.
 - small superficial crack in concrete at base of stairs to Hathaway Blvd.
 - few minor spots of stressed vegetation immediately north of stairs (near patio)
 - patio looks fine

9/14/08

(cont. on north side):

- northern parking lot = ok
- sidewalk = couple of v. minor surficial cracks.
- vegetation (grass) surrounding parking lot is good w/ few v. minor stressed areas. No erosion.
- loading dock area = ok

9945 Finished w/ exterior (inside fence). No obvious sign of problems (erosion, excavations, cracking etc.) noted. Needs for repairs observed. JS moving to Summit St. to begin inspection of cap outside fence (along wetlands).

- South-west length of cap = largely overgrown w/ grass / small shrubs beginning to establish. Slope failure still visible w/ geo-textile fabric exposed. Does not look any worse. No other obvious failures / erosion

9/14/08

(cont.):

- Cannot access southern slope of cap due to newly installed fence around Bethel A&E lot that is tied into KMS fence (no gate). Appears that vegetation is starting to establish in area of cap, although so surface erosion may still be occurring (rills).

- Some rip-rap erosion at discharge point just north of land bridge (portion of fabric exposed, see photo)
- Rip-rap still failing (worse) at outfall (2nd one more north from western land bridge, see photos)

- Slope along north-west side of cap (north of land bridge) appears to be in generally good condition. v. overgrown w/ grass / small shrubs. Some erosion of rip-rap at outfalls and some large vegetation starting to establish. Stressed vegetation on top of cap behind ASTs. No obvious major failures of slope. (see photos)

4/10/08

(cont):

North side of slope (adjacent to parking lot) is somewhat overgrown w/ minor straggles of grass along fence line. No obvious signs of failed/erosion (see photos).

1035 JS finished w/ walk around edge of cap. Will go to check access to Southern Slope from Hawthorny Blvd.

1040 No gate access, but does appear to be some minor surface rills on SE corner of slope (photo x1). Finished w/ inspection. JS to load equipment from ~~to~~ drilling program.

1115 TRC offsite

[Signature]
4/10/08

Attachment 2
Cap Inspection Form



CAP INSPECTION FORM KEITH MIDDLE SCHOOL

Use this inspection form to document cap inspections. If unacceptable conditions are observed, complete an additional form immediately after repairs are completed.

Inspection Date: September 11, 2008 Inspection by: Jeff Saunders

A. ASPHALT AND CONCRET PAVING – observe asphalt and concrete paving for cracking, holes, asphalt removed during construction, other damage.

All Asphalt and concrete paving acceptable? YES NO

If no, attach photograph

If no, describe unacceptable condition:

Location

Condition

Describe any repairs to asphalt and/or concrete paving conducted since previous inspection

All repairs adequate YES NO Photograph of repair attached

B. INTERIOR CONCRETE FLOORS – observe concrete for cracking, holes, concrete removed during construction, other damage.

All interior concrete floors acceptable? YES NO

The two cracks in the boiler room floor are still less than ¼-inch wide. The majority of interior concrete floors are covered with tiles or other type of flooring material. Based on visual inspection and conversations with current employees, there are no breaches or other significant damage or deterioration of the interior surficial flooring materials or, where visible, concrete floors. Minor cracking along base of hallway walls and tile separations (e.g., cafeteria and Room 067) appear to be surficial and related to the settling of the building. No construction was occurring within the building at the time of the inspection.

If no, attach photograph

If no, describe unacceptable condition:

Location

Condition

Describe any repairs to interior concrete floors conducted since previous inspection

All repairs adequate YES NO Photograph of repair attached

C. LANDSCAPING – observe landscaping for erosion animal holes, excavation, erosion control vegetation health.

All landscaped areas acceptable? YES NO

If no, attach photograph

If no, describe unacceptable condition:

Location: The southeastern end of the school property, the steep slope just above the wetland and to the west of the southern parking lot and school.

Condition:

1. The ground surface at the southeastern corner of the school property, though starting to establish vegetation, is sparsely vegetated. See Photograph #9.
2. The slope failure in the steep slope between the wetland to the west and the southern parking lot to the east The hay bales, silt fence and geotextile filter fabric were all in good condition at the time of the inspection and no further slumping was observed. A permanent repair is required and is in the process of being designed. See Photograph #10.
3. Riprap stabilization rock placed around the outlet of one of the storm water drainage culverts is falling down the slope and filling the end of the culvert. The outlet in question is the fourth outlet south of the above ground oil storage tank. The falling riprap has undermined the concrete fence support at the top of the slope and the deposited rock is impeding the flow of water from the culvert. The structural integrity of the fence may be compromised if the sloughing of the riprap continues. The cap soils beneath the riprap may also become exposed and susceptible to erosion. A permanent repair is required and is in the process of being designed. See Photograph #11 and #12.
4. The cap slope (outside the perimeter fence) is becoming somewhat overgrown with vegetation. This is not currently causing any issues with the cap integrity, however the potential for deep rooting vegetation and/or burrowing animals to become established is increased.

Describe any repairs to landscaping since previous inspection: This is the third cap inspection to be completed as required by the December 2006 Long-term Monitoring Plan. Repairs to the slope failure and the falling riprap, Conditions 2 and 3 reported during the Spring 2007 and Spring 2008 Cap Inspections, were not made at the time of this inspection.

All repairs adequate YES NO Photograph of repair attached

D. Areas Not Inspected:

Reason:

Additional Notes:

Attachment 3
Site Inspection Photographs



SITE PHOTOGRAPHS
September 2008 Cap Inspection
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New Bedford, Massachusetts



1) Pipe penetrations in boiler room.



2) Minor crack in boiler room floor.

SITE PHOTOGRAPHS
September 2008 Cap Inspection
Keith Middle School
New Bedford, Massachusetts



3) Courtyard looking south.



4) Community room courtyard.

SITE PHOTOGRAPHS
September 2008 Cap Inspection
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5) West side of school looking south.



6) Southeastern bike rack looking southeast.

SITE PHOTOGRAPHS
September 2008 Cap Inspection
Keith Middle School
New Bedford, Massachusetts



7) Southern fenceline looking west.



8) East side of school facing south.

SITE PHOTOGRAPHS
September 2008 Cap Inspection
Keith Middle School
New Bedford, Massachusetts

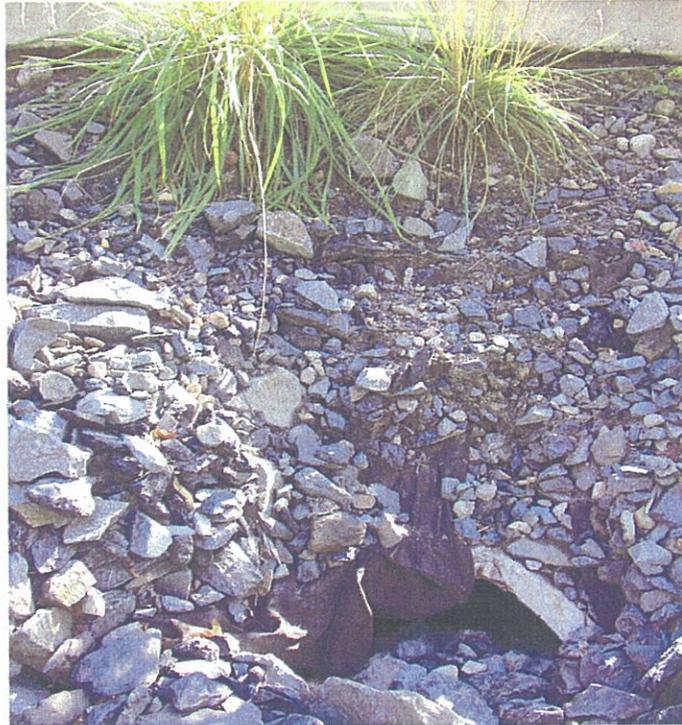


9) Condition of vegetation in southeast corner of property.



10) Condition of temporary slope failure repair.

SITE PHOTOGRAPHS
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11) Sloughing of rip rap at culvert outlet.



12) Minor rill Northwest corner.

SITE PHOTOGRAPHS
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13) Vegetation north of slope failure (eastern cap slope) facing south.



13) Condition of vegetation in northeast corner of property.

SITE PHOTOGRAPHS
September 2008 Cap Inspection
Keith Middle School
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14) Vegetation on northwest corner of property (facing north).



15) Vegetation on north side of property (facing south).

Attachment 4
Slope Failure Photograph



TRC -E-2170