June 19, 2017
GZA File No: 03.0033930.00

Commonwealth of Massachusetts
Department of Environmental Protection
Northeast Regional Office
205B Lowell Street
Wilmington, Massachusetts 01887

Attn: Ms. Joanne Fagan
       Ms. Valerie Thompson
       Mr. John Macauley

Re: Utility-Related Construction Activity Report No. 6 – May 2017
   Supplement to Biannual Utility-Related Abatement Measure (URAM) Status Reports
   UMASS Boston Campus - Utility Corridor and Roadway Realignment (UCRR) Project
   Boston, Massachusetts
   RTN 3-31002

Dear Ms. Fagan, Ms. Thompson, and Mr. Macauley:

On behalf of the University of Massachusetts Boston (UMASS Boston; the “Site”), GZA GeoEnvironmental, Inc. (GZA) has prepared this Utility-Related Construction Activity (URCA) Monthly Summary Report for the UMASS Boston Utility Corridor and Roadway Realignment Project (UCRR). The purpose of this report is to provide monthly updates to the MassDEP regarding site construction activities and environmental controls and compliance. This report covers the period from May 1 through May 31, 2017.

The attached Figure 1 shows the UCRR work zones, construction activities, and environmental controls. Please note that Figure 1 provides a “snap-shot” from May 1 through May 31, 2017. The work zones and locations of environmental controls evolved throughout the month, along with the construction progress. The work zones and environmental controls shown in Figure 1 are cumulative throughout the month. The fence line shown on Figure 1 is representative of the conditions on May 31; the perimeter fencing was adjusted throughout the month as needed to restrict public access to work zones. This report includes a brief description of the following:

- UCRR Construction Activities
- Off-Site Disposal of Excavated Materials
- Environmental Controls and Compliance

I. STATUS OF UCRR CONSTRUCTION ACTIVITIES

During this period, work was conducted at several locations (refer to Figure 1 for details). Generally, the work consisted of excavating landfill material and landfill cover (sand and gravel / granular fill); segregating and stockpiling the excavated materials; reusing excavated landfill material as new fill for landforms; installing utilities; and reusing excavated/stockpiled granular fill and landfill cover as trench backfill below the demarcation/barrier layer. Figure 2 shows the locations of the various stockpiles on campus as of May 31, 2017. In several hardscape and softscape areas adjacent to and within University Drive South, University Drive...
East, and the southern portion of University Drive West, a geotextile demarcation or barrier layer was installed, and/or imported soil or aggregate material was placed over the geotextile to construct the concrete walkways, asphalt paved roadways, landscaped areas, tree lawns, landforms, and bioretention ponds. Refer to Figure 3 for details.

1. EH&E performed asbestos air monitoring, and wheel wash stations and limited clean driving surfaces were operated and maintained by Derenzo. Readily available water sources (hydrants or water trucks) were utilized as necessary for wetting the material at each work zone. As the work progressed, perimeter fencing was adjusted as necessary to restrict public access to work zones. On limited occasions and when the size of the work zone did not accommodate a wheel wash, clean travel pathways were constructed with imported material and maintained with additional imported material and by the use of polyethylene sheeting to prevent spillage of material onto clean driving surfaces.

2. Site Work Involving Demarcation and Barrier Layer Installation: Refer to Figure 3 for the locations of site work associated with the installation of geotextile barrier or demarcation layers and placement of imported fill over the geotextiles.

   i. The contractor graded portions of the proposed asphalt roadway and adjacent sidewalks in the areas of University Drive West, South, and East. The contractor placed a geotextile demarcation geotextile consisting Mirafi FW700 at least 12 inches below finish grade. Imported aggregate base course was placed over the demarcation layer for the proposed asphalt roadway and concrete sidewalks. The contractor placed asphalt over the aggregate base and placed concrete for new sidewalks.

   ii. In landscaped areas along University Drive South and Wheatley Drive, and in the northern portion of the Lot S landform, the contractor excavated to subgrade, at least 18 inches below finish grade, and then installed a geotextile barrier layer consisting of Mirafi RS380i. At least 18 inches of imported cover material was then placed over the barrier layer to construct landscaped areas and the northern portion of the Lot S landform.

   iii. In areas of tree lawns to the north and south of University Drive South, the contractor excavated to subgrade, at least 3 feet below finish grade, and then installed a geotextile demarcation layer consisting of orange knitted warning barrier. At least 3 feet of imported cover material was then placed over the demarcation layer and trees were planted above the demarcation layer to construct the tree lawns.

   iv. Near the southeast corner of the Campus, the contractor excavated to subgrade, at least 18 inches below finish grade, and then installed an impervious barrier layer consisting of Hydraflex H40B. At least 18 inches of imported cover material was then placed over the barrier layer to construct the bottom of a bioretention pond softscape area.

3. Material excavated for the installation of utilities and other site improvements has generally consisted of rubble, landfill cover material (granular fill or sand and gravel), and landfill material. These materials were excavated, segregated, and stockpiled with stockpiles of like material in the former Track area or in Lot A.

   a. Existing landfill cover is a granular material and was excavated and reused as trench backfill below the demarcation/barrier layer at various locations within the work zones, or was stockpiled at the former Track area for future reuse.
b. Excavated landfill material was culled of rubble and oversized material using the excavator bucket, and reused as new fill for the landform in the former Track area. Excavated landfill was also stockpiled in the former Track area for potential off-site disposal as ACWM. The oversized rubble material that was culled from the landfill was stockpiled in Lot A with like material consisting of oversized concrete and rubble.

4. West of Calf Pasture Pump Station (CPPS): Utilities were installed west of the CPPS Building including domestic water lines, fire protection lines, thermal lines, and light pole bases. The excavated material generally consisted of either sand and gravel fill or landfill material. The sand and gravel was stockpiled at the track for future reuse as trench backfill material. The excavated landfill material was stockpiled at the former track area for reuse as fill material for the Track Landform or stockpiled for disposed of off-site as ACWM. After installation of the utilities, the excavations and utility trenches were backfilled with on-site granular fill (sand and gravel) below the demarcation/barrier layer elevation.

5. South of Clark Building: Utilities were installed south of the Clark building including domestic water lines, hot water lines, electric duct banks, conduits, fire protection lines, sanitation structures and sanitary sewer lines. The excavated material generally consisted of either sand and gravel or landfill material. The sand and gravel was stockpiled at the track for future reuse as trench backfill material. The excavated landfill material was stockpiled at the former track area for reuse as fill material for the Track Landform or stockpiled for disposed of off-site as ACWM. After installation of the utilities, the excavations and utility trenches were backfilled with on-site granular fill (sand and gravel) below the demarcation/barrier layer elevation.

6. Former Track Area: As needed for decontamination of equipment exiting this work area, the contractor constructed a new wheel wash station.

7. University Drive West: Utilities were installed in this area, including drainage pipes, drainage structures, thermal lines, fire protection lines, domestic water lines, water mains, light pole bases, and direct bury conduit. The excavated material generally consisted of either sand and gravel or landfill material. The sand and gravel was stockpiled at the track for future reuse as trench backfill material. The excavated landfill material was stockpiled at the former track area for reuse as fill material for the Track Landform or stockpiled for disposed of off-site as ACWM. After installation of the utilities, the excavations and utility trenches were backfilled with on-site granular fill (sand and gravel) below the demarcation/barrier layer elevation.

8. University Drive East and Wheatley Drive: Utilities installed in this area included hot water lines, light pole bases, and direct bury conduit. The excavated material generally consisted of either sand and gravel or landfill material. The sand and gravel was stockpiled at the track for future reuse as trench backfill material. The excavated landfill material was stockpiled at the former track area for reuse as fill material for the Track Landform or stockpiled for disposed of off-site as ACWM. After installation of the utilities the excavations and utility trenches were backfilled with on-site granular fill (sand and gravel) below the demarcation/barrier layer elevation.

9. South of EMKI Building: The contractor excavated existing sand and gravel material and existing landfill material as needed to expose the tops of two historic sanitary tunnels associated with the historic use of the CPPS. The sand and gravel was stockpiled at the track for future reuse as trench backfill material. The excavated landfill material was stockpiled at the former track area for reuse as fill material for the Track Landform or stockpiled for disposal off-site as ACWM.

10. West of the GAB Building: The contractor installed thermal lines in this area. The excavated material generally consisted of either sand and gravel or landfill material. The sand and gravel was stockpiled at the track for future reuse as trench backfill material. The excavated landfill material was stockpiled at the former track area for reuse
as fill material for the Track Landform or stockpiled for disposed of off-site as ACWM. After installation of the thermal utilities, the utility trenches were backfilled with on-site granular fill (sand and gravel) below the demarcation/barrier layer elevation. The contractor also used a hoe-ram to demolish an existing concrete slab in this area. GZA and EH&E performed air monitoring at this location during this activity.

II. OFF-SITE DISPOSAL OF ON-SITE MATERIALS

1. During May 2017, Derenzo continued to load trucks with on-site material for off-site disposal at the Crossroads Landfill facility (Crossroads) in Norridgewock, Maine, in accordance with Waste Management’s (WM) approval dated September 1, 2016. Landfill material stockpiled at the former Track area was loaded for off-site disposal. The stockpiled landfill material was previously characterized and the data was transmitted to MassDEP in URAM Status Report Nos. 8 and 9.

2. During May 2017, 394 truck-loads of on-site material left the site. Each truck bed was double-lined prior to loading for off-site disposal. Following loading, each truck was decontaminated at a wheel wash prior to exiting the site onto public roadways. Completed forms will be provided to MassDEP in a subsequent URAM Status or Completion Report. It is estimated that a total of about 80,300 tons, or roughly 50,200 cubic yards, of onsite material has been transported and disposed of off-Site through May 31, 2017.

III. ENVIRONMENTAL MONITORING AND CONTROLS

1. Air Monitoring by GZA

While onsite during the month of May, GZA monitored air for dust, VOCs, and combustible gasses along the perimeter of the work limits, and within GZA’s “breathing zone,” using a Thermo MIE pDR-1000 DataRam Dust Monitor (total dust meter), three Thermo Scientific MIE pDR-1500 units (PM10 dust meters), a MiniRae3000 Organic Vapor Meter, and a MultiRae Model PGM-6228 5-Gas Monitor. No total dust or PM10 dust readings recorded on the Dust Monitors exceeded the action level thresholds. No readings above background levels were detected by the 5-Gas Monitor. No OVM readings exceeded the action levels.

2. Air Monitoring by EH&E

During the month of May, Environmental Health and Engineering (EH&E) was on site sampling air around excavation and work areas for asbestos fibers in accordance with EH&E’s Perimeter Asbestos Air Monitoring Plan, provided as Attachment 1 to URAM Status Report No. 7. At least four monitoring stations were operated around each UCRR work area involving excavation, stockpiling, management, or loading potentially asbestos contaminated soil. The samples were analyzed for total airborne fibers, including but not specific to asbestos, using Phase Contrast Microscopy (PCM). All the results during the month of May 2017 were below the MassDEP-specified action level of 0.010 fibers per cubic centimeter (f/cc). PCM results have been provided to the MassDEP twice per day in accordance with the Plan.

3. Construction Observation, Environmental Controls, and Compliance

Throughout the period of this Summary Report, GZA made visual observations of the excavated material and provided recommendations to the project team for excavated material management and reuse. During each work day on which potentially contaminated material was managed, excavated, stockpiled, or otherwise handled, GZA maintained a monitoring checklist for the environmental controls at each work zone. If non-compliance was observed, the contractor immediately halted work and took measures to conform to the compliance requirements.
prior to resuming work. The following is a list of the primary environmental controls being implemented at the Site:

a. GZA and EH&E conducted monitoring/sampling for dust and asbestos fibers, respectively.

b. GZA monitored the perimeter of the work zones to confirm that fencing or barriers were in place to prevent public access.

c. GZA visually observed the moistness of the onsite materials and confirmed that misting or wetting of subgrades, stockpiles, and truck loads was applied as needed to proactively control dust.

d. GZA and EH&E monitored trucks hauling on-site material and observed them to be covered.

e. During loading of trucks for off-site disposal of materials, GZA, EH&E, and Bond observed truck placarding. Bond photographed each side of each truck, showing the placards and license plate.

f. GZA monitored for the presence of a water truck, hydrant with a hose, or other readily available stationary source of water at each work zone and at each wheel wash, to be used as necessary to prevent dust.

g. GZA made observations for the presence of visible dust.

h. GZA monitored for spillage of onsite material onto public roads.

i. GZA monitored for the condition and usage of wheel wash stations for equipment decontamination.

j. GZA, EH&E, BOND, and NV5 observed bulk loading of trucks daily to evaluate activities and controls relative to the approved NT Plan.

k. If the installation of a wheel wash station was not possible, GZA monitored clean travel pathways that were used to prevent contact with potentially contaminated material, in lieu of equipment decontamination at wheel washes.

Please contact the undersigned at 781-278-3700 if you have any questions regarding this Utility-Related Construction Activity Report No. 6.

GZA GeoEnvironmental, Inc.

Jason Ressler, P.E.               Randy Meuse
Project Manager                   Consultant/Reviewer

Lawrence Feldman, LSP
Senior Principal

Figures:

Figure 1: Work Zones, Construction Activities, and Environmental Controls Plan
Figure 2: Stockpiles On Campus
Figure 3: Barrier Layer, Demarcation Layer, and Clean Cover Placement Plan
Overview of Stockpiles Plan

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Date 06/02/17

Not to Scale

Landfill Material Stockpile

Sand and Gravel Excavated from Bianculli Blvd. and U. Drive South and Existing Landfill Cover

Loam Stockpile

Uncrushed Concrete and Rubble Stockpile

Sand and Gravel Excavated from Bianculli Blvd. and U. Drive South

Landfill Material Stockpile/Track Landform

Landfill Material Stockpile

Note: This figure shows the approximate locations of stockpiles on Campus on May 31, 2017.
This figure shows the approximate locations of barrier layer and demarcation layer placement during the month of May 2017.

- **Area of impervious barrier layer and/or clean cover placement to construct bioretention pond/softscape areas**
- **Area of barrier layer and/or clean cover placement to construct tree lawns (typ)**
- **Area of barrier layer and/or clean cover placement to construct paved areas and concrete sidewalks (typ)**
- **Areas of demarcation layer and/or clean cover placement to construct landform**
- **Areas of demarcation layer and/or clean cover placement to construct landscaped/softscape areas (typ)**

**LEGEND:**
- APPROXIMATE AREAS OF BARRIER LAYER MEMBRANE (MIRAFI RS380I OR EQUAL) PLACED OVER LANDFILL OR POTENTIALLY CONTAMINATED MATERIAL, AT LEAST 1.5 FEET BELOW FINISH GRADE, AND/OR CLEAN COVER PLACED OVER BARRIER LAYER, TO CONSTRUCT LANDSCAPED/SOFTSCAPE/LANDFORM AREAS
- APPROXIMATE AREAS OF BARRIER LAYER MEMBRANE (HYDRAFLEX H40B OR EQUAL) PLACED OVER LANDFILL OR POTENTIALLY CONTAMINATED MATERIAL, AT LEAST 1.5 FEET BELOW FINISH GRADE, AND/OR CLEAN COVER PLACED OVER BARRIER LAYER TO CONSTRUCT BIORETENTION POND SOFTSCAPE AREAS
- APPROXIMATE AREAS OF DEMARCATION LAYER (MIRAFI FW700 OR EQUAL) PLACED OVER LANDFILL OR POTENTIALLY CONTAMINATED MATERIAL, AT LEAST 1 FOOT BELOW FINISH GRADE, AND/OR CLEAN COVER PLACED OVER DEMARCATION LAYER TO CONSTRUCT PAVED AREAS AND SIDEWALKS
- APPROXIMATE AREAS OF DEMARCATION LAYER (ORANGE KNITTED WARNING BARRIER OR EQUAL) PLACED OVER LANDFILL OR POTENTIALLY CONTAMINATED MATERIAL, AT LEAST 3 FEET BELOW FINISH GRADE, AND/OR CLEAN COVER PLACED OVER DEMARCATION LAYER TO CONSTRUCT TREE LAWNS

Figure 3