Soil Remedial Actions at Middle River Complex - 2015

Project Photo Tour
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Tom Blackman
Project Lead

Gary Cambre
Communications

LOCKHEED MARTIN

This Project is composed of:

Planned Work:

Soil cleanup began May 11, 2015 and is scheduled for about six months in five land blocks (also called Tax Blocks): H, G, F, D, and D Panhandle (see Site Map on next page).

Unplanned Work:

Some new findings, including concrete blocks along Cow Pen Creek, have created unplanned activities. Some of these activities can occur in 2015; others will need to be planned for later.

Future Work:

New activities resulting from 2015 findings will need to be planned for future work. These may occur when the Cow Pen Creek sediment work is performed.

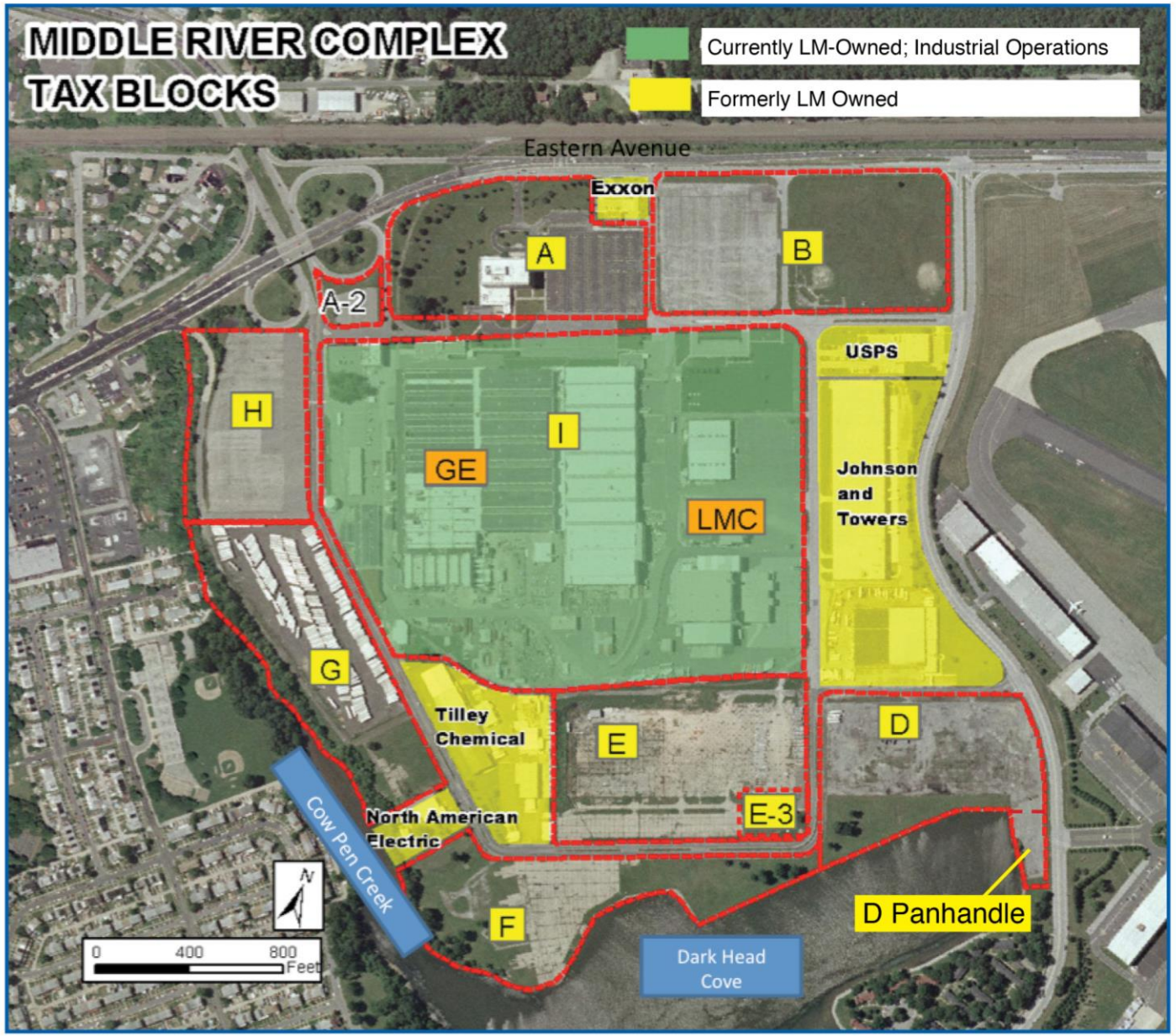
Block E work will also come later, as a separate project and schedule.

Additional Information:

Block I is where current factory operations are ongoing, so it will not be addressed until the land use changes.
Blocks A and B are completed.

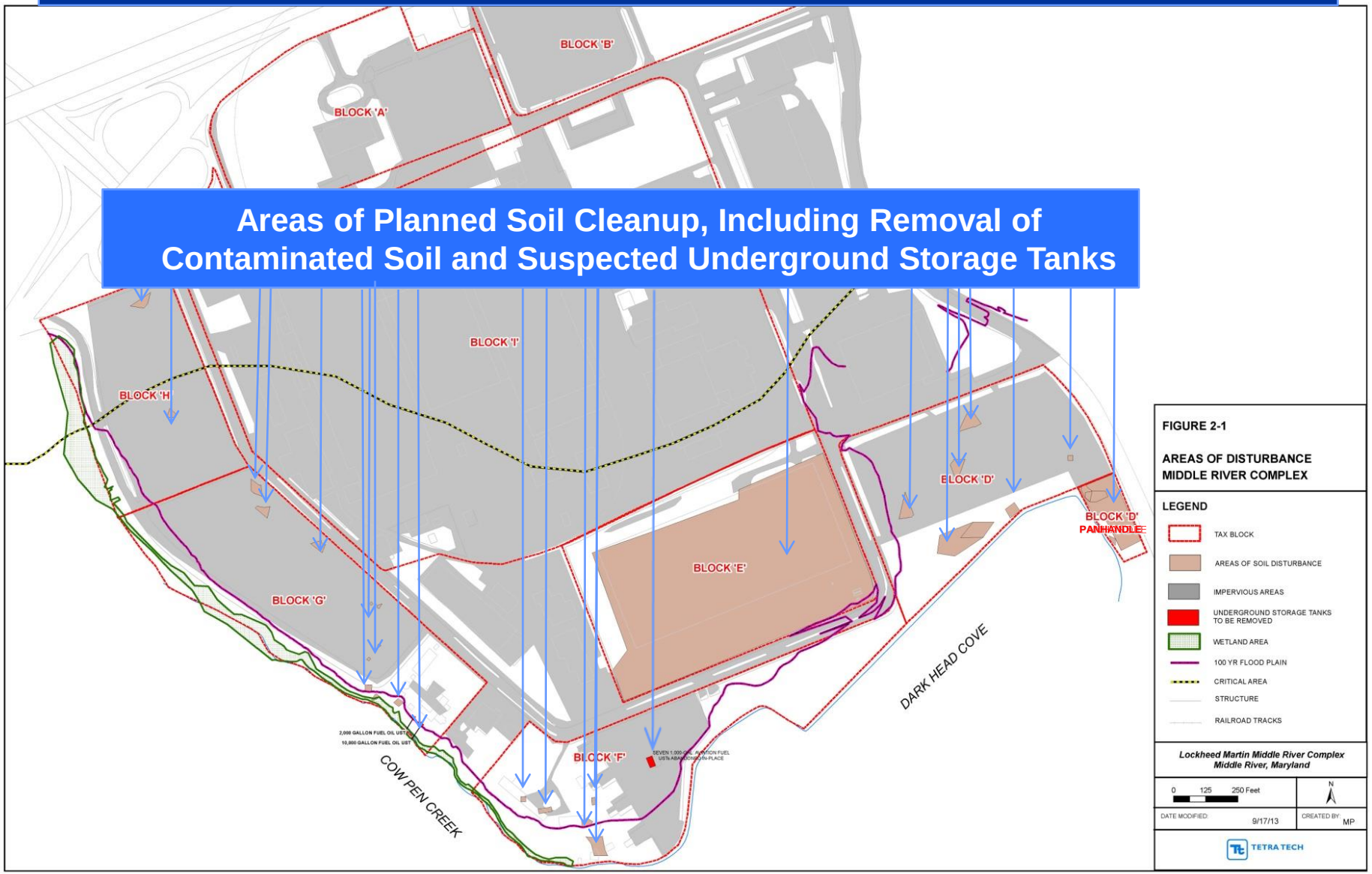
Planned Work

is occurring in the external land block areas. Moving counter clockwise from the upper left, they are blocks H, G, F, D, and D Panhandle.



Soil Cleanup Site Map

Areas of Soil Cleanup in Each Block



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Highlights of Planned Soil Cleanup – Blocks H, G, F, D, and D Panhandle

- Cleanup began in May 2015, expected to continue approx. 6 months
- Some storm drain stabilization work needed near bulkhead in corner of Block D panhandle
- Expect approx. 500 total truckloads of soil being removed and replaced with clean soil
- Traffic patterns are approved – ***Please inform us if any problems are noted***
- Most excavations will be returned to original surface conditions; Block D Panhandle will be changed from asphalt to grass

A Soil Project Bulletin Dated Spring 2015 is Available on the Lockheed Martin Website and in "Take One" Dispensers Posted by Work Areas

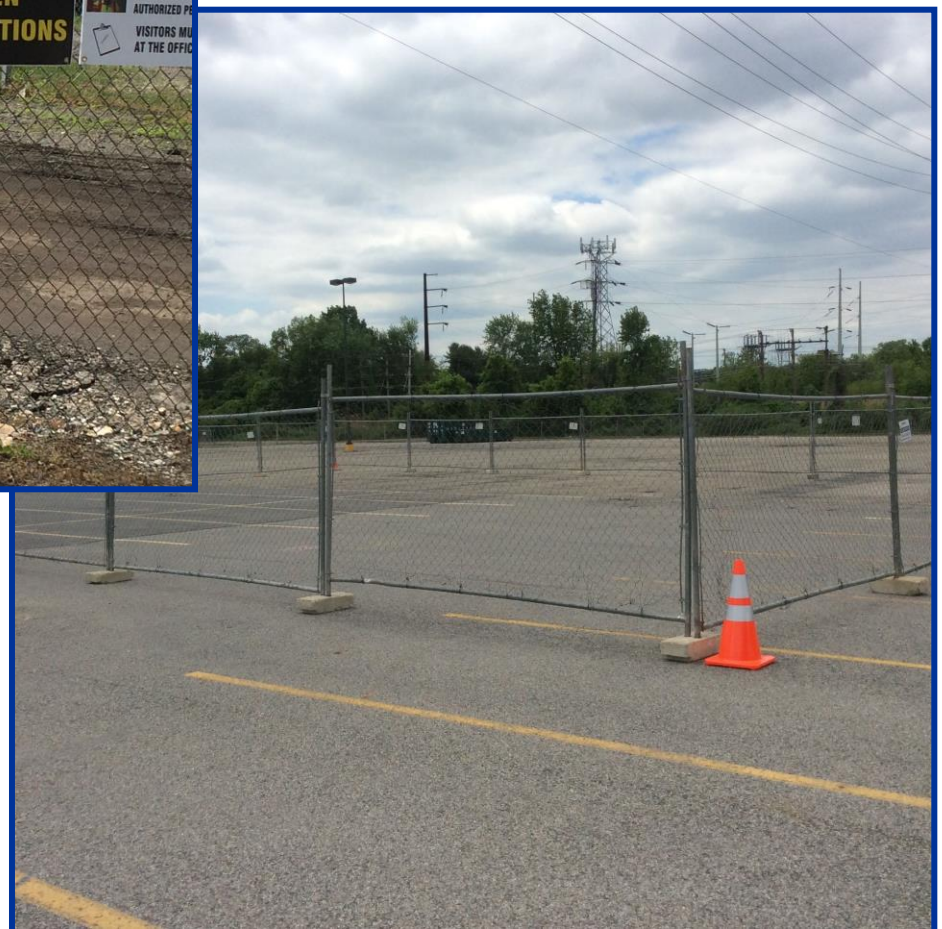
Planned work: Permitting is an initial step before field work such as this. Permits define where and how such work is accomplished, and under what restrictions. An example is erosion and sediment controls which are set up and maintained throughout the work. Permitting representatives from Baltimore County often visit the work site to confirm requirements are being met.

Silt fencing was installed to control erosion.

Temporary fencing and construction signage maintains a secure site, and protects neighbors and others using the property.

Fencing and trailer at Block G

Fencing of excavation at Block H



A “Ditch Witch” was used at Block G to cut the location for silt fencing.

An excavator cleared heavy brush in Block G at one of the planned work areas near Cow Pen Creek.

A worker installed a “super silt fence” at Block G along the north shore of Cow Pen Creek. This stronger silt fence clips geotextile fabric to steel fencing.

Completed silt fencing is shown in Block G near Cow Pen Creek, ready for digging work to begin.

The first soil removal area was in the parking lot of Block H. Asphalt was removed for recycling. Soil was then removed for proper disposal at a licensed soil reuse facility.

A truck was loaded with soil dug out of Block H while the asphalt stockpile was covered due to light rain.

Once soil is removed to the planned depth, samples are taken from the excavation sides and bottom and sent to the lab to confirm cleanup goals are met. Two such areas were excavated in Block H. The hole in Block H was then refilled with crushed rock.

Finally at Block H, the parking lot was returned to its original asphalt condition, ready for continued use by MRA Systems, Inc. (MRAS) employees.

Lockheed Martin submitted notification to Maryland Department of the Environment (MDE) that Block H remediation goals are met.

Planned work next moved to Block G. A truck was loaded with soil dug from one of the seven planned excavation areas, located in a former parking lot.

An excavated area in Block G awaited lab confirmation that cleanup goals were met before backfilling. Safety fencing protected the area.

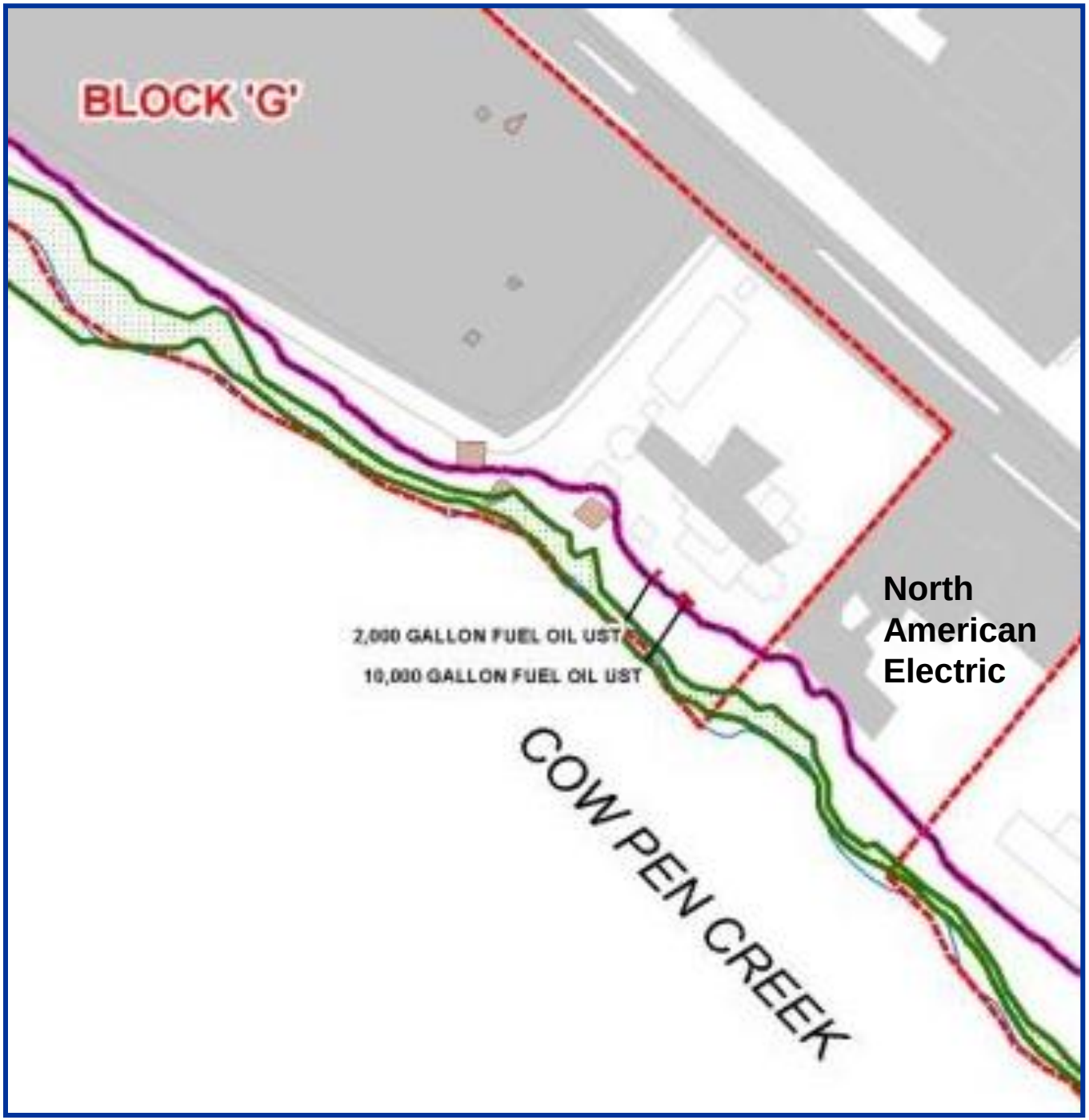
June brought 15” of heavy rain and storm water was diverted from a swale, around an excavation area, to Cow Pen Creek, which is the normal discharge point for storm water from this swale.

A significant amount of rainfall had to be pumped from excavation areas in Block G, then stored in tanks. Water removed from excavation holes is being handled as contaminated (whether it is or not), unlike storm water at other areas of the property.

Temporary storage tanks are used to store water and were brought onsite to pump water into after collecting in excavation holes, followed by proper treatment at a licensed treatment facility.

Storm water was pumped out and sent to storage tanks located in Block G.

Tanker trucks transferred water from storage tanks in Block G to transport for proper treatment at Clean Harbors' Baltimore Facility.



<u>Planned Work</u> is being completed now in areas near Cow Pen Creek where suspected underground storage tanks (USTs) and other irregularities were anticipated.

Soil surrounding a suspected Underground Storage Tank (UST) area in Block G shows terra cotta piping with pebble fill material and a clay layer underneath. Soil samples were taken from this clay layer. No UST was found in the original search.

Exploratory digging for a suspected Underground Storage Tank (UST) in Block G is shown, however no UST was found.

At one Block G excavation area an asphalt layer was uncovered, seen at approximately 3 feet below ground surface (bgs) on the left sidewall and approximately 5 feet bgs on the front sidewall.

The Block G excavation area was partially backfilled with stone.

Transformer parts were discovered when installing a storm water discharge ditch. Residual metal from a transformer housing is shown in the lower right. Historic interviews with a retired employee revealed that such parts might exist.

Since transformers may have originally held polychlorinated biphenyls (PCBs), surrounding soil was analyzed and PCBs were found at low concentrations, which may or may not relate to transformer parts.

Additional investigation had to be planned for later in 2015, and is resuming now that permits are in hand to allow for expanded work areas toward Cow Pen Creek in Block G. Pending the results of those investigations, additional work may be required in the future.

The transformer housing found was sampled to determine whether polychlorinated biphenyls (PCBs) contamination is present, so it can be disposed properly.

The area near Cow Pen Creek was filled with rubble and debris, including large concrete pieces, which are assumed to be the foundations of a former facility. Partial removal of this debris is planned for 2015, but excavation efforts revealed a larger project than could be accomplished with current planned work.

<u>Future Planned Work</u> is required to address the entire debris/ transformer area.

As work progresses to each work area, the equipment must be decontaminated. A decontamination area was set up in Block G.

Cleaning of all equipment occurs before leaving any work area. Shown here are a mini-excavator bucket and front end loader being cleaned.

One completed area in Block G was backfilled with crushed rock.

Block F work followed Block G. With high rains, the installed silt fence needed repair in Block F. Note high water mark on fencing due to sheet flow through grass.

Work in Block F included excavations in grassy areas.

In Block F test pits were dug searching for storm drain pipelines.

The test pit was dug to verify the presence of a storm drain that was identified on construction plans, so it could be protected during soil removal activities if it was still in use.

Buried debris found in Block F included a cement block. Also removed was piping associated with an abandoned storm drain line.

Shown here is saw cutting of areas in Block F to be excavated where seven Underground Storage Tanks (USTs) were anticipated. Six were found; and a seventh tank is still being sought.

Under the concrete pad in Block F seven suspected Underground Storage Tanks (USTs) were sought.

Associated UST parts such as this piping and valve fitting were uncovered

Six Underground Storage Tanks were located in Block F in August. Shown at left are two riser pipes from two steel tanks; both appeared to be installed into a concrete pad.

Shown below, the tank excavation was plastic covered awaiting a planned excavation later in 2015.

Permitting regulators will approve the planned tank removal work.

Grassy areas in Block F were returned to original condition. Shown here cover soil is being smoothed.

Block F grassy areas were backfilled with top soil and were reseeded.

Work at Block D Panhandle began with clearing and grubbing to remove brush and roots, followed by installing a silt fence along Wilson Point Road.

Heavy rains during a thunderstorm created “sheet flow” of water over the silt fence in Block D Panhandle before excavation was underway. Immediate fence repairs occurred after the rain stopped.

Digging in Block D former parking lot areas uncovered layers of asphalt down to 2 feet deep.

Debris found in Block D included telephone poles.

Summer rains continued to delay work in Block D.

Air monitoring equipment is in operation along the construction perimeter while digging occurs in Block D.

Bulkhead structural support tie-back rods and timber anchors were found in Block D.

Top Soil was the final cover in grassy areas of Block D.

A restored area in Block D is shown which has been seeded with grass. Also paved areas were re-surfaced with recycled asphalt millings.

Storm water continues to be an issue while Block D work occurred. Water is pumped for storage in “frac” tanks, shown in upper left, followed by off-site treatment.

Work at Block D is mostly completed. Soil backfilling is shown here. Block D Panhandle work will begin soon following further exploration for the locations of suspected tanks and transformers in Block G.

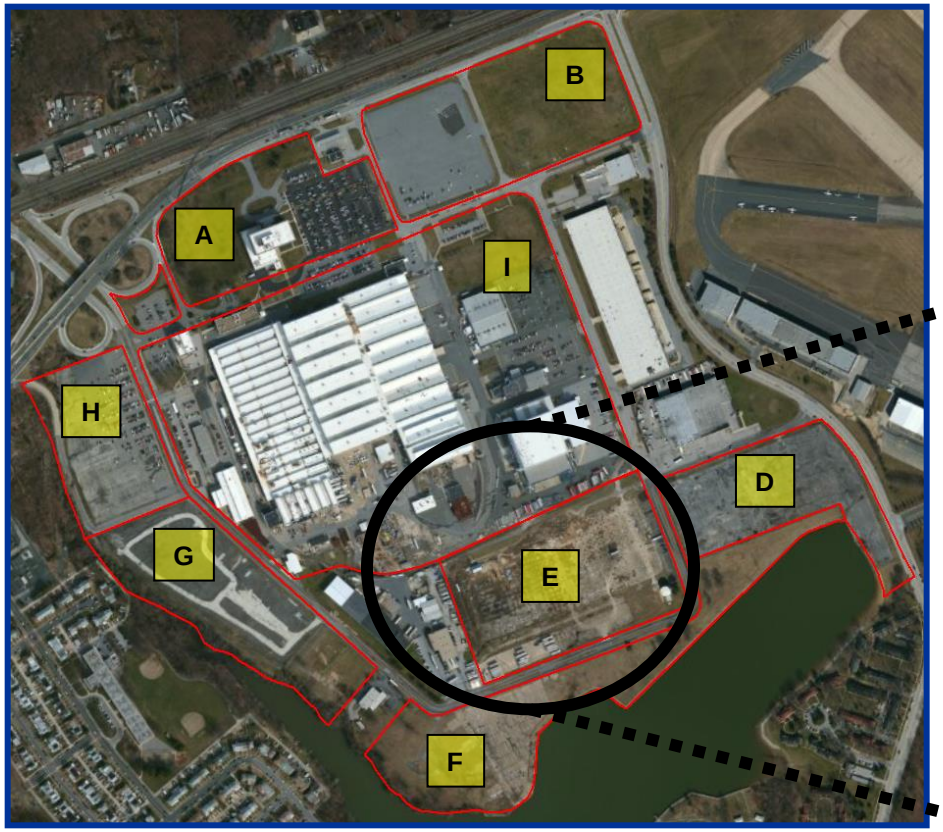
Work resumed in Block G and began by breaking up large concrete pieces, which were foundation slabs from a former building, exposing soil in the areas where underground tanks are possibly located.

The former building foundation was first pulled up to examine soil beneath it, then it was removed. We await sampling results of organic material identified beneath one building.

Three of four anticipated test pits were dug in Block G and no underground tanks have been located. Debris found included pipes with sludge, which were removed, then the pits were backfilled and compacted.

Future Planned Work will also include Block E as a separate project: We are working now with regulators to refine our understanding and revise soil cleanup strategies, which also includes further investigation. The eventual plan will include removal of the concrete building foundation, and any impacted soil beneath that, then return the area to grass when the work is completed.

The community will be informed and involved when plans are developed further.



Block E Location
Middle River Complex

This photo tour will be updated periodically as soil cleanup work continues throughout 2015.

Lockheed Martin wishes to thank the contractors, the regulators and permitting authorities, and the community for its cooperation in helping to make this project a success.

For questions, comments or concerns please contact:
Gary Cambre, Senior Communications Manager
800-449-4486 or gary.cambre@lmco.com