

Site Status Update

November 28, 2007

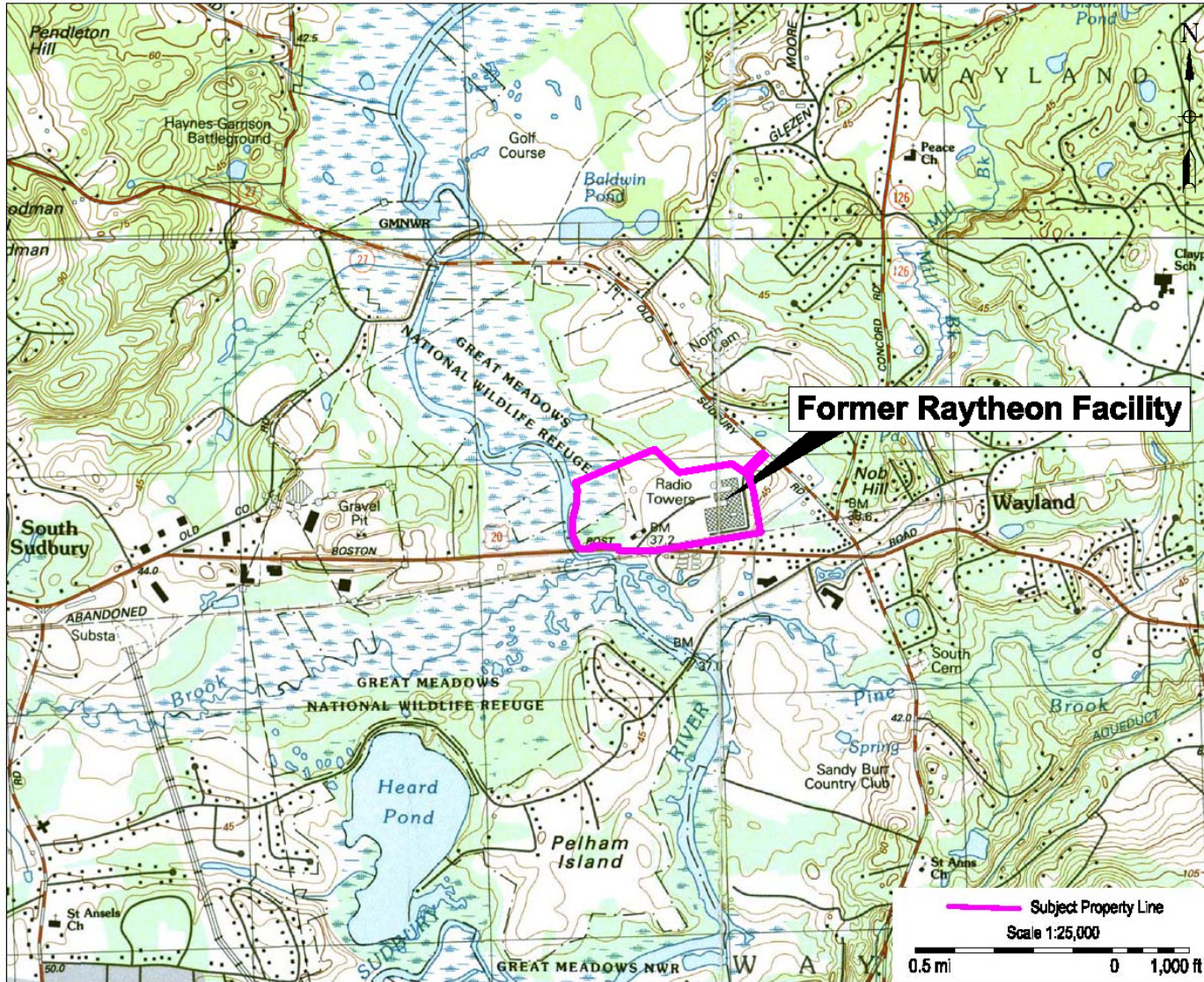
**Former Raytheon Facility
Wayland, Massachusetts**

Presented by:
Louis “Chip” Burkhardt
Raytheon Company

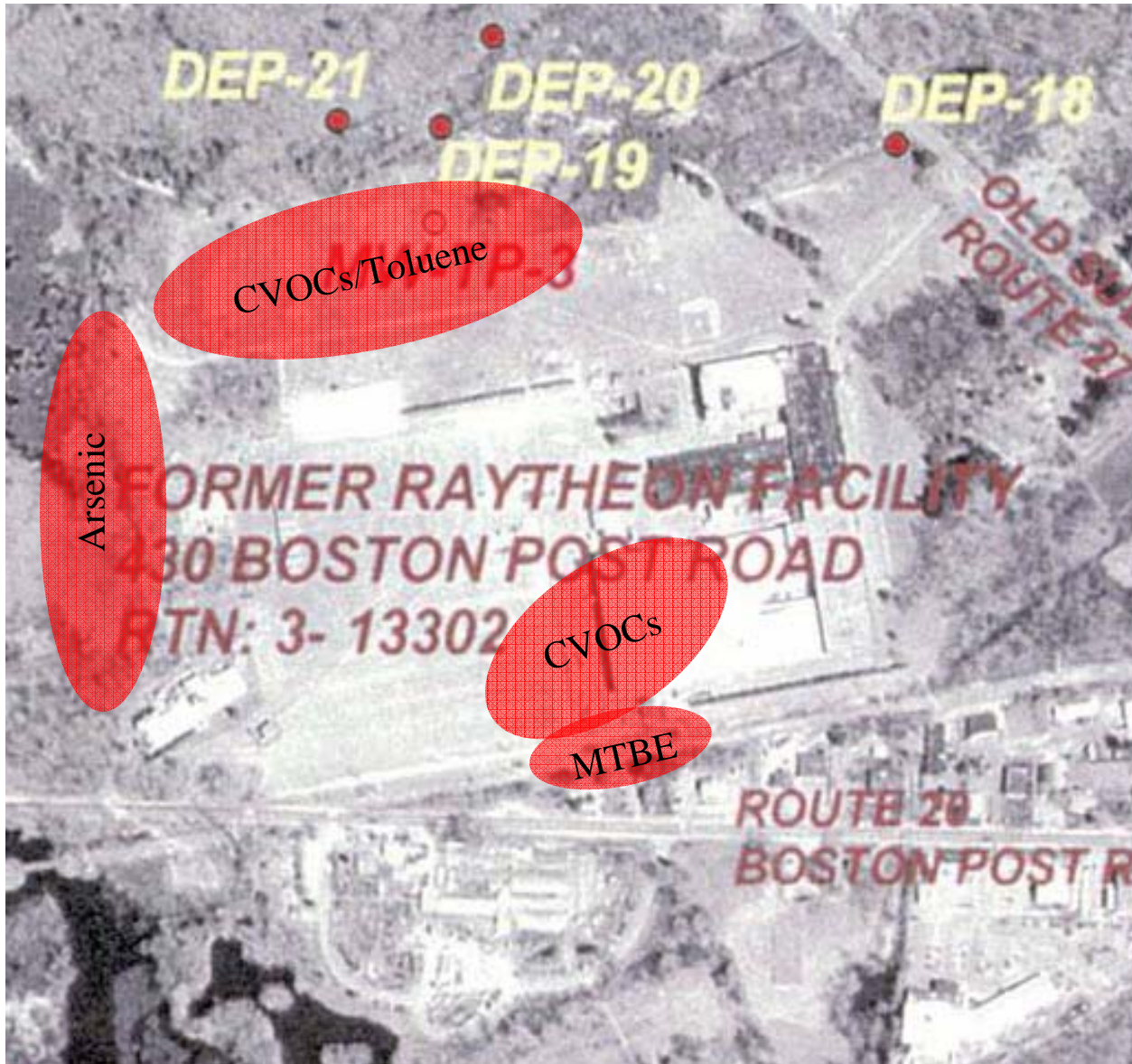
Update on Site Activities

- Northern Area Soil Excavation
 - Summary of soil excavation activities
- MW-33 Area In-Situ Chemical Oxidation (ISCO)
 - Summary of ISCO
- Update in Site Activities
 - Site-wide groundwater gauging and sampling
 - Wetland Monitoring
 - Remedy Operation Status

Question and Answer Period



Compounds of Concern



Compounds of concern encountered:

- Chlorinated Volatile Organic Compounds (CVOCs)
- Toluene
- Arsenic (RAO-P - Submitted)
- Methyl Tertiary Butyl Ether (DPS - Submitted)



Wetlands Remediation
Conducted

Northern Area Source Area
Excavation Conducted

Groundwater Remediation
Conducted

Northern Area Soil Excavation



Area of
Soil Excavation



Silt Fence with Straw Bales and Construction Fence



Cleared Excavation Footprint Area



Excavation of Cofferdam Area



Installation of Last Sheet Pile



Crushed Stone Installed in Preparation for Concrete Wale



Beginning Stages of Concrete Pour



Transportation of Soil from Excavation



Transportation of Soil to Staging Area in Parking Lot

Maximum Depth of Excavation



Excavation of Potholes



Loading Trucks for Off-Site Disposal



Sweeping Parking Lot and Former Soil Staging Areas



Installation of Infiltration Gallery in Western Portion of Excavation



Backfilling Excavation



Sheet Pile Decontamination



Backfilling Excavation

Completed Excavation Area Grading



Completed Wetland Restoration



Project Area from Southeast



Restored Wetland from Southeast



Soil Excavation

- Mobilized to the Site occurred on 25 June 2007.
- Approximately 4,900 cubic yards of soil excavated from source area.
- Excavation advanced to total depth of approximately 20 feet below ground surface. Potholes advanced up to 23 feet below ground surface.
- Approximately 3,000 cubic yards (4,580 tons) of soil sent off-Site for disposal at Waste Management in New Hampshire.
- Approximately 1,900 cubic yards reused as backfill
- Approximately 2,900 cubic yards of soil from adjacent property used as clean fill.
- Approximately 49,000 gallons of water were treated and discharged under the Remediation General Permit (RGP) to the Sudbury River.
- Approximately 1,100 square feet of resource area replicated.
- Demobilized from the Site occurred on 10 October 2007.

Groundwater Remediation

- **Monitor chlorinated volatile organic compound (CVOC) groundwater concentrations for up to one year to allow sub-surface conditions to equilibrate**
- **Implement bioremediation to treat residual groundwater plume, if necessary**
- **Detailed injection plan will be developed based on equilibrated CVOC groundwater conditions**

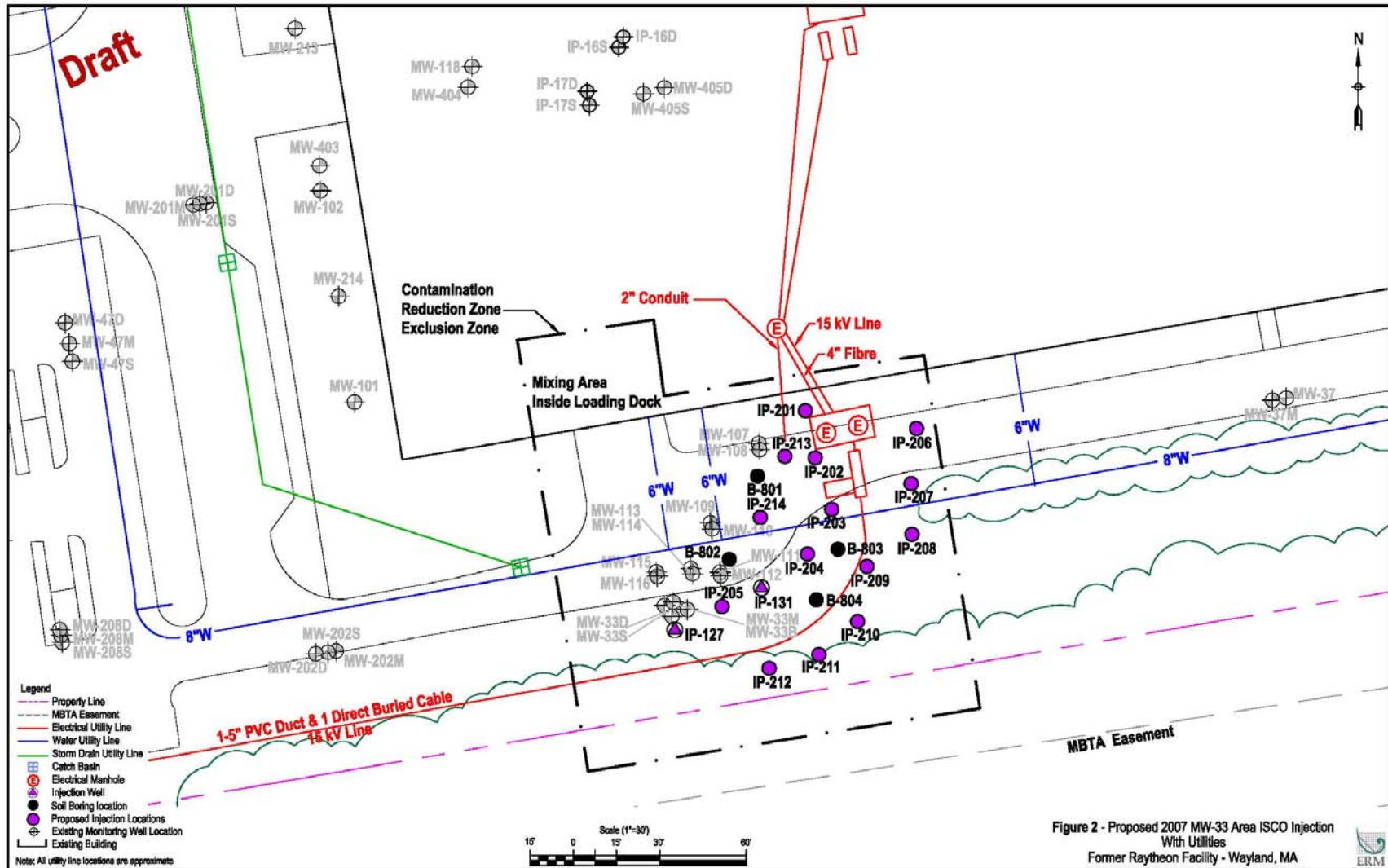
MW-33 Area In-Situ Chemical Oxidation

MW-33 Area ISCO

Groundwater remediation in the MW-33 Area

- Mobilized to the Site on 12 November 2007
- ISCO conducted using potassium permanganate in the MW-33 Area. Activity implemented under Remedy Operation Status (ROS).
- To date approximately 30,000 gallons of permanganate (using 0.75 and 1.5 percent average concentration by weight) injected at 16 injection locations.
- Permanganate injected using Geoprobe-mounted pressure pulse technology and existing injection wells.
- ISCO is scheduled to be completed by 1 December 2007.

MW-33 Area Injection Layout





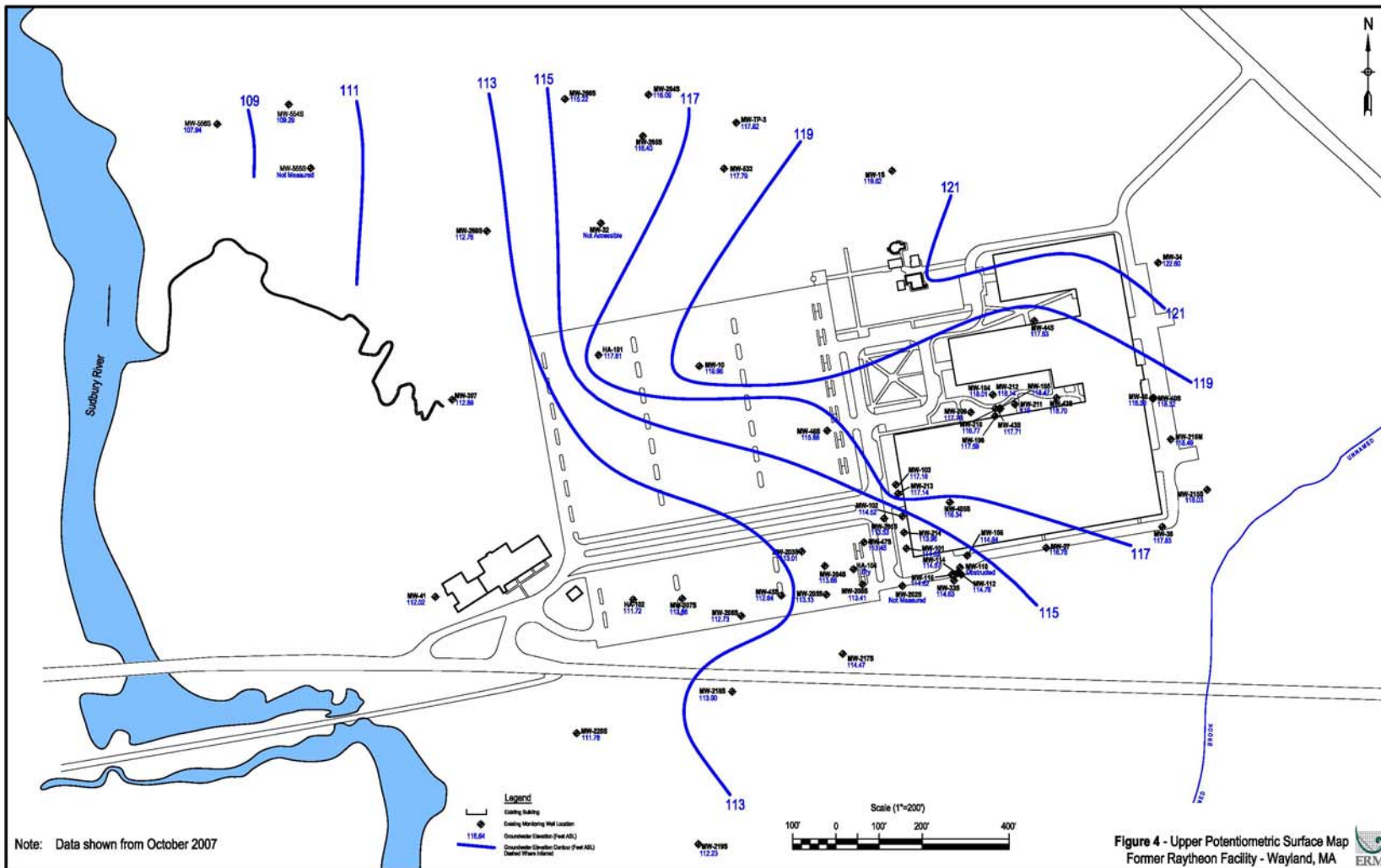
Geoprobe Injection Set-up



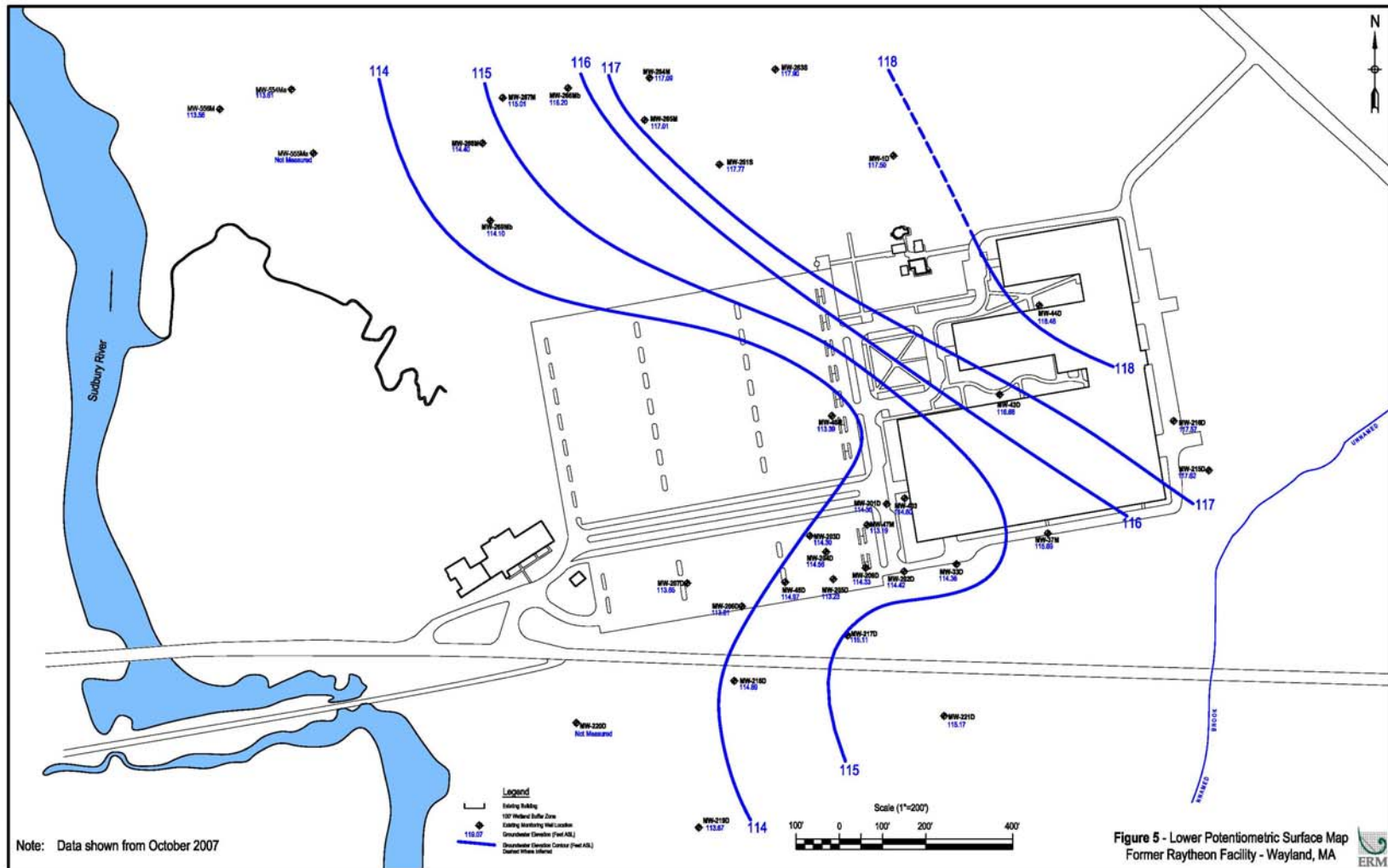
Tanks Holding Permanganate

Update on Site Activities: Groundwater Gauging and Monitoring

Groundwater Contour Map Upper Potentiometric Surface



Groundwater Contour Map Lower Potentiometric Surface



Groundwater Gauging

Calendar Year 2007 Groundwater Gauging

- Site-wide gauging rounds conducted in April and October.
 - Water level measured in all accessible site monitoring wells (up to 164).

Groundwater Monitoring

Calendar Year 2007 Groundwater Monitoring

- Monitoring rounds conducted in February, April, July and October.
 - Samples from 79 wells analyzed for VOCs, Dissolved Sodium, Sodium Permanganate, and/or color.
- Monitoring data summarized in the November 2007 ROS report.
- Monitoring events planned for February and April 2008. These events will be summarized in the May 2008 ROS report.

Update on Site Activities Wetland Monitoring

Wetland Monitoring

Calendar Year 2007 Wetland Monitoring

- Evaluating options for mitigation of invasive species, ERM has removed seed heads of invasive species (e.g., barnyard grass and purple loosestrife). An Invasive Species Management Plan will be submitted to the Wayland Conservation Commission.
- Wetland monitoring conducted in July, August, and September.
 - Information collected to gauge success of vegetation, soils, and hydrology.
 - Completed fourth year of the five-year monitoring program required by the US Army Corps of Engineers, Wayland Conservation Commission, and MA DEP.
- Annual Summary report to be submitted to the MA DEP in December 2007.

Update on Site Activities: Remedy Operation Status

Remedy Operation Status

Remedy Operation Status

- Raytheon submitted the Remedy Operation Status (ROS) report for the reporting period from May – November 2007 to the Massachusetts Department of Environmental Protection (DEP) on 15 November 2007.
- The MW-33 Area ISCO activities will be detailed in the ROS report in May 2008.

PIP Schedule

- Next PIP meeting is likely to be scheduled in Spring 2008.
 - Any questions or comments regarding the Site should be directed to:
Louis “Chip” Burkhardt
Raytheon Company
Mail Stop 3029-09
880 Technology Park Drive
Billerica, MA 01821
(978) 436-8238
- Raytheon will continue to make documents available at the information repositories (Public Library and Board of Health) and web site
 - www.ermne.com; username – raytheon; password - wayland

Q & A