

**GROUNDWATER AND ENVIRONMENTAL INVESTIGATION
SERVICES FOR THE RAVENNA ARMY AMMUNITION
PLANT RESTORATION PROGRAM
CAMP RAVENNA, PORTAGE AND TRUMBULL COUNTIES,
OHIO**

RESTORATION ADVISORY BOARD MEETING

Freedom, Ohio

April 20, 2016

Contract No. W9133L-14-D-0008, Delivery Order 0003





Agenda

- **Project Team**
- **Project Objectives**
- **Project Overview and Task Summary**
- **Project Schedule**
- **Questions and Answers**

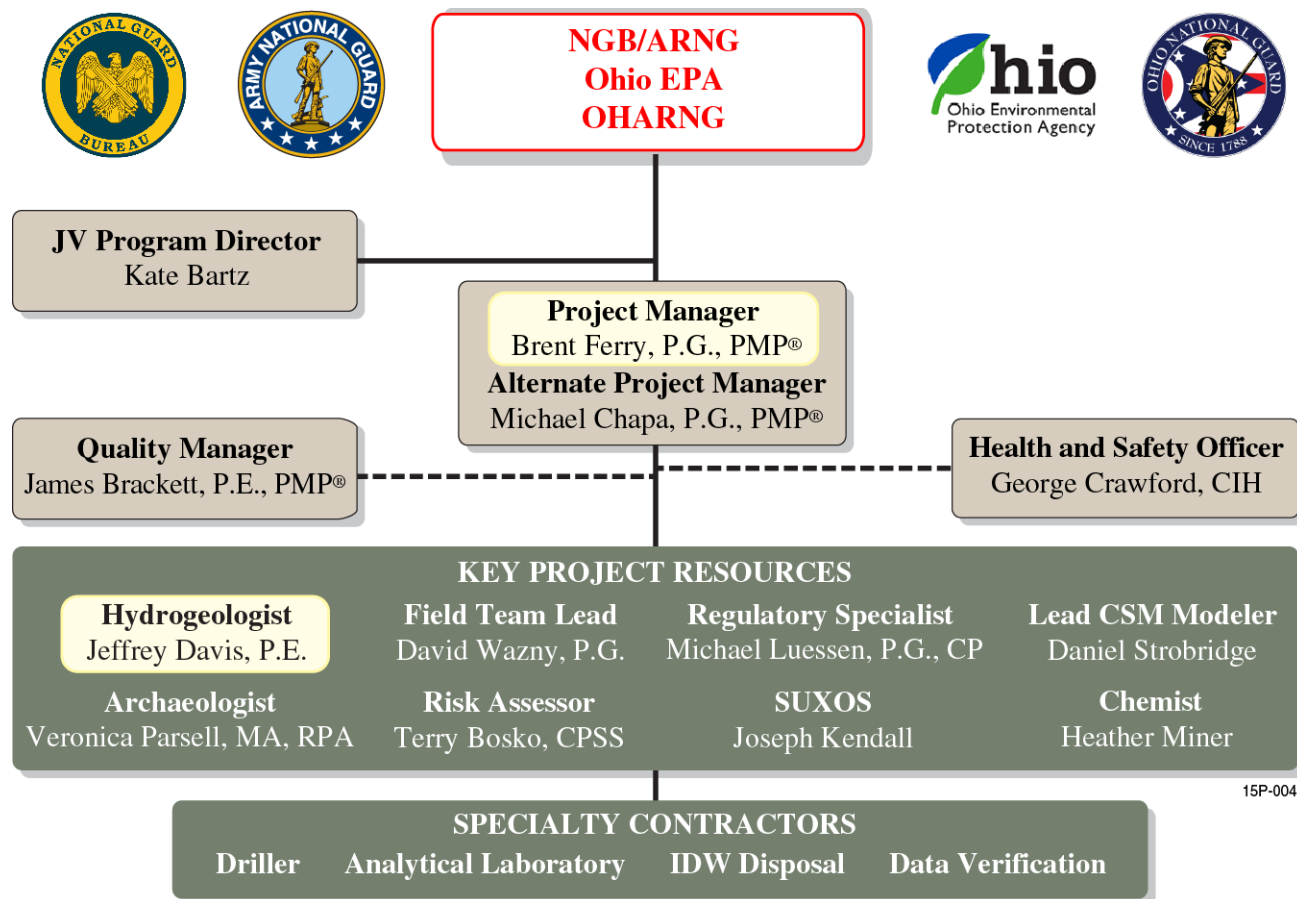


Key Project Team POCs

- Army National Guard/Ohio Army National Guard
 - Contracting Officer's Representative (COR) – Mark Leeper
 - ARNG Restoration Project Manager – Kevin Sedlak
 - OHARNG Restoration Program Manager – Katie Tait
- Contractor (CardnoTEC-Weston Joint Venture)
 - Kate Bartz, Program Director
 - Eric Stahl, Deputy Program Director
 - Brent Ferry, Project Manager
 - Mike Chapa, Project Geoscientist/Technical Lead
 - Heather Miner, Project Chemist



Project Team





Key Project Objectives

- **Facility Wide Groundwater Monitoring Program (FWGWMP) and Remedial Investigation (RI)**
 - Collect sufficient data to address data gaps and define the nature and extent of contaminants
 - Allow the completion of a Baseline Risk Assessment
 - Support the development of a Feasibility Study
- **RI – Groundwater Characterization**
 - Sampling of select existing groundwater monitoring wells
 - Installation and sampling of new monitoring wells
 - Collection of sufficient data to establish naturally occurring (i.e., Background) levels of metals constituents in groundwater
 - Determination of off-site migration of site-related groundwater constituents, if occurring
 - Evaluation of monitoring well turbidity and implementation of redevelopment or replacement of wells determined to be critical to RI and FWGWMP
 - Establish FWGWMP long-term groundwater monitoring well network
 - Provide proper sealing and abandonment of historic production wells and monitoring wells not required for long-term monitoring.



Key Project Objectives

➤ **FWGWMP**

- Continuation of ongoing semi-annual sampling program
- Installation of dedicated low-flow bladder pumps
- Collect data that enables a synthesis with historical analytical results
- Minimize data gaps pertinent to refining the Conceptual Site Model
- Characterize current groundwater quality
- Determination of constituent migration
- 2016 FWGWMP proposed to be the same as 2015 but will be revised after completion of the RI to support selection, implementation, and long-term monitoring of the selected remedy(s)
- Report FWGWMP results semi-annually and annually



Project Overview

Initial Year Contract Award

- Planning Documents
- Archaeological Survey along State Rte. 5
- Tree clearing activities for new monitoring well installations along State Rte. 5
- FWGWMP semiannual sampling events
- New monitoring well installation (Background Study and RI)
- Quarterly sampling of newly installed monitoring wells
- Historic production well abandonment – 10 wells
- Wetlands delineation/avoidance in advance of well installations and/or abandonment
- Submittal of deliverables
- Meetings and Status Reporting



Task Summary

Planning Documents

- **RI Work Plan and FWGWMP Addendum**
 - Incorporates aspects of RI activities and procedures, supplemental plans, and an addendum to the FWGWMP for 2016
 - Sampling and Analysis Plan (SAP) is an addendum to the Facility-Wide SAP and contains specific descriptions of RI and groundwater sampling activities, including forms, procedures and Quality Assurance/Quality Control information
 - Health and Safety Plan (HASP) provides summary of anticipated hazards and requirements for all field tasks described in the SAP
 - Ohio EPA concurrence will be obtained on Final RI Work Plan prior to initiation of field work
 - 2 March 2016: received early concurrence from Ohio EPA of proposed monitoring well location along State Rte. 5 and background wells
- **Archaeological Survey Work Plan**
- **Well Abandonment Work Plan**



Task Summary

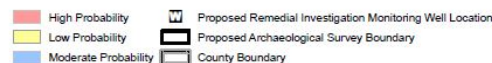
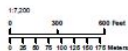
FWGWMP Implementation and RI Reports

- Dedicated Bladder Pump Installation Technical Memorandum
- FWGWMP Semi-Annual Sampling Event Reports
- Well Redevelopment and Reconstruction Technical Memorandum
- RI and Background Monitoring Well Installation Technical Memorandum
- RI Monitoring Well Quarterly Sampling Event Technical Memorandums
- Background Study
- FWGWMP Annual Reports
- RI Report
- Feasibility Study
- Monitoring Well Sealing and Abandonment Reports



Archaeological Survey

- 37 Acres surveyed along State Rte. 5
- Used predictive model developed by OHARNG in consultation with OHPO to guide investigation
- Model defines areas of high, moderate, and low potential for prehistoric archaeological sites and high potential for historic structural sites

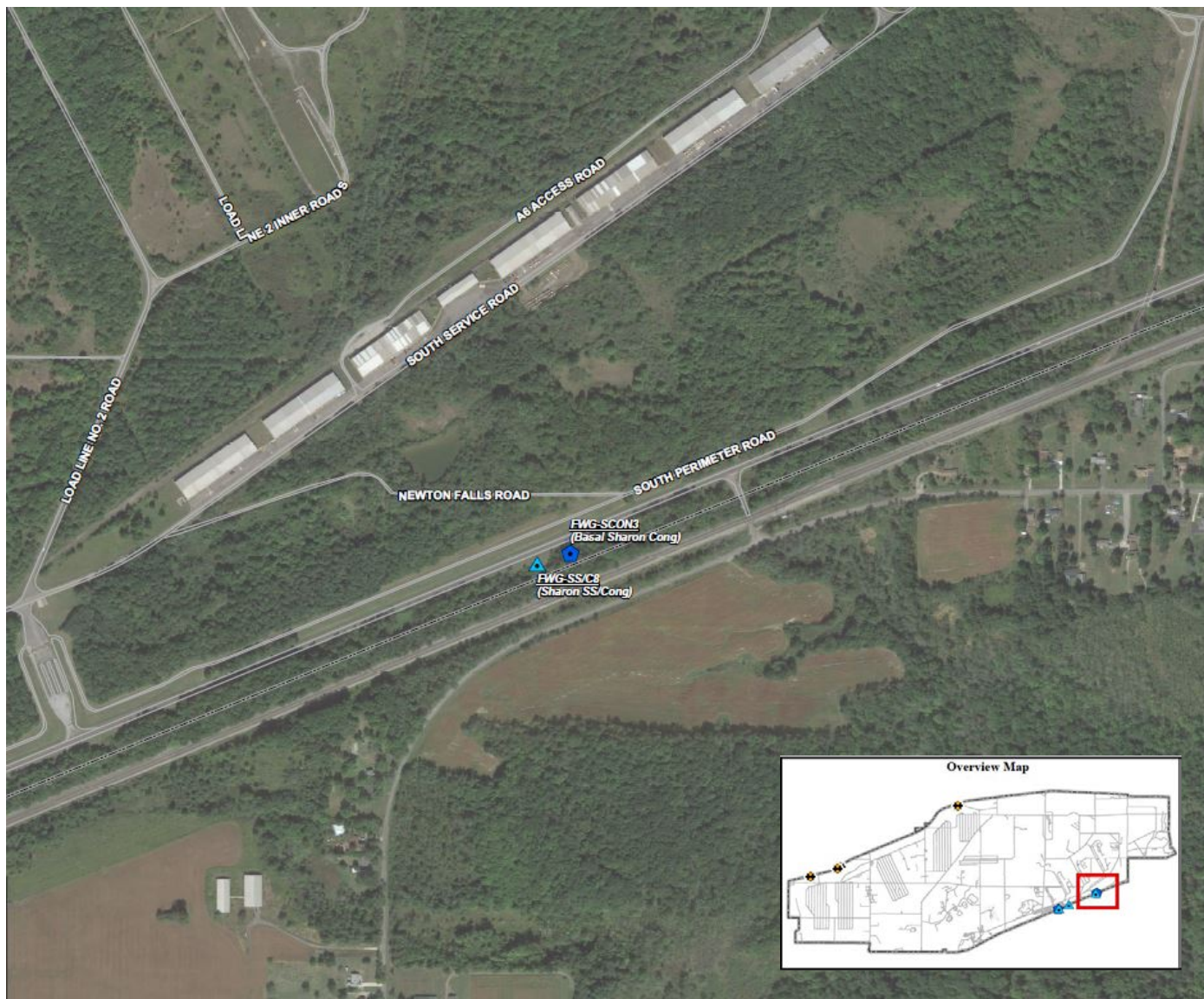




RI Task Summary – State Rte. 5

Downgradient Monitoring Wells along State Rte. 5

- 5 wells to be installed and sampled in Summer 2016
- SCON3: Vertical delineation of explosives and perchlorate in the Basal Sharon
- SS/C8: Horizontal delineation of explosives and perchlorate in the Upper Sharon SS

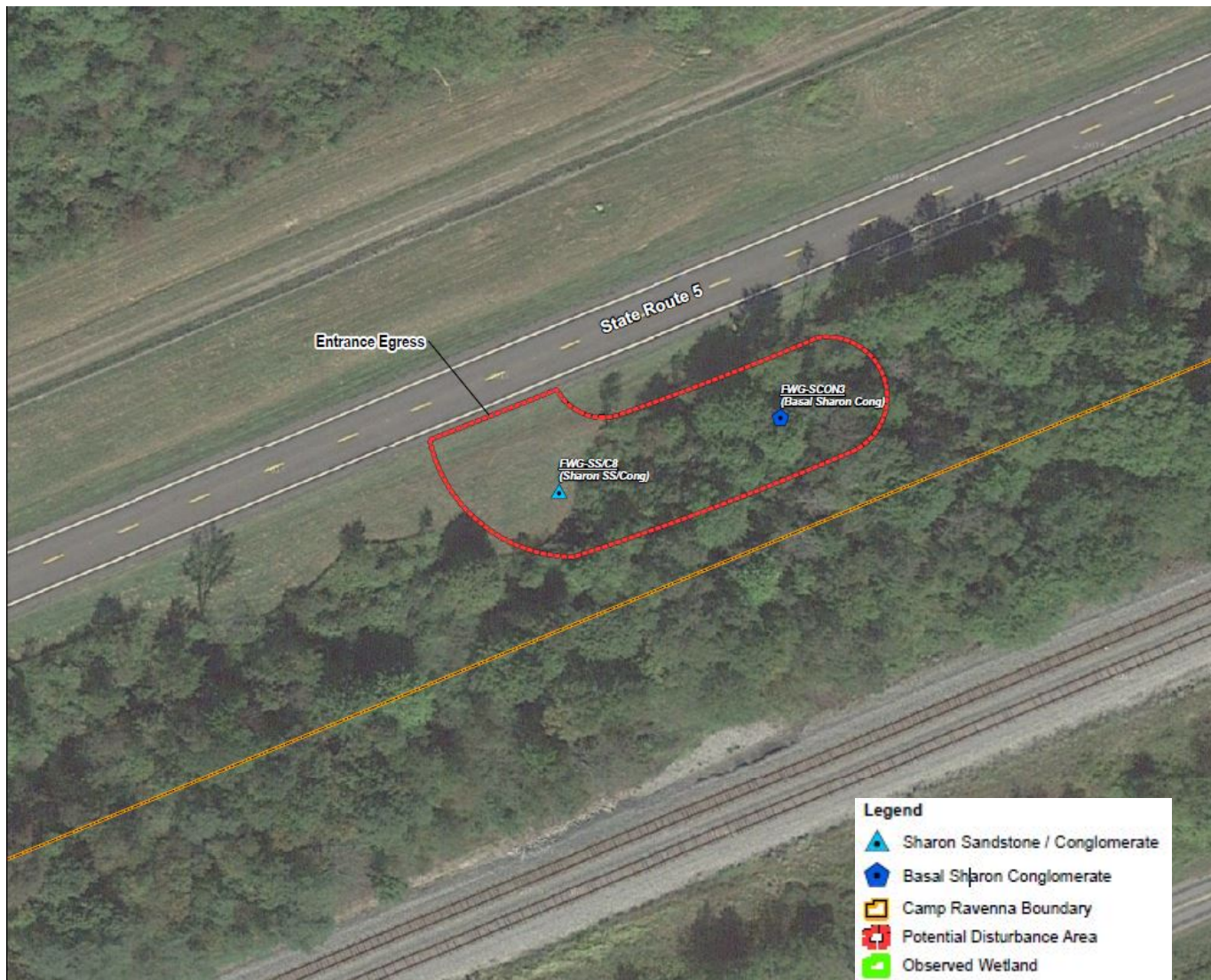




RI Task Summary – State Rte. 5

Downgradient Monitoring Wells along State Rte. 5

- Archaeological Survey
- Wetland Delineation and Avoidance
- Tree Clearing Activities
- Collaboration with ODOT for access and entry

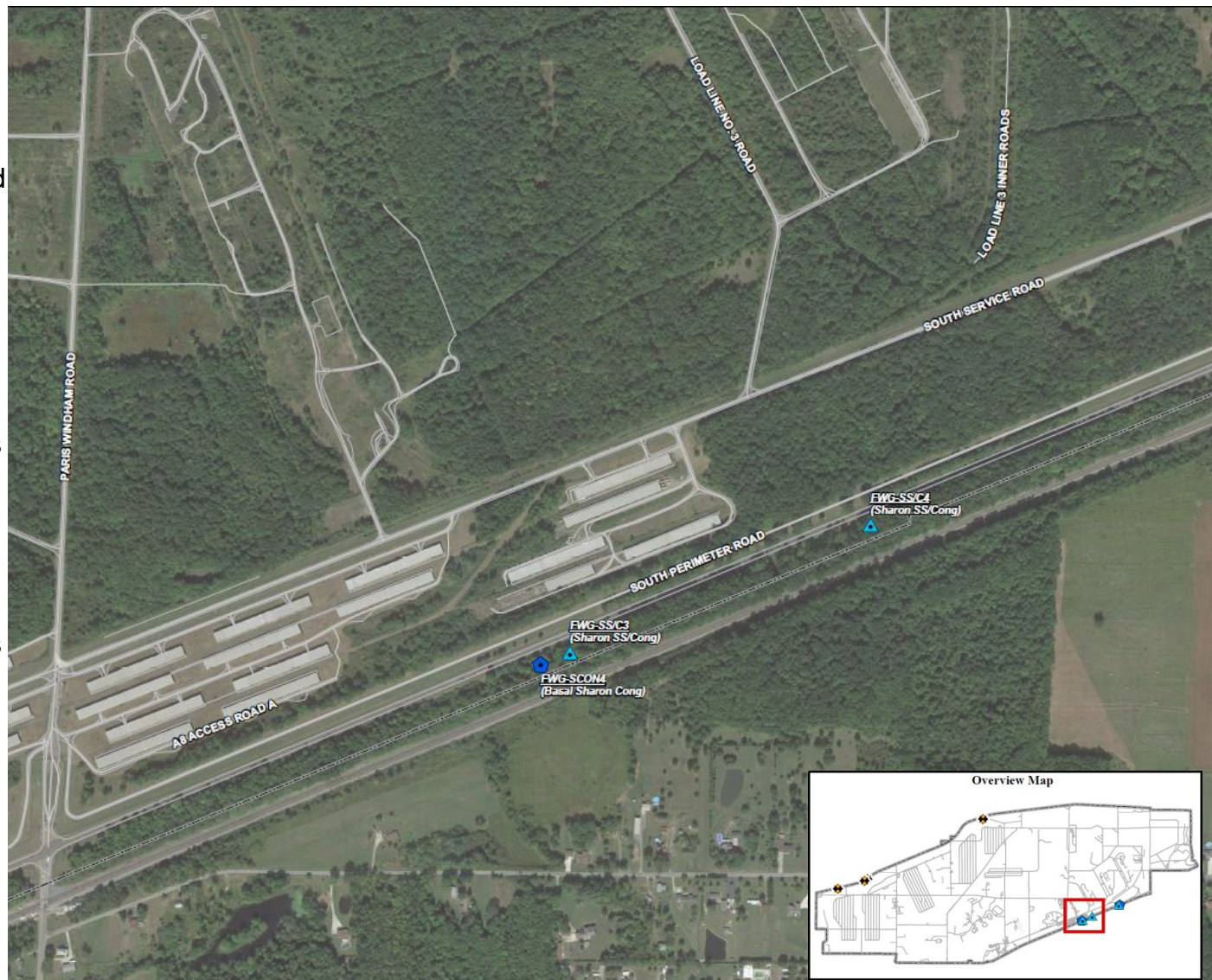




RI Task Summary – State Rte. 5

Downgradient Monitoring Wells along State Rte. 5

- 5 wells to be installed and sampled in Summer 2016
- SS/C4: horizontal delineation of perchlorate in the Upper Sharon SS
- SS/C3: horizontal and vertical delineation of various non-metal COPCs in the Unconsolidated and Upper Sharon SS
- SCON4: horizontal and vertical delineation of various non-metal COPCs in the Unconsolidated and Upper Sharon SS





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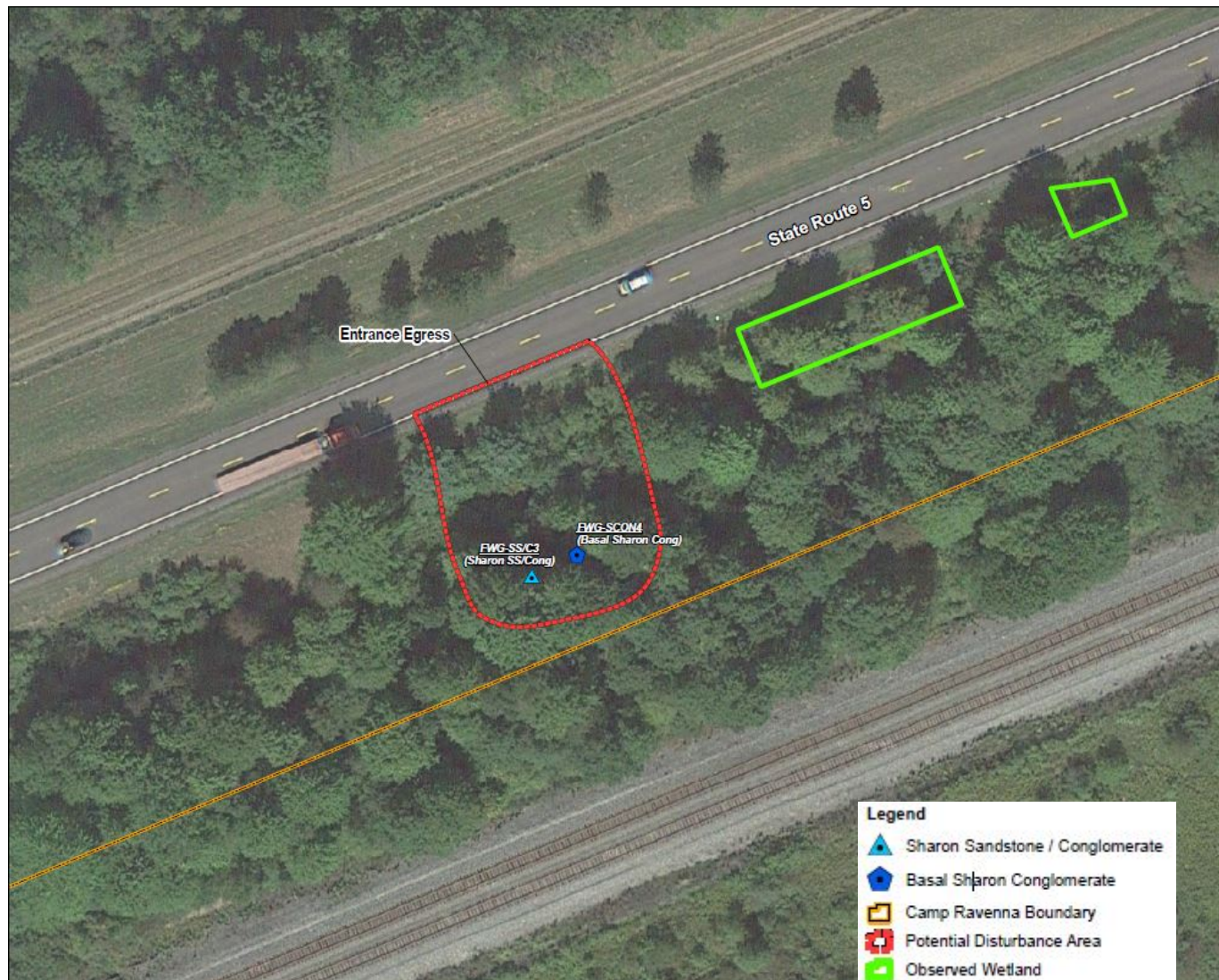




RI Task Summary – State Rte. 5

Downgradient Monitoring Wells along State Rte. 5

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Key Schedule Milestones

Draft RI Work Plan	February 2016
Draft 2015 Annual FWGWMP Report	February 2016
Draft Archaeological Work Plan	February 2016
Draft Well Abandonment Work Plan	February 2016
Final Archaeological Work Plan	March 2016
Final FWGWMP 2015 Annual Report	April 2016
Final Well Abandonment Work Plan	April 2016
Draft Archaeological Survey Report	April 2016
Final RI Work Plan	May 2016
FWGWMP Semi-Annual Sampling Event #1	May 2016
RI and Background Monitoring Well Installation	July 2016
Final Archaeological Survey Report	August 2016
FWGWMP Semi-Annual Report #1	August 2016
FWGWMP Semi-Annual Sampling Event #2	September 2016
FWGWMP Semi-Annual Report #2	December 2016
RI Report and Feasibility Study	2017 - 2018



Conclusion

➤ Questions and Answers