



**FMC Corporation
Middleport, New York**

**Off-Site Investigation and Remediation
Work Plan for 2021 Activities**

December 2020

With Contributions By:



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Amherst, New York



Certification Statements

I, Richard J. Snyder certify that I am currently a New York State registered professional engineer and that this Off-Site Investigation and Remediation Work Plan for 2021 Activities was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Date: December 9, 2020

Stamp:



I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Date: 12/11/2020

Signature: _____

Douglas Groux
Douglas Groux
Director, EHS Remediation & Governance
FMC Corporation



Table of Contents

1.	Introduction.....	1
2.	Off-Site OU Status and Long-Term Outlook	2
2.1	Current Status.....	2
2.2	Long-Term Priorities and Outlook.....	4
3.	Proposed 2021 Activities.....	7
3.1	Recommended 2021 Actions.....	7
3.2	OU2 - Air Deposition Area 1 - Residential	9
3.3	OU5 – Culvert 105 (North).....	10
3.4	OU2 – Air Deposition Area 1 - Norco Properties	11
3.5	OU2 - Air Deposition Area 1 - R1a and R1b Properties	13
3.6	OU2 – Air Deposition Area 1 - R1d.....	14
3.7	OU6 - Tributary One South.....	15
3.8	OU3 – Air Deposition Area 2	16
3.9	OU9 - Former Research and Development Property	16
3.10	OU7 - Tributary One (North of Pearson/Stone Roads).....	17
3.11	OU8 - Jeddo and Johnson Creeks	17
4.	Next Steps.....	17
5.	References	18

Figure Index

Figure 1	Off-Site Operable Units
Figure 2	Remediation Status in the Air Deposition and Culvert 105 Study Areas
Figure 3	Projected RCRA Corrective Action Schedule for Off-Site OUs
Figure 4	Remediation Areas (South of Erie Canal)
Figure 5	OU5 Remediation Areas (North of Erie Canal)

Appendix Index

Appendix A	Properties R1a and R1b Proposed Remediation Phases
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1. Introduction

FMC Corporation (FMC) owns and operates a pesticide formulating and packaging facility (Facility) located in the Village of Middleport and the Town of Royalton, New York. Investigative, monitoring, and remedial activities have been implemented by FMC to address FMC-related constituents in soil and other environmental media at the Facility and in certain off-site areas, with arsenic being the primary constituent of concern. These activities have been conducted in a phased approach, in which separate study areas and/or environmental media have been organized into 11 operable units (OUs). This work is currently subject to the terms and conditions of an Order on Consent and Administrative Settlement (Index No. CO 9-2014062540) between FMC and the New York State Department of Environmental Conservation (NYSDEC), effective June 6, 2019 (Order), which now guides the process and nature of the work to be addressed in each OU. Prior to June 6, 2019, all work was conducted pursuant to the now supplanted-Administrative Order on Consent (Docket No. II-RCRA-90-3008(h)02090) by and among FMC, the United States Environmental Protection Agency (USEPA), and the NYSDEC (the AOC).¹

Section IV.F of the Order stipulates that, at least 90 days prior to the beginning of calendar year 2021 (and each year after until completion of remediation work off site from the Facility), FMC will submit a work plan detailing the actions proposed to be taken during such upcoming calendar year for the NYSDEC's review, prioritization, and approval, with an anticipated budget for such actions of at least \$15 million (the Work Plan). Of the proposed \$15 million in proposed work, FMC will be required to spend no more than \$10 million toward such qualified remedial expenditures during the applicable calendar year, subject to any amounts allowed to be offset against pursuant to the Order, including certain qualified financial assurance costs.

Accordingly, FMC is submitting this Work Plan detailing options for off-site investigation and remediation activities with an anticipated budget totaling at least \$15 million, and recommendations for up to \$10 million worth of activities for potential implementation in 2021 that are prioritized for the NYSDEC's review and approval. In addition to identifying and describing investigative and remedial options for off-site OUs that are proposed and recommended for completion in 2021, this Work Plan also includes FMC's current thinking as it pertains to the broader long-term remediation plan, with an associated implementation schedule, to assist in long-term planning coordination with NYSDEC.

An initial version of this Work Plan was submitted to the NYSDEC on July 2, 2020 for purposes of coming to concurrence on the proposed scope of work to be included. Based on certain discussions held with the NYSDEC subsequent to that time, including via a conference call held on September 3, 2020, the Work Plan was revised and submitted on September 30, 2020, to incorporate NYSDEC's comments. By e-mail dated December 1, 2020, the NYSDEC has provided additional comments, which have been incorporated in this version of the Work Plan.

The options described within this Work Plan focus on advancing remediation in off-site OUs 2 and 5 as a priority, consistent with the Order. Per the 2013 Final Statement of Basis (SB) for OUs 2, 4,

¹ Pursuant to Section I.C. of the Order, prior approvals, authorizations, and determinations pursuant to the AOC that are applicable to the work in site-related OUs are all still applicable.



and 5, the selected remedy for these OUs, referred to as corrective measures alternative 9 (CMA9), is remediation of soil containing arsenic at concentrations greater than 20 milligrams per kilogram (mg/kg), with flexibility. All properties associated with OUs 2 and 5 and their current status are presented on Figure 1. In addition to work in OUs 2 and 5, the Work Plan also contemplates the potential for certain work to be conducted in 2021 in other off-site OUs, subject to appropriate timing for work plan or design submittals with corresponding NYSDEC approval, as may be appropriate.

The organization of the remaining sections of this Work Plan is as follows:

- Section 2.0 - A summary of off-site OU status and long-term outlook
- Section 3.0 - Proposed and Contingency 2021 actions
- Section 4.0 - Proposed next steps for implementation of the recommended work
- Section 5.0 - A list of the reference materials utilized in the preparation of this Work Plan

2. Off-Site OU Status and Long-Term Outlook

2.1 Current Status

Figure 1 identifies the locations of the off-site OUs subject to the Resource Conservation and Recovery Act (RCRA) corrective action requirements of the Order, including completion and/or status of the following for each of the off-site OUs: RCRA Facility Investigation (RFI), Corrective Measures Study (CMS), final SB, and Corrective Measure Implementation (CMI), as may be applicable.

To further assist with the review, the current status of each of the off-site OUs are as follows:

Operable Unit	Description	Status and Next Steps as of December 8, 2020
OU2	Air Deposition Area 1	<p>A final SB, dated May 2013, and issued by the NYSDEC, describes the NYSDEC selected remedy for OU2, OU4, and OU5. NYSDEC has been implementing the remedy since 2015 and will continue through 2020 pursuant to the Order.</p> <ul style="list-style-type: none"> • FMC will take over the remedy implementation beginning in 2021, to the extent not yet complete. As confirmed by a letter dated June 30, 2020, NYSDEC anticipates that remediation of residential properties within OU2 will be completed in 2020 to the extent shown on Figure 2. By the end of 2020, the remaining OU2 properties subject to remediation will include 26 residential properties, and seven large parcels (i.e., the former Norco parcels and R1-Grid) identified in Section VII.A.2. of the Order. A CMI Work Plan for OU2 detailing remediation on remaining parcels within the OU2 was submitted for NYSDEC review and approval on November 20, 2020.



Operable Unit	Description	Status and Next Steps as of December 8, 2020
OU3	Suspected Air Deposition Area 2	<p>RFI Report Volume X - Suspected Air Deposition Study Area 2, (North of the Erie Canal and East of the Niagara/Orleans County Line), dated October 2012, and draft CMS Report – Suspected Air Deposition Study Area 2 (North of the Erie Canal and East of the Niagara/Orleans County Line) – Operable Unit 3 (OU3), dated September 2015, have been completed and submitted to the NYSDEC.</p> <ul style="list-style-type: none"> As required by the Order, NYSDEC issued a draft OU3 SB on September 30, 2020. A public comment and review period ran through November 16, 2020, with certain public comments having been received. The final OU3 SB and attendant responsiveness summary is pending as of the date of this Work Plan. A CMI/pre-design investigation (PDI) Work Plan will be submitted for NYSDEC review and approval within 90 days of issuance of the final SB.
OU4	Royalton-Hartland (Roy-Hart) School Property	<p>A final SB, dated May 2013 and issued by the NYSDEC, describes the NYSDEC selected remedy for OU2, OU4, and OU5. NYSDEC has been implementing the remedy since 2015 and will continue through 2020 pursuant to the Order.</p> <ul style="list-style-type: none"> FMC will take over the remedy implementation beginning in 2021, to the extent not yet complete. However, NYSDEC anticipates that it will complete remediation of OU4 in 2020, as stated in its letter dated June 30, 2020.
OU5	Culvert 105	<p>A final SB, dated May 2013, and issued by the NYSDEC, describes the NYSDEC selected remedy for OU2, OU4, and OU5. NYSDEC has been implementing the remedy for OU5 south of the Erie Canal since 2015, and will continue through 2020 pursuant to the Order.</p> <ul style="list-style-type: none"> NYSDEC's letter dated June 30, 2020 stated that remediation of OU5 south of the Erie Canal has been completed. FMC will begin remediation of OU5 north of the Erie Canal in 2021. As part of the necessary scoping for work in OU5 north of the Erie Canal, NYSDEC approved the <i>Culvert 105 Study Area (OU5) North of the Erie Canal Pre-Design Investigation Work Plan</i> (February 2020), which involved FMC completing the PDI in 2020, subject to an implementation schedule submitted by FMC letter dated May 15, 2020 and revised by letter dated September 4, 2020. The PDI field sampling work was completed as of September 25, 2020. A CMI Work Plan for Culvert 105 North of the Erie Canal was submitted to NYSDEC on November 13, 2020. The CMI Work Plan details remaining remedial activities within OU5.



Operable Unit	Description	Status and Next Steps as of December 8, 2020
OU6	Tributary One South	<p>The OU6 RFI report was approved in 2010. A revised draft CMS report for OU6, dated December 6, 2019, was submitted, pursuant to the Order.</p> <ul style="list-style-type: none"> The draft OU6 CMS report remains subject to NYSDEC review as of the date of this Work Plan.
OU7	Tributary One North	<p>Supplemental RFI sampling was completed in 2018 and 2019. A data report was submitted to NYSDEC in September 2019, along with FMC's findings that further sampling activities are required for finalization.</p> <ul style="list-style-type: none"> NYSDEC is reviewing the report as of the date of this Work Plan, and proposed next steps for the RFI are to be discussed with FMC.
OU8	Jeddo & Johnson Creeks	<p>Supplemental RFI sampling was completed in 2018 and 2019. A data report was submitted to NYSDEC in September 2019, along with FMC's findings that further sampling activities are required for finalization.</p> <ul style="list-style-type: none"> NYSDEC is reviewing the report as of the date of this Work Plan, and proposed next steps for the RFI are to be discussed with FMC.
OU9	Former FMC R&D Facility	<p>RFI Report Volume III – Former Research and Development Property (Operable Unit 9) (dated September 2013) was approved by letter dated April 22, 2014. FMC submitted a draft CMS work plan for OU9 in August 2014.</p> <ul style="list-style-type: none"> The property is currently being used by NYSDEC as a staging area for remediation of OU2, OU4, and OU5. FMC is likely to utilize the site for similar activities beginning in 2021, subject to further inquiry with the property owner. The draft OU9 CMS work plan is under review by NYSDEC.

2.2 Long Term Priorities and Outlook

Consistent with the requirements in the Order, off-site investigation and remediation will be prioritized based on the following considerations:

- Construction in OUs associated with potential historical air deposition (e.g., OU2, OU3, and OU4) will be performed consistent with the respective final SBs, including the need for consideration of human exposure potentials, land use, and soil arsenic concentrations. In OU2, residential properties will be addressed as a priority, to the extent possible based on access, consistent with the NYSDEC's work prior to 2021. Additionally, areas with higher soil arsenic concentrations within the seven large parcels identified in Section VII.A.2. of the Order will be addressed first, to the extent possible based on access.
- Remediation of OUs associated with potential runoff and potential surface water migration pathways (e.g., OU5, OU6, OU7, and OU8) will be performed from upstream to downstream



as discussed within the Order, taking into account access, areas to be remediated, and related issues. Remediation of OU5 will need to be completed prior to the downstream reaches of OU6. Remediation of OU6 will need to be completed prior to OU7 and OU8. Priority will be given to completing the section of OU6 south of the Erie Canal, where properties are primarily residential.

3. Owner access permission and potential future change in land use or development or redevelopment of properties within the off-site OUs (e.g., OU9, Norco parcels, which are subject to related bankruptcy and possible foreclosure action(s)) will be considered in implementation and the schedule for completion of off-site OU work.

Given the above considerations, the off-site OUs will be addressed in the following order:

- **OU2:** By the end of 2020, 26 residential properties are expected to remain unremediated due to access refusal by the property owners. The owners of these residential properties will be offered remediation annually for a 5-year period after NYSDEC approval of the construction completion report (CCR) for the completed residential properties in OU2, pursuant to Section VI.D of the Order. It is FMC's understanding that NYSDEC's contractor, Ecology & Environment (E&E), will complete the CCRs in 2021, as well as provide documentation to FMC for all CCRs associated with work completed by the NYSDEC in OU2. For planning purposes only, it is assumed that one of the owners of the 26 unremediated residential properties will allow remediation in 2021 and that this frequency of permission will repeat annually. This assumption may be modified in the future, as appropriate. As required in Section VI of the Order, an Interim Site Management Plan (ISMP) will be prepared to track ownership and the offers of remediation for the OU2 residential properties that have refused remediation and/or have engineering or institutional controls. The seven large properties in OU2 will be remediated in the following order to the extent possible based on access: the former Norco parcels, R1a, R1b, and R1d. FMC continues to actively work to address necessary access and site authorization to undertake site activities and real property filings related to the former Norco parcels.
- **OU5 North of Erie Canal:** Remediation of OU5 north of the Erie Canal is proposed to be completed in two phases (Phases I and II) during consecutive construction seasons (2021 and 2022). Remediation of the Culvert 105 waterway will need access on properties traversed by Culvert 105. OU5 waterway remediation will be completed before remediation of the downstream reaches of OU6 since Culvert 105 discharges to Tributary One, as appropriate. Preparatory PDI work in OU5 north of the canal was completed in 2020 by FMC to allow for remedial work to be conducted in 2021.
- **OU6:** The estimated years required for construction of OU6 CMAs evaluated in the revised draft OU6 CMS Report submitted to the NYSDEC in 2019 in accordance with the Order, other than the no action CMA, range from 7 to 12 years to complete, moving from upstream to downstream. Based on attendant considerations, including the potential timelines required to complete remedial construction, OU6 construction south of the Erie Canal is targeted to begin in 2023, assuming the final SB for OU6 can be issued in 2021 and phased PDI and design of the selected remedy can be substantially completed in 2021 and 2022. Based on these assumptions, OU6 remediation is targeted to take place from 2023 through 2029. If a final SB cannot be issued in 2021, FMC will discuss with NYSDEC potential options to accelerate completion of the OU6 CMS and issuance of a final SB.



- **OU3:** Based on the September 2020 draft SB, remediation in OU3 is anticipated to include remediation of soil to 20 mg/kg, with flexibility, by soil excavation and/or with soil tilling/blending if demonstrated to be appropriate based on a pilot study. FMC is aware that certain public comments were received by the NYSDEC, which will be considered and/or addressed in the final SB, which FMC understands is expected to be issued in early 2021. FMC will submit a CMI/PDI work plan to NYSDEC within 90 days of issuance of the final SB for OU3.
- **OU9:** A CMS is to be performed prior to issuance of the final SB for OU9. OU9 activities may be used to complete additional annual work required to be conducted pursuant to the Order in years that certain other Order off-site work called for in the prior year planning cannot be achieved. It is assumed that OU9 investigative/remedial activities will be performed after closure of the staging area for ongoing remediation in other OUs. Currently, FMC anticipates that the OU9 staging area will continue to be used in the 2021 construction season by FMC, consistent with the NYSDEC's current use, and given the Village code restrictions of truck size on Village roads and the established staging area being already present. FMC will be engaging with the property owner and NYSDEC on property access considerations. In addition, FMC proposes to discuss the need for the collection of documentation soil samples after closure of the staging area based on prior actions/assessment activities completed to date by NYSDEC and its subcontractors.
- **OU7:** Remediation of OU7 will not begin prior to completion of the OU6 remedial construction consistent with the upstream to downstream remediation procedures in accordance with the Order. The continued RFI/CMS/SB/CMI design process will be completed concurrently with other remedial action work, including any additional sampling activities for RFI purposes.
- **OU8:** Remediation of OU8 will not start prior to completion of the OU7 remediation consistent with the upstream to downstream remediation procedures in accordance with the Order. The continued RFI/CMS/SB/CMI design process will be completed concurrently with other remedial action work, including any additional sampling activities to be conducted for RFI purposes.

Figure 3 presents a preliminary long-term plan for completion of the off-site OUs remediation and projected annual costs based on currently available information for the NYSDEC's convenience. Projected costs for years after 2021 will be updated in the future as more information becomes available, including as completed work and related Order activities.

Remedial activities for OU2 (specifically residential properties) and OU5 are consistent with the 2013 final SB issued by NYSDEC. Estimated costs for remediation of the OU2 and OU5 areas are based on costs included in the CMS Report (Arcadis, 2011) and final SB (NYSDEC, 2013). The final SB has not been issued for OU3, and no SB has been issued for OU6 as of the submittal date of this Work Plan. As such, remedial costs for OU3 have not been included in this Work Plan. For the purposes of this document only, OU6 remedial costs are assumed to be costs for CMA4 (FMC's recommended CMA in the draft OU6 CMS Report submitted to the NYSDEC in 2019 in accordance with the Order).

The Order allows for up to \$1 million in annual financial assurance costs to be offset against the \$10 million proposed annual spend discussed in this Work Plan, which has been factored into FMC's assessment. FMC also factored in appropriate costs associated with community relations activities associated with the corrective action process (e.g., access, information notices, inquiries, etc.),



repairs, operations, monitoring, and maintenance of off-site remedies, which will require approximately another \$1 million annually, assumed for planning purposes of this document only. Section 3 discusses the proposed 2021 work. Properties anticipated to be addressed in OU2 and OU5 in 2021 are shown on Figures 4 and 5, respectively.

3. Proposed 2021 Activities

3.1 Recommended 2021 Actions

For calendar year 2021, the following recommended remediation activities are anticipated to meet the required proposed \$10 million worth of activities (see Figure 3), and are consistent with FMC's understanding of NYSDEC's current prioritization of work:

Area	Proposed 2021 Priority Activities	Estimated Cost (\$M)
OU2 Residential Properties	Property T5 will be remediated, based on remedial designs to be provided by NYSDEC, and a CCR will be completed, consistent with the NYSDEC's work prior to 2021.	\$ 0.20
Property L4 ²	Remediation of property L4 based on designs to be provided by NYSDEC	\$ 0.17
OU5 North of the Erie Canal	Phase I remediation will be performed moving upstream to downstream, including properties in Reaches C1 through Reach C2 property AD1.	\$ 3.4
OU2 Norco Properties	Buildings on the properties will be demolished after assessment/removal of regulated building materials and other materials presently being stored in the interior, and a soil cover will be installed over the properties. In addition, a CCR, as appropriate, an environmental easement and an SMP will be prepared. All of this will be completed consistent with FMC finalizing appropriate site access and/or control.	\$ 2.1
OU2 Grid Properties R1a and R1b Phase I Area	Remediation of the properties will be performed in four areas (Phases I – IV). Remediation of the Phase I area will begin in 2021 and will be completed in 2021 or 2022. Work in 2021 include completion of a PDI for the Phase I and II areas, finalization of design drawings for the Phase I area, and start of remediation of the Phase I area.	\$ 2.1
OU2 R1d Grid Property	Soil tilling/blending pilot study	\$ 0.10

² By email dated August 24, 2020, NYSDEC requested that FMC remove soil above 20 ppm on a residential located at 10174 Telegraph Road (property L4), which abuts property L3 (remediated in 2020 by NYSDEC), and is outside of OU2. FMC subsequently agreed to remediate property L4 in 2021 as part of the OU2 residential properties, subject to the NYSDEC's agreement that no additional properties would be added to OU2. Should FMC incur more than \$10 million in qualified costs in 2020, it reserves the right to seek a credit for the costs associated with this property for calendar year 2022 pursuant to Section IVE of the Order.



Area	Proposed 2021 Priority Activities	Estimated Cost (\$M)
OU3	Assuming a final SB for OU3 will be issued in early 2021, then within 90 days of issuance, a CMI work plan, including a PDI scope of work, will be submitted to NYSDEC. The scope of action in this OU is subject to the NYSDEC's position on remedial work being required	\$ 0.08
OU6	FMC will respond to any NYSDEC comments on the draft OU6 CMS Report, make revisions to the report, if needed, and participate in the public review/comment process for the draft CMS report/draft SB and issuance of a final SB.	\$ 0.15
All areas	As discussed in Section 2.2, annual financial assurance, project community relations activities associated with the corrective action process, repairs, operations, monitoring and maintenance of implemented off-site remedies, will continue as may be applicable.	\$ 1.7
Total Estimated Cost		\$ 10.0

Activities planned for 2022 (see Figure 3) may be brought forward to 2021 as contingency activities, if necessary, and/or substituted for activities identified above, given the potential for site access issues, delays in approvals, and other unexpected/changes in scope or additional considerations, such as the impact of COVID-19 related effects in the Fall/Winter.

The following contingency activities can be implemented in the event the above 2021 priority activities cannot be completed to the extent required, and total in excess of \$5 million, consistent with Order obligations:

Area	Potential 2021 Contingency Activity	Estimated Cost (\$M)
OU5 North of the Erie Canal	Phase II remedial construction could be completed in Reach C2 based on the progress of the remedial activities for the upstream properties/reaches.	\$ 1.9
OU2 Grid Properties R1a & R1b Phase I Area	Remediation of the northern portion of the Phase I area could be completed in 2021 based on the progress of the Phase I South remediation.	\$ 2.0
OU2 Grid Property R1d	Final remedial design plans, and remediation by tilling could be completed in 2021.	\$ 0.9
OU7	Supplemental RFI/ Ecological Study	\$ TBD
OU8	Supplemental RFI/ Ecological Study	\$ TBD
OU6	OU6 CMI work plan, OU6 PDI, and/or design of the first phase of the OU6 remediation (south of Erie Canal) may be completed in 2021, assuming the final SB is	\$ 0.2



	issued in early 2021 and NYSDEC approval of the relevant documents.	
	Total Estimated Cost	\$ 5.0

The general scope of work for the proposed 2021 priority and contingency activities is discussed further below. FMC prepared CMI work plans for remedial construction activities in the above listed OU5 areas and OU2 properties and submitted to NYSDEC on November 13, 2020 and November 20, 2020, respectively.

3.2 OU2 - Air Deposition Area 1 - Residential

Based on information provided by the NYSDEC, FMC assumes that NYSDEC will complete remediation of 29 properties in 2020, as scheduled, and 26 residential properties will remain unremediated in OU2 at the end of 2020 (Figure 1). The owners of the remaining properties either denied access permission for remediation (22 properties) or did not reply to NYSDEC's requests (4 properties). Complete PDI data sets currently exist for 6 of the 26 properties. For the remaining 20 properties, various effort levels of PDI sampling would be necessary to complete prior to remediation, including no analytical data existing for several properties.

In the event the owner of any property that currently has no analytical data grants access to FMC in 2021 for sampling or remediation, GHD will perform a sample program consistent with NYSDEC *DER-10/Technical Guidance for Site Investigation and Remediation* (DER-10) requirements, as well as recent NYSDEC protocols as outlined in the *Pre-remedial Design Investigation Residential Soil Sampling and Analysis Plan* for Phases 5 and 6 (E&E, 2018). This will be subject to NYSDEC approval consistent with Order requirements. Properties that may require additional data to refine remedial design will be addressed on a case-by-case basis.

Upon completion of remediation of a property, a CCR will be completed, consistent with those completed to date by NYSDEC's contractor, E&E. On an annual basis, CCRs will be prepared summarizing remediation work completed for each residential property within OU2 for that calendar year, if any.

Pursuant to Section VI.C. of the Order, an ISMP for OU2 will be prepared upon completion of remediation at all residential properties that have granted access within the OU.

2021 Plan Assumptions

- NYSDEC completes remediation of all 29 properties that it has scheduled for calendar year 2020.
- E&E will complete CCRs for all properties remediated by NYSDEC within OU2, including those properties traversed by Culvert 105.
- All but one of the properties that have previously denied access for sampling or remediation will continue to deny access until there is a change of ownership, and all 26 unremediated residential properties will require remediation. Property T5, which has previously denied access for sampling, was sold during the week of June 1, 2020. FMC contacted the buyer, and the buyer granted access. With access granted, NYSDEC completed sampling in 2020 and



determined that remediation is needed in 2021. NYSDEC will prepare the design drawings for remediation of property T5 for FMC implementation in 2021.

- FMC will continue to offer sampling and/or remediation to applicable OU2 property owners per Section VI.D. of the Order.
- An ISMP for the unremediated OU2 residential properties at the end of 2021 will be prepared for submittal to NYSDEC.
- Property L4 abuts the eastern boundary of property L3 and is situated outside the limits of OU2. NYSDEC sampled the property in 2020 in response to requests from the property owner and provided FMC a copy of the soil sampling data by email dated July 31, 2020. By email dated August 24, 2020, NYSDEC requested that FMC remediate property L4 in 2021. FMC subsequently agreed to remediate property L4 in 2021 based on a remedial design to be provided by NYSDEC, subject to no further additional properties being added to the scope of OU2.

2021 Plan Critical Path Items

- The remedial designs for properties T5 and L4 will need to be finalized before construction is set to begin in the Spring of 2021.

3.3 OU5 – Culvert 105 (North)

Culvert 105 is a combination of buried pipe and open ditch sections that together extend approximately 6,600 feet (1.25 miles) in length. NYSDEC will complete remediation of sections south of the Erie Canal in 2020, and FMC will remediate sections north of the canal. Consistent with prior submissions to the NYSDEC, OU5 is divided into three reaches north of the Erie Canal: Reach C1 (Erie Canal to Sleeper Street); Reach C2 (Sleeper Street to Property AF1); and Reach C3 (Property AG1 to Tributary One). Properties within each reach are identified on Figures 1 and 3 and in the table below.

Reach	Properties
Reach C1	13: AA1, AB1 through AB7, and AC1 through AC5
Reach C2	7: AD1 through AD3, AE1 through AE3 and AF1
Reach C3	7: AG1, AH1, AH2, AI1, AJ1, AJ2, and AK1

The 2013 final SB for OU2, OU4, and OU5 identified CMA9 as the selected remedy, which includes excavation of soil to 20 mg/kg arsenic, with flexibility, for residential properties, and possible use of soil tilling/blending on non-residential properties (including agricultural land) and on residential properties greater than 5 acres with additional pilot studies approved by NYSDEC. FMC will propose separate soil tilling/blending pilot studies for properties R1d, R1a/b, and Culvert 105 properties (except for property AD1³) where tilling is proposed.

³ A soil/tilling pilot study was performed on property AD1 in 2009, which demonstrated the effectiveness of the technology, as discussed in "Corrective Measures Study Soil Tilling/Blending Pilot Study Report" (Arcadis, March 2010). The pilot study report was also included in Appendix B of the May 2011 CMS Report for OU2, OU4, and OU5.



Based on analytical data collected as part of the OU5 RFI, approximately 3,750 cubic yards (CY) of soil is estimated to be remediated in Reach C1, approximately 17,400 CY in Reach C2, and 7,750 CY in Reach C3, to achieve soil arsenic concentrations of 20 mg/kg, with flexibility. For buried pipe within Reach C1, impacts 10 feet wide and 6 feet deep along the buried pipe, are assumed for planning purposes. Section The proposed remediation boundaries and associated estimated soil remedial volumes for Reaches C1 and C2 will be based on the results of the 2020 PDI work and will be identified in remedial design drawings for the reaches that will be included in an OU5 CMI Work Plan, which was submitted to NYSDEC on November 13, 2020. Remediation of soils in Reaches C2 and/or C3 will include soil removal and soil tilling/mixing.

Remediation of properties in OU5 north will be phased across two construction seasons. Phase I will be completed in 2021, and currently will include properties within Reach C1 and property AD1 within Reach C2. Phase II, to be completed in 2022, will include the remaining portion of Reach C2 and properties within Reach C3. Remediation of the open ditch drainage way will proceed from upstream to downstream (i.e., property AD1, then AE1, then AF1) to prevent recontamination. Refer to Figure 5 for proposed 2021 and 2022 remediation areas. Pending favorable weather conditions, it is anticipated that the Phase I remediation can be completed in approximately 13 weeks. Remediation of the remaining properties in Reach C2 is a contingency activity for 2021, and can be completed in approximately 8 weeks.

One CCR will be prepared upon completion of OU5 north of the Erie Canal remediation. The CCR will contain individual property drawings/data reports for the purposes of assigning No Further Action (NFA) letters to each remediated property. Adjacent properties with the same owner will be summarized in one property drawing/report as various improvements on these properties (e.g., homes, garages) span the property line.

2021 Plan Assumptions

- PDI activities are completed in 2020, and additional data collection is not needed or will not adversely impact the construction schedule for Phase I activities in 2021.
- FMC obtains access to remediate all properties traversed by Culvert 105.
- Remediation along Culvert 105 waterway must proceed upstream to downstream with Phase I consisting to Reaches C1 through property AD1 of Reach C2.
- Soil tilling and soil removal will be performed to remediate soil in Reaches C2 (including property AD1) and/or C3, as appropriate. A new pilot study will not be proposed for property AD1 since the 2009 soil tilling pilot study demonstrated the effectiveness of soil tilling...

2021 Plan Critical Path Items

- Additional PDI sampling data may be needed for Reach C3 to complete the remedial design in 2021.
- Access permission will need to be obtained before start of construction, as well as identification of restrictions from property owner(s) and/or the Village of Middleport that may result in revision of design drawings or work scopes.



3.4 OU2 – Air Deposition Area 1 - Norco Properties

The former Norco properties are zoned commercial and industrial, and are approximately 91,800 square feet (2.1 acres) in area on five adjoining properties (properties Q3 through Q7). Pursuant to the 2013 final SB, remediation is anticipated to involve installation of a site cover with deed restrictions and an ISMP. The remediation scope may change pending discussions with local officials regarding access and future use. Currently, it is anticipated that the soil cover installation will include the demolition of above grade structures, the removal of 1 to 2 feet of soil and associated foundations to the minimum depth of soil removal, and installation of a demarcation layer and soil cover. Details of the cover design are included in the OU2 CMI work plan, submitted to NYSDEC on November 20, 2020. In addition, soil documentation samples will be collected at the excavation base and sides at a frequency consistent with DER-10 guidance. The deed restriction will encompass the entirety of properties Q3 through Q7.

Abatement of regulated building materials and other stored materials present on site will occur prior to demolition to the extent feasible, following completion of characterization to verify results of a 2014 Phase II and regulated building materials assessment completed for a municipal entity considering foreclosure. At the time of the assessment, LaBella identified asbestos-containing materials (ACMs), lead based-paint (LBP), polychlorinated biphenyl (PCB)-containing materials, and/or mercury containing-materials in the on-property buildings, as well as several waste containers of unknown contents. Additional building demolition assessment for regulated and/or hazardous materials characterization are included in the OU2 CMI work plan, as appropriate.

Based on favorable weather conditions, it is anticipated that remediation (building abatement, demolition, soil excavation, confirmation sampling, and backfill) activities of the former Norco properties can be completed in approximately 22 weeks.

One CCR and ISMP specific to the five former Norco properties will be prepared for submission to NYSDEC in late 2021.

2021 Plan Assumptions

- The former Norco properties are subject, in pertinent part, to bankruptcy proceedings and tax lien issues, amongst others. As such, further action is required in 2020 to determine what can be done to allow for such work to proceed. FMC is actively working to address the site control and/or access issue for site remedial work to begin as planned.
- The scope of remediation activities outlined above assumes that the properties will remain zoned for commercial/industrial use, and that removal of all soil with arsenic concentrations greater than 20 mg/kg is not necessary to comply with the 2013 Final SB.
- Installation of soil surface cover and deed restriction is an acceptable approach based on potential or likely future use of the properties.
- Soil arsenic concentrations greater than 20 mg/kg may remain in the subsurface soils after removal of 1 to 2 feet of soil for the cover installation. Documentation soil samples will be collected for analyses as part of the excavation activities. Based on the results of the documentation sampling, FMC may remove additional soil greater than 20 mg/kg to eliminate the need for deed restrictions and/or a site management plan.



- Due to their present condition, buildings must be demolished prior to soil remediation activities.
- The actual types and quantities of regulated building materials and any hazardous materials in the buildings are as specified in the 2014 LaBella report. To confirm this, additional building material characterization will be proposed, with appropriate handling and management procedures being able to address the current condition of the buildings.
- Building foundations will be removed below grade to the depth of soil removal.
- Waste materials will be loaded directly into dump trucks for transportation to appropriate, permitted commercial landfills.
- Upon completion of the remediation activities and execution of an Environmental Easement, operation, maintenance, and monitoring requirements will be outlined in an ISMP.

2021 Plan Critical Path Items

- Ability to obtain unimpeded access permission to all five parcels and for establishing an Environmental Easement, if needed, and may impact completion schedule. Any restrictions or changes from property owner/local officials may require revision of the remedial design and may impact completion schedule.
- The Village of Middleport code prohibits trucks in excess of 5 tons on Watson, Vernon and South Vernon Streets. Infrastructure protection requirements apply to trucks 7 tons or more on all Village streets. A permit with an acceptable truck route for trucks weighing more than 5 tons will need to be granted by the Village.

3.5 OU2 - Air Deposition Area 1 - R1a and R1b Properties

The R1a and R1b properties consist of farmland and a private residence. CMA9 includes remediation of approximately 54,600 CY of soil to 20 mg/kg, with flexibility, by soil excavation and/or with soil tilling/blending if demonstrated to be appropriate based on a pilot study.

Soil arsenic concentrations are generally highest in the western portions of the R1a and R1b properties, and in the area between the railroad tracks and power line easement. Based on the size of the properties, the soil arsenic concentrations, and physical characteristics of the properties, it is anticipated that remediation will be performed in four phases (Phase I through Phase IV) over four construction seasons. As shown in Appendix A, the proposed sequence is based on the following criteria:

- Areas with highest concentrations first, which will require soil removal only.
- Areas with lower surface soil arsenic concentrations, dense vegetation and/or next to OU3 later.

Based soil sampling data collected to date, Phase I involves remediation of approximately 17,500 CY of soil across 504,700 square feet of the R1a and R1b properties. Due to concentrations of arsenic in these areas, Phase I is not suitable for tilling. Since soil in the Phase I area will be removed for off-site disposal, a PDI will be needed to refine the limits of excavation. Alternatively, excavation with confirmation sampling may be proposed. The Phase I area PDI soil sampling will be performed in early 2021, weather permitting. Based on the PDI results, the detailed final design for the Phase I remedial actions will be completed in 2021. It is anticipated that remedial construction of the southern portion (on R1b) of the Phase I area (Phase I South) can also be completed in 2021.



The remediation of the northern portion (R1a) of the Phase I area is proposed to be performed in 2022, but has been identified as a contingency activity for 2021.

Subsequent phases are anticipated to be remediated in 2023 through 2025 as outlined on figures in Appendix A, and will likely include soil tilling/blending (to be based on outcome of a pilot study or studies). Overall, soil tilling/blending is expected to result in several green remediation and community benefits (e.g., reduced fuel, truck traffic, backfill resources, and landfill space).

Based on existing analytical data, the Phase II area of remediation for properties R1a and R1b includes approximately 14,000 CY of soil across approximately 453,800 sf, and will be performed in 2023. The Phase III area of remediation includes approximately 12,400 cy of soil across approximately 447,700 sf, and Phase IV area of remediation includes approximately 10,800 cy of soil across approximately 415,400 sf. Based on the results of a CMS soil tilling/blending pilot study (Arcadis, 2010), Phase II is amenable to soil tilling/blending, with limited excavation of areas of higher arsenic concentrations. The 2013 final SB requires further pilot testing and approval by NYSDEC to implement soil tilling/blending. The scope of work for this pilot study and PDI sampling in the Phase I and II areas, as well as preliminary areas subject to tilling/blending and areas of soil removal, are outlined in a PDI Work Plan included as an attachment to OU2 CMI work plan. The preliminary design for the Phase I area would be supplemented with PDI soil sampling to be performed late in the second quarter 2021.

A final remedial design for Phase I will be prepared after completion of the PDI in the second quarter with construction starting in July 2021. Pending favorable weather conditions, it is anticipated that remediation of Phase I South can be completed in approximately 5 weeks. All remediation activities will be performed under construction oversight, including community air monitoring.

One CCR will be prepared for the R1a and R1b properties upon completion of Phase IV of remediation.

2021 Plan Assumptions

- Unimpeded access to properties R1a and R1b.
- Phased approach applied to properties to minimize disruption to property owner.
- The four-phase areas identified are based on data collected to date and will be performed in four to five construction seasons.
- Soil tilling/blending is appropriate for Phases II, III, and IV areas. One pilot study is proposed for use of tilling on R1a and R1b.

2021 Plan Critical Path Items

- Ability to obtain access permission for remediation activities and haul route. Owner may provide access for only partial remediation (i.e., Phase I area only).
- The remedial design for Phase I will need to be finalized based on PDI sampling to be completed in early 2021. The time required to complete the final design could impact the construction progress as well as weather conditions.
- The areas of the four phases and construction schedule may be adjusted based on the owner input, PDI results, and/or construction progress of the preceding construction year.



3.6 OU2 – Air Deposition Area 1 - R1d

R1d is vacant, undeveloped land. Based on existing analytical data, remediation would involve approximately 8,150 CY of soil above 20 mg/kg, with flexibility, to depths ranging up to 9 inches below ground surface (bgs). Soil arsenic concentrations on the property are generally less than 30 mg/kg, with a maximum concentration of 44 mg/kg.

Based on concentrations of arsenic present in soil, the majority of property R1d is amenable to soil tilling/blending, with limited excavation of areas of higher arsenic concentrations. As specified in the 2013 final SB, a soil tilling/blending pilot study will be performed to demonstrate the effectiveness. The pilot study is proposed to be performed in 2021.

The scope of work for this pilot study is included in the OU2 CMI work plan (submitted November 20, 2020), as well as areas subject to tilling/blending and areas of soils removal.

Pending favorable weather conditions, it is anticipated that soil tilling/blending activities on property R1d can be completed in approximately 10 weeks. Excavation of limited areas, with higher soil arsenic concentrations, is anticipated to take less than 1 additional week to complete.

2021 Plan Assumptions

- Tilling/blending is an effective remedial strategy and soil tilling/blending to 18 inches bgs results in sufficient reduction in arsenic concentrations. A pilot study will be performed in 2021.
- NYSDEC approval of continued soil tilling/blending within 30 days of submission of pilot test results, and FMC will then complete the remedial design for R1d. It is assumed that additional PDI soil sampling data will not be required from R1d to complete the remedial design.
- Unimpeded access to the properties is granted and property owners agree to soil tilling/blending.

2021 Plan Critical Path Items

- Volume estimates based on CMS-level analytical data set.
- Access permission to demonstrate effectiveness of soil tilling/blending, and identification of a suitable area within the property that would not require significant clearing of trees.

3.7 OU6 - Tributary One South

FMC submitted a revised draft CMS Report (Arcadis, 2019) in December 2019, and NYSDEC is reviewing the draft. As discussed in Section 2.2 and presented on Figure 3, OU6 remediation is prioritized to begin in 2023, assuming that the CMS report can be finalized and a final SB can be issued in 2021, and the design for the first phase OU6 remedial construction can be completed in 2022.

Upon issuance of a final SB for OU6 in 2022, FMC will submit a CMI work plan, including the scope of work for a PDI for the first phase of construction (i.e., area south of the Erie Canal). The OU6 CMI work plan will specify the schedule for submittal of the final design for the first section of OU6 south of the Erie Canal to be submitted to NYSDEC for approval in 2022, and construction of the first section/phase of OU6 will begin in 2023. PDI activities and designs for subsequent OU6 construction sections/phases will be completed in the year prior to construction, with a refined schedule to be submitted as part of the OU6 CMI work plan.



2021 Plan Assumptions

- The draft OU6 CMS report can be finalized and approved for public comment in 2021 and a Final SB for OU6 will be issued in late 2021.
- As discussed in Section 2.2 and included on Figure 3, it is assumed that CMA4 (recommended CMA in the December 2019 draft OU6 CMS Report) will be the selected CMA in the Final SB for planning purposes only.
- Remedial construction of OU6 south of the Canal or portions of the area can begin in 2022.

2021 Plan Critical Path Items

- The extent and timing of NYSDEC review/comments on the draft OU6 CMS report is unknown. Additional time may be necessary for completion of subsequent deliverable preparation.
- The timing for issuance of a final SB for OU6 is unknown, as well as the details of the selected remedy. Both can impact schedule for remedy design and start of construction.

3.8 OU3 – Air Deposition Area 2

The scope of any remediation in OU3 will be based on NYSDEC's decision in the pending final OU3 SB. The draft SB proposed a remedy that includes remediation of soil to 20 mg/kg, with flexibility, by soil excavation and/or with soil tilling/blending if demonstrated to be appropriate based on a pilot study. The Order requires that a CMI/PDI work plan be submitted within 90 days of the date of issuance of the final SB. Assuming that a final SB for OU3 is issued in early 2021, the OU3 PDI work plan will be submitted in 2021.

2021 Plan Assumptions

- A final SB for OU3 will be issued in early 2021.
- A PDI work plan will be submitted in 2021, within 90 days of the date of issuance of the final SB. The PDI work plan will be prepared consistent with other PDI work plans in accordance with the Order.

2021 Plan Critical Path Items

- The timing for issuance of the final SB.

3.9 OU9 - Former Research and Development Property

OU9 consists of three parcels comprising the former research and development (R&D) property. NYSDEC and its contractors have been using two of the three parcels of OU9 as a staging area for OU2 residential property construction. FMC will attempt to gain access to the property for use during the 2021 construction season in a similar manner to the NYSDEC's use of the area. The OU2 and OU5 CMI work plans include discussions of additional limited work that may be performed in the staging area of OU9, including, but not limited to, the following:

- Use/management of the staging area, as necessary
- Closure of the staging area
- Additional soil sampling to determine impacts or changes to soil arsenic concentration



- Removal of any unacceptable hazardous wastes/debris that may have been present on the property prior to its use as a staging area

FMC will need to inspect the OU9 staging area and discuss the above work with NYSDEC.

2021 Plan Assumptions

- FMC will be able to obtain access to the current NYSDEC staging areas on the two respective parcels.
- FMC will need to use the soil staging area in 2021 for continuation of remedial activities for OU2 residential properties (not former Norco properties or other OU2 or OU5 properties).

2021 Plan Critical Path Items

- Use of OU9 as a staging area - whether it will be necessary and for how many construction seasons to be determine once scope of work and truck haul routes for the construction season have been finalized.
- FMC will need to obtain unimpeded access for use of OU9 as a staging area.
- The extent of any work required to close/remove the soil staging area. FMC proposes to discuss the scope/requirements for closing/removal of the soil staging area with NYSDEC.
- Future use of the OU9 parcels may impact ability to use as staging area.

3.10 OU7 - Tributary One (North of Pearson/Stone Roads)

Potential activities to be performed in OU7 include supplemental RFI activities, such as an ecological risk assessment, as warranted, and/or potential additional RFI sampling activities based on further discussion with the NYSDEC. Activities associated with OU7 have not been proposed in 2021, as discussed in Section 2.2.

3.11 OU8 - Jeddo and Johnson Creeks

Potential activities to be performed in OU8 include supplemental RFI activities, such as additional sample collection and ecological risk assessment, as warranted, and/or potential additional RFI sampling activities based on further discussion with the NYSDEC. Activities associated with OU8 have not been proposed in 2021, as discussed in Section 2.2.

4. Next Steps

FMC prepared and submitted CMI work plans for the OU5 and OU2 activities discussed in Section 3 under separate covers on November 13, 2020 and November 20, 2020, respectively. The CMI work plans contain the general scope of work for completing remedial construction within the OUs, including:

- A description of proposed remedial actions for OU2 residential property T5 and property L4. It is assumed that NYSDEC will provide FMC with the remedial design drawings for property T5 and L4 that will identify vertical and horizontal extent of soil removal and property restoration.



- A description of pre-construction activities (e.g., contractor procurement, final design submittals, backfill source identification, and sampling/analysis).
- Finalizing FMC site access and/or control of the Norco properties.
- For OU2, the CMI work plan includes a Norco building demolition assessment work plan, soil tilling/blending pilot studies, and PDI activities for properties R1a and R1b. For OU5, the CMI work plan includes use of soil tilling/blending and soil removal in Reaches C1 and C2, with remedial construction starting in 2021. The remedial design for Reach C3 will be finalized in 2021, with remedial construction to start in 2022.
- The scope of work for completion of the OU2 large parcels (Norco and R1-Grid properties) and design plans for remediation of the Norco parcels and R1-Grid Phase I (R1a and R1b), including any 2021 design submittals for which additional data collection is required.
- The scope of work and 90%-complete design drawings for OU5 Reaches C1 and C2.
- Construction specifications and/or design drawings with key construction material criteria.
- Construction procedures, including construction facilities, confirmatory or documentation sampling scope/procedures, haul routes, building demolition procedures, site preparation, soil management, construction quality assurance requirements, etc.
- Health and safety requirements.
- Construction support documents including:
 - Infrastructure protection and restoration plans.
 - Vibration monitoring plans.
 - Tree preservation plans.
 - Stormwater pollution prevention plan(s) to describe erosion controls and stormwater management and monitoring.
 - Access agreement requirements.
- A description of post-construction activities to be performed (e.g., institutional controls, ISMP and construction completion reports, and as-built drawings).
- Construction sequencing and scheduling.

5. References

Arcadis, 2010. *Corrective Measures Study, Soil Tilling/Blending, Pilot Study Report.*

Arcadis, 2011. *Draft Corrective Measures Study (CMS) Report, Suspected Air Deposition and Culvert 105 Study Areas.*

Arcadis, 2019. *Corrective Measures Study Report, Tributary One and Flood Plain, South of Pearson/Stone Roads Study Area (Operable Unit 6).* Revised Draft.

Ecology and Environment (E&E), 2018. *Pre-remedial Design Investigation, Residential Soil Sampling and Analysis Plan, FMC Corporation Site, Operable Unit No. 2 (Site No. 932014), Middleport, New York, Phases 5 and 6.*



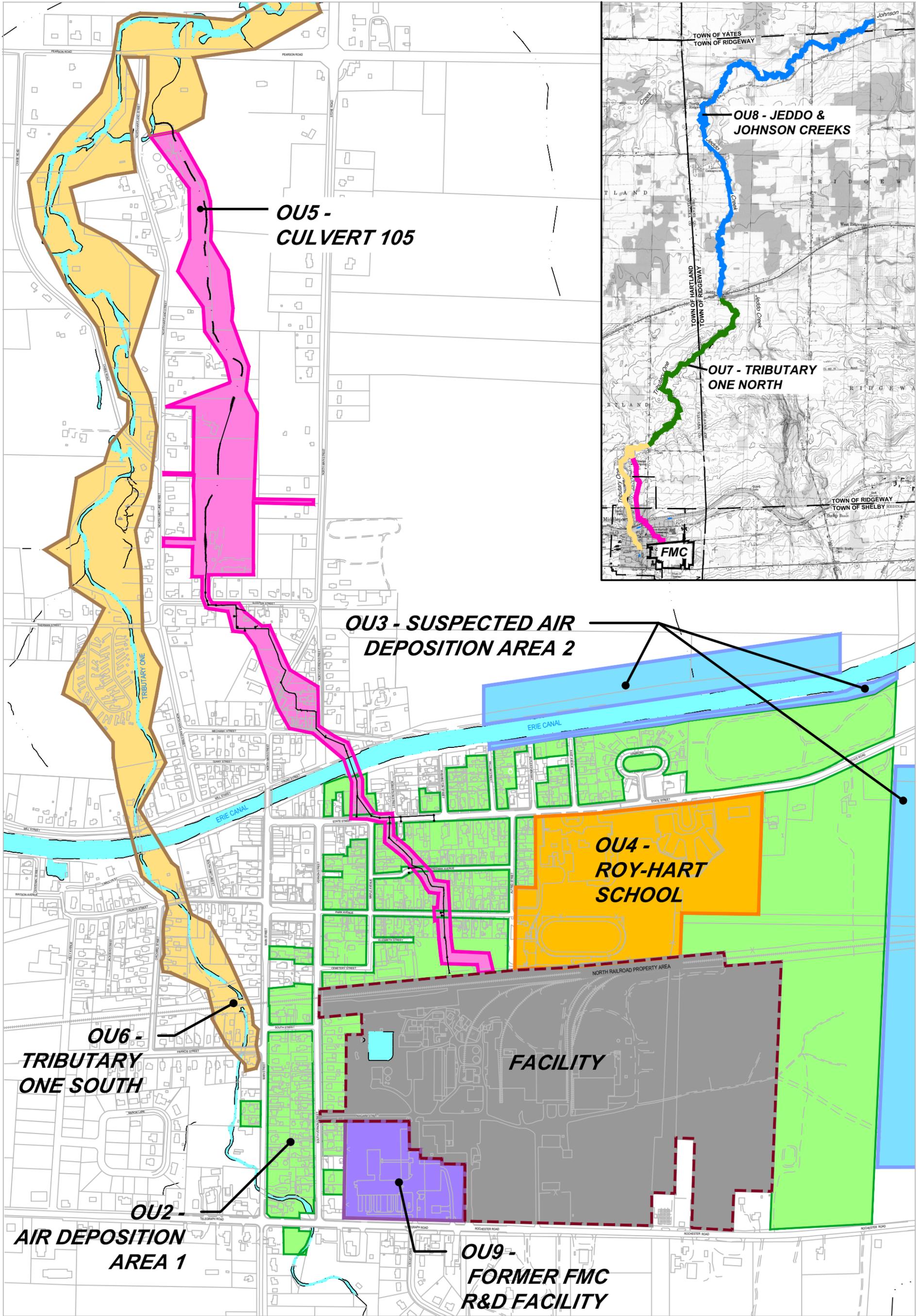
LaBella Associates, P.C., 2014. *Phase II Environmental Site Assessment, Norco Site, Maple Avenue and Elizabeth Street, Middleport, New York.*

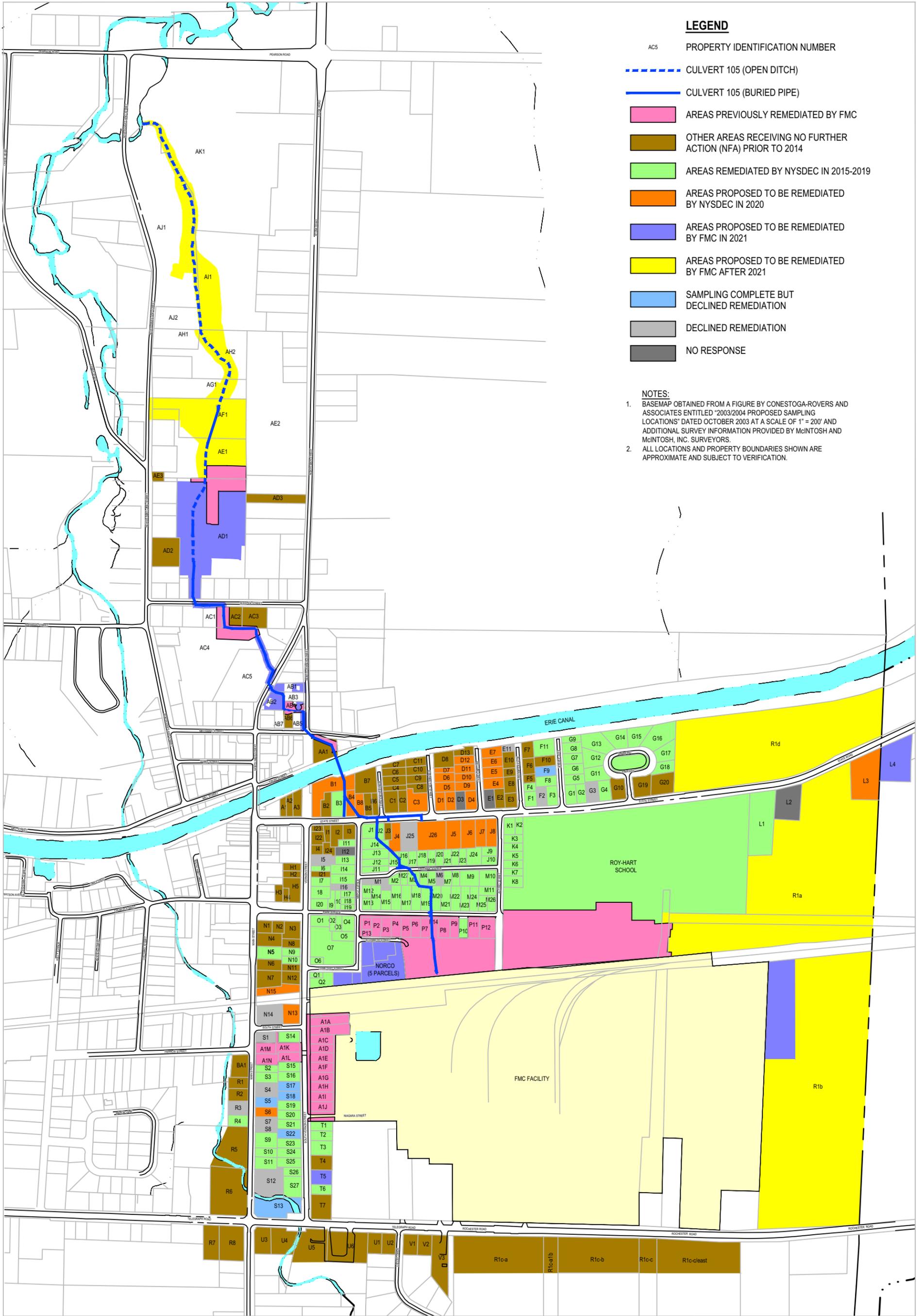
New York State Department of Environmental Conservation (NYSDEC), 2006, *6NYCRR Part 375, Environmental Remediation Programs. Subpart 375-6 - Remedial Program Soil Cleanup Objectives for Restricted Use.*

NYSDEC, 2010. *DER-10, Technical Guidance for Site Investigation and Remediation.*

NYSDEC, 2013. *Final Statement of Basis for Air Deposition Area #1 (OU2 and OU4) and Culvert 105 (OU5).*

NYSDEC and FMC, 2019. *Order on Consent and Administrative Settlement (Index No. CO 9-20140625-40)*, entered into by FMC and NYSDEC, effective June 6, 2019.





LEGEND

- AC5 PROPERTY IDENTIFICATION NUMBER
- CULVERT 105 (OPEN DITCH)
- CULVERT 105 (BURIED PIPE)
- AREAS PREVIOUSLY REMEDIATED BY FMC
- OTHER AREAS RECEIVING NO FURTHER ACTION (NFA) PRIOR TO 2014
- AREAS REMEDIATED BY NYSDEC IN 2015-2019
- AREAS PROPOSED TO BE REMEDIATED BY NYSDEC IN 2020
- AREAS PROPOSED TO BE REMEDIATED BY FMC IN 2021
- AREAS PROPOSED TO BE REMEDIATED BY FMC AFTER 2021
- SAMPLING COMPLETE BUT DECLINED REMEDIATION
- DECLINED REMEDIATION
- NO RESPONSE

NOTES:

1. BASEMAP OBTAINED FROM A FIGURE BY CONESTOGA-ROVERS AND ASSOCIATES ENTITLED "2003/2004 PROPOSED SAMPLING LOCATIONS" DATED OCTOBER 2003 AT A SCALE OF 1" = 200' AND ADDITIONAL SURVEY INFORMATION PROVIDED BY McINTOSH AND McINTOSH, INC. SURVEYORS.
2. ALL LOCATIONS AND PROPERTY BOUNDARIES SHOWN ARE APPROXIMATE AND SUBJECT TO VERIFICATION.



FMC CORPORATION
MIDDLEPORT, NEW YORK

Project No. 11207650
Date December 2020

**REMEDATION STATUS IN THE
AIR DEPOSITION AND CULVERT 105
STUDY AREAS**

FIGURE 2

Operable Unit (By Priority)	2020	2021		2022		2023		2024		2025		2026		2027		2028		2029		2030		2031		2032+	
	Tasks	Tasks	Costs (\$M)	Tasks	Costs (\$M)	Tasks	Costs (\$M)	Tasks	Costs (\$M)	Tasks	Costs (\$M)	Tasks	Costs (\$M)	Tasks	Costs (\$M)	Tasks	Costs (\$M)	Tasks	Costs (\$M)	Tasks	Costs (\$M)	Tasks	Costs (\$M)	Tasks	
OU2 Residential Properties																									
Property PDI	L4																								
CMI WP/Design			\$0.37		\$0.25		\$0.25		\$0.25		\$0.25		\$0.25		\$0.25		\$0.25		\$0.25		\$0.25		\$0.25		\$0.25
Construction (assumed 1/year in 2022+)		T5 & L4																							
OU2 Residential Properties ISMP/Annual Certification																									
OU2 Property R1a-b																									
CMI WP (w/ PDI scope)																									
PDI for Phases I-IV		Phase I and II																							
Phase I Design			\$2.1		\$2.0		\$1.0		\$1.0		\$1.7														
Construction - Phase I (excavate)		Phase I		Phase I																					
Phase II, III & IV Design																									
Construction - Phase II, III, IV (Till/Blend)						Phase II		Phase III		Phase III															
OU2 Norco Properties (5 parcels)																									
CMI WP (w/ PDI scope)																									
Building characterization and waste removal			\$2.1																						
Building Demolition & Cover Installation																									
OU2 Property R1d																									
CMI WP (w/ pilot scope)																									
Tilling/Blending Pilot Study & Design			\$0.10		\$0.90																				
Construction (primarily till/blend)																									
OU5 - Culvert 105 North																									
PDI Implementation																									
Design			\$3.4		\$4.2																				
Construction of Reaches C1 & C2																									
Construction of Reaches C2 & C3																									
OU3 - Air Deposition Area 2																									
Statement of Basis																									
CMI WP (w/ PDI scope)			\$0.08																						
PDI Implementation/Design													TBD		TBD		TBD								
Construction																									
OU6 - Tributary One South of Peason/Stone Roads																									
CMS revision/Statement of Basis																									
CMI WP, PDI, Design		CMI WP/PDI	\$0.15	PDI/Design	\$0.20		\$6.7		\$6.7		\$6.7		\$6.7		\$6.7		\$6.7		\$6.7		\$6.7		\$6.7		\$6.7
Construction - OU6																									
OU7 - Tributary One North of Pearson/Stone Roads																									
RFI																									
CMS/Statement of Basis																									
PDI/CMI Design					TBD		TBD		TBD		TBD		TBD		TBD		TBD		TBD		TBD		TBD		TBD
CMI Construction																									
OU8 - Jeddo Creek and Johnson Creek																									
RFI																									
CMS/Statement of Basis																									
PDI/CMI Design					TBD		TBD		TBD		TBD		TBD		TBD		TBD		TBD		TBD		TBD		TBD
CMI Construction																									
OU9 - Former R&D Property																									
Post Contractor Characterization																									
CMS Work Plan/CMS																									
CMS/Statement of Basis					TBD		TBD		TBD		TBD		TBD		TBD		TBD		TBD		TBD		TBD		TBD
PDI/CMI Design																									
CMI Construction																									
Miscellaneous																									
Financial Assurance, Community Relations, Repairs, etc.			\$1.7		\$2		\$2		\$2		\$2		\$2		\$2		\$2		\$2		\$2		\$2		\$2
Estimated Annual Costs		2021	\$10.0	2022	\$9.6	2023	\$10.0	2024	\$10.0	2025	\$10.7	2026	\$9.0	2027	\$9.0	2028	\$9.0	2029		2030		2031			

Notes:

	Investigation activities
	Remedial Design
	Construction/Remediation activities
	Other

Acronyms and Abbreviations

\$M	= Estimated cost, in millions of dollars
CMI WP	= Corrective Measures Implementation Work Plan
CMS	= Corrective Measures Study
ISMP	= Interim Site Management Plan
OU	= Operable Unit
PDI	= Pre-design Investigation
RFI	= RCRA Facility Investigation

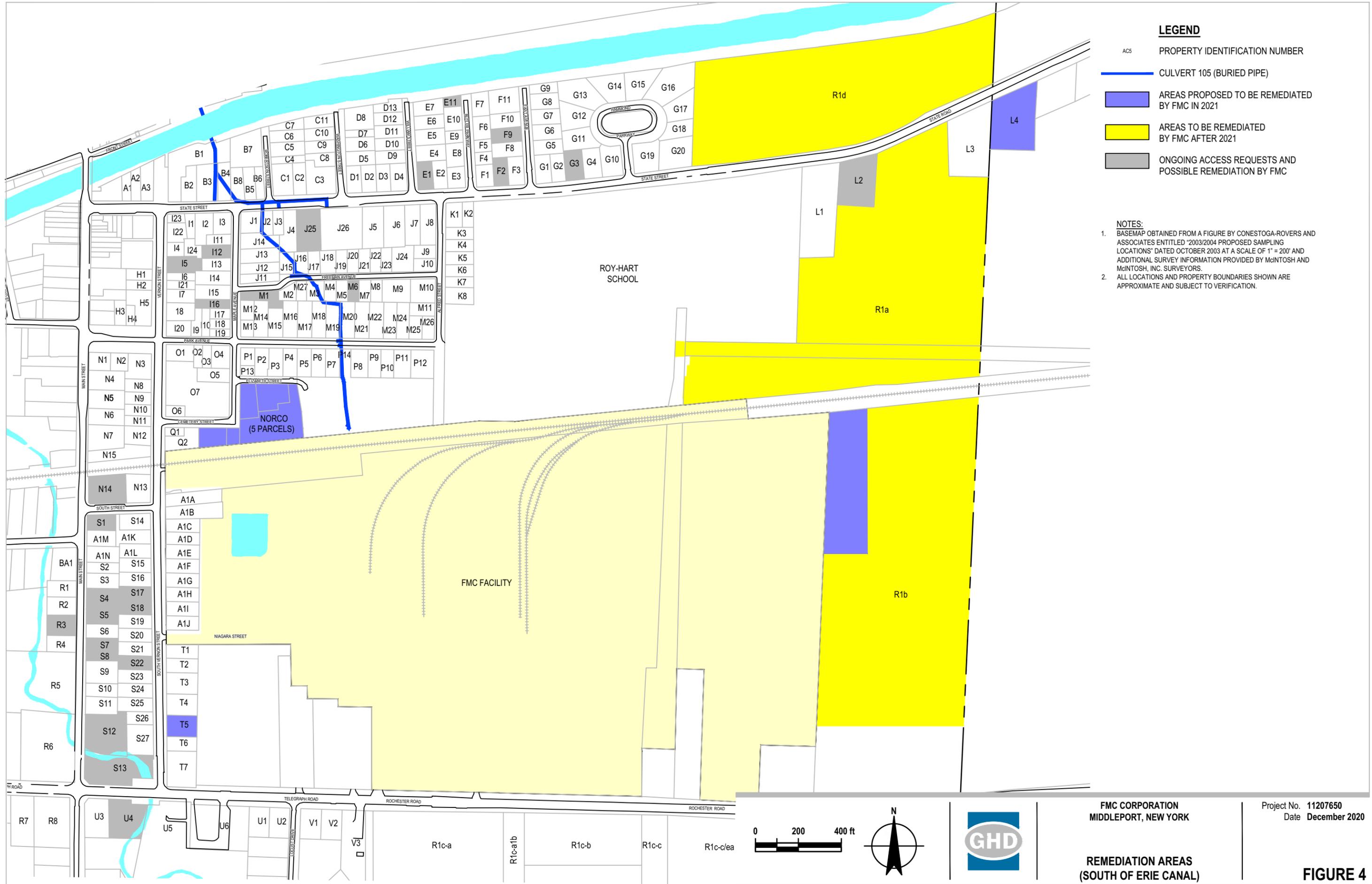


FMC CORPORATION
MIDDLEPORT, NEW YORK

PROJECTED RCRA CORRECTIVE ACTION SCHEDULE FOR OFF-SITE OUs

Project No. 11207650
Date December 2020

FIGURE 3



LEGEND

- AC5 PROPERTY IDENTIFICATION NUMBER
- CULVERT 105 (BURIED PIPE)
- AREAS PROPOSED TO BE REMEDIATED BY FMC IN 2021
- AREAS TO BE REMEDIATED BY FMC AFTER 2021
- ONGOING ACCESS REQUESTS AND POSSIBLE REMEDIATION BY FMC

- NOTES:**
1. BASEMAP OBTAINED FROM A FIGURE BY CONESTOGA-ROVERS AND ASSOCIATES ENTITLED "2003/2004 PROPOSED SAMPLING LOCATIONS" DATED OCTOBER 2003 AT A SCALE OF 1" = 200' AND ADDITIONAL SURVEY INFORMATION PROVIDED BY McINTOSH AND McINTOSH, INC. SURVEYORS.
 2. ALL LOCATIONS AND PROPERTY BOUNDARIES SHOWN ARE APPROXIMATE AND SUBJECT TO VERIFICATION.

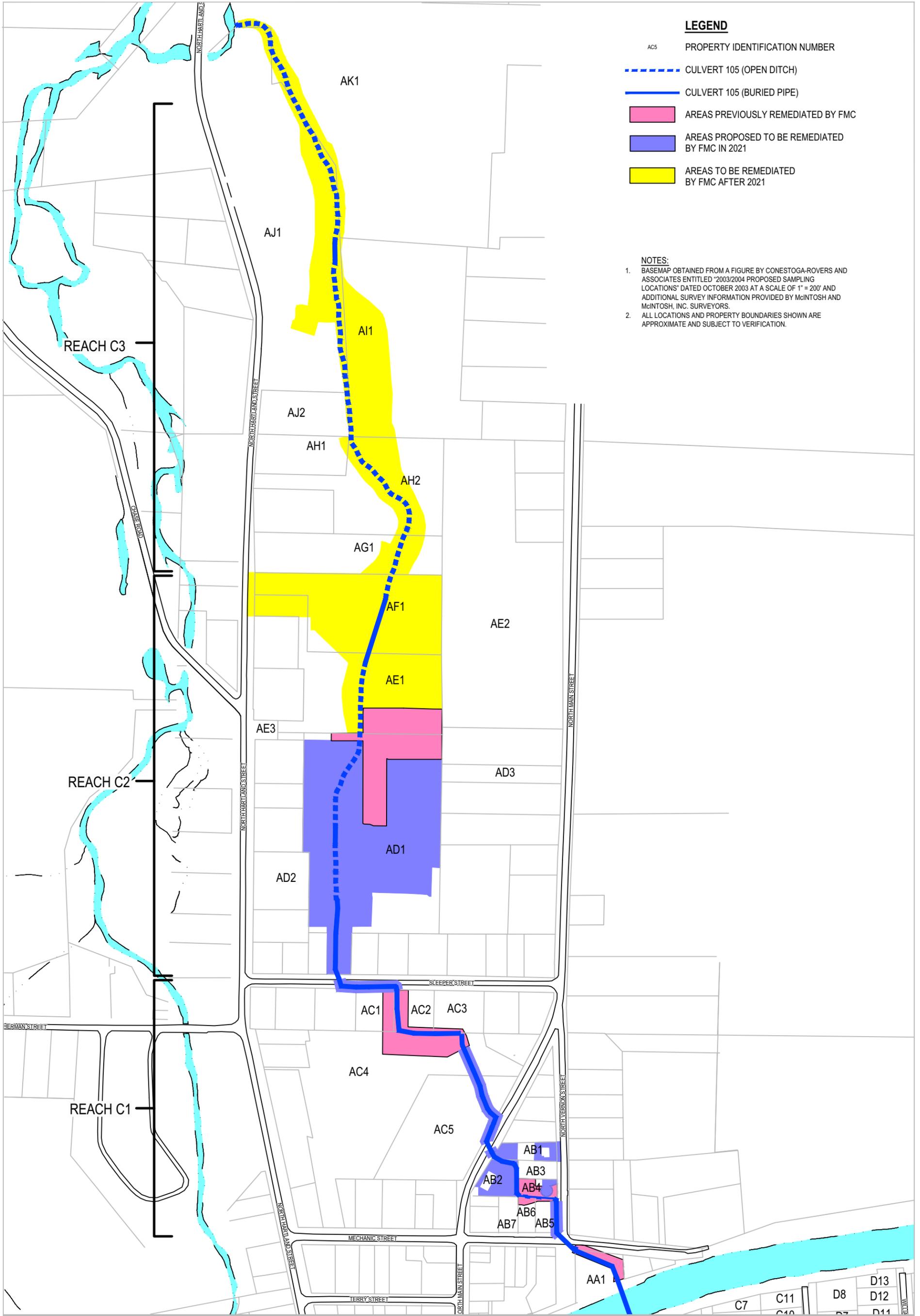


FMC CORPORATION
MIDDLEPORT, NEW YORK

Project No. 11207650
Date December 2020

**REMEDIATION AREAS
(SOUTH OF ERIE CANAL)**

FIGURE 4



FMC CORPORATION
MIDDLEPORT, NEW YORK

Project No. 11207650
Date December 2020

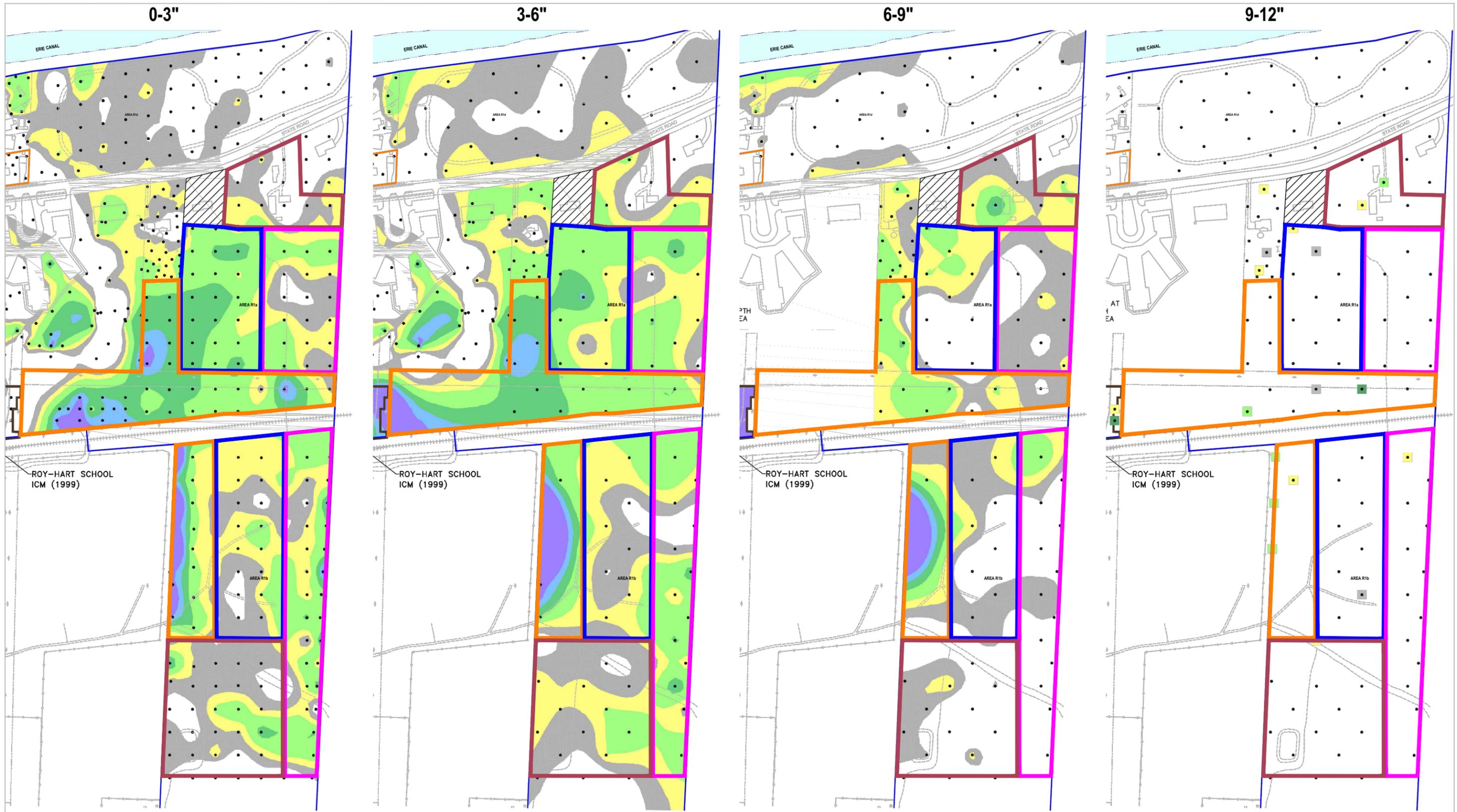
OU5 REMEDIATION AREAS
(NORTH OF ERIE CANAL)

FIGURE 5

Appendices

Appendix A

Properties R1a and R1b Proposed Remediation Phases

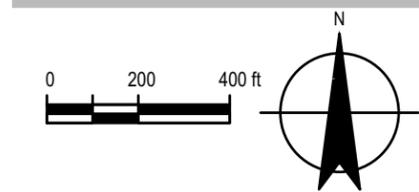


LEGEND

- PHASE I
- PHASE II
- PHASE III
- PHASE IV

SOIL ARSENIC CONCENTRATION (ppm):

- 20-25
- 25-30
- 30-40
- 40-50
- 50-60
- GREATER THAN 60

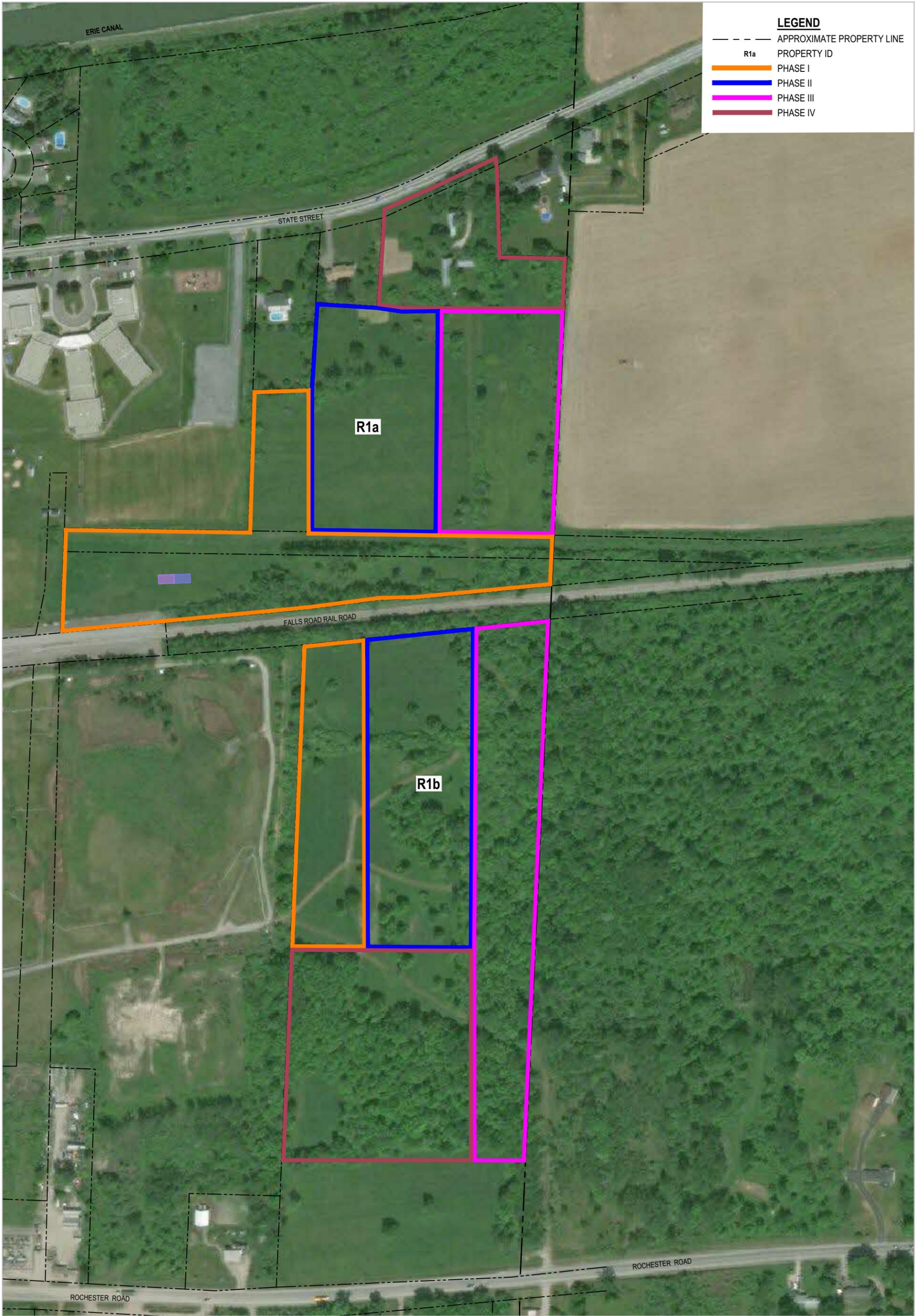


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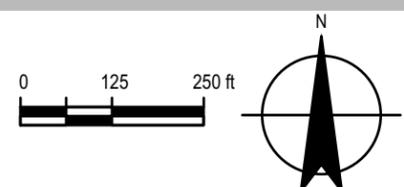
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Date September 2020

SOIL ARSENIC
PRE-REMEDIAL CONDITIONS

FIGURE A-1



LEGEND	
---	APPROXIMATE PROPERTY LINE
R1a	PROPERTY ID
Orange line	PHASE I
Blue line	PHASE II
Pink line	PHASE III
Red line	PHASE IV



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PARCELS R1a AND R1b
AERIAL PHOTOGRAPH

FIGURE A-2



LEGEND

- APPROXIMATE PROPERTY LINE
- R1a PROPERTY ID
- SAMPLING LOCATION
- 530— EXISTING ELEVATION CONTOUR (CONTOUR INTERVAL 1 FOOT)
- BUILDING
- PHASE I
- PHASE II
- PHASE III
- PHASE IV
- ESTIMATED REMEDIATION DEPTHS**
- 6-INCH
- 9-INCH
- 12-INCH
- 24-INCH
- 36-INCH

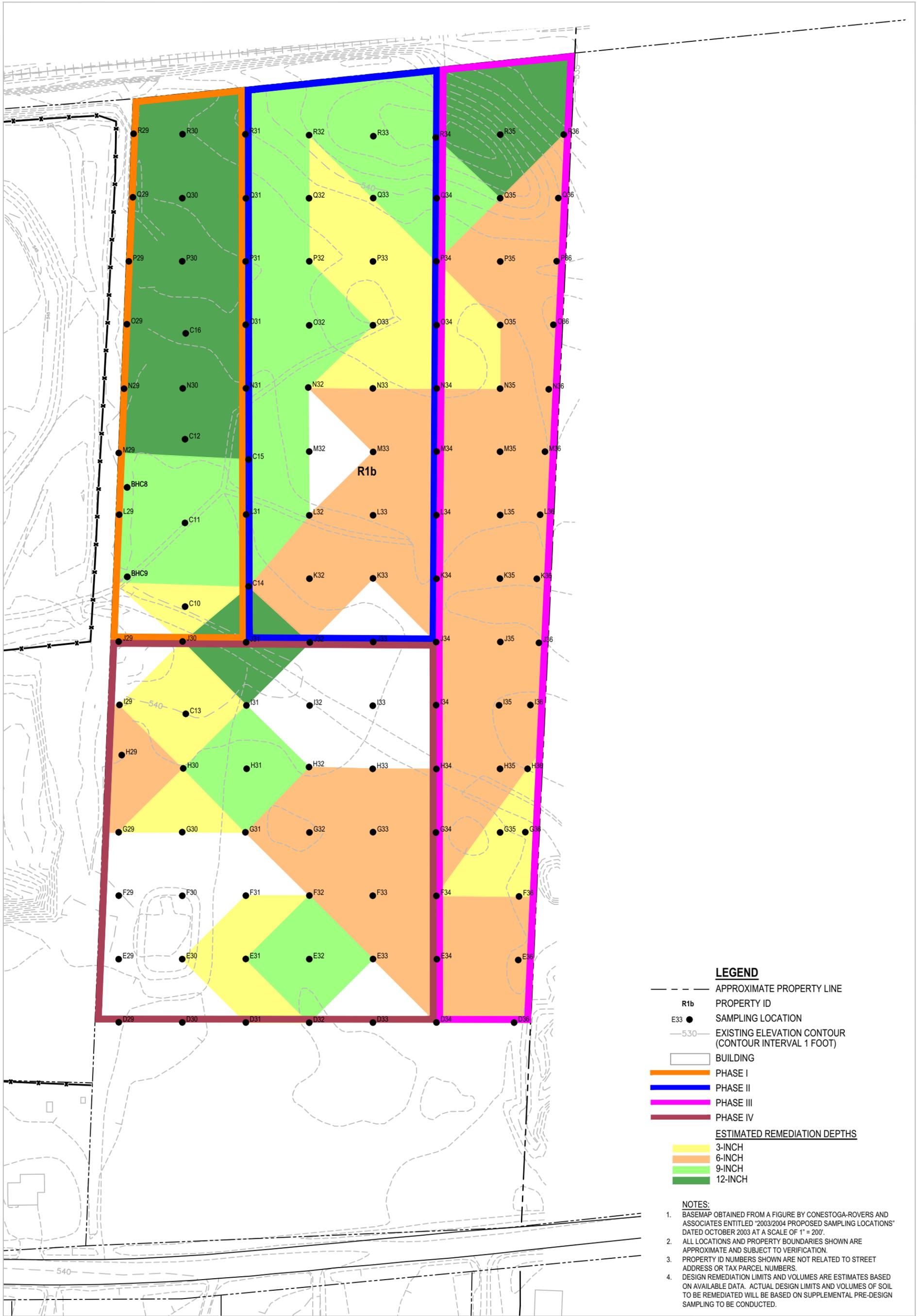
- NOTES:**
1. BASEMAP OBTAINED FROM A FIGURE BY CONESTOGA-ROVERS AND ASSOCIATES ENTITLED "2003/2004 PROPOSED SAMPLING LOCATIONS" DATED OCTOBER 2003 AT A SCALE OF 1" = 200'.
 2. ALL LOCATIONS AND PROPERTY BOUNDARIES SHOWN ARE APPROXIMATE AND SUBJECT TO VERIFICATION.
 3. PROPERTY ID NUMBERS SHOWN ARE NOT RELATED TO STREET ADDRESS OR TAX PARCEL NUMBERS.
 4. DESIGN REMEDIATION LIMITS AND VOLUMES ARE ESTIMATES BASED ON AVAILABLE DATA. ACTUAL DESIGN LIMITS AND VOLUMES OF SOIL TO BE REMEDIATED WILL BE BASED ON SUPPLEMENTAL PRE-DESIGN SAMPLING TO BE CONDUCTED.

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**PARCEL R1a PRELIMINARY
REMEDIATION DEPTHS**

FIGURE A-3

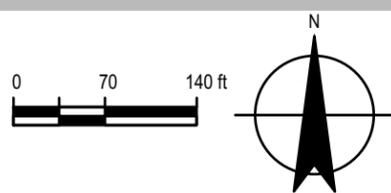


LEGEND

- APPROXIMATE PROPERTY LINE
 - R1b PROPERTY ID
 - E33 ● SAMPLING LOCATION
 - 530- EXISTING ELEVATION CONTOUR (CONTOUR INTERVAL 1 FOOT)
 - BUILDING
 - PHASE I
 - PHASE II
 - PHASE III
 - PHASE IV
- ESTIMATED REMEDIATION DEPTHS**
- 3-INCH
 - 6-INCH
 - 9-INCH
 - 12-INCH

NOTES:

1. BASEMAP OBTAINED FROM A FIGURE BY CONESTOGA-ROVERS AND ASSOCIATES ENTITLED "2003/2004 PROPOSED SAMPLING LOCATIONS" DATED OCTOBER 2003 AT A SCALE OF 1" = 200'.
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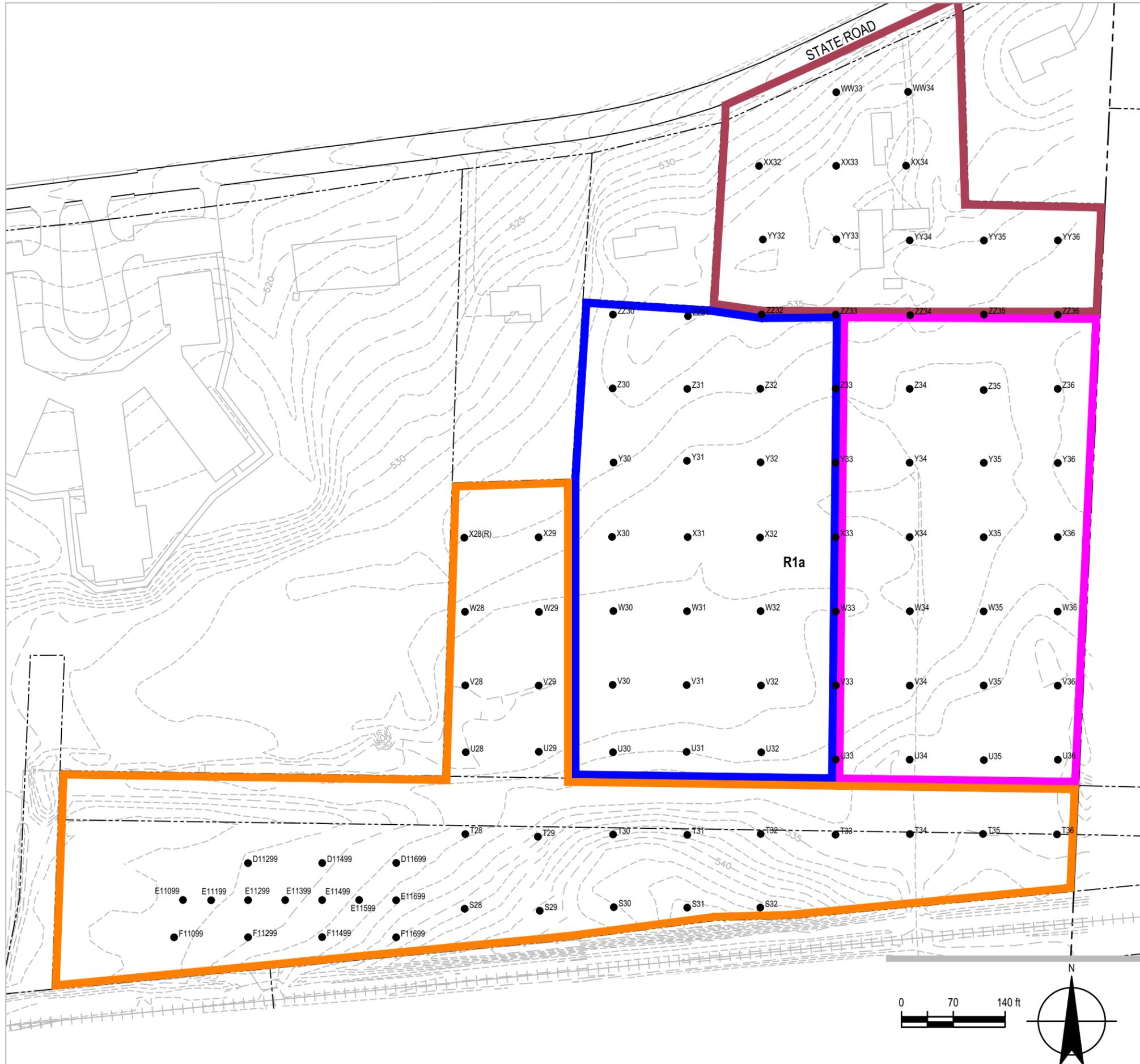


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PARCEL R1b PRELIMINARY
REMEDATION DEPTHS

FIGURE A-4

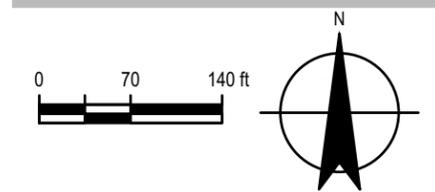


R1a Borings				
Boring ID	Arsenic Results (mg/kg)			
	0-3	3-6	6-9	9-12
D112-99	63.1	--	--	--
D114-99	52.7	--	--	--
D116-99	48	--	--	--
E110-99	49.1	--	--	--
E111-99	52.6	--	--	--
E112-99	71.3	--	--	--
E113-99	35.4	--	--	--
E114-99	48.5	--	--	--
E115-99	54.1	--	--	--
E116-99	49.1	--	--	--
F110-99	65.3	--	--	--
F112-99	69	--	--	--
F114-99	56.4	--	--	--
F116-99	53.6	--	--	--
S28	36.5	42.1	27.7	32.2
S29	43.5	--	--	--
S30	36	44.1	36.7	10.3
S31	38.8	--	--	--
S32	33.7	29.5	15.7	8.5
T28	38.7	--	--	--
T29	41.4	42.7	34	10.8
T30	43.8	--	--	--
T31	34	34	42	22.1
T32	38.4	--	--	--
T33	22.3	37.9	33.1	40.6
T34	69.2	--	--	--
T35	39.3	40.3	18	5.6
T36	23.7	--	--	--
U28	65.4	57.9	23.2	6.9
U29	44.9	--	--	--
U30	42.8	39.2	19.6	7
U31	36.1	--	--	--
U32	47.5	27.8	8.9	6.9
U33	28	--	--	--
U34	39.9	36.1	23.1	7.4
U35	21.3	--	--	--
U36	24.4	18.6	27.1	11.7
V28	60.4	--	--	--
V29	48	51.1	44.7	7.3
V30	48.7	--	--	--
V31	34	20.9	4.7	4.9
V32	30.4	--	--	--
V33	35.5	40.4	21.8	7.5
V34	34.1	--	--	--
V35	26.4	29.3	17.4	6.4
V36	26.9	--	--	--
W28	41.9	43.2	38.6	13.3
W29	46.3	--	--	--
W30	44.1	35.2	4.2	3.6
W31	43.6	--	--	--
W32	28.4	29.7	20.5	16.8
W33	27.1	--	--	--
W34	30.8	41	24.2	5.9
W35	22.1	--	--	--
W36	26	25.6	22.7	6.9
WW33	27.2	32.7	21.7	7.4
WW34	15.5	--	--	--
X28(R)	41.6	--	--	--
X29	43.9	40.1	31.2	7.5
X30	46.2	--	--	--
X31	50.7	53.5	25.6	7
X32	39	--	--	--
X33	26.7	21.6	10.3	8.1
X34	18.1	--	--	--
X35	18.8	30.6	27.6	13.6
X36	20.1	--	--	--
XX32	19.5	--	--	--
XX33	19.2	--	--	--
XX34	11.3	11.6	19.8	36.3
Y30	29.3	40.4	30.8	14.1
Y31	36.1	--	--	--
Y32	27.9	27.3	29.3	13.7
Y33	37.3	--	--	--
Y34	18	17.6	10	8.7
Y35	28.9	--	--	--
Y36	25	26.7	21.4	4.1
YY32	29.5	30.7	26.9	16.9
YY33	24.4	17	55.5	27.9
YY34	8.1	--	--	--
YY35	24.1	30.3	24.6	7.4
YY36	24.5	--	--	--
Z30	31	--	--	--
Z31	42.6	34.7	29.6	21.8
Z32	49.7	--	--	--
Z33	33.1	42.1	24.4	10.2
Z34	35.8	--	--	--
Z35	31.1	48.7	22.4	6.3
Z36	37.2	--	--	--
ZZ30	39.9	41.2	43.4	28.2
ZZ31	31.3	--	--	--
ZZ32	25	32.4	27.6	6.8
ZZ33	43.3	--	--	--
ZZ34	21.5	29.9	22.4	6
ZZ35	25.8	--	--	--
ZZ36	24.7	29.9	29.4	5.8

LEGEND

- APPROXIMATE PROPERTY LINE
- R1a PROPERTY ID
- SAMPLING LOCATION
- 530- EXISTING ELEVATION CONTOUR (CONTOUR INTERVAL 1 FOOT)
- BUILDING
- PHASE I
- PHASE II
- PHASE III
- PHASE IV

- NOTES:**
- BASEMAP OBTAINED FROM A FIGURE BY CONESTOGA-ROVERS AND ASSOCIATES ENTITLED "2003/2004 PROPOSED SAMPLING LOCATIONS" DATED OCTOBER 2003 AT A SCALE OF 1" = 200'.
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Date September 2020

PARCEL R1a

FIGURE A-5

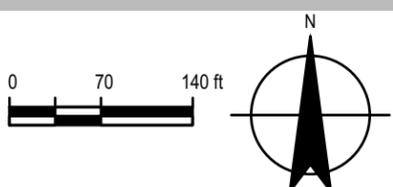


R1b Borings					
Boring ID	Arsenic Results (mg/kg)				
	Sample Interval (inches)				
	0-3	3-6	6-9	9-12	24-48
BH-C8	36.7	-	-	-	10.1
BH-C9	60.6	-	-	-	6.4
BH-C8	64.3 (0-6)	-	-	-	-
BH-C9	38.7 (0-6)	-	-	-	-
C10	40.1	-	-	-	-
C11	32.3	-	-	-	-
C12	33.5	-	-	-	-
C13	24	-	-	-	-
C14	26.9	-	-	-	-
C15	27.1	-	-	-	-
C16	33	-	-	-	-
D29	19.4	21.8	16.7	3.7	-
D30	16	-	-	-	-
D31	7.3	10.8	6.7	4.7	-
D32	12.9	-	-	-	-
D33	17.2	19.2	15.3	6.7	-
D34	12.9	-	-	-	-
D35	19.8	-	-	-	-
E29	21.7	-	-	-	-
E30	21.1	22.4	21	16.9	-
E31	28.7	-	-	-	-
E32	17.1	30.6	30.4	4.2	-
E33	24.6	-	-	-	-
E34	32.7	27.3	7.4	3.7	-
E36	35	38	10.2	3.8	-
F29	23.3	25.5	22.7	4.1	-
F30	17.5	-	-	-	-
F31	23.3	20.4	6.6	3.1	-
F32	23.5	-	-	-	-
F33	47.1	38.3	7.2	2.9	-
F34	39.8	-	-	-	-
F36	40.6	-	-	-	-
G29	17.6	-	-	-	-
G30	18.7	25	23.8	12.8	-
G31	32.2	-	-	-	-
G32	37.2	30.8	6.9	2.8	-
G33	23.9	-	-	-	-
G34	13.5	23	13.9	4.6	-
G35	29.1	-	-	-	-
G36	13.5	23	13.9	4.6	-
H29	21.6	28.4	22.9	4.7	-
H30	24.4	-	-	-	-
H31	21.8	27.2	29.7	17.9	-
H32	21.3	-	-	-	-
H33	19.8	20.5	21.8	19.1	-
H34	13.9	-	-	-	-
H35	31.3	51.9	20	10.4	-
H36	45.2	-	-	-	-
I29	55.1	-	-	-	-
I31	25.6	-	-	-	-
I32	20.3	18.5	16.6	-	-
I33	21	-	-	-	-
I34	22.8	21.3	9.2	5.3	-
I35	41	-	-	-	-
I36	25.3	26.7	4.6	3.6	-
J29	19.8	14.5	11.5	-	-
J30	24.6	-	-	-	-
J31	18.8	23.4	17.7	29.2	-
J32	22.6	-	-	-	-
J33	21.1	23.7	22	10.2	-
J34	31.9	-	-	-	-
J35	19.4	42.4	16.9	9.2	-
J36	52.8	-	-	-	-
K32	19.6	25.6	20.7	5.8	-
K33	21.8	-	-	-	-
K34	39.3	39.2	17	5	-
K35	42.6	-	-	-	-
K36	30.5	31.3	19.8	8.8	-
L-29	88	74.2	36.4	7.4	-
L-31	21.2	27.5	26	7.1	-
L-32	17.6	-	-	-	-
L33	30.9	25.2	24.8	23	-
L34	33	-	-	-	-
L35	26.7	26	24.2	7.6	-
L36	36.4	-	-	-	-
M29	65.3	-	-	-	-
M32	19.3	19.2	8.8	3.8	-
M33	23.2	-	-	-	-
M34	41.6	36.7	18.8	4.8	-
M35	23.4	-	-	-	-

R1b Borings					
Boring ID	Arsenic Results (mg/kg)				
	Sample Interval (inches)				
	0-3	3-6	6-9	9-12	24-48
M36	68.2	47.7	18	7.5	-
N29	183	205	146	38.7	-
N-30	28	-	-	-	-
N31	26.2	31.3	29.7	7.4	-
N32	26.5	-	-	-	-
N33	30.1	22.3	16.9	16.7	-
N34	27.7	-	-	-	-
N35	27.9	20.8	12.1	7.7	-
N36	33.9	-	-	-	-
O29	76.6	-	-	-	-
O31	23.8	-	-	-	-
O32	27.5	27.7	28.9	16.6	-
O33	40.8	-	-	-	-
O34	18.3	18.2	6	4.6	-
O35	26.8	-	-	-	-
O36	38.3	12.6	4.1	3.9	-
P29	149	126	96.2	34.6	-
P30	31.9	-	-	-	-
P31	23.7	27.9	27.5	8.5	-
P32	24.8	-	-	-	-
P33	15.3	17.7	18.3	8.6	-
P34	24.9	-	-	-	-
P35	18.1	25.9	19.8	8.4	-
P36	58.7	-	-	-	-
Q29	52.3	-	-	-	-
Q30	29.8	36.2	31	29.7	-
Q31	26.9	-	-	-	-
Q32	26.7	27.5	22.5	13.9	-
Q33	24.4	-	-	-	-
Q34	37.8	35.6	29.1	16.5	-
Q35	23.3	-	-	-	-
Q36	25.1	27.1	16.3	5.7	-
R29	134	41.6	20.8	39.8	-
R30	28.5	-	-	-	-
R31	28.2	29	24.7	7.8	-
R32	25.1	-	-	-	-
R33	27.2	29.9	25.9	5.3	-
R34	23.9	-	-	-	-
R35	39.3	37.8	38.6	27.2	-
R36	31.7	-	-	-	-

- LEGEND**
- APPROXIMATE PROPERTY LINE
 - R1b PROPERTY ID
 - E33 ● SAMPLING LOCATION
 - 540- EXISTING ELEVATION CONTOUR (CONTOUR INTERVAL 1 FOOT)
 - BUILDING
 - PHASE I
 - PHASE II
 - PHASE III
 - PHASE IV

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PARCEL R1b

FIGURE A-6