

NDOT Hazardous Material Review Guidance Manual

April 2024

NEBRASKA

Good Life. Great Journey.

DEPARTMENT OF TRANSPORTATION

Executive Summary

This manual provides guidance on conducting Hazardous Material Reviews (HMRs) for Nebraska Department of Transportation (NDOT) and Local Public Agency (LPA) projects. The purpose and intent of this guidance are to help NDOT staff identify potential existing hazardous materials concerns during the advanced planning and environmental documentation stages of project development and, when applicable, to facilitate project alternative selection.

The following briefly outlines the process to adequately evaluate and identify potential hazardous materials concerns on a proposed project for an NDOT Hazardous Material Review:

ES.1 Hazardous Material Review for Site-Specific Projects

- Step 1: Conduct Agency Environmental Database Review.
- Step 2: If necessary, conduct Visual Reconnaissance (consult with NDOT).
- Step 3: If necessary, conduct Site Analysis and Discussion (i.e., Regulatory File Review, Historical Records Review).
- Step 4: If necessary, conduct Subsurface Investigation (requires NDOT consultation).
- Step 5: Compile information into an HMR report with findings and commitments/mitigation measures.

ES.2 Hazardous Material Review for Projects with In-Depth Alternatives Analysis:

- Step 1: Conduct Steps 1 through 4 of HMR as described above.
- Step 2: Conduct Site Screening for Risk Assessment to Alternatives based on HMR findings (including subsurface investigation findings, when completed).
- Step 3: Compile information into an HMR report with findings, Risk Assessment to Alternatives and commitments and mitigation measures.

ES.3 Subsurface Investigation

When HMR findings indicate a potential hazardous material site(s) that cannot be avoided or mitigated, and would impact construction, materials management, or human health and safety, and a subsurface investigation is warranted, the scope of the investigation would be determined by the project team in consultation with NDOT and carried out upon NDOT approval.

ES.4 Hazardous Material Review Approval Clearance

NDOT Environmental Hazardous Material Professionally Qualified Staff shall be responsible for the commitments for further investigation, approvals, permits, and coordination regarding hazardous materials before final approval. Copies of the HMR document should be forwarded to the project team, as well as to the appropriate right-of-way, design, and construction staff.

The approved HMR shall be summarized in the National Environmental Policy Act documentation and provided in the associated attachments. All identified mitigation measures shall be carried forth in the environmental document and the environmental Green Sheets.

Contents

Executive Summary	1
ES.1 Hazardous Material Review for Site-Specific Projects	1
ES.2 Hazardous Material Review (HMR) for Projects with In-Depth Alternatives Analysis:	1
ES.3 Subsurface Investigation	1
ES.4 Hazardous Material Review Approval Clearance	1
Chapter 1 Introduction	1-1
1.1 Exclusions of this Document	1-1
1.2 Limitations	1-2
Chapter 2 Hazardous Material Regulations and Guidance	2-1
2.1 Federal	2-1
2.1.1 Comprehensive Environmental Response, Compensation, and Liability Act (42 United States Code Part 103, Sec. 9601 et seq.)	2-1
2.1.2 Resource Conservation and Recovery Act (40 Code of Federal Regulations Parts 260–299)	2-1
2.1.3 Title XIV of the Public Health Service Act (“Safe Drinking Water Act”) (Public Law 93-523) and the National Primary Drinking Water Regulations (40 Code of Federal Regulations Part 141)	2-1
2.1.4 Environmental Protection Agency Standards and Practices for All Appropriate Inquiry / American Society of Testing Materials E 1527 13	2-1
2.1.5 Federal Highway Administration Guidance	2-2
2.1.6 Occupational Safety and Health Administration Regulations	2-2
2.2 State	2-2
2.2.1 Nebraska Department of Environment and Energy Title 117 Nebraska Surface Water Quality Standards	2-2
2.2.2 Nebraska Department of Environment and Energy Title 118 Ground Water Quality Standards and Use Classifications	2-2
2.2.3 Nebraska Department of Environment and Energy Title 128 Nebraska Hazardous Waste Regulations	2-3
2.2.4 Nebraska Department of Environment and Energy Legislative Bill 1161 Wellhead Protection Areas	2-3
2.2.5 Nebraska Department of Environment and Energy Title 132 Integrated Solid Waste Management Regulations	2-3
2.2.6 Nebraska Department of Environment and Energy Title 126 Rules and Regulations Pertaining to the Management of Wastes	2-3
Chapter 3 Purpose of Conducting Hazardous Material Review	3-1
3.1 Planning	3-2
3.2 Project Development and NEPA Studies	3-2
3.2.1 Right-of-Way Coordination	3-4
3.2.2 Mitigation Measures for NEPA	3-4
3.3 Project Types and Exclusions	3-5
3.3.1 Pavement Preservation Projects	3-5
3.3.2 Resurfacing, Restoration, Rehabilitation Projects	3-5
3.3.3 New and Reconstructed Projects	3-6

Chapter 4 Hazardous Material Review Process.....	4-1
4.1 Hazardous Material Review for Site-Specific Projects	4-3
4.1.1 Conduct Agency Environmental Database Review	4-3
4.1.2 Conduct Visual Reconnaissance	4-13
4.1.3 Determining Next Steps.....	4-15
4.2 Site Analysis and Discussion for Hazardous Material Reviews.....	4-15
4.2.1 Conduct Detailed Regulatory File Review	4-16
4.2.2 Review Historical Record Sources	4-19
4.3 Subsurface Investigations for Hazardous Material Reviews.....	4-22
4.3.1 Materials Management Plans	4-23
4.3.2 Coordination with Regulatory Agencies	4-23
4.4 Hazardous Material Review Report Documentation.....	4-24
4.4.1 Hazardous Material Review for Site-Specific Projects	4-24
4.4.2 Hazardous Material Review for Projects with In-Depth Alternatives Analysis..	4-26
4.5 Phase 1 Environmental Site Assessments (ESAs)	4-30
Chapter 5 Nebraska Department of Transportation Internal Review Process and Clearance	5-1
Chapter 6 Risk Management and Other Considerations.....	6-1
6.1 Risk Management.....	6-1
6.2 Other Considerations	6-1
Chapter 7 Environmental Professional Qualifications.....	7-1
Chapter 8 References.....	8-1

Table(s)

Table 4-1. Agency Environmental Database Descriptions and Approximate Minimum Search Distances	4-11
Table 4-2. Example Visual Reconnaissance Photograph Log.....	4-14
Table 4-3. Example Hazardous Material Review Findings and Recommendations for Site Specific Projects.....	4-24
Table 4-4. Example Hazardous Material Review Recommendations for Alternatives Analysis	4-27

Figure(s)

Figure 4-1. Hazardous Material Review Flow Chart	4-2
Figure 4-2. Overview Map Depicting HMR Search Distance from Limits of Construction for Linear Corridor Project in an Urban Area.....	4-4
Figure 4-3. Overview Map Depicting HMR Search Distance showing more detail in Urban Area	4-6
Figure 4-4. Overview Map Depicting HMR Search Distance from Limits of Construction for Linear Corridor Project in a Rural Area.....	4-7
Figure 4-5. Overview Map Depicting HMR Search Distance from Limits of Construction for Linear Corridor Project showing more detail in a Rural Area.....	4-8
Figure 4-6. Overview Map Depicting HMR Search Distance from Limits of Construction for Linear Corridor Project showing more detail in a Rural Area.....	4-9
Figure 4-7. Overview Map Depicting HMR Search Distance from Center of a Bridge Replacement Project.....	4-10
Figure 4-8. Example Regulatory File Site Map.....	4-17
Figure 4-9. Examples of Historical Aerial Photographs	4-19
Figure 4-10. Example Historical Topographic Map	4-20
Figure 4-11. Example Sanborn Fire Insurance Map	4-21

Appendices

- A Glossary of Terms and List of Acronyms
 - A.1 Glossary of Terms
 - A.2 List of Acronyms
- B List of Resources
- C Detailed Visual Reconnaissance Guidance
 - C.1 Underground Storage Tanks
 - C.2 Liquid Waste
 - C.3 Aboveground Storage Tanks
 - C.4 Wells
 - C.5 Electrical/Transformer Equipment
 - C.6 Cisterns, Sumps, Drains
 - C.7 Barrels, Drums, Containers
 - C.8 Surface Staining (Soil Staining, Stressed Vegetation, Evidence of Spills or Releases)
 - C.9 Oil Sheen
 - C.10 Suspected Methamphetamine Laboratory Waste
 - C.11 Chemical Storage
 - C.12 Structure Construction Prior to 1980 – Suspect Asbestos Containing Material
 - C.13 Odors (Strong, Pungent, or Noxious)
 - C.14 Painted/Preserved Materials (Heavy Metal Based Paint)
 - C.15 Oil/Gas Wells/Natural Gas Pipeline
 - C.16 Protected/Fenced/Placarded Areas
 - C.17 Exposed/Buried Landfill
 - C.18 Miscellaneous Storage, Dumping, Stockpile, Surface Trash, Debris, Evidence of Dumping, Imported Fill
 - C.19 Batteries
 - C.20 Railroad Tracks/Railyards
 - C.21 Vehicle Maintenance and Repair Activities
 - C.22 Evidence of Remediation Activities
- D Project-Specific Commitments and Materials Management Plan

Chapter 1 Introduction

This manual provides guidance on conducting Hazardous Material Reviews (HMRs) for Nebraska Department of Transportation (NDOT) and Local Public Agency (LPA) projects. The purpose and intent of this guidance is to help NDOT staff and consultants identify potential existing hazardous materials concerns. This is an integral step of the advanced planning and environmental documentation stages of project development and, when applicable, facilitates project alternative selection. Most NDOT and LPA projects are Categorical Exclusions (CatEX) where the project alternatives are Build or No Build. Projects with multiple alternatives often require elevated levels of National Environmental Policy Act (NEPA) documentation, such as, Environmental Assessments (EAs) or Environmental Impact Statements (EISs). With some exceptions, for example, a project could be downgraded from an EA to CatEX documentation. The level of effort required for conducting the HMR is based on several factors: the level of environmental NEPA documentation; the potential impacts to construction, materials managements, and human health and safety; whether an alternatives analysis is required beyond Build or No Build alternatives; and consultation with NDOT Environmental. This guidance manual includes:

- An introduction to the regulatory background and guidance typically related to HMRs for NDOT and LPA projects
- Guidance on the HMR process as part of the NEPA evaluation and incorporation into the environmental document for NEPA clearance
- Guidance on when to conduct subsurface investigations (including sampling of soils and groundwater) during the NEPA phase of NDOT and LPA projects
- Guidance on when to conduct risk assessment and other considerations for Alternatives Analysis
- Qualifications of NDOT staff and consultants performing the HMR (Environmental Professional [EP])
- Summary of the NDOT internal review process, clearance/approval, and qualifications of NDOT staff overseeing the HMR process (Professionally Qualified Staff [PQS])

NDOT defines hazardous materials as *a broad category of materials that, because of their quantity, concentration, or physical or chemical characteristics, pose a significant present or potential hazard to human health and safety or to the environment if released into the environment. Hazardous materials include, but are not limited to, materials that are regulated as solid waste, hazardous waste, and other wastes contaminated with hazardous substances, radioactive materials, petroleum fuels, toxic substances, and pollutants.* Appendix A contains a glossary of commonly used terms and acronyms related to the NDOT HMR process.

1.1 Exclusions of this Document

The potential exists for NDOT to encounter hazardous materials during construction, even when HMRs have been completed. In these instances, time-critical actions must be performed to minimize delays and to address worker health and safety and cost impacts affecting construction. For guidance and procedures on how NDOT handles unexpected hazardous materials during construction, please reference NDOT Unexpected Waste Action Plan (UWAP) (NDOT 2023).

This guidance also does not cover the hazardous materials associated with on-site activities during project construction, such as concerns associated with the waste generated on-site during construction; management of construction materials brought on-site; or on-site handling, storage, or

disposal of hazardous materials. The NDOT special contract provision Section 116-Hazardous Material Management discusses requirements for hazardous materials used during construction. Additionally, NDEE state regulations dictate materials management practices.

1.2 Limitations

The following represent common limitations for HMRs for NDOT projects:

- Due to the large number of sites involved in corridor or other large projects, it is typically not practical for NDOT to obtain site access and interview individual property owners. NDOT HMRs generally do not include interviews of current or past owners and occupants of properties located within the project area.
- HMRs generally do not include a search for environmental cleanup liens or activity use limitations (AULs) unless a Phase I is completed for full property acquisition.
- HMRs generally are not able to detect the presence of potential environmental contamination that may exist in areas that could not be visually inspected.
- Visual reconnaissance for HMRs is generally limited to areas visible from public right-of-way (ROW) and does not typically include access to fenced-in areas, interiors of buildings, rear lots (alley side portion of adjacent sites), or areas not visible from public ROW. If the practitioner feels the need to gain site access, the practitioner shall notify the NDOT PQS for guidance. Reference Section 4.1.2, Conduct Visual Reconnaissance.

With these limitations, it may not be possible to adequately identify if a specific site (i.e., property) has hazardous materials concerns. In these cases, the EP performing the review should identify the site (i.e., property) at an appropriate level of risk to construction, if applicable, and provide recommendations for further review of the site if acquisition of property rights for ROW is required, or if contaminant migration into the project area is of concern.

Chapter 2 Hazardous Material Regulations and Guidance

NDOT staff and consultants conducting or coordinating HMRs and investigations should be familiar with the federal, state, and local environmental laws and regulations that apply to hazardous materials. This section summarizes the federal, state, and local environmental laws, regulations, and guidance most likely to be applicable to and associated with typical transportation projects with potential hazardous materials concerns. This regulatory overview is not all-inclusive and additional regulations could apply to a project depending on site-specific conditions. NDOT and its consultants must work together to ensure that the appropriate regulatory agencies are involved, as required. Additionally, it is important to keep track of and be aware of regulatory changes (e.g., changes in tank regulations) that could affect a project.

2.1 Federal

2.1.1 Comprehensive Environmental Response, Compensation, and Liability Act (42 United States Code Part 103, Sec. 9601 et seq.)

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) established prohibitions and requirements concerning closed and abandoned hazardous waste sites, provided for liability of persons responsible for releases of hazardous waste at these sites, and established a trust fund to provide cleanup when no responsible party could be identified.

2.1.2 Resource Conservation and Recovery Act (40 Code of Federal Regulations Parts 260–299)

The Resource Conservation and Recovery Act (RCRA) is the primary law governing the disposal of solid and hazardous waste. Subtitle C regulates hazardous waste, Subtitle D regulates solid waste, and Subtitle I regulates underground storage tanks (USTs) containing hazardous materials and petroleum products.

2.1.3 Title XIV of the Public Health Service Act (“Safe Drinking Water Act”) (Public Law 93-523) and the National Primary Drinking Water Regulations (40 Code of Federal Regulations Part 141)

Congress enacted the Safe Drinking Water Act (SDWA) in 1974 to protect public health by regulating drinking water quality. SDWA authorizes the U.S. Environmental Protection Agency (EPA) to establish national drinking water standards such as Maximum Contaminant Levels (MCLs) and health-related standards (Health Advisory Levels) for both naturally occurring and man-made contaminants that may be found in the water supply, including underground sources. An MCL is the maximum concentration that a substance is legally allowed to occur in the drinking water supply.

2.1.4 Environmental Protection Agency Standards and Practices for All Appropriate Inquiry / American Society of Testing Materials E 1527 13

On January 11, 2002, the Small Business Liability Relief and Brownfield Revitalization Act, which amended CERCLA, was signed into law. This Act required that EPA develop regulations to establish federal standards and practices for conducting all appropriate inquiries (AAIs). This Act is generally referred to as AAI and is the most prevalent industry standard applicable to any public or private party

who may potentially claim protection from CERCLA liability. The AAI rule set federal standards for conducting environmental due diligence activities (i.e., visual reconnaissance, records review) (EPA 2005).

The American Society for Testing and Materials (ASTM) Standard E 1527-21 “Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process” (ASTM 2021) was developed for commercial real estate transactions to provide guidance on industry standards and aid with compliance with the provisions of the AAI final rule. To specifically address transportation projects, modifications to the ASTM Standard E 1527-21 are needed. The ASTM Standard E 1527-21 process is consistent and compliant with the EPA’s final AAI rule and may be used to comply with the provisions of the AAI final rule. During project planning stages, the ASTM Transaction Screen (E 1528-22) can be used as a documentation tool for an individual site or parcel. However, the ASTM Transaction Screen is only sufficient when interviews with the property owners or operators are practical, right of entry can be obtained, and knowledge of the site and preliminary surveys do not indicate concerns.

2.1.5 Federal Highway Administration Guidance

FHWA has published guidance on hazardous materials and highway project development, including FHWA’s technical memorandum Interim Guidance – Hazardous Waste Sites Affecting Highway Project Development (August 1988) and subsequent technical memorandum Supplemental Hazardous Waste Guidance (January 1997). FHWA’s guidance stresses the identification of contaminated sites early in project development, early coordination with regulatory agencies, and avoidance of contaminated sites. The guidance outlines FHWA’s recommended procedures for identification and avoidance of hazardous materials sites.

2.1.6 Occupational Safety and Health Administration Regulations

The Occupational Safety and Health Act of 1970 created the Occupational Safety and Health Administration (OSHA), which is tasked with setting and enforcing national standards for workplace health and safety. The Occupational Safety and Health Standards in 29 CFR 1910 and the Safety and Health Regulations for Construction outlined in 29 Code of Federal Regulations 1926 provide the regulatory background for standards and regulations affecting highway project development and construction. These include worker exposure to asbestos, lead, and hazardous materials. Additionally, 1910 Subpart I and 1926 Subpart E stipulate the requirements for personal protective equipment.

2.2 State

2.2.1 Nebraska Department of Environment and Energy Title 117 Nebraska Surface Water Quality Standards

The NDEE develops water quality standards that designate the beneficial uses to be made of surface waters and the water quality criteria to protect the assigned uses. Title 117 – Nebraska Surface Water Quality Standards, forms the basis of water quality protection for all surface water quality programs conducted by the department.

2.2.2 Nebraska Department of Environment and Energy Title 118 Ground Water Quality Standards and Use Classifications

Title 118 – NDEE Ground Water Quality Standards and Use Classifications, is intended to be the foundation for, and used in conjunction with, other groundwater regulatory programs. If other regulatory programs do not exist, these standards alone may be used as the basis for remedial action

of groundwater contamination. Numerical standards for groundwater quality have been established for ground waters of the state. Groundwater use classifications are for public drinking water supplies, agricultural supplies, private drinking water supplies, and groundwater not used for either public or drinking water supply with little likelihood to be used for these purposes in the future. Groundwater use classifications help determine the level of remediation required.

2.2.3 Nebraska Department of Environment and Energy Title 128 Nebraska Hazardous Waste Regulations

EPA authorized NDEE in 1985 to administer portions of the RCRA program. RCRA regulations are incorporated in NDEE Title 128 – Nebraska Hazardous Waste Regulations.

The purpose of the RCRA program is to ensure proper management of hazardous wastes from the point of generation until final disposal. Compliance and enforcement activities include investigating complaints and inspecting hazardous waste generators and transporters; hazardous waste treatment, storage, and disposal (TSD) facilities; and used oil marketers and burners. Corrective action is an important part of the RCRA program that addresses past and present activities at RCRA facilities that resulted in hazardous waste and hazardous constituents being released into soil, groundwater, surface water, and air. Corrective action requires investigation and remediation of the release from regulated facilities.

2.2.4 Nebraska Department of Environment and Energy Legislative Bill 1161 Wellhead Protection Areas

NDEE administers the State Wellhead Protection Program, which assists communities and other public water suppliers in preventing contamination of their water supplies. The Program delineates the zones of influence that may impact public supply wells. Mapping exists for all community public water supplies. Those projects within a wellhead protection area must implement a wellhead protection plan. As it relates to hazardous materials, these wells might be identified in the field and should be noted in hazardous materials reports.

2.2.5 Nebraska Department of Environment and Energy Title 132 Integrated Solid Waste Management Regulations

NDEE has established regulations for solid waste under Title 132 – Integrated Solid Waste Management Regulations. The regulations discuss the criteria for managing municipal solid waste and delisted waste; criteria for construction and demolition waste disposal; and criteria for solid waste processing facilities, solid waste transfer stations, materials recovery facilities, and other processing facilities.

2.2.6 Nebraska Department of Environment and Energy Title 126 Rules and Regulations Pertaining to the Management of Wastes

NDEE has established criteria pertaining to the management of wastes. The regulations discuss the criteria for releases of oil or hazardous substances, and waste management permits and licenses.

Chapter 3 Purpose of Conducting Hazardous Material Review

The purpose of an HMR is to help NDOT staff identify potential existing hazardous materials concerns during the advanced planning and environmental documentation stages of project development and, when applicable, to facilitate project alternative selection. The HMR would identify sites that are known to be, or may potentially be, contaminated with hazardous materials. For projects requiring an in-depth alternatives analysis (EAs and EISs), the HMR would quantify the potential risk of contaminated sites on project delivery, cost, and schedule.

NDOT requires HMRs to be conducted as early as possible for projects in an effort to:

- Limit or avoid NDOT liability during the acquisition of property rights for ROW
- Assist in project alternatives evaluations and considerations
- Assess NEPA class of action based on findings
- Prevent delays or unexpected costs during construction
- Allow estimation of the cost of any required mitigation
- Supply information for property evaluation during the acquisition process
- Identify and recommend appropriate mitigation measures for public and worker health and safety concerns
- Prevent or minimize further hazardous materials releases into the environment
- Determine if any additional investigation is needed because of known or possible presence of hazardous materials
- Develop specific materials management or institutional controls required during construction and include in project costing and schedule

Consistent with FHWA's technical memorandum Interim Guidance – Hazardous Waste Sites Affecting Highway Project Development (1988, 1997), NDOT's primary purpose of conducting an HMR is to recognize potential contamination concerns early in the planning or project development processes so that avoidance/minimization of high-risk sites can be considered during development of project design (e.g., through alignment changes). According to FHWA's guidance,

Avoidance is repeatedly stressed as the preferred option unless the risks and costs of proceeding with contaminated property can be justified...The emphasis on early investigation and avoidance/minimization of contaminated property is based on extensive experience showing that serious contamination can result in very excessive project delays, impacts, costs, and liability.

The following types of NDOT activities have an increased potential for encountering hazardous material contamination during construction:

- Projects with fee title (full) ROW acquisition, easements, or displacements
- Projects with structure removal or modifications
- Underground utility or pipeline adjustments
- Installation of columns or piers
- Other excavations greater than 5 feet in depth
- Grading in urbanized areas

- Excavation encountering groundwater

Examples of project circumstances that usually indicate low potential of hazardous material involvement include, but are not limited to:

- Projects in rural areas with no evidence of previous contaminating uses
- Projects involving no change of profile grade, earthwork, or trenching
- Projects involving no new ROW where the existing ROW has been recently studied for hazardous waste

A thorough review and investigation of properties for past or present soils or groundwater contamination is an integral component of the NDOT planning and project development process. These efforts are essential for the ROW acquisition cost and property appraisal process, development of options for owner-funded site remediation prior to NDOT acquisition and planning for engineering options to minimize the necessary remediation and treatment of residual hazardous materials.

The appropriate level of review is dependent on the project type, proposed project design, surrounding land uses, ROW requirements, and other project-specific factors. Coordination and discussions with NDOT Environmental should occur during the scoping process at the start of every project and on a regular basis to determine the appropriate level of assessment needed based on project-specific factors. If the scope of the project changes, the HMR should be re-evaluated. The Hazardous Materials Review is also re-evaluated at major phases of project planning (Plans, Specifications, and Estimates [PS&E]; ROW acquisition; and project letting).

3.1 Planning

NDOT planning-level projects (such as feasibility studies, long-range planning, Planning and Environmental Linkages Studies, or corridor studies) are not required to adhere to NEPA regulations or processes. Although HMRs are not mandated during the project planning stages, these types of projects provide an opportunity to collect preliminary information on potential hazardous materials concerns. It is beneficial to conduct an initial review of hazardous materials concerns during planning projects because the information concerning potential hazardous materials concerns can be carried forward into any future NEPA process. During the planning phase when alternatives analyses are being done, it is the goal of NDOT to identify and avoid hazardous material sites by conducting more in-depth site screening for risk assessment when necessary. However, this additional review would require the coordination and concurrence of the NDOT Environmental Hazardous Material PQS.

3.2 Project Development and NEPA Studies

The project development phase includes projects requiring the completion of NEPA documentation (i.e., CatEX, EA, and EIS), and projects that have entered the preliminary design phase. NDOT NEPA Actions include Level 1, 2, or 3 CatEXs depending upon the amount of impacts to various resources.

Hazardous materials information collected during the planning and NEPA process can be used to:

- Determine potential impacts to construction, materials management, and human health and safety for both contractors and the public,
- Understand if additional evaluation is recommended in future design/construction phases for particular sites (i.e., properties) related to hazardous materials including, but not limited to, site characterization or remediation of soil and groundwater
- Assess project alternatives during the alternatives screening and evaluation process to assist alternatives analysis based on impacts related to hazardous materials

- Assess the cost of remediation activities and incorporate into the alternatives screening and evaluation process
- Identify if specialized subcontractors are required for contaminated materials management and worker health and safety plan development
- Understand what additional specifications must be included in the bid documents to avoid, manage, or remediate contaminated materials or hazardous wastes
- Assess ROW compensation estimates, appraisals, and appraisal reviews
- Evaluate the possible relationship between impaired waters and soils (or other conditions) that may exacerbate existing conditions of the impaired water.

It is important to link and carry forward any findings from the planning stages previously discussed in Section 3.1, Planning, into the NEPA study.

During project development, most projects fall under the “Build” or “No-Build” alternative scenario and meet the guidelines of 23 U.S.C. §326 and a Memorandum of Understanding dated September 17, 2021, executed between FHWA and the NDOT to be documented under NEPA as a Categorical Exclusion or CatEX. In the case of CatEX documentation, where there is no draft and final environmental document, NDOT expects the appropriate hazardous material information to assess the presence or absence of hazardous materials before final approval of the CatEX documentation. Hazardous material commitments and mitigation measures and findings are recorded within the CatEX and supporting documentation, HMR, and within the NDOT Green Sheets.

Projects where several design alternatives may be under consideration should evaluate for potential hazardous materials concerns on all impacted and adjacent properties for each alternative analyzed. Unless an alternative can be ruled out of consideration through assessment of risk for encountering contamination, additional steps need to occur to assure hazardous materials sites are properly identified, assessed, and avoided when possible.

In the NEPA document, the information gathered should follow the steps outlined in Chapter 4, Hazardous Material Review Process, and be sufficient to compare the scope of potential hazardous material issues with the scope of the proposed project construction. When in-depth alternatives analysis occurs for environmental documentation, the information gathered should provide data adequate for the determination of a preferred alternative. Any detours and potential improvements identified as part of the project should be evaluated as part of the environmental and HMR study area regardless of project scope and level of environmental documentation. The environmental document summarizes the HMR findings and presents required mitigation measures that should be incorporated into the design plans and specifications. Thorough documentation of the HMR showing how sites were evaluated should be maintained with the project file.

During the NEPA process, NDOT Environmental and the consultant coordinate with the project roadway and bridge designers to communicate potential hazardous material locations, concerns, or conflicts through the established Project Coordination Meeting (PCM) process. Potential hazardous material concerns or conflicts and mitigation measures will be addressed and identified on design plans, various design reports, HMR reports, NEPA documents, and Green Sheets. Following the completion of an HMR during NEPA, NDOT also revisits the HMR findings during later preliminary and final design phases to ensure that hazardous materials concerns discovered early during the planning phases have been considered and carried forward into design and construction.

3.21 Hazardous Material reviews assigned to NDOT under 23 USC 326 will be processed per the procedures described in this guidance manual. However, if a project is not assigned under 23 USC 326, NDOT will coordinate with FHWA early in the process to discuss the project, schedule, and level of effort for the review. If hazardous materials may be present, this coordination will also include determining whether FHWA will review specific assessment plans or products.

3.22 Right-of-Way Coordination

When partial or full property acquisitions are proposed at commercial properties and/or properties where hazardous material releases or storage have been identified, coordination between the NDOT Environmental Section and the ROW Division is warranted. The purpose of this coordination is to ensure - the ROW Division is informed of any contamination that exists on a property to properly assess the value during negotiations and for CERCLA liability protection. This coordination will include:

- Representation of the ROW Division at NDOT project coordination meetings when:
 - ROW acquisition is proposed within an urban area.
 - The Hazmat PQS Staff has identified a hazardous material facility or commercial property where ROW is proposed to be acquired.
- NDOT hazmat PQS will attend ROW review meetings when warranted

Easements for ADA compliant curb ramps, acquisition of rural agricultural land or residential properties will typically not require coordination unless a site of concern is discovered during the HMR process due to depth of excavation or lack of hazardous material sites located on these types of lands.

3.23 Mitigation Measures for NEPA

Mitigation measures (or commitments) made during the NEPA process are carried forward through the design phases via the Green Sheets. Regardless of the findings during the HMR process, the following NDOT standard commitment language about encountering unexpected waste during construction should be incorporated into all NEPA documents and design plans¹:

Unexpected Waste

If contaminated soils/groundwater or unexpected wastes are discovered, The Contractor shall stop all work within the immediate area. The Contractor shall secure the area of the discovery and notify the NDOT Highway Project Manager (HPM). The Contractor shall not re-enter the discovery area until notified by the HPM. At the time of discovery, the HPM and Contractor shall utilize the NDOT Unexpected Waste Action Plan (UWAP) to coordinate appropriate actions. The actions to be carried out by the HPM are (but not limited to): verification that the Contractor has suspended construction activities in the area of the discovery, contact the Environmental Section Manager and make an entry into Site Manager that an unexpected waste discovery was made. The HPM shall then utilize the UWAP Notification Form (NDOT Form 691) to properly document the extent and type of waste. The HPM will ensure that proper disposal of the waste and any required health and safety mitigation is implemented by the Contractor. The Contractor is required by NDOT's Standard Specification section 107.11 (Hazardous Material Discoveries) to handle and dispose of regulated material in accordance with applicable laws.

Contractor Commitment: If contaminated soils/groundwater or unexpected wastes are discovered, The

¹ Please verify with NDOT Environmental for current commitment language.

Contractor shall stop all work within the immediate area. The Contractor shall limit access to authorized personnel within the area of the discovery and notify the NDOT Highway Project Manager (HPM). The Contractor shall not re-enter the discovery area until notified by the HPM. At the time of discovery, the HPM and Contractor shall utilize the NDOT Unexpected Waste Action Plan (UWAP) to coordinate appropriate actions. The Contractor is required by NDOT's Standard Specification section 107.11 (Hazardous Material Discoveries) to handle and dispose of regulated material in accordance with applicable laws.

In some cases, project-specific commitments regarding hazardous materials may also be included. These may apply to materials management, special wastes such as ACM and TMP or human health or safety.

3.3 Project Types and Exclusions

NDOT has several project types that require varying levels of analysis. The project types are described below with an explanation of the expected level of effort for the HMR process. Excluded projects will be covered by an HMR Exemption Memo.

3.3.1 Maintenance/Pavement Preservation Projects

Maintenance/Pavement Preservation Projects include projects where all the work is done within the existing pavement sections or do not include grading below the depth of the existing roadway fill section and are excluded from review for potential conflicts with hazardous materials.

For the purposes of this manual, Maintenance/Pavement Preservation Projects include traditional maintenance project activities such as restriping or other paint work, crack sealing, joint sealing, armor coating, chip sealing, fog sealing, microsurfacing, grinding, and pavement patching. Projects that result in less than 4 inches of new resurfacing material placed on the existing roadway surface elevation also fit this definition. These projects include polymer overlay of bridges; mill and inlay (including recycle methods); mill and overlay (less than 4 inches of new material); and associated concrete/pavement repairs, grinding, and shouldering activities required to bring the turf shoulder up to the pavement surface elevation.

3.3.2 Resurfacing, Restoration, Rehabilitation Projects

Resurfacing, Restoration, Rehabilitation (3R) Projects are generally undertaken to improve the reliability of the transportation system, maintain the mobility of the highway user, and mitigate highway safety issues identified through a crash history and analysis. 3R projects include, but are not limited to, resurfacing, pavement structural and joint repair, minor land acquisition and shoulder widening, minor alterations to vertical grades and horizontal curves, upgrading guardrail, bridge repair, and removal or protection of roadside obstacles. The level of review for these types of projects is typically an HMR for Site Specific Projects.

In some instances, NDOT has indicated that certain 3R projects can be excluded from HMRs, as described below:

1. 3R projects that include guardrail updates or replacement within the existing embankment, modification of existing mailbox turnouts, and ADA curb ramps may be excluded from review under these procedures. These types of project activities occur on or within clean material placed for the original roadway embankment construction; therefore, any potential contamination originating from an adjacent source area would occur at a depth greater than the existing roadway embankment section.

2. This exclusion would not apply to 3R projects that would include depth of excavation beyond existing fill and grading activities beyond the existing roadway embankment such as grading for slope correction; ditch and culvert clean out; and culvert extension.

In addition to the 3R projects listed above, NDOT has developed additional project actions that are excluded from requiring an HMR. These actions are listed below.

1. Traffic signals, intersection lighting, pedestrian signals, underpass lighting, or railroad lighting within existing ROW with no soil disturbance (no grading, no trenching) are excluded from requiring an HMR.
2. Maintenance and replacement of highway signs on existing poles, and new sign installation within the hinge point and existing ROW are excluded from requiring an HMR.
3. Activities such as crack sealing, inlays, overlaying, milling, resurfacing (includes microsurfacing, fog sealing, chip sealing, joint sealing, and armor coating), installation of rumble strips, pavement marking and restriping, concrete grinding and patching, curb ramp repair, and concrete repair are excluded from requiring an HMR. Also included are resurfacing projects such as polymer overlay of bridges, mill and inlay (including recycle methods), mill and overlay (less than 4-inch grade raise) and associated concrete/pavement repairs, grinding, and shouldering activities required to bring the turf shoulder up to the new pavement surface elevation. Conditions: No soil disturbance below or beyond the preexisting roadway fill.
4. Repair/maintenance of ROW fencing, limited to repairing/replacing fence wire and fence posts only on existing fence post locations are excluded from requiring an HMR.
5. Improving existing bicycle and pedestrian lanes and paths on their existing alignments are excluded from requiring an HMR.
6. Repair/replacement of at-grade railroad crossing gates, lights, signs, and the rail crossing driving surface are excluded from requiring an HMR. Conditions: Work is limited to in-kind replacement/repair (signs to signs, gates to gates) with any and all ground disturbance limited to fill material locations only, not to exceed the depth of the fill material. This exemption does not include railyards and spurs onto property out of the ROW.
7. Visual bridge inspections that follow the Minor Categorical Exclusion for Bridge Inspection are excluded from requiring an HMR.
8. If the rest of the project is exempt (i.e. no excavation beyond the fill) and the HMR PQS has determined that TMP or ACM would not be disturbed by bridge work, then the project is excluded from requiring an HMR. If the bridge work disturbs TMP or ACM, then an HMR must be conducted. For bridge projects over the National Highway System, the mainline project must also be exempt.

3.3.3 New and Reconstructed Projects

New and Reconstructed Projects generally consist of:

- Construction of a new road/construction or removal of structures (bridges/buildings)
- Relocation of an existing route on a new alignment
- Major widening (adding lanes) on an existing road
- Reconstruction of an existing (non-Interstate) route on an existing alignment

New and reconstructed projects may also include projects where the principal activity is building a new bridge or rehabilitation consisting of bridge widening. New and Reconstructed Projects should be considered when:

- Correcting geometric deficiencies beyond the existing fill line
- Grading outside the hinge point that requires major ROW to be acquired or major utility relocations

The level of review for these types of projects may be an HMR for Site-Specific Projects; however, when an alternatives analysis is required, the HMR process may require additional analysis of impacts and risks to project delivery and may require increased documentation.

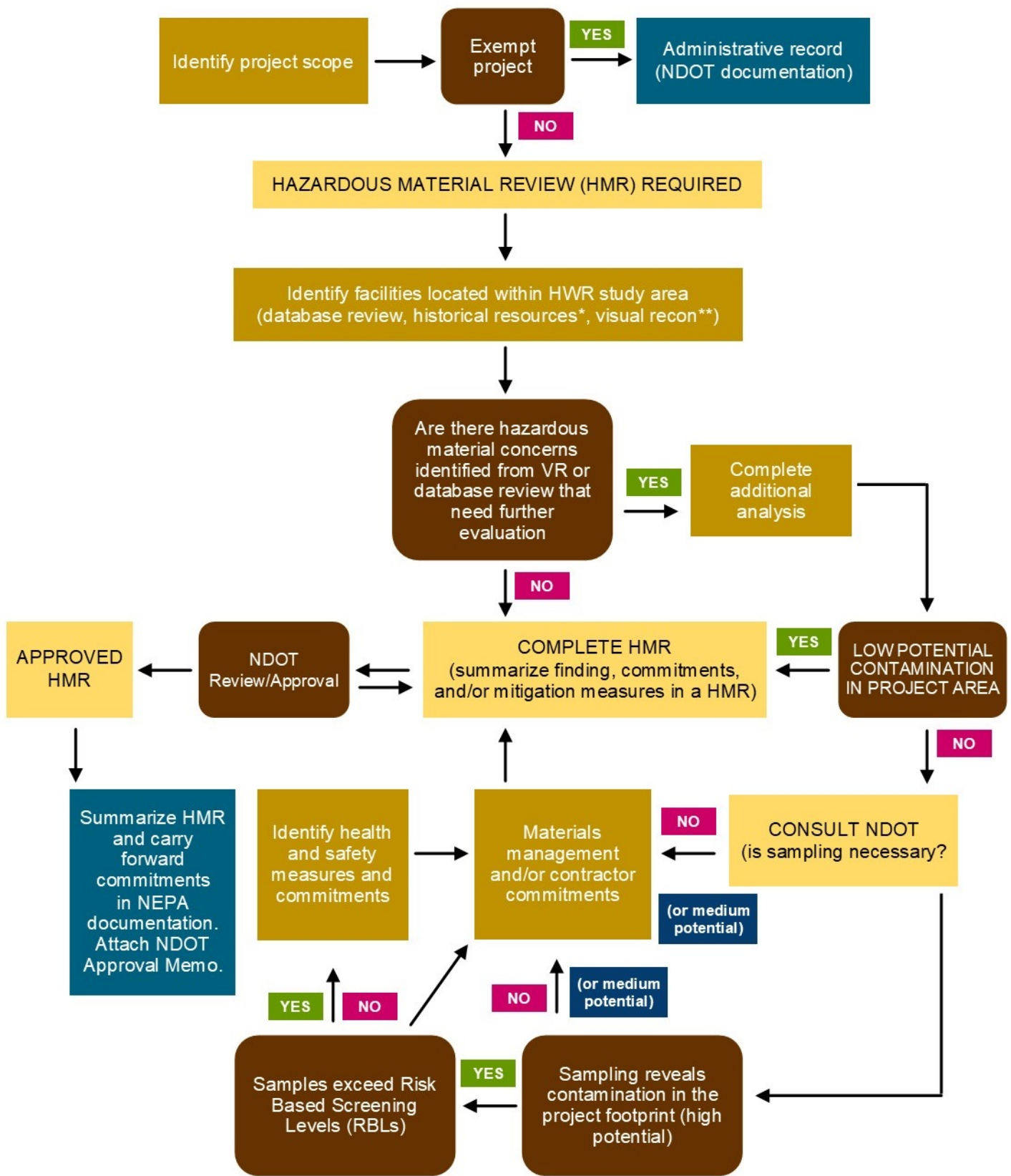
Chapter 4 Hazardous Material Review Process

NDOT defines the HMR process as the activities required to identify the presence or likely presence of any hazardous materials within the HMR study area. The primary objective of completing an HMR for a project is to identify sites within the project area with concerns related to hazardous materials for use in the NDOT decision making process.

HMRs for site-specific projects are used to identify the potential for encountering contamination during construction and whether materials management or health and safety are impacted. The HMR findings are categorized and defined below:

- **Low Potential Site:** Through investigation, it is determined that it is unlikely that contamination would be encountered during construction. There is a low potential that human populations or environmental concerns adjacent to project limits will be adversely impacted.
- **Medium Potential Site:** During the investigation, it is determined that it is unclear whether contamination is located within the project footprint. A subsurface investigation or further coordination with regulatory agencies determines the likelihood that contamination would be located within the project footprint. On a case-by-case basis, a commitment that the contractor and NDOT project manager will look for signs of contamination in specific areas can be included in the HMR rather than proceeding with a subsurface investigation. Although potential contamination exists within the project limits, management of any encountered hazardous materials will be handled by the Contractor according to applicable Federal, State, and Local laws, policies, and regulations. In addition, the NEPA specialist and Hazmat PQS will ensure the risk is communicated to Civil Rights staff for incorporation into the Civil Rights analysis as well as considered in NEPA review through project coordination meetings.
- **High Potential Site:** Through file review or subsurface investigation, it has been determined that it is likely that contamination would be encountered during construction. Although a high potential for contamination exists within the project limits, management of any encountered hazardous materials will be handled by the Contractor according to applicable Federal, State, and Local laws, policies, and regulations. In addition, the NEPA specialist and Hazmat PQS will ensure the risk is communicated to Civil Rights staff for incorporation into the Civil Rights analysis as well as considered in the NEPA review through project coordination meetings.

Based on the project scope of work (Build or No-Build or several alternatives), the level of effort for documentation of the HMR reflects either (1) an HMR for Site-Specific Projects or (2) an HMR for Projects with In-Depth Alternatives Analysis. Most HMRs would be recorded for Site-Specific Projects. The HMR report may have sections added to address additional analysis, such as historical records reviews, regulatory file reviews, and site screening for risk assessment to alternatives. An overview of the HMR process is outlined in Figure 4-1. Hazardous Material Review Flow Chart.



LEGEND

- = Decisions Point
- = Process
- = Major Step
- = Complete process

NOTES:

*Historical resource reviews, in some cases, may occur at the beginning of the process (i.e., order topographic maps with database report). Determine during project scoping and in consultation with the NDOT Environmental Hazardous Material PQS when additional analysis may be warranted.

** Whether a visual reconnaissance would be required should be identified during project scoping and in consultation with the NDOT Environmental Hazardous Material PQS.

#NDOT Environmental revisits findings and recommendations during plan-in-hand, preliminary design. If changes in project scope have occurred, the HMR may require additional analysis.

4.1 Hazardous Material Review for Site-Specific Projects

All projects are required to complete a baseline level of an HMR except for exempted projects identified in Section 3.3, Project Types and Exclusions. The HMR should be performed concurrently with the planning or early in the NEPA study. The information gathered during the HMR provides enough detail about properties within the HMR Study Area, varying from 0.1 mile to 1.0 mile, to allow for an effective decision-making process. Figure 4-2 shows the minimum search distance from limits of construction for a linear corridor project within an urban area. Most Categorical Exclusions will be Site Specific Projects. The basic steps of the HMR include:

- Step 1: Review project description that indicates project limits and scope of work.
- Step 2: Conduct Agency Environmental Database Review (Section 4.1.1)
- Step 3: Conduct Visual Reconnaissance (Section 4.1.2)
- Step 4: Provide Site Analysis and Discussion of impact potential determination. (i.e., Findings from Regulatory File Review, Historical Records Review) (Section 4.2)
- Step 5: If necessary, conduct Subsurface Investigation (requires NDOT consultation) (Section 4.3)
- Step 6: Compile information into a HMR report with findings and commitments/mitigation measures and submit to NDOT for review

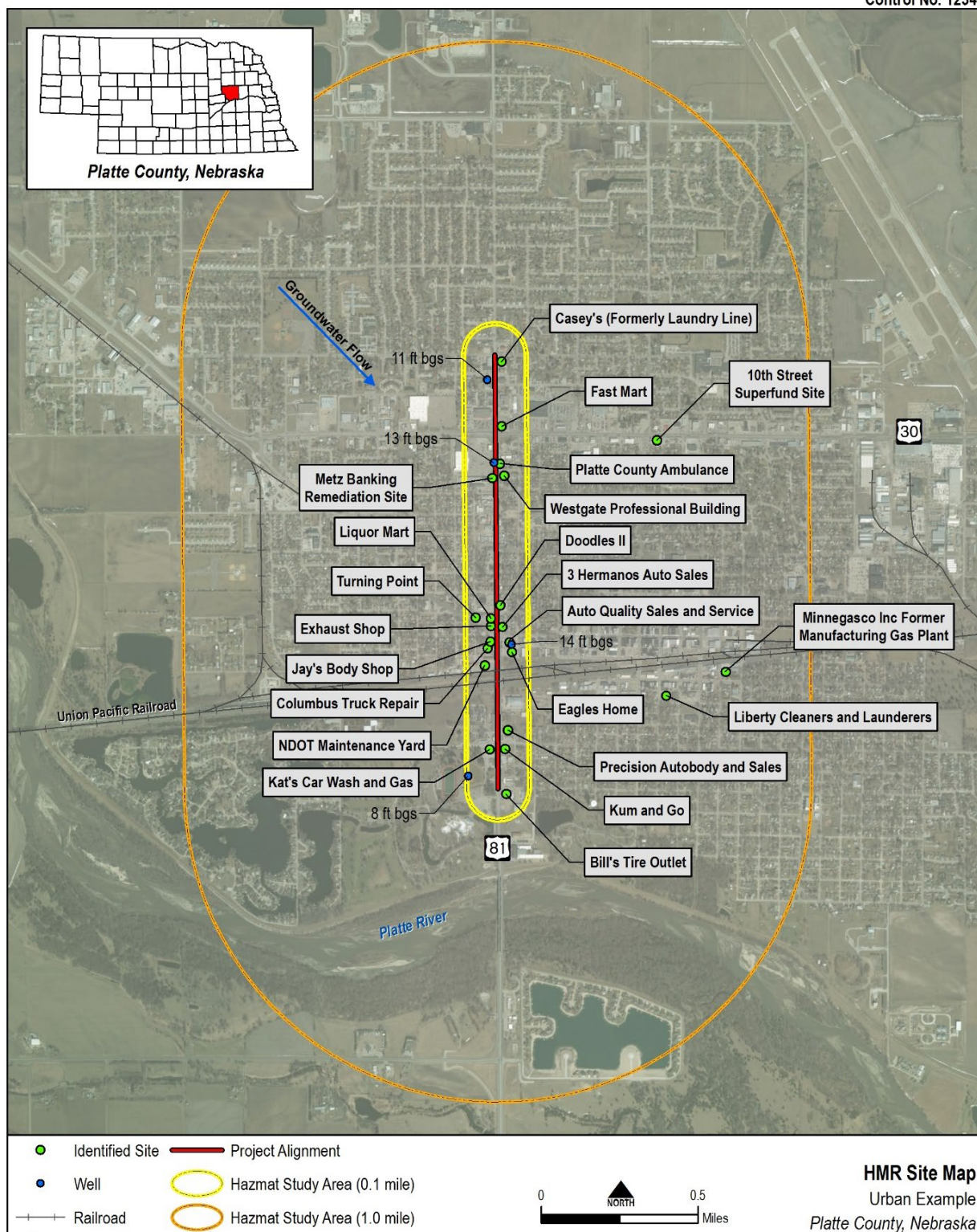
4.1.1 Conduct Agency Environmental Database Review

An agency environmental database review is required for all projects, except for those projects identified as exempt. The purpose of conducting an agency environmental database review is to identify known contamination sources and regulated or registered sites. An agency environmental database review consists of a search of federal, state, and tribal environmental databases. These databases contain information for sites with known contamination or sites that generate, treat, store, or dispose of hazardous materials that could have potential contamination concerns.

Figure 4-2. Overview Map Depicting HMR Search Distance from Limits of Construction for Linear Corridor Project in an Urban Area

Project No. MISC-HMR-1234(1)

Control No. 12345



NDOT has modified the American Society for Testing Materials (ASTM) E 1527-21 database search recommendations, including the standard environmental database sources and the approximate minimum search distances (Table 4-1, Agency Environmental Database Descriptions and Approximate Minimum Search Distances) because the purpose of searching beyond the project area is to assess the likelihood of contamination migrating from surrounding areas and affecting the project in terms of construction, materials management, and worker health and safety. Databases are searched for sites that lie within a specific distance beyond the project area, approximately 0.1 mile and ranging up to 1 mile (Figure 4-2, Overview Map Depicting HMR Search Distance from Limits of Construction for Linear Corridor Project in an Urban Area, and Figure 4-3, Overview Map Depicting HMR Search Distance showing more detail in Urban Area) for active regulatory cleanup sites (i.e., Voluntary Cleanup Program [VCP] or Superfund). This is referred to as the HMR study area. See figures 4-4 through 4-7 for examples of overview maps of HMR search distances through other corridors. For linear transportation projects, the search distance is generally identified from the existing or proposed ROW (temporary or permanent). For bridge projects, the search distance is generally identified from the bridge footprint.

The NDEE IMS provides data on several programs relevant to hazardous materials analysis and provides links from the database to the online regulatory file records depository via the NDEE content management portal.

The minimum search distances may be extended at the discretion of the EP completing the review, particularly if there is potential for contamination to have migrated into the project footprint from a source outside the 0.10-mile search radii. For example, if the project scope of work involves excavation to groundwater, there may be potential for contaminant plume migration to impact construction.

The approximate minimum search distance should include any ROW (temporary or permanent) that may be needed for construction and should be sufficient to evaluate minor scope changes, minor shifts in the alignment, and other possible re-design options to avoid hazardous material involvement. For projects with alternatives analysis, the approximate minimum search distance should be sufficient to evaluate each potential alternative for hazardous materials concerns.

Figure 4-3. Overview Map Depicting HMR Search Distance showing more detail in Urban Area

Project No. MISC-HMR-1234(1)
Control No. 12345

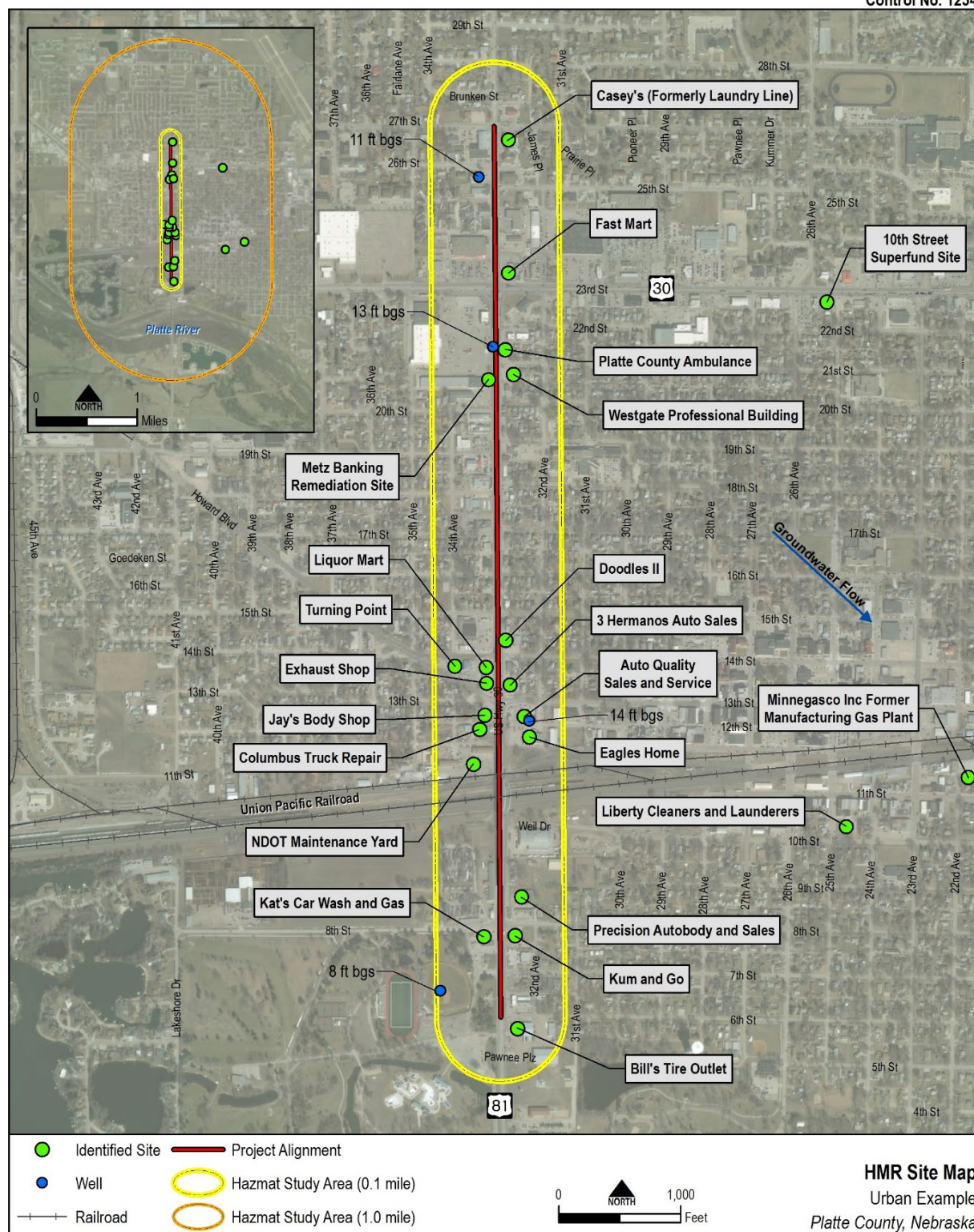


Figure 4-4. Map Depicting HMR Search Distance from Limits of Construction for Linear Corridor Project in a Rural Area

Project No. STP-8-5(111)

Control No. 42780

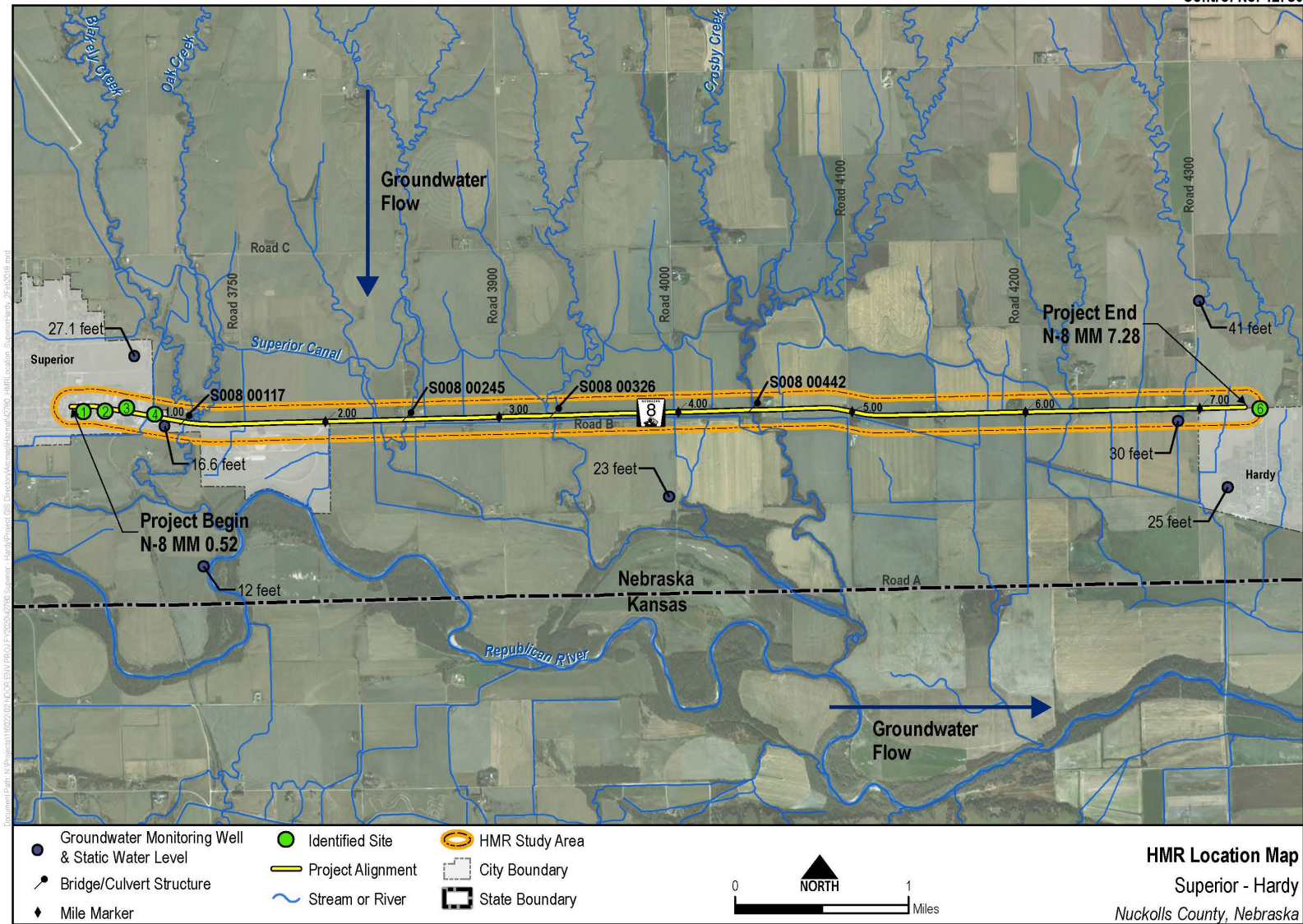


Figure 4-5. Overview Map Depicting HMR Search Distance from Limits of Construction for Linear Corridor Project showing more detail in a Rural Area

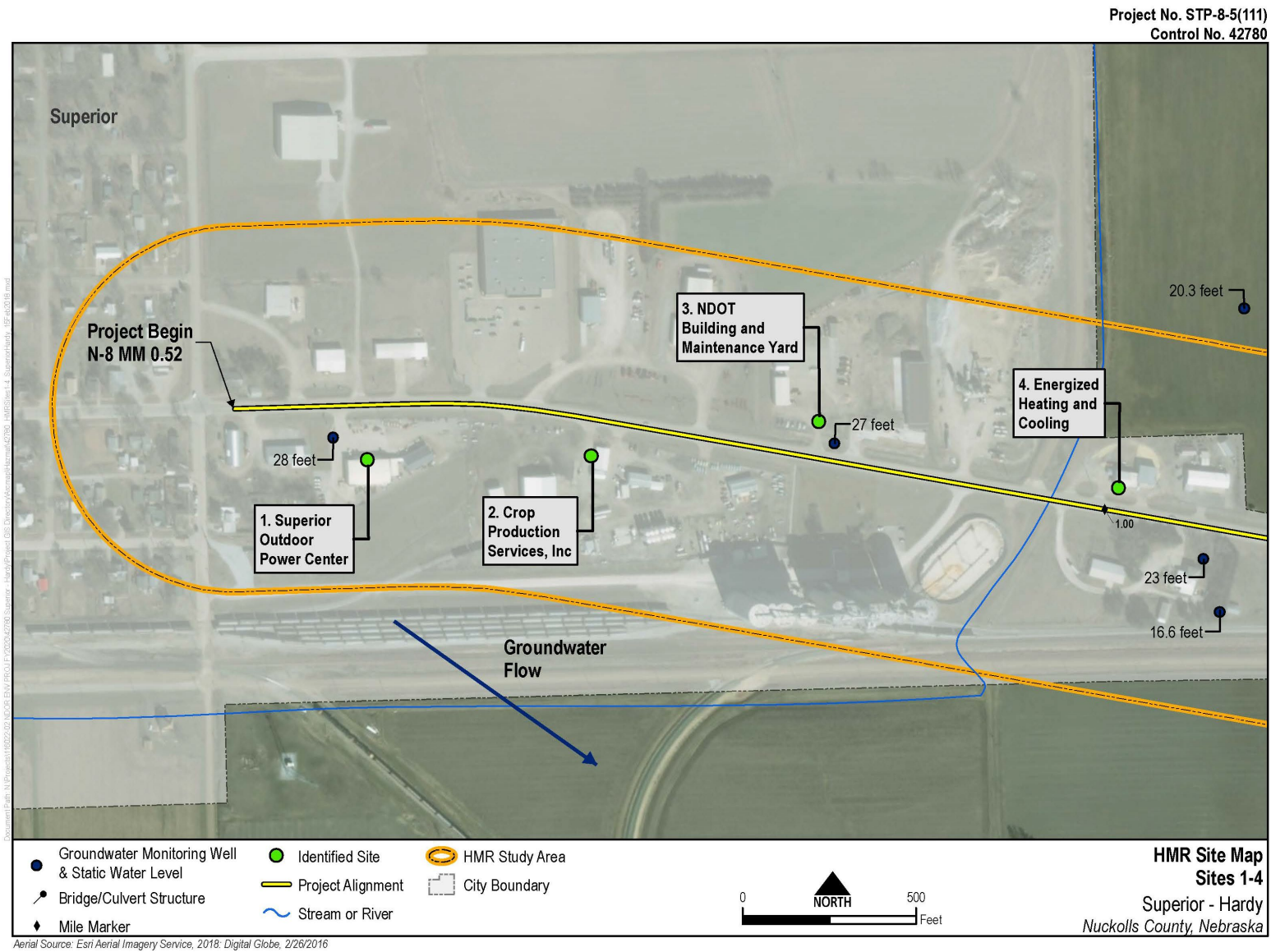


Figure 4-6. Overview Map Depicting HMR Search Distance from Limits of Construction for Linear Corridor Project showing more detail in a Rural Area

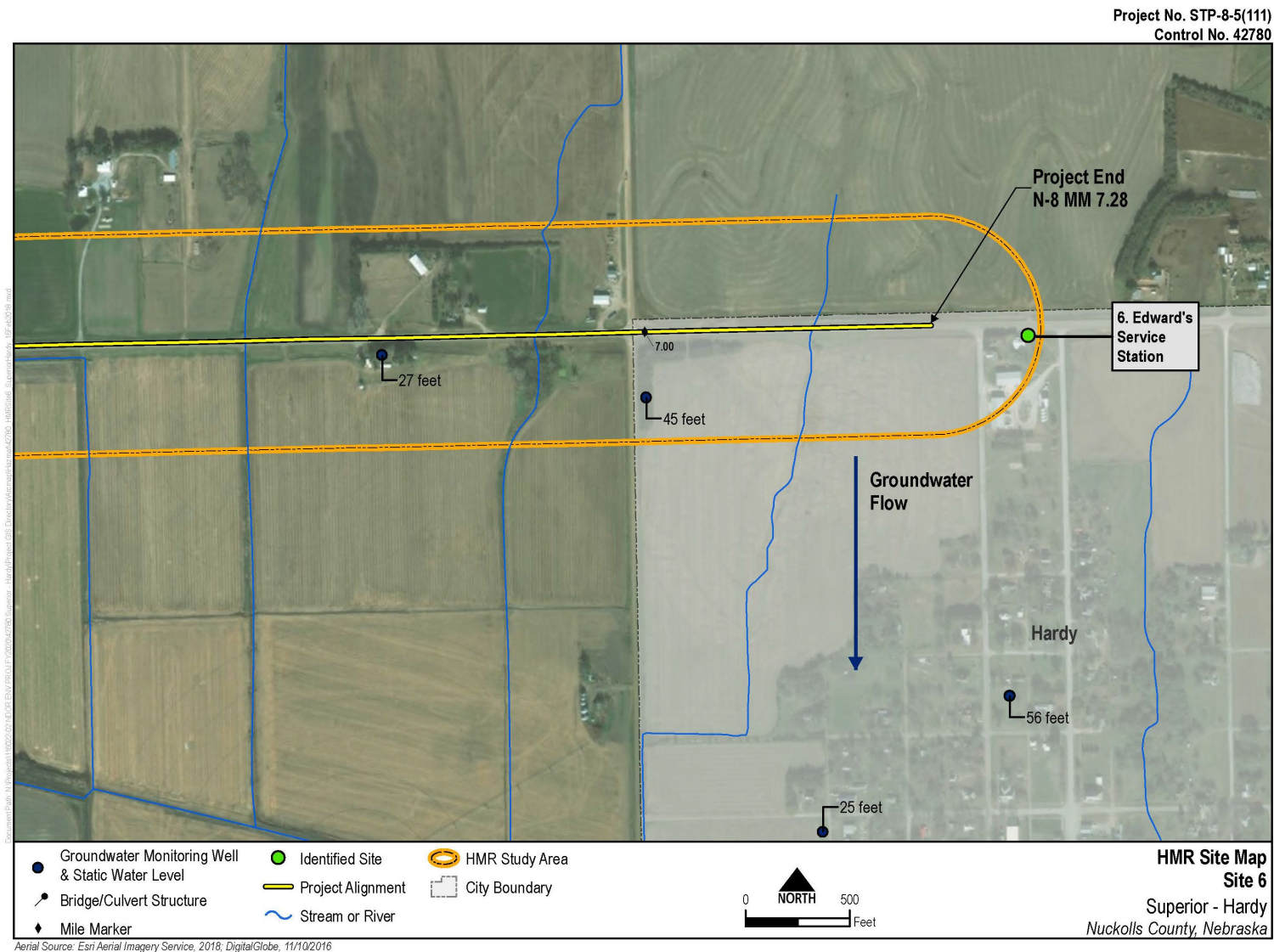


Figure 4-7. Overview Map Depicting HMR Search Distance of a Bridge Replacement Project



Table 4-1. Agency Environmental Database Descriptions and Approximate Minimum Search Distances

Database/Designation	Description	Approximate NDOT Minimum Search Distance (mile)
<i>Search Distances 1.0 mile</i>		
Federal Superfund (SF) NPL or State/Tribal equivalent and delisted sites	Facilities containing a SF designation according to the EPA CERCLA. This includes state or tribal-equivalent NPL which are not on the NPL, though some databases identify these as SF sites. All delisted SF sites with previous designation.	1.0*
Department of Defense (DOD/DERP)	Cleanup for Department of Defense Sites.	1.0*
<i>Search Distances 0.1 mile</i>		
Asbestos Abatement Remediation (ASB)	Identified asbestos remediation projects within the NDEE IMS.	0.1*
Brownfields site (BF) both state and tribal, and Targeted Brownfield Assessments (TBA)	Inventory of potential Brownfields sites. NDEE defines Brownfields as real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.	0.1*
Continuous Release (CR)	Continuous release of material to the environment from a facility.	0.1*
Environmental Assistance (EA)	NDEE assistance with facility compliance.	0.1*
Ground Water (GW)	Impacts to groundwater as identified by the NDEE.	0.1*
Haul, Collect, and Process Tires (HCP)	A facility permitted for the purpose of reusing, recycling or shipping waste tires.	0.1*
Integrated Waste Management (IWM)	NDEE comprehensive waste prevention, recycling, composting, and disposal program.	0.1*
Federal institutional control or engineering control registries	The EPA database lists sites with engineering controls in place, such as caps, building foundations, liners, and treatment methods to create pathway elimination from regulated substances to enter environmental media or affect human health. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post-remediation care requirements intended to prevent exposure to contaminants remaining on-site.	0.1
Federal ERNS List	The National Response Center, US Coast Guard database of information on reported releases of oil and hazardous substances.	0.1
Leaking Storage Tanks (LST)	All state and tribal identified leaking storage tank sites.	0.1*
Low-Level Radioactive Waste (LL)	Facilities with a LL designation.	0.1*
Mineral Exploration (ME)	Facilities/sites where mineral exploration is permitted.	0.1*
Onsite Assistance CWA-104 (OA)	Assistance with CWA-104 compliance.	0.1*

Database/Designation	Description	Approximate NDOT Minimum Search Distance (mile)
Petroleum Release Remediation (PRR)	Title 200 assistance for petroleum remediation.	0.1*
Release Assessment (RA)	NDEE technical and regulatory assistance to those responsible with leaks, spills, and accidents.	0.1*
Remedial Action Plan Monitoring (RAP)	A plan for onsite monitoring and remediation.	0.1*
Resource Conservation Recovery (RCR)-RCRA Act	Federal law for governing hazardous and solid wastes.	0.1*
RCRA CORRACTS facilities list	The EPA database lists sites identified as needing Corrective Action after a release of a hazardous waste or constituent into the environment from a RCRA facility.	0.1
State and tribal VCP sites	This is a listing of VCP sites.	0.1
Surface Water (SW)	Impacts to surface water as defined by the NDEE.	0.1*
Underground Injection Control (UIC)	Facility permitted to inject fluids into the subsurface.	0.1*
*Sites accessible through the NDEE IMS web-based tool at https://deqmaps.nebraska.gov/deqmapportal/nebraskaMapPortal.html		

4.1.2 Conduct Visual Reconnaissance

Most projects require a visual reconnaissance, except for exempt projects identified in Section 3.3, Project Types and Exclusions. Generally, the visual reconnaissance is limited to areas visible from public ROW and does not include access to fenced-in areas, interiors of buildings, rear lots (alley side portion of adjacent sites), or areas not visible from public ROW. A visual reconnaissance entails visually assessing the project corridor (e.g., highway widening project with many adjacent parcels) or project site (e.g., bridge replacement project with limited adjacent parcels) and surrounding area and observing the previous and current land uses for evidence of hazardous materials use, storage, and disposal. The visual reconnaissance can also help verify building occupants, addresses, locations, and current property uses of sites identified in the agency environmental database review. The staff performing the visual reconnaissance should also look for visible evidence of hazardous materials concerns at sites identified in the agency environmental database search, as necessary. The address of the identified sites should be ground-truthed and photographs taken of existing conditions. If the site address cannot be ground-truthed a photograph of the area the address states it should be is needed. Appendix C includes a description of reference items that may be identified during the visual reconnaissance. Phase I (ASTM 1527-21 compliant) or Phase II Subsurface Investigation might be required at a later time if the project requires ROW acquisition.

For certain projects and with NDOT's Environmental Hazardous Materials PQS approval, a desktop review (i.e., geographic information system [GIS] review in lieu of a visual reconnaissance) using the most current aerial photography and available data layers may be sufficient. A desktop review would most commonly be approved for projects in areas that are largely rural and undeveloped where few known hazardous materials sites have been identified, while a visual reconnaissance would be recommended for projects that are located within current or former industrial areas, developed areas, or areas with older multi-tenant retail properties that have a greater likelihood of high-risk

tenants over time (e.g., dry cleaners, gas stations). The rationale for performing desktop review in lieu of a visual recon will be found within the HMR. If something of concern or interest was identified during the desktop review, then the NDEE IMS website or content management portal can be accessed for further information. Based on findings from the desktop review and NDEE, it may be determined that a visual reconnaissance is needed to obtain further information or to field verify NDEE information.

4.1.2.1 Visual Reconnaissance Form

NDOT requires that the standard Visual Reconnaissance Form and a Photograph Log (Appendix B) be used to document the visual reconnaissance and be submitted to the project file. The form is completed for the entire HMR study area and within the search radii as described in Table 4-1, Agency Environmental Database Descriptions and Approximate Minimum Search Distances. Completing a Visual Reconnaissance Form for each individual property is not necessary; however, the form may be used to document site conditions for individual properties if the EP deems necessary. Take photos of sites identified in the database review. If the site no longer exists (been demolished), take a photo of the location where it existed. The standard Visual Reconnaissance Form and Photograph Log must be reviewed and signed by a qualified EP, as defined in Chapter 7, Environmental Professional Qualifications, if the field work is conducted by someone who does not meet the definition of an EP.

The standard Visual Reconnaissance Form documents information concerning the project background, including project number, project name, project description, project location, and main project elements. The form includes information pertaining to the general physical setting, including land use, topography, and estimated direction of groundwater or surface water flow.

Observations about the current use and current site conditions within and adjacent to the project area should be recorded on the Visual Reconnaissance Form. Also, limitations (e.g., snow cover prevented observations of ground conditions) should be documented. The facility names and addresses of adjacent properties and observations concerning these properties should also be included. Observations of water wells (monitoring wells, in particular) should be noted, and their locations identified. Reviewing the physical setting sources (soil type, geology, groundwater flow direction) is particularly important when it is suspected that contamination could migrate from a nearby site into the project area or existing contamination in the project area has the potential to affect soil and groundwater. All of the above criteria are necessary to evaluate in order to protect project delivery and minimize potential impacts to human health and the environment.

The standard Visual Reconnaissance Form contains a checklist of items commonly associated with hazardous materials use, storage, and disposal to be looked for during the visual reconnaissance. Additionally, the standard Visual Reconnaissance Form documents whether bridges in the project area may have evidence of TMP components.

For corridor-level and large linear projects, there may be numerous adjacent properties that need to be documented during the site reconnaissance. If necessary, prior to conducting the site visit, print additional pages of the Visual Reconnaissance Form to record the adjacent property information or record information on a corridor-level map.

4.1.2.2 Field Notes and Photograph Log

Observations made during the visual reconnaissance should also be documented with field notes and photographs. Table 4-2, Example Visual Reconnaissance Photograph Log, depicts an example photograph log used to document the visual reconnaissance for NDOT projects. Photographs should be well documented in the photograph log (Appendix B) with the date and time of the visual reconnaissance and descriptions of the photo locations, compass orientations or directions of photographs, and specific hazardous materials observations or concerns, or both. Field notes can be

completed on maps, such as corridor maps with aerial photography of the project area, to identify the location of potential hazardous materials.

Table 4-2. Example Visual Reconnaissance Photograph Log

	
<p>Photo #1 – View south along the 108th Street corridor.</p>	<p>Photo #2 – View east at the Valvoline quick lube station adjacent to 108th Street. (5321 South 108th Street)</p>

4.13 Determining Next Steps

After the agency environmental database review and visual reconnaissance are complete, hazardous material sites that have the potential to impact project delivery, construction, materials management, or human health and safety for Contractors or the public should be identified for further discussion. This may include hazardous material sites, relative to their designated search distance or topographical gradient, that can be disturbed during project excavation or have impacted groundwater. If there are indications that identified sites exist that may impact the project, additional analysis and discussion may be required by the NDOT Environmental Hazardous Material PQS.

4.2 Site Analysis and Discussion for Hazardous Material Reviews

To determine whether site analysis and discussion is warranted for the project, ask the following questions:

- Does the project involve the acquisition of property rights for ROW?
- Is the project located in a current or historical industrial area, highly developed area, or an area with older multi-tenant retail properties?
- Do the results of the database search identify sites with potential or known contamination in the surrounding area?
- Is the depth of excavation in the proposed project's scope of work near the identified sites?

If the answer to any of the questions is yes, then site discussion is likely required and consultation with NDOT is recommended.

This discussion will further document site conditions to determine low, medium, or high potential impacts to the project. This may include historical records reviews, land

records review (title, liens, environmental or institutional controls, AULs), and more detailed regulatory file views at NDEE. These types of analyses will be applied to the HMR process and added as Hazardous Material Site Discussion within the HMR report as discussed in Section 4.4, Hazardous Material Review Report Documentation. If the identified site can be avoided and there are no anticipated impacts to construction, materials management, or human health or the environment, the findings are then summarized into the HMR report.

It should be noted that sites must have a justifiable reason to be considered to have a low potential to impact construction, such as “the facility is considered to have a low potential to impact construction because it is greater than 0.10-mile from the project footprint and is topographically down-gradient from proposed project activities.” Typically, if no sites of concern or impacts are identified during the HMR, then no further research, coordination, investigation, or other considerations are necessary for completion of the HMR report. If identified sites cannot be dismissed in the HMR based on their location relative to the project limits of construction (LOC), type of concern (i.e., contaminant of concern or regulatory status), or there is more than a low potential to impact the project based on project scope, then further discussion is required to complete the HMR process. When an analysis determines a medium or high potential site, NDOT Environmental will be consulted on the appropriate next steps and level of analysis.

If the project includes multiple alignments or alternatives, analysis is typically required before the site screening for risk assessment to alternatives may be completed. Follow the HMR process described in Section 4.4.2, Hazardous Material Review for Projects with In-Depth Alternatives Analysis.

4.2.1 Conduct Detailed Regulatory File Review

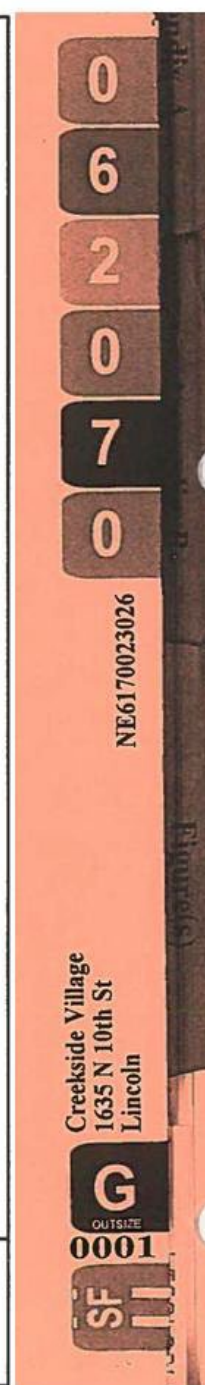
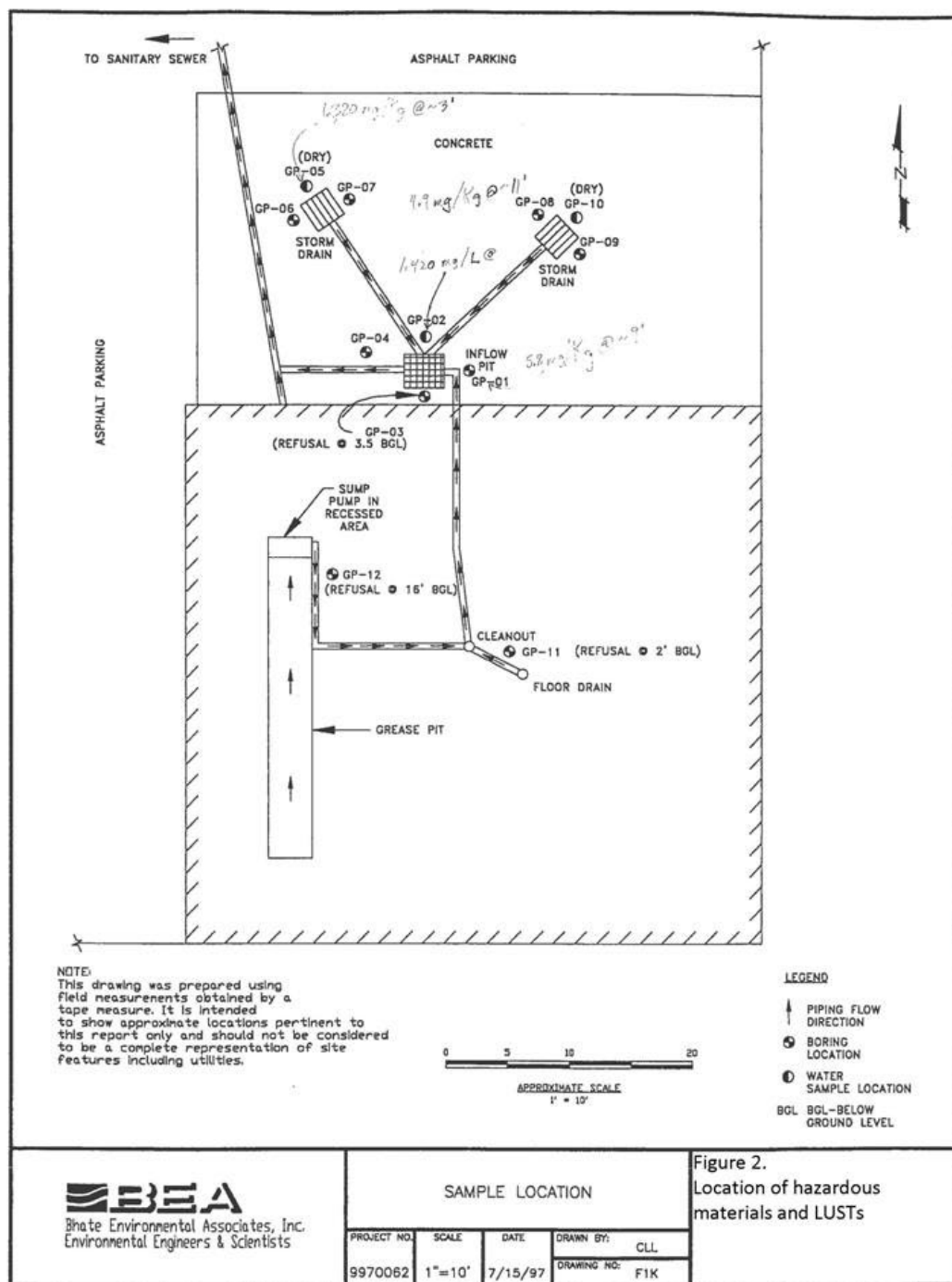
When properties are identified during previous HMR steps where the potential to impact project delivery is anticipated or known, NDOT requires additional research on these properties. Detailed records reviews can be conducted through the NDEE Records Management Unit. The NDEE Records Management Unit manages information, such as corrective action plans, groundwater monitoring reports, and correspondence related to the specific site(s) of interest. The information obtained during the detailed records review can be used to help NDOT determine if the identified sites could affect project activities and if additional investigation (i.e., subsurface investigation of soil or groundwater, or both) is necessary. Information gathered during the detailed records review (e.g., location of spill, contaminants of concern, location of groundwater remediation system, extent of groundwater plume) can also be used during the project design and alternative selection process for projects with in-depth alternative analysis (Section 4.4.2, Hazardous Material Review for Projects with In-Depth Alternatives Analysis).

It is important to be aware of sites that may be listed as “closed” in the agency environmental records search but still present a concern. Sites “closed” under Risk-Based Corrective Action (RBCA) that have received No Further Action (NFA) letters from NDEE could still warrant discussion. A detailed records review may be used to determine whether residual soil or groundwater contamination present on-site (despite having achieved the appropriate cleanup levels that the state requires) could impact construction and worker health and safety or cause a materials management issue.

The EP is responsible for determining which sites warrant a detailed records review. For example, certain sites may be unlikely to impact the project based on factors such as maximum depth of the proposed excavation or groundwater flow direction related to the project area. **When in question, consult the NDOT Environmental Hazardous Material PQS to determine whether a detailed records review is required for particular sites or properties of interest.** Table 4-4, Example Hazardous Material Review Recommendations for Alternatives Analysis, includes an example decision matrix for determining if a detailed records review is warranted. If a detailed records review is conducted, all

findings should be recorded in the HMR. Copies of pertinent regulatory records should be included in the HMR appendices. Examples of pertinent records include site maps, groundwater flow maps, closure assessments, NDEE correspondence, and executive summaries of monitoring reports (Figure 4-8, Example Regulatory File Site Map).

Figure 4-8. Example Regulatory File Site Map



4.2.2 Review Historical Record Sources

NDOT has adopted the ASTM E 1527-21 definition of “standard historical sources,” which includes *“those sources of information about the history of uses of properties”* that covers a period extending back to a property’s first use or back to 1940, whichever is earlier (ASTM 2021). The most common historical sources that NDOT reviews as part of an HMR include historical aerial photographs, U.S. Geological Survey (USGS) topographic maps, and Sanborn Fire Insurance maps. Aerials tend to provide the best coverage between decades. USGS topographic maps and Sanborn Fire Insurance maps may be reviewed to supplement the aerial review or if the aerial coverage is limited for a project. Other potential sources of historical information include city directories, county assessor’s websites, title records, building department records, zoning or land use records, and property tax files. These sources can be used to determine a building’s age, if construction improvements have occurred.

For the NDOT historical sources review, a search interval of every 10 years is acceptable if an area is not experiencing much change. However, if the project is located within a rapidly changing area, a search interval of every 5 years may be more appropriate. A search interval of more than 10 years is acceptable if the property use has not changed over an extended period of time (i.e., agricultural farmland that has been farmed since 1920 through 1970 or a building that has the same use in a 1915 Sanborn Fire Insurance map as in the 1955 map). Findings from the historical sources should be included in the site discussion and referenced in the HMR. Discussions of the various types of historical sources follow.

4.2.2.1 Historical Aerial Photographs

Aerial photographs have been collected for the continental United States since the mid-1930s, with variable coverage and frequency (generally based on an area's importance to national defense) (Figure 4-9, Examples of Historical Aerial Photographs). Aerial photographs offer an opportunity for direct observation of site conditions through a period of time. These observations may include the locations of tanks, buildings, drums, pits, ponds, lagoons, stained or stressed vegetation, or other site development features that can indicate potential contaminant sources.

Figure 4-9. Examples of Historical Aerial Photographs



Lagoons associated with a concentrated animal feeding operation.



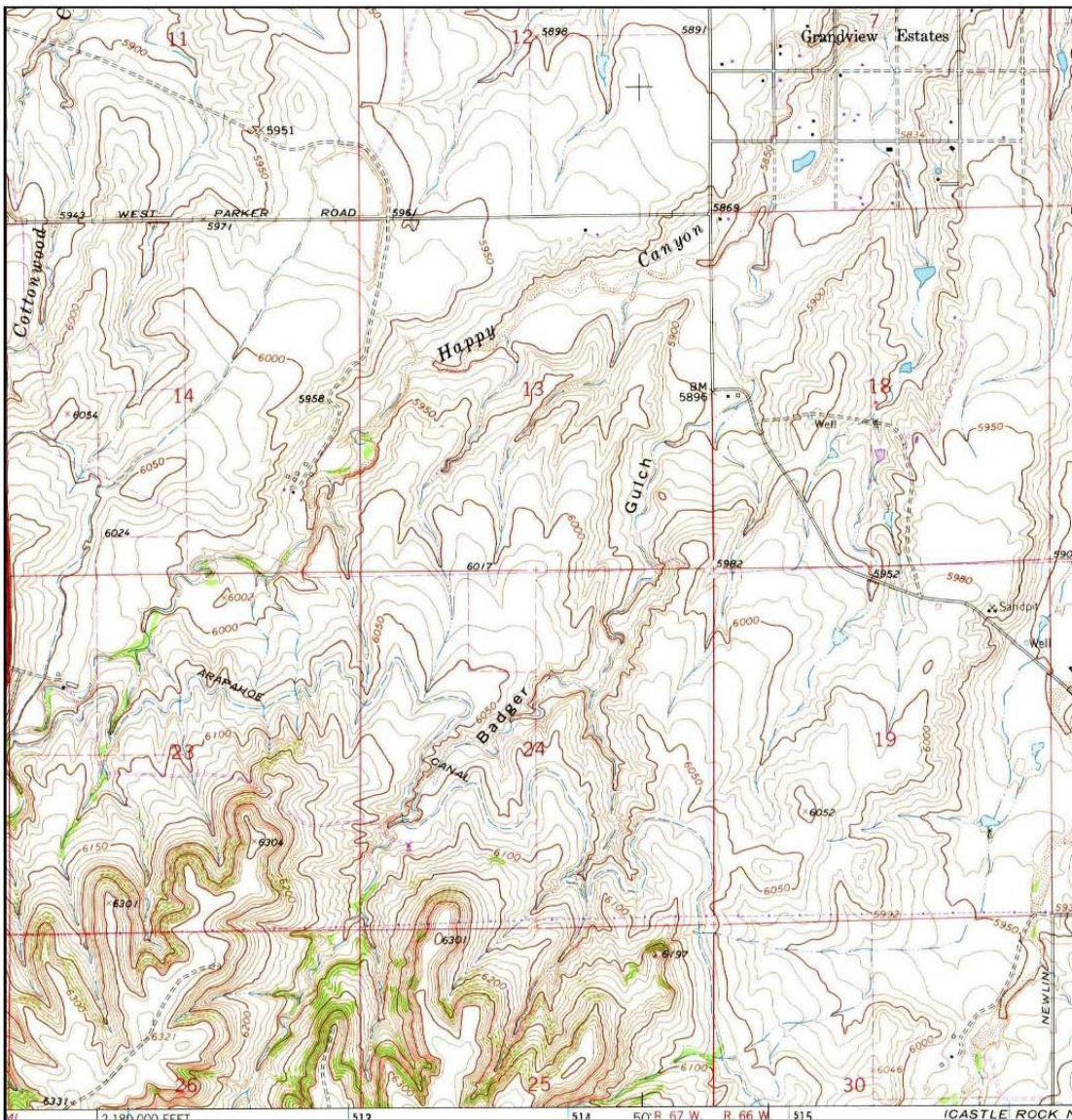
View of active land filling in northwest Douglas County, NE. The landfill on the left is almost full, and the one on the right is new.

4.2.2.2 U.S. Geological Survey Topographic Maps

USGS topographic maps have been prepared since the 1800s as part of the USGS mission to map the United States and survey its resources (Figure 4-10, Example Historical Topographic Map).

Topographic maps use contour lines to show topographic features and also show symbols that represent other features such as streets, buildings, streams, mines, and vegetation. These maps are useful in identifying topographic and cultural features and site development over a period of time.

Figure 4-10. Example Historical Topographic Map



Source: EDR 2010.

4.2.2.3 Sanborn Fire Insurance Maps

Historical fire insurance maps (when available for an area) have been produced by private companies for more than 100 years and include information about buildings, such as building uses and locations at specified dates. One type of historical fire insurance map is the Sanborn Fire Insurance map. Sanborn maps may identify pits, lagoons, tar wells, incinerators, gasholders, aboveground storage tanks (ASTs), and fueling facilities. Sanborn maps are typically available for urban areas but are generally not available for rural areas. An example of a Sanborn map is provided in Figure 4-11, Example Sanborn Fire Insurance Map.

Figure 4-11. Example Sanborn Fire Insurance Map



Source: www.sanborn.com

4.3 Subsurface Investigations for Hazardous Material Reviews

For some projects, the findings of the HMR may indicate that a Phase II subsurface investigation is needed. NDOT should determine the timing of the subsurface investigation. NDOT's process for subsurface investigations is consistent with ASTM Standard E 1903-19, "Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process" (ASTM 2019).

A subsurface investigation would be conducted prior to the completion of the NEPA document and incorporated within the HMR report and submitted together for NDOT Environmental Hazardous Material PQS review. The purpose of the investigation is to assess the presence or absence of soil and

groundwater contamination along a proposed corridor or at a project site. The investigation may be limited in scope (e.g., sampling of soils and groundwater near an Historical gasoline station) or it may include a more extensive program of soil borings, geophysical surveys, and analytical sampling of multiple sites along a project corridor. These investigations can be used to determine several things, including, but not limited to:

- Are contaminated materials hazardous or non-hazardous for determining proper disposal or reuse options (waste materials management)?
- Are design modifications necessary? For example, the design may require modification to avoid exacerbating the extent of a contaminant plume or impacting already impaired waters.
- Do project-specific mitigation measures need to be developed to address impacts to the identified site of concern or to mitigate the risks to project delivery and construction?
- Are property health and safety precautions addressed based on the contaminant of concern.

Upon completion, the NDOT Environmental Hazardous Material PQS will review the combined HMR and subsurface investigation report and provide any comments. Once the report is received, the NDOT Environmental Hazardous Material PQS will review the report, commitments, and coordination regarding hazardous materials. Upon approval, the document will be forwarded to the NDOT NEPA Project Coordinator. The HMR, subsurface investigation findings and commitments or mitigation measures should be summarized in the NEPA document.

If landowner access is unavailable or not allowed, the subsurface investigation will be performed within the nearest point of available access to the property of concern.

This guidance does not cover the NDOT procedures for sampling soils and groundwater nor does it cover how to deal with hazardous materials that are unexpectedly encountered during the construction phase of NDOT projects. For guidance and procedures on how NDOT handles these items, please reference NDOT Unexpected Waste Action Plan (NDOT 2023).

4.3.1 Materials Management Plans

For some projects, the findings of the HMR may have prompted NDOT to authorize a subsurface investigation during the NEPA process. The timing of the subsurface investigation would occur prior to NEPA clearance; however, recommendations based on the outcome of the subsurface investigation may be carried forward as commitments or mitigation measures. The investigation may have identified sites along a project corridor that require waste characterization, special provisions for handling, and disposal or reuse options. Guidance for materials management and proper disposal may be found in NDEE's "Investigation-Derived Waste (IDW) & Remediation Waste Considerations" Environmental Guidance Document available online. Under the "Active Management and Point of Generation" section, "[a] activity not related to investigation or remediation is not considered active management under the waste regulations. Therefore, materials generated at a site that is not a remediation or investigation activity site or are not related to remediation or investigation activities, are not considered a waste unless it is intended for disposal." (NDEE 2016). If materials, such as soil or groundwater, which are known or suspected of being contaminated will be taken off site, then the Contractor is required to treat it as a special waste and follow NDEE regulations for proper disposal. The materials management plan should include provisions and protocols to containerize the waste materials and to characterize it for proper management and final disposal.

4.3.2 Coordination with Regulatory Agencies

During planning and NEPA, coordination with regulatory agencies may be required for sites under investigation, corrective action, enforcement, permit plans, or closure plans regulated by EPA or NDEE

to determine site status, obtain approval for intrusive sampling and analysis plans (if required), and determine design considerations that might be needed during construction. Coordination may occur with both the applicable regulatory agency(s) and the responsible property owner or operator of the site(s). Under certain circumstances, subsurface investigations may be required after NEPA is complete.

4.4 Hazardous Material Review Report Documentation

4.4.1 Hazardous Material Review for Site-Specific Projects

Documentation of the HMR findings includes a report and attachments. Most projects for NDOT, particularly those federal-aid project processed with CE documentation, fall under this Site-Specific Project category. The HMR should include documentation for why the sites were considered to have low, medium, or high potential for contamination. Identified sites discussed in the HMR should be depicted on the figure (refer to Figure 4-2, Overview Map Depicting HMR Search Distance from Limits of Construction for Linear Corridor Project in an Urban Area, Figure 4-3, Overview Map Depicting HMR Search Distance showing more detail in Urban Area). Any additional analysis that was conducted to further evaluate identified sites should be documented within the HMR. Table 4-3, Example Hazardous Material Review Findings and Recommendations for Site Specific Projects, includes examples for documenting the site information and impact conclusions. The level of detail in an HMR can vary based on the project design (e.g., ROW requirements, excavation requirements) but can typically include the following information in the report:

- Authors and QC professional names will be included on front page of HMR.
- An overview of HMR process should be included in an HMR.
- A brief description of the project (e.g., bridge replacement, corridor widening), project area, and adjacent properties should be included in an HMR.
- Include a map of project area, including the HMR study area, project footprint, any property rights to be acquired for ROW (if known) in the HMR. One map of the project area and as many maps as needed to show the sites investigated in detail. Building outlines should be easily visible. Maps need to indicate groundwater depth by showing registered wells in the project vicinity and the general direction of groundwater flow (blue arrow).
- A brief description of environmental setting should be in the HMR.
- Database search results should be included in the HMR.
- A summary of the visual reconnaissance observations should be included in the HMR.
- If a detailed records review was conducted for specific sites, the site discussion should be contained within the body of the report (if applicable).
- Include historical review results, including a description of historical uses of sites in and adjacent to the project area (if applicable), in the HMR Site Discussion.
- Include the results of land records review (title, liens, environmental/institutional controls, AULs) (if applicable) in the HMR.
- The identification of potential to impact the project (e.g., contamination could be encountered as a result of highway widening activities) (if applicable) should be included in the HMR.
- A detailed records review summary (if required) should be included in the HMR.
- The subsurface investigation results (if required) should be included in the HMR.

- In the Summary of Findings, the identification of sites is in a table format which includes the site name (if known), address (if known), parcel identification number (if known), type of regulatory program and status (active, inactive, closed to no further action), and distance and direction relative to project footprint. Make sure to include a description of the site's regulatory information and all identified sites on a figure map.
- For the Recommendations identify potential contaminants of concern and whether it is groundwater or soil contamination, or both. Identify the sites as having low, medium, or high potential to have contamination that could impact project construction, materials management, or human health and safety.
- Include in the HMR the mitigation measures and commitments for inclusion in the environmental documentation and Green Sheets.
- Ensure the attachments include the full project description, a figure showing the HMR study area, and if applicable, pertinent regulatory files.
- The Project File should include the completed and signed NDOT Standard Visual Reconnaissance Form, Photograph Log, historical records, regulatory files, and database search documentation.

Table 4-3. Example Hazardous Material Review Findings and Recommendations for Site Specific Projects

Facility	Address	Regulatory Database and Facility Status	Distance Relative to Project
<i>Conoco Station (NDEE IIS# XXXXX)</i>	<i>555 Flower Street City, NE 68116</i>	<i>EDR UST (Active)</i>	<i>>0.75-mile north and topographically up-gradient</i>
Findings: The Conoco Station facility is listed in the EDR report as a regulated site. It is also listed on the NDEE IMS website. Additionally, the Nebraska State Fire Marshal's list of registered tanks (accessed June 27, 2014) lists this facility by name and address. Two underground storage tanks with 10,000-gallon capacity each are registered for this site. No known or recorded releases were identified for this facility. Based on the above information and the proposed scope of work, the Conoco Station is considered low potential to affect materials management or worker health and safety related to project construction.			
<i>Former Martinizing / Dry Cleaning (NDEE IIS#XXXXX)</i>	<i>1910 Main Street City, NE 68849</i>	<i>Drycleaner (Inactive); RCRA-SQG (Inactive); CORRACTS (Active)</i>	<i>1,050 feet northwest and topographically cross- to up- gradient</i>
Findings: The EDR report and NDEE IMS listed the Martinizing / Dry Cleaning facility as an inactive RCRA SQG and active RCRA Corrective Action (CORRACTS) facility site. The facility is currently inactive, and the location is currently vacant. The business closed in 2010; however, regulatory records indicate that remediation activities are ongoing. NDEE indicates that the remediation workplan for plume delineation is under administrative review. Based on this information and the distance from the proposed project and the potential for VOCs and semi-volatile organic compounds (i.e., PCE and other related drycleaning contaminants of concern) groundwater plume migration to exist, there is medium potential the drycleaning facility could impact construction, materials management, or worker health and safety related to the project. A subsurface investigation is recommended to identify if the contaminant plume extends within the project footprint.			

<i>Superfund Site/ Non-NPL (NDEE IIS# XXXXX)</i>	<i>4th & A Street City, NE 68805</i>	<i>Brownfields (Active)</i>	<i>Adjoining</i>
Findings: The Brownfields facility is listed in the EDR report as a regulated site. It is also listed on the NDEE IMS website. Recorded releases were identified for this facility; therefore, a Phase II subsurface investigation was conducted (conducted by X, completed March 2015). The contaminant levels of petroleum compounds and VOCs such as ethylbenzene and 1,2 dichloroethane require remedial action. A current plume map (included in appendices) indicates that the plume intersects with the proposed project footprint. Therefore, based on the above information, the proposed scope of work and depth of excavation, the Brownfields facility is considered high potential to impact materials management or worker health and safety related to project construction. A materials management plan, contractor health and safety, and NDOT's standard mitigation measures are required.			

Source: <Indicate source of data here>

Notes:

CORRACTS	=	RCRA Corrective Action Site	NDOT	=	Nebraska Department of Transportation PCE =
EDR	=	Environmental Data Resources, Inc.			perchloroethane
IIS	=	Integrated Information System	RCRA	=	Resource Conservation and Recovery Act
IMS	=	interactive mapping system	SQG	=	small quantity generator
NDEE	=	Nebraska Department of Environmental Quality	UST	=	Underground Storage Tank
			VOC	=	volatile organic compound

The HMR report should be submitted to NDOT for review once all analysis is completed, including any subsurface investigation results, if necessary. The NDOT Environmental Hazardous Material PQS would review the HMR and provide any comments. Once the HMR is approved, the HMR findings and commitments or mitigation measures should be summarized in the NEPA document.

4.4.2 Hazardous Material Review for Projects with In-Depth Alternatives Analysis

The purpose of the HMR for projects with alternatives analysis is to evaluate and manage the probability and severity of hazardous material impacts related to alternative selection. The review includes the steps described for the HMR above, plus the site screening for risk assessment process described below to identify sites as low, medium, or high risk to project alternatives. The HMR for alternatives analysis is typically completed during the Draft NEPA EA document phase, or Draft EIS. Also, additional subsurface investigation may be required if the preliminary results of initial HMR efforts indicate that further information concerning specific sites is needed.

The level of detail in the HMR can vary based on the project design (e.g., ROW requirements, excavation requirements) of the various alternatives but generally includes the same information in the report as described for the Site-Specific Projects.

At a minimum and in addition to the Site-Specific Projects HMR report documentation, the following information should be included:

- A figure map showing the various configurations of the proposed alternatives
- Historical resource review results (such as historical aerial photography, topographic maps, and Sanborn Fire Insurance maps)
- Summary of Site Screening for Risk Assessment to Alternatives (described below)

As part of the HMR process, sites are identified based on-site type, regulatory state, contaminant of concern, and distance from the project area whether the site is likely to affect the project. Once this is done, it needs to be determined how much risk may be associated with identified sites and if they

could affect the alternative analysis and selection process. To determine risk, the NDOT Site Screening Process should be followed as described below.

4.4.2.1 Nebraska Department of Transportation Site Screening Process for Risk Assessment to Alternatives

The first steps of the HMR site screening process for risk assessment to alternatives analysis is to identify sites from the regulatory database search, perform visual reconnaissance, and conduct analysis for those sites that may need to be further screened based on the potential to have contamination that could impact the project. This is determined by evaluating the regulatory status, location of known contamination plumes, contaminant(s) of concern, topographic gradient and distance from the project area against the project scope, depth of excavation, and project-specific information to determine how much risk may be associated with a particular site and whether it might impact a project alternative.

The site screening process designates and further documents hazardous material sites with a high, medium, or low risk designation based on the evaluation of the probability and severity of impacts associated with project implementation. Potential risks to the project include:

- Project Budget and Schedule Risks
 - Overall project cost
 - Obligation of funds
 - Letting schedule
 - Design changes (Engineering costs)
- Environmental Risks
 - Soil or groundwater contamination depending on depth of excavation
 - Whether identified contaminants of concern are above or below EPA MCLs and Risk Based Screening Levels (RBSLs)
 - Magnitude and extent of contamination
 - Status of remediation activities and if the project will affect remediation equipment, wells
 - Other cleanup-related activities and cost of cleanup
- Human Health and Safety Risks
 - Risk of exposure and below EPA Health Advisory Levels
 - Level of threat in relation to OSHA safety standards
 - Cost of human health and safety mitigation measures, personal protective equipment, and precautions
 - Cost of healthcare

The second step of the screening process consists of assessing the site risk based on the evaluated impacts the identified site might have on the project and then ranking the site by level of risk based on the collective information.

The risk level categories are defined as:

- Low Risk: It is unlikely that contamination is located within the HMR study area for the proposed project alternatives. There is low risk to the overall project, the natural environment, and human health and safety.
- Medium Risk: Potential contamination exists within the HMR study area for the proposed project alternatives. The extent, nature, and concentration of contamination are such that

potential materials and management would pose minimal delays and low cost and could be handled by the contractor prior to or during construction. Any human health and safety plan would be minimal in scope and easy to implement. Correspondence with regulatory agencies may be required.

- High Risk: Contamination is likely to exist within the HMR study area for the proposed project alternatives. The extent, nature, and concentration of contamination are such that materials and management would be high in cost and could create substantial delays in project delivery. Human health and safety plans would require in-depth planning, would be high in costs, and require a quality assurance/quality control (QA/QC) process. Correspondence with agencies may be required. NDOT's preference is the avoidance of contaminated sites that pose a high risk to the project.

Then NDOT requires the EP (as defined in Chapter 7, Environmental Professional Qualifications) performing the review to provide findings and recommendations regarding each identified site. The EP then identifies the necessary project-specific commitments and mitigation measures for construction, materials management, health and safety precautions, that should be addressed during future project phases. Table 4-4, Example Hazardous Material Review Recommendations for Alternatives Analysis, provides an example of project-specific findings.

Upon completion, the NDOT Environmental Hazardous Material PQS will review the HMR report and provide any comments. Once the HMR report is approved, the HMR should be summarized in the NEPA document. The HMR report and associated records should be kept with the project file.

Table 4-4. Example Hazardous Material Review Recommendations for Alternatives Analysis

Site Name/ Address	Distance/ Direction from the Project Area	Site Description and Environmental Concern	Risk to Alternatives	Findings
Sm. Business. A. 255 G Street	100 to 500 ft west, lower elevation	RCRA SQG, no reported violations No acquisition for ROW is expected.	Low Risk	The facility is topographically down- gradient from the project. Based on this information the facility is considered low risk to the proposed alternatives. No further review is required.

Site Name/ Address	Distance/ Direction from the Project Area	Site Description and Environmental Concern	Risk to Alternatives	Findings
Joe's Gas & Shop 125 Main Street	20–50 ft east, same elevation, adjacent property	Open LUST and UST site There are residual levels of petroleum hydrocarbon and VOC contamination in soils and groundwater. Site is under ongoing remedial investigation. No acquisition for ROW is expected.	Medium Risk	The regulatory records file review indicated that the extent of soil and groundwater contamination is within the HMR study area but confined to the northeast quadrant. The most recent quarterly monitoring report indicates contaminant levels are above RBSLs and the groundwater flow direction in the report confirms the facility is topographically cross-gradient from the project. Based on this information, the facility conditions are considered medium risk to the proposed alternatives. A subsurface investigation was completed to identify site conditions within the proposed project area (results are summarized below). Health and safety precautions and materials management mitigation measures would be required.
Big Mfg. Co. 150 Main Street	less than 100 ft west, higher elevation	RCRA TSDF, CORRACTS There are reports of illegal hazardous waste disposal. Temporary easement or partial ROW acquisition, or both, is expected.	High Risk	The facility is located topographically up-gradient from the proposed project. Therefore, soil or groundwater sampling was conducted to identify the presence of contamination within the HMR study area. Soil and groundwater sampling results indicated the presence of petroleum compounds and VOCs within the HMR study area. Based on the proposed scope of work for some of the proposed alternatives, contaminated groundwater may be encountered during construction. Based on the extent and nature of the contaminant of concern (e.g., above RBSLs), it is recommended this site be avoided, if possible.

Source: <Indicate source of data here>

Notes:

CORRACTS	=	RCRA Corrective Action Site	ROW	=	Nebraska Department of Transportation
HMR	=	Hazardous Material Review	SQG	=	small quantity generator
LUST	=	leaking underground storage tank	TSDF	=	treatment, storage, and disposal facility
RBSL	=	risk-based screening level	UST	=	Underground Storage Tank
RCRA	=	Resource Conservation and Recovery Act	VOC	=	volatile organic compound

4.5 Phase I Environmental Site Assessments (ESAs)

Phase I ESAs are property-specific and may be performed on individual sites where property rights may be fully acquired for a project, or for sites with structures that will be acquired or were identified as having signs of environmental contamination during the project planning and development phases. A Phase I ESA involves gathering detailed information on a particular site (i.e., property) by performing research that goes beyond the review steps required for an HMR. The purpose of conducting site-specific assessments is to establish landowner liability protection under AAI when purchasing or acquiring property by assessing for the presence or absence of soil and groundwater contamination, ACM, and heavy metal-based paint. The additional research may include onsite interior inspections and interviews with property owners. These individual assessments follow the current version of ASTM Standard E 1527-21, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process" (ASTM 2021). If it appears a Phase I is needed, the EP shall contact the NDOT Environmental Hazardous Material PQS. The PQS will review the information provided by the EP and, if a Phase I is warranted, the PQS will order the Phase I performed on the suspect property(ies). A Phase I would typically be conducted during the NEPA process. In limited circumstances only, a Phase I for full property acquisition would be deferred to a later phase of project delivery.

In situations where ROW acquisition may require the taking of a full parcel of property, structure, or building, coordination with the property owner for access to the structure or building may be necessary. Property owners and tenants are to be contacted to obtain permission and schedule the site visit prior to assessment. The NDOT ROW division will contact landowners by either phone or mail prior to the site visit. Therefore, coordination with the NDOT Environmental Hazardous Material PQS should occur to determine appropriate next steps and NDOT Right-of-Way personnel shall be notified prior to communications with individual landowners.

As a last resort, if the owners or tenants are not responding to requests for a site visit, under Nebraska State Statute 39-1324 *"the department shall have authority to enter upon any property to make surveys, examinations, investigations, and tests, and to acquire other necessary and relevant data in contemplation of (1) establishing the location of a road, street, or highway, (2) acquiring land, property, and road building materials, or (3) performing other operations incident to highway construction, reconstruction, or maintenance[...]"* This aforementioned right-of-entry procedure is used with utmost discretion and is only performed by NDOT management or Right-of-Way personnel. Coordination with the NDOT Environmental Hazardous Material PQS should occur to determine appropriate next steps.

Chapter 5 Nebraska Department of Transportation Internal Review Process and Clearance

Reports for HMRs are to be submitted to the NDOT Environmental Hazardous Material PQS, for review and approval. The NDOT Environmental Hazardous Material PQS is responsible for reviewing and approving HMR documents as well as reviewing and incorporating hazardous material findings, commitments and mitigation measures into the project environmental documents, specifications, and contracts. The NDOT Local Assistance Division is responsible for coordinating hazardous materials management concerns and serves as the point of contact for cities, villages, counties, and regional agencies that have infrastructure or transportation services.

The NDOT Environmental Hazardous Material PQS reviews the hazardous materials documents to evaluate whether sufficient research or disclosure has been provided regarding the potential for encountering hazardous material contamination within the proposed project area. Any required permits, coordination with regulatory agencies, or special considerations for hazardous material contamination must be disclosed in the HMR. If disclosure does not appear to be sufficient, or if NDOT Environmental Hazardous Material PQS disagrees with the opinions, findings, or recommendations, revisions or clarifications must be made before the documentation can be approved to proceed with the next stages of project development. HMRs for projects occurring within the boundaries of an active Superfund site with soil disturbance below or beyond pre-existing roadway fill, or projects with a high potential for encountering contaminants, must consult with NDOT prior to the HMR being submitted to NDOT for review.

If the HMR does not reveal any involvement with hazardous materials, the document is approved, and the project can proceed to the next stages of project development. If concerns are revealed, the concerns and commitments for the project will be followed throughout the next stages of project development and construction. NDOT reserves the right to require additional resource review and/or subsurface investigation to verify potential impacts to a project.

The NDOT Environmental Hazardous Material PQS shall be responsible for the commitments for further investigation, approvals, permits, and coordination regarding hazardous materials. Copies of the HMR document will be forwarded to the project team, as well as the appropriate Right-of-Way, Design, and Construction staff.

The NDOT Environmental Hazardous Material PQS is an EP within the NDOT Roadside Development and Compliance Unit (RDCU) that is designated by NDOT as responsible for overseeing the HMR process and approving the documentation used for project development and delivery of local and state projects (see also Chapter 7 , Environmental Professional Qualifications).

Chapter 6 Risk Management and Other Considerations

This section identifies some of the risks and other considerations associated with the NDOT HMR process.

6.1 Risk Management

The level of risk associated with a project will vary based on the types of project activities, project location, history of the area, and types of sites (i.e., properties) surrounding the project. Conducting an HMR does not eliminate all risks and is not a guarantee regarding potential impacts. Chapter 3 , Purpose of Conducting Hazardous Material Review, includes a list of NDOT project activities that have a higher potential to encounter hazardous material contamination during construction. In general, if these project activities are located within current or former industrial areas, developed areas, or areas with older multi-tenant retail properties that have a greater likelihood of high risk tenants over time (e.g., dry cleaners, gas stations), there is a higher risk of encountering hazardous materials concerns.

6.2 Other Considerations

If the scope of the project changes, design updates occur, and/or more than a year has elapsed since HMR completion, the HMR may require re-evaluation. If previous concerns or conclusions are affected due to the scope change, additional review (such as, but not limited to, a regulatory file review) may be required.

Physical Setting: It is important to assess the topography and drainage during the site visit, in addition to evaluating 7.5-minute USGS topographic maps and other physical setting sources, to appropriately evaluate the identified sites within the search radii and their relevant risk to the project. A section shall be included within the HMR to describe the physical setting.

EP: The individual practitioner responsible for completing the HMR must be a qualified EP, as defined by NDOT (Chapter 7, Environmental Professional Qualifications). The EP is not the same person as the NDOT Environmental Hazardous Material PQS (Chapter 5 , Nebraska Department of Transportation Internal Review Process and Clearance, and Chapter 7 , Environmental Professional Qualifications).

Chapter 7 Environmental Professional Qualifications

NDOT has specific requirements for practitioners conducting NDOT HMRs, including LAD projects. The practitioner must meet EP qualifications, which apply to NDOT staff and consultant staff completing the HMR and include:

- A person with a baccalaureate or higher degree from an accredited institution of higher education in a discipline of engineering or science.
- Has obtained a certificate from a training course in ASTM Environmental Site Assessment Standard Practices for Phase I & Phase II Site Assessment.
- Complete available NDOT Hazardous Material Review Guidance training courses (<https://dot.nebraska.gov/projects/environment/haz-mat/>).

NDOT and consultant staff that do not qualify as EPs under the definition above may assist in the HMR process if a person who meets the qualifications of an EP oversees or supervises the project. As such, a qualified EP must review all work completed by staff that do not qualify as EPs and must submit a signature page with all completed HMRs.

The NDOT Environmental Hazardous Material PQS is an EP within the NDOT RDCU. They are designated by NDOT as responsible for overseeing the HMR process and approving the documentation used for project development and delivery of local and state projects.

Chapter 8 References

- American Society for Testing and Materials (ASTM). 2021. ASTM Designation E 1527-21, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.
- ASTM. 2019. ASTM Standard E 1903-19, Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process.
- Environmental Data Resources, Inc. (EDR). 2010. EDR Historical Topographic Map Report. Inquiry Number 2677453.4. January 14.
- Federal Highway Administration (FHWA). 1997. *Supplemental Hazardous Waste Guidance* (January 1997).
- FHWA. 1988. Technical Memorandum Interim Guidance – Hazardous Waste Sites Affecting Highway Project Development. (August 1988).
- Nebraska Department of Environment and Energy (NDEE). 2016. Investigation-Derived Waste (IDW) & Remediation Waste Considerations. Environmental Guidance Document. (Revised December 2016)
- Nebraska Department of Transportation (NDOT). 2019. Construction Manual.
- NDOT. 2021. Programmatic Agreement for Processing of Categorical Exclusion Actions Between the Federal Highway Administration and the Nebraska Department of Transportation. (September 2021).
- Nebraska Department of Transportation (NDOT). 2017. Standard Specifications for Highway Construction.
- NDOT. 2023. NDOT Unexpected Waste Action Plan - Post-Letting.
- Sanborn Fire Insurance Maps. www.sanborn.com
- U.S. Environmental Protection Agency (EPA). 2006. Standards and Practices for All Appropriate Inquiries, Final Rule. *Federal Register* 70 (Effective November 2006): 66069 – 66113.

Appendix A

Glossary of Terms and List of Acronyms



A Glossary of Terms and List of Acronyms

A.1 Glossary of Terms

Activity and Use Limitations – As defined by the American Society for Testing and Materials (ASTM) E1527-21, legal or administrative mechanism on the use of, or access to, a site or facility.

- **Institutional Controls** – Institutional controls are non-engineering measures designed to prevent or limit exposure to hazardous substances left in place at a site or assure effectiveness of the chosen remedy. Institutional controls may be easements, restrictive covenants, or zoning ordinances.
- **Engineering Controls** – Engineering controls are structural (physical) modifications to a property or facility to reduce or eliminate the potential for exposure to hazardous substances or petroleum products in the soil, or groundwater on the site.

Approximate minimum search distance – As defined by the Nebraska Department of Transportation (NDOT), the approximate minimum search distance is the area for which records must be obtained and reviewed. This area may include areas outside the project area and shall be measured from the project boundary, not a centroid within the project area. The typical search distance for regulatory records is typically 0.1 or 1 miles from the project area boundary.

Brownfields – As defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), brownfields are properties where the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Generally, brownfield sites are considered blighted properties by the local development community and municipality.

BTEX – Benzene, toluene, ethylbenzene, and xylenes are the four contaminants typically associated with releases of petroleum products, such as gasoline fuel, that are among the most soluble and mobile constituents of concern.

Clandestine Drug Laboratories (CDL) – Locations where law enforcement agencies have reported finding chemicals or other items that indicated the presence of either CDLs (i.e., methamphetamine labs) or dump sites. The locations are not verified by the U.S. Department of Justice and should be verified with local authorities and local health departments.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) – The federal law that created Superfund and promulgated the U.S. Environmental Protection Agency (EPA) to control, clean up, and designate liability for abandoned, uncontrolled or inactive hazardous waste sites. Under CERCLA, potential responsible parties who are found responsible for a site contaminated with hazardous substances or wastes are liable for the costs of removal and cleanup. Hazardous substances are defined in CERCLA.

Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) – The list of sites compiled by EPA that EPA has investigated or is currently investigating for potential hazardous substance contamination for possible inclusion on the National Priorities List (NPL).

CERCLIS No Further Action Planned (NFRAP) – CERCLIS NFRAP sites are sites that have been removed and archived from the CERCLIS site inventory. The CERCLIS NFRAP status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further assessment, investigation, or remediation will be done for this site and it will not be added to the NPL. A CERCLIS NFRAP status does not necessarily mean that no hazard is associated with a given site; it only means that, based on available information, the location is not judged to be a

potential NPL site. The status may also change at a later time based on new information or other considerations that may require listing the site on the NPL.

Contaminated Materials – A general phrase not defined in federal or state statutes or regulations but includes hazardous wastes under RCRA, hazardous substances under CERCLA, and other regulated materials such as petroleum-contaminated soil that must be handled as nonhazardous waste.

Cross-gradient – A site is considered topographically cross-gradient from the project area when, based on topographic relief, it is at the same elevation in relation to the project area or parallel to the project area in regard to drainage and groundwater flow direction.

Data Failure – A failure to achieve the historical research objectives even after reviewing standard historical sources that are readily available.

Data Gap – A lack of or an inability to obtain information required by this practice despite good faith efforts by the Environmental Professional (EP) to gather such information. Data gaps may result from incompleteness in any of the activities required by this practice, including, but not limited to, visual reconnaissance (i.e., inability to conduct the site visit), and interviews (i.e., an inability to interview the key site manager, regulatory officials).

Down-gradient – A site is considered topographically down-gradient from the project area when, based on topographic relief, it is lower in elevation than the project area and downstream from the project area in regard to drainage and groundwater flow direction.

Environmental Lien – A charge, security, or encumbrance upon title to a property to secure the payment of a cost, damage, debt, obligation, or duty arising out of response actions, cleanup, or other remediation of hazardous substances or petroleum products on a property, including, but not limited to, liens imposed pursuant to CERCLA and similar state or local laws.

Environmental Professional (EP) – The individual practitioner responsible for completing the HMR as defined by NDOT in Chapter 7, Environmental Professional Qualifications, of this guidance; and a person meeting the education, training, and experience requirements as set forth in 40 Code of Federal Regulations (CFR) §312.10(b).

Environmental Site Assessment (ESA) – The process by which a person or an entity seeks to determine if a particular parcel of real property is subject to recognized environmental conditions.

Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA)/Toxic Substance Control Act (TSCA)

Tracking System – The FIFRA/TSCA Tracking System lists administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, including inspections. During a regulatory database search, facilities that are on the tracking system typically handle, store, or transport pesticides.

Hazardous Materials – The term hazardous materials, as defined by NDOT, is *a broad category of materials that, because of their quantity, concentration, or physical or chemical characteristics, pose a significant present or potential hazard to human health and safety or to the environment if released into the environment. Hazardous materials include, but are not limited to, materials that are regulated as solid waste, hazardous waste, and other wastes contaminated with hazardous substances, radioactive materials, petroleum fuels, toxic substances, and pollutants.*

Hazardous Substance – A substance defined as a *hazardous substance* pursuant to CERCLA 42 United States Code (U.S.C.) §9601(14), as interpreted by EPA regulations and the courts: “(A) any substance designated pursuant to section 1321(b)(2)(A) of Title 33, (B) any element, compound, mixture, solution, or substance designated pursuant to section 9602 of this title, (C) any *hazardous waste* having the characteristics identified under or listed pursuant to section 3001 of the Resource Conservation and Recovery Act of 1976 (RCRA), as amended, (42 U.S.C. §6921) (but not including any waste the regulation of which under RCRA (42 U.S.C. §§6901 *et seq.*) has been suspended by Act of

Congress), (D) any toxic pollutant listed under section 1317(a) of Title 33, (E) any hazardous air pollutant listed under section 112 of the Clean Air Act (42 U.S.C. §7412), and (F) any imminently hazardous chemical substance or mixture with respect to which the Administrator (of EPA) has taken action pursuant to section 2606 of Title 15. The term does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a *hazardous substance* under subparagraphs (A) through (F) of this paragraph, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas)."

Hazardous Waste – Any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of RCRA, as amended, (42 U.S.C. §6921) (but not including any waste the regulation of which under RCRA (42 U.S.C. §§6901-6992k) has been suspended by Act of Congress). RCRA is sometimes also identified as the Solid Waste Disposal Act. RCRA defines a hazardous waste, at 42 U.S.C. §6903, as: "a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may—(A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed."

High Potential Site – Through file review or subsurface investigation, it has been determined that it is likely that contamination would be encountered during construction.

High Risk Site – Contamination is likely to exist within the HMR study area. The extent, nature, and concentration of contamination are such that materials and management would be high in cost and could create substantial delays in project delivery. Human health and safety plans would require in-depth planning, would be high in costs, and would require a quality assurance/quality control (QA/QC) process. Correspondence with agencies may be required. NDOT's preference is the avoidance of contaminated sites that pose a high risk to the project.

Low Potential Site – Through investigation, it is determined that it is unlikely that contamination would be encountered during construction.

Low Risk Site – It is unlikely that contamination is located within the HMR study area. There is low risk to the overall project, the natural environment, and human health and safety.

Material Threat – A physically observable or obvious threat that is reasonably likely to lead to a release that, in the opinion of the EP, is threatening and might result in impact to public health or the environment.

Medium Potential to Impact – During an investigation, it was determined that it is unclear whether contamination is located within the project footprint. A subsurface investigation or further coordination with regulatory agencies determined it was unlikely that contamination would be located within the project footprint. On a case-by-case basis, a commitment to the contractor and NDOT Project Manager to look for signs of contamination in specific areas can be included in the hazardous material review (HMR) rather than proceeding with a subsurface investigation.

Medium Risk Site – Potential contamination exists within the HMR study area. The extent, nature, and concentration of contamination are such that potential materials and management would pose minimal delays, low cost, and could be handled by the Contractor prior to or during construction. Any human health and safety plan would be minimal in scope and easy to implement. Correspondence with regulatory agencies may be required.

National Priorities List (NPL) – A list of properties compiled by EPA that are classified with the highest priority for cleanup based on EPA's Hazard Ranking System.

Orphan Site – A site where the Nebraska Department of Environment and Energy (NDEE) has determined there is no responsible person or party (the owner/operator is unknown, deceased, or insolvent). The site is placed on the state Priority List. When the site reaches the top of the priority list and is activated by NDEE, the cleanup will proceed under NDEE direction utilizing NDEE-hired contractors.

Polychlorinated Biphenyls (PCBs) – A class of more than 200 compounds, PCBs were widely used for many applications, especially as dielectric fluids in transformers, capacitors, and coolants. Due to PCB's toxicity and classification as a persistent organic pollutant, the United States Congress in 1979 and the Stockholm Convention on Persistent Organic Pollutants banned PCB production in 2001.

Petroleum Products – Those substances included within the meaning of the petroleum exclusion to CERCLA, 42 U.S.C. §9601(14), as interpreted by the courts and EPA, that is: petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of 42 U.S.C. § 9601(14), natural gas, natural gas liquids, liquefied natural gas, and synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas). (The word fraction refers to certain distillates of crude oil, including gasoline, kerosene, diesel oil, jet fuels, and fuel oil, pursuant to Standard Definitions of Petroleum Statistics.)

Pesticide – According to EPA, a pesticide is any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest. Pests can be insects, mice and other animals, unwanted plants (weeds), fungi, or microorganisms like bacteria and viruses. Though often misunderstood to refer only to insecticides, the term pesticide also applies to herbicides, fungicides, and various other substances used to control pests. Under FIFRA, a pesticide is also any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant.

Pollutant – A waste matter that contaminates the water, air, or soil.

Professionally Qualified Staff (PQS) – The NDOT Environmental Hazardous Material PQS is an EP within the NDOT RDCU designated by NDOT as responsible for overseeing the HMR process and approving the documentation used for project development and delivery of local and state projects.

Project Footprint – The project footprint, as it relates to hazardous materials, is defined as the area on a project where excavation or work occurs. The project footprint includes vertical and horizontal attributes of the project's construction activity, including depth of excavation. If no excavation or work is occurring in portions of the hazardous material and environmental study area or project area, it is considered outside the project footprint. For example, if there is contamination under the roadway, it does not mean the contamination is within the project footprint if excavation will not encounter it.

Release: Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance or pollutant or contaminant.

Risk-Based Corrective Action (RBCA) – RBCA refers to a consistent decision-making process used to assess actual or likely human and environmental risk of exposure to a chemical release and determine appropriate remedial actions in response to such releases.

RCRA Generators – Under the RCRA facilities that generate, transport, store, treat, or dispose of hazardous waste as defined by RCRA must register as a Large Quantity Generator (LQG), Small Quantity Generator (SQG), or Conditionally-Exempt Small Quantity Generator (CESQG) based on the amount of hazardous waste generated per month.

- LQG – > 1,000 kilograms (kg) of hazardous waste or > 1 kg of acutely hazardous waste per month
- SQG – Between 100 kg and 1,000 kg of hazardous waste per month

- CESQG – < 100 kg of hazardous waste, or < 1 kg of acutely hazardous waste per month

Reasonably Ascertainable – Information is considered reasonably ascertainable if it is publicly available, obtainable from its source within reasonable time and cost constraints, and is provided in a manner that, upon review, yields information relevant to the property without extraordinary review of irrelevant data.

Sensitive Receptors – Any residence including private homes, condominiums, apartments, and living quarters; education resources such as preschools and kindergarten through grade twelve (K-12) schools; daycare centers; community centers; and healthcare facilities such as hospitals or retirement and nursing homes. A sensitive receptor also includes long-term care hospitals, hospices, prisons, or similar live-in housing facilities.

Toxicity Characteristic Leaching Procedure (TCLP) – TCLP is a test method used to determine if a material exhibits the characteristics of toxicity as defined in RCRA.

Transformer – An electrical equipment box that is used to transfer an alternating current or voltage from one electric circuit to another by means of electromagnetic induction. Transformers are typically pole-mounted or pad-mounted (on a concrete pad on the ground surface).

Up-gradient – A site is considered topographically up-gradient from the project area when, based on topographic relief, it is higher in elevation than the project area and upstream from the project area in regard to drainage and groundwater flow direction.

A.2 List of Acronyms

(Note: some acronyms are general terms commonly used when conducting a HMR and are not referenced in the narrative of this document.)

	3R	Resurfacing, Restoration, Rehabilitation
A	AAI	All Appropriate Inquiry
	ACM	asbestos containing material
	ADA	Americans with Disabilities Act
	AST	aboveground storage tank
	ASTM	American Society for Testing and Materials
	AUL	activity use limitation
B	BTEX	benzene, toluene, ethylbenzene, xylenes
C	CatEX	Categorical Exclusion
	CDL	Clandestine Drug Laboratories
	CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
	CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
	CESQG	Conditionally Exempt Small Quantity Generator
	CFR	Code of Federal Regulations
	CORRACTS	RCRA corrective action site
D	DERP	Defense Environmental Restoration Program

	DOD	Department of Defense
	DNR	Department of Natural Resources
	DHHS	Department of Health and Human Services
E	EA	Environmental Assessment
	EDR	Environmental Data Resources, Inc.
	EIS	Environmental Impact Statement
	EP	Environmental Professional
	EPA	U.S. Environmental Protection Agency
	ERNS	Emergency Response Notification System
F	FHWA	Federal Highway Administration
	FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
	FINDS	Facility Index System / Facility Identification Initiative Program Summary Report
G	GIS	geographic information system
H	HMR	Hazardous Material Review
I	IMS	interactive mapping system
K	kg	kilogram
L	LAST	leaking aboveground storage tank
	LAD	Local Assistance Division
	LBP	lead-based paint
	LF	landfill
	LOC	Limits of Construction
	LQG	Large Quantity Generator
	LST	Leaking Storage Tank
	LUST	leaking underground storage tank
M	MCL	Maximum Contaminant Levels
	MSDS	Material Safety Data Sheet
N	NAC	Nebraska Administrative Code
	NDEE	Nebraska Department of Environment and Energy
	NDOT	Nebraska Department of Transportation
	NEPA	National Environmental Policy Act
	NFA	no further action
	NESHAP	National Emission Standards for Hazardous Air Pollutants

	NFRAP	no further remedial action planned
	NPDES	National Pollutant Discharge and Elimination System
	NPL	National Priorities List
O	OSHA	Occupational Safety and Health Administration
P	PAHs	polycyclic aromatic hydrocarbons
	PCBs	polychlorinated biphenyls
	PCE	Perchloroethylene (Tetrachloroethylene)
	PCM	Project Coordination Meeting
	PS&E	Plans, Specifications, and Estimates
	PRP	Potential Responsible Party
	PQS	Professionally Qualified Staff
Q	QA/QC	quality assurance/quality control
R	RBCA	Risk-Based Corrective Action
	RBSL	Risk-Based Screening Level
	RCRA	Resource Conservation and Recovery Act
	RCRIS	Resource Conservation and Recovery Information System
	ROW	right-of-way
S	SDWA	Safe Drinking Water Act
	SF	Superfund
	SFM	State Fire Marshal
	SQG	Small Quantity Generator
	SWF	solid waste facility
T	TCLP	Toxicity Characteristic Leaching Procedure
	TMP	Toxic Metal-based Paint
	TSCA	Toxic Substance Control Act
	TSD	treatment, storage, and disposal (RCRA facility)
U	U.S.C.	United States Code
	USGS	U.S. Geological Survey
	UST	underground storage tank
	UWAP	Unexpected Waste Action Plan
V	VCP	Voluntary Cleanup Program
	VOC	volatile organic compound

Appendix B

List of Resources



B List of Resources

This list is not a comprehensive list and should be supplemented with local jurisdiction information as appropriate. The list was based on information available at the time this report was completed and is subject to change as new information becomes available over time.

-NDEE Information Management System (IMS):

<https://deqmaps.nebraska.gov/deqmapportal/nebraskaMapPortal.html>

-NDOT Hazardous Materials Document Page:

<https://dot.nebraska.gov/projects/environment/haz-mat/>

-NDOT Visual Reconnaissance Form and Photolog:

<https://dot.nebraska.gov/projects/environment/haz-mat/>

-NDOT Hazardous Material Review Training Modules 101 and 201:

<https://www.itap.unl.edu/assnfe/searchcourses.asp?csKeyword=hmr>

-NDOT Unexpected Waste Action Plan (UWAP) and Notification Form 691:

<https://dot.nebraska.gov/projects/environment/haz-mat/>

Appendix C

Detailed Visual Reconnaissance Guidance



C Detailed Visual Reconnaissance Guidance

A description of the items listed in the table below is intended to be used as a reference during site visits. During a site visit, other items not discussed below may be identified as having potential hazardous materials concerns. If in doubt about whether something seen on a site visit may be a concern, be sure to document it with a photograph so that it can be further assessed back in the office.

In general, land uses that may occur within, adjacent to, or near Nebraska Department of Transportation (NDOT) projects that typically generate, treat, store, or dispose of hazardous materials and are included in table below.

Table C-1. Facilities with Potential Hazardous Material Concerns

Facilities	Potential Contaminants
Auto body or repair shops	Solvents, petroleum products, degreasers, antifreeze, lead-acid batteries
Coal storage yards and coal gasification plant	Polynuclear aromatic hydrocarbons, metals, petroleum products
Chemical spill areas (if known)	Spilled material
Dry cleaners	Dry cleaning fluids, solvents & volatiles
Electroplating factories	Solvents and metals
Foundries	Phenols and metals
Furniture refinishers	Solvents and thinners
Gasoline service stations	Petroleum products, solvents, degreasers, antifreeze, batteries
Incinerators (municipal, spent product, other)	Various contaminants
Landfills (municipal, spent product, other)	Various contaminants; may require removal of disposed material or capping of fill
Manufacturers: electronics, paint, shoes	Various contaminants
Metal shop or metal finishing or fabricating plant	Solvents, cyanide, metals, acids, and cutting oils
Print shop, photographic processors	Solvents, some metals
Railyards and tracks	Polynuclear aromatic hydrocarbons, some metals, petroleum products, herbicides
Reconditioners of drums, barrels, tanks, etc.	Various contaminants
Recyclers (batteries, solvents)	Various contaminants
Sludge management area	Metals & other contaminants
Scrap yard or salvage yard	Metals, petroleum products, polychlorinated biphenyls, solvents
Transformer yards or electrical substations	Polychlorinated biphenyls
Grain elevators and cooperatives	Historical use of fumigants, such as 80/20 (carbon tetrachloride), petroleum products, bulk fertilizer and pesticide storage
Source: New York State Department of Transportation, Environmental Procedures Manual (1999), with modifications	

C.1 Underground Storage Tanks

Underground storage tanks (USTs) can range in size from 250 gallons to 20,000 gallons or more. Evidence of USTs of any size should be documented during the site visit. USTs are commonly associated with gas stations and maintenance facilities. Typically, USTs contain petroleum products including new oil, used oil, gasoline, diesel, and heating oil. USTs are also commonly associated with dry cleaning and manufacturing facilities. In older buildings, tanks used for heating oil are considered underground by the State Fire Marshal if they are in a basement (below ground level) or lower level of a building that is partially below ground level (i.e., walk-outs, hillsides). Buildings with generators may have also have associated USTs in basements or below ground level.

What to look for: Fill caps and vents in groups (one tank per set of cap and vent). Areas of square or rectangular concrete that appear incongruous with the area around it, vent pipes from the side of a building. Old structures that are typical of filling stations/automobile repair shops that may have been renovated or re-purposed. Buildings that are retrofitted commonly have garage doors for vehicle bays that are converted to windows or patios.



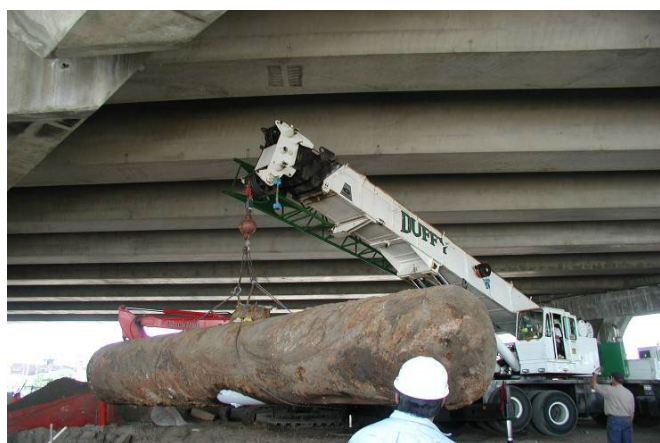
Typical modern filling station.



Fill caps and vents in a concrete surface.



Old filling station re-purposed for a new use.



UST removal associated with a transportation project.

C.2 Liquid Waste

Liquid waste includes pits, ponds, and lagoons, that may have been used in connection with waste disposal (i.e., industrial process water) or waste treatment activities. Concerns include leaching of constituents through the ground surface or settling of heavy metals. Other concerns also include leach fields related to septic systems.

What to look for: Man-made drainage structures, pits, and lagoons. Septic system clean outs or leach fields (greener grass than the surrounding area). Discolored water, distressed vegetation, or obvious wastewater discharge.



Detention pond at an agricultural chemical manufacturing facility.

C.3 Aboveground Storage Tanks

Aboveground storage tanks (ASTs) are situated above ground and have a capacity of 250 gallons or more. Evidence of ASTs of any size should be documented during the site visit. Storage tanks are often cylindrical in shape, perpendicular to the ground with flat bottoms, and have a fixed or floating roof. The design and operation of storage tanks often depend on the nature of the fluid needing to be contained.

What to look for: Cylindrical containers made from metal (usually steel) or hard plastics. Secondary containment structures (or lack thereof), condition of equipment lines, connectors, pumps. Evidence of corrosion or weakening (integrity) of the tank structure. Where the tank is located to other features, such as water resources, drainage ways, floor drains, and what type of surface the tank is sitting on (earthen, concrete, asphalt).



ASTs at a manufacturing plant.



Typical used oil AST, with secondary containment in a concrete structure.



ASTs associated with a farm property adjacent to highway right-of-way.

C.4 Wells

Different types of wells may be present adjacent to a highway right-of-way and include domestic, commercial, industrial, irrigation, remediation, and municipal. Wells have the potential to be contaminated from highway runoff and may require relocation due to construction activities.

What to look for: Rural residences may have their own domestic well or be part of a rural water district. Well caps can be in grass areas, parking lots, street right-of-way. In locations where vehicle traffic, mowing, or aesthetics is not a concern, a post-mounted cap (i.e., casing) can be used (pictured below right).



Rural residences and farmsteads typically have a domestic drinking water well.



Monitoring wells in a non-commercial setting.



Flush mount monitoring well.

C.5 Electrical/Transformer Equipment

A transformer is a device that transfers electricity from one circuit to another through inductive coils. Transformers contain dielectric fluids as a coolant and insulating fluid (transformer oil). Pre-1979 transformers likely contained PCBs as the transformer oil. Because of the physical characteristics of PCBs, they linger in the environment and are also considered a carcinogen.

What to look for: Pad- or pole-mounted transformers, evidence of leaks from these transformers, and blue “No PCBs” or “PCB-free” stickers.



Pad-mounted electrical transformer.



Pole-mounted electrical transformers.
(Also note drums in bottom half of picture).



Pole-mounted electrical transformer in highway right-of-way.

C.6 Cisterns, Sumps, Drains

Cisterns, sumps, drains, and septic systems are in-ground structures that drain, collect, or store liquids (i.e., wastewater in septic systems). Drains include grated inlets, interior floor drain, and floor sinks.

What to look for: Drains include grated inlets, interior floor drain, and floor sinks. Inquire whether the drains are connected to sanitary sewer, combined sewer, or storm sewer. Cisterns may be located within the basement of some older or historical buildings, old or historical residences, farmsteads, or rural residences.



Drainpipe observed on the property of a foundry facility.



Residence with probable septic system.

C.7 Barrels, Drums, Containers

Barrels, drums, or containers are used to store a variety of materials, including petroleum products. Typically, they have a 55-gallon capacity; however, some may be in other capacities such as 30-gallon or 5-gallon buckets.

What to look for: Identify drums that are located within poor storage locations. Look at the condition and integrity of the drum and note any signs of corrosion or obvious holes. Also check for secondary containment and labeling to determine the substance the barrel, drum, or container holds. Note how many barrels, drums, or containers are present.



Two 55-gallon drums (to the right of garage) associated with property adjacent to highway right-of-way. One drum is tipped over.



Multiple aerosols, paint cans, 5-gallon buckets, and a parts washer with 30-gallon drum.

C.8 Surface Staining (Soil Staining, Stressed Vegetation, Evidence of Spills or Releases)

Stained soil or pavement is considered anything that looks out of the ordinary in relation to the surrounding area. Surface staining or stressed vegetation may be an indicator of a spill or release of hazardous materials, which could be a one-time event or an ongoing issue. It should be noted that sterilants (chemicals to destroy pests or diseases in soil or vegetation) are used within right-of-way areas. Sterilant use is typically intentional looking (i.e., around the base of a sign or along the roadside). If there is a question whether an area has soil staining or sterilant use, the NDOT Operations and Maintenance Division can be contacted to inquire about areas where sterilants have recently been applied.

What to look for: Oil residues, sheens, or standing liquid. Irregular shaded outlines on pavement and in low-lying areas. Areas of vegetation that are struggling or non-apparent compared to the surrounding vegetation and could be resulting from a condition other than drought (which would likely be more widespread and a uniform stress on the vegetation).



Stressed vegetation.



Surficial staining from a leaking vehicle. Presumably motor oil, but other possibilities include antifreeze, and transmission fluid.

C.9 Oil Sheen

Oil residues, sheens on water, or standing liquid may indicate a leak or release. Oil in water will settle on the surface of the water and, depending on the thickness of the layer, shimmer with different colors, creating a rainbow-like appearance.

What to look for: Oil residue on the banks of a water resource, edges of a puddle in a low-lying paved area. Look for the rainbow-like reflection typical of oil sheens.



View of a rainbow-like sheen on wet soil.



Wetted soil that appears to have a dark liquid residue.

C.10 Suspected Methamphetamine Laboratory Waste

Methamphetamine laboratories (or other clandestine drug laboratories [CDLs]) present a uniquely dangerous situation. The chemicals used to create methamphetamines are common household chemicals, medications, and common commercial or agricultural chemicals. Methamphetamine laboratory waste includes many dangerous products that may look like carelessly dumped trash along roadsides, in abandoned vehicles, public storage areas, or rest stop areas. Many of the products that could be encountered are a physical hazard to humans, due to the risk of explosion and the release of hazardous gases. Identification of possible methamphetamine laboratory waste should be considered as part of every hazardous materials review because it presents a serious worker health and safety issue. The following are indicators of methamphetamine laboratory waste:

What to look for:

- Pseudoephedrine blister packs and products found in cold medicine and diet pills
- Laboratory flasks
- Champagne bottles
- Camp stoves
- Bags or bottles containing kitty litter, duct tape, and hoses
- Containers with separated liquids
- Plastic coolers
- Car batteries
- Epsom salts
- Table salt
- Kerosene
- Denatured alcohol
- Rubbing alcohol
- Muriatic acid
- Odors such as cat urine, rotten eggs, ammonia, or acetone
- Pyrex
- Stained coffee filters
- Hot plates
- Propane tanks with blue staining around valve area
- Lithium batteries
- Syringes
- Small butane torches
- Match books with no strikers
- Iodine crystals
- Charcoal lighter fluid
- Mineral spirits
- Lacquer thinner
- Battery acid
- Kitty litter bags

If you believe you have come across a methamphetamine laboratory or CDL, leave immediately and report the lab to the local police department.



Methamphetamine laboratory.

C.11 Chemical Storage

Chemical storage includes the storage of any or all types of non-petroleum substances. Most chemicals have particular storage requirements, such as outside storage, storage in a temperature-controlled environment, plastic container storage, steel container storage. Material Safety Data Sheets (MSDSs) are used to track all chemicals kept on a specific property. It is important to note that MSDSs are rarely collected or reviewed as part of the HMR process for NDOT projects unless a property-specific assessment is requested.

What to look for: Multiple 5-gallon buckets in one location, 55-gallon drums, 110-gallon plastic totes, ASTs, secondary containment, spill response kits, condition of storage area and containers, MSDSs on-site.



55-gallon drum storage area.



Covered hazardous materials storage area with secondary containment.

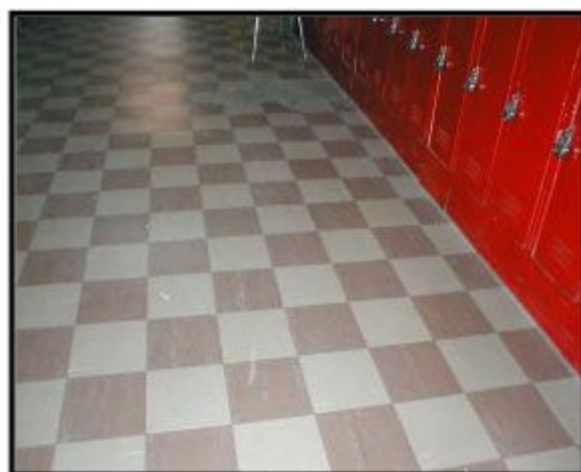
C.12 Suspect Asbestos Containing Material

Asbestos is a toxic substance that may exist in or on highway bridges and other building structures. Asbestos is regulated under the federal Toxic Substances Control Act (TSCA) and the Clean Air Act and presents a worker health and safety concern due to the potential negative health impacts associated with the inhalation of asbestos fibers. Asbestos can be broken into small, unseen fibers that remain airborne indefinitely and travel long distances. There is no known safe level of asbestos exposure.

What to look for: For transportation projects, most concerns with asbestos-containing material (ACM) are related to its presence on utility pipes or structures that will be demolished or disturbed. For bridge structures, look for caulking, sealants, and adhesives around both the substructure and superstructure. For building structures, vinyl floor tile and linoleum in 8x8 or 9x9 tiles, typically white, brown, red, or green, are likely to contain ACM. Other materials include acoustical and popcorn ceiling textures, mastic, window caulking, flashing, siding, and some roofing materials. **NOTE: Only certified ACM inspectors should make observations regarding suspect ACM. ACM can be confirmed only through certified laboratory testing.**



Profile of a bridge during inspection.



9 x 9 floor tiles commonly assumed to be ACM if made prior to 1980.

C.13 Odors (Strong, Pungent, or Noxious)

Odors can be an indicator of a chemical release, or industrial or manufacturing area.

What to look (smell) for: If an odor is overwhelming, causes lightheadedness or nausea, leave the site immediately and report it to emergency services (this is considered a noxious odor). Strong and pungent odors are noticeable and may get stronger as the possible source is approached. Note what odors smell like and the direction of the possible source (particularly if the odor is only noticeable with the breeze/wind). It is important to never open a container to smell it.



Sign says, "To Report Odor call 444-4919" and is posted in an area that may experience wastewater treatment plant odors.



Anhydrous ammonia tanks typically seen in rural Nebraska.

C.14 Painted/Preserved Materials (Toxic Metal-based Paint)

Work that includes the removal of paint or items covered with paint may contain lead, chromium, or other heavy metals that may pose potential health impacts to project personnel and the public. Lead and other heavy metals are hazardous substances that potentially exist on steel highway structures and other structures (e.g., buildings and bridges) associated with transportation projects. Due to the potential negative health impacts associated with heavy metal exposure, the presence of heavy metal paint presents a worker health and safety concern. Project personnel can be exposed to the toxic effects of heavy metals through inhalation or ingestion of lead paint chips, dust, or debris during construction or materials management activities. The potential toxic effects of exposure to heavy metal paint chips, dust, or debris are also a public health risk. Paint containing lead, in particular, may need to be removed prior to demolition if the lead is leachable at concentrations greater than regulatory levels. Where heavy metal painted surfaces would be removed via torching, additional health and safety monitoring requirements are applicable.

What to look for: Peeling, chipping or cracking paint. Typically, silver, blue, green, or white in color.



Paint on old buildings may contain heavy metal-based paint.



Paint on old bridges may contain heavy metal-based paint.

C.15 Oil/Gas Wells/Natural Gas Pipeline

Gas pipelines for natural gas are common in Nebraska while petroleum pipelines are less common. There is the potential for a release or leak from the pipeline that warrants additional review (i.e., contacting the company for information regarding that section of pipeline). Natural gas will seep and dissipate, and these pipelines are generally not considered a concern. Petroleum pipelines are generally not considered a concern because it would be the petroleum company's responsibility for cleanup if a release did occur; however, it is always worth noting when observed in the field as it could impact construction of the roadway asset.

What to look for: Gas pipelines are always yellow or yellow and black in Nebraska. Always check for a label to confirm the type of pipeline. In newer subdivisions, natural gas pipelines typically follow the major electrical transmission lines. Labels that say Magellan or Williams (Magellan was formerly Williams Pipeline) are petroleum oil pipelines. A major Magellan pipeline runs north-south through eastern Nebraska (runs through the Omaha metropolitan area from Papillion north to North Omaha and connects with their east terminal at 16th and John J. Pershing Drive).



Gas line marker and regulator (background).



Gas pipeline vent pipes adjacent to highway right-of-way.



Gas well adjacent to highway right-of-way.

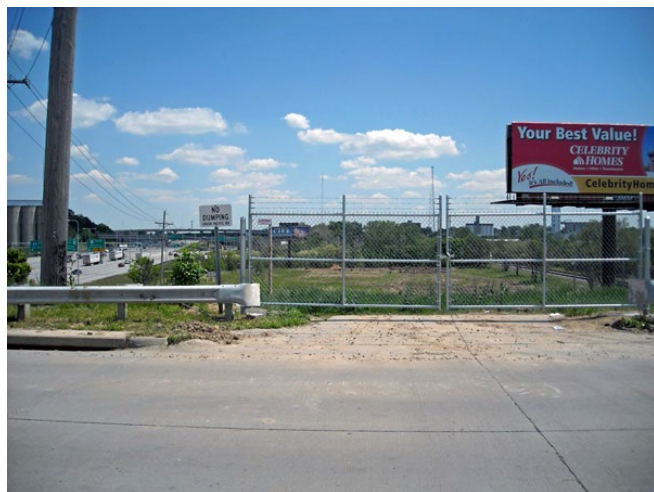


Oil well adjacent to highway right-of-way.

C.16 Protected/Fenced/Placarded Areas

Sometimes fenced/placarded area(s) may be of concern because the property use cannot be observed or confirmed.

What to look for: “Keep Out” or “No Trespassing” signs, security fence. If you can observe any coming and going of equipment or company vehicles, note any indication of possible use.



“No Dumping” sign on fenced property. It is uncertain what the property may have been used for in the past or currently.



“No Trespassing” sign on private property adjacent to highway right-of-way. Evidence of hazardous materials storage on property.

C.17 Exposed/Buried Landfill

Landfills are a place, location, tract of land, area, or premise used for the disposal of solid wastes as defined by state solid waste regulations. Landfills may have exposed gas vents for methane that could indicate the potential presence of a landfill.



Possible landfill activity adjacent to highway right-of-way.



Mounds and remnant terraces for landfill activity.

C.18 Miscellaneous Storage, Dumping, Stockpile, Surface Trash, Debris, Evidence of Dumping, Imported Fill

Demolition or construction debris is considered concrete, brick, asphalt, and other building material discarded on a property. Stockpiles and miscellaneous dumping may include soil, rock, ash, or other waste materials. Surface trash may include general litter often associated with roadside trash that has accumulated.

What to look for: Evidence of truck tracks, indicating possible dumping activity. Piles of debris, soil, rock, or miscellaneous trash that appear to be random in placement. Trash, litter, and debris strewn over the ground surface.



Debris pile (pallets and concrete), litter, and a stockpile of soil on an otherwise vacant lot.



Ash waste stockpiles at a steel foundry. Litter and some broken pallets are also strewn about.



Miscellaneous storage including old tires, pallets, 55-gallon drums adjacent to highway right-of-way.



Miscellaneous dumping at property adjacent to highway right-of-way.

C.19 Batteries

Vehicle and heavy equipment batteries can leak battery acid if not properly stored or disposed and can leave behind heavy metals in the soil.

What to look for: Batteries that are not stored on pallets or shelves (need to be off the floor), stored indoors, or not in good condition. The vendor generally picks up old batteries when new batteries are delivered.



Old batteries stored in a "trash" corral. Notice the stained soil.



Old batteries stored outside and exposed to the elements. Also, AST with secondary containment.

C.20 Railroad Tracks/Railyards

Concerns with railroad facilities include derailments, leaks from railcars, spills or releases from fluid carrying railcars, loading and unloading areas, and maintenance activities.

What to look for: Linear corridors that may now be undeveloped could be former railway corridors (can confirm by aerial photography and land records). Old structures shaped as half-moons may be a former railroad roundhouse where railcar maintenance took place (typically confirmed on aerial photography and Sanborn Fire Insurance maps). Loading and unloading areas at grain elevators, or manufacturing facilities.



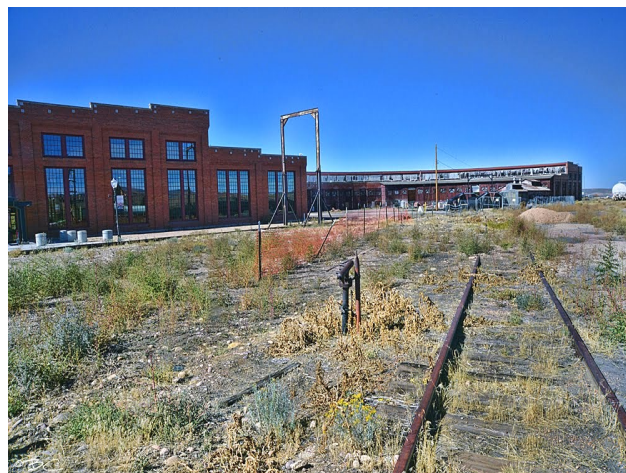
Looking north at Union Pacific Railroad and Burlington Northern mainlines heading toward downtown Omaha. Former grain elevator located on the west side.



Railroad access line for an ethanol plant.



Part of a railroad yard.



Historical railroad roundhouse and maintenance yard.

C.21 Vehicle Maintenance and Repair Activities

Vehicle maintenance activities may include the handling, storage, and use of solvents, petroleum products, degreasers, antifreeze, and lead-acid batteries.

What to look for: Observe adjacent properties for vehicle maintenance bays and potential automobile maintenance activities if vehicle bays are not evident, such as piles of scrap car parts; piles of tires; businesses that sell, rent, or store vehicles; or highway department maintenance facilities.



Vehicle bays adjacent to highway right-of-way.



Vehicle bays adjacent to highway right-of-way.

C.22 Evidence of Remediation Activities

Evidence of remediation activities may include the presence of remediation equipment and groundwater monitoring wells. Monitoring wells are those wells installed to sample for groundwater quality or presence of contamination.

What to look for: Remediation equipment, such as Baker tanks, and groundwater monitoring wells caps.



Baker remediation tank in highway right-of-way.



Typical in-ground monitoring well.



Typical groundwater remediation sheds.

Appendix D

Project-specific Commitments and Materials Management Plan



D Project-Specific Commitments and Materials Management Plan

D.1 Project-Specific Commitments

Category: Unexpected Waste

Commitment Title: Unexpected Waste

If contaminated soils/groundwater or unexpected wastes are discovered, The Contractor shall stop all work within the immediate area. The Contractor shall secure the area of the discovery and notify the NDOT Highway Project Manager (HPM). The Contractor shall not re-enter the discovery area until notified by the HPM. At the time of discovery, the HPM and Contractor shall utilize the NDOT Unexpected Waste Action Plan (UWAP) to coordinate appropriate actions. The actions to be carried out by the HPM are (but not limited to): verification that the Contractor has suspended construction activities in the area of the discovery, contact the Environmental Section Manager and make an entry into Site Manager that an unexpected waste discovery was made. The HPM shall then utilize the UWAP Notification Form (NDOT Form 691) to properly document the extent and type of waste. The HPM will ensure that proper disposal of the waste and any required health and safety mitigation is implemented by the Contractor. The Contractor is required by NDOT's Standard Specification section 107.11 (Hazardous Material Discoveries) to handle and dispose of regulated material in accordance with applicable laws.

Contractor Commitment: If contaminated soils/groundwater or unexpected wastes are discovered, The Contractor shall stop all work within the immediate area. The Contractor shall limit access to authorized personnel within the area of the discovery and notify the NDOT Highway Project Manager (HPM). The Contractor shall not re-enter the discovery area until notified by the HPM. At the time of discovery, the HPM and Contractor shall utilize the NDOT Unexpected Waste Action Plan (UWAP) to coordinate appropriate actions. The Contractor is required by NDOT's Standard Specification section 107.11 (Hazardous Material Discoveries) to handle and dispose of regulated material in accordance with applicable laws.

Commitment Title: Unexpected Waste (LPA)

If contaminated soils/groundwater or unexpected wastes are discovered, The Contractor shall stop all work within the immediate area. The Contractor shall secure the area of the discovery and notify the NDOT State Representative. The Contractor shall not re-enter the discovery area until notified by the State Representative. At the time of discovery, the NDOT State Representative and Contractor shall utilize the Unexpected Waste Action Plan (UWAP) to coordinate appropriate actions. The actions to be carried out by the State Representative are (but not limited to): verification that the Contractor has suspended construction activities in the area of the discovery, contact the Environmental Section Manager and make an entry into Site Manager that an unexpected waste discovery was made. The State Representative shall then utilize the UWAP Notification Form (NDOT Form 691) to properly document the extent and type of waste. The State Representative will ensure that proper disposal of the waste and any required health and safety mitigation is implemented by the Contractor. The Contractor is required by NDOT's Standard Specification section 107.11 (Hazardous Material Discoveries) to handle and dispose of regulated material in accordance with applicable laws.

Contractor Commitment: If contaminated soils/groundwater or unexpected wastes are discovered, The Contractor shall stop all work within the immediate area. The Contractor shall secure the area of the discovery and notify the NDOT State Representative. The Contractor shall not re-enter the

discovery area until notified by the State Representative. At the time of discovery, the State Representative and Contractor shall utilize the NDOT Unexpected Waste Action Plan (UWAP) to coordinate appropriate actions. The Contractor is required by NDOT's Standard Specification section 107.11 (Hazardous Material Discoveries) to handle and dispose of regulated material in accordance with applicable laws.

Category: Asbestos

Commitment Title: Asbestos Containing Material (ACM) removal project.

The following bridge structure(s) tested positive for asbestos containing material (ACM).

- (Structure # Location Found Amount of ACM)

Contractor Commitment: Removal and disposal of the ACM shall be in accordance with Nebraska Department of Health and Human Services (DHHS) Nebraska Asbestos Control Program Regulations, Title 178. The Contractor shall develop a removal and disposal plan in coordination with a licensed asbestos removal contractor and NDOT. The Contractor shall contact DHHS no later than 10 business days prior to removal of the ACM for guidelines on disposal. If the asbestos cannot be kept in a non-friable condition upon removal, the Contractor shall use a licensed asbestos removal contractor. A list of licensed asbestos removal contractors can be found at: <http://dhhs.ne.gov/Pages/Asbestos.aspx>. ACM shall be disposed of at a landfill approved for handling asbestos. The Contractor shall provide landfill receipts to the NDOT Highway Project Manager within 10 working days of disposal.

The Highway Project Manager will upload disposal documentation (i.e., landfill receipts or other documentation provided by the Contactor) to OnBase.

Commitment Title: NESHAP/Form 5 submittal

Contractor Commitment:

The Contractor shall submit a written National Emissions Standards for Hazardous Air Pollutants (NESHAP) notification to the Nebraska Department of Environment and Energy (NDEE) and a Department of Health and Human Services (DHHS) Form 5 at least 10 business days prior to demolition/renovation. The 10-day clock starts when the NESHAP and Form 5 notifications are post marked, hand delivered, or picked up by a commercial delivery service. Faxing documents is prohibited. The Contractor shall provide the NDOT Highway Project Manager copies of the notifications and their submittal date prior to demolition/renovation activities.

The Highway Project Manager will upload NDEE NESHAP and DHHS Form 5 documentation to OnBase.

Commitment Title: Contractor required to survey structure.

The Contractor shall survey structure(s) (xxxxx) located at (address) for the presence or absence of asbestos containing material (ACM). The inspector must be certified in accordance with the Nebraska Department of Health and Human Services (DHHS) Nebraska Asbestos Control Program Regulations, Title 178. A list of Licensed Asbestos Inspectors can be found at: <http://dhhs.ne.gov/Pages/Asbestos.aspx>. Documentation of the survey shall be provided to the NDOT Highway Project Manager by the Contractor prior to structure demolition. The Highway Project Manager will record survey documentation in OnBase.

If ACM is found to be present, removal and disposal of the ACM shall be in accordance with DHHS Nebraska Asbestos Control Program Regulations, Title 178 and will occur prior to any bridge demolition or renovation activities. The Contractor shall develop a removal and disposal plan in coordination with a licensed asbestos removal contractor and NDOT. A list of licensed asbestos removal contractors can be found at: <http://dhhs.ne.gov/Pages/Asbestos.aspx>

Contractor Commitment: The Contractor shall survey structure(s) (xxxxx) located at (address) for the presence or absence of asbestos containing material (ACM). The Contractor's inspector must

be certified in accordance with the Nebraska Department of Health and Human Services (DHHS) Nebraska Asbestos Control Program Regulations, Title 178. If ACM is found to be present, the Contractor shall develop a removal and disposal plan in coordination with a licensed asbestos removal contractor.

Building Removal (Standard Specifications for Highway Construction 2017 Section 203.01; paragraph 4.)

a. It shall be the responsibility of the Contractor to determine if any of the buildings to be removed have materials containing asbestos. If it is determined that some or all of the buildings contain asbestos, the asbestos shall be removed prior to the building removal. All asbestos shall be removed in accordance with State of Nebraska Health and Human Services Department, Environmental Protection Agency, and the Nebraska Department of Environment and Energy regulations. A Contractor trained and certified in asbestos handling shall perform all asbestos removal and handling operations.

b. The work of determining if any of the buildings contain asbestos shall be considered subsidiary to the item "Remove Building at _____."

c. The work of asbestos abatement will be paid for as "Extra Work" as described in Subsection 104.04.

Category: Toxic Metal-based Paint/Lead

Commitment Title: Paint/painted component removal involving Toxic Metal-Based Paint on bridge/building structures

There is potential for lead or toxic metal-based paint to be found on the structures to be demolished or repaired. Regardless of toxicity, extreme caution shall be taken to minimize the amount of painted material or debris from causing or threatening to cause pollution of the air, land, and waters of the State. The Contractor shall create an implementation plan to dispose of paint waste in accordance with NDOT's Standard Specification for Highway Construction Section 732 (Lead-based Paint Removal) and Title 128 Nebraska Hazardous Waste Regulations. The Contractors implementation plan shall be provided to the HPM and documented in OnBase.

Commitment Title: Handling lead plates and shims

The bridge structure/s (structure number) will be replaced or repaired. The Contractor shall create an implementation plan to recycle any lead-bearing plates and/or lead shims at a legitimate recycling facility as found in paragraph 3 (lead plate recycling) in Section 203.01 of the Standard Specification for Highway Construction and in accordance with Title 128, Nebraska Hazardous Waste Regulations. The Contractors implementation plan shall be provided to the HPM and documented in OnBase.

Commitment Title: Omaha Lead Site

Lead particulate could be encountered on or near pavement or ground surfaces. Worker notification would be required for these projects within the Superfund site. The EPA suggests conducting sanitation practices, such as washing hands and face before ingesting food or water and before smoking or tobacco chewing. The Contractor shall use dust masks when dry and dusty conditions are present to reduce the inhalation of dust/lead particles by workers. In addition, when dry and dusty conditions are present, dust suppression shall be used to retain dust/lead particles within the project area.

All excess materials removed from the project sites shall be disposed of at locations acceptable to the City of Omaha. The Contractor shall provide this information at the pre-construction meeting. During the project construction, the Contractor shall keep a log AND keep the City's Project Engineer (or designated representative) informed of each disposal date, excess material source

location, material description, disposal location, and approximate material quantity. It is the Contractor's responsibility to make sure excess material is tested for lead concentrations before disposal. If the excavated soil has lead concentrations greater than 400 ppm, the landfill may require a Toxicity Characteristic Leaking Procedure (TCLP) test prior to disposal.

Category: Monitoring/Remediation wells

Commitment Title: Potential to Encounter Remediation/Monitoring Wells

There are one or more monitoring wells and/or soil vapor extraction (SVE) wells located between [station numbers] near [insert highway, intersection and/or nearest town]. The monitoring/SVE wells will be located and marked by the Highway Project Manager (HPM)/State Representative in the field. Construction activities near the wells will be performed as to avoid damage to the wells. In the event that a monitoring/SVE well is damaged, the Contractor shall notify the HPM/State Representative immediately. The NDOT HPM/State Representative will coordinate with the NDOT Environmental Section for guidance regarding remediation of the damage. The Contractor shall remediate any damaged monitoring/SVE wells as directed by the Engineer. The HPM will upload documentation of the Contractor's remediation to OnBase (NDOT Dist. Environmental, description: monitoring well remediation).

Contractor Commitment: The Contractor shall avoid damaging any monitoring or SVE well as marked in plans or in the field. In the event that a monitoring well/SVE well is damaged, the Contractor shall stop work at that location and notify the Highway Project Manager immediately. The Contractor shall comply with the Engineer's direction concerning remediation of damaged monitoring/SVE wells and shall not continue construction activities in the vicinity of the damaged well until notified by the Engineer.

Category: Encountering Contamination

Commitment Title: Groundwater Contamination Management

Groundwater contamination may be encountered during construction activities at the following location(s):

- (Station Numbers/NDEE Facil. ID/Facility Name)

If the Contractor chooses to dewater during construction within these locations, any resulting groundwater discharge must be managed by testing, treating and disposing of collected groundwater in accordance with Nebraska Department of Environment and Energy's (NDEE) National Pollutant Discharge Elimination System (NPDES) Permit Authorizing Treated Groundwater Remediation Discharges, permit number NEG710000. As required by the permit, the Contractor shall submit the notice of intent to discharge treated groundwater to the NDEE for authorization prior to the beginning of construction.

Contractor Commitment: The Contractor shall acquire NPDES Permit Authorizing Treated Groundwater Remediation Discharges prior to construction. The Contractor shall work with a qualified environmental consulting firm or qualified environmental staff and complete the items below to meet the conditions of the groundwater remediation discharge permit.

Commitment Title: EPA Superfund Site Soil Removal

A National Priorities List Superfund Site is located at _____. The EPA will complete removal of soil contamination during the project between stations _____. The EPA is responsible for supplying clean soils from an approved NDOT borrow site for backfill of removed soils. The Contractor shall coordinate with the NDOT Highway Project Manager and an EPA representative to schedule the soil removal prior to completing construction adjacent to this facility. The Contractor shall be required to have the EPA Remedial Project Manager (RPM) or representative, NDEE, and the NDOT hazmat environmental staff present at the preconstruction meeting to discuss phasing and schedule. The Contractor shall allow up to two weeks for the completion of soil removal by the EPA's Contractor.

Commitment Title: Medium/High Potential Site(s)

There is a (medium/high) potential for (petroleum/contaminant) contamination to be present in the (soils/groundwater) at project (Project Name) (CN xxxxx). (Two) location/s identified below will have a (medium/high) potential for contamination to impact the project:

- Site/Facility 1: (Location) (RP xx to RP xx). (Description of concerns).
- Site/Facility 2: (If necessary)

The Contractor shall be aware of the possibility of encountering contamination in this area during construction activities and look for signs such as odor and/or discolored soil. The NDOT Highway Project Manager shall be notified seven days prior to when construction is expected to begin in the suspect area. If contamination is discovered, all work in the immediate area shall be stopped until the Nebraska Department of Environment & Energy (NDEE) and NDOT are notified, and a materials management plan has been developed and approved. The NDOT Unexpected Waste Action Plan (<https://dot.nebraska.gov/media/11990/ndot-unexpected-waste-action-plan.pdf>) and NDOT Form 691 shall be utilized for notification. The Contractor shall manage the waste in accordance with Title 132, Nebraska Hazardous Waste Regulations. The Contractor is required by Standard Specification Section 107, Legal Relations and Responsibilities to the Public, to handle and dispose of contaminated material in accordance with applicable laws.

Tank removal (if necessary): A licensed contractor will be required to remove the tank/s at the (Tanks location). The licensed contractor shall provide Closure Assessment Report (CAR) services, including excavation pit field samples, for submittal to the Nebraska State Fire Marshal. The CAR will be conducted in accordance with NDEE regulations detailed in Petroleum Underground Storage Tanks: Closure Assessment Sample Collection and Over-Excavation, Revised September 2022.

Contaminant/Tank Removal Work Categorization: Remediation of hazardous materials at the (Location Name) located between reference post (xx and xx) on (Road/HWY #), if any, will be paid for as extra work according to Subsection 104.02, paragraph 5 and Subsection 109.05 of the Standard Specifications. Removal of the tank(s) at the (Tank Location) located at reference post (xx) on (Road/HWY #) will be paid for as "Clear Tract" in accordance with the Special Provision titled "Clear Tract at Reference Post 0+18 on L-62A". ***(Remove any unnecessary sections of commitment)***

Commitment Title: Polychlorinated biphenyl (PCB) handling and disposal

If polychlorinated biphenyls (PCB)-containing transformers or other equipment are identified, NDOT requires that they be managed and disposed of according to the Toxic Substance Control Act (TSCA) regulations. Releases of PCBs to the environment at levels requiring action under TSCA are to be managed or remediated according to TSCA regulations. Any transformer with no label is assumed to be “PCB contaminated equipment” per EPA regulation. The Contractor shall notify the utility for remediation of PCB contaminated soils or transformer repair.

Category: Hydro Demolition**Commitment Title: Hydro Demolition**

Hydro Demolition Wastewater (HDW) could have very high pH or alkalinity; high turbidity due to total suspended solids (TSS); or other regulated pollutants or contaminants including heavy metals, volatile and semi-volatile organic compounds. During the project operation, the HDW shall not be allowed to enter storm sewers, stormwater inlets, bridge drainage scuppers, downspouts or bridge approach downspouts, ditches, surface waters, soil surfaces, floodplains or wetlands, in order to be in compliance with state and federal regulations. All drains in the concrete curbs must be blocked. Prior to management off-site, HDW shall only be accumulated or placed in tanks or containers. Prior to disposal of the HDW a hazardous waste determination must be made. Specifically, analyses of the waste shall include a pH test and a TCLP test. If the waste is determined to be a hazardous waste (NDEE Title 128, Chapter 3, Table 3 – Maximum Concentration for Contaminants for the TCLP) it must be disposed at a permitted hazardous waste management facility and the Contractor shall comply with all applicable requirements of NDEE Title 128 including, but not limited to, notification, pre-transport (labeling and dating) and manifesting requirements regarding management of the waste. Copies of analytical results and copies of the signed manifest from the designated hazardous waste facility shall be sent to the NDOT Project Manager and Environmental Section for inclusion into ECOD to document disposal requirement compliance.

If the HDW is determined to be non-hazardous, the waste may be disposed at a permitted solid waste management facility. In accordance with NDEE Title 132, bulk or non-containerized waste that contains free liquids is prohibited from disposal at a landfill. However, liquids or wet wastes may be mixed with soil or other dry wastes prior to disposal. Approval from the solid waste facility may be required prior to disposal. Additional testing and special handling methods may be requested. As an alternative, the HW may be disposed at a permitted wastewater treatment facility with prior approval. The wastewater facility may also require testing and special handling.

If the HDW is determined to be non-hazardous, the Contractor may also land apply HDW. The land application shall be in accordance with NDEE requirements (see NDEE Environmental Guidance Document: Special Waste Characterization and Land Disposal Request Form, September 2013). Additionally, NDOT will require the Contractor to fill out a borrow site/waste site request form.

D.2 Materials Management Plans

For some projects, the findings of the Hazardous Material Review (HMR) may have prompted Nebraska Department of Transportation (NDOT) to authorize a subsurface investigation during the National Environmental Policy Act (NEPA) process. The timing of the subsurface investigation would occur prior to NEPA clearance; however, recommendations based on the outcome of the subsurface investigation may be carried forward as commitments or mitigation measures. The investigation may have identified sites along a project corridor that require waste characterization, special provisions for handling, and disposal or reuse options. Guidance for materials management and proper disposal may be found in Nebraska Department of Environment and Energy (NDEE’s) “Investigation-Derived Waste (IDW) & Remediation Waste Considerations” Environmental Guidance Document available

online. Under the “Active Management and Point of Generation” section, “[a] activity not related to investigation or remediation is not considered active management under the waste regulations. Therefore, materials generated at a site that is not a remediation or investigation activity site or are not related to remediation or investigation activities, are not considered a waste unless it is intended for disposal.” (NDEE 2016). If materials, such as soil or groundwater, which are known or suspected of being contaminated will be taken off site, then the contractor is required to treat it as a special waste and follow NDEE regulations for proper disposal. The materials management plan shall include provisions and protocols to containerize the waste materials and to characterize it for proper management and final disposal.