NDOR Hazardous Material Review Guidance Manual

Nebraska Department of Roads

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EXECUTIVE SUMMARY

This manual provides guidance on conducting hazardous material reviews (HMRs) for Nebraska Department of Roads (NDOR) and Local Public Agency (LPA) projects. The purpose and intent of this guidance is to help NDOR 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 a NDOR Hazardous Material Review:

A. Hazardous Material Review (HMR) for Site Specific Projects:

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

B. Hazardous Material Review (HMR) 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 a HMR report with findings, Risk Assessment to Alternatives and commitments/mitigation measures

C. Subsurface Investigation

When HMR findings indicate a 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 NDOR and carried out upon NDOR/Federal Highway Administration (FHWA) approval.

D. Hazardous Material Review (HMR) Approval Clearance

NDOR Environmental Hazardous Material Professionally Qualified Staff (PQS) shall be responsible for summarizing the commitments for further investigation, approvals, permits, and coordination regarding hazardous materials in an approval and clearance memorandum. Copies of the hazardous materials review document and the approval/clearance memorandum should be forwarded to the project team, as well as to the appropriate right-of-way, design, and construction staff.

The approval and clearance memorandum shall be summarized in the National Environmental Policy Act (NEPA) documentation and provided in the associated attachments. All identified mitigation measures shall be carried forth in the environmental document and the environmental Green Sheets.

1.0 INTRODUCTION

This manual provides guidance on conducting Hazardous Material Reviews (HMRs) for Nebraska Department of Roads (NDOR) and Local Public Agency (LPA) projects. The purpose and intent of this guidance are to help NDOR staff identify potential existing hazardous materials concerns as an integral step of the advanced planning and environmental documentation stages of project development and, when applicable, to facilitate project alternative selection. The majority of NDOR and LPA projects are completed under the Programmatic Agreement for Processing of Categorical Exclusion Actions between the Federal Highway Administration (FHWA) and NDOR (2015a) 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 down-graded from an EA to a Categorical Exclusion (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, human health and safety; whether or not an alternatives analysis is required beyond Build or No Build alternatives; and consultation with NDOR Environmental. This guidance manual includes:

- An introduction to the regulatory background and guidance typically related to HMRs for NDOR 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 NDOR and LPA projects.
- Guidance on when to conduct risk assessment and other considerations for Alternatives Analysis.
- Qualifications of NDOR staff and/or consultants performing the HMR (Environmental Professional [EP])
- Summary of the NDOR internal review process, clearance/approval and qualifications of NDOR staff overseeing the HMR process (Professionally Qualified Staff [PQS]).

NDOR 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 NDOR HMR process.

1.1 Exclusions of this Document

The potential exists for NDOR to encounter hazardous materials concerns 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 NDOR handles unexpected

hazardous materials concerns during construction, please reference *NDOR Unexpected Waste Action Plan - Post-Letting* (NDOR 2015b).

This guidance also does not cover the hazardous materials concerns associated with the activities on-site 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, and/or disposal of hazardous materials. The NDOR Standard Specifications for Highway Construction Manual Section 106 – Control of Material discusses requirements for new materials and rejection of unacceptable materials (Section 106.05). Additionally, State regulations dictate materials management practices. Refer to **Sections 2.2.3, 2.2.5**, and **2.2.6**.

1.2 Limitations

The following represent common limitations for HMRs for NDOR projects:

- Due to the large number of sites involved in corridor or other large projects, it is typically not practical for NDOR to obtain site access and interview individual property owners. NDOR HMRs generally do not include interviews of current and/or past owners and occupants of properties located within the project area. Reference **Section 4.5.7** for more information.
- HMRs generally do not include a search for environmental cleanup liens or activity use limitations (AULs), unless full property acquisition is anticipated.
- 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 NDOR 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.

2.0 HAZARDOUS MATERIAL REGULATIONS AND GUIDANCE

NDOR 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. NDOR 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 (CERCLA) (42 United States Code [U.S.C.] 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 (RCRA) (40 Code of Federal Regulations [CFR] 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") (SDWA) (Public Law 93-523) and the National Primary Drinking Water Regulations (40 CFR Part 141)

Congress enacted the Safe Drinking Water Act (SDWA) in 1974 to protect public health by regulating drinking water quality. The SDWA authorizes the U.S. Environmental Protection Agency (USEPA) to establish national drinking water standards such as Maximum Contaminant Levels (MCL) 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. A MCL is the maximum concentration that a substance is legally allowed to occur in the drinking water supply.

2.1.4 EPA Standards and Practices for All Appropriate Inquiry (AAI)/ ASTM 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 the 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 (visual reconnaissance, records review, etc.) (EPA 2005).

The American Society for Testing and Materials (ASTM) Standard E 1527-13 "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process" (ASTM 2013) 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 1527-13 are needed (**Chapter 6.0**). The ASTM Standard E 1527-13 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 1528-06) 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 and/or operators are practical, right of entry can be obtained, and knowledge of the site and/or preliminary surveys do not indicate concerns.

2.1.5 Federal Highway Administration (FHWA) Guidance

The 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 (OSHA) Regulations

The Occupational Safety and Health Act of 1970 created the 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 CFR 1926 provide the regulatory background for standards and/or 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 Environmental Quality's (NDEQ's) Title 117 Nebraska Surface Water Quality Standards

The NDEQ 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 form the basis of water quality protection for all surface water quality programs conducted by the department. These standards were revised and approved in late 2002.

2.2.2 NDEQ's Title 118 Ground Water Quality Standards and Use Classifications

Title 118 – NDEQ Ground Water Quality Standards and Use Classifications are 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 NDEQ's Title 128 Nebraska Hazardous Waste Regulations

The EPA authorized NDEQ in 1985 to administer portions of the RCRA program. RCRA regulations are incorporated in NDEQ 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 NDEQ's Legislative Bill 1161 Wellhead Protection Areas

NDEQ 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 which 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 NDEQ's Title 132 Integrated Solid Waste Management Regulations

NDEQ 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 NDEQ's Title 126 Rules and Regulations Pertaining to the Management of Wastes

NDEQ 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.

3.0 PURPOSE OF CONDUCTING HAZARDOUS MATERIAL REVIEW

The purpose of a HMR is to help NDOR 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. A 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.

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

- Limit or avoid NDOR 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 waste guidance (1988, 1997), NDOR's primary purpose of conducting a 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 NDOR activities have a higher 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 in agricultural support service areas

Examples of project circumstances that usually indicate low probability of hazardous waste 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 and/or groundwater contamination is an integral component of the NDOR 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 NDOR 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 NDOR 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 level of HMR should be re-evaluated and if previously low or medium risk sites become high risk due to the scope change, additional review, such as a regulatory file review (**Section 4.2.1**), may be required. The hazardous materials assessment is also re-evaluated at major phases of project planning (Plans, Specifications, and Estimates [PS&E]; ROW acquisition; and project letting).

3.1 Planning

NDOR planning-level projects, such as feasibility studies, long-range planning, 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 a cursory 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. Planning-level types of studies that require a HMR (**Section 4.1**) include a baseline evaluation (i.e., conducting agency environmental records review [**Section 4.1.1**] and conducting visual reconnaissance or “desktop review” [**Section 4.1.2**]) to identify existing and previous land uses and potential hazardous materials associated with the project area. During the planning phase when alternatives analyses are being done, it is the goal of NDOR to identify and avoid hazardous material sites by conducting more in-depth site screening for risk assessment (**Section 4.4.2**) when necessary. However, this additional review would require the coordination and concurrence of the NDOR 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 documentation, EA, and EIS), and projects that have entered the preliminary design phase. NDOR Level 1, 2, or 3 NEPA actions are described in the Programmatic Agreement for Processing of Categorical Exclusion Actions between FHWA and NDOR (2015a).

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, including, but not limited to, heavy metal based paint (e.g., lead-based paint [LBP]) and asbestos containing materials (ACMs), and potential subsurface investigation findings
- 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 and/or remediation of soil and/or 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** into the NEPA study.

During project development, most projects fall under the “Build” or “No-Build” alternative scenario and meet the guidelines of the Programmatic Agreement (mentioned above) to be documented under NEPA as a Programmatic Categorical Exclusion or CatEX. In the case of CatEX documentation, where there is no Draft and Final environmental document, NDOR expects the appropriate hazardous material information to confirm the presence/absence of hazardous materials be evaluated before final approval of the CatEX documentation. Hazardous material commitments/mitigation measures and findings are recorded within the CatEX and supporting documentation and within the NDOR 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 4.0** 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 information 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, NDOR Environmental and/or the Consultant coordinates with the project roadway and bridge designers to communicate potential hazardous material locations, concerns, and/or conflicts through the established Environmental Coordination Meeting (ECM) process. NDOR Environmental and Design staffs coordinate various environmental concerns at the ECM meetings throughout the design process depending on the type and complexity of the project. Potential hazardous material concerns/conflicts and/or mitigation measures will be addressed and identified on design plans, various design reports (e.g., the Plan-in-Hand Report, ECM meeting minutes, etc.), HMR reports, NEPA documents, and Green Sheets. Roadway Design Plans and Green Sheets are routed to the NDOR Right-of-Way Section for consideration during the ROW appraisal and purchase processes. If the project requires additional ROW, particularly full acquisition of property rights, the HMR report and approval memorandum would be directly routed to the Right-of-Way Section upon completion. Following the completion of a HMR during NEPA, NDOR 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.

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 NDOR's standard commitment language should be incorporated into all NEPA documents and design plans[1]:

> If contaminated soils and/or water or hazardous materials are encountered, then all work within the immediate area of the discovered hazardous material shall stop until NDOR/FHWA is notified and a plan to dispose of the hazardous materials has been developed. Then NDEQ shall be consulted and a remediation plan shall be developed for this project. The potential exists to have contaminants present resulting from minor spillage during fueling and service associated with construction equipment. Should contamination be found on the project during construction, the NDEQ shall be contacted for consultation and appropriate actions be taken. The Contractor is required by NDOR's Standard Specification Section 107 (legal relations and responsibilities to the public) to handle and dispose of contaminated material in accordance with applicable laws. (NDOR Environmental, District Construction – for a State project) (Contractor – for an LPA project)

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 LBP or human health or safety. Refer to **Section 4.5** for further discussion.

[1] Please verify with NDOR Environmental for current commitment language.

3.3 Project Types & Exclusions

NDOR 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.

3.3.1 Pavement Preservation Projects

Pavement Preservation Projects include projects where all of the work is done within the existing pavement sections and/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 purpose of this manual, Pavement Preservation Projects include traditional maintenance project activities such as crack sealing, joint sealing, armor coat, chip sealing, fog sealing, microsurfacing, grinding and pavement patching; and those projects that result in less than 2 inches of new resurfacing material placed on the existing roadway surface elevation. These projects would include projects such as polymer overlay of bridges; mill and inlay (including recycle methods); mill and overlay (less than 2 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 (3R) 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 a HMR for Site Specific Projects (see **Section 4.1**).

In some instances, NDOR 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, or modification of existing mailbox turnouts 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. This exclusion would not apply to 3R projects that would include grading activities beyond the existing roadway embankment such as grading for slope correction; ditch and culvert clean out; culvert extension; or Americans with Disabilities Act (ADA) curb ramp replacement, modification, or construction in urban areas.

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

1. Traffic signals, intersection lighting, pedestrian signals, underpass lighting, or railroad lighting within existing ROW when grading and trenching are not required.
2. Maintenance and replacement of highway signs on existing poles, and new sign installation within the hinge point and existing ROW.
3. Activities such as crack sealing, inlays, overlaying, milling, resurfacing (includes microsurfacing, fog sealing, chip sealing, joint sealing, and armor coating), bridge superstructure repair, installation of rumble strips, pavement marking, concrete grinding and patching, concrete repair, and bridge substructure repair (no grading/excavation required). These projects include resurfacing projects such as polymer overlay of bridges, mill and inlay (including recycle methods), mill and overlay (less than 2-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.
5. Improving existing bicycle and pedestrian lanes and paths on their existing alignments.
6. Repair/replacement of at-grade railroad crossing gates, lights, signs, and the rail crossing driving surface. **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 2014 NEPA Programmatic Agreement for Bridge Inspections.

3.3.3 New and Reconstructed Projects

New and Reconstructed Projects generally consist of:

- Construction of a new road
- 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 and/or major utility relocations

The level of review for these types of projects may be a HMR for Site Specific Projects (see **Section 4.1**); however, when alternatives analysis is required, the HMR process may require additional analysis of impacts and risks to project delivery, and may require increased documentation. **Section 4.4.2** provides guidance for documenting the HMR for projects with in-depth alternatives analysis.

4.0 HAZARDOUS MATERIAL REVIEW PROCESS

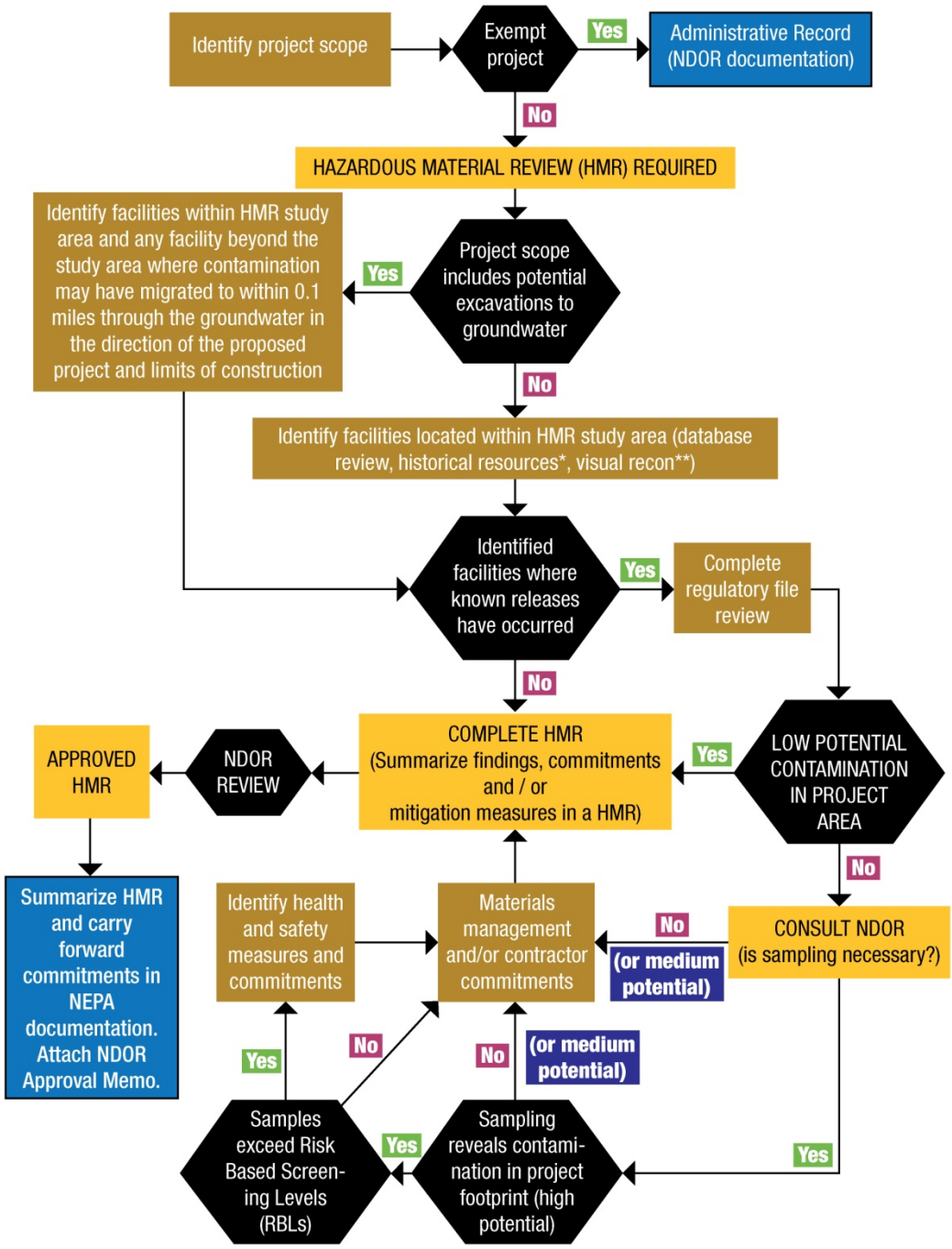
NDOR defines the HMR process as the activities required to identify the presence or likely presence of any hazardous materials within the HMR study area. The primary objective of completing a HMR for a project is to identify sites within the project area with concerns related to hazardous materials for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

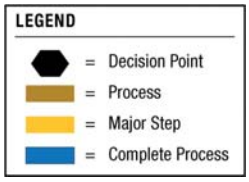
HMRs for site-specific projects are used to identify the potential for encountering contamination during construction and whether materials management and/or worker health and safety are impacted. The HMR findings are categorized and defined below:

- **Low Potential Site:** Through investigation, it is determined that it is unlikely that contamination would be encountered during construction.
- **Medium Potential Site:** During the investigation, it is determined that it is unclear whether contamination is located in the project footprint. A subsurface investigation or further coordination with regulatory agencies determines it is unlikely that contamination would be located in the project footprint. On a case-by-case basis, a commitment to the Contractor and NDOR Project Manager to look for signs of contamination in specific areas can be included in the HMR rather than proceeding with a subsurface investigation.
- **High Potential Site:** Through file review or subsurface investigation, it has been determined that it is likely that contamination would be encountered during construction.

Based on the project scope of work (Build/No-Build or several alternatives), the level of effort for documentation of the HMR reflects either a (1) HMR for Site Specific Projects or a (2) HMR for Projects with In-Depth Alternatives Analysis. The majority of HMRs would be recorded for Site Specific Projects. The HMR report template (**Appendix E**) is one document style that may have sections added to address additional analysis, such as historical records reviews, regulatory file reviews, and/or site screening for risk assessment to alternatives. An overview of the HMR process is outlined below in **Figure 4.1**.

Figure 4.1 Hazardous Material Review Flow Chart





Notes:
*Historical resource reviews, in some cases, may occur at the beginning of the process (i.e., order topos with database report). Determine during project scoping and/or in consultation with the NDOR Environmental Hazardous Material PQS when additional analysis may be warranted.
**Whether or not a visual reconnaissance would be required should be identified during project scoping and/or in consultation with the NDOR Environmental Hazardous Material PQS.
#NDOR Environmental revisits findings and recommendations during plan-in-hand, preliminary design, and final 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 a HMR with the exception of excluded projects identified in **Section 3.3**. The HMR should be performed concurrently with the planning or early in the NEPA study and should include a preliminary review of the existing and previous land use information for the project area. The information gathered during the HMR provides enough detail about properties within the HMR study area (**Figure 4.2**) to allow for an effective decision-making process. The basic steps of the HMR include:

- Step 1: Conduct Agency Environmental Database Review (**Section 4.1.1**)
- Step 2: If necessary, conduct Visual Reconnaissance (**Section 4.1.2**)
- Step 3: If necessary, consult with NDOR Environmental and conduct Additional Analysis (i.e., Regulatory File Review, Historical Records Review) (**Section 4.2)**
- Step 4: If necessary, conduct Subsurface Investigation (requires NDOR consultation) (**Section 4.3**)
- Step 5: Compile information into a HMR report with findings and commitments/mitigation measures and submit to NDOR for review

4.1.1 Conduct Agency Environmental Database Review

An agency environmental database review is required for all projects, with the exception of those projects identified in **Section 3.3.** 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 (i.e., properties) with known contamination or sites that generate, treat, store or dispose of hazardous materials that could have potential contamination concerns. There are several ways to complete an agency database review; however, the suggested way includes starting with: (1) utilizing the NDEQ interactive web-based interpretive tool and/or (2) contracting a database search firm. Several existing databases also provide valuable information when further details are needed or when the first two searches do not provide enough information. These include the EPA's EnviroMapper tool, the National Response Center, and the Nebraska State Fire Marshal's registered tank databases. **Appendix B** includes a list of contacts and resources.

NDOR has modified the ASTM E 1527-13 database search recommendations, including the standard environmental database sources and the approximate minimum search distances (**Table 4.1**) 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/or 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 (**Figures 4.2** and **4.3**) for active regulatory cleanup sites (i.e., Voluntary Cleanup Program [VCP] or Superfund). This is referred to as the HMR study area. For linear transportation projects, the search distance is generally from the existing or proposed ROW (temporary or permanent), if known. Otherwise, the search distance is from the project centerline or edge-of-pavement. For bridge projects, the search distance is generally from the center of the bridge or bridge footprint.

Figure 4.2 Overview Map Depicting Hazardous Material Review Search Distance from Limits of Construction for Linear Corridor Project

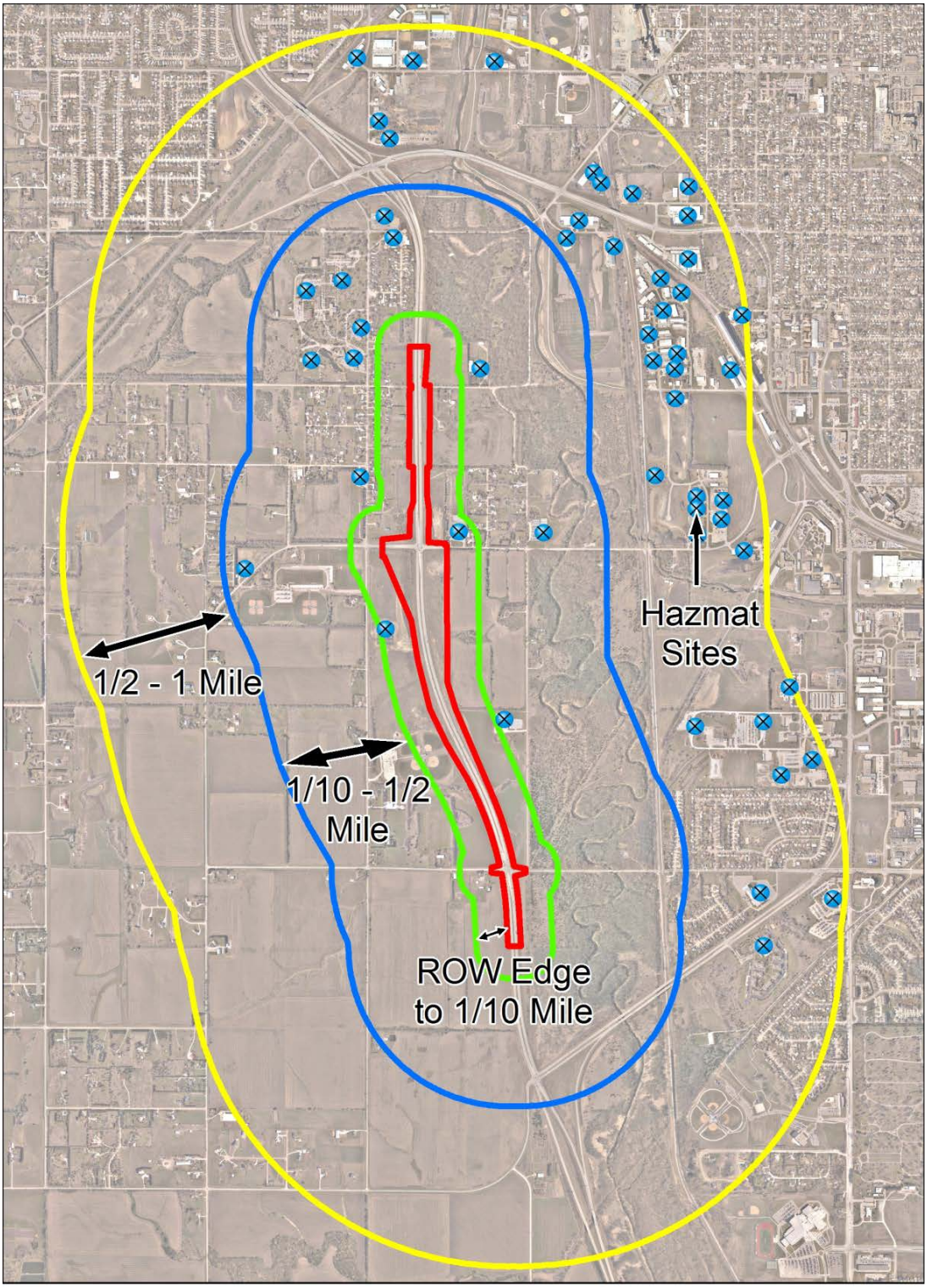
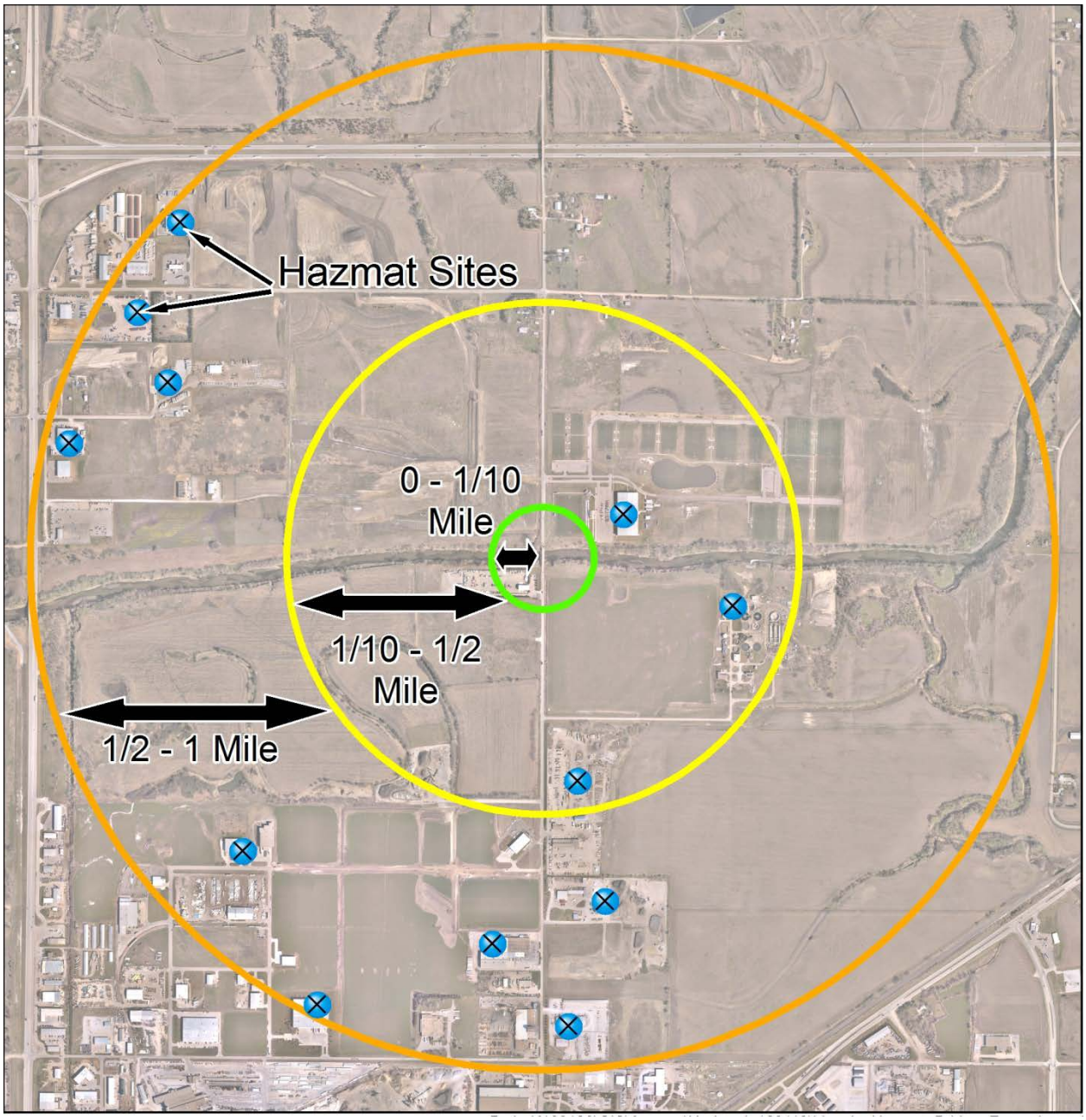


Figure 4.3 Overview Map Depicting Hazardous Material Review Search Distance from Center of a Bridge Replacement Project



The NDEQ interactive mapping system (IMS) provides data on several programs relevant to hazardous materials analysis (**Table 4.1)** and provides links from the database to the online regulatory file records depository via the NDEQ content management portal. Contracting a database search firm to conduct the agency environmental database search is a quick and typically cost-effective way to search the agency environmental databases for a specific project.

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 (**Table 4.1**) 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.

Table 4.1 Agency Environmental Database Descriptions and Approximate Minimum Search Distances

Database	Description	Approximate NDOR Minimum Search Distance (mile)
Search Distances 1.0 mile		
Federal National Priorities List (NPL) site list	U.S. Environmental Protection Agency (EPA) database of uncontrolled or abandoned hazardous waste sites identified for priority remedial actions under the Superfund Program.	1.0*
State-and tribal-equivalent NPL	List of state/tribal-equivalent NPL.	1.0
Search Distances 0.5 mile		
State, tribal, and local landfill (LF) and /or solid waste disposal (SWF) site lists	Inventory of solid waste disposal facilities and landfills.	0.5
Search Distances 0.1 mile		
Federal Delisted NPL site list	EPA database of sites that may be deleted from the NPL where no further response is necessary.	0.1
CERCLIS and Federal CERCLIS No Further Remedial Action Planned (NFRAP) site list	Compilation by the EPA of sites at which the potential exists for contamination originating from on-site hazardous substance storage or disposal. CERCLIS listed sites are either proposed to be or are on the NPL or are in the screening and assessment phase for possible inclusion on the NPL. Sites designated as CERCLIS NFRAP have been removed and archived from the inventory of CERCLIS sites.	0.1
RCRA CORRACTS facilities list	EPA database of sites identified as needing Corrective Action after a release of a hazardous waste or constituent into the environment from a RCRA facility.	0.1
Federal RCRA non-CORRACTS TSD facilities	EPA database of RCRA permitted facilities that generate, transport, store, treat, and/or dispose of hazardous waste. Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSD facilities treat, store, or dispose of the waste.	0.1
Federal RCRA small quantity generator (SQG) and large quantity generator (LQG) list	EPA database of facilities that generate, transport, store, treat, and/or dispose of hazardous waste. SQGs generate between 100 kilograms (kg) and 1,000 kg of hazardous waste per month. LQGs generate over 1,000 kg of hazardous waste, or over 1 kg of acutely hazardous waste per month.	0.1

Table 4.1 Agency Environmental Database Descriptions and Approximate Minimum Search Distances (continued)

Database	Description	Approximate NDOR Minimum Search Distance (mile)
Federal institutional control/engineering control registries	EPA database of 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 Emergency Response Notification System (ERNS) List	The National Response Center, US Coast Guard database of information on reported releases of oil and hazardous substances.	0.1
State and tribal Brownfields sites	Inventory of potential Brownfields sites. NDEQ 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*
State-and tribal-equivalent CERCLIS	List of state/tribal-equivalent CERCLIS.	0.1
State and tribal leaking underground storage tank (LUST) and leaking aboveground storage tank (LAST) lists	List of closed or reported LUST and LAST incidents.	0.1*
State and tribal registered storage tank lists and local historic registered tanks	Aboveground Storage Tank (AST)/Underground Storage Tank (UST) – List of sites that registered the presence of ASTs/USTs.	0.1
State and tribal institutional control/engineering control registries	Inventory of sites within Nebraska with institutional controls.	0.1
State and tribal VCP sites	Listing of voluntary cleanup priority (VCP) sites.	0.1

*Sites accessible through the NDEQ web based tool at http://deqims2.deq.state.ne.us/deqflex/DEQ.html

4.1.2 Conduct Visual Reconnaissance

Most projects require a visual reconnaissance, with the exception of excluded projects identified in **Section 3.3**. 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 (**Section 4.1.1**). 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. **Appendix C** includes a description of reference items that may be identified during the visual reconnaissance. Phase I (ASTM 1527-13 compliant) or Phase II Subsurface Investigation might be required at a later time if the project requires ROW acquisition (**Section 4.3 and 4.5.7**).

For certain projects and with NDOR'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 no known hazardous materials sites have been identified, while a visual reconnaissance would be recommended for projects that are located in 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). Desktop review information and findings should be recorded in a memorandum and kept with the project file. If something of concern/interest was identified during the desktop review, then the NDEQ IMS website or content management portal can be accessed for further information. Based on findings from the desktop review and NDEQ, it may be determined that a visual reconnaissance is needed to obtain further information or to field verify NDEQ information.

Visual Reconnaissance Form, Field Notes, and Photograph Log

NDOR requires that the standard Visual Reconnaissance Form and a Photograph Log (**Appendix D**) 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.** 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. The standard Visual Reconnaissance Form and Photograph Log must be reviewed and signed by a qualified EP, as defined in **Section 7.0**, 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 should include information pertaining to the general physical setting, including land use, topography, and estimated direction of ground/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 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 and could affect the project in terms of materials management and/or worker health and safety.

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 or not bridges in the project area may have evidence of LBP 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.

Observations made during the visual reconnaissance should also be documented with field notes and photographs. **Table 4.2** depicts an example photograph log used to document the visual reconnaissance for NDOR projects. Photographs should be well documented in the photograph log (**Appendix D**) with the date and time of the visual reconnaissance and descriptions of the photo locations, compass orientations/directions of photographs, and specific hazardous materials observations/concerns. 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

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

4.1.3 Determining Next Steps

After the agency environmental database review and visual reconnaissance are complete, sites that have the potential to impact construction, materials management, and/or human health and safety should be identified. If there are indications that identified sites exist within the project's footprint, additional analysis (**Section 4.2**) may be required by the NDOR Environmental Hazardous Material PQS to further document site conditions and to determine impacts to the project. Additional analysis may include historical records reviews, land records review (title, liens, environmental/institutional controls, AULs), and/or more detailed regulatory file views at NDEQ. These types of additional analyses may be applied to the HMR process and added as new sections within the HMR report as discussed in **Section 4.4**. If the identified site can be avoided and there are no anticipated impacts to construction, materials management, and/or worker health and safety, the findings are then summarized into the HMR report (**Section 4.4**). When an additional analysis is warranted, NDOR Environmental should be consulted on the appropriate next steps and level of analysis.

It should be noted that sites must have a justifiable reason to be considered unlikely to impact construction, such as "the facility is considered unlikely to impact construction because it is greater than ¼-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 (**Section 4.4**). 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 detail and additional analysis (**Section 4.2**) is required to complete the HMR process.

4.2 Additional Analysis for Hazardous Material Reviews

To determine whether additional analysis 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, and/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 additional analysis is likely required and consultation with NDOR is recommended.

If the project includes multiple alignments or alternatives, additional 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**.

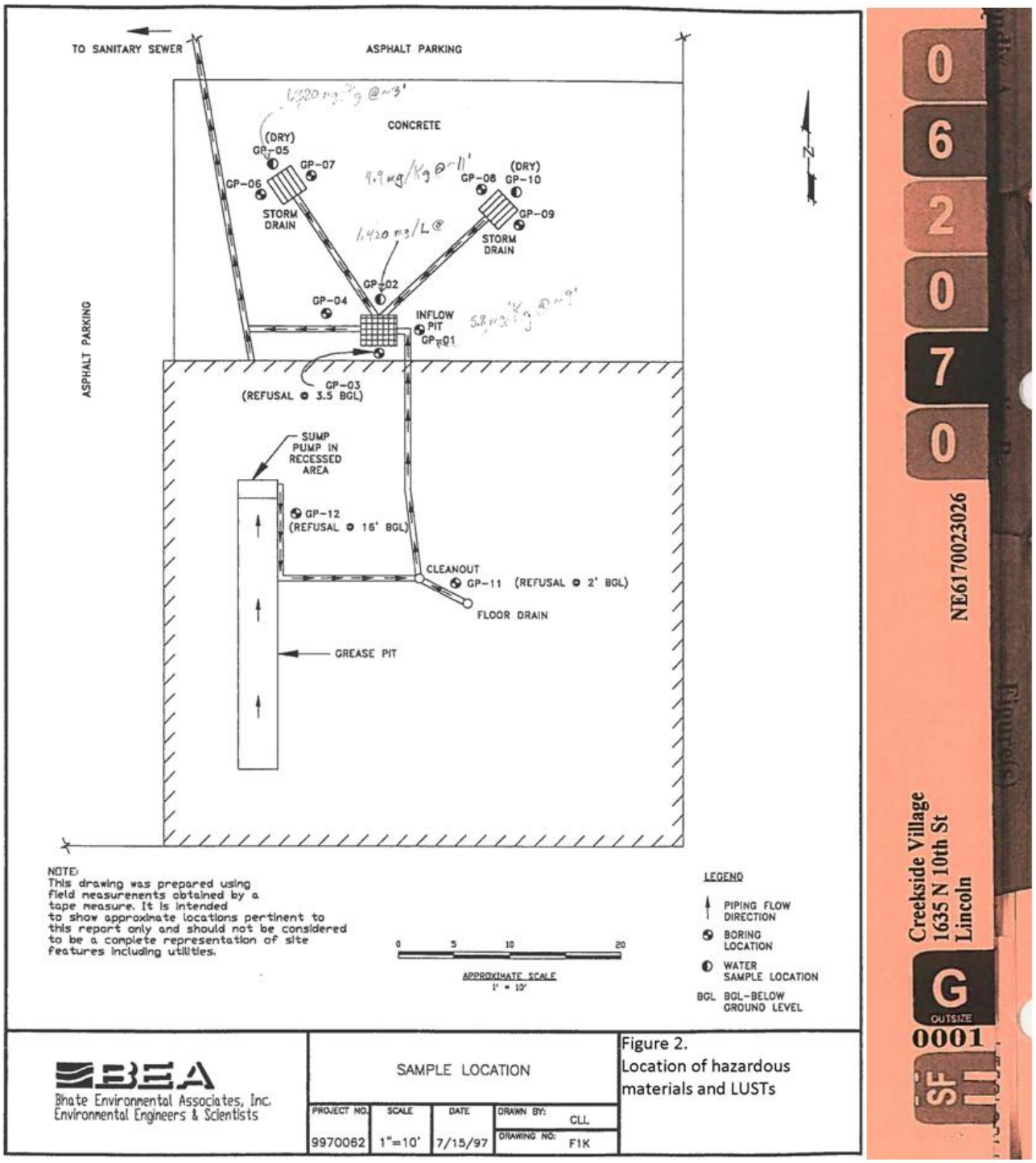
4.2.1 Conduct Detailed Regulatory File Review

When properties are identified during previous HMR steps where the potential to impact construction, materials management, and/or worker health and safety is anticipated or known, NDOR requires additional research on these properties. Detailed records reviews can be conducted through the NDEQ Records Management Unit. The NDEQ 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 NDOR determine if the identified sites could affect project activities and if additional investigation (i.e., subsurface investigation of soil and/or groundwater) 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**).

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 NDEQ could still warrant additional analysis. A detailed records review may be used to determine whether residual soil and/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, and/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 and/or groundwater flow direction related to the project area. When in question, consult the NDOR Environmental Hazardous Material PQS to determine whether a detailed records review is required for particular sites/properties of interest. **Table 4.4** 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, NDEQ correspondence, executive summaries of monitoring reports, etc. (**Figure 4.4**).

Figure 4.4 Example Regulatory File Site Map



4.2.2 Review Historical Record Sources

Prior to completion of the HMR, a review of historical resources may be required after consultation with the NDOR Environmental Hazardous Material PQS.

NDOR has adopted the ASTM E 1527-13 definition of "standard historical sources." which includes "*those sources of information about the history of uses of property"* that covers a period extending back to a property's first use or back to 1940, whichever is earlier (ASTM 2013). The most common historical sources that NDOR reviews as part of a HMR include historical aerial photographs, U.S. Geological Survey (USGS) topographic maps, and/or Sanborn Fire Insurance maps. At least two historical resources should be reviewed. NDOR requires the review of historical aerials, at a minimum, as 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/land use records, and property tax files. These sources can be used to determine a building's age, if construction improvements have occurred, etc.

Consistent with the ASTM E 1527-13 process, the goal of the historical review is to "*develop a history of the previous uses of the property and surrounding area, in order to help identify the likelihood of past uses having led to recognized environmental conditions in connection with the property.*" The historical sources evaluation should assess *"all obvious uses of the property…from the present, back to the property's first developed use, or back to 1940, whichever is earlier*" (ASTM 2013).

For the NDOR 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 in a rapidly changing area, a search interval of every five years may be more appropriate. A search interval of more than 10 years is acceptable if the property use has not changed over a 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 HMR and project file. Discussions of the various types of historical sources follow.

Historic 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 4.5**). 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/stressed vegetation, or other site development features that can indicate potential contaminant sources.

Figure 4.5 Examples of Historic Aerial Photographs

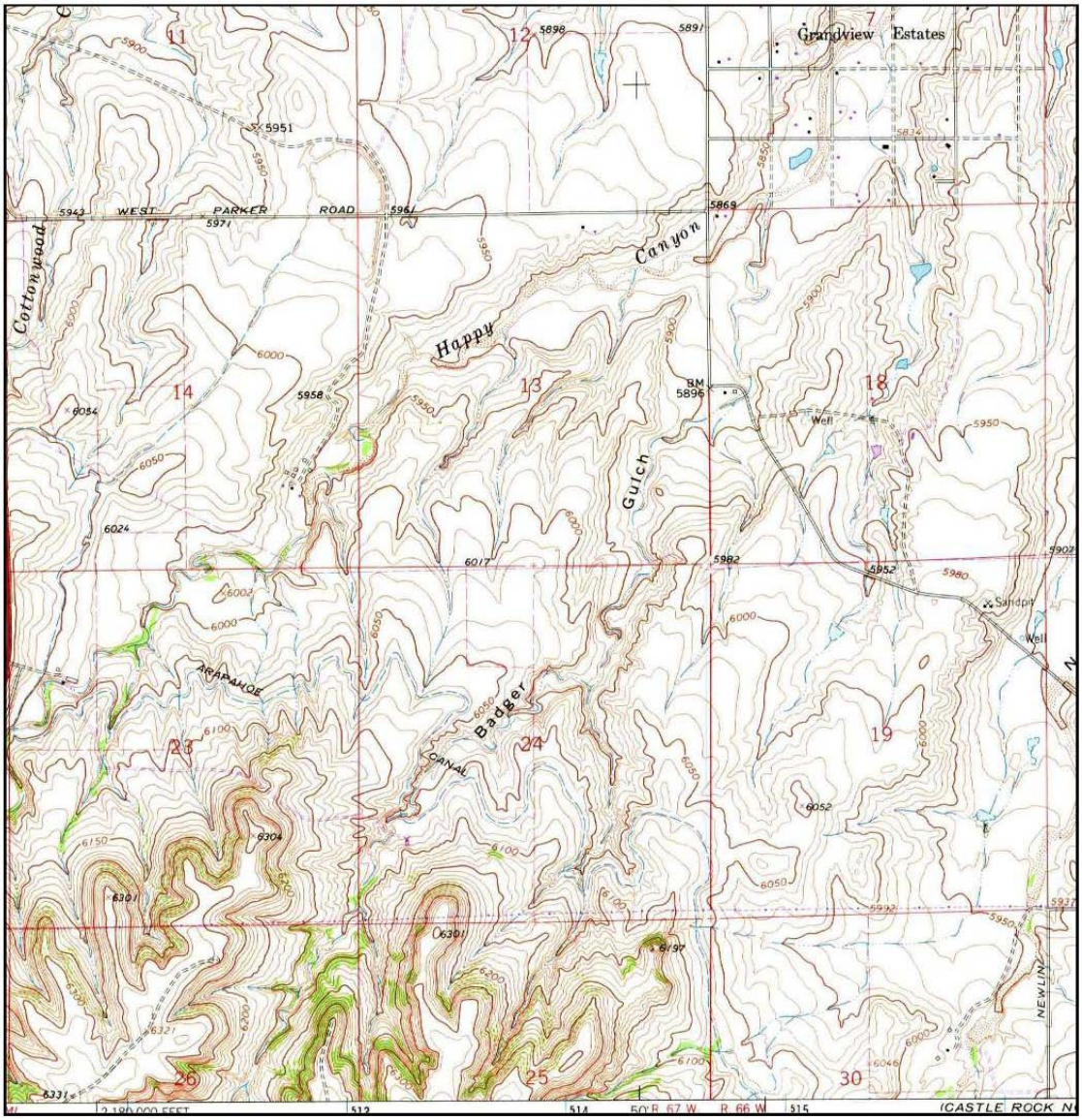
Lagoons associated with a concentrated animal feeding operation.

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

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 4.6**). 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 4.6 Example Historical Topographic Map



Source: EDR 2010.

Sanborn Fire Insurance Maps

Historical fire insurance maps (when available for an area) have been produced by private companies for over 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, ASTs, and fueling facilities, etc. 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 4.7**.

Figure 4.7 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. NDOR should determine the timing of the subsurface investigation, and if the project has federal funding, FHWA should be included in the decision. NDOR's process for subsurface investigations is consistent with the ASTM Standard E 1903-11, "Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process" (ASTM 2011).

A subsurface investigation would be conducted prior to the completion of the NEPA document and incorporated within the HMR report and submitted together for NDOR 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 (e.g., bridge replacement). The investigation may be limited in scope (e.g., sampling of soils and groundwater near a historic 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:

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

Upon completion, the NDOR Environmental Hazardous Material PQS will review the combined HMR/subsurface investigation report and provide any comments. Once the report is approved, the NDOR Environmental Hazardous Material PQS will summarize the commitments and coordination regarding hazardous materials in a formal memorandum of approval/concurrence issued from NDOR Environmental to the NDOR NEPA Project Coordinator. The HMR and subsurface investigation findings and commitments/mitigation measures should be summarized in the NEPA document and the approval memorandum included in an appendix to the NEPA document.

This guidance does not cover the NDOR 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 NDOR projects. For guidance and procedures on how NDOR handles these items, please reference *NDOR Unexpected Waste Action Plan - Post-Letting* (NDOR 2015b).

4.3.1 Coordination with Regulatory Agencies

During planning and NEPA, coordination with regulatory agencies may be required for sites under investigation, corrective action, enforcement, permit plans, and/or closure plans regulated by EPA or NDEQ 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; however, FHWA concurrence would be required on federal aid projects.

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. 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**, **Figure 4.3**, and **Appendix E**). Any additional analysis that was conducted to further evaluate identified sites should be documented within the HMR. **Table 4.3** includes examples for documenting the site information and impact conclusions. The level of detail in a HMR can vary based on the project design (e.g., ROW requirements, excavation requirements, etc.) but can typically include the following information in the report:

- Overview of HMR process.
- Brief description of the project (e.g., bridge replacement, corridor widening), project area, and adjacent properties.
- Map of project area, including the HMR study area, project footprint, any property rights to be acquired for ROW (if known).
- Brief description of environmental setting.
- Database search results.
- Summary of visual reconnaissance observations.
- Historical sources review results, including a description of historical uses of sites in and adjacent to the project area (if applicable).
- Results of land records review (title, liens, environmental/institutional controls, AULs) (if applicable).
- Identification of potential to impact project (e.g., contamination could be encountered as a result of highway widening activities) (if applicable).
- If a detailed records review was conducted for specific sites, additional information about the site (i.e., property) history should be contained within the body of the report (if applicable).
- Detailed records review summary (if required).
- Subsurface investigation results (if required).
- Summary of Findings: Identification of sites in table format, including 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. Include a description of the site's regulatory information and all identified sites on a figure map.

- Recommendations: Identify potential contaminants of concern and whether it is groundwater and/or soil contamination. Identify the sites as having low, medium, or high potential to have contamination that could impact project construction, materials management, and/or human health and safety.
- Identify mitigation measures and/or commitments for inclusion in the environmental documentation and Green Sheets.
- Attachments: Full project description, a figure showing the HMR study area, and if applicable, pertinent regulatory files.
- Project File: Completed and signed NDOR 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
Conoco Station (NDEQ IIS# XXXXX)	**555 Flower Street City, NE 68116**	**EDR UST (Active)**	**>0.75-mile north and topographically up-gradient**
Findings: The Conoco Station facility is listed in the EDR report as a regulated site. It is also listed on the NDEQ 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 impact materials management or worker health and safety related to project construction.			
Former Martinizing / Dry Cleaning (NDEQ IIS#XXXXX)	**1910 Main Street City, NE 68849**	**Drycleaner (Inactive); RCRA-Small Quantity Generator (Inactive); CORRACTS (Active)**	**1,050 feet northwest and topographically cross- to up-gradient**
Findings: The EDR report and NDEQ IMS listed the Martinizing / Dry Cleaning facility as an inactive RCRA small quantity generator (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. The NDEQ indicate 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 volatile organic compounds (VOC) and semivolatile organic compounds (i.e., perchloroethane [PCE] and other related dry cleaning 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.			

Superfund Site (NDEQ IIS# XXXXX)	4th & A Street City, NE 68805	Brownfields (Active)	Adjoining
Findings: The Superfund Site facility is listed in the EDR report as a regulated site. It is also listed on the DEQ 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 and the proposed scope of work and depth of excavation, the Superfund Site 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 NDOR's standard mitigations measures are required.			

The HMR report should be submitted to NDOR for review once all analysis is completed, including any subsurface investigation results, if necessary. The NDOR Environmental Hazardous Material PQS would review the HMR and provide any comments. Once the HMR is approved (see **Section 5.0**), the NDOR Environmental Hazardous Material PQS would summarize the commitments/mitigation measures and coordination regarding hazardous materials in a formal memorandum of approval/concurrence issued from NDOR Environmental to the NDOR Project Coordinator. The HMR findings and commitments/mitigation measures should be summarized in the NEPA document and the approval memorandum included in an appendix to the NEPA document. **Appendix E** includes an example template for a HMR report.

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 (**Sections 4.1** and **4.4.2**), 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, etc.) of the various alternatives but generally includes the same information in the report as described for the Site Specific Projects (**Section 4.4.1**). 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/or 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, contamination of concern, and distance from the project area whether or not the site is likely to impact 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. In order to determine risk, the NDOR Site Screen Processing should be followed as described below.

NDOR Site Screening Process for Risk Assessment to Alternatives

The first step of the HMR site screening process for risk assessment to alternatives analysis is to identify from the regulatory database search, visual reconnaissance, and additional analysis those sites that may need to be further screened based on the potential to have contamination or known 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/or 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 if it is likely to affect 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
  - Identified contaminants of concern are below EPA MCLs and Risk Based Screening Levels (RBSLs)
  - Magnitude and extent of contamination
  - Status of remediation activities and if the project will impact remediation equipment, wells, etc.
  - 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. NDOR's preference is the avoidance of contaminated sites that pose a high risk to the project.

Then NDOR requires the EP (as defined in **Section 7.0**) performing the review to provide findings and recommendations regarding each identified site. The EP then identifies the necessary project-specific commitments and/or mitigation measures for construction, materials management, health and safety precautions, etc., that should be addressed during future project phases. **Table 4.4** provides an example of project-specific findings.

Upon completion, the NDOR Environmental Hazardous Material PQS will review the HMR report and provide any comments. Once the HMR report is approved, the NDOR Environmental Hazardous Material PQS will summarize the commitments and coordination regarding hazardous materials in a formal memorandum of approval/concurrence issued from NDOR Environmental to the NDOR Project Coordinator. The HMR should be summarized in the NEPA document and the approval memorandum included in an appendix to the NEPA document. The HMR report and associated records should be kept with the project file. **Appendix E** includes an example template for a HMR report with guidance for modifying the report for projects with additional analysis and in-depth alternatives analysis.

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 feet 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.
Joe's Gas & Shop 125 Main Street	20–50 feet east, same elevation, adjacent property	Open LUST and UST site Residual levels of petroleum hydrocarbon and VOC contamination in soils and groundwater. Site 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 summarized below). Health and safety precautions and materials management mitigation measures would be required.
Big Mfg. Co. 150 Main Street	less than 100 feet west, higher elevation	RCRA TSDF, CORRACTS Reports of illegal hazardous waste disposal Temporary easement and/or partial ROW acquisition 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.

4.5 Project-Specific Commitments/Mitigation Measures

For property sites that have been identified as impacting the project construction, materials management, or worker health and safety, further evaluation and/or coordination as stated in FHWA's waste guidance (1988, 1997) may be necessary to confirm the presence or absence of contamination and to determine the extent and severity, appropriate methodology, and preliminary costs of corrective or preventive action. Further investigation may include identifying appropriate commitments/mitigation measures to address the concern and/or performing an ASTM 1527-13 and AAI compliant Phase I Environmental Site Assessment (Phase I) for liability protection when acquiring property rights for ROW acquisition.

4.5.1 Materials Management Plans

For some projects, the findings of the HMR may have prompted NDOR/FHWA 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 NDEQ's "Investigation-Derived Waste (IDW) & Remediation Waste Considerations" Environmental Guidance Document available online. Material "generated at a site that is not a remediation or investigation activity site…are not considered a waste unless it is intended for disposal" (NDEQ 2005). 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 NDEQ 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.

4.5.2 Health and Safety Precautions

Prior to construction activities, a preconstruction meeting must be held as required by Section 103.01 of the Construction Manual (NDOR 2002). The purpose of the meeting is to discuss pertinent information to the project before construction begins. Requirements related to actions to be taken if hazardous materials are encountered during construction are located in Section 107.01 of the Standard Specifications for Highway Construction (NDOR 2007) and are applicable during the construction of this project. Project specific mitigation measures may be developed to address the concern and included in the HMR documentation. An example commitment regarding health and safety is as follows:

> The potential exists for low levels of [insert contaminant of concern] to be encountered on or near pavement or ground surfaces [or groundwater if it will encountered]. Worker notification would be required for this project within the [insert project name] work site. The EPA states conducting sanitation practices, such as washing hands and face before ingesting food or water and before smoking or tobacco chewing, is important for contractor safety. The EPA also suggests the need for dust suppression when dry and dusty conditions are present to reduce the inhalation of dust/soil particles, including the use of dust masks by contractors. (Contractor)

4.5.3 Asbestos Containing Materials (ACM)

During a project visual reconnaissance, the EP should note if any potential ACM is suspected to be present. If asbestos is suspected to be present on structures associated with a project that requires demolition activities such as, but not limited to, bridges that are being widened, replaced, or re-decked, NDOR has an ACM inspection completed by a licensed asbestos removal contractor. The ACM investigation can occur anytime during project planning but must occur prior to the demolition of any structures and can be the responsibility of the Contractor. For roadway facilities such as bridges, NDOR Environmental Section facilitates the testing requirements. For commercial buildings NDOR's Right-of-Way Section facilitates the testing requirements, and for residential buildings, NDOR's Right-of-Way Section ROW includes the testing of the building prior to demolition as a bid item for the Contractor awarded the construction project. NDOR Environmental Section is a resource for LPAs when this is completed on local projects as well. The investigation must be performed by a certified asbestos inspector. If ACM test results are negative (i.e., no asbestos is present), NDOR Environmental would submit the National Emission Standards for Hazardous Air Pollutants (NESHAP) forms to NDEQ and no commitments are required for the Contractor. The ACM evaluation is documented in the HMR by stating that the structure(s) was tested for asbestos by a licensed inspector and the results were negative. If the results are positive for ACM, the handling and removal practices of the Contractor should follow Section 203(4) of the *NDOR Standard Specifications for Highway Construction* and relevant OSHA regulatory requirements. If the ACM to be disturbed is greater than 3 linear or 3 square feet, a licensed removal contractor is needed on-site during removal activity; otherwise, the general contractor may remove ACM for proper disposal and shall notify NDEQ and Department of Health and Human Services (DHHS). For positive ACM test results, the ACM commitment language that should be incorporated into the NEPA documents and design plans includes:

> The scope of work for the [building or bridge] structure [insert structure no. or parcel no.] required an inspection for asbestos containing material (ACM). ACM was found in the [insert approximate amount of ACM material and where it was found]. The ACM must be removed in a way that allows the ACM to remain in a non-friable condition. 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 NDOR. A list of Licensed Asbestos Removal Contractors can be found at: http://dhhs.ne.gov/publichealth/Documents/asbestosbusinessentities.pdf.
>
> Demolition work on the [building or bridge] structure [insert bridge structure no. or parcel no.] will require the contractor to submit a written NESHAP (National Emission Standards for Hazardous Air Pollutants) notification to the Nebraska Department of Environmental Quality (NDEQ). In addition, the Department of Health and Human Services shall also be notified by the contractor, using DHHS Form 5, at least 10 working days prior to commencement of bridge demolition or renovation activities where ACM was found. The 10-day clock starts with the day the Notification is postmarked, hand delivered, or picked up by a commercial delivery service, such as UPS, FedEx, etc. Faxing documents is prohibited. The NDOR Project Manager shall be provided copies of said notifications and their submittal date, which shall be recorded with the ECOD [or Site Manager for local projects].

4.5.4 Lead-Based Paint (LBP)

During a project visual reconnaissance, the EP should note if any potential LBP material is suspected to be present on bridge structures. If LBP is suspected to be present on bridge structures associated with a project, an investigation of potential LBP would be warranted. The LBP mitigation measures (see below) would be documented in the HMR and carried forward into the project Green Sheets. Commitments for further testing for LBP are carried forward into later project stages in the Green Sheets and generally carried out by the Contractor. If potential LBP is identified, the handling and removal should follow Section 732 of the *NDOR Standard Specifications for Highway Construction* and relevant OSHA regulatory requirements. The investigation must be performed by a certified LBP inspector. Standard Commitment Language for the three most likely scenarios is below. Insert ECOD as the Compliance Database for State Projects and Site Manager as the Compliance Database for Local Projects.

If a LBP investigation is warranted, it may occur anytime during project planning but prior to demolition or 3R work completed of any bridge structures and can be the responsibility of the Contractor. For roadway facilities such as bridges, NDOR Environmental facilitates the testing requirements. For commercial buildings NDOR's Right-of-Way Section facilitates the testing requirements, and for residential buildings NDOR's Right-of-Way Section includes the testing of the building prior to demolition as a bid item for the Contractor awarded the construction project. NDOR Environmental works with LPAs to ensure this is completed on local projects as well.

For Removing Painted Bridge Components:

> The bridge structure [insert structure no.] is being replaced/rehabilitated. There is potential for lead-based paint to be found on the bridge's painted components. If the method of removal of the components generates paint debris, the waste shall be handled in accordance with NDOR's Standard Specification for Highway Construction Section 732 (Lead-based Paint Removal) and Title 128, Nebraska Hazardous Waste Regulations. Extreme caution shall be taken to minimize the amount of potential lead-based painted material or debris from causing or threatening to cause pollution of the air, land, and waters of the State. The Contractor's implementation plan efforts shall be documented in [insert either ECOD or Site Manager here]. (Contractor)

For Removing LBP by Scraping/Cleaning/Sandblasting/Painting:

> The bridge structure [insert structure no.] is being cleaned and sandblasted piles are being sandblasted/painted. There is potential for lead-based paint to be found on the bridge's painted components. If the method of cleaning and painting generates paint debris, the waste shall be handled in accordance with NDOR's Standard Specification for Highway Construction Section 732 (Lead-based Paint Removal) and Title 128, Nebraska Hazardous Waste Regulations. Extreme caution shall be taken to minimize the amount of potential lead-based painted material or debris from causing or threatening to cause pollution of the air, land, and waters of the State. The Contractor's implementation plan efforts shall be documented in [insert either ECOD or Site Manager here]. (Contractor)

For Handling Lead Plates or Shims for Bridge Replacement:

> The bridge structure [insert structure no.] is being replaced. The Contractor shall recycle any lead plates or shims at a legitimate recycling facility as found in paragraph 3 (environmental requirements) in Section 203.01 of the Standard Specification for Highway Construction and in accordance with Title 128, Nebraska Hazardous Waste Regulations. The Contractor's implementation plan efforts shall be documented in [insert either ECOD or Site Manager here]. (Contractor)

Piping or soldering is considered part of the building component (i.e. piping, ductwork, structural components to a building, etc.) and, therefore, is considered part of the whole component when making a waste determination. Testing of structural components for lead is, therefore, considered only necessary when scraping or sandblasting of potential LBP may occur. The Contractor responsible for the demolition and disposal of building structure components, such as piping or soldering when it is considered part of the whole component, would be required to follow Section 203.01 of the Standard Specifications for Highway Construction.

4.5.5 Polychlorinated Biphenyls (PCBs)

During a project visual reconnaissance, the EP should note if the presence of any potential polychlorinated biphenyl (PCB)-containing transformers or other equipment is suspected. Suspected equipment will be documented in the HMR and carried forward into the project Green Sheets. This equipment can be identified by PCB-containing blue stickers that say either "No PCBs" or "PCB-free." If PCB-containing transformers or other equipment is suspected to be present, NDOR requires that they be managed and disposed of according to the Toxic Substance Control Act (TSCA) regulations in coordination with EPA. Releases of PCBs into the environment at levels requiring action under TSCA are to be managed or remediated according to TSCA regulations and in coordination with EPA. If present, the utility owner is responsible for transformer equipment, including those that are PCB-containing, and would be responsible for maintaining and/or replacing equipment with PCB-free equipment. Any electrical equipment with no label or unknown concentration is assumed to be "PCB contaminated equipment" per EPA regulation and should be managed by the utility company accordingly.

4.5.6 Groundwater Monitoring Wells

If monitoring wells are identified within a project area and will need to be moved as part of construction or new wells are required, NDOR follows the Water Well Standard and Contractors' Practice Act (State Statute 46-1201 to 46-1241) and the Nebraska Administrative Code (NAC) Title 456 – Department of Natural Resources (DNR) Rules for Ground Water, which regulate well registration and abandonment activities within the State of Nebraska. Monitoring wells are identified by performing a cursory review of the registered wells database and during visual reconnaissance activities. However, only monitoring wells that can be identified from public ROW are typically captured during the visual reconnaissance.

Well construction and abandonment activities must be conducted or supervised by a licensed water well contractor pursuant to State Statute 46-1213. Also, new wells, wells whose ownership has changed, replacement wells, etc., must be registered with the DNR within 60 days after completion of construction. A Notice of Decommissioning (abandoning) a well is also required by the DNR within 60 days after the abandonment is completed. Additionally,

NDOR pays landowners well relocation fees for individuals that agree to abandon wells prior to construction.

4.5.7 Phase I Environmental Site Assessments

Phase I Environmental Site Assessment's (Phase I's) 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. Phase I's involve gathering detailed information on a particular site (i.e., property) by performing research that goes beyond the review steps required for a 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 (e.g., LBP). The additional research may include on-site interior inspections and interviews with property owners. These individual assessments follow the current version of the ASTM Standard E 1527-13, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process" (ASTM 2013). If it appears a Phase I is needed, the EP shall contact the NDOR 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, and in coordination with FHWA, would a Phase I for full property acquisition 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 conducting the site visit. NDOR is in the process of developing a Permission to Access Property letter that must be sent to individual landowners prior to the site visit. Therefore, coordination with the NDOR Environmental Hazardous Material PQS should occur to determine appropriate next steps and NDOR 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 NDOR management or Right-of-Way personnel. Coordination with the NDOR Environmental Hazardous Material PQS should occur to determine appropriate next steps.

5.0 NDOR INTERNAL REVIEW PROCESS AND CLEARANCE

Reports and memoranda for HMRs are to be submitted to the NDOR Environmental Technical Documents Unit Manager, or a designee such as the NDOR Environmental Hazardous Material PQS, for review and approval. The NDOR Environmental Technical Documents Unit is responsible for reviewing and approving HMR documents as well as reviewing and incorporating hazardous material findings, commitments/ mitigation measures into the project environmental documents, specifications, and contracts. The NDOR Local Project 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 NDOR 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. The evaluation by the NDOR Hazardous Material PQS is recorded on a QA/QC checklist (**Appendix F**). 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 NDOR Environmental Hazardous Material PQS disagrees with the opinions, findings, or recommendations, revisions or clarifications must be made before the documentation can be submitted to FHWA or 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 preexisting roadway fill, or projects with a high potential for encountering contaminants must be submitted to FHWA 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.

NDOR Environmental Hazardous Material PQS shall be responsible for summarizing the commitments for further investigation, approvals, permits, and coordination regarding hazardous materials in an approval and clearance memorandum. Copies of the HMR document and the approval/clearance memorandum will be forwarded to the project team, as well as the appropriate Right-of-Way, Design, and Construction staff.

The NDOR Environmental Hazardous Material PQS, is an EP within the NDOR Environmental Technical Documents Unit that is designated by NDOR as responsible for overseeing the HMR process and approving the documentation used for project development and delivery of local and state projects (see also **Section 7.0**).

6.0 RISK MANAGEMENT AND OTHER CONSIDERATIONS

This section identifies some of the risks and other considerations associated with the NDOR 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 a HMR does not eliminate all risks and is not a guarantee regarding potential impacts. **Chapter 3.0** includes a list of NDOR project activities that have a higher potential to encounter hazardous material contamination during construction. In general, if these project activities are located in 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

Report Shelf Life: For NDOR projects, the generally accepted shelf-life of the review is one year from completion of the report; however, updates should occur as is appropriate for the project. It is important that updates occur in tangent with the project moving on in design, such as PS&E stage, ROW, and right before the project is let for construction. If the scope of the project changes, the HMR should be re-evaluated. 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.

If more than one year has passed since the original hazardous materials assessment has been completed and signed by the NDOR Environmental Hazardous Materials PQS and the next Federal approval step (Right-of-Way Acquisition or Construction) is occurring, then a written reevaluation of the original hazardous materials findings would be completed.

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.

Environmental Professional: The individual practitioner responsible for completing the HMR must be a qualified EP, as defined by NDOR (**Section 7.0**). The EP is not the same person as the NDOR Environmental Hazardous Material PQS (**Section 5.0 and 7.0**).

7.0 ENVIRONMENTAL PROFESSIONAL QUALIFICATIONS

NDOR has specific requirements for practitioners conducting NDOR HMRs, including LPA projects. The practitioner must meet EP qualifications, which apply to NDOR 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 that has the equivalent of three years of full-time relevant experience AND has obtained a certificate from a training course specific to hazardous materials such as, but not limited to, Hazardous Waste Operations and Emergency Response (HAZWOPER), ASTM Environmental Site Assessment Standard Practices for the Phase I or Phase II Site Assessment.
- A person who does not hold a certificate from a training course may still qualify as an EP if he/she has a baccalaureate or higher degree from an accredited institution of higher education in a discipline of engineering or science and has the equivalent of three years of full-time relevant experience AND has studied under a Senior Professional/Engineer/Scientist that has the equivalent of seven years experience in HMR.
- Additionally, EPs working on NDOR projects must complete the NDOR Hazardous Material Review Guidance training course (under development).

NDOR 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/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.

An EP under this definition may also meet the definition of EP as a person meeting the education, training, and experience requirements as set forth in 40 CFR §312.10(b).

The NDOR Environmental Hazardous Material PQS, is an EP within the NDOR Environmental Technical Documents Unit that is designated by NDOR as responsible for overseeing the HMR process and approving the documentation used for project development and delivery of local and state projects.

8.0 REFERENCES

American Society for Testing and Materials (ASTM). 2013. ASTM Designation E 1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

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APPENDIX A
GLOSSARY OF TERMS AND LIST OF ACRONYMS

Activity and Use Limitations – As defined by the American Society for Testing and Materials (ASTM), legal or physical restrictions or limitations 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, and/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 Roads (NDOR), 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 approximately one mile 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 brownfields 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 statues 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 and/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, etc.).

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 NDOR in **Section 7.0** of this guidance; and/or, 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 NDOR, 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. NDOR'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 the investigation, it was determined that it is unclear whether contamination is located in the project footprint. A subsurface investigation or further coordination with regulatory agencies determines it is unlikely that contamination would be located in the project footprint. On a case-by-case basis, a commitment to the Contractor and NDOR 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 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.

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 Environmental Quality (NDEQ) 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 NDEQ, the cleanup will proceed under NDEQ direction utilizing NDEQ-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 the 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 or air or soil.

Professionally Qualified Staff (PQS) – The NDOR Environmental Hazardous Material PQS, is an EP within the NDOR Environmental Technical Documents Unit designated by NDOR 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 site where excavation or work occurs to construct the project improvements, including work on such features as the roadway and structures (i.e., bridge). 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/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.

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

RCRA Generators – Under the RCRA facilities which generate, transport, store, treat, and/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.

Surface Spills Database **(SPILLS) –** SPILLS refers to facilities that reported a surface spill to NDEQ. Surface spills on this list are typically those that met spill reporting requirements for petroleum or hazardous substances to air, land, or water (i.e., ≥ 25 gallons).

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

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	Conditional-Exempt Small Quantity Generator
	CFR	Code of Federal Regulations
	CORRACTS	RCRA corrective action site
D	DNR	Department of Natural Resources
	DHHS	Department of Health and Human Services
E	EA	Environmental Assessment
	ECM	Environmental Coordination Meeting
	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
	LBP	lead-based paint
	LF	landfill
	LOC	Limits of Construction
	LPA	Local Public Agency
	LQG	Large Quantity Generator
	LUST	leaking underground storage tank
M	MCL	Maximum Contaminant Levels
	MSDS	Material Safety Data Sheet
N	NAC	Nebraska Administrative Code
	NDEQ	Nebraska Department of Environmental Quality
	NDOR	Nebraska Department of Roads
	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	polynuclear hydrocarbons
	PCBs	polychlorinated biphenyls
	PCE	perchloroethane
	PS&E	Plans, Specifications, and Estimates
	PRP	Potential Responsible Party
	PQS	Professionally Qualified Staff
Q	QA/QC	quality control/quality assurance
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
	SFM	State Fire Marshal
	SHWS	State hazardous waste site
	SPILLS	Surface Spills Database
	SQG	Small Quantity Generator
	SWF	solid waste facility
T	TCLP	Toxicity Characteristic Leaching Procedure
	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
V	VCP	Voluntary Cleanup Program
	VOC	volatile organic compound

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APPENDIX B
LIST OF CONTACTS AND 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. These companies and subsidiaries are not specifically endorsed by NDOR but are provided as options.

- Environmental Data Resources, Inc. (EDR) www.edrnet.com
- Environmental Protection Agency (EPA) EnviroMapper Tool http://www.epa.gov/emefdata/em4ef.home
- EPA Enforcement and Compliance History Online (ECHO) http://echo.epa.gov/?redirect=echo
- GeoSearch, Inc. www.geo-search.com
- National Aerial Resources www.nar.com
- National Pipeline Mapping System Public Map Viewer https://www.npms.phmsa.dot.gov/
- National Response Center http://www.nrc.uscg.mil/
- Nebraska Department of Environmental Quality (NDEQ) ndeq.records@nebraska.gov and http://www.deq.state.ne.us/ (for regulatory file requests)
- NDEQ – Content Management Portal (online regulatory files) https://ecmp.nebraska.gov/publicaccess/viewer.aspx?&MyQueryID=180
- NDEQ – Interactive Mapping System (IMS) (environmental database search for all programs, including but not limited to: LUST, LAST, Surface Spills, Superfund, Integrated Waste and Voluntary Cleanup) http://deqims2.deq.state.ne.us/deqflex/DEQ.html
- Nebraska Department of Natural Resources Data Bank (Interactive Map & GIS Database) http://www.dnr.ne.gov/databank/dbindex.html
- Nebraska Department of Roads (NDOR) – Construction Manual http://www.transportation.nebraska.gov/ref-man/
- NDOR – Standard Specifications and Special Provisions http://www.transportation.nebraska.gov/ref-man/
- Nebraska State Historical Society www.nebraskahistory.org
- Nebraska State Fire Marshal Underground Storage Tank (UST) Database http://www.sfm.state.ne.us/programs-services/fuels/flst/ust.html
- Plat Maps http://www.farmandhomepublishers.com/

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APPENDIX C
DETAILED VISUAL RECONNAISSANCE GUIDANCE

A description of the items listed in the standard Visual Reconnaissance Form checklist is provided below and 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 Roads (NDOR) projects that typically generate, treat, store, or dispose of hazardous materials and are included in table below.

Table 1.0 – 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 plants (FMGPs)	Polynuclear aromatic hydrocarbons (PAHs), 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, etc.	Various contaminants
Metal shop or metal finishing/fabricating plant	Solvents, cyanide, metals, acids,& cutting oils
Print shop, photographic processors	Solvents, some metals
Railyards and tracks	PAHs, 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/salvage yard	Metals, petroleum products, polychlorinated biphenyls (PCBs), solvents
Transformer yards/electrical substations	PCBs
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

A. 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, heating oil, etc. 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, etc.). 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.

B. Liquid Waste

Liquid waste includes pits, ponds, lagoons, etc., 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, lagoons, etc. Septic system cleanouts or leach fields (greener grass than the surrounding area). Discolored water, distressed vegetation, or obvious waste water discharge.

Detention pond at an agricultural chemical manufacturing facility.

C. 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 out of metal (usually steel) or hard plastics. Secondary containment structures (or lack thereof), condition of equipment lines, connectors, pumps, etc. 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, etc.).

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.

D. Wells

Different types of wells may be present adjacent to a highway right-of-way (ROW) and include domestic, commercial, industrial, irrigation, and municipal. Wells have the potential to be contaminated from highway runoff and also 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 ROW, etc. 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.

E. 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.

F. Cisterns, Sumps, Drains

Cisterns, sumps, drains, and septic systems are in-ground structures that drain, collect, or store liquids (i.e., waste water 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 in the basement of some older/historical buildings, old/historical residences, farmsteads, or rural residences.

Drain pipe observed on the property of a foundry facility.

Residence with probable septic system.

G. 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 in 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/container holds. Note how many barrels/drums/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.

H. 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 ROW 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 NDOR 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, transmission fluid, etc.

I. 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.

J. 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/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
- Pyrex
- Stained coffee filters
- Hot plates
- Propane tanks with blue staining around valve area
- Lithium batteries

- 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
- 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.

K. 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, etc. 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 NDOR 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 (i.e., 250 gallons or more). Secondary containment, spill response kits, condition of storage area and containers, MSDSs on-site, etc.

55-gallon drum storage area.

Covered hazardous materials storage area with secondary containment.

L. Structure Construction Prior to 1980 – Suspect Asbestos Containing Material

Asbestos is a toxic substance that may exist in or on highway structures and other structures (e.g., buildings), particularly if they were constructed prior to 1980. 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 that date pre-1980. For 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, etc. **NOTE: Only certified ACM inspectors should make observations regarding potential or suspect ACM. ACM can be confirmed only through certified laboratory testing.**

Old pipes adjacent to highway right-of-way.

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

M. Odors (Strong, Pungent, or Noxious)

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

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 (e.g., in an agricultural community the rotten egg smell would typically be ammonia) 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.

N. Painted/Preserved Materials (Heavy 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) associated with transportation projects, particularly if they were constructed before 1978. 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 on pre-1978 structures. 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.

O. 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/John J. Pershing Drive).

Gas line marker and regulator (background).

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

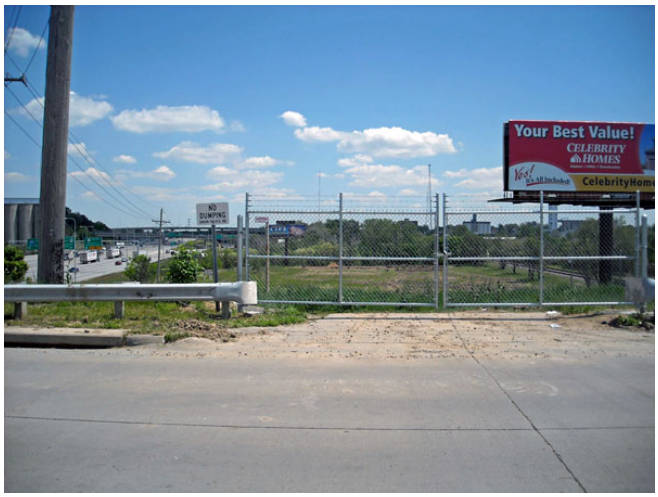
Gas well adjacent to highway right-of-way.

Oil well adjacent to highway right-of-way.

P. 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, etc. 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.

Q. 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.

R. 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.

S. 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.

T. 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, manufacturing facilities, etc.

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.

U. 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.

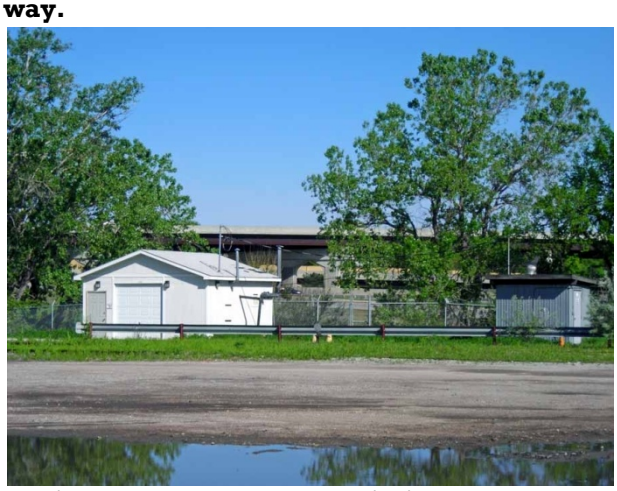
V. Evidence of Remediation Activities

Evidence of remediation activities may include the presence of remediation equipment and groundwater monitoring wells. Monitoring wells are those that are 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
NDOR STANDARD VISUAL RECONNAISSANCE AND PHOTOGRAPH LOG FORMS

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NEBRASKA DEPARTMENT OF ROADS **VISUAL RECONNAISSANCE FORM**	District No.: Route ID:	Project No.: Control Number (CN):

Project Description

Project Name:
Milepost Begin: Milepost End: County:
Location:
Main Project Elements:

Project Features (Check if applies)

☐ Structure Acquisition ☐ Structure Modification ☐ Structure Demolition
☐ New ROW ☐ Easements ☐ Utility Relocation
☐ Excavation/Drilling ☐ Dewatering

GW Anticipated to be Encountered: Disturbance Depth (if known): _____ ft

Records Review & Interview(s)

The following records/sources were used in this assessment **('No' is implied if unchecked)**:
☐ ASTM Standard Environmental Record Sources ☐ NDEQ ☐ SFM Tank List ☐ EPA EnviroFacts
☐ ASTM Standard Search Radii or ☐ Modified Search Radii:
☐ Previous Environmental Reports:
☐ Other Files/Databases (Assessor, Fire dept., Building, Planning, etc.):

Site Reconnaissance & Description

Inspection Date: _____
Limitations to inspection (e.g., snow cover, dangerous/safety conditions):
Project area and land use(s) description:

☐ Industrial ☐ Light Industrial ☐ Commercial ☐ Residential ☐ Agricultural ☐ Undeveloped ☐ Other:

Adjacent land use(s) description:

☐ Industrial ☐ Light Industrial ☐ Commercial ☐ Residential ☐ Agricultural ☐ Undeveloped ☐ Other:

Physical Setting:

Area Characteristics: ☐ rural setting ☐ urban setting
Site topography: ☐ flat ☐ sloping ☐ rolling ☐ other: _____
Surface hydrology/Direction of drainage: _____
Surface cover: ☐ primarily vegetation ☐ primarily concrete/asphalt
Depth to groundwater / static water level (if known): _____ ft
Groundwater flow direction (if known): _____

Potential Environmental Concerns on the immediate project area or directly adjacent to it
(Select from dropdown menu – Yes, No, Expected, or Unknown)

Potential Environmental Concern	Project Area	Adjacent Area	Potential Environmental Concern	Project Area	Adjacent Area
Evidence of underground tanks (pipes, vents, fill caps, etc.)			Protected/fenced/placarded area(s)		
Aboveground storage tank(s)			Liquid waste (pits, ponds, etc.)		
Monitoring/water well(s)			Oil sheen (soil/water)		
Electrical/transformer Equipment			Oil/gas well(s) / Pipeline Markers		
Cistern(s), sump(s), drain(s)			Mine tailings/waste		
Barrel(s), drum(s), container(s)			Painted/preserved material(s)		

Potential Environmental Concerns on the immediate project area or directly adjacent to it
(Select from dropdown menu – Yes, No, Expected, or Unknown)

Potential Environmental Concern	Project Area	Adjacent Area	Potential Environmental Concern	Project Area	Adjacent Area
Stockpile, surface trash, debris			Odor		
Exposed/buried landfill			Chemical storage		
Batteries			Suspect asbestos containing material		
Surface staining			Suspected methamphetamine lab		
Stressed vegetation					

Bridges:

Is there a bridge? Yes ☐ No ☐

Is the bridge painted (i.e. preserved materials such as lead-based paint)? Yes ☐ No ☐
(Inspect under the bridge for LBP evidence and photo document. If physical inspection of the bridge cannot be completed at the time of the visual reconnaissance, bridge inspection photos need requested from NDOR.)

Has it been tested? Yes ☐ No ☐ Unknown ☐

Findings/Conclusions:

Are known hazardous or other waste sites on or adjacent to the project area, which may affect the project? ☐ Yes ☐ No
Discuss:

Recommendations:

☐ Materials Management Plan ☐ Mitigation Measures ☐ Modified Specification(s) ☐ Additional Assessment/Investigation*
Explain:

***Additional work must be approved by NDOR (for State and Local Projects) and the LPA (for Local Projects only)**

Completed by (Name and Title): _____

Signature: _____ Date: _____ Revised (if necessary): _____

Project: **[Insert Project Name]**
RE: HMR Visual Reconnaissance
Date: [Insert Date]
Time: [Insert Time of Day]
On-Site: [Insert Name], [Company]

Control Number: **XXXXX**
Project Number: XXXX-XXX(XXX)

[Insert Photo]	[Insert Photo]
Photo #1 – [Insert Caption]	Photo #2 – [Insert Caption]
[Insert Photo]	[Insert Photo]
Photo #3 – [Insert Caption]	Photo #4 – [Insert Caption]
[Insert Photo]	[Insert Photo]
Photo #5 – [Insert Caption]	Photo #6 – [Insert Caption]

[Add additional pages as necessary]

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APPENDIX E
SAMPLE HMR REPORT TEMPLATE

Note: Documentation requirements are commensurate with the type of action being performed. This template may require modification based on project-specific factors.

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Hazardous Materials Review

[Project Name]
[Location, County, State]

]Project No.: [XXX-XXX(xxx)]
Control No.: [XXXXX]

Prepared For:
[NDOR or Local Public Agency]
[Department]
[Address]
[City, State, Zip Code]

Prepared By:
[Insert Preparers Name (Do not include company names)]

[Date (Day, Month, Year) the HMR is Submitted to NDOR]

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3.3 Historical Use Information [Remove this Section if Not Required for HMR] ---------- 6
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3.4.1 [Insert Identified Site Name #1 – Create new subsection for as many sites necessary to cover all regulatory record file reviews completed] ---------- 7
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Appendices

Appendix A – Project Figures
Appendix B – Full Project Description
Appendix C – Pertinent Regulatory Record Files [Remove if none]

[NOTE TO THE REPORT PREPARER: This document was established to serve as a template to assist you with developing a project-specific Hazardous Material Review (HMR) Report for your project. Sections in red/bold and using brackets are instructions to the report preparer or are to be filled in for each specific project. However, the entire document should be reviewed thoroughly to ensure it accurately reflects the details of the project. All instructions and red/bold text in brackets should be removed prior to finalizing the document. THE TEMPLATE BEGINS BELOW]

1 Introduction

[Insert Preparers Name(s)], acting on behalf of [State or LPA], conducted a hazardous materials review (HMR) for the [insert project name] project ([insert control number]). The project is located in the [city/county, state] (Figure 1 in Appendix A).

Note: Include a vicinity map that highlights the project area and surrounding area. A more detailed project area map should also be included. Label any rivers, streams, ditches, lakes that are present. This map should include the proposed logical termini and the existing facility. Both maps should include aerial photography as a base, a north arrow, scale, the project name, and county. Any bridges within the project area limits shall be marked on the map.]

This HMR was performed as part of the National Environmental Policy Act (NEPA) documentation for the [insert project name] (Figure 2 in Appendix A). The information provided within this assessment is intended to assist [State or LPA] in identifying potential hazardous materials concerns and in considering the possible need to address hazardous materials concerns in project decisions regarding materials management and worker health and safety. A project description is included in the Section 1.1. [Insert the main scope items conducted for the HMR here:] The HMR included the review of the Nebraska Department of Environmental Quality (NDEQ) Interactive Mapping System (IMS) on [insert date], a review of an Environmental Data Resources (EDR) Radius Map Report on [insert date] and a visual reconnaissance was conducted on [insert date], by [Indicate the environmental professional that conducted the site reconnaissance]. A regulatory file review of NDEQ records was completed on [insert date] by [Indicate the environmental professional that conducted the regulatory file review]. Subsurface investigation of [insert medium (soil and/or groundwater)] was conducted on [insert date].

1.1 Project Description

[Insert a brief project description and attach the full project description to the memo. Include maximum depth of excavation and if additional property rights would be required for the project.]
The full project description is attached in Appendix B. Table 1 summarizes the project features.

Table 1. Project Features

Project Feature	Present (yes/no)	Discussion
Structure Acquisition	☐ Yes ☐ No	
Structure Modification	☐ Yes ☐ No	
Structure Demolition	☐ Yes ☐ No	
Full Property Acquisition for Right-of-Way	☐ Yes ☐ No	
Permanent or Temporary Easements	☐ Yes ☐ No	
Utility Relocation	☐ Yes ☐ No	
Excavation or Drilling	☐ Yes ☐ No	
Disturbance Depth (feet)	[i.e., is it possibly to groundwater?]	
Encountering Groundwater Anticipated	☐ Yes ☐ No	
Dewatering	☐ Yes ☐ No	
Depth to Groundwater (feet) (Section 2)	[e.g., approximately 10 to 20 ft below ground surface (bgs)]	
Groundwater Flow Direction (Section 2)	[e.g., northwest toward East Toll Gate Creek]	

1.2 Methodology

The methodology used to identify the presence of sites within the project footprint which have the potential to impact the project included the following steps:

- [Include steps that were used in your hazardous materials assessment. Add or delete steps, as necessary]
- Reviewed readily available local, state, and federal environmental agency databases to identify and assess sites with potential to impact the project up to a maximum distance of one mile from the project footprint.
- [If a visual reconnaissance was conducted add the following] Performed a visual reconnaissance of the project area from public right-of-way to identify site activities and potential contamination sources within and adjacent to the project area.
- [If additional analysis was conducted using historical sources add the following] Reviewed readily available standard historical sources, including aerial photographs within the project area.
- [If a regulatory file review was conducted add the following] Reviewed previous studies, Nebraska Department of Environmental Quality (NDEQ) records, Nebraska State Fire Marshal (SFM) records, or other available regulatory records from local, state, and federal agency records for properties within the project area.

1.3 Impact Criteria

The magnitude of the project impact from an identified site depends on several factors, including the distance between a potential source of a hazardous material as defined in NDOR's Hazardous Material Review Guidance document and the project; regulatory status of the identified sites (e.g., active or inactive); known or suspected releases into soil, surface water or groundwater; the hydrogeologic relationship of the source of contamination to the project; and the depth and/or duration of construction. This HMR considers these factors as part of the evaluation of whether an identified site has the potential to impact the project. Identified sites were categorized as having either low, medium or a high potential to impact the project area. The following describes the categories:

[For Site Specific Projects use the following criteria:]

Low Potential: It is determined through investigation that it is unlikely that contamination would be encountered during construction.

Medium Potential: During the investigation, it determined that it is unknown whether contamination is located in the project footprint. A subsurface investigation or further coordination with regulatory agencies determines is it unlikely that contamination would be located in the project footprint. On a case-by-case basis, a commitment to the contractor and NDOR project manager to look for signs of contamination in specific areas can be included in the HMR rather than proceeding with a subsurface investigation.

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

These criteria are used throughout this report in evaluating impact potential from hazardous materials to the project.

[For projects with in-depth Alternatives Analysis use the following criteria:]

Low Risk: It is unlikely that contamination is located within the proposed project alternatives' limits of construction (LOCs). There is low risk to the overall project, the natural environment and human health and safety.

Medium Risk: Potential contamination exists within the project LOCs. 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.

High Risk: Contamination is likely to exist within LOC's. 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 required a QA/QC process. Correspondence with agencies may be required. NDOR's preference is the avoidance of contaminated sites that pose a high risk to the project.

These criteria are used throughout this report in evaluating impact potential from hazardous materials to the project.

2 Environmental Setting

[Insert results of visual site reconnaissance. Include a description of the land use (e.g., agricultural, commercial, light industrial, residential) in the project area and surrounding the project area. Geology, hydrology/receiving waters, depth to groundwater, etc.]

Example:

The United States Geological Survey (USGS) topographic maps and Nebraska Department of Natural Resources (NDNR) elevation data, indicate that groundwater flow for the majority of the environmental study area would generally be to the south southeast toward Hell Creek and eventually to Big Papillion Creek. In addition, groundwater flow direction may be affected by water table elevations and may flow from areas with high water table elevations to areas with lower water table elevations, which may not be consistent with the direction of surface water flow. Regional geology is undifferentiated Pennsylvanian-aged Kansas City limestone overlaying unconsolidated glacial till. Estimated depth to groundwater is approximately 90-100 feet below ground surface based on reported static water levels of registered industrial/commercial-use wells (NDNR registered wells database) near the project.

3 Results

The following sections summarize the review of regulatory databases, the visual reconnaissance, and additional analysis [List additional analysis conducted, such as regulatory file review at NDEQ, project area history/historic review, etc.]. As discussed in Section 1.3, the evaluation of magnitude of the project impacts from a hazardous material is based on several factors. The HMR resource reviews were used to identify and evaluate sites with potential concerns related to hazardous materials that are located adjacent to, or within the vicinity of the proposed project improvements.

3.1 Regulatory Database Search

The results of the [EDR regulatory database,] NDEQ IMS review are listed in Table 2 and includes facilities that are listed in regulatory databases related to hazardous substance and/or petroleum product use, storage, or transfers. These types of sites may include but are not limited to, underground storage tanks (UST), leaking underground storage tank (LUST), Petroleum Release Remediation (PRR), Release Assessment (RA), Resource Conservation and Recovery Act (RCRA) sites with reported violations, and Tier 2 Chemical Reporting/Superfund Amendments and Reauthorization Act (SARA) Title III sites. These types of sites were reviewed and included in Table 2 and on the attached maps if they are located adjacent to and/or within 1/10 mile of the environmental study area (defined as the Hazardous Material Study Area).

Table 2 and the attached maps also include sites with indications of a known existing or past release of any hazardous substances or petroleum products into the ground (soil), groundwater, or surface water and the possibility for large-scale migration from the contaminant source, such as National Priority List or Superfund (SF), RCRA Corrective Action (CORRACTS), and Brownfields (BR) sites if they are located adjacent to and/or within 1 mile of the project footprint. [State whether or not SF, CORRACTS, or BR sites were identified within 1 mile of the project footprint].

Each identified site is included below in Table 2. As previously stated, these sites are located adjacent to the project footprint or within 1/10 mile (hazardous material study area), to 1 mile (sites with potential for larger scale contamination) from the hazardous material study area (as defined by NDOR).

Table 2. Identified Sites within the HMR Search Radii

Facility	Address	Regulatory Database and Facility Status	Distance Relative to Project
Uncle Neal's Country Store, Cenex filling station	123 E Pacific Street (US-30)	UST[2], Historical UST, Active LUST[1], No Further Action	[adjacent or distance in feet] and topographically [down-, up-, or cross-]-gradient
Nebraskaland Tire	511 Plum Creek Parkway (US-283)	UST, Active LUST, No Further Action	[adjacent or distance in feet] and topographically [down-, up-, or cross-]-gradient
Lexington Laundry & Dry Cleaners / Plum Creek Dry Cleaners	118 W 5th Street 117 E 6th Street	Drycleaners[4], RCRA non-generator[3], Active	[adjacent or distance in feet] and topographically [down-, up-, or cross-]-gradient
"5th & Lincoln Street" (former drycleaner & newspaper printing)	114 W 4th Street	CORRACTS[5], Active	[adjacent or distance in feet] and topographically [down-, up-, or cross-]-gradient
[Add Rows and Insert all Listed Sites]	[Add address]	[Add regulatory programs and status]	[Add distance and gradient]

Notes: [update based on database search results]

1 LUST = Leaking Underground Storage Tank Site
2 UST = Underground Storage Tank
3 RCRA NonGen/NLR = Federal Resource Conservation and Recovery Act Generator Non-Gen Facility includes sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by RCRA. Non-Generators do not presently generate hazardous waste.
4 Historical Cleaners = Include, but are not limited to dry cleaners, cleaners, laundry, Laundromat, cleaning/laundry, wash and dry, etc. Dry cleaner facilities have a history of use, handling, and storage of solvents (e.g., perchloroethylene) and unknown disposal practices.
5 CORRACTS = Federal Resource Conservation and Recovery Act Corrective Action facility.

[Insert number of sites] site[s] [was/were] identified as having a high potential to impact the project footprint. Those that required additional analysis are discussed in further detail in Section 3.4 Summary of Regulatory File Review. The remaining regulated facilities identified in the [EDR report and/or on the] NDEQ IMS search were evaluated but are not carried forward for additional analysis due to their distance from the project, topographic gradient relative to the project and/or regulatory status.

3.2 Visual Reconnaissance

A visual reconnaissance was conducted on August 11, 2014, by Allison Sambol, an environmental scientist with FHU. The purpose of the visual reconnaissance was to assess the project area for potential hazardous materials concerns associated with current land use and observable site activities. The visual reconnaissance assessed the project area for obvious evidence of potential contamination sources, such as current hazardous materials storage or use; unusually stained soils, concrete slabs, or pavements; sumps, dumps, drums, tanks, and electrical transformers; stressed vegetation; and discarded containers.

[Insert site observations if applicable – see example below.]

Additional Site Reconnaissance Observations:

[Pole- and pad-mounted electrical transformers were observed throughout the project area. Prior to 1979, polychlorinated biphenyl (PCB) materials were used to manufacture electrical transformers. They have since been banned due to their environmental toxicity. The United States Environmental Protection Agency (EPA) defines PCB equipment as containing greater than 500 parts per million (ppm) PCBs; "PCB contaminated equipment" as containing 50 to 500 ppm PCBs; and "non-PCB equipment" as containing less than 50 ppm PCBs. Any electrical

equipment with no label or unknown concentration is assumed to be "PCB contaminated equipment" per EPA regulation and should be managed accordingly.]

3.3 Historical Use Information [Remove this Section if Not Required for HMR]

The objective of the historical review is to "develop a history of the previous uses of the property and surrounding area, in order to help identify the likelihood of past uses having led to recognized environmental conditions" (ASTM, 2013).

To evaluate the past uses of the project corridor and identify any sites with potential to impact the project, [insert preparer's name] reviewed historic aerial photographs for direct observation of site conditions through a period of time. These observations may include the locations of tanks, drums, pits, ponds, lagoons, stained/stressed vegetation, or other site development features that can indicate potential contaminant sources.

Table 3 summarizes the historical records reviewed.

Table 3. Summary of Historical Records Reviewed

Historical Record	Years Reviewed
[Name] USGS 7.5-Minute Topographical Maps	1986 (Provisional Edition) and 2009 (USGS Beta version)
[Name] USGS 7.5-Minute Topographical Maps	1947 (Photorevised in 1986) and 2009 (USGS Beta version)
[Name] USGS 30x60 and 1x2 Topographical Maps	1954 (Photorevised 1978) and 1985
[Name] USGS 30x60 and 1x2 Topographical Maps	1980 and 1985-87(published 1989)
Aerial Photographs[1]	1993, 1999, 2000, 2003, 2006, 2009, 2010
Aerial Photographs[2]	1979, 1980

NOTES:
(1) Aerial photographs were obtained from the Nebraska Department of Natural Resources IM Application (FSA aerial photography), the NRCS NAIP 2012 1m-County Aerial Imagery, and Google Earth
(2) Aerial photographs were reviewed from the Box Butte (1979) and the Morrill County (1980) NRCS Soil Surveys.

[Insert brief summary of historical review.]

[Examples] Summary:

The rail lines that currently parallel the project area and pass through the environmental study area have been active since their construction between the 1880s & 1890s as part of the Burlington and Missouri River Railroad (now BNSF) to provide access to the markets in Denver and Omaha. Construction material stockpiles, such as sand and gravel were apparent on property adjoining the southbound lanes of US-385 and the westbound lanes of L62A. In general, the area surrounding the project corridor maintains an agricultural/rural appearance until the more urban areas of Alliance replace the agricultural land with residences, industrial land uses, agri-business and commercial zones around major intersections.

Also depicted on the aerial photographs was a filling station at the project intersection, a scrap yard at US-385 and Rock Road, and the south end of the Alliance Yard railcar queuing area (the maintenance yard and roundhouse are located approximately 1 mile from the project footprint). Associated activities related to these three facilities, particularly the scrap yard and railroad; include the use and/or storage of petroleum products, solvents, heavy metals and automotive maintenance activities. Based on their proximity to the project footprint these facilities are evaluated further in Section 4.0 below.

The feedlot depicted south of Alliance on the west side of US-385 was depicted on the 1993 through 2010 aerial photographs. Associated activities with feedlots include the use and storage of petroleum products related to large-scale equipment and operating of a rural business. Other activities include large-scale grain storage and the generation of waste water, treated in settling ponds. Based on the proximity to the project area, this facility is considered to be [high risk to the project alternatives] at this time. This facility is evaluated further in Section 4.0 below.

The grain elevator and storage facility(s) located on adjoining property east and west of the project area in Angora, was depicted on the 1965 topographic map through 2010 aerial photographs. Other grain elevators on nearby properties north (of Alliance) and east of the project area were also depicted on the aerial photographs. Associated activities with grain elevators include the use of grain fumigants (i.e., carbon tetrachloride) and petroleum product storage. Based upon the above information, the grain elevator and storage facility on adjoining property east and adjoining property west to the project area in Angora are considered [high risk to the project alternatives] at this time. This facility is evaluated further in Section 4.0 below.

Other industries that may impact the project footprint include automotive maintenance and repair, a scrap yard, and a filling station. Associated activities of concern include the use of petroleum products, solvents, spent solvents (degreasers), heavy metal accumulation in soil, and other common manufacturing practices like bulk storage. Concerns associated with filling stations include leaking underground storage tanks and the potential for contaminated soil and/or groundwater. These facilities are evaluated further in Section 4.0 below.

3.4 Summary of Regulatory File Review

A detailed records review was conducted for identified sites located adjacent to, up-gradient, and or near the project footprint where the potential for impacts to the project were considered high. As stated in Section 3.1, the remaining identified sites were determined to be low potential for impact to the project due to their location either down-gradient, cross-gradient, and/or distance from the project footprint. Therefore, a review of regulatory files for those identified sites was not completed.

The objective of the detailed records review was to examine available information regarding the extent of the known impacts to soil, groundwater, and surface water due to an existing or past release of a hazardous substance or petroleum product and to evaluate the potential for residual soil and groundwater contamination to remain on the site. The findings of the regulatory file review are included below. Refer to Appendix C for pertinent regulatory records.

3.4.1 [Insert Identified Site Name #1 – Create new subsection for as many sites necessary to cover all regulatory record file reviews completed]

[Provide a brief summary of the facility history, background, source of release, remedial activity, etc. used to determine the level of impact to the project footprint and, if applicable, the level of risk for the alternatives analysis.] [Example: The Big Landfill Superfund site operated from 1965 to 1980 and accepted a variety of wastes. In the southern portion of the site near the Club Road/Q Avenue intersection, approximately 75 unlined waste pits or trenches were excavated to accommodate a mixture of liquids, industrial waste, and municipal waste. These pits and trenches were filled about three-quarters full with liquid wastes and topped with 25 to 60 ft of municipal waste. No measures are known to have been implemented to prevent leachate or liquid waste seepage from the pits. Consequently, over time, the liquid seeped out of the pits and mixed with the surrounding refuse and groundwater.]

The contaminants of concern in groundwater are:

- arsenic
- bromodichloromethane
- cadmium
- bromoform
- iron
- carbon tetrachloride
- ethylbenzene
- 1,1-dichloroethane
- methylene chloride
- 1,1-dichloroethene
- naphthalene
- 1,2-dichloroethane

The contaminants of concern in surface soil and surface water are:

- 2,3,7,8-tetrachlorodibenzo-p-dioxin
- barium
- cyanide
- vanadium
- chloroform
- manganese
- toluene
- chromium
- mercury
- aluminum

In addition to these remedial actions, restrictions on property ownership, institutional controls, and land use restrictions have been placed on off-site land and groundwater use. Refer to Appendix C for pertinent regulatory records.

3.4.2 [Insert Identified Site Name #2 – Create new subsection for as many sites necessary to cover all regulatory record file reviews completed]

The [Insert Identified Site Name #2] site, located on the [insert location reference] of the project area is identified as [Low or High Potential to impact the project.

[Provide a brief summary of the facility history, background, source of release, remedial activity, etc. used to determine the level of impact to the project footprint and, if applicable, the level of risk for the alternatives analysis.]

The contaminants of concern in groundwater are:

The contaminants of concern in surface soil and surface water are:

In addition to these remedial actions, restrictions on property ownership, institutional controls, and land use restrictions have been placed on off-site land and groundwater use. Refer to Appendix C for pertinent regulatory records.

OR present Section 3.5 in Tabular Format

Table 4. Regulatory Records Review for Identified Sites

Facility	Address	Regulatory Database and Facility Status	Distance Relative to Project
Conoco Station (NDEQ IIS# XXXXX)	555 Flower Street City, NE 68116	EDR UST (Active)	>0.75-mile north and topographically up-gradient
Findings: The Conoco Station facility is listed in the EDR report as a regulated site. It is also listed on the DEQ 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 [and low risk] to impact materials management or worker health and safety related to project construction.			
Superfund Site (NDEQ IIS# XXXXX)	4th & A Street City, NE 68805	Brownfields (Active)	Adjoining
Findings: The Superfund Site facility is listed in the EDR report as a regulated site. It is also listed on the DEQ IMS website. Recorded releases were identified for this facility. The contaminants of concerns are petroleum compounds and volatile organic compounds (VOCs) such as ethylbenzene and 1,2 dichloroethane. Remedial actions at the facility are listed as on-going. A plume map is included in Appendix C. Based on the above information and the proposed scope of work, the Superfund Site is considered high potential to impact materials management or worker health and safety related to project construction [and high risk to the construction schedule and property acquisition process.]			

4 Findings and Mitigation Measures

The findings and recommendations of this hazardous materials assessment must be viewed in recognition of certain limiting conditions. Results of this HMR are based on a visual site reconnaissance of current conditions within the project area, a review of readily available standard historical sources, environmental agency database search, and regulatory records review.

4.1 Findings

The following summarizes findings from the hazardous materials due diligence activities performed for this project:

[Insert findings/conclusion – see example below.]

Based on review of the [EDR Report and] NDEQ IMS, the site reconnaissance, [INSERT, historical review, regulatory file review, etc.] and the proposed scope of work; it is considered [low or high potential] for contamination in [soil and/or groundwater] to be encountered during construction. There are [number of sites] identified sites that would impact construction of the project or cause a materials management and/or worker health and safety concerns related to project construction.

4.2 Mitigation Measures

The following mitigation measures shall be carried forward through the NEPA documentation and NDOR Green Sheets for this project:

[Insert required commitment below.]

If contaminated soils and/or water or hazardous materials are encountered, then all work within the immediate area of the discovered hazardous material will stop until NDOR/FHWA is notified and a plan to dispose of the Hazardous Materials has been developed. Then DEQ will be consulted and a remediation plan will be developed for this project. The potential exists to have contaminants present resulting from minor spillage during fueling and service associated with construction equipment. Should contamination be found on the project during construction, the DEQ will be contacted for consultation and appropriate actions be taken. The contractor is required by NDOR's Standard Specification section 107 (legal relations and responsibilities to the public) to handle and dispose of contaminated material in accordance with applicable laws. (Contractor)

[Insert applicable commitments following the required commitment – see examples below.]

[For Positive ACM test results]

The scope of work for the [building or bridge] structure [insert structure no. or parcel no.] required an inspection for asbestos containing material (ACM). ACM was found in the [insert approximate amount of ACM material and where it was found]. The ACM must be removed in a way that allows the ACM to remain in a non-friable condition. 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 NDOR. A list of Licensed Asbestos Removal Contractors can be found at: http://dhhs.ne.gov/publichealth/Documents/asbestosbusinessentities.pdf

Demolition work on the [building or bridge] structure [insert structure no. or parcel no.] will require the contractor to submit a written NESHAP (National Emission Standards for Hazardous Air Pollutants) notification to the Nebraska Department of Environmental Quality (NDEQ). In addition, the Department of Health and Human Services and the shall also be notified by the contractor, using DHHS Form 5, at least 10 working days prior to commencement of bridge demolition or renovation activities where ACM was found. The ten day clock starts with the day the Notification is postmarked, hand delivered or picked up by a

commercial delivery service, such as UPS, FedEx, etc. Faxing documents is prohibited. The NDOR Project Manager shall be provided copies of said notifications and their submittal date, which shall be recorded with the ECOD [or Site Manager for local projects].

[For Removing Painted Bridge Component]

The bridge structure [insert structure no.] is being replaced/rehabilitated. There is potential for lead based paint to be found on the bridges painted components. If the method of removal of the components generates paint debris, the waste shall be handled in accordance with NDOR's Standard Specification for Highway Construction Section 732 (Lead-based Paint Removal) and Title 128, Nebraska Hazardous Waste Regulations. Extreme caution shall be taken to minimize the amount of potential lead based painted material or debris from causing or threatening to cause pollution of the air, land and waters of the State. The Contractors implementation plan efforts shall be documented in [insert either ECOD or Site Manager here]. (Contractor)

[For Removing LBP by Scraping/Cleaning/Sandblasting/Painting]

The bridge structure [insert structure no.] is being cleaned and sandblasted piles are being sandblasted/painted. There is potential for lead based paint to be found on the bridges painted components. If the method of cleaning and painting generates paint debris, the waste shall be handled in accordance with NDOR's Standard Specification for Highway Construction Section 732 (Lead-based Paint Removal) and Title 128, Nebraska Hazardous Waste Regulations. Extreme caution shall be taken to minimize the amount of potential lead based painted material or debris from causing or threatening to cause pollution of the air, land and waters of the State. The Contractors implementation plan efforts shall be documented in [insert either ECOD or Site Manager here]. (Contractor)

[For Handling Lead Plates or Shims for Bridge Replacement]

The bridge structure [insert structure no.] is being replaced. The Contractor shall recycle any lead plates or shims at a legitimate recycling facility as found in paragraph 3 (environmental requirements) 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 efforts shall be documented in [insert either ECOD or Site Manager here]. (Contractor)

[For utility work that may involve the handling of PCB-containing transformers]

Performance of the utility work set forth in the project plans and specifications shall be conducted in accordance with any easement agreement among the utility companies, [Name of City of County], and/or private landowners, and whether or not federal funds shall be used to reimburse for utility relocations. If federal funding is used, transformers shall be reviewed for PCB content (the equipment can be identified by blue stickers that say either "PCB-free" or "No PCBs"). If PCB-containing transformers or other equipment are suspected to be present, NDOR requires that they be managed and disposed of according to the TSCA regulations in coordination with USEPA. Releases of PCBs to the environment at levels requiring action under TSCA are to be managed or remediated according to TSCA regulations and in coordination with USEPA. If present, the utility owner is responsible for transformer equipment, including those that are PCB-containing and shall be responsible for maintaining and/or replacing equipment with PCB- free equipment. Any electrical equipment with no label or unknown concentration is assumed to be "PCB contaminated equipment" per EPA regulation and should be managed by the utility company accordingly. NDOR or their representative shall contact the utilities to schedule performance of the work and shall coordinate the work with the project construction activities per NDOR's Standard Specifications for Highway Construction, Subsections 105.06 and 107.16 (NDOR, 2007). ([Design or Project Sponsor], Contractor)

[For work that may involve impacting an existing well]

NDOR ROW shall coordinate with the owners of wells that shall be directly impacted by the proposed project. If the well is actively used, NDOR ROW shall get estimates to have the property owner hire their own contractor to replace the well. NDOR ROW shall then have an independent contractor decommission

the well after ROW negotiations and acquisitions are complete. If the well is not in use, the Contractor shall decommission the well after negotiations with the owner ([NDOR ROW or Project Sponsor], Contractor).

A licensed water well contractor shall decommission any wells in accordance with the Nebraska Department of Health and Human Services regulations under Nebraska Administrative Code Title 178, Water Well Standards, Chapter 12, Water Well Construction, Pump Installation, and Water Well Decommissioning Standards (12 February 2005) ([NDOR ROW or Project Sponsor], Contractor).

5 References

[Example citations below]

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US Environmental Protection Agency (EPA). 2005. Standards and Practices for All Appropriate Inquiries, Final Rule. Federal Register 70 (November 1): 66070 – 66113.

USGS. [Insert Year]. [Insert Name of Quad Map] 7.5-Minute Topographic Map.

USGS. Provisional Version [Insert Year]. [Insert Name of Quad Map] 7.5-Minute Topographic Map.

USGS. [Insert Year]. Photorevised Insert Year]. [Insert Name of Quad Map] 7.5-Minute Topographic Map.

USGS. 2010. "High Plains Water-Level Monitoring Study – Physical/Cultural Setting" December 17. Retrieved from http://ne.water.usgs.gov/ogw/hpwlms/physsett.html on [Insert Month Day Year].

Appendix A – Project Figures

Appendix B – Project Description

Appendix C – Pertinent Regulatory Record Files

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APPENDIX F
QA/QC CHECKLISTS FOR HMR APPROVAL

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NDOR Local Project Division

Hazardous Materials Review Checklist for Local Projects

Instructions for Use: This checklist is to be completed by the LPD PC upon receipt of the Hazardous Materials Review packet from the LPA RC / Consultant. This completed checklist should be completed by the LPD PC prior to the LPD PC sending the Hazardous Materials Review packet to the NDOR Environmental Hazardous Material PQS for review and approval.

Local Public Agency *(LPA)*:	LPA Responsible Charge:	
State Project No.:	Project Name and Location:	
State Control No.:	Date of Review:	This form was completed by:

	Task Description or Questions	Completed			If No, Define Corrective Action	Details or Information Used to Verify Content	Additional Comments
		Yes	No	N/A			
1.	Are the Project Name, Project Number and Control Number correct?	☐	☐	☐			
2.	Have all Sections of the Visual Reconnaissance Form been completed?	☐	☐	☐			
3.	Has the Summary Memo been completed?	☐	☐	☐			
4.	Is the Project scope of work described in the summary memo?	☐	☐	☐			
5.	Is the packet complete? (Are the database search, Photolog, and map included with the Visual Reconnaissance Form and Summary memo?)	☐	☐	☐			
6.	Is the location map accurate and does it show the appropriate search area and/or identified facilities? (i.e. NDEQ IMS or vendor report)	☐	☐	☐			

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NDOR Environmental

Hazardous Materials Review Checklist

Instructions for Use: This checklist is to be completed by the NDOR Environmental Hazardous Material PQS upon receipt of the Hazardous Materials Review packet from the LPD PC and Consultant and/or State Projects NEPA PM.

Local Public Agency *(LPA)*:	LPA Responsible Charge:	
State Project No.:	Project Name and Location:	
State Control No.:	Date of Review:	This form was completed by:

Task Description or Questions		Completed			If No, Define Corrective Action	Details or Information Used to Verify Content	Additional Comments
		Yes	No	N/A			
1.	Are the Project Name, Project Number and Control Number correct?	☐	☐	☐			
2.	Are all required supporting documents to the Memo included (Visual Reconnaissance Form, Photolog, database search results, map)?	☐	☐	☐			
3.	Was the review prepared by or QA/QC'd by a NDOR defined Environmental Professional?	☐	☐	☐			
4.	Is the Environmental Study Area shown on a map in relation to the limits of construction and in relation to the sites identified?	☐	☐	☐			
5.	Based on map and database search, were the appropriate search radii used to evaluate the project area (search radii based on NDOR HazMat Guidance)?	☐	☐	☐			

Task Description or Questions		Completed			If No, Define Corrective Action	Details or Information Used to Verify Content	Additional Comments
		Yes	No	N/A			
6.	Has the topographic gradient for the project area been identified?	☐	☐	☐			
7.	If the project is a bridge replacement or repair project is there evidence of potential LBP? If so, was the standard commitment included on the Summary Memo?	☐	☐	☐			
8.	If there are structures on-site that will be impacted by construction is there potential for Asbestos Containment Materials (ACM)? If so, was the standard commitment included on the Summary Memo?	☐	☐	☐			
9.	If there are moderate or high risk sites identified, does the Summary memo explain if or how construction may or may not be affected?	☐	☐	☐			
10.	If there are no moderate or high risk sites identified, does the Summary memo explain how this is known?	☐	☐	☐			
11.	Based on the evaluation, is the recommendation appropriate?	☐	☐	☐			
12.	If based on the evaluation a more detailed assessment is required, does a subsurface investigation need to be completed? If so, has this been done?	☐	☐	☐			

Task Description or Questions		Completed			If No, Define Corrective Action	Details or Information Used to Verify Content	Additional Comments
		Yes	No	N/A			
13.	Have the moderate and/or high risk sites that were listed throughout the Memo been addressed by an Environmental Commitment to be carried forth into the NEPA CatEx document Block 18b?	☐	☐	☐			
14.	Are the environmental commitments stated in such a way that a responsible party is identified for carrying out each required activity (who, what, when, where, etc.)?	☐	☐	☐			