September 2016

Ready for Reuse Basis of Decision

Former W.J. Smith Wood Preserving Company Facility
Denison, Grayson County, Texas

Prepared for:

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Introduction

The United States Environmental Protection Agency (EPA) Region 6 has determined that the former W.J. Smith Wood Preserving Company facility located at 1700 West Morton Street in Denison, Texas (the "Site") is Ready for Reuse. The Property meets the criteria for the Ready for Reuse Determination since the Property has been remediated to conditions that are protective of human health and the environment, based on its current and anticipated future use as a residential or commercial/industrial property. A description of the Property, site background information, and a summary of remedial activities and current conditions are provided in the following sections. **Figure 1** presents a general site location map. **Figure 2** presents a Site Plan Layout indicating key features of the Site including former industrial wood-treatment process areas, storm water ditch conveyances, and groundwater monitoring wells. **Figure 3** presents Parcel designations for the Site. This RfR has been prepared in accordance with recent recommendations by and discussions with the US EPA and includes a current site conditions table and recent site field data.

Property Description

This Ready for Reuse determination is being issued for Parcels 1, 2, 3, and 4 of the Site. The approximate parcel boundaries are depicted on **Figure 3**, and the legal descriptions are included in **Attachment A**. Parcel 1 covers approximately 71.2 acres of land on the north and west sides of the former W.J. Smith Wood Preserving Company facility. The parcel is generally unimproved and is covered by grass vegetation; however, a portion along the western property boundary is forested. Parcel 2 covers 8.3 acres in the north-central portion of the Site and contains the Land Treatment Unit (LTU). Parcel 3 covers 5.6 acres on the south side of Crawford Street and featured the North and South ditch remediation areas. Parcel 4 covers approximately 15.8 acres on the east side of the Property and was the location of creosote storage, use, and remedial activities. The adjoining properties to the north feature a mix of industrial/commercial and residential site use. The remaining properties to the east, south, and west consist mostly of residential dwellings and recreational areas.

Site History

The Site was historically used to pressure treat railroad ties, utility poles, fence posts, and other wood products with creosote and other special creosote solutions to preserve these products against decay. Property operation began in 1909 and ceased in 1991. Subsequently, the majority of the structures at the Property were decommissioned and removed between May 1991 and February 1992. EPA issued an Administrative Order on Consent (AOC) to Katy on December 6, 1995 (Docket No. RCRA-VI-7003-93-02) to complete remedial investigation, remedial actions, and post-closure care at the Site under the supervision of the EPA.

Summary of Site Assessment & Remedial Actions

Numerous environmental investigations were performed at the Property between 1985 and 2012 by several environmental consultants and agencies. These investigations included installation of monitoring wells, drilling of soil borings, and collection of air, soil, sediment, surface water, and groundwater samples. Based on these investigations, volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) derived from creosote were identified as the constituents of concern (COCs) for the Property.

Based on the findings of the environmental investigations, substantial remedial measures have been implemented at the Site from 1991 through to the present. The objectives of these measures were to mitigate the potential threat to human health and the environment and to minimize the migration of COCs in accordance with the AOC. Remedial actions included the excavation and treatment of excavated surface soils, collection and treatment of stormwater, and isolation of stormwater from soils and sediment containing COCs.

A brief summary of the investigation and remedial actions completed in each of the four parcels is presented below.

Parcel 1

Parcel 1 consists of the area where no significant detections of COCs were historically found, and where no remedial action was required by US EPA under the approved AOC. The portion of Parcel 1 located north of Crawford Street was historically used for the storage of raw (i.e. untreated) wood or was vacant land. A 2.2-acre area on the west side of Parcel 1 was specified as a potential industrial solid waste disposal site according to a deed recordation dated May 29, 1984; however, no waste disposal activities occurred in this area according to the property caretaker. The potential landfill area is depicted on **Figure 2** and the deed recordation in presented in **Appendix B**. The portion of Parcel 1 located south of Crawford Street was used as a golf course for a period of time and was vacant for the remainder of its known history. Because Parcel 1 was not impacted by historical creosote operations and no significant concentrations of COC s were detected, no institutional or engineering controls are necessary for this Parcel.

Parcel 2

Parcel 2 covers approximately 8.3 acres in the north-central portion of the Site and contains the LTU. The 1995 AOC included a provision to construct and operate the LTU for biological remediation of soils and sediments originating from the off-site drainage ditch. The LTU was constructed in 1996, covered approximately six acres, and was located in a portion of the Site previously impacted by creosote-related compounds. The base of the LTU is constructed of a low permeability barrier consisting of a geosynthetic clay liner (GCL) and high density polyethylene (HDPE) geomembrane. Above the barrier was a drainage layer consisting of sand and perforated pipe used to collect leachate from the soil and direct the drainage to collection sumps on the south side of the LTU. Sump pumps were provided to transfer leachate to the water retention basin. The water retention basin also served as a reservoir for irrigation water to maintain the desired water content of LTU soils to promote biological activity. A six-foot high berm was constructed around the LTU perimeter to prevent run-on or run-off of stormwater and to minimize airborne particulates.

Routine operation of the LTU included tilling the soils to provide oxygen, addition of fertilizer to maintain appropriate phosphorus and nitrogen levels, and irrigation to maintain the desired water content in order to facilitate the biodegradation of creosote compounds. Operational activities included stormwater and leachate management, system and security inspections, and implementation of repairs, as necessary. Progress reports providing details of the LTU operational activities were submitted to USEPA routinely (quarterly or semiannually) from 1997 to 2006.

The LTU achieved the Site-specific health-based treatment goals established using US EPA guidance. The approved cleanup objective for soils was 500 milligrams per kilogram (mg/kg) of total carcinogenic polycyclic aromatic hydrocarbons (PAHs), including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, chrysene, and indeno(1,2,3-c,d)pyrene. Information regarding specific sampling locations, depth, and COCs detected can be obtained from the following reports:

- *North Ditch Investigation Report*, PSI, June 14, 1999;
- *Construction Completion Report, North Ditch Remedial Action*, PSI, September 21, 2000;
- *RCRA Facility Investigation Report*, DOMANI, May 8, 2003;
- *Corrective Measures Study*; DOMANI, May 8, 2003;
- *Construction Completion Report, Facility and Iron-Ore Creek Tributary Remedial Action*, DOMANI, July 23, 2004;
- *Land Treatment Unit Closure Plan*, DOMANI, June 26, 2006;
- *Land Treatment Unit Closure Specifications*, DOMANI, August 18, 2006; and,
- *Construction Completion Report, Land Treatment Unit Closure*, DOMANI, March 28, 2007.

In order to prevent exposure to the residual impacted soil and groundwater, Parcel 2 is restricted to non-residential use for current and future users of the Site per the *Declaration of Notice and Restrictions* recorded with the Grayson County Clerk's office (Instrument Number 2008 00016377) (**Attachment C**). The declaration also describes the general construction and protective features of the LTU that are to remain intact to protect human health and the environment.

Parcel 3

Parcel 3 consists of approximately 5.1 acres of land located south of Crawford Street and features a stormwater drainage ditch that runs the length of the parcel as depicted on **Figure 3**. The ditch was divided into two areas of interest known as North Ditch and South Ditch (**Figure 2**). In 1993, US EPA personnel sampled the drainage ditch and confirmed the presence of creosote-impacted soils, sediment, and surface water within the North and South ditches.

Remedial actions were implemented in March 1996, and approximately 6,000 cubic yards of impacted soil and sediment was excavated from the drainage ditch and transported to the LTU for treatment. Additional remedial measures were conducted within the South Ditch in September 1996 to prevent the contact of storm water with soils impacted by COCs and to

remove shallow soils along the ditch. Remedial measures consisted of soil removal via excavation in the South Ditch, installation of a subsurface culvert near the north and central portions of the ditch, re-grading the ditch to eliminate standing water, installation of inlet structures to allow surface water to enter the buried culvert, lining the south end of the ditch with concrete, and implementation of institutional controls. Soil excavated during this phase of work was transported to the LTU for treatment.

Between April and July 2000, an additional 9,900 cubic yards of soil were excavated and transported to the LTU for treatment. The soil was removed from within the North Ditch as part of shallow soil excavation, re-grading, and construction of an engineered barrier within the ditch. In July 2001, the South Ditch culvert and lined channel were cleaned, and a cured-in-place liner was installed within the culvert to prevent seeps. Additionally, repairs were performed at the North Ditch inlet structure to prevent potential seeps into the structure. Finally, between December 2003 and April 2004, the remaining visually-discolored soils and sediment from the drainage ditch conveyances were excavated and transported to the LTU for treatment.

Soil samples collected during the remedial actions confirmed that residual creosote-impacted soils remain on-Site. Information regarding specific sampling locations, depth, and COCs detected can be obtained from the following reports:

- *North Ditch Investigation Report*, PSI, June 14, 1999;
- *Construction Completion Report, North Ditch Remedial Action*, PSI, September 21, 2000;
- *RCRA Facility Investigation Report*, DOMANI, May 8, 2003;
- *Corrective Measures Study*, DOMANI, May 8, 2003; and,
- *Construction Completion Report, Facility and Iron-Ore Creek Tributary Remedial Action*, DOMANI, July 23, 2004.

In addition to soil and sediment excavation and treatment, engineering controls were implemented to prevent exposure to residual creosote compounds and minimize migration of COCs in the subsurface. These controls include the following:

- A one foot thick vegetated soil cover above residual creosote impacts;
- A channel constructed of a GCL was installed to prevent contact between surface water and residual creosote in subsurface soils. The GCL was covered with a one foot thick vegetated soil cover;
- A 48-inch diameter culvert was installed in the South Ditch area to convey stormwater through areas containing residual creosote in subsurface soils; and,
- The land surface was graded to encourage sheet flow and minimize infiltration of precipitation.

These engineering controls were documented in a *Declaration of Notice* recorded with the Grayson County Clerk's office (Instrument Number 2008-00016378) and require the current and future owner to maintain the controls that prevent exposure to residual creosote compounds in the subsurface. A copy of the *Declaration* for Parcel 3 is included as **Attachment D**.

Parcel 4

Parcel 4 covers approximately 14.4 acres of land on the eastern edge of the Site and previously contained the creosote storage and process use areas. Between May 1991 and February 1992, most Property structures were dismantled and soil remediation via excavation was performed. Approximately 15,000 tons of excavated soil and debris, as well as approximately 1,500 tons of tank-bottom sludge from former storage tanks, were removed and hauled to a permitted hazardous waste disposal facility.

Soil samples collected during the remedial actions confirmed that limited residual creosote-impacted subsurface soils remained on-Site. Information regarding specific sampling locations, depth, and COCs detected can be obtained from the following reports:

- *North Ditch Investigation Report*, PSI, June 14, 1999;
- *Construction Completion Report, North Ditch Remedial Action*, PSI, September 21, 2000;
- *RCRA Facility Investigation Report*, DOMANI, May 8, 2003;
- *Corrective Measures Study*; DOMANI, May 8, 2003; and
- *Construction Completion Report, Facility and Iron-Ore Creek Tributary Remedial Action*, DOMANI, July 23, 2004.

In addition to soil excavation and disposal, engineering controls were implemented to prevent exposure to residual creosote compounds and minimize migration of COCs in the subsurface. These controls include the following:

- A one-foot thick vegetated soil cover above residual creosote impacts;
- A channel constructed of a GCL was installed to prevent contact between surface water and residual creosote in subsurface soils. The GCL was covered with a one foot thick vegetated soil cover;
- Three culverts were installed to convey stormwater through areas containing residual creosote in subsurface soils. The culverts are constructed of 36-inch diameter corrugated metal pipe, 24-inch diameter HDPE pipe, and 18-inch diameter polyvinyl chloride (PVC) pipe; and,
- The land surface was graded to encourage sheet flow and minimize infiltration of precipitation.

These engineering controls were documented in a *Declaration of Notice* recorded with the Grayson County Clerk's office (Instrument Number 2008-00016379) and require the current and future owners to maintain the controls that prevent exposure to residual creosote compounds in the subsurface. A copy of the *Declaration* for Parcel 4 is included as **Attachment E**.

A historic 19th century cemetery covering approximately 0.18 acres of land is located within the boundaries of Parcel 4, but is not owned or operated by the W.J. Smith Wood Preserving Company. No creosote storage or process use is known to have occurred on the cemetery land. Engineering control requirements established and recorded for Parcel 4 are not applicable on the cemetery parcel.

Summary of Current Conditions

In accordance with the conditions of the LTU Post-Closure Plan, DOMANI and Roux conducted five years of annual post-closure care groundwater monitoring and reporting. Annual Groundwater Monitoring Reports were submitted to US EPA from the post-closure care period of 2006 through 2011. Although the post-closure care groundwater monitoring requirements set forth in the AOC were satisfied in 2011, recent supplemental groundwater sampling and NAPL assessment activities were conducted by Katy (Roux) at the request of the US EPA in order to help close out the AOC and transition the Site towards a Ready for Reuse determination. These supplemental site wide groundwater monitoring events following completion of the post-closure care period are presented below. A tabular summary of current environmental conditions is presented in **Attachment F**.

Supplemental Groundwater Monitoring

In 2011, Roux completed a Site-wide groundwater monitoring event at the request of the US EPA. Groundwater samples collected from 15 monitoring wells were submitted for laboratory analysis of VOCs and SVOCs. Non-aqueous phase liquids (NAPL) was detected in five monitoring wells during the 2011 event. The results of the testing were reported in Roux's *2011 Supplemental Site Wide Groundwater Sampling Report* dated December 29, 2011.

A second Site-wide groundwater monitoring event was conducted in January 2015. Groundwater samples were collected from 13 monitoring wells and total VOC and SVOC concentrations remained similar to the 2011 data. Total VOC concentrations ranged from 0.0003 milligrams per liter (mg/L) to 1.150 mg/L in samples with detections above analytical detection reporting limits, and total SVOC concentrations ranged from 0.0058 mg/L to 95.283 mg/L in samples with detections above analytical detection reporting limits. NAPL was detected in only two monitoring wells during the 2015 event. The results of the 2015 groundwater monitoring event were documented in Roux's *DNAPL Recovery & Groundwater Sampling* memorandum, dated April 24, 2015 (**Attachment G**).

NAPL Recovery Assessment

In June 2013, A NAPL Recovery Assessment plan was implemented in order to characterize remaining NAPL at the Site, and develop potential management options as necessary. Groundwater and NAPL are purged from the two impacted monitoring wells on a routine basis to assess the rate of NAPL recovery in the wells. Between the initial recovery event in June 2013 and January 2015, the volume of NAPL in these wells decreased 60 percent (%).

Supplemental Property Restrictions

As reported in the *Corrective Measures Study* and *Summary of Groundwater Occurrence and Quality*, prepared by DOMANI (dated May 8, 2003 and September 11, 2009, respectively), groundwater is not used as a potable water supply in the vicinity of the Site, and it is not a source for future water supply due to sporadic occurrence and insufficient groundwater yield in the shallow aquifer. To ensure the current and future owner and occupants do not use the impacted groundwater, a Site-wide groundwater use restriction has been deed recorded with the Grayson County Clerk's office (Instrument Number 2016-00022578) prohibiting the extraction and use of groundwater from the property. A copy of the Site-wide *Restrictive Covenants Prohibiting Use of Groundwater* is included as **Attachment H**.

References

The Site Assessment and Remedial Actions described above are documented in the reports listed below. These reports, as well as other key documents, are on file at the Denison Public Library and are included on the attached CD (**Attachment I**).

Clayton Environmental Consultants, 1996, Environmental Investigation at the Royal Ridge Subdivision, Denison, Texas, September 1996.

Clayton Environmental Consultants, 1997, Revised Site-Specific Risk Assessment, Royal Ridge Subdivision, 1700 West Morton Street, Denison, Texas, January 1997.

DOMANI, LLC, 2003a, Corrective Measures Study, May 8, 2003.

DOMANI, LLC, 2003b, Bid Documents, Proposed Stormwater Management Remedial Action Plan and Addenda, October and November 2003.

DOMANI, LLC, 2003c, RCRA Facility Investigation, May 8, 2003.

Halff Associates, Inc., 1990, Phase I Investigation and Revised Groundwater Monitoring Assessment Plan for W.J. Smith Wood Preserving Facility, September 1990.

Halff Associates, Inc., 1991, Subsurface Soil Investigation, W.J. Smith Wood Preserving Company, 1700 West Morton Street, Denison, Texas, May 1991.

Pendergast Sarni Group, 2001, Current Conditions Report and RCRA Facility Investigation Work Plan, September 25, 2001.

Pendergast Sarni Group, 2002, South Ditch Culvert and North Ditch Drop Structure Repair Summary Report, October 10, 2002.

Pendergast Sarni Itell, 1999, North Ditch Investigation, W.J. Smith Wood Preserving Company, Denison, Texas, June 1999.

Pendergast Sarni Itell, 2000, Construction Completion Report, North Ditch Remedial Action, W.J. Smith Wood Preserving Company, Denison, Texas, September 2000.

Remediation Technologies, Inc., 1993a, Groundwater Quality Assessment and Phase 2 Subsurface Investigation, W.J. Smith Wood Preserving Company, January 1993.

Remediation Technologies, Inc., 1993b, Storm Water Pollution Prevention Plan, W.J. Smith Wood Preserving Company, April 1993.

Remediation Technologies, Inc., 1996a, Treatability Testing of the Soils from the Denison, Texas Site, June 1996.

Remediation Technologies, Inc., 1996b, Closure Plan for the South Section of the Drainage Ditch Between Crawford and Day Streets, Denison, Texas, April 1996.

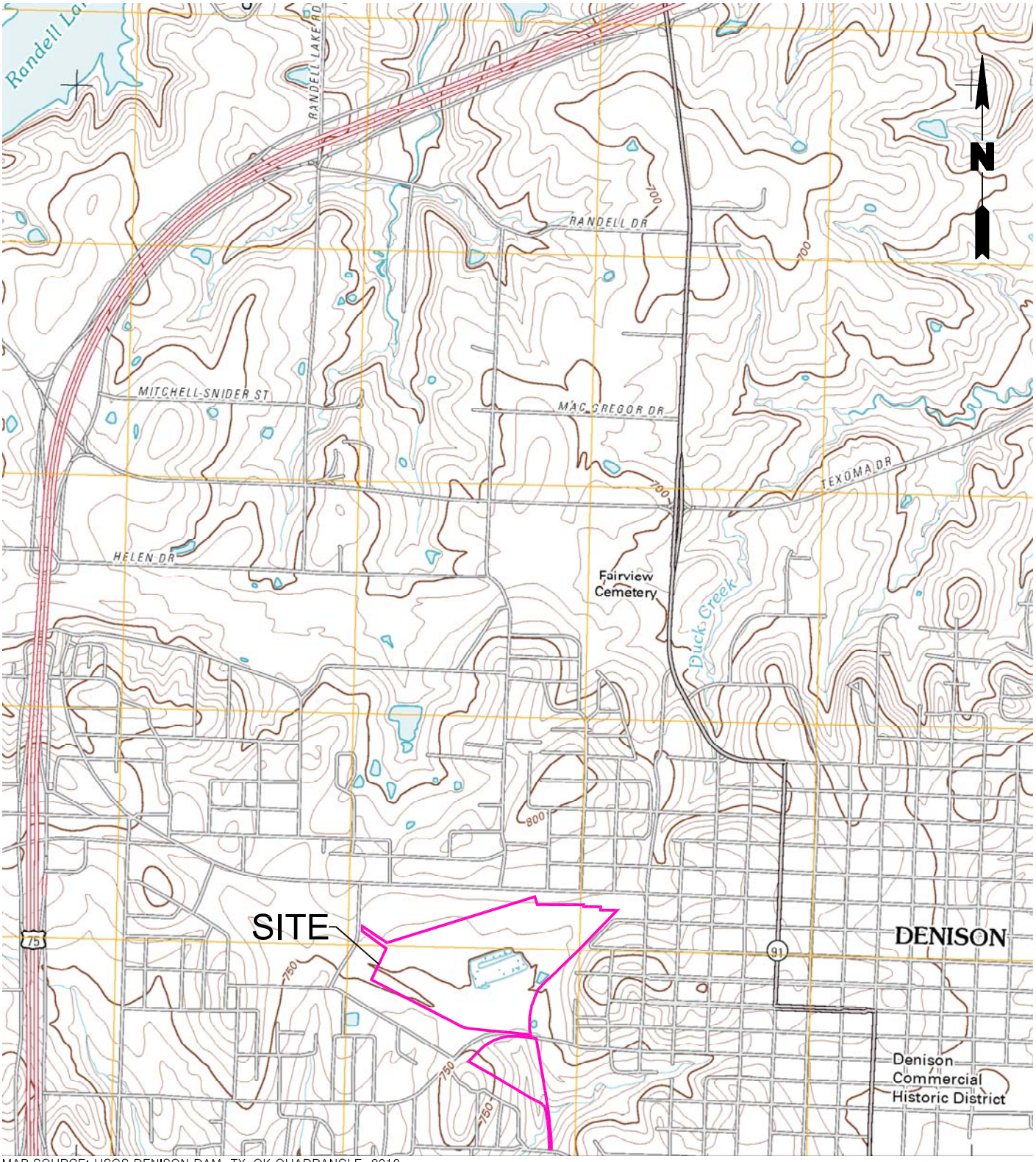
SECOR International, Inc., 1998, The Results of the Indoor Air Monitoring for the Royal Ridge Subdivision, Denison, Texas, March 1998.

Texas Water Commission, 1986, Comprehensive Groundwater Monitoring Evaluation Report, W.J. Smith Wood Preserving Company, August 1986.

United States Environmental Protection Agency, 1995, Administrative Order on Consent, USEPA Docket No. RCRA-VI-7003-93-02, December 6, 1995.

FIGURES

1. Site Location
2. Site Plan
3. Parcel Layout



MAP SOURCE: USGS DENISON DAM, TX–OK QUADRANGLE, 2010

2000' 0 2000'

Title:

SITE LOCATION
FORMER W.J. SMITH WOOD PRESERVING CO. PROPERTY

1700 WEST MORTON STREET
DENISON, TEXAS

Prepared For:

KATY INDUSTRIES, INC.

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: TZ	Date: 7/23/2015	FIGURE
Prepared by: TZ	Scale: AS SHOWN	1
Project Mgr: TA	Project:	
File: FIGURE 1 (PROPOSED PARCELS).DWG		

T:\KATY INDUSTRIES\DENISON, TX\READY FOR REUSE PROGRAM\FIGURE 1 (PROPOSED PARCELS).DWG

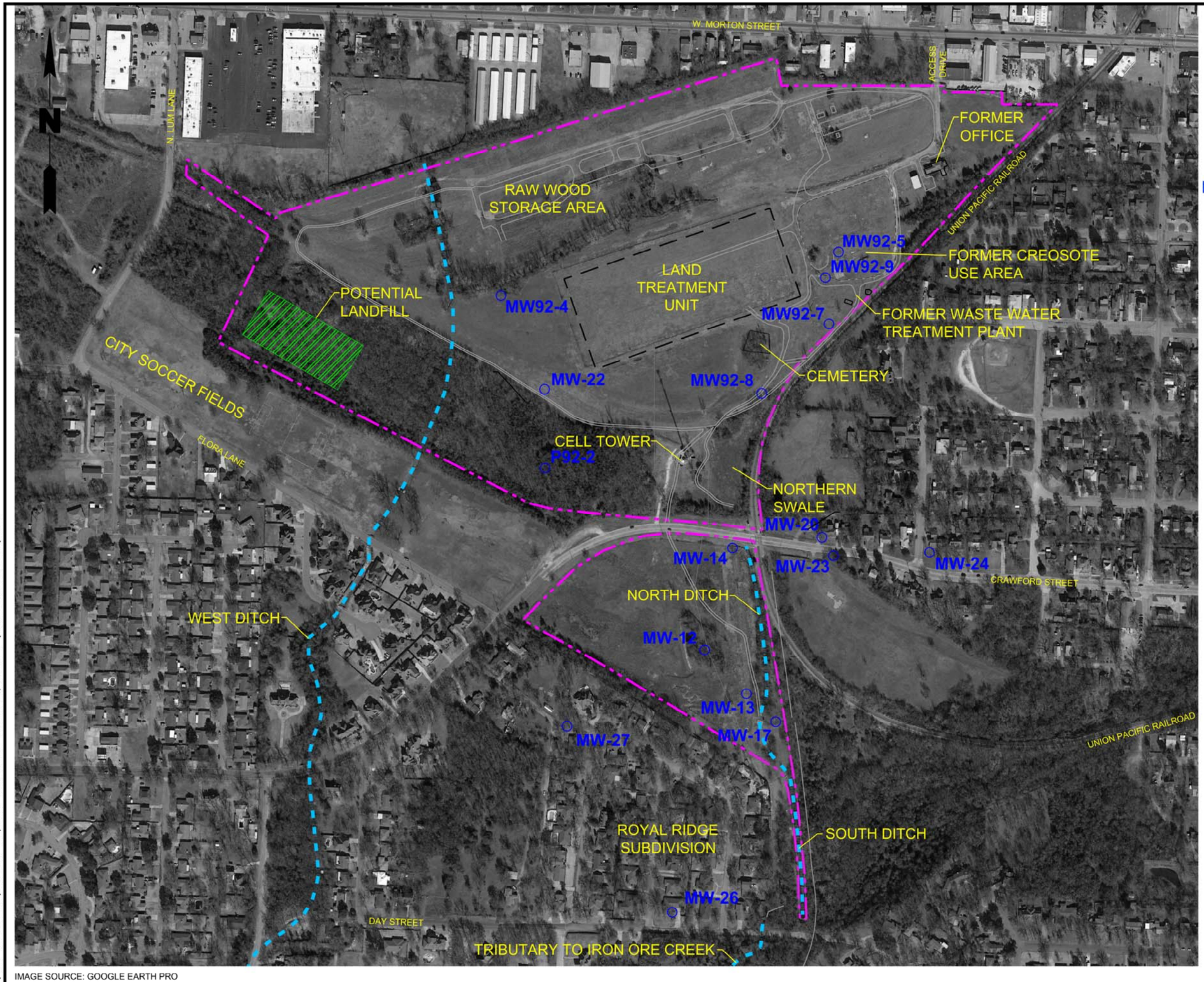


IMAGE SOURCE: GOOGLE EARTH PRO

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- DRAINAGE DITCH
- MW92-4 MONITORING WELL LOCATION

400' 0 400'

Title:

SITE PLAN

FORMER W.J. SMITH WOOD PRESERVING CO. PROPERTY

1700 WEST MORTON STREET
DENISON, TEXAS

Prepared For:

KATY INDUSTRIES, INC.

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: TZ	Date: 08/23/2016	FIGURE
Prepared by: TZ	Scale: AS SHOWN	2
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File: FIGURE 1 (PROPOSED PARCELS).DWG		

T:\KATY INDUSTRIES\DENISON, TX\READY FOR REUSE PROGRAM\FIGURE 1 (PROPOSED PARCELS).DWG

IMAGE SOURCE: GOOGLE EARTH PRO

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- DRAINAGE DITCH
- PARCEL 1- RAW WOOD & FINISHED PRODUCT STORAGE / UNUSED AREA
- PARCEL 2 - LAND TREATMENT UNIT (LTU)
- PARCEL 3 - IMPACTED DRAINAGE DITCH
- PARCEL 4 - CREOSOTE STORAGE AND USE AREA

400' 0 400'

Title:

PARCEL LAYOUT
FORMER W.J. SMITH WOOD PRESERVING CO. PROPERTY

1700 WEST MORTON STREET
DENISON, TEXAS

Prepared For:

KATY INDUSTRIES, INC.

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: TZ	Date: 08/23/2016	FIGURE
Prepared by: TZ	Scale: AS SHOWN	3
Project Mgr: TVA	Project:	
File: FIGURE 1 (PROPOSED PARCELS).DWG		

T:\KATY INDUSTRIES\DENISON, TX\READY FOR REUSE PROGRAM\FIGURE 1 (PROPOSED PARCELS).DWG