



**GENERAL WORK PLAN
CORRECTIVE MEASURES
WORK PLAN**

SPRINGDALE CREEK
APARTMENTS-NORTH END
2510 JACKSON AVENUE
MEMPHIS, SHELBY
COUNTY, TENNESSEE



WHERE BUSINESS AND THE ENVIRONMENT CONVERGE

Prepared for:

Velsicol Chemical, LLC
1199 Warford Street
Memphis, TN

Project 28-222336.00
August 10, 2015

Prepared by:

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1.0 INTRODUCTION

This Work Plan describes planned methods to remediate affected soil at the Springdale Creek Apartments – North End, and provide a permanent barrier soil cover over the area. The general approach and methodologies were outlined in the Revised Corrective Measures Study (CMS) dated July 27, 2013, and approved by the Tennessee Department of Environment and Conservation (TDEC) by letter correspondence dated June 2, 2014. The CMS was prepared in accordance with the Facility Action Plan (FAP) and Permit No. TNHW-109 requirements.

During preliminary scope of work development with the remediation contractor, changes to the methodology outlined in the approved CMS have been implemented to reduce risk associated with work impacting the Cypress Creek retaining wall. The general approach including the concrete slab removal, hot spot excavation, visible marker layer, and 15-inch soil barrier that were outlined in the CMS have not been altered.

2.0 PROJECT MANAGEMENT

Memphis Environmental Center, Inc., (MEC) is managing the project on behalf of Velsicol and will serve as its primary point of contact with TDEC during the course of the project. Environmental Compliance Services, Inc. (ECS), as the project Engineer, will provide construction observation, air monitoring, and topographic surveying services in support of MEC. Velsicol plans to use a remedial Contractor who is qualified and experienced in environmental remediation work to perform the work.

3.0 PROJECT SCHEDULE

The planned general project sequence and schedule are as follows:

- Begin preliminary discussions regarding project implementation with the selected remediation contractor in the 2nd Quarter 2015
- Apply for and receive required construction permits in the 2nd & 3rd Quarter of 2015.
- Coordinate with project stakeholders (Springdale Memphis LP, City of Memphis, the Health, Educational, and Housing Facility Board of Memphis, and neighboring property owners) in the 3rd Quarter of 2015.
- Construction and completion of the project, in accordance with the CMS in the 3rd Quarter of 2015, including:
 - Contractor mobilization and site preparation, clearing, and grubbing;
 - Survey of hot spots, excavation, and stockpiling;

- Transportation of hot spot soil and placement in the Consolidation Area at Velsicol's plant site at 1199 Warford Street, Memphis, Tennessee;
 - Preparation of drainage features;
 - Initial grading of site;
 - Placement of marker layer;
 - Placement of 15 inches of barrier soil; and
 - Establishment of vegetation for erosion control.
- Springdale Apartments – North End, Interim Measures Completion Report to be submitted in the 4th Quarter of 2015.

4.0 CORRECTIVE MEASURES AREA (CM Area)

The specific area for the implementation of the Corrective Measures (CM Area), as outlined in the Corrective Measures Study is shown on **Figure 1**, which totals approximately 4.1 acres and is described as follows:

The north boundary is the concrete retaining wall system of the Cypress Creek channel liner, including the top of the City of Memphis's channel access driveway ramp. The CM Area extends past the chain-link fence that defines the north boundary of the Springdale Apartments lease, to include the City of Memphis's generally 10-foot wide maintenance easement.

The CM Area includes approximately 0.3 acres of City property, in the generally triangle-shaped area between Meagher Street and the Apartments lease area. The south side boundary of this triangular area is the 935 Meagher Street parcel property line.

The Apartments lease-area, north-south fence line from the Meagher Street access gate to the southeast-most corner, serves as the CM Area boundary for the area east of Floor Slab 930. The area between that fence and the apparent west-end property lines of Parcels 38 to 43 are not included for the following reasons:

- Based on a March 2009 Soil Investigation, TDEC determined that no further action was required for 931 and 935 Meagher Street.
- A lead investigation was performed by USEPA in January 2009, and was followed up by a removal action that included a portion of the area.

The generally east-west fence line, which was installed in 2005 to isolate the Springdale North End area from the remainder of the apartment complex, serves as the south boundary of the CM Area.

Starting at the southwest corner, the CM Area is defined by the Apartment lease area north-south fence line, from that southwest corner to the southeast corner of the 2487 E. Dana Drive parcel (Point A on **Figure 1**). The CM Area boundary then follows the indicated line between Points A and B to the south-east corner of 2486 E. Dana Drive. The area west of the A-to-B line requires no remediation, based on soil testing completed in 2005 (Reference page 4 of the 2010 Site Investigation Report). The area east of the A-to-B line was tested during Velsicol's 2010 Site Investigation and was found to have higher levels of contamination. Note that, even though the land west of the CM Area boundary in this general area does not require remediation, a portion of that area may be impacted by the CM Area construction work, in order to provide for drainage of low lying areas, which was apparently impeded by apartment construction work and/or prior activities.

From 2486 E. Dana Drive, north to the Cypress Creek channel, the CM Area is defined by the residential backyard fences at 2486 E. Dana Drive and at 2481, 2485, and 2486 Vollintine Cove. The area west of those fences was determined by TDEC to either require no further action (2481 and 2485 Vollintine Cove) based on 2005 and 2004 soil investigations, respectively, or was remediated in 2007 (2486 E. Dana Drive and 2486 Vollintine Cove).

It is noted that the western boundary of the CM Area includes a strip of land that lies outside the Springdale Apartments lease line fence as shown on **Figure 1**. This strip lies east of the residential lots and west of the Springdale Apartments fence and was apparently created by a discrepancy in the property descriptions recorded when the residential subdivision was created. Prior to development of the subdivision, the original parcel description extended to the western boundary of the Springdale Apartments, roughly along the line of the Springdale Apartments fence. However, when the parcel was sub-divided in the 1940's, the eastern property lines of the residential lots recorded by the developer were set further to the west. The apparent current eastern property lines of the residential lots are approximately in line with the overhead utilities and power poles; however, the residential fences do not follow this line exactly and some extend beyond the actual property lines (i.e., east of the power line). It is also noted that the parcel maps shown on the Shelby County Register of Deeds internet page (<http://gis.register.shelby.tn.us>) show the residential property lines extending to the Springdale lease line, however the property line descriptions recorded on the deeds place the property line at or near the power line alignment.

5.0 GENERAL CONSTRUCTION ELEMENTS

The proposed general approach for the Corrective Measures is to excavate six hot spots (shown on **Figures 2** and **3**) to a depth of 15 inches. After excavation of the hot spots, 15-inches of vegetated barrier soil will be installed over the approximately 4.1 acres of the CM Area described in Section 4.0. This approach was outlined in the CMS approved by TDEC.

A visible marker layer will be installed between original soils and the imported barrier soil to denote the interface. Existing topography and drainage conditions would prevent the uniform placement of 15-inches of barrier soil, so the CM Area will require some initial surface grading (i.e., rough grading) to re-shape the land prior to placement of the barrier soil. All elements of the project will be implemented in accordance with this Work Plan, the Project Specifications, and Drawings. The key remedial construction work elements are listed below:

5.1 Site Security

The Contractor is required to provide for the security of the work area and his related equipment and facilities. Specific security plans will be prepared and implemented by the Contractor, in accordance with generally accepted industry standards. The Contractor will secure the area for restricted access by operational personnel only.

Existing perimeter fencing will be maintained around project work areas. Only portions of perimeter fencing will be removed for the purposes of temporary access. Temporary access points will be equipped with similar barricades or related markings.

Vegetative debris and all project related waste will be promptly removed from the site. All accumulation containers will be promptly removed from the site when full. All transported containers will be secured in accordance with applicable regulations. If any equipment, containers, or vehicles are staged at project work areas overnight, the Contractor will employ all reasonable measures to protect these items from access or vandalism, or otherwise unauthorized use.

5.2 Personnel Training and Qualifications

All individuals; including Velsicol, MEC, ECS, and Contractor's staff who venture into the work area "hot zone" while contaminated soil is exposed must have received training as required by 29 CFR 1910.120 Hazardous Waste Operations and Emergency Response (HAZWOPR). The Contractor will establish and mark the hot zone as part of its Health and Safety Plan.

5.3 Site Inspection

Prior to beginning any work, the project area and nearby residences/structures will be thoroughly assessed, to document pre-work conditions or conditions that may affect drainage, excavation, and site restoration. Features within the work that will remain (transformer, etc.) will also be inspected to document pre-work conditions.

5.4 Site Preparation

The first phase of work will be to prepare the CM Area for construction. This will include several activities such as the following:

- Contractor will arrange for underground and overhead utilities to be located and marked. Excavation around underground utilities will be conducted using hand techniques only. Overhead line and underground utility protection will also be installed where applicable.
- Contractor will install (and maintain through the project) erosion control measures as outlined in the Erosion Control Plan which is to be developed as part of the SWPPP.
- Contractor will remove above ground portions of vegetation, fences, and other materials that will not have attached contaminated soil (i.e., non-contact debris). Dispose of such materials at an approved Class-1 sanitary waste landfill. This may include mowing and bagging grass and tree limb removal.
- Other materials to be removed that have come into contact with contaminated soil (i.e., bottom of fence posts and tree and shrub root material) will be cleaned (i.e., soils dislodged by methods such as low pressure spraying with water) and readied for disposal at an approved Class-1 sanitary waste landfill. Trees located within 10-feet of the Cypress Creek retaining wall that are greater than 7-inches in diameter (measured 24-inches from the ground surface) will remain to reduce erosion potential and possible damage to the Cypress Creek retaining wall during removal.
- The City's existing fence on top of the concrete channel liner is in poor condition due to damage by large trees and fallen branches. Bent fence posts and fence fabric damage will be documented by Contractor and ECS prior to construction. Trees and brush growing through the fence fabric will remain in place to prevent further damage to the fence.
- Asphalt paving on Springdale Run Road, which is thin and broken in many places, will remain in place and be buried by barrier soil. In areas where the asphalt is still competent, the Contractor will prepare the asphalt by breaking up or punching drainage holes on approximate 5-foot centers.
- Contractor will remove six concrete building slabs from the CM Area. In accordance with the Shelby County Building Code, the building slabs should be installed on a plastic vapor barrier, thus preventing contact with potentially impacted soils. Contractor will

remove concrete slabs with care to prevent contact with native soils. Any contact with native soils will require decontamination prior to transportation off-site. Concrete slabs will be transported to Velsicol's plant site at 1199 Warford Street for recycling and use as grading material at the plant.

- Concrete footings that lie below the rough grade elevations will remain in place. Footings that extend above the rough grade surface will require removal to facilitate establishing the rough grade. Review of the elevations shown on **Figure 2** vs. the concrete slab elevations indicates approximately 90 linear feet of footing will require removal from the northeast corner of building slab number 960. Due to the unknown width, depth, and construction of footings (poured concrete or concrete block), the footing removal will be completed at a cubic yard unit rate established on the Bid Form.

5.5 Contaminated Soil Excavation

The Corrective Measures Study identified six "hot spots" to be excavated to address potential non-cancer hazards to future receptors (acute effects). This excavation will provide an additional level of health protectiveness for the project. The boundaries of each hot spot are shown on **Figures 2** and **3**, and excavation activities will include the following steps:

Contractor will excavate each hot spot to a depth of 15-inches, resulting in approximately 155 cubic yards of hot spot soil. Hot spot soil will be stockpiled on plastic and covered with plastic at the CM Area awaiting transportation to the Consolidation Area at Velsicol's plant site at 1199 Warford Street.

5.6 Site Grading/Drainage

The Contractor will grade the site using existing site soil to improve drainage and to prepare the site for subsequent placement of the barrier soil. This "rough grade" surface (see **Figure 2**) will be established a minimum of 15 inches lower than the final design contours shown on **Figure 3**.

While establishing the "rough grade", several features on the existing stormwater collection system will require adjustments to accommodate the new surface elevations. The Contractor will be responsible for raising the elevation of two storm sewer manholes, closure of two sanitary sewer manholes located on inactive portions of the sewer line, and conversion of a drop inlet to an at-grade inlet structure.

While establishing the rough grade, Contractor may encounter buried utilities, valves, meters, and inactive lines that will require removal in order to establish the required grade elevations shown on **Figure 2**. Utilities in contact with soil will require decontamination prior to disposal at

an approved Class 1 Landfill. Recycling of components removed from the project is not permitted.

5.7 Air Monitoring

ECS will perform outdoor air quality monitoring to measure conditions during contaminated soil handling activities. The collected information will be used to manage the excavation activities and to document conditions. Air monitoring results can be provided to the Contractor upon request; however, Health and Safety clearance monitoring for site workers is the responsibility of the Contractor, if required. The Proposed Air Monitoring Plan will closely follow the plan that was approved and implemented for the 2007 remediation of residential yards along Cypress Creek. Details on each of these monitoring plans are presented in the following sections.

5.7.1 Outdoor Dust Monitoring

During contaminated soil handling activities, outdoor air will be monitored for dusts and key contaminants potentially entrained in dusts. Real-time air monitoring for fugitive dusts will be conducted using a MIE Personal Data Ram 1,000 monitor or similar monitor near work zones or downwind of removal areas. The monitor will be checked and/or downloaded at least once every 2 hours, during periods of contaminated soil handling activities. This instrument will be calibrated each day. Data will be downloaded at least every other day. If pre-designated dust concentrations are exceeded, project work activities will cease and additional dust control measures will be identified and implemented.

Dust monitoring results will be used to assess the effectiveness of dust control measures. If dust concentrations exceed $1,500 \mu\text{g}/\text{m}^3$, excavation activities will cease and additional dust control measures will be implemented. [NOTE: A total dust threshold of $3,000 \mu\text{g}/\text{m}^3$ was established to determine whether dust control measures are effective, and one-half that concentration will be used as a proactive action level for dust ($1,500 \mu\text{g}/\text{m}^3$). The dust action level was based on estimated exposure for a child, assuming an exposure frequency of 5 days. Laboratory air sample results discussed in Section 5.7.2 will be used to adjust the site dust action level if necessary.

5.7.2 Outdoor Air Monitoring

Additionally, one outdoor air sample will be collected each week for laboratory analysis, to measure actual airborne pesticide concentrations. During excavation in contaminated soils, air samples will be collected on a Glass fiber filter backed up by an OVS-2 tube and analyzed for pesticides by GC/ECD using EPA Method TO-10A or NIOSH 5800/OSHA 62 or similar method. The samples will be collected during soil disturbance for a period of up to 8 hours. The air samples will be analyzed for Dieldrin and Endrin.

5.7.3 Background Air Sampling

As mentioned in the TDEC comments received on January 27, 2014, it has been over 5 years since a background air sample was collected in the area; therefore, one background air sample will be collected, prior to site disturbance. The background air sample will be collected in the same manner as the air sampling outlined in Section 5.7.2 and the duration of the sample will be sufficient for comparison with 8-hour air samples collected during the site disturbance activities.

5.8 Dust Control Measures

Watering is expected to be the primary dust control method during project work activities; but, other suitable methods may be used, such as controlled work practices. Water is not available at the project site; therefore, the Contractor will be required to supply water to the work area.

If necessary, additional dust control measures may include:

- Increasing the volume, frequency, and/or area for water application;
- Cleaning of traffic areas;
- Reducing the size of, or partially covering, excavation areas; and or
- Applying dust suppressant amendments, such as calcium chloride, to improve moisture retention and/or spray-on adhesives to increase particle adhesion.

5.9 Equipment Decontamination

The Contractor will be required to remove all contaminated soils from the outside surfaces of all trucks, including tires, before exiting the work area. The Contractor will also be required to clean all soil handling tools and equipment before removal from the work area. The specific means of decontamination will be determined by the Contractor; the adequacy of which is subject to approval by the Engineer and Velsicol.

5.10 Marker Layer

Prior to the placement of the barrier soil, the Contractor will place marker layer over the rough grade surface to indicate the depth of the clean soil. Orange plastic construction fence or similar material, that will be long lasting and visible if uncovered, will be used as the marker.

5.11 Clean Soil Barrier

5.11.1 Borrow Soils Testing

Soils that are proposed and used by the Contractor for use as backfill will be sampled and analyzed to confirm that they are suitable for this use. One or more representative soil sample(s) will be collected and tested from each proposed borrow location. The soil sample(s) will be tested for agronomic parameters and for potential environmental contamination. The test results will be evaluated, to confirm suitability for use as clean barrier soil before approval of the borrow area.

The following soil chemistry parameters will be tested to evaluate agronomic suitability: pH, phosphorus, Potassium, Calcium, Magnesium, Sulfur, Boron, Copper, Iron, Manganese, Zinc, Sodium, Soluble Salts, Organic Matter, and NO.

The following chemical suites will be analyzed, to determine environmental suitability: Volatiles, semi-volatiles, pesticides, PCBs, CERCLA metals, and mercury. Moisture content will also be tested, so that the data can be converted to dry weight basis. It is noted that natural background levels of arsenic in the Memphis area generally exceed the EPA Region 9 Preliminary Remediation Goal (PRG) of 0.39 milligrams per kilograms (mg/kg) for residential soils. Therefore, arsenic levels up to 20 mg/kg will be considered acceptable, similar to the level that TDEC agreed to during the 2005 Interim Measures project.

5.11.2 Soil Placement

Contractor will import and place a minimum of 15 inches of clean barrier soil over the 4.1 acre CM Impact Area. Per the design presented on **Figure 3**, approximately 8,900 cubic yards of soil will be imported to provide the 15-inch barrier. Note that the required 15-inch thickness may include the thickness of soil in grass sod where sod is used to establish vegetation.

The clean barrier soil will transition to match existing grades at property lines and edges, at on-site drainage features, at sewer manholes, at any utility poles and fence posts that are to remain, and at the north side concrete channel liner, as shown by the typical cross section included on **Figure 3**. Where the typical cross section transition cannot be achieved due to extensive tree root systems along the Cypress Creek wall, marker layer will be installed and barrier soil will be placed at the maximum thickness possible to establish smooth transitions to provide a barrier soil cover while also limiting erosion potential of the barrier soil.

Soil placement will only occur after the marker has been placed and the Engineer has inspected and surveyed the elevation of the subgrade. Borrow material will then be spread

in layers, not exceeding 12 inches in compacted thickness. This material will be placed and spread by bulldozer or other suitable equipment, and compacted at a minimum density of 90% of the Standard Proctor.

5.12 Confirmation Surveying

Site boundary and topographic data of the existing site conditions at the CM Area has been collected, as shown on **Figure 1**. Hot spot locations and confirmation surveying will be coordinated by ECS throughout the project. Contractor will be responsible for notifying ECS of the schedule in advance so surveying can be scheduled ahead of time to prevent delays to the project. Surveying tasks will include the following:

- Upon completion of the removal of the concrete slabs by the Contractor, and prior to the start of excavation activities, ECS will coordinate the surveying of the boundaries of the six hot spot areas. Original grade elevations will be surveyed and hot-spot boundaries will be staked for excavation.
- Upon completion of hot spot soil excavation, ECS will mobilize the surveyor to confirm excavation to 15-inches below ground surface.
- After establishing the rough grade and prior to backfilling, the contractor must make available the CM Area for confirmation surveying to document the rough grade elevation at the site.
- After backfilling and compaction activities, and prior to site restoration, the Contractor must once again make available the CM Area for confirmation surveying, to document the elevation of the top of barrier soil. Data from the two surveys will be compared, and the required minimum barrier depth of 15 inches will be verified, prior to release of the site to complete planting/restoration activities.

5.13 Site Restoration

5.13.1 Fencing

Contractor will replace fence's in accordance with the notes included on **Figure 3**. In order to provide an added measure of protection, a 6-foot chain link fence will be installed approximately 10-feet from the Cypress Creek retaining wall to isolate the area where the typical transition detail for the barrier soil may not be feasible. If fence post installation requires excavation, excavation depths will be limited to the depth of the barrier soil (approximately 15-inches) to prevent contact with native soil.

5.13.2 Seeding/Sodding

After confirmation of the 15 inches of barrier soil, the Contractor will seed and/or sod the CM Area, to establish vegetation as a means of erosion control. The Contractor shall apply water in an amount such that, in conjunction with any rainfall, the seeded or sodded areas will receive an amount equivalent to a minimum of 1 inch of water each week, beginning the week after seeding or sodding and continuing for 3 weeks or until acceptance, whichever is later.

6.0 SOIL TRANSPORTATION

Requirements for transporting all soil will include no nuisance conditions, which will require covering and securing contaminated soil and prohibiting spillage or blowing of all soils.

Prior to transportation, the Contractor will be required to remove soils from the outside of dump trucks, to prevent tracking of soil from the work zones. Excavated soil will be placarded as a hazardous material, during transportation to Velsicol for consolidation. The Contractor is responsible for using equipment and methods that meet all regulatory requirements for transportation of the contaminated soil.

The Contractor will collect truck tickets from each delivered load, and summarize quantities on a daily basis. Logs will be used to document each truck load.

7.0 SOIL CONSOLIDATION

Excavated contaminated soil will be transported to the Consolidation Area at Velsicol's manufacturing plant at 1199 Warford Street in Memphis, Tennessee. The soil will be permanently consolidated, in accordance with the Area of Contamination (AOC) policy as described in EPA Region 4's guidance document entitled Management of Contaminated Media, dated September 1999. This soil consolidation will be completed with similar work practices to those used in the 2005 Interim Measures work, as reported in the TDEC-approved July 18, 2006, Cypress Creek Interim Measures Completion Report.

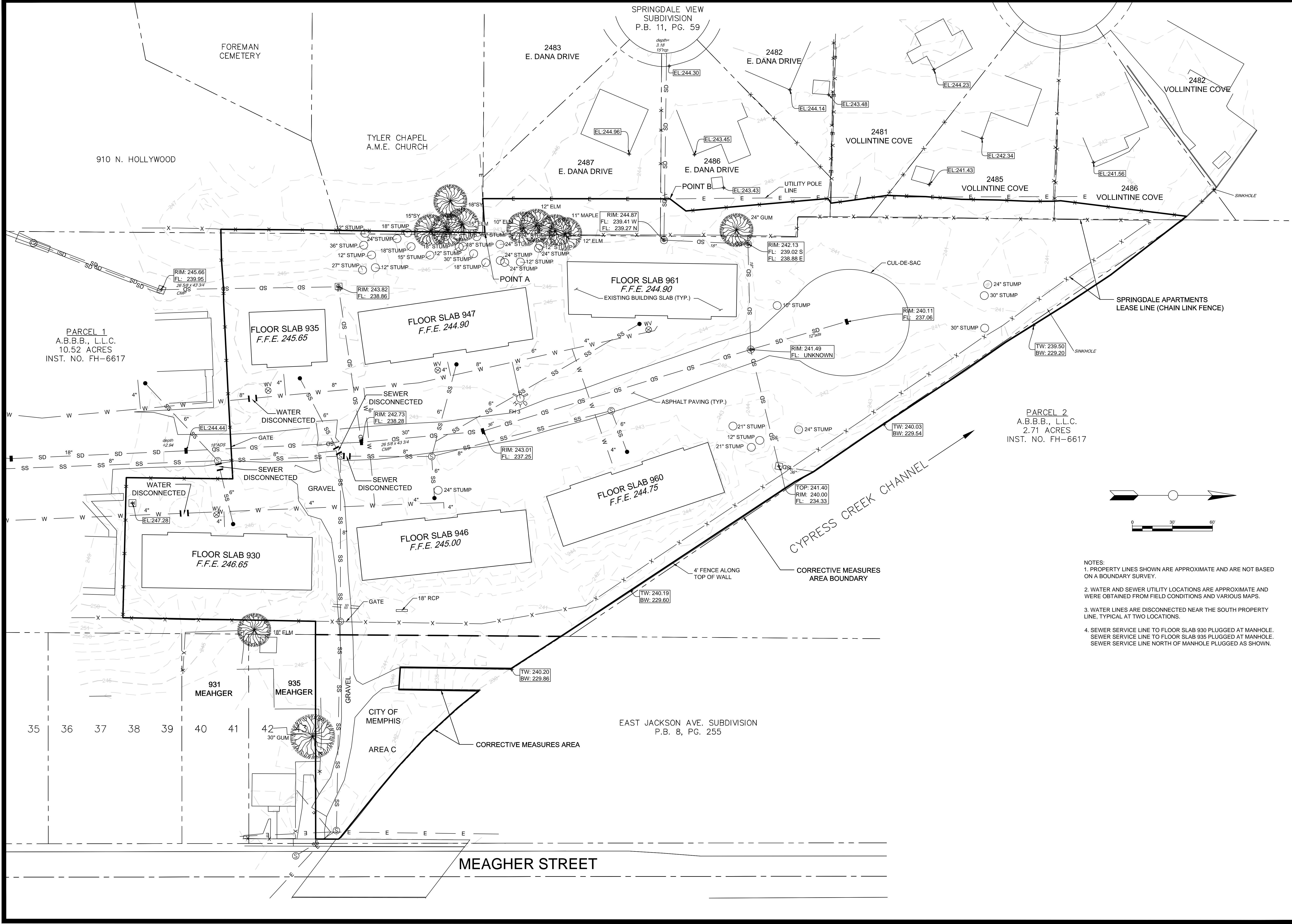
Impacted soil will be transported to the Consolidation Area, placed, graded, and covered expeditiously and during a favorable rain forecast to prevent rainfall contact with the impacted soil. The contractor will convey the proposed schedule to the Engineer and Velsicol in advance for approval.

The consolidated soil will be covered and secured with 60-mil HDPE. The expanded north and east sides of the consolidation area will be graded such that the new side slopes will be ready for placement of a permanent vegetated soil cover at some time in the future.

8.0 REPORTING

During the course of the project, Velsicol will provide periodic updates to TDEC on the project status and activities. This will include schedules of planned field work activities, so that TDEC can be available to observe the work.

Upon completion of the project work, Velsicol will prepare and submit a report on the Final Remedy work for TDEC review and approval. This report will be in accordance with the May 1994 EPA guidance document RCRA Corrective Action Plan (Final), OSWER Directive 9902.3-2A (Chapter V, Section VII: Corrective Measure Completion Report). It will be similar to the July 18, 2006, Cypress Creek Interim Measures Completion Report, which was approved by TDEC for the 2005 Interim Measures project.



CAD FILE: SPRINGDALE
 CLIENT: VELSICOL CHEMICAL, LLC
 PROJECT #: PC-127007
 DRAWING DATE: 07/30/12
 REVISION:

SHEET: 1
 FIGURE: 1

SPRINGDALE CREEK APARTMENTS

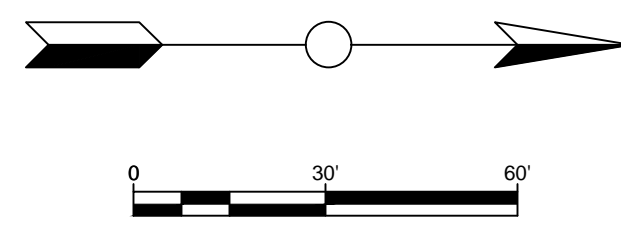
EXISTING SITE CONDITIONS

PANGEAN - CMD ASSOCIATES
 3144 Stage Post Drive
 SUITE 112
 BARTLETT TN 38133
 901-259-2362



REVIEW	DATE
PROJECT ENGR. DAVID A. SCHMIDT, P.E.	
REVIEW ENGR.	
PROJECT MGR. J. KEITH YARROW	
CLIENT: VELSICOL CHEMICAL, LLC	

- NOTES:
1. PROPERTY LINES SHOWN ARE APPROXIMATE AND ARE NOT BASED ON A BOUNDARY SURVEY.
 2. WATER AND SEWER UTILITY LOCATIONS ARE APPROXIMATE AND WERE OBTAINED FROM FIELD CONDITIONS AND VARIOUS MAPS.
 3. WATER LINES ARE DISCONNECTED NEAR THE SOUTH PROPERTY LINE, TYPICAL AT TWO LOCATIONS.
 4. SEWER SERVICE LINE TO FLOOR SLAB 930 PLUGGED AT MANHOLE. SEWER SERVICE LINE TO FLOOR SLAB 935 PLUGGED AT MANHOLE. SEWER SERVICE LINE NORTH OF MANHOLE PLUGGED AS SHOWN.



PARCEL 1
 A.B.B.B., L.L.C.
 10.52 ACRES
 INST. NO. FH-6617

PARCEL 2
 A.B.B.B., L.L.C.
 2.71 ACRES
 INST. NO. FH-6617

35 36 37 38 39 40 41 42

931 MEAHER 935 MEAHER

30" GUM

GRAVEL

CITY OF MEMPHIS

AREA C

MEAGHER STREET

EAST JACKSON AVE. SUBDIVISION
 P.B. 8, PG. 255

CYPRESS CREEK CHANNEL

CORRECTIVE MEASURES AREA BOUNDARY

CORRECTIVE MEASURES AREA

FLOOR SLAB 960
 F.F.E. 244.75

FLOOR SLAB 946
 F.F.E. 245.00

FLOOR SLAB 930
 F.F.E. 246.65

FLOOR SLAB 961
 F.F.E. 244.90
 EXISTING BUILDING SLAB (TYP.)

FLOOR SLAB 947
 F.F.E. 244.90

FLOOR SLAB 935
 F.F.E. 245.65

SPRINGDALE VIEW SUBDIVISION
 P.B. 11, PG. 59

2483 E. DANA DRIVE

2482 E. DANA DRIVE

2487 E. DANA DRIVE

2486 E. DANA DRIVE

2481 VOLLINTINE COVE

2485 VOLLINTINE COVE

2486 VOLLINTINE COVE

2482 VOLLINTINE COVE

FOREMAN CEMETERY

TYLER CHAPEL A.M.E. CHURCH

910 N. HOLLYWOOD

POINT B

POINT A

CUL-DE-SAC

SPRINGDALE APARTMENTS LEASE LINE (CHAIN LINK FENCE)

ASPHALT PAVING (TYP.)

4' FENCE ALONG TOP OF WALL

WATER DISCONNECTED

SEWER DISCONNECTED

SEWER DISCONNECTED

WATER DISCONNECTED

WATER DISCONNECTED

GATE

GATE

WATER DISCONNECTED

WATER DISCONNECTED

WATER DISCONNECTED

WATER DISCONNECTED

WATER DISCONNECTED

WATER DISCONNECTED

WATER DISCONNECTED

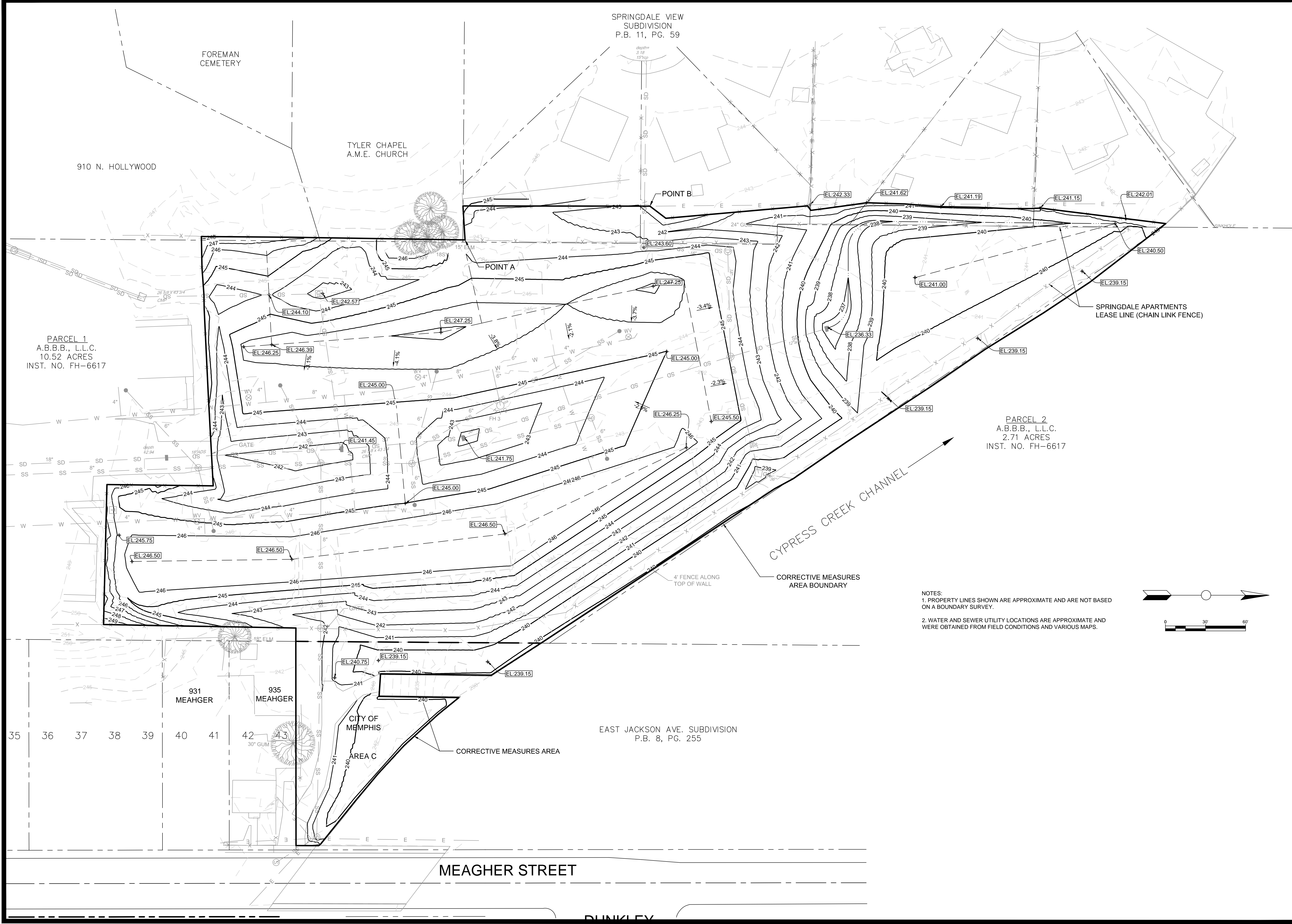
WATER DISCONNECTED

WATER DISCONNECTED

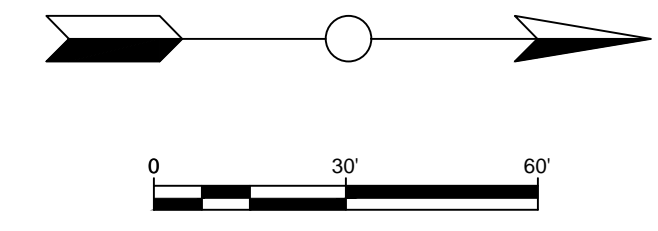
WATER DISCONNECTED

WATER DISCONNECTED

WATER DISCONNECTED



NOTES:
 1. PROPERTY LINES SHOWN ARE APPROXIMATE AND ARE NOT BASED ON A BOUNDARY SURVEY.
 2. WATER AND SEWER UTILITY LOCATIONS ARE APPROXIMATE AND WERE OBTAINED FROM FIELD CONDITIONS AND VARIOUS MAPS.



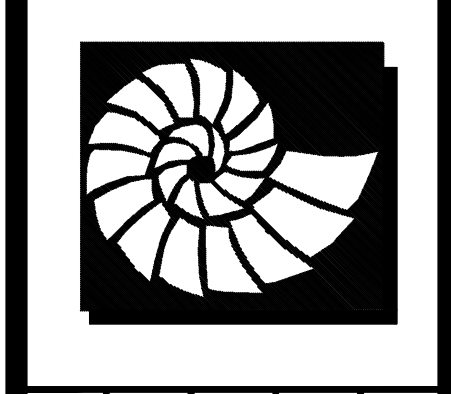
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 REVISION:

SHEET: 1
 FIGURE: 2

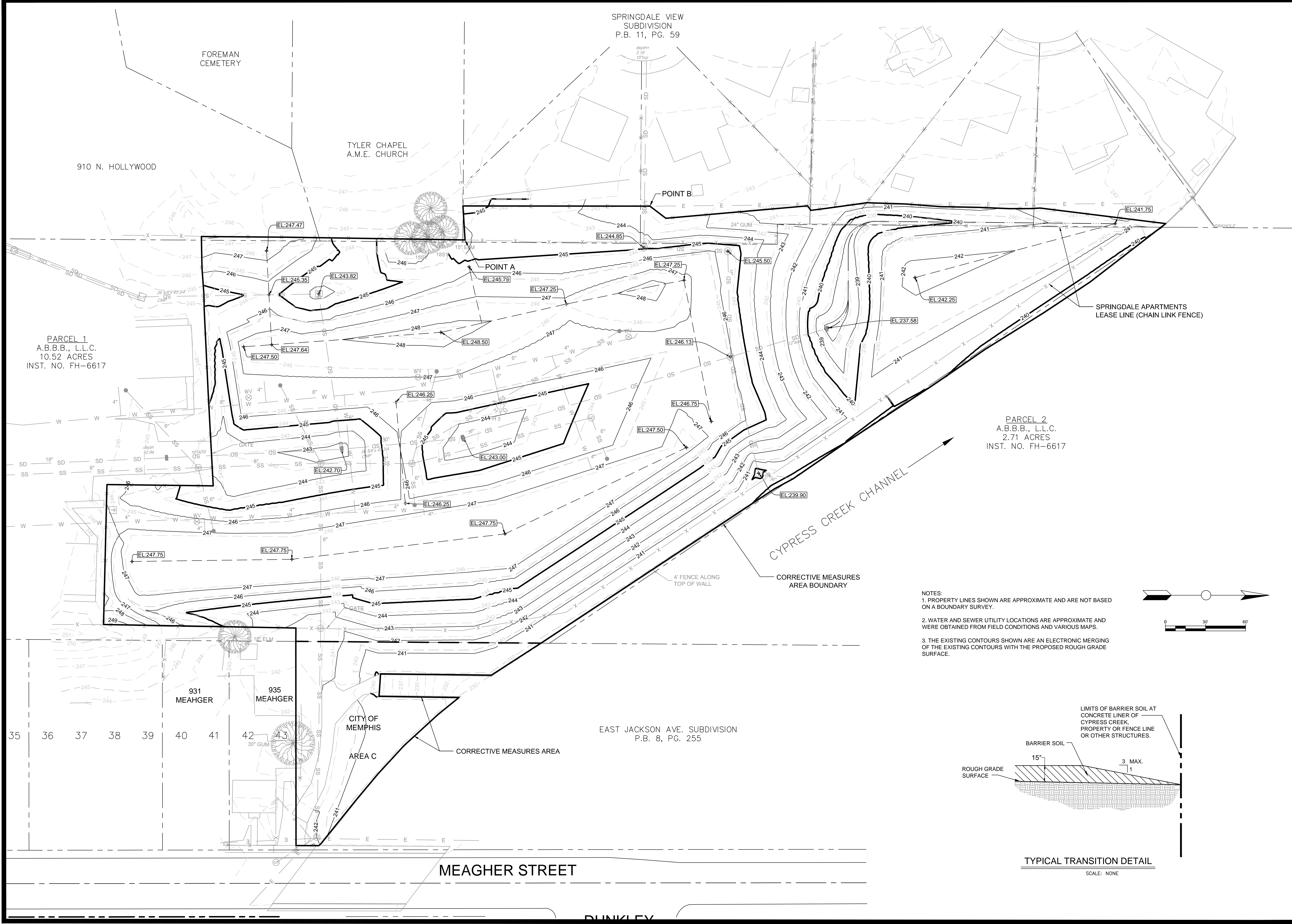
SPRINGDALE CREEK APARTMENTS

GRADING & DRAINAGE PLAN
 ROUGH GRADE

PANGEAN - CMD ASSOCIATES
 3144 Stage Post Drive
 BARTLETT TN 38133
 901-259-2362



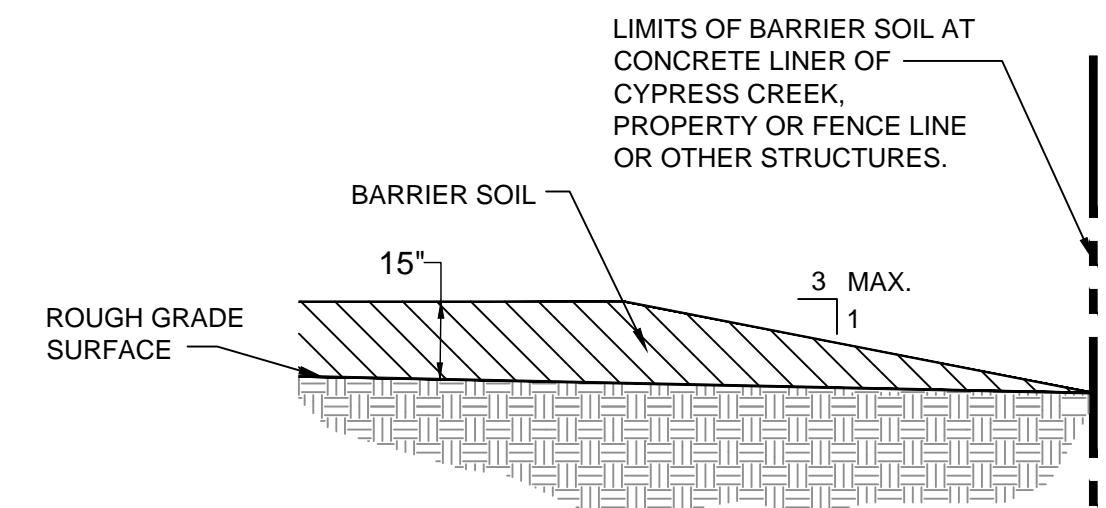
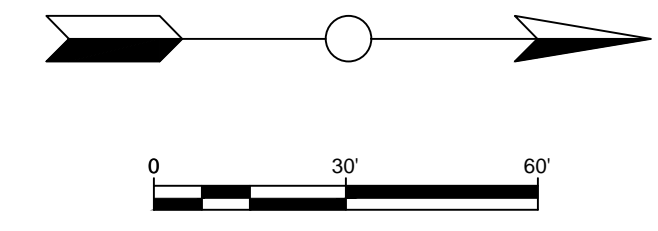
REVIEW	DATE
PROJECT ENGR. DAVID A. SCHMIDT, P.E.	
REVIEW ENGR.	
PROJECT MGR. J. KEITH YARROW	
CLIENT: VELISCOL CHEMICAL, LLC	



PARCEL 1
A.B.B.B., L.L.C.
10.52 ACRES
INST. NO. FH-6617

PARCEL 2
A.B.B.B., L.L.C.
2.71 ACRES
INST. NO. FH-6617

- NOTES:
1. PROPERTY LINES SHOWN ARE APPROXIMATE AND ARE NOT BASED ON A BOUNDARY SURVEY.
 2. WATER AND SEWER UTILITY LOCATIONS ARE APPROXIMATE AND WERE OBTAINED FROM FIELD CONDITIONS AND VARIOUS MAPS.
 3. THE EXISTING CONTOURS SHOWN ARE AN ELECTRONIC MERGING OF THE EXISTING CONTOURS WITH THE PROPOSED ROUGH GRADE SURFACE.



TYPICAL TRANSITION DETAIL
SCALE: NONE

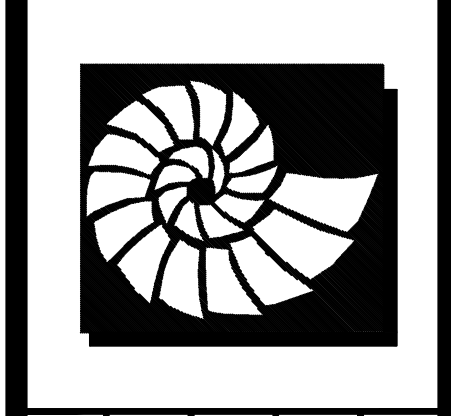
CAD FILE: SPRINGDALE
CLIENT: VELISCOL CHEMICAL, LLC
PROJECT #: PC-127007
DRAWING DATE: 07/30/12
REVISION:

SHEET: 1
FIGURE: 3

SPRINGDALE CREEK APARTMENTS

GRADING & DRAINAGE PLAN
FINAL GRADE

PANGEAN - CMD ASSOCIATES
3144 Stage Post Drive
BARTLETT TN 38133
901-259-2362



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