

Draft Environmental Assessment

Proposed Emergency
Operations Center,
Rockcastle County, KY

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FEMA

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Federal Emergency Management Agency –
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Proposed Emergency Operations Center
Chemical Stockpile Emergency Preparedness Program (CSEPP)
Draft Environmental Assessment
Rockcastle County, Kentucky

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LIST OF ACRONYMS AND ABBREVIATIONS

44 CFR 10	FEMA Environmental Considerations Regulations
44 CFR 9	FEMA Floodplain and Wetlands Regulations
ACHP	Advisory Council on Historic Preservation
APE	Area of Potential Effect
BFE	Base Flood Elevation
BMP	Best Management Practices
CAA	Clean Air Act
CATEX	Categorical Exclusion
CDBG	Community Development Block Grant
CERCLA	Comprehensive Environmental Resource Compensation and Liability Act
CFR	Code of Federal Regulations
CLOMR	Conditional Letter of Map Revision
CSEPP	Chemical Stockpile Emergency Preparedness Program
CWA	Clean Water Act
dB	Decibels
EA	Environmental Assessment
EDR	Environmental Data Resources
EIS	Environmental Impact Statement
EMA	Emergency Management Agency
EO	Executive Order
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FWPCA	Federal Water Pollution Control Act
FWS	U.S. Fish and Wildlife Service
H&H	Hydraulics and Hydrology
HMGP	Hazard Mitigation Grant Program
HUD	Department of Housing and Urban Development
KDAQ	Kentucky Division of Air Quality
KDEP	Kentucky Department of Environmental Protection
KDFWS	Kentucky Department of Fish and Wildlife Services

KDOW	Kentucky Division of Water
KDWM	Kentucky Division of Waste Management
KHC	Kentucky Heritage Council
LOMR	Letter of Map Revision
MOA	Memorandum of Agreement
NEPA	National Environmental Policy Act
NHPA	National Historic Protection Act
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
OSHA	Occupational Safety and Health Administration
PA	Public Assistance, Programmatic Agreement
PM10 & PM 2.5	Particulate Matter less than 10 or 2.5 microns
RCRA	Resource Conservation and Recovery Act
REO	Regional Environmental Officer
Section 106	Historic Preservation Consultation
Section 404	CWA Dredge and Fill Permit
Section 406	Public Assistance Program
Section 7	Endangered Species Consultation
SHPO	State Historic Preservation Officer
SMMA	Standard Mitigation Measures Agreement
STATEX	Statutory Exclusion
T&E	Threatened & Endangered
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Service

SECTION 1: INTRODUCTION

The Department of Homeland Security's Federal Emergency Management Agency (FEMA) prepared this Draft Environmental Assessment (EA) for the proposed construction and operation of an Emergency Operations Center (EOC) in Mt. Vernon, Rockcastle County, Kentucky. Funding would be provided by DHS/FEMA, through the Chemical Stockpile Emergency Preparedness Program (CSEPP). CSEPP is a partnership between FEMA and the U.S. Department of the Army that provides emergency preparedness assistance and resources to communities surrounding the Army's chemical warfare agent stockpiles. CSEPP is designed to improve the emergency response capabilities of the communities surrounding the Army's chemical warfare agent stockpiles. Rockcastle County is next to Madison County, home of the U.S. Army Bluegrass Chemical Depot, where such a chemical stockpile exists.

CSEPP is a wide-ranging activity in support of a national initiative involving the U.S. Army Chemical Materials Agency (CMA), the Federal Emergency Management Agency (FEMA), 9 states, and 37 counties. Established in 1988, CSEPP enhances emergency planning for the unlikely event of a release of hazardous chemical weapons agent from one of the Army's chemical weapons storage installations. These obsolete weapons are scheduled to be destroyed; meanwhile, however, they pose a threat to installation workers and residents of the surrounding communities. CSEPP's mission is to *“enhance existing local, installation, tribal, State, and Federal capabilities to protect the health and safety of the public, work force, and environment from the effects of a chemical accident or incident involving the U.S. Army chemical stockpile.”* The Department of Defense, United States Department of the Army has a Memorandum of Understanding (MOU) with FEMA to manage and direct the off-post aspects of the CSEPP effort while the Army retains the responsibility for the on-post aspects of the program. Both parties supported legislation that granted FEMA the necessary authority to take on this expanded role with respect to CSEPP.

This Draft EA has been prepared to analyze the potential consequences to the natural and human environment associated with the Proposed Action, the No Action Alternative, and other potential alternatives per the National Environmental Policy Act (NEPA) (42 United States Code [USC] 55 parts 4321 et seq., 2000), the President's Council on Environmental Quality (CEQ) implementing regulations (40 Code of Federal Regulations [CFR] 30 parts 1500 et seq., 2004), and 44 CFR Emergency Management and Assistance Ch. I Part 10. This Draft EA is designed to meet FEMA's responsibilities under NEPA and to determine whether to prepare a Finding of No Significant Impact (FONSI) or a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) for the proposed project.

SECTION 2: PURPOSE AND NEED

Purpose

The proposed project's purpose is to use DHS/FEMA funds, through the CSEPP, to provide Rockcastle County Fiscal Court an EOC facility adequate to safely, continuously, and cost-

effectively prepare and protect the residents of Rockcastle County before and during chemical weapons decommissioning, and to meet Rockcastle County's emergency service needs.

Need

Rockcastle County and the Rockcastle County Emergency Services Agency (RCESA) need a facility to effectively serve County residents' emergency services needs. The current Rockcastle County EOC and 911 Emergency Communications facilities are in the Rockcastle County Courthouse at 205 E. Main Street, Mt. Vernon, KY. These facilities are not located in the same building. EOC and 911 facility personnel must be co-located to better respond to citizens' needs. The current 911 location is overcrowded, prevents efficient operations. The Emergency Management Agency (EMA) being within the Courthouse reduces space for courthouse activities and hinders EOC operations during disasters. The existing EOC is inadequate and cannot expand.

Also, the current EOC and 911 facilities are not hardened structures and could be destroyed by a significant weather event. There are no redundant systems in the current EOC or 911 facilities. The current EOC structure and 911 facilities cannot provide the required level of public safety during a CSEPP event.

RCESA needs to occupy a structure that will provide for all daily emergency communications as well as for protect against biological, chemical, and/or physical hazards.

SECTION 3: ALTERNATIVES

3.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, the proposed EOC would not be built. RCESA would continue to operate out of the County Courthouse, adversely affecting EOC staff's ability to function efficiently and to adequately meet citizens' needs in post-disaster environments. Current EOC location will continue to be inadequate for required daily operations. EOC and 911 Emergency Communications would continue to operate in separate areas, which hinders emergency responses for Rockcastle County citizens. This reduces the County's ability to prepare and protect the public before and during chemical weapons decommissioning, and reduces the overall level of public safety.

3.2 PROPOSED ACTION

The Rockcastle County Fiscal Court proposes to build a 5,000-sq. ft. EOC in the existing Rockcastle Business Park South, next to the Sourcecorp facility on Progress Drive. This EOC facility would be designed to house the CSEPP, County Emergency Communications (911 dispatchers), County EOC, and all supporting services. It would be designed to operate under the most adverse conditions (i.e., as the County's last operational building), and would include

enough redundancy to ensure continuity of operations in case of equipment failure or during maintenance periods. Backup power would provide enough power for mission critical spaces and equipment for extended time periods if needed.

A communications tower, tower equipment shelter, exterior generator pad, access road, and parking area would also be built. The 100-foot tall, free-standing, self-supporting, lattice-style, pad-and-pier communications tower would be built on the site's southeast corner (Appendix C). An external, climate-controlled radio communications equipment shelter would be connected to the tower. A chain link fence would surround the tower, tower equipment shelter, exterior generator for the building.

The County currently owns the property and required, existing infrastructure (water, sewer, electric, communications conduit, road) in or near the site, which would reduce hook-up costs.

3.4 ALTERNATIVE CONSIDERED AND DISMISSED

It is not feasible to expand the current EOC to efficiently conduct operations, either within its current location in the County Courthouse, or on the Courthouse site, due to lack of space for expansion. Thus, it is not possible to expand the current EOC to provide the necessary space.

Two other locations were evaluated for the proposed EOC facility.

The first location is on E. Main Street across from the County Courthouse. It was determined that this lot was too small and would not accommodate the new EOC's required size. Also, since this site is located downtown, traffic congestion would likely hinder EOC operations during disasters.

The second site is located off HWY 150 at the old Rockcastle County Industrial Park, across HWY 150 from the preferred site. An electrical power main crosses this property, its utility right-of-way does not leave enough land to build the new EOC facility, including its communications tower, access road, and parking area.

SECTION 4: AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

The Proposed Action site (GPS coordinates N37°20'2759", W84°21'5704") is on an open land parcel within the Rockcastle County Business Park South, a subdivided set of lots directly off of US HWY 150. The site is just outside Mount Vernon city limits. US HWY 150 has a mixture of residential, commercial, and industrial facilities along it.

The site's backside is bound by a tree line. The overall Business Park's two long sides have a residential subdivision to the west and a roadway bordered by heavily wooded area with a quarry to the east. A series of light industrial and commercial facilities were built in this Business Park.

There is an interconnecting roadway between this site and the adjacent Whiterock Road (KY 2549). An aerial photograph and USGS topographic maps are in Appendix A of this Draft EA.

The following table summarizes the impacts and mitigation of the two Alternatives considered in more detail.

Table 1: Summary of Impacts		
Environmental Category	No Action Alternative	Build New EOC Facility in the County Owned Business Park
Geology and Soils	No Notable Impacts Expected	Minor, short-term impacts on temporarily exposed soil, from usual water and wind erosion, and possible fuel or lubricant spills.
Air Quality	No Notable Impacts Expected	Minor, short-term impacts on air quality from usual vehicle emissions and fugitive dust during construction.
Climate Change	No Notable Impacts Expected	No notable impacts expected.
Water Quality	No Notable Impacts Expected	Minor, short-term impacts on temporarily exposed soil, from downhill and downstream sedimentation.
Wetlands	No Notable Impacts Expected	No wetlands are on or near the site.
Floodplains	No Notable Impacts Expected	The site is not within a regulated 100- or 500-year floodplain.
Wild and Scenic Rivers	No Notable Impacts Expected	There are no rivers or waterways on or near the site.
Compatible Land Use	No Notable Impacts Expected	The project would be consistent with Rockcastle County Industrial Park South's Protective and Restrictive Covenants. Rockcastle County does not have planning and zoning.
Biological Resources	No Notable Impacts Expected	According to USFWS letter, no threatened or endangered species would be impacted by this project. No migratory Birds would be impacted by this project.
Historic and Archaeological Resource	No Notable Impacts Expected	According to KY State SHPO letter, no known archaeological or historical resources are on the site. According to Tribal THPO replies, no impacts are expected on tribal resources.
Transportation	No Notable Impacts Expected	Minor, short term may occur on US HWY 150 during construction.
Noise	No Notable Impacts Expected	There would be minor, short-term impacts on noise levels at the project site during construction.
Light Emissions and Visual Impacts	No Notable Impacts Expected	No notable impacts expected.
Socioeconomic	If the new EOC is not	The Proposed Action would equally benefit all

Impacts and Environmental Justice	built, there could continue to be a significant lack of response to emergencies and disasters in the county. This adversely affects all County citizens.	County citizens.
Hazardous Materials, Pollution Prevention, and Solid Waste	No Notable Impacts Expected	No notable impacts expected.
Cumulative Impacts	No Notable Impacts Expected	No notable impacts expected.

4.1 PHYSICAL RESOURCES

4.1.1 Geology and Soils

Rockcastle County includes parts of both the Mississippian Plateaus and the Eastern Kentucky Coal Field physiographic regions. The terrain is generally hilly; locally the topography can be described as rugged. The project site elevation is about 1,187' above mean sea level.

Geologic information was obtained from a USGS Geology of the Mount Vernon Quadrangle map (1993), and from review of the Rockcastle County Soil Survey Map (*1981 Rockcastle County Kentucky Soil Survey*), published by the U.S. Department of Agriculture - Soil Conservation Office (1973 aerial photography).

According to the 1993 USGS geology map, the proposed project site bedrock is Ste. Genevieve Limestone Formation – massive, light gray, and fine-grained. Karst topography and sinkhole formation is associated with this geology, which has an irregular rock surface due to limestone's soluble nature.

According to the environmental database summary report, no federal USGS wells were located on or near the project site. Site inspection revealed several closed depressions, some with observable sinkhole throats. These depressions are often used by farmers for trash dumping. However, no evidence of dumping or trash was observed at this site.

According to USDA Soil Conservation Service Soil Survey data for Rockcastle County (1981), the project site's soils are Crider Silty Clay Loam and Frederick Silt Loam series soils. The project area has surface texture in the hydrological

Class C Group, with moderate infiltration rates, 6 to 12 percent slopes, and erodes easily. According to an adjacent site's 2007 geotechnical analysis prepared by Qore, Inc., that site has deep soils consisting of a layer of silt over low plasticity clays. Construction over these soils requires careful attention to moisture content and compaction effort, in order to avoid costly structural foundation failure.

American Engineers, Inc. did a geo-technical study of the proposed project site in August 2012. Seven soil test borings were drilled within the approximate limits of the proposed EOC building's footprint, proposed pavement areas, and the communication tower and radio communications equipment shelter. A copy of the geo-technical study with conclusions and recommendations for facility construction is in Appendix F of this Draft EA.

No Action Alternative – Under No Action, no construction would occur and there would be no impacts to geology or soils.

Proposed Action Alternative – Under the Proposed Action, proposed building construction would have minor impacts on soils. Trenching for utilities and drainage would not typically exceed 3 feet below grade. Thus, construction is not expected to be deep enough to impact underlying geologic resources.

To minimize soil erosion, appropriate Best Management Practices (BMPs) would be implemented throughout the project site. This includes installing silt fences, wetting exposed soil under dusty conditions, and revegetating exposed soils to minimize potential erosion. Excavated soil and waste materials would be managed and disposed of in accordance with applicable local, State, and Federal regulations. If contaminated materials are discovered during construction, the work would stop until appropriate procedures and permits could be implemented.

The Applicant would be required to obtain a National Pollutant Discharge Elimination System (NPDES) permit from the Kentucky Natural Resources and Environmental Protection Cabinet (KNREPC); and the Applicant and their contractors would be required to comply with permit conditions.

A consultation letter was sent to the NRCS on May 11, 2012, requesting their review of the proposed project. No response was received.

4.1.2 Air Quality

The Clean Air Act (CAA) of 1970 requires that States adopt ambient air quality standards. The standards have been established in order to protect the public from potentially harmful amounts of pollutants. Under the CAA, the EPA establishes primary and secondary air quality standards. Primary air quality standards protect the public health, including the health of "sensitive populations, such as people with asthma, children, and older adults." Secondary air quality standards protect public welfare by promoting ecosystems health, and preventing decreased

visibility and damage to crops and buildings. EPA has set National Ambient Air Quality Standards (NAAQS) for the following six criteria pollutants: ozone (O₃), particulate matter (PM_{2.5}, PM₁₀), nitrogen dioxide (NO₂), carbon monoxide (CO), sulfur dioxide (SO₂), and lead (Pb).

Rockcastle County is in attainment or meets ambient air quality standards of EPA and the Kentucky Division of Air Quality. There are no currently permitted stationary air releases from the project site or adjacent sites.

No Action Alternative – Under No Action, there would be no air quality impacts.

Proposed Action Alternative – Under Proposed Action, minor, short-term impacts to air quality would occur during facility construction, from dry exposed soils, and construction vehicles and equipment. To reduce “fugitive dust”, workers would water down exposed soils when dusty conditions exist. Vehicle and equipment emissions would slightly increase local pollutant levels. To reduce these emissions, vehicle and equipment running times would be minimized, and engines would be properly maintained. There would be minor, long-term impacts on air quality, from the facility generator’s emissions during occasional, short-term generator tests, maintenance, and external power outages. There are no known topographical or meteorological conditions in the project area that are expected to hinder dispersal of these emissions.

4.1.3 Climate Change

The President’s CEQ released guidance on how Federal agencies should consider climate change in their action decision-making. The suggested threshold whereby quantitative analysis should be done in NEPA documents is for an action to release over 25,000 metric tons of greenhouse gases per year (CEQ 2010). Given the small scale of the proposed alternative, no detailed analysis was done because it would be far below the threshold amount.

No Action Alternative – Under No Action, there would be no climate change impacts.

Proposed Action Alternative - Under the Proposed Action, construction and operation of the new EOC could produce greenhouse gases that may contribute to climate change. Construction would involve use of vehicles and equipment that release greenhouse gasses. However, these impacts would be minor and temporary. EOC operation and maintenance would require energy for lighting, heating, air conditioning, etc., but compared to the existing facilities, the small amounts of additional greenhouse gasses the corresponding new facilities would produce would not significantly impact climate change.

4.2 WATER RESOURCES

4.2.1 Water Quality

The federal Clean Water Act (CWA) Section 401 provides the statutory authority for state water quality standards programs. Regulatory requirements governing these programs are in 40 CFR 131. States are responsible for reviewing, establishing, and revising water quality standards. The Kentucky Division of Water's Water Quality Branch (WQB) is responsible for monitoring and assessing the quality of water in the state's streams, lakes and wetlands. WQB revises water quality standards and criteria, classifies surface waters for designated uses (e.g., cold or warm water aquatic habitat, outstanding state resource waters, swimming [primary contact recreation] and domestic water supply) and interprets standards for Kentucky Pollutant Discharge Elimination System permit decisions.

There are no identifiable water bodies or streams on or next to the proposed project site. The site's limestone geology has resulted in karst topography characterized by subsurface rather than surface drainage. Drainage appears to be subsurface except for the roadside ditches. This site ultimately drains to the north to Lake Linville, the City of Mount Vernon's water supply source.

No Action Alternative – Under No Action, there would be no water quality impacts.

Proposed Action Alternative – Under the Proposed Action, no adverse impacts to the water quality are expected. A Storm Water Protection Plan (SWPP) will be prepared before construction starts. This SWPP must include BMPs to minimize soil erosion from project site, and reduce offsite sediment transport.

4.2.2 Wetlands

EO 11990 (Wetlands Protection) requires federal agencies to avoid, to the extent possible, adverse impact to wetlands. There are no water bodies, waterways, or regulated wetlands on or next to this site, according to the U.S. Fish and Wildlife Service's National Wetlands Inventory map (Appendix A). Site aerial photographs and site inspection confirm this.

No Action Alternative – Under the No Action Alternative, no construction would occur and there would be no impacts to wetlands.

Proposed Action Alternative – Under the Proposed Action, according to the USFWS letter dated May 17, 2012, "No significant adverse impacts to wetlands or federally listed endangered or threatened species are anticipated from this proposal". The Kentucky Dept. of Fish & Wildlife letter dated October 10, 2012 stated, "It does not appear that these projects will impact any critical habitat or unique natural areas, wetlands, or streams."

4.2.3 Floodplains

EO 11988 (Floodplain Management) requires Federal agencies to avoid supporting development where short- and long-term adverse impacts associated with floodplain occupancy and modification wherever there is a practicable alternative. FEMA Flood Insurance Rate Maps (FIRMs) show Special Flood Hazard Areas. Per 44 CFR Part 9, EOCs are considered critical actions and evaluated per 500-year floodplain requirements. The proposed site is in an unshaded Zone X, outside the 100 or 500-year floodplains per FEMA’s FIRM for this project site (Appendix A).

No Action Alternative – Under No Action, there would be no floodplain impacts.

Proposed Action Alternative – Under the Proposed Action, no adverse impacts to any floodplain are expected because the project site is outside the 100- and 500-year floodplains, and stormwater discharges from this small site would be negligible.

4.3 BIOLOGICAL RESOURCES

4.3.1 Endangered, Threatened or Candidate Species

The Endangered Species Act of 1973 requires Federal agencies to determine the effects of their Proposed Actions on threatened and endangered species of fish, wildlife, and plants, and their designated critical habitats, and to take steps to conserve and protect these species and their habitat.

The US Fish and Wildlife Service (USFWS) lists the following federally endangered (E), threatened (T), and candidate (C) species for Rockcastle County, Kentucky (USFWS 2008).

Common Name	Scientific Name	Status
Virginia Big-eared Bat	<i>Corynorhinus townsendii virginianus</i>	E
Indiana Bat	<i>Myotis sodalist</i>	E
Cumberland Bean Pearlymussel	<i>Vilosa trabilis</i>	E
Cumberland Elktoe	<i>Alasmidonta stropurpurea</i>	E
Cumberlandian Combshell	<i>Eploblasma brevidens</i>	E
Fluted Kidneyshell	<i>Ptychobranthus subtentum</i>	C
Littlewing Pearlymussel	<i>Pegias fibula</i>	E
Oyster Mussel	<i>Eploblasma capsaeiformis</i>	E
Virginia Spiraea	<i>Spiraea virginiana</i>	T

The proposed project site is a regularly-maintained grassed lot located within the Rockcastle Business Park South. According to the USFWS Response Letter dated May 17, 2012, “No significant adverse impacts to wetlands or federally listed endangered or threatened species are anticipated from this proposal.”

No Action Alternative – Under No Action, there would be no impacts to biological resources, including federally protected species.

Proposed Action Alternative – Under the Proposed Action, according to the USFWS letter dated May 17, 2012, “No significant adverse impacts to wetlands or federally listed endangered or threatened species are expected from this proposal”. The Kentucky Dept. of Fish & Wildlife Resources (KDFWR) letter dated October 10, 2012 stated, “It does not appear that these projects will impact any critical habitat or unique natural areas, wetlands, or streams.”

4.3.2 Migratory Birds

The Migratory Bird Treaty Act (16 U.S.C. 703-711) protects migratory birds. The proposed site was previously cleared to develop the business park. The site is near woodlands to the North, East, and West, which could provide habitats for migrating birds. No riparian zones are on or near the site.

No Action Alternative – Under No Action, there would be no impacts on migratory birds.

Proposed Action Alternative – Under the Proposed Action, the project site was previously cleared, and project work would not involve any tree clearing. The communications tower would be free standing, self-supporting. It would not have any guy wires, which are thought to be a primary cause of tower-related bird mortality. Alternative design including using a lattice structure or a monopole, would be used to minimize impacts on migratory birds.

According to the Kentucky Dept. of Fish & Wildlife Resources (KDFWR) Letter dated October 10, 2012, no impacts on migratory birds are expected. Potential impacts on migratory birds would be minor since the tower would be less than 100’ tall, free standing, self-supporting, and would not have any guy wires or lights. Thus, the proposed project is not expected to impact migratory birds.

4.4 CULTURAL RESOURCES

4.4.1 Historic Properties

National Historic Protection Act (NHPA) Section 106, as amended, and implemented by 36 CFR Part 800, requires federal agencies to consider the effects of their actions on historic properties and provide the Advisory Council on

Historic Preservation (ACHP) an opportunity to comment on Federal projects prior to implementation. Historic properties are defined as archaeological sites, standing structures, or other historic resources listed in or eligible for listing in the National Register of Historic Places (NRHP).

No Action Alternative – Under No Action, there would be no construction, and thus, no impacts on any above ground historic resources, or on/below ground archeological resources.

Proposed Action Alternative – Under the Proposed Action, according to the Kentucky Heritage Council/State Historic Preservation Officer (KHC/SHPO) Letter dated June 5, 2012, “No archaeology is required at this time. However, contractors retained for site preparation and construction should be advised of their responsibility under the Kentucky Antiquities Act and Section 106 of the National Historic Preservation Act to stop work and report any inadvertent discovery of archeological sites or artifacts. There appear to be no historic buildings within or adjacent to the project area, so it is our assessment that there will be no historic properties affected by this proposed undertaking.”

4.4.2 American Indian Cultural/Religious Sites

No Action Alternative – Under No Action, there would be no construction, and thus, no impacts on American Indian cultural/religious sites.

Proposed Action Alternative – Under the Proposed Action, no known American Indian cultural/religious sites would be impacted. Tribal consultation letters were sent on August 6, 2012 to the Tribal Historic Preservation Officers (THPOs) for the following tribes: Absentee Shawnee Tribe of Oklahoma, Cherokee Nation of Oklahoma, Chickasaw Nation, Eastern Band of Cherokee Indians, Eastern Shawnee Tribe of Oklahoma, Miami Tribe of Oklahoma, Peoria Indian Tribe of Oklahoma, Shawnee Tribe, and United Keetoowah Band of Cherokee. A 45-day comment period was provided; it ended on September 19, 2012. No comments were received from these tribes.

If any human remains or archaeological artefacts are found, all work in area of the “find” or “discovery” must immediately stop, and all reasonable measures must be taken to avoid or minimize harm to the finds. The Applicant’s contractor must immediately notify the Applicant of all finds. The Applicant must ensure that finds are secured in place, access to the find area is restricted, and all reasonable measures are taken to avoid further disturbance of the find. The Applicant must notify the Kentucky Heritage Council and FEMA within 24 hours of the find. Work in the find area may resume after FEMA has completed any further required actions with the SHPO, Tribes, and other consulting parties.

In case human remains are found, all work in the find area must immediately stop. The Applicant must notify FEMA within 24 hours, and must notify proper authorities in accordance with *Kentucky Statutes, Section 72.02*.

4.5 SOCIOECONOMIC CONCERNS

4.5.1 Environmental Justice

EO 12898 (Environmental Justice) mandates that Federal agencies identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations.

According to the 2010 Bureau of Census, Rockcastle County has a population of 17,056 individuals with 23.9% of individuals living below the poverty level. The 2009 median income for Rockcastle County was \$29,654.

Minorities represented 1.6% and 12.2%, respectively, of Rockcastle County and the Commonwealth of Kentucky.

No Action Alternative – Under No Action, all county populations would remain at higher risk during future disasters. There would be no disproportionately high or adverse impact on minority or low-income portions of the population—all populations would continue to be at higher risk.

Proposed Action Alternative – The Proposed Action would benefit all county populations by providing a safer, permanent EOC location that can provide more complete, efficient, and effective emergency communications and services. There would be no disproportionately high or adverse impact on minority or low-income portions of the population—all populations would benefit from the proposed project.

4.5.2 Noise

Noise is generally defined as unwanted sound. Sound is most commonly measured in decibels (dB) on the A-weighted scale, the scale most similar to the range of sounds audible to the human ear. The Day-Night Average Sound Level (DNL) is an average measure of sound. The DNL descriptor is accepted by Federal agencies as a standard for estimating sound impacts and establishing guidelines for compatible land uses. EPA guidelines, and those of many other Federal agencies, state that outdoor sound levels exceeding 55 dB DNL are “normally unacceptable” for noise-sensitive land uses such as residences, schools, or hospitals. The project site is located in a business park, mostly light industrial uses, and surrounded by rural residential and agricultural areas. There are few residential structures around the project site.

No Action Alternative – Under No Action, there would be no noise level impacts.

Proposed Action Alternative – Under the Proposed Action, temporary short-term noise level increases are expected during construction. To reduce noise levels then, construction activities would be done during normal business hours. Equipment and machinery installed at the project site would meet all local, State, and Federal noise regulations.

4.5.3 Traffic

The proposed project site is located on a 2.2-acre parcel in the Rockcastle County South Business Park just off US HWY 150. This site is directly accessible from and within 1/4 mile of Route 461 and within a mile of downtown Mount Vernon. US HWY 150 has a mixture of residential, commercial, and industrial facilities along it.

No Action Alternative – Under the No Action Alternative, no construction would occur and there would be no impacts to transportation.

Proposed Action Alternative – Under the Proposed Action Alternative, during construction, there would be a minor temporary increase in traffic volume near the project site that could potentially slow traffic flow. To mitigate potential delays, vehicles and equipment would be stored onsite during project work, and appropriate signage would be posted on affected roadways.

No notable long-term transportation impacts are expected from the proposed project, and the minor impacts would be well within local transportation infrastructure capacity.

4.5.4 Public Service and Utilities

The City of Mt. Vernon provides water and sanitary sewer service to the site. Primary power supplied by Jackson Electric RECC is through overhead wires to the site's front side. There is no natural gas line on this site; telecommunications routing was not evident; these would be extended from nearby existing lines.

No Action Alternative – Under No Action, there would be no impacts to public services (including public safety for people and their improved property) and utilities.

Proposed Action Alternative – Under the Proposed Action, County communications and emergency services would improve, and thus, reduce public risks and improve public safety for County residents and their improved property. The new EOC facilities would not place significant demands on existing utility infrastructure.

4.5.5 Public Health and Safety

Safety and security issues considered in this EA include the area resident's, general public's, and EOC construction worker's health and safety.

No Action Alternative – Under No Action, there would be no construction and no project impacts on the county population's risks and safety. During major disasters, all County residents would remain at higher risk, affecting people's lives and improved property.

Proposed Action Alternative – Under the Proposed Action, the new EOC facilities would help to better prepare and protect County residents and their improved properties before and during natural and manmade disasters.

To minimize construction worker health and safety risks, all construction would be done by qualified workers trained in the proper use of the appropriate equipment, using all appropriate safety precautions. All work would be done in a safe manner in accordance with OSHA regulation standards. Appropriate signage and barriers would be in place before construction work, to alert pedestrians and motorists of project work. There would be no disproportionate health or safety risks to children.

4.6 HAZARDOUS MATERIALS, POLLUTION PREVENTION, AND SOLID WASTE

Hazardous substances are defined as any solid, liquid, contained gaseous or semisolid waste, or any combination of wastes that pose a substantial present or potential hazard to human health and the environment. Hazardous substances are mostly generated by industry, hospitals, research facilities, and the government. Improper management and disposal of hazardous substances can lead contamination of soils and surface water, and to pollution of groundwater and other drinking water supplies. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA) authorize federal regulations for required management and disposal of hazardous substances.

A Phase I Environmental Site Assessment (ESA) was done at the proposed project site in November 2007. According to the ESA, no *recognized environmental conditions* were present at the site. There is no indication of hazardous materials at the site.

No Action Alternative – Under No Action, no construction would occur and there would be no changes related to any waste or hazardous materials.

Proposed Action Alternative – Under the Proposed Action, no hazardous materials or waste impacts are expected. Construction debris, as well as any potentially hazardous

materials found during construction, would be properly handled and disposed of in accordance with applicable local, State, and Federal regulations.

4.7 LIGHT EMISSIONS AND VISUAL IMPACTS

Light emission impacts consider the extent that the action's lighting would annoy people in the vicinity or interfere with their normal activities. Visual or aesthetic impacts deal with the extent a project contrasts with the existing environment. The parking lot would be lighted by 320-watt, metal-halide fixtures mounted on 25ft poles, for an illumination level of 2 foot-candles. Flagpoles would be lighted with ground mounted 150-watt, metal-halide floodlights. Entry signage would be lighted with ground mounted 50-watt, metal-halide floodlights. Areas next to the building must be lighted to 4 foot-candles by mounted 250-watt, metal-halide adjustable floodlights.

No Action Alternative – Under the No Action, there would be no light or visual impacts.

Proposed Action Alternative – The project site's surrounding project area land uses are mostly light industrial, and further out, commercial, rural residential, and agricultural. The proposed EOC's lighting would be compatible. The EOC's architectural design would increase aesthetic quality relative to other buildings in the area that are mostly for light industrial uses. The new EOC facility would be compatible with the surrounding project area's light industrial land uses.

4.8 CUMULATIVE IMPACTS

According to CEQ regulations, cumulative impacts represent the “impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).” In accordance with NEPA and to the extent reasonable and practical, this EA considered the combined effect of the Proposed Action and other actions occurring or proposed in the project area around the proposed project site.

The proposed project site is located in the existing, partly developed Rockcastle County Business/Industrial Park. The surrounding greater project area's land uses are mostly light industrial, commercial, rural residential, and agricultural.

If additional construction projects are active in the vicinity of the proposed EOC, these projects and the Proposed Action could have cumulative temporary impacts on air quality by locally increasing criteria pollutants during construction. No other cumulative impacts are expected. Because of this project's small size and location in a previously cleared area, no cumulative impacts to biological or cultural resources are expected.

SECTION 5: AGENCY COORDINATION, PUBLIC INVOLVEMENT, PERMITS

5.1 AGENCY COORDINATION

Kentucky State Clearinghouse

Kentucky Heritage Council

Kentucky Natural Resources Cabinet

Cumberland Valley Area Development District

Kentucky Department of Fish & Wildlife

Kentucky Department of Transportation

Kentucky Department of Housing, Buildings, and Construction

Kentucky Labor Cabinet

U.S. Fish & Wildlife Service

Kentucky Department of Fish & Wildlife

U.S. Army Corps of Engineers

U.S. Natural Resources and Soil Conservation

Kentucky Geological Survey

5.2 PUBLIC INVOLVEMENT

FEMA is the lead federal agency for conducting the NEPA compliance process for this Proposed Action. FEMA's goal is to expedite the NEPA review and documentation, and be responsive to community needs and the Proposed Action's purpose and need, while also meeting NEPA's intent and complying with all NEPA provisions. The Rockcastle County Fiscal Court will notify the public of the availability of the Draft EA for Public Review and a 7-day Public Comment period, by publishing a Public Notice in the *Mt. Vernon Signal*.

5.3 PERMITS

KY Division of Code Appliance Building Permit

KY NPDES

SECTION 6: LIST OF PREPARERS AND REVIEWERS

Tara Hackney, MBA (Preparer)

Planner

MSE of Kentucky, Inc.

624 Wellington Way

Lexington, Kentucky 40503

William R. Straw, PhD (Reviewer)

Regional Environmental Officer
FEMA Region IV
3003 Chamblee-Tucker Rd – Hollins Bldg
Atlanta GA 30341-4112
william.straw@fema.dhs.gov

SECTION 7: APPENDICES

Appendix A – Project Maps

Aerial Photograph
U.S. Geological Survey Topographic Map
FEMA Flood Insurance Rate Map
NRCS Web Soil Survey
National Wetlands Inventory
Site Geology
Rockcastle County Business Park South Master Plan

Appendix B – Agency Correspondence

Kentucky State Clearinghouse
U.S. Fish & Wildlife Service
Kentucky Fish & Wildlife Service
U.S. Army Corps of Engineers
U.S. Department of Agriculture, Natural Resources Conservation Services
Kentucky Heritage Council/State Historic Preservation Officer

Appendix C – Schematic Design

Elevation
Site Plan
Utility Plan
Grading & Drainage Plan

Appendix D – Photographs of Site

Appendix E – Geotechnical

Report of Geotechnical Exploration
Bore Log

SECTION 8: REFERENCES

- American Engineers, Inc. 2012. *Report of Geotechnical Exploration – Rockcastle County Emergency Operations Center*. August 2012.
- Federal Emergency Management Agency (FEMA). 2009. *Flood Insurance Rate Map, Rockcastle County, Kentucky*. Community Panel Number 2120360200C dated August 3, 2009. <http://msc.fema.gov>. Accessed September 6, 2012.
- Kentucky State Data Center. 2012. *2010 Census SFI - Kentucky and County Comparison Tables*. <http://ksdc.louisville.edu/1census.htm>. Accessed August 16, 2012.
- Mission Critical Partners with SCHRADERGROUP Architecture, LLC. 2011. *Rockcastle County Emergency Management Agency Programming and Planning Study*. September 15, 2011.
- Moses Drilling Company. 2012. Test Hole for Rockcastle County Emergency Operations Center. August 24, 2012.
- MSE of Kentucky, Inc. 2007. Phase I Environmental Site Assessment Report – Rockcastle County Industrial Park #2 (South Industrial Park). November 2, 2007.
- University of Kentucky, Kentucky Geologic Survey. 2004. *Groundwater Resources of Rockcastle County, Kentucky*. <http://www.uky.edu/KGS/>. Last modified August 1, 2012. Accessed August 15, 2012.
- University of Kentucky, Geological Survey. 2012. *KGS Databases, Maps, and Publications*. <http://kgs.uky.edu/kgsweb/main.asp>. August 15, 2012.
- U.S. Department of Agriculture, Natural Resources Conservation Service, 2012. *Web Soil Survey*. <http://websoilsurvey.nrcs.usda.gov/>. Last updated February 28, 2012. Accessed August 16, 2012.
- U.S. Environmental Protection Agency. 2012. *Envirofacts*. <http://www.epa.gov/enviro/index.html>. Accessed August 15, 2012.
- U.S. Fish & Wildlife Services. 2008. *Kentucky List of Threatened and Endangered, and Candidate Species by County*. <http://www.fws.gov/frankfort/EndangeredSpecies.html>. Last updated July 30, 2008. Accessed September 6, 2012.
- U.S. Fish & Wildlife Services. *National Wetlands Inventory*. <http://www.fws.gov/wetlands/data/Mapper.html>. Accessed August 16, 2012.
- U.S. Geological Survey (USGS). 1993. *Mt. Vernon, 7.5-minute Quadrangle*. 1:24,000 series.

APPENDIX A
Project Maps



Reference: EMA-2012-CA-5250

Review Date: June 21, 2012

Reviewer: Ashley Kurzweil

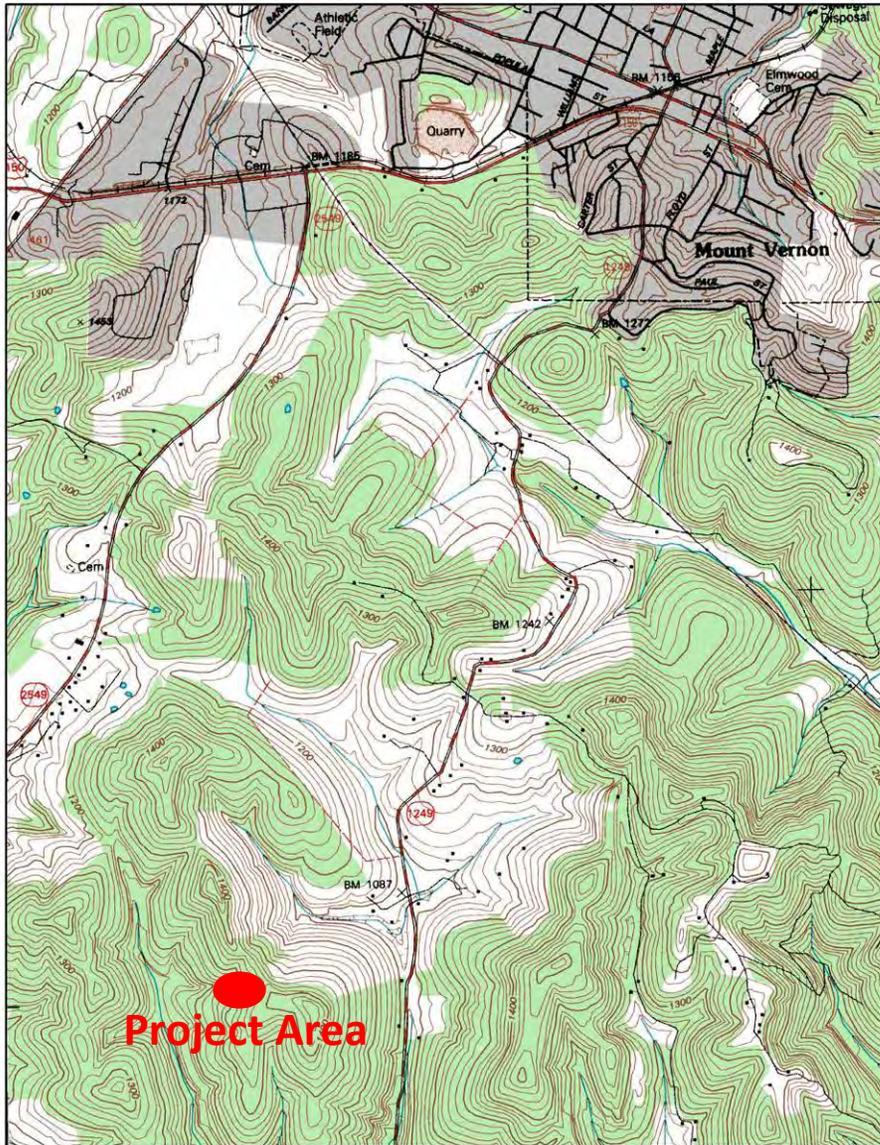
County: Rockcastle

Applicant: Rockcastle Fiscal Court

Vertical View: 1,118 approx. ft.

Source: Google Earth v. 6.1.0.5001





Reference: EMA-2012-CA-5250

Review Date:

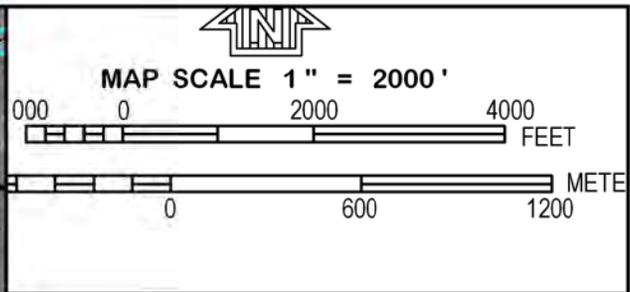
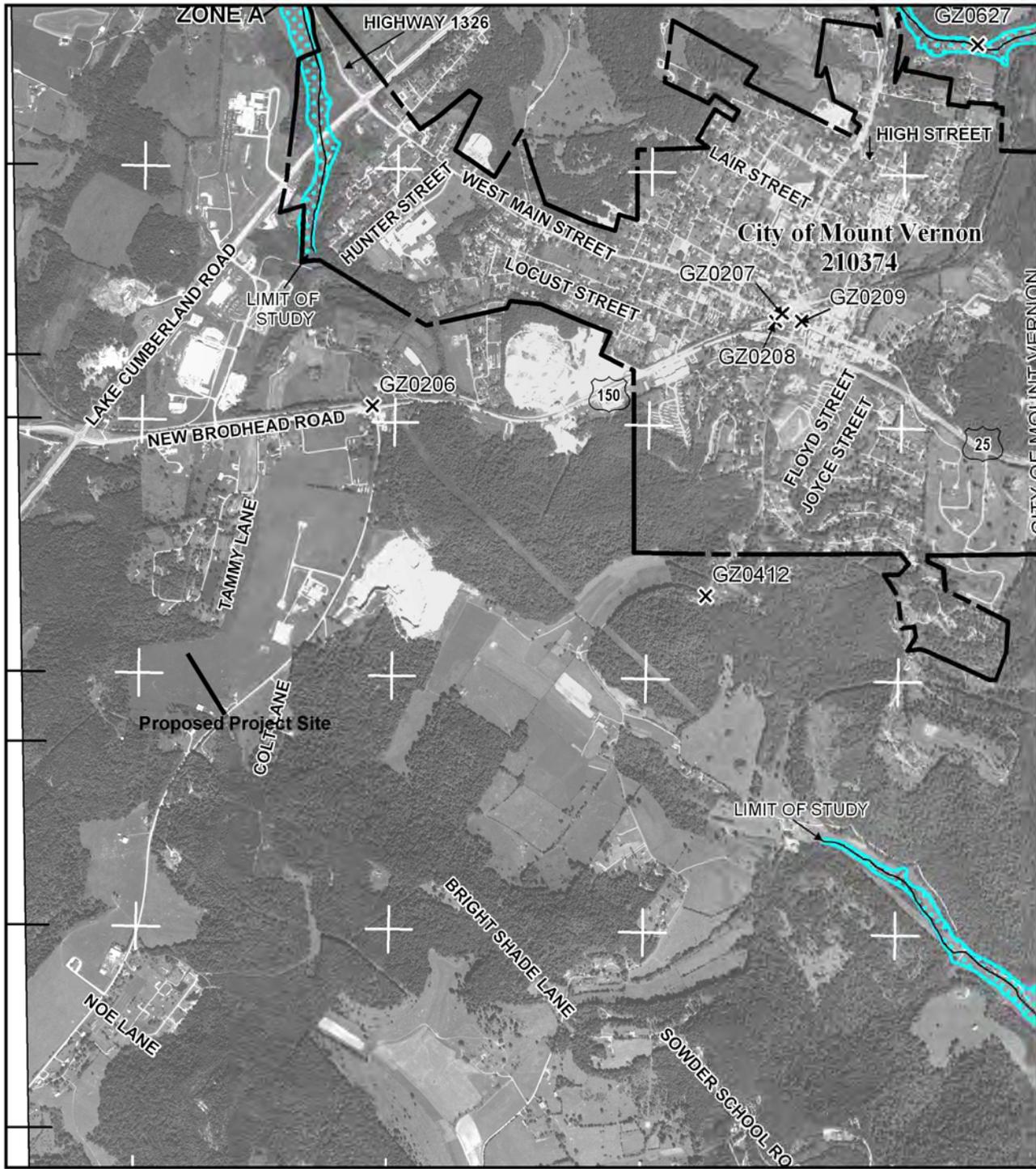
Reviewer: Ashley Kurzweil

County: Rockcastle

Applicant: Rockcastle County Fiscal Court

Source: KY Division of Geographic Information





NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0200C

FIRM
FLOOD INSURANCE RATE MAP
**ROCKCASTLE COUNTY,
KENTUCKY**
AND INCORPORATED AREAS

PANEL 200 OF 300
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MOUNT VERNON, CITY OF	210374	0200	C
ROCKCASTLE COUNTY	210331	0200	C

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
21203C0200C
EFFECTIVE DATE
AUGUST 3, 2009

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



U.S. Fish and Wildlife Service National Wetlands Inventory

Rockcastle EOC Wetlands Map

Aug 16, 2012



Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

Riparian

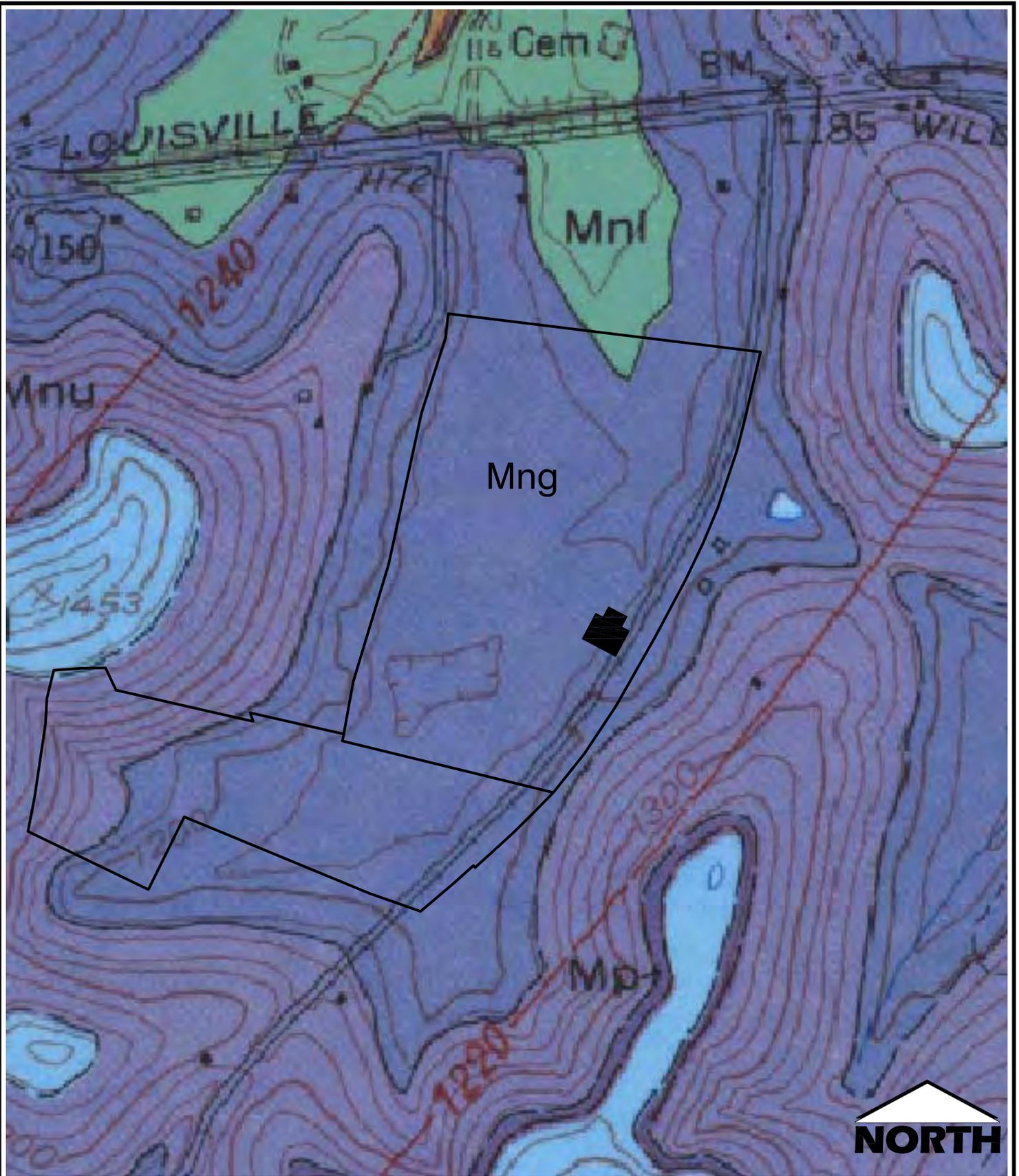
- Herbaceous
- Forested/Shrub

Status

- Digital
- Scan
- Non-Digital
- No Data

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

User Remarks:



SCALE: 1" = 600'



Engineers
Architects
Planners

624 Wellington Way
Lexington, Ky, 40503

Phone: (859)223-5694
Fax: (859)223-2607

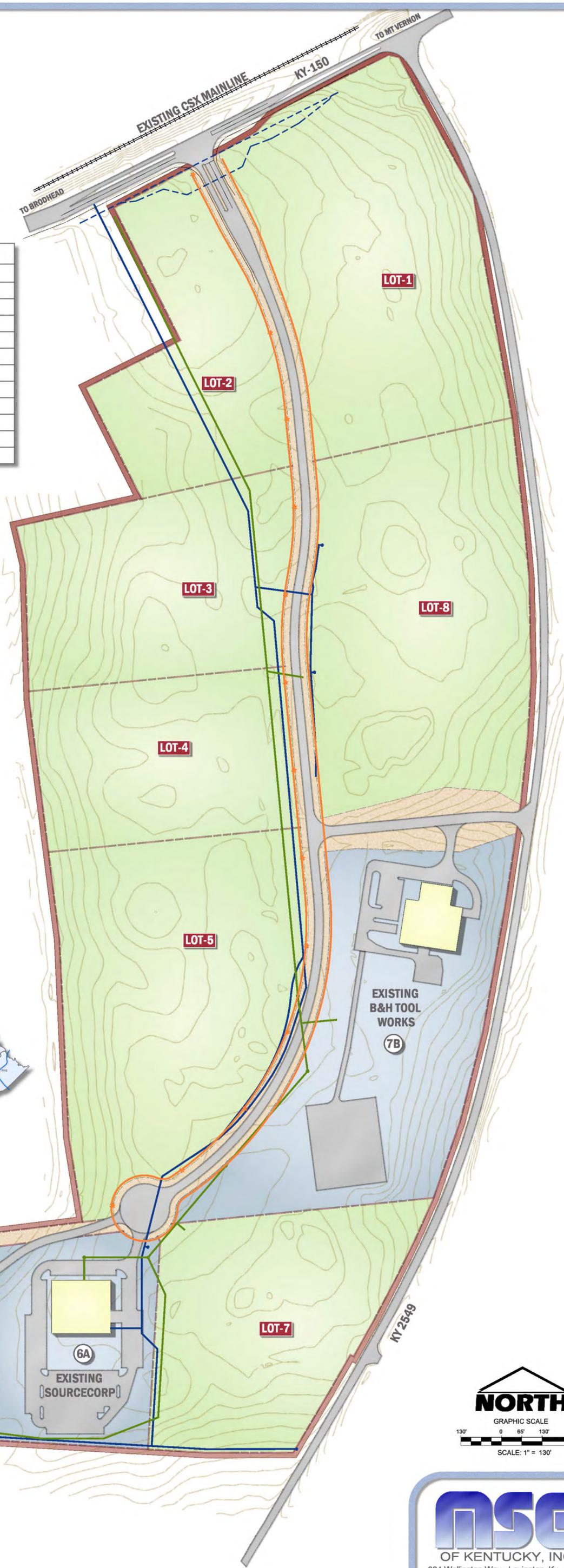
PHASE 1 - ENVIRONMENTAL REPORT
SITE GEOLOGY
ROCKCASTLE COUNTY
INDUSTRIAL PARK No. 2

MOUNT VERNON GEOLOGIC
QUADRANGLE MAP CQ- 902

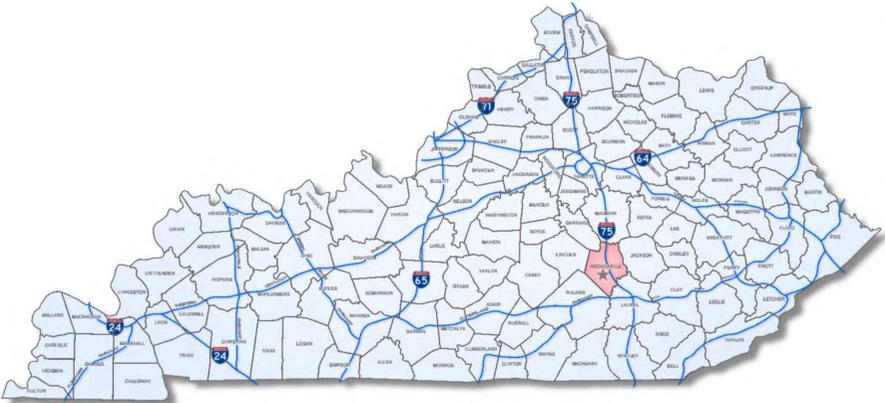
MAP LEGEND:

- AVAILABLE LOTS
- EXISTING BUILDING
- SOLD/OCCUPIED PROPERTY
- PUBLIC/ADJACENT PROPERTY
- INDUSTRIAL PARK BOUNDARY
- 20 CURRENT INDUSTRY (SEE TABLE)
- 1 AVAILABLE LOT NUMBER (SEE TABLE)
- EXISTING 10" PVC WATER LINE
- EXISTING 8" SEWER LINE
- EXIST. ELEC. CONDUIT/POWER POLE

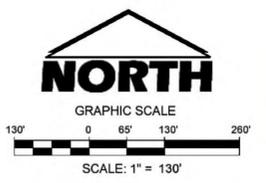
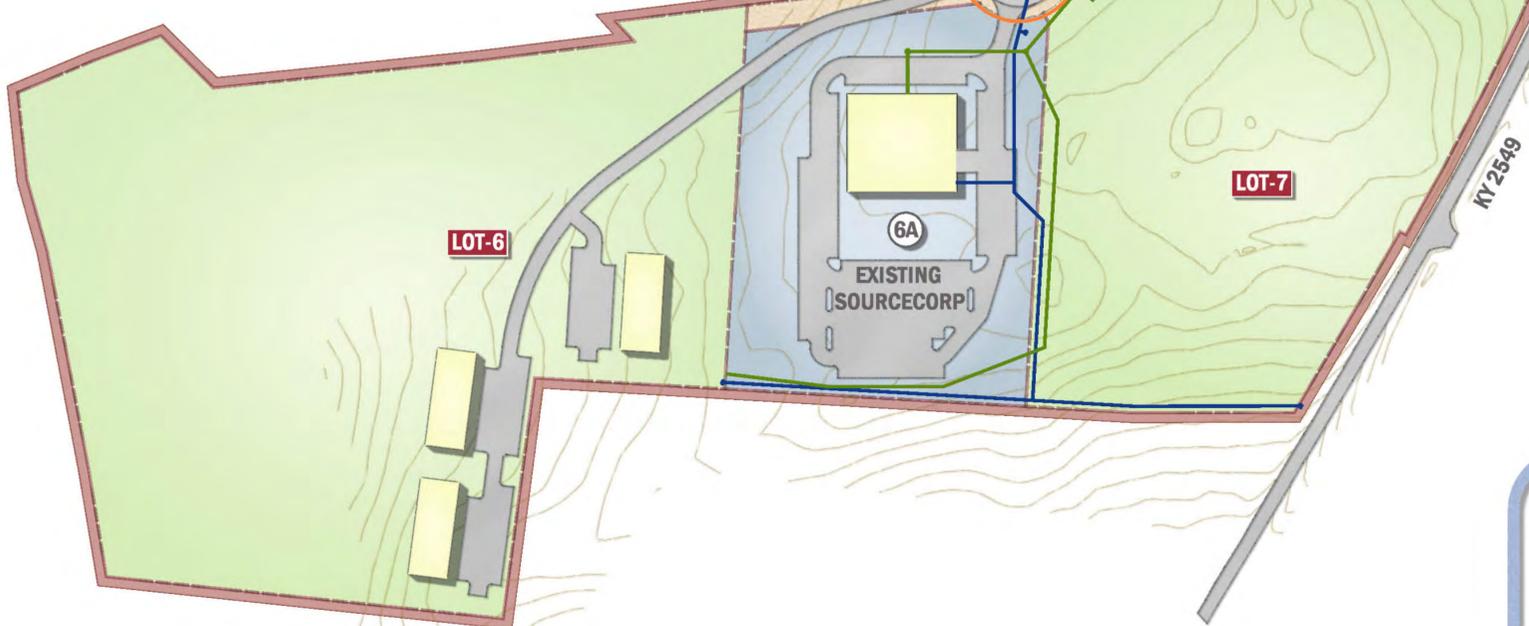
LOT SUMMARY	
LOT No.	LOT AREA (ACRES)
1	13.54
2	7.15
3	8.91
4	7.60
5	13.70
6	17.14
7	9.23
8	14.15
OCCUPIED LOTS	
6A	6.5000
7B	12.5600



ENTRANCE SIGN



ROCKCASTLE COUNTY
COMMONWEALTH OF KENTUCKY



APPENDIX B
Agency Correspondence



STEVEN L. BESHEAR
GOVERNOR

DEPARTMENT FOR LOCAL GOVERNMENT
OFFICE OF THE GOVERNOR
1024 CAPITAL CENTER DRIVE, SUITE 340
FRANKFORT, KENTUCKY 40601-8204
PHONE (502) 573-2382 FAX (502) 573-2939
TOLL FREE (800) 346-5606
WWW.DLG.KY.GOV

TONY WILDER
COMMISSIONER

June 7, 2012

Ms. Tara Hackney
MSE of Kentucky, Inc.
624 Wellington Way
Lexington, KY 40503

RE: Rockcastle County Emergency Operation Center - CSEPP Program
SAI# KY20120511-0567
CFDA# 97.052

Dear Ms. Hackney:

The Kentucky State Clearinghouse, which has been officially designated as the Commonwealth's Single Point of Contact (SPOC) pursuant to Presidential Executive Order 12372, has completed its evaluation of your proposal. The clearinghouse review of this proposal indicates there are no identifiable conflicts with any state or local plan, goal, or objective. Therefore, the State Clearinghouse recommends this project be approved for assistance by the cognizant federal agency.

Although the primary function of the State Single Point of Contact is to coordinate the state and local evaluation of your proposal, the Kentucky State Clearinghouse also utilizes this process to apprise the applicant of statutory and regulatory requirements or other types of information which could prove to be useful in the event the project is approved for assistance. Information of this nature, if any, concerning this particular proposal will be attached to this correspondence.

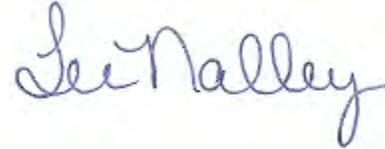
You should now continue with the application process prescribed by the appropriate funding agency. This process may include a detailed review by state agencies that have authority over specific types of projects.

This letter signifies only that the project has been processed through the State Single Point of Contact. It is neither a commitment of funds from this agency or any other state or federal agency.

The results of this review are valid for one year from the date of this letter.
Continuation or renewal applications must be submitted to the State Clearinghouse annually. An application not submitted to the funding agency, or not approved within one year after completion of this review, must be re-submitted to receive a valid intergovernmental review.

If you have any questions regarding this letter, please feel free to contact my office at 502-573-2382.

Sincerely,

A handwritten signature in blue ink that reads "Lee Nalley". The signature is written in a cursive style with a large initial "L".

Lee Nalley
Kentucky State Clearinghouse

Attachments

The Heritage Council has made the following advisory comment pertaining to State Application Identifier Number KY201205110567

No archaeology is requested at this time. However, contractors retained for site preparation and construction should be advised of their responsibility under the Kentucky Antiquities Act and Section 106 of the National Historic Preservation Act to stop work and report any inadvertent discovery of archaeological sites or artifacts.

There appear to be no historic buildings within or adjacent to the project area, so it is our assessment that there will be no historic properties affected by the proposed undertaking.

If project plans change, please contact our office. Otherwise, no additional consultation would be needed at this time. If you have questions regarding these comments, please contact Jill Howe of my staff at (502) 564-7005, extension 121.

The Natural Resources has made the following advisory comment pertaining to State Application Identifier Number KY201205110567

This review was based upon the information that was provided by the applicant through the Clearinghouse for this project. An endorsement of this project does not satisfy, or imply, the acceptance or issuance of any permits, certifications or approvals that may be required from this agency under Kentucky Revised Statutes or Kentucky Administrative Regulations. Such endorsement means this agency has found no major concerns from the review of the proposed project as presented other than those stated as conditions or comments.

Kentucky Division for Air Quality Regulation 401 KAR 63:010 Fugitive Emissions states that no person shall cause, suffer, or allow any material to be handled, processed, transported, or stored without taking reasonable precaution to prevent particulate matter from becoming airborne. Additional requirements include the covering of open bodied trucks, operating outside the work area transporting materials likely to become airborne, and that no one shall allow earth or other material being transported by truck or earth moving equipment to be deposited onto a paved street or roadway. Please note the Fugitive Emissions Fact Sheet located at http://www.air.ky.gov/homepage_repository/e-Clearinghouse.htm

Kentucky Division for Air Quality Regulation 401 KAR 63:005 states that open burning is prohibited. Open Burning is defined as the burning of any matter in such a manner that the products of combustion resulting from the burning are emitted directly into the atmosphere without passing through a stack or chimney. However, open burning may be utilized for the expressed purposes listed on the Open Burning Fact Sheet located at http://www.air.ky.gov/homepage_repository/e-Clearinghouse.htm

All solid waste generated by this project must be disposed at a permitted facility. If underground storage tanks are encountered they must be properly addressed. If asbestos, lead paint, and/or other contaminants are encountered during this project, they must be properly addressed.

If the proposed project site is in a designated flood hazard area, application must be made to the Division of Water for a floodplain construction permit. Permission, or exemption, depends upon design and the exact site.

Utility line projects that cross a stream will require a Section 404 permit from the US Army Corps of Engineers and a 401 Water Quality Certification from DOW.

If the construction area disturbed is equal to or greater than 1 acre, the applicant will need to apply for a Kentucky Pollutant Discharge Elimination System (KPDES) stormwater discharge permit from the Division of Water.

Best Management Practices (BMPs) should be utilized to control storm water runoff and sediment damage to water quality and aquatic habitat. For technical assistance on the kinds of BMPs most appropriate for housing and related construction, please contact the local Soil and Water Conservation District or the Division of Conservation.

WATER SUPPLY - If an existing water server is to be utilized for new water tap-ons (rehabilitations, new constructions), ascertain the capacity and operating condition of the originating water treatment plant and of the server (if different) in comparison to the water needs of the proposed housing. DOW cannot permit connections to water servers under tap-on bans, Agreed Orders, or Court Orders. DOW may not give approval to connections to water systems operating near, at, or over capacity. If a new water source is to be utilized, ascertain the source's (stream's or well's) low flow ability to serve the proposed project. Prior approval from DOW is required for water withdrawals of over 10,000 gallons per day and for all public drinking water. Final plans and specifications are subject to review by DOW.

WASTEWATER TREATMENT - If an existing wastewater server is to be utilized for new wastewater tap-ons (rehabilitations, new construction), ascertain the capacity and operating conditions of the receiving wastewater treatment facility (wastewater treatment plant or package sewage treatment plant) and of the server (if different) in comparison to the wastewater needs of the proposed housing. DOW cannot permit connections to wastewater servers under tap-on bans, Agreed Orders, or Court Orders. DOW may not give approval to connections to wastewater systems at or over hydraulic capacity. If a new wastewater treatment facility is to be utilized, ascertain the discharge stream's ability to absorb the proposed projects treated wastewater.

DOW notes the requirements of onsite sewage disposal legislation, KRS 211.350 to 211.380, and administrative regulations, 902 KAR 10:060 to 10:110, must be met. DOW requests provisions be made for future connections to a wastewater treatment system. A Groundwater Protection Plan, as required by 401 KAR 5:037, needs to be prepared by all onsite wastewater system owners. Contact the DOW regarding requirements.

Prior approval from DOW is required for all discharges into streams and for all wastewater treatment facilities. DOW reminds the applicant to seal abandoned wastewater service connections.

**The Cumberland Valley ADD has made the following advisory comment pertaining to State Application Identifier Number KY201205110567
No Comments**

The KY State Fish & Wildlife has made the following advisory comment pertaining to State Application Identifier Number KY201205110567

To minimize impacts to the aquatic environment the Kentucky Dept. of Fish & Wildlife Resources recommends that erosion control measures be developed and implemented prior to construction to reduce siltation into waterways located within the project area. Such erosion control measures may include, but are not limited to silt fences, staked straw bales, brush barriers, sediment basins, and diversion ditches. Erosion control measures will need to be installed prior to construction and should be inspected and repaired regularly as needed. Please contact Dan Stoelb @ 502-564-7109 ex. 4453 or Daniel.Stoelb@ky.gov if you have further questions or require additional information.

The KY Dept. of Transportation has made the following advisory comment pertaining to State Application Identifier Number KY201205110567

Anderson (D8), Danny: no comments

The Housing, Building, Construction has made the following advisory comment pertaining to State Application Identifier Number KY201205110567

Prior to any additions, alterations or construction, drawings shall be submitted to the Department of Housing, Buildings and Construction for review and approval. A submittal guide or plan application form with the address can be downloaded from our web site at www.dhbc@ky.gov. for your convenience. You can contact Ric McNees or Phil Craig for more information at 502-573-0373.

The Labor Cabinet has made the following advisory comment pertaining to State Application Identifier Number KY201205110567

PW RATES MAY APPLY TO PROJECTS EXCEEDING 250,000. CONTACT KY LABOR CABINET AT 502 564 3534

USFWS KYFO

Engineers
Architects
Planners

May 11, 2012

Mr. Lee Andrews, Field Supervisor
U.S. Department of the Interior
Fish and Wildlife Service
J.C. Watts Federal Building
330 West Broadway
Frankfort, KY 40601

No significant adverse impacts to wetlands
or federally listed endangered or threatened
species are anticipated from this proposal.

Virginia Tubman 5/12/12
Field Supervisor Date
U. S. Fish and Wildlife Service
Frankfort, KY 40601

624 Wellington Way
Lexington,
Kentucky 40503
859-223-5694
FAX 859-223-2607
E-Mail: mseinc@msex.com

Re: Rockcastle County Emergency Operations Center - CSEPP Project
Rockcastle County, Kentucky

Dear Mr. Andrews:

The Rockcastle County Fiscal Court proposes to construct a 5,000-sq. ft. Emergency Operations Center in the existing Rockcastle Business Park South adjacent to the Sourcecorp facility. The GPS coordinates are N37°20'2759" and W84°21'5704". Project maps indicating the location are attached.

Funding for this project has been obtained from the FEMA CSEPP Program in the form of a grant.

The architect/engineering/planning firm of MSE of Kentucky, Inc. has been asked to conduct an environmental review of this project to ascertain the impact of proposed activities.

We will need to know if any endangered/threatened plant or animal species will be affected by this project.

You do have 30 days to comment, however, I will assume that if I have not received a response from your agency within 30 days of this letter, that your office does not anticipate any negative environmental impacts from this project in your areas of responsibility. Thank you for you time and assistance. If you should have any questions or concerns, please feel free to contact me at (859) 223-5694.

Sincerely,

MSE OF KENTUCKY, INC.



TARA HACKNEY
Planner

Enclosures

May 11, 2012

624 Wellington Way
Lexington,
Kentucky 40503
659-223-5694
FAX 859-223-2607
E-Mail: mseinc@mselex.com

Mr. Lee Andrews, Field Supervisor
U.S. Department of the Interior
Fish and Wildlife Service
J.C. Watts Federal Building
330 West Broadway
Frankfort, KY 40601

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Rockcastle County, Kentucky

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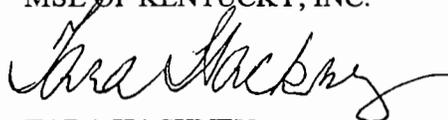
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Sincerely,

MSE OF KENTUCKY, INC.



TARA HACKNEY
Planner

Enclosures



**KENTUCKY DEPARTMENT OF FISH & WILDLIFE RESOURCES
TOURISM, ARTS, AND HERITAGE CABINET**

Steven L. Beshear
Governor

#1 Sportsman's Lane
Frankfort, Kentucky 40601
Phone (502) 564-3400
1-800-858-1549
Fax (502) 564-0506
fw.ky.gov

Marcheta Sparrow
Secretary

Dr. Jonathan W. Gassett
Commissioner

10 October 2012

Tara Hackney, MBA, Planner
MSE of Kentucky, Inc.
624 Wellington Way
Lexington, Kentucky 40503

RE: Emergency Operations Center, Communications Tower
Rockcastle County, KY

Dear Ms. Hackney:

The Kentucky Department of Fish and Wildlife Resources (KDFWR) has received your request for information regarding the subject projects. The KDFWR does not anticipate impacts to any federal or state-listed threatened/endangered species as a result of these projects. It does not appear that these projects will impact any critical habitat or unique natural areas, wetlands, or streams.

Since this tower is less than 200 feet tall, we understand that federal laws do not require it to be lighted for aircraft safety. Night-migrating birds can be attracted to and disoriented by lights on towers, resulting in collision with the tower and oftentimes death. In order to reduce impacts to migratory birds, we recommend that this tower does not have lights. If for some reason, the tower must have lights, we recommend that white strobe lights be used with the maximum permissible "off" interval (i.e., time between flashes) and solid or pulsating red warning lights be avoided. Solid or pulsating red lights attract night-migrating birds at a much higher rate than white strobe lights.

Construction techniques should be used which do not require guy wires, as these components are thought to be a primary cause of tower-related bird mortality. Alternative construction techniques include using a lattice structure or a monopole (preferred). If this tower will use guy wires for support, daytime visual markers should be installed (i.e., bird diverter devices) on the guy wires to prevent collisions by diurnally active bird species. The department's avian biologist, Kate Heyden is available for consultation on this subject at 1-800-858-1549 x 4475.

I hope this information is helpful to you, and if you have questions or require additional information, please call me at (502) 564-7109 extension 4453.

Sincerely,


Kentucky
UNBRIDLED SPIRIT™

Dan Stoelb
Wildlife Biologist

Cc: Environmental Section File

Tara Hackney

From: Stoelb, Daniel (FW) [Daniel.Stoelb@ky.gov]
Sent: Monday, October 08, 2012 9:37 AM
To: thackney@mselex.com
Cc: Nickles, Mary (FW); Heyden, Kathryn (FW)
Subject: RE: impact of proposed tower

Ms. Hackney:

The Environmental Section reviews projects such as these on a routine basis, and we provide commenting letters regarding federally and state-listed threatened/endangered species, as well as other general guidance. If you can provide a project description with GPS coordinates so we know the exact location of the project, that would be preferable.

We have general guidance on towers that we will provide in a letter once we receive the project details. If the guidelines we provide are followed, we would have no other concerns regarding the Migratory Bird Treaty Act. Depending on what federally-listed species may be near the project site, we may require coordination with the U.S. Fish and Wildlife Kentucky Field Office to provide further comments.

If you have further questions, please contact me. You can send me the project description/details through email or regular mail, whichever you prefer.

Thanks,

Dan Stoelb
Wildlife Biologist
Fisheries Division - Environmental Section
KY Department of Fish and Wildlife Resources
#1 Sportsman's Lane
Frankfort, KY 40601
Phone: (502) 564-7109 ext. 4453
Fax: (502) 564-4519
www.fw.ky.gov

Did you know...Department of Fish and Wildlife receives NO state tax dollars and manages wildlife for all citizens?

Confidentiality Notice: This e-mail message, including any attachment, is for the sole use of the intended recipient (s) and may contain confidential information. Any unauthorized review, use, disclosure or distribution is strictly prohibited. If you are not the intended recipient, please contact the sender, by e-mail, and destroy all copies of the original message.

From: Nickles, Mary (FW) **On Behalf Of** FW Info Center
Sent: Wednesday, October 03, 2012 4:05 PM
To: Stoelb, Daniel (FW)
Subject: impact of proposed tower

Daniel,

Could you help with this and cc me on your reply?

Thank you!

10/16/2012

Mary Nickles

Information Specialist

Kentucky Department of Fish and Wildlife Resources
#1 Sportsman's Lane
Frankfort, KY 40601
1-800-858-1549 ext 4436

mary.nickles@ky.gov

Want to learn more about Kentucky's hunting and fishing opportunities? Click here to order Ky Afield magazine:

<https://fw.ky.gov/kyafield/KASaleIntro.asp>

From: Tara Hackney [<mailto:thackney@mselex.com>]

Sent: Wednesday, October 03, 2012 2:57 PM

To: FW Info Center

Subject: Please include your name and mailing address in this message if requesting mailings

The Rockcastle Co. Fiscal Court is constructing a new Emergency Operations Center. It will have a 100 ft. communications tower. I am trying to determine whether the construction of this tower will have an impact on migratory birds. Also, is there a blanket clearance for the Migratory Bird Treaty Act for Kentucky.

Thanks,

Tara Hackney, MBA, Planner
MSE of Kentucky, Inc.
624 Wellington Way
Lexington, Kentucky 40503
859.223.5694
fax 859.223.2607
www.mselex.com



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
NASHVILLE DISTRICT, CORPS OF ENGINEERS
3701 BELL ROAD
NASHVILLE, TENNESSEE 37214-2660

May 23, 2012

Regulatory Branch

SUBJECT: Reference No. 12-44E; Proposed Rockcastle County Emergency Operations Center, Rockcastle County, Kentucky.

Tara Hackney
MSE
624 Wellington Way
Lexington, KY 40503

Dear Ms. Hackney:

This is in regard to your May 11, 2012 request concerning the above project.

A preliminary review of the information provided indicates an activity that would not involve work in waters of the United States (jurisdictional streams and/or wetlands). **Therefore, a Department of the Army permit will not be required.**

We appreciate your awareness of our regulatory program. If you have any questions regarding this matter, please contact me at the above address, telephone (615) 369-7518 or email deborah.t.tuck@usace.army.mil.

Sincerely,

A handwritten signature in black ink, appearing to read "Deborah T. Tuck".

Deborah T. Tuck
Regulatory Specialist
Operations Division

May 11, 2012

Regulatory Branch
U.S. Army Corps of Engineer, Nashville District
Eastern Regulatory Field Office
Corps of Engineers
501 Adesa Blvd., Suite B 250
Lenoir City, Tennessee 37771

Re: Rockcastle County Emergency Operations Center - CSEPP Project
Rockcastle County, Kentucky

To Whom It May Concern:

The Rockcastle County Fiscal Court proposes to construct a 5,000-sq. ft. Emergency Operations Center in the existing Rockcastle Business Park South adjacent to the Sourcecorp facility. The GPS coordinates are N37°20'2759" and W84°21'5704". Project maps indicating the location are attached.

Funding for this project has been obtained from the FEMA CSEPP Program in the form of a grant.

The architect/engineering firm of MSE of Kentucky, Inc. has been asked to conduct an environmental review of this project to ascertain the impact of proposed activities. I would appreciate your office reviewing this project in relation to proximity to and potential impact upon the 100-year floodplain.

Your comments may address beneficial or adverse impacts, or both. You do have 30 days to comment, however, I will assume that if I have not received a response from your agency within 30 days of this letter, that your office does not anticipate any negative environmental impacts from this project in your areas of responsibility.

Thank you for you time and assistance. If you should have any questions or concerns, please feel free to contact me at (859) 223-5694.

Sincerely,

MSE OF KENTUCKY, INC.



TARA HACKNEY
Planner

Enclosures

May 11, 2012

Mr. Randall, Templeman, Dist. Conservationist
U.S. Agricultural Department
Mt. Vernon Service Center
Soil Conservation Service
2018 New Brodhead Road
Mt. Vernon, Kentucky 40456-6594

Re: Rockcastle County Emergency Operations Center - CSEPP Project
Rockcastle County, Kentucky

Dear Mr. Templeman:

The Rockcastle County Fiscal Court proposes to construct a 5,000-sq. ft. Emergency Operations Center in the existing Rockcastle Business Park South adjacent to the Sourcecorp facility. The GPS coordinates are N37°20'2759" and W84°21'5704". Project maps indicating the location are attached.

Funding for this project has been obtained from the FEMA CSEPP Program in the form of a grant.

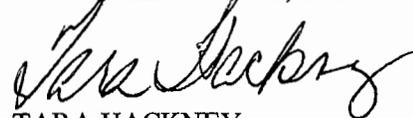
The architect/engineering firm of MSE of Kentucky, Inc. has been asked to conduct an environmental review of this project to ascertain the impact of proposed activities. I would appreciate your office reviewing this project in relation to site slope; erosion, transport and sedimentation; soil suitability and stability. Please also review the project in relation to impact upon agricultural land.

Your comments may address beneficial or adverse impacts, or both. You do have 30 days to comment, however, I will assume that if I have not received a response from your agency within 30 days of this letter, that your office does not anticipate any negative environmental impacts from this project in your areas of responsibility.

Thank you for you time and assistance. If you should have any questions or concerns, please feel free to contact me at (859) 223-5694.

Sincerely,

MSE OF KENTUCKY, INC.



TARA HACKNEY
Planner

Enclosure



STEVEN L. BESHEAR
GOVERNOR

**TOURISM, ARTS AND HERITAGE CABINET
KENTUCKY HERITAGE COUNCIL**

MARCHETA SPARROW
SECRETARY

THE STATE HISTORIC PRESERVATION OFFICE
300 WASHINGTON STREET
FRANKFORT, KENTUCKY 40601
PHONE (502) 564-7005
FAX (502) 564-5820
www.heritage.ky.gov

LINDY CASEBIER
ACTING EXECUTIVE DIRECTOR AND
STATE HISTORIC PRESERVATION OFFICER

June 5, 2012

Tara Hackney
MSE
624 Wellington Way
Lexington, KY 40503

Re: Rockcastle County Emergency Operations Center – CSEPP Project

Dear Ms. Hackney:

On May 14, the State Historic Preservation Office received for review and comment the above referenced proposal construct a 5,000-sq. ft. emergency operations center in the Rockcastle Business Park South.

No archaeology is requested at this time. However, contractors retained for site preparation and construction should be advised of their responsibility under the Kentucky Antiquities Act and Section 106 of the National Historic Preservation Act to stop work and report any inadvertent discovery of archaeological sites or artifacts.

There appear to be no historic buildings within or adjacent to the project area, so it is our assessment that there will be no historic properties affected by the proposed undertaking.

If project plans change, please contact our office. Otherwise, no additional consultation would be needed at this time. If you have questions regarding these comments, please contact Jill Howe of my staff at (502) 564-7005, extension 121.

Sincerely,

Lindy Casebier
Acting Executive Director and
State Historic Preservation Officer

LC:jh

May 11, 2012

Ms. Lindy Casebier, Acting Director/State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, KY 40601

Re: Rockcastle County Emergency Operations Center - CSEPP Project
Rockcastle County, Kentucky

Dear Ms. Casebier:

The Rockcastle County Fiscal Court proposes to construct a 5,000-sq. ft. Emergency Operations Center in the existing Rockcastle Business Park South adjacent to the Sourcecorp facility. The GPS coordinates are N37°20'2759" and W84°21'5704". Project maps indicating the location are attached.

Funding for this project has been obtained from the FEMA CSEPP Program in the form of a grant.

The architect/engineering/planning firm of MSE of Kentucky, Inc. has been asked to conduct an environmental review of this project to ascertain the impact of proposed activities.

We need to know if the property will have an adverse impact on any National Register Properties, National Register Sites and/or Historic Properties.

You do have 30 days to comment, however, I will assume that if I have not received a response from your agency within 30 days of this letter, that your office does not anticipate any negative environmental impacts from this project in your areas of responsibility. Thank you for your time and assistance. If you should have any questions or concerns, please feel free to contact me at (859) 223-5694.

Sincerely,

MSE OF KENTUCKY, INC.

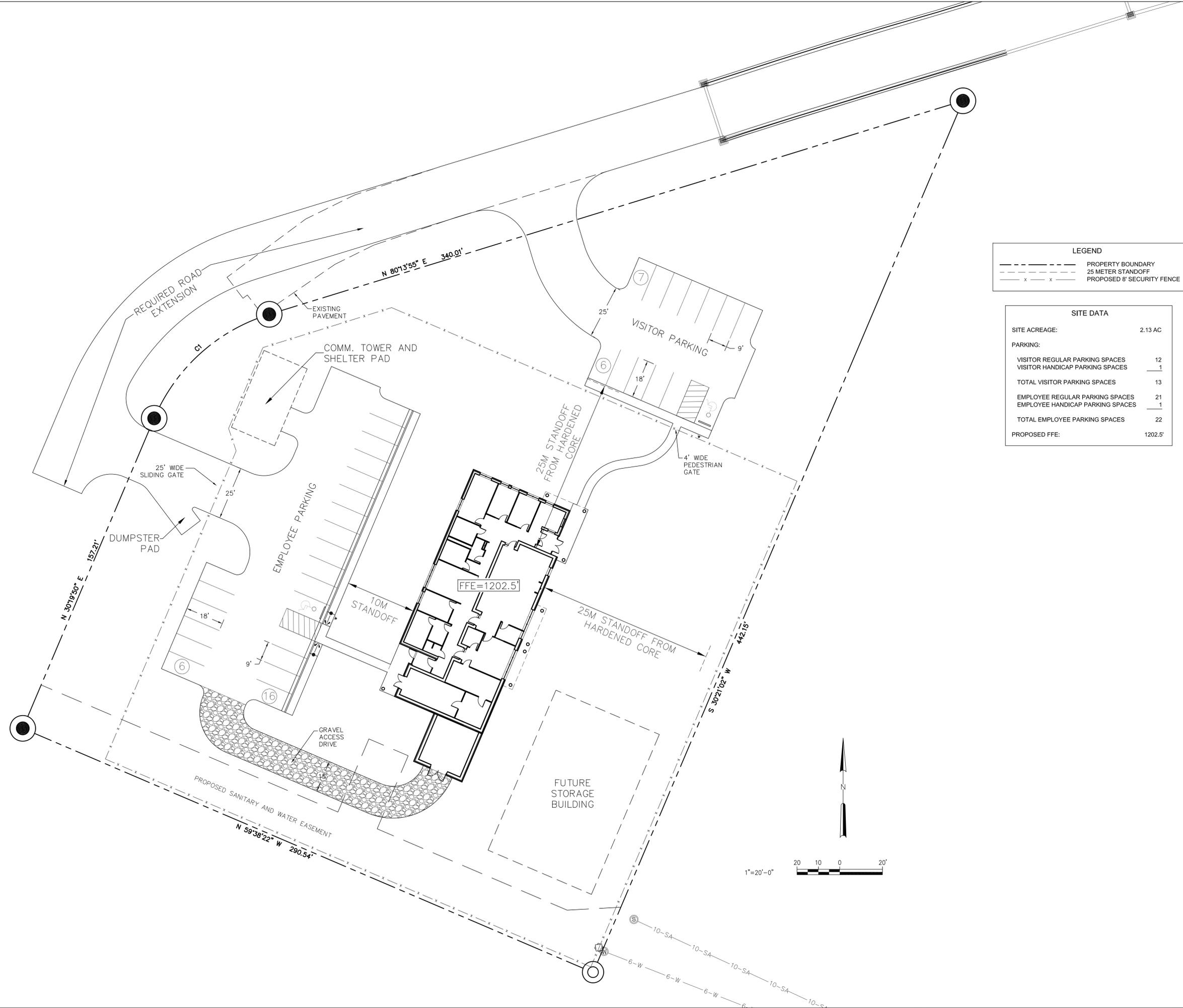


TARA HACKNEY
Planner

Enclosures

APPENDIX C
Schematic Drawings



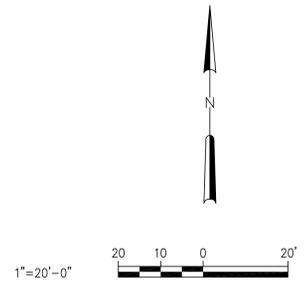


LEGEND

	PROPERTY BOUNDARY
	25 METER STANDOFF
	PROPOSED 8' SECURITY FENCE

SITE DATA

SITE ACREAGE:	2.13 AC
PARKING:	
VISITOR REGULAR PARKING SPACES	12
VISITOR HANDICAP PARKING SPACES	1
TOTAL VISITOR PARKING SPACES	13
EMPLOYEE REGULAR PARKING SPACES	21
EMPLOYEE HANDICAP PARKING SPACES	1
TOTAL EMPLOYEE PARKING SPACES	22
PROPOSED FFE:	1202.5'



NEW EOC FACILITY :
ROCKCASTLE COUNTY
EMERGENCY OPERATIONS CENTER
 MT. VERNON, KENTUCKY

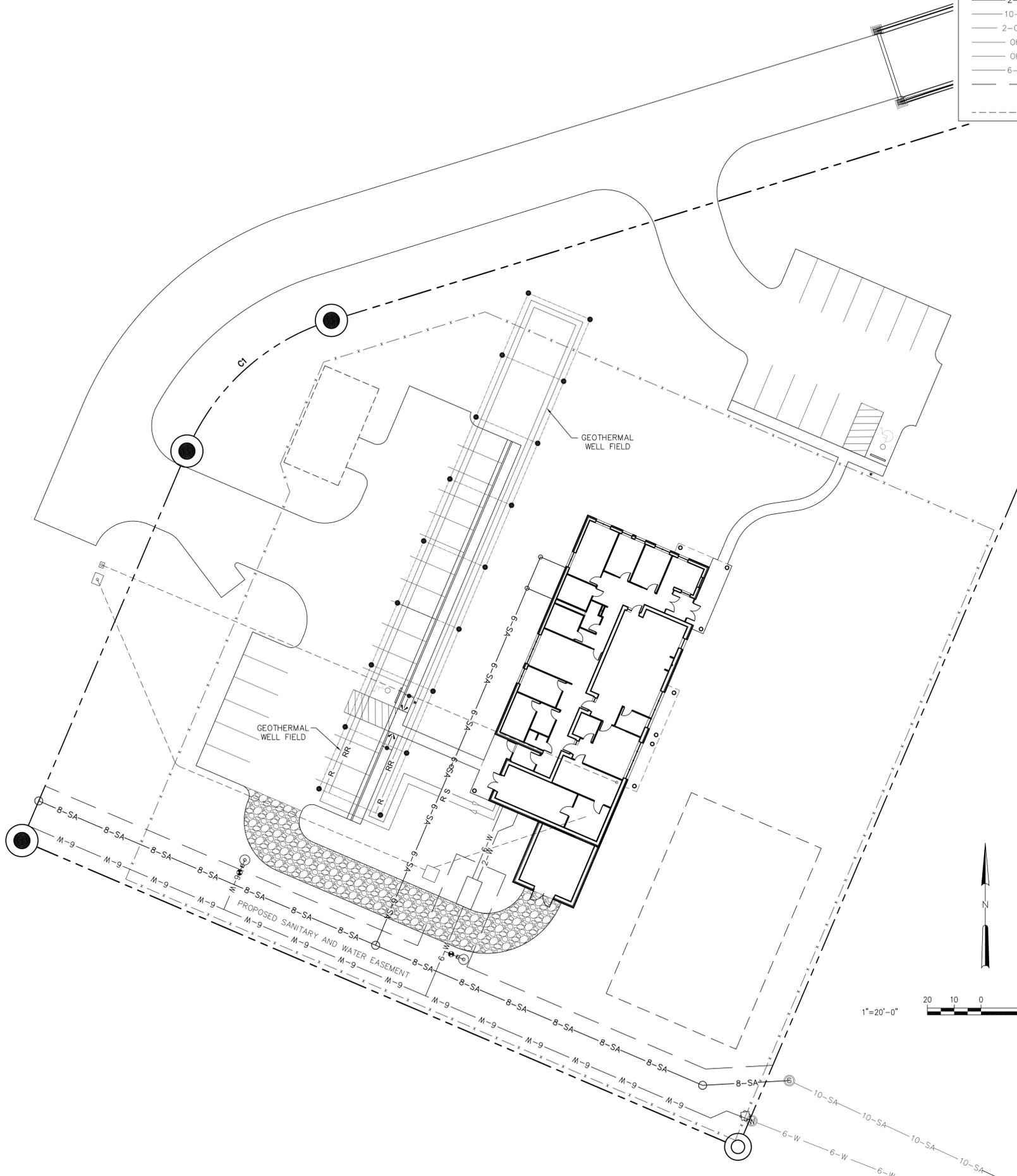
SITE PLAN

m+g ARCHITECTS
 MURPHY · GRAVES
 3399 Tates Creek Road, Suite 250
 Lexington, KY 40502
 ph:859.559.0604 fax:859.559.0623
 www.murphygraves.com
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Palmer ENGINEERING
 400 SHOPPERS DRIVE
 P.O. BOX 747
 WINCHESTER, KY 40392-0747
 (859) 744-1218

JOB NO.	****
DATE	8/15/2012
PRODUCED BY:	SIB/CMW
NOTES:	

C1.1



LEGEND	
— 8-SA — 8-SA —	PROPOSED 8-IN SANITARY SEWER
— 6-SA — 6-SA —	PROPOSED 6-IN SANITARY SEWER SERVICE
— 6-W — 6-W —	PROPOSED 8-IN WATER LINE
— 2-W — 2-W —	PROPOSED 2-IN WATER LINE
— 10-SA — 10-SA —	EXISTING 10-IN SANITARY SEWER
— 2-GAS — 2-GAS —	EXISTING 2-IN GAS LINE
— OHT — OHT —	EXISTING OVER HEAD TELEPHONE
— OHE — OHE —	EXISTING OVER HEAD ELECTRIC
— 6-W — 6-W —	EXISTING 8-IN WATER LINE
---	PROPOSED UTILITY EASEMENT
○	PROPOSED SANITARY MANHOLE
---	PROPOSED ELECTRIC AND TELEPHONE

- UTILITY PROVIDERS FOR POWELL COUNTY AND THE ROCKCASTLE COUNTY:
1. MOUNT VERNON WATER WORKS
 2. AT&T TRANSMISSION
 3. AT&T DISTRIBUTION
 4. KY DATA LINK
 5. WINDSTREAM, KY
 6. JACKSON ENERGY

NEW EOC FACILITY :
ROCKCASTLE COUNTY
EMERGENCY OPERATIONS CENTER
 MT. VERNON, KENTUCKY

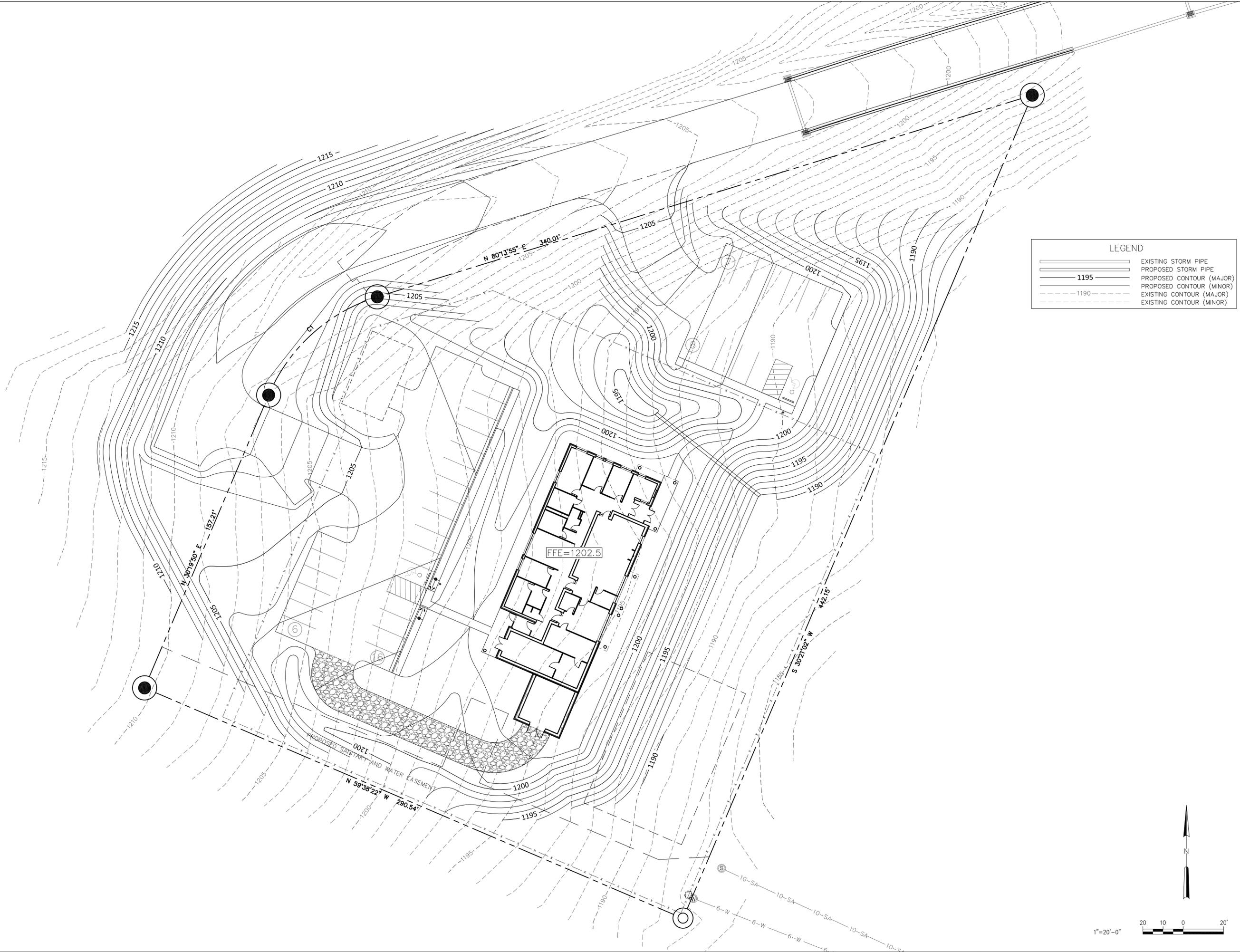
UTILITY PLAN

m + g
MURPHY · GRAVES
ARCHITECTS
 3399 Tates Creek Road, Suite 250
 Lexington, KY 40502
 ph:859.559.0604 fax:859.559.0623
 www.murphygraves.com
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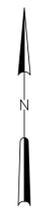
Palmer
ENGINEERING
 400 SHOPPERS DRIVE
 P.O. BOX 747
 WINCHESTER, KY 40392-0747
 (859) 744-1218

JOB NO.	****
DATE	7/24/2012
PRODUCED BY:	SIB/CMM
NOTES:	

C1.2



LEGEND	
	EXISTING STORM PIPE
	PROPOSED STORM PIPE
	1195 PROPOSED CONTOUR (MAJOR)
	PROPOSED CONTOUR (MINOR)
	1190 EXISTING CONTOUR (MAJOR)
	EXISTING CONTOUR (MINOR)



<p>NEW EOC FACILITY :</p> <p>ROCKCASTLE COUNTY EMERGENCY OPERATIONS CENTER MT. VERNON, KENTUCKY</p>	<p>GRADING AND DRAINAGE PLAN</p>	 <p>3399 Tates Creek Road, Suite 250 Lexington, KY 40502 ph: 859.559.0604 fax: 859.559.0623 www.murphygraves.com © COPYRIGHT 2012</p>	 <p>400 SHOPPERS DRIVE P.O. BOX 747 WINCHESTER, KY 40392-0747 (859) 744-1218</p>
<p>JOB NO. 10841 DATE 8/15/2012 PRODUCED BY: WCE/CMM NOTES:</p>			
C1.3			

APPENDIX D
Photographs of Site



South Perimeter of Site Looking North



Southwest Perimeter of Site Looking Northeast



West Perimeter of Site Looking Southeast



West Perimeter of Site Looking East



West Perimeter of Site Looking Northeast



Southwest Looking North

APPENDIX E
Geotechnical



Report of
**GEOTECHNICAL
EXPLORATION**

AMERICAN ENGINEERS, INC.

ROCKCASTLE COUNTY
EMERGENCY OPERATIONS
CENTER

MOUNT VERNON, KY

AUGUST 2012

DESIGNING YOUR FUTURE, TODAY.





65 Aberdeen Drive
Glasgow, KY 42141
Office (270) 651- 7220
Fax (270) 651- 3246

August 23, 2012

Honorable Buzz Carloftis, Judge Executive
Rockcastle County Fiscal Court
205 East Main Street
Mt. Vernon, Kentucky 40456

RE: Report of Geotechnical Exploration
Rockcastle County Emergency Operations Center
Mt. Vernon, Kentucky
AEI Project No. 212-205

Dear Judge Carloftis:

American Engineers, Inc. (AEI) is pleased to submit this letter report that summarizes the results of our geotechnical exploration performed at the above referenced site.

1. SITE AND PROJECT DESCRIPTION

Seven soil test borings were performed at the above referenced site. The borings were drilled within the approximate limits of the proposed building footprint, proposed pavement areas, and the communication tower and shelter. It is our understanding that the finished floor elevation of the proposed building will lie at El. 1195. Currently, the building is scheduled to be on the order of about 5,000 square feet. Topographic relief across the site is on the order of about 23 feet.

2. SITE GEOLOGY

Available geologic mapping (*Geologic Map of the Mt. Vernon Quadrangle, Rockcastle County, Kentucky, USGS 1971*) shows the site to be underlain by Mississippian-aged deposits of the Ste. Genevieve Limestone Member of the Newman Limestone Formation. The Ste. Genevieve Limestone is described as light gray in color, very fine to medium grained in texture and oolitic in the lower part of the formation. Residual soils encountered at the site may also be weathered from the overlying Upper Member of the Newman Limestone Formation.

No sinkholes or other geologic hazards were noted in the immediate vicinity of the site from review of geologic mapping or during the investigation, however there were some sinkholes noted proximate to the site. Since the site is underlain by limestone bedrock associated with the development of karst features, karst potential mapping was also reviewed and the site was indicated to exhibit high to very high karst potential. Additionally, the Mt. Vernon 7.5-minute quadrangle map indicates a fault is located about

1 ½ miles north of the site. It is impossible to investigate a site to fully identify future development of karst features or other geologically related problems.

3. RESULTS OF EXPLORATION

Auger refusal was encountered in only one boring at the site, B-5 at a depth of about 15 feet. Split-spoon sampler refusal was also encountered in boring B-6 at a depth of about 20 feet. Topsoil was encountered at the surface in each of the borings to depths ranging from 12 to 18 inches. Below the topsoil, residual clays were encountered to the boring termination or auger refusal depths and can be generally classified as lean clay, (Clay of Low plasticity), CL, or as fat clay, (Clay of High plasticity), CH, in accordance with the Unified Soil Classification System. The clay soils were typically described as sandy and containing trace to some fine to medium-sized gravel, brown to reddish brown or red in color, moist to wet, and medium stiff to stiff in soil strength consistency. The SPT-N values in the residual soils ranged from two to 26 blows per foot (bpf), excluding 50+ blow counts, with most values between eight and 15 bpf. Corresponding Q_p values ranged from about 0.5 to 4.5 tons per square foot (tsf), with most values between about 1.5 and 3.0 tsf. Together, the SPT-N and Q_p values within the residual clays are indicative of medium stiff to stiff soil strength consistencies with both soft and very stiff zones. A copy of the boring logs is attached.

Laboratory testing consisted of moisture content testing performed on each of the recovered samples and Atterberg limits from representative samples selected from Boring B-5. Standard Proctor and California Bearing Ratio (CBR) testing was performed on a bulk sample obtained from B-1. Moisture contents of the residual soils ranged from about 12 to 36 percent with most values between 15 and 23 percent. Atterberg limits testing results indicated liquid limits results of 22 and 25 percent, with corresponding plasticity indices of six and eight percent, respectively. Results of laboratory testing indicate that the residual clays are typically at a moisture content near to about seven percent wet of the plastic limit. Standard Proctor test results yielded a maximum dry density of 117.1 pcf at 12.9 percent optimum moisture. CBR testing resulted in values of 2.3 and 2.2 at 0.1 and 0.2 inches penetration, respectively.

Groundwater was not encountered at the site during the investigation in any of the borings. In cohesive soils such as those encountered at the site, a long time is required for the hydrostatic groundwater level to come to equilibrium in the borehole. The short-term groundwater levels reported by the drill crew are not generally indicative of the long-term groundwater level. To accurately determine the long-term groundwater level, as well as the seasonal and precipitation induced fluctuations of the groundwater level, it is necessary to install piezometers in the borings, and monitor them for an extended length of time. Frequently, groundwater conditions affecting construction in this region are caused by trapped or perched groundwater, which occurs within the soil materials or at the soil/rock interface in irregular, discontinuous locations. If these water bodies are encountered during excavation, they can produce seepage durations and rates that will vary depending on the recent rainfall activity and the hydraulic conductivity of the material.

4. CONCLUSIONS AND RECOMMENDATIONS

1. Based on the borings drilled, the on-site soils are suitable for support of light to moderately loaded spread or continuous footings. A net allowable soil bearing pressure of 2,000 psf is recommended

for design of shallow spread footings supported on the native soils or properly placed and compacted engineered fill. Footings which are overexcavated due to the presence of soft soils should be backfilled to design bearing elevation with compacted lean clay meeting the recommendations outlined in Item 5 below, or may be backfilled with KYDOT No. 57 stone, placed and compacted with a vibratory plate compactor in 12-inch maximum lifts.

2. According to the Kentucky Building Code, 2007 Edition, and the subsurface conditions encountered in the borings, Site Class C should be utilized for any seismic structural design.
3. Any material, whether borrowed on-site or imported to the site, placed as engineered fill on the project site beneath the proposed building or other proposed on-grade structures such as pavement, parking lots, sidewalks, etc., should be an approved material, free of environmental contamination, vegetation, topsoil, organic material, wet soil, construction debris, and rock fragments greater than six inches in diameter. Fat clay or CH materials should not be *imported* to the site for utilization as fill material.
4. Proof-rolling will be required following topsoil stripping and/or pavement removal to detect soft subgrade soils. Any areas which rut or deflect excessively should be undercut to firm soil or stabilized in place using crushed stone, shot rock, rubberized asphaltic pavement, or lime stabilization. Since the site is prone to karst development, any latent dropouts observed during proofrolling or construction at the site should be repaired utilizing a graded filter. Extra care should be taken to manage stormwater runoff to minimize infiltration of surface water into the underlying karst network during construction.
5. Suitable fill material placed under building areas should be placed in maximum eight inch (loose thickness) horizontal lifts, with each lift being compacted to a minimum of 98 percent of the standard Proctor maximum dry density, at a moisture content within two percent of optimum as determined by standard Proctor testing. Representative and frequent field density testing should be performed by AEI to verify that compaction requirements have been met. The clay soils at the site are judged to be moisture sensitive and will tend to pump and rut with large variance from optimum moisture content.
6. The compaction requirement may be reduced to 95 percent in proposed paved areas and to 90 percent in proposed landscape areas.
7. Topsoil removed prior to fill placement should be stockpiled and utilized for landscaping purposes.
8. The *minimum* recommended width of continuous wall footings is 18 inches. The minimum recommended plan dimension for isolated spread footings is 24 inches. Actual foundation sizes should be determined by the foundation engineer based on design structure loads and the net allowable bearing values presented above.
9. We recommend that the bottom of exterior continuous strip spread footings extend a minimum of 24 inches below finished exterior grade to provide protection against frost penetration related problems in normal winters. Interior foundations not exposed to severe drying, freezing temperatures, and/or severe moisture fluctuations can be constructed at relatively shallow depths as appropriate for construction. Foundation construction should follow these recommendations:

- Foundation concrete should be placed in the excavations the same day the trenches are cut.
- Exposed bearing surfaces should be protected from severe drying, freezing, and water accumulation. A concrete “mud-mat” may be constructed over the bearing materials if the excavation must remain exposed to the elements for an extended period of time.
- Any loose soil, debris, or excess water should be removed from the bearing surface by hand cleaning prior to concrete placement.
- The foundation-bearing surface should be level or appropriately benched.
- Foundation materials that have deteriorated as a result of the elements should be removed prior to concrete placement.
- Foundation trenches should be “clean-cut” where possible and constructed without the use of forms.
- Reinforcing steel should be placed in all footings to provide strength to distribute loads on the foundation that may be overlying weak or more compressible foundation materials to stronger adjacent materials.

The conclusions and recommendations presented herein are based on information gathered from the borings advanced during this exploration using that degree of care and skill ordinarily exercised under similar circumstances by competent members of the engineering profession. No warranties can be made regarding the continuity of conditions between the borings.

We appreciate the opportunity to be of service to you on this project and hope to provide further support on this and other projects in the future. Please contact us if you have any questions regarding this report.

Respectfully,
AMERICAN ENGINEERS, INC.



Brad High, PG
Staff Geologist



Dennis Mitchell, PE
Director of Geotechnical Services

attachments

Appendix A

Boring Layout



LEGEND

⊙ SOIL TEST BORING WITH STANDARD PENETRATION TESTS

NOTE: BORING LOCATIONS ARE APPROXIMATE

NO.	DATE	DESCRIPTION

BORING LAYOUT

CLIENT: **ROCKCASTLE COUNTY FISCAL COURT**

PROJECT: **ROCKCASTLE COUNTY EOC**

PLANS PREPARED AND SUBMITTED BY:



AMERICAN ENGINEERS, INC.
PROFESSIONAL ENGINEERING
2000 W. STATE ST.
MEMPHIS, TN 38117
TEL: 901.525.1225
FAX: 901.525.1226
WWW.AEI.US

SCALE: NTS

DATE: 06-15-2012

DRAWN BY: M. ALLEN

CHECKED BY: D. BARRETT

FILE: 212-208 ROCKCASTLE COUNTY EOC BORING LAYOUT.DWG

SHEET: **B-1**

Appendix B

Boring Logs

FIELD TESTING PROCEDURES

The general field procedures employed by the Field Services Center are summarized in the following outline. The procedures utilized by the AEI Field Service Center are recognized methods for determining soil and rock distribution and ground water conditions. These methods include geophysical and in situ methods as well as borings.

Soil Borings are drilled to obtain subsurface samples using one of several alternate techniques depending upon the surface conditions. Borings are advanced into the ground using continuous flight augers. At prescribed intervals throughout the boring depths, soil samples are obtained with a split- spoon or thin-walled sampler and sealed in airtight glass jars and labeled. The sampler is first seated 6 inches to penetrate loose cuttings and then driven an additional foot, where possible, with blows from a 140 pound hammer falling 30 inches. The number of blows required to drive the sampler each six-inch increment is recorded. The penetration resistance, or “N-value” is designated as the number of hammer blows required to drive the sampler the final foot and, when properly evaluated, is an index to cohesion for clays and relative density for sands. The split spoon sampling procedures used during the exploration are in general accordance with ASTM D 1586. Split spoon samples are considered to provide *disturbed* samples, yet are appropriate for most engineering applications. Thin-walled (Shelby tube) samples are considered to provide *undisturbed* samples and obtained when warranted in general accordance with ASTM D 1587.

These drilling methods are not capable of penetrating through material designated as “refusal materials.” Refusal, thus indicated, may result from hard cemented soil, soft weathered rock, coarse gravel or boulders, thin rock seams, or the upper surface of sound continuous rock. Core drilling procedures are required to determine the character and continuity of refusal materials.

Core Drilling Procedures for use on refusal materials. Prior to coring, casing is set in the boring through the overburden soils. Refusal materials are then cored according to ASTM D-2113 using a diamond bit attached to the end of a hollow double tube core barrel. This device is rotated at high speeds and the cuttings are brought to the surface by circulating water. Samples of the material penetrated are protected and retained in the inner tube, which is retrieved at the end of each drill run. Upon retrieval of the inner tube the core is recovered, measured and placed in boxes for storage.

The subsurface conditions encountered during drilling are reported on a field test boring record by the driller. The record contains information concerning the boring method, samples attempted and recovered, indications of the presence of various materials such as coarse gravel, cobbles, etc., and observations between samples. Therefore, these boring records contain both factual and interpretive information. The field boring records are on file in our office.

The soil and rock samples plus the field boring records are reviewed by a geotechnical engineer. The engineer classifies the soil in general accordance with the procedures outlined in ASTM D 2487 and D 2488 and prepares the final boring records which are the basis for all evaluations and recommendations.

Representative portions of soil samples are placed in sealed containers and transported to the laboratory. In the laboratory, the samples are examined to verify the driller’s field classifications. Test Boring Records are attached which show the soil descriptions and penetration resistances.

The final boring records represent our interpretation of the contents of the field records based on the results of the engineering examinations and tests of the field samples. These records depict subsurface conditions at the specific locations and at the particular time when drilled. Soil conditions at other locations may differ from conditions occurring at these boring locations. Also, the passage of time may result in a change in the subsurface soil and ground water conditions at these boring locations. The lines designate the interface between soil or refusal materials on the records and on profiles represent approximate boundaries. The transition between materials may be gradual. The final boring records are included with this report.

Water table readings are normally taken in conjunction with borings and are recorded on the “Boring Logs”. These readings indicate the approximate location of the hydrostatic water table at the time of our field investigation. Where impervious soils are encountered (clayey soils) the amount of water seepage into the boring is small, and it is generally not possible to establish the location of hydrostatic water table through water level readings. The ground water table may also be dependent upon the amount of precipitation at the site during a particular period of time. Fluctuations in the water table should be expected with variations in precipitation, surface run-off, evaporation and other factors.

The time of boring water level reported on the boring records is determined by field crews as the drilling tools are advanced. The boring water level is detected by changes in the drilling rate, soil samples obtained, etc. Additional water table readings are generally obtained at least 24 hours after the borings are completed. The time lag of at least 24 hours is used to permit stabilization of the ground water table which has been disrupted by the drilling operations. The readings are taken by dropping a weighted line down the boring or using an electrical probe to detect the water level surface.

Occasionally the borings will cave-in, preventing water level readings from being obtained or trapping drilling water above the caved-in zone. The cave-in depth is also measured and recorded on the boring records.

Sampling Terminology

Undisturbed Sampling: Thin-walled or Shelby tube samples used for visual examination, classification tests and quantitative laboratory testing. This procedure is described by ASTM D 1587. Each tube, together with the encased soil, is carefully removed from the ground, made airtight and transported to the laboratory. Locations and depths of undisturbed samples are shown on the “Boring Logs.”

Bag Sampling: Bulk samples of soil are obtained at selected locations. These samples consist of soil brought to the surface by the drilling augers, or obtained from test pits or the ground surface using hand tools. Samples are placed in bags, with sealed jar samples of the material, and taken to our laboratory for testing where more mass material is required (i.e. Proctors and CBR's). The locations of these samples are indicated on the appropriate logs, or on the Boring Location Plan.

CLASSIFICATION SYSTEM FOR SOIL EXPLORATION

COHESIVE SOILS (Clay, Silt, and Mixtures)

<u>CONSISTENCY</u>	<u>SPT N-VALUE</u>	<u>Qu/Qp (tsf)</u>	<u>PLASTICITY</u>	
Very Soft	2 blows/ft or less	0 – 0.25	Degree of	Plasticity
Soft	2 to 4 blows/ft	0.25 – 0.49	<u>Plasticity</u>	<u>Index (PI)</u>
Medium Stiff	4 to 8 blows/ft	0.50 – 0.99	Low	0 – 7
Stiff	8 to 15 blows/ft	1.00 – 2.00	Medium	8 – 22
Very Stiff	15 to 30 blows/ft	2.00 – 4.00	High	over 22
Hard	30 blows/ft or more	> 4.00		

NON-COHESIVE SOILS (Silt, Sand, Gravel, and Mixtures)

<u>DENSITY</u>	<u>SPT N-VALUE</u>	<u>PARTICLE SIZE IDENTIFICATION</u>	
Very Loose	4 blows/ft or less	Boulders	12 inch diameter or more
Loose	4 to 10 blows/ft	Cobbles	3 to 12 inch diameter
Medium Dense	10 to 30 blows/ft	Gravel	Coarse – 1 to 3 inch
Dense	30 to 50 blows/ft		Medium – ½ to 1 inch
Very Dense	50 blows/ft or more		Fine – ¼ to ½ inch
		Sand	Coarse – 0.6mm to ¼ inch
			Medium – 0.2mm to 0.6mm
			Fine – 0.05mm to 0.2mm
		Silt	0.05mm to 0.005mm
		Clay	0.005mm

RELATIVE PROPORTIONS

<u>Descriptive Term</u>	<u>Percent</u>
Trace	1 – 10
Trace to Some	11 – 20
Some	21 – 35
And	36 – 50

NOTES

Classification – The Unified Soil Classification System is used to identify soil unless otherwise noted.

Standard “N” Penetration Test (SPT) (ASTM D1586) – Driving a 2-inch O.D., 1 3/8-inch I.D. sampler a distance of 1 foot into undisturbed soil with a 140-pound hammer free falling a distance of 30 inches. It is customary to drive the spoon 6-inches to seat the sampler into undisturbed soil, and then perform the test. The number of hammer blows for seating the spoon and making the tests are recorded for each 6 inches of penetration on the field drill log (e.g., 10/8/7). On the report log, the Standard Penetration Test result (i.e., the N value) is normally presented and consists of the sum of the 2nd and 3rd penetration counts (i.e., $N = 8 + 7 = 15$ blows/ft.)

Soil Property Symbols

Qu:	Unconfined Compressive Strength	N:	Standard Penetration Value (see above)
Qp:	Unconfined Comp. Strength (pocket pent.)	omc:	Optimum Moisture content
LL:	Liquid Limit, % (Atterberg Limit)	PL:	Plastic Limit, % (Atterberg Limit)
PI:	Plasticity Index	mdd:	Maximum Dry Density



CLIENT Rockcastle County Fiscal Court
PROJECT NUMBER 212-205
DATE STARTED 8/9/12 **COMPLETED** 8/9/12
DRILLER James Felts
DRILLING METHOD Hollow Stem Auger
LOGGED BY Don Cash **CHECKED BY** Dennis Mitchell
NOTES _____

PROJECT NAME Rockcastle County Emergency Operations Center
PROJECT LOCATION Mt. Vernon, Kentucky
GROUND ELEVATION 1203.4 ft
GROUND WATER LEVELS:
AT TIME OF DRILLING ---
AT END OF DRILLING ---
AFTER DRILLING ---

GEOTECH BH COLUMNS - GINT STD US LAB.GDT - 8/23/12 15:59 - T:112 PROJECTS\212-205 ROCKCASTLE COUNTY EOC\212-205 ROCKCASTLE EOC.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N-VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			REMARKS
								LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		TOPSOIL (18 inches)									
		(CL) sandy lean CLAY, trace to some fine gravel, brown to red, moist, stiff to very stiff	▲ SPT 1	80	9-6-8 (14)	2.5	12				
5			▲ GB 1	80	6-8-11 (19)	3.0	14				
			▲ SPT 2				17				
			▲ SPT 3	47	7-9-12 (21)		13				
10			▲ SPT 4	100	8-8-9 (17)	3.0	14				

Bottom of borehole at 11.5 feet.



CLIENT Rockcastle County Fiscal Court
PROJECT NUMBER 212-205
DATE STARTED 8/9/12 **COMPLETED** 8/9/12
DRILLER James Felts
DRILLING METHOD Hollow Stem Auger
LOGGED BY Don Cash **CHECKED BY** Dennis Mitchell
NOTES _____

PROJECT NAME Rockcastle County Emergency Operations Center
PROJECT LOCATION Mt. Vernon, Kentucky
GROUND ELEVATION 1195.9 ft
GROUND WATER LEVELS:
AT TIME OF DRILLING ---
AT END OF DRILLING ---
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N-VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			REMARKS
								LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		TOPSOIL (13 inches)									
		(CL) sandy lean CLAY, trace fine to medium gravel, brown to red, moist to wet, very stiff to medium stiff									
5			SPT 1	67	4-5-6 (11)	2.0	16				
			SPT 2	87	4-11-15 (26)	2.5	15				
			SPT 3	100	8-11-7 (18)	3.5	14				
10			SPT 4	67	4-4-4 (8)	2.0	22				
15			SPT 5	100	5-4-4 (8)	2.0	19				
20			SPT 6	100	4-5-6 (11)	1.5	28				
Bottom of borehole at 21.5 feet.											

GEOTECH BH COLUMNS - GINT STD US LAB.GDT - 8/23/12 15:59 - T:112 PROJECTS\212-205 ROCKCASTLE COUNTY EOC\212-205 ROCKCASTLE EOC.GPJ



CLIENT Rockcastle County Fiscal Court
PROJECT NUMBER 212-205
DATE STARTED 8/9/12 **COMPLETED** 8/9/12
DRILLER James Felts
DRILLING METHOD Hollow Stem Auger
LOGGED BY Don Cash **CHECKED BY** Dennis Mitchell
NOTES _____

PROJECT NAME Rockcastle County Emergency Operations Center
PROJECT LOCATION Mt. Vernon, Kentucky
GROUND ELEVATION 1198.8 ft
GROUND WATER LEVELS:
AT TIME OF DRILLING ---
AT END OF DRILLING ---
AFTER DRILLING ---

GEOTECH BH COLUMNS - GINT STD US LAB.GDT - 8/23/12 15:59 - T:112 PROJECTS\212-205 ROCKCASTLE COUNTY EOC\212-205 ROCKCASTLE EOC.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N-VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			REMARKS
								LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		TOPSOIL (13 inches)									
		(CH) sandy lean CLAY, trace fine gravel, brown to red, moist, medium stiff to very stiff	SPT 1	67	3-2-3 (5)	2.0	15				
5			SPT 2	73	4-10-8 (18)	2.5	16				
			SPT 3	100	4-6-6 (12)	3.0	17				
10			SPT 4	100	4-6-8 (14)	2.0	16				
15			SPT 5	27	5-4-5 (9)	0.5	15				
20			SPT 6	60	3-4-5 (9)	1.0	13				

Bottom of borehole at 21.5 feet.



CLIENT Rockcastle County Fiscal Court
PROJECT NUMBER 212-205
DATE STARTED 8/9/12 **COMPLETED** 8/9/12
DRILLER James Felts
DRILLING METHOD Hollow Stem Auger
LOGGED BY Don Cash **CHECKED BY** Dennis Mitchell
NOTES _____

PROJECT NAME Rockcastle County Emergency Operations Center
PROJECT LOCATION Mt. Vernon, Kentucky
GROUND ELEVATION 1196.5 ft
GROUND WATER LEVELS:
AT TIME OF DRILLING ---
AT END OF DRILLING ---
AFTER DRILLING ---

GEOTECH BH COLUMNS - GINT STD US LAB.GDT - 8/23/12 15:59 - T:\112 PROJECTS\212-205 ROCKCASTLE COUNTY EOC\212-205 ROCKCASTLE EOC.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N-VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			REMARKS
								LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		TOPSOIL (14 inches)									
0 - 5		(CL) sandy lean CLAY, trace fine to medium gravel, brown to red, moist, stiff to very stiff	SPT 1	93	5-6-6 (12)	4.5	14	25	17	8	
5 - 10			SPT 2	100	4-11-9 (20)	3.0	14	22	16	6	
10 - 15			SPT 3	93	4-6-6 (12)	3.0	18				
15 - 15.4		(CH) sandy fat CLAY, brown to red with grey mottle, trace fine gravel, moist, stiff	SPT 4	100	5-4-5 (9)	3.5	26				
15.4 - 15.4		Refusal at 15.4 feet. Bottom of borehole at 15.4 feet.	SPT 5	150	0-2-50 (52)	1.0	24				



CLIENT Rockcastle County Fiscal Court
PROJECT NUMBER 212-205
DATE STARTED 8/9/12 **COMPLETED** 8/9/12
DRILLER James Felts
DRILLING METHOD Hollow Stem Auger
LOGGED BY Don Cash **CHECKED BY** Dennis Mitchell
NOTES _____

PROJECT NAME Rockcastle County Emergency Operations Center
PROJECT LOCATION Mt. Vernon, Kentucky
GROUND ELEVATION 1194.2 ft
GROUND WATER LEVELS:
AT TIME OF DRILLING ---
AT END OF DRILLING ---
AFTER DRILLING ---

GEOTECH BH COLUMNS - GINT STD US LAB.GDT - 8/23/12 15:59 - T:112 PROJECTS\212-205 ROCKCASTLE COUNTY EOC\212-205 ROCKCASTLE EOC.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N-VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			REMARKS
								LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		TOPSOIL (12 inches)									
		(CL) sandy lean CLAY, some fine to medium gravel, brown to red, moist, stiff to very soft	SPT 1	73	1-2-4 (6)	0.5	27				
5			SPT 2	100	3-3-5 (8)	1.5	18				
			SPT 3	100	4-5-7 (12)	3.5	15				
10			SPT 4	93	2-4-4 (8)	3.0	20				
15			SPT 5	67	2-1-1 (2)	1.5	21				
		(CH) fat CLAY, trace fine gravel, red to brown, wet, soft									
20		Refusal at 20.1 feet. Bottom of borehole at 20.1 feet.	SPT 6	67	6-50	0.5	17				



CLIENT Rockcastle County Fiscal Court
PROJECT NUMBER 212-205
DATE STARTED 8/8/12 **COMPLETED** 8/8/12
DRILLER James Felts
DRILLING METHOD Hollow Stem Auger
LOGGED BY Don Cash **CHECKED BY** Dennis Mitchell
NOTES _____

PROJECT NAME Rockcastle County Emergency Operations Center
PROJECT LOCATION Mt. Vernon, Kentucky
GROUND ELEVATION 1191.9 ft
GROUND WATER LEVELS:
AT TIME OF DRILLING ---
AT END OF DRILLING ---
AFTER DRILLING ---

GEOTECH BH COLUMNS - GINT STD US LAB.GDT - 8/23/12 15:59 - T:112 PROJECTS\212-205 ROCKCASTLE COUNTY EOC\212-205 ROCKCASTLE EOC.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N-VALUE)	POCKET PEN. (tsf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			REMARKS
								LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		TOPSOIL (18 inches)	SPT 1	33	4-8-5 (13)		21				
		(CH) sandy fat CLAY, brown to red, moist, stiff to very stiff									
5			SPT 2	87	5-7-9 (16)	4.0	20				
			SPT 3	87	5-4-7 (11)	3.5	20				
10			SPT 4	80	5-7-8 (15)	3.5	23				

Bottom of borehole at 11.5 feet.



CLIENT Rockcastle County Fiscal Court

PROJECT NAME Rockcastle County Emergency Operations Center

PROJECT NUMBER 212-205

PROJECT LOCATION Mt. Vernon, Kentucky

LITHOLOGIC SYMBOLS
(Unified Soil Classification System)



CH: USCS High Plasticity Clay



CL: USCS Low Plasticity Clay



TOPSOIL: Topsoil

SAMPLER SYMBOLS



Grab Sample



Standard Penetration Test

WELL CONSTRUCTION SYMBOLS

ABBREVIATIONS

LL - LIQUID LIMIT (%)
 PI - PLASTIC INDEX (%)
 W - MOISTURE CONTENT (%)
 DD - DRY DENSITY (PCF)
 NP - NON PLASTIC
 -200 - PERCENT PASSING NO. 200 SIEVE
 PP - POCKET PENETROMETER (TSF)

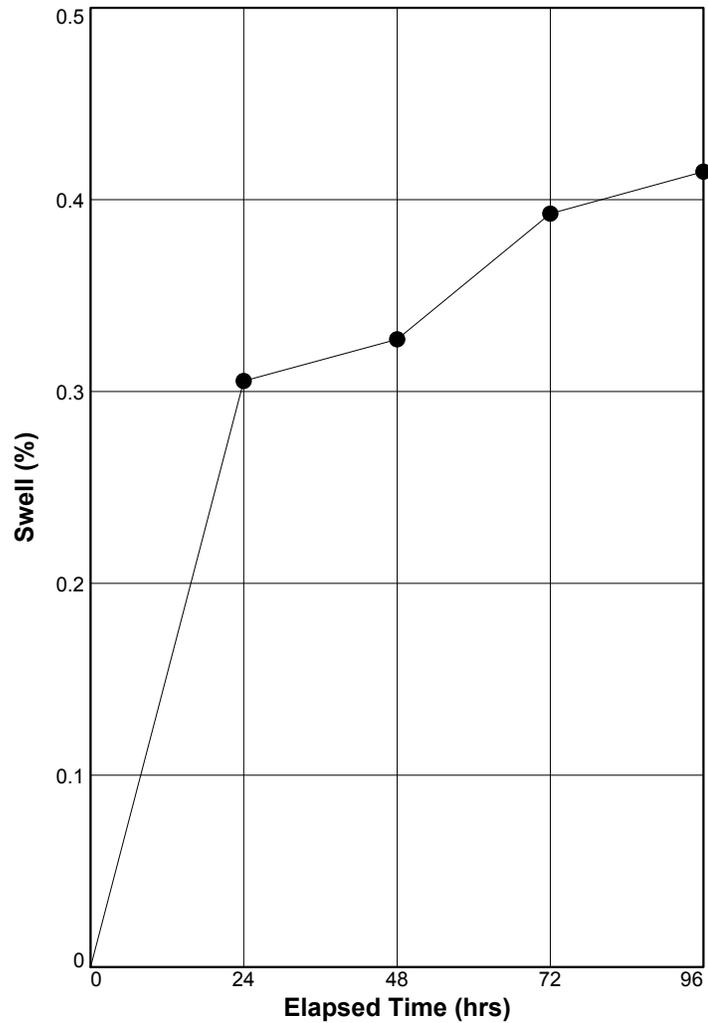
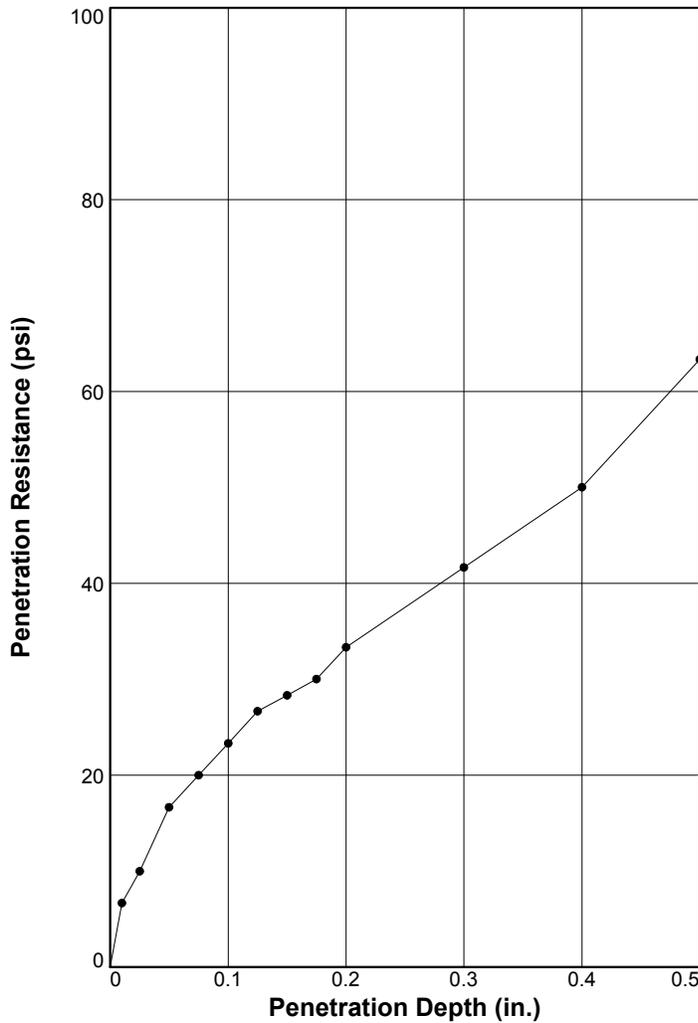
TV - TORVANE
 PID - PHOTOIONIZATION DETECTOR
 UC - UNCONFINED COMPRESSION
 ppm - PARTS PER MILLION
 Water Level at Time of Drilling, or as Shown
 Water Level at End of Drilling, or as Shown
 Water Level After 24 Hours, or as Shown

Appendix C

Laboratory Testing Results

BEARING RATIO TEST REPORT

ASTM D 1883-99



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	112.1	95.7	12.9	111.6	95.3	18.0	2.3	2.2	0.000	12.70	0.4
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
reddish brown sandy lean clay					

Project No: 212-205
Project: Rockcastle County Emergency Operations Center
Source of Sample: B-1 **Depth:** 5
Date:

Test Description/Remarks:

Your Geotechnical Engineering Report

To help manage your risks, this information is being provided because subsurface issues are a major cause of construction delays, cost overruns, disputes, and claims.

Geotechnical Services are Performed for Specific Projects, Purposes, and People

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering exploration conducted for an engineer may not fulfill the needs of a contractor or even another engineer. Each geotechnical engineering exploration and report is unique and is prepared solely for the client. No one except the client should rely on the geotechnical engineering report without first consulting with the geotechnical engineer who prepared it. The report should not be applied for any project or purpose except the one originally intended.

Read the Entire Report

To avoid serious problems, the full geotechnical engineering report should be read in its entirety. Do not only read selected sections or the executive summary.

A Unique Set of Project-Specific Factors is the Basis for a Geotechnical Engineering Report

Geotechnical engineers consider a numerous unique, project-specific factors when determining the scope of a study. Typical factors include: the client's goals, objectives, project costs, risk management preferences, proposed structures, structures on site, topography, and other proposed or existing site improvements, such as access roads, parking lots, and utilities. Unless indicated otherwise by the geotechnical engineer who conducted the original exploration, a geotechnical engineering report should not be relied upon if it was:

- not prepared for you or your project,
- not prepared for the specific site explored, or
- completed before important changes to the project were implemented.

Typical changes that can lessen the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a multi-story hotel to a parking lot
- finished floor elevation, location, orientation, or weight of the proposed structure, anticipated loads or
- project ownership

Geotechnical engineers cannot be held liable or

responsible for issues that occur because their report did not take into account development items of which they were not informed. The geotechnical engineer should always be notified of any project changes. Upon notification, it should be requested of the geotechnical engineer to give an assessment of the impact of the project changes.

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that exist at the time of the exploration. A geotechnical engineering report should not be relied upon if its reliability could be in question due to factors such as man-made events as construction on or adjacent to the site, natural events such as floods, earthquakes, or groundwater fluctuation, or time. To determine if a geotechnical report is still reliable, contact the geotechnical engineer. Major problems could be avoided by performing a minimal amount of additional analysis and/or testing.

Most Geotechnical Findings are Professional Opinions

Geotechnical site explorations identify subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field logs and laboratory data and apply their professional judgment to make conclusions about the subsurface conditions throughout the site. Actual subsurface conditions may differ from those indicated in the report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risk associated with unanticipated conditions.

The Recommendations within a Report Are Not Final

Do not put too much faith on the construction recommendations included in the report. The recommendations are not final due to geotechnical engineers developing them principally from judgment and opinion. Only by observing actual subsurface conditions revealed during construction can geotechnical engineers finalize their recommendations. Responsibility and liability cannot be assumed for the recommendations

within the report by the geotechnical engineer who developed the report if that engineer does not perform construction observation.

A Geotechnical Engineering Report Is Subject To Misinterpretation

Misinterpretation of geotechnical engineering reports has resulted in costly problems. The risk of misinterpretation can be lowered after the submittal of the final report by having the geotechnical engineer consult with appropriate members of the design team. The geotechnical engineer could also be retained to review crucial parts of the plans and specifications put together by the design team. The geotechnical engineering report can also be misinterpreted by contractors which can result in many problems. By participating in pre-bid and preconstruction meetings and providing construction observations by the geotechnical engineer, many risks can be reduced.

Final Boring Logs Should not be Re-drawn

Geotechnical engineers prepare final boring logs and testing results based on field logs and laboratory data. The logs included in a final geotechnical engineering report should never be redrawn to be included in architectural or design drawings due to errors that could be made. Electronic reproduction is acceptable, along with photographic reproduction, but it should be understood that separating logs from the report can elevate risk.

Contractors Need a Complete Report and Guidance

By limiting what is provided for bid preparation, contractors are not liable for unforeseen subsurface conditions although some owners and design professionals believe the opposite to be true. The complete geotechnical engineering report, accompanied with a cover letter or transmittal, should be provided to contractors to help prevent costly problems. The letter states that the report was not prepared for purposes of bid

development and the report's accuracy is limited. Although a fee may be required, encourage the contractors to consult with the geotechnical engineer who prepared the report and/or to conduct additional studies to obtain the specific types of information they need or prefer. A prebid conference involving the owner, geotechnical engineer, and contractors can prove to be very valuable. If needed, allow contractors sufficient time to perform additional studies. Upon doing this you might be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Closely Read Responsibility Provisions

Geotechnical engineering is not as exact as other engineering disciplines. This lack of understanding by clients, design professionals, and contractors has created unrealistic expectations that have led to disappointments, claims, and disputes. To minimize such risks, a variety of explanatory provisions may be included in the report by the geotechnical engineer. To help others recognize their own responsibilities and risks, many of these provisions indicate where the geotechnical engineer's responsibilities begin and end. These provisions should be read carefully, questions asked if needed, and the geotechnical engineer should provide satisfactory responses.

Environmental Issues/Concerns are not Covered

Unforeseen environmental issues can lead to project delays or even failures. Geotechnical engineering reports do not usually include environmental findings, conclusions, or recommendations. As with a geotechnical engineering report, do not rely on an environmental report that was prepared for someone else.



AMERICAN ENGINEERS, INC.
PROFESSIONAL ENGINEERING

65 Aberdeen Drive
Glasgow, KY 42141
270-651-7220

Kevin R. Moses
Crit E. Moses
K. Amos Moses



IGSHPA Certified
Water Furnace GSC
Kentucky Water Well Certified

Moses Drilling Company
153 Booger Hollow Road
Gray, KY 40734
Phone (606) 523-1215
Fax 866-896-0184

August 24, 2012

Attn: Bryan Atkins
Marcum Engineering, LLC

Frank Culberson
Murphy Graves Architects

Re: Test Hole for Rockcastle County Emergency Operations Center
Marcum Job # 12589
Murphy Graves Job # 1244

The bore log for the test hole on this project is described below. If we can be of further assistance, please advise. The drill start and completion date was August 21, 2012.

Hole #1:

0-35'	Very Moist Clay
35'-70'	Broken Limestone
70'-96'	Hard Grey Limestone
96'-99'	Void
99'-200'	Medium Hard Grey Limestone

Notes:

This test hole was drilled with a 2007 Schramm T-450WS tophead air rotary drill with 900/350 air.

Test hole #1:

G.P.S. Coordinates: N 37° 20' 31.9" W 084° 22' 04.6"

No loop was installed.

No caves, crevices, water or gas was encountered.

Borehole backfilled with #9 stone and a 10' bentonite seal.

Borehole diameter was 4½".

This borehole needed (5) 21' joints of steel casing in order to keep borehole open. It was decided to not spend the extra money and to abandon this borehole.

Sincerely,

K. Amos Moses
Moses Drilling Company