

BURNT CHIMNEY
WATER STORAGE TANK
FRANKLIN COUNTY, VIRGINIA

DESIGN NOTES:

GEOPIER DESIGN INFORMATION

GEOLOGICAL ENGINEER: GEOTECHNICS, INC.
GEOLOGICAL REPORT: "SUBSURFACE INVESTIGATION, BURNT CHIMNEY
WATER STORAGE TANK, 80 BURNT CHIMNEY ROAD,
FRANKLIN COUNTY, VIRGINIA",
DATED SEPTEMBER 24, 2014.
GEOLOGICAL ADDENDUM: BORING BH-01 PROVIDED BY SCHNABEL ENGINEERING
DATED AUGUST 5, 2015.
STRUCTURAL ENGINEER: TANK CONNECTION AFFILIATE GROUP
STRUCTURAL PLANS: "BSR SLAB FOUNDATION, FSRC, FRANKLIN CO., VA",
DATED JULY 22, 2015.
STRUCTURAL LOADS: "FOUNDATION DESIGN CALCULATIONS",
DATED JULY 21, 2015.

GEOPIER DESIGN PARAMETERS

GEOPIER CALCULATIONS: "DESIGN CALCULATIONS FOR GEOPIER FOUNDATION
SUPPORT SYSTEM" REVISION 2, DATED SEPTEMBER 10,
2015.
GEOPIER MODULUS: 175 POUNDS PER CUBIC INCH (PCI)
GEOPIER DIAMETER: 30 INCHES
GEOPIER LENGTH: 29 FEET
MAXIMUM APPLIED FOOTING
BEARING PRESSURE: 5.50 KIPS PER SQUARE FOOT (KSF)
SOIL MODULUS: 246 - 598 KIPS PER SQUARE FOOT (KSF)

- BORING LOCATIONS ARE SHOWN FOR INFORMATION ONLY AND ARE
APPROXIMATE LOCATIONS TAKEN FROM THE ABOVE-REFERENCED REPORT. SEE
THE BORING LOGS INCLUDED IN THE ABOVE-REFERENCED REPORT.
GEOSTRUCTURES, INC. SHALL BE NOTIFIED IMMEDIATELY IF SUBSURFACE OR
SITE CONDITIONS VARY FROM THOSE USED FOR DESIGN.
- MAT FOUNDATION LOCATION AND ORIENTATION SHOWN ON THESE PLANS ARE
FOR INFORMATION ONLY. GEOSTRUCTURES, INC. ACCEPTS NO RESPONSIBILITY
FOR LOCATIONS OR DIMENSIONS OF THE TANK AND MAT FOUNDATION SHOWN ON
THESE PLANS. GEOSTRUCTURES, INC. SHALL BE NOTIFIED IMMEDIATELY IF
INFORMATION ON THESE PLANS OR STRUCTURAL LOADS CONFLICTS WITH
STRUCTURAL OR ARCHITECTURAL DRAWINGS.
- GEOPIER ELEMENTS HAVE BEEN DESIGNED FOR SETTLEMENT CONTROL DUE TO
COMPRESSIVE VERTICAL LOADING ONLY. MAT FOUNDATION UPLIFT AND SLIDING
RESISTANCE HAVE NOT BEEN CONSIDERED AND SHOULD BE VERIFIED BY
OTHERS.
- GEOSTRUCTURES, INC. IS ONLY RESPONSIBLE FOR SETTLEMENT CONTROL OF
THE TANK AND MAT FOUNDATION SUPPORTED BY GEOPIER ELEMENTS AS
INDICATED ON THESE PLANS.
- THE GEOPIER GROUND IMPROVEMENT SYSTEM HAS BEEN DESIGNED TO
CONTROL SETTLEMENTS UNDER THE APPLIED TANK AND MAT FOUNDATION
CONTACT PRESSURES RESULTING FROM THE STRUCTURE LOADS ON THE TANK
AND MAT FOUNDATION AND MAT FOUNDATION SIZE PROVIDED (REFER TO DESIGN
CALCULATIONS). THESE APPLIED CONTACT PRESSURES MAY BE LESS THAN THE
ALLOWABLE BEARING PRESSURE USED FOR STRUCTURAL DESIGN OF THE MAT
FOUNDATION. TANK AND MAT FOUNDATION CONTACT PRESSURES SHALL NOT BE
INCREASED WITHOUT A COMMENSURATE REVIEW/REVISION OF THE GEOPIER
DESIGN.

CONSTRUCTION NOTES:

GEOPIER FOUNDATIONS

- GEOPIER (GP) ELEMENTS SHALL BE INSTALLED IN THE FIELD WITHIN 6 INCHES OF
LOCATIONS SHOWN ON THESE PLANS.
- A QUALIFIED, FULL-TIME QUALITY CONTROL (QC) REPRESENTATIVE PROVIDED BY THE
GEOPIER ELEMENT INSTALLER (INSTALLER) SHALL BE RESPONSIBLE FOR INSTALLATION
OF THE GEOPIER ELEMENTS IN ACCORDANCE WITH THE DESIGN, AND SHALL REPORT ALL
GEOPIER ELEMENT CONSTRUCTION ACTIVITIES TO GEOSTRUCTURES, INC. IF
AUTHORIZED BY THE OWNER, THE QC REPRESENTATIVE SHALL COORDINATE QC
ACTIVITIES WITH THE TESTING AGENCY HIRED BY THE OWNER. THE TESTING AGENCY
SHALL NOT DIRECT GEOPIER ELEMENT INSTALLATION PROCEDURES.
- GEOPIER ELEMENTS SHALL BE ACCEPTED BASED ON THE FOLLOWING CRITERIA UNLESS
OTHERWISE APPROVED IN WRITING BY GEOSTRUCTURES, INC.:
A. DRILL DEPTH SHALL BE WITHIN 3 INCHES OR DEEPER THAN THE DEPTHS SHOWN ON
THE PLANS.
B. AVERAGE COMPACTED LIFT THICKNESS DURING EACH DAY'S PRODUCTION SHALL BE
APPROXIMATELY 24 INCHES OR LESS.
C. GEOPIER ELEMENT AGGREGATE COMPACTION SHALL BE RECORDED PERIODICALLY
THROUGHOUT THE DAY. THE AVERAGE BLOW COUNTS (RECORDED USING A
DYNAMIC PENETROMETER IN GENERAL ACCORDANCE WITH ASTM STP #399) SHALL
BE GREATER THAN 15 BLOWS FOR 1.75 INCHES PENETRATION. NO MORE THAN 10%
OF TESTS CONDUCTED EACH DAY SHALL FALL BELOW 15 BLOWS PER 1.75 INCHES.
NOTE: USE OF DYNAMIC PENETROMETER IS NOT APPROPRIATE FOR OPEN GRADED
AGGREGATE SUCH AS #57 STONE.
D. GEOPIER TYPICAL AGGREGATE CONSISTS OF CLEAN 3/4-INCH MINUS GRAVEL FOR
THE BOTTOM BULB, AND GRADED 3/4-INCH MINUS CRUSHED STONE FOR THE SHAFT.
- WHEN OBSTRUCTIONS ARE ENCOUNTERED THAT CANNOT BE REMOVED WITH
CONVENTIONAL GEOPIER INSTALLATION EQUIPMENT, THE GENERAL CONTRACTOR SHALL
BE RESPONSIBLE FOR REMOVING THE OBSTRUCTIONS. IF THE GENERAL CONTRACTOR
DOES NOT DO SO IN A TIMELY MANNER THAT DOES NOT INTERRUPT GEOPIER ELEMENT
PRODUCTION, THE INSTALLER MAY REMOVE THE OBSTRUCTION(S) AND SHALL BE
REIMBURSED FOR COSTS INCURRED, INCLUDING LABOR, EQUIPMENT AND MATERIALS.
- IF CAVE-INS OCCUR ON TOP OF A LIFT OF AGGREGATE SUCH THAT THE VOLUME OF
CAVED SOIL IS GREATER THAN APPROXIMATELY 10% OF THE VOLUME OF THE
AGGREGATE IN THE LIFT, THEN THE AGGREGATE SHALL BE CONSIDERED
CONTAMINATED, AND SHALL BE REMOVED AND REPLACED WITH UNCONTAMINATED
AGGREGATE.
NOTE: SPECIAL PROCEDURES MAY APPLY TO CAVING SOILS WITH APPROVAL OF
GEOSTRUCTURES, INC.
- GEOPIER ELEMENTS NOT MEETING THE REQUIREMENTS DEFINED IN THE DESIGN SHALL
BE REINSTALLED TO MEET PROJECT REQUIREMENTS UNLESS OTHERWISE APPROVED IN
WRITING BY GEOSTRUCTURES, INC.
- THE MAT FOUNDATION ELEVATION IS THE RESPONSIBILITY OF THE CONTRACTOR AND
SHALL BE REPORTED IN WRITING TO THE INSTALLER'S QC REPRESENTATIVE PRIOR TO
INSTALLING GEOPIER ELEMENTS.
- UTILITY LOCATIONS ARE THE RESPONSIBILITY OF THE CONTRACTOR. GEOSTRUCTURES,
INC. SHOULD BE NOTIFIED OF ANY CONFLICTS WITH GEOPIER ELEMENT LOCATIONS
SHOWN ON THE PLANS. ALL EXISTING AND PROPOSED UTILITIES WITHIN AND ADJACENT
TO THE PROPOSED BUILDING FOOTPRINT SHALL BE FIELD VERIFIED BY THE GENERAL
CONTRACTOR AND COORDINATED WITH THE GEOPIER FOUNDATION INSTALLER BEFORE
GEOPIER INSTALLATION SHALL PROCEED.
- ANY ENGINEERED FILL REQUIRED FOR THE PROJECT SHALL BE PLACED AND COMPACTED
IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER OF RECORD'S (GER)
REQUIREMENTS.
- ALL SETTLEMENT AS A RESULT OF FILL PLACEMENT SHALL BE COMPLETE AS
DETERMINED BY THE GER PRIOR TO GEOPIER ELEMENT INSTALLATION.
- ALL GEOPIER ELEMENTS SHALL EXTEND THROUGH FILL MATERIAL TO NATURAL SOIL.
- GEOPIER ELEMENTS THAT CANNOT BE INSTALLED TO THEIR PLANNED BOTTOM OF
GEOPIER ELEVATIONS WILL BE EVALUATED AND DESIGN ADJUSTMENTS WILL BE MADE
ON A CASE-BY-CASE BASIS.

CONCRETE FOOTING EXCAVATION PREPARATION

- EXCAVATION AND SURFACE COMPACTION OF ALL MAT FOUNDATION SUBGRADES
SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
- OVEREXCAVATION BELOW THE BOTTOM OF MAT FOUNDATION SHALL BE LIMITED TO 3
INCHES. THIS INCLUDES LIMITING THE TEETH OF EXCAVATORS FROM
OVEREXCAVATION BEYOND THREE INCHES BELOW THE MAT ELEVATION.
- WATER SHALL NOT BE ALLOWED TO ACCUMULATE IN THE MAT FOUNDATION
EXCAVATION PRIOR TO CONCRETE PLACEMENT.
- PRIOR TO PLACING MAT FOUNDATION CONCRETE OR MUD MAT, THE MAT
FOUNDATION SUBGRADE AND PIER AGGREGATE SHALL BE COMPACTED WITH A
WALK-BEHIND IMPACT-TYPE COMPACTOR. COMPACTION SHALL BE PERFORMED OVER
THE ENTIRE MA FOUNDATION SUBGRADE TO COMPACT ANY LOOSE SURFACE SOIL
AND LOOSE SURFACE PIER AGGREGATE.
- THE TESTING AGENCY SHALL INSPECT THE MAT FOUNDATION SUBGRADE AND
APPROVE IT IN WRITING ON THE SAME DAY THAT THE CONCRETE OR MUD MAT IS
PLACED IN THE MAT FOUNDATION EXCAVATION. THE APPROVAL SHALL STATE THAT
THE MAT FOUNDATION SUBGRADE INCLUDING MATRIX SOILS AND GEOPIER TOPS
HAVE NOT BEEN OVEREXCAVATED MORE THAN 3 INCHES BELOW THE BOTTOM OF THE
MAT FOUNDATION, HAVE BEEN KEPT FREE OF WATER ACCUMULATION, AND HAVE
BEEN COMPACTED WITH A WALK BEHIND IMPACT-TYPE COMPACTOR ON THE SAME
DAY THAT THE CONCRETE OR MUDMAT WAS PLACED.
- MAT FOUNDATION CONCRETE SHALL BE PLACED THE SAME DAY AS MAT FOUNDATION
EXCAVATIONS ARE COMPLETED. IF IMMEDIATE PLACEMENT IS NOT POSSIBLE, THEN A
MUD MAT CONSISTING OF A 3-INCH MINIMUM THICKNESS OF LEAN CONCRETE SHALL
BE PLACED OVER THE MAT FOUNDATION SUBGRADE.
- MAT FOUNDATION CONCRETE/MUD MAT SHALL BE PLACED DIRECTLY ON TOP OF
EXPOSED GEOPIER ELEMENTS. THE MAT FOUNDATION SHOULD BE WIDENED AS
NECESSARY TO COVER ENTIRE GEOPIER ELEMENT WITH MAT FOUNDATION
CONCRETE/MUD MAT.
- THE GENERAL CONTRACTOR IS RESPONSIBLE FOR MEASURING TOP OF THE MAT
FOUNDATION ELEVATION TO ACCURACY OF 1/8-INCH. MEASUREMENTS SHALL BE
TAKEN BY A LICENSED PROFESSIONAL SURVEYOR BEFORE LOADS ARE APPLIED TO
THE MAT FOUNDATION.

SHEET INDEX

SHEET NO.	DESCRIPTION
GP-1	COVER SHEET / GENERAL NOTES
GP-2	GEOPIER ELEMENT LAYOUT - PLAN VIEW
GP-3	DETAILS

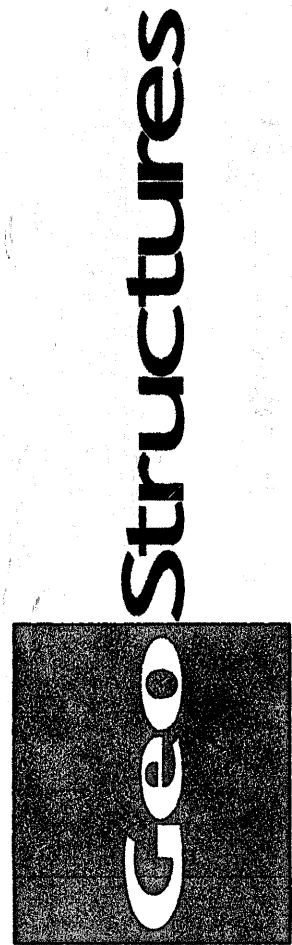
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PENDING.

GFC PROJECT NUMBER P15-GCA-01637

APPROVED

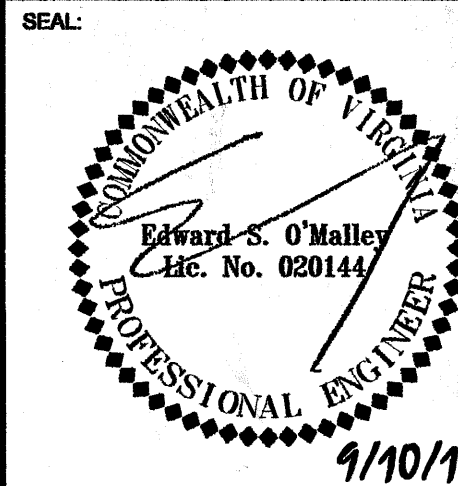
By Trent Cox at 4:43 pm, Sep 22, 2015



REV.	DATE	COMMENT	BY
0	07/02/2015	FINAL DESIGN	JWG
1	08/13/2015	REVISION 1 (SHEETS GP-1 & GP-2)	JWG
2	09/10/2015	REVISED CALCS (SHEET GP-1)	JWG

PROJECT NO.:	8584GP
DRAWN BY:	JPT/ES
CHECKED BY:	ES
DATE:	09/10/2015
SCALE:	AS SHOWN
CAD ID:	8584GP_REV 2

BURNT CHIMNEY
WATER STORAGE TANK
FRANKLIN COUNTY
VIRGINIA



SHEET TITLE:
COVER SHEET /
GENERAL NOTES

SHEET NUMBER:
GP-1
1 OF 3