

Onsite Wastewater Treatment System Report

Vortex Farm
Sage Road and Minto Way
Hemet, CA 92544
APN 470-070-043-1
County DEH No. PR 5924

Prepared For:

MMJ Construction
(c/o Judy Bailey)
39100 Airpark Drive
Temecula, CA 92592

Prepared By:

Civil  Landworks

Civil Landworks Corporation
110 Copperwood Way, Suite P
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760-908-8745

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1.0 PURPOSE AND SCOPE

The report presents the onsite wastewater treatment system (OWTS) report for the proposed Vortex Farms facility located at Sage Road and Minto Way in Riverside California. The purpose of the feasibility study was to determine the percolation rates and design of the OWTS.

2.0 PROJECT DESCRIPTION

The project site is currently vacant. The project proposes construction of 5 green houses with a private road. Although the property is 9.0 acres, only approximately 1.8 acres will be disturbed. Majority of the site are to remain undisturbed. The project area will be bounded by an environmental limit. Other construction items with this project includes a water tank, septic system, solar panels, underground storm water system, and retaining walls. See site location and vicinity in Attachment 1.

2.0 DESIGN CRITERIA AND ASSUMPTIONS

1. Design and percolation procedures per Local Agency Management Program for Onsite Wastewater Treatment Systems (OWTS), County of Riverside Department of Environmental Health, 10-5-16. See Attachment 2 for percolation testing.
2. An eight (8) diameter auger was used to drill the percolation holes were drilled, and a total of 4 holes were drilled. Presoaking and percolation procedure per the County of Riverside procedures.
3. Deep boring and percolation test holes were performed on 10-1-20. The holes were identified with lath and flagging. The county was notified 2 days prior and the confirmation number is PR5924.
4. The project will include one bathroom to support the facility.
5. Deep boring conducted by Construction Testing and Engineering, report dated 10-15-20. See Attachment 2.
6. Per Table H 201.1 of the California Plumbing Code 2016, the capacity of the septic tank will be not more than a 1 room single family dwelling. Per Table 70.1, the fixture units will 8 (Water closets = 6, and lavatory in sets = 2), 8 GPM.

3.0 DESIGN RESULTS

1. 750 Gallon septic tank
2. No groundwater encountered
3. Final percolation rate used for design = 4 minutes per inch
4. Per County of Riverside OWTS Manual, Table 3.1, 19-20 MPI = 45 min. SF per 100 gallons = $750/100 \times 45 = 338$ SF.
5. $338 \text{ SF} / 3 \text{ FT} = 113$ lineal feet. Install 3 lines of 40 feet. Add 100% expansion = 6 lines total.

5.0 DECLARATION OF RESPONSIBLE CHARGE

I, hereby declare that I am the Engineer of Work for this project, that I have exercised responsible charge over the design of the project as defined in section 6703 of the business and professions code, and that the design is consistent with current standards.

ENGINEER OF WORK:

Civil Landworks Corporation
110 Copperwood Way, Suite P
Oceanside CA, USA 92058



David V. Caron
R.C.E. 70066
Exp. 9-30-22

11-23-2020
Date



ATTACHMENT 1

VICINTY AND LOCATION MAPS



SITE LOCATION MAP

DATE: 9/30/2020

SCALE: AS SHOWN

MINTO WAY AND SAGE ROAD

DRAWN BY:
J. SANTOS



SITE VICINITY MAP

DATE: 9/30/20

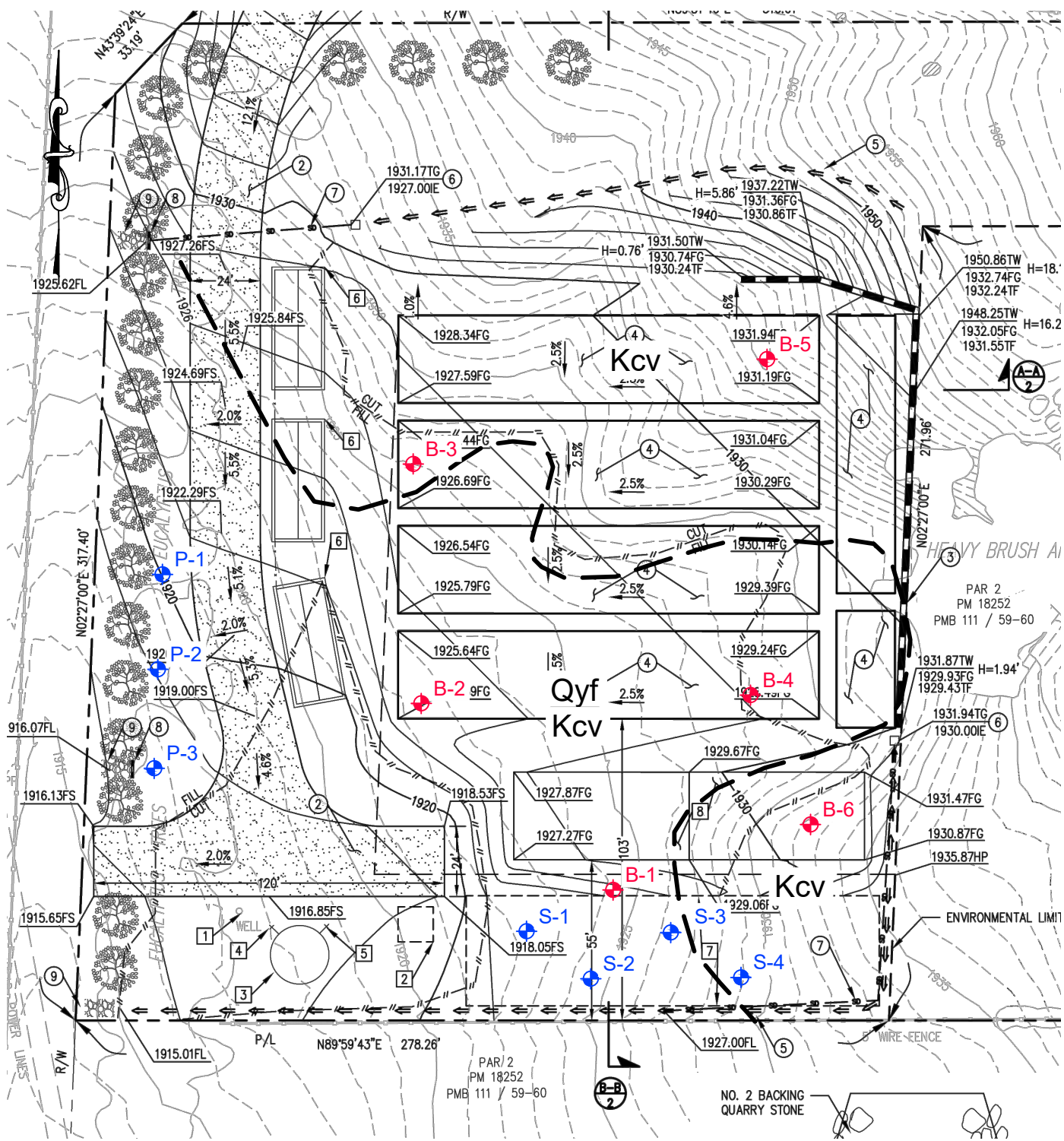
SCALE: AS SHOWN

MINTO WAY AND SAGE ROAD

DRAWN BY:
J. SANTOS

ATTACHMENT 2

**PERCOLATION TEST LOGS AND
DEEP BORING LOGS**



LEGEND

- B-1** Approximate Boring Location
- P-3** Approximate BMP Perc Test Location
- S-4** Approximate Septic Perc Test Location
- Qyf** Young Alluvial Fan Deposits over
- Kcv** Tonalite of Coahuila Valley
- Approximate Geologic Contact



Construction Testing & Engineering, Inc.

1441 Montiel Rd Ste 115, Escondido, CA 92026 Ph (760) 746-4955

GEOLOGIC/EXPLORATION LOCATION MAP

PROPOSED VORTEX FARMS
SOUTHEAST CORNER OF SAGE ROAD AND MINTO WAY
RIVERSIDE, CALIFORNIA

SCALE:
1"=50'

DATE:
10/20

CTE JOB NO.:
10-15741G

FIGURE:
2



DEFINITION OF TERMS

PRIMARY DIVISIONS		SYMBOLS		SECONDARY DIVISIONS		
COARSE GRAINED SOILS MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVELS MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS < 5% FINES	GW	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES LITTLE OR NO FINES		
		GRAVELS WITH FINES	GP	POORLY GRADED GRAVELS OR GRAVEL SAND MIXTURES, LITTLE OF NO FINES		
		SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS < 5% FINES	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES, NON-PLASTIC FINES	
			GRAVELS WITH FINES	GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES, PLASTIC FINES	
	FINE GRAINED SOILS MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS < 5% FINES	SW	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
			SANDS WITH FINES	SP	POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
			SANDS WITH FINES	SM	SILTY SANDS, SAND-SILT MIXTURES, NON-PLASTIC FINES	
		SILTS AND CLAYS LIQUID LIMIT IS LESS THAN 50	SANDS WITH FINES	SC	CLAYEY SANDS, SAND-CLAY MIXTURES, PLASTIC FINES	
			SANDS WITH FINES	ML	INORGANIC SILTS, VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, SLIGHTLY PLASTIC CLAYEY SILTS	
			SANDS WITH FINES	CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY, SANDY, SILTS OR LEAN CLAYS	
SILTS AND CLAYS LIQUID LIMIT IS GREATER THAN 50	SANDS WITH FINES	OL	ORGANIC SILTS AND ORGANIC CLAYS OF LOW PLASTICITY			
	SANDS WITH FINES	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS			
	SANDS WITH FINES	CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS			
	SANDS WITH FINES	OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTY CLAYS			
HIGHLY ORGANIC SOILS		PT	PEAT AND OTHER HIGHLY ORGANIC SOILS			

GRAIN SIZES

BOULDERS	COBBLES	GRAVEL		SAND			SILTS AND CLAYS
		COARSE	FINE	COARSE	MEDIUM	FINE	
12"	3"	3/4"	4	10	40	200	
CLEAR SQUARE SIEVE OPENING				U.S. STANDARD SIEVE SIZE			

ADDITIONAL TESTS

(OTHER THAN TEST PIT AND BORING LOG COLUMN HEADINGS)

MAX- Maximum Dry Density
 GS- Grain Size Distribution
 SE- Sand Equivalent
 EI- Expansion Index
 CHM- Sulfate and Chloride Content, pH, Resistivity
 COR - Corrosivity
 SD- Sample Disturbed

PM- Permeability
 SG- Specific Gravity
 HA- Hydrometer Analysis
 AL- Atterberg Limits
 RV- R-Value
 CN- Consolidation
 CP- Collapse Potential
 HC- Hydrocollapse
 REM- Remolded

PP- Pocket Penetrometer
 WA- Wash Analysis
 DS- Direct Shear
 UC- Unconfined Compression
 MD- Moisture/Density
 M- Moisture
 SC- Swell Compression
 OI- Organic Impurities



PROJECT:
CTE JOB NO:
LOGGED BY:

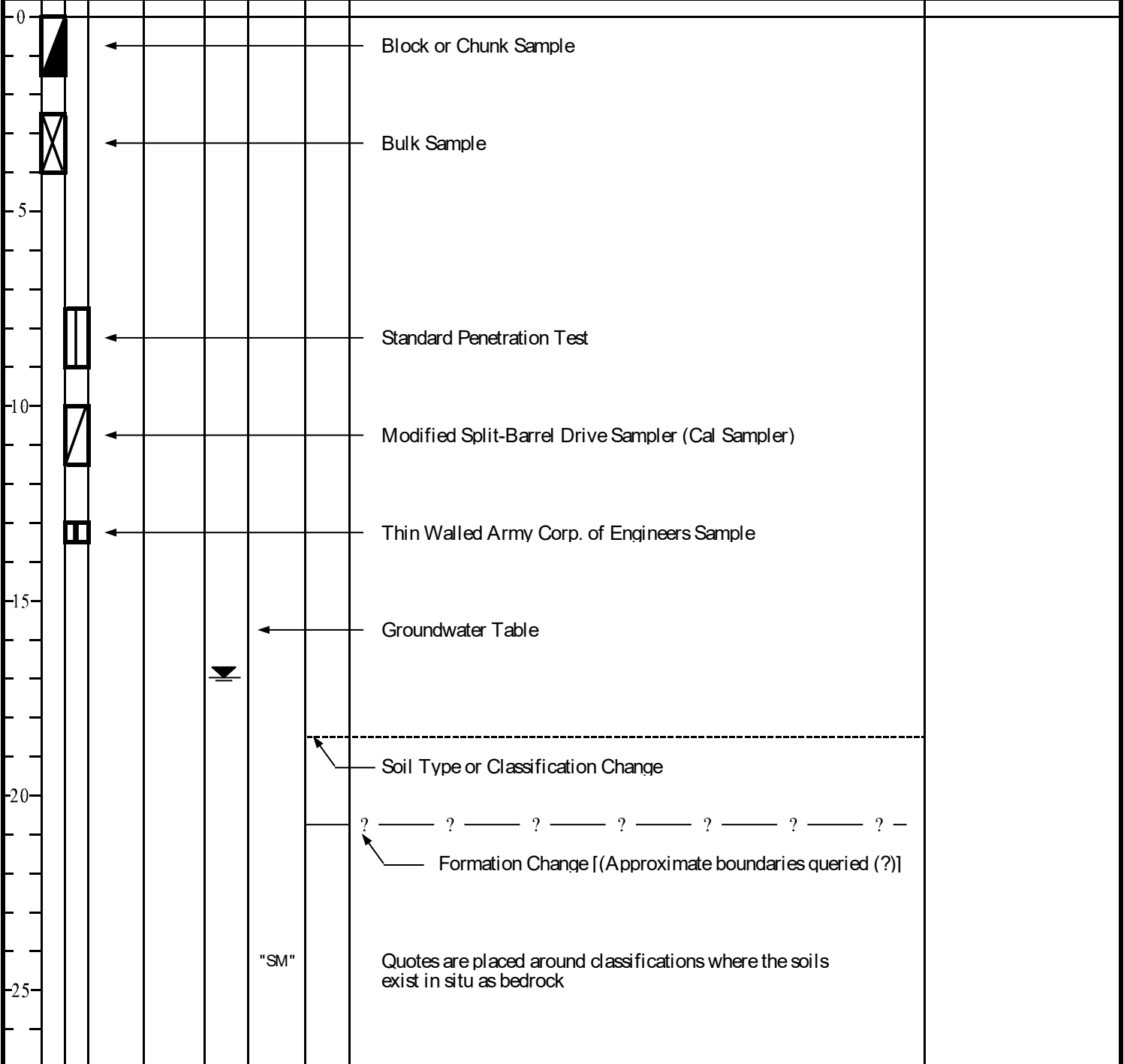
DRILLER:
DRILL METHOD:
SAMPLE METHOD:

SHEET: of
DRILLING DATE:
ELEVATION:

BORING LEGEND

Laboratory Tests

DESCRIPTION





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PROJECT: VORTEX FARMS DRILLER: BAJA EXPLORATION SHEET: 1 of 1
 CTE JOB NO: 10-15741G DRILL METHOD: HOLLOW-STEM AUGER DRILLING DATE: 9/30/2020
 LOGGED BY: AJB SAMPLE METHOD: RING, SPT and BULK ELEVATION: ~1924 FEET

Depth (Feet)	Bulk Sample Driven Type	Blows/6"	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-1	
							Laboratory Tests	
							DESCRIPTION	
0					SM		QUATERNARY YOUNG ALLUVIAL FAN DEPOSITS: Loose to medium dense, dry, grayish brown, silty fine to coarse grained SAND, friable, massive.	
5		28 29 50/6"			"SM"		CRETACEOUS TONALITE OF THE COAHUILA VALLEY: Very dense, slightly moist, reddish gray tonalite that excavates to silty fine to medium grained SAND, oxidized, severely weathered.	
10		50/6"						
15		50/2"						
							Total Depth: 15.2' No Groundwater Encountered	
20								
25								

APPENDIX IV - LEACH FIELD PERCOLATION DATA

Leach Line Percolation Data Sheet		
Project: Vortex Farms		Job No.: 1352D
Test Hole No.: 1		Date Excavated: 10/01/2020
Depth of Test Hole: 2' 5" (30")		Soil Classification: SM
Check for Sandy Soil Criteria Test by: DC	Date: 10/01/2020	Presoak: DC
Actual Percolation Tested by: DC and JS	Date: 10/02/2020	

Sandy Soil Criteria Test					
Trial No.	Time	Time Interval (Min)	Initial Water Level (in)	Final Water Level (in)	Change in Water Level (in)
1	10:00AM	30	26	30	4
	10:30AM				
2					

Normal Soil Criteria						
Time	Time Interval (Min)	Total Elapsed Time (Min)	Initial Water Level (in)	Final Water Level (in)	Change in Water Level (in)	Percolation Rate (min/in)
10:00AM	30	30	26	30	4	7.50
10:30AM						
10:30AM	30	60	26	32	6	5.00
11:00AM						
11:00AM	30	90	26	31	5	6.00
11:30AM						
11:30AM	30	120	26	29	3	10.00
12:00PM						
12:00PM	30	150	26	29	3	10.00
12:30PM						
12:30PM	30	180	26	29	3	10.00
1:00PM						

APPENDIX IV - LEACH FIELD PERCOLATION DATA

Leach Line Percolation Data Sheet		
Project: Vortex Farms	Job No.: 1352D	
Test Hole No.: 2	Date Excavated: 10/01/2020	
Depth of Test Hole: 2' 5" (30")	Soil Classification: SM	
Check for Sandy Soil Criteria Test by: DC	Date: 10/01/2020	Presoak: DC
Actual Percolation Tested by: DC and JS	Date: 10/02/2020	

Sandy Soil Criteria Test					
Trial No.	Time	Time Interval (Min)	Initial Water Level (in)	Final Water Level (in)	Change in Water Level (in)
1	10:00AM	25	22	28	6
	10:25AM				
2	10:25AM	25	22	28	6
	10:50AM				

Normal Soil Criteria						
Time	Time Interval (Min)	Total Elapsed Time (Min)	Initial Water Level (in)	Final Water Level (in)	Change in Water Level (in)	Percolation Rate (min/in)
10:00AM	25	25	22	28	6	4.17
10:25AM						
10:25AM	25	50	22	28	6	4.17
10:50AM						
10:50AM	10	60	22	25	3	3.33
11:00AM						
11:00AM	10	70	22	26	4	2.50
11:10AM						
11:10AM	10	80	22	25	3	3.33
11:20AM						
11:20AM	10	90	22	26	4	2.50
11:30AM						
11:30AM	10	100	22	25	3	3.33
11:40AM						
11:40AM	10	110	22	24.5	2.5	4.00
11:50AM						

APPENDIX IV - LEACH FIELD PERCOLATION DATA

Leach Line Percolation Data Sheet		
Project: Vortex Farms	Job No.: 1352D	
Test Hole No.: 3	Date Excavated: 10/01/2020	
Depth of Test Hole: 2' 5" (30")	Soil Classification: SM	
Check for Sandy Soil Criteria Test by: DC	Date: 10/01/2020	Presoak: DC
Actual Percolation Tested by: DC and JS	Date: 10/02/2020	

Sandy Soil Criteria Test					
Trial No.	Time	Time Interval (Min)	Initial Water Level (in)	Final Water Level (in)	Change in Water Level (in)
1	10:00AM	30	22	24	2
	10:30AM				
2					

Normal Soil Criteria						
Time	Time Interval (Min)	Total Elapsed Time (Min)	Initial Water Level (in)	Final Water Level (in)	Change in Water Level (in)	Percolation Rate (min/in)
10:00AM	30	30	22	24	2	15.00
10:30AM						
10:30AM	30	60	22	24	2	15.00
11:00AM						
11:00AM	30	90	22	24	2	15.00
11:30AM						
11:30AM	30	120	22	23.5	1.5	20.00
12:00PM						
12:00PM	30	150	22	24	2	15.00
12:30PM						
12:30PM	30	180	22	23.5	1.5	20.00
1:00PM						

APPENDIX IV - LEACH FIELD PERCOLATION DATA

Leach Line Percolation Data Sheet		
Project: Vortex Farms		Job No.: 1352D
Test Hole No.: 4		Date Excavated: 10/01/2020
Depth of Test Hole: 2' 5" (30")		Soil Classification: SM
Check for Sandy Soil Criteria Test by: DC	Date: 10/01/2020	Presoak: DC
Actual Percolation Tested by: DC and JS	Date: 10/02/2020	

Sandy Soil Criteria Test					
Trial No.	Time	Time Interval (Min)	Initial Water Level (in)	Final Water Level (in)	Change in Water Level (in)
1	10:00AM	30	22	26	4
	10:30AM				
2					

Normal Soil Criteria						
Time	Time Interval (Min)	Total Elapsed Time (Min)	Initial Water Level (in)	Final Water Level (in)	Change in Water Level (in)	Percolation Rate (min/in)
10:00AM	30	30	22	26	4	7.50
10:30AM						
10:30AM	30	60	22	25	3	10.00
11:00AM						
11:00AM	30	90	22	24	2	15.00
11:30AM						
11:30AM	30	120	22	24	2	15.00
12:00PM						
12:00PM	30	150	22	24	2	15.00
12:30PM						
12:30PM	30	180	22	24	2	15.00
1:00PM						

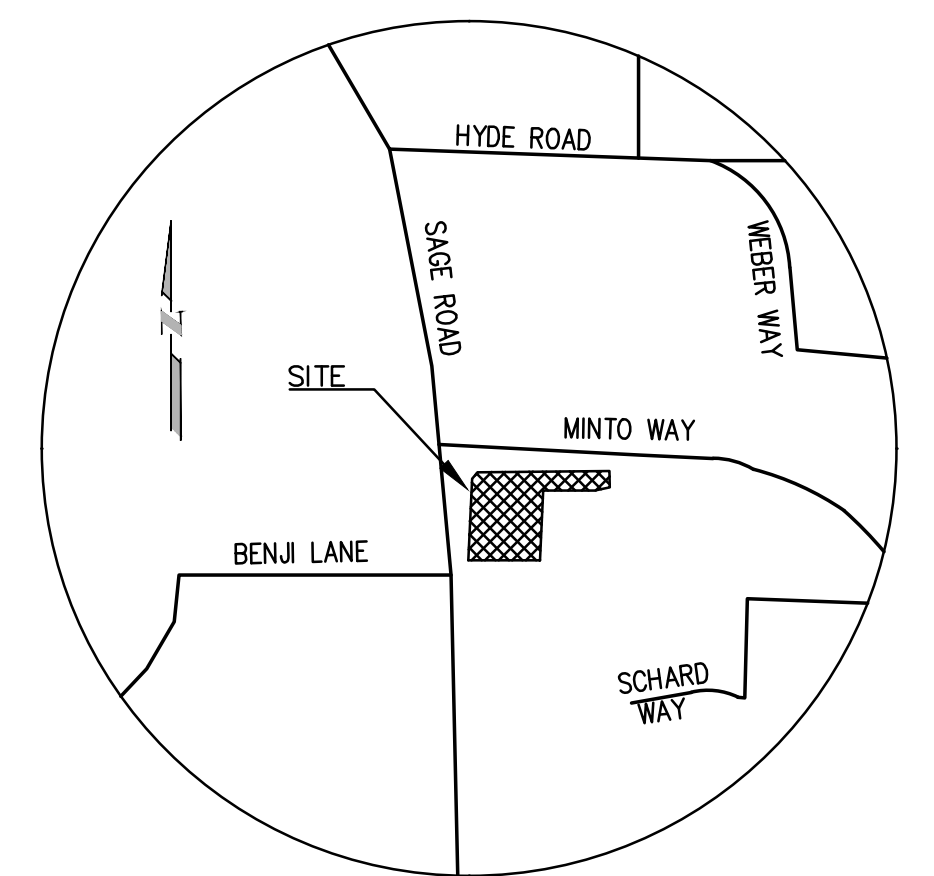
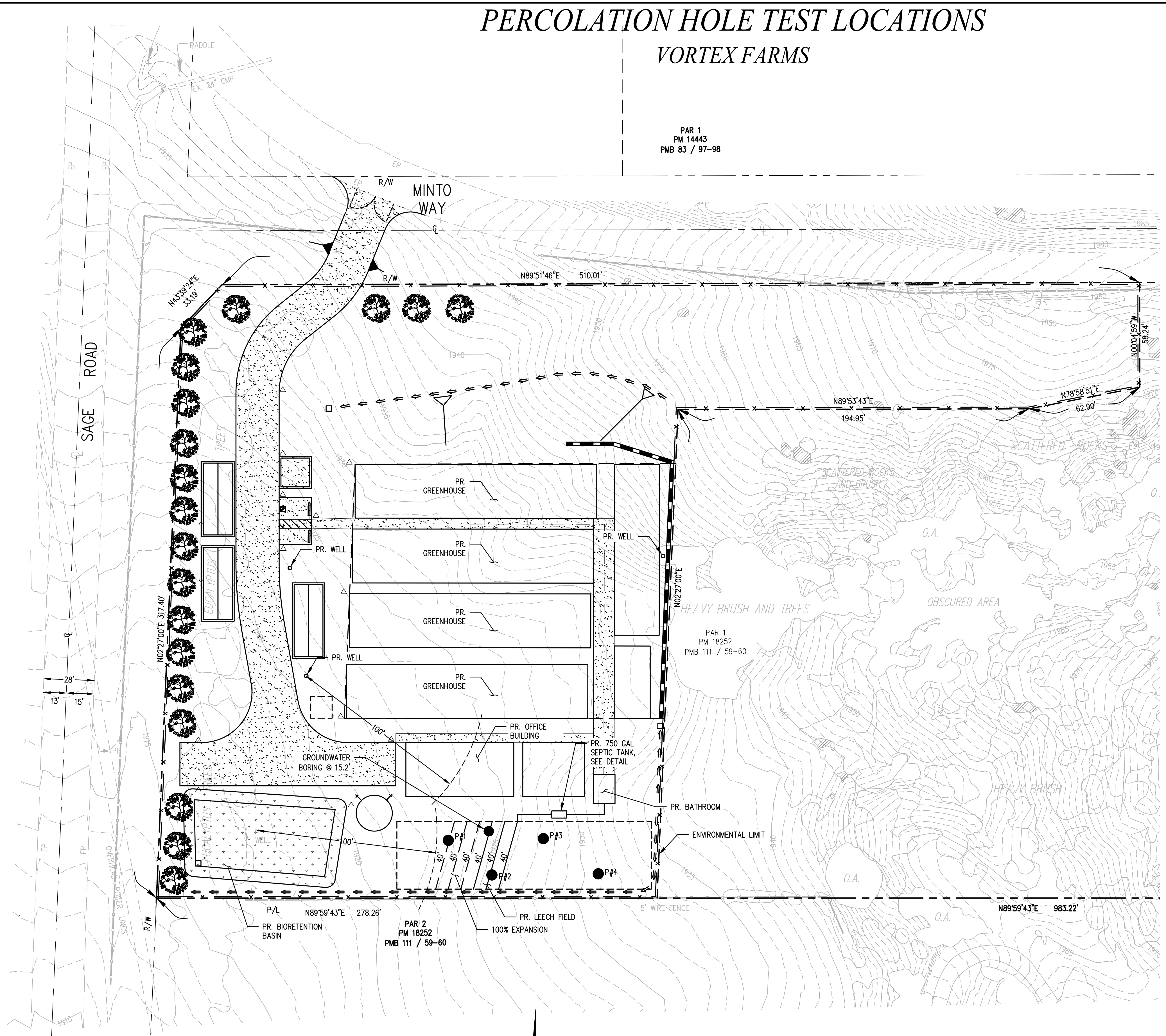
ATTACHMENT 3

SEPTIC DESIGN AND LAYOUT

PERCOLATION HOLE TEST LOCATIONS

VORTEX FARMS

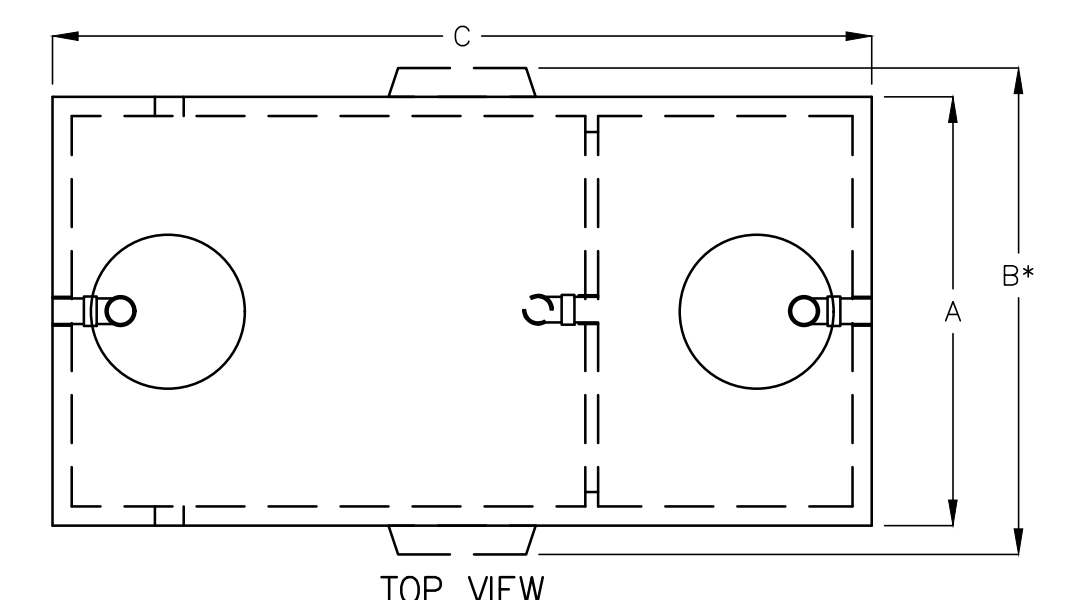
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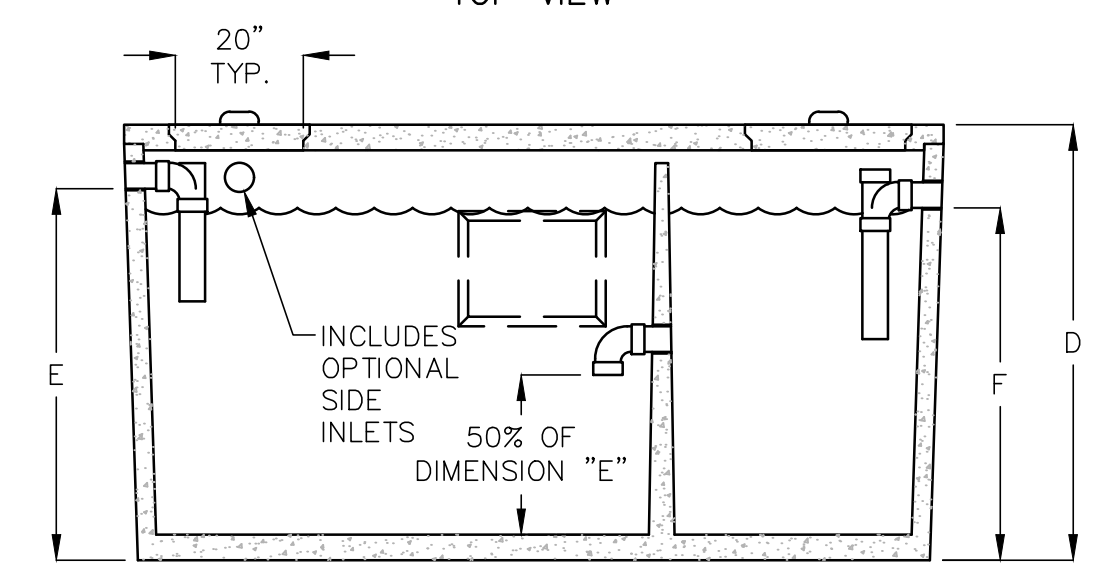
VICINITY MAP
THOMAS BROS. MAP NO.
PAGE 871 E6

RESIDENTIAL SEPTIC TANKS

ACCEPTED BY UPC®



TOP VIEW



SIDE VIEW

MODEL NUMBER	LIQUID CAPACITY (GALLONS)	DIM A	DIM B*	DIM C	DIM D	DIM E	DIM F	MINIMUM EXCAVATION WIDTH*	MINIMUM EXCAVATION LENGTH
JS-750	750	4'-0"	4'-9"	8'-1"	5'-8"	4'-10"	4'-7"	5'-9"	9'-1"

DESIGN LOAD: NON TRAFFIC - 3' OF EARTH COVER MAXIMUM AT 500 PSF
FOR COMPLETE DESIGN AND PRODUCT INFORMATION, CONTACT JENSEN PRECAST.
ON THE WEB AT JENSENPRECAST.COM

1/5/05
js750hrujs3000.dwg
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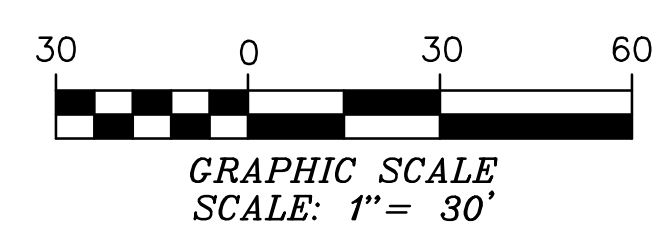


NOTES:

- PERCOLATION RATE = 4 MPI
- FIXTURE UNITS = 8 FU
- LEACH LINE AREA = 338 SF
- DEPTH OF LEACH LINE = 3 FT



11/25/20
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CAUTION!!
EXISTING UNDERGROUND UTILITIES AND FACILITIES SHOWN ON THESE PLANS HAVE BEEN OBTAINED FROM AVAILABLE RECORDS WHICH IN MOST CASES ARE SCHEMATIC PLANS. THESE PLANS MAY NOT REFLECT ALL EXISTING UTILITIES. EXACT LOCATION AND DEPTH OF EXISTING UTILITIES ARE UNKNOWN. SUBCONTRACTOR TO CONFIRM THE LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO START OF WORK, AND NOTIFY ENGINEER OF WORK OF ANY DISCREPANCIES.