Possible Soil Removal Report

Analysis of Tower 30 & 32 Site

For:
PG&E

By:
ASEC Inc.

Final Revision 0
March 03, 2017

ASECINC.

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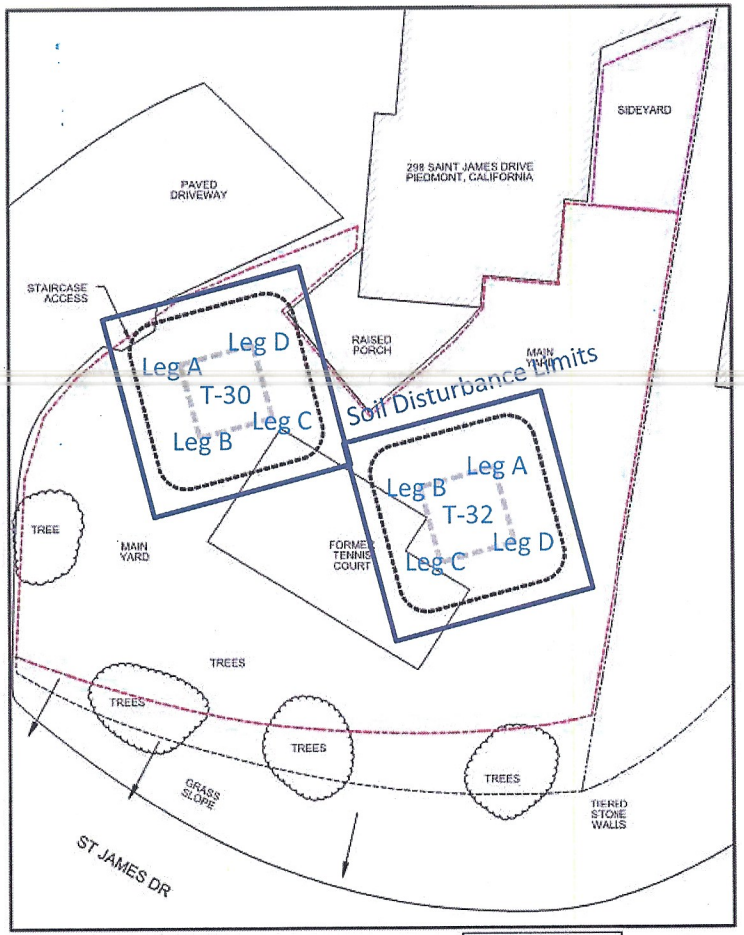
Summary

- This report is based on the in-situ conditions prior to any soil removal and replacement.
- In order to determine uplift loads, in-situ loads were extracted from the PLS-CADD files for both towers and PLS-TOWER analysis was performed. The maximum uplift loads from the PLS-TOWER analysis can be found in the conclusion.
- The plan view of the site (page 4) shows the limits of future soil disturbance.
- The profile views of the tower foundations (pages 5 – 6) show foundation depth information.
- Notes:
  - Broken wire cases are for any two wires broken with 1.0 OLF.
  - GO95 intact cases have a 1.5 OLF.
  - The original drawings indicate a typical 6' stub/grillage foundation.
  - The foundation consists of a leg bolted to a stub angle and a grillage plate at the bottom. This assembly has a 1.5' diameter concrete cap set around the ground line of each leg some time after initial construction. This concrete cap protrudes above the ground as shown in the pictures and below the ground for an unverified depth (typically 12" to 18").
  - There may be degradation of the stub angles and grillage plates due to age or other factors or the soil properties may be different from what is assumed.
  - Tower 30 has been modified by adding post insulators to the top arm, moving all three phases on both circuits up, and removing the bottom arm. This modification has increased foundation loads from the original conditions.
- Assumptions:
  - The stub angle and grillage foundation are in good condition and have not corroded or been damaged.
  - The soil density is 78 lb/ft^3.
  - The angle of repose of the soil is 30°.
  - These depth of concrete below ground is shown as 12" in this report.

Plan View of Site

APN: 051-4813-017



LEGEND:

- APPROXIMATE EXTENT OF SOIL REMOVAL IN THE TOWER AREA. SOIL TO BE REMOVED 6 INCHES BELOW CURRENT GRADE AND BACKFILLED.
- APPROXIMATE EXTENT OF SOIL REMOVAL IN THE YARD TO 3 INCHES BELOW GROUND SURFACE. AREA WILL NOT BE BACKFILLED.
- APPROXIMATE EXTENT OF SOIL REMOVAL IN THE SIDE YARD TO 3 INCHES BELOW GROUND SURFACE. AREA WILL NOT BE BACKFILLED
- APPROXIMATE EXTENT OF EXISTING SITE FEATURES.

NOTES:

1. PG&E PROHIBITS REMOVAL OR DISRUPTION OF SOIL AROUND TOWER FOUNDATIONS BEYOND SCOPE DEFINED IN THIS DOCUMENT.
2. ALL DISTANCES/AREAS/VOLUMES ARE APPROXIMATE AND WILL BE CONFIRMED DURING FIELD VERIFICATION

MAIN YARD	
REMOVING 3" OF SOIL	
AREA - SQ FT	7,500
CUBIC YARDS	694
SIDE YARD	
REMOVING 3" OF SOIL	
AREA - SQ FT	726
CUBIC YARDS	67
TOWERS - 10 FT STEPOUT	
REMOVING AND BACKFILLING 6" OF SOIL	
AREA - SQ FT	2,540
CUBIC YARDS	471
FORMER TENNIS COURT	
REMOVING 6" OF ASPHALT/CONCRETE	
AREA - SQ FT	1,309
CUBIC YARDS	243

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SCALE IN FEET

DATE:
SEPTEMBER 29, 2016

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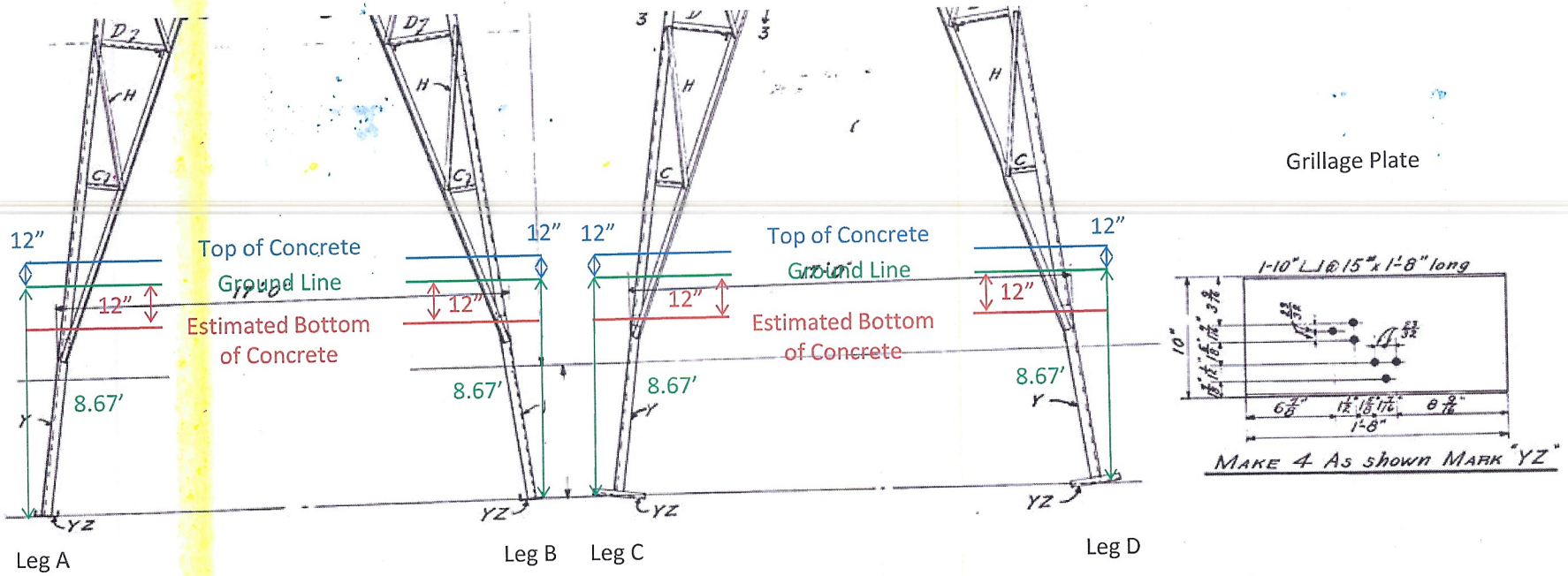
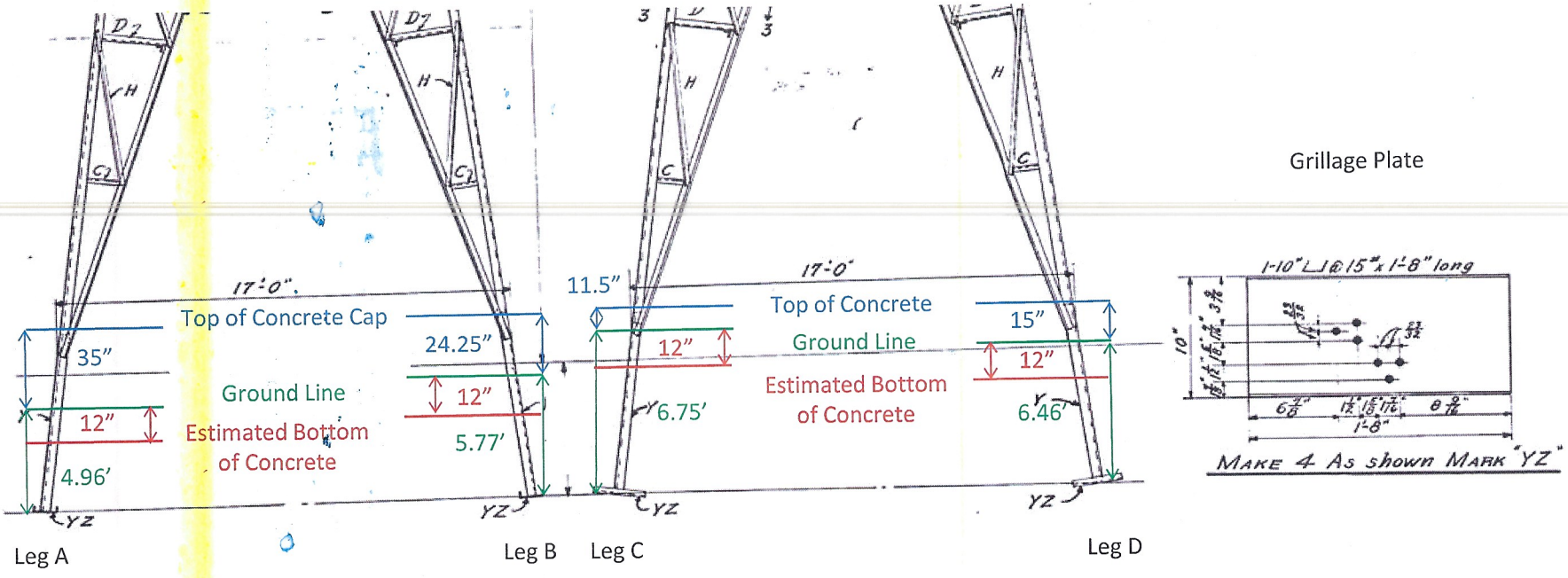
Tower 30 – Profile View of Foundation



Notes:

- Values shown on this page are estimates based on photos taken with no measurements.
- Concrete is a cap only and does not extend to the bottom of the foundation.

Tower 32 – Profile View of Foundation



Notes:

- Values shown on this page are averages of measurements taken in the field.
- Concrete is a cap only and does not extend to the bottom of the foundation.

Conclusion

Tower 30

- Maximum uplift loads for the intact loading case is 6,840 lb with 1.5 OLF and 4,560 lb with 1.0 OLF.
- Maximum uplift loads for the broken wire case (2 conductors broken) is 12,850 lb with 1.0 OLF.
- Pictures indicate that the top two conductors have been raised and arms have been retrofitted to hold post insulators. This retrofit has increased foundation loads from the original conditions.

Tower 32

- Maximum uplift loads for the intact loading case is 5,160 lb with 1.5 OLF and 3,440 lb with 1.0 OLF.
- Maximum uplift loads for the broken wire case (2 conductors broken) is 7,450 lb with 1.0 OLF.

General Site Instructions for Additional Soil Disturbance

It is the opinion of ASEC that no ground disturbance should occur inside of a 13' radius of the point where the tower leg intersects with the ground unless an engineered solution is obtained for that ground disturbance.

The depth of the concrete cap may vary from what is shown in this report. Do not excavate below the bottom of the concrete cap unless an engineered solution is obtained for that excavation.