ARCADIS

Figures

\\Scottsdale-AZ\Project\UPCO\GIS\Projects\Annual Monitoring Report 2014\Figure 01 site location map.mxd 2/5/2015

Scale: 1" = 200 miles

LEGEND

★ Approximate site location

NOTES

· Basemap source: ESRI National Geographic World Map.

Miles
0 4 8

Scale: 1" = 8 mi

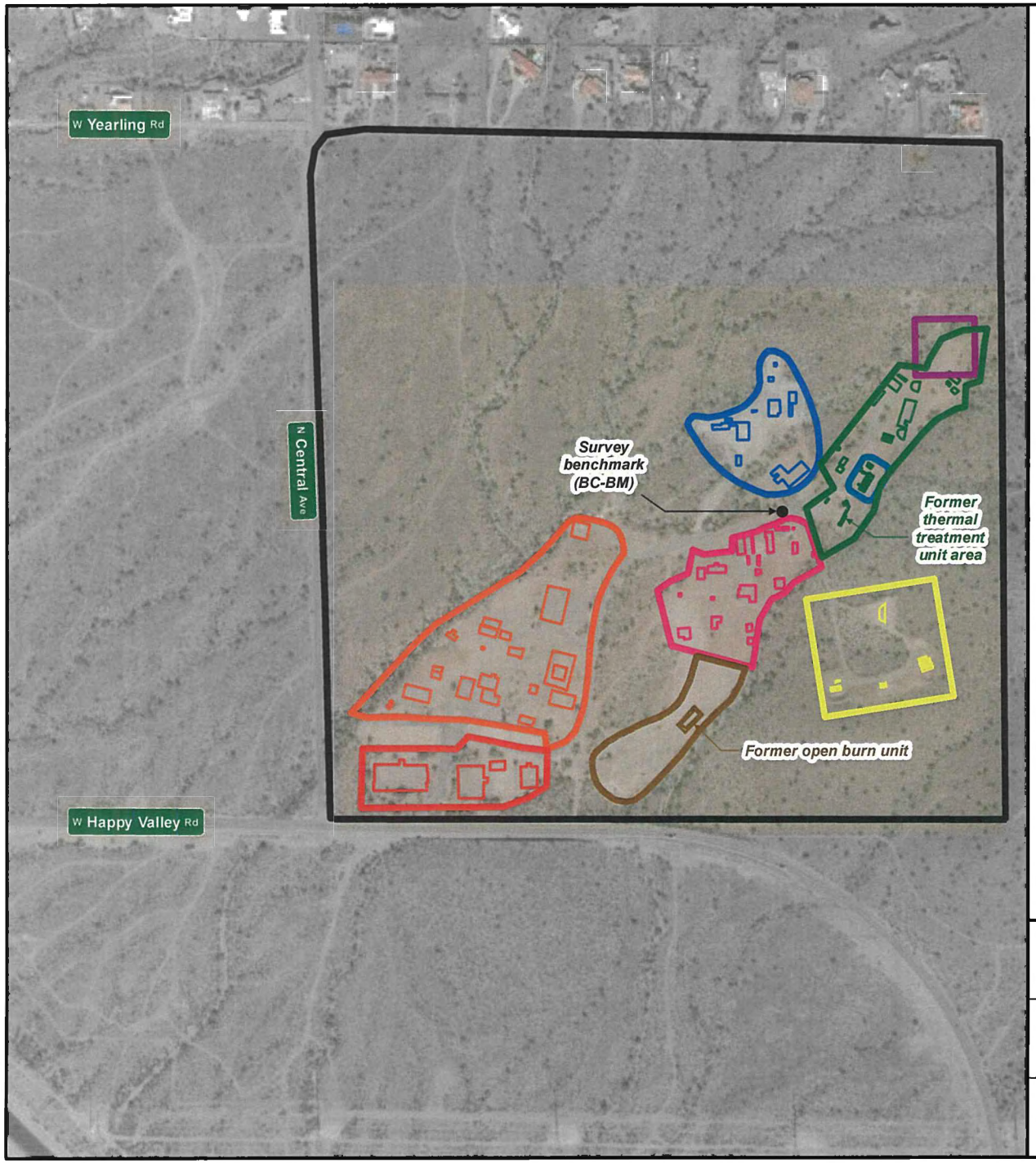
FORMER UNIVERSAL PROPULSION COMPANY, INC. FACILITY
PHOENIX, ARIZONA
2014 ANNUAL MONITORING REPORT

SITE LOCATION MAP

ARCADIS

FIGURE
1

\\Scottsdale-AZ\Project\UPCO\GIS\Projects\Annual Monitoring Report 2014\Figure 02 site facility map.mxd 2/5/2015



LEGEND

- Lease property boundary
- A-Complex
- B-Complex
- C-Complex
- D-Complex
- E-Complex/Storage Magazine Area
- F-Complex
- New Burn Area
- Old Burn Area
- Waterbore Area

NOTES

· Aerial photo source: ESRI World Imagery.

N

Feet
0 300 600
Scale: 1" = 600'

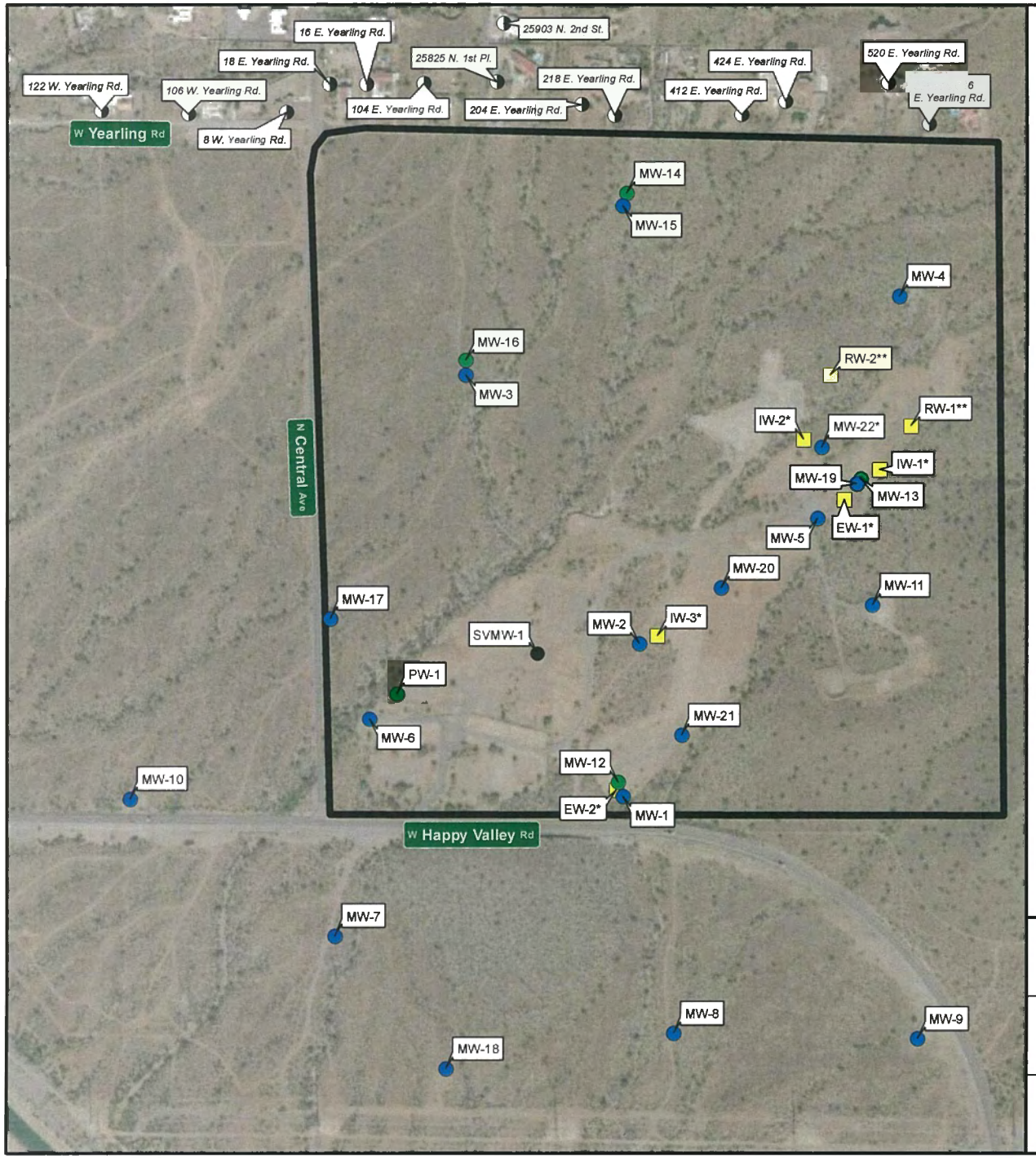
FORMER UNIVERSAL PROPULSION COMPANY, INC. FACILITY
PHOENIX, ARIZONA
2014 ANNUAL MONITORING REPORT

SITE FACILITY MAP

ARCADIS

FIGURE
2

\\Scottsdale-AZ\Project\UPCO\GIS\Projects\Annual Monitoring Report 2014\Figure 03 well locations 2014.mxd 2/12/2015



LEGEND

- Lease property boundary
- Groundwater monitoring well
- Groundwater monitoring well (deep)
- Planned remediation well
- Soil vapor monitoring well
- Private well

NOTES

- Aerial photo source: ESRI World Imagery.
- * = well was installed in March 2014.
- ** = well was installed in August 2014.

N

Feet

0 300 600

Scale: 1" = 600'

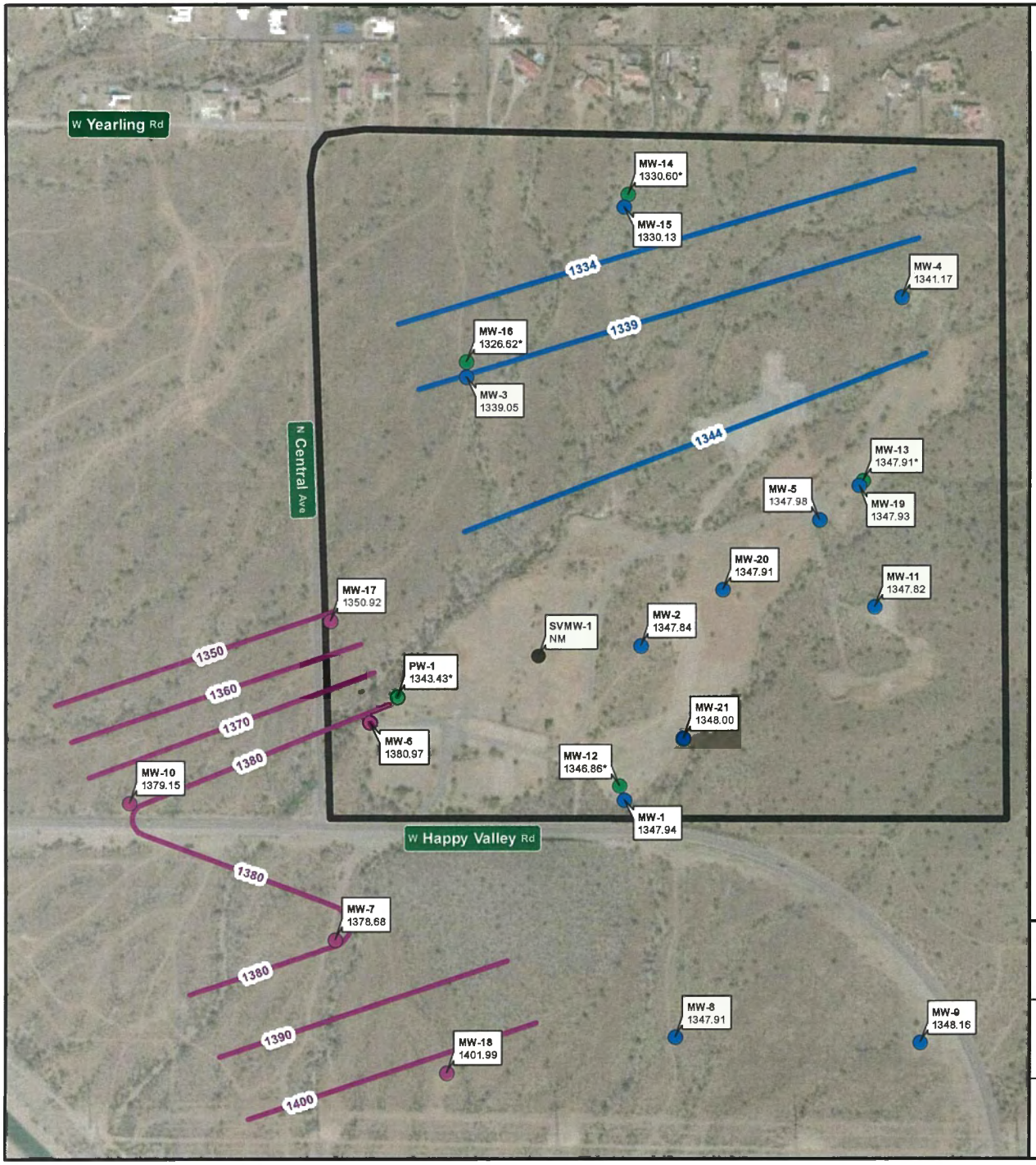
FORMER UNIVERSAL PROPULSION COMPANY, INC. FACILITY
PHOENIX, ARIZONA
2014 ANNUAL MONITORING REPORT

SITE MONITORING WELL LOCATIONS

ARCADIS

FIGURE
3

\\Scottsdale-AZ\Project\UPCO\GIS\Projects\Annual Monitoring Report 2014\Figure 04 GW elevations 01-2014.mxd 2/26/2015



LEGEND

- Lease property boundary
- Shallow bedrock unit well
- Sedimentary unit well
- Deep well
- Soil vapor monitoring well
- Shallow bedrock unit groundwater elevation contour
- Sedimentary unit groundwater elevation contour

NOTES

- Aerial photo source: ESRI World Imagery.
- Groundwater elevations are expressed in feet above mean sea level.
- * = well is not used in contouring.
- NM = not measured.

Feet
0 300 600
Scale: 1" = 600'

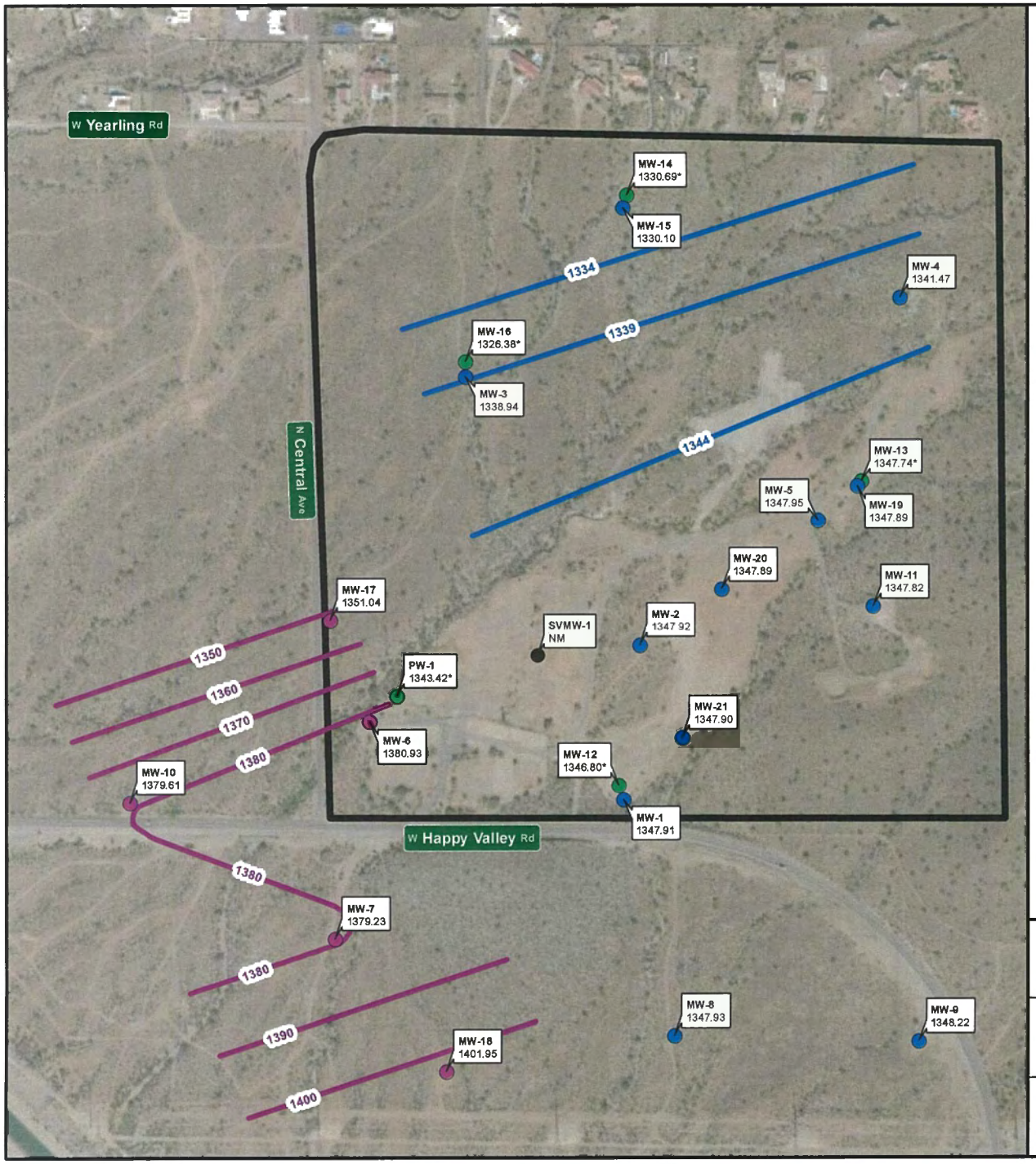
FORMER UNIVERSAL PROPULSION COMPANY, INC. FACILITY
PHOENIX, ARIZONA
2014 ANNUAL MONITORING REPORT

GROUNDWATER ELEVATIONS
JANUARY 13-21, 2014

ARCADIS

FIGURE
4

\\Scottsdale-AZ\Project\UPCO\GIS\Projects\Annual Monitoring Report 2014\Figure 05 GW elevations 02-2014.mxd 2/26/2015



LEGEND

- Lease property boundary
- Shallow bedrock unit well
- Sedimentary unit well
- Deep well
- Soil vapor monitoring well
- Shallow bedrock unit groundwater elevation contour
- Sedimentary unit groundwater elevation contour

NOTES

- Aerial photo source: ESRI World Imagery.
- Groundwater elevations are expressed in feet above mean sea level.
- * = well is not used in contouring.
- NM = not measured.

N

0 300 600 Feet

Scale: 1" = 600'

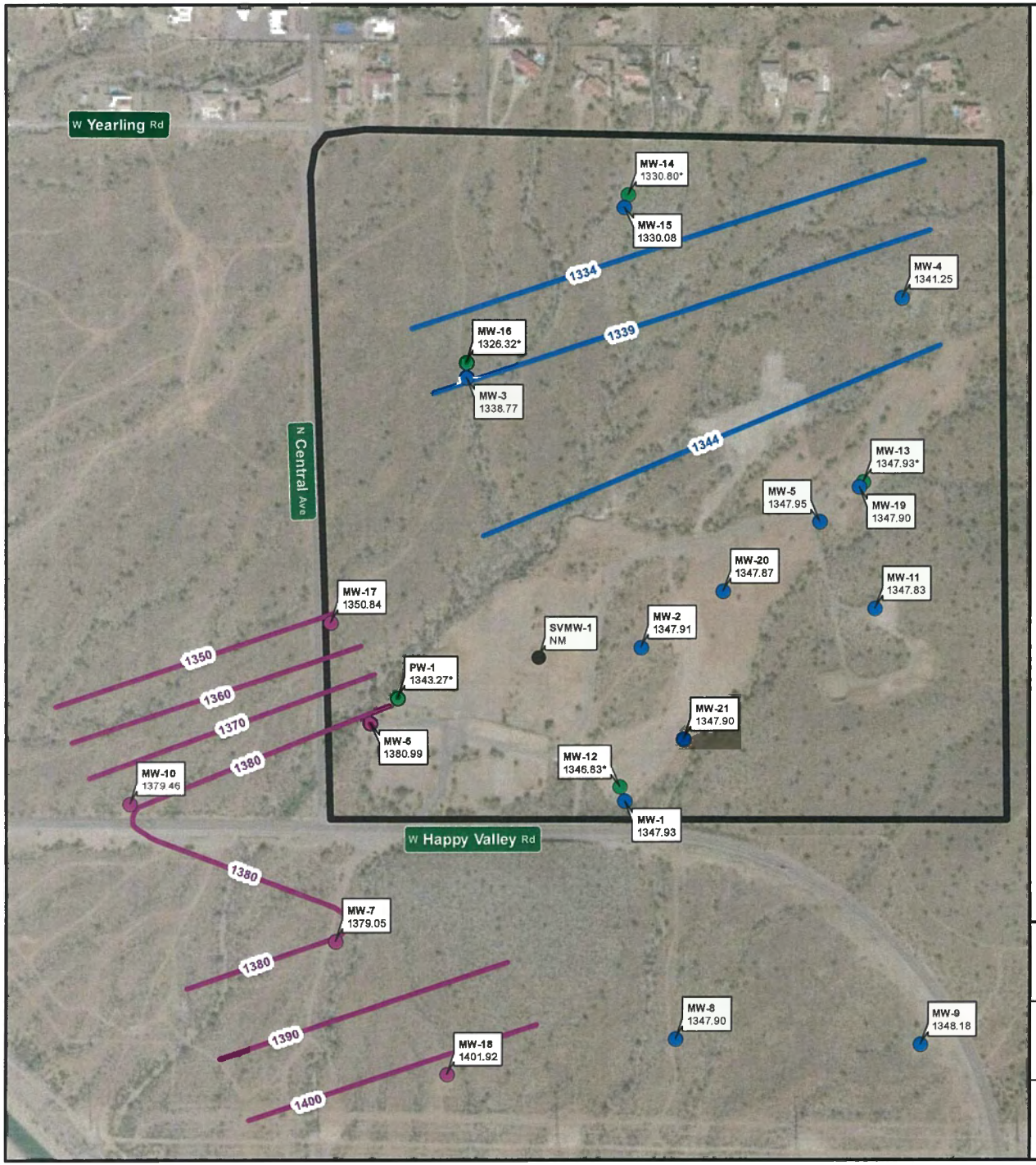
FORMER UNIVERSAL PROPULSION COMPANY, INC. FACILITY
PHOENIX, ARIZONA
2014 ANNUAL MONITORING REPORT

GROUNDWATER ELEVATIONS
FEBRUARY 28, 2014

ARCADIS

FIGURE
5

\\Scottsdale-AZ\Project\UPCO\GIS\Projects\Annual Monitoring Report 2014\Figure 06 GW elevations 03-2014.mxd 2/26/2015



LEGEND

- Lease property boundary
- Shallow bedrock unit well
- Sedimentary unit well
- Deep well
- Soil vapor monitoring well
- Shallow bedrock unit groundwater elevation contour
- Sedimentary unit groundwater elevation contour

NOTES

- Aerial photo source: ESRI World Imagery.
- Groundwater elevations are expressed in feet above mean sea level.
- * = well is not used in contouring.
- NM = not measured.

N

0 300 600 Feet

Scale: 1" = 600'

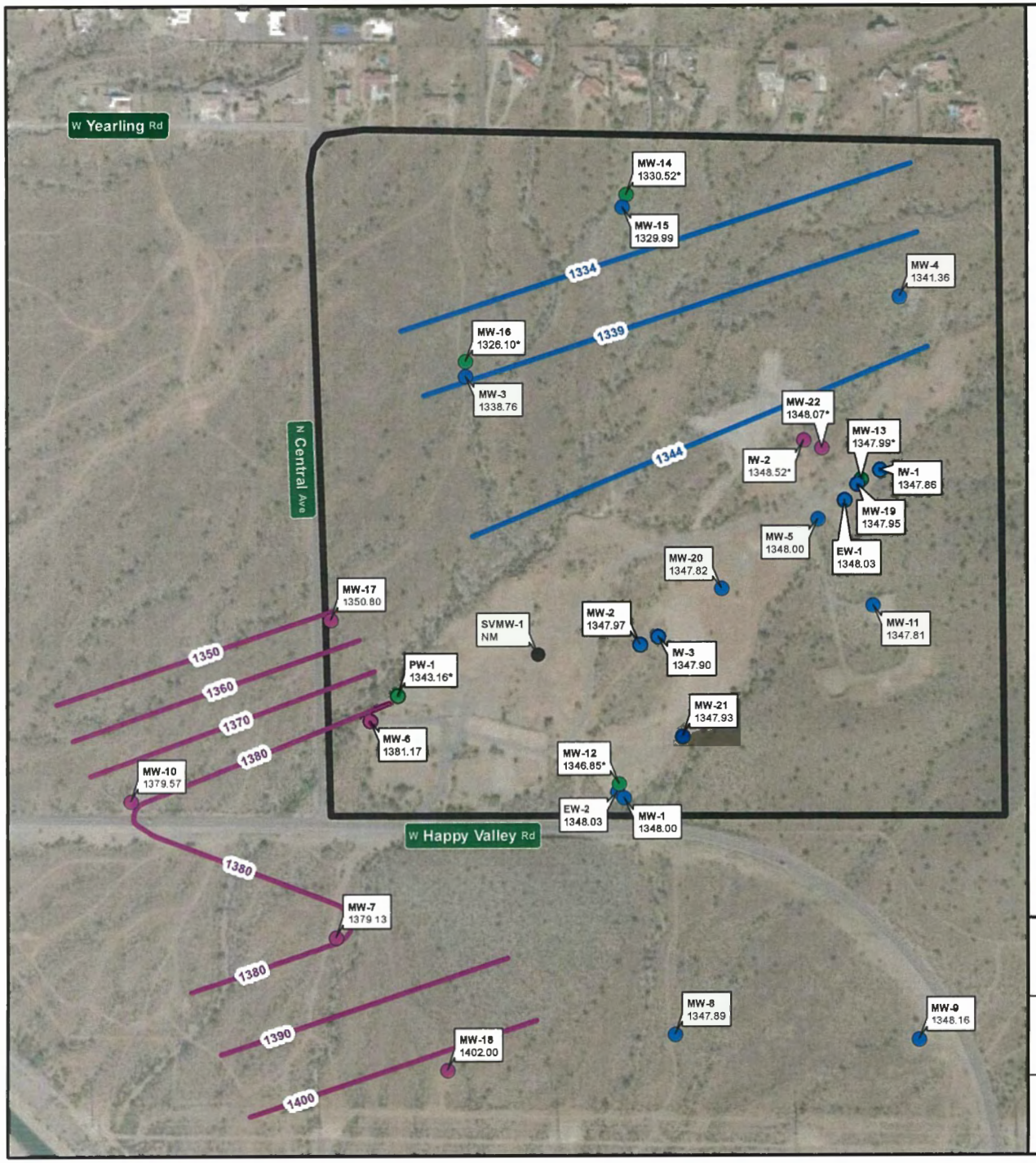
FORMER UNIVERSAL PROPULSION COMPANY, INC. FACILITY
PHOENIX, ARIZONA
2014 ANNUAL MONITORING REPORT

GROUNDWATER ELEVATIONS
MARCH 15, 2014

ARCADIS

FIGURE
6

\\Scottsdale-AZ\Project\UPCO\GIS\Projects\Annual Monitoring Report 2014\Figure 07 GW elevations 04-2014.mxd 2/26/2015



LEGEND

- Lease property boundary
- Shallow bedrock unit well
- Sedimentary unit well
- Deep well
- Soil vapor monitoring well
- Shallow bedrock unit groundwater elevation contour
- Sedimentary unit groundwater elevation contour

NOTES

- Aerial photo source: ESRI World Imagery.
- Groundwater elevations are expressed in feet above mean sea level.
- * = well is not used in contouring.
- NM = not measured.

N

0 300 600 Feet

Scale: 1" = 600'

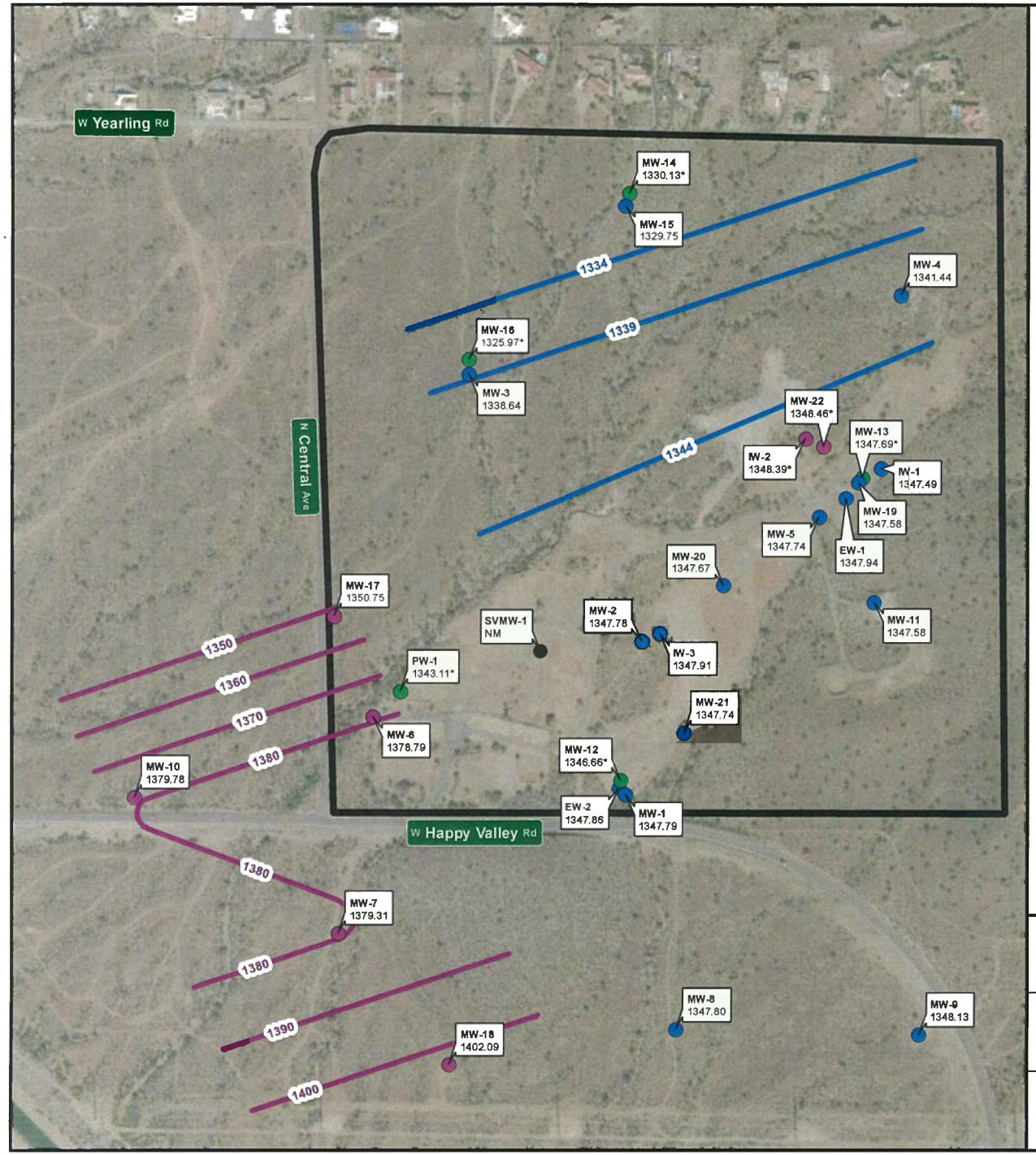
FORMER UNIVERSAL PROPULSION COMPANY, INC. FACILITY
PHOENIX, ARIZONA
2014 ANNUAL MONITORING REPORT

GROUNDWATER ELEVATIONS
MARCH 31, 2014

ARCADIS

FIGURE
7

\\Scottsdale-AZ\Project\UPCO\GIS\Projects\Annual Monitoring Report 2014\Figure 08 GW elevations 05-2014.mxd 2/26/2015



LEGEND

- Lease property boundary
- Shallow bedrock unit well
- Sedimentary unit well
- Deep well
- Soil vapor monitoring well
- Shallow bedrock unit groundwater elevation contour
- Sedimentary unit groundwater elevation contour

NOTES

- Aerial photo source: ESRI World Imagery.
- Groundwater elevations are expressed in feet above mean sea level.
- * = well is not used in contouring.
- NM = not measured.

N

Feet
0 300 600

Scale: 1" = 600'

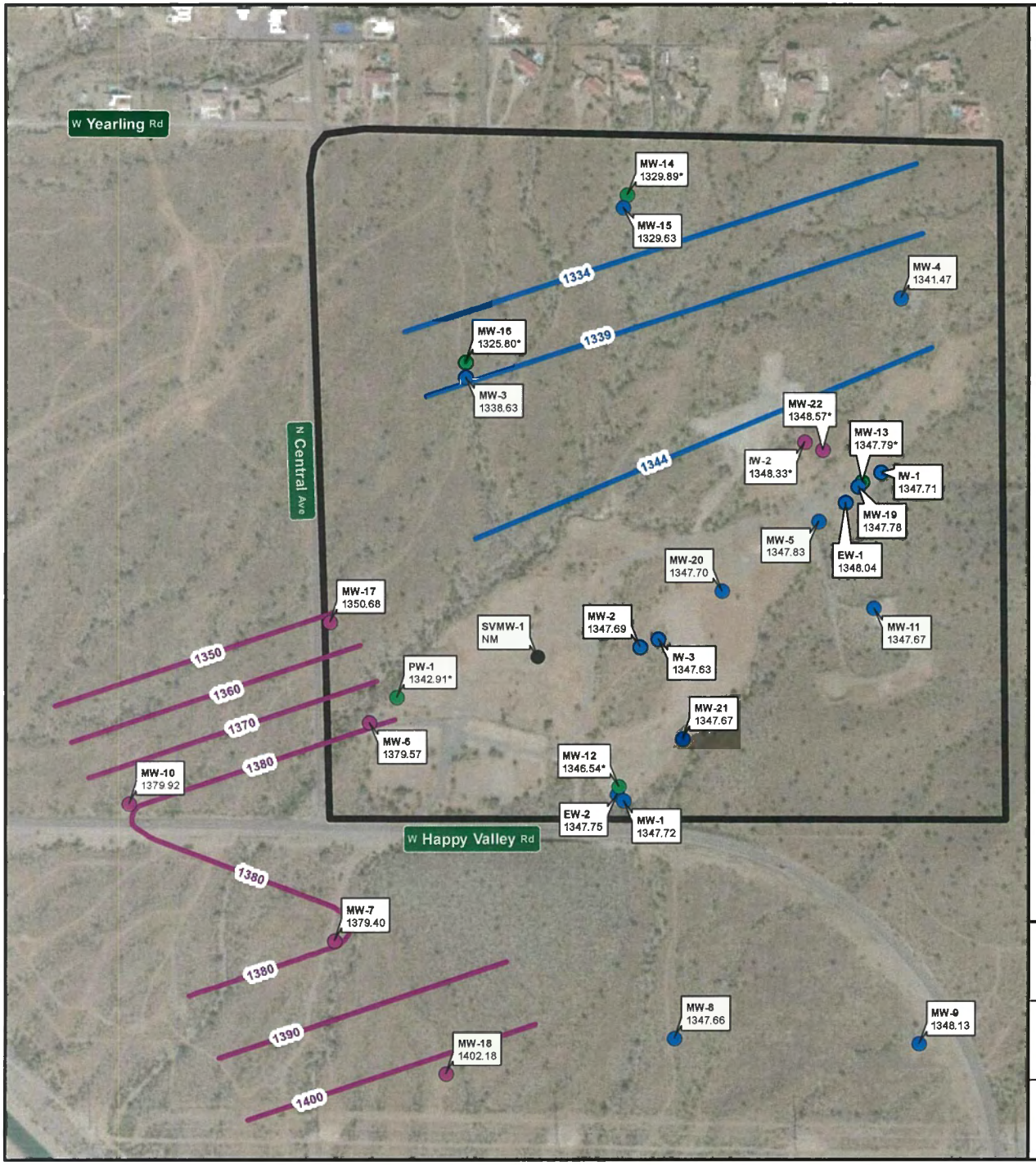
FORMER UNIVERSAL PROPULSION COMPANY, INC. FACILITY
PHOENIX, ARIZONA
2014 ANNUAL MONITORING REPORT

GROUNDWATER ELEVATIONS
MAY 23, 2014

ARCADIS

FIGURE
8

\\Scottsdale-AZ\Project\UPCO\GIS\Projects\Annual Monitoring Report 2014\Figure 09 GW elevations 06-2014.mxd 2/26/2015



LEGEND

- Lease property boundary
- Shallow bedrock unit well
- Sedimentary unit well
- Deep well
- Soil vapor monitoring well
- Shallow bedrock unit groundwater elevation contour
- Sedimentary unit groundwater elevation contour

NOTES

- Aerial photo source: ESRI World Imagery.
- Groundwater elevations are expressed in feet above mean sea level.
- * = well is not used in contouring.
- NM = not measured.

N

Feet
0 300 600

Scale: 1" = 600'

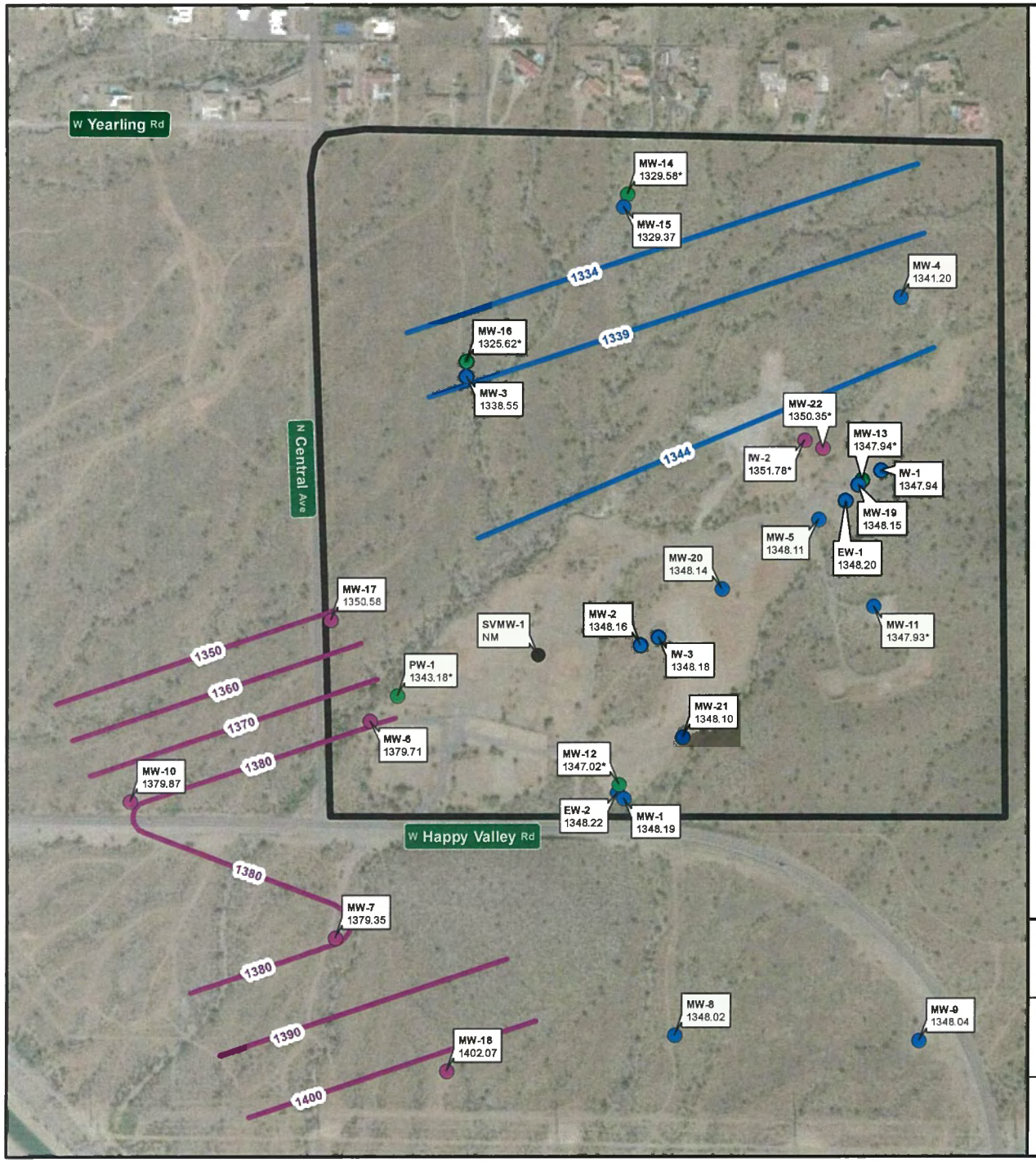
FORMER UNIVERSAL PROPULSION COMPANY, INC. FACILITY
PHOENIX, ARIZONA
2014 ANNUAL MONITORING REPORT

GROUNDWATER ELEVATIONS
JUNE 14, 2014

ARCADIS

FIGURE
9

\\Scottsdale-AZ\Project\UPCO\GIS\Projects\Annual Monitoring Report 2014\Figure 10 GW elevations 07-2014.mxd 2/26/2015



LEGEND

- Lease property boundary
- Shallow bedrock unit well
- Sedimentary unit well
- Deep well
- Soil vapor monitoring well
- Shallow bedrock unit groundwater elevation contour
- Sedimentary unit groundwater elevation contour

NOTES

- Aerial photo source: ESRI World Imagery.
- Groundwater elevations are expressed in feet above mean sea level.
- * = well is not used in contouring.
- NM = not measured.

N

0 300 600 Feet

Scale: 1" = 600'

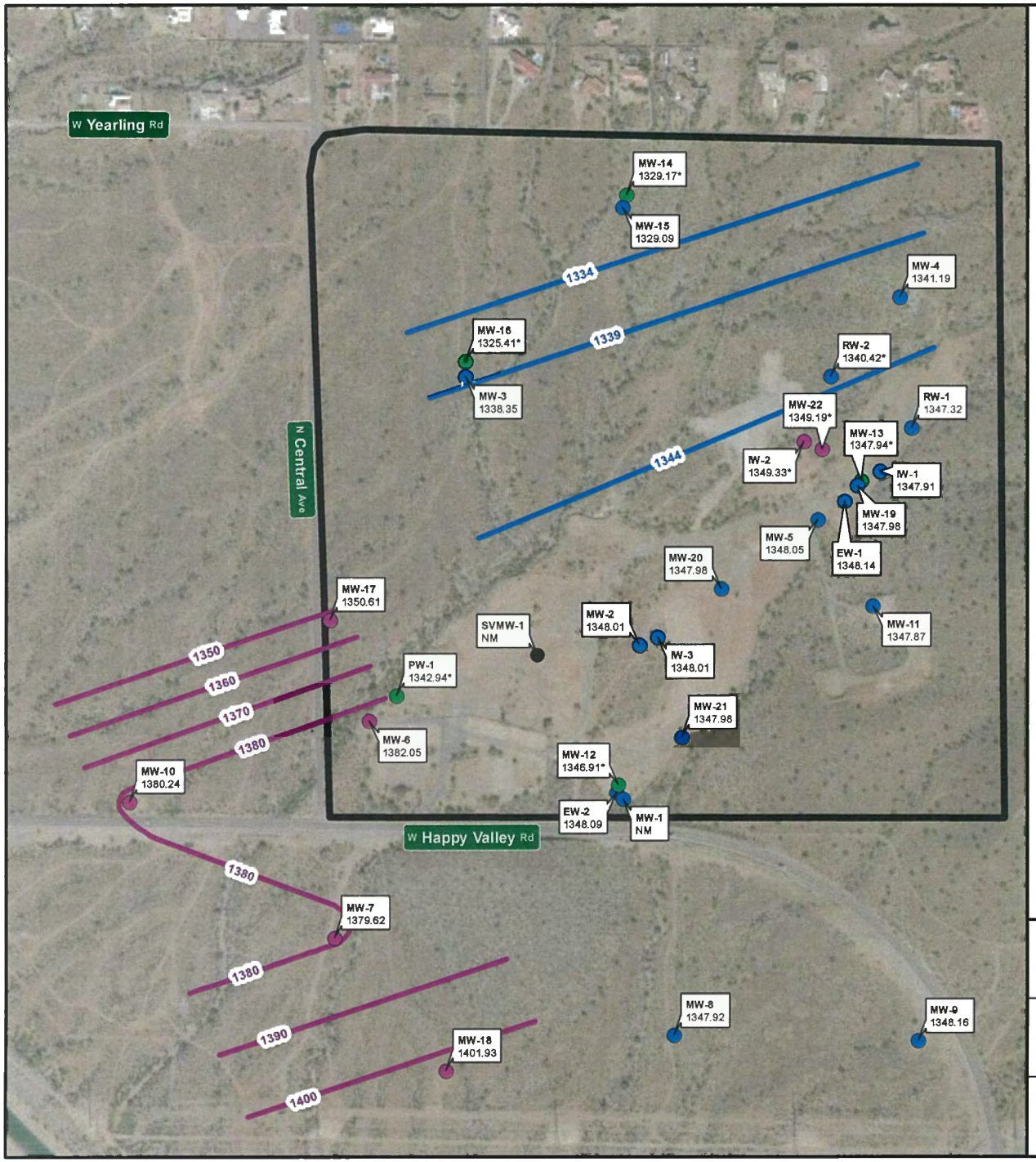
FORMER UNIVERSAL PROPULSION COMPANY, INC. FACILITY
PHOENIX, ARIZONA
2014 ANNUAL MONITORING REPORT

GROUNDWATER ELEVATIONS
JULY 7, 2014

ARCADIS

FIGURE
10

\\Scottsdale-AZ\Project\UPCO\GIS\Projects\Annual Monitoring Report 2014\Figure 11 GW elevations 08-2014.mxd 2/26/2015



LEGEND

- Lease property boundary
- Shallow bedrock unit well
- Sedimentary unit well
- Deep well
- Soil vapor monitoring well
- Shallow bedrock unit groundwater elevation contour
- Sedimentary unit groundwater elevation contour

NOTES

- Aerial photo source: ESRI World Imagery.
- Groundwater elevations are expressed in feet above mean sea level.
- * = well is not used in contouring.
- NM = not measured.

N

Feet
0 300 600

Scale: 1" = 600'

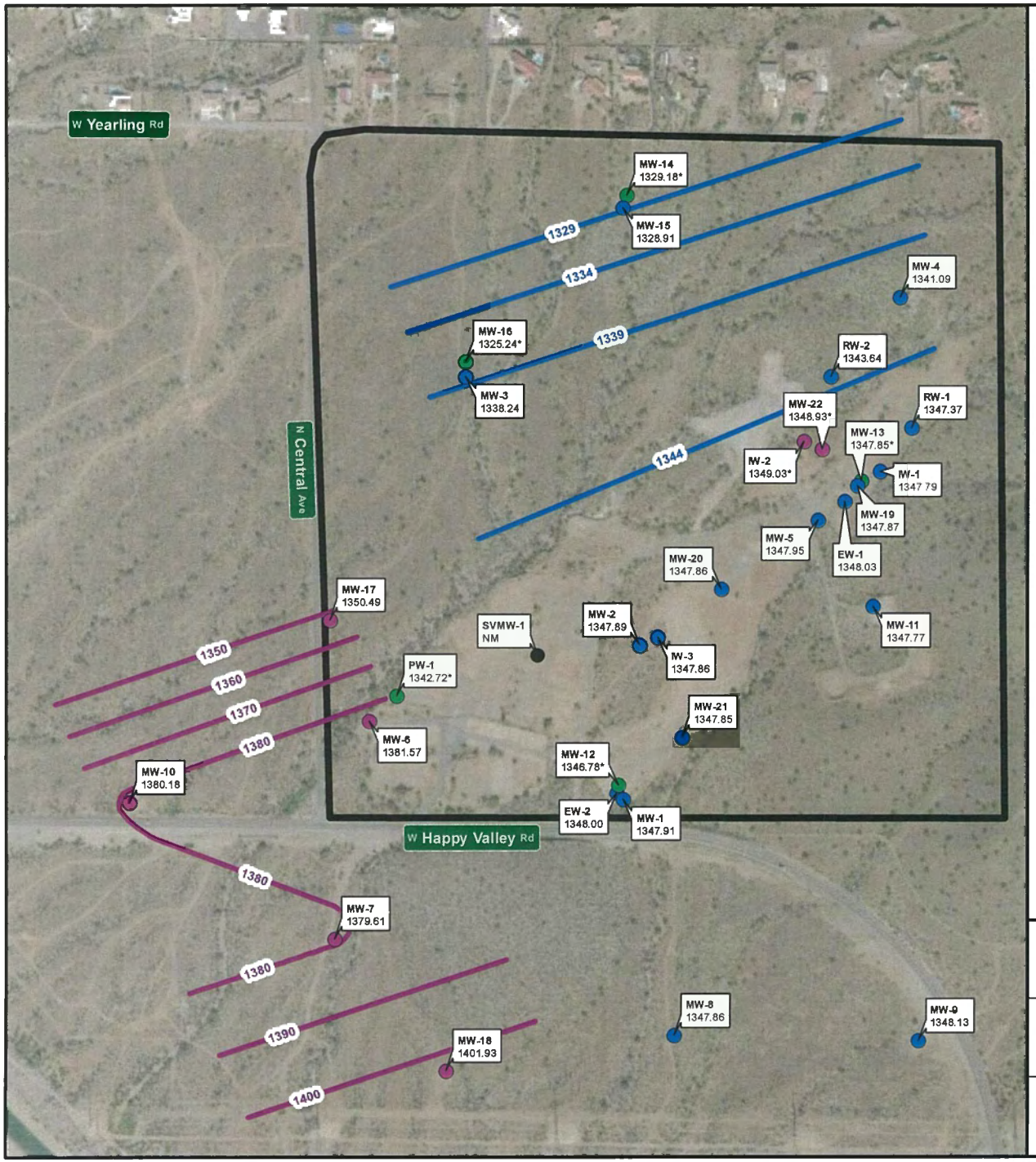
FORMER UNIVERSAL PROPULSION COMPANY, INC. FACILITY
PHOENIX, ARIZONA
2014 ANNUAL MONITORING REPORT

GROUNDWATER ELEVATIONS
SEPTEMBER 2-4, 2014

ARCADIS

FIGURE
11

\\Scottsdale-AZ\Project\UPCO\GIS\Projects\Annual Monitoring Report 2014\Figure 12 GW elevations 09-2014.mxd 2/26/2015



LEGEND

- Lease property boundary
- Shallow bedrock unit well
- Sedimentary unit well
- Deep well
- Soil vapor monitoring well
- Shallow bedrock unit groundwater elevation contour
- Sedimentary unit groundwater elevation contour

NOTES

- Aerial photo source: ESRI World Imagery.
- Groundwater elevations are expressed in feet above mean sea level.
- * = well is not used in contouring.
- NM = not measured.

N

0 300 600 Feet

Scale: 1" = 600'

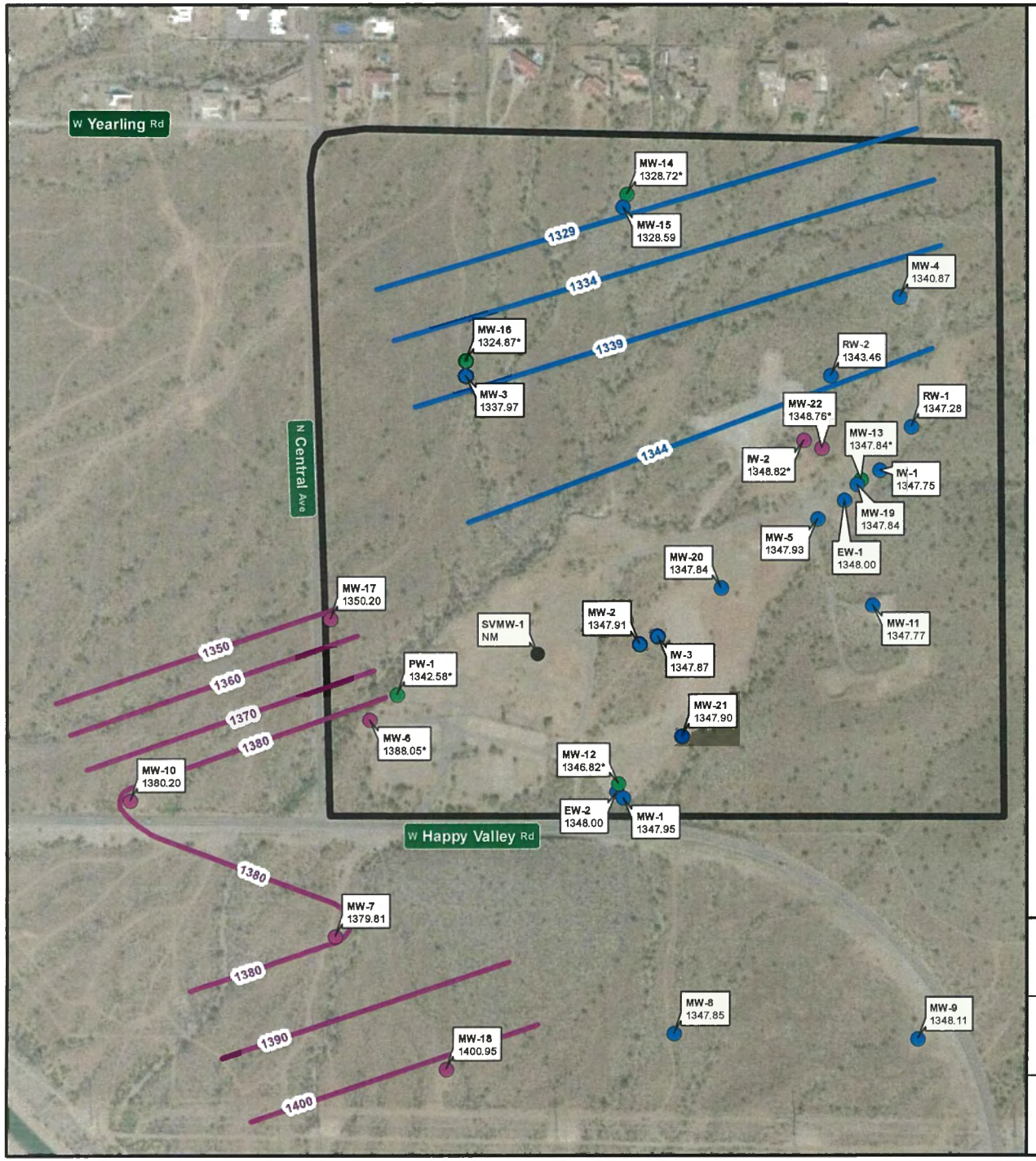
FORMER UNIVERSAL PROPULSION COMPANY, INC. FACILITY
PHOENIX, ARIZONA
2014 ANNUAL MONITORING REPORT

GROUNDWATER ELEVATIONS
SEPTEMBER 15-29, 2014

ARCADIS

FIGURE
12

\\Scottsdale-AZ\Project\UPCO\GIS\Projects\Annual Monitoring Report 2014\Figure 13 GW elevations 10-2014.mxd 2/26/2015



LEGEND

- Lease property boundary
- Shallow bedrock unit well
- Sedimentary unit well
- Deep well
- Soil vapor monitoring well
- Shallow bedrock unit groundwater elevation contour
- Sedimentary unit groundwater elevation contour

NOTES

- Aerial photo source: ESRI World Imagery.
- Groundwater elevations are expressed in feet above mean sea level.
- * = well is not used in contouring.
- NM = not measured.

N

Feet
0 300 600
Scale: 1" = 600'

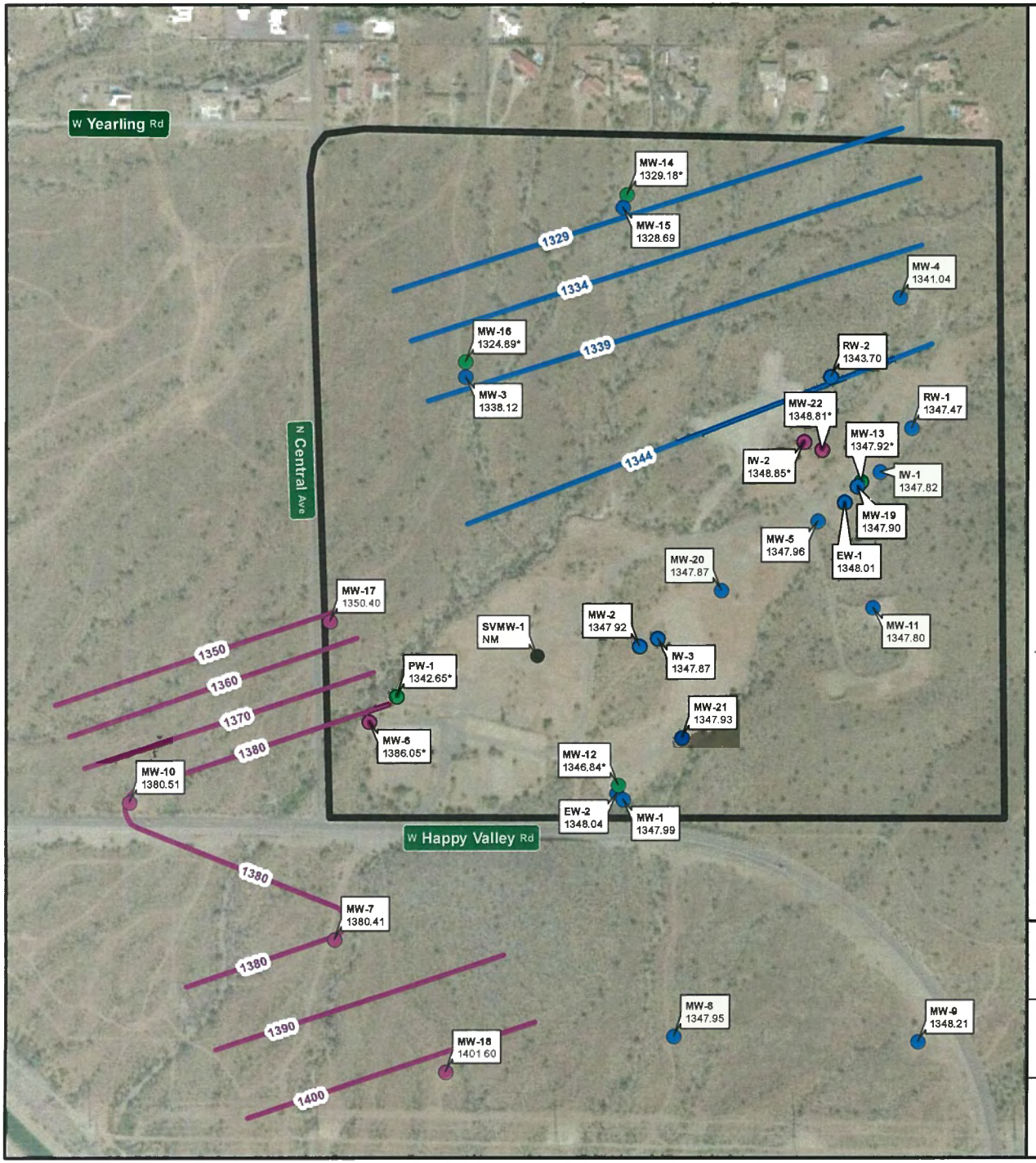
FORMER UNIVERSAL PROPULSION COMPANY, INC. FACILITY
PHOENIX, ARIZONA
2014 ANNUAL MONITORING REPORT

GROUNDWATER ELEVATIONS
OCTOBER 28, 2014

ARCADIS

FIGURE
13

\\Scottsdale-AZ\Project\UPCO\GIS\Projects\Annual Monitoring Report 2014\Figure 14 GW elevations 11-2014.mxd 2/26/2015



LEGEND

- Lease property boundary
- Shallow bedrock unit well
- Sedimentary unit well
- Deep well
- Soil vapor monitoring well
- Shallow bedrock unit groundwater elevation contour
- Sedimentary unit groundwater elevation contour

NOTES

- Aerial photo source: ESRI World Imagery.
- Groundwater elevations are expressed in feet above mean sea level.
- * = well is not used in contouring.
- NM = not measured.

0 300 600 Feet

Scale: 1" = 600'

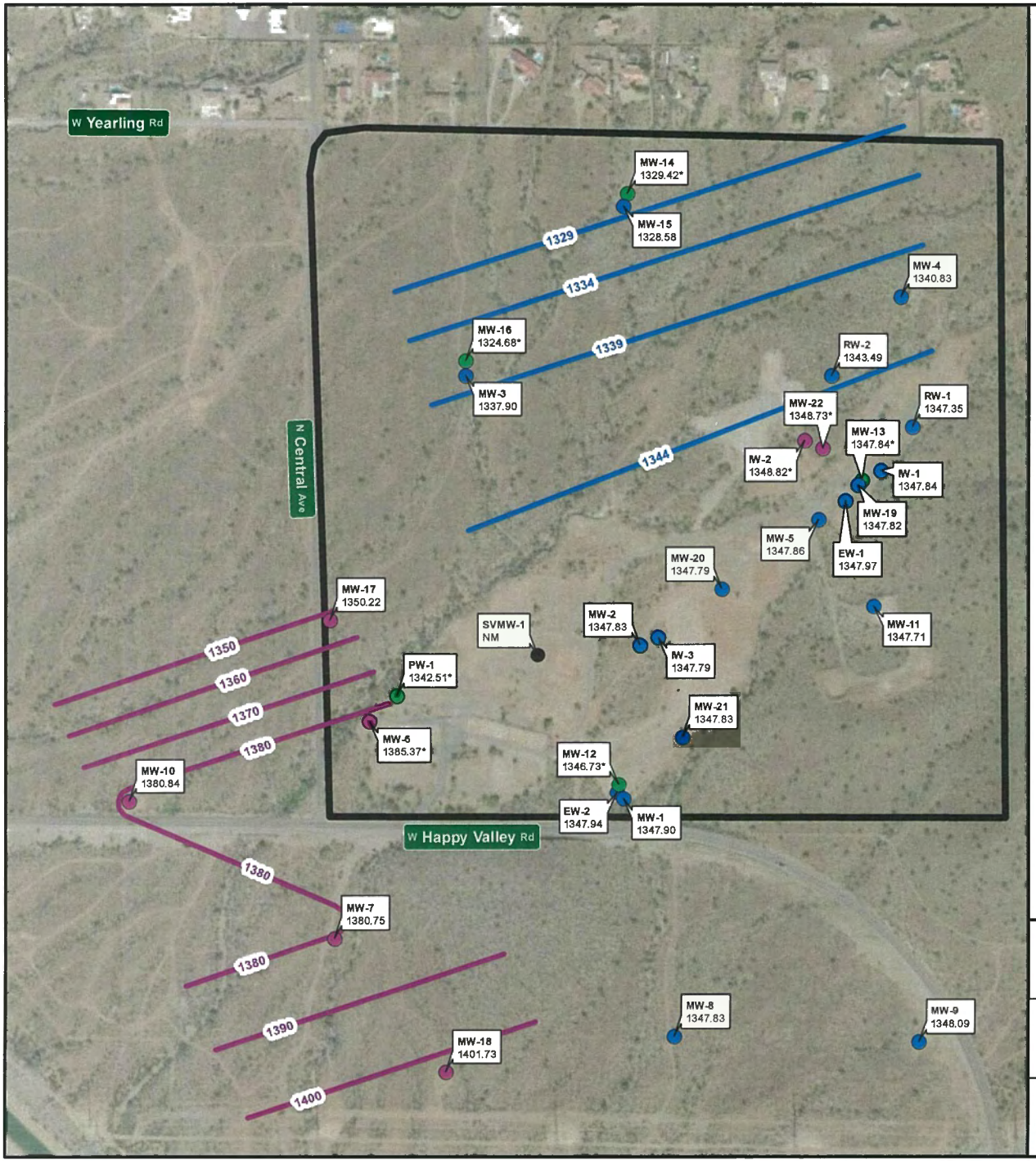
FORMER UNIVERSAL PROPULSION COMPANY, INC. FACILITY
PHOENIX, ARIZONA
2014 ANNUAL MONITORING REPORT

GROUNDWATER ELEVATIONS
NOVEMBER 27, 2014

ARCADIS

FIGURE
14

\\Scottsdale-AZ\Project\UPCO\GIS\Projects\Annual Monitoring Report 2014\Figure 15 GW elevations 12-2014.mxd 2/26/2015



LEGEND

- Lease property boundary
- Shallow bedrock unit well
- Sedimentary unit well
- Deep well
- Soil vapor monitoring well
- Shallow bedrock unit groundwater elevation contour
- Sedimentary unit groundwater elevation contour

NOTES

- Aerial photo source: ESRI World Imagery.
- Groundwater elevations are expressed in feet above mean sea level.
- * = well is not used in contouring.
- NM = not measured.

N

0 300 600 Feet

Scale: 1" = 600'

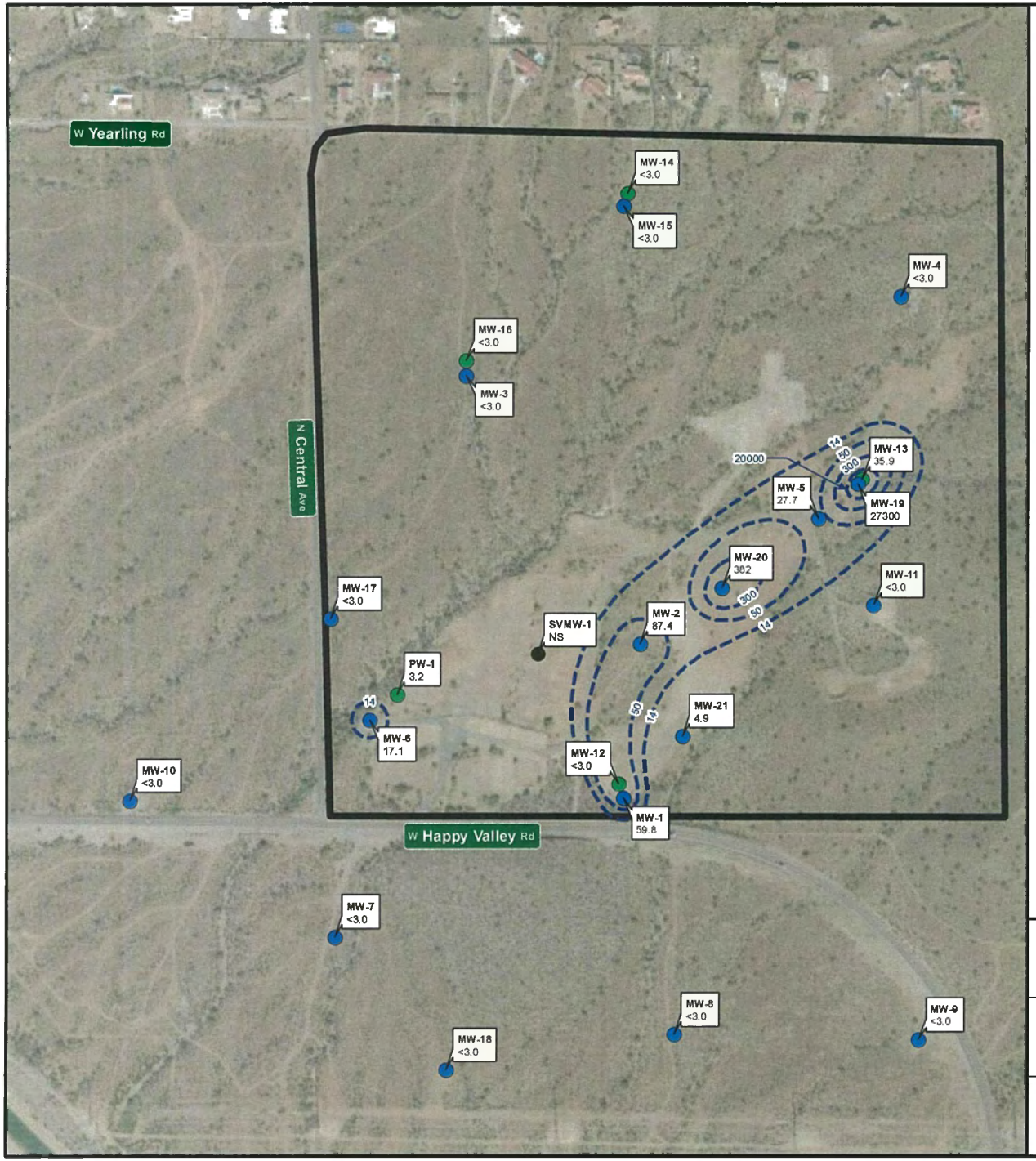
FORMER UNIVERSAL PROPULSION COMPANY, INC. FACILITY
PHOENIX, ARIZONA
2014 ANNUAL MONITORING REPORT

GROUNDWATER ELEVATIONS
DECEMBER 15, 2014

ARCADIS

FIGURE
15

\\Scottsdale-AZ\Project\UPCO\GIS\Projects\Annual Monitoring Report 2014\Figure 16 perchlorate concentrations Q1 2014.mxd 2/17/2015



LEGEND

- Lease property boundary
- Groundwater monitoring well
- Groundwater monitoring well (deep)
- Planned remediation well
- Soil vapor monitoring well
- Perchlorate concentration contour (dashed where inferred)

NOTES

- Aerial photo source: ESRI World Imagery.
- Perchlorate concentrations are expressed in micrograms per liter (µg/L).
- Arizona Health Based Guidance Level (HBGL) for perchlorate = 14 µg/L.
- Groundwater monitoring wells with deeper screens, depicted in green, are not used in contouring.
- Wells were sampled from 1/15/2014 through 1/23/2014.
- NS = not sampled.

N

0 300 600 Feet

Scale: 1" = 600'

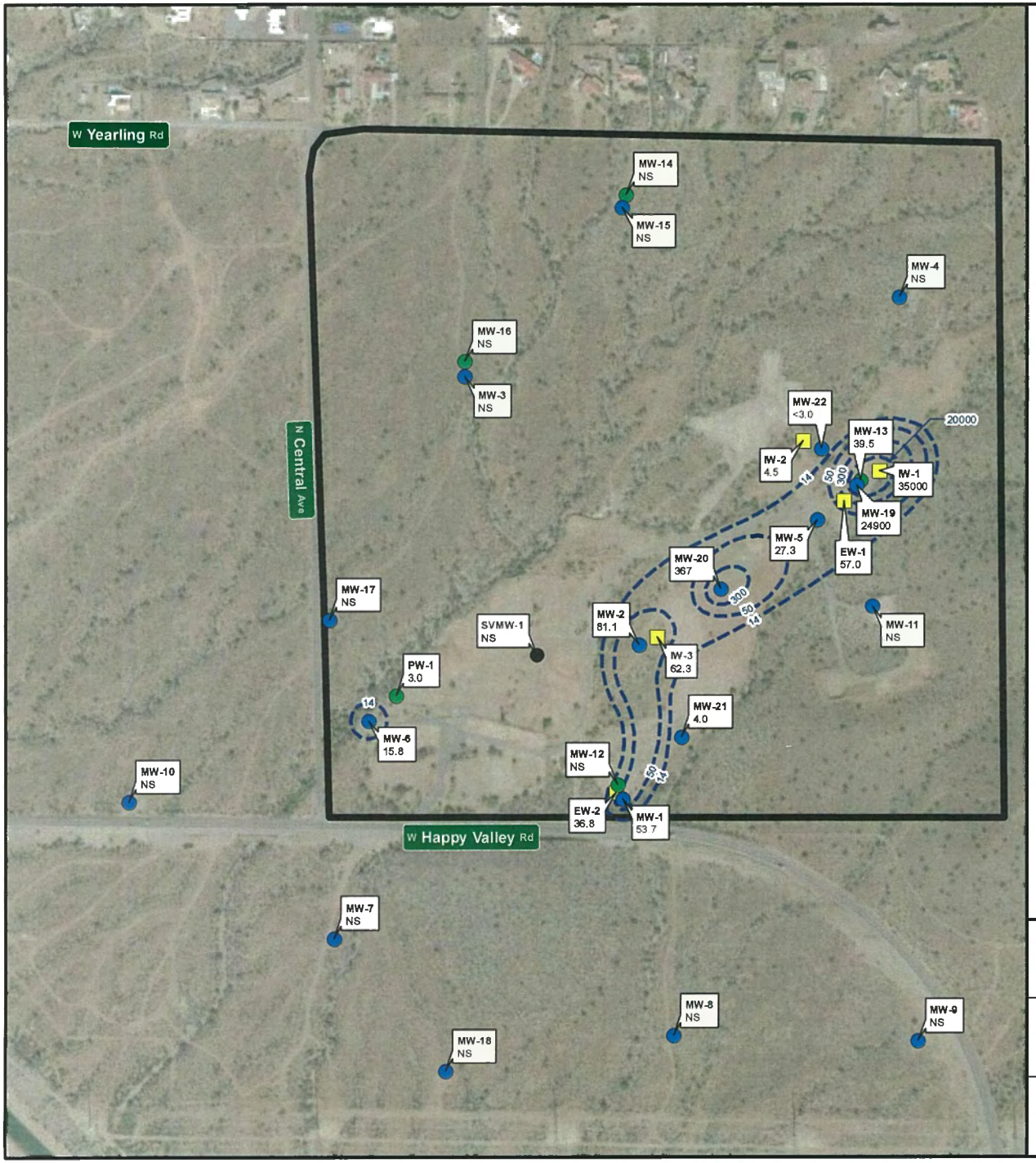
FORMER UNIVERSAL PROPULSION COMPANY, INC. FACILITY
PHOENIX, ARIZONA
2014 ANNUAL MONITORING REPORT

PERCHLORATE CONCENTRATIONS IN GROUNDWATER FIRST QUARTER 2014

ARCADIS

FIGURE 16

\\Scottsdale-AZ\Project\UPCO\GIS\Projects\Annual Monitoring Report 2014\Figure 17 perchlorate concentrations Q2 2014.mxd 2/17/2015



LEGEND

- Lease property boundary
- Groundwater monitoring well
- Groundwater monitoring well (deep)
- Planned remediation well
- Soil vapor monitoring well
- Perchlorate concentration contour (dashed where inferred)

NOTES

- Aerial photo source: ESRI World Imagery.
- Perchlorate concentrations are expressed in micrograms per liter (µg/L).
- Arizona Health Based Guidance Level (HBGL) for perchlorate = 14 µg/L.
- Groundwater monitoring wells with deeper screens, depicted in green, are not used in contouring.
- Wells were sampled from 4/1/2014 through 4/7/2014.
- NS = not sampled.

N

0 300 600 Feet

Scale: 1" = 600'

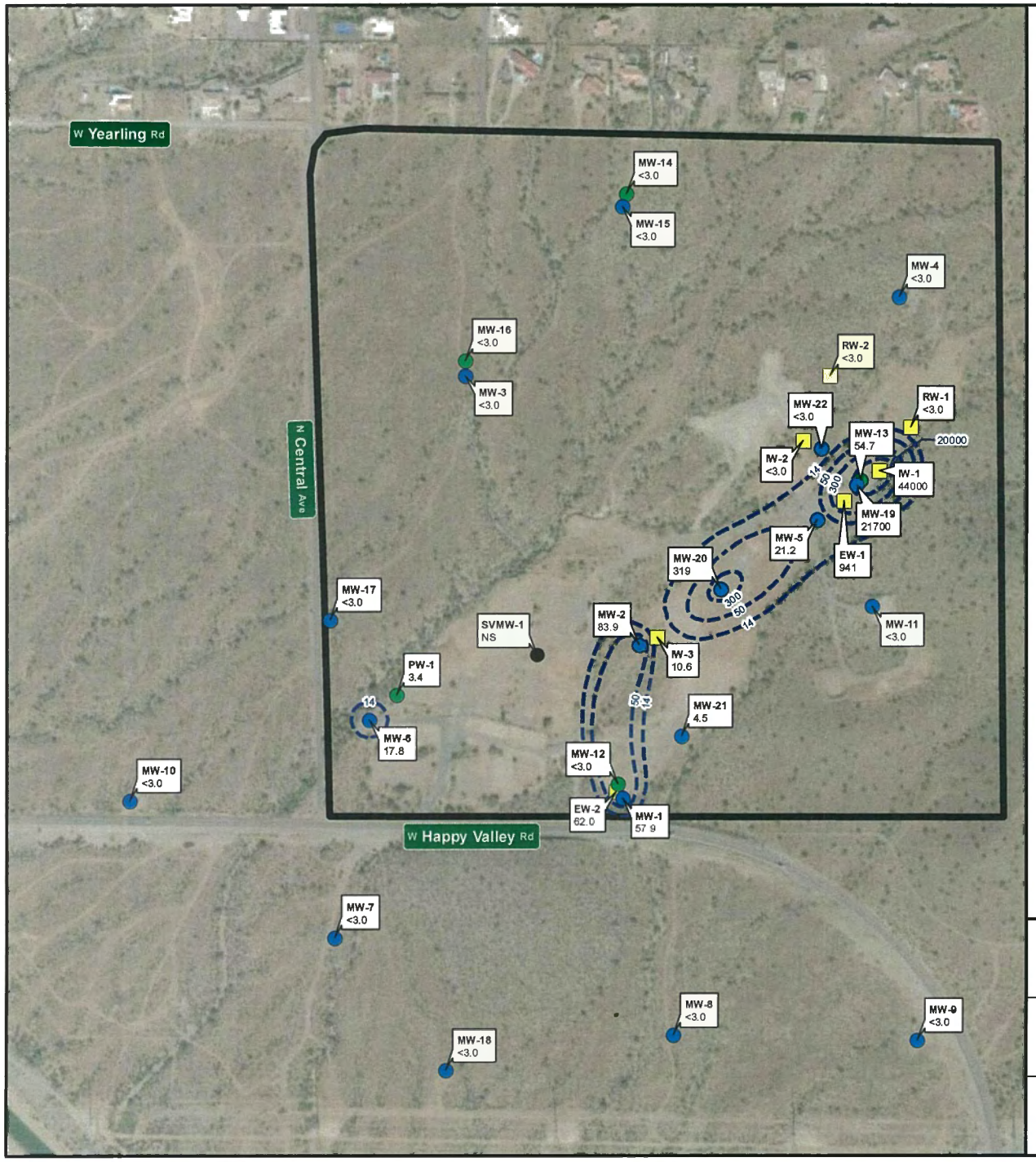
FORMER UNIVERSAL PROPULSION COMPANY, INC. FACILITY
PHOENIX, ARIZONA
2014 ANNUAL MONITORING REPORT

PERCHLORATE CONCENTRATIONS IN GROUNDWATER SECOND QUARTER 2014

ARCADIS

FIGURE 17

\\Scottsdale-AZ\Project\UPCO\GIS\Projects\Annual Monitoring Report 2014\Figure 18 perchlorate concentrations Q3 2014.mxd 2/17/2015



LEGEND

- Lease property boundary
- Groundwater monitoring well
- Groundwater monitoring well (deep)
- Planned remediation well
- Soil vapor monitoring well
- Perchlorate concentration contour (dashed where inferred)

NOTES

- Aerial photo source: ESRI World Imagery.
- Perchlorate concentrations are expressed in micrograms per liter (µg/L).
- Arizona Health Based Guidance Level (HBGL) for perchlorate = 14 µg/L.
- Groundwater monitoring wells with deeper screens, depicted in green, are not used in contouring.
- Wells were sampled from 7/8/2014 through 7/17/2014 and from 8/21/2014 through 8/26/2014.
- NS = not sampled.

N

Feet
0 300 600
Scale: 1" = 600'

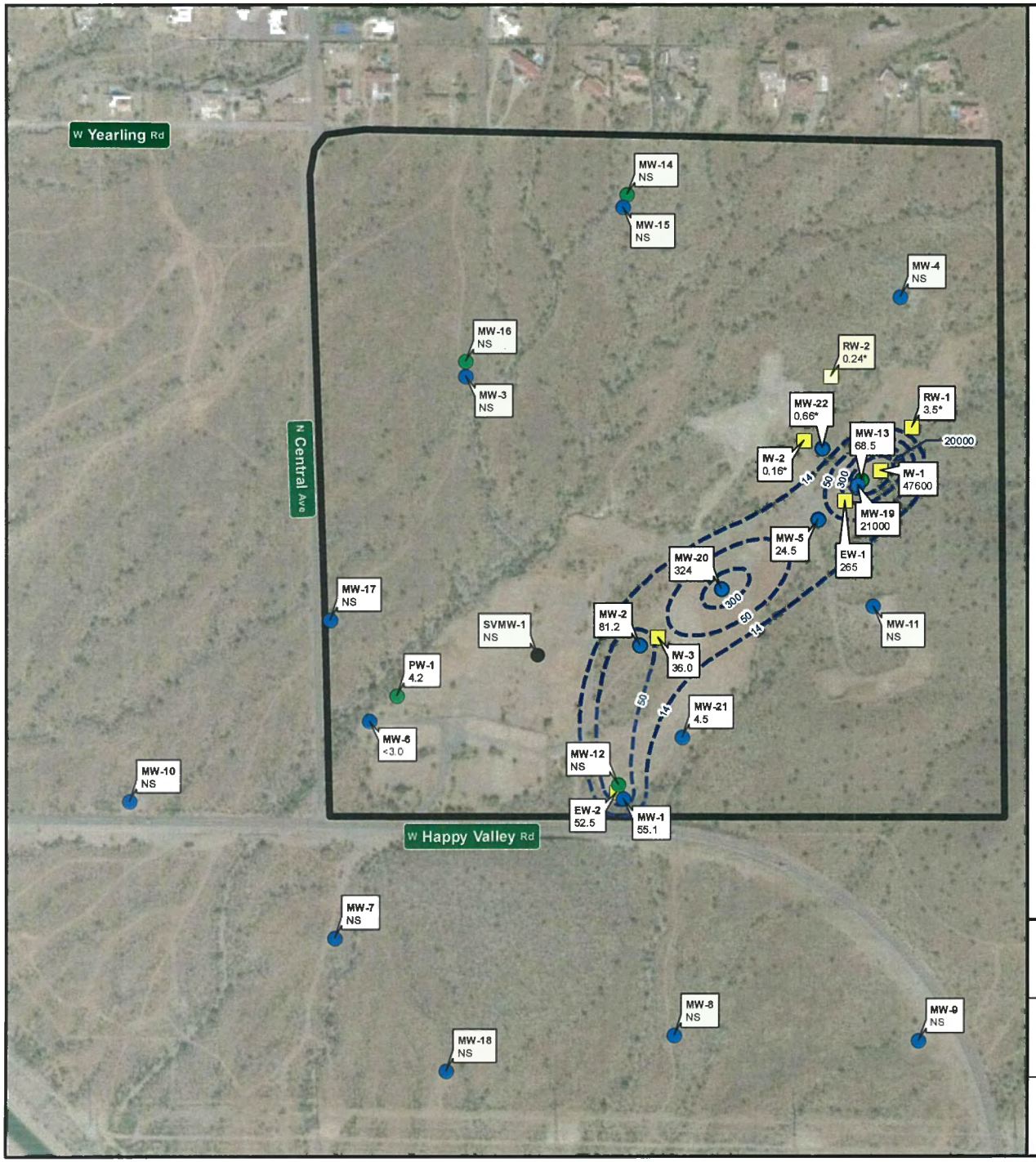
FORMER UNIVERSAL PROPULSION COMPANY, INC. FACILITY
PHOENIX, ARIZONA
2014 ANNUAL MONITORING REPORT

PERCHLORATE CONCENTRATIONS IN GROUNDWATER
THIRD QUARTER 2014

ARCADIS

FIGURE
18

\\Scottsdale-AZ\Project\UPCO\GIS\Projects\Annual Monitoring Report 2014\Figure 19 perchlorate concentrations Q4 2014.mxd 2/12/2015



LEGEND

- Lease property boundary
- Groundwater monitoring well
- Groundwater monitoring well (deep)
- Planned remediation well
- Soil vapor monitoring well
- Perchlorate concentration contour (dashed where inferred)

NOTES

- Aerial photo source: ESRI World Imagery.
- Perchlorate concentrations are expressed in micrograms per liter (µg/L).
- Arizona Health Based Guidance Level (HBGL) for perchlorate = 14 µg/L.
- Groundwater monitoring wells with deeper screens, depicted in green, are not used in contouring.
- Wells were sampled from 10/9/2014 through 10/15/2014.
- Samples were analyzed using USEPA Method 314.0 except where noted with an asterisk (*); in these cases, USEPA Method 332.0 was used.
- NS = not sampled.

N

0 300 600 Feet

Scale: 1" = 600'

FORMER UNIVERSAL PROPULSION COMPANY, INC. FACILITY
PHOENIX, ARIZONA
2014 ANNUAL MONITORING REPORT

**PERCHLORATE CONCENTRATIONS IN GROUNDWATER
FOURTH QUARTER 2014**

ARCADIS

FIGURE
19