SWEETWATER ENGINEERING

December 29, 2015

County of San Diego
Department of Planning & Development Services
5510 Overland Avenue, Suite 210
San Diego, CA 92123

Project: Nordahl Tentative Map (PDS2015-TM-5602)
Environmental Log No.: PDS2015-ER-15-08-008

Subject: Centerline Alignment Study

This Road Centerline Alignment Report was prepared for the Nordahl Tentative Map (PDS2015-TM-5602) project which is located west of Nordahl Road between West El Norte Parkway and Rock Springs Road. Currently, Nordahl Road is classified as a Major Road (4.1B) on the Mobility Element of the County General with intermittent turn lanes and Class II bike lanes. In order for a road to be classified as a Major Road, it must meet the following minimum Public Road Standards:

1. The width of the ultimate right-of-way at the project should be 48 feet from the centerline.
2. The minimum curve radii are no less than 1200 feet.
3. The tangent distances between curves are more than 400 feet.
4. There should be no non-tangent sections on the road alignment.

There are 4 attached exhibits on the following pages showing the existing Nordahl Road's centerline road alignment and 3 scenarios with various centerline alignments (Scenarios #1, #2 and #3). These exhibits were prepared in order to determine which alignment will improve the current conditions on Nordahl Road.

Nordahl Road – Existing Centerline Road Alignment:
The existing Nordahl Road's centerline alignment between West El Norte Parkway and Rock Springs Road does not meet the minimum Public Road Standards of a Major Road. The width of the existing right-of-way is only 25 feet from the centerline, the curve radii are less than 1200 feet, the tangent distance between curves are less than 400 feet and there is a non-tangent section on the east side of the alignment. See "Nordahl Road – Existing Road Alignment" Exhibit on the following pages for details.

Nordahl Road – Ultimate Centerline Road Alignment (Scenario #1):
Scenario #1 is the likely preferred alignment because it corrects most of the deficiencies from the Existing Centerline Road Alignment: The width of the ultimate right-of-way will be 48 feet from the ultimate centerline, the curve radii are increased to the minimum of 1200 feet and this option removes the non-tangent section located on the east side of the alignment. However, Scenario #1 does create a reverse curve with a tangent distance of less than the

minimum/required 400 feet between curves. See the attached "Nordahl Road – Ultimate Road Alignment (Scenario #1)" Exhibit on the following pages.

Nordahl Road – Ultimate Centerline Road Alignment (Scenario #2):
Scenario #2 is similar to Scenario #1 except the easterly 1200' curve connects to the existing centerline road alignment after the non-tangent section. This option leaves the non-tangent section in place and creates a reverse curve so there is not a minimum of 400 feet tangent distance between curves. See the attached "Nordahl Road – Ultimate Road Alignment (Scenario #2)" Exhibit on the following pages.

Nordahl Road – Ultimate Centerline Road Alignment (Scenario #3):
Scenario #3 is likely the least preferred option because of the numerous deficiencies and it is only shown for discussion purposes. This scenario attempts to reconnect to the existing centerline road alignment on the existing 150-foot curve after the non-tangent section on the easterly side of the alignment. This alignment leaves the non-tangent section in place and creates 3 reverse curves with no minimum of 400 feet tangent distance between any curve. See the attached "Nordahl Road – Ultimate Road Alignment (Scenario #3)" Exhibit on the following pages.

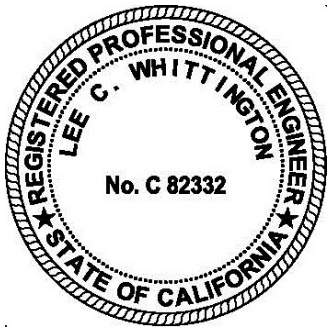
We met with Ernest Bartley on September 14, 2015 to review and discuss the 4 centerline alignments and it was determined the 3 scenarios would not be possible to accomplish. Two of the reasons were in regards to the front yard setback requirements which most of the neighbor lots would be impacted by and the other reason was in regards to the cost to purchase all the land needed to accommodate any of the alignments shown on the 3 scenarios. In that meeting, Mr. Bartley suggested to just keep the existing alignment and widen it to its ultimate right-of-way width of 48' measured from the existing centerline.

The Tentative Map and Preliminary Grading Plan were prepared based on the outcome of said meeting with Mr. Bartley.

If you have any questions or concerns, please don't hesitate to contact me.

Sincerely,

Lee C. Whittington, RCE 82332



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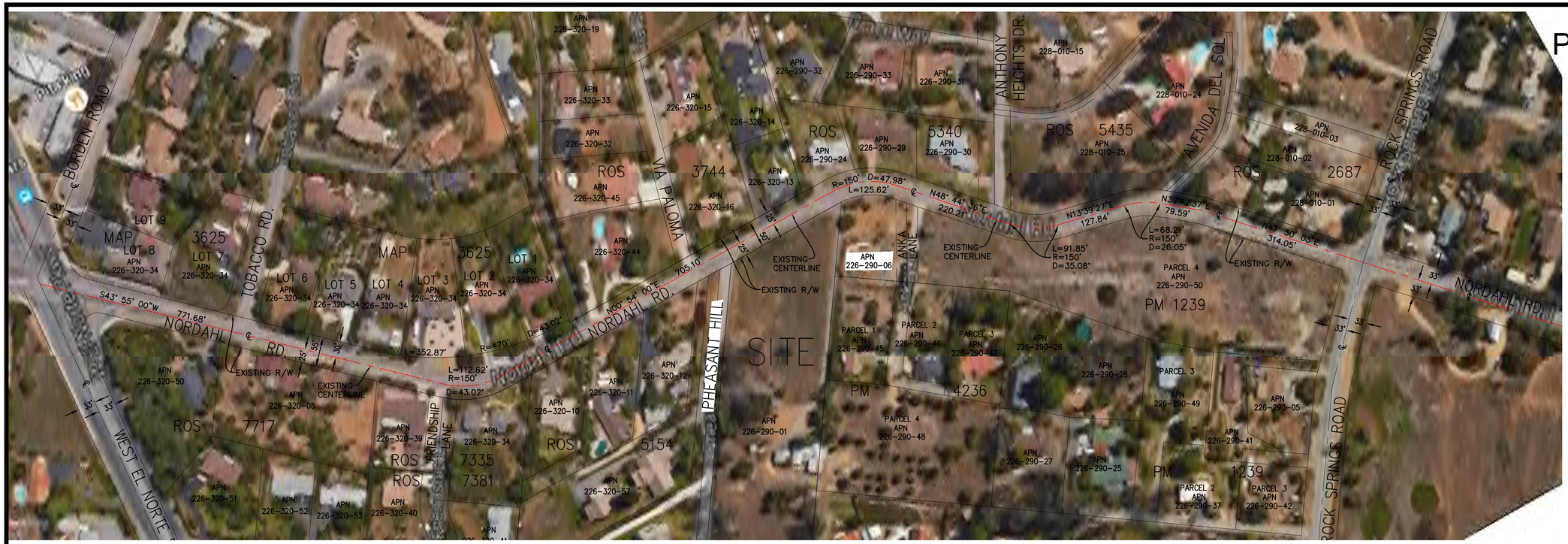
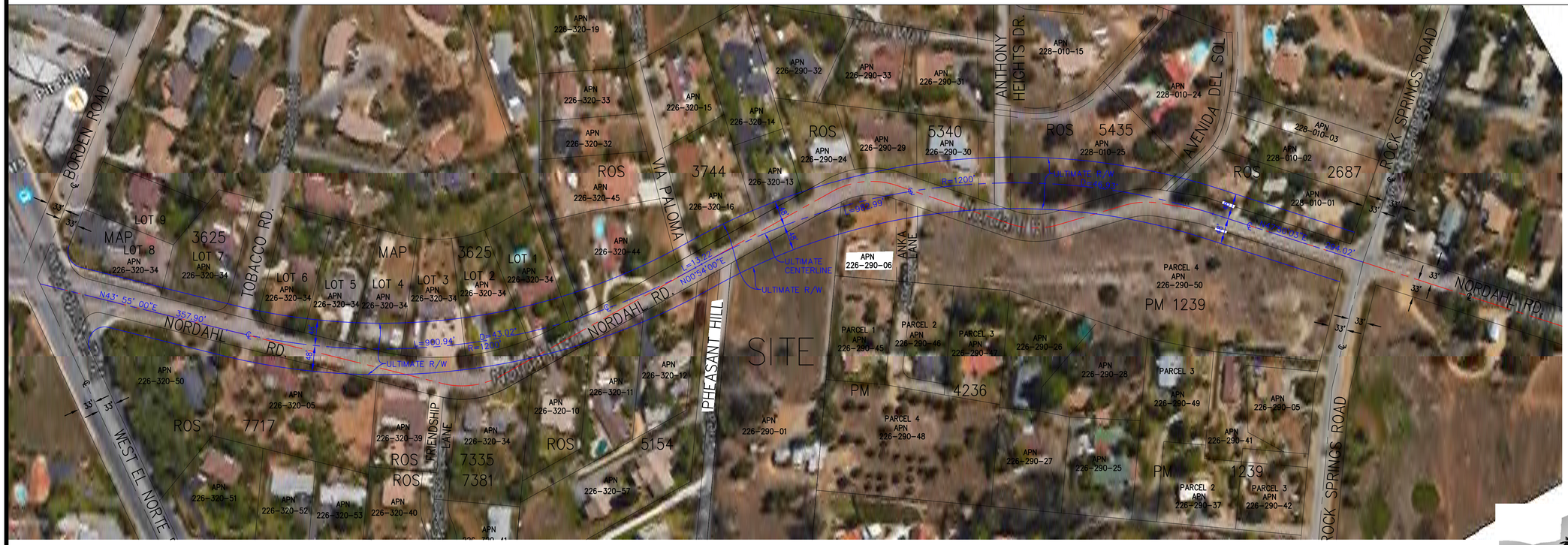
SHEET 1 OF 2



NORDAHL ROAD - EXISTING ROAD ALIGNMENT



NORDAHL ROAD - ULTIMATE ROAD ALIGNMENT (SCENARIO #1)

NOTES:

THE EXISTING ROAD ALIGNMENT OF NORDAHL ROAD BETWEEN WEST EL NORTE PKWY AND ROCK SPRINGS ROAD, DOESN'T MEET THE MINIMUM PUBLIC ROAD STANDARDS OF A MAJOR ROAD FOR THE FOLLOWING REASONS:

1. CURVE RADII ARE LESS THAN 1200'
2. TANGENT DISTANCES BETWEEN CURVES ARE LESS THAN 400'
3. THERE IS A NON-TANGENT SECTION IN THE EAST SIDE OF THE ALIGNMENT.

NOTE:

SCENARIO #1 IS THE LIKELY PREFERRED ALIGNMENT BECAUSE IT CORRECTS MOST OF THE DEFICIENCY'S FROM THE EXISTING ALIGNMENT. THIS OPTION REMOVES THE NON-TANGENT SECTION AND INCREASES THE MINIMUM CURVE RADII TO 1200'. SCENARIO #1 DOES HOWEVER CREATE A REVERSE CURVE SO THERE ISN'T A MIN. 400' TANGENT BETWEEN CURVES.

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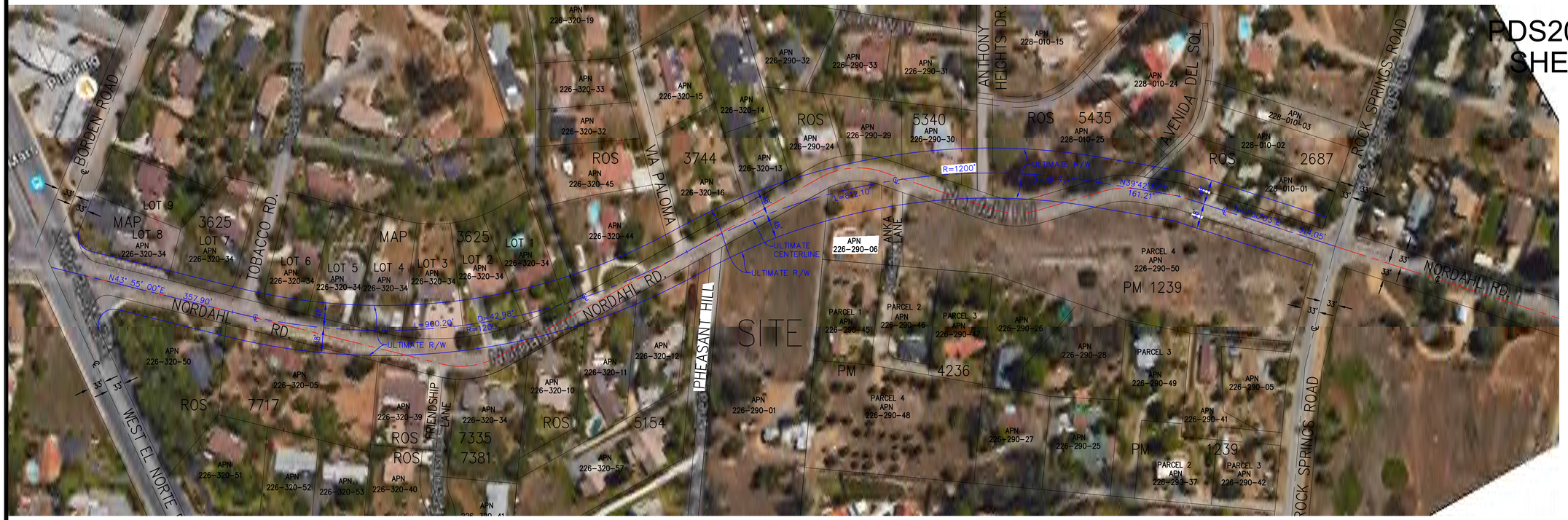
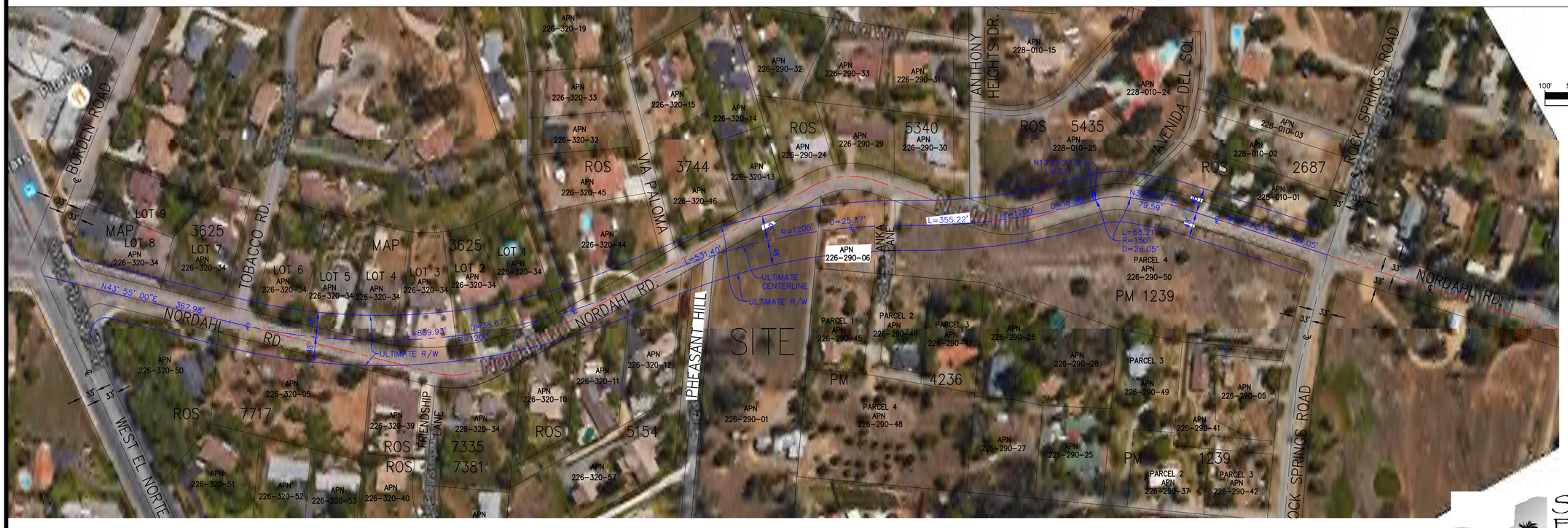
SHEET 2 OF 2



NOTES:

SCENARIO #2 IS SIMILAR TO SCENARIO #1 EXCEPT THE EASTERN 1200' CURVE CONNECTS TO THE EXISTING ROAD ALIGNMENT AFTER THE NON-TANGENT SECTION. SO THIS OPTION LEAVES THE NON-TANGENT SECTION IN PLACE AND CREATES A REVERSE CURVE SO THERE ISN'T A MIN. 400' TANGENT BETWEEN CURVES.

NORDAHL ROAD - ULTIMATE ROAD ALIGNMENT (SCENARIO #2)



NOTES:

SCENARIO #3 IS LIKELY THE LEAST PREFERRED OPTION BECAUSE OF THE NUMEROUS DEFICIENCY'S AND IT IS ONLY SHOWN FOR DISCUSSION PURPOSES. THIS SCENARIO ATTEMPTS TO RECONNECT TO THE EXISTING ROAD ALIGNMENT ON THE EXISTING 150' CURVE AFTER THE NON-TANGET SECTION ON THE EASTERN SIDE OF THE ALIGNMENT. THIS ALIGNMENT LEAVES THE NON-TANGENT SECTION IN PLACE AND CREATES 3 REVERSE CURVES SO THERE IS NO 400' MIN TANGENT SEPARATION BETWEEN ANY CURVES.

NORDAHL ROAD - ULTIMATE ROAD ALIGNMENT (SCENARIO #3)

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