PROPOSED WELL AND VALVE SITES

River Parish Sequestration, LLC

Coastal Use Permit Application

P20230510

Level 2 Hydrologic Modification Impact Analysis

July 2025

The Louisiana Department of Natural Resources, Office of Coastal Management (OCM) issued a request for additional information requiring the applicant to submit a Level 1 and 2 Hydrologic Modification Impact Analysis (HMIA). This HMIA report has been prepared in accordance with Sections 2.2 and 2.3 of the OCM HMIA guidelines. The project under review is a proposed well drilling site, valve sites, and associated access roads.

Section 2.2

At areas not permanently improved, site runoff with regard to hydrology and water quality will be the same both pre- and post-construction.

Section 2.3.1 Hydrology

1. ***A map showing the existing and proposed water flow patterns.***

   Maps showing existing and proposed flow patterns is included at Attachment A.

2. ***Identification of the design storm event and the drainage network to be impacted.***

   OCM HMIA Guidelines do not require applicants to use an agency-designated design storm classification. Louisiana Department of Transportation and Development uses a 5-year average recurrence interval for minor projects, and because the development proposed in P20220793 would be classed a minor project a 5-year recurrence interval 2-day design storm is utilized for this assessment. The National Oceanographic and Atmospheric Administration has calculated for the Donaldsonville weather station that a 5-year recurrence interval 2-day design storm results in precipitation in the amount of 7.26 inches (see Attachment B).

   The proposed project land-based sites are located in agricultural fields having numerous ditches and canals for drainage. The project will not permanently affect the existing drainage system with the exception of field ditches being re-routed around a well site.

3. ***Information relative to the pre- and post-project volume rate of runoff expected for the design storm event.***

Given the lack of topography, current agricultural usage, and vegetation surrounding the proposed project, the pre-and post-project volume/rate of runoff for the analyzed precipitation event will be nearly identical. Additionally, the land-based sites will be reduced to a minimal practical size and have a pervious surface.

4. ***Information on the pre-and post-project hydrologic conditions, including at the minimum, local topography, slope, surface condition drainage pattern, response to storm event, etc.***

Project site and surrounding topography is relatively flat with minimal slope. Surface water introduced into the proposed project area will typically be from precipitation. Drainage will follow the agricultural ditches and canals eventually reaching Bayou Verret to the east and Grand Bayou to the west of the project area.

5. ***A discussion of how the runoff identified in # 4 above will affect adjacent and other properties and the existing drainage network.***

The proposed project area will be returned to preconstruction contours with the exception of the proposed land-based well and valve sites, located along the pipeline route. These facilities will be the only locations where permanent fill material will be placed and the elevation increased. Clean, pervious fill materials (i.e. clean fill dirt and crushed gravel) will be used at the proposed aboveground facilities. The proposed land-based well and valve sites are not expected to alter post project hydraulic conditions at the sites or adjacent areas offsite.

The proposed project will not alter or impact any existing waterways or drainage networks within the proposed project area or the adjacent areas.

6. ***Identification of measures to be taken to lessen impact on adjacent and other properties and the existing drainage network.***

Most of the proposed project will be returned to pre-project contours and allowed to revegetate naturally or be replanted agriculture upon completion of the construction phase. The minimal amount of fill material to be deposited at the proposed land-based sites will be permeable, thus allowing surface water to permeate into the soil during and after precipitation events.

Section 2.3.2 Water Quality

1. ***Identification of water quality parameters to be affected by the proposed development (TSS and other applicable parameters).***

   The proposed project will not permanently affect water quality in the immediate area. Temporary increases in turbidity and total suspended solids (TSS) caused by the construction process will be mitigated through the implementation of a Storm Water Pollution Prevention Plan that will be prepared for this project. Upon completion of construction, the proposed project area, excluding the permanent aboveground facilities, will be returned to preconstruction contours and allowed to revegetate.

2. ***Identification of the steps, procedures and/or BMPs to be used to lessen point source and non-point source impacts on surface water quality.***

   River Parish Sequestration will apply to Louisiana Department of Environmental Quality for an LAR100000 construction stormwater permit which will include a Stormwater Pollution Prevention Plan designed to mitigate potential point source and non-point source impacts on surface water quality. Best Management Practices (BMP) stipulated by the Stormwater Pollution Prevention Plan will be implemented and installed prior to construction and maintained until the proposed project area has been stabilized. For example, BMPs such as silt fences and/or hay bales will be installed at the base of slopes adjacent to work areas and at appropriate locations to prevent silt deposition in drainages crossed by, or near, the construction work area. This will reduce possible sheet flow carrying sediments, reduce sheet flow velocity and erosion, and maintain soil stability. The project site is relatively flat ground and not expected to have high velocity runoff.

   Once construction has been completed and the site has been stabilized, the average annual TSS loading will be reduced so that that the annual TSS loadings are no greater than pre-development loadings. This will be achieved by returning most of the proposed project area to preconstruction contours and conditions, by utilizing pervious fill material, and by installing the permeable material at the valve sites to an elevation consistent with that of existing natural ground elevation.

   The proposed project is not part of an urban development and is not located within or near an urban development, therefore analysis of urban runoff from newly developed urban areas in not warranted for the proposed project.

3. ***Identification of the necessary permits to be obtained from other federal, state, and local authorities.***

   In addition to OCM, permits have been applied for with the U.S. Army Corps of Engineers – New Orleans District, U.S. Environmental Protection Agency, Louisiana DNR – Office of Conservation, and Ascension and Assumption Parishes. Prior to construction, a Notice of Intent for coverage under LAR100000 will be filed with Louisiana DEQ.

4. ***Inclusion of the in-place spill response plan for the release of oil and grease (marinas only).***

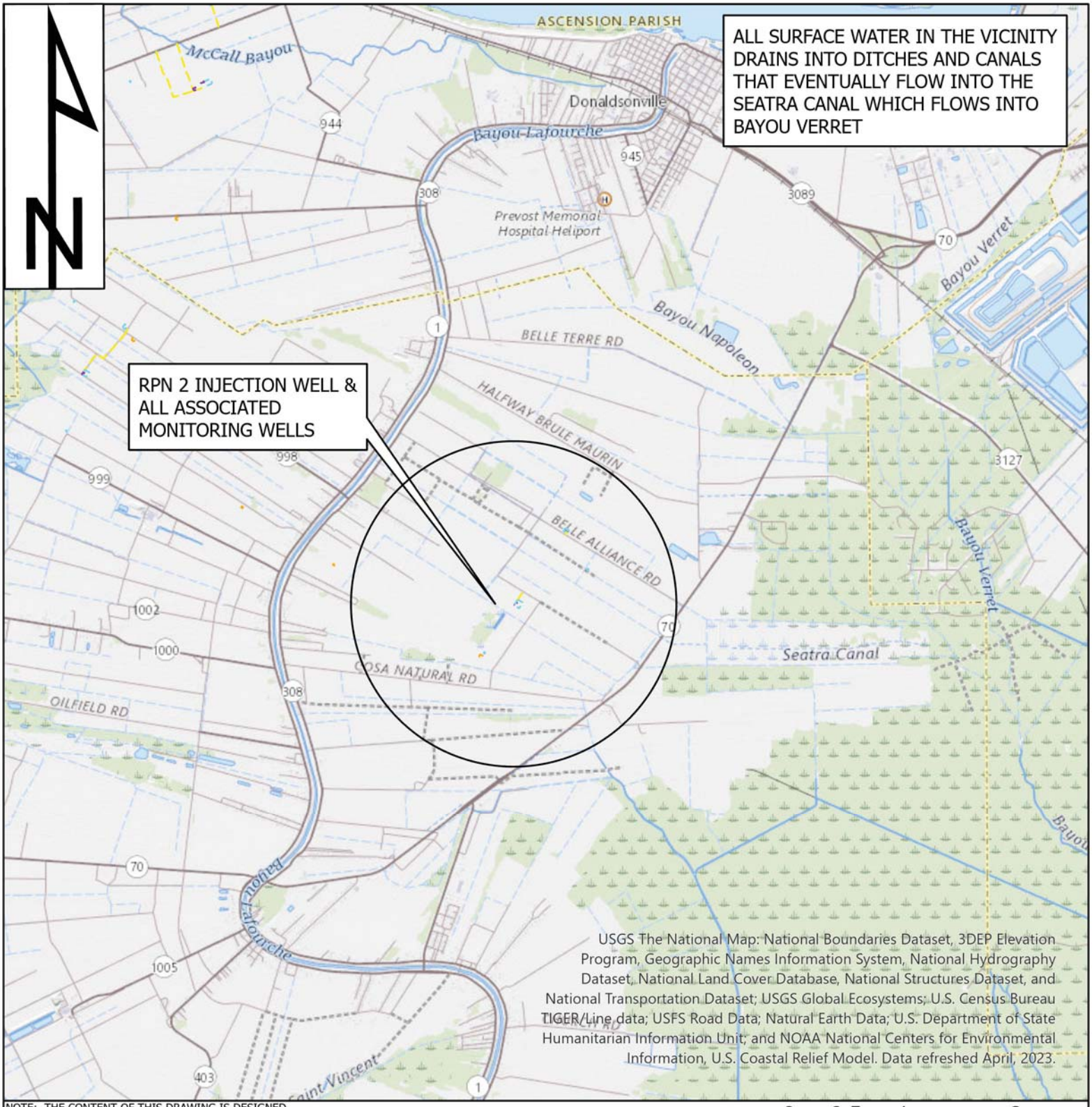
   The proposed project is not a marina.

Attachment A

Existing and Proposed Flow Pattern Maps

RPN 2 System

Proposed Flow Pattern Maps



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AREA DRAINAGE

0 0.5 1 2 Miles

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RPN 2 VICINITY MAP

0 500 1,000 2,000 Feet

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RPN 2 INJECTION WELL

0 50 100 200 Feet

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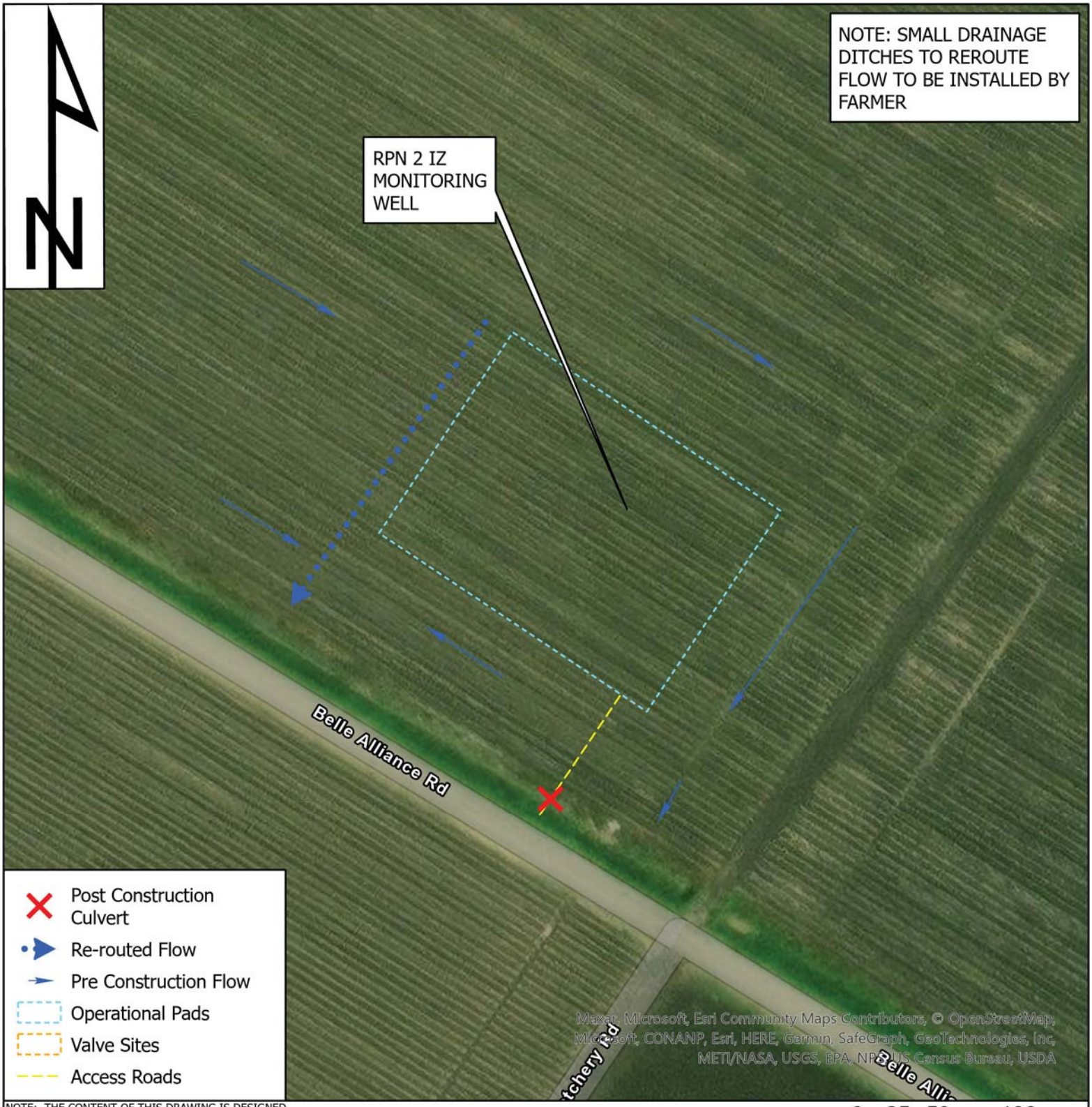

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RPN 2 IZ MONITORING WELL

0 25 50 100 Feet

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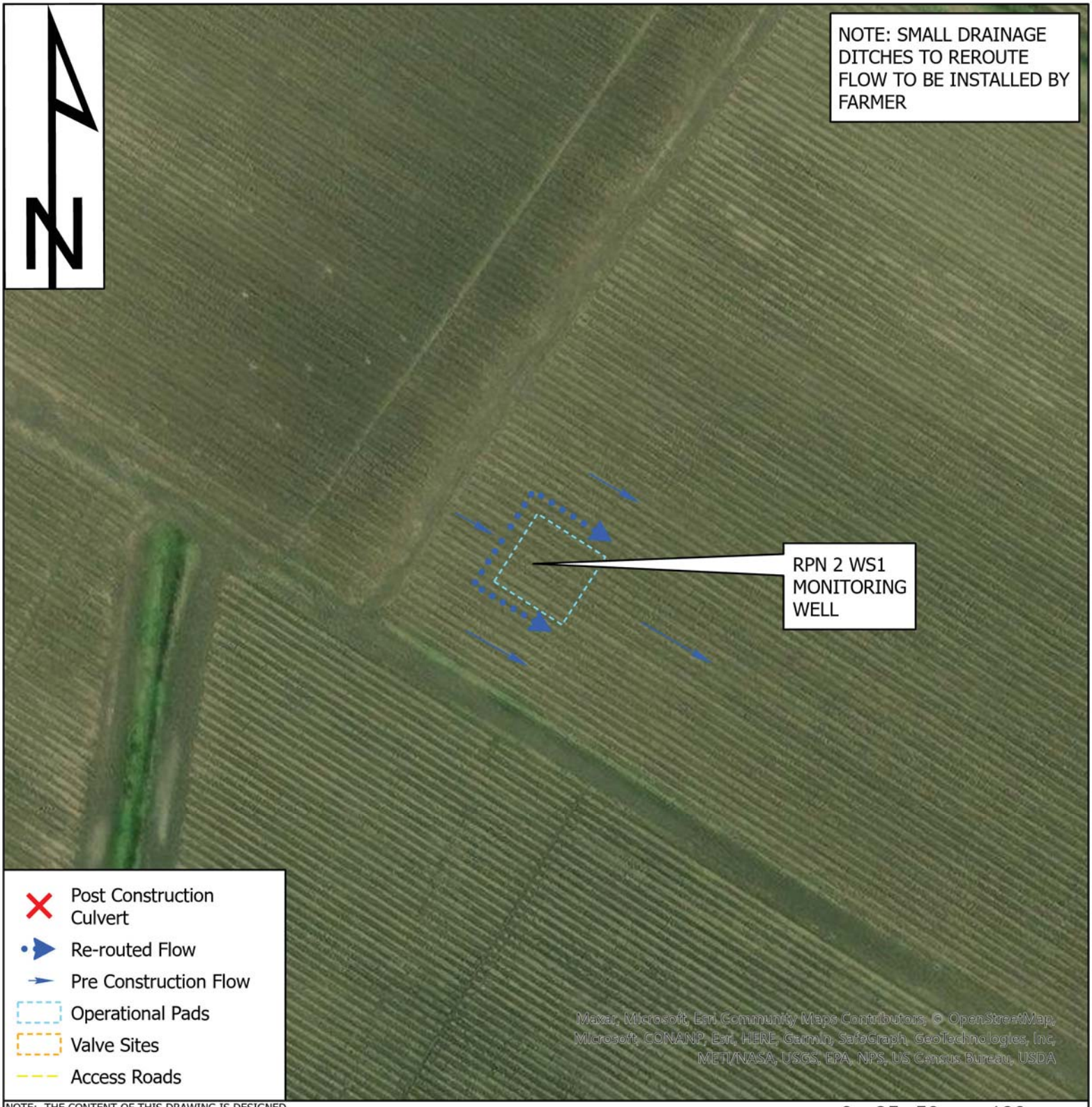

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RPN 2 WS 1 MONITORING WELL

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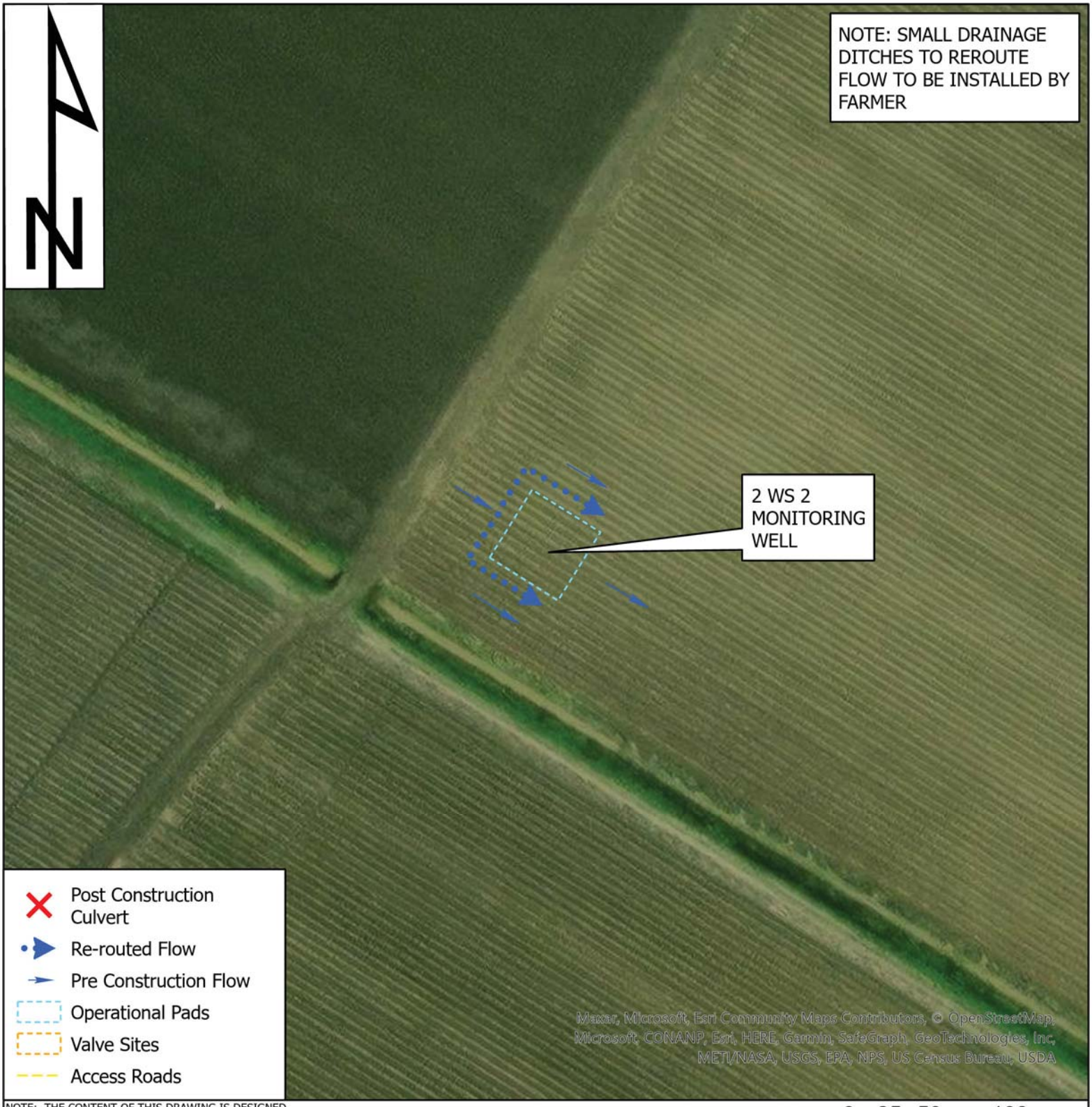

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RPN 2 WS 2 MONITORING WELL

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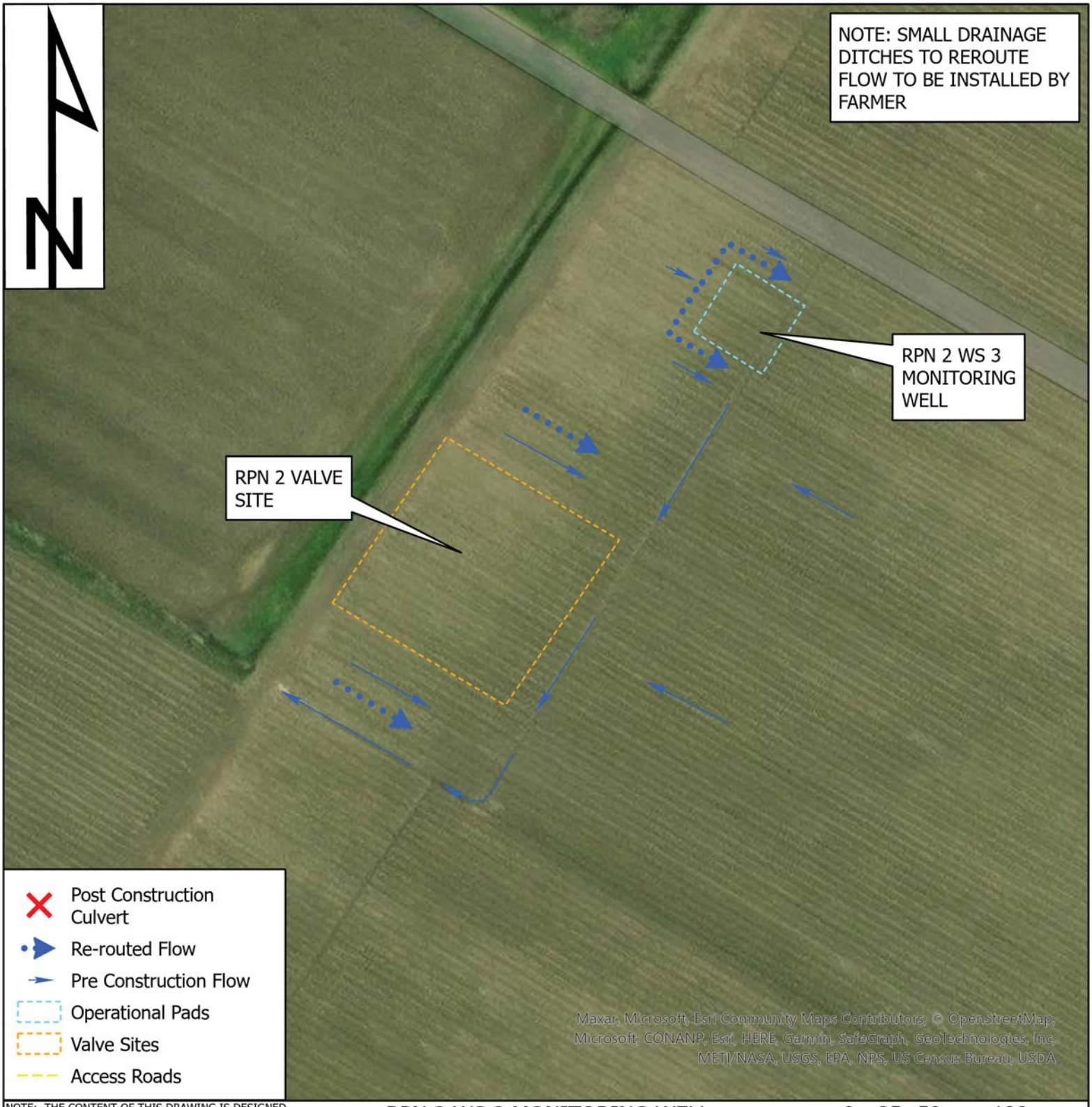

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RPN 2 WS 3 MONITORING WELL & VALVE SITE

0 25 50 100 Feet

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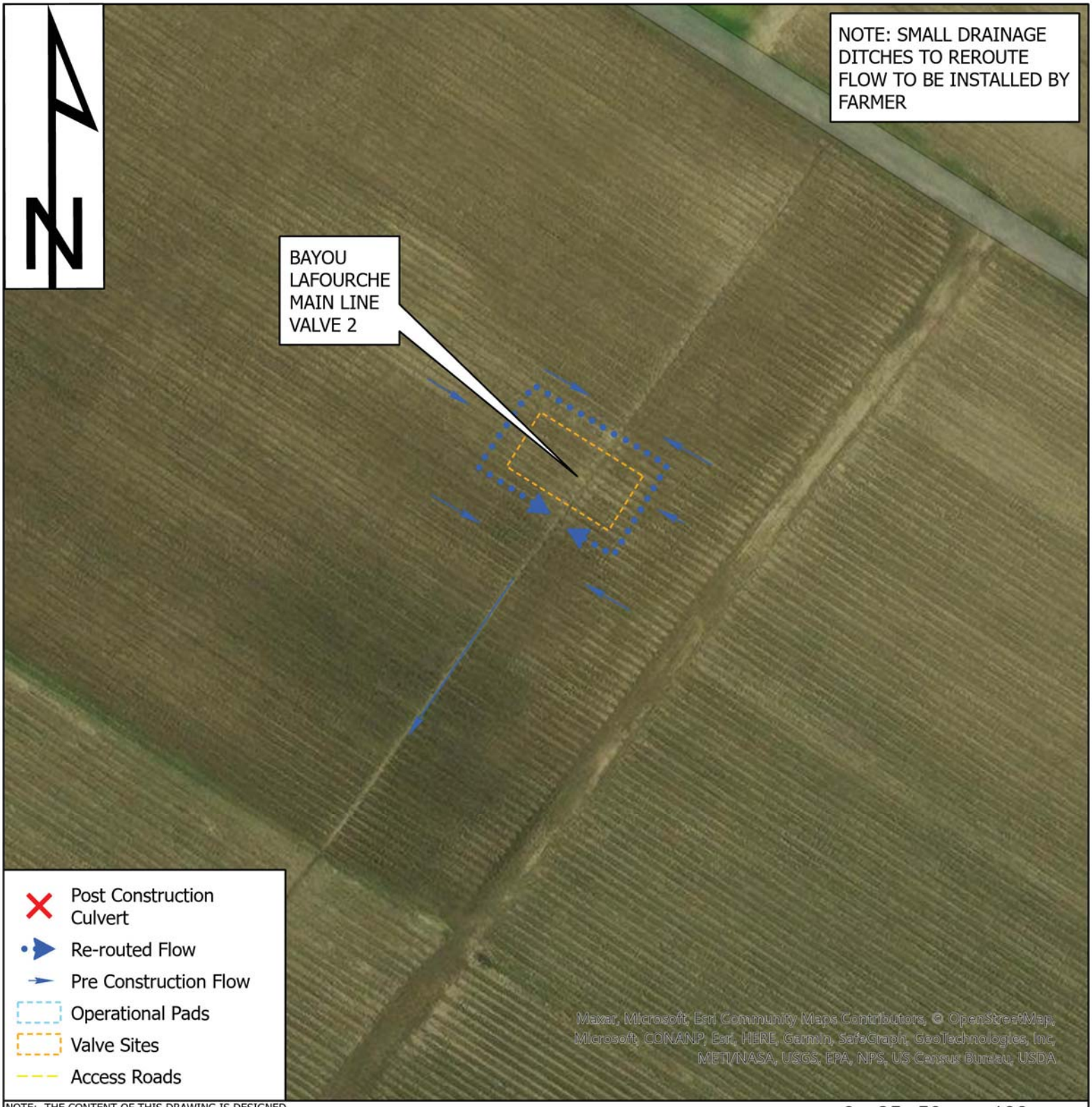

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VALVE SITE

0 25 50 100 Feet

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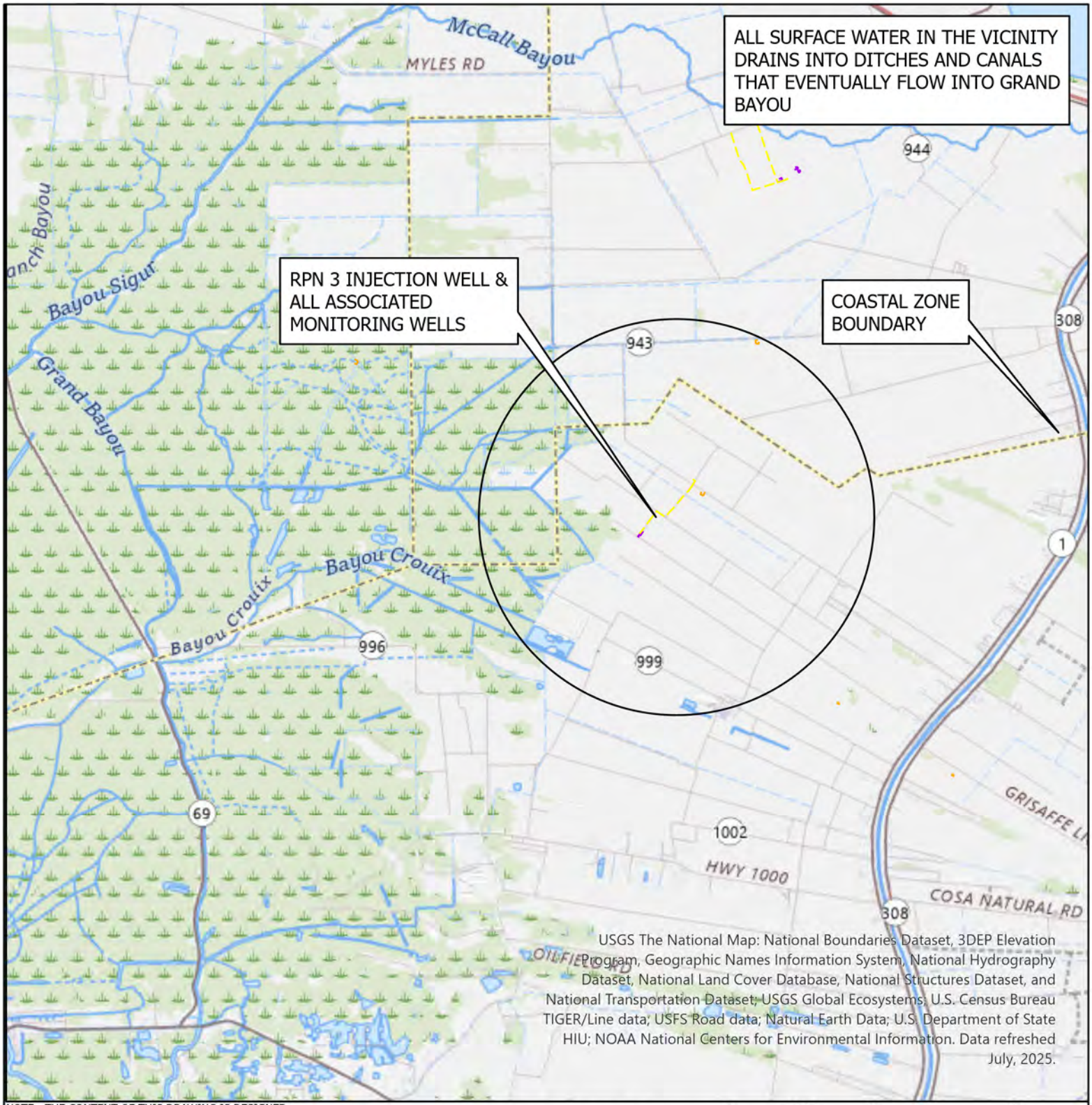
RPN 3 System

Proposed Flow Pattern Maps



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AREA DRAINAGE

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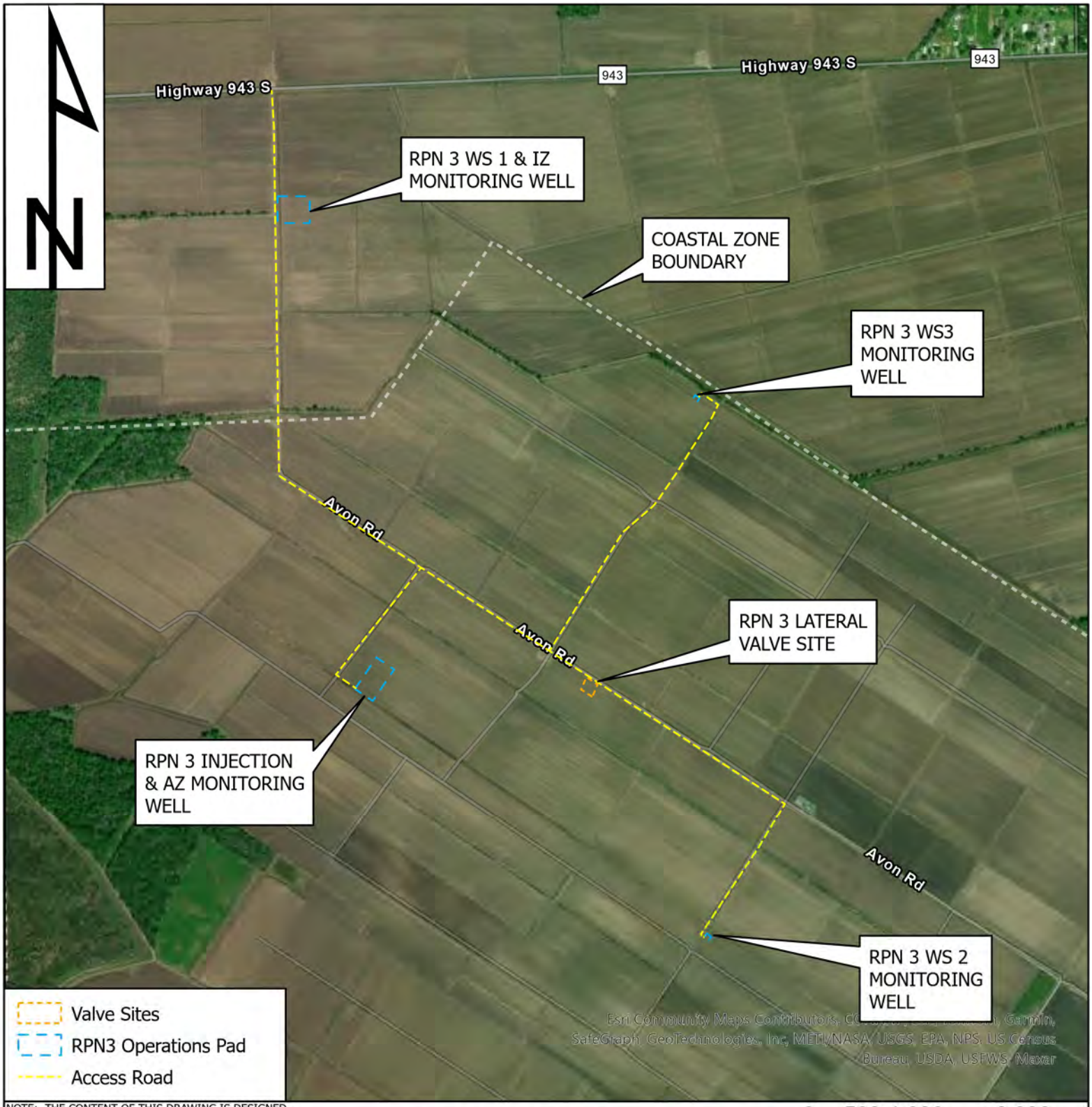

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RPN 3 VICINITY MAP

0 500 1,000 2,000 Feet

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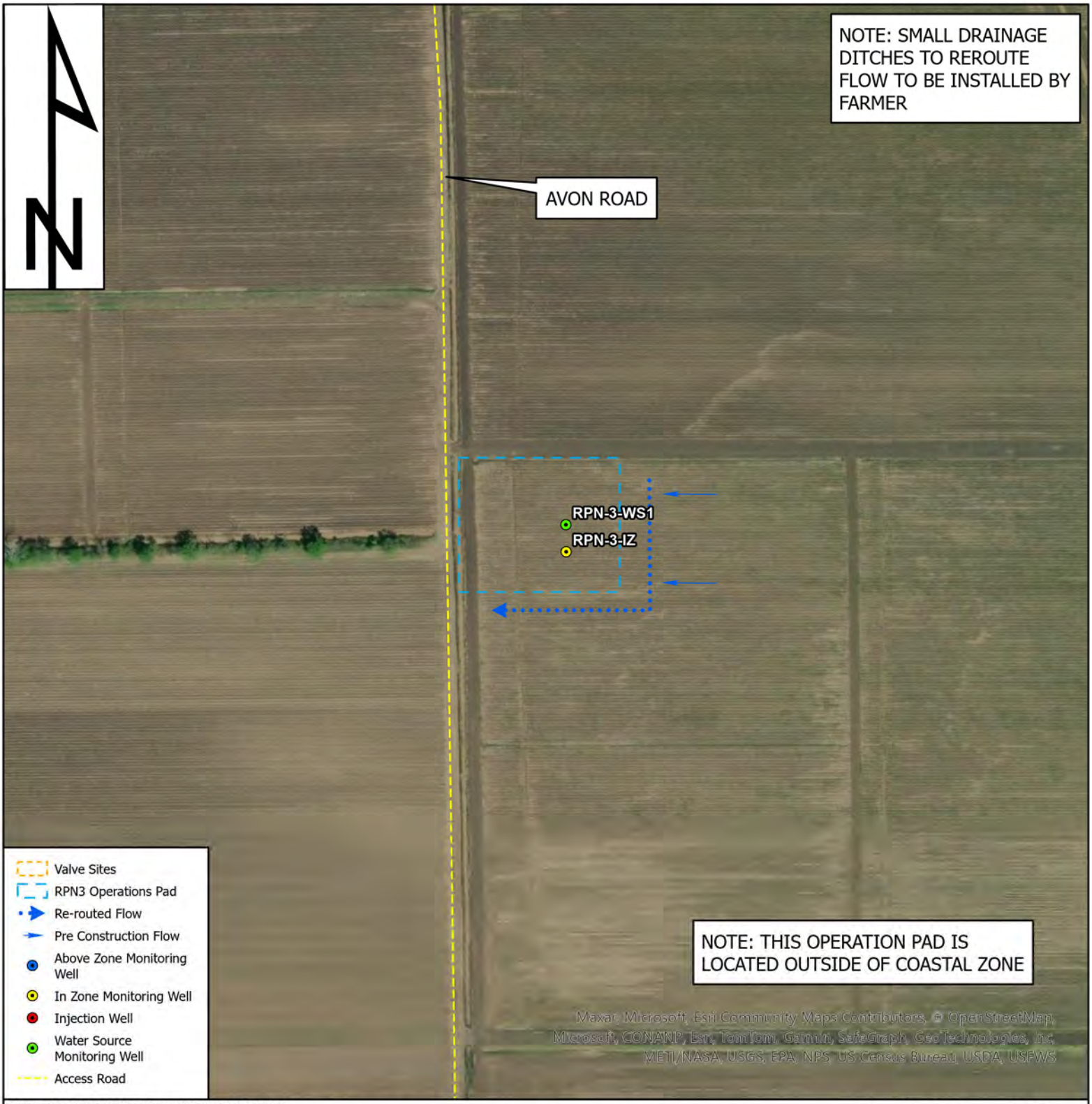

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RPN 3 WS1 & IZ MONITORING WELL

0 75 150 300 Feet

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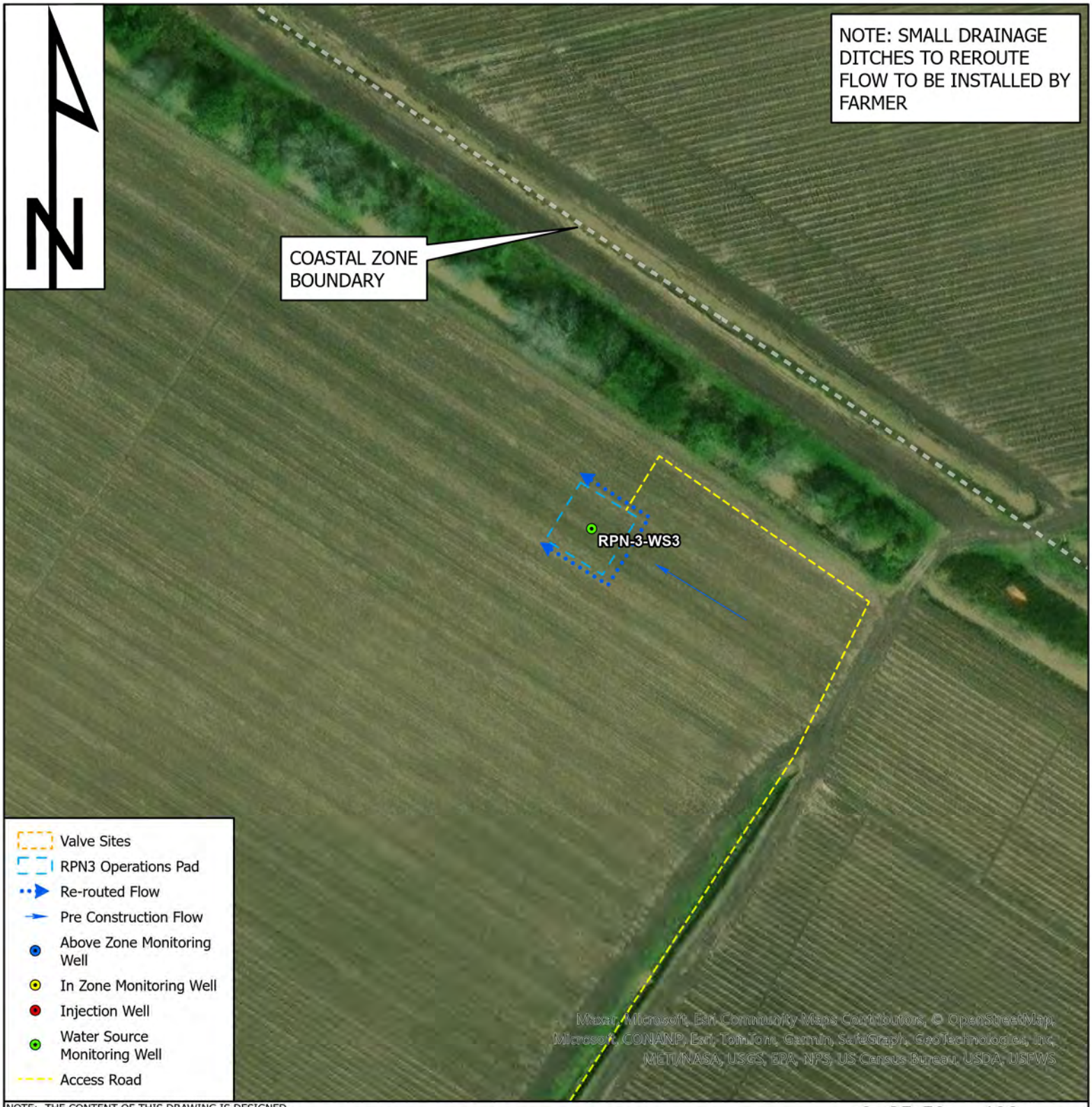

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RPN 3 WS3 MONITORING WELL

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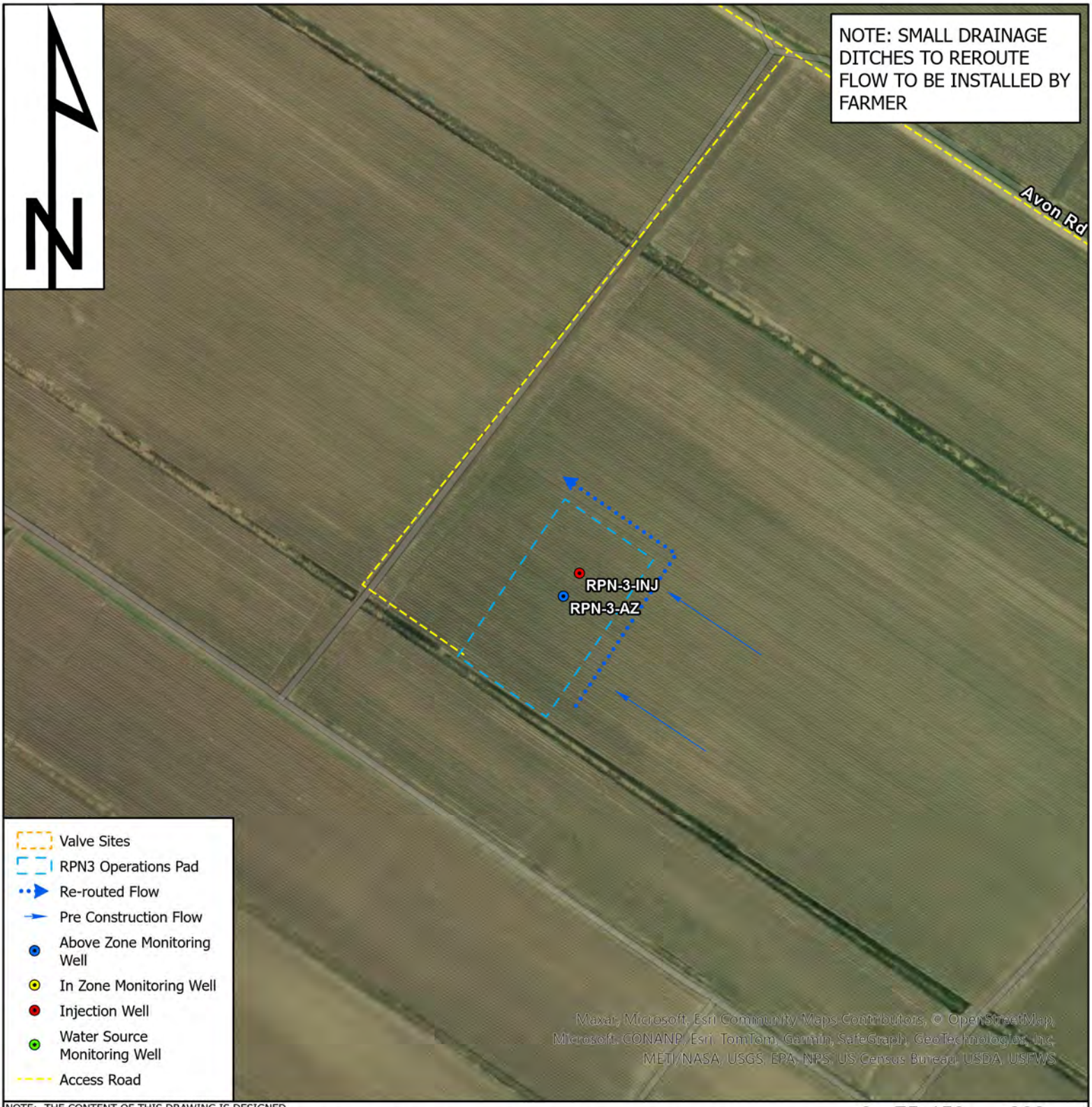

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RPN 3 INJECTION & AZ MONITORING WELL

0 75 150 300 Feet

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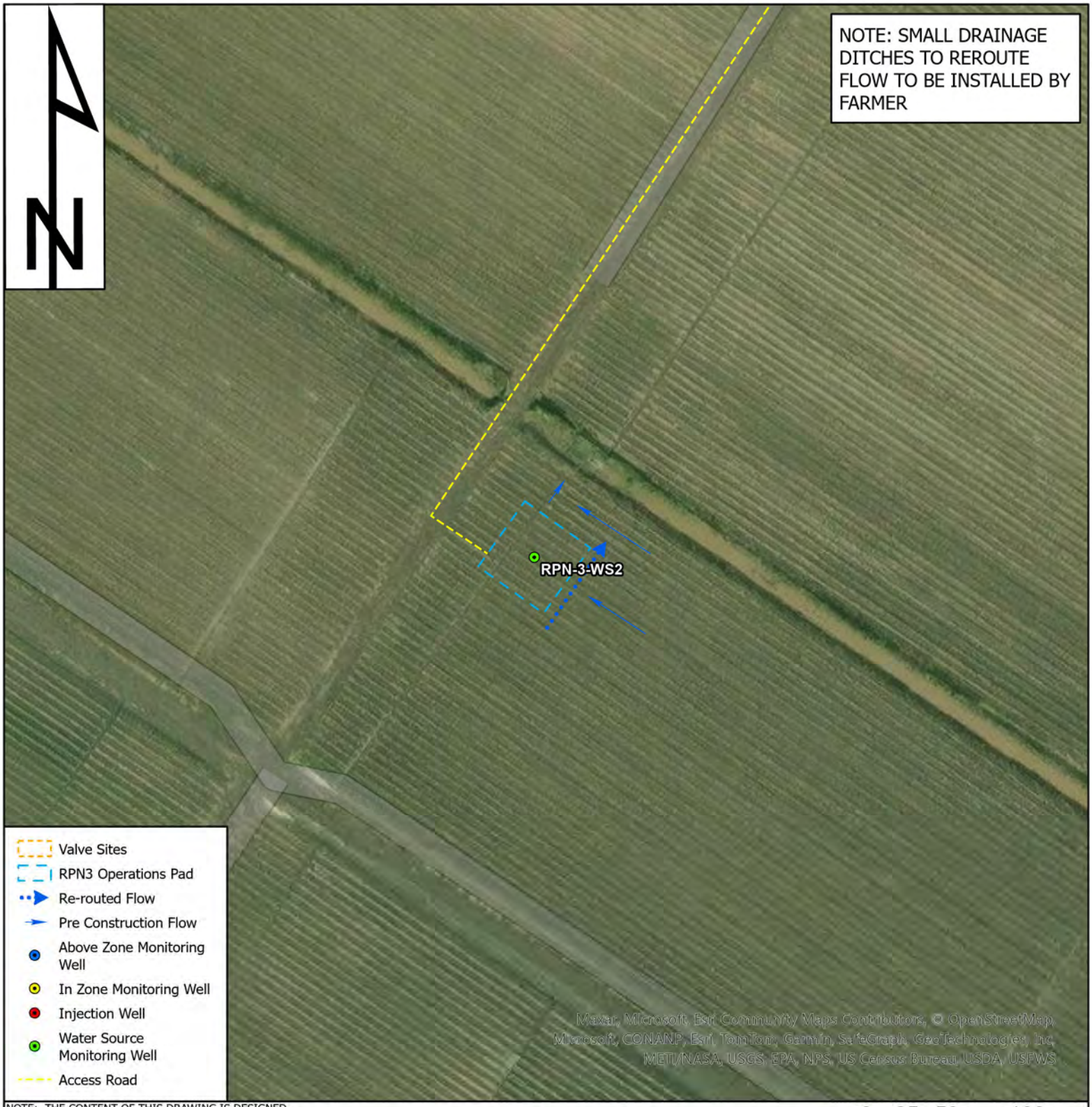

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RPN 3 WS 2

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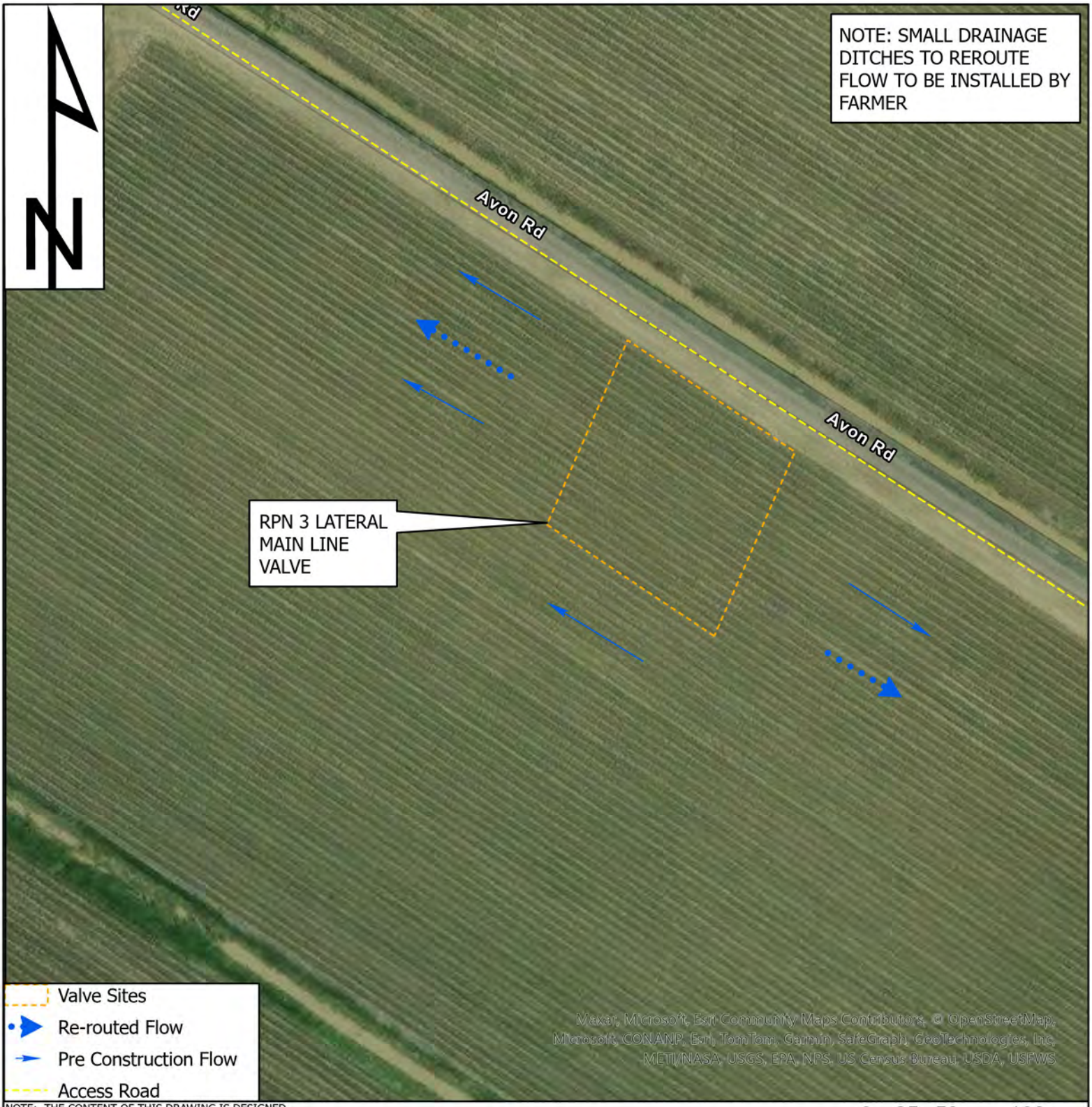

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VALVE SITE

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Attachment B

Page from Precipitation Frequency Data Server

NOAA Atlas 14, Volume 9, Version 2
DONALDSONVILLE 4 SW
Station ID: 16-2534
Location name: Donaldsonville, Louisiana, USA*
Latitude: 30.0717°, Longitude: -91.0275°
Elevation:
Elevation (station metadata): 30 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.529** (0.421-0.662)	**0.602** (0.479-0.754)	**0.723** (0.574-0.907)	**0.826** (0.652-1.04)	**0.971** (0.745-1.25)	**1.08** (0.816-1.41)	**1.20** (0.877-1.59)	**1.32** (0.930-1.79)	**1.49** (1.01-2.05)	**1.61** (1.07-2.25)
10-min	**0.774** (0.617-0.970)	**0.881** (0.701-1.10)	**1.06** (0.840-1.33)	**1.21** (0.955-1.52)	**1.42** (1.09-1.83)	**1.59** (1.20-2.07)	**1.76** (1.28-2.33)	**1.94** (1.36-2.62)	**2.18** (1.48-3.00)	**2.36** (1.56-3.29)
15-min	**0.944** (0.753-1.18)	**1.07** (0.855-1.35)	**1.29** (1.02-1.62)	**1.48** (1.16-1.86)	**1.73** (1.33-2.24)	**1.94** (1.46-2.52)	**2.15** (1.57-2.84)	**2.36** (1.66-3.19)	**2.66** (1.80-3.66)	**2.88** (1.91-4.01)
30-min	**1.41** (1.12-1.77)	**1.61** (1.28-2.02)	**1.94** (1.54-2.44)	**2.23** (1.76-2.80)	**2.62** (2.01-3.38)	**2.94** (2.21-3.82)	**3.26** (2.37-4.31)	**3.58** (2.52-4.84)	**4.03** (2.74-5.55)	**4.37** (2.90-6.09)
60-min	**1.92** (1.53-2.41)	**2.20** (1.75-2.75)	**2.66** (2.11-3.34)	**3.06** (2.42-3.86)	**3.64** (2.80-4.71)	**4.10** (3.09-5.36)	**4.58** (3.35-6.08)	**5.08** (3.58-6.88)	**5.78** (3.92-7.97)	**6.32** (4.18-8.79)
2-hr	**2.43** (1.96-3.01)	**2.78** (2.24-3.45)	**3.38** (2.72-4.19)	**3.90** (3.12-4.86)	**4.66** (3.63-5.97)	**5.27** (4.02-6.81)	**5.91** (4.37-7.77)	**6.59** (4.69-8.83)	**7.52** (5.17-10.3)	**8.26** (5.53-11.4)
3-hr	**2.76** (2.24-3.40)	**3.16** (2.56-3.89)	**3.85** (3.12-4.75)	**4.47** (3.60-5.52)	**5.37** (4.22-6.85)	**6.10** (4.69-7.85)	**6.88** (5.13-9.01)	**7.71** (5.53-10.3)	**8.87** (6.14-12.1)	**9.79** (6.60-13.4)
6-hr	**3.30** (2.72-4.01)	**3.79** (3.12-4.61)	**4.66** (3.82-5.67)	**5.43** (4.43-6.64)	**6.59** (5.25-8.34)	**7.55** (5.88-9.62)	**8.57** (6.47-11.1)	**9.67** (7.02-12.8)	**11.2** (7.86-15.1)	**12.5** (8.50-16.9)
12-hr	**3.79** (3.16-4.55)	**4.39** (3.65-5.27)	**5.44** (4.51-6.55)	**6.39** (5.28-7.72)	**7.81** (6.31-9.78)	**8.99** (7.09-11.3)	**10.3** (7.83-13.2)	**11.6** (8.53-15.2)	**13.5** (9.58-18.0)	**15.1** (10.4-20.2)
24-hr	**4.25** (3.59-5.04)	**5.00** (4.21-5.93)	**6.30** (5.29-7.49)	**7.46** (6.23-8.90)	**9.17** (7.49-11.3)	**10.6** (8.44-13.2)	**12.1** (9.33-15.3)	**13.7** (10.2-17.7)	**15.9** (11.4-21.0)	**17.7** (12.3-23.5)
2-day	**4.78** (4.08-5.60)	**5.69** (4.85-6.67)	**7.26** (6.17-8.53)	**8.64** (7.32-10.2)	**10.7** (8.82-13.0)	**12.4** (9.96-15.2)	**14.1** (11.0-17.7)	**16.0** (12.0-20.4)	**18.6** (13.5-24.2)	**20.7** (14.6-27.1)
3-day	**5.24** (4.51-6.09)	**6.16** (5.30-7.17)	**7.78** (6.67-9.08)	**9.24** (7.88-10.8)	**11.4** (9.52-13.9)	**13.2** (10.8-16.2)	**15.2** (11.9-18.9)	**17.2** (13.1-21.9)	**20.2** (14.7-26.1)	**22.5** (16.0-29.4)
4-day	**5.64** (4.88-6.52)	**6.55** (5.66-7.58)	**8.18** (7.05-9.50)	**9.67** (8.29-11.3)	**11.9** (10.0-14.4)	**13.8** (11.3-16.8)	**15.8** (12.5-19.7)	**18.0** (13.7-22.8)	**21.2** (15.5-27.3)	**23.7** (16.9-30.7)
7-day	**6.63** (5.80-7.60)	**7.56** (6.61-8.67)	**9.24** (8.05-10.6)	**10.8** (9.34-12.4)	**13.1** (11.1-15.7)	**15.1** (12.5-18.2)	**17.2** (13.8-21.2)	**19.5** (15.0-24.5)	**22.8** (16.9-29.2)	**25.5** (18.3-32.8)
10-day	**7.50** (6.61-8.54)	**8.50** (7.48-9.68)	**10.3** (9.01-11.7)	**11.9** (10.4-13.6)	**14.3** (12.2-17.0)	**16.3** (13.6-19.6)	**18.5** (14.9-22.6)	**20.8** (16.1-26.0)	**24.2** (18.0-30.7)	**26.8** (19.4-34.3)
20-day	**10.0** (8.96-11.3)	**11.3** (10.1-12.7)	**13.5** (12.0-15.2)	**15.4** (13.6-17.4)	**18.2** (15.6-21.2)	**20.4** (17.1-24.0)	**22.7** (18.5-27.3)	**25.2** (19.7-30.9)	**28.6** (21.6-35.9)	**31.3** (23.0-39.7)
30-day	**12.2** (11.0-13.7)	**13.7** (12.4-15.4)	**16.3** (14.6-18.2)	**18.4** (16.4-20.7)	**21.5** (18.6-24.8)	**23.9** (20.2-27.9)	**26.4** (21.6-31.3)	**28.9** (22.8-35.2)	**32.4** (24.6-40.3)	**35.1** (25.9-44.2)
45-day	**15.1** (13.7-16.7)	**16.9** (15.3-18.7)	**19.8** (17.9-22.0)	**22.3** (20.0-24.8)	**25.6** (22.3-29.2)	**28.2** (24.0-32.6)	**30.9** (25.4-36.3)	**33.5** (26.5-40.3)	**37.1** (28.2-45.6)	**39.7** (29.5-49.6)
60-day	**17.6** (16.1-19.4)	**19.6** (17.9-21.6)	**22.9** (20.8-25.3)	**25.5** (23.1-28.3)	**29.1** (25.4-33.0)	**31.9** (27.2-36.5)	**34.6** (28.6-40.4)	**37.3** (29.6-44.6)	**40.8** (31.3-50.0)	**43.5** (32.5-54.0)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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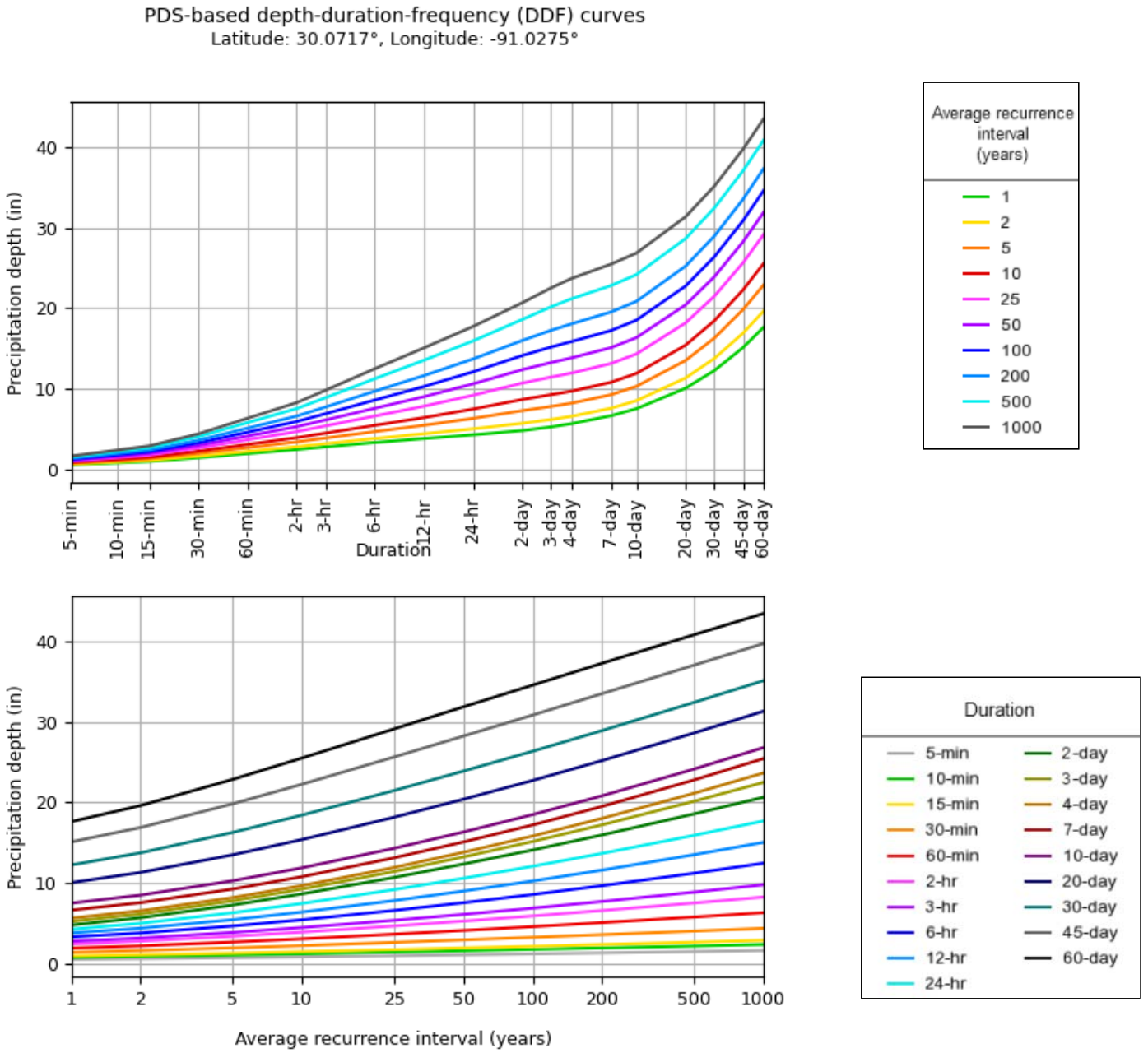
PF graphical



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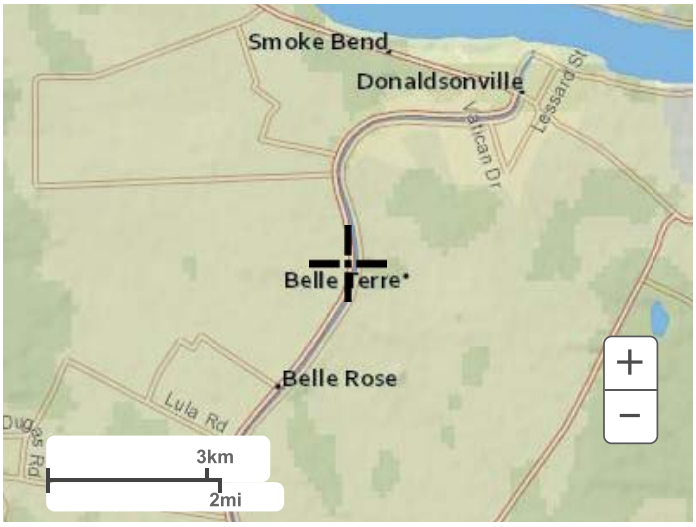
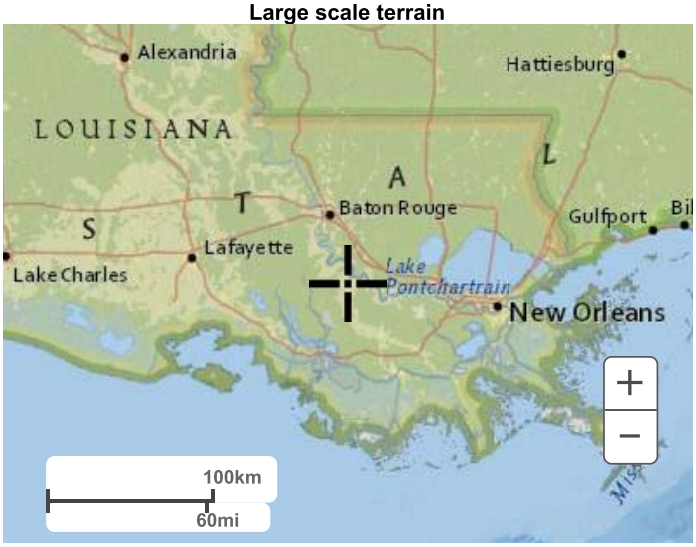
Maps & aerials

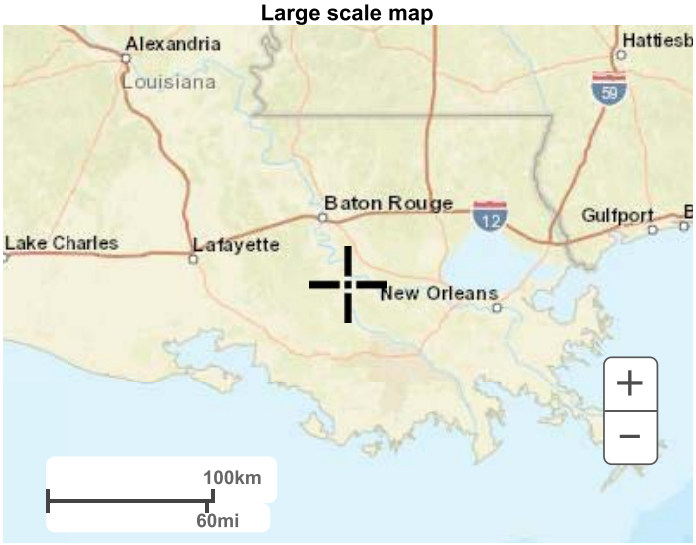
Small scale terrain



Large scale terrain



Large scale map



Large scale aerial

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