

Deformation Monitoring Plan

Lonquist comment:

We have finalized our planned locations for the InSAR reflectors, tiltmeters and GPS stations at Sulphur Mines. This email and attachments are to provide the final plan going into the installation field work for DNR review. A number of location adjustments have been performed to accommodate rig access, InSAR signal clarity and the proposed containment system. The below bullet list summarizes the changes that have been made relative to the InSAR corner reflector map and ground deformation monitoring plan submitted on 12/27/2023.

Corner Reflectors:

- CR 1 – Moved west out of low-lying marshy area and adjusted to location with minimal existing radar amplitude
- CR 3 – Moved west out of central lake and adjusted to location with minimal existing radar amplitude
- CR 4 – Moved east out of central lake and adjusted to location with minimal existing radar amplitude to west side of potential containment system berm
- CR 6 – Added per DNR request, moved north to hug south side of road on higher elevation but stay as close as possible to location requested by DNR
- CR 8 – Moved northwest to be co-located with GPS NW station
- CR 10 – Moved west to be co-located with GPS SW station
- CR 12 – Added to NW corner of LGS 2 pad to provide most central reflector on dome and adjusted to location with minimal existing radar amplitude
- CR 13 – Added to provide secondary LGS 2 measurement on SE corner of pad and adjusted to location with minimal existing radar amplitude
- CR 14 – Added to be co-located with GPS SE station and adjusted to location with minimal existing radar amplitude
- CR 15 – Added to be near potential impact zone center and adjusted to location with minimal existing radar amplitude

Tiltmeter Sites:

- SSD01 – Moved to west side of potential containment system berm
- SSD03 – Moved SE per 1/20/2024 layout refinement from Pinnacle
- SSD04 – Moved SE per 1/20/2024 layout refinement from Pinnacle
- SSD05 – Moved south per 1/20/2024 layout refinement from Pinnacle
- SSD06 – Moved south per 1/20/2024 layout refinement from Pinnacle
- SSD07 – Moved SW per 1/20/2024 layout refinement from Pinnacle
- SSD08 – Moved south per 1/20/2024 layout refinement from Pinnacle
- SSD09 – Moved south per 1/20/2024 layout refinement from Pinnacle
- SSD10 – Moved to west side of potential containment system berm
- SSD11 – Moved west per 1/20/2024 layout refinement from Pinnacle



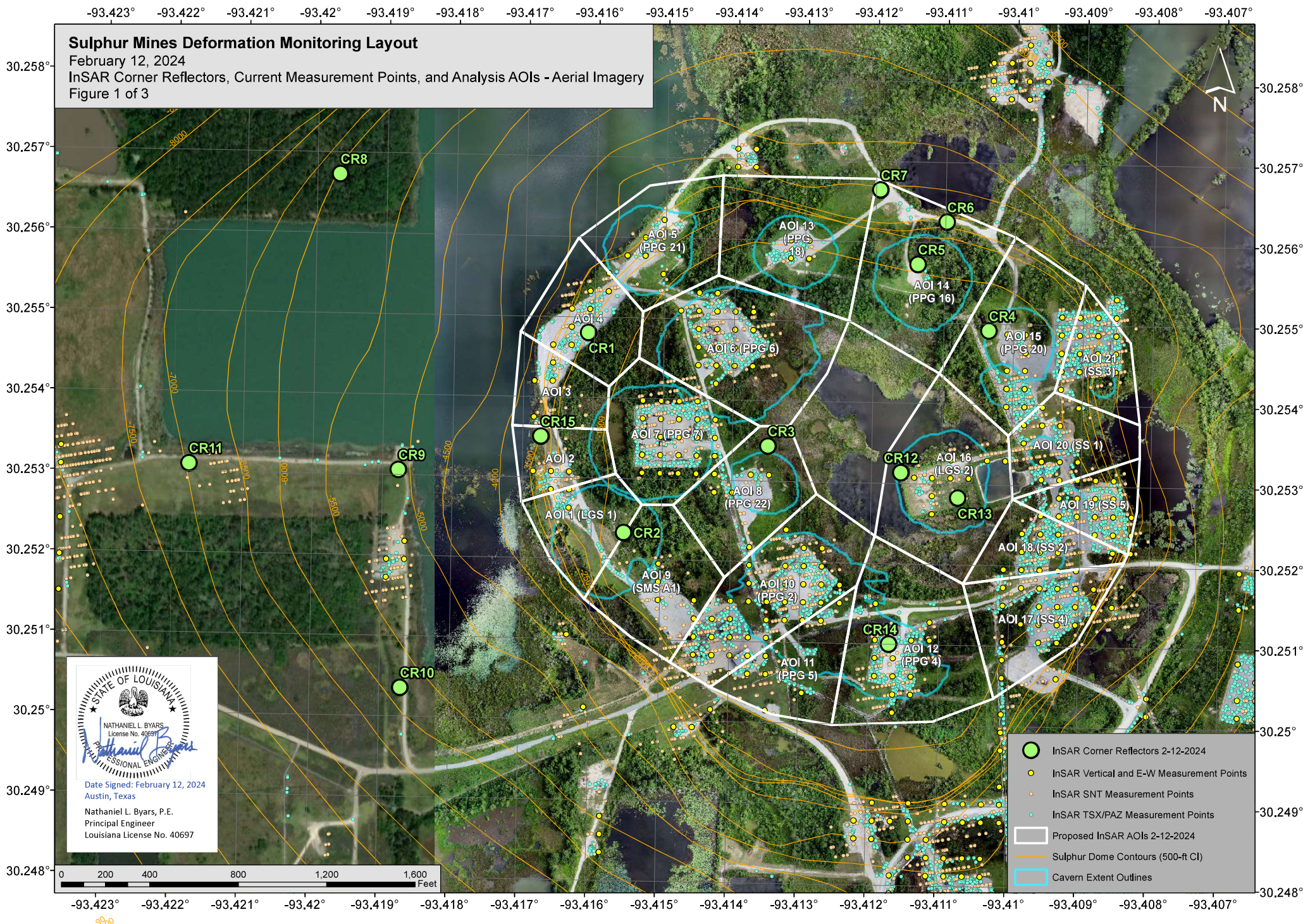
- SSD12 – Moved SE per 1/20/2024 layout refinement from Pinnacle
- SSD13 – Moved west per 1/20/2024 layout refinement from Pinnacle
- SSD14 – Moved west per 1/20/2024 layout refinement from Pinnacle
- SSD15 – Moved NW near edge of central pond shoreline per DNR request
- SSD16 – Moved to south side of potential containment system berm
- SSD17 – Moved SW per 1/20/2024 layout refinement from Pinnacle
- SSD18 – Moved north per 1/20/2024 layout refinement from Pinnacle
- SSD19 – Moved to north side of potential containment system berm
- SSD20 – Moved south per 1/20/2024 layout refinement from Pinnacle

GPS Stations:

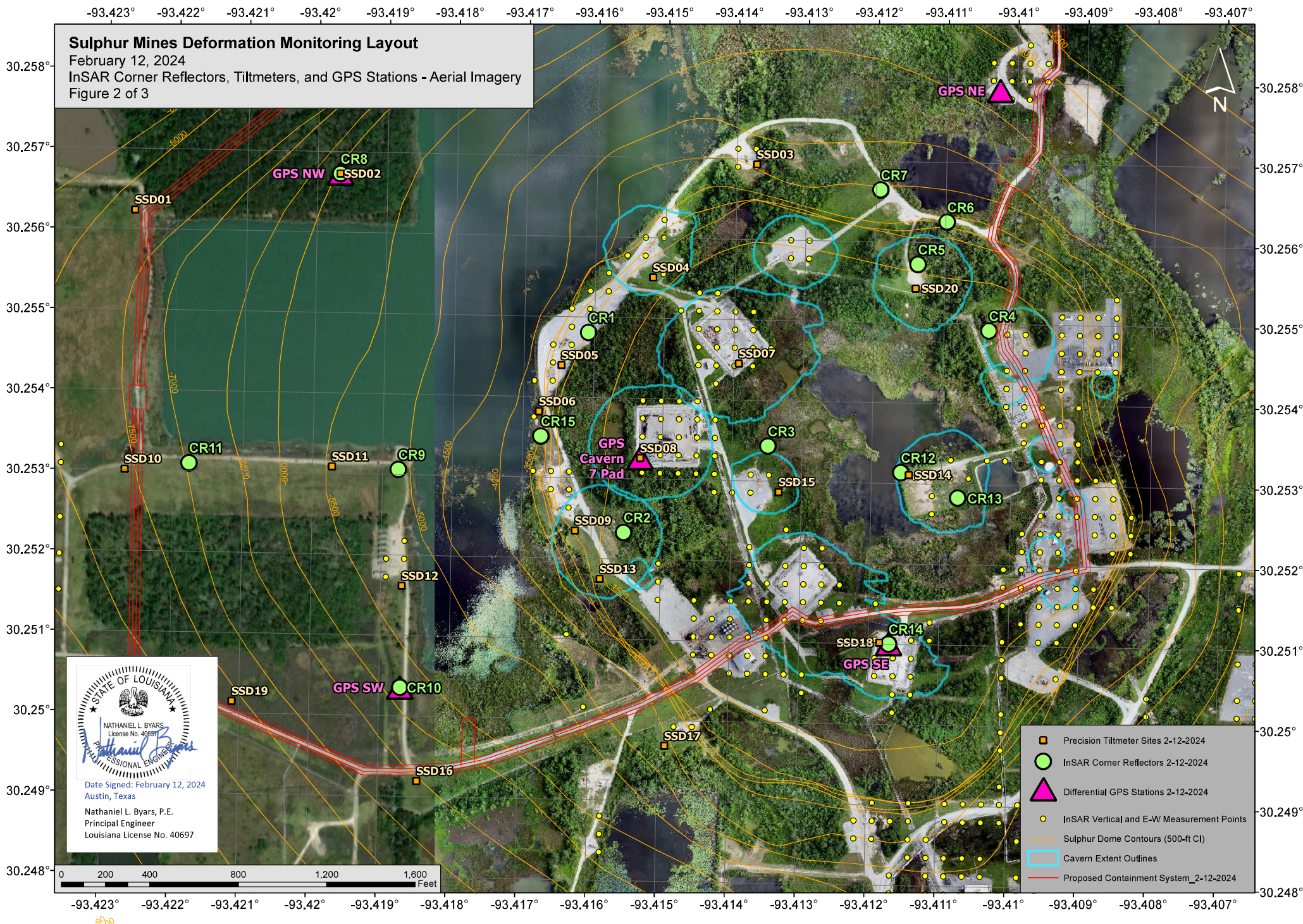
- GPS NE – Moved north per 1/20/2024 layout refinement from Pinnacle
- GPS Cavern 7 Pad – Moved to SW corner of pad per 1/20/2024 layout refinement from Pinnacle
- GPS SE – Moved north to be co-located with CR 14
- GPS SW – Moved east to be positioned near road for site access
- GPS Off-dome Reference Station – Location still to be determined by onsite personnel via testing of cellular radio signal with on-dome stations

An additional note on timing:

The support structures for the GPS should be installed by mid-March but Pinnacle has informed us of a revised delivery estimate for the GPS equipment of March 29th. We will be trying to expedite the install but this likely means the GPS stations won't be operational until early to mid-April.



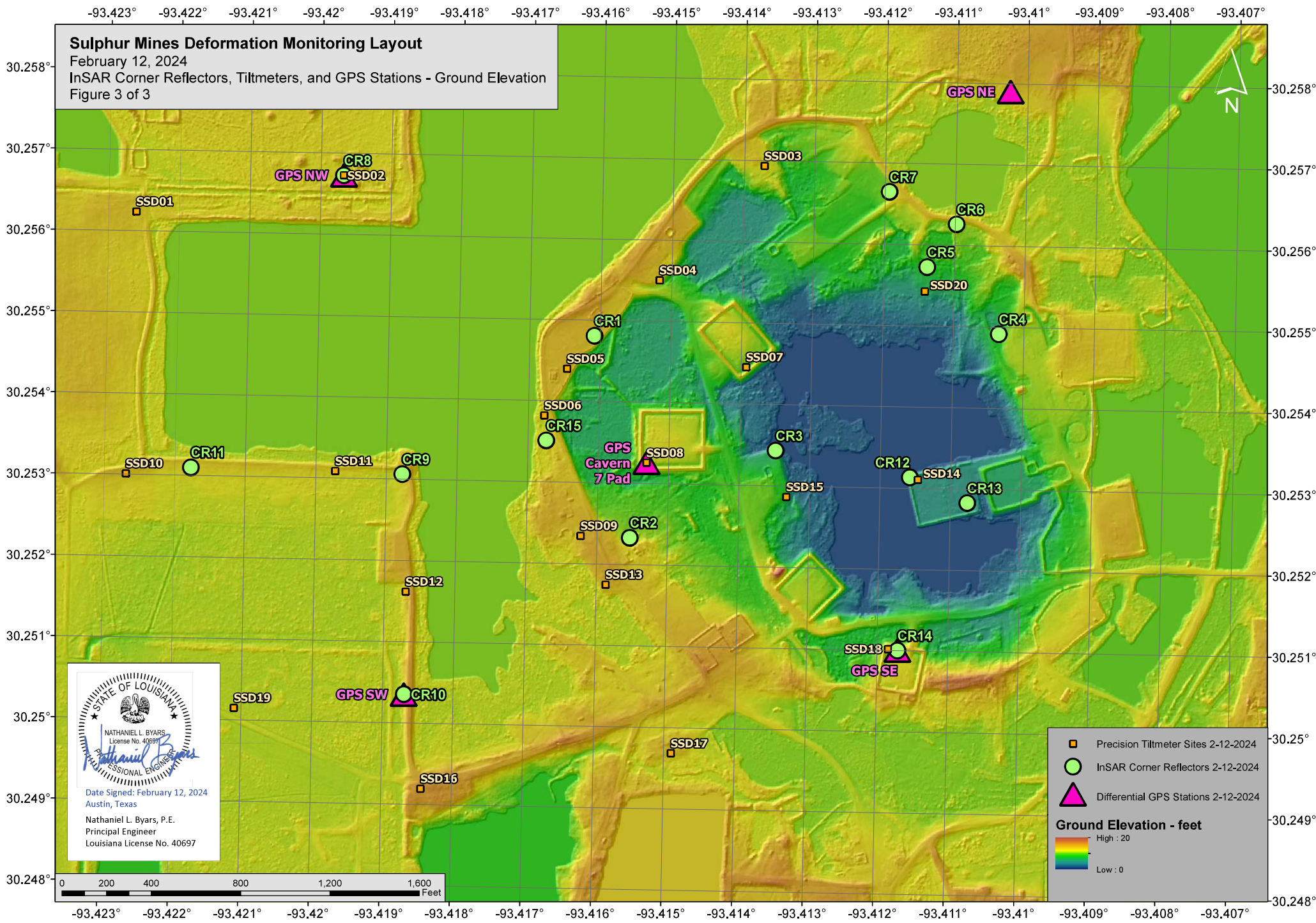
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Sulphur Mines Deformation Monitoring Layout
February 12, 2024
InSAR Corner Reflectors, Tiltmeters, and GPS Stations - Aerial Imagery
Figure 2 of 3

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- Precision Tiltmeter Sites 2-12-2024
- InSAR Corner Reflectors 2-12-2024
- Differential GPS Stations 2-12-2024
- InSAR Vertical and E-W Measurement Points
- Sulphur Dome Contours (500-ft CI)
- Cavern Extent Outlines
- Proposed Containment System_2-12-2024



Sulphur Mines Deformation Monitoring Layout
February 12, 2024
InSAR Corner Reflectors, Tiltmeters, and GPS Stations - Ground Elevation
Figure 3 of 3

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- Precision Tiltmeter Sites 2-12-2024
 - InSAR Corner Reflectors 2-12-2024
 - Differential GPS Stations 2-12-2024
- Ground Elevation - feet**
- High : 20
Low : 0

Sulphur Mines Deformation Monitoring Layout

Coordinate Tables (WGS 84)

February 12, 2024

InSAR Corner Reflectors		
Name	Latitude	Longitude
CR1	30.254807	-93.416085
CR2	30.252330	-93.415535
CR3	30.253435	-93.413488
CR4	30.254918	-93.410354
CR5	30.255728	-93.411386
CR6	30.256259	-93.410980
CR7	30.256644	-93.411937
CR8	30.256725	-93.419677
CR9	30.253062	-93.418773
CR10	30.250354	-93.418694
CR11	30.253099	-93.421774
CR12	30.253136	-93.411577
CR13	30.252830	-93.410759
CR14	30.251001	-93.411711
CR15	30.253508	-93.416743

Precision Tiltmeter Sites		
Name	Latitude	Longitude
SSD01	30.256234	-93.422612
SSD02	30.256725	-93.419677
SSD03	30.256935	-93.413717
SSD04	30.255505	-93.415177
SSD05	30.254395	-93.416467
SSD06	30.253815	-93.416777
SSD07	30.254455	-93.413927
SSD08	30.253255	-93.415317
SSD09	30.252342	-93.416232
SSD10	30.253010	-93.422695
SSD11	30.253085	-93.419727
SSD12	30.251615	-93.418697
SSD13	30.251745	-93.415867
SSD14	30.253105	-93.411467
SSD15	30.252866	-93.413328
SSD16	30.249195	-93.418437
SSD17	30.249685	-93.414897
SSD18	30.251015	-93.411847
SSD19	30.250148	-93.421103
SSD20	30.255425	-93.411417

Differential GPS Stations		
Name	Latitude	Longitude
GPS NE	30.257902	-93.410248
GPS NW	30.256725	-93.419677
GPS Cavern 7 Pad	30.253255	-93.415317
GPS SE	30.251001	-93.411711
GPS SW	30.250349	-93.418699
GPS Off-dome Reference Station	TBD	TBD



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