Statewide Orthoimagery Program

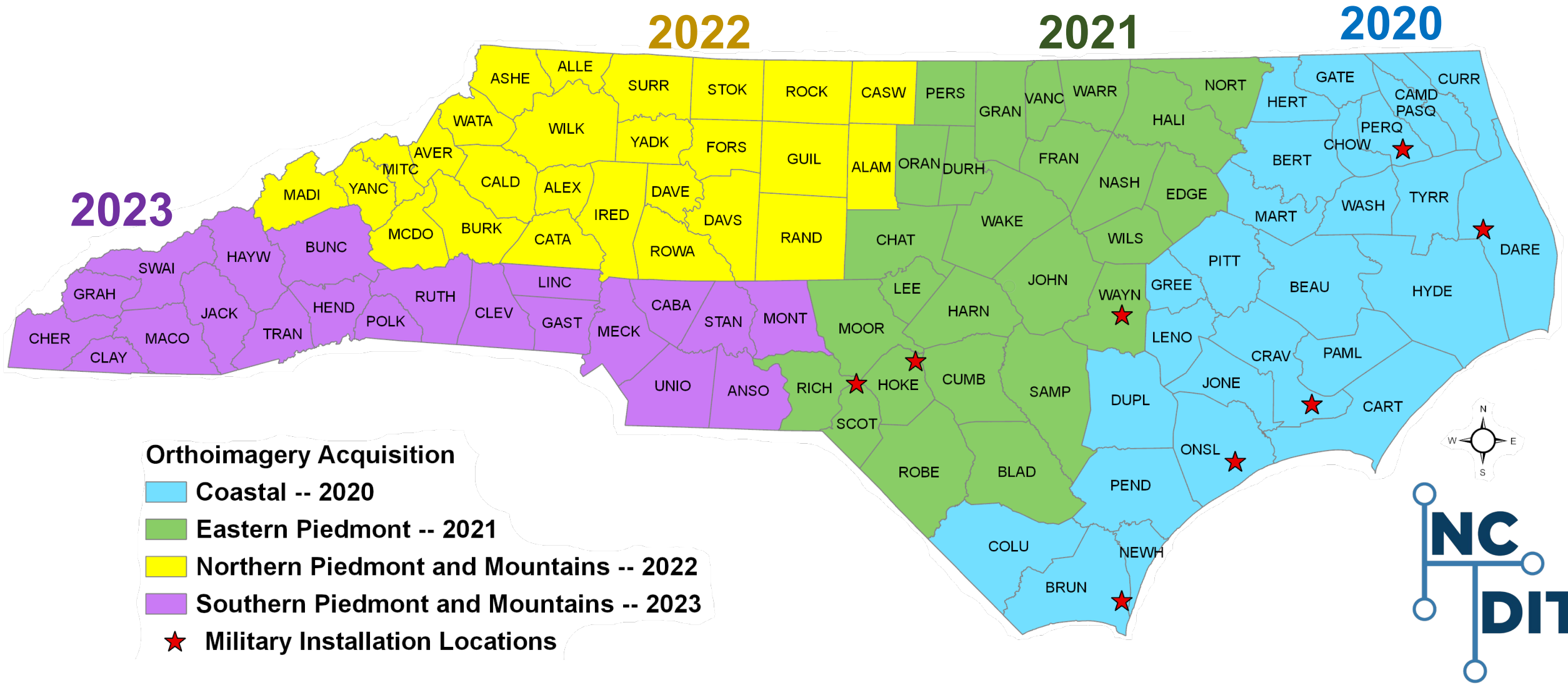
Current Status and New Products

Ben Shelton
Program Manager

November 18, 2020

Approved Orthoimagery Program Cycle

4-Year Cycle



CO20 Project Area

- 27 counties
- 15,678 square miles
- 17,483 tiles (5,000’ by 5,000’)

- Nadir Orthoimagery AOI:
  - Wilmington
  - Greenville
  - 18 major bridges

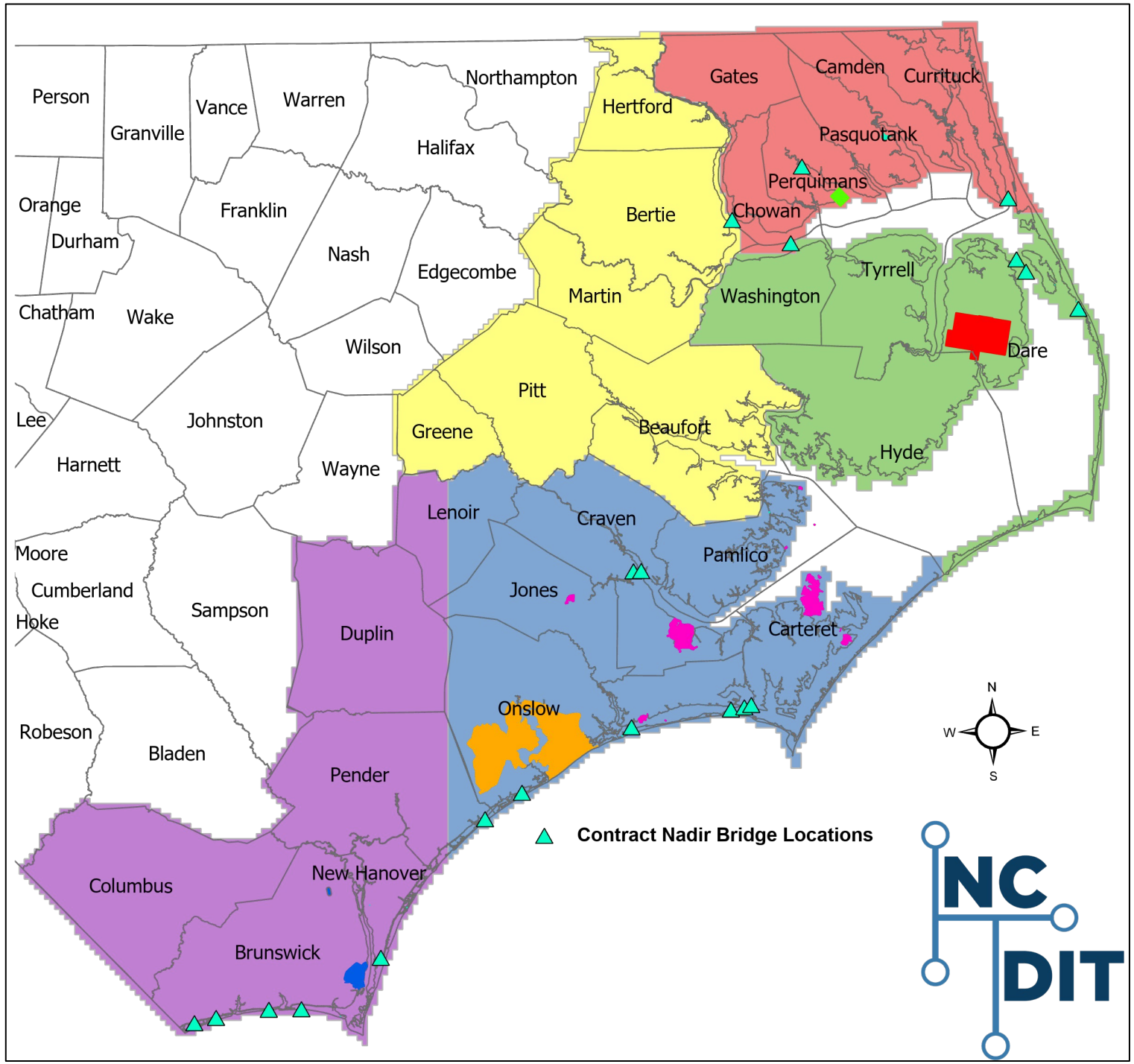
- Coordination with Military Operations:

MilitaryBoundaries

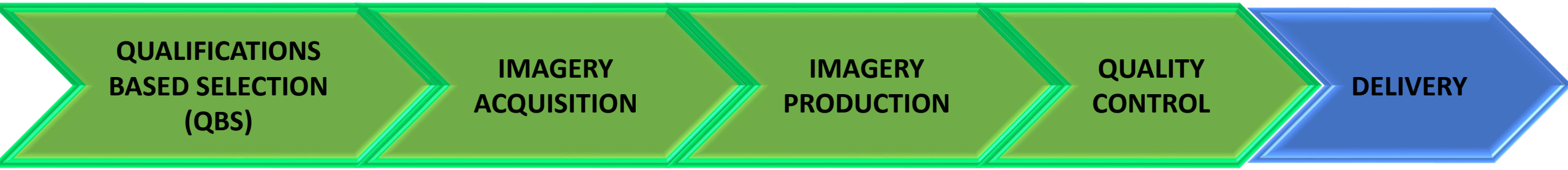
- Harvey Point
- US Coast Guard Base Elizabeth City
- USAF Dare Bombing Range
- USMCB Camp Lejeune
- USMCAS Cherry Point
- US Army Military Ocean Terminal Sunny Point

Study Area

- SA1 - Quantum Spatial
- SA2 - Surdex Corporation
- SA3 - Sanborn Map Company
- SA4 - Atlas Geographic Data
- SA5 - Spatial Data Consultants



CO20 Project Timeline



JUL – DEC 2019	JAN – MAR 2020	MAR – JUN 2020	JUN – OCT 2020	DEC 2020*

*Note: Change in delivery from mid-November to week of December 7

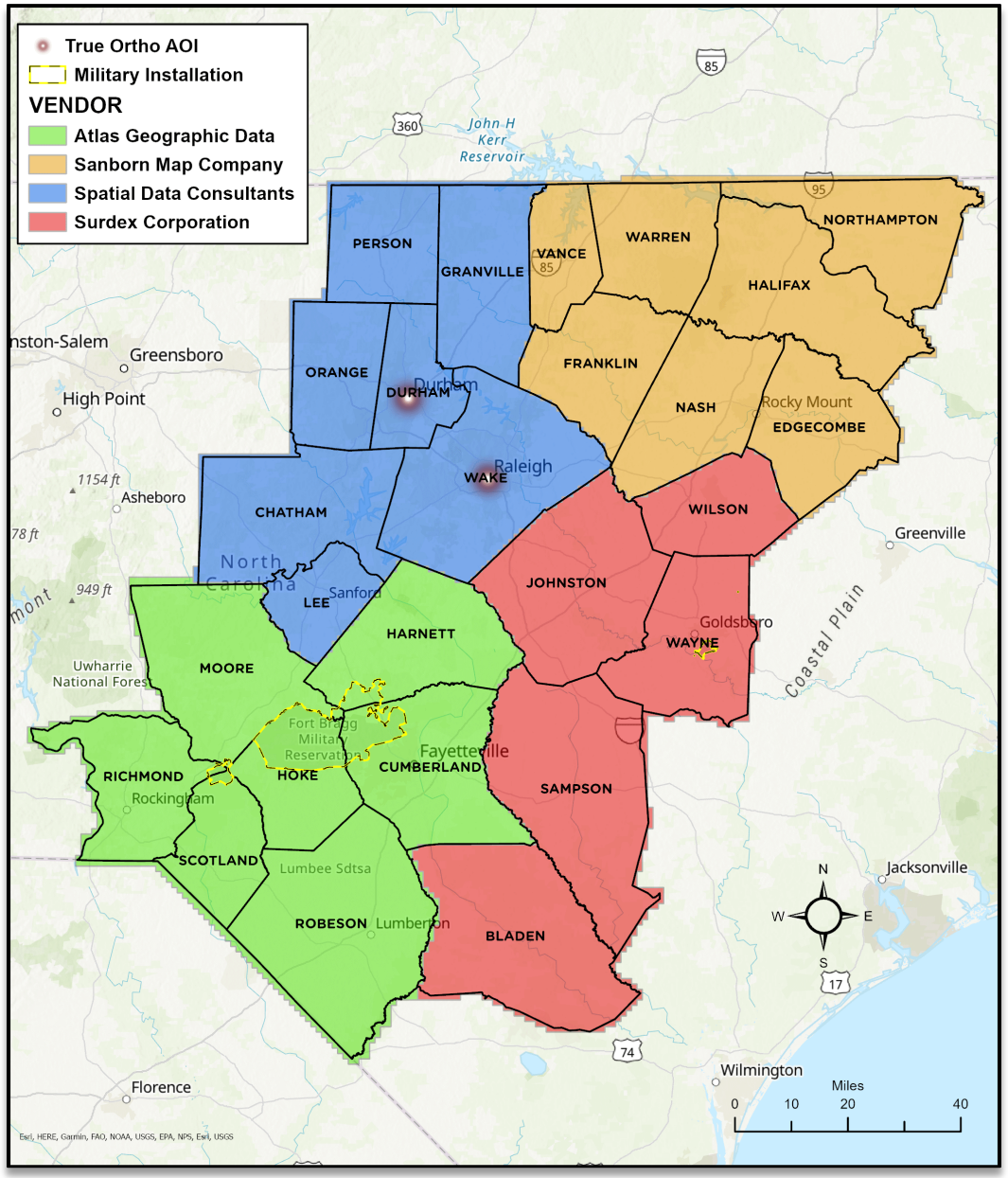
2021 Eastern Piedmont

- 26 counties
- 15,141 square miles
- 16,885 tiles (5,000’ by 5,000’)

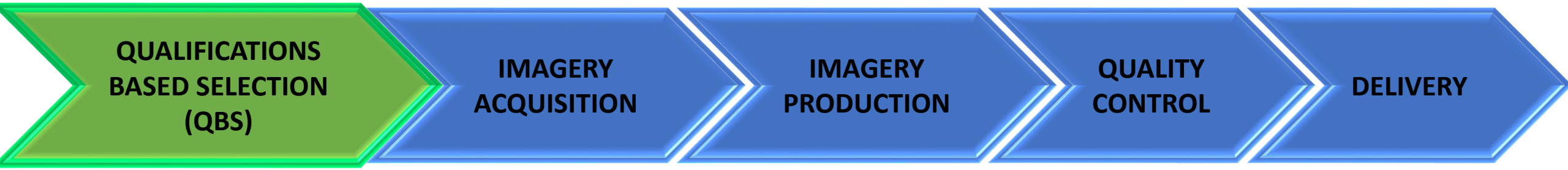
- True Orthoimagery AOI:
  - Durham
  - Raleigh

- Coordination with Military Operations:
  - Fort Bragg
  - Camp Mackall
  - Seymour Johnson AFB

- Private Contractors pending contracting



EP21 Project Timeline



JUL – DEC 2020	FEB – MAR 2021	MAR – JUN 2021	JUN – OCT 2021	NOV 2021

Orthoimagery Deliverables – 2020 and beyond

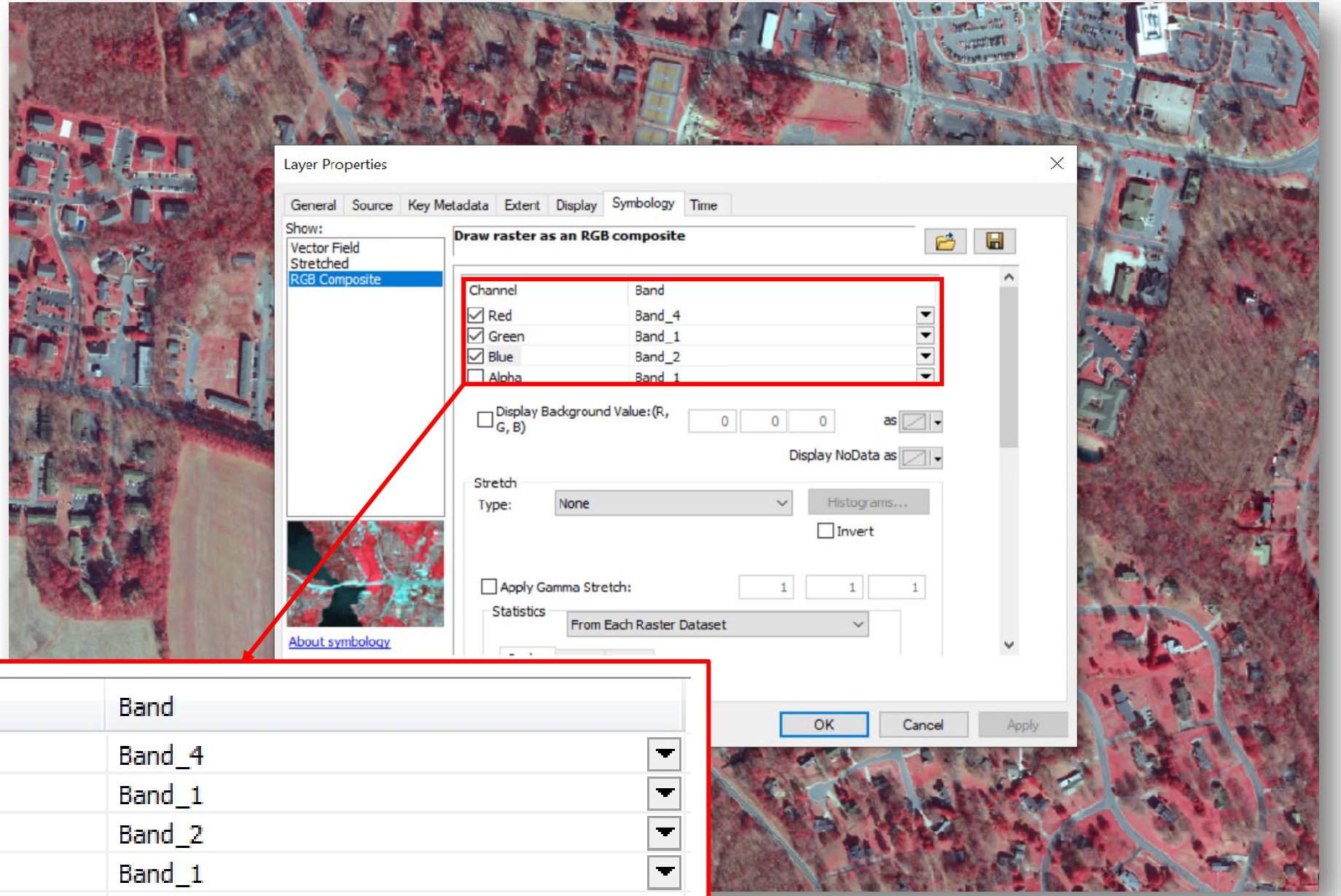
- Full Resolution TIFF Tiles (5000’ by 5000’) –
  - 400mb per tile
  - **4-Band (RGBIR)**

- 20:1 Compressed MrSID Tiles (5000’ by 5000’) –
  - Generation 4 MrSID
  - 4-Band RGBIR (2020 Project Area Only) AND
  - 3-Band RGB (includes previous project images)

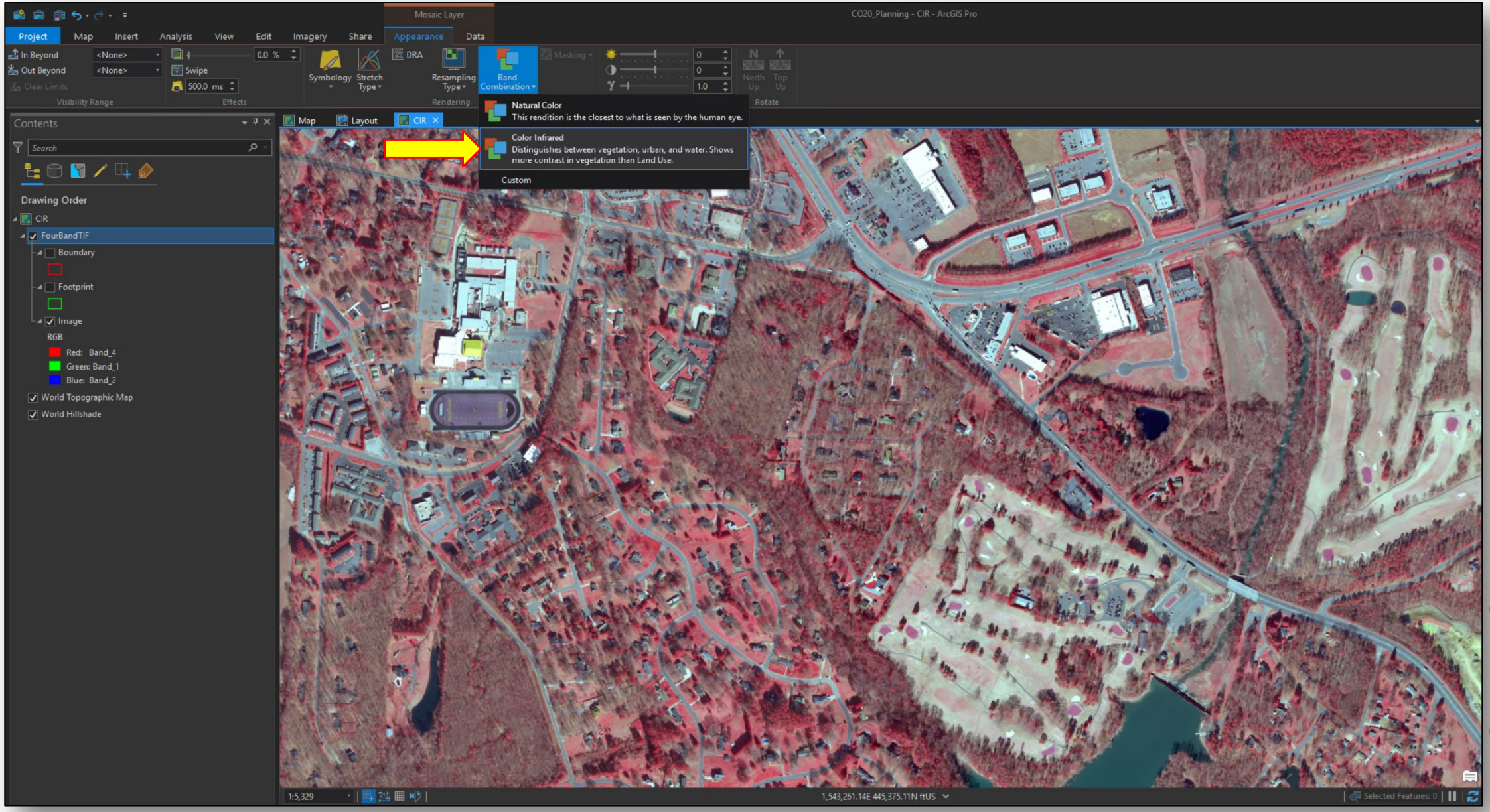
- 50:1 Compressed MrSID Mosaic Single File (County 7-mile Rectangle)
  - 3-Band True-Color RGB AND
  - 3-Band False-color IR

- NC OneMap Image Services
  - Single year service – 4-Band RGBIR
  - Orthoimagery_latest – 3-Band
  - Orthoimagery_all – TBD

Using the 4th Band - ArcMap

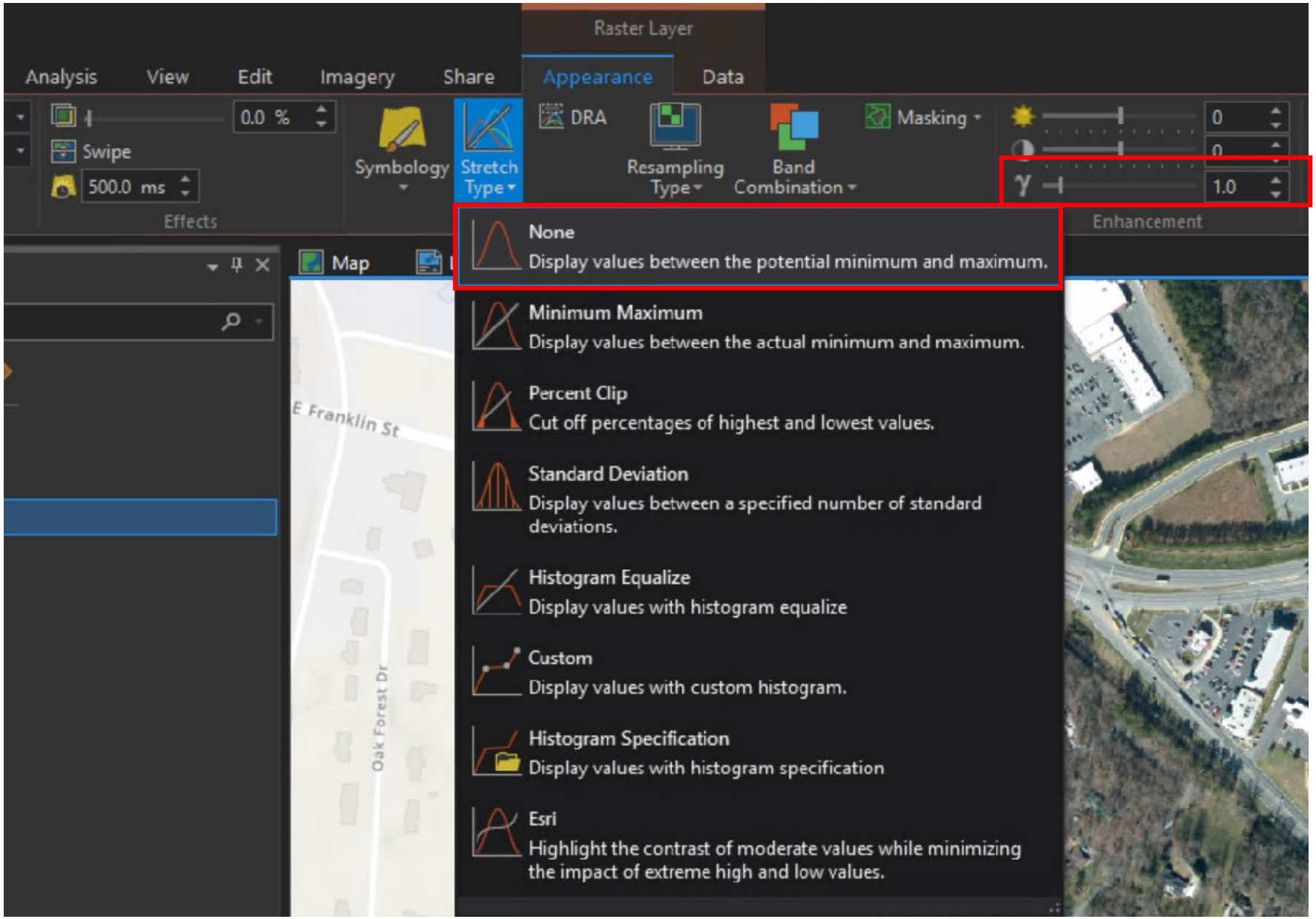


Using the 4th Band – ArcGIS Pro



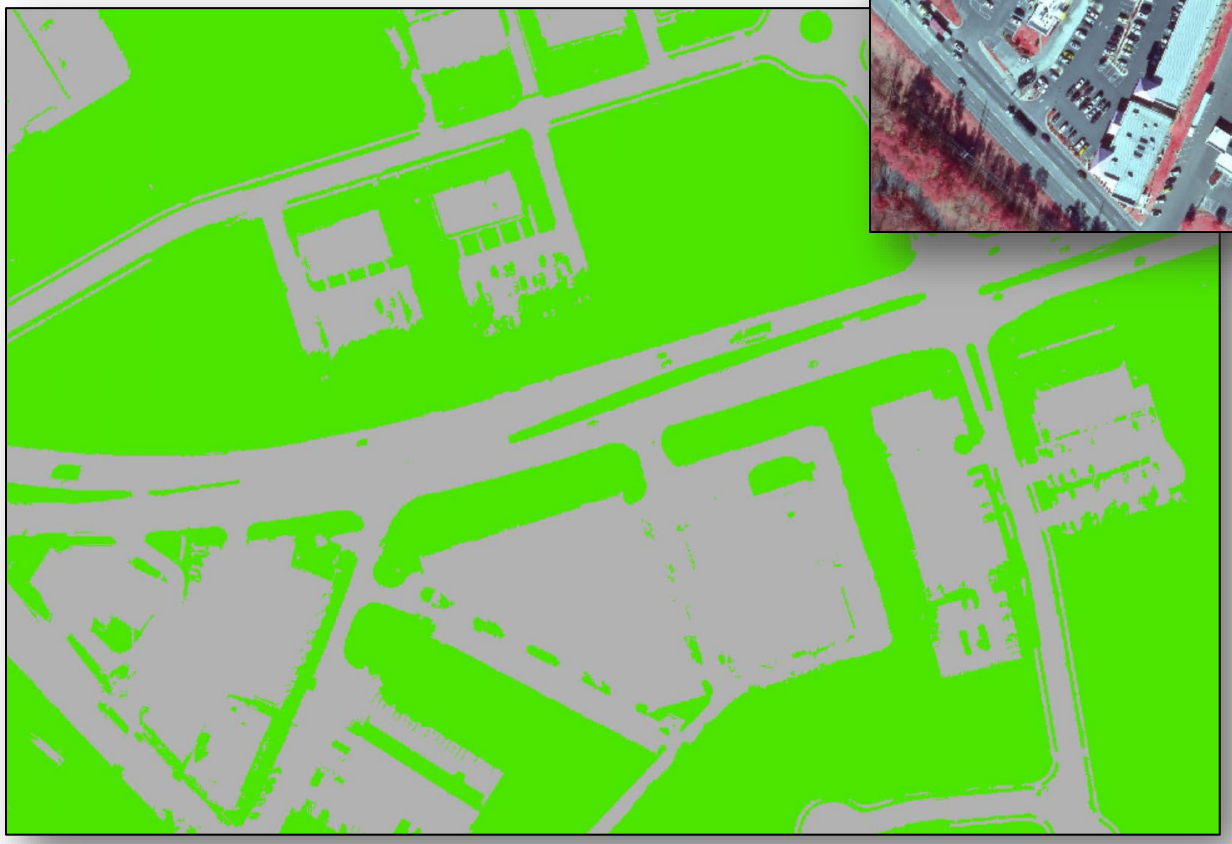
NC DIT

Using any bands – ArcGIS Pro



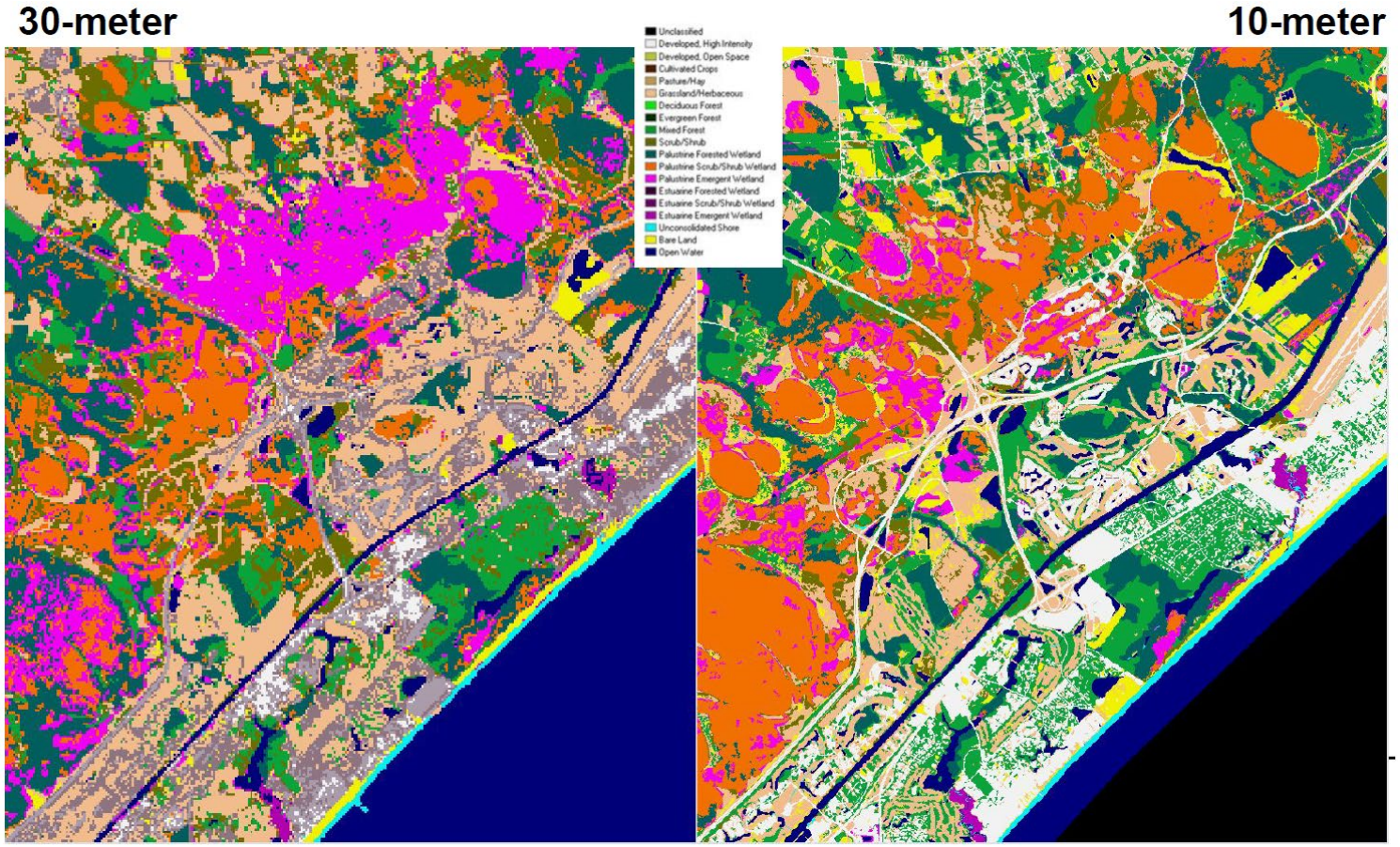
Using the 4th Band

- Typical Color Infrared Imagery Uses:
  - **Impervious Surface Extraction**
  - Land Cover Classification
  - Vegetation Analysis
  - Tree Canopy Mapping
  - Soil Mapping



Using the 4th Band

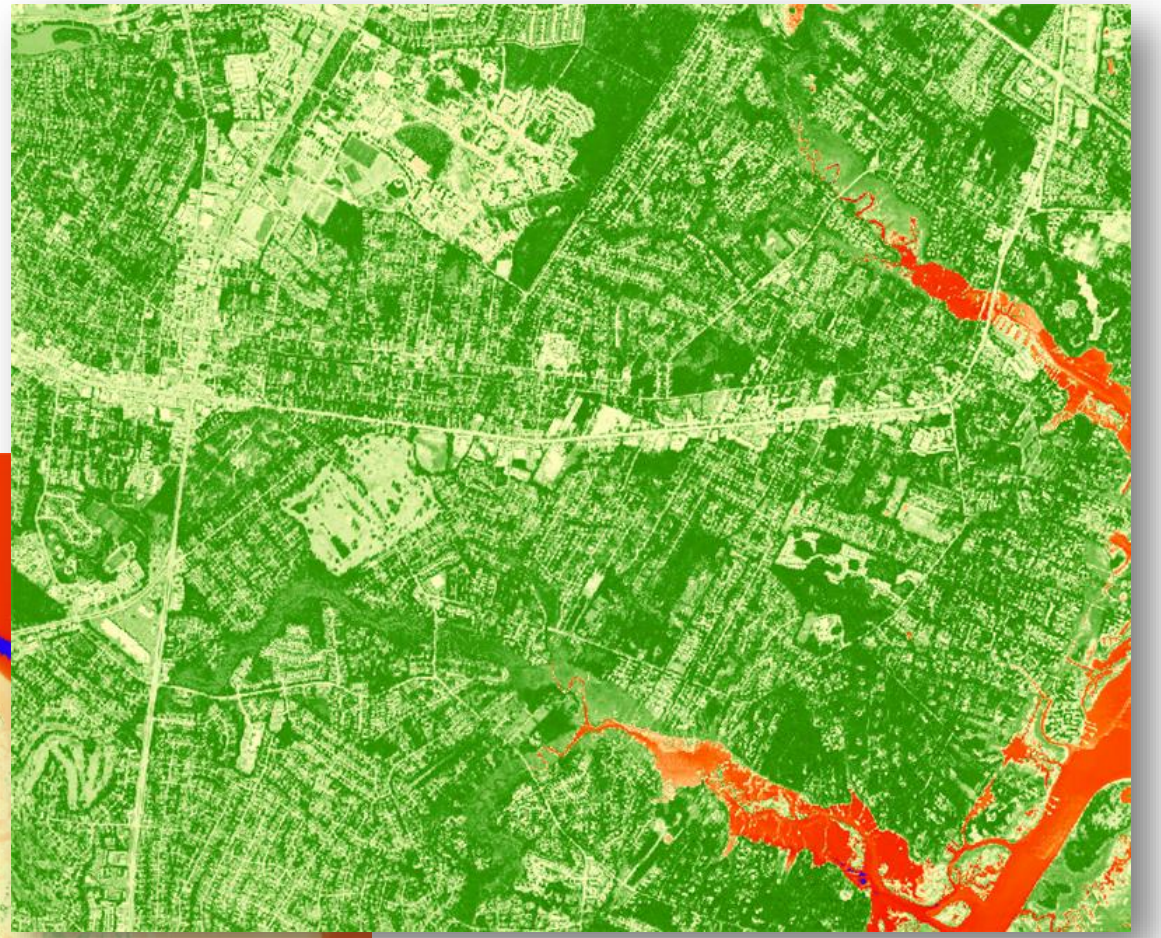
- Typical Color Infrared Imagery Uses:
  - Impervious Surface Extraction
  - **Land Cover Classification**
  - Vegetation Analysis
  - Tree Canopy Mapping
  - Soil Mapping

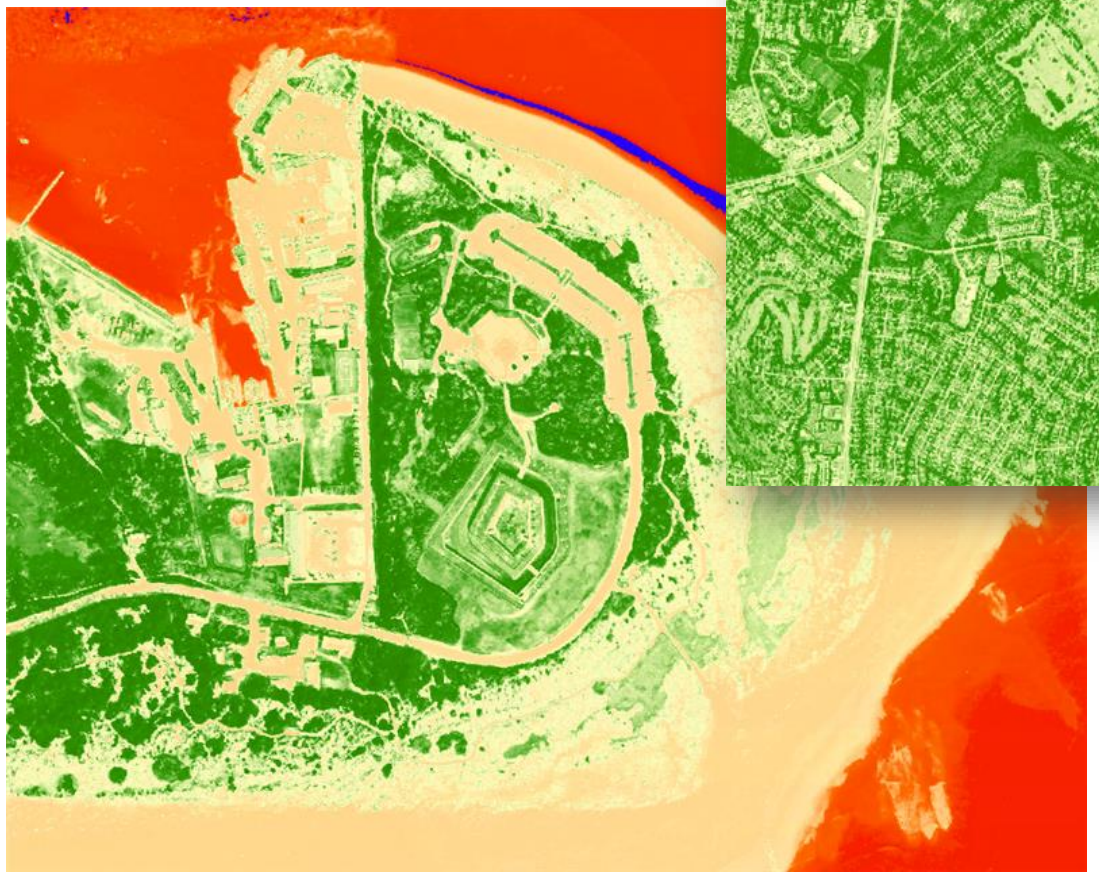


Source: NOAA

Using the 4th Band

- Typical Color Infrared Imagery Uses:
  - Impervious Surface Extraction
  - Land Cover Classification
  - **Vegetation Analysis** - *NDVI*
  - Tree Canopy Mapping
  - Soil Mapping





Using the 4th Band

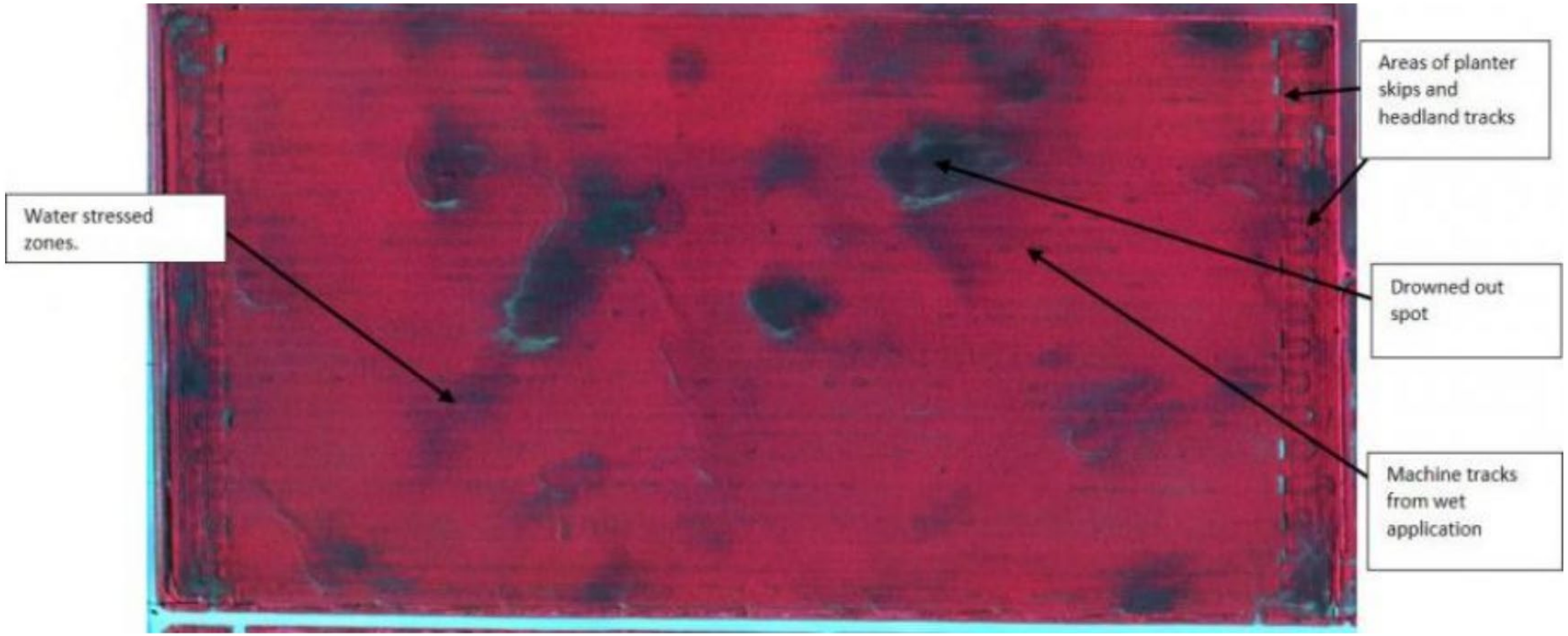
- Typical Color Infrared Imagery Uses:
  - Impervious Surface Extraction
  - Land Cover Classification
  - Vegetation Analysis
  - **Tree Canopy Mapping**
  - Soil Mapping

Source: ESRI

Using the 4th Band

- Typical Color Infrared Imagery Uses:
  - Impervious Surface Extraction
  - Land Cover Classification
  - Vegetation Analysis
  - Tree Canopy Mapping
  - **Soil Mapping**

Source: Iowa State University



Using the 4th Band

- Typical Color Infrared Imagery Uses:
  - Impervious Surface Extraction
  - Land Cover Classification
  - Vegetation Analysis
  - Tree Canopy Mapping
  - **Soil Mapping - NDVI**

Source: Iowa State University

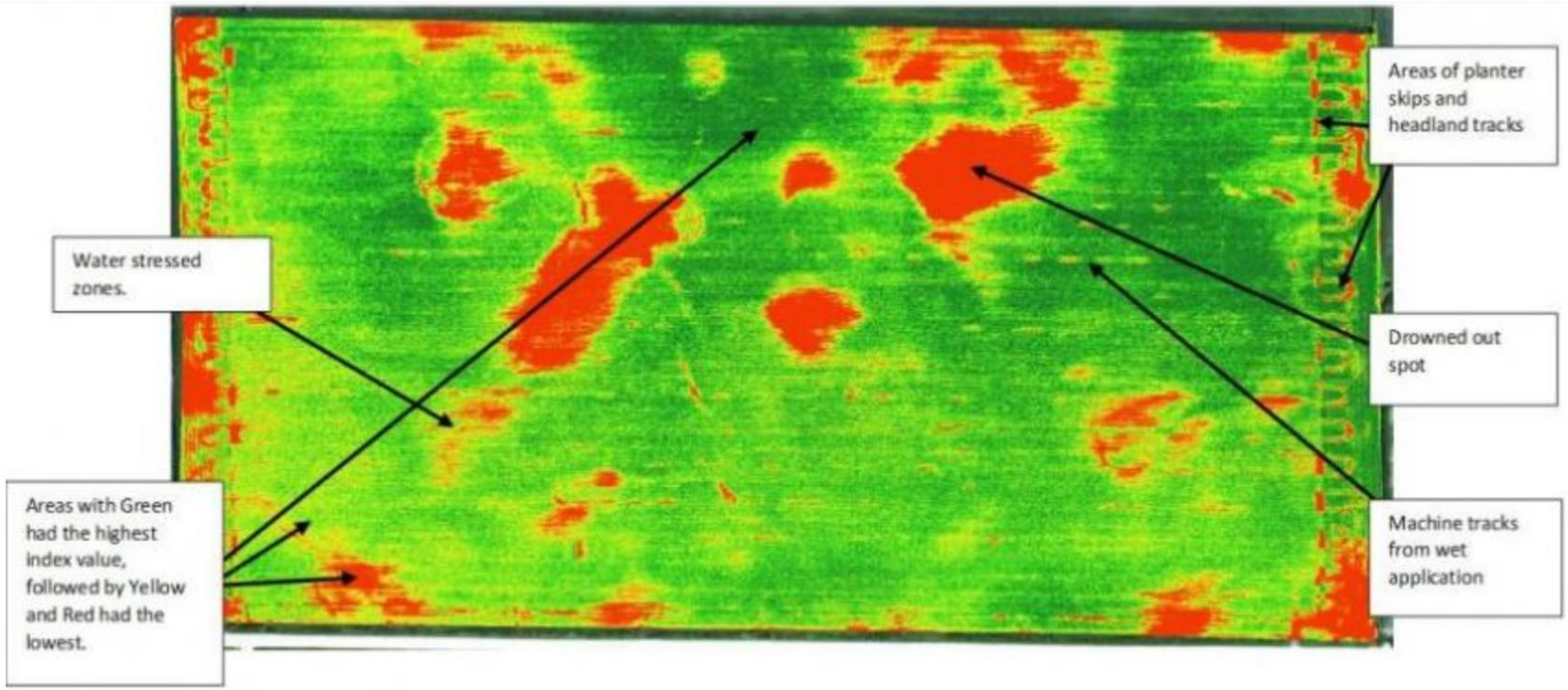


Image Classification and Object Detection

- Image Classification:
  - Supervised vs. Unsupervised
- Deep Learning
  - Can be used for Image Classification or Object Detection
- Most operations require Spatial Analyst or Image Analyst extension
- ESRI Training Courses
  - https://www.esri.com/training/catalog/5ce42f4388c6106da2d53044/image-classification-using-arcgis/

Questions?

Ben Shelton
919.754.6377
Ben.Shelton@nc.gov

www.nconemap.gov/