

# EXPANSION OF THE PEDRO PLAINS IRRIGATION SYSTEM USING SURFACE FLOWS FROM THE BLACK RIVER



## CARTOGRAPHIC ATLAS ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

MARCH 2024

CLIENT NAME: NATIONAL IRRIGATION COMMISSION LTD

TITLE: EXPANSION OF THE PEDRO PLAINS IRRIGATION SYSTEM USING SURFACE FLOWS FROM THE BLACK RIVER ENVIRONMENTAL IMPACT ASSESSMENT

REF. PROJECT: 2022\_04\_08-JM-ETU-EIA PEDRO PLAINS

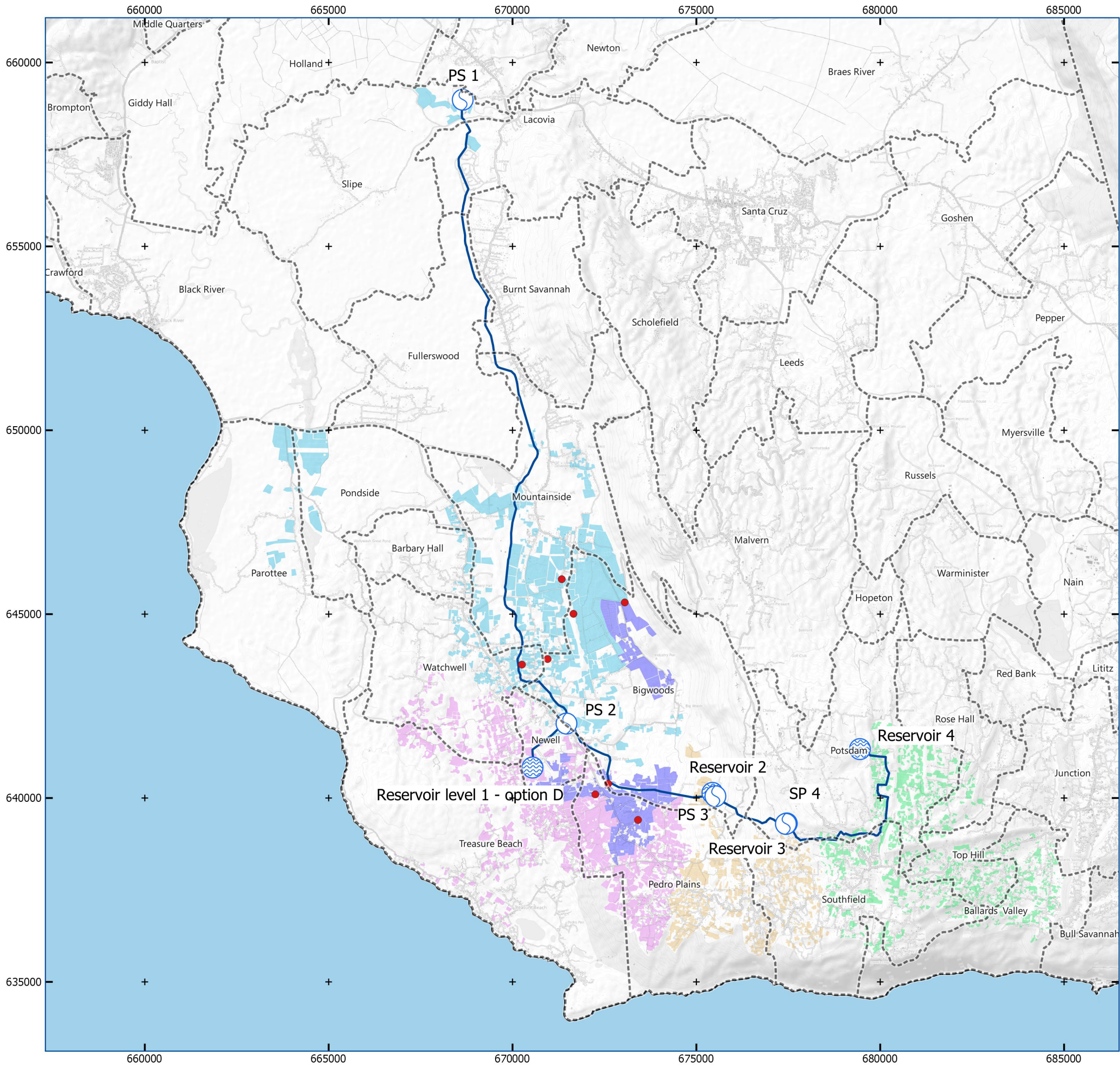
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## Expansion of the Pedro Plains irrigation system using surface flows from the Black River

### Future equipped area

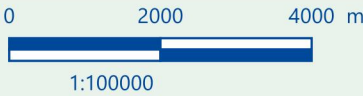
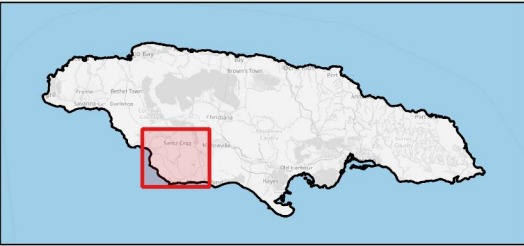
- Wells
- ⊙ Pumping Stations
- ⊙ Reservoirs
- Projected trunk pipe

### Future equipped area

- Level 1
- Level 2
- Level 3
- Level 4

### Areas remaining equipped by wells

- Well Hounslow #1
- Wells (Beacon - F2 - F3)

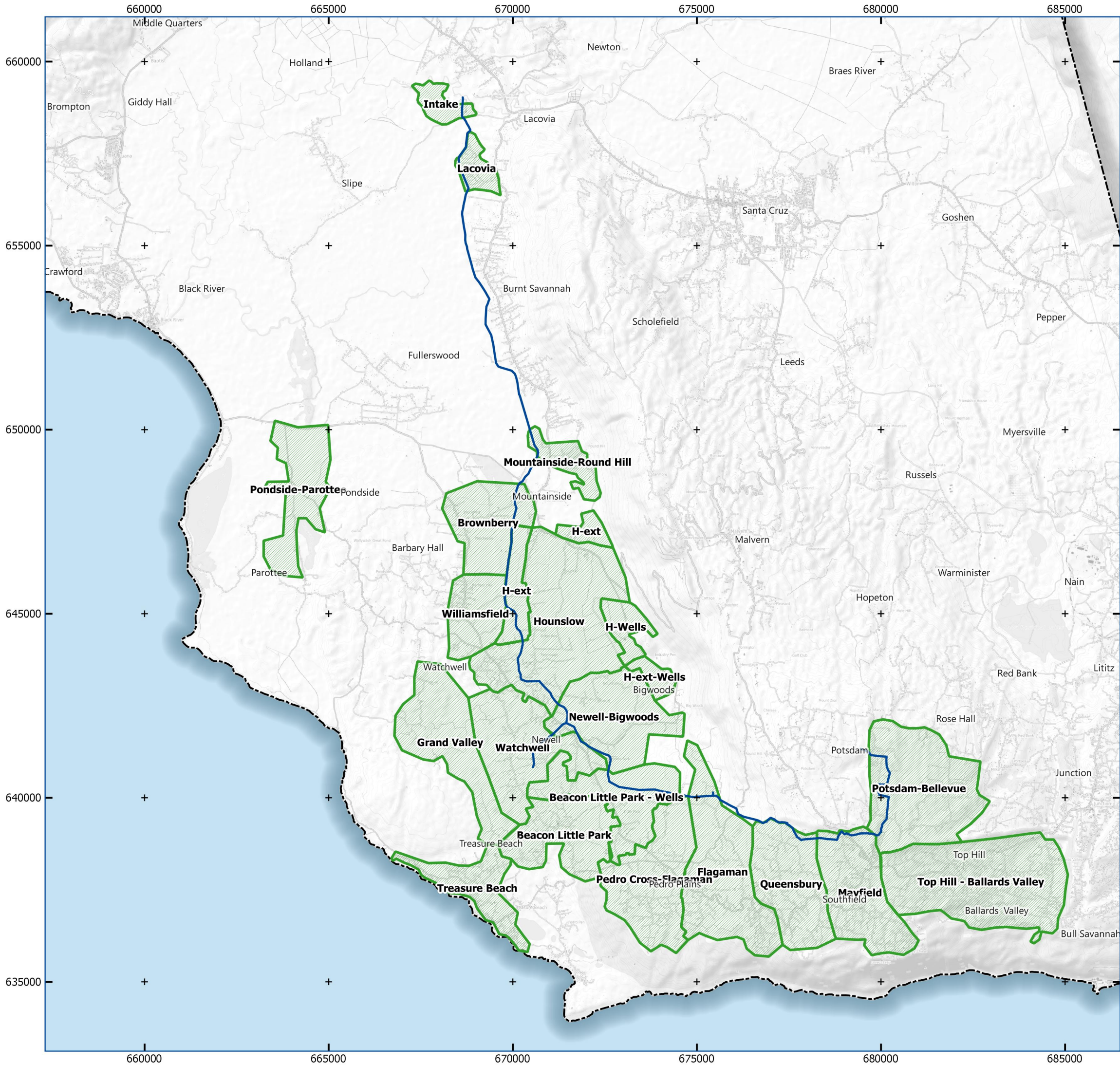


N° : 2022\_04\_08-JM 021 - A  
Case Identification Number Index

Date: 05/26/2023  
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Sources:  
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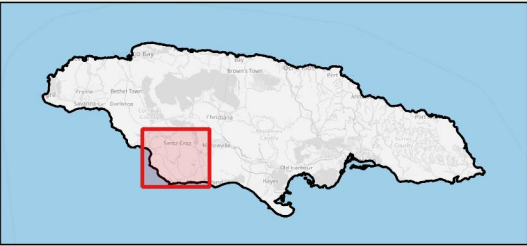




**Expansion of the Pedro Plains irrigation system using surface flows from the Black River**

**Updated blocks for irrigation**

- Projected trunk pipe
- ▨ Updated projected blocks



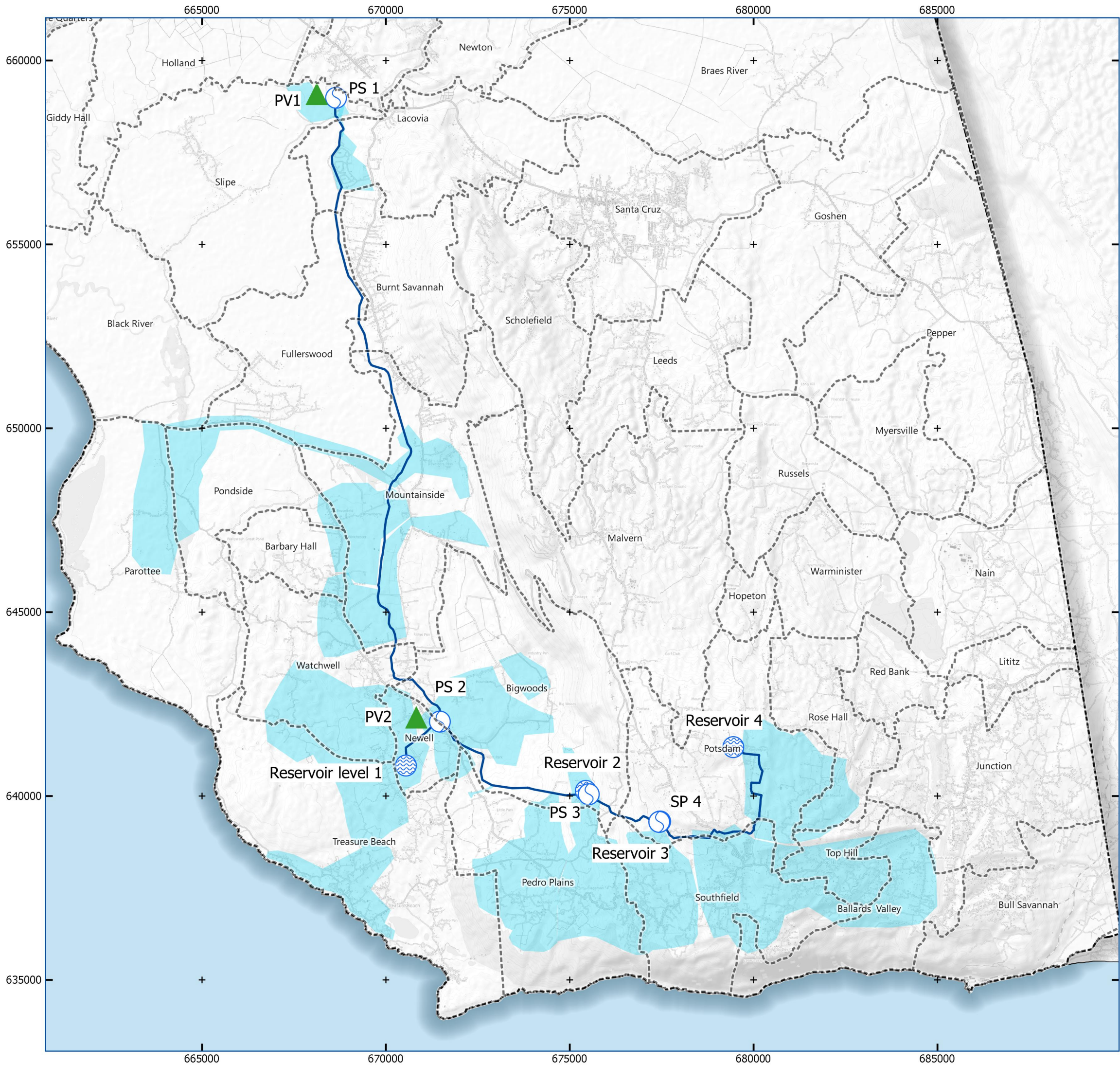
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**N° : 2022\_04\_08-JM 020 - H**  
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File reference: 2022\_04\_08-JM-020-General.qgz  
Sources: NEPA, NIC, AW3D30 2018 ©JAXA,  
Base map: OpenTopo Map  
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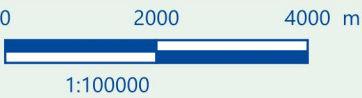
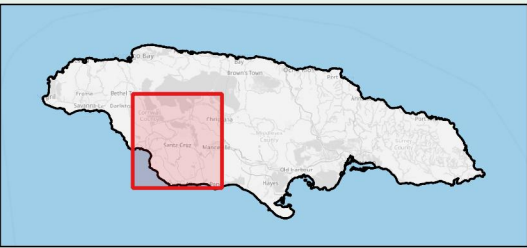




**Expansion of the Pedro Plains irrigation system using surface flows from the Black River**

**Projected infrastructures**

- Projected trunk pipe
- Pumping Stations
- Reservoirs
- Photovoltaic farm
- Projected irrigation networks area

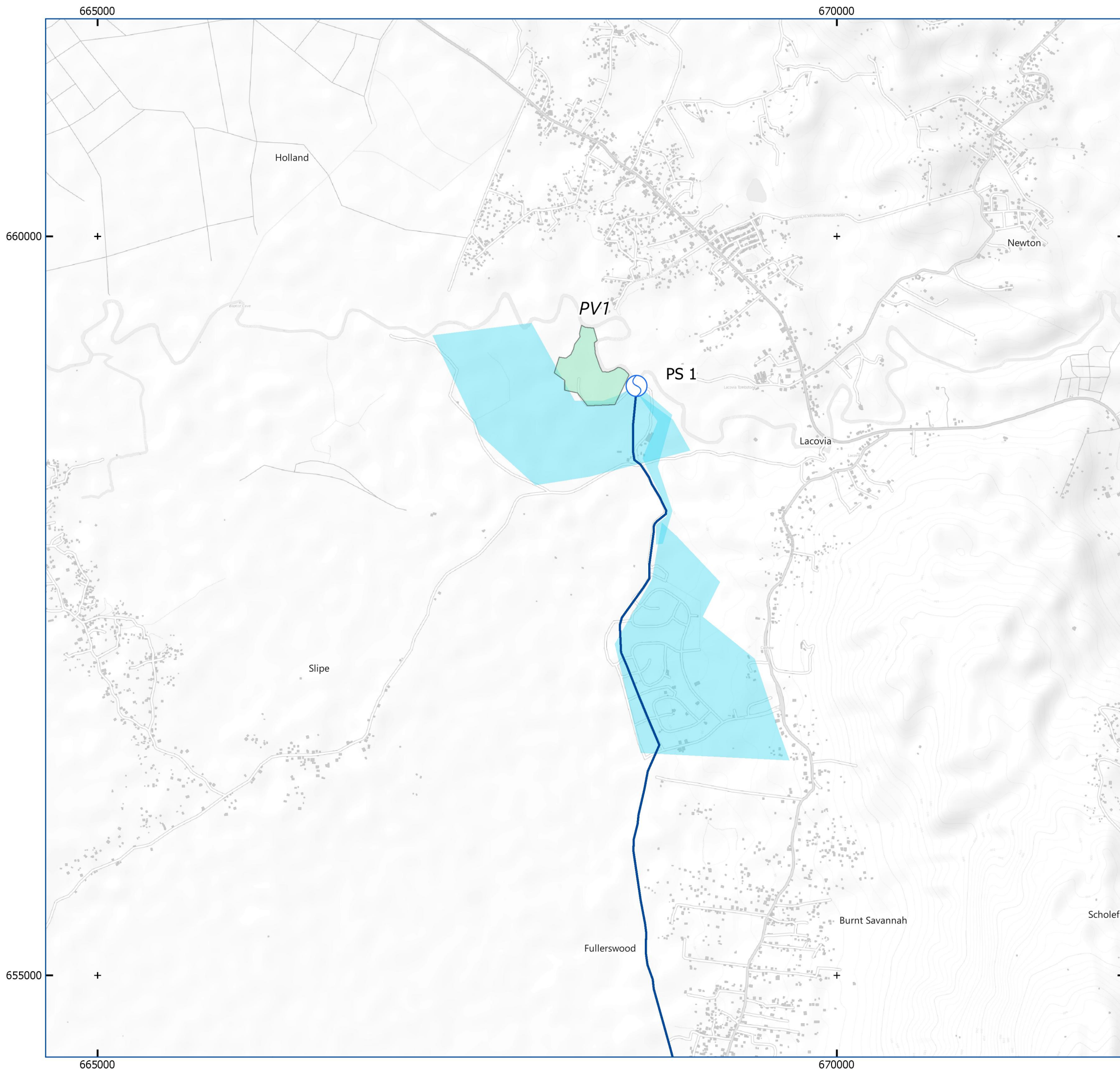


**N° : 2012\_04\_08-JM 020 - A**  
Case Identification      Number      Index

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Realized by: A. VICTOIRE - Checked by: A.SFERRATORE  
File reference: 2022\_04\_08-JM-020-General.qgz  
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**Expansion of the Pedro Plains irrigation system using surface flows from the Black River**

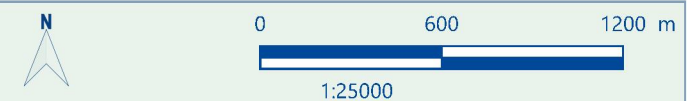
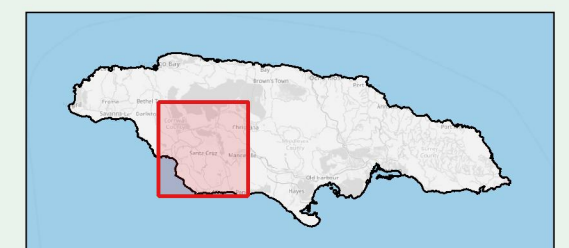
**Projected infrastructures**

- Projected trunk pipe
- Pumping Stations
- Reservoirs
- Projected distribution networks area

**Communes**

**Photovoltaic**

- Farm surface



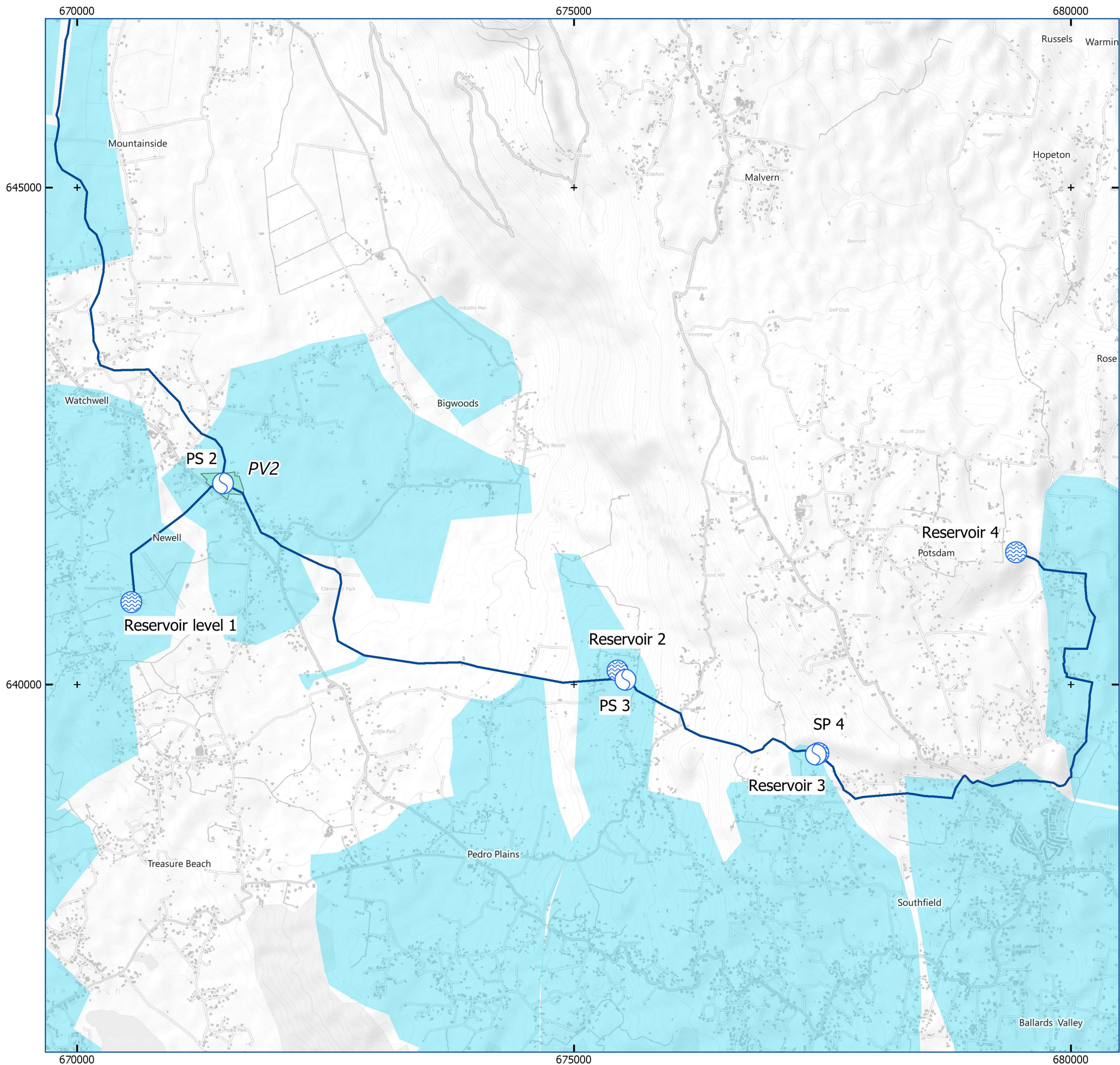
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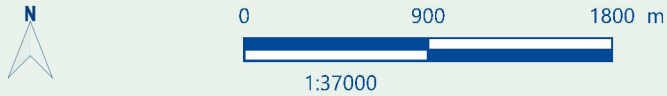
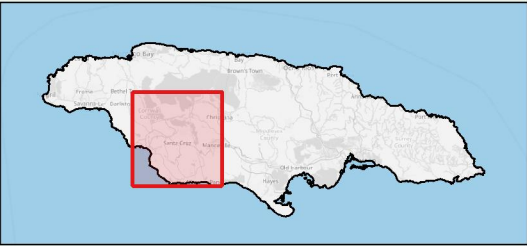




**Expansion of the Pedro Plains irrigation system using surface flows from the Black River**

**Projected infrastructures**

- Projected trunk pipe
- Pumping Stations
- Reservoirs
- Projected distribution networks area
- Photovoltaic**
- Farm surface

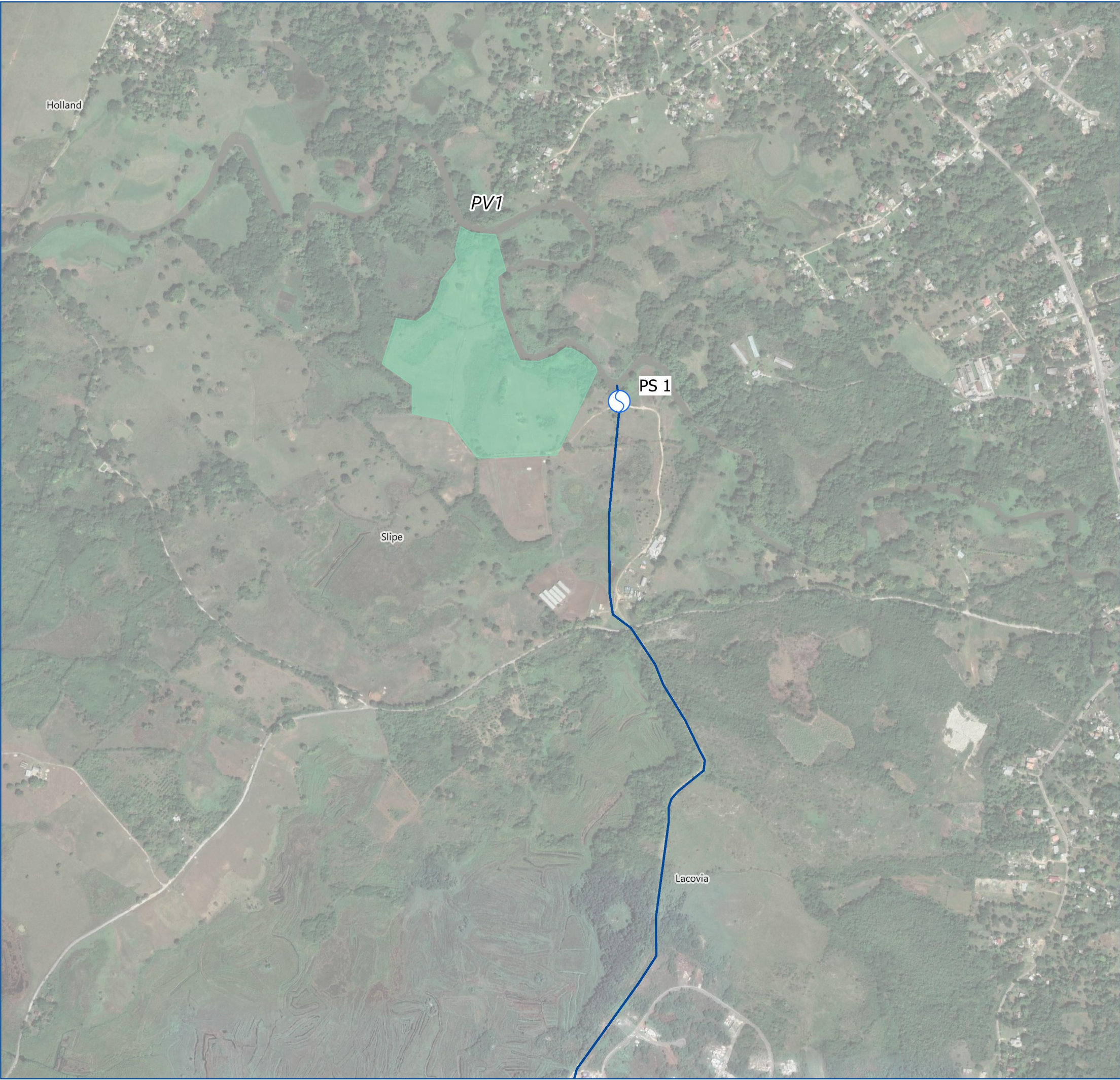


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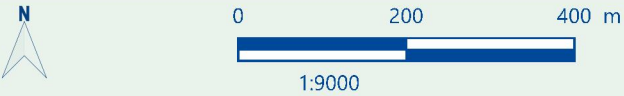
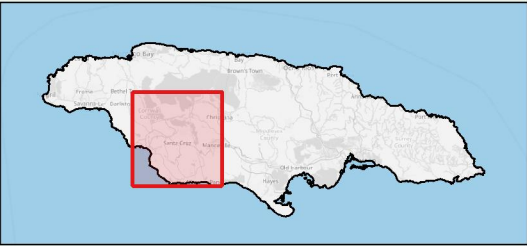




**Expansion of the Pedro Plains irrigation system using surface flows from the Black River**

**Solar farm location**

- Projected trunk pipe
- ⊙ Pumping Stations
- Photovoltaic farm surface



**N° : 2012\_04\_08-JM 020 - G**

Case Identification	Number	Index
2012_04_08-JM	020	G

Date: 06/06/2023  
Realized by: A. VICTOIRE - Checked by: A.SFERRATORE  
File reference: 2022\_04\_08-JM-020-General.qgz  
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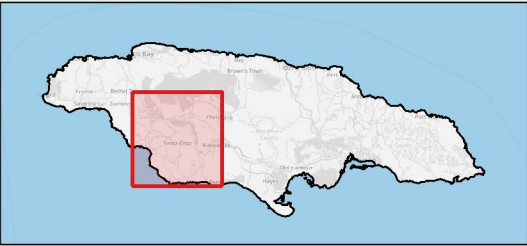




Expansion of the Pedro Plains irrigation system using surface flows from the Black River

Solar farm location

- Projected trunk pipe
- Pumping Stations
- PV2 farm surface

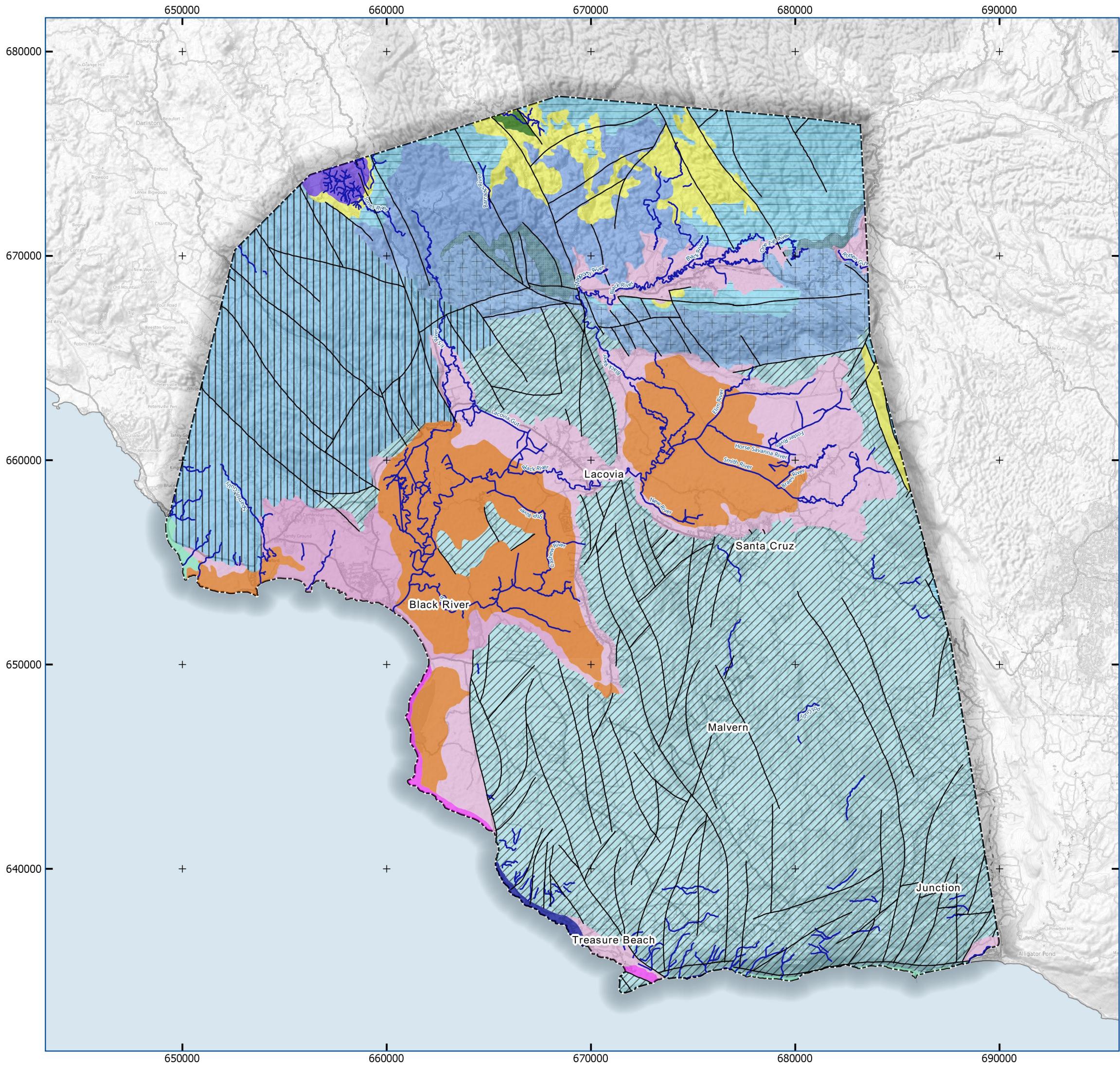


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File reference: 2022\_04\_08-JM-020-General.qgz  
Sources: SCP  
Base map: OpenTopoMap  
Map projection: EPSG:3448, JAD2001, Jamaica Metric Grid







**Expansion of the Pedro Plains irrigation system using surface flows from the Black River**

**Surface geology of Saint Elizabeth Parish**

Alluvium

Wind blown sand

Elevated Reef

Marshland

Main hydrographic network

Fault

WHITE LIMESTONE

Newport Fm

Walderston-Browns Town Fm

Somerset Fm

Troy-Claremont Fm

Swanswick Fm

Coastal Group

Gibraltar-Bonnygate Fm

YELLOW LIMESTONE

Chapelton Fm

CRETACEOUS

Undifferentiated

SHALE

Vaniella Fm

N

0 4000 8000 m

1:180000

N° : 2022\_04\_08-JM 029 - A

Case Identification Number Index

Date: 06/12/2023

Realized by: A. VICTOIRE - Checked by: S.SAUVIAT

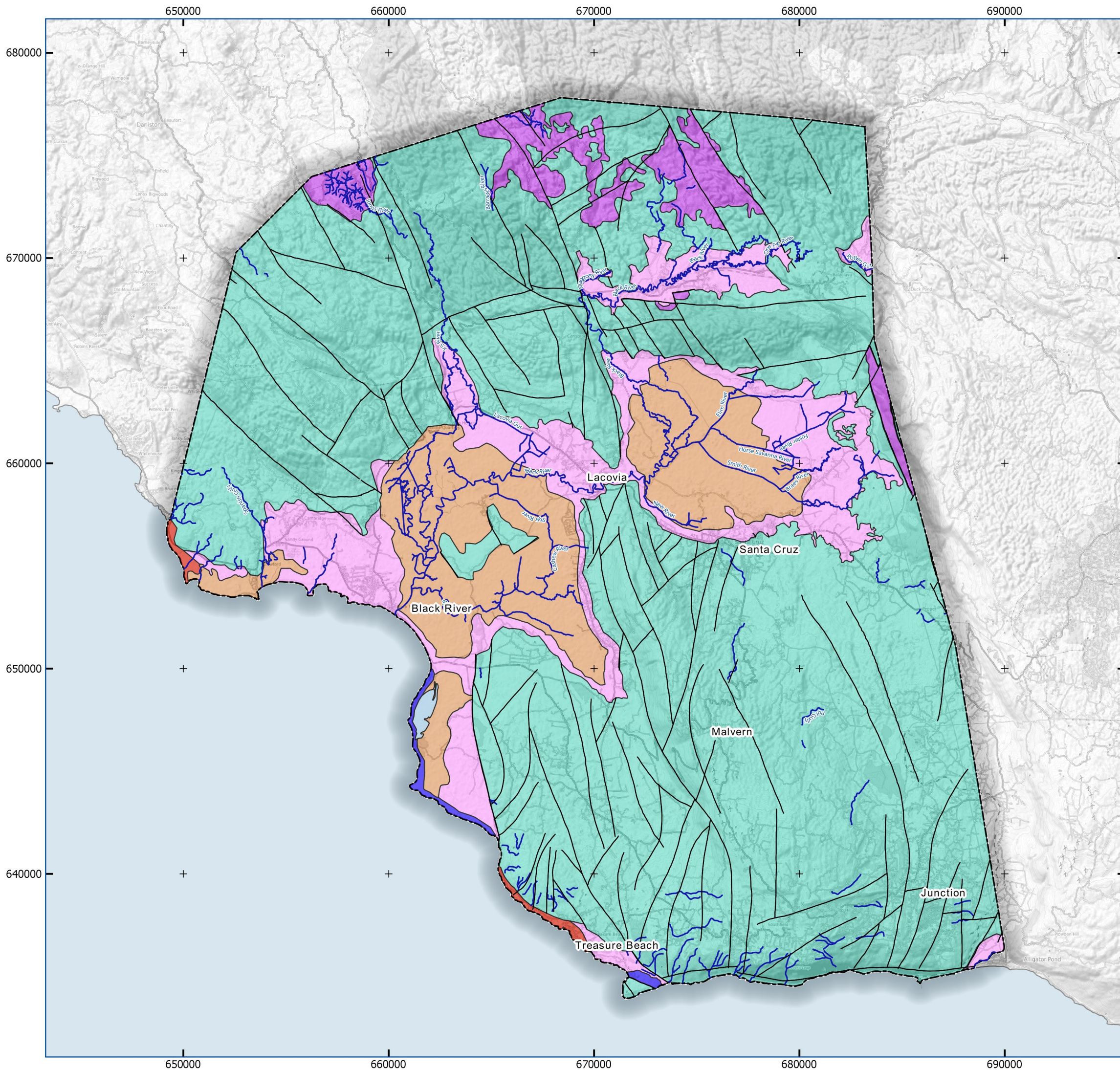
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Sources: WRA

Base map: OpenTopoMap

Map projection: EPSG:3448, JAD2001, Jamaica Metric Grid

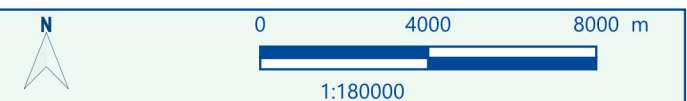




**Expansion of the Pedro Plains irrigation system using surface flows from the Black River**

## Hydrostratigraphy of Saint Elizabeth Parish

- Main hydrographic network
  - Fault
- Hydrostratigraphy
- Alluvium Aquiclude
  - Basal Aquiclude
  - Coastal Aquiclude
  - Limestone Aquifer
  - Alluvium Aquifer
  - Swamp/Marsh/Mangrove



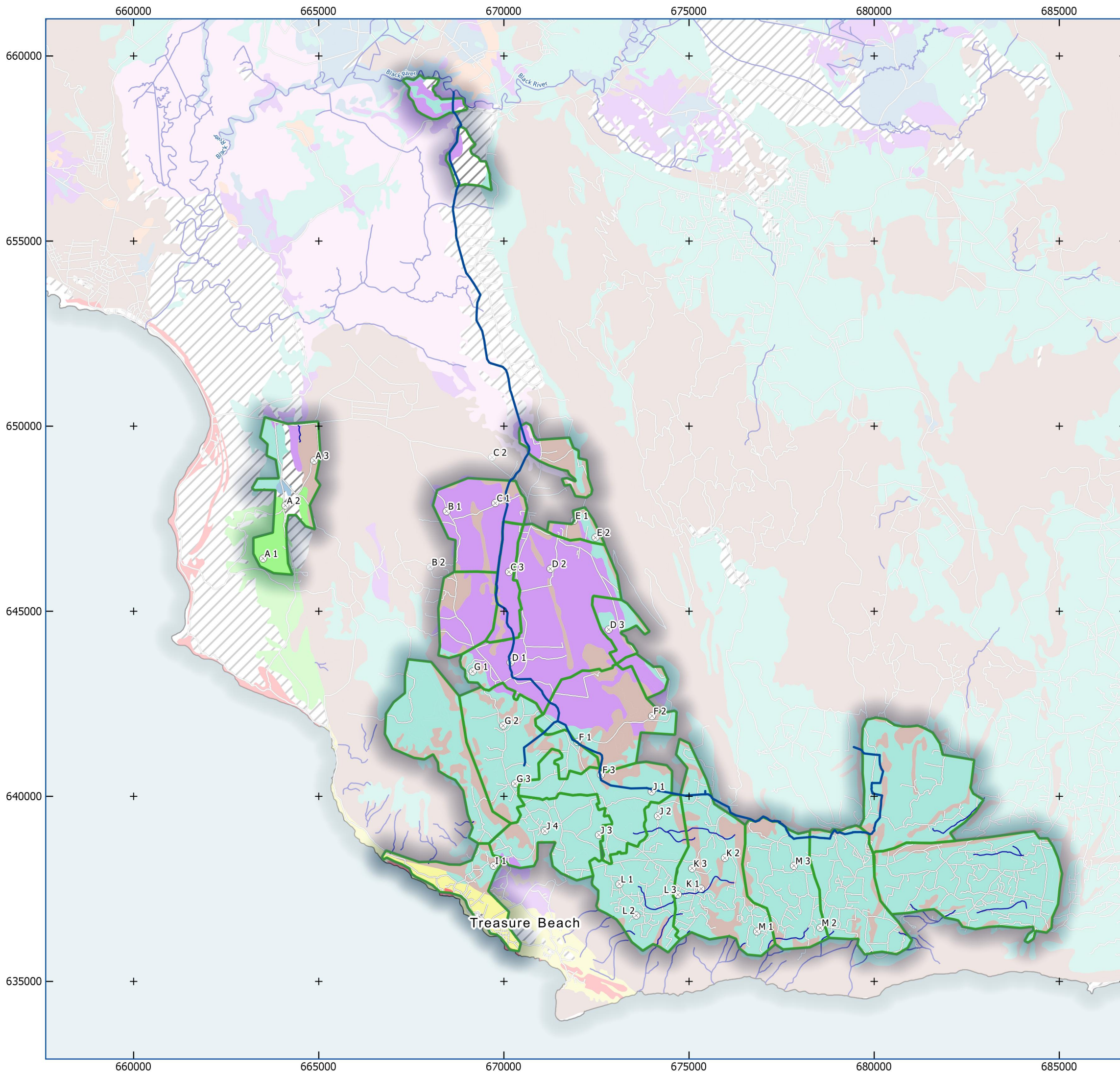
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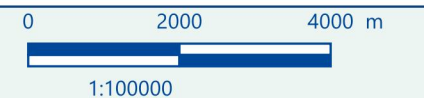
## Expansion of the Pedro Plains irrigation system using surface flows from the Black River

### Soil texture

- ⊗ Soil survey - January 2019
- Main hydrographic network
- Projected trunk pipe
- Roads
- Projected blocks

#### Soil Texture

- Clay
- Stony clay
- Clay loam
- Silty clay loam
- Loam
- Silt loam
- Sandy loam
- Gravelly loam
- Gravelly clay loam
- Stony clay loam
- Stony loam
- Stony sandy loam
- Sand
- Sandy
- Peat
- No data

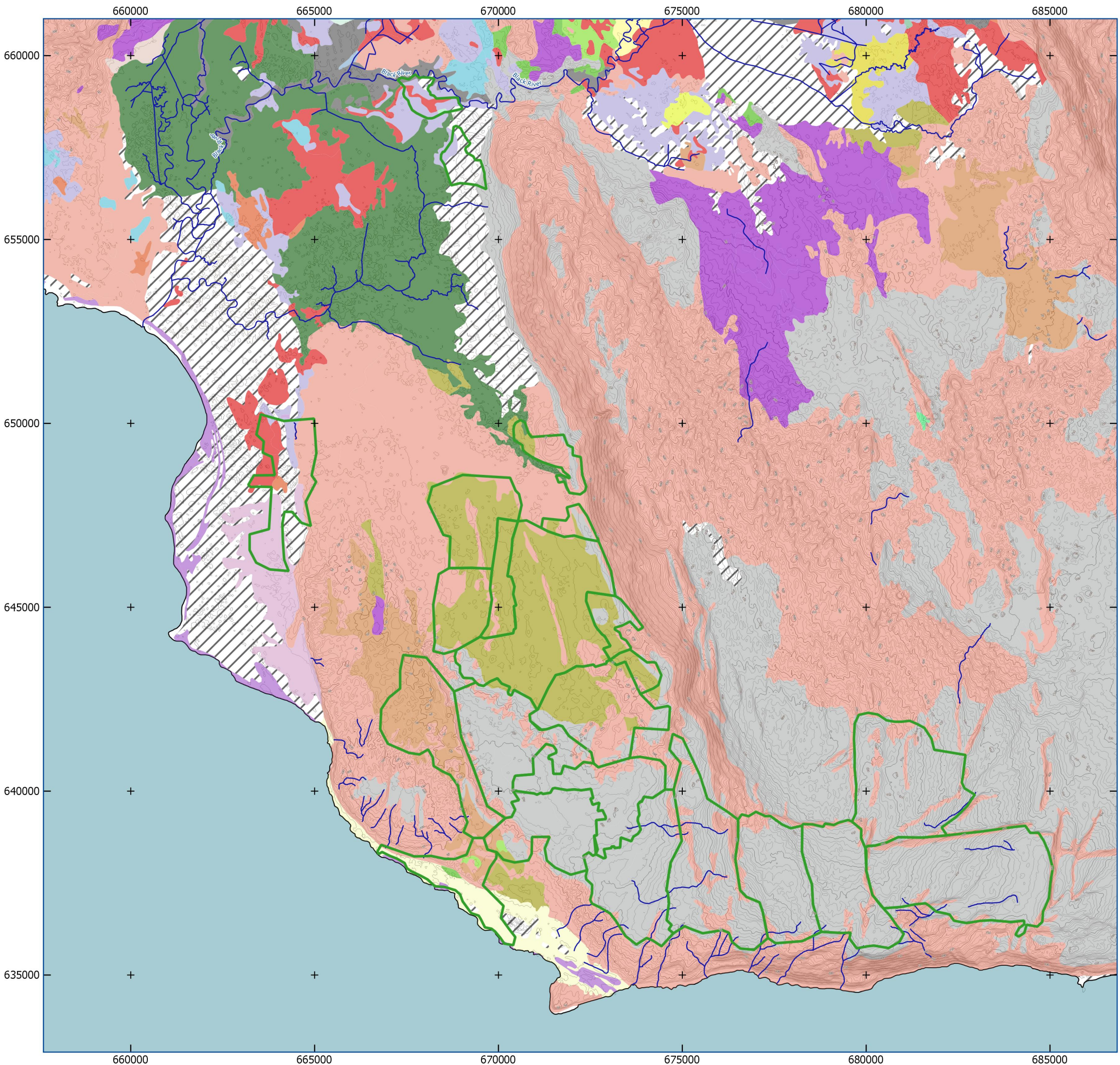


N° : 2022\_04\_08-JM 027 - A  
Case Identification Number Index

Date: 06-2023  
Realized by: A. VICTOIRE - Checked by: A.SFERRATORE  
File reference: 2022\_04\_08-JM\_027-Soil.qgz  
Sources: NIC, WRA, AW3D30 copyright jaxa  
Base map: Elevation (in meter) converted from the ellipsoidal height based on ITRF97 and GRS80, using EGM96 geoid model  
Map projection: EPSG:3448, JAD2001, Jamaica Metric Grid





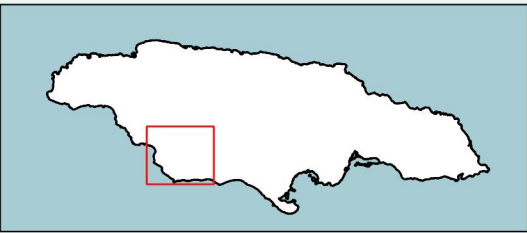


**Expansion of the Pedro Plains irrigation system using surface flows from the Black River**

**Pedological map**

- Main hydrographic network
- Roads
- Projected blocks

SOIL NAME :	
No data	Holland
Anglesey	Kildare
Bonnygate	Killancholly
Brysons	Knollis
Carron Hall	Linstead
Cashew	Lucky Hill
Cave Valley	Morass
Chudleigh	Morass
Crane	Newell
Deepdene	Nonsuch
Fontabelle	Point
Four Paths	Rosehall
Hall's Delight-Moretown	Sandy Bank
Hodges	St. Ann
	Wallens

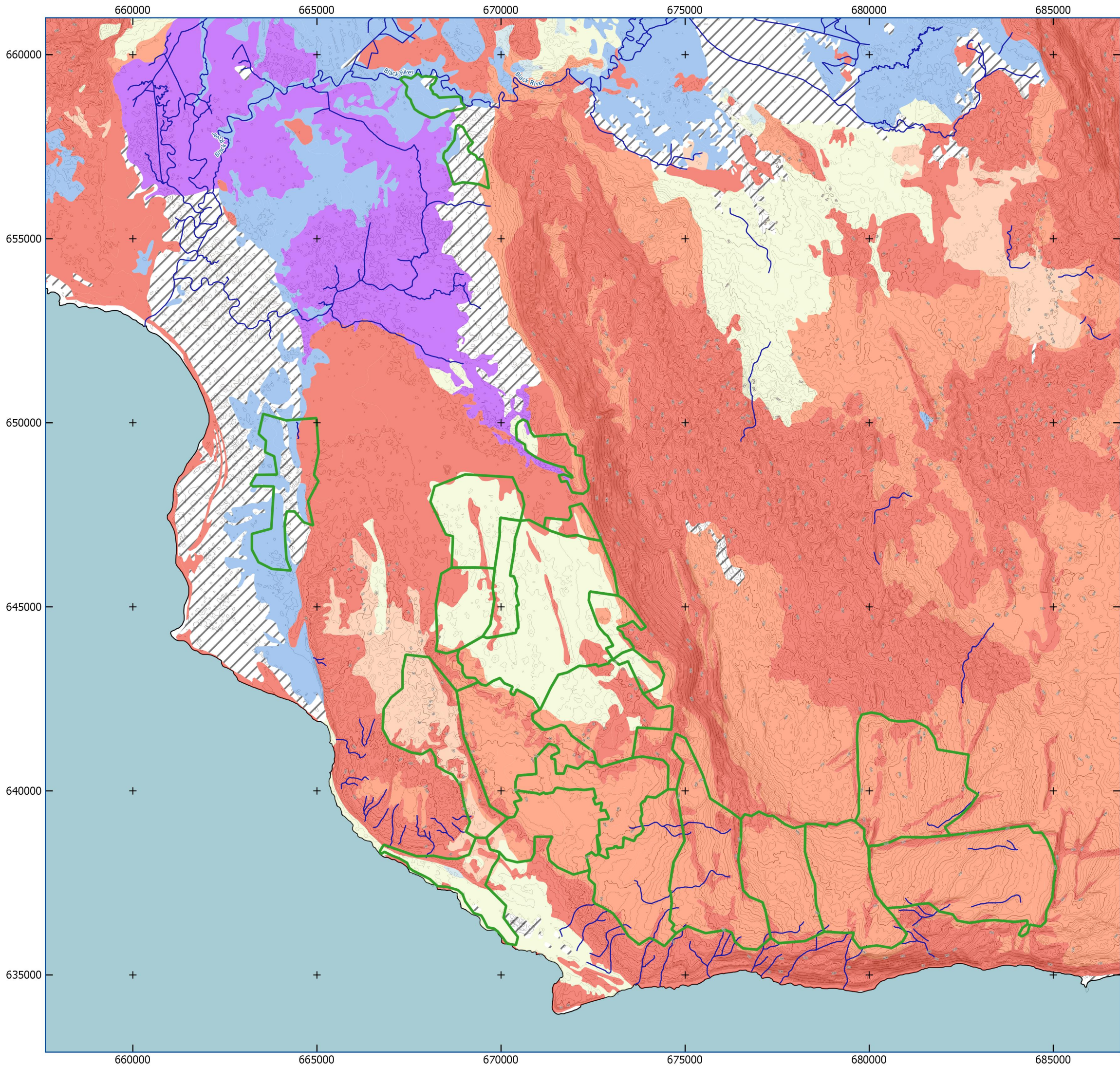


N° : 2022\_04\_08-JM 027 - C  
Case Identification Number Index

Date: 06/12/2023  
Realized by: A. VICTOIRE - Checked by: A.SFERRATORE  
File reference: 2022\_04\_08-JM\_027-Soil.qgz  
Sources: NIC, WRA, AW3D30 copyright jaxa  
Base map: Elevation (in meter) converted from the ellipsoidal height based on ITRF97 and GRS80, using EGM96 geoid model  
Map projection: EPSG:3448, JAD2001, Jamaica Metric Grid







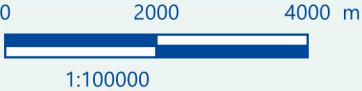
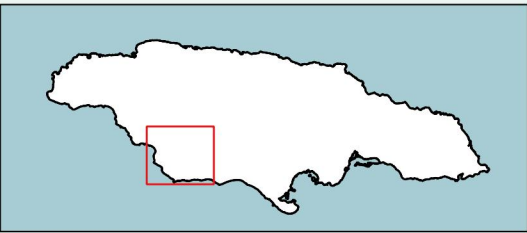
**Expansion of the Pedro Plains irrigation system using surface flows from the Black River**

**Soil moisture map**

- Main hydrographic network
- Roads
- Projected blocks

SOIL MOISTURE:

- No data
- Very low
- Low
- Low to moderate
- Moderate
- Moderate to high
- High
- Swamp

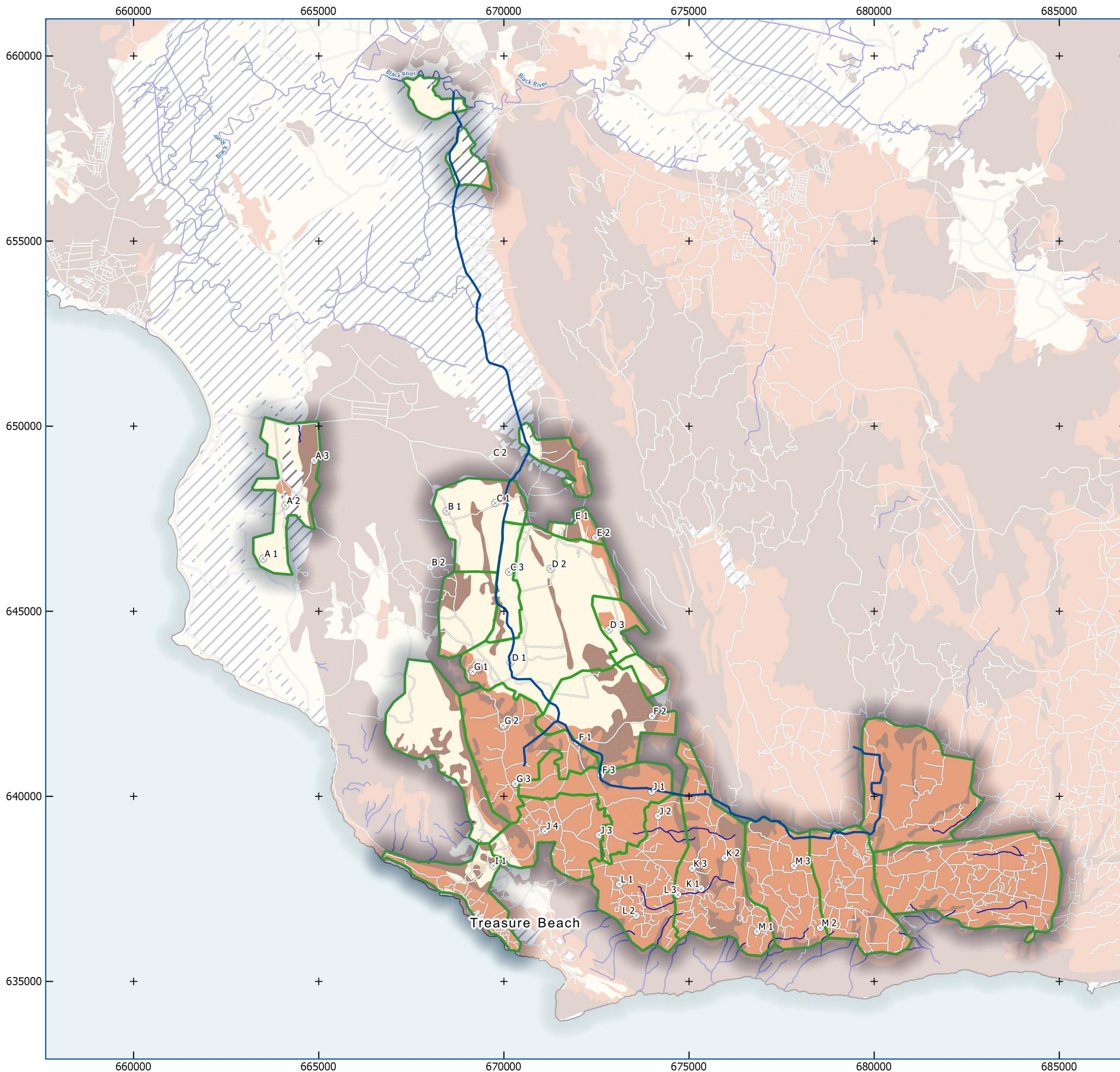


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Case Identification Number Index

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Sources: NIC, WRA, AW3D30 copyright jaxa  
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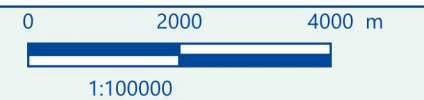
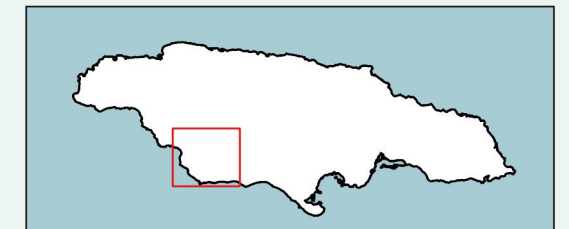




## Expansion of the Pedro Plains irrigation system using surface flows from the Black River

### Soil erosion

- ⊗ Soil survey - January 2019
  - Main hydrographic network
  - Projected trunk pipe
  - Roads
  - ▭ Projected blocks
- Soil erosion
- ▨ No data
  - Slight
  - Moderate
  - Moderate to high
  - High



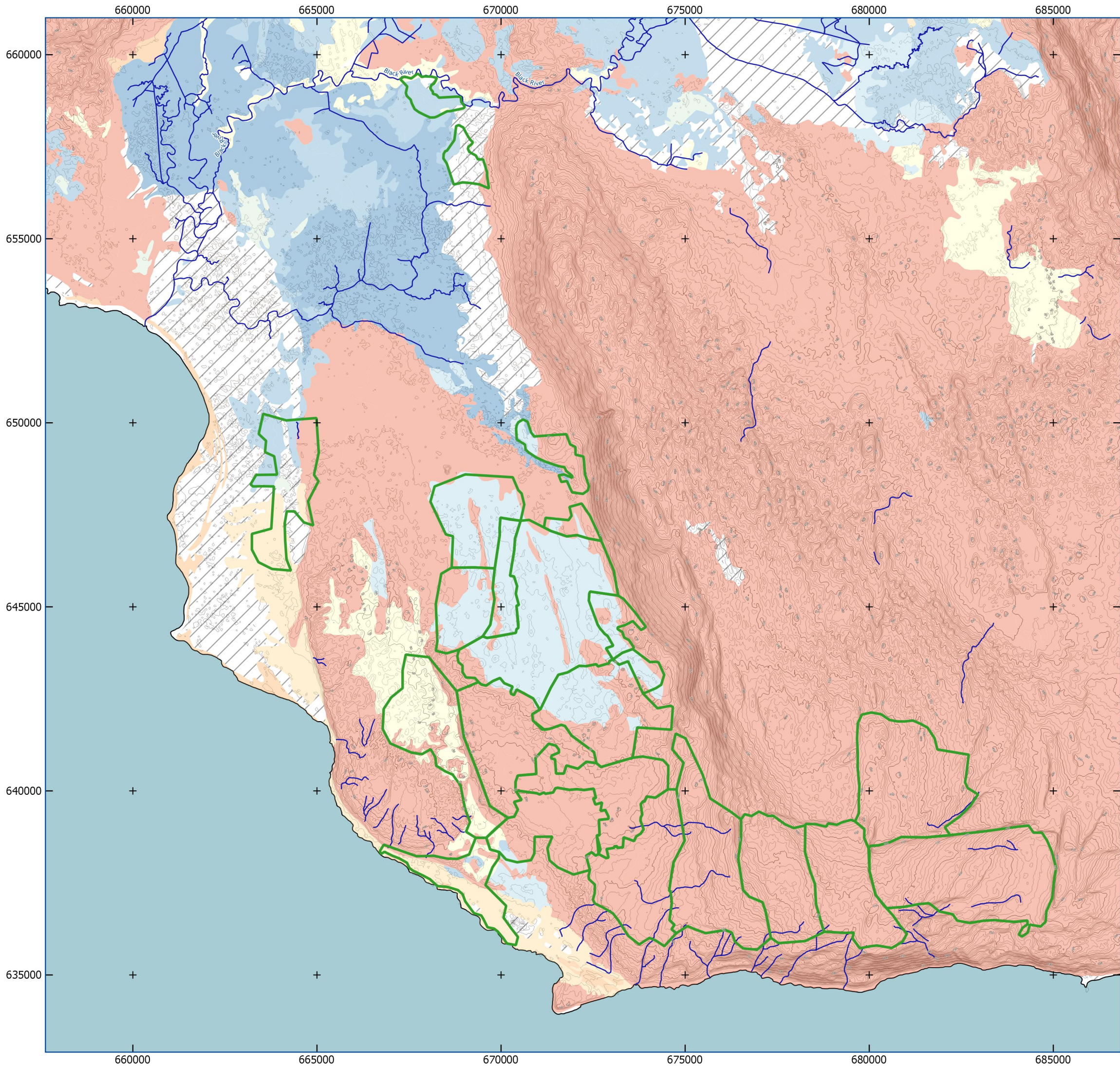
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Case Identification	Number	Index
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Sources: NIC, WRA, AW3D30 copyright jaxa  
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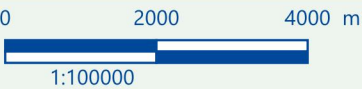
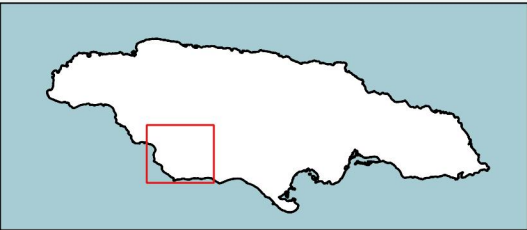




**Expansion of the Pedro Plains irrigation system using surface flows from the Black River**

**Soil drainage map**

- Main hydrographic network
  - Roads
  - Projected blocks
- SOIL INTERNAL DRAINAGE
- Drained
  - Very rapid
  - Rapid
  - Moderate to rapid
  - Moderate
  - Moderate to slow
  - Slow
  - Very slow
  - Inundated
  - No data



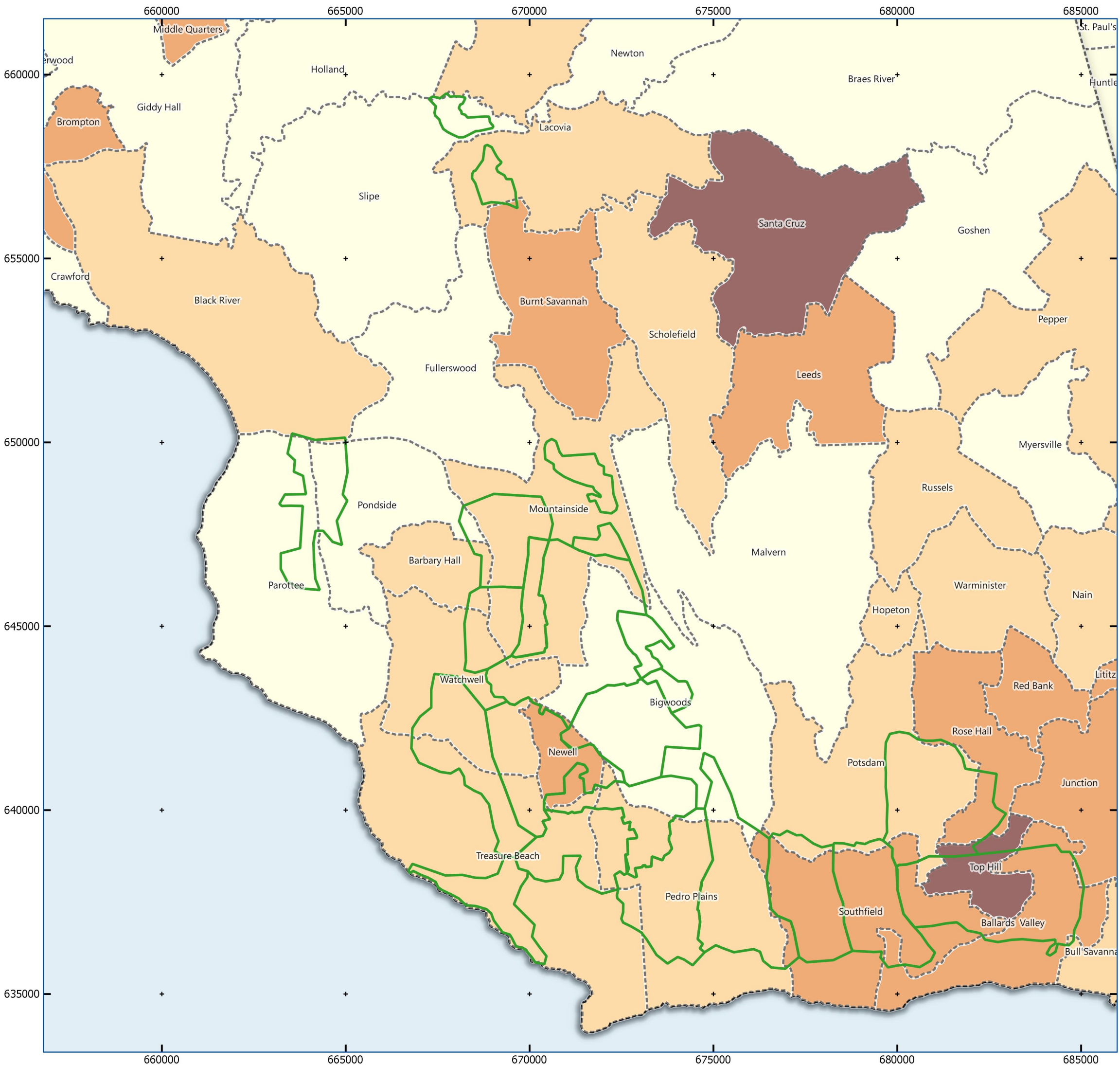
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Case Identification      Number      Index

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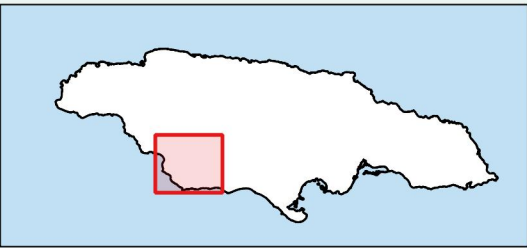
**Expansion of the Pedro Plains irrigation system using surface flows from the Black River**

**Population density in the project area**

- Communities boundaries
- Projected blocks

**Population density in communes (Pers./Sq km):**

- 1 - 100
- 100 - 200
- 200 - 300
- 300 - 350
- >350



0 2000 4000 m

1:100000

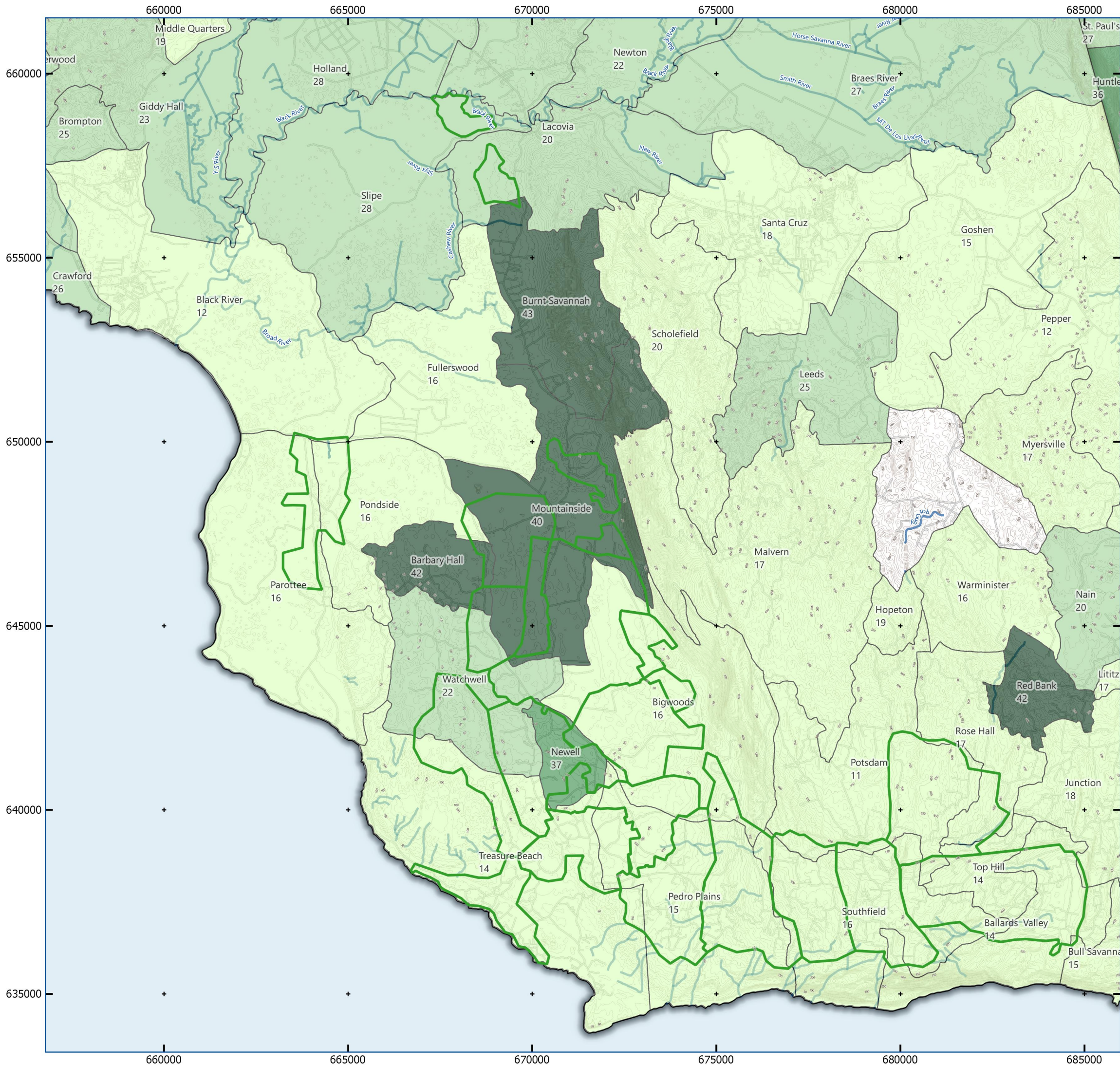
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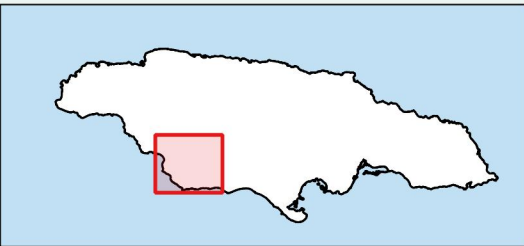
## Expansion of the Pedro Plains irrigation system using surface flows from the Black River

### Poverty rate of the communities in the project area

- Main hydrographic network
- Roads
- Projected blocks

#### Poverty rate (%):

- 10 - 20
- 20 - 30
- 30 - 40
- > 40



0 2000 4000 m

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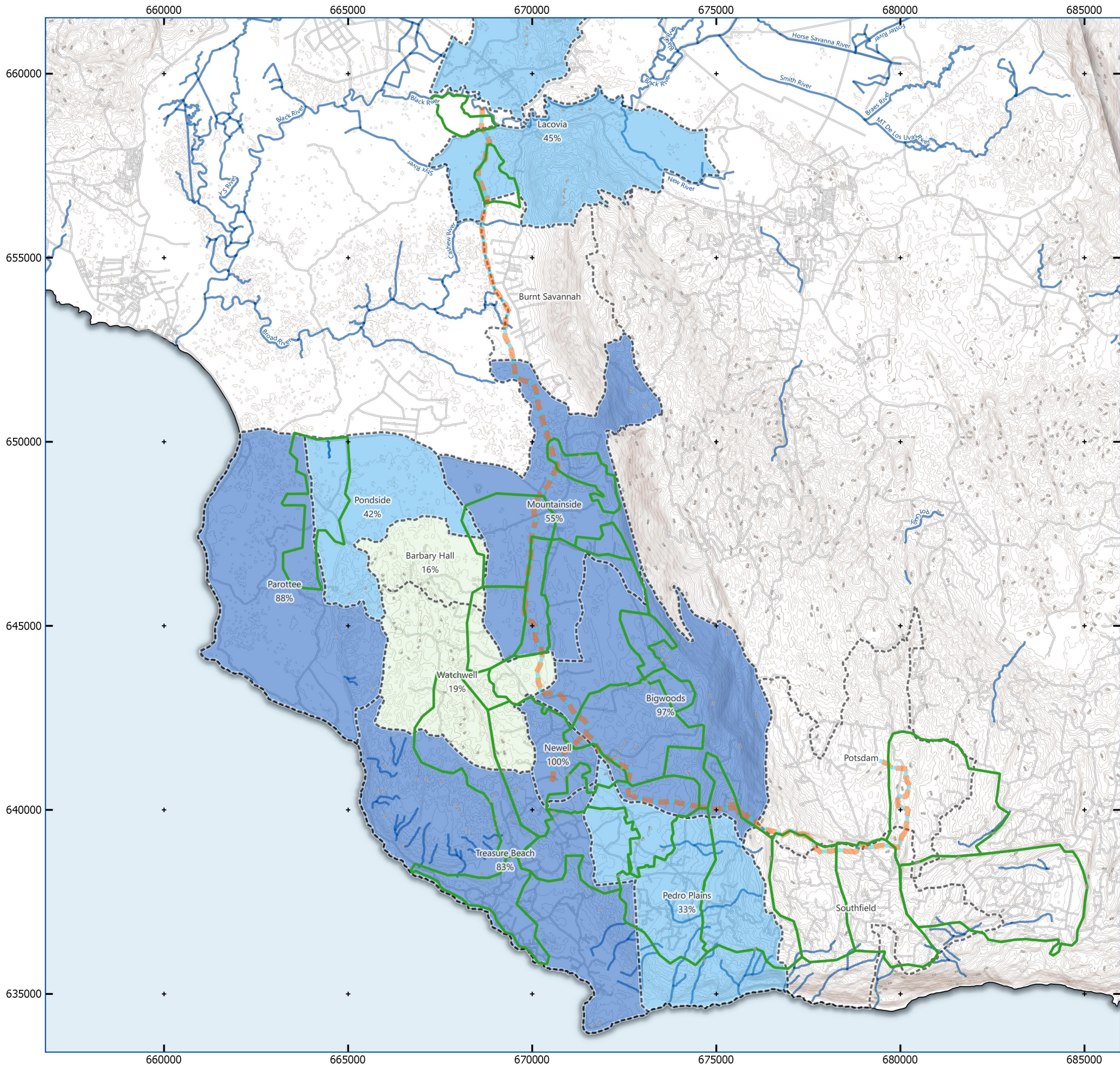
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Sources: SDC, NIC  
Base map: AW3D30, 2018 ©JAXA. Elevation (in meter) converted from the ellipsoidal height based on ITRF97 and GRS80, using EGM96 geoid model  
Map projection: EPSG:3448, JAD2001, Jamaica Metric Grid







### Expansion of the Pedro Plains irrigation system using surface flows from the Black River

#### Water supply access

- Main hydrographic network
- Roads
- Projected blocks
- Proposed main pipeline
- Communities boundaries

#### % of households benefiting of public water:

- 16 - 20
- 20 - 50
- 50 - 100

N

0 2000 4000 m

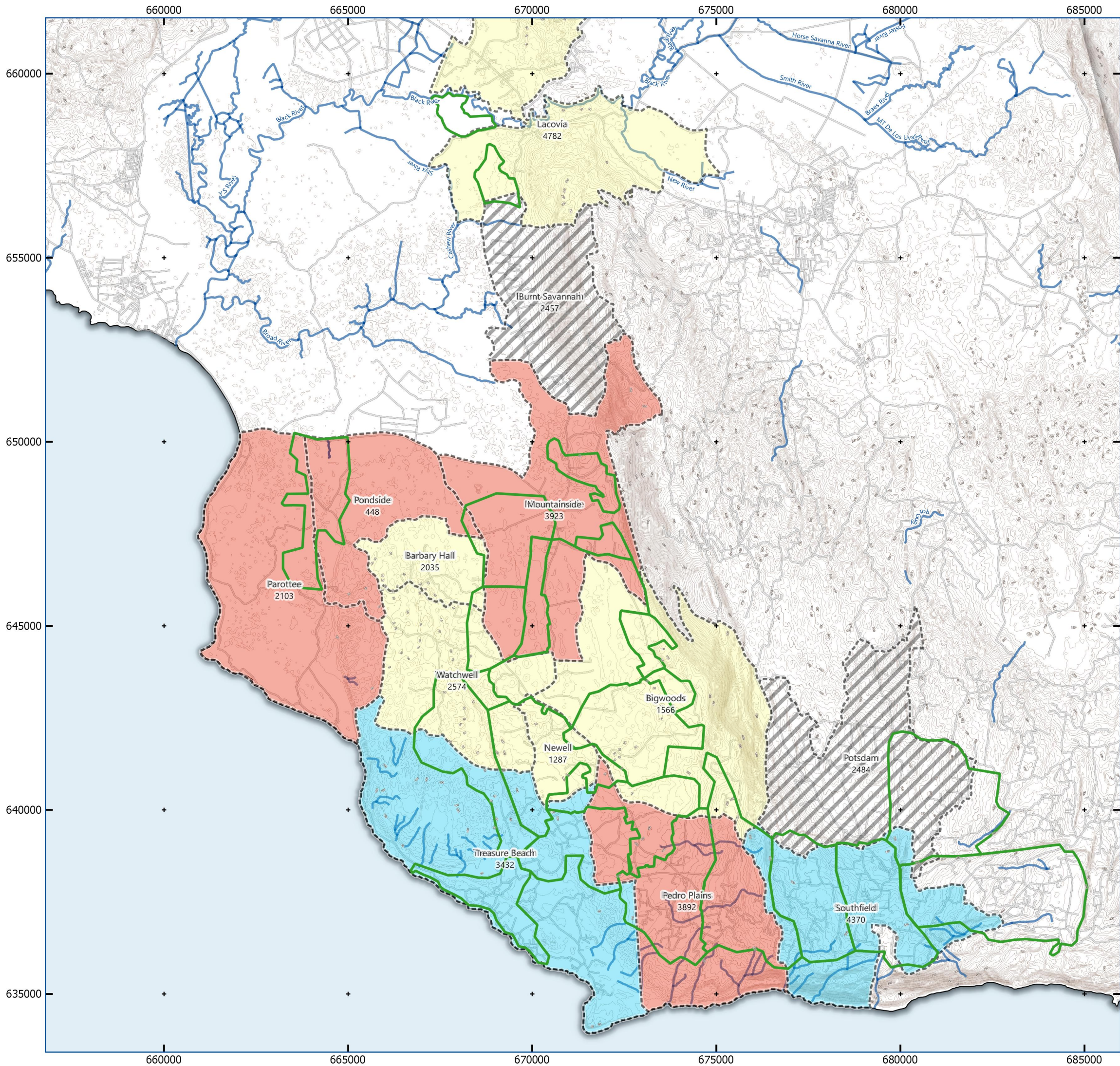
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Sources: SDC, NIC  
Base map: AW3D30, 2018 ©JAXA. Elevation (in meter) converted from the ellipsoidal height based on ITRF97 and GRS80, using EGM96 geoid model  
Map projection: EPSG:3448, JAD2001, Jamaica Metric Grid





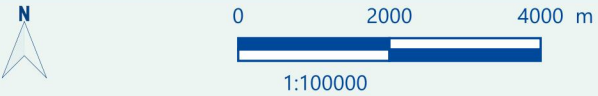
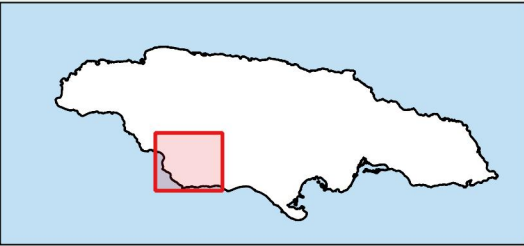
**Expansion of the Pedro Plains irrigation system using surface flows from the Black River**

**Level of medical facilities / services in the communities of the project area**

- Main hydrographic network
- Roads
- Projected bloks
- Communities boundaries

**Level of medical facilities / services :**

- No data
- Good
- Basic
- Poor

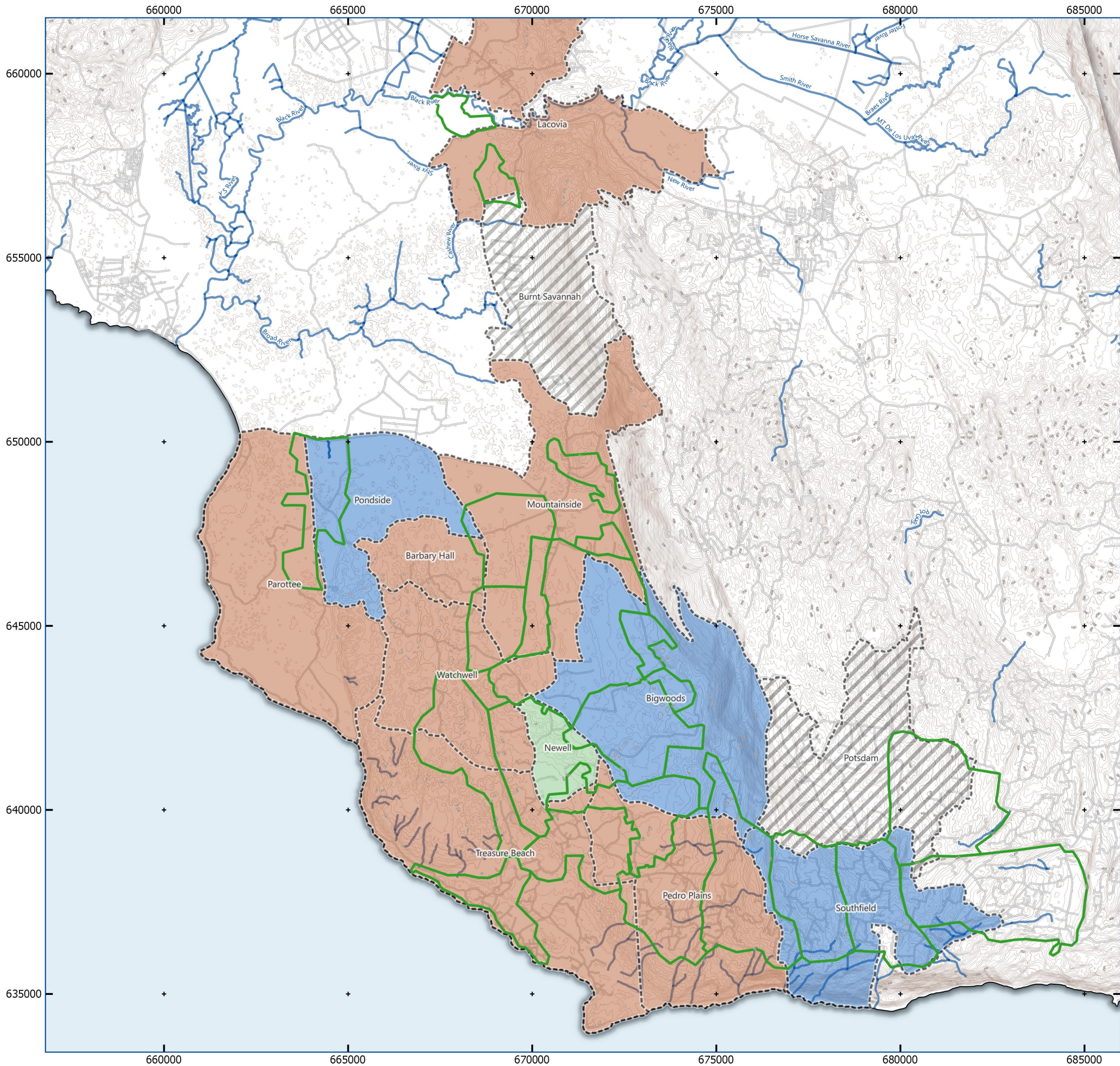


N° : 2022\_04\_04-JM 025 - B  
Case Identification Number Index

Date: 06/13/2023  
Realized by: A. VICTOIRE - Checked by: A.SFERRATORE  
File reference: 2022\_04\_08-JM\_025-Social\_maps.qgz  
Sources: SDC, NIC  
Base map: AW3D30, 2018 ©JAXA. Elevation (in meter) converted from the ellipsoidal height based on ITRF97 and GRS80, using EGM96 geoid model  
Map projection: EPSG:3448, JAD2001, Jamaica Metric Grid







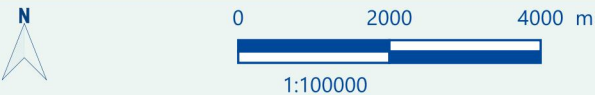
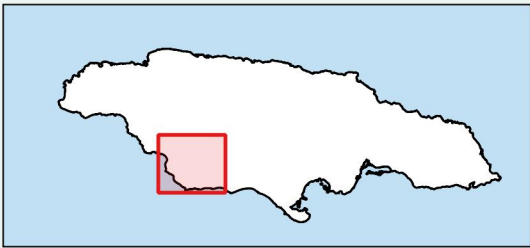
**Expansion of the Pedro Plains irrigation system using surface flows from the Black River**

**First social challenge facing the community**

- Main hydrographic network
- Roads
- Communities boundaries

**First social challenge:**

- No data
- Flooding
- Unemployment
- Water supply
- Projected blocks

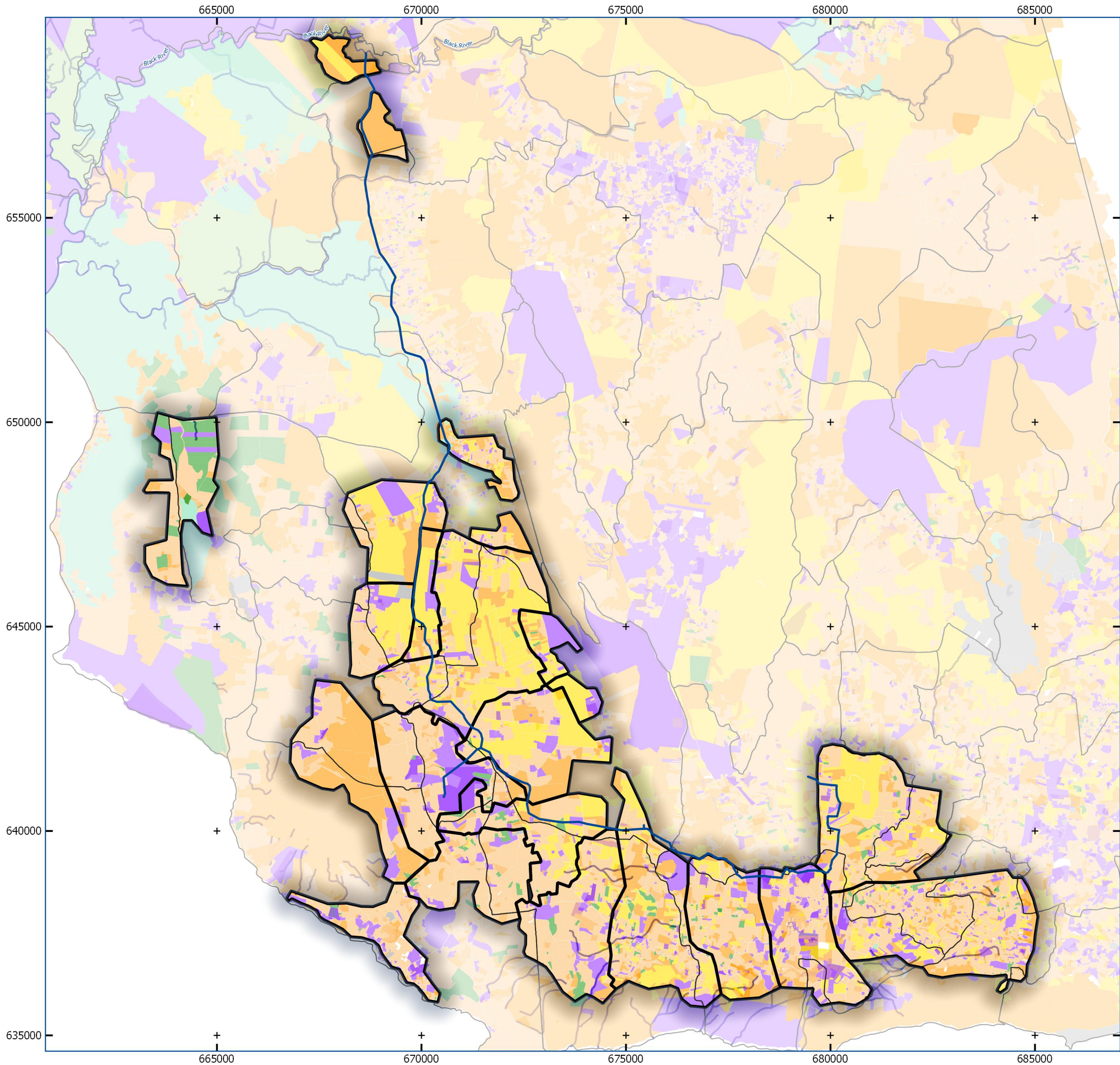


N° : 2022\_04\_08-JM 025 - F  
Case Identification Number Index

Date: 06/13/2023  
Realized by: A. VICTOIRE - Checked by: A.SFERRATORE  
File reference: 2022\_04\_08-JM\_025-Social\_maps.qgz  
Sources: SDC, NIC  
Base map: AW3D30, 2018 ©JAXA. Elevation (in meter) converted from the ellipsoidal height based on ITRF97 and GRS80, using EGM96 geoid model  
Map projection: EPSG:3448, JAD2001, Jamaica Metric Grid



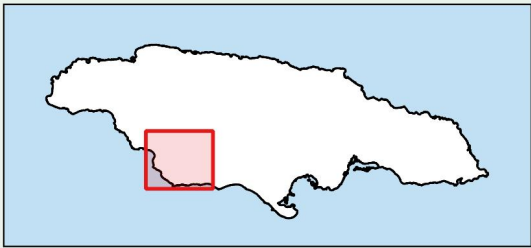




**Expansion of the Pedro Plains irrigation system using surface flows from the Black River**

**Land use map**

- Projected trunk pipe
- ▭ Projected blocks
- Land use
  - Agriculture
  - Natural area
  - Grassland
  - Industry
  - Land Cover
  - Residential
  - Road
  - Wetlands
  - Other



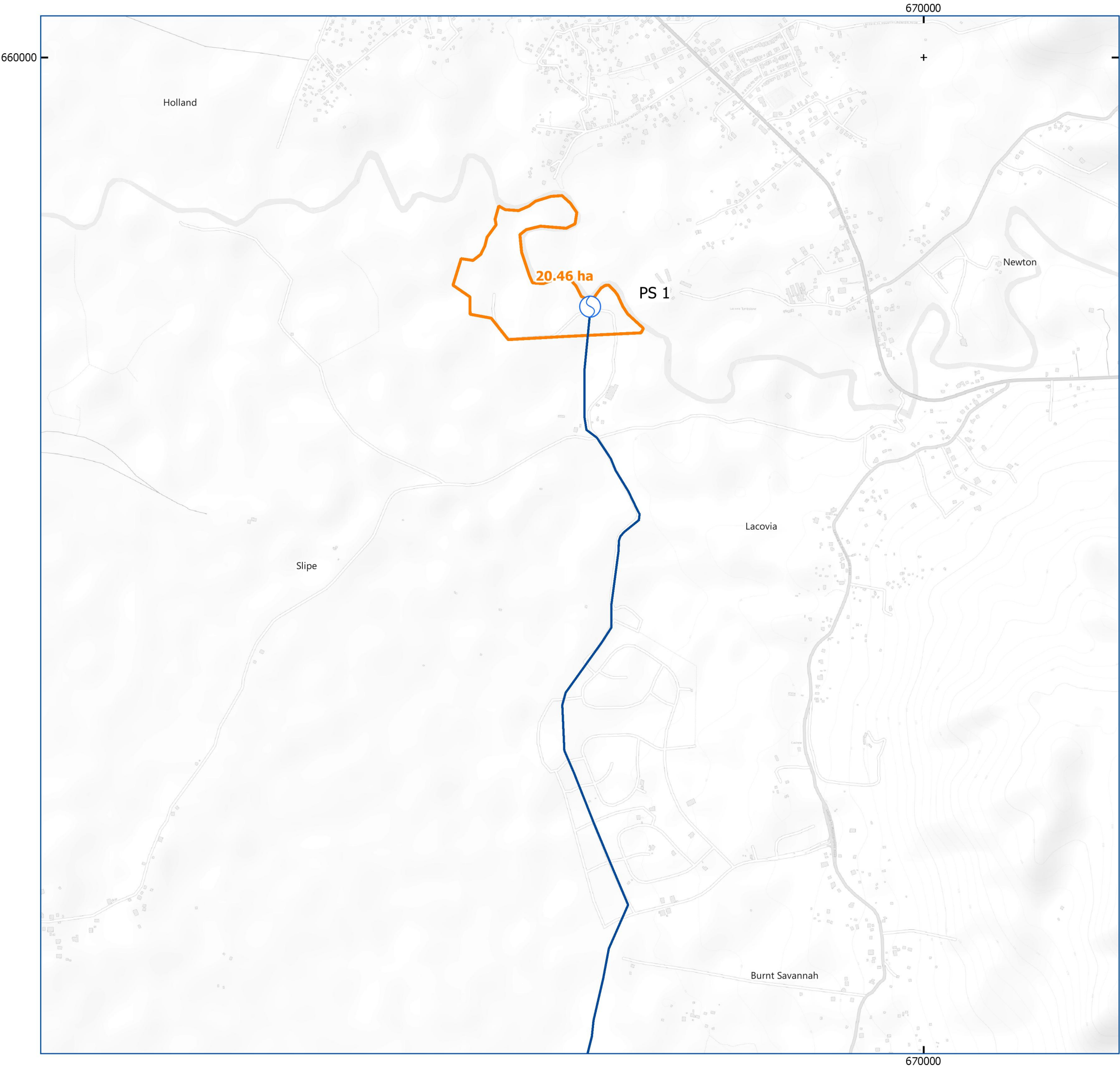
**N° : 2022\_04\_08-JM 022 - A**

Case Identification	Number	Index
2022_04_08-JM	022	A

Date: 06/09/2023  
Realized by: A.VICTOIRE - Checked by: A.SFERRATORE  
File reference: 2022\_04\_08-JM\_022\_bis-Occupation\_des\_sols.qgz  
Sources: SCP, NIC  
Map projection: EPSG:3448, JAD2001, Jamaica Metric Grid



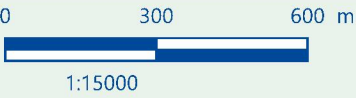
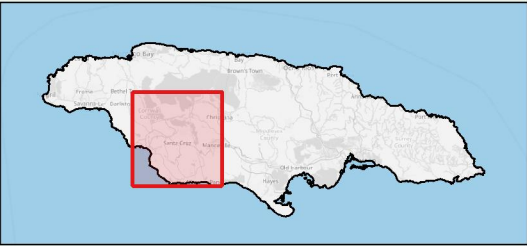




**Expansion of the Pedro Plains irrigation system using surface flows from the Black River**

**Land acquisition**

- Projected trunk pipe
- Pumping Stations
- Proposed land acquisition



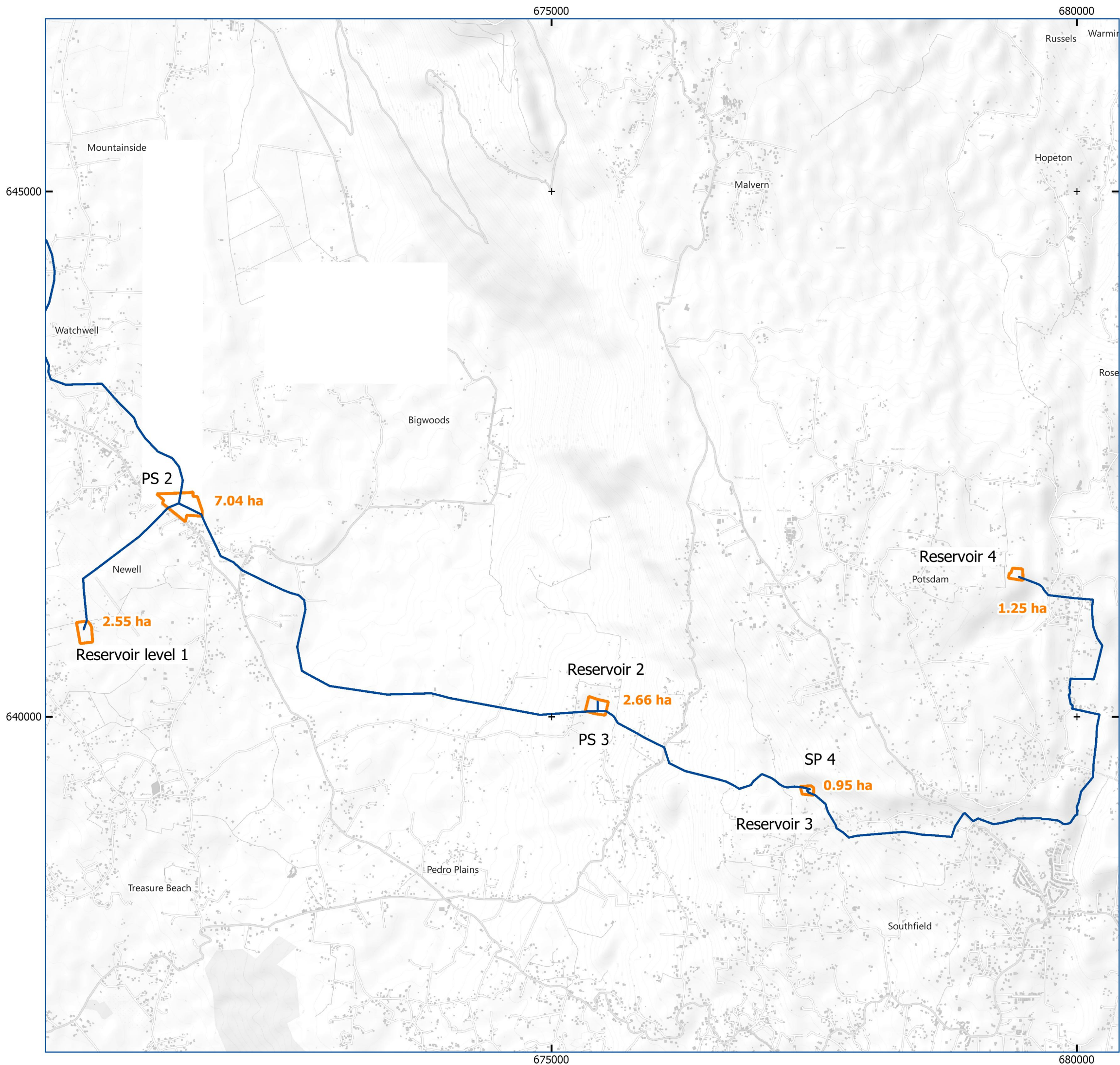
**N° : 2012\_04\_08-JM 020 - I**

Case Identification	Number	Index
2012_04_08-JM	020	I

Date: 05/26/2023  
Realized by: A. VICTOIRE - Checked by: A.SFERRATORE  
File reference: 2022\_04\_08-JM-020-General.qgz  
Sources: SCP  
Base map: OpenTopoMap  
Map projection: EPSG:3448, JAD2001, Jamaica Metric Grid



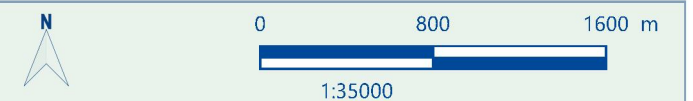




## Expansion of the Pedro Plains irrigation system using surface flows from the Black River

### Land acquisition

- Projected trunk pipe
- ▭ Proposed land acquisition



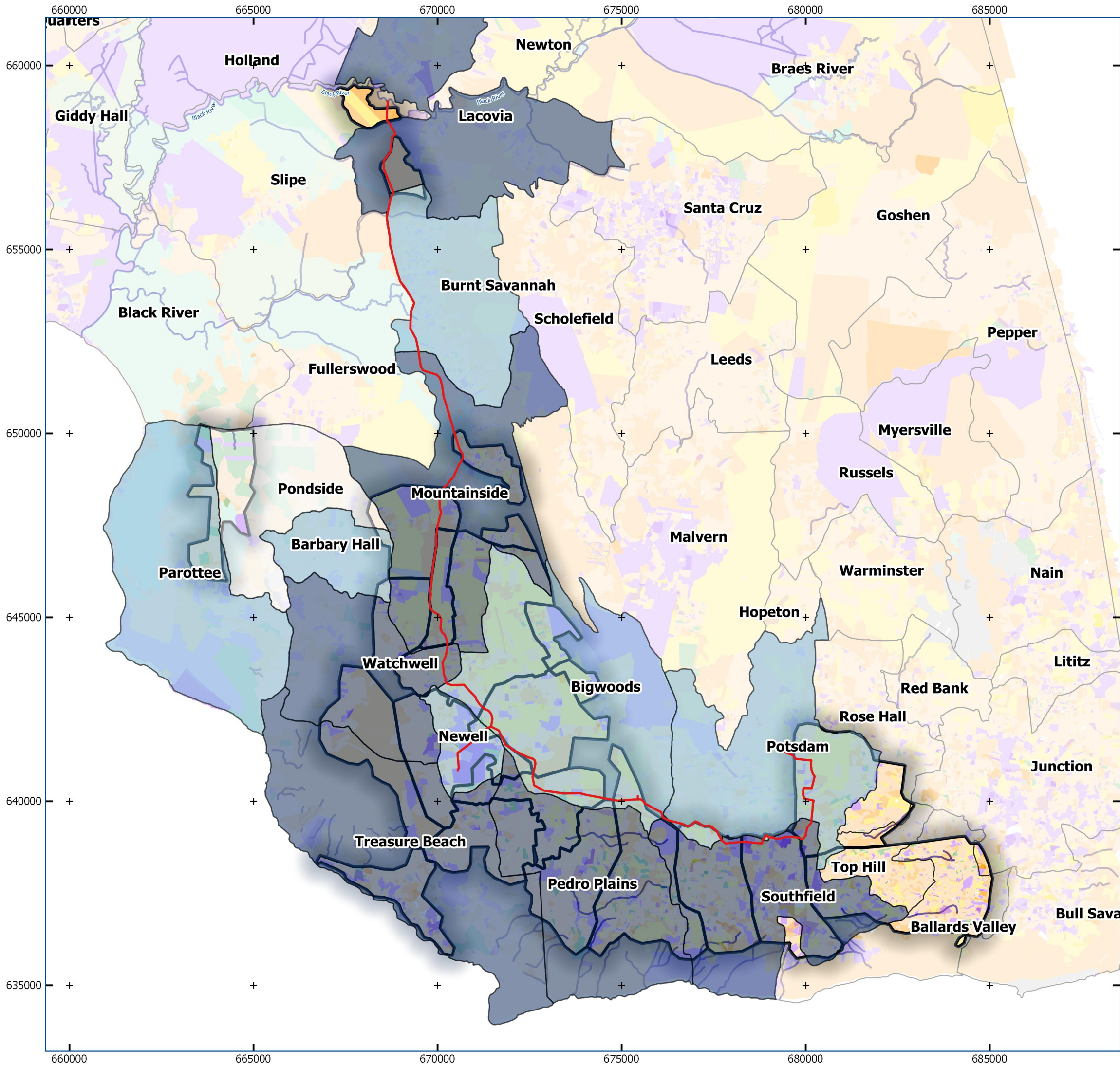
N° : 2012\_04\_08-JM    020    -    J

Case Identification	Number	Index
2012_04_08-JM	020	J

Date: 05/26/2023  
Realized by: A. VICTOIRE - Checked by: A.SFERRATORE  
File reference: 2022\_04\_08-JM-020-General.qgz  
Sources: SCP  
Base map: OpenTopoMap  
Map projection: EPSG:3448, JAD2001, Jamaica Metric Grid







### Expansion of the Pedro Plains irrigation system using surface flows from the Black River

#### Land uses and communities

- Projected trunk pipe
- Projected blocks

Land uses

- Agriculture
- Natural area
- Grassland
- Industry
- Land Cover
- Residential
- Road
- Wetlands
- Other

Population in Pedro Plans communities

- <500
- 500 - 2 500
- >2 500

N

0 2000 4000 m

1:100000

N° : 2022\_04\_08-JM 022 - A

Case Identification Number Index

Date: 03/08/2024  
Realized by: A.VICTOIRE - Checked by: A.SFERRATORE  
File reference: 2022\_04\_08-JM\_030\_Communities.qgz  
Sources: SCP, NIC  
Map projection: EPSG:3448, JAD2001, Jamaica Metric Grid