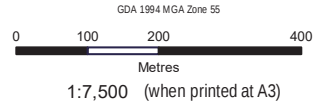


# Locality Map



## LEGEND

- Model Boundary
- Cadastral
- QLD Rail Line

## Peak Flood Depth (m)

- < 0.20
- 0.20 - 0.40
- 0.40 - 0.60
- 0.60 - 0.80
- 0.80 - 1.00
- 1.00 - 1.25
- 1.25 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- > 3.00

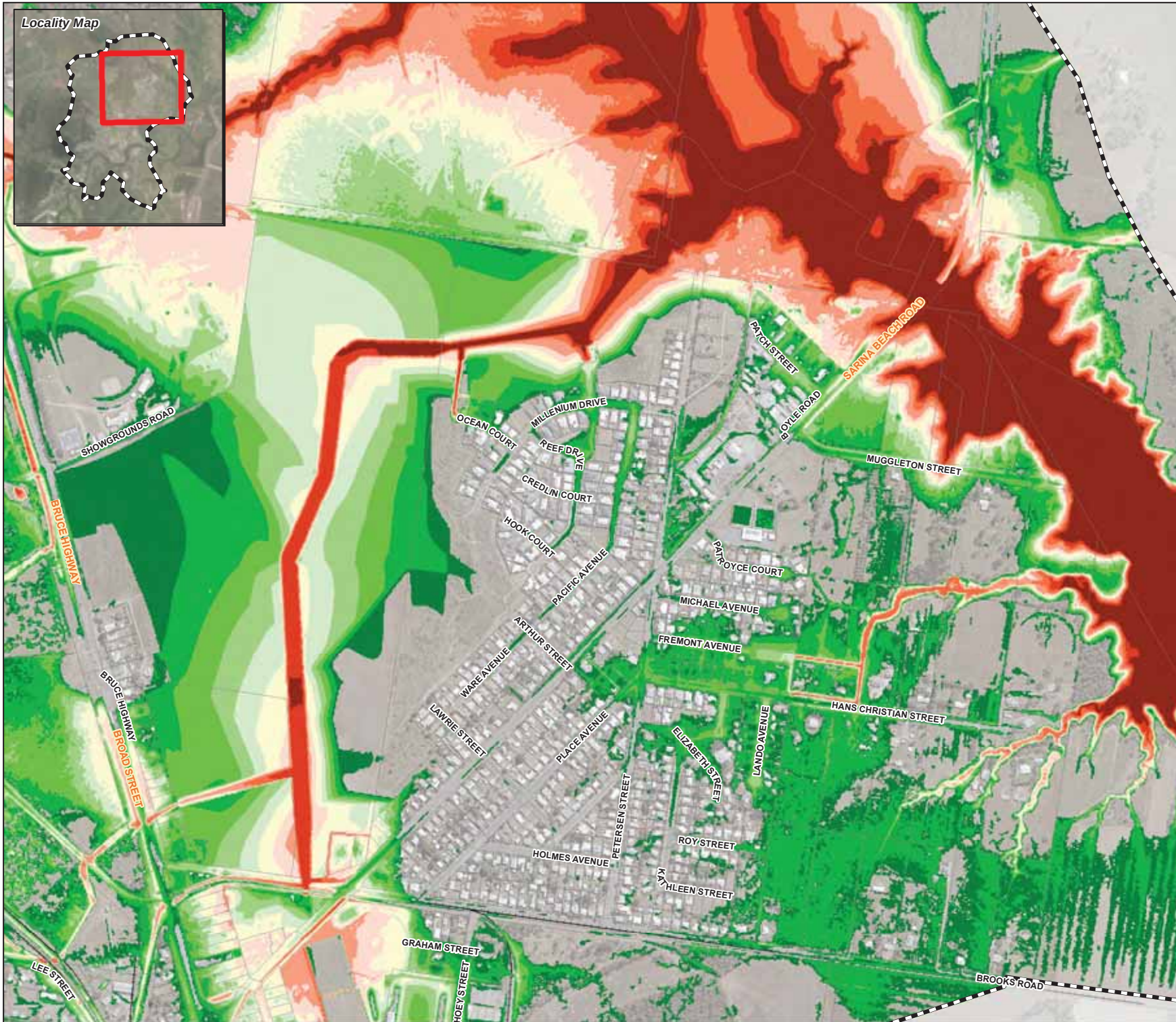
Results Filters Applied:  
- Depth < 0.2m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

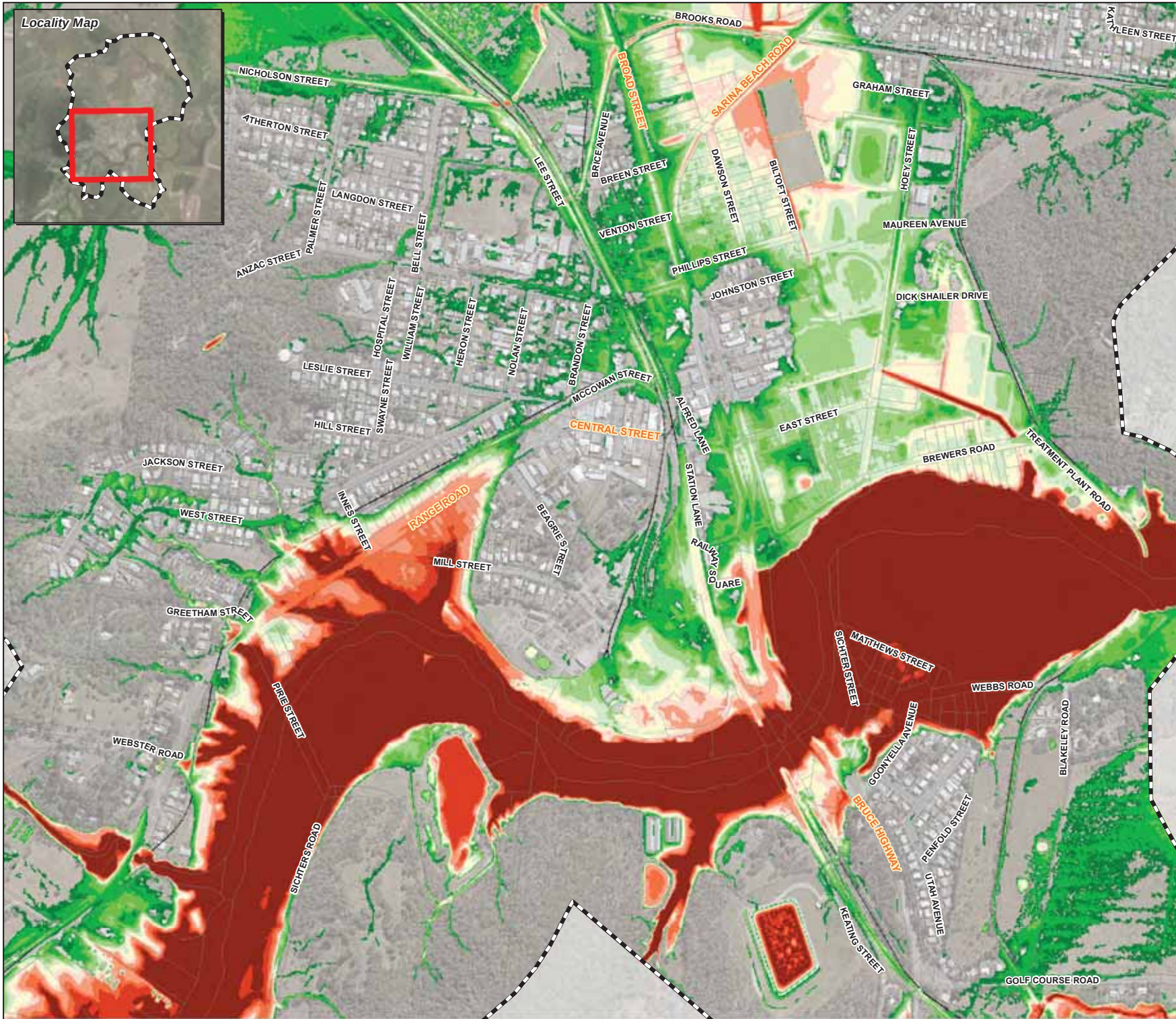
## MACKAY REGIONAL COUNCIL Sarina Drainage Study

Peak Flood Depth  
Developed Case  
PMF Event 360min Storm

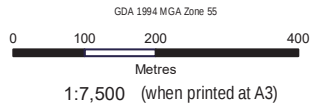
PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**52.1**





Locality Map



#### LEGEND

- Model Boundary
- Cadastre
- QLD Rail Line

#### Peak Flood Depth (m)

- < 0.20
- 0.20 - 0.40
- 0.40 - 0.60
- 0.60 - 0.80
- 0.80 - 1.00
- 1.00 - 1.25
- 1.25 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- > 3.00

Results Filters Applied:  
- Depth < 0.2m  
- Area < 4 Cells (36m)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

#### MACKAY REGIONAL COUNCIL Sarina Drainage Study

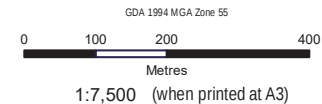
#### Peak Flood Depth Developed Case PMF Event 360min Storm

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**52.2**



# Locality Map



## LEGEND

- Directional Velocity Vector
- Model Boundary
- Cadastral
- QLD Rail Line
- Peak Depth Averaged Velocity (m/s)**
  - < 0.25
  - 0.25 - 0.50
  - 0.50 - 1.00
  - 1.00 - 1.50
  - 1.50 - 2.00
  - > 2.00

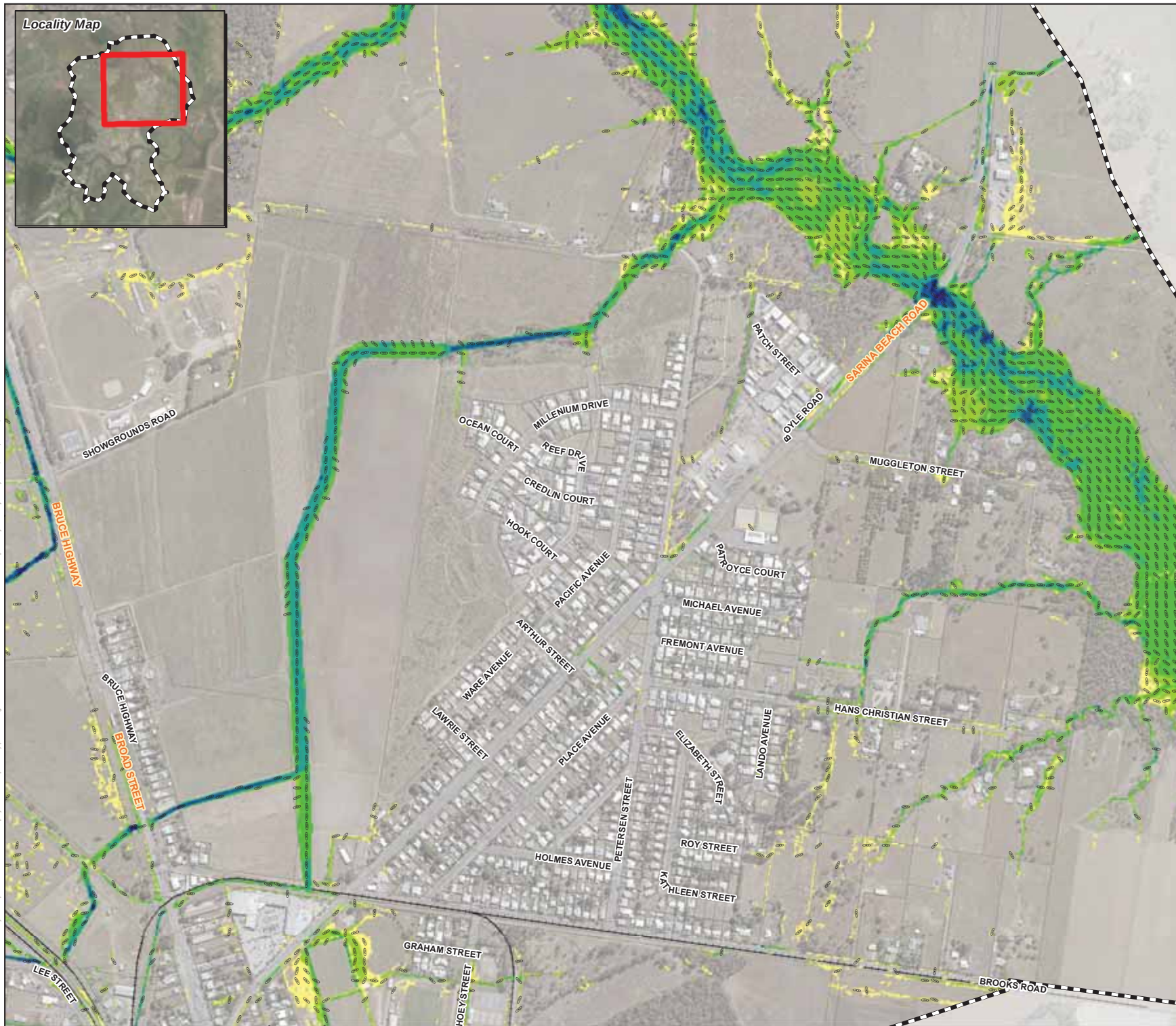
Results Filters Applied:  
- Depth < 0.2m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

## **MACKAY REGIONAL COUNCIL** **Sarina Drainage Study**

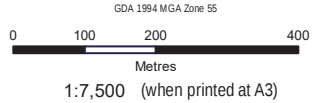
**Peak Velocity and Flow Direction**  
**Developed Case**  
**63% AEP (1 EY) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**53.1**



# Locality Map



## LEGEND

- Directional Velocity Vector
- Model Boundary
- Cadastral
- QLD Rail Line
- Peak Depth Averaged Velocity (m/s)**
  - < 0.25
  - 0.25 - 0.50
  - 0.50 - 1.00
  - 1.00 - 1.50
  - 1.50 - 2.00
  - > 2.00

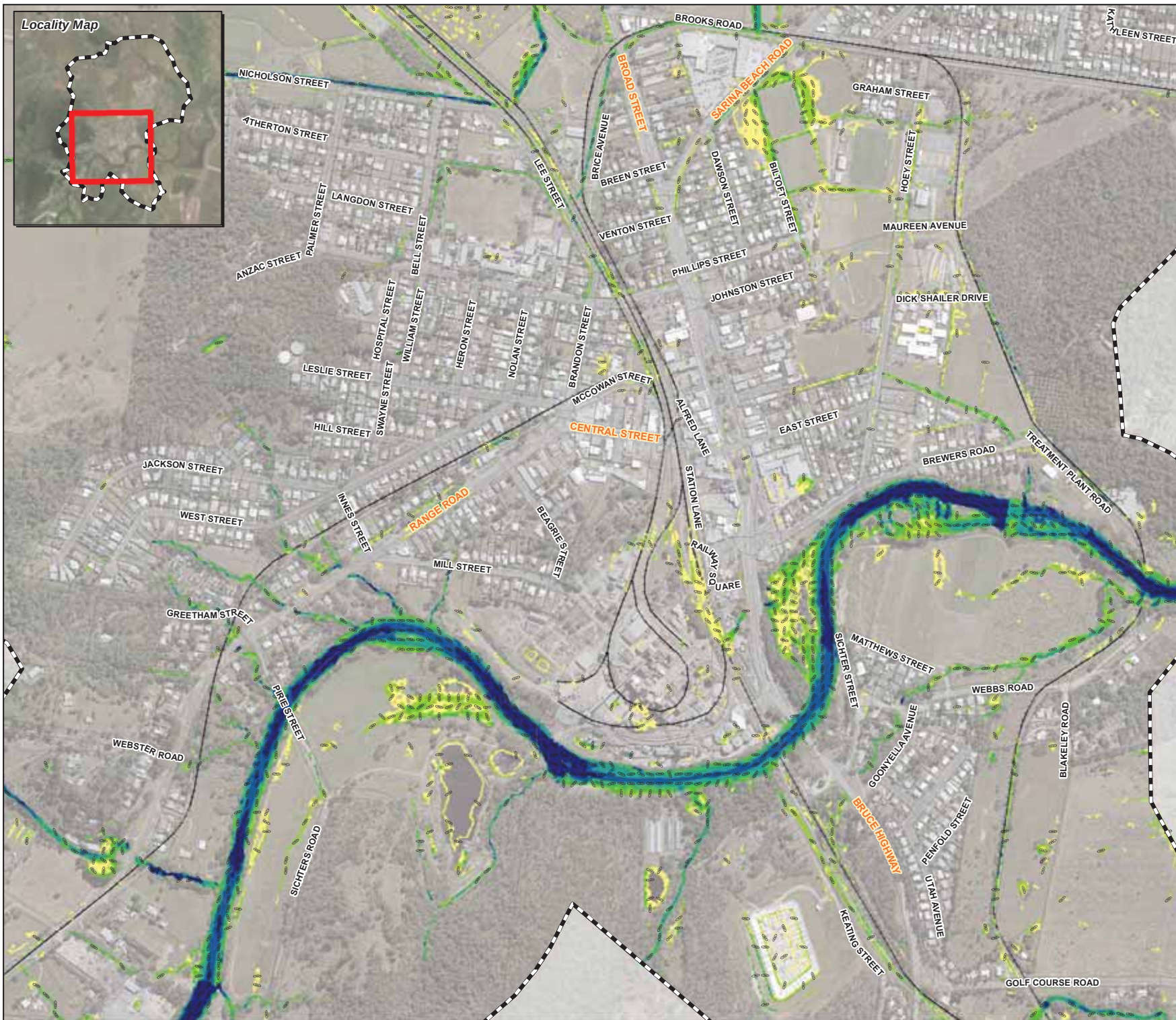
Results Filters Applied:  
- Depth < 0.2m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

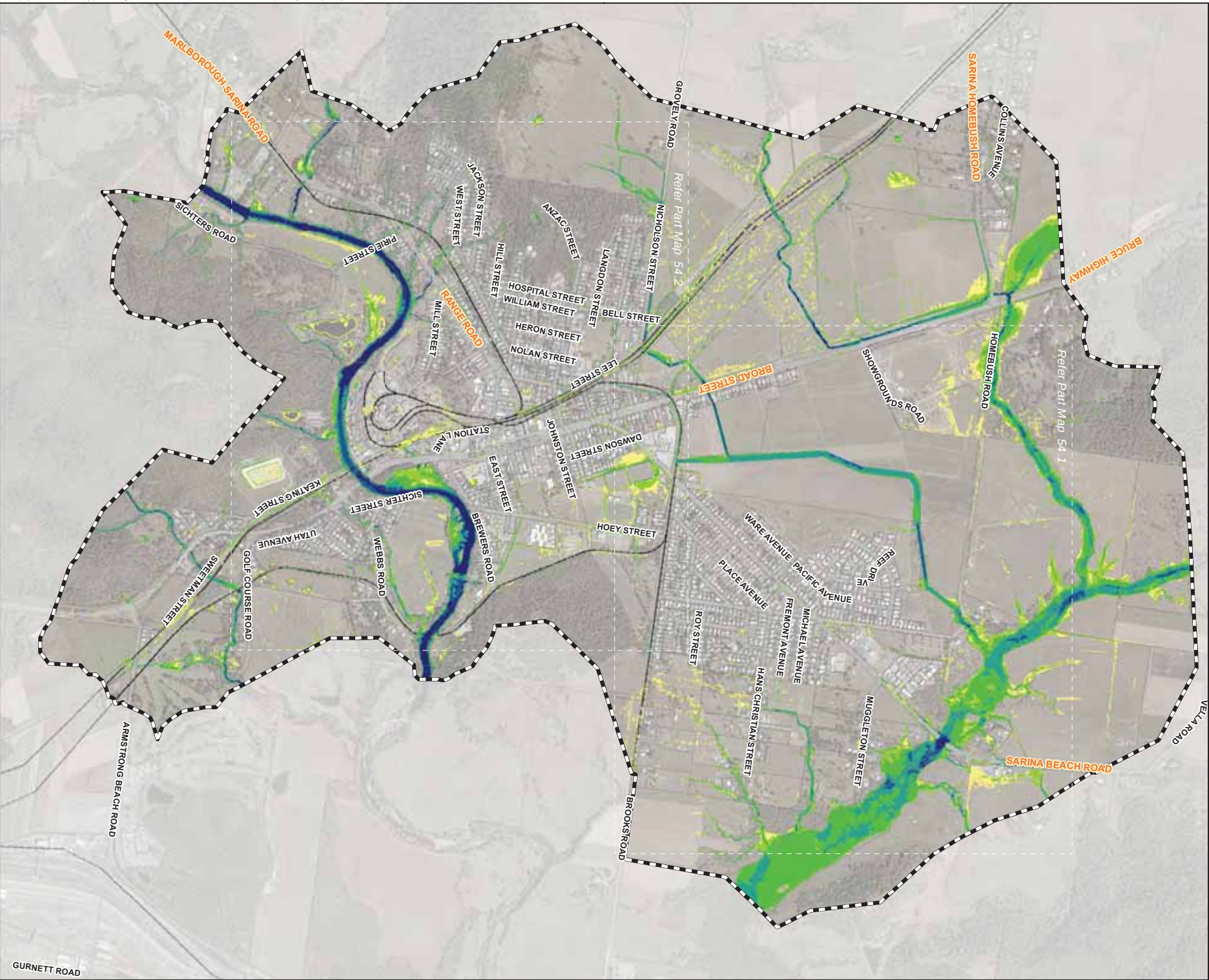
## MACKAY REGIONAL COUNCIL Sarina Drainage Study

**Peak Velocity and Flow Direction  
Developed Case  
63% AEP (1 EY) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**53.2**





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**LEGEND**

- Model Boundary
- Cadastre
- QLD Rail Line
- Peak Depth Averaged Velocity (m/s)
- 0.25 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- > 2.00

Scale: 0 to 800 metres  
GDA 1984 MGA Zone 55  
1:16,000 (when printed at A3)

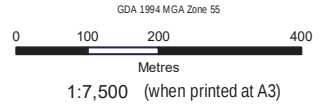
**MACKAY REGIONAL COUNCIL**  
Sarina Drainage Study

**Peak Velocity and Flow Direction**  
Developed Case  
39% AEP (2 yr ARI) 1440min Storm

PROJECT ID: 60567081  
CREATED BY: brgph  
LAST MODIFIED: 13/09/18  
VERSION: v01

Map  
**54**

# Locality Map



## LEGEND

- Directional Velocity Vector
- Model Boundary
- Cadastral
- QLD Rail Line
- Peak Depth Averaged Velocity (m/s)**
  - < 0.25
  - 0.25 - 0.50
  - 0.50 - 1.00
  - 1.00 - 1.50
  - 1.50 - 2.00
  - > 2.00

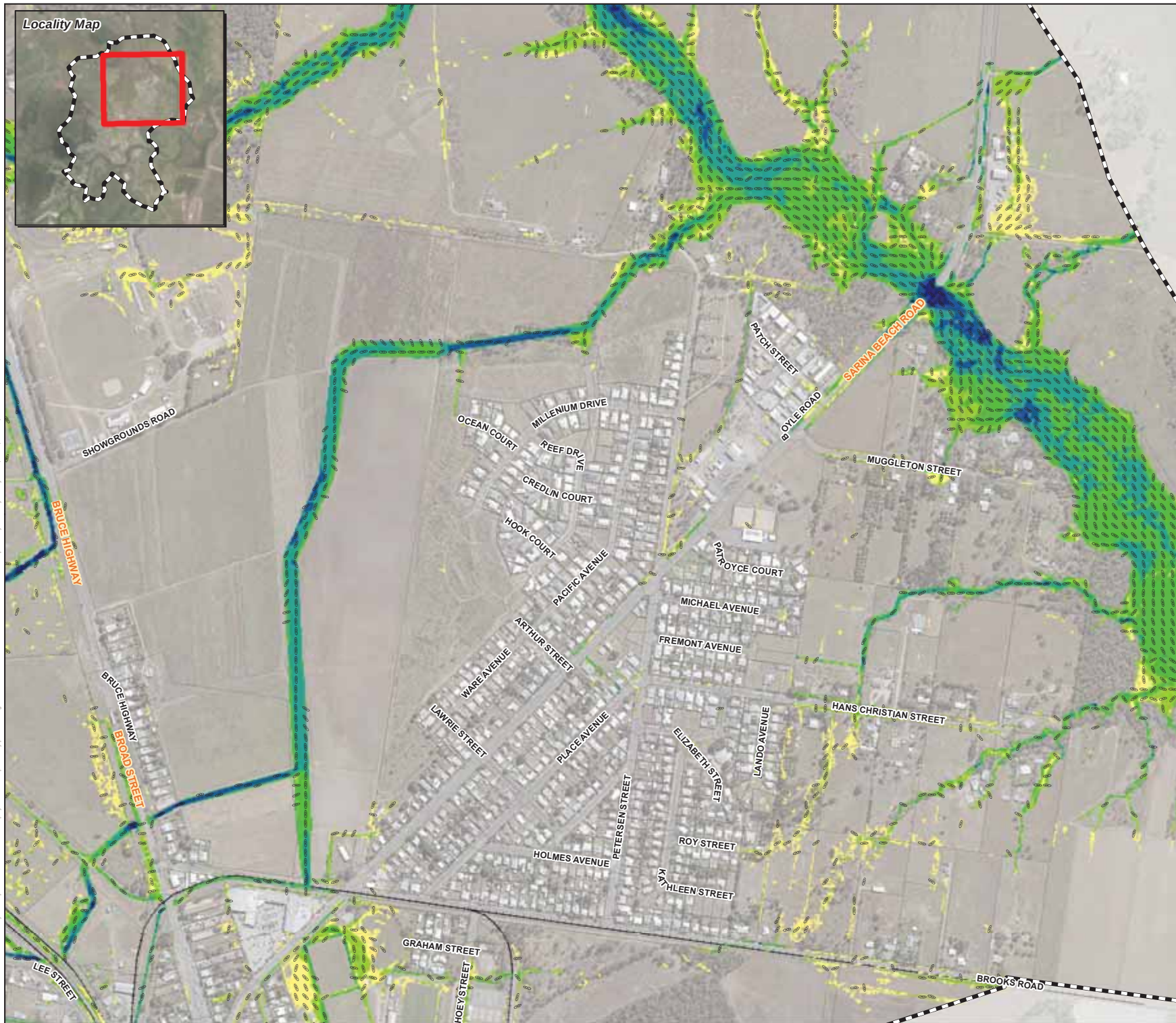
Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

## **MACKAY REGIONAL COUNCIL** **Sarina Drainage Study**

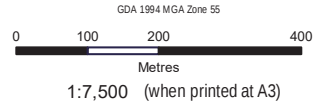
**Peak Velocity and Flow Direction**  
**Developed Case**  
**39% AEP (2 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**54.1**



# Locality Map



## LEGEND

- Directional Velocity Vector
- Model Boundary
- Cadastral
- QLD Rail Line
- Peak Depth Averaged Velocity (m/s)**
  - < 0.25
  - 0.25 - 0.50
  - 0.50 - 1.00
  - 1.00 - 1.50
  - 1.50 - 2.00
  - > 2.00

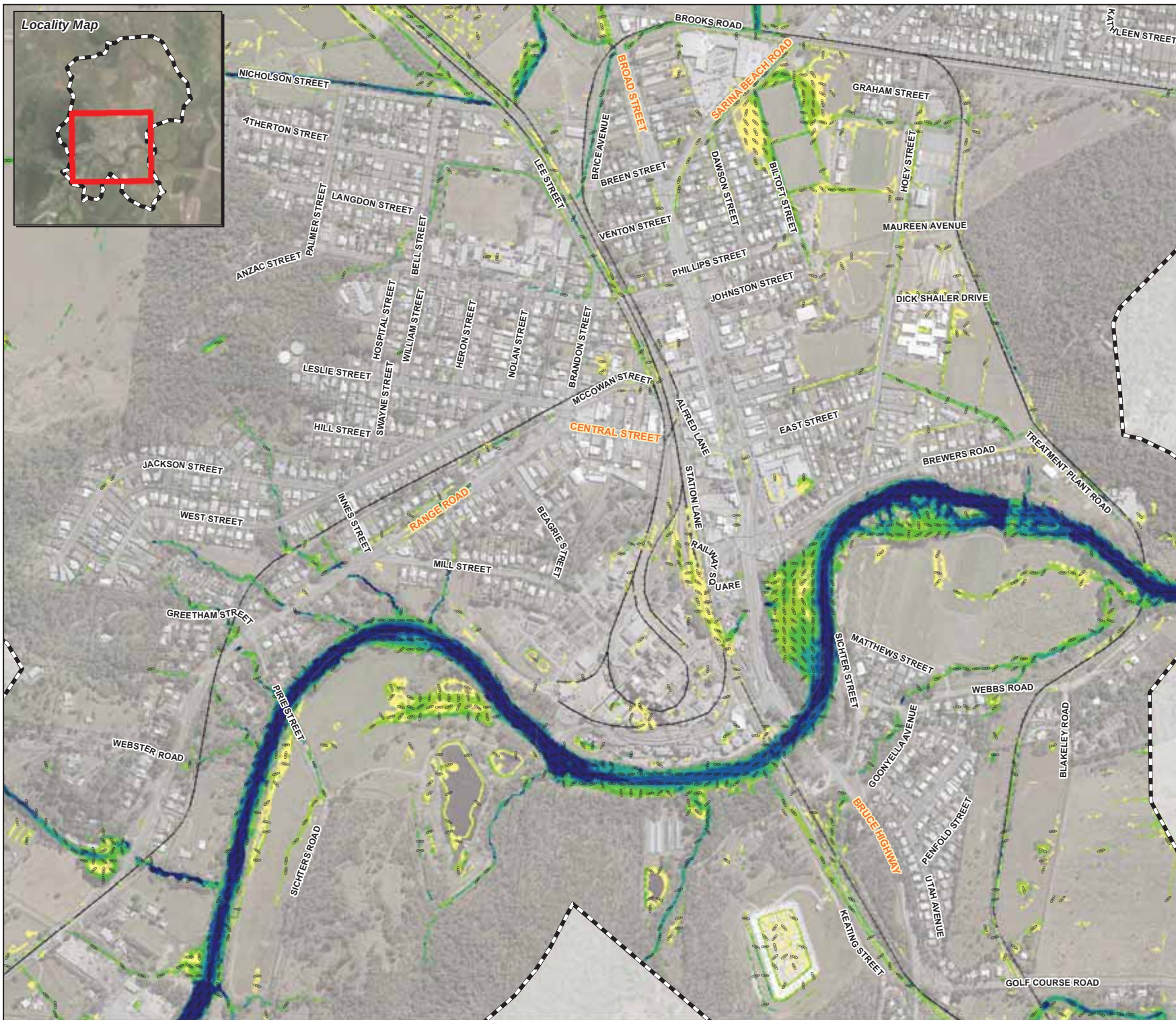
Results Filters Applied:  
- Depth < 0.2m  
- Area < 4 Cells (36m)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

## **MACKAY REGIONAL COUNCIL** **Sarina Drainage Study**

**Peak Velocity and Flow Direction**  
**Developed Case**  
**39% AEP (2 yr ARI) 1440min Storm**

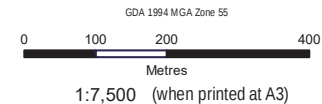
PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**54.2**





# Locality Map



## LEGEND

- Directional Velocity Vector
- Model Boundary
- Cadastral
- QLD Rail Line
- Peak Depth Averaged Velocity (m/s)**
  - < 0.25
  - 0.25 - 0.50
  - 0.50 - 1.00
  - 1.00 - 1.50
  - 1.50 - 2.00
  - > 2.00

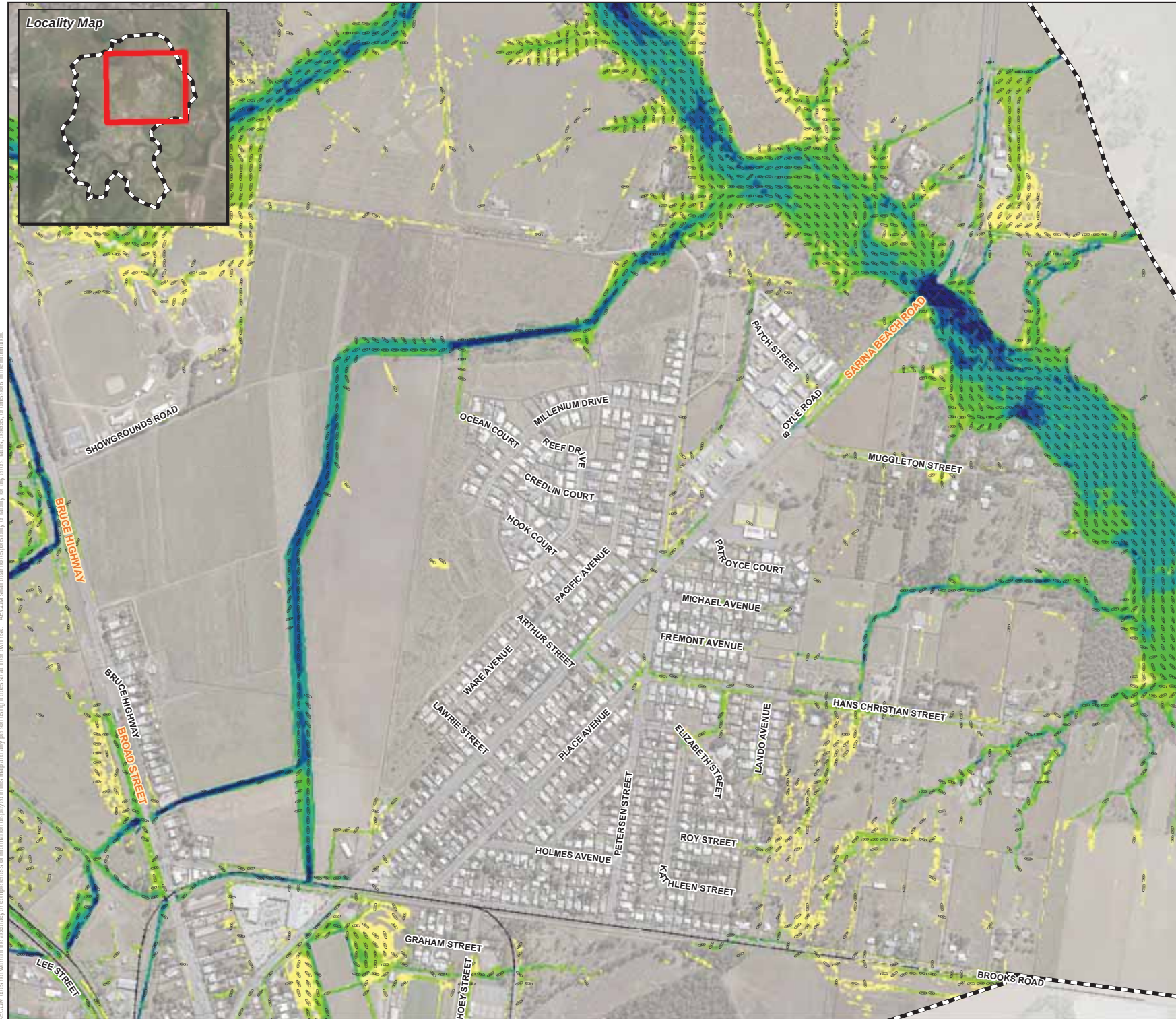
Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

## MACKAY REGIONAL COUNCIL Sarina Drainage Study

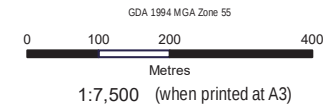
**Peak Velocity and Flow Direction  
Developed Case  
18% AEP (5 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**55.1**



# Locality Map



## LEGEND

- Directional Velocity Vector
- Model Boundary
- Cadastral
- QLD Rail Line
- Peak Depth Averaged Velocity (m/s)**
  - < 0.25
  - 0.25 - 0.50
  - 0.50 - 1.00
  - 1.00 - 1.50
  - 1.50 - 2.00
  - > 2.00

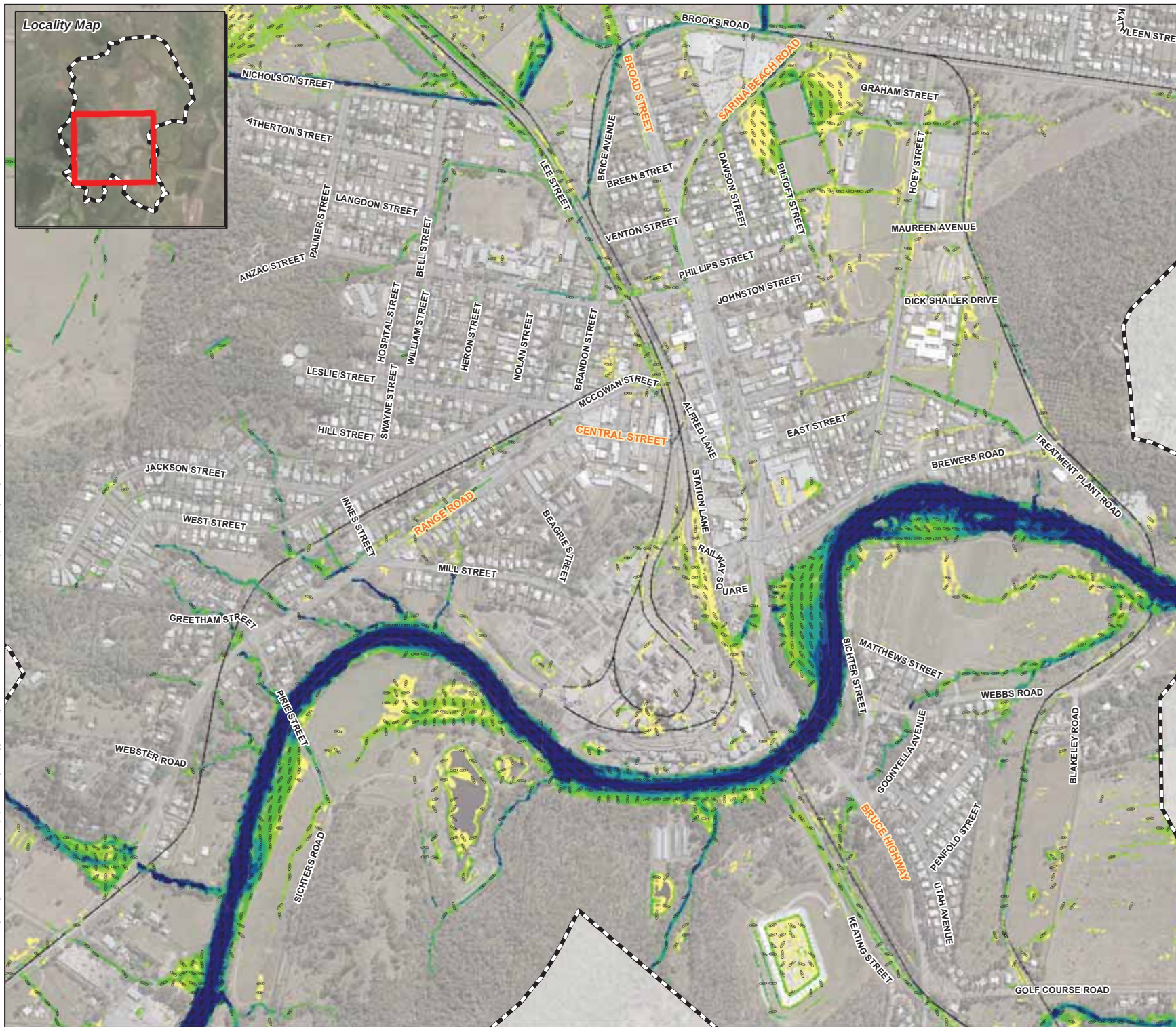
Results Filters Applied:  
- Depth < 0.2m  
- Area < 4 Cells (36m)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

## MACKAY REGIONAL COUNCIL Sarina Drainage Study

**Peak Velocity and Flow Direction  
Developed Case  
18% AEP (5 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**55.2**





/



Cadastral

GDA 1994 MGA Zone 55

metres

1:16,000 (when printed at A3)

12

12

Developed case  
100% AED (10 yr)

10% AEF (20 y ARI) 1440000000000

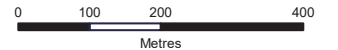
VERSION: v01

:

# Locality Map



GDA 1994 MGA Zone 55



1:7,500 (when printed at A3)

## LEGEND

- Directional Velocity Vector
- Model Boundary
- Cadastral
- QLD Rail Line
- Peak Depth Averaged Velocity (m/s)**
  - < 0.25
  - 0.25 - 0.50
  - 0.50 - 1.00
  - 1.00 - 1.50
  - 1.50 - 2.00
  - > 2.00

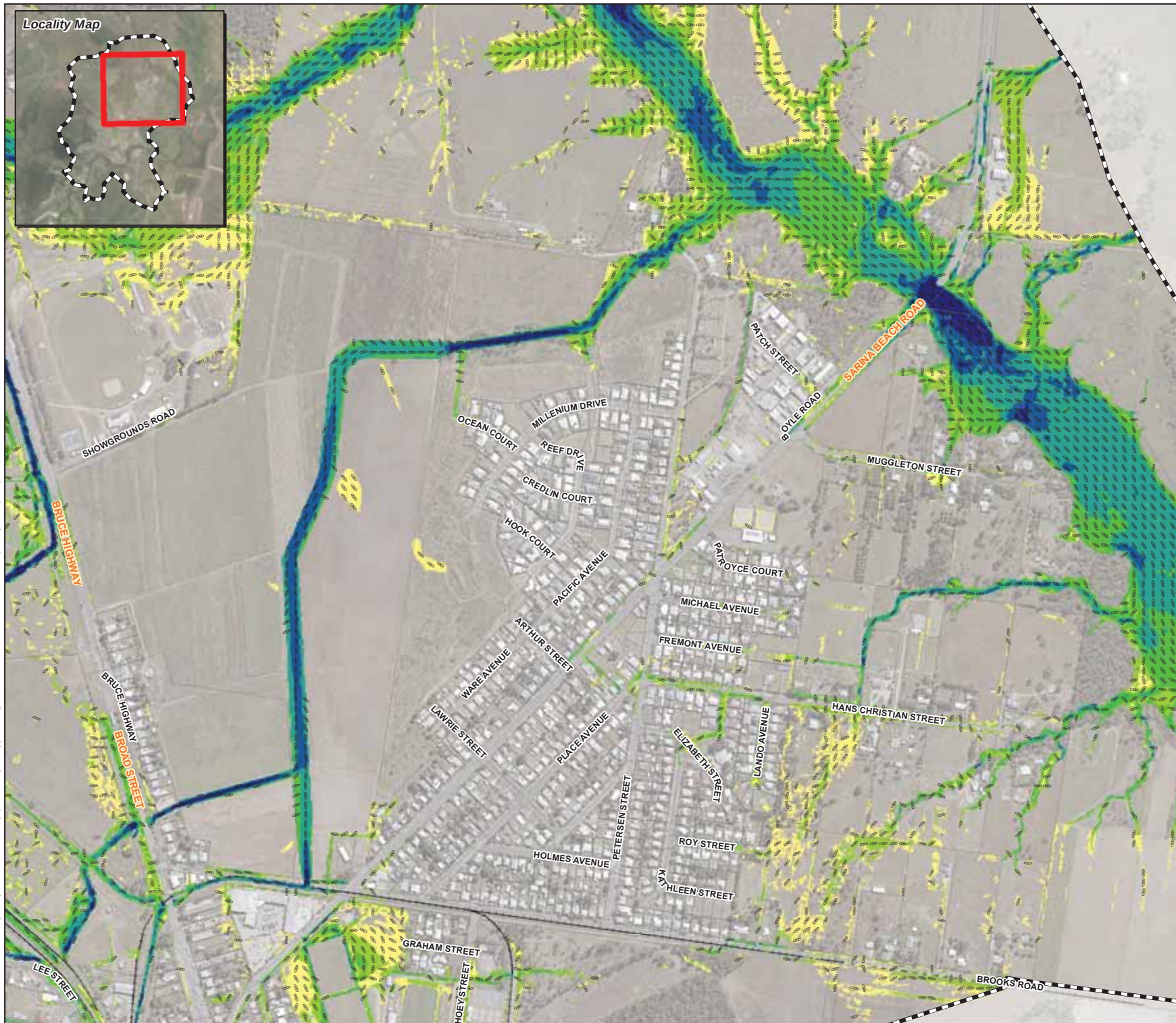
Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

## MACKAY REGIONAL COUNCIL Sarina Drainage Study

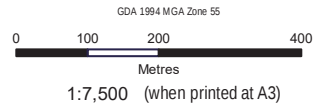
**Peak Velocity and Flow Direction  
Developed Case  
10% AEP (10 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**56.1**



# Locality Map



## LEGEND

- Directional Velocity Vector
- Model Boundary
- Cadastral
- QLD Rail Line
- Peak Depth Averaged Velocity (m/s)**
  - < 0.25
  - 0.25 - 0.50
  - 0.50 - 1.00
  - 1.00 - 1.50
  - 1.50 - 2.00
  - > 2.00

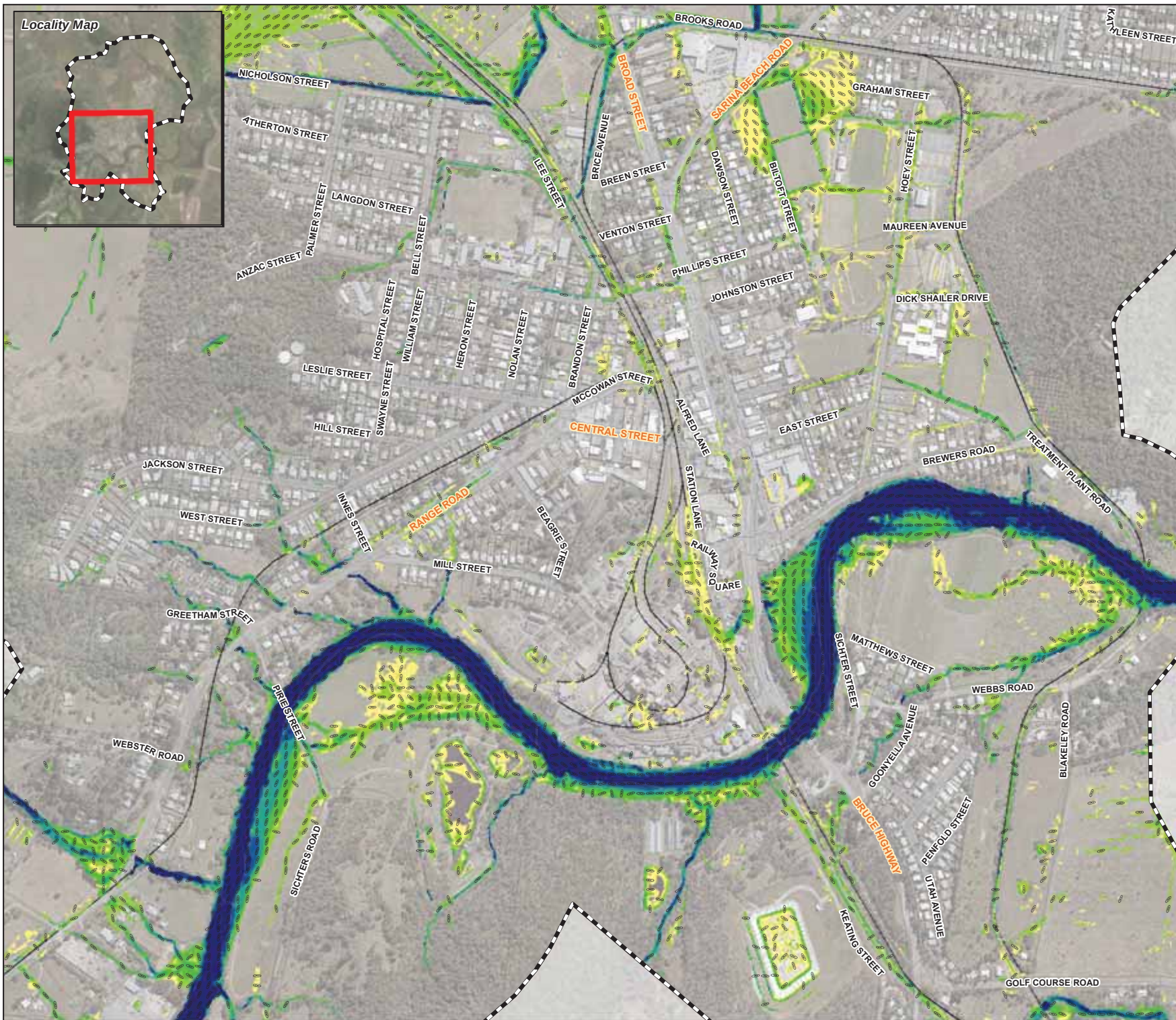
Results Filters Applied:  
- Depth < 0.2m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

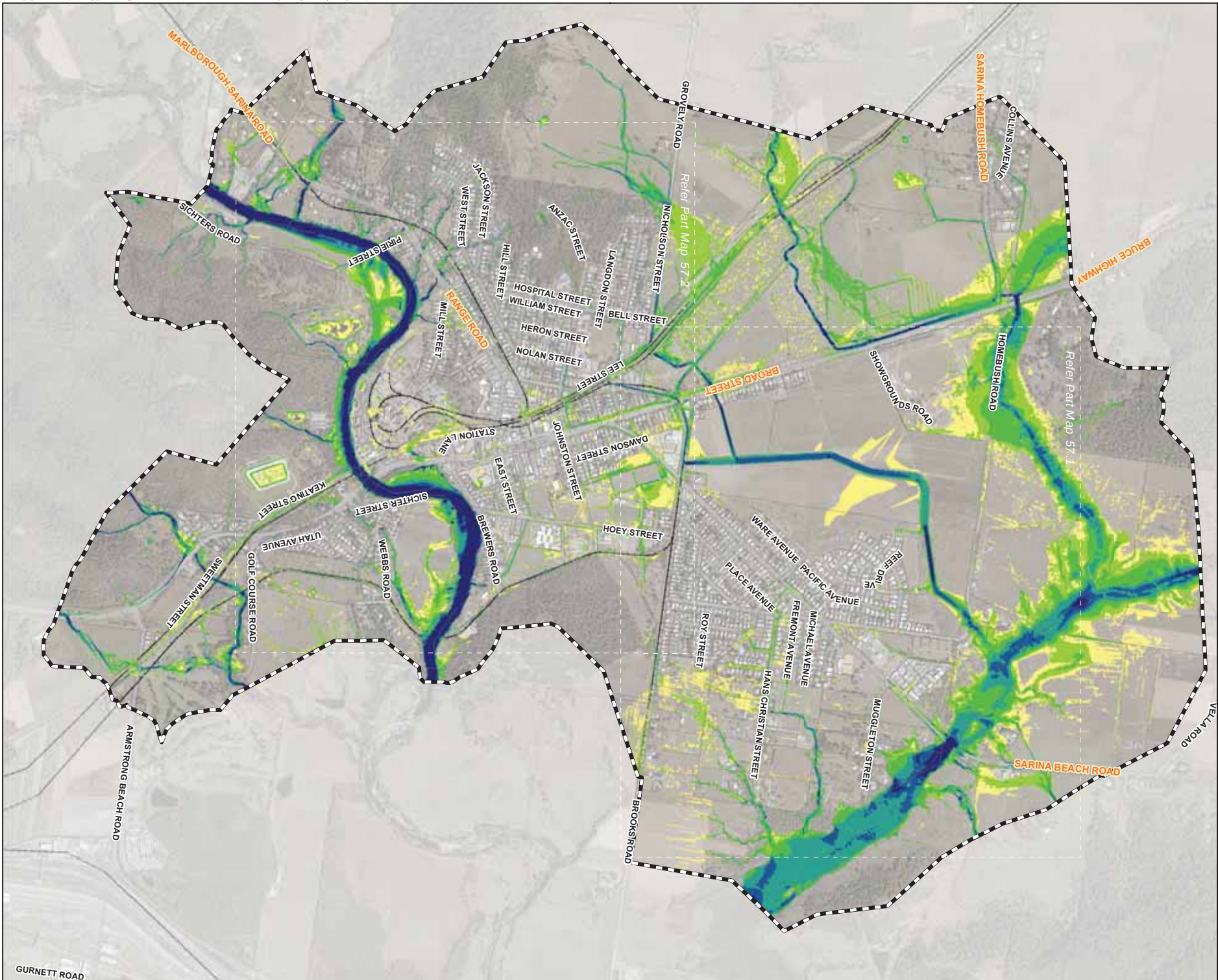
## MACKAY REGIONAL COUNCIL Sarina Drainage Study

**Peak Velocity and Flow Direction**  
**Developed Case**  
**10% AEP (10 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**56.2**





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**LEGEND**  
Model Boundary  
Cadastral  
QLD Rail Line

**Peak Depth Averaged Velocity (m/s)**  
0.25 - 0.50  
0.50 - 1.00  
1.00 - 1.50  
1.50 - 2.00  
> 2.00

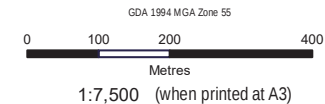
0 200 400 800  
metres  
GDA 1984 MGA Zone 55  
1:16,000 (when printed at A3)

**MACKAY REGIONAL COUNCIL**  
Sarina Drainage Study

**Peak Velocity and Flow Direction**  
Developed Case  
5% AEP (20 yr ARI) 1440min Storm

|               |          |     |
|---------------|----------|-----|
| PROJECT ID    | 60557081 | Map |
| CREATED BY    | brgph    | 57  |
| LAST MODIFIED | 13/09/18 |     |
| VERSION       | v01      |     |

# Locality Map



## LEGEND

- Directional Velocity Vector
- Model Boundary
- Cadastral
- QLD Rail Line
- Peak Depth Averaged Velocity (m/s)**
  - < 0.25
  - 0.25 - 0.50
  - 0.50 - 1.00
  - 1.00 - 1.50
  - 1.50 - 2.00
  - > 2.00

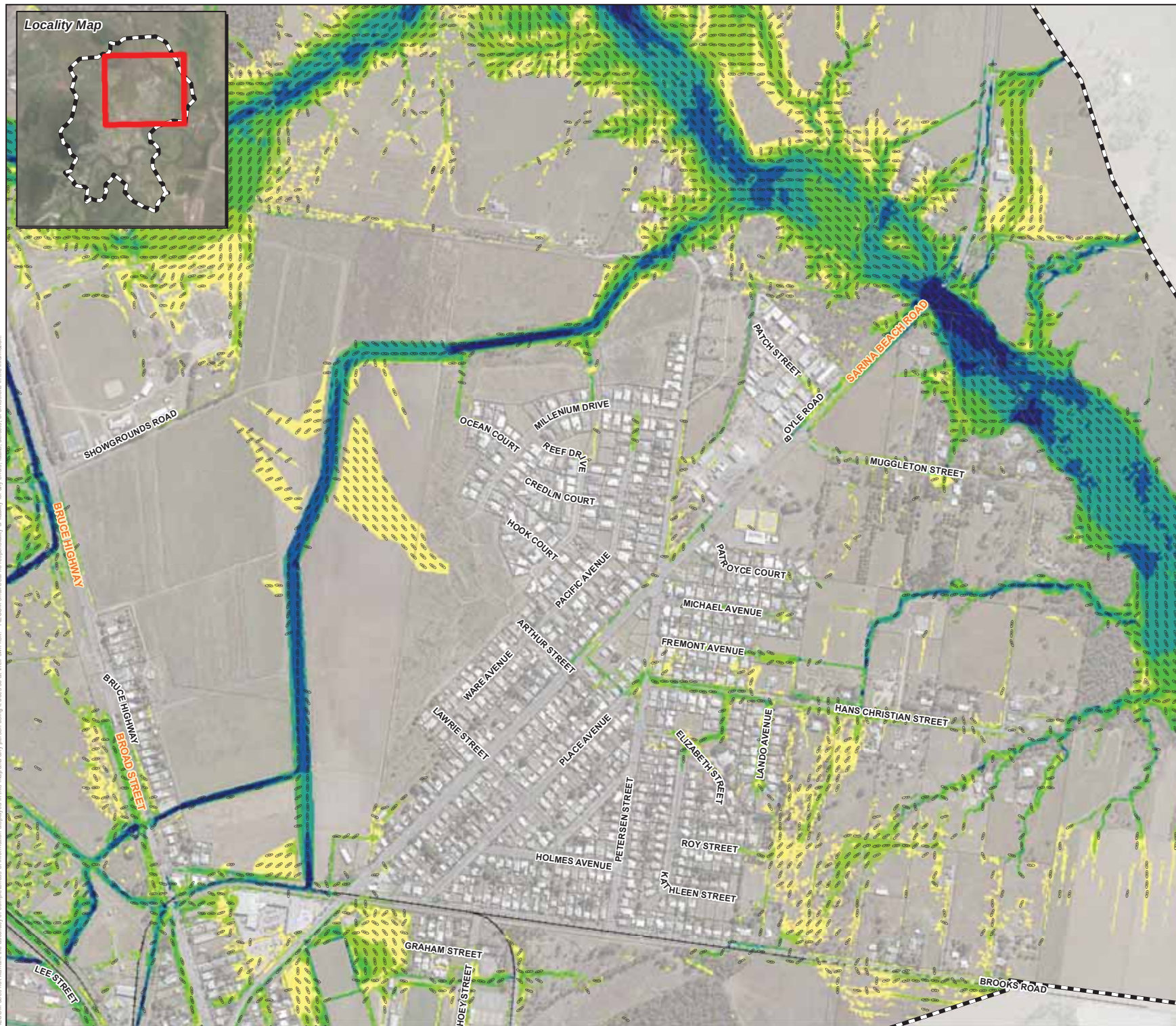
Results Filters Applied:  
 - Depth < 0.1m  
 - Area < 4 Cells (36m²)  
 Data sources:  
 Base Data (c) 2018 (QLD Gov)  
 Street Data (c) 2017 (MRC)

## MACKAY REGIONAL COUNCIL Sarina Drainage Study

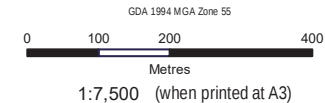
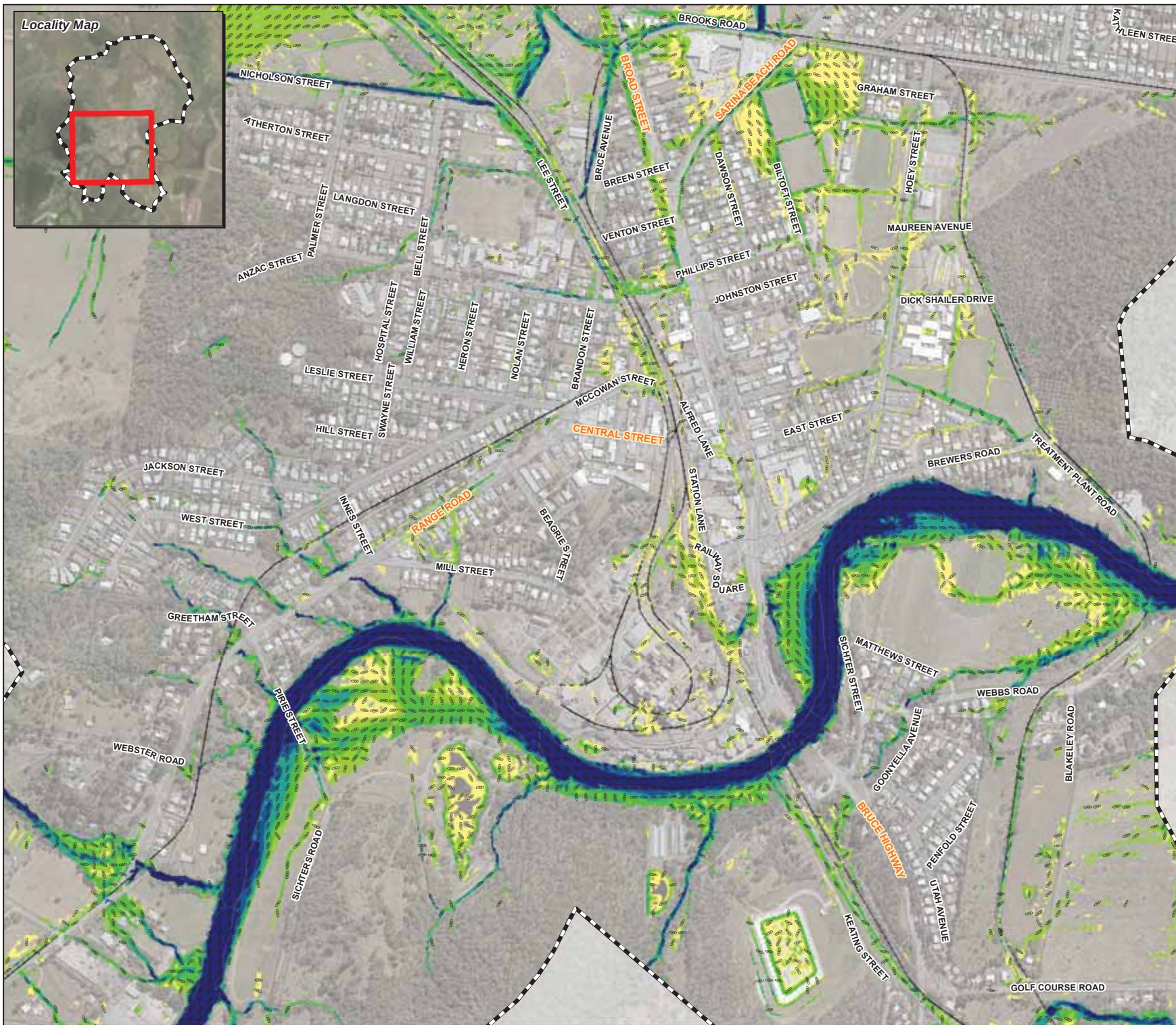
**Peak Velocity and Flow Direction  
Developed Case  
5% AEP (20 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
 CREATED BY: brigh  
 LAST MODIFIED: 13/08/18  
 VERSION: v01

Map  
**57.1**



# Locality Map



## LEGEND

- Directional Velocity Vector
- Model Boundary
- Cadastral
- QLD Rail Line
- Peak Depth Averaged Velocity (m/s)**
  - < 0.25
  - 0.25 - 0.50
  - 0.50 - 1.00
  - 1.00 - 1.50
  - 1.50 - 2.00
  - > 2.00

Results Filters Applied:  
- Depth < 0.2m  
- Area < 4 Cells (36m)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

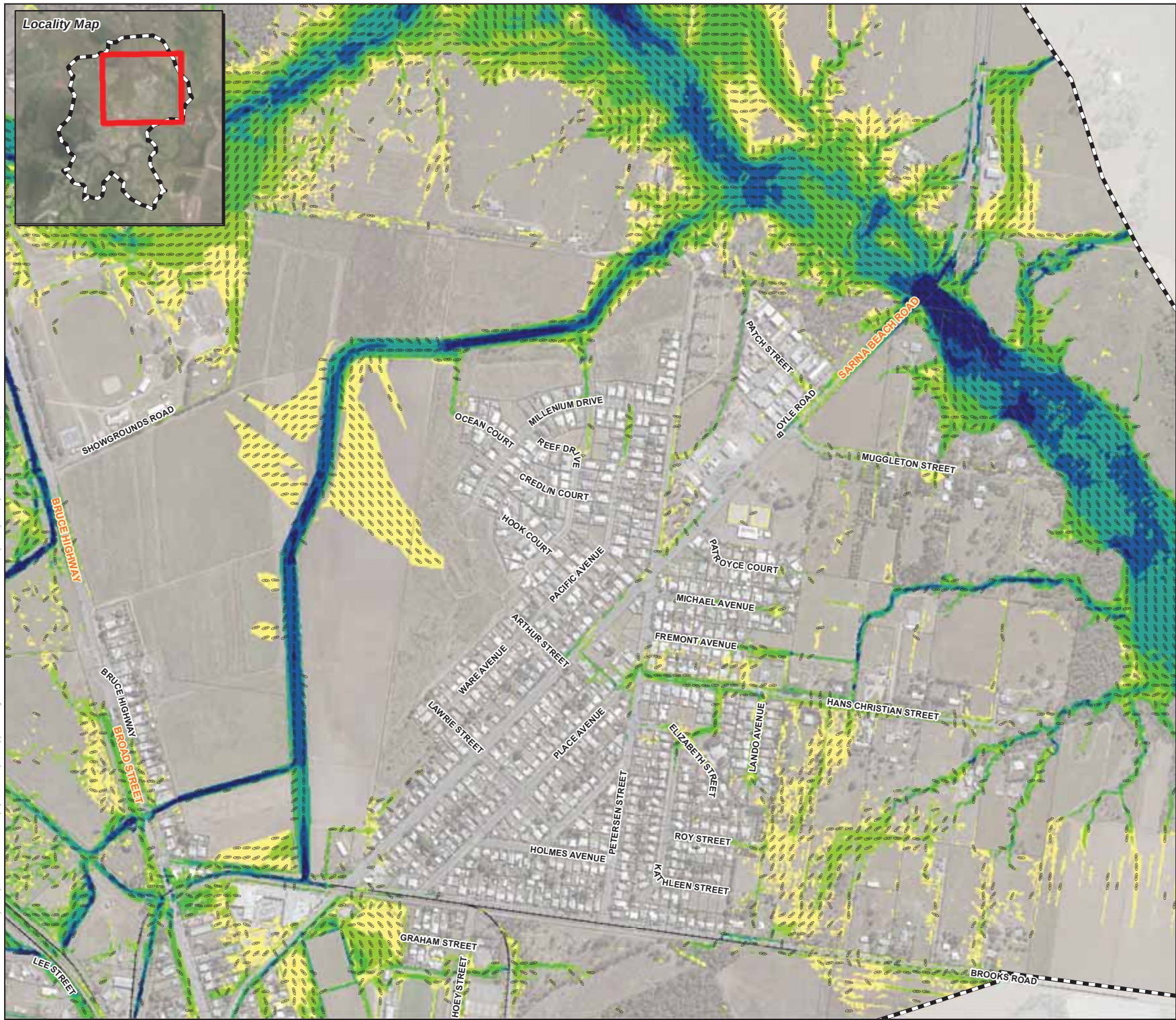
## **MACKAY REGIONAL COUNCIL** **Sarina Drainage Study**

**Peak Velocity and Flow Direction**  
**Developed Case**  
**5% AEP (20 yr ARI) 1440min Storm**

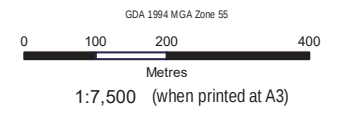
PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**57.2**





Locality Map



LEGEND

- Directional Velocity Vector
- Model Boundary
- Cadastre
- QLD Rail Line
- Peak Depth Averaged Velocity (m/s)
  - < 0.25
  - 0.25 - 0.50
  - 0.50 - 1.00
  - 1.00 - 1.50
  - 1.50 - 2.00
  - > 2.00

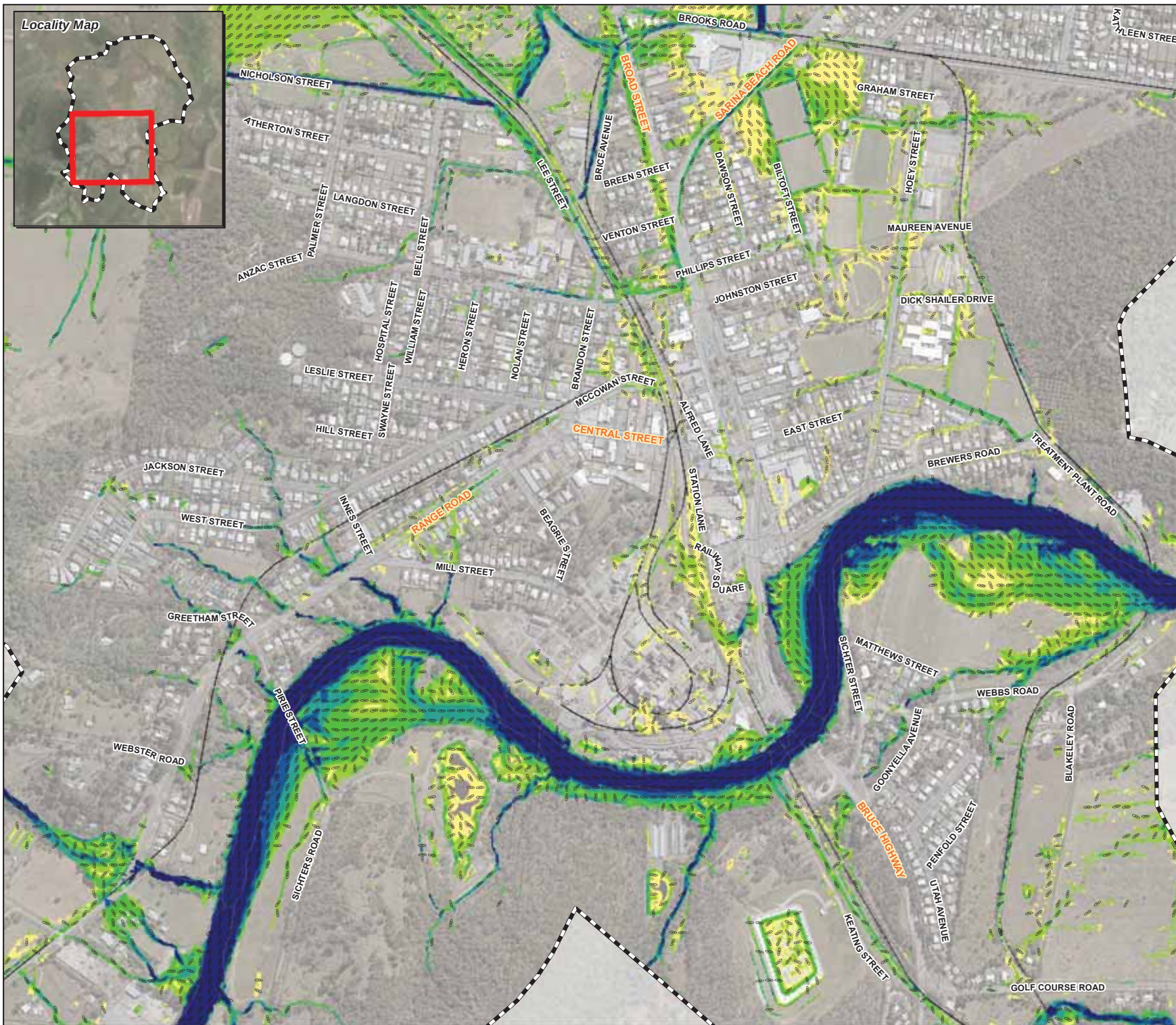
Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

MACKAY REGIONAL COUNCIL  
Sarina Drainage Study

Peak Velocity and Flow Direction  
Developed Case  
2% AEP (50 yr ARI) 1440min Storm

|               |          |                    |
|---------------|----------|--------------------|
| PROJECT ID    | 60567081 | Map<br><b>58.1</b> |
| CREATED BY    | brigh    |                    |
| LAST MODIFIED | 13/08/18 |                    |
| VERSION:      | v01      |                    |

# Locality Map



GDA 1994 MGA Zone 55  
0 100 200 400  
Metres  
1:7,500 (when printed at A3)

## LEGEND

- Directional Velocity Vector
- Model Boundary
- Cadastre
- QLD Rail Line
- Peak Depth Averaged Velocity (m/s)**
  - < 0.25
  - 0.25 - 0.50
  - 0.50 - 1.00
  - 1.00 - 1.50
  - 1.50 - 2.00
  - > 2.00

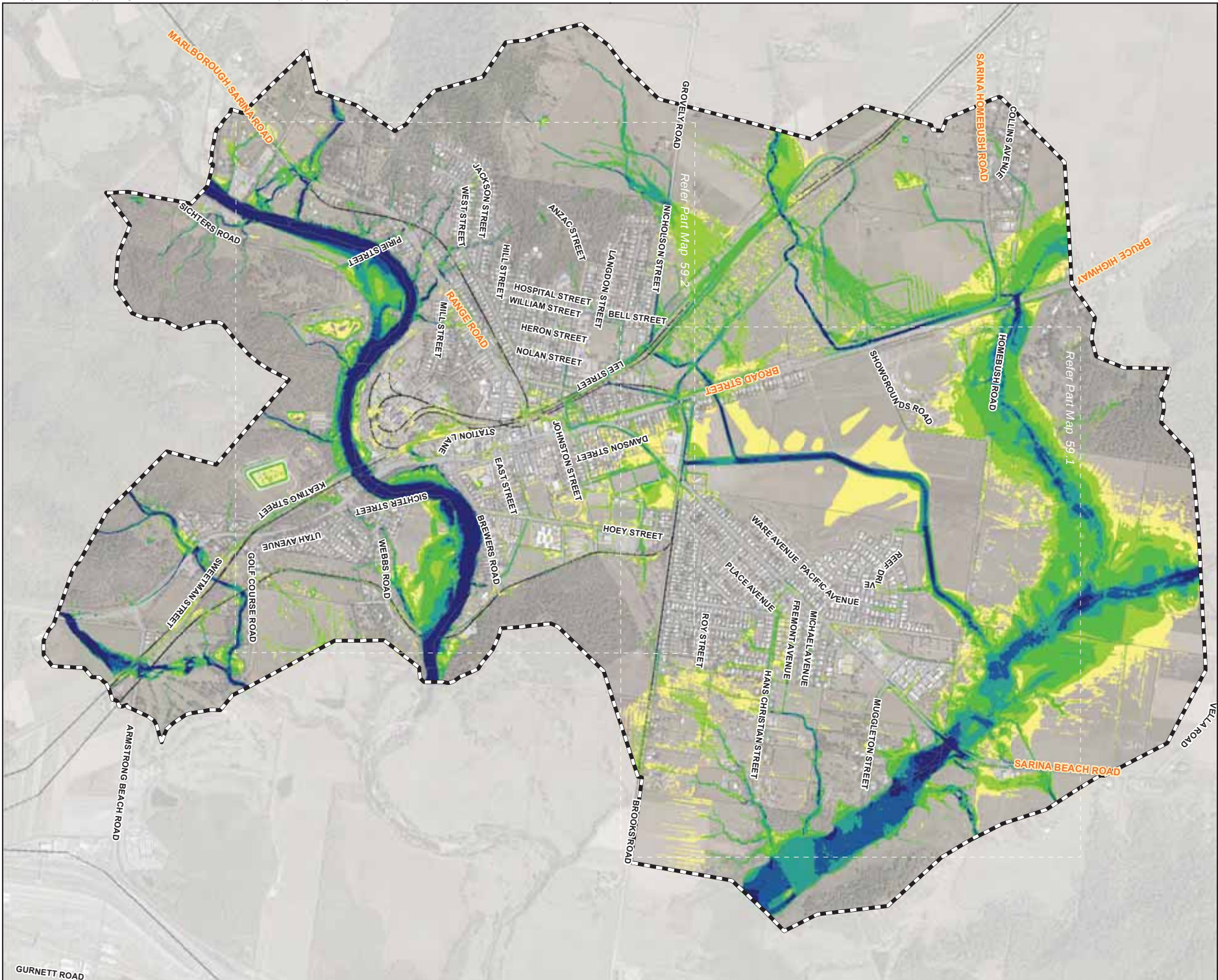
Results Filters Applied:  
- Depth < 0.2m  
- Area < 4 Cells (36m)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

## **MACKAY REGIONAL COUNCIL** **Sarina Drainage Study**

**Peak Velocity and Flow Direction**  
**Developed Case**  
**2% AEP (50 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**58.2**





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**LEGEND**

-  Model Boundary
-  Cadastral
-  QLD Rail Line
- Peak Depth Averaged Velocity (m/s)**
  -  0.25 - 0.50
  -  0.50 - 1.00
  -  1.00 - 1.50
  -  1.50 - 2.00
  -  > 2.00

0 200 400 800 metres

GDA 1984 MGA Zone 55

1:16,000 (when printed at A3)

**MACKAY REGIONAL COUNCIL**

**Sarina Drainage Study**

**Peak Velocity and Flow Direction**

**Developed Case**

**1% AEP (100 yr ARI) 1440min Storm**

PROJECT ID: 60557081

CREATED BY: bregg

LAST MODIFIED: 13/09/18

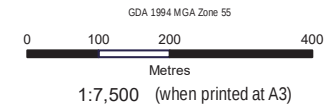
VERSION: v01

Map

**59**

Revised: 13/09/18  
- Areas < 4 Cells (50m)  
- 0.25m < 0.5m  
Base Data: 6/2017 (ROAD 50m)  
Street Data: 6/2017 (VLC)

# Locality Map



## LEGEND

- Directional Velocity Vector
- Model Boundary
- Cadastre
- QLD Rail Line
- Peak Depth Averaged Velocity (m/s)**
  - < 0.25
  - 0.25 - 0.50
  - 0.50 - 1.00
  - 1.00 - 1.50
  - 1.50 - 2.00
  - > 2.00

Results Filters Applied:  
- Depth > 0.1m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

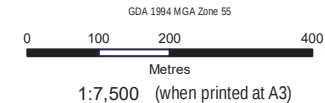
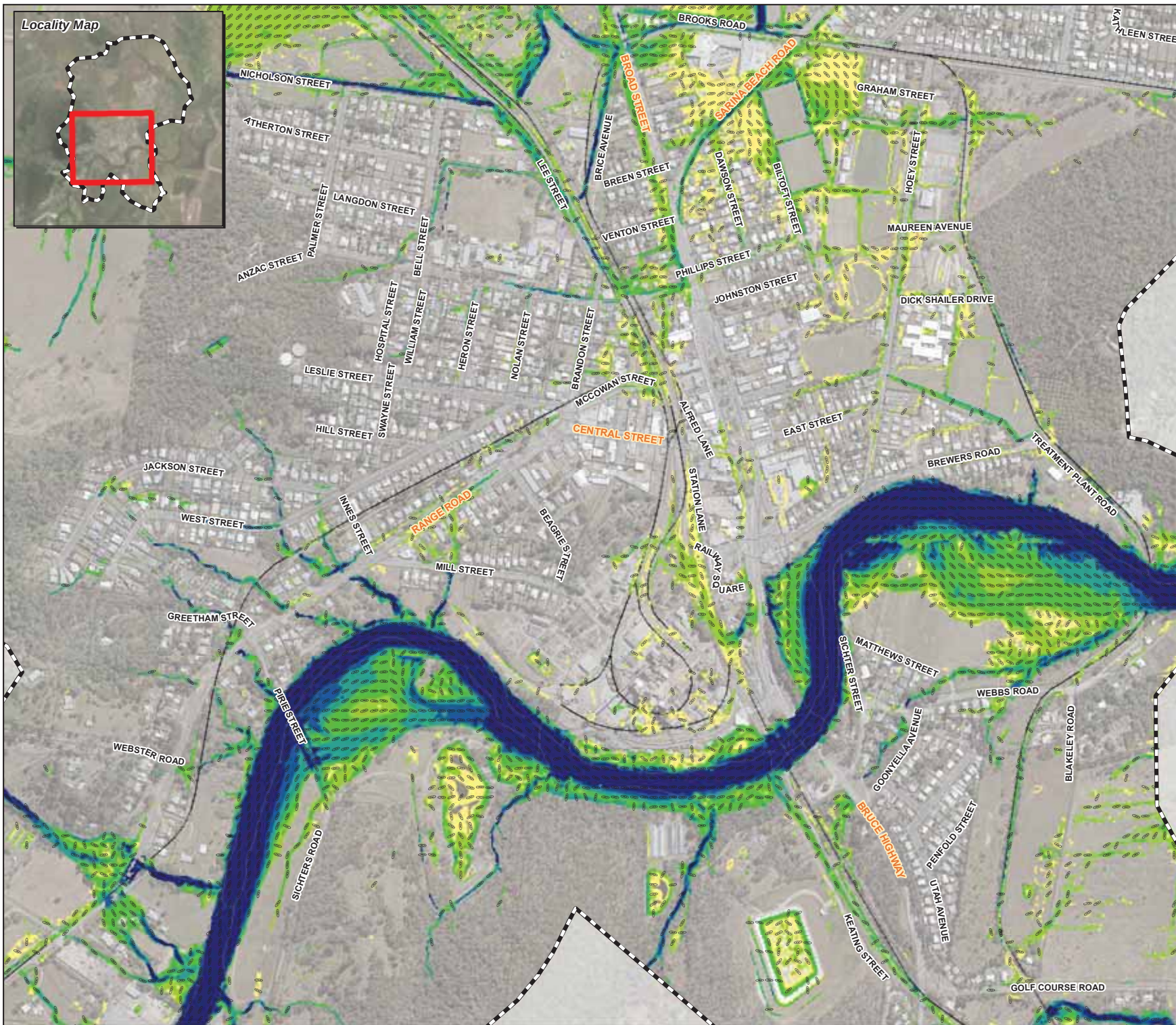
## MACKAY REGIONAL COUNCIL Sarina Drainage Study

**Peak Velocity and Flow Direction  
Developed Case  
1% AEP (100 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**59.1**

# Locality Map



## LEGEND

- Directional Velocity Vector
- Model Boundary
- Cadastral
- QLD Rail Line
- Peak Depth Averaged Velocity (m/s)**
  - < 0.25
  - 0.25 - 0.50
  - 0.50 - 1.00
  - 1.00 - 1.50
  - 1.50 - 2.00
  - > 2.00

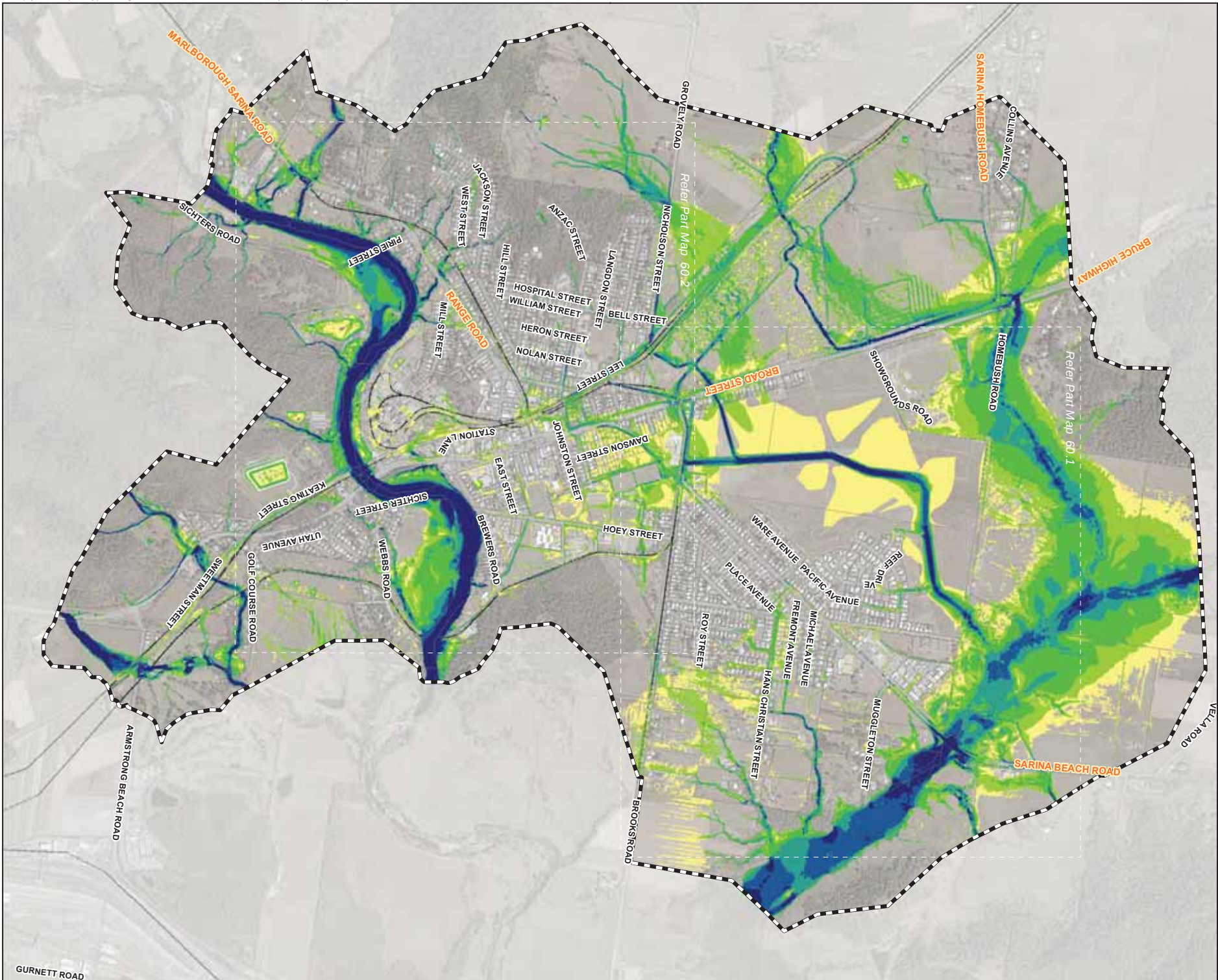
Results Filters Applied:  
- Depth < 0.2m  
- Area < 4 Cells (36m)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

## MACKAY REGIONAL COUNCIL Sarina Drainage Study

**Peak Velocity and Flow Direction  
Developed Case  
1% AEP (100 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**59.2**



**AECOM**  
www.aecom.com

**LEGEND**

- Model Boundary
- Cadastre
- QLD Rail Line
- Peak Depth Averaged Velocity (m/s)
- 0.25 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- > 2.00

**Scale**

0 200 400 800 metres

GDA 1984 MGA Zone 55

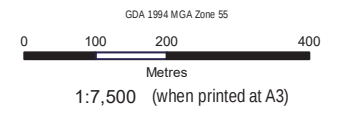
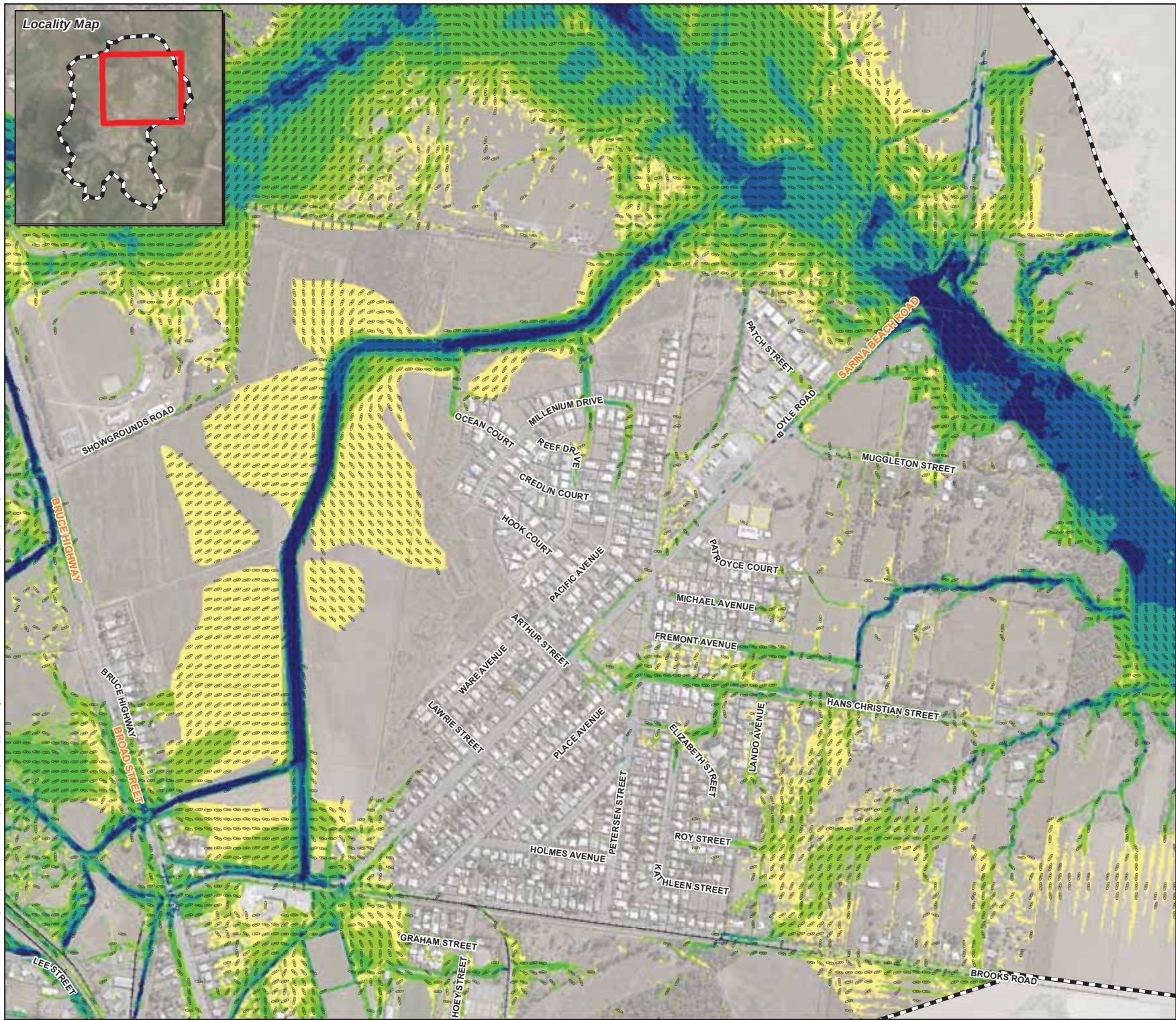
1:16,000 (when printed at A3)

**MACKAY REGIONAL COUNCIL**  
Sarina Drainage Study

**Peak Velocity and Flow Direction**  
Developed Case - 0.5% AEP  
(200 yr ARI) 1440mm Storm

**PROJECT ID** 60567081  
**CREATED BY** bregg  
**LAST MODIFIED** 13/09/18  
**VERSION** v01

**Map**  
**60**



LEGEND

- Directional Velocity Vector
- Model Boundary
- Cadastre
- QLD Rail Line
- Peak Depth Averaged Velocity (m/s)
  - < 0.25
  - 0.25 - 0.50
  - 0.50 - 1.00
  - 1.00 - 1.50
  - 1.50 - 2.00
  - > 2.00

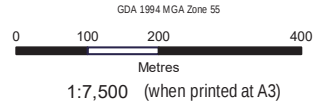
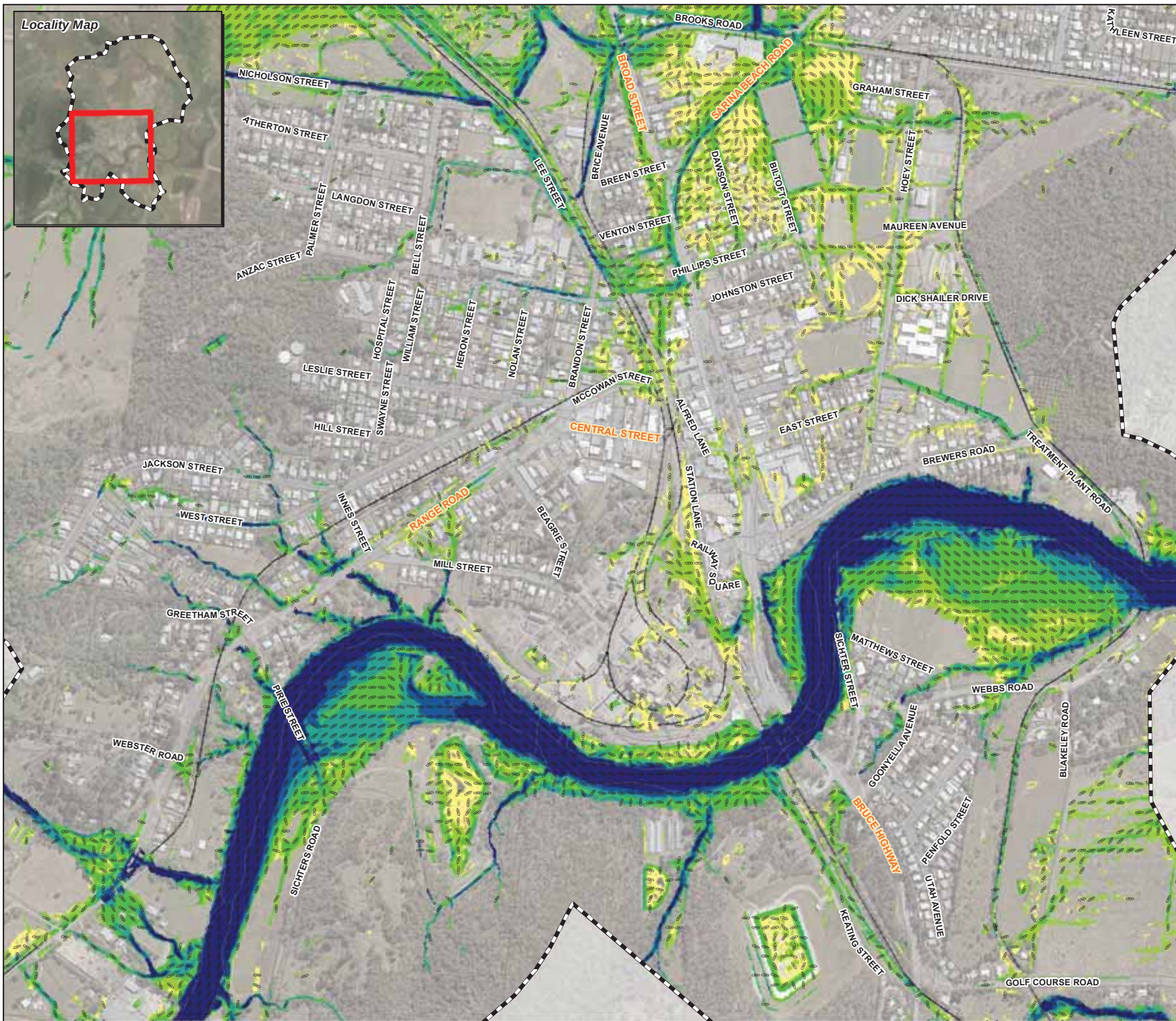
Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

MACKAY REGIONAL COUNCIL  
Sarina Drainage Study

Peak Velocity and Flow Direction  
Developed Case - 0.5% AEP  
(200 yr ARI) 1440min Storm

|               |          |             |
|---------------|----------|-------------|
| PROJECT ID    | 60567081 | Map<br>60.1 |
| CREATED BY    | brigh    |             |
| LAST MODIFIED | 13/08/18 |             |
| VERSION:      | v01      |             |

# Locality Map



## LEGEND

- Directional Velocity Vector
- Model Boundary
- Cadastral
- QLD Rail Line
- Peak Depth Averaged Velocity (m/s)**
  - < 0.25
  - 0.25 - 0.50
  - 0.50 - 1.00
  - 1.00 - 1.50
  - 1.50 - 2.00
  - > 2.00

Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

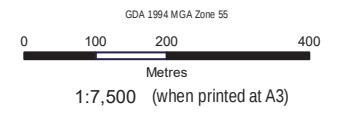
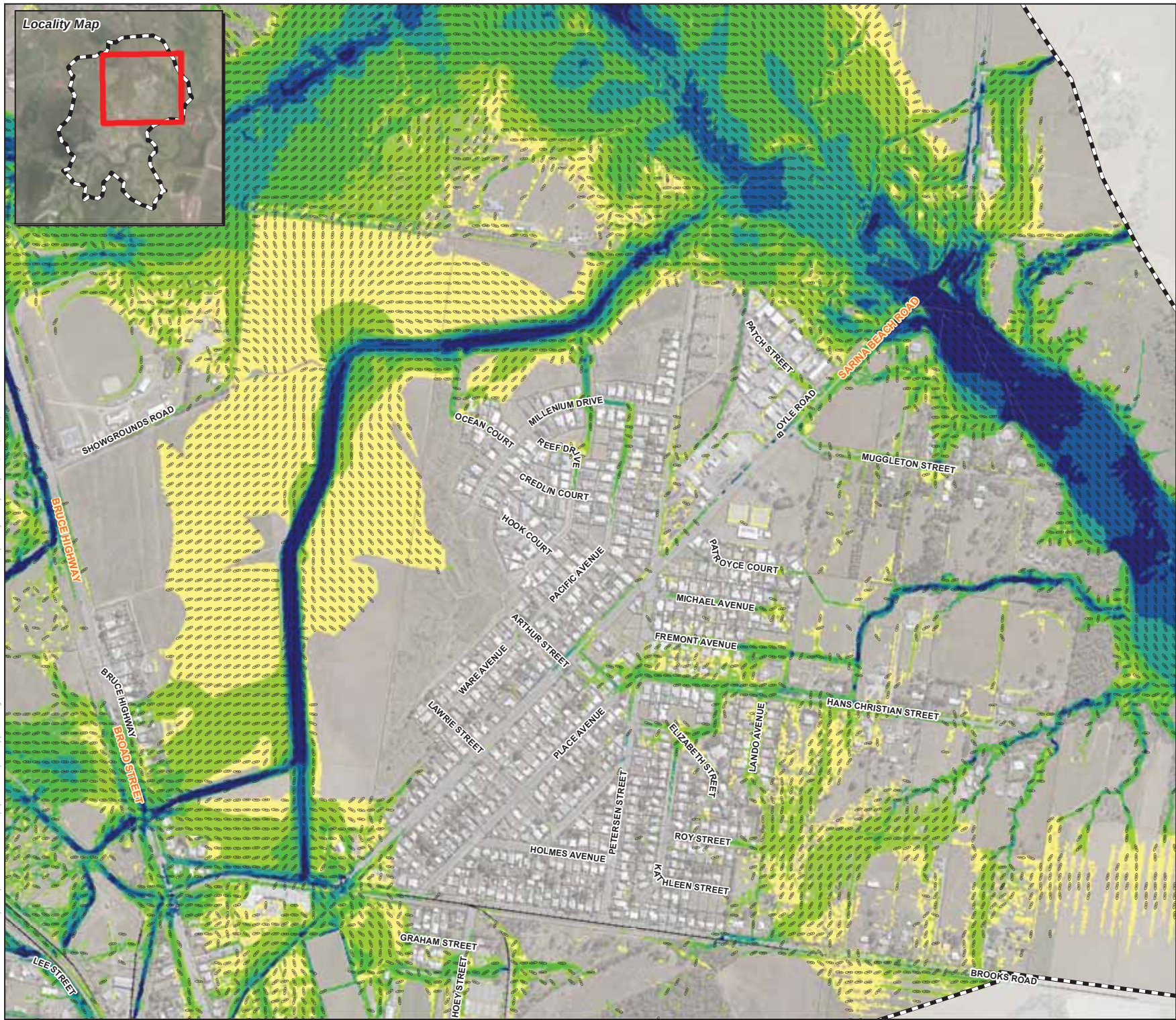
## **MACKAY REGIONAL COUNCIL** **Sarina Drainage Study**

**Peak Velocity and Flow Direction**  
**Developed Case - 0.5% AEP**  
**(200 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**60.2**





**LEGEND**

- Directional Velocity Vector
- Model Boundary
- Cadastre
- QLD Rail Line
- Peak Depth Averaged Velocity (m/s)**
  - < 0.25
  - 0.25 - 0.50
  - 0.50 - 1.00
  - 1.00 - 1.50
  - 1.50 - 2.00
  - > 2.00

Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

**MACKAY REGIONAL COUNCIL**  
**Sarina Drainage Study**

**Peak Velocity and Flow Direction**  
**Developed Case - 0.2% AEP**  
**(500 yr ARI) 1440min Storm**

|               |          |                    |
|---------------|----------|--------------------|
| PROJECT ID    | 60567081 | Map<br><b>61.1</b> |
| CREATED BY    | brigh    |                    |
| LAST MODIFIED | 13/08/18 |                    |
| VERSION:      | v01      |                    |



Metres

### LEGEND

 Model Boundary☐ Cadastre

+++ QLD Rail Line

Peak Depth Averaged Velocity (m/s)

  $< 0.25$

 0.25 - 0.50

 0.50 - 1.00

1.00 - 1.50

1.50 - 2.00

☐  $> 2.00$

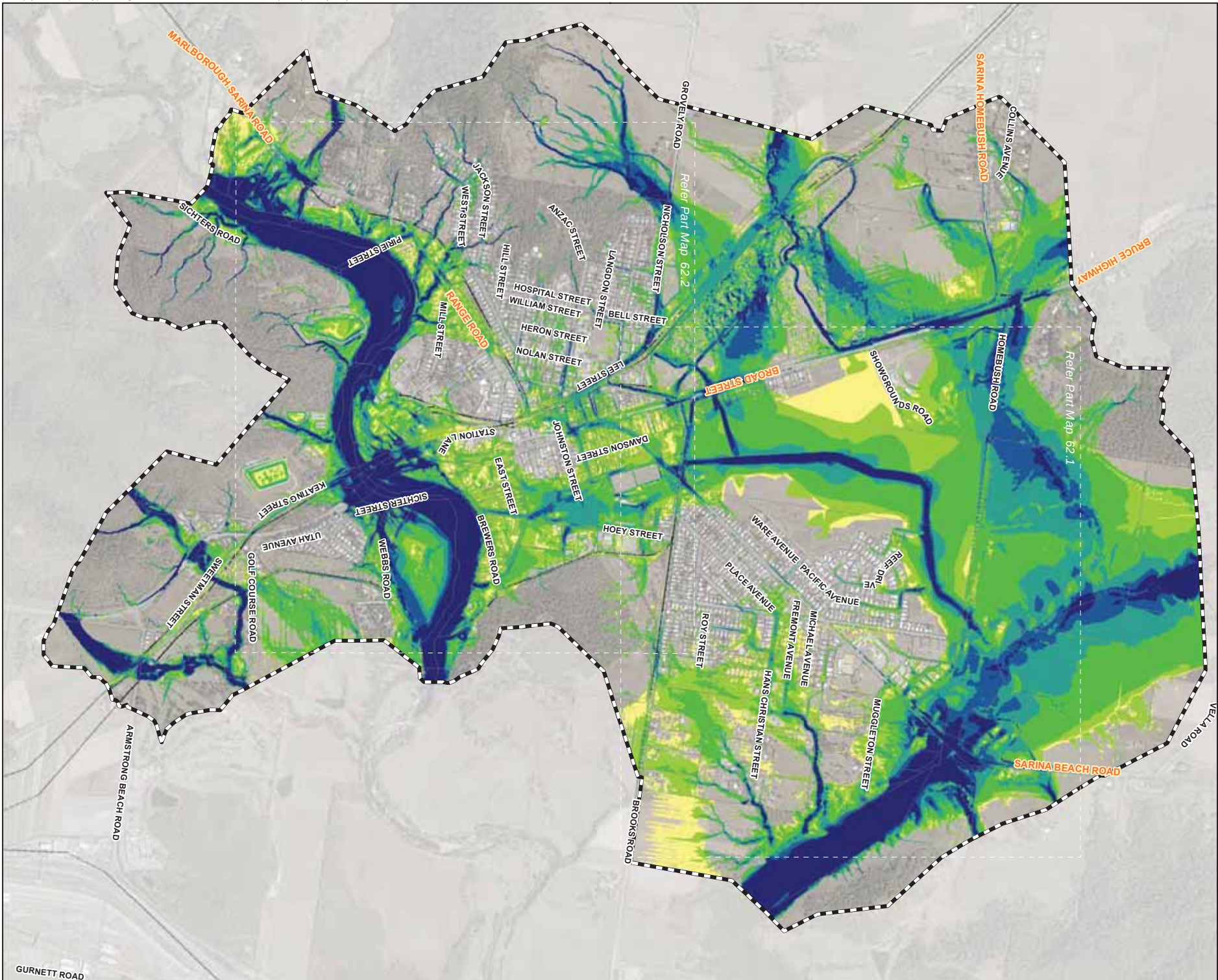
Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m²)

Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

**Peak Velocity and Flow Direction  
Developed Case - 0.2% AEP  
(500 yr ARI) 1440min Storm**

|               |          |
|---------------|----------|
| PROJECT ID    | 60567081 |
| CREATED BY    | brigg    |
| LAST MODIFIED | 13/08/18 |
| VERSION:      | v01      |

Map  
**1.2**





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**LEGEND**

-  Model Boundary
-  Cadastral
-  QLD Rail Line
- Peak Depth Averaged Velocity (m/s)**
  -  0.25 - 0.50
  -  0.50 - 1.00
  -  1.00 - 1.50
  -  1.50 - 2.00
  -  > 2.00

Scale: 1:16,000 (when printed at A3)

0 200 400 800 metres

GDA 1984 MGA Zone 55

**MACKAY REGIONAL COUNCIL**

Sarina Drainage Study

**Peak Velocity and Flow Direction**

Developed Case

PMF Event 360min Storm

PROJECT ID: 60557081

CREATED BY: bmgp

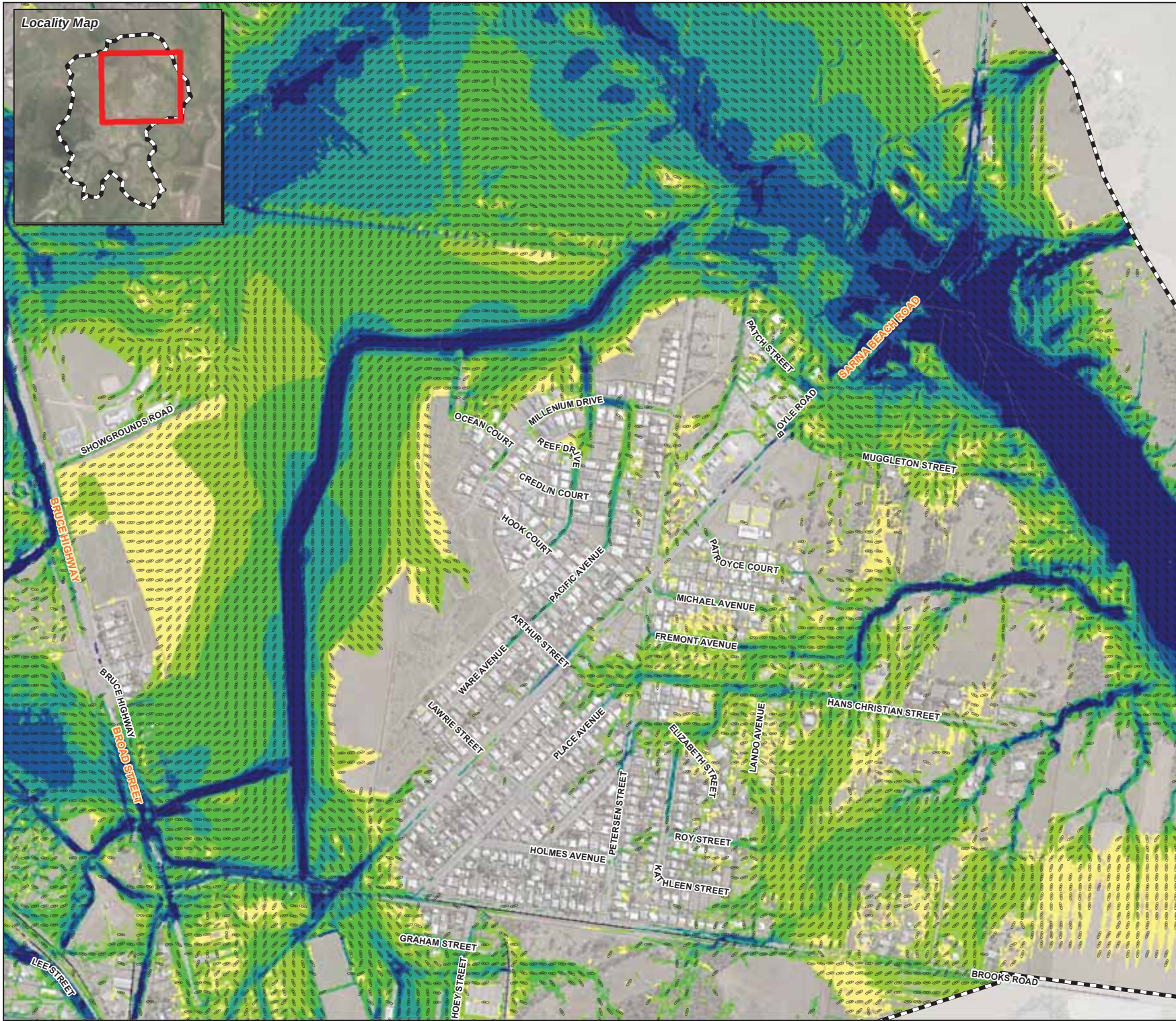
LAST MODIFIED: 13/09/18

VERSION: v01

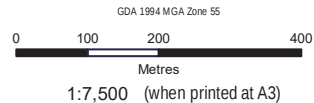
Map

**62**

Revised: 13/09/18  
- Areas < 4 Cells (50m)  
- Ditch < 0.1m  
- Base Data: 8/2013 (ROAD 50)  
- Street Data: 8/2017 (MFC)



Locality Map



LEGEND

- Directional Velocity Vector
- Model Boundary
- Cadastre
- QLD Rail Line
- Peak Depth Averaged Velocity (m/s)
  - < 0.25
  - 0.25 - 0.50
  - 0.50 - 1.00
  - 1.00 - 1.50
  - 1.50 - 2.00
  - > 2.00

Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

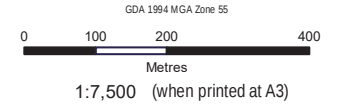
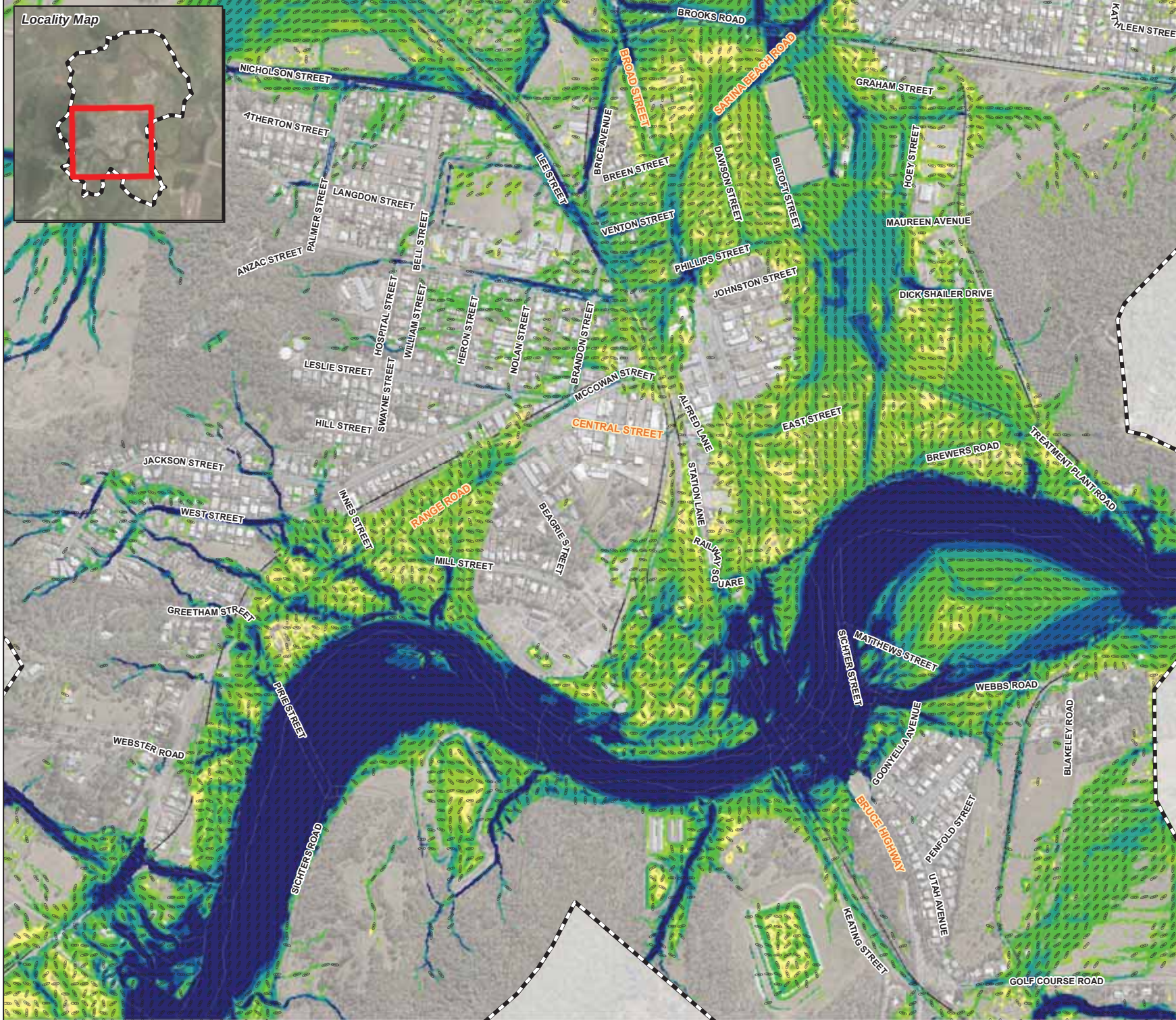
MACKAY REGIONAL COUNCIL  
Sarina Drainage Study

Peak Velocity and Flow Direction  
Developed Case  
PMF Event 360min Storm

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
62.1

# Locality Map



## LEGEND

- Directional Velocity Vector
- Model Boundary
- Cadastral
- QLD Rail Line
- Peak Depth Averaged Velocity (m/s)**
  - < 0.25
  - 0.25 - 0.50
  - 0.50 - 1.00
  - 1.00 - 1.50
  - 1.50 - 2.00
  - > 2.00

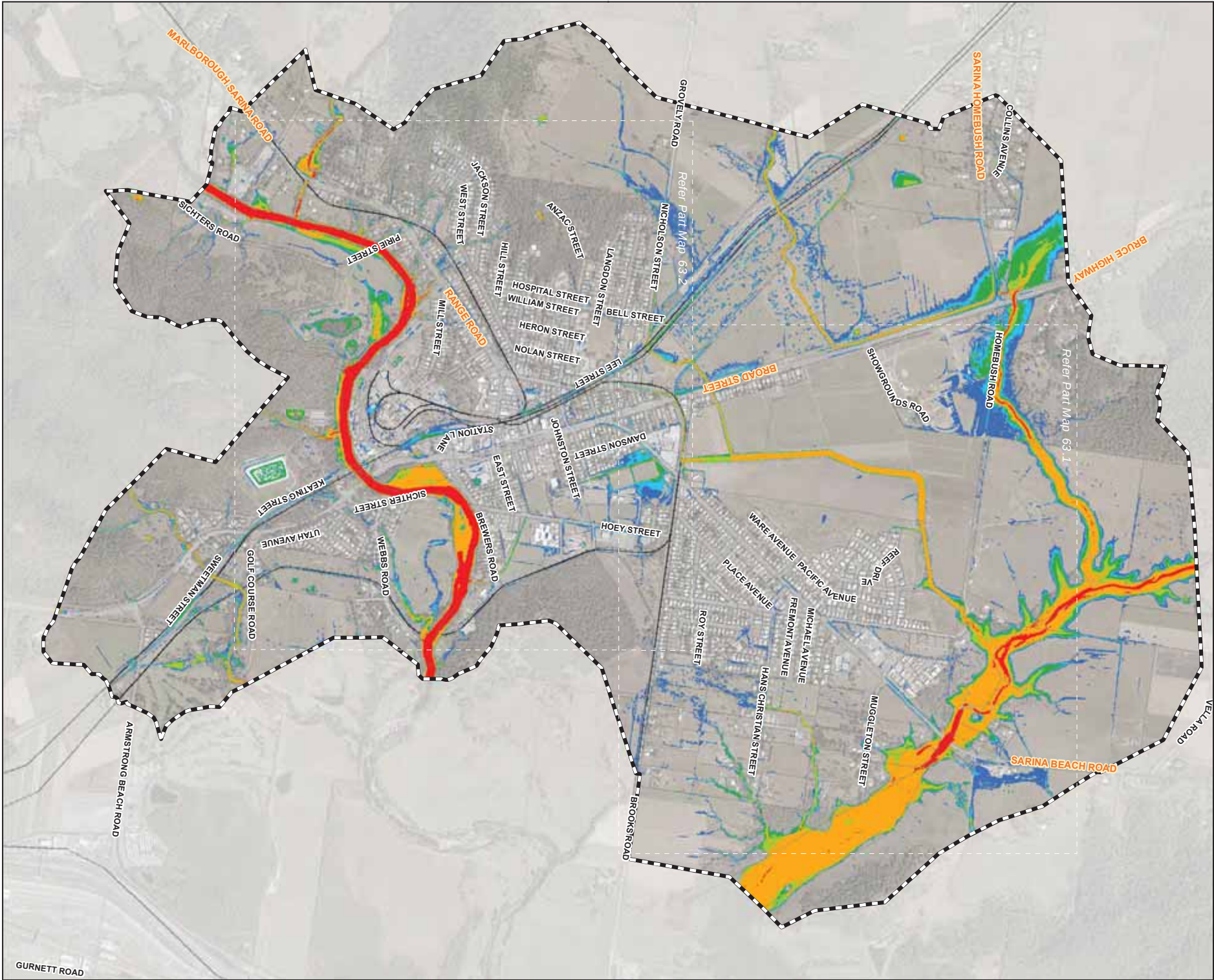
Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

## **MACKAY REGIONAL COUNCIL** **Sarina Drainage Study**

## **Peak Velocity and Flow Direction** **Developed Case** **PMF Event 360min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**62.2**



**AECOM**  
www.aecom.com

**LEGEND**

- Model Boundary
- Cadastre
- QLD Rail Line
- Peak Flood Hazard
  - Category 1
  - Category 2
  - Category 3
  - Category 4
  - Category 5
  - Category 6

Scale: 0 to 800 metres  
Scale: 1:16,000 (when printed at A3)

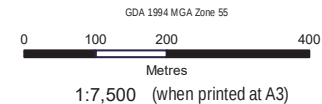
**MACKAY REGIONAL COUNCIL**  
Sarina Drainage Study

**Peak Flood Hazard Mapping**  
Developed Case  
18% AEP (5 yr ARI) 1440min Storm

PROJECT ID: 60567081  
CREATED BY: brgph  
LAST MODIFIED: 13/09/18  
VERSION: v0.1

Map  
**63**

# Locality Map



## LEGEND

- Model Boundary
- Cadastral
- QLD Rail Line

## Peak Flood Hazard

- Category 1
- Category 2
- Category 3
- Category 4
- Category 5
- Category 6

Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m<sup>2</sup>)

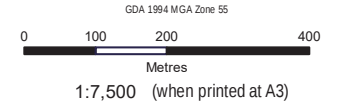
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

## MACKAY REGIONAL COUNCIL Sarina Drainage Study

## Peak Flood Hazard Mapping Developed Case 18% AEP (5 yr ARI) 1440min Storm

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**63.1**



 Model Boundary  
 Cadastre  
 QLD Rail Line

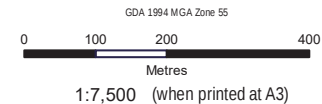
- Category 1
- Category 2
- Category 3
- Category 4
- Category 5
- Category 6

Peak Flood Hazard Mapping  
Developed Case  
18% AEP (5 yr ARI) 1440min Storm

Map  
63.2



# Locality Map



## LEGEND

- Model Boundary
- Cadastral
- QLD Rail Line

## Peak Flood Hazard

- Category 1
- Category 2
- Category 3
- Category 4
- Category 5
- Category 6

Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m²)

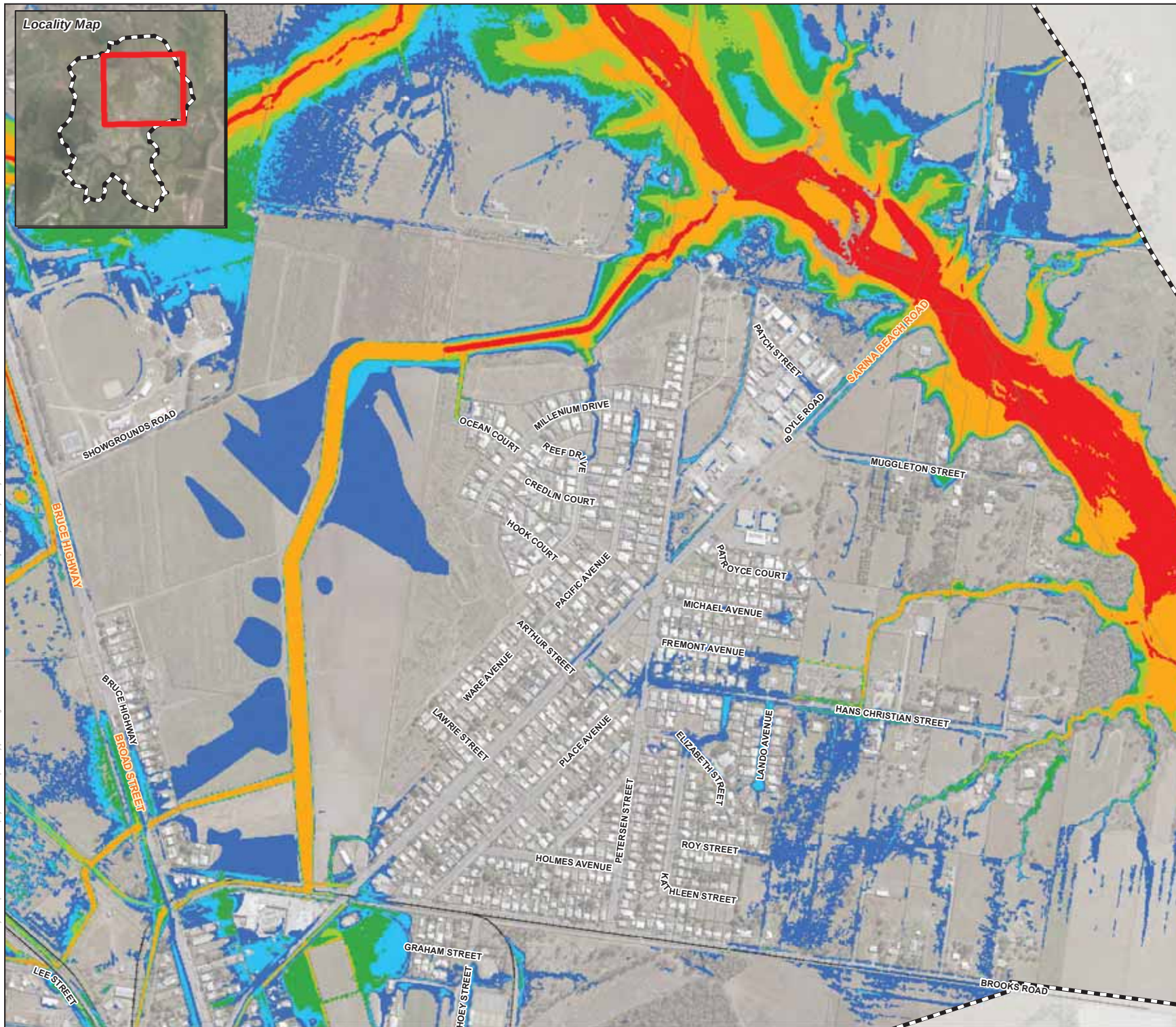
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

## MACKAY REGIONAL COUNCIL Sarina Drainage Study

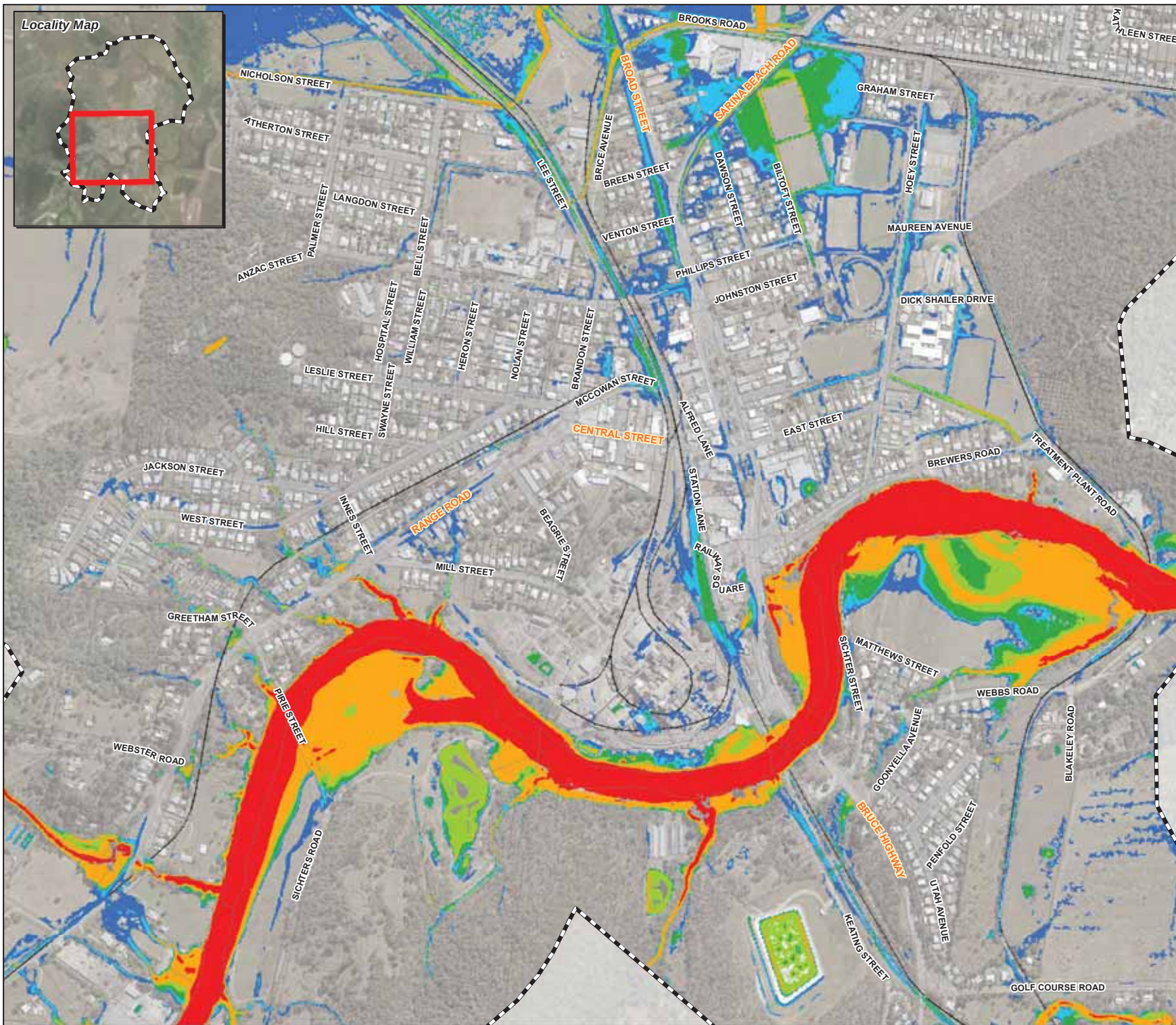
**Peak Flood Hazard Mapping**  
**Developed Case**  
**1% AEP (100 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**64.1**



## Locality Map



GDA 1994 MGA Zone 55  
0 100 200 400  
Metres  
1:7,500 (when printed at A3)

## LEGEND

- Model Boundary
- Cadastrate
- QLD Rail Line

## Peak Flood Hazard

- Category 1
- Category 2
- Category 3
- Category 4
- Category 5
- Category 6

Results Filters Applied:  
- Depth < 0.2m  
- Area < 4 Cells (36m<sup>2</sup>)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

## MACKAY REGIONAL COUNCIL Sarina Drainage Study

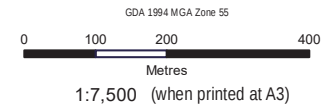
**Peak Flood Hazard Mapping**  
**Developed Case**  
**1% AEP (100 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**64.2**



# Locality Map



## LEGEND

- Model Boundary
- Cadastre
- QLD Rail Line

## Difference in PWSE (m)

- < -0.3
- 0.3 to -0.225
- 0.225 to -0.15
- 0.15 to -0.075
- 0.075 to -0.02
- 0.02 to 0.02
- 0.02 to 0.075
- 0.075 to 0.15
- 0.15 to 0.225
- 0.225 to 0.3
- > 0.3
- Was Dry Now Wet
- Was Wet Now Dry

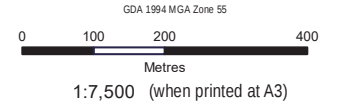
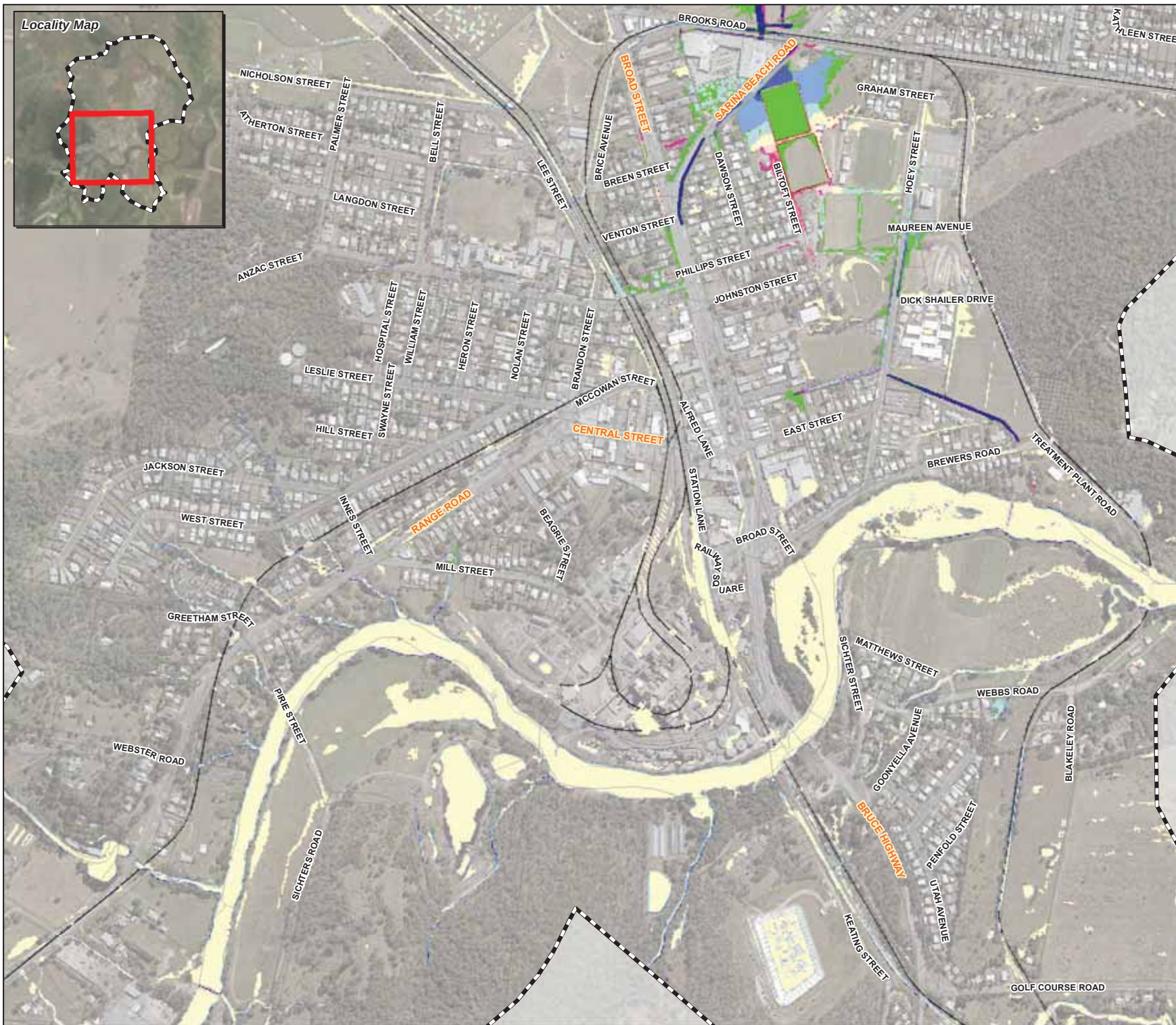
Results Filters Applied:  
- Depth < 0.2m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

**MACKAY REGIONAL COUNCIL**  
**Sarina Drainage Study**  
**Difference in Peak Water Surface**  
**Elevation (Afflux) Developed vs**  
**Basecase**  
**63% AEP (1 EY) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**65.1**

# Locality Map



## LEGEND

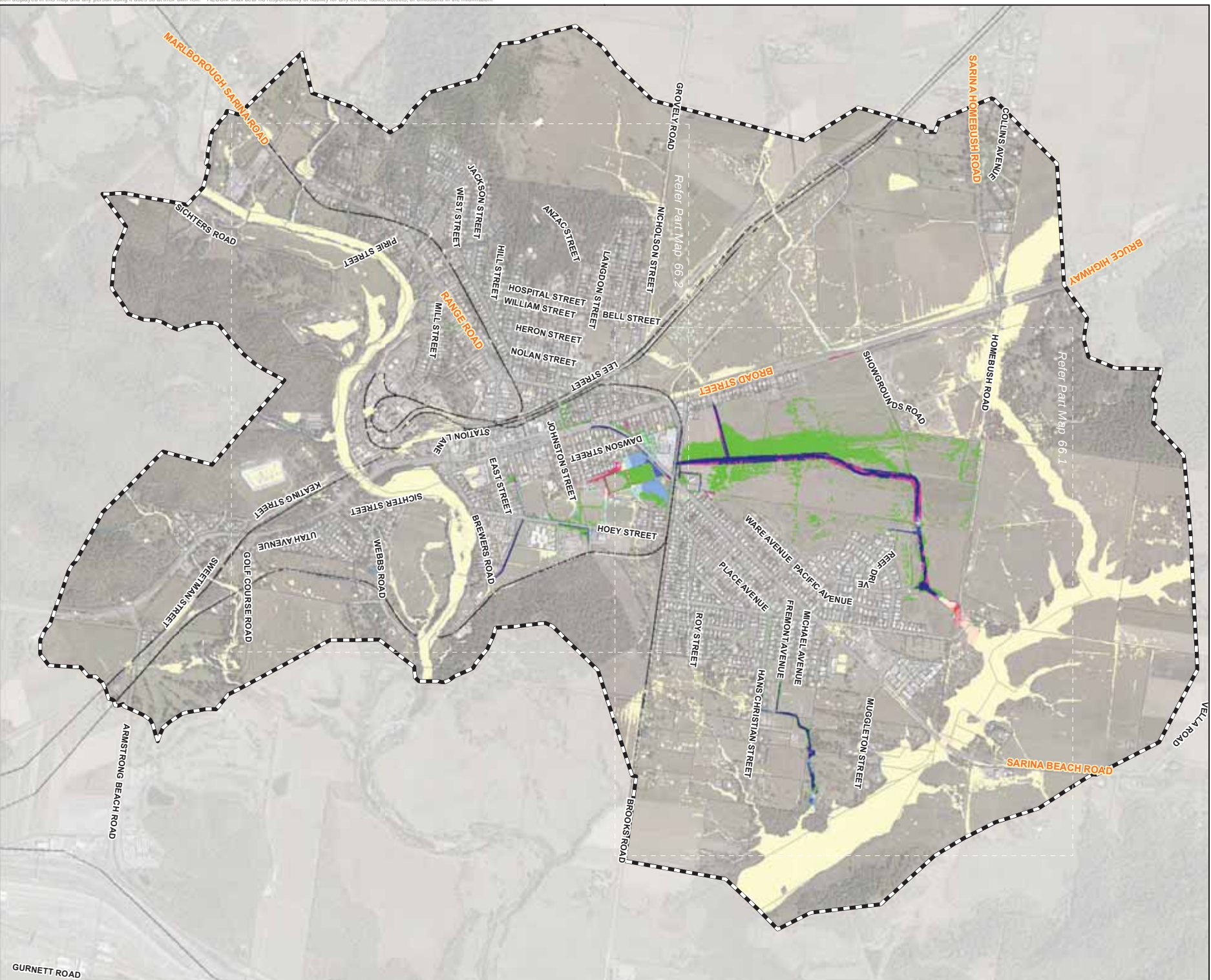
- Model Boundary
- Cadastral
- QLD Rail Line
- Difference in PWSE (m)**
  - < -0.3
  - 0.3 to -0.225
  - 0.225 to -0.15
  - 0.15 to -0.075
  - 0.075 to -0.02
  - 0.02 to 0.02
  - 0.02 to 0.075
  - 0.075 to 0.15
  - 0.15 to 0.225
  - 0.225 to 0.3
  - > 0.3
  - Was Dry Now Wet
  - Was Wet Now Dry

Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

**MACKAY REGIONAL COUNCIL**  
**Sarina Drainage Study**  
**Difference in Peak Water Surface**  
**Elevation (Afflux) Developed vs**  
**Basecase**  
**63% AEP (1 EY) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**65.2**



**AECOM**  
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**LEGEND**  
Model Boundary  
Cadastral  
QLD Rail Line

**Difference in PWSE (m)**  
-0.225 to -0.15  
-0.15 to -0.075  
-0.075 to -0.02  
-0.02 to 0.02  
0.02 to 0.075  
0.075 to 0.15  
0.15 to 0.225  
0.225 to 0.3  
> 0.3  
Was Dry Now Wet  
Was Wet Now Dry

Revised Plans required  
- Areas < 4 (20m) (20m)  
- Depth < 0.1m  
Base Data (6/2020) (Q100 6m)  
Sheet Data (6/2021) (MFC)

**MACKAY REGIONAL COUNCIL**  
Sarina Drainage Study  
Difference in Peak Water Surface  
Elevation (Aftlux) Developed vs  
Basecase

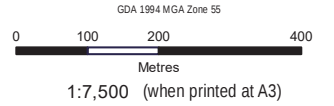
**39% AEP (2 yr ARI) 1440min Storm**

PROJECT ID: 60567181  
CREATED BY: bregg  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**66**

0 200 400 800  
metres  
GDA 1984 MGA Zone 55  
1:16,000 (when printed at A3)

# Locality Map



## LEGEND

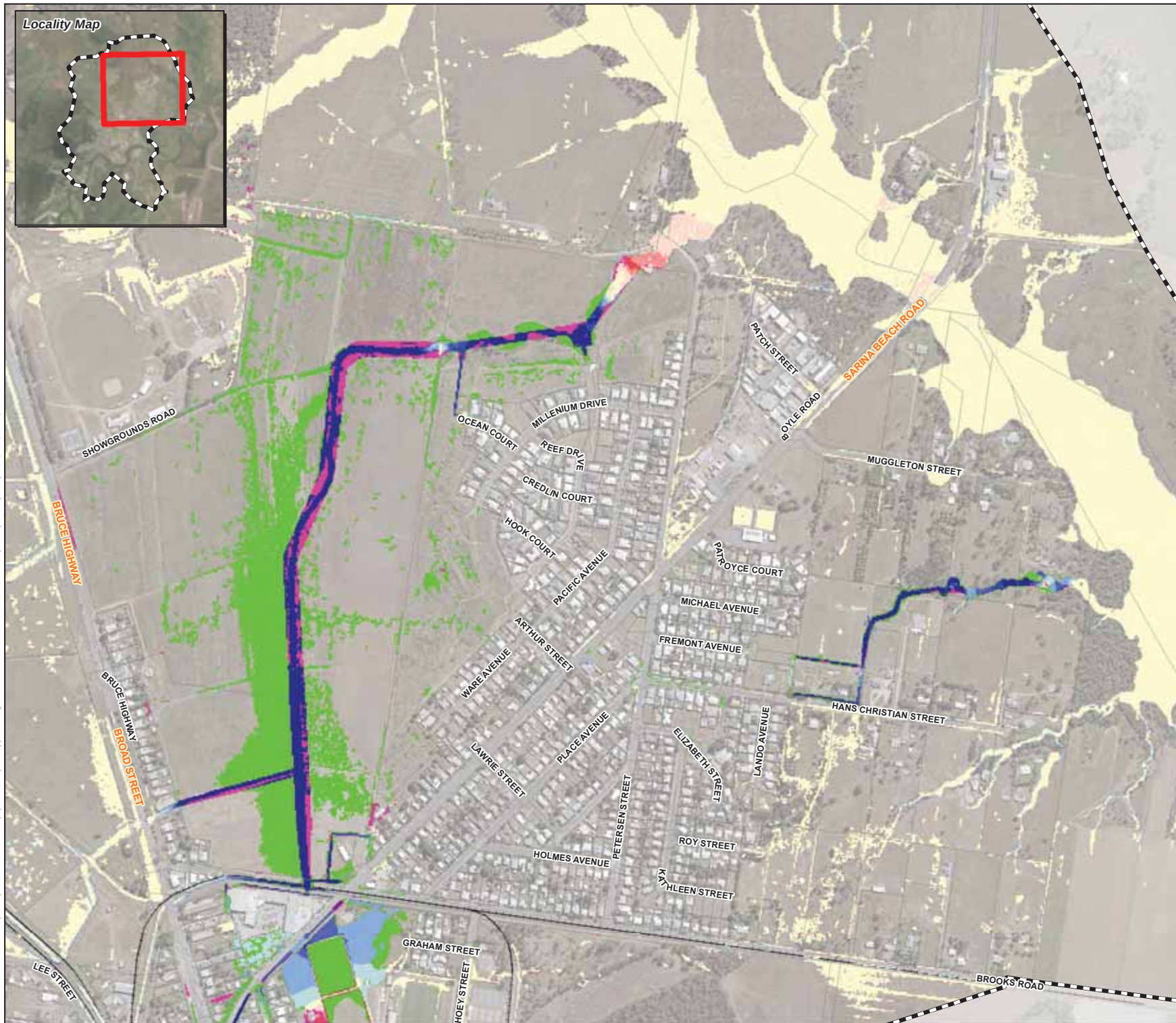
- Model Boundary
- Cadastrate
- QLD Rail Line
- Difference in PWSE (m)**
  - < -0.3
  - 0.3 to -0.225
  - 0.225 to -0.15
  - 0.15 to -0.075
  - 0.075 to -0.02
  - 0.02 to 0.02
  - 0.02 to 0.075
  - 0.075 to 0.15
  - 0.15 to 0.225
  - 0.225 to 0.3
  - > 0.3
  - Was Dry Now Wet
  - Was Wet Now Dry

Results Filters Applied:  
 - Depth < 0.2m  
 - Area < 4 Cells (36m²)  
 Data sources:  
 Base Data (c) 2018 (QLD Gov)  
 Street Data (c) 2017 (MRC)

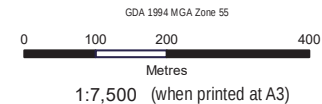
**MACKAY REGIONAL COUNCIL**  
**Sarina Drainage Study**  
**Difference in Peak Water Surface**  
**Elevation (Afflux) Developed vs**  
**Basecase**  
**39% AEP (2 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
 CREATED BY: brigh  
 LAST MODIFIED: 13/08/18  
 VERSION: v01

Map  
**66.1**



# Locality Map



## LEGEND

- Model Boundary
- Cadastral
- QLD Rail Line

## Difference in PWSE (m)

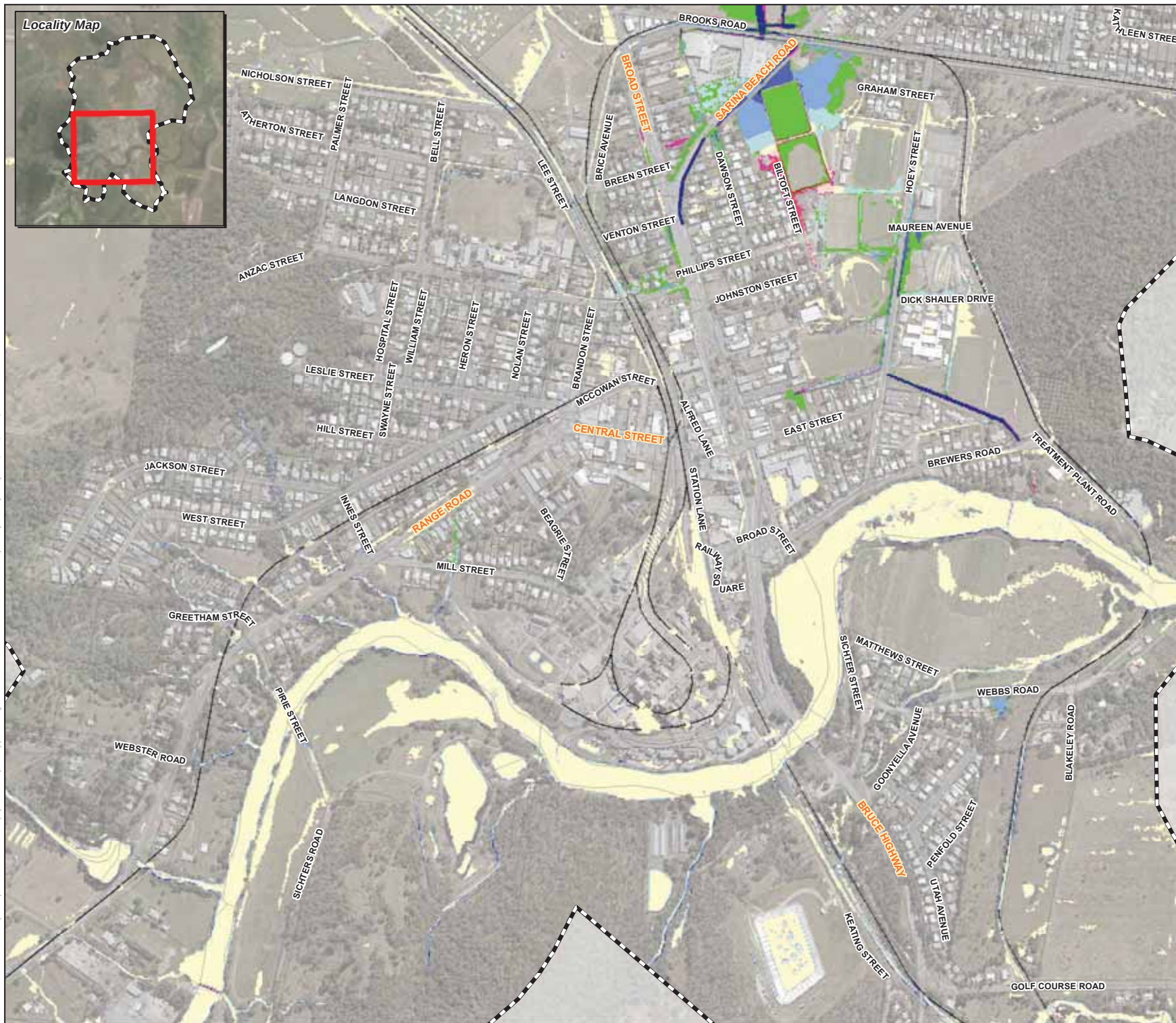
- < -0.3
- 0.3 to -0.225
- 0.225 to -0.15
- 0.15 to -0.075
- 0.075 to -0.02
- 0.02 to 0.02
- 0.02 to 0.075
- 0.075 to 0.15
- 0.15 to 0.225
- 0.225 to 0.3
- > 0.3
- Was Dry Now Wet
- Was Wet Now Dry

Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

**MACKAY REGIONAL COUNCIL**  
**Sarina Drainage Study**  
**Difference in Peak Water Surface**  
**Elevation (Afflux) Developed vs**  
**Basecase**  
**39% AEP (2 yr ARI) 1440min Storm**

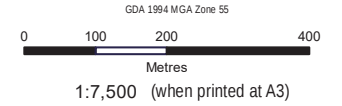
PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**66.2**





# Locality Map



## LEGEND

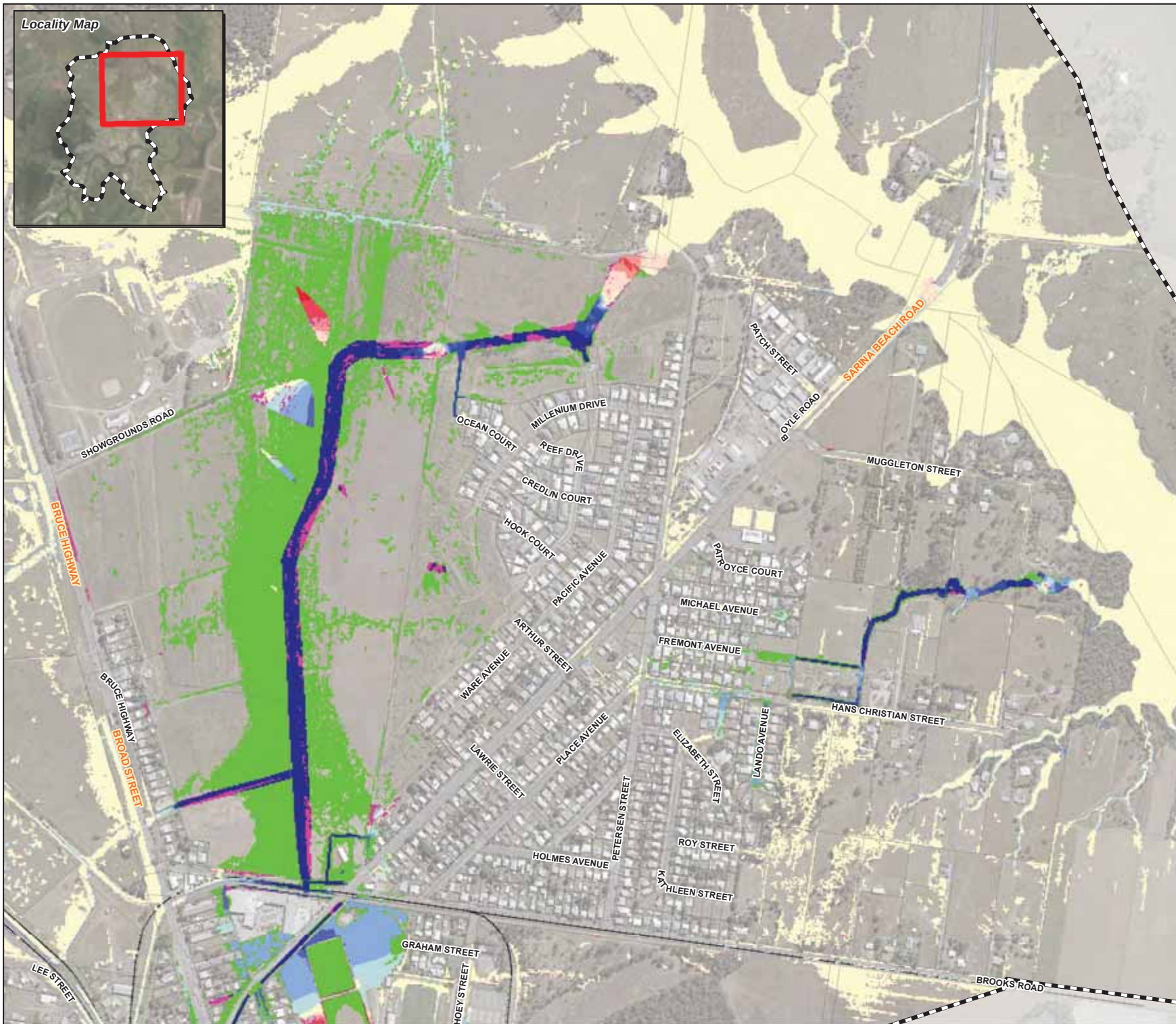
- Model Boundary
- Cadastral
- QLD Rail Line
- Difference in PWSE (m)**
  - < -0.3
  - 0.3 to -0.225
  - 0.225 to -0.15
  - 0.15 to -0.075
  - 0.075 to -0.02
  - 0.02 to 0.02
  - 0.02 to 0.075
  - 0.075 to 0.15
  - 0.15 to 0.225
  - 0.225 to 0.3
  - > 0.3
  - Was Dry Now Wet
  - Was Wet Now Dry

Results Filters Applied:  
 - Depth < 0.1m  
 - Area < 4 Cells (36m²)  
 Data sources:  
 Base Data (c) 2018 (QLD Gov)  
 Street Data (c) 2017 (MRC)

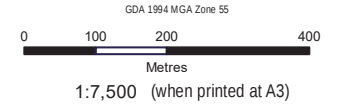
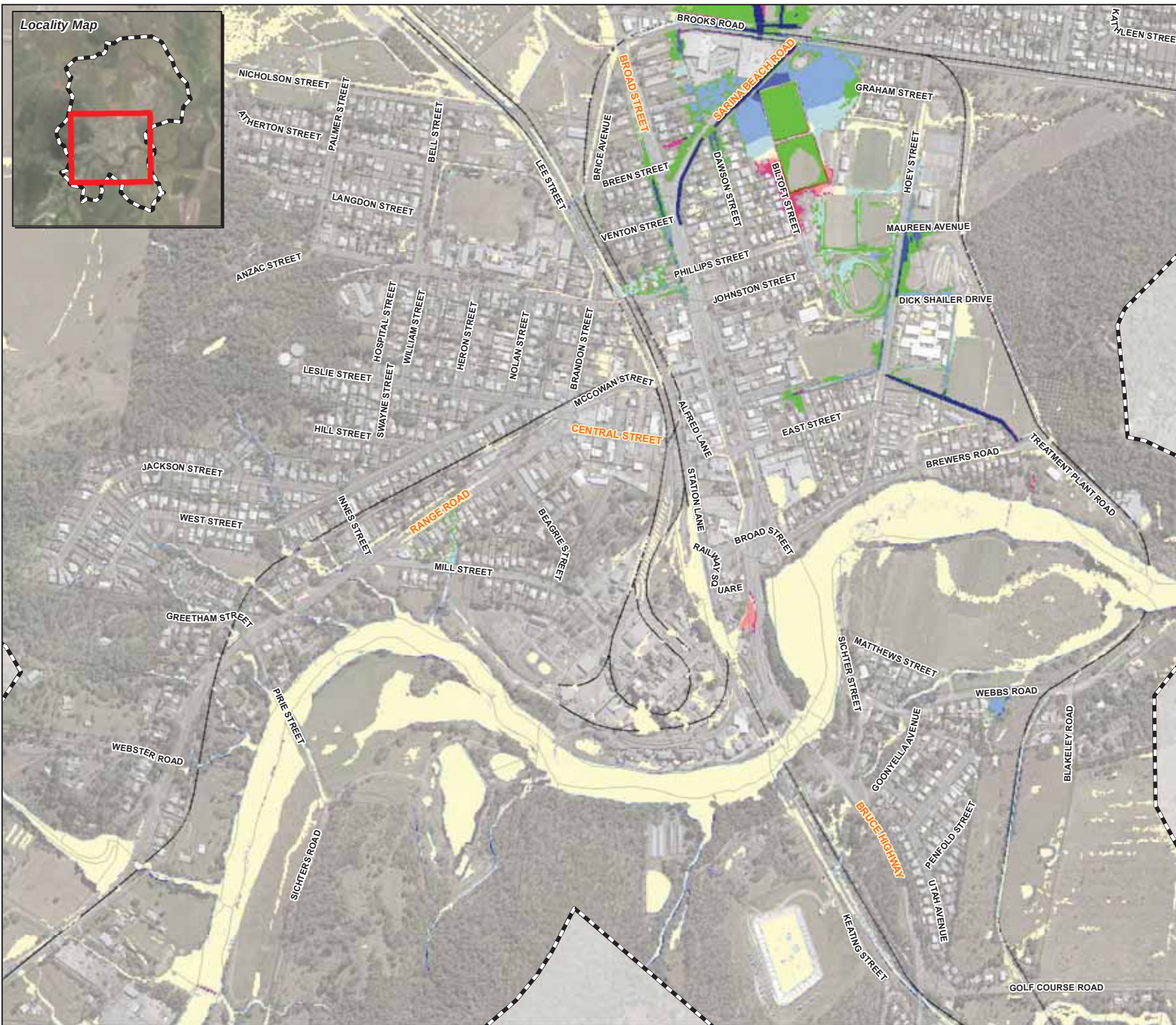
**MACKAY REGIONAL COUNCIL**  
**Sarina Drainage Study**  
**Difference in Peak Water Surface**  
**Elevation (Afflux) Developed vs**  
**Basecase**  
**18% AEP (5 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
 CREATED BY: brigh  
 LAST MODIFIED: 13/08/18  
 VERSION: v01

Map  
**67.1**



# Locality Map



## LEGEND

- Model Boundary
- Cadastral
- QLD Rail Line
- Difference in PWSE (m)**
  - < -0.3
  - 0.3 to -0.225
  - 0.225 to -0.15
  - 0.15 to -0.075
  - 0.075 to -0.02
  - 0.02 to 0.02
  - 0.02 to 0.075
  - 0.075 to 0.15
  - 0.15 to 0.225
  - 0.225 to 0.3
  - > 0.3
  - Was Dry Now Wet
  - Was Wet Now Dry

Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

**MACKAY REGIONAL COUNCIL**  
**Sarina Drainage Study**  
**Difference in Peak Water Surface**  
**Elevation (Afflux) Developed vs**  
**Basecase**  
**18% AEP (5 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

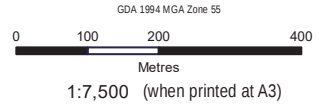
Map  
**67.2**



|                                                                           |          |
|---------------------------------------------------------------------------|----------|
| MACKAY REGIONAL COUNCIL                                                   |          |
| Sarina Drainage Study                                                     |          |
| Difference in Peak Water Surface Elevation (Afflux) Developed vs Basecase |          |
| 10% AEP (10 yr ARI) 1440min Storm                                         |          |
| PROJECT ID                                                                | 69567861 |
| CREATED BY                                                                | brghn    |
| LAST MODIFIED                                                             | 13/06/18 |
| VERSION                                                                   | v01      |
| Map                                                                       | 68       |

### A3 size

# Locality Map



## LEGEND

- Model Boundary
- Cadastral
- QLD Rail Line

## Difference in PWSE (m)

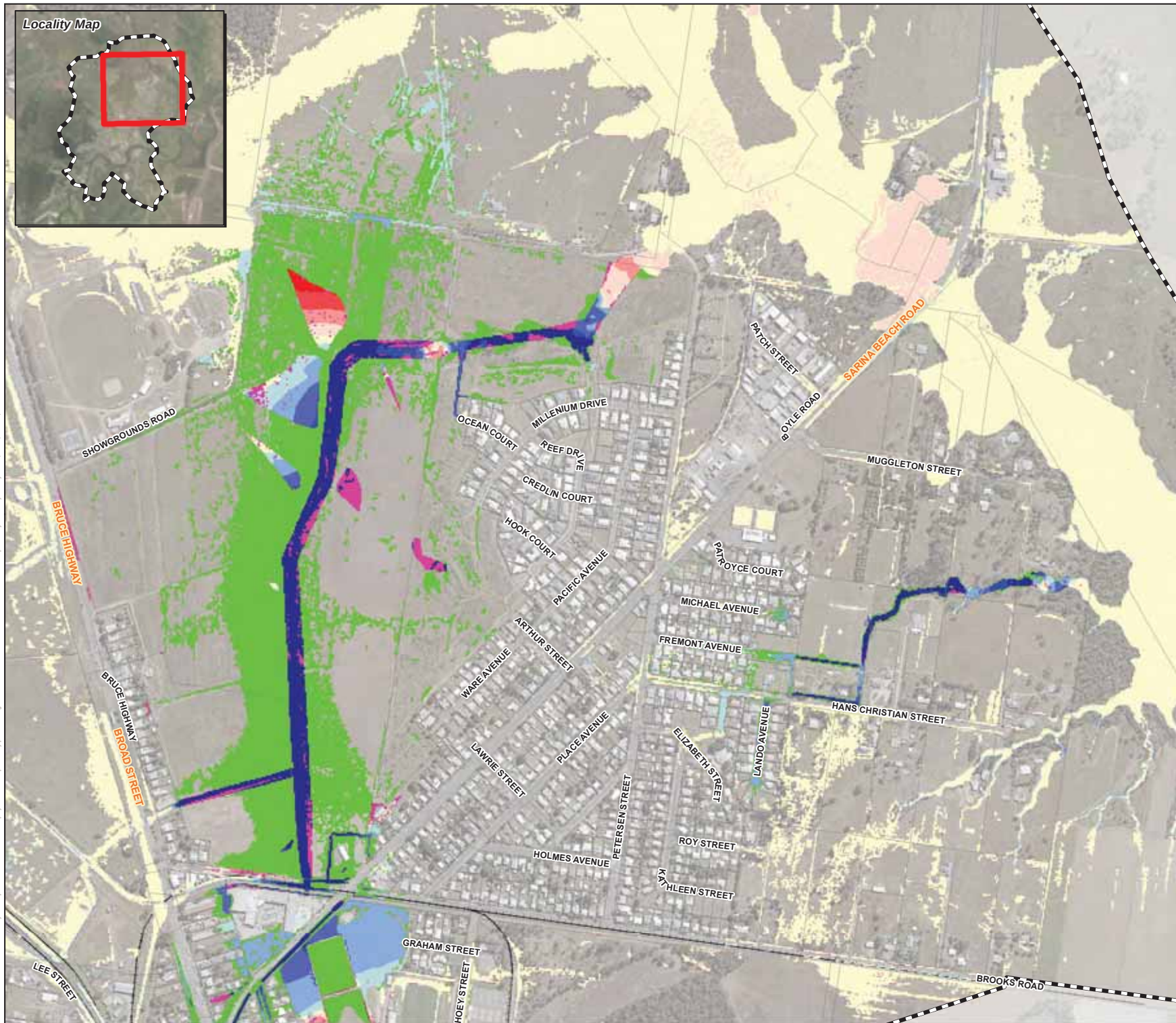
- < -0.3
- 0.3 to -0.225
- 0.225 to -0.15
- 0.15 to -0.075
- 0.075 to -0.02
- 0.02 to 0.02
- 0.02 to 0.075
- 0.075 to 0.15
- 0.15 to 0.225
- 0.225 to 0.3
- > 0.3
- Was Dry Now Wet
- Was Wet Now Dry

Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

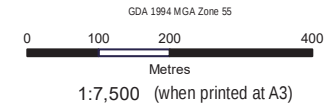
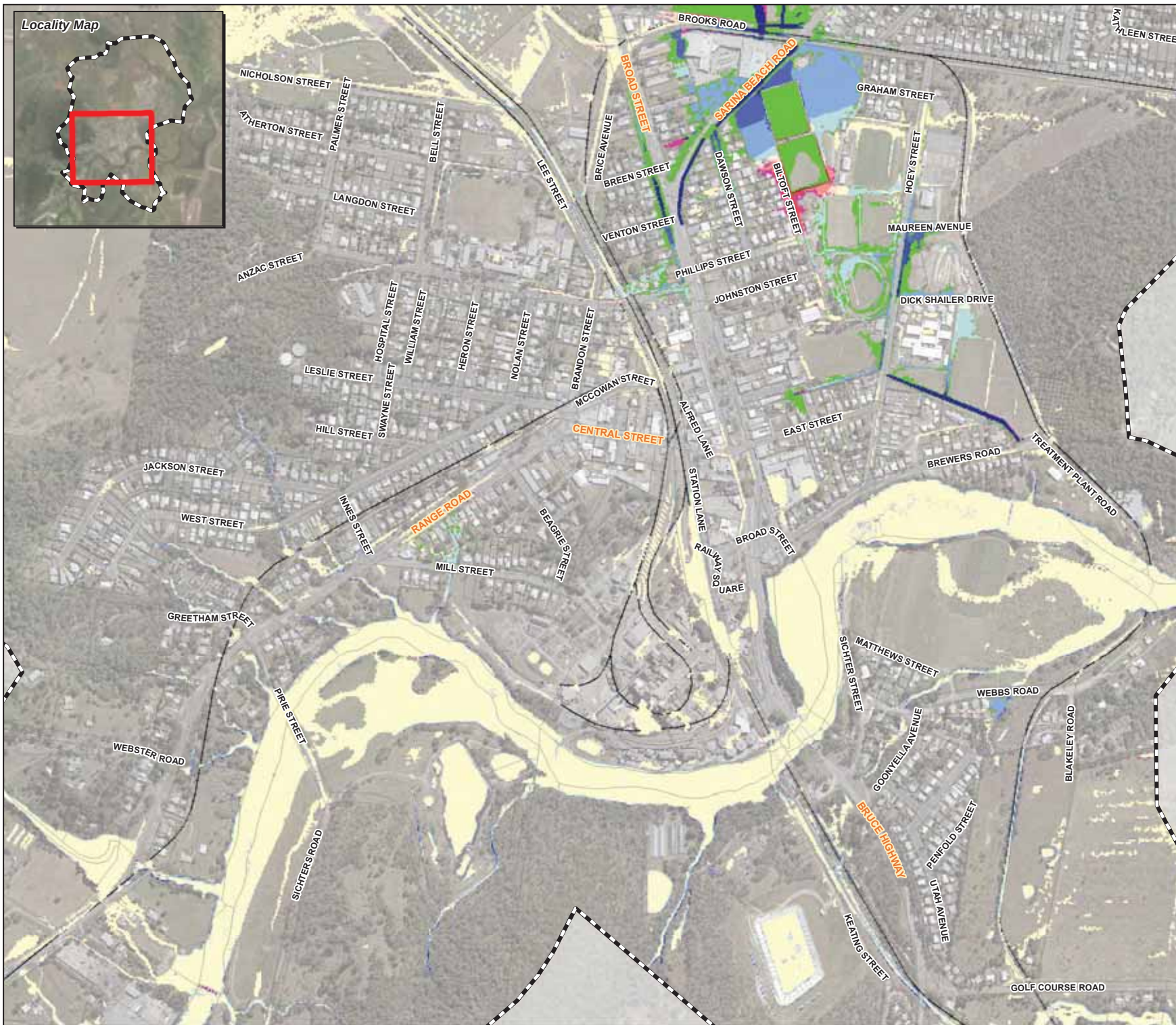
**MACKAY REGIONAL COUNCIL**  
**Sarina Drainage Study**  
**Difference in Peak Water Surface**  
**Elevation (Afflux) Developed vs**  
**Basecase**  
**10% AEP (10 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**68.1**



# Locality Map



## LEGEND

- Model Boundary
- Cadastral
- QLD Rail Line

## Difference in PWSE (m)

- < -0.3
- 0.3 to -0.225
- 0.225 to -0.15
- 0.15 to -0.075
- 0.075 to -0.02
- 0.02 to 0.02
- 0.02 to 0.075
- 0.075 to 0.15
- 0.15 to 0.225
- 0.225 to 0.3
- > 0.3
- Was Dry Now Wet
- Was Wet Now Dry

Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

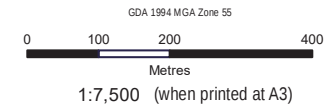
**MACKAY REGIONAL COUNCIL**  
**Sarina Drainage Study**  
**Difference in Peak Water Surface**  
**Elevation (Afflux) Developed vs**  
**Basecase**  
**10% AEP (10 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**68.2**



# Locality Map



## LEGEND

- Model Boundary
- Cadastral
- QLD Rail Line

## Difference in PWSE (m)

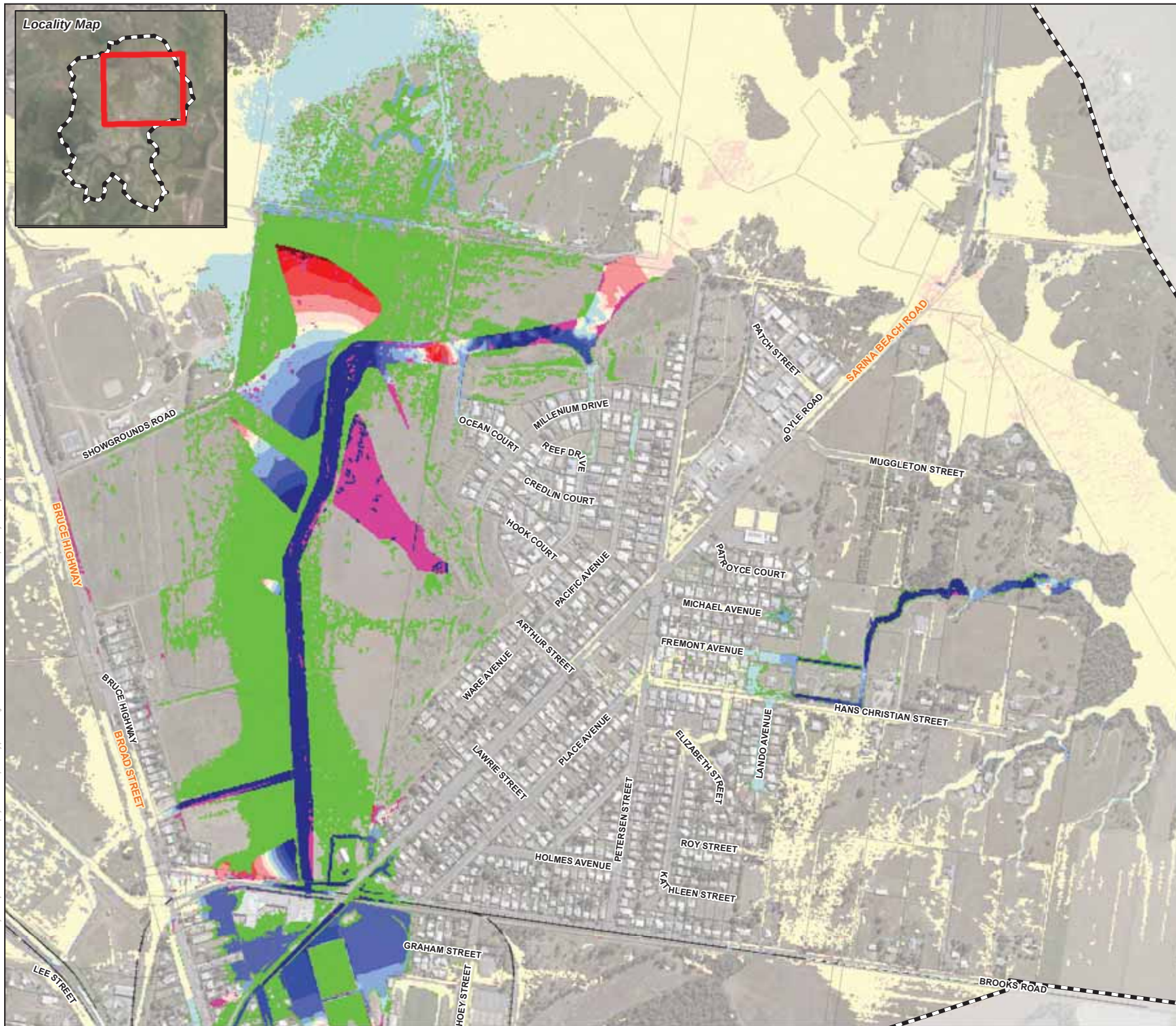
- < -0.3
- 0.3 to -0.225
- 0.225 to -0.15
- 0.15 to -0.075
- 0.075 to -0.02
- 0.02 to 0.02
- 0.02 to 0.075
- 0.075 to 0.15
- 0.15 to 0.225
- 0.225 to 0.3
- > 0.3
- Was Dry Now Wet
- Was Wet Now Dry

Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

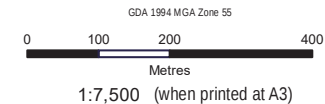
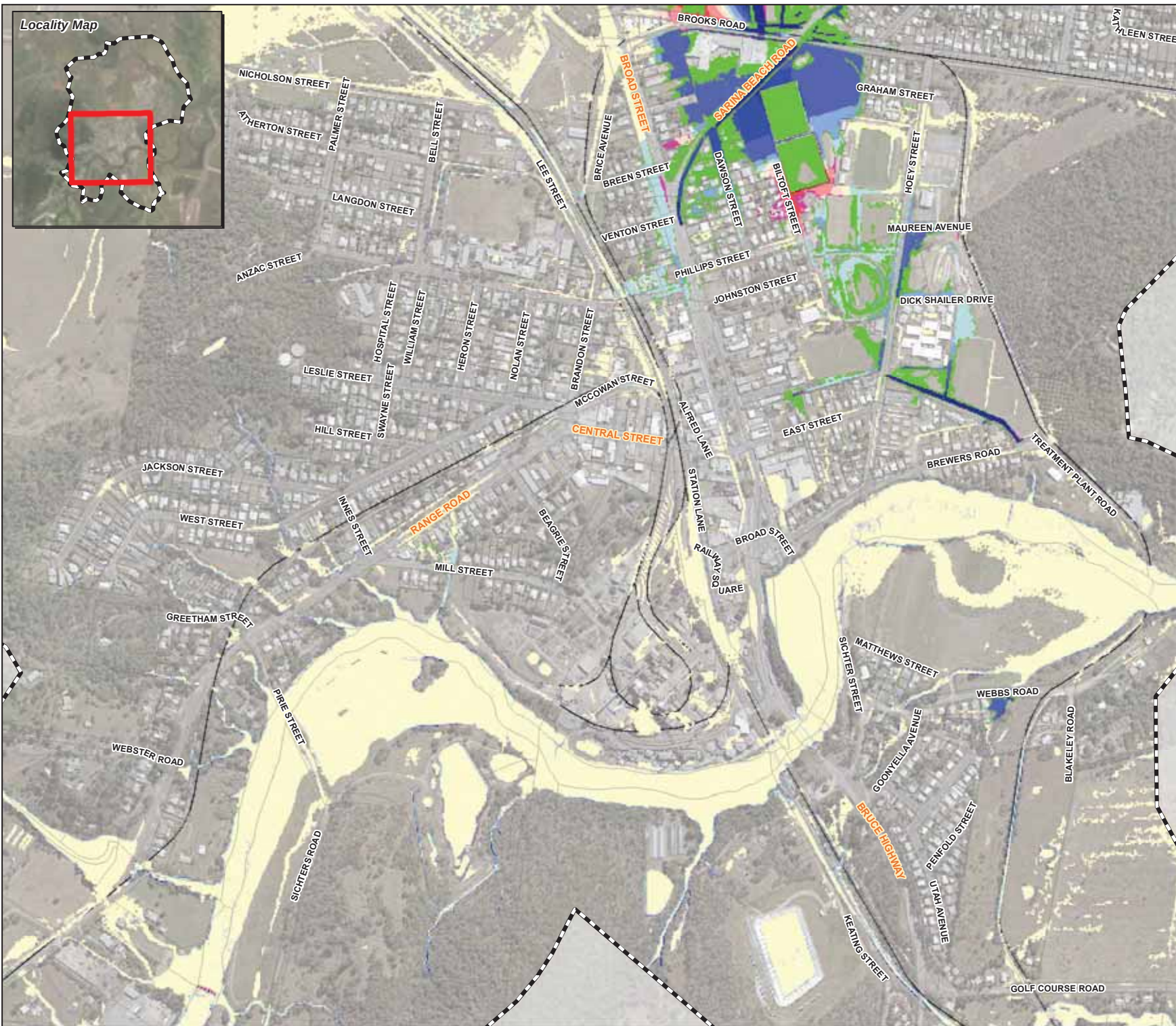
**MACKAY REGIONAL COUNCIL**  
**Sarina Drainage Study**  
**Difference in Peak Water Surface**  
**Elevation (Afflux) Developed vs**  
**Basecase**  
**5% AEP (20 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**69.1**



# Locality Map



## LEGEND

- Model Boundary
- Cadastral
- QLD Rail Line

## Difference in PWSE (m)

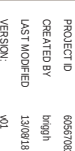
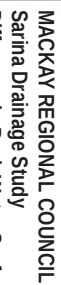
- < -0.3
- 0.3 to -0.225
- 0.225 to -0.15
- 0.15 to -0.075
- 0.075 to -0.02
- 0.02 to 0.02
- 0.02 to 0.075
- 0.075 to 0.15
- 0.15 to 0.225
- 0.225 to 0.3
- > 0.3
- Was Dry Now Wet
- Was Wet Now Dry

Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

**MACKAY REGIONAL COUNCIL**  
**Sarina Drainage Study**  
**Difference in Peak Water Surface**  
**Elevation (Afflux) Developed vs**  
**Basecase**  
**5% AEP (20 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

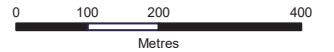
Map  
**69.2**



# Locality Map



GDA 1994 MGA Zone 55



1:7,500 (when printed at A3)

## LEGEND

- Model Boundary
- Cadastral
- QLD Rail Line

## Difference in PWSE (m)

- < -0.3
- 0.3 to -0.225
- 0.225 to -0.15
- 0.15 to -0.075
- 0.075 to -0.02
- 0.02 to 0.02
- 0.02 to 0.075
- 0.075 to 0.15
- 0.15 to 0.225
- 0.225 to 0.3
- > 0.3
- Was Dry Now Wet
- Was Wet Now Dry

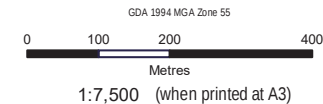
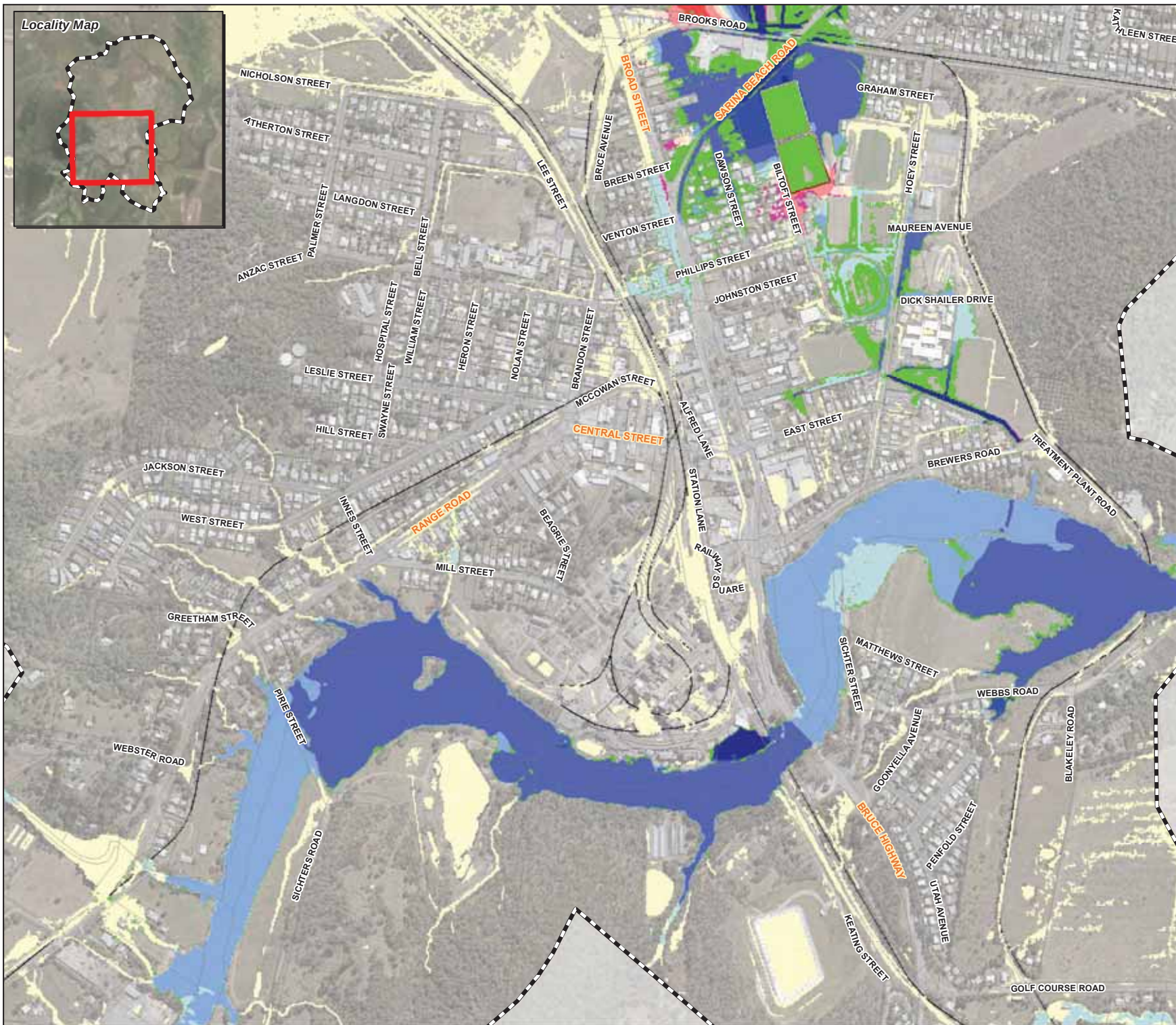
Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

## MACKAY REGIONAL COUNCIL Sarina Drainage Study Difference in Peak Water Surface Elevation (Afflux) Developed vs Basecase 2% AEP (50 yr ARI) 1440min Storm

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**70.1**

## Locality Map



## LEGEND

- Model Boundary
- Cadastral
- QLD Rail Line

## Difference in PWSE (m)

- < -0.3
- 0.3 to -0.225
- 0.225 to -0.15
- 0.15 to -0.075
- 0.075 to -0.02
- 0.02 to 0.02
- 0.02 to 0.075
- 0.075 to 0.15
- 0.15 to 0.225
- 0.225 to 0.3
- > 0.3
- Was Dry Now Wet
- Was Wet Now Dry

Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m<sup>2</sup>)

Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

**MACKAY REGIONAL COUNCIL**  
**Sarina Drainage Study**  
**Difference in Peak Water Surface**  
**Elevation (Afflux) Developed vs**  
**Basecase**  
**2% AEP (50 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

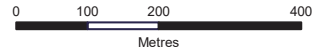
Map  
**70.2**



# Locality Map



GDA 1994 MGA Zone 55



1:7,500 (when printed at A3)

## LEGEND

- Model Boundary
- Cadastral
- QLD Rail Line

## Difference in PWSE (m)

- < -0.3
- 0.3 to -0.225
- 0.225 to -0.15
- 0.15 to -0.075
- 0.075 to -0.02
- 0.02 to 0.02
- 0.02 to 0.075
- 0.075 to 0.15
- 0.15 to 0.225
- 0.225 to 0.3
- > 0.3
- Was Dry Now Wet
- Was Wet Now Dry

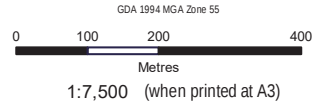
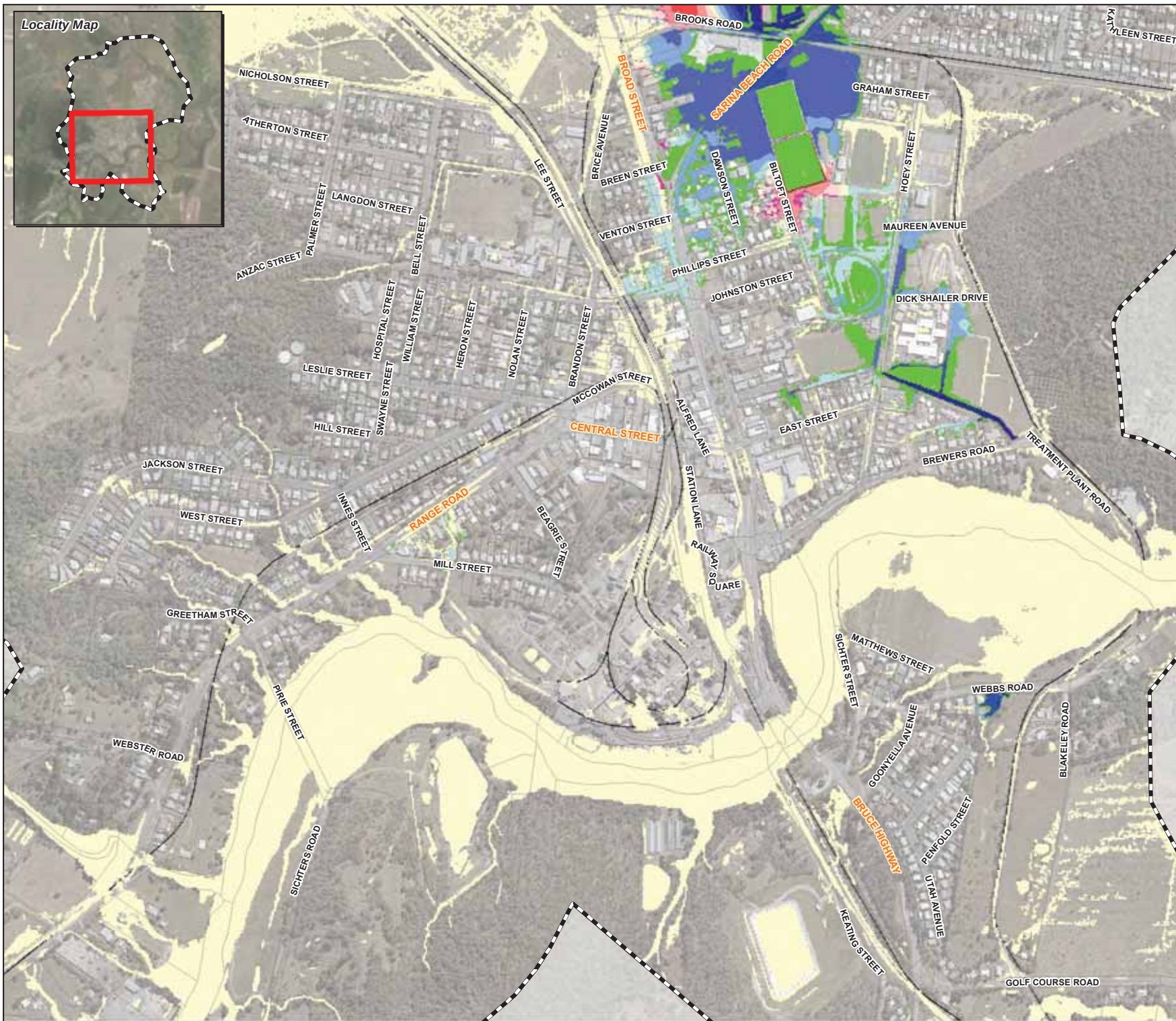
Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

**MACKAY REGIONAL COUNCIL**  
**Sarina Drainage Study**  
**Difference in Peak Water Surface**  
**Elevation (Afflux) Developed vs**  
**Basecase**  
**1% AEP (100 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**71.1**

# Locality Map



## LEGEND

- Model Boundary
- Cadastral
- QLD Rail Line
- Difference in PWSE (m)**
  - < -0.3
  - 0.3 to -0.225
  - 0.225 to -0.15
  - 0.15 to -0.075
  - 0.075 to -0.02
  - 0.02 to 0.02
  - 0.02 to 0.075
  - 0.075 to 0.15
  - 0.15 to 0.225
  - 0.225 to 0.3
  - > 0.3
  - Was Dry Now Wet
  - Was Wet Now Dry

Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

**MACKAY REGIONAL COUNCIL**  
**Sarina Drainage Study**  
**Difference in Peak Water Surface**  
**Elevation (Afflux) Developed vs**  
**Basecase**  
**1% AEP (100 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

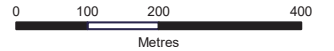
Map  
**71.2**



# Locality Map



GDA 1994 MGA Zone 55



1:7,500 (when printed at A3)

## LEGEND

- Model Boundary
- Cadastral
- QLD Rail Line

## Difference in PWSE (m)

- < -0.3
- 0.3 to -0.225
- 0.225 to -0.15
- 0.15 to -0.075
- 0.075 to -0.02
- 0.02 to 0.02
- 0.02 to 0.075
- 0.075 to 0.15
- 0.15 to 0.225
- 0.225 to 0.3
- > 0.3
- Was Dry Now Wet
- Was Wet Now Dry

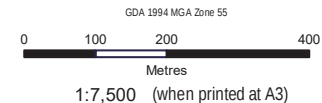
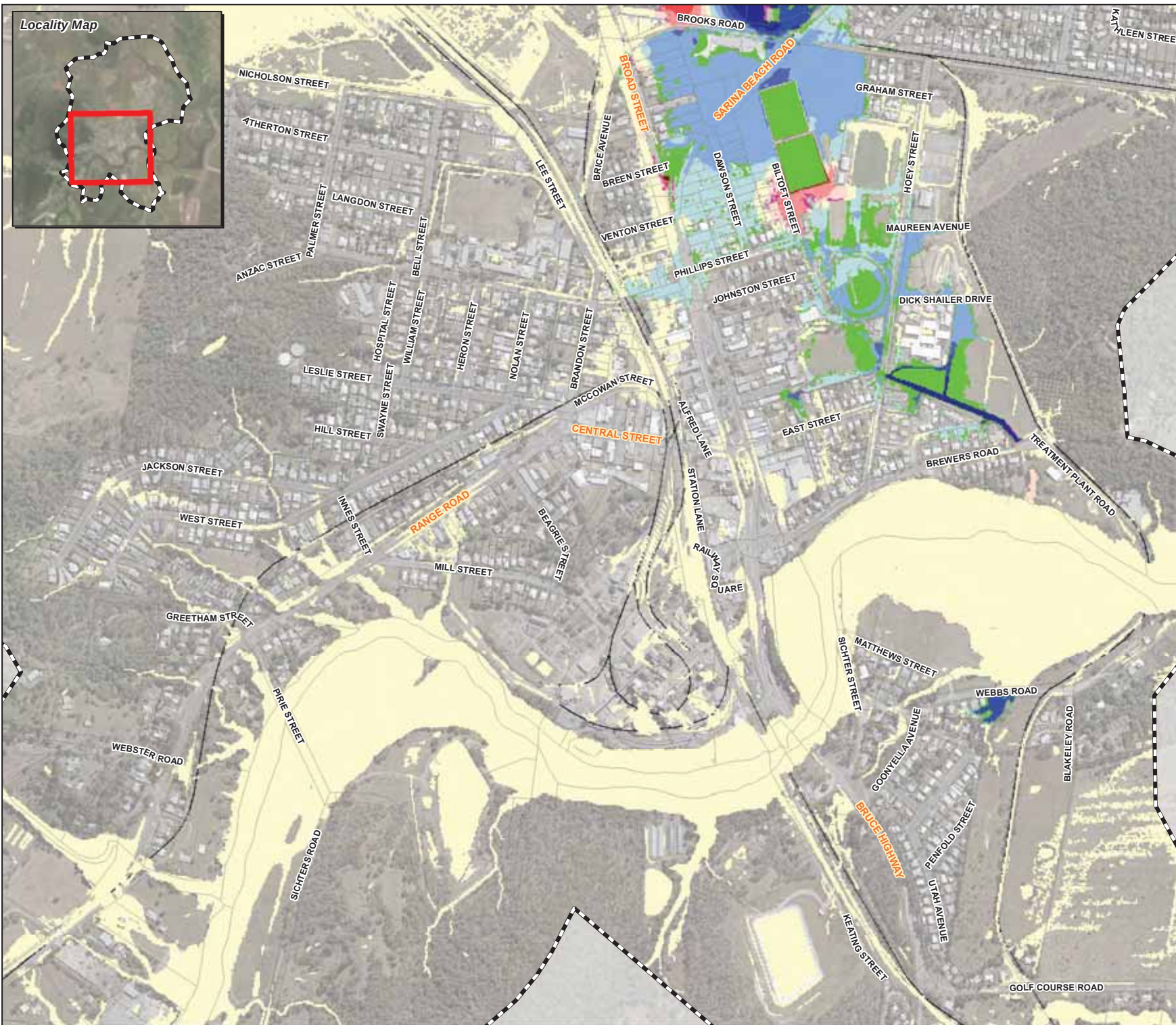
Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

**MACKAY REGIONAL COUNCIL**  
**Sarina Drainage Study**  
**Difference in Peak Water Surface**  
**Elevation (Afflux) Developed vs**  
**Basecase - 0.5% AEP**  
**(200 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**72.1**

# Locality Map



## LEGEND

- Model Boundary
- Cadastral
- QLD Rail Line

## Difference in PWSE (m)

- < -0.3
- 0.3 to -0.225
- 0.225 to -0.15
- 0.15 to -0.075
- 0.075 to -0.02
- 0.02 to 0.02
- 0.02 to 0.075
- 0.075 to 0.15
- 0.15 to 0.225
- 0.225 to 0.3
- > 0.3
- Was Dry Now Wet
- Was Wet Now Dry

Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

**MACKAY REGIONAL COUNCIL**  
**Sarina Drainage Study**  
**Difference in Peak Water Surface**  
**Elevation (Afflux) Developed vs**  
**Basecase - 0.5% AEP**  
**(200 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

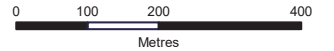
Map  
**72.2**



# Locality Map



GDA 1994 MGA Zone 55



1:7,500 (when printed at A3)

## LEGEND

- Model Boundary
- Cadastral
- QLD Rail Line

## Difference in PWSE (m)

- < -0.3
- 0.3 to -0.225
- 0.225 to -0.15
- 0.15 to -0.075
- 0.075 to -0.02
- 0.02 to 0.02
- 0.02 to 0.075
- 0.075 to 0.15
- 0.15 to 0.225
- 0.225 to 0.3
- > 0.3
- Was Dry Now Wet
- Was Wet Now Dry

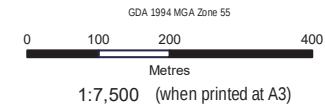
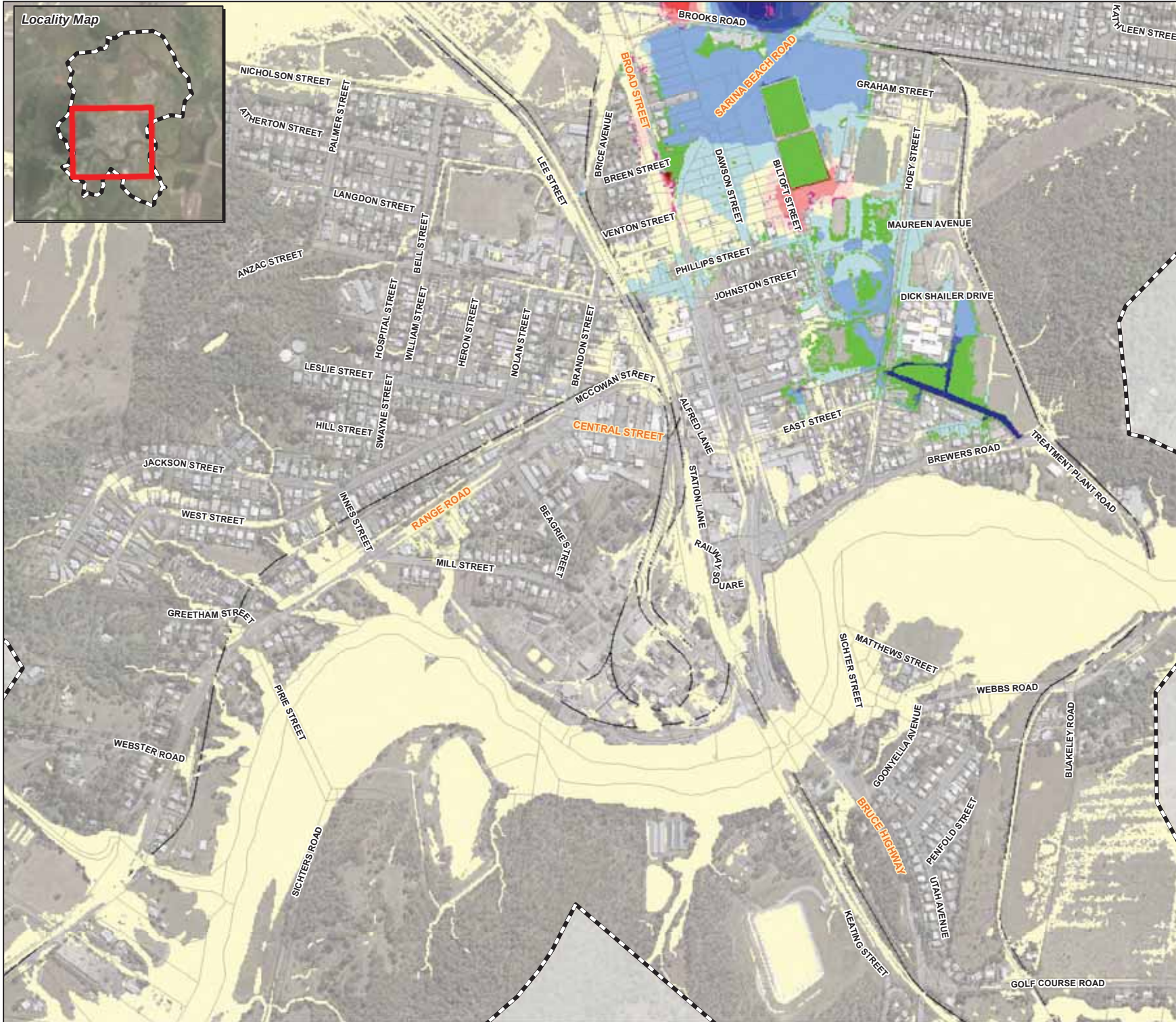
Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

**MACKAY REGIONAL COUNCIL**  
**Sarina Drainage Study**  
**Difference in Peak Water Surface**  
**Elevation (Afflux) Developed vs**  
**Basecase - 0.2% AEP**  
**(500 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**73.1**

# Locality Map



## LEGEND

- Model Boundary
- Cadastral
- QLD Rail Line

## Difference in PWSE (m)

- < -0.3
- 0.3 to -0.225
- 0.225 to -0.15
- 0.15 to -0.075
- 0.075 to -0.02
- 0.02 to 0.02
- 0.02 to 0.075
- 0.075 to 0.15
- 0.15 to 0.225
- 0.225 to 0.3
- > 0.3
- Was Dry Now Wet
- Was Wet Now Dry

Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

**MACKAY REGIONAL COUNCIL**  
**Sarina Drainage Study**  
**Difference in Peak Water Surface**  
**Elevation (Afflux) Developed vs**  
**Basecase - 0.2% AEP**  
**(500 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brighth  
LAST MODIFIED: 13/08/18  
VERSION: v01

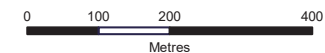
Map  
**73.2**



# Locality Map



GDA 1994 MGA Zone 55



1:7,500 (when printed at A3)

## LEGEND

- Model Boundary
- Cadastral
- QLD Rail Line

## Difference in PWSE (m)

- < -0.3
- 0.3 to -0.225
- 0.225 to -0.15
- 0.15 to -0.075
- 0.075 to -0.02
- 0.02 to 0.02
- 0.02 to 0.075
- 0.075 to 0.15
- 0.15 to 0.225
- 0.225 to 0.3
- > 0.3
- Was Dry Now Wet
- Was Wet Now Dry

Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m²)

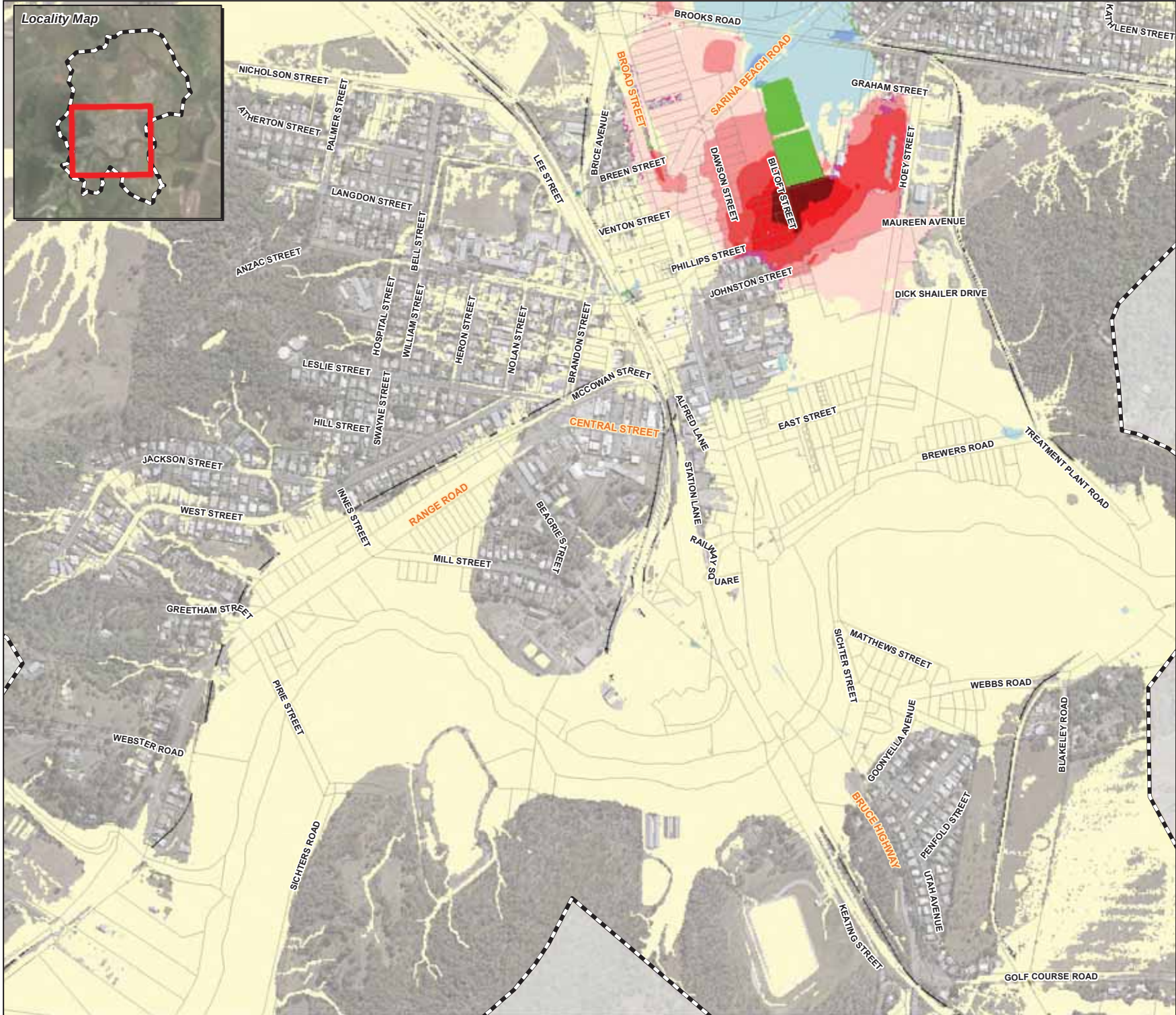
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

## MACKAY REGIONAL COUNCIL Sarina Drainage Study Difference in Peak Water Surface Elevation (Afflux) Developed vs Basecase PMF Event 360min Storm

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**74.1**

# Locality Map



GDA 1994 MGA Zone 55  
0 100 200 400  
Metres  
1:7,500 (when printed at A3)

## LEGEND

- Model Boundary
- Cadastral
- QLD Rail Line

## Difference in PWSE (m)

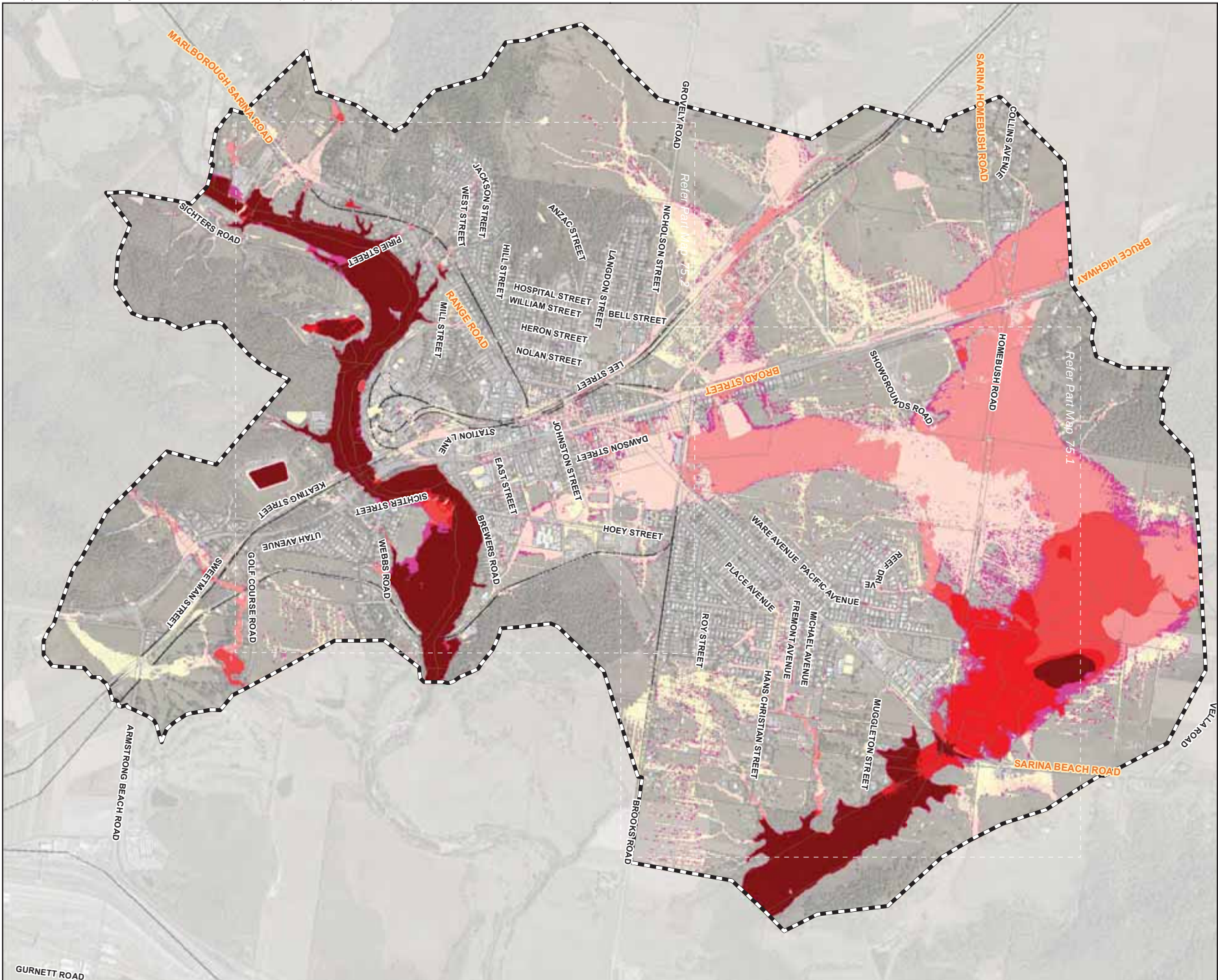
- 0.3 to -0.225
- 0.225 to -0.15
- 0.15 to -0.075
- 0.075 to -0.02
- 0.02 to 0.02
- 0.02 to 0.075
- 0.075 to 0.15
- 0.15 to 0.225
- 0.225 to 0.3
- > 0.3
- Was Dry Now Wet
- Was Wet Now Dry

Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

**MACKAY REGIONAL COUNCIL**  
**Sarina Drainage Study**  
**Difference in Peak Water Surface**  
**Elevation (Afflux) Developed vs**  
**Basecase**  
**PMF Event 360min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**74.2**





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**LEGEND**



Model Boundary



Cadastral



QLD Rail Line

**Difference in PWSE (m)**



< -0.3



-0.3 to -0.225



0.225 to 0.15



> 0.3



-0.15 to -0.075



-0.075 to -0.02



0.02 to 0.075



0.075 to 0.15



0.15 to 0.225



Was Dry Now Dry



Was Dry Now Wet

**MACKAY REGIONAL COUNCIL**

**Sarina Drainage Study**

**Difference in Peak Water Surface**

**Climate Change Sensitivity**

**Climate Change minus Basecase**

**1% AEP (100 yr ARI) 1440min Storm**

PROJECT ID: 60567081

CREATED BY: bough

LAST MODIFIED: 13/08/18

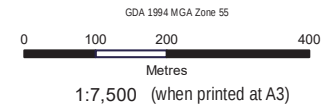
VERSION: v01

Map

**75**

A3 size

# Locality Map



## LEGEND

- Model Boundary
- Cadastral
- QLD Rail Line

## Difference in PWSE (m)

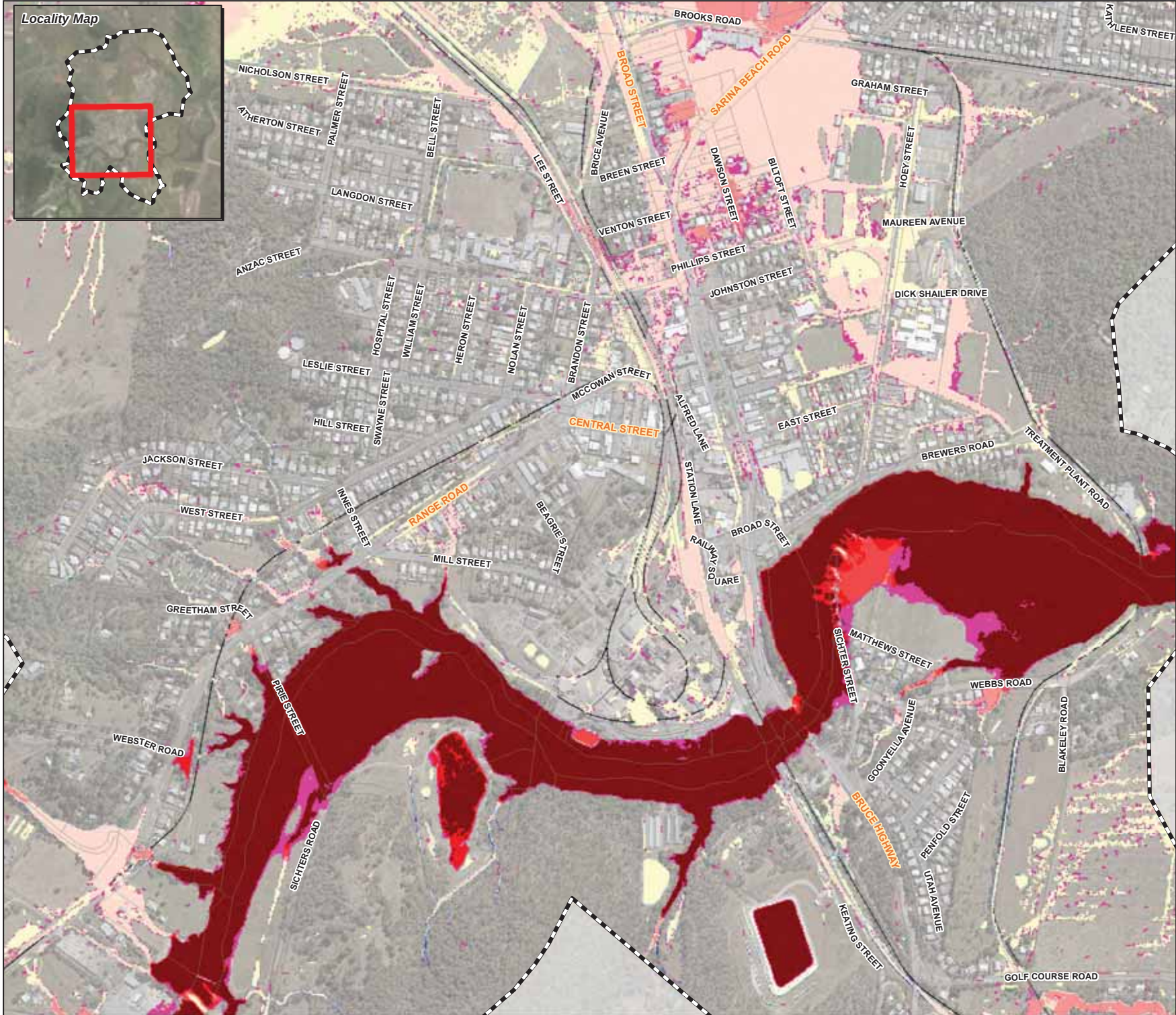
- 0.3 to -0.225
- 0.225 to -0.15
- 0.15 to -0.075
- 0.075 to -0.02
- 0.02 to 0.02
- 0.02 to 0.075
- 0.075 to 0.15
- 0.15 to 0.225
- 0.225 to 0.3
- > 0.3
- Was Dry Now Wet
- Was Wet Now Dry

Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

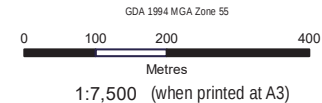
**MACKAY REGIONAL COUNCIL**  
**Sarina Drainage Study**  
**Difference in Peak Water Surface**  
**Climate Change Sensitivity**  
**Climate Change minus Basecase**  
**1% AEP (100 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**75.1**



Locality Map



#### LEGEND

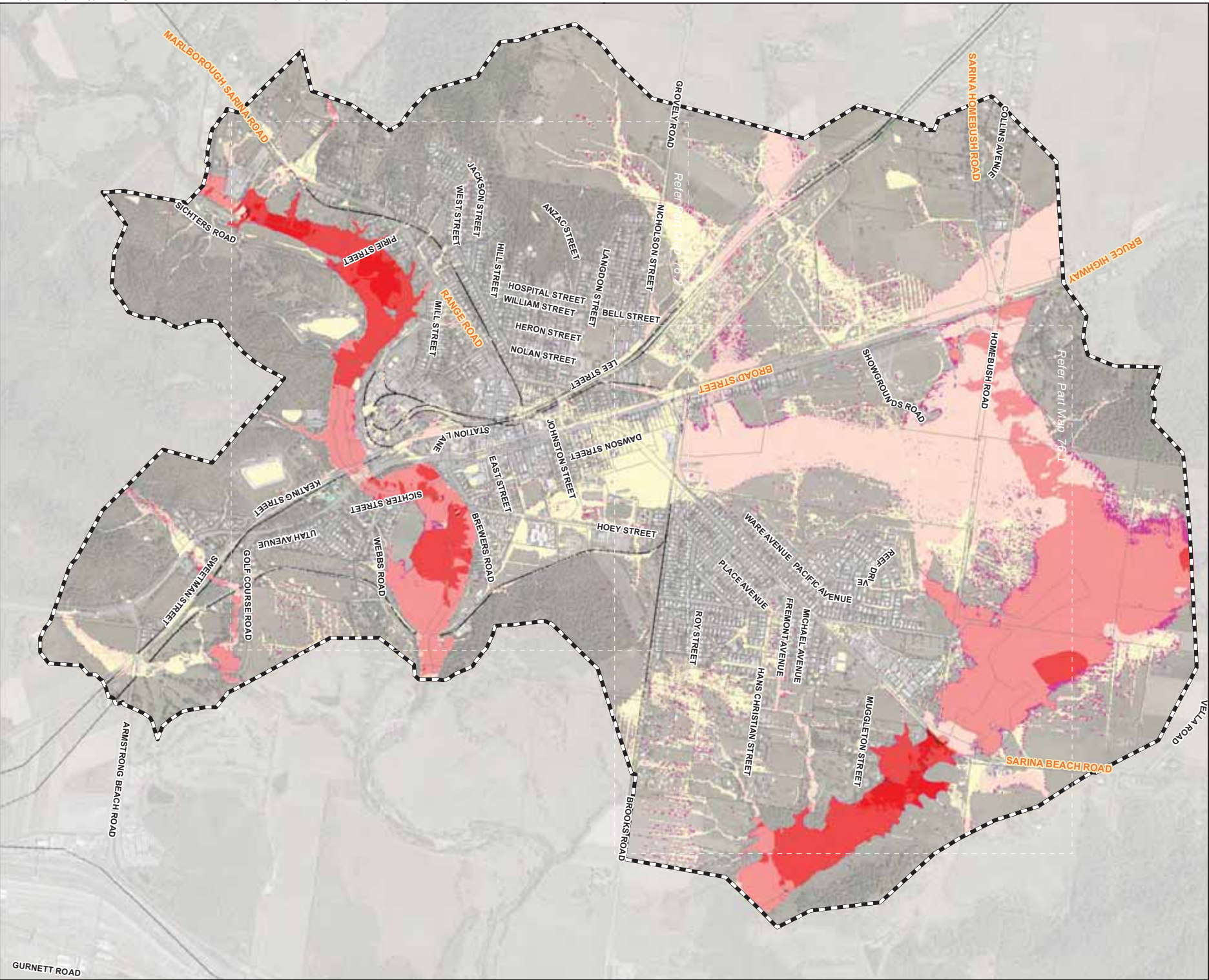
- Model Boundary
- Cadastrate
- QLD Rail Line
- Difference in PWSE (m)
  - < -0.3
  - 0.3 to -0.225
  - 0.225 to -0.15
  - 0.15 to -0.075
  - 0.075 to -0.02
  - 0.02 to 0.02
  - 0.02 to 0.075
  - 0.075 to 0.15
  - 0.15 to 0.225
  - 0.225 to 0.3
  - > 0.3
- Was Dry Now Wet
- Was Wet Now Dry

Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

**MACKAY REGIONAL COUNCIL**  
**Sarina Drainage Study**  
**Difference in Peak Water Surface**  
**Climate Change Sensitivity**  
**Climate Change minus Basecase**  
**1% AEP (100 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**75.2**



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**LEGEND**  
Model Boundary  
Cadastral  
QLD Rail Line

**Difference in PWSE (m)**  
-0.3 to -0.225  
-0.225 to -0.15  
-0.15 to -0.075  
-0.075 to -0.02  
-0.02 to 0.02  
0.02 to 0.075  
0.075 to 0.15  
0.15 to 0.225  
0.225 to 0.3  
> 0.3  
Was Dry Now Wet  
Was Wet Now Dry

Revised Plans required  
- Areas < 4 Chms (30m)  
- Depth < 0.1m  
Based on 1:10,000 (Q100 60%)  
Shaded Data (8/2017) (MCC)

**MACKAY REGIONAL COUNCIL**

**Sarina Drainage Study**

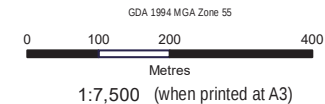
**Difference in Peak Water Surface  
Roughness Increase Sensitivity (+20%)  
Increased Roughness minus Basecase  
1% AEP (100 yr ARI) 1440min Storm**

PROJECT ID: 60567181  
CREATED BY: bough  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**76**

0 200 400 800  
metres  
GDA 1984 MGA Zone 55  
1:16,000 (when printed at A3)

# Locality Map



## LEGEND

- Model Boundary
- Cadastral
- QLD Rail Line

## Difference in PWSE (m)

- 0.3 to -0.225
- 0.225 to -0.15
- 0.15 to -0.075
- 0.075 to -0.02
- 0.02 to 0.02
- 0.02 to 0.075
- 0.075 to 0.15
- 0.15 to 0.225
- 0.225 to 0.3
- > 0.3
- Was Dry Now Wet
- Was Wet Now Dry

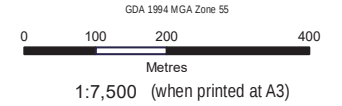
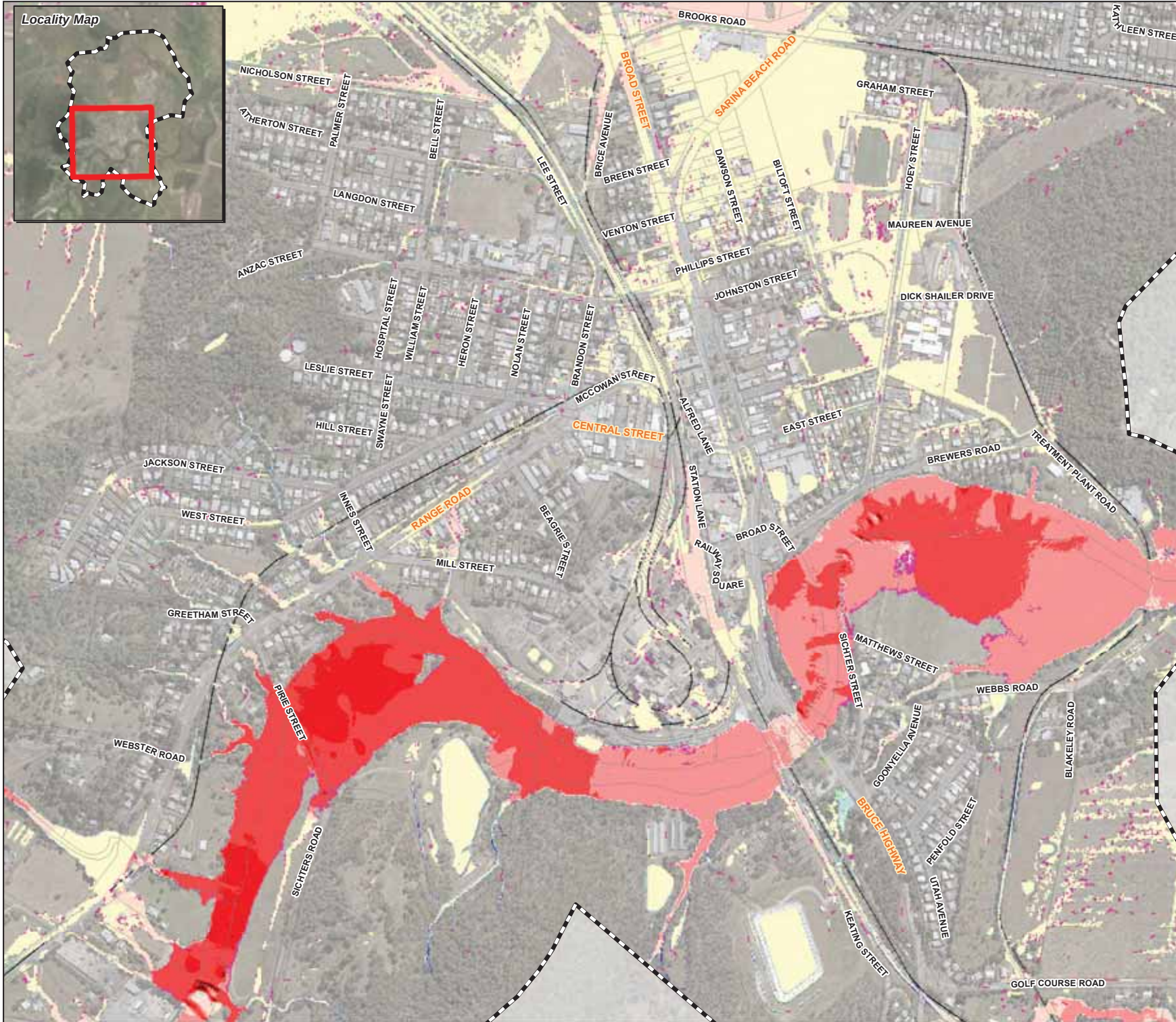
Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

**MACKAY REGIONAL COUNCIL**  
**Sarina Drainage Study**  
**Difference in Peak Water Surface**  
**Roughness Increase Sensitivity (+20%)**  
**Increased Roughness minus Basecase**  
**1% AEP (100 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**76.1**

## Locality Map



## LEGEND

- Model Boundary
- Cadastral
- QLD Rail Line
- Difference in PWSE (m)**
  - < -0.3
  - 0.3 to -0.225
  - 0.225 to -0.15
  - 0.15 to -0.075
  - 0.075 to -0.02
  - 0.02 to 0.02
  - 0.02 to 0.075
  - 0.075 to 0.15
  - 0.15 to 0.225
  - 0.225 to 0.3
  - > 0.3
  - Was Dry Now Wet
  - Was Wet Now Dry

Results Filters Applied:  
- Depth < 0.1m  
- Area < 4 Cells (36m²)  
Data sources:  
Base Data (c) 2018 (QLD Gov)  
Street Data (c) 2017 (MRC)

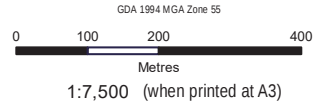
**MACKAY REGIONAL COUNCIL**  
**Sarina Drainage Study**  
**Difference in Peak Water Surface**  
**Roughness Increase Sensitivity (+20%)**  
**Increased Roughness minus Basecase**  
**1% AEP (100 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**76.2**



# Locality Map



## LEGEND

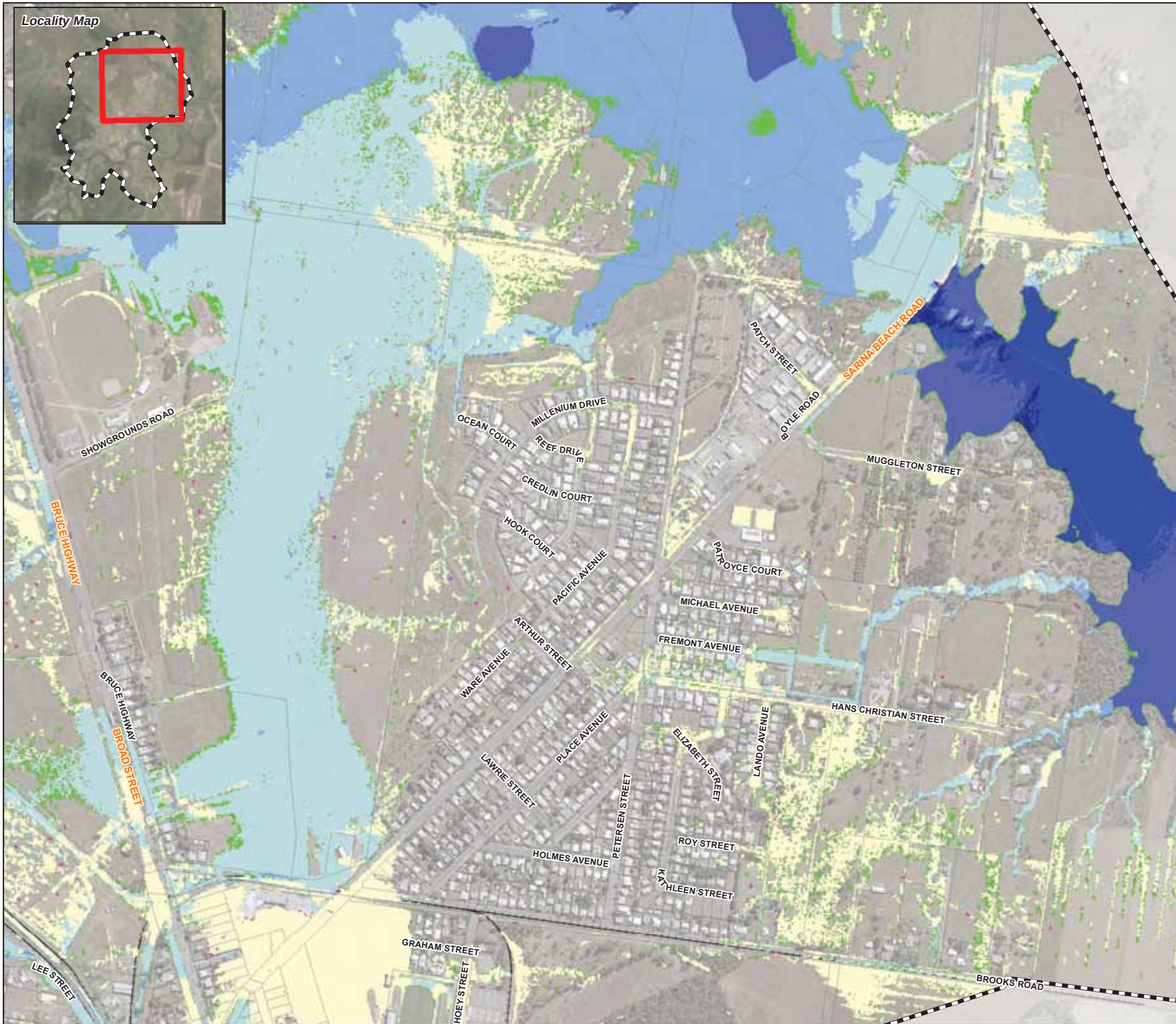
- Model Boundary
- Cadastrate
- QLD Rail Line
- Difference in PWSE (m)**
  - < -0.3
  - 0.3 to -0.225
  - 0.225 to -0.15
  - 0.15 to -0.075
  - 0.075 to -0.02
  - 0.02 to 0.02
  - 0.02 to 0.075
  - 0.075 to 0.15
  - 0.15 to 0.225
  - Was Dry Now Wet
  - Was Wet Now Dry

Results Filters Applied:  
 - Depth < 0.1m  
 - Area < 4 Cells (36m²)  
 Data sources:  
 Base Data (c) 2018 (QLD Gov)  
 Street Data (c) 2017 (MRC)

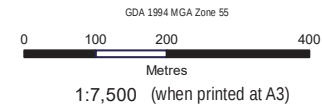
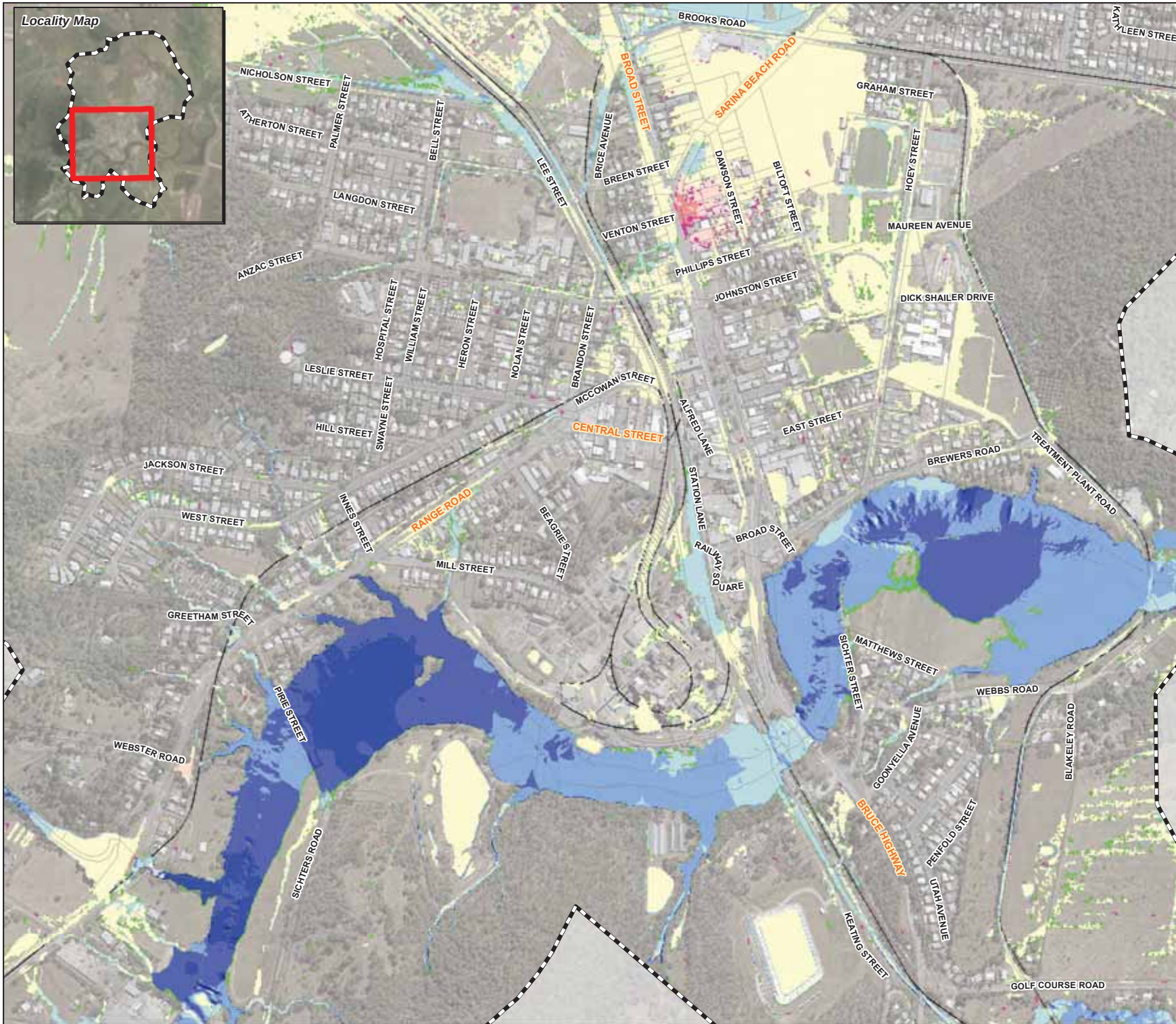
**MACKAY REGIONAL COUNCIL**  
**Sarina Drainage Study**  
**Difference in Peak Water Surface**  
**Roughness Increase Sensitivity (-20%)**  
**Decreased Roughness minus Basecase**  
**1% AEP (100 yr ARI) 1440min Storm**

PROJECT ID: 60567081  
 CREATED BY: brigh  
 LAST MODIFIED: 13/08/18  
 VERSION: v01

Map  
**77.1**



# Locality Map



## LEGEND

- Model Boundary
- Cadastral
- QLD Rail Line

## Difference in PWSE (m)

- < -0.3
- 0.3 to -0.225
- 0.225 to -0.15
- 0.15 to -0.075
- 0.075 to -0.02
- 0.02 to 0.02
- 0.02 to 0.075
- 0.075 to 0.15
- 0.15 to 0.225
- 0.225 to 0.3
- Was Dry Now Wet
- Was Wet Now Dry

Results Filters Applied:  
- Depth < 0.1m  
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**MACKAY REGIONAL COUNCIL**  
**Sarina Drainage Study**  
**Difference in Peak Water Surface**  
**Roughness Increase Sensitivity (-20%)**  
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PROJECT ID: 60567081  
CREATED BY: brigh  
LAST MODIFIED: 13/08/18  
VERSION: v01

Map  
**77.2**