

# Appendix A

**Bulls Maps**

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**Bulls  
Status Quo PDD**

-  Bulls Booster Pump Station
-  Infill Growth Area

**Greenfield Growth Area**

-  BUL01
-  BUL02
-  BUL03

**Bulls  
Status Quo PDD**

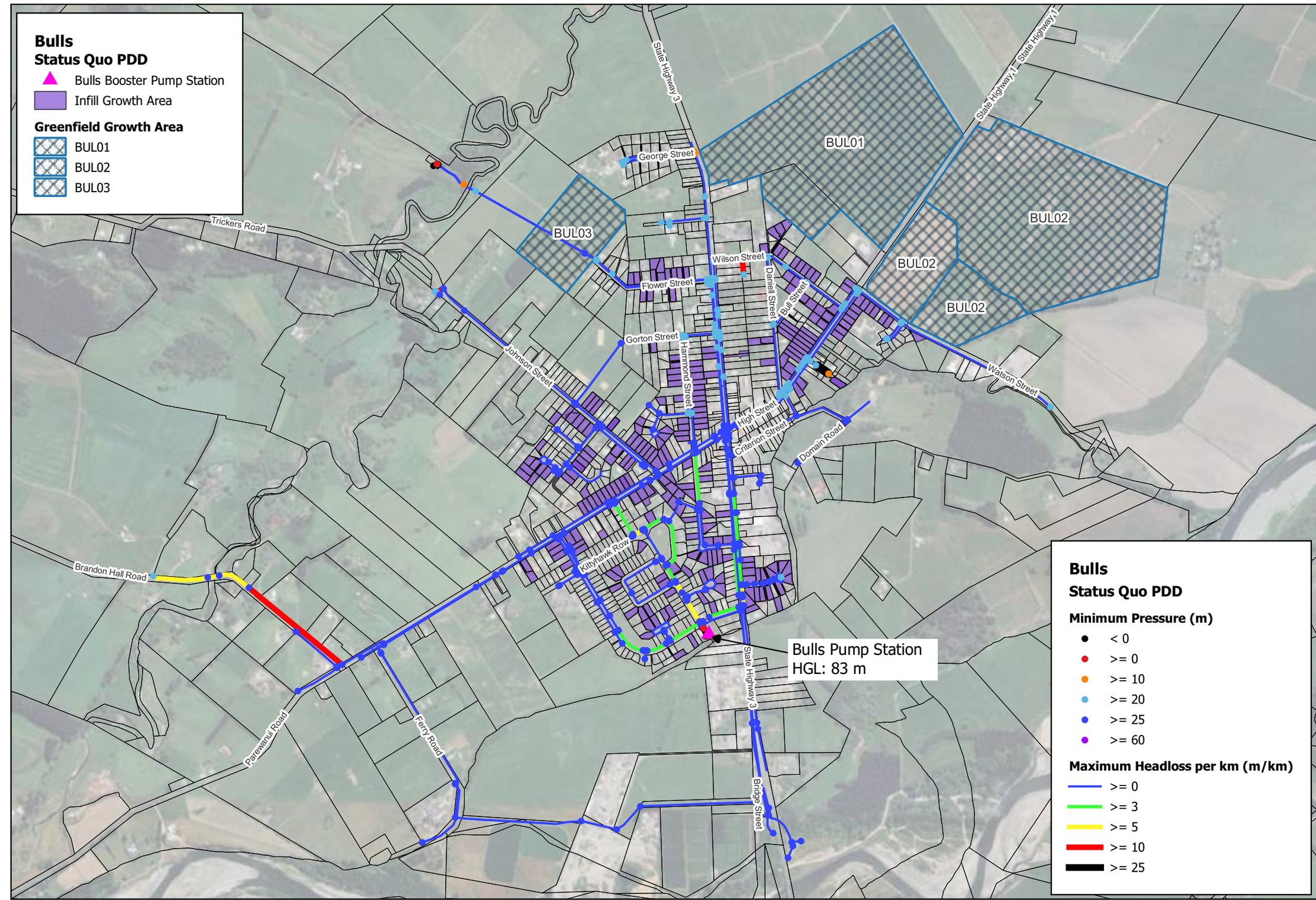
**Minimum Pressure (m)**

-  < 0
-  >= 0
-  >= 10
-  >= 20
-  >= 25
-  >= 60

**Maximum Headloss per km (m/km)**

-  >= 0
-  >= 3
-  >= 5
-  >= 10
-  >= 25

Bulls Pump Station  
HGL: 83 m



**Bulls**  
**Existing Network Fire Flow**

-  Bulls Booster Pump Station
-  Infill Growth Area

**Greenfield Growth Area**

-  BUL01
-  BUL02
-  BUL03

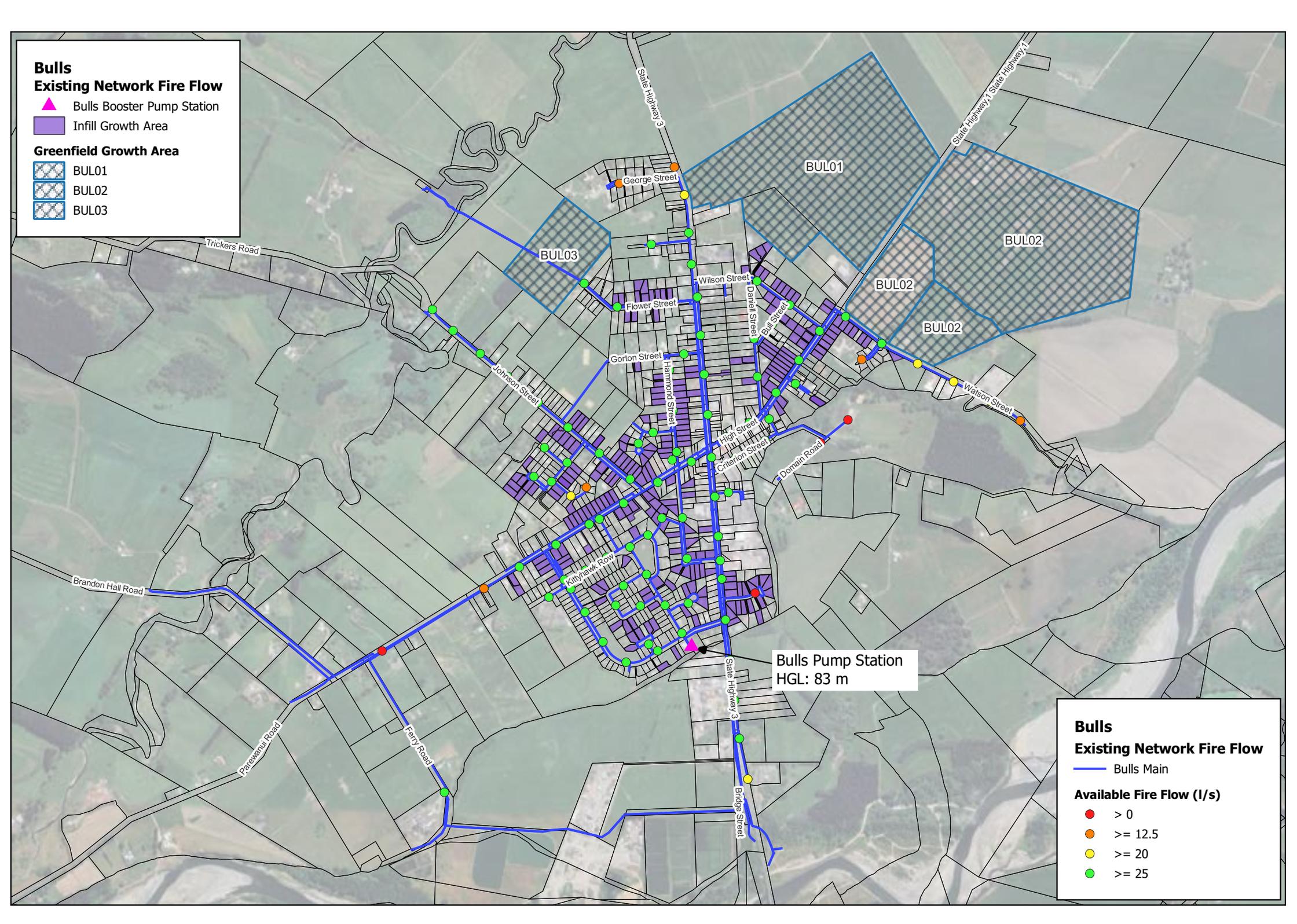
**Bulls**  
**Existing Network Fire Flow**

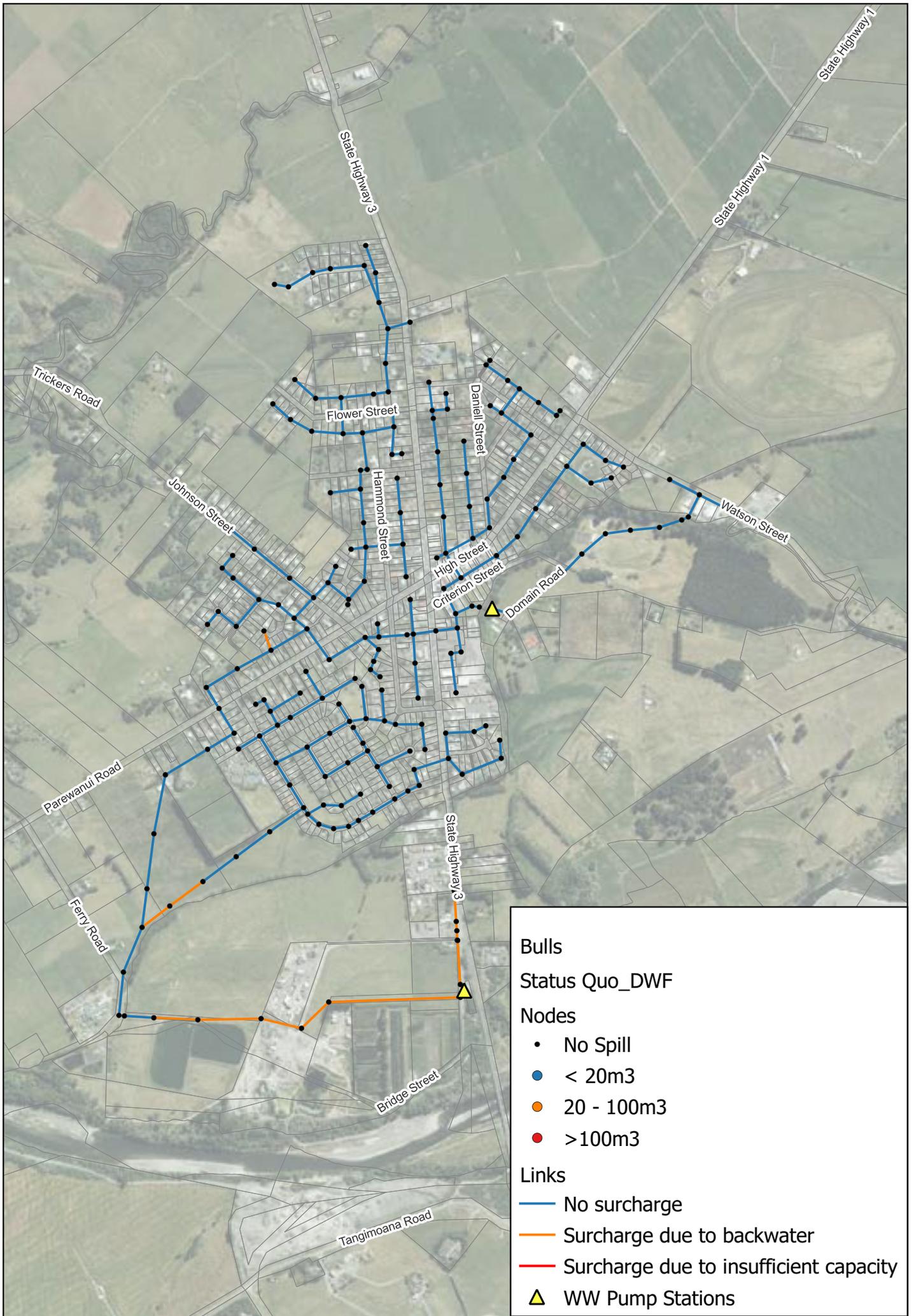
-  Bulls Main

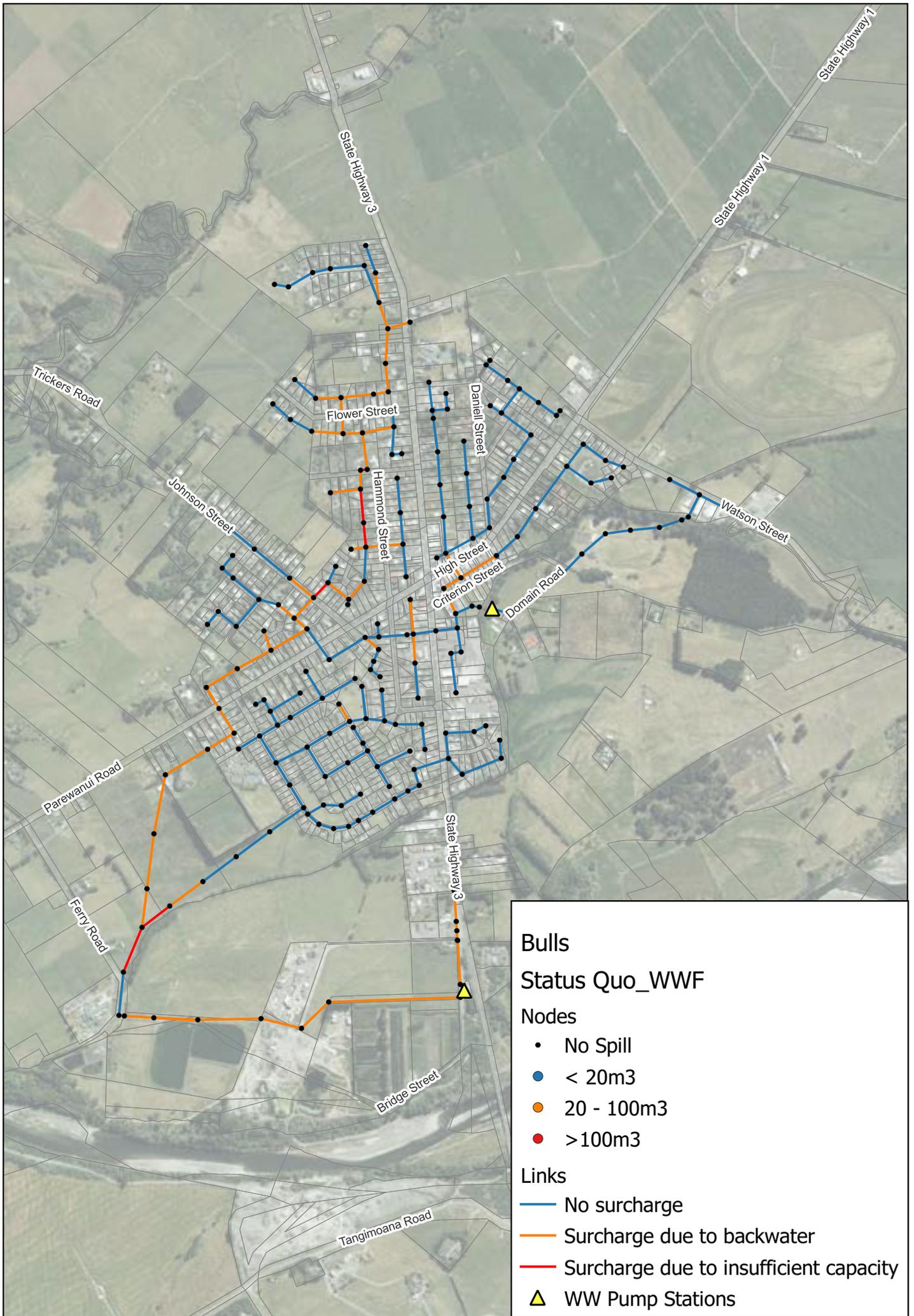
**Available Fire Flow (l/s)**

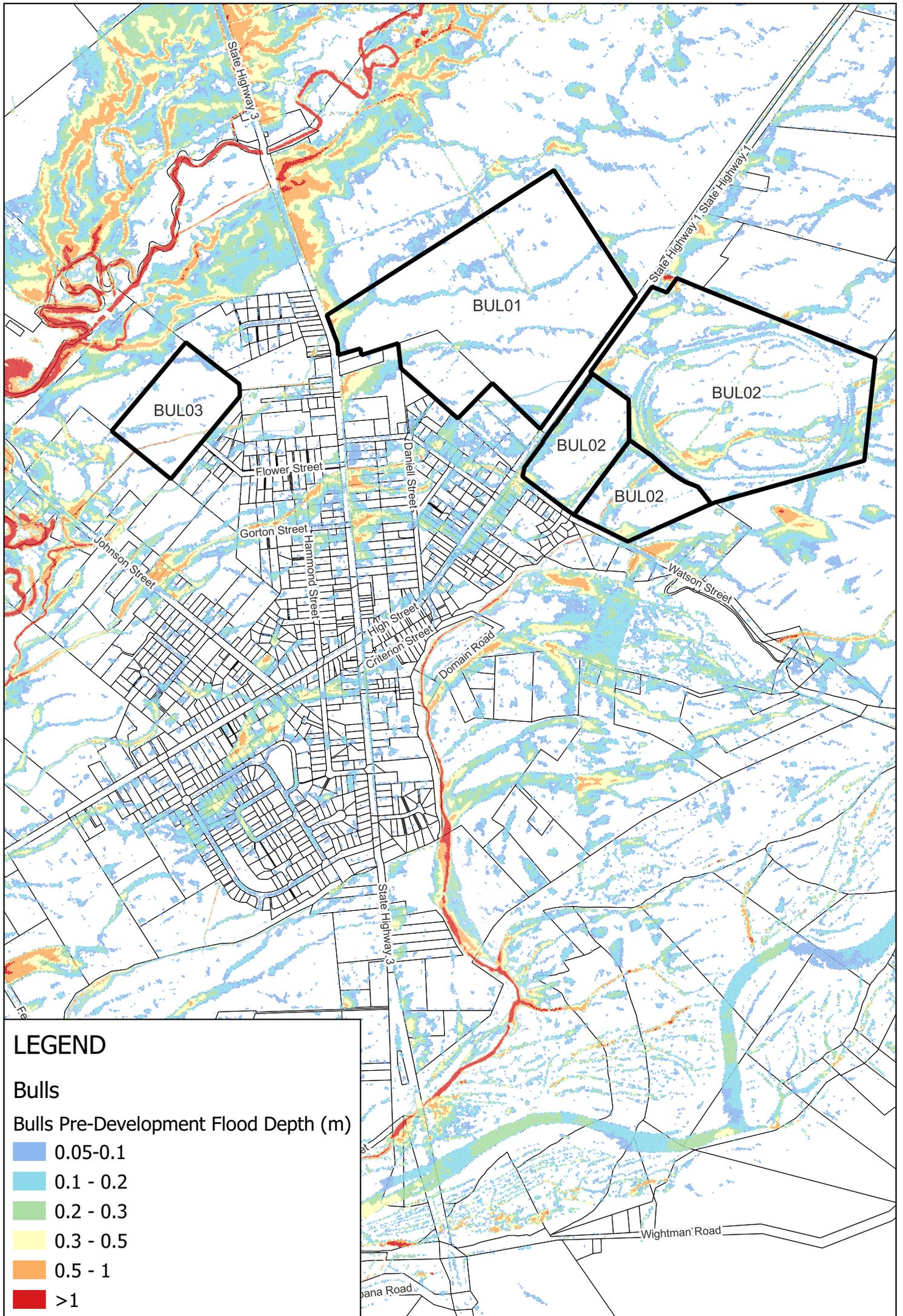
-  > 0
-  >= 12.5
-  >= 20
-  >= 25

Bulls Pump Station  
 HGL: 83 m









### LEGEND

#### Bulls

#### Bulls Pre-Development Flood Depth (m)

- 0.05 - 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.5
- 0.5 - 1
- > 1

**Bulls**  
**BUL01 Growth PDD**

▲ Bulls Booster Pump Station

**Greenfield Growth Area**

▨ BUL01

**Bulls**  
**BUL01 Growth PDD**

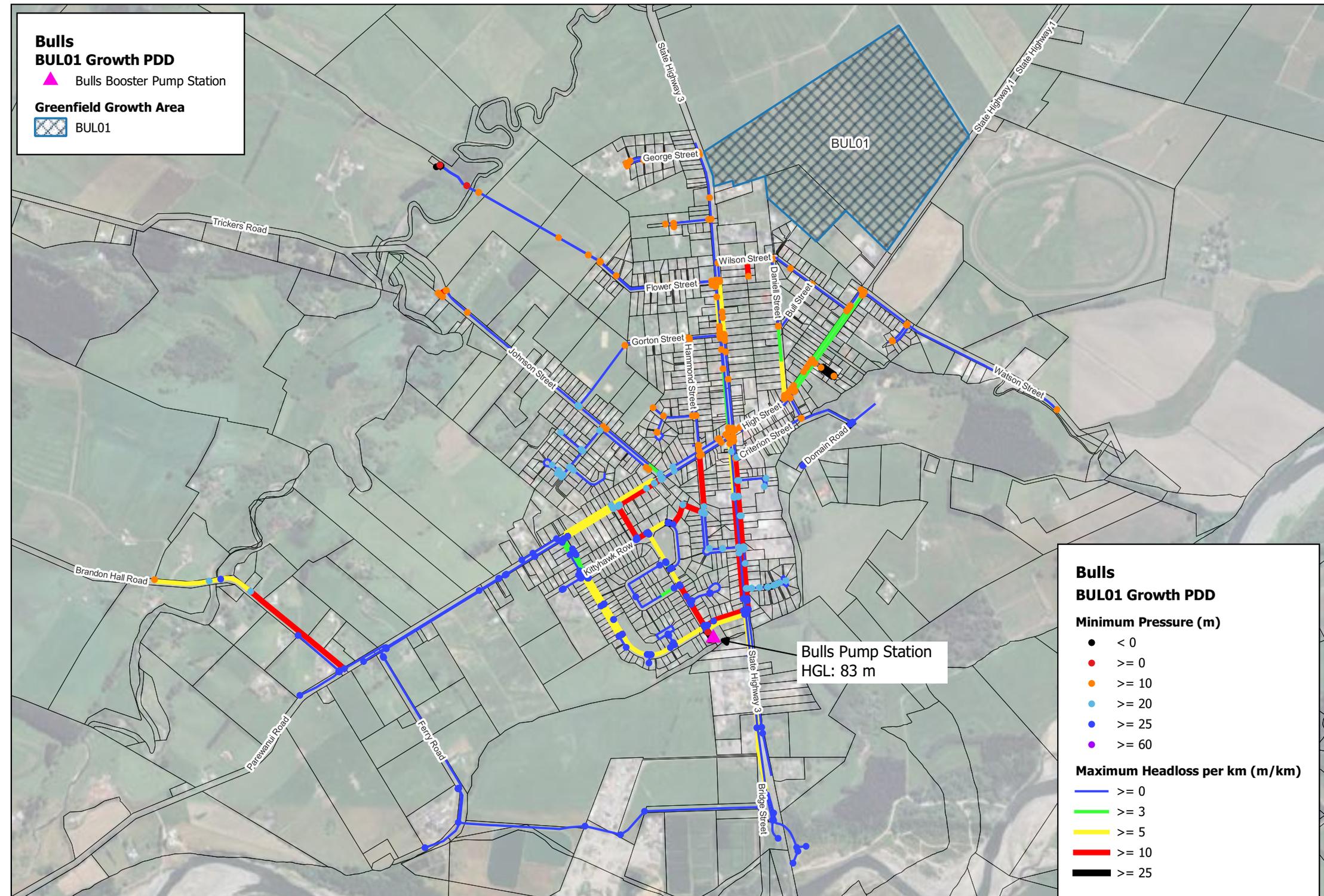
**Minimum Pressure (m)**

- < 0
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- ≥ 10
- ≥ 20
- ≥ 25
- ≥ 60

**Maximum Headloss per km (m/km)**

- ≥ 0
- ≥ 3
- ≥ 5
- ≥ 10
- ≥ 25

Bulls Pump Station  
HGL: 83 m



**Bulls**  
**BUL01 Growth PDD Option 1**

▲ Bulls Booster Pump Station

**Greenfield Growth Area**

▨ BUL01

**Bulls**  
**BUL01 Growth PDD Option 1**

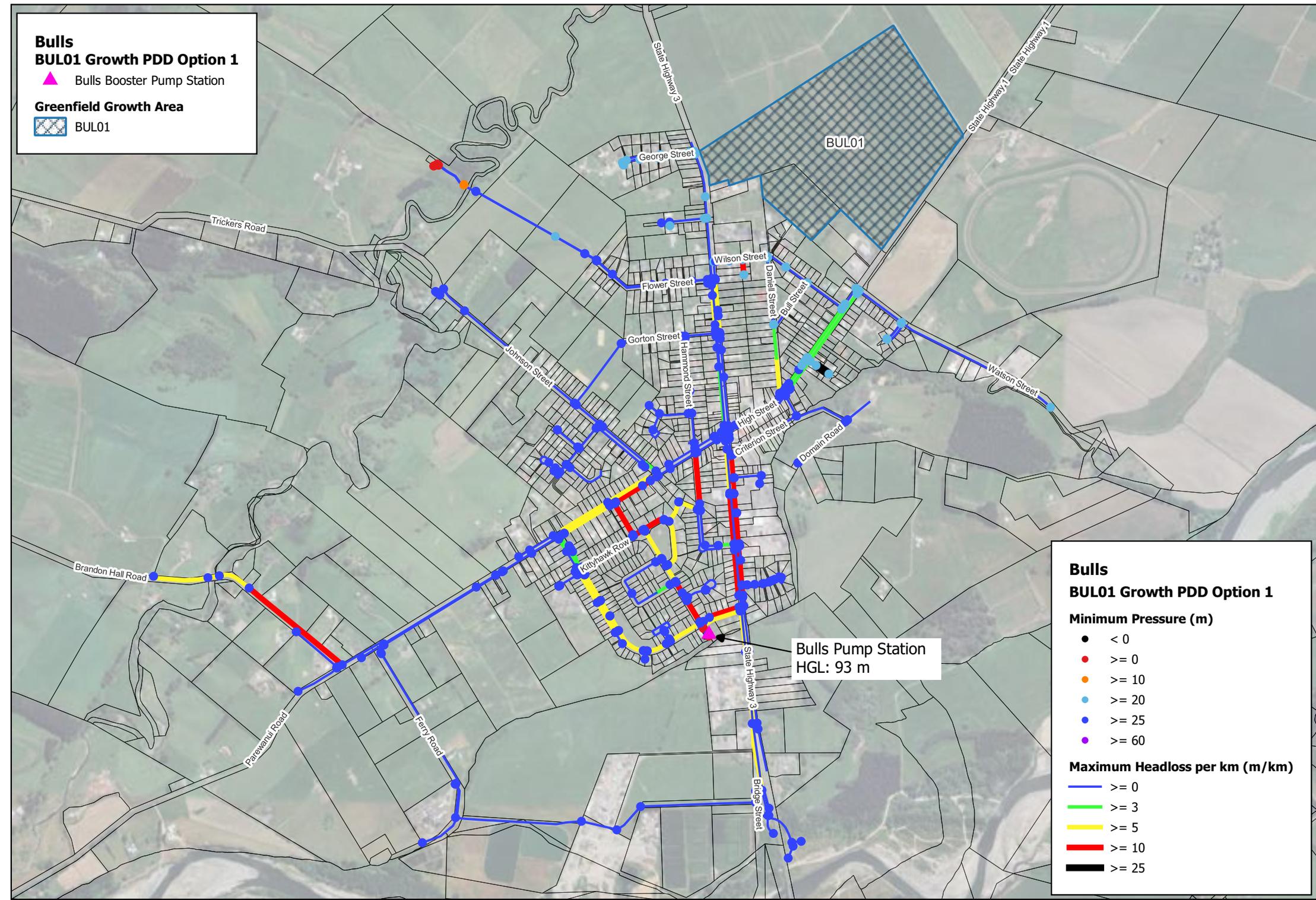
**Minimum Pressure (m)**

- < 0
- ≥ 0
- ≥ 10
- ≥ 20
- ≥ 25
- ≥ 60

**Maximum Headloss per km (m/km)**

- ≥ 0
- ≥ 3
- ≥ 5
- ≥ 10
- ≥ 25

Bulls Pump Station  
HGL: 93 m



**Bulls**  
**BUL01 Growth Fire Flow Option 1**

▲ Bulls Booster Pump Station

**Greenfield Growth Area**

▨ BUL01

**Bulls**  
**BUL01 Growth Fire Flow Option 1**

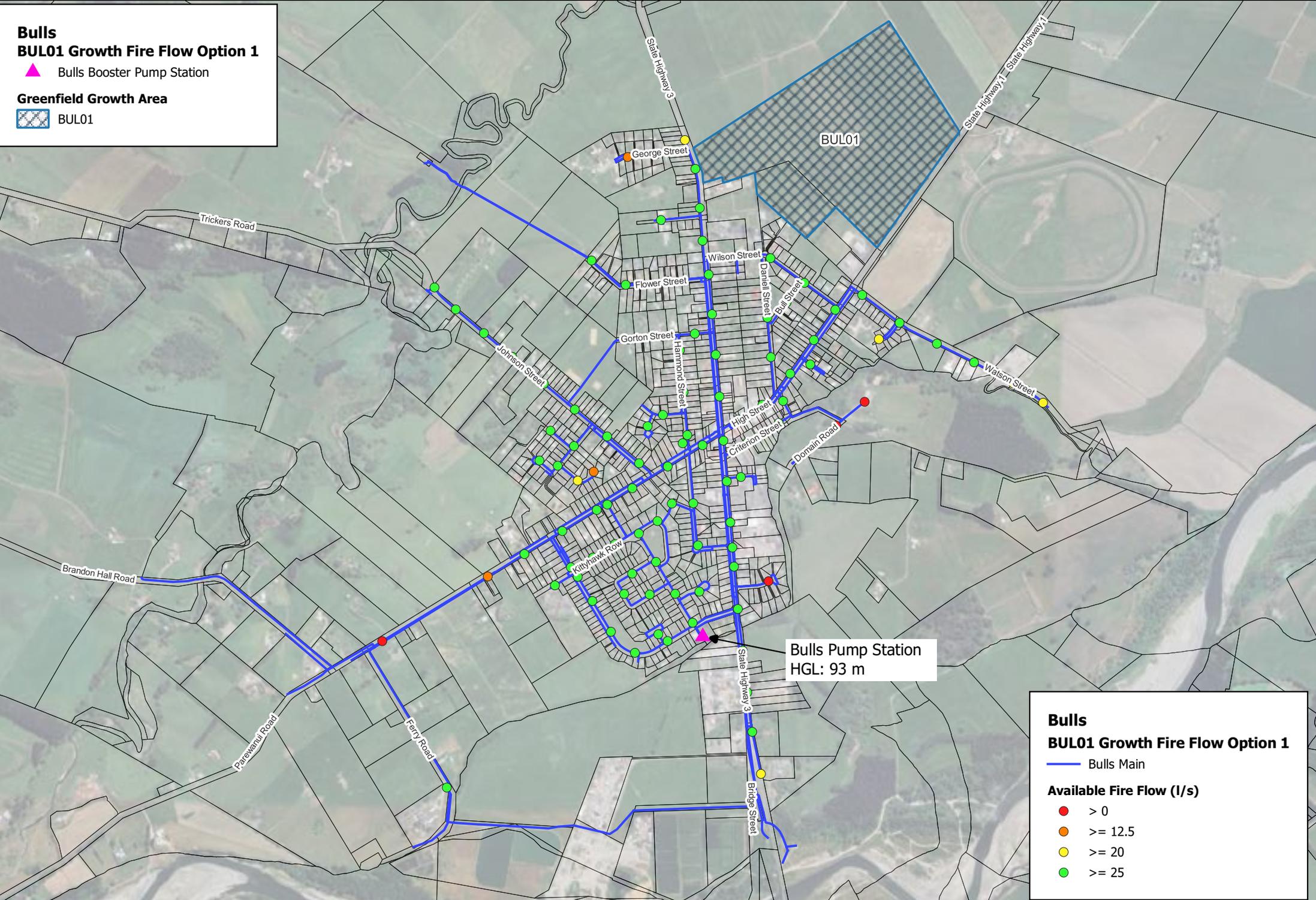
— Bulls Main

**Available Fire Flow (l/s)**

- > 0
- >= 12.5
- >= 20
- >= 25

Bulls Pump Station  
HGL: 93 m

BUL01



**Bulls**  
**BUL01 Growth PDD Option 2**

▲ Bulls Booster Pump Station

**Greenfield Growth Area**

▨ BUL01

**Bulls**  
**BUL01 Growth PDD Option 2**

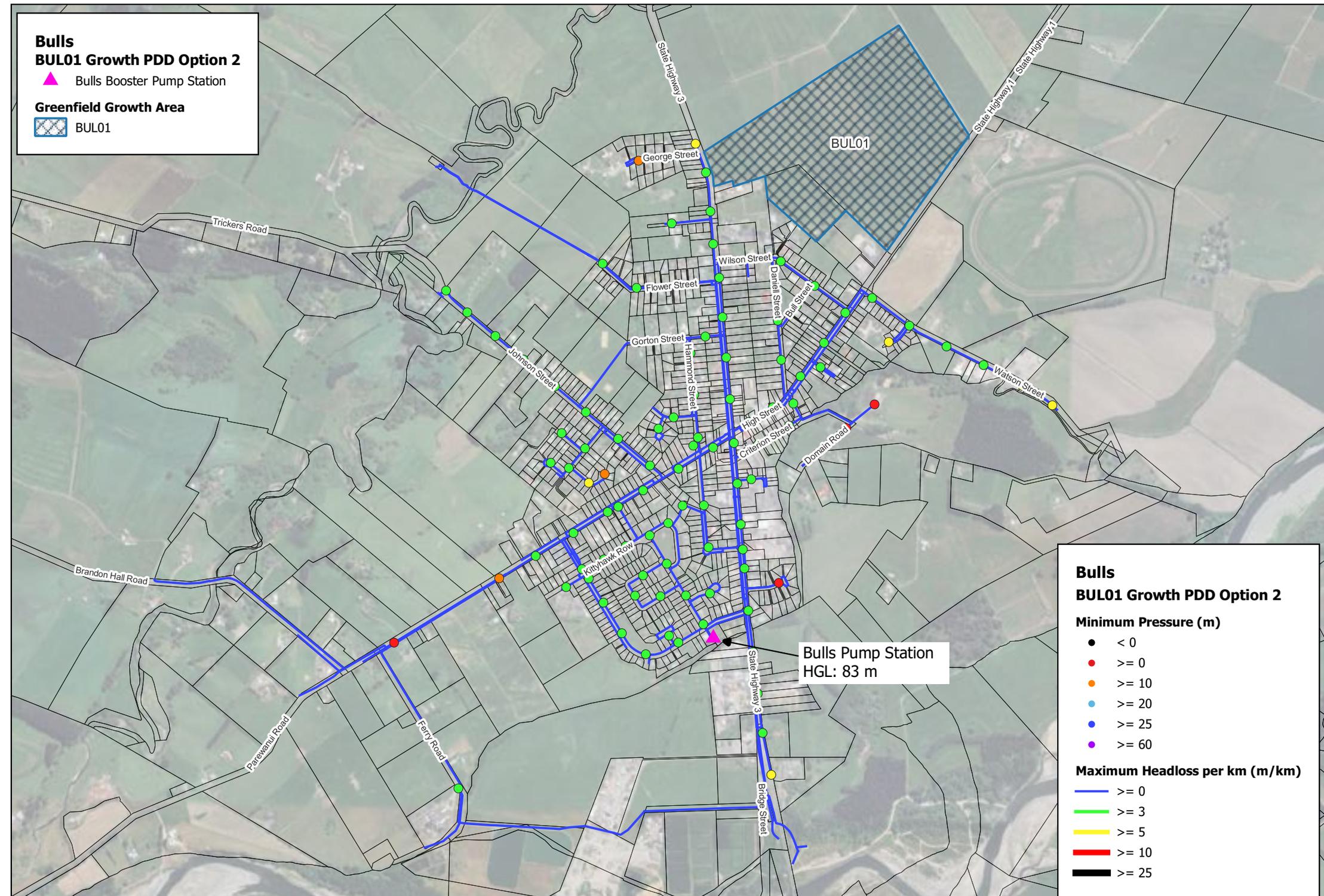
**Minimum Pressure (m)**

- < 0
- ≥ 0
- ≥ 10
- ≥ 20
- ≥ 25
- ≥ 60

**Maximum Headloss per km (m/km)**

- ≥ 0
- ≥ 3
- ≥ 5
- ≥ 10
- ≥ 25

Bulls Pump Station  
HGL: 83 m

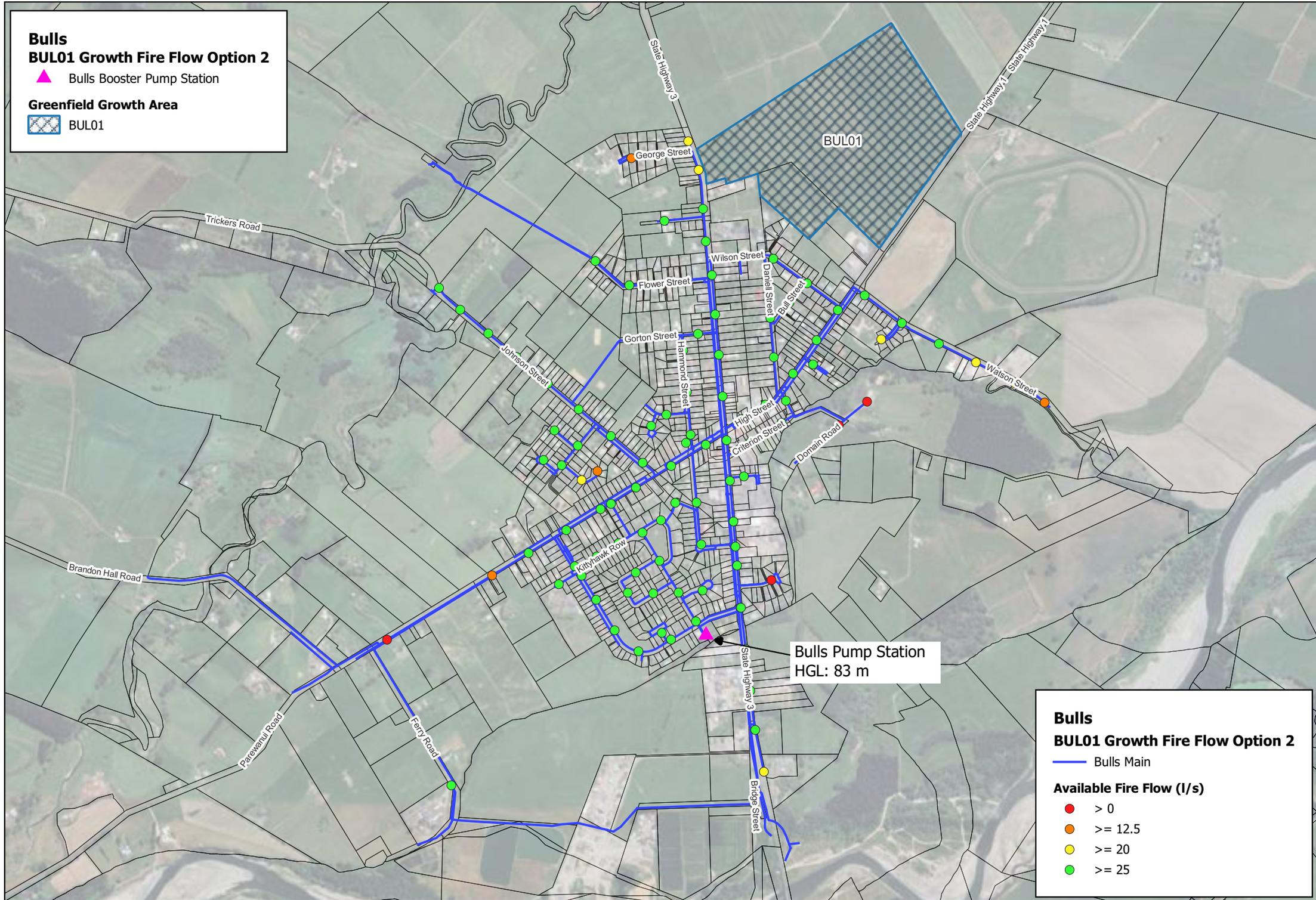


**Bulls**  
**BUL01 Growth Fire Flow Option 2**

▲ Bulls Booster Pump Station

**Greenfield Growth Area**

▨ BUL01

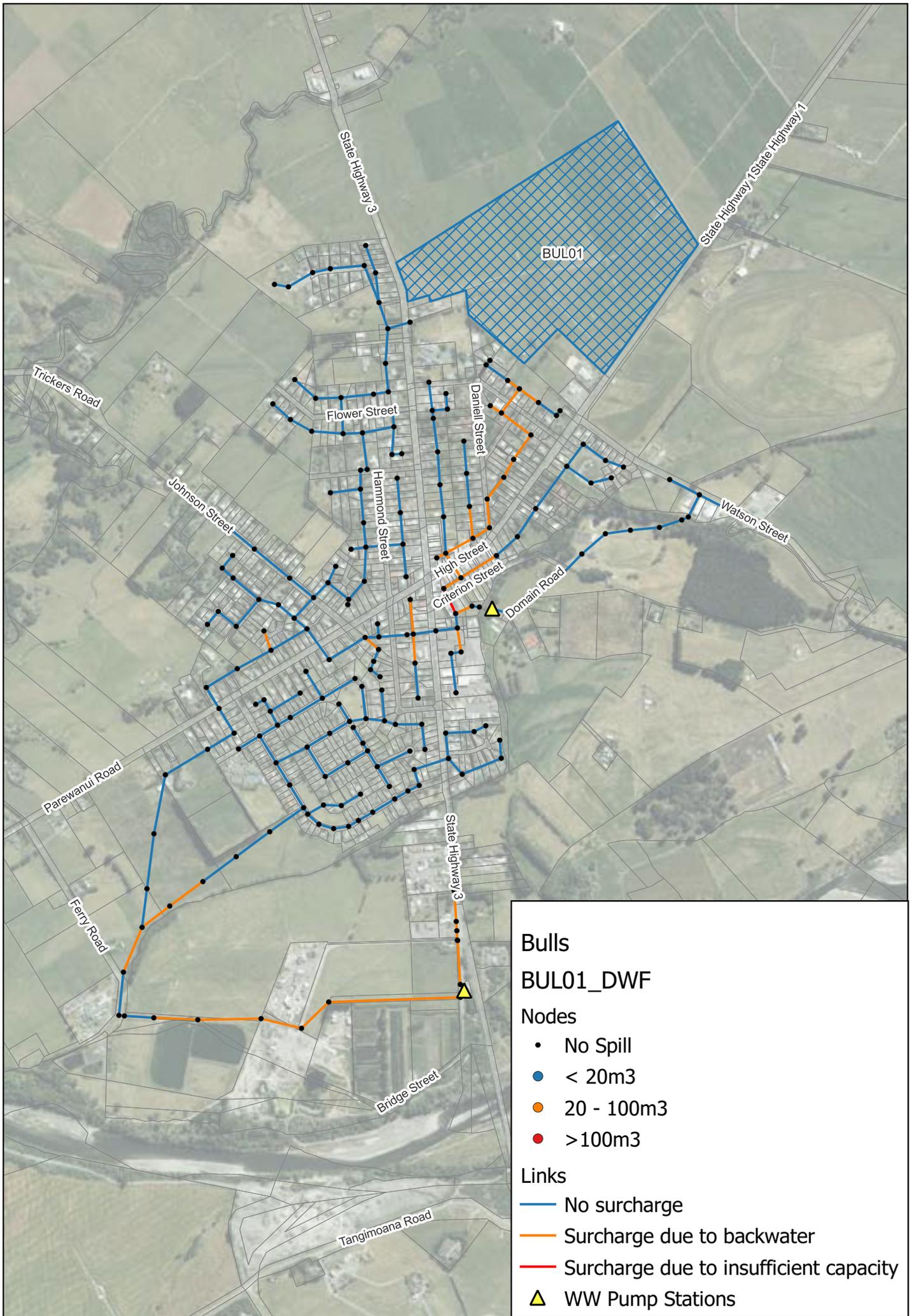


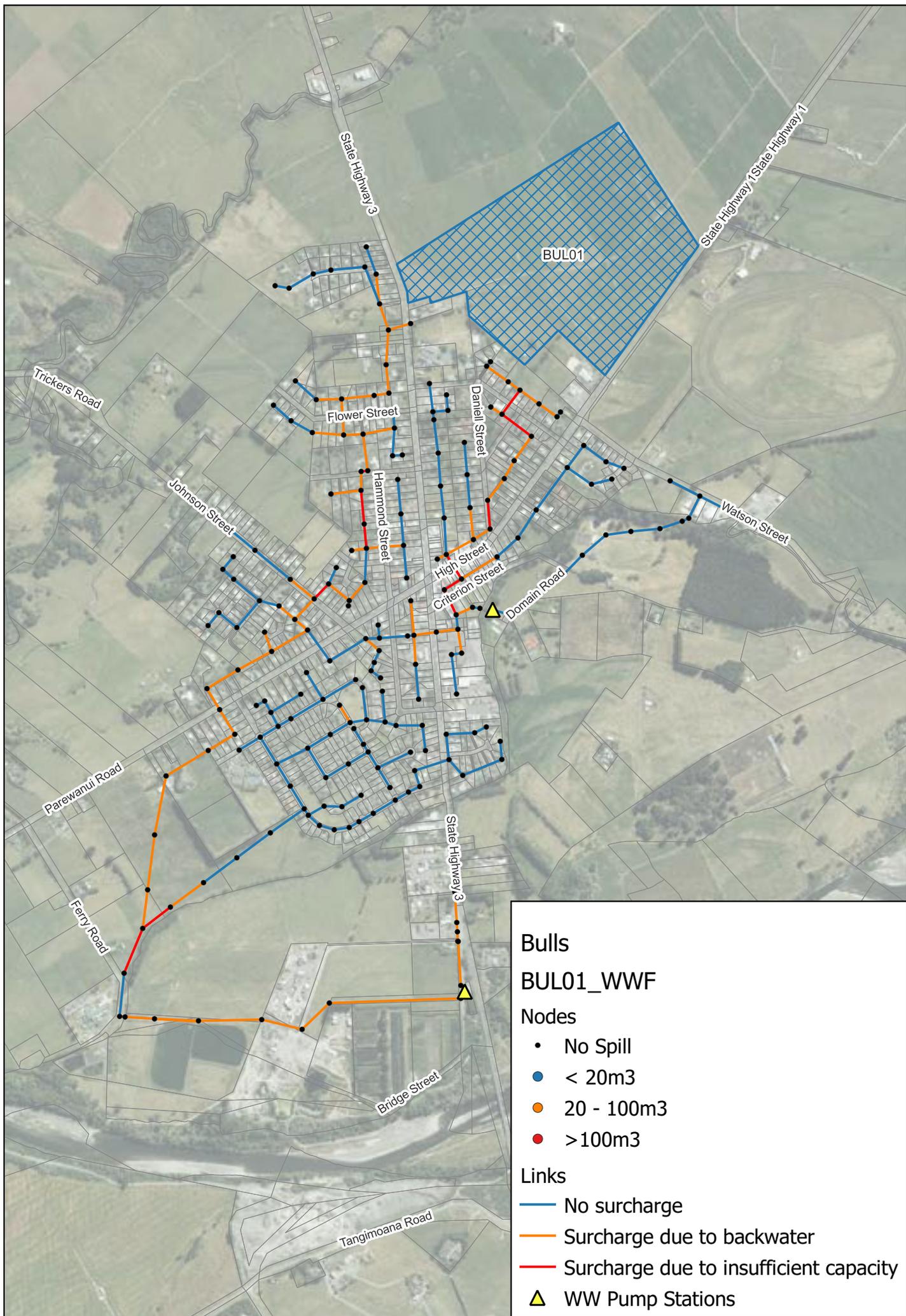
**Bulls**  
**BUL01 Growth Fire Flow Option 2**

— Bulls Main

**Available Fire Flow (l/s)**

- > 0
- >= 12.5
- >= 20
- >= 25





**Bulls**  
**BUL02 Growth PDD**

▲ Bulls Booster Pump Station

**Greenfield Growth Area**

▨ BUL02

**Bulls**  
**BUL02 Growth PDD**

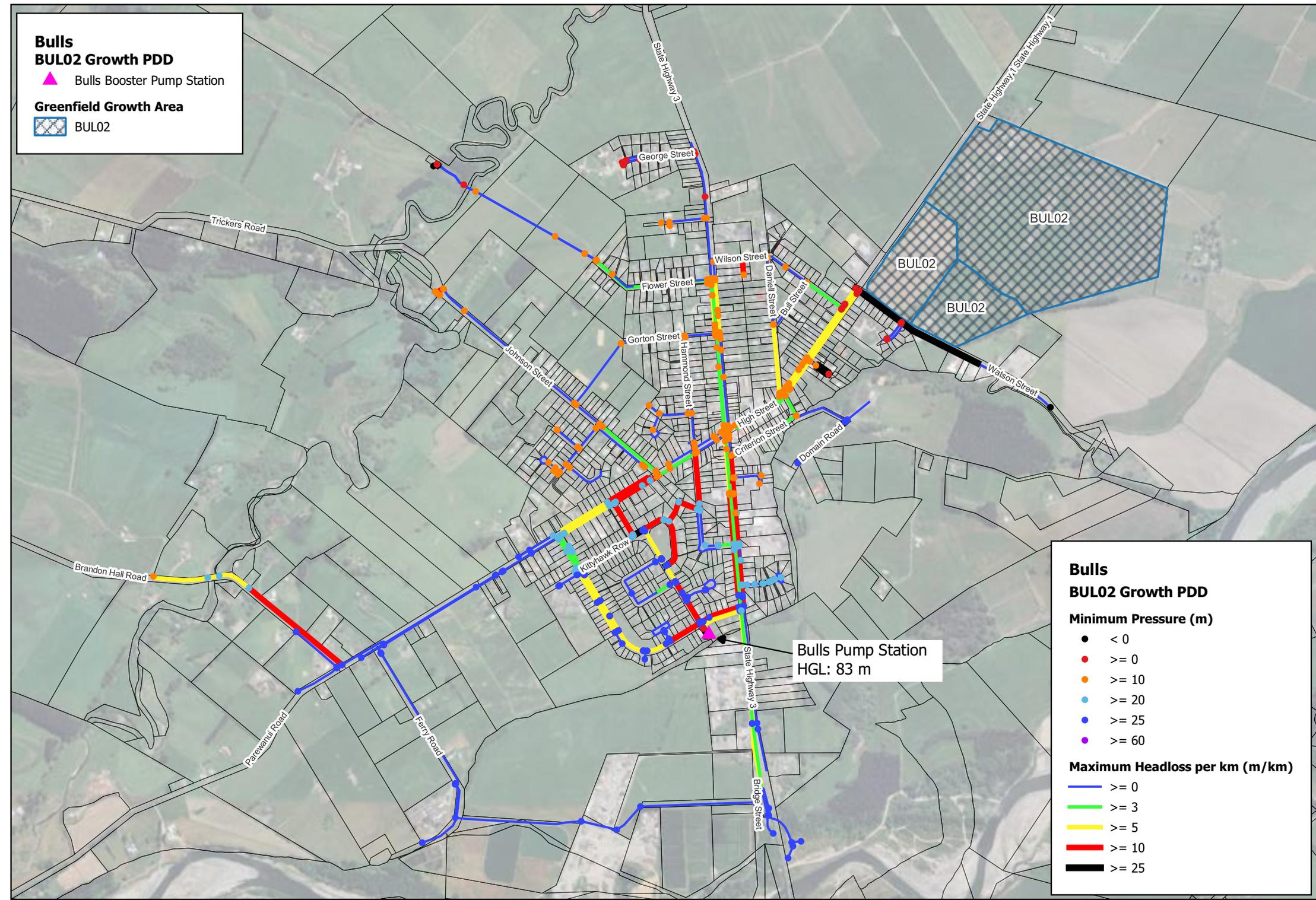
**Minimum Pressure (m)**

- < 0
- ≥ 0
- ≥ 10
- ≥ 20
- ≥ 25
- ≥ 60

**Maximum Headloss per km (m/km)**

- ≥ 0
- ≥ 3
- ≥ 5
- ≥ 10
- ≥ 25

Bulls Pump Station  
HGL: 83 m



**Bulls**  
**BUL02 Growth PDD Option 1**

▲ Bulls Booster Pump Station

**Greenfield Growth Area**

▨ BUL02

**Bulls**  
**BUL02 Growth PDD Option 1**

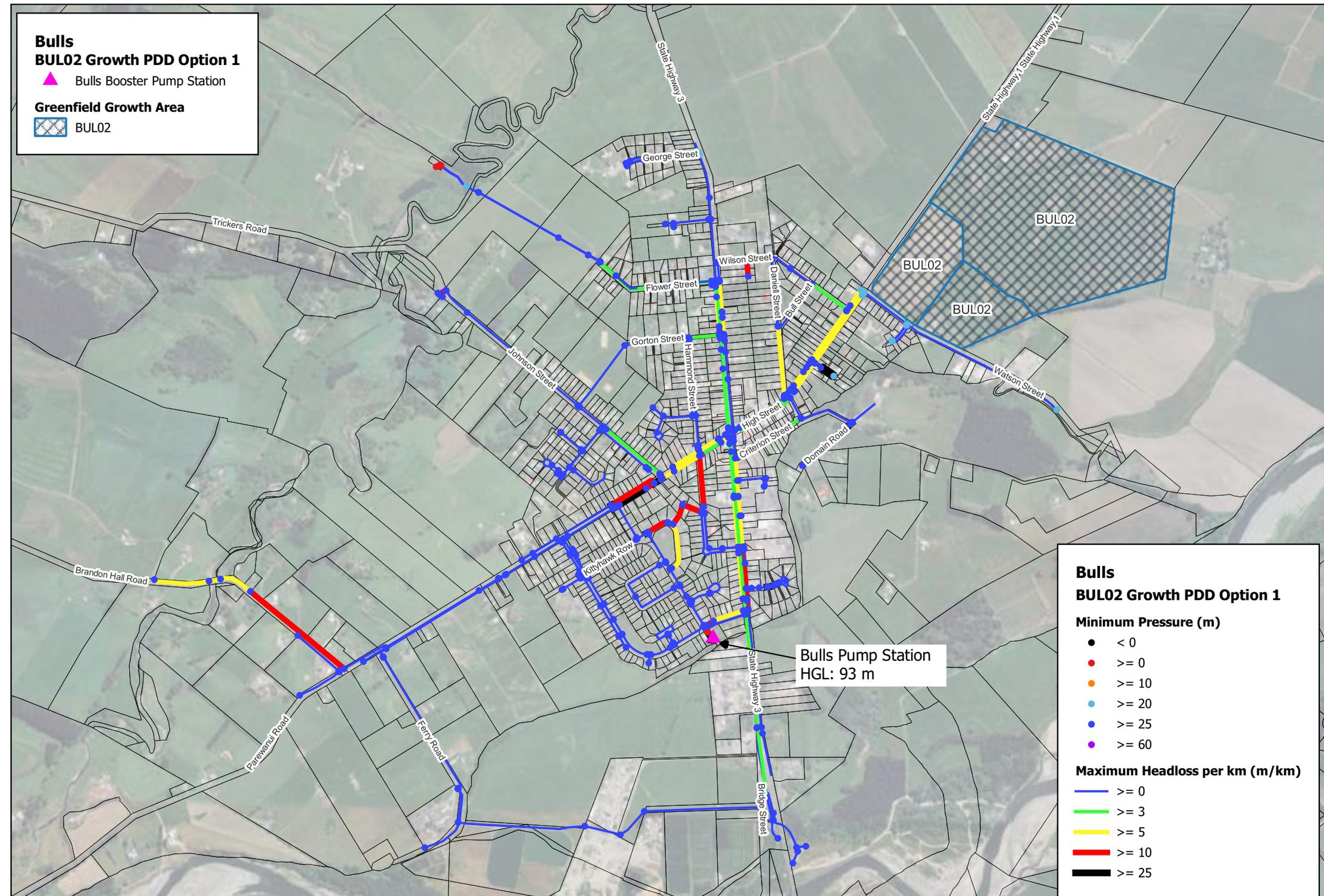
**Minimum Pressure (m)**

- < 0
- ≥ 0
- ≥ 10
- ≥ 20
- ≥ 25
- ≥ 60

**Maximum Headloss per km (m/km)**

- ≥ 0
- ≥ 3
- ≥ 5
- ≥ 10
- ≥ 25

Bulls Pump Station  
 HGL: 93 m



**Bulls**  
**BUL02 Growth Fire Flow Option 1**

▲ Bulls Booster Pump Station

**Greenfield Growth Area**

▨ BUL02

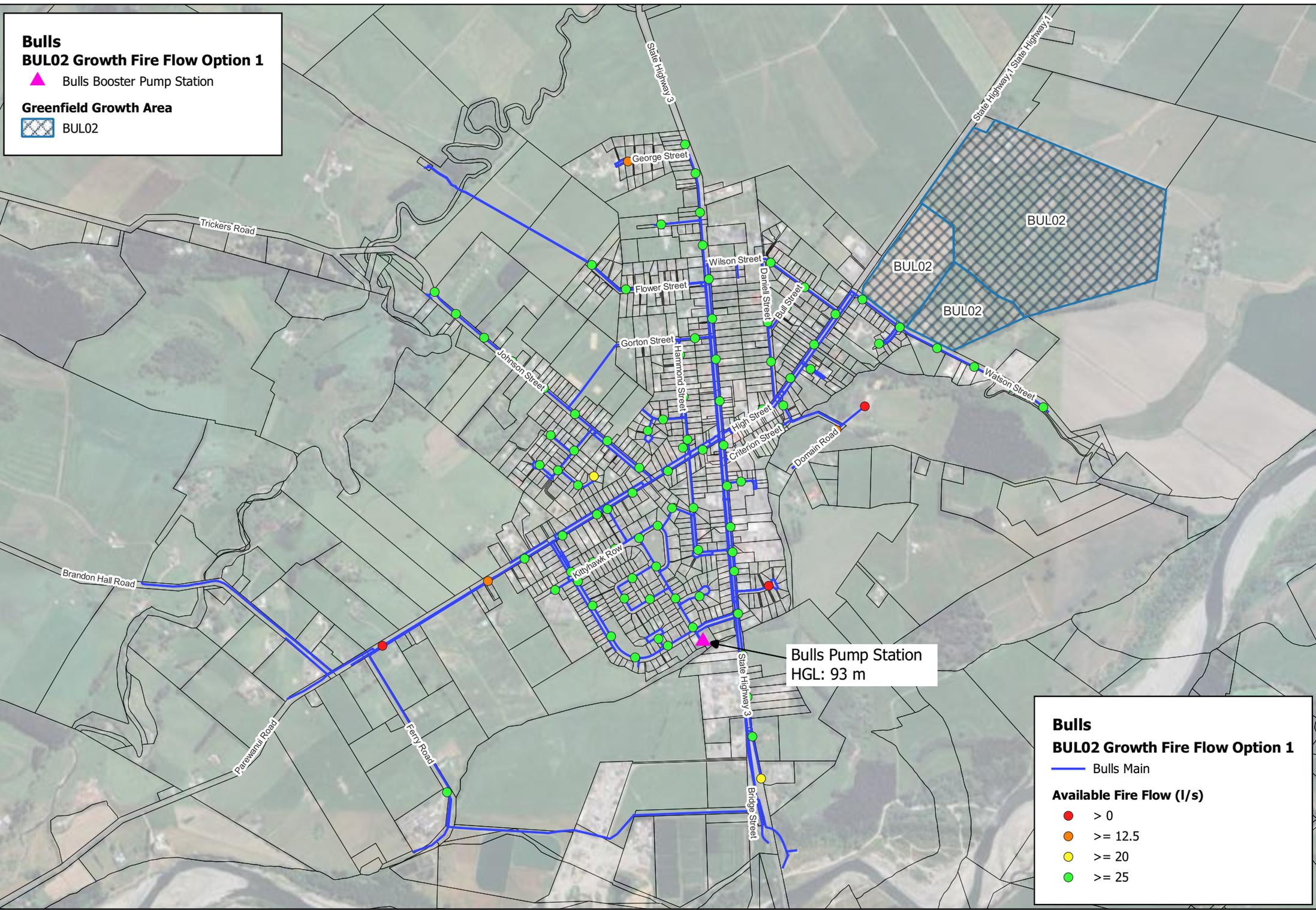
**Bulls**  
**BUL02 Growth Fire Flow Option 1**

— Bulls Main

**Available Fire Flow (l/s)**

- > 0
- >= 12.5
- >= 20
- >= 25

Bulls Pump Station  
HGL: 93 m



**Bulls**  
**BUL02 Growth PDD Option 2**

▲ Bulls Booster Pump Station

**Greenfield Growth Area**

▨ BUL02

**Bulls**  
**BUL02 Growth PDD Option 2**

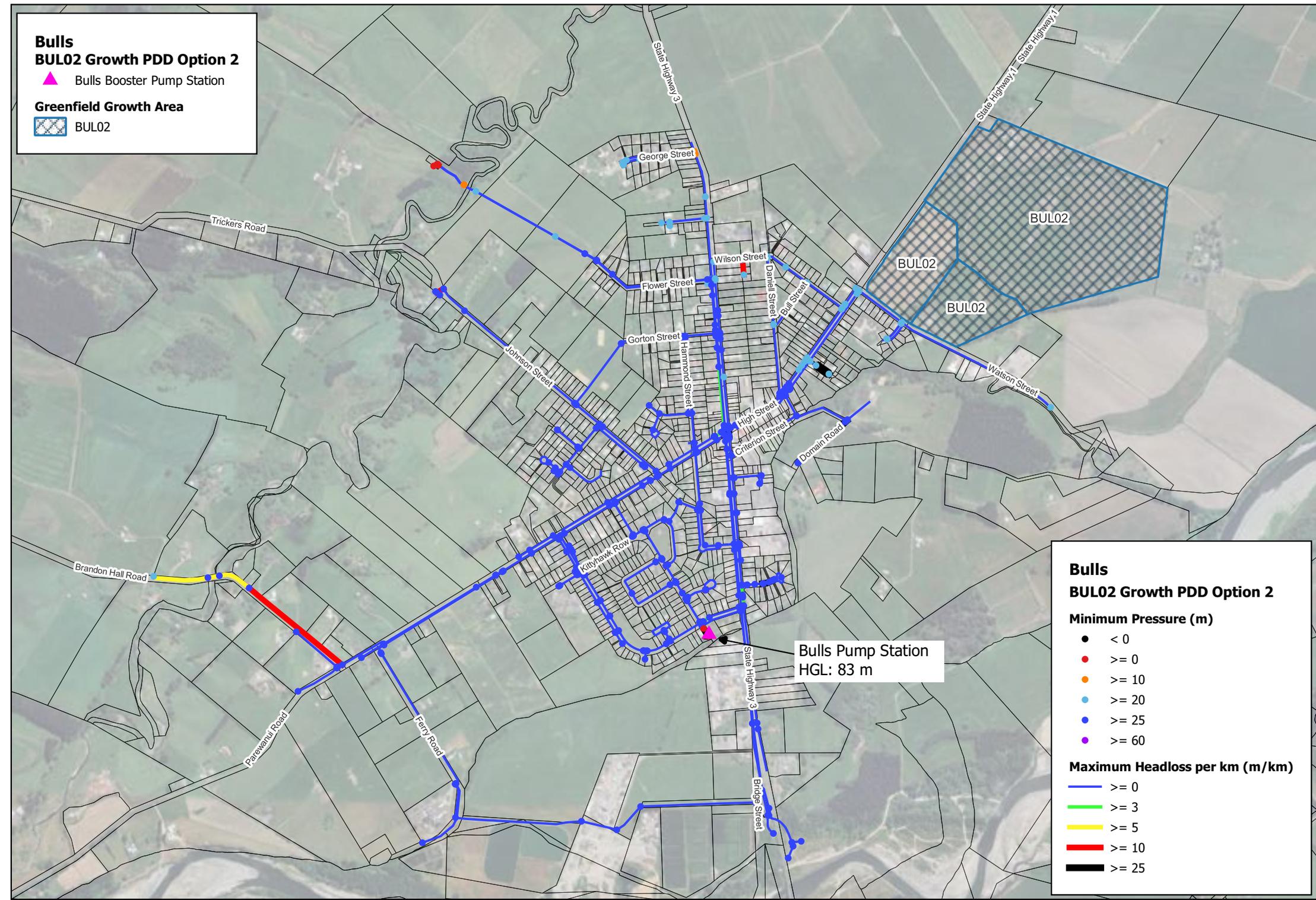
**Minimum Pressure (m)**

- < 0
- ≥ 0
- ≥ 10
- ≥ 20
- ≥ 25
- ≥ 60

**Maximum Headloss per km (m/km)**

- ≥ 0
- ≥ 3
- ≥ 5
- ≥ 10
- ≥ 25

Bulls Pump Station  
 HGL: 83 m



**Bulls**  
**BUL02 Growth Fire Flow Option 2**

▲ Bulls Booster Pump Station

**Greenfield Growth Area**

▨ BUL02

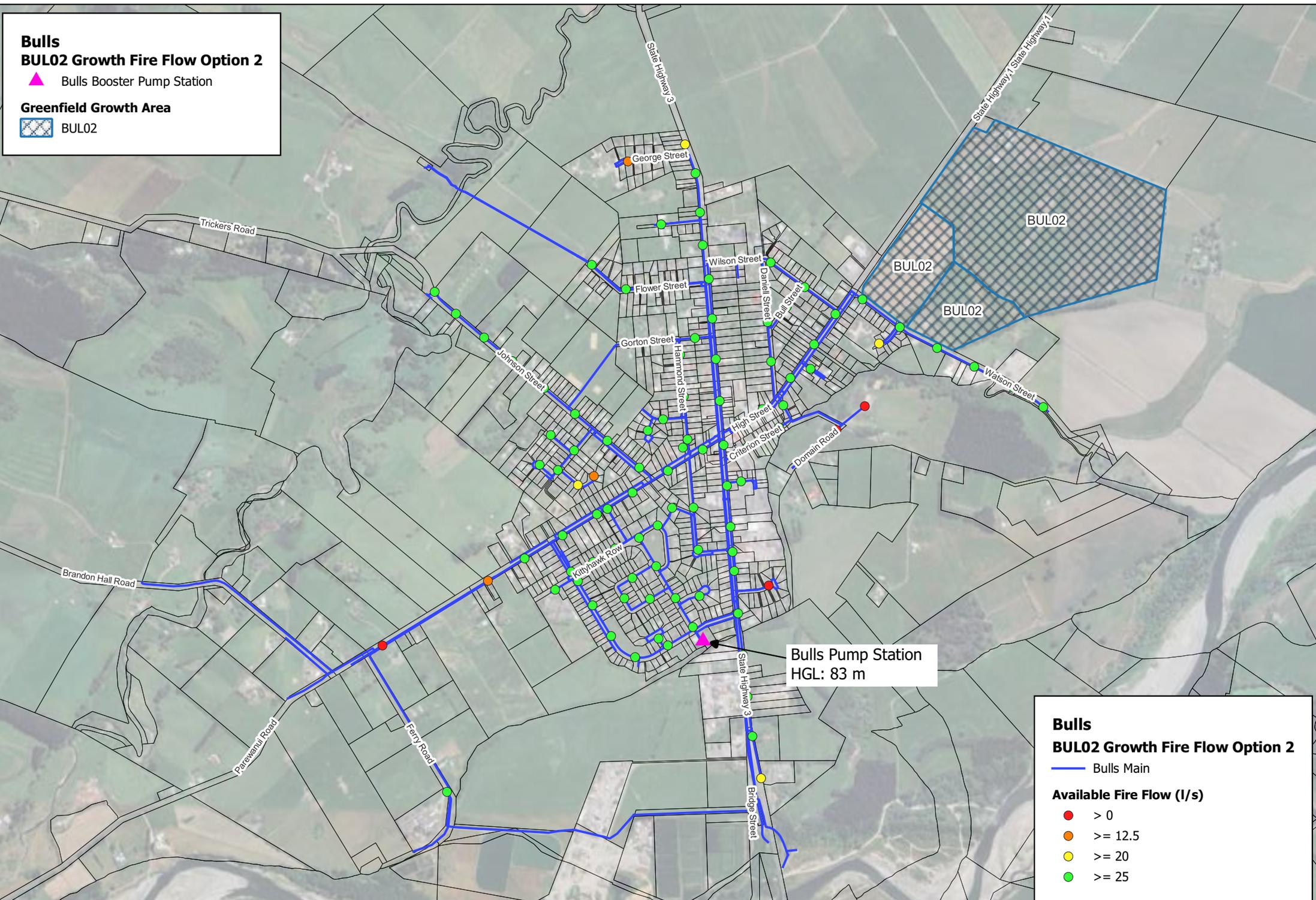
**Bulls**  
**BUL02 Growth Fire Flow Option 2**

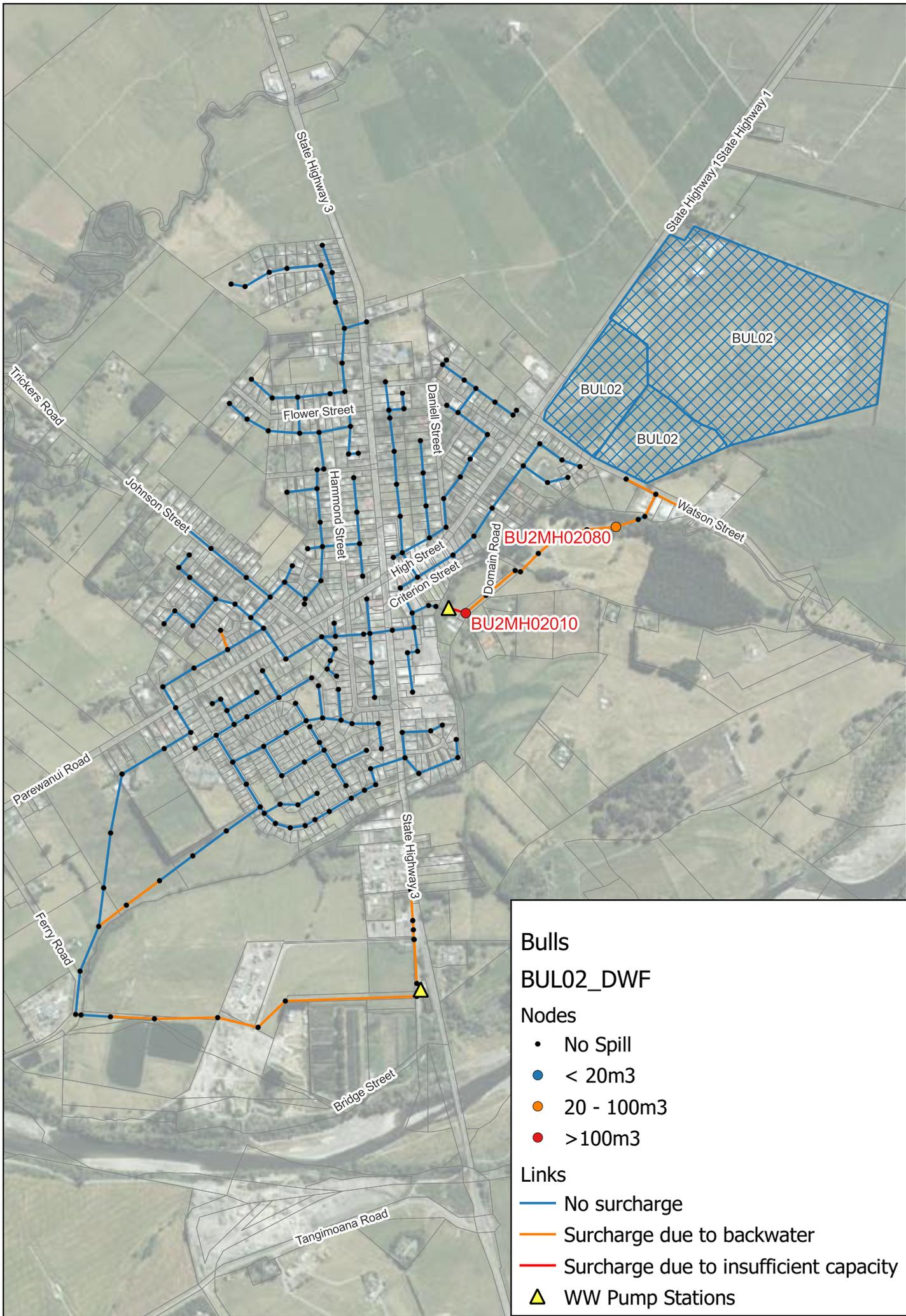
— Bulls Main

**Available Fire Flow (l/s)**

- > 0
- >= 12.5
- >= 20
- >= 25

Bulls Pump Station  
HGL: 83 m





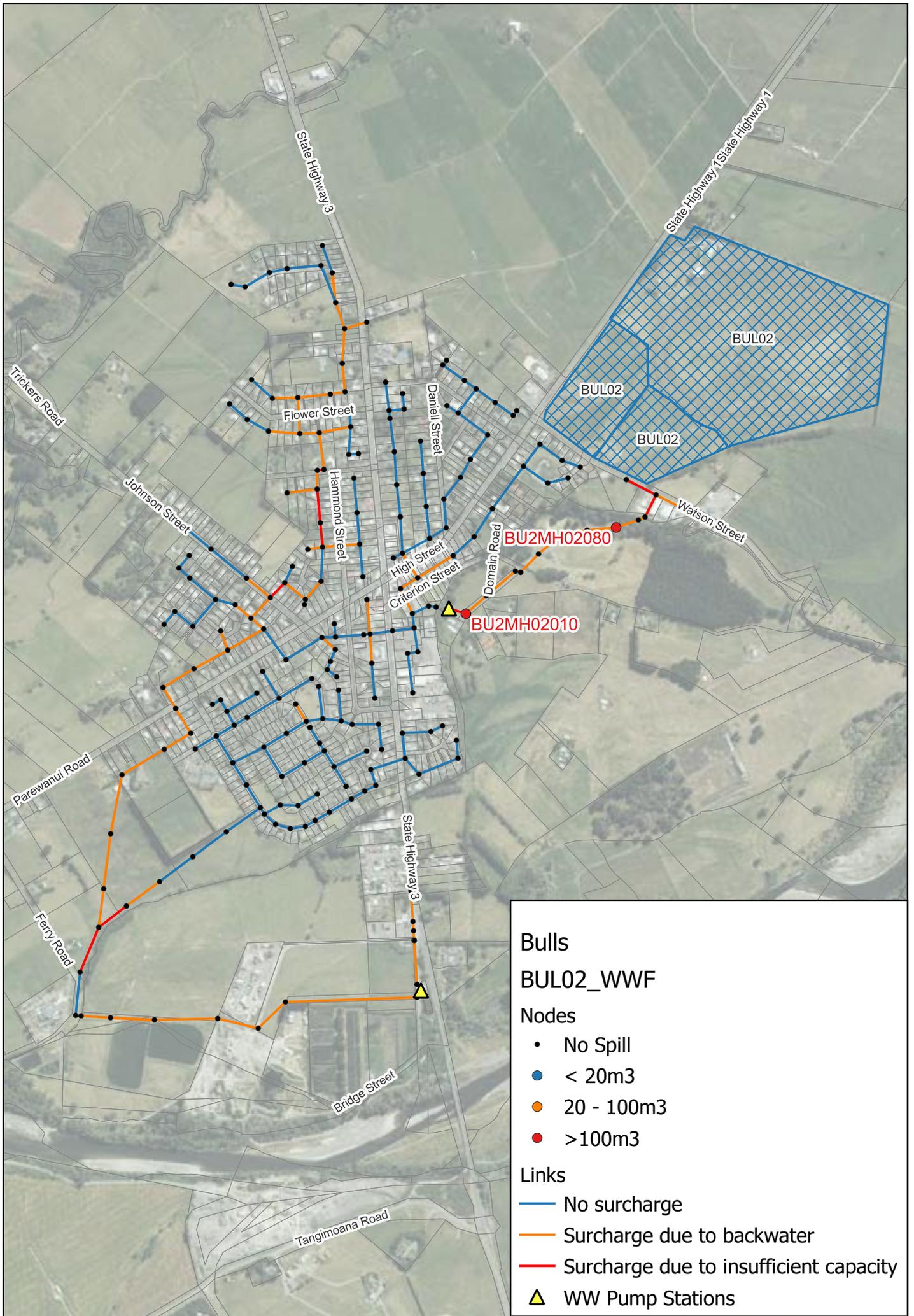
**Bulls**  
 BUL02\_DWF

**Nodes**

- No Spill
- ● < 20m3
- ● 20 - 100m3
- ● > 100m3

**Links**

- No surcharge
- Surcharge due to backwater
- Surcharge due to insufficient capacity
- ▲ WW Pump Stations



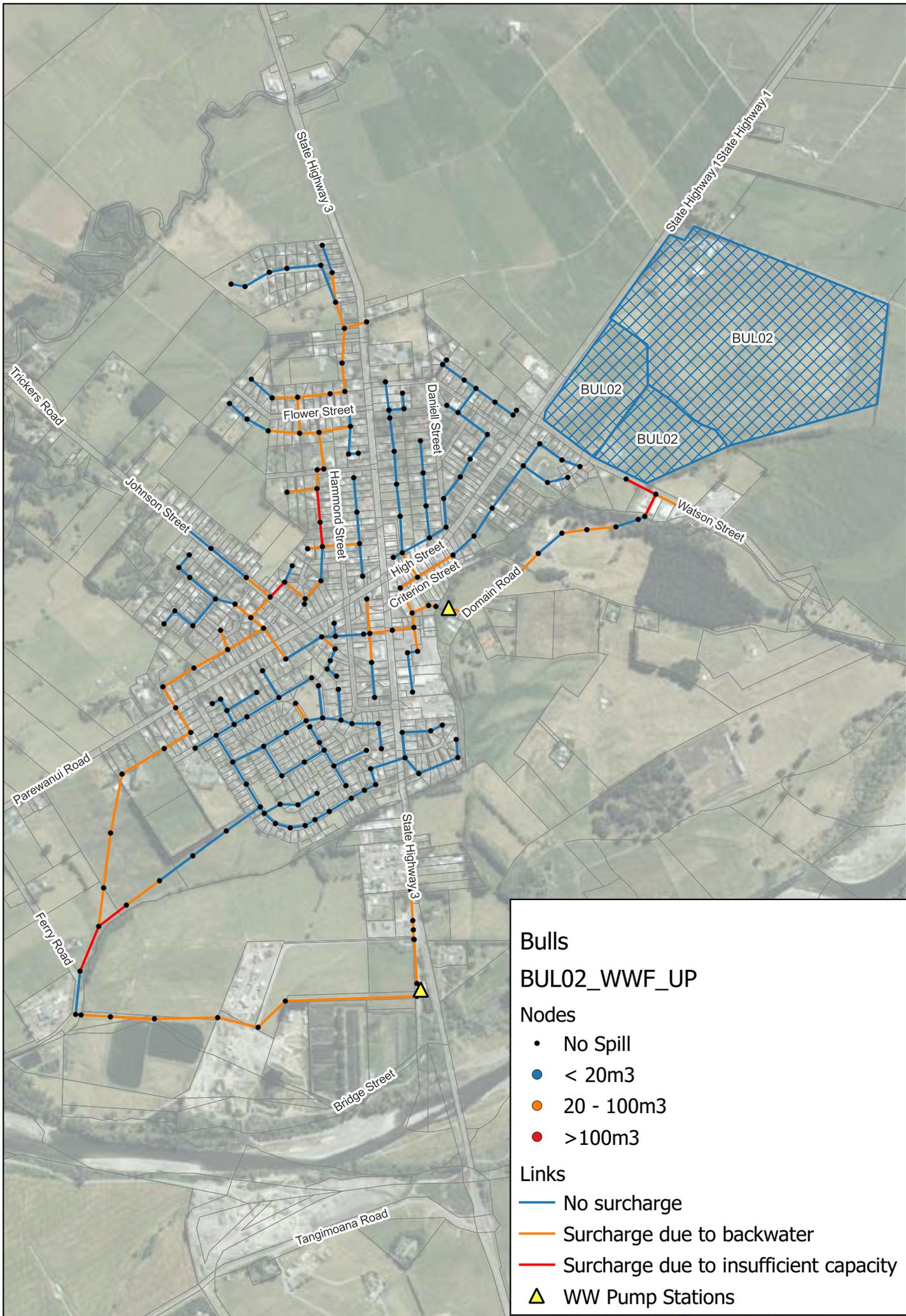
**Bulls**  
 BUL02\_WWF

**Nodes**

- No Spill
- ● < 20m3
- ● 20 - 100m3
- ● > 100m3

**Links**

- No surcharge
- Surcharge due to backwater
- Surcharge due to insufficient capacity
- ▲ WW Pump Stations



**Bulls**  
 BUL02\_WWF\_UP

**Nodes**

- No Spill
- ● < 20m<sup>3</sup>
- ● 20 - 100m<sup>3</sup>
- ● > 100m<sup>3</sup>

**Links**

- No surcharge
- Surcharge due to backwater
- Surcharge due to insufficient capacity
- ▲ WW Pump Stations

**Bulls**  
**BUL03 Growth PDD**

▲ Bulls Booster Pump Station

**Greenfield Growth Area**

▨ BUL03

**Bulls**  
**BUL03 Growth PDD**

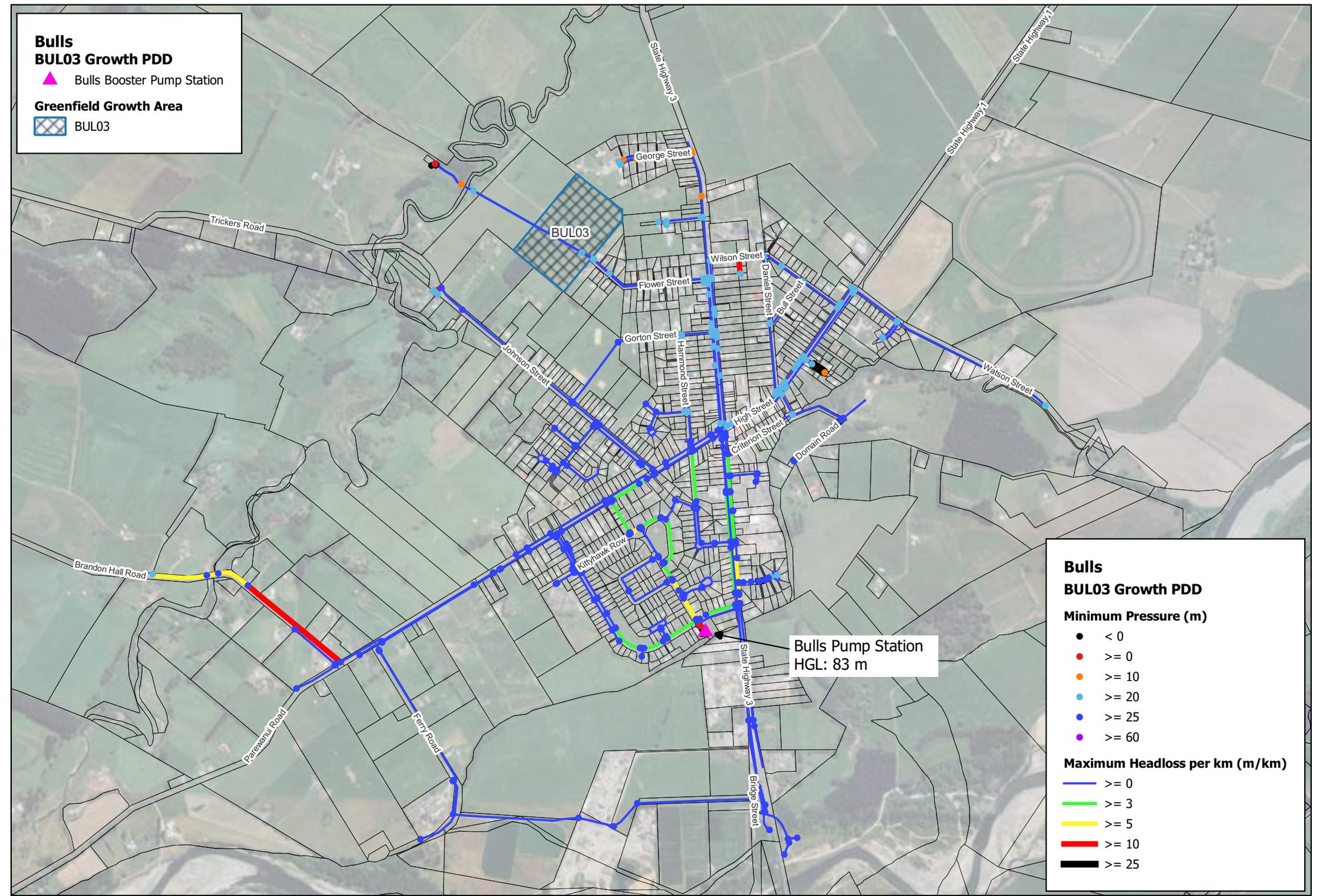
**Minimum Pressure (m)**

- < 0
- ≥ 0
- ≥ 10
- ≥ 20
- ≥ 25
- ≥ 60

**Maximum Headloss per km (m/km)**

- ≥ 0
- ≥ 3
- ≥ 5
- ≥ 10
- ≥ 25

Bulls Pump Station  
HGL: 83 m



**Bulls**  
**BUL03 Growth PDD Option 1**

▲ Bulls Booster Pump Station

**Greenfield Growth Area**

▣ BUL03

**Bulls**  
**BUL03 Growth PDD Option 1**

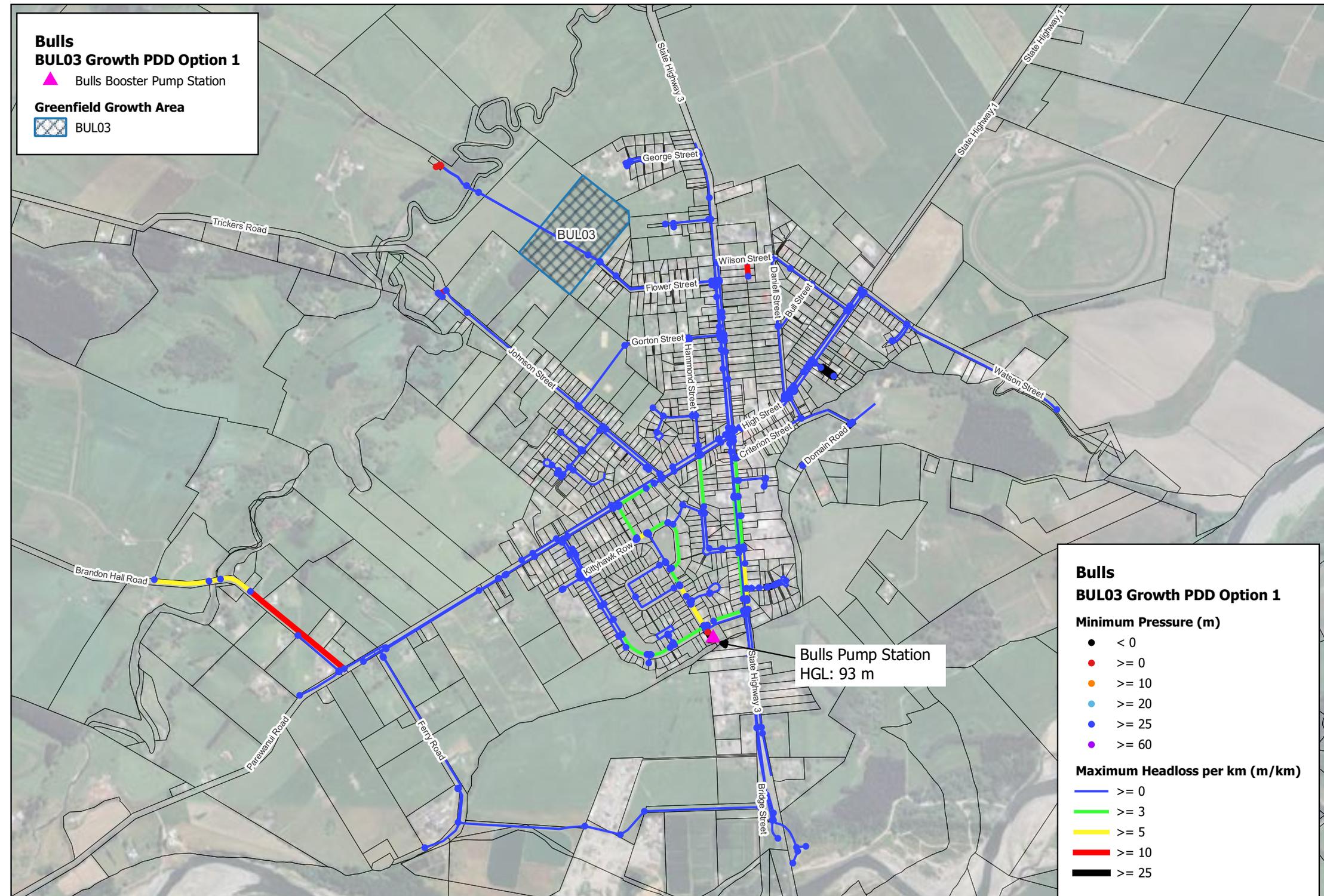
**Minimum Pressure (m)**

- < 0
- ≥ 0
- ≥ 10
- ≥ 20
- ≥ 25
- ≥ 60

**Maximum Headloss per km (m/km)**

- ≥ 0
- ≥ 3
- ≥ 5
- ≥ 10
- ≥ 25

Bulls Pump Station  
HGL: 93 m

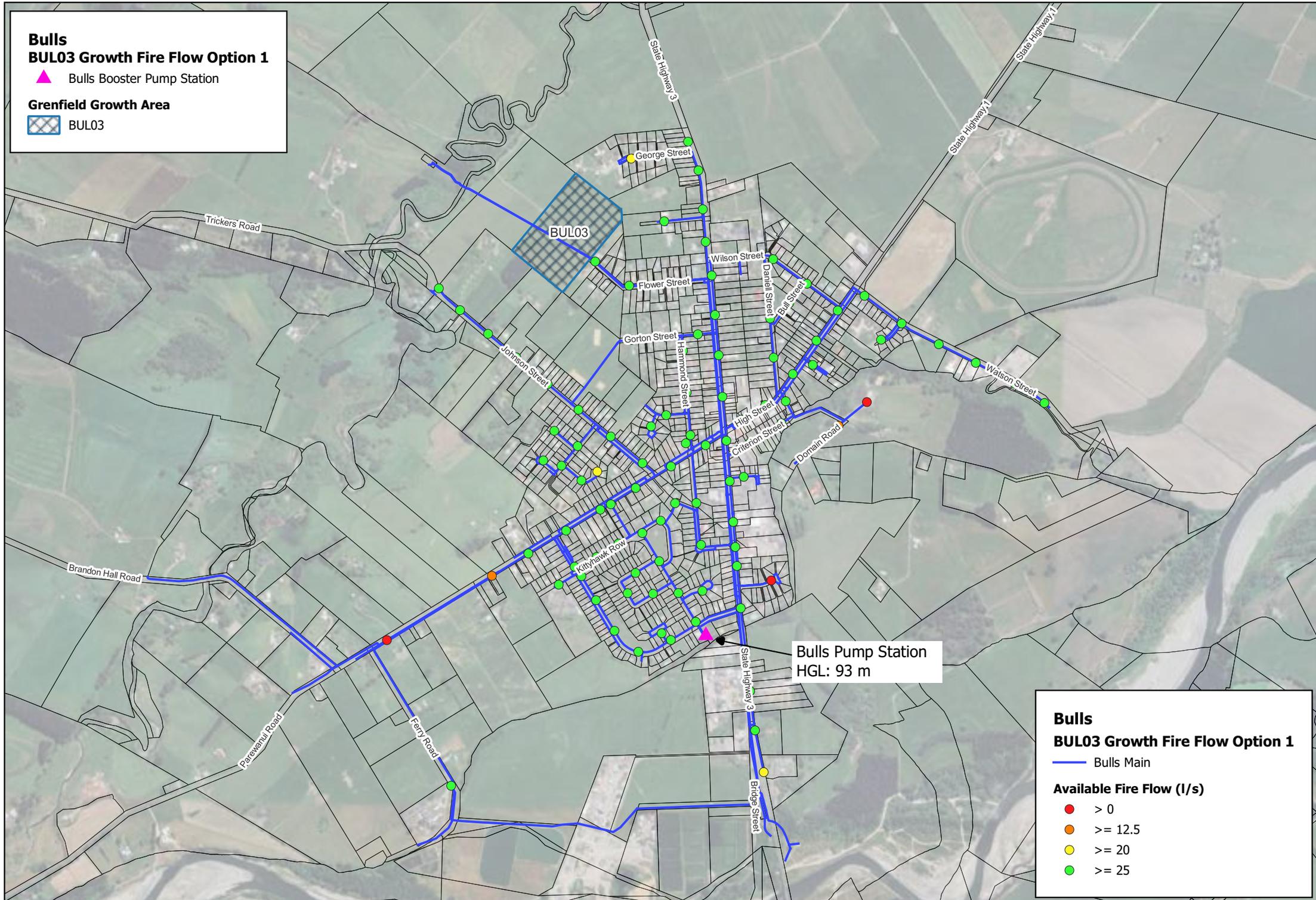


**Bulls**  
**BUL03 Growth Fire Flow Option 1**

▲ Bulls Booster Pump Station

**Grenfield Growth Area**

▨ BUL03



Bulls Pump Station  
HGL: 93 m

**Bulls**  
**BUL03 Growth Fire Flow Option 1**

— Bulls Main

**Available Fire Flow (l/s)**

- > 0
- >= 12.5
- >= 20
- >= 25

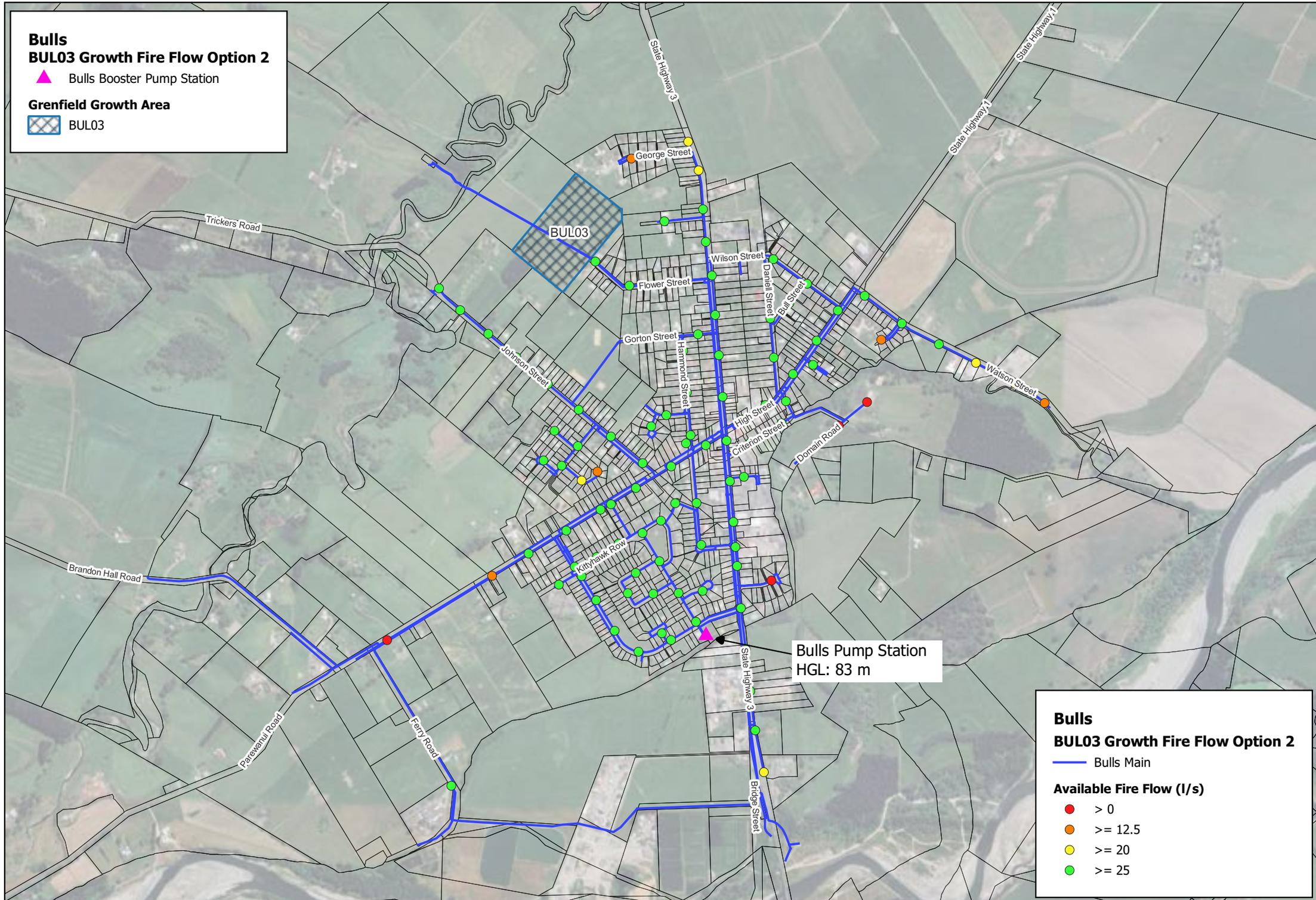


**Bulls**  
**BUL03 Growth Fire Flow Option 2**

▲ Bulls Booster Pump Station

**Grenfield Growth Area**

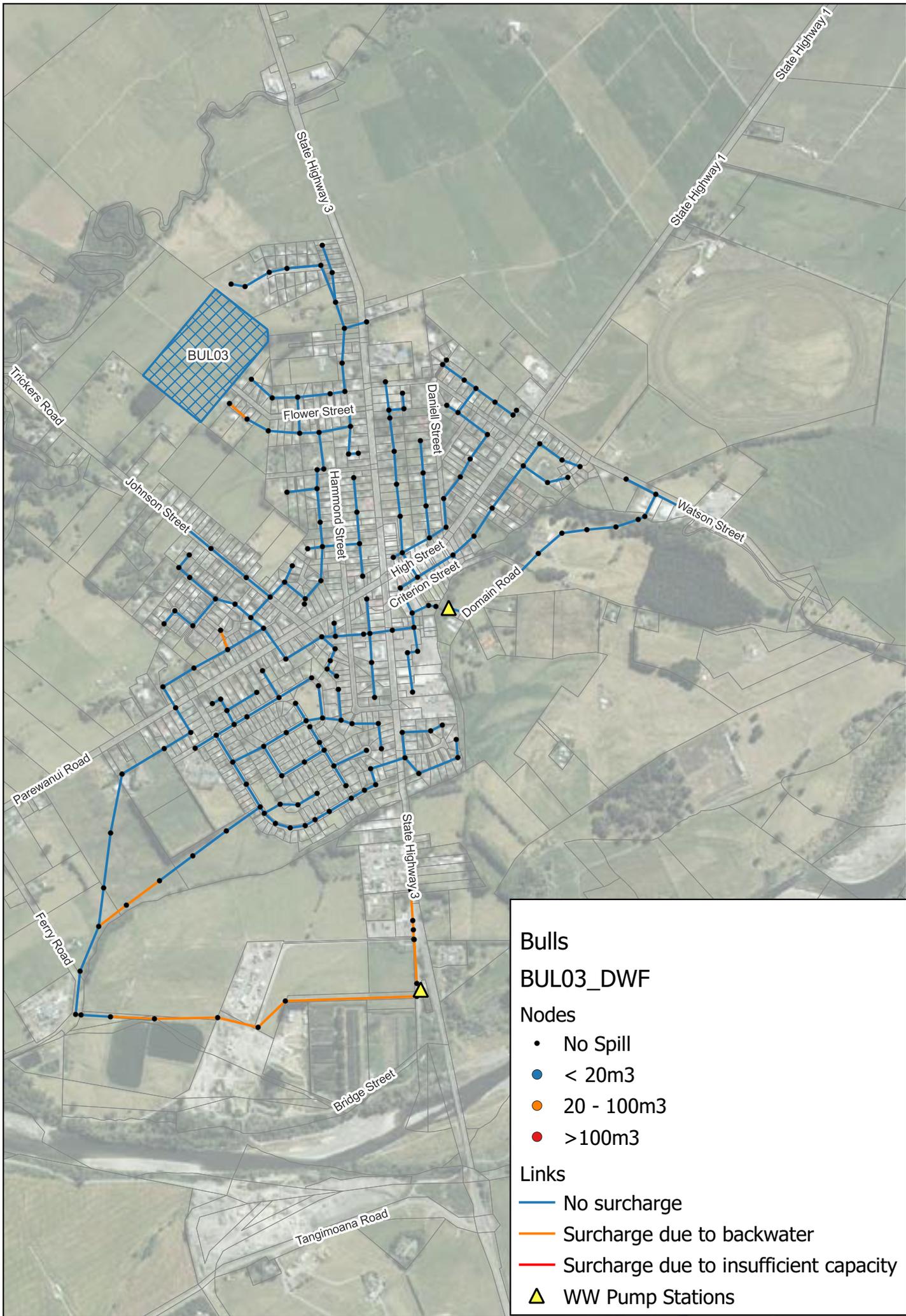
▨ BUL03



Bulls Pump Station  
HGL: 83 m

**Bulls**  
**BUL03 Growth Fire Flow Option 2**

- Bulls Main
- Available Fire Flow (l/s)**
- > 0
- >= 12.5
- >= 20
- >= 25



**Bulls**

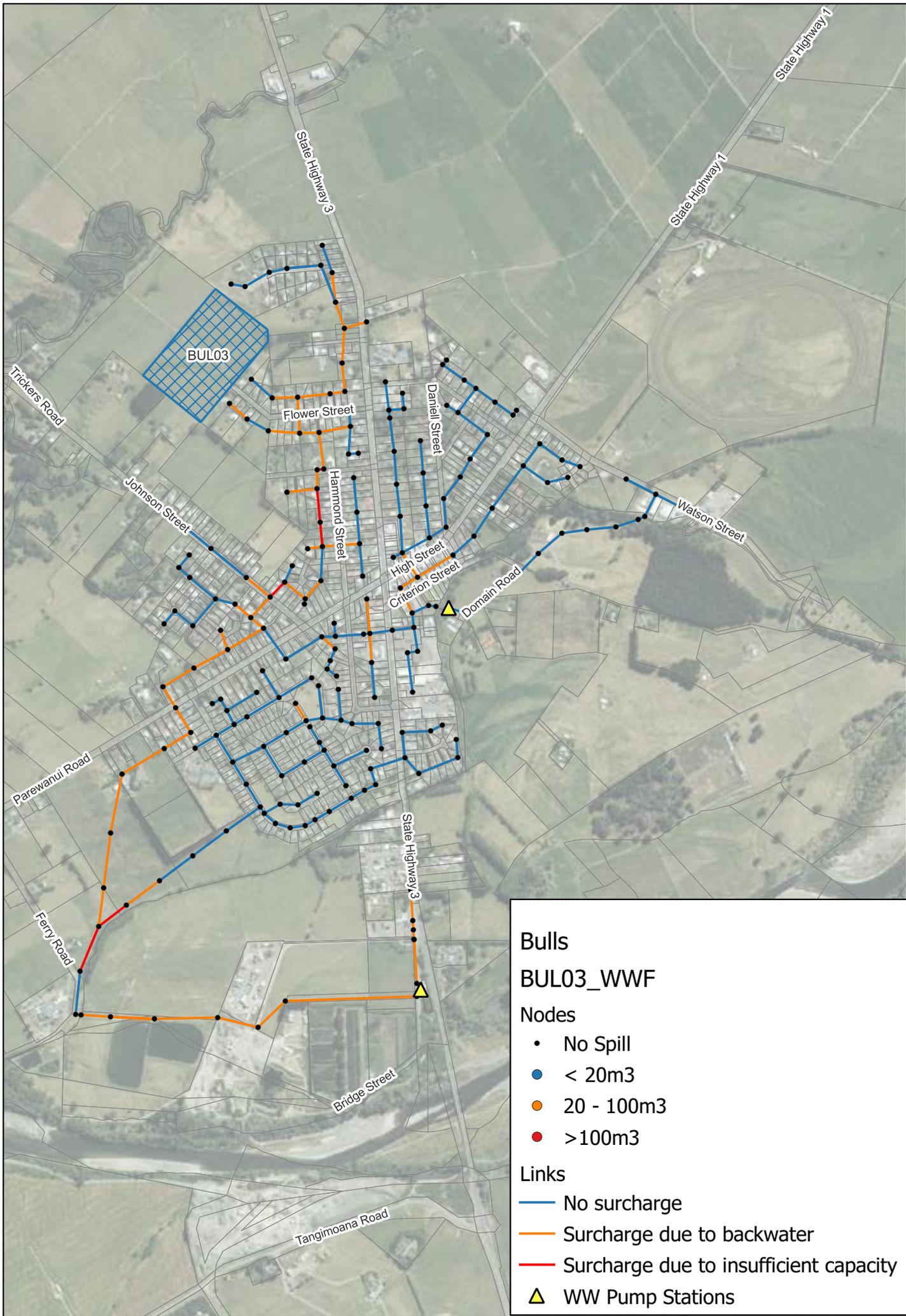
**BUL03\_DWF**

**Nodes**

- No Spill
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- ● 20 - 100m3
- ● > 100m3

**Links**

- No surcharge
- Surcharge due to backwater
- Surcharge due to insufficient capacity
- ▲ WW Pump Stations



**Bulls**  
**BUL03\_WWF**

**Nodes**

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**Links**

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- Surcharge due to insufficient capacity
- ▲ WW Pump Stations

**Bulls  
Bulls Infill PDD**

- ▲ Bulls Booster Pump Station
- Infill Growth Area

**Bulls  
Bulls Infill PDD**

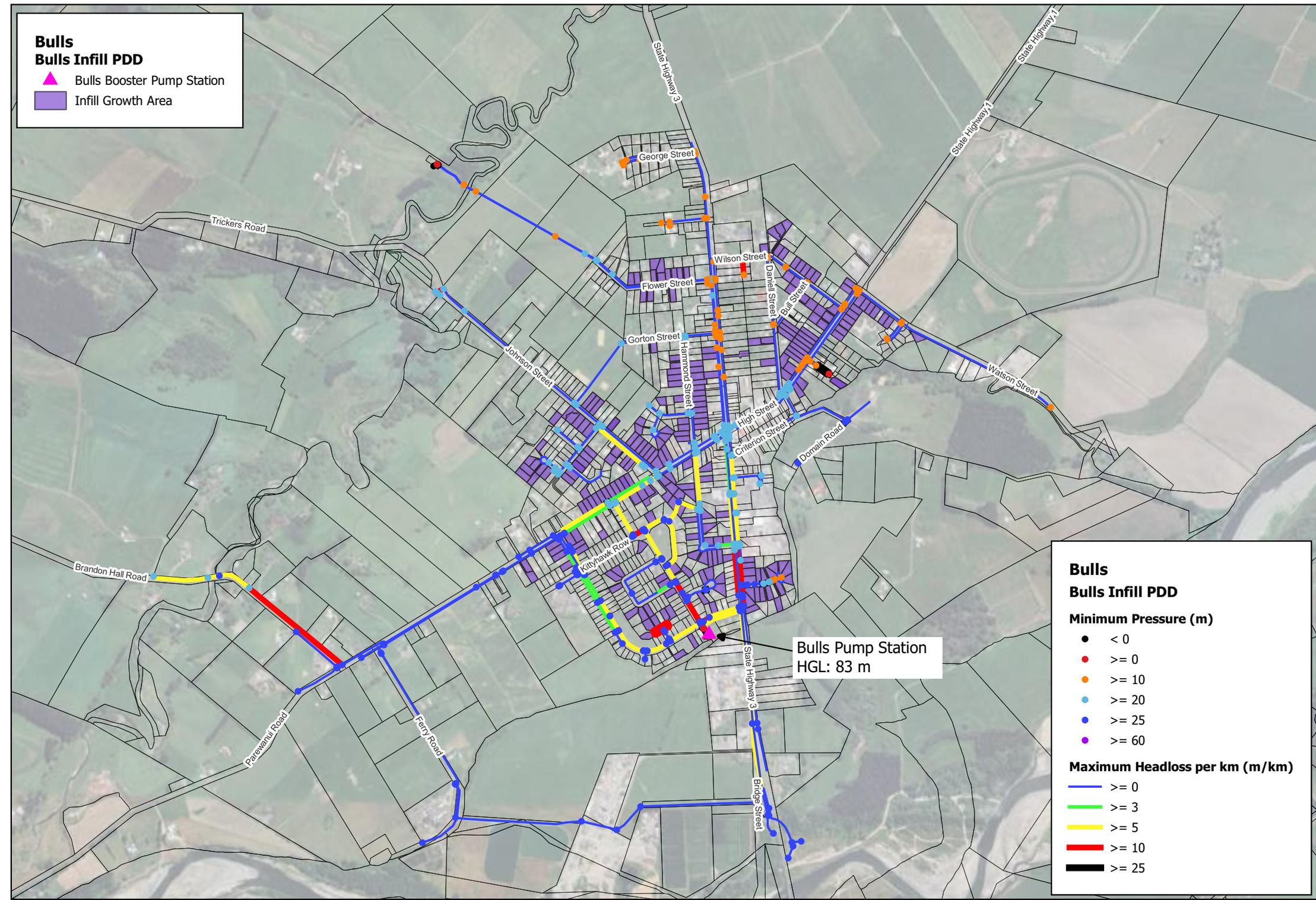
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Bulls Pump Station  
HGL: 83 m



**Bulls**  
**Bulls Infill PDD Option 1**

- ▲ Bulls Booster Pump Station
- Infill Growth Area

**Bulls**  
**Bulls Infill PDD Option 1**

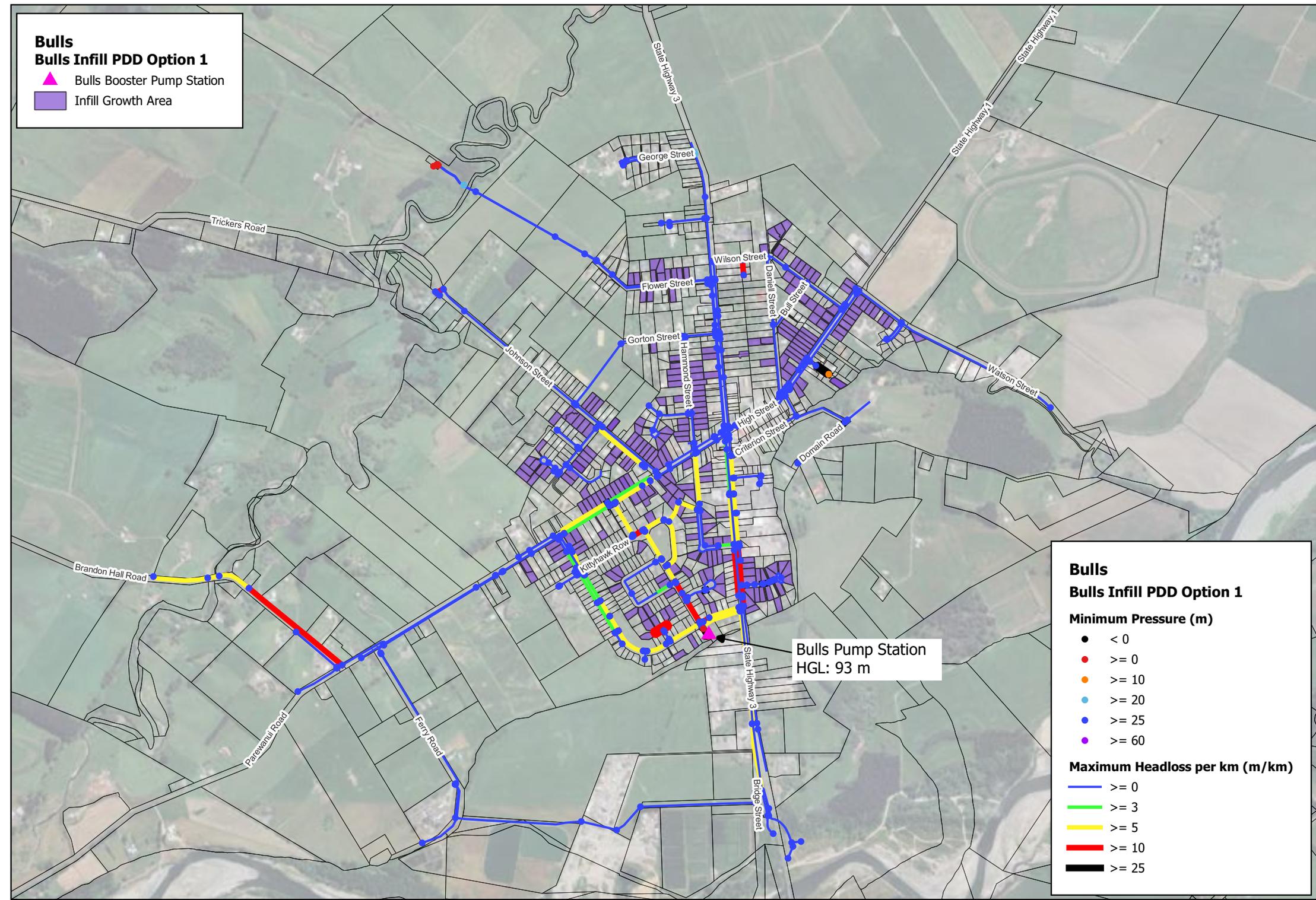
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- ≥ 20
- ≥ 25
- ≥ 60

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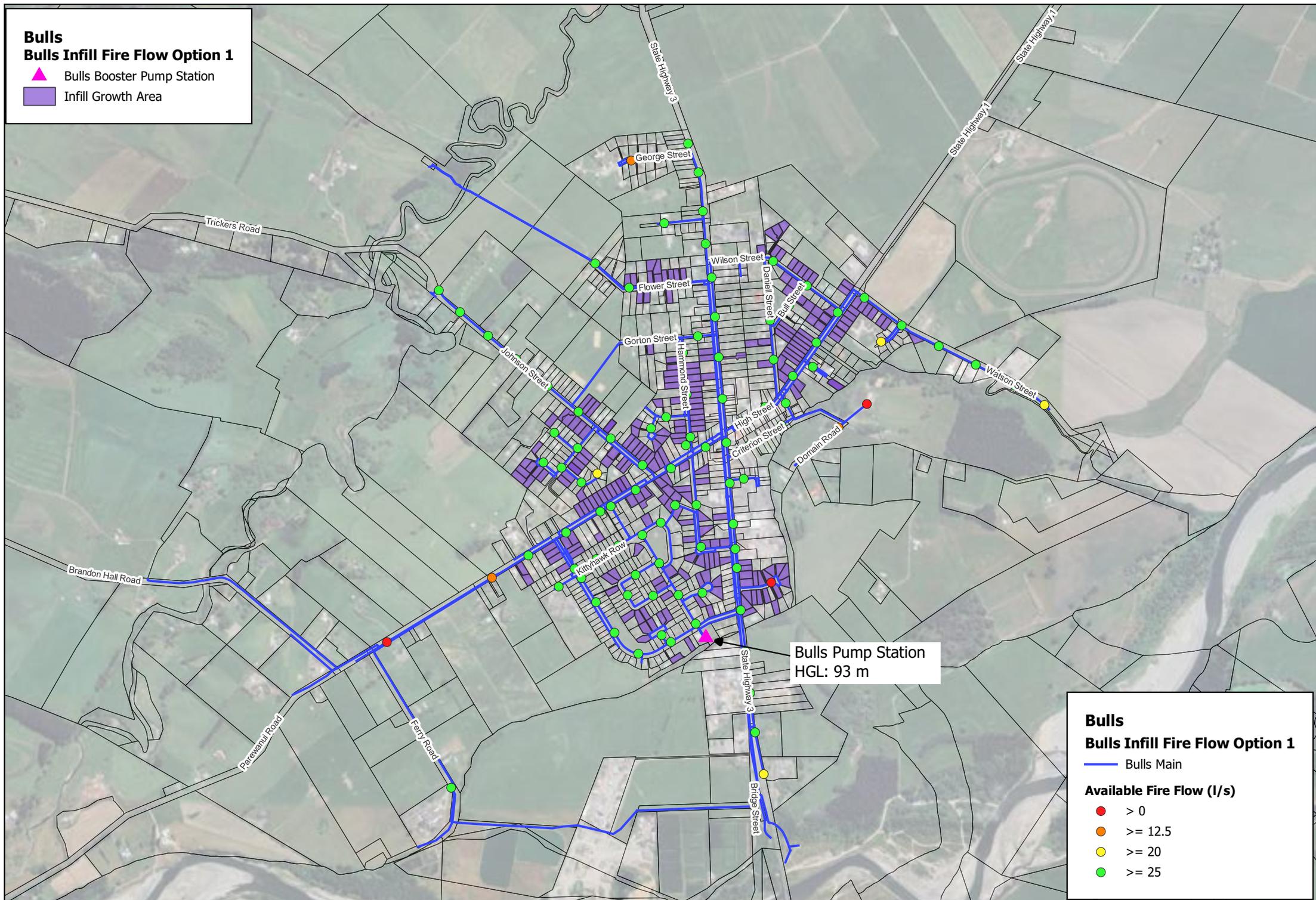
- ≥ 0
- ≥ 3
- ≥ 5
- ≥ 10
- ≥ 25

Bulls Pump Station  
HGL: 93 m



**Bulls**  
**Bulls Infill Fire Flow Option 1**

- ▲ Bulls Booster Pump Station
- Infill Growth Area



Bulls Pump Station  
HGL: 93 m

**Bulls**  
**Bulls Infill Fire Flow Option 1**

- Bulls Main
- Available Fire Flow (l/s)
  - > 0
  - >= 12.5
  - >= 20
  - >= 25

**Bulls**  
**Bulls Infill PDD Option 2**

- ▲ Bulls Booster Pump Station
- Infill Growth Area

**Bulls**  
**Bulls Infill PDD Option 2**

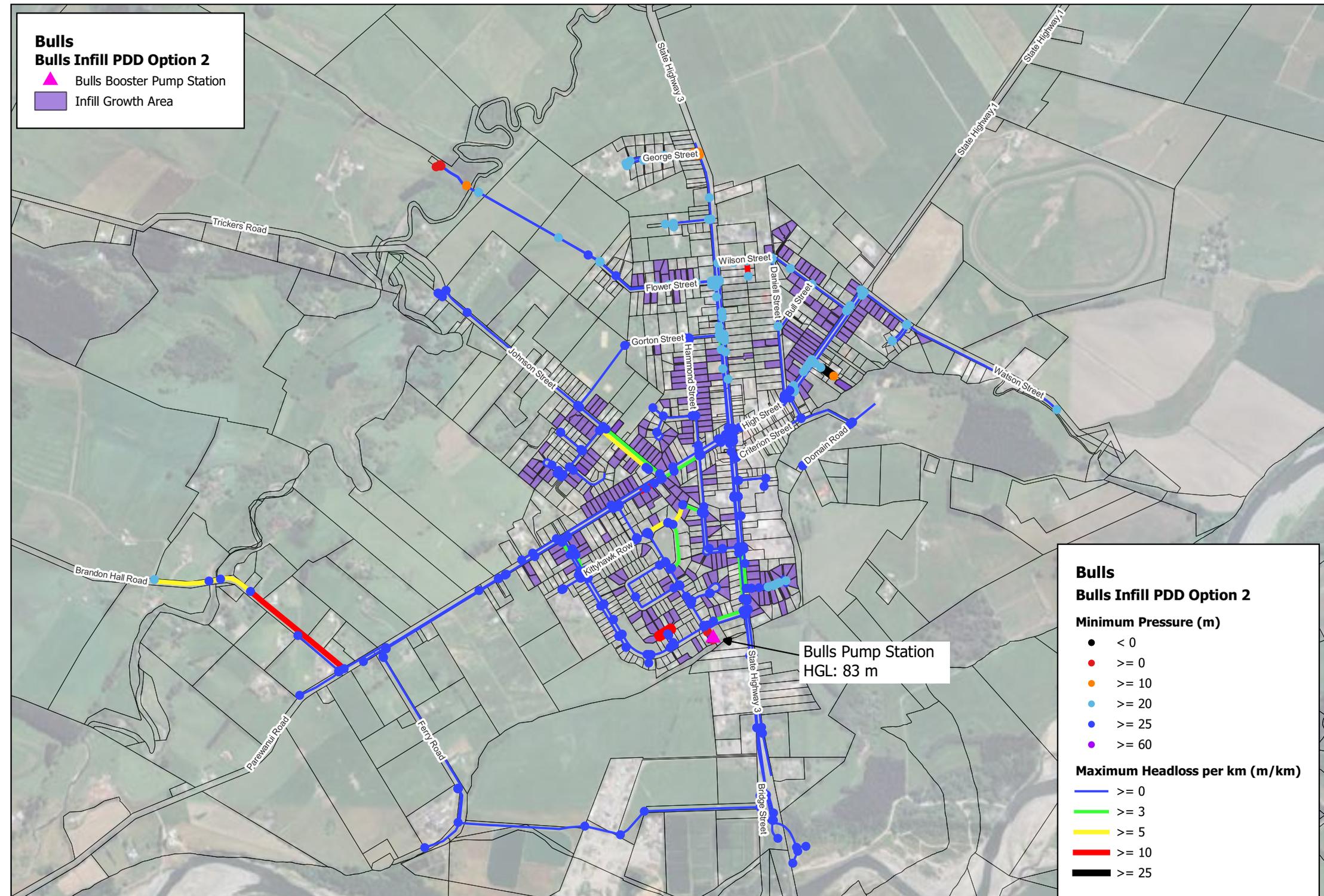
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- >= 60

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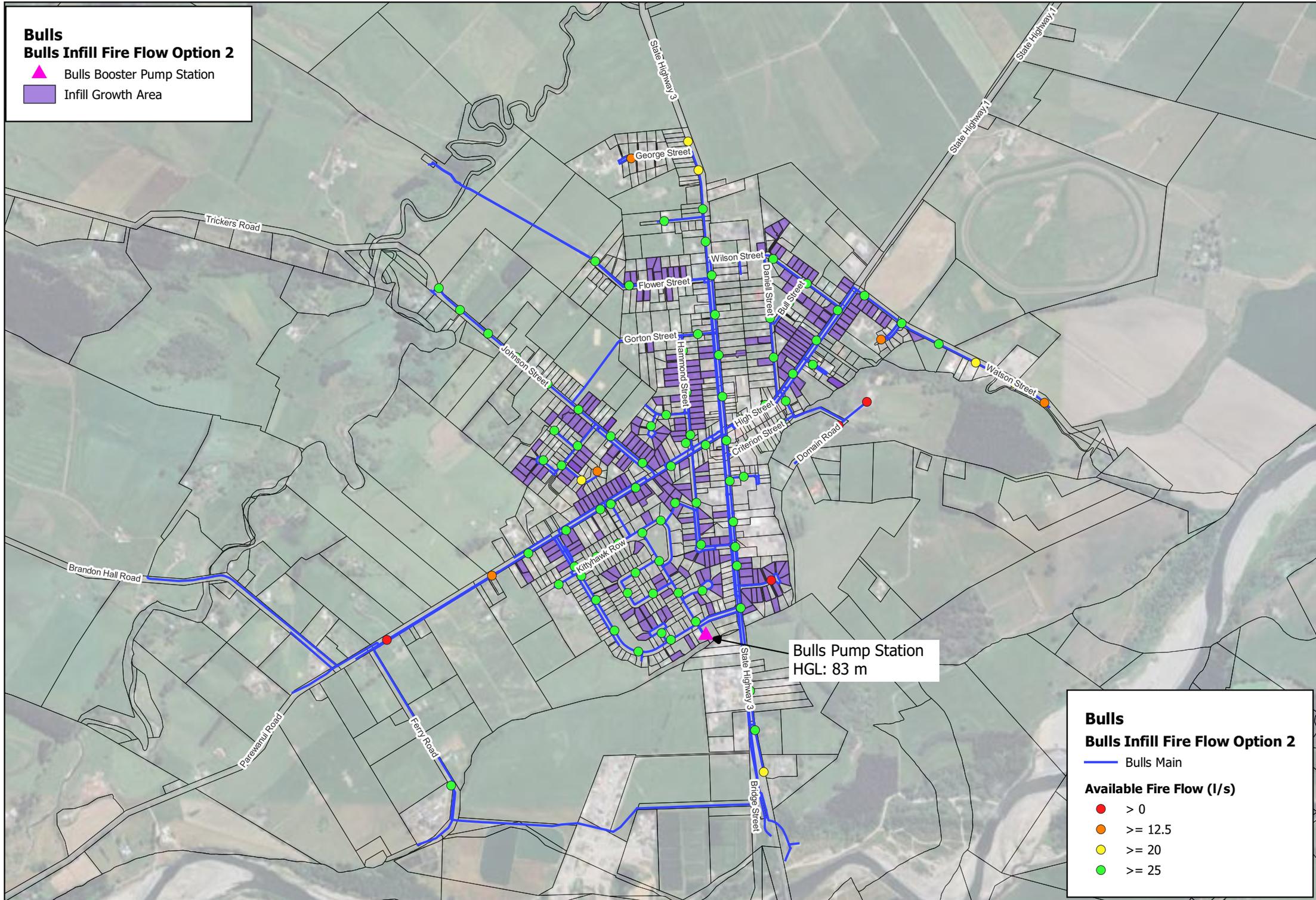
- >= 0
- >= 3
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Bulls Pump Station  
HGL: 83 m



**Bulls**  
**Bulls Infill Fire Flow Option 2**

- ▲ Bulls Booster Pump Station
- Infill Growth Area



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**Bulls Infill Fire Flow Option 2**

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