

Appendix E

**Stormwater management, water quality
and flooding**

Your ref: 0
Our ref: 12524108

19 August 2022

Nancy Zheng
Plasrefine Recycling Pty Ltd
Suite 607, Level 6, 109 Pitt Street
Sydney NSW 2000

Moss Vale Plastics Recycling and Reprocessing Facility – Response to Submissions – Stormwater management, water quality and flooding

Dear Nancy

1. Introduction

As part of the Environmental Impact Statement (EIS) for the Moss Vale Plastics Recycling and Reprocessing Facility, a soil and water assessment (Technical Report 10) was completed. Following exhibition of the EIS, submissions were received relating to stormwater management, water quality and flooding matters from the EPA, WaterNSW, BCD and DPE. This letter provides a response to those submissions. In general, the key matters of these submissions are:

- Requirement for further detail on the flood impact assessment.
- Review of MUSIC stormwater quality modelling parameters.
- Consideration of flooding impact on the proposed stormwater quality treatment facilities.

Further assessment was undertaken to include:

- 2-dimensional flood modelling assessment, updating from the previous 1-dimensional flood assessment.
- Relocating the stormwater bio-retention, based on the updated flood results and resizing and reconfiguring the bio-retention basins based on updated MUSIC modelling. The updated MUSIC modelling included the WaterNSW recommendations where appropriate.

In addition, the assessment considered:

- Reduced water demand estimation, therefore reducing demand for stormwater and associated pollutant removal.
- Retention of the existing basin at the north-east of the site, based on consultation with the adjacent landholder regarding diversion of existing flow paths and impact to the portion of the dam on the adjacent lot.
- Updating of the riparian offset requirements based on:
 - More detailed mapping of the flow paths (through the updated flood study).
 - The altered water management system, in particular the retention of the existing basin and the retention of the eastern waterway alignment.

2. Updated Flood Assessment

The flood assessment was updated as follows:

- Catchments draining to the eastern and western watercourse through the site were reviewed, based on aerial survey information. The total catchment area draining to the Collins Road culvert, downstream of the site as shown on Figure 2, is 127 hectares. The catchment primarily consists of:
 - A larger western watercourse (second order stream) forming the primary tributary and draining a catchment of 104 ha.
 - A minor eastern watercourse (first order stream), draining a small 23 ha catchment of a few rural properties.
- A WBNM hydrological model was developed for catchment draining to the Collins Road culvert. In the absence of flow gauge data for calibration, the model used regional parameters validated against a single node XP-RAFTS hydrological model, with favourable agreement. The model was configured as follows:
 - 22 equally sized sub-catchments were delineated. The impervious fraction was assumed as 10%, given the rural nature of the catchment.
 - ARR 2019 methodologies and rainfall downloaded from the BOM Data Hub for the coordinates latitude 34.5279 S and longitude 150.3659 E were configured.
 - Probability neutral initial storm losses and a continuing loss of 1.88, following the applied 0.4 factor as per BOM recommendation were adopted
 - The recommended WBNM lag factor of 1.6 was adopted.
 - The model was simulated for the 1 in 10, 20, 50, 100, 200 and 500 AEP events and the PMF.
- A 2-dimensional HECRAS hydraulic model was compiled for the extents shown in Figure 2, simulated for existing and design conditions as follows:
 - The existing conditions model was based on LiDAR data, obtained from the ICSM Elvis Data Portal, timestamped 20 January 2015. The design conditions model included the proposed fill pad, bio-retention and the north-east dam re-configuration.
 - Topographic roughness was estimated as Mannings factors 0.05 for rural pastures and floodway.
 - The inflow WBNM hydrology for the above listed events was applied throughout the model. The maximum median (considering the 10 storm temporal patterns) duration, adjacent to the site in the western tributary, was identified as the critical storm for each event. Only the critical storm inflow was simulated in HECRAS. The downstream boundary was configured as a 1% slope normal depth, downstream of the culvert and east of the Collins Road culvert.
 - The culvert under Collins Road dimension was estimated based on visual observation, minor culverts within the study area were not modelled on that basis that they would overflow during the critical events.
 - In a localised location at the east of the pad, pad heights were raised in the hydraulic model by approximately 500 mm, to provide pad flood immunity in a PMF. During detailed design, the design of the facility will accommodate this localised design change which could require level reconfiguration or a small block wall.

Flood mapping (attached) for both existing and design conditions showing flood level, depth, velocity, hazard and flood impact (when comparing design conditions to existing conditions). The 1 in 100 AEP event results generally show the following:

- The existing flood depth in the western tributary ranges from 0.3 to 1 m while the eastern tributary flood depths range from 0.2 to 0.3 m. In the farm dam flooding depths are approximately 1 m. In the design case, the flood depth in the western tributary ranges from 0.4 to 1.1 m, the flood depth in the eastern tributary ranges from 0.3 to 0.4 m and the depth in the farm dam is approximately 1.1 m.

- The impact of the filling associated with the project was assessed through review of the design flood levels compared to the existing levels. In the 1 in 100 AEP event, no significant downstream flooding impacts are predicted with significant changes limited to the site and adjacent lot to the east including:
 - In the western watercourse an increase in the flood level of up to approximately 300 mm locally in the north-west where the pad has constrained the flow width. This does not translate into significant increases in the channel downstream after leaving the site.
 - In the eastern watercourse there is an increase in flood levels up to approximately 100 mm. This is likely due to the flow width which has been constrained by the pad and the reconfiguration of the dam spillway. It is considered that these matters could be further refined during detailed design, via adjustments to the dam spillway and realignment of the first order stream.
- The existing flood velocity adjacent to the proposed site ranges from 0.7 to 1.7 m/s in the eastern and western tributaries, compared to the design case where this ranges from 0.8 to 1.8 m/s. The flood velocities are generally highest at the invert of the tributaries and main channel and are slowest on the floodplains.

Given the “conveyance function” of the western watercourse, the floodway has been assessed in accordance with Defining the Floodway – Can One Size Fit All? Howells, Mc Luckie, Collins and Lawson (FMA NSW Annual Conference, Coffs Harbour, February 2004). The method suggests:

- As a minimum the floodway must follow the creek line bank to bank
- Velocity Depth must be greater than 0.25 m²/s and the velocity must be greater than 0.25 m/s

Or

- Velocity is greater than 1 m/s.

Using these methods, Figure 1 shows the floodway determined for the western watercourse. The remainder of the floodplain inundated in the 1 in 100 AEP flood has been assessed as flood storage and flood fringe. The figure shows the proposed development outside the floodway area.



Figure 1 Estimated Floodway overlain on existing 1 in 100 AEP Depth Velocity map, where green is $DV < 0.25 \text{ m}^2/\text{s}$

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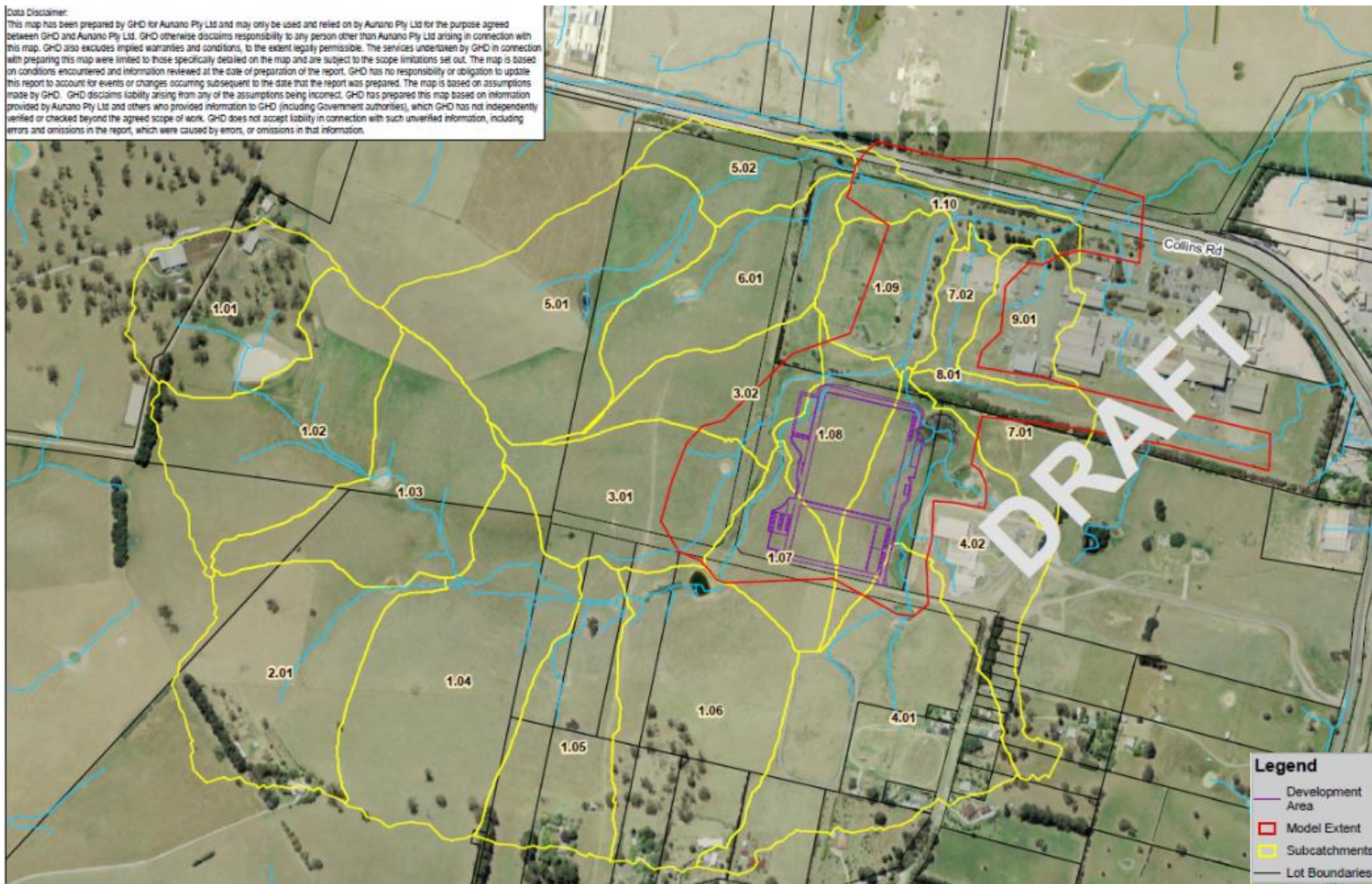


Figure 2 Catchments and Model Setup

3. Updated Stormwater Quality Strategy

The MUSIC stormwater quality modelling was updated as shown on Figure 3. The modifications included:

- Changing of the bio-retention hydraulic conductivity and the high-flow bypass values based on WaterNSW comments.
- Changing the demand for water based on the revised water balance. The demand included the following:
 - 5.5 kL/day as the minimum estimated demand for recycling and reprocessing. Estimating the minimum demand is conservative with relation to stormwater treatment.
 - 1.7 kL/day for toilet flushing, unchanged from the EIS assessment.
- Upsizing the areas of bio-retention to satisfy the NORBE requirements. Further bio-retention is provided at the south-west of the site. Bio-retention area locations have been altered to accommodate the retention of the existing north-eastern dam, with the bio-retention located above the 1 in 100 AEP flood level.
- The riparian offset requirements, as outline in the EIS, were re-assessed for the western water course. These are shown on Figure 3, noting that development is not proposed within the inner riparian zone, and offsetting areas are available for development within the outer riparian zone.
- To confirm the feasibility of the revised strategy with relation to bio-retention provision and alteration of the existing north-western dam, conceptual earthworks modelling was undertaken using the 12D earthworks modelling package. This confirmed the ability to provide the required bio-retention filter area above the 1 in 100 AEP flood level. The alteration to the dam was also modelled including the provision of the riparian zone on a constructed strip adjacent to the dam.

Results of the MUSIC modelling are shown on Table 1, demonstrating a reduction in pollutant loads greater than 10 percent as required by the WaterNSW MUSIC Modelling Guidelines.

Table 1 MUSIC Results

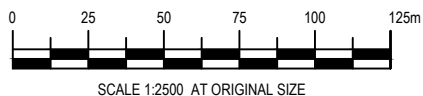
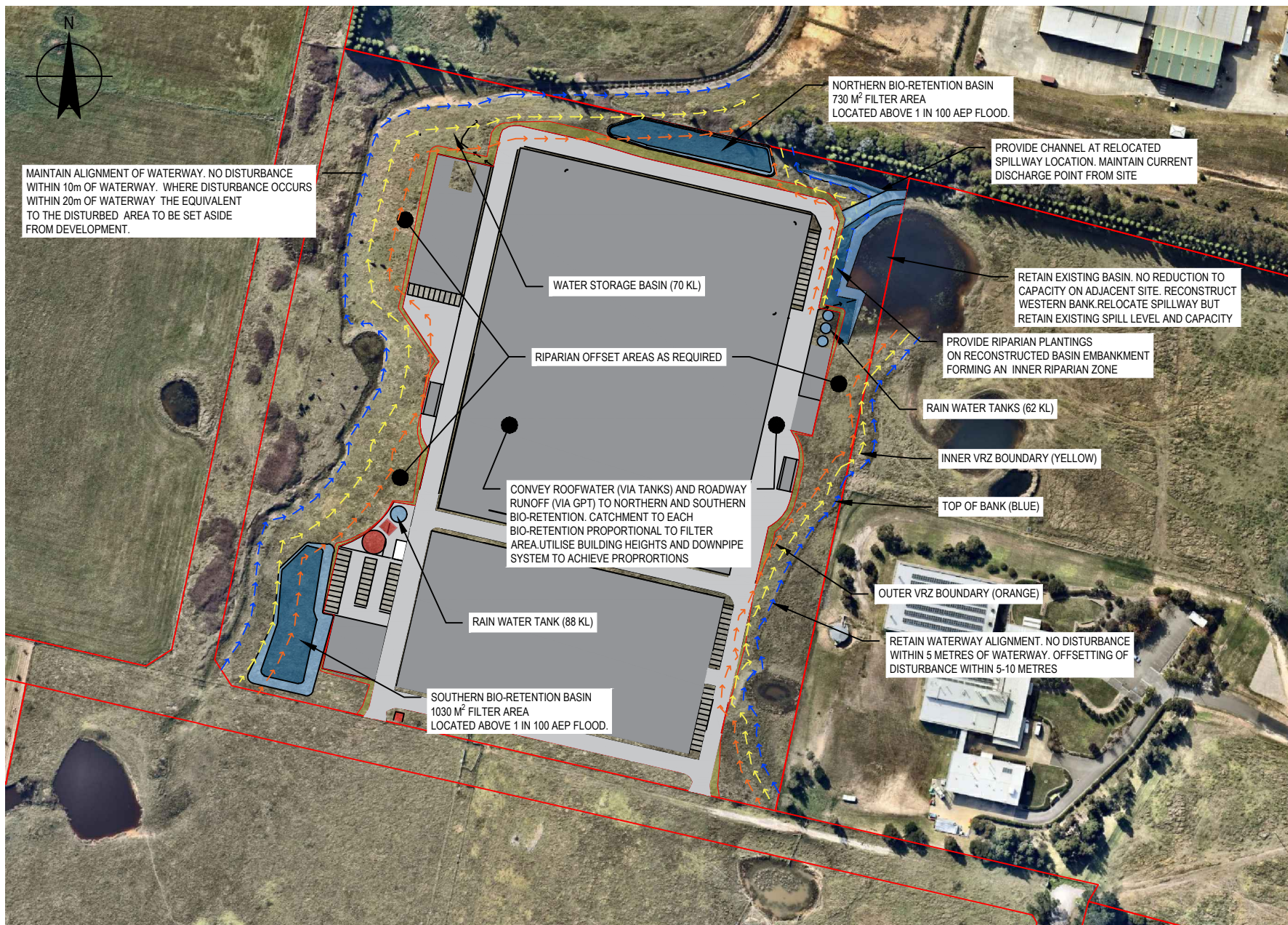
Parameter	Pre-Development	Post-Development
Total Suspended Solids (kg/yr)	1062	137
Total Phosphorus (kg/yr)	4.78	4.11
Total Nitrogen (kg/yr)	23.88	20.89

Erosion and Sediment Control

It is noted that the change in the water quality strategy has implications for the construction phase erosion and sediment control strategy, as the proposed operational phase water quality management facilities are used as temporary construction phase sediment basins. Most of the previously proposed construction phase erosion and sediment control strategy is retained, with the following amendments:

- The south-western bio-retention area is in a elevated location. It can receive runoff as required during the operational phase based on the elevation of the pad and the height of the building roofs. However, as a construction phase sediment basin it can only manage the upper portions of the site, that can drain to it.
- Therefore, the northern bio-retention basin will be excavated early in the construction program and would operate as a construction phase erosion and sediment control basin. It would be excavated to the level of the base of the filter media and then operate as a basin. The filter media would be installed at the final stages of construction. Based on 12D modelling the basin is of sufficient size to allow for the required 860 kL of sediment control volume. Minor drainage works would be undertaken to direct runoff from disturbed areas to the basin.

- The staging of the works proposed in the EIS considered the diversion of the eastern watercourse, which is no longer proposed. The revised staging, with respect to erosion and sediment control, is as follows:
 - Upstream offsite run-on would be diverted around the site, into the eastern and western waterways.
 - The northern bio-retention would be installed as a construction phase sediment basin, including drainage to collect future disturbed area runoff into the basin.
 - Disturbance activities would continue.
 - At the point in time where the north-eastern basin works occur, diversion of the eastern waterway around the basin would be temporarily undertaken and the dam dewatered. This would occur over as limited period as possible to minimise impacts on the adjacent landholder.



Paper Size ISO A4
Scale 1:2,500m




PLASREFINE RECYCLING PTY LTD
MOSS VALE PLASTICS RECYCLING
AND REPROCESSING FACILITY
RESPONSE TO SUBMISSIONS
STORMWATER MANAGEMENT

Job Number | 12524108
Revision | 1
Date | AUG 2022

Figure SK001

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Regards

Pp 

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Senior Civil Engineer
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Attached: Resultant Flood Mapping

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Legend

Development Area

Model Extent

Lot Boundaries

Flood Level Contours (m AHD)

Flood Depth and Extent (m)

<0.01

0.01 - 0.05

0.05 - 0.10

0.10 - 0.15

0.15 - 0.30

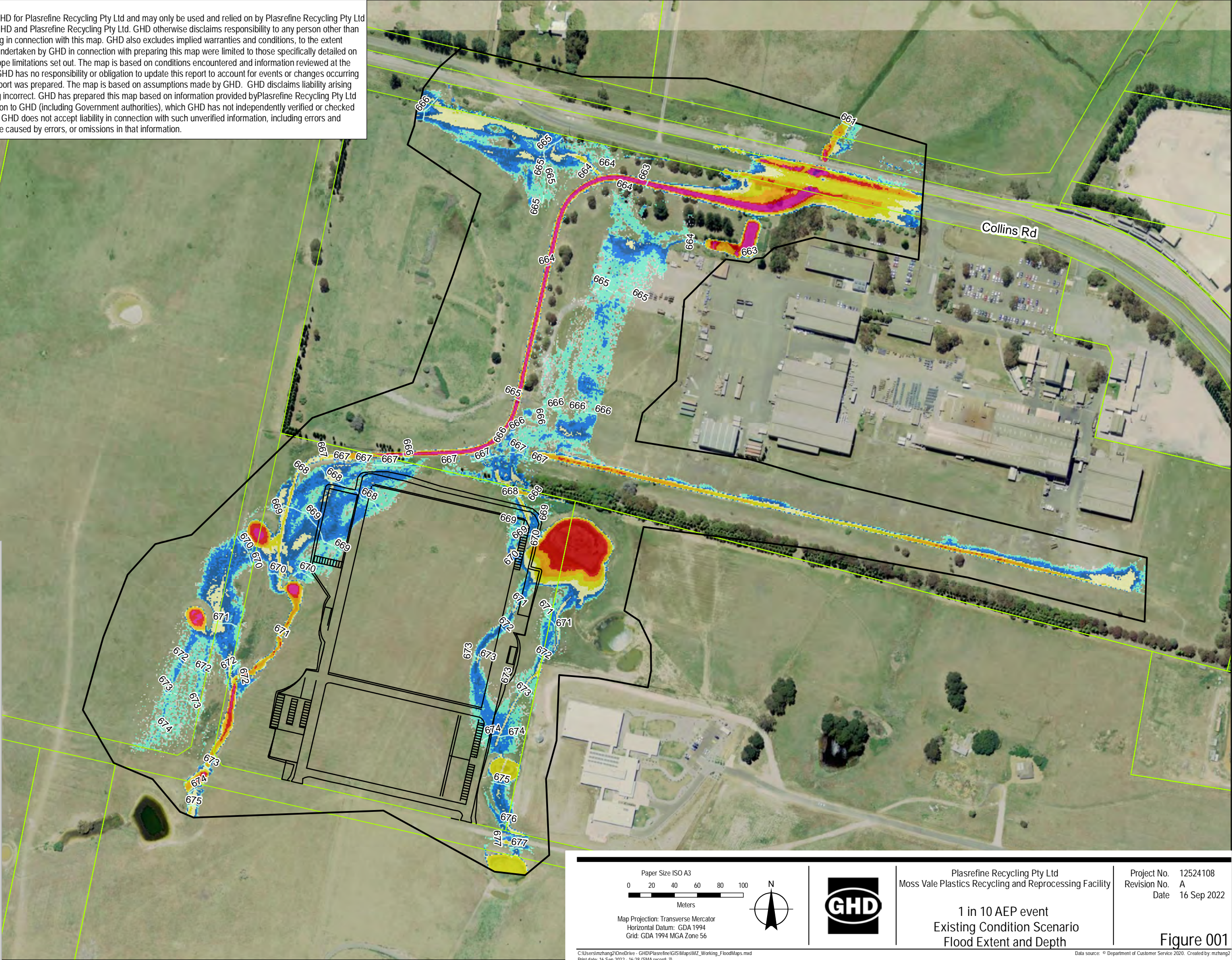
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0.50 - 0.75

0.75 - 1.00

1.00 - 2.00

> 2.00



Paper Size: ISO A3

0 20 40 60 80 100

Meters

Map Projection: Transverse Mercator

Horizontal Datum: GDA 1994

Grid: GDA 1994 MGA Zone 56

Plasrefine Recycling Pty Ltd

Moss Vale Plastics Recycling and Reprocessing Facility

1 in 10 AEP event

Existing Condition Scenario

Flood Extent and Depth

Project No. 12524108

Revision No. A

Date 16 Sep 2022

Figure 001

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Legend

Development Area

Model Extent

Lot Boundaries

Peak Flood Velocity (m/s)

0.00 - 0.25

0.25 - 0.50

0.50 - 1.00

1.00 - 1.50

1.50 - 2.00

2.00 - 2.50

2.50 - 3.00

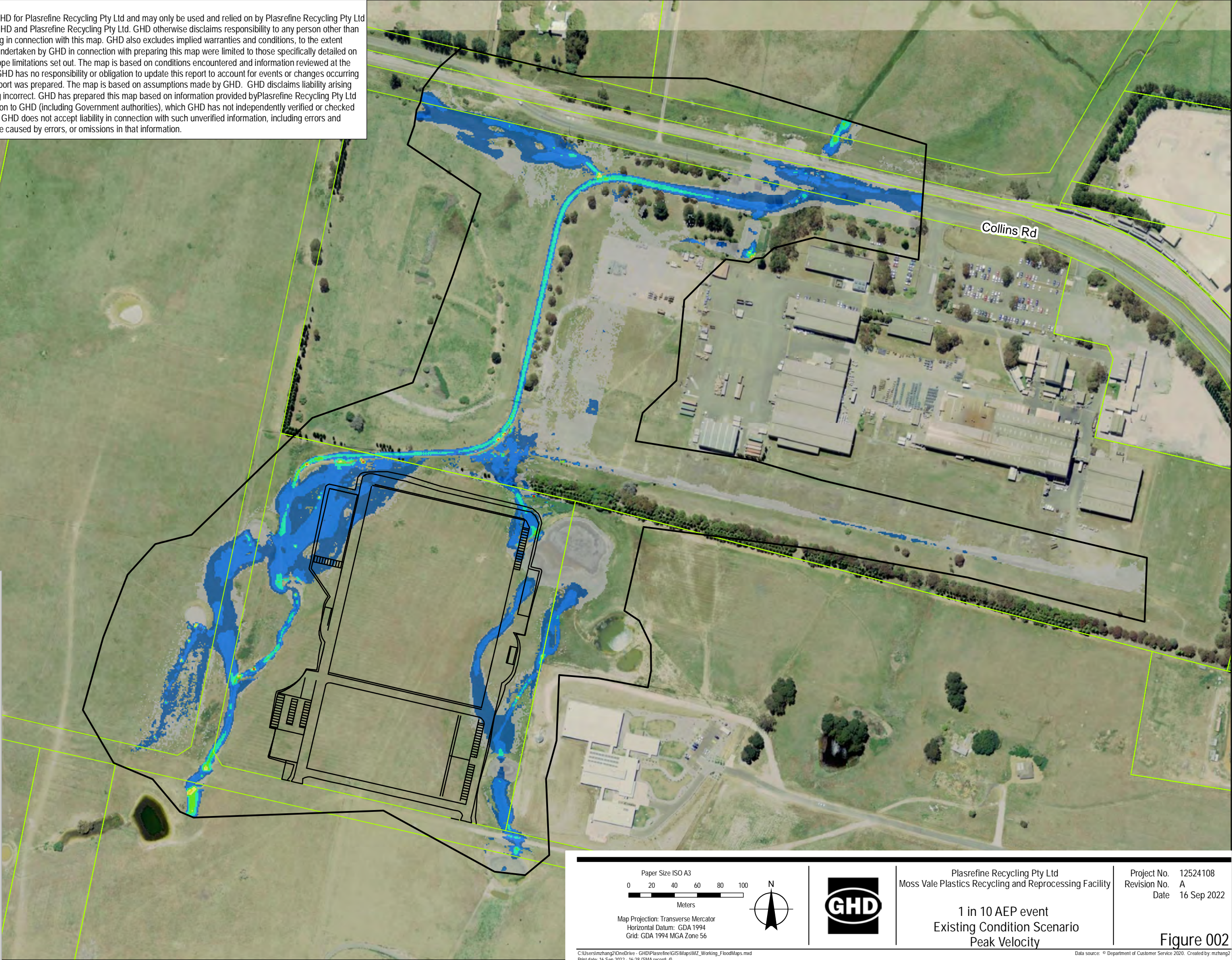
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3.50 - 4.00

4.00 - 4.50

4.50 - 5.00

> 5.00



Paper Size: ISO A3

0

20

40

60

80

100

Meters

Map Projection: Transverse Mercator

Horizontal Datum: GDA 1994

Grid: GDA 1994 MGA Zone 56

N

GHD

Plasrefine Recycling Pty Ltd

Moss Vale Plastics Recycling and Reprocessing Facility

1 in 10 AEP event

Existing Condition Scenario

Peak Velocity

Project No. 12524108

Revision No. A

Date 16 Sep 2022

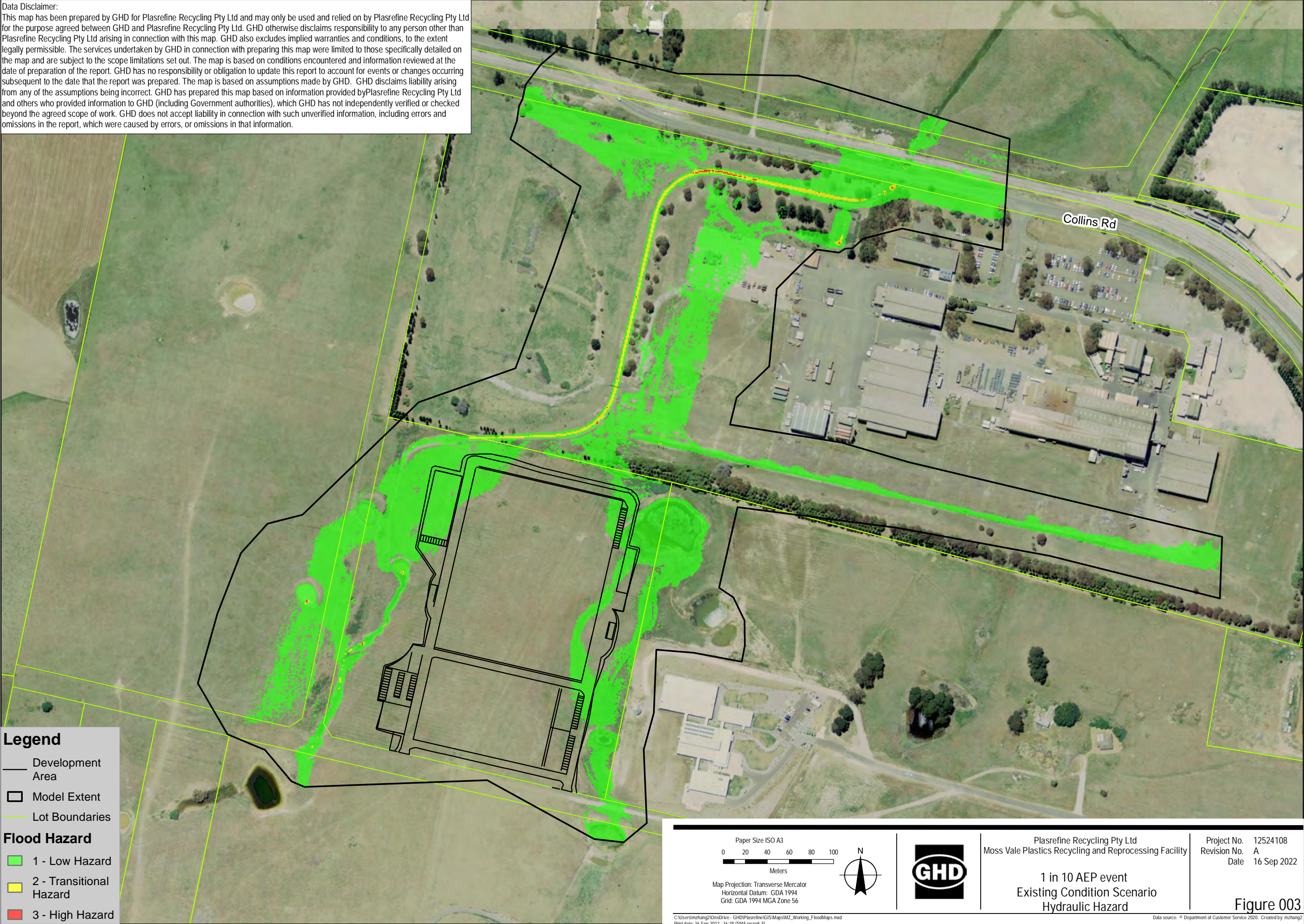
Figure 002

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Legend

Development Area

Model Extent

Lot Boundaries

Flood Level Contours (m AHD)

Flood Depth and Extent (m)

<0.01

0.01 - 0.05

0.05 - 0.10

0.10 - 0.15

0.15 - 0.30

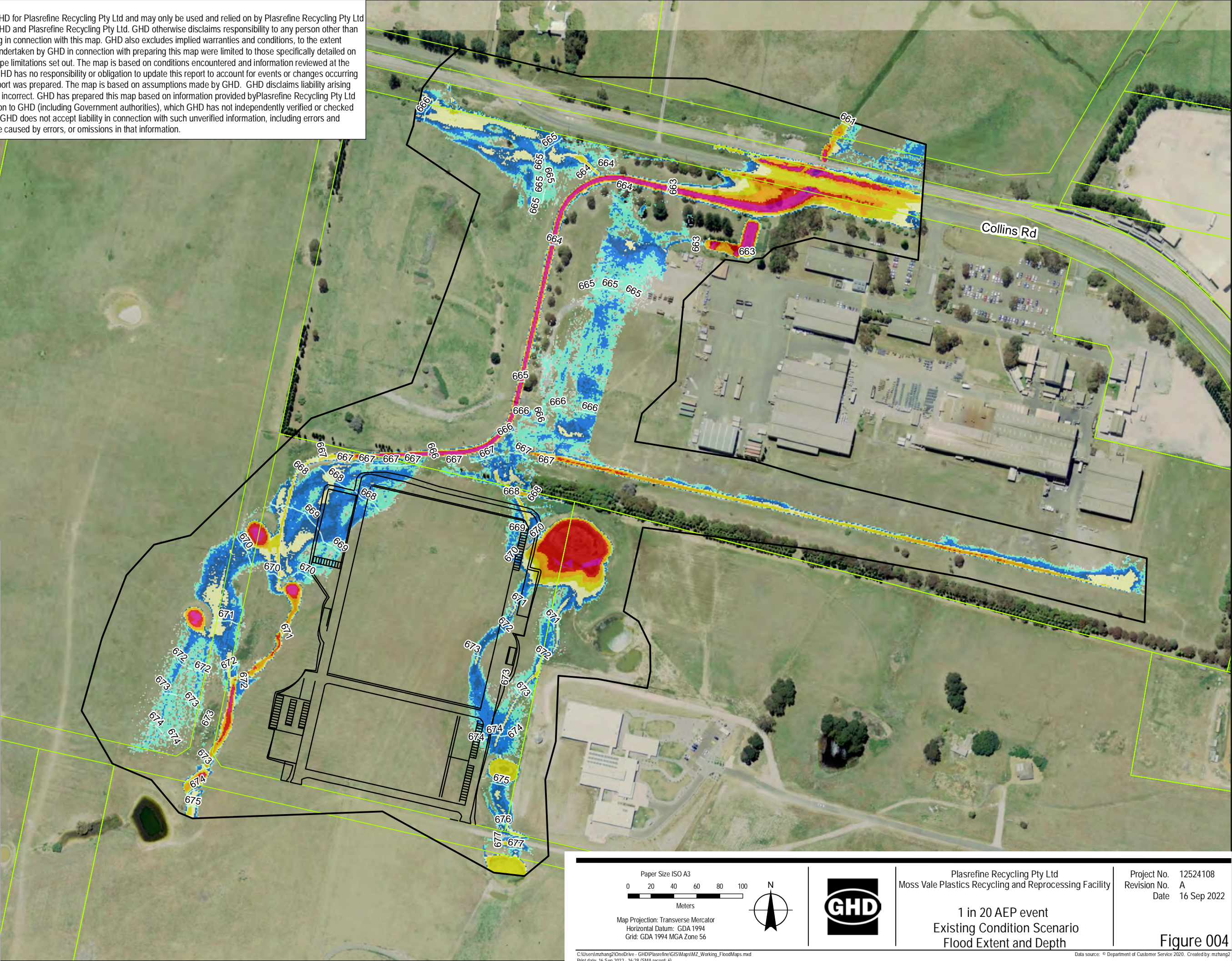
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0.50 - 0.75

0.75 - 1.00

1.00 - 2.00

> 2.00



Paper Size: ISO A3

0

20

40

60

80

100

Meters

Map Projection: Transverse Mercator

Horizontal Datum: GDA 1994

Grid: GDA 1994 MGA Zone 56

Plasrefine Recycling Pty Ltd

Moss Vale Plastics Recycling and Reprocessing Facility

1 in 20 AEP event

Existing Condition Scenario

Flood Extent and Depth

Project No. 12524108

Revision No. A

Date 16 Sep 2022

Figure 004

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Legend

Development Area

Model Extent

Lot Boundaries

Peak Flood Velocity (m/s)

0.00 - 0.25

0.25 - 0.50

0.50 - 1.00

1.00 - 1.50

1.50 - 2.00

2.00 - 2.50

2.50 - 3.00

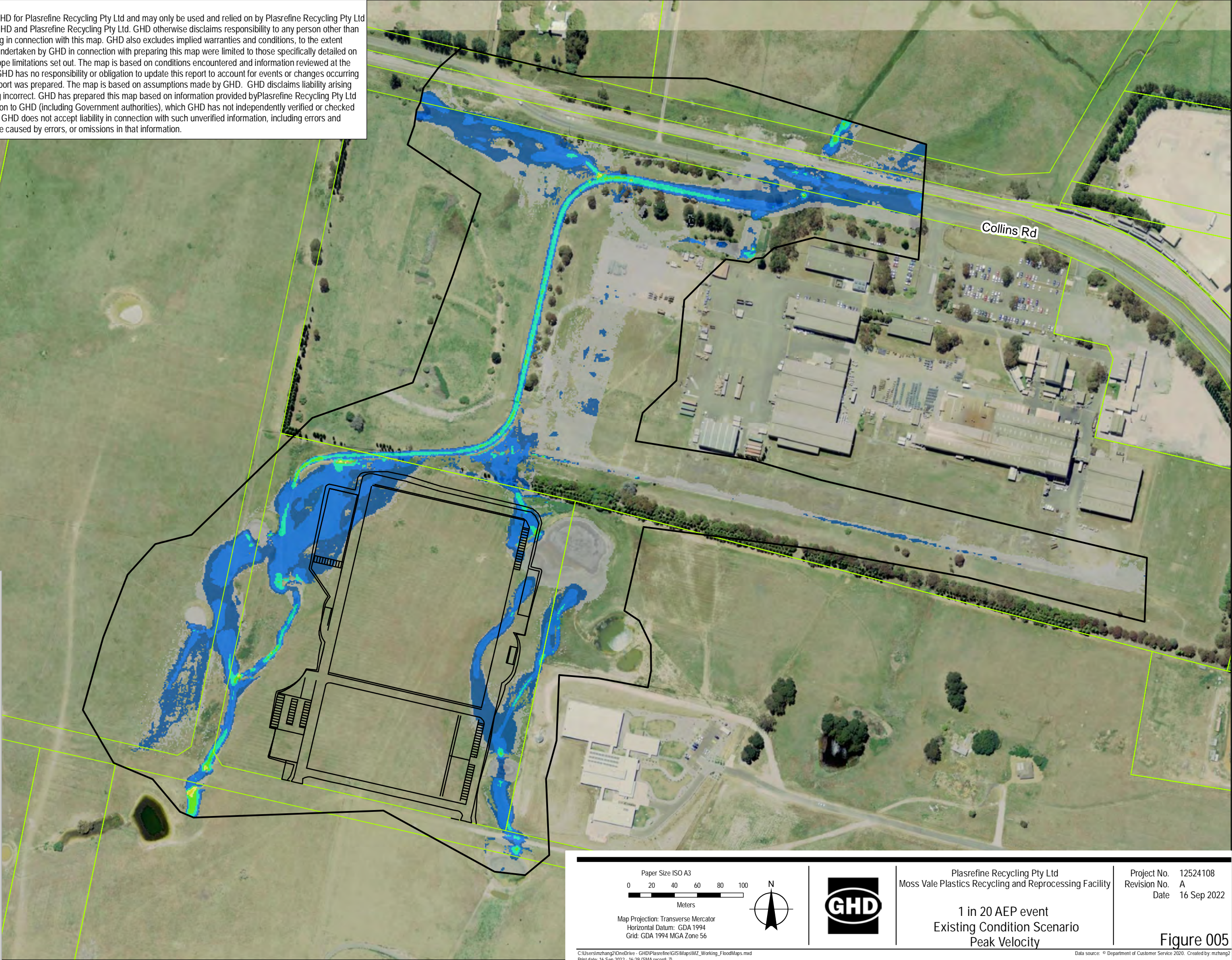
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4.00 - 4.50

4.50 - 5.00

> 5.00



Paper Size: ISO A3

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Meters

Map Projection: Transverse Mercator

Horizontal Datum: GDA 1994

Grid: GDA 1994 MGA Zone 56

N

GHD

Plasrefine Recycling Pty Ltd

Moss Vale Plastics Recycling and Reprocessing Facility

1 in 20 AEP event

Existing Condition Scenario

Peak Velocity

Project No. 12524108

Revision No. A

Date 16 Sep 2022

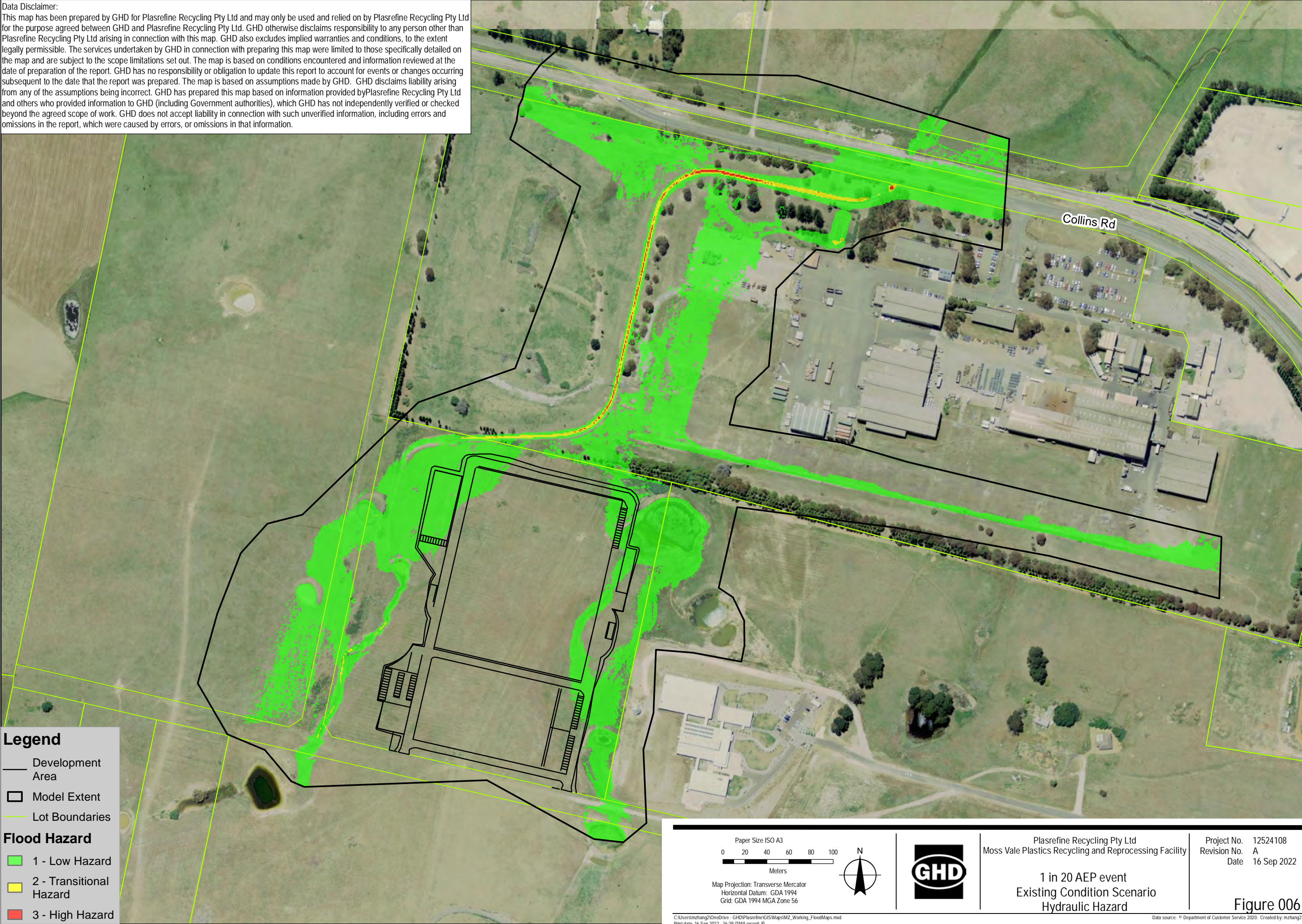
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Legend

Development Area

Model Extent

Lot Boundaries

Flood Level Contours (m AHD)

Flood Depth and Extent (m)

<0.01

0.01 - 0.05

0.05 - 0.10

0.10 - 0.15

0.15 - 0.30

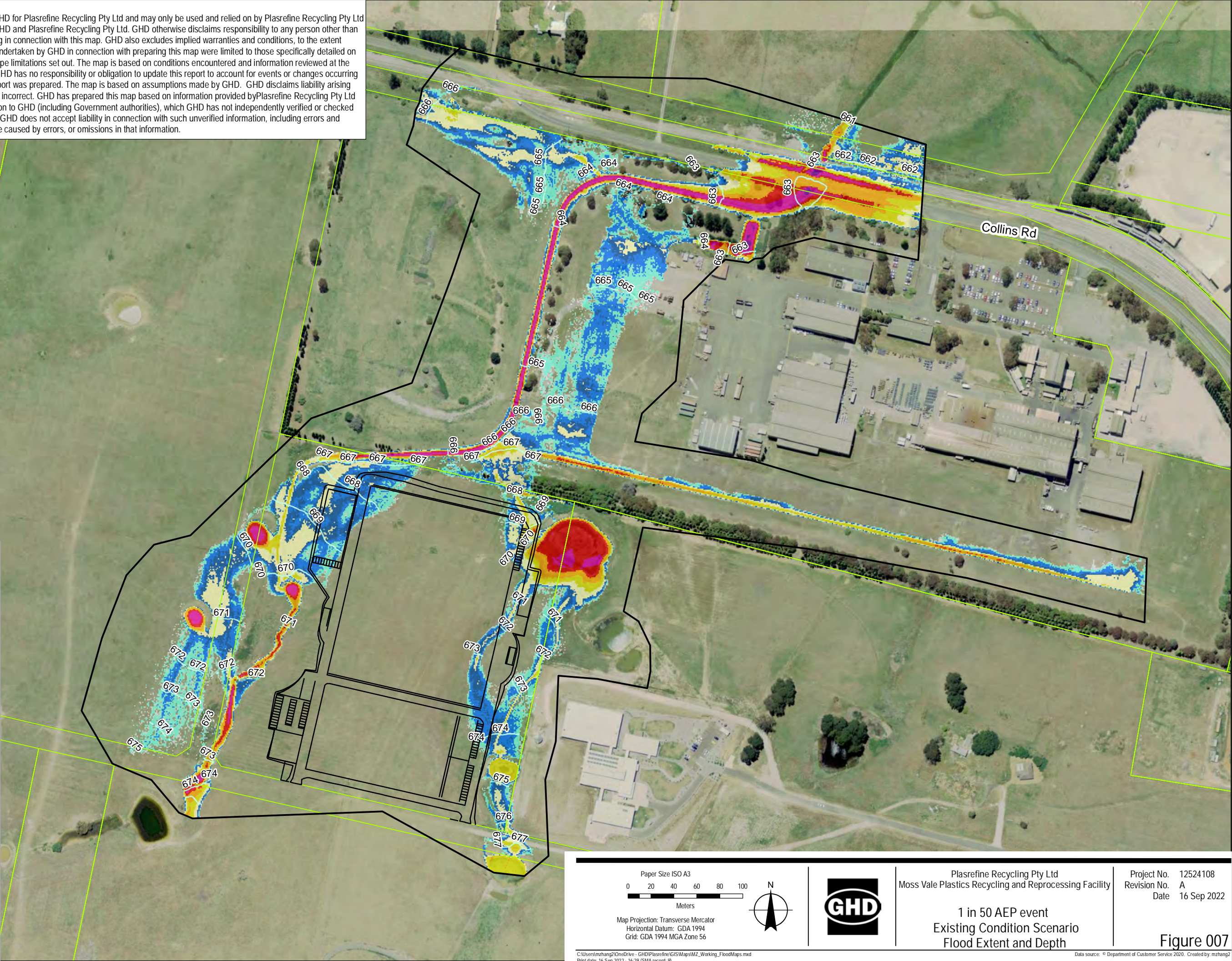
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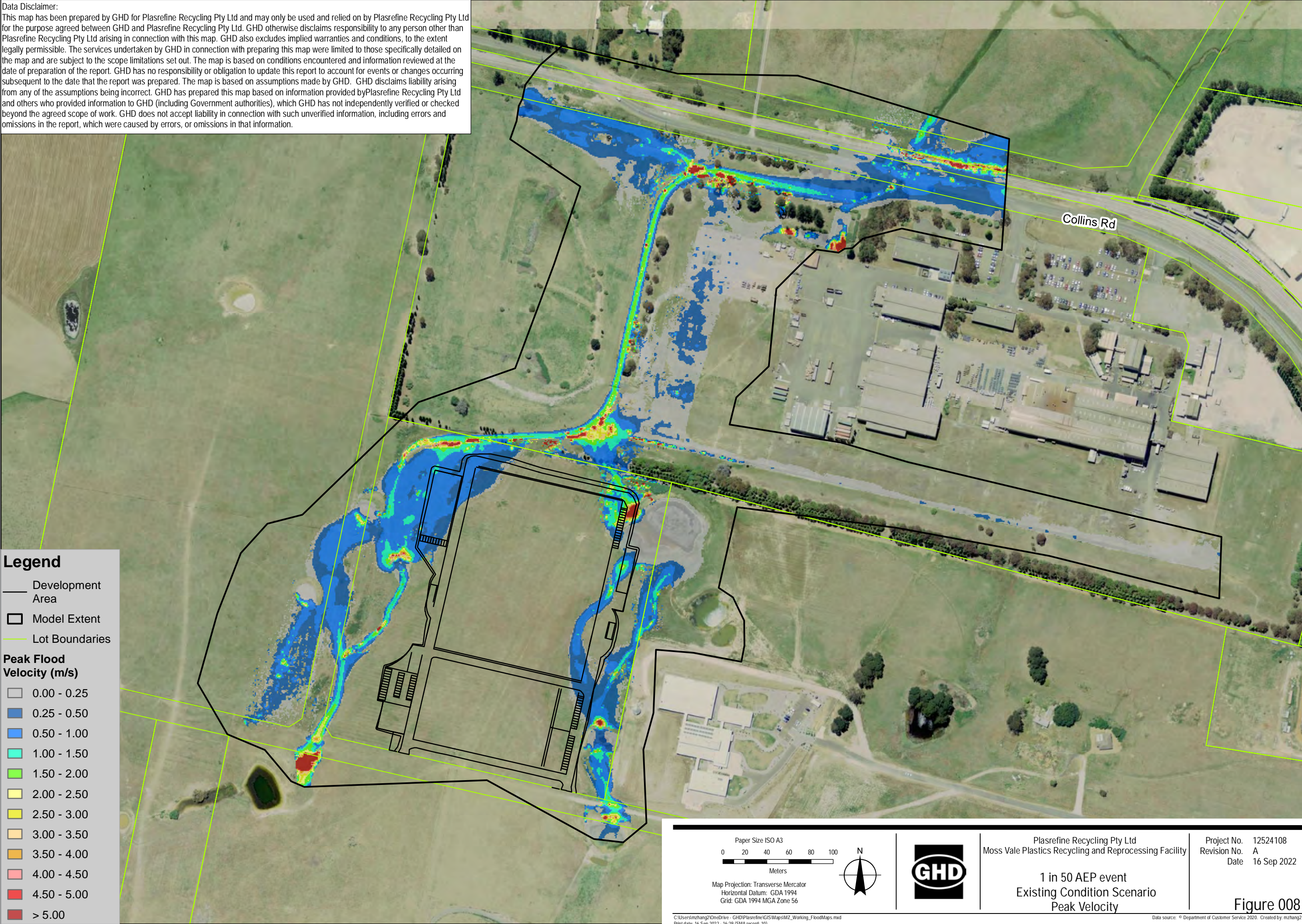
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1.00 - 2.00

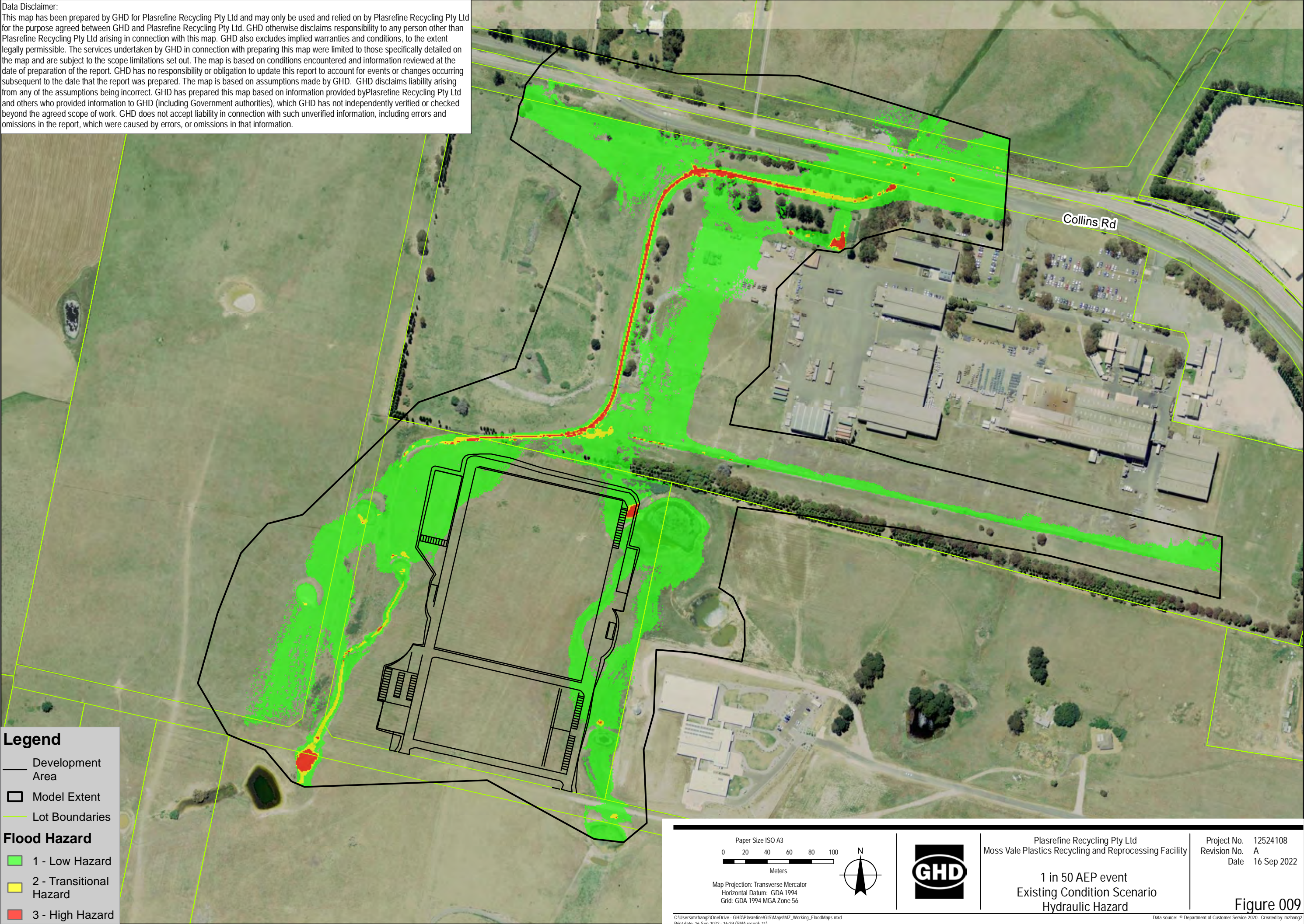
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Legend

Development Area

Model Extent

Lot Boundaries

Flood Level Contours (m AHD)

Flood Depth and Extent (m)

<0.01

0.01 - 0.05

0.05 - 0.10

0.10 - 0.15

0.15 - 0.30

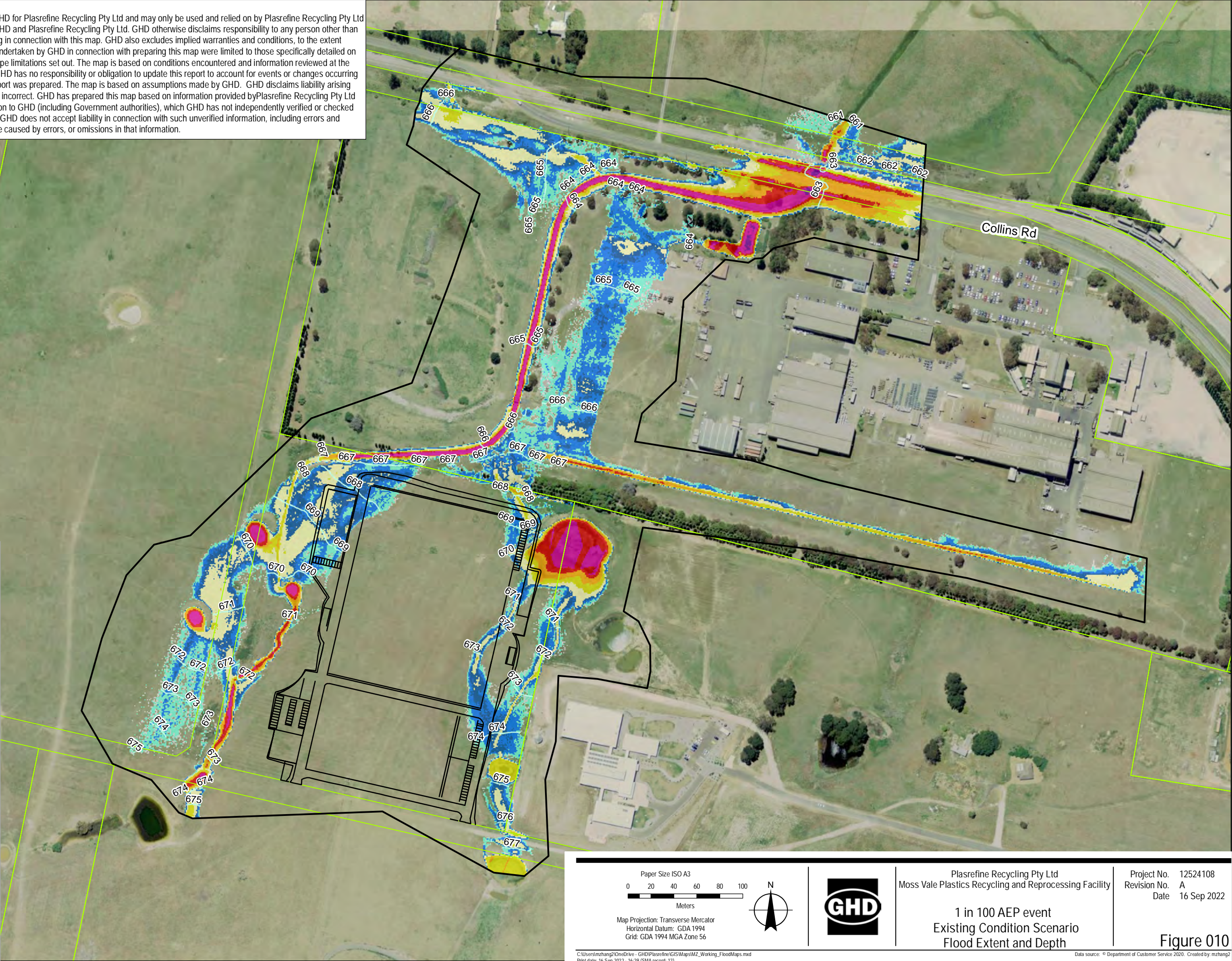
0.30 - 0.50

0.50 - 0.75

0.75 - 1.00

1.00 - 2.00

> 2.00



Paper Size: ISO A3

0

20

40

60

80

100

Meters

N

GHD

Plasrefine Recycling Pty Ltd
Moss Vale Plastics Recycling and Reprocessing Facility

1 in 100 AEP event
Existing Condition Scenario
Flood Extent and Depth

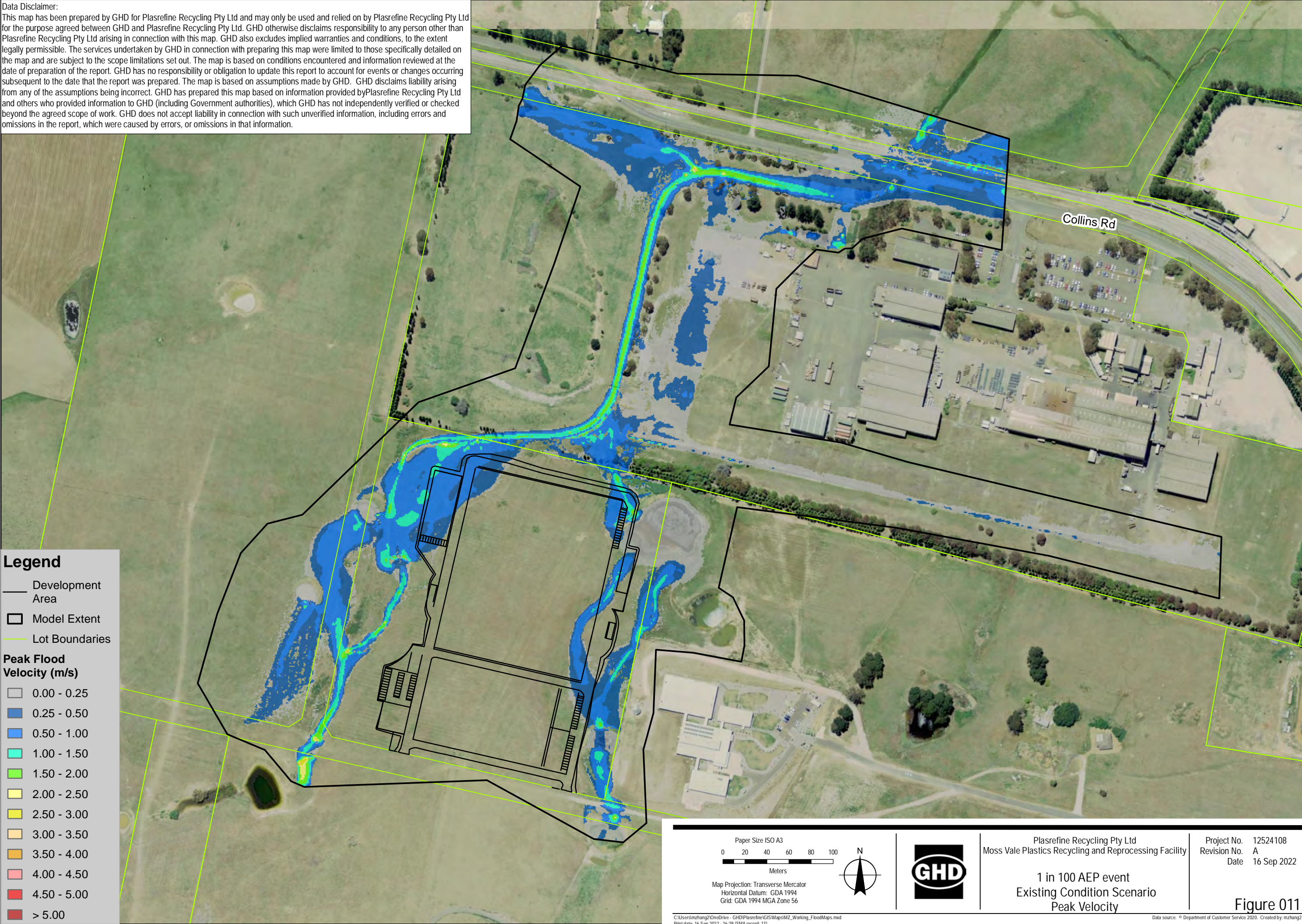
Project No. 12524108
Revision No. A
Date 16 Sep 2022

Figure 010

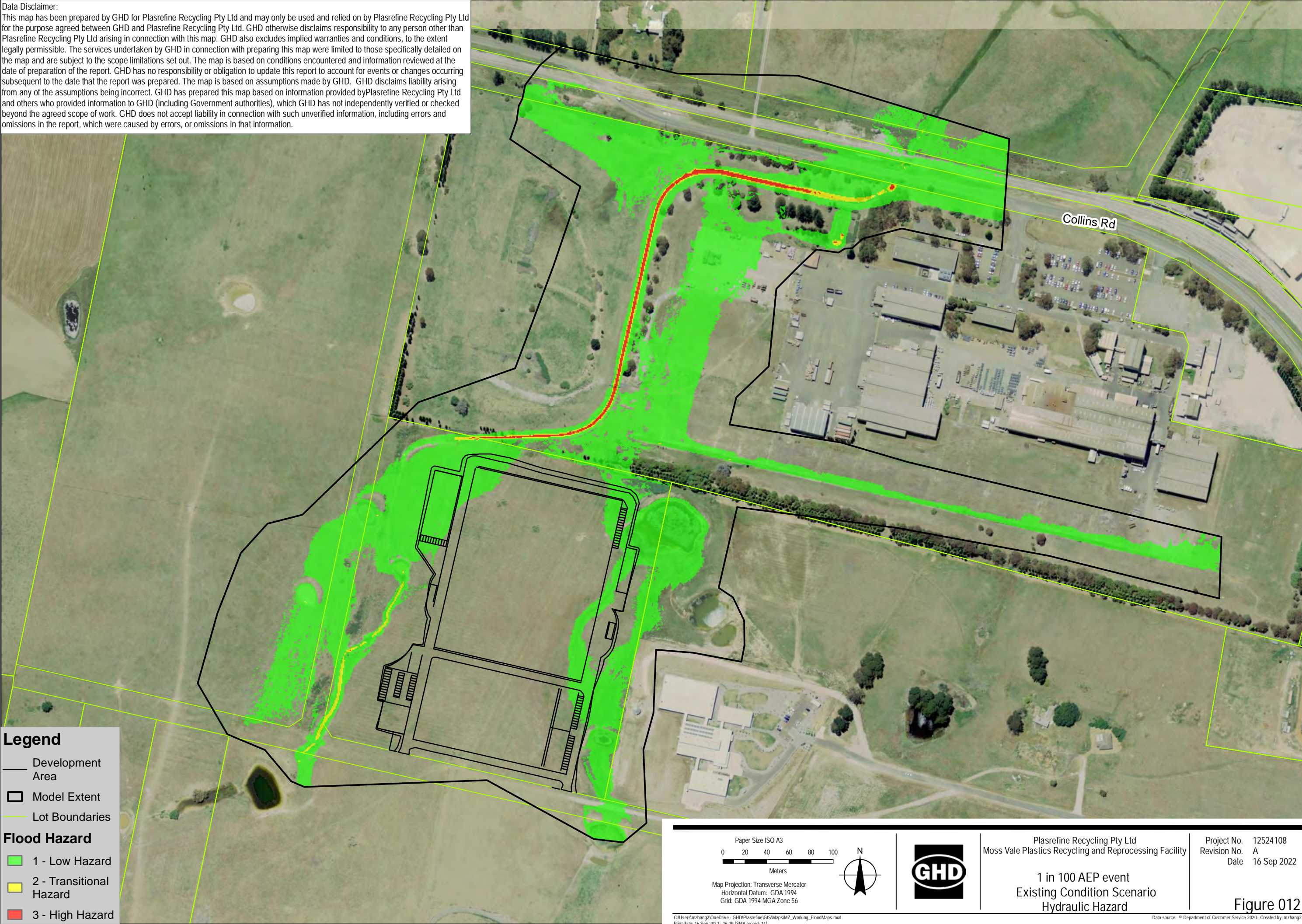
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Print date: 16 Sep 2022 - 16:29 (SMA record: 12)

Data source: © Department of Customer Service 2020. Created by: mzhang2

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Legend

Development Area

Model Extent

Lot Boundaries

Flood Level Contours (m AHD)

Flood Depth and Extent (m)

<0.01

0.01 - 0.05

0.05 - 0.10

0.10 - 0.15

0.15 - 0.30

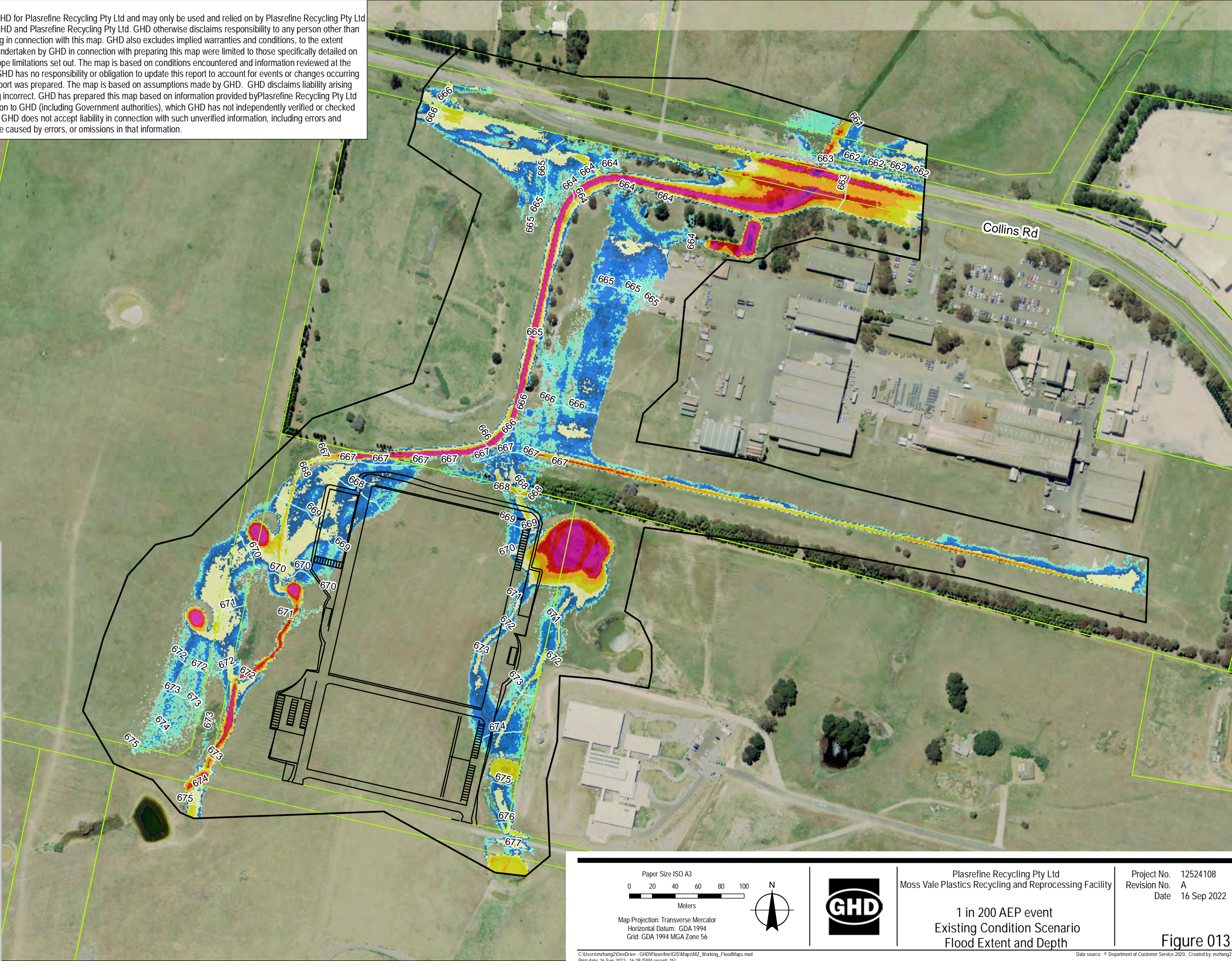
0.30 - 0.50

0.50 - 0.75

0.75 - 1.00

1.00 - 2.00

> 2.00



Paper Size: ISO A3

0

20

40

60

80

100

Meters

Map Projection: Transverse Mercator

Horizontal Datum: GDA 1994

Grid: GDA 1994 MGA Zone 56

N

GHD

Plasrefine Recycling Pty Ltd

Moss Vale Plastics Recycling and Reprocessing Facility

1 in 200 AEP event

Existing Condition Scenario

Flood Extent and Depth

Project No. 12524108

Revision No. A

Date 16 Sep 2022

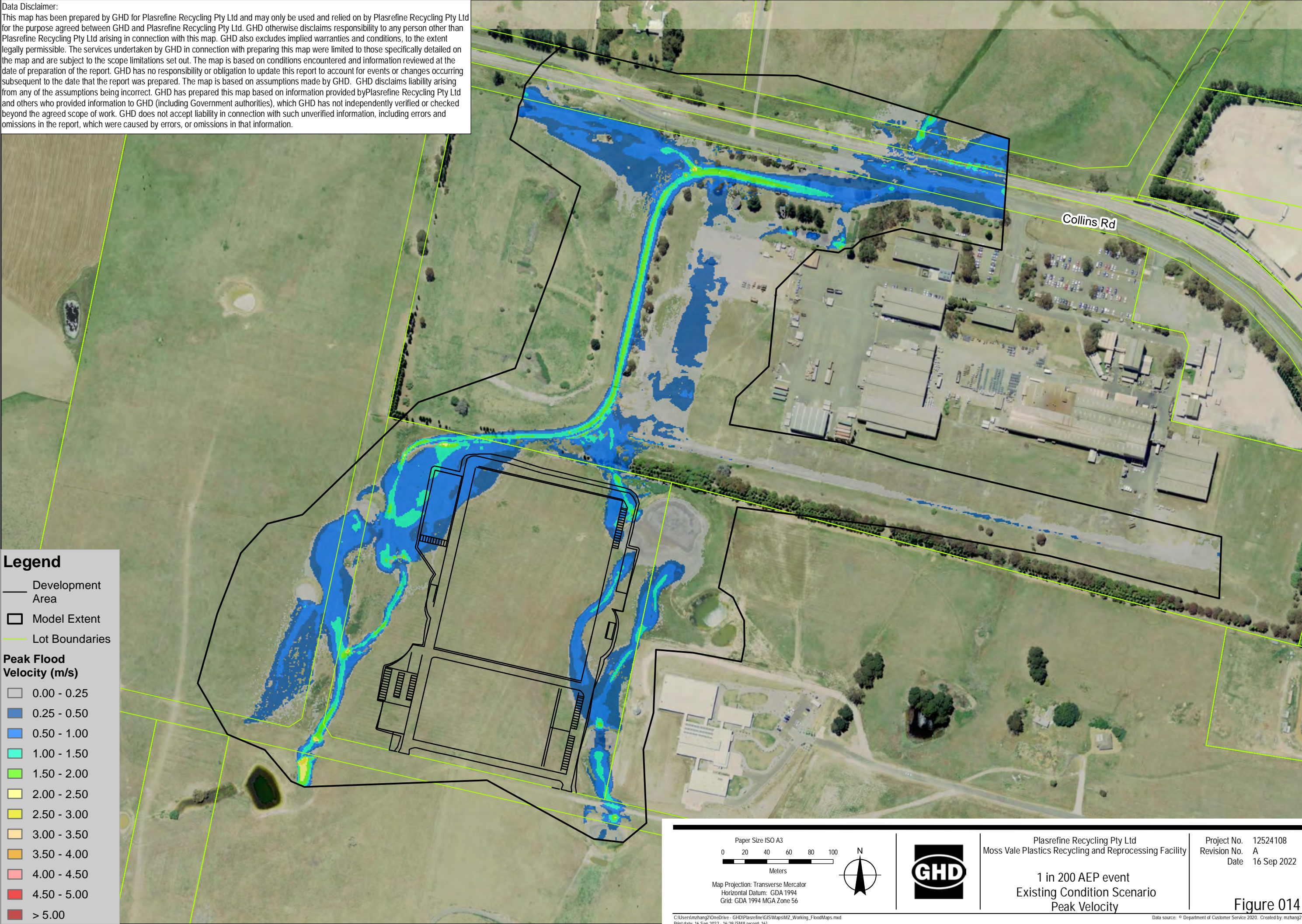
Figure 013

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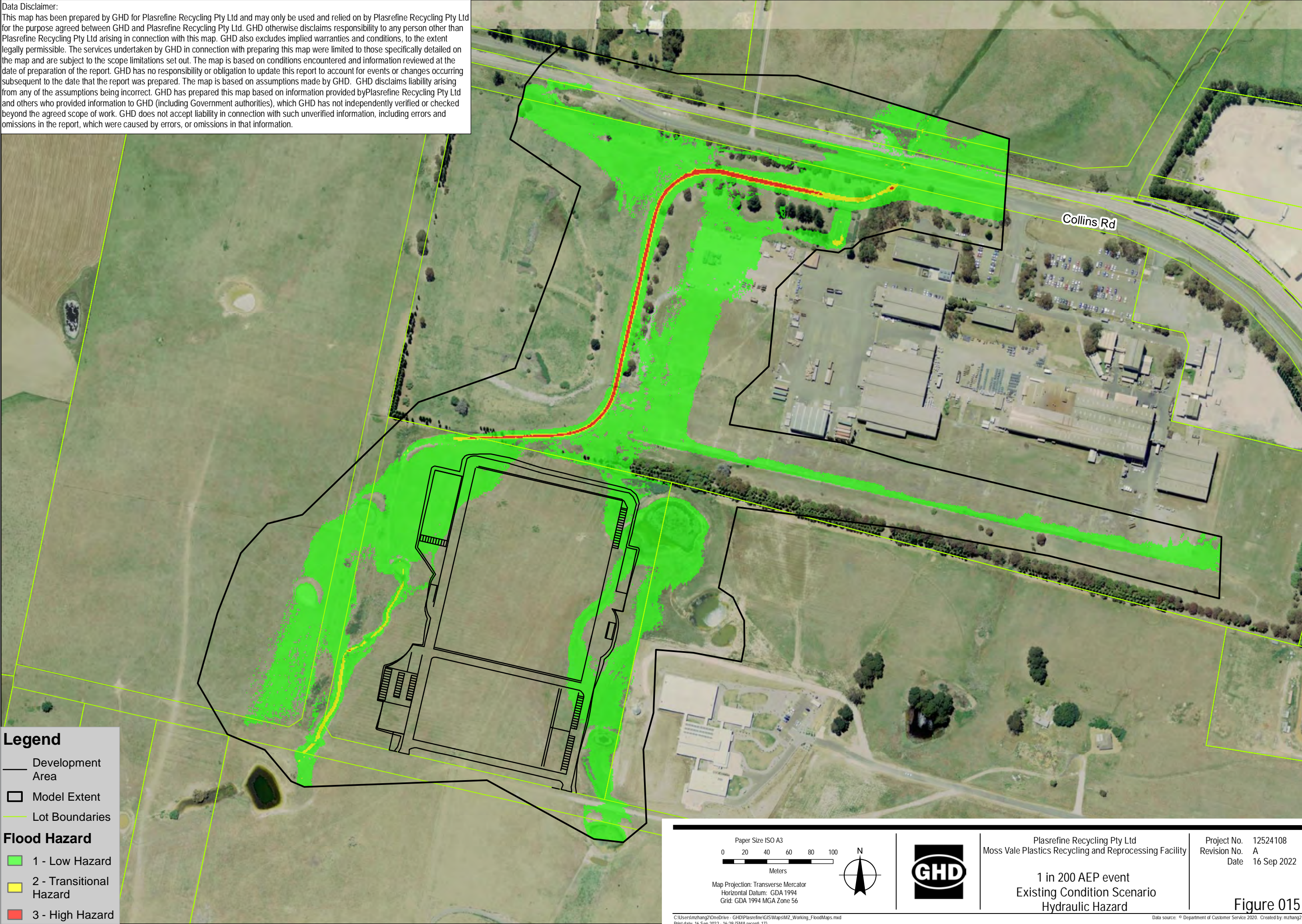
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Legend

Development Area

Model Extent

Lot Boundaries

Flood Level Contours (m AHD)

Flood Depth and Extent (m)

<0.01

0.01 - 0.05

0.05 - 0.10

0.10 - 0.15

0.15 - 0.30

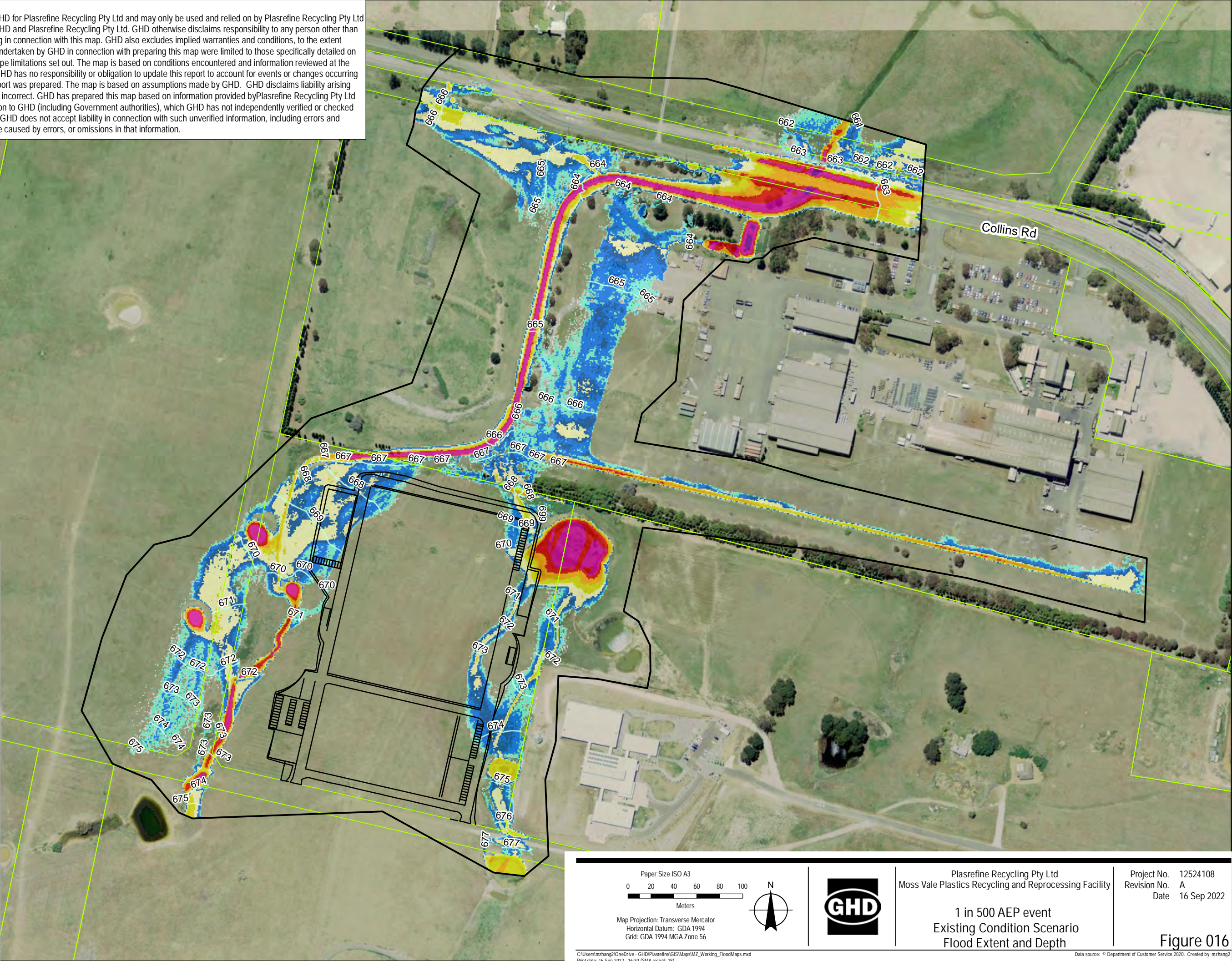
0.30 - 0.50

0.50 - 0.75

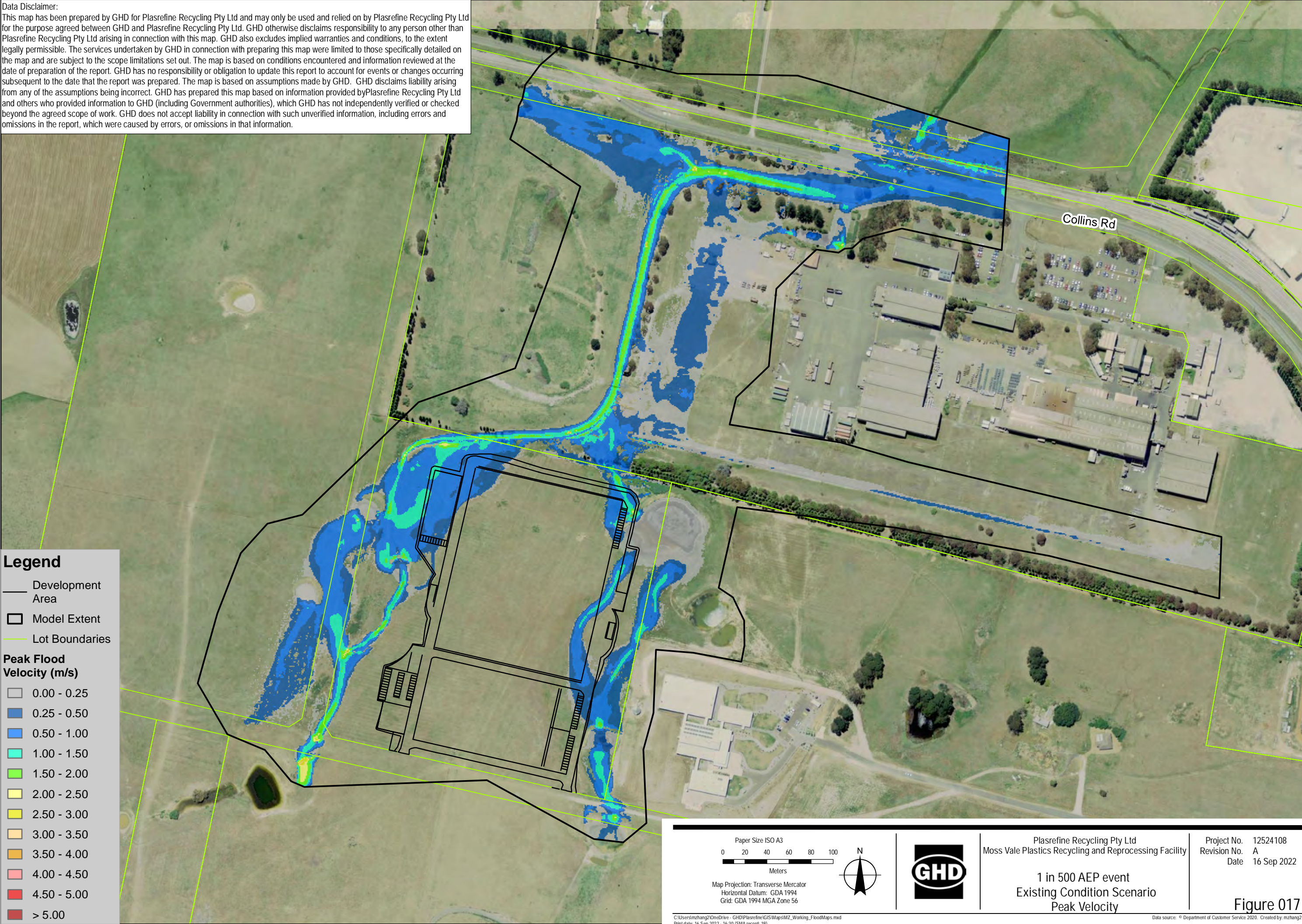
0.75 - 1.00

1.00 - 2.00

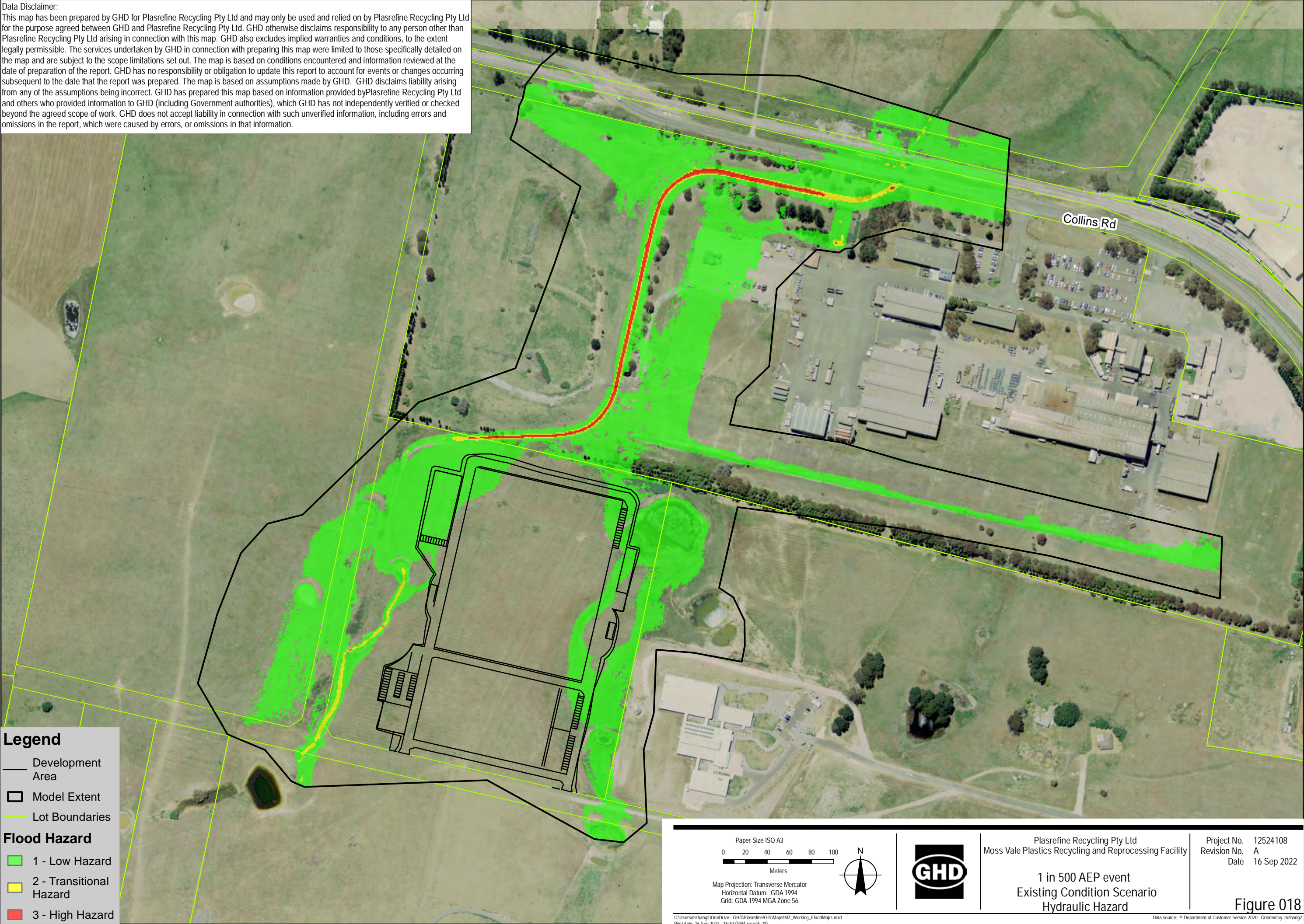
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Legend

Development Area

Model Extent

Lot Boundaries

Flood Level Contours (m AHD)

Flood Depth and Extent (m)

<0.01

0.01 - 0.05

0.05 - 0.10

0.10 - 0.15

0.15 - 0.30

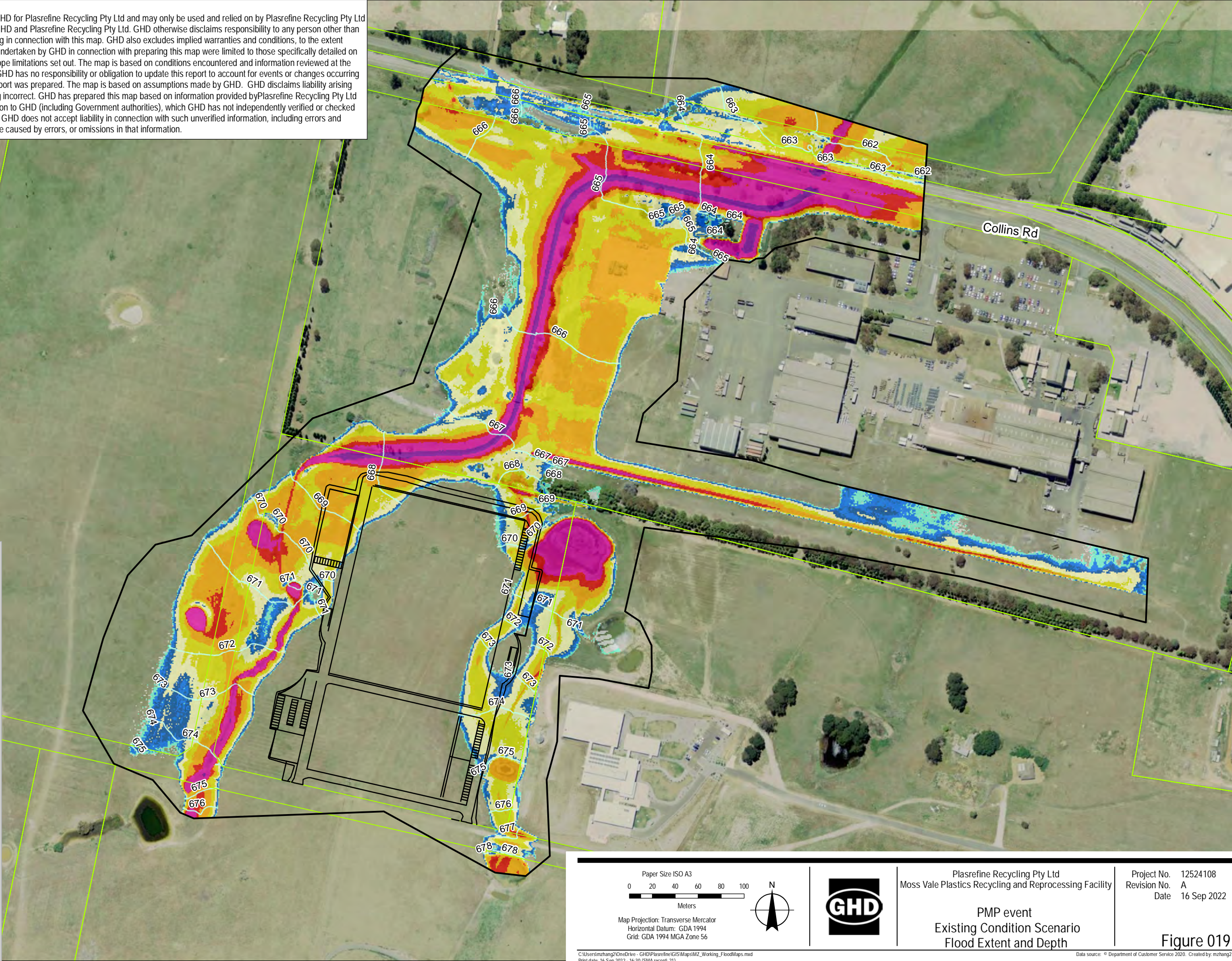
0.30 - 0.50

0.50 - 0.75

0.75 - 1.00

1.00 - 2.00

> 2.00



Paper Size: ISO A3

0 20 40 60 80 100

Meters

Map Projection: Transverse Mercator

Horizontal Datum: GDA 1994

Grid: GDA 1994 MGA Zone 56

Plasrefine Recycling Pty Ltd

Moss Vale Plastics Recycling and Reprocessing Facility

PMP event

Existing Condition Scenario

Flood Extent and Depth

Project No. 12524108

Revision No. A

Date 16 Sep 2022

Figure 019

C:\Users\mzhang2\OneDrive - GHD\Plasrefine\GIS\Maps\M2_Working_FloodMaps.mxd

Print date: 16 Sep 2022 - 16:30 (SMA record: 21)

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Legend

Development Area

Model Extent

Lot Boundaries

Peak Flood Velocity (m/s)

0.00 - 0.25

0.25 - 0.50

0.50 - 1.00

1.00 - 1.50

1.50 - 2.00

2.00 - 2.50

2.50 - 3.00

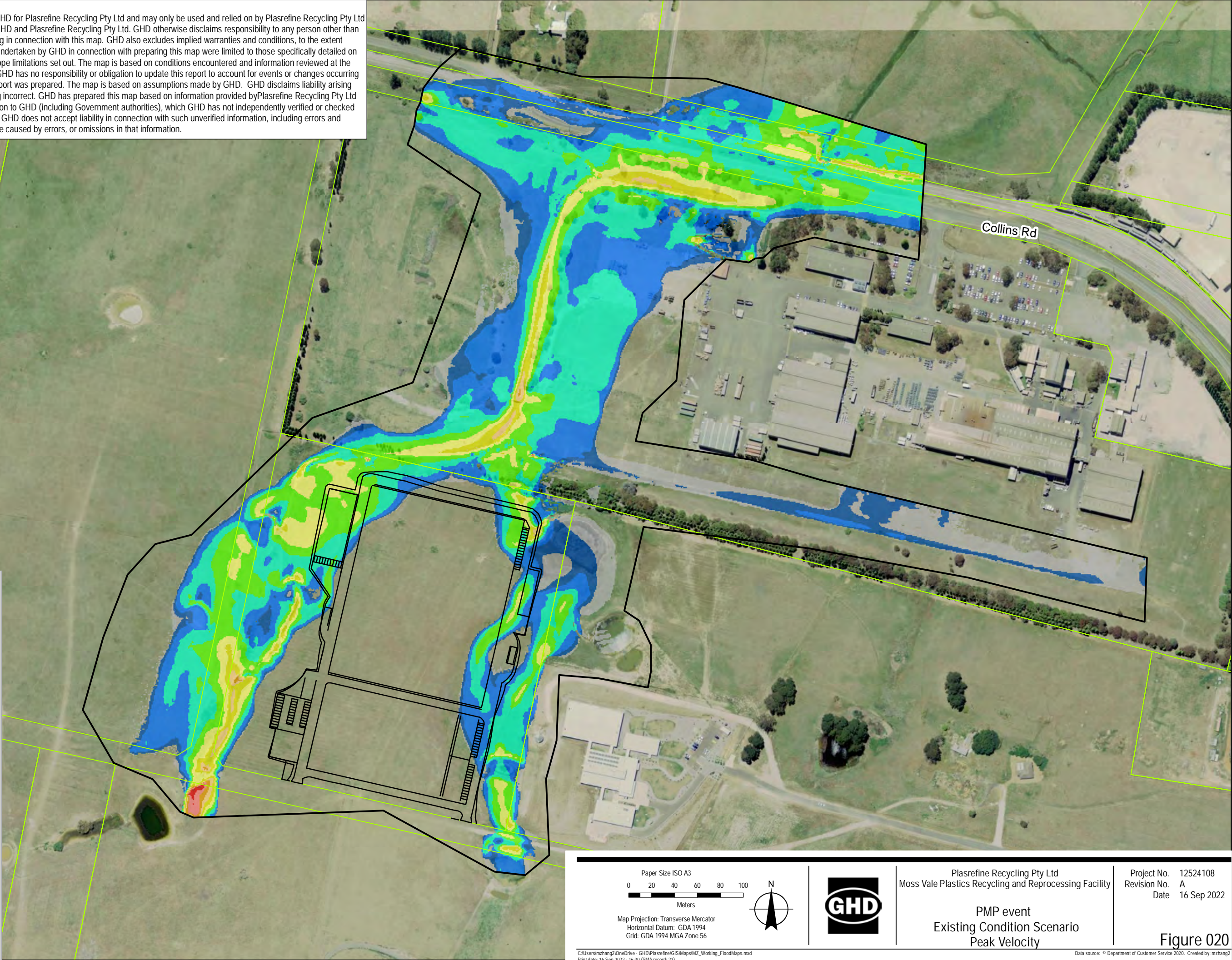
3.00 - 3.50

3.50 - 4.00

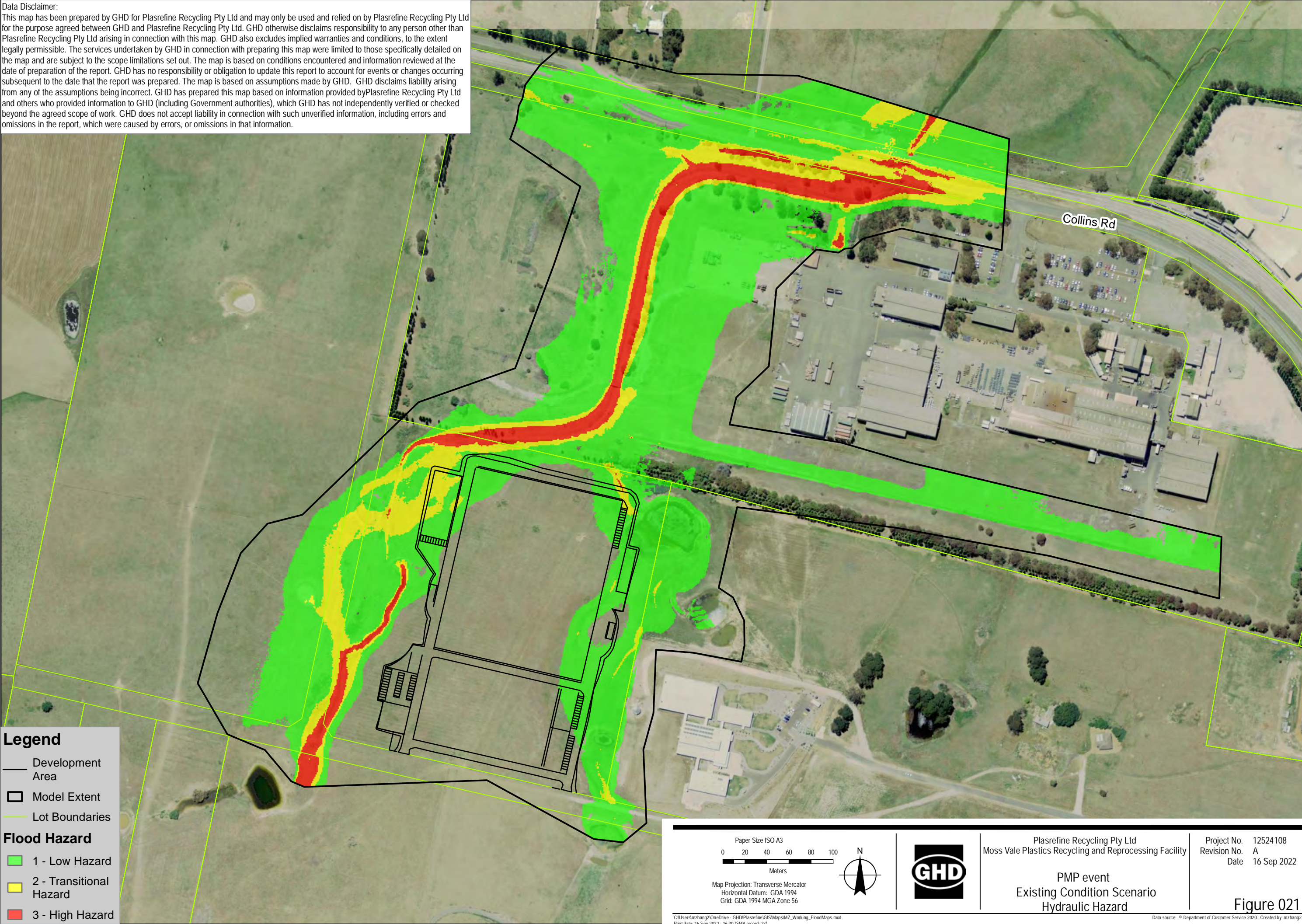
4.00 - 4.50

4.50 - 5.00

> 5.00



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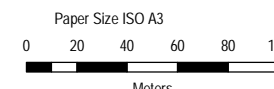
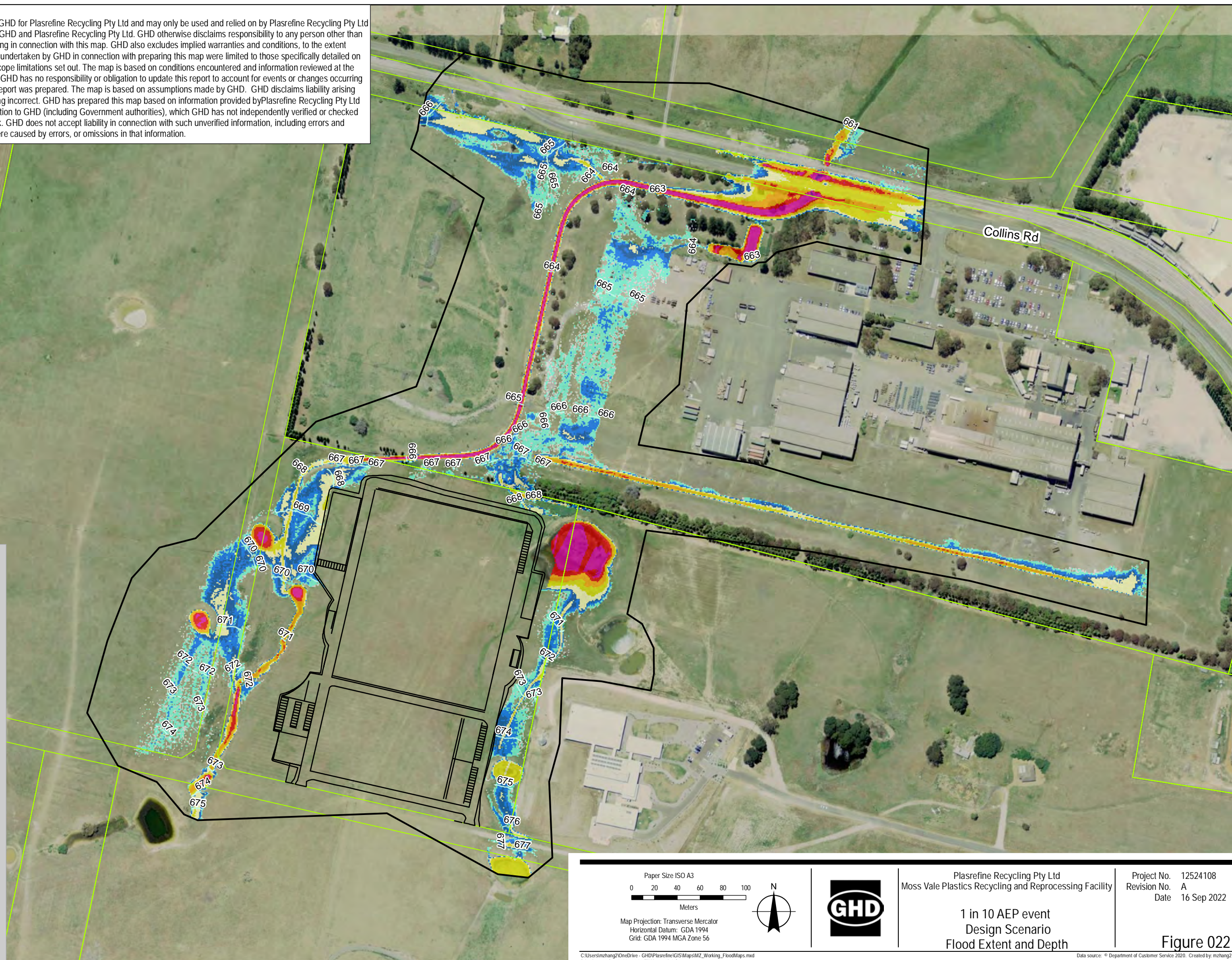
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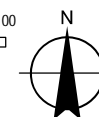
- Development Area
- Model Extent
- Lot Boundaries
- Flood Level Contours (m AHD)

Flood Depth and Extent (m)

-  <0.01
 0.01 - 0.05
 0.05 - 0.10
 0.10 - 0.15
 0.15 - 0.30
 0.30 - 0.50
 0.50 - 0.75
 0.75 - 1.00
 1.00 - 2.00
 > 2.00



Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56



Plasrefine Recycling Pty Ltd
Moss Vale Plastics Recycling and Reprocessing Facility

1 in 10 AEP event
Design Scenario
Flood Extent and Depth

Project No.	12524108
Revision No.	A
Date	16 Sep 2022

Figure 022

Data source: © Department of Customer Service 2020. Created by: mzhang2

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Legend

—

Development Area

□

Model Extent

—

Lot Boundaries

Peak Flood Velocity (m/s)

0.00 - 0.25

0.25 - 0.50

0.50 - 1.00

1.00 - 1.50

1.50 - 2.00

2.00 - 2.50

2.50 - 3.00

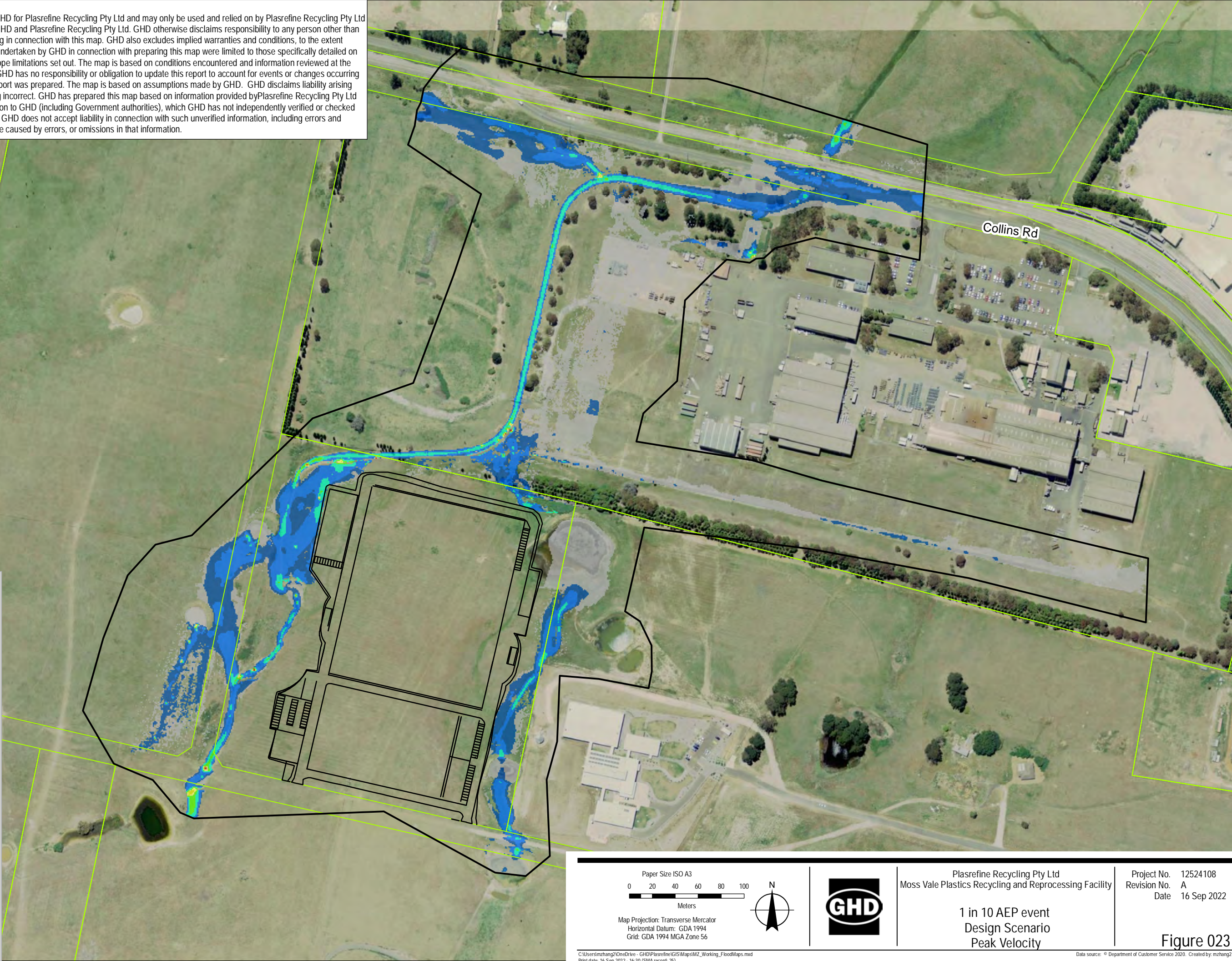
3.00 - 3.50

3.50 - 4.00

4.00 - 4.50

4.50 - 5.00

> 5.00



Paper Size: ISO A3

0 20 40 60 80 100

Meters

Map Projection: Transverse Mercator

Horizontal Datum: GDA 1994

Grid: GDA 1994 MGA Zone 56

N

GHD

Plasrefine Recycling Pty Ltd

Moss Vale Plastics Recycling and Reprocessing Facility

1 in 10 AEP event

Design Scenario

Peak Velocity

Project No. 12524108

Revision No. A

Date 16 Sep 2022

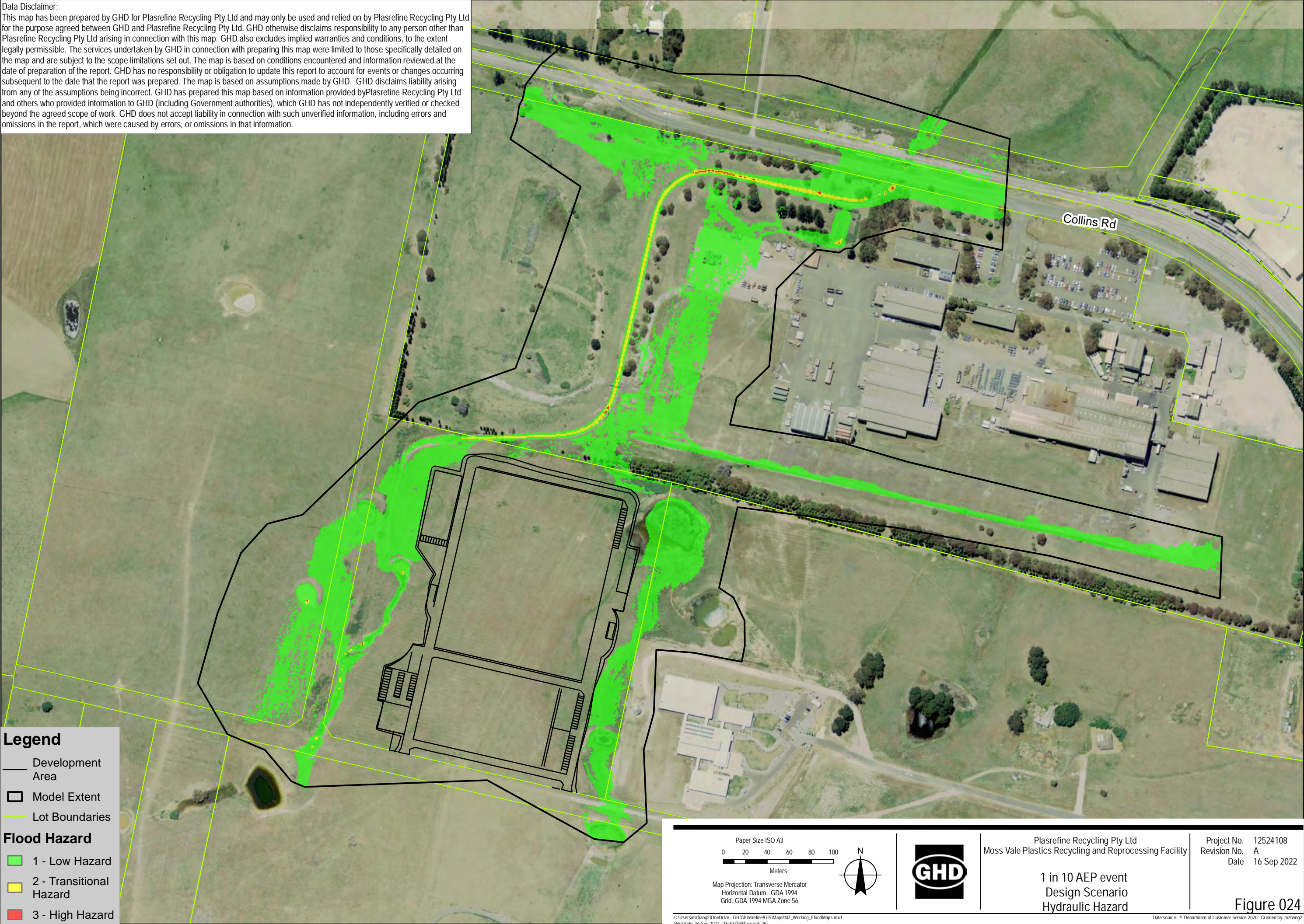
Figure 023

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Print date: 16 Sep 2022 - 16:30 (SMA record: 25)

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Legend

Development Area

Model Extent

Lot Boundaries

Flood Level Contours (m AHD)

Flood Depth and Extent (m)

<0.01

0.01 - 0.05

0.05 - 0.10

0.10 - 0.15

0.15 - 0.30

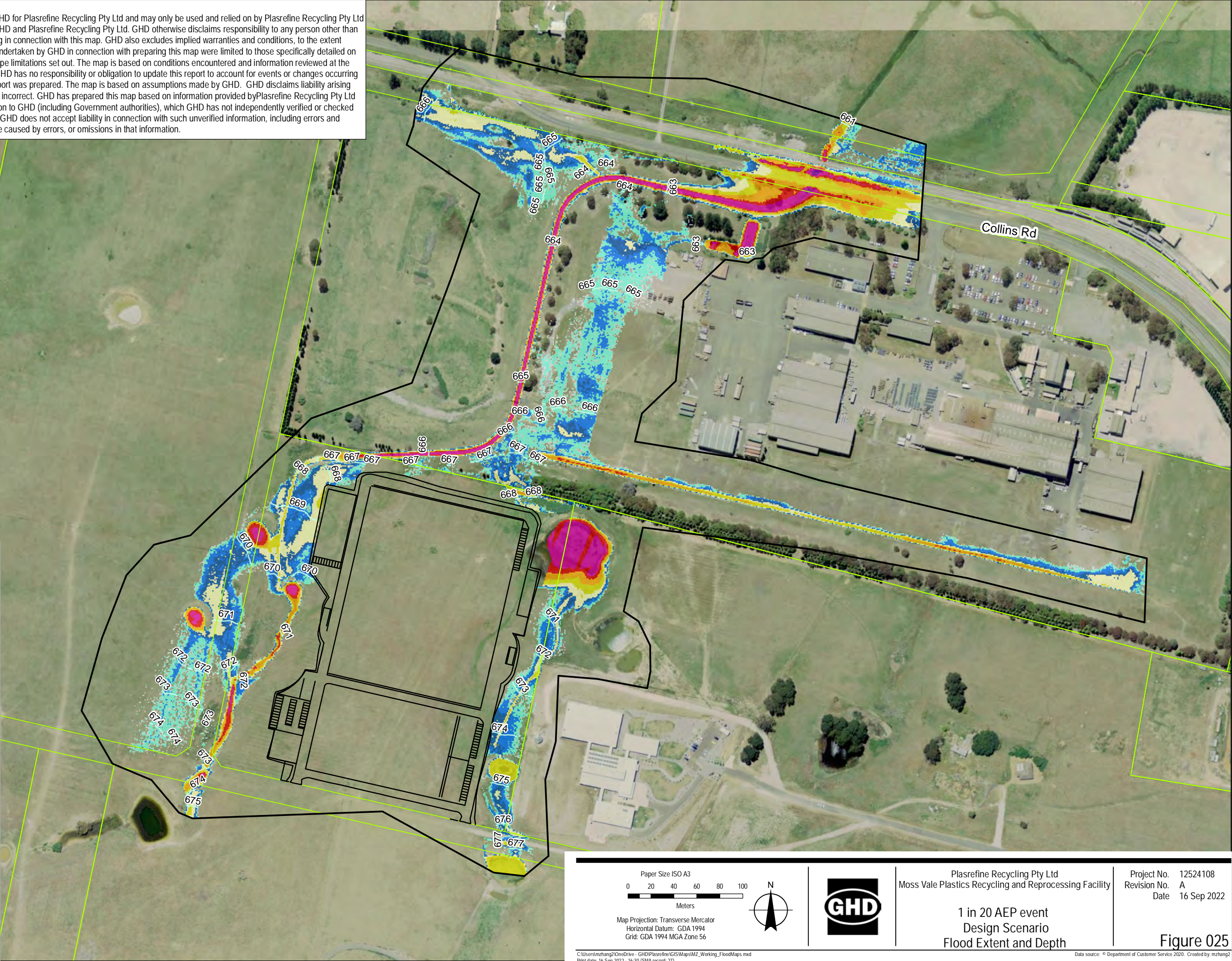
0.30 - 0.50

0.50 - 0.75

0.75 - 1.00

1.00 - 2.00

> 2.00



Paper Size: ISO A3

0

20

40

60

80

100

Meters

Map Projection: Transverse Mercator

Horizontal Datum: GDA 1994

Grid: GDA 1994 MGA Zone 56

N

GHD

Plasrefine Recycling Pty Ltd

Moss Vale Plastics Recycling and Reprocessing Facility

1 in 20 AEP event

Design Scenario

Flood Extent and Depth

Project No. 12524108

Revision No. A

Date 16 Sep 2022

Figure 025

C:\Users\mzhang2\OneDrive - GHD\Plasrefine\GIS\Maps\M2_Working_FloodMaps.mxd

Print date: 16 Sep 2022 - 16:30 (SMA record: 27)

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Legend

Development Area

Model Extent

Lot Boundaries

Peak Flood Velocity (m/s)

0.00 - 0.25

0.25 - 0.50

0.50 - 1.00

1.00 - 1.50

1.50 - 2.00

2.00 - 2.50

2.50 - 3.00

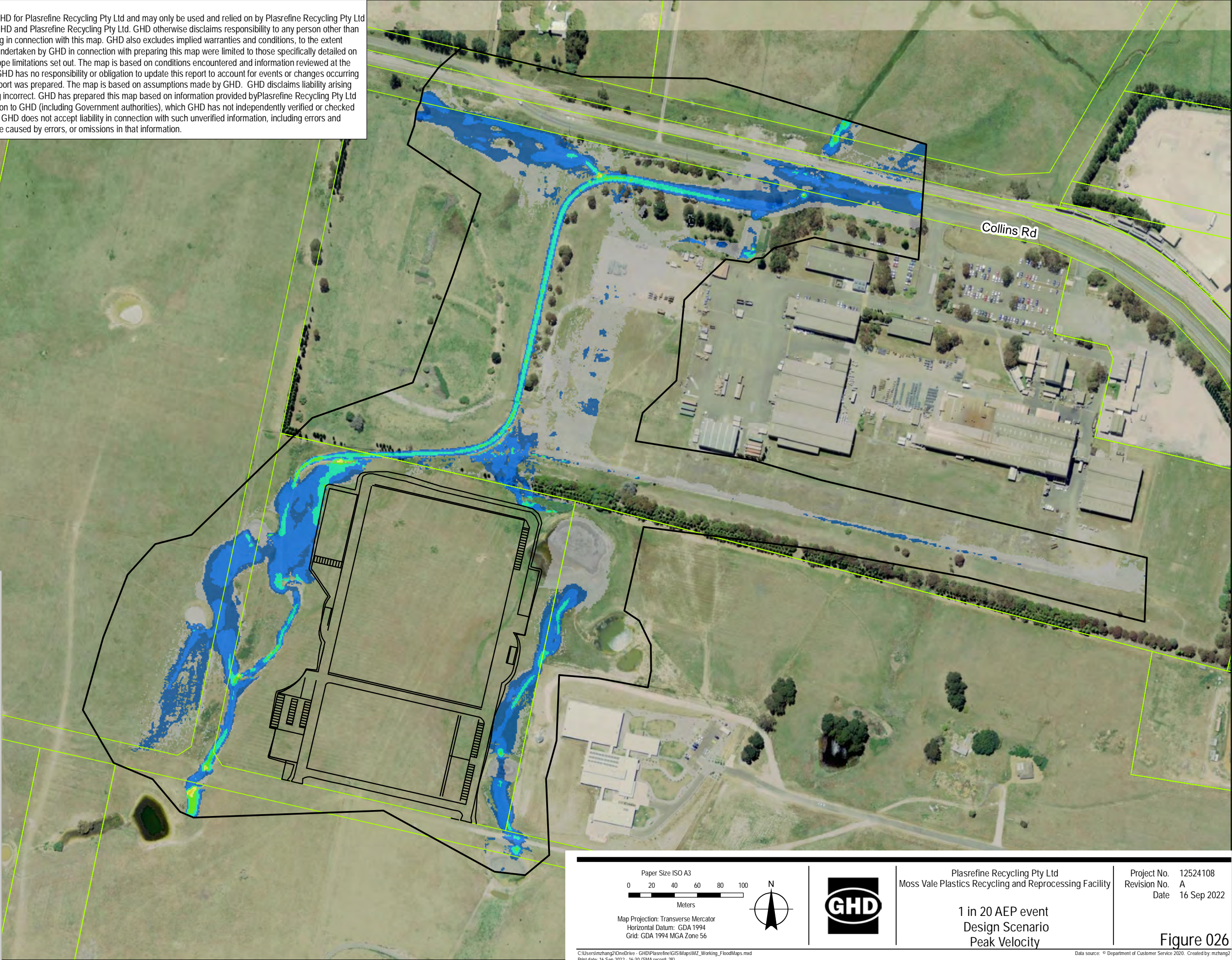
3.00 - 3.50

3.50 - 4.00

4.00 - 4.50

4.50 - 5.00

> 5.00



Paper Size: ISO A3

0

20

40

60

80

100

Meters

Map Projection: Transverse Mercator

Horizontal Datum: GDA 1994

Grid: GDA 1994 MGA Zone 56

N

GHD

Plasrefine Recycling Pty Ltd

Moss Vale Plastics Recycling and Reprocessing Facility

1 in 20 AEP event

Design Scenario

Peak Velocity

Project No. 12524108

Revision No. A

Date 16 Sep 2022

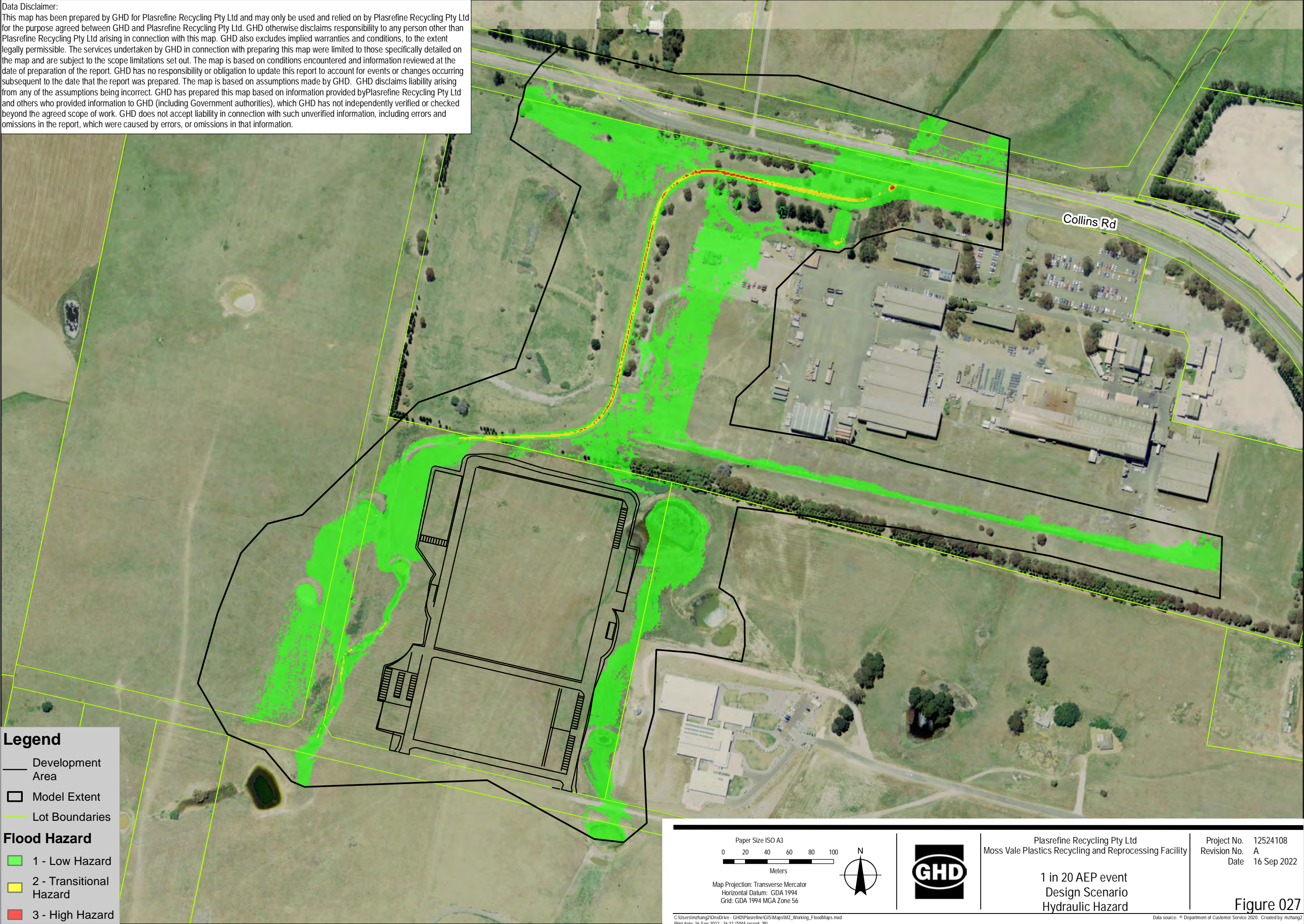
Figure 026

C:\Users\mzhang2\OneDrive - GHD\Plasrefine\GIS\Maps\M2_Working_FloodMaps.mxd

Print date: 16 Sep 2022 - 16:30 (SMA record: 28)

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Legend

Development Area

Model Extent

Lot Boundaries

Flood Level Contours (m AHD)

Flood Depth and Extent (m)

<0.01

0.01 - 0.05

0.05 - 0.10

0.10 - 0.15

0.15 - 0.30

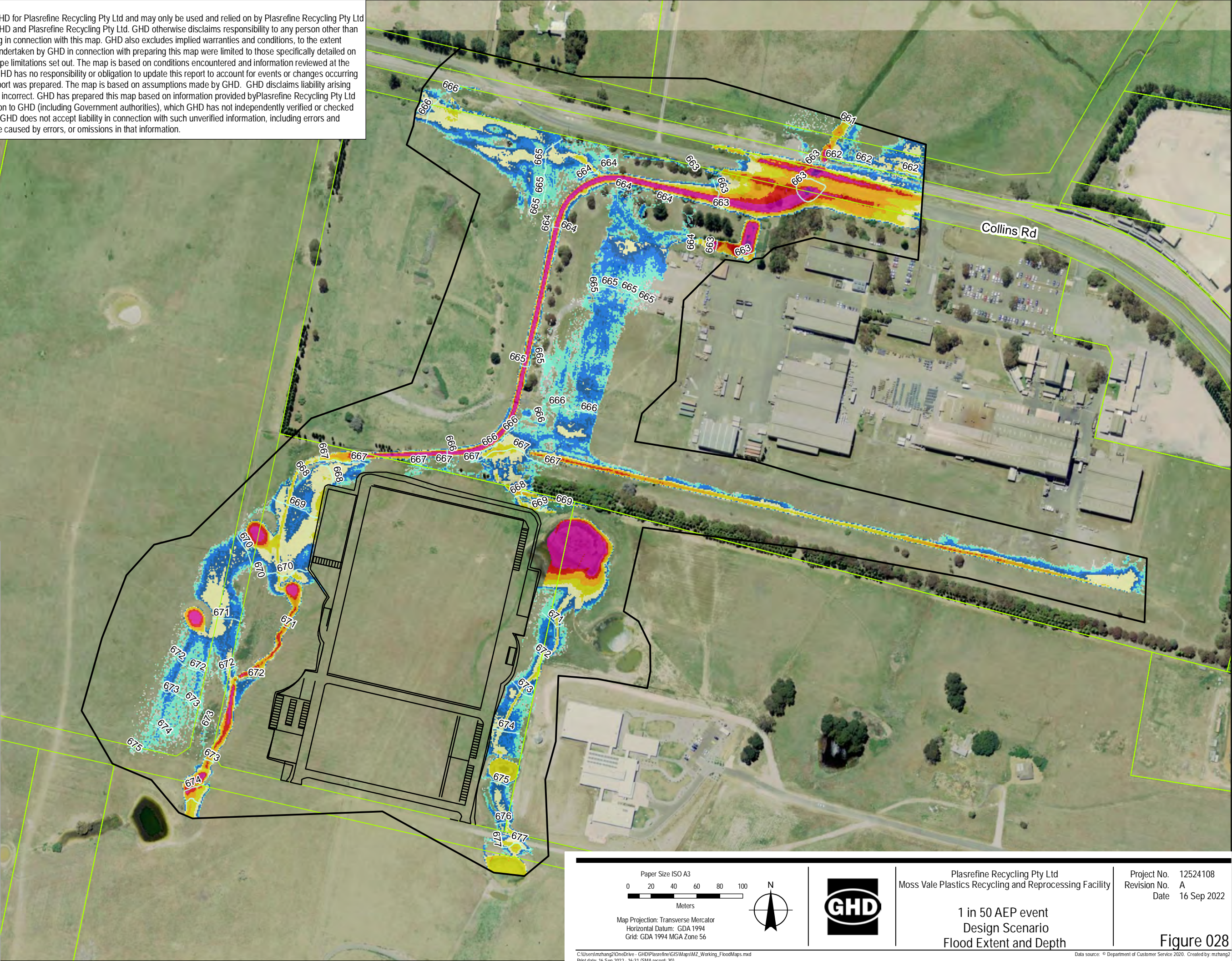
0.30 - 0.50

0.50 - 0.75

0.75 - 1.00

1.00 - 2.00

> 2.00



Paper Size: ISO A3

0 20 40 60 80 100

Meters

Map Projection: Transverse Mercator

Horizontal Datum: GDA 1994

Grid: GDA 1994 MGA Zone 56

Plasrefine Recycling Pty Ltd

Moss Vale Plastics Recycling and Reprocessing Facility

1 in 50 AEP event

Design Scenario

Flood Extent and Depth

Project No. 12524108

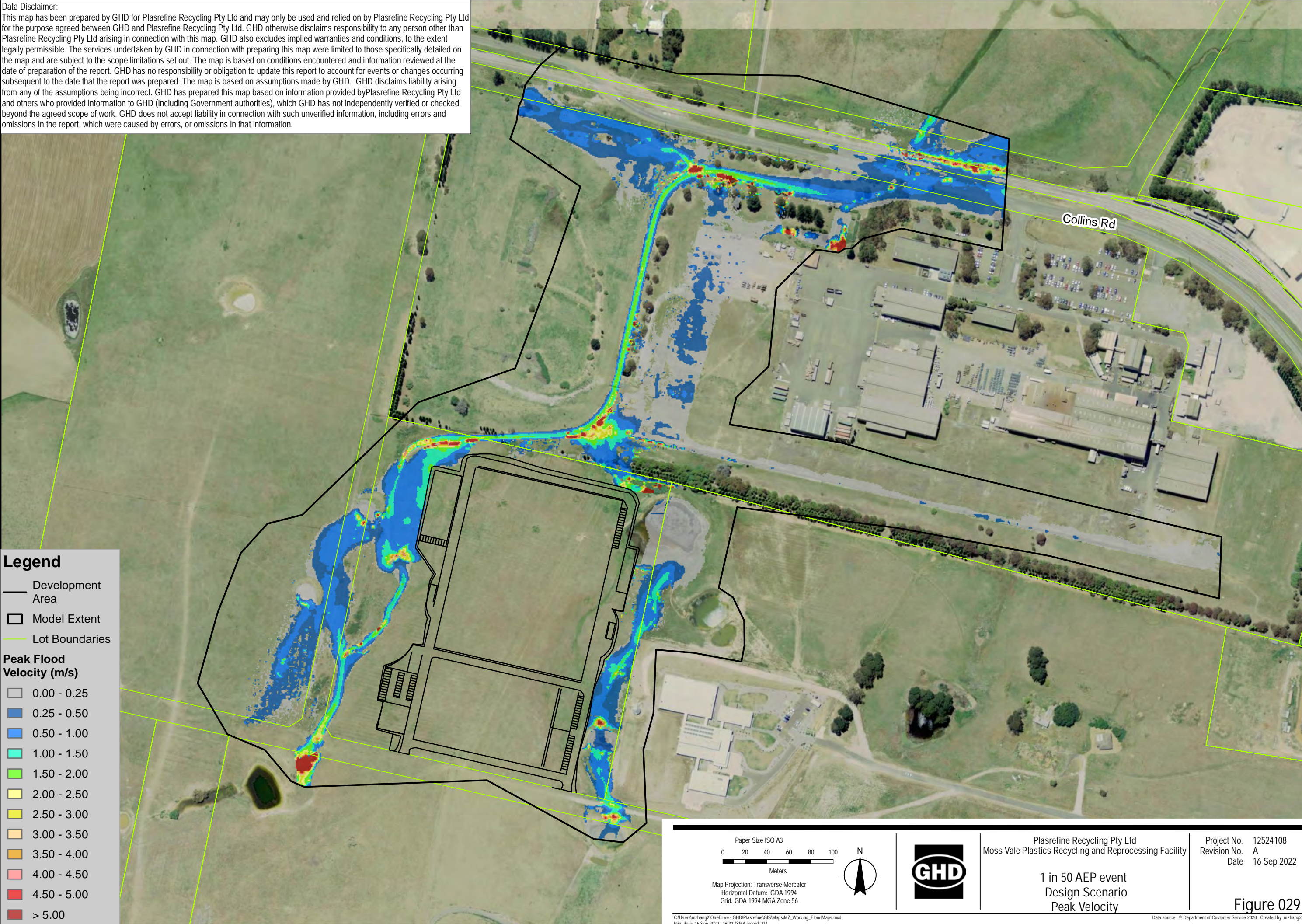
Revision No. A

Date 16 Sep 2022

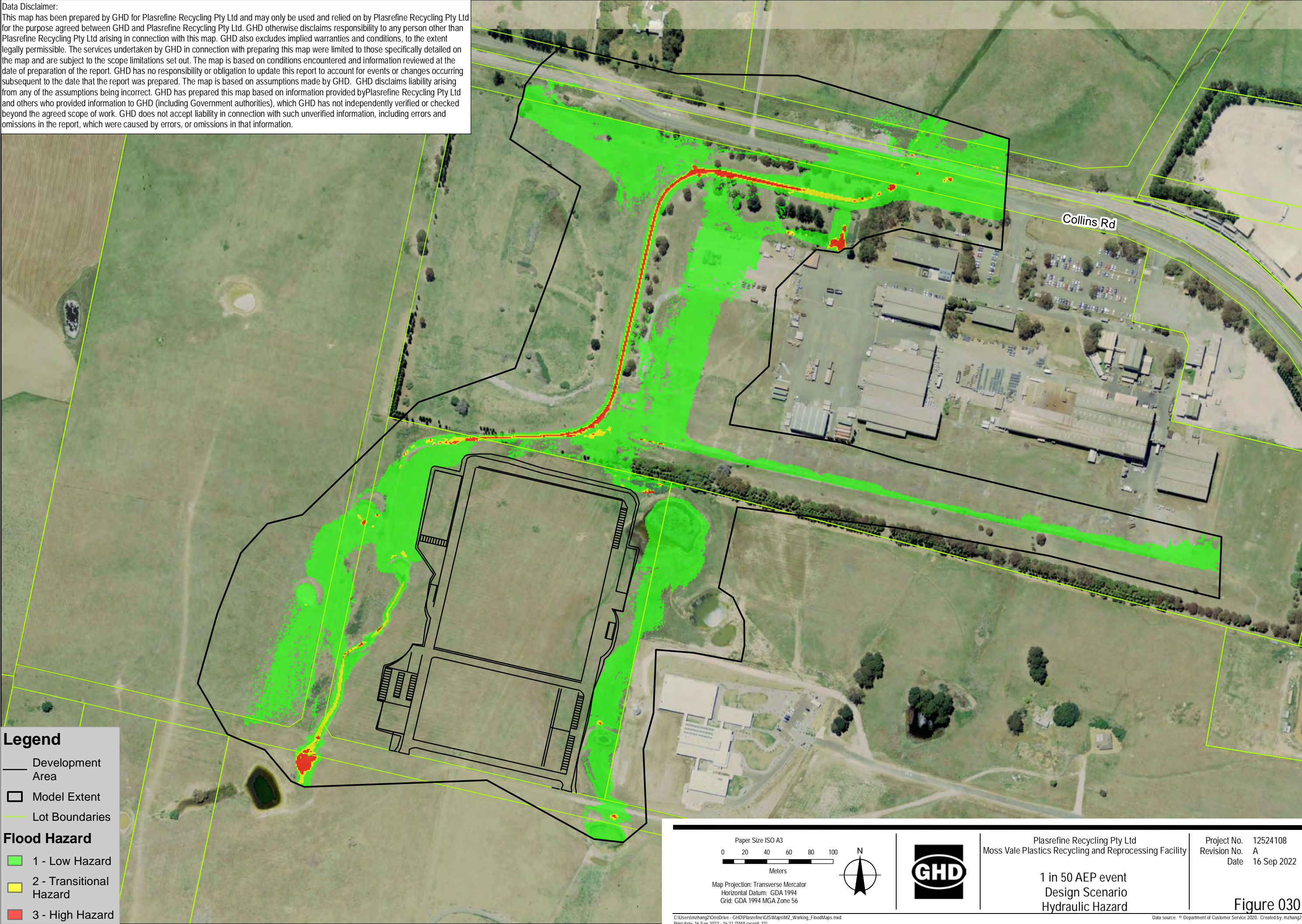
Figure 028

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Legend

Development Area

Model Extent

Lot Boundaries

Flood Level Contours (m AHD)

Flood Depth and Extent (m)

<0.01

0.01 - 0.05

0.05 - 0.10

0.10 - 0.15

0.15 - 0.30

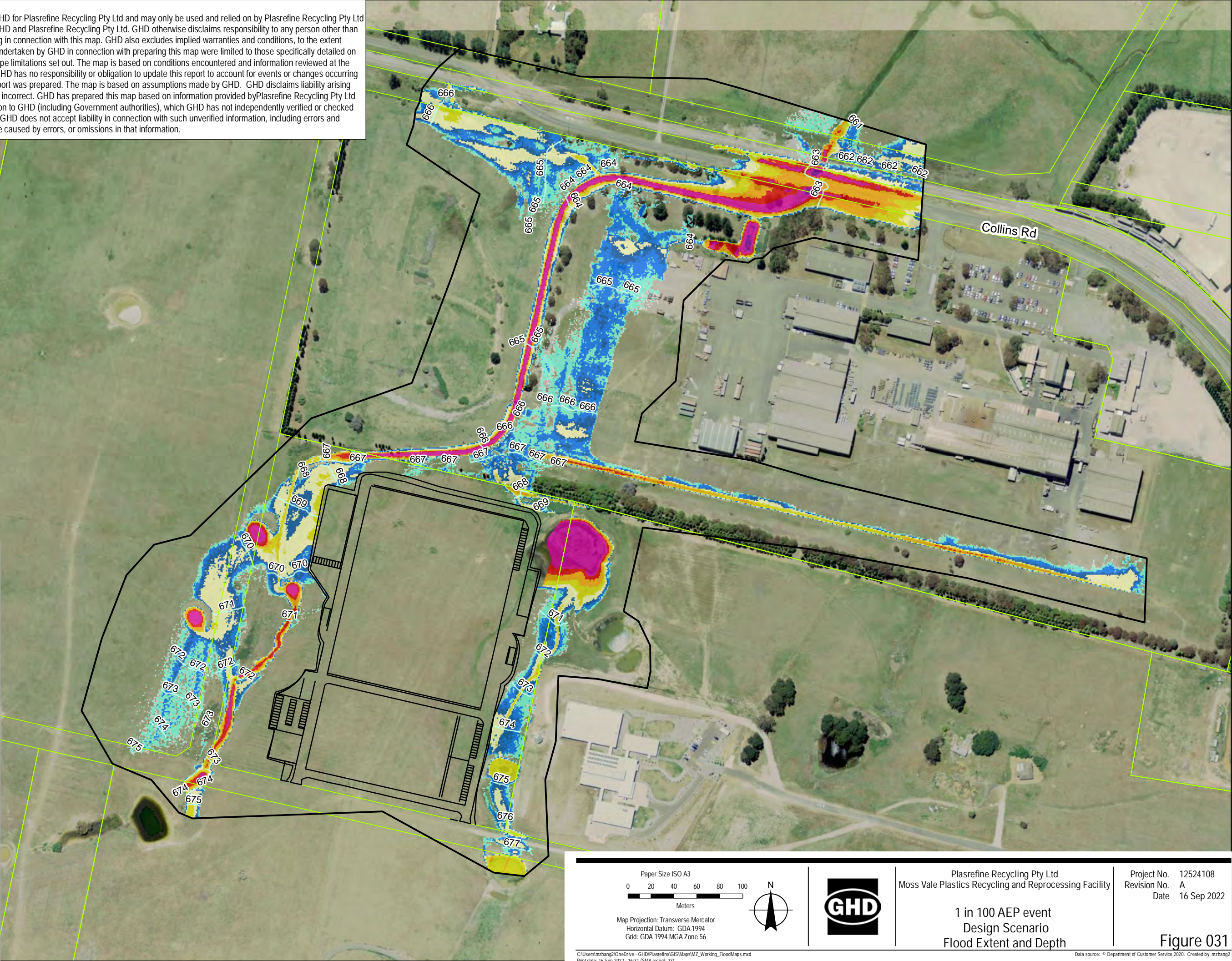
0.30 - 0.50

0.50 - 0.75

0.75 - 1.00

1.00 - 2.00

> 2.00



Paper Size: ISO A3

0

20

40

60

80

100

Meters

Map Projection: Transverse Mercator

Horizontal Datum: GDA 1994

Grid: GDA 1994 MGA Zone 56

N

GHD

Plasrefine Recycling Pty Ltd

Moss Vale Plastics Recycling and Reprocessing Facility

1 in 100 AEP event

Design Scenario

Flood Extent and Depth

Project No. 12524108

Revision No. A

Date 16 Sep 2022

Figure 031

C:\Users\mzhang2\OneDrive - GHD\Plasrefine\GIS\Maps\M2_Working_FloodMaps.mxd

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Legend

Development Area

Model Extent

Lot Boundaries

Peak Flood Velocity (m/s)

0.00 - 0.25

0.25 - 0.50

0.50 - 1.00

1.00 - 1.50

1.50 - 2.00

2.00 - 2.50

2.50 - 3.00

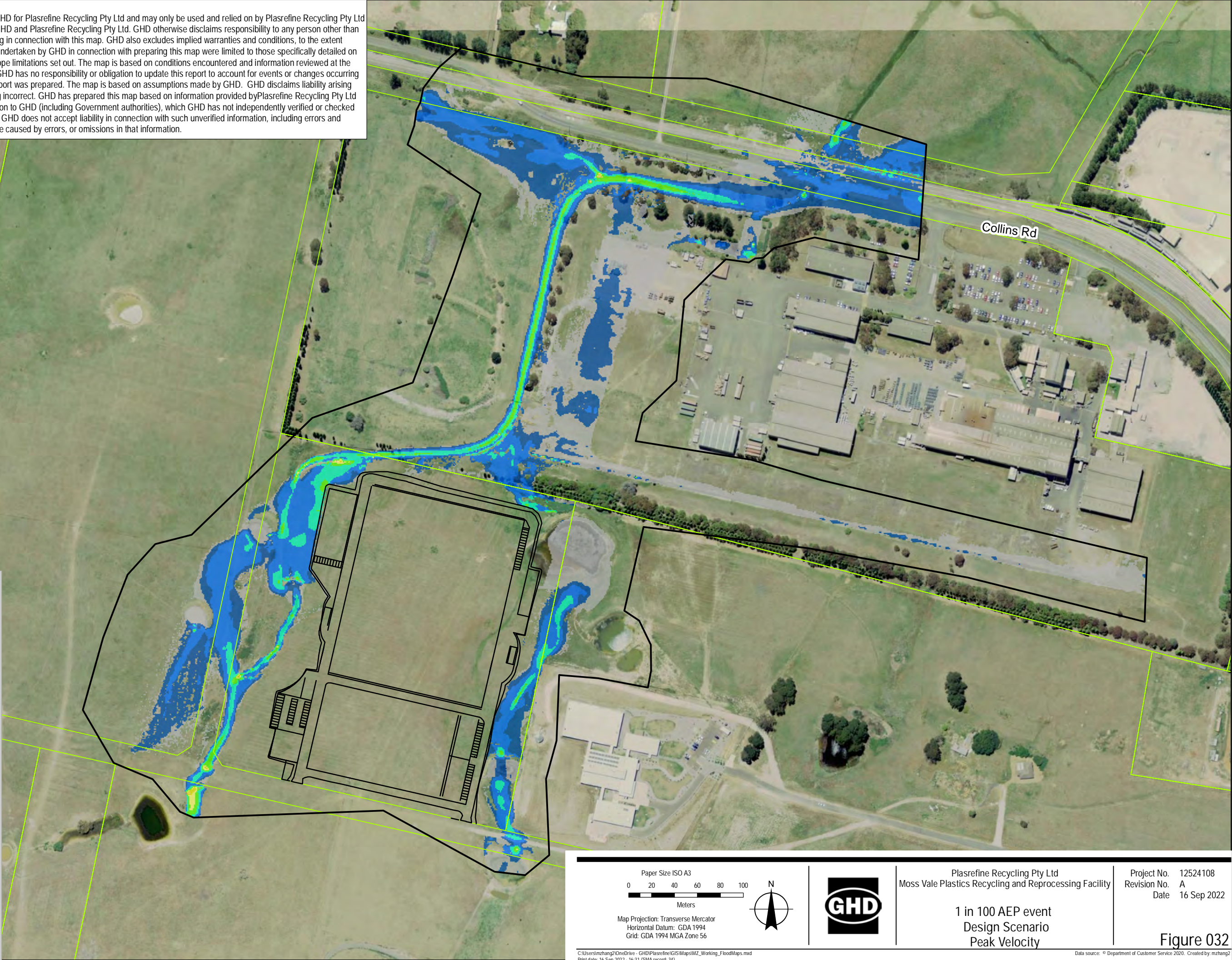
3.00 - 3.50

3.50 - 4.00

4.00 - 4.50

4.50 - 5.00

> 5.00



Paper Size: ISO A3

0

20

40

60

80

100

Meters

N

Map Projection: Transverse Mercator

Horizontal Datum: GDA 1994

Grid: GDA 1994 MGA Zone 56

GHD

Plasrefine Recycling Pty Ltd

Moss Vale Plastics Recycling and Reprocessing Facility

1 in 100 AEP event

Design Scenario

Peak Velocity

Project No. 12524108

Revision No. A

Date 16 Sep 2022

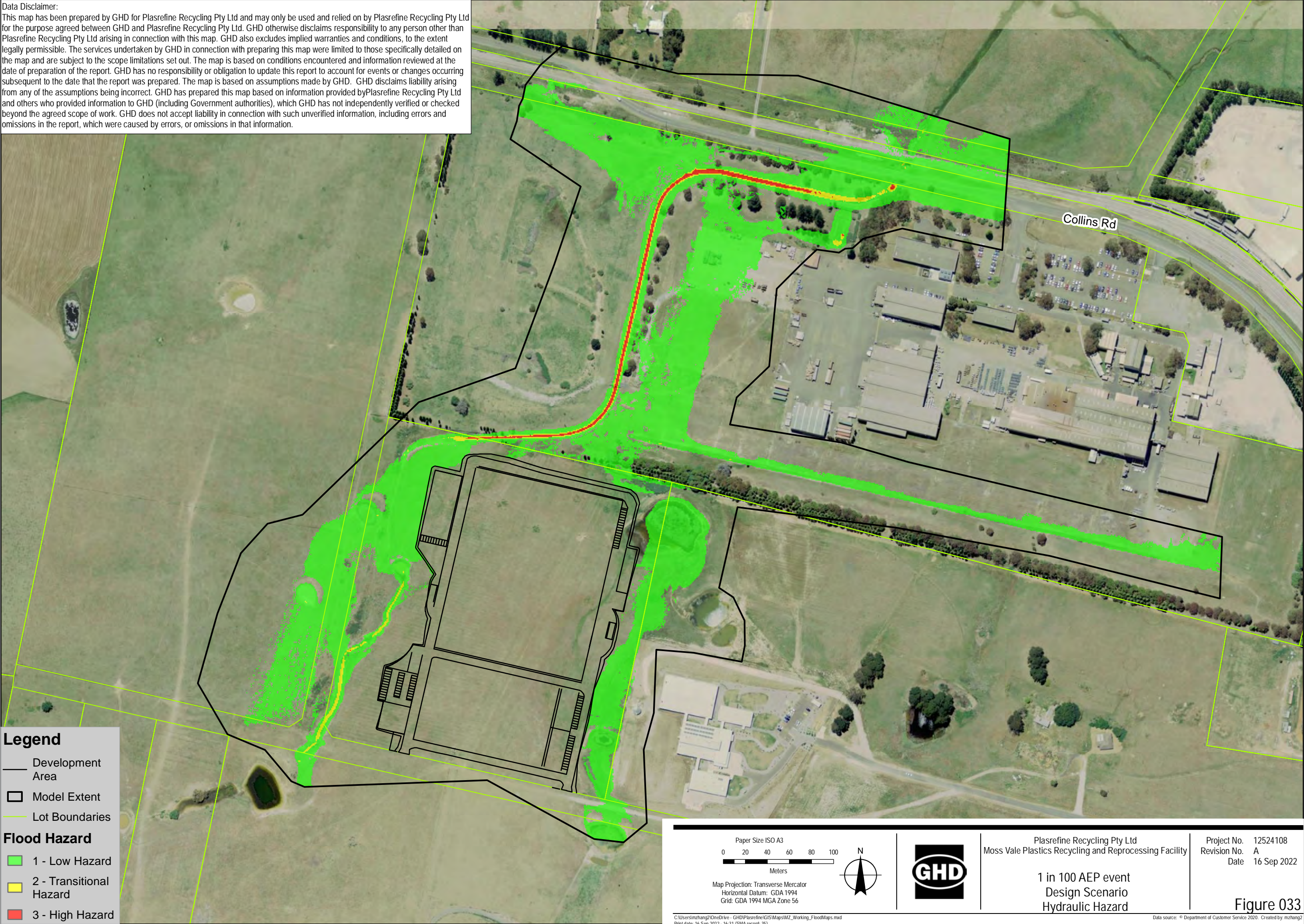
Figure 032

C:\Users\mzhang2\OneDrive - GHD\Plasrefine\GIS\Maps\M2_Working_FloodMaps.mxd

Print date: 16 Sep 2022 - 16:31 (SMA record: 34)

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Legend

Development Area

Model Extent

Lot Boundaries

Flood Level Contours (m AHD)

Flood Depth and Extent (m)

<0.01

0.01 - 0.05

0.05 - 0.10

0.10 - 0.15

0.15 - 0.30

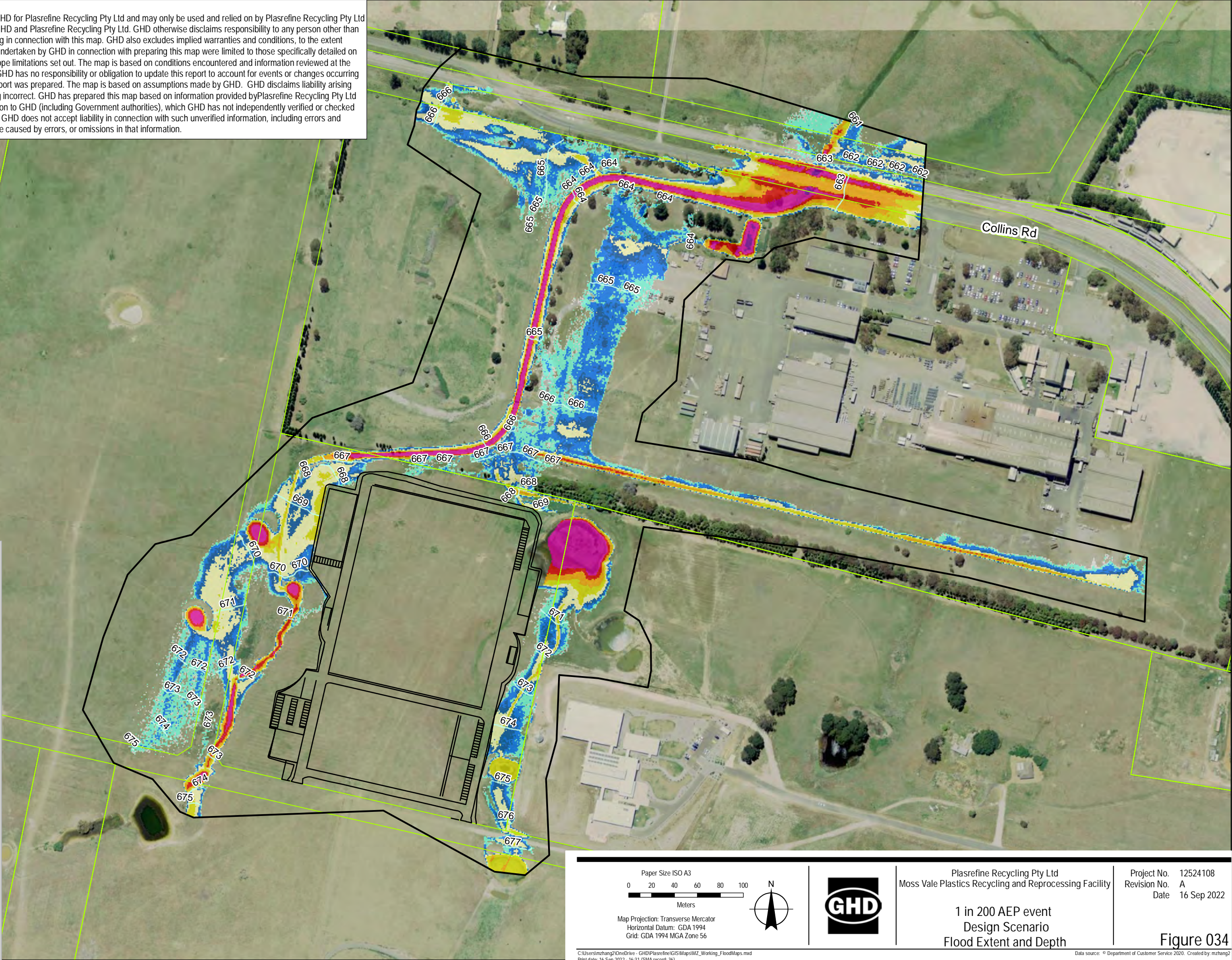
0.30 - 0.50

0.50 - 0.75

0.75 - 1.00

1.00 - 2.00

> 2.00



Paper Size: ISO A3

0

20

40

60

80

100

Meters

Map Projection: Transverse Mercator

Horizontal Datum: GDA 1994

Grid: GDA 1994 MGA Zone 56

N

GHD

Plasrefine Recycling Pty Ltd

Moss Vale Plastics Recycling and Reprocessing Facility

1 in 200 AEP event

Design Scenario

Flood Extent and Depth

Project No. 12524108

Revision No. A

Date 16 Sep 2022

Figure 034

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Legend

—

Development Area

□

Model Extent

—

Lot Boundaries

Peak Flood Velocity (m/s)

0.00 - 0.25

0.25 - 0.50

0.50 - 1.00

1.00 - 1.50

1.50 - 2.00

2.00 - 2.50

2.50 - 3.00

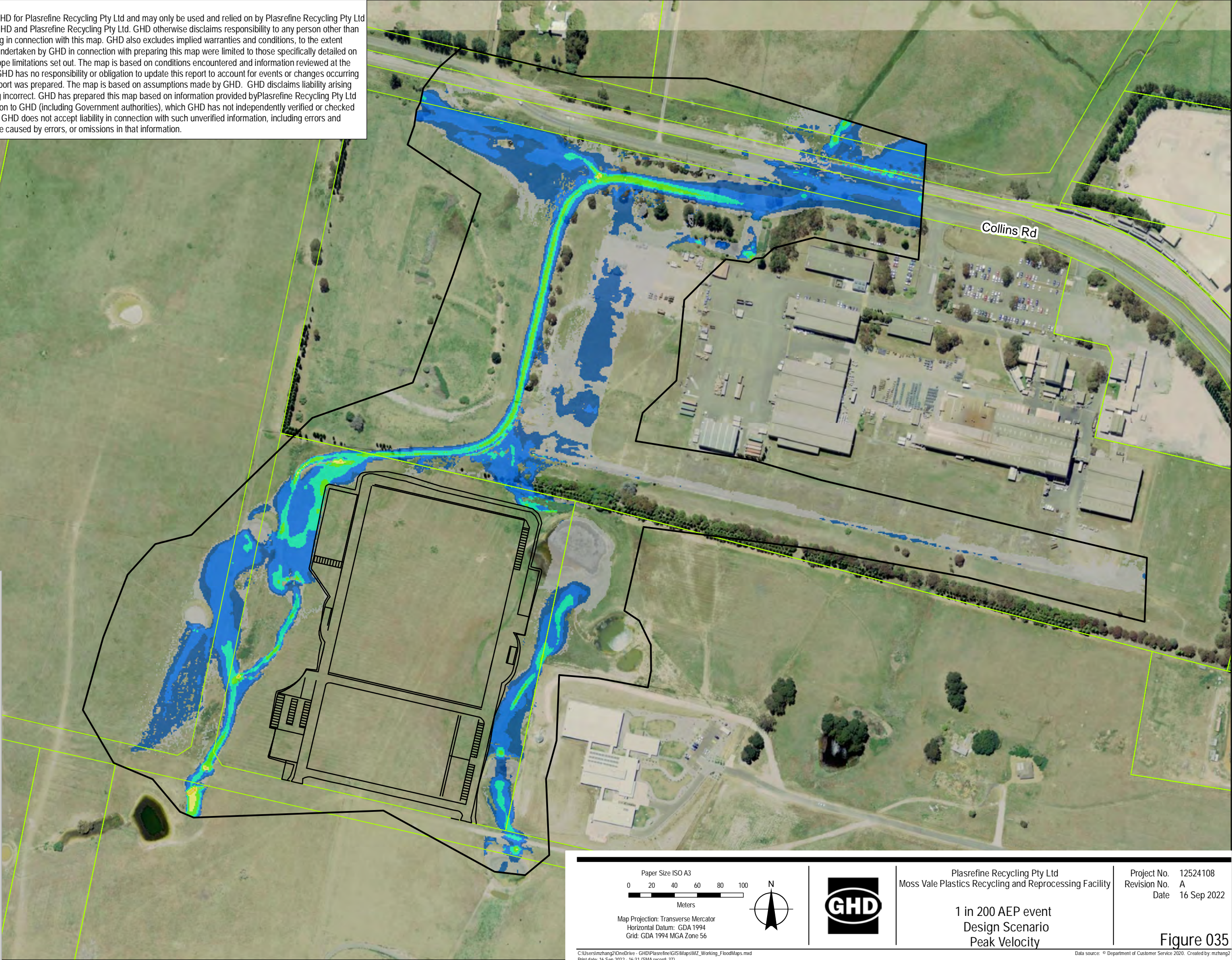
3.00 - 3.50

3.50 - 4.00

4.00 - 4.50

4.50 - 5.00

> 5.00



Paper Size: ISO A3

0

20

40

60

80

100

Meters

Map Projection: Transverse Mercator

Horizontal Datum: GDA 1994

Grid: GDA 1994 MGA Zone 56

N

GHD

Plasrefine Recycling Pty Ltd

Moss Vale Plastics Recycling and Reprocessing Facility

1 in 200 AEP event

Design Scenario

Peak Velocity

Project No. 12524108

Revision No. A

Date 16 Sep 2022

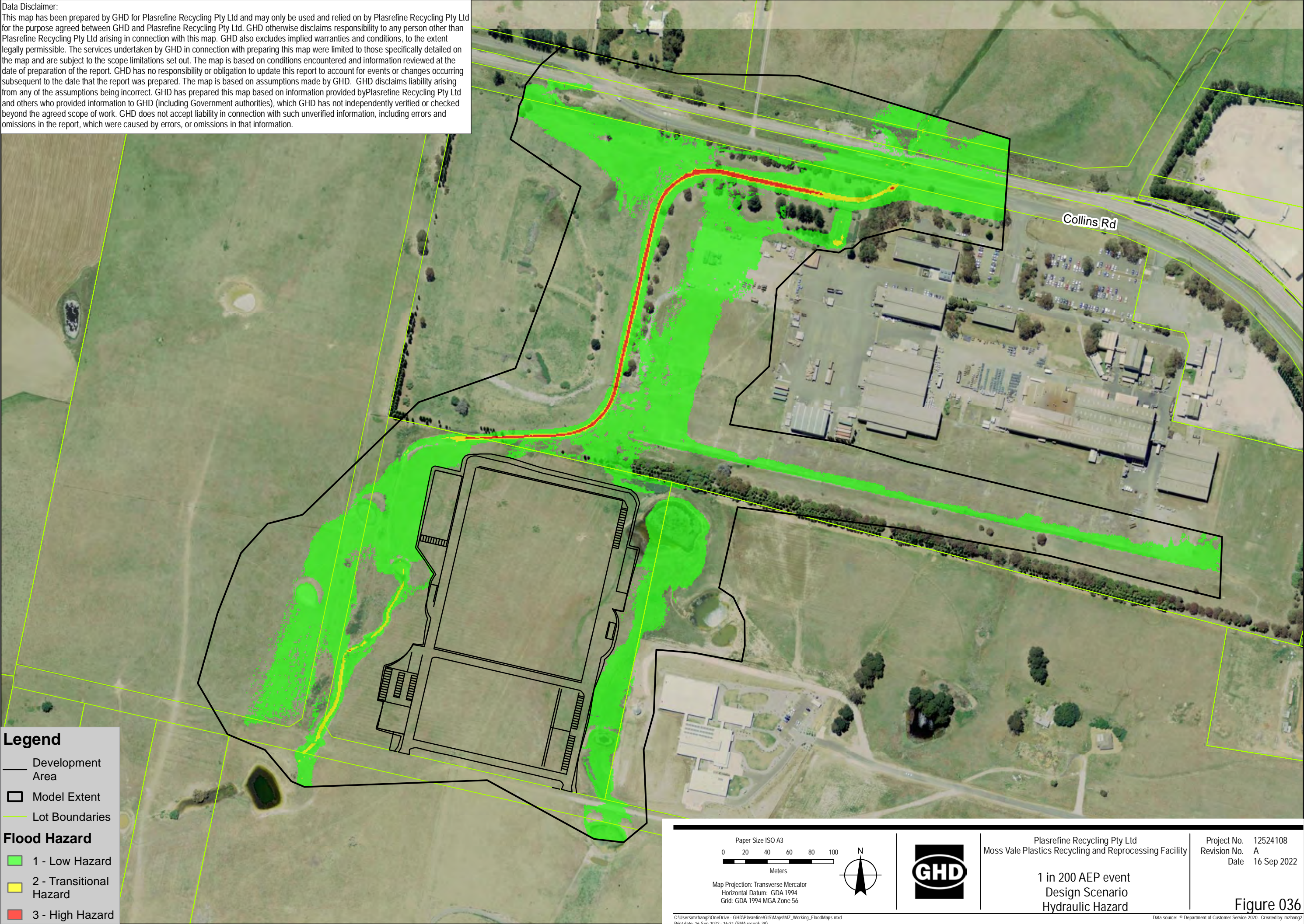
Figure 035

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Print date: 16 Sep 2022 - 16:31 (SMA record: 37)

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Legend

— Development Area

□ Model Extent

— Lot Boundaries

Flood Level Contours (m AHD)

Flood Depth and Extent (m)

<0.01

0.01 - 0.05

0.05 - 0.10

0.10 - 0.15

0.15 - 0.30

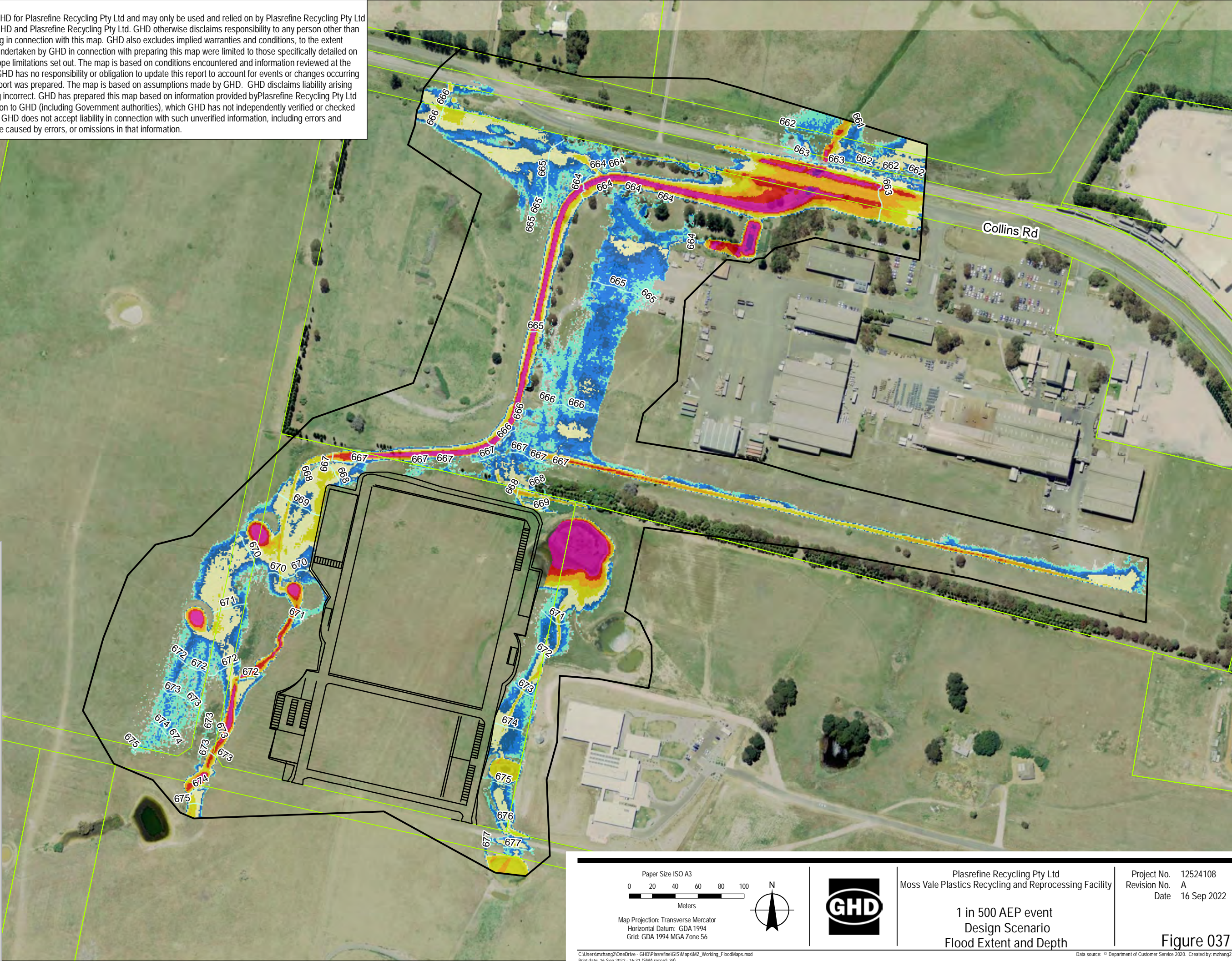
0.30 - 0.50

0.50 - 0.75

0.75 - 1.00

1.00 - 2.00

> 2.00



Paper Size: ISO A3
0 20 40 60 80 100
Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

Plasrefine Recycling Pty Ltd
Moss Vale Plastics Recycling and Reprocessing Facility

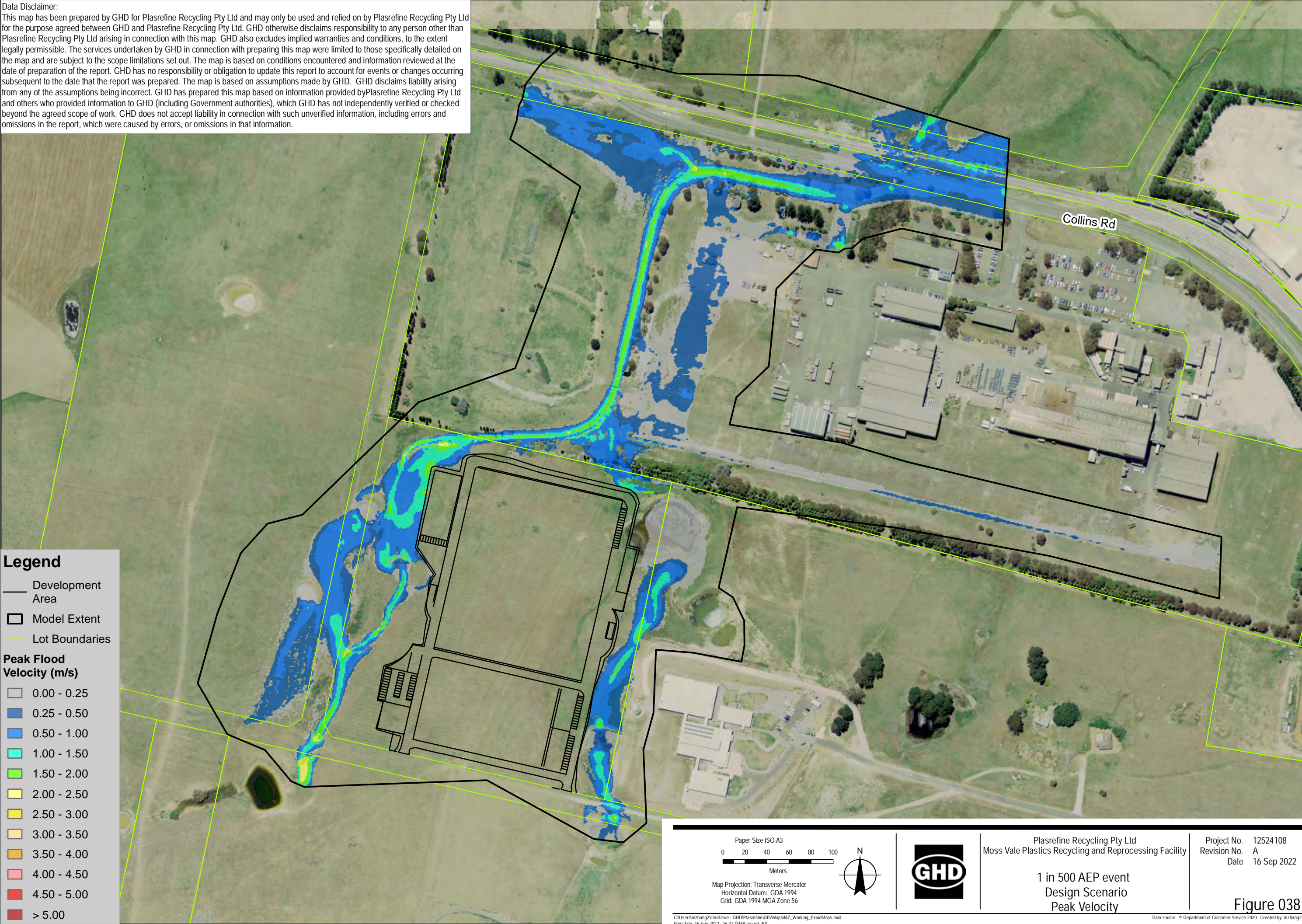
1 in 500 AEP event
Design Scenario
Flood Extent and Depth

Project No. 12524108
Revision No. A
Date 16 Sep 2022

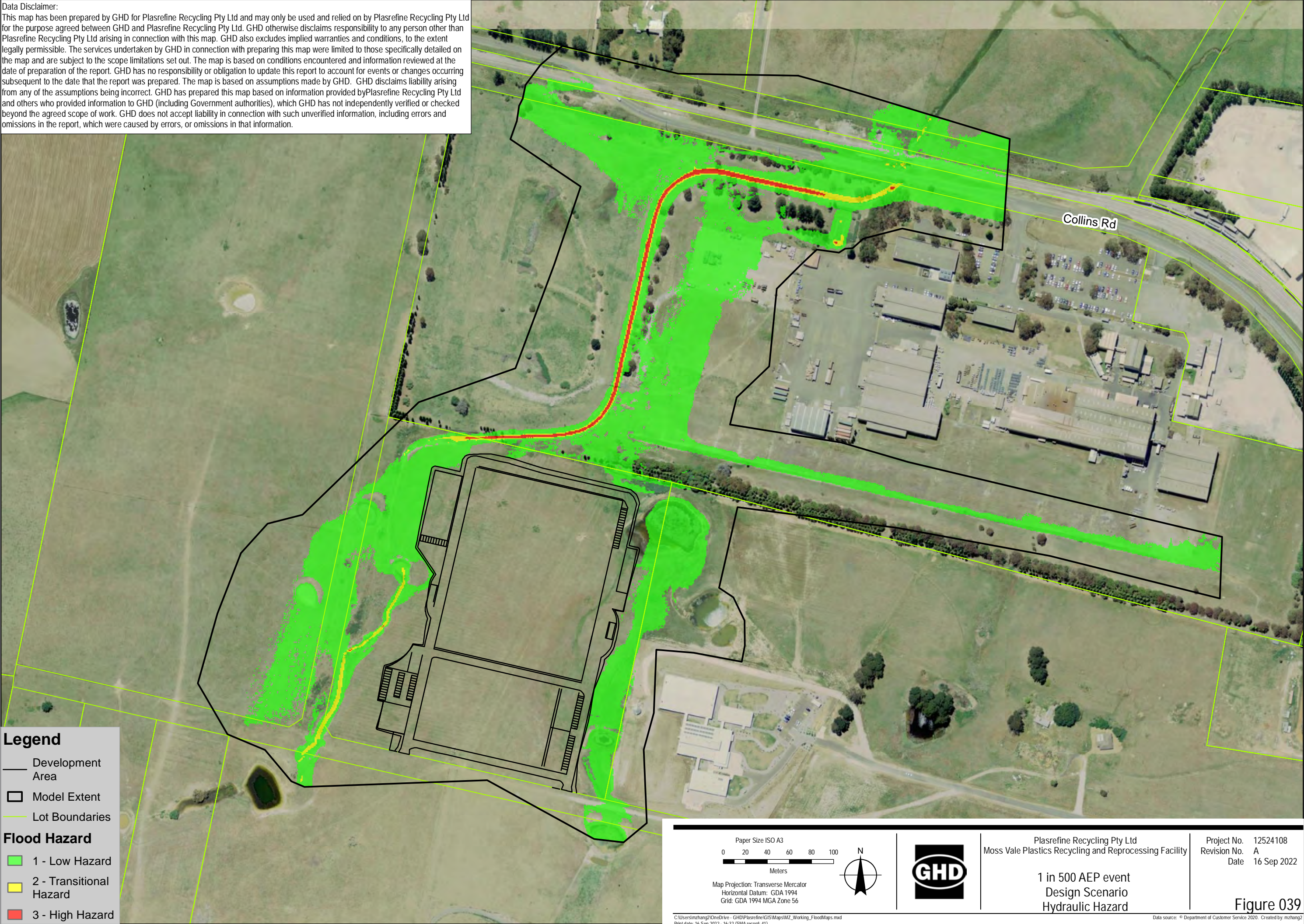
Figure 037

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Legend

Development Area

Model Extent

Lot Boundaries

Flood Level Contours (m AHD)

Flood Depth and Extent (m)

<0.01

0.01 - 0.05

0.05 - 0.10

0.10 - 0.15

0.15 - 0.30

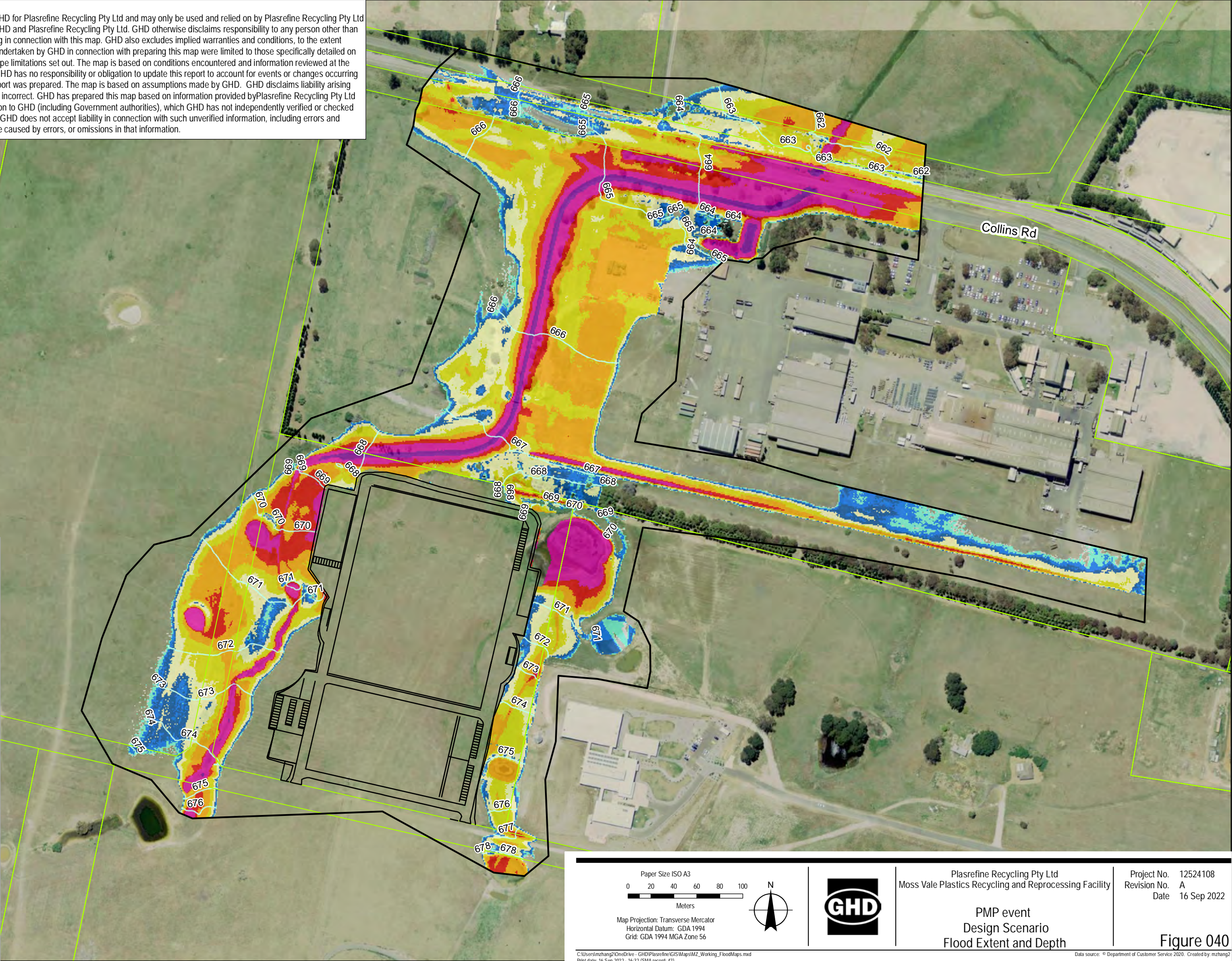
0.30 - 0.50

0.50 - 0.75

0.75 - 1.00

1.00 - 2.00

> 2.00



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Legend

Development Area

Model Extent

Lot Boundaries

Peak Flood Velocity (m/s)

0.00 - 0.25

0.25 - 0.50

0.50 - 1.00

1.00 - 1.50

1.50 - 2.00

2.00 - 2.50

2.50 - 3.00

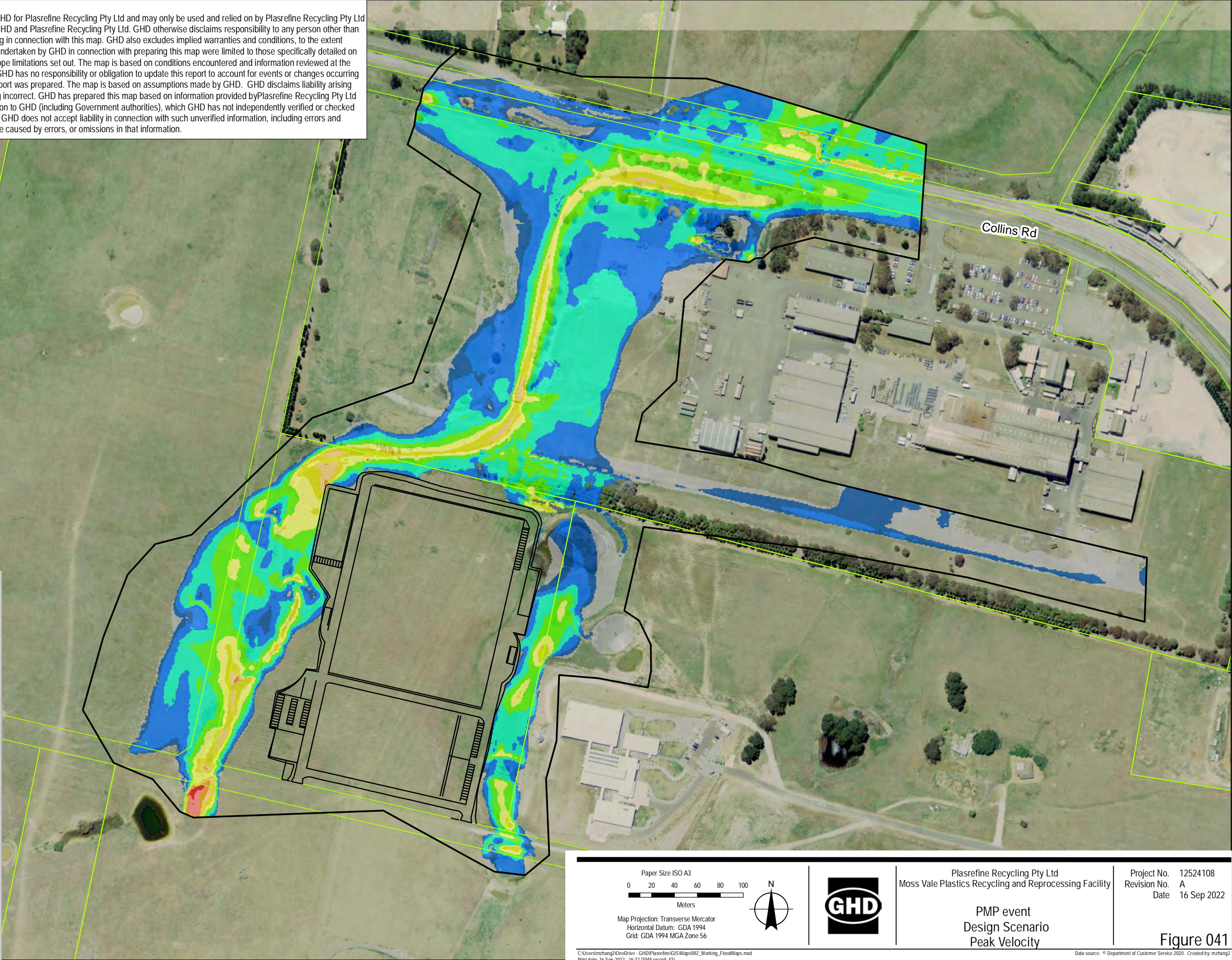
3.00 - 3.50

3.50 - 4.00

4.00 - 4.50

4.50 - 5.00

> 5.00



Paper Size: ISO A3
0 20 40 60 80 100
Meters
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

Plasrefine Recycling Pty Ltd
Moss Vale Plastics Recycling and Reprocessing Facility

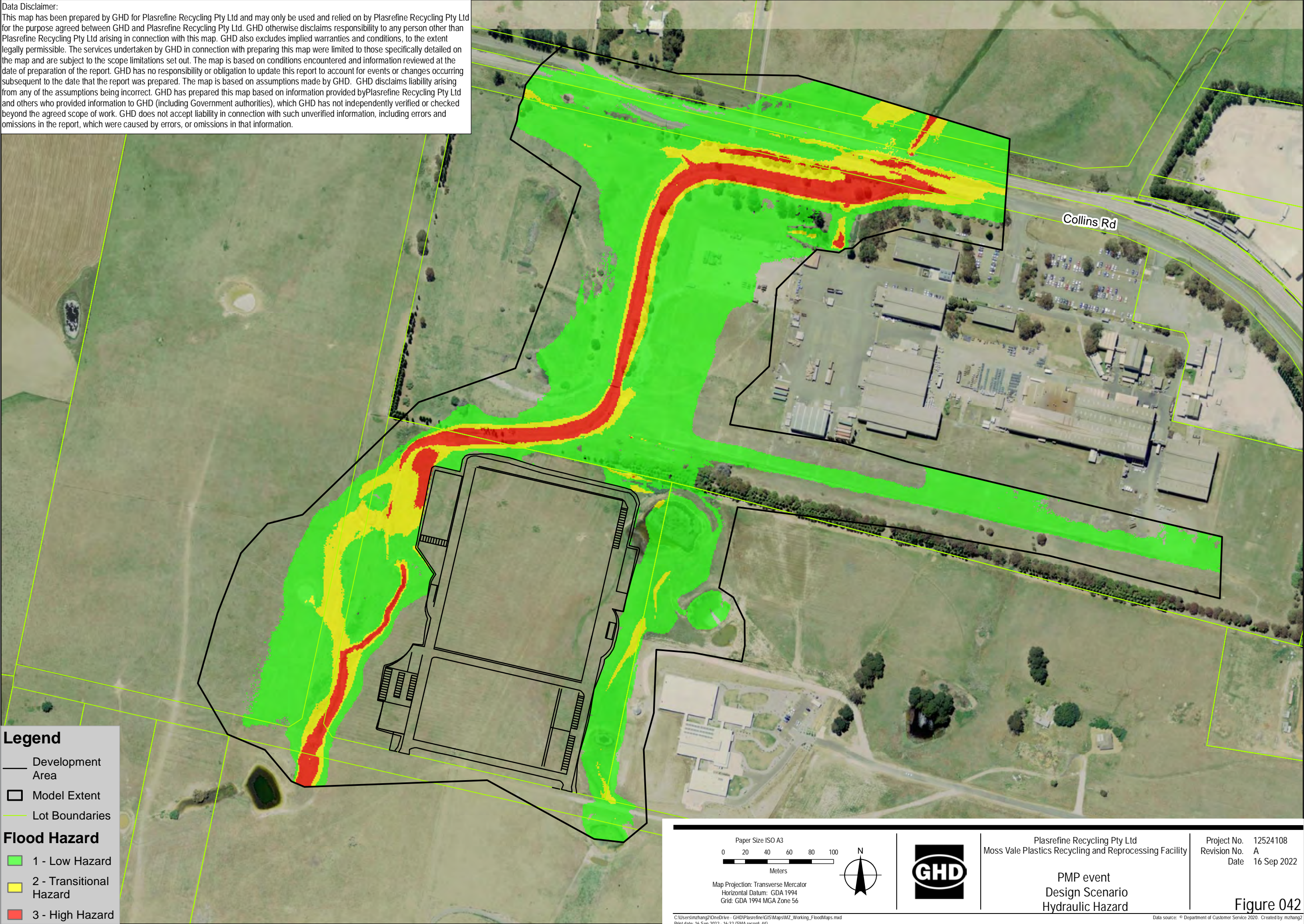
PMP event
Design Scenario
Peak Velocity

Project No. 12524108
Revision No. A
Date 16 Sep 2022

Figure 041

Data source: © Department of Customer Service 2020. Created by: mzhang2

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Legend

— Development Area

□ Model Extent

— Lot Boundaries

Change in Water Surface Elevation (mm)

> -500mm

-500 - -400

-400 - -300

-300 - -200

-200 - -100

-100 - -50

-50 - -25

-25 - -10

-10 - +10

+10 - +25

+25 - +50

+50 - +100

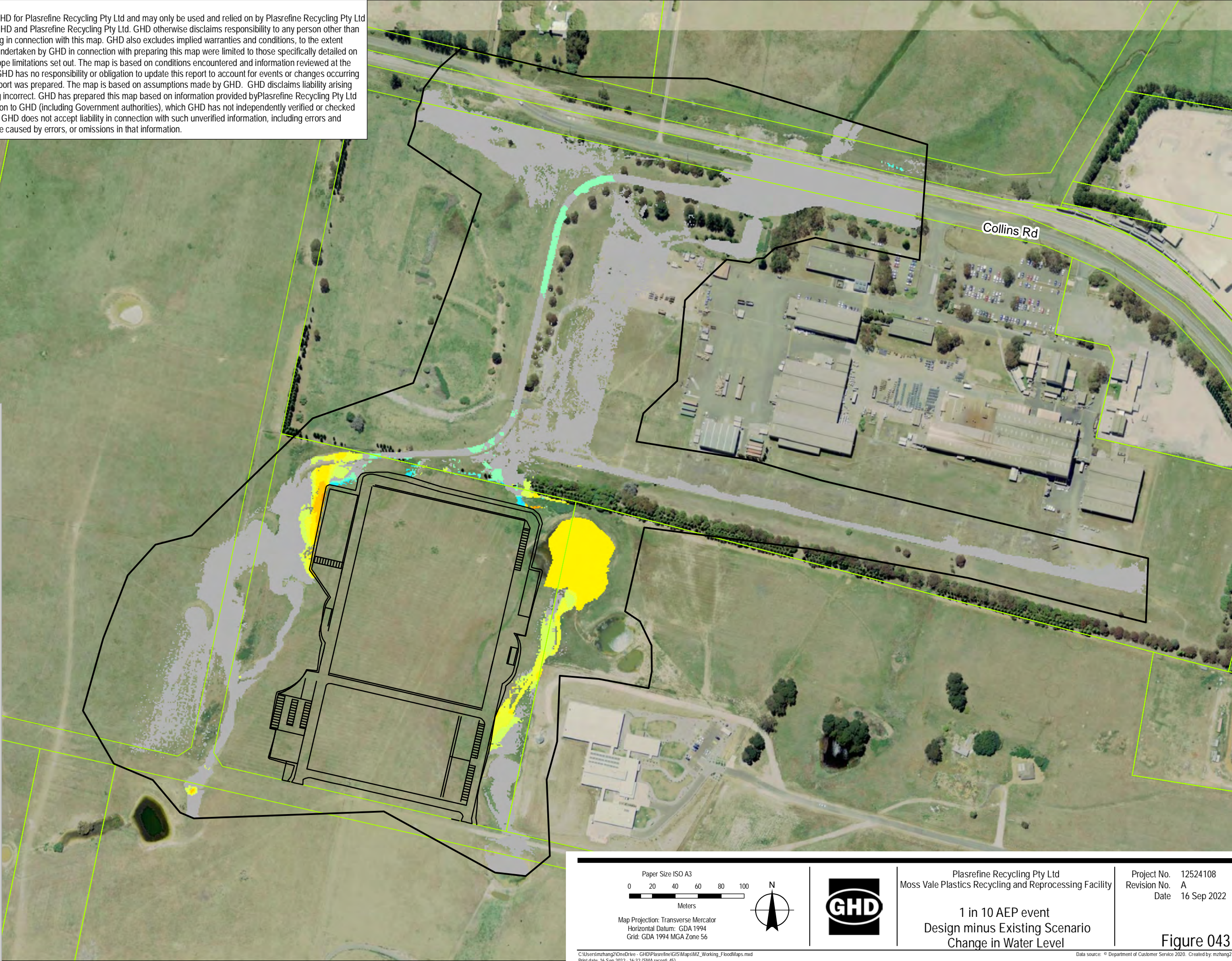
+100 - +200

+200 - +300

+300 - +400

+400 - +500

> +500



Paper Size: ISO A3

0 20 40 60 80 100

Meters

Map Projection: Transverse Mercator

Horizontal Datum: GDA 1994

Grid: GDA 1994 MGA Zone 56

N

GHD

Plasrefine Recycling Pty Ltd

Moss Vale Plastics Recycling and Reprocessing Facility

1 in 10 AEP event

Design minus Existing Scenario

Change in Water Level

Project No. 12524108

Revision No. A

Date 16 Sep 2022

Figure 043

C:\Users\mzhang2\OneDrive - GHD\Plasrefine\GIS\Maps\M2_Working_FloodMaps.mxd

Print date: 16 Sep 2022 - 16:32 (SMA record: 45)

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Legend

Development Area

Model Extent

Lot Boundaries

Change in Water Surface Elevation (mm)

> -500mm

-500 - -400

-400 - -300

-300 - -200

-200 - -100

-100 - -50

-50 - -25

-25 - -10

-10 - +10

+10 - +25

+25 - +50

+50 - +100

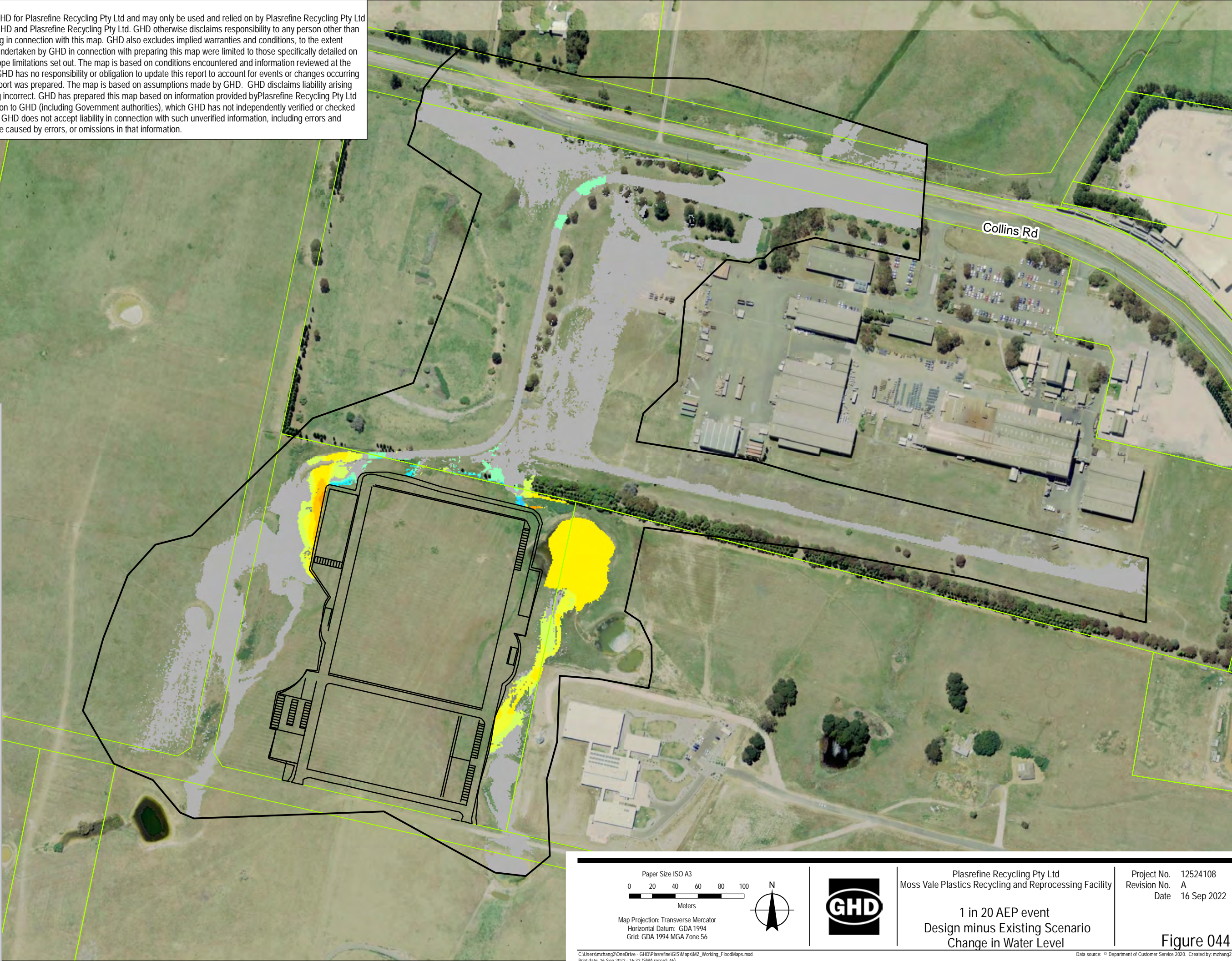
+100 - +200

+200 - +300

+300 - +400

+400 - +500

> +500



Paper Size: ISO A3

0 20 40 60 80 100

Meters

Map Projection: Transverse Mercator

Horizontal Datum: GDA 1994

Grid: GDA 1994 MGA Zone 56

N

GHD

Plasrefine Recycling Pty Ltd

Moss Vale Plastics Recycling and Reprocessing Facility

1 in 20 AEP event

Design minus Existing Scenario

Change in Water Level

Project No. 12524108

Revision No. A

Date 16 Sep 2022

Figure 044

C:\Users\mzhang2\OneDrive - GHD\Plasrefine\GIS\Maps\M2_Working_FloodMaps.mxd

Print date: 16 Sep 2022 - 16:32 (SMA record: 46)

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Legend

— Development Area

□ Model Extent

— Lot Boundaries

Change in Water Surface Elevation (mm)

> -500mm

-500 - -400

-400 - -300

-300 - -200

-200 - -100

-100 - -50

-50 - -25

-25 - -10

-10 - +10

+10 - +25

+25 - +50

+50 - +100

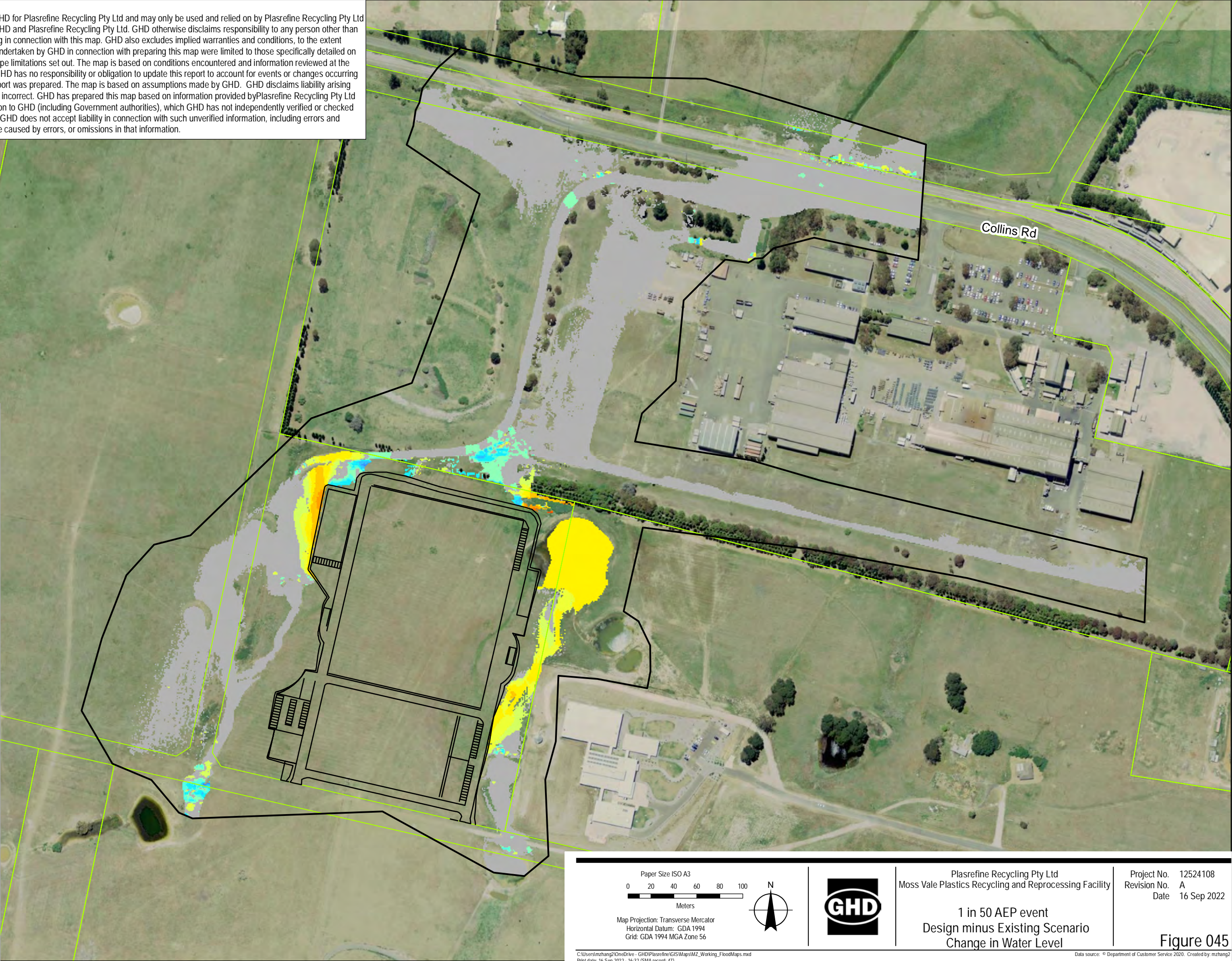
+100 - +200

+200 - +300

+300 - +400

+400 - +500

> +500



Paper Size: ISO A3

0 20 40 60 80 100

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

Plasrefine Recycling Pty Ltd
Moss Vale Plastics Recycling and Reprocessing Facility

1 in 50 AEP event
Design minus Existing Scenario
Change in Water Level

Project No. 12524108
Revision No. A
Date 16 Sep 2022

Figure 045

C:\Users\mzhang2\OneDrive - GHD\Plasrefine\GIS\Maps\M2_Working_FloodMaps.mxd
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Legend

—

Development Area

□

Model Extent

—

Lot Boundaries

Change in Water Surface Elevation (mm)

> -500mm

-500 - -400

-400 - -300

-300 - -200

-200 - -100

-100 - -50

-50 - -25

-25 - -10

-10 - +10

+10 - +25

+25 - +50

+50 - +100

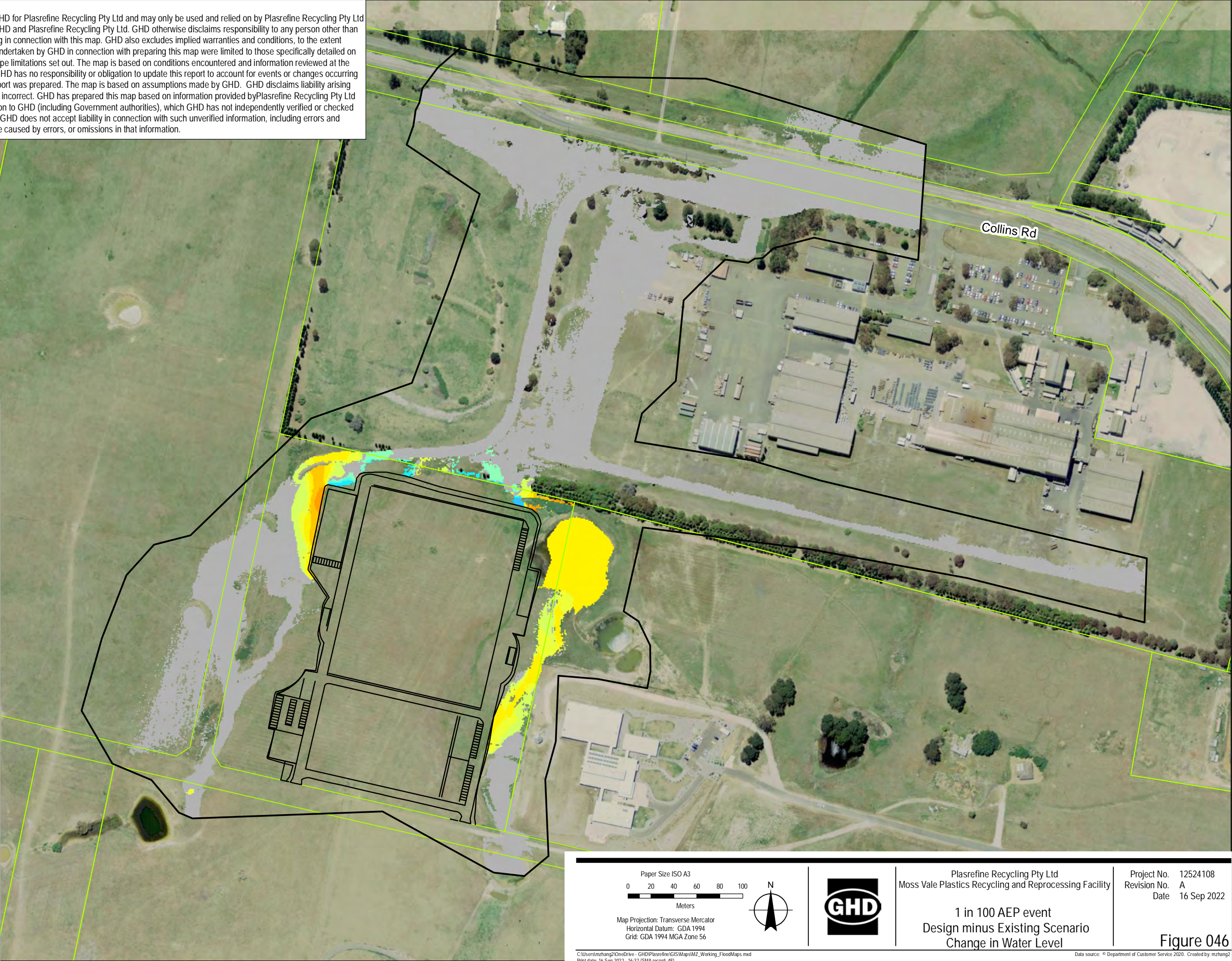
+100 - +200

+200 - +300

+300 - +400

+400 - +500

> +500



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Legend

— Development Area

□ Model Extent

— Lot Boundaries

Change in Water Surface Elevation (mm)

> -500mm

-500 - -400

-400 - -300

-300 - -200

-200 - -100

-100 - -50

-50 - -25

-25 - -10

-10 - +10

+10 - +25

+25 - +50

+50 - +100

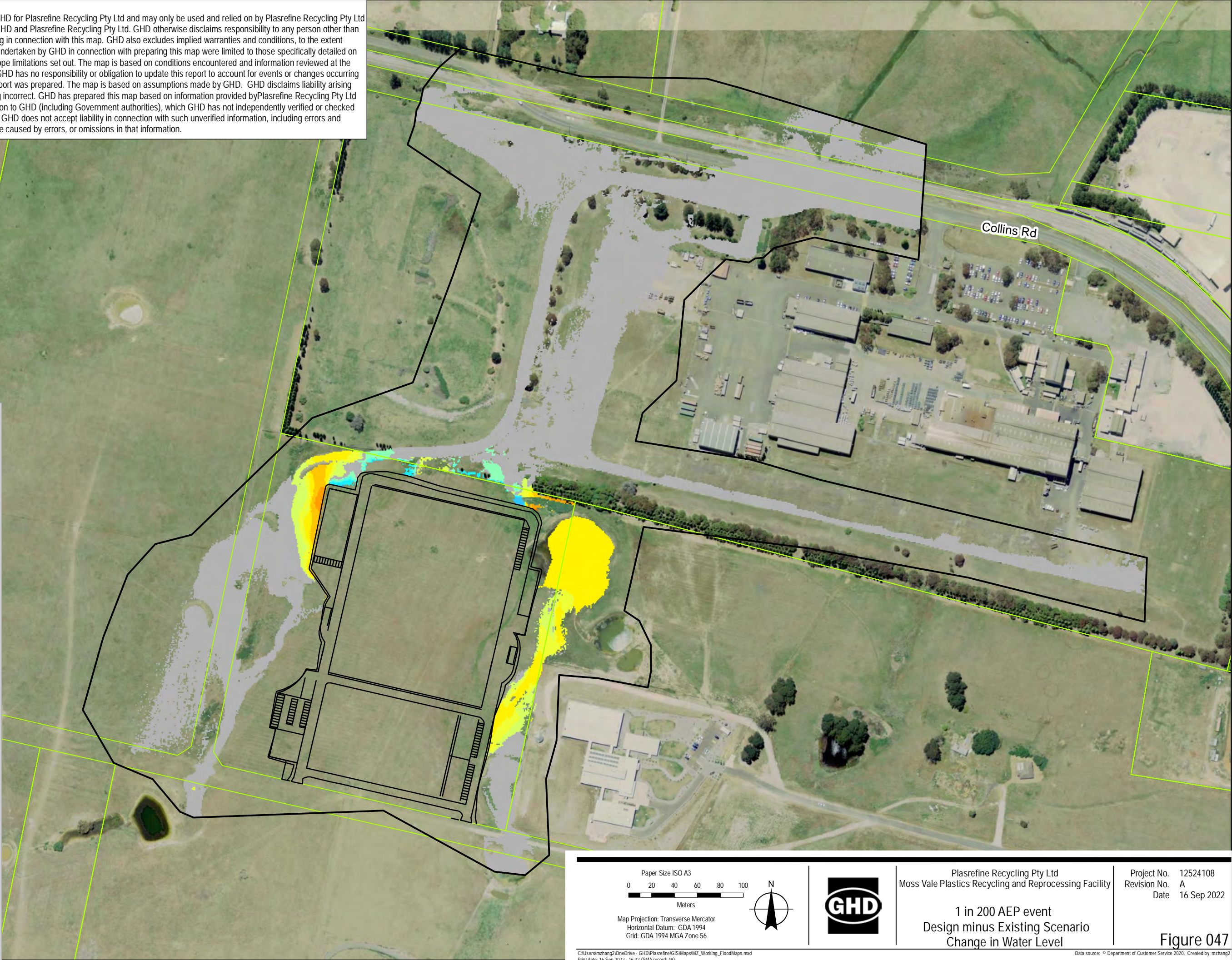
+100 - +200

+200 - +300

+300 - +400

+400 - +500

> +500



Paper Size: ISO A3

0 20 40 60 80 100

Meters

Map Projection: Transverse Mercator

Horizontal Datum: GDA 1994

Grid: GDA 1994 MGA Zone 56

N

GHD

Plasrefine Recycling Pty Ltd

Moss Vale Plastics Recycling and Reprocessing Facility

1 in 200 AEP event

Design minus Existing Scenario

Change in Water Level

Project No. 12524108

Revision No. A

Date 16 Sep 2022

Figure 047

C:\Users\mzhang2\OneDrive - GHD\Plasrefine\GIS\Maps\M2_Working_FloodMaps.mxd

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Legend

—

Development Area

□

Model Extent

—

Lot Boundaries

Change in Water Surface Elevation (mm)

> -500mm

-500 - -400

-400 - -300

-300 - -200

-200 - -100

-100 - -50

-50 - -25

-25 - -10

-10 - +10

+10 - +25

+25 - +50

+50 - +100

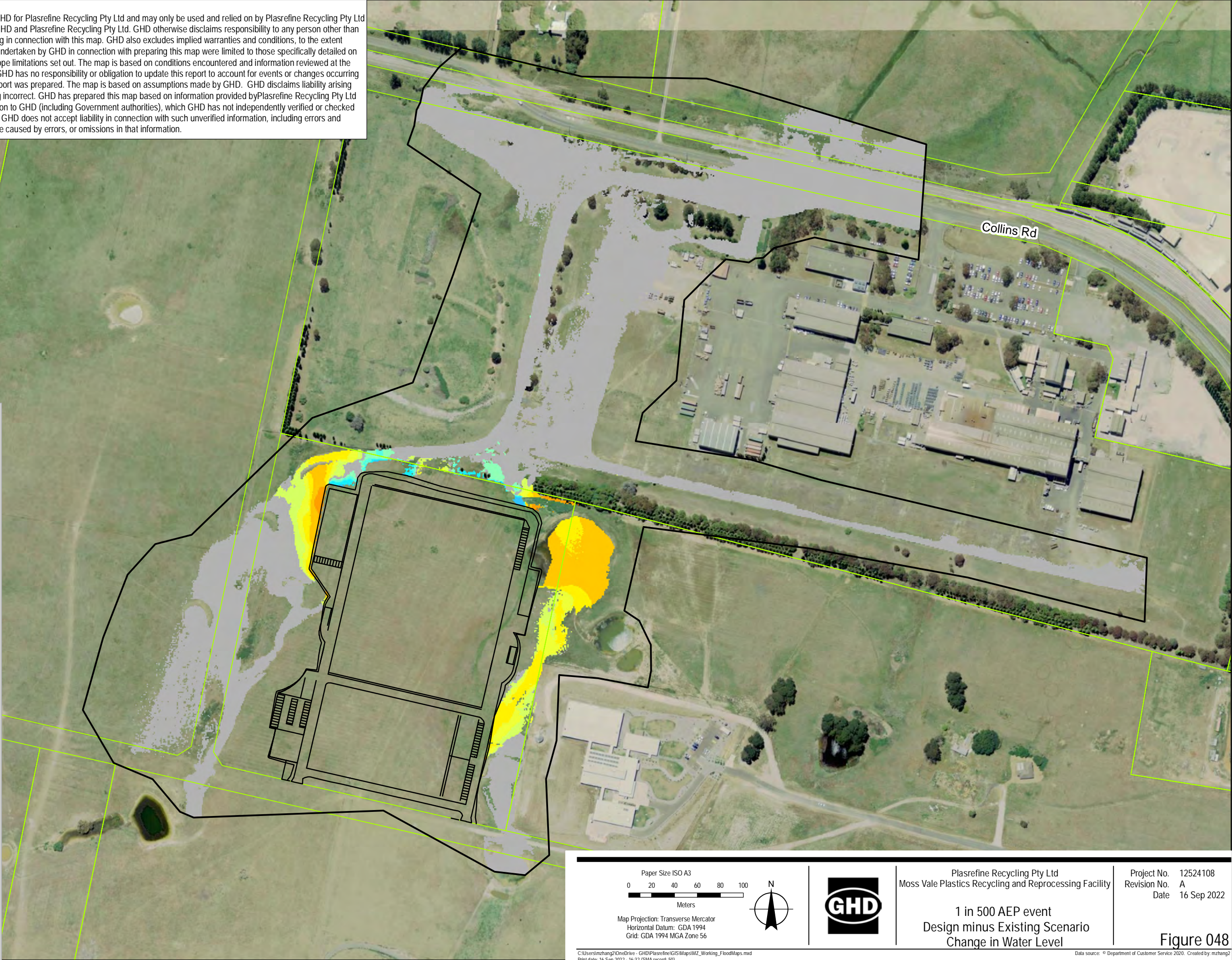
+100 - +200

+200 - +300

+300 - +400

+400 - +500

> +500



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Legend

—

Development Area

□

Model Extent

—

Lot Boundaries

Change in Water Surface Elevation (mm)

> -500mm

-500 - -400

-400 - -300

-300 - -200

-200 - -100

-100 - -50

-50 - -25

-25 - -10

-10 - +10

+10 - +25

+25 - +50

+50 - +100

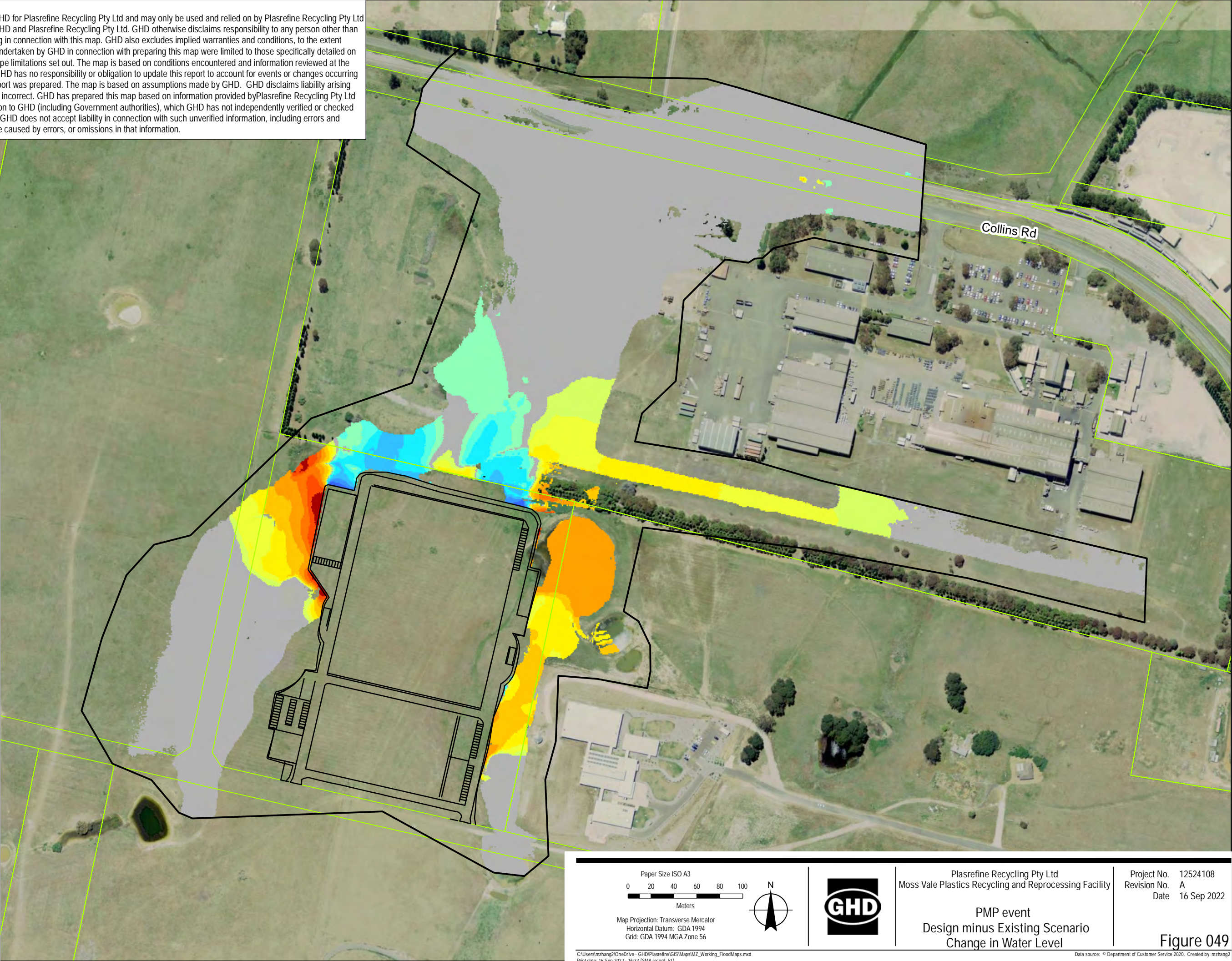
+100 - +200

+200 - +300

+300 - +400

+400 - +500

> +500



Paper Size: ISO A3

0

20

40

60

80

100

Meters

Map Projection: Transverse Mercator

Horizontal Datum: GDA 1994

Grid: GDA 1994 MGA Zone 56

Plasrefine Recycling Pty Ltd

Moss Vale Plastics Recycling and Reprocessing Facility

PMP event

Design minus Existing Scenario

Change in Water Level

Project No. 12524108

Revision No. A

Date 16 Sep 2022

Figure 049

C:\Users\mzhang2\OneDrive - GHD\Plasrefine\GIS\Maps\M2_Working_FloodMaps.mxd

Print date: 16 Sep 2022 - 16:33 (SMA record: 51)

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