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AGGREGATES

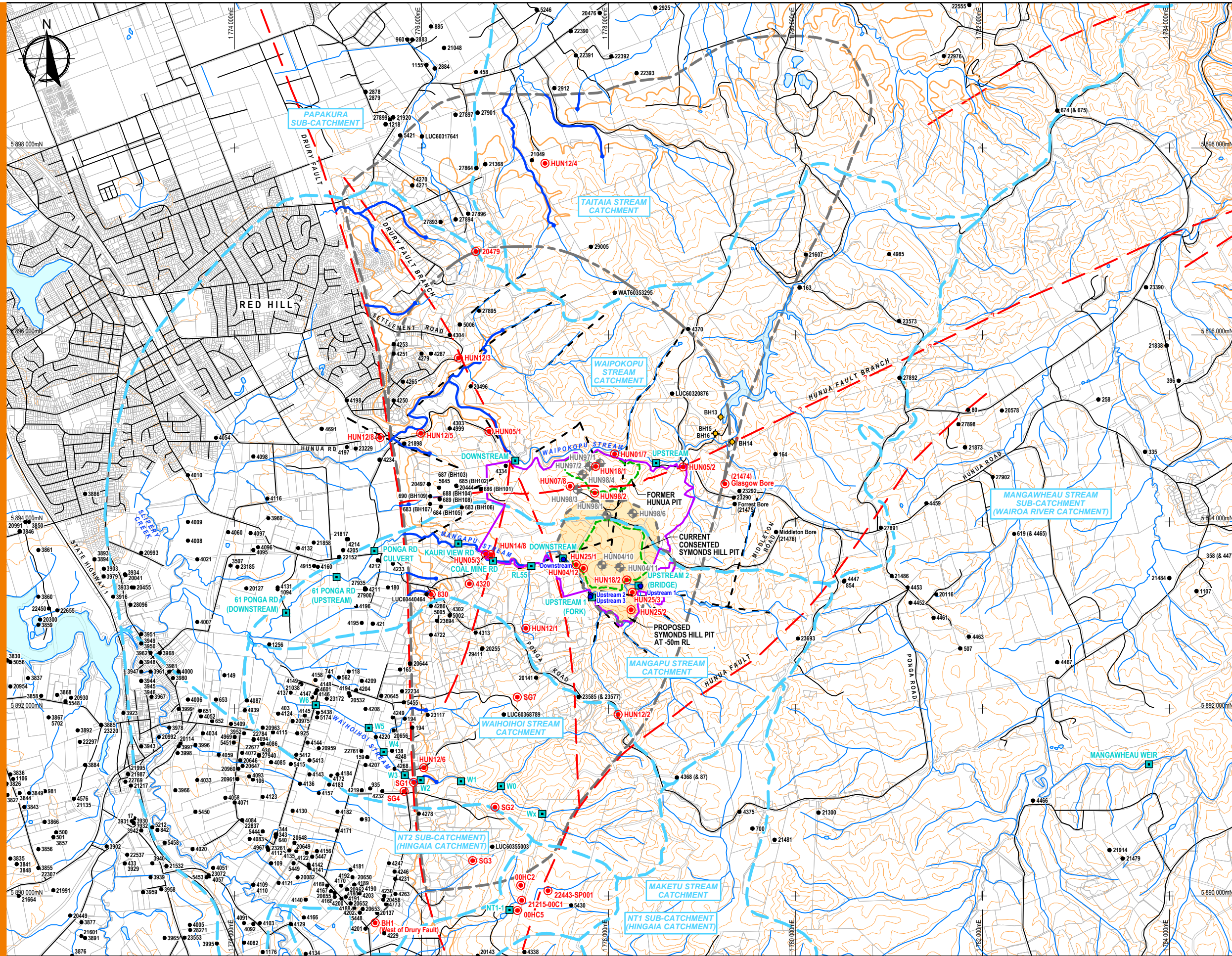
Part
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Boffa Miskell

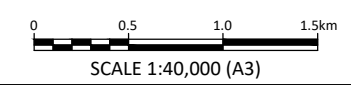


Appendix B12.4.9b

Groundwater Effects Assessment Drawings



- KEY :**
- HUN05/2 GROUNDWATER MONITORING BORE
 - HUN98/6 DESTROYED/SUSPENDED GROUNDWATER MONITORING BORE
 - BH13 WATERCARE MONITORING BORE
 - 22976 FARM WELL (AC BORE ID/CONSENT No.)
 - STREAM GAUGING SITE
 - MANGAPU STREAM SAMPLING SITE
 - SHALLOW GROUNDWATER CATCHMENT BOUNDARY
 - POTENTIALLY AFFECTED STREAM REACH
 - 60m GROUND LEVEL CONTOUR (AMSL)
 - FAULT (APPROX.)
 - LINEAMENT FROM AERIAL PHOTOS
 - FLETCHER CONCRETE AND INFRASTRUCTURE PROPERTY BOUNDARY
 - ESTIMATED ZONE OF INFLUENCE FOR DEWATERING LEVEL AT 60.0m RL AND 45.0m RL
 - ESTIMATED ZONE OF INFLUENCE FOR DEWATERING LEVEL AT 15.0m RL AND -50.0m RL (HUNUA GRAYWACKE BLOCK)
 - ESTIMATED SHALLOW ZONE OF INFLUENCE FOR SYMONDS HILL PIT



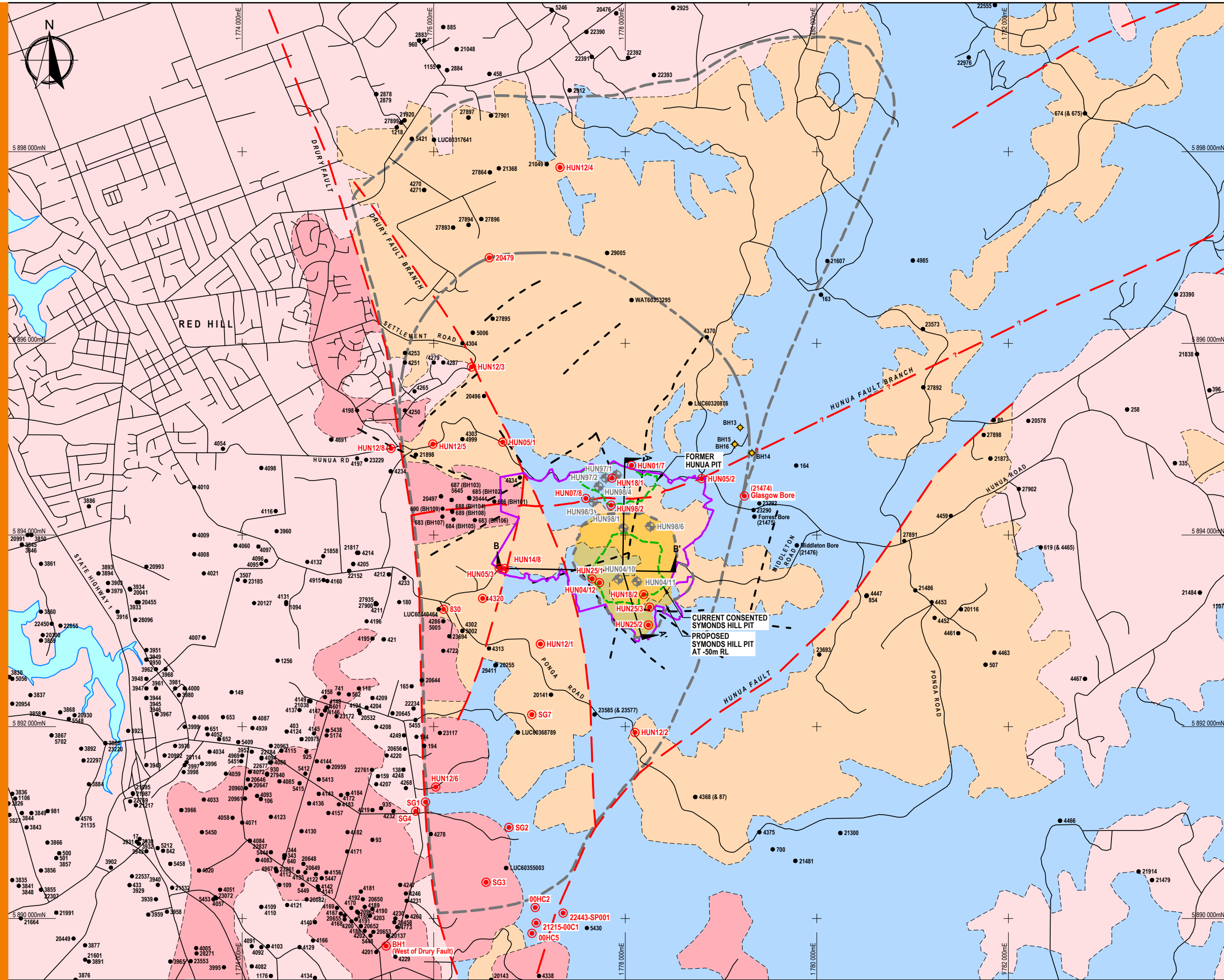
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FIGURE 1: LOCATION PLAN

PROJECT
HUNUA QUARRY DEVELOPMENT: GROUNDWATER EFFECTS ASSESSMENT



KEY :

- HUN05/2 GROUNDWATER MONITORING BORE
- HUN09/6 DESTROYED/SUSPENDED GROUNDWATER MONITORING BORE
- ◆ BH13 WATERCARE MONITORING BORE
- 22976 FARM WELL (AC BORE ID/CONSENT No.)
- FLETCHER CONCRETE AND INFRASTRUCTURE PROPERTY BOUNDARY
- ESTIMATED ZONE OF INFLUENCE FOR DEWATERING LEVEL AT 60.0m RL AND 45.0m RL
- ESTIMATED ZONE OF INFLUENCE FOR DEWATERING LEVEL AT 15.0m RL AND -50.0m RL (HUNUA GRAYWACKE BLOCK)
- ESTIMATED SHALLOW ZONE OF INFLUENCE FOR SYMONDS HILL PIT
- SECTION LINE

GEOLOGICAL LEGEND

- SOUTH AUCKLAND VOLCANIC FIELD
- PUMICE DEPOSITS & PUKETOKA FORMATION (ALLUVIUM)
- WAITEMATA GROUP/TE KUITI GROUP (WAIKATO COAL MEASURES)
- WAIPAPA GROUP
- FAULT (APPROX.)
- LINEAMENT FROM AERIAL PHOTOS

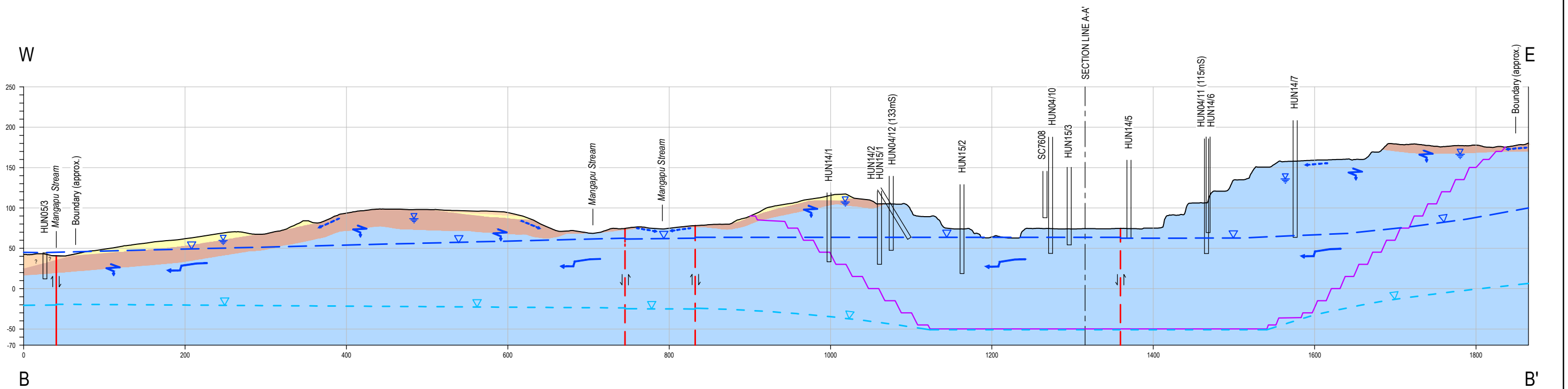
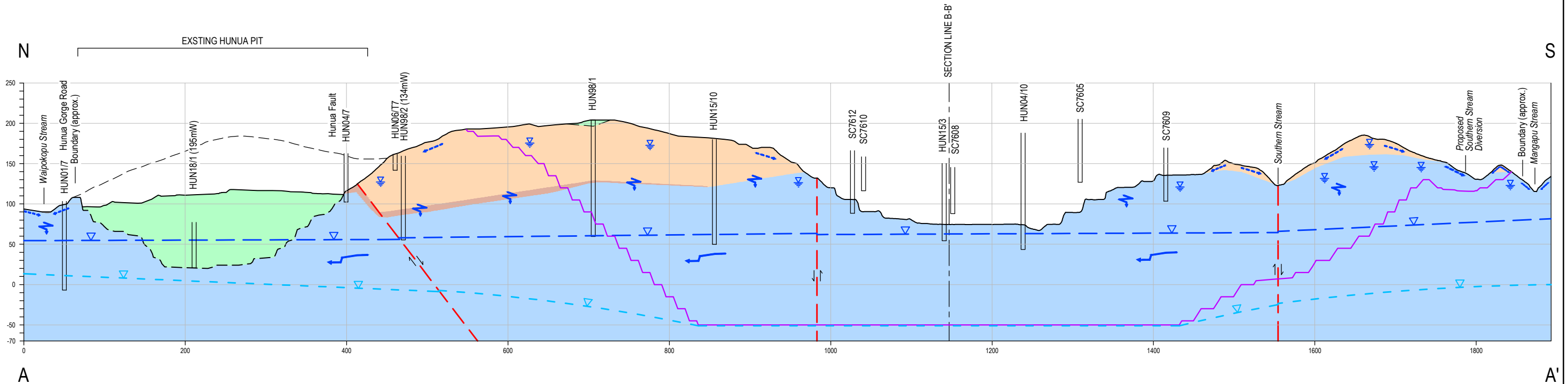


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 FIGURE
FIGURE 3: GEOLOGY
 PROJECT
 HUNUA QUARRY DEVELOPMENT: GROUNDWATER EFFECTS ASSESSMENT



KEY :

- QUARRY CLEAN FILL
- WAITEMATA GROUP
- TE KUITI GROUP
- HIGHLY WEATHERED GREYWACKE (WAIPAPA GROUP)
- MODERATELY WEATHERED TO FRESH GREYWACKE (WAIPAPA GROUP)

- DRILLHOLE
- GROUND SURFACE (OCT 2025)
- ORIGINAL GROUND SURFACE (APPROX.)
- PROPOSED SYMONDS HILL PIT AT -50m RL
- INFERRED FAULT/LINEAMENT (APPROX.)

- REGIONAL & SHALLOW GROUNDWATER FLOW PATH IN GREYWACKE
- SHALLOW GROUNDWATER FLOW PATH IN WEATHERED GREYWACKE/WAITEMATA GROUP
- RECHARGE TO DEEP/REGIONAL SYSTEM ALONG FRACTURE ZONES
- PERCHED GROUNDWATER
- DEEP GROUNDWATER LEVEL (JULY 2019)
- FUTURE GROUNDWATER LEVEL (-50m RL)



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SCALE 1:5,000 (A3)

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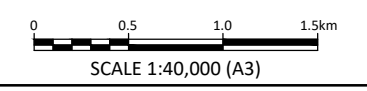


FIGURE 5: INDICATIVE HYDROGEOLOGICAL SECTIONS

PROJECT
HUNUA QUARRY DEVELOPMENT: GROUNDWATER EFFECTS ASSESSMENT



- KEY :**
- HUN05/1 PROPOSED GROUNDWATER MONITORING BORE
 - BRIDGE PROPOSED STREAM GAUGING SITE
 - SHALLOW GROUNDWATER CATCHMENT BOUNDARY
 - FAULT (APPROX.)
 - FLETCHER CONCRETE AND INFRASTRUCTURE PROPERTY BOUNDARY
 - ESTIMATED ZONE OF INFLUENCE FOR DEWATERING LEVEL AT 60.0m RL AND 45.0m RL
 - ESTIMATED ZONE OF INFLUENCE FOR DEWATERING LEVEL AT 15.0m RL AND -50.0m RL (HUNUA GRAYWACKE BLOCK)
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 FIGURE
FIGURE 25: PROPOSED MONITORING PLAN
 PROJECT
 HUNUA QUARRY DEVELOPMENT: GROUNDWATER EFFECTS ASSESSMENT