1.0 SUMMARY - Assessment of Anticipated Adverse Environmental Effects

The Application for referral seeks the use of a Plan Change mechanism to embed a land use framework that can be progressively implanted over a period of 20-30 years. On that basis, a key RMA document required will be the development of a Section 32 analysis, such a document being intended to confirm the appropriateness of the provisions that will manage the ongoing development of the Proposal. It is noted that most of the zoning provisions to be adopted have recently been tested through the District Plan review process and therefore give effect to Part 2 (The Purpose) of the RMA.

The development of new bespoke zones will be guided by the provisions contained within the National Planning Standards.

On the basis that any referral will require the provision of technical reports to assist an Expert Panel, An accompanying Assessment of Environmental Effects will also be required and this is in the early stages of development, with briefings of various experts being advanced and at this stage expected to include:

a) Regional Economic Assessment

b) Transportation Assessment

c) Social and Community Assessment

d) Cultural Aspirations Assessment

e) Civil works design and assessment

f) 3-Waters Servicing Assessment (including potable water demand, wastewater and stormwater infrastructure).

g) Natural hazards Assessment and modelling (stormwater inundation and geotechnical)

h) Transportation Assessment and Modelling

i) Market Demand and Capacity Assessment – Comparison with the technical documents used to inform the FDS.

j) Urban Design and Landscape Assessment

k) LUC Soil testing

l) Site Contamination testing and mitigatory measures.

As a longer-term development proposal, these reports will focus on the effects required to be addressed to then enable staged development to take place, rather than the detailed design of each land use activity on a per site basis. Section 88 and the Fourth Schedule of the Act sets out the matters to be considered when preparing as Assessment of Effects on the environment.

It is noted that the Referral application process only seeks to ascertain any known or anticipated adverse effects on the environment. At this stage in the Project, there are no known or anticipated adverse effects of the proposal that are not capable of being avoided, remedied or mitigated through the zone provisions or via specific conditions on resource consents for the land use components of the development. These fall within the realms of:

- *Reverse Sensitivity (SH2);*
- *Effect on the Soil Resource;*

- *Amenity and Visual effects;*
- *Natural Hazard effects; (inundation)*
- *Infrastructure effects - Water, Wastewater and Stormwater;*
- *Traffic Volumes/Safety/ Access effects and the efficient operation of SH 2;*
- *Effects arising from earthworks;*
- *Other matters*

Section 3 of the Resource Management Act 1991 provides the meaning of "effect". This includes any positive or adverse effect, whether temporary or permanent and can include past, present or future effects including cumulative effects. A summary statement of relevant matters is set out below.

1.1.2 Potential Reverse Sensitivity Effects (SH 2)

The potential for reverse sensitivity effects can arise from the establishment of urban activities adjoining the State Highway network in respect of noise and vibration and glare. However, these are more easily able to be managed within the design given the ability to visually separate and set development back from the State Highway Corridor, and further rely upon the standards contained within the Building Code to manage the potential for acoustic issues within dwellings. This is a matter which has been managed around the country on many urban development projects and so is capable of being addressed and mitigated successfully through setbacks, contouring and planting and/or acoustic fencing. The Proposal will also be able to make reasonable provision for any potential 4-laning of the State Highway corridor as currently being scoped through further setbacks as may be required.

Similarly, the relationship of existing (and future) industrial activities within the vicinity of future residential areas can be successfully managed through the design elements of the proposal and any additional measures imposed through the zonings as may be required to manage this potential effect.

The design will also need to incorporate measures to avoid the generation of reverse sensitivity effects on relatively small areas of rural land adjoining, although it is noted that the proximity to such land uses is very contained given the existing landuses surrounding the site are largely already of an urban nature.

1.1.1 Effects on the Soil Resource

It is noted that the Government has committed to reduce consenting barriers for infrastructure, housing, and primary production as part of their 100-day plan. This work includes the Ministry for the Environment (MfE) exploring options around the definition of highly productive land (HPL) to enable more flexibility. Urban expansion onto HPL can already occur in certain circumstances, but officials are reviewing the NPS-HPL to consider how it could enable more 'greenfield' housing development. The outcomes of this review are not yet finalised and so the summary assessment below is in respect of the current NPS-HPL 2022.

At a Regional level, the importance of the land values associated with the Heretaunga Plains is one of the primary locational constraints for advancing growth options. Ideally, avoiding development on the versatile land for urban use would be an appropriate response and that future growth would be managed within existing boundaries (including identified greenfield growth areas) or located off the Plains. There are, however, counterbalancing considerations and consequences associated with adopting such a direction too rigidly. These include the increased costs to the community associated with intensification as a result of upgrading existing infrastructure, increased travel distances with growth areas off the Plains and increased development costs on the hills.

The challenge in the context of Hawkes Bay (and Hastings in particular) is that the urbanisation of land, of any meaningful scale is significant constrained, given that the vast majority of land surrounding the existing urban extent of hastings is either LUC 1 or 2.

While The Project is predominantly situated on LUC 1 and 2 class soil, the NPS-HPL provides that this situation can be counterbalanced by an assessment of the positive economic, social, and environmental benefits of urbanisation vs the loss of productive rural land, and the need for further urban land to be released in this strategic location.

The Applicant will be advancing a more detailed soil assessment to determine the actual productive capacity of the subject land and noting further that approximately 74% of the landholdings are less than the 12-hectare minimum established by the District Plan (that being an inherent notional "productive unit" lot size). The area is already highly fragmented through historical subdivision, and it is highly unlikely that the smaller landholdings will be comprehensively amalgamated back into a larger productive unit.

In this case these needs and benefits are considered to outweigh the loss of LUC 1 and 2 land given location and other benefits outlined above. The land is likely somewhat compromised for ongoing productive use due to its proximity to urban areas and the potential for significant reverse sensitivity issues to be manifested in the near future. Given the timeframes for development, the land can continue to be used for productive rural activities until it is ready to be developed for urban use.

The percentage of the change in rural land extent (using GIS mapping and comparing with District Plan mapping/LUC Mapping) is estimated to be:

a) 1.6% of the Hastings District Plains Production Zone;

b) 3.2% of the Hastings District L.U.C 1 land;

c) 1.0% of the Hastings District L.U.C 2 land;

d) 0.6% of the Hastings District / Napier City combined L.U.C 1, 2 & 3 land.

The Project seeks to enable the reallocation of surplus groundwater allocation currently being utilised back into the current regional allocation, enabling other rural areas which currently cannot abstract water to be able to be developed for productive rural purposes.

It is noted that HBRC have a "sinking lid" policy for water takes and therefore the abstraction of water for horticultural use through water bores and new consent applications is becoming increasingly difficult.

The issue of the costs and benefits of the project in the context of the loss of identified LUC 1 and 2 land will be further confirmed through the economic and rural feasibility assessment work currently being scoped.

1.1.2 Visual and Amenity Effects

Amenity values are defined in Section 2 of the Resource Management Act 1991 as "*those natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes*".

In considering visual and amenity effects it is recognised that the transformation from a site exhibiting essentially a rural character to one that is of an urban (or suburban environment) will represent a significant change to the environment. That does not necessarily mean that such a change is by default considered to be one that is material adverse. This consideration is afforded statutory weight by Policy

6B of the National Policy Statement on Urban Development 2020 ("NPS-UD 2020) which expressly states [*emphasis added*]:

- ***Policy 6:*** *When making planning decisions that affect urban environments, decision makers have particular regard to the following matters:*
    - *(a) the planned urban built form anticipated by those RMA planning documents that have given effect to this National Policy Statement.*
    - *(b) that the planned urban built form in those RMA planning documents may involve significant changes to an area, and those changes:*
        - *(i) may detract from amenity values appreciated by some people but improve amenity values appreciated by other people, communities, and future generations, including by providing increased and varied housing densities and types; and*
        - *(ii) are not, of themselves, an adverse effect*
    - *(c) the benefits of urban development that are consistent with well-functioning urban environments (as described in Policy 1)*
    - *(d) any relevant contribution that will be made to meeting the requirements of this National Policy Statement to provide or realise development capacity.*
    - *(e) the likely current and future effects of climate change.*

Overall, while visually the character of the site will *change* from a rural character to one that is predominantly urban, the *visual effects* of the development are, on balance considered to be minor. This conclusion is reached on the basis that suitable controls are imposed over key areas of the site regarding landscape mitigation (and ongoing maintenance) as well as the managed application of the standards already contained within the Hastings District Plan, with resulting development around the fringes of the site being of a similar size and scale to established residential properties. Conditions and associated Consent Notices can be imposed to regulate such matters in perpetuity.

1.1.5 Effects in relation to Natural Hazards

The site is not subject to any significant identified hazards that would unnecessarily constrain or completely preclude development of the land on the basis that the periodic inundation can be managed through the creation of a comprehensive network of attenuation basins and flood storage areas that are sized to accommodate the likely future effects of climate change and increasingly variable rainfall patterns. This work will also enable benefits to the downstream urban areas to obtain a higher degree of resilience to inundation than is currently being achieved.

1.1.6 Effects on Infrastructure

Stormwater Drainage

The Heretaunga Connection Project is located near the middle of the Southland Drain sub-catchment and covers a natural topography depression between the Stage Highway 2 Hawkes Bay Expressway and Maraekakaho Road (**Drawing H20220177-50-A-582-01**). Historically, large portions of the site, as well as downstream portions of the associated sub-catchment, have been regularly inundated.

An initial stormwater model, which is at a preliminary level of development, clearly indicates significant surface flooding of a large portion of the site to occur (**Drawing H20220177-50-A-511-01**), which aligns with our general understanding of the historic characteristics of the catchment. Rainwater from the upper part of the Southland Drain sub-catchment, comprising parts of Roy's Hill and Fernhill, as well as Woolwich and part of the Flaxmere suburbs, contributes to the ponding at the depression. The outlet

is presently convoluted with flow being diverted through a piped outlet to the Irongate Stream to the west, effectively crossing the sub-catchment boundary into the Irongate Stream (**Drawing H20220177-50-A-581-01**). The Expressway, Southland Road, and Railway Road were historically constructed as raised embankments which now contain out-of-bank floodwaters during major flood events, the effects of which can be seen (**Drawing H20220177-50-A-511-01**).

The existing infrastructure and associated culverts that control the area's drainage should be viewed holistically and regionally. It is noted that changing one sub-catchment's characteristics can have a significant impact downstream where the flow converges with that of another sub-catchment. Care will therefore need to be taken when considering amendments to the current outlet configurations from each portion of the sub-catchment through future modelling and detailed design purposes.

Changing of landuse in terms of urbanisation and subsequent development is associated with the intensification of imperviousness across the applicable catchments. As a result, the volume of runoff and the flow velocity increases due to relatively smoother surfaces that conveys the runoff compared to the natural environment. Together with factors of climate change, the primary pipe system will be under severe pressure and its capacity frequently exceeded, resulting in increased flooding, should mitigation measures not be considered.

The development’s peak discharge is required through national engineering and environmental rules and standards to be reduced to levels lower than those predicted by current scenarios. As such, the peak discharge for the 100-year ARI event is to be reduced to 80% of the current scenario. As a result, the community and environment, both within the development extents as well as downstream of the site will be in a better position after the completion of the development than before.

In terms or primary reticulation infrastructure, the current Hastings District Council Engineering Code of Practice presently only requires this to be sized to a 5-year event, whereas national standards, including NZS4404 and the Building Code require a 10-year event to be accounted for. This in part contributes to the existing challenges experienced during the 100-year ARI events, due to the increased volume of stormwater not being managed within the primary network, which in turn results in surface water issues. As such, it is proposed that the bulk infrastructure to be designed within this area would be delivered to the national standards level, as opposed to the local standards presently in place, providing a more resilient environment moving forward.

Increased vehicle traffic movements and urbanisation of landuses ordinarily create more contaminants that must be mitigated. These are typically mitigated discretely at the source, either on-site or by way of community infrastructure, resulting in the same or higher quality discharge to the environment. Through the provision of dedicated stormwater management devices and central green networks such as swales, ponds, quality treatment basins and wetlands, both quality and quantity management for the entire area can be provided to achieve low impact servicing solutions to the development area itself.

Given the general nature of the site, being separated north to south by the Hawke’s Bay Expressway and Maraekakaho Road, sensible staging of the central infrastructure corridors roll-out is feasible. Devices to achieve stormwater quantity and quality requirements can be constructed directly adjacent to the associated downstream outlets.

It is anticipated that the central portion of the site between the Hawkes Bay Expressway and Maraekakaho Road will be completed first, followed by either the northern or southern portions of the development areas, or potentially concurrently should market demands drive such a strategy. In addition to the communal devices, commercial and industrial sites will be required to provide at source controls for quality management specific to their requirements. This would be a solution fit for purpose and developed at the time of building development.

Whilst managing the development controls directly as well as the downstream receiving environment, this project also has the potential to assist in managing historic challenges the peripheral urban environments face, given the relationship of these to the Irongate and Southland Drain sub-catchments.

Wastewater

Wastewater drainage generally follows natural drainage lines towards the East Clive wastewater treatment plant, which is near the coast (**Drawing H20220177-60-A-203**). Pumpstations, on the other hand, make cross-boundary connections more common in wastewater. There are several pumpstations near the Heretaunga Connection Project (**Drawing H20220177-60-A-201**), as well as a few bulk lines (>300 mm in diameter) along the project's northern boundary.

Improvements to the current wastewater drainage system are expected due to the increased wastewater volumes generated by the Heretaunga Connection Project. The available capacity of the pumpstations, bulk lines, and wastewater treatment plant are to be determined through the detailed investigation and design phase of the project. This includes using the existing hydraulic model, which the Council owns and maintains, to analyse the wastewater systems.

Feedback received from the Hastings District Council is that their IAF part funded projects have been developed to enhance growth areas such as Flaxmere and Lyndhurst. It also serves as a strategic backbone for future areas like Kaiapo and the southern areas of Hastings. These projects are due to commence and are projected for completion around the middle of 2025. This aligns well with the projected timeframes for this development.

The Hastings District Councils Infrastructure Constraints Report issued in 2023 identifies that capacity issues currently exist across much of the existing wastewater network, primarily due to inflow and infiltration caused by aging infrastructure. This development has the potential to assist in relieving the existing network issues, by bringing peripheral catchments into the new installed infrastructure, which is not subject to these same shortcomings. This would also help the Hastings District Council improve maintenance and upgrades of the existing network, while also providing increased capacity for brownfield intensification development aspirations in the future.

The Hastings District Council have already initiated investigations into the Kaiapo HPUDS growth area as part of their growth strategy work. This work has also identified that inflow and infiltration is an issue within the existing network. As such, it is expected that limited options exist to discharge towards the urban catchments of Hastings itself. As such, it is anticipated that the new IAF enabled trunk wastewater mains presently being constructed will form the best long-term option for discharge from the site.

The area to the north of the Hawkes Bay Expressway is likely to be serviced primarily through a gravity network from north to south. The central portion of the site will necessitate a series of pumpstations and gravity networks to service this area, discharging back up to the IAF enabled trunk wastewater main at the Hawkes Bay Expressway, with the southern portion of the site likely needing to also necessitate a series of pumpstations and gravity networks, lifting through to the middle block network, likely to be located around Maraekakaho Road.

The table below summarizes the additional wastewater discharge that is anticipated to be accommodated in the wastewater drainage system.

Land-use	Average Dry Weather Flow		Peak Factor	Peak Dry Weather Flow (l/s)	Ground Water Infiltration (l/s)	Rainwater dependent inflow and infiltration (l/s)	Design flow (l/s)
	(kl/d)	(l/s)					
Industrial	2 891	33	2.6	87.4	1.3	0.1	88.9

Residential	1 838	21	2.3	48.4	3.0	0.1	51.5
Retirement	406	5	3.3	15.7	0.4	0.0	16.2
Mixed use	2 036	24	2.8	65.9	1.0	0.1	67.0
Possible Racecourse Relocation	63	1	2.8	2.0	1.0	0.1	3.1
Possible School Site	63	1	4.6	3.3	0.1	0.0	3.5
Total	**7 296**	**84**		**223**	**7.6**	**0.5**	**231**

It is noted that should either the Hawkes Bay Racing Club or Hawkes Bay Fallen Soldiers Memorial Hospital ever consider relocation to within the development itself, the current servicing demands of those sites would be assessed against alternate future landuses as necessary.

Potable Water

The Heretaunga Connection Project is located near Frimley Park's water treatment and storage facilities. Drinking water is primarily delivered from the facility via pipelines on Chatham Road, Wilson Road, and Maraekakaho Road (**Drawing H20220177-70-A-208**). A number of approved water bores are located within and around the Heretaunga Connection Project (**Drawing H20220177-70-A-205**), with the potential for some of these to be considered as additional sources of supply, providing resilience to the Hastings District Councils water network. It is noted that all other bores located within the site extents would be progressively decommissioned throughout the development process, effectively surrendering the current allowable allocations, and therefore reducing the demand on groundwater extraction that the current landuses require.

Like wastewater, improvements to the current drinking water supply system are expected because of the increased demand from the urban reticulation network, caused by the Heretaunga Connection Project. Necessary upgrades and design requirements will be determined utilising the existing hydraulic model Council own and maintain.

Given the proposed form and location of the project, there appears to be sensible opportunities to brace the existing Hastings District Council network, generally in a north – south direction through reticulation internal to the development, including a likely York Road connection from Southland Road through to Flaxmere Ave.

In terms of staging for the water infrastructure roll-out, water is less critical to manage that the drainage services, assuming a master plan is put in place from the outset, understanding where critical connections, sizing and pressure controls are necessary. With the associated master planning, development can occur in an orderly manner as market demands allow.

As with wastewater, should either the Hawkes Bay Racing Club or Hawkes Bay Fallen Soldiers Memorial Hospital ever consider relocation to within the development itself, the current servicing demands of those sites would be assessed against alternate future landuses as necessary.

1.1.7 Effects on the Safety and Performance of the Roading Network

Initial transportation observations suggest that The Project can accommodate expected vehicle flows and the connections created between the existing urban areas of Flaxmere and Hastings can be managed. The relationship with flows and volumes across the intersection with SH12 and the effects on flows resulting from connections to the existing local roading network will be modelled as part of the detailed investigations of the project.

From a connectivity perspective, there are also positive effects arising with the ability to better link Flaxmere and Hastings together with new crossings over the SH2 corridor as well as create

significantly more connected walking and cycling infrastructure through the area linking to the existing urban areas of both settlements.

Subject to more detailed modelling, The project can be appropriately integrated with the surrounding transport network.

1.1.8 Effects Arising from Earthworks

In respect of *Soil erosion and stability,* the earthworks on the site will be managed to ensure that replacement fill is appropriately compacted and surfaced to prevent erosion potential, and the site will be re-grassed as soon as possible following completion of the works. Several measures to limit erosion and scouring have been identified and will be implemented as part of the earthworks methodology for the site and will form part of the contractor documentation.

In respect of *Soil Runoff and Sedimentation*, there will be a need to ensure that on a staged basis that the appropriate sediment control mechanisms are installed and approved prior to each stage of work commencing. The measure proposed include the creation of sedimentation ponds for subsequent adaption into the bio-retention basins in some instances, cut-off drains with bunding and the installation of silt fencing including around existing dwellings where necessary to protect them from silt run-off. These measures are considered appropriate to manage the effects of works from sediment runoff.

1.1.9 NES – Contamination and Soil Remediation

Areas of possible soil contamination are likely given the use of some areas of the lands for horticultural activities. To address potential contamination issues, investigations will be undertaken and remediation advanced on a staged basis. Remediation may include:

a) Areas designated for the stockpiling of contaminated soil on-site until it can be repurposed.

b) Adequate validation inspections and sampling will be completed post remedial works. Management of the contaminated soil once removed is to be undertaken in accordance with technical recommendations.

6.1.13 Environmental Effects Assessment Summary of Conclusions

The summary of potential adverse effects leads to the overarching conclusion that the effects arising from the project range through positive, de-minimis to minor (subject to mitigatory measures being in place). Further investigations will refine and target those matters likely to arise and provide means to avoid, remedy or mitigate these appropriately.

DATE PLOTTED: 26 March 2024 8:52 am BY: JEAN LE ROUX

380000E 390000E 400000E 410000E 420000E 430000E

810000N 800000N 790000N 780000N

LEGEND

- Heretaunga Connection Project
- Irongate Sub-catchment
- Southland Sub-catchment
- Stream / Drain

N

Tutaekuri River
Clive River
Raupare
Karamu
Ngaruroro River
Irongate
Southland
Karewarewa
Awanui
Louisa
Poukawa
Kahuwhenua
Tekaitika
Mangaroa
Herehere
Tukituki River

0 2 4 6 8 10 km

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NOUS DEVELOPMENT	Drawing Number: H20220045-50-A-501-01	Title: STORMWATER MODELLING - KARAMU CATCHMENT SOUTHLAND & IRONGATE SUB-CATCHMENTS
		Revision: 00

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400000E 405000E 410000E 415000E

805000N

800000N

N

LEGEND

- Heretaunga Connection Project
- Sub-catchment boundary
- Stream / Drain

100y Flow depth

- 0.1 - 0.2 m
- 0.2 - 0.3 m
- 0.3 - 0.5 m
- 0.5 - 1.0 m
- 1.0 - 1.5 m
- 1.5 - 2.0 m
- 2.0 - 2.5 m
- > 2.5 m

Ngaruroro River

Southland Drain Sub-catchment

Irongate Sub-catchment

Karamu

0 1 2 3 4 5 km

NOUS DEVELOPMENT	Drawing Number H20220045-50-A-511-01	Title STORMWATER MODELLING - SOUTHLAND & IRONGATE SUB-CATCHMENTS FLOW DEPTH (100-year)	Revision 00

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LEGEND

- Heretaunga Connection Project
- Sub-catchment boundary
- Stream / Drain

100y Flow depth

- 0.1 - 0.2 m
- 0.2 - 0.3 m
- 0.3 - 0.5 m
- 0.5 - 1.0 m
- 1.0 - 1.5 m
- 1.5 - 2.0 m
- 2.0 - 2.5 m
- > 2.5 m

N

8040000N

8020000N

410000E

412000E

414000E

Irongate Sub-catchment

Southland Drain Sub-catchment

0 200 400 600 800 1 000 m

NOUS DEVELOPMENT	Drawing Number H20220045-50-A-512-01	Title STORMWATER MODELLING - HERETAUNGA CONNECTION PROJECT FLOW DEPTH (100-year)	Revision 00

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NOUS DEVELOPMENT	Drawing Number H20220045-50-A-581-01	Title STORMWATER MODELLING - HERETAUNGA CONNECTION PROJECT EXISTING INFRASTRUCTURE	Revision 00

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408000E 410000E 412000E 414000E

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N

LEGEND

- Heretaunga Connection Project
- Sub-catchment boundary
- Outside Sub-catchment
- Stream / Drain

HDC Stormwater nodes

HDC Stormwater mains

Contours

- 1 m
- 10 m

Elevation (Reduced Level)

20 m

10 m

CATHAM RD
HENDERSON RD
STATE HWY 2
WILSON RD
FLAXMERE AVE
HUIA RD
KAIAPO RD
YORK RD
MARAEKAKAHO RD
STATE HWY 2
PROSPECT RD
Southland
SOUTHLAND RD
RAILWAY ROAD

Irongate Sub-catchment

Southland Drain Sub-catchment

0 250 500 750 1 000 m

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NOUS DEVELOPMENT	Drawing Number H20220045-50-A-582-01	Title STORMWATER MODELLING - HERETAUNGA CONNECTION PROJECT TOPOGRAPHICAL LAYOUT	Revision 00

ID	Classification	Area (ha)	EP (No.)	ADWF (kl/d)
GI1	Industrial	6.3	951	237.8
GI2	Industrial	35.8	5370	1342.5
GI3	Industrial	19.6	2947	736.7
GI4	Industrial	3.0	449	112.2
GI5	Industrial	4.2	630	157.4
GI6	Industrial	7.5	1129	282.2
MU1	Mixed use	4.0	605	151.2
MU2	Mixed use	32.1	4814	1203.4
MU3	Mixed use	17.7	2653	663.2
OS1	Open space	4.1	0	0.0
OS2	Open space	0.8	0	0.0
OS3	Open space	0.6	0	0.0
OS4	Open space	0.5	0	0.0
PB1	Planted buffer	1.9	0	0.0
PB2	Planted buffer	1.4	0	0.0
RC1	Racecourse	46.6	211	52.7
RES1	Residential	17.9	766	191.5
RES10	Residential	10.7	459	114.7
RES11	Residential	10.6	452	113.0
RES12	Residential	6.2	264	65.9
RES13	Residential	14.3	611	152.6
RES14	Residential	8.3	353	88.3
RES15	Residential	20.3	867	216.7
RES2	Residential	24.2	1036	259.1
RES3	Residential	14.7	628	157.1
RES4	Residential	4.0	172	43.1
RES5	Residential	8.8	377	94.3
RES6	Residential	5.1	219	54.6
RES8	Residential	5.5	233	58.4
RES9	Residential	16.9	723	180.7
RT1	Retirement	6.6	449	112.1
RT2	Retirement	3.2	220	55.0
RT3	Retirement	13.8	943	235.8
SC1	School	6.4	250	62.5
SW1	Stormwater	9.1	0	0.0
SW2	Stormwater	7.3	0	0.0
SW3	Stormwater	11.3	0	0.0
SW4	Stormwater	12.4	0	0.0
SW5	Stormwater	11.2	0	0.0
SW6	Stormwater	9.3	0	0.0
SW7	Stormwater	0.7	0	0.0
SW8	Stormwater	9.4	0	0.0
SW9	Stormwater	14.8	0	0.0
Total		469.2	28780	7 195

LEGEND

HDC Wastewater Nodes
- PS Pumpstation
- Manhole etc.

HDC Wastewater Mains
- 0 - 150 mm dia.
- 300 - 500 mm dia.
- 500 - 3000 mm dia.

Heretaunga Connection Project
- Future Opportunities
- Industrial
- Residential
- Possible Racecourse Relocation
- Retirement
- Mixed use
- Possible School Site
- Reserve / Stormwater Management
- Open space
- Planted buffer
- Stormwater Attenuation

Contours
- 1 m
- 5 m

N

0 200 400 600 800 1 000 m

410000E 412000E 414000E

804000N 802000N 800000N

STATE HWY 2 HUIA RD SOUTHEAND RD

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NOUS DEVELOPMENT

Drawing Number	Title	Revision
H20220177-60-A-201	WASTEWATER MASTERPLANNING - CATCHMENTS	00

ID	Classification	Area (ha)	EP (No.)	ADWF (kl/d)
GI1	Industrial	6.3	951	237.8
GI2	Industrial	35.8	5370	1342.5
GI3	Industrial	19.6	2947	736.7
GI4	Industrial	3.0	449	112.2
GI5	Industrial	4.2	630	157.4
GI6	Industrial	7.5	1129	282.2
MU1	Mixed use	4.0	605	151.2
MU2	Mixed use	32.1	4814	1203.4
MU3	Mixed use	17.7	2653	663.2
OS1	Open space	4.1	0	0.0
OS2	Open space	0.8	0	0.0
OS3	Open space	0.6	0	0.0
OS4	Open space	0.5	0	0.0
PB1	Planted buffer	1.9	0	0.0
PB2	Planted buffer	1.4	0	0.0
RC1	Racecourse	46.6	211	52.7
RES1	Residential	17.9	766	191.5
RES10	Residential	10.7	459	114.7
RES11	Residential	10.6	452	113.0
RES12	Residential	6.2	264	65.9
RES13	Residential	14.3	611	152.6
RES14	Residential	8.3	353	88.3
RES15	Residential	20.3	867	216.7
RES2	Residential	24.2	1036	259.1
RES3	Residential	14.7	628	157.1
RES4	Residential	4.0	172	43.1
RES5	Residential	8.8	377	94.3
RES6	Residential	5.1	219	54.6
RES8	Residential	5.5	233	58.4
RES9	Residential	16.9	723	180.7
RT1	Retirement	6.6	449	112.1
RT2	Retirement	3.2	220	55.0
RT3	Retirement	13.8	943	235.8
SC1	School	6.4	250	62.5
SW1	Stormwater	9.1	0	0.0
SW2	Stormwater	7.3	0	0.0
SW3	Stormwater	11.3	0	0.0
SW4	Stormwater	12.4	0	0.0
SW5	Stormwater	11.2	0	0.0
SW6	Stormwater	9.3	0	0.0
SW7	Stormwater	0.7	0	0.0
SW8	Stormwater	9.4	0	0.0
SW9	Stormwater	14.8	0	0.0
Total		469.2	28780	7 195

LEGEND

Wastewater volumes
- 0 kl/d
- 0 - 50 kl/d
- 50 - 100 kl/d
- 100 - 150 kl/d
- 150 - 1500 kl/d

HDC Sewer Mains
- 0 - 150 mm dia.
- 300 - 500 mm dia.
- 500 - 3000 mm dia.

Hastings_DC_Sewer_Nodes
- Pumpstation
- Manhole etc.

N

0 200 400 600 800 1 000 m

DATE PLOTTED: 26 March 2024 8:52 am BY: JEAN LE ROUX

CAD File: C:\Users\JeanLeRoux\Documents_DNL CIVIL SOP (While Z drive full)\1.100.000_DRAFT_QGIS_TITTLEBLOCK LANDSCAPE\1.100.000_DRAFT_QGIS_TITTLEBLOCK LANDSCAPE.dwg

Drawing Number	Title	Revision
H20220177-60-A-202	WASTEWATER MASTERPLANNING - VOLUMES	00

410000E 415000E 420000E 425000E

805000N

800000N

N

East Clive Wastewater Treatment Plant

CATHAM RD
HENDERSON RD
STATE HWY 2
KAIAPO RD
YORK RD
PROSPECT RD

LEGEND

Wastewater Treatment Plant

HDC Wastewater Nodes
- Pumpstation
- Manhole etc.

HDC Wastewater Mains
- 0 - 150 mm dia.
- 300 - 500 mm dia.
- 500 - 3000 mm dia.

Heretaunga Connection Project
- Future Opportunities
- Industrial
- Residential
- Possible Racecourse Relocation
- Retirement
- Mixed use
- Possible School Site
- Reserve / Stormwater Management
- Open space
- Planted buffer

Contours

0 1 2 3 4 5 km

NOUS DEVELOPMENT

Drawing Number	Title	Revision
H20220177-60-A-203	WASTEWATER MASTERPLANNING - BULK INFRASTRUCTURE	00

ID	Classification	Area (ha)	EP (No.)	ADD (kl/d)
GI1	Industrial	6.3	951	380.5
GI2	Industrial	35.8	5370	2148.1
GI3	Industrial	19.6	2947	1178.7
GI4	Industrial	3.0	449	179.6
GI5	Industrial	4.2	630	251.9
GI6	Industrial	7.5	1129	451.6
MU1	Mixed use	4.0	605	241.9
MU2	Mixed use	32.1	4814	1925.5
MU3	Mixed use	17.7	2653	1061.2
OS1	Open space	4.1	0	0.0
OS2	Open space	0.8	0	0.0
OS3	Open space	0.6	0	0.0
OS4	Open space	0.5	0	0.0
PB1	Planted buffer	1.9	0	0.0
PB2	Planted buffer	1.4	0	0.0
RC1	Racecourse	46.6	211	84.3
RES1	Residential	17.9	766	306.5
RES10	Residential	10.7	459	183.6
RES11	Residential	10.6	452	180.8
RES12	Residential	6.2	264	105.4
RES13	Residential	14.3	611	244.2
RES14	Residential	8.3	353	141.3
RES15	Residential	20.3	867	346.7
RES2	Residential	24.2	1036	414.5
RES3	Residential	14.7	628	251.3
RES4	Residential	4.0	172	69.0
RES5	Residential	8.8	377	150.8
RES6	Residential	5.1	219	87.4
RES8	Residential	5.5	233	93.4
RES9	Residential	16.9	723	289.1
RT1	Retirement	6.6	449	179.4
RT2	Retirement	3.2	220	88.1
RT3	Retirement	13.8	943	377.3
SC1	School	6.4	250	100.0
SW1	Stormwater	9.1	0	0.0
SW2	Stormwater	7.3	0	0.0
SW3	Stormwater	11.3	0	0.0
SW4	Stormwater	12.4	0	0.0
SW5	Stormwater	11.2	0	0.0
SW6	Stormwater	9.3	0	0.0
SW7	Stormwater	0.7	0	0.0
SW8	Stormwater	9.4	0	0.0
SW9	Stormwater	14.8	0	0.0
Total		469.2	28780	11 512

LEGEND

HDC Water Mains
- 0 - 150 mm dia.
- 300 - 500 mm dia.
- 500 - 3000 mm dia.

Heretaunga Connection Project
- Future Opportunities
- Industrial
- Residential
- Possible Racecourse Relocation
- Retirement
- Mixed use
- Possible School Site
- Reserve / Stormwater Management
- Open space
- Planted buffer

Contours
- 1 m
- 5 m

N

0 200 400 600 800 1 000 m

410000E 412000E 414000E

804000N 802000N 800000N

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CAD File: C:\Users\JeanLeRoux\Documents_DNL CIVIL SOP (While Z drive full)\1 100 000_DRAFT_QGIS_TITLEBLOCK LANDSCAPE\1 100 000_DRAFT_QGIS_TITLEBLOCK LANDSCAPE.dwg

NOUS DEVELOPMENT

Drawing Number	Title	Revision
H20220177-70-A-201	WATER MASTERPLANNING - DEMAND ZONES	00

410000E
415000E
420000E
805000N
800000N
795000N

LEGEND

N

- Reservoir

HDC Water Mains
- 0 - 150 mm dia.
- 300 - 500 mm dia.
- 500 - 3000 mm dia.

Heretaunga Connection Project
- Future Opportunities
- Industrial
- Residential
- Possible Racecourse Relocation
- Retirement
- Mixed use
- Possible School Site
- Reserve / Stormwater Management
- Open space
- Planted buffer

CATHAIM RD
HENDERSON RD
WILSON RD
STATE HWY 2
FLAXMERE AVE
HUIA RD
KAIAPO RD
YORK RD
MARAEKAKAHO RD
SOUTHLAND RD
PROSPECT RD
Frimley Park
Waiaroha
Hikanui Dr

0 1 2 3 4 5 km

NOUS DEVELOPMENT

Drawing Number	Title	Revision
H20220177-70-A-208	WATER MASTERPLANNING - BULK INFRASTRUCTURE	00