Ham Close Regeneration

Planning Application:

Utilities Assessment

Author: Hill Residential
March 2022

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UTILITIES ASSESSMENT – HAM CLOSE

March 2022

1. INTRODUCTION

This report has been generated in order to outline the Utilities provision to the development at Ham Close, Ham, Richmond Upon Thames, TW10 7PG.

The Ham Close development involves the “Demolition of existing buildings on-site and phased mixed-use development comprising 452 residential homes (Class C3) up to six storeys; a Community/Leisure Facility (Class F2) of up to 3 storeys in height, a “Makers Lab” (sui generis) of up to 2 storeys together with basement car parking and site wide landscaping.”

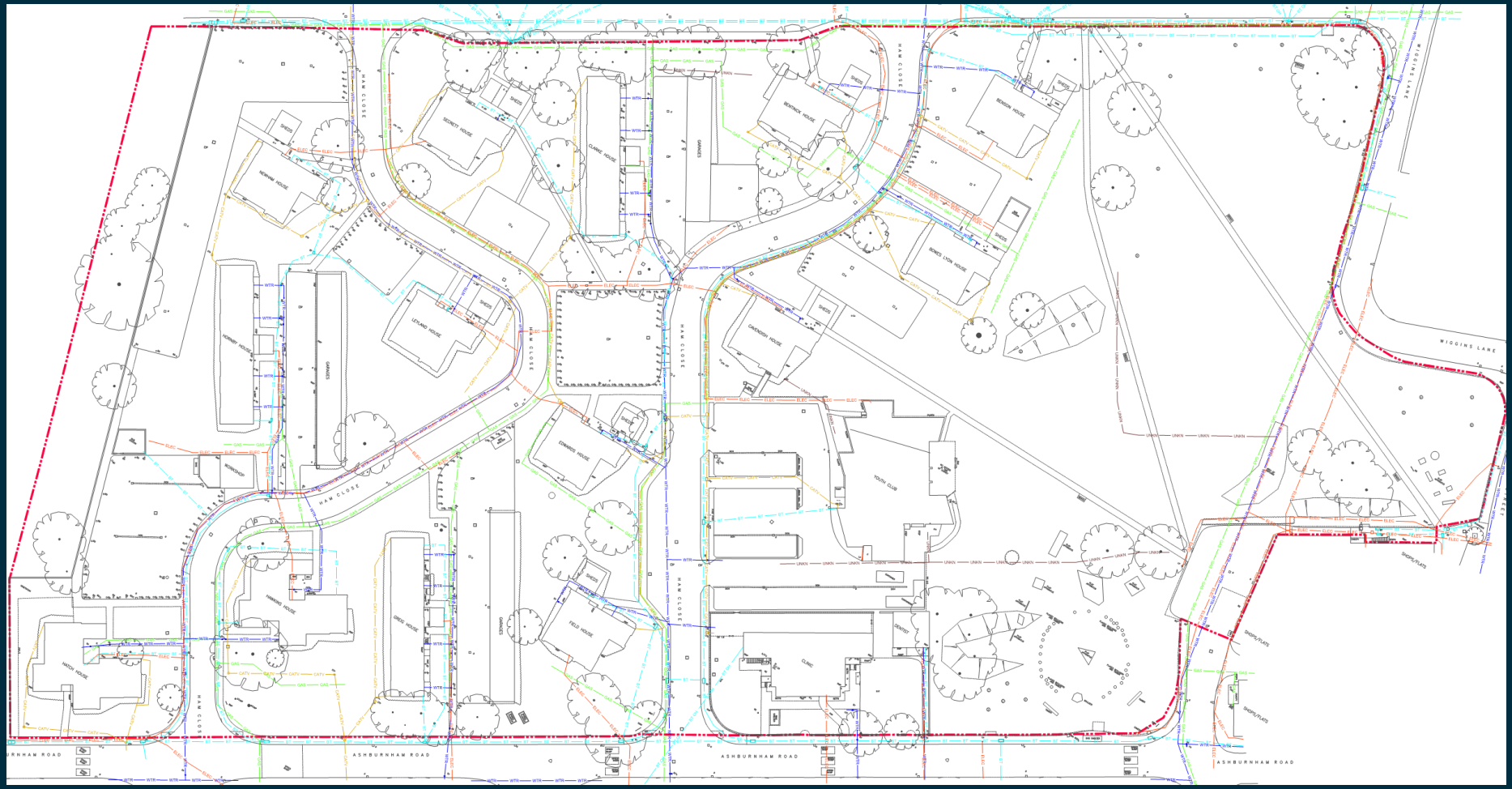
2. EXISTING AND ON-SITE UTILITIES

As the existing site contains several existing buildings, there is a significant number of utilities on site serving the existing buildings.

Site surveys have been undertaken to locate the existing utilities and this information is presented in the drawings on the following pages.

- **Existing Electric** - High voltage (HV) and low voltage (LV) services throughout the development along with 2 No. substations within the site boundary supplying buildings both within the site boundary (due to be demolished) and buildings outside the site boundary (being retained). Immediately adjacent to the proposed Community Centre but outside the site boundary is a substation that will be affected by the proposed development.
- **Existing Telecoms** - Openreach and Virgin Media services throughout the site supplying existing buildings
- **Existing Water** - Throughout the site supplying existing buildings. There are also other water services identified interconnecting existing buildings and leaving the site boundary to the South.
- **Existing Gas -** Throughout the site supplying existing buildings. There are also other gas services identified interconnecting existing buildings and leaving the site boundary to the South.

Existing on-site Utilities



ELEC	Existing electrical service
WTR	Existing water service
UNKN	Existing unknown service
BT	Existing BT service
GAS	Existing gas service
	Site boundary (approximate)
BT OH	Existing overhead BT service
CATV	Existing cable TV service

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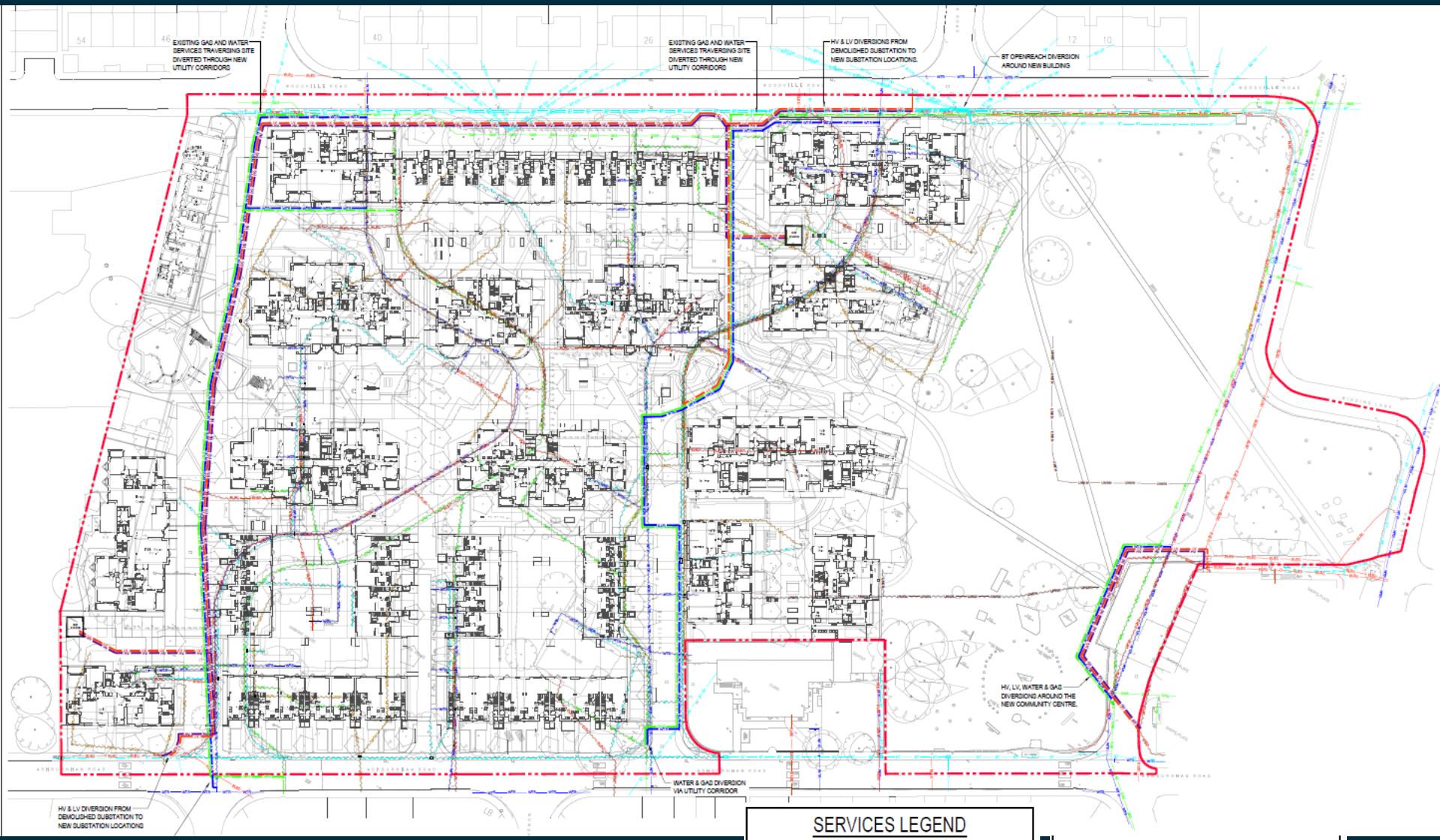
Existing Site Services Disconnect



SERVICES LEGEND

ELEC	EXISTING ELECTRICAL SERVICE
BT	EXISTING BT SERVICE
BT OH	EXISTING OVERHEAD BT SERVICE
CATV	EXISTING COMMS TV SERVICE
WTR	EXISTING WATER SERVICE
GAS	EXISTING GAS SERVICE
UNKN	EXISTING UNKNOWN SERVICE

	SERVICE TO BE ABANDONED
BT	DIVERTED BT SERVICE
LV	DIVERTED LV SERVICE
HV	DIVERTED HV SERVICE
GAS	DIVERTED GAS SERVICE
WTR	DIVERTED WATER SERVICE
	SITE BOUNDARY

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3. ELECTRICITY DIVERSIONS & DISCONNECTIONS

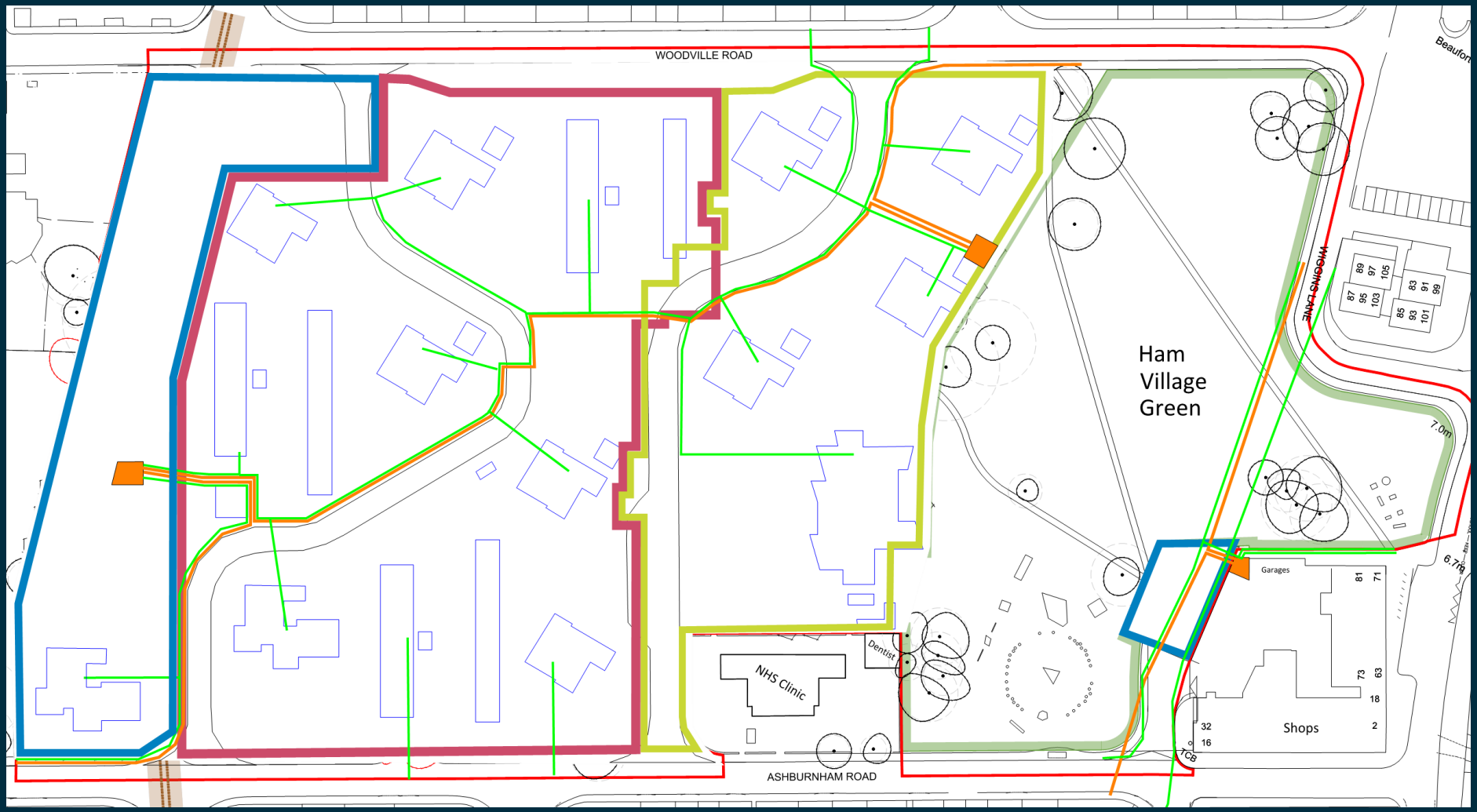
The demolition and development is to be completed in 3 phases. To facilitate this process several phased electrical diversions/disconnections are required in line with the below process;

Phase 1: To facilitate the development of Block B, the existing “Ashburnham Road” substation needs to be disconnected and relocated. It is proposed that a new substation is installed between Blocks A & B in replacement. To maintain both the HV and the LV networks for the surrounding area and the existing blocks at Ham Close, new HV and LV cables will be run from the new substation and will connect onto the existing HV and LV cables running through the development. The LV cable supplying Hatch House will also be disconnected as part of the Phase 1 works. Also, to facilitate the construction of the community centre located in the southwest corner of Ham Village Green, HV and LV cables running south out of “The Close” substation will need to be diverted around the footprint of the community centre with connections made to the existing cables north and south of the new community centre.

Phase 2: To facilitate the development of Block V, the existing “Woodville Road” substation needs to be disconnected and relocated. It is proposed that a new substation is installed between Blocks T & V in replacement. To maintain the HV network for the surrounding area, a new HV cable will be installed between the new Phase 1 substation and the new Phase 2 substation. This will run in front of blocks B and W then run within the footpath of Woodville Road prior to entering the new Phase 2 substation. A new HV connection will also be made to the existing HV cable within the southern footpath of Woodville Road to ensure a continuous network is maintained. To ensure the LV network is maintained for residents of Ham Close, a new LV cable will also be installed from the new Phase 2 substation and connect onto the existing LV cable running through the existing estate. The existing LV connections to Benson House, Bentinck House, Bowes Lyon House, Cavendish House and the Youth Centre will all be disconnected.

Phase 3: To facilitate the construction of Phase 3, the existing LV cabling supplying Clarke House, Secrett House, Newman House, Hornby House, Leyland House, Edwards House and Hawkins House will be disconnected, however, to maintain the LV connection between the new Phase 1 substation and the new Phase 2 substation, a new LV cable will be installed. The existing LV connections to Greig House and Field House will also be disconnected

Existing Electricity Cables



Existing High Voltage Cable
Existing Low Voltage Cable
Existing Substation
Proposed High Voltage Cable
Proposed Low Voltage Cable
Proposed Substation
Redundant Cable

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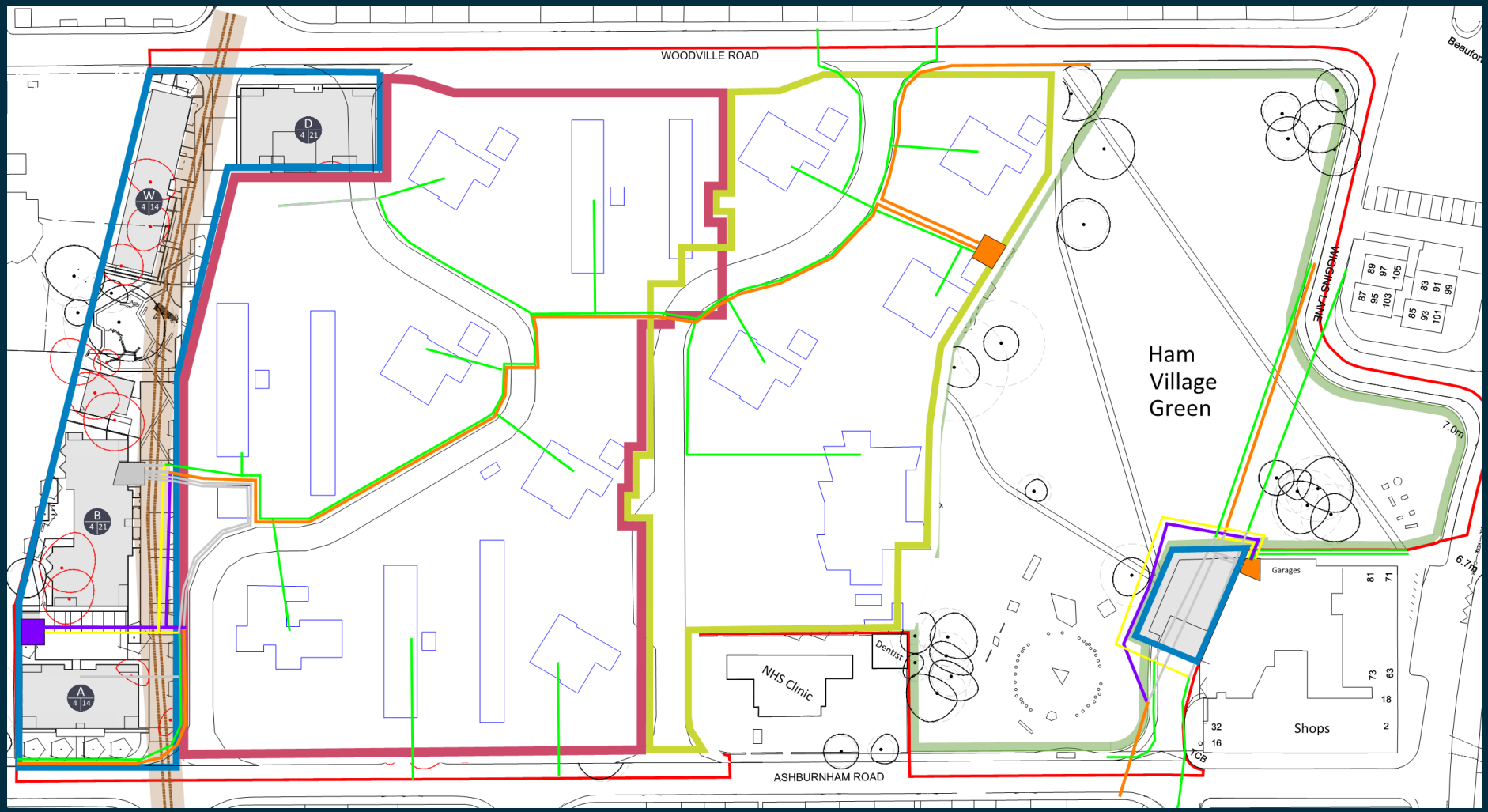
Phase 1 Electric Diversions



Existing High Voltage Cable
Proposed High Voltage Cable
Redundant Cable
Existing Low Voltage Cable
Proposed Low Voltage Cable
Existing Substation
Proposed Substation

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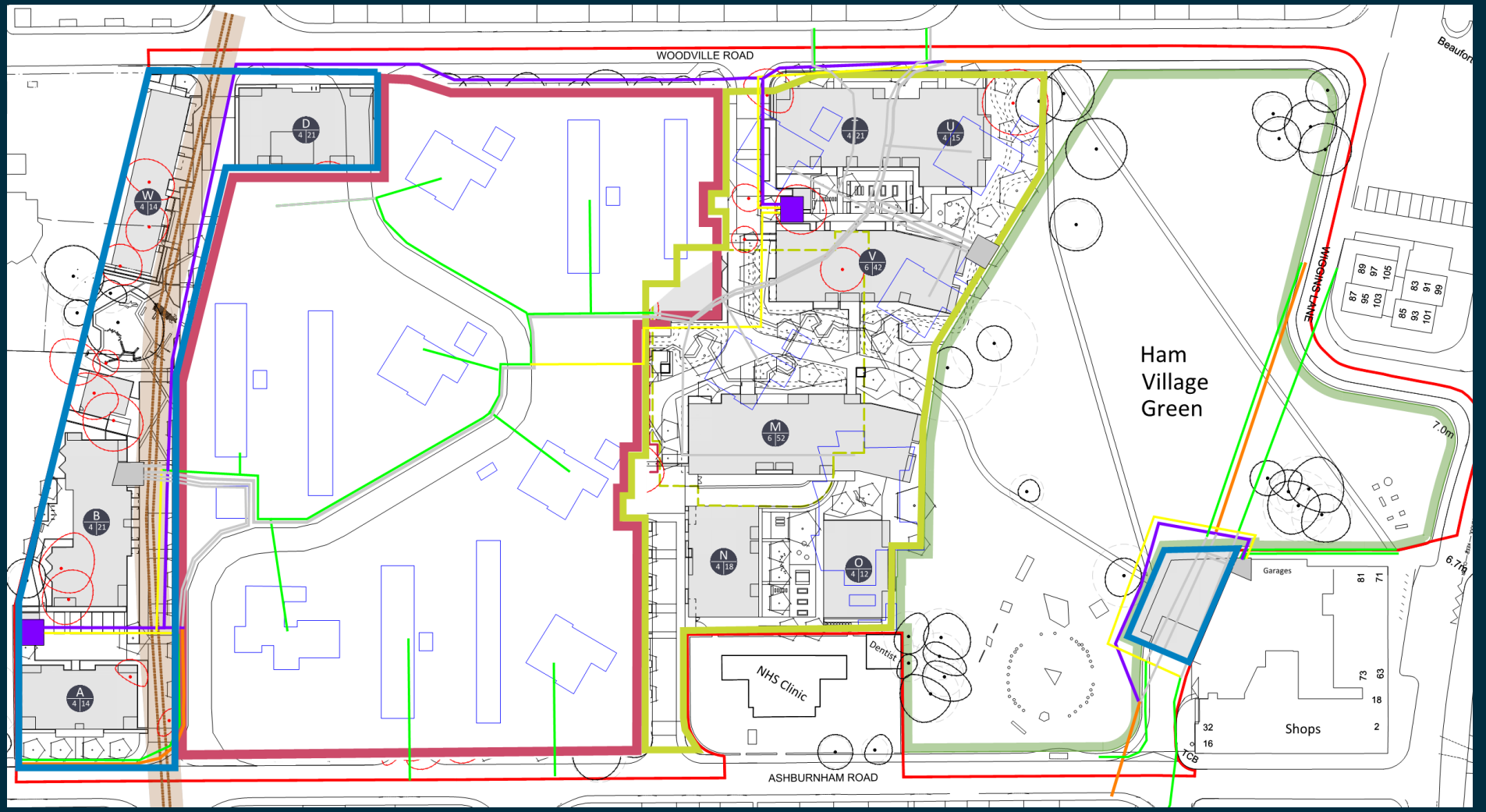
Phase 2 Electric Diversions



Existing High Voltage Cable
Proposed High Voltage Cable
Redundant Cable
Existing Low Voltage Cable
Proposed Low Voltage Cable
Existing Substation
Proposed Substation

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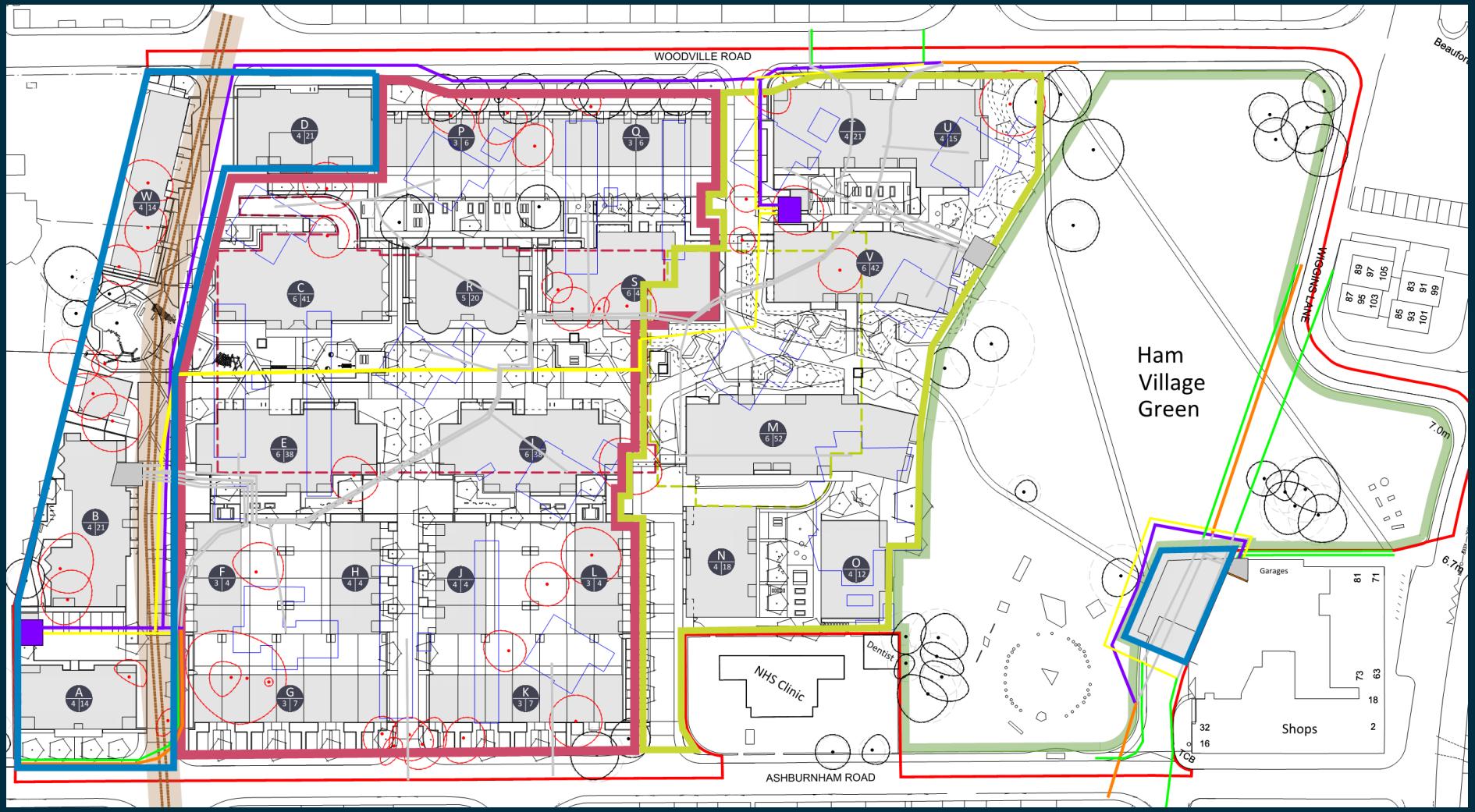
Phase 3 Electric Diversions



Existing High Voltage Cable
Proposed High Voltage Cable
Redundant Cable
Existing Low Voltage Cable
Proposed Low Voltage Cable
Existing Substation
Proposed Substation

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4. WATER DIVERSIONS AND DISCONNECTIONS

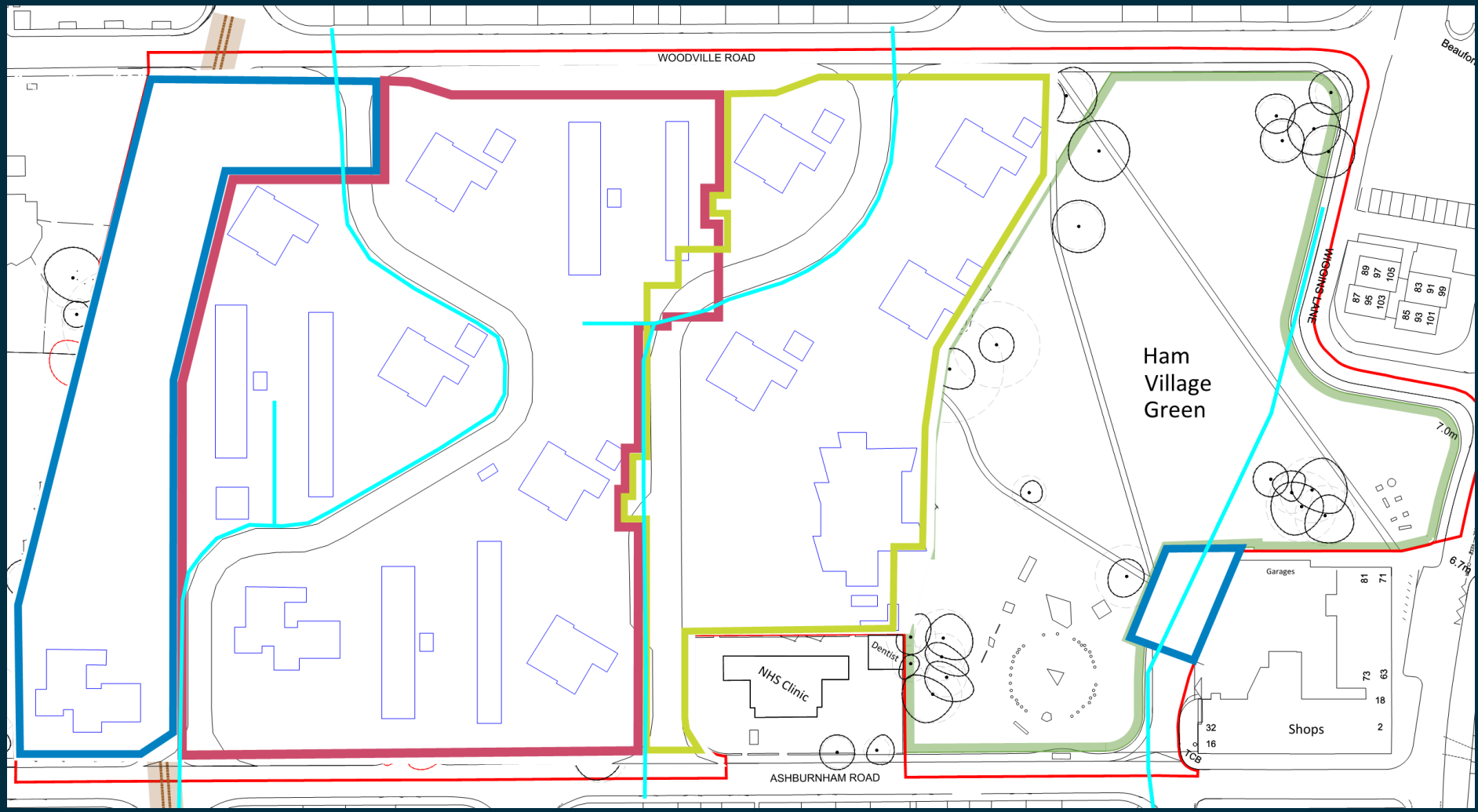
The demolition and development is to be completed in 3 phases. To facilitate this process several phased potable water diversions/disconnections are required in line with the below process;

Phase 1: To facilitate the development of Block W, the existing potable water pipe on the western side of the site that runs through the development from Woodville Road to Ashburnham Road needs to be diverted around Block D. Also, to facilitate the construction of the community centre in the southwest corner of Ham Village Green the potable water pipe that runs between Wiggins Lane and Ashburnham Road needs to be diverted around the footprint of the new community centre. As part of these works the potable water supply to Hatch House will be disconnected.

Phase 2: To facilitate the development of Phase 2, the existing potable water pipe in the centre of the site that runs through the development from Woodville Road to Ashburnham Road needs to be replaced with a new potable water pipe in line with the new development proposals. As part of these works the potable water supply to Benson House, Bentinck House, Bowes Lyon House, Cavendish House and the Youth Centre will all be disconnected.

Phase 3: To facilitate the development of Phase 3, the existing potable water pipe on the western side of the site that runs through the development from Woodville Road to Ashburnham Road needs to be replaced with a new potable water pipe in line with the new development proposals. As part of these works the potable water supply to Clarke House, Secrett House, Newman House, Hornby House, Leyland House, Edwards House, Hawkins House, Greig House and Field House will all be disconnected.

Existing Potable Water Pipework



Existing Potable Water Pipework

Redundant Pipework

Proposed Potable Water Pipework

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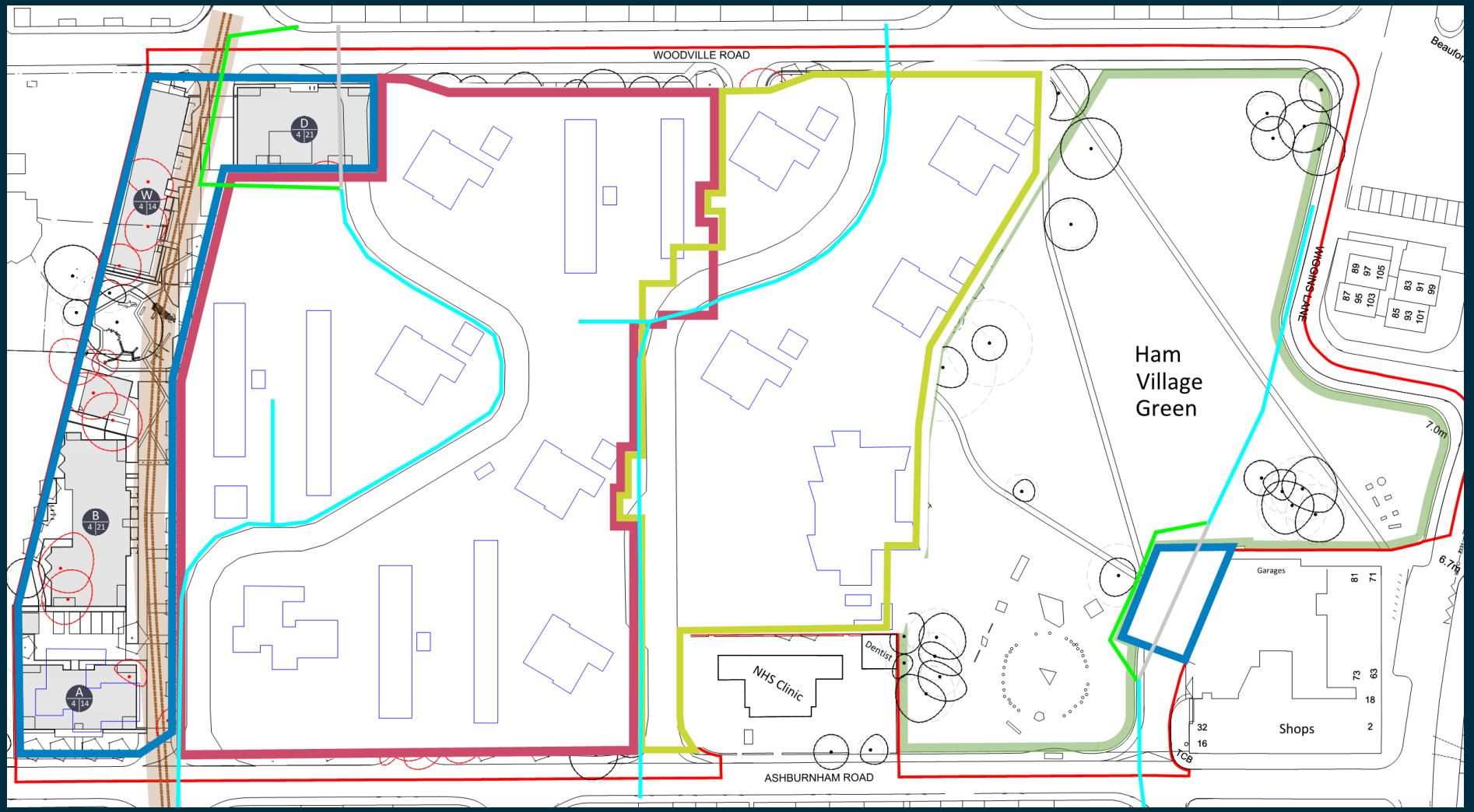
Phase 1 Potable Water Diversion



Existing Potable Water Pipework

Redundant Pipework

Proposed Potable Water Pipework

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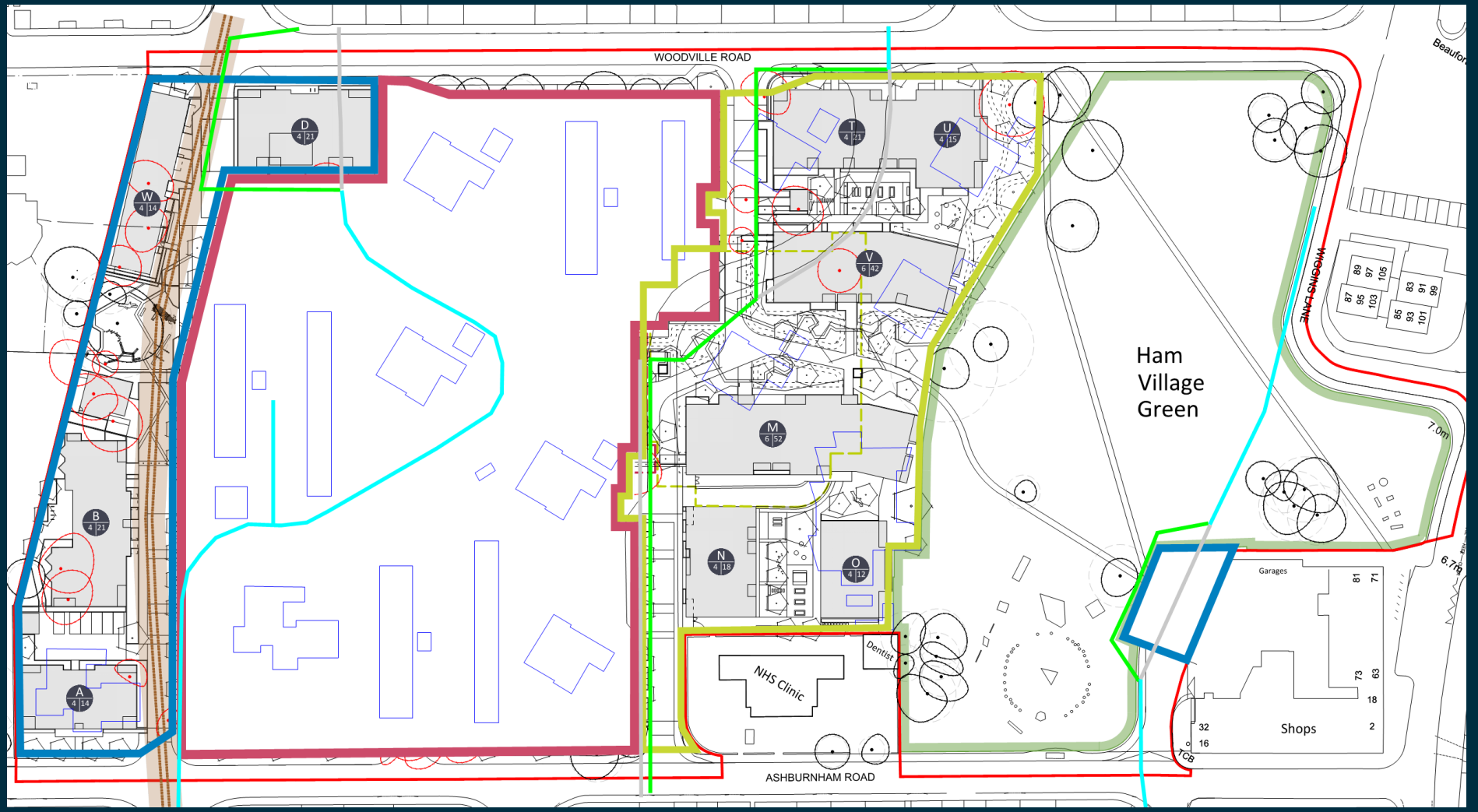
Phase 2 Potable Water Diversion



Existing Potable Water Pipework

Redundant Pipework

Proposed Potable Water Pipework

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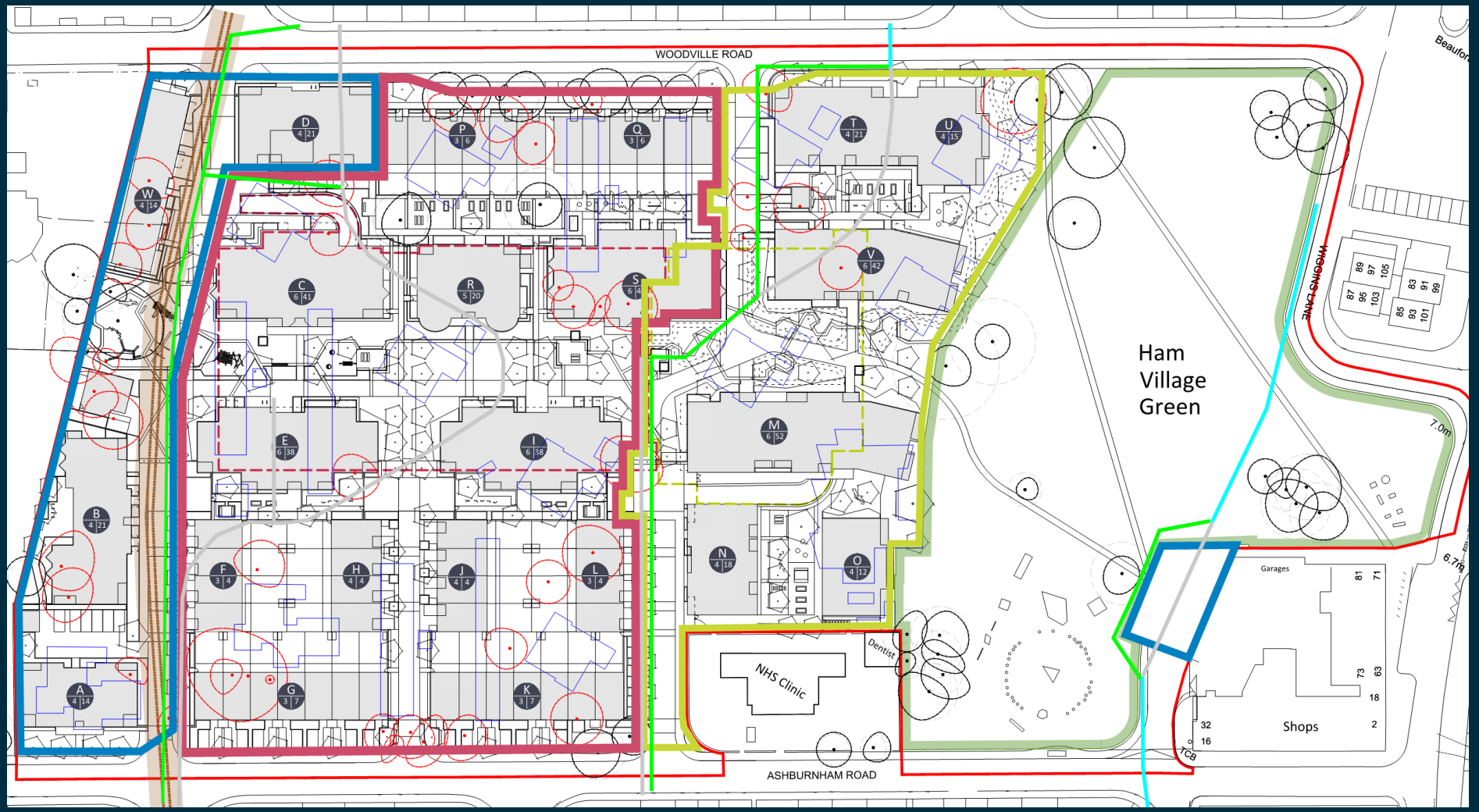
Phase 3 Potable Water Diversion



Existing Potable Water Pipework

Proposed Potable Water Pipework

Redundant Pipework

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5. GAS DIVERSIONS & DISCONNECTIONS

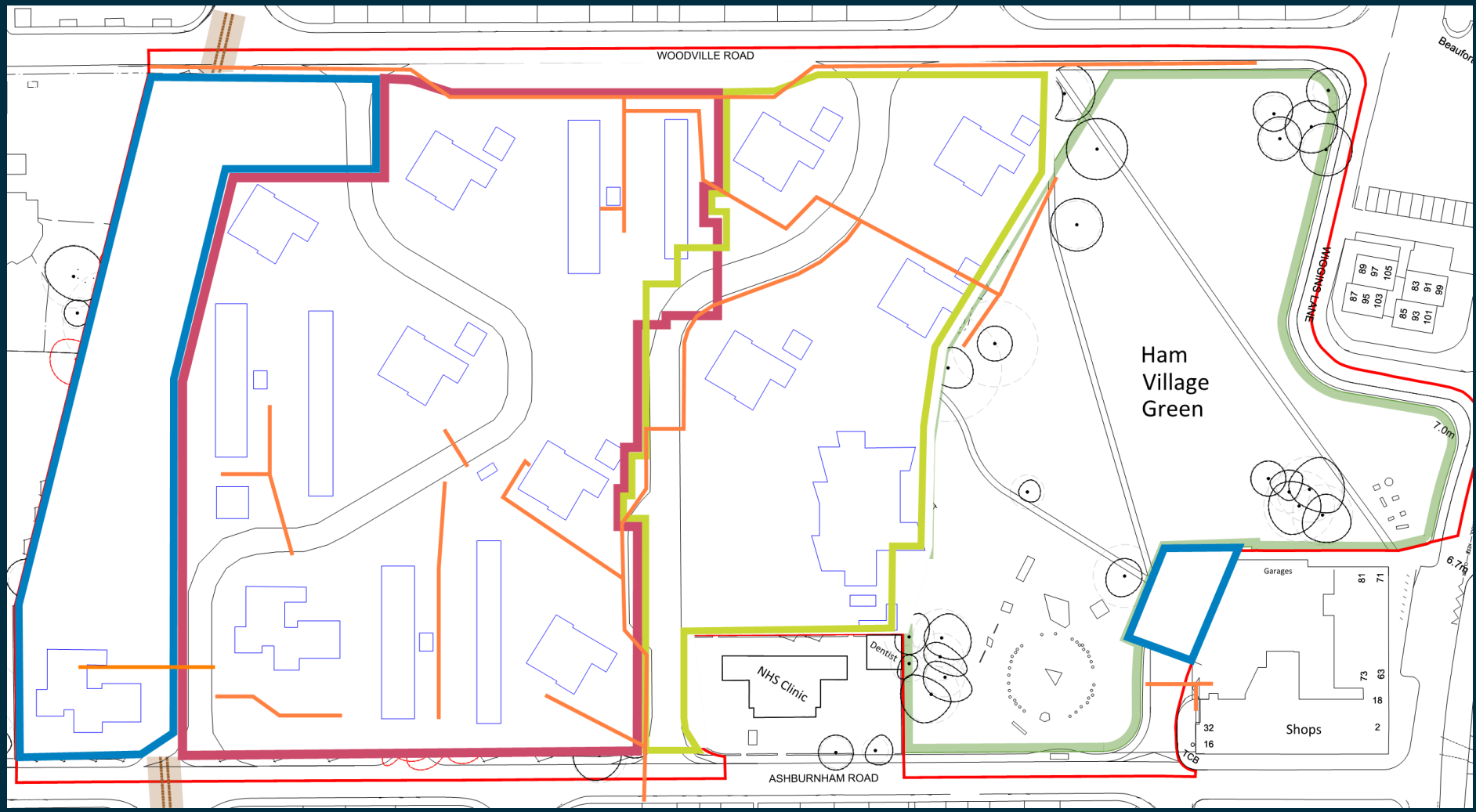
The demolition and development is to be completed in 3 phases. As this site will be fully served by 100% electric, all gas connections can be removed within the phasing arrangements. To facilitate this process several phased gas diversions/disconnections are required in line with the below process;

Phase 1: To facilitate the development of Block W, the existing gas pipe on the western side of the site that runs through the development from Woodville Road to Ashburnham Road needs to be diverted around Block D. Also, to facilitate the construction of the community centre in the southwest corner of Ham Village Green the gas pipe that runs between Wiggins Lane and Ashburnham Road needs to be diverted around the footprint of the new community centre. As part of these works the gas supply to Hatch House will be disconnected.

Phase 2: To facilitate the development of Phase 2, the existing gas pipe that runs through the northern half of the development from Woodville Road to Ashburnham Road needs to be replaced with a gas pipe in line with the new development proposals. This is to connect onto the existing gas pipe adjacent to Block M to ensure that the gas supplies to Field House and Edwards House are maintained. The existing gas pipe that runs along the southern side of Woodville Road will also need to be diverted around the corner of Block T. The gas supplies to Benson House, Bentinck House, Bowes Lyon House, Cavendish House and the Youth Centre will all be disconnected.

Phase 3: To facilitate the development of Phase 3, the southern section of the existing gas pipe on the eastern side of the phase 3 land that runs through the development from Woodville Road to Ashburnham Road will be replaced with a gas pipe connecting to the existing pipe in Ashburnham Road. Also the existing gas pipe on the western side of the site that runs through the development from Woodville Road to Ashburnham Road will be replaced with a new gas pipe in line with the new development proposals. As part of these Phase 3 works the gas supply to Clarke House, Secrett House, Newman House, Hornby House, Leyland House, Edwards House, Hawkins House, Greig House and Field House will all be disconnected.

Existing Gas Pipework



Existing Gas Pipework

Redundant Pipework

Proposed Gas Pipework

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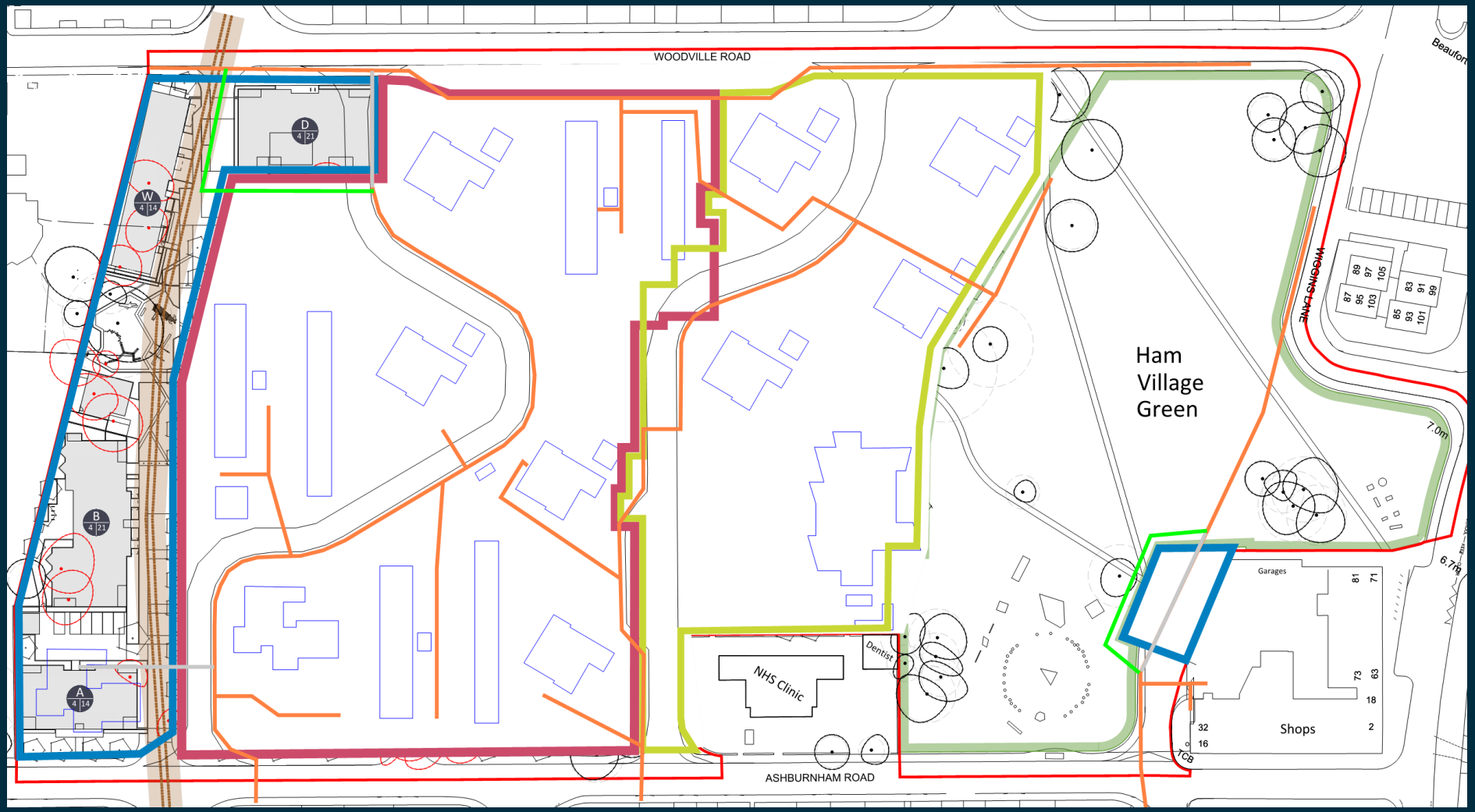
Phase 1 Gas Diversion



Existing Gas Pipework

Redundant Pipework

Proposed Gas Pipework

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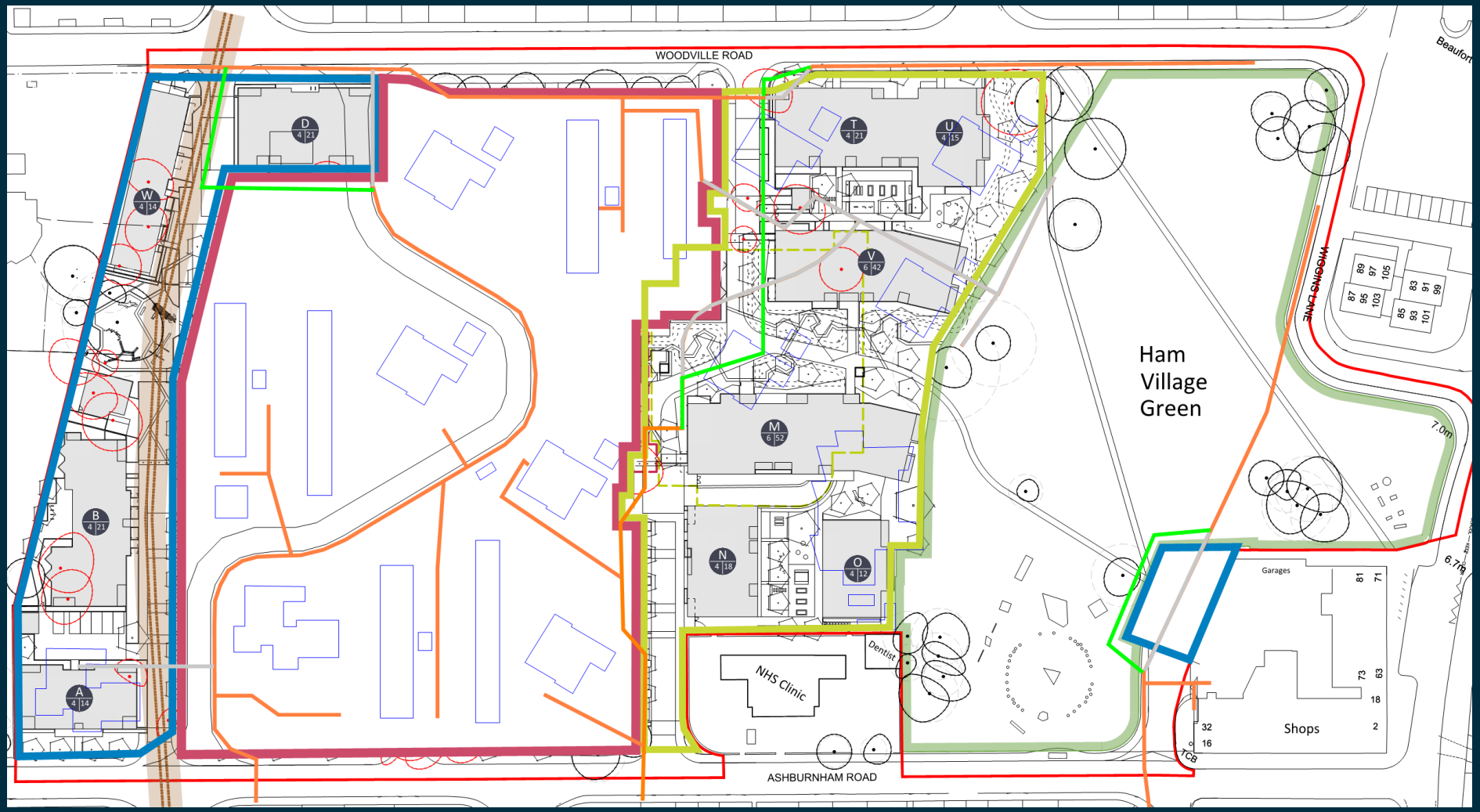
Phase 2 Gas Diversion



Existing Gas Pipework

Redundant Pipework

Proposed Gas Pipework

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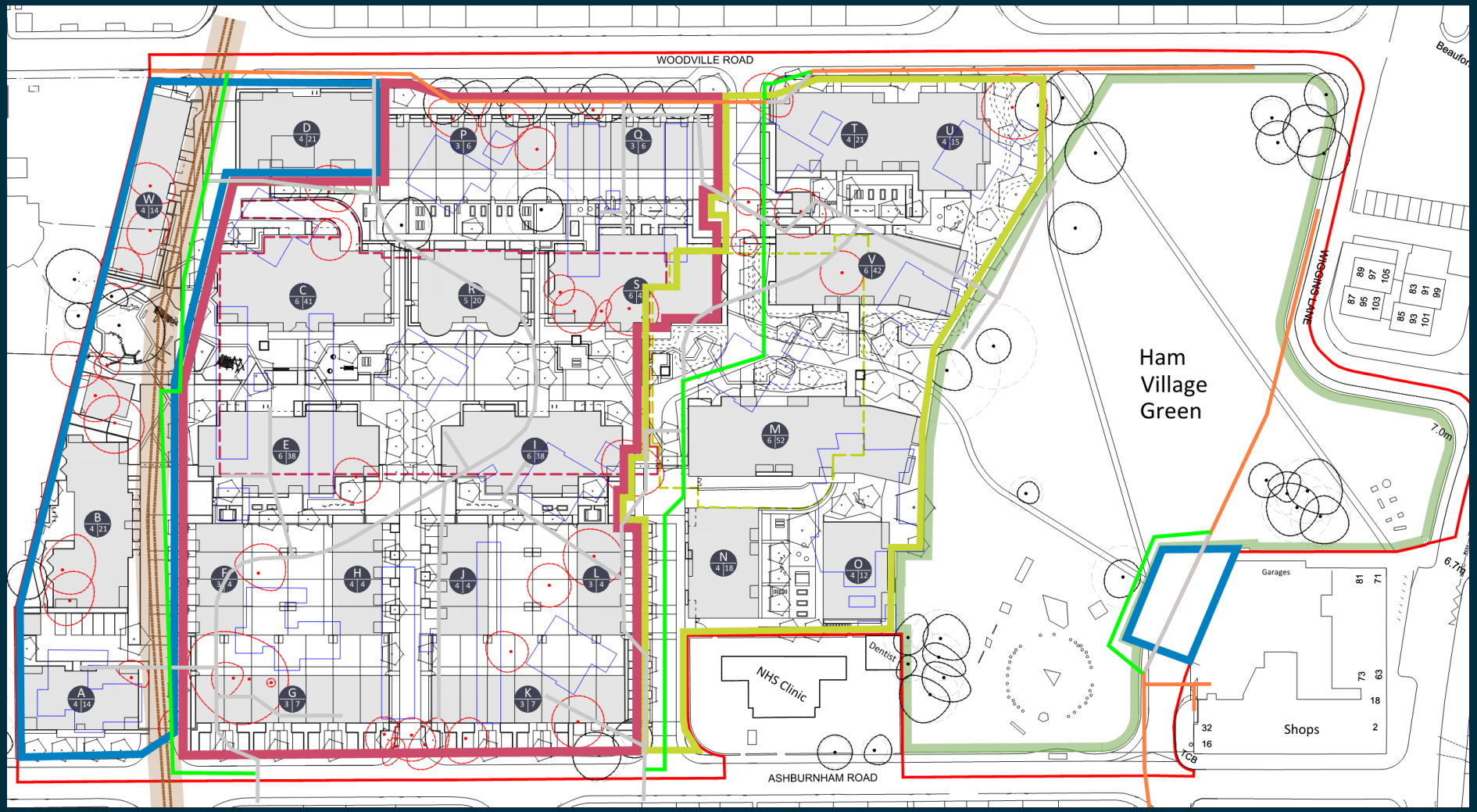
Phase 3 Gas Diversion



Existing Gas Pipework

Redundant Pipework

Proposed Gas Pipework

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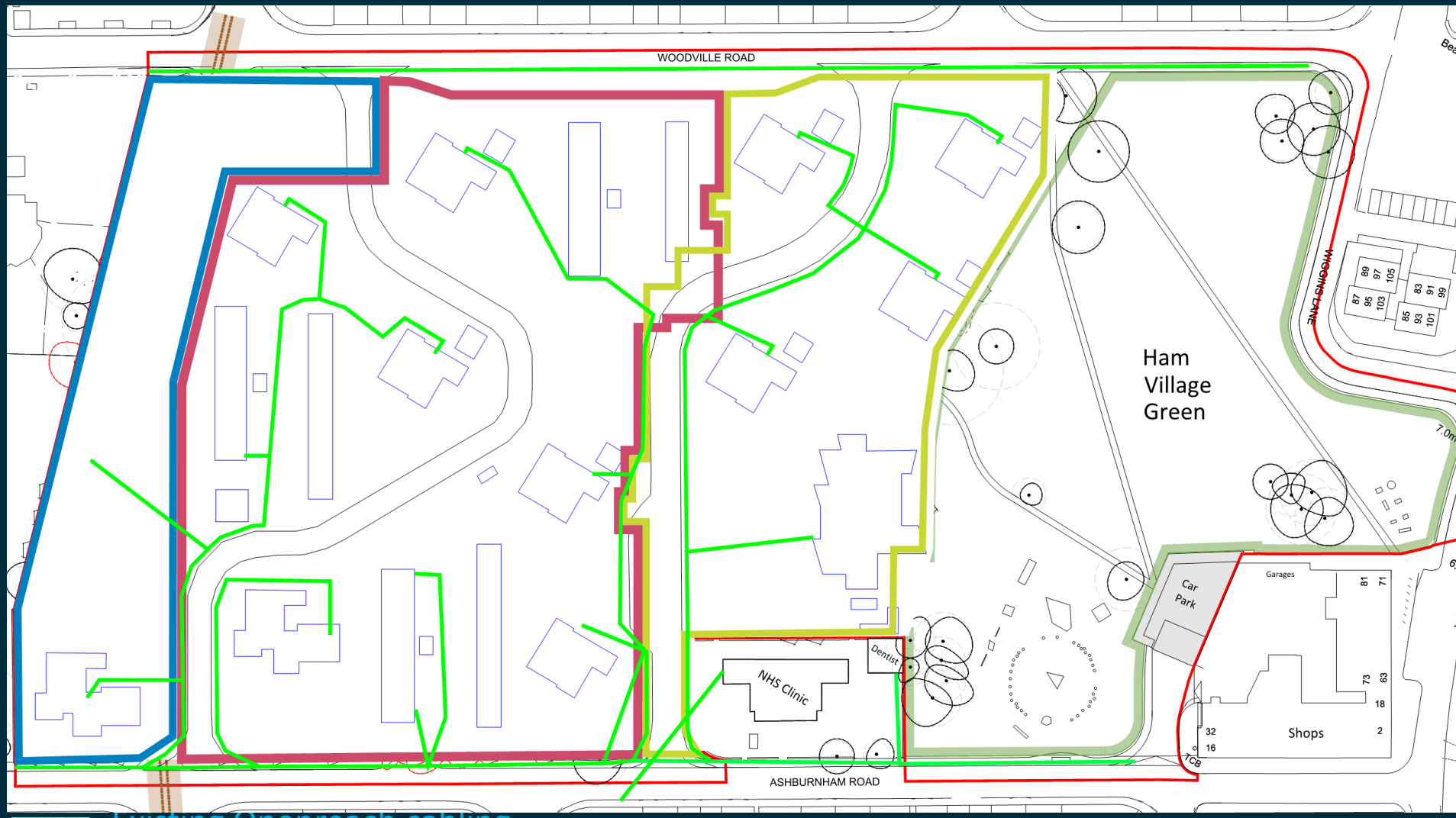
6. OPENREACH DISCONNECTIONS

The demolition and development is to be completed in 3 phases and to facilitate this process several phased disconnections of existing Openreach equipment will be required in line with the below process;

Phase 1: To facilitate the development of Phase 1, the existing Openreach cabling to Hatch House and the existing “Ashburnham Road” substation are to be disconnected.

- Phase 2: To facilitate the development of Phase 2, the existing Openreach cabling connecting Ashburnham Road to Benson House, Bentinck House, Bowes Lyon House, Cavendish House and the Youth Centre is to be disconnected. A diversion of existing Openreach services will be required around block U. The existing Openreach cable feeding the NHS clinic on Ashburnham Road will also need to be diverted to facilitate the construction of the new bellmouth onto Ashburnham Road from the new development.
- Phase 3: To facilitate the development of Phase 3, the existing Openreach cabling connecting to Clarke House, Secrett House, Newman House, Hornby House, Leyland House, Edwards House, Hawkins House, Greig House and Field House will all be disconnected.

Existing Openreach Cabling



Existing Openreach cabling

Redundant cabling

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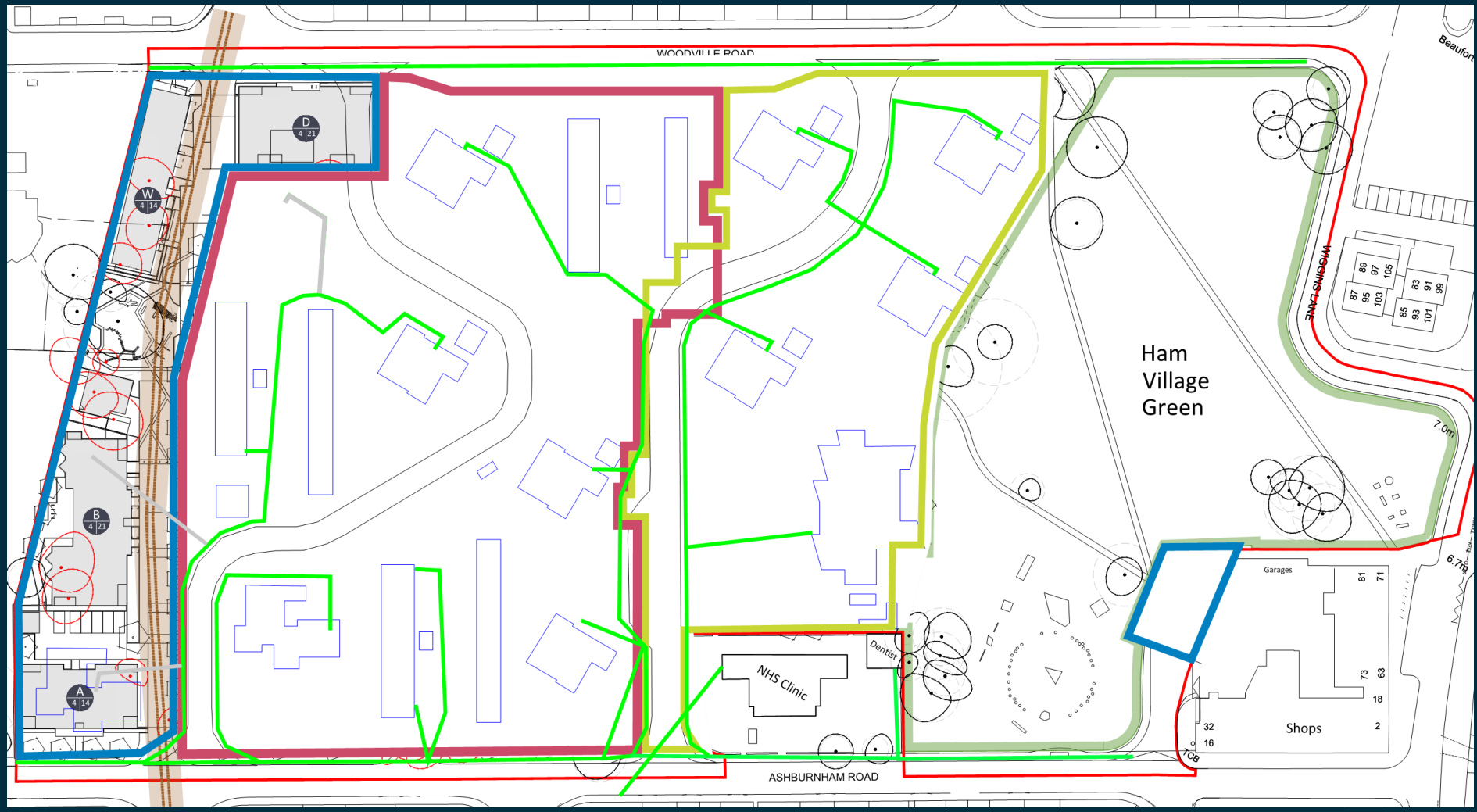
Phase 1 Openreach Disconnections



Existing Openreach cabling

Redundant cabling

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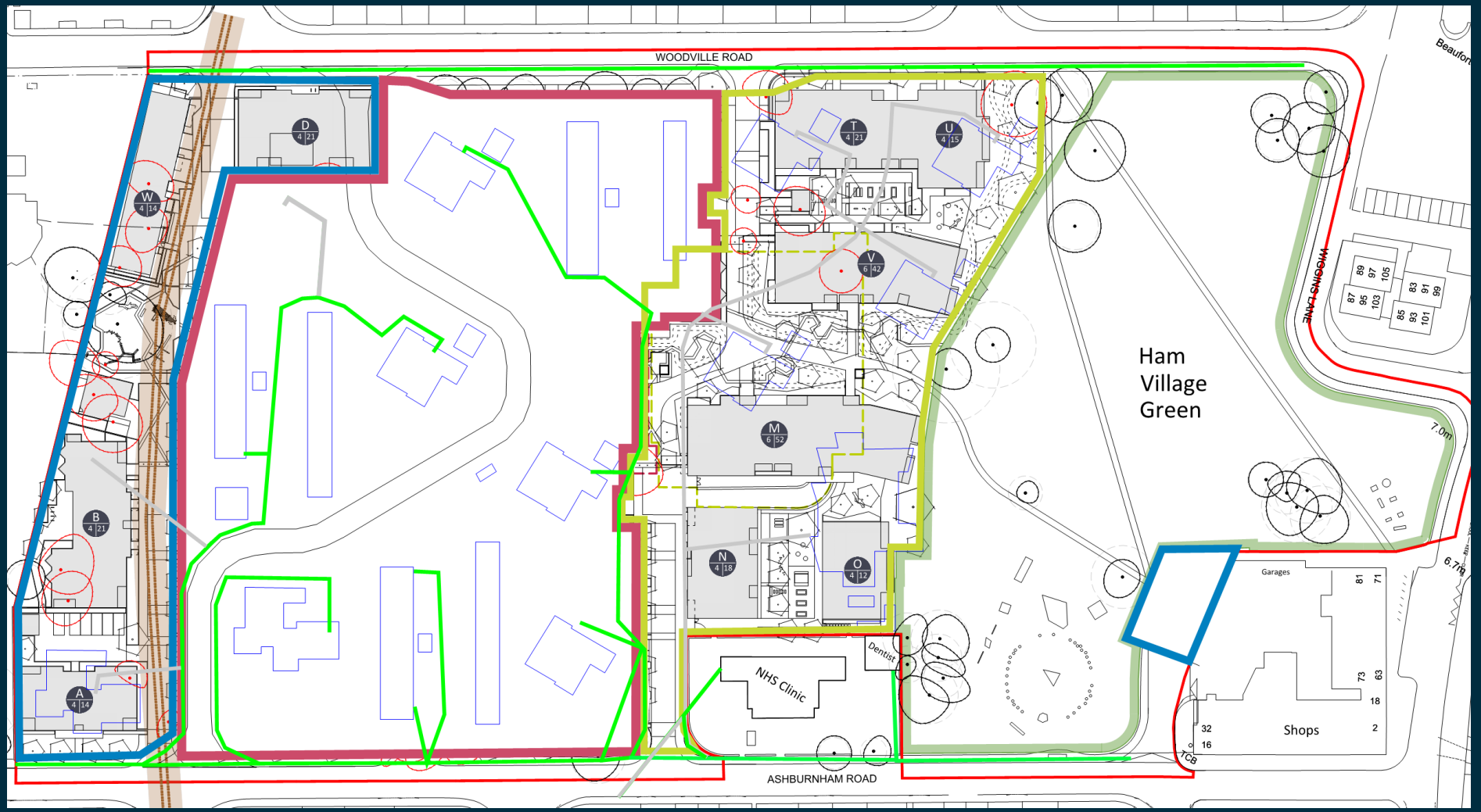
Phase 2 Openreach Disconnections



Existing Openreach cabling

Redundant cabling

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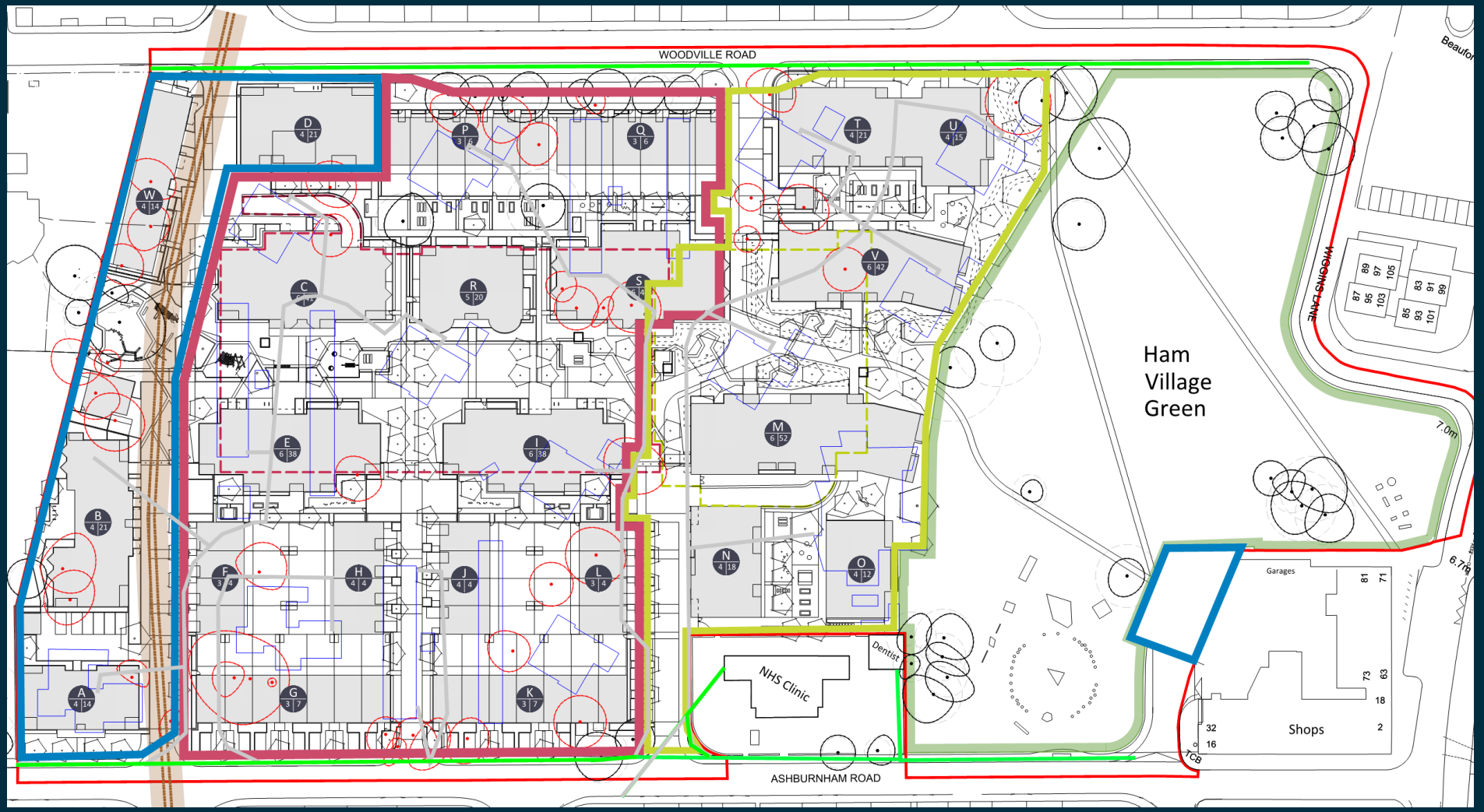
Phase 3 Openreach Disconnections



Existing Openreach cabling

Redundant cabling

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7. VIRGIN MEDIA DIVERSIONS & DISCONNECTIONS

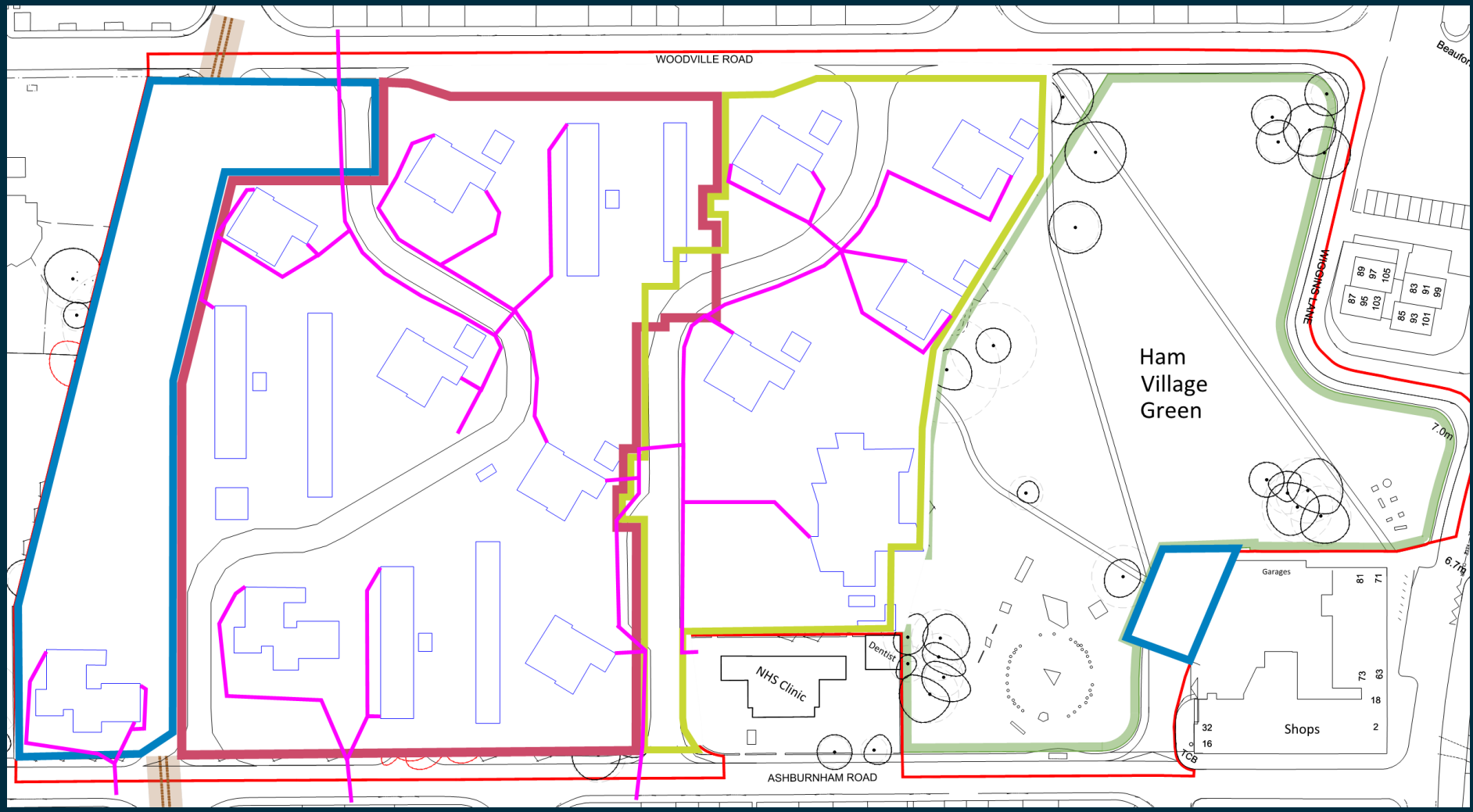
The demolition and development is to be completed in 3 phases and to facilitate this process several phased disconnections and a diversion of existing Virgin Media equipment will be required in line with the below process;

Phase 1: To facilitate the development of Phase 1, the existing Virgin cabling to Hatch House is to be disconnected. Also to allow the construction of Block D, the existing Virgin Media cable within this area will need to be diverted around Block D to ensure the supply is maintained to Newman House, Hornby House, Secrett House, Leyland House and Clarke House.

Phase 2: To facilitate the development of Phase 2, the existing Virgin Media cable in the centre of the site that runs through the northern half of the development from Woodville Road to Ashburnham Road is to be removed and the supplies to Benson House, Bentinck House, Bowes Lyon House, Cavendish House and the Youth Centre are to be disconnected.

Phase 3: To facilitate the development of Phase 3, the southern section of the existing Virgin Media cable on the eastern side of the phase 3 land that runs through the development from Woodville Road to Ashburnham Road will be disconnected. Also the existing cables supplying Clarke House, Secrett House, Newman House, Hornby House, Leyland House, Edwards House, Hawkins House, Greig House and Field House will all be disconnected. The new cable that was installed as a diversion around Block D will be used as part of the supplies on the new development.

Existing Virgin Media Cabling



Existing Virgin Media cabling

Redundant cabling

Proposed Virgin Media cabling

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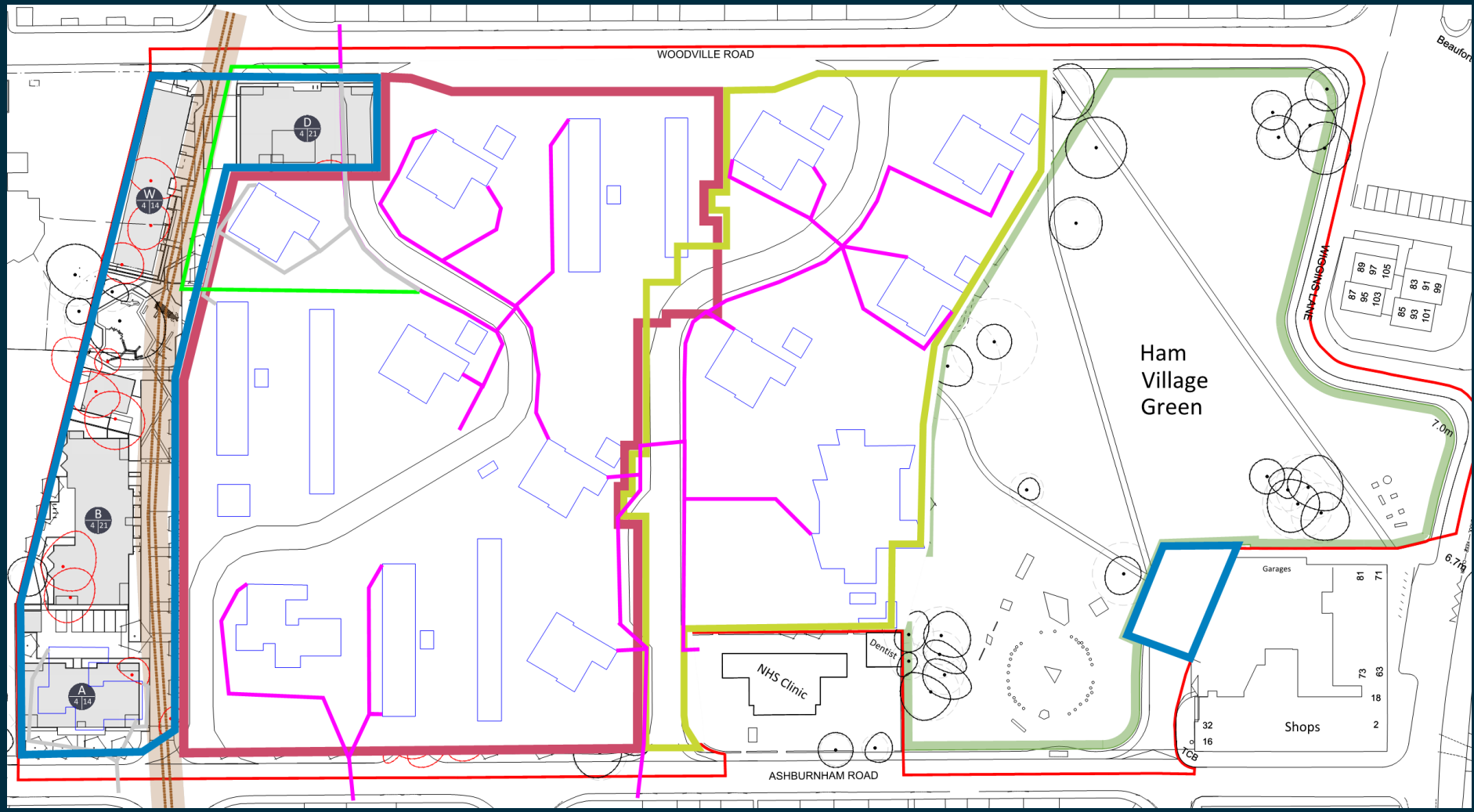
Phase 1 Virgin Media Disconnections



Existing Virgin Media cabling

Proposed Virgin Media cabling

Redundant cabling

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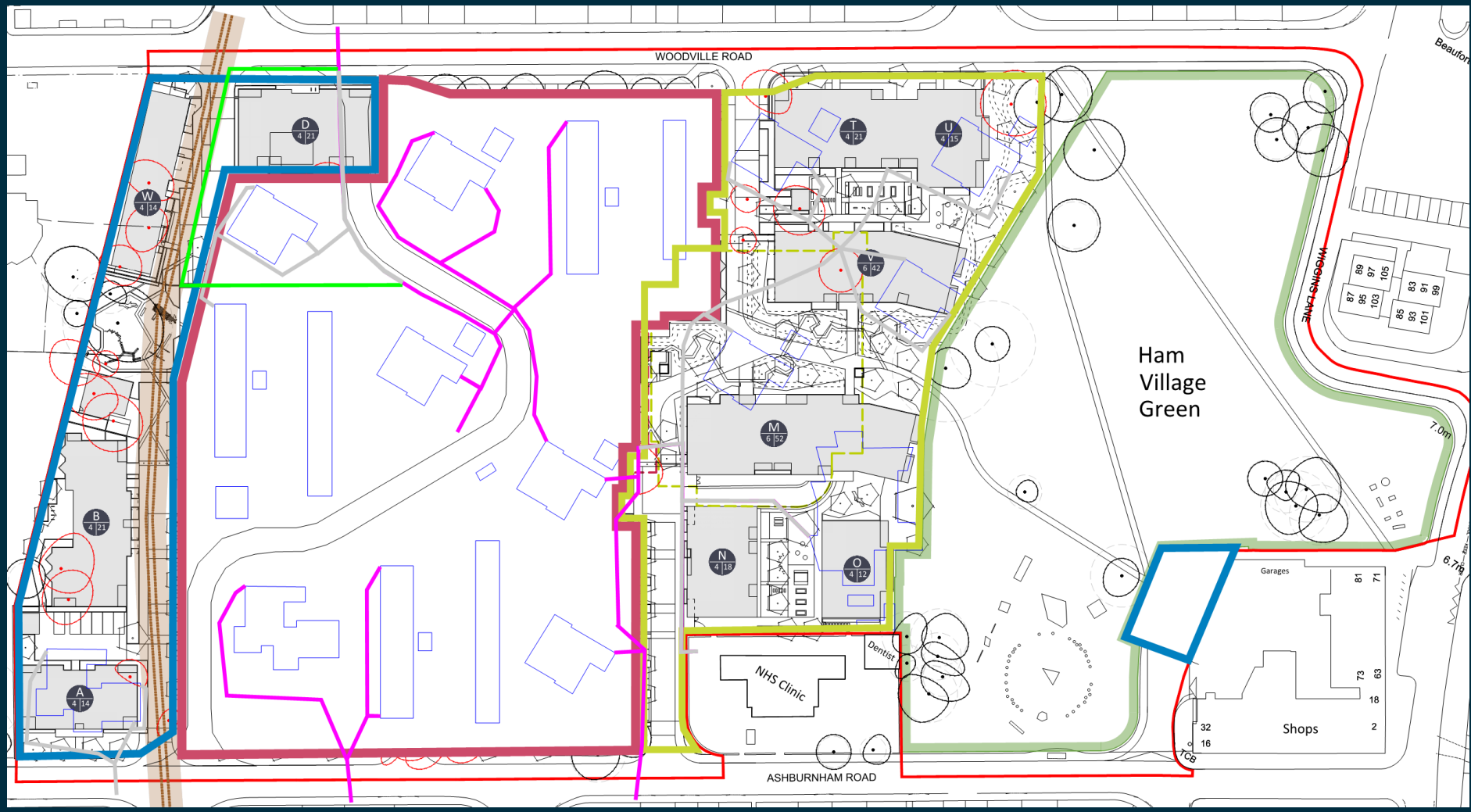
Phase 2 Virgin Media Disconnections



Existing Virgin Media cabling

Proposed Virgin Media cabling

Redundant cabling

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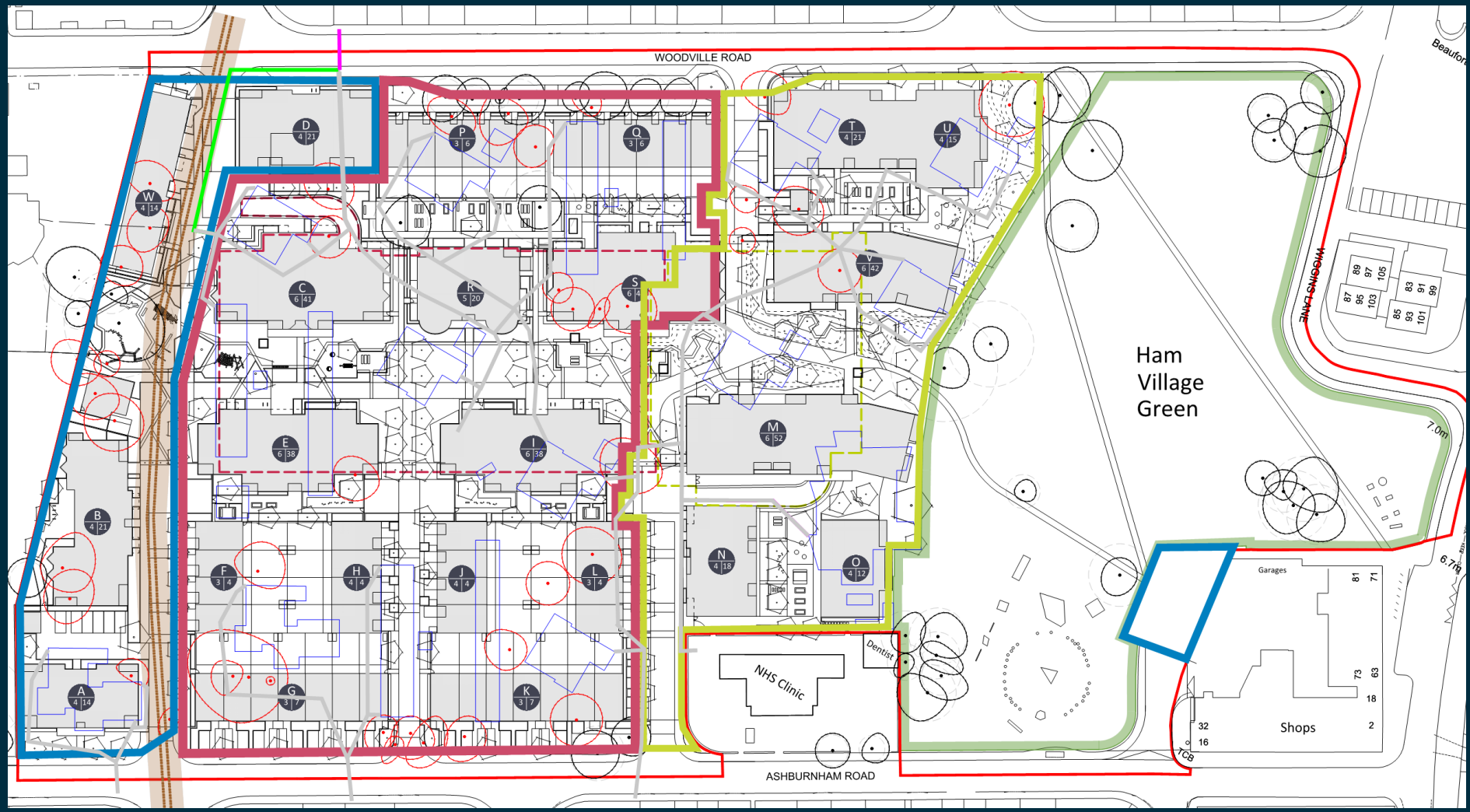
Phase 3 Virgin Media Disconnections



Existing Virgin Media cabling

Proposed Virgin Media cabling

Redundant cabling

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8. DRAINAGE DISCONNECTIONS AND DIVERSIONS

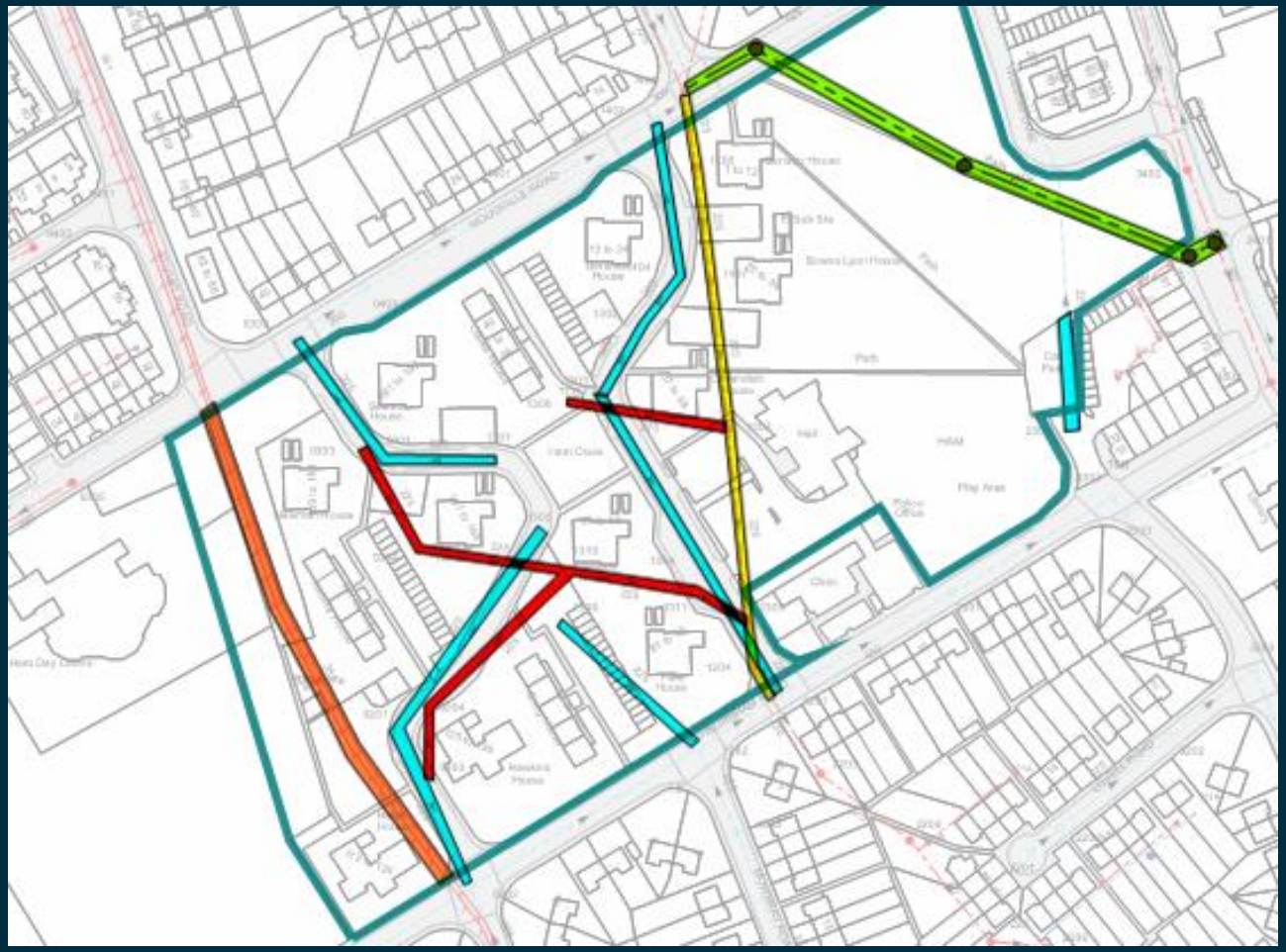
On the western edge of the site, there is a pumped foul water rising mains. The proposed layout has allowed for the existing sewer easement and tor the rising main to be retained.

The 225mm diameter foul water sewer running between manholes TW1405 and TW1204 across the site from Woodville Road to Ashburnham cannot be accommodated within the proposals and must be diverted towards the 225mmØ sewer in Ham Street, through the Green. Thames Water have been consulted and confirmed adequate capacity is available for this diversion.

The 225mm diameter foul water sewer from the existing car park (from manhole TW2304) will need to be abandoned as this sits underneath the proposed structure. Any existing connnections will be diverted towards the new connection into the sewer in Ashburnham Road.

All other foul and storm water sewers on site only serve the existing development. As these existing buildings are being demolished, these drains will become redundant and will be abandoned. As the demolition and construction are to be completed in phases, attention will need to be paid to ensuring the sewers remain live for the buildings that are in use. This may require some temporary diversions to take place during development. These will be reviewed in further detail during design development.

Drainage Diversions and abandonment



- Existing foul sewer to be abandoned
- Existing foul sewer to be diverted
- Existing rising main to be retained
- Existing storm sewer to be abandoned
- Proposed foul sewer for diversion

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9. NEW SITE UTILITIES

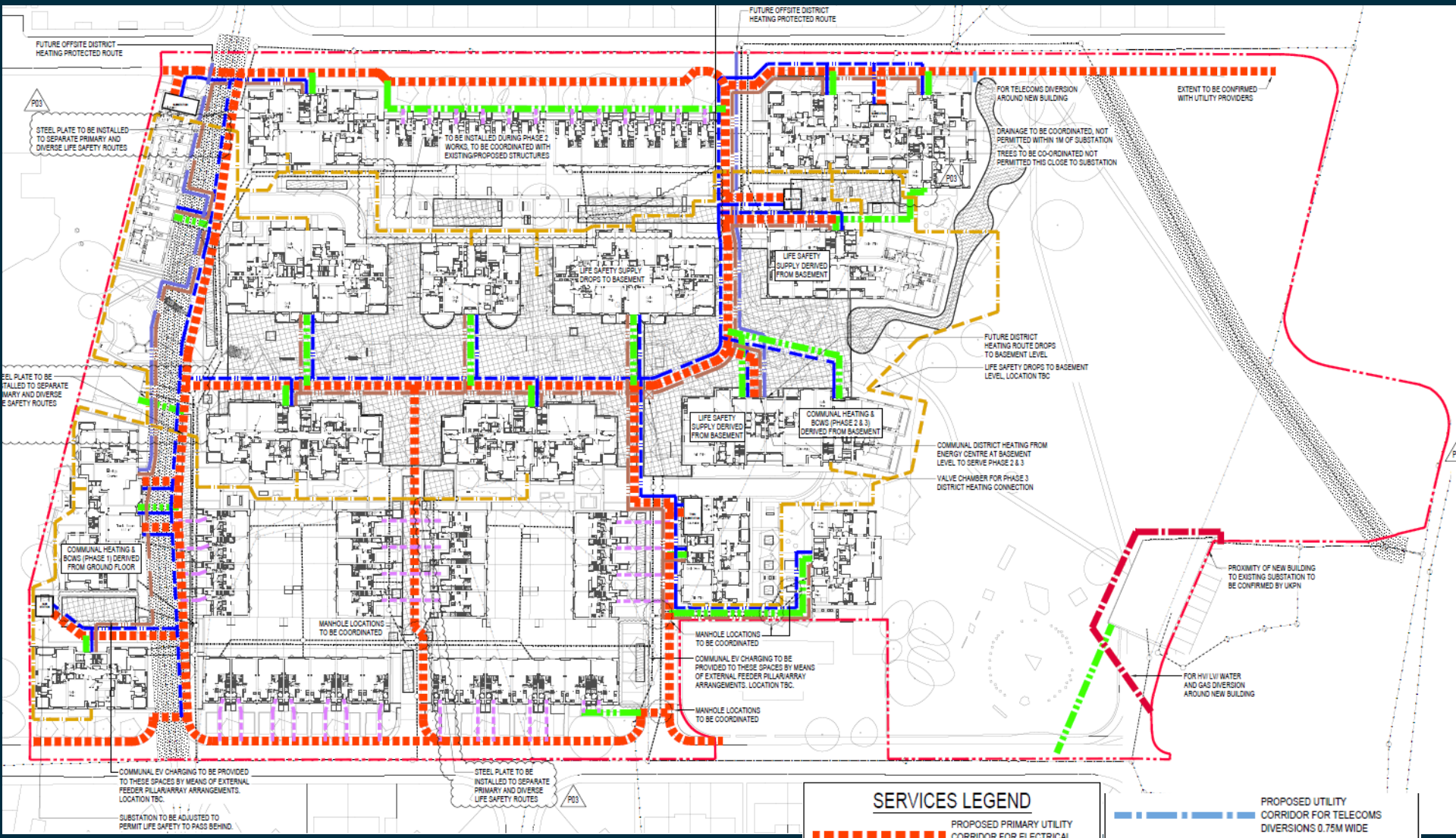
The demolition and development is to be completed in 3 phases, therefore the installation of new utilities will also need to be completed in a phased process.

The plans on the following pages indicate the proposed utility corridors for the new services across the development. These have been developed alongside the drainage strategy and landscaping plan in order to avoid clashes between services, drainage and tree pits.

The utility corridors have also considered the existing Thames Water rising main and required easement zone around the main that runs between Woodville Road and Ashburnham Road on the western edge of the site.

The new development will also use an on-site district heating system to distribute hot water generated via Air Source Heat pumps from the 2no. Energy centres proposed on the development to each property.

New Site Services Layout



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9. NEW SITE UTILITIES

Mains Water Supplies –

A new mains water service (MWS) connection shall be sized and provided from the utility mains in Woodville Road and distributed to dedicated water tank rooms in each phase and direct connections to individual houses. A below ground Boosted Cold Water Services (BCWS) shall be provided including domestic sprinkler services from the above tank rooms to each block. The proposed BCWS serving the residential units on the site shall be provided from the water tank rooms within each phasing arrangement (Phase 1 and Phase 2 & Phase 3). The commercial units located on site will be provided with a dedicated MWS connections from the utility mains noted above. There will be a proposed commercial sprinkler tank located within Phase 2. This tank will require a dedicated MWS connection separate from any other residential or commercial supplies. It is proposed to connect this new mains water supply in Woodville Road as with the other connections. This sprinkler supply will serve the commercial units and plantrooms across the site. In summary, the mains water connections required are as follows. Please note that all sizes are to be confirmed.

Phase 1

• 1No. supply connection to serve the residential water tank room.

Phase 2 and Phase 3

• 1No. supply connection to serve the residential water tank room.

• 1No. supply for the commercial unit.

• 1No. supply connections to serve the residential houses

The new water distribution infrastructure shall utilise multi-service trenches that will allow for the installation of multiple utilities to follow the same routing throughout the site.

9. NEW SITE UTILITIES

Electricity Supplies –

Following liaison with the IDNO Power-On, it is anticipated that new HV services will be provided to the site from the primary substation on Richmond Road approximately 1 mile from the proposed development. A transformer feeder unit (TFU) will be required on site within one of the new substations and the new supply will also connect to an existing HV circuit in the vicinity. A load assessment indicated that the following quantities of substations will be required to serve the development:

Phase 1 - 1 No. 1MVA Substation (Will also supply part of Phase 3 development)

Phase 2 - 2 No. 1MVA Substations

Phase 3 - 1 No. 1MVA Substations (Built within Phase 2 development and some load taken from Phase 1 substation)

A below ground ducting system will need to be provided for High Voltage and Low Voltage utility services to and from substations to supply each building core and switchroom.

9. NEW SITE UTILITIES

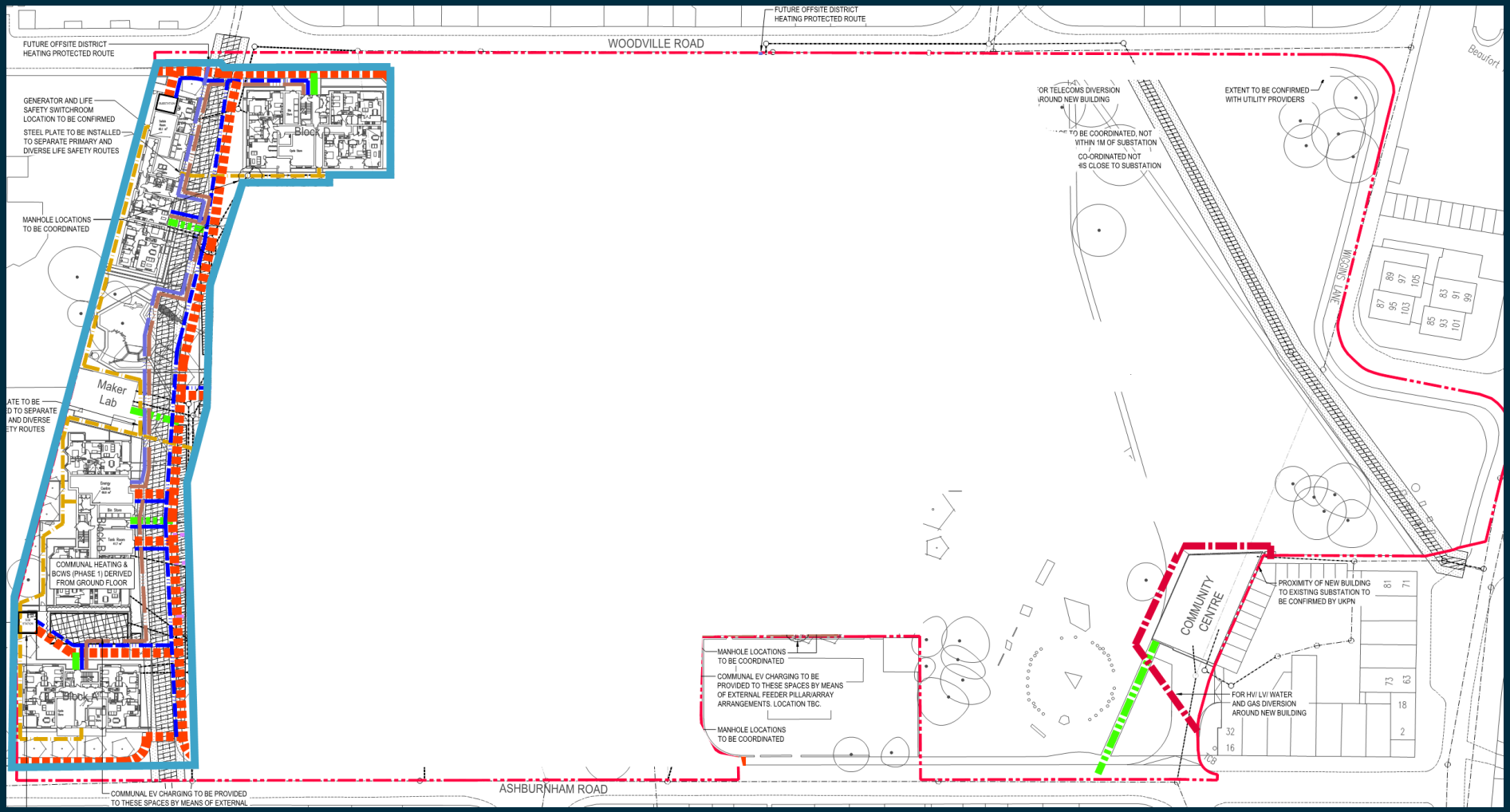
BT Openreach –

Below ground ducting system will need to be provided for BT Openreach Services around the site to each residential building core; house; and to commercial areas. It is anticipated that the existing BT Openreach infrastructure on Woodville Road and Ashburnham Road can be extended to provide new services to the development. It is anticipated that all new BT Openreach services will be utilising the developer self-install approach.

Virgin Media -

Applications will be made with Virgin Media for new services to dwellings and commercial areas. Virgin Media will require a separate ducting system around the site to each residential building core and commercial area. It is anticipated that the existing Virgin Media infrastructure on Ashburnham Road can be extended to provide new services to the development. It is anticipated that all Virgin Media services will be utilising the developer self-install approach.

Phase 1 New Utilities



Proposed primary utility corridor for electrical, water and telecoms

Proposed secondary utility corridor for electrical, water and telecoms

Proposed secondary utility corridor for electrical, water and telecoms to houses

Proposed utility corridor for electrical, gas and water diversions

Proposed utility corridor for telecoms diversions

Proposed district heating utility corridor

Proposed future off-site district heating utility corridor

Primary life safety route

Diverse life safety route

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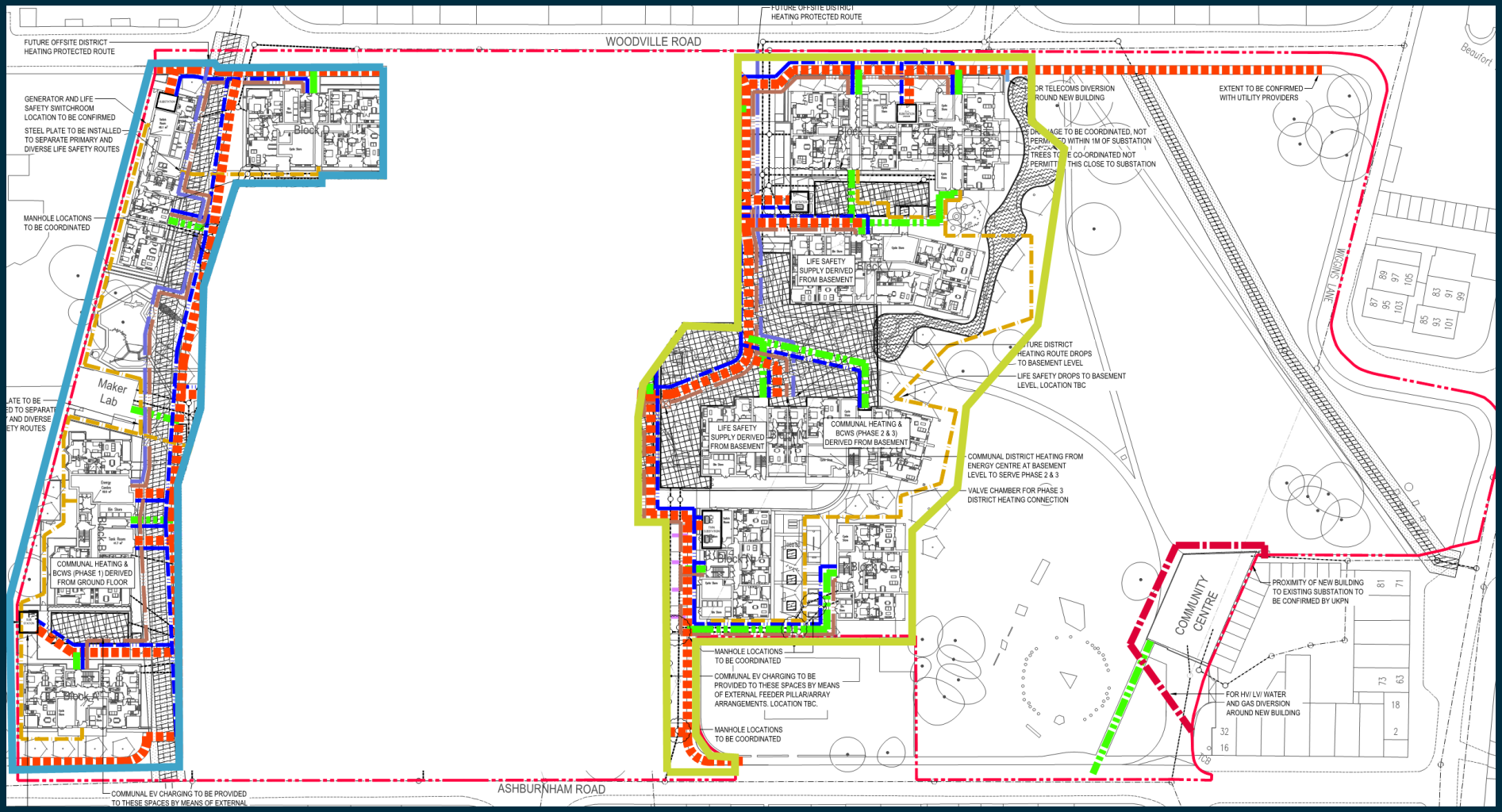
Phase 2 New Utilities



Proposed primary utility corridor for electrical, water and telecoms

Proposed secondary utility corridor for electrical, water and telecoms

Proposed secondary utility corridor for electrical, water and telecoms to houses

Proposed utility corridor for electrical, gas and water diversions

Proposed utility corridor for telecoms diversions

Proposed district heating utility corridor

Proposed future off-site district heating utility corridor

Primary life safety route

Diverse life safety route

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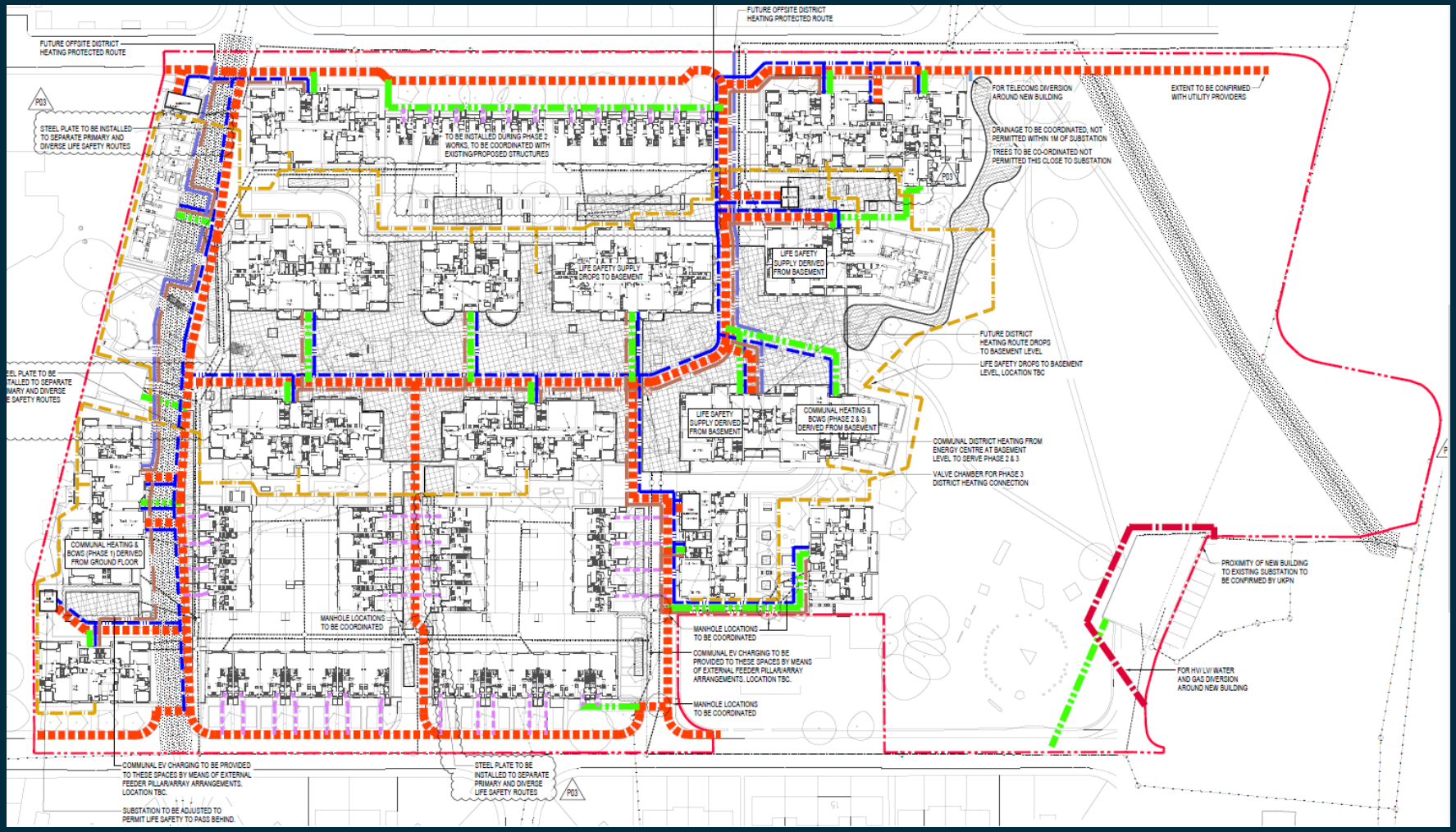
Phase 3 New Utilities



- Proposed primary utility corridor for electrical, water and telecoms
- Proposed secondary utility corridor for electrical, water and telecoms
- Proposed secondary utility corridor for electrical, water and telecoms to houses
- Proposed utility corridor for electrical, gas and water diversions
- Proposed utility corridor for telecoms diversions
- Proposed district heating utility corridor
- Proposed future off-site district heating utility corridor
- Primary life safety route
- Diverse life safety route

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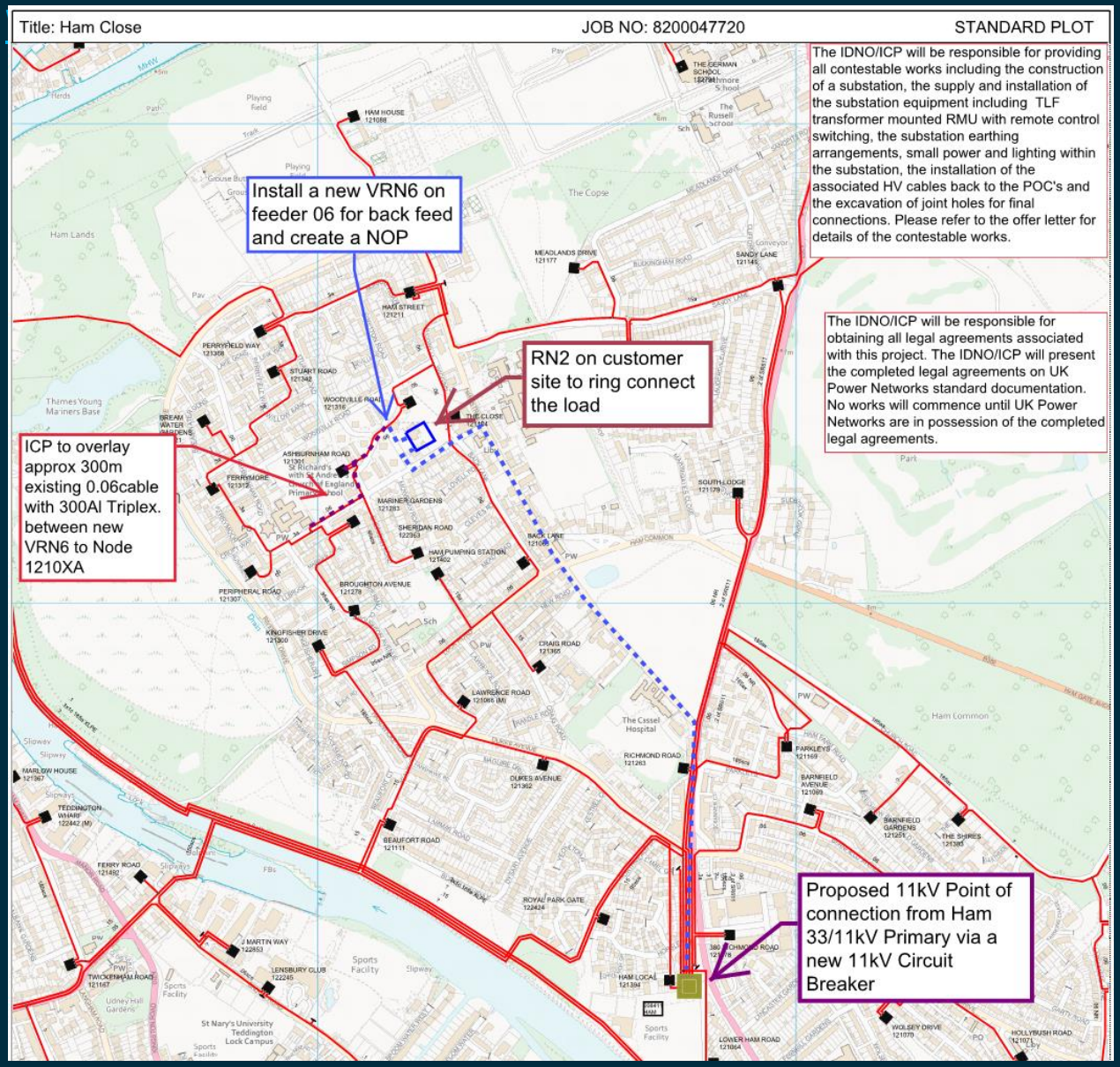
10. NEW ELECTRIC - CAPACITY

As part of the design development process, an application has been made to UKPN for the required electrical load for the development.

In response to the application, UKPN have advised that a considerable amount of off-site reinforcement works are likely to be required to accommodate the new load requirement for the development.

These works involve the installation of a new 11KV circuit breaker within the Ham Primary substation and the installation of a new HV cable from the new circuit breaker to the new on-site substation (for a distance of around 1.65km). A Trunk Feeder Unit (TFU) will also need to be installed on the site and is going to be accommodated within one of the integral substations within the new blocks.

Potential Electric Off-Site Reinforcement



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