



Planning Committee
5th September 2023

Application No	:	23/00781/FUL Full Application
Location	:	59-63 Garage Block Rear Of St Michaels Drive Roxwell Chelmsford Essex CM1 4NX
Proposal	:	Demolition of existing garaging. 3 New affordable dwellings with associated access improvements, parking, private amenity space and landscaping.
Applicant	:	Mr Derek Ford Chelmsford City Council
Agent	:	Laura Dudley-Smith
Date Valid	:	18th May 2023

Appendices:

Appendix 1 Consultations
Appendix 2 Drawings

1. Executive summary

- 1.1. This application is for three affordable rent dwellings on previously developed land. The land is owned and operated by the City Council. The planning application is made by the City Council. In accordance with the Council's Constitution, the application is presented to the Planning Committee for a decision.
- 1.2. Objections to the application have been received (see Appendix 1). These cover a range of topics including displacement of parking, impact of new resident parking on local roads, access and neighbour amenity. All representations and consultee comments have been considered as part of the wider planning considerations of this development proposal. The application assessment concludes the proposal is compliant with the Development Plan.
- 1.3. The application is recommended for approval subject to conditions.

2. Description of site

- 2.1. The site is approximately 0.15ha in size. It is previously developed, comprising hardstanding and garaging. There are approximately 18 existing garages on the site which are let on short term agreements to a range of tenants. One garage is not let and redundant.
- 2.2. The site falls within the defined settlement of Roxwell and is directly adjacent to a playground which is designated as Public Open Space in the Chelmsford Local Plan.
- 2.3. Access is taken from St Michaels Drive and runs between Nos. 63 and 65 St Michaels Drive.
- 2.4. There are existing accesses to No. 65 St Michaels Drive, the allotments, and No. 57 St Michaels Drive taken from within the site.

3. Details of the proposal

- 3.1. The proposed development comprises a terrace of three, four-bedroom, two-storey dwellings.
- 3.2. Each house will have two car parking spaces, one in front of each plot, and one along the shared driveway. Two additional visitor parking spaces for the site will be provided within the main driveway.
- 3.3. Whilst the site will continue to use the existing access, it is also proposed to improve this entrance into the site by providing a pedestrian walkway along it to enhance the safety of pedestrians accessing the play area to the rear.
- 3.4. Each house will have a secure private garden of at least 80sqm in size. Sheds will also be provided in each private garden for cycle parking, and a contained structure in front of each dwelling has been designed to provide bin storage.
- 3.5. All proposed dwellings have been designed to meet the Nationally Described Space Standards, and the dwellings will also meet Part M4(2) of the Building Regulations.

4. Summary of consultations

Essex County Council Highways: The proposal is acceptable to the Highway Authority subject to conditions.

Recycling & Waste Collection Services: Access is acceptable subject to a TRO being secured for the access road on St Michaels Drive.

Roxwell Parish Council: Object to the proposed development on the following grounds:

- Detrimental impact on the existing children's playground.
- Lack of visibility of playground could lead to issues of safety, security and the wellbeing of users.
- Question whether affordable homes will benefit villagers of Roxwell.
- Question the financial viability of the proposal.
- Potential asbestos contamination of playground and local housing.
- Concerns that those travelling to the playground would have to park on St Michaels Drive.

Public Health & Protection Services: Add ENV07 contaminated land condition. Residential development should provide EV charging infrastructure. *An asbestos survey must be undertaken prior to demolition.*

Local residents: 10 letters of representation received from 3 local residents; 7 objecting to the proposal, 3 neither objecting to nor supporting the planning application. Concerns raised:

- Access not shown to No. 3 and 5 Stonehill Road on submitted plans.
- Demolition of garages will have detrimental impact on street parking.
- Window overlooking playground should be obscured.
- Overshadowing to neighbouring properties.
- Landscaping plan insufficient.
- Question whether affordable homes will benefit villagers of Roxwell.
- Concern whether the homes would be genuinely affordable.
- Foul water/sewage drainage issues in the area.

5. Planning considerations

Main Issues

- 5.1. The application seeks three affordable housing units, making this a 100% affordable housing scheme. All three units would be provided on an affordable rent tenure which can be secured without a legal agreement due to the Council's ownership of the site. In these circumstances affordable housing tenure considerations under Policy DM2 would not apply.
- 5.2. The proposal includes 3x four-bedroom affordable houses for rent. The Council declared a housing crisis in February 2022 and produced the Chelmsford Housing Strategy 2022-2027 in March the same year. The Strategy highlights a chronic undersupply of large affordable homes for rent, especially four-bedroom homes. This proposal would make a valuable contribution towards this need.
- 5.3. The application site is located within the defined settlement of Roxwell, where the principle of development is acceptable subject to compliance with relevant planning policies. The main policy considerations for this proposal are parking displacement, design and neighbour relationships. Other considerations, such as parking and access, technical compliance with development standards and other material considerations also apply.

Design and Character

- 5.4. Policy DM23 of the Chelmsford Local Plan states that Planning permission will be granted for development that respects the character and appearance of the area in which it is located. Development must be compatible with its surroundings having regard to scale, siting, form, architecture, materials, boundary treatments and landscape. The design of all new buildings and extensions must be of high quality, well proportioned, have visually coherent elevations, active elevations and create safe, accessible and inclusive environments.
- 5.5. The site is currently in use as garages, many of which are constructed from wood or corrugated metal. The garages are in various stages of deterioration. Adjacent to the south of the site is a large community allotment and to the west there is a public playground.
- 5.6. The height of the dwellings would be in keeping with the surrounding, two storey, residential context. While the site is disconnected from the St. Michaels Drive Street scene, the proposal aims to be a modern continuation of the existing wider housing area. The design of the proposed dwellings has therefore been influenced by the character and appearance of the local housing stock.
- 5.7. Concern has been raised by the Parish Council that the proposed development would have a detrimental impact on the safety of users of the playground. It is considered that the existing use of the site (garaging) affords limited natural surveillance of the adjacent playground, providing limited security benefit. The introduction of a residential development would enhance natural surveillance.
- 5.8. For these reasons, the proposal would comply with Policy DM23 of the Chelmsford Local Plan.

Parking Provision, Access and Displacement

- 5.9. The Local Highway Authority has been consulted on these proposals and has raised no objections but has recommended several planning conditions to scope and manage works affecting the highway.
- 5.10. The scheme contains three residential units with provision of 8 car parking spaces (includes two visitor spaces).
- 5.11. The proposed development incorporates on-site parking that meets the Essex Parking Standards.
- 5.12. The Transport Statement considered parking provision within a 100 metre radius of the application site, to establish whether residents who may have used garages proposed to be demolished will have alternative places to park on-street, should that be necessary (although few of the garages appear to be in active use for parking of vehicles). This confirmed that spaces are available locally.
- 5.13. Access to the site is to be taken from St Michaels Drive in the same position. No matters of principle arise from this proposal and the works, including a Traffic Regulation Order, will need further agreement by the Local Highway Authority which is covered by separate highways legislation.

- 5.14. The intention is for the site to be serviced (e.g. refuse collection) from the within the site. Submitted with the application is a refuse and recycling strategy plan which confirms that refuse vehicles are able to enter the site and leave in a forward gear. Refuse operatives will be able to collect bins from outside of the dwellings.

Neighbour impacts

- 5.15. The proposed dwellings would be located with frontage towards the rear garden of 65 St Michaels Drive. The properties would not face directly onto the house or private zone of the garden immediately to the rear of the house, with a circa 18m oblique remoteness. There would be no unobscured windows to the side of Plot 3 facing towards 61/63 St Michaels Drive. The remoteness between those properties would be circa 22 metres, which is in excess of minimum remoteness for a flank-to-rear relationship as set out within Appendix B.
- 5.16. The proposed development would have an acceptable relationship with neighbouring properties. The proposal complies with Policy DM26 of the Chelmsford Local Plan.

Development Standards and Neighbouring Impacts

- 5.17. Policy DM26 of the Chelmsford Local Plan states that all new dwellings shall have sufficient privacy, amenity space, open space, refuse and recycling storage and shall adhere to the Nationally Described Space Standards. These must be in accordance with Appendix B.
- 5.18. The development is compliant with the Nationally Described Space Standards for housing.
- 5.19. All the proposed units would be compliant with Approved Document Part M4(2). Whilst not required specifically for a development of this scale, this level of accessibility will be a significant benefit for these affordable homes and ensuring they meet a range of user needs and requirements.
- 5.20. The proposals also meet the requirements of the Council's Development Standards (Appendix B) in respect of garden sizes, parking provision, recycling and waste storage.
- 5.21. The proposed development would have an acceptable relationship with neighbouring properties and would offer an adequate level of amenity for future occupiers. The proposal complies with Policy DM26 of the Chelmsford Local Plan.

Biodiversity Enhancements and RAMS

- 5.22. The Ecology Appraisal submitted with the application does not conclude further assessment or survey is required. This conclusion is agreed. The specification of landscaping and recommendations for other ecological betterment will be secured by planning condition. Net biodiversity gain is achieved via the landscaping scheme.
- 5.23. The Conservation of Habitats and Species Regulations 2017, as amended (commonly known as the Habitat Regulations) require all new residential developments that have the potential to cause disturbance to European designated sites to provide appropriate mitigation. To deal with this, an Essex County wide strategic approach to considering and mitigating potential harm has been produced - the Essex Coast Recreational Disturbance Avoidance and Mitigation Strategy (RAMS). An Appropriate Assessment has been carried out which concludes that a contribution towards off-site mitigation (RAMS contribution) is necessary to mitigate the potential

disturbance to European designated sites arising from this development growth. A RAMS payment of £470.28 has been agreed with the Council's Corporate Property Manager, which is in line with the prevailing rate.

Tree Planting

- 5.24. The Council has declared a Climate and Ecological Emergency to focus attention on reducing carbon and greenhouse gas emissions in the area and to plan for a more sustainable future. The Council's Climate and Ecological Emergency Action Plan includes undertaking a greening programme to significantly increase the amount of woodland and the proportion of tree cover in Chelmsford. Paragraph 5.18 of the Making Places Supplementary Planning Document (January 2021) states that green spaces provided in connection with new housing development should, where practicable, include the planting of three trees per net new dwelling. The proposed plans show that nine new trees (three for each dwelling) will be planted within the application site. These will be secured as part of the conditioned landscaping scheme.

Flood Risk and Drainage

- 5.25. Concern has been raised from local residents and the Parish Council that residents within proximity to the application site experience issues with foul water sewage and drainage.
- 5.26. The application is accompanied by a Foul and Surface Water Drainage Strategy.
- 5.27. It is proposed that all the driveways will drain via permeable paving and all roof areas will drain via a filter drain, which will both feed a rainwater harvesting tank and onwards into the neighbouring allotments via a pumped outlet. This will overflow into an informal soakaway.
- 5.28. The strategy has been developed to ensure that flood risk to surrounding areas is not increased.
- 5.29. The development will therefore be safe from flooding and will not increase flood risk elsewhere in accordance with Policy DM18 of the Chelmsford Local Plan.

Other Matters

- 5.30. The application site is located adjacent to an existing community allotment. Access to the allotment has been maintained and designed into the layout.
- 5.31. Local representations have raised concern regarding the demolition of the existing garages, and potential asbestos contamination of the playground and local housing. The application is accompanied by a Phase 1 Geo-Environmental Desk Study Report, prepared by Gemco which recommends a mitigation strategy is prepared to support development. This will tie in with Public Health and Protection Service comments regarding the appropriate treatment of asbestos which may be present within some of the existing garage structures. Phase 1 report has identified the need for an intrusive investigation. This will be secured through planning conditions.
- 5.32. Whether these affordable houses are required and whether they will benefit the residents of Roxwell has been posed as an objection to the application. Chelmsford City Council has recognised the urgent need for affordable housing within its administrative area, common to most areas in this region. The Council declared a housing crisis last year, citing the significant increase in housing costs in Chelmsford, and the large number of homeless households in the City. Chelmsford City Council has committed to practical action to address this issue, as set out in its Chelmsford Housing Strategy 2022-2027. Notwithstanding the scale of housing

development across the administrative area, the vast majority of this is to settlements other than Roxwell. Roxwell is a distinct community in its own right, and it is considered important that the vitality of such communities is supported, including by ensuring their proportionate growth and the provision of affordable housing. National policy, as set out in the National Planning Policy Framework (NPPF), is clear that planning should seek opportunities for villages to grow and thrive, especially where this will support local people and services.

6. Community Infrastructure Levy (CIL)

6.1 This development is CIL liable. CIL payments are required to help pay for general infrastructure arising from development. In addition, there is a requirement for specific payments towards works which would usually be made via a S.106 agreement, but as this is a Council-owned site those contributions (RAMS) have been secured as direct transfers between Council Services, to be undertaken when planning permission is in place.

7. Conclusion

7.1. The proposals are a sustainable use of previously developed land in defined settlement.

7.2. The development will have a positive impact on housing and affordable housing in the area.

7.3. Local objections have been received and considered. The matters raised through the consultation have been considered in the context of national and local planning policy. The objections would not amount to grounds for refusal as the development is assessed to be acceptable in relation to those concerns raised.

7.4. The proposals are compliant with the standards and objectives of the National Planning Policy Framework and Chelmsford Local Plan (May 2020). Across all material planning considerations the development is assessed to be acceptable.

7.5. Officers recommend the application is approved subject to conditions.

RECOMMENDATION

The Application be APPROVED subject to the following conditions:-

Condition 1

The development hereby permitted shall begin no later than 3 years from the date of this decision.

Reason:

In order to comply with Section 91(1) of the Town and Country Planning Act 1990 as amended by Section 51 of the Planning and Compulsory Purchase Act 2004.

Condition 2

The development hereby permitted shall be carried out in accordance with the approved plans and conditions listed on this decision notice.

Reason:

In order to achieve satisfactory development of the site

Condition 3

Prior to their use, details of the materials to be used in the construction of the development hereby permitted shall be submitted to and approved in writing by the local planning authority. The development shall then be carried out in accordance with the approved details.

Reason:

To ensure that the development is visually acceptable in accordance with Policy DM23 of the Chelmsford Local Plan.

Condition 4

The three (3) dwellings in this development shall not be used for any purpose other than the provision of Affordable Housing within the definition as given within the National Planning Policy Framework.

Reason:

To define the scope of the planning permission as being a 100% Affordable Housing scheme.

Condition 5

a) No development shall take place until a scheme to assess and deal with any contamination of the site has been submitted to and approved in writing by the local planning authority.

b) Prior to the occupation or first use of the development, any remediation of the site found necessary shall be carried out, and a validation report to that effect submitted to the local planning authority for written approval and the development shall be carried out in accordance with that scheme.

Reason:

This information is required prior to the commencement of the development because this is the only opportunity for contamination to be accurately assessed. This is to ensure the development does not give rise to problems of pollution or contamination in accordance with Policy DM30 of the Chelmsford Local Plan.

Condition 6

Prior to the first occupation of the dwelling/s hereby permitted, charging infrastructure for electric vehicles shall be installed and retained at a rate of 1 charging point per dwelling.

Reason:

To ensure that the development is constructed sustainably in accordance with Policy DM25 of the Chelmsford Local Plan.

Condition 7

All new dwelling units as hereby approved shall be constructed to achieve increased water efficiency to a standard of no more than 110 litres of water per person per day in accordance with Building Regulations Approved Document Part G (2015 - as amended).

Reason:

To ensure the development reduces water dependency in accordance with Policy DM25 of the Chelmsford Local Plan.

Condition 8

All mitigation measures and/or works shall be carried out in accordance with the details contained in the Preliminary Ecological Appraisal (James Blake Associates, September 2022) as submitted with the planning application and agreed in principle with the local planning authority prior to determination.

Reason:

To conserve protected and Priority species and allow the LPA to discharge its duties under the Conservation of Habitats and Species Regulations 2017 (as amended), the Wildlife & Countryside Act 1981 as amended and s40 of the NERC Act 2006 (Priority habitats & species).

Condition 9

The area/s of hardsurfacing hereby permitted shall be constructed using a permeable surface or shall include drainage to prevent discharge of surface water onto the Highway.

Reason:

To prevent hazards caused by water flowing onto the highway and to avoid the formation of ice on the highway in the interest of highway safety.

Condition 10

No unbound material shall be used in the surface treatment of the vehicular access hereby permitted within 6 metres of the highway boundary.

Reason:

To avoid displacement of loose material onto the highway in the interests of highway safety.

Condition 11

No dwelling shall be occupied until space has been laid out within the site in accordance with Drawing No. 3555:02/G for eight (8) cars to be parked and that space shall thereafter be kept available at all times for the parking of vehicles.

Reason:

To ensure that sufficient parking is available to serve the development in accordance with Policy DM27 of the Chelmsford Local Plan.

Condition 12

Prior to the construction of any access roads, a plan to show how the development will be serviced by a refuse vehicle shall be submitted to and approved in writing by the local planning authority. All roads shown on the approved drawing to be served by a refuse collection vehicle shall be constructed to a standard capable of carrying a 26 tonne vehicle.

Reason:

In the interests of highway safety and to ensure that the development is accessible in accordance with Policy DM23 [and DM24] of the Chelmsford Local Plan.

Condition 13

No development shall take place, including any ground works or demolition, until a Construction Management Plan has been submitted to, and approved in writing by, the local planning authority. The approved plan shall be adhered to throughout the construction period. The Plan shall provide for;

- i. The parking of vehicles of site operatives and visitors,
- ii. Loading and unloading of plant and materials,
- iii. Storage of plant and materials used in constructing the development,
- iv. Wheel and underbody washing facilities.
- v. Before and after condition survey to identify defects to highway in the vicinity of the access to the site and where necessary ensure repairs are undertaken at the developer expense where caused by developer.

Reason:

To ensure that on-street parking of these vehicles in the adjoining streets does not occur and to ensure that loose materials and spoil are not brought out onto the highway in the interests of highway safety.

Condition 14

Prior to first occupation of the development, the vehicular area turning facilities, shown in Approved Drawing No. 3555:02/G shall be constructed, surfaced and maintained free from obstruction within the site at all times for that sole purpose.

Reason:

To ensure that vehicles can enter and leave the highway in a forward gear in the interest of highway safety.

Condition 15

Notwithstanding the provisions of the Town and Country Planning (General Permitted Development) Order 2015 (or any Order revoking or re-enacting that Order with or without modification), the dwellings hereby permitted shall not be enlarged or extended without the grant of an additional planning permission by the local planning authority.

Reason:

To ensure that the development remains contextualised to its surroundings and to ensure that adequate private amenity space is retained for the dwellings in accordance with Policies DM23 and DM26 of the Chelmsford Local Plan.

Condition 16

Notwithstanding the drawings as approved:

(i) Within 6 months of commencement of development the proposed treatment of all boundaries (external and internal site subdivision), including representative drawings of gates, fences, walls, railings or piers shall have been submitted to and approved in writing by the local planning authority.

(ii) No part of the development shall be occupied until boundary treatments as approved under (i) of this condition have been installed in accordance with those agreed details.

Reason:

In the interests of the visual amenities of the area in accordance with Policies DM23 and DM29 of the adopted Chelmsford Local Plan (May 2020).

Condition 17

Notwithstanding the approved drawings, within 6 months of commencement of development a comprehensive specification of all hard and soft landscaping works and content shall have been submitted to and approved in writing by the local planning authority to include written specification, layouts and large-scale drawings as necessary of the following:

- i. hard materials setting out (including laying patterns),
- ii. details of any steps/ramps,
- iii. lighting (to streets/spaces),
- iv. definitive planting specification containing species and sizes,
- v. tree pits, root barriers and staking,
- vi. any in-built method(s) of irrigation
- vii. maintenance plan(s) for all of the above

All external areas of the development as approved shall be laid out, planted, equipped and implemented in accordance with the agreed specifications prior to the occupation of 90% of the approved dwellings unless the local planning authority formally agrees to a varied timetable and shall be permanently retained thereafter in accordance with a management plan, as approved.

If within a period of 5 years from the date of planting any element of the soft landscaping scheme or retained landscaping (or any replacement planting to which this same provision would also apply), is removed, uprooted, or destroyed, or becomes, in the opinion of the local planning authority, seriously damaged or defective, another tree or landscaping feature of the same size and species as that originally planted shall be planted at the same place, unless the local planning authority gives its written consent to any variation.

Reason:

Whilst drawings 3555:02/E and 006/B provide detail sufficient to determine the application, further information is required to ensure the specification of external areas is sufficient. Implementation in accordance with full details is necessary to comply with Policies DM13, DM16 and DM23 of the adopted Chelmsford Local Plan (May 2020).

Condition 18

Unless the Local Planning Authority agrees to a commensurate solution, prior to first occupation of the development hereby approved, provision of Traffic Regulation Order (TRO) parking restrictions to prevent parking on St Michaels Drive to each side of the vehicular access to the north and the south and opposite the vehicular access on the east side of St Michaels Drive to facilitate refuse vehicle entry to the development, shall be provided in accordance with details to be agreed with the Highway Authority.

Reason:

To facilitate entry/exit of refuse vehicles, in the interest of highway safety.

Condition 19

Prior to first occupation of the development hereby approved, the applicant shall submit evidence to the local planning authority, confirming that they have obtained Anglian Water's agreement to foul water connection.

Reason

To ensure that the development will not have an adverse impact on foul water and sewage treatment.

Notes to Applicant

- 1 In order to cause minimum nuisance to neighbours, the applicant is strongly advised to follow guidelines for acceptable working hours set out by the Council's Public Health and Protection team.

Noisy work

- Can be carried out between 0800 and 1800 Monday to Friday
- Limited to 0800-1300 on Saturdays
- At all other times including Sundays and Bank Holidays, no work should be carried out that is audible beyond the boundary of the site

Light work

- Acceptable outside the hours shown above
- Can be carried out between 0700 and 0800; and 1800-1900 Monday to Friday

In some circumstance further restrictions may be necessary.

For more information, please contact Chelmsford City Council Public Health and Protection Services, or view the Council's website at www.chelmsford.gov.uk/construction-site-noise

- 2 The Local Highway Authority (Essex County Council) must be contacted regarding the details of any works affecting the existing highway. Contact details are: Telephone: 0845 603 7631. Email: development.management@essexhighways.org.
- 3 The proposed demolition in the scheme should not be carried out until you have given notice to the Chelmsford City Council (Building Control Manager) of your intention to do so pursuant to Section 80 of the Building Act 1984.

Notice should be in writing and accompanied by a block plan (e.g. 1/500) clearly identifying the building(s) to be demolished.

- 4 The proposed development may be liable for a charge under the Community Infrastructure Levy Regulations 2010 (as Amended). If applicable, a Liability Notice will be sent as soon as possible to the applicant and any other person who has an interest in the land. This will contain details of the chargeable amount and how to claim exemption or relief if appropriate. There are further details on this process on the Council's website at www.chelmsford.gov.uk/cil, and further information can be requested by emailing cilenquiries@chelmsford.gov.uk. If the scheme involves demolition, for the purposes of the Regulations the development will be considered to have begun on commencement of the demolition works.
- 5 Please note that the Council will contact you at least annually to gain information on projected build out rates for this development. Your co-operation with this request for information is vital in ensuring that the Council maintains an up to date record in relation to Housing Land Supply.
- 6 This permission is subject to conditions, which require details to be submitted and approved by the local planning authority. Please note that applications to discharge planning conditions can take up to eight weeks to determine.
- 7 This development will result in the need for a new postal address. Applicants should apply in writing, email or by completing the online application form which can be found at www.chelmsford.gov.uk/streetnaming. Enquires can also be made to the Address Management Officer by emailing Address.Management@chelmsford.gov.uk

Positive and Proactive Statement

During the life of the application the Local Planning Authority suggested amendments to the proposal in order to improve the development. The Local Planning Authority has assessed the proposal against all material considerations including planning policies and any comments that may have been received. The planning application has been approved in accordance with the objectives of the National Planning Policy Framework to promote the delivery of sustainable development and to approach decision taking in a positive way.

SUMMARY OF RELEVANT ADOPTED PLANNING POLICIES:

DM2A

Policy DM2 (A) - Affordable Housing & Rural Exception Sites - The Council will require the provision of 35% of the total number of residential units to be provided and maintained as affordable housing within all new residential sites which comprise 11 or more residential units.

DM23

Policy DM23 - High Quality & Inclusive Design - Planning permission will be granted for development that respects the character and appearance of the area in which it is located. Development must be compatible with its surroundings having regard to scale, siting, form, architecture, materials, boundary treatments and landscape. The design of all new buildings and extensions must be of high quality, well proportioned, have visually coherent elevations, active elevations and create safe, accessible and inclusive environments.

DM29

Policy DM29 - Protecting Living & Working Environments - Development proposals must safeguard the amenities of the occupiers of any nearby residential property by ensuring that development is not overbearing and does not result in unacceptable overlooking or overshadowing. Development must also avoid unacceptable levels of polluting emissions, unless appropriate mitigation measures can be put in place and permanently maintained.

APPB

Appendix B forms part of the adopted Local Plan and provides information about standards that apply to all new residential developments in Chelmsford including conversions, apartments, houses, Houses in Multiple Occupation (HMO's) and extensions, unless it can be demonstrated that the particular site circumstances require a different design approach. The standards seek to ensure new developments will meet the needs of their occupiers, minimise the impact of new developments on surrounding occupiers and encourage higher rates of recycling.

DM27

Policy DM27 - Parking Standards - The Council will have regard to the vehicle parking standards set out in the Essex Parking Standards - Design and Good Practice (2009) or as subsequently amended when determining planning applications.

DM26

Policy DM26 - Design Specification for Dwellings - All new dwellings (including flats) shall have sufficient privacy, amenity space, open space, refuse and recycling storage and shall adhere to the Nationally Described Space Standards. These must be in accordance with Appendix B. All houses in multiple occupation shall also provide sufficient communal garden space, cycle storage, parking and refuse and waste storage.

DM16

Policy DM16 - Ecology & Biodiversity - The impact of a development on Internationally Designated Sites, Nationally Designated Sites and Locally Designated Sites will be considered in line with the importance of the site. With National and Local Sites, this will be balanced against the benefits of the development. All development proposals should conserve and enhance the network of habitats, species and sites.

DM30

Policy DM30 - Contamination & Pollution - Permission will only be granted for developments on or near to hazardous land where the Council is satisfied there will be no threat to the health or safety of future users and there will be no adverse impact on the quality of local groundwater or surface water. Developments must also not have an unacceptable impact on air quality and the health and wellbeing of people.

DM25

Policy DM25 - Sustainable Buildings - All new dwellings and non-residential buildings shall incorporate sustainable design features to reduce carbon dioxide and nitrogen dioxide emissions and the use of natural resources. New dwellings and non-residential buildings shall provide convenient access to electric vehicle charging point infrastructure.

DM18

Policy DM18 - Flooding/Suds - Planning permission for all types of development will only be granted where it can be demonstrated that the site is safe from all types of flooding. All major developments will be required to incorporate water management measures to reduce surface water run off and ensure that it does not increase flood risk elsewhere.

Background Papers

Case File

Essex County Council Highways

Comments
<p>26.06.2023 - Your Ref: 23/00781/FUL</p> <p>Our Ref: CO/EGD/SD/RM/CHL/23/781/54589</p> <p>Date:- 26th June 2023</p> <p>' The proposal includes off-street parking provision, which including 2no. unallocated visitor parking spaces, in accordance with the Parking Standards.</p> <p>' The submitted parking survey conducted in St Michaels Drive and The Street, within 100 metres of the garage site, demonstrates that there is sufficient existing kerbside residential parking availability, to accommodate any parking displaced from the garages that are occupied currently.</p> <p>From a highway and transportation perspective the impact of the proposal is acceptable to the Highway Authority subject to the following conditions:</p> <p>1. No development shall take place, including any ground works or demolition, until a Construction Management Plan has been submitted to, and approved in writing by, the local planning authority. The approved plan shall be adhered to throughout the construction period. The Plan shall provide for;</p> <ul style="list-style-type: none"> i. the parking of vehicles of site operatives and visitors, ii. loading and unloading of plant and materials, iii. storage of plant and materials used in constructing the development, iv. wheel and underbody washing facilities. v. Before and after condition survey to identify defects to highway in the vicinity of the access to the site and where necessary ensure repairs are undertaken at the developer expense where caused by developer. <p>Reason: To ensure that on-street parking of these vehicles in the adjoining streets does not occur and to ensure that loose materials and spoil are not brought out onto the highway in the interests of highway safety and Policy DM1.</p> <p>2. Prior to first occupation of the proposed development, the proposed private drive shall be constructed to a width of 5.5 metres for at least the first 6 metres from the back of footway and provided with an</p>

appropriate dropped kerb crossing of the footway.

Reason: To ensure that vehicles can enter and leave the highway in a controlled manner and to ensure that opposing vehicles can pass clear of the limits of the highway, in the interests of highway safety in accordance with policy DM1.

3. No unbound material shall be used in the surface treatment of the vehicular access within 6 metres of the highway boundary.

Reason: To avoid displacement of loose material onto the highway in the interests of highway safety in accordance with policy DM1

4. There shall be no discharge of surface water from the development onto the Highway.

Reason: To prevent hazards caused by water flowing onto the highway and to avoid the formation of ice on the highway in the interest of highway safety to ensure accordance with policy DM1.

5. Prior to first occupation of the development the three vehicle turning areas, shown in the Proposed Block Plan, drawing no. 3555:02 Revision E; adjacent to Plot 03, adjacent to Plot 01 and adjacent to the retained garage shall be constructed, surfaced and maintained free from obstruction within the site at all times for that sole purpose.

Reason: To ensure that vehicles can enter and leave the highway in a forward gear in the interest of highway safety in accordance with policy DM1.

6. Prior to first occupation of the proposed development, the vehicle parking areas shown in the Proposed Block Plan, drawing no. 3555:02 Revision E, shall be constructed, appropriately hard surfaced ready for use. The vehicle parking areas and associated turning areas shall be retained in this form at all times. The vehicle parking shall not be used for any purpose other than the parking of vehicles.

Reason: To ensure that on street parking of vehicles in the adjoining streets does not occur in the interests of highway safety and that appropriate parking is provided in accordance with Policy DM8.

7. Cycle parking shall be provided in accordance with the EPOA Parking Standards. The approved facility shall be secure, convenient, covered and provided prior to occupation and retained at all times.

Reason: To ensure appropriate cycle parking is provided in the interest of highway safety and amenity in accordance with Policy DM8.

8. Prior to occupation of the proposed development, the Developer shall be responsible for the provision and implementation of a Residential Travel Information Pack per dwelling proposed, for sustainable transport, approved by Essex County Council, to include six one day travel vouchers for use with the relevant local public transport operator.

Reason: In the interests of reducing the need to travel by car and promoting sustainable development and transport in accordance with policies DM9 and DM10.

General

I. Prior to any works taking place in public highway, the developer shall enter into an appropriate agreement with the Highway Authority to regulate construction works.

II. The above to be provided at no cost to the Highway Authority.

III. The above to be imposed on the planning permission (if granted) by planning obligation or condition, as necessary.

The above conditions are to ensure that the proposal conforms to the relevant policies contained within the County Highway Authority's Development Management Policies, adopted as County Council Supplementary Guidance in February 2011.

Informatives:

i. All work within or affecting the highway is to be laid out and constructed by prior arrangement with, and to the requirements and satisfaction of, the Highway Authority, details to be agreed before the commencement of works.

The applicants should be advised to contact the Development Management Team by email at development.management@essexhighways.org

ii. All housing developments in Essex which would result in the creation of a new street (more than five dwelling units communally served by a single all-purpose access) will be subject to The Advance Payments Code, Highways Act, 1980. The Developer will be served with an appropriate Notice within 6 weeks of building regulations approval being granted and prior to the commencement of any development must provide guaranteed deposits which will ensure that the new street is constructed in accordance with acceptable specification sufficient to ensure future maintenance as a public highway.

--

Recycling & Waste Collection Services

Comments
No response received

Roxwell Parish Council

Comments
<p>07.06.2023 - PLANNING APPLICATION 23/00781/FUL</p> <p>SITE: 59-63 GARAGE BLOCK -REAR OF ST MICHAELS DRIVE, ROXWELL</p> <p>This site was reviewed in 2012 by the then Chelmsford Borough Council whilst carrying out a Site Allocations Development Plan (Consultation ID 310181). This site was listed as Site No.2B.</p> <p>At the time a number of restraints were listed that would need to be overcome.</p> <p>The planners concluded in their comments that the development of the complete site would be difficult to support. A small infill development may be acceptable although this would have a capacity of about 4 units.</p> <p>The summary sheet shows site 2B in red which includes the allotments and children's playground which are not included in the application.</p> <p>The main issue with this application is the detrimental effect it will have on the existing children's playground. This was approved by planning application M/CHR/481/65 by the then Rural District Council in 1965.</p> <p>The site currently has hedgerow on two sides adjacent to properties on Stonehill Road.</p> <p>This application, as well as the side walls of the end house, shows a 2 metre high fence along that property's garden together with the area designated as car park. This effectively means that the children's playground is shielded to a very large degree by high fencing. It is of great concern that apart from one end, the playground would not be easily visible which could lead to issues regarding the safety, security and well-being of those using the facility. This must not be viewed lightly.</p> <p>This site has over the years has been, and continues to be, a well used village amenity. It has won numerous awards in the Best Kept Playing Fields competition run by the Essex Playing Fields Association.</p>

These 3 proposed units are being designated as Affordable Housing.

This seems odd. Roxwell recently completed an AH scheme managed by English Rural Housing in Green Lane, Roxwell. This consisted of 5 AH units, and 2 cross subsidy properties. This was after a very thorough local survey had been carried out. Why has the Parish Council not been properly and fully consulted in this particular case?

All the units in the Green Lane AH development were allocated to people who either currently lived in the village, or had strong local connections. It would be of immense interest to know the basis on which the proposed affordable housing development is to be allocated. Villagers or outsiders?

Resident council tax payers will be very interested to understand the financial viability of this proposal given there is no reference to cross subsidy.

With all the development that has been and is being built around Chelmsford, this must surely be generating a large number of AH units. To suddenly decide to look for ad hoc small sites in surrounding villages that will not benefit those villages in any way seems ludicrous.

Added to this, there is no shop, doctors, chemist or pub in the village and a very infrequent bus service which would hardly make it attractive to future occupants. Is CCC going to be reviewing such provision on a pro-active basis coupled with its desire to build more homes in the village?

Another issue of great concern would be the demolition of the Garages, as many of them contain asbestos, this could lead to cross contamination of the playground and local housing, which could lead to serious illness.

It should also be noted that not all users of the playground walk; some do arrive by car. With the limited car parking that would be available this could cause problems. Are the allocated public parking spaces intended for the use by playground and allotment users. 2 spaces is, to say the least, inadequate. Public may be forced to park on St.Michael's Drive causing further congestion to local residents. This road is a public bus thoroughfare.

In fact, rebuilding/refurbishing the existing garages to encourage use could reduce on street parking on St.Michael's Drive.

There are historic issues with raw sewage coming up through man-holes contaminating the pavement and road at the entrance to the proposed site with existing usage. To add more dwellings would only compound the problem. This can hardly be considered acceptable in close vicinity to a childrens playground.

Another point that should be looked at is that, all playgrounds sited around the City and surrounding Parishes will be found to be in an environment that puts the well-being and safety of children first. This applicates seems the opposite.

In conclusion the Roxwell Parish Council strongly object to this application being approved due the issues raised and which help prove that the site is not suitable for development.

It is imperative that local knowledge and concerns be taken seriously on this matter. Parish Council recommends that all planning Committee members arrange a site visit in consultation with us.

Public Health & Protection Services

Comments

23.05.2023 - Please put on an ENV07 condition. The Phase 1 report has identified the need for an intrusive investigation.

An asbestos survey must be undertaken prior to demolition. Any asbestos found must be removed by a qualified contractor and disposed of at a licensed facility.

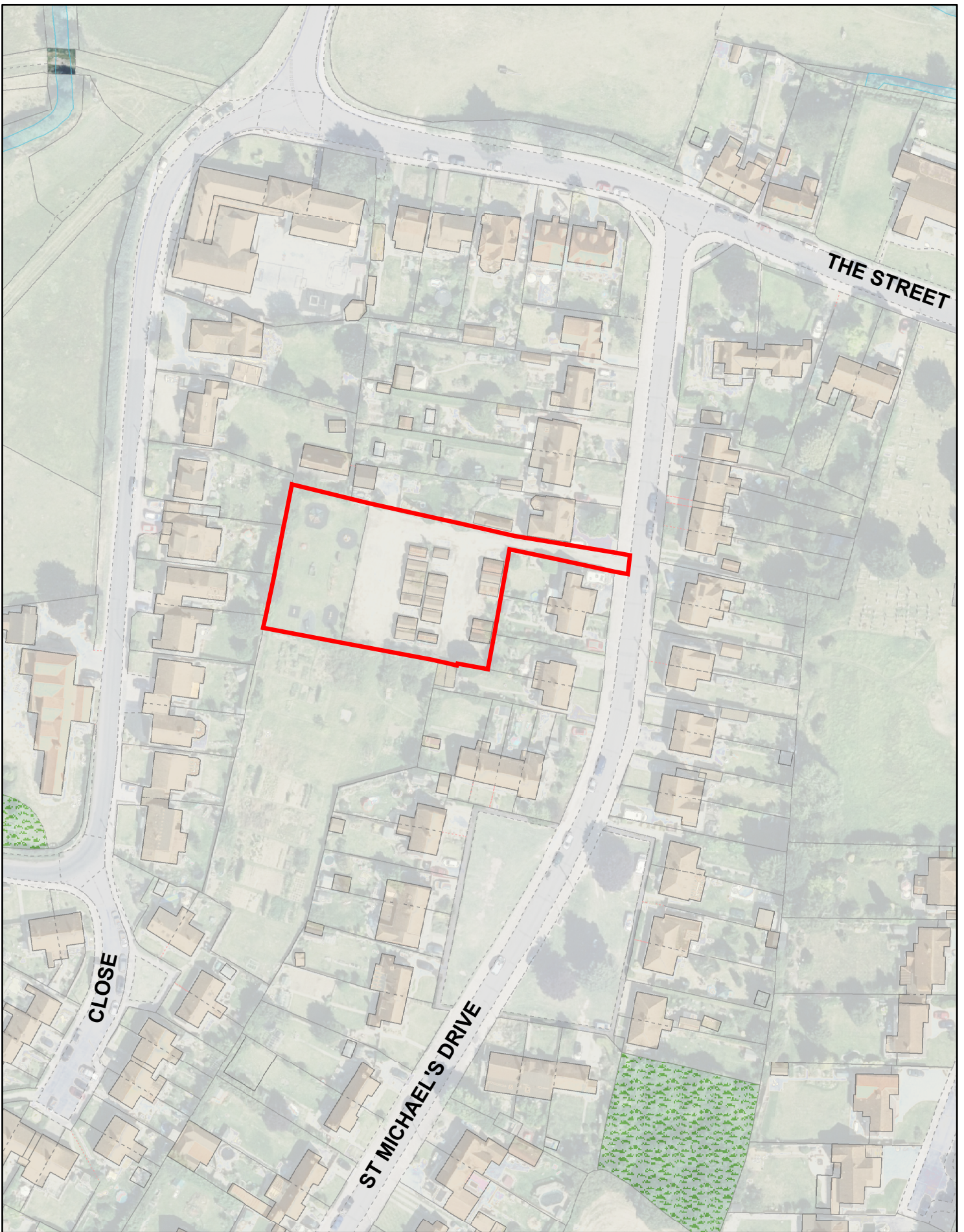
This residential development should provide EV charging point infrastructure to encourage the use of ultra-low emission vehicles at the rate of 1 charging point per unit (for a dwelling with dedicated off-road parking) and/or 1 charging point per 10 spaces (where off-road parking is unallocated).

Local Residents

Comments

10 letters of representation received from 3 local residents; 7 objecting to the proposal, 3 neither objecting to nor supporting the planning application. Concerns raised:

- Access not shown to No. 3 and 5 Stonehill Road on submitted plans.
- Demolition of garages will have detrimental impact on street parking.
- Window overlooking playground should be obscured.
- Overshadowing to neighbouring properties.
- Landscaping plan insufficient.
- Question whether affordable homes will benefit villagers of Roxwell.
- Concern whether the homes would be genuinely affordable.
- Foul water/sewage drainage issues in the area.



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1:1,250



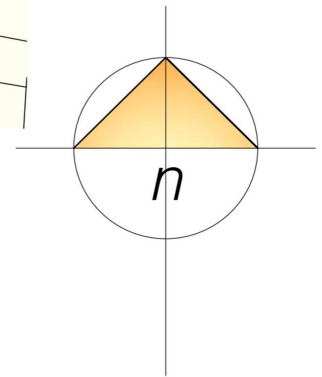
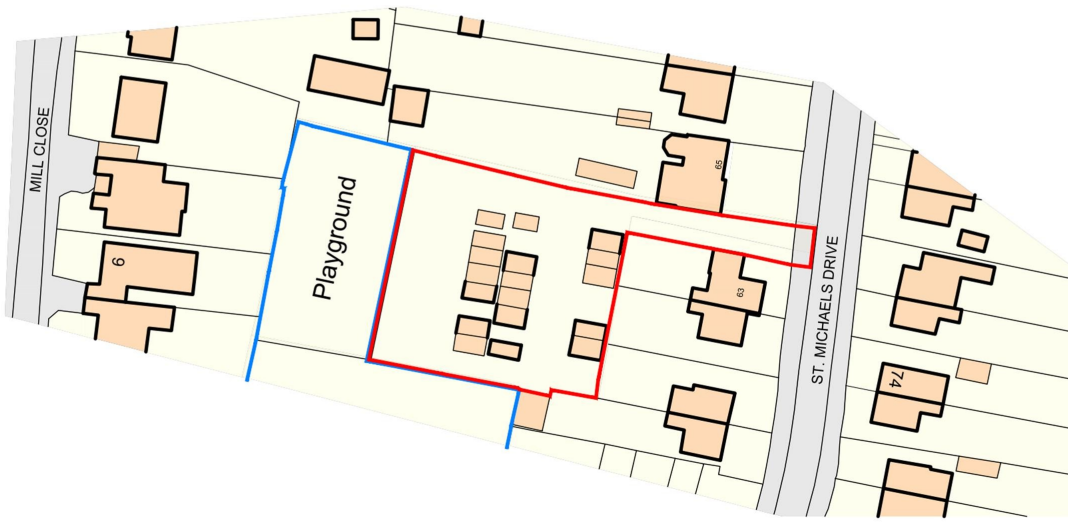
Planning Committee
23/00781/FUL

Planning & Development Management
Directorate for Sustainable Communities

PO Box 7544 Civic Centre
Duke Street, Chelmsford, CM1 1XP

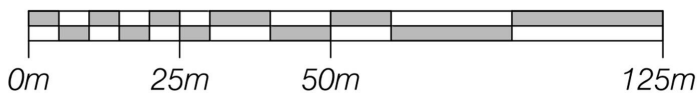
Telephone: 01245 606826

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Do not scale from this drawing.
All dimensions to be checked on site.
Refer any discrepancies to the project Architect.



Location plan

A4 SHEET @ 1:1250



client
Chelmsford City Council

project
St. Michaels Drive, Roxwell

title
Location plan

chartered architects & town planning consultants

88 broomfield road
chelmsford cm1 1ss
01245 354319/250780
admin@johnfinchpartnership.co.uk

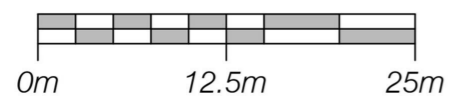
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date	03.04.2023	scale	1:1250 @ A4
drawn	jm/jh	checked	jm
dwg no	3555:01	revision	F



PROPOSED BLOCK PLAN @ 1:500

A3 SHEET @ 1:500



Accommodation Schedule

Plot No.	Accommodation	Area (m ²)	Amenity (m ²)
01	4 Bedroom 6 person house	114	100
02	4 Bedroom 6 person house	114	100
03	4 Bedroom 6 person house	114	80

Key:

(See separate proposed landscaping plan for further details)

- Proposed Tree
- Private patio/ paving
- Permeable gravel driveway
- Concrete pavers
- Cycle Stores
- Enclosed Bin stores
- 1800mm h. close boarded timber fence
- 1800mm h. 225mm thick external brick wall
- 1200mm h. metal anti-trap playground fencing to local requirements

revision

issue

PLANNING

client

Chelmsford City Council

project

St. Michaels Drive, Roxwell,
Chelmsford

title

Proposed Block Plan

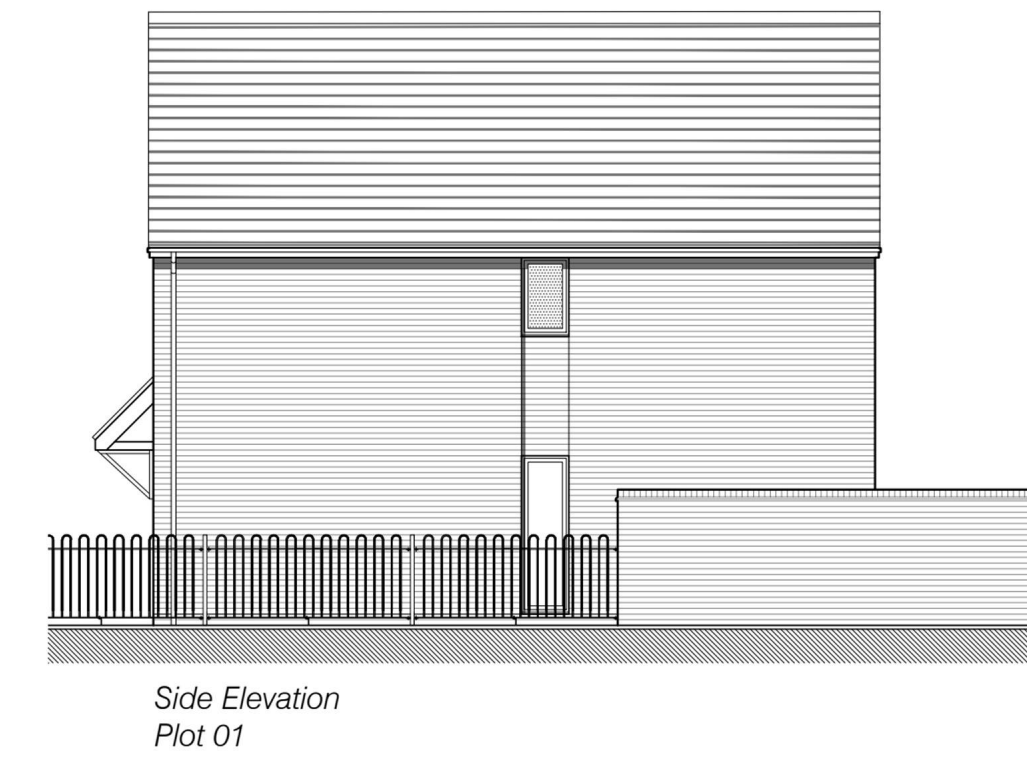
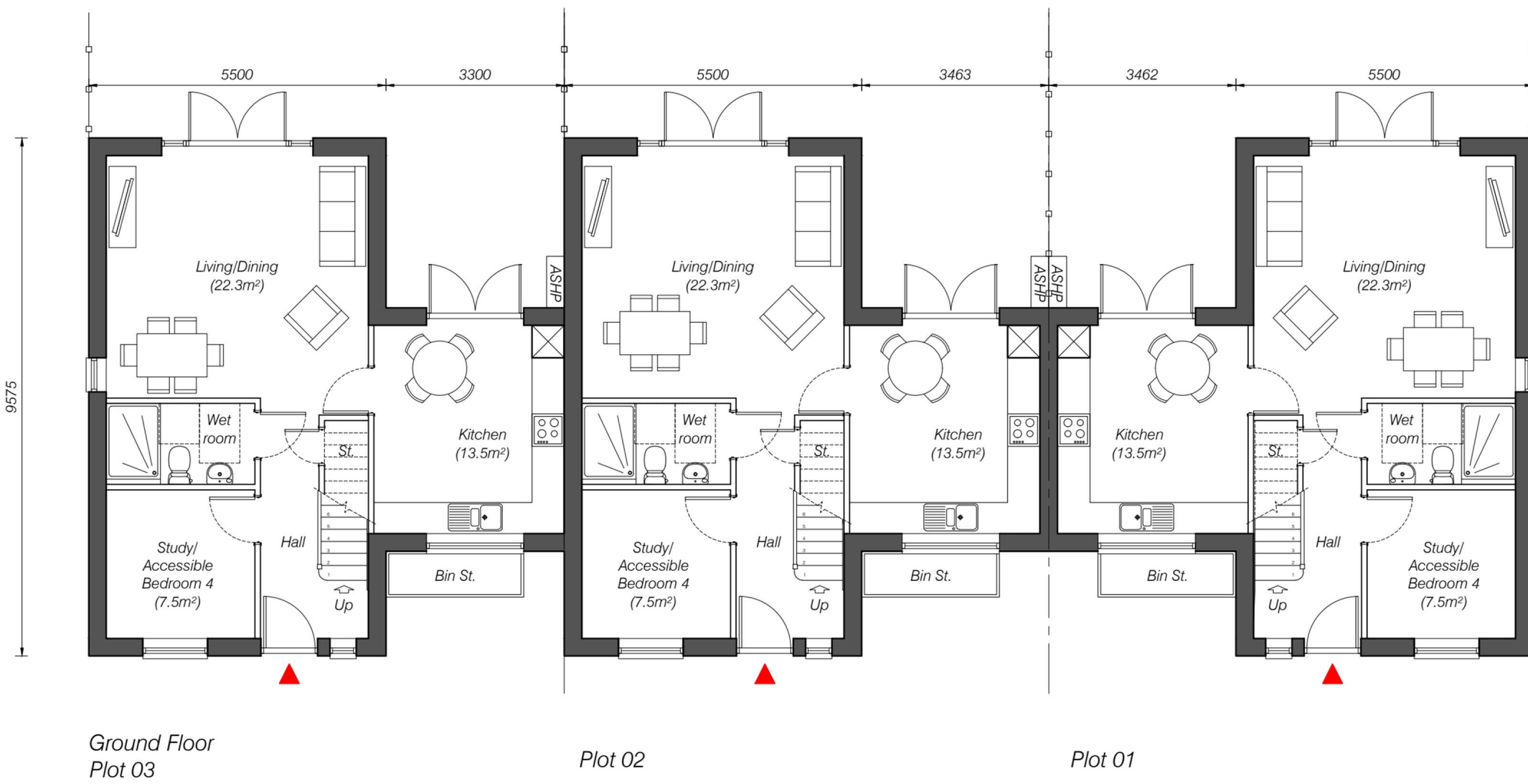
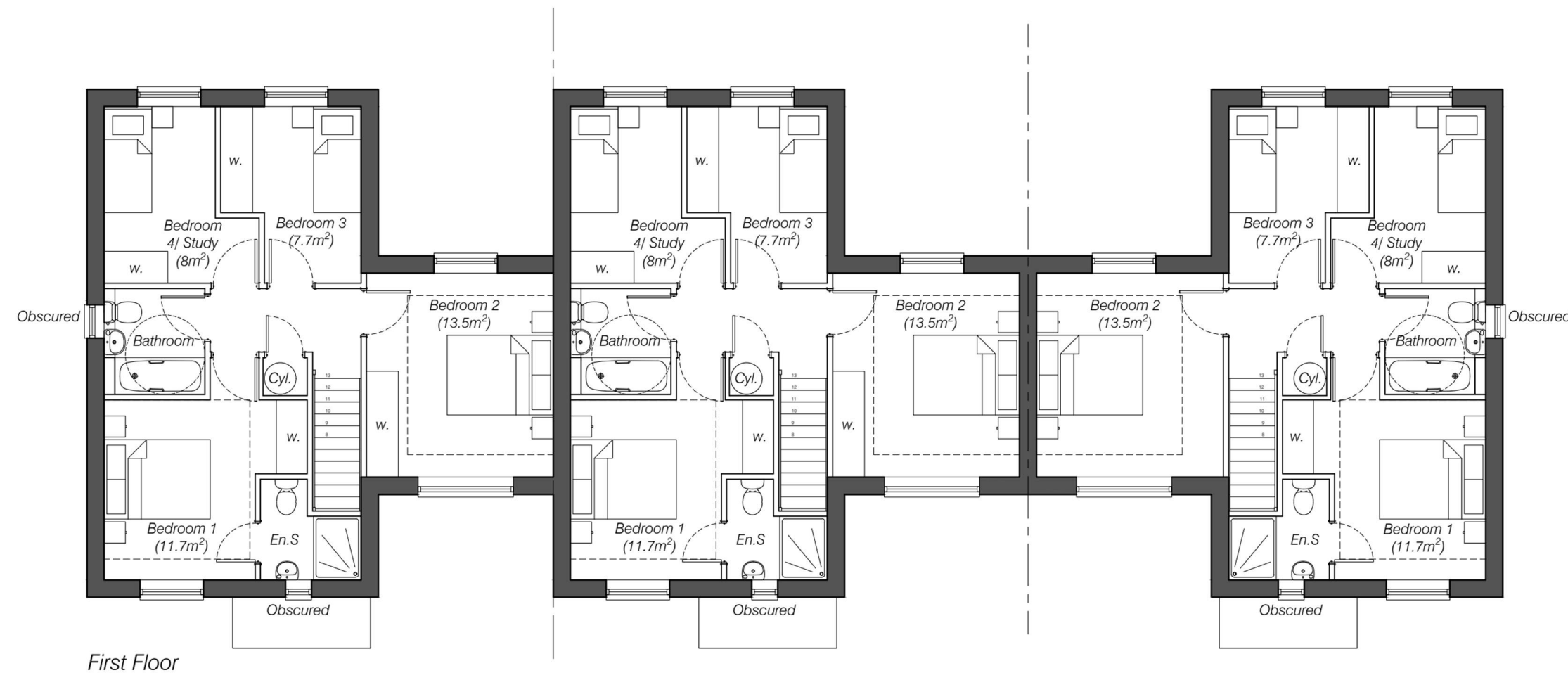
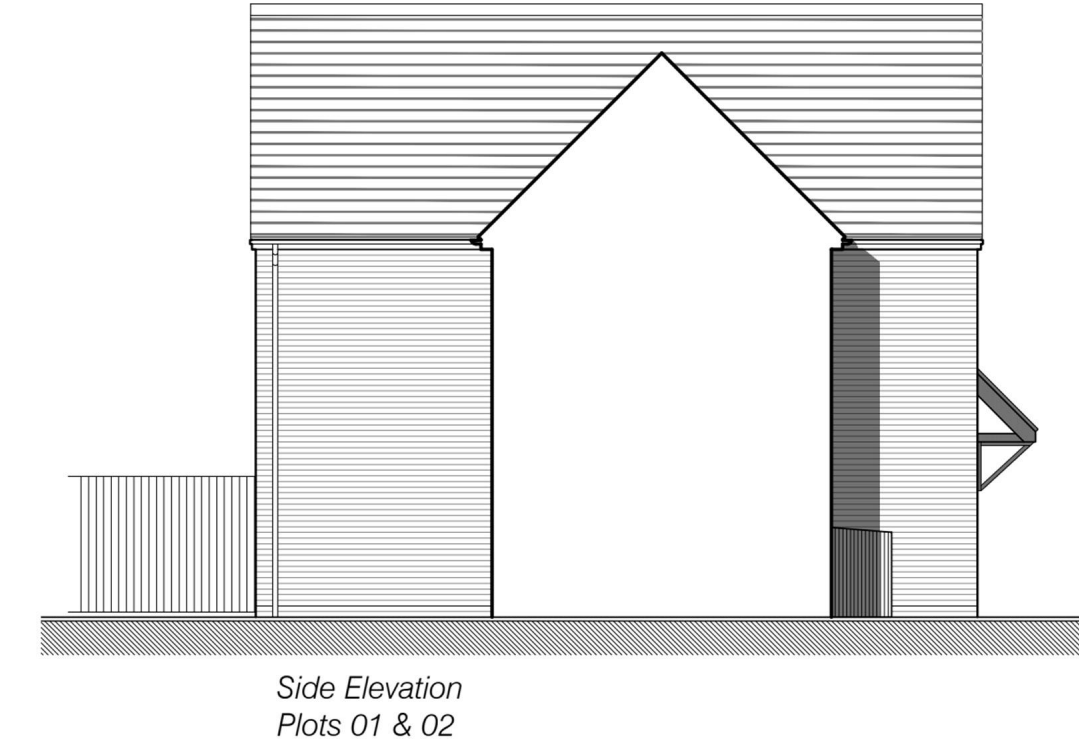
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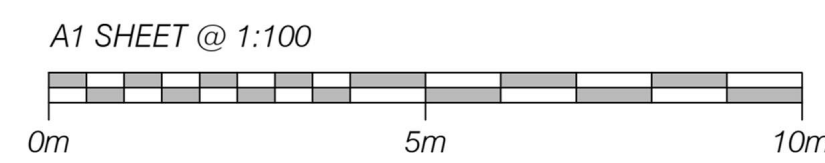
88 Broomfield Road
Chelmsford CM1 1SS
01245 354319/250780
admin@johnfinchpartnership.co.uk

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date	29.06.23	scale	1:500 @ A3
drawn	lt/jh	checked	jm
dwg no	3555:02	revision	G



Ground Floor
Plot 03
4b6p (required 106m2 GIA)
114m2 GIA
M4(2) Accessible and
Adaptable dwelling

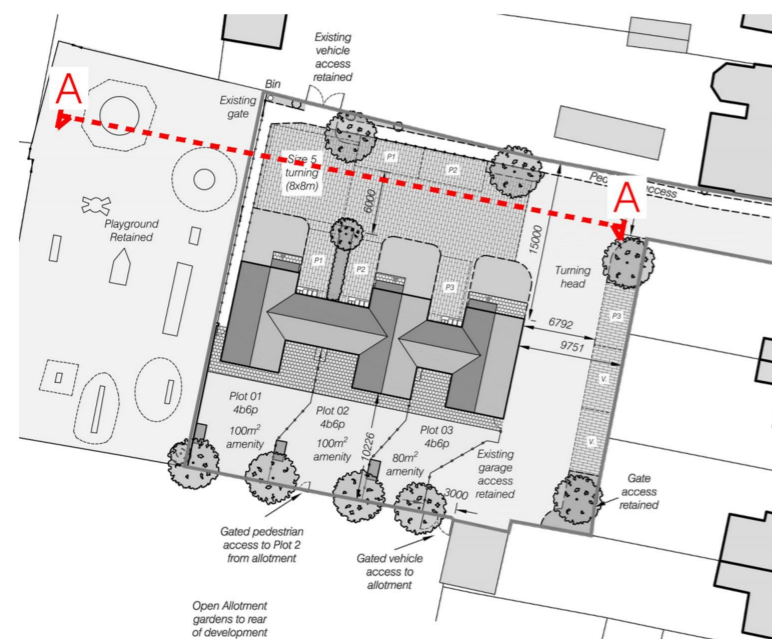
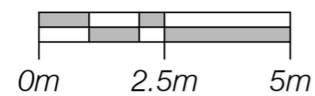


revision	
issue	PLANNING
client	Chelmsford City Council
project	St. Michaels Drive, Roxwell, Chelmsford
title	Proposed Plans and Elevations
john finch partnership chartered architects & town planning consultants	
	
88 Broomfield Road Chelmsford CM1 1SS 01245 354319/250780 admin@johnfinchpartnership.co.uk	
www.johnfinchpartnership.co.uk	
date	29.06.2023
drawn	jnj/jh
checked	jnj
scale	1:100 @ A1
revision	H
3555:03	



Street Scene
A.A

A3 SHEET @ 1:150



revision

issue

PLANNING

client

Chelmsford City Council

project

St. Michaels Drive, Roxwell,
Chelmsford

title

Proposed Street Scene

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date 29.06.2023 scale 1:150 @ A3

drawn jh checked jm

dwg no 3555:04 revision D

LANDSCAPE SPECIFICATION:

All landscape works to be carried out broadly in accordance with the relevant current British Standards; National Planting Specifications Guidelines; Horticultural Trades Association Standards; CPSE 'Plant Handling' Standards & COSHH Regulations.

TOPSOIL

Importation:
 • Provide as necessary to make up any deficiency of topsoil existing on site and to complete the work. Any imported soil should be to BS 3882.

Handling:

- Ensure that any aggressive weeds are removed from site – do not cut or distribute.
- Select and use plant to minimize disturbance, trafficking and compaction.
- Do not contaminate topsoil with subsoil, stone, hardcore, rubbish or material from building works.
- Alleviate any compaction of the soil prior to planting or turfing and do not handle topsoil in wet conditions or after heavy rainfall.

PLANTING

Seeding & Turfing:

- Ensure that there is a healthy, vigorous grass sward, free from the visible effects of pests, weeds and disease.
- The final sward should form a closely knit, continuous ground cover of even density, height and colour.

Watering:

- As and when required to ensure healthy establishment of plants.

Site Clearance:

- Remove rubbish, concrete, metal, glass, decayed vegetation and contaminated topsoil.

Soil Conditions:

- Soil for cultivating and planting must be moist, friable and not waterlogged.
- No planting to take place if soil is frozen or snow covered and any plants waiting to be planted should be given additional root protection.
- Prevent planting pit sides and bases and backfill materials from freezing.

Plants:

- Plant names, forms, dimensions and other criteria: To be labelled as per the applicable section of BS 3936.
- Frost: Protect plants from frost and handle plants with care. Protect from mechanical damage and do not subject to shock, e.g. by dropping from a vehicle.
- Planting: Upright or well balanced with best side to front, well firm in and evenly spaced.
- Ornamental trees within the to be staked with a single low stake at 45degrees to the stem and tied with an adjustable rubber tie.
- Newly planted ornamental hedges to be maintained at a height of 800mm within the Site. No guards to be used in order to encourage a more natural form.

Timing:

- The landscape scheme/planting programme is confirmed as being timetabled for implementation by or during the first planting season (mid-November to mid-March) following commencement of works.

Cultivation:

- Compacted topsoil to be broken up to full depth. Cultivate, aerate and break up soil a few days before planting when weather and ground conditions are suitably dry, leaving the surface regular and even.
- Any undesirable material brought to the surface including visible weeds, roots and large stones to be removed.

Weeding of planted areas:

- All areas to be checked regularly and kept free of invasive weeds. Either remove by hand (root included) or spot treated with a non-residual herbicide in accordance with the Manufacturer's instructions.

Mulching:

- Well-rotted bark mulch, free of pests, disease, fungus and weeds to be applied 100mm thick to be applied to all planting areas.

Spot treatment of weeds:

- Weeding of planted areas to be undertaken on a regular basis to ensure that the plants are given a fair chance to establish. Care to be taken to ensure that invasive and aggressive weeds do not become a problem and impact on the overall planting scheme. Where necessary, spot treatment of weeds in planted and grassed areas would be undertaken to ensure that they do not seed and establish elsewhere.
- Regular tidying of the planting beds – including:
 - removal of leaf litter and any other debris
 - shrubs and trees to be regularly pruned in order to maintain healthy growth and vigour.
 - Any dead, diseased or dying trees or shrubs to be taken away or affected limbs removed.

MANAGEMENT

Protection of existing vegetation:

- There are a number of hedges on the peripheries of the site and where possible, existing vegetation would be retained. Protection of trees and hedges would be in accordance with BS 5837: 2012 Trees in relation to design, demolition and construction should be taken when working adjacent to the existing trees and hedges, particularly in relation to the washing out of machines, storage of materials and other activities which may be deemed hazardous to the health and well being of the existing vegetation.

Inspection Timetable:

- The planting will be subject to an annual inspection each summer for the first 5 years to ensure that any dead, dying or diseased plants are removed. Those removed will be replaced with the same size or species as per the planting specification. Management of the overall scheme will incorporate regular reviews to check that the scheme is establishing well and any concerns highlighted and an appropriate professional consulted in order to address any issues.

PLANT SCHEDULE

SHRUBS

QTY	CODE	PLANT NAME	STOCK	SIZE	SPACING
3No.	Mah WS	Mahonia x media 'Winter Sun'	C 3L	30-40cm	3/m2

CLIMBERS

QTY	CODE	PLANT NAME	STOCK	HEIGHT	HABIT
2No.	Cle mon	Clematis montana	C 3L	60-80cm	Twiner
2No.	Hed GLA	Hedera helix 'Glacier'	C 3L	60-80cm	Self-clinger
2No.	Par hen	Farfococcus Henryana	C 3L	60-80cm	Self-clinger

TREES

QTY	CODE	PLANT NAME	STOCK	FORM	GIRTH/HEIGHT
1No.	Ame Rob s	Amelanchier lamarckii 'Robin Hill'	B	STD	8-10cm
2No.	BET PEN hs	Betula pendula	C 45L	STD	12-14cm
1No.	LIQ WOR ss	Liquidambar styraciflua 'Worpleston'	B	STD	10-12cm
2No.	Mal syl f	Malus sylvestris	B	FTH	180-210cm
2No.	PRU AVI hs	Prunus avium	B	STD	12-14cm
1No.	SOR LUT s	Sorbus aria 'Lutescens'	B	STD	8-10cm

HEDGES

QTY	CODE	PLANT NAME	STOCK	SIZE
7m	Lon pill Hedge	Lonicera pileata	C 3L	30-40cm
21No.	Plants spaced @ 3/m	in a Single Row		

QTY	CODE	PLANT NAME	STOCK	SIZE
6m	Pho Red Hedge	Photinia x fraseri 'Red Robin'	C 3L	40-60cm
12No.	Plants spaced @ 2/m	in a Single Row		

PLANT MIXES

PERCENT	QTY	PLANT NAME	STOCK	SIZE
9m2 NORTH FACING SHRUB MIX 1 planted @ 3/m2				
15%	4No.	Skimmia 'Nymans'	C 3L	40-60cm
15%	4No.	Sarcococca confusa	C 3L	40-60cm
20%	5No.	Colneaster tactus	C 3L	40-60cm
20%	5No.	Viburnum davidii	C 3L	40-60cm
30%	8No.	Euonymus 'Emerald Gaiety'	C 3L	40-60cm
Individual varieties to be planted in groups of approximately 10.				

PERCENT	QTY	PLANT NAME	STOCK	SIZE
28m2 WEST FACING SHRUB MIX planted @ 3/m2				
15%	13No.	Choisya ternata 'Sundance'	C 3L	40-60cm
20%	17No.	Cornus alba 'Elegantissima'	C 3L	40-60cm
15%	13No.	Euonymus fortunei 'Emerald Gaiety'	C 3L	40-60cm
20%	17No.	Viburnum x judaii	C 3L	40-60cm
30%	25No.	Spiraea japonica 'Goldflame'	C 3L	40-60cm
Individual varieties to be planted in groups of approximately 3, 5 or 7.				

NOTES AND ABBREVIATIONS:

- B = Bare root (bagged).
- C = Container (or pot) grown, followed by size of the container (or pot).
- FORM = Shape of tree as supplied by the nursery.
- HABIT = Juvenile habit or plant shape as supplied by the nursery.
- QTY = Quantity
- RB = Rootballed (balled and wrapped).
- SIZE = Height or Spread of juvenile plant.
- STD = (clear stem) Standard.
- STOCK = Root condition/protection method eg Bare root.
- Twiner = Twining climber attached to trellis/frame, refer to specification.

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REVISION	DATE	DESCRIPTION
A	13.12.2022	Amendments further to layout changes.
B	04.04.2023	Boundary line adjustment and additional trees.

Kirsten Bowden
 CHARTERED LANDSCAPE ARCHITECT
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 E. kirsten.bowden@hotmail.co.uk
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Site
 St Michaels Drive, Chelmsford.

Client
 Chelmsford City Council.

Drawing Title
 Landscape Proposals

Drawn by: KB **Purpose of issue:** Planning

Date 06.10.2022 **Scale** 1:200 @ A2

Job Number 2022_51 **Drawing No.** 006 **Rev** B



KEY

- Planting-Hedges
- Planting-Shrubs
- Grass - Lawn
- Tree-Proposed
- Climber -Proposed 3L
- Shrub-Proposed
- Marshalls permeable concrete sett paving (charcoal), laid random stretcher pattern.
- Marshalls Saxon concrete slab paving (natural), size 450x450mm, laid stretcher pattern.
- Biluminous wearing surface for pedestrian areas designed to engineers detail. Colour: Black.
- Biluminous wearing surface for trafficable areas designed to engineers detail. Colour: Black.
- Permeable gravel driveway in crete system to prevent displacement.
- Timber closeboard fence, 1800mm high.
- Metal - anti-trap railing, 1200mm high.
- Bin.



Preliminary Ecological Appraisal

of

St. Michaels Drive,

Roxwell,

Essex.

on behalf of

Chelmsford City Council

September 2022

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Over 30 Years of Service, Value and Innovation

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Registration no. 08169866 VAT no. 512.4127 91

Revision	Purpose	Originated	Checked	Authorised	Date
		SJ	SR	JBA	September 2022
Job Number: JBA 22/276		 <p>JAMES BLAKE ASSOCIATES</p>			
		Title: Preliminary Ecological Appraisal of St. Michaels Drive, Roxwell, Essex			

Disclaimer

James Blake Associates Ltd have made every effort to meet the client's brief. However, no survey ensures complete and absolute assessment of the changeable natural environment. The findings in this report were based on evidence from thorough survey: It is important to remember that evidence can be limited, hard to detect or concealed by site use and disturbance. When it is stated that no evidence was found or was evident at that point in time, it does not mean that species are not present or could not be present at a later date: The survey was required because habitats are suitable for a given protected species, and such species could colonise areas following completion of the survey.

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Non-technical Summary

Site:	St. Micheal's Drive, Roxwell
Ordnance Survey National Grid Reference:	TL6435708463
Report Commissioned by:	Chelmsford City Council
Date of Walkover Survey:	26 th August 2022

Considerations	Description	Potential impacts and timing
Statutory designated wildlife areas within 7km of the site:	One Site of Special Scientific Interest (SSSI) and two Local Nature Reserve (LNR).	For new residential development in this area, consideration is required in terms of the emerging Essex Coast Recreational Disturbance Avoidance and Mitigation Strategy (RAMS). LPA can be contacted for further advice.
Non-statutory designated wildlife sites within 2km of the site:	Six County Wildlife Sites (CWS).	The small-scale nature of the proposed development is unlikely to adversely impact the designated areas.
Results of walkover survey:	The site is considered suitable to support bats, hedgehog and nesting birds. The site is considered to be of 'low' habitat value for foraging and commuting bats.	
Precautionary measures:	Any vegetation removal.	Outside of the nesting bird season or following a clear nesting bird check. Nesting season is March to mid-August. Scrub should be cut to 20cm using hand-held tools and checked for hedgehogs.
	Continual management of grassland.	-
	Shed demolition.	Under ecological supervision regarding B7, B12-14 and B16.

1 Introduction

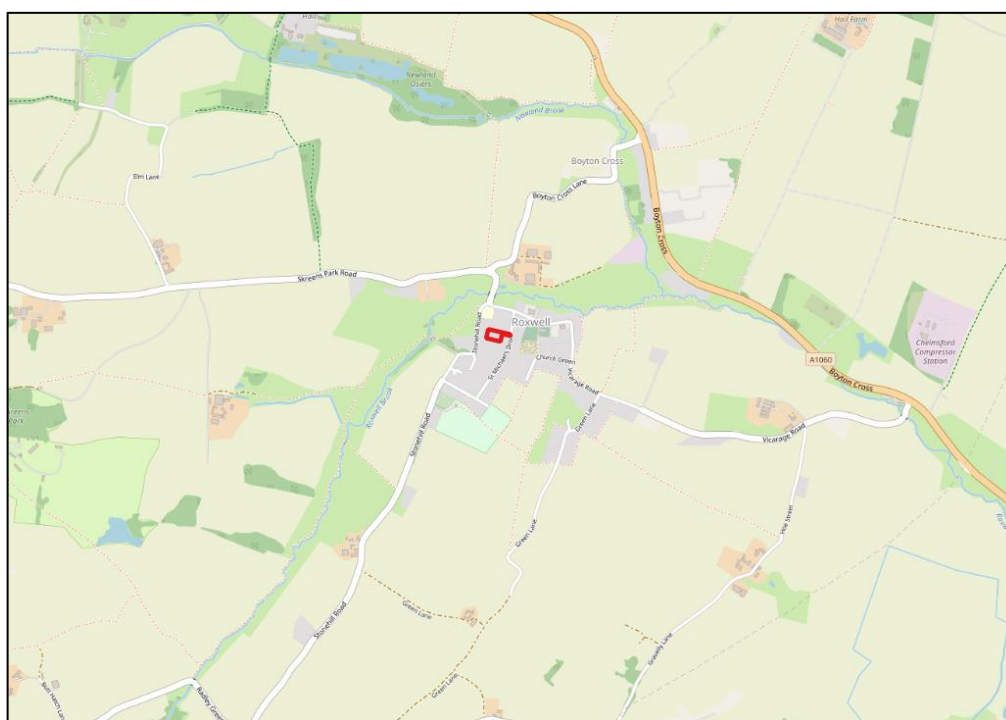
Background

- 1.1 James Blake Associates Ltd. (JBA) was commissioned by Chelmsford City Council to undertake a Preliminary Ecological Appraisal (PEA) of St. Michael's Drive, Roxwell. Ordnance Survey National Grid Reference; TL 64357 08463, taken from the centre of site.
- 1.2 The assessment was required to accompany a planning application for the development of four residential dwelling units and associated infrastructure, including playground.

Site Description

- 1.3 The site is approximately 0.2 hectares in size and is located South of Vicarage Road, in Roxwell. The wider landscape includes the villages of Roxwell and Boyton cross, residential buildings and arable land. The A1060 is approximately 0.7km northeast of the site (see Figure 1 below).
- 1.4 The site itself mainly consists of domestic use sheds, with a public playground, hedgerows and boundary trees. Hardstanding is also present on site.

Figure 1: Site location



© OpenStreetMap

Aims and objectives

1.5 The aim of the survey was to:

- Identify the presence, or potential presence, of any protected or notable species or habitats on, or adjacent to, the site; and
- make recommendations for further surveys if required, to advise on avoidance and/or mitigation measures following the survey (if necessary) and provide suggestions to enhance the wildlife value of the site post-development to provide a net gain in biodiversity value.

Wildlife Legislation and Planning Policy

1.6 The relevant wildlife legislations and planning policies are listed below:

- Conservation of Habitats and Species Regulations 2017, ('The Habitats Regulations'). The Habitats Regulations implement The Habitats Directive 1992 (92/43/EEC) into English Law. (Amended by the Conservation of Habitats and Species (Amendment) Regulations 2012 S.I. 2012/1927).
- Wildlife and Countryside Act, 1981 (as amended) (WCA). (Amended by the Countryside and Rights of Way Act (2000)).
- The Natural Environment and Rural Communities Act, 2006 (NERC).
- The Protection of Badgers Act, 1992 (The Badgers Act).
- The Wild Mammals (Protection) Act, 1996.
- The Hedgerows Regulations, 2007.
- National Planning Policy Framework, 2021 (NPPF).

2 Methodology

Desk study

- 2.1 A desk study was undertaken for statutory and non-statutory designated wildlife sites within a 7km and 2km radius of the site, respectively using 'MAGIC', the Multi-Agency Geographic Information system for the Countryside. The data provided from Essex Field Club (EFC) was consulted for records of non-statutory sites and protected and rare species within a 2km search radius (EFC data provided on the 22nd August 2022).
- 2.2 The site is covered by the Local Biodiversity Action Plan (LBAP) for Essex which was consulted as part of the desk study.
- 2.3 Within the desk study results, the Birds of Conservation Concern (BoCC) are split into three criteria; the Red list is the highest conservation priority (species needing urgent action). The Amber list is the next most critical group, followed by Green. Red listed species are those that are globally threatened according to the International Union for Conservation of Nature (IUCN) criteria, species with populations or ranges that have declined rapidly in recent years, and those that have declined historically and have not shown a substantial recent recovery.

Walkover Survey

- 2.4 The survey was undertaken by Bethan Feeney-Howell BSc (Hons) QCIEEM, and Sarah Jarrett BSc (Hons) MSc on the 26th August 2022.
- 2.5 The survey methodology followed the standard Phase 1 methodology of Joint Nature Conservation Committee Guidelines (JNCC, 2010). An extension of this basic methodology was also undertaken to provide further details in relation to notable or protected habitats present within the survey area, or in relation to habitats present that have the potential to support notable or protected species (CIEEM, 2013).
- 2.6 **Badgers (*Meles meles*):** A visual survey for setts, hair, latrines, prints, snuffle marks or other signs of badgers was undertaken within the site boundary, following guidelines set out by the Mammal Society (1989).
- 2.7 **Bats:** Buildings within the site boundary were surveyed, from the ground, for their potential to support roosting bats in accordance with Bat Conservation Trust's Guidelines (Collins (ed.), 2016).
- 2.8 **Birds:** A visual survey of bird activity and suitable nesting habitat was carried out, to determine if any areas would be suitable for WCA Schedule 1 birds, BoCC or other

common and widespread nesting birds.

- 2.9 **Reptiles:** A visual survey for the presence of suitable habitat was carried out according to the criteria given in the Herpetofauna Workers' Manual (Gent and Gibson 1998).
- 2.10 **Invertebrates:** The site was scoped for significant rotting deadwood, and high quality aquatic or other habitats, which could be used by significant assemblages of invertebrates, or by any of the invertebrates highlighted in the data search.
- 2.11 **Flora and habitats:** All habitats and plant species that were identifiable at the time of the survey were recorded.
- 2.12 **Adjacent Habitat:** Habitats close to the site were identified, using aerial maps and field observation, so that the ecological impact of the proposed works on the wider landscape could be assessed.

Limitations and Assumptions

- 2.13 The baseline conditions reported in this document represent those identified at the time of the survey on 26th August 2022. Although a reasonable assessment of habitats present can be made during a single walkover survey, seasonal variations are not observed. The survey was conducted in August, which is within the optimal season for the identification of flora.
- 2.14 The desk study used available records and historical data from the local area. However, this does not provide a reliable indication of species present since records depend entirely on survey effort in the area, which is highly variable. The data is useful as a general guide to supplement the site visit, but absence of records does not reflect absence of species.

3 Results

Desk Study

Statutory Designated Wildlife Sites

- 3.1 One 'Sites of Special Scientific Interest' (SSSI) and two 'Local Nature Reserve' (LNR) were identified within 7km of the site. Statutory designated sites are detailed in Appendix A.
- 3.2 For new residential development in this area, consideration is required in terms of the emerging Essex Coast Recreational Disturbance Avoidance and Mitigation Strategy (RAMS), where a financial contribution per residential dwelling may be required. The Local Planning Authority (LPA) can be contacted for further advice.

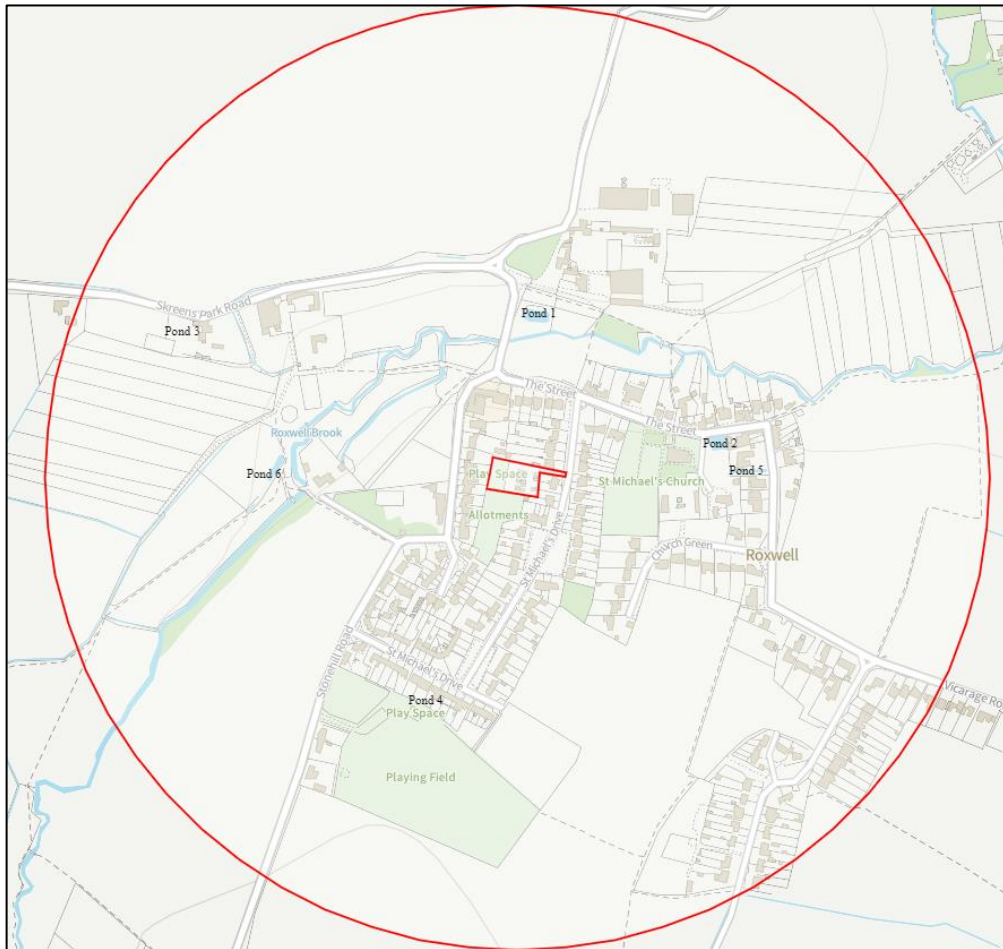
Non-Statutory Designated Wildlife Sites

- 3.3 There were six non-statutory designated wildlife sites identified within 2km of the site; all of which are County Wildlife Sites (CWS). These are detailed in Appendix B.
- 3.4 Due to the small scale and nature of the proposed development, it is unlikely to cause any significant impacts to non-statutory designated wildlife sites.

Ponds within 500m

- 3.5 Six ponds were identified within 500m of the site boundary (Figure 2). Pond 1 located 167m north of site, Pond 2 171m east of the site, Pond 3 391m west of the site, Pond 4 251m south of the site, Pond 5 190m east of the site and Pond 6 located 250m south of the site.
- 3.6 Ponds 1, 3 and 6 were considered ecologically separate due to the Roxwell Brook, which runs between each of those and the site. Pond 4 is considered ecologically separate due to the large amount of residential buildings north of it.
- 3.7 Due to the available habitats between ponds 2, 5 and the site, it is considered unlikely that GCN from these ponds (if present) would utilise habitats within the site boundary. Therefore, GCN are considered absent from the site and have not been discussed further in this report.

Figure 2: Ponds within 500m of the site boundary



Habitat Types within 2km

3.8 Habitat types within the area include deciduous woodland, woodpasture and parkland, young trees, broadleaved and conifer woodland and traditional orchards. Habitat types are shown on Figure 3. The nearest broadleaved woodland is located 788m north.

Protected, priority and rare species within 2km of site

- 3.6 There were no records of protected or rare species for the site itself; although there were numerous records of species within 2km of the site (full raw data can be provided upon request). The most relevant records are described below. Records over ten years old have not been referred to as the walkover survey is considered to provide a more up to date and accurate account of the species and habitats for the site.
- 3.7 European badger was recorded in 2019, within 2km of the site boundary.
- 3.8 Within the desk study common pipistrelle (*Pipistrellus pipistrellus*) was recorded 0.1km north of the site in 2014, soprano pipistrelle (*Pipistrellus pygmaeus*) were recorded 1.5km south of the site in 2015. Brown long-eared bat (*Plecotus auritus*) was recorded 0.13km east of the site in 2016.
- 3.9 Hedgehog (*Erinaceus europaeus*) has been recorded in 2018, 1km east of the site.
- 3.10 Brown hare (*Lepus europaeus*) were identified within 2km of the site. The most recent records are from 0.1km south in 2019.
- 3.11 Pole cat and weasel were identified 1km north in in 2018, and 0.8km west in 2019 respectively.
- 3.12 18 Red listed bird species were identified within 2km of the site; including cuckoo (*Cuculus canorus*), House martin (*Delichon urbicum*), house sparrow (*Passer domesticus*), starling (*Sturnus vulgaris*) and swift (*Apus apus*).
- 3.13 20 Amber listed bird species were also identified within the desk study; including dunnock (*Prunella modularis*), Song thrush (*Turdus philomelos*), wood pigeon (*Columba palumbus*) and wren (*Troglodytes troglodytes*)
- 3.14 Common lizard (*Zootoca vivipara*) was recorded 1.2km north in 2017. Grass snake (*Natrix helvetica*) was recorded 0.3km south in 2012
- 3.15 GCN was identified within 2km of the site boundary in 2018, 0.5km northwest across the Roxwell brook.
- 3.16 Small heath (*Coenonympha pamphilus*) have been recorded within 2km of the site boundary in 2020, on multiple occasions 0.26km east and 1km west.

- 3.17 A digger wasp (*Gorytes laticinctus*) and A Large-headed resin bee (*Heriades truncorum*) were recorded 0.5km northwest of site in 2018.
- 3.18 Cinnabar moth (*Tyria jacobaeae*) was recorded 1.8km southwest of site in 2015.

Walkover Survey

- 3.19 The habitats on site were considered with respect to their potential to support protected species.
- 3.20 Within the redline boundary the site comprises a number of dominant 'habitat types', taken from those listed in the Handbook for Phase 1 Habitat Survey (JNCC, 2010). These habitat types are described below and are shown schematically on Figure 4. Target Notes (TN) are presented in Table 1. A list of plant species identified on site is included in Appendix C. The baseline conditions reported and assessed in this document represent those identified at the time of the survey on 26th August 2022. Although a reasonable assessment of habitats present can be made during a single walkover survey, seasonal variations are not observed.
- 3.21 The majority of the site comprises Hardstanding and amenity grassland, with sheds, areas of tall ruderal vegetation, with ornamental or planted native species poor intact hedgerows.
- 3.22 The following photographs in Table 1 show the Target Notes referred to in Figure 4.

Figure 4: Phase 1 Habitat Map

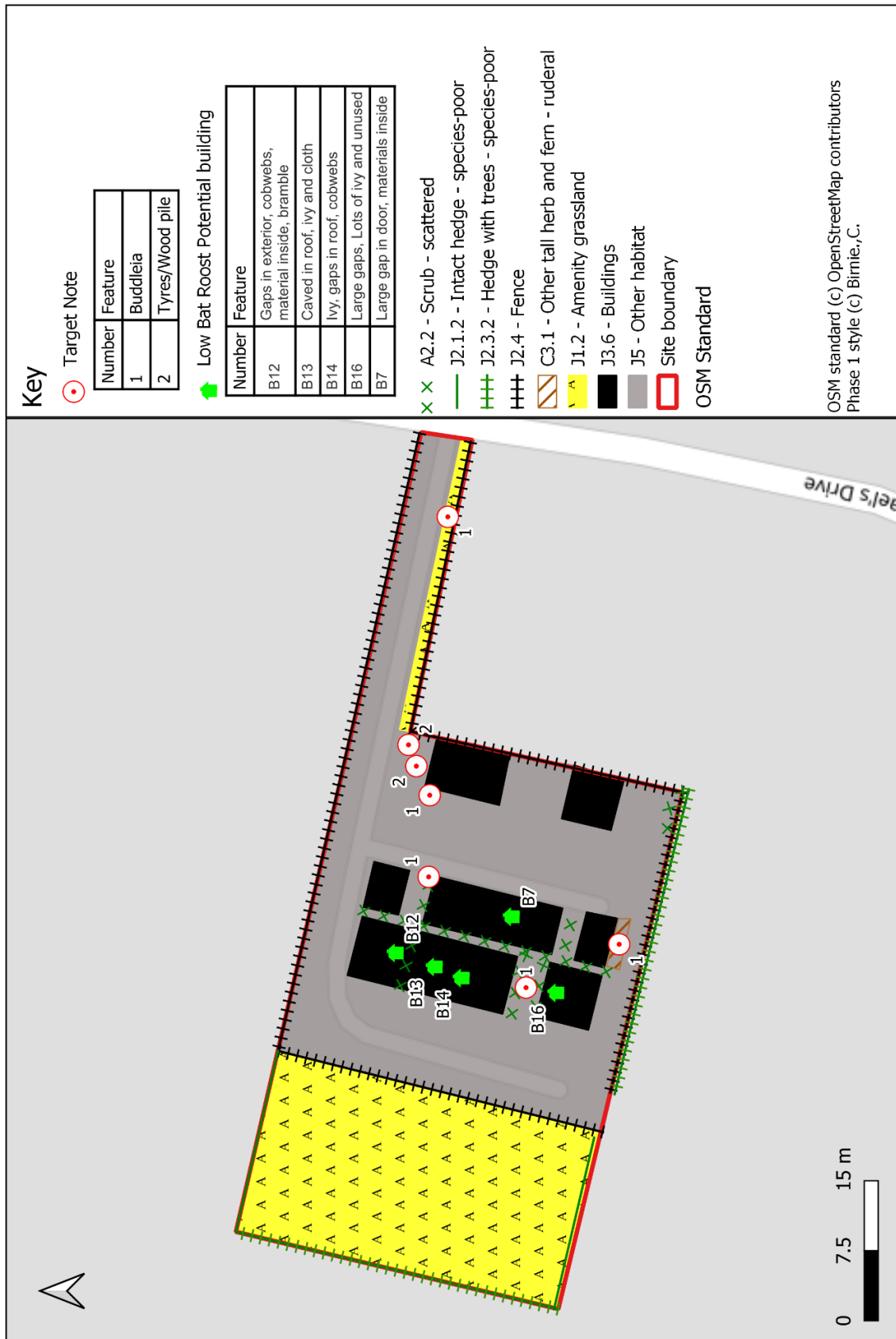




Table 1: Target Notes

Target Note	Description	Photo
1	Buddleja	
2	Tyres/wood/refuse pile	

4 Protected Species – Results and Evaluation



Badger



- 4.1 The majority of habitats on site are considered unsuitable for badgers due to no or minimal cover for sett creation. The amenity grassland on site provides very limited foraging opportunities. Surrounding habitats are not suitable for sett creation.
- 4.2 No setts or evidence of badger activity with regard to hair, latrines or snuffle holes were recorded on the site itself during the survey.

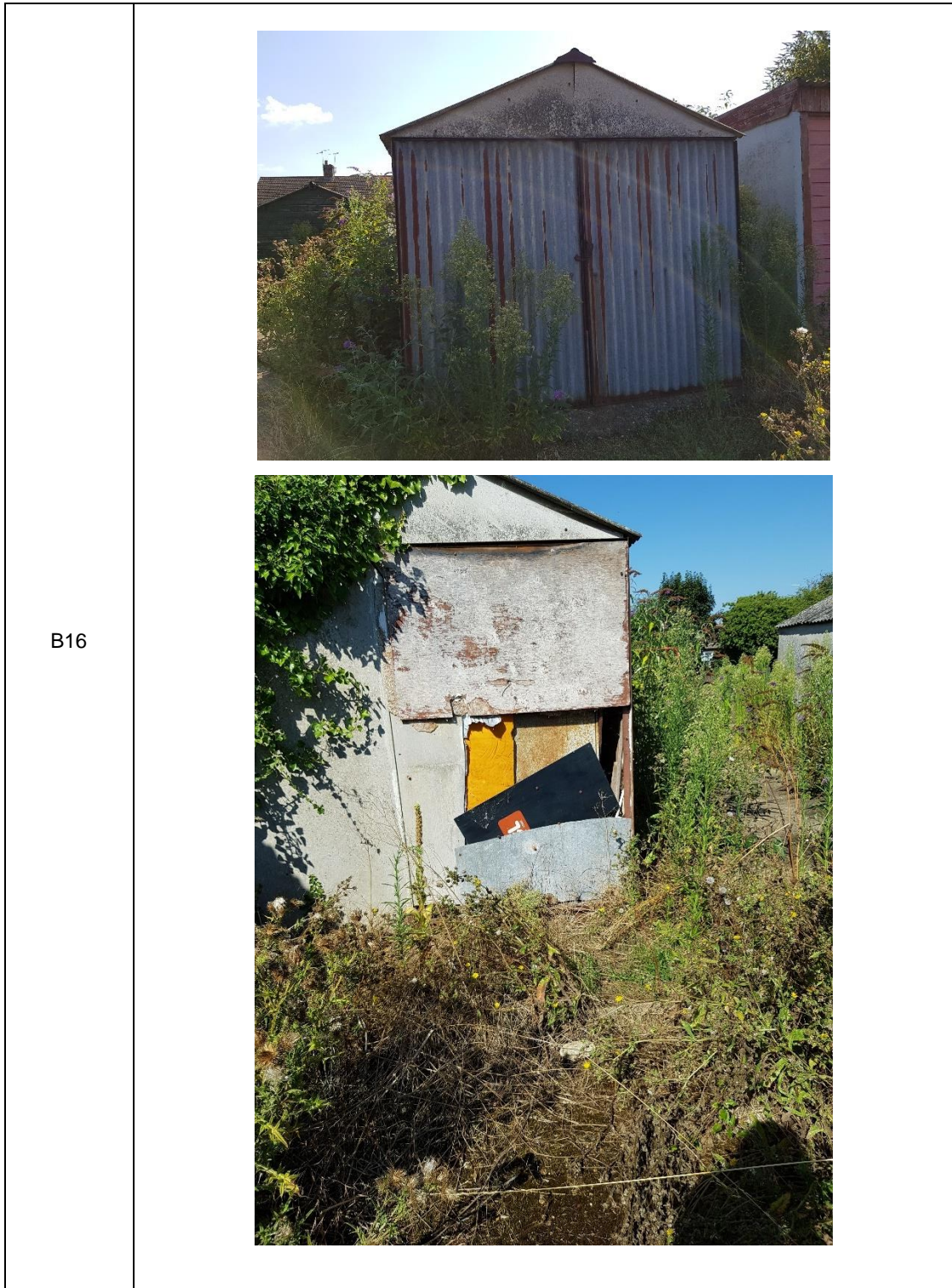
Bats

- 4.3 A total of 17 sheds are located within the site boundary and were assessed from the ground for bat roost evidence and potential. Majority of these are considered unsuitable or 'negligible' for roosting bats due to no or limited features and regular disturbance; however, 5 were considered to hold 'low' bat roost potential (BRP) (Figure 4) as they had some features (though very limited) such as dense ivy, gaps through to the interior, roofing and dark space inside and most importantly a lack of upkeep and regular use. See Table 2 for shed photographs (numbering corresponds to those seen in Figure 4).
- 4.4 The scattered/boundary trees on-site are considered to have 'negligible' to 'low' BRP due to no or minimal suitable features present, such as dense ivy cover, peeling bark or knot holes.
- 4.5 Habitat on-site was assessed as 'low' for foraging and commuting bats. There were intact hedgerows and linear pathways that could be used for commuting bats, but the site is surrounded by residential properties and lacks connectivity to the wider landscape. The amenity grassland within the site provided low foraging habitat as the area is currently highly managed (mown), however the scrub areas and flowering plants provide some foraging habitat.

Table 2: Buildings with 'low' bat roost potential.

Building reference number	Photo
B7	
B12	

<p>B13</p>	
<p>B14</p>	



Mammals - Other

- 4.6 The site provides low suitability for hedgehog due to the majority of the site consisting of bare ground. Boundary trees, scrub between the sheds, wood piles and semi-improved grassland could provide shelter and foraging opportunities, although these are very limited. No evidence of hedgehog was recorded during the walkover survey.
- 4.7 Brown Hare has been identified in the nearby St Michael and All angles church green; however, the site is not optimal due to the lack of foraging habitat and hardstanding.

Birds

- 4.8 Trees, hedgerows and scrub throughout and surrounding the site provide nesting and foraging opportunities for birds. The amenity grassland is not considered suitable due to high management (mown) and limited cover.
- 4.9 Bird species observed during the walkover survey included; wood pigeon (*Columba palumbus*), dunnock (*Prunella modularis*), robin (*Erithacus rubecula*), and wren (*Troglodytes troglodytes*).

Reptiles

- 4.10 The majority of the site is managed amenity grassland which currently does not provide good habitat for reptiles. However, if the grassland is left to grow up then the area will become suitable in the future.
- 4.11 The few wood piles and tyres on site could provide sheltering and hibernation opportunities, however this is located on bare ground and isolated from the other habitats on site.

Invertebrates

- 4.12 The habitats on the site are unlikely to support a diverse assemblage of invertebrates. However, the scrub and ornamental flowers areas provide potential habitat for invertebrates such as honeybee, white tailed bumblebee, painted lady butterflies and white butterflies.
- 4.13 Areas of deadwood are also present on site which provide suitable habitat for butterflies, moths and other insects.

4.14 No rare or protected invertebrate species were observed during the walkover.

Flora

4.15 No rare, principally important, local BAP or protected plant flora was identified during the walkover survey.

4.16 Schedule 9 invasive plant species such as Japanese knotweed (*Fallopia japonica*) were not identified at the site during the walkover survey. However, buddleia (*Buddleja davidii*) was identified on site which can be considered an invasive species to developments.

5 Evaluation, Legislation and Recommendations

5.1 Table 3 below includes a summary of all identified and potential ecological constraints to the development, including those where there is insufficient information at the time of survey to be definitive. Relevant legislation has also been given here.

Table 3: Survey evaluation, relevant legislation and recommendations

Ecological Receptor	Summary of desk and walkover survey findings and relevant legislation	Likely impact and recommendations for further survey
Designated wildlife areas - statutory	<p>The desk study identified one SSSI and two LNR's within 7km of the site:</p> <ul style="list-style-type: none"> • Newney green pit SSSI (2km south); • Marconi Ponds LNR (5.9km east); and • Chelmer Valley riverside LNR (6.5km east). 	For new residential development in this area, consideration is required in terms of the emerging Essex Coast RAMS. LPA can be contacted for further advice.
Designated wildlife areas – non-statutory	<p>The desk study identified four CWS within 2km of the site:</p> <ul style="list-style-type: none"> • Cooley spring (0.8km northwest); • Hoggarden spring (1.1km southwest); • Engine spring/ring grove (1.2km north); • Boyton cross verges (Road verge 12, roxwell) (1.5km southwest); • Road verge 9, Roxwell (1.75km northwest); and • The Moors (2km southwest). 	The small-scale nature of the proposed development is unlikely to adversely impact the designated areas. No further assessment required.
Habitats	<p>Habitats on the site comprise:</p> <ul style="list-style-type: none"> • Hardstanding; • Amenity grassland; • Boundary trees and hedgerows; • Sheds; and • Scrub. 	No habitats on site are NERC Priority Habitats. No further assessment required.
Badger	<p>There was no evidence of badger activity on site during the walkover survey.</p> <p>The site was not considered suitable for sett creation.</p> <p>Badgers and their setts are protected under the Protection of Badgers Act 1992 and also protected by the Wild Mammals (Protection) Act 1996. Protection also extends to include disturbance.</p> <p>Under the Protection of Badgers Act 1992, it is an offence to intentionally or recklessly:</p> <ul style="list-style-type: none"> • Kill, injure or take badgers; • Damage a badger sett or any part of it; • Destroy a badger sett; • Obstruct access to, or any entrance of a badger sett; and • Disturb a badger whilst it is occupying a badger sett. 	No further survey required.
Bats	<p>All buildings and trees within the site boundary are considered to have 'negligible' to 'low' BRP.</p> <p>The site was considered to have 'low' suitability for foraging and commuting bats.</p> <p>All species of bat are afforded full legal protection under Schedule 5 of the WCA. They are also listed under</p>	Bat emergence surveys are not considered necessary; however, as a precaution, those sheds with 'low' BRP should be cleared under ecologist supervision using soft demolition. Demolition should take place outside the bat active season,

Ecological Receptor	Summary of desk and walkover survey findings and relevant legislation	Likely impact and recommendations for further survey
	<p>Schedule 2 of the Habitats Regulations. Some species of bat are also listed in Section 41 of NERC Act as an SPI.</p> <p>Combined legislation makes it an offence: to deliberately kill, injure, capture/take a wild bat; intentionally or recklessly disturb bats, including whilst occupying a place of shelter or protection; to damage or destroy a place used by a bat for breeding or resting (does not need to be deliberate, reckless or intentional); and to intentionally or recklessly obstruct access to any place used by a bat for shelter or protection.</p> <p>Bats are classed as 'European Protected Species' (EPS) and mitigation will typically be undertaken under the auspices of an EPS licence from Natural England.</p>	<p>which is deemed to be from April to October.</p>
Mammals - other	<p>No evidence of hedgehogs was found during the walkover survey. The site provided some hibernation and foraging habitat for hedgehogs in scrub and hedgerows.</p> <p>Hedgehogs are listed on Schedule 6 of the WCA which makes it illegal to kill or capture wild hedgehogs, with certain methods listed. The hedgehog is also a SPI under Section 41 of the NERC.</p> <p>All wild mammals are protected under the Wild Mammals (Protection) Act 1996. Offences relate to any act which results in the intent to inflict unnecessary suffering. Mercy killings and killing in a swift and humane way in the course of a lawful activity are not offences under the Act.</p>	<p>No further surveys recommended.</p> <p>It is recommended that if scrub or hedgerows is to be removed then areas should be cut to 20cm using hand-held tools (brushcutter/trimmer) and checked for hedgehog before removal.</p> <p>See Section 6 for enhancements.</p>
Birds	<p>The following habitats have the potential to support breeding birds:</p> <ul style="list-style-type: none"> • Scattered/boundary trees; • Hedgerows; and • Scrub. <p>No nests were present on site during the walkover survey.</p> <p>All wild birds while actively nesting are afforded legal protection under the WCA.</p> <p>Special protection is also afforded to birds listed on Schedule 1 of the WCA which makes it an offence to disturb these species at nest or the dependent young.</p> <p>Combined legislation means that all birds, their nests and eggs are protected by law and it is an offence, with certain exceptions, to:</p> <ol style="list-style-type: none"> a) intentionally kill, injure or take any wild bird; b) intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; c) intentionally take or destroy the egg of any wild bird; d) have in one's possession or control any wild bird (dead or alive), part of a wild bird or egg of a wild bird; e) intentionally or recklessly disturb any wild bird listed on Schedule 1 while it is nest building or is in, on or near a nest with eggs or young; or disturb the dependent young of such a bird; and 	<p>It is recommended that any vegetation clearance and disturbance is undertaken outside of the nesting season. The nesting season is deemed to be from mid-March to mid-August, although these times can be temperature dependent.</p> <p>If this timing is not possible then a nesting bird check must be carried out by a suitably experienced person, no more than 48 hours between the check and the removal. If the 'all clear' is given, then removal/works can commence. The survey lasts for no longer than 48 hours. If works are not completed in this time frame, then a re-survey will need to be carried out.</p> <p>If birds are found to be nesting, then no works should be undertaken within at least 10m of the nest until chicks have fledged.</p>

Ecological Receptor	Summary of desk and walkover survey findings and relevant legislation	Likely impact and recommendations for further survey
	f) have in one's possession or control any birds of a species listed on Schedule 4 of the Act unless registered in accordance with the Secretary of State's regulations.	
Reptiles	<p>Habitats on site are considered unsuitable for reptiles, at present, due to managed amenity grassland (regularly mown). The scrub areas offer some shelter and hibernation opportunities; as do the wood piles and tyres.</p> <p>Reptiles are afforded protection under Schedule 5 of the WCA from deliberate injury, killing and trade. They are also listed under Section 41 of NERC as an SPI.</p>	<p>No further survey recommended.</p> <p>It is recommended that the amenity grassland is kept mown on a regular basis and is not allowed to grow up. If not, future reptile surveys may be required.</p>
Invertebrates	The habitats on site are unlikely to support a diverse assemblage of invertebrates. However, areas of scrub can be used by a small number of invertebrates, such as butterflies.	<p>No further surveys recommended.</p> <p>See Section 6 for enhancements.</p>
Flora	<p>The habitats on site are unlikely to support any rare or protected flora.</p> <p>No Schedule 9 invasive plant species were identified on site. However, buddleia is present on site which can be considered an invasive species for developments, if not controlled.</p> <p>Invasive plant species such as Japanese knotweed are listed on Schedule 9 of the WCA. Schedule 9 includes certain plants that have become established in the wild in Great Britain but which the law seeks to prevent spreading further. The WCA creates various offences, including allowing a Schedule 9 plant to grow in the wild. Negligent or reckless behaviour such as inappropriate disposal, resulting in the plant becoming established in the wild also constitutes an offence.</p> <p>Depositing unauthorised 'controlled waste' (such as Japanese knotweed) is also likely to be a breach of Section 33 of the Environmental Protection Act, 1990.</p> <p>In the recent Court of Appeal decision in the case of <i>Network Rail Infrastructure Limited v Williams and Another</i> [2018], a landowner/occupier can be liable for failing to act reasonably to remove any Japanese knotweed after becoming aware of it and where it is foreseeable that it would damage neighbouring land.</p>	No further surveys recommended.

6 Ecological Considerations and Enhancements

- 6.1 The proposed development is considered unlikely to be adversely detrimental to designated areas, protected species or habitats, provided the recommendations are followed in Table 3. However, a number of considerations and enhancements are recommended with respect to the overall biodiversity of the site in line with current Planning Policy.
- 6.2 A Biodiversity Net Gain (BNG) assessment may be requested by the LPA to provide a net gain of at least 10%. BNG calculations can be undertaken using Defra Metric 3.1 (2022, as amended) which involves comparing 'baseline' habitat measurements with proposed habitats, post-development.
- 6.3 Where possible, scrub and scattered trees at the boundaries of the site should be retained with a ~2m buffer and enhanced to create corridors and shelter/foraging areas for wildlife including bats, birds, hedgehogs and small mammals.
- 6.4 The addition of standard bird boxes on retained trees and proposed new buildings will attract a greater diversity of birds to nest. A number of 1SP Schwegler sparrow terraces should be installed onto new builds. These should be located out of direct sunlight and close to but not restricted by vegetation. A number of Schwegler Swift Bricks should also be installed on the periphery of the new builds.
- 6.5 The addition of bat boxes could also be installed on retained trees and proposed new buildings to provide roosting opportunities for common species.
- 6.6 Landscaping should incorporate native or wildlife attracting trees, shrubs, and wildflower areas as these would likely be of benefit to a variety of wildlife including, birds, bats and invertebrates, including pollinators.
- 6.7 'Hedgehog links' (i.e., 15cm diameter gaps at the base of fences) are recommended to enable small mammals to move through the development.

7 Conclusion

- 7.1 A Preliminary Ecological Appraisal was undertaken at St Michaels Drive, Roxwell Chelmsford by James Blake Associates in support of a planning application for residential dwelling units and associated infrastructure.
- 7.2 The site comprises hardstanding with sheds, and an amenity grassland children's play area with boundary hedgerows.
- 7.3 No further ecological surveys are considered necessary.
- 7.4 If the precautionary measures for bats, birds and hedgehogs detailed in this report are followed, it is considered that the development is able to proceed with minimal impact on the local conservation status of any protected, principally important or rare species within the area.
- 7.5 It is also considered that with a sensitive landscape scheme, and by including some, or all, of the additional enhancements, the site could be improved for local wildlife post development.

8 References

CIEEM (Chartered Institute of Ecology and Environmental Management) (2013) Guidelines for Preliminary Ecological Appraisal. Technical Guidance Series.

Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines, third edition. The Bat Conservation Trust, London.

Gent, A.H. and Gibson, S.D., eds. (1998) *Herpetofauna Workers' Manual*. Peterborough, Joint Nature Conservation Committee.

Harris S, Cresswell P and Jefferies D (1989) Surveying Badgers, Mammal Society.

JNCC (2010) *Handbook for Phase 1 habitat survey: a technique for environmental audit (revised reprint)* JNCC: Peterborough.

Web references

MAGIC: Designated area data downloaded from URL <http://www.magic.gov.uk/html>

Essex Field Club (EFC)

https://www.swift-conservation.org/swift_bricks.htm

9 Bibliography

W.J. Cresswell, J.D.S. Birks, M. Dean, M. Pacheco, W.J. Trehella, D. Wells and S. Wray (2012) UK BAP Mammals Interim Guidance for Survey Methodologies, Impacts and Mitigation. Eds. The Mammal Society, Southampton.

English Nature (2004) *Guidelines for Developers*. English Nature, Peterborough.

Gregory, R. D. Wilkinson, N. I. Noble, D. G. Robinson, J. A. Brown, A. F. Hughes, J. Proctor, D. A. Gibbons, D. W. & Galbraith, C.A. (2007) The population status of birds in the United Kingdom and Isle of Man: an analysis of conservation concern 2002-2007 *British Birds* 95: 410-450.

HMSO (1981) Wildlife and Countryside Act. HMSO, London.

HMSO (1992) Protection of Badgers Act, HMSO London.

HMSO (2000) Countryside and Rights of Way (CRoW) Act. HMSO, London.

HMSO (2006) Natural Environment and Rural Communities Act HMSO, London.

HMSO (2017) Conservation of Habitats and Species Regulations 2010 (as amended) HMSO, London.

National Planning Policy Framework (2021).

10 Appendices

Appendix A: Statutory designated wildlife sites within 7km

Site Name	Designation	Distance from Site	Description
Newney green pit	SSSI	2km south	0.08 ha of short semi-improved grassland with a badger sett and historic geological excavation.
Marconi Ponds	LNR	5.9km east	1.1 ha of 'rural retreat' utilised for educational purposes. The site was developed in the 60's and 70's as filter beds. The now nature reserve is nearby a railway.
Chelmer Valley riverside	LNR	6.5km east	17.6 ha of urban riverside, with a mosaic of unimproved grasslands, old hedges scrub, woodland, seasonal ponds and the river Chelmer. Marshy habitat is present, and species seen include kingfisher and pyramidal orchid.

Appendix B: Non-statutory designated wildlife sites within 2km

Site Name	Designation	Distance from Site	Description
Cooley spring	LWS	0.8km northwest	A narrow strip of woodland with arable land surrounding it.
Hopgarden spring	LWS	1.1km southwest	A small mixed woodland with history of coppicing.
Engine spring/ring grove	LWS	1.2km north	A thinly joined site of veteran or old woodland with ancient woodland features.
Boyton cross verges (Road verge 12, Roxwell)	LWS	1.5km southwest	Grasslands on the side of the A1060, with nearby farmland and a reservoir.
Road verge 9, Roxwell	LWS	1.75km northwest	A species rich grassland with a huge variety of flora.
The Moors	LWS	2km southwest	An area of lowland mixed deciduous woodland on non-ancient sites, it has a good diversity of structure, habitat and flora.

Appendix C: Flora list identified during the walkover survey

Common Name	Scientific Name
Elder	<i>Sambucus nigra</i>
Hawthorn	<i>Crataegus monogyna</i>
Blackthorn	<i>Prunus spinosa</i>
Maple	<i>Acer campestre</i>
Holly	<i>Ilex aquifolium</i>
Cut leaved dead nettle	<i>Lamium hybridum</i>
Cow parsley	<i>Anthriscus sylvestris</i>
Lilac	<i>Syringa vulgaris</i>
Moss sp	<i>Bryophyta</i>
Sumac	<i>Rhus sp.</i>
Mallow	<i>Malva sylvestris</i>
Stone crop	<i>Sedum sp</i>
Plantain	<i>Plantago major</i>
Oxe Tongue	<i>Helminthotheca echioides</i>
Mullien	<i>Verbascum thapsus</i>
Thistle	<i>Cirsium arvense</i>
Valerium	<i>Valeriana officinalis</i>
Sunflower	<i>Helianthus annuus</i>
Fleabane	<i>Erigeron annuus</i>
Buddleja	<i>Buddleja davidii</i>
Sedge	<i>Carex sp.</i>
Mouse ear	<i>Cerastium fontanum</i>
Clover	<i>Trifolium repens</i>
Yarrow	<i>Achillea millefolium</i>
Rosebay willowherb	<i>Chamaenerion angustifolium</i>

Transport Statement



Ref	JTP 635
Site Name	St Michaels Drive, Roxwell
Date	December 2022


Quality Assurance

Site name: St Michaels Drive, Roxwell

Client name: Chelmsford City Council

Type of report: Transport Statement

Prepared and Reviewed by: Steve Amann BSc (Hons) MSc (Eng)

Signed 

Date: December 2022



St Michaels Drive, Roxwell

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Appendix 3	Illustrative Development Proposals
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St Michaels Drive, Roxwell

1 Introduction

Brief

- 1.1 Journey Transport Planning Ltd has been instructed by Chelmsford City Council to undertake a Transport Statement in support of a full planning application to Chelmsford City Council pursuant to proposals for a residential development for 3 dwellings (C3 use), hard and soft landscaping and associated parking and infrastructure on land to the west of St Michaels Drive, Roxwell. The location of the site is illustrated in **Appendix 1**.

Background

- 1.2 This Transport Statement provides a summary of investigations at the site and its access pursuant to demonstrating the proposal will not have a detrimental impact on highway safety or capacity in the vicinity of the site and moreover that the proposal is suitably located for access via means other than the private car.
- 1.3 The following matters are considered in this appraisal:
- Site Assessment
 - National and Local Policy Review
 - Development Proposals and assessment of the traffic impact of the proposal
 - Parking assessment and servicing appraisal

St Michaels Drive, Roxwell

2 Site Assessment

Existing Information

- 2.1 The proposal site is located on the site of an existing play area and garage complex off St Michaels Drive, Roxwell. The site location is shown in **Appendix 1**.
- 2.2 Access to the site is proposed by way the existing access drive from St Michaels Drive. This access is currently 4.8m wide at its junction with St Michaels Drive and varies in width along its length.
- 2.3 Visibility from the access onto St Michaels Drive is achievable for at least 2.4m by 43m in both directions in accordance with the standards set out in the Manual for Streets for a 30mph road.

Public Transport Information

- 2.4 Public transport availability in the vicinity of the site has been examined and a regular bus service operate along The Street at existing stops within 400m of the site. The services are operated by First Essex and provides a regular timetabled services to Chelmsford Bus Station. The service is summarised in Table 2.1 below and full details of the service can be found in **Appendix 2**.

Table 2.1 The Street Bus Services

Service Number	Route	Frequency
9	Ongar - Chelmsford	Two Hourly

- 2.5 The available public transport services in the vicinity of the site represent a reasonable level of service given its village location and as such the site is considered to be accessible by bus based public transport.

Walking and Cycling Assessment

- 2.6 Cycling has the potential to substitute for short car trips, particularly those less than five kilometres. Cycle access to the proposal has been considered in detail. For the purposes of cycle accessibility, a cycling time of 20 minutes, which equates to five kilometres at an average speed of 15kph, has been assumed.
- 2.7 The five kilometre catchment area of the proposal site includes Writtle and parts of the west Chelmsford built area and as such is within reasonable cycling distance of a range of associated facilities, amenities and essential services including nursery, primary, secondary and further and higher education establishments.
- 2.8 The roads in the vicinity are of a good quality and due to the relatively flat nature of the area, are considered suitable for cycling.
- 2.9 In consideration of the site location and its connections with the wider area, the site offers excellent opportunities for access by bike.

St Michaels Drive, Roxwell

- 2.10 With respect to pedestrian access walking offers potential to replace short car trips, particularly those under 2km and is generally considered the maximum acceptable distance to directly access any local facility or amenity.
- 2.11 The site is in walking distance of the adjacent bus stops, a village hall and a primary school.
- 2.12 In consideration of the above, the site is suitably located in accessibility terms by cycle and public transport and provides opportunities for access via means other than the private car.

Safety Considerations and Accident Analysis

- 2.13 The accident record in the vicinity of the site has been considered and the Essex County Council Collision database indicates that there have been no accidents in the vicinity in the latest available 3 year period between October 2019 and October 2022.
- 2.14 The proposals by virtue of their very limited impact are very unlikely to have a material impact on that record.

St Michaels Drive, Roxwell

3 Policy Background

National Policy

- 3.1 Relevant policy guidance relating to new development, and transport and land use planning is set out at national level in the following document:
- the National Planning Policy Framework
- 3.2 This document set the context in which the proposals have been assessed.

The National Planning Policy Framework (NPPF)

- 3.3 The National Planning Policy Framework (NPPF, 2021) in this document the government sets out its core principles for the planning system in England.
- 3.4 The purpose of the planning system is to contribute to the achievement of sustainable development. At a very high level, the objective of sustainable development can be summarised as meeting the needs of the present without compromising the ability of future generations to meet their own needs.

Promoting Sustainable Transport

- 3.5 The NPPF in promoting sustainable transport considers that for sites to be allocated for development in plans, or specific applications for development, it should be ensured that:
- appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;*
 - safe and suitable access to the site can be achieved for all users; and*
 - any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.*
- 3.6 The framework goes on to re-iterate that **Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.**
- 3.7 The NPPF sets out in the context of applications for development that they should:
- give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;*
 - address the needs of people with disabilities and reduced mobility in relation to all modes of transport;*
 - create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;*
 - allow for the efficient delivery of goods, and access by service and emergency vehicles; and*

St Michaels Drive, Roxwell

- E. *be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.*
- 3.8 The chapter concludes that ... All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed.

Local Policy

- 3.9 The following local policy document constitutes the development plan for Chelmsford City Council:
- The Chelmsford Local Plan 2013-2036
 - Parking Standards Design and Good Practice 2009 (Essex Planning Officers Association) and subsequent Chelmsford City Council adopted standards
 - Development Management Policies, Essex County Council February 2011
- 3.10 The Chelmsford Local Plan sets out the policy, aims and objectives for new development and sustainable transport that support the guidance set out in the NPPF and seeks to develop a sustainable, integrated transport system for the area, which provides necessary access to facilities, services and goods with less dependence on cars and less impact on the environment.
- 3.11 Policy DM 27 - Parking Standards at Developments States that: The Council will have regard to the vehicle parking standards set out in the Essex Parking Standards - Design and Good Practice (2009), or as subsequently amended, when determining planning applications. Proposals which provide below these standards should be supported by evidence detailing the local circumstances that justify deviation from the standard.
- 3.12 The advice contained in the national and local policy documents has been fully considered during the development of this proposal. It is considered that the proposal is in accordance with the aims and objectives of transport policy as it applies to both its location and the use proposed.

Development Management Policy

- 3.13 Essex County Council (ECC) set out in their publication, Development Management Policies (DMP) Feb 2011, that access to development sites should be considered against the Essex Functional Route Hierarchy.
- 3.14 St Michaels Drive, which provides access to the site, is defined within the Functional Route Hierarchy as an Other Route within the defined settlement and as such there are policy restrictions with respect to access proposals for development. Given its location, the proposal site access is governed by Policy DM4 of the DMP, which states that the Highway Authority will protect the function of other routes by:
- Ensuring that new access points will be designed and constructed in accordance with the current standards
 - Requiring improvements to existing substandard access.

St Michaels Drive, Roxwell

- 3.15 The aims and objectives of the DMP have been complied with in the development of this proposal and the development being considered accords with that policy.

St Michaels Drive, Roxwell

4 Development Proposals

Description of Proposal

- 4.1 The proposals consider a residential development for 3 four bedroomed dwellings (C3 use), hard and soft landscaping and associated parking and infrastructure.
- 4.2 A layout plan of the proposed development is shown in **Appendix 3** and indicates the principal point of access to the site and the general site layout.
- 4.3 As a part of the proposals the access will be widened out at its entry to form a 5.5m wide entrance for at least 6m into the access road.

Trip Generation

- 4.4 In accordance with standard transport assessment guidelines, the proposals have been considered with respect to the likely level of trips that could be generated and the impact they would have on the local highway network.
- 4.5 The travel demand that could be associated with the proposal has been considered in detail and assessed utilising data from the TRICS trip generation database. Sites within the database have been interrogated to consider sites that are similar in land use, location and size to the proposal being considered.
- 4.6 The TRICS 7.9.3 trip generation database has been interrogated to assess the likely number of vehicular trips that could be associated with nine private flats, representing the proposed development.
- 4.7 **Table 4.1** summarises the trip generation rates and provides an estimate of vehicular movements associated with the development proposals.

Table 4.1 Residential Use Trip Generation Summary

	AM Peak (08:00-09:00)		PM Peak (17:00-18:00)		Daily Trips 07:00-19:00	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Trip Rate per Dwelling	0.154	0.321	0.303	0.167	2.342	2.385
Trips per 3 dwellings	1	1	1	1	7	7

- 4.8 **Table 4.1** indicates that the proposed redevelopment could result 2 trips in the AM peak and 2 trips in the PM peak and 14 movements over a typical day.
- 4.9 Given the very low level of vehicular trips that could be generated by the proposals and the opportunities to access the site via means other than the private car, the development will not have a detrimental impact on the operation of the local road network in the vicinity of the site and can be accommodated in terms of capacity and highway safety. Given the existing garage use, the development will not result in an intensification of use of the access
- 4.10 The TRICS data is held in **Appendix 4**.

St Michaels Drive, Roxwell

Vehicle Parking

- 4.11 The car parking requirements of the proposal have been considered in the context of the requirements set out by Chelmsford City Council in accordance with the following minimum requirements:
- One space per one bed dwelling
 - Two spaces per 2 + Bed Dwelling
 - Visitor Parking 0.25 spaces per dwelling
- 4.12 The proposals comprise three 4 bedroomed dwellings and as such 6 allocated spaces are proposed with a further 2 visitor parking spaces in accordance with the guidance.
- 4.13 All spaces are proposed at either 2.9m by 5.5m where perpendicular or at 6.0m by 2.9m where parallel provision is proposed. All spaces are accessible without the need to reverse onto the highway.
- 4.14 As a part of the proposals each dwelling will have a cycle parking space in accordance with current standards.

Local Parking Demand

- 4.15 Following pre-application discussions, the Highway Authority raised concerns with respect to the impact of the loss of car parking provision on the locally available on-street supply and whether the additional demand could be accommodated within the capacity available.
- 4.16 Currently, 17 of the 24 available garages on the site are occupied, primarily by individuals within Roxwell village and as such there is the potential for the loss of this parking to impact on the locally available on-street supply and as such, a parking survey to assess the capacity of the on-street parking available in the vicinity to accommodate any additional displaced demand has been undertaken.
- 4.17 It should be recognised that, notwithstanding the current occupancy of the garages, the likelihood is that the use of the garages pertains to not only to their function as a parking space but moreover as a secure and covered structure. As such it is likely that the majority of the displaced users would seek alternative similar covered secure provision as a direct replacement and as such the proposals would not impact significantly on the local on street parking supply.
- 4.18 It is also probable that a proportion of the occupiers utilise the garages as storage for purposes other than that of vehicle parking and as such will seek alternative similar storage and again the loss of the garages will not impact on local on-street parking supply.
- 4.19 Nonetheless, in order to provide a robust assessment, the availability and utilisation of on-street car parking in the vicinity has been surveyed utilising the Lambeth Parking survey methodology. The surveys were undertaken 29th and 30th November and 3rd of December 2022.
- 4.20 The survey area included all roads within 100m of the site. In accordance with the Lambeth parking survey methodology with available spaces were identified where they are not subject to legal or practical restrictions.

St Michaels Drive, Roxwell

- 4.21 The plan attached at **Appendix 5** illustrates the available parking within the surveyed area. The surveys were undertaken for the following times
- Tuesday 08:30, 12:30, 19:30
 - Wednesday 08:30, 12:30, 19:30
 - Saturday 08:30, 12:30, 19:30

- 4.22 The results of the surveys are summarised in Table 4.1 below

Table 4.1 St Michaels Drive Parking Beat Survey Summary

Time Period	On Street Spaces		%age Utilisation
	Spaces Available	Spaces Utilised	
Tues 08:30	73	25	34%
Tues 12:30	73	20	27%
Tues 19:30	73	24	33%
Weds 08:30	73	24	33%
Weds 12:30	73	23	32%
Weds 19:30	73	22	30%
Sat 09:30	73	25	34%
Sat 12:30	73	29	40%
Sat 16:30	73	26	36%

- 4.23 The surveys identify that within 100m of the site there are a total of 73 available legally usable parking spaces not subject to restriction.
- 4.24 During the surveyed days and time periods the data indicates that the maximum utilisation was observed at 12:30 on a Saturday where 29 parked vehicles were surveyed representing a space utilisation of 40% leaving 44 free spaces. At all other times the observed utilisation was between 27% and 36%.
- 4.25 Given the foregoing, even should all occupiers of the 17 let garages require replacement parking on-street, this demand could easily be accommodated within the existing available on-street supply and would not result in any measured local parking stress.
- 4.26 The parking surveys and plan held in **Appendix 5**.

St Michaels Drive, Roxwell

Access and Servicing

- 4.27 The main access to the proposed development is proposed via the existing access to the garages directly from St Michaels Drive. Visibility at the access is achievable at 2.4m by 43m in both directions as required for a 30mph road under Manual for Streets guidance.
- 4.28 The access will be widened out to 5.5m for the initial 6m into the access. The remainder of the access will be provided as per a shared private drive arrangement. The existing kerb will be widened to accommodate the drive with an appropriate drop kerbed crossing.
- 4.29 A vehicle tracking assessment has been undertaken and demonstrates that refuse and emergency fire vehicles can enter and exit the site in forward gear. Vehicular access to the rear of number 65 St Michaels Drive will be retained as a part of the proposals and as such the vehicle tracking also demonstrates that that the use of this access can be maintained. The vehicle tracking assessment is held in **Appendix 6**.

5 Summary and Conclusions

Summary

- 5.1 This Transport Statement has been provided in support of a full planning application to Chelmsford City Council for proposals for the redevelopment of land and buildings at St Michaels Drive, Roxwell for the purposes of three dwellings, parking and access.
- 5.2 The TRICS trip generation assessment demonstrates that the proposed development would lead to a minimal increase in vehicular trips associated with the site.
- 5.3 The traffic generated by the proposal can be accommodated via the existing access improved arrangements without having a detrimental impact on the operation of the local highway network by virtue of either highway capacity or highway safety.
- 5.4 The site is considered to be in an accessible location for the purposes of access via means other than the private car.
- 5.5 The proposed change of use will incorporate car and cycle parking in accordance with Chelmsford City Council requirements.
- 5.6 The potential displaced parking pressure on local on-street parking that could be created by the development can easily be accommodated by the existing on-street car parking supply without having a detrimental impact in terms of parking stress.
- 5.7 The delivery and emergency manoeuvring requirements for the proposals can be undertaken in accordance with Chelmsford City Council requirements.

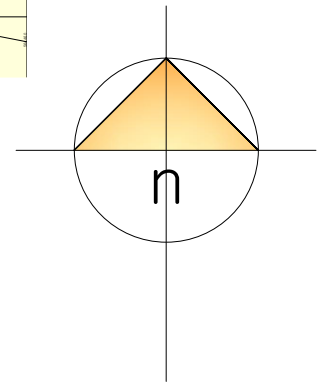
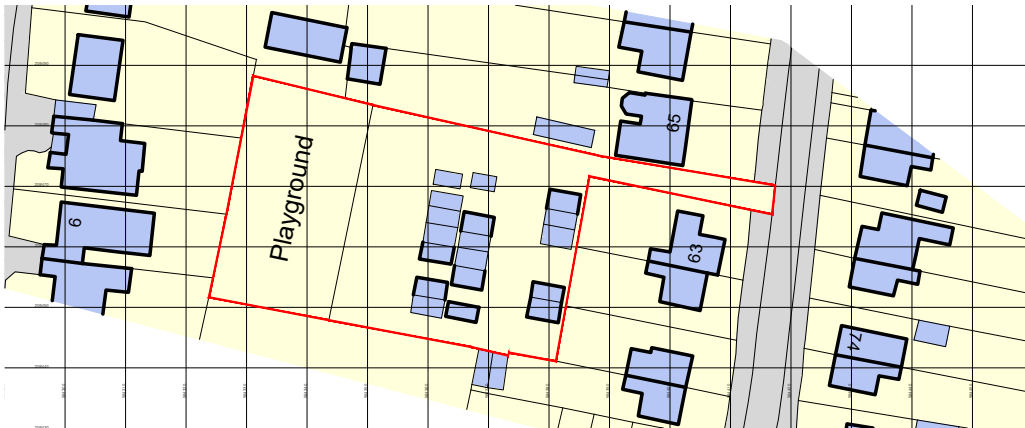
Conclusions

- 5.8 This Transport Statement demonstrates that the proposals have been developed in accordance with the aims and objectives of current national and local policy as it relates to transport and will not have a significant or severe impact on the efficiency or safety of the local transport network.
- 5.9 In view of the foregoing, it is considered that there are no substantive highway or transportation reasons why the proposals as submitted should not be permitted.



Appendix 1
Site Location

This drawing is copyright © and must not be reproduced in whole or part without obtaining written authority from John Finch Partnership.
Do not scale from this drawing.
All dimensions to be checked on site.
Refer any discrepancies to the project Architect.



client
Chelmsford City Council

project
St. Michael Drive, Roxwell

title
Location plan

chartered architects & town planning consultants

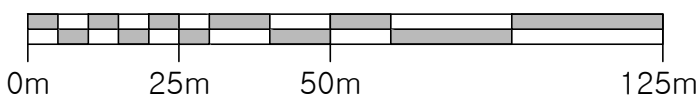
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drawn	jm	checked	rjh
dwg no	3555:01	revision	

Location plan

A4 SHEET @ 1:1250





Appendix 2
Public Transport Information

First 46 Ongar-Chelmsford

Mondays to Fridays from 30 October 2022

46 46 46 46 46 46

Ongar, Two Brewers	0720	0920	1110	1335	1525	1715
Ongar, The Kings Inn	0722	0922	1112	1337	1527	1717
Ongar, Four Wantz	0725	0925	1115	1340	1530	1720
Fyfield, The Queens Head	0730	0929	1119	1344	1534	1724
Willingale, The Maltsters Arms	0737	0936	1126	1351	1541	1731
Roxwell, St Michael's Drive	0747	0946	1136	1401	1551	1740
Roxwell, Village Hall	0749	0948	1138	1403	1553	1742
Roxwell, The Hare	0752	0951	1141	1406	1556	1745
Writtle, Agricultural College	0757	0956	1146	1411	1601	1750
Chelmsford, Bus Station Stand 6	0819	1009	1159	1424	1614	1805

First 46 Ongar-Chelmsford

Saturdays from 30 October 2022

46 46 46 46 46 46

Ongar, Two Brewers	0730	0920	1110	1335	1525	1715
Ongar, The Kings Inn	0732	0922	1112	1337	1527	1717
Ongar, Four Wantz	0735	0925	1115	1340	1530	1720
Fyfield, The Queens Head	0739	0929	1119	1344	1534	1724
Willingale, The Maltsters Arms	0746	0936	1126	1351	1541	1731
Roxwell, St Michael's Drive	0757	0946	1136	1401	1551	1741
Roxwell, Village Hall	0758	0948	1138	1403	1553	1743
Roxwell, The Hare	0801	0951	1141	1406	1556	1746
Writtle, Agricultural College	0806	0956	1146	1411	1601	1751
Chelmsford, Bus Station Stand 6	0820	1009	1159	1424	1614	1804

First 46 Chelmsford-Ongar

Mondays to Fridays from 30 October 2022

46 46 46 46 46 46

Chelmsford, Bus Station Stand 6	0825	1015	1240	1430	1620	1810
Chelmsford, H&M Stop Dc	0827	1017	1242	1432	1624	1813
Writtle, Lordship Road	0841	1028	1253	1443	1635	1824
Roxwell, The Hare	0846	1033	1258	1448	1640	1829
Roxwell, Village Hall	0849	1036	1301	1451	1643	1832
Roxwell, St Michael's Drive	0851	1038	1303	1453	1645	1834
Willingale, The Maltsters Arms	0901	1048	1313	1503	1655	1843
Fyfield, The Queens Head	0908	1055	1320	1510	1702	1850
Ongar, Four Wantz	0912	1059	1324	1514	1706	1854
Ongar, The Kings Inn	0915	1102	1327	1517	1709	1857
Ongar, Two Brewers	0917	1104	1329	1519	1712	1859

First 46 Chelmsford-Ongar

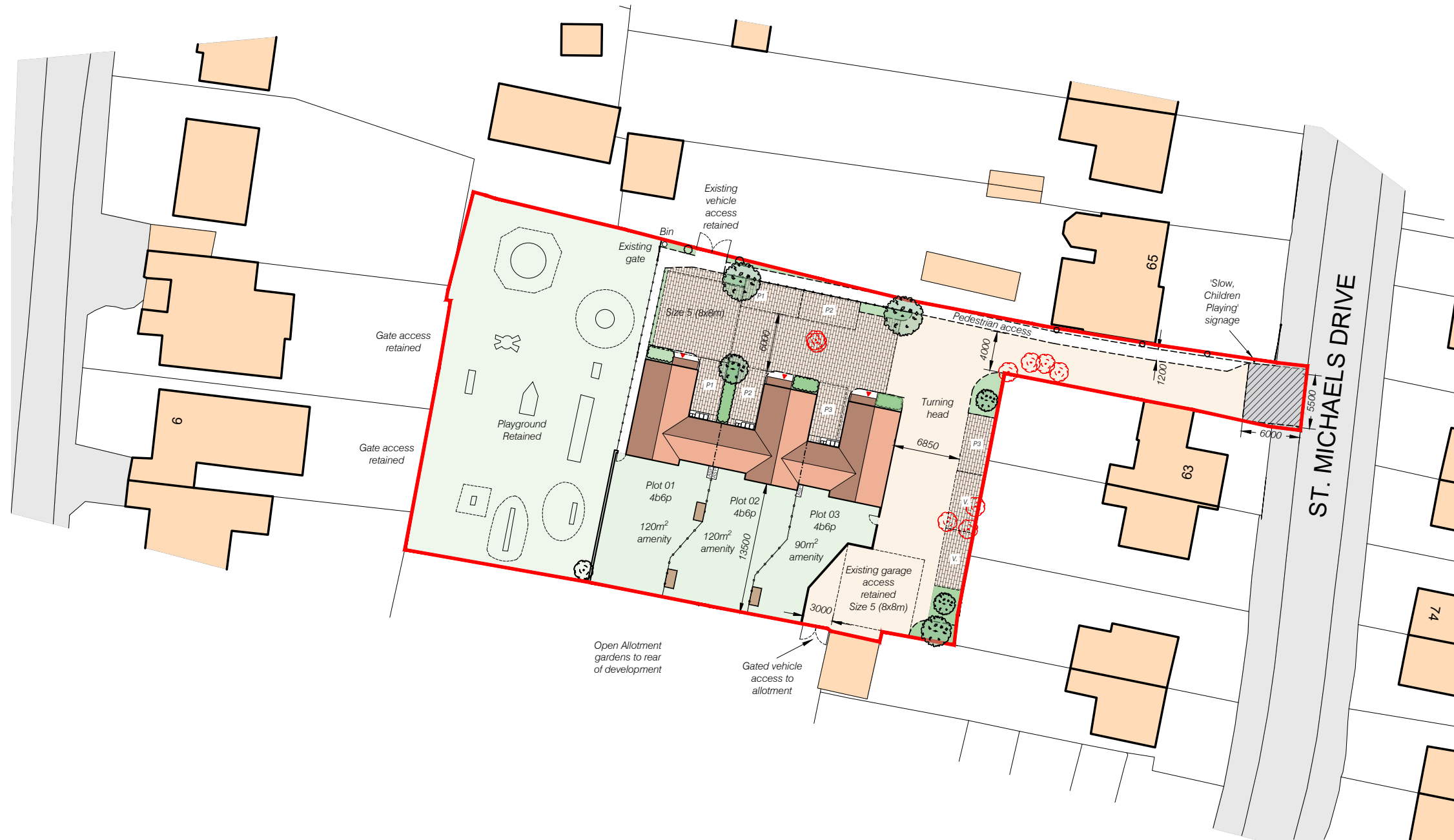
Saturdays from 30 October 2022

46 46 46 46 46 46

Chelmsford , Bus Station Stand 6	0825	1015	1240	1430	1620	1810
Chelmsford , H&M Stop Dc	0827	1017	1242	1432	1622	1812
Writtle , Lordship Road	0838	1028	1253	1443	1633	1823
Roxwell , The Hare	0843	1033	1258	1448	1638	1828
Roxwell , Village Hall	0846	1036	1301	1451	1641	1831
Roxwell , St Michael's Drive	0848	1038	1303	1453	1643	1833
Willingale , The Maltsters Arms	0858	1048	1313	1503	1653	1843
Fyfield , The Queens Head	0905	1055	1320	1510	1700	1850
Ongar , Four Wantz	0909	1059	1324	1514	1704	1854
Ongar , The Kings Inn	0912	1102	1327	1517	1707	1857
Ongar , Two Brewers	0914	1104	1329	1519	1710	1859



Appendix 3
Development Layout



Accommodation Schedule

Plot No.	Accommodation	Area (m ²)	Amenity (m ²)
01	4 Bedroom 6 person house	117	120
02	4 Bedroom 6 person house	117	120
03	4 Bedroom 6 person house	117	90

Key:

- Proposed Tree
- Permeable gravel driveway
- Concrete pavers
- Cycle Stores
- Enclosed Bin stores
- 1800mm h. close boarded timber fence
- 1800mm h. 225mm thick external brick wall
- 1200mm h. metal anti-trap playground fencing to local requirements

revision

issue

FOR INFORMATION

client

Chelmsford City Council

project

St. Michaels Drive, Roxwell,
Chelmsford

title

Proposed Block Plan

john finch partnership
chartered architects & town planning consultants



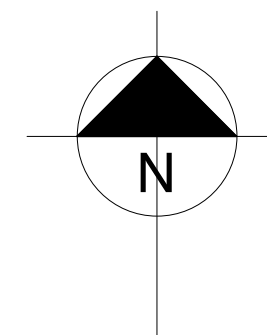
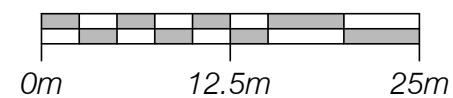
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date	22.11.22	scale	1:500 @ A3
drawn	lt/jh	checked	jm
dwg no	3555:02	revision	C

PROPOSED BLOCK PLAN @ 1:500

A3 SHEET @ 1:500





Appendix 4

TRICS Data

Calculation Reference: AUDIT-757101-221208-1226

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : A - HOUSES PRIVATELY OWNED
TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST	
	ES EAST SUSSEX	1 days
	MW MEDWAY	1 days
03	SOUTH WEST	
	GS GLOUCESTERSHIRE	1 days
	SM SOMERSET	2 days
04	EAST ANGLIA	
	CA CAMBRIDGESHIRE	1 days
	SF SUFFOLK	2 days
05	EAST MIDLANDS	
	NM WEST NORTHAMPTONSHIRE	1 days
	NN NORTH NORTHAMPTONSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	SY SOUTH YORKSHIRE	2 days
08	NORTH WEST	
	AC CHESHIRE WEST & CHESTER	1 days
09	NORTH	
	TW TYNE & WEAR	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: No of Dwellings
Actual Range: 8 to 47 (units:)
Range Selected by User: 6 to 50 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/14 to 22/06/22

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Tuesday	4 days
Wednesday	3 days
Thursday	2 days
Friday	5 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	14 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Neighbourhood Centre (PPS6 Local Centre) 14

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

C3 14 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS@.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,000 or Less 2 days
 1,001 to 5,000 10 days
 5,001 to 10,000 2 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

25,001 to 50,000 3 days
 50,001 to 75,000 2 days
 75,001 to 100,000 2 days
 125,001 to 250,000 5 days
 250,001 to 500,000 1 days
 500,001 or More 1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0 5 days
 1.1 to 1.5 7 days
 1.6 to 2.0 2 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes 3 days
 No 11 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present 14 days

This data displays the number of selected surveys with PTAL Ratings.

Covid-19 Restrictions Yes At least one survey within the selected data set was undertaken at a time of Covid-19 restrictions

LIST OF SITES relevant to selection parameters

1	AC-03-A-05 MEADOW DRIVE NORTHWICH BARNTON Neighbourhood Centre (PPS6 Local Centre) Village Total No of Dwellings: 40 <i>Survey date: FRIDAY 30/04/21</i>	SEMI -DETACHED & TERRACED	CHESHIRE WEST & CHESTER	<i>Survey Type: MANUAL</i>
2	CA-03-A-07 FIELD END NEAR ELY WITCHFORD Neighbourhood Centre (PPS6 Local Centre) Village Total No of Dwellings: 32 <i>Survey date: THURSDAY 27/05/21</i>	MIXED HOUSES	CAMBRI DGESHI RE	<i>Survey Type: MANUAL</i>
3	ES-03-A-06 BISHOPS LANE RINGMER Neighbourhood Centre (PPS6 Local Centre) Village Total No of Dwellings: 12 <i>Survey date: WEDNESDAY 16/06/21</i>	MIXED HOUSES	EAST SUSSEX	<i>Survey Type: MANUAL</i>
4	GS-03-A-02 OAKRIDGE NEAR GLOUCESTER HIGHNAM Neighbourhood Centre (PPS6 Local Centre) Village Total No of Dwellings: 40 <i>Survey date: FRIDAY 23/04/21</i>	DETACHED HOUSES	GLOUCESTERSHI RE	<i>Survey Type: MANUAL</i>
5	MW-03-A-01 ROCHESTER ROAD NEAR CHATHAM BURHAM Neighbourhood Centre (PPS6 Local Centre) Village Total No of Dwellings: 8 <i>Survey date: FRIDAY 22/09/17</i>	DETACHED & SEMI -DETACHED	MEDWAY	<i>Survey Type: MANUAL</i>
6	NM-03-A-02 HARLESTONE ROAD NEAR NORTHAMPTON CHAPEL BRAMPTON Neighbourhood Centre (PPS6 Local Centre) Village Total No of Dwellings: 47 <i>Survey date: TUESDAY 20/10/20</i>	DETACHED & SEMI -DETACHED	WEST NORTHAMPTONSHI RE	<i>Survey Type: MANUAL</i>
7	NN-03-A-01 MAIN STREET NEAR WELLINGBOROUGH LITTLE HARROWDEN Neighbourhood Centre (PPS6 Local Centre) Village Total No of Dwellings: 44 <i>Survey date: TUESDAY 20/10/20</i>	MIXED HOUSES & FLATS	NORTH NORTHAMPTONSHI RE	<i>Survey Type: MANUAL</i>
8	SF-03-A-06 BURY ROAD KENTFORD Neighbourhood Centre (PPS6 Local Centre) Village Total No of Dwellings: 38 <i>Survey date: FRIDAY 22/09/17</i>	DETACHED & SEMI -DETACHED	SUFFOLK	<i>Survey Type: MANUAL</i>

LIST OF SITES relevant to selection parameters (Cont.)

9	SF-03-A-08	MIXED HOUSES	SUFFOLK
	STANNINGFIELD ROAD		
	NEAR BURY ST EDMUNDS		
	GREAT WHELNETHAM		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total No of Dwellings:	34	
	Survey date: WEDNESDAY	16/09/20	Survey Type: MANUAL
10	SM-03-A-02	MIXED HOUSES	SOMERSET
	HYDE LANE		
	NEAR TAUNTON		
	CREECH SAINT MICHAEL		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total No of Dwellings:	42	
	Survey date: TUESDAY	25/09/18	Survey Type: MANUAL
11	SM-03-A-03	MIXED HOUSES	SOMERSET
	HYDE LANE		
	NEAR TAUNTON		
	CREECH ST MICHAEL		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total No of Dwellings:	41	
	Survey date: TUESDAY	25/09/18	Survey Type: MANUAL
12	SY-03-A-02	DETACHED & BUNGALOWS	SOUTH YORKSHIRE
	MANOR ROAD		
	NEAR SHEFFIELD		
	WALES		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total No of Dwellings:	25	
	Survey date: THURSDAY	10/09/20	Survey Type: MANUAL
13	SY-03-A-03	BUNGALOWS & DETACHED	SOUTH YORKSHIRE
	CHURCH LANE		
	NEAR BARNSELEY		
	WORSBROUGH		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total No of Dwellings:	19	
	Survey date: WEDNESDAY	09/09/20	Survey Type: MANUAL
14	TW-03-A-03	MIXED HOUSES	TYNE & WEAR
	STATION ROAD		
	NEAR NEWCASTLE		
	BACKWORTH		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total No of Dwellings:	33	
	Survey date: FRIDAY	13/11/15	Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
 TOTAL VEHICLES
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	14	33	0.088	14	33	0.262	14	33	0.350
08:00 - 09:00	14	33	0.154	14	33	0.321	14	33	0.475
09:00 - 10:00	14	33	0.147	14	33	0.224	14	33	0.371
10:00 - 11:00	14	33	0.167	14	33	0.171	14	33	0.338
11:00 - 12:00	14	33	0.220	14	33	0.198	14	33	0.418
12:00 - 13:00	14	33	0.167	14	33	0.174	14	33	0.341
13:00 - 14:00	14	33	0.187	14	33	0.180	14	33	0.367
14:00 - 15:00	14	33	0.193	14	33	0.178	14	33	0.371
15:00 - 16:00	14	33	0.226	14	33	0.196	14	33	0.422
16:00 - 17:00	14	33	0.248	14	33	0.182	14	33	0.430
17:00 - 18:00	14	33	0.303	14	33	0.167	14	33	0.470
18:00 - 19:00	14	33	0.242	14	33	0.132	14	33	0.374
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.342			2.385			4.727

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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Parameter summary

Trip rate parameter range selected: 8 - 47 (units:)
 Survey date range: 01/01/14 - 22/06/22
 Number of weekdays (Monday-Friday): 14
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys automatically removed from selection: 1
 Surveys manually removed from selection: 0




This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.



Appendix 5
Parking Plan and Survey

34111 Chelmsford
Area 2 - St Michaels Drive, CM1 4NU
Street Inventory
Tuesday 29th November 2022



-  Double Yellow Line
-  School Keep Clear
-  Dropped Kerb



ADVANCED
TRANSPORT
RESEARCH

Based on Ordnance Survey mapping (C) Crown Copyright

0830 Tuesday 29th	Street	Total Length of Available Kerb Space	Length of Junctions	Length of Bus stops/other	Unrestricted Kerb Space			Double Yellow Line				
					Length (m)	Calculated Spaces	Cars Parked	Stress	Length (m)	Calculated Spaces	Cars Parked	Stress
					The Street	178	5	17	146	29	12	41%
St Michaels Drive	286	5	57	224	44	13	30%					
Total per Beat by restriction					73	25	34%		2	0	0%	
Total per Beat					73	25	34%					

1230 Tuesday 29th	Street	Total Length of Available Kerb Space	Length of Junctions	Length of Bus stops/other	Unrestricted Kerb Space			Double Yellow Line				
					Length (m)	Calculated Spaces	Cars Parked	Stress	Length (m)	Calculated Spaces	Cars Parked	Stress
					The Street	178	5	17	146	29	10	34%
St Michaels Drive	286	5	57	224	44	10	23%					
Total per Beat by restriction					73	20	27%		2	0	0%	
Total per Beat					73	20	27%					

1930 Tuesday 29th	Street	Total Length of Available Kerb Space	Length of Junctions	Length of Bus stops/other	Unrestricted Kerb Space			Double Yellow Line				
					Length (m)	Calculated Spaces	Cars Parked	Stress	Length (m)	Calculated Spaces	Cars Parked	Stress
					The Street	178	5	17	146	29	11	38%
St Michaels Drive	286	5	57	224	44	13	30%					
Total per Beat by restriction					73	24	33%		2	0	0%	
Total per Beat					73	24	33%					

0830 Wednesday	Street	Total Length of Available Kerb Space	Length of Junctions	Length of Bus stops/other	Unrestricted Kerb Space			Double Yellow Line				
					Length (m)	Calculated Spaces	Cars Parked	Stress	Length (m)	Calculated Spaces	Cars Parked	Stress
					The Street	178	5	17	146	29	11	38%
St Michaels Drive	286	5	57	224	44	13	30%					
Total per Beat by restriction					73	24	33%		2	0	0%	
Total per Beat					73	24	33%					

1230 Wednesday	Street	Total Length of Available Kerb Space	Length of Junctions	Length of Bus stops/other	Unrestricted Kerb Space			Double Yellow Line				
					Length (m)	Calculated Spaces	Cars Parked	Stress	Length (m)	Calculated Spaces	Cars Parked	Stress
					The Street	178	5	17	146	29	11	38%
St Michaels Drive	286	5	57	224	44	12	27%					
Total per Beat by restriction					73	23	32%		2	0	0%	
Total per Beat					73	23	32%					

1930 Wednesday	Street	Total Length of Available Kerb Space	Length of Junctions	Length of Bus stops/other	Unrestricted Kerb Space			Double Yellow Line				
					Length (m)	Calculated Spaces	Cars Parked	Stress	Length (m)	Calculated Spaces	Cars Parked	Stress
	The Street	178	5	17	146	29	10	34%	10	2	0	0%
	St Michaels Drive	286	5	57	224	44	12	27%				
Total per Beat by restriction					73	22	30%		2	0	0%	
Total per Beat					73	22	30%					

0930 Saturday 3rd	Street	Total Length of Available Kerb Space	Length of Junctions	Length of Bus stops/other	Unrestricted Kerb Space			Double Yellow Line				
					Length (m)	Calculated Spaces	Cars Parked	Stress	Length (m)	Calculated Spaces	Cars Parked	Stress
	The Street	178	5	17	146	29	10	34%	10	2	0	0%
	St Michaels Drive	286	5	57	224	44	15	34%				
Total per Beat by restriction					73	25	34%		2	0	0%	
Total per Beat					73	25	34%					

1230 Saturday 3rd	Street	Total Length of Available Kerb Space	Length of Junctions	Length of Bus stops/other	Unrestricted Kerb Space			Double Yellow Line				
					Length (m)	Calculated Spaces	Cars Parked	Stress	Length (m)	Calculated Spaces	Cars Parked	Stress
	The Street	178	5	17	146	29	14	48%	10	2	0	0%
	St Michaels Drive	286	5	57	224	44	15	34%				
Total per Beat by restriction					73	29	40%		2	0	0%	
Total per Beat					73	29	40%					

1630 Saturday 3rd	Street	Total Length of Available Kerb Space	Length of Junctions	Length of Bus stops/other	Unrestricted Kerb Space			Double Yellow Line				
					Length (m)	Calculated Spaces	Cars Parked	Stress	Length (m)	Calculated Spaces	Cars Parked	Stress
	The Street	178	5	17	146	29	13	45%	10	2	0	0%
	St Michaels Drive	286	5	57	224	44	13	30%				
Total per Beat by restriction					73	26	36%		2	0	0%	
Total per Beat					73	26	36%					



Appendix 6
Vehicle Tracking assessments

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Accommodation Schedule

Plot No.	Accommodation	Area (m ²)	Amenity (m ²)
01	4 Bedroom 6 person house	117	120
02	4 Bedroom 6 person house	117	120
03	4 Bedroom 6 person house	117	90

Key:

- Proposed Tree
- Permeable gravel driveway
- Concrete pavers
- Cycle Stores
- Enclosed Bin stores
- 1800mm h. close boarded timber fence
- 1800mm h. 225mm thick external brick wall
- 1200mm h. metal anti-trap playground fencing to local requirements

revision

issue

FOR INFORMATION

client

Chelmsford City Council

project

St. Michaels Drive, Roxwell, Chelmsford

title

Proposed Block Plan

john finch partnership
chartered architects & town planning consultants



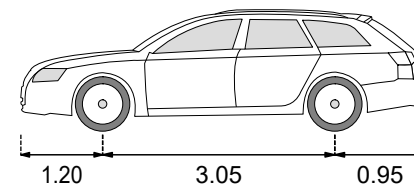
88 Broomfield Road
Chelmsford CM1 1SS
01245 354319/250780
admin@johnfinchpartnership.co.uk

www.johnfinchpartnership.co.uk

date	22.11.22	scale	1:500 @ A3
drawn	lt/jh	checked	jm
dwg no	3555:02	revision	C

PROPOSED BLOCK PLAN @ 1:500

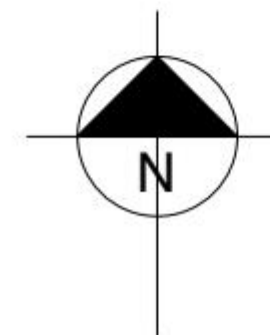
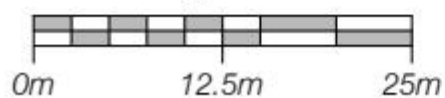
Vehicle dimensions



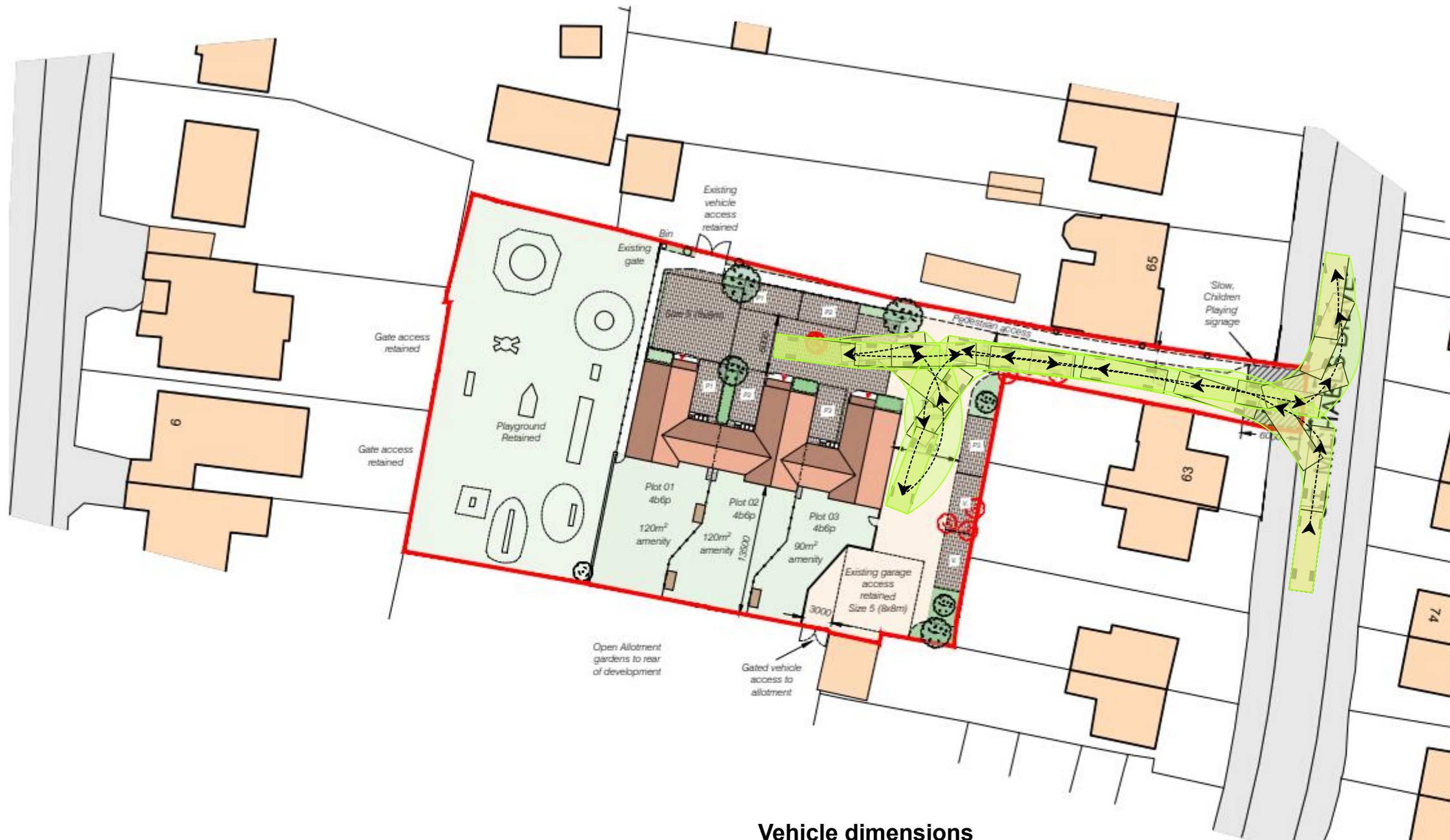
Passenger car (long) - Custom

- Length: 5.16 m
- Max width: 1.94 m
- Lock to lock time: 4.0 s
- Max steering angle: 33.59°
- Turn radius (curb to curb): 6.30 m
- Turn radius (wall to wall): 7.00 m

A3 SHEET @ 1:500



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Accommodation Schedule

Plot No.	Accommodation	Area (m ²)	Amenity (m ²)
01	4 Bedroom 6 person house	117	120
02	4 Bedroom 6 person house	117	120
03	4 Bedroom 6 person house	117	90

Key:

- Proposed Tree
- Permeable gravel driveway
- Concrete pavers
- Cycle Stores
- Enclosed Bin stores
- 1800mm h. close boarded timber fence
- 1800mm h. 225mm thick external brick wall
- 1200mm h. metal anti-trap playground fencing to local requirements

revision

issue

FOR INFORMATION

client

Chelmsford City Council

project

St. Michaels Drive, Roxwell, Chelmsford

title

Proposed Block Plan

john finch partnership
chartered architects & town planning consultants

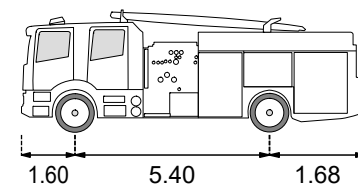


88 Broomfield Road
Chelmsford CM1 1SS
01245 354319/250780
admin@johnfinchpartnership.co.uk

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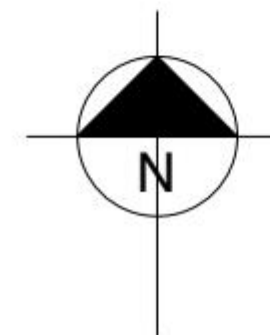
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drawn	lt/jh	checked	jm
dwg no	3555:02	revision	C

Vehicle dimensions



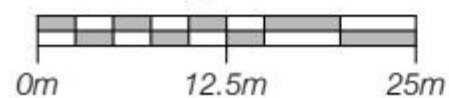
Fire Appliance

- Length: 8.68 m
- Max width: 2.40 m
- Lock to lock time: 6.0 s
- Max steering angle: 42.02°
- Turn radius (curb to curb): 9.00 m
- Turn radius (wall to wall): 10.04 m

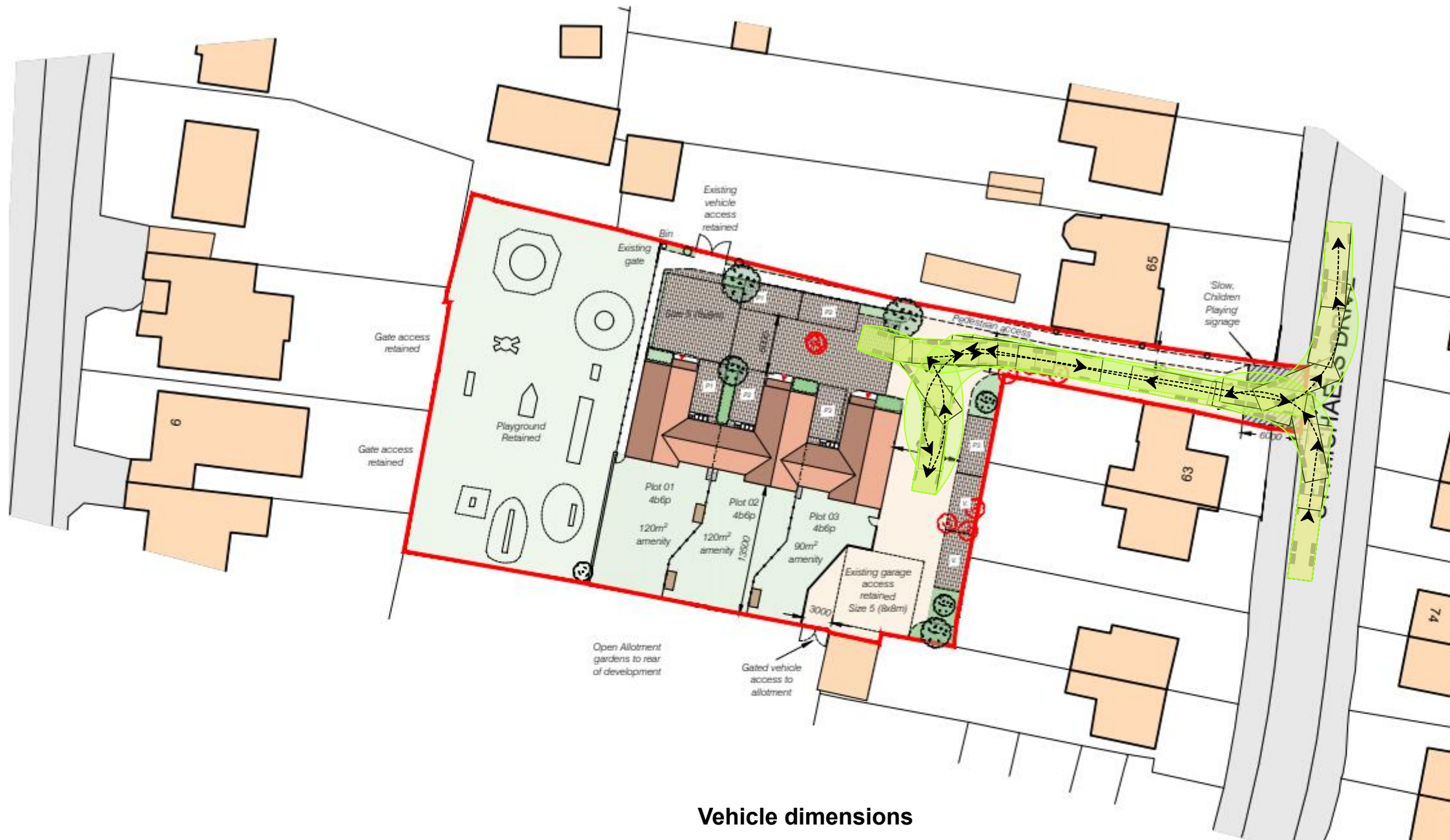


PROPOSED BLOCK PLAN @ 1:500

A3 SHEET @ 1:500



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Accommodation Schedule

Plot No.	Accommodation	Area (m ²)	Amenity (m ²)
01	4 Bedroom 6 person house	117	120
02	4 Bedroom 6 person house	117	120
03	4 Bedroom 6 person house	117	90

Key:

- Proposed Tree
- Permeable gravel driveway
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- Enclosed Bin stores
- 1800mm h. close boarded timber fence
- 1800mm h. 225mm thick external brick wall
- 1200mm h. metal anti-trap playground fencing to local requirements

revision

issue

FOR INFORMATION

client

Chelmsford City Council

project

St. Michaels Drive, Roxwell, Chelmsford

title

Proposed Block Plan

john finch partnership
chartered architects & town planning consultants

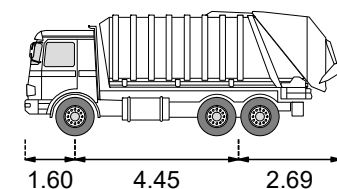


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admin@johnfinchpartnership.co.uk

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drawn	lt/jh	checked	jm
dwg no	3555:02	revision	C

Vehicle dimensions

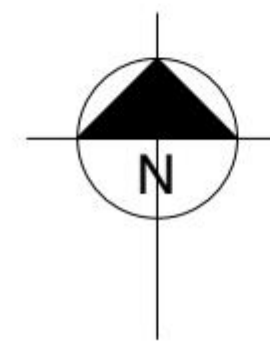
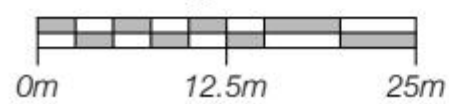


ECC Refuse Collector (3 axled) - Custom

- Length: 8.74 m**
- Max width: 2.50 m**
- Lock to lock time: 6.0 s**
- Max steering angle: 35.33°**
- Turn radius (curb to curb): 8.75 m**

PROPOSED BLOCK PLAN @ 1:500

A3 SHEET @ 1:500





create
CONSULTING
ENGINEERS LTD

ST MICHAELS DRIVE, CHELMSFORD
Foul and Surface Water Drainage Strategy

**ST MICHAELS DRIVE, ROXWELL,
CHELMSFORD**

**Foul and Surface Water
Drainage Strategy**

Clients: Chelmsford City Council

Engineer: Create Consulting Engineers Limited
BIC108 - The MedBIC,
Alan Cherry Dr,
Chelmsford
CM1 1SQ
Tel: 01603 877010
Email: enquiries@createconsultingengineers.co.uk
Web: www.createconsultingengineers.co.uk

Report By: James Everitt, MEng (Hons)

Reviewed By: Graham Sinclair, BSc (Hons), MSc, DIC, C.WEM, MCIWEM

Reference: JE/CS/P22-2709/15

Date: April 2023

ST MICHAELS DRIVE, CHELMSFORD
Foul and Surface Water Drainage Strategy

ST MICHAELS DRIVE, CHELMSFORD

Drainage Strategy

Contents

- 1.0 Introduction
- 2.0 Sources of Information
- 3.0 Site Setting
- 4.0 Scheme Description
- 5.0 Surface Water Flood Risk
- 6.0 Foul and Surface Water Drainage and Flood Risk from the Development
- 7.0 Mitigation
- 8.0 Residual Flood Risks and Impacts to Surrounding Areas
- 9.0 Conclusions and Recommendations
- 10.0 References

Figures

- 1.1 Site Location Plan
- 3.1 British Geological Survey Bedrock Geology Mapping Extract
- 3.2 British Geological Survey Superficial Deposits Geology Mapping Extract
- 3.3 Identified Local Watercourse Map

Appendices

- A. Anglian Water Asset Location Search
- B. Essex & Suffolk Water Asset Location Search
- C. Greenfield & Brownfield Runoff Calculations
- D. FLOW Drainage Calculations
- E. Essex County Council SUDS Proforma

Plans

- 3555:02 Site Layout
- 41367BWLS-01 Topographic Survey
- 2709/02/005B Surface Water Drainage Strategy

Registration of Amendments

Revision	Amendment Details	Revision Prepared By	Revision Approved By

1.0 INTRODUCTION

- 1.1 Create Consulting Engineers Ltd was instructed by Chelmsford City Council to undertake a Foul and Surface Water Drainage Strategy for St Michaels Drive, Chelmsford (Figure 1.1).

Project Context

- 1.2 It is understood that this Foul and Surface Water Drainage Strategy will be used by the Client to support a planning application for the provision of 3 residential units. The scheme includes all associated access, car parking and garages for certain plots.
- 1.3 Plans showing the proposed scheme are included in Drawing 3555:02.

Planning Policy Context

National Policy

- 1.4 The National Planning Policy Framework¹ (updated 2021) includes Government policy on development and flood risk stating that:

167. When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment. Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that:

- a) Within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;*
- b) The development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;*
- c) It incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;*
- d) Any residual risk can be safely managed; and*
- e) Safe access and escape routes are included where appropriate, as part of an agreed emergency plan.*

- 1.5 The Planning Practice Guidance to the NPPF² (updated August, 2022) requires that at the planning stage, the developer should prepare and submit an appropriate FRA to demonstrate how flood risk from all sources of flooding to the development itself and flood risk to others will be managed now and when taking climate change into account.

¹ Ministry of Housing, Communities & Local Government., 2021. *National Planning Policy Framework (NPPF)*. [Online]. Available at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2> [Accessed April, 2023].

² Ministry of Housing, Communities & Local Government., 2021. *Planning Practice Guidance (PPG) - Flood Risk and Coastal Change*. [Online]. Available at: <http://planningguidance.planningportal.gov.uk/> [Accessed April, 2023].

- 1.6 To comply with the NPPF a FRA must be submitted for planning applications for developments within flood zones 2 and 3 (medium or high risk of fluvial or tidal flooding) and for all developments located in Flood Zone 1 (low risk) which are 1 hectare or greater; which has been identified by the Environment Agency as having critical drainage problems; identified in a strategic flood risk assessment as being at increased flood risk in future; or that may be subject to other sources of flooding, where its development would introduce a more vulnerable use.
- 1.7 A FRA should be appropriate to the scale, nature and location of the development and should identify and assess the risk from all sources of flooding to and from the development and demonstrate how any flood risks will be managed over the lifetime of the development.
- 1.8 An assessment of surface water and drainage is also required as part of the FRA in order to demonstrate how flood risk to others will be managed following development and taking climate change into account.
- 1.9 The Planning Practice Guidance (substantially revised in August 2022) requires that sustainable drainage systems should be considered and included where practicable, in line with DEFRA Technical Standards³.
- 1.10 The Technical Standards are therefore a key reference document and should be used in the formulation of the surface water drainage strategy for a scheme of this nature. The standards include the following requirements:

"Flood risk outside the development

S1 Where the drainage system discharges to a surface water body that can accommodate uncontrolled surface water discharges without any impact on flood risk from that surface water body (e.g. the sea or a large estuary) the peak flow control standards (***S2*** and ***S3*** below) and volume control technical standards (***S4*** and ***S6*** below) need not apply.

Peak flow control

S2 For greenfield developments, the peak runoff rate from the development to any highway drain, sewer or surface water body for the 1 in 1 year rainfall event and the 1 in 100 year rainfall event should never exceed the peak greenfield runoff rate for the same event.

S3 For developments which were previously developed, the peak runoff rate from the development to any drain, sewer or surface water body for the 1 in 1 year rainfall event

³ Department for Environment and Rural Affairs (DEFRA), 2015. *Sustainable drainage systems: non-statutory technical standards*. [Online]. Available at: <https://www.gov.uk/government/publications/sustainable-drainage-systems-non-statutory-technical-standards> [Accessed April, 2023].

and the 1 in 100 year rainfall event must be as close as reasonably practicable to the greenfield runoff rate from the development for the same rainfall event, but should never exceed the rate of discharge from the development prior to redevelopment for that event.

Volume control

S4 *Where reasonably practicable, for greenfield development, the runoff volume from the development to any highway drain, sewer or surface water body in the 1 in 100 year 6 hour rainfall event should never exceed the greenfield runoff volume for the same event.*

S5 *Where reasonably practicable, for developments which have been previously developed, the runoff volume from the development to any highway drain, sewer or surface water body in the 1 in 100 year, 6 hour rainfall event must be constrained to a value as close as is reasonably practicable to the greenfield runoff volume for the same event, but should never exceed the runoff volume from the development site prior to redevelopment for that event.*

S6 *Where it is not reasonably practicable to constrain the volume of runoff to any drain, sewer or surface water body in accordance with **S4** or **S5** above, the runoff volume must be discharged at a rate that does not adversely affect flood risk.*

Flood risk within the development

S7 *The drainage system must be designed so that, unless an area is designated to hold and/or convey water as part of the design, flooding does not occur on any part of the Site for a 1 in 30 year rainfall event.*

S8 *The drainage system must be designed so that, unless an area is designated to hold and/or convey water as part of the design, flooding does not occur during a 1 in 100 year rainfall event in any part of: a building (including a basement); or in any utility plant susceptible to water (e.g. pumping station or electricity substation) within the development.*

S9 *The design of the Site must ensure that, so far as is reasonably practicable, flows resulting from rainfall in excess of a 1 in 100 year rainfall event are managed in exceedance routes that minimise the risks to people and property.*

Structural Integrity

S10 *Components must be designed to ensure structural integrity of the drainage system and any adjacent structures or infrastructure under anticipated loading conditions over*

the design life of the development taking into account the requirements for reasonable levels of maintenance.

S11 *The materials, including products, components, fittings or naturally occurring materials, which are specified by the designer must be of a suitable nature and quality for their intended use.*

Designing for Maintenance Considerations

S12 *Pumping should only be used to facilitate drainage for those parts of the Site where it is not reasonably practicable to drain water by gravity.*

Construction

S13 *The mode of construction of any communication with an existing sewer or drainage system must be such that the making of the communication would not be prejudicial to the structural integrity and functionality of the sewerage or drainage system.*

S14 *Damage to the drainage system resulting from associated construction activities must be minimised and must be rectified before the drainage system is considered to be completed.”*

Climate Change

- 1.11 Climate change has important implications for the assessment and management of flood risk. The NPPF requires that climate change is considered when making an assessment of flood risk posed to future development.
- 1.12 Climate change has the potential to affect all identified sources of flooding at the Site. The likely impacts of climate change include increased severity of rainfall events as well as wetter winters leading to higher groundwater levels and increased frequency and severity of surface water flooding.
- 1.13 The influence of climate change on rainfall intensity has been taken into account by the surface water drainage strategy here as an inclusion of 45% has been made for climate change for all rainfall events up to and including the 1 in 100 year event in accordance with NPPF requirements, and ‘Flood Risk Assessments: Climate Change Allowances’⁴

⁴ Environment Agency (2016) *Flood Risk Assessments: Climate Change Allowances*.

County Council Policy

- 1.14 Essex County Council act as Lead Local Flood Authority (LLFA) for the area and are a statutory consultee for all major developments, which includes the following:
- 10 or more houses;
 - a site of over 0.5 hectares where the number of houses are unknown;
 - a building greater than 1000 square metres; and
 - a site over 1 hectare.
- 1.15 The LLFA have produced a local SuDS Design Guide⁵ which includes construction standards and provide assistance to developers in creating sustainable drainage systems on their sites as well as the LLFA's consenting policy and various protocols. Essex County Council also provide guidance within their Preliminary Flood Risk Assessment (PFRA)⁶ and Flood Risk Management Strategy⁷ on development and flood risk.

Local District Planning Policy

- 1.16 Chelmsford City Council are currently working on a new local plan⁸ to replace the 2008 adopted Core Strategy and Development Control Policies document⁹ and 2013 Focused Review¹⁰ currently in place. These plans provide guidance relating to flood risk and drainage.
- 1.17 The relevant policy is as follows:

Local Plan - Emerging

- *Strategic Policy S3 – Addressing Climate Change and Flood Risk*
- *Strategic Policy S11 – Infrastructure Requirements*
- *Policy NE3 – Flooding / SuDS*
- *Strategic Growth Site 3b – East Chelmsford – Land North of Maldon Road (Employment)*
- *Strategic Growth Site 3c – East Chelmsford – Land South of Maldon Road (Employment)*
- *Strategic Growth Site 3d – East Chelmsford – Land North of Maldon Road (Residential)*

⁵ Essex County Council The SuDS Design Guide [Online]. Available at: <https://www.essexdesignguide.co.uk/suds> Accessed April, 2023

⁶ Essex County Council Preliminary Flood Risk Assessment [Online]. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/698238/PFRA_Essex_County_Council_2017.pdf [Accessed April, 2023]

⁷ Essex County Council Local Flood Risk Management Strategy [Online]. Available at: <https://flood.essex.gov.uk/our-strategies-and-responsibilities/our-local-flood-risk-management-strategy/> [Accessed April, 2023]

⁸ Chelmsford Draft Local Plan Pre-Submission Document (Regulation 19 - Publication Draft) January 2018 (Accessed April, 2023) <https://www.chelmsford.gov.uk/planning-and-building-control/planning-policy-and-new-local-plan/new-local-plan/local-plan-examination/>

⁹ Chelmsford Adopted Local Plan - Core Strategy and Development Control Policies, 2008 (Accessed April, 2023)

<https://www.chelmsford.gov.uk/planning-and-building-control/planning-policy-and-new-local-plan/existing-local-plans/>

¹⁰ Chelmsford Adopted Local Plan - Core Strategy and Development Control Policies Focused Review, 2013 (Accessed April, 2023) <https://www.chelmsford.gov.uk/planning-and-building-control/planning-policy-and-new-local-plan/existing-local-plans/>

Core Strategy and Development Control Policies (2008)

- CP10 – Protection From Flooding
- DC22 – Areas of Flood Risk
- DC25 – Water Efficiency and Sustainable Drainage Systems

1.18 The relevant policies and text from these local planning documents have been considered as part of this Flood Risk Assessment and Drainage Strategy.

1.19 As part of evidence gathering for the new Local Plan, Chelmsford City Council have produced a new Strategic Flood Risk Assessment (SFRA) Level 1 and 2¹¹ (JBA, 2018) provides a summary of the flood risks for the local area. Combined with the Chelmsford Surface Water Management Plan (2014)¹² and Chelmsford City Water Cycle Study Update (2018)¹³ these documents provide information on local flood risks. These documents have been utilised as part of this assessment and are referenced where applicable throughout this report.

Objectives

1.20 To prepare a Foul and Surface Water Drainage Strategy report in accordance with the National Planning Policy Framework (NPPF)¹⁴, Planning Practice Guidance (PPG)¹⁵, their associated guidance document (detailed above) local policy documents (again detailed above).

Constraints and Limitations

1.21 The copyright of this report is vested in Create Consulting Engineers Ltd and the Client, Chelmsford City Council. The Client, or his appointed representatives, may copy the report for purposes in connection with the development described herein. It shall not be copied by any other party or used for any other purposes without the written consent of Create Consulting Engineers Ltd or the Client.

1.22 Create Consulting Engineers Ltd accepts no responsibility whatsoever to other parties to whom this report, or any part thereof, is made known. Any such other parties rely upon the report at their own risk.

1.23 The Foul and Surface Water Drainage Strategy addresses the flood risk posed to and from the proposed development, the extent of which is shown by the Site boundary, as indicated on drawing 2709/02/005B.

¹¹ Chelmsford City Council Strategic Flood Risk Assessment (SFRA) Level 1 and 2 (Accessed April, 2023)

<https://www.chelmsford.gov.uk/planning-and-building-control/planning-policy-and-new-local-plan/new-local-plan/evidence-base/>

¹² Chelmsford Surface Water Management Plan (Accessed April, 2023) <https://www.chelmsford.gov.uk/planning-and-building-control/planning-policy-and-new-local-plan/new-local-plan/evidence-base/>

¹³ Chelmsford City Water Cycle Study Update (Accessed April, 2023) <https://www.chelmsford.gov.uk/planning-and-building-control/planning-policy-and-new-local-plan/new-local-plan/evidence-base/>

¹⁴ NPPF (accessed online April, 2023) https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf

¹⁵ PPG (accessed online April, 2023) <http://planningguidance.planningportal.gov.uk/>

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- 1.24 This report has been undertaken with the assumption that the Site will be developed in accordance with the above proposals without significant change. The conclusions resulting from this study are not necessarily indicative of future conditions or operating practices at or adjacent to the Site.
- 1.25 Create Consulting Engineers Ltd has endeavoured to assess all information provided to them during this appraisal. The report summarises information from a number of external sources and cannot offer any guarantees or warranties for the completeness or accuracy or information relied upon. Information from third parties has not been verified by Create Consulting Engineers Ltd unless otherwise stated in this report.
- 1.26 Create Consulting Engineers Ltd has endeavoured to assess all information provided to them during this appraisal. The report summarises information from a number of external sources and cannot offer any guarantees or warranties for the completeness or accuracy or information relied upon. Information from third parties has not been verified by Create Consulting Engineers Ltd unless otherwise stated in this report.
- 1.27 The revised Construction (Design and Management) Regulations 2015¹⁶ (CDM Regulations) came into force in April 2015 to update certain duties on all parties involved in a construction project, including those promoting the development. One of the designer's responsibilities is to ensure that the client organisation, in this instance Chelmsford City Council, is made aware of their duties under the CDM Regulations. Further information on the CDM Regulations is provided in the client guide and is available online. It has been assumed for the purposes of this assessment that the lead designer will be responsible for advising the Client.

¹⁶ Health and Safety Executive., 2015. *Construction (Design and Management) Regulations*. [Online]. Available at: <http://www.hse.gov.uk/pubns/indg411.pdf> [Accessed April, 2023].

2.0 SOURCES OF INFORMATION

2.1 The information contained in this report is based on a review of existing information and consultation with interested parties.

Records Review

2.2 Key reports and Websites reviewed as part of this study are listed in Table 2.1 below.

Document/Website	Author/Publisher	Date
Fluvial/Tidal Flood Maps, Groundwater Mapping – environment-agency.gov.uk	Environment Agency (EA)	Accessed April, 2023
Surface Water and Reservoir Flood Mapping – flood-warning-information.service.gov.uk	GOV.UK	Accessed April, 2023
BGS GeoIndex – Geology and borehole records - www.bgs.ac.uk/geoindex	British Geological Survey	Accessed April, 2023
Essex County Council Preliminary Flood Risk Assessment (PFRA)	URS, Scott Wilson	2011
Essex County Council Local Flood Risk Management Strategy	Capita Symonds, Essex County Council	2013
Essex County Council SUDS Design Guide	Essex County Council	2023
Chelmsford Draft Local Plan Pre-Submission Document (Regulation 19 - Publication Draft)	Chelmsford City Council	January 2018
Chelmsford Adopted Local Plan - Core Strategy and Development Control Policies	Chelmsford City Council	2008
Chelmsford Adopted Local Plan - Core Strategy and Development Control Policies Focused Review	Chelmsford City Council	2013
Chelmsford City Council Strategic Flood Risk Assessment (SFRA) Level 1 and 2	JBA Consulting	2018
Chelmsford Surface Water Management Plan	Capita Symonds	2014
Chelmsford City Water Cycle Study Update	Chelmsford City Council	2018
Anglian Water Foul and Surface Water Asset Plans (Appendix A)	Anglian Water	2022
Essex and Suffolk Clean water asset plan (Appendix B)	Essex and Suffolk Water	2022
Proposed Site Layout Plan (Drawing 3555:02)	John Finch Partnership	July 2022
Topographical survey 41367BWLS-01	Survey Solutions	December 2022

Table 2.1: Key Information Sources

Consultation

2.3 The agencies and individuals consulted as part of this exercise to obtain records or seek input to the proposals as part of this FRA are listed in Table 2.2 and key records are included in the appendices.

Consultee	Form of Consultation	Topics Discussed and Actions Agreed
Anglian Water Developer Services	Anglian Water Foul and Surface Water Asset Plans	Asset plans were requested on the 26 th September 2022 and received on the 26 th September 2022. Appendix A shows a 150 mm foul sewer located in the northeast of the site.
Essex and Suffolk Water Developer Services	Online request for Clean Water Asset Plans	Asset plans were requested on the 26 th September 2022 and received on the 6 th October 2022. Appendix B shows a 3inch distribution main running under St Michaels Drive.

Table 2.2: List of Parties Consulted

3.0 SITE SETTING

Site Location

- 3.1 The Site lies within the village of Roxwell, west of Chelmsford, at Ordnance Survey grid reference 564371, 208462 and postcode CM1 4PE. The Site lies within the administrative area of Chelmsford City Council and consists of a parcel of brownfield land with its boundary shown on the attached drawings and Figure 1.1.

Description of Site and Surroundings

- 3.2 The Site is classed as brownfield land with an approximate total area of 0.144 ha, of this area 100 % is currently impermeable roof or hardstanding. The site is located within a residential area with residential properties to the north, east and west with allotments to the south. The extended area beyond the Site is predominantly residential.
- 3.3 The Site is largely square in shape with an access road to the east and is currently occupied by garages and hardstanding areas. The topographic survey, included with this report on Drawing 41367BWLS-01, summarises levels across the Site. The survey shows that the Site is predominantly flat with a dominant fall from south to north, with approximate levels from 43.8 m AOD to 42.5 m AOD.

Geological/Hydrological Setting

Ground Conditions and Infiltration Capacity

- 3.4 British Geological Survey (BGS) mapping¹⁷ (Figures 3.1 & 3.2) identifies bedrock geology across the Site as London Clay Formation, with superficial shown to be Head Clay Formation (clay, silt, sands and gravels).

Surface Watercourses

- 3.5 The nearest watercourse to the Site is the Roxwell Brook at approximately 165 m north of the site.

Groundwater

- 3.6 The Site does not lie within any Groundwater Source Protection Zones.
- 3.7 The Site overlays an unproductive aquifer. This consists of bedrock with low permeability that naturally offer protection to any aquifers that may be present beneath.

¹⁷ British Geological Survey (BGS) Onshore GeoIndex., 2022. *DiGMapGB-50 Bedrock Geology and Superficial Deposits*. [Online]. Available at: www.bgs.ac.uk/geoindex [Accessed April, 2023].

- 3.8 Groundwater was encountered at a depth of 4.7 m below ground level in BGS borehole record TL60NE13, located approximately 700m southeast of the Site.

Artificial Water Bodies

- 3.9 There are no artificial waterbodies located within or near the Site.

Public Sewers and Water Supply Mains

- 3.10 An Anglian Water Asset Location Search is included in Appendix A. A 150 mm foul water sewer is located northeast of the Site. This drains the residential dwellings to the northern end of St Michaels Drive, however it is assumed that locally all dwellings connect to this sewer network, albeit via assets not shown on the Anglian Water plans.
- 3.11 The Essex and Suffolk asset plans also show a 3inch AC water main serving the residential developments along St Michaels Drive.

Existing Site Drainage

- 3.12 The existing site is brownfield and it is assumed that rainfall currently drains from the site via the highway to the east or to the existing surroundings to the west as a watershed runs through the site from north to south. After considering the topographical levels (41367BWLS-01), the site drains from south to north with the lowest levels being within the north-eastern corner of the site. The high point of the site is located between the rows of the existing garages and it is assumed that rainfall occurring within the eastern most row of garages flows north to this point and then east away from the site and into the adjacent highway. Rainfall runoff originating from the westernmost row of garages therefore runs north and the west across to the park within the site and then to the surrounding areas.
- 3.13 No formal drainage networks have been noted on the site as part of the walkovers and investigations carried out to date.

Flood Zones

- 3.14 The entirety of the Site lies within the Environment Agency's Flood Zone 1¹⁸, which is described within the NPPF Technical Guidance as having a less than 1 in 1000 annual probability of river or tidal flooding (<0.1%) in any one year.

¹⁸ Environment Agency., 2022. *Flood Map for Planning (Rivers and Sea) - Flood Zone 2 and Flood Zone 3*. [Online]. Available at: <https://data.gov.uk/dataset/cf494c44-05cd-4060-a029-35937970c9c6/flood-map-for-planning-rivers-and-sea-flood-zone-2> [Accessed April, 2023]

Flood History

- 3.15 The SFRA and PFRA does not note historical flooding from any source that has impacted on the Site.

4.0 SCHEME DESCRIPTION AND PROPOSED DRAINAGE STRATEGY

The Scheme

- 4.1 This report accompanies an application for planning permission for the erection of three new dwellings and associated works.
- 4.2 The proposed scheme is shown on Drawing 3555:02 appended with this report.

Proposed Foul Water Drainage Strategy

- 4.3 Foul water from the Site will be designed to flow to the existing AW foul sewer shown on (960195_A4). The closest connection point in proximity to the site is MH4505, however, invert levels are currently unknown. Therefore, it is assumed that the flows will be able to connect via gravity, but this will be confirmed during the detailed design stage. Downstream drainage surveys have been carried out and therefore all that is needed is approval from AW through an appropriate S106 application at the detailed design stage. The site is below the threshold for a pre-planning enquiry (10 dwellings) and so Anglian Water have not been consulted at this stage.
- 4.4 Details of the proposed foul water drainage strategy are included on Drawing 2709/02/005.

Proposed Surface Water Drainage Strategy

- 4.5 Currently, it is assumed that surface water drainage collects at ground level and then either soaks within the site area or runs off to the highway or surrounding area. The proposed surface water drainage strategy is detailed below.
- 4.6 All driveways will drain via infiltrating permeable paving (570m²) and all roof areas will drain via a filter drain to a Rainwater Harvesting Tank which will feed into the allotments via a pumped outlet. This will then overflow into an informal soakaway. Both tanks (detailed in Table 4.1) have been designed to accommodate and store flows up to and including the 1 in 100 year plus 45 % climate change event. Preliminary calculations of the proposed storage locations are located in Appendix D. The proposed strategy can be seen on Drawing 2709/02/005B. The schedule for the respective storage areas can be seen below:

Storage Area ID	Area (m ²)	Depth/Subbase Depth (m)	Maximum Gradient
Carpark	570	0.60 / 0.47	1in1000
Allotment Tank	30	1.00	1in1000
Overflow Tank	50	0.60	1in1000

Table 4.1: Storage Design Schedule as shown on Drawing 2709/02/005B

- 4.7 Table 4.2 below shows the top water level (TWL) and storage volume for the 1 in 100 + 45 % year event.

Storage Area ID	TWL (m)	Volume (m ³)
Carpark	0.37	73.6
Allotment Tank	0.96	28.4
Overflow Tank	-	-

Table 4.2: Storage Results Summary

Surface Water Quality

- 4.8 Pollution control requirements are determined by the using the Simple Index Approach as detailed in the CIRIA SuDS Manual. The pollution indices for this Site as per table 26.2 of the CIRIA SuDS Manual can be seen below:

Land Use	Total Suspended Solids	Metals	Hydrocarbons
Residential roofs	0.2	0.2	0.05
Individual property driveways, residential car parks, low traffic roads i.e. <300 traffic movements a day	0.5	0.4	0.4

Table 4.3: Calculated SuDS pollution mitigation indexes for the Site

- 4.9 Surface water from the driveway will be treated via the permeable paving prior to discharge to ground and the roof water will be treated by a filter drain, based on table 26.3 from the CIRIA SuDS Manual, this will provide treatment indices of:

SuDS Component	Total Suspended Solids	Metals	Hydrocarbons
Filter Drain	0.4	0.4	0.4
Permeable Paving	0.7	0.6	0.7

Table 4.4: Indicative SuDS mitigation indices

- 4.10 It can be seen from the tables above that the proposed treatment provides the required level of treatment for this Site prior to discharge to ground.
- 4.11 It should be noted that SuDS components only deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters of the CIRIA SuDS Manual.

SuDS Potential

- 4.12 A summary of the potential SUDS options which led to the above drainage strategy is included in Table 4.5. This drainage strategy, however, is in compliance with both local and national policy as outlined in Section 1 of this report.

SUDS Option	Suitability/Included in the Scheme?	Comments
Soakaways and porous paving	✓	Permeable paving is proposed for all roads and driveways. Permeable Paving will provide 73.6m ³ storage for the Site for the 1 in 100 year plus 45% climate change event.
Rainwater Harvesting	✓	Water butts will be provided on a property by property basis to aid with rainwater harvesting. In addition to this, all run off not stored in the permeable paving will be stored in the allotment tank for reuse via the adjacent allotment gardens
Swales	X	Not included in the client and architect design proposal at present due to space constraints on Site
Attenuation Ponds (above ground storage)	X	Not included in the client and architect design proposal at present due to space constraints on Site.
Below ground storage in cellular systems	✓	Infiltration crates are proposed to store all roof areas, providing 28.5m ³ storage for the Site for the 1 in 100 year plus 45% climate change event. An extra unlined overflow tank providing 28.5m ³ has also been proposed.
Flow control devices	X	Not included as not required.
Green Roofs/Brown Roofs/Blue Roofs	X	No flat roofs.

Table 4.5: SUDS Options**Key:**

- ✓ *Suitable for use and included in the scheme*
- * *Possibly suitable for use – not included in the client and architect design proposal at present – should be considered further as part of the detailed design*
- X *Unlikely to be suitable for use*

Exceedance Flow Routes

4.13 Exceedance flow routes are shown on Drawing 2709/02/005B, these may be adapted to suit any proposed changes to the Site layout as the design progresses in line with the following principles:

- Surcharged flows from the private drives and roof areas will be retained within kerb lines and channelled towards the east and west of the site, in line with the following rationale;
- External ground levels will be profiled such that no ponding occurs against buildings, with flows directed as above;

- All flows in excess of the drainage network design standard will be channelled to the south.

Management and Maintenance of Drainage Assets

- 4.14 The party or persons ultimately responsible for the management and maintenance of drainage assets will be a private management company (or their successor in title) instructed as part of the wider Site management regime.
- 4.15 Further detail regarding the exact management and maintenance procedures required will be provided as part of any reserved matters submission once a management company has been instructed and a scope agreed. This will, however, follow the principles set out in Table 4.6 below:

Maintenance Schedule	Required Actions	Typical Frequency
Permeable Paving		
Regular Maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on Site-specific observations of clogging or manufacturer's recommendations—pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment
Occasional Maintenance	Stabilise and mow contributing and adjacent communal areas	As required
	Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying	As required/once per year on less frequently used pavements
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50mm of the level of the paving	As required
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users and replace lost jointing material	
	Rehabilitation of surface and upper substructure by remedial sweeping	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)

Maintenance Schedule	Required Actions	Typical Frequency
Monitoring	Initial inspection	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth—if required, take remedial action	Three-monthly, 48h after large storms in first six months
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	
Other General:		
Regular Maintenance	Inspect rainwater gutter channels, inlets and outlets for blockages and clear as required.	Monthly for first year then annually thereafter
	Inspect gully drains, channel drains and inspection chambers (including silt traps) for siltation/blockage.	Monthly for first year then annually thereafter
	Inspect for sediment and debris in manhole bases and any blockage of soakaway chamber and geocellular storage.	Bimonthly for first six months then every six months thereafter
	Remove litter and debris from swale. Carry out periodic mowing of grassed surface and inspect for silt accumulation to determine appropriate removal frequency.	Monthly or as required (and through growing season for swales)
	Remove any sediment and debris from base of chambers and cellular storage.	As required, based on inspections
Occasional Maintenance Remedial Actions	Remove sediment from any affected articles including silt traps (most likely via jetting).	As required
	Clear any pipe blockages with appropriate equipment	As required
	Repair any damage arising from various inspections (by approved engineer where required)	As required
	Replacement of permeable surfacing, manhole components.	As required

Table 4.6: Outline SUDS Management and Maintenance Requirements

5.0 ASSESSMENT OF DRAINAGE AND FLOOD RISK

- 5.1 The scope of this report was refined to meet the brief outlined in Chapter 1 and primarily ensures the development does not increase the risk of flooding to surrounding areas. Consideration is then given to any necessary mitigation measures to mitigate identified potential flood risks, climate change and residual flood risks.

Drainage Assessment

Changes in runoff

- 5.2 As the majority of the Site is hardstanding, it is assumed that under current conditions, any surface water will currently runoff overland during extreme rainfall events. Following development, the surface water drainage strategy set out in above ensures that sufficient sustainable drainage systems will be included to make sure that there are no significant changes in surface water runoff from the Site compared to the existing situation (for all rainfall events up to the 1 in 100 year rainfall event including an allowance for climate change). Calculations in Appendix D confirm this.
- 5.3 For all events beyond the 1 in 100 year plus climate change rainfall event, the situation will be no worse than existing, as long as a the consideration of exceedance flows, as per Drawing 2709/02/005B is carried forward to the detailed drainage design to ensure that any excess surface water runoff would continue to flow away from the existing and proposed residential properties.

Impact on the public sewer network

- 5.4 As the site is below the threshold for a pre-planning enquiring (due to the proposal being 10 units), Anglian Water have not been consulted at this stage.

6.0 CONCLUSIONS AND RECOMMENDATIONS

- 6.1 This foul and surface water drainage strategy has shown that the scheme can be constructed with adequate drainage provided to ensure flood risk to surrounding areas is not increased.
- 6.2 This report proposes that all surface water flows will be attenuated and then given the chance to infiltrate via non-lined permeable paving and an informal soakaway.

7.0 REFERENCES

- i. British Geological Survey Geoindex (2017). Available at: www.bgs.ac.uk/geoindex.
- ii. Environment Agency Surface Water Flood Maps and Reservoir Flood Maps (2014). Available at: <https://flood-warning-information.service.gov.uk/long-term-flood-risk/>. (Accessed April 2023).
- iii. Government Flood Map for Planning and Groundwater Maps (2017). Available at: <https://flood-map-for-planning.service.gov.uk/>. (Accessed April 2023).
- iv. Chelmsford City Council (2018) *Chelmsford Draft Local Plan Pre-Submission Document (Regulation 19 - Publication Draft)*.
- v. Chelmsford City Council (2008) *Chelmsford Adopted Local Plan - Core Strategy and Development Control Policies*.
- vi. Chelmsford City Council (2013) *Chelmsford Adopted Local Plan - Core Strategy and Development Control Policies Focused Review*.
- vii. JBA Consulting (2018) *Chelmsford City Council Strategic Flood Risk Assessment (SFRA) Level 1 and 2*.
- viii. Capita Symonds (2014) *Chelmsford Surface Water Management Plan*.
- ix. Chelmsford City Council (2018) *Chelmsford City Water Cycle Study Update*.
- x. Water UK/WRc plc (2012) *Sewers for Adoption – 7th Edition*. WRc plc, Swindon.
- xi. Woods-Ballard., et al. (2015) *The SUDS Manual*. Report C753. CIRIA, London.
- xii. Essex County Council (2011) *Preliminary Flood Risk Assessment*. URS, Scott Wilson.
- xiii. Essex County Council (2013) *Local Flood Risk Management Strategy*. Capita Symonds, Essex County Council.
- xiv. Essex County Council (20XX) *The SUDS Design Guide*. [Online] Essex County Council.

FIGURES



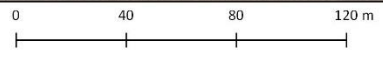
NOTES:
1. BASED ON SITE BOUNDARY AND GOOGLE EARTH IMAGERY (ACCESSED SEPTEMBER, 2022).

KEY:
 Site Location

FIGURE TITLE:
1.1 SITE LOCATION PLAN



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Figure 1.1: Site Location Plan



Figure 3.1: British Geological Survey Bedrock Geology Mapping Extract (1:50,000 scale)



Figure 3.2: British Geological Survey Superficial Deposits Geology Mapping Extract (1:50,000 scale)



Figure 3.3: Identified Local Watercourse Map

APPENDICES

APPENDIX A



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Date: 26/09/22

Scale: 1:1250

Map Centre: 564366,208477

Data updated: 31/08/22

Our Ref: 960195 - 2

Wastewater Plan A4

This plan is provided by Anglian Water pursuant to its obligations under the Water Industry Act 1991 sections 198 or 199. It must be used in conjunction with any search results attached. The information on this plan is based on data currently recorded but position must be regarded as approximate. Service pipes, private sewers and drains are generally not shown. Users of this map are strongly advised to commission their own survey of the area shown on the plan before carrying out any works. The actual position of all apparatus MUST be established by trial holes. No liability whatsoever, including liability for negligence, is accepted by Anglian Water for any error or inaccuracy or omission, including the failure to accurately record, or record at all, the location of any water main, discharge pipe, sewer or disposal main or any item of apparatus. This information is valid for the date printed. This plan is produced by Anglian Water Services Limited (c) Crown copyright and database rights 2022 Ordnance Survey 100022432. This map is to be used for the purposes of viewing the location of Anglian Water plant only. Any other uses of the map data or further copies is not permitted. This notice is not intended to exclude or restrict liability for death or personal injury resulting from negligence.

Foul Sewer		Outfall*		
Surface Sewer				
Combined Sewer				
Final Effluent		Inlet*		
Rising Main*				
Private Sewer*				
Decommissioned Sewer*		Manhole*		

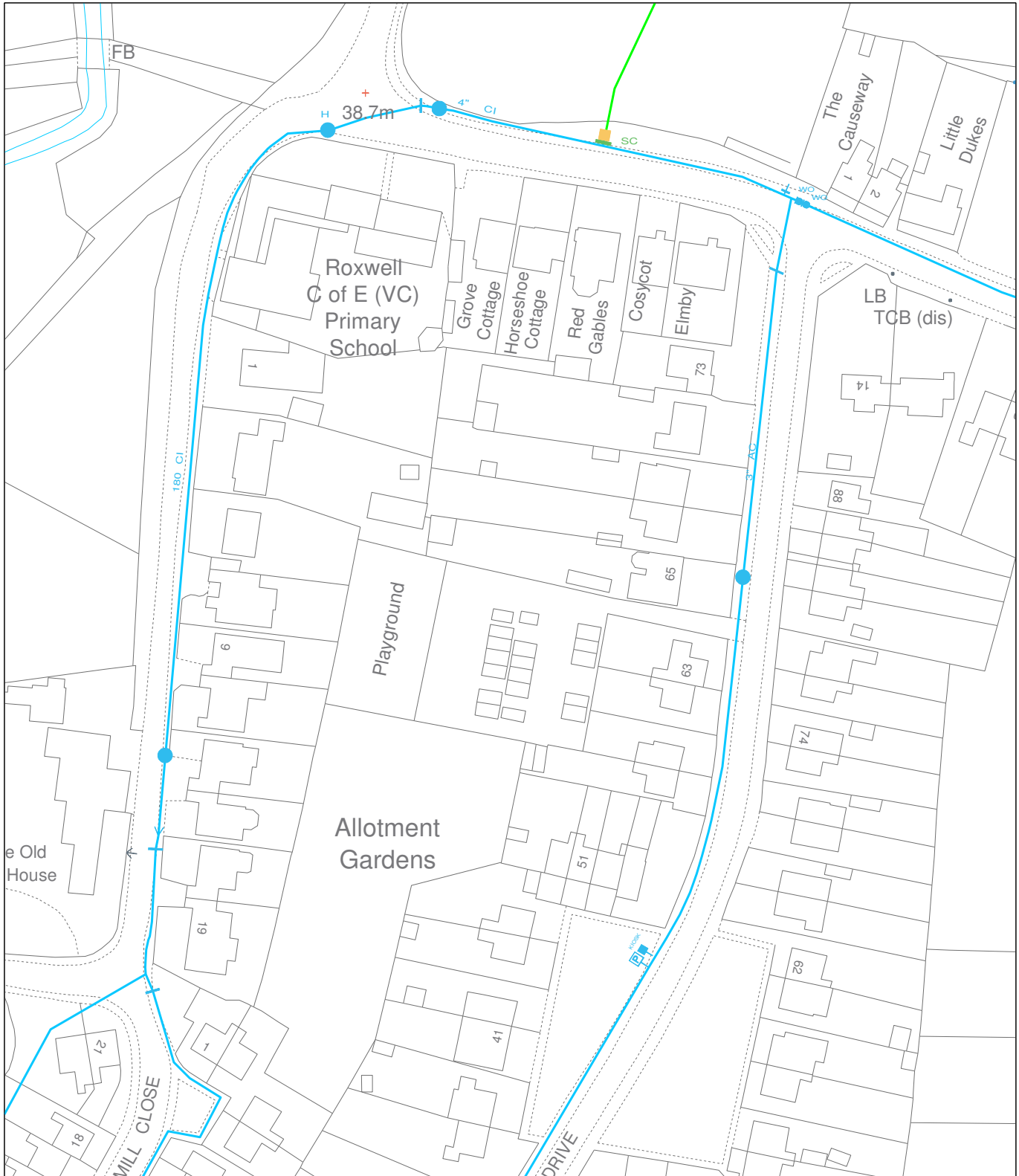
* (Colour denotes effluent type)

claire.seymour@createconsultingengineers.co.uk

P22-2709 Chelmsford



APPENDIX B



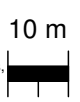
Valves/Regulators	Fittings/Symbols	Storage/Operations	Network Types	Specific Main Types	Area Types
P1 P2 P3 P4			Distribution Treated Raw Fire Supply	Abandoned Asbestos Abandoned Out of Commission Private Proposed	Water Quality District Metering Easement



User : OLIVA
 Title : 0000
 Centre Point : 564365,208477

Date : 03/10/2022
 Map Sheet : TL6408SW

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APPENDIX C

Location : **St Michaels Drive**

M5-60 : 20 mm
r : 0.45

Wallingford Method - maps

For different durations,

From Table 1

Duration, D	Z1			
15 min	0.65	M5-15:	Z1 x M5-60	13.00 mm
30 min	0.82	M5-30:	Z1 x M5-60	16.40 mm
60 min	1	M5-60:	Z1 x M5-60	20.00 mm
6hr	1.51	M5-360:	Z1 x M5-60	30.20 mm

For different return intervals,

From Table 2*

Duration, D	M1	Z2	M30	M100
15 min	0.62	1.52	1.96	1.96
30 min	0.62	1.53	2.00	2.00
60 min	0.64	1.54	2.03	2.03
6 hr	0.68	1.51	1.97	1.97

Average point intensity, API = I/(D/60)

	D min	Calculation	I mm	API mm/hr
M 1-15	15	M5-15*Z2(M1)	8.06	32.24
M 1-30	30	M5-30*Z2(M1)	10.17	20.34
M 1-60	30	M5-360*Z2(M1)	12.80	25.60
M1-360	360	M5-360*Z2(M1)	20.54	3.42
M 30-15	15	M5-15*Z2(M30)	19.76	79.04
M 30-30	30	M5-30*Z2(M30)	25.09	50.18
M 30-60	60	M5-60*Z2(M30)	30.80	30.80
M30-360	360	M5-360*Z2(M30)	45.60	7.60
M 100-15	15	M5-15*Z2(M100)	25.48	101.92
M 100-30	30	M5-30*Z2(M100)	32.80	65.60
M100-60	60	M5-60*Z2(M100)	40.60	40.60
M100-360	360	M5-360*Z2(M100)	59.49	9.92

Peak Runoff

Q=2.78CiA Rational Method, SUDS Manual Section 4.3.3

Table 1

Minutes	Rainfall Duration D										
	5	10	15	30	Hours	1	2	4	6	10	24
0.12	0.22	0.34	0.45	0.67	1.00	1.48	2.17	2.75	3.70	6.00	
0.15	0.25	0.38	0.48	0.69	1.00	1.42	2.02	2.46	3.32	4.90	
0.18	0.27	0.41	0.51	0.71	1.00	1.36	1.86	2.25	2.86	4.30	
0.21	0.29	0.43	0.54	0.73	1.00	1.33	1.77	2.12	2.62	3.60	
0.24	0.31	0.46	0.56	0.75	1.00	1.30	1.71	2.00	2.40	3.35	
0.27	0.33	0.48	0.58	0.76	1.00	1.27	1.64	1.88	2.24	3.10	
0.30	0.34	0.49	0.59	0.77	1.00	1.25	1.57	1.78	2.12	2.84	
0.33	0.35	0.50	0.61	0.78	1.00	1.23	1.53	1.73	2.04	2.60	
0.36	0.36	0.51	0.62	0.79	1.00	1.22	1.48	1.67	1.90	2.42	
0.39	0.37	0.52	0.63	0.80	1.00	1.21	1.46	1.62	1.82	2.28	
0.42	0.38	0.53	0.64	0.81	1.00	1.20	1.42	1.57	1.74	2.16	
0.45	0.39	0.54	0.65	0.82	1.00	1.19	1.38	1.51	1.68	2.03	

Table 2 - England and Wales

M5 rainfall	Growth Factor Z2										
	M1	M2	M3	M4	M5	M10	M20	M50	M100	M30 interpolated	
5.00	0.62	0.79	0.89	0.97	1.02	1.19	1.36	1.56	1.79	1.25	
10.00	0.61	0.79	0.90	0.97	1.03	1.22	1.41	1.65	1.91	1.49	
15.00	0.62	0.80	0.90	0.97	1.03	1.24	1.44	1.70	1.99	1.53	
20.00	0.64	0.81	0.90	0.97	1.03	1.24	1.45	1.73	2.03	1.54	
25.00	0.66	0.82	0.91	0.97	1.03	1.24	1.44	1.72	2.01	1.53	
30.00	0.68	0.83	0.91	0.97	1.03	1.22	1.42	1.70	1.97	1.51	
40.00	0.70	0.84	0.92	0.97	1.02	1.19	1.38	1.64	1.89	1.47	
50.00	0.72	0.85	0.93	0.98	1.02	1.17	1.34	1.58	1.81	1.42	
75.00	0.76	0.87	0.93	0.98	1.02	1.14	1.28	1.47	1.64	1.34	
100.00	0.78	0.88	0.94	0.98	1.02	1.13	1.25	1.40	1.54	1.30	
150.00	0.78	0.88	0.94	0.98	1.01	1.12	1.21	1.33	1.45	1.25	
200.00	0.78	0.88	0.94	0.98	1.01	1.11	1.19	1.30	1.40	1.23	

where: (1) C = Cv Cr

Cv = 1 **

Cr = 1.3 constant value for design purposes

therefore, C = 1.3

* The rainfall depths from cells E8-E11 are compared with the depths given in cells J29-J40 and Z2 interpolated accordingly for each return period

** Cv varies between 0.6 (rapidly draining soils) and 0.9 (heavy clay) with an average of 0.75 taken if ground conditions not known.

2.78*C= 3.614

(2) i = API, defined above

Q=2.78CiA

(3) A = areas measured for subcatchments

i mm/hr	Contributing Impermeable Area Ha	
	Site	Per hectare
	0.1444	1

i mm/hr	Contributing Impermeable Area Ha	
	Site	Per hectare
	0.1444	1

M 1-15	32.24	16.82	116.52
M 1-30	20.34	10.61	73.49
M 1-60	25.60	13.36	73.49
M1-360	3.42	1.79	12.37
M 30-15	79.04	41.25	285.65
M 30-30	50.18	26.19	181.36

M 30-60	30.80	16.07	181.36
M30-360	7.60	3.97	27.47
M 100-15	101.92	53.19	368.34
M 100-30	65.60	34.23	237.08
M 100-60	40.60	21.19	237.08
M100-360	9.92	5.17	35.84

IoH 124 Calculation of Greenfield Runoff Rate

Project:	P22-2709		
	St Michaels Drive, Chelmsford		
OS Location	564371	E	208462 N
Date:	14/04/2023		
Written By:	JE	Checked By:	GS

SAAR	580	mm
Pro Rata Site Area =	50	ha
	0.5	km ²
Soil WRA Class	3	
Soil Type SPR Value	0.4	

$$Q_{bar}_{rural} = 0.00108 \times (AREA)^{0.89} \times (SAAR)^{1.17} \times (SOIL)^{2.17}$$

$$Q_{bar-50ha} = 0.137 \text{ m}^3/\text{s}$$

From Regional Growth Curve Factor

Region: 6

Return period	1	2	5	10	25	30	50	100	500
Growth Factor	0.85	0.88	1.28	1.62	2.14	2.24	2.62	3.19	4.49

Q₁ 50ha =	0.116	m ³ /s	=	116.04	l/s	=	2.321	l/s/ha
Q₂ 50ha =	0.120	m ³ /s	=	120.14	l/s	=	2.403	l/s/ha
Q₅ 50ha =	0.175	m ³ /s	=	174.74	l/s	=	3.495	l/s/ha
Q₁₀ 50ha =	0.221	m ³ /s	=	221.16	l/s	=	4.423	l/s/ha
Q₂₅ 50ha =	0.292	m ³ /s	=	292.15	l/s	=	5.843	l/s/ha
Q₃₀ 50ha =	0.306	m ³ /s	=	305.80	l/s	=	6.116	l/s/ha
Q₅₀ 50ha =	0.358	m ³ /s	=	357.68	l/s	=	7.154	l/s/ha
Q₁₀₀ 50ha =	0.435	m ³ /s	=	435.49	l/s	=	8.710	l/s/ha
Q₅₀₀ 50ha =	0.613	m ³ /s	=	612.96	l/s	=	12.259	l/s/ha

Factored for Development Impermeable Area

Site Area = 0.1444

Q_{bar} site =	0.000	m ³ /s	=	0.4	l/s	=	2.7	l/s/ha
Q₁ site =	0.000	m ³ /s	=	0.3	l/s	=	2.3	l/s/ha
Q₂ site =	0.000	m ³ /s	=	0.3	l/s	=	2.4	l/s/ha
Q₅ site =	0.001	m ³ /s	=	0.5	l/s	=	3.5	l/s/ha
Q₁₀ site =	0.001	m ³ /s	=	0.6	l/s	=	4.4	l/s/ha
Q₂₅ site =	0.001	m ³ /s	=	0.8	l/s	=	5.8	l/s/ha
Q₃₀ site =	0.001	m ³ /s	=	0.9	l/s	=	6.1	l/s/ha
Q₅₀ site =	0.001	m ³ /s	=	1.0	l/s	=	7.2	l/s/ha
Q₁₀₀ site =	0.001	m ³ /s	=	1.3	l/s	=	8.7	l/s/ha
Q₅₀₀ site =	0.002	m ³ /s	=	1.8	l/s	=	12.3	l/s/ha

Note: For greenfield site, the critical duration is generally not relevant and the prediction of the peak rate of runoff using IoH124 does not require consideration of storm duration.

APPENDIX D

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S1		5.00	43.350	1200	564373.377	208454.716	0.800
S2	0.008	5.00	42.900	1200	564376.162	208466.992	0.700
S3	0.008	5.00	42.750	1200	564347.962	208473.390	0.839
S4	0.008	5.00	43.400	1200	564342.734	208450.347	1.725
ATTENUATION			43.500	1200	564344.872	208449.905	2.000
SOAKAWAY			43.600	1200	564357.316	208447.105	1.300
PP	0.057		42.900				0.600

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	12.588	36.0	100	Circular	43.350	42.550	0.700	42.900	42.200	0.600
1.001	28.917	100.0	100	Circular	42.900	42.200	0.600	42.750	41.911	0.739
1.002	23.629	100.0	100	Circular	42.750	41.911	0.739	43.400	41.675	1.625
1.004	2.183	12.5	100	Circular	43.400	41.675	1.625	43.500	41.500	1.900
1.005	12.755	63.8	100	Circular	43.500	42.500	0.900	43.600	42.300	1.200

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S1	1200	Manhole	Adoptable	S2	1200	Manhole	Adoptable
1.001	S2	1200	Manhole	Adoptable	S3	1200	Manhole	Adoptable
1.002	S3	1200	Manhole	Adoptable	S4	1200	Manhole	Adoptable
1.004	S4	1200	Manhole	Adoptable	ATTENUATION	1200	Manhole	Adoptable
1.005	ATTENUATION	1200	Manhole	Adoptable	SOAKAWAY	1200	Manhole	Adoptable

Simulation Settings

Rainfall Methodology	FEH-13	Analysis Speed	Detailed	Additional Storage (m³/ha)	20.0
Summer CV	0.750	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	0.840	Drain Down Time (mins)	240	Check Discharge Volume	x

Storm Durations

15	60	180	360	600	960	2160
30	120	240	480	720	1440	2880

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	35	0	0
100	45	10	0

Node ATTENUATION Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	41.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	30.0	0.0	1.000	30.0	0.0	1.001	0.0	0.0

Node SOAKAWAY Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00010	Invert Level (m)	42.300	Depth (m)	0.600
Side Inf Coefficient (m/hr)	0.00010	Time to half empty (mins)	289831	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	5.000	Number Required	1
Porosity	0.95	Pit Length (m)	10.000		

Node PP Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00010	Invert Level (m)	42.300	Slope (1:X)	1000.0
Side Inf Coefficient (m/hr)	0.00010	Time to half empty (mins)	61577	Depth (m)	0.470
Safety Factor	2.0	Width (m)	23.900	Inf Depth (m)	
Porosity	0.35	Length (m)	23.900		

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
2 year 15 minute summer	101.779	28.800
2 year 15 minute winter	71.424	28.800
2 year 30 minute summer	65.390	18.503
2 year 30 minute winter	45.887	18.503
2 year 60 minute summer	43.138	11.400
2 year 60 minute winter	28.660	11.400
2 year 120 minute summer	31.545	8.336
2 year 120 minute winter	20.957	8.336
2 year 180 minute summer	25.656	6.602
2 year 180 minute winter	16.677	6.602
2 year 240 minute summer	20.786	5.493
2 year 240 minute winter	13.810	5.493
2 year 360 minute summer	16.078	4.137
2 year 360 minute winter	10.451	4.137
2 year 480 minute summer	12.605	3.331
2 year 480 minute winter	8.374	3.331
2 year 600 minute summer	10.237	2.800
2 year 600 minute winter	6.994	2.800
2 year 720 minute summer	9.041	2.423
2 year 720 minute winter	6.076	2.423
2 year 960 minute summer	7.301	1.923
2 year 960 minute winter	4.836	1.923
2 year 1440 minute summer	5.162	1.384
2 year 1440 minute winter	3.469	1.384
2 year 2160 minute summer	3.625	1.002
2 year 2160 minute winter	2.498	1.002
2 year 2880 minute summer	2.995	0.803
2 year 2880 minute winter	2.013	0.803
30 year +35% CC 15 minute summer	385.986	109.221
30 year +35% CC 15 minute winter	270.867	109.221
30 year +35% CC 30 minute summer	252.124	71.342
30 year +35% CC 30 minute winter	176.929	71.342
30 year +35% CC 60 minute summer	168.131	44.432
30 year +35% CC 60 minute winter	111.703	44.432
30 year +35% CC 120 minute summer	106.349	28.105
30 year +35% CC 120 minute winter	70.656	28.105
30 year +35% CC 180 minute summer	81.709	21.026
30 year +35% CC 180 minute winter	53.113	21.026

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
30 year +35% CC 240 minute summer	64.119	16.945
30 year +35% CC 240 minute winter	42.599	16.945
30 year +35% CC 360 minute summer	47.874	12.320
30 year +35% CC 360 minute winter	31.120	12.320
30 year +35% CC 480 minute summer	36.798	9.725
30 year +35% CC 480 minute winter	24.448	9.725
30 year +35% CC 600 minute summer	29.476	8.062
30 year +35% CC 600 minute winter	20.140	8.062
30 year +35% CC 720 minute summer	25.757	6.903
30 year +35% CC 720 minute winter	17.310	6.903
30 year +35% CC 960 minute summer	20.462	5.388
30 year +35% CC 960 minute winter	13.555	5.388
30 year +35% CC 1440 minute summer	14.144	3.791
30 year +35% CC 1440 minute winter	9.505	3.791
30 year +35% CC 2160 minute summer	9.667	2.672
30 year +35% CC 2160 minute winter	6.661	2.672
30 year +35% CC 2880 minute summer	7.811	2.093
30 year +35% CC 2880 minute winter	5.249	2.093
100 year +45% CC +10% A 15 minute summer	541.188	153.137
100 year +45% CC +10% A 15 minute winter	379.781	153.137
100 year +45% CC +10% A 30 minute summer	355.969	100.727
100 year +45% CC +10% A 30 minute winter	249.803	100.727
100 year +45% CC +10% A 60 minute summer	238.577	63.049
100 year +45% CC +10% A 60 minute winter	158.505	63.049
100 year +45% CC +10% A 120 minute summer	149.881	39.609
100 year +45% CC +10% A 120 minute winter	99.578	39.609
100 year +45% CC +10% A 180 minute summer	115.615	29.752
100 year +45% CC +10% A 180 minute winter	75.153	29.752
100 year +45% CC +10% A 240 minute summer	91.161	24.091
100 year +45% CC +10% A 240 minute winter	60.565	24.091
100 year +45% CC +10% A 360 minute summer	68.595	17.652
100 year +45% CC +10% A 360 minute winter	44.589	17.652
100 year +45% CC +10% A 480 minute summer	53.032	14.015
100 year +45% CC +10% A 480 minute winter	35.233	14.015
100 year +45% CC +10% A 600 minute summer	42.625	11.659
100 year +45% CC +10% A 600 minute winter	29.124	11.659
100 year +45% CC +10% A 720 minute summer	37.321	10.002
100 year +45% CC +10% A 720 minute winter	25.082	10.002
100 year +45% CC +10% A 960 minute summer	29.674	7.814
100 year +45% CC +10% A 960 minute winter	19.657	7.814
100 year +45% CC +10% A 1440 minute summer	20.444	5.479
100 year +45% CC +10% A 1440 minute winter	13.740	5.479
100 year +45% CC +10% A 2160 minute summer	13.835	3.824
100 year +45% CC +10% A 2160 minute winter	9.533	3.824
100 year +45% CC +10% A 2880 minute summer	11.063	2.965
100 year +45% CC +10% A 2880 minute winter	7.435	2.965

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.64%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
15 minute summer	S1	1	42.550	0.000	0.0	0.0000	0.0000	OK
15 minute winter	S2	11	42.227	0.027	1.0	0.0372	0.0000	OK
15 minute winter	S3	11	41.951	0.040	2.0	0.0533	0.0000	OK
15 minute summer	S4	10	41.710	0.035	2.9	0.0425	0.0000	OK
960 minute winter	ATTENUATION	855	41.664	0.164	0.3	4.8458	0.0000	OK
15 minute summer	SOAKAWAY	1	42.300	0.000	0.0	0.0000	0.0000	OK
2160 minute winter	PP	2100	42.397	0.097	0.3	17.2637	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)
15 minute summer	S1	1.000	S2	0.0	0.000	0.000	0.0109
15 minute winter	S2	1.001	S3	1.0	0.430	0.164	0.0677
15 minute winter	S3	1.002	S4	1.9	0.755	0.317	0.0615
15 minute summer	S4	1.004	ATTENUATION	3.0	1.915	0.171	0.0039
960 minute winter	ATTENUATION	1.005	SOAKAWAY	0.0	0.000	0.000	0.0000
15 minute summer	SOAKAWAY	Infiltration		0.0			
2160 minute winter	PP	Infiltration		0.0			

Results for 30 year +35% CC Critical Storm Duration. Lowest mass balance: 99.64%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
15 minute summer	S1	1	42.550	0.000	0.0	0.0000	0.0000	OK
15 minute winter	S2	10	42.258	0.058	4.0	0.0784	0.0000	OK
15 minute winter	S3	12	42.075	0.164	7.8	0.2165	0.0000	SURCHARGED
720 minute winter	S4	870	42.063	0.388	0.9	0.4747	0.0000	SURCHARGED
600 minute winter	ATTENUATION	840	42.063	0.563	2.1	16.6757	0.0000	OK
15 minute summer	SOAKAWAY	1	42.300	0.000	0.0	0.0000	0.0000	OK
2160 minute winter	PP	2160	42.543	0.243	0.9	46.6407	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)
15 minute summer	S1	1.000	S2	0.0	0.000	0.000	0.0285
15 minute winter	S2	1.001	S3	3.8	0.569	0.632	0.1806
15 minute winter	S3	1.002	S4	6.7	0.929	1.105	0.1601
720 minute winter	S4	1.004	ATTENUATION	2.2	1.169	0.130	0.0171
600 minute winter	ATTENUATION	1.005	SOAKAWAY	0.0	0.000	0.000	0.0000
15 minute summer	SOAKAWAY	Infiltration		0.0			
2160 minute winter	PP	Infiltration		0.0			

Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 99.64%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
15 minute summer	S1	1	42.550	0.000	0.0	0.0000	0.0000	OK
15 minute winter	S2	13	42.468	0.268	6.1	0.3701	0.0000	SURCHARGED
1440 minute winter	S3	1380	42.460	0.549	0.6	0.7363	0.0000	FLOOD RISK
1440 minute winter	S4	1440	42.460	0.785	0.9	0.9677	0.0000	SURCHARGED
1440 minute winter	ATTENUATION	1620	42.460	0.960	0.8	28.4393	0.0000	OK
15 minute summer	SOAKAWAY	1	42.300	0.000	0.0	0.0000	0.0000	OK
2880 minute winter	PP	2880	42.676	0.376	1.1	73.6117	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)
15 minute summer	S1	1.000	S2	0.0	0.000	0.000	0.0492
15 minute winter	S2	1.001	S3	4.8	0.641	0.797	0.2263
1440 minute winter	S3	1.002	S4	0.6	0.416	0.099	0.1849
1440 minute winter	S4	1.004	ATTENUATION	0.8	0.915	0.049	0.0171
1440 minute winter	ATTENUATION	1.005	SOAKAWAY	0.0	0.000	0.000	0.0000
15 minute summer	SOAKAWAY	Infiltration		0.0			
2880 minute winter	PP	Infiltration		0.0			

APPENDIX E



SuDS Water quantity and Quality – LLFA Technical Assessment Proforma

Introduction

This proforma identifies the information required by Essex LLFA to enable technical assessment the Designers approach to water quantity and water quality as part of SuDS design approach in compliance with Essex SuDS Design Guide.

Completion of the proforma will also allow for technical assessment against Non-statutory technical standards (NSTS) for Sustainable Drainage. The proforma will accompany the site specific Flood Risk Assessment and Drainage Strategy submitted as part of the planning application.

Please complete this form in full for full applications and the coloured sections for outline applications. This will help us identify what information has been included and will assist with a smoother and quicker application.

Instructions for use

Use the units defined for input of figures

Numbers in brackets refer to accompanying notes.

Wherem³m³/m² are noted – both values should be filled in.

Site details

1.1 Planning application reference (if known)

1.2 Site name

1.3 Total application site area ⁽¹⁾ ha

1.4 Predevelopment use ⁽⁴⁾

1.5 Post development use

If other, please sepcify

1.6 Urban creep applicable if yes, factor applied:

1.7 Proposed design life / planning application life

1.8 Method(s) of discharge: ⁽⁵⁾

Reuse

Infiltration

Hybrid

Waterbody

Storm sewer

Combined sewer

1.9 Is discharge direct to estuary / sea

1.10 Have agreements in principle (where applicable) for discharge been provided



SuDS Water quantity and Quality – LLFA Technical Assessment

Calculation inputs

2.1	Area within site which is drained by SuDS ⁽²⁾	m ²
2.2	Impermeable area drained pre development ⁽³⁾	m ²
2.3	Impermeable area drained post development ⁽³⁾	m ²
2.4	Additional impermeable area (2.3 minus 2.2)	m ²
2.5	Method for assessing greenfield runoff rate	
2.6	Method for assessing brownfield runoff rate	
2.7	Coefficient of runoff (Cv) ⁽⁶⁾	
2.8	Source of rainfall data (FEH Preferred)	
2.9	Climate change factor applied	%

Attenuation (positive outlet)

2.10 Drainage outlet at risk of drowning (tidal locking, elevated water levels in watercourse/sewer)
 Note: Vortex controls require conditions of free discharge to operate as per manufacturers specification.

2.11	Invert level at final outlet	mAOD
2.12	Design level used for surcharge water level at point of discharge ⁽¹⁶⁾	mAOD

Infiltration (Discharge to Ground)

2.13	Have infiltration tests been undertaken	
2.14	If yes, which method has been used	
2.15	Infiltration rate (where applicable)	m/s
2.16	Depth to highest known ground water table	mAOD
2.17	If there are multiple infiltration features please specify where they can be found in the FRA	
2.18	Depth of infiltration feature	mAOD
2.19	Factor of safety used for sizing infiltration storage	



SuDS Water quantity and Quality – LLFA Technical Assessment Proforma

Calculation outputs

Sections 3 and 4 refer to site where storage is provided by full attenuation or partial infiltration. Where all flows are infiltrated to ground go straight to Section 6.

3.0 Greenfield runoff rates (incl. Urban Creep)

3.1 1 in 1 year rainfall l/s/ha, l/s for the site

3.2 1 in 30 year rainfall l/s/ha, l/s for the site

3.3 1 in 100 year rainfall + CCA l/s/ha, l/s for the site

4.0 Brownfield runoff rates (incl. Urban Creep)

4.1 1 in 1 year rainfall l/s/ha, l/s for the site

4.2 1 in 30 year rainfall l/s/ha, l/s for the site

4.3 1 in 100 year rainfall + CCA l/s/ha, l/s for the site

5.0 Proposed maximum rate of runoff from site (incl. Urban Creep) ⁽⁷⁾

5.1 1 in 1 year rainfall l/s/ha, l/s for the site

5.2 1 in 30 year rainfall l/s/ha, l/s for the site

5.3 1 in 100 year rainfall + CCA l/s/ha, l/s for the site

6.0 Attenuation storage to manage flow rates from site (incl. **Climate Change Allowance (CCA)** and Urban Creep)

6.1 Storage - 1 in 100 year + CCA ⁽⁹⁾ m³ m³/m²

6.2 50% storage drain down time 1 in 30 years hours

7.0 Controlling volume of runoff from the site⁽¹⁰⁾

7.1 Pre development runoff volume⁽¹²⁾ (development area) m³ for the site

7.2 Post development runoff volume (unmitigated) ⁽¹²⁾ m³ for the site

7.3 Volume to be controlled (5.2 - 5.1) m³ for the site



Essex County Council

7.4 Volume control provided by:

- Interception losses⁽¹³⁾ m³
- Rain harvesting ⁽¹⁴⁾ m³
- Infiltration m³
- Attenuation m³
- Separate volume designated as long term storage⁽¹⁵⁾ m³

7.5 Total volume control (sum of inputs for 5.4) m³ ₍₁₇₎

8.0 Site storage volumes (full infiltration only)

- 8.1 Storage - 1 in 30 year + CCA ⁽⁸⁾ m³ m³/m² (of developed impermeable area)
- 8.2 Storage - 1 in 100 year + CCA ⁽¹¹⁾ m³ m³/m²

SuDS Water quantity and Quality – LLFA Technical Assessment Proforma

Design Inputs

Proposed site use

Pollution hazard category (see C753 Table 26.2)

High risk area defined as area storing fuels chemicals, refuelling area, washdown area, loading bay.

Design Outputs

List order of SuDS techniques proposed for treatment

Note that gully pots, pipes and tanks are not accepted by Essex LLFA as a form of treatment (for justification see C753 Section 4.1, Table 26.15 and Box B.2)

Are very high pollution risk areas drained separate from SuDS to foul system

Other

Please include any other information that is relevant to your application

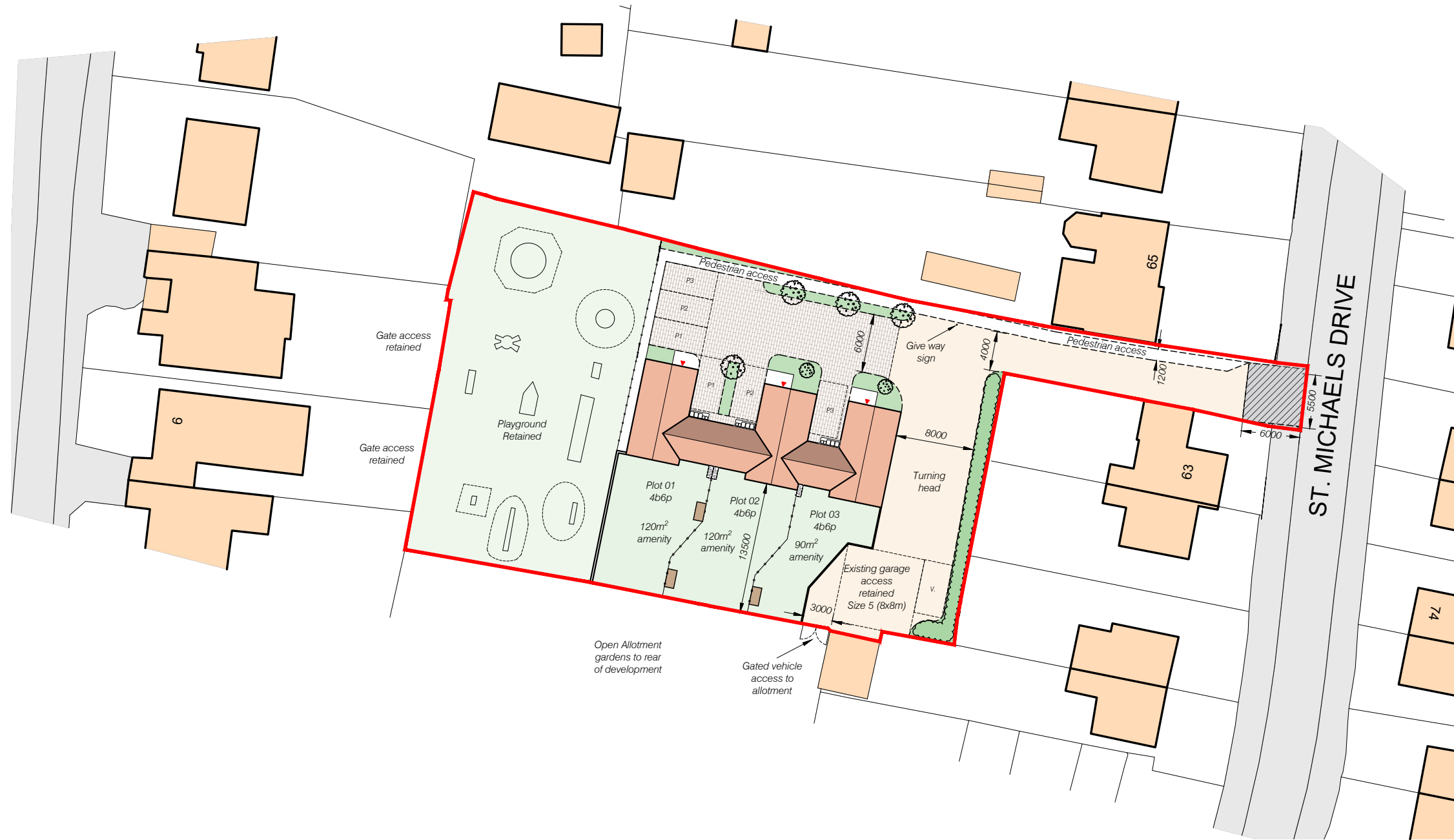


SuDS Water quantity and Quality – LLFA Technical Assessment Proforma

Notes

1. All area with the proposed application site boundary to be included.
2. The site area which is positively drained includes all green areas which drain to the SuDS system and area of surface SuDS features. It excludes large open green spaces which do not drain to the SuDS system.
3. Impermeable area should be measured pre and post development. Impermeable surfaces include, roofs, pavements, driveways and paths where runoff is conveyed to the drainage system.
4. Predevelopment use may impact on the allowable discharge rate. The LLFA will seek for reduction in flow rates to GF (Essex SuDS Design Guide).
5. Runoff may be discharge via one or more methods.
6. Sewers for Adoption 6th Edition recommends a Cv of 100% when designing drainage for impermeable area (assumes no loss of runoff from impermeable surfaces) and 0% for permeable areas. Where lower Cv's are used the applicant should justify the selection of Cv.
7. It is Essex County Council's preference that discharge rates for all events up to the 1 in 100 year event plus climate change are limited to the 1 in 1 greenfield rate. This is also considered to mitigate the increased runoff volumes that occur with the introduction of impermeable surfaces. If discharge rates are limited to a range of matched greenfield flows then it is necessary to provide additional mitigation of increased runoff volumes by the provision of Long-term Storage.
8. Storage for the 1 in 30 year must be fully contained within the SuDS components. Note that standing water within SuDS components such as ponds, basins and swales is not classified as flooding. Storage should be calculated for the critical duration rainfall event.
9. Runoff generated from rainfall events up to the 1 in 100 year will not be allowed to leave the site in an uncontrolled way. Temporary flooding of designated areas to shallow depths and velocities may be acceptable.
10. The following information should only be provided if increased runoff volumes are not mitigated by limiting all discharge rates back to the greenfield 1 in 1 year rate.
11. Climate change is specified as 40% increase to rainfall intensity, unless otherwise agreed with the LLFA / EA.
12. To be determined using the 100 year return period 6 hour duration winter rainfall event.
13. Where Source Control is provided Interception losses will occur. An allowance of 5mm rainfall depth can be subtracted from the net inflow to the storage calculation where interception losses are demonstrated. The Applicant should demonstrate use of subcatchments and source control techniques. Further information is available in the SuDS Design Guide.
14. Please refer to Rain harvesting BS for guidance on available storage.
15. Flows within long term storage areas should be infiltrated to the ground or discharged at low flow rate of maximum 2 l/s/ha.
16. Careful consideration should be used for calculations where flow control / storage is likely to be influenced by surcharged sewer or peak levels within a watercourse. Outlets can be tidally locked where discharge is direct to estuary or sea. Calculations should demonstrate that risk of downed outlet has been taken into consideration. Vortex controls require conditions of free discharge to operate as per specification.
17. In controlling the volume of runoff the total volume from mitigation measures should be greater than or equal to the additional volume generated.

PLANS



Accommodation Schedule

Plot No.	Accommodation	Area (m ²)	Amenity (m ²)
01	4 Bedroom 6 person house	117	120
02	4 Bedroom 6 person house	117	120
03	4 Bedroom 6 person house	117	90

Key:

- Proposed Tree
- Permeable gravel driveway
- Concrete pavers
- Cycle Stores
- Bins
- 1800mm h. close boarded timber fence
- 1800mm h. 225mm thick external brick wall
- 1200mm h. metal anti-trap playground fencing to local requirements

revision _____

issue **PLANNING**

client _____

Chelmsford City Council

project _____

St. Michaels Drive, Roxwell,
Chelmsford

title _____

Proposed Block Plan

john finch partnership
chartered architects & town planning consultants



88 Broomfield Road
Chelmsford CM1 1SS
01245 354319/250780
admin@johnfinchpartnership.co.uk

www.johnfinchpartnership.co.uk

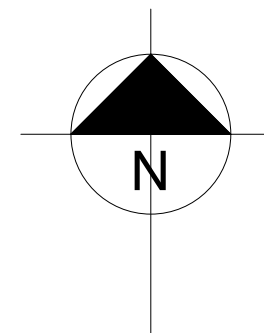
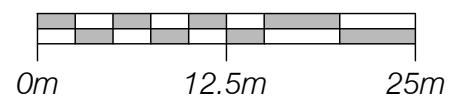
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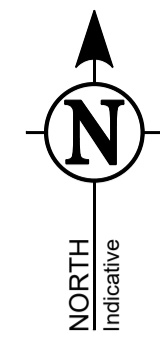
drawn lt/jh checked jm

dwg no 3555:02 revision _____

PROPOSED BLOCK PLAN @ 1:500

A3 SHEET @ 1:500





TOPOGRAPHICAL & MEASURED BUILDING SURVEYS

ABBREVIATIONS & SYMBOLS

AH Arch Head Height	ER Earth Road	RSD Roller Shutter Door
AB Air Brick	ET EPA Transformer	RSJ Rolled Steel Joist
AR Assumed Road	FB Floor Board	SI Sign Post
AV Air Valve	FBD Floor Board Direction	SP Arch Spring Point Height
BB Belta Beason	FH Fire Hydrant	SV Stop Valve
BH Bone Hole	FL Floor Level	SW Surface Water
BL Bed Level	FP Flag Pole	SY Cable Stay
BO Bollard	FW Foot Water	Tac Tactile Paving
BPF Brice Post	GC Gully Grate	TC Telecom Cover
BS Bus Stop	GV Gas Valve	TH Trail Pit
BU Bush	HH Head Height	THL Threshold Level
BW Barbed Wire Fence	IC Inspection Cover	TL Traffic Light
BX Box (Utilities)	IL Invert Level	T/W Top of Wall
CB Close Board Fence	IR Iron Railings	TP Telegraph Pole
CH CH Height	KD Kirt Ductlet	TV Cable TV Cover
CL Cover Level	LP Lamp Post	TS Traffic Signal Cover
CL Chain Link Fence	MH Manhole	UB Universal Beam
C-Lev Ceiling Level	MP Marker Post	UC Unknown Cover
CL Column	NB Name Board	UK Unknown Tree
C/P Chestnut Paling Fence	OHL Overhead Line (approx)	UMG Unmade Ground
CR Cable Riser	PN Panel Fence	USB Under Side Beam
CW Chicken Wire	PS Post Box	UTL Unable To Lift
DC Drainage Channel	PM Parking Meter	UTS Unable To Survey
DH Door Head Height	PO Post	VP Vent Pipe
DI Disabled	PR Post & Rail Fence	WB Waste Bin
DP Down Pipe	PW Post & Wire Fence	WH Waste Hole
DR Drain	P/Wall Partition Wall	WL Water Level
EB Electric Box	RE Roofing Eye	WM Water Meter
EC Electric Supply Cover	RL Ridge Level	WO Wash Out
EL Eaves Level	RP Reflector Post	W/C Floor to Ceiling Height
EP Electric Pole	RS Road Sign	W/FIC Floor to False Ceiling Ht
		Survey Control Station

DRAWING NOTES

Topographical Surveys

Trees are drawn to scale showing the average canopy spread. Descriptions and heights should be used as a guide only.

All building names, descriptions, number of storeys, construction type including roof line details are indicative only and taken externally from ground level.

All below ground details including drainage, voids and services have been identified from above ground and therefore all details relating to these features including sizes, depth, description etc will be approximate only. All critical dimensions and connections should be checked and verified prior to starting work.

Detail, services and features may not have been surveyed if obstructed or not reasonably visible at the time of the survey.

Surveyed physical features may not necessarily represent the legal boundary line.

Measured Building Surveys

Measurements to internal walls are taken to the wall finishes at approx 1m above the floor level and the wall assumed to be vertical.

Cill heights are measured as floor to the cill and head heights are measured from cill to the top of window.

General

The contractor must check and verify all site and building dimensions, levels, utilities and drainage details and connections prior to commencing work. Any errors or discrepancies must be notified to Survey Solutions immediately.

The accuracy of the digital data is the same as the plotting scale implies. All dimensions are in metres unless otherwise stated.

The survey control listed is only to be used for topographical surveys at the stated scale. All control must be checked and verified prior to use.

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Do not scale from this drawing.

SURVEY CONTROL CO-ORDINATES

STATIONS	EASTINGS	NORTHINGS	LEVEL	DESCRIPTION
ST01	564423.423	208538.219	39.988	PK Nail
ST02	564414.624	208499.348	42.382	PK Nail
ST03	564383.375	208472.653	42.671	PK Nail
ST04	564373.515	208465.418	42.948	PK Nail
ST05	564372.984	208445.183	43.641	PK Nail
ST06	564348.694	208450.302	43.427	PK Nail
ST07	564355.786	208476.022	42.669	PK Nail

SURVEY GRID AND LEVEL DATUM

The coordinate system established for this survey is related to Ordnance Survey (OS) national grid at a single point using Smartnet, then orientated to grid north with a scale factor of 1.000.

The level datum established for this survey is related to Ordnance Survey (OS) using GPS Smartnet.

To avoid discrepancies any coordinated data used in conjunction with this survey must be derived directly from this control data.

REV	DESCRIPTION	DRAWN	APPR	DATE



SURVEY SOLUTIONS

LAND SURVEYING
BUILDING SURVEYING
UNDERGROUND SURVEYING
SITE ENGINEERING
MONITORING

0845 040 5969
survey-solutions.co.uk

POWCH BEDFORD COVENTRY GLASGOW LONDON MANCHESTER NORWICH NOTTINGHAM YEOVIL

PROJECT TITLE
ST. MICHAELS DRIVE, ROXWELL
CHELMSFORD, ESSEX, CM14 NU

DRAWING DETAIL
TOPOGRAPHICAL SURVEY
Sheet 1 of 1

CLIENT
CHELMSFORD CITY COUNCIL

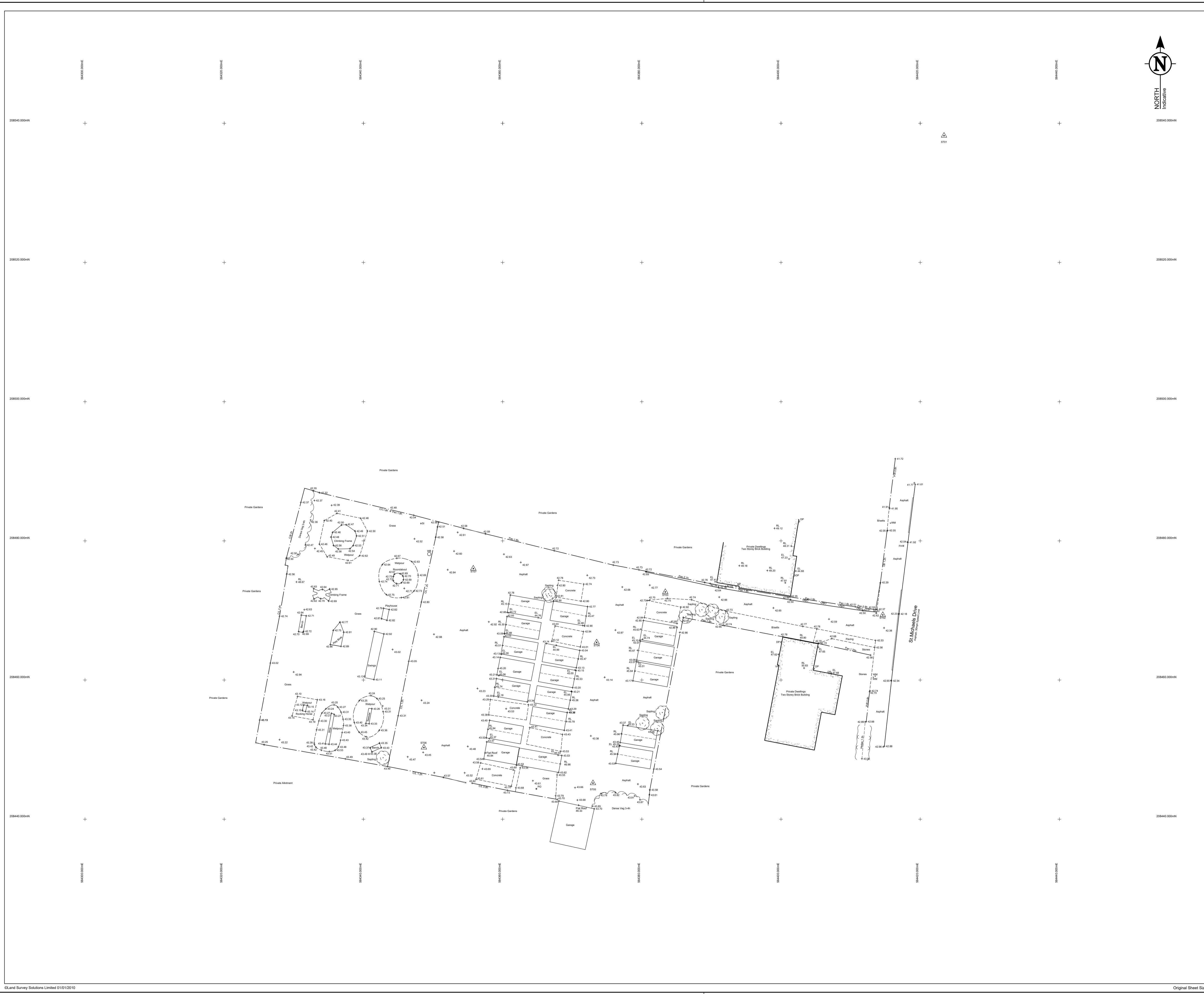
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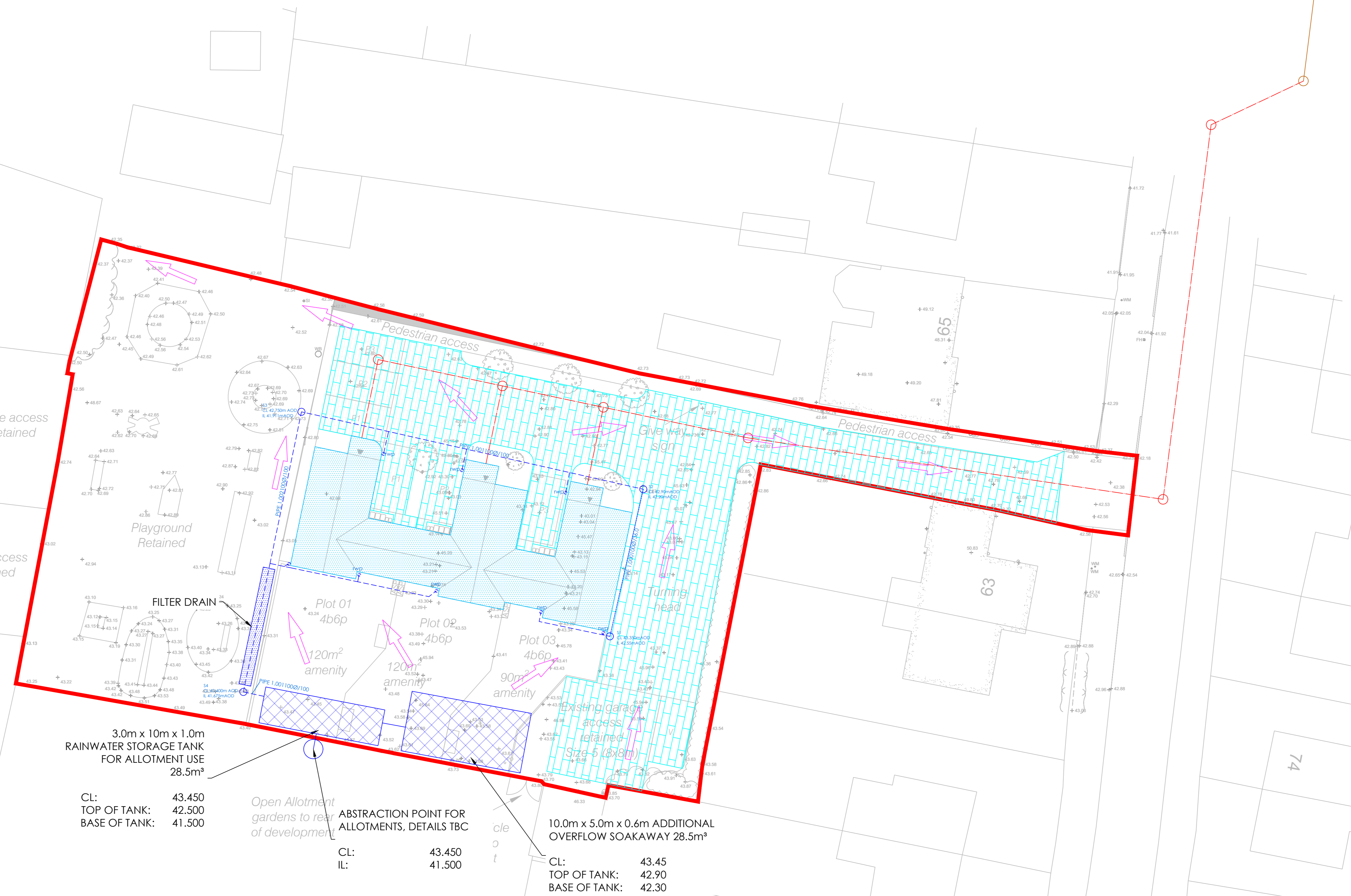
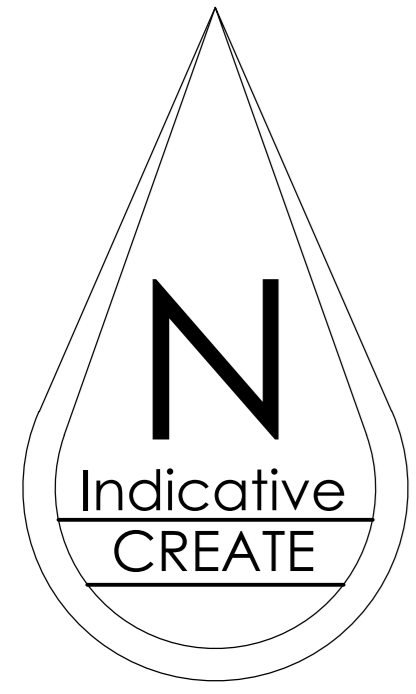
SURVEYOR	SURVEY DATE	CHECKED BY	APPROVED BY	DWG STATUS
RT	03/05/2022	AK	MB	FINAL

DRAWING NUMBER	REVISION	ISSUE DATE
41367BWLS-01		05/05/2022







3.0m x 1.0m x 1.0m
RAINWATER STORAGE TANK
FOR ALLOTMENT USE
28.5m³

CL: 43.450
TOP OF TANK: 42.500
BASE OF TANK: 41.500

Open Allotment
gardens to rear
of development

ABSTRACTION POINT FOR
ALLOTMENTS, DETAILS TBC
CL: 43.450
IL: 41.500

10.0m x 5.0m x 0.6m ADDITIONAL
OVERFLOW SOAKAWAY 28.5m³
CL: 43.45
TOP OF TANK: 42.90
BASE OF TANK: 42.30

NOTES

- THIS DRAWING IS BASED ON LAYOUT DRAWING 3555.02 ENTITLED PROPOSED BLOCK PLAN BY JOHN FINCH PARTNERSHIP DATED 26/08/2022 AND TOPOGRAPHIC SURVEY 41367BWL5-01 BY SURVEY SOLUTIONS DATED 05/05/2022.
- FOUL CONNECTION LOCATION TO ANGLIAN WATER NETWORK PENDING FURTHER SURVEYS AT DETAILED DESIGN STAGE AND CONFIRMATION CONNECTION CAN BE MADE VIA PRIVATE LAND. IF NOT VIABLE THIS WILL BE SOUGHT FURTHER ALONG ST MICHAELS DRIVE.

KEY

- PRELIMINARY SURFACE WATER SEWER
- PROPOSED UNLINED PERMEABLE PAVING
- IMPERMEABLE AREA
- EXISTING FOUL WATER SEWER
- APPLICATION SITE REDLINE BOUNDARY
- PROPOSED ATTENUATION TANKS
- EXCEEDANCE FLOW ROUTE
- INDICATIVE RAIN WATER PIPES
- PROPOSED FOUL WATER SEWER (PRIVATE PUMPED)

REV	DATE	AMENDMENT DETAILS	DRAWN	APPROVED
B	20.04.23	UPDATED FOR PLANNING ISSUE	JG	GS
A	8.03.23	SURFACE WATER TANKS ADDED	JG	GS

PROJECT LAND OF ST MICHAELS DRIVE ROXWELL, CHELMSFORD	DATE 01.11.22	DRAWING STATUS INFORMATION	
DRAWING TITLE PRELIMINARY FOUL AND SURFACE WATER DRAINAGE STRATEGY	SCALE(S) 1:250	DESIGNED GGB	
CLIENT CHELMSFORD CITY COUNCIL	JOB No 2709	CHECKED GS	APPROVED GS
	DRAWING No 02/005	REVISION B	

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