

Lower Thames Crossing

6.3 Environmental Statement Appendices Appendix 2.1 – Construction Supporting Information

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Lower Thames Crossing

6.3 Environmental Statement Appendices

Appendix 2.1 – Construction Supporting Information

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1 Appendix 2.1 Construction supporting information

1.1 Extended hours for highways works

1.1.1 Table 1.1 provides additional construction information on the highways works that require extended working hours, as identified in Chapter 2: Project Description (Application Document 6.1).

Table 1.1 Extended hours for Highways works

Work No.	Works Narrative	Associated compound
2G	The construction of a new viaduct to carry the new link road between the southbound carriageway of the new A122 Lower Thames Crossing and the westbound carriageway of the improved A2 Limited night time road possession. 3 x 48hr weekend possessions	A2 compound
1H	The construction of a new bridge to carry the realigned Thong Lane over both carriageways of the improved A2 mainline Limited night time road possession. 3 x 48hr weekend possessions	A2 compound
1H	The demolition of the existing Thong Lane bridge over the existing A2 mainline Limited night time road possession. 2 x 48hr weekend possessions	A2 compound
1D	The construction of a new bridge to carry the realigned Brewers Road over both carriageways of the improved section of the A2 mainline Limited night time road possession. 4 x 48hr weekend possessions	A2 compound
1D	The demolition of the existing Brewers Road bridge over the existing A2 Limited night time road possession. 4 x 48hr weekend possessions	A2 compound

Work No.	Works Narrative	Associated compound
3B	Tie-in works for the construction of a new bridge to carry the realigned Thong Lane over the southbound and northbound carriageways of the new A122 Lower Thames Crossing Limited night time road possession. 2 x 48hr weekend possessions	A2 compound
2F	Gravesend East junction slips & Marling Cross widening works and Henhurst Road tie-in works Limited night time road possession. 2 x 48hr weekend possessions	Marling Cross compound and A2 compound
2H	A2 tie-in works relating to the construction of a new highway, single carriageway, between the eastbound carriageway of the improved A2 mainline and the northbound carriageway of the new A122 Lower Thames Crossing Limited night time road possession. 1 x 48hr weekend possession	A2 compound
2D	Tie-in works relating to the construction of a new highway, two-lane single carriageway, between the new westbound A2 link road and the westbound carriageway of the improved A2 mainline Limited night time road possession. 1 x 48hr weekend possession	A2 compound
1M	A2 tie-in works for the construction of a section of the new local road between the new A2 and the realigned Brewers Road Limited night time road possession. 1 x 48hr weekend possession	A2 compound
1A	Surfacing works for the construction of an improved section of the existing M2 and the improvement works to the A2 Limited night time road possession. Multiple short term possession	A2 compound
5C	Construction of a section of the Tilbury viaduct above Tilbury Loop railway line Limited night time rail possession. 2 months duration	Station Road compound

Work No.	Works Narrative	Associated compound
7D	Construction of a new bridge taking the A1013 over the A1089 Limited night time road possession. 3 x 48hr weekend possessions	Brentwood Road compound
7E	Demolishing of an existing bridge structure A1013 over A1089 Limited night time road possession. 1 x 48hr weekend possession	Brentwood Road compound
7E	Construction of a new bridge - A1013 westbound to A122 northbound viaduct over A1089 Limited night time road possession. 3 x 48hr weekend possessions	Brentwood Road compound
7C	Box jack under A13 east of A1089 Continuous 24-7 working operations. 3 months of 24 - 7 working	Brentwood Road compound
7Z	Box jack under A13 west of A1089 Continuous 24-7 working operations. 3 months of 24 - 7 working	Long Lane compound
7J	Demolition of existing Rectory Road bridge over A13 Limited night time road possession. 1 x 48hr weekend possession	Brentwood Road compound
7J	Construction of a new Rectory Road bridge over A13 Limited night time road possession. 3 x 48hr weekend possessions	Brentwood Road compound
7H	Tie-in new link road with existing A13 westbound carriageway Limited night time road possession. 3 x 48hr weekend possessions	Brentwood Road compound
7E	Tie-in new link road with existing A13 westbound carriageway Limited night time road possession. 3 x 48hr weekend possessions	Brentwood Road compound

Work No.	Works Narrative	Associated compound
7F	Resurfacing of existing dual carriageway A13 and over tie-ins between existing and new infrastructure Limited night time road possession. 1 x 48hr weekend possession	Stifford Clays Road compound East
7F	Installing new gantries Limited night time road possession. 1 x 48hr weekend possession	Stifford Clays Road compound East
7D	Resurfacing of existing A013 and over tie-ins between existing and new infrastructure Limited night time road possession. 2 x 48hr weekend possession	Brentwood Road compound
7T	Resurfacing of existing A1089 and over tie-ins between existing and new infrastructure Limited night time road possession. 1 x 48hr weekend possession	Brentwood Road compound
7M	Tie-in new link road with existing infrastructure at Green Lane over A122 Limited night time road possession. 2 x 48hr weekend possession	Stifford Clays Road compound East
7L	Tie-in new link road with existing infrastructure at Stifford Clays Road over A122 Limited night time road possession. 2 x 48hr weekend possession	Stifford Clays Road compound East
6B	Tie-in new link road with existing infrastructure at Muckingford Road Limited night time road possession. 2 x 48hr weekend possession	Brentwood Road compound
6D	Tie-in new link road with existing infrastructure at Brentwood Road Limited night time road possession. 2 x 48hr weekend possession	Brentwood Road compound
9A	Box jack under M25 Continuous 24-7 working operations. 4 months of 24-7 working	M25 compound

Work No.	Works Narrative	Associated compound
9M	Construction of a new footpath bridge over Upminster Railway Limited night time rail possession. 1 x 48hr weekend possession	M25 compound
9O	Construction of a new footpath bridge over M25 and A122 Limited night time road possession. 3 x 48hr weekend possessions	M25 compound
9D	Construction of a new bridge over Shoeburyness Railway Limited night time rail possession. 2 x 48hr weekend possession	Ockendon Road compound
9E	Modification of an existing bridge taking M25 southbound over Shoeburyness railway line Limited night time rail possession. 3 x 48hr weekend possessions	Ockendon Road compound
9G	Widening of Codham Hall Viaduct Limited night time road possession. 28 working days (not continuous working)	Warley Street compound
9Z	Construction of a new footbridge over A127 Limited night time road possession. 3 x 48hr weekend possession	Warley Street compound
8D	Tie-in new link road with existing infrastructure at the North Road – B186 interface with A122 Limited night time road possession. 2 x 48hr weekend possession	M25 compound
9E	Installing new gantries on the M25 Limited night time road possession. 3 x 48hr weekend possessions	M25 compound
9E	Widening of existing infrastructure / tie-in existing with new infrastructure at the M25 Limited night time road possession. Provision may be needed (short term weekend possessions)	M25 compound

1.2 Extended hours for utilities works

1.2.1 Table 1.2 provides additional construction information on the utilities works that require extended working hours, as identified in Chapter 2: Project Description (Application Document 6.1). The durations of works shown in Table 1.2 are illustrative only and will depend on factors including site access and agreements for utility outages. The environmental assessments presented in the ES (Application Document 6.1) have assumed durations which reflect a reasonable worst-case.

Table 1.2 Extended hours for utilities works

Work No.	Works Narrative	Total duration of works (Months)	Associated compound
Multi-utilities			
MU2	Installation of a multi-utilities corridor, including trenchless installation of utilities under the A2. Extended working (daylight hours including weekends) provision for trenchless installation of pipes beneath the A2. Approximately 22 weeks works (total) Or; Extended working (including night time) provision for trenchless installation of pipes beneath the A2. Approximately seven weeks works (total)	10	A2 Compound
MU28	2.25km installation of a multi-utility corridor containing an underground 132kV network. Trenchless installation would be required under the Tilbury Loop railway line. Potential further trenchless installations required to mitigate impact at Muckingford Road. Linked to Works OH3 Extended working (daylight hours including weekends) provision for trenchless installation of pipes beneath the London, Tilbury & Southend railway line. Approximately six weeks works (total) Or; Extended working (including night time) provision for trenchless installation of pipes beneath the London, Tilbury & Southend railway line. Approximately four weeks works (total)	12	Northern tunnel entrance compound
MU29	Installation of a multi-utility corridor including a permanent water supply to the Northern Portal. Trenchless installation would be required under the railway Extended working (daylight hours including weekends) provision for trenchless installation of pipes beneath the Tilbury Loop railway line. Approximately six weeks works (total)	7	Northern tunnel entrance compound

Work No.	Works Narrative	Total duration of works (Months)	Associated compound
	Or; Extended working (including night time) provision for trenchless installation of pipes beneath the Tilbury Loop railway line. Approximately four weeks works (total)		
MU46	Installation of a multi-utility corridor via trenchless construction methods under the A13 to connect to the existing networks along Mill Lane. Extended working (daylight hours including weekends) provision for trenchless installation of two pipes and telecommunications ducting beneath the A13. Approximately 26 weeks works (total) Or; Extended working (including night time) provision for trenchless installation of two pipes and telecommunications ducting beneath the A13. Approximately 18 weeks works (total)	9	Stanford Road compound
MU47	Installation of a multi-utility corridor to connect the A1013 at Stanford Road from Hornsby Lane junction, south within the vicinity of Hornsby Lane before passing under the A122 and heading west to the A1089. At the A1089 assets would be trenchlessly installed and continue west to connect to existing networks along the A1013 Stanford Road at Treetops Extended working (daylight hours including weekends) provision for trenchless installation of pipes beneath the A1089. Approximately 24 weeks works (total) Or; Extended working (including night time) provision for trenchless installation of pipes beneath the A1089. Approximately 16 weeks works (total)	13	Brentwood Road compound
MU56	Installation of a multi-utility corridor from Long Lane to the north eastern side of Stiffords Clay Road, via trenchless crossings of the A13 to re-establish network connections around the A13/A1089/A122 Lower Thames Crossing junction Extended working (daylight hours including weekends) provision for trenchless installation of pipes beneath the A1089. Approximately six weeks works (total) Or; Extended working (including night time) provision for trenchless installation of pipes beneath the A1089. Approximately four weeks works (total)	13	Long Lane compound A&B & Stifford Clays Road compound west

Work No.	Works Narrative	Total duration of works (Months)	Associated compound
MU57	<p>A series of multi-utility corridors in which to locate assets requiring trenchless crossings of the A13 whilst mitigating local impacts via micro-siting. Corridors re-establish network connections and join Works MU57, MU59 & MU61</p> <p>Extended working (daylight hours including weekends) provision for trenchless installation of pipes beneath the A1089. Approximately 24 weeks works (total) Or; Extended working (including night time) provision for trenchless installation of pipes beneath the A1089. Approximately 16 weeks works (total)</p>	13	Long Lane compound A&B & Stifford Clays Road compound West
MU60	<p>Installation of a multi-utility corridor along the realigned Stiffords Clay Road from the A13 northern verge at the A13 overbridge in the west, heading east along Stiffords Clay Road and the B188 High Road to the eastern side of the junction with Bonham Drive. Corridors to re-establish network connections</p> <p>Extended working (including night time) provision for installation of ducts in verge of the A13. Approximately two periods of four weeks works, eight weeks total at each end of the construction period (January then August).</p>	8	Stifford Clays Road compound West & and Stifford Clays Road compound East
MU72	<p>Installation of a multi-utility corridor to divert assets from south of Ockenden Road to St Marys Lane. Works would require a trenchless crossing of the M25 and the Upminster and Grays branch railway line and potentially Ockenden Road depending on phasing.</p> <p>Extended working (daylight hours including weekends) provision for trenchless installation of pipes beneath the London, Tilbury & Southend railway line and the M25. Approximately 24 weeks works at each site (48 weeks total) Or; Extended working (including night time) provision for trenchless installation of pipes beneath the London, Tilbury & Southend railway line and the M25. Approximately 16 weeks works at each site (32 weeks total)</p>	15	Ockendon Road compound
MU73	<p>Trenchless installation of a multi-utility corridor from west of the Upminster and Grays branch railway line, under the A122, to east of the M25.</p>	13	Ockendon Road compound

Work No.	Works Narrative	Total duration of works (Months)	Associated compound
	Extended working (daylight hours including weekends) provision for trenchless installation of pipes beneath the London, Tilbury & Southend railway line and the M25. Approximately 24 weeks works (total) Or; Extended working (including night time) provision for trenchless installation of pipes beneath the London, Tilbury & Southend railway line and the M25. Approximately 16 weeks works (total)		
MU75	Installation of a multi-utility corridor to connect Works MU76 & MU79 west of the A122 Extended working (daylight hours including weekends) provision for trenchless installation of ducts beneath the London, Tilbury & Southend railway line. Approximately six weeks works (total) Or; Extended working (including night time) provision for trenchless installation of ducts beneath the London, Tilbury & Southend railway line. Approximately four weeks works (total)	13	Ockendon Road compound
MU78	Installation of a multi-utility corridor to ensure network connectivity. Route is proposed to connect to the existing overhead line network at Thames Chase Visitor Centre and east of the M25 via a corridor south and passing over the Thames Chase Footbridge Extended working (including night time) provision for removal of existing overhead powerline equipment above the M25. Potentially a winch located at the western end to recover the powerline. Approximately one week of works (total)	13	Ockendon Road compound
MU79	Installation of a multi-utility corridor to install assets trenchlessly under the M25 south of St Marys Lane Extended working (daylight hours including weekends) provision for trenchless installation of pipelines and ducts beneath the M25. Approximately 20 weeks works (total) Or; Extended working (including night time) provision for trenchless installation of pipelines and ducts beneath the M25. Approximately 13 weeks works (total)	11	Ockendon Road compound
MU82	Installation of a multi-utility corridor to install assets trenchlessly under the M25 south of St Marys Lane	11	Ockendon Road compound

Work No.	Works Narrative	Total duration of works (Months)	Associated compound
	Extended working (daylight hours including weekends) provision for trenchless installation of pipelines and ducts beneath the M25. Approximately 17 weeks works (total) Or; Extended working (including night time) provision for trenchless installation of pipelines and ducts beneath the M25. Approximately 12 weeks works (total)		
MU83	Installation of a multi-utility corridor to install assets trenchlessly under the M25 north of St Marys Lane Extended working (daylight hours including weekends) provision for trenchless installation of pipelines beneath the M25. Approximately 17 weeks works (total) Or; Extended working (including night time) provision for trenchless installation of pipelines beneath the M25. Approximately 12 weeks works (total)	11	Ockendon Road compound
MU84	Installation of a multi-utility corridor to install assets trenchlessly under the M25 south of the Shoeburyness railway line Extended working (daylight hours including weekends) provision for trenchless installation of ducts beneath the M25. Approximately six weeks works (total) Or; Extended working (including night time) provision for trenchless installation of ducts beneath the M25. Approximately four weeks works (total)	11	Ockendon Road compound
MU87	Trenchless installation of a multi-utility corridor under the M25 connecting to the existing network. Works are installed via open-cut methods heading north along the western toe of the M25. 2No. Pole mounted transformers would be required (replication of existing) west of the existing poles. Connected to Works MU90. Extended working (daylight hours including weekends) provision for trenchless installation of ducts beneath the M25. Approximately six weeks works (total) Or;	6	Warley Street compound

Work No.	Works Narrative	Total duration of works (Months)	Associated compound
	Extended working (including night time) provision for trenchless installation of ducts beneath the M25. Approximately four weeks works (total)		
MU88	<p>Installation of a multi-utility corridor through the M25 junction 29 connecting to east and west of the A127. All highway crossings would be trenchlessly constructed.</p> <p>Extended working (daylight hours including weekends) provision for trenchless installation of a pipeline and ducts beneath the M25 and the A127 slip roads. Approximately 20 weeks works (total)</p> <p>Or;</p> <p>Extended working (including night time) provision for trenchless installation of a pipeline and ducts beneath the M25 and the A127 slip roads. Approximately 13 weeks works (total)</p>	6	Ockendon Road compound
MU89	<p>Installation of a multi-utility corridor through the M25 junction 29. All highway crossings would be trenchlessly constructed.</p> <p>Extended working (daylight hours including weekends) provision for trenchless installation of a pipeline and ducts beneath the roundabout. Approximately eight weeks works (total)</p> <p>Or;</p> <p>Extended working (including night time) provision for trenchless installation of a pipeline and ducts beneath the roundabout. Approximately five weeks works (total)</p>	6	Ockendon Road compound
MU92	<p>Trenchless installation of a multi-utility corridor under the M25 connecting to the existing network. New pole mounted transformer would be required on the western existing overhead pole network to enable network connectivity.</p> <p>Extended working (daylight hours including weekends) provision for trenchless installation of ducts beneath the M25. Approximately six weeks works (total)</p> <p>Or;</p> <p>Extended working (including night time) provision for trenchless installation of ducts beneath the M25. Approximately four weeks works (total)</p>	6	Warley Street compound
Gas Works			

Work No.	Works Narrative	Total duration of works (Months)	Associated compound
G1b	<p>Installation of a large bore medium pressure pipeline to the Inn On The Lake from Marlin Cross. The pipeline would require a connection to the existing pipeline via stopple arrangements of circa 50x50x3m at Marlin Cross and the Inn On The Lake. The section under the A122 is likely to be installed via the construction of 2 shafts (circa 12-15m depth) and a joining tunnel (circa 185m length)</p> <p>Extended working (daylight hours including weekends) provision for;</p> <ul style="list-style-type: none"> • trenchless installation of pipes beneath Thong Lane. Approximately 16 weeks works (total) • trenchless installation of pipes beneath Valley Drive. Approximately 16 weeks works (total) <p>Extended working (including night time) provision for trenchless installation of a conduit in which to install a pipeline beneath the A122. Approximately 24 weeks works (total)</p>	18	A2 compound
G3	<p>Installation of a high pressure pipeline located within the vicinity of Claylane Wood, heading north on the western side of A122 via open cut techniques before passing east under the A122 and Thong Lane, connecting to the existing network north of Shorne Ifield Road. The pipeline would require a connection to the existing pipeline via pits of circa 50x50x5m at Claylane Wood and 50x50x3m at the eastern end. The section under the A122 is likely to be installed via the construction of 2 shafts (circa 17-20m depth) and a joining tunnel (circa 200m length) - discussions to be had with regards to extended working. The section under Thong Lane would be installed using trenchless techniques at a shallower depth of circa 3-6m. The pipeline would be vented prior to works commencing. Removal of pipeline proposed.</p> <p>Extended working (daylight hours including weekends) provision for trenchless installation of pipes beneath Thong Lane. Approximately eight weeks works (total)</p> <p>Or;</p> <p>Extended working (including night time) provision for trenchless installation of pipes beneath Thong Lane. Approximately four weeks works (total)</p> <p>Plus</p>	18	Shorne Ifield Road Utility Hub & A2 West Utility Hub

Work No.	Works Narrative	Total duration of works (Months)	Associated compound
	<p>Extended working (including night time) provision for trenchless installation of a conduit between two shafts in which to install a pipeline beneath the A122. Approximately 16 weeks works (total)</p>		
G4	<p>Installation of a high pressure pipeline connecting north of Claylane Wood and heading north on the western side of A122 via open cut techniques before passing east under the A122 and Thong Lane, continuing east and then north to the A226 where the pipeline would connect to the existing asset. The pipeline would require a connection to the existing pipeline via pits of circa 50x50x3m north of Claylane Wood and 50x50x3m at the A226. The section under the A122 is likely to be installed via the construction of 2 shafts (circa 17-20m depth) and a joining tunnel (circa 200m length) - discussions to be had with regards to extended working. The section under Thong Lane would be installed using trenchless techniques at a shallower depth of circa 3-6m. The pipeline would be vented prior to works commencing. Shared outage with Works G2. Removal of pipeline proposed.</p> <p>Extended working (daylight hours including weekends) provision for trenchless installation of pipes beneath Thong Lane. Approximately eight weeks works (total) Or; Extended working (including night time) provision for trenchless installation of pipes beneath Thong Lane. Approximately four weeks works (total) Plus Extended working (including night time) provision for trenchless installation of a conduit between two shafts in which to install a pipeline beneath the A122. Approximately 16 weeks works (total)</p>	23	Shorne Ifield Road Utility Hub & A2 West Utility Hub
G6	<p>Installation of a high-pressure pipeline around the A13 Junction and Orsett. The pipeline is located in the vicinity of a scheduled monument. The pipeline would be installed largely utilising open-cut methods however the A122, the A13 and other minor roads and water features would be crossed utilising trenchless installation methods of varying depth. The pipeline would require a connection to the existing pipeline via a pit of circa 30x30x3m at the western connection point and would be connected via stopple arrangements so no significant vent off of gas. The eastern connection would be completed as part of Works G6a. The works would make circa 4.2km of</p>	23	Green Lane Utility Hub & Stanford Road Utility Hub

Work No.	Works Narrative	Total duration of works (Months)	Associated compound
	<p>pipeline redundant, of which 2.2km would be removed definitely as they clash with part of the Project works. Directly linked with Works G6a.</p> <p>Extended working (daylight hours including weekends) provision for;</p> <ul style="list-style-type: none"> • trenchless installation of pipes beneath the A128 Brentwood Road. Approximately six weeks works (total) • trenchless installation of pipes beneath the B188 High Road. Approximately six weeks works (total) <p>Or;</p> <p>Extended working (including night time) provision for;</p> <ul style="list-style-type: none"> • trenchless installation of pipes beneath the A128 Brentwood Road. Approximately four weeks works (total) • trenchless installation of pipes beneath the B188 High Road. Approximately four weeks works (total) <p>Plus:</p> <p>Extended working (including night time) provision for trenchless installation of pipes beneath the A13. Approximately eight weeks works (total)</p>		
G10	<p>Installation of a high-pressure pipeline. Section under M25 to be crossed via trenchless installation methods at circa 6m depth (circa 130m length). The pipeline would require a connection to the existing pipeline via a pit of circa 30x30x3m at the northern and southern connection point and would be connected via stopple arrangements so no significant vent off of gas.</p> <p>Extended working (including night time) provision for trenchless installation of pipes beneath the M25. Approximately eight weeks works (total)</p>	12	Beredens Lane Utility Hub & Folkes Lane Utility Hub
Overhead Electricity Network Works			
OH1	<p>Diversion and modification of a 400kV network from the A2 to Thong Lane. Works include the construction of 4No. new pylons and circa 3km of conductor restringing, the removal of 4No. existing pylons. Requires Works OHT1.</p>	9	A2 East Utility Hub

Work No.	Works Narrative	Total duration of works (Months)	Associated compound
	<p>Extended working (daylight hours including weekends) provision for;</p> <ul style="list-style-type: none"> • the erection of scaffolding and netting adjacent to and over the A2 and HS1. Approximately six weeks works • the erection of scaffolding adjacent to Thong Lane. Approximately two weeks works <p>Extended working (including night time) provision for;</p> <ul style="list-style-type: none"> • the erection of netting over the A2 (and potentially HS1). Approximately one week of works • the erection of the overhead powerlines with extended working noise generating works limited to the use of winches at the pulling locations (represented by bowties). <p>Approximately twenty four weeks works total, assume attendance at all winch locations throughout.</p> <ul style="list-style-type: none"> • the removal of the existing overhead powerline. • the removal of the temporary overhead powerline. 		
OH3	<p>Works include the removal of circa 2.2km of existing 132kV OHL and circa 8No. pylons from west of the proposed Tilbury Viaduct to the south of Linford allotments. Works require the demolition of the existing pylon at the northern tie in location and the construction of a new terminal pylon in the same location and one length of re-stringing overhead over the allotments. Linked to Works OHT3 & Works MU28.</p> <p>Extended working (daylight hours including weekends) provision for;</p> <ul style="list-style-type: none"> • the erection of scaffolding and netting adjacent to and over the London, Tilbury and Southend Railway line. Approximately two weeks works <p>Extended working (including night time) provision for;</p> <ul style="list-style-type: none"> • the erection of the overhead powerlines with extended working, noise generating works limited to the use of winches at the pulling locations north of Linford allotments and north of Station Road. Approximately four weeks works total 	1	Northern tunnel entrance compound

Work No.	Works Narrative	Total duration of works (Months)	Associated compound
	<ul style="list-style-type: none"> • the erection of the overhead powerlines with extended working, noise generating works limited to the use of winches at the pulling locations north of Linford allotments and the new pylon north of Muckingford Road. Approximately four weeks works total • the removal of the temporary overhead powerline. • the removal of the existing overhead powerline. 		
OH4	<p>Diversion and modification of a 400kV network from west of the proposed Tilbury Viaduct to north of Linford allotments. Works include the construction of 5No. new pylons and circa 3.5km of conductor restringing, the removal of 4No. existing pylons. Requires Works OHT2.</p> <p>Extended working (daylight hours including weekends) provision for;</p> <ul style="list-style-type: none"> • the erection of scaffolding adjacent to Station Road, the London, Tilbury and Southend Railway line, Muckingford Road and Buckingham Hill Road. Approximately two weeks works at each location, eight weeks total <p>Extended working (including night time) provision for;</p> <ul style="list-style-type: none"> • the erection of the overhead powerlines with extended working, noise generating works limited to the use of winches at the pulling locations (represented by bowties). Approximately 20 weeks works total, assume attendance at all winch locations throughout. • the removal of the existing overhead powerline. • the removal of the temporary overhead powerline. 	8	Muckingford Road Utility Hub & Low Street Lane Utility Hub
OH5	<p>Installation of a 132kV network west of the A122 heading north from Muckingford Road. Works include the construction of 5No. new pylons & modification of 2No. pylons and circa 1.5km of OHL network. The works require the removal of 4No. existing pylons.</p> <p>Extended working (including night time) provision for;</p> <ul style="list-style-type: none"> • the erection of the overhead powerlines with extended working, noise generating works limited to the use of winches at the pulling locations north of the A122, east of Hoford Road and at the southern end of the alignment. Approximately four weeks works total • the removal of the existing overhead powerline. 	8	Northern tunnel entrance compound

Work No.	Works Narrative	Total duration of works (Months)	Associated compound
OH6	<p>Diversion and modification of a 400kV network south west and west of the A13/A1089/A122 Lower Thames Crossing junction. Works include the construction of 4No. new pylons and circa 4.75km of conductor restringing, the removal of 4No. existing pylons. Requires Works OHT5 & OHT6</p> <p>Extended working (daylight hours including weekends) provision for;</p> <ul style="list-style-type: none"> • the erection of scaffolding adjacent to the A13. Approximately six weeks works. • the erection of scaffolding adjacent to the A1089. Approximately nine weeks works. • the erection of scaffolding at Brentwood Road. Approximately three weeks works. • the erection of scaffolding at Hornsby Lane. Approximately ten weeks works. • the erection of scaffolding at Heath Road. Approximately four weeks works. • the erection of scaffolding at Stanford Road. Approximately five weeks works. • the erection of scaffolding at Long Lane. Approximately seven weeks works. • the erection of scaffolding at Stifford Clays Road. Approximately two weeks works. • the erection of scaffolding at Green Lane. Approximately three weeks works. <p>Extended working (including night time) provision for;</p> <ul style="list-style-type: none"> • the erection of the overhead powerlines with extended working, noise generating works limited to the use of winches at the pulling locations (represented by bowties). <p>Approximately 11 weeks works total, assume attendance at all winch locations throughout.</p> <ul style="list-style-type: none"> • the removal of the existing overhead powerline. • the removal of the temporary overhead powerlines. 	17	Stifford Clays Road Utility Hub & Long Lane Utility Hub & Hornsby Lane Utility Hub
OH7	<p>Diversion and modification of a 275kV network south west and west of the A13/A1089/A122 Lower Thames Crossing junction heading north to FP136. Works include the construction of 10No. new pylons and circa 8.4km of conductor restringing, the removal of 9No. existing pylons. Requires Works OHT4, OHT7 & OHT8.</p> <p>Extended working (daylight hours including weekends) provision for;</p>	28	Medebridge Utility Hub & Stifford Clays Road Utility Hub & Long Lane Utility Hub &

Work No.	Works Narrative	Total duration of works (Months)	Associated compound
	<ul style="list-style-type: none"> • the erection of scaffolding adjacent to the A13. Approximately six weeks works. • the erection of scaffolding adjacent to the A1089. Approximately nine weeks works. • the erection of scaffolding at Brentwood Road. Approximately three weeks works. • the erection of scaffolding at Hornsby Lane. Approximately ten weeks works. • the erection of scaffolding at Heath Road. Approximately four weeks works. • the erection of scaffolding at Stanford Road. Approximately five weeks works. • the erection of scaffolding at Long Lane. Approximately seven weeks works. • the erection of scaffolding at Stifford Clays Road. Approximately two weeks works. • the erection of scaffolding at Green Lane. Approximately three weeks works. <p>Extended working (including night time) provision for;</p> <ul style="list-style-type: none"> • the erection of the overhead powerlines with extended working noise generating works limited to the use of winches at the pulling locations (represented by bowties). <p>Approximately 11 weeks works total, assume attendance at all winch locations from east of Brentwood Road to North of Green Lane throughout.</p> <ul style="list-style-type: none"> • the removal of the existing overhead powerline. • the removal of the temporary overhead powerlines. 		Hornsby Lane Utility Hub
OH8	<p>Works are within the Thames Chase woodland area and the adjacent eastern field. Works include the diversion of circa 1km of 132kV overhead line via construction of 2No. new pylons and circa 1km of OHL network, and the removal of 2No. existing pylons.</p> <p>Extended working (daylight hours including weekends) provision for the erection of scaffolding adjacent to the M25. Approximately four weeks works.</p> <p>Extended working (including night time) provision for the erection and removal of the overhead powerlines with extended working, noise generating works limited to the use of winches at the pulling locations each end of the diversion. Approximately six weeks works total.</p>	13	Ockendon Road compound

Work No.	Works Narrative	Total duration of works (Months)	Associated compound
	The works are also concerned with the removing of associated 11kV and pilot networks within the area and include the removal of circa 250m of existing OHL and circa 3No. associated poles. Diverted assets are within Works MU78.		
Temporary Multi Utility Works			
MUT6	<p>Construction of a 355mm water pipeline for part provision of water to the TBM's. Once completed, the asset would not carry water. 30m under Network Rail assets would be abandoned as per the agreement between NR and E&SW however removal is unlikely.</p> <p>Remaining length is located within Third Party land ownership and would be proposed to be removed.</p> <p>Extended working (daylight hours including weekends) provision for trenchless installation of pipe beneath the London, Tilbury & Southend railway line. Approximately six weeks works (total) Or; Extended working (including night time) provision for trenchless installation of pipes beneath the London, Tilbury & Southend railway line. Approximately four weeks works (total)</p>	13	Northern tunnel entrance compound
MUT8	<p>Temporary foul water connection to the northern tunnel entrance compound. Once completed, the asset would not carry water. 30m under Network Rail assets would be abandoned as per the agreement between NR and Anglian Water however removal is unlikely.</p> <p>Remaining length is located within Third Party land ownership and would be proposed to be removed.</p> <p>Extended working (daylight hours including weekends) provision for trenchless installation of pipes beneath the London, Tilbury & Southend railway line. Approximately six weeks works (total) Or; Extended working (including night time) provision for trenchless installation of pipes beneath the London, Tilbury & Southend railway line. Approximately four weeks works (total)</p>	3	Northern tunnel entrance compound

Work No.	Works Narrative	Total duration of works (Months)	Associated compound
MUT16	<p>Temporary power supply to Long Lane compound A. Assets to be removed as part of Long Lane compound A demobilisation</p> <p>Extended working (daylight hours including weekends) provision for trenchless installation of ducts beneath the A1089. Approximately six weeks works (total)</p> <p>Or;</p> <p>Extended working (including night time) provision for trenchless installation of ducts beneath the A1089. Approximately four weeks works (total)</p>	8	Brentwood Road compound & Long Lane compound A & Long Lane compound B
MUT23	<p>Temporary foul water connection to Stifford Clays Road compound West. Assets to be removed as part of Stifford Clays Road compound West demobilisation except under the A13</p> <p>Extended working (daylight hours including weekends) provision for trenchless installation of pipe beneath the A13. Approximately six weeks works (total)</p> <p>Or;</p> <p>Extended working (including night time) provision for trenchless installation of pipes beneath the A13. Approximately four weeks works (total)</p>	4	Stifford Clays Road compound West
Temporary Overhead Electricity Network Works			
OHT1	Temporary installation of 4no. Pylons and approximately 1780m of associated powerline alignment. Works to be removed as part of the permanent works	3	A2 East Utility Hub
OHT2	Temporary installation of 2no. Pylons and approximately 1460m of associated powerline alignment. Temporary installation of 250m of overhead powerline. Works to be removed as part of the permanent works	3	Muckingford Road Utility Hub & Low Street Lane Utility Hub
OHT3	Temporary installation of 1no. pylon and approximately 600m of associated powerline alignment. Works to be removed as part of the permanent works	12	Northern tunnel entrance compound
OHT4	Temporary installation of 1no. pylon and approximately 720m of associated powerline alignment. Works to be removed as part of the permanent works	7	Stifford Clays Road Utility Hub & Long Lane

Work No.	Works Narrative	Total duration of works (Months)	Associated compound
			Utility Hub & Hornsby Lane Utility Hub
OHT5	Temporary installation of 1no. pylon and approximately 565m of associated powerline alignment. Works to be removed as part of the permanent works	7	Stifford Clays Road Utility Hub & Long Lane Utility Hub & Hornsby Lane Utility Hub
OHT6	Temporary installation of 1no. pylon and approximately 400m of associated powerline alignment. Works to be removed as part of the permanent works	7	Stifford Clays Road Utility Hub & Long Lane Utility Hub & Hornsby Lane Utility Hub
OHT7	Temporary installation of 1no. pylon and approximately 685m of associated powerline alignment. Works to be removed as part of the permanent works	7	Stifford Clays Road Utility Hub & Long Lane Utility Hub & Hornsby Lane Utility Hub
OHT8	Temporary installation of 1no. pylon and approximately 700m of associated powerline alignment. Works to be removed as part of the permanent works	7	Medebridge Road Utility Hub

1.3 Indicative compound layouts

1.3.1 An indicative layout for each of the construction compounds has been used in the assessments presented in this ES. The layouts are presented below.

Plate 1.1 Indicative layout for Marling Cross compound

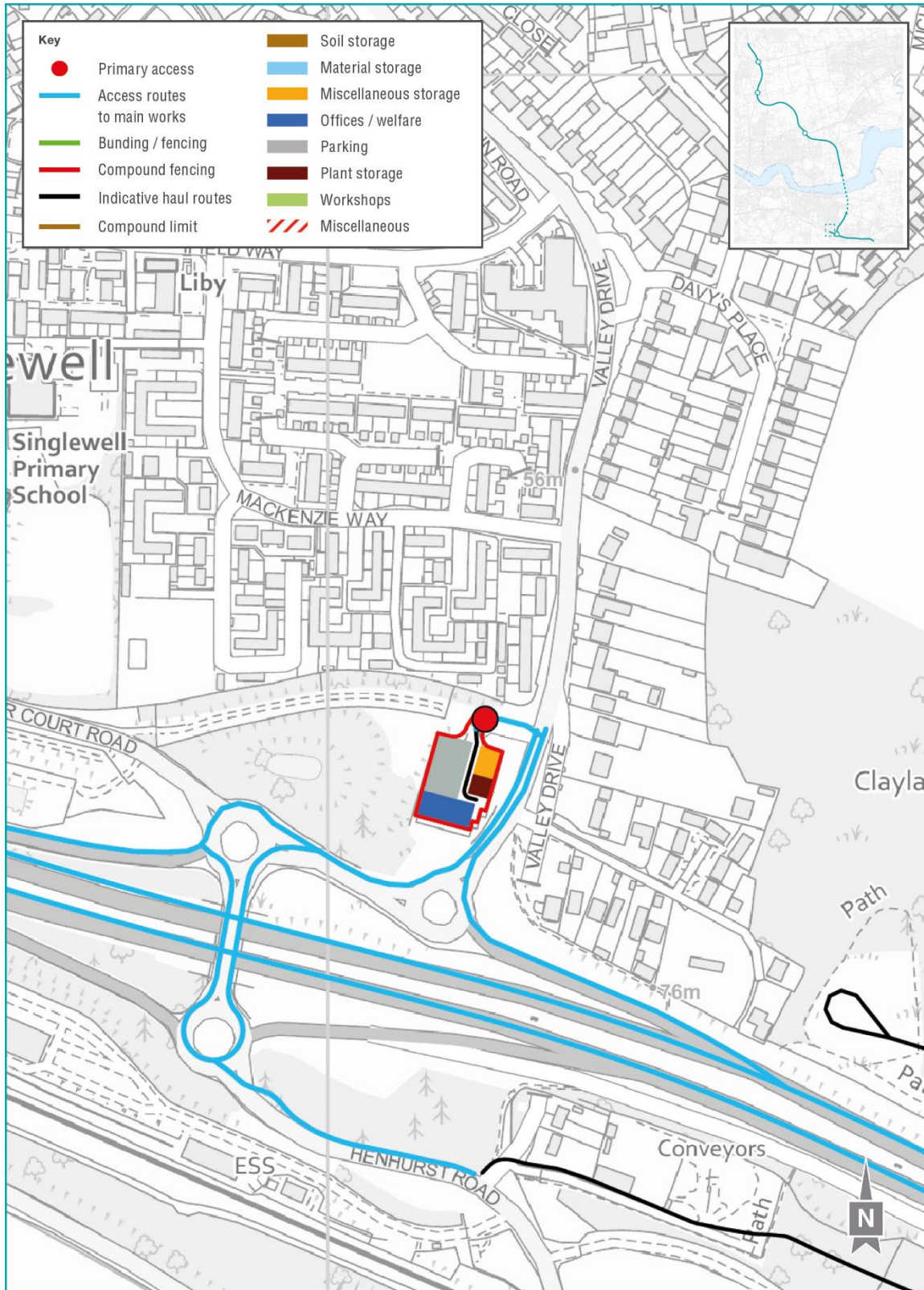


Plate 1.2 Indicative layout for A2 compound

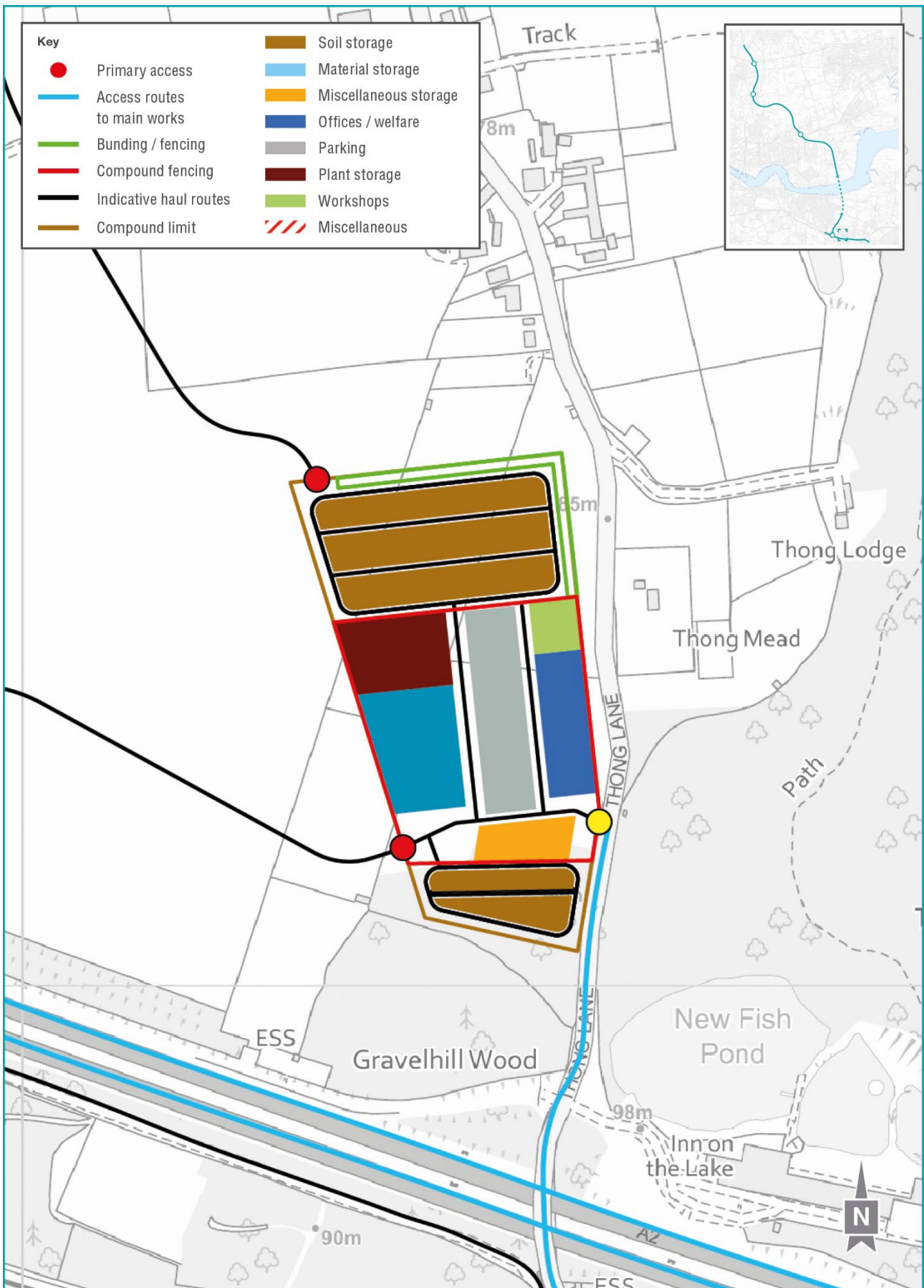


Plate 1.3 Indicative layout for Southern tunnel entrance compound

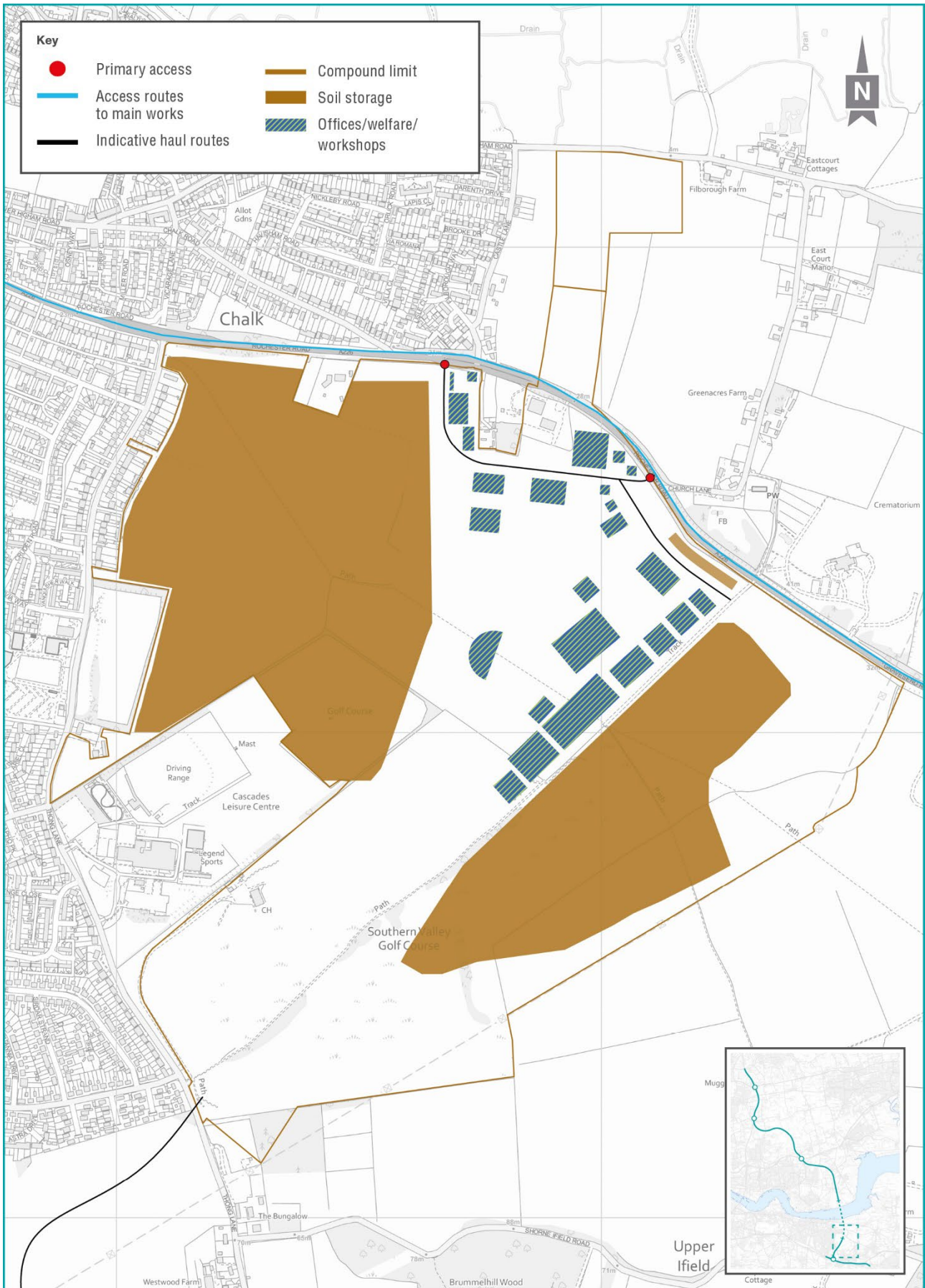


Plate 1.4 Indicative layout for A226 Gravesend Road compound

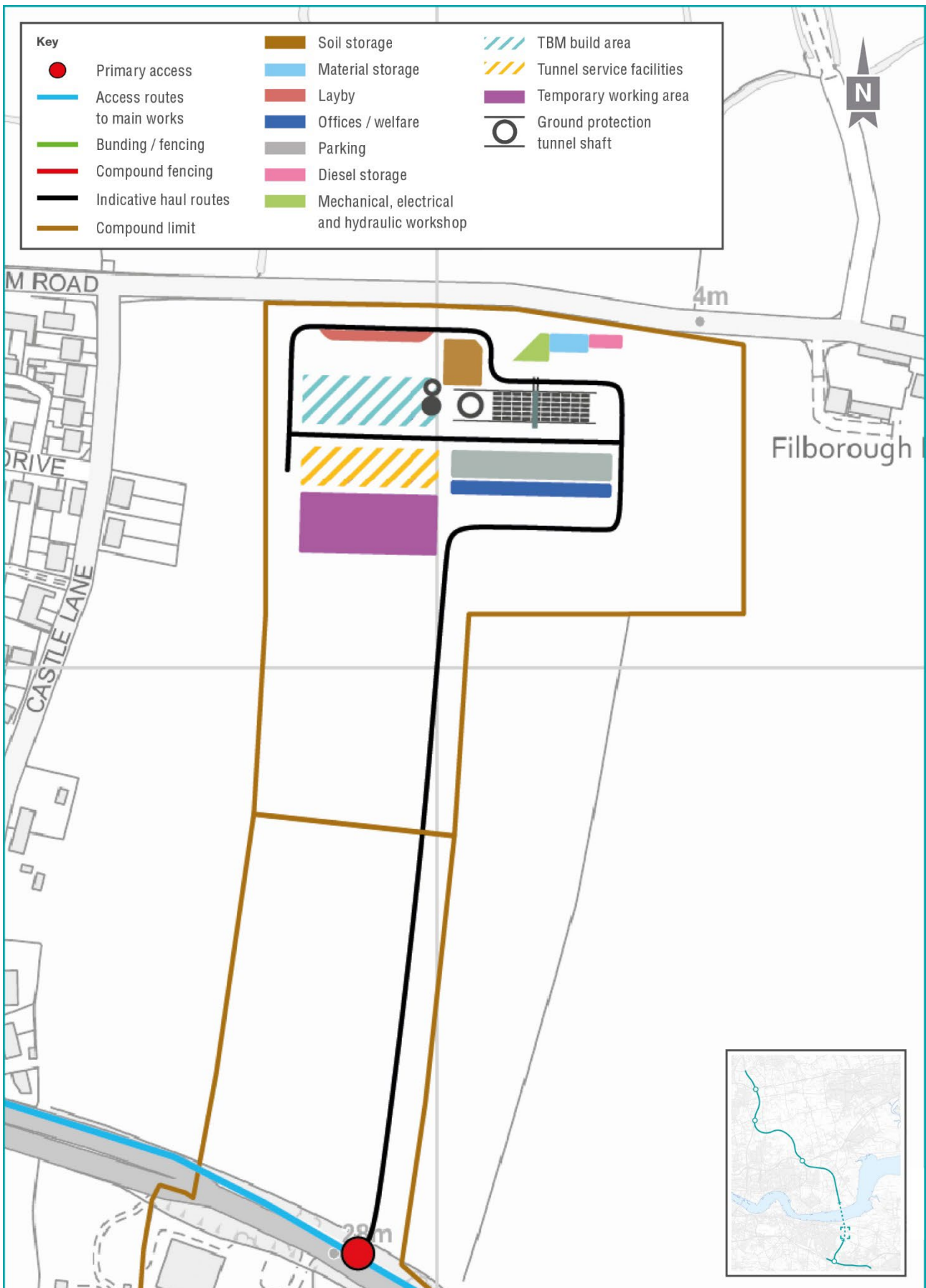


Plate 1.5 Indicative layout for Milton compound

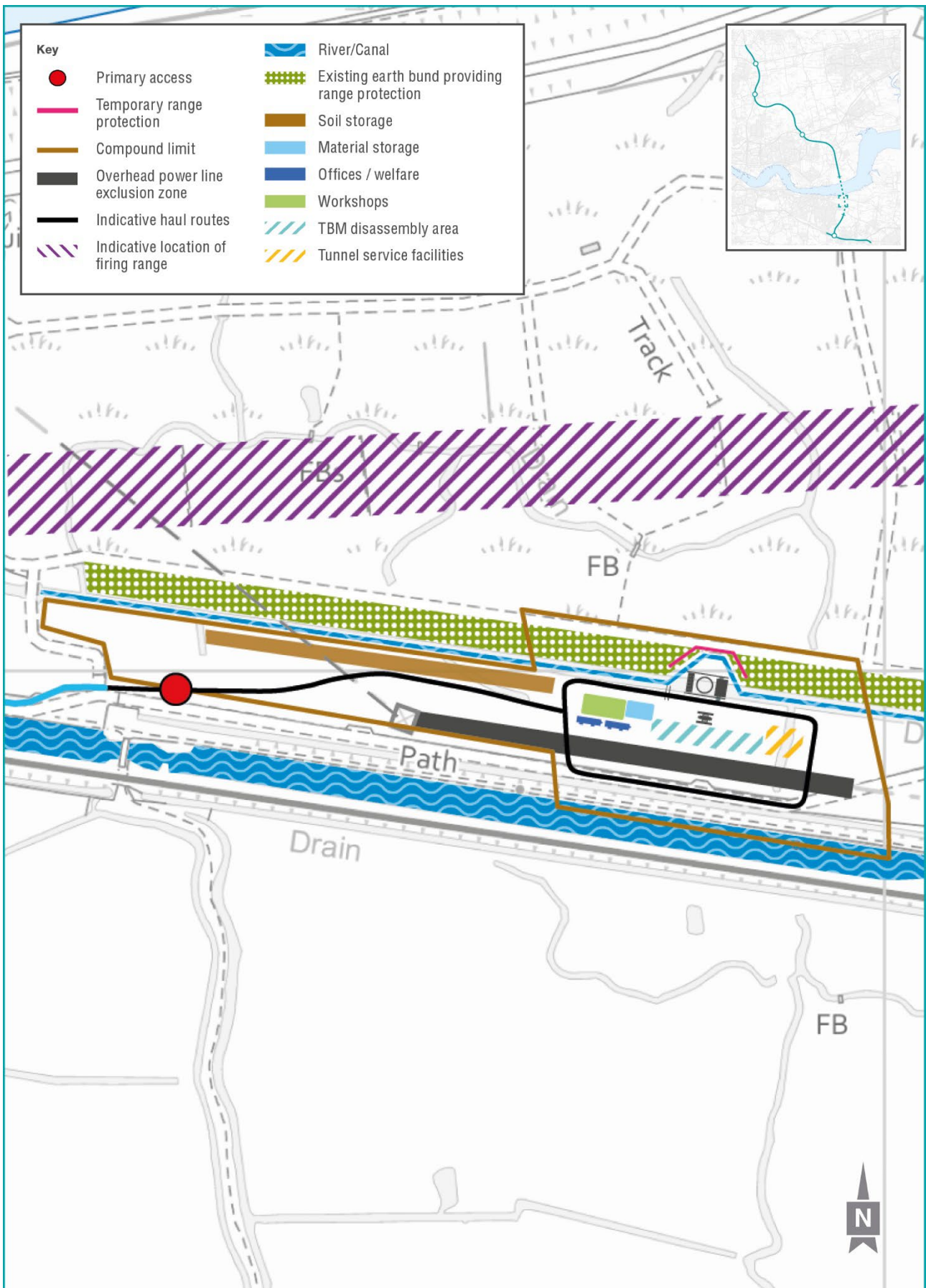


Plate 1.6 Indicative layout for Northern tunnel entrance compound

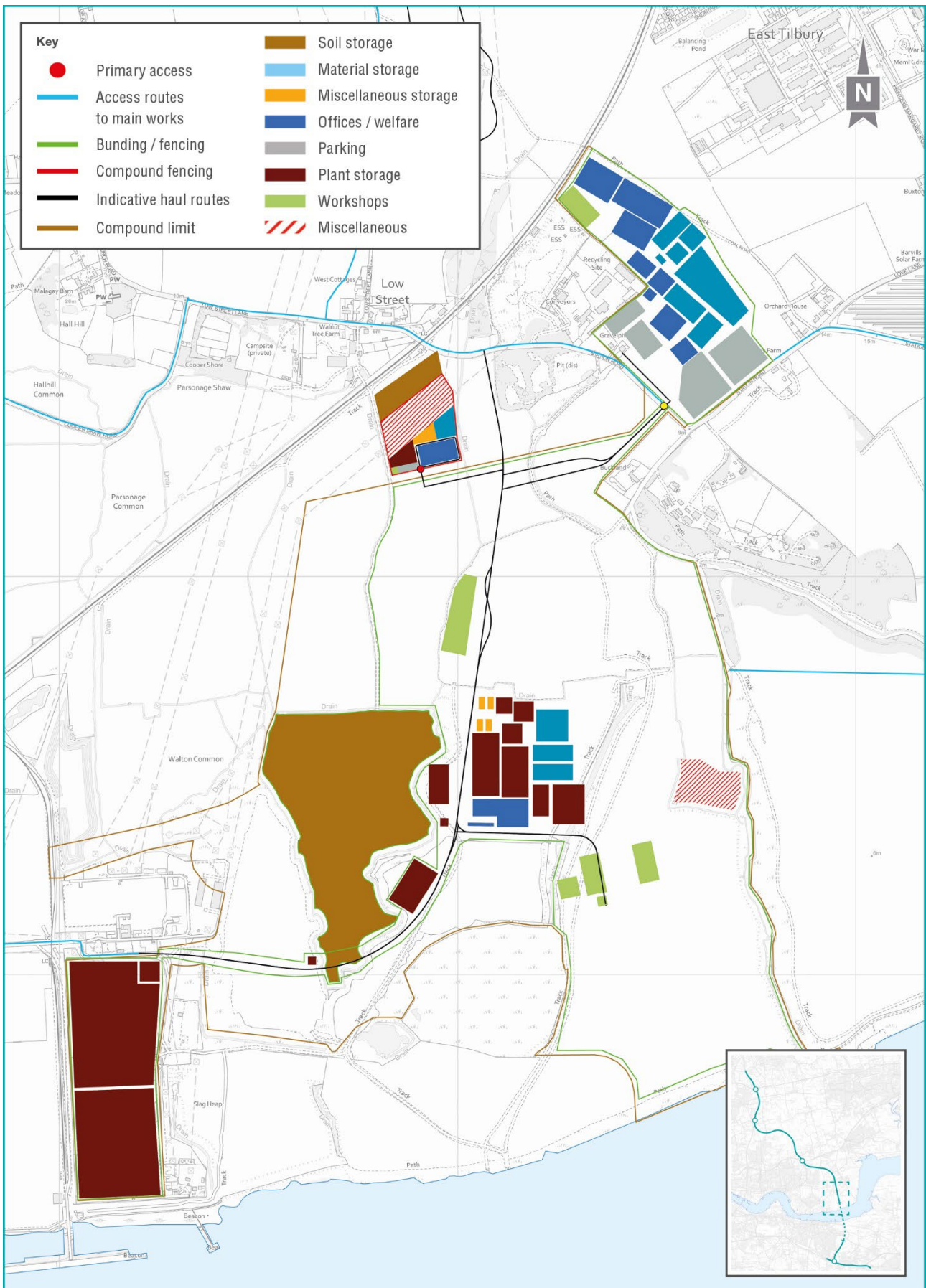


Plate 1.7 Indicative layout for Station Road compound

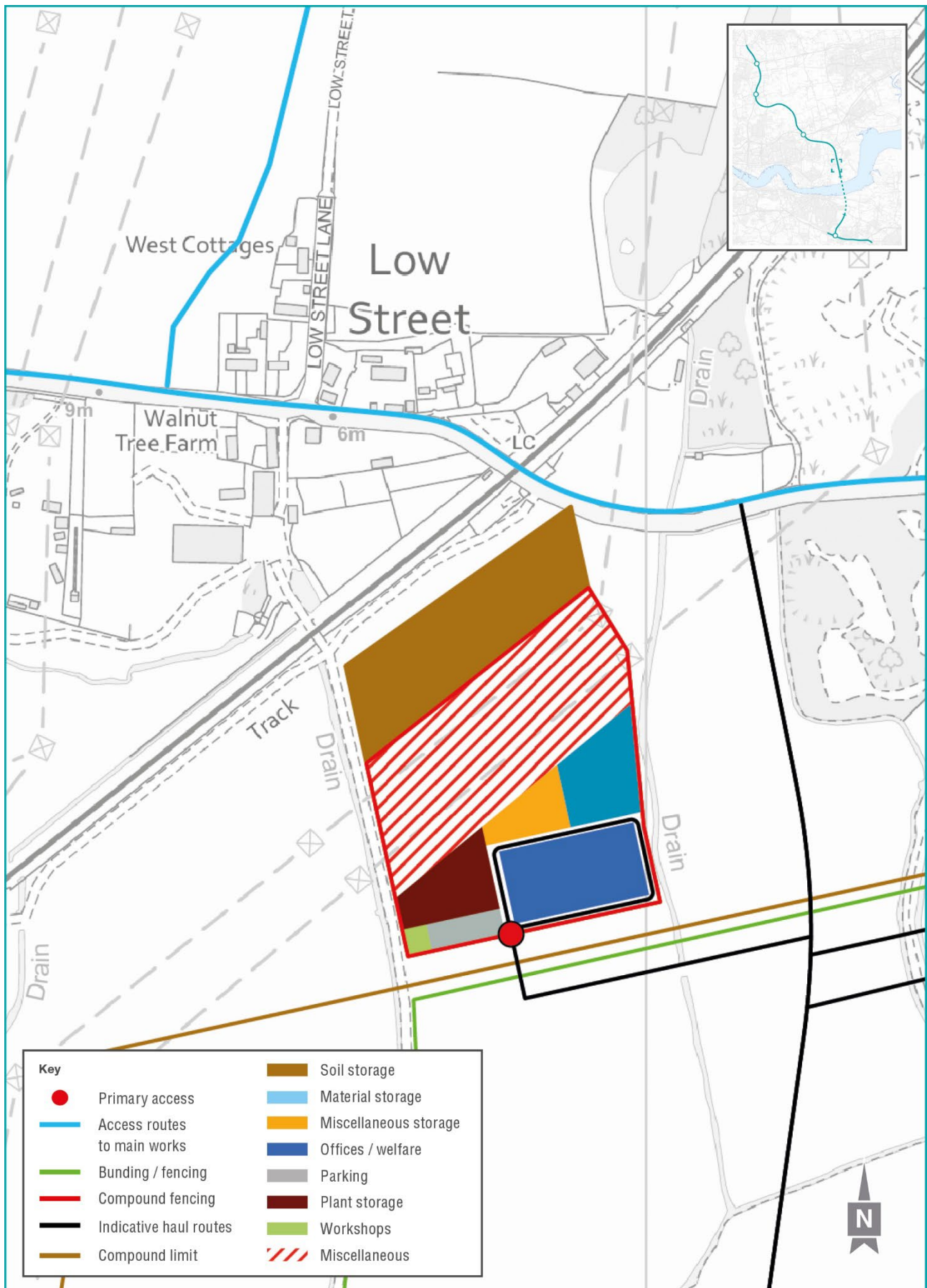


Plate 1.8 Indicative layout for Brentwood Road compound

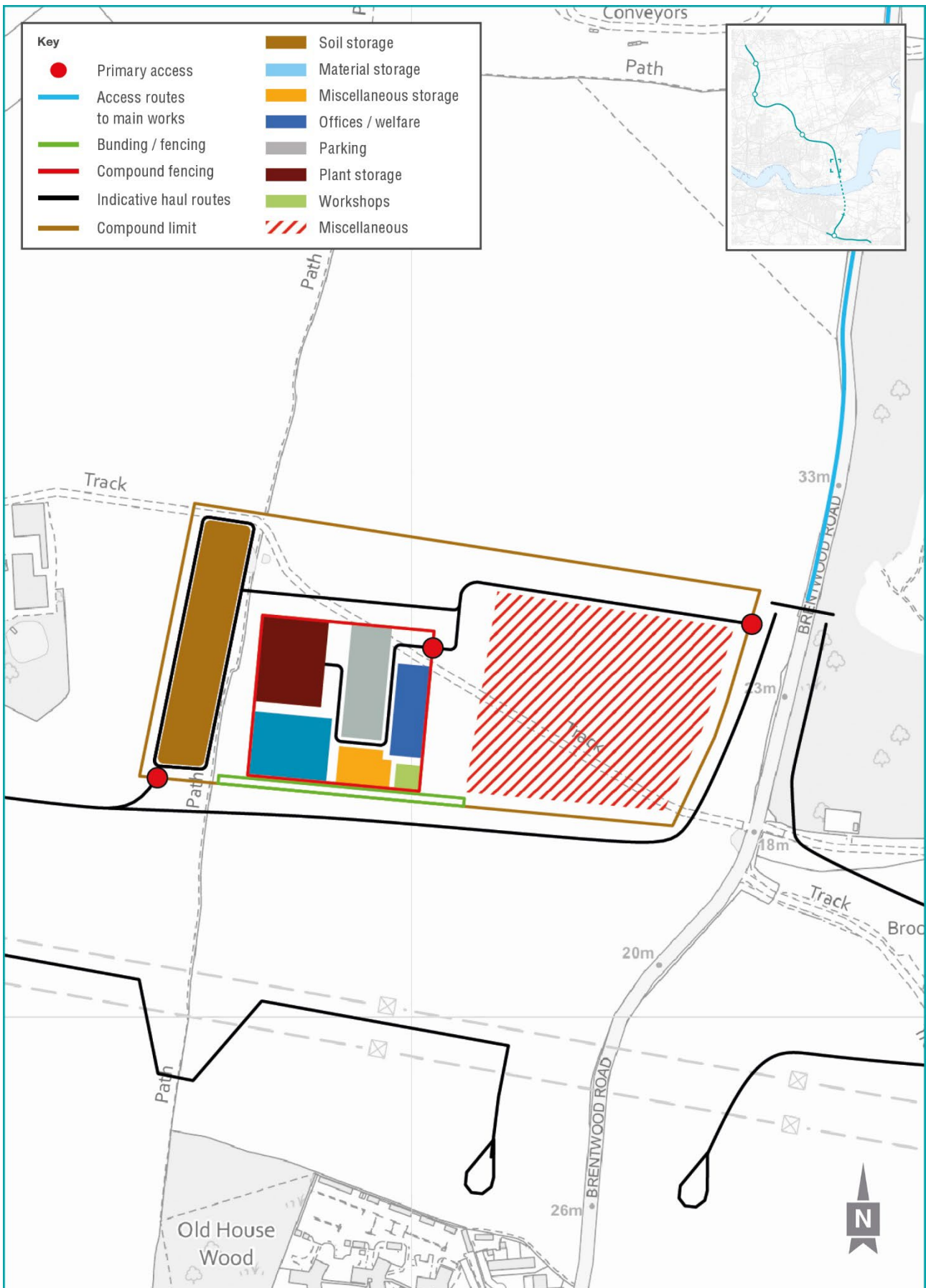


Plate 1.9 Indicative layout for Stanford Road compound

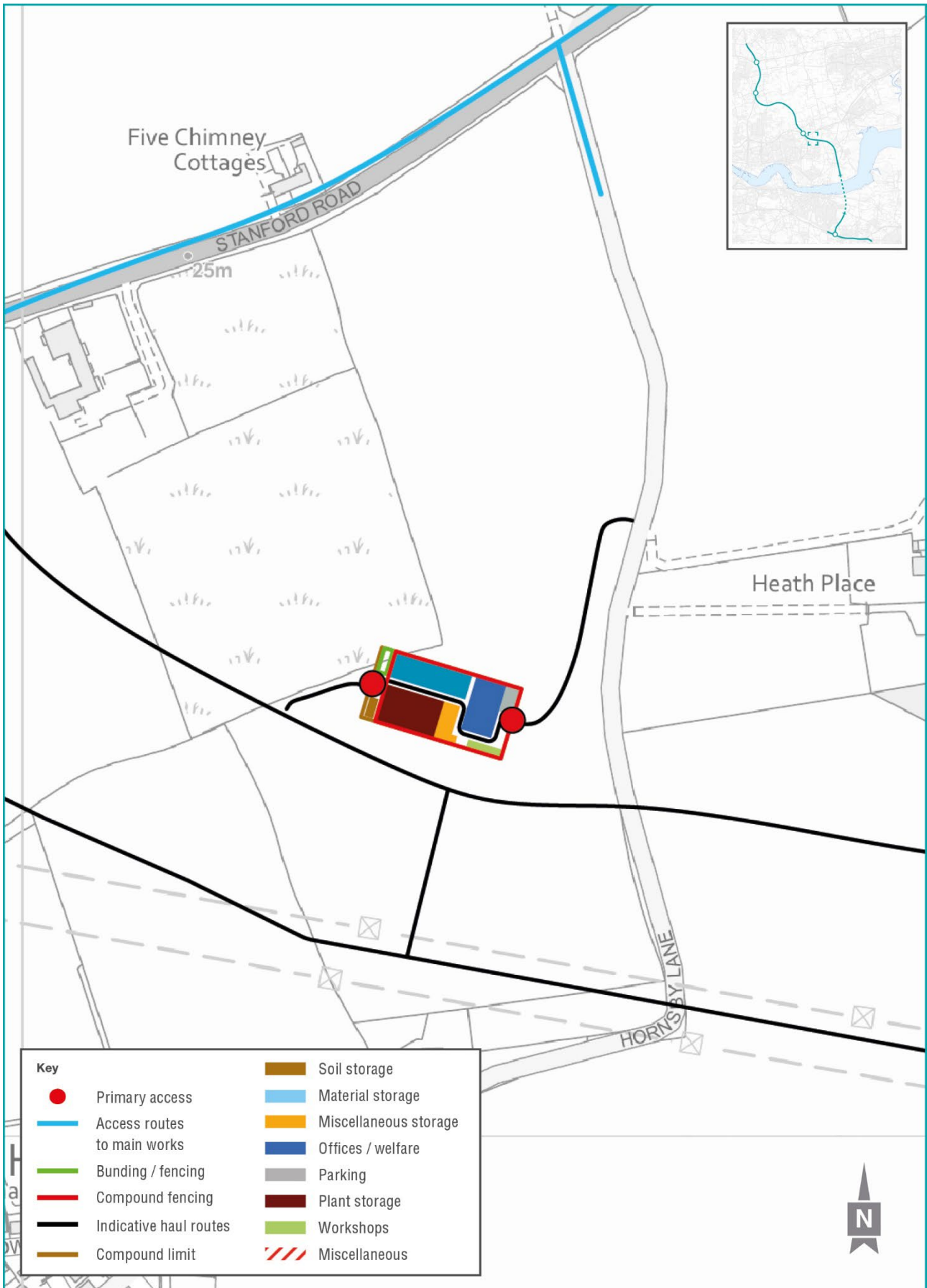


Plate 1.10 Indicative layout for Long Lane compounds A and B

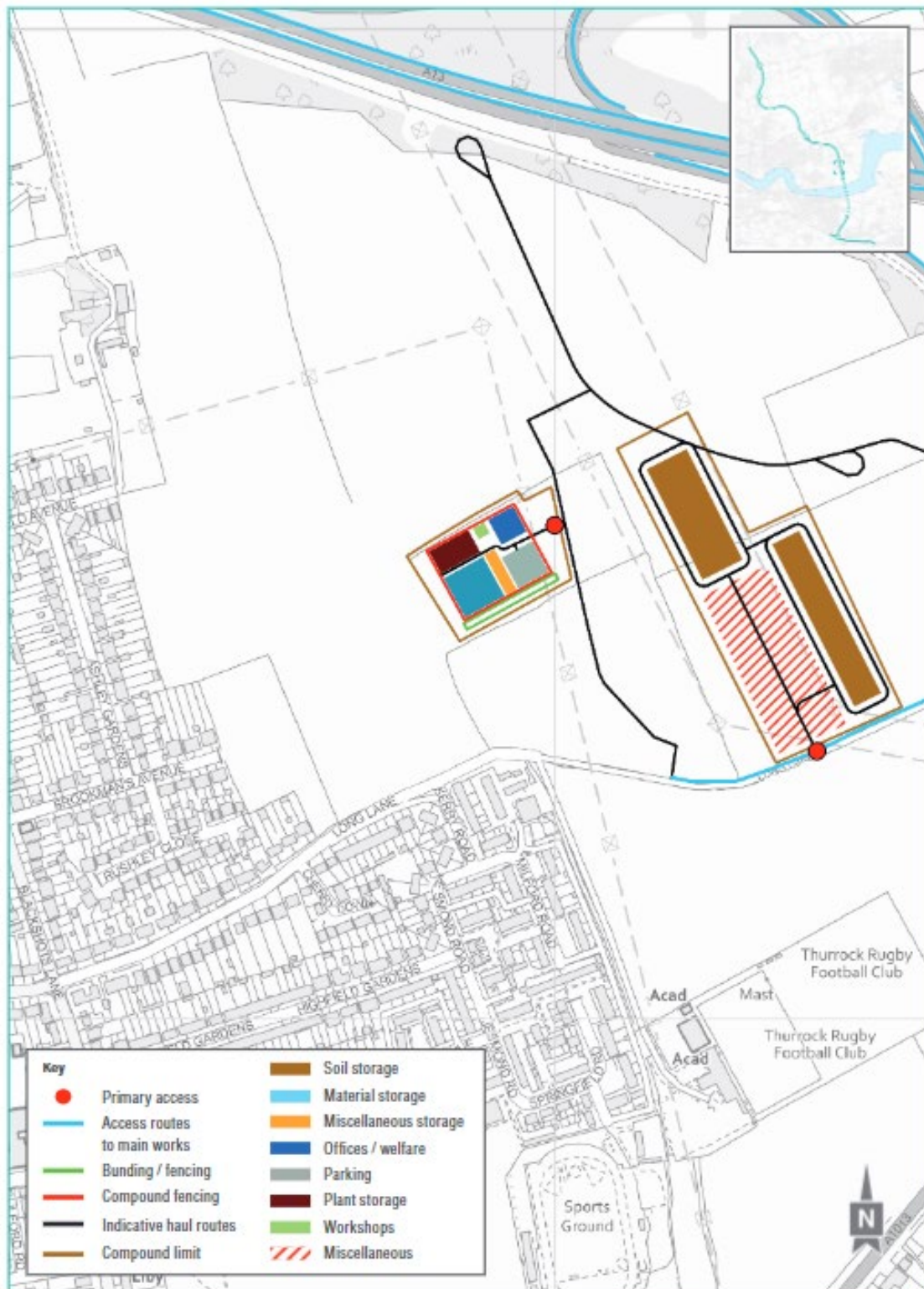


Plate 1.11 Indicative layout for Stifford Clays Road compound West

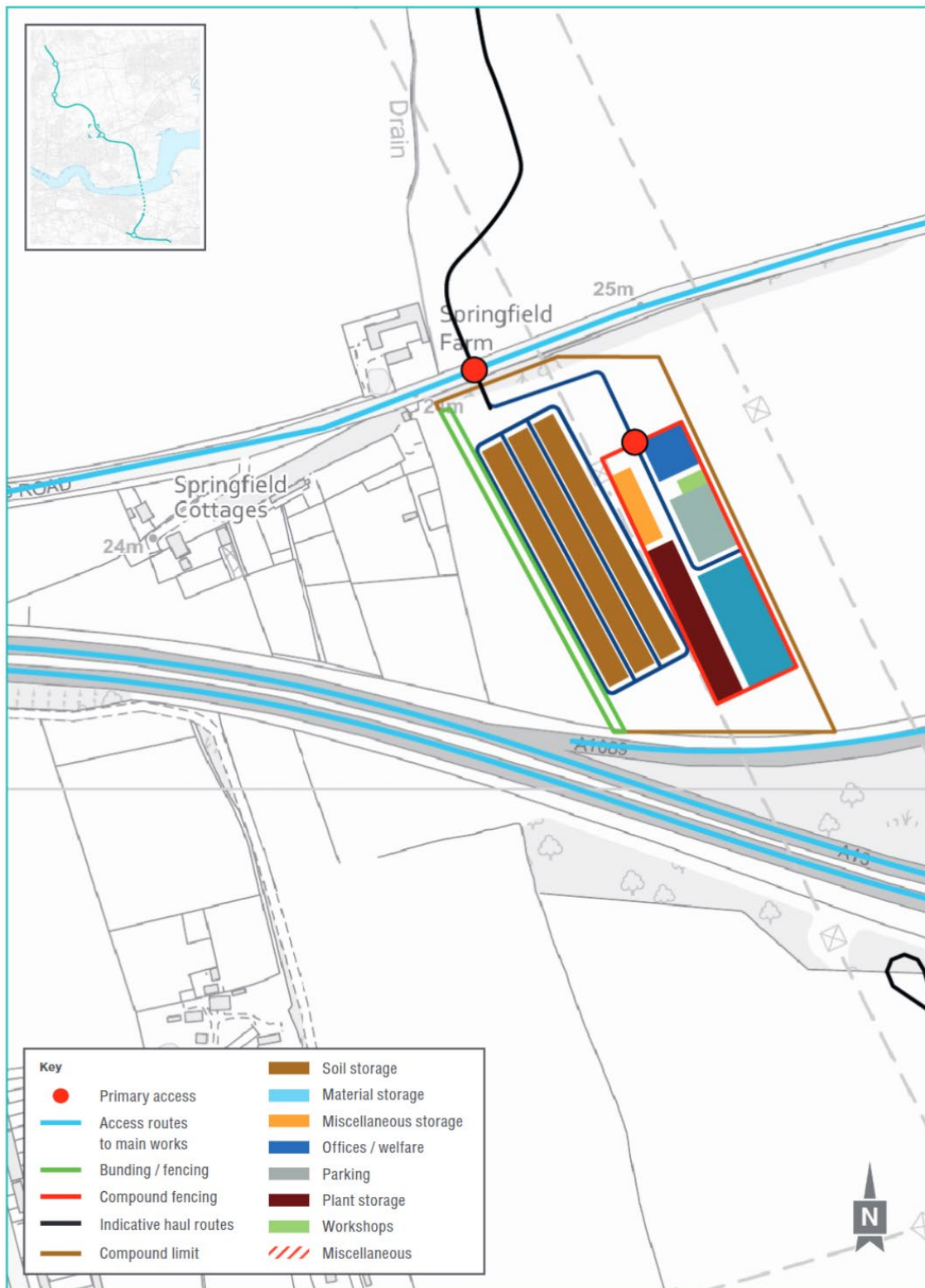


Plate 1.12 Indicative layout for Stifford Clays Road compound East



Plate 1.13 Indicative layout for Mardyke compound

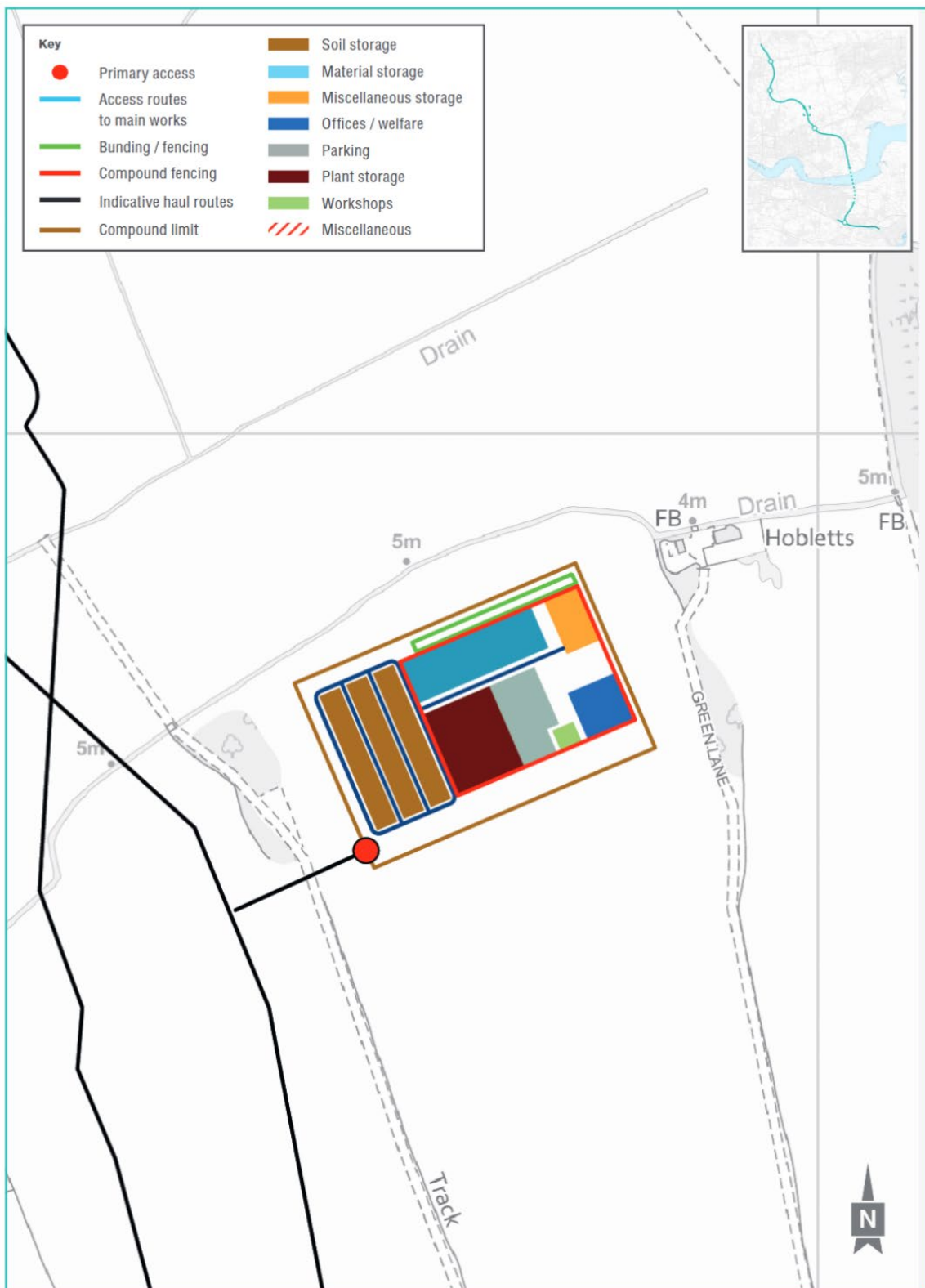


Plate 1.14 Indicative layout for Medebridge compound

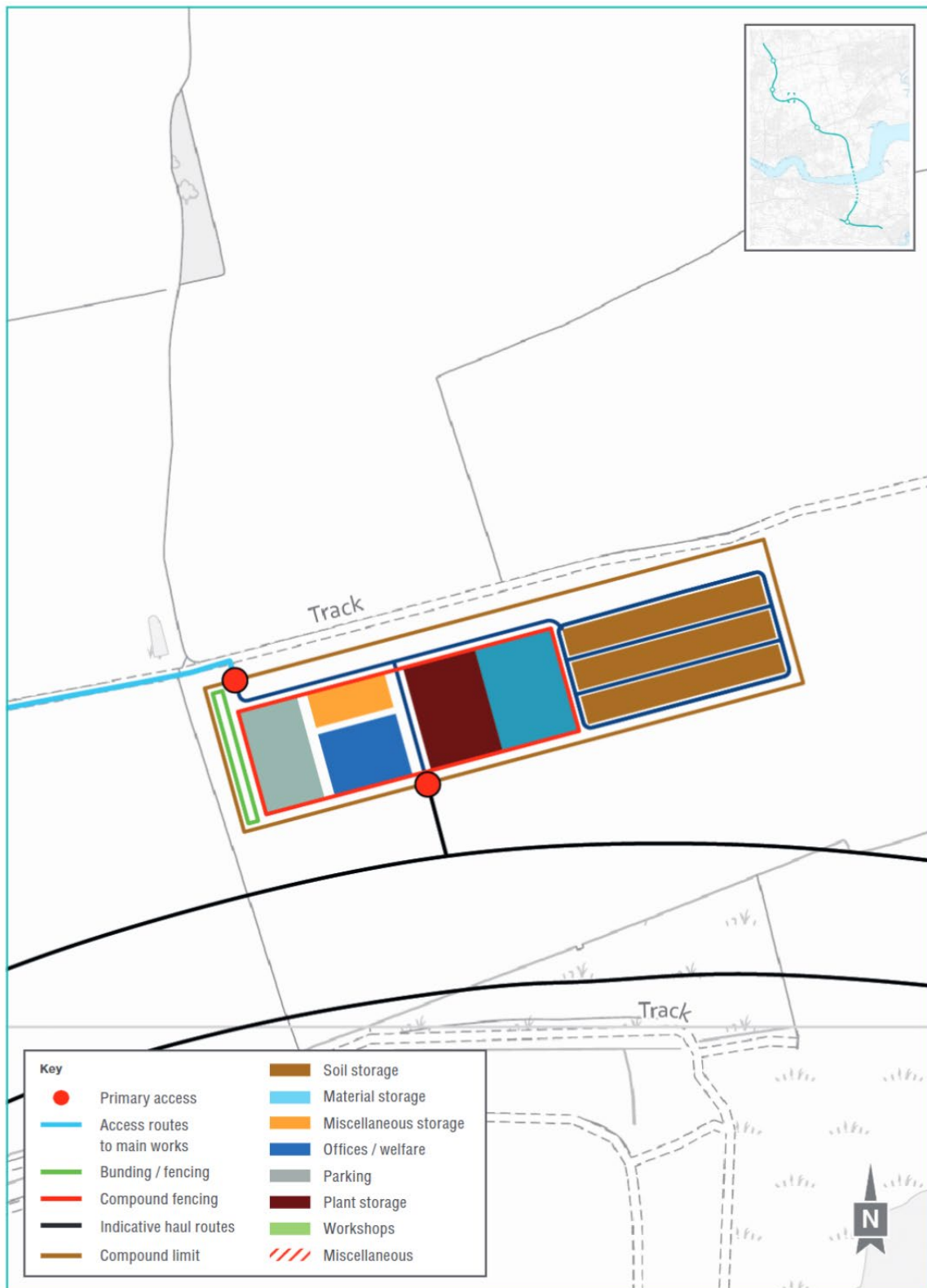


Plate 1.15 Indicative layout for M25 compound

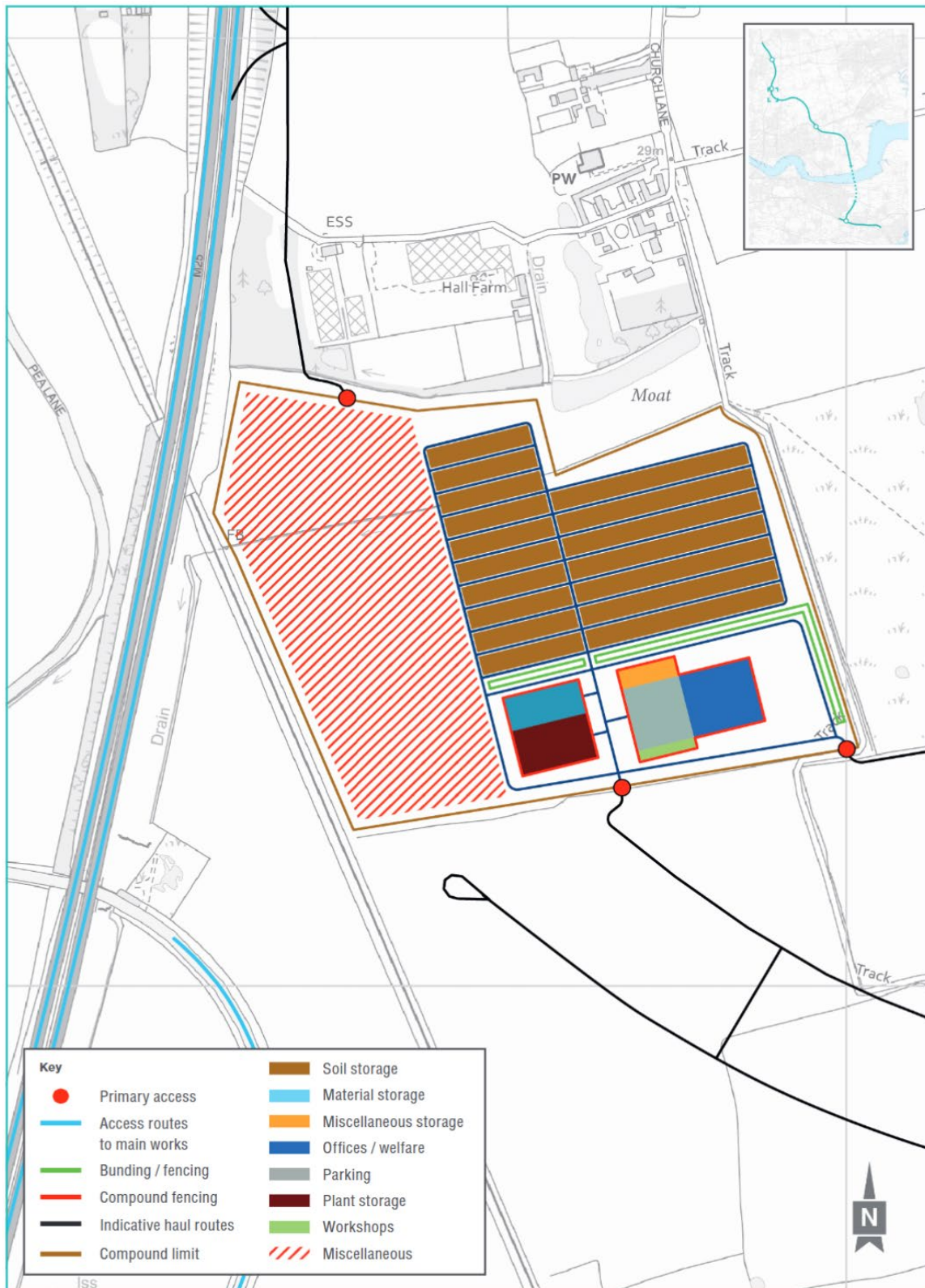


Plate 1.16 Indicative layout for Ockendon Road compound

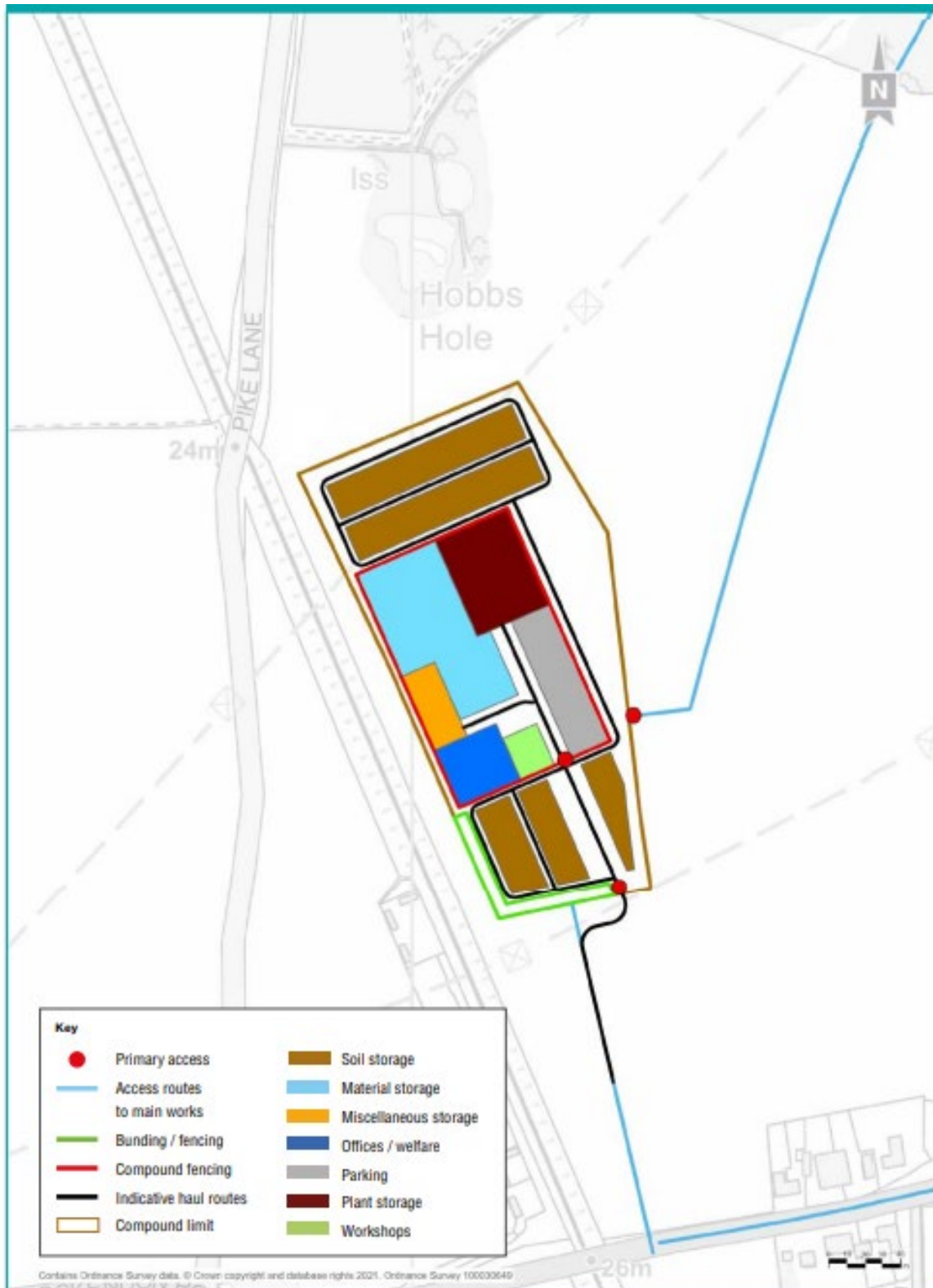


Plate 1.17 Indicative layout for Warley Street compound

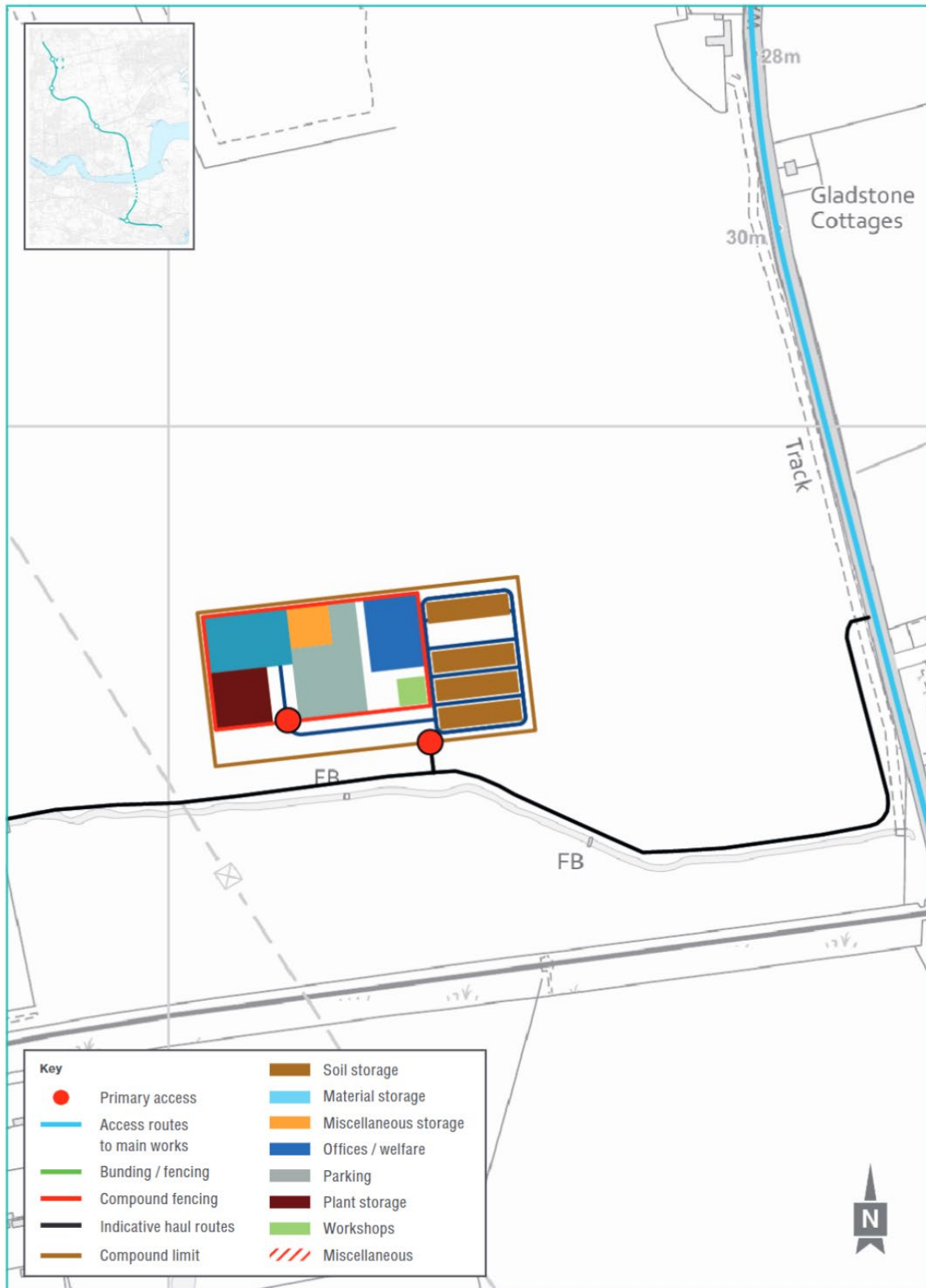


Plate 1.18 Utility Logistics Hub indicative layout

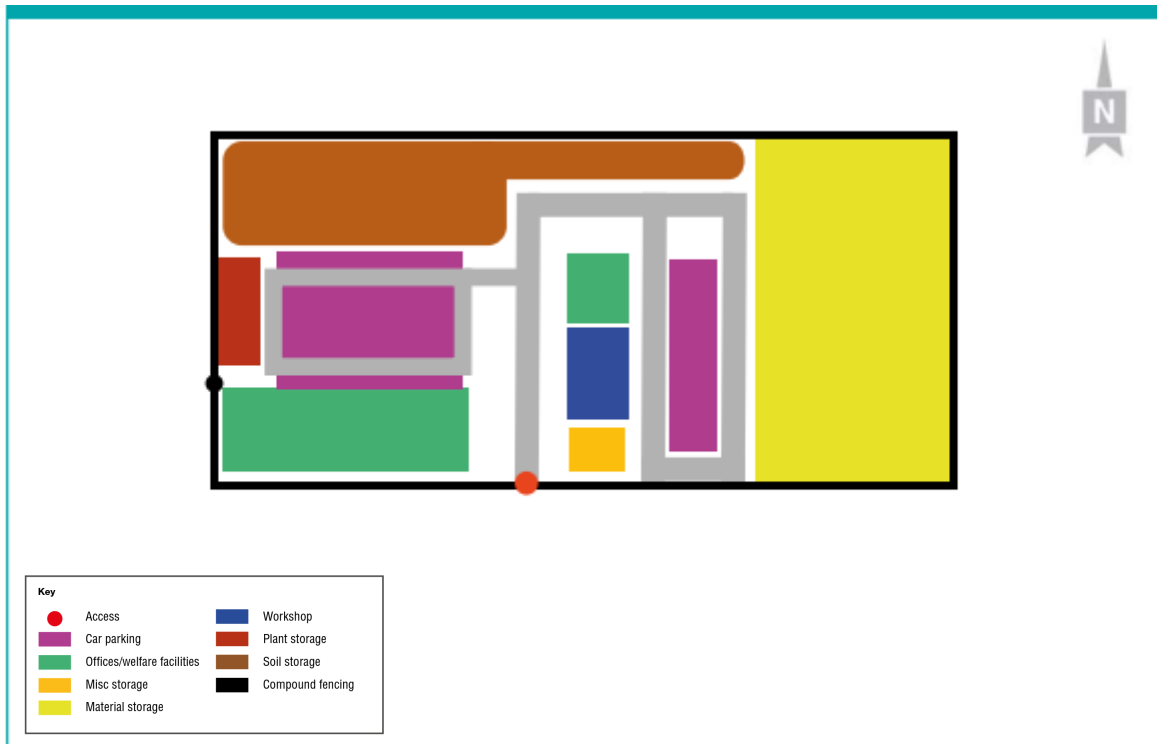
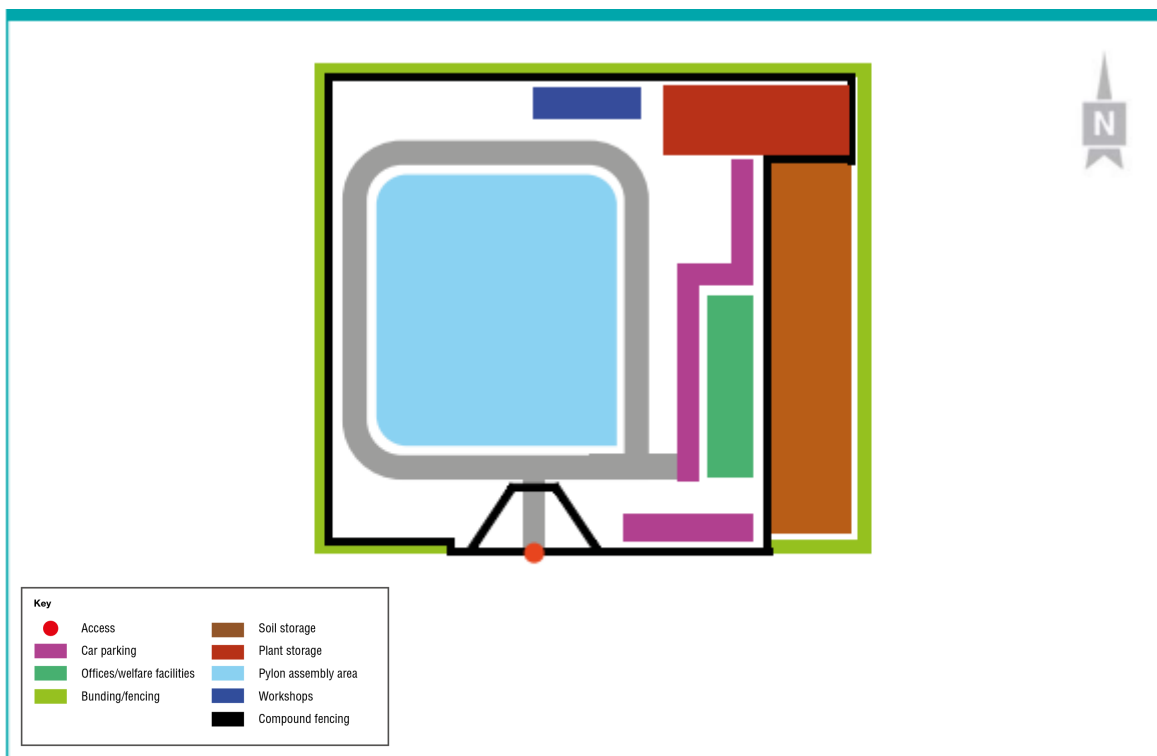


Plate 1.19 Utility Logistics Hub alternative indicative layout



1.4 Construction traffic information

1.4.1 Table 1.3 and Table 1.4 provide additional information on the construction effects on the local road network close to communities described in Chapter 2: Project Description (Application Document 6.1).

Table 1.3 Indicative construction activities on/near the local road network (south of the River Thames)

Road (construction section)	Main works location	Main works construction information	Utilities work information
Thong Lane	Bridge over A2	<p>A new proposed green bridge to the west of the existing bridge. The foundation for the bridge can be constructed offline without impacting the existing Thong Lane bridge. It should be noted that construction vehicles would use Thong Lane between the A2 compound and Halfpence Lane roundabout to access the works between the A2 and HS1. Construction HGVs would be banned from Thong village (between the A2 compound access and the A226) other than for specific utility works.</p> <p>While the main access to the A2 compound would be via the A2, staff would be able to access via Thong Lane (it is likely local workforce would use the Thong Lane access if more convenient whereas staff coming from further would generally use the A2 access).</p> <p>In order to tie-in the new structure to the existing road a weekend closure or similar of Thong Lane (starting approximately 300m north of the A2, to the A2) would be required. Any closure longer than this (not envisaged) would not occur at the same time as the proposed closure of Brewers Road bridge.</p>	<p>Diverting and installation of utility networks would require areas of Thong Lane beyond the new structure, both north and south, in which to connect to the existing networks to be utilised.</p> <p>Compound supplies for the A2 compound are envisaged to be provided from the Inn On The Lake area and require the area north of the Thong Lane bridge for a period of time to install the new assets. These works would require the use of traffic lights and single lane closures to control traffic around the works area.</p>
Thong Lane	Between Halfpence Lane and A2	<p>Thong Lane is proposed to be realigned in this location which would connect Halfpence Lane roundabout and the new Thong Lane structure over the A2. In order to access the works, Thong Lane would be utilised between the A2 compound and Halfpence Lane roundabout. The new alignment would be</p>	<p>It is envisaged that the associated diverting and installation of utility networks would be completed at the same time as the construction of the</p>

Road (construction section)	Main works location	Main works construction information	Utilities work information
		<p>mostly offline, meaning the majority of work would not affect Thong Lane in this location.</p> <p>Several night and/or weekend closures would be required to complete the tie-in works for both the temporary and permanent alignments during the construction period.</p>	<p>new infrastructure to ensure network connectivity and customer supply.</p>
Thong Lane	Bridge over Lower Thames Crossing	<p>A new large green bridge is proposed across the Project alignment. To construct the structure a temporary realignment of Thong Lane to the north would be required approximately between Shorne Ifield Road and the Southern Valley Golf Club entrance.</p> <p>A few night/weekend or similar closures would be required for tie-in works for both the temporary realignment and permanent new alignment over the green bridge during the construction period.</p> <p>Access across Thong Lane at this location would also be required to allow movement of material across the site. Temporary traffic signals or similar would be installed on Thong Lane to allow construction traffic to cross Thong Lane throughout the construction period. It is however planned that the majority of the works south of Thong Lane would use the A2 and the works north of Thong Lane would use the A226, thereby limiting movements across Thong Lane.</p> <p>Access to the works around this area would be via offline haul routes and not via Thong village or Riverview Park.</p>	<p>To maintain utility network connections within the area, assets would be diverted into the new green bridge. To connect them to the existing networks, work areas would be required north and south of the existing and proposed structure for a period of time. This would be completed via single lane closures and traffic lights.</p> <p>Two high pressure gas pipelines would be diverted under Thong Lane and there are currently overhead power lines located on pylons over Thong Lane that would require diverting. It is currently envisaged that works to these assets would not impact the use of Thong Lane, however short-term night and/or weekend closures may be required on the grounds of safety to complete these works.</p>
Brewers Road	Bridge over A2	<p>A replacement bridge is proposed at the Brewers Road bridge. Due to constraints, the existing bridge would need to be demolished before constructing the replacement. As a result, access over the A2 would be closed at this location for with a</p>	<p>To maintain utility network connections within the area, assets would be diverted into the new bridge permanently, but would</p>

Road (construction section)	Main works location	Main works construction information	Utilities work information
		<p>diversion route in place. The eastbound slips on and off the A2 would remain open other than for specific works which would require night and/or weekend closures.</p> <p>The diversion route would likely be via the Three Crutches roundabout (north to south) and via the Gravesend East junction (south to north).</p>	<p>temporarily be diverted out of the area of demolition and construction. To connect them to the existing networks, works areas would be required north and south of the existing and proposed structure for a period of time prior to the bridge works commencing. These areas would be controlled using traffic lights and single lane closures.</p>
Valley Drive	Valley Drive Roundabout	<p>No significant works are proposed on Valley Drive or the Valley Drive roundabout other than minor realignment works. Access to the A2 eastbound from the Valley Drive roundabout would be maintained although it would need to be closed for a weekend or similar to allow the switch from the current alignment to the new proposed alignment.</p>	<p>There is a significant amount of utility infrastructure around the southern end of Valley Drive that would need to be relocated to ensure it is operational when the Project is complete; as such, areas of the highway boundary are likely to be restricted for use. For safety reasons, Valley Drive and the A2 eastbound on-slip may have lane reduction and traffic measures in place to complete some of the works.</p>
Hever Court Road	North-west arm of Gravesend East junction north roundabout	<p>Minor works are proposed to Hever Court Road where it connects into the northern roundabout of the Gravesend East junction. Traffic restrictions would be required to carry out these works in the form of lane restrictions and short-term closures.</p>	<p>All required utility works would be considered as part of the main works for the installation and reconnection of utility networks.</p>
Henhurst Road	Between HS1 and Gravesend East junction	<p>Works are proposed to Henhurst Road between the point it goes over the HS1 railway line and the southern roundabout of the Gravesend East junction. Henhurst Road would stay open</p>	<p>All required utility works would be considered as part of the main</p>

Road (construction section)	Main works location	Main works construction information	Utilities work information
	southern roundabout	other than for a few specific works which may require weekend or similar short-term closures.	works for the installation and reconnection of utility networks. There are currently overhead power lines located on pylons over Henhurst Road that would require works associated with the diversion over the A2. It is currently envisaged that works to these assets would not impact the use of Henhurst Road, however night and/or weekend closures may be required on the grounds of safety to complete these works.
Park Pale	At U-bend near Park Pale bridge	Minor works are proposed to Park Pale which would involve altering an access. Park Pale may require a night or weekend closure for tie-in works but would otherwise be largely unaffected during the construction period by main works.	Installation of a gas pipeline would be installed using traffic lights and single lane closure moving along the road with the works area. This is envisaged to take six months. Albeit not envisaged, night and/or weekend closures may be required on the grounds of safety to complete these works.
Gravesend East junction	A2 junction	The northern roundabout and associated slips are proposed to be widened including the bridge over the A2. The northern roundabout and associated works are scheduled to take place early in the programme and would take approximately nine months to complete. The works would require traffic restrictions in the form of lane restrictions however the roundabout would remain open other than for specific works which may require night and/or weekend closures.	There is a significant amount of utility infrastructure around the southern end of Valley Drive that would need to be relocated to ensure it is operational when the Project is complete; as such, areas of the highway boundary are likely to be restricted for use. For safety reasons, Valley Drive and the A2

Road (construction section)	Main works location	Main works construction information	Utilities work information
		<p>Similarly, the bridge over the A2 would remain open other than for specific works which may require night and/or weekend closures.</p> <p>The southern roundabout would be constructed in phases, and as such would likely be worked on throughout construction (generally at the start and then at the end). The roundabout would remain open other than for certain specific works which may require night and/or weekend closures. Due to the need to phase the works for the southern roundabout and associated elements, it may be the case that activity levels fluctuate throughout construction, which would mean periods of little work and periods of substantial work. Access on and off the A2 from the southern roundabout would be maintained throughout other than for specific tie-in works which would require night, weekend or similar closures.</p>	<p>eastbound on-slip may have lane reduction and traffic measures in place to complete some of the works.</p>
A226 / Gravesend Road	Mainly between St Marys Church and Chalk Road	<p>A works access would be required off the A226 into and out of site (Southern tunnel entrance compound). Traffic signals may be required to allow construction traffic and public traffic to be managed. It is proposed that access into the compound would be off the A226 via a left turn and exit would be vice versa (right turn only out of site onto the A226).</p> <p>It should be noted that two other smaller construction compounds are proposed (A226 Gravesend Road compound and Milton compound) which would require access using the local road access, namely Lower Higham Road, Milton Road, Ordnance Road, Canal Road and Norfolk Road.</p>	<p>Compound utility connections and required diversions would be completed under traffic lights and single lane closures that move with the works area.</p>
Halfpence Lane	From Brewers Road Roundabout South	N/A	<p>Installation of foul water pipeline would be installed using traffic lights and single lane closure moving along Halfpence Lane with the</p>

Road (construction section)	Main works location	Main works construction information	Utilities work information
			works area. This is envisaged to take a couple of months.
Pepper Hill and Roman Road	Section of road closest to the A2	N/A	Utility connections would be completed under traffic lights and single lane closures that move with the works area. This is envisaged to take a couple of months.
Lower Higham Road	Section of the road above the tunnel alignment	N/A	Utility diversions would be completed under traffic lights and single lane closures. This is envisaged to take a couple of weeks.

Table 1.4 Indicative construction activities on/near the local road network (north of the River Thames)

Road	Main works location	Main works construction information (indicative)	Nearby utility information (indicative)
Fort Road	Entire road	Fort Road would be used to access worksites between the River Thames and the Tilbury Loop railway line, namely the works associated with the tunnel bores. The bulk of the traffic movements would use the stretch of Fort Road south of the Tilbury Loop railway line, with a construction haul route created from Fort Road to worksites. The section of Fort Road to the north of the Tilbury Loop railway line would be a secondary access which would allow access to the sites between the River Thames and the Tilbury Loop railway line via Station Road.	No utility works are proposed within Fort Road
Station Road	Section between Church Road and	Station Road would be used as a secondary access to the worksites between Tilbury Loop railway line and the River Thames. Station Road has a level crossing and is not suitable	Utility diversions and compound connections would be completed using traffic lights and single lane closures.

Road	Main works location	Main works construction information (indicative)	Nearby utility information (indicative)
	intersection with Love Lane	for a large number of vehicle movements, therefore the main access to the worksites south of Tilbury Loop railway line would be via Fort Road and a temporary construction haul route. Station Road would initially be used for site setup prior to construction of the temporary haul route and consequently used mainly for staff access rather than for larger vehicles. The temporary haul route is programmed to be constructed very early in the programme, therefore the usage of Station Road by HGVs is envisaged to be limited.	
Princess Margaret Road	Entire road	There is no intention to use the road as a construction route for HGVs other than possibly for emergency access should it be required.	A crossing of the highway may be required and could be undertaken on a weekend using traffic lights and single lane closures.
Love Lane	Princess Margaret Road to site	N/A	Road closure would be required for the installation of compound supplies. Closure would be required as Love Lane is too narrow to safely pass the works area.
Muckingford Road	Intersection with Hoford Road to the Princess Margaret Road roundabout	Muckingford Road would be used for initial access to the area prior to the construction of the offline haul routes. Traffic volumes using the route would be low as they would mainly be facilitating site setup and the construction of the offline haul routes. The access is not intended to be used to facilitate main civil works (e.g. the Muckingford Road overbridge). Once the haul routes are in place, construction traffic volumes would increase but use the offline routes. The offline routes would intersect Muckingford Road and would need a crossing point. Traffic lights or similar would be installed on Muckingford Road to allow construction traffic to cross. Traffic signals would be in place until the new overbridge is constructed. Once the Muckingford Road overbridge is constructed and opened, the	Diverting and installation of utility networks would require areas of Muckingford Road beyond the new structure, both east and west, in which to connect to the existing networks to be utilised. Multiple crossings of the highway may be required and could be undertaken using traffic lights and single lane closures. There are currently overhead power lines located on pylons over Muckingford Road that would require works associated with the diversions. It is currently envisaged that works to

Road	Main works location	Main works construction information (indicative)	Nearby utility information (indicative)
		<p>traffic lights would be removed and construction traffic would be able to cross under the new bridge.</p> <p>Traffic management measures (in the form of contraflow) would be required for a period of time to allow Muckingford Road to be widened where the new bridge ties into the existing and for the proposed WCH route. The traffic management may involve the installation of traffic signals to allow a one-way system.</p> <p>Muckingford Road would also be closed for a weekend or similar at the location of the new bridge for tie-in works of the new overbridge but otherwise would remain open throughout construction.</p>	<p>these assets would not impact the use of Muckingford Road, however night closures may be required on the grounds of safety to complete these works.</p>
Brentwood Road	Between the Orsett Cock junction and the Project alignment	<p>The stretch of Brentwood Road would be used for construction traffic to access the worksite (Brentwood Road compound) and also to access the temporary offline haul routes. Once they meet the Project alignment, construction vehicles would either go north or south of the temporary offline haul routes to access the worksites. Construction HGV traffic would not go further south than the proposed new Brentwood Road overbridge i.e. would not go through the residential areas of Chadwell St Mary.</p> <p>The stretch between the Orsett Cock junction and the Project alignment would be heavily used for the duration of the Project. Traffic signals or similar would be required to manage the construction and public traffic at the location where the offline haul routes meet the road.</p> <p>Brentwood Road would need a slight alignment change to facilitate works on the bridge. As such, Brentwood Road would be closed for a number of weekends to tie-in the temporary alignment and also subsequently tie-in the permanent alignment. Other than these infrequent weekend closures, the road would remain open.</p>	<p>Diverting and installation of utility networks would require areas of Brentwood Road beyond the new structure, both north and south, in which to connect to the existing networks to be utilised.</p> <p>There are currently overhead power lines located on pylons over Brentwood Road that would require works associated with the diversions.</p> <p>These works are likely to be managed via the use of traffic lights and single lane closures, however short-term closures may be required on the grounds of safety to complete these works.</p>

Road	Main works location	Main works construction information (indicative)	Nearby utility information (indicative)
Brentwood Road, Chadwell Hill & Marshfoot Road	Brentwood Road, Lower Thames Crossing south	N/A	Installation of compound electricity supplies potentially requires the use of traffic lights and single lane closure. Lane closure would move along the alignment with the works.
Hornsby Lane	Intersection with Project alignment	Hornsby Lane is proposed to be stopped up either side of the new road. Hornsby Lane is planned to be stopped up early in the construction programme with a turning arrangement constructed prior to closing to allow vehicles to turn around.	Modifications to the local utility networks would be required which may require lane narrowing and traffic lights around the works area on the grounds of safety. These are proposed in the period that Hornsby Lane would be stopped up. There are currently overhead power lines located on pylons over Hornsby Lane that would require works associated with the diversions. It is currently envisaged that works to these assets would not impact the use of the Hornsby Lane turnaround, however night closures may be required on the grounds of safety to complete these works.
Heath Road	Approximate stretch from A1013 and 250m south of A1013 (where overhead pylons are)	The alignment of Heath Road in this stretch is proposed to be slightly altered with the access to the A1013. Heath Road would remain open for the duration of construction as would its connection with the A1013 in some form other than for specific tie-in works which would require weekend or similar closures.	Local works would be required to the utility networks within this area. There are currently overhead power lines located on pylons over Heath Road that would require works associated with the diversions. These works are likely to be managed via the use of traffic lights and single lane closures, however short-term closures may be required on the

Road	Main works location	Main works construction information (indicative)	Nearby utility information (indicative)
			grounds of safety to complete these works.
A1013 / Stanford Road	Orsett Cock junction and Gammonfields Way	<p>Stanford Road is proposed to be realigned as part of the works which include the construction of three new structures. The works around the area, particularly between the A1013 and A13 are substantial. As a result, there would be significant construction activity within the area, from piling activities and earthworks to road construction.</p> <p>Traffic restrictions on the A1013 would be required in localised areas and would change during construction to allow construction vehicles and staff to access the works area around the road, predominantly to access the junction works between the A1013 and A13.</p> <p>The A1013 is however envisaged to remain open throughout the works other than for specific works which would require several night closures and a few weekend closures.</p> <p>The works would be conducted in phases, whereby temporary/permanent alignments may be used to ensure the A1013 remains open. Signage would be prevalent on the road to ensure road users are aware of the current arrangement.</p>	<p>Local works would be required to the utility networks within this area. These works are likely to be managed via the use of traffic lights and single lane closures where required. Any closures required are likely to be as part of a wider closure proposal.</p> <p>Within this area there are currently overhead power lines located on pylons over Stanford Road that would require works associated with the diversions. It is currently envisaged that works to these assets would not impact the use of Stanford Road, however night closures may be required on the grounds of safety to complete these works.</p> <p>East of the roundabout a section of the A1013 would require traffic lights and a single lane closure for a month to complete a new access to a permanent gas compound. Access would be required for approximately four months from Stanford Road, during which, some of the required traffic movements may require the infrequent use of escorted vehicles and Stop/Go boards.</p>
Baker Street	Entire road	Significant works are proposed between the A13 and A1013 around the existing Baker Street alignment. As such it is proposed the approximate section between the A13 and A1013	Utility works required would largely be via the use of traffic lights and single lane closures where required. Any

Road	Main works location	Main works construction information (indicative)	Nearby utility information (indicative)
		<p>would be closed to allow these works to be safely carried out. It should be noted, while Baker Street is closed, Rectory Road would be open.</p> <p>Construction vehicles would use Baker Street initially for specific works, namely site preparation works. Construction haul routes would be constructed alongside the alignment which construction vehicles would use going forward.</p> <p>Baker Street would not be used as a through connection for construction works other than during the closure.</p> <p>Crossing points of Baker Street would be required to access the works north of the A13 and east of Baker Street as well as the works south of the A13 east of the A1089. During the closure, the crossing points would be within the closure limits. When Baker Street is open, crossing points north and south of the A13 would be implemented. Traffic signals or similar would be installed to allow construction traffic to cross while allowing public traffic to use the road.</p> <p>To facilitate the works, Baker Street would require a minor temporary realignment prior to switching over the new permanent alignment. The switchovers would require night/weekend closures or similar.</p>	<p>closures required are likely to be as part of a wider closure proposal.</p>
Rectory Road	Rectory Road bridge	<p>A new bridge is proposed for Rectory Road which would cross the A13 and Lower Thames Crossing link roads and therefore would have to be longer than the existing. In order to construct the new bridge, the existing bridge would first have to be demolished. As such it is proposed the crossing would be closed. It should be noted, while Rectory Road is closed, Baker Street would be open.</p> <p>Rectory Road would be used by construction traffic for specific work only. Rectory Road would not be used as a through road for construction works. Temporary haul routes would be constructed along the Project link roads and facilitate the bulk of</p>	<p>The utility impact on traffic associated with Rectory Road would be the potential two-week closure in which a diverted high-pressure gas pipeline would be installed. All other works would be expected to be completed alongside the road, however traffic lights, lane narrowing or short-term night and/or weekend closures may be required on the grounds of safety.</p>

Road	Main works location	Main works construction information (indicative)	Nearby utility information (indicative)
		<p>construction traffic. The haul route would need to cross Rectory Road to access works to the east of Rectory Road therefore traffic signals or similar would be installed to manage the traffic crossing, prior to the closure. The traffic volumes crossing would be low as the works required north of the A13, and east of Rectory Road would not be significant.</p>	<p>Access would be required for approximately two years across Rectory Road, during which, some of the required traffic movements may require the infrequent use of escorted vehicles and Stop/Go boards.</p>
Stifford Clays Road	Stifford Clays roundabout to the Stifford Clays Road compound East access	<p>Stifford Clays Road would initially be used as a construction route to access the construction sites (Stifford Clays Road compound West and Stifford Clays Road compound East). This use would be until an offline link is constructed to the sites from the Stifford Clays junction. This temporary offline link is envisaged to be constructed and available for construction vehicles within approximately the first six to twelve months of the construction period. Once the temporary link is open, the stretch of Stifford Clays Road would not be used other than for infrequent and specific works.</p> <p>Stifford Clays Road would however need to be crossed by construction traffic via a crossing point which would likely be in the form of traffic signals or similar. This would allow construction vehicles to cross the road to access worksites between the A13 and Stifford Clays Road. The temporary traffic signals would be in place until the new Stifford Clays Road overbridges are in place which would allow construction traffic to access by going under the new overbridges.</p> <p>Stifford Clays Road would need to be realigned as part of the works which include two new bridges. The realignment and bridges would largely be constructed offline allowing Stifford Clays Road to remain open.</p> <p>In localised areas temporary realignment of Stifford Clays Road would be required to ensure it remains open. For tie-in works of these temporary routes as well as connecting the permanent alignment into the existing, short-term closures of Stifford Clays</p>	<p>Diverting of and installation of utility networks would require areas of Stifford Clays Road beyond the new structure, both east and west, in which to connect to the existing networks to be utilised. Multiple crossings of the highway may be required and could be undertaken using traffic lights and single lane closures.</p> <p>Access would be required for approximately two years from Stifford Clays Road, during which, some of the required traffic movements may require the infrequent use of escorted vehicles and Stop/Go boards.</p> <p>There are currently overhead power lines located on pylons over Stifford Clays Road that would require works associated with the diversions. It is currently envisaged that works to these assets would not impact the use of Stifford Clays Road, however night closures may be required on the grounds of safety to complete these works.</p>

Road	Main works location	Main works construction information (indicative)	Nearby utility information (indicative)
		Road would be required. These would generally be night/weekend or similar closures required a few times within the construction period.	
Fen Lane	North of Stifford Clays Road	It is not envisaged Fen Lane would be required to facilitate main works as haul routes would first be installed prior to gaining access to the areas just north of Green Lane. Once haul routes are created early in the programme, access to worksites would use the temporary routes.	Fen Lane would be used for the installation of compound utility supplies and accesses to works. These would be managed via traffic lights and single lane closures. Where this cannot be safely implemented, a short-term closure would be required for a period of weeks. Access would be required for approximately two years across Fen Lane, during which, some of the required traffic movements may require the infrequent use of escorted vehicles and Stop/Go boards.
Green Lane	Entire road	Green Lane would be used by construction vehicles initially to facilitate the construction of offline haul routes. Once the haul routes are complete, a section of Green Lane would continue to be used as well as a works access from the Stifford Clays junction to the offline haul routes alongside the Project alignment. Green Lane would need a slight temporary alignment change to facilitate works on the bridge. As such Green Lane would be closed for a weekend or similar to tie-in the temporary alignment and also subsequently tie-in the permanent alignment. Other than these infrequent weekend closures, the road would remain open. A crossing point of Green Lane would also be required to allow construction vehicles to travel north and south along the alignment. Stop/Go signs or similar would be required to	Works to install compound supplies and discharge connections are required on sections of Green Lane. To facilitate these works sectional closures of the road are likely to be required. There are currently overhead power lines located on pylons over Green Lane that would require works associated with the diversions. It is currently envisaged that works to these assets would not impact the use of Green Lane, however short-term closures may be required on the grounds of safety to complete these works.

Road	Main works location	Main works construction information (indicative)	Nearby utility information (indicative)
		manage the construction and public traffic during the construction period.	Access would be required for approximately two years along Green Lane, during which, some of the required traffic movements may require the infrequent use of escorted vehicles and Stop/Go boards.
B186 / North Road	Between the M25 compound and proposed overbridge	<p>A new bridge is proposed for North Road which would cross over the Project alignment.</p> <p>During construction a temporary localised realignment of North Road would be required to facilitate the completion of the bridge and associated embankment. As such a few night/weekend closures would be required during the construction period to tie-in the temporary alignment and subsequently the new permanent bridge alignment, and the existing. Other than these works, North Road would remain open.</p> <p>Prior to the overbridge construction, a crossing point of North Road would be required to allow construction vehicles to travel along the alignment. Traffic signals or similar would be required to manage the construction traffic crossing the alignment prior to completion and opening of the overbridge. Once the overbridge is complete and open, construction traffic would pass under the bridge and the temporary traffic signals could be removed.</p> <p>A small section of North Road (north of the Project alignment) would be used initially to access the Medebridge compound.</p>	<p>Diverting of and installation of utility networks for customer and compound supplies would require areas of North Road beyond the new structure, both north and south, in which to connect to the existing networks to be utilised.</p> <p>These works are likely to be managed via the use of traffic lights and single lane closures however short-term night and/or weekend closures may be required on the grounds of safety to complete these works.</p>
B186 / Clay Tye Road	Entire road	Clay Tye Road would initially be used by construction vehicles to access the M25 and Ockendon Road compounds. It is proposed works accesses are constructed off the M25 to allow construction vehicles to access the Project alignment and worksites along the route directly from the M25. Once the temporary M25 accesses are complete, which would likely be constructed in the vicinity of Ockendon Road, Clay Tye Road would no longer be used by large construction traffic.	<p>Installation of utility networks for compound supplies would require areas of the B186 in which to connect to the existing networks to be utilised.</p> <p>Utility works that impact the highway within this area would be managed via traffic lights and single lane closures that would move with the works area.</p>

Road	Main works location	Main works construction information (indicative)	Nearby utility information (indicative)
		Depending on where they would be travelling from, staff may use Clay Tye Road throughout construction.	
B186 / Warley Street	Entire road	<p>Warley Street between the A127 junction and the entrance of the Warley Street compound (approximately 300m north of the bridge over railway) would be used by construction vehicles throughout construction. Construction vehicles from the A127 would not go further south than the entrance to the Warley Street compound following construction of the temporary M25 works accesses.</p> <p>Traffic signals or similar may be required to manage construction vehicles turning off and on Warley Street from the construction site.</p>	<p>Utility works within this area would require short-term lane narrowing. If this is not possible then short-term closures and traffic lights would be used to complete highway crossings.</p> <p>Field access is also proposed from the road which may require minor modification of the road network just south of the railway. Short term TM is proposed.</p>
B187 / St Marys Lane	M25 to Warley Street	<p>The M25 bridge over St Marys Lane would need to be widened as part of the Project. The majority of the works would be able to take place without closing St Marys Lane, with access to the worksites from offline haul routes running alongside the M25. Certain specific works would require short-term night/weekend or similar closures of St Marys Lane but otherwise it would remain open.</p> <p>Crossing points for construction vehicles on St Marys Lane would be required. It is likely a crossing point just east and just west of the M25 would be required to allow construction vehicles to travel alongside the M25 to carry out widening works. The M25 widening works on the western side would largely be conducted from the local ground level and some from the M25.</p> <p>It is envisaged the underpass would also be used by appropriately sized construction vehicles to enable access to the east side of the M25 and subsequently along the eastern side of the M25.</p> <p>The M25 widening works on the eastern side would be conducted both from the local ground level and from the M25.</p>	<p>Utility works within this area would require short-term lane narrowing. If this is not possible then short-term closures and traffic lights would be used to complete highway crossings.</p>

Road	Main works location	Main works construction information (indicative)	Nearby utility information (indicative)
		<p>The section between the Shoeburyness railway line and the river (between Cranham Golf Course and Thames Chase Forest) would be constructed from the local ground level as well as from the M25 level. Access to the local ground level in this stretch would be via St Marys Lane (via offline routes on the western side and St Marys Lane underpass). The remainder of the eastern M25 widening works would largely be constructed from the M25 level.</p> <p>In order to facilitate construction vehicle movements using the underpass, the pavement may be narrowed or closed, however pedestrian access would remain open in some form. Traffic signals or similar would be implemented to manage the public and construction traffic in this short (circa 120m) stretch of St Marys Lane.</p> <p>The section of St Marys Lane between Clay Tye Road and Warley Street would be initially used by construction traffic to access the M25 and Ockendon Road compounds and the temporary haul routes alongside the Project alignment. Once the temporary works accesses of the M25 are constructed, construction traffic would not use St Marys Lane other than the section mentioned above (the circa 120m stretch).</p>	
Ockendon Road	Tilbury Loop line to (and across) M25	A new bridge over the proposed Lower Thames Crossing slip along with a large cutting is required as part of the Project around Ockendon Road. As such, it is proposed Ockendon Road would be closed in this stretch.	Utility works within this area would require short-term lane narrowing Or short-term lane closure with traffic lights.
Ockendon Road	Between M25 and the M25 compound access	This stretch of road would be initially used to allow construction vehicles to access the works either side of the M25. Following construction of the temporary M25 accesses and associated offline haul routes, this section would not be required.	Utility works within this area would require short-term lane narrowing or short-term lane closure with traffic lights.
Folkes Lane	From A127 to Folkes Lane car park	N/A	Access would be required for approximately a year along Folkes Lane, during which, some of the

Road	Main works location	Main works construction information (indicative)	Nearby utility information (indicative)
			required traffic movements may require the infrequent use of escorted vehicles and Stop/Go boards.
Mill Lane	Both sides of the A13	A construction haul route is proposed to intersect Mill Lane to allow construction vehicles to cross. This would require traffic lights or similar to be in place.	Access would be required for circa a year along and across Mill Lane to complete utility crossings of the A13 and Mill Lane, during which, some of the required traffic movements may require the infrequent use of escorted vehicles and Stop/Go boards. Modifications to utility works in the areas would likely require a short term closure or Mill Lane.
Coopers Shaw Road	Cooper Shaw Road stretch near Church Road	N/A	Installation of new water main potentially requires the use of traffic lights and single lane closure.
Gun Hill	Intersection of road near Gun Hill Farm	N/A	Utility connections would be completed under traffic lights and short term road closures.
B188 High Road	Stifford Clays Road to Orsett	N/A	Utility installation is proposed outside of the highway, however for safety, single lane closures and traffic lights may be required for a short period of time. Access would be required for approximately two years across the B188 High Road, during which, some of the required traffic movements may require the infrequent use of escorted vehicles and Stop/Go boards.

Road	Main works location	Main works construction information (indicative)	Nearby utility information (indicative)
Blackshots Lane	North of housing	N/A	Potential weekend closure to install utility compound connection if single lane and traffic lights not feasible.
Beredens Lane	Access from Warley Road	N/A	Access would be required for approximately a year along Beredens Lane, during which, some of the required traffic movements may require the infrequent use of escorted vehicles and Stop/Go boards.
Buckingham Hill Road	North of Linford	N/A	There are currently overhead power lines located on pylons over Buckingham Hill Road that would require works associated with the diversions. It is currently envisaged that works to these assets would not impact the use of Buckingham Hill Road, however short-term closures may be required on the grounds of safety to complete these works.

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