

SOUTH BONAR INDUSTRIAL ESTATE

Development Brief
September 2005



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Planning & Development Service

Background

1.1 In support of the Kyle of Sutherland Initiative (KOSI) and the regeneration of communities in South and East Sutherland, the Highland Council wishes to assess the potential of South Bonar Industrial Estate and adjoining land for economic development. The site is located between the local centres of Ardgay and Bonar Bridge, has been a focus for business and employment for more than forty years, and presently supports some twelve jobs. It lies within the Dornoch Firth National Scenic Area in close proximity to the Dornoch Firth and Morrish More SAC which are internationally important conservation sites, and a landward area dominated by traditional highland sporting estates and to major regional tourist routes.

1.2 This position and accessibility could offer scope for further activities which embrace various sectors of the local economy, including specialist or service businesses, resource-based or downstream processing and visitor-related concerns. The Council has registered interest from prospective occupiers of serviced land or premises.

1.3 However, the site is located within the functional floodplain of the Kyle of Sutherland and will require careful assessment in terms of *SPP7: Planning and Flooding*. Remediation works will also be necessary to deal with the effects of past uses on ground conditions. Against this, **there is potential for significant benefit to the community and the local environment from co-ordinated flood protection and land renewal action which would be necessary to facilitate redevelopment of the existing Estate and/or further development on adjoining land.** This is an important opportunity to promote local prosperity and a strategic development site.



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Purpose

1.4 This Brief has been prepared to assess related planning and land use matters in lieu of a commitment made in the adopted Local Plan on behalf of the Council and Caithness and Sutherland Enterprise. Account is taken of preliminary site investigations ⁽¹⁾ ⁽²⁾ in presenting options for the future of the Industrial Estate, related site works and possible on-costs.

⁽¹⁾ South Bonar Industrial Estate: Preliminary Flood Risk Assessment March 2004: F Riddell, BSc., PhD, MICE, MCIWEM

⁽²⁾ South Bonar Industrial Estate: Contaminated Land and Services Assessment March 2004: Environmental Reclamation Services Ltd.

1.5 Consultation with the relevant public authorities, statutory agencies, landowner/tenants, insurers, and community interests - including Kincardine and Croik Community Council within whose area the site is located, Creich Community Council and KOSI - together with the *Highland Flood Liaison and Advice Group* and the Scottish Executive has been carried out. The Brief will assist the Council and partners to prioritise action and pursue the necessary funding.

Policy

1.6 Policy G2 of the Highland Structure Plan (2001) "Design for Sustainability" indicates that proposed developments will be assessed on the extent to which they: "are affected by significant risk from natural hazards including flooding unless adequate protective measures are incorporated; ...make use of brownfield sites; and ...contribute to the economic and social development of the community".

1.7 The South and East Sutherland Local Plan (adopted 2000) states:

"The Council and CASE will consider a scheme for the improvement of the South Bonar area as a location for business and light industry. This should include scope for environmental enhancement and/or redevelopment of existing premises, the provision of workshop/craft units, improved drainage, appropriate flood prevention measures, landscaping on the fringes and future expansion, bounded by substantial tree planting. An archaeological evaluation will also be required."

1.8 SPP 7: Planning and Flooding states that development should not take place on functional flood plains; that undeveloped or sparsely developed areas within them are generally not suited for most development and that it is unlikely the Scottish Executive would support a Flood Prevention Scheme required solely to defend new development. Against this, it also states that where built up areas already benefit from flood defences, redevelopment of brownfield sites should be acceptable; but greenfield proposals ... should preferably be considered in the light of alternatives through the development plan process. SPP7 also contains a *Risk Framework* which will be a material consideration in determining planning applications and appeals (see para. 3.6).

1.9 Whilst these factors place circumstances at South Bonar at the margins of compliance with SPP7, the site lies within the village envelope and modest development would have a negligible effect on the capacity of the flood plain. Importantly, any new flood defences around the existing Estate could be extended to protect adjoining land and open up further development opportunities, thus amortising the costs of fulfilling local regeneration objectives. The Local Plan does not identify any alternative opportunity for economic development within or adjoining Bonar Bridge or Ardgay.

SITE FEATURES

Uses and Ownership

2.1 The Estate comprises approximately 0.6 ha. of land, of which some 0.3 ha. is owned by the Council/Highland Prospect. The site divides into compartments (A-F) which reflect the pattern of existing/previous uses and ownership/tenure (see Diag. 1 *Existing Estate: Uses and Ownership*). Uses comprise food producers, a coal yard and compound, fire appliance premises together with a vacant unit and derelict former filling station.

Topography and Geology

2.2 The existing ground level within the Estate (see Diag. 4 *Topography: Cross Sections*) ranges from 2.6m OD to 3.6m OD. Most land is above 3.0m OD. The buildings located on compartments A and B occupy higher parts of the site; those on sites E and F, the lower parts.

2.3 Adjoining open land to the east and north-east is low and below 3.0m OD and to the south, the A836 lies between 3.4m OD and 3.6m OD. However, ground to the north and west - away from the Kyle of Sutherland - rises to more than 3.9m OD.

2.4 The underlying solid geology is metamorphic psammite overlain with permeable raised beach deposits - gravels, sand and silts.



Neighbouring Activity

2.5 Adjoining land in agricultural use comprises part of the Invercharron Mains and Poplars Farm (Balnagown Estate) units; and part of the flood plain.

above : fire appliance and business units in the lower part of the site

SERVICES

Access

2.6 The site is served from the A836. The three points of access along its 160m frontage offer some scope for rationalisation. There is no formal apportionment of the servicing/parking forecourt to existing users, other than general proprietary rights of access. In technical terms, access to adjoining land can be achieved from the A836 directly, or through the site between properties A and B, or across properties C and D.

Water and Waste

2.7 Water supplies transmitted via mains services to the front and rear of the site are understood to offer sufficient capacity for existing enterprises. Any significant increase in consumer demand may necessitate upgrading of the system.

2.8 The site is not connected to the mains drainage network and effluent disposal is understood to be via an independent private settling tank. Whilst the WWTW is located in close proximity, it has limited capacity to serve additional development. Linking the site to the mains system may necessitate extension of the works to provide additional secondary treatment for any significant increase in loadings. This will require detailed investigation with Scottish Water and may involve significant cost.

2.9 Trade waste products generated from food processing activities are exported from the site regularly by private arrangements with proprietors.

Utilities

2.10 Mains electricity supplies the site via two transformers located towards the rear. A Telephone Exchange adjoins the site to the west and a network of underground and overhead cables cross the Estate.

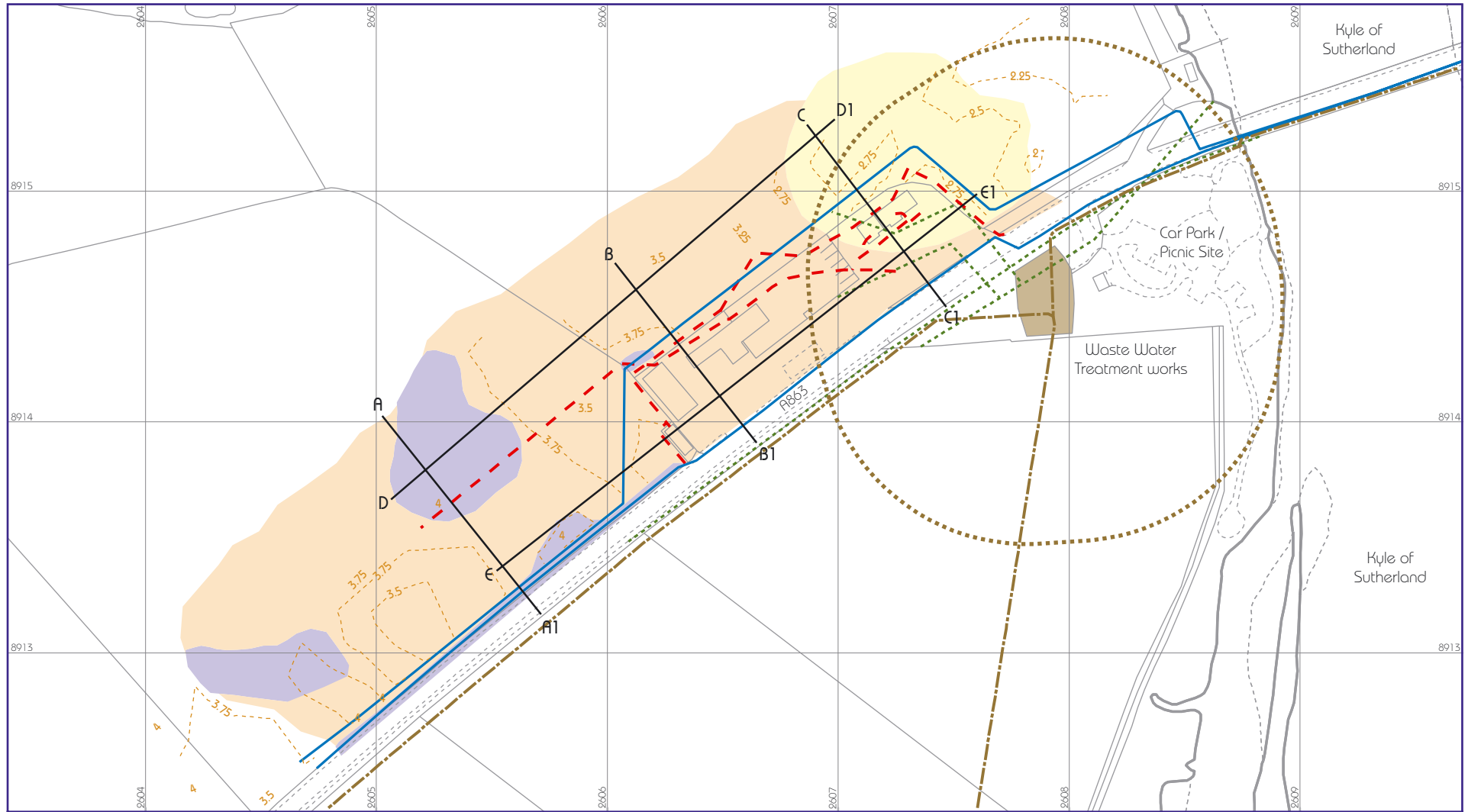
2.11 Rapid internet access is essential to promoting e-business. Highlands and Island Enterprise anticipate that some 90% of the Highland population will have access to ADSL by the end of 2005. This is expected to include communities within South and East Sutherland. Grant assistance of up to £300 is available to local business/ community interests as part of the Hi-Wide Ltd. initiative.

AMENITY

Condition

2.12 Whilst the existing buildings are in reasonably good structural condition, the Estate as a whole appears neglected and underused. It is dominated by the dilapidated plant and forecourt attaching to the disused filling station which occupies the site frontage.

Diag. 2 : SITE FEATURES



UTILITIES

- British Telecom Lines
- Electricity Lines
- Sewerage
- Water
- Waste Water Treatment Works & Safeguard

TOPOGRAPHY

- Contours
- Cross Sections (see Diag. 4 Topography : Cross Sections)
- Ground Levels lower than 3.0 m OD
- Ground Levels between 3.0 - 3.9 m OD
- Ground Levels higher than 3.9 m OD



Scale 1:2,500

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Diag 2_Site Features.dwg

2.13 The former filling station is understood to have established c.1965 and ceased operating in 1999. There are two underground petrol storage tanks with capacity for 6,000 gallons of fuel, four underground diesel tanks and one above-ground tank. These are suspected to have fallen into disrepair, none having been formally decommissioned.

Profile

2.14 The Industrial Estate presents a somewhat incoherent group of buildings, prominent from the Kyle of Sutherland viewpoint, the A836 and the village picnic and amenity area, although native scrub towards the bridge softens their appearance. A major directional tourist sign is located on the western approach.

2.15 Exceptional low level views are obtainable south towards the Dornoch Firth. The adjacent A836 girder bridge spanning the Kyle of Sutherland is an impressive landmark. Its setting should be safeguarded.

Archaeology

2.16 South Bonar is an important early river crossing site. Important below ground archaeological deposits may lie in the area. Provision should be made to identify and preserve or record significant archaeological features or finds prior to, or during development.



above : the existing estate in relation to the Kyle of Sutherland



left : removal of the former filling station could present an opportunity to rationalise access, seal and service the existing Estate

DEVELOPMENT FACTORS

Flood Risk

3.1 A preliminary Flood Risk Assessment ⁽¹⁾ indicates predicted *extreme event* water levels of approximately 3.9m OD for the 200 year event - equivalent to a 0.5% chance in any year - in the period to 2050, as a result either of high river flow/high tide or both. This is assumed to be the **design water level** and the baseline for effective flood prevention and management measures, although SEPA advise that a tidal floor level of 4.81m OD could occur by 2080. The relative frequency of flood risk and predicted water levels is indicated in Fig. 1. No part of the existing Estate is secure against either the 100 or 200-year event.

3.2 Diags. 2 Site Features and 4 Topography: Cross Sections convey variable ground levels within and adjoining the Estate which range from some 2.6m OD to the east (equivalent to the 10-25 year risk) to above 3.9m OD to the north and west (equivalent to the *design water level*).

3.3 In this context, the options for mitigating the predicted flood risk range from:

- ▶ land-raising to a platform level of 4.5m OD / 5.41m OD. This could not be achieved where existing buildings remain;
- ▶ an impermeable perimeter bund enclosing the "landward" boundaries (see Diag. 3 Flood Bund: Cross Sections) with wall/raised site entrance (1:10 gradient) contiguous with the A836. This would be to a height of 4.5m OD, with a maximum depth of 2.4m (initially, but be capable of being raised to 5.41m OD with a maximum depth of 3.31m should

the need arise) and 1:3m side-slopes, tapering with the profile of adjoining ground; to

- ▶ a combination of the two: for example land raising to 3.9m OD / 4.81m OD with a perimeter defence a further 0.6m high.

In each option, new buildings would require to achieve a minimum floor height of 5.41m OD and there would be a requirement to incorporate a bund for emergency egress to adjoining land above 5.41m (in the direction of the bridge).

3.4 Notwithstanding management of the river system primarily by Scottish and Southern Energy, land-raising would give greater security against flooding. A perimeter bund/wall would require storm water storage within the site - perhaps shared with parking/servicing - or alternatively, a pumping system; and would carry a responsibility in perpetuity for repair and maintenance.

Flood Risk (year event)	% chance in any year	Predicted Water Level
200	0.5	3.9m OD
100	1	3.8m OD
50	2	3.0m OD
25	4	2.9m OD
10	10	2.8m OD



3.5 For comparative purposes (and subject to detailed engineering and feasibility), Fig. 2 presents a preliminary estimate of the order of costs associated with flood protection and remediation. This indicates that flood protection by land raising could be 50% more costly than the installation of a bund/wall. Under the Flood Prevention (Scotland) Act 1961 and subject to the requirement for a Flood Protection Order, potential exists to secure up to 80% grant assistance from the Scottish Executive towards the cost of flood defences for the existing Industrial Estate, subject to cost/benefit assessment. This level of assistance is currently under review.

3.6 SPP7 contains a *Risk Framework* which sets the annual probability of flooding against possible land uses for planning purposes. For areas of medium to high risk (0.5%, 1:200) or greater, this states: *in built up areas with flood prevention measures most brownfield development should be acceptable except for civil infrastructure such as hospitals, fire stations, emergency depots, schools, ground based electrical and communications equipment.*

	Protected Land	Bund/Wall	Land Raising	Remediation
Existing Industrial Estate	0.6 ha.	£117,000	n/a	£100,000
+ Expansion North	0.6 ha.	£124,000*	£93,000+ £100,000	£
+ Expansion West	1.0 ha.	£133,000*	£75,000+ £110,000	£
# Comprehensive	2.2 ha.	£151,000*	£279,000	£100,000

Fig. 2: Site / Engineering Costs: Preliminary Assessment
 +optional ie. indicative cost based on industrial estate plus either expansion north or expansion west
 #comprehensive ie. indicative cost based on industrial estate plus expansion north and expansion west
 *indicative cost includes £21,000 drainage contingency

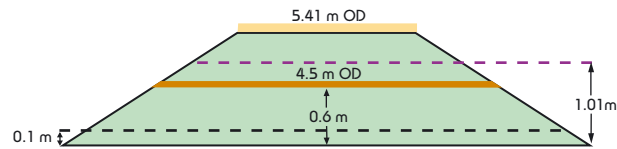
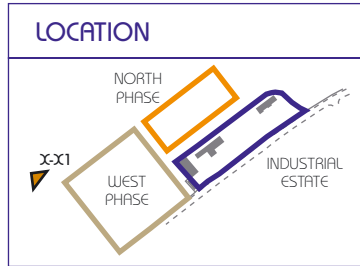
above : the flood waters of the Kyle of Sutherland

Diag. 3 FLOOD BUND : CROSS SECTIONS

SECTION X-X1

LEGEND

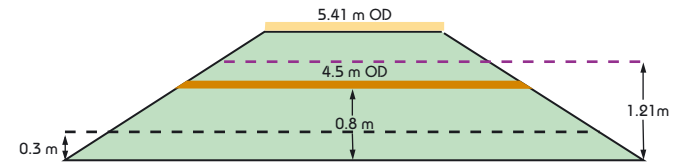
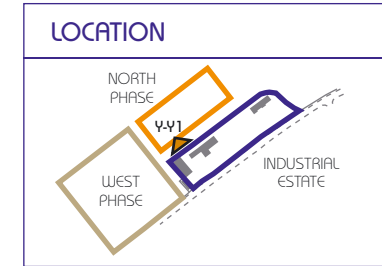
- FLOOD BUND
- PATH - EMERGENCY EGRESS (FIRST PHASE BUND LEVEL)
- PATH - EMERGENCY EGRESS (FINAL PHASE BUND LEVEL)
- - - DESIGN WATER LEVEL - 200 YEAR (3.9 OD)
- - - DESIGN WATER LEVEL - 200 YEAR + CLIMATE CHANGE (4.81 OD)
- ▲ LOCATION OF CROSS SECTION



SECTION Y-Y1

LEGEND

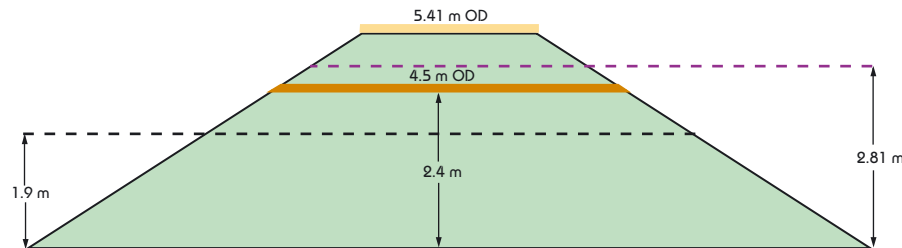
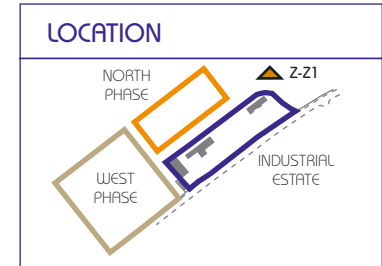
- FLOOD BUND
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- - - DESIGN WATER LEVEL - 200 YEAR (3.9 OD)
- - - DESIGN WATER LEVEL - 200 YEAR + CLIMATE CHANGE (4.81 OD)
- ▲ LOCATION OF CROSS SECTION



SECTION Z-Z1

LEGEND

- FLOOD BUND
- PATH - EMERGENCY EGRESS (FIRST PHASE BUND LEVEL)
- PATH - EMERGENCY EGRESS (FINAL PHASE BUND LEVEL)
- - - DESIGN WATER LEVEL - 200 YEAR (3.9 OD)
- - - DESIGN WATER LEVEL - 200 YEAR + CLIMATE CHANGE (4.81 OD)
- ▲ LOCATION OF CROSS SECTION



Ground Conditions

3.7 An *Initial Quantitative Risk Assessment (RBCA)* ⁽²⁾ has been carried out for the existing Estate. This derives from:

- ▶ a *Conceptual Site Model* and *preliminary* investigation via trial pits/boreholes; and
- ▶ a risk evaluation comprising a hypothetical assessment of the results.

This is based on methodology consistent with Part IIA of the Environmental Protection Act 1990 and *PAN 33 Development of Contaminated Land* which advise in relation to the identification of contaminated land, the consideration of land contamination within the development process and remedial action.

3.8 This *preliminary* investigation identifies that elevated levels of Polycyclic Aromatic Hydrocarbons (PAHs) are present at the site within the soils and groundwater. In addition, soil gas readings indicated elevated levels of carbon dioxide within two of the monitoring wells on site. Given the limited nature of the *preliminary* investigation, the extent of contamination and implications for development are inconclusive. Further investigation of the site and additional soil gas monitoring will therefore be required. A *remediation method statement* will be prepared prior to development subsequent to such further sampling and validation, and consideration of development proposals. There is no current risk to on-site users - the only risk would arise through development of the site.

3.9 In the first instance, it is recommended ⁽²⁾ that decommissioning and/or removal of the fuel storage tanks and related structures should be carried out. There is an overriding need to remove the underground storage tanks and associated infrastructure as soon as possible in the interests of public safety. This will enable monitoring of ground/water and air conditions and establish any requirement for further remediation. If necessary, this could involve removal of affected ground or "capping"; and/or mitigation measures such as the installation of protective membranes in the foundations of future buildings.

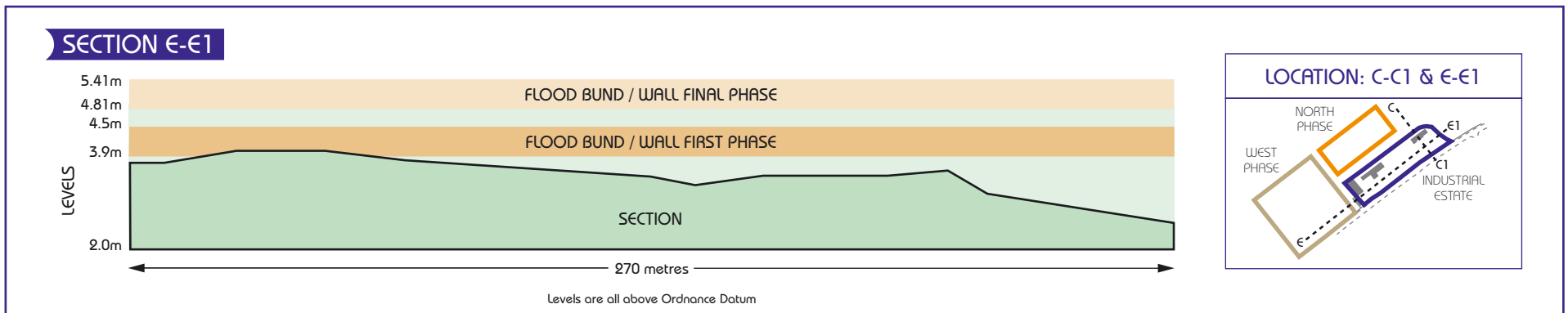
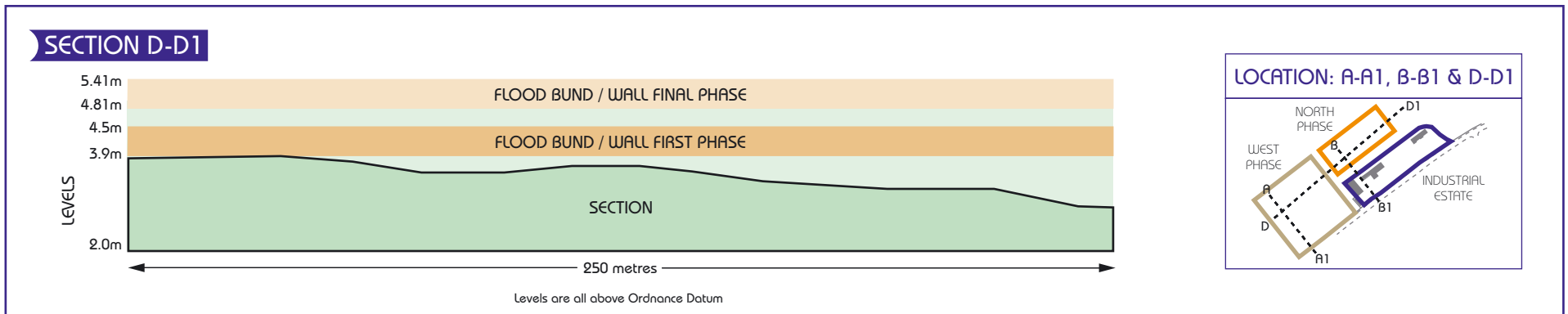
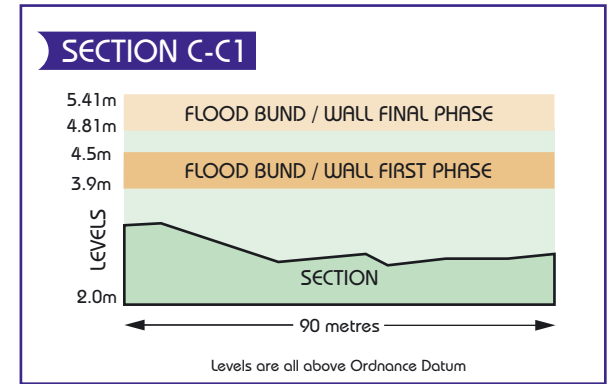
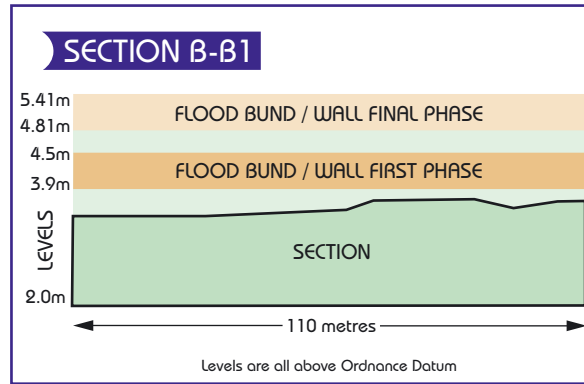
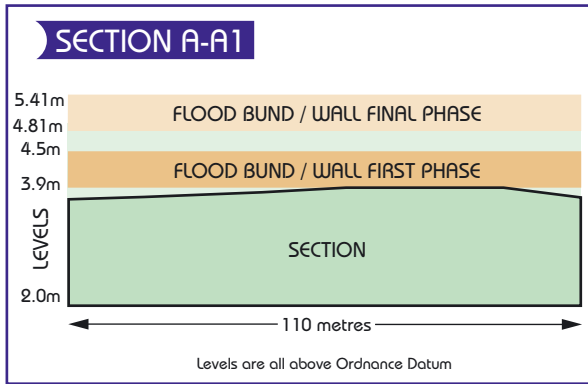
3.10 The Scottish Executive has allocated £100,000 for remediation of derelict and contaminated land in 2004-05. This is focussed on land causing blight on local communities, where substantial progress can be achieved during this financial year and the costs of remediation would fall to the Council.

3.11 The Council has allocated £36,000 in 2005/06 for environmental enhancement work at South Bonar.

Expansion

3.12 Given the prevailing ground levels, susceptibility to flooding and the potential to encroach upon the open setting of the bridge, land adjoining the Estate to the east is considered to be unsuitable for development. The options for development therefore lie to the **north** and **west** subject to the availability of land. Significant economies of scale could derive from a comprehensive flood defence scheme which could be designed to protect land adjoining the existing Estate and facilitate development of that land in due course.

Diag. 4 TOPOGRAPHY : CROSS SECTIONS



Development Options

4.1 Further to the above considerations, a framework is required which integrates remediation and redevelopment of the existing Estate with development of adjoining land. This should allow flood protection works to be phased or carried out comprehensively. This is shown schematically on Diag. 5.

Feasibility

4.2 With no provision at present for Caithness and Sutherland Enterprise or the Council to create/service land for development, action appears to be dependent upon:

- ▶ in the short term: Council-led environmental improvements/land renewal and protection works. In addition to programmed commitments in 2005/06, the Council has secured Scottish Executive monies; and
- ▶ as a later phase: developer-led business and associated integral infrastructure proposals. These could be supported by CASE, subject to financial and market viability.

EXPANSION

Land/Engineering

4.3 Diag. 5 *Development Framework* indicates expansion of the Estate to the north and west. The nature and scale of any development in either direction will be determined by the extent of developer proposals. In any event, individual phases of building/servicing will require adequate protection and any superseded parts of a system of flood bunds dismantled to integrate the existing Estate with new development, as works proceed.

Infrastructure

4.4 An access "loop" from the A836 (through compartments C and D of the existing Estate) should be reserved. This "spine" should enable access to development sites. Rationalisation of the existing access arrangements in this context is essential from a flood protection perspective (see para. 4.8 below).

4.5 Provision will require to be made for comprehensive servicing, notably:

- ▶ foul drainage - connection to the mains system and appropriate upgrading of the WWTW;
- ▶ trade wastes - disposal compatible with the technical requirements of the Council and SEPA;
- ▶ surface water - SUDS arrangements consistent with PAN (Planning Advice Note) 61 and the CIRIA Manual.

Landscape

4.6 A landscape context should be created by a gradation of native trees with the pattern of planting introducing:

- ▶ a higher density, more robust form to the north and east edges;
- ▶ a thinner/lighter form contiguous with adjoining field boundaries and land drainage features screening from views from the south, possibly on the seaward side of the A836.

Acquisition of necessary land or appropriate agreement will be required to secure a minimum of 0.25 ha. (minimum width 20m) for eligibility for SFGS assistance from the Forestry Commission. There may be scope for a path linking the Kyle margins which - subject to agreement - could be opened to wider public access.

EXISTING ESTATE

Guidelines

4.7 Within the context of this *Development Framework* several options emerge for restructuring the existing Estate (0.6 ha.) as set out in *Diag. 6 Existing Estate: Land Assembly*. With the exception of compartment D - required to accommodate raising of a preferred access for the purposes of "sealing" the site, the existing compartments A-C and E-F offer scope for:

- re-use of vacant buildings, extension of existing activities or development independently; or alternatively,

- appropriate assembly of contiguous compartments for redevelopment,

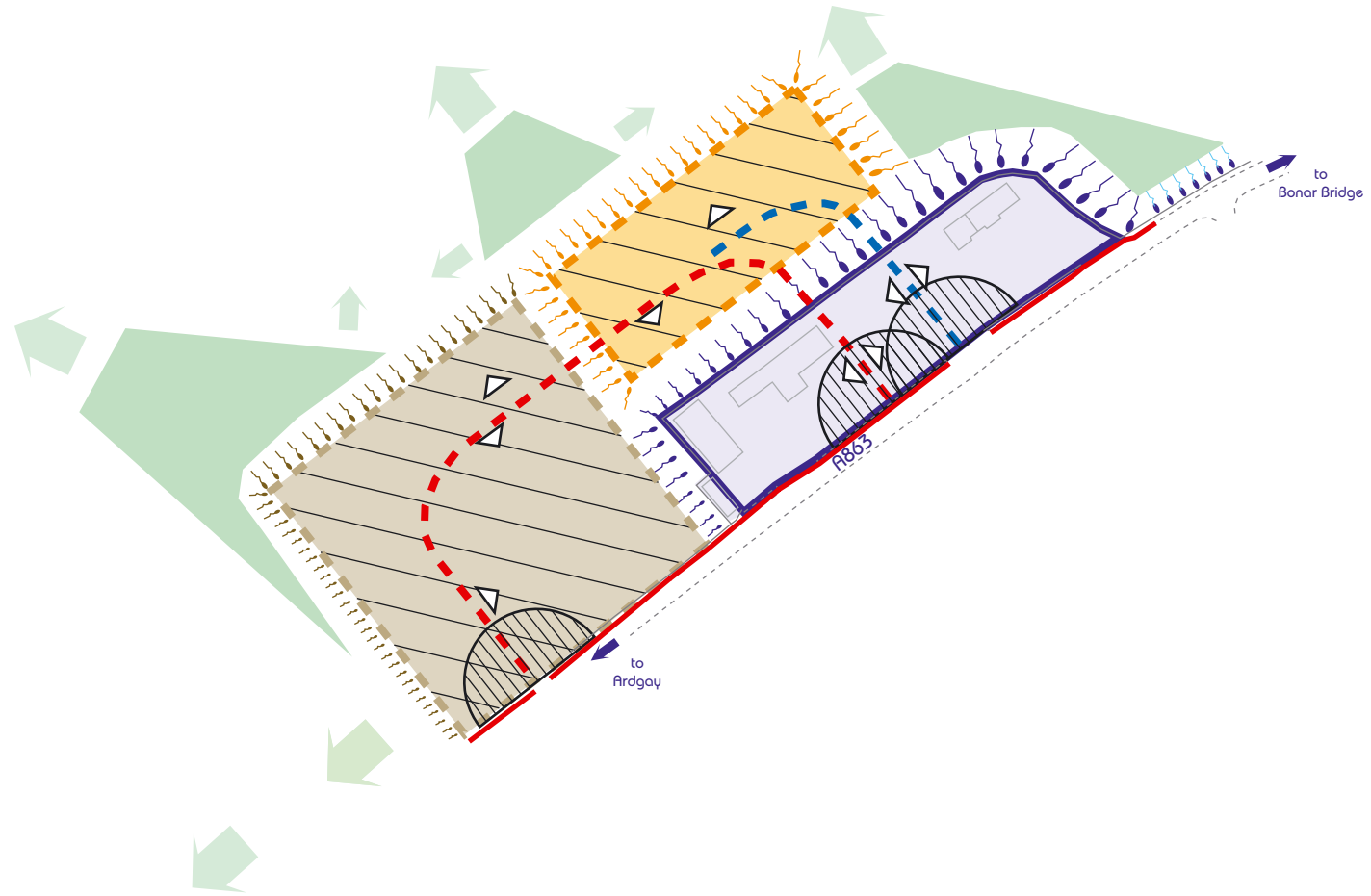
subject to comprehensive primary remediation and the following principles, as necessary:

- ▶ access - assuming existing arrangements, provision will require to be made for future links to a distributor "loop", raising a preferred entry/egress point to the A836 and closing-off present accesses in due course
- ▶ design - improvements to the site frontage including the appearance of buildings, a "building line" and signage, treatment of the shared apron, "spot" planting of trees and reservation for a future flood wall;
- ▶ servicing - utilities including foul drainage, SUDS and any trade waste requirements installed to the satisfaction of the
- ▶ flood protection - including building design based on a minimum floor height of 4.5m OD (see Fig. 4) and water resistant construction and materials, or construction of a flood bund/wall to the above specification;
- ▶ supplementary remediation - subject to a detailed *Risk Assessment*. This may involve site works and/or protective measures to be incorporated as part of the design of individual buildings.

A	B	C	D	E	F
3.7m OD	3.7m OD	n/a	n/a	3.1m OD	3.2m OD

Fig. 4: Compartments A-F: Existing Floor Levels

Diag. 5 DEVELOPMENT FRAMEWORK



EXISTING

Industrial Estate

ACCESS

- Distributor
- Distributor (Option)
- Access
- Raised (25m radius)

EXPANSION

- North Phase
- West Phase

FLOOD PROTECTION

- Landraising
- Flood Bund - Existing Estate
- Flood Bund - North Phase
- Flood Bund - West Phase
- Wall (with raised access)

LANDSCAPING

- Higher Density
- Lower Density



Scale 1:2,500

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Diag 5_Development Framework.dwg

Uses and Marketing

4.8 Activities considered to be acceptable in principle embrace business and commercial uses as set out in para. 1.2 above. These include manufacturing, distribution/depot, service and related ancillary uses. Housing is not considered appropriate at this location although certain "community" uses may also be acceptable, including recycling / segregation facilities. Opportunity may arise to re-brand the Industrial Estate to reflect the predominant function and future uses of the site.

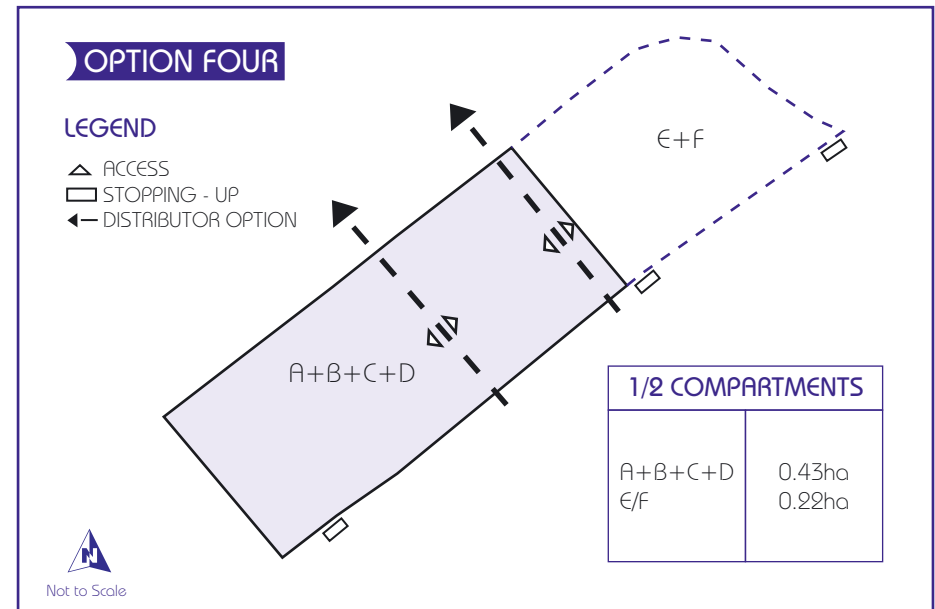
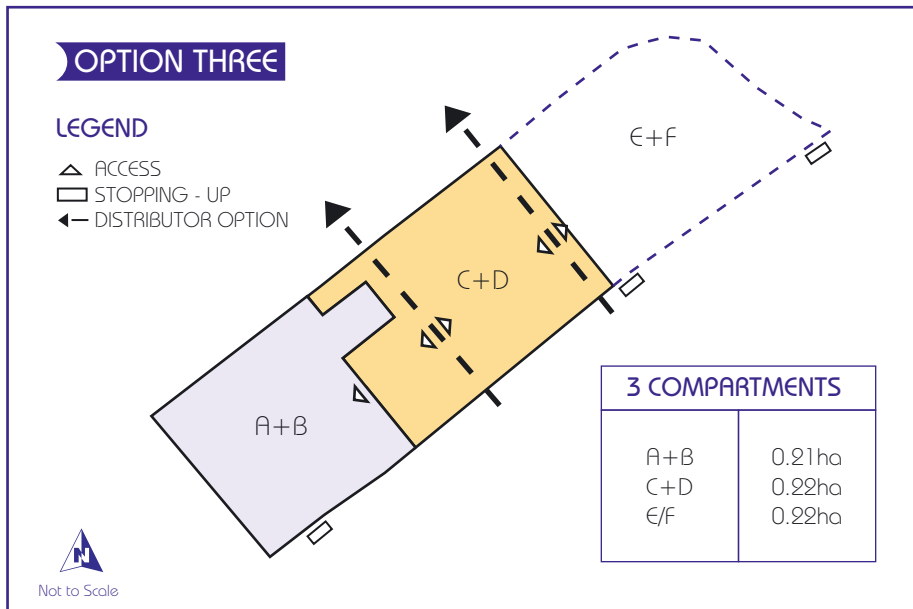
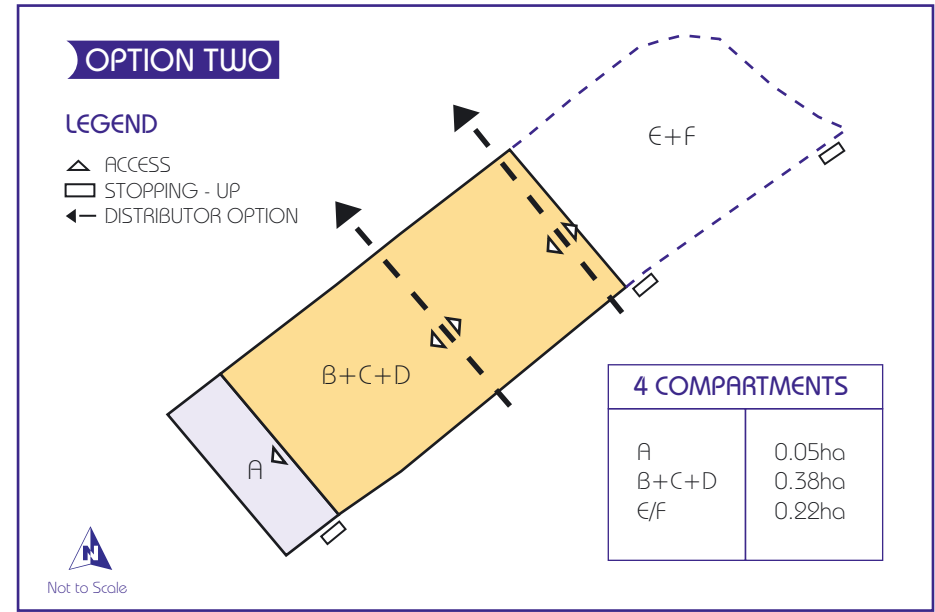
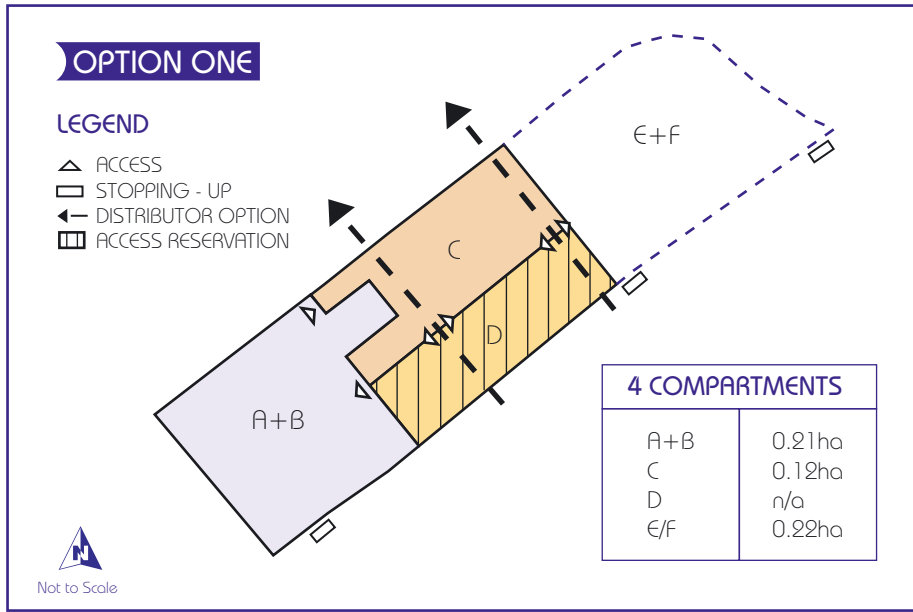
4.9 Pending appropriate flood protection works, it is recommended ⁽¹⁾ that opportunities are taken to manage the existing Estate to reflect the flood risk. It may be possible to relocate sensitive activities ie. food processing at higher levels or in upper floor premises; and to modify buildings with measures such as the installation of water-tight doors. Use of buildings in association with emergency services or electrical and communications equipment may not be compliant with SPP7. The Northern Joint Fire Board and British Telecom (Scotland) are invited to consider the suitability of their premises in this light.



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above : looking south over Bonar Bridge; and outlined to the south of the Kyle of Sutherland, the existing industrial estate and adjoining land which is the subject of this Brief

Diag 6. EXISTING ESTATE : LAND ASSEMBLY



Diag 6_Land Assembly.ai

Next Steps

The Sutherland County Committee adopted this brief on the 15th August 2005 as a basis for environmental improvements, development control and future marketing purposes. The Scottish Executive and the Council have allocated £100,000 for land renewal works and £36,000 for environmental improvements respectively. These monies require to be spent in the 2005/06 financial year and the Council has recently appointed consultants to carry out remediation works and environmental improvements. This will include decommissioning/decontamination of redundant sites, including removal of the filling station canopy and reinstatement/enhancement of the site for existing and future uses or marketing for development purposes. Completion of the works is expected in spring 2006.

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NB. The supporting documents referenced on Page 1 of the Brief are available for inspection on request.