DB/STB/dc 418F 24 May 2017

NATIONAL PLANNING POLICY FRAMEWORK march 2012 - FLOOD RISK

FLOOD RISK ASSESSMENT



PROJECT
TWENTY SEVENTEEN ,
FRESHLINK SITE,
WARDENTREE PARK,
PINCHBECK,
SPALDING,
LINCOLNSHIRE
PE11 3ZN

DC Architectural Services ltd

Architectural and Drainage Planning Services
The Barn, Partney Mill, Spilsby, Lincolnshire, PE23 4PE
Tel. No. 05601 500536 and Mobile 07776227893 Email - dcarchitectural@btconnect.co

NATIONAL PLANNING POLICY FRAMEWORK - FLOOD RISK

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National Planning Policy Framework March 2012 (NPPF) – Flood Risk

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NATIONAL PLANNING POLICY FRAMEWORK - FLOOD RISK

FLOOD RISK ASSESSMENT

1.0 Introduction

1.1 "DC Architectural Services Ltd" have been commissioned to prepare a Site-Specific Flood Risk Assessment to accompany a submission to the Planning Authority seeking consent for the construction of Storage Facility, at Freshlinc, Wardentree Park, Pinchbeck, Spalding, Lincolnshire. PE11 3ZN

1.2 Objective

1.2.1 The objective is to comply with National Planning Policy Framework (NPPF), published by National Government in March 2012. These state that it is a matter for applicants to investigate the potential Flood - associated risks relating to individual development proposals. The purpose of this Flood Risk Assessment is therefore to:

- Demonstrate whether the project is likely to be affected by flooding from any source, either now or in the future.
- Satisfy the Local Planning Authority that the development would be safe and, where possible, reduces the flood risk overall.
- Demonstrate whether the flood risk will be increased elsewhere.
- Demonstrate the measures proposed to deal with the identified flood effects and risks.

2.0 Planning Application

2.1 Planning Application

2.1.1 This document is to support a Full Planning Application for new storage building to existing facility.

3.0 The Application Site

3.1 Application Site

3.1.1 The site is part of Freshlinc site and is located on a grassed area. The site totals an area of hectares. The site is bounded by open fields and industrial buildings to all sides (refer Appendix E). The site is level being in open fenland at a height of 3.050m ODN (refer to site plan at Appendix A).

4.0 Existing Planning Permission

3.1.2 The site as a whole has the benefit of planning for industrial use under application number H14/0647/02

5.0 Proposed Development

5.1 Development

5.1.1 The development is for a loading collation extension Appendix B shows an illustrative layout of the proposed development. Appendix C shows the existing site.

6.0 Assessment of the Risk

6.1 Assessment of the Risk

There are four areas to consider in the context of this:

6.1.1 Coastal

The Environment Agency flood maps identify the area to be Zone 3a at risk from flooding, the South Holland District Council SFRA Study area has been consulted and the site flooding probability falls in category 3 (high probability) equal to Environment Agency zone 3 assessed as having an annual probability of flooding of 0.1-0.5% between 1:200 and 1:1000 probability in each year.

6.1.2 Main River

The nearest EA asset is the Vernatt's Drain which has an earth bank protection of 5.8m ODN. The Environment Agency map indicates the possibility of river flooding without taking into account existing defences as between 1% (1:100) chance of happening in any year. This supports the identification of the site falling in Zone 3 without taking into account of existing flood defences. The South Holland District Council Strategic Flood Risk Assessment takes into account the existing defences as cat 3. Throughout the area, banks are inspected, assessed as in good condition failure is unlikely. Flood is therefore most likely from overtopping resulting in low velocities and shallow depths. The South Holland District Council SFRA identify the surface water risk as Category 3. The SHDC SFRA identifies the Welland to the west to pose a greater risk than the Vernatts Drain but is some way to the east to have a lesser effect. The site remains largely outside the low risk area a less than 0.1% annual probability.

6.1.3 Ordinary Water Course

The nearest significant Welland and Deeping Internal Drainage Board asset is the Blue Gowt Drain, The drainage from our site area drains into the Drain and on into the River Glenn and the Welland.

5.1.4 Land

The site lies on land to the Due North of the town centre on existing commercial premises shown in Appendix E. It lies on a level ground surrounded by property and agricultural part of the industrial estate.

The land lies in a flat typical fenland. Its position means that it will not be subject to flooding from higher land.

5.1.5 References

The South Holland District Council Strategic Flood Risk Assessment has been used as a source of information and an extract are found in appendix G.

Environment Agency. Flood information

Welland and Deeping Drainage Board.

Zone	Characteristic	Assigned Annual Probability of Flooding
1	Low Probability	Fluvial & Tidal Less than 0.1% (1 in 1000 or more years)
2	Medium Probability	Fluvial 0.1% to 1% (from 1 in 100 to 1 in 1000 years) Tidal 0.1% to 0.5% (from 1 in 200 to 1 in 1000 years)
3a	High Probability	Fluvial Greater than 1% (1 in 100 or less years) Tidal Greater than 0.5% (1 in 200 or less years)
3b	Functional Floodplain	To be identified by LPA in agreement with Environment Agency

5.1.5 Evaluation of the Risk (including allowance for climate)

Flooding of the Site

Evaluation		1 Low		5 High	Risk		Magnitude				
		1	2	3	4	5	1	2	3	4	5
Land			/					/			
Fluvial			/							/	
Tidal			/					/			
Drains			/					/			

Flooding Elsewhere

Evaluation		Risk					Magnitude				
		1	2	3	4	5	1	2	3	4	5
Land		/					/				
Property		/					/				

The risk is evaluated as **Low**

5.1.6 Residual Risk of Flooding

The actual risk to the site taking into account flood defences is low however a residual risk remains in the event of defence failure ie over topping or breach.

ANNUAL CHANCE 0.5% (1:1000)

		2006	2115
Over Topping	Max Hazard	-	low
	Max Depth	-	0 – 0.25
	Max Velocity	-	0 – 0.25
Breach	Max Hazard	Danger for all	Danger for all
	Max Depth (m)	1.0 – 1.5	1.0 – 1.5
	Max Velocity (m/s)	0.0 – 0.1	Excess of 0.25

5.1.6 Risk Conclusions

Having identified the site in relation to the South Holland District Council SFRA and EA predictions, the site is confirmed as Zone 3. From the Environment Agency Flood Risk Matrix commercial extension exceeding 250m^2 requires sequential and where necessary exception test.

Zone 1 Low Probability

Definition

This zone comprises land assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any year (<0.1%).

Appropriate uses

All uses of land are appropriate in this zone.

FRA requirements

For development proposals on sites comprising one hectare or above the vulnerability to flooding from other sources as well as from river and sea flooding, and the potential to increase flood risk elsewhere through the addition of hard surfaces and the effect of the new development on surface water run-off, should be incorporated in a FRA. This need only be brief unless the factors above or other local considerations require particular attention. See Annex E for minimum requirements.

Policy aims

In this zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area and beyond through the layout and form of the development, and the appropriate application of sustainable drainage techniques.

7.0 Flood Risk Matrix

7.1 Flood Risk Matrix

7.1.1 The flood risk matrix in Appendix F identifies the development of greater than 250sq m in Zone 3 as requiring a flood risk assessment. Consultation with the EA is required. A detailed drainage scheme is required before commencement.

8.0 Sequential Test

7.1 Sequential Test

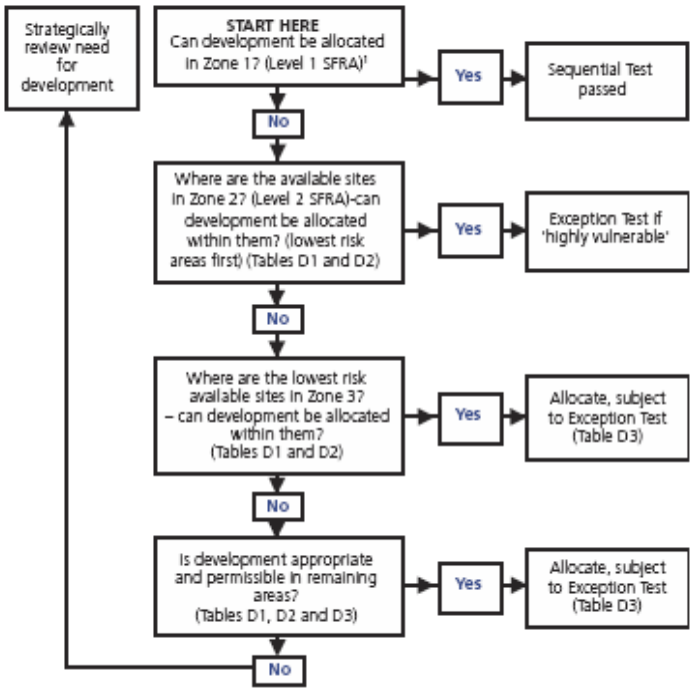
8.1.1 This risk-based approach endeavours to place development that is most vulnerable away from areas that are at most risk.

8.1.2 This development falls into South Holland District Council SFRA Category 3: probability risk of flooding.

8.1.3 When applying the test as figure 4.1, the proposal passes the test being in Zone 3; less vulnerable use category is considered compatible.

7.1.4 An exception test would be required only for more vulnerable classification.

Figure 4.1 Application of the Sequential Test at the Local level for LDD preparation



The above figure demonstrates the compatibility of the proposal within Flood Zone 3 and passing of the sequential test.

Table D.2: Flood Risk Vulnerability Classification

Essential Infrastructure	• Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk, and strategic utility infrastructure, including electricity generating power stations and grid and primary substations.
Highly Vulnerable	• Police stations, Ambulance stations and Fire stations and Command Centres and telecommunications installations required to be operational during flooding. • Emergency dispersal points. • Basement dwellings. • Caravans, mobile homes and park homes intended for permanent residential use. • Installations requiring hazardous substances consent.[19]
More Vulnerable	• Hospitals. • Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels. • Buildings used for: dwelling houses; student halls of residence; drinking establishments; nightclubs; and hotels. • Non–residential uses for health services, nurseries and educational establishments. • Landfill and sites used for waste management facilities for hazardous waste.[20] • Sites used for holiday or short-let caravans and camping, **subject to a specific warning and evacuation plan.**
Less Vulnerable	• Buildings used for: shops; financial, professional and other services; restaurants and cafes; hot food takeaways; offices; general industry; storage and distribution; non–residential institutions not included in 'more vulnerable'; and assembly and leisure. • Land and buildings used for agriculture and forestry. • Waste treatment (except landfill and hazardous waste facilities). • Minerals working and processing (except for sand and gravel working). • Water treatment plants. • Sewage treatment plants (if adequate pollution control measures are in place).

Water-compatible Development	• Flood control infrastructure. • Water transmission infrastructure and pumping stations. • Sewage transmission infrastructure and pumping stations. • Sand and gravel workings. • Docks, marinas and wharves. • Navigation facilities. • MOD defence installations. • Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location. • Water-based recreation (excluding sleeping accommodation). • Lifeguard and coastguard stations. • Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms. • Essential ancillary sleeping or residential accommodation for staff required by uses in this category, **subject to a specific warning and evacuation plan.**

Industrial storage and distribution – less vulnerable

9.0 Exemption Test

9.1 Exemption Test

8.1.1 The appropriate designate in table D3 would indicate an exemption test is not required.

Table D.3[22]: Flood Risk Vulnerability and Flood Zone 'Compatibility'

Flood Risk Vulnerability classification (see Table D2)		Essential Infrastructure	Water compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone (see Table D.1)	Zone 1	✔	✔	✔	✔	✔
	Zone 2	✔	✔	Exception Test required	✔	✔
	Zone 3a	Exception Test required	✔	✗	Exception Test required	✔
	Zone 3b 'Functional Floodplain'	Exception Test required	✔	✗	✗	✗

10.0 Existing Drainage

10.1 Existing Drainage

9.1.2 The site for the building is almost entirely covered with permeable surface. The existing yard and roofs are drained by a series of gullies and channels pipework discharging to piped system on the Western boundary and which drains to Internal Drainage board dyke to the east known as Blue Gowt Drain. The site drainage for this area has a principle collection point in a yard and pumped controlled discharge to the IDB drainage system

9.1.3 The land is under layered with silty subsoils. The plan in Appendix H shows the existing drainage system and existing drainage to yard and buildings.

11.0 Effect of the Proposal

11.1 Effect of the Proposal

11.1.1 The existing site of site is made up of roof yard and grassed areas. This is drained by series of pipes of pipes, gullies and channels discharge into the SW drain and eventually IDB drain .

11.1.2 The proposal is to retain the existing buildings and yard and build a new storage building over existing permeable area– an indicative layout is shown at Appendix B. As the building will utilize the existing pumped controlled discharge for area there will be no change in the flow velocities.

11.1.3 The application is for planning permission at this stage, a schematic drainage solution is proposed in Appendix D.

11.1.4 In principle, as the existing site consists of extensive impermeable areas drainage with existing positive drainage with no flooding history, it would not be unreasonable to expect the drainage system to remain unchanged as run off from present levels.

11.1.5 The NPPF seeks to provide post-development run off at greenfield rates or 25% reduction of run off on previously developed sites. A further 30% should be added to projected run-offs to allow for climate change. However in this instance the site is not being redeveloped in the traditional sense and the proposal is for it to remain the same.

11.1.6 The effect of the proposal will not increase the probability of flooding elsewhere due to the neutral off site run-off rate achieved.

12.0 Effect of the Proposal on People and Property

12.1 Flooding Effect Fluvial

12.1.1 The existing site of site is made up of roof and yard areas. This is drained by series of pipes and gullies.

12.1.2 The South Holland SFRA considers the risk of overtopping of the Welland to the east to have the highest probability of occurring in any one year the analysis provide an insight into risks and projected depths, the site levels provide some protection and the area remains outside the low risk area and the projected depths 2115 are outside the projected depth area for the building and 0 -0.5m for the car park. The site remains outside the low risk area. The SFRA also considers a breach in the coronation channel and in this event the effect on the site would be significant with a peak velocity exceeding 0.25m/s maintaining a residual flood hazard as significant and a potential depth of 1.0 – 1.5m, The bank condition however is considered good and the annual probability remains Low.

12.2 Flooding Effect Tidal

12.2.1 The flooding effect on the site places the site in a EA zone 3 flood risk area the risk identified by EA has probability of occurring of 0.5% in any given year there is likely to be advance warning as the most likely event scenario would be when heavy rain fall storm and high tide occur simultaneously an event the EA can predict with some accuracy the depth given the distance to travel and the extent of the flat fen area is predicted to be shallow and of low velocity.

12.3 Flooding Effect Tidal

12.3.1 The flooding from local drains is less easy to predict as it could occur at any time during heavy rain if a drain has become blocked, the IDB have a regular maintenance program in place, on site drainage should be inspected at least annually which will mitigate this event.

13.0 Assessment of the Actual Risk and Its Implications on the Site

13.1 Assessment of the Actual Risk and Its Implications on the Site

13.1.1 It is clear that the site is located in Zone 3 as identified in the South Holland SFRA. The actual risk is identified as medium its implication for the site given the proposed and existing use should not prevent a planning application being approved.

14.0 Climate Change

14.1 Climate Change

14.1.1 Currently the assumption is that climate change will impact on global sea levels and impact subsequently on surge tides and an increase in significant storm events. The future risk is therefore increased. The design of new any drainage system should have a 30% allowance for climate change.

15.0 Mitigation Measure

15.1 Mitigation Measures

15.1.1 Given the Zone 3 risk of the site there are no specific mitigation measures required apart from provision of an adequate drainage system.

15.1.2 It is recommended that the project proposals are drained, with roof water and clean areas being discharged to surface water open dyke system maintained by the IDB.

15.1.3 The development area is footpath and extension roofs and none contain sleeping accommodation. As there is medium risk of the site being flooded, there are no particular measures proposed in accordance with Environment Agency Standing Advice. Floor level set not lower than existing and flood resilience techniques applied. The premises are advised to register for the EA early warning service for commercial premises in accordance with Lincolnshire.

15.1.4 The FRA identifies existing finished floor levels (FFL) in the complex to be generally in the region of 3.050m above ordnance datum (AOD).

15.1.5 The proposed floor levels are 3.150m ODN.

15.1.6 It is recommended that flood resilient construction techniques be adopted as stated in the guidance document 'Improving the Flood Performance of New Buildings – Flood Resilient Construction' by Communities and Local Government. Based on the documents guidance and projected flood level, it is understood this scheme should adopt a water entry strategy. On this basis, the development would adopt a number of the principles. The measures will include the use of closed cell insulation to composite panel walls with no soft finishes internally. Electric sockets data points and any new mechanical services will be placed at a minimum of 1125mm above FFL where possible and feeds are to drop from high level.

16.0 Pollution

16.1 Existing

The existing site is roof and yard there is no anticipated significant pollution effects not already controlled by good practice.

16.2 Construction

The possibility exists for silt or other pollutants to build up during construction. Flooding during the construction phase will need to be considered as there will be a possibility of the site becoming flooded during excavation works for the construction phase. Risk assessments and method statements should ensure not only that the site remains water free, but any construction work dewatering does not contaminate local receptors. The use of temporary bunding and settlement lagoons should be considered during inclement weather .

16.3 Post Construction

There is little potential for contaminated or dirty water from operational surfaces.

16.4 Pollution Mitigation

16.4.1 Construction

Construction sequence, temporary bundage and settlement tanks should be considered and implemented during the works. Full reference should be made to PPG 6 Working on Construction and Demolition sites and Environmental Good Practice on Site 3rd Edition 2010.

The selection of a contractor to carry out the works must show consideration of the contractors proposals for pollution control during the works. A detailed spill action plan will be required to be put in place prior to construction.

16.4.2 Post Construction

Roof water and water from clean areas only are allowed to enter the receptor.

16.4.3 Levels and Precautions

The design level will be set at 3.150 m OND ie level with existing to provide a level floor throughout to enable fork truck operation throughout the building at one level and as required by the Disability Act.

16.4.4 Proposed Drainage

The proposed drainage will be clean water drainage restricted to flows from roofs where there is no possibility of becoming contaminated by accidental spillage or dirty vehicles. There will be a new interceptor to serve the new dock area.

It is proposed to retain the existing drainage system apart from areas disturbed by the works where it will be repaired or replaced.

17.0 Drainage Solution

17.1 Drainage Solution

The proposal is to utilize the existing approved pump controlled outfall which was designed to accept water from phase one and two there is therefor spare capacity not presently utilized by the present outfall.

The design will discharge roof and yard water (yard water intercepted) into the this pumped system. We will be undertaking a full hydraulic design and attenuating the proposed drainage to ensure the pump chamber is not inundated.

18.0 Environment Agency

18.1 Environment Agency

16.1 Environment Agency

16.2 Environment Agency

Hazard mapping - breaching.

> year 2115 0.5% (1 in 200) chance event

> year 2115 0.1% (1 in 100) chance event

The site is not affected by breaching for the present day (2006) scenarios.

Environment Agency predictions of flood depth are predicted to be depth of 0.25 – 0.5 m resulting in flood water levels of 3.9m ODN

Appendix J contains Environment Agency predictions

19.0 Drainage Design

19.1 Drainage

The drainage design shall adopt the principle of no increased run velocities off, no change to drainage system therefore no change to flow velocities off-site flows.

20.0 Conclusion

20.1 Conclusion

It is our conclusion that the development complies with NPPF and passes, or is not required to pass, the sequential and exemption tests and an adequate drainage. It is our opinion that the is no reason that the planning application should not be approved.

PART TWO

Evacuation Plan

20.0 Introduction

20.1.1 Primarily any plan of action should be aimed at serving the safety of employees and visitors , any written plan should allow adaption's to be considered to ensure best response on an incident by incident basis.

20.1.2 The flood incident differs significantly from a fire incident and this cannot be emphasised enough. The warnings and evacuation in the event of fire are intended to remove the occupants off to a safe place as soon as possible ideally in less than 3 minutes. Given the prevailing conditions during a flood event this is very unlikely to be the best action to be taken. Staff and employees are in the first instance to remain in the building.

21.0 Risks

21.1.1 There are other risks involved during a flood event apart from water levels which are not always covered, for example when the flood is likely to occur.

- During heavy rain
- High winds
- Power failure
- Cold weather
- Dark during winter months
- Fast moving water
- Hidden hazards in water (ie missing manhole covers, kerbs etc)

21.1.2 A fire tends to be very localised with only a few minutes warning for a flood to raise the alarm and carry out evacuation by fire drill is wholly inappropriate any may put the occupants at greater risk.

21.1.3 A flood event other than localised surface water from a blocked drain for example is likely to be more regional has greater warning time probabilities and requires a considered evacuation response.

21.1.4 During a flood alarm you should not:-

- Congregate outside
- Leave belongings behind (particularly outdoor clothing and lunch boxes)
- Send employees home to an environment at greater risk.

21.1.5 To emphasis should be on a calm considered response and remaining on site in first instance is likely to be the best response as rapid onset of hypothermia is a real risk in wet cold conditions.

22.0 FLOOD ACTION AND EVACUATION RESPONSE

22.0 Preparation

20.1.1 The site is registered with the Environment Agency Flood Line (0845 988 1188) and will receive automated warnings to the main switchboard together with text alerts to main reception

22.1 Monitoring

20.1.2 Available sources of information

Environmental Agency website; www.environment-agency.gov.uk/flood
Environmental Agency flood line ; 0845 988 1188

BBC Radio Lincolnshire 94.9FM

Lincs FM 102.2FM (live daytime only)

Met Office website; www.metoffice.gov.uk

Highways Agency website; www. highwaysagency.gov.uk

Other sources of information:-

Lincolnshire County Council

22.2 Action

20.2.1 Refer to sections 18 and 19 and carry out actions now.

23.0 ENVIRONMENT AGENCY FLOOD WARNING ALERTS

23.1.1 The Environment Agency has for code levels relating to levels of risk and suggested actions, it should be noted that these can be issued in any order.



Flood Watch: flooding in low lying land and roads expected. Be Aware, be prepared and watch out!

- Monitor local news and weather reports
- Be aware of water levels nearby
- Be prepared to act on flood plan
- Check safety of pets and livestock
- Charge you mobile



Flood Warning: flooding in homes and businesses. Act now!

- Move cars, pets, food, valuables and important documents to safety
- Turn off gas, electricity and water supplies if it is safe to do so
- Stay in high place with an escape route
- Be prepared to evacuate your home
- Protect yourself, your family and help others
- Act on your flood plan



Severe Flood Warning: severe flooding is expected. There is extreme danger to life and property. Act now!!

- Collect your things you need for evacuation
- Turn off gas, electricity and water supplies if it is safe to do so
- Stay in high place with a means of escape
- Avoid electrical sources
- In danger call 999 immediately
- Listen to emergency services
- Act on your flood plan



All clear: severe flood watches or warnings no longer in force for this area.

- Keep listening to weather reports
- Only return to evacuated buildings if you are told it is safe
- Beware of sharp objects and pollution in flood water
- If property and belongings are damaged contact insurance company for advice before cleaning up

24.0 FLOOD ACTION PLAN

24.1.1 In the event of a flood warning being issued, the Environment Agency aim to issue warning at various levels, this information is good but cannot be guaranteed so some judgement based on other to conditions is required.



Level 1 - Flood Alert - Monitoring

24.1.2 Instigate actions outlined in Environment Agency flood alert and alert all members of staff of the condition and brief them on the possibility of escalated action. Monitor situation on Radio and websites and flood line (it is important not to overuse web and phone functions).



Level 2 - Flood Warning - Preparation

24.1.3 Instigate actions outlined in Environment Agency flood warning check on location of all occupants, prepare staff for possibility of escalated action, distribute copies of flood action plan to all staff and assess if occupant home destination is at greater risk than present location.

24.1.5 Taken Action Roll call
Collect belongings
Review possible options for evacuation
Ensure all staff are prepared for next action
Make arrangements for closing site and evacuation including
Arrangement of transport and confirm safe destinations.
Inform emergency services or your actions



Level 4 - Severe Flood Warning - Action

24.1.6 Instigate actions in EA given proceed to next level in action plan.

24.1.7 At this point the site should have already been or be in the process of evacuation.

24.1.8 In the event of a severe warning being issued without prior notice or accelerated conditions without notice using the EA predicted water levels depth, velocities and directions there is walk out on foot is possible but not practical due to the distance and possible condition variations on route without outside help to transport occupants to place of safety

24.1.9 Short notice evacuation with no positive destination is possible using vehicle used by staff for getting to work, clearly this action is only relevant in extreme conditions.

Take from site useful items that could be carried (food, drink, clothes)
Inform emergency services of your actions.

24.1.10 It the event of site inundation imminent warning or without warning the site has sufficient first floor space for a 'stay put action to ' to take place where they can wait until water subsides or until rescue, it should be noted that this action is unlikely to result in rescue in the short term as emergency services will prioritize more vulnerable groups, as much self help as possible will be required.

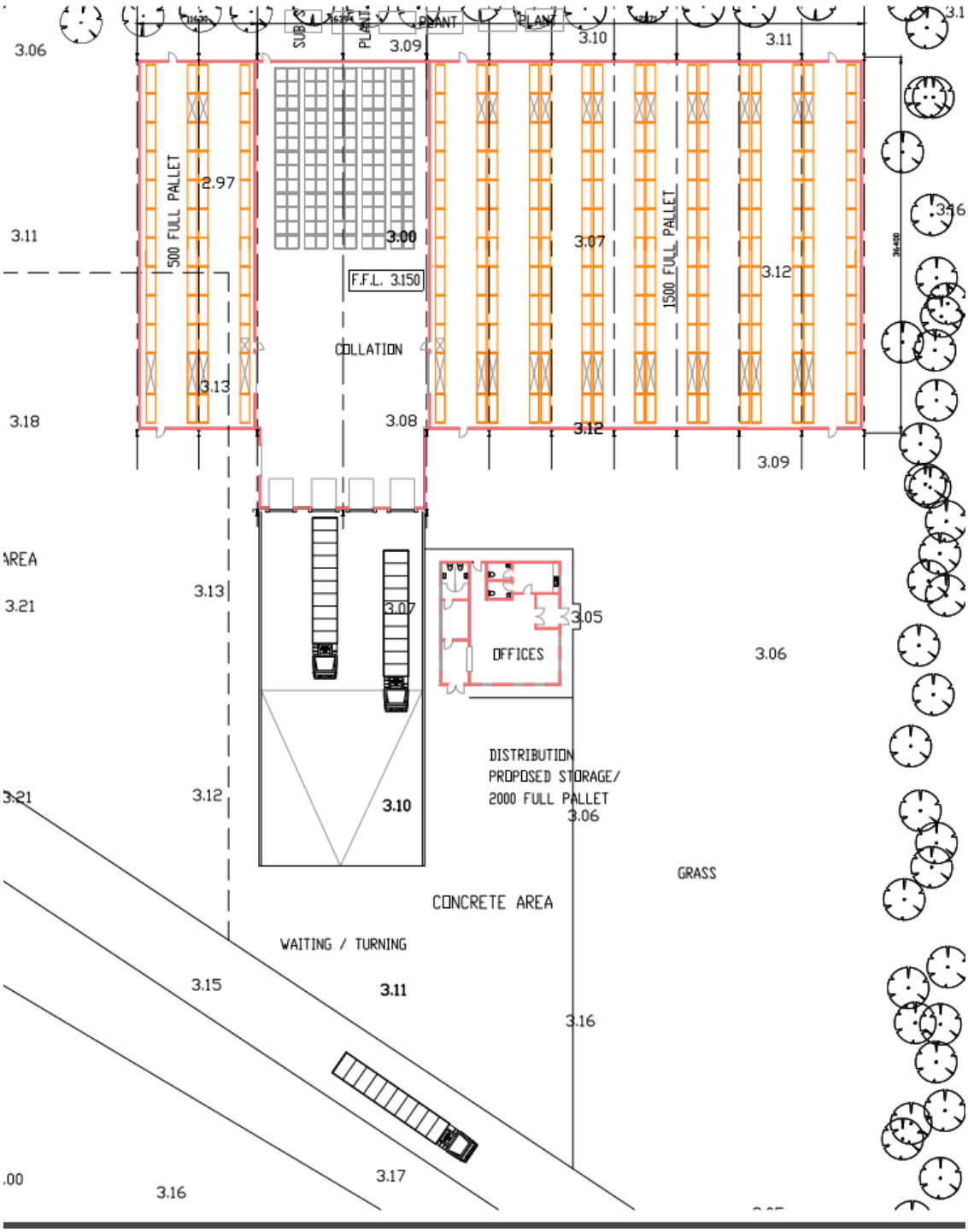
24.1.11 For escape route Refer to Appendix L



Level 5 - Warning no Longer in Place

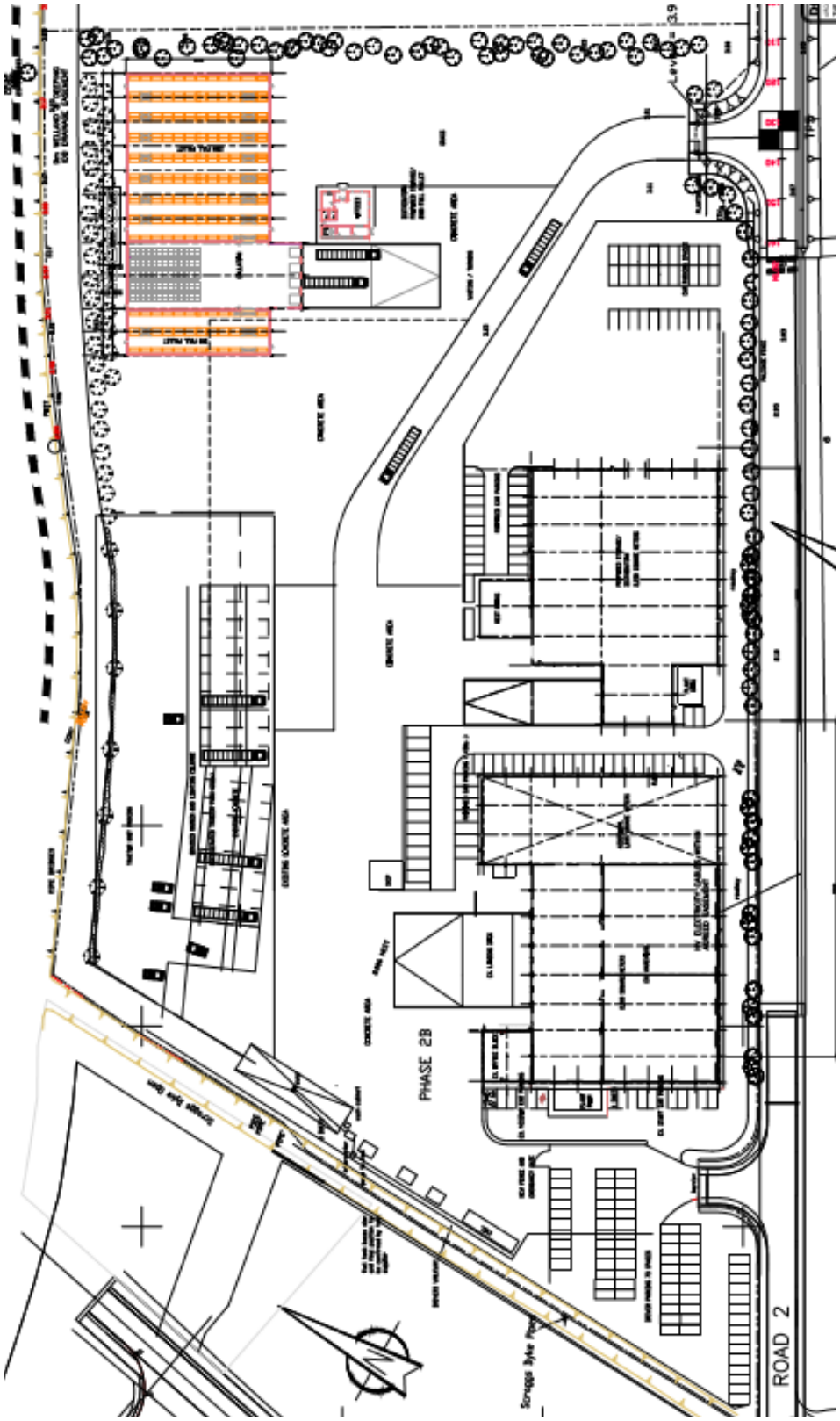
24.1.12 Instigate actions in EA guidance when safe to do so visit site to asses condition and suitability of a return to site by and publish date when able to do so.

Appendix A



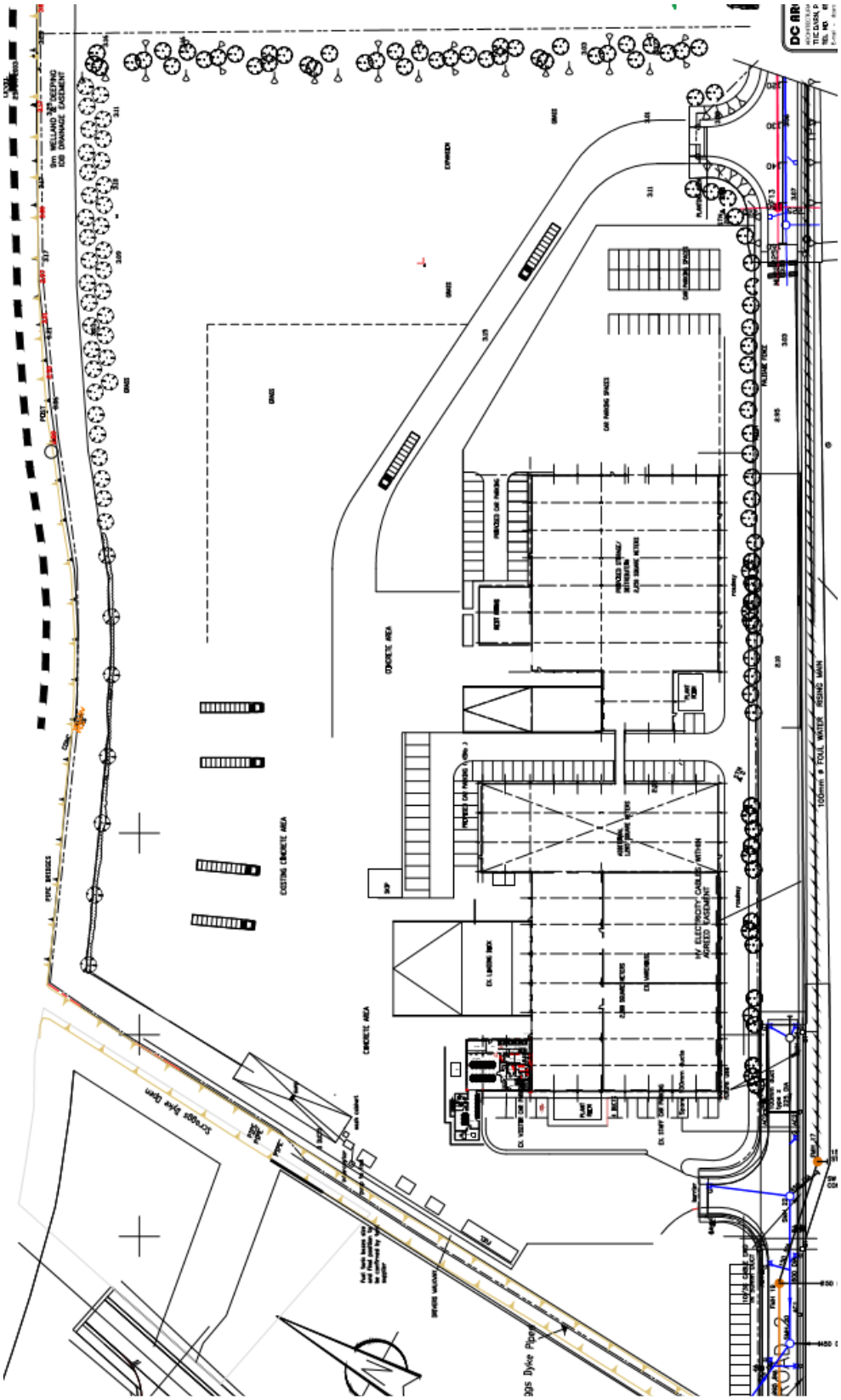
Site plan with levels full size original with application

Appendix B



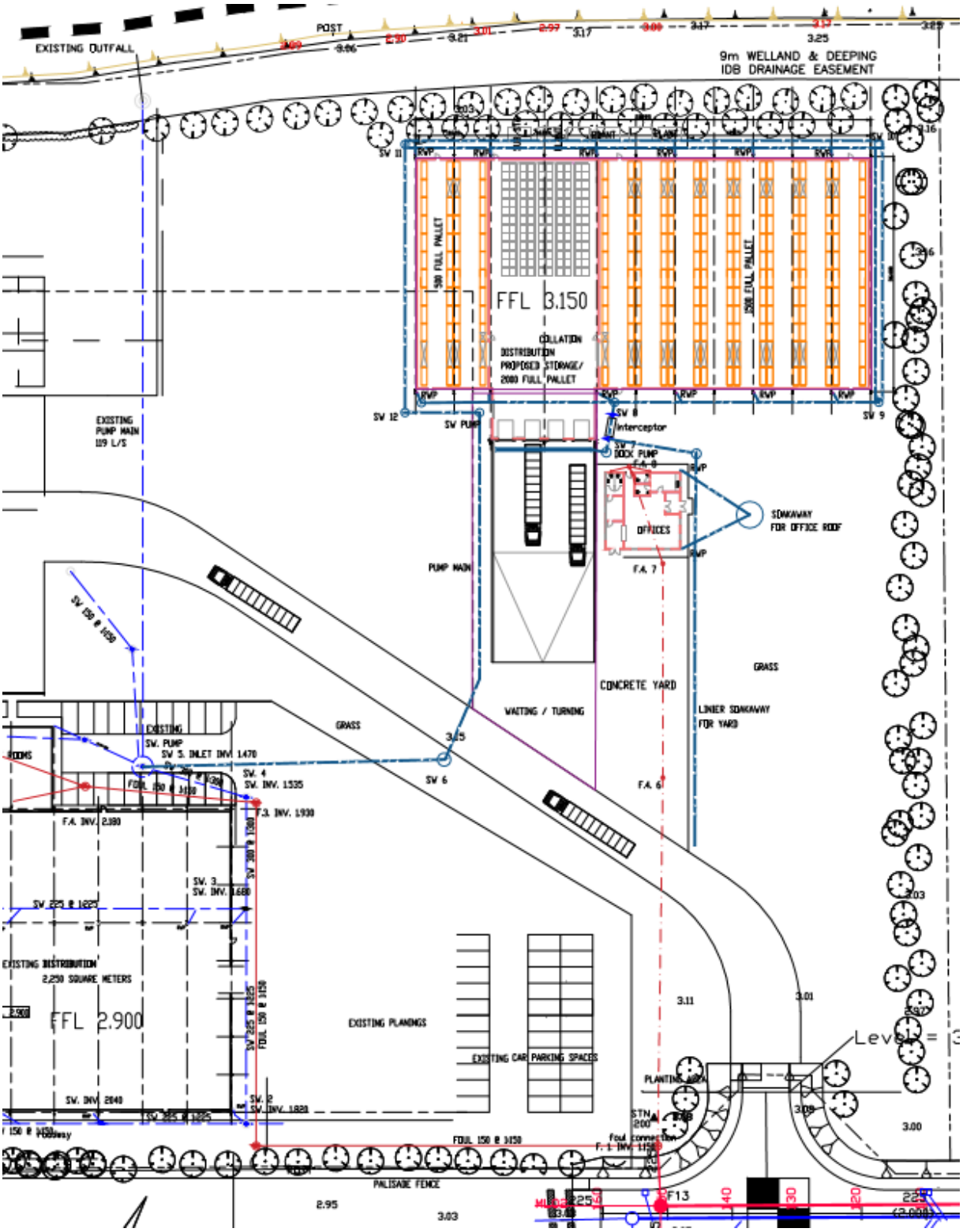
Proposed site layout

Appendix C



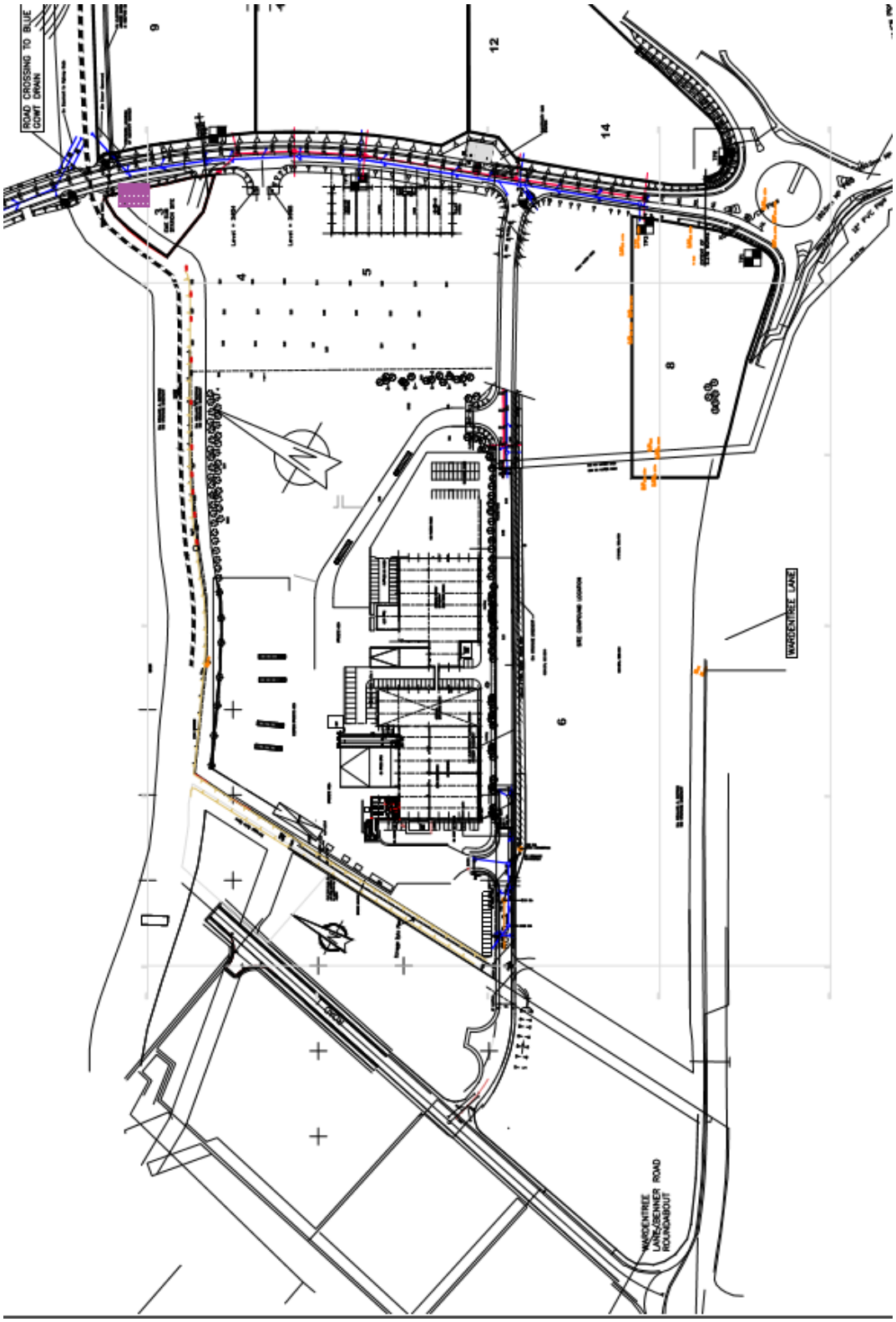
Existing Site Layout

Appendix D



Drainage Plan

Appendix E



Location Plan

Appendix F

Environment Agency

Development and flood risk: when to consult the Environment Agency

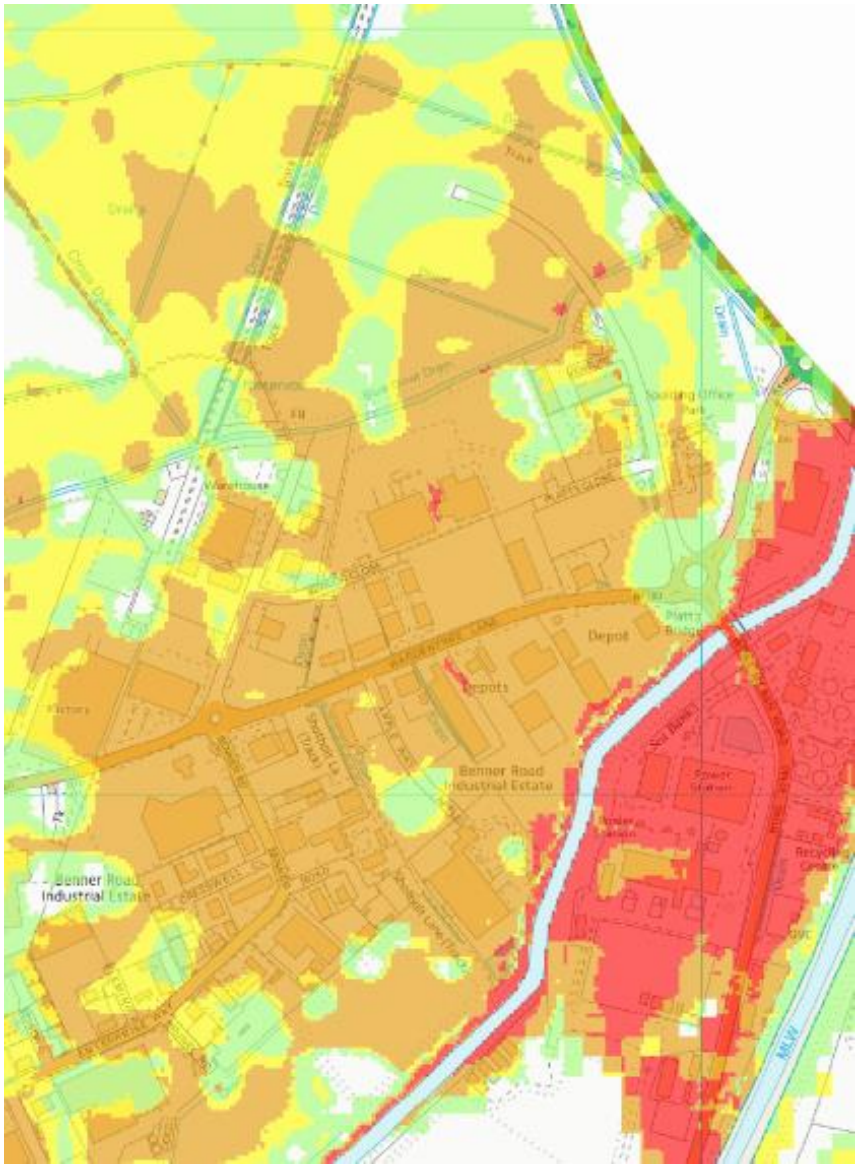
March 2007

A1 Development category	B1 Development (including boundary walls etc.) within 20 metres of the top of a bank of a Main River	C1 Includes culverting or control of flow of any river or stream	D1 Within Flood Zone 3	E1 Within Flood Zone 2	F1 Within Flood Zone 1
A2 Householder development and alterations	B2 Consult EA Note	C2 Consult EA with FRA showing design details of any culvert or flow control structure proposed	D2 No consultation - see standard comment Note	E2 No consultation - see standard comment Note	F2 No consultation - No EA Advice
A3 Non-residential extensions with a footprint of less than 250m²	B3 Consult EA Note	C3 Consult EA with FRA showing design details of any culvert or flow control structure proposed	D3 No consultation - see standard comment Note	E3 No consultation - see standard comment Note	F3 No consultation - No EA Advice
A4 Change of use FROM Water Compatible TO 'Less Vulnerable' development	B4 **Only** consult EA if site also falls within Flood Zone 3. FRA Required	C4 No consultation - no EA advice	D4 Consult EA with FRA	E4 No consultation - no EA advice	F4 No consultation - No EA Advice
A5 Change of use RESULTING IN 'Highly Vulnerable' or 'More Vulnerable' development	B5 **Only** consult EA if site also falls within Flood Zone 3 or 2. FRA Required	C5 No consultation - no EA advice	D5 Consult EA with FRA	E5 Consult EA with FRA	F5 No consultation - No EA Advice
A6 Operational development less than 1 hectare	B6 Consult EA	C6 Consult EA with FRA showing design details of any culvert or flow control structure proposed	D6 Consult EA with FRA and Sequential Test Evidence (and where required confirm Exception Test has been applied)	E6 Consult EA with FRA and Sequential Test Evidence (and where required confirm Exception Test has been applied)	F5 No consultation - No EA Advice
A7 Operational development of 1 hectare or greater	B7 Consult EA	C7 Consult EA with FRA showing design details of any culvert or flow control structure proposed	D7 Consult EA with FRA and Sequential Test Evidence (and where required confirm Exception Test has been applied)	E7 Consult EA with FRA and Sequential Test Evidence (and where required confirm Exception Test has been applied)	G1 Consult EA with FRA

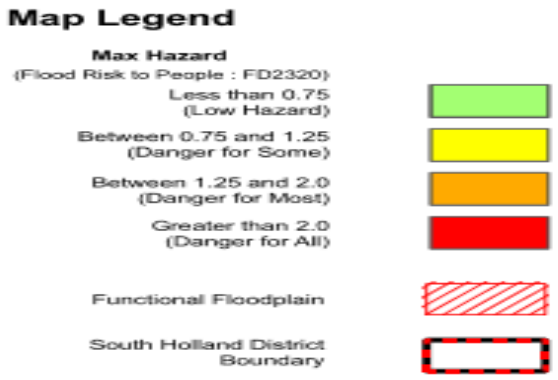
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Development Flood Matrix

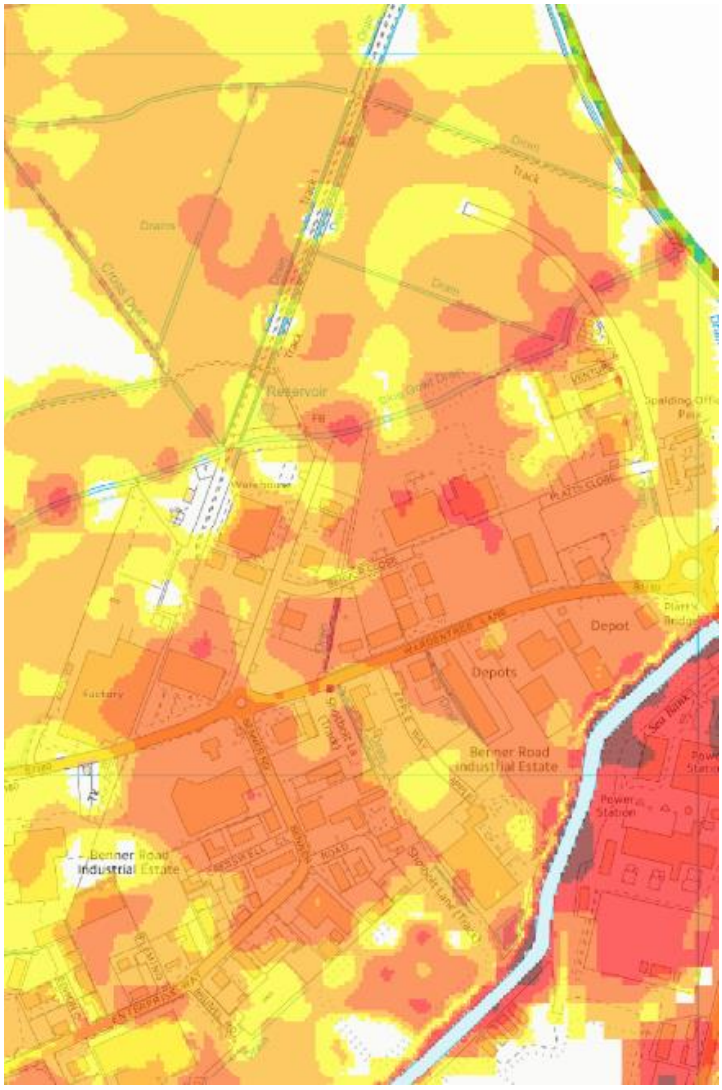
Appendix G



Residual Flood hazard 2115 0.5% tidal / 1.0% fluvial 2115 event probability



Appendix H

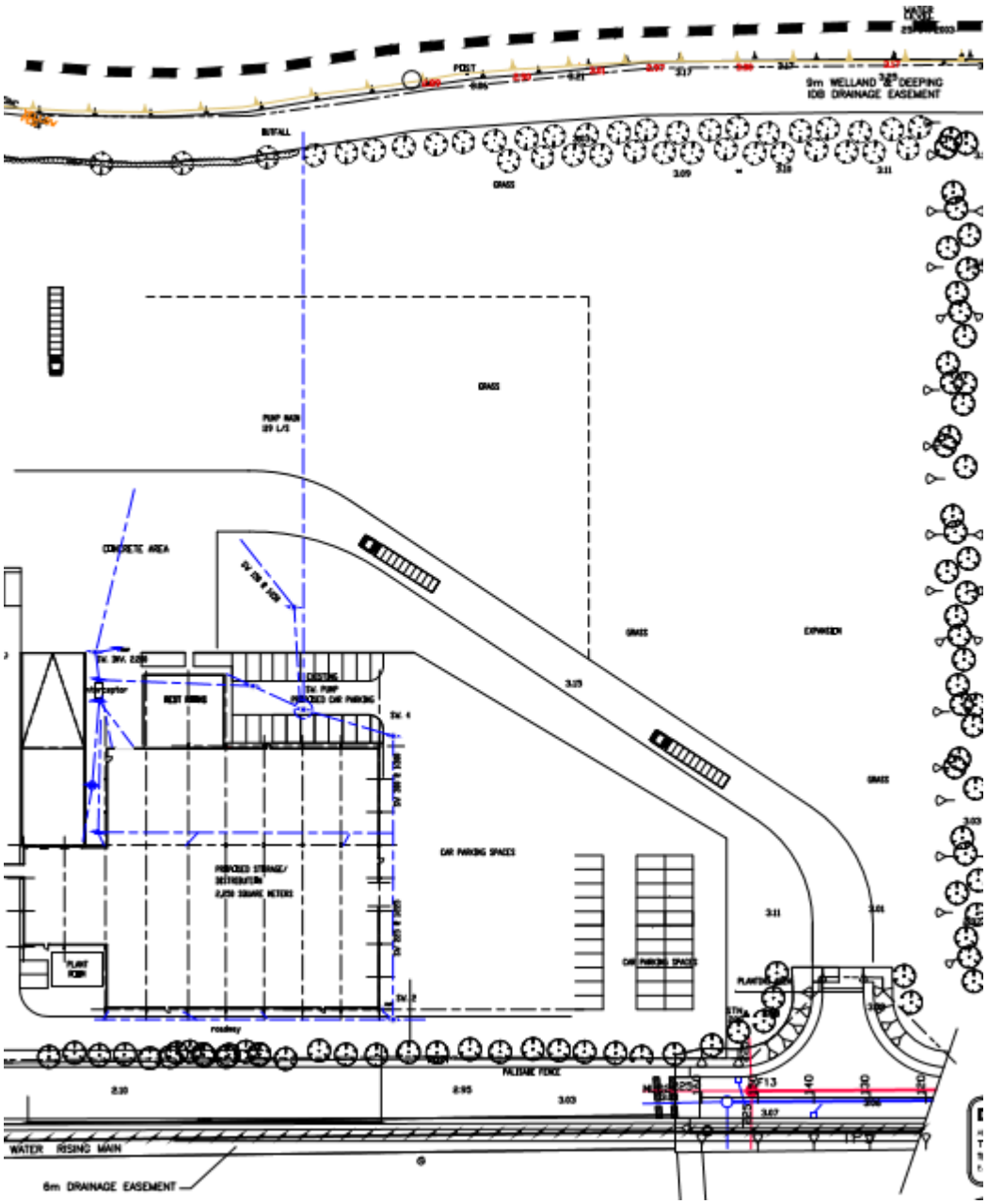


Residual Peak Depth 2115 0.5% tidal / 1.0% fluvial 2115 event probability

Map Legend

Peak Depth

- 0m - 0.25m
- 0.25m - 0.5m
- 0.5m - 1m
- 1m - 2m
- 2m +
- Functional Floodplain
- South Holland District Boundary



Schematic Drainage Layout Existing

Appendix J

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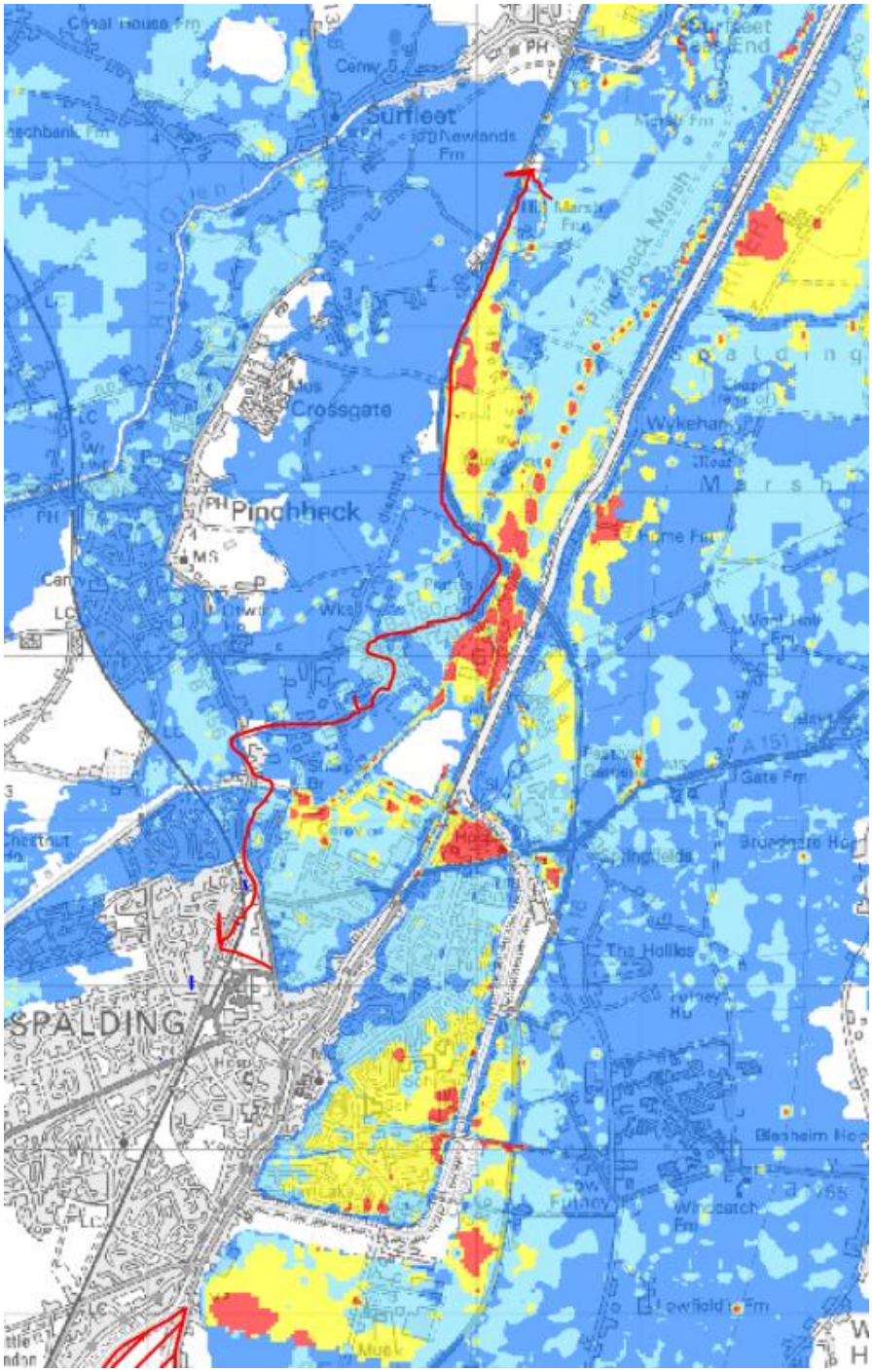
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Appendix K



Possible evacuation routes