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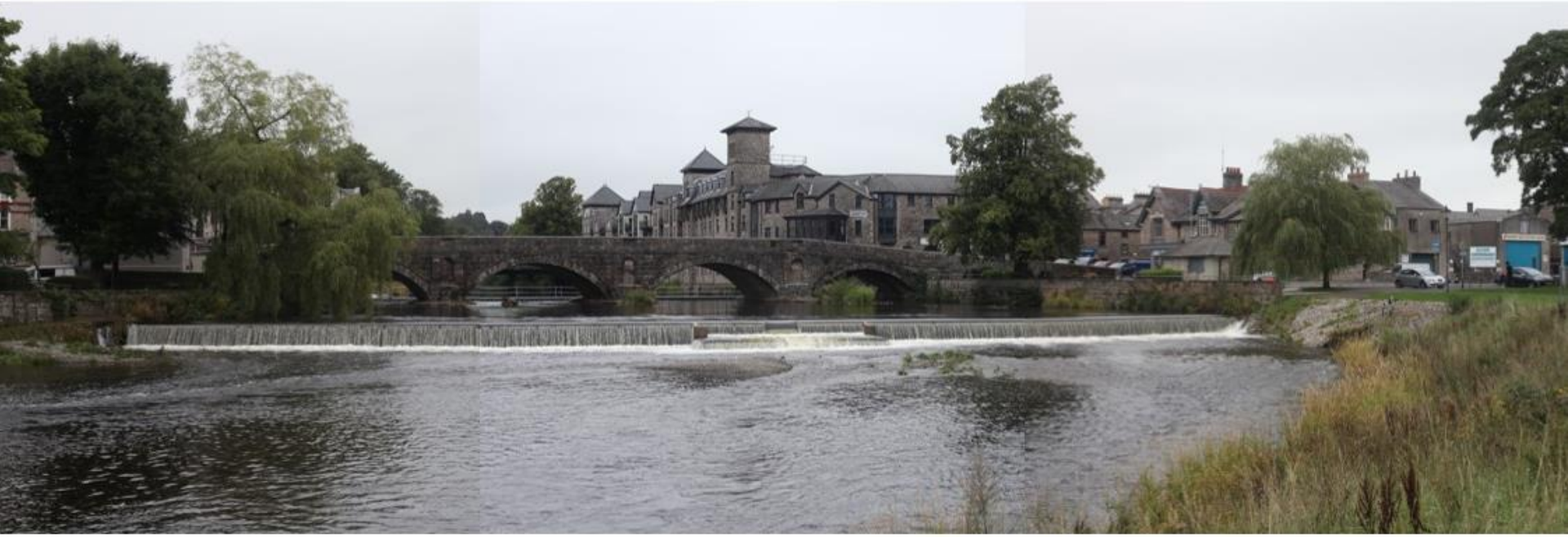
THE FLOOD HUB

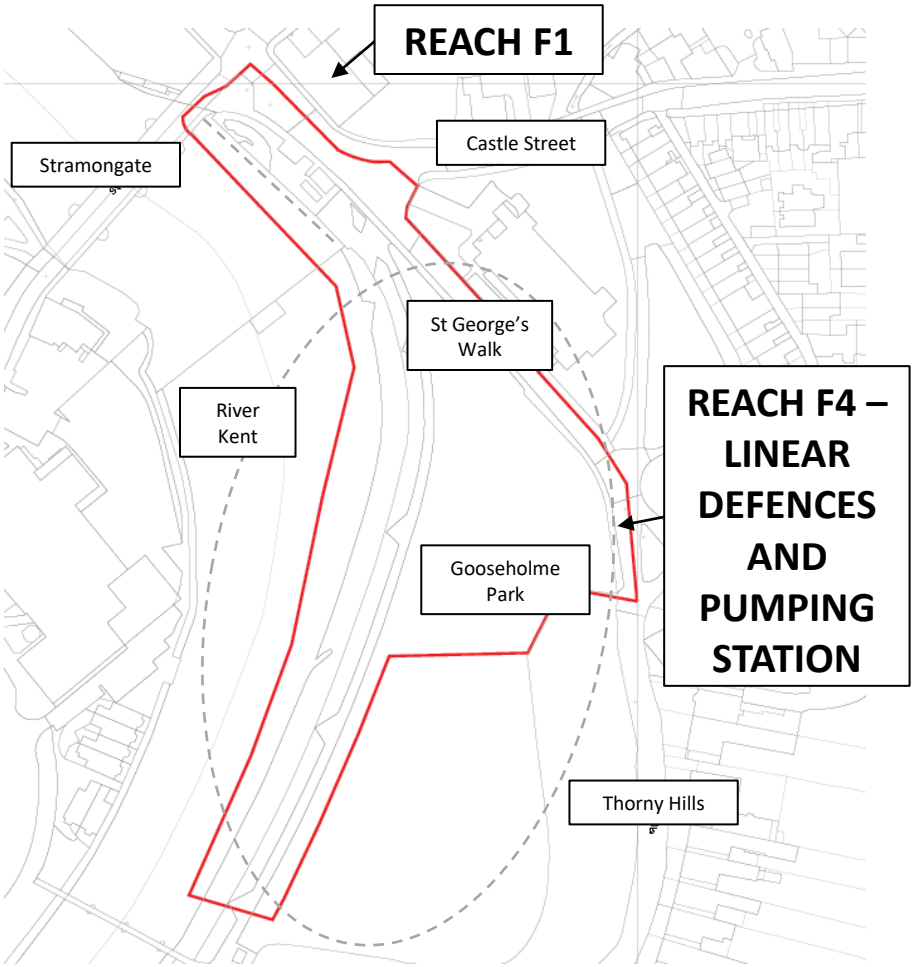
CAPITA Jacobs VBA Joint Venture Limited

KENDAL FLOOD RISK MANAGEMENT SCHEME - REVISED PLANNING APPLICATION FOR DESIGN CHANGES AT STOCK BECK PUMPING STATION AND REACH F4 LINEAR DEFENCES, GOOSEHOLME PARK



THE KENDAL FLOOD RISK MANAGEMENT SCHEME (FRMS)

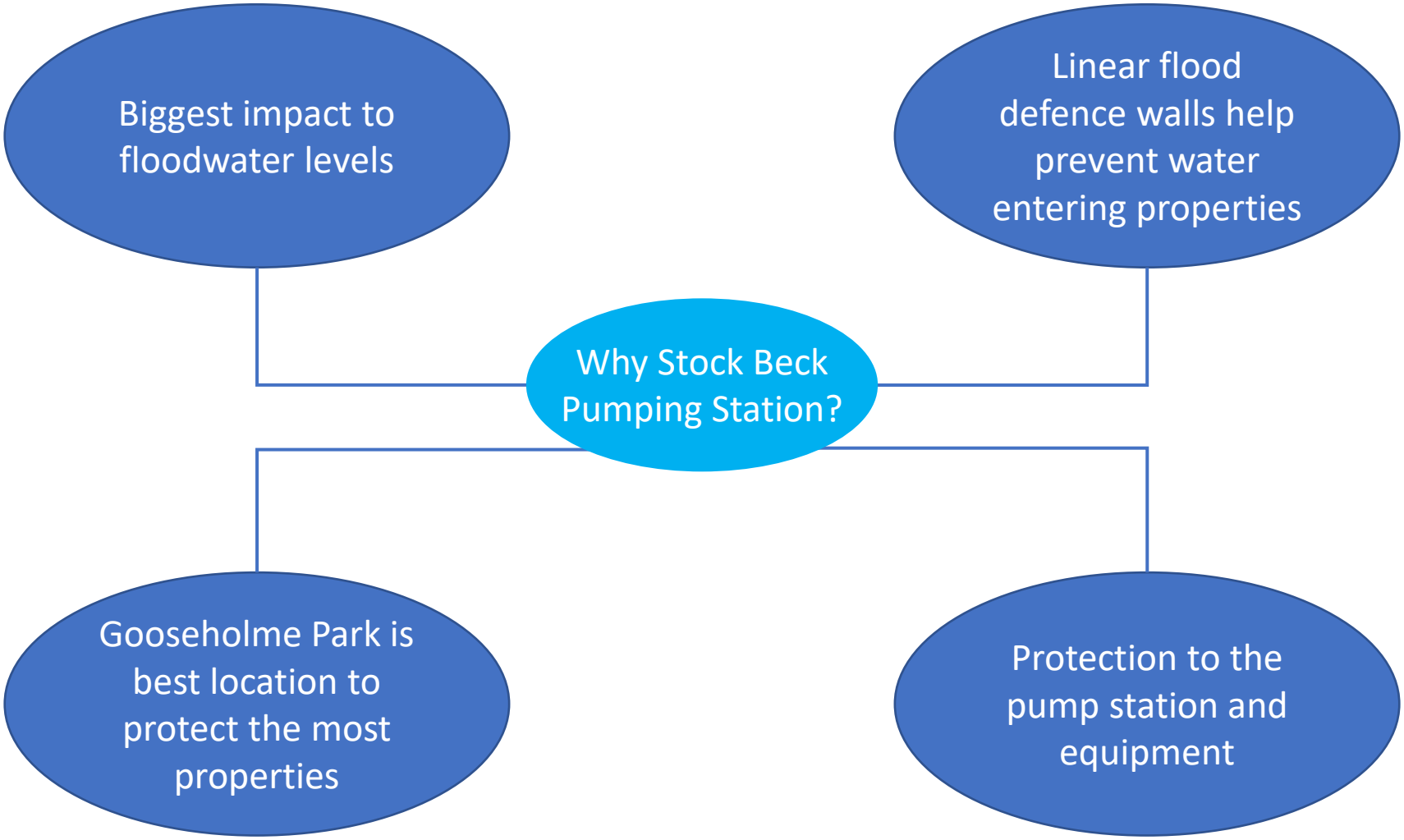
- Package of flood risk management measures put together following Storm Desmond in 2015
- Phase 1 of the Kendal FRMS covering fourteen sub projects known as 'reaches' received planning permission in 2019
- Reaches F1 and F4 cover Stock Beck and Gooseholme Park
- Stock Beck is currently a gravity driven outfall, however during high flows this could fail due to blockages and has been identified as a potential source of flood risk upstream
- This has necessitated essential design changes which are required to be assessed through the submission of a new planning application and Environmental Impact Assessment (EIA) to South Lakeland District Council (SLDC)



THE ALTERNATIVE OPTIONS – EXPLORED AND DISCOUNTED

Proposed Development	Pumping Station	Linear Defences
Alternative Locations / Options	Car Parks of Henry Jackson & Co. Ltd Motor Engineers and Castle Street Community Centre	Aligning the linear defences along the river side of the common or setting them back further inland at St George's Walk / Thorny Hills Road
Reasons for Being Discounted	• Significant risk of undermining existing properties • Length of construction time • Risk to the operation of the pumping station from restricted access • Discharge pipework would be much longer and therefore less economically viable	• Severe visual impacts • Local resident's concerns raised during public consultation that connectivity to the watercourse should be maintained • Defences along St George's Walk / Thorny Road would not remove the risk to the common and would still result in significant disruption during a flood event and additional operational issues

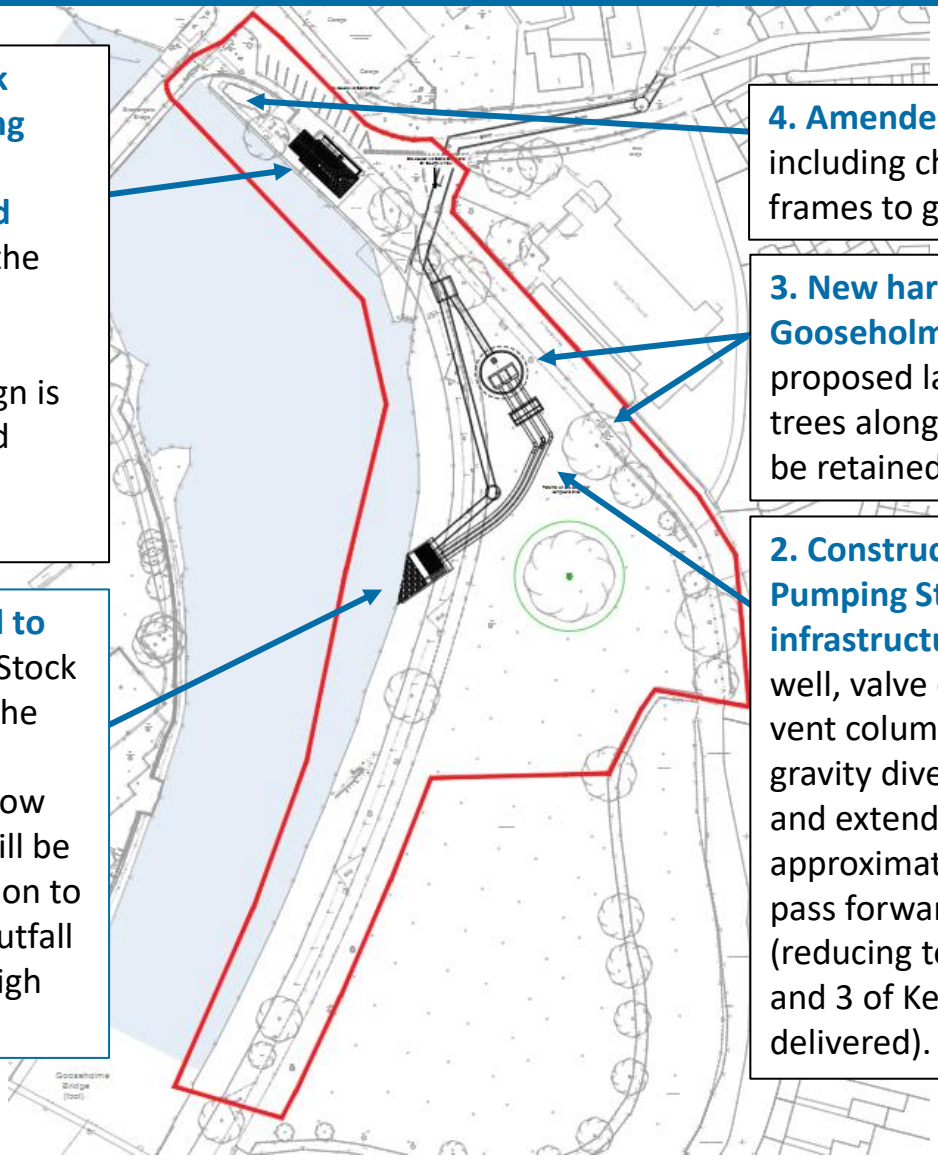
THE PREFERRED OPTION - SUMMARY OF DECISIONS



THE PLANNING APPLICATION TO BE SUBMITTED TO SOUTH LAKELAND DISTRICT COUNCIL

1. The development of the Stock Beck Pumping Station comprising above ground the erection of a Motor Control Centre (MCC) and Electricity Substation including the replacement of the existing Kiosk building and an increase in building footprint size. The design is sympathetic to the character and appearance of the Kendal Conservation Area.

5. Construction of a New Outfall to the River Kent with the existing Stock Beck outfall replaced to reduce the risk of blockages and improve operational condition. An overflow chamber and a side hung gate will be required to allow for flow diversion to the pumping station when the outfall becomes gravity locked during high river levels.



4. Amended Glass Panel Detail including changes to the proposed frames to glass panels (Bead Blasted)

3. New hardstanding areas within Gooseholme Park including proposed landscaping works and trees along the eastern boundary to be retained if possible.

2. Construction of the Stock Beck Pumping Station below ground infrastructure consisting of a wet well, valve chamber, rising mains and vent columns, with the Stock Beck gravity diversion culvert redirected and extended. Will operate approximately 35 days / year. Design pass forward rate is 1.5m^3/s (reducing to 1.0m^3/s once Phases 2 and 3 of Kendal FRMS has been delivered).

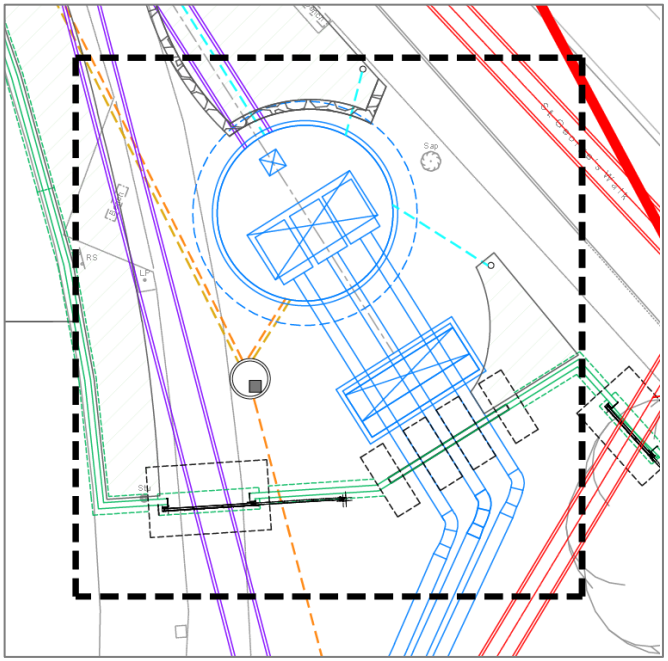
FISH FRIENDLY PUMPS

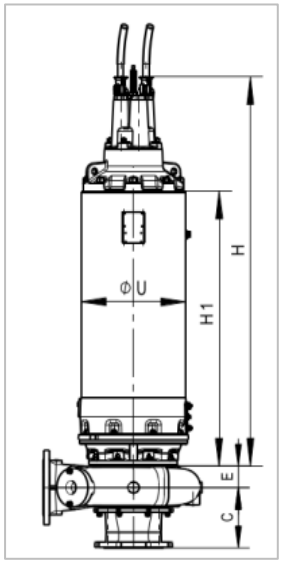
- Several species of fish identified within the River Kent including Brown Trout and Eel
- Following the implementation of the Eel Regulations and to ensure no damage to fish passing through the proposed scheme, a new fish friendly pump system has been incorporated
- Gravel bedding to existing culvert - creates small ponds for fish and aquatic life to rest in and prevent harm during low water levels
- Eel tiles - allows eels of varied sizes to climb upstream helping migration

Images – Environment Agency

THE PUMPING STATION SYSTEM (BELOW GROUND)

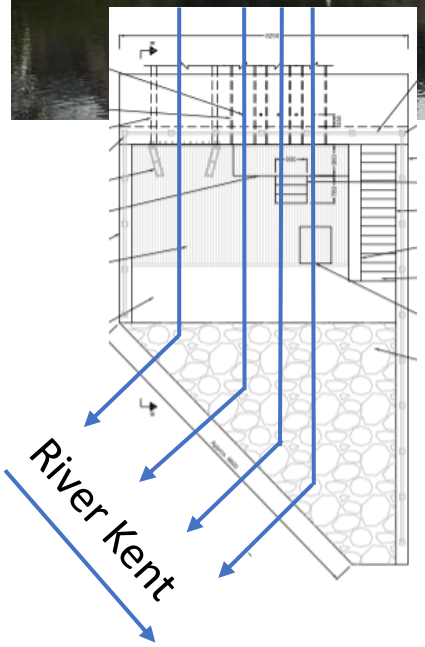
- The Pumping Station is designed to pump water from Stock Beck to the River Kent to prevent flooding
- The proposed scheme includes a significant increase to all below ground infrastructure and access covers at ground level
- Water is taken into the pumps at a low level, with the pump then passing forward the flows via the rising main
- Increase in flow rate to pump system
- The fish friendly pumps have larger spacings between impellers and are designed to work at a slower speed to avoid damage to fish

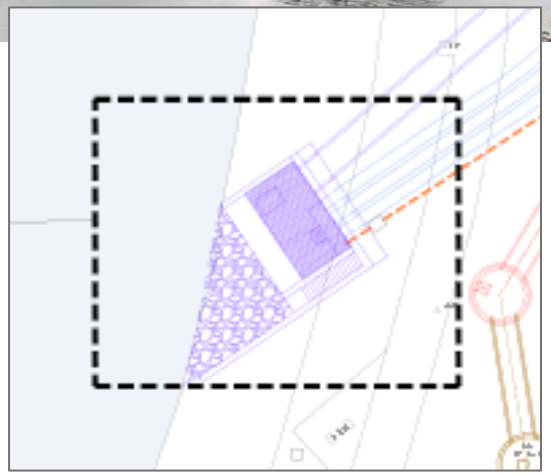




THE OUTFALL SYSTEM

- The existing outfall will be relocated away from the gravel deposition zone and increased in size
- The new outfall will incorporate four outfall pipes, three will be pumped using the Stock Beck Pumping Station above and below ground infrastructure, with one a gravity fed outfall
- This has been done in consultation with United Utilities
- The proposed scheme now includes a fish friendly pump system
- An overflow chamber and a side hung gate will be required to allow for flow diversion to the pumping station when the outfall becomes gravity locked during high river levels



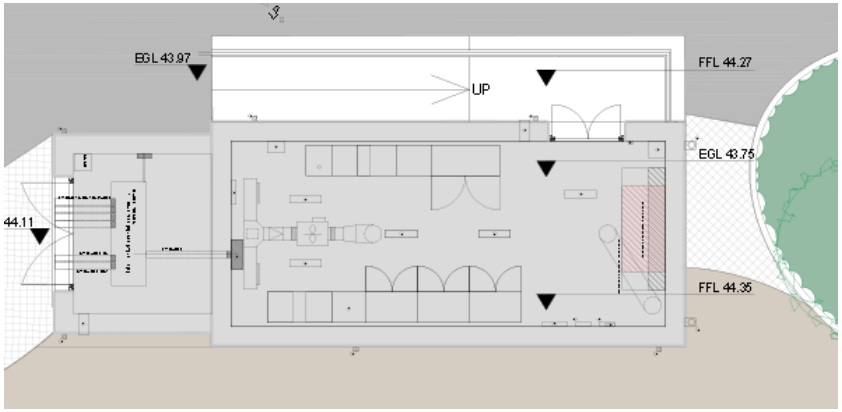


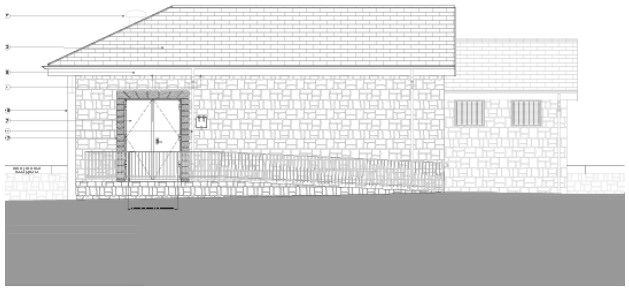
THE MOTOR CONTROL CENTRE (MCC) AND ELECTRICITY SUB STATION

- Proposed replacement building to the existing Kiosk, with building footprint expanded to 15.83m in length and 5.5m in width for heating and ventilation and to accommodate the needed pumping equipment

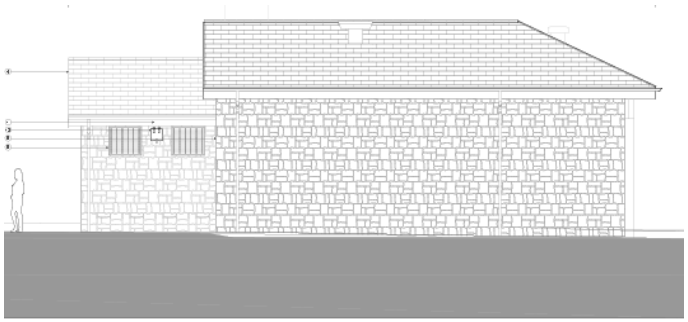
- Landscape changes and local material usage for proposed building

- Removal of trees either side of the structure to enable construction of the flood wall

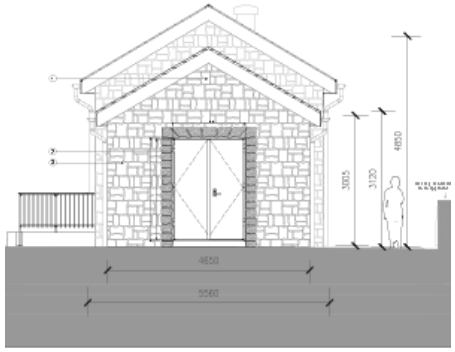




ELEVATION - NORTH EAST



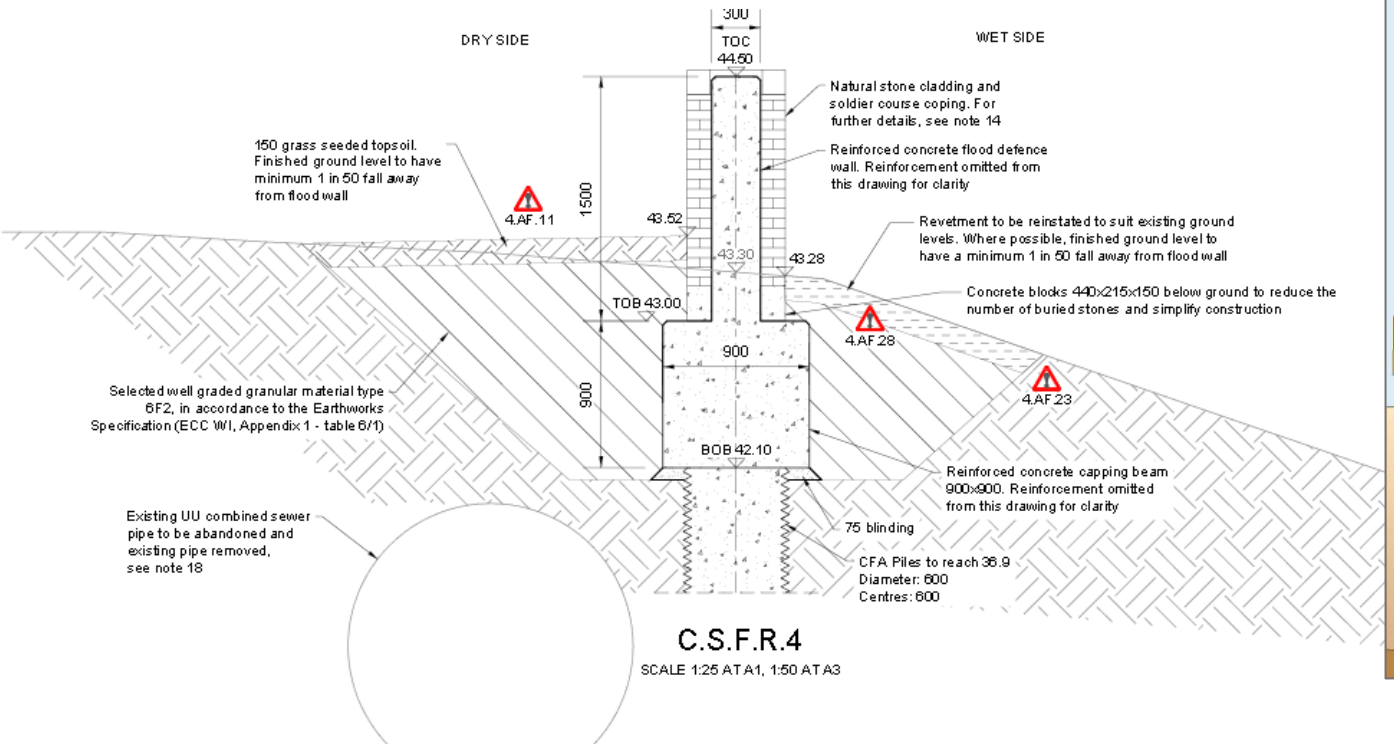
ELEVATION - SOUTH WEST



ELEVATION - NORTH WEST

REACH F4 – TYPICAL WALL AND FOUNDATION DESIGN AND THE PILING SYSTEM

- Piling is required to provide the foundation and seepage cut-off
- Continuous flight auger (CFA) piling rig drills hole in the ground during construction
- CFA piling with a pile cap and I-shaped wall along reach F4
- Where suitable sheet piling will be undertaken to minimise impact considering success of the same method used at Gooseholme Footbridge



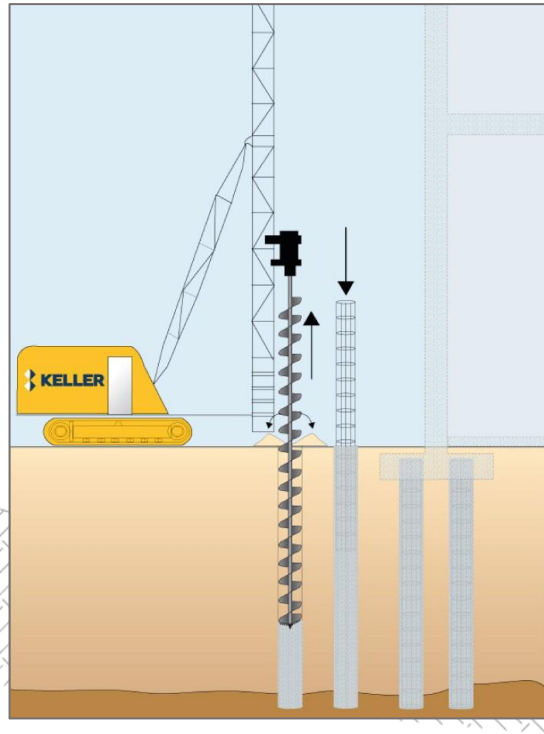
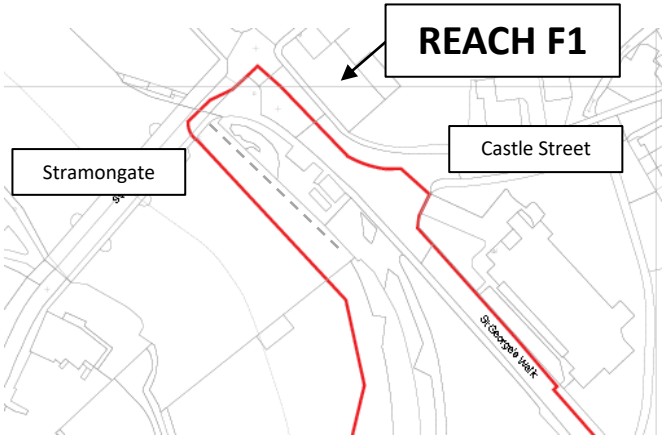
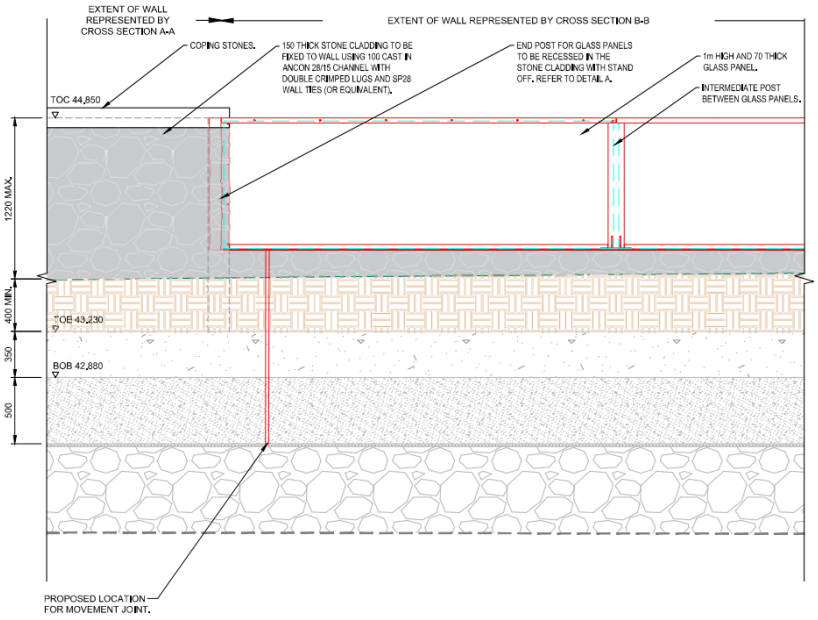


Image – Supplied by KellerGroup PLC

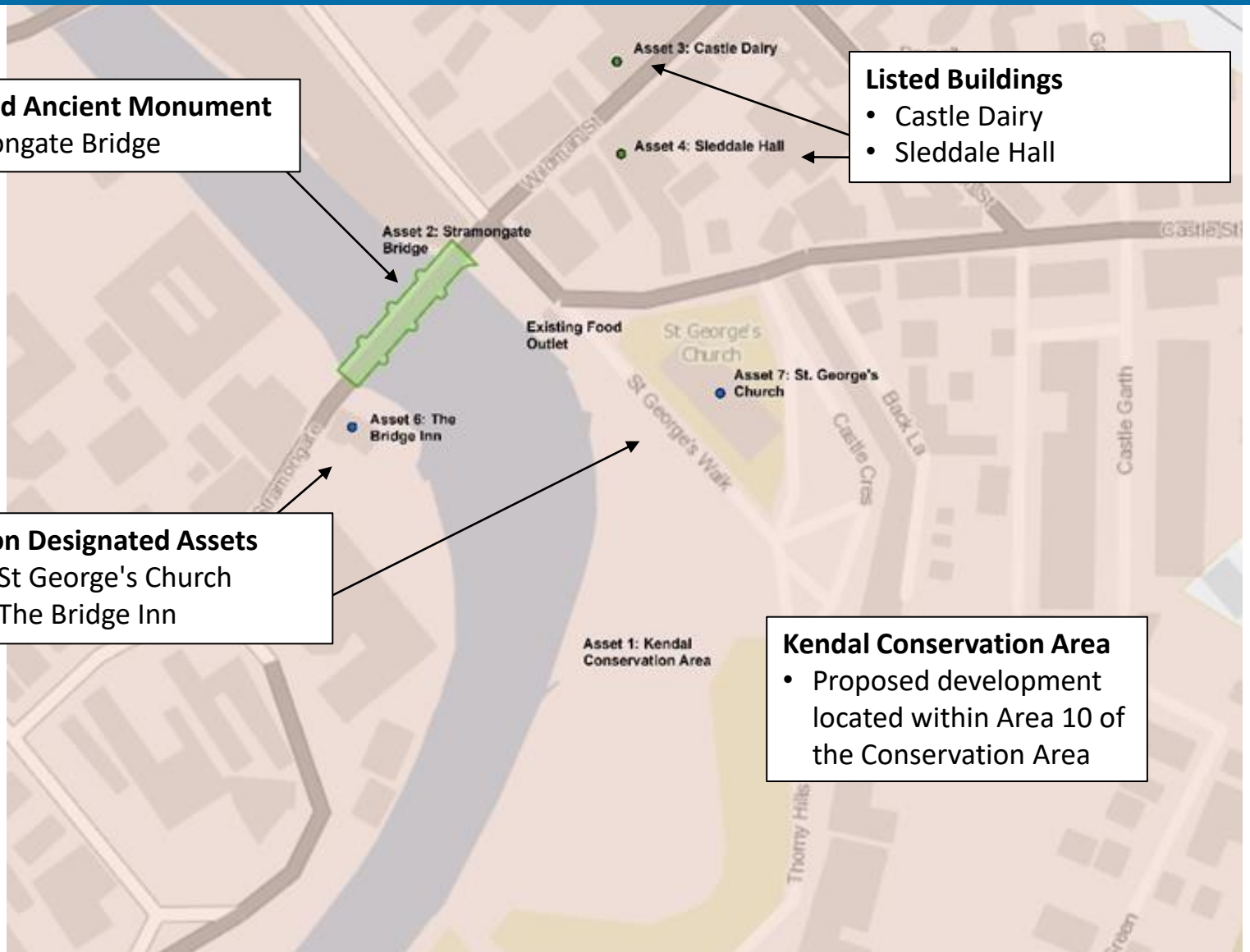
REACH F1 – THE GLASS PANELS

- Changes to the appearance of linear defences bordering the edge of the river at Reach F1 from walls to glass panels
- Changes made to ensure consistency with Aynam road and Waterside and following public comments on visibility of River Kent being obstructed by proposed wall
- Bead blasted steel finish to uprights





CULTURAL AND HERITAGE SIGNIFICANCE – KEY HERITAGE ASSETS



Scheduled Ancient Monument
- Stramongate Bridge

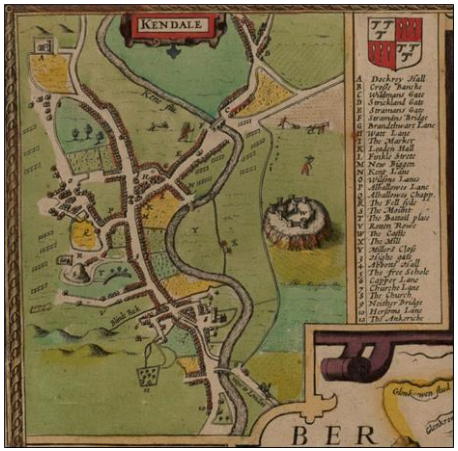
Listed Buildings
- Castle Dairy
- Sleddale Hall

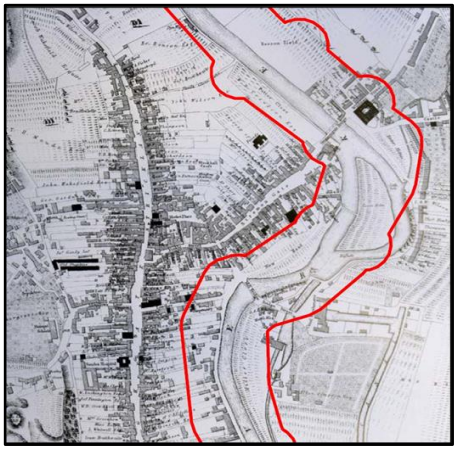
Non Designated Assets
- St George's Church
- The Bridge Inn

Kendal Conservation Area
- Proposed development located within Area 10 of the Conservation Area

CULTURAL AND HERITAGE SIGNIFICANCE AND THE PROPOSED SCHEME

- The proposed scheme sits at least partially within a section of the bifurcated river channel
- The left bank began to significantly develop during the late 18th and 19th centuries when it became the focus of industrial and residential activities as well as the location for the Kendal Canal
- This area was once occupied by wooden framed (tenters) structures used in the manufacture of woollen cloth
- There remains the potential (albeit low) that archaeological remains will be encountered during groundworks - archaeological monitoring will therefore be adopted
- The proposed development is of a traditional design, which looks to reduce the scale of the building to the minimum required for operational purposes
- The choice of local stone and slate has been informed by the overarching character of the area
- The sub surface / ground level nature of the works has sought to minimise intrusion

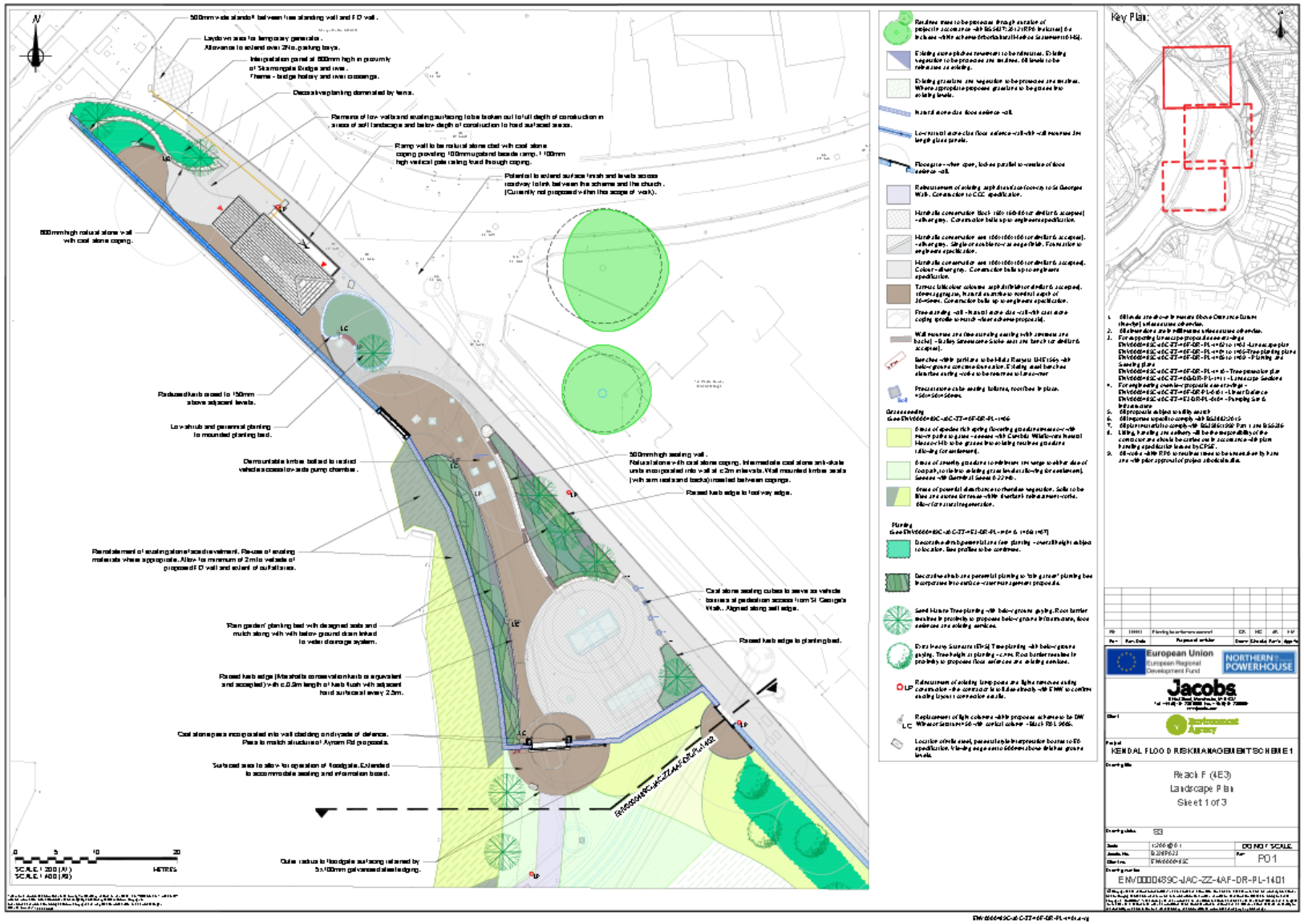




THE PROPOSED STOCK BECK AND GOOSEHOLME PARK SCHEME

- The Chantry Gardens proposal originally developed by Kendal Town Council, Kendal Civic Society and other local representatives has influenced and informed the landscaping scheme
- The large hardstanding area has been developed to allow access and continued maintenance
- There may be an opportunity to deliver art on the flood gates, this will be done in consultation with community groups
- The pumping station is located on common land, a common land application will be submitted

LANDSCAPE AND THE PROPOSED SCHEME



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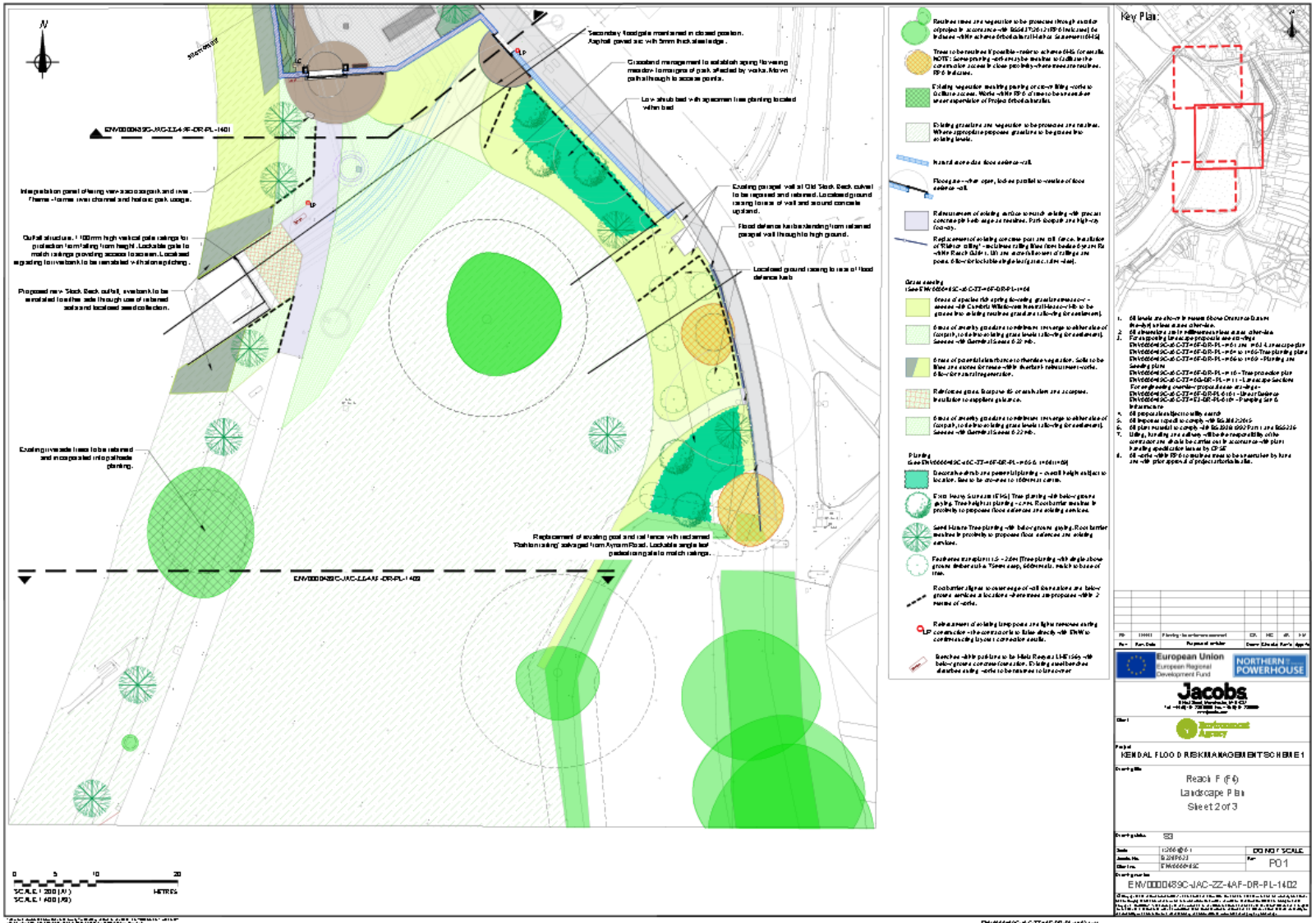

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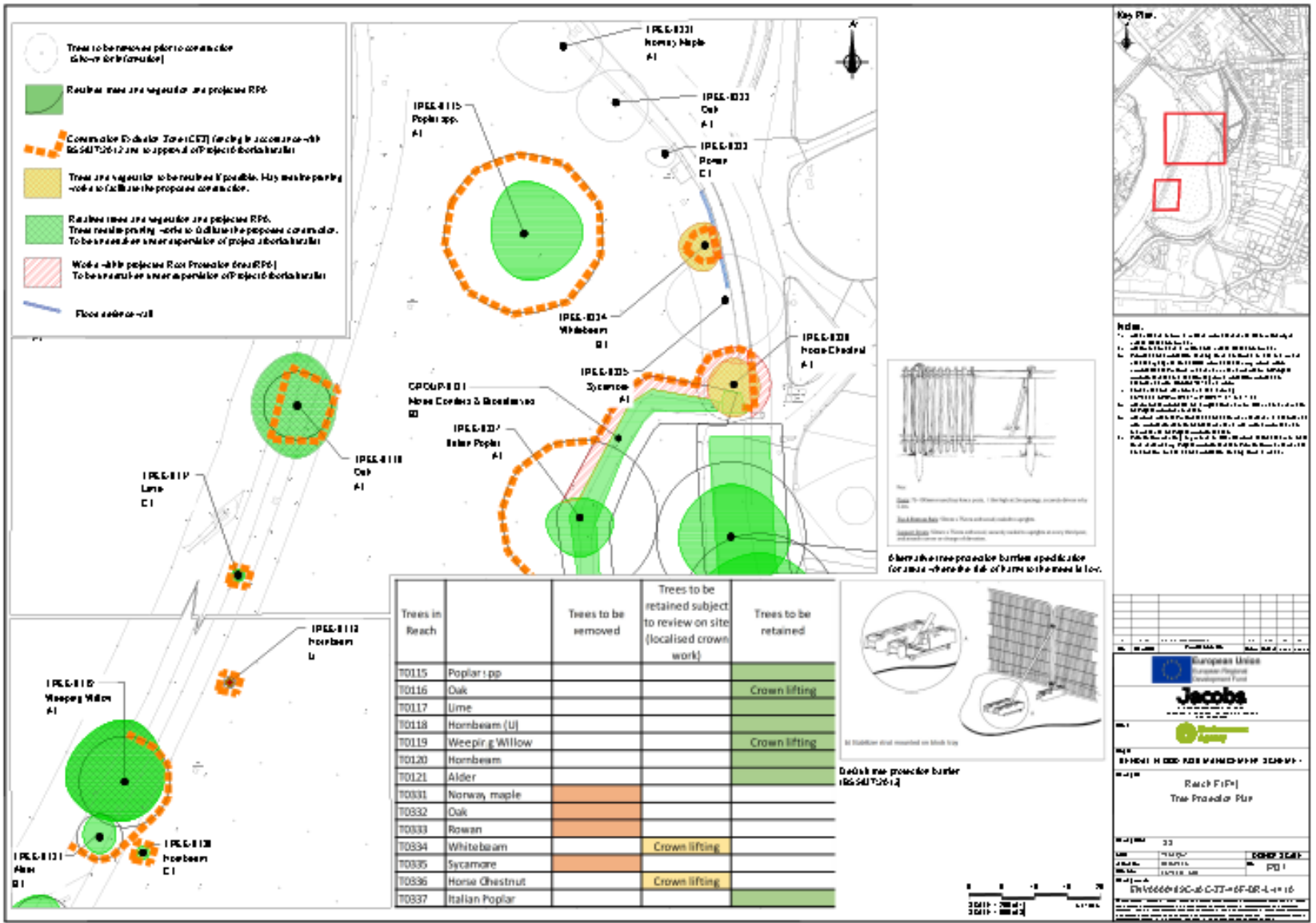


LANDSCAPE AND THE PROPOSED SCHEME – THE PLANTING SCHEDULE





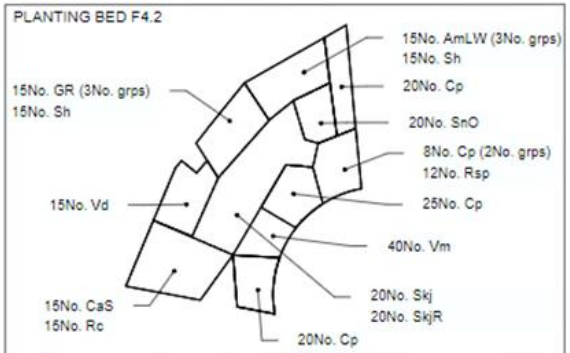


- Existing parkland includes single species grassland
- Proposed scheme will implement a much improved diverse and varied tree, shrub and perennial planting scheme including amongst others several notable species:
  - Sneezeweed
  - Black Eyed Susan
  - Decorative Sedge
  - Salvia
  - Cranesbill
  - Catmint
  - Veronica

LANDSCAPE AND THE PROPOSED SCHEME – THE PLANTING SCHEDULE

- Native Meadow
- Erman and Swedish Birsh
- Flowering Crab
- Small Leaved, Crimean and Silver Lime
- Alder
- Snowy Mespilus
- Holly
- Liquidambar
- English and Koster Oak
- Cut Leaved Rowan

LANDSCAPE AND THE PROPOSED SCHEME – THE PLANTING SCHEDULE



Species name	Common name	Form	Girth (stem circumference) 1m from ground (cm)	Minimum height above soil/ media level (cm)	Alternative root packaging to containers	Comments	QTY (No.)	Approx. mature height
TREES								
Alnus glutinosa	Alder	EH	14-16	350	WRB	Clear stem - 200cm min	2	25m
Alnus glutinosa 'Laciniata'	Cut leaved Alder	SM	20-25	500	WRB	Clear stem - 200cm min	1	17-22m
Amalanchier lamarkii	Snowy mespilis	Fthd	-	175	WRB	3x t'plant	1	3-5m
Betula ermanii	Ermans Birch	Fthd	-	175	RB	2x t'plant	2	12-17m
Betula pendula 'Dalecarlica'	Swedish Birch	EH	14-16	350	WRB	Clear stem - 200cm min	1	12-17m
Ilex aquifolium	Holly	Fthd	-	175	WRB	4 x t'plant	2	12-17m
Liquidamber styraciflua 'Thea'	Liquidamber	EH	14-16	500	WRB	Clear stem - 200cm min	1	12-17m
Quercus robur	English Oak	EH	14-16	350	WRB	Clear stem - 200cm min	1	30m
Quercus robur	English Oak	SM	20-25	500	WRB	Clear stem - 200cm min	1	30m
Quercus robur Fastigiata	Koster Oak	SM	14-16	350	WRB	Feathered	1	17-22m
Sorbus aucuparia 'Asplenifolia'	Cut leaved rowan	Fthd	-	175	BR	1+1 transplant	2	12-17m
Tilia x euchlora	Crimean Lime	SM	20-25	500	WRB	Clear stem - 200cm min	9	17-22m
Tilia tomentosa 'Brabant'	Silver lime	EH	14-16	350	WRB	Clear stem - 200cm min	1	20m+

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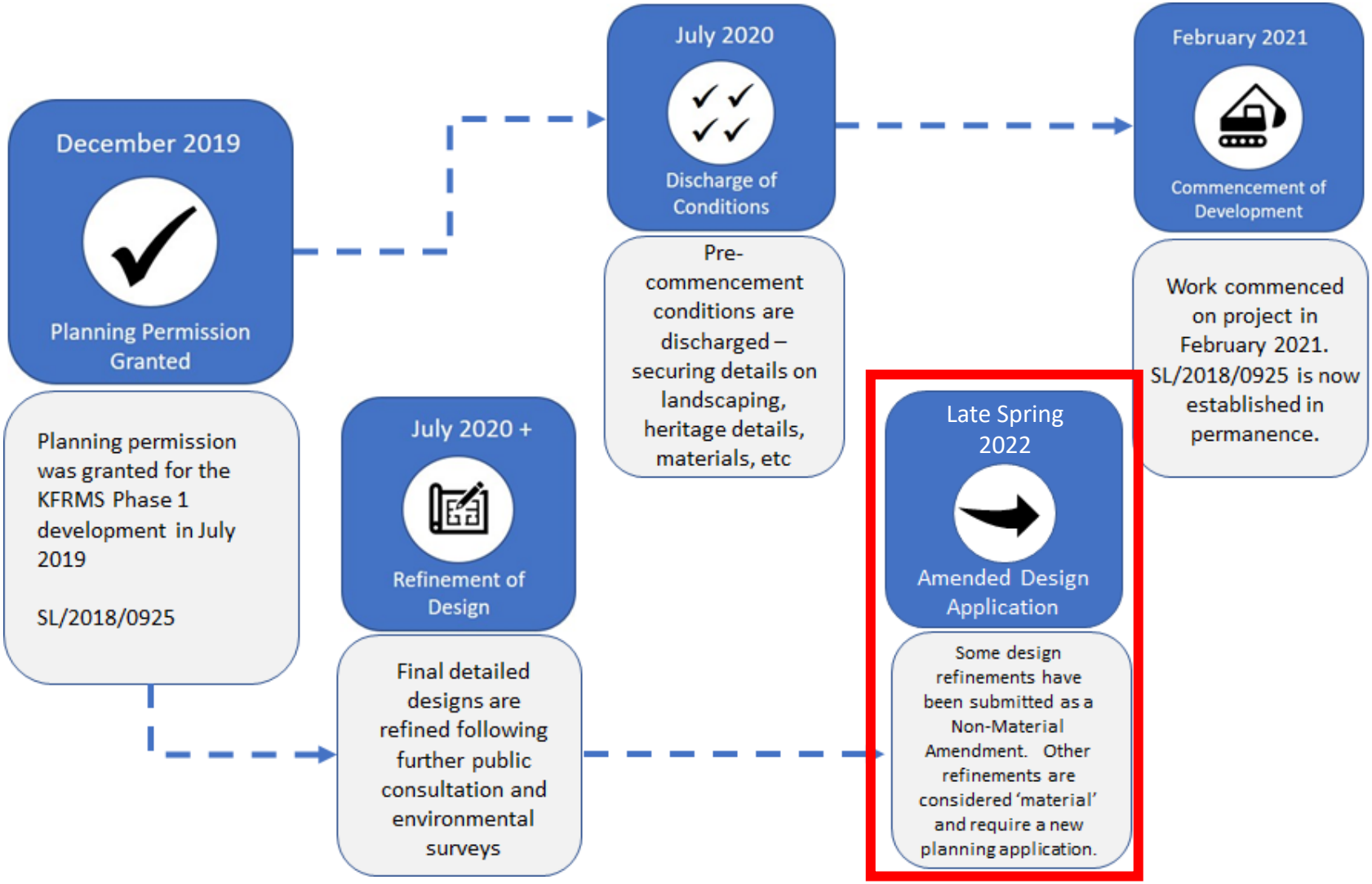
PROGRESS TO DATE



PROGRAMME OF WORKS

Spring 2022 – Autumn 2022	Design finalised
Spring 2022 – Autumn / Winter 2022	Planning application, submitted and determined
Spring 2022 – Winter 2022 / Spring 2023	Common land application, submitted and determined
Summer 2022 – Spring 2023	Repairs to F1 Riverside Wall and construction of associated linear defences (glass panels)
Autumn 2022 – Spring 2023	Pumping station related utility diversions (gas, electric, communications) local to St George's Walk / Castle Crescent / Gooseholme Park
Summer 2023 – Spring 2024	Construction of Stock Beck pumping station
Winter 2023 – Summer 2024	Construction of F4 linear defences and landscaping of Gooseholme Park
After Construction	Ongoing maintenance

FURTHER INFORMATION

SUPPORTING DOCUMENTS AND FURTHER INFORMATION INCLUDING FREQUENTLY ASKED QUESTIONS ARE AVAILABLE ON THE FLOOD HUB
www.thefloodhub.co.uk/kendal

CONSULTATION

This consultation will run until the **13 May 2022**. All comments received via the Flood Hub will be fed into the Statement of Community Involvement which will form part of the planning application package.

We aim to formally submit the planning application package to South Lakeland District Council in late Spring 2022.

INFORMATION TO BE PROVIDED WITH THE PLANNING APPLICATION

Once the planning application package has been submitted, it will be available to view together with all the supporting information on South Lakeland District Council's planning portal – www.southlakeland.gov.uk