Appendix 5.1

Construction Details

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1.1 Construction Overview

1.1.1 Construction activities required to build the Proposed Scheme are considered as temporary works, and will typically include:

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- Site restoration (ecological and landscape mitigation works)
- Active traffic management

1.1.2 Whilst a summary of these activities is provided in **Chapter 5** of the Environmental Statement (ES), more details relating to the likely programme of works, phasing and construction activities are set out in this Appendix. These represent the assumptions on which the Environmental Impact Assessment (EIA) has been based.

2 Construction Programme

2.1 Overall Programme

2.1.1 The EIA of the Proposed Scheme has been undertaken based on an anticipated construction programme of 2.5 to 3 years. A detailed construction programme will be developed by the Principal Contractor; however, the assessment considers that the following timescales (which may overlap during the overall construction phase) will apply:

- Formation of earthworks – 8 months
- Bridge works – 1.5 years
- Pavement works – 2 years

2.2 Phasing

2.2.1 The construction of the Proposed Scheme requires online parallel widening to the east (southbound) side from chainage (ch.) 20,000 heading north to approximate ch. 28,770. From there, the online widening switches to the west (northbound) side. This minimises the number of transitions and helps maintain A9 traffic flow.

2.2.2 Online widening presents buildability issues due to the presence of live traffic in close proximity to the construction work force, resulting in the need for substantial traffic management. Based on an online parallel widening approach the following construction phases are anticipated:

- Mobilisation/ Early Works Phase
- Main Works Phase 1 (southbound carriageway up to ch. 28,770 and northbound carriageway from ch. 28,790)
- Main Works Phase 2 (northbound carriageway up to ch. 28,770 and southbound carriageway from ch. 28,790).

2.2.3 Phases 1 and Phase 2 represent the bulk of the Proposed Scheme works, with programme durations expected to be 12 to 15 months per phase, excluding design lead in times.

2.2.4 An overall construction programme of 36 months assumes inclusion of the Scottish and Southern Energy (SSE) aqueduct diversion as an advance contract. The aqueduct diversion is relatively straightforward in engineering terms; however, SSE report that the tie-in of the aqueduct diversion requires a six-week outage of the aqueduct. This outage/ tie-in would need to be programmed with SSE and the Spey Fishery Board have noted that this cannot happen between the months of October and May due to Atlantic salmon spawning periods, as discussed in **Chapter 12** of the Environmental Statement (ES).

3 Construction Activities

3.1 Plant and Equipment

3.1.1 It is assumed that the contractor will use a variety of plant and equipment for the anticipated construction activities, as set out in **Table 3-1** below:

Table 3-1: Typical Construction Plant

Activity	Plant	Quantity
1, Site Clearance	Petrol engine chain saw (sawing timber)	1
	Tracked Excavator	4
	Lorry	4
	Wheeled Excavator	4
2, Compound Construction	Wheeled Backhoe Loader	1
	Lorry	1
	Vibratory Roller	1
3, Compound Operation	Diesel Generator	1
	Dumper	2
	Wheeled Backhoe Loader	1
	Lorry	1

Activity	Plant	Quantity
4, Stock Proofing	Tractor (towing trailer)	1
	Post Rammer	1
	Hand-held circular saw	1
	Nail Gun	1
5, Pre-Earthworks Drainage	Tracked Excavator	2
	Wheeled Mobile Crane	1
6, Earthworks General	Tracked Excavator	2
	Articulated Dump Truck	3
	Dozer (41t)	2
	Lorry	4
7, Earthworks, rolling and compaction	Mini excavator with hydraulic breaker	1
	Dozer (41t)	1
	Lorry	2
8, Rock Breaking	Pulveriser mounted on excavator	2
	Tracked Excavator	2
	Dozer (41t)	2
	Dump Truck	1
9, Sub Formation	Tracked Excavator	2
	Dozer (towing roller)	2
	Articulated Dump Truck	3
	Roller (rolling fill)	2
10, Drainage	Tracked Excavator	2
	Wheeled Mobile Crane	1
11, Paving	Asphalt Paver	2
	Vibratory compactor	2
	Lorry	2
	JCB Airmaster	1
	Pneumatic Breaker	1
12, Central Reserve	Dozer (towing roller)	2
	Wheeled Excavator	4
	Hand held Circular saw	1
13, Road Marking	Lorry	2
14, Signage	Hydraulic Hammer Rig	1
	Wheeled mobile crane	1
	Gas Cutter	1
	Lorry	2
15, Existing Structure Demolition	Petrol hand held Circular Saw	1
	Pulveriser mounted on excavator	2
	Wheeled mobile telescopic crane	1
	Lorry	1

Activity	Plant	Quantity
16, Bridge Foundation Construction	Crawler Mounted Rig	1
	Tracked Excavator	1
	Concrete Pump & cement mixer truck	1
	Concrete Mixer Truck	1
	Petrol HH Circular Saw	1
	Lorry (44t)	1
	Wheeled mobile crane	1
	Wheeled mobile telescopic crane	1
	Diesel Generator	1
17, Bridge Abutment	Petrol hand held Circular Saw	1
	Wheeled mobile telescopic crane	1
	Lorry (44t)	1
	Tracked Excavator	2
	Concrete Mixer Truck & Truck Mounted Concrete Pump	1
	Poker Vibrator	1
	Vibratory Tamper	1
18, Bridge Deck	Lorry (44t)	1
	Wheeled mobile telescopic crane	2
	Concrete Mixer Truck & Truck Mounted Concrete Pump	1
	Compressor	1
	Poker Vibrator	1
	Vibratory Tamper	1

3.2 Anticipated Construction Activities

Site clearance

3.2.1 Site clearance will involve the phased removal of existing vegetation such as required tree felling and removal of hedges, bushes and undergrowth; demolition of any built features to be removed; removal and relocation of pipelines and services; and removal of existing fencing.

3.2.2 **Chapter 12** of the ES sets out a number of ecological constraints to site clearance, which the contractor will need to adhere to. These are also contained in the Schedule of Environmental Commitments (**Chapter 21**) and will inform the contract documents.

Compounds

3.2.3 The Contractor will need to create works compounds to provide site accommodation for staff, i.e. parking, offices and welfare facilities, as well as areas for storage of materials and plant. At DMRB Stage 3 it is not possible to determine where a Contractor would prefer to locate works compounds, and this is left to the Contractor to agree with local landowners and secure any relevant permissions/ consents from environmental regulators and planning authorities. This would include any work required to level areas for site compounds, install any necessary services and create access and egress points. Works compounds are not therefore considered within the Proposed Scheme under assessment.

3.2.4 It is considered that a future Contractor could re-use the site of the former Beauly to Denny Power Line (BDL) compound in Dalwhinnie. This was also the site of the former Dalwhinnie Lorry Park, located to the south of the village, next to the Loch Ericht Hotel. Discussions with the landowner have indicated there are currently no specific uses identified for this site.

Stockpiling

3.2.5 Where material is excavated but will be re-used in the creation of permanent embankments and landforms, it will be stockpiled and/ or taken off-site for storage. It should be possible to incorporate the majority of excavated material into areas of landscaping subject to material being free from significant contamination and being capable of being placed, trafficked and maintaining the required surface profile. Material which cannot be re-used on site will be sent to an appropriately licensed or registered exempt site elsewhere, or segregated and sent for recycling or recovery at a materials recovery facility.

Stock Proofing

3.2.6 Temporary stock proof fencing will be erected, prior to construction works, where considered appropriate by the Contractor. Typically, the aim is to delineate the works site and minimise risk of larger mammals (e.g. deer, sheep, horses or cattle) and people wandering into an active works area. Temporary works fencing does not present a significant barrier for smaller mammals.

3.2.7 It is anticipated that fencing will be erected following accurate ground surveys to delineate the areas required, prior to works commencing. The ground surveys will be undertaken along the line of the temporary works boundary, as shown in **Drawings 5.1** to **5.9** (in **Volume 3**). Whilst additional land may be acquired through the CPO process for mitigation purposes, the Contractor will determine the extent of temporary stock-proof fencing required.

Pre-earthworks drainage and temporary SuDS

3.2.8 A principal concern raised by SEPA through the A9 Dualling Environmental Steering Group (ESG) was ensuring the provision of sufficient land for construction stage sediment controls, i.e. temporary SuDS such as settlement lagoons. Construction stage drainage control arrangements, providing storage and attenuation for surface water run-off will be prepared by the Contractor, including a Pollution Prevention Plan, for SEPA approval under Controlled Activities Regulations.

3.2.9 Whilst the design and installation of temporary SuDS will be the responsibility of the Contractor, the Proposed Scheme includes land for temporary treatment and attenuation facilities. These areas could also be used to accommodate enhanced mechanical/ chemical settlement processes if local ground conditions are not suitable for infiltration processes.

3.2.10 Temporary SuDS are likely to be located at natural low points in the Scheme in proximity to temporary earthwork drains and at most watercourse crossings. Where space allows, temporary SuDS will be in different locations from the proposed permanent SuDS features; however, it is recognised that phased use of permanent SuDS locations may be required.

3.2.11 Construction of the temporary SuDS will likely require excavation of material, and stockpiling/ placement of fill, where SuDS basins are to be provided. In some cases where there is not sufficient space within the Proposed Scheme extents, temporary drainage tanks may be provided above ground.

3.2.12 Pre-Earthworks Drainage (PED) systems, to intercept hillside, cutting and embankment runoff are also included. These are provided as cut off drains to intercept water that is not affected by road surface runoff, does not require treatment and can be routed directly to a local watercourse within the natural catchment.

3.2.13 PED is provided predominantly by means of interceptor ditches at the top of cutting slopes and at the toe of embankment slopes to intercept sheet flows from adjacent natural catchments in advance of the embankment/ cutting slope. PED will be sized to accept flows from the contributing natural catchment and installed at a longitudinal gradient to discharge to a suitable

receiving watercourse via an outfall. The use of PED to intercept flows from embankment slopes will help prevent flooding of adjacent land.

3.2.14 PED systems which intercept runoff from outside the route corridor and runoff from road embankments, is uncontaminated and does not require SuDS treatment. PED systems may therefore discharge to the local watercourse within the same natural catchment concerned.

Earthworks

3.2.15 In the first instance topsoil will be stripped off, which would typically be undertaken in phases to a depth defined for each location. It will either be stockpiled on site or removed for storage, depending on the need for reused topsoil at any one time.

3.2.16 Embankments will then be created to specifications set out at the detailed design stage. The heights of the embankments vary across the Proposed Scheme due to the topography of the area and existing infrastructure.

3.2.17 It is assumed that the majority of the embankments along the Proposed Scheme would be constructed from fill material generated on site from cuttings within the Proposed Scheme, although a proportion of imported fill material may also be required.

3.2.18 It is considered that embankments constructed from site won material may be constructed with side slopes of between 1V:2H and 1V:3H, depending on the height of the embankments.

3.2.19 The Proposed Scheme is anticipated to cross a number of areas of peat, made ground, silt or clay. Any peat, made ground, soft clay or silt that is encountered under embankments should be excavated and replaced with a suitable engineered fill. Peat underlying embankments is typically less than 2m thick and construction directly on top of peat could result in excessive settlements.

3.2.20 Generally, when the depth of peat exceeds 2m, it may be considered more economical to pile embankments, rather than excavate and replace the material. The depth of peat is only anticipated to exceed 2m in a few isolated localities. The maximum depth encountered to date is 2.9m so it only marginally exceeds 2m depth. For the purposes of the assessments in **Chapter 10** and **Chapter 18**, it has therefore been assumed that where peat is encountered beneath infrastructure along the route, it would be treated by excavating and replacing the material.

3.2.21 Ground investigations show that occasional or frequent large boulders and cobbles are present in glacial and alluvial deposits and may need to be broken up using hydraulic breakers or be over-excavated and removed. Excavations within peat and made ground are likely to require short-term support to ensure stability.

Material transfer

3.2.22 It is anticipated that the Contractors will use 40 tonne moxy-type vehicles for earthwork material movement. The number of vehicles will be up to the contractor and the movements will depend on the phasing of works and whether they stockpile or place directly.

Rock cuts and rock breaking

3.2.23 Rock slope stability has been assessed using discontinuity data from logging of the existing rock slope exposures and from televiewer data obtained during Ground Investigations (GI). The data available at this stage is limited so further re-assessment of rock slopes is likely to be required.

3.2.24 Nonetheless, an assessment of anticipated excavation types has been carried out. Based on limited GI data, a preliminary assessment of rock excavation has indicated that 'ripping' to 'blasting' may be required. It should be noted that the close proximity of the existing A9 would restrict the use of blasting, although it may not be prohibited.

3.2.25 Between ch. 26,450 and ch. 27,250 a Phase 1 rock cutting of approximately 58,000m^3 is required. This will be undertaken adjacent to, and running parallel with, the existing A9 live carriageway. Given the proximity to the live carriageway, safety of the workforce and road users will require special consideration. The main risks to safety include:

- Falling rock (during all operations)
- Equipment encroaching into the live traffic lane.

3.2.26 It is assumed that a solid barrier will be erected next to the live running lane to prevent loose material falling onto the road. In certain locations, nets may also be used to protect the running carriageway. Reduced lane widths will provide greater clearance to excavate rock, working up from existing road level, in addition to ripping from the upper surfaces and working down. Additional land has been included at the top of the cut for a haul road.

3.2.27 If blasting were to be considered, further consultation on temporary closure of the A9 over short durations would be required. Given the close proximity to the River Truim (River Spey SAC) in this area, consultation with SNH and Spey Fishery Board would be required to agree appropriate timing given local Atlantic salmon sensitivities. Blasting could potentially harm Atlantic salmon (and other fish) and it is likely that exclusion periods will be applied.

Drainage networks

3.2.28 The road surface drainage network for the Proposed Scheme typically includes for roadside filter drains as a first level, passing to a detention basin as the second level. Where required, enhanced provision typically includes a micro-pool at the outlet and/ or a further swale (open, grassed channel) to the discharge outfall.

3.2.29 Constructing SuDS basins will require excavation, potential fill and compaction to create a suitable surface. Construction of the SuDS basins and the outfall channels should be programmed to occur early in the construction process, to allow basin landscaping to become established. Before runoff is allowed to flow through vegetated SuDS, they should be fully established by planting or temporary erosion protection installed to prevent erosion of the sides and base, or the clogging of downstream components.

Road pavement laying

3.2.30 The Proposed Scheme design assumes that a low noise running surface (LNRS) will be laid in accordance with relevant specifications and guidance.

3.2.31 Following an assessment of California Bearing Ratios (CBR) values based on available Ground Investigation data compared to the predicted design CBR (5%) and upon guidance given in *IAN 73/06 Design Guidance for Road Pavement Foundations*, two foundation design options have been assumed for this Proposed Scheme. The first assumes a 320mm layer of sub-base only to be adopted for the carriageway to be constructed over the existing A9; the second assumes a 240mm layer of subbase to be laid on 210mm of capping and this is to be adopted for the proposed new carriageway.

3.2.32 A 35mm thick LNRS surface course together with a 65mm thick binder course and 260mm base course have been adopted throughout the scheme. The total flexible asphalt thickness achieved is 360mm. This pavement construction has also been adopted for the proposed crossovers locations. It can be assumed that the road pavement will be built up in layers with the sub-base placed on top of a capping layer, followed if required by base and binder and finally the running surface. This will involve the transport of suitable material to the site.

Road markings and signage installation

3.2.33 The Proposed Scheme will require normal signage and road marking in accordance with the Traffic Signs Manual, The Traffic Signs Regulations & General Directions (2016) and Local Transport Note 1/94 *"The Design and Use of Directional Informatory Signs".* This will include directional signs, route confirmatory signs and some tourist signage. The installation of signage will require foundation excavation, concrete pour to set the signage posts and erection of the signs themselves, which will need to be delivered to the site by lorry. Road markings will be undertaken by standard road marking vehicles, prior to the carriageway under construction being re-opened to traffic.

Structures demolition and construction

Mainline Structures

3.2.34 **Table 3-2** provides an overview of the Proposed Scheme structures.

Table 3-2: Main structures Associated with the Proposed Scheme

Structure	Chainage	Proposed solution	Span	Width
S1 - Allt nan Cisteachan Underbridge	20,700	Demolition of existing concrete structure and new pre-stressed portal structure	8.0m	30.8m
S2 - Allt Uilleim Underbridge	21,400	Demolition of existing concrete structure and new pre-stressed portal structure with pedestrian access	11.0m	31.5m
S3 - Allt Bhathaich Underbridge	22,200	Demolition of existing concrete structure and new pre-stressed portal structure with local access ledge	15.5m	36.7m
S4 - Dalwhinnie Junction Underbridge	22,500	New pre-stressed portal structure with bankseat abutments	23.8m	34.8m
S5 – Sheep Creep	22,780	Proposed multi-plate corrugated steel Armco pipe	2.8m	47.0m
S6 - Aqueduct Underbridge	23,400	Demolition of existing steel composite structure and replacement steel composite structure	35.0m	27.7m
Aqueduct Realignment	23,450	Demolish existing channel and replace with same length of concrete lined channel, approximately 320m	N/A	N/A
S7 - Cuaich Estate Access Underbridge	25,900	New reinforced concrete box structure	5.3m	41.3m
S8 - Allt Cuaich Underbridge	26,000	Demolition of existing concrete structure and new pre-stressed portal structure	19.4m	33.5m
S9 - Dalannach Underpass	27,840	New reinforced concrete box structure	5.0m	27.4m
S10 - Allt Garbh Underbridge	29,200	Demolition of existing concrete structure and new pre-stressed portal structure with local access ledge	14.0m	27.8m
S11 - Allt na Ceardaich Underbridge	30,700	Extend existing 5m Span boxed structure	5.8m	5.0m
RW1 - Retaining Wall at Crubenmore Tie-in	30,570	New 200m length, varying retained height	N/A	N/A

3.2.35 Where there are existing structures, the new structure will be constructed in two halves with demolition of the old structure taking place either between construction of each half or after both are constructed. This includes bridge abutments, bridge structures and decks. This method enables A9 traffic to continue running over existing structures until the first half of the new structure is complete, and traffic can be transferred.

3.2.36 This method of phasing construction will require some form of temporary support at the structure during construction such as temporary retaining walls or soil nailing which can be removed or left in-situ once the second half of the structure is complete.

3.2.37 New structures, such as the Dalwhinnie Junction overbridge may not need to be constructed in two halves as this is not an online structure. It should be noted that the Contractor will need to assess the load capacity of structures for construction use and temporary alternatives, or suitable replacement, structures may be required.

Additional Structures (Side Roads and Access Roads/Tracks)

3.2.38 A new bridge structure will be required over the River Truim to connect the Dalwhinnie Junction to the A889, south of Dalwhinnie. The total span of this structure is 39.7m with a width of 16.2m. Several structures are required for access tracks to cross obstacles. These include a 15.0m span structure crossing the Allt Chuirn; a 15.0m span structure crossing the Allt Bhathaich; a 10.4m span structure at the Allt Garbh crossing and a 6.0m span structure at the Allt na Ceardaich.

3.2.39 There are also some NMU structures consisting of an 8.0m span structure carrying the NCN7 over an unnamed watercourse at ch. 21,150 and a small 6.0m span crossing of the Allt Coire Bhotie. Additional structures' names and locations are listed in **Table 3-3** below.

Table 3-3: Additional Structures

Structure	Proposed span	Construction type	Structure crossing	Comments
S3a - River Truim Crossing	39.7m	Two span Steel Composite	Dalwhinnie Junction/ water course	For connection between junction and A889
MS1 – Cycleway Structure	8.0m	Steel and Timber deck	NCN7/ water course	For re-routing of NCN7
MS2 - Allt Bhathaich Access Track Crossing	15.0m	Single span pre-stressed concrete portal	Access Track/ watercourse	For SuDS access and landowner access
MS3 - Allt Garbh Access Track Crossing	10.4m	Single span pre-stressed concrete portal	Access Track/ watercourse	For SuDS access and landowner access
MS4 - Allt na Ceardaich Access Track Crossing	6.0m	Single span pre-stressed concrete portal	Access Track/ watercourse	For SuDS access and landowner access
MS5 - Allt Chuirn Beauly to Denny Crossing	15.0m	Single span pre-stressed concrete portal	Access Track/ watercourse	Permanent bridge for Drumochter Estate
MS6 - Allt Coire Bhotie Beauly to Denny Crossing	6.0m	Single span pre-stressed concrete portal	Access Track/ watercourse	Permanent bridge for Drumochter Estate

Existing National Cycle Network (NCN) 7 Timber Structures

3.2.40 Several NMU structures serving the NCN7 cycle route require alteration following watercourse diversions. The existing bridge superstructures are proposed to be re-used on new abutments which clear the watercourses. A summary of these is outlined in **Table 3-4** below.

Table 3-4: NMU structures

Structure ref	Chainage	Existing span (m)	Existing width (m)	Existing abutment height (m)	Proposed abutment height (m)
NMU1	20,210	3.0	2.0	2.0	3.8
NMU2	20,355	3.35	2.0	2.0	3.3
NMU3	20,430	4.0	2.0	1.5	2.5
NMU4	20,470	4.0	2.0	2.0	3.0
NMU5	20,530	4.0	2.0	2.0	3.4

Watercourse diversions and crossings

3.2.41 These will take place in stages depending on the road construction arrangement and whether there is an on-line or off-line watercourse alignment. Construction sequencing options are included in **Figures 1 to 8** below. When referring to the watercourse construction sequencing schematics the following key has been adopted:

- Red defines works being undertaken during that stage
- Cyan denotes existing culvert and watercourse
- Blue shows the final proposed design (culverts and diversions)
- Solid lines show the permanent works
- Dashed lines show temporary works
- Traffic flow is identified by the yellow arrows

3.2.42 All watercourse crossings to be installed will require careful management on site by the Contractor and sacrificial drainage will likely be required to enable watercourses to be temporarily diverted to enable to permanent crossings to be installed. Works close to watercourses shall be carried out by the Contractor in accordance with SEPA requirements.

Site restoration (ecological and landscape mitigation works)

3.2.43 Once construction works are complete, the site will be cleared, all surplus stockpiled material will be removed and disposed of appropriately, temporary welfare cabins transported off site, and so on. The site will then be inspected prior to removing traffic management. Any areas where traffic management is required to isolate the existing carriageway or allow for site access should be installed prior to opening the carriageway to traffic.

3.2.44 The EIA assumes that all land within the temporary works boundary, which has been subject to construction disturbance will be re-instated by the contractor, unless required for specific mitigation purposes as identified on **Drawings 6.1 to 6.11,** as contained within **Volume 3** of the ES. As shown on these drawings, ecological and landscape mitigation works will be undertaken as and where required to mitigate for the impacts of the Proposed Scheme, and ensure that the predicted residual impacts are achieved.

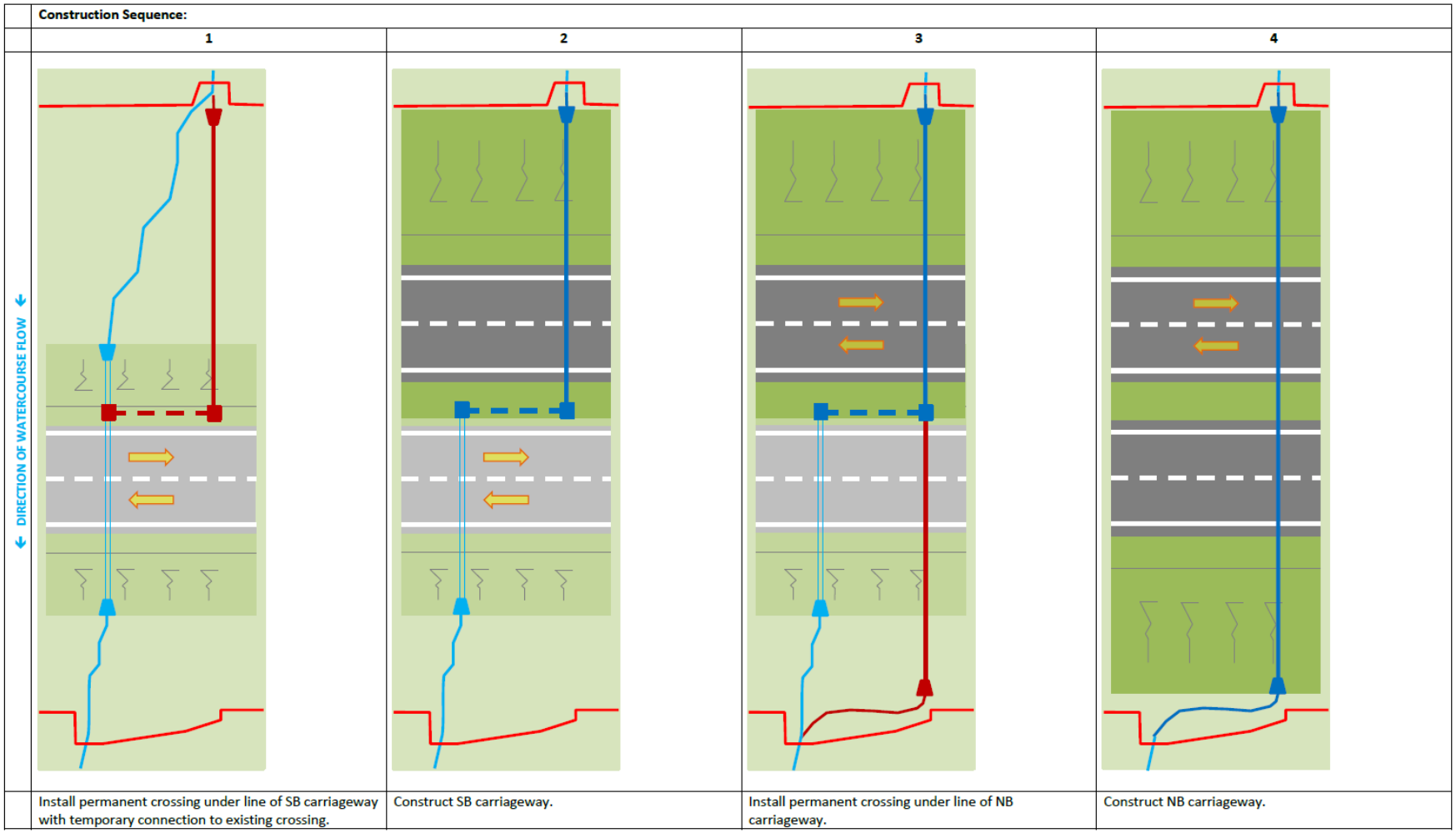

Figure 1: Widening to the east – road on embankment – off-line watercourse alignment

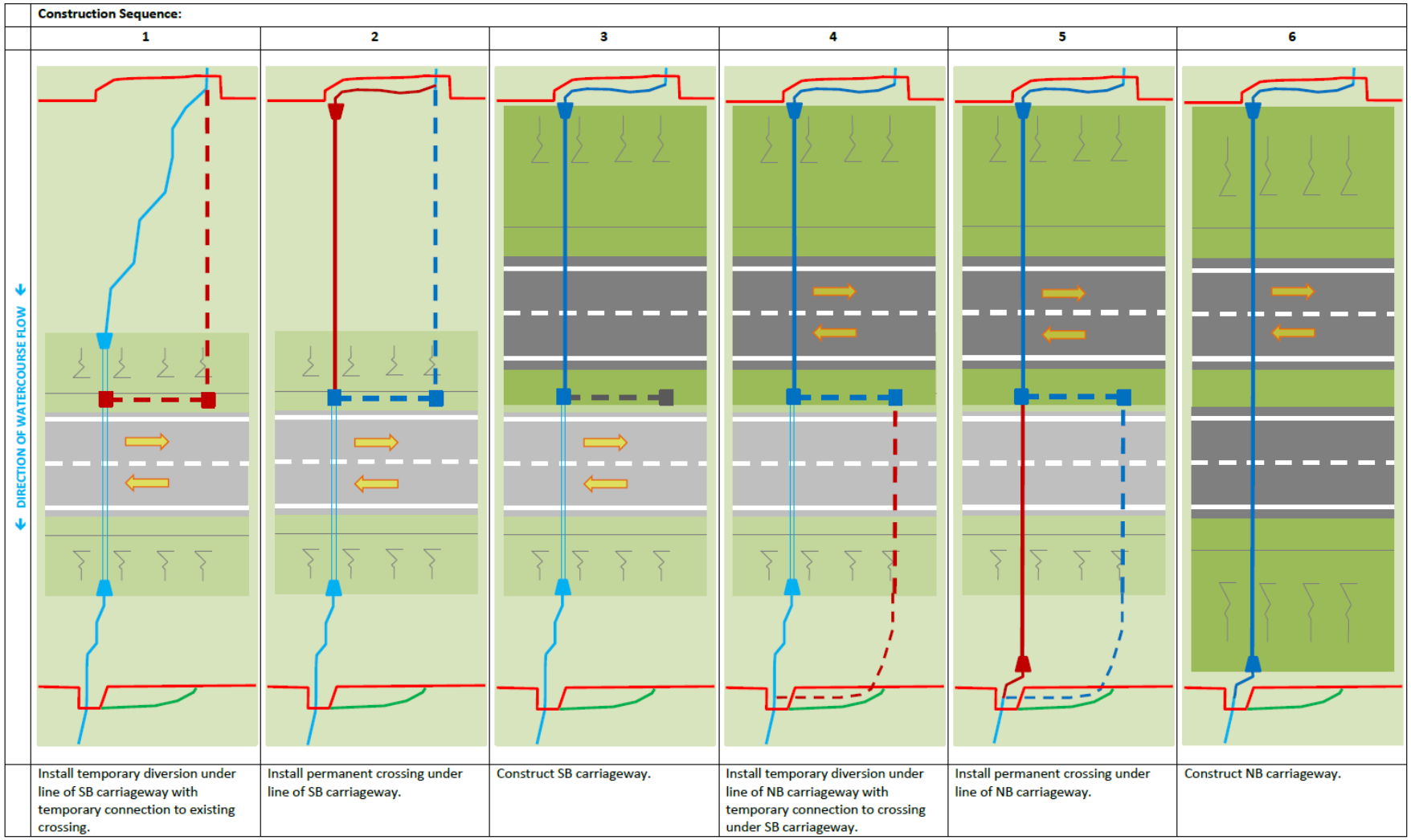

Figure 2: Widening to the east – road on embankment – on-line watercourse alignment

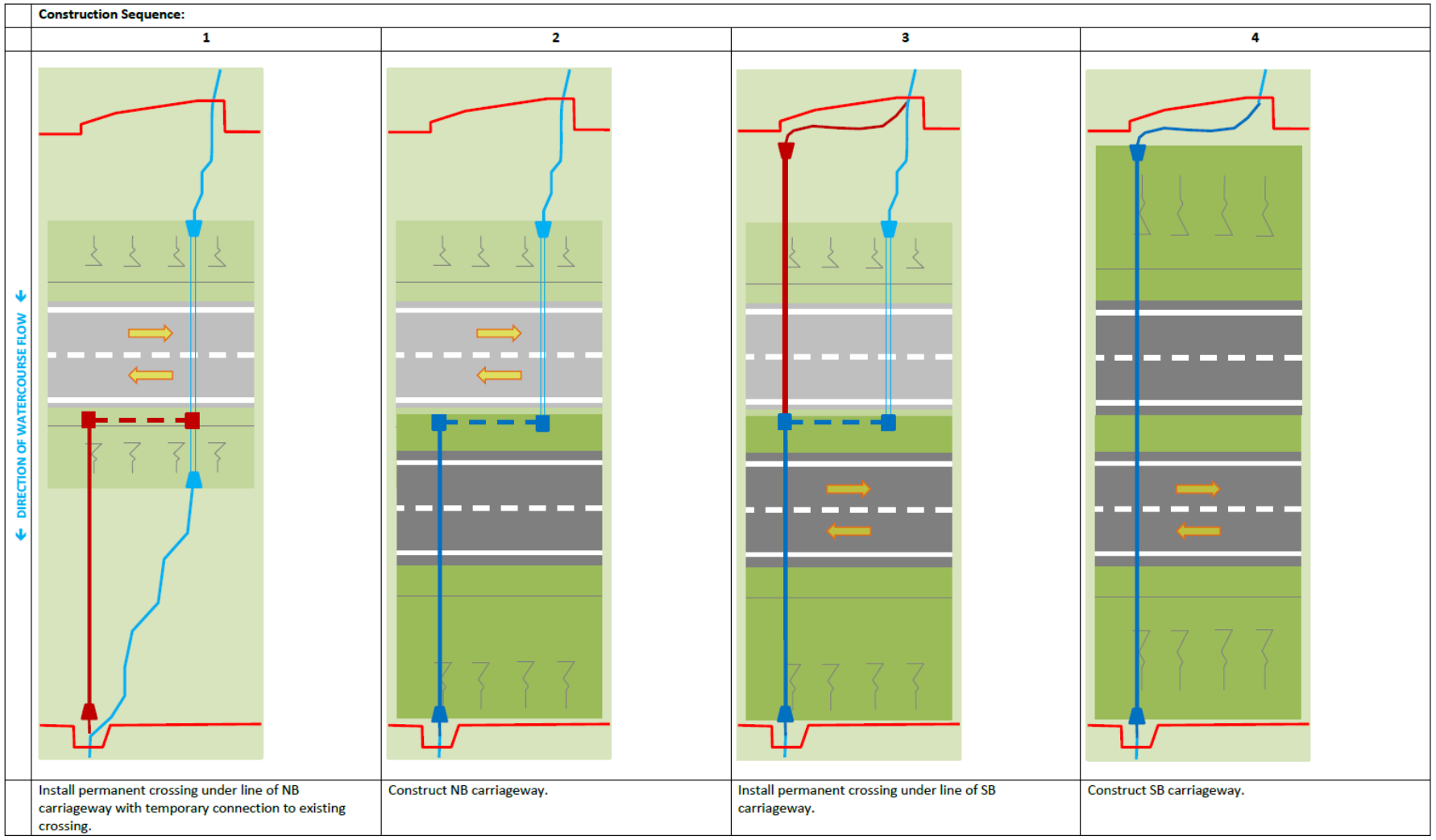

Figure 3: Widening to the west – road on embankment – off-line watercourse alignment

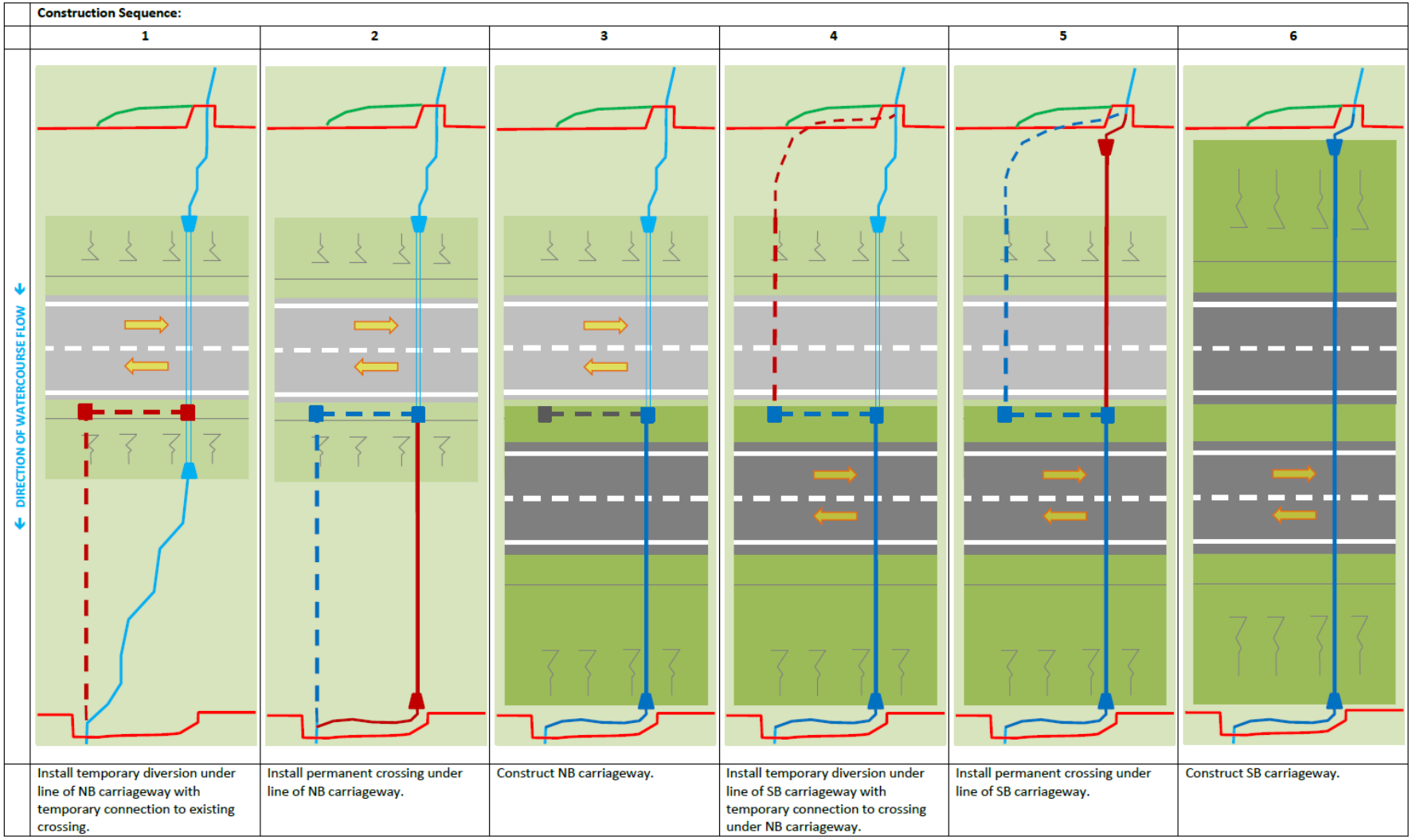

Figure 4: Widening to the west – road on embankment – on-line watercourse alignment

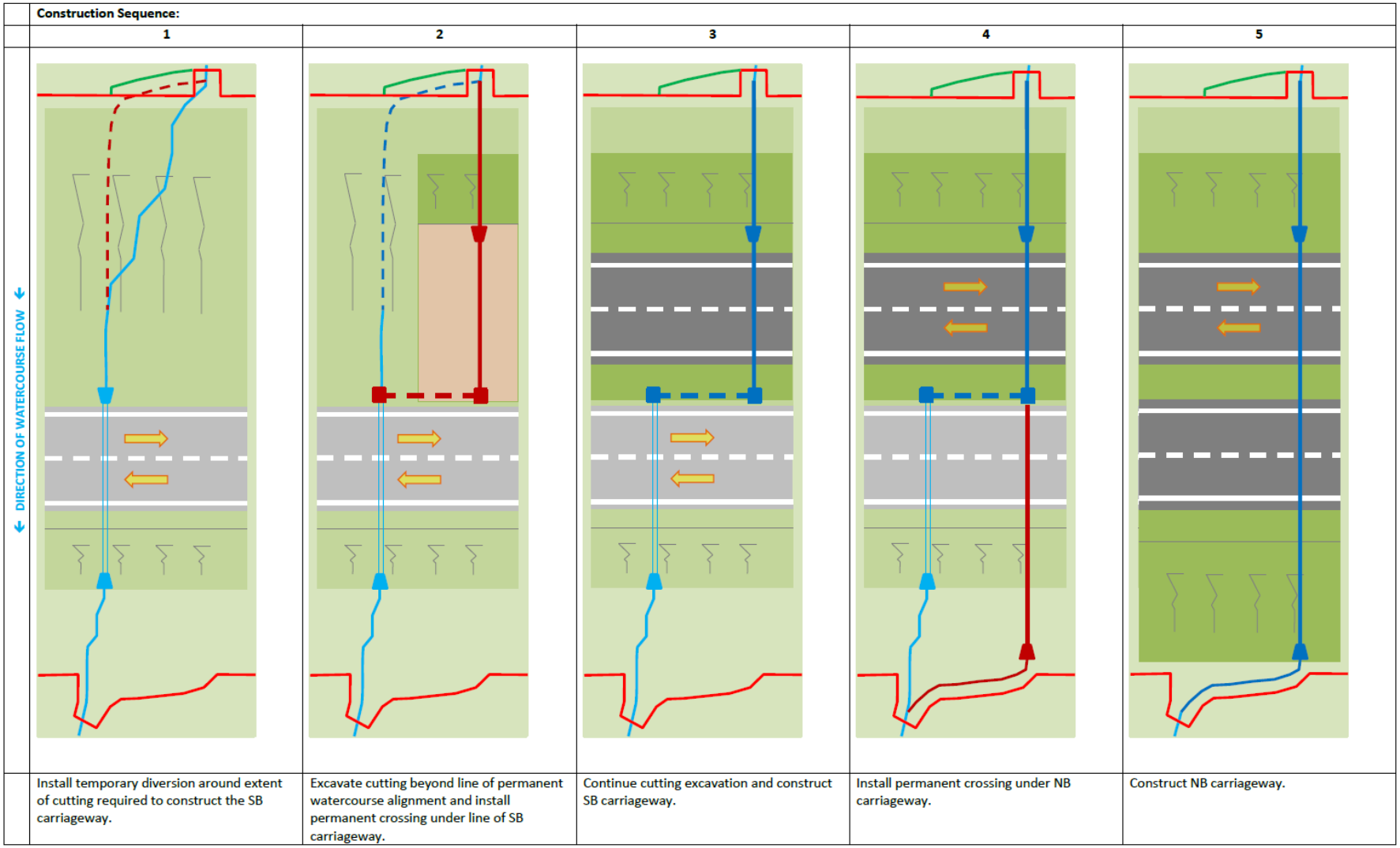

Figure 5: Widening to the east – road in cutting – off-line watercourse alignment

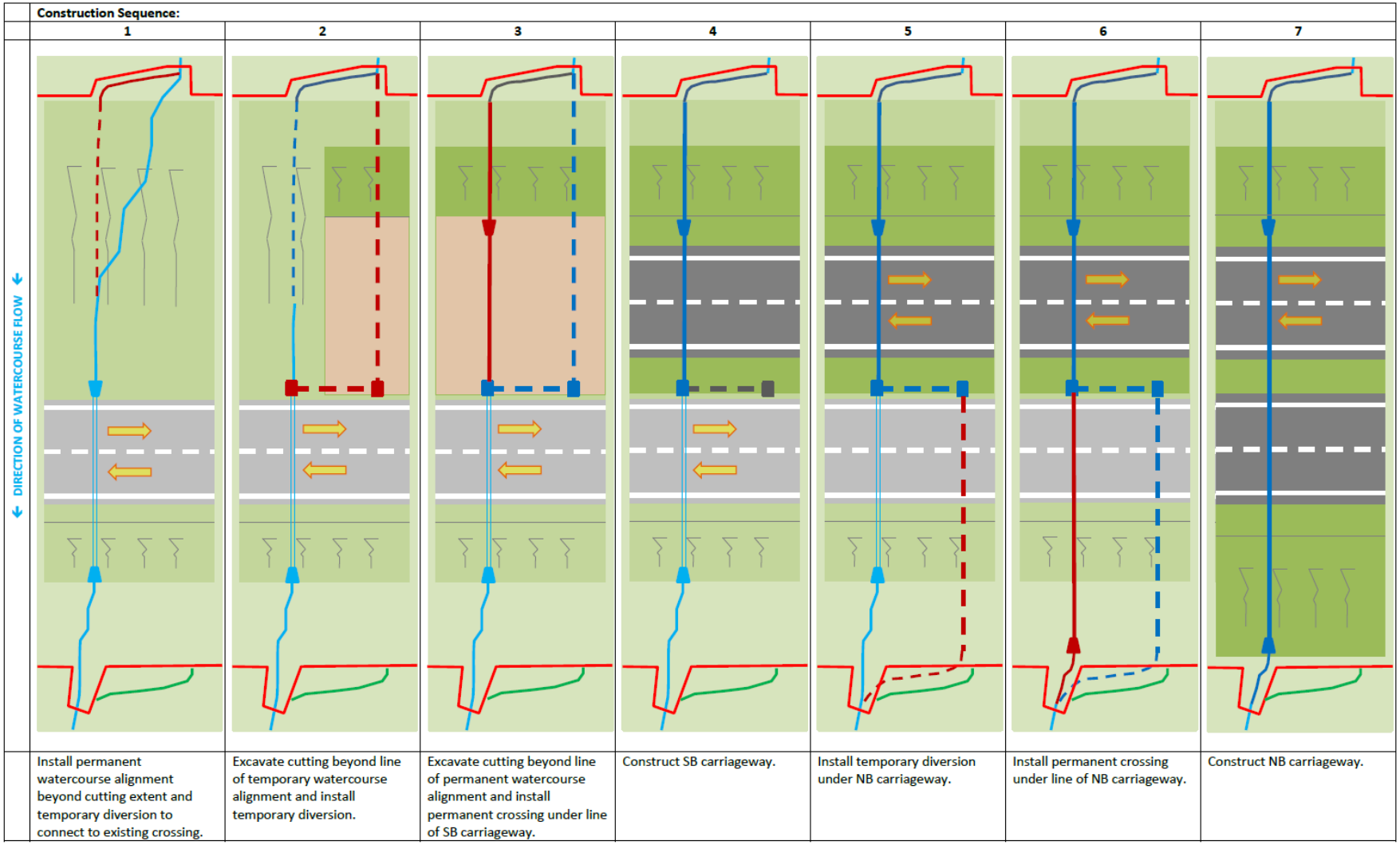

Figure 6: Widening to the east – road in cutting – on-line watercourse alignment

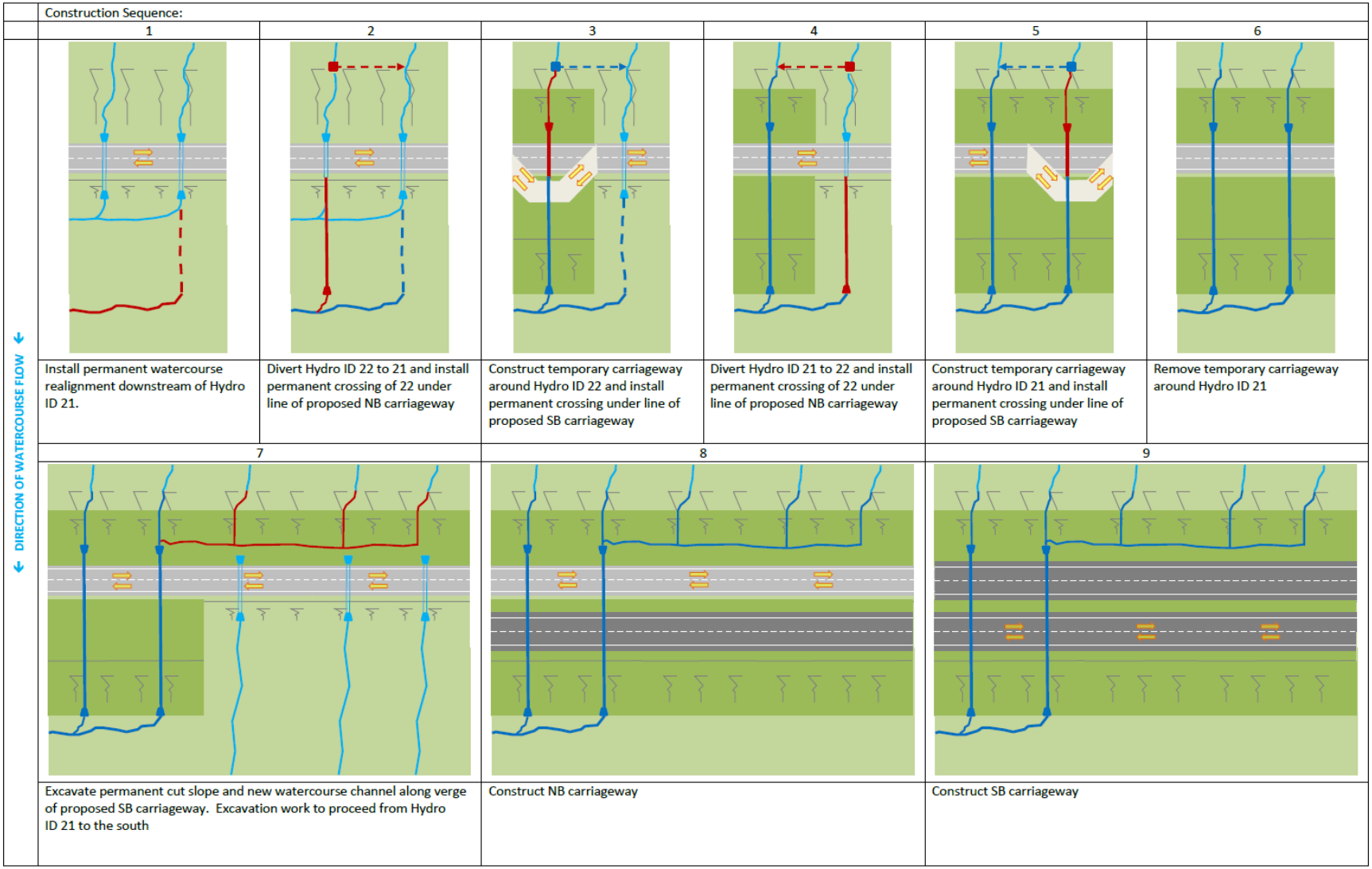

Figure 7: On-line watercourse alignment – widening to the east (road in cutting) and widening to the west (road on embankment)

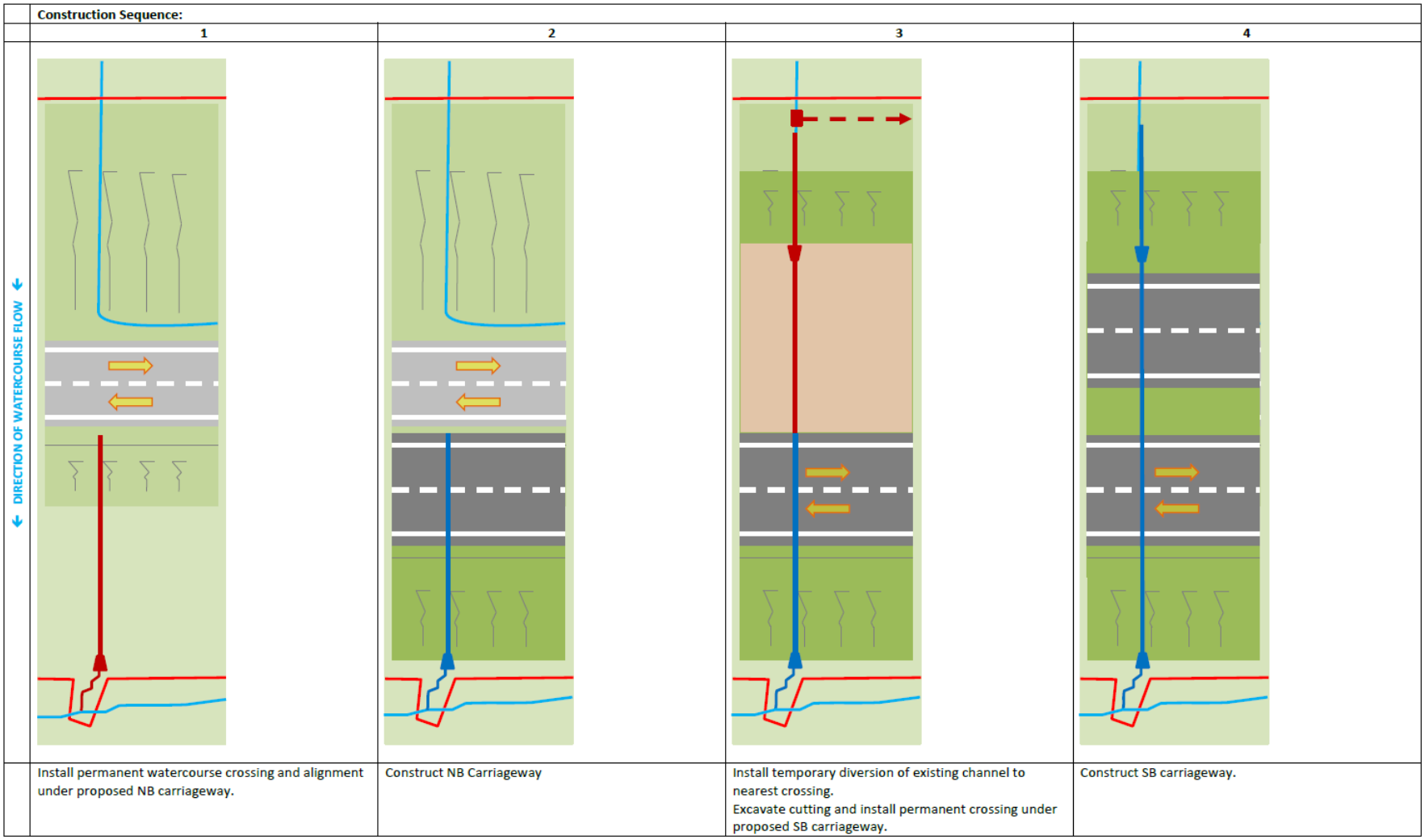

Figure 8: New watercourse crossing – widening to the east (road in cutting) and widening to the west (road on embankment)

Active Traffic Management

3.2.45 During the construction, temporary traffic management and restrictions would be needed to provide safe access and working areas for the construction workers, and to permit safe passage of vehicles and NMUs, through and adjacent to the works.

3.2.46 These traffic restrictions must be carefully planned and managed and would have to consider a variety of issues such as separating works areas from public access areas; temporary speed restrictions; the potential need for full closures for short durations, and temporary traffic signals.

3.2.47 The majority of the Proposed Scheme requires dualling to the east (southbound) side, i.e. from start ch. 20,000 to approx. ch. 28,770. From there, the dualling switches to the west (northbound) side. This minimises the number of transitions and helps keep A9 traffic flowing on the existing carriageway during the first phases of construction.

3.2.48 At the Dalwhinnie Junction it is anticipated that a temporary diversion to the west of the A9 would be constructed first and used to divert the existing A9 traffic. This would allow the mainline section between ch. 22,000 and ch. 23,000 and the compact junction to be constructed in one phase. The current A9/ A889 junction will continue to serve Dalwhinnie during this period, i.e. the existing junction will remain operational until traffic can use the new Dalwhinnie Junction.

3.2.49 It is envisaged that principal construction and traffic management phases will include:

- construction of southbound drainage networks, culverts, structures and carriageway with traffic flow on existing A9 carriageway. Construction of Dalwhinnie Junction with traffic flow on a temporary diversion of the existing A9. Temporary lane width and speed restrictions are likely to be required
- at the northern end, beyond ch. 28,770, construction of northbound drainage networks, culverts, structures and carriageway with traffic flow on existing A9. Temporary carriageway width and speed restrictions are likely to be required
- offline works including downstream SuDS features, outfalls and access tracks will not necessarily affect traffic management beyond the above areas
- following completion of new carriageways, traffic will be transferred, enabling works to progress on the existing A9 carriageway. This could potentially happen in localised phases, as new structures are completed to enable works to the existing structures
- in certain locations, works may be restricted or even excluded during particularly sensitive ecological periods, e.g. salmon migration and spawning, or breeding bird seasons, as discussed in **Chapter 12** of the ES

3.2.50 Other temporary traffic management measures may be required, including:

- works access/ egress points throughout the Proposed Scheme extents
- temporary deceleration lanes to slow traffic in proximity to active works areas
- potential need for temporary roundabouts, to facilitate plant crossings or earthworks haulage from one side to the other, to access general fill and landscape fill stockpiles

3.3 Access During Construction

Temporary access roads/ tracks

3.3.1 Various temporary access tracks may be required throughout the construction stage, for example, to enable access to install permanent drainage networks and outfalls, as well as to temporary construction SuDS and other areas. Land required for such temporary access has been considered within the temporary works boundary.

3.3.2 The Proposed Scheme incorporates approximately 8km of access roads/ tracks. The cross section proposed generally comprises 3.3m access road/ track and 2m verges. However, these have been reduced where required to minimise impact on local constraints.

Access to property and NMU routes

3.3.3 There are a 15 private access points, which serve both NMUs and local vehicles directly off the existing A9. Through consultation it is understood that some of these access points are critical to residential, commercial and general outdoor access within the study area, as discussed in more detail in **Chapters 8 and 9** of the ES. During construction, suitable access to property and NMU routes shall be maintained by the Contractor; however, during certain construction operations, temporary closures or diversions may be required.