235500 236000 236500

809000

808500

808000

PEAK OUTFLOW AT 2D DOWNSTREAM BOUNDARY = 73.04m³/s

MODEL 1D DOWNSTREAM BOUNDARY AT TRACK CULVERTS

PEAK OUTFLOW AT 1D DOWNSTREAM BOUNDARY = 6.03m³/s (CULVERT CAPACITY)

MODEL 2D DOWNSTREAM BOUNDARY AT 26mAOD CONTOUR WHICH IS THE THRESHOLD FOR THE 1:1000 YEAR FLOODPLAIN EXTENT ON SEPA FLOOD MAP

Waterfall

Sheepfold

Forestry Nurseries

Picnic Area

Drain

Talamh Carraig

Whinhill

Allt Sraw Burn

RIVER OICH

CALEDONIAN CANAL

Eilean Fada

A B C D E F G H I J K L M

0 50 100 150 200

Metres

NOTES

1. CONTOURS GENERATED FROM GETMAPPING 5m AP DERIVED DTM INTEGRATED WITH SLR TOPO SURVEY.

LEGEND

- SSE LAND OWNERSHIP BOUNDARY
- EXISTING PLATFORM BOUNDARY
- SGT4 PLATFORM EXTENT
- PROPOSED LT92 PLATFORM EXTENT
- PROPOSED LT94 PLATFORM EXTENT
- EXISTING MODELLED 1D WATERCOURSE NETWORK
- CULVERT + ID
- SITE BUILDING
- 1D DOWNSTREAM MODEL BOUNDARY LOCATION
- MODEL 2D DOWNSTREAM BOUNDARY
- 1m CONTOUR

FLOOD DEPTH (m) FOR 1000YR FLOOD EVENT

< 0.005 not displayed (water depth lost to natural processes)	0.5 - 1
0.005 - 0.05	1 - 1.5
0.05 - 0.1	1.5 - 2
0.1 - 0.15	2 - 2.5
0.15 - 0.2	2.5 - 3
0.2 - 0.25	3 - 3.5
0.25 - 0.5	3.5 - 4
	4 - 4.5

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FORT AUGUSTUS FRA

HYDRAULIC MODELLING REPORT

BASELINE MODEL OUTPUTS 1:1000 YEAR EVENT

APP-B-4c

Scale 1:5,000 @ A3

Date NOVEMBER 2017

00660.00047.18.APP-B-4c.0 Baseline Model Outputs 1000

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10m STANDOFF FROM L94 PLATFORM TO DIVERTED WATERCOURSE 3. STANDOFF DISTANCE LIKELY TO BE INCREASED TO 15-20m

NEW DIVERTED WATERCOURSE 3 WITH 1m HIGH EMBANKMENT TO PROTECT LT94 PLATFORM

PROPOSED UPPER LT94 PLATFORM ELEVATION = c. 42mAOD (TO TIE INTO EXISTING SUBSTATION)

NEW INTERCEPTION DRAIN (WATERCOURSE 4) PROTECTS THE EXISTING SITE (INCLUDES 1m HIGH EMBANKMENT)

PROPOSED UPPER LT92 PLATFORM ELEVATION = c. 42mAOD (TO TIE INTO EXISTING SUBSTATION PLATFORM)

INCREASED FLOODWATERS IN THIS DIRECTION AS A RESULT OF DIVERSION

INCREASED FLOODPLAIN EXTENT

INCREASED FLOODPLAIN EXTENT

PEAK OUTFLOW AT 2D DOWNSTREAM BOUNDARY = 50.66m³/s

MODEL 1D DOWNSTREAM BOUNDARY AT TRACK CULVERTS

PEAK OUTFLOW AT 1D DOWNSTREAM BOUNDARY = 6.03m³/s (CULVERT CAPACITY)

PROPOSED LOWER LT92 PLATFORM ELEVATION = 39.8mAOD (TO TIE INTO SGT4 PLATFORM)

PROPOSED LOWER LT94 PLATFORM ELEVATION = 39.8mAOD (TO TIE INTO SGT4 PLATFORM)

MAXIMUM FLOOD ELEVATION = 38.47m (5mm DEPTH OF FLOODWATER)

MODEL 2D DOWNSTREAM BOUNDARY AT 26mAOD CONTOUR WHICH IS THE THRESHOLD FOR THE 1:1000 YEAR FLOODPLAIN EXTENT ON SEPA FLOOD MAP

Waterfall
Forestry Nurseries
Picnic Area
Sheepfold
El Sub Sta
Lundie Cottage
Talamh Carraig
Drain
RIVER OICH
CALEDONIAN CANAL
Allt Eilean Fhada
Aqueduct

NOTES

1. CONTOURS GENERATED FROM GETMAPPING 5m AP DERIVED DTM INTEGRATED WITH SLR TOPO SURVEY.

LEGEND

- SSE LAND OWNERSHIP BOUNDARY
- EXISTING PLATFORM BOUNDARY
- SGT4 PLATFORM EXTENT
- PROPOSED LT92 PLATFORM EXTENT
- PROPOSED LT94 PLATFORM EXTENT
- CULVERT + ID
- EXISTING MODELLED 1D WATERCOURSE NETWORK
- PROPOSED NEW 1D WATERCOURSE NETWORK
- SITE BUILDING
- 1D DOWNSTREAM MODEL BOUNDARY LOCATION
- MODEL 2D DOWNSTREAM BOUNDARY
- 1m CONTOUR

FLOOD DEPTH (m) FOR 200YR FLOOD EVENT

- < 0.005 not displayed (water depth lost to natural processes)
- 0.005 - 0.05
- 0.05 - 0.1
- 0.1 - 0.15
- 0.15 - 0.2
- 0.2 - 0.25
- 0.25 - 0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- 2 - 2.5
- 2.5 - 3
- 3 - 3.5
- 3.5 - 4
- 4 - 4.5

0 50 100 150 200 Metres

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HYDRAULIC MODELLING REPORT

DEVELOPMENT MODEL OUTPUTS 1:200 YEAR EVENT

APP-B-5a

Scale 1:5,000 @ A3

Date NOVEMBER 2017

00660.00047.18.APP-B-5a.1 Development Model Outputs 200

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10m STANDOFF FROM L94 PLATFORM TO DIVERTED WATERCOURSE 3. STANDOFF DISTANCE LIKELY TO BE INCREASED TO 15-20m

NEW DIVERTED WATERCOURSE 3 WITH 1m HIGH EMBANKMENT TO PROTECT LT94 PLATFORM

PROPOSED UPPER LT94 PLATFORM ELEVATION = c. 42mAOD (TO TIE INTO EXISTING SUBSTATION)

NEW INTERCEPTION DRAIN (WATERCOURSE 4) PROTECTS THE EXISTING SITE (INCLUDES 1m HIGH EMBANKMENT)

PROPOSED UPPER LT92 PLATFORM ELEVATION = c. 42mAOD (TO TIE INTO EXISTING SUBSTATION PLATFORM)

INCREASED FLOODPLAIN EXTENT

INCREASED FLOODWATERS IN THIS DIRECTION AS A RESULT OF DIVERSION

INCREASED FLOODPLAIN EXTENT

PEAK OUTFLOW AT 2D DOWNSTREAM BOUNDARY = 62.87m³/s

MODEL 1D DOWNSTREAM BOUNDARY AT TRACK CULVERTS

PEAK OUTFLOW AT 1D DOWNSTREAM BOUNDARY = 6.03m³/s (CULVERT CAPACITY)

PROPOSED LOWER LT92 PLATFORM ELEVATION = 39.8mAOD (TO TIE INTO SGT4 PLATFORM)

PROPOSED LOWER LT94 PLATFORM ELEVATION = 39.8mAOD (TO TIE INTO SGT4 PLATFORM)

MAXIMUM FLOOD ELEVATION = 38.51m (6mm DEPTH OF FLOODWATER)

MODEL 2D DOWNSTREAM BOUNDARY AT 26mAOD CONTOUR WHICH IS THE THRESHOLD FOR THE 1:1000 YEAR FLOODPLAIN EXTENT ON SEPA FLOOD MAP

Waterfall
Forestry Nurseries
Picnic Area
Sheepfold
El Sub Sta
Lundie Cottage
Talamh Carraig
Drain
Stream
River Oich
Caledonian Canal
Allt Eilean Fhada

0 50 100 150 200
Metres

NOTES

1. CONTOURS GENERATED FROM GETMAPPING 5m AP DERIVED DTM INTEGRATED WITH SLR TOPO SURVEY.

LEGEND

- SSE LAND OWNERSHIP BOUNDARY
- EXISTING PLATFORM BOUNDARY
- SGT4 PLATFORM EXTENT
- PROPOSED LT92 PLATFORM EXTENT
- PROPOSED LT94 PLATFORM EXTENT
- CULVERT + ID
- EXISTING MODELLED 1D WATERCOURSE NETWORK
- PROPOSED NEW 1D WATERCOURSE NETWORK
- SITE BUILDING
- 1D DOWNSTREAM MODEL BOUNDARY LOCATION
- MODEL 2D DOWNSTREAM BOUNDARY
- 1m CONTOUR

FLOOD DEPTH (m) FOR 200YR + 20% CC FLOOD EVENT 171116_06600_00047_Catr...

- < 0.005 not displayed (water depth lost to natural processes)
- 0.005 - 0.05
- 0.05 - 0.1
- 0.1 - 0.15
- 0.15 - 0.2
- 0.2 - 0.25
- 0.25 - 0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- 2 - 2.5
- 2.5 - 3
- 3 - 3.5
- 3.5 - 4
- 4 - 4.5

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HYDRAULIC MODELLING REPORT

DEVELOPMENT MODEL OUTPUTS 1:200 + 20% CC YEAR EVENT

APP-B-5b

Scale 1:5,000 @ A3

Date NOVEMBER 2017

00660.00047.18.APP-B-5b.1 Development Model Outputs 200CC

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809000 808500 808000

10m STANDOFF FROM L94 PLATFORM TO DIVERTED WATERCOURSE 3. STANDOFF DISTANCE LIKELY TO BE INCREASED TO 15-20m

NEW DIVERTED WATERCOURSE 3 WITH 1m HIGH EMBANKMENT TO PROTECT LT94 PLATFORM

PROPOSED UPPER LT94 PLATFORM ELEVATION = c. 42mAOD (TO TIE INTO EXISTING SUBSTATION)

NEW INTERCEPTION DRAIN (WATERCOURSE 4) PROTECTS THE EXISTING SITE (INCLUDES 1m HIGH EMBANKMENT)

PROPOSED UPPER LT92 PLATFORM ELEVATION = c. 42mAOD (TO TIE INTO EXISTING SUBSTATION PLATFORM)

PROPOSED LOWER LT92 PLATFORM ELEVATION = 39.8mAOD (TO TIE INTO SGT4 PLATFORM)

PROPOSED LOWER LT94 PLATFORM ELEVATION = 39.8mAOD (TO TIE INTO SGT4 PLATFORM)

MAXIMUM FLOOD ELEVATION = 38.53m (27mm DEPTH OF FLOODWATER)

INCREASED FLOODWATERS IN THIS DIRECTION AS A RESULT OF DIVERSION

INCREASED FLOODPLAIN EXTENT

INCREASED FLOODPLAIN EXTENT

PEAK OUTFLOW AT 2D DOWNSTREAM BOUNDARY = 80.57m³/s

MODEL 1D DOWNSTREAM BOUNDARY AT TRACK CULVERTS

PEAK OUTFLOW AT 1D DOWNSTREAM BOUNDARY = 6.03m³/s (CULVERT CAPACITY)

MODEL 2D DOWNSTREAM BOUNDARY AT 26mAOD CONTOUR WHICH IS THE THRESHOLD FOR THE 1:1000 YEAR FLOODPLAIN EXTENT ON SEPA FLOOD MAP

L M (NEW) J D (NEW) I

Waterfall Weir Sheepfold Forestry Nurseries Picnic Area Path Drain El Sub Sta Lundie Cottage Talamh Carraig Eilean Floda CALEDONIAN CANAL RIVER OICH Track Allt

48m 43 39m 29m 41m 44m

N

0 50 100 150 200 Metres

NOTES

1. CONTOURS GENERATED FROM GETMAPPING 5m AP DERIVED DTM INTEGRATED WITH SLR TOPO SURVEY.

LEGEND

- SSE LAND OWNERSHIP BOUNDARY
- EXISTING PLATFORM BOUNDARY
- SGT4 PLATFORM EXTENT
- PROPOSED LT92 PLATFORM EXTENT
- PROPOSED LT94 PLATFORM EXTENT
- CULVERT + ID
- EXISTING MODELLED 1D WATERCOURSE NETWORK
- PROPOSED NEW 1D WATERCOURSE NETWORK
- SITE BUILDING
- 1D DOWNSTREAM MODEL BOUNDARY LOCATION
- MODEL 2D DOWNSTREAM BOUNDARY
- 171116_06600_00047_Catr...

FLOOD DEPTH (m) FOR 1000YR FLOOD EVENT

- < 0.005 not displayed (water depth lost to natural processes)
- 0.005 - 0.05
- 0.05 - 0.1
- 0.1 - 0.15
- 0.15 - 0.2
- 0.2 - 0.25
- 0.25 - 0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- 2 - 2.5
- 2.5 - 3
- 3 - 3.5
- 3.5 - 4
- 4 - 4.5

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HYDRAULIC MODELLING REPORT

DEVELOPMENT MODEL OUTPUTS 1:1000 YEAR EVENT

APP-B-5c

Scale 1:5,000 @ A3

Date NOVEMBER 2017

00660.00047.18.APP-B-5c.1 Development Model Outputs 1000

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FLOOD DEPTH (m) FOR 200YR FLOOD EVENT

- < 0.005 not displayed (water depth lost to natural processes)
- 0.005 - 0.05
- 0.05 - 0.1
- 0.1 - 0.15
- 0.15 - 0.2
- 0.2 - 0.25
- 0.25 - 0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- 2 - 2.5
- 2.5 - 3
- 3 - 3.5
- 3.5 - 4
- 4 - 4.5

10m STANDOFF FROM L94 PLATFORM TO DIVERTED WATERCOURSE 3. STANDOFF DISTANCE LIKELY TO BE INCREASED TO 15-20m

PROPOSED UPPER LT94 PLATFORM ELEVATION = c. 42mAOD (TO TIE INTO EXISTING SUBSTATION)

PROPOSED UPPER LT92 PLATFORM ELEVATION = c. 42mAOD (TO TIE INTO EXISTING SUBSTATION PLATFORM)

HYDRAULIC CONTROL WITHIN WATERCOURSE 2 (i.e. WEIR OR SIMILAR) TO 'BACK UP' FLOW AND RETAIN FLOOD WATERS WITHIN PROPOSED STORAGE AREA

FLOOD DEFLECTION BUND SET HIGHER THAN DESIGN 39.2mAOD ELEVATION TO DIVERT FLOODWATER TO STORAGE AREA

BUND DEFLECTS FLOODWATERS SOUTH INTO STORAGE AREA

HYDRAULIC CONTROL WITHIN FLOOD STORAGE BUND (i.e. HYDRO-BRAKE OR SIMILAR) TO RESTRICT WATERCOURSE 3 OUT FLOW

PROPOSED LOWER LT92 PLATFORM ELEVATION = 39.8mAOD (TO TIE INTO SGT4 PLATFORM)

PROPOSED LOWER LT94 PLATFORM ELEVATION = 39.8mAOD (TO TIE INTO SGT4 PLATFORM)

LT92 AND LT94 SET TO 39.8mAOD (i.e. 600mm ABOVE FLOOD STORAGE LEVEL THRESHOLD)

HYDRAULIC CONTROL (i.e. LATERAL WEIR TO CAPTURE FLOOD WATERS IN WATERCOURSE 1 FOR RETENTION IN PROPOSED STORAGE AREA

RESIDUAL FLOOD STORAGE CAPACITY AT BUND ELEVATION 39.2mAOD = c. 110,000m^3 STORAGE REQUIRED TO OFFSET INCREASED CUMULATIVE OUTFLOW FOR 0.5% AEP EVENT = 45,000^3

BUND TIES INTO 39.2 mAOD CONTOUR

FLOOD COMPENSATION BUND SET TO 39.2mAOD (SUBJECT TO REFINEMENT)

Waterfall
Forestry Nurseries
Picnic Area
Sheepfold
El Sub Sta
Lundie Cottage
Talamh Carraig
Drain
River Oich
Caledonian Canal
48m
39m
44m
29m

L M (NEW) J D (NEW) A B C I

0 50 100 150 200
Metres

NOTES

1. CONTOURS GENERATED FROM GETMAPPING 5m AP DERIVED DTM INTEGRATED WITH SLR TOPO SURVEY.
2. FLOODPLAIN OUTLINE IS THE SAME AS DRAWING NUMBER APP-B-5a FOR 0.5% AEP EVENT. COMPENSATION SCHEME IS FOR INFORMATION ONLY.
3. MINIMUM PROPOSED PLATFORM ELEVATIONS ARE PROVISIONAL AND SUBJECT TO REFINEMENT AT THE DETAILED DESIGN STAGE

LEGEND

- SSE LAND OWNERSHIP BOUNDARY
- EXISTING PLATFORM BOUNDARY
- SGT4 PLATFORM EXTENT
- PROPOSED LT92 PLATFORM EXTENT
- PROPOSED LT94 PLATFORM EXTENT
- CULVERT + ID
- EXISTING MODELLED 1D WATERCOURSE NETWORK
- PROPOSED NEW 1D WATERCOURSE NETWORK
- PROPOSED HYDRAULIC CONTROL
- PROPOSED FLOOD COMPENSATION BUND (ENGINEERED EARTH) AT 39.2mAOD
- PROPOSED FLOOD COMPENSATION STORAGE AREA AT 39.2mAOD
- MODEL 2D DOWNSTREAM BOUNDARY
- SITE BUILDING
- 1D DOWNSTREAM MODEL BOUNDARY LOCATION
- 1m CONTOUR

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HYDRAULIC MODELLING REPORT

CONCEPTUAL FLOOD COMPENSATION SCHEME

APP-B-6

Scale 1:5,000 @ A3

Date NOVEMBER 2017

00660.00047.18.APP-B-6.1 Conceptual Flood Compensation Scheme

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