

6) The background hydrocarbon odour normally observed near stockpile 8 (BH3A) was no longer observed suggesting the bacterial spray treatment is lowering concentrations of hydrocarbon impacted clays.

Sampling and/or testing undertaken or observed

No samples were obtained

Other comments and observations (ecological concerns? Water observations? Anticipated issues?)

A suitable plan will need to be configured in advance of removing the Made Ground/ Alluvium from the remaining WGUC, there is limited capacity in the lagoon and the stockpiling of this material without liner protection may present a risk to controlled waters.

Site Observation Report Form



Correspondence requested by FMC

FMC requested chemical and geotechnical data for stockpile 17

Correspondence received from

Site Observation Report Form



SITE:	Southall Western Access	JOB NO:	CG/28308
Date and time:	06/02/2018 09:15 to 17:30	VISIT BY:	ALC/CRG
WEATHER:			
Time	Description		
08:30 to 16:30	Dry, cold and sunny with light winds		
SVR 93			

Site operations

Work in hand	FMC filling 6N -IBAA and 2C in EYB Removal of loose capping material and benching/filling above formation between EYB pile mat and haul road TAG continue installation of steel/ shuttering in WGUC wingwalls
---------------------	---

Observations

- 1) Imported 6N-IBAA supplied by Day Aggregates stockpiled adjacent to the EYB pile mat being placed and compacted behind EYB abutment and wingwalls at shallow 150mm layers and roller compacted with >15 passes in exceedance with the earthworks specification.
- 2) The EYB temporary ramp of 2C, was excavated and temporarily stockpiled on top of the EYB fill. Loose material excavated at the toe of the 2C fill and proof rolled. CGL confirmed the formation to be fine grained Lynch Hill Gravel (soft to firm slightly gravelly clay) and carried out hand shear vane testing (see test results). On advice of CGL, Cognition cement stabilised and compacted the top 300mm of the formation. 4 layers of Class2C placed and compacted on top.
1st 1m high bench within Made Ground, firm gravelly clay with concrete and brick cobbles, above the Lynch Hill Gravel, was levelled and proof rolled. Some tree stumps were exposed close to Stockpile 1 and were removed.
Hand shear vane tests undertaken by CGL in the Made Ground (pre rolled). No hand shear van tests undertaken in formation following rolling due to being too gravelly however, by visual inspection CGL verified the formation was satisfactory with no soft spots and did not require lime/cement stabilising.
- 3) A full round of weekly ground and surface water monitoring (round 22) was completed. Groundwater samples purged from BH4B, adjacent to the WGUC, had a moderate hydrocarbon odour.
- 4) 6F1 and Type 1 scraped from the pump lane haul road to the northeast of the site has been stockpiled with the Made Ground in the Flood Compensation Area and material scraped from the haul road in the EYB area and MG arisings from the substation foundation slab excavation have been stockpiled just north of the zone 7 embankment. FMC intend on using this combined material as general fill and suitable classification/ testing will need to be agreed".

Sampling and/or testing undertaken or observed

Hand shear vanes tests:-

- 1) Formation at toe of 2C fill in fine grained Lynch Hill Gravel - 22kPa, 44kPa, 44kPa and 32kPa.
- 2) 1st bench in the Made Ground (pre rolled) 40kPa, 30kPa, 34kPa, 52kPa, 56kPa and 40kPa. No hand shear vane tests undertaken post proof rolling as material was too gravelly.

Other comments and observations (ecological concerns? Water observations? Anticipated issues?)

It is intended the Class 6F5 from the haul roads and GUC west pile mat will be reused as general Class 1 fill and therefore this material will be re-classified as Class 1. Appropriate supporting test data to be obtained from Cognition.

The classification of the material being excavated from the Flood Compensation area should be confirmed by Cognition's testing, as some arisings appear to be very gravelly and more like a Class 1 as opposed to 2C.

Correspondence requested by FMC

FMC requested chemical test results of River Crane silt arisings for off site disposal. ALC (CGL) forwarded test results to Mo (FMC) on 07/02/18 advising a WAC testing will need to be undertaken to inform disposal options and receiving facilities.

CGL to confirm if material from Stockpile 16 requires lime/cement stabilisation for reuse. *Post note (07/02/18) Cognition to undertake a lime/cement stabilisation site trial and acceptability testing.*

Correspondence received from

None

Site Observation Report Form



SITE:	Southall Western Access	JOB NO:	CG/28308
Date and time:	07/02/2018 08:00 to 17:30	VISIT BY:	ARA
WEATHER:			
Time	Description		
08:00 to 17:30	Dry, cold and sunny with light winds		
SVR 94			

Site operations

Work in hand

- IBAA being brought into site (3,000 tonnes) today for fill behind WGUC.
- FMC excavating haul road in Zone 4B, movement of haul road 6F5 (Class 1) materials to Zone 4A EYB
- Preparation of formation level (Made Ground) by levelling and localised cement stabilisation EYB
- Placement of haul road 6F5 (Class 1) above formation in Zone 4A EYB
- Placement of stockpile materials from lagoon above 6F5 (Class 1) and stabilising with 3% cement to undertake stabilisation trial EYB

Observations

- 1) Imported 6N-IBAA supplied by Day Aggregates stockpiled adjacent to the EYB pile mat being placed and compacted behind GUC abutment and wingwalls at shallow 150mm layers and roller compacted with >10 passes.
- 2) CGL inspected Made Ground formation EYB. Hand shear vane tests undertaken by CGL in the Made Ground (pre-rolled). No hand shear van tests undertaken in formation following rolling due to high gravel content.
- 3) Localised section of Made Ground softened from previous trafficking activity. On advice of CGL, Cognition locally cement stabilised and compacted the top 300mm of the formation. 1 layer of 6F5 (class 1) placed on top.
- 4) 6F5 scraped from the EYB haul road has been excavated, with FMC implementing use of this material as general fill. Suitable classification/testing to be undertaken to confirm suitability.
- 5) 2 layers of 6F5 (Class 1) from haul road placed above Made Ground formation EYB.
- 6) Stockpiled material brought in from lagoon to fill above 6F5. A 250mm layer was placed and treated with 3% cement. CGL was informed at the start of the day that Stockpile 16 would be used. However, following placement and treatment of this material, CGL observed that Stockpile 4 material had been used. Cognition noted that this was potentially a miscommunication of stockpile numbering. CGL advised Cognition that

stockpile 4 material had not been approved as general fill due to being chemically unsuitable for use. CGL discussed potential solutions with Cognition to include either removal of stockpile 4 material, and replacement with Stockpile 16 material, or provision of chemical testing data that demonstrates suitability for use.

7) CGL highlighted to FMC and Cognition the importance of hand picking large unsuitable objects from general fill materials placed within the embankment.

Sampling and/or testing undertaken or observed

Hand shear vanes tests:-

- 1) Formation in Made Ground at toe of 2C – 53, 60, 44, 43, 42, 42, 59, 52
- 2) Stockpile 4 material placed above 6F5 (pre-rolled and pre-cemented) - 30, 30, 40, 42, 42, 44, 36, 50, 62, 61.
- 3) DCP test undertaken on 2C fill

Other comments and observations (ecological concerns? Water observations? Anticipated issues?)

Class 6F5 from the haul roads and GUC west pile mat has been reused as general Class 1 fill and therefore this material will be re-classified as Class 1. Appropriate supporting test data to be obtained by Cognition. CGL has obtained 5 samples of this material to aid classification.

CGL recovered 9 samples of 6N IBAA material for classification.

The classification of the material being excavated from the Flood Compensation Area should be confirmed by Cognition's testing, as some arisings appear to be very gravelly and more like a Class 1 as opposed to 2C.

Correspondence requested by FMC

Discussions regarding use of stockpile 4 material

Correspondence received from

None

Site Observation Report Form



SITE:	Southall Western Access	JOB NO:	CG/28308
Date and time:	08/02/2018 08:10 to 17:45	VISIT BY:	ARA
WEATHER:			
Time	Description		
08:00 to 17:30	Dry, cold and cloudy with light winds		
SVR 95			

Site operations

Work in hand

- IBAA being continuing to be brought into site today for fill behind WGUC.
- Removal of stockpile 4 materials (2 layers) from previous day
- FMC excavating haul road in Zone 4B, movement of haul road 6F5 (Class 1) materials to Zone 4A EYB
- Preparation of formation level (Made Ground) in area of EYB by levelling and localised cement stabilisation
- Placement of haul road 6F5 (Class 1) above formation in Zone 4A EYB
- Excavation of topsoil/organic materials and tree stumps/logs from north of Zone 4A
- Placement of stockpile 16 materials from lagoon above 6F5 (Class 1) and stabilising with 3% cement to undertake stabilisation trial in area EYB

Observations

- 1) Imported 6N-IBAA supplied by Day Aggregates stockpiled adjacent to the EYB pile mat being placed and compacted behind GUC abutment and wingwalls at shallow 150mm layers and roller compacted with >10 passes.
- 2) CGL arrived on-site with Cognition removing stockpile 4 material (placed yesterday). FMC spoke with Cognition and CGL at 08:40am to discuss stockpiles. Cognition noted that testing data had not been provided for Stockpile 4 materials. FMC instructed that Cognition recover samples of stockpile 4, and test on a 24-hour testing basis. FMC highlighted to Cognition that placement of Stockpile 4 without relevant testing data is undertaken at Cognition's risk.
- 3) Cognition did not re-place Stockpile 4 material, until testing data made available.
- 4) 6F5 scraped from the EYB haul road has been excavated, with FMC implementing use of this material as general fill. Suitable classification/testing to be undertaken to confirm suitability.
- 5) CGL inspected Made Ground formation EYB. Hand shear vane tests undertaken by CGL in the Made Ground (pre-rolled). No hand shear van tests undertaken in formation following rolling due to high gravel content.

6) Three layers of 6F5 (Class 1) placed above Made Ground formation in Zone 4A

7) Localised section of firm clay Made Ground with intermittent organic matter. On advice of CGL, Cognition locally cement stabilised and compacted the top 300mm of the formation. Two layers of 6F5 (class 1) placed on top.

8) Organic material (including buried topsoil, tree stumps, logs and other organic matter) identified in north of Zone 4A. This material was being excavated after 3pm, and is continuing tomorrow. CGL inspected formation beneath area of topsoil/organic matter/tree stumps to comprise a firm brown clay.

9) Stockpiled 16 material brought in from lagoon to fill above 6F5 to undertake stabilisation trial. A 225mm layer was placed and treated with 3% cement.

10) CGL highlighted to FMC and Cognition the importance of hand picking large unsuitable objects from general fill materials placed within the embankment.

Sampling and/or testing undertaken or observed

Hand shear vanes tests:-

- 1) Formation in Made Ground comprising firm clay with localised organic matter – 42kPa, 50kPa, 48kPa, 40kPa, 35kPa, 39kPa, 41kPa.
- 2) Formation in fine grained Lynch Hill Gravel Member below area of buried topsoil/tree stumps – 40kPa, 38kPa, 39kPa, 60kPa, 50kPa, 52Pa, 44kPa.
- 3) *Buried topsoil (excavated and removed)– 18kPa, 25kPa, 32kPa.*
- 4) Stockpile 16 material placed above 6F5 (pre-rolled and pre-cemented) – 60kPa, 55kPa, 62kPa, 52kPa
- 5) Stockpile 16 material placed above 6F5 (post-rolling and cementation) – 75kPa, 82kPa, 69kPa, 72kPa

Earthworks testing: CET earthworks testing supervised within placed 6F5 (Class 1) fill.

Other comments and observations (ecological concerns? Water observations? Anticipated issues?)

Class 6F5 from the haul roads and GUC west pile mat has been reused as general Class 1 fill and therefore this material will be re-classified as Class 1. Appropriate supporting test data to be obtained by Cognition.

CGL awaiting test results of Stockpile 4 chemical laboratory testing.

Excavation of tree stumps/topsoil/organic matter in north of Zone 4A to continue.

CGL highlighted importance of continuing to pick deleterious material from placed fill

CGL advised that benching of Made Ground formation be undertaken up-slope from EYB to WGUC

Site Observation Report Form



Correspondence requested by FMC

Testing data for stockpile 4

Pre-start site meeting at 07:30

Correspondence received from

None

Site Observation Report Form



SITE:	Southall Western Access	JOB NO:	CG/28308
Date and time:	09/02/2018 08:20 to 17:45	VISIT BY:	ALC
WEATHER:			
Time	Description		
08:20 to 17:45	Dry, cold and cloudy with light winds		
SVR 96			

Site operations

Work in hand	- Filling of 6N IBAA continuing behind WGUC south wing wall. - Excavation of 6F5 from Area 4B west GUC, hauling and placing to east YB Area 4A . - Placement and cement stabilisation of stockpile 4 material to Area 4A east YB. - Placement and cement stabilisation of stockpile 16 material from lagoon in Area 4A east YB. - Excavation and preparation of formation level in east YB Zone 4A north east corner in front of stockpile 1. Filling with Class 2C.
---------------------	--

Observations

- 1 Filling of 6N IBAA continuing behind WGUC south wing wall, Area 4B.
- 2 Excavation of 6F5 in haul road and Area 4B (west GUC) completed. Hauled and placed to Area 4A west YB on top of stabilised formation Made Ground (layers 1 and 2).
- 3 Placement of stockpile 4 material to central section of east YB embankment Area 4A above 2 layers (500mm thickness) Class 6F5 (Class 1). Stabilising SP4 material with 3% cement and compacting with 6 passes using a Bomag BW 216 – PDH (8,300kg/m width). 1 layer placed today (layer 3), 2nd layer (Layer 4) placed on Saturday. Layer thickness is 175mm to 250mm. Visual inspection and hand shear vane tests on stabilised compacted layer 3 undertaken by CGL. HSV tests were acceptable (see test results).
- 4 Placement of stockpile 16 materials on either side of central core of Stockpile 4 stabilised material, beneath shoulders of the embankment. Placed on top of 2 layers (500mm thickness) of 6F5 (Class 1) from Area 4B, and Class 2C or Class 1 material from Flood Compensation Area. 1 layer placed today (layer 3), 2nd layer (Layer 4) placed on Saturday. Layer thickness is 175mm to 250mm. Stabilising SP16 material with 3% cement and compacting with 6 passes using a Bomag BW 216 – PDH (8,300kg/m width).
- 5 CET on site sampling and testing (NDM's) on SP4 and SP16 stabilised material in Area 4A.
- 6 Preparation of formation level (Made Ground/Lynch Hill Gravel (fine grained) in 1.3m overdig in east YB Area 4A north area in front of stockpile 1. Material excavated comprised soft organic reworked Alluvium/Made and tree stumps. Visual inspection and hand shear vane tests on formation (Made Ground/Lynch Hill Gravel) undertaken by CGL. HSV tests were acceptable (see test results). CGL

Site Observation Report Form



approved the formation without the need to stabilise. Backfilling with Class 2C.

Sampling and/or testing undertaken or observed

Hand shear vanes tests:-

- 1) East YB Area 4A north east corner 1.3m overdig (removal of tree stumps and soft/loose organic Made Ground) to formation in Made Ground and Lynch Hill Gravel (fine grained) (pre-rolled)–
32kPa/45kPa/52kPa; 43kPa/54kPa/34kPa; 56kPa/46kPa/70kPa; 74kPa/56kPa /44kPa/70kPa.
Formation approved by CGL.

Other comments and observations (ecological concerns? Water observations? Anticipated issues?)

Correspondence requested by FMC

CGL approval of formation overdig in northeast corner of east YB – CGL approved formation on 09/02/18 and confirmed no cement stabilisation required for this area based on HSV test results.

Correspondence received from

None

Site Observation Report Form



SITE:	Southall Western Access	JOB NO:	CG/28308
Date and time:	12/02/2018 09:00 to 17:45	VISIT BY:	ALC
WEATHER:			
Time	Description		
09:00 to 18:00	Dry, cold and cloudy with light winds		
SVR 97			

Site operations

Work in hand

- Excavation of Made Ground from west GUC to formation.
- Placement and cement stabilisation of stockpile 4 material to Area 4A east YB.
- Placement and cement stabilisation of stockpile 16 material from lagoon in Area 4A east YB.
- Excavation and preparation of formation level in east YB Area 4A north east corner in front of stockpile 1. Backfilling with Class 2C..

Observations

- 1) Excavation of Made Ground from west GUC (south side) Area 4B to formation to levels as shown on CGL drawings A720-E05-IW-CGL-EW-SK-002 Rev C1 & SK-003 Rev C1. Hauled material to SP17 in lagoon area.
- 2) Placement of stockpile 4 material to central section of east YB embankment Area 4A (layer 5). Stabilising SP4 material with 3% cement and compacting with 6 passes using a Bomag BW 216 – PDH (8,300kg/m width). Layer thickness is 175mm to 250mm.
- 3) Placement of stockpile 16 materials on either side of central core of Stockpile 4 stabilised material, beneath shoulders of the east YB embankment Area 4A (layer 5). Layer thickness is 175mm to 250mm. Stabilising SP16 material with 3% cement and compacting with 6 passes using a Bomag BW 216 – PDH (8,300kg/m width).
- 4) CET on site sampling and testing (NDM's) on SP4 and SP16 stabilised material in Area 4A.
- 5) Backfilling and compacting 250mm thick layers of Class 2C in 1.3m overdig in east YB Area 4A north area in front of stockpile 1.

Sampling and/or testing undertaken or observed

Hand shear vanes tests:-

- 1) Area 4B West GUC (south side) at formation in Made Ground (pre cement stabilisation and pre rolled) – 27kPa, 50kPa, 50kPa, 44kPa, 32kPa, 28,kPa, 33kPa, 27kPa, 27kPa, 30kPa, 43kPa, 33kPa, 48kPa, 27kPa, 30kPa, 33kPa.

Other comments and observations (ecological concerns? Water observations? Anticipated issues?)

Cognition are placing stabilised SP4 and SP16 material at own risk in Areas 4A and 4B – no test results have been received by CGL for the stabilised trial layer on the SP4 material, or for any of the layers placed (including SP4, SP16 cement stabilised material, or the Class 2C or Class1 material from the Flood Compensation Area, or the Class 6F5 material).

Correspondence requested by FMC

- 1) FMC requested CGL approval of Area 4A West GUC south side at formation in Made Ground. Formation approved by CGL based on hand shear vane test results at formation level (pre-stabilisation and pre-rolling), subject to cement stabilisation and compaction.
- 2) FMC requested Crane Mat Design from CGL.

Correspondence received from

None

Site Observation Report Form



SITE:	Southall Western Access	JOB NO:	CG/28308
Date and time:	13/02/2018 08:45 to 17:45	VISIT BY:	ALC/ CRG
WEATHER:			
Time	Description		
08:15 to 16:30	Showers, cold and cloudy with light winds		
SVR 98			

Site operations	
Work in hand	• Excavation of Made Ground from west GUC Area 4B down to formation north side. • Placement and cement stabilisation of stockpile 4 material to Area 4B east YB. • Placement and cement stabilisation of stockpile 16 material from lagoon in Area 4A east YB. • Stabilisation of west GUC Area 4B formation with 3% cement, and rolling. • Re-profiling and regrading Minet Tip batter/SP17 alongside west GUC.
Observations 1) Excavation of Made Ground from west GUC Area 4B (north side alongside Minet Tip) to formation to levels as shown on CGL drawings A720-E05-IW-CGL-EW-SK-002 Rev C1 & SK-003 Rev C1. Hauling material to SP17 in lagoon area. 2) Placement of stockpile 4 material to central section of east YB embankment Area 4A (layer 5). Stabilising SP4 material with 3% cement and compacting with 6 passes using a Bomag BW 216 – PDH (8,300kg/m width). Layer thickness is 175mm to 250mm. 3) Placement of stockpile 16 materials on either side of central core of Stockpile 4 stabilised material, beneath shoulders of the embankment in east YB Area 4A (layer 5). Layer thickness is 175mm to 250mm. Stabilising SP16 material with 3% cement and compacting with 6 passes using a Bomag BW 216 – PDH (8,300kg/m width). 4) Stabilisation of west GUC formation Area 4B north side with 3% cement, and rolling. Formation still too soft based on hand shear vane test results. 5) Reprofile and regrading Minet Tip to temporary batter slope 1v:1h. 6) Full weekly ground and surface water monitoring completed (Round 23)	

Sampling and/or testing undertaken or observed

1 bulk and 1 geoenvironmental sample of stabilised SP4, and SP16 material from Area 4A Layer 5.

11 ground and surface water samples for chemical analysis.

Hand Shear Vane Tests in west GUC Area 4B in 3% cement stabilised formation on north side of excavation alongside Minet Tip:-

42kPa, 37kPa, 46kPa (puddle clay)

50kPa, 33kPa, 52kPa (in black gravelly clay)

46kPa, 39kPa, 44kPa; 33kPa, 30kPa, 41kPa (soft to firm brown slightly gravelly clay)

24kPa, 46kPa, 30kPa, 28kPa, 28kPa, 24kPa, 25kPa (puddle clay and soft to firm brown slightly gravelly clay in north east corner adjacent to short wing wall – softest area).

Other comments and observations (ecological concerns? Water observations? Anticipated issues?)

- 1) Cognition are placing stabilised SP4 and SP16 material at own risk in Areas 4A and 4B – no test results have been received by CGL for the stabilised trial layer on the SP4 material, or for any of the layers placed (including SP4, SP16 cement stabilised material, or the Class 2C or Class1 material from the Flood Compensation Area, or the Class 6F5 material).
- 2) No stability analysis or assessment has been undertaken for Minet Tip temporary slope profile however CGL have provided FMC with previous recommendations for similar temporary battering and benching of the Minet Tip and lagoon side slopes.
- 3) Area 4B West GUC (north side) at formation in Made Ground. CGL advised FMC that the formation was still too soft 24kPa to 52kPa). Of the 16 tests, 11 results were between 27kPa and 33kPa. Cognition added additional 1% cement to north side and will leave to cure overnight. Formation to be inspected again by CGL tomorrow morning.

Correspondence requested by FMC

Mo (FMC) requested CGL to confirm the suitability (both chemical and geotechnical suitability) for reuse of the following material:-

- 1) Stockpile 17. R. Slade (CGL) responded 13/02/18 “CGL will need to see post treatment data from Cognition which demonstrated the material met the re-use criteria, was geotechnically suitable and that the hydrocarbon concentrations had been reduced. The material would likely require both bioremediation and stabilisation to render it suitable as it contains elevated organics (TPH and benzo(a)pyrene) and metals (cadmium).”
- 2) Made Ground (6F5/Class 1) stockpiled in Flood Compensation Area. CGL have tested 6 samples of the

Made Ground for contaminants. C. Gordon (CGL) responded on 16/02/18 "...two exceedance of benzo(a)pyrene in two of the six samples. Whilst these are marginal exceedances of benzo(a)pyrene and all other parameters meet the reuse criteria, concentrations of benzo(a)pyrene were previously identified during trial pitting works of the FCA. It would be advisable to pass this information on to Cognition as it is likely the material will require some form of treatment before it is chemically suitable to be used as embankment fill.". Cognition will also be required to show the material is geotechnically suitable by undertaking geotechnical testing in accordance with the Specification.

- 3) Mo(FMC) raised concern over two monitoring well which lie within the footprint of the embankment and will need to be reduced or decommissioned. Chris G.advised Mo (FMC) on 13/02/18 that the monitoring wells belonged to Environ and not CGL. FMC to contact Environ.
- 4) Jo (Berkeley) requested CGL provide a plan showing the locations of the hand shear vane test results at formation level. Requested for Wednesday morning 21st February 2018. Mark (FMC) to provide CGL a topo plan of formation level by Monday 19th February.

Correspondence received from

None

Site Observation Report Form



SITE:	Southall Western Access	JOB NO:	CG/28308
Date and time:	14/02/2018 08:15 to 16:30 Left early to drop van back at Godalming Office.	VISIT BY:	ALC
WEATHER:			
Time	Description		
08:15 to 16:30	Showers, cold and cloudy with light winds		
SVR 98			

Site operations	
Work in hand	• Placement and cement stabilisation of stockpile 4 material to Area 4A east YB. • Placement and cement stabilisation of stockpile 16 material from lagoon in Area 4A east YB. • Placement and cement stabilisation of SP4 and SP16 material, Layer 1 on west GUC Area 4B formation with 3% cement, and compaction. • Reprofilng and regrading Minet Tip batter/SP17 alongside west GUC.
Observations 1) East YB Area 4A - placement of stockpile 4 material to central section of east YB embankment (layer 6). Stabilising SP4 material with 3% cement and compacting with 6 passes using a Bomag BW 216 – PDH (8,300kg/m width). Layer thickness is 175mm to 250mm. 2) East YB Area 4A - Placement of stockpile 16 materials on either side of central core of Stockpile 4 stabilised material, beneath shoulders of the embankment (layer 6). Layer thickness is 175mm to 250mm. Stabilising SP16 material with 3% cement and compacting with 6 passes using a Bomag BW 216 – PDH (8,300kg/m width). 3) West GUC Area 4B north side – cement stabilised formation with 4% cement and compacting with 6 passes using a Bomag BW 216 – PDH (8,300kg/m width). Hand shear vane test results undertaken by CGL showed a big improvement in shear strength from yesterday's results, following further addition of 1% cement and overnight curing. 4) West GUC Area 4B - placement of SP4 material to central section between wingwalls 6N backfill, and SP16 stabilised material beneath north shoulder above stabilised formation level (layer 1). Stabilising SP4 and SP16 layer 1 material with 3% cement and compacting with 6 passes using a Bomag BW 216 – PDH (8,300kg/m width). Layer thickness is 250mm. 5) Reprofilng and regrading Minet Tip to temporary batter slope 1v:1h.	

Sampling and/or testing undertaken or observed

1 bulk and 1 geoenvironmental sample of stabilised SP16 material from Area 4A Layer 6.

Hand Shear Vane Tests in west GUC Area 4B in 4% cement stabilised formation north side:-

72kPa, 5kPa, 54kPa, 90kPa, 50kPa, 80kPa, 73kPa, 80kPa (north side excluding north east corner by wing wall)
50kPa, 54kPa, 60kPa, 53kPa, 73kPa (puddle clay and soft to firm brown slightly gravelly clay in softest area at north east corner adjacent to short wing wall).

Hand Shear Vane Tests in west GUC Area 4B in 3% cement stabilised formation south side:-

110kPa, 70kPa, 66kPa, 66kPa, 73kPa, 62kPa

Other comments and observations (ecological concerns? Water observations? Anticipated issues?)

- 1) Cognition are placing stabilised SP4 and SP16 material at own risk in Areas 4A and 4B – no test results have been received by CGL for the stabilised trial layer on the SP4 material, or for any of the layers placed (including SP4, SP16 cement stabilised material, or the Class 2C or Class1 material from the Flood Compensation Area, or the Class 6F5 material).
- 2) No stability analysis or assessment has been undertaken for Minet Tip temporary slope profile however CGL have provided FMC with previous recommendations for similar temporary battering and benching of the Minet Tip and lagoon side slopes.
- 3) Area 4B West GUC (north side) at formation in Made Ground. Formation approved by CGL based on hand shear vane test results at formation level undertaken by CGL today.

Correspondence requested by FMC

Mo (FMC) requested CGL to confirm the suitability (both chemical and geotechnical suitability) for reuse of the following material:-

- 1) Stockpile 17. R. Slade (CGL) responded 13/02/18 "CGL will need to see post treatment data from Cognition which demonstrated the material met the re-use criteria, was geotechnically suitable and that the hydrocarbon concentrations had been reduced. The material would likely require both bioremediation and stabilisation to render it suitable as it contains elevated organics (TPH and benzo(a)pyrene) and metals (cadmium)."
- 2) Made Ground (6F5/Class 1) stockpiled in Flood Compensation Area. Reuse TBC - CGL have tested 6 samples of the Made Ground for contaminants and are reviewing the test results.
- 3) ALC (CGL) requested FMC provide test results of all testing undertaken by Cognition to date (*Note: Test data provided by T.Kiddier (Cognition) on 15/02/18.*)
- 4) Mo (FMC) asked A. Curtis (CGL) to provide a report to sign off approval of the formation surfaces across

Site Observation Report Form



Areas 4A and 4B.

Correspondence received from

None

Site Observation Report Form



SITE:	Southall Western Access	JOB NO:	CG/28308
Date and time:	16/02/2018 08:30 to 16:30	VISIT BY:	CRG
WEATHER:			
Time	Description		
08:15 to 16:30	Cold, sunny day with spells of sunshine and light winds.		
SVR 100			

Site operations	
Work in hand	• Placement and cement stabilisation of stockpile 16 material from lagoon in Area 4A EYB. • Placement and cement stabilisation of stockpile 4 material to Area 4B WGUC core. • Delivery and placement of 6N-IBAA to behind WGUC abutment and wingwalls. • Yeading Brook bridge road deck concrete pour and service install.
Observations 1) EYB Area 4A - Placement of SP16 on either side of central core of Stockpile 4 stabilised material, layer thickness is between 150 and 250mm, the maximum reach of the cement rotary. Some stabilising and shoring works of remaining SP16 material though this currently exceeds the maximum permissible height of 4.0m. Placed material was stabilised with 3% cement mix and compacted with >6 passes using a Bomag BW 216 – PDH (8,300kg/m width). 2) WGUC Zone 4B- Placement of SP4 between wingwalls along central core. Made Ground and soft alluvial material was excavated, and the formation level was heavily cement stabilised. Stabilisation was repeated in soft spots and allowed to cure. Compaction was undertaken using a Bomag BW 216 – PDH (8,300kg/m width) with a minimum of 6 passes. ALC inspected and approved the stabilised formation level (SVR 99) allowing layer placement of SP4 fill material. Cognition undertook formation tests, results to be provided. 3) Layer 4 of the WGUC core was being placed on arrival, deleterious such as brick, concrete, metal and industrial refuse was handpicked prior to compaction and cement stabilisation. Hand shear vane tests were undertaken by CGL on each 250mm layer and showed a substantial improvement in shear strength from initial untreated conditions with most values exceeding the maximum device value of 150kPa. Visually, stabilised layers were notably firm and difficult to penetrate with the hand shear vane. 4) Imported 6N-IBAA placed behind WGUC abutment and wingwalls in synchronisation with core fill and benched into each layer at 500mm X 500mm increments.	

- 5) Following the removal of SP16 and SP4 in the lagoon, CGLs borehole were exposed and adjusted to the new ground level. BH3A was lowered by 1.0m, BH2A was raised by 1.0m and BH1A was lowered by 3.0m.

Sampling and/or testing undertaken or observed

- 1 bulk and 1 geoenvironmental sample of stabilised SP4 material from Area 4B, Layer 4.
- 1 bulk and 1 geoenvironmental sample of stabilised SP4 material from Area 4B, Layer 5.
- 1 bulk and 1 geoenvironmental sample of stabilised SP4 material from Area 4B, Layer 6.

Hand Shear Vane Tests in WGUC Area 4B in 4% cement stabilised layers: -

- Layer 4 – 150kPa, 85kPa, 120kPa, >150kPa, 150kPa 100kPa, 120kPa and 95kPa.
- Layer 5 – 130kPa, 95kPa, 105kPa, 143kPa, 120kPa, 115kPa and 130kPa.
- Layer 6 – 130kPa, 135kPa, 120kPa, >150kPa, 145kPa, >150kPa, >150kPa and 105kPa.

Other comments and observations (ecological concerns? Water observations? Anticipated issues?)

- 1) Concern with the management of imported 6N-IBAA, this was temporally stockpiled at the haul road edge adjacent to railway triangle directly onto the ground surface. The material was trampled along pedestrian walkways, the haul road and surrounding environs. There is a potential risk of leaching to nearby controlled waters therefore the movement and management of the 6N-IBAA around the site needs to be more considered. Additionally, 6N-IBAA that was removed for WYB is stockpiled on top of the Yeading Brook bank on top of site won material, this again has been tracked into the pump lane haul road and positioned in close proximity to Yeading Brook. Surface scraping and verification is likely to be required during finishing landscaping works as the 6N-IBAA is only permissible in areas where it is encapsulated by concrete structures.
- 2) Area 4B WGUC (north side) at formation in Made Ground. Formation approved by CGL based on hand shear vane test results at formation level undertaken by CGL today. Placed layers and method of compaction/ stabilisation are also approved based on further hand shear vane testing.
- 3) CGLs BH3A was severely damaged during the removal of stockpile 4.
- 4) Puddling water was observed on the 6F5 lagoon base, this indicates that surface water captured in the lagoon drainage trench is over spilling the maximum capacity of the trench and seeping through the base 6F5. Overflowing water will need to be drained in line with the Thames Water discharge consent to mitigate the risk of overland flow to nearby controlled waters.

Correspondence requested

- 1) Environmental laboratory results for Made Ground/ Topsoil stockpiled in the Flood Compensation Area were reviewed and 2 exceedances of benzo(a)pyrene were identified when screened against the soil re-use criteria, results were communicated to Mo (FMC) and it was advised that the material was screened to remove all deleterious then chemically treated and then classified before it is used as general fill.
- 2) Mo (FMC) requested chemical data of lagoon surface water, this was re-issued in PDF and emailed to FMC 16.02.18.

Correspondence received

Mark (FMC) provided an updated survey of the lagoon stockpiles, CAD and PDF files were emailed to CGL 16.02.18.

Site Observation Report Form



SITE:	Southall Western Access	JOB NO:	CG/28308
Date and time:	20/02/2018 08:30 to 16:15	VISIT BY:	CRG
WEATHER:			
Time	Description		
08:30 to 16:15	Cold and overcast with light rain		
SVR 101			

Site operations	
Work in hand	• TAG cleared Yeading Brook embankment and bridge deck ready for crane mobilisation. • Placement and compaction of imported 6F5 capping to zone 4 embankment. • Construction of 6F5 WGUC crane mat. • Stockpile 17 lowered to within 4m tolerance. • CGL undertook full weekly ground and surface water monitoring.
Observations 1) TAG clearing equipment on YB embankment and bridge road deck ready for mobilisation of crane on Thursday (22.02.18). A 0.4 to 0.6m thick capping layer of imported 6F5 was placed on the Zone 4 embankment surface and roller compacted to provide a sufficient haul road linking the WGUC crane mat. 2) Temporal works construction of the WGUC crane mat using imported 6F5, shallow 150mm layers were roller compacted using a Bomag BW 216 – PDH (8,300kg/m width) with a minimum of 6 passes. 3) Stockpile 17 was spread into the former stockpile 16 area, lowering its overall height to within the 4.0m maximum tolerance. 4) CGL undertook a full weekly ground and surface water monitoring round (Round 24). BH3A was repaired and purged dry to flush out damaged material, new ground levels of the lagoon boreholes were applied.	
Sampling and/or testing undertaken or observed 11 ground and surface water samples were submitted for laboratory analysis on a standard 7-day turnaround.	

Site Observation Report Form



Other comments and observations (ecological concerns? Water observations? Anticipated issues?)

Access to CGL borehole and surface water sample locations outside of the site boundary were difficult to access as the gate had been barricaded shut in response to a member of public breaking onto the site. It is imperative that access to the monitoring wells is maintained throughout the construction phase, this includes the provision for safe pedestrian access to the lagoon complex.

Rambolt Environ (Charles) raised concern to the poor management of imported 6N-IBAA and associated risk to controlled waters.

Correspondence requested by FMC

Brian requested that CGL fill out FMC timesheets following site attendance, and that this is signed at the week end. Arrival and departure times are also specified on each SVR.

Correspondence received from FMC

Site Observation Report Form



SITE:	Southall Western Access	JOB NO:	CG/28308
Date and time:	28/02/2018 08:45 to 15:15 Left early due to adverse weather/ road conditions	VISIT BY:	CRG
WEATHER:			
Time	Description		
08:30 to 16:15	Freezing temperatures, heavy snow showers and moderate winds		
SVR 102			

Site operations	
Work in hand	- Decommissioning of WGUC lifting cranes - CGL undertook full weekly ground and surface water monitoring.
Observations 1) Work progress on site was slow due to the adverse weather conditions and freezing temperatures. The WGUC lifting crane was being dismantled; 2) CGL undertook a full weekly ground and surface water monitoring round (Round 25). Sections of the Yeading Brook were frozen, and some borehole bungs were frozen in. All sample location points were usable, and samples were obtained.	
Sampling and/or testing undertaken or observed 11 ground and surface water samples were submitted for laboratory analysis on a standard 7-day turnaround, FMC to provide PO number, CGL submitted testing schedule to i2 and FMC 28.02.18.	

Site Observation Report Form



Other comments and observations (ecological concerns? Water observations? Anticipated issues?)

Correspondence requested by FMC

CRG confirmed ALC attendance on site tomorrow (Wednesday) despite works to dismantle crane and begin removal of 6F5. ALC to confirm with FMC tomorrow am.

Correspondence received from FMC

Site Observation Report Form



SITE:	Southall Western Access	JOB NO:	CG/28308
Date and time:	08/03/2018 08:00 to 15:00 Left site early to deliver samples to i2 directly.	VISIT BY:	CRG
WEATHER:			
Time	Description		
08:30 to 16:15	Freezing temperatures with snow showers and cold winds.		
SVR 103			

Site operations	
Work in hand	• Site progress was limited due to the adverse weather conditions • TAG completing forming works of the WGUC • Construction of the substation floor slab • Improvement to the existing haul roads • Cognition continue embankment fill works and 6F5 capping removal • CGL undertook full weekly ground and surface water monitoring.
Observations 1) Imported 6F5 capping used for the WGUC crane was removed and stockpiled in adjacent area, some material was placed in front of the large WGUC wingwall to provide a safe working platform. 2) CGL repeated Round 25 of the weekly ground and surface water monitoring (Round 25a), the monitoring round was repeated as there was a delay in receiving a suitable purchase order number from FMC and therefore the majority of the samples would have provided deviating results. Samples from the repeated round were delivered by CGL to i2 Analytical that day to ensure they were promptly scheduled.	
Sampling and/or testing undertaken or observed 11 ground and surface water samples were submitted by CGL directly to i2 Analytical for analysis on a standard 7-day turnaround, FMC are to provide and approve a suitable PO number. CGL submitted testing schedule to i2 and FMC 09.03.18.	

Site Observation Report Form



Other comments and observations (ecological concerns? Water observations? Anticipated issues?)

Correspondence requested by FMC

CGL requested FMC confirm PO to avoid resubmitted samples from spoiling.

Correspondence received from FMC

Site Observation Report Form



SITE:	Southall Western Access	JOB NO:	CG/28308
Date and time:	15/03/2018 08:00 to 15:00 Left site early to deliver samples to i2 directly.	VISIT BY:	CRG
WEATHER:			
Time	Description		
08:30 to 15:00	Mild and overcast with frequent showers.		
SVR 104			

Site operations	
Work in hand	• Cognition continue Zone 4 embankment construction including cement stabilisation and in situ sampling. • TAG concrete edge sections of YB bridge deck. • TAG complete steel and form works to WGUC bridge. • Construction of substation concrete walls. • FMC excavate and remove RC black silt off-site. • CGL undertook full weekly ground and surface water monitoring.
Observations 1) Cognition continue layer placement in Zone 4 embankment construction, approximate 250mm layers are compacted and cement stabilised by way of the established method. 2) CGL completed Round 26 of the weekly ground and surface water monitoring, boreholes remain in a good workable condition and samples were taken from each location. The river level was observed to be high flowing and submerged the compound discharge point. Samples were delivered by CGL to i2 Analytical the same day to ensure they were promptly scheduled by the week close. 3) Contaminated black silt stored in the redundant River Crane channel was excavated onto lorries and removed from the site. There was no evidence of cross contamination of the material during transportation though caution should be taken once deeper slurry material is encountered to minimise cross contamination around the site. This also includes the washing of plant equipment used to remove the material and control of potential runoff.	

Site Observation Report Form



Sampling and/or testing undertaken or observed

11 ground and surface water samples were submitted by CGL directly to i2 Analytical for analysis on a standard 7-day turnaround, FMC are to approve a suitable PO number. CGL submitted testing schedule to i2 and FMC 16.03.18.

Other comments and observations (ecological concerns? Water observations? Anticipated issues?)

Correspondence requested by FMC

CGL request PO confirmation to allow i2 to commence testing.

Correspondence received from FMC

Site Observation Report Form



SITE:	Southall Western Access	JOB NO:	CG/28308
Date and time:	22/03/2018 Left site early to deliver samples to i2 Analytical, Watford	VISIT BY:	CRG
WEATHER:			
Time	Description		
	Overcast, some intervals of sunshine		
SVR 105			

Site operations	
Work in hand	CGL undertook full construction ground and surface water monitoring.
Observations 1) CGL completed Round 27 of the construction ground and surface water monitoring, boreholes remain in a good workable condition and samples were taken from each location. The river level was observed to be high flowing and submerged the compound discharge point. Samples were delivered by CGL to i2 Analytical the same day to ensure they were promptly scheduled avoiding deviation in results.	
Sampling and/or testing undertaken or observed 11 ground and surface water samples were submitted by CGL directly to i2 Analytical for analysis on a standard 7-day turnaround, FMC are to approve a suitable PO number. CGL submitted testing schedule to i2 and FMC 23.03.18.	
Other comments and observations (ecological concerns? Water observations? Anticipated issues?)	
Correspondence requested by FMC	

Site Observation Report Form



CGL request PO confirmation to allow i2 to commence testing.

Correspondence received from FMC

Site Observation Report Form



SITE:	Southall Western Access	JOB NO:	CG/28308
Date and time:	06/04/2018 Left site early to deliver samples to i2 Analytical, Watford	VISIT BY:	CRG
WEATHER:			
Time	Description		
	Dry, mild and sunny day		
SVR 106			

Site operations	
Work in hand	CGL undertook full construction ground and surface water monitoring.
Observations - CGL completed Round 28 of the construction ground and surface water monitoring, boreholes remain in a good workable condition and samples were taken from each location. The river level was observed to be high flowing and submerged the compound discharge point. Samples were delivered by CGL to i2 Analytical the same day to ensure they were promptly scheduled avoiding deviation in results. - CRG identified rills and shallow gullies forming along the base of the north facing zone 4 embankment between East Yeading Brook and West Grand Union Canal. It appears that surface water is draining along the embankment base directly into Yeading Brook. Silt washout deposits approximately 0.3 to 0.4m thick were at the embankment base and further off-site surrounding BH3B, this was evidently leaching into the Brook. Measures should be taken to apply surface protection to the embankment to limit washout flowing into controlled waters. - Sections of the lagoon surrounding BH1A are flooded with water from the lagoon perimeter drainage trench. The trench was constructed to hold runoff from lagoon stockpiled material and prevent possible leaching out into nearby controlled waters. Currently the accumulated water is some 0.3 to 0.4m above the base of the lagoon therefore approximately 0.7 to 0.8m above the top of the trenches, given that a 0.4 to 0.5m 6F5 crush layer was placed onto the lagoon base. This is a substantial amount of water accumulation and a possible source to the most recent elevated concentrations identified in Yeading Brook and the lagoon boreholes. Yeading Brook is downslope of the lagoon and the lagoon bunds are relatively permeable given their granular content. With water at this level, the intended design of the lagoon drainage trenches is ineffective. CRG advised FMC (Mo) verbally and it was agreed the flood water would be drained. Mo also requested that samples of the water were taken to discount a possible contamination risks.	

Site Observation Report Form



Sampling and/or testing undertaken or observed

11 ground and surface water samples were taken as part of the construction monitoring and an additional 2 surface water samples were taken by verbal request from FMC (Mo) of the lagoon floodwater. All 13 samples were submitted by CGL directly to i2 Analytical for analysis on a standard 7-day turnaround.

Other comments and observations (ecological concerns? Water observations? Anticipated issues?)

Correspondence requested by FMC

Correspondence received from FMC

Site Observation Report Form



SITE:	Southall Western Access	JOB NO:	CG/28308
Date and time:	12/04/2018 10:00 to 16:15 Later arrival as attendance was confirmed at short notice	VISIT BY:	CRG
WEATHER:			
Time	Description		
10:00 to 16:15	Dull, wet overcast day with drizzle		
SVR 107			

Site operations	
Work in hand	Attended East GUC only Works to commence backfilling of 6N-IBAA behind north and south wingwalls of East GUC
Observations FMC commenced the placement of imported 6N-IBAA behind the north wingwall of the East GUC. On arrival, the 6N-IBAA was being placed onto wet ground and displacing undrained groundwater at the base of the excavation causing it to flow towards a low-lying section. CGL advised that sufficient de-watering of the excavation should be undertaken before further layers of 6N-IBAA are placed, mixing the sandy material with water caused it to soften (liquefaction). FMC de-watered the excavation pumping out to surrounding scrubland away from controlled waters receptors. Once the excavation was de-watered, surface slurry was scrapped away to reveal the formation level. The formation level was comprised of a mixture of natural arisings and remaining 6F5 pile mat material. The formation level was firm underfoot, stable and difficult to hand inspect. By way of visual observations, the formation level appeared stable and well compacted, no voids or areas of soft or contaminated ground were noted. HSV testing was not undertaken as the material contained sand and gravel. The 6N-IBAA was placed in 200mm layers and roller compacted with >15 passes in conjunction with the earthworks specification. On inspection of the compacted surface after the installation of two layers, there were a number of soft areas where underlying groundwater had mixed with the 6N-IBAA. CRG discussed the ground conditions with Cognition and it was agreed the material would be left overnight to see if its condition improved. The following day, soft areas were still clearly visible and the wetted 6N-IBAA was removed and replaced with dry material. CGL inspected the condition of the newly placed layers at layer 4, the 6N-IBAA was 800mm deep, well compacted and firm underfoot. No areas of soft or wet ground were encountered.	

Sampling and/or testing undertaken or observed

Two bulk bags of the placed 6N-IBAA, if testing is required (submitted to i2)

Other comments and observations (ecological concerns? Water observations? Anticipated issues?)

De-watering of the excavation must take place before backfilling continues, 6N-IBAA must be kept dry and placed in dry conditions to maintain stability.

Any soft areas of placed 6N-IBAA should be removed and replaced with new material.

6N-IBAA is known to contain heavy metals and trace asbestos fibres, therefore mixing it with groundwater should be minimised to mitigate possible risk of leaching out, especially if this water is later pumped in proximity to controlled waters.

Correspondence requested by FMC

FMC to confirm CGLs site attendance next week.

Correspondence received from FMC

Site Observation Report Form



SITE:	Southall Western Access	JOB NO:	CG/28308
Date and time:	18/04/2018	VISIT BY:	CRG
WEATHER:			
Time	Description		
	Dry, warm and sunny day		
SVR 107a			

Site operations

Work in hand

Attended Pump Lane site only
 Fill works to Pump Lane area
 Former compound car park removal
 Placement of 6N-IBAA in east GUC
 Full ground and surface water monitoring undertaken (round 29)

Observations

- No action appears to have been taken to mitigate gullying of the zone 4 embankment and silting to the embankment toe. Gullies are now >0.5m deep with a silt plume of entrained material forming in the Yeading Brook channel.
- CGL undertook a full round of groundwater and surface water sampling (Round 29) all borehole locations remain in an operable condition with sufficient groundwater recharge. Groundwater was extracted using a bailer rather than the low flow pump whilst repairs were undertaken.
- Vegetation was beginning to bloom along tracked access routes to each borehole location and may require some maintenance to preserve accessibility to the borehole and surface water locations.
- Hydrocarbon odour was notably slight in BH4B compared to previous rounds.
- Former FMC compound car park removed and transferred off-site, material appeared to be Type 1 and 6F1.

Sampling and/or testing undertaken or observed

A total of 11 water samples were taken and delivered to i2 Watford by CGL the same day for laboratory analysis.

Other comments and observations (ecological concerns? Water observations? Anticipated issues?)

6N-IBAA is known to contain heavy metals and trace asbestos fibres, therefore mixing it with groundwater should be minimised to mitigate possible risk of leaching out, especially if this water is later pumped in proximity to controlled waters.

Correspondence requested by FMC

FMC to confirm CGLs site attendance next week and forthcoming construction monitoring frequency.

Correspondence received from FMC

FMC Mo to be going on paternity leave and correspondence now to Derek, Brian and Ed.

Site Observation Report Form



SITE:	Southall Western Access	JOB NO:	CG/28308
Date and time:	30/04/2018 08:45 to 17:45	VISIT BY:	ALC
WEATHER:			
Time	Description		
08:50 to 17:45	Overcast, showers am, dry pm. Breezy.		
SVR 108			

Site operations	
Work in hand	East GUC Backfilling of 6N-IBAA behind abutment and wingwalls, placement of Paralink500. West GUC – Backfilling 6F2 to approach slab and pavement formation. Installing drainage, ducting and kerbing.
Observations East GUC The Paralink500 geogrid reinforcement had been installed the previous weekend behind the abutment over a length of about 20m, and the 1st 250mm layer of Class 6N completed. During the site visit, filling of the the 2nd 250mm layer of Class 6N_IBAA behind the abutment and between the wingwalls was being carried out. Nico from Maccaferri was in attendance to observe the installation of the Paralink500. The Paralink exposed beneath the front fill line was noted to be laid flat, and not rucked too much. The ends were hung on nails set into the walls to keep them free from the fill area and protect against damage by plant. However the Paralink500 at the edge of the fill line was exposed and being trafficked by the dumpers end tipping 6N into the fill area. Although no visible damage to the Paralink500 was observed by CGL, FMC were instructed to ensure the Paralink500 was protected with a layer of 6N-IBAA to prevent damage to the fibres by trafficking plant. CGL observed compaction of the 6N-IBAA using a smooth wheeled roller. Care was being taken not to damage the Paralink500 wrap over ends adjacent to the wingwalls and abutment. CGL and Maccaferri instructed FMC to use a wacker plate adjacent to the wingwalls and abutment wall once the geogrid had been wrapped over, to ensure good compaction at the edges. In front of the 6N fill line, the core 2C material had become churned up by dumpers end tipping the 6N_IBAA and there was ponded water from the previous weekend and morning rain. CGL advised FMC that the formation surface must be cleaned off, prior to laying the Paralink500 and filling. The surface was scraped during CGL's attendance such that ponded water and softened material were removed and the formation was firm under foot. It is noted that CGL were not in attendance to inspect the first 20m run of the formation. CGL and Maccaferri have requested photographs from FMC to verify the formation	

beneath this section of Paralink500 and 6N fill, and daily photos of the ongoing in order to verify the formation and for the design warranty.

East Yeading Brook north side (Zone 4).

CGL observed rills and gullies due to surface water run off from the lagoon stockpiled material towards East Yeading Brook wing wall (north side). Softened silt deposits were observed at the toe of the embankment and between the embankment and Yeading Brook. No washout plumes were observed in Yeading Brook at the time of the visit but these have been seen in CGL's site visit on 6/04/18 (SVR 106).

Sampling and/or testing undertaken or observed

None.

Other comments and observations (ecological concerns? Water observations? Anticipated issues?)

East GUC:-

- The formation surface must be cleaned off and softened material and ponded water removed prior to laying the Paralink500 and filling.
- FMC to ensure the Paralink500 is laid as flat as possible to avoid slackness and waves in the geogrid.
- Dumpers are not to track directly over the Paralink500 where it must be protected with a layer of fill to prevent damage to the geogrid.
- A wacker plate is to be used adjacent to the wingwalls and abutment once the geogrid has been wrapped over to ensure good compaction at the edges.

East Yeading Brook north side (Zone 4).

- Measures to be taken to control surface water run off and prevent silt washout into Yeading Brook.

Correspondence requested by FMC

FMC to provide daily diary and photographs of Paralink500 and filling of Class6N-IBAA at east GUC in order to verify the formation and warranty the construction in accordance with the design.

Correspondence received from FMC

Site Observation Report Form



SITE:	Southall Western Access	JOB NO:	CG/28308
Date and time:	03/05/2018	VISIT BY:	CRG
WEATHER:			
Time	Description		
09:00 to 16:45	Dry, warm and sunny day with light winds		
SVR 109			

Site operations

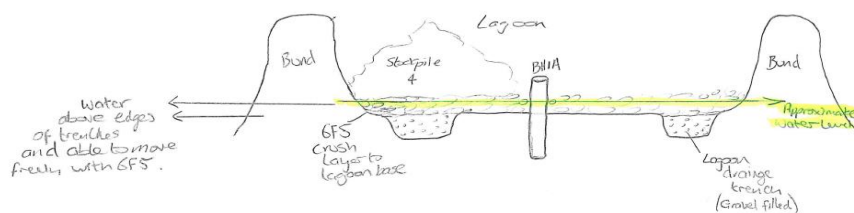
Work in hand

- Continuation of East GUC backfilling of 6N-IBAA behind abutment and wingwalls, and installation of Paralink500.
- Installation of 6F2 capping to West GUC approach slab and pavement sections.
- Installation of drainage, ducting and kerbing to Yeading Brook bridge road deck.
- Yeading Brook river bank widening and landscaping works, river water diversion and fish rescue.
- Fill and compaction works to Pump lane/ River Crane area.
- Full CGL groundwater and surface water construction monitoring round (round 30).

Observations

CGL ground water and surface water monitoring:

Flood water previously observed in the lagoon has subsided and was no longer observed above ground level. The water level does however remain above the capacity of the lagoon drainage trench and seems to be close to the ground surface when looking down the drainage trench extraction pipes. This was not the intended drainage trench design and so the capture and quarantine of runoff sits amid placed 6F5 at the lagoon base where lateral seepage is possible.



Placement of the 6N-IBAA and Paralink500 in East GUC continued, as weather conditions were much drier compared to initial placement works earlier in the week, no saturated or softened material was identified during visual inspections of both the formation level and placed 6N-IBAA. Approximately 60% of the 6N-IBAA and Paralink500 was placed behind the East GUC abutment, north and south wingwalls during the inspection. The Paralink500 was placed on a suitable formation level of which was firm underfoot, visually stable with no deleterious objects; loose, wet and soft material had been scraped clear of the fill area. Class 2C sourced from Blackwell was placed in front of the wingwalls and suitably compacted. There were no visual or olfactory indicators of contamination observed in the placed Class 2C or 6N-IBAA material at this stage.

At the exposed end at the front of the fill area, the placed Paralink500 was level, not tangled and neatly draped over the wingwall. Edges at the frontline were slightly bundled against the vertical sides rather than hung up as works were underway to removed 6N-IBAA that had been temporally placed to protect the geogrid from plant movement and therefore allowing sufficient marrying together of the geogrid for the next 20m placement. Approximately five 250mm layers of 6N-IBAA were placed above the Paralink500 and two layers were placed underneath. CGL observed compaction of the Class 2C in front of the wingwalls using a studded wheel roller, compaction of the 6N-IBAA was achieved using a smooth wheeled roller and wacker plate along the edge margins. It was advised that placed 6N-IBAA and Class 2C were at risk of desiccation with the forthcoming dry and hot weather and this should be removed. CGL and Maccaferri have requested photographs from FMC to verify the formation beneath this section of Paralink500 and 6N-IBAA fill, and daily photos of the ongoing to verify the formation and design warranty.

A full round of ground water and surface water sampling was undertaken, some damage was observed to BH4B making it difficult to extract water using a bailer. The midstream surface water sample (MYB) was taken slightly upstream from the usual sample location due to water diversion following landscaping and widening works to the Yeading Brook bank.

East Yeading Brook north side (Zone 4).

There appears to be no action on diverting or mitigating rain event runoff, silt washout and subsequent gully along the Zone 4 embankment. Silt deposits along the embankment toe indicate a direct movement of entrained sediment and runoff into Yeading Brook. Silt deposits at the embankment toe have become heavily vegetated therefore disguising the issue. Short-term surface drainage should be considered for the GUC in preventing preferential runoff and silt pathways into the canal.

Sampling and/or testing undertaken or observed

11 water samples were collected and submitted to i2 analytical.

Other comments and observations (ecological concerns? Water observations? Anticipated issues?)

There is no pedestrian access to East GUC from the Brent Rd FMC compound. Mobilisation between the compound and East GUC is via a suitable vehicle or vehicle escort. Pedestrian access is only possible from passing the GUC bridge.

- It is advised that the lagoon water is drained to within the capacity of the purpose-built trenches.
- CRG advised FMC (Derek) of additional Phenol testing to four surface water samples to discount possibility of cross contamination between ground and surface water samples.
- Ensure Paralink500 is laid flat to avoid troughs and peaks within the geogrid.
- CRG advised FMC to remove wetted/ soft material (in wet weather) and desiccated material (in dry weather) during the East GUC filling works.
- A wacker plate should be used along the wingwall and abutment edges and the geogrid should be wrapped to ensure good compaction at the edges.
- Measures to be taken to control surface water run-off and prevent silt washout into Yeading Brook at the toe of zone 4 embankment (East Yeading Brook).

Correspondence requested by FMC

FMC requested to provide daily diary and photographs of Paralink500 and filling of Class6N-IBAA at east GUC in order to verify the formation and warranty the construction in accordance with the design.

Correspondence received from FMC

Confirmation to proceed with additional Phenol testing.

Site Observation Report Form



SITE:	Southall Western Access	JOB NO:	CG/28308
Date and time:	08/05/2018 09:50 to 18:00	VISIT BY:	ALC
WEATHER:			
Time	Description		
09:50 to 18:00	Dry, very hot and sunny.		
SVR 110			

Site operations

Work in hand	- Continuation of East GUC backfilling of 6N-IBAA behind abutment and wingwalls, and installation of Paralink500. - Filling and compaction to core of area between East GUC wingwalls with Class 1 Stockpile 111 material. - Placement of Paralink500 to end of wingwalls. - Installation of drainage, ducting and kerbing to Yeading Brook bridge road deck. - Yeading Brook river bank widening and landscaping works, river water diversion and fish rescue.
---------------------	---

Observations

East GUC :

Continued filling and compaction of the 6N-IBAA behind the wingwalls and Class 2C from Stockpile 111 to the central core between the 6N-IBAA, and installation of the Paralink500 completed to the end of the wingwalls.

Weather conditions were very dry and hot, no saturated or softened material was identified during visual inspections of both the formation surface and placed 6N-IBAA and Class 2C. The Paralink500 was placed on a suitable formation level of which was firm underfoot and flat with no deleterious objects. At the front of the fill area, the exposed placed Paralink500 was flat and the layers were abutted together. The wrap over ends of the Paralink500 were hung up neatly on the west wingwall, and draped over the shorter east GUC wingwall.

Two 250mm layers (Layers 1 and 2) of 6N-IBAA and Class 2C were placed above the Paralink500 to the ends of the wingwalls. CGL observed compaction of the Class 2C using a studded wheel roller, compaction of the 6N-IBAA was achieved using a smooth wheeled roller. Compaction was taken as close to the wingwalls as possible without damaging the Paralink500 draped to the side. Once wrapped over the 6N-IBAA placed on top and the Paralink500 is covered over, the edges will be compacted using a wacker plate. CGL and Maccaferri have requested photographs from FMC to verify the formation beneath this section of Paralink500 and 6N-IBAA fill, and daily photos of the ongoing to verify the formation and design warranty.

A strong olfactory odour was present in the Class 2C fill material. Cognition voiced their concerns that

the material might be unsuitable due to hydrocarbon contaminants. The issue had been discussed with FMC last Friday when filling with the material commenced. FMC confirmed that Stockpile 111 had been tested and the results had indicated it was suitable with no exceedances of contaminants. CGL have checked the data which indicates Stockpile 111 material meets both the re-use and import criteria. However, this data may not represent the current observations of staining and odorous soils observed both in Stockpile 111 and the placed fill sourced from that stockpile. Currently the fill level is below the top of the shorter north GUC wingwall and so effectively encapsulated by the 6N-IBAA and wingwalls. The concern is that if this material is contaminated, filling with this material above the wingwalls could create a preferential pathway for leaching of contaminants into the canal and ground. Cognition intend to place a 3rd layer up to the top of the north GUC wingwall. This will be completed by Friday. Further contamination test results on samples taken today by Cognition from Stockpile 111 and the placed fill, are expected on Friday, to confirm suitability, or otherwise, of the material.

East Yeading Brook north side (Zone 4).

There appears to be no action on diverting or mitigating rain event runoff, silt washout and subsequent gully along the Zone 4 embankment (see previous SVR's 108 and 109). CGL recommend short-term protection measures are installed to prevent preferential runoff and silt pathways into the canal.

Sampling and/or testing undertaken or observed

The test data for the Stockpile 111 Class 2C received so far doesn't include the full import suite, which includes hydrocarbons, likely to be present from the recent observations.

In view of the above, and olfactory and visual indications of hydrocarbon contaminants within the material Cognition took further samples today for contaminant testing:-

- Stockpile 111 – 3 samples;
- East GUC fill sourced from Stockpile 111 – 3 samples from Layer 1 placed on Friday 4/05/18 & 08/05/18);
- East GUC fill sourced from Stockpile 111 – 3 samples from Layer 2 placed on 08/05/18.

Cognition will schedule the testing on a quick turnaround and the results are expected back this Friday. CGL have recommended that a minimum 3 no. of these samples are tested to include the full import suite which includes hydrocarbons, in addition to the re-use criteria suite.

Other comments and observations (ecological concerns? Water observations? Anticipated issues?)

- ALC advised FMC to selectively use material from Stockpile 111 which is not visually stained to avoid the more onerous material with respect to contaminants;
- ALC advised FMC that filling with Class 2C above the wingwall should not be undertaken until further testing confirmed contaminant concentrations and suitability for reuse;
- Ensure Paralink500 is laid flat to avoid troughs and peaks within the geogrid;
- A wacker plate should be used along the wingwall and abutment edges and the geogrid should be wrapped to ensure good compaction at the edges;
- Measures to be taken to control surface water run-off and prevent silt washout into Yeading Brook at the toe of zone 4 embankment (East Yeading Brook).

Correspondence requested by FMC/CGL

FMC requested to provide daily diary and photographs of Paralink500 and filling of Class6N-IBAA at east GUC in order to verify the formation and warranty the construction in accordance with the design.

Correspondence received from FMC

Site Observation Report Form



SITE:	Southall Western Access	JOB NO:	CG/28308
Date and time:	14/05/2018 09:15 to 13:45	VISIT BY:	ALC
WEATHER:			
Time	Description		
09:15 to 13:45	Dry, sunny, warm in morning becoming hot in afternoon.		
SVR 111			

Site operations

Work in hand	• Backfilling central core between East GUC wingwalls and 6N-IBAA with Class 1 material from Blackwells Stockpile 11. • Filling and compaction to core of area between East GUC wingwalls with Class 1 Stockpile 111 material. • Placement of Paralink500 to end of wingwalls. • Installation of drainage, ducting and kerbing to Yeading Brook bridge road deck. • Yeading Brook river bank widening and landscaping works, river water diversion and fish rescue.
---------------------	---

Observations

East GUC :

Placement of the final two strips of Paralink500 entrenched at the end of the wingwalls, was completed last Friday 11th May. This had been done despite CGL's request to be in attendance to verify the installation. Cognition have forwarded photos of the installation to CGL today.

Filling with material from Stockpile 111 to East GUC has now ceased following observations of hydrocarbon contamination of this material during the last site visit last Tuesday 8th May. Stockpile 111 material has been placed in the first 3 layers of the core filling area between the 6N-IBAA structural fill to the wingwalls. The top 3rd layer is level with the top of the north GUC wingwall adjacent to the canal.

Filling and compaction with padfoot roller to the core area between the wingwalls is now continuing using lime treated granular material from Blackwell's Stockpile 11 (250mm thick layers 4 and 5), and within the embankment area ahead of the wingwalls (250mm thick layers 3 and 4). No visual or olfactory evidence of contamination was observed in the Stockpile 11 fill.

Weather conditions were very dry and hot, no saturated or softened material was identified during visual inspections of both the formation surface and top of fill layers.

6N-IBAA had been compacted satisfactorily with a smooth wheeled roller up to the wingwalls.

West Yeading Brook reed bed installation.

Dredging slit/clay from brook and installing reed beds. Dredged material containing deleterious material

(tyres, wood, plastic piping, tree branches and roots) stockpiled adjacent to the brook. No visual or olfactory hydrocarbon contamination was observed.

Flood Compensation Area

Dredging slit/clay from Yeading Brook concrete channel.

Shaping temporary Made Ground (gravelly clay) stockpile within FCA. Some visual and olfactory evidence of contamination, and deliterous material (tyres, wood, concrete boulders with rebar).

Sampling and/or testing undertaken or observed

Contamination testing undertaken by Cognition:-

1. Stockpile 111 and as placed material to east GUC wingwalls. Contamination test results still awaited:
2. Stockpile 11 samples taken on Friday 11th May and have been scheduled on a quick turnaround for contamination testing. Results expected Tuesday 15th/Wednesday 16th May.

Plate Bearing Testing (600mm diameter) undertaking by Cognition:-

3. Formation surface at end of south GUC wing wall (beyond Paralink500 installation) – CBR of 13%.
4. 4th layer on embankment fill approx. CH 390, SP 11 material. – CBR 7%.

Cognition will schedule the testing on a quick turnaround and the results are expected back this Friday.

Other comments and observations (ecological concerns? Water observations? Anticipated issues?)

- Measures still need to be taken to control surface water run-off and prevent silt washout into Yeading Brook at the toe of zone 4 embankment (East Yeading Brook).

Correspondence requested by FMC/CGL

FMC/Cognition to forward test results on SP 11 and SP 111 material to CGL as soon as possible.

Correspondence received from FMC

- Photos received from Cognition of entrenched Paralink500 installation carried out on Friday 11th May. Based on the photos provided the Paralink appears to have been placed flat across the formation, and within the trenches. CGL have forwarded photos to Nico (Maccaferri) for review.

Site Observation Report Form



SITE:	Southall Western Access	JOB NO:	CG/28308
Date and time:	17/05/2018 09:00 to 16:35	VISIT BY:	CRG
WEATHER:			
Time	Description		
09:00 to 16:35	Dry, sunny and warm with light winds		
SVR 112			

Site operations	
Work in hand	• Yeading Brook bank widening, reed bed installation and landscaping works • Installation of drainage, ducting and kerbing to Yeading Brook bridge road deck • Placement of Paralink500 to end of wingwalls • Fill works to Pump Lane area • Full ground and surface water monitoring (round 31)
Observations	
Yeading Brook reed bed installation Dredging slit/clay from Yeading Brook and installing reed beds. Dredged material containing deleterious material (general litter, wood, plastic piping, tree branches and roots) stockpiled adjacent to the brook. No visual or olfactory hydrocarbon contamination was observed. The Brook water was visually cloudy from the silt disturbance though coarse suspended sediment appeared to be retained by the fish capture netting that cross the channel. Invasive species A full groundwater and surface water monitoring round was completed (round 31), access to some borehole (BH1B, BH2B) and surface water sample locations (FUYB, UYB) outside of the lagoon hoarding were restricted with dense overgrown vegetation. Additionally, invasive species such as Giant Hogweed and Japanese Knotweed were in full bloom near some locations. It is imperative that safe, clear access is maintained throughout the monitoring regime and invasive species are clearly identified, quarantined and workers are informed of their location, extent and the possible risk. I've included a rough sample location plan showing the approximate location of Giant Hogweed and Japanese Knotweed species.	
Sampling and/or testing undertaken or observed	
A total of 11 water samples were obtained from 7 borehole and 4 surface water sample locations and submitted directly to i2 for laboratory testing.	

Other comments and observations (ecological concerns? Water observations? Anticipated issues?)

- Embankment toe drainage or surface runoff management should be implemented to impede the direct pathway of entrained silt into Yeading Brook.
- Invasive species in full bloom such as Giant Hogweed and Japanese Knotweed should be fenced off and construction workers should be notified of the personal dangers and risk of spread around the site from vehicle and pedestrian movements.
- Two of Environ's damaged boreholes have been replaced though it appears the redundant boreholes have not been suitably decommissioned. One redundant location is positioned directly in the Yeading Brook channel providing a direct pathway to groundwater and natural underlying strata. The redundant borehole is unsealed with open slotted pipe protruding above ground surface exposing it to possible cross-contamination, particularly with silt washout flowing into its proximity from the zone 4 embankment.

Correspondence requested by FMC/CGL**Correspondence received from FMC****Invasive species approximate location**