



Number:

OP12

Project
Project No
Client

Haulbowline East Tip
P12030
Cork County Council



Number:

OP12

Project
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Client

Haulbowline East Tip
P12030
Cork County Council



Number:

OP12

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Priority Geotechnical Ltd.
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Slit Trench No

OP13

Sheet 1 of 1

Project Name:

Haulbowline East Tip

Project No.

P12030

Co-ords: 179680E - 65397N

Level: 3.10 m AOD

Date

30/05/2012

Location: Haulbowline, Co Cork

Dimensions: 5.00m

Depth

3.50m

2.00m



Scale

1:25

Client: Cork County Council

Logged By

PL

| Water Strikes | Samples & In Situ Testing | | | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|---------------|---------------------------|------|---------|---------------|-----------|---|--------|
| | Depth (m) | Type | Results | | | | |
| ▽ | | | | 2.10 | 1.00 | Unprocessed SLAG (approx. 60%) with mixed plastics (approx. 10%), metal (approx. 10%), refractories (approx. 10%) and some large metal pieces (gas cylinders and re-bar). | |
| | | | | | | Unprocessed SLAG in molten, pockmarked gravel and cobble form with occasional refractories (<1%). | |
| | | | | -0.40 | 3.50 | Slit Trench Complete at 3.50 m | |
| Water | Depth | Type | Results | Level | Depth | | |

Remarks: Existing pit.



Number:

OP13

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Project Name:

Haulbowline East Tip

Project No.

P12030

Co-ords: 179642E - 65390N

Level: 3.19 m AOD

Date

07/06/2012

Location: Haulbowline, Co Cork

Dimensions:

4.00m

Depth

3.00m

2.50m

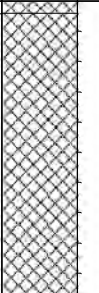
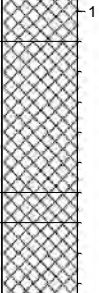
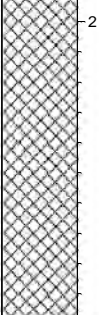
Scale

1:25

Client: Cork County Council

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| Samples & In Situ Testing | | | | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|---------------------------|------------------------|----------|---------|------------------|--------------|---|---|
| Water | Depth (m) | Type | Results | | | | |
| | | | | 3.15 | 0.04 | Topsoil with unprocessed SLAG (approx. 50%). Black Sludge with strong odour of hydrocarbons. |  |
| | 0.40-0.70 0.40-0.70 | ES ES | | | | | |
| | | | | 2.09 | 1.10 | Oxidised brown Mill Scale. | |
| | 1.10-1.60 1.10-1.60 | ES ES | | | | |  |
| | | | | 1.59 | 1.60 | White chalk like material. | |
| | 1.70 1.70 | ES ES | | | 1.49 | 1.70 | Grey, unprocessed SLAG. |
| | | | | | | |  |
| | | | | 0.19 | 3.00 | Trial pit completed at 3.00 m | |

| Water | Depth (m) | Type | Results | Level | Depth |
|-------|-----------|------|---------|-------|-------|
| | | | | | |

Stability:

Plant:

Backfill: Arisings.

Groundwater: Standing at 2.6m.

Remarks: Existing pit.



Number:

OP14

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Number:

OP14

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P12030
Cork County Council



Number:

OP14

Project
Project No
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P12030
Cork County Council



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| <p>Number: OP14</p> | <p>Project Haulbowline East Tip Project No P12030 Client Cork County Council</p> | |
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Number:

OP14

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Haulbowline East Tip
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Number:

OP14

**Project
Project No
Client**

Haulbowline East Tip
P12030
Cork County Council



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Drilled By
JC
Logged By
GB/ PL

Borehole No
BH301
Sheet 1 of 1

| | | | |
|--|--|----------------------------------|--------------------------------------|
| Project Name: Haulbowline East Tip | Project No. P12030 | Co-ords: 179569E - 65541N | Hole Type Cable Percussion |
| Client: Cork County Council | Dates: 11/05/2012-12/05/2012 | Level: 3.11 m AOD | Scale 1:50 |

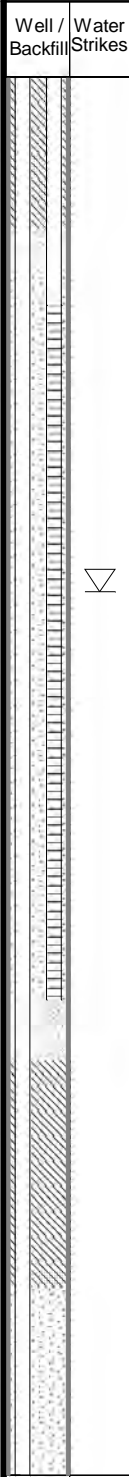
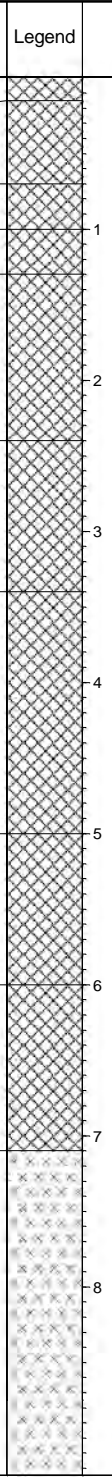
| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|-----------------|---------------|---------------------------|------|---------|----------------|---------------|-----------|--|--------|
| | | Depth (m) | Type | Results | | | | | |
| | | 0.30 | ES | | | 2.71 | 0.40 | Topsoil with occasional grey bricks. | |
| | | 1.00 | B | | | 2.11 | 1.00 | Light to dark grey, unprocessed SLAG in granular and cobble sized form with occasional bricks, <5% of timber and grey, broken metal. | |
| | | 1.00 | D | | | | | | |
| | | 1.00 | ES | | | | | Dark grey, unprocessed SLAG with sandy gravelly Clay and a minute amount of waste steel and occasional broken grey bricks. | 1 |
| | | 2.00 | B | | | 1.11 | 2.00 | Dark brown/ black, unprocessed SLAG in granular form with approximately 10% concrete, broken bricks, rubble and 1% plastic. | |
| | | 2.00 | D | | | | | | 2 |
| | | 2.00 | ES | | | | | 2.0m - 3.0m: Possible odour of hydrocarbons noted. | |
| | | 2.00 | ES | | | | | | |
| | | 3.00 | D | | | 0.11 | 3.00 | Concrete - Possible old quay wall (sloping in pit from 3.0m - 3.5m). | 3 |
| | | 3.00 | ES | | | | | | |
| | | 3.00 | ES | | | | | | |
| | | 3.00 | B | | | | | | |
| | | | | | 3.50 | -0.39 | 3.50 | End of Borehole at 3.50 m | |
| | | | | | | | | | 4 |
| | | | | | | | | | 5 |
| | | | | | | | | | 6 |
| | | | | | | | | | 7 |
| | | | | | | | | | 8 |

| Water | Depth (m) | Type | Results | Casing | Level | Depth | | | | | |
|--------|-----------|-------|---------|-------------------|------------|---------------|-----------------|-------------|------------|-------------|------|
| Struck | Rose to | After | Sealed | Comment | Hole Depth | Hole Diameter | Casing Diameter | Chiselling: | Depths (m) | Time (hhmm) | Tool |
| - | - | - | - | None encountered. | 3.50m | - | - | | to | | |

| | | | | | |
|--|--------------------|-------------|--------------------|--------------|-------------------|
| Remarks: Excavated to 3.5m using 21t tracked excavator. Borehole terminated due to obstruction on possible quay wall. | Shift Data: | Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks |
| | | - | 11/05/2012 | 0.00m | Start of Borehole |
| | | - | 11/05/2012 | 3.00m | End of shift |
| | | - | 12/05/2012 | 3.00m | Start of shift |
| | | - | 12/05/2012 | 3.50m | End of Borehole |

Equipment & Methods: Dando 2000

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|--|--|----------------------------------|---------------------------------------|
| Project Name: Haulbowline East Tip | Project No.: P12030 | Co-ords: 179570E - 65542N | Hole Type: Cable Percussion |
| Client: Cork County Council | Dates: 15/05/2012-21/05/2012 | Level: 3.10 m AOD | Scale: 1:50 |

| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|---|---------------|---------------------------|------|---------|----------------|---|---|--------------------------------|--|
| | | Depth (m) | Type | Results | | | | | |
|  | | 0.20-0.30 | B | | | 2.95 | 0.15 | Topsoil with unprocessed SLAG. |  |
| | | 0.20-0.30 | D | | | Grey, unprocessed SLAG with occasional bricks and metal. | | | |
| | | 0.20-0.30 | ES | | | | Dark grey, Mill Scale/ possible flue dust. | | |
| | | 0.60-1.00 | B | | | Light brown, Mill Scale with unprocessed slag. | | | |
| | | 0.60-1.00 | D | | | | Unprocessed, furnaced, pockmarked SLAG with refractory brick, approximately 1% timber and 1% metal. | | |
| | | 0.60-1.00 | ES | | | Unprocessed, furnace SLAG with occasional re-bar, fragments of metal bar, steel plates. | | | |
| | | 0.60-1.00 | ES | | | | Unprocessed, furnace SLAG with approximately 2% plastic, 1% metal, refractory bricks and cobbles (10%). | | |
| | | 2.00 | ES | | | 4.0m: Strong odour of petroleum noted. | | | |
| | | 2.00 | ES | | | | Unprocessed SLAG with metal, timber and domestic refuse. | | |
| | | 2.00 | B | | | N=48 (10,12/10,12,13,13) | | | |
| | | 2.00 | D | | | | Light to dark grey, unprocessed, pockmarked SLAG in granular and cobble sized form with some waste metal. | | |
| | | 3.00 | B | | | N=5 (5,1/1,2,1,1) | | | |
| | | 3.00 | D | | | | Soft, light grey, slightly sandy SILT. | | |
| | | 3.00 | ES | | | 15blows | | | |
| | | 4.00 | B | | | | 100% recovery | | |
| | | 4.00 | D | | | N=6 (1,2/1,2,1,2) | | | |
| | | 4.00 | ES | | | | | | |
| | | 4.00 | ES | | | | | | |
| | | 5.00 | ES | | | | | | |
| | | 6.00 | CPT | | | | | | |
| | 6.00 | B | | | | | | | |
| | 6.00 | D | | | | | | | |
| | 6.00 | ES | | | | | | | |
| | 7.00 | CPT | | | | | | | |
| | 7.50 | B | | | | | | | |
| | 7.50 | D | | | | | | | |
| | 7.50 | ES | | | | | | | |
| | 7.50-7.95 | U | | | | | | | |
| | 7.95-8.10 | D | | | | | | | |
| | 8.50-9.00 | B | | | | | | | |
| | 9.00 | SPT | | | | | | | |
| | 9.00 | D | | | | | | | |

| | | | | | | | |
|-------|-----------|------|---------|--------|-------|-------|----------------------|
| Water | Depth (m) | Type | Results | Casing | Level | Depth | Continued next sheet |
|-------|-----------|------|---------|--------|-------|-------|----------------------|

| | | | | | | | | | | |
|---------------------|---------|-------|--------|---------|--------------------------|---------------|-----------------|--------------------|-------------|--------|
| Groundwater: | | | | | Hole Information: | | | Chiselling: | | |
| Struck | Rose to | After | Sealed | Comment | Hole Depth | Hole Diameter | Casing Diameter | Depths (m) | Time (hhmm) | Tool |
| 3.40m | - | - | - | | 17.80m | 200mm | 200mm | 5.00 to 6.80 | 0300 | Chisel |
| | | | | | | | | 16.30 to 16.60 | 0100 | Chisel |
| | | | | | | | | 17.00 to 17.20 | 0030 | Chisel |
| | | | | | | | | 17.60 to 17.80 | 0100 | Chisel |
| | | | | | | | | 17.80 to 17.80 | 0130 | Chisel |

| | | | | | |
|---|--------------------|-------------|--------------------|--------------|----------------|
| Remarks: Excavated to 5.0m using 21t tracked excavator. Casing installed at 4.6m. Borehole terminated due to obstruction. Falling head permeability test carried out . 2No. 50mm dia standpipes with geosock installed, response zone from 6.1m to 1.5m and from 17.8m to 16.3m. | Shift Data: | Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks |
| | | 3.00m | 16/05/2012 | 5.00m | Start of shift |
| | | 6.50m | 16/05/2012 | 9.00m | End of shift |
| | | 6.30m | 17/05/2012 | 9.00m | Start of shift |
| | | 14.20m | 17/05/2012 | 15.70m | End of shift |
| | | 9.60m | 18/05/2012 | 15.70m | Start of shift |
| | | 9.80m | 18/05/2012 | 17.80m | End of shift |
| Equipment & Methods: Dando 2000 | | | | | |

| | | | |
|--|--|----------------------------------|--------------------------------------|
| Project Name: Haulbowline East Tip | Project No. P12030 | Co-ords: 179570E - 65542N | Hole Type Cable Percussion |
| Client: Cork County Council | Dates: 15/05/2012-21/05/2012 | Level: 3.10 m AOD | Scale 1:50 |

| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|-----------------|---------------|---------------------------|-------|------------------------------|----------------|---------------|--|--|--------|
| | | Depth (m) | Type | Results | | | | | |
| | | 9.00 | ES | | | | | | |
| | | 9.00-9.45 | SPTLS | | | | Soft, light grey, slightly sandy SILT. | | |
| | | 11.20 | P | 100% recovery | | | | | |
| | | 11.50 | SPT | N=7 (2,1/2,1,2,2) | 11.50 | | | | |
| | | 11.50 | B | | | | | | |
| | | 11.50 | D | | | | | | |
| | | 11.50 | ES | | | | | | |
| | | 11.50-11.95 | SPTLS | | | | | | |
| | | 12.40 | P | 100% recovery | | | | | |
| | | 14.00 | B | | | | | | |
| | | 14.00 | D | | | | | | |
| | | 14.00 | ES | | | | | | |
| | | 14.50 | SPT | N=8 (1,2/2,1,2,3) | 14.50 | | | | |
| | | 14.50-14.95 | SPTLS | | | | | | |
| | | 15.20-15.70 | B | | | -12.00 | 15.10 | Stiff, brown, slightly sandy slightly gravelly CLAY with occasional cobbles. | |
| | | 16.00 | CPT | N=45 (6,8/10,10,12,13) | 16.00 | | | | |
| | | 16.50 | ES | | | | | | |
| | | 17.50 | CPT | N=56 (10,10/15,13,14,14) | 17.50 | | | | |
| | | 17.50 | B | | | | | | |
| | | 17.80 | CPT | 50 (14,15/20,20,10 for 30mm) | 17.80 | -14.70 | 17.80 | End of Borehole at 17.80 m | |

| Water | Depth (m) | Type | Results | Casing | Level | Depth |
|-------|-----------|------|---------|--------|-------|-------|
|-------|-----------|------|---------|--------|-------|-------|

| | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|
| Groundwater: Struck Rose to After Sealed Comment 3.40m - - - | | | | | Hole Information: Hole Depth Hole Diameter Casing Diameter 17.80m 200mm 200mm | | | Chiselling: Depths (m) Time (hhmm) Tool 5.00 to 6.80 0300 Chisel 6.80 to 16.60 0100 Chisel 16.60 to 17.20 0030 Chisel 17.20 to 17.80 0100 Chisel 17.80 to 17.80 0130 Chisel | | |
|---|--|--|--|--|--|--|--|--|--|--|

| | | | | |
|--|--------------------|--------------------|----------------|----------------|
| Remarks: Excavated to 5.0m using 21t tracked excavator. Casing installed at 4.6m. Borehole terminated due to obstruction. Falling head permeability test carried out. 2No. 50mm dia standpipes with geosock installed, response zone from 6.1m to 1.5m and from 17.8m to 16.3m. | Shift Data: | | | |
| | Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks |
| | 3.00m | 16/05/2012 | 5.00m | Start of shift |
| | 6.50m | 16/05/2012 | 9.00m | End of shift |
| | 6.30m | 17/05/2012 | 9.00m | Start of shift |
| | 14.20m | 17/05/2012 | 15.70m | End of shift |
| 9.60m | 18/05/2012 | 15.70m | Start of shift | |
| | 9.80m | 18/05/2012 | 17.80m | End of shift |

Equipment & Methods: Dando 2000



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|------------------------------|---|--|
| <p>Number: BH301A</p> | <p>Project Haulbowline East Tip Project No P12030 Client Cork County Council</p> | |
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Number:

BH301A

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Haulbowline East Tip
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Cork County Council



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BH301A

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| <p>Number: BH301A</p> | <p>Project Haulbowline East Tip Project No P12030 Client Cork County Council</p> | |
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Number:

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|--|--|----------------------------------|--------------------------------------|
| Project Name: Haulbowline East Tip | Project No. P12030 | Co-ords: 179621E - 65556N | Hole Type Cable Percussion |
| Client: Cork County Council | Dates: 17/05/2012-06/06/2012 | Level: 3.91 m AOD | Scale 1:50 |

| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|-----------------|---------------|------------------------------|---------------------|--------------------------|----------------|---------------|---|---|--------|
| | | Depth (m) | Type | Results | | | | | |
| | | 0.20 | ES | | 3.71 | 0.20 | Slightly sandy gravelly CLAY with unprocessed Slag. Madeground: Dark grey/ brown, slightly sandy CLAY with unprocessed Slag, approx. 5% household plastics, 2% timber and 5% steel/ cast iron. | | |
| | | 1.00 1.00 1.00 | B D ES | | 2.91 | 1.00 | Madeground: Dark brown, slightly sandy CLAY with unprocessed Slag and possible mill scale, approx. 5% timber, 2% refractory brick, 1% construction waste and 2% household plastic waste. | 1 | |
| | | 2.00 2.00 2.00 2.00 | B D ES ES | | | | | 2 | |
| | | 3.00 3.00 3.00 | D ES B | | 0.71 | 3.20 | Unprocessed SLAG with possible mill scale. | 3 | |
| | | 4.00 4.00 4.00 4.00 | B D ES ES | | | | | 4 | |
| | | 5.00 5.00 5.00 | B D ES | | 5.00 | -1.10 | 5.00 | Light to dark grey, unprocessed SLAG in granular and cobble sized, pockmarked pieces with traces of timber. | 5 |
| | | 6.00 6.00 6.00 6.00 | CPT D ES B | N=65 (15,13/16,18,15,16) | 6.00 | | | 6 | |
| | | 7.00 7.00 7.00 7.00 | CPT B D ES | N=56 (12,12/13,14,13,16) | 7.00 | | | 7 | |
| | | 8.00 8.00 8.00 8.00 | CPT B D ES | N=65 (14,14/13,15,17,20) | 8.00 | | | 8 | |
| | | 9.00 9.00 | CPT B | N=48 (9,10/10,12,13,13) | 9.00 9.10 | -4.90 | 8.80 | Light to dark grey, unprocessed SLAG with metal | |

| | | | | | | | | | |
|-------|-----------|------|---------|--------|-------|-------|----------------------|--|--|
| Water | Depth (m) | Type | Results | Casing | Level | Depth | Continued next sheet | | |
|-------|-----------|------|---------|--------|-------|-------|----------------------|--|--|

| | | | | | | | | | | |
|--|--|--|--|--|--|--|--|---|--|--|
| Groundwater: Struck Rose to After Sealed Comment 3.90m - - - Steady inflow. | | | | | Hole Information: Hole Depth Hole Diameter Casing Diameter 5.00m - 300mm 300mm 9.10m 300mm 200mm 20.80m 200mm 200mm | | | Chiselling: Depths (m) Time (hhmm) Tool 2.80 to 6.50 0200 Chisel 4.70 5.90 0130 Chisel 6.70 7.20 0130 Chisel 7.30 8.00 0200 Chisel 8.00 8.70 0230 Chisel | | |
|--|--|--|--|--|--|--|--|---|--|--|

| | | | | |
|---|--------------------|--------------------|----------------|-------------------|
| Remarks: Excavated to 5.0m using 21t tracked excavator. Casing installed at 4.5m. Borehole terminated at required depth. 50mm dia standpipe with gas tap installed, response zone from 9.7m to 1.5m. 50mm dia standpipe with geosock installed, response zone from 20.5m to 12.0m. Falling head permeability test carried out. | Shift Data: | | | |
| | Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks |
| | - | 17/05/2012 | - | Start of Borehole |
| | - | 17/05/2012 | - | End of shift |
| | 2.40m | 24/05/2012 | 5.00m | Start of shift |
| 3.50m | 24/05/2012 | 6.50m | End of shift | |
| - | 25/05/2012 | 6.50m | Start of shift | |
| - | 25/05/2012 | 8.80m | End of shift | |

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| Equipment & Methods: Dando 2000 |
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|--|--|----------------------------------|---------------------------------------|
| Project Name: Haulbowline East Tip | Project No.: P12030 | Co-ords: 179621E - 65556N | Hole Type: Cable Percussion |
| Client: Cork County Council | Dates: 17/05/2012-06/06/2012 | Level: 3.91 m AOD | Scale: 1:50 |

| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|-----------------|---------------|--|----------------------|--------------------------|----------------|-------------------------|--|---------------------|--------|
| | | Depth (m) | Type | Results | | | | | |
| | | 9.00 9.00 | D ES | | | | bolts and some tin. | | |
| | | 10.00 10.00 10.00 10.00 | CPT B D ES | N=52 (10,11/12,13,14,13) | 10.00 | -6.10 10.00 | Light to dark grey, unprocessed SLAG with metal and tin. | 10 | |
| | | 11.00 11.00 | CPT ES | N=3 (0,0/0,1,1,1) | 11.00 | -6.90 -7.10 11.00 | Very soft SILT. Very soft SILT with many shells. | 11 | |
| | | 12.00 12.00 | CPT ES | N=2 (0,0/0,0,1,1) | 12.00 | -8.10 12.00 | Very soft, light grey, slightly sandy SILT. Sand is fine. (Silt is noted as being very liquid. Poor recovery). | 12 | |
| | | 13.00 | CPT | N=1 (0,0/0,0,0,1) | 13.00 | | | 13 | |
| | | 14.00 | ES | | | | | 14 | |
| | | 16.00 16.00 16.00 15.00-18.00 | ES ES B CPT | N=4 (0,0/1,1,1,1) | 16.00 | | | 16 | |
| | | 18.00 18.00 | CPT ES | N=0 (0,0/-,-,-,-) | 18.00 | | | 17 | |

Water Depth (m) Type Results Casing Level Depth Continued next sheet

| | | | | | | | | | | |
|---|--|--|--|--|--|--|--|---|--|--|
| Groundwater: Struck 3.90m Rose to - After - Sealed - Comment Steady inflow. | | | | | Hole Information: Hole Depth Hole Diameter Casing Diameter 5.00m - 300mm 9.10m 300mm 20.80m 200mm | | | Chiselling: Depths (m) Time (hhmm) Tool 2.80 to 6.50 0200 Chisel 4.70 5.90 0130 Chisel 6.70 7.20 0130 Chisel 7.30 8.00 0200 Chisel 8.00 8.70 0230 Chisel | | |
|---|--|--|--|--|--|--|--|---|--|--|

| | | | | | | | |
|---|--------------------|---|---|-------------|--------------------|--------------|-------------------|
| Remarks: Excavated to 5.0m using 21t tracked excavator. Casing installed at 4.5m. Borehole terminated at required depth. 50mm dia standpipe with gas tap installed, response zone from 9.7m to 1.5m. 50mm dia standpipe with geosock installed, response zone from 20.5m to 12.0m. Falling head permeability test carried out. | Shift Data: | | | Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks |
| | - | - | - | - | 17/05/2012 | - | Start of Borehole |
| | - | - | - | - | 17/05/2012 | - | End of shift |
| | - | - | - | 2.40m | 24/05/2012 | 5.00m | Start of shift |
| | - | - | - | 3.50m | 24/05/2012 | 6.50m | End of shift |
| Equipment & Methods: Dando 2000 | - | - | - | - | 25/05/2012 | 6.50m | Start of shift |
| - | - | - | - | - | 25/05/2012 | 8.80m | End of shift |



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Borehole No
BH302
Sheet 3 of 3

| | | | |
|--|--|----------------------------------|--------------------------------------|
| Project Name: Haulbowline East Tip | Project No. P12030 | Co-ords: 179621E - 65556N | Hole Type Cable Percussion |
| Client: Cork County Council | Dates: 17/05/2012-06/06/2012 | Level: 3.91 m AOD | Scale 1:50 |

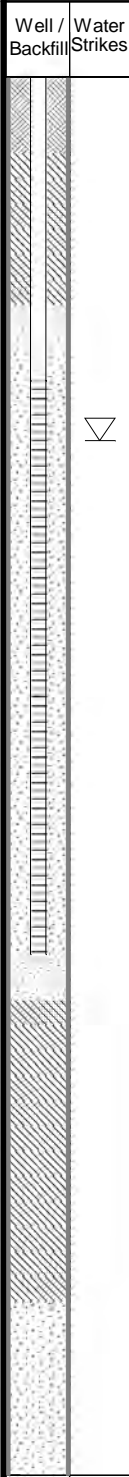
| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|-----------------|---------------|---------------------------|-----------|-------------------|----------------|---------------|--|----------------------------|--------|
| | | Depth (m) | Type | Results | | | | | |
| | | 20.00 20.00 | SPT ES | N=0 (0,0/-,-,-,-) | 20.00 | | Very soft, light grey, slightly sandy SILT. Sand is fine. (Silt is noted as being very liquid. Poor recovery). | | |
| | | | | | 20.80 | -16.90 | 20.80 | End of Borehole at 20.80 m | |

| Water | Depth (m) | Type | Results | Casing | Level | Depth |
|-------|-----------|------|---------|--------|-------|-------|
|-------|-----------|------|---------|--------|-------|-------|

| | | | | | | | | | | |
|--|--|--|--|--|--|--|--|---|--|--|
| Groundwater: Struck 3.90m Rose to - After - Sealed - Comment: Steady inflow. | | | | | Hole Information: Hole Depth: 5.00m, 9.10m, 20.80m Hole Diameter: -, 300mm, 200mm Casing Diameter: -, 300mm, 200mm | | | Chiselling: Depths (m): 2.80 to 6.50, 4.70 to 5.90, 6.70 to 7.20, 7.30 to 8.00, 8.00 to 8.70 Time (hhmm): 0200, 0130, 0130, 0200, 0230 Tool: Chisel, Chisel, Chisel, Chisel, Chisel | | |
|--|--|--|--|--|--|--|--|---|--|--|

| | | | | | | | |
|---|--------------------|---|---|-------------|--------------------|--------------|-------------------|
| Remarks: Excavated to 5.0m using 21t tracked excavator. Casing installed at 4.5m. Borehole terminated at required depth. 50mm dia standpipe with gas tap installed, response zone from 9.7m to 1.5m. 50mm dia standpipe with geosock installed, response zone from 20.5m to 12.0m. Falling head permeability test carried out. | Shift Data: | | | Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks |
| | - | - | - | - | 17/05/2012 | - | Start of Borehole |
| | - | - | - | - | 17/05/2012 | - | End of shift |
| | - | - | - | 2.40m | 24/05/2012 | 5.00m | Start of shift |
| | - | - | - | 3.50m | 24/05/2012 | 6.50m | End of shift |
| Equipment & Methods: Dando 2000 | - | - | - | - | 25/05/2012 | 6.50m | Start of shift |
| | - | - | - | - | 25/05/2012 | 8.80m | End of shift |

| | | | |
|--|--|----------------------------------|---------------------------------------|
| Project Name: Haulbowline East Tip | Project No.: P12030 | Co-ords: 179631E - 65525N | Hole Type: Cable Percussion |
| Client: Cork County Council | Dates: 08/05/2012-15/05/2012 | Level: 3.10 m AOD | Scale: 1:50 |

| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend | |
|---|---------------|------------------------------|-------------------------------------|--------------------|--------------------------|---------------|--|---|--|---|
| | | Depth (m) | Type | Results | | | | | | |
|  | | 0.20 0.20 | ES ES | | | | Dark brown, slightly sandy gravelly unprocessed SLAG with 1% waste plastic and 5% waste steel in construction form and occasional broken red bricks. | | | |
| | | 1.00 1.00 1.00 | B D ES | | | 2.10 | 1.00 | Light to dark grey, slightly sandy gravelly unprocessed SLAG with 10% cobble sized, pockmarked pieces. | 1 | |
| | | 2.00 2.00 2.00 | B D ES | | | | | | 2 | |
| | | 3.00 3.00 3.00 3.00 | D ES ES B | | | 0.10 | 3.00 | Light to dark grey, slightly sandy gravelly unprocessed SLAG with 15% cobble sized, pockmarked pieces, 10% waste steel and 5% refractory brick. | 3 | |
| | | 4.00 4.00 4.00 4.00 | B D ES ES | | | | | | 4 | |
| | | | | | 4.50 | -1.40 | 4.50 | Grey, unprocessed SLAG. | | |
| | | | | | | -1.90 | 5.00 | Light and dark grey, unprocessed SLAG in granular and cobbles sized, pockmarked pieces. | 5 | |
| | | | 5.00-6.00 5.00-6.00 5.50-6.00 | B D ES | | | | | 6 | |
| | | | 6.00-7.00 6.00-7.00 | B D | | | | | | |
| | | | 7.00 7.00 7.00-7.45 | SPT ES SPTLS | N=2 (0,0/1,0,1,0) | 7.00 | -4.00 | 7.10 | Very soft, light grey, slightly sandy SILT with shells. 7.1m: Broken glass. | 7 |
| | | | 7.10-8.00 7.10-8.00 | B D | | | | | | |
| | | | 8.00 8.00 | ES U | 21blows 100% recovery | | -4.90 | 8.00 | Very soft, light grey, sandy SILT with shells. | 8 |
| | | | 8.00-9.00 8.00-9.00 | B D | | | | | | |
| | | | 9.00 9.10 | ES SPT | N=2 (0,1/0,1,1,0) | 9.10 | | | | |

| | | | | | | | | | |
|-------|-----------|------|---------|--------|-------|-------|----------------------|--|--|
| Water | Depth (m) | Type | Results | Casing | Level | Depth | Continued next sheet | | |
|-------|-----------|------|---------|--------|-------|-------|----------------------|--|--|

| | | | | | | | | | | |
|--|--|--|--|--|---|--|--|--|--|--|
| Groundwater: Struck 2.40m Rose to - After - Sealed - Comment: Steady inflow at 2.4m. | | | | | Hole Information: Hole Depth: 4.50m, 10.50m Hole Diameter: 200mm Casing Diameter: 200mm | | | Chiselling: Depths (m) Time (hhmm) Tool 5.70 to 5.70 0200 Chisel 6.00 6:20 0200 Chisel 6.30 6:70 0130 Chisel 6.70 7:00 0030 Chisel | | |
|--|--|--|--|--|---|--|--|--|--|--|

| | | | | | | | |
|--|--------------------|------------|-------|-------------|--------------------|--------------|-------------------|
| Remarks: Excavated to 4.5m using 21t tracked excavator. Borehole terminated at required depth. 50mm dia standpipe installed, response zone from 5.8m to 2.0m. Falling head permeability test carried out. | Shift Data: | | | Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks |
| | - | 08/05/2012 | - | - | - | - | Start of Borehole |
| | - | 08/05/2012 | - | - | - | - | End of shift |
| | - | 11/05/2012 | 4.50m | - | - | - | Start of shift |
| | - | 11/05/2012 | 5.70m | - | - | - | End of shift |
| | 3.40m | 14/05/2012 | 5.70m | - | - | - | Start of shift |
| | 3.70m | 14/05/2012 | 8.00m | - | - | - | End of shift |

Equipment & Methods: Dando 2000



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Borehole No
BH303
Sheet 2 of 2

| | | | |
|--|--|----------------------------------|--------------------------------------|
| Project Name: Haulbowline East Tip | Project No. P12030 | Co-ords: 179631E - 65525N | Hole Type Cable Percussion |
| Client: Cork County Council | Dates: 08/05/2012-15/05/2012 | Level: 3.10 m AOD | Scale 1:50 |

| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|-----------------|---------------|---------------------------|---------|--------------------------|----------------|---------------|--|----------------------------|--------|
| | | Depth (m) | Type | Results | | | | | |
| | | 9.10-9.55 | SPTLS | | | | Very soft, light grey, sandy SILT with shells. | | |
| | | 10.00 10.00 | ES U | 22blows 100% recovery | | | | | |
| | | | | | 10.50 | -7.40 | 10.50 | End of Borehole at 10.50 m | |

| Water | Depth (m) | Type | Results | Casing | Level | Depth |
|-------|-----------|------|---------|--------|-------|-------|
|-------|-----------|------|---------|--------|-------|-------|

| | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|
| Groundwater: Struck 2.40m Rose to - After - Sealed - Comment Steady inflow at 2.4m. | | | | Hole Information: Hole Depth 4.50m Hole Diameter 200mm Casing Diameter 200mm | | | Chiselling: Depths (m) Time (hhmm) Tool 5.70 to 5.70 0200 Chisel 6.00 6.20 0200 Chisel 6.30 6.70 0130 Chisel 6.70 7.00 0030 Chisel | | |
|---|--|--|--|--|--|--|--|--|--|

| | | | | | | | |
|--|--------------------|------------|-------|-------------|--------------------|----------------|-------------------|
| Remarks: Excavated to 4.5m using 21t tracked excavator. Borehole terminated at required depth. 50mm dia standpipe installed, response zone from 5.8m to 2.0m. Falling head permeability test carried out. | Shift Data: | | | Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks |
| | - | 08/05/2012 | - | - | - | - | Start of Borehole |
| | - | 08/05/2012 | - | - | - | - | End of shift |
| | - | 11/05/2012 | 4.50m | - | - | - | Start of shift |
| | - | 11/05/2012 | 5.70m | - | - | - | End of shift |
| | 3.40m | 14/05/2012 | 5.70m | - | - | Start of shift | |
| | 3.70m | 14/05/2012 | 8.00m | - | - | End of shift | |

Equipment & Methods: Dando 2000



Number:

BH303

Project
Project No
Client

Haulbowline East Tip
P12030
Cork County Council



| | | |
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| <p>Number: BH303</p> | <p>Project Haulbowline East Tip Project No P12030 Client Cork County Council</p> | |
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Number:

BH303

Project
Project No
Client

Haulbowline East Tip
P12030
Cork County Council



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| Number: BH303 | Project Haulbowline East Tip Project No P12030 Client Cork County Council | |
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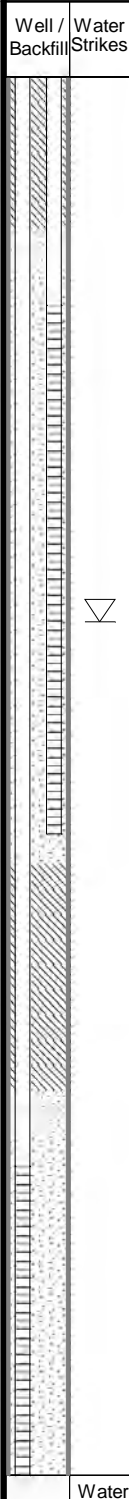
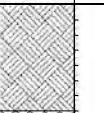

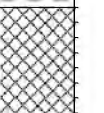
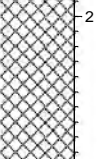
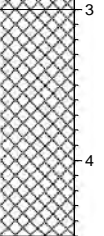
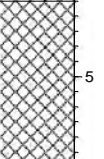
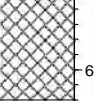

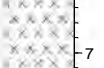
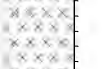
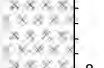
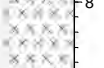
Number:

BH303

Project
Project No
Client

Haulbowline East Tip
P12030
Cork County Council

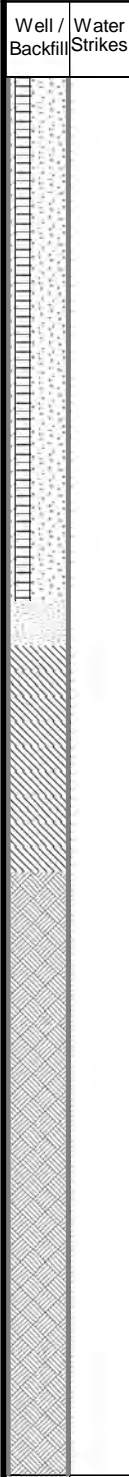
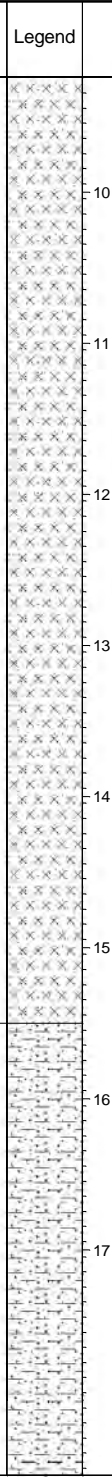
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|--|--|----------------------------------|--------------------------------------|
| Project Name: Haulbowline East Tip | Project No. P12030 | Co-ords: 179568E - 65454N | Hole Type Cable Percussion |
| Client: Cork County Council | Dates: 25/05/2012-08/06/2012 | Level: 3.47 m AOD | Scale 1:50 |

| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|---|---------------|---------------------------|-------|-------------------|-----------------------|---------------|---------------------------------------|--|---|
| | | Depth (m) | Type | Results | | | | | |
|  | | 0.30 | B | | | | Topsoil. |  | |
| | | 0.30 | D | | | | | | |
| | | 0.30 | ES | | | | | | |
| | | | 0.90 | B | | 2.77 | 0.70 | Dark grey, unprocessed SLAG with angular cobbles and some cobble sized pieces of slag. |  |
| | | | 0.90 | D | | 2.37 | 1.10 | | |
| | | | 0.90 | ES | | 2.27 | 1.20 | Light brown CLAY. | |
| | | | | | | | | Grey/ black unprocessed SLAG with approx. 2% plastic, 10% refractory bricks and 1% metal. |  |
| | | | 2.00 | B | | | | | |
| | | | 2.00 | D | | | | | |
| | | | 2.00 | ES | | | | |  |
| | | | 3.00 | B | | 0.47 | 3.00 | Grey/ black, unprocessed SLAG with small pieces of metal, molten and pockmarked pieces and 2% pieces of refractory bricks. | |
| | | | 3.00 | D | | | | 3.0m - 4.5m: Hydrocarbon sheen on water surface. | |
| | | | 3.00 | ES | | | | |  |
| | | | 4.20 | B | | | | | |
| | | | 4.20 | D | | | | | |
| | | | 4.20 | ES | | 4.50 | 4.50 | Light to dark grey, unprocessed SLAG in granular and cobbles sized form with sand. |  |
| | | | 4.20 | ES | | | | | |
| | | | 5.00 | CPT | N=46 (5,9/12,12,7,15) | 5.00 | | | |
| | | 5.60 | D | | | | |  | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | CPT | N=8 (5,5/5,1,1,1) | 6.00 | | | | |
| | | 6.00 | D | | | | |  | |
| | | 6.50 | D | | -2.73 | 6.20 | Grey, gravelly SILT. | | |
| | | 6.50 | D | | -2.93 | 6.40 | Very soft, grey, slightly sandy SILT. | | |
| | | 6.50-7.00 | B | | | | |  | |
| | | 6.50-7.00 | ES | | | | | | |
| | | 7.00 | SPT | N=2 (1,0/0,1,1,0) | 7.00 | | | | |
| | | 7.60 | D | | | | |  | |
| | | 7.50-8.00 | B | | | | | | |
| | | 7.50-8.00 | ES | | | | | | |
| | | 8.00-8.50 | B | | | | |  | |
| | | 8.00-8.50 | ES | | | | | | |
| | | 8.00-9.00 | P | 0% recovery | | | | | |
| | | 8.60 | D | | | | |  | |
| | | 9.00 | SPT | N=3 (1,0/0,1,1,1) | 9.00 | | | | |
| | | 9.00-9.45 | SPTLS | | | | | | |

| | | |
|--|--|---|
| Groundwater: Struck 3.60m Rose to - After - Sealed - Comment: Steady inflow at 3.6m. | Hole Information: Hole Depth 4.50m Hole Diameter 200mm Casing Diameter 200mm | Chiselling: Depths (m) Time (hhmm) Tool 4.50 to 4.90 0100 Chisel 5.30 to 5.50 0100 Chisel 5.90 to 6.00 0030 Chisel 14.30 to 14.40 0100 Chisel 16.30 to 16.60 0100 Chisel |
|--|--|---|

| Remarks: Excavated to 4.5m using 21t tracked excavator. Borehole terminated at required depth. 2No. 50mm dia standpipes installed, response zones from 5.0m to 1.5m and 12.7m to 7.2m. Falling head permeability test carried out. | Shift Data: | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|--------------|--------------------|--------------|---------|---|------------|---|-------------------|---|------------|---|--------------|---|------------|-------|----------------|-------|------------|-------|--------------|---|------------|-------|----------------|---|------------|--------|--------------|
| Equipment & Methods: Dando 2000 | <table border="1"> <thead> <tr> <th>Groundwater</th> <th>Shift (dd/mm/yyyy)</th> <th>Casing depth</th> <th>Remarks</th> </tr> </thead> <tbody> <tr> <td>-</td> <td>25/05/2012</td> <td>-</td> <td>Start of Borehole</td> </tr> <tr> <td>-</td> <td>25/05/2012</td> <td>-</td> <td>End of shift</td> </tr> <tr> <td>-</td> <td>06/06/2012</td> <td>4.50m</td> <td>Start of shift</td> </tr> <tr> <td>7.00m</td> <td>06/06/2012</td> <td>8.00m</td> <td>End of shift</td> </tr> <tr> <td>-</td> <td>07/06/2012</td> <td>8.00m</td> <td>Start of shift</td> </tr> <tr> <td>-</td> <td>07/06/2012</td> <td>18.00m</td> <td>End of shift</td> </tr> </tbody> </table> | Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks | - | 25/05/2012 | - | Start of Borehole | - | 25/05/2012 | - | End of shift | - | 06/06/2012 | 4.50m | Start of shift | 7.00m | 06/06/2012 | 8.00m | End of shift | - | 07/06/2012 | 8.00m | Start of shift | - | 07/06/2012 | 18.00m | End of shift |
| Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | 25/05/2012 | - | Start of Borehole | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | 25/05/2012 | - | End of shift | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | 06/06/2012 | 4.50m | Start of shift | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7.00m | 06/06/2012 | 8.00m | End of shift | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | 07/06/2012 | 8.00m | Start of shift | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | 07/06/2012 | 18.00m | End of shift | | | | | | | | | | | | | | | | | | | | | | | | | | |

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|--|--|----------------------------------|--------------------------------------|
| Project Name: Haulbowline East Tip | Project No. P12030 | Co-ords: 179568E - 65454N | Hole Type Cable Percussion |
| Client: Cork County Council | Dates: 25/05/2012-08/06/2012 | Level: 3.47 m AOD | Scale 1:50 |

| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|---|---------------|---------------------------|---------------------|-------------------|----------------|---------------|---|--|--------|
| | | Depth (m) | Type | Results | | | | | |
|  | | 9.60 | D | | | | Very soft, grey, slightly sandy SILT. |  | |
| | | 9.50-10.00 | B | | | | | | |
| | | 9.50-10.00 | ES | | | | | | |
| | | 10.00-11.00 | P | 70% recovery | | | | | |
| | | 11.00 | SPT | N=5 (1,0/1,2,1,1) | 11.00 | | | | |
| | | 11.00-11.45 | SPTLS | | | | | | |
| | | 11.60 | D | | | | | | |
| | | 11.50-12.00 | B | | | | | | |
| | | 11.50-12.00 | ES | | | | | | |
| | | 12.00-13.00 | P | 40% recovery | | | | | |
| | | 13.00 | SPT | N=1 (1,0/0,0,1,0) | 13.00 | | | | |
| | | 13.00-13.45 | SPTLS | | | | | | |
| | | 13.60 | D | | | | | | |
| | | 13.50-14.00 | B | | | | | | |
| | | 13.50-14.00 | ES | | | | | | |
| | | 14.00-15.00 | P | 0% recovery | | | | | |
| | | 15.00 | CPT | N=8 (2,3/2,2,2,2) | 15.00 | | | | |
| | | | | | -12.03 | 15.50 | Stiff, brown, slightly gravelly CLAY with occasional cobbles. | | |
| | 16.00 | CPT | N=36 (5,9/9,9,6,12) | 16.00 | | | | | |
| | 16.60 | D | | | | | | | |
| | 16.50-17.00 | B | | | | | CLAY is firm at 18.0m. | | |
| | 16.50-17.00 | ES | | | | | | | |
| | 17.00 | CPT | N=21 (5,5/5,4,3,9) | 17.00 | | | | | |
| | 17.60 | D | | | | | | | |
| | 17.50-18.00 | B | | | | | | | |
| | 18.00 | CPT | N=11 (2,2/2,3,3,3) | 18.00 | | | | | |

| | | | | | | | | | |
|-------|-----------|------|---------|--------|-------|-------|----------------------|--|--|
| Water | Depth (m) | Type | Results | Casing | Level | Depth | Continued next sheet | | |
|-------|-----------|------|---------|--------|-------|-------|----------------------|--|--|

| | | | | | | | | | | |
|--|--|--|--|--|--|--|--|---|--|--|
| Groundwater: Struck 3.60m Rose to - After - Sealed - Comment: Steady inflow at 3.6m. | | | | | Hole Information: Hole Depth: 4.50m / 20.00m Hole Diameter: 200mm Casing Diameter: 200mm | | | Chiselling: Depths (m) Time (hhmm) Tool 4.50 to 4.90 0100 Chisel 5.30 5.50 0100 Chisel 5.30 6.00 0030 Chisel 14.30 14.40 0100 Chisel 16.30 16.60 0100 Chisel | | |
|--|--|--|--|--|--|--|--|---|--|--|

| | | | | |
|---|--------------------|--------------------|----------------|-------------------|
| Remarks: Excavated to 4.5m using 21t tracked excavator. Borehole terminated at required depth. 2No. 50mm dia standpipes installed, response zones from 5.0m to 1.5m and 12.7m to 7.2m. Falling head permeability test carried out. | Shift Data: | | | |
| | Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks |
| | - | 25/05/2012 | - | Start of Borehole |
| | - | 25/05/2012 | - | End of shift |
| | 7.00m | 06/06/2012 | 4.50m | Start of shift |
| - | 06/06/2012 | 8.00m | End of shift | |
| - | 07/06/2012 | 8.00m | Start of shift | |
| - | 07/06/2012 | 18.00m | End of shift | |

Equipment & Methods: Dando 2000



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Borehole No
BH304
Sheet 3 of 3

| | | | |
|--|--|----------------------------------|---------------------------------------|
| Project Name: Haulbowline East Tip | Project No.: P12030 | Co-ords: 179568E - 65454N | Hole Type: Cable Percussion |
| Client: Cork County Council | Dates: 25/05/2012-08/06/2012 | Level: 3.47 m AOD | Scale: 1:50 |

| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|-----------------|---------------|---------------------------|------|--------------------|----------------|---------------|---|---------------------|--------|
| | | Depth (m) | Type | Results | | | | | |
| | | 18.60 | D | N=13 (3,5/3,2,2,6) | 19.00 | | Stiff, brown, slightly gravelly CLAY with occasional cobbles. | | |
| | | 18.50-19.00 | B | | | | | | |
| | | 18.50-19.00 | ES | | | | | | |
| | | 19.00 | CPT | | | | | | |
| | | 19.60 | D | | | | | | |
| | | 19.50-20.00 | B | | 20.00 | -16.53 | 20.00 | | |
| | | | | | | | End of Borehole at 20.00 m | | |

| Water | Depth (m) | Type | Results | Casing | Level | Depth |
|-------|-----------|------|---------|--------|-------|-------|
|-------|-----------|------|---------|--------|-------|-------|

| | | | | | | | | | |
|---------------------|---------|-------|------------------------|--------------------------|---------------|-----------------|--------------------|-------------|--------|
| Groundwater: | | | | Hole Information: | | | Chiselling: | | |
| Struck | Rose to | After | Sealed | Hole Depth | Hole Diameter | Casing Diameter | Depths (m) | Time (hhmm) | Tool |
| 3.60m | - | - | Steady inflow at 3.6m. | 4.50m | 200mm | 200mm | 4.50 to 4.90 | 0100 | Chisel |
| | | | | 20.00m | | | 5.30 to 5.50 | 0100 | Chisel |
| | | | | | | | 5.90 to 6.00 | 0030 | Chisel |
| | | | | | | | 14.30 to 14.40 | 0100 | Chisel |
| | | | | | | | 16.30 to 16.60 | 0100 | Chisel |

| | | | | | | | |
|---|--------------------|---|---|-------------|--------------------|----------------|-------------------|
| Remarks: Excavated to 4.5m using 21t tracked excavator. Borehole terminated at required depth. 2No. 50mm dia standpipes installed, response zones from 5.0m to 1.5m and 12.7m to 7.2m. Falling head permeability test carried out. | Shift Data: | | | Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks |
| | - | - | - | - | 25/05/2012 | - | Start of Borehole |
| | - | - | - | - | 25/05/2012 | - | End of shift |
| | - | - | - | 7.00m | 06/06/2012 | 4.50m | Start of shift |
| | - | - | - | - | 06/06/2012 | 8.00m | End of shift |
| | | | - | 07/06/2012 | 8.00m | Start of shift | |
| | | | - | 07/06/2012 | 18.00m | End of shift | |

Equipment & Methods: Dando 2000



Number:

BH304

Project
Project No
Client

Haulbowline East Tip
P12030
Cork County Council



Number:

BH304

Project
Project No
Client

Haulbowline East Tip
P12030
Cork County Council



| | | |
|-----------------------------|---|--|
| <p>Number: BH304</p> | <p>Project Haulbowline East Tip Project No P12030 Client Cork County Council</p> | |
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P12030
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Project No
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Cork County Council



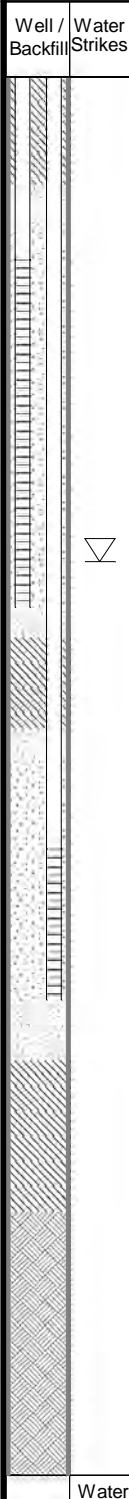
Number:

BH304

Project
Project No
Client

Haulbowline East Tip
P12030
Cork County Council

| | | | |
|--|--|----------------------------------|--------------------------------------|
| Project Name: Haulbowline East Tip | Project No. P12030 | Co-ords: 179627E - 65421N | Hole Type Cable Percussion |
| Client: Cork County Council | Dates: 24/05/2012-01/06/2012 | Level: 3.21 m AOD | Scale 1:50 |

| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|---|---------------|--|---------------------|--------------------|----------------|---------------|--|---------------------|--------|
| | | Depth (m) | Type | Results | | | | | |
|  | | 0.30 0.30 0.30 | B D ES | | | 2.51 0.70 | Topsoil. | | |
| | | 0.80-1.20 0.80-1.20 0.80-1.20 | B D ES | | | 1.31 1.90 | Grey/ brown, unprocessed SLAG in gravel and cobble sized pieces and 1% waste metal. | 1 | |
| | | 1.90-2.30 1.90-2.30 1.90-2.30 | B D ES | | | 0.91 2.30 | Light grey, unprocessed SLAG in gravel and pockmarked, cobble sized pieces. Some oxidised pieces also present. Unprocessed SLAG in gravel and cobble sizes. | 2 | |
| | | 3.00 3.00 3.00 | B D ES | | | 0.11 3.10 | Unprocessed SLAG in gravel and pockmarked cobbles sizes and approx. 20% refractory bricks. | 3 | |
| | | 4.00-4.50 4.00-4.50 4.00-4.50 4.00-4.50 | B D ES ES | | 4.70 | -1.49 4.70 | SLAG. | 4 | |
| | | 5.00 | CPT | (50 for 0mm) | | -1.99 5.20 | Light to dark grey, unprocessed SLAG. | 5 | |
| | | 5.50-6.00 5.50-6.00 5.50-6.00 | B D ES | | | -3.29 6.50 | Fine GRAVEL with beds of grey, sandy SILT. | 6 | |
| | | 6.50-7.00 6.50-7.00 6.50-7.00 7.00 | B D ES SPT | N=19 (4,6/6,5,4,4) | 7.00 | -3.99 7.20 | Light grey, slightly sandy SILT. | 7 | |
| | | 7.50-8.00 7.50-8.00 7.50-8.00 | B D ES | | | -4.79 8.00 | Very soft, light grey, sandy SILT. | 8 | |
| | | 8.00-9.00 | P | 0% recovery | | | | | |
| | | 8.50-9.00 8.50-9.00 9.00 | B D SPT | N=2 (1,0/1,0,1,0) | 9.00 | | | | |
| | | 9.00-9.45 | SPTLS | | | | | | |

| | | |
|---|--|---|
| Groundwater: Struck 3.20m Rose to - After - Sealed - Comment - Slow inflow at 3.2m. | Hole Information: Hole Depth 4.70m Hole Diameter 200mm Casing Diameter 200mm | Chiselling: Depths (m) Time (hhmm) Tool 2.00 to 2.20 0100 Chisel 2.50 3.60 0130 Chisel 4.60 4.70 0130 Chisel 5.00 5.10 0130 Chisel 5.10 5.20 0200 Chisel |
|---|--|---|

| Remarks: Excavated to 4.7m using 21t tracked excavator. Borehole terminated at required depth. 2No. 50mm dia standpipes with geosock installed, response zones from 3.5m to 1.2m and 6.1m to 5.1m. Falling head permeability test carried out. | Shift Data: | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|--------------|--------------------|--------------|---------|---|------------|---|-------------------|---|------------|---|--------------|---|------------|-------|----------------|---|------------|-------|--------------|---|------------|-------|----------------|---|------------|-------|--------------|
| Equipment & Methods: Dando 2000 | <table border="1"> <thead> <tr> <th>Groundwater</th> <th>Shift (dd/mm/yyyy)</th> <th>Casing depth</th> <th>Remarks</th> </tr> </thead> <tbody> <tr> <td>-</td> <td>24/05/2012</td> <td>-</td> <td>Start of Borehole</td> </tr> <tr> <td>-</td> <td>24/05/2012</td> <td>-</td> <td>End of shift</td> </tr> <tr> <td>-</td> <td>28/05/2012</td> <td>4.70m</td> <td>Start of shift</td> </tr> <tr> <td>-</td> <td>28/05/2012</td> <td>5.10m</td> <td>End of shift</td> </tr> <tr> <td>-</td> <td>29/05/2012</td> <td>5.10m</td> <td>Start of shift</td> </tr> <tr> <td>-</td> <td>29/05/2012</td> <td>5.20m</td> <td>End of shift</td> </tr> </tbody> </table> | Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks | - | 24/05/2012 | - | Start of Borehole | - | 24/05/2012 | - | End of shift | - | 28/05/2012 | 4.70m | Start of shift | - | 28/05/2012 | 5.10m | End of shift | - | 29/05/2012 | 5.10m | Start of shift | - | 29/05/2012 | 5.20m | End of shift |
| Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | 24/05/2012 | - | Start of Borehole | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | 24/05/2012 | - | End of shift | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | 28/05/2012 | 4.70m | Start of shift | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | 28/05/2012 | 5.10m | End of shift | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | 29/05/2012 | 5.10m | Start of shift | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | 29/05/2012 | 5.20m | End of shift | | | | | | | | | | | | | | | | | | | | | | | | | | |



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Borehole No
BH305
Sheet 2 of 2

| | | | |
|--|--|----------------------------------|---------------------------------------|
| Project Name: Haulbowline East Tip | Project No.: P12030 | Co-ords: 179627E - 65421N | Hole Type: Cable Percussion |
| Client: Cork County Council | Dates: 24/05/2012-01/06/2012 | Level: 3.21 m AOD | Scale: 1:50 |

| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|-----------------|---------------|---------------------------|------|---------|----------------|---------------|------------------------------------|---------------------|--------|
| | | Depth (m) | Type | Results | | | | | |
| | | 9.50-10.00 | B | | | | Very soft, light grey, sandy SILT. | | |
| | | 9.50-10.00 | D | | | | | | |
| | | 9.50-10.00 | ES | | | | | | |
| | | | | | 10.00 | -6.79 | 10.00 | | |
| | | | | | | | End of Borehole at 10.00 m | | |

| Water | Depth (m) | Type | Results | Casing | Level | Depth |
|-------|-----------|------|---------|--------|-------|-------|
|-------|-----------|------|---------|--------|-------|-------|

| | | | | | | | | | | |
|---------------------|---------|-------|--------|--------------------------|------------|---------------|--------------------|--------------|-------------|--------|
| Groundwater: | | | | Hole Information: | | | Chiselling: | | | |
| Struck | Rose to | After | Sealed | Comment | Hole Depth | Hole Diameter | Casing Diameter | Depths (m) | Time (hhmm) | Tool |
| 3.20m | - | - | - | Slow inflow at 3.2m. | 4.70m | 200mm | 200mm | 2.00 to 2.20 | 0100 | Chisel |
| | | | | | 10.00m | | | 3.50 to 3.60 | 0130 | Chisel |
| | | | | | | | | 4.60 to 4.70 | 0130 | Chisel |
| | | | | | | | | 5.00 to 5.10 | 0130 | Chisel |
| | | | | | | | | 5.10 to 5.20 | 0200 | Chisel |

| | | | | | | |
|---|--------------------|---|-------------|--------------------|--------------|-------------------|
| Remarks: Excavated to 4.7m using 21t tracked excavator. Borehole terminated at required depth. 2No. 50mm dia standpipes with geosock installed, response zones from 3.5m to 1.2m and 6.1m to 5.1m. Falling head permeability test carried out. | Shift Data: | | Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks |
| | - | - | - | 24/05/2012 | - | Start of Borehole |
| | - | - | - | 24/05/2012 | - | End of shift |
| | - | - | - | 28/05/2012 | 4.70m | Start of shift |
| | - | - | - | 28/05/2012 | 5.10m | End of shift |
| | - | - | - | 29/05/2012 | 5.10m | Start of shift |
| | | | - | 29/05/2012 | 5.20m | End of shift |

Equipment & Methods: Dando 2000



| | | |
|-----------------------------|---|--|
| <p>Number: BH305</p> | <p>Project Haulbowline East Tip Project No P12030 Client Cork County Council</p> | |
|-----------------------------|---|--|



Number:

BH305

Project
Project No
Client

Haulbowline East Tip
P12030
Cork County Council



Number:

BH305

Project
Project No
Client

Haulbowline East Tip
P12030
Cork County Council



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| <p>Number: BH305</p> | <p>Project Haulbowline East Tip Project No P12030 Client Cork County Council</p> | |
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Number:

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Project No
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Number:

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Project No
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Cork County Council




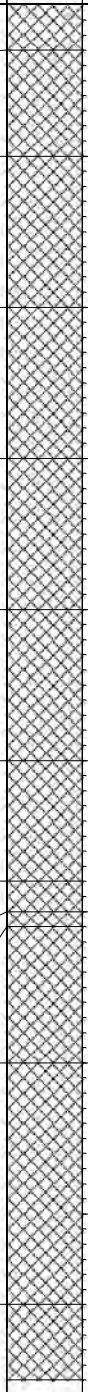
Number:

BH305

Project
Project No
Client

Haulbowline East Tip
P12030
Cork County Council

| | | | |
|--|--|----------------------------------|---------------------------------------|
| Project Name: Haulbowline East Tip | Project No.: P12030 | Co-ords: 179699E - 65462N | Hole Type: Cable Percussion |
| Client: Cork County Council | Dates: 01/05/2012-11/05/2012 | Level: 1.18 m AOD | Scale: 1:50 |

| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|---|---------------|---------------------------|-------|---------|--|---------------|-----------|---|--|
| | | Depth (m) | Type | Results | | | | | |
|  | | | | | 3.80 | 0.88 | 0.30 | Light grey/ dark grey, unprocessed SLAG in cobble and boulder, pockmarked form. |  |
| | | | | | | 0.18 | 1.00 | Light grey, unprocessed SLAG. | |
| | | 1.00 | B | | | 0.18 | 1.00 | Light grey, granular, unprocessed SLAG with scrap steel (10%). | |
| | | 1.00 | D | | | | | | |
| | | 1.00 | ES | | | | | | |
| | | 2.00 | B | | | -0.82 | 2.00 | Light grey/ dark grey, gravel and cobble sized, unprocessed SLAG with scrap metal (10%) and occasional refractory bricks. | |
| | | 2.00 | D | | | | | | |
| | | 2.00 | ES | | | | | | |
| | | 3.00 | B | | | -1.82 | 3.00 | Light/ dark grey, gravel and cobble sized, pockmarked, unprocessed SLAG with some scrap metal (5%). | |
| | | 3.00 | D | | | | | | |
| | | 3.00 | ES | | | | | | |
| | | 4.00 | B | | | -2.82 | 4.00 | Light/ dark grey, granular unprocessed SLAG with occasional refractory bricks. 4.0m: Approx. 2.5m x 1.2m steel sheeting. | |
| | | 4.00 | D | | | | | | |
| | | 4.00 | ES | | | | | | |
| | | 5.00 | B | | | -3.82 | 5.00 | Unprocessed SLAG with large pieces of warped, molten metal with small fragments of glass. | |
| 5.00 | D | | | | | | | | |
| 5.00 | ES | | | | | | | | |
| 5.00-6.00 | B | | -4.62 | 5.80 | Grey, unprocessed SLAG with pockmarked, angular, molten cobble sized pieces. | | | | |
| 5.00-6.00 | D | | | | | | | | |
| 6.00 | ES | | | | | | | | |
| 6.00-7.00 | B | | -4.82 | 6.00 | Pieces of metal. 6.0m - 7.0m: Noted as being very oily. | | | | |
| 6.00-7.00 | D | | | | | | | | |
| 7.00 | ES | | | | | | | | |
| 7.00 | ES | | -5.82 | 7.00 | Unprocessed SLAG in pockmarked, angular pieces and small pieces of molten plastic. | | | | |
| 7.00 | ES | | | | | | | | |
| 7.00-8.00 | B | | | | | | | | |
| 7.00-8.00 | D | | -7.42 | 8.60 | Grey, angular, unprocessed SLAG in pockmarked cobble sized pieces and molten pieces. | | | | |
| 8.00 | ES | | | | | | | | |
| 8.00-9.00 | B | | | | | | | | |
| 8.00-9.00 | D | | | | Unprocessed SLAG with sand, gravel, pieces of metal, plastic, rope and shells. | | | | |
| 9.00 | ES | | | | | | | | |

Continued next sheet

| Water | Depth (m) | Type | Results | Casing | Level | Depth |
|-------|-----------|------|---------|--------|-------|-------|
|-------|-----------|------|---------|--------|-------|-------|

| | | | | | | | | | | |
|--|--|--|--|--|--|-------|-------|---|------|--------|
| Groundwater: Struck Rose to After Sealed Comment | | | | | Hole Information: Hole Depth Hole Diameter Casing Diameter | | | Chiselling: Depths (m) Time (hhmm) Tool | | |
| | | | | | 3.80m | 200mm | 200mm | 4.50 to 4.50 | 0130 | Chisel |
| | | | | | 9.80m | | | 4.80 to 5.10 | 0200 | Chisel |
| | | | | | | | | 5.20 to 5.80 | 0230 | Chisel |
| | | | | | | | | 5.80 to 6.10 | 0100 | Chisel |
| | | | | | | | | 6.10 to 6.40 | 0200 | Chisel |

| | | | | | | |
|--|--------------------------------|---|---|--------------------|--------------|-------------------|
| Remarks: Excavated to 5.0m using 21t tracked excavator. Casing installed at 3.8m. Borehole terminated due to obstruction. | Shift Data: Groundwater | | | Shift (dd/mm/yyyy) | Casing depth | Remarks |
| | - | - | - | 01/05/2012 | 0.00m | Start of Borehole |
| | - | - | - | 01/05/2012 | 5.00m | End of shift |
| | - | - | - | 03/05/2012 | 5.00m | Start of shift |
| | - | - | - | 03/05/2012 | 5.80m | End of shift |
| Equipment & Methods: Dando 2000 | 0.80m | - | - | 04/05/2012 | 5.80m | Start of shift |
| | - | - | - | 04/05/2012 | 7.00m | End of shift |
| | - | - | - | - | - | - |



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Borehole No
BH306A
 Sheet 2 of 2

| | | | |
|--|--|----------------------------------|---------------------------------------|
| Project Name: Haulbowline East Tip | Project No.: P12030 | Co-ords: 179699E - 65462N | Hole Type: Cable Percussion |
| Client: Cork County Council | Dates: 01/05/2012-11/05/2012 | Level: 1.18 m AOD | Scale: 1:50 |

| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|-----------------|---------------|---------------------------|------|---------|----------------|---------------|--|---------------------|--------|
| | | Depth (m) | Type | Results | | | | | |
| | | | | | -8.12 | 9.30 | Unprocessed SLAG with sand, gravel, pieces of metal, plastic, rope and shells. | | |
| | | | | | -8.32 | 9.50 | Unprocessed SLAG with pieces of pockmarked slag, gravel, sand and wire. | | |
| | | | | 9.80 | -8.62 | 9.80 | Unprocessed SLAG with grey, angular, molten, pockmarked pieces. | | |
| | | | | | | | End of Borehole at 9.80 m | | |

| Water | Depth (m) | Type | Results | Casing | Level | Depth |
|-------|-----------|------|---------|--------|-------|-------|
|-------|-----------|------|---------|--------|-------|-------|

| | | | | | | | | | | |
|--|--|--|--|--|---|--|--|---|--|--|
| Groundwater: Struck Rose to After Sealed Comment | | | | | Hole Information: Hole Depth Hole Diameter Casing Diameter 3.80m 200mm 200mm | | | Chiselling: Depths (m) Time (hhmm) Tool 4.50 to 4.50 0130 Chisel 4.80 5.10 0200 Chisel 5.20 5.80 0230 Chisel 5.80 6.10 0100 Chisel 6.10 6.40 0200 Chisel | | |
|--|--|--|--|--|---|--|--|---|--|--|

| | | | | |
|--|--------------------|--------------------|--------------|-------------------|
| Remarks: Excavated to 5.0m using 21t tracked excavator. Casing installed at 3.8m. Borehole terminated due to obstruction. | Shift Data: | | | |
| | Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks |
| Equipment & Methods: Dando 2000 | - | 01/05/2012 | 0.00m | Start of Borehole |
| | - | 01/05/2012 | 5.00m | End of shift |
| | - | 03/05/2012 | 5.00m | Start of shift |
| | - | 03/05/2012 | 5.80m | End of shift |
| | 0.80m | 04/05/2012 | 5.80m | Start of shift |
| | - | 04/05/2012 | 7.00m | End of shift |



Number:

BH306A

Project
Project No
Client

Haulbowline East Tip
P12030
Cork County Council



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| <p>Number: BH306A</p> | <p>Project Haulbowline East Tip Project No P12030 Client Cork County Council</p> | |
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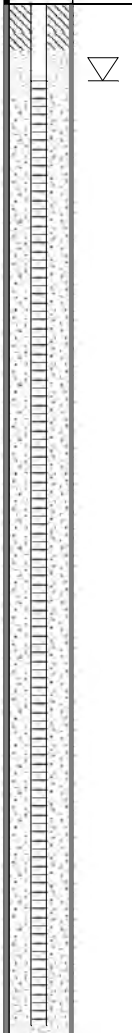

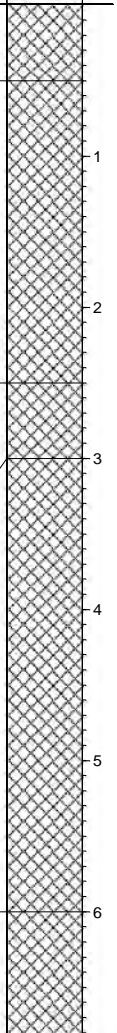
Number:

BH306A

Project
Project No
Client

Haulbowline East Tip
P12030
Cork County Council

| | | | |
|--|--|----------------------------------|---------------------------------------|
| Project Name: Haulbowline East Tip | Project No.: P12030 | Co-ords: 179694E - 65469N | Hole Type: Cable Percussion |
| Client: Cork County Council | Dates: 25/04/2012-27/04/2012 | Level: 1.07 m AOD | Scale: 1:50 |

| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend | |
|---|---|---------------------------|------|------------------------------|----------------|---------------|--|--|--|---|
| | | Depth (m) | Type | Results | | | | | | |
|  |  | 0.50 | | | | 0.57 | 0.50 | Dark brown, mottled grey, fine to coarse grained SLAG with possible weathered sludge. |  | |
| | | 1.00 | B | | | | | Grey, unprocessed SLAG with occasional pieces of demolition material and occasional refractory bricks. Slag is present in slightly sandy slightly gravelly granular form with cobble sized, pockmarked pieces. | | |
| | | 1.00 | D | | | | | | | |
| | | 1.00 | ES | | | | | | | |
| | | 2.00 | B | | | | | | | Grey, unprocessed SLAG with approximately 10% steel waste, occasional pieces of demolition material and occasional refractory bricks. Slag is present in slightly sandy slightly gravelly granular form with cobble sized, pockmarked pieces. |
| | | 2.00 | D | | | | | | | |
| | | 2.00 | ES | | | | | | | |
| | | 3.00 | B | | | | -1.43 | 2.50 | | SLAG waste in granular form with occasional cobbles sized, pockmarked pieces. |
| | | 3.00 | D | | | | -1.93 | 3.00 | | |
| | | 3.00 | ES | | | | | | | |
| 4.00 | B | | | | | | Grey, unprocessed SLAG with pockmarked pieces and green concrete rubble. | | | |
| 4.00 | D | | | | | | | | | |
| 4.00 | ES | | | | | | | | | |
| 5.00 | B | | | | | | Unprocessed SLAG with light coloured brick and some plastic packaging. | | | |
| 5.00 | D | | | | | | | | | |
| 5.00 | ES | | | | | | | | | |
| 6.00 | CPT | | | N=59 (8,10/15,13,15,16) | | 6.00 | -4.93 | 6.00 | End of Borehole at 7.05 m | |
| 6.00 | B | | | | | | | | | |
| 6.00 | D | | | | | | | | | |
| 6.30-6.50 | B | | | | | | | | | |
| 6.50 | D | | | | | | | | | |
| 6.50 | ES | | | | | | | | | |
| 7.00 | CPT | | | 25 (50 for 45mm/25 for 15mm) | | 7.00 | -5.93 | 7.00 | | |
| | | | | | | 7.05 | -5.98 | 7.05 | | |

| Water | Depth (m) | Type | Results | Casing | Level | Depth |
|-------|-----------|------|---------|--------|-------|-------|
|-------|-----------|------|---------|--------|-------|-------|

| | | | | | | | | | | |
|---|--|--|--|--|--|--|--|---|--|--|
| Groundwater: Struck Rose to After Sealed Comment 0.50m - - - | | | | | Hole Information: Hole Depth Hole Diameter Casing Diameter 4.50m 200mm 200mm 7.05m | | | Chiselling: Depths (m) Time (hhmm) Tool 4.80 to 4.96 0030 Chisel 5.30 5.45 0030 Chisel 6.50 6.70 0030 Chisel 6.80 7.00 0030 Chisel 7.00 7.05 0030 Chisel | | |
|---|--|--|--|--|--|--|--|---|--|--|

| | | | | | | |
|---|--------------------------------|------------|-------|--------------------|--------------|---------|
| Remarks: Excavated to 5.0m using 21t tracked excavator. Casing installed at 4.5m. Borehole terminated due to obstruction. 50mm dia standpipe with gas tap installed, response zone from 6.75m to 0.5m. | Shift Data: Groundwater | | | Shift (dd/mm/yyyy) | Casing depth | Remarks |
| | - | 25/04/2012 | 0.00m | End of shift | | |
| | - | 25/04/2012 | 0.00m | Start of Borehole | | |
| | 0.10m | 26/04/2012 | 0.00m | Start of shift | | |
| | 0.10m | 26/04/2012 | 7.05m | End of shift | | |
| | 0.20m | 27/05/2012 | 7.05m | Start of shift | | |
| | - | 27/05/2012 | 7.05m | End of Borehole | | |

Equipment & Methods: Dando 2000



| | | |
|------------------------------|---|--|
| <p>Number: BH306B</p> | <p>Project Haulbowline East Tip Project No P12030 Client Cork County Council</p> | |
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Number:

BH306B

Project
Project No
Client

Haulbowline East Tip
P12030
Cork County Council



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| <p>Number: BH306B</p> | <p>Project Haulbowline East Tip Project No P12030 Client Cork County Council</p> | |
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Borehole No
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Sheet 1 of 6

| | | | |
|--|--|----------------------------------|-----------------------------------|
| Project Name: Haulbowline East Tip | Project No.: P12030 | Co-ords: 179708E - 65473N | Hole Type: Rotary Cored |
| Client: Cork County Council | Dates: 14/05/2012-30/05/2012 | Level: 1.43 m AOD | Scale: 1:50 |

| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend | |
|-----------------|---------------|---------------------------|------|---------|----------------|---------------|-----------|--|--------|---|
| | | Depth (m) | Type | Results | | | | | | |
| | ▽ | | | | | 0.43 | 1.00 | Demolition rubble consisting of concrete and bricks with light and dark grey, unprocessed SLAG. | | |
| | | | | | | | | Grey, unprocessed SLAG in granular and cobble sized form with rebar, metal waste and part of a vehicular axle. | | |
| | | | | | | | -0.57 | 2.00 | | Dark grey, unprocessed SLAG in granular form with chunks of metal slag; fused, molten, with truck wheel and a steel beam. |
| | | 3.00 | ES | | | | | | | |
| | | | | | | | -2.57 | 4.00 | | 10% metal fragments, small amounts of timber and broken brick rubble. |
| | | 5.00 | ES | | | | | | | |
| | | | | | | -3.57 | 5.00 | Dark grey SILT. | | |
| | | | | | 5.50 | -4.07 | 5.50 | SLAG. | | |

Continued next sheet

| Water | Depth (m) | Type | Results | Casing | Level | Depth |
|-------|-----------|------|---------|--------|-------|-------|
|-------|-----------|------|---------|--------|-------|-------|

| | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|
| Groundwater: Struck 1.20m Rose to - After - Sealed - Comment - | | | | | Hole Information: Hole Depth 5.50m, 35.60m, 49.20m Hole Diameter 131mm, 76mm Casing Diameter 131mm, 76mm | | | Chiselling: Depths (m) to Time (hhmm) Tool | | |
|--|--|--|--|--|--|--|--|--|--|--|

| | | | | | | |
|--|---|--------------------|-----------------|--------------------|--------------|-------------------|
| Remarks: Excavated to 5.5m using 21t tracked excavator. Drilled to 35.6m using well drilling rig. Borehole terminated at required depth. 50mm dia standpipe installed, response zone from 42.0m to 28.5m. | Equipment & Methods: Soil Mech PSM 8G Compressed air-mist flush. | Shift Data: | Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks |
| | | | 1.20m | 29/03/2012 | 5.50m | Start of shift |
| | | | 1.14m | 29/03/2012 | 35.60m | End of shift |
| | | | - | 14/05/2012 | 0.00m | Start of Borehole |
| | | | - | 14/05/2012 | 5.50m | End of shift |
| 0.98m | 30/05/2012 | 35.60m | Start of shift | | | |
| - | 30/05/2012 | 35.60m | End of Borehole | | | |



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Borehole No
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Sheet 3 of 6

| | | | |
|--|--|----------------------------------|-----------------------------------|
| Project Name: Haulbowline East Tip | Project No.: P12030 | Co-ords: 179708E - 65473N | Hole Type: Rotary Cored |
| Client: Cork County Council | Dates: 14/05/2012-30/05/2012 | Level: 1.43 m AOD | Scale: 1:50 |

| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|-----------------|---------------|---------------------------|------|---------|----------------|---------------|---|---------------------|--------|
| | | Depth (m) | Type | Results | | | | | |
| | | | | | | | SILT. | | |
| | | | | | -22.95 | 24.38 | SAND AND GRAVEL. 24.38m - 33.53m: Large volume of water noted. | | |

Continued next sheet

| Water | Depth (m) | Type | Results | Casing | Level | Depth |
|-------|-----------|------|---------|--------|-------|-------|
|-------|-----------|------|---------|--------|-------|-------|

| | | | | | | | | | | |
|---------------------|---------|-------|--------------------------|---------|------------|--------------------|-----------------|------------|-------------|------|
| Groundwater: | | | Hole Information: | | | Chiselling: | | | | |
| Struck | Rose to | After | Sealed | Comment | Hole Depth | Hole Diameter | Casing Diameter | Depths (m) | Time (hhmm) | Tool |
| 1.20m | - | - | - | | 5.50m | 131mm | 131mm | to | | |
| | | | | | 35.60m | 76mm | 76mm | | | |
| | | | | | 49.20m | | | | | |

| | | | | | |
|--|--------------------|-------------|--------------------|--------------|-------------------|
| Remarks: Excavated to 5.5m using 21t tracked excavator. Drilled to 35.6m using well drilling rig. Borehole terminated at required depth. 50mm dia standpipe installed, response zone from 42.0m to 28.5m. | Shift Data: | Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks |
| | | 1.20m | 29/03/2012 | 5.50m | Start of shift |
| | | 1.14m | 29/03/2012 | 35.60m | End of shift |
| | | - | 14/05/2012 | 0.00m | Start of Borehole |
| | | - | 14/05/2012 | 5.50m | End of shift |
| | | 0.98m | 30/05/2012 | 35.60m | Start of shift |
| | | - | 30/05/2012 | 35.60m | End of Borehole |

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| Equipment & Methods: | Soil Mech PSM 8G Compressed air-mist flush. |
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|--|--|----------------------------------|-----------------------------------|
| Project Name: Haulbowline East Tip | Project No.: P12030 | Co-ords: 179708E - 65473N | Hole Type: Rotary Cored |
| Client: Cork County Council | Dates: 14/05/2012-30/05/2012 | Level: 1.43 m AOD | Scale: 1:50 |

| Well / Backfill | Water Strikes | Rotary Coring | | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|-----------------|---------------|---------------|-----|-----|-----|----------------|-----------------|--|---------------------|--------|
| | | Depth (m) | TCR | SCR | RQD | | | | | |
| | | | | | | | | Weathered Limestone recovered as: Limestone Boulders. | | |
| | | 37.10-38.60 | 49 | 0 | 0 | | -35.67 37.10 | Weathered Limestone recovered as: Brown, clayey GRAVEL with boulders. Gravel is fine to medium, subangular. | | |
| | | 38.60-40.00 | 18 | 0 | 0 | | -37.17 38.60 | Weathered Limestone recovered as: Brown, gravelly CLAY with some cobbles. Gravel is fine to coarse, subangular. Cobbles are limestone. | | |
| | | 40.00-41.50 | 23 | 0 | 0 | | | | | |
| | | 41.50-42.20 | 43 | 0 | 0 | | | | | |
| | | 42.20 | | | | | -40.77 42.20 | Weathered Limestone recovered as: Limestone BOULDER. | | |
| | | 42.20-43.70 | 87 | 0 | 0 | | | | | |
| | | 43.70-45.20 | 20 | 0 | 0 | | -42.27 43.70 | Weathered Limestone recovered as: Brown, gravelly CLAY with cobbles. Gravel is fine to coarse, subangular. | | |
| | | | | | | | -43.77 45.20 | | | |

Continued next sheet

| Water | Depth (m) | TCR | SCR | RQD | Fracture spacing | Casing | Level | Depth |
|-------|-----------|-----|-----|-----|------------------|--------|-------|-------|
|-------|-----------|-----|-----|-----|------------------|--------|-------|-------|

| | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|
| Groundwater: Struck 1.20m Rose to - After - Sealed - Comment - | | | | | Hole Information: Hole Depth 5.50m 35.60m 49.20m Hole Diameter 131mm 76mm Casing Diameter 131mm 76mm | | | Chiselling: Depths (m) to Time (hhmm) Tool | | |
|--|--|--|--|--|--|--|--|--|--|--|

| | | | | |
|--|--------------------|--------------------|-----------------|-------------------|
| Remarks: Excavated to 5.5m using 21t tracked excavator. Drilled to 35.6m using well drilling rig. Borehole terminated at required depth. 50mm dia standpipe installed, response zone from 42.0m to 28.5m. | Shift Data: | | | |
| | Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks |
| | 1.20m | 29/03/2012 | 5.50m | Start of shift |
| | 1.14m | 29/03/2012 | 35.60m | End of shift |
| | - | 14/05/2012 | 0.00m | Start of Borehole |
| | 14/05/2012 | 5.50m | End of shift | |
| | 30/05/2012 | 35.60m | Start of shift | |
| | 30/05/2012 | 35.60m | End of Borehole | |

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| Equipment & Methods: | Soil Mech PSM 8G Compressed air-mist flush. |
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|--|--|----------------------------------|-----------------------------------|
| Project Name: Haulbowline East Tip | Project No.: P12030 | Co-ords: 179708E - 65473N | Hole Type: Rotary Cored |
| Client: Cork County Council | Dates: 14/05/2012-30/05/2012 | Level: 1.43 m AOD | Scale: 1:50 |

| Well / Backfill | Water Strikes | Rotary Coring | | | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|-----------------|---------------|---------------|-----|-----|-----|------------------|----------------|---------------|---|---------------------|--------|
| | | Depth (m) | TCR | SCR | RQD | Fracture spacing | | | | | |
| | | 45.20-46.70 | 53 | 0 | 0 | | | | Weathered Limestone recovered as: BOULDERS. | | |
| | | 46.70-48.00 | 27 | 0 | 0 | | -45.27 | 46.70 | Weathered Limestone recovered as: Firm, brown, gravelly CLAY with some limestone cobbles. Gravel is fine to coarse, subangular. | | |
| | | 48.00-49.20 | 63 | 0 | 0 | | | | | | |
| | | | | | | 49.20 | -47.77 | 49.20 | End of Borehole at 49.20 m | | |

| Water | Depth (m) | TCR | SCR | RQD | Fracture spacing | Casing | Level | Depth |
|-------|-----------|-----|-----|-----|------------------|--------|-------|-------|
|-------|-----------|-----|-----|-----|------------------|--------|-------|-------|

| | | | | | | | | | | |
|--|--|--|--|--|---|--|--|---|--|--|
| Groundwater: Struck 1.20m Rose to - After - Sealed - Comment - | | | | | Hole Information: Hole Depth 5.50m 35.60m 49.20m Hole Diameter 131mm 76mm Casing Diameter 131mm 76mm | | | Chiselling: Depths (m) Time (hhmm) Tool | | |
|--|--|--|--|--|---|--|--|---|--|--|

| | | | | |
|--|--------------------|--------------------|--------------|-------------------|
| Remarks: Excavated to 5.5m using 21t tracked excavator. Drilled to 35.6m using well drilling rig. Borehole terminated at required depth. 50mm dia standpipe installed, response zone from 42.0m to 28.5m. | Shift Data: | | | |
| | Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks |
| | 1.20m | 29/03/2012 | 5.50m | Start of shift |
| | 1.14m | 29/03/2012 | 35.60m | End of shift |
| | - | 14/05/2012 | 0.00m | Start of Borehole |
| | - | 14/05/2012 | 5.50m | End of shift |
| | 0.98m | 30/05/2012 | 35.60m | Start of shift |
| | - | 30/05/2012 | 35.60m | End of Borehole |

| | |
|---------------------------------|--|
| Equipment & Methods: | Soil Mech PSM 8G Compressed air-mist flush. |
|---------------------------------|--|



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| <p>Number: BH306C</p> | <p>Project Haulbowline East Tip Project No P12030 Client Cork County Council</p> | |
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| Number: BH306C | Project Haulbowline East Tip Project No P12030 Client Cork County Council | |
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| <p>Number: BH306C</p> | <p>Project Haulbowline East Tip Project No P12030 Client Cork County Council</p> | |
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Number:

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Project
Project No
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P12030
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| <p>Number: BH306C</p> | <p>Project Haulbowline East Tip Project No P12030 Client Cork County Council</p> | |
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| <p>Number: BH306C</p> | <p>Project Haulbowline East Tip Project No P12030 Client Cork County Council</p> | |
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Number:

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Number:

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Borehole No
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Sheet 1 of 3

| | | | |
|--|--|----------------------------------|---------------------------------------|
| Project Name: Haulbowline East Tip | Project No.: P12030 | Co-ords: 179699E - 65462N | Hole Type: Cable Percussion |
| Client: Cork County Council | Dates: 30/05/2012-14/06/2012 | Level: 1.18 m AOD | Scale: 1:50 |

| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|-----------------|---------------|---------------------------|------|---------|----------------|---------------|-----------|--|--------|
| | | Depth (m) | Type | Results | | | | | |
| | | 0.50 | ES | | | 1.10 | 0.08 | Dark grey, unprocessed SLAG with refractory bricks (approx. 10%). Light grey, unprocessed SLAG in granular and pockmarked cobble form with occasional pieces of metal (approx. 2%) and refractory bricks (<1%). | |
| | | 2.00 | ES | | | -1.82 | 3.00 | Grey, unprocessed SLAG in pockmarked, molten cobble form with timber (Approx <1%), metal (approx 5%) and metal fragments (<1%). | |
| | | 5.00 | ES | | 5.00 | -3.82 | 5.00 | SLAG. (Drilled using open hole drilling technique) | |
| | | | | | | | | | |

| | | | | | | | |
|-------|-----------|------|---------|--------|-------|-------|----------------------|
| Water | Depth (m) | Type | Results | Casing | Level | Depth | Continued next sheet |
|-------|-----------|------|---------|--------|-------|-------|----------------------|

| | | | | | | | | | | |
|---------------------|---------|-------|--------|------------------------|--------------------------|---------------|-----------------|--------------------|-------------|------|
| Groundwater: | | | | | Hole Information: | | | Chiselling: | | |
| Struck | Rose to | After | Sealed | Comment | Hole Depth | Hole Diameter | Casing Diameter | Depths (m) | Time (hhmm) | Tool |
| 0.90m | - | - | - | Steady inflow at 0.9m. | 5.00m | 250mm | 250mm | to | | |
| | | | | | 12.00m | 150mm | 150mm | | | |
| | | | | | 20.50m | | | | | |

| | | | | | | | |
|--|--------------------|------------|--------|-------------|--------------------|--------------|-------------------|
| Remarks: Excavated to 5.0m using 21t tracked excavator. Casing installed at 5.0m. Borehole terminated at required depth. 50mm dia standpipe installed, response zone from 20.0m to 12.0m. | Shift Data: | | | Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks |
| | - | 30/05/2012 | - | - | - | - | Start of Borehole |
| | - | 30/05/2012 | - | - | - | - | End of shift |
| | - | 01/06/2012 | 5.00m | - | - | - | Start of shift |
| | - | 01/06/2012 | 12.00m | - | - | - | End of shift |
| | - | 08/06/2012 | 12.00m | - | - | - | Start of shift |
| | - | 08/06/2012 | 12.50m | - | - | - | End of shift |

Equipment & Methods: Dando 2000



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Borehole No
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Sheet 2 of 3

| | | | |
|--|--|----------------------------------|---------------------------------------|
| Project Name: Haulbowline East Tip | Project No.: P12030 | Co-ords: 179699E - 65462N | Hole Type: Cable Percussion |
| Client: Cork County Council | Dates: 30/05/2012-14/06/2012 | Level: 1.18 m AOD | Scale: 1:50 |

| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|-----------------|---------------|--|-------------------------|-------------------|----------------|---------------|--|---|--------|
| | | Depth (m) | Type | Results | | | | | |
| | | | | | | | SLAG. (Drilled using open hole drilling technique) | | |
| | | | | | | | SILT is soft at 10.0m. | | |
| | | | | | -9.82 | 11.00 | Driller noted: SILT. | | |
| | | | | | 12.00 | -10.82 | 12.00 | Very soft SILT. (Noted as being very wet. Poor recovery). | |
| | | 12.00-14.00 | B | | | | | | |
| | | 14.00 | ES | | | | | | |
| | | 16.00 16.00 16.00 16.00-16.45 | SPT B ES SPTLS | N=4 (1,1/1,1,1,1) | 16.00 | | | | |
| | | 18.00 18.00 18.00 18.00-18.45 | SPT ES B SPTLS | N=5 (1,1/1,2,1,1) | 18.00 | | | | |

Water Depth (m) Type Results Casing Level Depth Continued next sheet

| | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|
| Groundwater: Struck 0.90m Rose to - After - Sealed - Comment Steady inflow at 0.9m. | | | | | Hole Information: Hole Depth 5.00m 12.00m 20.50m Hole Diameter 250mm 150mm Casing Diameter 250mm 150mm | | | Chiselling: Depths (m) to Time (hhmm) Tool | | |
|---|--|--|--|--|--|--|--|--|--|--|

| | | | | | | | |
|--|--------------------|------------|--------|-------------|--------------------|--------------|---------|
| Remarks: Excavated to 5.0m using 21t tracked excavator. Casing installed at 5.0m. Borehole terminated at required depth. 50mm dia standpipe installed, response zone from 20.0m to 12.0m. | Shift Data: | | | Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks |
| | - | 30/05/2012 | - | - | Start of Borehole | | |
| | - | 30/05/2012 | - | - | End of shift | | |
| | - | 01/06/2012 | 5.00m | - | Start of shift | | |
| | - | 01/06/2012 | 12.00m | - | End of shift | | |
| | - | 08/06/2012 | 12.00m | - | Start of shift | | |
| | - | 08/06/2012 | 12.50m | - | End of shift | | |

Equipment & Methods: Dando 2000



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Borehole No
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Sheet 3 of 3

| | | | |
|--|--|----------------------------------|---------------------------------------|
| Project Name: Haulbowline East Tip | Project No.: P12030 | Co-ords: 179699E - 65462N | Hole Type: Cable Percussion |
| Client: Cork County Council | Dates: 30/05/2012-14/06/2012 | Level: 1.18 m AOD | Scale: 1:50 |

| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|-----------------|---------------|---------------------------|-------|-------------------|----------------|---------------|---|---------------------|--------|
| | | Depth (m) | Type | Results | | | | | |
| | | 19.95 | SPT | N=3 (0,0/0,1,1,1) | 19.50 | | Very soft SILT. (Noted as being very wet. Poor recovery). End of Borehole at 20.50 m | | |
| | | 19.95 | SPTLS | | | | | | |
| | | 20.00 | B | | | | | | |
| | | 20.00 | ES | | | | | | |
| | | 20.00 | U | N=3 (1,2/2,0,2) | 20.50 | -19.32 | | | 20.50 |
| | 20.50 | SPT | | | | | | | |
| | 20.50 | SPTLS | | | | | | | |

| Water | Depth (m) | Type | Results | Casing | Level | Depth | Chiselling: |
|--------------------------|-----------|---------|---------|--------------------|-------|--------|------------------------|
| Struck | 0.90m | Rose to | - | After | - | Sealed | Steady inflow at 0.9m. |
| Hole Information: | | | | Chiselling: | | | |
| Hole Depth | | | | Hole Diameter | | | Depths (m) |
| 5.00m | | | | 250mm | | | Time (hhmm) |
| 12.00m | | | | 150mm | | | Tool |
| 20.50m | | | | 250mm | | | |
| | | | | 150mm | | | |

| | | | | | | | |
|--|--------------------|---|---|-------------|--------------------|--------------|-------------------|
| Remarks: Excavated to 5.0m using 21t tracked excavator. Casing installed at 5.0m. Borehole terminated at required depth. 50mm dia standpipe installed, response zone from 20.0m to 12.0m. | Shift Data: | | | Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks |
| | - | - | - | - | 30/05/2012 | - | Start of Borehole |
| | - | - | - | - | 30/05/2012 | - | End of shift |
| | - | - | - | - | 01/06/2012 | 5.00m | Start of shift |
| | - | - | - | - | 01/06/2012 | 12.00m | End of shift |
| | - | - | - | - | 08/06/2012 | 12.00m | Start of shift |
| Equipment & Methods: Dando 2000 | | | | - | 08/06/2012 | 12.50m | End of shift |



Number:

BH306D

Project
Project No
Client

Haulbowline East Tip
P12030
Cork County Council



Number:

BH306D

Project
Project No
Client

Haulbowline East Tip
P12030
Cork County Council



Number:

BH306D

Project
Project No
Client

Haulbowline East Tip
P12030
Cork County Council

| | | | |
|--|--|----------------------------------|--------------------------------------|
| Project Name: Haulbowline East Tip | Project No. P12030 | Co-ords: 179771E - 65407N | Hole Type Cable Percussion |
| Client: Cork County Council | Dates: 21/05/2012-31/05/2012 | Level: 3.66 m AOD | Scale 1:50 |

| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend | |
|-----------------|---------------|--|---------------------------|---------------------|----------------|---------------|---------------|--|--|---|
| | | Depth (m) | Type | Results | | | | | | |
| | | | | | | 3.62 | 0.04 | Dark brown, unprocessed SLAG. | | |
| | | | | | | | | Light brown, unprocessed SLAG. 0.4m: Thin layer of white lime weathering. | | |
| | ▽ | 0.60 0.60 0.60 | B D ES | | | 3.06 | 0.60 | Loose, dark grey/ black, unprocessed SLAG in pockmarked, gravel and cobble sizes with white lime weathering and approximately <1% refractory bricks. | 1 | |
| | | | | | | | 2.16 | 1.50 | Light grey, unprocessed SLAG in pockmarked, gravel form. | 2 |
| | | 1.80 1.80 1.80 | B D ES | | | 1.46 | 2.20 | Brown, oxidised orange, unprocessed SLAG in pockmarked and molten gravel and cobble form with 1No. RSJ. | 3 | |
| | | 2.50-3.00 2.50-3.00 2.50-3.00 | B D ES | | | | | | | |
| | | | | | | 0.06 | 3.60 | Light brown, unprocessed SLAG in angular, pockmarked, cobble sized form. | 4 | |
| | | 4.50-5.00 4.50-5.00 4.50-5.00 4.50-5.00 5.00 | B D ES ES CPT | N=31 (6,8/8,7,9,7) | | 4.50 5.00 | -1.34 5.00 | Light to dark grey, unprocessed SLAG in pockmarked, gravel and cobble sizes with channel iron and aluminium (5.0m - 6.0m). | 5 | |
| | | 6.00 6.00 6.00-6.50 6.00-6.50 | CPT ES B D | N=31 (6,8/8,7,8,8) | | 6.00 | 6.00 | | 6 | |
| | | 7.00 7.00 7.00 7.00 | CPT B D ES | N=35 (8,8/7,9,9,10) | | 7.00 | 7.00 | | 7 | |
| | | 8.00 8.00 8.00 8.00 | CPT B D ES | N=27 (9,8/8,7,7,5) | | 8.00 | -4.34 8.00 | Light grey Shells with metal debris. | 8 | |
| | | 9.00 9.00 | CPT ES | N=11 (2,2/3,2,3,3) | | 9.00 | | | | |

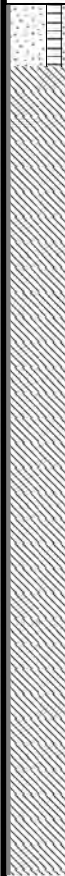
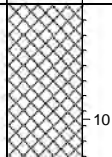
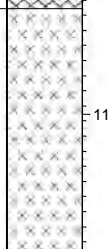
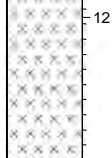
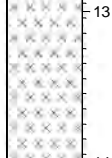
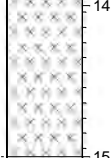
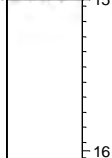
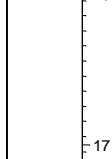
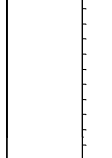
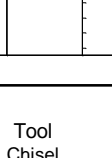
| | | | | | | | | | |
|-------|-----------|------|---------|--------|-------|-------|----------------------|--|--|
| Water | Depth (m) | Type | Results | Casing | Level | Depth | Continued next sheet | | |
|-------|-----------|------|---------|--------|-------|-------|----------------------|--|--|

| | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|
| Groundwater: Struck 0.90m Rose to - After - Sealed - Comment Steady inflow at 0.9m. | | | | | Hole Information: Hole Depth 4.50m Hole Diameter 200mm Casing Diameter 200mm | | | Chiselling: Depths (m) 4.50 to 4.70 Time (hhmm) 0200 4.70 6.50 0200 7.00 8.00 0200 Tool Chisel Chisel Chisel | | |
|---|--|--|--|--|--|--|--|--|--|--|

| | | | | |
|---|--------------------|--------------------|----------------|-------------------|
| Remarks: Excavated to 5.0m using 21t tracked excavator. Casing installed at 4.5m. Borehole terminated at required depth. Falling head permeability test carried out at 5.0m. 2No. 50mm dia standpipes with gas taps installed, response zones from 9.65m to 5.65m and from 1.5m to 4.2m. | Shift Data: | | | |
| | Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks |
| | - | 21/05/2012 | - | Start of Borehole |
| | - | 21/05/2012 | - | End of shift |
| | - | 25/05/2012 | 4.70m | End of shift |
| | - | 28/05/2012 | 4.70m | Start of shift |
| - | 28/05/2012 | 6.50m | End of shift | |
| - | 29/05/2012 | 6.50m | Start of shift | |

Equipment & Methods: Dando 2000

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|--|--|----------------------------------|--------------------------------------|
| Project Name: Haulbowline East Tip | Project No. P12030 | Co-ords: 179771E - 65407N | Hole Type Cable Percussion |
| Client: Cork County Council | Dates: 21/05/2012-31/05/2012 | Level: 3.66 m AOD | Scale 1:50 |

| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|---|---------------|----------------------------|-----------|--------------------|----------------|-----------------|--------------------------------------|---|--------|
| | | Depth (m) | Type | Results | | | | | |
|  | | 10.00 10.00 | CPT ES | N=9 (1,1/2,2,3,2) | 10.00 | | Light grey Shells with metal debris. |  | |
| | | 10.00-11.00 10.00-11.00 | B D | | | -6.64 10.30 | Stiff, light grey, SILT. |  | |
| | | 12.00 12.00 | ES U | 100% recovery | | | |  | |
| | | 13.00 | CPT | N=18 (2,3/4,4,5,5) | 13.00 | | |  | |
| | | 14.00 14.00 | ES U | 98% recovery | | | |  | |
| | | 15.00 | CPT | N=18 (3,3/4,4,5,5) | 15.00 | -11.34 15.00 | End of Borehole at 15.00 m |  | |
| | | | | | | | |  | |
| | | | | | | | |  | |
| | | | | | | | |  | |

| Water | Depth (m) | Type | Results | Casing | Level | Depth |
|-------|-----------|------|---------|--------|-------|-------|
|-------|-----------|------|---------|--------|-------|-------|

| | | | | | | | | | |
|---------------------|---------|-------|------------------------|--------------------------|---------------|-----------------|--------------------|-------------|--------|
| Groundwater: | | | | Hole Information: | | | Chiselling: | | |
| Struck | Rose to | After | Sealed | Hole Depth | Hole Diameter | Casing Diameter | Depths (m) | Time (hhmm) | Tool |
| 0.90m | - | - | Steady inflow at 0.9m. | 4.50m | 200mm | 200mm | 4.50 to 4.70 | 0200 | Chisel |
| | | | | 15.00m | | | 4.70 6.50 | 0200 | Chisel |
| | | | | | | | 7.00 8.00 | 0200 | Chisel |

| | | | |
|---|--------------------|--------------------|--------------|
| Remarks: Excavated to 5.0m using 21t tracked excavator. Casing installed at 4.5m. Borehole terminated at required depth. Falling head permeability test carried out at 5.0m. 2No. 50mm dia standpipes with gas taps installed, response zones from 9.65m to 5.65m and from 1.5m to 4.2m. | Shift Data: | | |
| | Groundwater | Shift (dd/mm/yyyy) | Casing depth |
| | - | 21/05/2012 | - |
| | - | 21/05/2012 | - |
| | - | 25/05/2012 | 4.70m |
| | - | 28/05/2012 | 4.70m |
| | - | 28/05/2012 | 6.50m |
| | - | 29/05/2012 | 6.50m |

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| Equipment & Methods: Dando 2000 |
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| Number: BH307 | Project Haulbowline East Tip Project No P12030 Client Cork County Council | |
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Number:

BH307

Project
Project No
Client

Haulbowline East Tip
P12030
Cork County Council



Number:

BH307

**Project
Project No
Client**

Haulbowline East Tip
P12030
Cork County Council



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| <p>Number: BH307</p> | <p>Project Haulbowline East Tip Project No P12030 Client Cork County Council</p> | |
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| <p>Number: BH307</p> | <p>Project Haulbowline East Tip Project No P12030 Client Cork County Council</p> | |
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Number:

BH307

Project
Project No
Client

Haulbowline East Tip
P12030
Cork County Council



Number:

BH307

Project
Project No
Client

Haulbowline East Tip
P12030
Cork County Council

| | | | |
|--|--|----------------------------------|--------------------------------------|
| Project Name: Haulbowline East Tip | Project No. P12030 | Co-ords: 179563E - 65343N | Hole Type Cable Percussion |
| Client: Cork County Council | Dates: 25/05/2012-05/06/2012 | Level: 3.51 m AOD | Scale 1:50 |

| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|-----------------|---------------|---------------------------|-------|-------------------|----------------|---------------|--|---------------------|--------|
| | | Depth (m) | Type | Results | | | | | |
| | | 0.30 | B | | | | Topsoil. | | |
| | | 0.30 | D | | | | | | |
| | | 0.30 | ES | | | | | | |
| | | 0.70-0.90 | B | | 2.81 | 0.70 | | | |
| | | 0.70-0.90 | D | | 2.61 | 0.90 | Fill: Grey unprocessed SLAG with abundant yellow, refractory bricks. | | |
| | | 0.70-0.90 | ES | | | | | | |
| | | 0.70-0.90 | ES | | | | Unprocessed SLAG in granular and pockmarked cobble form with angular stone fill. | | |
| | | 1.30 | B | | | | | | |
| | | 1.30 | D | | | | | | |
| | | 1.30 | D | | | | | | |
| | | 2.00 | B | | | | | | |
| | | 2.00 | D | | | | | | |
| | | 2.00 | ES | | | | | | |
| | | 3.00 | SPT | N=4 (1,1/1,0,2,1) | 3.00 | 0.51 | | | |
| | | 3.00-3.45 | SPTLS | | | | Very soft, light brown/ grey, slightly gravelly CLAY. | | |
| | | 3.50 | D | | | | | | |
| | | 3.50-4.00 | B | | | | | | |
| | | 3.50-4.00 | ES | 30blows | | | | | |
| | | 4.00-4.45 | U | 90% recovery | | | | | |
| | | 4.50 | D | | | | | | |
| | | 5.00 | SPT | N=3 (1,0/1,0,2,0) | 5.00 | | 5.0m - 14.0m: Water added to aid drilling. | | |
| | | 5.50 | D | | | | | | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | ES | 30blows | | | | | |
| | | 6.00-6.45 | U | 0% recovery | | | | | |
| | | 6.00-6.45 | U | | | | | | |
| | | 5.00 | SPT | N=3 (1,0/1,0,2,0) | 5.00 | | | | |
| | | 5.50 | D | | | | | | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | ES | 30blows | | | | | |
| | | 6.00-6.45 | U | 0% recovery | | | | | |
| | | 6.00-6.45 | U | | | | | | |
| | | 5.00 | SPT | N=3 (1,0/1,0,2,0) | 5.00 | | | | |
| | | 5.50 | D | | | | | | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | ES | 30blows | | | | | |
| | | 6.00-6.45 | U | 0% recovery | | | | | |
| | | 6.00-6.45 | U | | | | | | |
| | | 5.00 | SPT | N=3 (1,0/1,0,2,0) | 5.00 | | | | |
| | | 5.50 | D | | | | | | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | ES | 30blows | | | | | |
| | | 6.00-6.45 | U | 0% recovery | | | | | |
| | | 6.00-6.45 | U | | | | | | |
| | | 5.00 | SPT | N=3 (1,0/1,0,2,0) | 5.00 | | | | |
| | | 5.50 | D | | | | | | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | ES | 30blows | | | | | |
| | | 6.00-6.45 | U | 0% recovery | | | | | |
| | | 6.00-6.45 | U | | | | | | |
| | | 5.00 | SPT | N=3 (1,0/1,0,2,0) | 5.00 | | | | |
| | | 5.50 | D | | | | | | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | ES | 30blows | | | | | |
| | | 6.00-6.45 | U | 0% recovery | | | | | |
| | | 6.00-6.45 | U | | | | | | |
| | | 5.00 | SPT | N=3 (1,0/1,0,2,0) | 5.00 | | | | |
| | | 5.50 | D | | | | | | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | ES | 30blows | | | | | |
| | | 6.00-6.45 | U | 0% recovery | | | | | |
| | | 6.00-6.45 | U | | | | | | |
| | | 5.00 | SPT | N=3 (1,0/1,0,2,0) | 5.00 | | | | |
| | | 5.50 | D | | | | | | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | ES | 30blows | | | | | |
| | | 6.00-6.45 | U | 0% recovery | | | | | |
| | | 6.00-6.45 | U | | | | | | |
| | | 5.00 | SPT | N=3 (1,0/1,0,2,0) | 5.00 | | | | |
| | | 5.50 | D | | | | | | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | ES | 30blows | | | | | |
| | | 6.00-6.45 | U | 0% recovery | | | | | |
| | | 6.00-6.45 | U | | | | | | |
| | | 5.00 | SPT | N=3 (1,0/1,0,2,0) | 5.00 | | | | |
| | | 5.50 | D | | | | | | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | ES | 30blows | | | | | |
| | | 6.00-6.45 | U | 0% recovery | | | | | |
| | | 6.00-6.45 | U | | | | | | |
| | | 5.00 | SPT | N=3 (1,0/1,0,2,0) | 5.00 | | | | |
| | | 5.50 | D | | | | | | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | ES | 30blows | | | | | |
| | | 6.00-6.45 | U | 0% recovery | | | | | |
| | | 6.00-6.45 | U | | | | | | |
| | | 5.00 | SPT | N=3 (1,0/1,0,2,0) | 5.00 | | | | |
| | | 5.50 | D | | | | | | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | ES | 30blows | | | | | |
| | | 6.00-6.45 | U | 0% recovery | | | | | |
| | | 6.00-6.45 | U | | | | | | |
| | | 5.00 | SPT | N=3 (1,0/1,0,2,0) | 5.00 | | | | |
| | | 5.50 | D | | | | | | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | ES | 30blows | | | | | |
| | | 6.00-6.45 | U | 0% recovery | | | | | |
| | | 6.00-6.45 | U | | | | | | |
| | | 5.00 | SPT | N=3 (1,0/1,0,2,0) | 5.00 | | | | |
| | | 5.50 | D | | | | | | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | ES | 30blows | | | | | |
| | | 6.00-6.45 | U | 0% recovery | | | | | |
| | | 6.00-6.45 | U | | | | | | |
| | | 5.00 | SPT | N=3 (1,0/1,0,2,0) | 5.00 | | | | |
| | | 5.50 | D | | | | | | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | ES | 30blows | | | | | |
| | | 6.00-6.45 | U | 0% recovery | | | | | |
| | | 6.00-6.45 | U | | | | | | |
| | | 5.00 | SPT | N=3 (1,0/1,0,2,0) | 5.00 | | | | |
| | | 5.50 | D | | | | | | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | ES | 30blows | | | | | |
| | | 6.00-6.45 | U | 0% recovery | | | | | |
| | | 6.00-6.45 | U | | | | | | |
| | | 5.00 | SPT | N=3 (1,0/1,0,2,0) | 5.00 | | | | |
| | | 5.50 | D | | | | | | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | ES | 30blows | | | | | |
| | | 6.00-6.45 | U | 0% recovery | | | | | |
| | | 6.00-6.45 | U | | | | | | |
| | | 5.00 | SPT | N=3 (1,0/1,0,2,0) | 5.00 | | | | |
| | | 5.50 | D | | | | | | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | ES | 30blows | | | | | |
| | | 6.00-6.45 | U | 0% recovery | | | | | |
| | | 6.00-6.45 | U | | | | | | |
| | | 5.00 | SPT | N=3 (1,0/1,0,2,0) | 5.00 | | | | |
| | | 5.50 | D | | | | | | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | ES | 30blows | | | | | |
| | | 6.00-6.45 | U | 0% recovery | | | | | |
| | | 6.00-6.45 | U | | | | | | |
| | | 5.00 | SPT | N=3 (1,0/1,0,2,0) | 5.00 | | | | |
| | | 5.50 | D | | | | | | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | ES | 30blows | | | | | |
| | | 6.00-6.45 | U | 0% recovery | | | | | |
| | | 6.00-6.45 | U | | | | | | |
| | | 5.00 | SPT | N=3 (1,0/1,0,2,0) | 5.00 | | | | |
| | | 5.50 | D | | | | | | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | ES | 30blows | | | | | |
| | | 6.00-6.45 | U | 0% recovery | | | | | |
| | | 6.00-6.45 | U | | | | | | |
| | | 5.00 | SPT | N=3 (1,0/1,0,2,0) | 5.00 | | | | |
| | | 5.50 | D | | | | | | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | ES | 30blows | | | | | |
| | | 6.00-6.45 | U | 0% recovery | | | | | |
| | | 6.00-6.45 | U | | | | | | |
| | | 5.00 | SPT | N=3 (1,0/1,0,2,0) | 5.00 | | | | |
| | | 5.50 | D | | | | | | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | ES | 30blows | | | | | |
| | | 6.00-6.45 | U | 0% recovery | | | | | |
| | | 6.00-6.45 | U | | | | | | |
| | | 5.00 | SPT | N=3 (1,0/1,0,2,0) | 5.00 | | | | |
| | | 5.50 | D | | | | | | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | ES | 30blows | | | | | |
| | | 6.00-6.45 | U | 0% recovery | | | | | |
| | | 6.00-6.45 | U | | | | | | |
| | | 5.00 | SPT | N=3 (1,0/1,0,2,0) | 5.00 | | | | |
| | | 5.50 | D | | | | | | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | ES | 30blows | | | | | |
| | | 6.00-6.45 | U | 0% recovery | | | | | |
| | | 6.00-6.45 | U | | | | | | |
| | | 5.00 | SPT | N=3 (1,0/1,0,2,0) | 5.00 | | | | |
| | | 5.50 | D | | | | | | |
| | | 5.50-6.00 | B | | | | | | |
| | | 5.50-6.00 | ES | 30blows | | | | | |
| | | 6.00-6.45 | U | 0% recovery | | | | | |

| | | | |
|--|--|----------------------------------|--------------------------------------|
| Project Name: Haulbowline East Tip | Project No. P12030 | Co-ords: 179563E - 65343N | Hole Type Cable Percussion |
| Client: Cork County Council | Dates: 25/05/2012-05/06/2012 | Level: 3.51 m AOD | Scale 1:50 |

| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|-----------------|---------------|---------------------------|-------|------------------------|----------------|---------------|---|--|--------|
| | | Depth (m) | Type | Results | | | | | |
| | | 9.50 | D | | | | Very soft, light grey, slightly sandy SILT. | | |
| | | 9.50-10.00 | B | | | | | | |
| | | 9.50-10.00 | ES | | | | | | |
| | | 10.00-11.00 | P | 90% recovery | | | | | |
| | | 11.60 | D | | | | | | |
| | | 11.50-12.00 | B | | | | | | |
| | | 11.50-12.00 | ES | | | | | | |
| | | 11.95 | SPT | N=4 (1,1/2,1,0,1) | 12.00 | | | | |
| | | 11.95 | SPTLS | | | | | | |
| | | 12.00-13.00 | P | 80% recovery | | | | | |
| | | 13.00 | SPT | N=6 (1,1/2,2,1,1) | 13.00 | | | | |
| | | 13.50-14.00 | B | | | | | | |
| | | 13.50-14.00 | ES | | | | | | |
| | | 14.00 | D | | -10.49 | 14.00 | | Firm, becoming stiff, light brown/ grey, slightly sandy slightly gravelly CLAY with cobbles. | |
| | | 14.00-15.00 | P | 0% recovery | | | | | |
| | | 14.50-15.00 | B | | | | | | |
| | | 14.50-15.00 | ES | | | | | | |
| | | 15.00 | CPT | N=17 (2,2/5,5,4,3) | 15.00 | | | | |
| | | 15.00 | D | | | | | | |
| | | 15.00-15.50 | B | | | | | | |
| | | 15.00-15.50 | ES | | | | | | |
| | | 15.50 | D | | | | | | |
| | | 16.00 | CPT | N=26 (4,5/5,7,2,12) | 16.00 | | Stiff below 16.0m. | | |
| | | 16.50-17.00 | B | | | | | | |
| | | 17.00 | CPT | N=33 (2,9/12,5,5,11) | 17.00 | | | | |
| | | 17.00 | D | | | | | | |
| | | 17.00-17.50 | B | | | | | | |
| | | 17.50 | D | | | | | | |
| | | 18.00 | CPT | N=50 (15,10/6,9,25,10) | 18.00 | | | | |

| | | | | | | | |
|-------|-----------|------|---------|--------|-------|-------|----------------------|
| Water | Depth (m) | Type | Results | Casing | Level | Depth | Continued next sheet |
|-------|-----------|------|---------|--------|-------|-------|----------------------|

| | | | | | | | | | |
|--|---------|-------|-----------------|--------------------------|--------------------|-----------------|--------------------|-------------|--------|
| Groundwater: | | | | Hole Information: | | | Chiselling: | | |
| Struck | Rose to | After | Sealed | Hole Depth | Hole Diameter | Casing Diameter | Depths (m) | Time (hhmm) | Tool |
| - | - | - | - | 3.00m | 200mm | 200mm | 11.90 to 12.00 | 0030 | Chisel |
| | | | See shift data. | 25.00m | | | 18.40 | 18.60 | 0030 |
| | | | | | | | 19.70 | 20.00 | 0100 |
| | | | | | | | 23.70 | 23.70 | 0100 |
| | | | | | | | 24.00 | 24.40 | 0100 |
| Remarks: | | | | Shift Data: | | | | | |
| Excavated to 3.0m using 21t tracked excavator. Casing installed at 3.0m. | | | | Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks | | |
| Permeability tests carried out. Borehole terminated at required depth. | | | | - | 25/05/2012 | - | Start of Borehole | | |
| 2No. 50mm dia standpipes installed, response zones from 13.2m to 4.0m and from 2.2m to 1.2m. | | | | - | 25/05/2012 | - | End of shift | | |
| | | | | - | 28/05/2012 | 3.00m | Start of shift | | |
| | | | | - | 28/05/2012 | 5.00m | End of shift | | |
| | | | | - | 29/05/2012 | 5.00m | Start of shift | | |
| | | | | 10.00m | 29/05/2012 | 14.00m | End of shift | | |
| Equipment & Methods: Dando 2000 | | | | | | | | | |



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PA
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PL/GB

Borehole No
BH308
Sheet 3 of 3

| | | | |
|--|--|----------------------------------|---------------------------------------|
| Project Name: Haulbowline East Tip | Project No.: P12030 | Co-ords: 179563E - 65343N | Hole Type: Cable Percussion |
| Client: Cork County Council | Dates: 25/05/2012-05/06/2012 | Level: 3.51 m AOD | Scale: 1:50 |

| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|-----------------|---------------|---------------------------|------|------------------------------|----------------|---------------|--|----------------------------|--------|
| | | Depth (m) | Type | Results | | | | | |
| | | 18.60 | D | | | | | | |
| | | 18.50-19.00 | B | | | | Firm, becoming stiff, light brown/ grey, slightly sandy slightly gravelly CLAY with cobbles. | | |
| | | 19.00 | CPT | N=38 (5,5/12,6,13,7) | 19.00 | | | | |
| | | 19.60 | D | | | | | | |
| | | 19.50-20.00 | B | | | | | | |
| | | 20.00 | CPT | N=21 (2,2/3,5,9,4) | 20.00 | | | | |
| | | 20.60 | D | | | | | | |
| | | 20.50-21.00 | B | | | | Medium dense, light grey/ blue/ brown, slightly sandy GRAVEL with some cobbles. | | |
| | | 21.00 | CPT | N=33 (5,5/9,10,6,8) | 21.00 | -17.49 | 21.00 | | |
| | | 21.60 | D | | | | | | |
| | | 21.50-22.00 | B | | | | | | |
| | | 22.00 | CPT | N=23 (2,2/3,5,9,6) | 22.00 | | | | |
| | | 22.60 | D | | | | | | |
| | | 22.50-23.00 | B | | | | | | |
| | | 23.00 | CPT | 50 (3,9/12,12,8,18 for 10mm) | 23.00 | | | | |
| | | 23.60 | D | | | | | | |
| | | 23.50-24.00 | B | | | | | | |
| | | 24.00 | CPT | 31 (25,19/20,11 for 0mm) | 24.00 | | | | |
| | | 24.60 | D | | | | | | |
| | | 24.50-25.00 | B | | | | | | |
| | | | | | 25.00 | -21.49 | 25.00 | End of Borehole at 25.00 m | |

| Water | Depth (m) | Type | Results | Casing | Level | Depth |
|-------|-----------|------|---------|--------|-------|-------|
|-------|-----------|------|---------|--------|-------|-------|

| | | | | | | | | | |
|---------------------|---------|-------|-----------------|--------------------------|---------------|-----------------|--------------------|-------------|--------|
| Groundwater: | | | | Hole Information: | | | Chiselling: | | |
| Struck | Rose to | After | Sealed | Hole Depth | Hole Diameter | Casing Diameter | Depths (m) | Time (hhmm) | Tool |
| - | - | - | - | 3.00m | 200mm | 200mm | 11.90 to 12.00 | 0030 | Chisel |
| | | | See shift data. | 25.00m | | | 18.40 to 18.60 | 0030 | Chisel |
| | | | | | | | 19.70 to 20.00 | 0100 | Chisel |
| | | | | | | | 23.70 to 23.70 | 0100 | Chisel |
| | | | | | | | 24.00 to 24.40 | 0100 | Chisel |

| | | | | | | | |
|--|--------------------|---|---|-------------|--------------------|--------------|-------------------|
| Remarks: Excavated to 3.0m using 21t tracked excavator. Casing installed at 3.0m. Permeability tests carried out. Borehole terminated at required depth. 2No. 50mm dia standpipes installed, response zones from 13.2m to 4.0m and from 2.2m to 1.2m. | Shift Data: | | | Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks |
| | - | - | - | - | 25/05/2012 | - | Start of Borehole |
| | - | - | - | - | 25/05/2012 | - | End of shift |
| | - | - | - | - | 28/05/2012 | 3.00m | Start of shift |
| | - | - | - | - | 28/05/2012 | 5.00m | End of shift |
| | - | - | - | - | 29/05/2012 | 5.00m | Start of shift |
| Equipment & Methods: Dando 2000 | | | | 10.00m | 29/05/2012 | 14.00m | End of shift |



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| <p>Number: BH308</p> | <p>Project Haulbowline East Tip Project No P12030 Client Cork County Council</p> | |
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| <p>Number: BH308</p> | <p>Project Haulbowline East Tip Project No P12030 Client Cork County Council</p> | |
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Number:

BH308

Project
Project No
Client

Haulbowline East Tip
P12030
Cork County Council



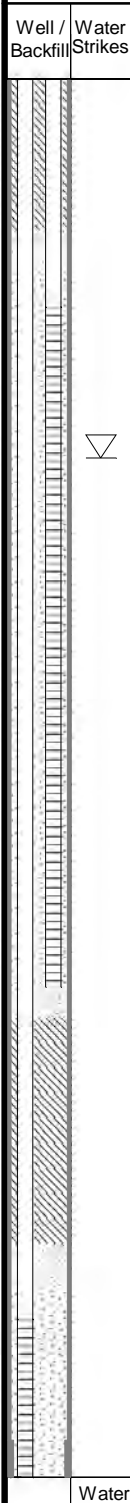
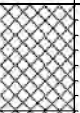
Number:

BH308

Project
Project No
Client

Haulbowline East Tip
P12030
Cork County Council

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|--|--|----------------------------------|--------------------------------------|
| Project Name: Haulbowline East Tip | Project No. P12030 | Co-ords: 179650E - 65340N | Hole Type Cable Percussion |
| Client: Cork County Council | Dates: 31/05/2012-13/06/2012 | Level: 2.63 m AOD | Scale 1:50 |

| Well / Backfill | Water Strikes | Samples & In Situ Testing | | | Casing / Flush | Level (m AOD) | Depth (m) | Stratum Description | Legend |
|---|---------------|--|--|---|------------------------------|---------------|--|---|-------------|
| | | Depth (m) | Type | Results | | | | | |
|  | | 0.20-0.30 0.20-0.30 0.20-0.30 | B D ES | | | 1.93 0.70 | Light brown, granular, pockmarked, unprocessed SLAG. |  | |
| | | 0.80-1.20 0.80-1.20 0.80-1.20 | B D ES | | | 1.43 1.20 | Light grey, unprocessed SLAG in granular and cobble form with broken refractory bricks (approx. <1%). | | 1 |
| | | 2.20-2.50 2.20-2.50 2.20-2.50 | B D ES | | | | Unprocessed SLAG with approx. 50% refractories and approx. 30% molten, pockmarked cobbles. 1.4m: Oxidised red/ brown, unprocessed SLAG. | | 2 |
| | | 4.00 4.00 4.00 | B D ES | | | | | | 3 |
| | | 5.00 5.00 5.00 5.00 5.00 5.50-6.00 5.50-6.00 6.00 | CPT B D ES ES D B ES CPT | 50 (10,15/25,25 for 10mm) (50 for 0mm) | 5.00 6.00 | -2.37 | 5.00 | Light grey, unprocessed SLAG in granular and cobbles form. | 4 5 6 |
| | | 6.50 6.50-7.00 6.50-7.00 | D B ES | | | | | | 7 |
| | | 7.50 7.50-8.00 7.50-8.00 8.00 8.00-8.45 | D B ES SPT SPTLS | N=4 (1,0/2,1,0,1) | 8.00 | -4.77 | 7.40 | Very soft, light grey, slightly sandy SILT. Sand is fine. | 8 |
| | | 8.50-9.00 | P | 80% recovery | | | 9.00 | | |

| Water | Depth (m) | Type | Results | Casing | Level | Depth | Continued next sheet | | |
|---|-----------|------|---------|--|--------------------|--------------|---|--|--|
| Groundwater: Struck Rose to After Sealed Comment 2.50m - - - | | | | Hole Information: Hole Depth Hole Diameter Casing Diameter 5.00m - 250mm 250mm 9.00m 200mm 200mm 25.00m 200mm 200mm | | | Chiselling: Depths (m) Time (hhmm) Tool 4.60 to 4.70 0030 Chisel 5.10 5.20 0100 Chisel 5.86 6.00 0130 Chisel 6.70 6.80 0100 Chisel 6.80 6.90 0100 Chisel | | |
| Remarks: Excavated to 5.0m using 21t tracked excavator. Casing installed at 4.4m. Borehole terminated at required depth. Falling head permeability tests carried out. 2No. 50mm dia standpipes with geosock installed, response zone from 8.2m to 16.7m and from 6.0m to 1.5m. | | | | Shift Data: | | | | | |
| Equipment & Methods: Dando 2000 | | | | Groundwater | Shift (dd/mm/yyyy) | Casing depth | Remarks | | |
| | | | | - | 31/05/2012 | - | Start of Borehole | | |
| | | | | - | 31/05/2012 | - | End of shift | | |
| | | | | - | 05/06/2012 | 4.40m | Start of shift | | |
| | | | | - | 05/06/2012 | 6.80m | End of shift | | |
| | | | | - | 06/06/2012 | 6.80m | Start of shift | | |
| | | | | - | 06/06/2012 | 11.50m | End of shift | | |