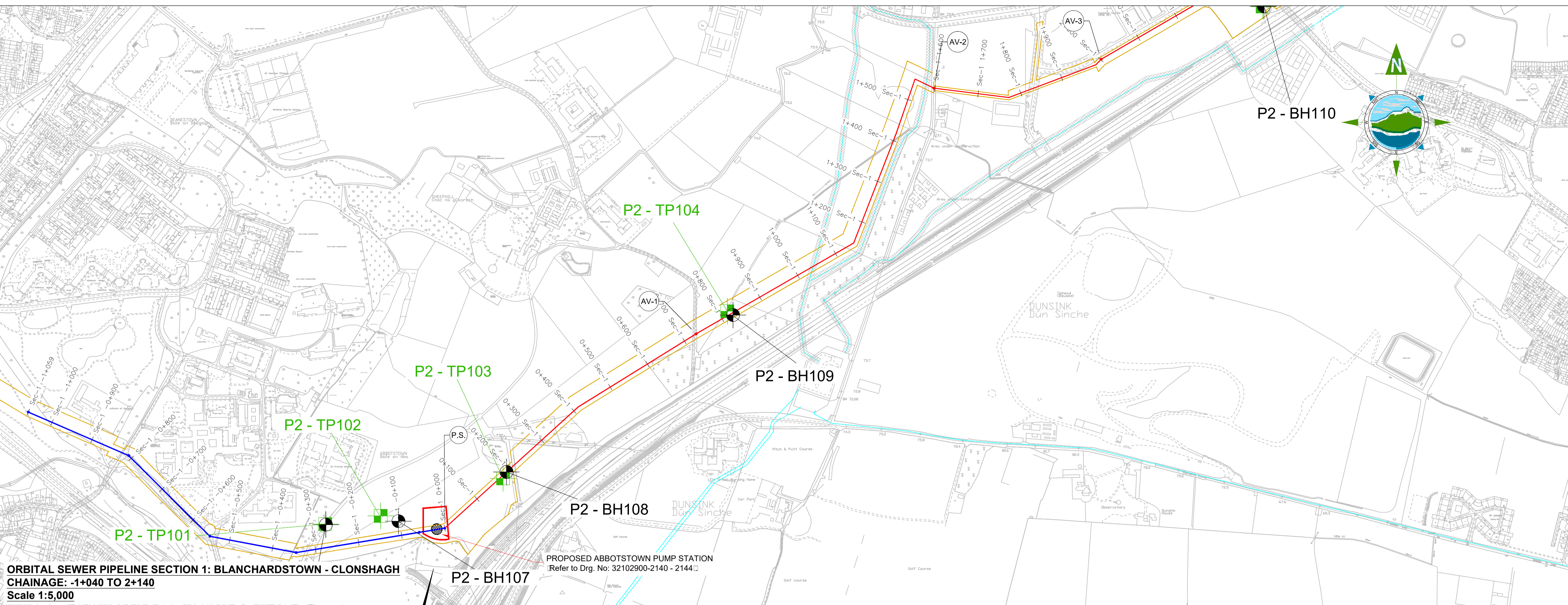


## Appendix A18.2 Ground Investigation Location Drawings

**LEGEND:**

WWTP/PS BOUNDARY	
WAYLEAVE	
1800mm Ø GRAVITY SEWER	
1400mm Ø RISING MAIN	
1500mm Ø GRAVITY SEWER	
TRENCHLESS SECTION	
MANHOLE	
AIR VALVE	
SCOUR VALVE	
PUMPING STATION	



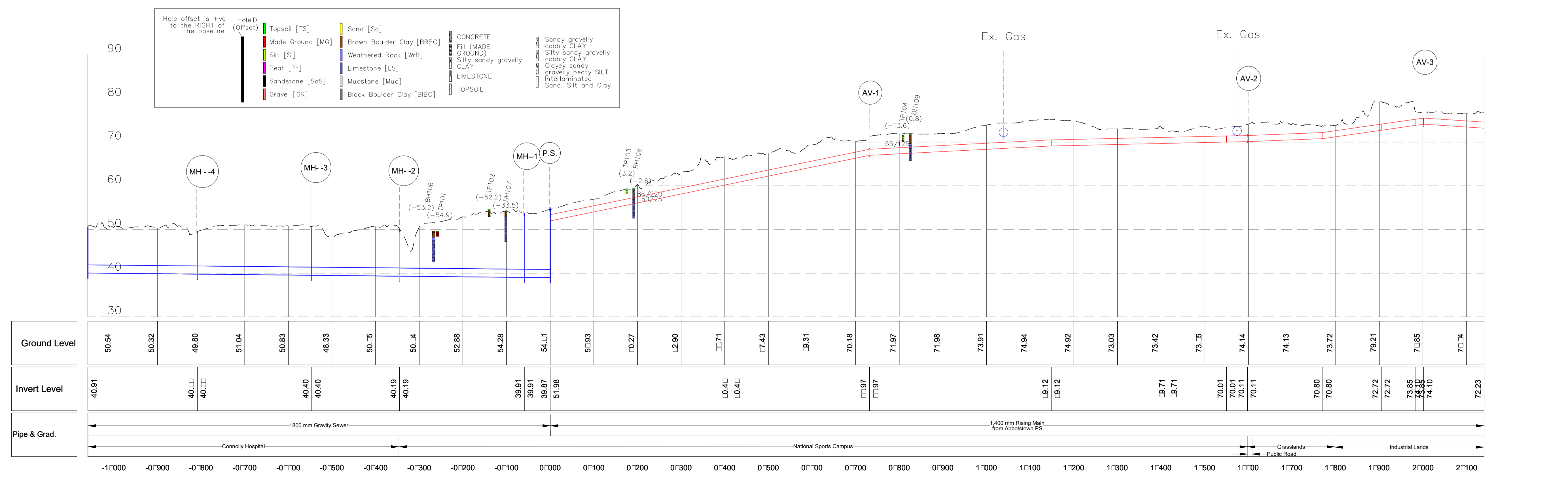
**ORBITAL SEWER PIPELINE SECTION 1: BLANCHARDSTOWN - CLONSHAGH**  
**CHAINAGE: -1+040 TO 2+140**  
**Scale 1:5,000**

**OSI 1:2,500 Sheet No's:**  
 30-2-D, 30-3-C, 30-3-D,  
 30-4-C, 30-4-D, 3130-A, 3130-B, 3130-C, 3130-D, 3131-A.

**OSI 1:1,000 Sheet No's:**  
 30-3-12, 30-3-13, 30-3-14, 30-3-15, 30-4-11, 30-4-12,  
 3129-15, 3129-20, 3129-25, 3130-01, 3130-07, 3130-11,  
 3130-12, 3130-15, 3130-16, 3130-17, 3130-21, 3130-22,  
 3131-01, 3131-02, 3131-07.

- NOTES:**
- FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
  - ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE.
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  - ALL LEVELS SHOWN RELATE TO ORDINANCE SURVEY DATUM AT MALIN HEAD.

Rev	Date	Description	By	Chkd
D03	23.03.11	DRAFT ISSUE FOR REVIEW	EW	DC
D02	09.02.11	DRAFT ISSUE FOR REVIEW	MN	DC
D01	12.11.10	DRAFT ISSUE FOR REVIEW	MN	DC



**ORBITAL SEWER PIPELINE SECTION 1: BLANCHARDSTOWN - CLONSHAGH**  
**CHAINAGE: -1+040 TO 2+140**  
**Scale H-1:5,000 / V-1:500**

Client:

Project:

Title: **ORBITAL SEWER PIPELINE SECTION 1: BLANCHARDSTOWN - CLONSHAGH**  
 - Sheet 1 of 4 -

Scale @ A1: As Shown

Prepared by: M. Nolan | Checked: D. Conneran | Date: November 2015





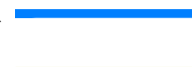


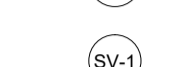


Project Director: C. O'Keefe

Drawing Status: Draft

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Revision: Drawing No: **32102902-2100D03**

**LEGEND:**

- WWTP/PS BOUNDARY 
- WAYLEAVE 
- 1800mm Ø GRAVITY SEWER 
- 1400mm Ø RISING MAIN 
- 1500mm Ø GRAVITY SEWER 
- TRENCHLESS SECTION 
- MANHOLE  (MH-1)
- AIR VALVE  (AV-1)
- SCOUR VALVE  (SV-1)
- PUMPING STATION  (P.S.)

**OSI 1:2,500 Sheet No's:**  
 30-2-D, 30-3-C, 30-3-D,  
 30-4-C, 30-4-D, 3130-A, 3130-B, 3130-C, 3130-D, 3131-A.

**OSI 1:1,000 Sheet No's:**  
 30-3-12, 30-3-13, 30-3-14, 30-3-15, 30-4-11, 30-4-12,  
 3129-15, 3129-20, 3129-25, 3130-01, 3130-07, 3130-11,  
 3130-12, 3130-15, 3130-17, 3130-17, 3130-21, 3130-22,  
 3131-01, 3131-01, 3131-07.

- NOTES:**
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D03	23.03.11	DRAFT ISSUE FOR REVIEW	EW	DC
D02	09.02.11	DRAFT ISSUE FOR REVIEW	MN	DC
D01	12.11.15	DRAFT ISSUE FOR REVIEW	MN	DC
Rev	Date	Description	By	Chkd.

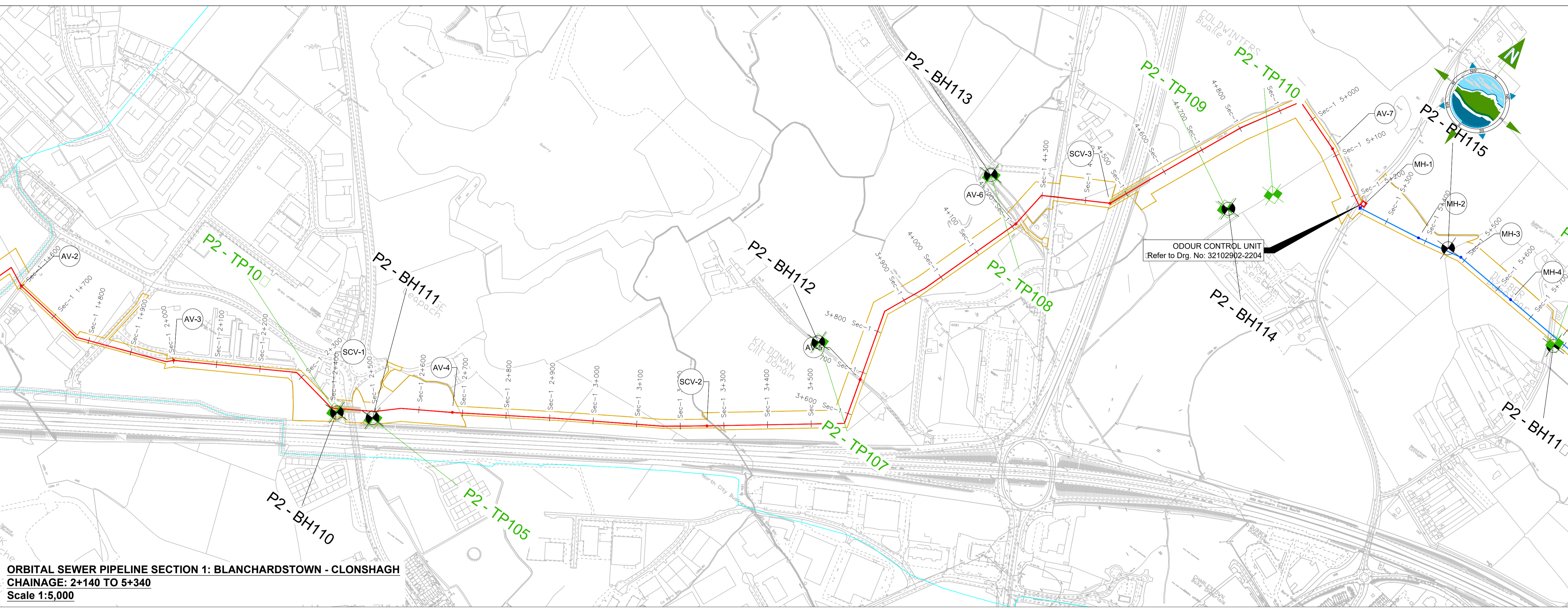
Client: 

Project: 

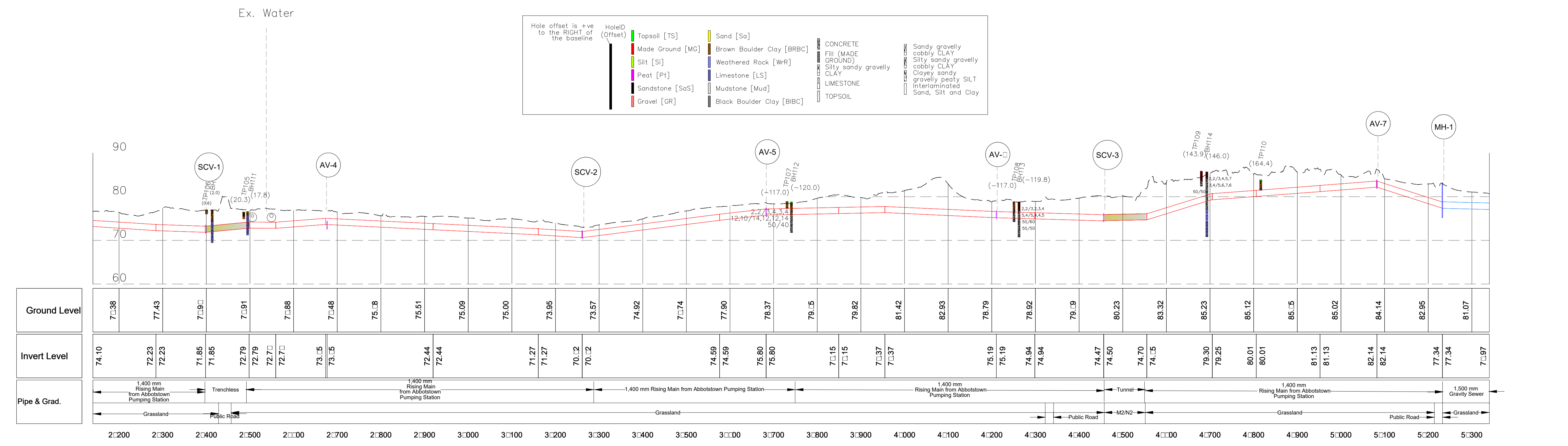
Title: **ORBITAL SEWER PIPELINE SECTION 1: BLANCHARDSTOWN - CLONSHAGH**  
 - Sheet 2 of 4 -

Scale @ A1: As Shown  
 Prepared by: M. Nolan | Checked: D. Conneran | Date: November 2015  
 Project Director: C. O'Keefe  
 Drawing Status: Draft

  
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 Drawing No.: 32102902-2101D03





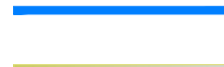


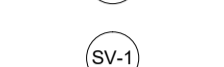




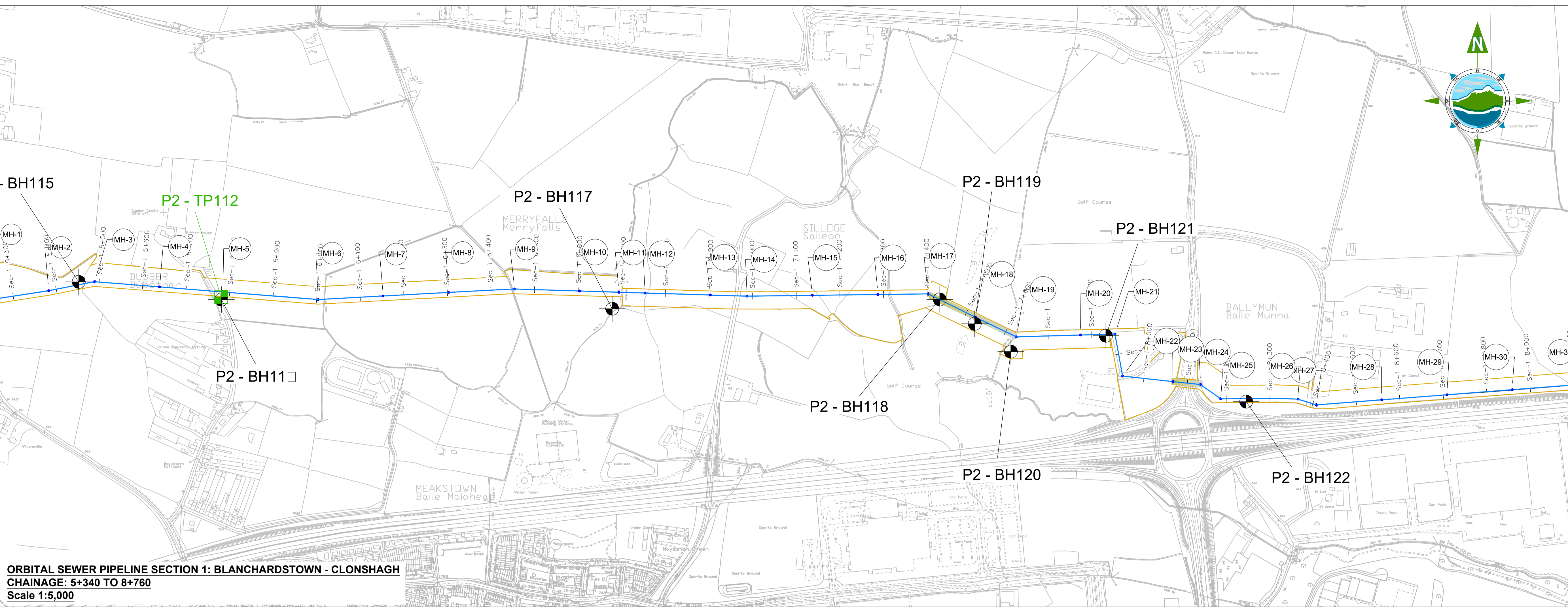
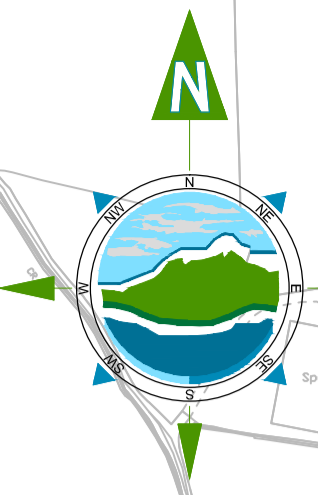
**ORBITAL SEWER PIPELINE SECTION 1: BLANCHARDSTOWN - CLONSHAGH**  
**CHAINAGE: 2+140 TO 5+340**  
**Scale 1:5,000**



**ORBITAL SEWER PIPELINE SECTION 1: BLANCHARDSTOWN - CLONSHAGH**  
**CHAINAGE: 2+140 TO 5+340**  
**Scale H-1:5,000 / V-1:500**

**LEGEND:**

- WWTP/PS BOUNDARY 
- WAYLEAVE 
- 1800mm Ø GRAVITY SEWER 
- 1400mm Ø RISING MAIN 
- 1500mm Ø GRAVITY SEWER 
- TRENCHLESS SECTION 
- MANHOLE 
- AIR VALVE 
- SCOUR VALVE 
- PUMPING STATION 



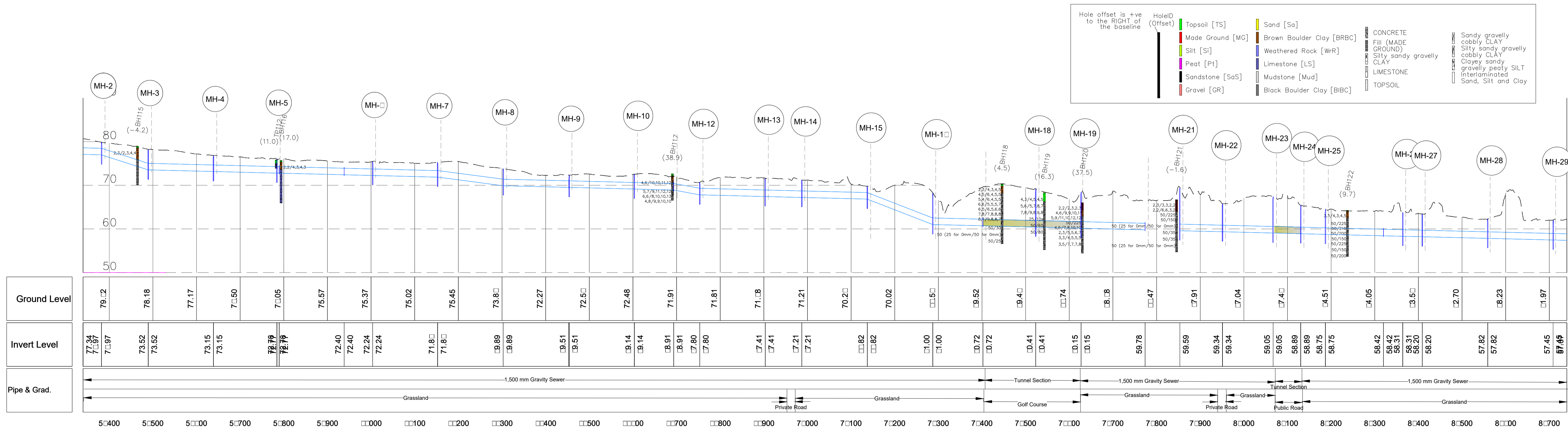
**ORBITAL SEWER PIPELINE SECTION 1: BLANCHARDSTOWN - CLONSHAGH**  
**CHAINAGE: 5+340 TO 8+760**  
**Scale 1:5,000**

**OSI 1:2,500 Sheet No's:**  
 30-2-D, 30-3-C, 30-3-D,  
 30-4-C, 30-4-D, 3130-A, 3130-B, 3130-C, 3130-D, 3131-A.


**OSI 1:1,000 Sheet No's:**  
 30-3-12, 30-3-13, 30-3-14, 30-3-15, 30-4-11, 30-4-12,  
 3129-15, 3129-20, 3129-25, 3130-0-1, 3130-07, 3130-11,  
 3130-12, 3130-15, 3130-1-1, 3130-17, 3130-21, 3130-22,  
 3131-01, 3131-0-1, 3131-07.


- NOTES:**
- FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
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Rev	Date	Description	By	Chkd
D03	23.03.11	DRAFT ISSUE FOR REVIEW	EW	DC
D02	09.02.11	DRAFT ISSUE FOR REVIEW	MN	DC
D01	12.11.10	DRAFT ISSUE FOR REVIEW	MN	DC



**ORBITAL SEWER PIPELINE SECTION 1: BLANCHARDSTOWN - CLONSHAGH**  
**CHAINAGE: 5+340 TO 8+760**  
**Scale H-1:5,000 / V-1:500**

Client: 

Project: 


Title: **ORBITAL SEWER PIPELINE SECTION 1: BLANCHARDSTOWN - CLONSHAGH**  
 - Sheet 3 of 4 -

Scale @ A1: As Shown

Prepared by: M. Nolan  
 Checked: D. Conneran  
 Date: November 2015

Project Director: C. O'Keeffe

Drawing Status: Draft



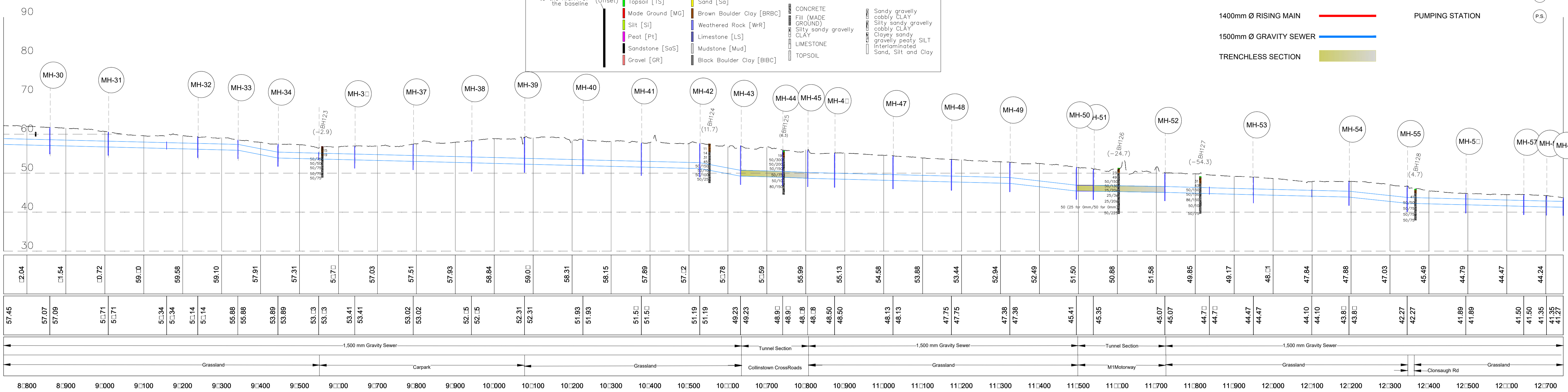
Drawing No.: 32102902-2102D03

**LEGEND:**

- WWTP/PS BOUNDARY
- WAYLEAVE
- 1800mm Ø GRAVITY SEWER
- 1400mm Ø RISING MAIN
- 1500mm Ø GRAVITY SEWER
- TRENCHLESS SECTION
- MANHOLE
- AIR VALVE
- SCOUR VALVE
- PUMPING STATION

Hole offset is +ve to the RIGHT of the baseline

Topsoil [TS]	Sand [Sa]	CONCRETE	Sandy gravelly cobbly CLAY
Made Ground [MG]	Brown Boulder Clay [BRBC]	FILL (MADE GROUND)	Silty sandy gravelly cobbly CLAY
Silt [Si]	Weathered Rock [WrR]	CLAY	Clayey sandy gravelly peaty SILT
Peat [Pt]	Limestone [LS]	LIMESTONE	Interlaminated Sand, Silt and Clay
Sandstone [SaS]	Mudstone [Mud]	TOPSOIL	
Gravel [GR]	Black Boulder Clay [BIBC]		



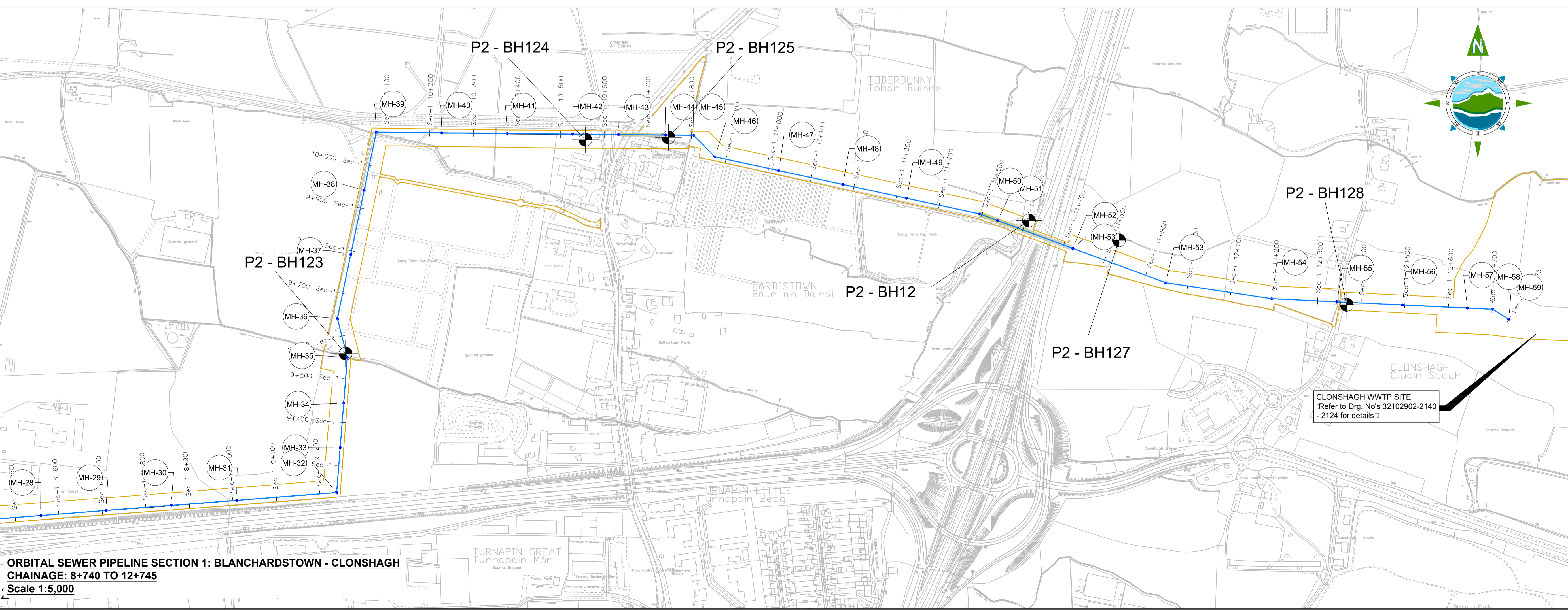
**ORBITAL SEWER PIPELINE SECTION 1: BLANCHARDSTOWN - CLONSHAGH**  
**CHAINAGE: 8+740 TO 12+745**  
**Scale H-1:5,000 / V-1:500**

OSI 1:2,500 Sheet No's:  
 30-2-D, 30-3-C, 30-3-D,  
 30-4-C, 30-4-D, 3130-A, 3130-B, 3130-C, 3130-D, 3131-A.

OSI 1:1,000 Sheet No's:  
 30-3-12, 30-3-13, 30-3-14, 30-3-15, 30-4-11, 30-4-12,  
 3129-15, 3129-20, 3129-25, 3130-01, 3130-07, 3130-11,  
 3130-12, 3130-15, 3130-17, 3130-21, 3130-22,  
 3131-01, 3131-03, 3131-07.

- NOTES:**
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Rev	Date	Description	By	Chkd.
D03	23.03.11	DRAFT ISSUE FOR REVIEW	EW	DC
D02	09.02.11	DRAFT ISSUE FOR REVIEW	MN	DC
D01	12.11.10	DRAFT ISSUE FOR REVIEW	MN	DC



**ORBITAL SEWER PIPELINE SECTION 1: BLANCHARDSTOWN - CLONSHAGH**  
**CHAINAGE: 8+740 TO 12+745**  
**Scale 1:5,000**

Client:

Project:

Title: **ORBITAL SEWER PIPELINE SECTION 1: BLANCHARDSTOWN - CLONSHAGH**  
 - Sheet 4 of 4 -

Scale @ A1: As Shown

Prepared by: M. Nolan Date: November 2015  
 Checked: D. Conneran

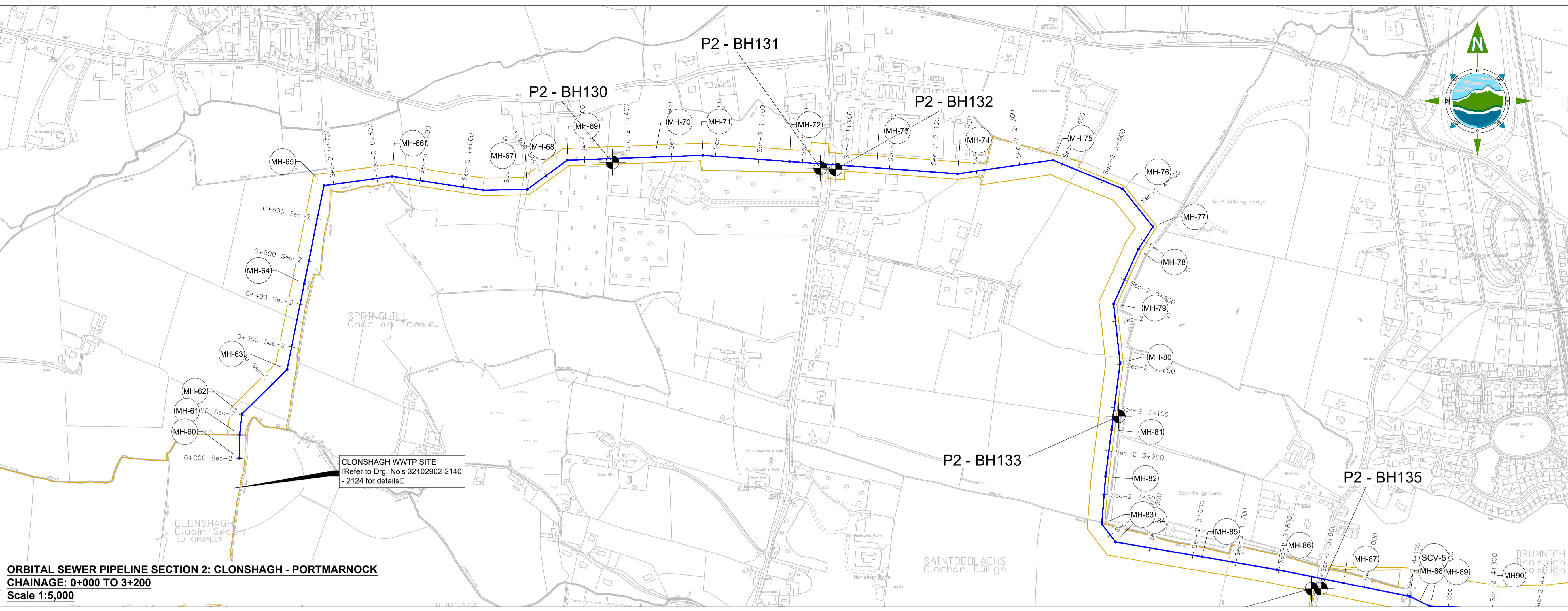
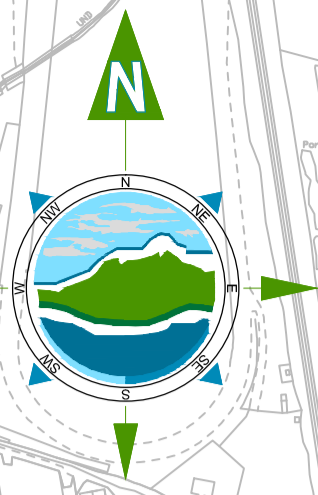
Project Director: C. O'Keefe

Drawing Status: Draft

Revision:  
 Drawing No: 32102902-2103D03

**LEGEND:**

- WWTP/PS BOUNDARY
- WAYLEAVE
- 1800mm Ø OUTFALL SEWER
- TRENCHLESS SECTION
- MANHOLE
- AIR VALVE
- SCOUR VALVE
- PUMPING STATION



**ORBITAL SEWER PIPELINE SECTION 2: CLONSHAGH - PORTMARNOCK**  
**CHAINAGE: 0+000 TO 3+200**  
**Scale 1:5,000**

**OSI 1:2,500 Sheet No's:**  
 30:2-D, 30:3-C, 30:3-D,  
 30:4-C, 30:4-D, 3130-A, 3130-B, 3130-C, 3130-D, 3131-A.

**OSI 1:1,000 Sheet No's:**  
 30:3-12, 30:3-13, 30:3-14, 30:3-15, 30:4-11, 30:4-12,  
 3129-15, 3129-20, 3129-25, 3130-01, 3130-07, 3130-11,  
 3130-12, 3130-15, 3130-16, 3130-17, 3130-21, 3130-22,  
 3131-01, 3131-03, 3131-07.

- NOTES:**
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Rev	Date	Description	By	Chkd.
D03	23.03.11	DRAFT ISSUE FOR REVIEW	EW	DC
D02	09.02.11	DRAFT ISSUE FOR REVIEW	MN	DC
D01	12.11.10	DRAFT ISSUE FOR REVIEW	MN	DC

Client:

Project:

Title: **ORBITAL SEWER PIPELINE SECTION 2: CLONSHAGH - PORTMARNOCK**  
 - Sheet 1 of 2 -

Scale @ A1: As Shown

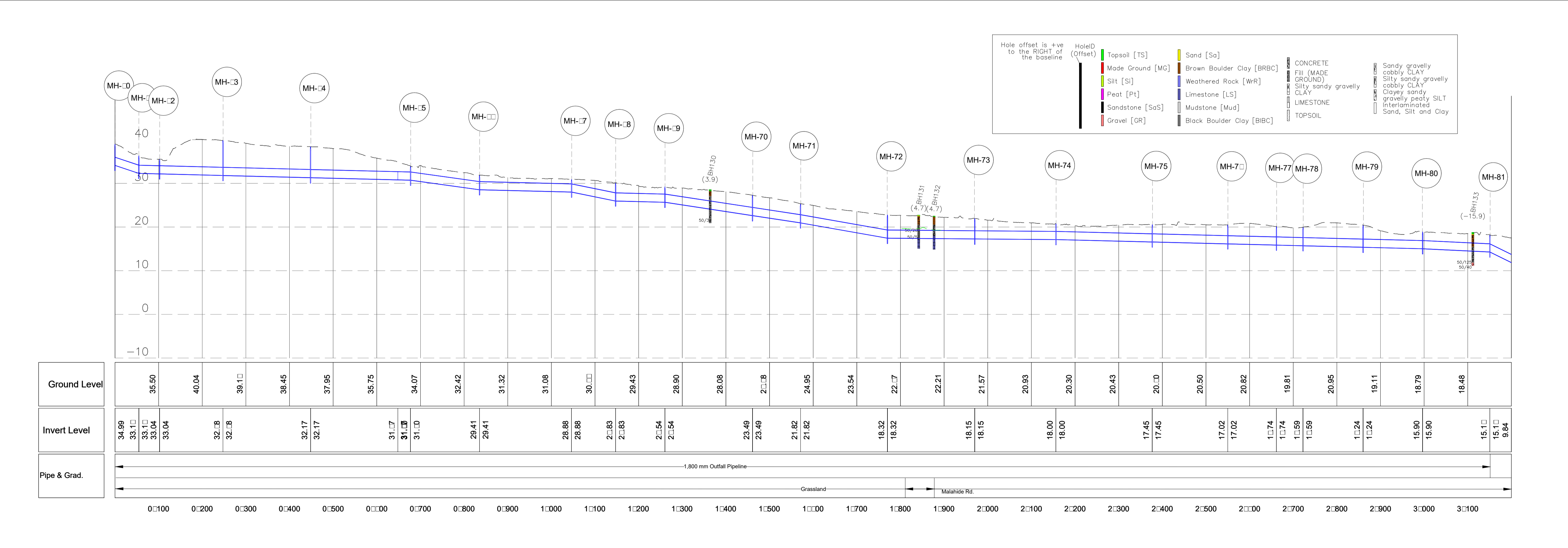
Prepared by: M. Nolan      Checked: D. Conneran      Date: November 2015

Project Director: C. O'Keeffe

Drawing Status: Draft

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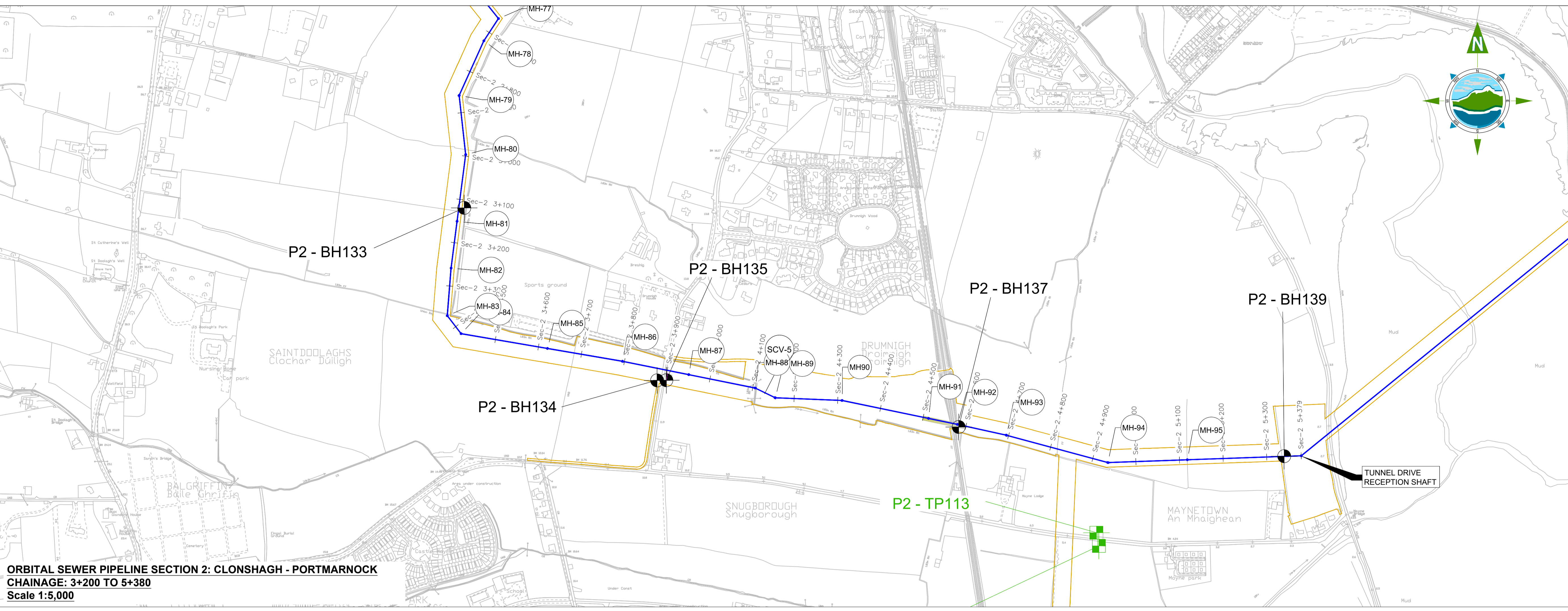
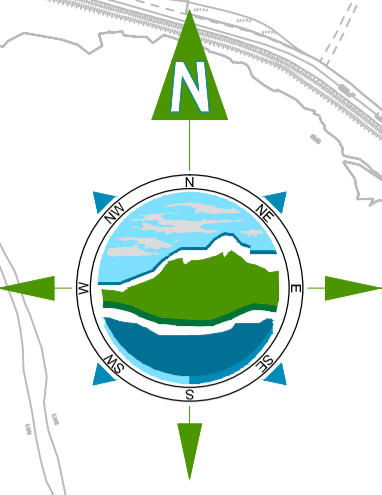
Drawing No.: 32102902-2104D03



**ORBITAL SEWER PIPELINE SECTION 2: CLONSHAGH - PORTMARNOCK**  
**CHAINAGE: 0+000 TO 3+200**  
**Scale H-1:5,000 / V-1:500**

**LEGEND:**

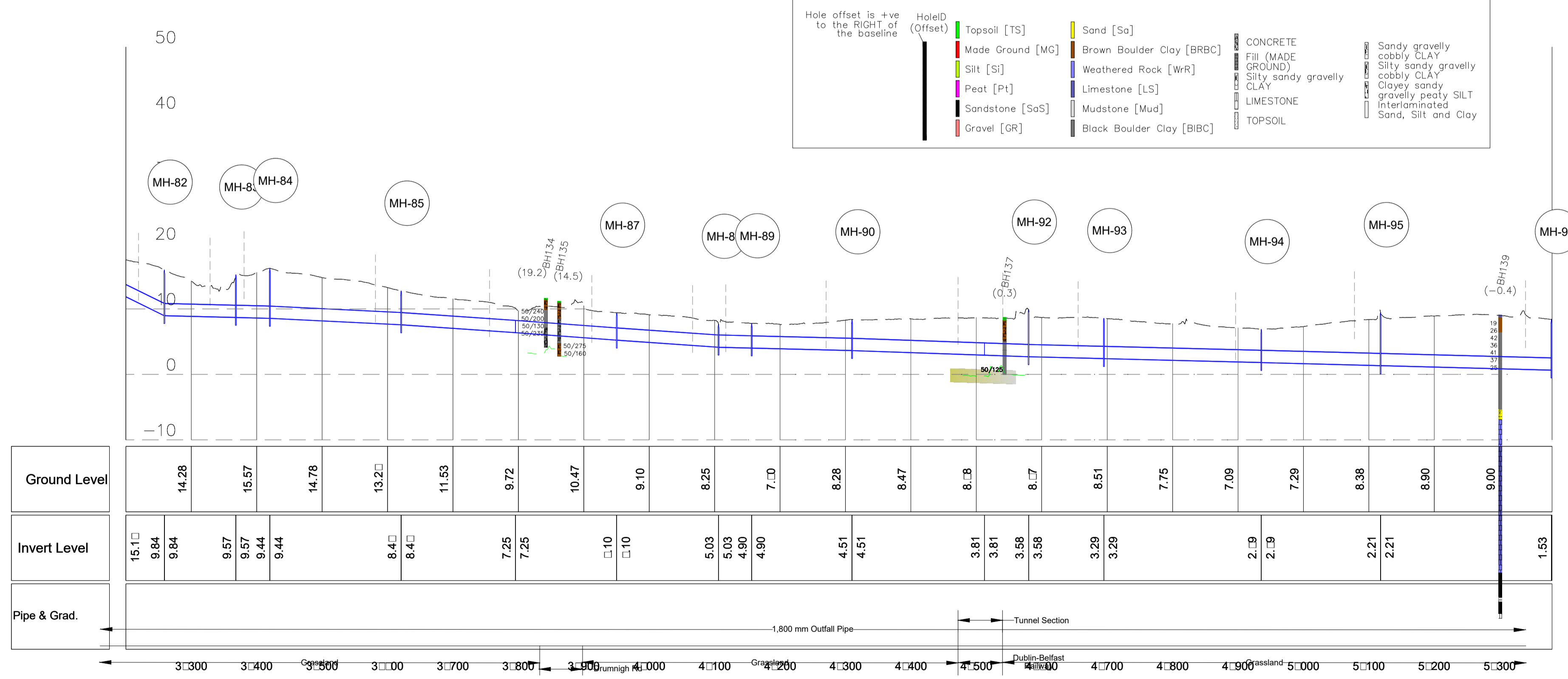
- WWTP/PS BOUNDARY
- WAYLEAVE
- 1800mm Ø OUTFALL SEWER
- TRENCHLESS SECTION
- MANHOLE (MH-1)
- AIR VALVE (AV-1)
- SCOUR VALVE (SV-1)
- PUMPING STATION (P.S.)



**ORBITAL SEWER PIPELINE SECTION 2: CLONSHAGH - PORTMARNOCK**  
**CHAINAGE: 3+200 TO 5+380**  
**Scale 1:5,000**

**OSI 1:2,500 Sheet No's:**  
 30-2-D, 30-3-C, 30-3-D,  
 30-4-C, 30-4-D, 3130-A, 3130-B, 3130-C, 3130-D, 3131-A.

**OSI 1:1,000 Sheet No's:**  
 30-3-12, 30-3-13, 30-3-14, 30-3-15, 30-4-11, 30-4-12,  
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 3130-12, 3130-15, 3130-17, 3130-21, 3130-22,  
 3131-01, 3131-03, 3131-07.



- NOTES:**
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Rev	Date	Description	By	Chkd.
D03	23.03.11	DRAFT ISSUE FOR REVIEW	EW	DC
D02	09.02.11	DRAFT ISSUE FOR REVIEW	MN	DC
D01	12.11.10	DRAFT ISSUE FOR REVIEW	MN	DC

Client:

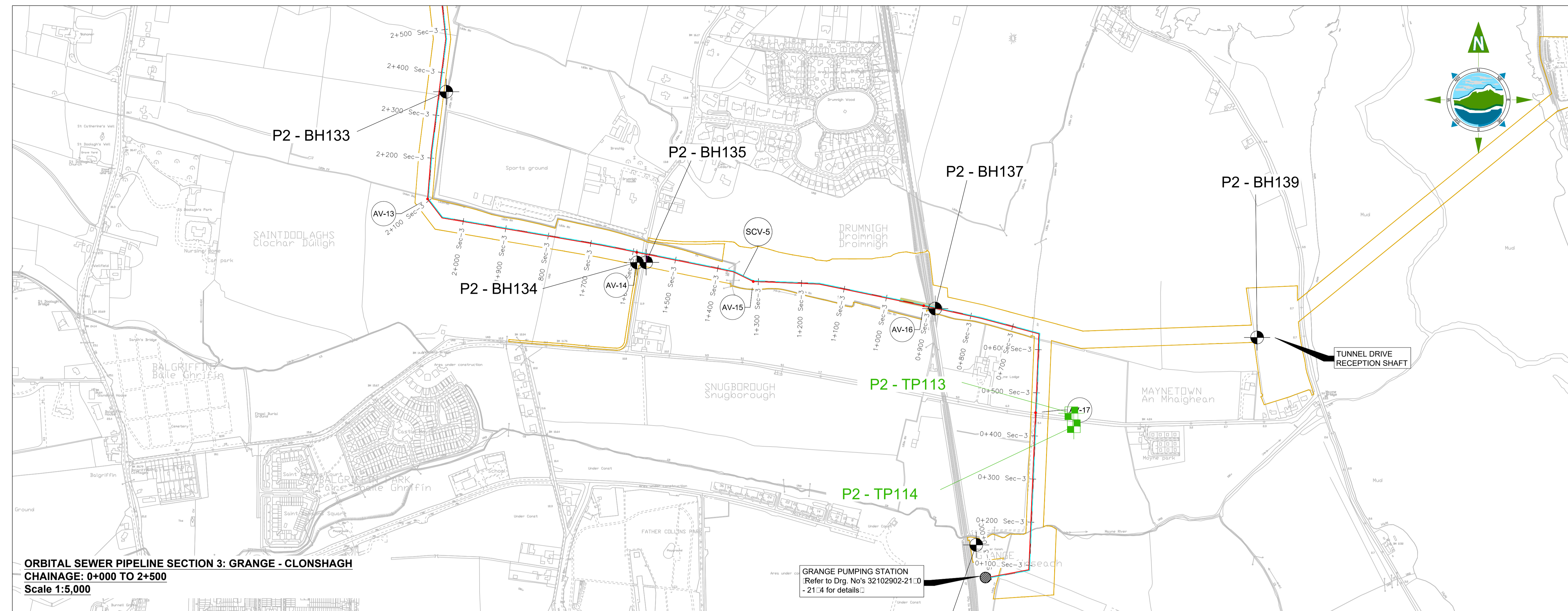
Project:

Title: **ORBITAL SEWER PIPELINE SECTION 2: CLONSHAGH - PORTMARNOCK**  
 - Sheet 2 of 2 -

Scale @ A1: As Shown  
 Prepared by: M. Nolan  
 Checked: D. Conneran  
 Date: November 2015  
 Project Director: C. O'Keeffe  
 Drawing Status: Draft

Drawing No: 32102902-2105D03

**ORBITAL SEWER PIPELINE SECTION 2: CLONSHAGH - PORTMARNOCK**  
**CHAINAGE: 3+200 TO 5+380**  
**Scale H-1:5,000 / V-1:500**



**LEGEND:**

WWTP/PS BOUNDARY	
WAYLEAVE	
700mm Ø NFS RISING MAIN	
1000mm Ø NDDS RISING MAIN	
MANHOLE	
AIR VALVE	
SCOUR VALVE	
PUMPING STATION	

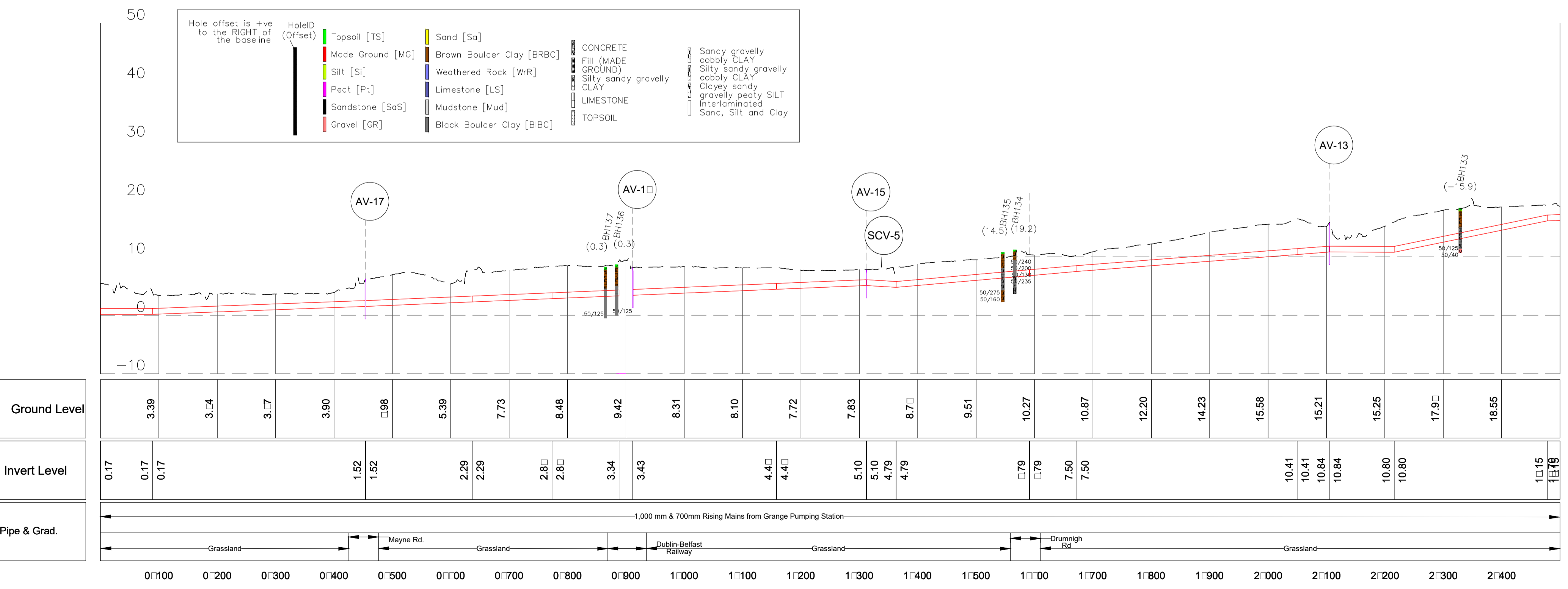
**ORBITAL SEWER PIPELINE SECTION 3: GRANGE - CLONSHAGH**  
**CHAINAGE: 0+000 TO 2+500**  
**Scale 1:5,000**

**OSI 1:2,500 Sheet No's:**  
 30:2-D, 30:3-C, 30:3-D,  
 30:4-C, 30:4-D, 3130-A, 3130-B, 3130-C, 3130-D, 3131-A.

**OSI 1:1,000 Sheet No's:**  
 30:3-12, 30:3-13, 30:3-14, 30:3-15, 30:4-11, 30:4-12,  
 3129-15, 3129-20, 3129-25, 3130-01, 3130-07, 3130-11,  
 3130-12, 3130-15, 3130-16, 3130-17, 3130-21, 3130-22,  
 3131-01, 3131-02, 3131-07.

- NOTES:**
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  - ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE.
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Rev	Date	Description	By	Chkd.
D03	23.03.11	DRAFT ISSUE FOR REVIEW	EW	DC
D02	09.02.11	DRAFT ISSUE FOR REVIEW	MN	DC
D01	12.11.10	DRAFT ISSUE FOR REVIEW	MN	DC



**ORBITAL SEWER PIPELINE SECTION 3: GRANGE - CLONSHAGH**  
**CHAINAGE: 0+000 TO 2+500**  
**Scale H-1:5,000 / V-1:500**

Client:

Project:

Title: **ORBITAL SEWER PIPELINE SECTION 3: GRANGE - CLONSHAGH**  
 - Sheet 1 of 2 -

Scale @ A1: **As Shown**

Prepared by: M. Nolan | Checked: D. Conneran | Date: November 2015

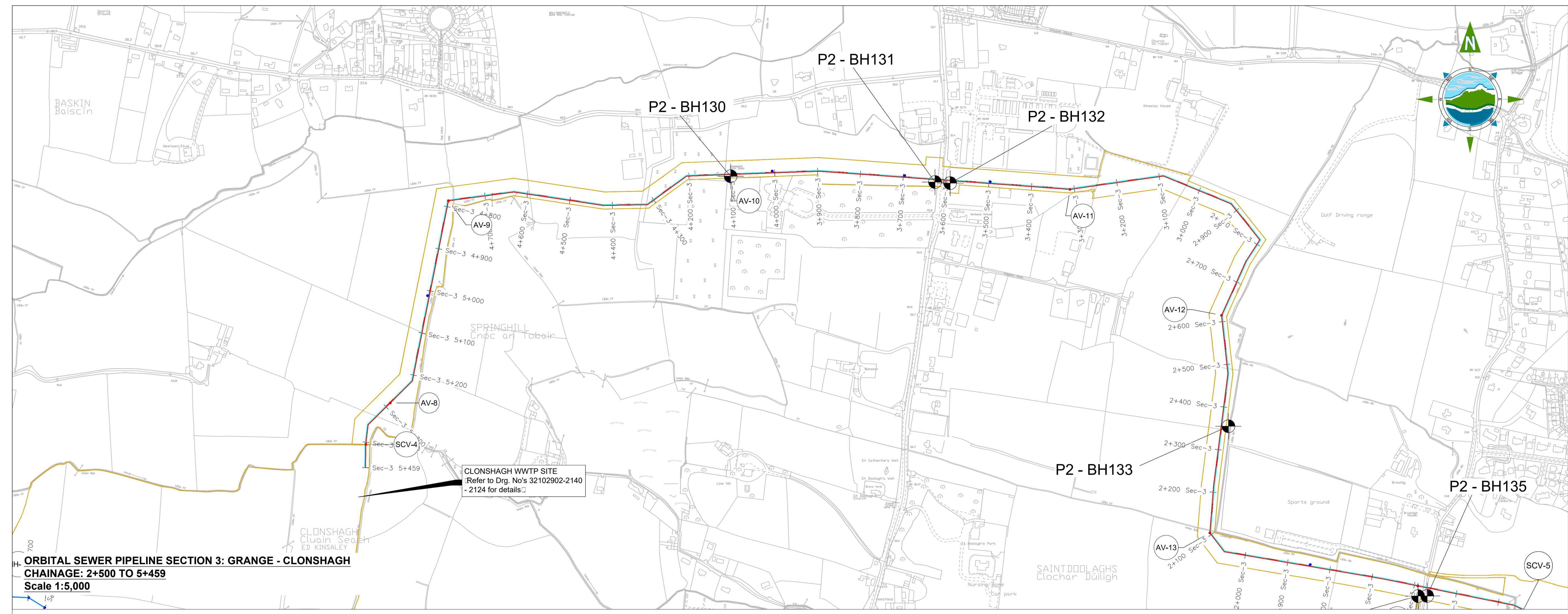
Project Director: C. O'Keefe

Drawing Status: Draft

Revision: **D03**

Drawing No.: 32102902-210





**LEGEND:**

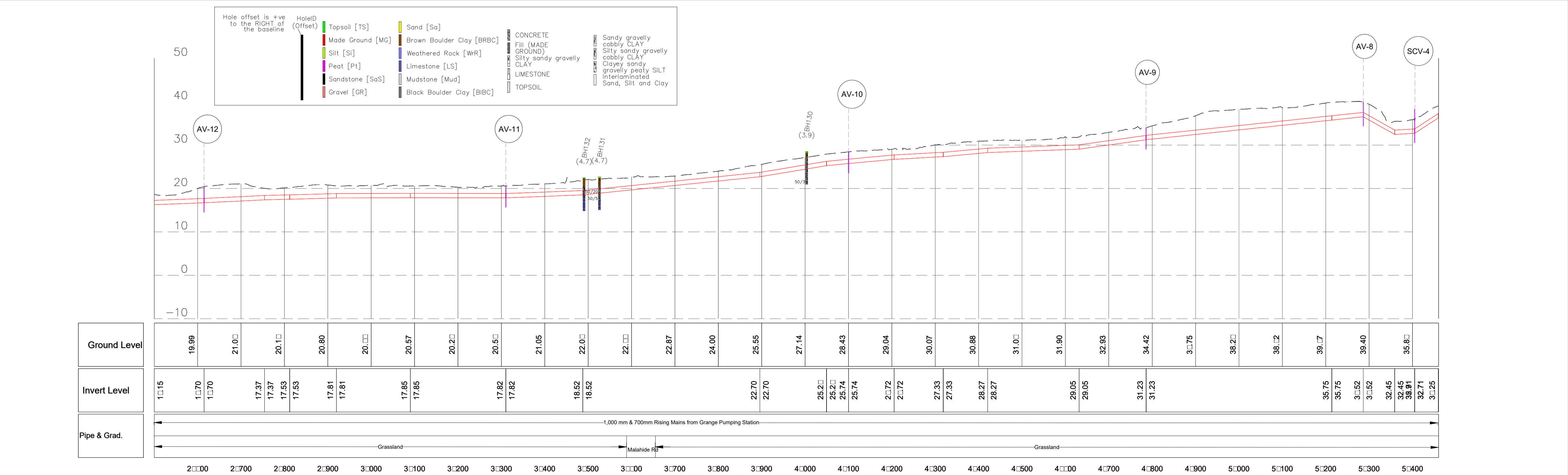
- WWTP/PS BOUNDARY (Red outline)
- WAYLEAVE (Yellow line)
- 700mm Ø NFS RISING MAIN (Red line)
- 1000mm Ø NDDS RISING MAIN (Blue line)
- MANHOLE (MH-1 symbol)
- AIR VALVE (AV-1 symbol)
- SCOUR VALVE (SV-1 symbol)
- PUMPING STATION (P.S. symbol)

**ORBITAL SEWER PIPELINE SECTION 3: GRANGE - CLONSHAGH**  
**CHAINAGE: 2+500 TO 5+459**  
**Scale 1:5,000**

**CLONSHAGH WWTP SITE**  
 Refer to Drg. No's 32102902-2140 - 2124 for details

**OSI 1:2,500 Sheet No's:**  
 30:2-D, 30:3-C, 30:3-D, 30:4-C, 30:4-D, 3130-A, 3130-B, 3130-C, 3130-D, 3131-A.

**OSI 1:1,000 Sheet No's:**  
 30:3-12, 30:3-13, 30:3-14, 30:3-15, 30:4-11, 30:4-12, 3129-15, 3129-20, 3129-25, 3130-01, 3130-07, 3130-11, 3130-12, 3130-15, 3130-17, 3130-21, 3130-22, 3131-01, 3131-07.



- NOTES:**
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  - ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE.
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Rev	Date	Description	By	Chkd.
D03	23.03.11	DRAFT ISSUE FOR REVIEW	EW	DC
D02	09.02.11	DRAFT ISSUE FOR REVIEW	MN	DC
D01	12.11.10	DRAFT ISSUE FOR REVIEW	MN	DC

Client:

Project:

Title: **ORBITAL SEWER PIPELINE SECTION 3: GRANGE - CLONSHAGH**  
 - Sheet 2 of 2 -

Scale @ A1: **As Shown**

Prepared by: M. Nolan      Checked: D. Conneran      Date: November 2015

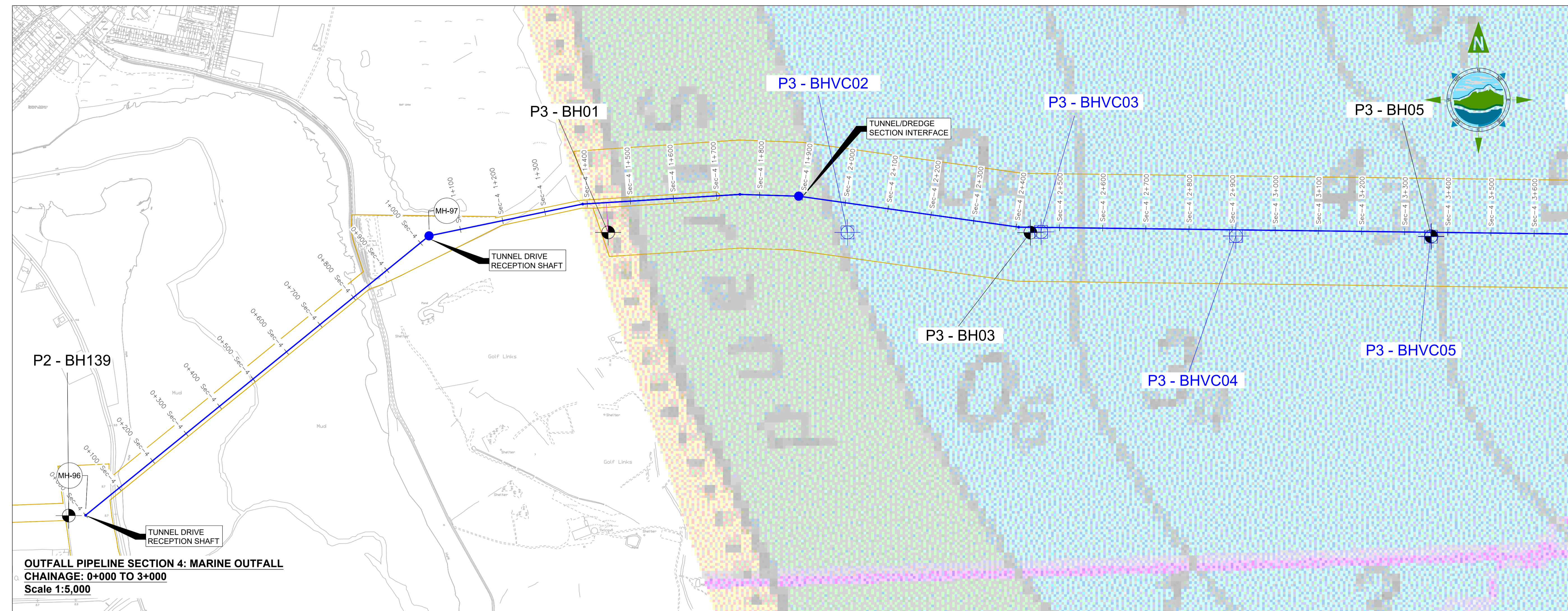
Project Director: C. O'Keefe

Drawing Status: Draft

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Revision: Drawing No.: **32102902-2107D03**

**ORBITAL SEWER PIPELINE SECTION 3: GRANGE - CLONSHAGH**  
**CHAINAGE: 2+500 TO 5+459**  
**Scale H-1:5,000 / V-1:500**



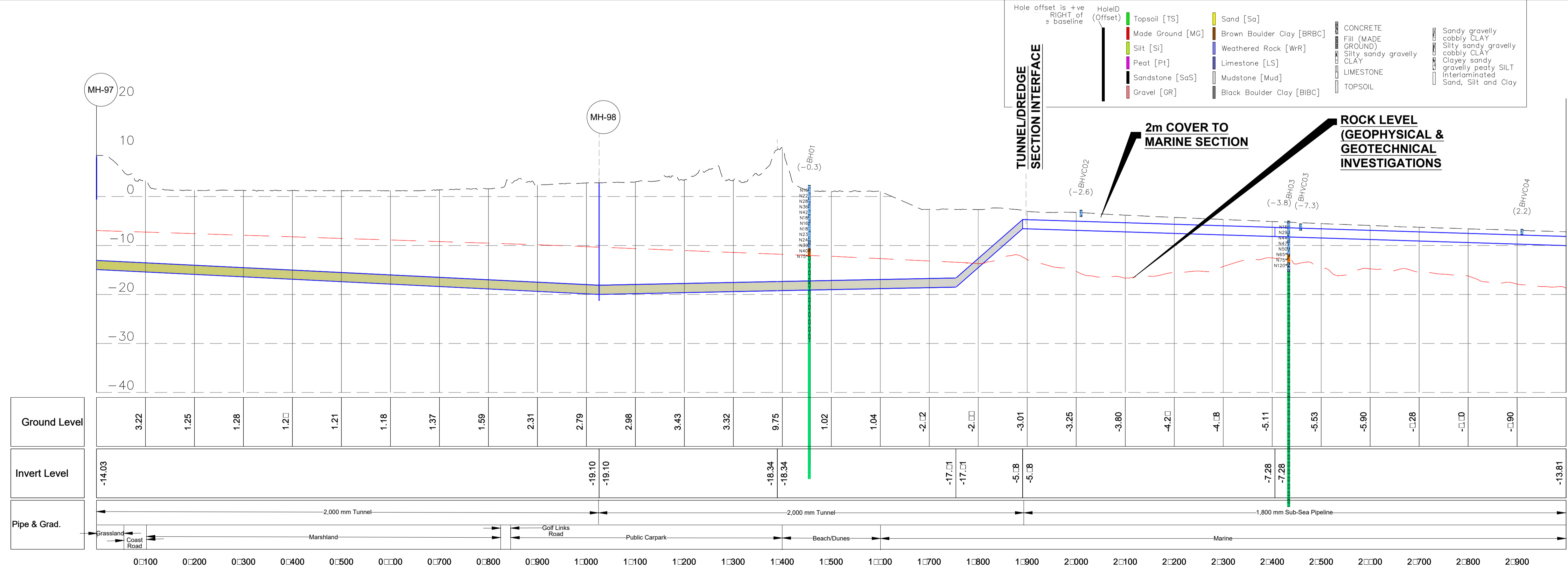
**LEGEND:**

- WWTP/PS BOUNDARY
- WAYLEAVE
- 1800mm Ø OUTFALL SEWER
- TRENCHLESS SECTION
- MANHOLE
- AIR VALVE
- SCOUR VALVE
- PUMPING STATION

**OUTFALL PIPELINE SECTION 4: MARINE OUTFALL**  
**CHAINAGE: 0+000 TO 3+000**  
**Scale 1:5,000**

**OSI 1:2,500 Sheet No's:**  
 30-2-D, 30-3-C, 30-3-D,  
 30-4-C, 30-4-D, 3130-A, 3130-B, 3130-C, 3130-D, 3131-A.

**OSI 1:1,000 Sheet No's:**  
 30-3-12, 30-3-13, 30-3-14, 30-3-15, 30-4-11, 30-4-12,  
 3129-15, 3129-20, 3129-25, 3130-01, 3130-07, 3130-11,  
 3130-12, 3130-15, 3130-17, 3130-17, 3130-21, 3130-22,  
 3131-01, 3131-01, 3131-07.



Hole offset is +ve RIGHT of baseline

HoleID (Offset)	Soil Type
Green	Topsoil [TS]
Yellow	Made Ground [MG]
Red	Silt [Si]
Purple	Peat [Pt]
Orange	Sandstone [SaS]
Light Blue	Gravel [GR]
Dark Blue	Sand [Sa]
Light Green	Brown Boulder Clay [BRBC]
Dark Green	Weathered Rock [WrR]
Light Purple	Limestone [LS]
Light Orange	Mudstone [Mud]
Light Yellow	Black Boulder Clay [BIBC]
Light Blue	CONCRETE
Light Green	FILL (MADE GROUND)
Light Orange	Silty sandy gravelly CLAY
Light Purple	Sandy gravelly cobbly CLAY
Light Yellow	Silty sandy gravelly cobbly CLAY
Light Green	Clayey sandy gravelly peaty SILT
Light Blue	Interlaminated Sand, Silt and Clay
Light Orange	TOPSOIL

- NOTES:**
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D02	09.02.11	DRAFT ISSUE FOR REVIEW	MN	DC
D01	12.11.10	DRAFT ISSUE FOR REVIEW	MN	DC

Client:

Project:

Title: **ORBITAL SEWER PIPELINE SECTION 4: MARINE OUTFALL**  
 - Sheet 1 of 2 -

Scale @ A1: **As Shown**

Prepared by: M. Nolan      Checked: C. Conneran      Date: November 2015

Project Director: C. O'Keefe

Drawing Status: Draft

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Revision: **D03**

Drawing No.: **32102902-2108D03**

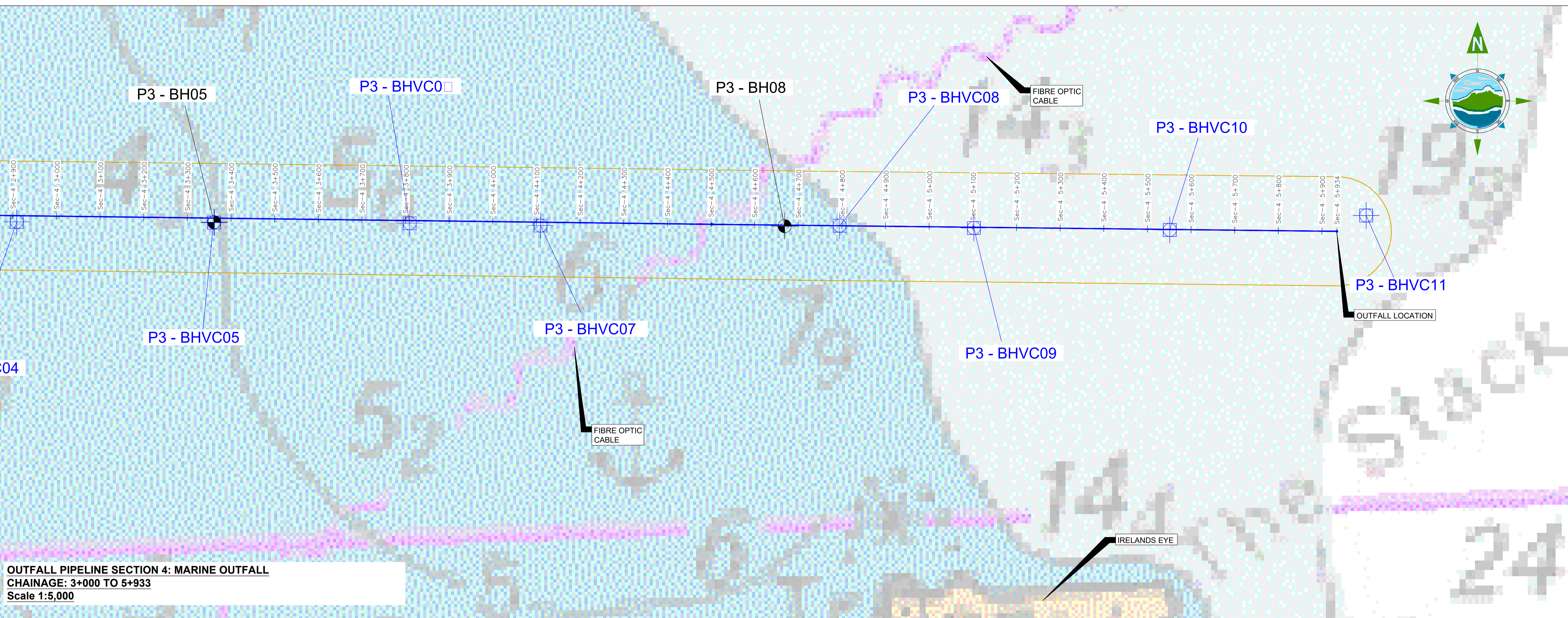
**OUTFALL PIPELINE SECTION 4: MARINE OUTFALL**  
**CHAINAGE: 0+000 TO 3+000**  
**Scale H-1:5,000 / V-1:500**

**LEGEND:**

WWTP/PS BOUNDARY	
WAYLEAVE	
1800mm Ø OUTFALL SEWER	
TRENCHLESS SECTION	
MANHOLE	
AIR VALVE	
SCOUR VALVE	
PUMPING STATION	

**OSI 1:2,500 Sheet No's:**  
 30-2-D, 30-3-C, 30-3-D,  
 30-4-C, 30-4-D, 3130-A, 3130-B, 3130-C, 3130-D, 3131-A.

**OSI 1:1,000 Sheet No's:**  
 30-3-12, 30-3-13, 30-3-14, 30-3-15, 30-4-11, 30-4-12,  
 3129-15, 3129-20, 3129-25, 3130-01, 3130-07, 3130-11,  
 3130-12, 3130-15, 3130-16, 3130-17, 3130-21, 3130-22,  
 3131-01, 3131-02, 3131-07.



**OUTFALL PIPELINE SECTION 4: MARINE OUTFALL**  
**CHAINAGE: 3+000 TO 5+933**  
**Scale 1:5,000**

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D01	12.11.10	DRAFT ISSUE FOR REVIEW	MN	DC

Client:

Project:

Title: **ORBITAL SEWER PIPELINE SECTION 4: MARINE OUTFALL**  
 - Sheet 2 of 2 -

Scale @ A1: **As Shown**

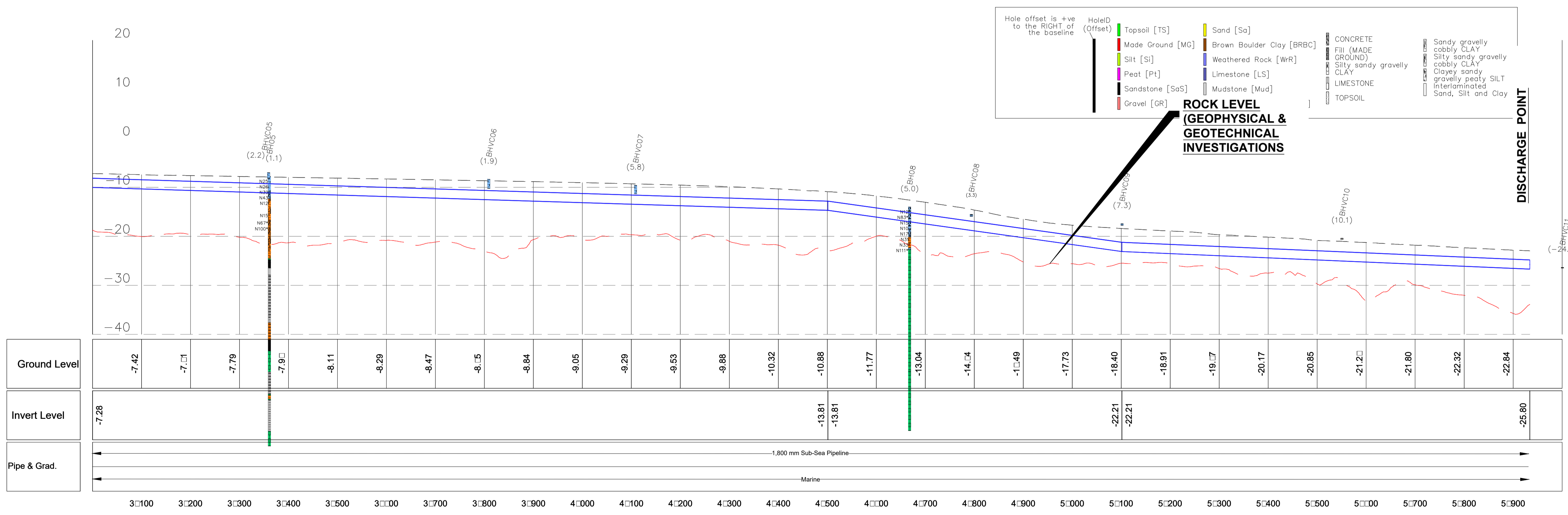
Prepared by: M. Nolan      Checked: D. Conneran      Date: November 2015

Project Director: C. O'Keeffe

Drawing Status: Draft

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Drawing No.: **32102902-2109D03**



**OUTFALL PIPELINE SECTION 4: MARINE OUTFALL**  
**CHAINAGE: 3+000 TO 5+933**  
**Scale H-1:5,000 / V-1:500**