

Byland - Curriculum Vitae

William (Billy) Sturdy, Graduate Geotechnical Engineer, Byland Engineering Ltd

Profession: Graduate Geotechnical Engineer
Year of birth: 1997
Nationality: British
Marital Status: Single

Education/professional achievements: 2015 – Full Clean UK Driving Licence
2019 – MEng Civil & Structural Engineering, Newcastle University (Second Class Honours, Upper Division)
2019 – Graduate Member of the Institution of Civil Engineers
2019 – CITB Health & Safety & Environment Test for Managers and Professionals – Passed

Relevant experience

Graduate geotechnical engineer training to become a Chartered Civil Engineer. Good experience of geotechnical data analysis, production of geotechnical design calculations and design drawings. A high standard of computing skills including Microsoft office, AutoCAD and geotechnical software including Plaxis 2D, Plaxis 3D, Wallap, SnailzWIN, Talren and Oasys PILE, ALP & ADSEC software.

Experience record

Highlighted Projects August 2019 – Present: 11 Months Byland Engineering Limited

Refresco, Nelson – RC Beam Design

I undertook the element design of the reinforced concrete (RC) beam for a contiguous pile wall tied at regular spacings by passive inclined self-drilled ties. I used the TEKLA TEDDS software to determine the cross-sectional reinforcement required in the capping beam, and then I developed the detailed elevation and plan construction drawings with bending schedules in accordance with BS 8666:2005.

21-29 Herald Street – Cat 3 Check on Piles & Retaining Walls

I completed a series of Category III design checks for Mason Navarro Pledge, in accordance with Eurocode standards and relevant British standards, on both temporary and permanent works at 21-29 Herald Street, London. The checks were required due to the proximity of a live rail line. The Cat III check covered the following:

- Temporary piling platform to support a continuous flight auger (CFA) piling rig
- RC lift base slab and bearing piles to temporarily support a tower crane during building construction.
- 118 No. permanent 450mm and 600mm diameter bearing piles with various compression, tension and horizontal actions as specified by the structural engineer
- Permanent secant pile cantilever retaining wall for a single storey basement

10 Holland Park Villas – RC Guide Wall

I designed a temporary RC guide wall to facilitate good positional and verticality tolerances for the construction of a secant pile wall, including calculation report and secant pile guide wall layout drawing.

North Leicester Trade Park - AIP

I developed an Approval in Principle (AIP) for the design of 3 No sections of reinforced soil retaining wall as part of the North Leicester Trade Park Development. The AIP was produced in accordance with the Standards for Highways Design Manual for Roads and Bridges Volume 1: Highway Structures – Approval Procedures and General Design, Section 1: Approval Procedures.

Gypsey Race Park Bridlington – Piles, Soil Nails & Platform Design

I undertook the design of footbridge bearing piles, soil nails and a temporary piling platform as part of the regeneration works at Gypsey Race Park scheme in Bridlington for Esh Construction. I attended and logged 4 No trial pits in accordance with BS5930:2015 and undertook hand shear vane tests to determine geotechnical parameters to be used in the piling platform design. I specified and analysed 6 No plate bearing tests undertaken on an existing tarmac surface to ensure it had sufficient bearing capacity to safely accommodate a large crane. I also developed a design and detailed drawing for a complex working platform installed on the sloping bank along Gypsey Race to safely accommodate a Giken ECO700S silent piler during installation of a sheet pile wall. I analysed test results of 3 No vertical preliminary sacrificial soil nail pull-out tests to validate the ultimate grout / ground bond capacity to be used within the element soil nail design.

Union Terrace Gardens, Aberdeen - Tender & Contract Design

I undertook a tender design for Van Elle for 508/450mm bearing piles and contiguous pile wall for the Union Terrace Gardens public park in Aberdeen. I then undertook contract designs for the Burns Pavilion, Walkway 2, Walkway 3 and lighting structure piles. The pile designs were undertaken in accordance with Eurocode standards and a detailed site-specific piling specification

Islington Pumping Station, Kings Lynn – Permanent SBMA Ground Anchors

I carried out the contract design for 22 No Single Bore Multiple Anchor (SBMA) type anchors for Keller to support a permanent sheet pile wall at Islington Pumping Station, Kings Lynn. The design was based on a single preliminary sacrificial ground anchor test undertaken to determine the ultimate grout / ground geotechnical capacity. My design included the calculations of tendon resistance, grout / ground interface resistance, grout / encapsulation interface resistance and grout / tendon resistance interface resistance in accordance with BS 8081 (2018). A detailed anchor head and bearing plate design was also undertaken to ensure that the anchor forces are safely transferred into the sheet pile wall. Acceptance & Suitability Tests were specified in accordance with BS EN ISO 22477 Part 5. Load Displacement information was analysed to ensure the apparent free lengths and creep rates were acceptable.

Newhaven Port Access Road – Cat III Check on Temporary Works

I completed Category III design checks on the temporary works required to install a bridge spanning Mill Creek as part of the Newhaven Port Access Road development. This required an assessment of existing complex ground conditions with weak alluvium and the installation of Controlled Modulus Columns (CMC's) as part of ground improvement works. The Category III design checks comprised of the following:

- Punching shear capacity of the working platform under working crane loads.
- Slope stability and bearing capacity to approve the extents of the working platform.
- Timber mats which act as a load spreader for the crane outriggers
- Reinforced soil wall abutments under the working crane surcharges.
- Crane lift over the causeway crossing Mill Creek which required assessing the crushing capacity of the underlying 900mm diameter HDPE pipes in accordance with BS EN 1295-1.

Ferry Street, Burton on Trent – King Post Pile Wall

I designed a king post wall with 9No king posts and 8No precast concrete lagging board sections with retained heights varying between 1.0m and 2.25m using Wallap. The exposed steel H sections required capacity checks in bending, shear, and lateral torsional buckling in accordance with Eurocode 3.

Dean Path, Edinburgh – Soil Nails & Micropiles & RC Slab / Beams

I designed a 27m long micropiled reinforced concrete (RC) slab supporting precast RC retaining wall panels at the crest of a soil nailed slope to stabilise a failed slope and provide a level car park area behind the property. I determined the loads acting on the vertical, rear raking and contiguous micropiles using OASYS PILE in accordance with Eurocodes. The RC slab and RC beam designs were then undertaken using TEKLA TEDDS software.

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Kidbrooke Village, London – Heave Calculations

I modelled clay heave due to a 4.75m deep basement excavation into London Clay. The assessment of potential heave was required to show that it would not exceed the serviceability limit movement for the final tarmac surface. Heave was initially modelled in Pdisp software as a negative bearing pressure to develop short-term heave predictions. Long term heave predictions were then developed through comparisons with existing heave monitoring data in London Clay to produce a more realistic assessment.

49 Uppleby, Easingwold – Contiguous Pile Wall Design

I designed a permanent contiguous pile wall to form a basement and to provide support to the adjacent property and to mitigate risk of damaging ground movements. I assessed the site investigation and chose design parameters before undertaking a WALLAP pile wall design in accordance with EC7. I also undertook the design of a temporary corner brace prop and RC capping beam.

Highlighted Projects June 2018 – September 2018: 4 Month summer placement with Byland Engineering Limited

Hilton Foods, Huntingdon, Unit E bearing pile design.

I designed 74No Continuous Flight Auger bearing piles to support a warehouse extension for Hilton Foods in accordance with EC7. I analysed the ground conditions and load combinations and designed the piles using Oasys PILE software. A detailed pile schedule with pile depths, cage lengths and cage types was produced.

Pencombe, Hertfordshire – Permanently cased driven minipile design.

I undertook the dynamic pile design for 90No permanently cased bottom driven mini piles, including a static pile design check.

Kingsmill Rail Footbridge – CHS driven minipile design.

I designed 4 groups of 12No driven hollow steel tube piles in accordance with EC7 using GRLWEAP software.

Haddricks Mill – AutoCad & Slope Stability Analyses

I assisted with the soil nail slope stabilisation design as part of a highway widening scheme. This also involved sheet piling and contiguous pile walls adjacent to either side of a metro bridge. I worked on AutoCAD drawings for both temporary and permanent works.