

NORTHWEST HAUC

SPECIFICATION FOR REINSTATEMENT OF OPENINGS IN THE HIGHWAY (SROH) APPENDIX 9 APPROVAL TRIAL DOCUMENT

Approval of the SMR Premix – 2% binder, 2N mix ex Recycling North West Ltd

Approval Trial Dates- Site works commenced February 2008-Initial Trial testing completed June 2008-Trial period completed June 2010.

Final Approval Date : December 2010

APPENDIX 9.5.3.1 GENERAL

1) Parties to Trial

- North West HAUC & Materials Sub Group.
- Sefton MBC, Knowsley MBC, St Helens MBC (trial sites).
- United Utilities. Morgan-Est, National Grid, Balfour Beatty BBUS Ltd.
- Recycling Aggregates North West,/Recycling North West Ltd.
- Merseyside Engineers Laboratory Services.
- Wirral MBC, Liverpool City Council (Enterprise Liverpool) as Merseyside MDEG Partners
- SMR Ltd.
- Access to information relating to this Trial may be available from the relevant Street Works Authority, Undertaker, Supplier, Merseyside Engineers Laboratory Services and the North West HAUC Materials Group by mutual agreement.

2) Confidentiality

The above parties and their respective Authorities to be aware of the confidentiality aspects of this Trial.

3) Geographical extent of trial

Merseyside.

4) Scope of Trial

3 No trial sites.

5) Time Limit of Trial

2 Years

6) Termination

Termination by agreement with parties involved, subject to unsatisfactory performance. (Not activated due to satisfactory performance).

7) Signatories/witnesses

See signatories page, section 14.

APPENDIX 9.5.3.2 PROCEDURAL

1) Contemporary Records

Details of material type, mix details, Quality Plan, Suppliers Factory Production Control Testing, On – site testing during trials, information held by Undertaker, Authority and Authorities Laboratory Service (MELS).

Record keeping by each Authority, Undertaker, Supplier and Authorities Laboratory Service (MELS).

2) Notification Details

Authorities normal working practices in conjunction with promoters of trial. Written notification received by each Authority.

3) Attendance at Trials

Various parties attended trials as outlined in section A9.5.3.1.1.

4) Review periods/meetings

Meetings and reviews held periodically through the NWAUC Materials Group on a quarterly basis.

5) Post-construction assessment

Visual inspections carried out following initial site works March 2008 and then subsequent additional inspections June 2010 to October 2010.
CBR testing by Clegg Hammer, Factory Production Control Testing during the 2 year trial period, Trafficking Deformation by Visual Assessment. Long term compressive strength at 90 days.
Frost Heave resistance of typical mixture by testing and inspection.

APPENDIX 9.5.3.3 TECHNICAL

1) Type of Trial site

Routine utility excavations where sub base required.

2) Location of trial sites

Sefton MBC - Lytham Road, Southport, non high amenity. Road Classification- Type 4- carriageway.
Knowsley MBC – Arbour Lane, Kirkby, non high amenity. Road Classification – Type 3-carriageway.
St Helens MBC – Mill Lane, Newton le Willows, non high amenity. Road Classification – Type 2-carriageway.

3) Positioning of trial sites

Sefton MBC- Lytham Road, Southport, at junction with Marshside and outside Flower Shop, approximately 20m from junction

Size : 1m x 1m

Number : 2

Positioning : All in nearside wheel track zone

Knowsley MBC – Arbour Lane, Kirkby opposite to and 20m before Liverpool FC Academy entrance.

Size : 1m x 3.5m

Number : 1

Positioning : Near side wheel track to kerb edge

St. Helens MBC – Mill Lane, Newton le Willows, outside House No.123.

Size : 1m x 2.7m

Number : 1

Positioning : Near side channel to kerb edge.

4) ARMS to be trialled

- Non-flowable SMR (NFSMR) – For use as sub-base
- Termed by supplier as ‘SMR Premix – 2% binder – Sub-base’
- Note – The 90 day compressive strength is to be 2/Nmm²
- Note – The material feedstock shall have limited clay lumps content of 10 to 15%
- Note – The mixed material and feedstock shall be non-plastic
- Note – To be used within the limitations of Table A9.1 and SROH for sub-base
- Note – The material may also be regarded and used as a Stabilised Material for Fill (SMF) Class S and generally complies with SHW Cl 803 although not strictly an unbound material.

5) ARMS details

Mix Design :

- Utilities excavated arisings, processed ex-situ at batching plant to Quality Plan and WRAP Quality Protocol
- Addition of 2% binder of the proprietary product known as “SMR” ex SMR Ltd.
- Compressive strength of 2 N/mm² at 90 days
- Compressive strength of 1 N/mm² to 2 N/mm² at 28 days
- Graded to comply with Specification for Highway Works, clause 803 or marginally finer as required or agreed.
- Grading of mixed material must not be finer than specified in SHW passing the 63 micron sieve.
- Clay lumps in mixture to be limited to 10 to 15% only, resulting in a non-plastic material at all times.
- Feedstock prior to addition of binder shall be non-plastic and non-frost susceptible.
- Feedstock may be topped up by good quality SHW graded granular material in accordance with agreed and approved Quality Plan to assist aggregate resource demands.
- Material shall be inert containing non-hazardous materials.
- Material performs best within 24 hours of mixing but may be used up to 3 days as NFSMR and up to 6 days as SMF, note after this time becomes an unbound granular material.

6) ARMS preparation

- In accordance with the Quality Plan.
- Compaction and placement in accordance with SROH Appendix A8.
- Remoulded CBR value recorded during production – minimum 30% Laboratory test or by Clegg Hammer.

7) Quality Control (during production FPC and on site trial)

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|---|---------------|
| • Grading (PSD) | FPC and Trial |
| • Moisture Content | FPC and Trial |
| • Clegg Hammer/CBR value | FPC and Trial |
| • Bulk Density/ Max Density/OMC | FPC and Trial |
| • Plasticity – to determine non-plastic | FPC and Trial |
| • Compressive strength | FPC and Trial |
| • Soaked CBR value | Trial |
| • Chemical Analysis including TPH, PAH 17, Phenol, Aliphatic/Aromatic split | FPC and Trial |
| • Frost Heave Test | FPC and Trial |
| • SHW Clause 710 Constituents | FPC and Trial |
| • Los Angeles | FPC and Trial |
| • Resistance to wear – Micro Deval | FPC and Trial |
| • Relationship testing – various | Trial |

Note:- Factory Production Control Testing in accordance with Quality Plan during 2 year trial period.

8) Compaction regime

In accordance with Appendix A8 with material placed and compacted at or about optimum moisture content.

9) Sampling requirements

- Bulk samples to be taken in accordance with the relevant BS EN Standard for the agreed materials end use and testing regime. Sampling methods may vary, Laboratory advice required.
- Sampling to the test frequency in accordance with the Quality Plan or as formally agreed.

10) Testing Laboratories

Merseyside Engineers Laboratory Services – Sefton MBC
Contact : Bill Larnar – 0151 928 2643 – Laboratory Services Manager (Principal Engineer)
Mark Pettifer – 0151 928 2643 – Materials Engineer

11) Remedial measures for failed sites

No failures recorded during trial period – n/a

12) Future of trial pits

Trial pits at sites to remain in place and may be further monitored as required.

13) Supporting Information and Further Comments

This Approval Trial Agreement relates only to the specific material type, the supplier – Recycling North West, the batching plants at Speke and Simonswood in Merseyside and the specific mix design described herein.

This approval is not a generic approval of SMR or SMR Ltd. Consideration may be given to the concept of Working Trials utilising the same or very similar Quality Control procedures, with a view to signing off approval following satisfactory performance and thus permitting use of other suppliers batching plants on a trials basis in the future.

This approval permits the use of 3% binder from the same supplier to achieve the higher strength SMR at 4 to 11 N/mm² providing evidence of the increased strength is proven from routine FPC testing.

It is important that purchasers order the correct strength mixture in accordance with SROH Table A9.1.