ENGINEERING UNIT
ROADS AND STORM-WATER MAINTENANCE DEPARTMENT (RSWMD)
EXCAVATION AND REINSTATEMENT OF TRENCHES IN ROADS AND SIDEWALKS IN THE EMA AREAS.

OCTOBER 2020
REVISION 2

PROJECT SPECIFICATIONS AND SPECIAL REQUIREMENTS

IMPORTANT NOTE;

1. Should there be any ambiguity, contradiction, difference or conflict between the contents of this document and the relevant contents of the Standard Engineering Specifications (Yellow Pages), then the requirements of the Standard Engineering Specifications shall apply.
2. This document is intended to assist and guide contractors, in the process enabling them to undertake work to the correct standards within the eThekwini Municipal Area (EMA).

PRE REQUIREMENTS

1. No work shall commence prior to:

    a) The official handover and award letter issued by the Engineers representative.
    b) Meeting with and undertaking a joint site inspection with the RSWMD official/s.
    c) The Clerk of Works will jointly visit the site and confirm the actual site, scope of work and measurement

A. Existing Services

a) All existing services, active and inactive, must be damaged.identified.
b) All costs relating to the damage to existing services will be to the contractor's account.

B. Excavation of Patches

c) No patches will be excavated and left open overnight.application process is separate to the above requirement. No roads or lanes shall be closed without authority from the ETA unit.

d) Spoil and rubble emanating from daily trench or other excavations, shall be removed to a municipal dump site.

C. Backfilling of Trenches

All trenches shall be backfilled with suitable material that is easily workable and compactable in layers not exceeding 200mm (loose) thickness. The backfill material will be free of grass, roots, rubbish, clay and aggregates greater than 50mm. Should the backfill material be dry, it shall be moistened prior to placing and compacting. Should the excavated material be unsuitable for backfill purposes, suitable material shall be imported to site.

D. DCP Testing of Backfill

a) Each layer of 150mm thick compacted backfill shall be tested to the following requirements using the standard 8Kg DCP test method:

TRENCH AREA	DCP REQUIREMENT
Roadways	Minimum of 5 blows per 100mm penetration.
Sidewalk, driveways and median:	Minimum of 3 blows per 100mm penetration.
Verge :	Minimum of 3 blows per 100mm penetration

b) Trenches in the verge (unhardened areas) may be backfilled and compacted in 300mm (loose) layers.

c) All test results shall be recorded and made available to RSWMD, on request.

d) RSWMD reserves the right to carry out its own testing and should the minimum requirements not be achieved on completed work, the contractor will be required to remove and redo the operation, to ensure compliance.

E. Temporary Reinstatement of Trenches

a) All road crossings and road patches shall be temporarily reinstated with 100mm thick 10 MPA concrete. No crossings or patches in the roadway shall be left uncapped for any period of time.

b) Sidewalks and median areas shall be temporarily reinstated with suitable material.

c) Cold mix or emulsion treated base (ETB) is permitted for use as alternative temporary reinstatements.

d) Maintenance of all temporary reinstatements shall be the full responsibility of the contractor.

F. Road Categories / Asphalt Trench Reinstatement

a) The EMA road network comprises of the following road categories with the corresponding upper layer constructions:

CATEGORY	UPPER LAYERS
Category A:	150mm G2 Crusher run and 240mm mix D Asphalt
Category B:	150mm G2 Crusher run and 160mm mix D Asphalt (Incl industrial driveways)
Category C:	150mm G2 crusher run and 80mm mix D Asphalt (Incl commercial driveways)
Category D:	150mm G2 crusher run and 50mm mix D Asphalt (Incl residential driveways)
Category E:	100mm G2 Crusher run and 25mm mix A Asphalt (sidewalks)
Residential driveways concrete:	100 mm thick concrete
Commercial driveways concrete	150 mm G2 and 100mm concrete
Industrial driveways concrete	225mm thick concrete

The onus is on the contractor to ascertain from the Roads Department details pertaining to road and driveway categories.

b) Private contractors are not permitted to reinstate category A and B roads, without the written authority of the RSWMD.

c) Asphalt shall be compacted in layers using suitable rolling equipment.

d) G2 crusher run shall be adequately moistened and mixed prior to placing and compacting, all in compliance with the Standard Engineering Specification. G5, US base or A1 refuse will not be accepted as G2.

e) The DCP test requirements on the G2 crusher run layer is a minimum of 20 blows per 100mm penetration.

f) Existing trench edges need to be straight line and parallel saw cut prior to placing asphalt.

g) All loose material shall be swept off prior to the placing and compacting of asphalt.

h) A liquid emulsion shall be brush applied at 0.3 l/m2 to the vertical asphalt sides of the existing trench, including a 20mm overlap over the existing asphalt surface. The horizontal surface that is to receive asphalt must also be primed with liquid emulsion.

i) The finish levels shall be true to the surrounding existing road/sidewalk levels. No humps or bumps shall be permitted.

j) All damaged road markings shall be reinstated without delay

G. Concrete and Brick Paved Areas

a) Slabs shall be saw cut at the joints and removed full slab width.

b) The CBD sidewalks are generally brick, concrete and special paved and therefore the reinstatement of trenches in these areas shall be undertaken to match existing.

c) In areas covered with special type pavers, where trench excavation is to take place, the existing pavers shall be carefully removed and stored for reuse, as the availability of new suitable materials for reinstating these areas may be a challenge. The Contractor shall take full responsibility for removing, storing and safekeeping of the recovered materials for reuse. The contractor shall be held accountable to reinstate any disturbed areas to its original standard. Prior to any removal of existing paving taking place, a method statement detailing the permanent reinstatement of the affected areas, needs to be submitted to the RSWMD for approval.

d) The following mix proportions are to be used when undertaking trench reinstatement work:

   i. Bedding for brick paved and precast concrete slab-bed areas: minimum 50mm thick river-sand mixed with cement at a ratio of 10:1 i.e. 5 wheelbarrows of river-sand to 1 pocket cement.

   ii. Joints to precast slabs shall comprise of a 3:1 plaster sand/cement mix i.e. 1 ½ wheelbarrows of plaster sand to 1 pocket of cement.

   iii. Cast insitu concrete slabs shall comprise of a full depth of 100mm, 75mm of which is concrete and 25mm Umgeni/cement topping. Both layers are required to be done on the day of construction and not any period later.

   Should ready blend be used to mix the 75mm thick concrete, a mix ratio of 6:1 shall be used i.e. 3 wheelbarrows of ready blend to 1 pocket cement. For the 25mm topping, a mix proportion of 2:1 shall be used i.e. 1 wheelbarrow of river-sand to 1 pocket of cement.

e) Cast insitu slabs in non CBD areas may be constructed with full depth of 100mm concrete using a 6:1 ready blend/cement mix.

f) Either option requires that the finished surface be wood floated and jointed accordingly.

g) Should stone, sand and cement be used as separate mix materials for mixing concrete, then a mix proportion of 3:3:1 shall be used i.e. 3 wheelbarrows of stone, 3 wheelbarrows of river-sand and 2 pockets of cement.

h) The mixing of mortar and cement directly on hardened surfaces is not permitted. The contractor will be held fully responsible to clean and make good in areas of noncompliance.

i) Expansion joints shall be reinstated per existing locations and detail.

j) Crusher run material is not permitted for use in mixing concrete.

k) The use of clean uncontaminated river sand for cementious mixes is a requirement to ensure compliance.

H. Trenching in Verge Areas

Where trenches are excavated and required to be reinstated in unhardened or grassed areas, the following shall apply.

a) The final 75 -100mm of backfill shall comprise of organic topsoil material; placed and levelled off flush with the surrounding ground level. No humps or bumps shall be permitted.

b) All loose stones and other obstructions shall be moved to spoil.

c) The establishment of suitable ground cover over the trench width will be the responsibility of the Contractor.

I. Service Related Structures

Where minor structures such as chambers, manholes, earth retainers and connecting junction boxes are to be erected, the following requirements shall apply:

a) All structures are to be constructed in accordance with an approved design detail, provided by the Excavator Department/Authority's and approved by the RSWMD.

b) All exposed vertical surfaces above ground shall either be of face brick (satin red) or reinforced concrete with an off shutter class 1 finish.

c) Where earth retainers such as loffestein blocks are used, same shall be erected to the manufacture's guidelines, specifications and recommendations.

d) Generally, manhole covers shall comprise of a reinforced concrete slab which incorporates a standard access cover and lid. The finish on the concrete covers shall be to a smooth wood floated finish. In asphalt, brick and other special paved areas, the finish on the cover slabs shall be such that it matches the existing surface finish. The finish level on manhole covers shall be horizontal with the surrounding surface modified to suit, so as to avoid sudden changes in levels.

J. Special Requirements

a) Where trenching across roadways are authorised, the service provider is required to provide a minimum of 2 additional 110mm ducts, full width, at no cost to the Municipality, for future use by any other service provider.

b) The contractor is permitted to use unused / empty existing ducts should same be present under roadways.

c) Should, during the excavation operation, any existing service becomes exposed, the contractor shall make contact with the relevant service owner for inspection and further direction and repeat the communication prior to backfilling the service / trench

d) Where existing services are damaged through trenching operations and the contractor fails to report such damage and closes up same without admitting liability, a penalty of R 20 000.00 is applicable.

e) The service provider is required to ensure that effective and timeous communication and interaction takes place between the trenching and the reinstating contractors.

f) In areas where excavated trench material has ended up in the storm-water infrastructure, the contractor shall be required to remove same, ensuring that the incoming and outgoing pipes are free of obstruction. Should pressure jetting be required to clean and unblock same, this must be arranged at the contractors' expense.

g) Where trench reinstatements are undertaken by resources employed by the trenching contractor, the trenches are required to be permanently reinstated within a period of not exceeding 3 days from date of final backfill/ per length of trenching permitted.

h) All reinstatements shall carry a maintenance guarantee period of 12 months from the date of completed works being handed over / signed off by the RSWMD. At the end of the 12 months defect liability period, the contractor shall arrange a final inspection and signoff with the RSWMD. Should premature failures occur during the construction stage or the defect liability period, the contractor shall undertake the necessary remedial works without delay. Any delay in handing over projects will result in the contractor taking full responsibility of associated consequences, including new work by others on the trench awaiting handover.

i) The following shall apply with regard to maximum open and un-reinstated trenches:

CBD, entertainment industrial and shopping nodes:	50m + 50m
Residential area:	100m + 100m
Open areas:	250m + 250m

None compliance to the above limitations will result in the work being stopped.

j) The attached forms. Annex (1) and (2) shall be used for pre-inspection and end of project handover, end of maintenance period respectively. Part handover on lengthy projects is permitted and encouraged.
k) The use of common trenches or existing trenches per agreement with other service providers is encouraged. This requirement demands extreme care and attention.

l) Should the contractor not comply with departmental requirements and continue to ignore the instructions from Municipal officials, the Municipality reserves the right to request that such contractor/s be removed off site and be barred from undertaking further work in the City's Road reserve.

Shan Govender
Senior Manager: RSWMD
4 November 2015

Attached are the necessary forms.

ENGINEERING UNIT

ROADS AND STORM-WATER MAINTENANCE DEPARTMENT (RSWMD)
UTILITIES MANAGEMENT

PRE INSPECTION / SITE HANDOVER FORM

The Project Manager / Contractor hereby accepts the site mentioned, to commence work, subject to the following conditions:

1) All affected parties have been advised on the proposed works
2) Images have been taken of specific problematic areas for future reference
3) The necessary contacts have been established.
4) The route has been confirmed.
5) All other departmental conditions, specifications and requirements have been acknowledged and understood.

(A)SITE LOCATION:

DETAILS	DESCRIPTION
Route Name	
Section	

(B)SITE HANDOVER / ACCEPTANCE FORM:

SECTOR	COMPANY	NAME	SIGN	DATE
Municipality				
Project Manager				
Contractor				

Form: UM (1)

ENGINEERING UNIT

ROADS AND STORM-WATER MAINTENANCE DEPARTMENT (RSWMD)
UTILITIES MANAGEMENT

PROJECT COMPLETION AND FINAL HANDOVER FORM

The RSWMD hereby accepts the site mentioned, as all work deemed complete and all requirements having being met, subject to the following condition:

1) All work carried out below surface has met the minimum standards and specification.
2) The contractor undertakes to carry out any repair work during the defect liability period of 12 months from the date hereof, without delay.

(A) SITE LOCATION:

DETAILS	DESCRIPTION
Route Name	
Section	

(B) PROJECT COMPLETION HANDOVER / SIGN OFF:

SECTOR	COMPANY	NAME	SIGN	DATE
Municipality				
Project Manager				
Contractor				

(C) FINAL HANDOVER / SIGN OFF:

The 12 months defects liability period is hereby complete. The contractor has met and fulfilled all obligations.

SECTOR	COMPANY	NAME	SIGN	DATE
Municipality				
Project				

Manager				
Contractor				

Form: UM (2)