CALAMBA WATER DISTRICT
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PHP QMS 2193 0047

PROJECT: SUPPLY OF LABOR AND MATERIALS FOR THE RESTORATION WORKS AT DIFFERENT AREAS/ LOCATION IN CALAMBA CITY

SUBJECT: SCOPE OF WORKS AND SPECIFICATIONS WITH TERMS AND CONDITION

DATE : June 6, 2023

General- supply of labor and materials (minor fittings that needs replacement) which includes services of hand tools and equipment (tampering machine), vehicles, and other necessary items and appurtenances to complete the above work.

1. Mobilization
2. Coordinate with project in charge for the schedule & location of areas to be restore
3. Clearing and Grubbing- clear the area or the area for the restoration
4. Backfilling and Compaction – backfill after completion of the installation using fine soil and sand-follow standard LWUA and CWD. A newly laid pipe shall be backfilled at least 150mm (6in) above the top of the pipe at the end of each day with selected material obtained from the excavation. Materials used for backfill shall be selected, free from grass, roots, brush or other vegetation, or rocks having maximum dimensions larger than 150mm (6 in). If in opinion of the Engineer, said material is unsuitable for backfill purposes, borrow material having the sand equivalent value of not less than twenty (20) (ASTM – D2419) shall be used for this portion of the trench backfill. Selected material shall first be brought up to mid – diameter of the pipe and compacted; then the remainder of the backfill to 150mm (6in) above the pipe maybe placed and compacted. Such material shall be compacted to ninety five percent (95%) of max. density where the trench is located under proposed structures and ninety percent (90%) of max. density elsewhere. Compaction shall be obtained by tamping it not more than 150mm (6in) layers or by using excess water and passing a concrete vibrator between the pipe and the side of the trench. Obtain and complete (IR) inspection request form prior to backfilling; the works may proceed upon approval of the Supervising Engineer. Remainder of the trench shall be backfilled not later than the following day.

   Barricades and warning lights satisfactory to the Engineer shall be provided and maintain for all in which case of heavy steel plates, adequately braced bridges or other type of crossing capable of supporting vehicular traffic shall be furnished.

5. Install barricades in accordance to CWD and LWUA standards.
6. Concrete Restoration- restore the demolished concrete pavement standard mixture in accordance to the CWD and LWUA standard if need reinforcement (verify). Concrete and mixing of concrete can be accomplished by mixing the following proportions:

- One part Portland cement
- 2½ parts clean sand (do not use beach sand)
- Five parts crushed stone (1 – 3 cm)
- Enough water to make a workable mix

Concrete Classification for restoration works in National Road/Highway and Main Barangay Road under the management of DPWH is Class AA(4000 psi).

7. Asphalt restoration – restore with hot/cold mix asphalt after concrete pavement achieved to its compressive strength or in accordance to CWD/ LWUA Quality Standards and DPWH Standard Specifications for Highways, Bridges and Airports Revised 2013 Edition Vol. II.

- Mineral Aggregate – the mix aggregate for cold bituminous plant mix shall consist of crushed stone meeting the quality requirements of ASTM D692
- Asphalt – shall be emulsified asphalt, Grade AE-3
- Composition of mixtures – the specified material aggregate and bituminous material shall be combined in such proportions as to produce mixtures within the following master composition limits.
- Construction Requirements
    - Cold Asphalt Mix shall be placed only when the specified density can be obtained. The mixture shall not be placed on any wet surface or when weather condition will prevent its proper handling or finishing. Asphalt surface mixture shall not be placed when the surface temperature of the base course is below 10ºC (50ºF).
    - The area to be paved shall be substantially true to the line and grade. It shall have a firm and properly prepared surface before paving operations begin. All loose and foreign material shall be removed.
    - When the compacted subgrade on which the asphalt base is to be placed loosely bonded, it shall be primed with 0.5 to 1.40 litre/m2 or 0.1 to 0.3 gal/yd2 of the type and grade of asphalt priming material. The asphalt should be entirely absorbed by the base course and the prime should be fully set and cured before placing the surface.
    - Holes and depressions in existing surfaces shall be repaired by removing all loose and defective material to sound pavement and replacing with an approved asphalt-aggregate patching material. The patching mixture shall be compacted to produce a tight surface conforming to the adjacent pavement area.
    - Excess asphalt in patches and joints shall be removed only through methods approved by the engineer.
    - Immediately prior to application of the asphalt tack coat all loose and foreign material shall be removed by sweeping or by blowing, or both.
    - Surfaces of curbs, gutters, vertical faces of existing pavements, and all structures to be in actual contact with the asphalt-aggregate mixture shall be given a thin, even coating of asphalt material, type and grade. Care shall be taken to prevent spattering of the asphalt on surfaces that will not be in contact with the asphalt-aggregate mixture.
    - Placing the Mix – The base course mixture shall be placed in one or more lifts with an asphalt paver or spreader to provide a nominal compacted thickness of the base course. The surface course mixture shall be placed with an asphalt paver to provide a nominal compacted thickness of the surface course. The minimum lift thickness shall be at least two times the maximum particle size. The maximum lift thickness shall be that which can be demonstrated to be laid in a single lift and compacted to a required uniform density and smoothness. Placing the mixture shall be a continuous operation. If any irregularities occur, they shall be corrected before final compaction of the mixture.
    - Compacting the mixture – The mix shall be compacted immediately after placing. Initial rolling with a steel-wheeled tandem or three wheeled roller, vibratory roller, or a pneumatic-tired roller shall follow the paver as closely as possible. If needed, intermediate rolling with a pneumatic-tired roller shall be done immediately behind the initial rolling. An application of choke aggregate may be necessary to prevent mix pick-up by the pneumatic-tired roller. Final rolling shall eliminate marks from previous rolling. In areas too small for the roller a vibrating plate compactor or a hand-tamper shall be used to achieve thorough compaction.
    - Safety – Safety precautions shall be used at all times during the progress of the work. As appropriate, workmen shall be furnished with hard hats, safety shoes, respirators, and any

other safety apparel that will reduce the possibility of injury from accidents. All Occupational Safety and Health Act requirements shall be observed.

- Sampling – sampling of asphalt materials shall be in accordance with the latest revision of AASHTO Designation T40 (ASTM Designation D140). Sampling of mineral aggregate shall be in accordance with the latest revision of AASHTO designation (ASTM Designation D 75). Sampling of the asphalt mixture, as required by the Engineer, shall be in accordance with the latest revision of AASHTO Designation 168 (ASTM Designation D 979).
- Testing – Methods of Testing shall be in accordance with the applicable AASHTO or ASTM Methods.

- Equipment – All equipment necessary for the satisfactory performance of this work shall be on hand and inspected before work will be permitted to begin.

8. Removal of barricade and Cleaning –clean work area upon completion of the work complete with construction safety paraphernalia in accordance to Construction Occupational Safety and Health
9. Demobilization
10. Specification not included above shall be in accordance with the LWUA standard.

TERMS AND CONDITIONS

1. Standard construction safety and enclosed barricade (same as Manila Water/Maynilad standard) shall be provided by the contractor in every restoration work item.
2. All Damages due to negligence shall be borne by the contractor
3. Implementation shall be done with the supervision of authorized CWD personnel.
4. Contractor's field workers must wear PPE as required by the PPE policy.
5. Contractor bids shall not exceed the provided ABC for every work item including indirect cost.
6. Billing shall be based on actual accomplishment per work item in accordance to the type of work completed with duly approved inspection request form with field pictures, location map and as built plan in hard and soft copy
7. Progress billing can be accepted on a weekly basis.
8. The rest of the Terms and Conditions for the contract implementation not stated above shall be in accordance with the RA 9184.

Prepared by :

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