

SET NO. _____

SPECIFICATIONS
FOR
ROAD CONSTRUCTION
OF
RANKIN SUBDIVISION
IN ACCORDANCE WITH TxDOT COLONIA ACCESS PROGRAM
FOR
HIDALGO COUNTY PRECINCT FOUR
HIDALGO COUNTY, TEXAS

November 1 2012



T.B.P.E. FIRM REGISTRATION #F-9225
1002 E. Expy 83 Phone: (956) 968-8800
Weslaco, Tx. 78596 Fax: (956) 447-8194



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**STANDARD SPECIFICATIONS, SPECIAL SPECIFICATIONS,
SPECIAL PROVISIONS TO STANDARD SPECIFICATIONS,
AND GENERAL NOTES**

GOVERNING SPECIFICATIONS AND SPECIAL PROVISIONS

All specifications and special provisions applicable to this project are identified as follows:

STANDARD SPECIFICATIONS: Adopted by the Texas Department of Transportation, June 1, 2004. Standard Specifications are incorporated into the contract by reference.

- ITEM 110 EXCAVATION
- ITEM 132 EMBANKMENT
- ITEM 164 SEEDING FOR EROSION CONTROL
- ITEM 166 FERTILIZER
- ITEM 168 VEGETATIVE WATERING
- ITEM 247 FLEXIBLE BASE
- ITEM 260 LIME TREATMENT (ROAD MIXED)
- ITEM 310 PRIME COAT
- ITEM 402 TRENCH EXCAVATION PROTECTION
- ITEM 432 RIPRAP
- ITEM 464 REINFORCED CONCRETE PIPE
- ITEM 465 MANHOLES AND INLETS
- ITEM 467 SAFETY END TREATMENT
- ITEM 502 BARRICADES, SIGNS AND TRAFFIC HANDLING
- ITEM 506 TEMPORARY EROSION, SEDIMENTATION, AND ENVIRONMENTAL CONTROLS
- ITEM 529 CONCRETE CURB, GUTTER AND COMBINED CURB AND GUTTER
- ITEM 530 INTERSECTIONS, DRIVEWAYS AND TURNOUTS
- ITEM 560 MAILBOX ASSEMBLIES
- ITEM 644 SMALL ROADSIDE SIGN SUPPORTS AND ASSEMBLIES

SPECIAL PROVISIONS: Special Provisions will govern and take precedence over the Specifications enumerated hereon wherever in conflict therewith. (Enclosed herewith)

- ITEM 6240 GEOGRID FOR BASE/EMBANKMENT REINFORCEMENT

SPECIAL PROVISION TO ITEM 247

SPECIFICATION AS PER HIDALGO COUNTY for Colonia Program: (Enclosed herewith)

- ITEM 340 Hot Mix Asphaltic Concrete Pavement

General: The above listed specification items are those under which payment is to be made. These, together with such other pertinent items, if any, as may be referred to in the above-listed specification items, and including the special provisions listed above, constitute the complete specifications for this project.

All item numbers noted in these plans are the same as those referenced in the Texas Department of Transportation 2004 Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges book (June 1, 2004).

CONSTRUCTION GENERAL NOTES

The County Forces shall contact the local power companies prior to commencing construction. The County Forces shall coordinate with the utilities companies for the raising/relocation of lines where deemed necessary by the Engineer or the County Forces to effect the proposed construction.

The County Forces attention is directed to the possible presence of underground utilities on the Right of Way on this project. It is the responsibility of the County Forces to call for locates 48 hours in the advance of excavation or drilling. It shall be the County Forces responsibility to maintain a minimum clearance of two feet (24-inches) plus the width of the line between marked and unexposed facilities and the cutting edge or point of any power-operated excavating or earth-moving equipment. If excavation is required within the 24-inch distance (measured horizontally), the excavation should be performed very carefully with hand tools and without damage to the existing utilities.

The County Forces will be responsible for damages to the utilities if the damage is caused by negligence or failure to have locates performed. All costs involved in locating existing utilities shall be considered subsidiary to various bid Items.

The County Forces shall coordinate the clearing and grubbing, excavation and removal and replacement of culverts/structures along the outfall channels with any utility companies whose facilities are encountered.

The County Forces shall make every effort to preserve existing trees designated by the Engineer to remain following construction. The County Forces is required to follow the TXDOT's pruning guidelines and observe recognized tree surgery practices. Additionally, care shall be taken to minimize disruption or damage to the root system of these designed trees.

The County Forces shall coordinate with Hidalgo County Irrigation District for the construction of modifications to the existing irrigation lines as shown in the plans. The County Forces shall provide two weeks notice to Hidalgo County Irrigation District prior to the anticipated date of construction of each modification. The County Forces is hereby notified that Hidalgo County Irrigation District retains the right to delay said construction for seven days and the County Forces shall not be entitled to additional compensation for such delay. Construction of each modification shall be completed within 48 hours.

Control points are to be supplied by the Engineer prior to commencing work. The County Forces shall be responsible for maintaining an accurate vertical and horizontal control throughout the contract.

All material testing to be performed by Owner's independent testing laboratory. All testing to be performed when according to the County Forces, the Item is ready for testing.

ITEM 5. CONTROL OF THE WORK

To ensure accurate measurement for final pay quantities and to facilitate the Engineer's check on the County Forces survey work, the County Forces shall be required to set construction stakes based on plan stations and at 100 ft. Maximum intervals or as directed by the Engineer.

ITEM 6. CONTROL OF MATERIALS

The County Forces will be required to furnish the area Engineer the maximum gross weights, including loads, for all vehicles, including trucks, truck-tractors, trailers, semi-trailers or any combination of such vehicles used to deliver materials to the project. Maximum gross weights are to be determined in accordance with Item 6, Article 6.7 of the Standard Specifications.

ITEM 100. Preparing Right of Way

Unless otherwise authorized by the Engineer, all obstructions, objectionable material and concrete shall be disposed of by hauling it to disposal sites arranged for by the County Forces and satisfactory to the Engineer.

The area outside the clear zone or back slope intercept line, whichever is greater, shall remain in its natural condition, unless otherwise directed by the Engineer.

In accordance with Migratory Bird Treaty Act, during the months of March 1st thru September 1st, the County Forces shall conduct a survey to determine if nests are present within the ROW. If migratory bird nests are found, the County Forces shall not disturb the nesting area until the young have fledged. Pruning, mowing, or any activities that can disturb the nests shall not be conducted until after September 1st or birds have fledged.

Work performed for Preparation of Right-of-Way will not be paid for directly, but shall be considered subsidiary to the various bid items.

ITEM 132. Embankment

The percent of density, as determined by test method Tex-113-e, shall be a minimum of 95 percent. Density tolerances will be permitted.

The securing of embankment material by the excavation of ditches for beneficial drainage purposes, the removal of spoil banks, and the removal of hills for land leveling within 200 feet of any public road will be permitted, provided that selection criteria is met.

Embankment (DENS CONT) shall be Type C with a max. PI of 40. Borrow used as embankment material in the top two feet below the bottom of Flexible Base shall meet the following requirements based on preliminary tests and such other tests found necessary by the Engineer.

1. The material shall be such as to produce a well-bonded embankment and shall have a minimum PI of 8 and a maximum PI of 30.

The County Forces attention is called to the fact that the preliminary test will require approximately 15 days and it is the County Forces responsibility to advise the Engineer of the location of the source sufficiently in advance to avoid delay.

ITEM 164. Seeding for Erosion Control

Cellulose fiber mulch seeding shall be applied in areas designated on the plans or as directed by the Engineer. Prior to seeding, the areas designated shall be finished to a smooth surface for a uniform application of seed.

Seeding shall be accomplished by the Hydromulch method in two applications as shown below:

1st application –

Grass seed and fertilizer

2nd application –

Cellulose Fiber Mulch shall be applied according to the Rate shown in the Standard Specification Book.

Reseeding

Areas requiring reseeding due to the non-establishment of sufficient vegetative cover, shall be reseeded in accordance with Items 164 and 168. The cost for reseeding shall be considered subsidiary to Item 164.

Areas to receive fertilizer are the same as shown for Item 164.

Fertilizer rate is based on a rate of 100 Lbs. of Nitrogen per acre. The Nitrogen-Phosphorous-Potassium (NPK) ratio shall include a minimum of 5 percent Phosphorous and 5 percent Potassium. Fertilizer shall be homogenized. The cost for fertilizer shall be considered subsidiary to Item 164.

Water shall be applied uniformly over areas after seeding or sodding as directed by the Engineer in accordance with applicable provisions of Item 168, "Vegetative Watering". Cost for "Vegetative Watering" will not be paid for directly but shall be considered subsidiary to Item 164. In addition, the County Forces shall be responsible for a 70% grass coverage in order to comply with stabilization requirements. Vegetative coverage shall be uniform. During this period, water equipment shall be metered and operated under pumping pressure capable of delivering the required quantities of water necessary. Each cycle shall be executed twice weekly, or as directed by the Engineer. Water shall be applied in such a manner as to ensure adequate moisture and be maintained on the grass seeding and not erode the soil in place. During periods of adequate moisture as determined by the Engineer, mechanical watering may not be required.

In addition to metering the water equipment, the County Forces shall upon request of the Engineer, provide a logbook showing daily water usage and receipts of water applied.

Upon establishment of 70% vegetative coverage as determined by the Engineer, the Engineer shall have the option to require the County Forces to continue watering as specified for a period not to exceed 30 days.

The basis of the estimate below establishes the approximate quantity of water required to complete one (1) full watering cycle:

*Grass Areas	Gallons/Acre	Acre	Total Gallons (Minimum)
Back of Curb to R.O.W.	6,780	0.93	6,120

ITEM 216. ROLLING (Proof)

The subgrade will be proof-rolled prior to placement of base course. Work for proof-rolling shall be done in accordance to Item 216 "Rolling (Proof)", except for measurement and payment. This work will not be paid for directly but shall be considered subsidiary to the various bid items.

ITEM 247. FLEXIBLE BASE

Flexible Base Type E will be composed of caliche (argillaceous Limestone, calcareous or calcareous clay particles) and may contain stone, conglomerate, gravel, sand or granular materials when these materials are in situ with the caliche.

Flexible Base (TY E GR 4) shall conform to the following requirements:

BEFORE LIME IS ADDED

Retained on Sq. Sieve	Percent Retained
2"	0
1/2"	20-60
No. 4	40-75
No. 40	70-90
Max. PI:	15
Max. Wet Ball PI:	15
Wet Ball Mill Max Amount:	50
Min. Comp. Strength PSI:	150 at 15 psi lateral pressure

The Wet Ball Test (Tex-116-E) shall be run and the Plasticity Index of the material passing the No. 40 sieve shall be determined (Wet Ball PI).

After 1% lime (laboratory) is added to unlimed material

Max PI	12
Min. Comp. Strength PSI:	180 at 15 psi Lateral Pressure
Triaxial Test (Lime Treated)	Tex-121-E

Two (2) percent lime (by weight) will be incorporated into the Flexible Base in the field at the State's expense in accordance with the provisions of Items 260.

The percent of density as determined by Compaction Ratio (Tex-113-E) for the new Flexible Base shall be a minimum of 98%.

The County Forces attention is called to the fact that certain existing and/or proposed structures may be within the limits of the Flexible Base. It shall be the County Forces responsibility to perform construction operations without damage to these structures.

All surplus base not used on the project will remain the property of Hidalgo County and will be delivered to the Precinct 4 yard. The County will be responsible for the hauling of this excess material.

ITEM 260. Lime Treatment (Road Mixed)

Soft Spots in the Subgrade may be required to receive lime stabilization if directed by the Engineer. Adding, mixing, etc., of the lime for soft spots will not be paid for directly, but shall be considered subsidiary to the the various bid items. Lime used for soft spots will be measured and paid for under bid Item "Lime".

The County Forces attention is called to the fact that certain existing and/or proposed structures are within the limits of the lime-treated Subgrade. Unless otherwise directed by the Engineer, these structures shall be installed before the final rolling of this Subgrade. It shall be the County Forces responsibility to perform the proper lime treating operation without damage to these structures.

The slurry method of applying lime will be required, except when the lime is to be added to naturally wet materials as directed by the Engineer.

For this project, the Engineer will direct a random number of lime trucks to be check weighed.

The percent of density as determined by Tex-121-E for the new and salvage Flexible Base shall be a minimum of 98% for all courses.

ITEM 300. Asphalt's, Oils and Emulsions

Temporary ramps/detours and driveways may be performance grade 64-22.

ITEM 301. Asphalt Antistripping Agents

Lime TY A or B shall be added as an Antistripping additive between the rates of 1 % minimum 2.0% maximum by weight. If the Hamburg cannot be met within these limits, Liquid Antistripping agents as approved by the Engineer may be used in conjunction with lime.

ITEM 310. Prime Coat (Cutback Asphaltic Material)

The County Forces shall exercise diligence in the application of asphalt by the use of flagging and rolling procedures to keep from spraying or splattering the traveling public with asphaltic material.

All existing base areas within the project limits shall be primed, including turnouts and radii, at the rate of 0.2 gal/sy.

ITEM 340. Hot Mix Asphaltic Concrete Pavement

The County Forces shall exercise diligence in the application of "Tack Coat" by the use of flagging and rolling procedures to keep from spraying or splattering the travelling public with asphaltic material.

Lime shall be used as an anti-stripping agent for this project. The County Forces will note the requirements of this Item on thorough mixing. The County Forces shall ensure thorough mixing of the lime and aggregates by mechanical means as approved by the Engineer.

ITEM 432. Riprap

Provide Class "A" concrete minimum for riprap aprons placed around all box culvert and pipe safety end treatments.

All concrete riprap, except concrete that used on safety end treatments, shall be 4" thick unless otherwise shown on the plans.

ITEM 464. Reinforced Concrete Pipe

Use tongue and groove pipe where the RCP extends into the lime treated subgrade. The 4-foot depth restriction for heavy equipment passage over pipe structures is voided. The County Forces will be responsible for any construction damage to these facilities.

Do not use mortar joints.

All reinforced concrete pipe shall include rubber gaskets unless shown otherwise on the plans or directed by the engineer.

ITEM 465. Manholes and Inlets

Unless otherwise shown on the plans, the County Forces may furnish precast manholes, inlets risers and or appurtenance. All manholes located on paved surfaces will be constructed with a cover of the type to be bolted to the ring.

ITEM 467. Safety End Treatment

All Type II SET's shall have riprap, Class "A" minimum, aprons as shown on the plans. The County Forces may submit an alternate precast SET design for approval by the Engineer.

ITEM 502. Barricades, Signs and Traffic Handling

The Traffic Control Plan for this project shall be as shown in the plans, as detailed on the "Barricade and Construction Standard" Sheets and as provided for in the latest edition of the "Texas Manual on Uniform Traffic Control Devices".

Replace/relocate all regulatory signs removed due to construction operations with a same sign on fixed support(s) immediately upon its removal. First obtain project Engineer approval before removing any regulatory roadway sign. Required flaggers are to be available to direct traffic during sign intermediate down time.

Relocate any Directional Sign Assemblies removed during construction operations immediately upon their removal.

These signs shall be relocated to a location in accordance with the Latest Version of the "Texas Manual on Uniform Traffic Control Devices". In no case will a sign be removed without a replaceable sign and support(s) being readily available and a location established. Removal and relocation of these signs required for traffic control will not be paid for directly, but shall be considered subsidiary to Item 502.

Plastic drums shall be used in accordance with the plans and manufacturer's recommendations as approved by the Engineer.

ITEM 529. Concrete Curb, Gutter and Combined Curb and Gutter

Before final acceptance of the project, remove discoloration caused by tire marks, mud, asphalt, paint or other similar material by any method satisfactory to the Engineer to achieve a uniform color and texture of the finished surface exposed to view.

ITEM 530. Driveways and Turnouts

Prime coat shall meet the requirements of Item 310.

Daily testing requirements for Hot Mix Asphaltic Concrete Pavements for drives, commercial entrances and/or turnouts may be waived by the Engineer.

ITEM 560. Mailbox Assemblies

Posts for single and/or multiple mailbox installations shall be driven unless otherwise approved by the Engineer. Mailbox post length to be used will be determined by the Engineer during project construction.

ITEM 644. Small Roadside Sign Supports and Assemblies

All signs shall be installed as shown in the plans and in accordance with the current edition of the "Texas Manual on Uniform Traffic Control Devices".

All signs shall be erected according to the locations shown on the signing layout sheets except that the Engineer may shift a sign in order to secure a more desirable location. The County Forces will stake all sign locations as shown in the plans and approved by the Engineer. It is the intent of the plans to erect all roadside traffic signs with the sign edge a minimum of 6 feet from the edge of the shoulder, or if none, 12 feet from the edge of the travel lane. In curb and gutter sections the sign edge shall be a minimum of 2 feet from the face of the curb.

For this project, the County Forces will be required to provide aluminum type of sign blanks as provided for under Item 636 for all proposed signing installed under Item 644. Aluminum sign blanks less than 7.5 square feet shall be 0.08 inch thick, sign blanks 7.5 to 15 square feet shall be 0.100 inch thick and sign blanks greater than 15 square feet shall be 0.125 inch thick.

All excess excavation shall be spread uniformly inside the right of way as directed by the Engineer and shall be included in the price of these Items.

Sign types which design details are not shown on the plans shall conform with the latest edition of the Department's "Standard Highway Sign Design for Texas" Manual.

The County Forces shall remove the complete sign installation and separate the sign post at the concrete foundation. The County Forces shall dispose of the concrete foundation in accordance with this Bid Item. Except for concrete foundations, all removed sign panels, sign posts, and hardware shall remain the property of the County. All removed sign installations shall be completely disassembled. All salvageable sections of sign panels shall be recycled by Hidalgo County. No signs shall be removed without prior approval of the Engineer.

All excess excavation shall be spread uniformly inside the Right of Way as directed by the Engineer and shall be included in the price of this item.

DMS - 6240

GEOGRID FOR BASE / EMBANKMENT REINFORCEMENT

6240.1. Description. This Specification governs the materials, composition, quality, sampling, and testing of synthetic geogrid. Install geogrid in accordance with the lines and grades shown on the plans. Two grades of geogrid, Types 1 and 2, are specified for different loads.

6240.2. Units of Measurements. The values given in parentheses (if provided) are not standard and may not be exact mathematical conversions. Use each system of units separately. Combining values from the two systems may result in nonconformance with the standard.

6240.3. Definitions.

- A. **Geogrid**—a synthetic planar structure formed by a regular network of integrally connected polymeric tensile elements with apertures designed to interlock with the surrounding fill material. Geogrid is used for the reinforcement of roadway base or embankment materials. Other uses are in accordance with the governing Specification and the plans.
- B. **Producer**—a manufacturer of any of the products covered by this Specification or a company that sells its product under a private label agreement with a manufacturer.

6240.4. Sampling and Testing. Sample in accordance with Tex-735-I unless otherwise specified by the Engineer. Perform testing in accordance with Tex-621-J.

6240.5. Material Requirements.

- A. **General Requirements.** The structure should be capable of maintaining dimensional stability during placement and under normal construction traffic.

The geogrid should be resistant to damage during construction, including ultraviolet degradation, and it should have long-term resistance to chemical and biological degradation caused by the materials being reinforced.
- B. **Physical Requirements.** The geogrid supplied must meet the requirements listed in Table 1 when sampled and tested in accordance with Tex-621-J.

Table 1
Geogrid Requirements

Property	Type 1	Type 2
Aperture Size, mm (in.)	25-51 (1.0-2.0)	25-51 (1.0-2.0)
Percent Open Area, %	70 minimum	70 minimum
Thickness, mm (in.)		
MD ribs	0.77 (0.03) minimum	1.27 (0.05) minimum
CMD ribs	0.64 (0.025) minimum	1.15 (0.045) minimum
Junctions	1.50 (0.06) minimum	2.54 (0.10) minimum
Tensile Modulus @ 2% elongation ¹ , N/m (lb./ft.)		
MD & CMD	204,260 minimum	291,000 minimum
CMD	(14,000) minimum	(20,000) minimum
Junction Efficiency, % of rib ultimate tensile strength		
MD & CMD	90 minimum	90 minimum

1. Determined as a secant modulus without offset allowances.

Note—MD and CMD do not necessarily refer to the machine (warp) and cross machine (fill) directions in the manufacturing process. They refer, for drawn products, to the more (CMD) or less (MD) highly drawn ribs where the aperture dimensions are unequal.

6240.6. Measurement and Payment.

- A. Procurement by the State.** Measurement and payment for all materials governed by this Specification should be in accordance with the conditions prescribed in the purchase order awarded by the state.
- B. Contracts.** Measurement and payment for all materials governed by this Specification and utilized in the performance of work specified in the contract should be considered subsidiary to the governing bid item in the contract.

6240.7. Packaging Requirements. Package the geogrid in rolls of the length and width specified on the plans, as directed by the Engineer, or as specified in the purchase order awarded by the State.

Each roll should be one continuous piece packaged in a suitable sheath, wrapper, or container to protect the geogrid from damage due to ultraviolet light, moisture, and normal storage and handling.

6240.8. Identification. Identify each roll with a tag or label securely affixed to the outside of the roll on one end. List the following information on the label:

- unique roll number, serially designated;
- lot number or control number;
- name of producer;

-
- style or catalog designation of product; and
 - roll width and length.

6240.9. Basis for Rejection. If any individual sample selected at random from 100 rolls or fraction thereof fails to meet any specification requirement, that roll will be rejected. Two additional samples will be taken, one from each of two other rolls selected at random from the same 100-roll lot or fraction thereof. If either of the additional samples fails to comply with any portion of the Specification, the entire quantity of rolls represented by that sample will be rejected.

6240.10. Archived Versions. Archived versions are available.