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SPECIFICATIONS AND CONTRACT DOCUMENTS
FOR

DELRAY SWIM AND TENNIS CENTER (WEST PARKING LOT)
City of Delray Beach Project No. 2006-011
RE-BID No. 2008-10

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4.1 **Bidder will complete the work for following prices:**

SCHEDULE OF BID PRICES

ITEM NO.	DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE (in words)	UNIT PRICE	EXTENDED TOTAL PRICE
	Base Bid					
1	Mobilization	LS	1	_____ Dollars _____ Cents	_____	$ _____
2	Maintenance of Traffic	LS	1	_____ Dollars _____ Cents	_____	$ _____
3	Clearing & Grubbing	LS	I	_____ Dollars _____ Cents	_____	$ _____
4	Concrete curb FDOT type "D"	LF	887	_____ Dollars _____ Cents	_____	$ _____
5	Pavement Markings & Signage	LS	1	_____ Dollars _____ Cents	_____	$ _____
6	1" Overlay Asphalt	SY	2380	_____ Dollars _____ Cents	_____	$ _____
7	1 1/2" Asphalt	SY	420	_____ Dollars _____ Cents	_____	$ _____
8	8" Limerock Base	SY	320	_____ Dollars _____ Cents	_____	$ _____

ITEM NO.	DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE (in words)	UNIT PRICE	EXTENDED TOTAL PRICE
9	12" Compacted Base (for Patching only)	SY	100	Dollars Cents		$
10	12" Stabilized Subgrade	SY	400	Dollars Cents		$
11	5' Wide-4 Thick Concrete Sidewalk	LF	220	Dollars Cents		$
12	Root Pruning	LS	1	Dollars Cents		$
13	Single Services	EA	1	Dollars Cents		$
14	Parking Lot Irrigation System	EA	1	Dollars Cents		$
15	10" Top Soil	SF	460	Dollars Cents		$
16	Utilty allowance	LS	1	Four thousand Dollars No Cents	$ 4,000.00	$ 4,000.00
17	Video allowance	LS	1	Six hundred Dollars No Cents	$ 600.00	$ 600.00

ITEM NO.	DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE (in words)	UNIT PRICE	EXTENDED TOTAL PRICE
18	Indemification	LS	1	Ten Dollars No Cents	$ 10.00	$ 10.00
	TOTAL EVALUATED BASE BID BID ITEMS 1 through 18(in numbers)					$
	BASE BID ITEMS 1 through 18 (in words)			Dollars Cents		
	Add Alternates Bid "A"					
19	Parking lot lighting	LS	1	Dollars Cents		$
	TOTAL EVALUATED BID BID ITEMS 19 through 19(in numbers)					$
	BID ITEMS 19 through 19 (in words)			Dollars Cents		
	Add Alternates Bid "B"					
20	Foxtail Fern 1 gallon	EA	53	Dollars Cents		$
21	Goldmound 3 gallon	EA	101	Dollars Cents		$
22	Green Buttonwood 3 gallon	EA	80	Dollars Cents		$

ITEM NO.	DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE (in words)	UNIT PRICE	EXTENDED TOTAL PRICE
23	Dwarf Firebush 3 gallon	EA	27	_____ Dollars _____ Cents	_____	$ _____
24	Green Island Ficus 3 gallon	EA	106	_____ Dollars _____ Cents	_____	$ _____
25	Dwarf Fakahatches Grass 3 gallon	EA	65	_____ Dollars _____ Cents	_____	$ _____
26	Gumbo Limbo 12' Ht	EA	7	_____ Dollars _____ Cents	_____	$ _____
27	Live Oak 12' Ht	EA	9	_____ Dollars _____ Cents	_____	$ _____
28	Pitch Apple 12' Ht	EA	3	_____ Dollars _____ Cents	_____	$ _____
29	Flori-Mulch	CY	27	_____ Dollars _____ Cents	_____	$ _____
30	St Augustine Floratam	SF	3000	_____ Dollars _____ Cents	_____	$ _____
	TOTAL EVALUATED BID BID ITEMS 20 through 30(in numbers)					$ _____

ITEM NO.	DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE (in words)	UNIT PRICE	EXTENDED TOTAL PRICE
	BID ITEMS 20 through 30 (in words)			Dollars Cents		$
	BID ITEMS 1 through 30 (in words)			Dollars Cents		

Note: The City reserves the right to award all or portions of the bid amount.

SECTION 02110
CLEARING AND GRUBBING

PART 1 - GENERAL

1.01 SCOPE

The work to be performed under this item shall consist of either the clearing of or the clearing and grubbing of the area along the alignment of construction as designated on the drawings.

A. Clearing - Where clearing only is required it shall consist of the cutting and removal of all trees, stumps, bush, logs, hedges, and the removal of all fences and other loose or projecting material from the designated area. The grubbing of stumps and roots will be required.

B. Clearing and Grubbing - Clearing and grubbing shall consist of clearing the surface of the ground of the designated areas of all trees, stumps, down timber, logs, snags, brush, undergrowth, hedges, heavy growth of grass or weeds, fences, structures, debris, and rubbish of any nature, natural obstructions or such material which, in the opinion of ENGINEER, is unsuitable, including grubbing of stumps, roots, matter roots, foundations ad disposal from the project of all spoil materials resulting from clearing and grubbing by burning or otherwise.

1.02 REFERENCES

Florida Department of Transportation Standard Specifications for Road and Bridge construction (F.D.O.T.). latest edition.

PART 2 - MATERIALS

2.01 MATERIALS FOR REPLACEMENT

All materials required to be brought on to the site for filling of holes caused by grubbing or otherwise shall be consistent with materials of the surrounding area.

PART 3 - EXECUTION

3.01 SCHEDULE

CONTRACTOR shall schedule the clearing or clearing and grubbing work at a satisfactory distance in advance of the pipe laying operations.

3.02 SPOIL MATERIALS REMOVAL

All materials to be disposed of by removal from the site shall be disposed of by CONTRACTOR at the Contractor's expense. In no case shall any discarded materials be left in piles adjacent to or within the project limits. The manner and location of disposal of materials shall be subject to review by ENGINEER and shall not create an unsightly or objectionable view.

3.03 CLEARING

Clear the area of all objectionable materials. Trees unavoidably falling outside the specified limits must be cut up, removed, and disposed of in a satisfactory manner. Preserve and protect from injury all trees not to be removed. The trees, stumps, and brush shall be cut to a height of not more than 12-inches above the ground. The grubbing of stumps and roots will be required.

Fences shall be removed and disposed of when directed by ENGINEER. Fence wire shall be neatly rolled and the wire and posts stored on the project if they are to be used again, or stored at a designated location if the fence is to remain the property of OWNER.

3.04 CLEARING AND GRUBBING

In areas designated to be cleared and grubbed, all stumps, roots, buried logs, brush, grass and other unsatisfactory materials shall be removed.

All holes remaining after the grubbing operation in embankment areas shall have the sides broken down to flatten out the slopes, and shall be filled with acceptable material, moistened and properly compacted in layers to the density required. The same construction procedure shall be applied to all holes remaining after grubbing in excavation areas where the depth of holes exceeds the depth of the proposed excavation.

END OF SECTION

SECTION 02211
SITE GRADING

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Remove topsoil and stockpile on site for later use.

B. Excavate sub-soil and reform to grades, contours and levels.

C. Excavate or fill for roadways, walks, curbs, gutters, parking areas, landscaped areas and as shown on the Drawings.

1.02 RELATED WORK

A. Section 02110: Clearing and Grubbing.

B. Section 02260: Finish Grading.

C. Section 02513: Asphaltic Concrete Paving.

1.03 EXISTING CONDITIONS

A. Known underground, surface and aerial utility lines, and buried objects are based on best available data and indicated on the Drawings. Contractor shall verify all locations.

1.04 PROTECTION

A. Protect trees, shrubs and lawns and other features remaining as part of final landscaping.

B. Protect bench marks, and existing structures, fences, roads, sidewalks, paving and curbs against damage from equipment and vehicular traffic.

C. Protect aerial, surface, or underground utility lines or appurtenance which are to remain.

D. Repair any damage, at no cost to Owner.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Excavated fill material: Soil free from roots, rocks larger than 3-inches, and building debris.

B. Additional fill material: Shall be approved by the Engineer.

PART 3 - EXECUTION

3.01 PREPARATION

A. Establish and identify required lines, levels, contours and datum.

B. Maintain bench marks, monuments, and other reference points. Re-establish if disturbed or destroyed, at no cost to Owner.

C. Before start of grading, establish the location and extent of utilities in the work areas. Notify utilities to remove and relocate lines which are in the way of construction.

D. Maintain, protect, reroute or extend as required existing utilities to remain which pass through the work area.

3.02 REMOVAL OF TOPSOIL

A. Topsoil of horticultural value shall be stripped from areas of construction under this contract and stockpiled in area designated by Engineer. Said material shall be stockpiled separately from fill material.

B. Do not permit topsoil to be mixed with subsoil

C. Do not strip topsoil when wet.

D. Do not drive heavy equipment over stockpiled topsoil.

3.03 ROUGH GRADING

A. Rough grade site to required levels, profiles, contours and elevations ready for finish grading and surface treatment. Maintain the following:

1. Sodded areas - 4 1/2-inches below finished grade elevation.
2. Seeded areas - 6-inches below finished grade.
3. Paved areas - 18-inches below finished grade elevations.
4. Shrub beds - 24-inches below finished grade elevations.
5. Flower beds - 18-inches below finished grade elevations.
6. Concrete sidewalks - 8-inches below finished grade elevations.

B. Pior to placing fill material over undisturbed subsoil, scarify surface to depth of 6-inches.

3.04 SURPLUS MATERIAL

A. Remove surplus materials from site.

B. Dispose of surplus material at no cost to Owner.

END OF SECTION

SECTION 02235
LIMEROCK BASE, PRIMED

PART 1 - GENERAL

1.01 SCOPE

A. This item shall consist of the construction of a base course composed of limerock including the application of a bituminous prime coat. It shall be constructed on the prepared subgrade in accordance with these specification and shall conform to the dimensions, lines, grades and cross sections shown on the plans.

1.02 REFERENCES

Standards applicable to this Specification shall be:

A. American Association of State Highway and Transportation Officials Standard Specifications (AASHTO).

1. AASHTO T49-80 - Standard Method of Test for Penetration of Bituminous Materials.
2. AASHTO M81-75 - Standard Specification for Cut-Back Asphalt (Rapid-Curing Type).
3. AASHTO T180-74 - Standard Method of Tests for Moisture-Density Relations.

B. Florida Department of Transportation Standard Specifications (F.D.O.T.).

1. FDOT Section 200, Limerock Base Current Issue.
2. FDOT Section 300, Prime and tack Current Issue.
3. FDOT Section 911, Limerock Material for Base and Stabilized Base Current Issue.

1.03 SUBMITTALS

A. The contractor will, at least ten days prior to start of work, submit in writing the source of all materials to be used.

B. The Contractor will, without additional compensation, submit such tests as may be required by the Engineer.

1.04 MEASUREMENT AND PAYMENT

A. Method of Measurement: The quantity to be paid for under this Section shall be the area, in square yards, of limerock base, primed, completed and accepted.

B. Basis of Payment: The quantity of limerock base primed, determined as provided above, shall be paid for at the contract unit price per square yard for Limerock Base primed, completed and accepted. Such price and payment shall be full compensation for all the work specified in this Section, including correcting all defective surface and deficient thickness.

PART 2 - MATERIALS

2.01 LIMEROCK

Except as might be specifically shown otherwise, all limerock material and the sources thereof shall be furnished by the Contractor. Any limerock material occurring in State furnished borrow areas shall not be used by the Contractor in constructing the base, unless permitted by the plans or other contract documents.

A. Composition - The minimum percentage of carbonates of calcium and magnesium in the limerock material shall be 70. The maximum percentage of water-sensitive clay mineral shall be 3%. Determination shall be at the option of the Engineer.

B. Liquid Limit and Plasticity Requirements

1. Material for Limerock Base: The liquid limit shall not exceed 35 and the material shall be non-plastic.
2. Material Used in Limerock Stabilized Base: The liquid limit shall not exceed 35 and the plastic index shall not exceed 10.

C. Mechanical Requirements

1. Deleterious Material - Limerock material shall not contain cherty or other extremely hard pieces, or lumps, balls or pockets of sand or clay size material in sufficient quantity as to be detrimental to the proper bonding, finishing, or strength of the limerock base.
2. Gradation and Size Requirements

a) For Limerock Base - At least 97 percent (by weight of the material shall pass a 3-1/2 inch sieve and the material shall be graded uniformly down to dust. The fine material shall consist entirely of dust of fracture. All crushing or breaking-up which might be necessary in order to meet such size requirements shall be done before the material is placed on the road.

b) For Limerock Stabilized Base - For this use the limerock material shall meet the requirements of 911-5.21 except that 97 percent shall pass the 1-1/2 inch sieve.

D. Limerock Bearing Ratio Requirements - Limerock material used in construction of limerock base shall have an average LBR value of not less that 100. The average LBR value of material produced at a particular source shall be determined in accordance with an approved quality control procedure.

2.02 PRIME COAT

A. The material used for prime coat shall be cut-back Asphalt Grade RC-70 or RC-250 meeting the requirements of (FDOT 916-2) Emulsified Asphalt Grades SS-1 or CSS-1, SS-1H or CSS-1H diluted in equal proportion with water; Asphalt Emulsified Asphalt Grade AE-60, AE-90, AE-150 or AE-200 diluted at the ratio of 6 parts emulsified asphalt to 4 parts water; special MS-Emulsion diluted at the ratio of 6 parts emulsified asphalt to 4 parts water; Asphalt Emulsion Prime 9AEP) meeting the requirements of (FDOT 916-4), Emulsion Prime (RS type) meeting the requirements of (FDOT 916-5), or other types and grades of bituminous material which may be called for in the plans or Special Provisions.

The Contractor may select any of the specified bituminous materials unless the plans or Special Provisions indicate the use of a specific material. Types and Grades of bituminous material other than those specified above may be allowed if it can be shown that the alternate material will properly perform the function of prime coat material.

B. Cover Material for Prime Coat - If an emulsified asphalt is used for prime coat, the Engineer may require that cover material be hot-asphalt coated (mix to contain from two to four percent asphalt-cement) if necessary to achieve a prime coat which will remain reasonably intact until the surface course is placed.

If material other than emulsified asphalt is used for the prime coat, the cover material shall be either sand (bare or hot-asphalt coated) or screenings, at the Contractor's option. The sand shall be nonplastic and free from any appreciable amount of silt, clay balls and root particles, and from any noticeable sticks, trash, vegetation or other organic matter. Screening shall be as specified in FDOT 902.5.

PART 3 - EXECUTION

3.01 TRANSPORTING LIMEROCK

The limerock shall be transported to the point where it is to be used, over rock previously placed if practicable, and dumped on the end of the preceding spread. Hauling over the subgrade and dumping on the subgrade will be permitted when these operations will not be detrimental to the base as determined by the Engineer.

3.02 EQUIPMENT

A. Limerock Base - The rock shall be spread by mechanical rock spreaders, equipped with a device which strikes off the rock uniformly to laying thickness, and capable of producing an even distribution of the rock. For crossovers, intersections and ramp areas; for roadway widths of 20 feet or less; for the main roadway area when forms are used and for any other areas where the use of a mechanical spreader is not practicable; spreading may be done by bulldozers or blade graders.

B. Pressure Distributor - The pressure distributor shall be equipped with pneumatic tires having a sufficient width of rubber in contact with the road surface to avoid breaking the bond or forming a rut in the surface. The distance between the centers of openings of the outside nozzles of the spray bar shall be equal to the width of the application required, within an allowable variation two (2) inches.

The outside nozzle at each end of the spray bar shall have an area of opening not less than 25 percent nor more than 75 percent, in excess of the other nozzles. All other nozzles shall have uniform openings. When the application covers less than the full width, the normal opening of the end nozzle at the junction line may remain the same as those of the interior nozzles. less than the full width, the normal opening of the end nozzle at the junction line may remain the same as those of the interior nozzles.

3.03 SPREADING LIMEROCK

A. Method of Spreading - The limerock shall be spread uniformly with equipment as specified in 3.02 A. above. All segreated areas of fine or coarse rock shall be removed and replaced with properly graded rock.

B. Number of Courses - When the specified compacted thickness of the base is greater than six inches, the base; shall be constructed in two courses. The thickness of the first course shall be approximately one-half the total thickness of the finished base, or

enough additional to bear the weight of the construction equipment without disturbing the subgrade.

3.04 COMPACTING AND FINISHING BASE

A. Single-Course Base - For single-course base, after the spreading is completed the entire surface shall be scarified and then shaped so as to produce the required grade and cross section after compaction.

B. Double-Course Base - For double-course base, the first course shall be cleaned of foreign material and bladed and brought to a surface cross section approximately parallel to that of the finished base. Prior to the spreading of any material for the upper course, the density tests for the lower course shall be made and the Engineer shall have determined that the required compaction has been obtained. After the spreading of the material for the final course is completed, its surface shall be finished and shaped so as to produce the required grade and cross section after compaction, and free of scabs and laminations.

C. Moisture Content - When the material does not have the proper moisture content to insure the required density, wetting or drying will be required. When water is added it shall be uniformly mixed-in by disking to the full depth of the course which is being compacted. Wetting or drying operations shall involve manipulation, as a unit, of the entire width and depth of the course which is being compacted.

D. Density Requirements - As soon as proper conditions of moisture are attained the material shall be compacted to a density of not less than 98 percent of maximum density as determined by AASHTO T 180. The minimum density which will be acceptable at any location outside the traveled roadway (such as intersections, crossovers, turnouts, etc) shall be 95 percent of such maximum. Limerock base for shoulder pavement shall be compacted to a density not less than 95 percent of the maximum density as determined under AASHTO T 180.

E. Density Test - At least three density determinations shall be made on each day's final compaction operations on each course, and the density determinations shall be made at more frequent intervals if deemed necessary by the Engineer.

During final compacting operations, if blading of any areas is necessary to obtain the true grade and cross section, the compacting operations for such areas shall be completed prior to making the density tests on the finished base.

F. Correction of Defects

1. Contamination of Base Material - If, at any time, the subgrade material should become mixed with the base course material, the Contractor shall, without additional compensation, dig out and remove the mixture, reshape and compact the subgrade and replace the materials removed with clean base material, which shall be shaped and compacted as specified above.
2. Cracks and Checks - If cracks or checks appear in the base, either before or after priming, which, in the opinion of the Engineer, would impair the structural efficiency of the base, the Contractor shall remove the cracks or checks by rescarifying, reshaping, adding base material where necessary, and recompacting.

3.05 PRIMING

A. Preparation - The prime coat shall be applied only when the base meets the specified density requirements and the moisture content in the top half of the base does not exceed 90 percent of the optimum moisture of the base material. At the time of priming, the base shall be firm, unyielding and in such condition that no undue distortion will occur.

Before any bituminous material is applied, all loose material, dust, dirt, caked clay and other foreign material which might prevent proper bond with the existing surface shall be removed for the full width of the application. Particular care shall be taken in cleaning the outer edges of the strip to be treated, to insure that the prime or tack coat will adhere.

When the prime or tack coat is applied adjacent to curb and gutter, valley gutter or any other concrete surfaces, such concrete surfaces (except where they are to be covered with a bituminous wearing course) shall be covered with heavy paper, or otherwise protected while the prime or tack coat is being applied. Any bituminous material deposited on such concrete surfaces shall be removed.

The temperature of the prime material shall be between 100 degrees Fahrenheit and 150 degrees Fahrenheit. The actual temperature shall be that which will insure uniform distribution. The material shall be applied by means of a pressure distributor. The amount to be applied will be dependent on the character of the surface and shall be sufficient to coat the surface thoroughly and uniformly, with no excess.

B. Rate of Application - The rate of application shall be not less than 0.10 gallon per square yard, unless a lower rate is approved by the Engineer.

C. Sprinkling - If so required by the Engineer the base shall be lightly sprinkled with water and rolled with a traffic roller, in advance of the application of the prime.

D. Sanding - The primed base shall be covered by a light uniform application of cover material. If considered necessary for proper distribution of spread, the cover material shall be lightly dragged with a drag broom, after which it shall be rolled with a traffic roller, for at least ten passes over the entire area.

E. Sampling Device on Transport Tanks - All transport tanks delivering bituminous materials for use on the project shall be equipped with an approved spigot-type sampling device.

F. Temperature Sensing Device on Transport Tanks - All transport tanks delivering bituminous materials for use on the Department's projects shall be equipped with an approved dial type thermometer.
The thermometer shall have a temperature range from 50 degrees Fahrenheit to 500 degrees Fahrenheit in 25 degrees Fahrenheit increments with a minimum dial diameter of two inches.

The thermometer shall be located near the midpoint in length and within the middle third of the height of the tank and be enclosed in a well with a protective window or by other means as necessary to keep the instrument clean and in the proper working condition.

3.06 QUALITY CONTROL

A. Testing Surface - The finished surface of the base course shall be checked with a templet cut to the required crown and with a 15-foot straightedge laid parallel to the centerline of the road. All irregularities greater than 1/4 inch shall be corrected by scarifying and removing or adding rock as required, after which the entire area shall be recompacted as specified hereinbefore. In the testing of the surface, the measurements will not be taken in small holes caused by individual pieces of rock having been pulled out by the grader.

B. Thickness Requirements

1. Measurements - Thickness of base shall be measured at intervals of not more than 200 feet. Measurements shall be taken at various points on the cross section, through holes not less than three inches in diameter.
2. Areas Requiring Correction - Where the compacted base is deficient by more than 1/2 inch from the thickness called for in the plans, the Contractor shall correct such areas by scarifying and adding rock. The base shall be scarified and rock added for a distance of 100 feet in each direction from the edge of the deficient area. The affected areas shall then be brought to the required state of compaction and to the required thickness and cross section.

3. Deficient Areas Left in Place - As an exception to the requirement for correcting areas of base which show a thickness deficiency exceeding the allowable 1/2 inch, if so approved in writing by the Engineer. Any of such areas in which the extent of the deficiency might be considered as not sufficient to seriously impair the required strength of the base may be left in place. No payment, however, will be made for such deficient areas left in place and not corrected.

3.07 MAINTENANCE

The Contractor will be responsible for assuring that the true crown and templet are maintained, with no rutting or other distortion, and that the base meets all the requirements, at the time the surface course is applied.

END OF SECTION

SECTION 02260
FINISH GRADING

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The Contractor shall, under this Section, supply, place, compact and roll finish grade materials prior to landscaping work.

B. Finish grade sub-soil.

C. Cut out areas to receive stabilizing base course materials for paving and sidewalks.

D. Place, finish grade and compact topsoil.

1.02 RELATED WORK

A. Section 02210: Excavation and Swale Grading.

B. Section 02211: Site Grading.

C. Section 02220: Trenching, Backfilling and Compacting.

D. Section 02934: Sodding.

E. Section 02944: Seeding.

F. Section 02950: Trees, Plants and Ground Cover.

1.03 PROTECTION

The Contractor shall prevent damage to existing fencing, trees, landscaping, natural features, bench marks, pavement, utility lines, and sprinkler system. Correct damage at no cost to the Owner.

PART 2 - PRODUCTS

2.01 MATERIALS

Topsoil shall be friable loam free from subsoil, roots, grass, excessive amount of weeds, stones and foreign matter; acidity range (ph) of 5.5 to 7.5; containing a minimum of 4 percent and a maximum of 25 percent organic matter. (Use topsoil stockpiled on site if conforming to these requirements, or as directed by the Engineer.)

PART 3 - EXECUTION

3.01 SUB-SOIL PREPARATION

A. Rough grade sub-soil systematically to allow for a maximum amount of natural settlement and compaction. Eliminate uneven areas and low spots. Remove debris, roots, branches, stones, etc., in excess of 2 inches in size. Remove sub-soil which has been contaminated with petroleum products.

B. Cut out areas, to sub-grade elevation, which are to receive stabilizing base for paving and sidewalks.

C. Bring sub-soil to required levels, profiles and contours. Make changes in grade gradual. Blend slopes in to level areas.

D. Slope grade away from building minimum 4 inches in 10 feet (unless indicated otherwise on Drawings).

3.02 PLACING TOPSOIL

A. Place topsoil in area where seeding, sodding and planting is to be performed. Place to the following minimum depths, up to finished grade elevations:

1. 6-inches for seeded areas.
2. 4 1/2-inches for sodded areas.
3. 24-inches for shrub beds.
4. 18-inches for flower beds.

B. Use topsoil in relatively dry state. Place during dry weather.

C. Fine grade topsoil eliminating rough and low areas to ensure positive drainage. Maintain levels, profiles and contours of sub-grades.

D. Remove stones, roots, grass, weeds, debris and other foreign material while spreading.

E. Manually spread topsoil around trees, plants, buildings and other structures to prevent damage which may be caused by grading equipment.

F. Lightly compact placed topsoil.

3.03 SURPLUS MATERIAL

A. Remove surplus sub-soil and topsoil from site.

B. Leave stockpile areas and entire job site clean and raked, ready to receive landscaping.

END OF SECTION

SECTION 02511
CONCRETE SIDEWALKS

PART 1 - GENERAL

1.01 SCOPE

A. The work specified in this section consists of the construction of concrete sidewalks, in accordance with these specifications, and in conformity with the lines, grades, dimensions and notes shown on the plans.

1.02 REFERENCES

A. City of Delray Beach Standards RT 5.1.

B. FDOT Standard Specifications for Road and Bridge Construction, latest edition

PART 2 - PRODUCTS

2.01 MATERIALS

A. The concrete mix shall produce standard weight concrete with the following properties to be verified by the use of the appropriate listed test methods.

1. Compressive strength: 3,000 psi at 28 days - tested according to ASTM designation C31 (AASHTO T23)
2. Slump Range: 2-4 inches - tested according to ASTM designation C143 (AASHTO T119)

B. Joint materials shall be in accordance with FDOT Specification Section 932.

2.02 FORMS

A. Forms for this work shall be made of either wood or metal and shall have a depth equal to the plan dimensions for the depth of concrete being deposited against them. They shall be straight, fee from warp or bends, and of sufficient strength, when staked, to resist the pressure of the concrete without deviation from line and grade. Forms shall be cleaned each time they are used and shall be oiled or saturated with water prior to placing the concrete.

PART 3 - EXECUTION

3.01 SUB-GRADE

A. Excavation shall be made to the required depth, and the sub-grade or base upon which the sidewalk is to be set shall be compacted to a firm, even surface, true to grade and cross-section, by means of watering, rolling or tamping. The sub-grade For sidewalk to be used as driveway pavement shall be compacted as directed by the City Engineer. The sub-grade shall be moist at the time the concrete is placed.

3.02 JOINTS

A. Expansion Joints between the sidewalk and the curb or driveway or at fixed objects and sidewalk intersections shall be 1/2 inch joints, formed with a preformed joint filler.

B. Preformed Filler shall meet the requirements of AASHTO M-153 or M-213, or cellulose fiber types meeting all the requirements of AASHTO M-213 except the asphalt content are acceptable provided they contain minimums of 0.2 percent copper pentachlorophenate as a preservative and 1.0 percent waterproofing wax. For AASHTO M-153, unless a particular type is specified, either type I, type II, or type III may be used

C. Contraction Joints may be of the open type, or may be sawed.

1. Open type contraction joints shall be formed by staking a metal bulkhead in place and depositing the concrete on both sides. After the concrete has set sufficiently to preserve the width and shape of the joint, the bulkhead shall be removed. After the sidewalk has been finished over the joint, the slot shall be edged with a tool having a 1/2" radius.
2. If the Contractor elects to saw the contraction joints, a slot approximately 3/16" wide and not less than 1-1/2" deep shall be cut with a concrete saw after the concrete has set and within the following periods of time: Joints at not more than 30' intervals - 12 hrs after finishing, and remaining joints - within 96 hrs after finishing.

3.03 PLACING

A. The concrete shall be placed in the forms to the required depth, and shall be tamped and spaded until mortar entirely covers its surface.

3.04 FINISHING

A. SCREEDING: All surplus water, laitance and inert material shall be worked off the surface of the concrete with a ten (10) foot straight edge, or by some other method equally as satisfactory and so approved by the City Engineer.

B. FLOATING; SURFACE REQUIREMENTS: The concrete shall be given a wooden float finish. The surface variations shall not be more than three-sixteenths (3/16) inch under a ten (10) foot straight edge, nor more than one-eighth (1/8) inch on a five (5) foot transverse section. The edge of the sidewalk shall be carefully finished with an edging tool having a radius of one-half (1/2) inch.

3.06 THICKNESS

Concrete sidewalks shall be four (4) inches thick except at driveways where sidewalks shall be six (6) inches thick.

END OF SECTION

SECTION 02513
ASPHALTIC CONCRETE PAVING

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Prepare sub-grade to receive base course.

B. Place stabilizing base courses, work and compact.

C. Prime base course, place asphalt pavement.

1.02 RELATED WORK

A. Section 01410: Testing Laboratory Services.

B. Section 02211: Site Grading.

C. Section 02580: Pavement Marking.

1.03 REFERENCE STANDARDS

A. ASTM D1557 - Tests for Moisture - Density Relationship of Soils using 10 lb. Rammer in 18 inch Drop.

B. AASHTO M-81 - Penetration Graded Asphalt Cement.

C. AASHTO M-140 - Emulsified Asphalt.

D. FDOT Road & Bridge Construction - Section 200 - Limerock Base

E. FDOT Road and Bridge Construction - Section 250 - Shell Base.

F. FDOT Road and Bridge Construction - Section 250 - Shell Stabilized Base.

G. FDOT Road and Bridge Construction - Section 330 - Hot Bituminous Mixtures General Construction Requirements.

H. FDOT Road and Bridge Construction - Section 916-1 - Asphalt Cement.

1.04 TESTING AND INSPECTION

A. Testing and inspection of asphalt pavement mixes and testing of placed stabilizing base course and asphalt pavement will be performed by an independent testing laboratory, in accordance with Section 01410-Testing Lab Services, and Section 01020-Allowances. Testing and inspection will be performed so as to minimize disruption to work.

B. Allow testing laboratory access to the mixing plant for verification of weights or proportions, character of materials used and determination of temperatures used in the preparation of asphalt concrete mix.

C. When and if required, the testing laboratory will perform laboratory tests on proposed asphalt pavement mixes to determine conformity with requirements.

D. The testing laboratory will perform one series of compaction tests for stabilizing base course and for asphalt pavement. The contractor shall pay for costs of additional testing as required due to improper performance of work.

E. When stabilizing base course or portion thereof has been placed and compacted in accordance with requirements, notify the testing laboratory to perform density and bearing value tests. Do not place asphalt pavement until results have been verified and base course installation approved.

F. If compaction tests indicate that stabilizing base course or asphalt paving do not meet specified requirements, remove defective work, replace and retest at Contractor's expense.

PART 2 - MATERIALS

2.01 LIMEROCK

A. Composition - The minimum percentage of carbonates of calcium and magnesium in the limerock material shall be 70. The maximum percentage of water-sensitive clay mineral shall be 3 percent. Limerock material shall not contain cherty or other extremely hard pieces, or lumps, balls or pockets of sand or clay size material in sufficient quantity as to be detrimental to the proper bonding, finishing, or strength of the limerock base.

B. Gradation and Size Requirements - At least 97 percent (by weight of the material shall pass a 3½ inch sieve and the material shall be graded uniformly down to dust. The fine material shall consist entirely of dust of fracture. All crushing or breaking-up which might be necessary in order to meet such size requirements shall be done before the material is placed on the road.

C. Limerock Bearing Requirements - Limerock material used in construction of limerock base shall have an average LBR value of not less than 100. The average LBR value of material produced at a particular source shall be determined in accordance with an approved quality control procedure.

2.02 CRUSHED CONCRETE

A. Composition - The minimum percentage of carbonates of calcium and magnesium in the material shall be 70. All foreign material such as metal fragments, organic matter, etc. shall be removed from the material before delivery to the job site.

B. Gradation - 100 percent (by weight) of the material shall pass a 3 inch sieve, with 40 percent to 70 percent passing the number 10 sieve. Not more than 20 percent, by dry weight, of the material shall pass the 200 sieve by washing. all crushing or breaking up which might be necessary in order to meet such size requirements shall be done before the material is placed on the road.

C. Bearing Requirements - The Crushed Concrete Base shall have an average Limerock Bearing Ration (LBR) of not less than 100. The average LBR value of material produced at a particular source shall be determined in accordance with an approved quality control procedure.

D. Crushed Concrete may be substituted for Limerock as base material by adding 2 inches to the specified thickness.

2.03 PRIME COAT

A. Prime coat shall be one of the following:

1. Cutback Asphalt, Grade RC-70 or RC-250 shall meet the requirements of AASHTO Specification M-81.
2. Emulsified Asphalt Grade SS-1 or SS1H shall meet the requirements of ASSHTO Specifications M-140 and/or M-280.

2.04 TACK COAT

A. Tack coat shall be one of the following:

1. Asphalt Cement, Penetration Grade 85-100 shall meet the requirements of AASHTO Specification M-20.
2. Emulsified Asphalt, Grade RS-2 shall meet the requirements of AASHTO Specification M-140.

2.05 ASPHALTIC CONCRETE

A. Asphaltic concrete surface course - Type S-III asphaltic concrete wearing surface, 1½ inches in compacted thickness or as indicated on the Drawings, in accordance with Sections 330-10 Compacting Mixture and 331 Type S-III Asphaltic Concrete of aforesaid DOT Standard Specification.

PART 3 - EXECUTION

3.01 PREPARATION

A. Subgrade shall be stabilized per Section 160 - Stabilizing, of the FDOT Standard Specifications.

B. Bearing Value Requirements for subgrade stabilization

1. Limerock Bearing Ratio - Minimum LBR 40 under paved and curbed areas, and minimum LBR 30 in shoulder and swale areas.
2. Florida Bearing Value - Minimum FBV 75 pounds per square inch (psi) under paved and curbed areas, and minimum FBV 50 psi in shoulder and swale areas.

3.02 TRANSPORTING BASE COURSES

The limerock shall be transported to the point where it is to be used, over rock previously placed if practicable, and dumped on the end of the preceding spread. Hauling over the subgrade and dumping on the subgrade will be permitted when these operations will not be detrimental to the base as determined by the Engineer.

3.03 EQUIPMENT

A. Base Course - The rock shall be spread by mechanical rock spreaders, equipped with a device which strikes off the rock uniformly to laying thickness, and capable of producing an even distribution of the rock.

B. Pressure Distributor - The pressure distributor shall be equipped with pneumatic tires having a sufficient width of rubber in contact with the road surface to avoid breaking the bond or forming a rut in the surface. The distance between the centers of openings of the outside nozzles of the spray bar shall be equal to the width of the application required, within an allowable variation two (2) inches.

3.04 SPREADING BASE COURSE

A. Method of Spreading - The limerock shall be spread uniformly with equipment as specified in 3.02 above. All segregated areas of fine or coarse rock shall be removed and replaced with properly graded rock.

B. Number of Courses - When the specified compacted thickness of the base is greater than six inches, the base shall be constructed in two courses. The thickness of the first course shall be approximately one-half the total thickness of the finished base, or enough additional to bear the weight of the construction equipment without disturbing the subgrade.

3.05 COMPACTING AND FINISHING BASE

A. Dynamic Compactor with vibratory rollers shall not be used on this project and shall not be permitted at the job site. The contractor is responsible for all damages caused by compaction operations.

B. Single-Course Base - For single-course base, after the spreading is completed the entire surface shall be scarified and then shaped so as to produce the required grade and cross section after compaction.

C. Double-Course Base - For double-course base, the first course shall be cleaned of foreign material and bladed and brought to a surface cross section approximately parallel to that of the finished base. Prior to the spreading of any material for the upper course, the density tests for the lower course shall be made and the Engineer shall have determined that the required compaction has been obtained. After the spreading of the material for the final course is completed, its surface shall be finished and shaped so as to produce the required grade and cross section after compaction, and free of scabs and laminations.

D. Moisture Content - When the material does not have the proper moisture content to insure the required density, wetting or drying will be required. When water is added it shall be uniformly mixed-in by disking to the full depth of the course which is being compacted. Wetting or drying operations shall involve manipulation, as a unit, of the entire width and depth of the course which is being compacted.

E. Density Requirements - As soon as proper conditions of moisture are attained the material shall be compacted to a density of not less than 98 percent of maximum density as determined by AASHTO T-180. The minimum density which will be acceptable at any location outside the traveled roadway.

F. Density Test - At least three density determinations shall be made on each day's final compaction operations on each course, and the density determinations shall be made at more frequent intervals if deemed necessary by the Engineer.
During final compacting operations, if blading of any areas is necessary to obtain the true grade and cross section, the compacting operations for such areas shall be completed prior to making the density tests on the finished base.

G. Correction of Defects:

1. Contamination of Base Material - If, at any time, the subgrade material should become mixed with the base course material, the Contractor shall, without additional compensation, dig out and remove the mixture, reshape and compact the subgrade and replace the materials removed with clean base material, which shall be shaped and compacted as specified above.
2. Cracks and Checks - If cracks or checks appear in the base, either before or after priming, which, in the opinion of the Engineer, would impair the structural efficiency of the base, the Contractor shall remove the cracks or checks by rescarifying, reshaping, adding base material where necessary, and recompacting.

H. Surface Testing - The finished surface of the base course shall be checked with a templet cut to the required crown and with a 15 foot straightedge laid parallel to the center line of the road. All irregularities greater than ¼ inch shall be corrected by scarifying and removing or adding base course material as required, after which the entire area shall be recompacted.

3.06 PRIMING

A. Preparation - The prime coat shall be applied only when the base meets the specified density requirements and the moisture content in the top half of the base does not exceed 90 percent of the optimum moisture of the base material. At the time of priming,

the base shall be firm, unyielding and in such condition that no undue distortion will occur.

Before any bituminous material is applied, all loose material, dust, dirt, caked clay and other foreign material which might prevent proper bond with the existing surface shall be removed for the full width of the application. Particular care shall be taken in cleaning the outer edges of the strip to be treated, to insure that the prime or tack coat will adhere.

When the prime or tack coat is applied adjacent to curb and gutter, valley gutter or any other concrete surfaces, such concrete surfaces (except where they are to be covered with a bituminous wearing course) shall be covered with heavy paper, or otherwise protected while the prime or tack coat is being applied. Any bituminous material deposited on such concrete surfaces shall be removed.

The temperature of the prime material shall be between 100 degrees Fahrenheit and 150 degrees Fahrenheit. The actual temperature shall be that which will insure uniform distribution. The material shall be applied by means of a pressure distributor. The amount to be applied will be dependent on the character of the surface and shall be sufficient to coat the surface thoroughly and uniformly, with no excess.

B. Rate of Application - The rate of application shall be not less than 0.10 gallon per square yard, unless a lower rate is approved by the Engineer.

C. Sprinkling - If so required by the Engineer the base shall be lightly sprinkled with water and rolled with a traffic roller, in advance of the application of the prime.

D. Sanding - The primed base shall be covered by a light uniform application of cover material. If considered necessary for proper distribution of spread, the cover material shall be lightly dragged with a drag broom, after which it shall be rolled with a traffic roller.

E. Sampling Device on Transport Tanks - All transport tanks delivering bituminous materials for use on the project shall be equipped with an approved spigot-type sampling device.

F. Temperature Sensing Device on Transport Tanks - All transport tanks delivering bituminous materials shall be equipped with an approved dial type thermometer. The thermometer shall have a temperature range from 50 degrees Fahrenheit to 500 degrees Fahrenheit in 25 degrees Fahrenheit increments with a minimum dial diameter of two inches.

3.07 QUALITY CONTROL

A. Testing Surface - The finished surface of the base course shall be checked with a templet cut to the required crown and with a 15-foot straightedge laid parallel to the centerline of the road. All irregularities greater than ¼ inch shall be corrected by scarifying and removing or adding rock as required, after which the entire area shall be recompacted as specified hereinbefore. In the testing of the surface, the measurements will not be taken in small holes caused by individual pieces of rock having been pulled out by the grader.

B. Thickness Requirements:

1. Measurements - Thickness of base shall be measured at intervals of not more than 200 feet. Measurements shall be taken at various points on the cross section, through holes not less than three inches in diameter.
2. Areas Requiring Correction - Where the compacted base is deficient by more than ½ inch from the thickness called for in the plans, the Contractor shall correct such areas by scarifying and adding rock. The base shall be scarified and rock added for a distance of 100 feet in each direction from the edge of the deficient area. The affected areas shall then be brought to the required state of compaction and to the required thickness and cross section.
3. Deficient Areas Left in Place - As an exception to the requirement for correcting areas of base which show a thickness deficiency exceeding the allowable ½ inch, the deficiency might be considered as not sufficient to seriously impair the required strength of the base and may be left in place. No payment, however, will be made for such deficient areas left in place and not corrected.

3.08 MAINTENANCE

The Contractor will be responsible for assuring that the true crown and templet are maintained, with no rutting or other distortion, and that the base meets all the requirements, at the time the surface course is applied.

3.09 PROTECTING ADJACENT WORK

Provide adequate protection for all adjacent construction, whatever it may be, against bituminous spraying. Spraying of bituminous material on work, other than base course, will not be accepted.

3.10 TRANSPORTATION OF THE ASPHALT

The surface course shall be transported in tight vehicles previously cleaned of all foreign material. The inside surface of the truck bodies shall be only thinly coated with soapy water or an approved emulsion containing not over 5 percent oil. Kerosine, gasoline or similar products shall not be used. After coating and before loading, the truck bodies shall be raised and drained of all excess liquids.

3.11 INSTALLATION OF FINAL ASPHALTIC CONCRETE SURFACE COURSE

The Contractor shall install Type S-III asphaltic concrete surface course over the entire surface in two (2) ¾ inch lifts.

Mechanical spreading and screeding equipment shall be of an approved type that is self-propelled and can be steered. It shall be equipped with a receiving and disbursing hopper and a mechanical screed or strike-off member capable of adjustment to regulate the depth of material being spread. Tandem Type 5 to 12 ton steel- wheeled rollers shall be used for sealing. Self- Propelled, pneumatic-tired traffic rollers equipped with at least 7b smooth tread, low pressure tires, having a total weight of 6 to 10 tons shall be used for final rolling.

3.12 FIELD QUALITY CONTROL

The final surface course of all pavements will be required to be checked by a rolling straightedge. The finished surface shall not vary more than 3/16 inch from the straightedge applied parallel to the centerline of the pavement. The straightedge shall have an effective length of 15 feet.

END OF SECTION

SECTION 02520
CONCRETE CURBS AND HEADERS

PART 1 - GENERAL

1.01 SCOPE

The work covered by this section of the specifications consists of furnishing all plant, labor, equipment, appliances and materials and performing all operations in connection the construction of concrete curbs and headers, complete and in place, in strict accordance with these specifications and the applicable drawings and subject to the terms and conditions of this contract.

1.02 REFERENCES

Florida Department of Transportation Standard Specifications for Road and Bridge Construction, (latest edition)

PART 2 - PRODUCTS

2.01 MATERIALS

A. The concrete mix shall produce standard weight concrete with the following properties to be verified by the use of the appropriate listed test methods.

- *Compressive strength*: 3,000 psi at 28 days - tested according to ASTM designation C31 (AASHTO T23)
- *Slump Range*: 2-4 inches - tested according to ASTM designation C143 (AASHTO T119)

B. Joint materials shall be in accordance with FDOT Specification Section 932

PART 3 - EXECUTION

3.01 CONSTRUCTION METHODS

Concrete curbs and headers shall be constructed of the type and in the locations as shown on the plans.

A. FORMS: Forms for this work shall be made of either wood or metal. They shall be straight, free from warp or bends, and of sufficient strength, when staked, to resist the pressure of the concrete without springing. If made of wood, they shall be of two (2) inch surfaced plank; if made of metal, they shall be of approved section and shall have a flat surface on top.

B. CONSTRUCTION: Excavation shall be made to the required depth; and the sub-grade or base upon which the curb or header is placed shall be compacted to 98% AASHTO T-180.

The concrete shall be placed in the forms to the depth specified, and tamped and spaded to prevent honeycomb and until the top of the structure can be floated smooth and the edges rounded to the radius shown on the plans.

Contraction joints shall be placed at intervals of ten feet except where a lesser interval is required for closure, but no section shall be less than four feet in length.

Contraction joints shall be created while the concrete is still plastic by using a grooving tool or by inserting a premolded filler strip, or a groove may be saw cut into the concrete soon after it has hardened. Curb with irregular cracks due to late contraction joint construction will not be accepted.

Expansion joints shall be constructed at all radius points and at other locations indicated on the plans. They shall be located at intervals of 500 feet between other expansion joints, or ends of a run. The joint shall be 1/2 inch in width.

The forms shall be removed within twenty-four (24) hours after the concrete has been placed, and minor defects then filled with mortar composted of one (1) part of Portland Cement and two (2) parts of fine aggregate. Plastering shall not be permitted on the face of the curb; and all rejected curb, or header shall be removed and replaced without additional compensation. The curb top, face and/or header top shall be given a surface finish while the concrete is still green. A brush finish will be required unless noted otherwise; however, additional finishing may be required in areas considered too rough or with minor defects.

After the concrete has been rubbed smooth, it shall be rubbed again until a uniform color is produced, using a thin grout composed of one (1) part of Portland Cement and one (1) part of fine aggregate.

After concrete has set sufficiently, the spaces in front and back of the curb shall be refilled to the required elevation with suitable material, which shall be placed and thoroughly compacted in layers of not more than six (6) inches in thickness.

END OF SECTION

SECTION 02546
FINAL ASPHALTIC CONCRETE SURFACE COURSE

PART 1 - GENERAL

1.01 SCOPE

The work to be performed under this item shall include the selling, delivering and installing of final asphaltic concrete surface courses as herein specified.

1.02 REFERENCES

Standards applicable in this Specification shall be:

A. Florida Department of Transportation - Standard Specifications for Road and Bridge Construction (1986).

1. Section 300 - Prime and Tack Coats for Base Courses. Subsections (1, 2.3, 3, 4, 5, 7).
2. Section 320 - Hot Bituminous Mixtures - Plant, Methods and Equipment. Subsections (1, 2.1, 2.5 to 2.13, 3, 4, 5).
3. Section 330 - Hot Bituminous Mixtures - General Construction Requirements. Subsections (1, 3 to 13).
4. Section 331 - Type S-1, Asphaltic Concrete. Subsections (1 to 5).

1.03 SUBMITTALS

A. Manufacturer's Data - Prior to fabrication or installation of the final asphaltic concrete surface course, the Contractor shall furnish to the Engineer, for review and approval the following:

1. Certification from the manufacturer that their plant meets the requirements of Section 320 above.
2. Formula for job mix.

PART 2 - MATERIALS

2.01 TACK COAT

Unless otherwise specified by the Engineer, the material used for the tack coat shall be Emulsified Asphalt, Grade RS-2, Section 300-2.3 F.D.O.T. Specification.

2.02 FINAL ASPHALTIC SURFACE COURSES

The material used shall be Type S-III asphaltic concrete conforming to Section 331 of the F.D.O.T. Standard Specifications for Road and Bridge Construction.

PART 3 - EXECUTION

3.01 CLEANING SURFACES

Prior to the laying of the surface courses, the surface of the pavement or base to be covered shall be cleaned of all loose and deleterious material by the use of power brooming or hand brooming where necessary. All such material shall be collected and disposed of by the Contractor.

3.02 PATCHING AND LEVELING COURSES

Where a surface course is to be constructed on an existing paved surface which is irregular, said surface shall be brought to proper grade and cross section by the application of patching or leveling courses.

3.03 APPLICATION OF TACK COAT

The material shall be heated to a suitable temperature and applied in a thin, uniform layer at a rate of between 0.02 and 0.08 gallons per square yard. The tack coat shall be applied sufficiently in advance of the surface course laying to permit drying but not so far in advance as to lose its adhesiveness as a result of being covered with dust. The tack coat shall be kept free from traffic until the surface course has been laid.

3.04 TRANSPORTATION OF THE ASPHALT

The surface course shall be transported in tight vehicles previously cleaned of all foreign material. The inside surface of the truck bodies shall be only thinly coated with soapy water or an approved emulsion containing not over 5% oil. Kerosine, gasoline or similar products shall not be used. After coating and before loading, the truck bodies shall be raised and drained of all excess liquids.

3.05 INSTALLATION OF FINAL ASPHALTIC CONCRETE SURFACE COURSE

Prior to final acceptance, or as directed by the Engineer, the Contractor shall install a 1-inch layer of Type S-1 Final Asphaltic Concrete Surface course over the entire street width as directed by the Engineer. A leveling course as indicated on the storm drainage plan sheets shall be placed prior to the final asphaltic concrete surface course under this item. All other placement of pavement shall be as shown on the "Restoration Detail" for non state-owned public pavement.

Mechanical spreading and screeding equipment shall be of an approved type that is self-propelled and can be steered. It shall be equipped with a receiving and disbursing hopper and a mechanical screed or strike-off member capable of adjustment to regulate the depth of material being spread. Tandem Type 5 to 12 ton steel- wheeled rollers shall be used for sealing. Self- Propelled, pneumatic-tired traffic rollers equipped with at least 7b smooth tread, low pressure tires, having a total weight of 6 to 10 tons shall be used for final rolling.

3.06 FIELD QUALITY CONTROL

The final surface course of all pavements will be required to be checked by a rolling straightedge. The finished surface shall not vary more than 3/16 inch from the straightedge applied parallel to the centerline of the pavement. The straightedge shall have an effective length of 15 feet.

END OF SECTION

SECTION 02574
PAVEMENT REMOVAL AND REPLACEMENT

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Work included under this Section consists of cutting, removing, protecting and replacing existing pavements of the various types encountered, roadways, driveways, sidewalks, curb and combination curb and gutter.

B. Protection of Existing Improvements: The Contractor shall be responsible for the protection of all pavements, sidewalks and other improvements within the work area. All damage to such improvements, as a result of the Contractor's operations, beyond the limits of the work of pavement replacement as described herein, shall be repaired by the Contractor at his expense.

PART 2 - PRODUCTS

2.01 MATERIALS

Materials, including limerock, bituminous prime and tack coat, and asphaltic concrete for the above work shall meet the requirements established therefore by the FDOT Specifications.

1. Limerock shall be Miami or Ocala Limerock.
2. Bituminous prime coat material shall be cutback asphalt Grade RC-70.
3. Bituminous tack coat material shall be emulsified asphalt Grade RS-2.
4. Asphaltic concrete shall be Type S-III

PART 3 - EXECUTION

3.01 PREPARATION

Pedestrian or school crossings: Where the work crosses or interferes with school or pedestrian crossings, extreme care shall be taken by the contractor to insure the safety of school children or other pedestrians.

3.02 PERFORMANCE

A. Removals:

1. *Pavement Removal*: Where existing pavement is to be removed, the surfacing shall be mechanical saw cut prior to trench excavation, leaving a uniform and straight edge, with minimum disturbance to the remaining adjacent surfacing. The width of cut for this phase of existing pavement removal shall be minimal.
2. *Sidewalk, Drive, and Curb Removal*: Concrete sidewalks, curbs, combination curb and gutter, walks, drive ribbons, or driveways shall be removed by initially sawing the structure, with a suitable power saw, as specified above for pavement. When a formed joint in the concrete exists within 3 feet of the proposed saw cut and parallels the proposed saw cut, the removal line shall be extended to the formed joint. After sawing, the material shall be removed.

B. Restorations:

1. *General*: Street or roadway pavement cut and removed in connection with trench excavation shall be replaced or restored in equal or better condition than the original and as shown on the Drawings. The Drawings indicate minimum requirements.
2. *Pavement Restoration - Asphalt*:
   a. Limerock base course shall be compacted for its full thickness to not less than 98 percent of maximum density as determined by AASHTO T-180.
   b. Construction methods and equipment shall generally meet the requirements therefore as established in the FDOT Specifications, but shall be modified to meet the relatively narrow strip construction conditions. Any such modifications shall be approved by the Engineer prior to their use.
   c. Joints with existing surface and base shall be straight and neat. If necessary to obtain a straight net joint, the Contractor shall cut out sufficient existing material and replace it with new material.
   d. The upper surface of the completed base course shall be compacted to an elevation to permit the full depth of the surface course to be of the pavement surface. The completed surface shall match the line and grade of the existing surface. When pavement is removed to the edge of the roadway, the replaced base course shall extend not less than

6-inches beyond the edge of the surfacing constructed without deviating from the grade

3. *Driveway Restoration - Asphalt*: Driveway pavement with limerock base cut and removed in connection with trench excavation shall be replaced or restored as specified above for street or roadway pavement, except the new limerock base course shall equal the existing base course in thickness, except that in no case shall new driveway base course be less than 6-inches in thickness. Muck or unsuitable material found under existing driveway construction will not be removed and replaced.

4. *Concrete, Sidewalk, Walkway, Driveway Ribbon and Curb Restoration.*
   a. Concrete sidewalks, walkways, driveways, driveway ribbons and curbs required to be removed for the installation of facilities under this Contract shall be restored. Class B concrete shall be used in all cases.
   b. Replaced portions of these items shall conform to the lines, grades and cross sections of the removed portions. Concrete sidewalks and walkways shall be of 4-inch thickness; concrete driveways and driveway ribbons shall be 6-inch thickness. Replaced concrete curb and/or gutter shall joint neatly to the remaining section.

5. *Pavement Restoration - Concrete*: Rigid pavement shall be replaced in kind with Class B concrete, using high early strength cement.

END OF SECTION

SECTION 02580
PAVEMENT MARKINGS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The work included in this Section consists of applying pavement markings as required to restore disturbed pavement areas. Work shall adhere to all City and FDOT standards.

1.02 RELATED REFERENCES

A. All markings shall conform to the requirements of the Manual of Uniform Traffic Control Devices, and FDOT Roadway and Traffic Design Standards.

B. Thermoplastic shall conform to the requirements of the Florida D.O.T. Standard Specifications for Road and Bridge Construction (Section 711) latest edition.

PART 2 - PRODUCTS

2.01 THERMOPLASTIC

A. All markings to be Alkyd thermoplastic only.

2.02 TEMPORARY MARKINGS

A. Temporary markings on final asphalt shall be only for backed construction tape. Lower asphalt lifts may be marked with paint or any other approved marking material.

2.03 REFLECTIVE PAVEMENT MARKERS (RPM'S)

A. RPM'S shall meet FDOT Class B Specifications, and shall be installed per Palm Beach County Typical T-3-89-004-PS.

PART 3 - EXECUTION

3.01 APPLICATION

A. Thermoplastic shall not be installed on roadway until five (5) calendar days after final lift of asphalt has been completed, with the exception of friction course which shall be thirty (30) days.

B. If existing marking material is not compatible with Alkyd thermosplastic, it shall be removed prior to installation of new markings.

END OF SECTION

SECTION 02800
IRRIGATION

PART I - GENERAL

1.01 DESCRIPTION OF WORK

A. This project consists of a "Design/Build" contract to design and install an automatic underground irrigation system for the landscaping of Delray Swim & Tennis Center Mater (PH1) (Parking Lot).

B. The irrigation system shall be designed and constructed to meet all applicable codes. The irrigation plans must be reviewed and approved by the City's Representative prior to the submission of plans to the Building Department for permits. Permit fees will be waived.

D. The Contractor shall provide as built shop drawings for any major field changes made by the Contractor to the original plans authorized by the City.

1.02 JOB CONDITIONS

A. It shall be the responsibility of the Contractor to protect all persons from injury and to avoid property damage.

B. The Contractor shall be responsible for locating all underground utilities in the field prior to beginning construction. The Contractor shall call the following numbers 48 hours prior to digging to obtain the existing utilities locations.

Sunshine State One Call Center	1-800-432-4770
City of Delray Beach Utilities	561-243-7300

C. The Contractor shall be responsible for the temporary support, adequate protection, maintenance and repair of any damage to existing utilities, structures, drains, sewer and other obstructions encountered in the progress of work.

D. The contractor shall not be held responsible for concealed contingencies such as, but not limited to rock, water, hard pan or other obstacles encountered in excavation work which are not apparent at the time of trenching.

E. The Contractor shall protect existing lawns, plant materials, and site grades unless otherwise noted on plans or previously approved by the City's Representative.

F. Any disruption, destruction, or disturbance of any plants or structures shall be completely restored to the satisfaction of the City's Representative.

G. Whenever irrigation plans and existing utilities conflict, the Contractor shall notify the City's Representative in order to field adjust the irrigation plan layout.

PART 2 – PRODUCTS

2.01 GENERALl

A. All irrigation work shall be done in a good workman like manner and in accordance with the manufacturer's specifications.
B. Any existing irrigation pipes and heads encountered during installation of the new system shall be removed.
C. All irrigation system materials shall be new.
D. **Pipe:** All pipes shall be delivered in full 20 foot lengths and clearly marked with the manufacturer's name and classification.

1. Main: All pipe situated hydraulically between the water meter and the sprinkler control valve is classified as MAIN LINE PIPE, and is herein specified to be PVC Type I, Schedule 40 and shall be equipped with factory attached couplings or integrally formed bells for solvent weld connections. All pipe shall be cut squarely and burrs removed. All P.V.C. joints to be made with the use of cleaner, primer and clean solvent weld.
2. Lateral: Pipe situated hydraulically on the discharge side of the sprinkler control valve is classified as LATERAL LINE PIPE. All pipe sizes from 1/2" to 1" diameter shall be PVC, Type I SDR 26, class 315 and pipe size ranging from 1 1/4" to 3 " diameter shall be PVC, Type I SRD 26, class 160. Pipe shall be equipped with factory attached couplings or integrally formed bells for solvent weld connections.

2.02-FITTINGS AND VALVES:

1. Main line and lateral pipe fittings shall be of the proper type and class for use with the above specified pipe and shall have either solvent weld IPS threaded connections according to the requirements of the connection being made.
2. Both the fittings and the solvent cement and cleaner used in their installation shall be either manufactured or supplied by the manufacturer, or supplied by, the manufacturer of the pipe on which they are to be used. The Contractor shall guarantee that the pipe, fittings, cement and cleaner utilized in this work are all compatible with one another.

F. **Threaded pipe** connections between Main pipe and sprinkler control valves shall be made using threaded pipe and fittings. Galvanized schedule 40 or PVC Schedule 80 threaded pipe and fittings are herein specified for this use.

E. **Sprinkler Heads**: shall be Toro 570 Series 12" High-pop with nozzles appropriate For the configuration of the proposed landscaped areas.

F. **Valves** shall be: Toro valves.

G. **Valve boxes** shall be "Ametek", "Carson" or equal. All valve boxes shall be numbered according to the irrigation plans.

H. **Wire:**

1. Wiring used for connecting the automatic remote control valves to the controllers shall be type UF, 600 Volt, single strand, solid copper with PVC insulation 4/64 inch thick. Size shall be 14 gauge, red for "hot" or lead wires, and the common wire to be 14 gauge, white in color.

2. All splices in control wire shall be made at valve locations or marked with valve access box.

I. **Hose Bibbs** shall be provided in all valve boxes.

PART 3 - EXECUTION

3.01 INSTALLATION

A. **General:** The Contractor shall install the irrigation system to provide a fully operational automatic system. The Contractor shall install all materials specified and implied by the drawings and specifications.

B. **Trenching and Backfilling**

Trenches for pipe shall be cut to required grade lines and compacted to provide accurate grade and uniform bearing for the full length of the line. The bottom of the trenches shall be free of rock or other sharp edged objects. Minimum cover shall be 24 inches for pressure lines and 18 inches for non-pressure lines. All pipe lines shall have a 6 inch minimum clearance from each other and from lines of other trades. Backfill shall be compacted to dry density equal to adjacent undisturbed soils and shall conform to adjacent grades without dips, sunken areas or other irregularities.

C. **Sprinkler Heads**

1. Sprinkler heads placed adjacent to walks and curbs shall be installed 6 inches from concrete.

2. High-pop sprinkler heads in planted areas shall be installed with the top of the body even with the top of the adjacent plant material. One-half inch flexible PVC, or thick wall poly pipe, shall be installed between the rigid PVC.

3. Automatic remote control valves shall be installed in specified valve boxes. The valves shall have 6 inches of pea gravel installed below the bottom of the valve.

3.02 TESTING AND INSPECTION

A. Prior to the commencement of work an inspection schedule will be established between the Contractor and the City's Representative. All work will be inspected prior to backfilling trenches. Should the material, workmanship or method of installation not meet the standards specified herein, the Contractor shall replace the work at his own expense.

B. All irrigation main lines shall be pressure tested prior to acceptance and shall maintain a pressure of 100 psi for one hour with no leakage.

C. The contractor shall balance and adjust the various components of the system so the overall operation of the system is most efficient. This includes a synchronization of the controllers, adjustments to pressure regulations, pressure relief valves, part circle sprinkler heads, and individual station adjustments on the controllers.

3.03 SITE CLEANUP

A. The Contractor shall keep the construction site clean of all surplus materials, waste, tools, equipment, rubbish, excessive earth and waste generated by the installation of the irrigation system.

B. The Contractor shall fully restore the site to the conditions that existed prior to the beginning of the irrigation system installation.

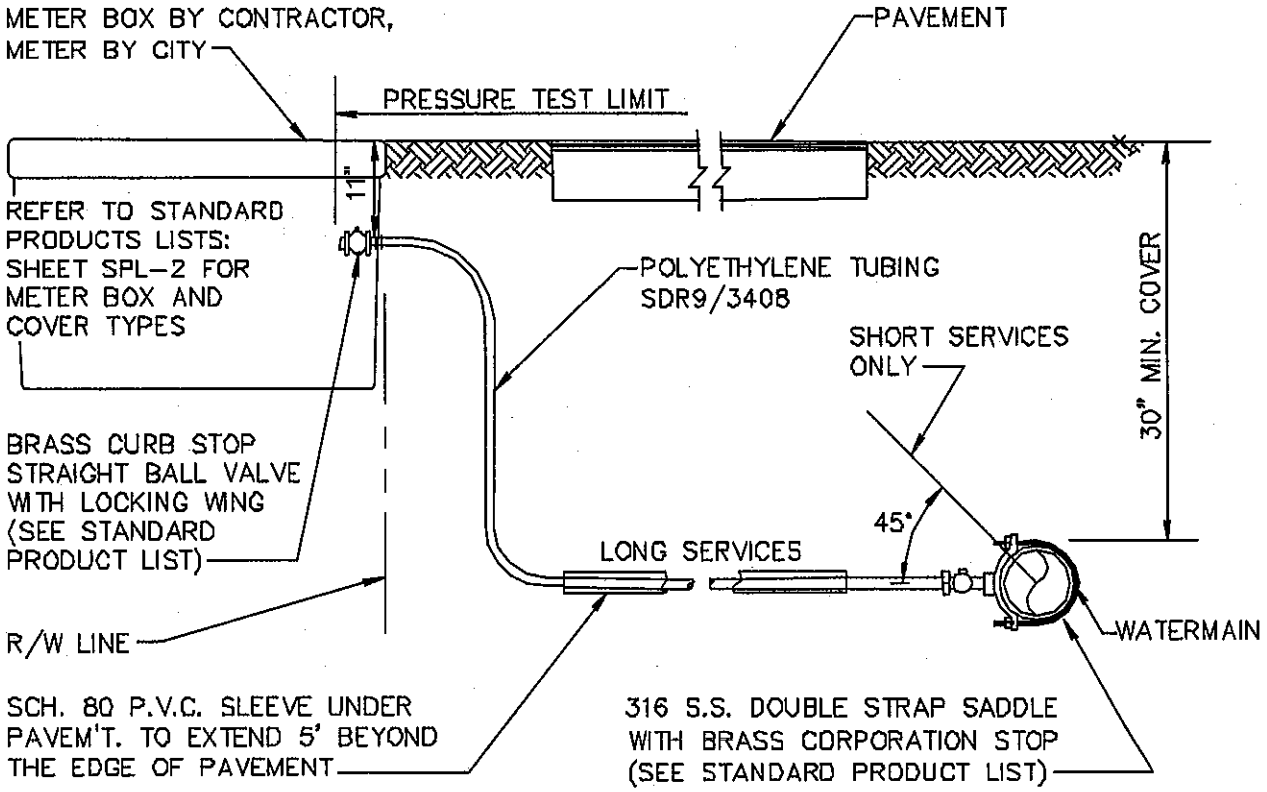
3.04 MAINTENANCE

It shall be the Contractor's responsibility to maintain the irrigation system until the date of acceptance for substantial completion.

3.05 GUARANTEE

The Contractor, as part of this contract shall furnish a written guarantee for all materials and workmanship for a period of one year from the date of substantial completion. Leaks shall be repaired and paid for by the Contractor at any time they appear during the warranty period.

END OF SECTION



NOTES:

1. SUCCESSIVE TAPS INTO THE WATER MAIN SHALL BE SPACED A MINIMUM OF 18" ON CENTER.
2. SERVICE LINES SHALL NOT BE PLACED UNDER DRIVEWAYS.
3. ALL METERS REQUIRE A LOCKING BRASS CURB STOP WITH LOCK WING (1"MIN.).
4. NO FITTINGS BETWEEN CORPORATION STOP AND BRANCH ASSEMBLY.
5. MAXIMUM SERVICE LENGTH IS 100' TO METER.
6. CASING PIPE I.D. SHALL BE SERVICE O.D. PLUS 1" MINIMUM.
7. MINIMUM BEND RADIUS ON SERVICES SHALL BE 14". ON ALL SERVICES BEHIND METER.
8. METER SIZE WILL BE DETERMINED BY PUBLIC UTILITIES DEPT. UPON APPLICATION FOR SERVICE.
9. ALL VALVES TO BE BALL VALVES.
10. METER BOX SHALL BE PROVIDED AND INSTALLED BY CONTRACTOR.

TYPICAL SERVICE CONNECTION PW 9.1a

SECTION 02850
UNDERGROUND SPRINKLER SYSTEM

PART 1 - GENERAL

1.01 SCOPE

A. The Contractor shall provide all labor, materials and equipment necessary to construct an irrigation system complete with ditching, piping, manual valves, sprinklers, cleaning and testing. All materials shall be new. If a conflict arises between Drawings and Specifications, the Specifications shall govern.

1.02 WORK INCLUDED

A. Sprinkler heads.

B. Valves and associated accessories.

C. Excavation, installation of system to water source, testing, and backfilling.

1.03 RELATED WORK

A. Section 02220: Trenching, Backfilling and Compacting.

B. Section 02260: Finish Grading.

C. Section 02661: Water Mains

D. Section 02640: Valves, Cocks and Appurtenances.

1.04 WARRANTY AND GUARANTEE CERTIFICATE

A. The Contractor shall furnish a Certificate of Warranty registration and a guarantee of workmanship and materials for a one (1) year period from the date of final acceptance of the system. Final payment for the system shall be contingent upon receipt of this certification by the Owner.

1.05 OPERATING AND MAINTENANCE DATA

A. The Contractor shall submit data in accordance with Section 01340.

B. Provide instructions covering full operation, care and maintenance of system and controls, and manufacturer's parts catalog.

C. Include schedule showing length of time each valve is to be open to provide determined amount of water.

D. Instruct Owner's designated maintenance personnel in proper operation of system, including adjusting of sprinkler heads.

1.08 PROTECTION

A. Protect trees, shrubs, lawns, structures, and features installed or remaining as part of landscaping, from damage.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Buckner

B. Safe-T-Lawn

C. Rainbird

2.02 MATERIALS

A. Pipe:

1. Polyvinyl Chloride Pipe: polyvinyl chloride pipe and fittings shall be rigid high impact Type 1, Schedule 80, meeting commercial standards CS-207-60; and physical characteristics shall conform to the latest ASTM Specifications D-256, D-696, D-785, D792 and D-1599. Fittings shall be compatible with the pipe.
   a. The jointing and installation of polyvinyl chloride pipe and fittings shall conform to the manufacturer's recommendations. All PVC joints shall have clean solvent welds except; those threaded connections shown.
   b. PVC pipe under pavement shall be in sleeves constructed of Schedule 40 galvanized sleeve prior to placement of the sleeve. The encased PVC irrigation line shall be capped on both ends to prevent foreign materials from entering the pipe.
   c. Pipe sleeves shall extend not less than 12 inches beyond the curb line into the planting areas. The PVC irrigation lines shall extend not less than two (2) feet into the planting areas. All sleeves shall have minimum

cover of twenty-four (24) inches. The ends of all sleeves shall be marked and flagged to prevent them from being lost during construction.

d. Valves and Boxes: see Section 02640

PART 3 - EXECUTION

3.01 PREPARATION

A. Piping layout indicated on Drawings is diagrammatic. Reroute around plants and structures.

B. Ensure sleeves are installed under paving.

3.02 TRENCHING

A. Trench for sprinkler system to ensure proper grades and slopes to drain points.

B. Keep trenches free of debris, material, or obstructions that may damage pipe.

3.03 INSTALLATION

A. Install piping, valves, controls, and sprinklers in accordance with manufacturer's written instructions.

B. Provide for thermal movement.

C. Set sprinkler heads and box covers to finished grade.

D. Use threaded Schedule 80 nipples for risers to each outlet to facilitate easy replacement.

E. After piping is installed and before sprinkler heads are installed and backfilling commences, open valves and use full head of water to flush out system.

F. Backfill sprinkler system as specified in Section 02220.

G. Replace plantings or structures damaged by installation o sprinkler system.

H. Mark locations of all buried valves with a five (5) foot section of three (3) inch concrete filled PVC Pipe set vertically so that three (3) feet extends above finish grade.

3.04 CLEANING AND TESTING OF SYSTEM

A. Prior to installing irrigation heads, the lines shall be thoroughly flushed with water to remove all stone and sand particles from the system. Threaded caps shall be installed on all risers, beginning with one closest to the water source and working out to the end of all lateral lines. Backfilling of the trench may begin at this time; however, all pipe joints and riser connections shall be left exposed for leakage testing. At the direction of the Engineer, all heads within a representative portion of the system shall be capped and the following hydrostatic leakage tests shall be performed.

B. The pressure required for hydrostatic pressure tests shall be 100 pounds per square inch. The Contractor shall provide temporary plugs and blocking necessary to maintain the required test pressure. Corporation cocks at least 3/4 inches in diameter shall be provided at each pipe dead end in order to bleed air from the line. The cost of these items shall be included as part of testing.

C. Pipe lines shall be filled with water, all air shall be removed, and a pressure of 100 pounds per square inch shall be maintained in the pipe for a period of not less than two (2) hours by means of a pressure pump. Accurate means shall be provided for measuring the water required to maintain this pressure. The line water loss when tested under a pressure of 100 pounds per square inch, shall not exceed 60 gallons per 24 hours per inch diameter per mile of pipe. All leaks at exposed joints, and all leaks evident at the surface where pipe is covered shall be repaired, regardless of total leakage, as shown by test. Lines which fail to meet tests shall be repaired and re-tested as necessary until test requirements are met. Defective materials, pipes, valves and accessories shall be removed and replaced at no cost to the Owner.

3.05 WATERING PERIODS AND APPLICATION RATES

A. All sections of the irrigation system are to provide the landscaped areas with 1.5 inches of water per week. Each system should be run every other day; however, during the first month after planting, the sprinkler system should be operated every day to ensure establishment of the plants.

3.06 SPARE PARTS

A. The following items shall be provided:

1. Two extra sprinkler heads of each size and type for each twenty (20) heads installed.

2. Two valve keys for every ten (10) manual valves.

3. Two keys for valve markers.

4. Two wrenches for each type of head core, and for removing and installing each type of head.

END OF SECTION

SECTION 02900
LANDSCAPING

PART I - GENERAL

1.01 DESCRIPTION OF WORK

A. The extent of the work is shown on the drawings and described in these specifications. The Contractor shall provide all plant materials, soil, mulch and equipment and labor necessary to install the landscaping indicated on the drawings and as described in these specifications. Contractor is also responsible for the fill and grading needed for the creation of the landscape berm.

B. All landscaping shown therein shall be installed in compliance with the Florida Department of Transportation "Manual of Uniform Minimum Standards for Design, Construction, and Maintenance for Streets and Highways" and the "Manual of Traffic Control Safe Practices for the Streets and Highway Construction Maintenance and Utility Operation."

1.02 WORK NOT INCLUDED

All work indicated on the plans is the responsibility of the Contractor. No work has been deleted or assigned to others.

1.03 STANDARDS

A. All plant materials shall conform to the grades and standards for Florida No. 1 or better, as established in the most recent edition of "Grades and Standards for Nursery Plants", Part I & II, Florida Department of Agriculture.

B. All plant material shall be grown and installed in accordance with good horticultural practices. The stock, free of disease, insects, eggs, larvae and defects such as knots, sun-scald, injuries, abrasions or disfigurement.

C. The City reserves the right to reject any materials that do not meet drawing or specification requirements.

D. All trees, shrubs and ground covers must be planted with a 4 foot minimum off-set from the face of the curb.

1.04 SUBSTITUTIONS

A. If a plant is found not to be suitable or available, the Landscape Contractor is to notify the City's Representative prior to bidding.

B. The City's Representative is then required to select an alternative and to inform all prospective bidders of the approved alternate.

C. All plant materials shall conform to the sizes indicated on plans. If materials cannot be located at the specified sizes, this information must be indicated on the plant materials estimated quantities bid sheet. The ability of other bidders to provide the materials at the sizes specified will generally be given favorable consideration over a bidder who cannot provide materials requested.

1.05 QUANTITIES

All quantities indicated on the plant list are intended as a guide for bidders. All bidders must, however, submit their bid based on the estimated quantities sheet in the bid package. Any discrepancy found shall be resolved after the award of bid and adjusted based on unit prices.

1.06 EXISTING CONDITIONS

A. The Landscape Contractor shall notify all utility companies prior to construction to locate all underground utilities. The Contractor shall perform work in such a manner to protect and avoid damage to said utilities. Contractor shall call the following numbers 48 hours prior to digging for any installation work:

Sunshine State One Call Center	1-800-432-4770
City of Delray Beach	407- 243-7300

B. The Contractor shall protect all lawns and existing site conditions unless otherwise noted on plans or previously approved in writing by the property owner or City's representative.

C. When conditions detrimental to plant growth are encountered, such as fill, rubble, drainage problems or other obstructions, the contractor shall notify the City's Representative before planting.

D. The Contractor shall not be held responsible for concealed contingencies such as, but not limited to, rock, water, clay pan or other obstacles encountered in excavation that were not apparent at the time of bidding.

E. Street lighting or other utilities that may impact ultimate plant materials locations shall be brought to the attention of the City's Representative. Field adjustments shall be approved by the City prior to planting.

PART 2 - PRODUCTS

2.01 PRODUCTS & MATERIAL

A. Topsoil: shall be composed of 50% peat moss, 30% muck, and 20% sand. Soil shall be well mixed, friable, free of subsoil, brush, weeds, litter, roots, stumps and stones larger than 2" and other extraneous or toxic materials harmful to plant growth.

B. Mulch: shall be shredded Cypress or Malaleuca mulch which shall be clean, fresh, free of branches and other foreign matter. Mulch shall be used around all shrubs, ground covers and tree trunks and placed to a minimum depth of 3 inches.

C. Wood tree stakes: shall be pine wood.

2.02 PLANT MATERIALS

A. Container grown stock shall have been grown in a container long enough for the root system to have developed sufficiently to hold its soil together.

B. All plant materials shall be nursery grown unless otherwise specified. Pruning shall be done before planting or during planting operations.

C. All plant materials in transit shall be covered with burlap or similar cover to keep from drying out.

D. State nursery inspection certificates shall be furnished to the City's Representative upon request.

PART 3 - EXECUTION

3.01 SITE PREPARATION

A. The finished grade shall be established by the Landscape Contractor prior to the installation of plant materials and sod. Relative to sod laying, rough grades shall be established adjacent to curb lines, sidewalks or roadways so that the sod is flush or slightly below these areas.

3.02 PLANTING PROCEDURES

A. Planting pits shall be dug large enough for the proper setting of the rootball (a minimum of one foot wider than the rootball for shrubs and 2 feet wider for trees) and deep enough to permit the rootball to rest at the same grade at which it was grown or slightly higher.

B. Plants shall be set straight in the center of the pit with the most desirable side facing the prominent view.

C. The planting pit shall be backfilled with topsoil according to the specifications.

D. Tamp soil half way through backfilling to remove air pockets; finish backfilling and water thoroughly.

E. All trees shall be staked using sound horticultural methods; guy wires shall be flagged.

F. All plant materials shall be fertilized at the time of planting at application rates following manufacturer's specifications.

3.03 CLEAN-UP

A. During planting, all areas shall be kept reasonably clean and neat.

B. Upon completion, all debris and waste materials resulting from planting operations shall be removed from the project and disposed of legally.

3.04 WATER

Water for plant materials installation will be available within the medians via a hose bib connection from the irrigation system.

3.05 MAINTENANCE

A. It shall be the responsibility of the Landscape Contractor to maintain the planting areas until acceptance of substantial completion. Maintenance shall include, but not be restricted to watering, weeding, mowing, pruning, cultivating, spraying for insects and

disease, removal of dead materials, and adjustment of stakes and/or other necessary maintenance procedures.

B. After acceptance for substantial completion the Landscape Contractor shall be responsible during the six month warranty period to ensure that all plant materials are being adequately watered.

3.06 LANDSCAPING GUARANTEE

A. The Contractor, as part of this contract shall guarantee all materials, workmanship and plant materials for a period of six months from the date of the acceptance for substantial completion. The Contractor shall notify the City's Representative upon completion of the guarantee period in order to schedule the final inspection and acceptance under this contract.

B. All plant materials shall be alive and in a vigorous growing condition at the end of the guarantee period.

C. Any plant materials that are rejected for failure to meet specifications shall be replaced within two weeks of rejection. A new warranty period shall begin upon replacement and acceptance by the City.

D. The Landscape Contractor shall be responsible during the six month warranty period to inform the City of any maintenance deficiencies verbally to avoid and delays in needed maintenance, which shall be followed up in writing.

E. The Landscape Contractor shall not be responsible during the guarantee period for damages resulting from natural causes such as floods, lightning, freezing rain or winds over 60 miles per hour, nor will he be held accountable for acts of negligence on the part of the owner, or fires, or vandalism unless insurance required under this contract covers this damage or loss.

F. All replacements shall be plants of the same kind and size as those specified in the plant list. They shall be furnished and planted as specified herein at no additional cost to the owner.

END OF SECTION

SECTION 16010
ELECTRICAL SYSTEMS

1.1 GENERAL

A. Related Documents:

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1-Specification sections, apply to work specified in this Section.

B. Scope:

1. These Specifications and accompanying working drawings contemplate furnishing and installing of all materials, equipment, supplies, and labor required for the complete performance of all operations relating to the electrical work.

2. The contractor will be held responsible for the complete and satisfactory accomplishment of all work under this section, along with the procedures and formalities outlined in the Instructions to the Bidders, General Conditions, Special Conditions and Addenda.

3. Before bidding any work, the Contractor shall examine the site and make such measurements and adjustments as may be required for his work.

4. For work required if temporary heat is provided, refer to Special Conditions.

   a. Dimensions and Definite Locations:

   1. Drawings depicting electrical work are diagrammatic and show approximate locations of all electrical equipment. Exact locations of equipment shall be established in the field and coordinated with the Engineer.

C. Maintenance and Guarantee:

1. Conditions:

   a. Guarantee all work, materials, and apparatus for one (1) year from the completion and acceptance of the project and keep same in repair for said period, including all repairs required to keep system in good working

order.

2. Temporary Service:

a. Temporary electrical service shall be provided by this Contractor.

D. Materials and Equipment:

1. Materials and equipment by manufacturers other than those specifically named will be considered by the Engineer if such substitute items are equal in quality, dimension and performance.

3.1 EXECUTION

A. Openings, Cutting and Patching:

1. Electrical Contractor shall be responsible for all cutting, patching, and grouting of openings required for his work.

2. Closure of all openings to match fire rating and finish

B. Equipment Wiring:

1. Wire complete all equipment indicated on plans. Exact location of outlets and boxes to be determined in the field from manufacturer's equipment cuts. Verify electrical characteristic requirements prior to connecting equipment.

C. Cleaning:

1. Clean all lighting fixtures:

a. At time of handling and at completion of building, if required, wash and wipe clean all glassware, plastic shades, shield, and all surfaces which may have become soiled from handling. Also repair or clean ceiling and wall surfaces which may have become damaged or soiled, due to this installation and as a directed by the Engineer.

2. Construction Requirements:

a. Locations of conduit, boxes, outlets, appliances, etc. as shown on drawings, are approximate only, are understood to be subject to such revisions as may prove necessary or desirable at time work is installed. Each Contractor will be required to install his work with relation to existing building conditions; entirely responsible for correctness of his work with reference to finished elevations, etc. Exterior utilities shown on drawings are diagrammatic only, their exact locations, depths, elevation, be as required for coordination with other trades, and utility companies

b. Drawings show arrangement of conduit, devices. Should local conditions necessitate any rearrangement, or if work can be installed to better advantage in different manner, Contractor shall, before proceeding with work, prepare, submit five (5) copies of drawings of proposed arrangement for Engineer's review.

c. If Contractor proposes to install equipment requiring space conditions other than those shown, or to rearrange equipment, he shall assume full responsibility for rearrangement of space, shall have Architect review change before proceeding with work. Request for such changes, accompanied by shop drawings of space in question.

d. Each Contractor is responsible for proper location, size of slots, joles or openings in building structure pertaining to his work, for correct location of pipe sleeves.

e. Each Contractor shall so harmonize his work that of several other trades that it may be installed in most direct, workmanlike manner without hindering or handicapping other trades. Piping, conduit interferences, handles by giving precedence to pipe lines which require stated grade for proper operation. Sewer lines shall take precedence over water lines in determination of elevations. In all cases, lines requiring stated grade for their proper operation shall have precedence over electrical conduit, ductwork.

d. Devices, parts of equipment requiring adjustment, easily accessible.

END OF SECTION

SECTION 16120
WIRE AND CABLES

1.1 GENERAL

A. Related Documents:

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 - Specifications sections, apply to work specified in this Section.

2.1 PRODUCTS:

A. Conductors:

1. All conductors shall be copper, except where aluminum is specifically noted. Wire sizes for branch circuit home runs exceeding 75 feet shall be increased one size (AWG) for each 75 feet. of run.

B. Conductor Insulation:

1. Feeders and subfeeders - type THW or THHN
2. Motor Feeders - Type THW or THHN
3. Branch circuits within building - type TW
4. Branch circuits underground - type THW

3.1 EXECUTION

A. Installation of Conductors:

1. Do not draw conductors into raceways until all work of a nature which may cause injury to conductors is complete. Dry and clean inside of raceway before conductors are pulled. Exercise care in pulling to avoid damage to conductors. Use lubricants for pulling conductors. Tag all main feeder cables in pull boxes, wireways, and wiring gutters of panels. Identify wire or cable circuit number

and/or piece of equipment served with tags of noncombustible material Color code all conductors in accordance with NEC 210-5.

B. Connectors:

1. Conductors #8 AWG and smaller - pressure indent type applied to conductor by mechanical crimping. Pressure or spring connectors "Scotchlok" or equal, applied to conductors after twisting together. Conductors #6 and larger - bolted pressure type with minimum of two bolts.

C. Aluminum and Cable Installation

1. Where aluminum or copper-clad aluminum wire and cables are indicated on the plans and in these specifications, the conductors shall bear the UL marking.

2. Conductor sizes shall be as noted on the plans. Conductor and cable insulation shall be as noted..

3. Splices and terminals shall be made in an approved manner with connectors specially designed and approved for use with aluminum conductors.

4. All conductor ends shall be stripped of insulation carefully to avoid nicking the metal. Approved types of oxide-inhibiting compounds containing abrasive conducting particles shall be applied to the conductor and shall thoroughly penetrate spaces between strands.

5. Where bolted, pressure-type connectors are used, they shall be specially designed for use with aluminum conductors and shall be drawn up tight to manufacturers recommendations.

6. Where high-compression-type connectors are used, they shall be of a high type specially designed and approved for use with aluminum conductors. They shall be of exact size to fit the conductors and shall be installed with approved hydraulic tools to bring uniform pressure on all sides of the joint and assure a permanent high-conductivity connection.

7. Where connections are made between aluminum and copper (two dissimilar metals), provision shall be made to prevent electrolytic action, and all connectors used for this purpose shall be approved types.

END OF SECTION

SECTION 16530
LIGHTING FIXTURES, EXTERIOR

1.1 GENERAL

A. Related Documents:

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 - Specifications sections, apply to work specifications in this Section.

B. Description:

1. Provide lighting, raceways, wire and switches (controls) for all exterior walkway, site, parking and building lighting as shown on the plans.

C. Quality Assurance:

1. All fixtures to be **NEMA** rated and **UL** approved.

D. Conflicts:

1. Construct nothing in these contract documents as permitting or directing violations of these referenced codes and regulations. If work as laid out, indicated or specified is contrary to or conflicts with regulations, Subcontractor is to report same to Architect before submitting bid. Architects will then issues instructions as to procedure. If Subcontractor fails to notify Architect of conflicts or omissions noted above, all changes required to comply with ordinances and regulations shall be made by Subcontractor without additional expense to Owner.

E. Field Measurements:

1. Verify all field dimensions and locations of equipment, to insure close neat fit with other trade' work.

2. Coordinate and install this Division's work in proper sequence with and cooperation with all other trades, to insure that total work is completed within contract time schedule.

3. Locate all apparatus symmetrical with architectural elements. Install to exact height and locations, when shown on engineering drawings.

4. In other instances, locations of equipment and conduit will be shown on electrical drawings in certain positions; then be guided by engnineering details and conditions existing at job, correlating this work with that of others.

5. Carefully examine any existing conditions, conduit and premises, and compare drawings with existing conditions. Notify Architect of any observed discrepancies, who will issue equitable written instructions resolving observed discrepancies.

G. Submittals:

1. Manufacturer's data sheets required on each fixture type.

2.1 Products

A. Refer to fixture schedule on the plans for acceptable producers.

1. Fixture Wire.

a. Type AF, except outdoor locations including roofed areas otherwise exposed to weather.

2. Lenses.

a. Of tempered glass, unless scheduled otherwise.

3.1 EXECUTION

A. Where a fixture type is not designated on electrical drawings or schedule, install the fixture type used in similar locations.

B. Protect all fixtures and lamps, and replace broken parts, including those for temporary lighting system.

C. Clean all lenses and louvers after all trades have completed their work in each area, or install no lenses and louvers before that time.

END OF SECTION

ADDENDUM NO. 1
TO
CONTRACT DOCUMENTS

DELRAY SWIM & TENNIS CENTER MASTER PARKING LOT (West)
CITY OF DELRAY BEACH PROJECT NO. 2006-011
RE-BID No. 2008-10

November 6, 2007

TO ALL BIDDERS AND OTHERS CONCERNED

Contractors submitting proposals for the above-referenced project shall take note of the following changes, additions, deletions clarifications, etc., to the Plans and Specifications which in accordance with the Contract Documents shall become a part of and have precedence over anything shown or described otherwise.

NOTE: Bidders must acknowledge Receipt of this Addendum by:

1. On Page P-1 write "No. 1, 11/20/07"
2. On Page A-7, Part 10.20 write "1 to 1"
3. Write the words "Addendum No. 1" on the exterior of the envelope in which the bids are submitted

Sincerely Yours,

Begoña Krane
Engineer

PLEASE ACKNOWLEDGE RECEIPT OF ADDENDUM NO. 1 BY SIGNING BELOW AND FAXING BACK TO (561) 243-7166 AS SOON AS POSSIBLE.

_____
Plan holder

_____
By

_____
Date

I. QUESTIONS/COMMENTS DURING MEETING

Description: This addendum is issued to answer the following questions asked at the pre-bid meeting held on October 25, 2007.

Question #1: there was some concern that the 45 calendar days time for the construction of the parking lot is not sufficient, a contractor ask if we can change the contract to 60 calendar days time.

Answer #1: We cannot extend the total contract duration; Bidder agrees that the Work will be substantially completed within _45_ calendar days after the date when the Contract Time commences to run, and completed within _15__ calendar days after the date of Substantial Completion. The Lighting Material can be purchased upon contract execution, and the installation of lighting will be finished after materials have arrived. The contract will be suspended after the parking lot overlay, landscaping and lighting conduits are done. Once lighting materials have arrived contract time will resume and lighting work should be substantially complete within the 45 calendar days, and 100% complete within 60 calendar days.

Question #2: One of the contractors asked if the electrical plans still in the contract, because no electrical plans were included in the bid package.

Answer #2: Yes, electrical plans are included in the bid, and I sent electrical plans to the offices of purchasing on October 25, 2007.

Question #3: One of the contractors asked if the 8" base rock thickness could be increased in order to eliminate subgrade stabilization requirements.

Answer #3: Yes, it is possible to go from 8" base to 12" and then install a compacted subgrade.

Question #4: One of the contractors asked if the City could order the light poles for the project.

Answer #4: No, The City is not going to order the light poles for the project.

END OF ADDENDUM No. 1