

SECTION 32 90 00

LANDSCAPE PLANTING

PART 1 - GENERAL

1.1 WORK INCLUDED:

- A. Furnish all materials, labor, supervision, supplies, transportation, equipment, etc. necessary to complete the work in strict accordance with these specifications, schedules, and drawings. Work to include (but shall not be limited to):
 - 1. Finish grading.
 - 2. Bed preparation.
 - 3. Planting (trees, shrubs, groundcover, annuals, and lawn).
 - 4. Maintenance until final acceptance.
 - 5. Guarantee and replacements as necessary.

1.2 REQUIREMENTS OF REGULATORY AGENCIES:

- A. Meet the requirements and recommendations of the applicable portion of the following standards:
 - 1. Standardized Plant Names: 1942 Edition, American Joint Committee on Horticulture Nomenclature.
 - 2. American Standard for Nursery Stock: 1986 Edition, American Association of Nurserymen.

1.3 APPROVAL:

- A. Wherever the terms approve or approval are used in these specifications, they shall mean the approval of the Owner/Owner's Representative and/or Landscape Architect (to be noted as Owner/Landscape Architect throughout remainder of these specifications).

1.4 PRODUCT HANDLING:

- A. Deliver plants to site at the time of planting. Do not deliver more plant materials than can be installed in one day unless proper care and storage are provided.

1.5 SUBMITTALS:

- A. Notify Landscape Architect of proposed sources of plant materials and bed preparation materials within the (10) days of acceptance of bid.
- B. Submit one representative of each type of tree, shrub, and groundcover in specified sizes for approval as requested by the Landscape Architect prior to installation. Any material not matching approved submittals will be rejected by Landscape Architect.

1.6 SITE CONDITIONS:

- A. All landscaped areas will be accepted at grades approximately one-tenth of one foot from finished grade (unless otherwise indicated on the landscape plans), free of rocks, clods, debris, etc. greater than 2" in diameter.
- B. Owner shall be responsible for all rental, labor, and overhead costs when, in the process of installation, said costs are necessitated by buried or partially buried rock, debris, or other obstacles. Landscape Contractor shall notify Owner/Landscape Architect upon discovery of buried rock or debris for instruction regarding site changes or change order to contract.

- C. Contractor shall determine location of all underground utilities and shall perform work in such a manner as to avoid possible damage. If required, hand excavation shall be used to minimize possible damage.
- D. Coordinate all landscape work to prevent possible damage to underground irrigation system. Any damage shall be repaired immediately as not to adversely affect newly installed landscape materials.

1.7 ENVIRONMENTAL CONDITIONS:

- A. Conduct all planting operations in favorable weather and soil conditions during the seasons normal for such work as determined by the Landscape Architect.

1.8 COORDINATION:

- A. Landscape Contractor shall coordinate his work with the other trades and professions on the job site in accordance to scheduling guidelines as provided by the Owner/Landscape Architect. The Landscape Contractor shall not start or resume work if there is danger of his work being damaged or destroyed by the work of other trades or professions in normal pursuit of their trades. The Landscape Contractor shall notify the Landscape Architect at the time of planting of any conditions not shown on the plans which make any adjustments necessary.

1.9 MAINTENANCE:

- A. Water to be available for use on the site. Provide hoses and other water equipment as required at no cost to the Owner.
- B. Maintain all trees, shrubs, groundcover, and lawn areas until final acceptance by Owner/Landscape Architect.
- C. Maintenance shall include (but shall not be limited to) watering, weeding, cultivation, pruning, spraying, mowing, edging, and clean-up as necessary to sustain the landscape in a vigorous and healthy condition until final acceptance.
- D. Owner assumes responsibility for maintenance upon final acceptance.

1.10 GUARANTEE:

- A. Landscape Contractor shall guarantee all shade trees for a period of one (1) year from date of final acceptance. All ornamental trees, shrubs, groundcover, and annuals shall be guaranteed for a period of ninety (90) days from date of final acceptance.
- B. All replacements shall be of the same type and size as original materials. Replacements shall carry same guarantee as original material, effective on date of replacement planting.
- C. At Owner's/Landscape Architect's approval, all native B&B shade trees may be replaced at the start of the next years digging season. In such cases, all dead material is to be removed immediately.
- D. Any damage, including ruts in lawn and bed areas, incurred during the replacement process shall be repaired immediately at no cost to the Owner.
- E. Guarantee excludes replacements of plants due to damage caused by flooding, freezing, freezing rain, hail, sleet, lightning storms, winds over 60 MPH, or other Acts of God, vandalism, and/or Owner's neglect.
- F. Hydromulch areas: maintain and guarantee until a coverage rate of 95% of the specified grass is established. Re-seed as often as necessary to establish a 95% coverage.
- G. Sod areas: guarantee sod to root within thirty (30) days after installation. Replace all patches twelve (12) inches square or larger with new sod as often as necessary to establish a 100% living coverage.

1.11 INSPECTION AND FINAL ACCEPTANCE:

- A. Each phase or total project shall be inspected for final acceptance by the Owner and/or Landscape Architect within ten (10) days after written notification of anticipated completion of the Landscape Contractor's work.
- B. After inspection, the Landscape Contractor will be notified in writing of acceptance or of further punch-list requirements needed for completion and final acceptance.
- C. All plants to remain the property of the Landscape Contractor's until final acceptance.

PART 2 - MATERIALS

2.1 PLANT MATERIALS:

- A. Quality and size of plant material: healthy, well-branched, normally shaped, vigorous, free of disease and insect pests, well-developed, and true to botanical name and specified size.
- B. Earth balls: loose or broken balls will be rejected. Tree balls shall be a minimum of nine (9) inches in diameter for every one (1) inch of caliper.
- C. Caliper all trees six (6) inches above ground level. Specified plant heights are to be from top of root ball to nominal top of plant. Spread requirements refer to the body of the plant, not branch tip to branch tip. Material furnished shall be a fair average between the minimum and maximum sizes specified. Contractor may, at his option, supply oversized plants at no additional cost to the Owner.
- D. Do not make substitutions. If specified plant material is not available, submit letter stating nursery sources investigated, together with proposal for use of equivalent material. No substitutions shall be permitted except by written permission from Owner/Landscape Architect.
- E. In case of discrepancies in quantities between plant list and landscape plans, the plans shall govern.

2.2 SOD:

- A. Grass shall be the specified grass (refer to plans for grass type) and shall be vigorous, well-rooted, healthy turf, free from disease, weeds, stones, and other harmful deleterious matter.
- B. Sod shall be machine stripped and delivered at a uniform soil thickness.

2.3 HYDROMULCH:

- A. Seed shall be hulled, treated lawn-type seed, delivered to the site in original sealed, standard containers labeled in accordance with Texas State Seed Laws. Minimum purity germination shall be 90%.
- B. Fertilizer shall be a complete fertilizer, dry, free-flowing, and balanced in composition. It shall be delivered to the site in unopened containers, bearing the manufacturer's statement of analysis, and shall conform to all State fertilizer laws.
- C. Mulch shall be an approved, finely textured compost.
- D. Tacking agent shall be delivered to site in original unopened containers and shall be "Terra Tack-One" or approved equal. Tacking agent to be used on slopes 3:1 or greater.

2.4 BED PREPARATION MATERIALS:

- A. Organic material shall be one of the following materials (or a submitted and approved equal):
 - 1. Vital Earth compost.
 - 2. Back-to-Earth Soil Conditioner.
 - 3. Living Earth Compost.
 - 4. Soil Building Systems compost
 - 5. Silver Creek Materials compost
- B. Mulch topdress shall shredded native cedar in bags or bulk.
- C. Organic fertilizer shall be Garden-Ville Soil Food, Greensense, Nature's Guide, Total Organics or approved equal.
- D. Topsoil shall be fertile, dark topsoil, free of rubble, stones, limbs, plant roots, and reasonably free of weeds.
- E. Sand shall be clean, washed, fine to coarse sizes.

2.5 MISCELLANEOUS MATERIALS:

- A. Steel edging shall be 1/8" thick X 4" width Ryerson Estate Edging painted green, or approved equal.
- B. Tree staking and guying: if applicable, refer to landscape details.
- C. Tree wrap shall not be used. To prevent sunscald a wash of 50% latex may be applied.

PART 3 - EXECUTION

3.1 PREPARATION FOR PLANTING OPERATIONS:

- A. Landscape Contractor is to inspect all existing conditions under which work is to be installed and shall notify Landscape Architect of any unsatisfactory conditions. If no problems are present, notify the Landscape Architect before proceeding.
- B. Re-stake individual trees / shrub bed locations as indicated on the landscape plans for approval by Owner/Landscape Architect prior to start of planting (initial location staking shall be done prior to installation of irrigation system). Make adjustments as directed.

3.2 PLANTING INSTALLATION:

- A. Excavation:
 - 1. Shade tree pit size shall be 3 times greater in diameter than that of the tree ball and the depth shall be equal to just less than the height of the tree ball.
 - 2. Ornamental tree pit size shall be 3 times greater in diameter than that of the tree ball and the depth shall be equal to the height of the tree ball.
 - 3. Shrub pit sizes shall be 3 times greater in diameter than that of the container size and 3" deeper than the height of the shrub ball.
 - 4. Set all plants straight and plumb and to the same relationship to finish grade as they had to the ground from which they were dug. Allow for future settling.
- B. Pruning of all plant material shall be limited to removal of injured twigs or branches or to compensate for the loss of roots from transplanting. Pruning shall be done so as not to change the

natural shape of the plant. All cuts to be typical to standard industry practices. Make no flush cuts and use no pruning paints.

C. Tree pit backfill shall be performed as follows:

1. Backfill with the existing native soil only.
2. Water in each tree with hoses to eliminate air pockets.
3. Fertilize with compost tea or Garrett Juice.
4. Do not build water retention rings around each tree
5. Taper the topdressing mulch from ½" at the tree trunk to 3-5" (depending on the tree size) at the outside edge of the tree hole.
6. Excavated material should be used on-site.
7. No staking is to be used on trees. Problem trees should be held in place with Tree Staples or approved equal.
8. No tree wrapping is to be used. Paint wash of 50% latex paint to match bark color and 50% water can be used to prevent sunscald if necessary.

D. Shrub pit backfill (for pit-planted materials as noted on plans) shall be performed as follows:

1. Use same procedure as noted in 3.2.C.1-6.

E. Shrub and groundcover bed preparation shall be performed as follows:

1. Excavate beds as follows:

Groundcover bed subgrade shall be 2" below adjacent finish grades.
Shrub bed subgrade shall be 3" below adjacent finish grades.

2. Till bed subgrade to a depth of 4-6".
3. Add to be areas the following soil mix at the following depths and till into subgrade:

Groundcover beds - 2" depth of compost
Shrub beds - 3" depth of compost

4. Topdress entire bed area with one (1) inch mulch.
5. Use all excavated material off-site.

3.3 EDGING:

- A. Set edging one (1) inch above finish grade.
- B. Install all edging straight and true as indicated on landscape plans. Where layout is curvilinear in design, maintain a constant radius.
- C. Align edging with site features as indicated on landscape plans.
- D. Bend all corners; do not cut.

3.4 HYDROMULCH INSTALLATION:

- A. Prior to hydromulching, the finish grade shall be brought to a firm, even surface. Landscape Contractor to rake areas smooth, removing all rocks, sticks, and other foreign materials greater than 1" diameter. Finish grade shall be accepted by Landscape Architect before installation.
- B. Hydromulch with a slurry mixture of Bermuda seed, fertilizer, and mulch as follows:
 - 1. Bermuda seed shall be applied at the rate of two (2) pounds per one thousand (1000) square feet.
 - 2. Fertilizer shall be applied at the rate of twenty (20) pounds per one thousand (1000) square feet.
 - 3. The mulch component shall be applied at the rate of fifty (50) pounds per one thousand (1000)square feet.
- C. Use 4' X 8' batter board along all concrete and bed areas.
- D. Keep hydromulch as moist as necessary to promote seed germination. Landscape Contractor to coordinate watering cycle with General Contractor and Irrigation Contractor as required.
- E. Landscape Contractor shall be required to mow turf a minimum of two (2) times, with initial mowing to be performed when grass reaches height of three (3) inches. Mow turf to a height of two and one-half (2 1/2) inches.

3.5 SOD INSTALLATION:

- A. Prior to sodding, the finish grade shall be brought to a firm, even surface. Landscape Contractor to rake all areas smooth, removing all rocks, sticks, and other foreign materials. Finish grade shall be accepted by Owner/Landscape Architect before installation activity.
- B. Sod is to be laid with staggered joints and with seams tightly fitted together.
- C. Sod shall be rolled smooth using a 150 lb. roller. Method of rolling is at the Landscape Contractor's option; however, method shall be subject to common practices and procedures.
- D. All sod shall be watered immediately after planting.

3.6 CLEAN-UP:

- A. During installation, the premises shall be kept neat and orderly at all times. All trash, including debris resulting from removing weeds or rock from planting areas, preparing beds, or planting plants shall be removed from the site daily as the work progresses.
- B. Upon completion of landscaping, all walks and drives will be swept and hosed off to give a clean appearance. All storage shall be cleaned and left in finished condition.

END OF SECTION

SECTION 33 10 00

WATER UTILITIES

PART 1 - GENERAL

- 1.1 RELATED CONDITIONS
 - A. Provisions established within the 00 72 00 General Conditions and 00 73 00 Supplementary Conditions, Division 1 - General Requirements, and the Drawings are collectively applicable to this Section.
- 1.2 SCOPE RELATED CONDITIONS: Work included in this section, while not all inclusive but listed as a guide, shall include:
 - A. Furnishing all labor, tools, materials, and incidentals required to complete the work.
 - B. Installation of water mains, service lines, appurtenances and connections to existing system.
 - C. Testing and sterilization of water system.
 - D. Clean up.
- 1.3 STANDARDS
 - A. Standards will as a minimum meet the requirements and recommendations of applicable portions of the standards listed. See Section 01 01 42 19 Reference Standards.
 - B. Meet requirements and recommendations of applicable portions of the Standards listed:
 - 1. City Standard Details and Specifications.
 - 2. North Central Texas Council of Governments (COG) Standard Specifications for Public Works Construction, Current Edition and Amendments.
 - 3. Texas Highway Department Standard Specification for Construction of Highways, Streets and Bridges, 1995 (THD).
 - 4. American Association of State Highway and Transportation Officials (AASHTO).
 - 5. American Water Works Associations (AWWA), Current Editions.
 - 6. American Society for Testing and Materials (ASTM), Current Edition.

PART 2 - MATERIALS

- 2.1 All materials shall conform to City specifications.

PART 3 - EXECUTION

- 3.1 GENERAL: The Contractor shall comply with all requirements of the City's Public Works Department Standards and Specifications regarding materials and installation of work specified herein.
- 3.2 EXCAVATION: The Contractor shall excavate all materials encountered regardless of the difficulties encountered. The ditch shall be no greater in width or depth than is necessary to permit construction in accordance with the Plans and these Specifications. The maximum width of trench at top of pipe without sheeting, shoring and bracing shall be not more than the external diameter of pipe plus 16 inches.

The Contractor shall determine the need for sheeting and bracing to safeguard the workmen. When sheeting and bracing are necessary the trench or excavation shall be dug to such width that proper allowance is made for the space occupied by the sheeting. All sheeting, shoring and bracing shall have sufficient strength and rigidity to withstand the pressure exerted and protect all persons or property from injury or damage. Sheeting, shoring and bracing endanger new or existing structures. All holes or voids left by the removal of sheeting shall be backfilled.

Soft, spongy or otherwise unstable materials which will not provide a firm foundation for the pipe shall be removed and replaced to the extent required by the City or Civil Engineer.

The material thus removed shall be replaced with suitable selected material from the excavation or other sources approved by the City or Civil Engineer, and shall be compacted as proved in these Specifications. When unstable conditions are not corrected by the above means, the Contractor shall be required to use crushed rock, gravel or concrete foundations. The type of foundation shall be determined by the City or Civil Engineer. There will be no extra compensation for this work.

- 3.3 **BEDDING:** The bedding for pipe shall provide a firm foundation of uniform density throughout the entire length of the pipe. Recesses for bells of the pipe shall be excavated for every joint and shall be of sufficient size and depth to relieve the bell of the load, permitting the barrel of the pipe to lay firmly throughout the entire length. The pipe positively will not be supported on blocks in order to raise the bell.

Earth bedding shall be used unless another type is designated on the Drawings. The pipe shall be placed on the natural undisturbed earth foundation which has been carefully shaped to fit the lower part of the conduit for not less than 1/4 of its circumference. When rock, shale or boulders are encountered in the trench, they shall be removed to a depth of six (6) inches below the grade lines and the trench shall be refilled with crushed rock, gravel or granular material up to the original grade and tamped into place. Bell holes will be required as above.

Other types of bedding and embedment shall be provided when designated on the Drawings.

- 3.4 **BACKFILL:** After the pipe has been installed and embedded as designated on the drawings, selected material from the excavation at optimum to -1 to 4% above optimum moisture content, shall be placed in layers not exceeding six (6) inches loose depth layers and compacted by approved methods to a density of not less than 95% standard proctor density.

3.5 **WATER MAIN CONSTRUCTION**

A. **WATER JETTING WILL NOT BE PERMITTED.**

- B. **Installing Ductile Iron (DI) Water Pipe:** Pipe shall be installed according to the Standard Specification and the manufacturer's recommendations.

Whenever necessary to deflect pipe from a straight line, either in the vertical or horizontal plane, to avoid obstructions, to plumb stems, or for other reasons, the degree of deflection shall not exceed that recommended by the pipe manufacturer.

No pipe shall be laid in water, or when the trench conditions or the weather is unsuitable for such work, except when approved by the City or Civil Engineer.

- C. **Installation of Gate Valves:** All Valves for the water distribution main shall be gate valves and shall be installed at the location indicated on the Drawings or as directed by the City or Civil Engineer. Valves shall be set with the stems true vertical. After valves have been installed and adjusted they shall be tested for operation under maximum operating pressure. Valve bases shall be installed so that covers are flush with the proposed finished ground surface.
- D. **Fire Hydrant Installation:** Fire hydrants shall be located as shown on the drawings, or as directed by the City or Civil Engineer and shall be set truly vertical.
- E. **Sterilization:** Sterilization of water mains and service lines shall be performed by the Contractor as required by the AWWA Standard Specifications. The Contractor will pay for all testing and sterilization.

END OF SECTION

SECTION 33 30 00

SANITARY SEWERAGE UTILITIES

PART 1 - GENERAL

- 1.1 RELATED CONDITIONS
 - A. Provisions established within the 00 72 00 General Conditions and 00 73 00 Supplementary Conditions, Division 1 - General Requirements, and the Drawings are collectively applicable to this Section.
- 1.2 SCOPE RELATED CONDITIONS: Work included in this section, while not all inclusive but listed as a guide, shall include:
 - A. Furnishing all labor, tools, materials, and incidentals required to complete the work.
 - B. Installation of sanitary sewer line, manholes and cleanouts.
 - C. Testing of sanitary sewer system.
 - D. Clean up.
- 1.3 STANDARDS
 - A. Standards will as a minimum meet the requirements and recommendations of applicable portions of the standards listed. See Section 01 42 19 Reference Standards.
 - B. Meet requirements and recommendations of applicable portions of the Standards listed:
 - 1. City Standard Details and Specifications.
 - 2. North Central Texas Council of Governments (COG) Standard Specifications for Public Works Construction, Current Edition and Amendments.
 - 3. Texas Highway Department Standard Specification for Construction of Highways, Streets and Bridges, 1995 (THD).
 - 4. American Association of State Highway and Transportation Officials (AASHTO).
 - 5. American Water Works Associations (AWWA), Current Editions.
 - 6. American Society for Testing and Materials (ASTM), Current Edition.

PART 2 - MATERIALS

- 2.1 All materials shall conform to City specifications.

PART 3 - EXECUTION

- 3.1 GENERAL: The Contractor shall comply with all requirements of the City of Public Works Department Standards and Specifications regarding materials and installation of work specified herein.
- 3.2 EXCAVATION: The Contractor shall excavate all materials encountered regardless of the difficulties encountered. The ditch shall be no greater in width or depth than is necessary to permit construction in accordance with the Plans and these Specifications. The maximum width of trench at top of pipe without sheeting, shoring and bracing shall be not more than the external diameter of pipe plus 16 inches.

The Contractor shall determine the need for sheeting and bracing to safeguard the workmen. When sheeting and bracing are necessary the trench or excavation shall be dug to such width that proper allowance is made for the space occupied by the sheeting. All sheeting, shoring and bracing shall have sufficient strength and rigidity to withstand the pressure exerted and protect all persons or property from injury or damage. Sheeting, shoring and bracing endanger new or existing structures. All holes or voids left by the removal of sheeting shall be backfilled.

Soft, spongy or otherwise unstable materials which will not provide a firm foundation for the pipe shall be removed and replaced to the extent required by the City or Civil Engineer.

The material thus removed shall be replaced with suitable selected material from the excavation or other sources approved by the City or Civil Engineer, and shall be compacted as proved in these Specifications. When unstable conditions are not corrected by the above means, the Contractor shall be required to use crushed rock, gravel or concrete foundations. The type of foundation shall be determined by the City or Civil Engineer. There will be no extra compensation for this work.

- 3.3 **BEDDING:** The bedding for pipe shall provide a firm foundation of uniform density throughout the entire length of the pipe. Recesses for bells of the pipe shall be excavated for every joint and shall be of sufficient size and depth to relieve the bell of the load, permitting the barrel of the pipe to lay firmly throughout the entire length. The pipe positively will not be supported on blocks in order to raise the bell.

Earth bedding shall be used unless another type is designated on the Drawings. The pipe shall be placed on the natural undisturbed earth foundation which has been carefully shaped to fit the lower part of the conduit for not less than 1/4 of its circumference. When rock, shale or boulders are encountered in the trench, they shall be removed to a depth of six (6) inches below the grade lines and the trench shall be refilled with crushed rock, gravel or granular material up to the original grade and tamped into place. Bell holes will be required as above.

Other types of bedding and embedment shall be provided when designated on the Drawings.

- 3.4 **BACKFILL:** After the pipe has been installed and embedded as designated on the drawings, selected material from the excavation at optimum to -1 to 4% above optimum moisture content, shall be placed in layers not exceeding six (6) inches loose depth layers and compacted by approved methods to a density of not less than 95% standard proctor density.

3.5 **SEWER MAIN CONSTRUCTION**

- A. **Pipe:** Pipe shall be protected during handling against impact shocks and free fall. The pipe shall not be dragged across a hard surface or rolled over sharp or rough objects.

Before being lowered into the trench, all sections of pipe shall be inspected for defects. Defective, damaged or unsound pipe shall be rejected. Laying shall begin at the lowest point with the spigot end pointing in the direction of flow. Pipe shall be laid accurately on the line and grade shown on the Drawings on bedding of the type shown on the Drawings.

Pipe sockets and barrel shall be clean and free from dirt at the time of jointing. The pipe shall be tightly butted together. All pipe shall be so laid that the contact in the joint between two lengths of pipe shall be uniform throughout the circumference of the joint. Curves in the alignment as indicated on the Drawings shall be made with standard pipe by pulling on the outside edge of the pipe away from the seat to make a smooth joint. Where curves are sharp, a standard or special made bend will be used. When the pipe has been checked for line and grade, enough backfill shall be placed on both sides of the pipe to hold it firmly in position.

Openings at the end of a day's work, openings in wyes, deep cut connections, laterals, cleanouts, etc., shall be capped and sealed water tight with G-K compound.

- B. **Wye Branches:** Wye branches for service lines shall be installed where shown on the Drawings. All Wye branches for service lines shall be six (6) inches in diameter unless otherwise shown on the Drawings. Cutting into the sewer main for connections will not be permitted. Wye branches for service lines shall be blocked before backfilling.
- C. **Manholes:** Shall be constructed as detailed on the Drawings. Bricks used in manhole construction shall be clean and thoroughly wetted shortly before they are laid. The flow channel shall be true to line and grade. It shall be troweled to a smooth, hard finish. Cast iron frames and covers shall be embedded in a full bed of mortar and shall have a full bearing with toe at the established grade. Precast manholes shall be constructed as shown on the drawings.
- D. **Cleanouts:** Shall be constructed with 27° Wye. A cast iron casting with "cleanout" printed on the cover shall be set over the top of the cleanout and set to the established grade.
- E. **Sewer Tests:** The Contractor shall include in his bid price all costs of required testing to complete the work.
- F. **Cleaning up:** Upon completion of the work covered by this Section, the Contractor shall clean up all work areas by removing all debris, surplus materials and equipment from site. The ground surface will be restored to its original position as nearly as possible.

END OF SECTION

SECTION 33 40 00

STORM DRAINAGE UTILITIES

PART 1 - GENERAL

1.1 RELATED CONDITIONS

- A. Provisions established within the 00 72 00 General Conditions and 00 73 00 Supplementary Conditions, Division 1 - General Requirements, and the Drawings are collectively applicable to this Section.

1.2 QUALITY ASSURANCE

- A. Meet requirements and recommendations of applicable portions of the Standards listed:
 - 1. City Standard Details and Specifications.
 - 2. North Central Texas Council of Governments (COG) Standard Specifications for Public Works Construction, Current Edition and Amendments.
 - 3. Texas Highway Department Standard Specification for Construction of Highways, Streets and Bridges, 1995 (THD).
 - 4. American Association of State Highway and Transportation Officials (AASHTO).
 - 5. American Water Works Associations (AWWA), Current Editions.
 - 6. American Society for Testing and Materials (ASTM), Current Edition.
- B. Should conflicts arise between standard specifications of government agencies mentioned herein and Contract Documents, the more stringent shall govern.
- C. Where a particular type of material or method is specified, no other material or method will be permitted.
- D. Balance of State Specifications apply.
- E. Compaction: Standard Proctor ASTM D698.
- F. Contractor will hire an independent soils laboratory to conduct in place moisture and density tests.

1.3 JOB CONDITIONS

- A. Verify locations of existing and new underground utilities.
- B. Protect existing structures and utilities from damage.
- C. Repair if damaged by this work.
- D. Lengths indicated on drawings are for information only.
- E. Furnish lengths as required.
- F. Perform no pipe work in fill areas until embankment or fill has been completed to at least 2 FT above top of pipe and has been properly compacted.
- G. Verification of existing utilities and structures.
 - 1. Plans indicate existing utilities as shown on site survey.
 - 2. Verify accuracy, location and depth of each utility prior to trenching or tunneling.
 - 3. If pipe adjustment is necessary due to location of other utilities, secure approval from Engineer.
- H. Revisions to Contract Drawings.
 - 1. If it becomes necessary to change location of storm drainage lines due to building construction, secure prior written approval from Architect.
 - 2. If Contractor initiated, make approved changes without added cost to Owner.
- I. Do not change pipe sizes without securing prior written approval from Architect.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Acceptable manufacturers:
 - 1. All pipe and fittings: Manufacturer who has produced pipe successfully used, for at least 5 years.
- B. Reinforced concrete culvert pipe (RCCP):
 - 1. Pipe and fittings: ASTM C76-79, Classes as indicated.
 - 2. Joints: Compression type.
 - a. With removable rubber gasket ASTM C443-79, or
 - b. With field applied preformed flexible pipe joint sealing compound: K.T. Snyder Co., Inc., RAM-NEK.
 - c. Install in accordance with manufacturer's recommendations.
 - 3. Sizes: As indicated.
- C. Corrugated metal pipe (CMP):
 - 1. Pipe: 16 GA AASHTO Designation M36.
 - 2. Jointing: Make field joints in corrugated galvanized metal pipe with connecting bands of same base metal as pipe; coat same as pipe.

3. Sizes: As indicated.
4. Fittings: Same as pipe.
- D. PVC plastic pipe:
 1. Bell and spigot: ASTM D1785, Schedule 40 or ASTM 3034 (SDR-35.)
- E. Lawn inlet: Provide as detailed.
- F. Gutter drain: Provide as detailed.
- G. Portland Cement: Shall be of a standard brand and shall conform to the latest ASTM Designation C-150 Type I.
- H. Mortar and Grout: Shall be composed of two parts fine aggregate and one part cement and mixed with water to produce a homogeneous mixture of such consistency that it can be easily handled and spread by trowel. Mortar and grout which has been retempered or has attained its initial set shall not be used.
- I. Aggregates for Concrete: Shall be considered as either fine or coarse and shall meet the requirements of Texas Highway Department Standard Specification Item 420.
- J. Concrete: Shall be composed of Portland cement, coarse aggregate, fine aggregate, water, mineral filler and/or admixtures if permitted by the Engineer. Concrete shall have a minimum compressive strength at 28 days of not less than 3600 psi, and slump from two (2) to five (5) inches. Measuring materials, batching, and mixing shall conform to ASTM Designation C94. Concrete: Class "A".
- K. Reinforcement bars: ASTM- 615-79, Grade 60.
- L. Manholes: Precast reinforced concrete, ASTM C478, risers, conical or eccentric sections, adjuster sections as required with cast-in-place concrete base slab.
 1. Diameter: 48 IN MIN.
 2. Wall thickness: 5 IN MIN.
 3. Use adjuster rings for top 6 to 18 IN.
 4. Compressive strength of concrete: 3600 PSI, MIN.
- M. Manhole frame end cover: Cast or ductile iron, ASTM A48, Class 30, minimum, free of imperfections, with machined horizontal surfaces.
 1. Total weight: 400 LB. MIN.
 2. Lid: Perforated, ventilated.
 3. Clear opening: 24 IN, MIN.
 4. Marking on cover: "STORM".
- N. Backfill material: As approved by Engineer.
 1. Obtained from project excavation and clear of all organic matter, rubbish, debris and other objectionable material, containing no rocks larger than 3 IN any dimension.
 2. Moisture content at time of placement - 1 to +3% of optimum moisture content, as tested in accordance with ASTM D698.
 - a. Wet dry material, as required.
 - b. Dry wet material, as required or:
 - c. Furnish off site material at no additional cost to Owner.
- O. Bedding material: Provide Type II bedding in accordance with State Specifications.
 1. Type II bedding to be Class 2 aggregate base, 3/4 IN maximum size; quality of bedding as per requirements of State Specifications.

PART 3 - EXECUTION

3.1 GENERAL

- A. The Contractor shall furnish all labor, tools, materials and incidentals required to complete the work.

3.2 EXCAVATION

- A. The Contractor shall excavate all materials encountered regardless of the difficulties encountered. The ditch shall be no greater in width or depth than is necessary to permit construction in accordance with the Plans and Specifications.
- B. The Contractor shall determine the need for sheeting and bracing to safeguard the workmen. When sheeting and bracing are necessary the trench or excavation shall be dug to such width that proper allowance is made for the space occupied by the sheeting. All sheeting, shoring and bracing shall have sufficient strength and rigidity to withstand the pressure exerted and protect all persons or property from injury or damage. Sheeting, shoring and bracing shall not be left in place but shall be removed in such a manner as not to endanger or damage new or existing structures. All holes or voids left by the removal of sheeting shall be backfilled.

- C. Soft, spongy or otherwise unstable material which will not provide a firm foundation for the pipe shall be removed and replaced with suitable selected material from the excavation or other sources approved by the City or Civil Engineer and shall be compacted as provided in the Specifications. When unstable conditions are not corrected by the above means, the Contractor will be required to use crushed rock, gravel or concrete foundations. There will be no extra compensation for this work.

3.3 LAYING OF PIPE

- A. The pipe shall be laid with groove end facing the direction of laying and the tongue end as the discharge end. Laying shall commence at the discharge end of the line and proceed upgrade. No pipe shall be laid in water or on soil that has been covered with water. If wet soil is encountered, the wet soil shall be removed and replaced with crushed rock or gravel thoroughly compacted to grade. The Contractor shall excavate trenches for the pipe and the pits for the manholes to line and grade as shown on the Drawings. Only excavation that is required for proper installation shall be done. Excavation which may be made below grade shall be brought up to grade with approved material which shall be compacted to the satisfaction of the City or Civil Engineer. The Contractor shall exercise proper care to keep the property owners and the general public from being inconvenienced insofar as possible. All street crossings, sidewalks, and entrances to public and private property shall be maintained and the construction so planned that these crossings and entrances are completed at the earliest possible time. The Contractor shall provide maximum protection for workmen at all times and shall provide proper sheeting, bracing and supports. Should excavation cross drainage so as to cause backwater in front of or along any property, the Contractor shall drain such locations immediately and prevent further backwater at this or any other location.
- B. Upon completion of the jointing, all pipe must be in true alignment and must be smooth throughout its interior walls, at all points along the joints and invert.
- C. Special care must be taken in the backfilling operation so that the joints are not disturbed. Any damage done shall be repaired immediately by the Contractor at his expense.
- D. The connecting of one pipe intersecting another shall be done in a workmanlike manner, that is, the joint shall be butted and completely filled with mortar, the interior surface of each pipe shall be smooth and free of any projection. The end of the pipe is to be temporarily plugged to keep rain, mud, animals, or foreign objects from entering the pipe during the cessation of pipe laying. If cement mortar is used the mortar shall be a uniform mixture of one (1) part of Portland cement to two (2) parts of clean, sharp sand with sufficient water added for putty consistency. The sand shall be approved by the Engineer before being mixed with the cement. Any sand which has been contaminated with dirt or mud will be discarded and removed from the site. No mortar that has obtained an initial set shall be used.
- E. All joints in all sizes of pipe shall be made in place in the ditch.

3.4 BACKFILL

- A. After the pipe has been installed, select fill material shall be placed equally along both sides of the pipe in layers not exceeding six (6) inches loose depth. Care shall be taken to insure thorough compaction of the fill under the haunches of the pipe. Each layer shall be thoroughly compacted to 95% standard proctor by hand or pneumatic tampers until the fill has reached an elevation twelve (12) inches above the top of the pipe. The remainder of the backfill shall be material from the excavation, at optimum to -1 to 3% above optimum moisture content, and shall be placed in loose layers of six (6) inches and compacted by an approved method to a density of 95% standard proctor density (ASTM D698). **WATER JETTING WILL NOT BE PERMITTED.**

3.5 MANHOLES

- A. Shall be constructed at the locations and depths as shown on the Drawings. The floors and foundations for the manholes shall be 3000 psi concrete. The inverts through the manholes shall be well formed of concrete and shall be steel troweled.
- B. Manholes shall be set straight and true. The manhole rings and covers shall be set to finish grade and securely anchored to the manhole.

3.6 JOINTING OF PIPES

- A. All joints will be made with "Ram-nek" jointing material or equal.
- B. Joints using cold applied preformed plastic gaskets shall be made as follows: A suitable primer of the type recommended by the manufacturer of the gasket joint sealer shall be brush applied to the tongue and groove joint surfaces and the end surfaces and allowed to dry and harden. No primer shall be applied over mud, sand, dirt, or sharp cement protrusions. The surface to be primed must be cleaned and dry when primer is applied.
- C. Before laying the pipe in the trench, attach the plastic gasket sealer inside the tapered bell. Remove the paper wrapper from the gasket and press it firmly to the clean, dry pipe joint surface.

- D. When the spigot or tongue is correctly aligned with the flare of the bell or groove, pull or push the pipe home with sufficient force and power (back hoe shovel, chain hoist, ratchet hoist or winch) to cause the evidence of squeezeout of the gasket material on the inside and outside around the complete pipe joint circumference. Remove any joint material that pushed out into the interior of the pipe that would tend to obstruct the flow. (Pipe shall be pulled home in a straight line with all parts of the pipe on line and grade at all times). Backfilling of pipe laid with plastic gasket joints may proceed as soon as the joint has been inspected and approved by the Engineer. Special precautions shall be taken in placing and compacting backfill to avoid damage to the joints.
 - E. When the atmospheric temperature is below 60°F, plastic joint seal gaskets shall either be stored in an area warmed to above 70°F, or artificially warmed to this temperature by placing in a metal container which, in turn, is place in hot water. Gaskets shall then be applied to pipe joints immediately prior to placing the pipe in trench, followed by connection to previously laid pipe.
 - F. Before the pipe is lowered into the ditch, each joint shall be free of all foreign matter. The ends of each joint shall be thoroughly cleaned before joint material is applied. After the first joint of pipe is laid in any section, the next joint shall not be laid until the lower half of the joint is in place.
- 3.7 CLEAN UP
- A. Upon completion of the work covered by this section, the Contractor shall clean up all work areas by removing all debris, surplus material, and equipment from the site.

END OF SECTION

SECTION 41 22 23
HOIST

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Overhead electrified hoist.
 - 2. Related materials necessary to complete the installation.

0.1 SUBMITTALS

- . Product Data: Manufacturer's technical product literature for each type of product indicated, required, or specified.
- A. Maintenance Data: For inclusion in operation and maintenance manual required by Division 01, submit in the form of manufacturer's printed instructions for cleaning and maintaining solid surfacing material.

PART 1 - PRODUCTS

1.1 ACCEPTABLE MANUFACTURERS

- A. Basis of Design: Contract Documents are based on products specified below to establish a standard of quality. Other manufacturers with products having equivalent characteristics may be considered, provided deviations are minor and design concept expressed in Contract Documents is not changed, as judged by Architect.
 - 1. Manufacturer: Harrington Electric Chain Hoists.
 - 2. Product: (N)ERM050L-L/S.

PART 2 - EXECUTION

2.1 EXAMINATION

- A. Acceptance of Surfaces and Conditions:
 - 1. Examine surfaces and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
 - 2. Proceed only when unsatisfactory conditions have been corrected in a manner complying with Contract Documents.
 - 3. Starting Work within a particular area will be construed as acceptance of surface conditions.

2.2 INSTALLATION

- A. Install in accordance with manufacturer's instructions.

END OF SECTION

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Construction Solution USA LLC		Rebecca	Wright	rwright@consolusa.com	rwright@consolusa.com	1452 Halsey Way Suite 100		Carrollton	TX	75007	972-670-1920	866-473-1705
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Kah Holding, Inc.	Karrington and Co; Karrington Realty	Gary	Hasty	GH@KARRINGTONANDCO.COM	gh@karringtonandco.com	2323 N Houston 603	Suite 2	Dallas	TX	75219	214-797-1670	866-420-7629
KAI/ALLIANCE, L.C. (dba KAI Design)	KAI Design	Michael	Kennedy	KAIDesign@kai-db.com	KAIDesign@kai-db.com	5010 Riverside Drive	#250	Irving	TX	75039	214-742-0400	817-288-0952
KALY SOLUTIONS, LLC	Paul Davis Restoration of Central DFW	Adriana	Young	adrianayoung@icloud.com	kendrick_young@pauldavis.com	2202 113th St	Ste 100	Grand Prairie	TX	75050	404-966-1101	
KEE Concrete and Construction, Inc. dba KEE Road And Bridge Consulting		Kelley Eubanks		ke@designconstructbykee.com		5601 Bridge St.	Ste 300	Fort Worth	TX	76112	682-559-2952	(817)492-7045
KW NEW VISION PROPERTIES AND LAND INC		Kelvin	Williams	newvisionproperties@outlook.com	NEWVISIONPROPERTIES@OUTLOOK.COM	1823 Sunset Crossing		Cedar Hill	TX	75104	214-434-8239	
Landmark Consulting Group LLC dba Landmark Structural Builders, LLC		NaShawn Guevara		squevara@landmarkstructural.com	radams@landmarkstructural.com	2150 S Central Expy	Suite 200	Mckinney	TX	75070	(254)245-2358	(254)245-2358
Lemco Construction & Materials, LLC		Judy	Lembke	jlembke@lemcocs.com	jlembke@lemcocs.com	14131 Midway Road Ste 660		Addison	TX	75001	214-637-4222	214-637-4220
Lina T. Ramey And Associates, Inc.		Lina T.	Ramey	lramey@lraengineers.com	lramey@lraengineers.com	3320 Belt Line Rd		Farmers Branch	TX	75234	214-979-1124	214-979-2480
M&C Construction Group LLC		Michael	Hicks	Mhicks@teammandc.com	BusinessDevelopment@teammandc.com	2123 6th Avenue		Fort Worth	TX	76110	817-296-5314	210-852-0040
Mahuya Industries LLC		Amanda	Smith	amanda@mahuyaindustries.com	amanda@mahuyaindustries.com	8804 Chaps Ave.		Fort Worth	TX	76244	817-917-4450	
Major League Tribes, LLC		Jeffrey	Abney	Jeff@mltribes.com	Jeff@mltribes.com	130 N Preston Rd, STE 327		Prosper	TX	75078	940-600-0230	
Makarios Partners		Marcelo	Peres	marcelo@makariospartners.com	marcelo@makariospartners.com	701 Legacy Dr. #1725		Plano	TX	75023	774-386-7982	
Marsh RDR RAM Contracting LLC dba RAM Contracting		Ray Marsh		marsh@ram-contracting.com	dmrmarsh@ram-contracting.com	6115 Owens St.	Ste 209	Dallas	TX	75235	972-744-6434	469-556-6358
McKenzie Jackson Construction, Inc.		Connie Fields		cori@mckenziejackson.net		17762 Preston Rd		Dallas	TX	75252	214-770-2758	214-770-2758
McKissack & McKissack, Inc.		Deryl	McKissack	deryl.mckissack@mkinc.com	registrations@mckissackdc.com	2911 Turtle Creek Blvd.	Suite 300	Dallas	TX	75219	202-347-1446	202-347-1489
Meca Construction Company, Inc.		Rita Torres	Morrison	ritamorrison@mecacon.com	ritamorrison@mecacon.com	2305 Executive drive		Garland	TX	75041	972-276-5323	972-276-6012
Metropolitan Infrastructure, PLLC		Louis Robert	Friskie	lrfiskie@metroinfrastructure.com	lrfiskie@metroinfrastructure.com	1413 E IH30	Suite 3	Garland	TX	75043	214-341-1501	214-341-1640
MEXZIM Corporation		Ebbah	Realzola	ebbah@mexzim.com	ebbah@mexzim.com	1408 N RIVERFRONT BLVD # 110		DALLAS	TX	75207	214-435-3033	
Morales Construction Services, Inc.		Rey	Morales	rey@morales-cs.com	rey.morales@morales-cs.com	2500 E Broad Street	Suite 200	MANSFIELD	TX	76065	817-372-5590	817-225-6809
N.A.E. ENTERPRISES, INC.	NAE Contracting	Chantal	Dauenhauer	ce.dauen@naecontracting.com	ce.dauen@naecontracting.com	8200 Camp Bowie W Blvd		Fort Worth	TX	76116	817-220-2200	817-220-2221
NASH CM, Inc.		Alzaal	Hafeez	nash1cm@gmail.com	NASH1CM@GMAIL.COM	2913 Club Hill Dr		Garland	TX	75043	817-941-4845	
Native Consolidated Management, LLC	Native Construction	John Edward	Lee	admin@native-construction.com	admin@native-construction.com	1221 W. Campbell Rd Suite 203		Richardson	TX	75080	512-588-0449	832-469-5579
New World Contracting LLC		Dorrett	Vanderberg	d.vanderberg@newworldgc.com	d.vanderberg@newworldgc.com	4306 Ravenbank Dr		Rockwall	TX	75087	469-338-5207	
NORTHSTAR CONSTRUCTION, LLC		Michael	Heimlich	mike@northstar93.com	mike@northstar93.com	2112 Solana St.		Haltom City	TX	76117	817-244-8885	817-244-8886
NTXP LLC		Alison	Hopkins	alison@ntxplc.com	joc@ntxplc.com	405 S Elm suite 203		Denton	TX	76201	940-736-9117	
NWI Construction		Gunnar	Jones	gajones.nwi@gmail.com	gajones.nwi@gmail.com	4019 Woodland Park Blvd #119		Arlington	TX	76013	817-319-4296	
O.U.S Installation		Oscar A. Urbano		oscaraurbano@ousinstallation.com		3141 Lariat Ln		Garland	TX	75042	214-451-8875	214-451-8875
Obra Ramos Construction, LLC		Andres	Ramos	andres@obramos.com	andres@obramos.com	8765 Stockard Dr	#602	Frisco	TX	75034	469-207-4496	817-394-2452
OKEMAN CONSTRUCTION LLC		Emmanuel	Ikhabreha	eikhabreha@okemanconstruction.com	eikhabreha@okemanconstruction.com	10587 N MacArthur Blvd	Apt 1188	Irving	TX	75063	214-226-7285	214-226-7285
Omega Contracting, LLC		Luis Spinola		luis@azteca-omega.com	danielg@azteca-omega.com	2518 Chalk Hill Rd		Dallas	TX	75212	214-905-0612	214-878-2955
Omega Engineers, Inc.		Santiago Castaneda		scastaneda@omegaengineers.com	fierro@omegaengineers.com	16360 Park Ten Place	Ste 325	Houston	TX	77084	(281) 647-9182	(281) 221-8989
OMEGA INDUSTRIES INC		ASHVAT	SHETTY	A.SHETTY@OMEGAINDINC.COM	A.SHETTY@OMEGAINDINC.COM	4060 Shilling Way		Dallas	TX	75237	972-532-3340	
OMS Strategic Advisors, LLC.		Lisa Gardner		lisa.gardner@omsstrategicadvisors.com	lawrence.gardner@omsstrategicadvisors.com	2591 Dallas Pkwy	Suite 300	Frisco	TX	75034	214-207-7720	469-767-9142
Para Consulting Services, LLC		Tara	Davis	tara@mypcs.online	tara@mypcs.online	929 Emerald Dr		McKinney	TX	75069	214-930-1137	
Paragon Project Resources, Inc.		William	Correa	william.correa@2paragon.com	william.correa@2paragon.com	1801 Royal Lane, Suite 104		Dallas	TX	75229	214-634-7060	214-634-0097
PBJ Construction, LLC		Bernardo	Acosta	b.acosta@bxr.com	b.acosta@bxr.com	2215 Honeyway Circle		Dallas	TX	75228	214-679-6214	
Performance		Geoff	Harper	performancelz@yahoo.com	performancelz@yahoo.com	310 E Trinity Blvd #200	Ste 200	Grand Prairie	TX	75050	209-277-8729	209-602-5947
PM Dynamics LLC		Arun	Verma	verma.arun.s@gmail.com	arun@pm-dynamics.com	801 WHITE RIVER DR		PROSPER	TX	75078	979-450-6731	
Post L Group LLC.		Jeffery	Postell	jeff@postigroup.com	jbrooks@postigroup.com	1150 Martin Luther King Jr. Freeway		Fort Worth	TX	76104	682-312-7888	682-312-7888
POTERE CONSTRUCTION LLC		Olga Sharon	Douglas	sdouglas@potereconstruction.com	sdouglas@potereconstruction.com	6825 Marhatten Blvd, Suite 103		Forth Worth	TX	76120	817-829-2744	817-429-2443
PPD&C, LLC		Ivory Goshton		ivory.goshton@ppdandc.com		9535 Forest Ln	Ste 269	Dallas	TX	75243	888-505-8719	469-644-4820
Procure Services, LLC		Curtis	Redmon	estateserv@yahoo.com	estateserv@yahoo.com	3522 Guadalupe Ave		Dallas	TX	75233	214-597-5961	
Project Management Associates, LLC	PMA	Edward	Andrews	EANDREWS@PMAPLLC.COM	eandrews@pmapllc.com	530 Bedford Road Suite 102	Suite 102	Bedford	TX	76022	972-302-7635	214-888-0556
PSA Constructors, Inc. dba PSA Management		Patrick	Aliu	ptillman@psaonline.com	ptillman@psaonline.com	2777 N. Stemmons Freeway	Suite 1035	Dallas	TX	75207	214-879-7004	407-898-9077
Pure Associates, LLC	Pure Construction Contracting	Christopher	Adams	cadams@pure-associates.com	cadams@pure-associates.com	610 Uptown Blvd, Suite 2000		Cedar Hill	TX	75104	817-773-4797	
Quality On Demand, LLC		Mathew Steve	Saldana	QualityOnDemand@yahoo.com	QualityOnDemand@yahoo.com	107 Wilkes Ct		Anna	TX	75409	972-768-6603	
R.D. Howard, LLC		Randle D. Howard		rhoward@thinkhoward.com	mkoshy@thinkhoward.com	3863 S Fwy	Ste 102	Fort Worth	TX	76110	817-921-1401	817-228-6276
RAM Contracting		Ray	Marsh	marsh@ram-contracting.com	marsh@ram-contracting.com	6115 Owens Street	Suite 209	Dallas	TX	75235	972-744-6434	972-539-2422
Real Construction Group, LLC		Claudia Sanchez	Reyes	csanchez@real.inc	mvelasco@real.inc	5529 Redfield St.		Dallas	TX	75235	(214)624-7600	(214)538-2057
Real Network Services, Inc.	Laer Construction	Jose	Reyes	jreyes@real.inc	admin@real.inc	5529 Redfield St.		Dallas	TX	75235	214-624-7600	214-624-3323
REKJ Builders LLC		Ray	King Jr	REKJBuilders@Gmail.com	REKJBuilders@Gmail.com	9205 Royal Burgess Dr		Rowlett	TX	75089	214-680-7211	214-594-5816
Restoration Specialists, LLC		Sheri	Demattia	sher.demattia@rs1967.com	sher.demattia@rs1967.com	4808 Simonton Road		Dallas	TX	75244	214-637-2200	

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KAI/ALLIANCE, L.C. (dba KAI Design)	KAI Design	Michael	Kennedy	KAIDesign@kai-db.com	KAIDesign@kai-db.com	5010 Riverside Drive	#250	Irving	TX	75039	214-742-0400	817-288-0952
Landmark Consulting Group LLC dba Landmark Structural Builders, LLC		NaShawn Guevara		squevara@landmarkstructural.com	radams@landmarkstructural.com	2150 S Central Expy	Suite 200	McKinney	TX	75070	(254)245-2358	(254)245-2358
PROSPERE SERVICES, LLC		PROSPER	NGWENWOH		NGWENWOH@GMAIL.COM	4232 Canadian River Drive		PROSPER	TX	75078	214-609-5007	
RK Residential Homes and Commercial Constructions LLC dba BLUE PRINT CONSTRUCTS		Ravikiran Nudurupati		kiran.nudurupati@gmail.com		16283 Willowick Ln		Frisco	TX	75033	(201)214-9276	(201)214-9276
Rodgers Investment Group, LLC		Alexandria Rodgers		info@alexandkacy.com		2310 N Henderson Ave.	#210	Dallas	TX	75206	(615)830-5233	(615)830-5233