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To: All Bidders and Plan Holders Project No. 13176-0032
Re: Addendum No. 3 Provided: E-Mail
Project: Phase II Infrastructure Improvements at the Chapin Business and
Technology Park in Lexington County, South Carolina
Date: Wednesday, January 7, 2015
Bid Date: Monday, January 12, 2015 at 2:00 P.M.
Bid No.: B15029-01/12/15S Page 1 of 64

This Addendum is issued pursuant to the Conditions of the Contract and is hereby made part of the Contract Documents. The addendum serves to clarify, revise, and supersede information from Contract Documents and Specifications, Construction Plans, and previously issued Addenda. The Bidder shall acknowledge receipt of this Addendum in the appropriate space on the Bid Form for this form to be deemed complete. All attachments, if any, are part of this document.

A. Clarifications to Contract Documents and Specifications:

1. *Is Cornell Pumps Company Submersible pump an approved equal product?*
 - a. **No, the Cornell Pump Company Submersible pump is not an approved alternate. The Town of Chapin will only accept ABS Pumps.**

2. *Is the "Disadvantaged Business Enterprises Committal Sheet" and the "Listing of Subcontractors" required to be submitted with the bids?*
 - a. **No, the Disadvantaged Business Enterprises Committal Sheet and List of Subcontractors are not required to be submitted with the bid.**

3. *Is the Storm Drainage Piping "Tongue & Groove RCP" or "O-ring RCP"?*
 - a. **The storm drainage piping is to be Tongue and Groove RCP per Specifications Section 02635 2.01 A**

4. *Alliance Consulting Engineers, Inc. Dwg. No. 01,782-D14, dated September 2013, Sheet C5.1 represents an Air Release valve on the profile view but is not on the Bid Form.*
 - a. **Four (4) air release valves have been added to the Bid Form as Item No. 23 under Phase II Water Improvements (Drawing No. 01,782-D14, dated September 2013). See enclosed revised Bid Form (Section 00410).**

5. *Will any couplings/sleeves be required to connect to the existing pipe which are not on the Bid Form?*
 - a. **Existing water main (designed and constructed by others) includes an existing valve and plug at the connection points for the new water line. Connections to the existing water line will not require couplings/sleeves.**

 6. *Alliance Consulting Engineers, Inc. Dwg. No. 01,782-D14, dated September 2013, Sheet C5.2 represents a 12-inch MJ 90° bend at the hydrant which is not on the Bid Form. Will a line item for the 12-inch MJ 90° bend be added to the Bid Form?*
 - a. **No, a line item for the 12-inch MJ 90° will not be added to the Bid Form. The Construction Plans (Alliance Consulting Engineers, Inc. Dwg. No. 01,782-D14, dated September 2013), Sheet C5.2 does not represent a 12-inch MJDI 90° bend, but represents a 6-inch MJ 90° bend, which is in accordance with the Bid Form and therefore there is no change to the Bid Form or Construction Plans.**

 7. *Plans show 5-12x12x8 MJ Tee's for the hydrant assemblies.*
 - a. **Alliance Consulting Engineers, Inc. Dwg. No. 01,782-D14, dated September 2013, Sheets C5.1 through C5.5 represent six (6) 12-inch x 12-inch x 6-inch MJDI Tee's for the fire hydrant assemblies.**

 8. *Alliance Consulting Engineers, Inc. Dwg. No. 01,782-D14, dated September 2013, Sheet C5.4 represents a 12x12x8 MJ Tee, 8-inch Pipe, and an 8-inch MJ Cap which is not on the Bid Form.*
 - a. **Line items for a 12x12x8 MJ Tee (Line Item No. 21), 78 linear feet of 8-inch DIP (Line Item No. 8), and an 8-inch MJ Cap (Line Item No. 10) have been added to the Bid Form under Phase II Water Improvements (Drawing No. 01,782-D14, dated September 2013). See enclosed revised Bid Form (Section 00410).**

 9. *Alliance Consulting Engineers, Inc. Dwg. No. 01,782-D14, dated September 2013, Sheet C5.5 shows a 4-inch MJ 22-1/2° bend, and a Meter & Backflow assembly which is not on the Bid Form.*
 - a. **Line items for 4-inch MJ 22-1/2° bend (Line Item No. 3) and a Meter & Backflow Prevention Device (Line Item No. 4) have been added to the Bid Form under Phase II Water Improvements (Drawing No. 01,782-D14, dated September 2013). See enclosed revised Bid Form (Section 00410).**

 10. *Alliance Consulting Engineers, Inc. Dwg. No. 01,782-D14, dated September 2013, Sheet C9.4 calls for the use of Thrust Blocks to be used for restraining pipe around fittings but spec section 02667 page 6, 4.A states that thrust blocks are not to be used unless otherwise noted and calls for "Fast Grip" gaskets to be used. Please clarify which method of restrained joint pipe is acceptable.*
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- a. Thrust restraint shall be according to the City of Columbia Specifications, Specification Section 02510 Water Distribution Supplement: Part 16: Specification for Water Distribution System, Materials and Construction.**
11. *Will any of the pipe penetrations to the valve vault or wetwells for the pump station require Link Seals?*
- a. The use of Link Seals is not required.**
12. *Will fusible HDPE pipe for the directional drill be an approved alternate to the fusible PVC?*
- a. The use of fusible HDPE is not acceptable.**
13. *Alliance Consulting Engineers, Inc. Dwg. No. 01,782-D14, dated September 2013, sheet L-2, none of the landscape for the traffic circle island is labeled, as well as a group of plantings to the Northwest of the island. Can you please clarify?*
- a. The center island plantings are on the Fountain Planting Plan, Alliance Consulting Engineers, Inc. Dwg. No. 01,782-D14, dated March 2014 revised January 6, 2015, Sheet L-2. The missing plant label around the pond is 13 CALL (Beauty Berry). Sheet L-2 has been revised and enclosed.**
14. *Alliance Consulting Engineers, Inc. Dwg. No. 01,782-D14, dated September 2013, Sheet E4.1 notes to infrastructure item 6 references a SCE&G drawing EH-4. Could this drawing be issued via addenda?*
- a. SCE&G Drawing EH-4 dated August 27, 1992 has been enclosed.**
15. *Under Drains within Median as detailed on Alliance Consulting Engineers, Inc. Dwg. No. 01,782-D14, dated September 2013, Sheet C9.3 indicated that payment will be by (A) Planted Median Sub-Surface Drainage...SY, (B) 10" Perforated Pipe Under Drain...LF, (C) Select Material for Landscaping or Borrow Material...CY. These bid Items are not present on bid form.*
- a. Line items for 6,850 Square Yards (SY) of Planted Median Sub-Surface Drainage (Line Item No. 52), 4,385 linear feet (LF) of 10-inch Perforated Pipe Under Drain (Line Item No. 53), and 5,000 Cubic Yards (CY) of Select Material for Landscaping or Borrow Material (Line Item No. 54) have been added to the Bid Form under Phase II Landscape Improvements (Drawing No. 01,782-D14, dated September 2013).**
16. *Please provide specification for median backfill material if native material is not acceptable.*
- a. Median backfill material shall be in accordance with Specification Section 02930 Landscape Work Paragraph 2.2. This Specification Section has been revised and enclosed.**

17. *Alliance Consulting Engineers, Inc. Dwg. No. 01,782-D14, dated September 2013, Sheet LS-1 Detail D. Please show location of 4" Perforated Drain Pipe on plan view.*
- a. **Alliance Consulting Engineers, Inc. Dwg. No. 01,782-D14, dated March 2014 revised January 7, 2015, Sheet LS-1 has been revised to show location of 210 LF 4-inch Perforated Drain Pipe on plan view. In addition the Bid Form (Section 00410) has been revised to reflect 210 LF of 4-inch Perforated Drain Pipe as Bid Item No. 55 under Phase II Landscape Improvements (Drawing No. 07,782-D14, dated September 2013). Sheet LS-1 and Bid Form have been revised and enclosed.**
18. *Are Plantings for Phase I Roadway included in Phase 2 contract?*
- a. **Plantings represented on Construction Drawings for the Chapin Technology Park Entrance Parkway, prepared by Civil Engineering of Columbia, Job Number 13023, dated September 4, 2013, are included in the contract and represented on the Bid Form under Phase II Landscape Improvements (Drawing No. 01,782-D14, dated September 2013).**
19. *On Bid Form please clarify Phase II Landscape Items 2, 3, and 4 as they relate to Detail C on sheet LS-1 Drawing of Alliance Consulting Engineers, Inc. Dwg. No. 01,782-D14, dated September 2013 . Is Line Item No. 2 for the 8-inch Stamped Brick Border? Is Line Item No. 3 for the 6-inch white Preformed Thermoplastic and is Line Item No. 4 for the Stamped Brick Asphalt?*
- a. **Yes, Line Item No. 2 represents the 8-inch Stamped Brick Border. Yes, Line Item No. 3 represents the 6-inch white Preformed Thermoplastic. Yes, Line Item No. 4 represents the Stamped Brick Asphalt.**
20. *On Bid Form Line Item No. 2 Phase II Landscaping is for a Fountain is this the same Fountain as Listed in Base Bid Alternate 2?*
- a. **Yes, on the Bid Form, Line Item No. 2 (Fountain) under Phase II Landscaping Improvements is the same Fountain as Listed in Base Bid Alternate 2.**
21. *Are the Main Entrance Signs as detailed on Alliance Consulting Engineers, Inc. Dwg. No. 01,782-D14, dated September 2013, Sheets LS-1 and L-2 to be included? If so please provide Bid Item.*
- a. **The Signage is listed on the Bid Form as Line Item No. 5 and Line Item No. 6 under Phase II Landscape Improvements (Drawing No. 01,782-D14, dated September 2013) address entrance signage.**
22. *The plans specify 10" Graded Aggregate Base Course subbase for asphalt pavement but the bid form shows 12" Graded Aggregate Base Course line item. Which is correct?*
- a. **The Bid Form (Section 00410) has been revised to indicate 10" Graded Aggregate Base Course as Line Item No. 27, under Phase II Roadway Improvements (Drawing No. 01,782-D14, dated September 2013). See enclosed revised Bid Form (Section 00410).**

23. *Where is the sidewalk section detail?*
- a. **The sidewalk is represented on the Typical Roadway Cross-Section on Alliance Consulting Engineers, Inc. Dwg. No. 01,782-D14, dated September 2013, Sheet C9.1.**
24. *A type “B” bedding detail on the Alliance Consulting Engineers, Inc. plans is included, but I could not find any mention of where it will be used in the specifications.*
- a. **This detail is provided on the Construction Plans for reference. If soils are moist (indicating groundwater) and are in high traffic areas, Type 2 Class “B” may be needed.**
25. *The Alliance Consulting Engineers, Inc. specifications state that general backfill will be used on utilities, but the American Engineering Consultants, Inc. specifications state that type S1 and S2 will be used. Also, the American Engineering Consultants, Inc. plans show a detail with #67 stone backfill for wastewater. Which is correct?*
- a. **American Engineering Consultants, Inc. specifications are to be followed for the wastewater lines and structures. Alliance Consulting Engineers, Inc. specifications will be used for water and storm drainage piping.**
26. *The plans state 100% standard or modified proctor beneath the roadway section, the ACE specs state 98% standard proctor and the American Engineering Consultants, Inc. specs state 95% standard proctor. Which is correct?*
- a. **Base course materials in the loading influence zone for pavement areas should be compacted to at least 100% of their modified Proctor maximum dry density (ASTM D 1557). Areas outside of the zone of influence from traffic loading shall be compacted to at least 95% of their Standard Proctor maximum dry density.**
27. *Please provide connection locations for 10” median drain on storm drainage plans.*
- a. **Refer to Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated September 2013) Sheets C4.1 through C4.8 revised January 6, 2015 for underdrain information. Sheets C4.1 through C4.8 have been enclosed.**
28. *On Sheet Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated September 2013), Sheet E1.0, a Proposed Pedestrian Trail is shown. Is this work part of this Contract?*
- a. **The Proposed Pedestrian Trail is not part of this Contract.**

29. *On Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated September 2013), Sheets E3.1 through E3.4 it appears that lights are centered in median if so this will conflict with 10" median under drain. Please provide clarification.*
- a. Lights are required to be centered. Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated September 2013) Sheets C4.1 through C4.8 revised January 6, 2015 indicate the location of the median under drain, which is offset from the center of the median to avoid a conflict with lighting. Sheets C4.1 through C4.8 have been enclosed.**
30. *Is Bid Item No. 1 of Base Bid Alternate 1 the work depicted on Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated September 2013) Sheets E3.1 through E3.4 less Fixtures S1 and S2?*
- a. Yes, along with associated notes and details on Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated September 2013) Sheets E0.1 and E0.2.**
31. *Please provide detail as to how conduits are to be terminated for leased lighting option.*
- a. See detail "Typical Pole Installation" on Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated September 2013) Sheet E0.2. Coordinate termination into transformers with SCE&G as noted in "Notes to Lighting Infrastructure Plans" on Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated September 2013) Sheet E3.1. Contact information for SCE&G is included on Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated September 2013) Sheet E0.1.**
32. *Is Bid Item No. 2 of Base Bid Alternate 1 the work depicted on Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated September 2013) Sheets E4.1 through E4.4?*
- a. Yes, along with associated notes and details on Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated September 2013) Sheet E0.1.**
33. *Is it the intent that underground conduits will stay within limits of disturbance for roadway construction?*
- a. Yes the conduits will stay within the limits of disturbance for roadway construction.**
34. *Please provide SCE&G Drawing # D-81178 and Standard Drawing # EH-4 as referenced in Notes on Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated September 2013) Sheet E4.1*
- a. SCE&G Drawings #D-81178 dated August 18, 2014 and SCE&G Drawing #EH-4 dated August 27, 1992 have been enclosed.**
35. *How will changes between Contract Drawings and Approved SCE&G Drawings be addressed since no unit pricing is provided?*
- a. Changes due to SCE&G requirements will be a change order to the Contract.**

36. *Where is Sewer Pump station electrical service feed shown?*
- a. **See Chapin Business and Technology Park Wastewater Collection System – Pump Station drawings prepared by American Engineering Consultants, Job No. 13-015, dated July 2014, Sheet 2 of 13.**
37. *Can mastic joints be used in lieu of o-ring joints for sanitary sewer manholes?*
- a. **The use of mastic joints are not acceptable.**
38. *The hatch for the valve vault is described as an 84”x84” – S2S 7272, which size is to be used an 84”x84” or a 72”x72”?*
- a. **The hatch for the valve vault to be utilized will be a new 84” x 84” Double Leaf Halliday Model No. S2S 8484 Aluminum Access Hatch or approved equal. Chapin Business and Technology Park Wastewater Collection System – Pump Station drawings prepared by American Engineering Consultants, Job No. 13-015, Sheet 4 of 13 has been revised and enclosed.**
39. *Is an extended base required on the wetwells and the 5’ diameter manhole? If so, what is the extension size?*
- a. **Regarding the precast manholes refer to Chapin Business and Technology Park Wastewater Collection System – Gravity Sewer drawings prepared by American Engineering Consultants, Job No. 13-015, dated May 2014, Sheet 16 of 18.**
 - b. **Regarding the extended base for the wetwells and the 5’ diameter manhole, provide a minimum of 8” extension.**
40. *Concerning the epoxy coating, can Tenemec perma shield product be used in lieu of the Raven 405 coating? This product is also a 100% solids epoxy.*
- a. **The epoxy coating will be Raven 405 as specified.**
41. *The plans call for a USF 480 RA SSG wastewater manhole cover. Please clarify this is accurate.*
- a. **The wastewater manhole cover will be USF 480 RA-SSG as shown in Wastewater Collection System – Gravity Sewer, prepared by American Engineering Consultants, Inc., Job No. 13-015, dated May 2014, Sheet 16.**
42. *A request to be considered an approved equal for the following products was submitted:*
- *Genset Model #MGD21048031L2*
 - *Vigilant Automatic Transfer Switch Model #MGVATS4001208*
 - *Kohler Power Systems Model #180REOZJG Emergency Standby Generator*
 - *Kohler Power Systems Model #KSS-AMTF-0400S Automatic Transfer Switch*
- a. **The following products are now considered as an approval equal product:**
 - **Kohler Power Systems Model #180REOZJG**
 - **Kohler Power Systems Model #KSS-AMTF-0400S Automatic Transfer Switch**

b. The following products are not considered an approved equal:

- **Genset Model #MGD21048031L2**
- **Vigilant Automatic Transfer Switch Model #MGVATS4001208**

43. *Can SewperCoat Wastewater Infrastructure Rehabilitation and Coating System be used in lieu of the Raven 405 coating?*

a. The epoxy coating will be Raven 405 as specified.

44. *On drawing 7 of 13 Pump Station Electrical Plan, are transformer pad and 6" conduits to be included in Base Bid Alternate 1 Bid Item No. 2?*

a. No. All of the work associated with the pump station is to be included under the pump station bid item in the base bid.

45. *Is a building Permit Required and if so will County issue at no charge?*

a. No building permit will be required for this project.

46. *On Drawing I-9 it appears that the irrigation well is existing. Please verify if this is correct and clarify extent of contract work.*

a. The irrigation well is not existing. Two (2) new irrigation wells are to be drilled as part of Base Bid as indicated on the Bid Form (Section 00410).

47. *Is the 4" PVC water line shown on Sheet C5.5 paid under Bid Item No. 1 Phase II Water Improvements*

a. Yes, Line Item No. 1 on the Bid Form under Phase II Water Improvements represents the 4-inch PVC water line on the Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated September 2013) Sheet C5.5.

48. *How are water meter and backflow shown on sheet C5.5 to be paid?*

a. Line Item No. 4 on the Bid Form under Phase II Water Improvements represents the 4-inch meter and backflow prevention device on the Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated September 2013) Sheet C5.5.

49. *Can a bid item be added for the Enkamat 7010 Turf Reinforcement matting as shown on sheet C 9.3?*

a. A line item for 8,850 SY of Enkamat 7010 Turf Reinforcement matting has been added to the Bid Form as Line Item No. 33 under Phase II Roadway Improvements (Drawing No. 01,782-D14, dated September 2013). See enclosed revised Bid Form (Section 00410).

50. *Erosion Control Plans call out SC150 matting, but Bid Item No. 15 is for SC250. Which is accurate?*

a. The Erosion Control Matting Line Item No. 15 on the Bid Form has been revised to represent SC150 Erosion Control Matting. See enclosed revised Bid Form (Section 00410).

51. *Are all required wetland signs shown on Erosion Control plan Sheets C6.1 thru C6.5?*
a. **The wetland signs required are shown on the Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated September 2013) Sheets C6.1 through C6.5.**
52. *Are the two irrigation wells existing? If they are existing, how much water do they produce?*
a. **The two (2) irrigation wells are not existing. New irrigation wells are to be drilled as indicated on the Bid Form (Section 00410). An exact GPM will not be known until the well is drilled.**
53. *Are the pump houses existing?*
a. **The pump houses are not existing.**
54. *What are the combined GPM's expected from each well?*
a. **A flow of approximately 75 GPM is anticipated, but the system can be modified as needed based on the final well GPM. A minimum of 60 GPM will be required.**
55. *Is all irrigation piping over 4 inches gasketed?*
a. **All piping over 3 inches will be gasketed with thrust blocking at all elbows and tee locations.**
56. *Are ductile iron fittings installed on the main for abrupt changes in direction?*
a. **Yes, ductile iron fitting and thrust blocking will be installed at all elbows and tee locations.**
57. *Why is the mainline 4 inches?*
a. **The mainline is sized at 4 inches so that multiple zones or larger rotor zones could be operated without pressure or flow loss over the distances the pipes are running.**

B. Modifications to Contract Documents and Specifications:

1. **American Engineering Consultants, Inc. Specification Section 02310 – Horizontal Directional Drilling:** Replace Section 02310 with Section 02310 Revised January 7, 2015.
2. **American Engineering Consultants, Inc. Specification Section 11306 – Submersible Pumps:** Revise paragraph 2.2.A as follows. Page 2 of Specification Section 11306 has been enclosed.
Delete: The pumps shall be ABS model XFP 150M-CH2 or pre-approved equal.
Add: The pumps shall be ABS model XFP 150J-CH2 or pre-approved equal.
3. **Alliance Consulting Engineers, Inc. Specification Section 02721 – Aggregate Base Course:** Revise paragraph 3.02 F as follows. Page 02721-3 of Section 02721 has been enclosed.
Delete: Compact subgrade using suitable construction procedures to provide not less than 95% Standard Proctor Maximum Dry Density.
Add: Compact subgrade using suitable construction procedures to provide not less than 100% modified Proctor Maximum Dry Density.

4. **Alliance Consulting Engineers, Inc. Specification Section 02930 – Landscape Work:** Revise Section 02930 with Section 02930 Revised January 2015.
5. **Drawing Sheet 4 of 13 – Chapin Business and Technology Park Wastewater Collection System – Pump Station:** (A) Replace detail titled “Top Plan” revised January 2015.
6. **Drawing Sheet 6 of 13 – Chapin Business and Technology Park Wastewater Collection System – Pump Station:** (A) Replace detail titled “Section A”. (B) Replace detail titled “Section B”. (C) Replace detail title “Section C” revised January 2015.
7. **Drawing Sheet 17 of 18 – Chapin Business and Technology Park Wastewater Collection System – 12” Force Main:** (A) Add detail titled “Typical FPVC Connection Detail”. (B) Replace detail titled “Typical Directional Bore Detail” with revised “Typical Directional Bore Detail” revised January 2015.
8. **Bid Form (Section 00410):** Revised to include Base Bid Alternate 4 Columbia Avenue Improvements (Drawing No. 01,892-D16, dated December 2014).
9. **Underground Electrical Work (Section 16375):** Revised specification as follows.
Delete: Paragraph 2.07, E

Add: section 2.10, wording as follows:

2.10 HANDHOLES AND PULLBOXES

- A. Shall be heavy duty, open bottom, constructed of all polymer concrete reinforced with fiberglass and with all stainless steel hardware.
- B. Boxes installed in areas of incidental, non-deliberate light vehicular traffic shall meet the Tier 8 cover test load of 12,000# over a 10”x10” plate; those in incidental, non-deliberate heavy vehicular traffic areas shall meet the Tier 15 cover test load of 22,500# over a 10”x10” plate. Boxes indicated as Tier 22 type shall be tested to 33,750# over a 10”x20” plate.
- C. Covers shall include molded lettering indicating use as indicated on drawings or as directed by respective utility. Cover design load shall not exceed the design load of the handhole or box.
- D. Handholes and pullboxes shall be manufactured by Quazite, Highline Products, NewBasis, Armorcast or approved equal.”

Add: Section 3.01, S, wording as follows:

S. HANDHOLES AND PULL BOXES

1. Comply with ASTM C 891 unless otherwise indicated.
2. Set all handholes and pull boxes on gravel base, minimum 6” thick. Gravel bedding shall be No. 57 aggregate meeting requirements of AASHTO M43-88.
3. Install units level and plumb and with orientation and depth coordinated with connecting raceways, to minimize bends and deflections required for proper entrances. Square covers with roadways, sidewalks, pavers and other site features. Covers shall be set flush with finished grade.”

Attachments:

1. American Engineering Consultants, Inc. Specification Section 02310 – Horizontal Directional Drilling, Revised January 7, 2015 (Seven (7) Pages).
2. American Engineering Consultants, Inc. Specification Section 11306 - Submersible Pumps, Revised January 7, 2015, Page 2.
3. Alliance Consulting Engineers, Inc. Specifications Section 02721 – Aggregate Base Course, Page 02721-3.
4. Alliance Consulting Engineers, Inc. Specification Section 02930 - Landscape Work (Ten (10) Pages).
5. Chapin Business and Technology Park Wastewater Collection System – Pump Station, prepared by American Engineering Consultants, Inc., Job No. 13-015, dated January 2015, Sheet 4 of 13, Top Plan.
6. Chapin Business and Technology Park Wastewater Collection System – Pump Station, prepared by American Engineering Consultants, Inc., Job No. 13-015, dated January 2015, Sheet 6 of 13, Section A.
7. Chapin Business and Technology Park Wastewater Collection System – Pump Station, prepared by American Engineering Consultants, Inc., Job No. 13-015, dated January 2015, Sheet 6 of 13, Section B.
8. Chapin Business and Technology Park Wastewater Collection System – Pump Station, prepared by American Engineering Consultants, Inc., Job No. 13-015, dated January 2015, Sheet 6 of 13, Section C.
9. Chapin Business and Technology Park Wastewater Collection System – Force Main, prepared by American Engineering Consultants, Inc., Job No. 13-015, dated January 2015, Sheet 17 of 18, Typical FPVC Connection Detail.
10. Chapin Business and Technology Park Wastewater Collection System – Force Main, prepared by American Engineering Consultants, Inc., Job No. 13-015, dated January 2015, Sheet 17 of 18, Typical Directional Bore Detail.
11. Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated September 2013) Sheet C4.1, Revised January 2015.
12. Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated September 2013) Sheet C4.2, Revised January 2015.
13. Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated September 2013) Sheet C4.3, Revised January 2015.

14. Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated September 2013) Sheet C4.4, Revised January 2015.
15. Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated September 2013) Sheet C4.5, Revised January 2015.
16. Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated September 2013) Sheet C4.6, Revised January 2015.
17. Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated September 2013) Sheet C4.7, Revised January 2015.
18. Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated September 2013) Sheet C4.8, Revised January 2015.
19. Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated March 2014, revised January 6, 2015) Sheet I-8, Revised January 2015.
20. Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated March 2014, revised January 6, 2015) Sheet I-9, Revised January 2015.
21. Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated March 2014, revised January 7, 2015) Sheet LS-1, Revised January 2015.
22. Alliance Consulting Engineers, Inc. drawings (Dwg. No. 01,782-D14, dated March 2014, revised January 6, 2015) Sheet L-2, Revised January 2015.
23. SCE&G Drawing # D-81178 dated August 18, 2014.
24. SCE&G Drawing # EH-4 dated August 27, 1992.
25. Revised Bid Form (Section 00410) – (Fifteen (15) Pages).

END OF ADDENDUM NO. 3

SECTION 02310 HORIZONTAL DIRECTIONAL DRILLING (REVISED 1-7-15)

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. This section includes requirements for Horizontal Directional Drilling (HDD) of fusible PVC piping, as shown on the plans.

1.2 RELATED SECTIONS

- A. Section 02207 - Aggregate Materials.
- B. Section 02222 - Excavating.
- C. Section 02223 - Backfilling.
- D. Section 02225 - Trenching.
- E. Section 02732 - Sanitary Sewage Systems.
- F. Section 02733 - Sanitary Sewer System Force Mains.
- G. Section 02735 – Fusible Polyvinylchloride Pipe

1.3 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Measurement and payment for the Horizontal Directional Drilling shall be per the unit price per linear foot as stated in the Bid Form and shall be based on the actual laying length of the finished pipe installed using horizontal directional drilling techniques. This item includes all equipment, labor, pipe, fittings, and other materials necessary for a complete installation of the directional bore.

1.4 SUBMITTALS FOR REVIEW

- A. Section 01300 - Submittals: Procedures for submittals.
- B. General: Provide project references for the operator and project manager or supervisor that they were directly involved in completing. This reference list shall include the project description, location, owner and contact information, quantity, size and type of pipe installed by HDD. This requirement may be waived if subcontractors were prequalified less than 90 days prior to the bid.
- C. Product Data: Provide data on pipe and fittings proposed for use on the project.

- D. Equipment: Provide a description of the HDD equipment proposed for use on the project including the thrust and torque capacities.
- E. Drilling Plan: Provide a drilling plan that includes a detail of the planned drilled borepath and the method for monitoring and controlling the speed, line, grade, and rate of fluids delivery. It shall include the sequence, size and description of each reamer and the capabilities of each through various geologic formations. The HDD contractor or subcontractor (CONTRACTOR) must maintain the alignment and minimum radii as detailed on the plan sheets, unless otherwise approved. Any drill plan should include a final swabbing of the borepath prior to pipe pullback. Unless approved by the ENGINEER prior to the start of drilling operations, pipe pullback of the new flexible restrained joint pipe without prior swabbing of the borepath to the finished borepath inside diameter will not be permitted.
- F. Estimated Pullback Thrust: The CONTRACTOR shall submit to the ENGINEER an estimate of the anticipated pullback thrust that will be required to install the new flexible restrained joint pipe. This estimate shall include the calculated buoyant force or buoyant weight of the new pipe and any proposed method for counter-weighting the pipe during pullback. Pipe buoyant force or buoyant weight shall be calculated based on the density of drilling fluid(s) to be used. Any counter-weight placed inside the pipe shall be free from any dirt, grease, oil, or other contaminants that may prevent proper disinfection for waterlines.
- G. Drilling Fluids Management: A fluids management plan shall be submitted to the ENGINEER for review. This plan shall include the proposed mix design for each specific geological strata or formation anticipated during drilling of the borepath, an estimate of quantities, delivery volume and pressure for each and the proposed method for monitoring. This plan shall also include details of the drilling fluid / soil slurry solids separation, recycling or disposal plan that will describe the equipment and capacities for separation and recirculation. If direct vacuum excavation of the slurry is selected the disposal site shall be identified and copies of all required permits shall be presented to the ENGINEER for approval. The CONTRACTOR shall submit a written plan that details the estimated quantity of slurry to be vacuum excavated and provide substantiation that there is sufficient equipment to adequately pump or shuttle the slurry to and from the disposal site(s) as required to maintain a near continuous drilling and pipe pull-back.
- H. Inadvertent Surface Discharge of Drilling Fluid (Frac-out): The CONTRACTOR shall submit to the ENGINEER a plan for a quick response team to address inadvertent fluid discharges to the surface (frac-outs).

1.5 SUBMITTALS FOR CLOSEOUT

- A. Section 01700 - Contract Closeout: 01730 - Operation and Maintenance Data: 01740 - Warranties and Bonds: Procedures for submittals.
- B. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.6 SUBMITTALS AT PROJECT CLOSEOUT

- A. Section 01700 - Contract Closeout: 01730 - Operation and Maintenance Data: 01740 - Warranties and Bonds: Procedures for Submittals.
- B. Record actual locations and elevations of boring ends and actual installed pipe at 50' intervals.
- C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.7 QUALITY ASSURANCE

- A. Perform Work in accordance with all applicable codes.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Section 01600.

PART 2 PRODUCTS**2.1 DIRECTIONAL DRILLING MATERIALS**

- A. The directional drilling equipment shall include the following:
 - 1. Directional drilling rig of the required capacity to perform the bore and pullback the pipe.
 - 2. Drilling fluid mixing, delivery, and recovery system of sufficient capacity to successfully complete the bore.
 - 3. Drilling fluid recycling system to remove solids from the drilling fluid so that the fluid can be reused.
 - 4. Guidance system to accurately guide boring operations.
 - 5. Vacuum truck of sufficient capacity to handle the drilling fluid volume.
 - 6. Trained and competent personnel to operate the system.
 - 7. All equipment shall be in good, safe operating condition with sufficient supplies, materials and spare parts on hand to maintain the system in good working order for the duration of this project.
- B. Drilling Rig: Hydraulically powered system to rotate, push, revolve, and pull hollow drill pipe into the ground at varying angles while delivering a pressurized fluid mixture to a guidable drill (bore) head.
 - 1. Anchor drill rig sufficiently to avoid slipping, pulling, and rotating pressures that may occur from the installation of the bore.
 - 2. Drill rig hydraulic power system shall be self-contained to maintain a clean working environment free of leaks.

3. Drill rig to have pressure gauges to monitor maximum pull back pressure.
 4. Drill rig to be electrically grounded during drilling and pull back operations.
 5. Drill pipe shall be constructed of high quality 4130 seamless tubing, Grade D, or better with threaded box and pins. Toll joints should be hardened to 32-36 RC.
- C. Guidance System: Guidance system to be a proven accurate type with an interface meeting the following requirements:
- D.
1. System should accurately and continuously monitor the horizontal and vertical location of the drill head to 2% accuracy at the depths required by the project.
 2. System should be operated by personnel trained and experienced with the operation of the guidance system being used.
- E. Drilling Fluid (MUD) System: Provide a self contained closed drilling fluid mixing system to continually agitate the mix and deliver drilling fluid composed of bentonite clay, potable water and appropriate additive. Mixing system shall be able to molecularly shear individual bentonite particles from the dry powder to avoid clumping during drilling operations.
- F. Drilling Fluid: Drilling fluid should be composed of clean water (pH of 8.5 – 10), bentonite clay and approved additives. Water of lower pH or with excessive calcium should be treated with appropriate amounts of sodium carbonate. Mix water and bentonite clay thoroughly to minimize the clumping. No other substances should be used in the drilling fluids without prior approval of the ENGINEER.
- G. Pipe Rollers: A sufficient number of pipe rollers should be provided as necessary to adequately support the weight of the pipe during hydro-testing and pull back operations.
- H. Pipe: Fusible PVC pipe per specification 02735. Use DR18, ductile iron OD pipe colored green for wastewater.
1. Tracing Wire: #12 Copper Conductor with Blue Insulation.
- H. Pressure and Thrust (Pulling): Butt fused joints used for HDD, when properly assembled and installed, shall be capable of dependably handling the specified internal pressure and pulling loads, in straight alignment or at maximum rated joint deflection. Maximum internal pressure and allowable pulling loads for all sizes are provided by the pipe manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify existing conditions under provisions of Section 01039.
- B. Prior to the start of drilling, reaming, and pipe placement operations, the CONTRACTOR shall properly locate and identify all existing utilities in proximity to the pipeline alignment. The CONTRACTOR shall confirm the alignment of all critical utilities, by pot-holing/day-lighting using vacuum excavation or other suitable excavation method, for further detailed confirmations as necessary.

3.2 PREPARATION

- A. Prepare and review a commencement schedule with the ENGINEER to describe the execution of the project including a description of materials and equipment to be used. This documentation should include a safety plan, traffic control plan, environmental protection plan, and a contingency plan in the case of an emergency.
- B. Remove scale and dirt on inside and outside before assembly.
- C. Prepare pipe connections for connection to other piping materials.
- D. Environmental protection:
 - 1. Install silt fence between all drainage, wetland, waterway or other area designated for such protection and drilling operations as necessary, by contract documents, or any local, state and federal requirement.
 - 2. Install any measures necessary to contain any hydraulic or drilling fluid spills.
 - 3. Do not store fuel in bulk containers within 20' of any water-body or wetland.

3.3 INSTALLATION – DIRECTIONAL DRILLING

- A. Directional drilling operations shall be performed in accordance with all requirements of the SCDOT or the railroad, as applicable, including insurance, inspection, temporary work, watchmen, flagmen, protection of personnel and property, work restrictions, work scheduling and blasting. Unless otherwise specified or directed, the CONTRACTOR shall pay for all costs in connection with meeting these requirements. The CONTRACTOR shall be responsible for repair or replacement of all existing structures and facilities, including settlement of roadways, damaged or disturbed as a result of the work, at no additional cost to the OWNER and SCDOT or railroad, within a period of one year after completion of boring and tunneling operations. All work shall be completed to the full satisfaction of the SCDOT or railroad.
- B. Insurance requirements are specified in Section 00700, and as specified hereinafter.
- C. Inspection: Directional drilling operations will be subject to inspection by the ENGINEER and by the SCDOT or railroad, as applicable. The department of transportation or railroad inspector will have full authority to stop work if, in his opinion, it may cause damage to the highway or railroad or endanger traffic.
- D. Railroad Right-of-Way: For all work on railroad right-of-way, the CONTRACTOR shall notify the railroad at least seventy-two (72) hours prior to beginning construction.
- E. Blasting:
 - 1. SCDOT: No blasting will be done without prior written approval of the SCDOT. If requested, the CONTRACTOR shall furnish the department of transportation with details of the proposed blasting method. Blasting shall comply with all federal, state and local regulations pertaining to the use of explosives.

2. Railroad: No explosives or blasting will be permitted in connection with boring and tunneling operations without prior written approval of the railroad. When requesting approval to blast on railroad right-of-way, the CONTRACTOR shall provide the following at no additional cost to the OWNER and as necessary to comply with railroad requirements
 3. Certificate of Insurance (in the amount required by the railroad) with proof that explosion, collapse and underground coverage shall be provided. The certificate shall show that insurance coverage is provided for the contractual liability assumed by the OWNER in his encroachment agreement with the railroad.
 4. Blasting procedure (including load, drill and shooting pattern) shall be submitted. If the railroad engages the services of an independent blasting expert to monitor blasting, the cost of this expert will be paid by the OWNER. All other costs in connection with blasting shall be paid by the CONTRACTOR.
- F. CONTRACTOR shall submit complete drawings, details and other data of the proposed method of construction, materials and equipment to the ENGINEER and SCDOT or railroad for review. No open excavation will be allowed within the limits of the bore without the ENGINEER's approval. All sheeting, shoring and bracing shall be provided as necessary for the satisfactory and safe performance of the work, and will be subject to the approval of the ENGINEER and in accordance with the requirements of the SCDOT or railroad. All work areas shall be maintained in a suitable dry condition at all times, with methods of dewatering, draining, pumping and disposal of water subject to approval of the ENGINEER and SCDOT or railroad.
- G. External Loads and Buckling: In cases where the borepath alignment is at an extreme depth or if the CONTRACTOR anticipates high pumping pressures particularly for larger sizes of pipes, the CONTRACTOR shall consult the pipe Manufacturer to assure that the buckling strength of the pipe has been properly evaluated.
- H. Entry and Exit Angles: The entry angle of the drill string shall range from 8 degrees to 13 degrees. Exit angles for the drill string shall take into consideration the allowable deflection and the method of installation proposed. The CONTRACTOR shall submit a detailed plan showing the connection between the HDD installed piping and the next section of pipeline.
- I. Minimum Radius of Curvature: The CONTRACTOR shall maintain the borepath alignment and radii that are indicated on the project drawings. Any alternate designs must be submitted to the ENGINEER for approval prior to commencement of drilling operations, and shall be based on a range from 50-feet to 100-feet per inch of nominal diameter, using 20-foot joint lengths.
- J. Borepath Inside Diameter: The finished inside diameter of the borepath shall be nominally 1.5 times the outside diameter of the FPVC.
- K. Pulling Head Assemblies: The pulling head assembly for FPVC pipe shall be designed and furnished by the pipe supplier.

- L. Joint Assembly: The CONTRACTOR shall be responsible for the proper assembly of all pipe and appurtenances in accordance with the Manufacturer's written procedure and as supplemented by these guidelines. Prior to joint assembly all joints and joint components shall be thoroughly cleaned and examined to assure proper assembly and performance. In the event that the CONTRACTOR is not experienced with the assembly of the type of flexible restrained joint being used, it shall be the responsibility of the CONTRACTOR to contact a factory-trained representative for recommendations on the proper and efficient installation of the joint.

3.4 FIELD QUALITY CONTROL

- A. Section 01400 - Quality Assurance: Field inspection and testing.
- B. Compaction testing will be performed in accordance with one of the following sections. ASTM D1557, ASTM D698, AASHTO T180, ASTM D2922, ASTM D3017.
- C. If tests indicate Work does not meet specified requirements, remove Work, replace, and retest.
- D. Frequency of Tests: The frequency of tests shall be determined solely by the ENGINEER.
- E. Diagnostic Air Testing: Because of the critical nature of the installation, diagnostic testing of assembled pipes shall be performed using a low pressure air test (e.g. 2-4 psi) or other approved method before the entire pipe section is installed inside the borepath.
- E. Pressure Test: All pressure/leakage testing shall conform to the hydrostatic testing requirements of AWWA C605-latest edition. The CONTRACTOR will be required to test each section of line between valves at a pressure of 150 pounds per square inch or 1.5 times the operating pressure, whichever is greater. This pressure shall be maintained for not less than two (2) hours or as long as the ENGINEER may require in order to detect any leakage or defective material. Any makeup water required shall be carefully measured and the leakage shall not exceed the requirements of AWWA C600-latest edition. Any leakage shall be corrected. The CONTRACTOR shall use an oil filled 0 - 300 PSIG gage to determine the test pressure.

END OF SECTION

1.5 SUBMITTALS AT PROJECT CLOSEOUT

- A. Section 01700 - Contract Closeout: 01730 - Operation and Maintenance Data: 01740 - Warranties and Bonds: Procedures for submittals.
- B. Provide paper copies of O & M Manuals as specified in Section 01700.

1.6 REGULATORY REQUIREMENTS

- A. Conform to applicable codes for materials and installation of the Work of this section.

PART 2 PRODUCTS

2.1 REFERENCED MANUFACTURERS

- A. The referenced manufacturers are listed in this section only to establish the standards of quality for all equipment being furnished. Equal products of other manufacturers may be accepted with written approval from the Engineer. The listing of any manufacturer as a reference in no way diminishes the manufacturer's responsibility to strictly comply with these specifications.
- B. Pumps
 - 1. ABS Pumps
 - 2. Or Pre-Approved Equal

2.2 PUMPS AND PUMP MOTORS

- A. Furnish two (2) submersible non-clog wastewater pumps. Each pump shall be equipped with a 70 HP, 1780 rpm submersible electric motor connected for operation on 460 V, 3 phase, 60 Hz. wire service. The pumps shall be ABS model XFP 150J-CH2 or pre-approved equal. Pump(s) operating at higher speeds than specified are not considered equal. Each unit shall be rated for a discharge of 1,200 gpm at 115 feet TDH with a minimum efficiency of 67.3% at the operating point. An additional point on the same curve shall be 1620 gpm at a minimum 100 feet total head. The shut off head shall be 168 feet minimum.
- B. The pumps shall be designed to pump raw, unscreened sewage, stormwater, and other fibrous pumpage without damage during operation. The pump shall be capable of passing a three inch diameter sphere without damage to the pump or clogging of the pump. The pumps shall be designed such that the pump shaft horsepower (BHP) shall not exceed the motor rated horsepower throughout the entire operating range of the pump performance curve.
- C. Each pump shall be supplied with automatic coupling system for easy removal of a pump for repair or replacement. The coupling system shall include an upper guide rail bracket, guide bar(s) or rail(s), sliding guide rail bracket and a mating cast iron

2.02 SOURCE QUALITY CONTROL

- A. See Section 01400 - Quality Requirements, for general requirements for testing and analysis of aggregate materials.
- B. Where aggregate materials are specified using ASTM D2487 classification, test and analyze samples for compliance before delivery to site.
- C. Where aggregate materials are specified using ASTM D2487 classification, testing of samples for compliance will be provided before delivery to site.
- D. If tests indicate materials do not meet specified requirements, change material and retest.
- E. Provide materials of each type from same source throughout the Work.

2.03 PRIME ASPHALT

- A. Use either MC-30, RC-30, RC-70, or EA-P complying with requirements of Sections 406, 407 and 408 of the South Carolina Department of Transportation specifications.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that survey bench marks and intended elevations for the work are as indicated.
- B. Verify substrate has been inspected, gradients and elevations are correct, and is dry.

3.02 PREPARATION

- A. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.
- B. Do not place aggregate on soft, muddy, or frozen surfaces.
- C. Proofroll all areas to receive crushed stone paving.
 - 1. Make not less than three passes over the full area, using a 35 to 50 ton rubber tired roller.
- D. Remove all soft, unstable or unsuitable material that will not compact readily.
 - 1. Remove to full depth of unsuitable material, or to a depth of 30-inches, whichever is less.
 - 2. Replace with satisfactory materials.
- E. Fill all holes, ruts or depressions which develop in the subgrade with approved on-site material, bringing subgrade to indicated line and grades.
- F. Compact subgrade using suitable construction procedures to provide not less than 95% Standard Proctor Maximum Dry Density.
- G. Seal roll the subgrade surface with a steel wheel roller, sealing the surface against excessive water infiltration.
- H. Preparation of Subgrade
 - 1. Proofroll all areas to receive crushed stone paving.
 - a. Make not less than three passes over the full area, using a 35 to 50 ton rubber tired roller.
 - 2. Remove all soft, unstable or unsuitable material that will not compact readily.
 - a. Remove to full depth of unsuitable material, or to a depth of 30-inches, whichever is less.
 - b. Replace with satisfactory materials.
 - 3. Fill all holes, ruts or depressions which develop in the subgrade with approved on-site material, bringing subgrade to indicated line and grades.
 - 4. Compact subgrade using suitable construction procedures to provide not less than 100% Modified Proctor Maximum Dry Density.
 - 5. Seal roll the subgrade surface with a steel wheel roller, sealing the surface against excessive water infiltration.

3.03 INSTALLATION

- A. Spread aggregate over prepared substrate to a total compacted thickness of 10 inches.

**SECTION 02930
LANDSCAPE WORK**

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK:

- A. Work included: Work under this Section includes installation of all trees, shrubs, ground cover, annuals, sod and related work required for completion of the project as shown on the Drawings and specified herein.
 - 1. Included hereunder are the furnishing of all equipment, materials and labor necessary to furnish and/or install soil treatment, sodding, planting and mulching of trees, shrubs and vines, protection, maintenance, guarantee and replacement of plants and all work related to the above as specified.

1.2 QUALITY ASSURANCE:

- A. Contract landscape work to a single firm specializing in landscape work.

1.3 SOURCE QUALITY CONTROL:

- A. General: Ship landscape materials with certificates of inspection required by governing authorities. Comply with regulations applicable to landscape materials.
- B. Do not make substitutions. If specified landscape material is not obtainable, submit proof of non-availability to Landscape Architect, together with proposal for use of equivalent material.
- C. Analysis and Standards: Package standard products with manufacturer's certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agriculture Chemists, wherever applicable.

PART 2 - PRODUCTS

2.1 TOPSOIL

- A. Topsoil will be placed (spread) and rough graded by the General Contractor. Utilize any stockpiled topsoil, cleaned and screened, for re-use in Landscape Work. The contractor shall provide additional topsoil as required to complete Landscape Work. Landscape Contractor will be responsible for fine grading of areas to be planted and sodded. Areas to receive sod and/or plantings shall receive 4" minimum topsoil. Topsoil required shall be furnished as follows: Obtain topsoil only from naturally well-drained sites having similar soil characteristics to that found at Project Site and where topsoil occurs at a depth of not less than 4". Do not obtain from bogs or marshes.
 - 1. Topsoil shall not contain subsoil, debris, lumps or rocks larger than 1" in diameter, or weed seed.
 - 2. Topsoil shall be classified as loam, silt loam, clay loam or any combination thereof. Classifications are as determined by the Bureau of Plant Industry, Soils and Agricultural Engineering USDA Triangular Soil Texture Chart.
 - 3. Topsoil shall contain not less than 3 percent and not more than 10 percent, by weight of organic matter, as determined by weight loss upon ignition of oven-dried samples.

2.2 Select Material for Median Backfill

Median backfill material shall consist of 50% sand, 50% topsoil. Topsoil component shall be a sandy loam, loamy sand, or loam texture per the USDA textural triangle. Maximum clay content shall be <5%. Topsoil shall be free of stones, stumps, roots, or other debris. No other materials shall be mixed or dumped within the planting areas that may be harmful to plant growth or prove a hindrance to planting or maintenance operations. Soil mix shall be free of any noxious weeds. Soil mix shall have a pH range of 5.5 to 6.5 and an organic matter of 1.5-3%. Sand shall be clean and free of any deleterious materials and shall meet AASHTO M-6 or

ASTM c-33. Provide soil sample with soil test documentation for approval by landscape architect prior to installation.

2.3 SOIL AMENDMENTS:

- A. The Landscape Contractor shall furnish the Landscape Architect soil analysis and reports as performed by the Agricultural Extension Service or commercial testing laboratory for all area to receive planting. The Landscape Contractor shall incorporate necessary additives in proper quantities as recommended in the soil analysis, or as necessary to bring the soils up to acceptable standards. The Landscape Contractor shall include in his bid and shall pay for all tests required.

- B. Commercial fertilizer shall be complete slow release fertilizer as specified by soil analysis and shall conform to the applicable state fertilizer laws. Fertilizer shall be uniform in composition, dry and free-flowing and shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's guaranteed analysis. Any fertilizer which becomes caked or otherwise damaged making it unsuitable for use will not be accepted.
- C. Fertilizer Tablets or Packets. Fertilizer planting tablets or packets shall contain prolonged-release nitrogen, derived from Urea-formaldehyde. Tablets or packets shall be at least a strength of 16-8-5. The amount of available nitrogen, phosphorus or potash may be increased slightly to meet the standard manufactured products available. This fertilizer shall conform to the applicable state fertilizer laws and shall be delivered to the site in the original unopened containers, each bearing the manufacturer's guaranteed analysis.
- D. Herbicide shall be an approved commercial grade pre-emergent herbicide used in soil preparation. The particular type of herbicide shall be certified safe for the plants specified in the Plant List or for the plants around which the herbicide shall be used.
- E. Lime shall be ground limestone (Dolomite) containing not less than eighty-five (85) percent of total carbonates and shall be ground to a fineness that fifty (50) percent will pass through a 100-mesh sieve and ninety (90) percent will pass through a 20-mesh sieve. Courser material shall be acceptable provided that specified rates of application are increased proportionally on the basis of quantities passing the 100-mesh sieve.
- F. Compost shall be a domestic product consisting of partially decomposed vegetable matter of natural occurrence. It shall be brown, clean, and low in content of mineral and woody materials, mildly acid and granulated or shredded.
- G. Ammonium nitrate shall be a commercially available agricultural chemical and shall be furnished under the manufacturer's guaranteed statement of analysis giving percentage of active ingredients.
- H. Water. The Owner shall supply, at no expense, an adequate supply of water to meet the needs of this Contract. The contractor shall furnish all necessary hose, equipment, attachments and accessories for the adequate irrigation of planted areas as may be required to complete the work as specified.

2.4 STAKING:

- A. Material for Staking and Guying:
 1. Material for staking and guying must be 2 1/2" x 2 1/2" x 8' long solid oak stake.
 2. Wire for fastening trees to stakes shall be No. 10 gauge pliable, galvanized iron. All wires to be placed with brightly colored uniform flagging for easy sighting.
 3. Hose to encase wire used for fastening trees to stakes shall be new or used two-ply reinforced rubber garden hose, black or green in color. Only one color shall be used throughout the project.

2.5 GRASSING

- A. Sod shall be well-rooted, at least 98% Centipede completely free of noxious weeds and grasses. It shall be mowed to a height not to exceed 2" before lifting and shall be of uniform thickness, with not over 1-1/4" or less than 1" of soil and shall be approved by the Landscape Architect before planting.
- B. Sprigs shall be healthy living stems (stolons or rhizomes) with attached roots, harvested without adhering soil and obtained from approved sources where sod is heavy and thickly matted. The presence of Johnson grass, Nutgrass or other objectionable grasses, weeds, or other detrimental materials will be cause for rejection. Not more than 24 hours shall elapse between harvesting and planting of sprigs, except that when weather or other uncontrollable conditions interrupt the work, a time extension may be granted, providing sprigs are still

moist and viable. Sprigs that have heated in stockpiles, become frozen, allowed to become dry or otherwise seriously damaged will be rejected and shall be disposed of as directed by the Landscape Architect.

- C. Grass seed shall be clean, new-crop seed complying with tolerance for purity and germination established by Official Seed Analysts of North America. Provide seed mixtures composed of grass species, proportions and minimum percentages of purity, germination, and maximum percentage of weed seed, as specified. Seed shall conform to all State laws and requirements and regulations of the SC Department of Agriculture. The Owner reserves the right to test, reject, or approve all seed.

2.6 MULCH:

- A. Shredded and double hammered Hardwood Mulch shall be fresh, clean, and free from sticks and debris.
- B. Samples of materials as listed below shall be submitted for inspection, on the site or as otherwise determined by the Landscape Architect. Upon approval of samples by the Landscape Architect, delivery of materials may begin.

MATERIALS	SAMPLE
Shredded and Double Hammered Hardwood Mulch	1 Gallon
Plants	1 of each
Sod	1 Roll

Typical samples shall be furnished from each separate source of supply. Approved samples shall be stored on the site and protected until furnishing of materials is complete. Plant samples may be planted in permanent positions, but labeled as samples.

2.7 PLANT MATERIALS (See Plant List):

- A. Nomenclature. The names of plants required under this Contract conform to those given in Standardized Plant Names, 1942 Edition, prepared by the American Joint Committee on Horticultural Nomenclature. Names of varieties not included therein conform generally with names accepted in the nursery trade.
- B. Quantities. Provide quantities necessary to complete the planting as shown on the drawings. Contractor must check quantities and differences shall be brought to the attention of the Landscape Architect.
- C. Quality and Size. Plants shall have a habit of growth that is normal for the species and shall be sound, healthy, vigorous and free from insect pests, plant diseases and injuries. All plants shall equal or exceed the measurements specified in the Plant List which are minimum acceptable sizes. They shall be measured before pruning with branches in normal position. Any necessary pruning shall be done at the time of planting. Requirements for the measurement, branching, grading, quality, balling and burlapping of plants in the Plant List generally follow or exceed the Code of Standards currently recommended by the American Association of Nurserymen, Inc. in the American Standard for Nursery Stock.
- D. Substitutions will be permitted after Award of Contract only upon submission of proof in writing that a plant is not obtainable and authorization by the Landscape Architect for use of the nearest equivalent obtainable size or variety of plant having the same essential characteristics. Should this substitution result in the use of a smaller or less valuable plant, a change order will be issued with an equitable adjustment in contract price.
- E. Type of Protection to Roots:
 - 1. Balled and Burlapped Plants. Plants shall be balled and burlapped unless otherwise noted on the Drawings. They shall be dug with firm, natural balls of earth of sufficient diameter and depth to encompass the fibrous and feeding root system necessary for full

recovery of the plant and of minimum sizes shown on the Plant List. Balls shall be firmly wrapped with untreated burlap or similar material and bound with twine, cord or wire mesh. Where necessary to prevent breaking or cracking of the ball during the process of planting, the ball may be secured to a platform.

2. Container-grown plants designated in the Plant List shall have been grown in a container such as pots, cans, tubs or boxes and have sufficient roots to hold earth together intact after removal without being root bound. Container size shall be in proportion to plant size and in accordance with AAN Standards. The Landscape Architect shall have the option to reject container-grown material if the growing media is too porous to hold adequate water for the plant's survival without watering more than once a week.
- F. Protection after Delivery. The balls of plants which cannot be planted immediately upon delivery shall be covered with moist soil or mulch or provided with other protection from drying winds and sun. All plants shall be watered as necessary until planted.

PART 3 - EXECUTION

3.1 PLANTING METHODS:

- A. Time of Planting. Planting operations shall be conducted under favorable weather conditions preferably during the period from October 1 to April 1. The Landscape Contractor has the option and assumes full responsibility for planting during unseasonable conditions. Trees should be dug and heeled in or in container and placed in a well watered holding area provided by the nursery or Landscape Contractor until the time of planting. Landscape Contractor to be responsible for the welfare of the tree until project is completed, when the owner will assume responsibility.
- B. Plants to Remain. The Landscape Contractor shall take all necessary precautions to preserve and protect all existing plants that are to remain on the site. This shall include, but is not limited to, hand excavation of planting pits in close proximity to existing shrubs or within the spread of branches of larger trees, watering of existing materials adjacent to plant pits, trimming or pruning to permit installation of new plants or to repair damaged existing plants.
- C. Obstructions Below Ground or Overhead:
 1. It is not contemplated that planting shall be done where the depth of soil over underground construction, obstructions or rock, is insufficient to accommodate the roots or where pockets in rock or impervious soil will require drainage. Where such conditions are encountered in excavation of planting areas and where the stone, boulders or other obstructions cannot be broken and removed by hand methods in the course of digging plant pits of the usual size and where trees to be planted are found to be under overhead wires, other locations for the planting may be designated by the Landscape Architect.
 2. Removal of rock or other underground obstruction, relocation of construction and provisions of drainage for planting areas shall be done only as directed by the Landscape Architect.
 3. Should the Landscape Contractor encounter unsatisfactory surface or subsurface drainage conditions, soil depth, latent soils, hard pan, steam or other utility lines or any other conditions that will jeopardize the health and vigor of the plantings, he must advise the Landscape Architect in writing of the conditions prior to installing the plants. Otherwise, the Landscape Contractor warrants that the planting areas are suitable for proper growth and development of the plants to be installed.
- D. Lawns
 1. See Planting Plans for location of areas to be sodded.
 2. Fine Grading Areas to be sodded shall be brought to within the thickness of the sod of the finished grade. Allowance for settlement shall be made. Fine grading for all areas will be performed by the Landscape Contractor prior to any planting or sodding.

3. Soil Improvements:
 - a. Ground limestone shall be applied at the rate recommended by the testing laboratory.
 - b. Fertilizer shall be applied at the rate recommended by the testing laboratory.
 - c. Application. Limestone shall be thoroughly mixed into the topsoil and as far ahead of sodding as possible, to prevent interfering with other grading operations.
- E. Laying of Sod
 1. Before any sod is laid, all soft spots and inequalities in grade shall be corrected. Fertilizer spread shall be raked in. Sod shall be laid so that no voids occur, tamped or rolled and then watered thoroughly. The completed sodded surface shall be true to finished grade, even and firm at all points.
 2. Sod on slopes steeper than 2 1/2 to 1 shall be held in place by wooden pins about 1" square and about 6" long, driven through the sod into the soil until they are flush with the top of the sod or by other approved methods for holding the sod in place. Stakes shall be spaced along the center-line of a strip of sod at intervals of approximately 3'.
 3. During dry periods, sod must be watered as it is laid.
- F. Sprigging
 1. Sprigs shall be applied at a rate no less than 17.5 bushels per 1,000 square feet (750 bushels per acre). Sprigging shall not be done during windy weather, or when the ground is excessively wet, frozen, or otherwise untillable. If the soil is not sufficiently moist when sprigs are being set, water shall be applied until the soil contains sufficient moisture. Sprigs shall be broadcast by hand or by suitable equipment in a uniform layer over the prepared surface with spacing between sprigs not to exceed 8 inches. The sprigs shall then be forced into the soil to a depth of 2 to 3 inches with a disk harrow or other satisfactory tool set to cover the sprigs to the required depth. A portion of the sprig foliage should be left exposed at the soil surface. After the planting of sprigs and prior to compaction, the surface shall be cleared of stone larger than 2-1/2", large clods, roots, and other litter brought to the surface during sprigging. The sprigged areas shall be compacted within 24 hours from the time sprigging has been completed, weather and soil conditions permitting, by cultipackers, rollers, or other suitable equipment. Compaction shall not be done when the soil is in such condition that it is being picked up by the equipment, nor shall clay soils be compacted. Ensure adequate moisture to all sprigged areas during initial establishment period. A second application of fertilizer shall be applied after plants have become established, applied in a dry form as directed by soil testing results.
 2. Acceptance. Sprigged areas shall achieve a 90% rate of coverage after 8 weeks, and 100% coverage at the end of the growing season. Coverage will be determined on a square yard basis.
- G. Seeding
 1. Areas to be seeded shall be uniform and shall conform to the finished grade as shown on the plans. The seedbed shall be loosened to a minimum depth of 3 inches before agricultural lime, fertilizer or seed is applied. Areas to be seeded shall be cleared of stones larger than 2.5 inches in any dimension, roots and other debris. At areas to be grassed where the existing seed bed has little or no topsoil, the Contractor shall furnish and place topsoil in order to ensure a good stand of grass.
 2. Lime and/or fertilizer shall be spread uniformly over the designated areas and shall be thoroughly mixed with the soil to a depth of 2 inches. Lime and fertilizer shall be applied at the rate specified by the soil test report. Lime and fertilizer may be applied by approved mechanical spreaders or by hydraulic methods as a mix of fertilizer and seed.

3. Within 24 hours following the covering of the seed, straw or hay mulch material shall be spread at the rate of 2 tons per acre. Mulch shall be held in place by an approved tacking agent applied at the manufacturer's recommended rate. Hydroseeding may be performed using 1500 pounds per acre wood, cellulose, or a wood/cellulose mix hydroseeding mulch with the manufacturer's recommended rate of an approved tacking agent.
4. The Contractor shall obtain a satisfactory stand of perennial vegetation whose root system shall be developed sufficiently to survive dry periods and winter weather, and be capable of re-establishment in the spring. The perennial vegetative cover shall have a minimum coverage density of 70% for the seeded areas.

H. New Plantings:

1. Layout. New planting shall be located where shown on the Drawings except where obstructions below ground or overhead are encountered or where changes have been made in the construction. Necessary adjustments shall be made only after approval by the Landscape Architect. No planting, with the exception of ground cover, espalier plants and hedge, shall be placed closer than 2' to pavement or structures. The Landscape Contractor shall be responsible for staking and layout of plantings on this project. The Landscape Architect shall be advised when stakes are in place and ready for inspection on various planting areas. All layout work shall be inspected and approved by the Landscape Architect prior to opening any plant pits.
2. Planting Pits. Reasonable care shall be exercised to have pits dug and soil prepared prior to moving plants to their respective locations for planting to insure that they will not be unnecessarily exposed to drying elements or to physical damage. However, no open holes shall be left overnight or unmarked or unattended.
 - a. Circular pits with vertical sides shall be excavated for all plants in beds or trenches. See Planting Plan for more detailed information regarding preparation of planting areas. Diameter of pits for trees and shrubs shall be at least 2' greater than the diameter of the ball or spread of roots. The depth of pits for trees, shrubs and vines shall be enough to accommodate the ball or roots when the plant is set to finished grade allowing for 6" of compacted topsoil or prepared soil in the bottom of the pit.
 - b. Before planting any area, fill a representative sample of the excavated planting pits and beds with water to a depth 6" or more as required to verify if the subsoil is permeable enough to percolate satisfactorily and drain adequately after plants are installed. Advise the Landscape Architect in writing if any problems are anticipated regarding excessive ground water or unsuitable percolation.

I. Soil Preparation for Planting Trees and Shrubs:

1. Soil used in planting shall be existing soil and/or re-spread topsoil. The prepared soil mix in tree pits as herein before specified shall be thoroughly mixed with one part compost to three parts of existing soil.
2. Fertilizer tablets or packets shall be placed in each tree or shrub plant pit at a depth of 6" to 8" when the plant is set in place. The exact quantity and distribution of tablets or packets shall be in strict accordance with the manufacturer's recommendation for the sizes of material specified.
3. Excess excavated soil shall be disposed of off site by the Landscape Contractor unless specific permission is obtained from the owner to dispose of excess material on the site.

J. Soil Preparation for Planting Ground Cover and Annuals:

1. Loosen subgrade of lawn areas to a minimum depth of 6". Remove stones over 1 1/2" in any dimension, sticks, roots, rubbish, and other extraneous matter. Limit preparation to areas which will be planted promptly after preparation.
 2. Soil used in planting shall be existing soil as herein before specified and shall be thoroughly mixed with one part compost to three parts of existing soil.
 3. Add specified soil amendments as per soil analysis and mix thoroughly into upper 4" of topsoil.
 4. Excess excavated soil shall be disposed of off site by the Landscape Contractor unless specific permission is obtained from the Owner to dispose of excess material on the site.
- K. Setting Plants. Unless otherwise specified, all plants shall be planted in pits, centered and set on 6" of compacted soil or prepared soil to such a depth that the finished grade level at the plant after settlement will be the same as that at which the plant was grown. Prior to setting container-grown plants, make four to five cuts 1/2" - 1" deep, top to bottom on root-bound mass to loosen roots. Plants shall be planted upright and faced to give the best appearance or relationship to adjacent structures. No burlap shall be pulled out from under balls. Plant forms, wires and surplus binding from top and sides of the balls shall be removed. All broken or frayed roots shall be cut off cleanly. Prepared soil shall be placed and compacted carefully to avoid injury to roots and to fill all voids. When the hole is nearly filled, add water as necessary and allow it to soak away. Fill the holes to finished grade. After the ground settles, additional soil shall be filled in, to the level of the finished grade.
- L. Guying and Staking. Trees shall be supported immediately after planting. All trees shall be staked as detailed and shown on the Plans. Wires shall be encased in hose to prevent direct contact with the bark of the tree and shall be placed around the trunk in a single loop. Wires shall be tightened and kept taut by the use of turnbuckles. Stakes shall be equally spaced about each tree and shall be driven vertically into the ground to a depth of about 2' in such a manner as not to injure the ball or roots. Trees shall be fastened to each stake at a height where substantial branching will hold encased wire in place. Wire shall be doubled and twisted taut. Stakes shall be uniform in length and placed according to the type, size and location of the tree.
- M. Herbicide Treatment. All tree saucers, shrub and ground cover beds shall be treated after plants have been installed with an approved pre-emergent herbicide recommended by the manufacturer. Plants installed during the fall planting season shall be treated with the approved herbicide during the first week of April of the following year. Plants installed in the spring shall be treated with the approved herbicide immediately after installation. Herbicide shall be cleared by the manufacturer as safe for use around plants itemized in the Plant List.
- N. Shredded Hardwood Mulching. Tree and shrub beds shall be mulched with 3" of shredded hardwood mulch. This mulch shall cover the entire bed area and shall have a neat and well-defined edge between lawn area and shrub bed. Trees in lawn areas with individual saucers shall be mulched with 3" of shredded hardwood mulch.
- O. Pruning and Repair. All pruning and repair work must be completed within a ten day period after planting. The amount of pruning included under the work of this Section shall be limited to the minimum necessary to remove dead or injured twigs and branches and to compensate for the loss of roots as a result of transplanting operations.
1. Trees and some shrubs will be pruned back after planting to maintain a balance between the reduced root system and the branches. Care will be taken in this work to insure that the plants preserve their natural form.
 2. The natural form of newly planted trees and shrubs will be preserved in pruning by the removal of branches and/or part of branches at different lengths in accord with standard horticulture practices and as directed by the Landscape Architect. Pruning will always be done with a clean cut in living wood without bruising or tearing of bark and without leav-

ing any stubs which would prevent the wound from healing over. Horizontal cuts may cause rot and will be avoided.

3.2 CLEAN-UP:

- A. Clean-up. Any soil, bark, peat or similar material which has been brought onto paved areas within or outside the construction area by hauling operations or otherwise shall be removed promptly, keeping these areas clean at all times. Upon completion of the planting, all excess soil, stones and debris which have not been cleaned up shall be removed from the site or disposed of as directed by the Landscape Architect. All planting areas shall be prepared for final inspection.
- B. Other Work. The Landscape Contractor shall be responsible for the repair of any damage caused by his activities or those of his subcontractors within or outside the construction area such as the storage of topsoil or other materials, operation of equipment and other usage. Such repair operations shall include any regrading, sodding or other work necessary to restore damaged work or areas to an acceptable condition.

3.3 MAINTENANCE:

- A. Maintenance shall begin immediately following the last operation of installation for each portion for each plant and shall continue until installation of planting is complete and the planting is formally accepted. Maintenance shall include mowing, watering, weeding, cultivating, mulching, tightening and repairing of guys, removal of dead material, resetting plants to proper grades or upright positions, restoration of the planting saucer and other necessary operations. Any damage resulting from planting operations shall be repaired promptly.
- B. The Owner shall be responsible for all required maintenance after the planting is formally accepted (final acceptance).
- C. Maintenance Instructions - Landscape Work. The Landscape Contractor shall submit to the Owner three (3) copies of typewritten instructions recommending the monthly procedures to be established by Owner for the maintenance of landscape work during the one-year guarantee period. Submit prior to the final inspection for acceptance.

3.4 INSPECTION FOR ACCEPTANCE:

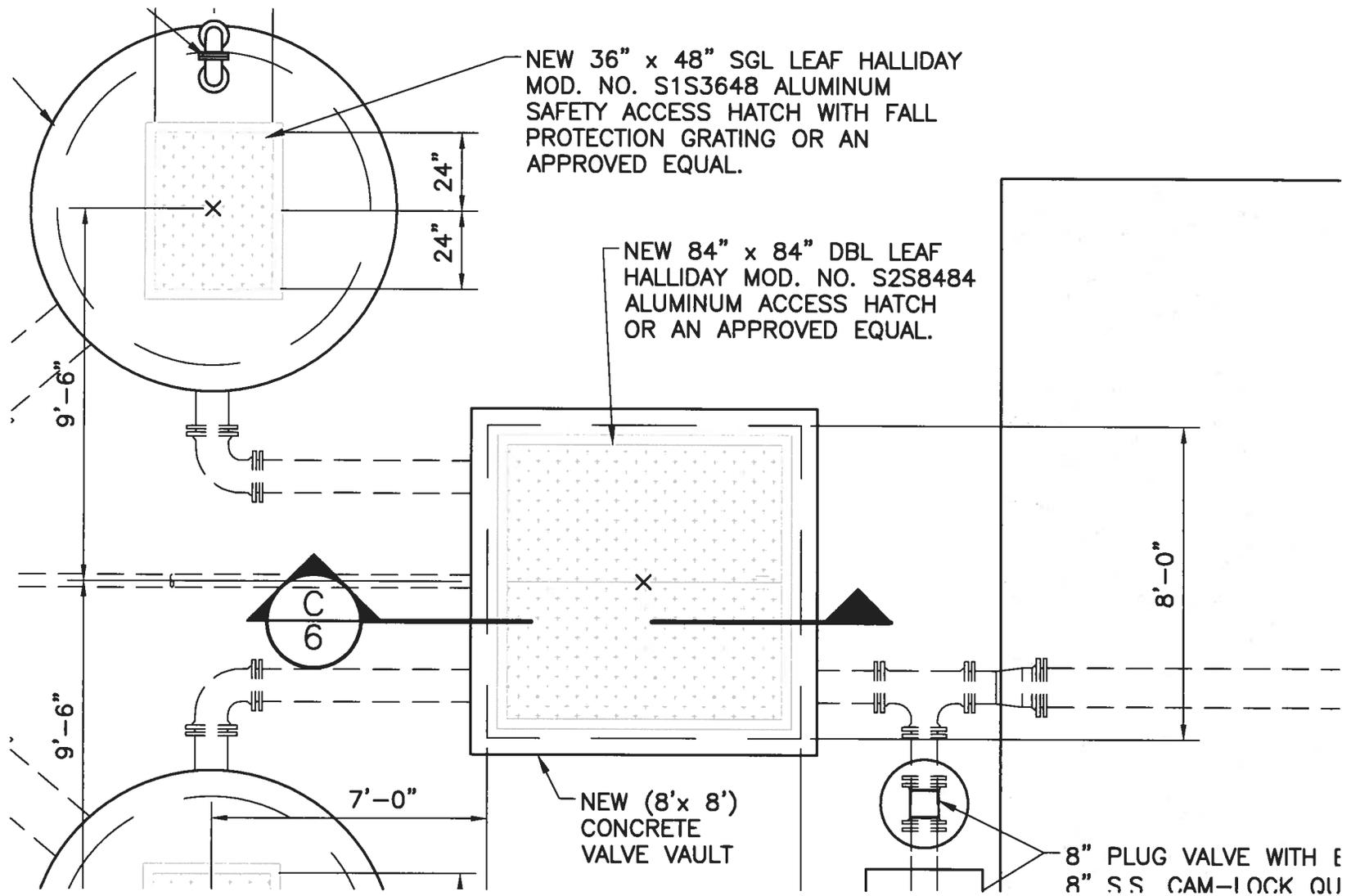
- A. Inspection of the work of this Section to determine completion of the Landscape Contractor's work, exclusive of the possible guarantee replacement of plants, shall be made by the Landscape Architect upon receipt of written notice requesting such inspection submitted by the Landscape Contractor at least ten (10) days prior to the anticipated date of inspection.
- B. Acceptance. After inspection, the Landscape Contractor will be notified in writing by the Landscape Architect of acceptance of all work of this Section, exclusive of the possible replacement of plants subject to guarantee or the Landscape Contractor will be notified in writing if there are any deficiencies from the requirements for completion of the work. Replacements, maintenance and repair work remaining to be done shall be subject to re-inspection before acceptance.

3.5 PLANT GUARANTEE AND REPLACEMENT:

- A. Guarantee. This guarantee shall be provided to the owner by the contractor responsible for planting and irrigation. Plants shall be guaranteed for the duration of one (1) full year after the formal acceptance of the planting by the Owner and shall be alive and in satisfactory growth at the end of the guarantee period. The Owner shall be responsible for all maintenance necessary to keep the plants alive and healthy between the time the plantings are accepted and the end of the guarantee period. The basic needs of the plants during this period are for adequate water and protection from insects and other similar pests. Plants severely damaged by vandals are not subject to replacement by this Landscape Contractor.
- B. Sodded lawn areas are not subject to a one year guarantee.

- C. Should the Landscape Contractor find the plant material is not receiving the proper maintenance at any time prior to the end of the guarantee period, he should advise the Landscape Architect and the Owner immediately in writing so corrective measures may be initiated.
- D. Replacement. At the end of the guarantee period, inspection will be made by the Owner and the Landscape Architect upon written notice requesting such inspection submitted by the Landscape Contractor at least ten (10) days prior to the anticipated date. Any plant installed under this Contract that is dead or not satisfactory in growth as determined by the Landscape Architect shall be removed from the site. These, and any plants missing due to the Landscape Contractor's negligence, shall be replaced as soon as conditions permit but during the normal planting season.
 - 1. Any plant that has die-back or otherwise loses 30% or more of its branches, excluding branches removed by trimming and pruning, as existing and living prior to removal from the nursery field shall be rejected. In case of any question, the Landscape Contractor may elect to allow such plant to remain through another complete growing season at which time the rejected plant, if found to be dead or in an unhealthy or badly impaired condition, shall be replaced.
 - 2. The Landscape Contractor shall be responsible for removing dead or diseased plants from the site during the guarantee period upon notification by the Owner or Landscape Architect. Dead plants may be removed by the Owner during the guarantee period provided they keep a photographic record of all plants removed. Photographs should show plant to such a degree that is clearly evident the plant is dead. Replacements shall be made only at the end of the guarantee period as described herein.
 - 3. The Landscape Architect shall inspect replaced plants when all replacements have been made. Any plant that is not alive and in a healthy vigorous condition shall be replaced again by the Landscape Contractor.
- E. Materials and Operations. All replacements shall be plants of the same kind and size as specified in the Plant List. They shall be furnished and planted as specified under "New Planting", the cost of which shall be borne by the Landscape Contractor.
- F. Replaced plants are not subject to a full one (1) year guarantee, but replacements must be alive and vigorous when inspected after planting and must leaf out fully in spring, if replacements are made while the plant is dormant.

END OF SECTION 329300



TOP PLAN
 SCALE: 1/4" = 1'-0"
PARTIAL VIEW

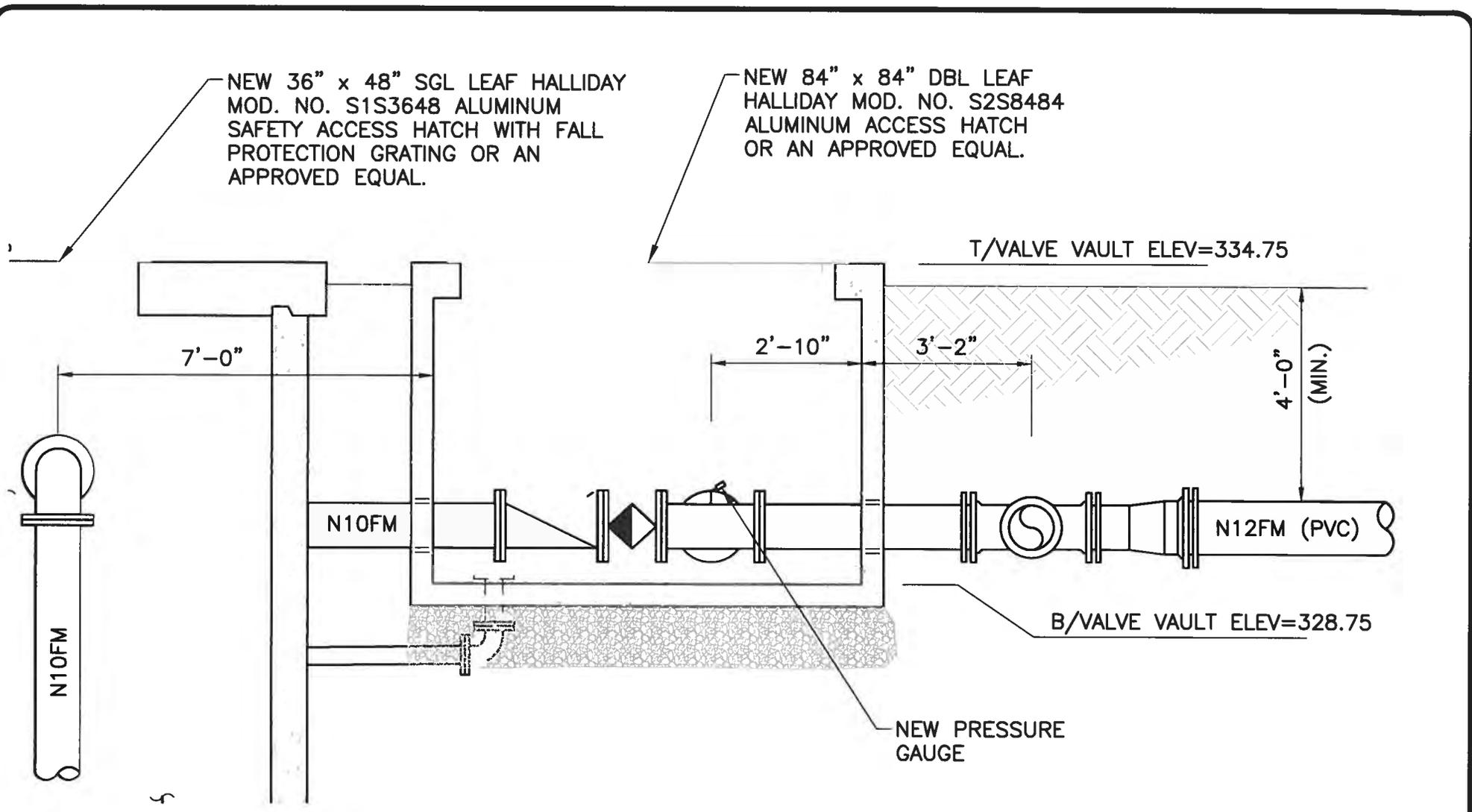


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 Internet: www.aec-sc.com • Email: info@aec-sc.com

Chapin Business and Technology Park
 Wastewater Collection System - Pump Station
 PREPARED FOR
Lexington County
 Lexington County, South Carolina

DATE JANUARY 2015
 SCALE AS SHOWN
 DRAWN TME
 JOB NO. 13-015
 CAD FILE PRELIMINARY

DRAWING NO. 4
 OF 13



SECTION A
 SCALE: 3/8" = 1'-0" TYP
PARTIAL VIEW

AMERICAN ENGINEERING CONSULTANTS, INC.
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 CAD FILE PRELIMINARY

DRAWING NO. 6
 OF 13

NEW 3/8-INCH STAINLESS STEEL
LIFTING CHAIN (1 PER PUMP)

NEW POWER CABLE

B/WETWELL ELEV=317.75

12" MIN. #57
CRUSHED STONE

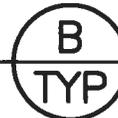
NEW 6" x 10" ECCENTRIC INCREASER DISCHARGE

N10FM

N4DRN

SECTION

SCALE: 3/8" = 1'-0"



PARTIAL VIEW



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Wastewater Collection System - Pump Station

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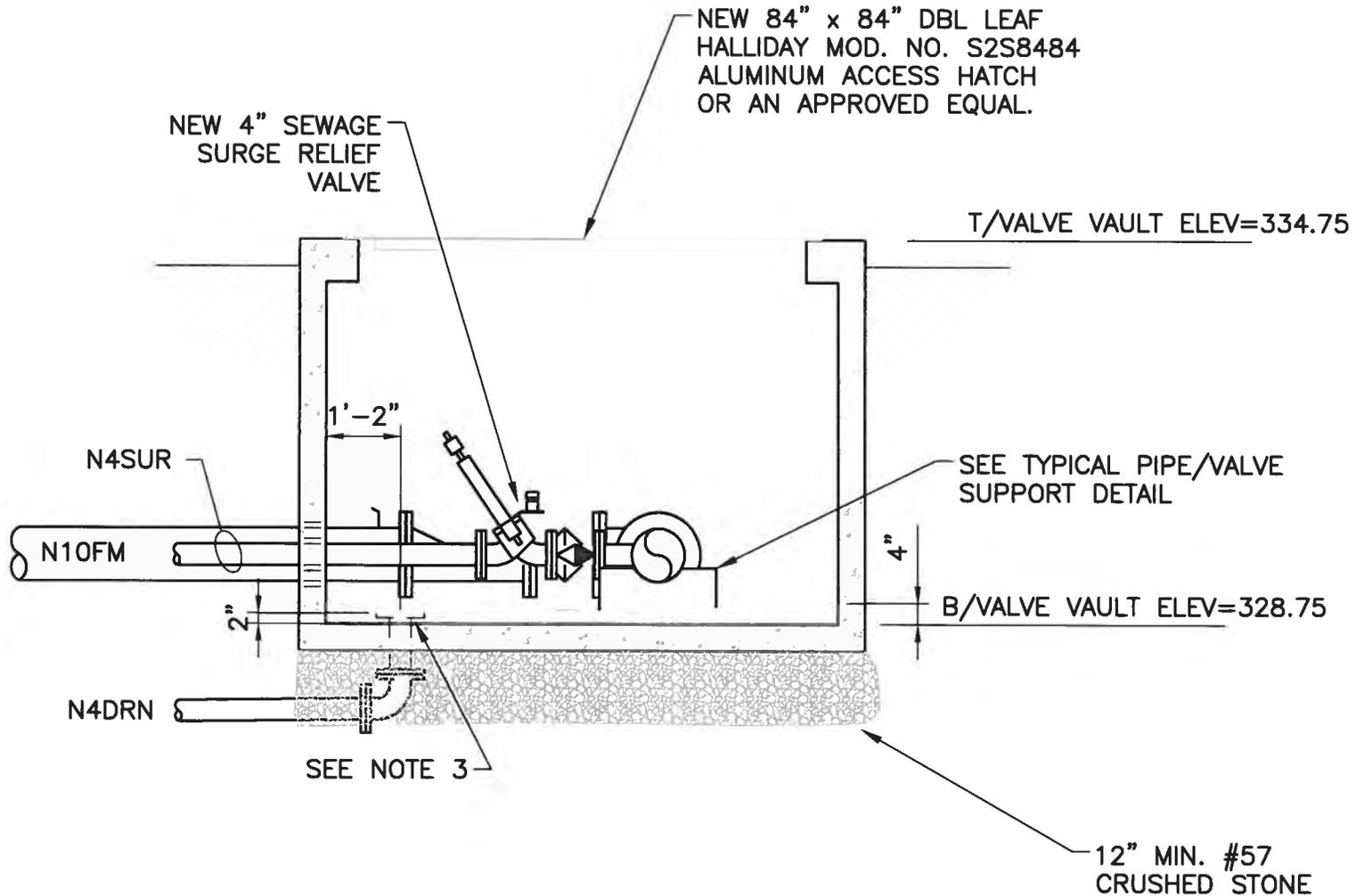
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DRAWING NO.

6

OF

13



SECTION C
TYP
 SCALE: 3/8" = 1'-0"

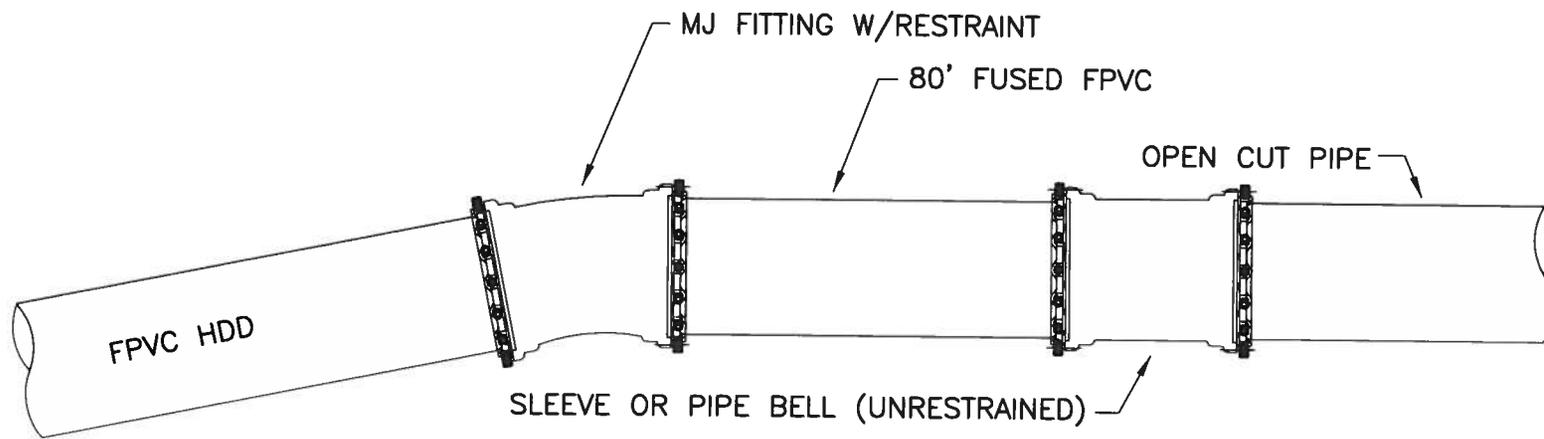


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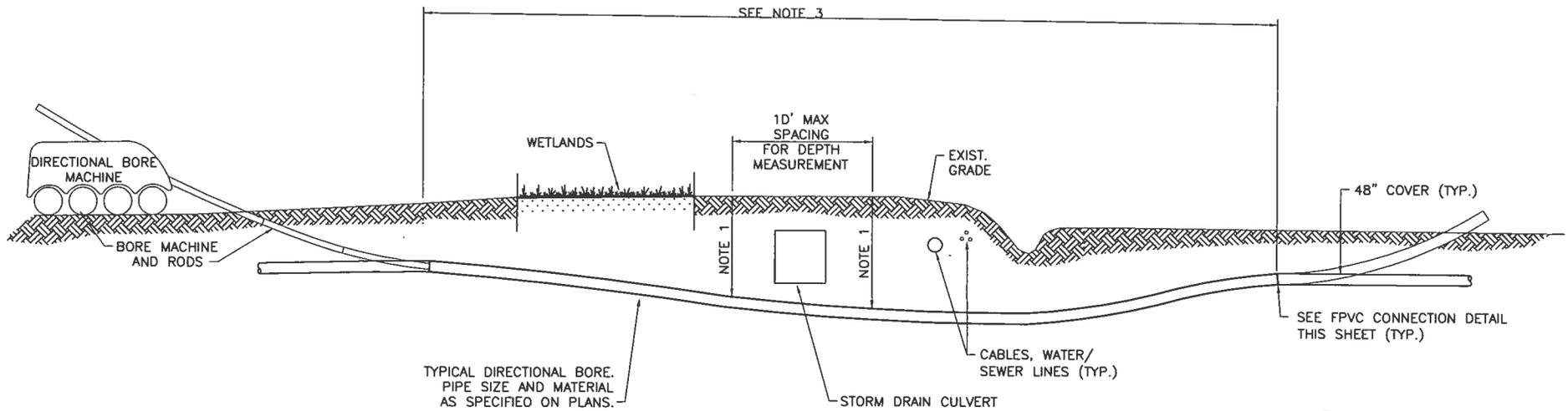
Chapin Business and Technology Park
 Wastewater Collection System - Pump Station
 PREPARED FOR
Lexington County
 Lexington County, South Carolina

DATE JANUARY 2015
 SCALE AS SHOWN
 DRAWN TME
 JOB NO. 13-015
 CAD FILE PRELIMINARY

DRAWING NO. 6
 OF 13



TYPICAL FPVC CONNECTION DETAIL
NOT TO SCALE



TYPICAL DIRECTIONAL BORE.
PIPE SIZE AND MATERIAL
AS SPECIFIED ON PLANS.

STORM DRAIN CULVERT

CABLES, WATER/
SEWER LINES (TYP.)

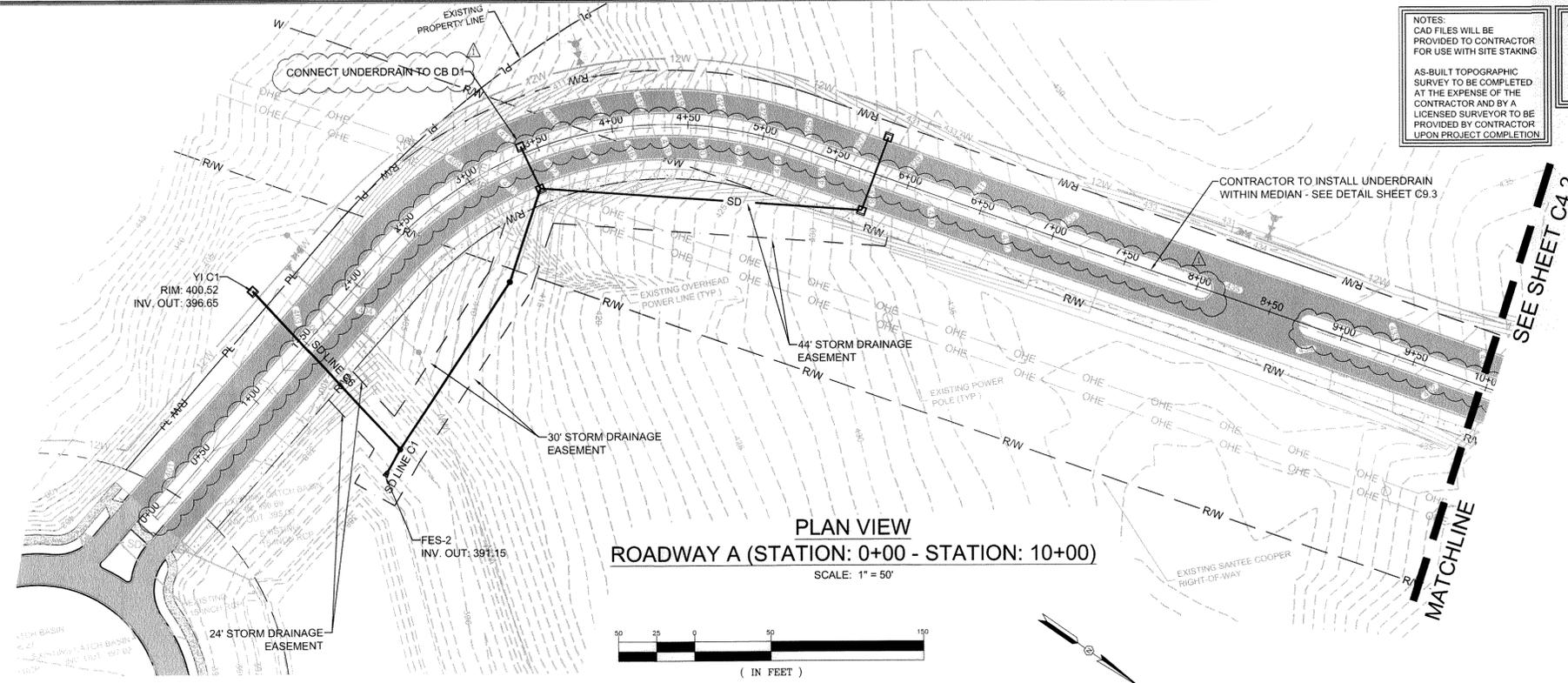
SEE FPVC CONNECTION DETAIL
THIS SHEET (TYP.)

1. AN ELECTRONICALLY-DEVELOPED PROFILE AND PLAN SHALL BE PROVIDED FROM ENTRY TO EXIT FOR EACH DIRECTIONAL BORE SECTION BY THE DIRECTIONAL BORE CONTRACTOR.
2. ALL BORE SECTIONS SHALL BE HYDROSTATICALLY TESTED PER AWWA C600 STANDARDS UPON COMPLETION OF INSTALLATION AND PRIOR TO CONNECTION TO MAIN PROJECT FORCE MAIN.
3. LENGTH OF CROSSING, LOCATION OF INSPECTION/OBSERVATION EXCAVATION, NUMBER OF PIPE JOINTS, LOCATION OF BORE MACHINE, AUGER ENTRANCE LOCATION, AND TIE-IN POINTS ARE TO BE APPROVED BY ENGINEER PRIOR TO ANY START OF WORK OR ORDERING OF MATERIALS.
4. THIS DETAIL IS ALSO APPLICABLE TO STREAMS, WETLANDS, LARGE STORM DRAINS, AND SIMILAR APPLICATIONS FOR DIRECTIONAL BORE.
5. THE MANUFACTURER AND TYPE OF DRILLERS MUD SELECTED FOR USE SHALL BE APPROVED BY THE ENGINEER PRIOR TO START OF WORK.
6. THE FINISHED INSIDE DIAMETER OF THE BOREPATH SHALL BE 1.5 TIMES THE OUTSIDE DIAMETER OF THE FLEX-RING BELL.

TYPICAL DIRECTIONAL BORE DETAIL

NOT TO SCALE

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NOTES:
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 AS-BUILT TOPOGRAPHIC SURVEY TO BE COMPLETED AT THE EXPENSE OF THE CONTRACTOR AND BY A LICENSED SURVEYOR TO BE PROVIDED BY CONTRACTOR UPON PROJECT COMPLETION.

REFERENCES:
 1. REFERENCE IS MADE TO LIDAR TOPOGRAPHICAL DATA PROVIDED BY LEXINGTON COUNTY, SOUTH CAROLINA.
 2. REFERENCE IS MADE TO CIVIL ENGINEERING OF COLUMBIA DRAWING PROVIDED ON AUGUST 27, 2013.
 3. REFERENCE IS MADE TO SURVEY ONE, LLC BOUNDARY SURVEY DATED APRIL 14, 2014.

DEVELOPER INFORMATION
 OWNER: LEXINGTON COUNTY
 CONTACT: MR. JEFF McNESBY, COUNTY ENGINEER
 ADDRESS: 212 SOUTH LAKE DRIVE
 CITY, STATE: LEXINGTON, SOUTH CAROLINA 29072-3437
 TELEPHONE: (803) 785-8153
 FAX: (803) 785-8593
 EMAIL: JMcNESBY@LEX-CO.COM

NOTE: UTILITY LOCATIONS ARE APPROXIMATE AND MUST BE FIELD LOCATED PRIOR TO ANY LAND DISTURBANCE BY THE CONTRACTOR.

NOTE TO CONTRACTOR:
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 2. ALL WORK TO BE PERFORMED WITHIN RIGHT-OF-WAY OF COLUMBIA AVENUE.

LEGEND

---	350	EXISTING CONTOUR MAJOR
---	352	EXISTING CONTOUR MINOR
---	PL	EXISTING PROPERTY LINE
---	---	EXISTING EASEMENT
---	---	EXISTING STREAM
---	---	EXISTING BUFFER
---	SD	EXISTING STORM DRAINAGE
---	OHE	EXISTING OVERHEAD ELECTRIC LINE
---	---	EXISTING CURB AND GUTTER
---	---	EXISTING PAVEMENT
---	---	EXISTING CONCRETE
---	---	EXISTING DIRT ROADWAY
---	---	EXISTING 100 YEAR FLOOD PLAIN HATCH
---	---	CLEARING AND GRUBBING LIMITS
---	---	EXISTING 100 YEAR FLOODPLAIN
---	---	LIMITS OF DISTURBANCE
---	400	PROPOSED CONTOUR MAJOR
---	398	PROPOSED CONTOUR MINOR
---	R/W	PROPOSED RIGHT-OF-WAY
---	---	PROPOSED UTILITY EASEMENT
---	---	PROPOSED CURB AND GUTTER
---	---	PROPOSED GABC ROADWAY
---	---	PROPOSED PAVEMENT
---	---	PROPOSED CONCRETE
---	SD	PROPOSED STORM DRAINAGE
---	W	PROPOSED WATER LINE
---	⊗	PROPOSED FIRE HYDRANT/VALVES
---	FM	PROPOSED WASTEWATER FORCE MAIN
---	FW	PROPOSED WASTEWATER GRAVITY LINE
---	HGL	HYDRAULIC GRADE LINE
---	□	PROPOSED MANHOLE
---	□	PROPOSED SIGNAGE
---	□	PROPOSED CATCH BASIN
---	□	PROPOSED FLARED END SECTION
---	•	PROPOSED JUNCTION BOX

REVISION DATE

ADD UNDERDRAIN CONNECTION	JANUARY 06, 2015
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APPROVALS

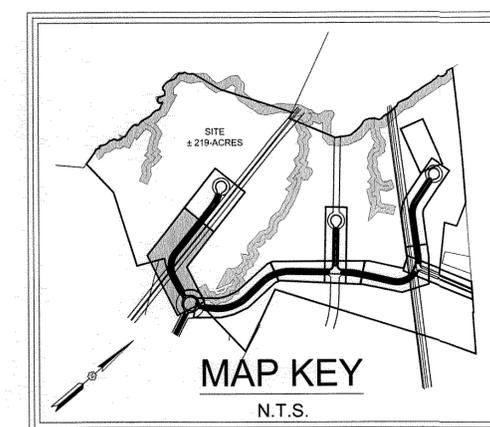
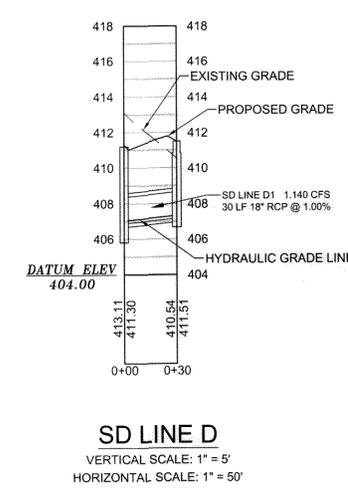
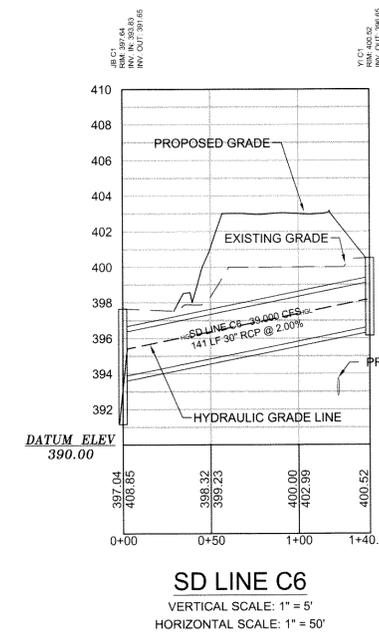
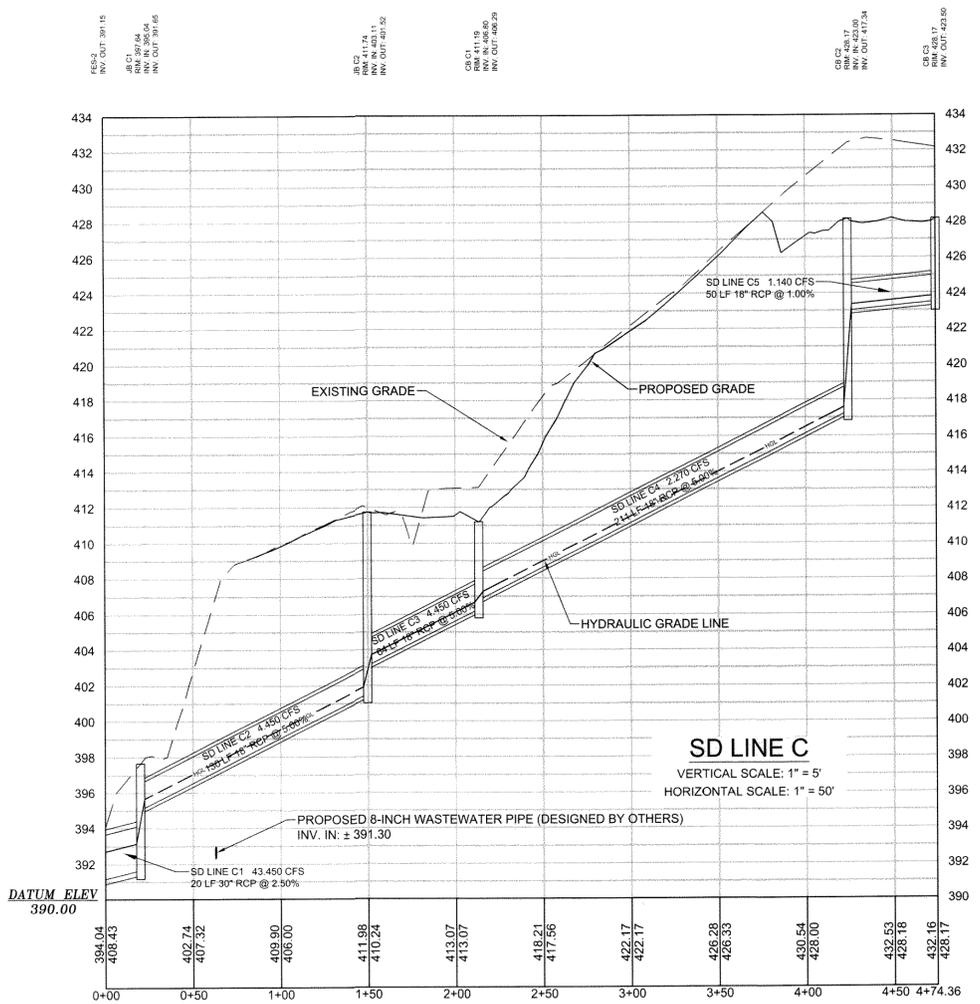
ENGINEER	ESW	DESIGNER	ESW	TECHNICAL	TH/RMD	CHECKED BY	KMC/JWF	APPROVED	JWF
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ALLIANCE CONSULTING ENGINEERS, INC.
 License No. 02854
 State of South Carolina
 Professional Engineer
 No. 20279
 State of South Carolina
 Professional Engineer
 No. 11500

DATE: 01/06/15

SIGNATURE:

ALLIANCE CONSULTING ENGINEERS
 Alliance Consulting Engineers, Inc.
 Post Office Box 141779 • Lexington, SC 29012-8147
 Phone: (803) 779-2079 • Fax: (803) 779-2079



PROJECT
 PHASE II ROADWAY IMPROVEMENTS FOR THE CHAPIN BUSINESS AND TECHNOLOGY PARK FOR LEXINGTON COUNTY

SHEET
 STORM DRAINAGE PLAN AND PROFILE FOR ROADWAY A
 STATION: 0+00 - STATION: 10+00

DATE: SEPTEMBER 2013

SCALE: 1" = 50'

FILE NAME: C41.DWG

SHEET
 C4.1

REFERENCE FILE: SURVEY.DWG

PROJECT NO.: 13176-0032

OF
 73

DWG NO.: 01.782-D14

NOTES:
 CAD FILES WILL BE PROVIDED TO CONTRACTOR FOR USE WITH SITE STAKING.
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---	o	PROPOSED SIGNAGE
---	o	PROPOSED CATCH BASIN
---	o	PROPOSED FLARED END SECTION
---	o	PROPOSED JUNCTION BOX

REVISION DATE

ADD UNDERDRAIN CONNECTION	JANUARY 06, 2015
---------------------------	------------------

APPROVALS

ENGINEER	ESW	DESIGNER	ESW	TECHNICIAN	TH/RMD	CHECKED BY	KAMC/JWT	APPROVED	JWT
----------	-----	----------	-----	------------	--------	------------	----------	----------	-----

Professional Engineer Seal: Alliance Consulting Engineers, Inc. No. 002654

Professional Engineer Seal: Kyle M. McKessy No. 28279

DATE: 01/16/15

SIGNATURE: [Signature]

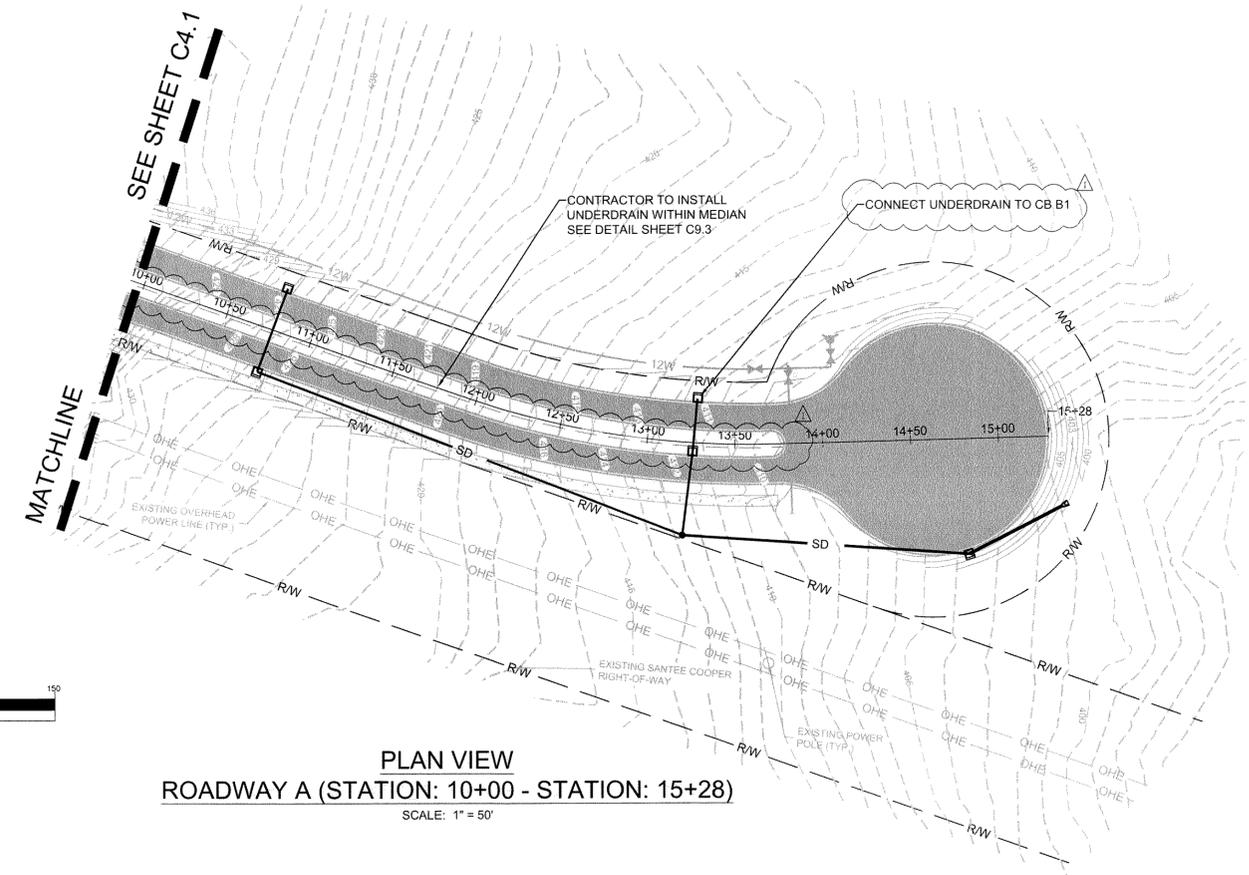
ALLIANCE CONSULTING ENGINEERS
 Alliance Consulting Engineers, Inc.
 Post Office Box 8147, Columbia, South Carolina 29202-8147
 Phone (803) 779-2078 • Fax (803) 779-2079

STORM DRAINAGE PLAN AND PROFILE FOR ROADWAY A (STATION: 10+00 - STATION: 15+28)

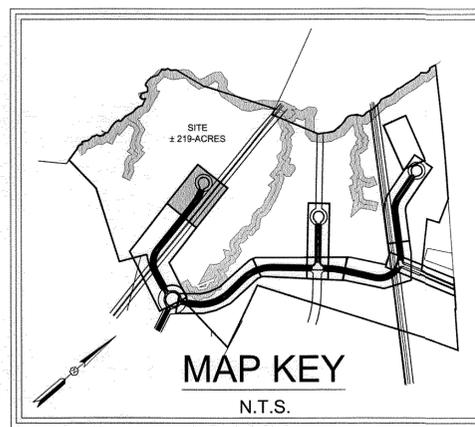
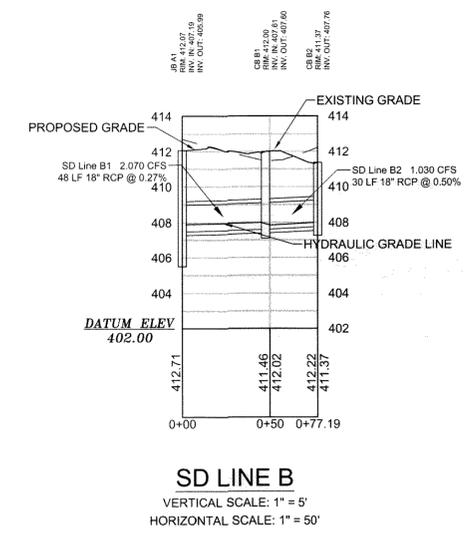
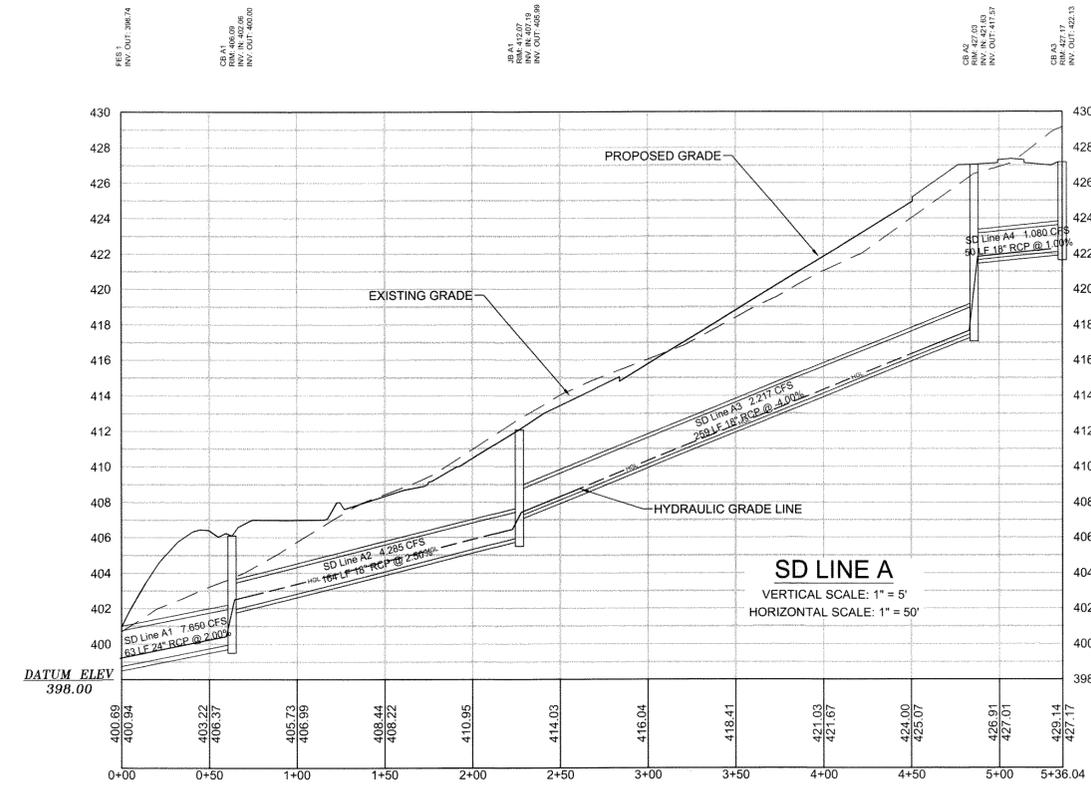
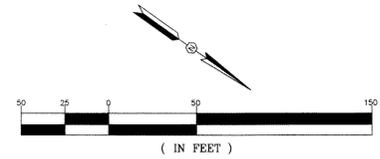
DATE: SEPTEMBER 2013 SCALE: 1" = 50'

PHASE II ROADWAY IMPROVEMENTS FOR THE CHAPIN BUSINESS AND TECHNOLOGY PARK FOR LEXINGTON COUNTY SOUTH CAROLINA

FILE NAME: C42.DWG SHEET C4.2 OF 73
 SURVEY.DWG PROJECT NO. 13176-0032
 DWG NO. 01.782-D14



PLAN VIEW
 ROADWAY A (STATION: 10+00 - STATION: 15+28)
 SCALE: 1" = 50'



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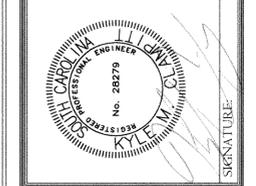
- REFERENCES:
- REFERENCE IS MADE TO LIDAR TOPOGRAPHICAL DATA PROVIDED BY LEXINGTON COUNTY, SOUTH CAROLINA.
 - REFERENCE IS MADE TO CIVIL ENGINEERING OF COLUMBIA DRAWING PROVIDED ON AUGUST 27, 2013.
 - REFERENCE IS MADE TO SURVEY ONE, LLC BOUNDARY SURVEY DATED APRIL 14, 2014.

DEVELOPER INFORMATION
 OWNER: LEXINGTON COUNTY
 CONTACT: MR. JEFF MANNESBY, COUNTY ENGINEER
 ADDRESS: 212 SOUTH LAKE DRIVE
 CITY, STATE: LEXINGTON, SOUTH CAROLINA 29072-3437
 TELEPHONE: (803) 786-8153
 FAX: (803) 786-8593
 EMAIL: JMMANNESBY@LEX-CO.COM

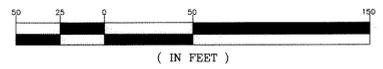
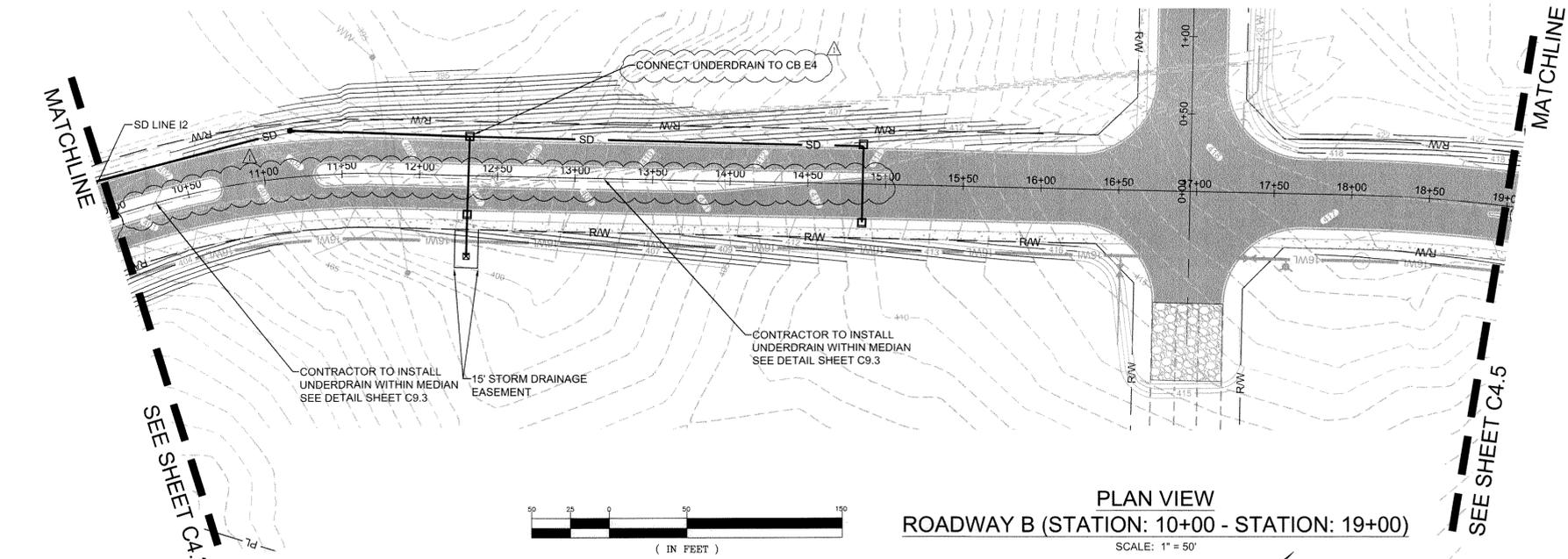
NOTE: UTILITY LOCATIONS ARE APPROXIMATE AND MUST BE FIELD LOCATED PRIOR TO ANY LAND DISTURBANCE BY THE CONTRACTOR.

- NOTE TO CONTRACTOR:
- BEST MANAGEMENT PRACTICES (BMPs) SHOULD BE IMPLEMENTED PRIOR TO LAND DISTURBANCE ACTIVITIES.
 - ALL WORK TO BE PERFORMED WITHIN RIGHT-OF-WAY OF COLUMBIA AVENUE.

REVISION	DATE
ADD UNDERDRAIN CONNECTION	JANUARY 06, 2015

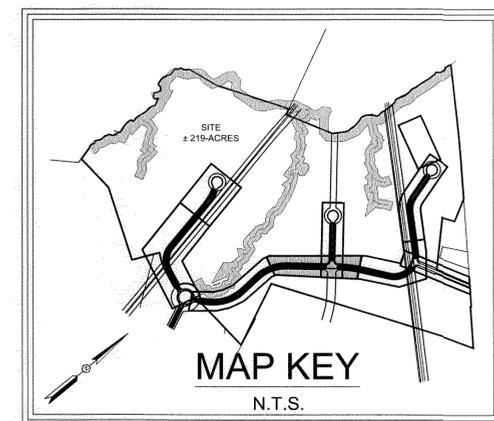
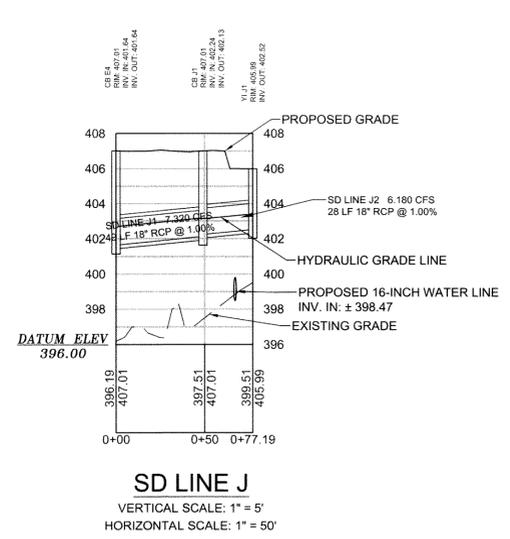
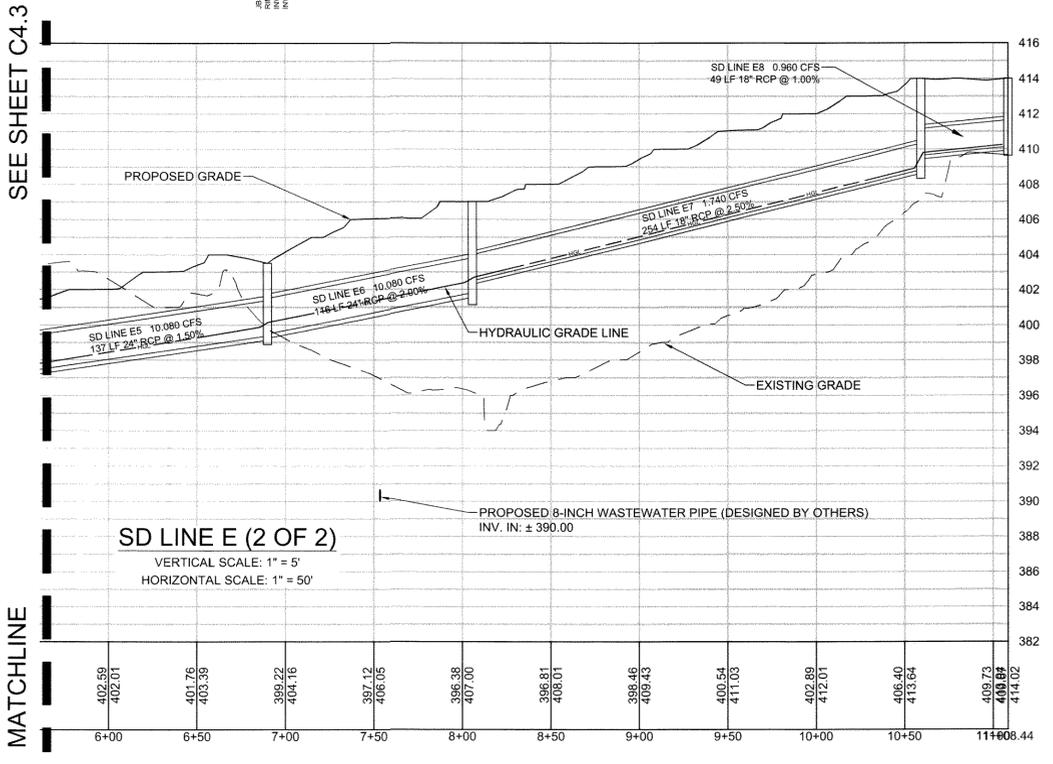


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 Phone: (803) 779-2075 • Fax: (803) 779-2079



LEGEND

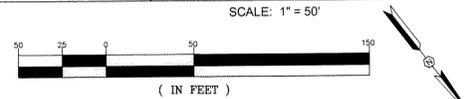
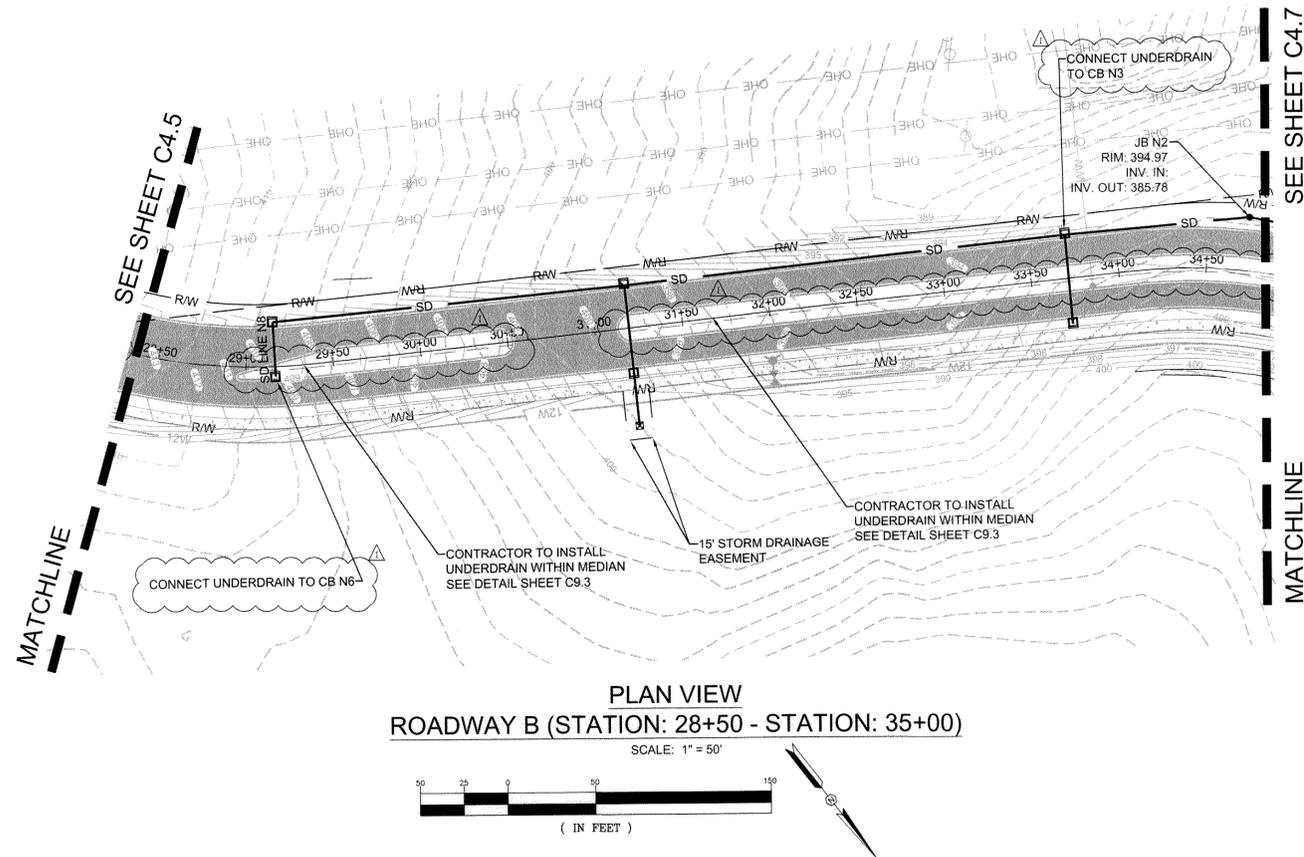
- 350 --- EXISTING CONTOUR MAJOR
- 362 --- EXISTING CONTOUR MINOR
- PL --- EXISTING PROPERTY LINE
- --- EXISTING EASEMENT
- --- EXISTING STREAM
- --- EXISTING BUFFER
- SD --- EXISTING STORM DRAINAGE
- OHE --- EXISTING OVERHEAD ELECTRIC LINE
- --- EXISTING CURB AND GUTTER
- --- EXISTING PAVEMENT
- --- EXISTING CONCRETE
- --- EXISTING DIRT ROADWAY
- --- EXISTING 100 YEAR FLOOD PLAIN HATCH
- --- CLEARING AND GRUBBING LIMITS
- --- EXISTING 100 YEAR FLOODPLAIN
- --- LIMITS OF DISTURBANCE
- 400 --- PROPOSED CONTOUR MAJOR
- 398 --- PROPOSED CONTOUR MINOR
- R/W --- PROPOSED RIGHT-OF-WAY
- --- PROPOSED UTILITY EASEMENT
- --- PROPOSED CURB AND GUTTER
- --- PROPOSED GABC ROADWAY
- --- PROPOSED PAVEMENT
- --- PROPOSED CONCRETE
- SD --- PROPOSED STORM DRAINAGE
- W --- PROPOSED WATER LINE
- FM --- PROPOSED FIRE HYDRANT/VALVES
- FM --- PROPOSED WASTEWATER FORCE MAIN
- WW --- PROPOSED WASTEWATER GRAVITY LINE
- HGL --- HYDRAULIC GRADE LINE
- --- PROPOSED MANHOLE
- --- PROPOSED SIGNAGE
- --- PROPOSED CATCH BASIN
- --- PROPOSED FLARED END SECTION
- --- PROPOSED JUNCTION BOX



PROJECT: PHASE II ROADWAY IMPROVEMENTS FOR THE CHAPIN BUSINESS AND TECHNOLOGY PARK FOR LEXINGTON COUNTY SOUTH CAROLINA
 SHEET: STORM DRAINAGE PLAN AND PROFILE ROADWAY B STATION: 10+00 - STATION: 19+00
 DATE: SEPTEMBER 2013 SCALE: 1" = 50'

FILE NAME:	C44.DWG	SHEET
REFERENCE FILE:	SURVEY.DWG	OF
PROJECT NO.:	13176-0032	73
DWG NO.:	01.782-D14	

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REFERENCES:
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 2. REFERENCE IS MADE TO CIVIL ENGINEERING OF COLUMBIA DRAWING PROVIDED ON AUGUST 27, 2013.
 3. REFERENCE IS MADE TO SURVEY ONE, LLC BOUNDARY SURVEY DATED APRIL 14, 2014.

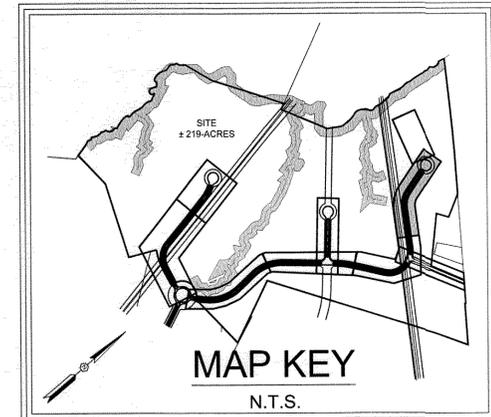
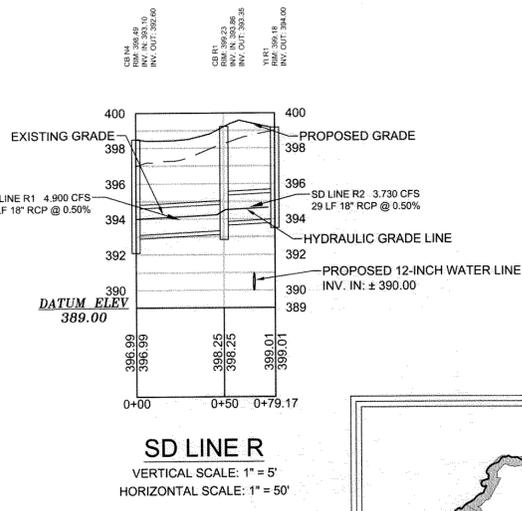
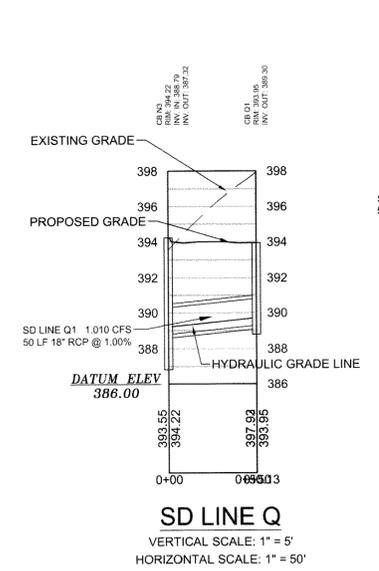
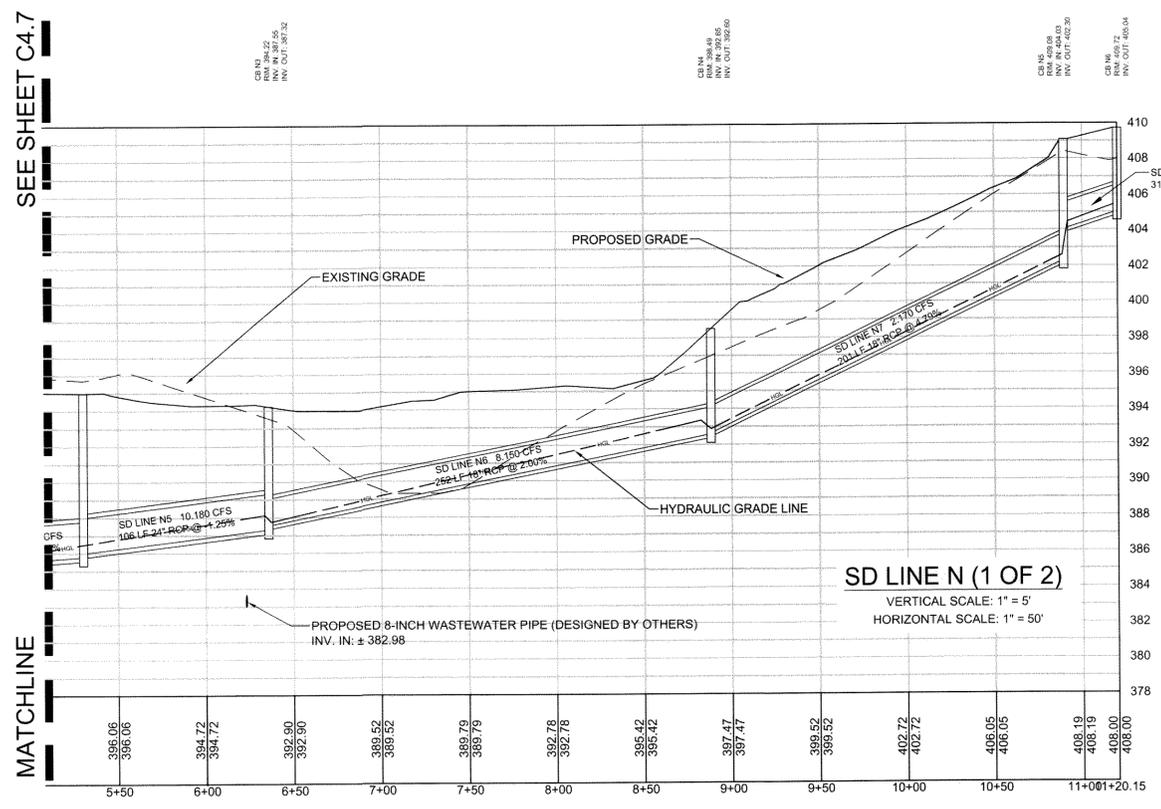
DEVELOPER INFORMATION:
 OWNER: LEXINGTON COUNTY
 CONTACT: MR. JEFF McNESBY, COUNTY ENGINEER
 ADDRESS: 212 SOUTH LAKE DRIVE
 CITY, STATE: LEXINGTON, SOUTH CAROLINA 29072-3437
 TELEPHONE: (803) 785-8153
 FAX: (803) 785-8593
 EMAIL: JMCNESBY@LEX-CO.COM

NOTE: UTILITY LOCATIONS ARE APPROXIMATE AND MUST BE FIELD LOCATED PRIOR TO ANY LAND DISTURBANCE BY THE CONTRACTOR.

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LEGEND

---	350	EXISTING CONTOUR MAJOR
---	352	EXISTING CONTOUR MINOR
---	PL	EXISTING PROPERTY LINE
---	---	EXISTING EASEMENT
---	---	EXISTING STREAM
---	---	EXISTING BUFFER
---	SD	EXISTING STORM DRAINAGE
---	OHE	EXISTING OVERHEAD ELECTRIC LINE
---	---	EXISTING CURB AND GUTTER
---	---	EXISTING PAVEMENT
---	---	EXISTING CONCRETE
---	---	EXISTING DIRT ROADWAY
---	---	EXISTING 100 YEAR FLOOD PLAIN HATCH
---	---	CLEARING AND GRUBBING LIMITS
---	---	EXISTING 100 YEAR FLOODPLAIN
---	---	LIMITS OF DISTURBANCE
---	400	PROPOSED CONTOUR MAJOR
---	398	PROPOSED CONTOUR MINOR
---	R/W	PROPOSED RIGHT-OF-WAY
---	---	PROPOSED UTILITY EASEMENT
---	---	PROPOSED CURB AND GUTTER
---	---	PROPOSED GABC ROADWAY
---	---	PROPOSED PAVEMENT
---	---	PROPOSED CONCRETE
---	SD	PROPOSED STORM DRAINAGE
---	W	PROPOSED WATER LINE
---	FM	PROPOSED WASTEWATER FORCE MAIN
---	WW	PROPOSED WASTEWATER GRAVITY LINE
---	HGL	HYDRAULIC GRADE LINE
---	o	PROPOSED MANHOLE
---	o	PROPOSED SIGNAGE
---	o	PROPOSED CATCH BASIN
---	o	PROPOSED FLARED END SECTION
---	o	PROPOSED JUNCTION BOX



REVISION DATE

ADD UNDERDRAIN CONNECTION	JANUARY 06, 2015
---------------------------	------------------

APPROVALS:

ENGINEER	ESW	DESIGNER	ESW	TECHNICAL	TH/RMD	CHECKED BY	KMC/JWF	APPROVED	JWF
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ALLIANCE CONSULTING ENGINEERS, INC.
 License No. 022854
 State of South Carolina

PROJECT: PHASE II ROADWAY IMPROVEMENTS FOR THE CHAPIN BUSINESS AND TECHNOLOGY PARK FOR LEXINGTON COUNTY, SOUTH CAROLINA

STATION: 28+50 - STATION: 35+00

DATE: SEPTEMBER 2013

SCALE: 1" = 50'

FILE NAME: C4.6.DWG
SHEET: C4.6
REFERENCE FILE: SURVEY.DWG
PROJECT NO.: 13176-0032
OF: 73
DWG NO.: 01.782-D14

NOTES:
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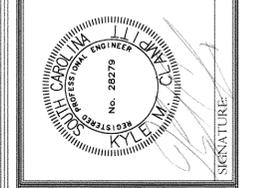
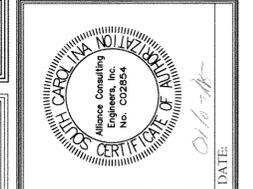
REFERENCES:
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 3. REFERENCE IS MADE TO SURVEY ONE, LLC BOUNDARY SURVEY DATED APRIL 14, 2014.

DEVELOPER INFORMATION
 OWNER: LEXINGTON COUNTY
 CONTACT: MR. JEFF MONESEY, COUNTY ENGINEER
 ADDRESS: 212 SOUTH LAKE DRIVE
 CITY, STATE: LEXINGTON, SOUTH CAROLINA 29072-3437
 TELEPHONE: (803) 785-8153
 FAX: (803) 785-8593
 EMAIL: JMCNESEY@LEX-CO.COM

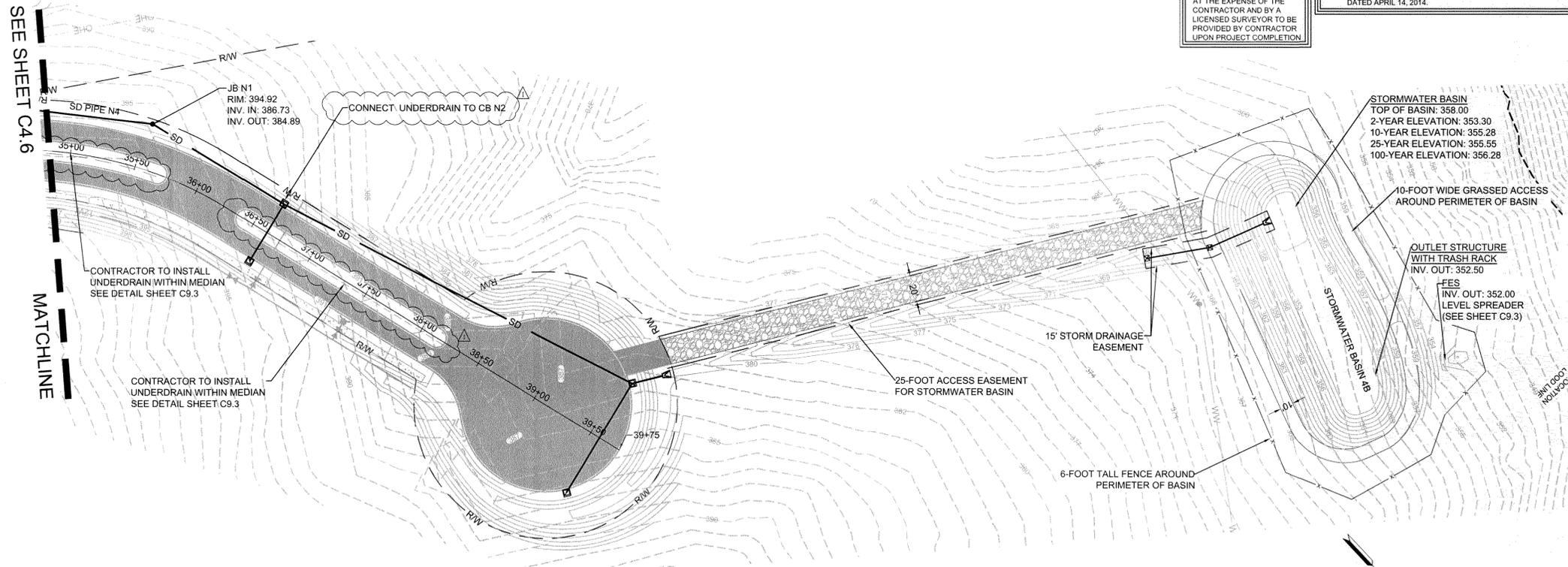
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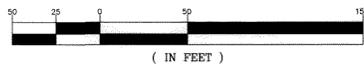
REVISION	DATE
ADD UNDERDRAIN CONNECTION	JANUARY 06, 2015



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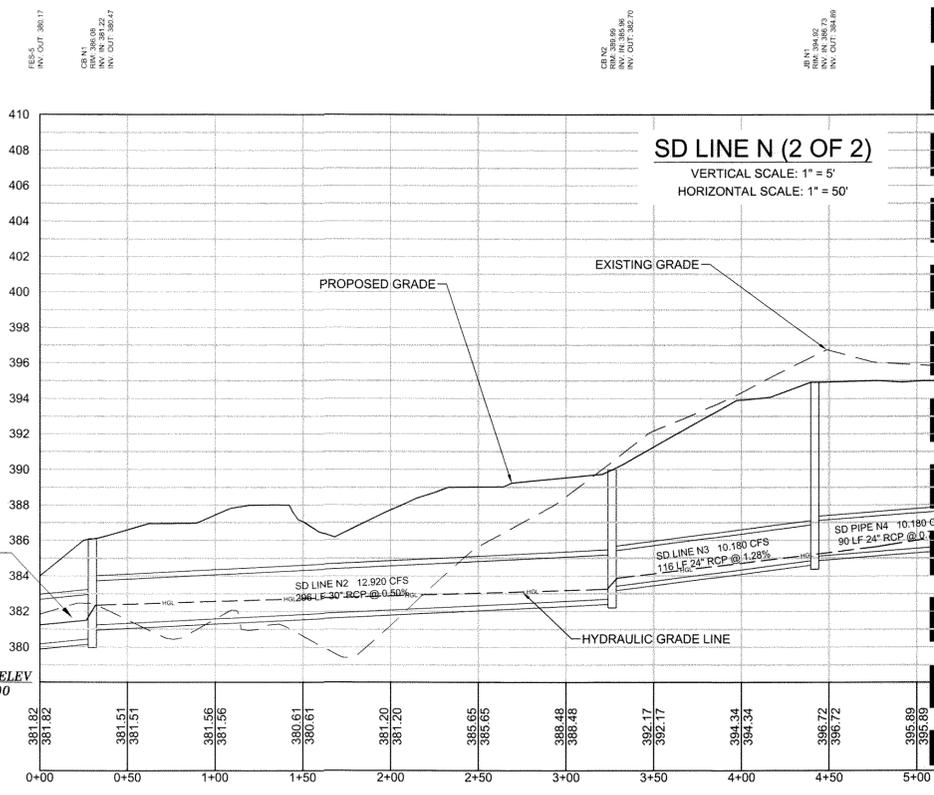


PLAN VIEW
 ROADWAY B (STATION: 35+00 - STATION: 39+75) AND STORMWATER BASIN 4B
 SCALE: 1" = 50'

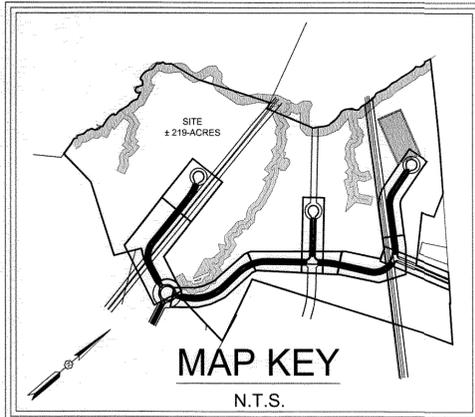
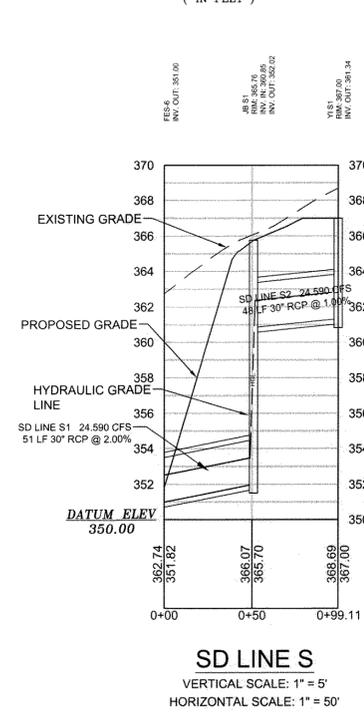
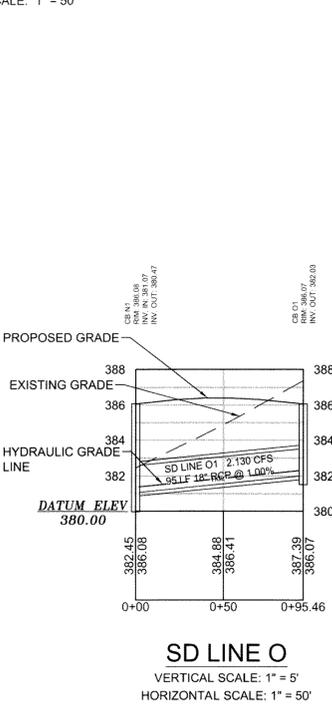
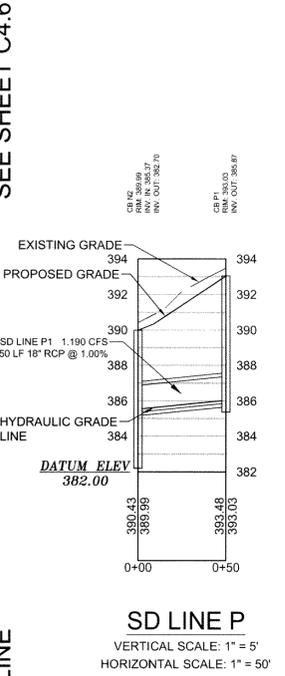


LEGEND

350	EXISTING CONTOUR MAJOR
352	EXISTING CONTOUR MINOR
PL	EXISTING PROPERTY LINE
---	EXISTING EASEMENT
---	EXISTING STREAM
---	EXISTING BUFFER
SD	EXISTING STORM DRAINAGE
OHE	EXISTING OVERHEAD ELECTRIC LINE
---	EXISTING CURB AND GUTTER
---	EXISTING PAVEMENT
---	EXISTING CONCRETE
---	EXISTING DIRT ROADWAY
---	EXISTING 100 YEAR FLOOD PLAIN HATCH
---	CLEARING AND GRUBBING LIMITS
---	EXISTING 100 YEAR FLOODPLAIN
---	LIMITS OF DISTURBANCE
400	PROPOSED CONTOUR MAJOR
398	PROPOSED CONTOUR MINOR
R/W	PROPOSED RIGHT-OF-WAY
---	PROPOSED UTILITY EASEMENT
---	PROPOSED CURB AND GUTTER
---	PROPOSED GABC ROADWAY
---	PROPOSED PAVEMENT
---	PROPOSED CONCRETE
SD	PROPOSED STORM DRAINAGE
W	PROPOSED WATER LINE
⊕	PROPOSED FIRE HYDRANT/VALVES
FM	PROPOSED WASTEWATER FORCE MAIN
WW	PROPOSED WASTEWATER GRAVITY LINE
HGL	HYDRAULIC GRADE LINE
○	PROPOSED MANHOLE
□	PROPOSED SIGNAGE
□	PROPOSED CATCH BASIN
○	PROPOSED FLARED END SECTION
○	PROPOSED JUNCTION BOX



SEE SHEET C4.6
 MATCHLINE



PROJECT: PHASE II ROADWAY IMPROVEMENTS FOR THE CHAPPIN BUSINESS AND TECHNOLOGY PARK FOR LEXINGTON COUNTY SOUTH CAROLINA
 SHEET: STORM DRAINAGE PLAN AND PROFILE ROADWAY B (STATION: 35+00 - STATION: 39+75) AND STORMWATER BASIN
 DATE: SEPTEMBER 2013
 SCALE: 1" = 50'

FILE NAME:	C4.7.DWG	SHEET	C4.7
REFERENCE FILE:		OF	
SURVEY.DWG		PROJECT NO.	13176-0032
			73

DWG NO. 01.782-D14

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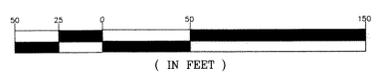
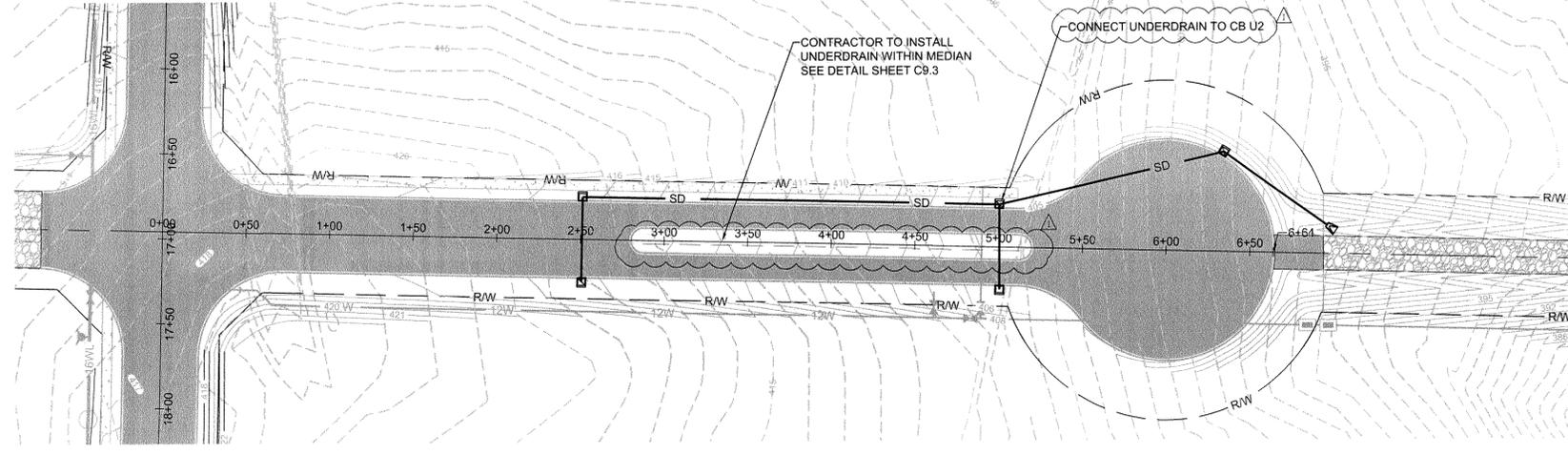
- REFERENCES:**
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DEVELOPER INFORMATION

OWNER: LEXINGTON COUNTY
 CONTACT: MR. JEFF MCNESEY, COUNTY ENGINEER
 ADDRESS: 212 SOUTH LAKE DRIVE
 CITY, STATE: LEXINGTON, SOUTH CAROLINA 29072-3437
 TELEPHONE: (803) 785-8163
 FAX: (803) 785-8593
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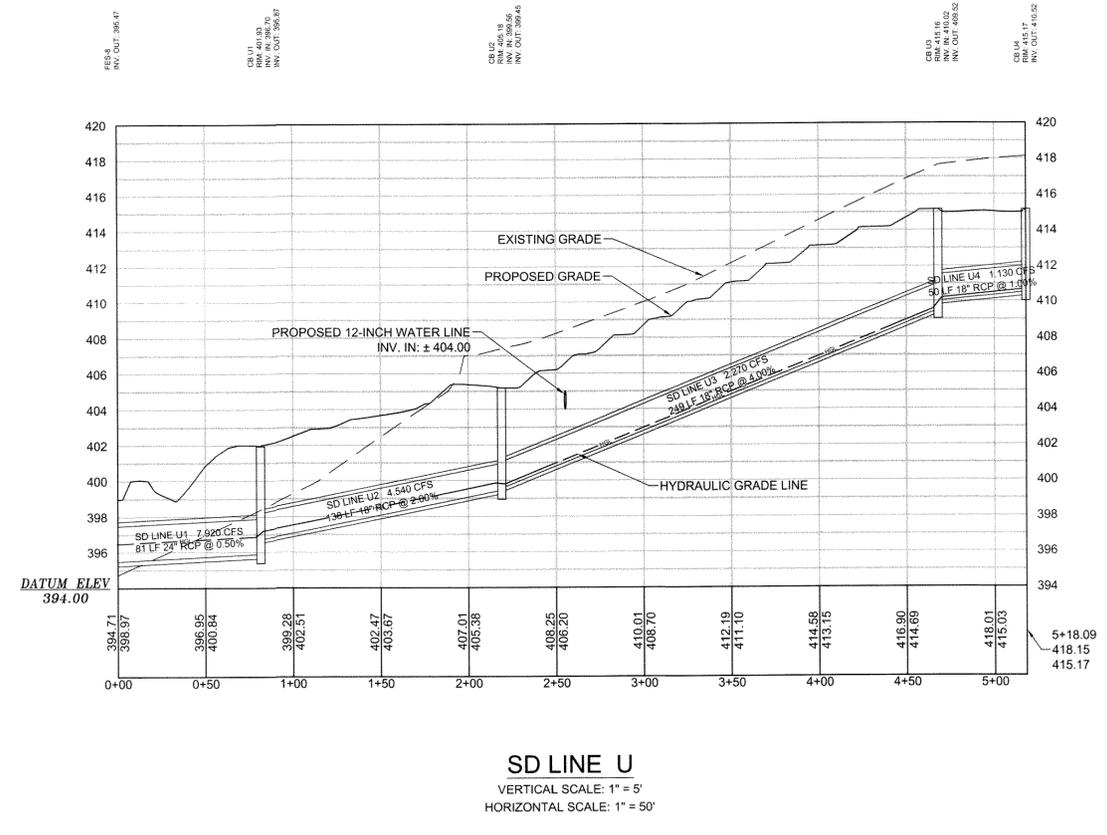
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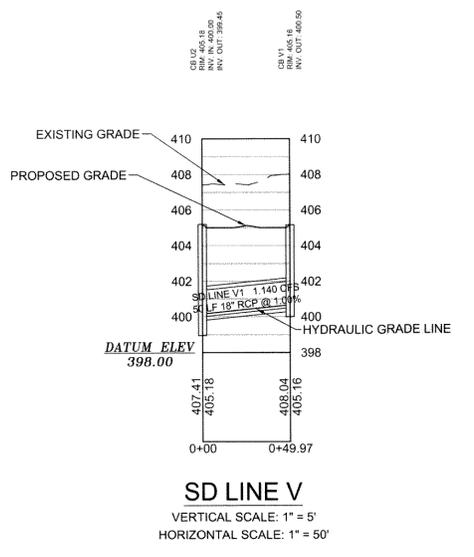
PLAN VIEW
ROADWAY C (STATION: 0+00 - STATION: 6+64)
 SCALE: 1" = 50'

LEGEND

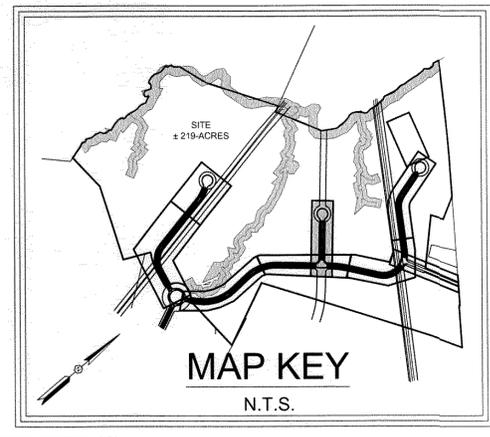
---	350	EXISTING CONTOUR MAJOR
---	353	EXISTING CONTOUR MINOR
---	PL	EXISTING PROPERTY LINE
---	---	EXISTING EASEMENT
---	---	EXISTING STREAM
---	---	EXISTING BUFFER
---	SD	EXISTING STORM DRAINAGE
---	OHE	EXISTING OVERHEAD ELECTRIC LINE
---	---	EXISTING CURB AND GUTTER
---	---	EXISTING PAVEMENT
---	---	EXISTING CONCRETE
---	---	EXISTING DIRT ROADWAY
---	---	EXISTING 100 YEAR FLOOD PLAIN HATCH
---	---	CLEARING AND GRUBBING LIMITS
---	---	EXISTING 100 YEAR FLOODPLAIN
---	---	LIMITS OF DISTURBANCE
---	400	PROPOSED CONTOUR MAJOR
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---	R/W	PROPOSED RIGHT-OF-WAY
---	---	PROPOSED UTILITY EASEMENT
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---	---	PROPOSED GABC ROADWAY
---	---	PROPOSED PAVEMENT
---	---	PROPOSED CONCRETE
---	SD	PROPOSED STORM DRAINAGE
---	W	PROPOSED WATER LINE
---	HV	PROPOSED FIRE HYDRANT VALVES
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---	□	PROPOSED SIGNAGE
---	o	PROPOSED CATCH BASIN
---	o	PROPOSED FLARED END SECTION
---	o	PROPOSED JUNCTION BOX



SD LINE U
 VERTICAL SCALE: 1" = 5'
 HORIZONTAL SCALE: 1" = 50'



SD LINE V
 VERTICAL SCALE: 1" = 5'
 HORIZONTAL SCALE: 1" = 50'



MAP KEY
 N.T.S.

REVISION DATE

ADD UNDERDRAIN CONNECTION
 JANUARY 06, 2015

APPROVALS

ENGINEER	DESIGNER	REGISTERED	CHECKED BY	APPROVED
ESW	ESW	TH/RMD	KMC/JWF	JWF

Professional Engineer Seal: JEFF MCNESEY, No. C02854

Professional Engineer Seal: JEFF MCNESEY, No. 20275

DATE: 01/07/15

SIGNATURE: [Signature]

ALLIANCE CONSULTING ENGINEERS
 Alliance Consulting Engineers, Inc.
 Post Office Box 8147, Columbia, South Carolina 29912-8147
 Phone: (803) 779-2038 • Fax: (803) 779-2039

PROJECT: PHASE II ROADWAY IMPROVEMENTS FOR THE CHAPIN BUSINESS AND TECHNOLOGY PARK FOR LEXINGTON COUNTY

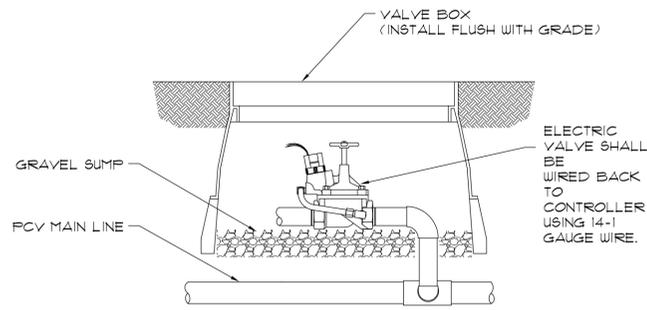
SHEET: C4.8 OF 73

FILE NAME: C4.8.DWG
 SURVEY.DWG
 PROJECT NO. 13176-0032

DATE: SEPTEMBER 2013
 SCALE: 1" = 50'

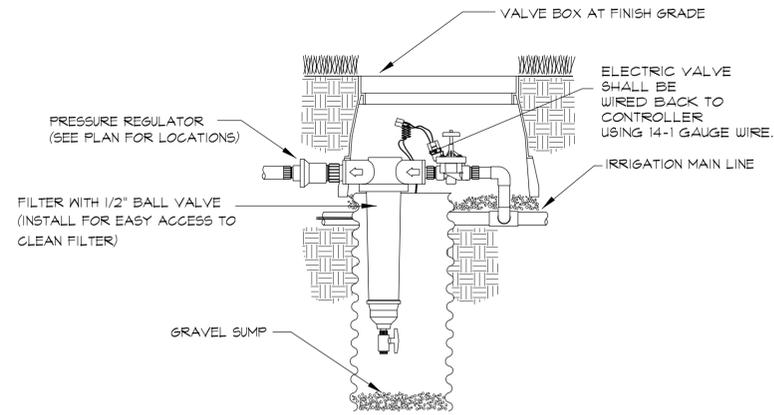
DWG NO. 01.782-D14

THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES AND AGENCIES SHALL BE THE RESPONSIBILITY OF ALLIANCE CONSULTING ENGINEERS, INC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROJECT DESIGN, CONSTRUCTION AND THE NECESSARY TRANSPORTATION TO THE PROJECT.



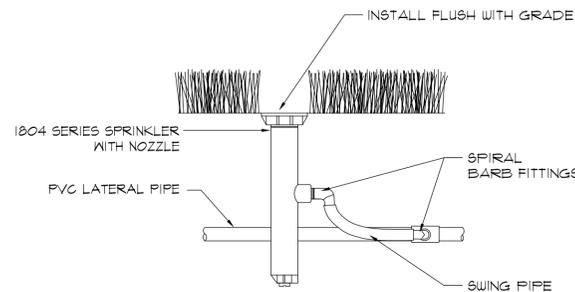
A
1-8 SECTION NOT TO SCALE

ELECTRIC VALVE



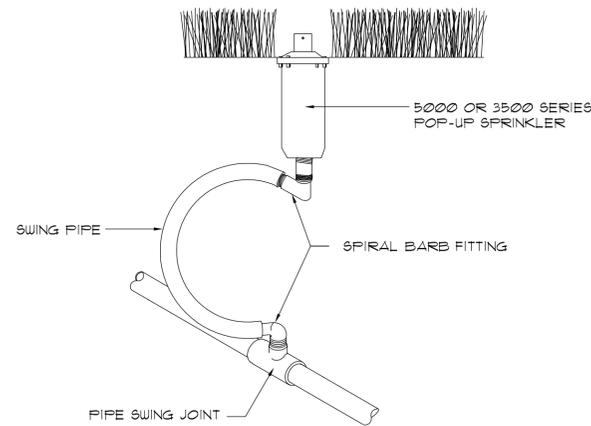
B
1-8 SECTION NOT TO SCALE

ELECTRIC VALVE-DRIFT ZONE



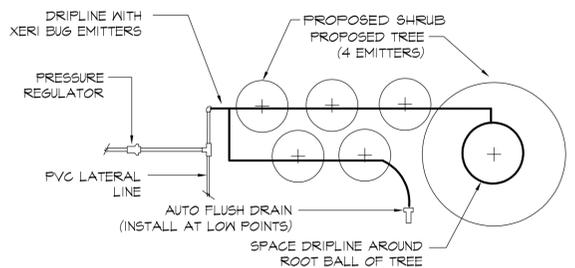
C
1-8 SECTION NOT TO SCALE

POP-UP SPRAY SPRINKLER



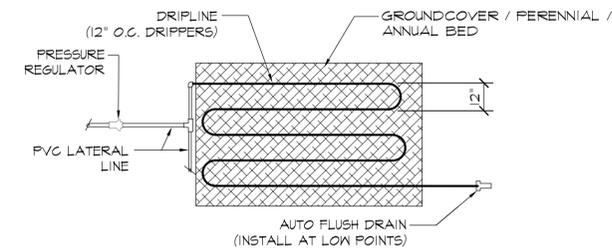
D
1-8 SECTION NOT TO SCALE

POP-UP ROTOR SPRINKLER



E
1-8 PLAN NOT TO SCALE

DRIPLINE IN SHRUBS

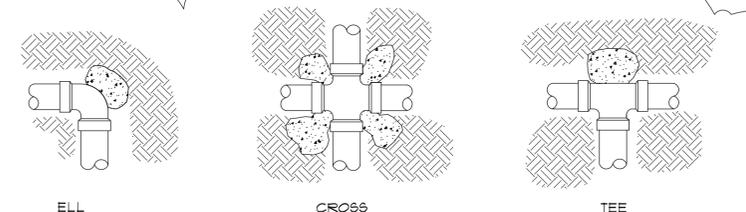


F
1-8 PLAN NOT TO SCALE

DRIPLINE IN GROUND COVER

IRRIGATION NOTES

1. ALL PLASTIC PIPE FITTINGS TO BE MINIMUM SCHEDULE 40 PVC.
2. ALL MAIN LINES TO BE SCHEDULE 40 PVC OR SCHEDULE 200 PVC.
3. ALL LATERAL LINES TO BE SCHEDULE 200 PVC OR SCHEDULE 160 PVC.
4. COORDINATE WITH GENERAL CONTRACTOR FOR INSTALLATION OF SCHEDULE 40 PVC PIPE UNDER PAVED SURFACES AS NOTED ON THE DRAWINGS TO BE UTILIZED FOR IRRIGATION SLEEVING. THE LOCATION OF SLEEVING IS MARKED ON THE IRRIGATION PLAN. DEVIATIONS MAY OCCUR DURING CONSTRUCTION.
5. TRENCHES FOR PVC PIPE MAINLINES SHALL BE EXCAVATED TO SUFFICIENT DEPTH OF 18" MINIMUM AND AN SUFFICIENT WIDTH TO PERMIT PROPER HANDLING AND INSTALLATION OF PIPE AND FITTINGS. TRENCHES FOR PVC PIPE LATERAL SPRINKLER LINES SHALL BE EXCAVATED TO SUFFICIENT DEPTH OF 12" MINIMUM AND AN SUFFICIENT WIDTH TO PERMIT PROPER HANDLING AND INSTALLATION OF PIPE AND FITTINGS.
6. ALL CONTROL VALVES SHALL BE INSTALLED IN A VALVE BOX IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
7. ALL WIRING TO BE USED FOR CONNECTING THE AUTOMATIC REMOTE CONTROL VALVE TO THE AUTOMATIC CONTROLLERS SHALL BE TYPE "UF" 14-1, STRANDED OR SOLID COPPER, SINGLE CONDUCTION WIRE WITH PVC INSULATION AND BEAR UL APPROVAL FOR DIRECT UNDERGROUND BURIAL FEEDER CABLE. WIRE CONNECTIONS TO REMOTE CONTROL ELECTRIC VALVES AND SPLICES OF WIRE IN THE FIELD SHALL BE PEN-TITE WIRE CONNECTORS OR APPROVED EQUAL AND SCALING CEMENT.
8. THE IRRIGATION CONTRACTOR SHALL CONNECT ALL VALVE WIRING TO A SPECIFIED CONTROLLER LOCATED AS NOTED ON THIS PLAN.
9. ALL CONTROL VALVE CABLES SHALL BE INSTALLED BY DIRECT BURIAL AT A MINIMUM DEPTH OF 12". WHERE PRACTICAL, THE WIRE SHALL BE INSTALLED IN THE SAME TRENCH AS THE MAINLINE PIPE.
10. AFTER COMPLETION OF THE PIPING INSTALLATION, THE CONTRACTOR SHALL FURNISH AN "AS-BUILT" DRAWING SHOWING ALL SPRINKLER HEADS, VALVES, DRAINS AND PIPE LINES TO SCALE WITH DIMENSIONS WHERE REQUIRED. INSTRUCTION SHEETS AND PARTS LISTS COVERING ALL OPERATING EQUIPMENT WILL BE BOUND INTO A FOLDER AND FURNISHED TO THE OWNER IN DUPLICATE.
11. FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK PERFORMED UNDER THIS CONTRACT, THE CONTRACTOR SHALL PROMPTLY FURNISH, WITHOUT COST TO THE OWNER, ANY AND ALL PARTS AND LABOR WHICH PROVE DEFECTIVE IN MATERIAL OR WORKMANSHIP.
12. DURING THE LAST MONTH OF THE GUARANTEE PERIOD, THE LANDSCAPE ARCHITECT AND CONTRACTOR SHALL INSPECT THE INSTALLATION TO DETERMINE THE CONDITION OF THE COMPLETE SYSTEM. A LIST OF DEFECTIVE MATERIALS OR INSTALLATIONS TO BE REPLACED SHALL BE MADE BY THE CONTRACTOR WITHIN THIRTY DAYS OF RECEIVING WRITTEN NOTIFICATION. REPLACED MATERIALS AND INSTALLATION SHALL BE IN ACCORD WITH THESE SPECIFICATIONS, DRAWINGS AND OR SCHEDULES.



G
1-8 PLAN NOT TO SCALE

THRUST BLOCK FOR IRRIGATION PIPE 3" OR LARGER

- 1 UNDISTURBED SOIL (TYPICAL)
- 2 CONCRETE THRUST BLOCK (TYPICAL)
- 3 PIPE (TYPICAL)
- 4 REBAR BENT AROUND FITTING (TYPICAL)
- 5 FITTING (TYPICAL)

- NOTES:
1. SUPPLY LINES 3-INCHES IN DIAMETER AND LARGER SHALL RECEIVE CONCRETE THRUST BLOCKS.
 2. SEE SPECIFICATIONS FOR AMOUNT OF CONCRETE TO BE USED FOR THRUST BLOCK.

REVISION	DATE
added thrust block	
details 1/6/2015	

APPROVALS

DESIGNER: WFW

CHECKED BY: KMC/JMF

REGISTERED LANDSCAPE ARCHITECT

No. 470

MARK COTTERILL

DATE:

SIGNATURE:

ALLIANCE

CONSULTING ENGINEERS

GRIMBALL & ASSOCIATES

COTTERILL

LANDSCAPE ARCHITECTS & LAND PLANNERS

600 BETHEL BOULEVARD

COLUMBIA, SC 29205 (803) 798-9925

SCALE: MARCH 2014

PROJECT

phase ii roadway improvements for THE CHAPIN business AND technology park FOR LEXINGTON COUNTY

LEXINGTON COUNTY SOUTH CAROLINA

FILE NAME: IRRIGATION DETAILS

REFERENCE FILE: 1-8

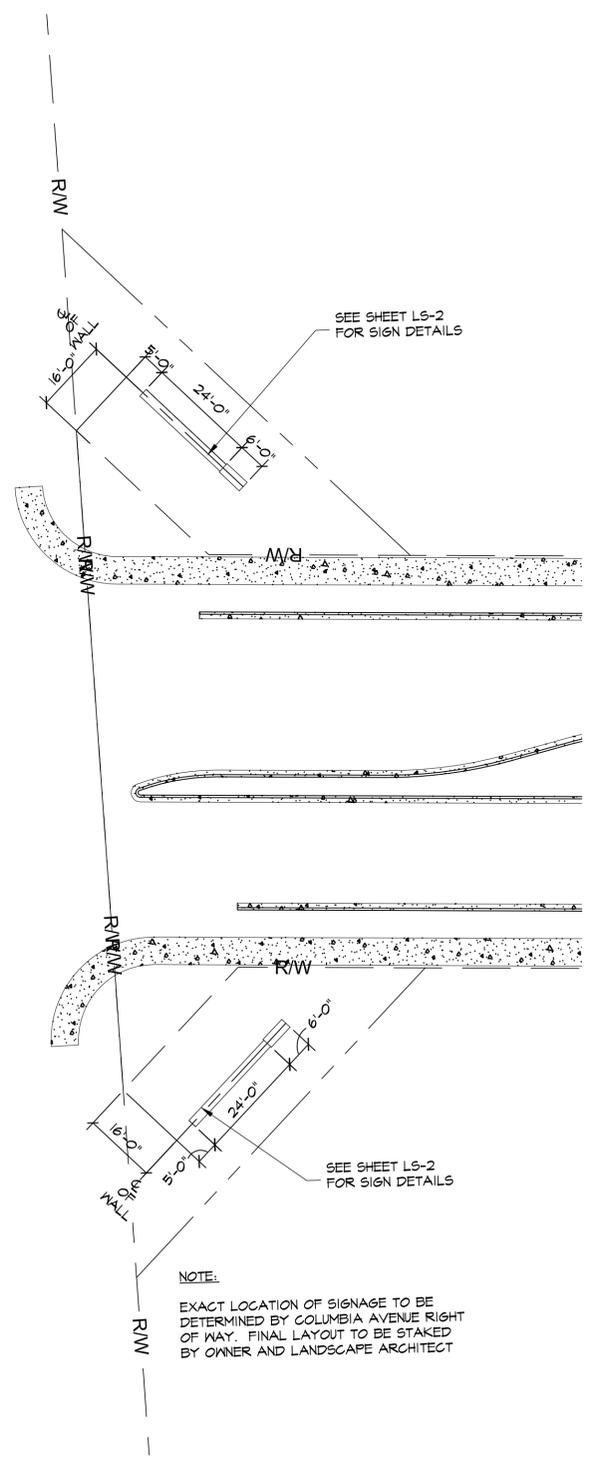
BASE.DWG OF

PROJECT NO. 13176-0032

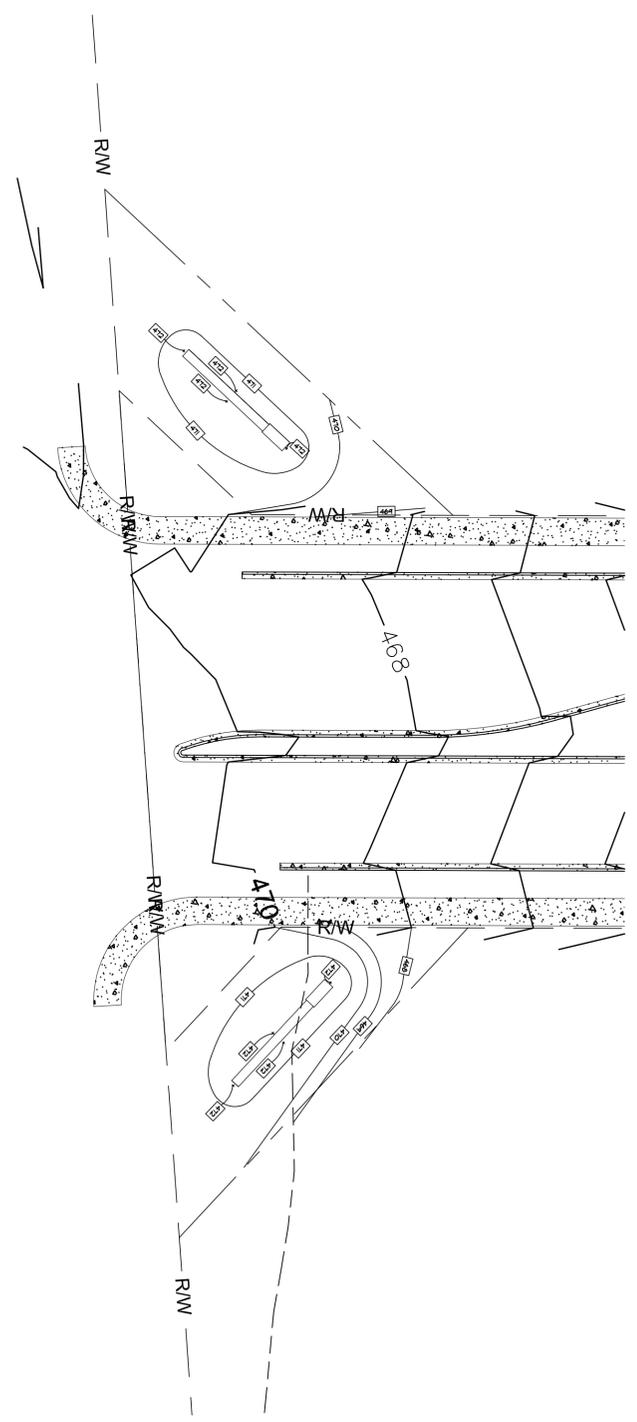
SHEET 1-8 OF

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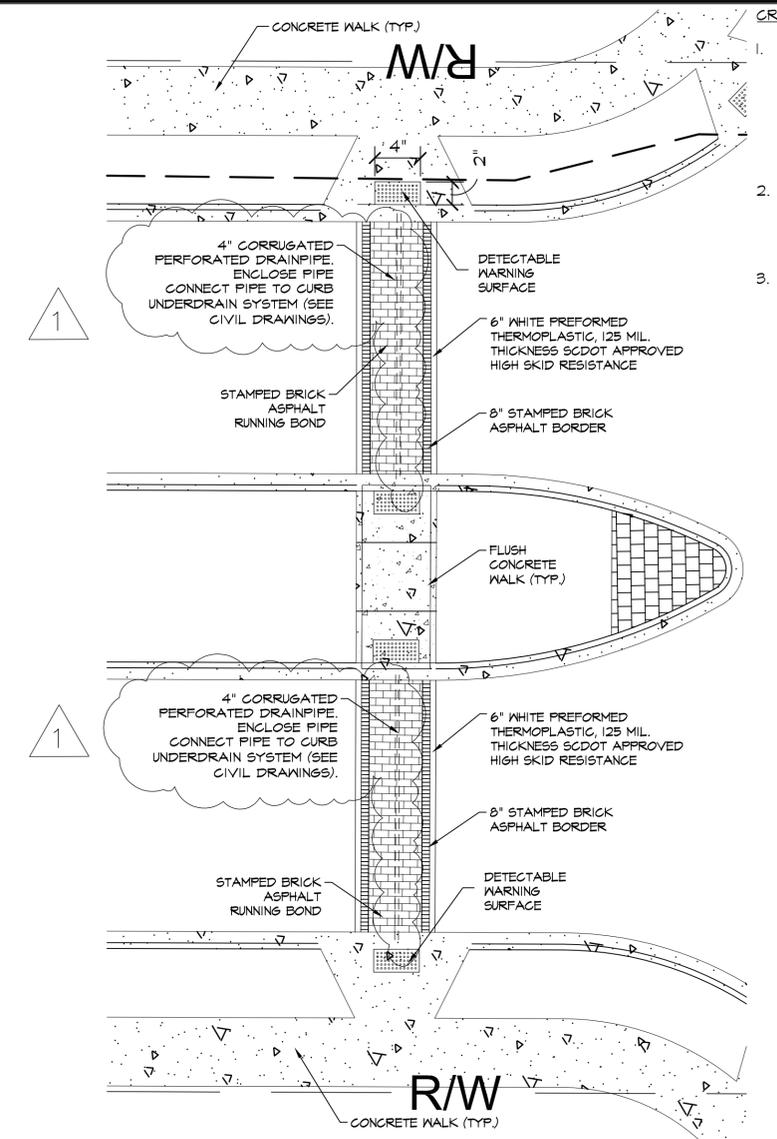
January 07, 2015 - 1:45:48 PM \\PALMNET\O\Gimond\Active\Projects\on\Maple\A-E\Project\Chapin_Technology_Park_CD_Base\New_Chapin.dwg
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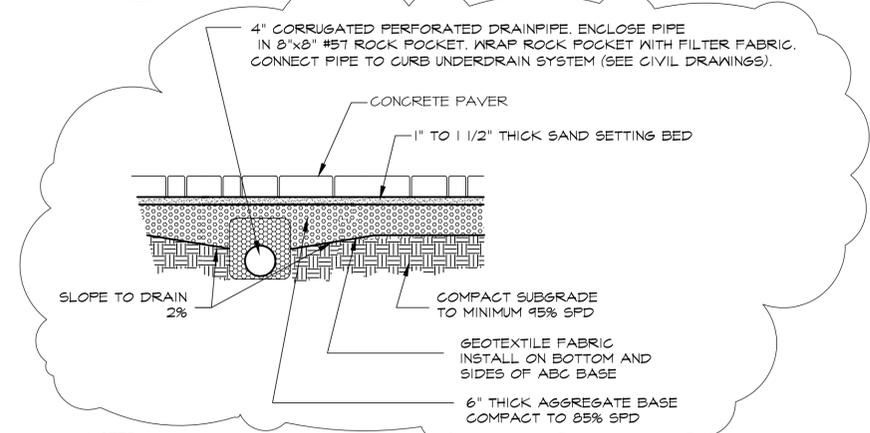
A
LS-1
ENTRANCE SIGN LAYOUT PLAN
SCALE 20"=1'



B
LS-1
ENTRANCE SIGN GRADING PLAN
SCALE 20"=1'



C
LS-1
CROSSWALK DETAIL TYPICAL
SCALE 1/8"=1'



- NOTES:
1. CONCRETE PAVERS SHOULD BE CUT (NOT SPLIT) FOR EDGES AS NEEDED.
 2. APPLY AN APPROVED SAND STABILIZING AGENT TO JOINTS PER MANUFACTURER'S SPECIFICATIONS.
 3. PAVES INSTALLER MUST BE EXPERIENCED IN THIS METHOD AND TYPE OF INSTALLATION. (PROVIDE EXAMPLES OF 3 PROJECTS TO REVIEW).
 4. CONCRETE PAVERS TO BE DUBLIN COBBLE 3-PIECE MODULAR, 2 3/8" X 6" VARIABLE, COLOR TERRA COTTA, BY BELGARD HARDSCAPE (877/660/6460).
 5. INSTALL PER MANUFACTURER'S SPECIFICATIONS AND DETAILS.

D
LS-1
CONCRETE PAVERS DETAIL
SECTION

- CROSSWALK NOTES:**
1. CROSSWALKS TO BE COLORED STAMPED ASPHALT (TRAFFIC PATTERNS XD) BY ENNIS FLINT (OR EQUAL), COLOR TO BE COLONIAL BRICK. CROSS WALK TO HAVE 6" WHITE THERMO PLASTIC BORDERS ON EACH SIDE. PHONE: (336-475-6600).
 2. DETECTABLE WARNING SURFACE TO BE BY ENNIS FLINT (OR EQUAL). COLOR TO BE COLONIAL BRICK. PHONE: (336-475-6600).
 3. INSTALL PER MANUFACTURER'S SPECIFICATIONS AND DETAILS.

REVISION DATE	
revise detail, show in plan 1.7.15	
APPROVALS	DESIGNER WRW
CHECKED BY KVC/JWF	DATE:
ALLIANCE CONSULTING ENGINEERS	
GRIMBALL & ASSOCIATES COTTERILL LANDSCAPE ARCHITECTS & LAND PLANNERS 600 BELTLINE BOULEVARD COLUMBIA, SC 29205 (803)728-9235	
PROJECT phase II roadway improvements for THE CHAPIN business AND technology park FOR LEXINGTON COUNTY	DATE: MARCH 2014 SCALE:
FILE NAME: ENTRANCE PLANS AND DETAILS	SHEET LS-1
REFERENCE FILE: BASE.DWG	OF
PROJECT NO. 13176-0032	DWG NO. 01,782-014

- GENERAL NOTES FOR THREE PHASE PAD MOUNTED TRANSFORMERS**
- DEVELOPER RESPONSIBILITIES:**
1. ALL WORK TO BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF SCE&G UNDERGROUND COMMERCIAL BOOKLET.
 2. DEVELOPER IS RESPONSIBLE FOR REVIEWING THE SCE&G DEVELOPERS HANDBOOK AND FORWARDING ALL INFORMATION TO HIS CONTRACTORS.
 3. DEVELOPER MUST ENSURE THAT ALL UTILITIES ARE SHOWN CORRECTLY ON THIS DRAWING. ANY CHANGES MUST BE COORDINATED WITH A SCE&G REPRESENTATIVE.
 4. DEVELOPER TO FURNISH AND INSTALL ALL NECESSARY CONDUIT, MANHOLES, PULL BOXES, AND PULL WIRES, IN ACCORDANCE WITH SCE&G DRAWINGS AND SPECIFICATIONS. ALL CONDUIT BENDS WILL BE GALVANIZED IRON WITH A THREE FOOT MINIMUM RADIUS. THE CONDUIT ENTRANCE INTO THE TRANSFORMER WILL BE GALVANIZED IRON. ALSO THE FIRST TEN FOOT SECTION OF CONDUIT UP THE POLE MUST BE GALVANIZED IRON. OTHER CONDUIT RUNS WILL BE SCHEDULE 40 PVC. DEVELOPER OR HIS CONTRACTOR SHALL COMPLY WITH SCE&G DRAWING T-1 REGARDING CONDUIT INSTALLATION.
 5. DEVELOPER TO PROVIDE PRIMARY CABLE TRENCHING AND BACK FILL IN ACCORDANCE WITH SCE&G DRAWINGS T-1 AND T-2. DEVELOPER WILL COORDINATE THE OPENING OF THE TRENCH WITH SCE&G REPRESENTATIVES AND A SCE&G REPRESENTATIVE MUST BE PRESENT DURING BACK-FILLING OF THE TRENCH.
 6. DEVELOPER WILL INSTALL AND MAINTAIN THE CONCRETE TRANSFORMER PAD IN ACCORDANCE WITH SCE&G DRAWINGS T-1, T-2, AND T-3. LOCATION OF THE PAD MUST BE COORDINATED WITH A SCE&G REPRESENTATIVE.
 7. DEVELOPER MUST PROVIDE A 12 FOOT MINIMUM WIDTH CORRIDOR FOR HEAVY TRUCK ACCESS TO WITHIN 1 FOOT OF THE TRANSFORMER PAD. DEVELOPER IS RESPONSIBLE FOR THE TRENCHING OF THE TRANSFORMER AND THE PRIMARY CABLE ROUTE UNLESS OTHERWISE SPECIFIED. THERE SHALL BE NO BUILDING OVERHANG ABOVE THE CONCRETE PAD FOR A VERTICAL DISTANCE OF 40 FEET.
 8. DEVELOPER TO ENSURE THAT THE CABLE ROUTE MUST BE 8 FEET FROM PARALLEL RUNS OF WATER, SEWER, STORM DRAINS, OR OTHER FOREIGN UTILITIES.
 9. DEVELOPER MUST PROVIDE PROTECTION TO THE TRANSFORMER FROM VEHICULAR TRAFFIC AS SPECIFIED BY A SCE&G REPRESENTATIVE. A TYPICAL INSTALLATION IS SHOWN IN THIS DRAWING. IF APPLICABLE.
 10. DEVELOPER MUST ENSURE THAT METERING EQUIPMENT CAN BE MOUNTED WHERE REQUIRED BY SCE&G.
 11. DEVELOPER WILL FURNISH AND INSTALL ALL SECONDARY SERVICE CONDUIT AND CONDUCTORS TO THE TRANSFORMER SECONDARY TERMINALS. DEVELOPER WILL PURCHASE ALL SECONDARY CABLE LUGS IN ACCORDANCE WITH SCE&G SPECIFICATION TABLE C-4. SHEETS 1 AND 2. SERVICE CONDUCTOR SIZES SHOULD BE 4/0 THROUGH 500 KCM COPPER, OR 4/0 THROUGH 750 KCM ALUMINUM. THE MAXIMUM NUMBER OF SECONDARY CONDUCTORS ALLOWED IS SHOWN IN SCE&G DRAWING AND TABLE T-1, SHEETS 1 AND 2.
 12. DEVELOPER MUST PROVIDE INTERRUPTION PROTECTION ON ALL THREE PHASES OF THE SECONDARY SERVICE TO PREVENT DAMAGE TO MOTORS AND EQUIPMENT IN THE EVENT POWER IS INTERRUPTED TO ONE OR MORE PHASES OF THE SCE&G SUPPLY LINE.
 13. DEVELOPER IS ADVISED TO PROVIDE ADEQUATE SERVICE EQUIPMENT TO MEET THE SHORT-CIRCUIT CURRENTS AVAILABLE AT THE EQUIPMENT LOCATION. SHOULD SCE&G EVER INCREASE CAPACITY OF TRANSFORMER BANK DUE TO ADDITIONAL DEVELOPER LOAD, DEVELOPER SHOULD CONSIDER SERVICE EQUIPMENT TO HANDLE ULTIMATE SHORT-CIRCUIT CURRENTS. REFER TO THE LATEST APPLICABLE EDITION OF THE NEC.
 14. DEVELOPER WILL BE REQUIRED TO REIMBURSE SCE&G FOR THE INSTALLED COST OF THREE-PHASE PRIMARY CABLE IN EXCESS OF 335 FEET.
 15. DEVELOPER WILL BE RESPONSIBLE FOR FURNISHING FINAL GRADE FOR ALL SCE&G EQUIPMENT. IT IS ESSENTIAL THAT ALL TRANSFORMER PADS, PEDIESTALS, MANHOLES, MANHOLE EQUIPMENT CRITICAL TO GRADE BE LOCATED CORRECTLY. IF THIS EQUIPMENT HAS TO BE RAISED OR LOWERED DUE TO INSUFFICIENT INFORMATION FROM THE CUSTOMER, THE CUSTOMER WILL BE RESPONSIBLE FOR REIMBURSING SCE&G FOR THIS COST.
- SCE&G RESPONSIBILITIES:**
1. SCE&G WILL INSTALL AND FURNISH ALL PRIMARY CABLE AND TERMINATIONS, THE PAD-MOUNTED TRANSFORMER, CONDUIT UP THE TERMINAL POLE ABOVE THE FIRST FOOT SECTION, AND WILL MAKE THE SECONDARY CONDUCTOR CONNECTIONS AT THE TRANSFORMER USING THE LUGS FURNISHED BY THE DEVELOPER.

SOUTH CAROLINA ELECTRIC & GAS COMPANY	
ELECTRIC DISTRIBUTION SYMBOLS	
POLES	
○ SCE&G DISTRIBUTION POLE	○ SINGLE PHASE TRANSFORMER
○ SCE&G TRANSMISSION POLE	○ TWO PHASE TRANSFORMER
○ ANCHOR OR BOM OUT	○ THREE PHASE TRANSFORMER
PRIMARY CONDUCTOR	
— SINGLE PHASE	— THREE PHASE
— DUPLICATION	— ONE SERVICE
— CONDUIT	— PRIMARY METER
SECONDARY CONDUCTOR	
— DUPLICATION	— UNDERGROUND SYMBOLS
— SINGLE PHASE	— SINGLE PHASE PAD MOUNTED TRANSFORMER
— THREE PHASE	— THREE PHASE PAD MOUNTED TRANSFORMER
SECTIONALIZING DEVICES & SWITCHES	
○ DISJUNCTION	□ SWITCH GEAR
○ CIRCUIT RELOCATOR	□ LOOP CABINET
○ BLADE SWITCH	○ ONE SERVICE
○ GANG SWITCH	○ SECONDARY PEDestal MANHOLE
○ STREET SWITCH	○ "T" FOR PERMANENT
	○ "M" FOR METERED
LIGHTING	
— STREET LIGHT	— HAT BOX LIGHT
— FLOOD LIGHT	— SHED BOX LIGHT
EXAMPLES OF TYPICAL SYMBOL SCHEMES ARE AS FOLLOWS:	
FACILITIES BEING REFINISHED BY AN OWNER SHOULD BE IDENTIFIED BY A HALF SOLID FILL SYMBOL. FACILITIES TO BE REPLACED REPRESENTED BY A HALF SOLID FILL SYMBOL. ALWAYS REFER TO CONSTRUCTION NOTES FOR A COMPLETE LIST OF SYMBOLS.	
○ EXISTING PAD MOUNT TRANSFORMER	○ REPLACE PAD MOUNT TRANSFORMER
○ EXISTING PAD MOUNT TRANSFORMER	○ REMOVE PAD MOUNT TRANSFORMER
THIS SYMBOL INDICATES THE LOCATION OF A TRANSMISSION OR PRIMARY DISTRIBUTION LINE CROSSING. FOLLOW "SAFETY" PRECAUTIONS.	
MISCELLANEOUS UTILITIES	
— CABLE TV	— SEWER FORCE MAIN
— FIBER OPTIC	— STORM DRAIN
— GAS MAIN	— TELEPHONE CABLE
— SEWER MAIN	— WATER MAIN
THIS LEGEND IS FOR GENERAL DESCRIPTION ONLY. FOR MORE DETAILED INFORMATION, REFER TO THE CONSTRUCTION NOTES SHOWN ON THIS DRAWING OR REFER TO THE SCE&G DISTRIBUTION CONSTRUCTION STANDARDS MANUAL.	

W.O.# _____ WR.# _____

STARTED _____ BY _____

COMPLETED _____ BY _____

CLOSED OUT _____ BY _____

COORDINATOR PAUL HAMPTON

ELECTRIC ENG. TECH. B. DERRICK/B. ASHLEY

GAS ENG. TECH. _____

RIGHT OF WAY INFORMATION

R/W AGENT _____

FILE NUMBER _____

EASEMENT NO. _____

STANDARD SCE&G DISTRIBUTION RIGHT OF WAY: OVERHEAD ELECTRIC IS 15' EACH SIDE OF THE POLE. UNDERGROUND ELECTRIC IS 5' EACH SIDE OF THE CABLE. PAD MOUNTED EQUIPMENT IS 12' AROUND THE PERIMETER OF THE EQUIPMENT.

3 DAYS BEFORE DIGGING IN SOUTH CAROLINA

CALL 1-888-721-7877

PALMETTO UTILITY PROTECTION SERVICE

ALL SCE&G FACILITY LOCATIONS SHOWN ON THIS DRAWING ARE APPROXIMATE. FINAL LOCATIONS ARE DETERMINED AT THE TIME OF INSTALLATION BY A SCE&G REPRESENTATIVE.

DEVELOPERS SIGNATURE BLOCK

DEVELOPER HEREBY APPROVES THIS LAYOUT FOR CONSTRUCTION AND CERTIFIES THAT HE/SHE HAS THE AUTHORITY TO DO SO. ANY CHANGE AFFECTING THIS LAYOUT MUST BE REPORTED IMMEDIATELY TO SCE&G. ALL COST ASSOCIATED WITH ANY REQUESTED CHANGE OR INSUFFICIENT FINAL GRADE INFORMATION WILL BE BORNE BY THE DEVELOPER. SCE&G POLICY, STATE AND LOCAL LAW, AS WELL AS REGULATORY RESTRICTIONS AT THE TIME OF CONSTRUCTION WILL PREVAIL. DEVELOPER CERTIFIES THAT HE/SHE HAS REVIEWED THE SCE&G DEVELOPERS HANDBOOK AND ALL REQUIREMENTS LISTED IN THE HANDBOOK UNDER DEVELOPER RESPONSIBILITY MUST BE MET BEFORE CONSTRUCTION CAN BE SCHEDULED.

APPROVED BY _____ (SIGNATURE)

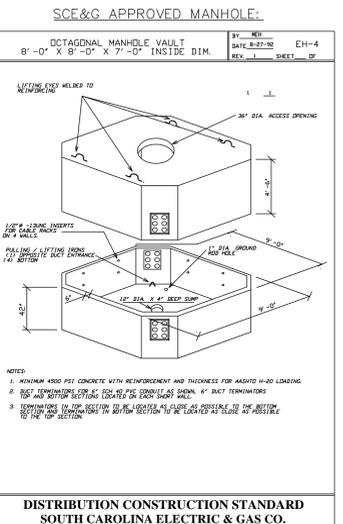
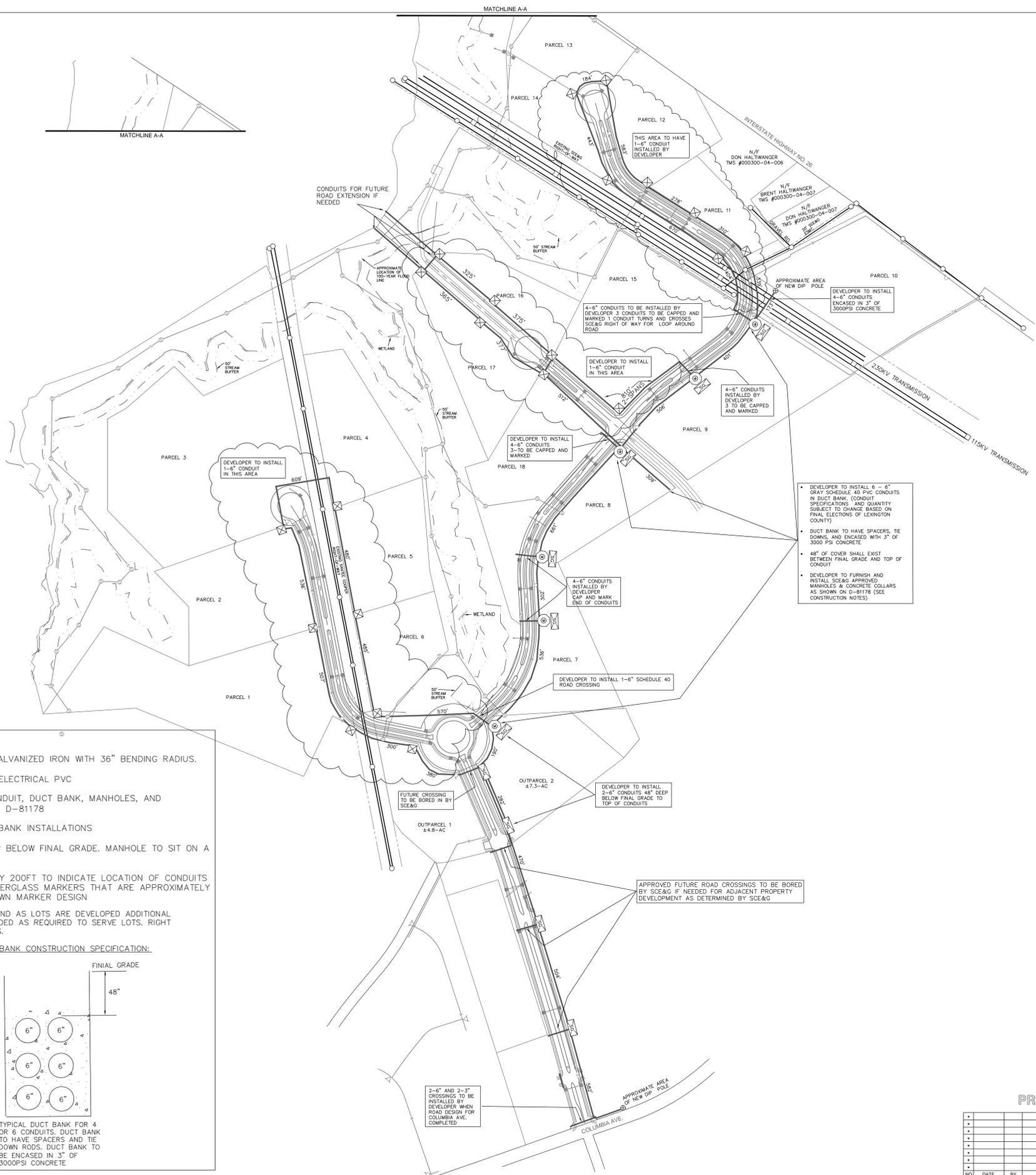
TITLE AND COMPANY: _____ (PRINT NAME)

DATE: _____

SOUTH CAROLINA ELECTRIC & GAS CO.	
TITLE	CHAPIN BUSINESS & TECHNOLOGY PARK
DETAIL COMPOSITE	CHK# 25802
SUB.	WHITE ROCK SUB. (533) 23KV
SCALE:	1"=200'
DATE	08/18/14
BY	APP 20.08.08.0000
REVISION	081178-04.DWG
FOR	D-81178
	SHEET 4 OF 5 SHEETS
	08/18/14

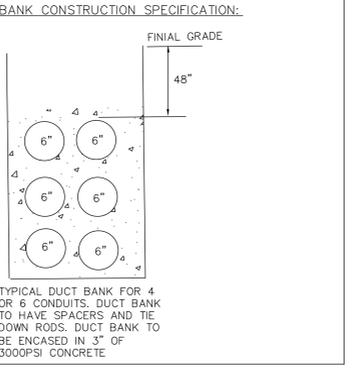
PRELIMINARY

SCANACAD DRAWING—DO NOT REVISE MANUALLY



- CONSTRUCTION NOTES:**
- ALL BENDS (22'S - 45'S AND 90'S) TO BE GALVANIZED IRON WITH 36" BENDING RADIUS.
 - ALL CONDUITS TO BE 6" GRAY SCHEDULE 40 ELECTRICAL PVC
 - DEVELOPER TO FURNISH AND INSTALL ALL CONDUIT, DUCT BANK, MANHOLES, AND ASSOCIATED RINGS/COLLARS AS INDICATED ON D-81178
 - SCE&G TO INSPECT ALL MANHOLE AND DUCT BANK INSTALLATIONS
 - MANHOLE TOP TO BE A MINIMUM OF 24" DEEP BELOW FINAL GRADE. MANHOLE TO SIT ON A 6" BED OF #57 STONE
 - CONDUITS INSTALLED TO HAVE MARKERS EVERY 200FT TO INDICATE LOCATION OF CONDUITS. SCE&G WILL SUPPLY OUR STANDARD RED FIBERGLASS MARKERS THAT ARE APPROXIMATELY 4FT TALL OR THE DEVELOPER CAN USE HIS OWN MARKER DESIGN
 - ALL SCE&G FACILITIES SHOWN ARE APPROXIMATE AND AS LOTS ARE DEVELOPED ADDITIONAL MANHOLES, SWITCHGEAR OR MANHOLES TO BE ADDED AS REQUIRED TO SERVE LOTS. RIGHT OF WAY WILL BE AT INSTALLED FACILITY LOCATIONS.

- ADDITIONAL UNDERGROUND SYMBOLS:**
- MANHOLES AND CONCRETE COLLARS TO BE INSTALLED AND FURNISHED BY DEVELOPER TO SCE&G SPECIFICATIONS
 - PROPOSED SWITCHGEAR TO BE INSTALLED AS NEEDED TO PROVIDE SERVICE BY SCE&G UPON LOT DEVELOPMENT
 - CONCRETE PULL BOXES TO BE INSTALLED BY SCE&G AS NEEDED TO PROVIDE SERVICE UPON LOT DEVELOPMENT



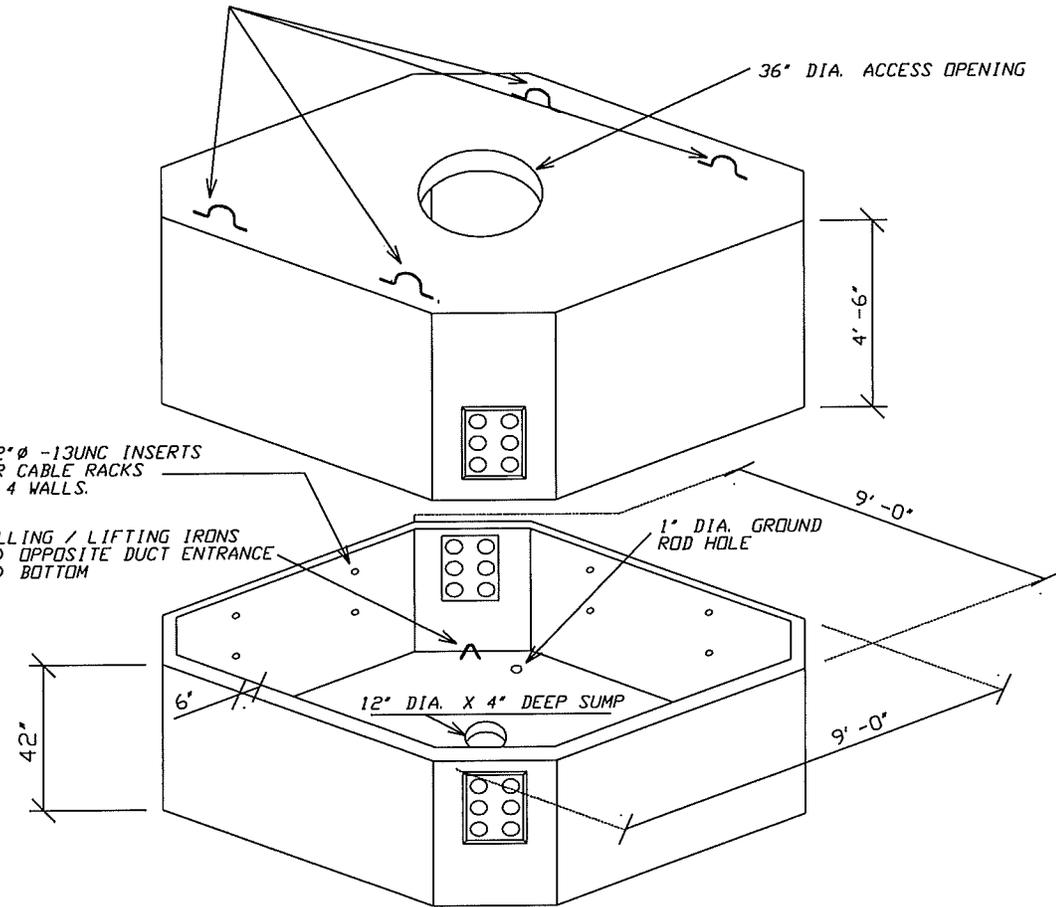
X:\apps\gls\SCANACAD\Drawings\Electric\Construction\081178-04.dwg, Scale=200, Plotted By: BAO2008, Plotted: Aug 18, 2014 - 4:56pm

PLAN "SAFETY" INTO EVERY JOB

OCTAGONAL MANHOLE VAULT
 8'-0" X 8'-0" X 7'-0" INSIDE DIM.

BY MEH
 DATE 8-27-92 EH-4
 REV. 1 SHEET 1 OF 1

LIFTING EYES WELDED TO
 REINFORCING



NOTES:

1. MINIMUM 4500 PSI CONCRETE WITH REINFORCEMENT AND THICKNESS FOR AASHTO H-20 LOADING.
2. DUCT TERMINATORS FOR 6" SCH 40 PVC CONDUIT AS SHOWN, 6" DUCT TERMINATORS TOP AND BOTTOM SECTIONS LOCATED ON EACH SHORT WALL.
3. TERMINATORS IN TOP SECTION TO BE LOCATED AS CLOSE AS POSSIBLE TO THE BOTTOM SECTION AND TERMINATORS IN BOTTOM SECTION TO BE LOCATED AS CLOSE AS POSSIBLE TO THE TOP SECTION.

**DISTRIBUTION CONSTRUCTION STANDARD
 SOUTH CAROLINA ELECTRIC & GAS CO.**

**SECTION 00410
BID FORM**

**PHASE II INFRASTRUCTURE IMPROVEMENTS FOR THE CHAPIN BUSINESS AND TECHNOLOGY
PARK
FOR
LEXINGTON COUNTY, SOUTH CAROLINA**

TABLE OF ARTICLES

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ARTICLE 9 – BID SUBMITTAL.....6

ARTICLE 1 - BID RECIPIENT

- 1.01 This Bid is submitted to: **Lexington County Procurement Office
County Administrative Building, 5th Floor
Attn: Angela Seymour, Procurement Officer
212 South Lake Drive
Lexington, South Carolina 29072**

- 1.02 Bids are to be delivered to: **Lexington County Procurement Office
County Administrative Building, 5th Floor
Attn: Angela Seymour, Procurement Officer
212 South Lake Drive
Lexington, South Carolina 29072**

- 1.03 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 - BIDDER'S ACKNOWLEDGEMENTS

- 2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for sixty (60) days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 - BIDDER'S REPRESENTATIONS

- 3.01 In submitting this Bid, Bidder represents that:
 - A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged.

<u>Addendum No.</u>	<u>Addendum Date</u>	<u>Initials</u>
<u>1</u>	<u>12/29/2014</u>	<u> </u>
<u>2</u>	<u>1/2/2015</u>	<u> </u>
<u>3</u>	<u>1/7/2015</u>	<u> </u>

- B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and performance of the Work.
- D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities), which have been identified in Paragraph 4.02 of General Conditions, and (2) reports and drawings of Hazardous Environmental Conditions that have been identified in Paragraph 4.06 of General Conditions.
- E. Bidder has obtained and carefully studied (or accepts the consequences for not doing so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous

- to the Site, which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.
- F. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.
 - G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
 - H. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.
 - I. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.
 - J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.
 - K. Bidder will submit written evidence of its authority to do business in the state where the Project is located not later than the date of its execution of the Agreement.

ARTICLE 4 - FURTHER REPRESENTATIONS

4.01 Bidder further represents that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation.
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding.
- D. Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.

ARTICLE 5 – BASIS OF BID

Base Bid

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following unit price(s):

Phase II Roadway Improvements (Drawing No. 01,782-D14, dated September 2013)					
Item No.	Description	Unit	Estimated Quantity	Unit Price	Bid Price
1	Mobilization/Bonds	LS	1	\$	\$
2	Traffic Control	LS	1	\$	\$
3	Construction Entrance	EA	2	\$	\$
4	Silt Fencing	LF	9,000	\$	\$
5	Silt Baffle	LF	240	\$	\$
6	Outlet Control Structure	EA	1	\$	\$
7	4-inch Faircloth Skimmer	EA	1	\$	\$
8	Level Spreader	EA	1	\$	\$
9	Sediment Tube	EA	2	\$	\$
10	Rip-Rap Check Dam	EA	53	\$	\$
11	Aboveground Rip-Rap Forebay	EA	1	\$	\$
12	Rip-Rap Outlet Protection	SY	360	\$	\$
13	Clearing and Grubbing (Area within Limits of Disturbance)	AC	19	\$	\$
14	Earthwork(On-Site Excavation/Backfill/Compaction)	LS	1	\$	\$
15	SC150 Erosion Control Matting	SY	20,060	\$	\$
16	Removal of Existing Asphalt Roadway	SY	735	\$	\$
17	Inlet Protection (Silt Saver Square Frame Assembly Model #S-200A)	EA	46	\$	\$
18	18-inch RCP	LF	3,650	\$	\$
19	24-inch RCP	LF	1,260	\$	\$
20	30-inch RCP	LF	646	\$	\$
21	Storm Drainage Flared End Section	EA	8	\$	\$
22	Storm Drainage Curb Inlet (Type 1)	EA	42	\$	\$
23	Storm Drainage Curb Inlet (Type 9)	EA	4	\$	\$
24	Storm Drainage Junction Box	EA	9	\$	\$
25	2-inch Asphalt Surface Course (Type B)	SY	26,230	\$	\$
26	2-inch Asphalt Binder Course (Type B)	SY	26,230	\$	\$
27	10-inch Graded Aggregate Base Course	SY	26,230	\$	\$
28	Concrete Sidewalk	SY	4,400	\$	\$
29	Curb and Gutter	LF	20,290	\$	\$
30	12-inch Concrete Key	EA	1	\$	\$
31	Striping	LS	1	\$	\$
32	Signage (Wetland Signage & Roadway Signage)	LS	1	\$	\$
33	Enkamat 7010 Turf Reinforcement Matting	SY	8,850	\$	\$
34	Grassing	AC	5	\$	\$

Phase II Water Improvements (Drawing No. 01,782-D14, dated September 2013)

<u>Item No.</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Bid Price</u>
1	4-inch PVC	LF	1,140	\$	\$
2	4-inch 45° Bend	EA	1	\$	\$
3	4-inch 22-1/2° Bend	EA	1	\$	\$
4	4-inch Meter and Backflow Prevention Device	EA	1	\$	\$
5	6-inch DIP	LF	120	\$	\$
6	6-inch Gate Valve	EA	6	\$	\$
7	6-inch 90° Bend	EA	1	\$	\$
8	8-inch DIP	LF	78	\$	\$
9	8-inch Gate Valve	EA	1	\$	\$
10	8-inch MJ Cap	EA	1	\$	\$
11	12-inch DIP	LF	3,375	\$	\$
12	12-inch Gate Valve	EA	8	\$	\$
13	12-inch Plug	EA	5	\$	\$
14	12-inch 45° Bend	EA	6	\$	\$
15	12-inch MJ Cap	EA	3	\$	\$
16	Fire Hydrant Assembly	EA	6	\$	\$
17	12-inch x 4-inch Reducer	EA	1	\$	\$
18	12-inch x 6-inch Reducer	EA	1	\$	\$
19	16-inch x 12-inch Reducer	EA	1	\$	\$
20	12-inch x 12-inch x 6-inch MJ Tee	EA	4	\$	\$
21	12-inch x 12-inch x 8-inch MJ Tee	EA	1	\$	\$
22	12-inch x 12-inch x 12-inch MJ Tee	EA	3	\$	\$
23	Air Release Valve	EA	4	\$	\$

Phase II Gravity Wastewater Improvements (AEC Drawing Job No. 13-015, dated May 2014)

<u>Item No.</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Bid Price</u>
1	8-inch PVC Sewer Line, in place (0-6 feet deep)	LF	252	\$	\$
2	8-inch PVC Sewer Line, in place (6-8 feet deep)	LF	1154	\$	\$
3	8-inch PVC Sewer Line, in place (8-10 feet deep)	LF	1731	\$	\$
4	8-inch PVC Sewer Line, in place (10-12 feet deep)	LF	2100	\$	\$
5	8-inch PVC Sewer Line, in place (12-14 feet deep)	LF	1606	\$	\$
6	8-inch PVC Sewer Line, in place (14-16 feet deep)	LF	1009	\$	\$
7	8-inch PVC Sewer Line, in place (16-18 feet deep)	LF	513	\$	\$
8	8-inch PVC Sewer Line, in place (18-20 feet deep)	LF	206	\$	\$
9	8-inch PVC Sewer Line, in place (20-22 feet deep)	LF	45	\$	\$
10	8-inch PVC Sewer Line, in place (22-24 feet deep)	LF	35	\$	\$

11	10-inch PVC Sewer Line, in place (6-8 feet deep)	LF	123	\$	\$
12	10-inch PVC Sewer Line, in place (8-10 feet deep)	LF	176	\$	\$
13	10-inch PVC Sewer Line, in place (10-12 feet deep)	LF	343	\$	\$
14	10-inch PVC Sewer Line, in place (12-14 feet deep)	LF	240	\$	\$
15	10-inch PVC Sewer Line, in place (14-16 feet deep)	LF	202	\$	\$
16	10-inch PVC Sewer Line, in place (16-18 feet deep)	LF	71	\$	\$
17	12-inch PVC Sewer Line, in place (0-6 feet deep)	LF	36	\$	\$
18	12-inch PVC Sewer Line, in place (6-8 feet deep)	LF	889	\$	\$
19	12-inch PVC Sewer Line, in place (8-10 feet deep)	LF	373	\$	\$
20	12-inch PVC Sewer Line, in place (10-12 feet deep)	LF	148	\$	\$
21	12-inch PVC Sewer Line, in place (12-14 feet deep)	LF	11	\$	\$
22	12-inch PVC Sewer Line, in place (14-16 feet deep)	LF	12	\$	\$
23	12-inch PVC Sewer Line, in place (16-18 feet deep)	LF	13	\$	\$
24	12-inch PVC Sewer Line, in place (18-20 feet deep)	LF	66	\$	\$
25	15-inch PVC Sewer Line, in place (0-6 feet deep)	LF	25	\$	\$
26	15-inch PVC Sewer Line, in place (6-8 feet deep)	LF	170	\$	\$
27	15-inch PVC Sewer Line, in place (8-10 feet deep)	LF	24	\$	\$
28	15-inch PVC Sewer Line, in place (10-12 feet deep)	LF	20	\$	\$
29	15-inch PVC Sewer Line, in place (12-14 feet deep)	LF	81	\$	\$
30	15-inch PVC Sewer Line, in place (14-16 feet deep)	LF	130	\$	\$
31	15-inch PVC Sewer Line, in place (16-18 feet deep)	LF	73	\$	\$
32	15-inch PVC Sewer Line, in place (18-20 feet deep)	LF	51	\$	\$
33	4-foot Diameter Precast Concrete Manhole (6-8 feet deep)	EA	11	\$	\$
34	4-foot Diameter Precast Concrete Manhole (8-10 feet deep)	EA	8	\$	\$
35	4-foot Diameter Precast Concrete Manhole (10-12 feet deep)	EA	7	\$	\$
36	4-foot Diameter Precast Concrete Manhole (12-14 feet deep)	EA	5	\$	\$
37	4-foot Diameter Precast Concrete Manhole (14-16 feet deep)	EA	4	\$	\$
38	4-foot Diameter Precast Concrete Manhole (16-18 feet deep)	EA	6	\$	\$
39	4-foot Diameter Precast Concrete Manhole (18-20 feet deep)	EA	2	\$	\$
40	4-foot Diameter Precast Concrete Manhole (22-24 feet deep)	EA	1	\$	\$

	feet deep)				
41	4-foot Diameter Epoxy Lined Precast Concrete Manhole (6-8 feet deep)	EA	2	\$	\$
42	4-foot Diameter Epoxy Lined Precast Concrete Manhole (8-10 feet deep)	EA	3	\$	\$
43	4-foot Diameter Epoxy Lined Precast Concrete Manhole (10-12 feet deep)	EA	2	\$	\$
44	4-foot Diameter Epoxy Lined Precast Concrete Manhole (16-18 feet deep)	EA	1	\$	\$
45	4-foot Diameter Epoxy Lined Precast Concrete Manhole (18-20 feet deep)	EA	1	\$	\$
46	8-inch PVC Sewer Pipe Manhole Drop (Manhole A6)	LF	7.5	\$	\$
47	8-inch PVC Sewer Pipe Manhole Drop (Manhole B2)	LF	6	\$	\$
48	8-inch PVC Sewer Pipe Manhole Drop (Manhole B3)	LF	9.5	\$	\$
49	8-inch PVC Sewer Pipe Manhole Drop (Manhole B7)	LF	6.5	\$	\$
50	8-inch PVC Sewer Pipe Manhole Drop (Manhole B8)	LF	6	\$	\$
51	8-inch PVC Sewer Pipe Manhole Drop (Manhole D3)	LF	4	\$	\$
52	8-inch PVC Sewer Pipe Manhole Drop (Manhole D4)	LF	3	\$	\$
53	10-inch PVC Sewer Pipe Manhole Drop (Manhole A16)	LF	6	\$	\$
54	20-inch Bore and Jack Steel Casing with 8-inch PVC Carrier Pipe Complete in place (Includes all necessary appurtenances for complete installation)	LF	200	\$	\$
55	24-inch Bore and Jack Steel Casing with 12-inch PVC Carrier Pipe Complete in place (Includes all necessary appurtenances for complete installation)	LF	50	\$	\$
56	Restoration/Grassing/Erosion Control	LS	1	\$	\$

Phase II Wastewater Pump Station (AEC Drawing Job No. 13-015, dated July 2014)

<u>Item No.</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Bid Price</u>
1	1,200 GPM Pump Station (Includes all necessary appurtenances for complete installation)	LS	1	\$	\$

Phase II Wastewater Force Main Improvements (AEC Drawing Job No. 13-015, dated August 2014)

<u>Item No.</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Bid Price</u>
1	12" PVC Force Main Line, in place (Includes all joint restraints in accordance with Detail Sheet 16 of drawings and specifications, unless otherwise noted)	LF	10,829	\$	\$
2	12" Horizontal Directional Drilling Force Main (Includes all necessary appurtenances for complete installation)	LF	487	\$	\$
3	24-inch Bore and Jack Steel Casing with 12-inch PVC Carrier Pipe Complete under Creeks or Wetlands Complete, in place (Includes all necessary joint restraints and appurtenances for complete installation)	LF	110	\$	\$
4	24-inch Bore and Jack Steel Casing with 12-inch DIP Carrier Pipe Complete under Roads Complete, in place (Includes all necessary joint restraints and appurtenances for complete installation)	LF	86	\$	\$
5	12-inch Plug Valve in place (Includes Valve, Valve Box, Protective Concrete Collar and appurtenances for complete installation)	LF	9	\$	\$
6	Air Release Dual Body Valve Assembly in place with Manholes as shown on Drawings	EA	16	\$	\$
7	12-inch 11.25° M.J. Pipe Fitting (In Place)	EA	21	\$	\$
8	12-inch 22.50° M.J. Pipe Fitting (In Place)	EA	25	\$	\$
9	12-inch 45.00° M.J. Pipe Fitting (In Place)	EA	8	\$	\$
10	12-inch 90.00° M.J. Pipe Fitting (In Place)	EA	4	\$	\$
11	Cut and Replace Asphalt Road (As shown on Detail)	LF	215	\$	\$
12	24-inch Steel Casing with 12-inch PVC Carrier Pipe Complete in place (Includes all necessary joint restraints and appurtenances for complete installation)	LF	60	\$	\$
13	Tie-In at Station 0+00 (Includes Fittings and all work necessary for complete connection)	LS	1	\$	\$
14	Tie-In at Station 115+72 (Includes 12-inch x12-inch Tapping Sleeve, Fittings and all work necessary for complete connection)	LS	1	\$	\$
15	Restoration/Grassing/Erosion Control	LS	1	\$	\$

Phase II Electrical Improvements (Drawing No. 01,782-D14, dated September 2013)

<u>Item No.</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Bid Price</u>
1	Meter Point A and associated distribution	EA	1	\$	\$
2	Meter Point B and associated distribution	EA	1	\$	\$
3	Meter Point C and associated distribution	EA	1	\$	\$
4	Site Lighting	LS	1	\$	\$
5	Joint-use Ductbank (JUDB)	LS	1	\$	\$
6	Joint-use Ductbank (JUDB) Handholes	EA	48	\$	\$

Phase II Landscape Improvements (Drawing No. 01,782-D14, dated September 2013)

<u>Item No.</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Bid Price</u>
1	Concrete Pavers	SF	2256	\$	\$
2	Imprinted Aggregate Reinforced Preformed Thermoplastic Pavement Marking System	LF	406	\$	\$
3	Preformed Thermoplastic Detectable Warning Material	SF	40	\$	\$
4	Stamped Asphalt	SF	1070	\$	\$
5	Sign Walls (Entrance)	LS	1	\$	\$
6	Sign Walls (Fountain)	LS	1	\$	\$
7	Fountain	LS	1	\$	\$
8	4" Sleeving	LF	2400	\$	\$
9	6" Sleeving	LF	450	\$	\$
10	Sugar Maple	EA	2	\$	\$
11	River Birch	EA	5	\$	\$
12	Eastern Redbud	EA	7	\$	\$
13	Nellie R. Stevens Holly	EA	8	\$	\$
14	Muskogee Crape Myrtle	EA	78	\$	\$
15	Black Gum	EA	2	\$	\$
16	Sycamore	EA	2	\$	\$
17	Shumard Oak	EA	47	\$	\$
18	Highbeam Overcup Oak	EA	41	\$	\$
19	Swamp Chestnut Oak	EA	22	\$	\$
20	Nuttall Oak	EA	80	\$	\$
21	Willow Oak	EA	72	\$	\$
22	Weeping Willow	EA	5	\$	\$
23	Sequoia (Planting Only)	EA	4	\$	\$
24	Bald Cypress	EA	8	\$	\$
25	Rose Creek Abelia	EA	380	\$	\$
26	Beauty Berry	EA	53	\$	\$
27	Carissa Holly	EA	20	\$	\$
28	Winterberry Holly	EA	50	\$	\$
29	Virginia Sweetspire	EA	96	\$	\$
30	Primrose Jasmine	EA	125	\$	\$
31	Blue Pacific Shore Juniper	EA	42	\$	\$
32	Ruby Loropetalum	EA	4	\$	\$

33	Switch Grass	EA	12	\$	\$
34	Dwarf Pittosporum	EA	24	\$	\$
35	Wax Myrtle	EA	15	\$	\$
36	Smooth Sumac	EA	8	\$	\$
37	Colorguard Yucca	EA	21	\$	\$
38	Annual Flowers	SF	100	\$	\$
39	Broom Sedge	EA	300	\$	\$
40	Spike Rush	EA	285	\$	\$
41	Soft Rush	EA	720	\$	\$
42	Big Blue Liriope	EA	11,612	\$	\$
43	Pink Muhly Grass	EA	235	\$	\$
44	Switch Grass	EA	390	\$	\$
45	Black-eyed Susan	EA	153	\$	\$
46	Indian Grass	EA	150	\$	\$
47	Centipede Sod	SF	86,080	\$	\$
48	Seeding	SF	217,468±	\$	\$
49	Irrigation	LS	1	\$	\$
50	Irrigation Wells	LS	2	\$	\$
51	Irrigation Pump Cover and all components to connect well and pump to irrigation	LS	2	\$	\$
52	Planted Median Subsurface Drainage	SY	6,850	\$	\$
53	10-inch Perforated Pipe Underdrain	LF	4,385	\$	\$
54	Select Material for Landscaping or Borrow Material	SY	5,000	\$	\$
55	4-inch Perforated Pipe Underdrain	LF	210	\$	\$

Total Bid: \$

_____ Dollars _____ Cents

(\$ _____)

Amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will govern.

The above unit prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc., to complete the finish work as stipulated in the Bid Documents.

Unit Prices have been computed in accordance with Paragraph 11.03.B of the General Conditions.

Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

5.02 Base Bid Alternate 1-Bidder will complete the Work in accordance with the Contract Documents for the following unit price(s):

Phase II Electrical Improvements (Drawing No. 01,782-D14, dated September 2013)					
Item No.	Description	Unit	Estimated Quantity	Unit Price	Bid Price
1	Leased Lighting Infrastructure	LF	10,300	\$	\$
2	SCE&G Electrical Infrastructure	LS	1	\$	\$
Total Base Bid Alternate 1:				\$	

Dollars _____ Cents

(\$ _____)

Amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will govern.

The above unit prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc., to complete the finish work as stipulated in the Bid Documents.

Unit Prices have been computed in accordance with Paragraph 11.03.B of the General Conditions.

Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

5.03 Base Bid Alternate 2-Bidder will complete the Work in accordance with the Contract Documents for the following unit price(s):

Phase II Landscape Improvements (Drawing No. 01,782-D14, dated September 2013)					
Item No.	Description	Unit	Estimated Quantity	Unit Price	Bid Price
1	Sign Walls (Fountain)	LS	1	\$	\$
2	Fountain	LS	1	\$	\$
Total Base Bid Alternate 2:				\$	

Dollars _____ Cents

(\$ _____)

Amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will govern.

The above unit prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc., to complete the finish work as stipulated in the Bid Documents.

Unit Prices have been computed in accordance with Paragraph 11.03.B of the General Conditions.

Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

5.04 Base Bid Alternate 3-Bidder will complete the Work in accordance with the Contract Documents for the following unit price(s):

Phase II Roadway Improvements (Drawing No. 01,782-D14, dated September 2013)					
Item No.	Description	Unit	Estimated Quantity	Unit Price	Bid Price
1	Utilize Soil Cement (Mix design developed is mixing 6% Portland cement (52 pounds per square inch(PSI)) and 10% sand (84 pounds per square yard) to a depth of twelve (12) inches for a compressive strength of 300 PSI) in lieu of 12-inch Graded Aggregate Base Course	LS	1	\$	\$
Total Base Bid Alternate 3:				\$	

_____ Dollars _____ Cents

(\$ _____)

Amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will govern.

The above unit prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc., to complete the finish work as stipulated in the Bid Documents.

Unit Prices have been computed in accordance with Paragraph 11.03.B of the General Conditions. Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

5.05 Base Bid Alternate 4 - Bidder will complete the Work in accordance with the Contract Documents for the following unit price(s):

Columbia Avenue Improvements (Drawing No. 01,892-D16, dated December 2014)					
Item No.	Description	Unit	Estimated Quantity	Unit Price	Bid Price
1	Mobilization/Bonds	LS	1	\$	\$
2	Traffic Control	LS	1	\$	\$
3	Silt Fencing	LF	1,720	\$	\$
4	Rip-Rap Check Dam	EA	28	\$	\$
5	Utility Relocation	LS	1	\$	\$
6	Earthwork(Excavation/Backfill/Compaction)	LS	1	\$	\$
7	SC250 Erosion Control Matting	SY	1,930	\$	\$
8	Asphalt Removal	SY	260	\$	\$
9	2-inch Asphalt Milling	SY	400	\$	\$
10	Tack Coat	SY	3,800	\$	\$
11	2-inch Asphalt Surface Course (Type C)	SY	5,060	\$	\$
12	2-inch Asphalt Binder Course (Type A)	SY	1,260	\$	\$
13	4.5-inch Asphalt Aggregate Base Course (Type A)	SY	1,260	\$	\$
14	Striping and Signage	LS	1	\$	\$
Total Base Bid Alternate 4:				\$	

_____ Dollars _____ Cents

(\$ _____)

Amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will govern.

The above unit prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc., to complete the finish work as stipulated in the Bid Documents.

Unit Prices have been computed in accordance with Paragraph 11.03.B of the General Conditions.

Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 6 - TIME OF COMPLETION

6.01 **Bidder agrees that the Work: Phase II Infrastructure Improvements for the Chapin Business and Technology Park for Lexington County, South Carolina is to be completed within two hundred seventy (270) calendar days for the Base Bid scope of work after the Notice to Proceed has been issued.**

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the Contract dates in the amount of **\$1,500** per day for each calendar day required to complete the work in the manner and within the dates as stated in Paragraph 6.01 above.

ARTICLE 7 - ATTACHMENTS TO THIS BID

7.01 The following documents are attached to and made a condition of this Bid:

- A. Required Bid security in the form of five percent (5%) of the total bid amount.
- B. Power of Attorney.

ARTICLE 8 - DEFINED TERMS

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders and General Conditions.

ARTICLE 9 - BID SUBMITTAL

9.01 This Bid submitted by:

An Individual

Name (typed or printed): _____

By: _____ (SEAL)

(Individual's signature)

Title: _____

Doing business as: _____

A Partnership

Partnership Name: _____ (SEAL)

By: _____

(Signature of general partner -- attach evidence of authority to sign)

Title: _____

Name (typed or printed): _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____

Type (General Business, Professional, Service, Limited Liability): _____

By: _____

(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____ (CORPORATE SEAL)

Attest _____

Date of Authorization to do business in [South Carolina] is ____ / ____ / ____.

A Joint Venture

Name of Joint Venture: _____

First Joint Venturer Name: _____ (SEAL)

By: _____

(Signature of first joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Second Joint Venturer Name: _____ (SEAL)

By: _____

(Signature of second joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

Bidder's Business Address _____

Telephone No.: _____ Fax No.: _____

SUBMITTED on _____, 2015.

State Contractor License No. _____.

***NOTE: If NOT BIDDING, Complete the attached "No Bid" Response Form and return to Lexington County, Fax: (803) 785-2240 or email form to aseymour@lex-co.com.
The attached Certificate of Familiarity must be returned with Bid.