Fort Bend County
Engineering Department
301 Jackson Suite 401
Richmond, Texas 77469
281.633.7500
Permits@fortbendcountytx.gov

REVIEW BY FORT BEND COUNTY COMMISSIONERS COURT

☐ **Right of Way Permit**

☒ **Commercial Driveway Permit**

Permit No: 2018-19126

Applicant: **DL Meacham Construction, LP**

Job Location Site: **23327 Pearl Glen Drive, Richmond, TX 77469**

Bond No. [redacted] **Date of Bond:** **3/24/2017** **Amount:** **$50,000.00**

The above applicant came to make use of certain Fort Bend County property subject to, "The Order Regulating the Laying, Construction, Maintenance, and Repair of Buried Cables, Conduits, and Pole Lines, In, Under, Across or Along Roads, Streets, Highways, and Drainage Ditches in Fort Bend County, Texas, Under the Jurisdiction of the Commissioners Court of Fort Bend County, Texas," as passed by the Commissioners Court of Fort Bend County, Texas, of the Minutes of the Commissioners Court of Fort Bend County, Texas, to the extent that such order is not inconsistant with Chapter 181, Vernon's Texas Statutes and Codes Annoted.

Notes:

1. Evidence of review by the Commissioners Court must be kept on the job site and failure to do so constitutes grounds for job shutdown.
2. Written notices are required:
   a. 48 hours in advance of construction start up, and
   b. When construction is completed and ready for final inspection, submit notification to Permit Administrator thru MyGovernmentOnline.org portal.
3. This permit expires one (1) year from date of permit if construction has not commenced.

On this 3rd day of April, 2018, Upon Motion of Commissioner _____, seconded by Commissioner _____, duly put and carried, it is ORDERED, ADJUDGED AND DECREED that said notice of said above purpose is hereby acknowledged by the Commissioners Court of Fort Bend County, Texas, and that said notice be placed on record according to the regulation order thereof.

Signature

By: Rick J Staigle, PE, PTOE
County Engineer

N/A
By: _____
Drainage District Engineer/Manager

Presented to Commissioners Court and approved.

Date Recorded _____ Comm. Court No. _____

Clerk of Commissioners Court

By: _____
Deputy

Fort Bend County
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301 Jackson Suite 401
Richmond, Texas 77469
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PERMIT APPLICATION REVIEW FORM FOR CABLE, CONDUIT, AND POLE LINE ACTIVITY IN FORT BEND COUNTY

[ ] **Right of Way Permit**

[X] **Commercial Driveway Permit**

Permit No: 2018-19126

The following "Notice of Proposed Cable, Conduit, and/or Pole Line activity in Fort Bend County" and accompanying attachments have been reviewed and the notice conforms to appropriate regulations set by Commissioner's Court of Fort Bend County, Texas.

(1) COMPLETE APPLICATION FORM:

- [X] a. Name of road, street, and/or drainage ditch affected.
- [X] b. Vicinity map showing course of directions
- [X] c. Plans and specifications

(2) BOND:

- [ ] County Attorney, approval when applicable.
- [X] Perpetual bond currently posted. Bond No: [redacted] Amount: $50,000.00
- [ ] Performance bond submitted. Bond No: Amount:
- [ ] Cashier's Check Check No: Amount:

(3) DRAINAGE DISTRICT APPROVAL (WHEN APPLICABLE):

Drainage District Approval _____ Date _____

We have reviewed this project and agree it meets minimum requirements.

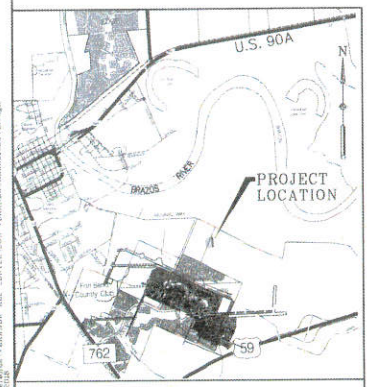
Rick J Staigle, PE, PTOE
Permit Administrator

3/23/2018
Date

CONSTRUCTION PLANS
FOR
WATER, SEWER, DRAINAGE AND PAVING IMPROVEMENTS
FOR
VERANDA RECREATION CENTER
LOCATED IN
FORT BEND COUNTY MUD No. 215
FORT BEND COUNTY, TEXAS

INDEX OF DRAWINGS

SHEET NO.		DESCRIPTION
	(1)	COVER SHEET
CO.01	(2)	CIVIL CONSTRUCTION NOTES
CO.02	(3)	CIVIL TOPOGRAPHY
CO.03	(4)	CIVIL WATER & SANITARY LAYOUT
CO.04	(5)	CIVIL STORM SEWER LAYOUT
CO.05	(6)	CIVIL DRAINAGE CALCULATION
CO.06	(7)	CIVIL PAVING LAYOUT
CO.07	(8)	CIVIL GRADING LAYOUT
CO.08	(9)	CIVIL STRIPING & SIGNAGE LAYOUT
CO.09	(10)	CIVIL POLLUTION PREVENTION LAYOUT
CO.10	(11)	CIVIL POLLUTION PREVENTION DETAILS
CO.11	(12)	FORT BEND COUNTY DRIVEWAY DETAIL & TRAFFIC CONTROL
CO.12	(13)	*TxDOT - PEDESTRIAN FACILITIES CURB RAMPS (PED-12A
CO.13	(14)	CITY OF RICHMOND DETAILS
CO.14	(15)	CITY OF RICHMOND DETAILS
CO.15	(16)	CITY OF RICHMOND DETAILS
CO.16	(17)	CITY OF RICHMOND DETAILS
CO.17	(18)	CITY OF RICHMOND DETAILS
CO.18	(19)	CITY OF RICHMOND DETAILS
CO.19	(20)	CITY OF RICHMOND DETAILS
CO.20	(21)	CITY OF RICHMOND DETAILS
CO.21	(22)	CITY OF RICHMOND DETAILS
CO.22	(23)	CITY OF RICHMOND DETAILS
L3.01	(24)	LANDSCAPE CONSTRUCTION PLAN
L3.02	(25)	LANDSCAPE CONSTRUCTION PLAN
L3.03	(25)	LANDSCAPE CONSTRUCTION DETAILS
L3.04	(26)	LANDSCAPE CONSTRUCTION SCHEDULES
ES0.01	(27)	LANDSCAPE ELECTRICAL LAYOUT
ES0.02	(28)	ELECTRICAL PHOTOMETRIC PLAN
L5.01	(29)	LANDSCAPE PLANTING PLAN
L5.02	(30)	LANDSCAPE PLANTING PLAN
L5.03	(31)	LANDSCAPE PLANTING DETAILS



VICINITY MAP

NOTES:

1. ALL BEARINGS ARE BASED ON THE TEXAS STATE PLANE COORDINATE GRID SYSTEM, SOUTH CENTRAL ZONE.

2. PRIOR TO THE CONSTRUCTION OF THESE FACILTIES WITHIN OR BY THE DISTRICT, THE DISTRICT OR ITS ENGINEER WILL GIVE WRITTEN NOTICE BY REGISTERED OR CERTIFIED MAIL TO THE DIRECTOR OF PUBLIC WORKS AND ENGINEERING, CITY OF HOUSTON STATING THE DATE SUCH CONSTRUCTION WILL BE COMMENCED.

JOB NO. 2017-057-233

DATE: AUGUST 2017

FORT BEND COUNTY

ENGINEER: Paul J. Gaugle PE POE
For RICHARD W. STOLLER, P.E.
DATE: 2/14/18

THESE SIGNATURES ARE VOID IF CONSTRUCTION HAS NOT COMMENCED IN ONE (1) YEAR FROM DATE OF APPROVAL.

APPROVED: Casandra A. X
for DEVELOPMENT COORDINATOR
DATE: 2/12/18

Know what's below. Call before you dig.

Costello
Engineering and Surveying
9990 Richmond Avenue, Suite 450 N
Houston, Texas 77042
(713) 783-7788 (713) 783-3680 Fax
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 100486

MARK J. JANZER 83296 PROFESSIONAL ENGINEER
1/4/2018

GENERAL CONSTRUCTION NOTES

1. CONTRACTOR SHALL CONTACT THE CITY OF RICHMOND CITY ENGINEER (KELLY KRUZA 281-341-0808), FORT BEND COUNTY ENGINEERING DEPTARTMENT AT EMAIL CONSTRUCTION@FORTBENDCOUNTYTX.GOV AND COSTELLO, INC. (MARK JANZER 713-783-7788) 48 HOURS PRIOR TO THE START OF ANY CONSTRUCTION.
2. IN THE EVENT OF A CONFLICT BETWEEN THE CONSTRUCTION PLANS AND ANY TECHNICAL SPECIFICATION, THE PLANS SHALL SUPERCEDE THE TECHNICAL SPECIFICATIONS. IN ALL SITUATIONS WHERE SPECIAL PROVISIONS ARE INDICATED IN THE TECHNICAL SPECIFICATION, THE SPECIAL PROVISION WILL SUPERCEDE THE TECHNICAL SPECIFICATIONS.
3. ALL WORK SHALL BE COMPLETED TO THE SATISFACTION OF THE COUNTY OF FORT BEND, THE CITY OF RICHMOND, THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY AND THE M.U.D. ENGINEER.
4. ALL UNSATISFACTORY AND/OR WASTE MATERIALS INCLUDING VEGETATION, ROOTS, STRIPPINGS, CONCRETE, AND DEBRIS SHALL BE HAULED OFF SITE BY THE CONTRACTOR. ALL TREES AND BRUSH MAY NOT BE INDICATED ON THE CONSTRUCTION PLANS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VISIT THE SITE AND DETERMINE THE EXTENT OF ANY TREE/BRUSH REMOVAL REQUIRED. UNLESS DESIGNATED TO REMAIN ON THE CIVIL DRAWINGS, ALL TREES ROOTS AND HEAVY BRUSH WHICH CONFLICT WITH CONSTRUCTION MUST BE REMOVED FROM THE PROJECT SITE.
5. THE CONTRACTOR SHALL MAINTAIN ADEQUATE DRAINAGE AT ALL TIMES DURING CONSTRUCTION OF PROPOSED FACILITIES. AS SITE PREPARATION IS UNDERWAY, SUBGRADES SHALL BE SLOPED TO DRAIN AND THE SUBGRADES SHALL BE SEALED BY COMPACTING WITH A RUBBER TIRE ROLLER AT THE END OF EACH DAY OR WHEN RAIN IS IMMINENT.
6. ALL EXISTING UTILITIES MAY NOT BE INDICATED. THE CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF EXISTING FACILITIES PRIOR TO CONSTRUCTION OF PROPOSED FACILITIES. THE CONTRACTOR SHALL NOTIFY UTILITIES 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION. CONTACT TEXAS ONE-CALL 811. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE DEPTHS OF ALL EXISTING UTILITY LINES ON THE PROJECT. DO NOT DAMAGE EXISTING OR NEW UTILITY LINES. ANY DAMAGE TO THESE LINES AS A RESULT OF CONSTRUCTION WILL BE REPAIRED BY THE CONTRACTOR AT HIS EXPENSE AND TO THE APPROVAL OF THE OWNER. THIS NOTE INCLUDES ANY IRRIGATION LINES WITHIN THE RIGHT-OF-WAY. ALL EXISTING IRRIGATION LOCATED IN THE STREET RIGHT-OF-WAY WHICH IS DAMAGED, SHALL BE REPAIRED BY THE CONTRACTOR.
7. ALL EXISTING LANDSCAPING, SIDEWALKS, FENCES, UTILITIES AND OTHER EXISTING FACILITIES WHICH SHALL REMAIN AND ARE DAMAGED DURING CONSTRUCTION WILL BE REPLACED OR REPAIRED TO THEIR ORIGINAL CONDITION BY THE CONTRACTOR AT HIS EXPENSE.
8. ALL WORK SHALL BE COMPLETED TO THE SATISFACTION OF THE OWNER.
9. THE CONTRACTOR SHALL CONFINE ALL WORK WITHIN THE DESIGNATED AREA (BOUNDARY AND EASEMENTS SHOWN ON PLANS) UNLESS SPECIFICALLY AUTHORIZED BY OWNER. EXTREME CARE SHOULD BE EXERCISED NEAR ADJACENT PROPERTY TO PROTECT ANY EXISTING TREES AND PROPERTY.
10. ALL CONSTRUCTION WHICH HINDERS TRAFFIC OR REQUIRES TRAFFIC DIVERSION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
11. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ALIGN THE GRATE TOPS HORIZONTALLY TO CONFORM TO THE PROPOSED PARKING ROWS AS INDICATED ON THE DRAWINGS.
12. MAINTAIN A MINIMUM OF 12 INCH CLEARANCE BETWEEN ALL UTILITIES UNLESS OTHERWISE INDICATED ON THE CONSTRUCTION PLANS.
13. PRIOR TO COMMENCING WORK IN ANY AREA, THE CONTRACTOR SHALL MOW AND STRIP THE VEGETATION IN ALL AREAS WHERE WORK IS TO BE PERFORMED ON IN ANY LOCATION WHERE CONSTRUCTION MACHINES OR TRUCKS ARE TO BE OPERATING. ALL AREAS PROPOSED TO BE DISTURBED IN ANY FASHION ARE TO BE STRIPPED. STRIPPING IS DEFINED AS REMOVING ALL GRASS AND THE ORGANIC ZONE (A MINIMUM OF 4 INCHES). TREES, STRIPPINGS, AND HEAVY BRUSH ARE TO BE REMOVED FROM THE PROJECT SITE AND LEGALLY DISPOSED OF BY THE CONTRACTOR. ALL EXCESS EXCAVATED MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR.
14. THE CONTRACTOR SHALL EXECUTE THE REQUIRED POLLUTION PREVENTION PLAN (PPP) AND ASSOCIATED NOTICE OF INTENT (NOI) FORM FOR THIS PROJECT AND SHALL BE RESPONSIBLE FOR CONSTRUCTING, MAINTAINING, INSPECTING AND PROVIDING WRITTEN REPORTS FOR ALL ITEMS IDENTIFIED IN THE PPP UNTIL THIS PROJECT IS SUBSTANTIALLY COMPLETE. THE CONTRACTOR SHALL PREPARE WEEKLY INSPECTION REPORTS AS REQUIRED BY THE PPP.
15. CONTRACTOR IS TO OBTAIN ALL REQUIRED FORT BEND COUNTY PERMITS PRIOR TO START OF CONSTRUCTION.
16. ALL FINAL MANHOLE RIM ELEVATIONS IN LANDSCAPE OR OPEN AREAS ARE TO BE SET AT FOUR-INCHES ABOVE FINISHED GRADE (I.E. AFTER LANDSCAPING IS COMPLETE). ALL MANHOLE TOPS WITHIN PAVEMENT ARE TO BE SET FLUSH WITH PROPOSED PAVEMENT. THIS NOTE SHALL GOVERN SHOULD A CONFLICT ARISE WITH ELEVATIONS INDICATED ON THE PLAN SHEETS.
17. ALL CEMENT STABILIZED SAND UTILIZED ON THIS PROJECT SHALL CONFORM WITH THE TECHNICAL SPECIFICATIONS (2 SACKS PER TON).
18. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL DRAWINGS TO VERIFY ALL LOCATIONS OF UTILITY STUBS TO PROPOSED BUILDINGS.
19. ALL SOIL TO MAKE GRADE FOR PROPOSED PARKING IMPROVEMENTS SHALL BE OBTAINED FROM EXCESS UTILITY/PARKING EXCAVATION OR BE HAULED TO THE SITE BY THE CONTRACTOR. ANY MATERIAL HAULED TO THE SITE MUST BE A STRUCTURAL FILL MATERIAL (P.I. BETWEEN 15 AND 20 AND A LIQUID LIMIT LESS THAN 40). ALL FILL SHALL BE PLACED IN MAXIMUM 8-INCH LOOSE LIFTS AND COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR MAXIMUM DRY DENSITY AT A MOISTURE CONTENT WITHIN 2 PERCENTAGE POINTS OF OPTIMUM AS DETERMINED BY ASTM D698.
20. REFERENCE IS MADE IN SUBSEQUENT NOTES AND DETAILS REGARDING THE PLACEMENT OF CEMENT STABILIZED SAND UNDER OR WITHIN 3 FEET OF PROPOSED OR FUTURE PAVEMENT. BY DEFINITION, THIS MEANS ALL AREAS BENEATH OR WITHIN 3 FEET OF PAVEMENT IN ADDITION TO A LINE STARTING AT 3 FEET FROM PAVEMENT AND EXTENDING AWAY FROM THE PAVEMENT ON A DOWNWARD SLOPE OF ONE FOOT HORIZONTAL TO ONE FOOT VERTICAL.
21. THESE PLANS, PREPARED BY COSTELLO, INC., DO NOT EXTEND TO OR INCLUDE DESIGNS OR SYSTEMS PERTAINING TO THE SAFETY OF THE CONTRACTOR OR ITS EMPLOYEES, AGENTS, OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE SEAL OF THE REGISTERED PROFESSIONAL ENGINEER(S) HEREON DOES NOT EXTEND TO ANY SUCH SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED IN THE PLANS. THE CONTRACTOR SHALL PREPARE OR OBTAIN THE APPROPRIATE SAFETY SYSTEMS, INCLUDING THE PLANS AND SPECIFICATIONS REQUIRED BY THE HOUSE BILLS 692 AND 665 ENACTED BY THE TEXAS LEGISLATURE IN THE 70TH LEGISLATURE REGULAR SESSION AND CURRENT OSHA STANDARDS FOR TRENCH SAFETY. DESIGN OF TRENCH SAFETY SYSTEMS, SEALED BY A LICENSED PROFESSIONAL ENGINEER, SHALL BE SUBMITTED BY THE CONTRACTOR PRIOR TO EXECUTION OF A CONTRACT FOR THIS WORK.

GENERAL CONSTRUCTION NOTES CONT.

22. ALL CONTRACTOR VEHICLES, INCLUDING EMPLOYEE'S VEHICLES, SHALL PARK WITHIN THE PROJECT SITE TO MINIMIZE TRAFFIC ON THE PUBLIC STREETS ADJACENT TO THE WORK SITE ENTRANCE. CONTRACTOR WILL PROVIDE SUFFICIENT PARKING AREAS TO ACCOMMODATE HIS VEHICLES. THE CONTRACTOR SHALL, ON A DAILY BASIS, CLEAN ALL STREETS IN THE VICINITY OF THE WORK SITE ENTRANCE TO ENSURE THAT NO DIRT FROM THE PROJECT ACCUMULATES IN THE EXISTING STREETS. COORDINATE THE LOCATION OF SUCH PARKING WITH THE OWNER.
23. THE BUILDING CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY TRANSITION FITTINGS FOR THE PROPOSED UNDERGROUND UTILITIES AT THE POINTS OF CONNECTION TO THE BUILDING STUB-OUTS.
24. ALL EXCESS PAVING AND UTILITY EXCAVATION SHALL BE BECOME PROPERTY OF THE CONTRACTOR.
25. CONTRACTOR SHALL NOTIFY THE FORT BEND COUNTY ENGINEERING DEPARTMENT FORTY-EIGHT (48) HOURS IN ADVANCE OF COMMENCING CONSTRUCTION VIA EMAIL AT CONTRUCTION@FORTBENDCOUNTYTX.GOV.
26. IF THERE IS A DISCREPANCY BETWEEN COSTELLO INC.'S NOTES, FORT BEND COUNTY GENERAL NOTES AND THE CITY OF RICHMOND'S NOTES OR DETAILS, THE MORE STRINGENT WILL APPLY. (I.E. 2-SACK CEMENT STABILIZED SAND PER TON)
27. CONTRACTOR SHALL UNCOVER EXISTING UTILITIES AT ALL POINTS OF CROSSING OR CONNECTION TO DETERMINE IF CONFLICTS EXIST BEFORE COMMENCING ANY CONSTRUCTION. NOTIFY THE ENGINEER AT ONCE OF ANY CONFLICT.

FIRE/WATER MAIN CONSTRUCTION NOTES

1. UNLESS NOTED OTHERWISE ON THE PLAN SHEETS, WATER MAINS SHALL HAVE A MINIMUM COVER OF FOUR FEET FROM TOP OF FINISHED PAVEMENT (OR FINISH GRADE) TO TOP OF PIPE. WATER SERVICE LEADS SHALL HAVE A MINIMUM COVER OF THREE (3) FEET. IF THE PROPOSED FILL FOR PAVEMENT OR BUILDING PAD IS NOT IN PLACE AT THE TIME OF CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY PLACE ADDITIONAL FILL OVER WATER LINE SO AS TO MAINTAIN A MINIMUM COVER OF THREE FEET OVER WATER LINE TOP OF PIPE UNTIL FILL IS CONSTRUCTED. CONTRACTOR SHALL ADJUST WATER LINE AS REQUIRED TO CLEAR OTHER PROPOSED UTILITIES.
2. WATER MAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH FORT BEND CO. MUD 215 & TCEQ DESIGN STANDARDS AS CURRENTLY AMENDED, UNLESS OTHERWISE INDICATED ON THE CONSTRUCTION PLANS OR TECHNICAL SPECIFICATIONS. ALL VALVES ARE TO BE COUNTER CLOCKWISE OPENING.
3. ALL WATER LINES, AFTER INSTALLATION, SHALL BE THOROUGHLY DISINFECTED ACCORDING TO A.W.W.A. STANDARD C-651 AND THEN FLUSHED BEFORE BEING PLACED INTO SERVICE. WATER SAMPLES SHALL BE COLLECTED FOR BACTERIOLOGICAL ANALYSIS AND LINES WILL NOT BE ACCEPTED FOR SERVICE UNTIL WATER SAMPLES MEET THE REQUIREMENT OF THE TEXAS DEPARTMENT OF HEALTH. AT LEAST ONE SAMPLE PER THOUSAND FEET OF LINE AND ONE SAMPLE FOR EACH INDIVIDUAL LINE MUST BE COLLECTED AND SUBMITTED FOR BACTERIOLOGICAL ANALYSIS TO A STATE CERTIFIED LABORATORY.
4. MAINTAIN MINIMUM NINE (9) FOOT HORIZONTAL CLEARANCE BETWEEN OUTSIDE OF SANITARY SEWER MANHOLES AND WATER LINE.
5. ALL WATER LINES SHALL BE ENCASED WITH 6-INCHES BANK SAND ALL AROUND.
6. WATER LINE TRENCHES LOCATED UNDER OR WITHIN 3-FEET OF PROPOSED OR FUTURE PAVEMENT SHALL BE BACKFILLED WITH CEMENT STABILIZED SAND TO PAVEMENT SUBGRADE.
7. THE EXTERIOR FIRE LINE AND DETECTOR CHECK VALVE ASSEMBLY SHALL BE HYDROSTATICALLY TESTED AT 200 psi FOR 2-HOURS PRIOR TO ACCEPTANCE.
8. UNLESS OTHERWISE NOTED ON CONSTRUCTION PLANS, 6-INCH WATER LINES SHALL BE P.V.C. CLASS 200 DR-14 CONFORMING TO A.W.W.A. STANDARD C-900 AS CURRENTLY REVISED. ALL HYDROSTATIC WATER TESTS SHALL CONFORM TO THE A.W.W.A. C-605 AS CURRENTLY REVISED, OR WITH NOTE 7, WHICHEVER IS MORE STRINGENT.
9. ALL 6-INCH WATER LINE FITTINGS SHALL BE DUCTILE IRON COMPACT FITTINGS AS PER A.W.W.A. C-153. ALL FITTINGS SHALL BE POLYETHYLENE WRAPPED AND FURNISHED WITH BITUMINOUS OR CEMENT MORTAR LINING AS PER A.W.W.A. C-104 (ANSI A21.4).
10. ALL GATE VALVES ARE TO BE RESILIENT-SEATED GATE VALVES AS PER A.W.W.A. C-509.
11. WATER LINE SHALL NOT BE LAID IN WATER OR PLACED WHERE IT CAN BE FLOODED WITH WATER OR SEWAGE DURING ITS STORAGE OR INSTALLATION.
12. THE OPENING AND CLOSING OF ALL VALVES ON EXISTING WATER LINES MUST BE PERFORMED BY F.B.C. M.U.D. NO. 215 DISTRICT OPERATOR, ENVIRONMENTAL DEVELOPMENT PARTNERS AT (281) 655-0180
13. WHENEVER A WATERLINE CROSSES A SANITARY SEWER, ONE JOINT OF WATER LINE SHALL BE CENTERED OVER THE SEWER SUCH THAT THE JOINTS OF THE WATER LINE ARE EQUIDISTANT AND AT LEAST NINE (9) FEET HORIZONTALLY FROM THE CENTERLINE OF THE SEWER. WHENEVER A SANITARY SEWER CROSSES A WATERLINE, ONE JOINT OF THE SEWER SHALL BE CENTERED UNDER THE WATERLINE SUCH THAT THE JOINTS OF THE SEWER ARE EQUIDISTANT AND AT LEAST NINE (9) FEET HORIZONTALLY FROM THE CENTERLINE OF THE WATERLINE. THE SEWER SHALL BE BACKFILLED WITH CEMENT STABILIZED SAND CONTAINING 2 1/2 SACKS OF CEMENT PER CUBIC YARD FOR THE TOTAL LENGTH OF ONE JOINT OF SEWER PLUS TWELVE (12) INCHES BEYOND THE JOINT ON EACH END.
14. WATER MAIN FITTINGS SHALL BE SUPPORTED WITH CONCRETE THRUST BLOCKING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ADEQUACY OF THE BLOCKING SO AS TO PREVENT LATERAL MOVEMENT OF SUCH FITTING WHEN THE WATER LINE IS PRESSURE TESTED AND PUT INTO OPERATION.
15. THE 3-INCH DOMESTIC WATER LINE SHALL BE CONSTRUCTED OF TYPE "K" COPPER TUBING AS PER ASTM B88. WITH COMPRESSION CONECTION SERVICE FITTINGS MANUFACTURED AND TESTED IN ACCORDANCE WITH ANSI/AWWA C800 (OR APPROVED EQUAL BY THE ENGINEER).
16. ALL FLUSHING VALVES ARE SHOWN WITH MINIMUM 4 FEET OF BURY REGARDLESS OF THE ACTUAL DEPTH OF BURY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ADJUST WATER MAINS AND FURNISH FLUSHING VALVE EXTENSIONS TO OBTAIN PROPER VERTICAL LOCATION OF THE FLUSHING VALVES IN RELATION TO THE TOP OF CURB (SEE DETAIL SHEET). ANY ADJUSTMENT WILL BE CONSIDERED INCIDENTAL TO THE VARIOUS OTHER ITEMS OF WORK. FLUSHING VALVES SHALL BE COLOR CODED ON THE FLUSHING VALVE, BONNET AND CAPS TO MEET CITY OF RICHMOND DESIGN STANDARDS.
17. CONTRACTOR SHALL MAINTAIN A MINIMUM OF 12 INCHES OF CLEARANCE BETWEEN PROPOSED WATER LINES AND EXISTING AND PROPOSED UTILITIES.
18. ALL PLASTIC PIPE MUST BEAR THE NATIONAL SANITATION FOUNDATION SEAL OF APPROVAL AS REQUIRED BY SECTION 290.44(a)(2) OF THE TCEQ RULES. PIPE SHALL NOT BE LAID IN WATER OR PLACED WHERE IT CAN BE FLOODED WITH WATER OR SEWAGE DURING ITS STORAGE OR INSTALLATION AS REQUIRED BY SECTION 290.44(d)(1) OF THE TCEQ RULES.

FIRE/WATER MAIN CONSTRUCTION NOTES CONT.

19. NO PIPE WHICH IS TO BE USED FOR ANY PURPOSE OTHER THAN THE CONVEYANCE OF DRINKING WATER SHALL BE ACCEPTED OR RELOCATED FOR USE IN ANY PUBLIC DRINKING WATER SUPPLY. THE USE OF PIPES AND PIPE FITTINGS THAT CONTAIN MORE THAN 8.0% LEAD OR SOLDERS AND FLUX THAT CONTAINS MORE THAN 0.2% LEAD IS PROHIBITED IN THE FOLLOWING CIRCUMSTANCES:
   A. FOR INSTALLATION OR REPAIR OF ANY PUBLIC WATER SUPPLY, AND,
   B. FOR INSTALLATION OR REPAIR OF ANY PLUMBING IN A RESIDENTIAL OR NON RESIDENTIAL FACILITY PROVIDING WATER FOR HUMAN CONSUMPTION AND CONNECTED TO A PUBLIC DRINKING WATER SUPPLY SYSTEM.

   THE WATER SYSTEM IS TO BE DESIGNED TO MAINTAIN A MINIMUM PRESSURE OF 40 PSI AT ALL POINTS WITHIN THE DISTRIBUTION NETWORK AT FLOW RATES OF AT LEAST 1.5 GALLONS PER MINUTE PER CONNECTION. NO AIR RELEASE DEVICES ARE REQUIRED FOR THIS SYSTEM.
20. THE CONTRACTOR SHALL NOTIFY THE F.B.C. M.U.D. NO. 215 DISTRICT OPERATOR FORTY-EIGHT (48) HOURS PRIOR TO CONSTRUCTION.

DOMESTIC AND IRRIGATION WATER SERVICE TAP AND WATER METER TO BE INSTALLED BY FBCMUD No. 215 OPERATOR AFTER PAYMENT OF REQUIRED FEES. CONTACT ENVIRONMENTAL DEVELOPMENT PARTNERS AT (281) 655-0180, FOR FEE SCHEDULE.

STORM SEWER CONSTRUCTION NOTES

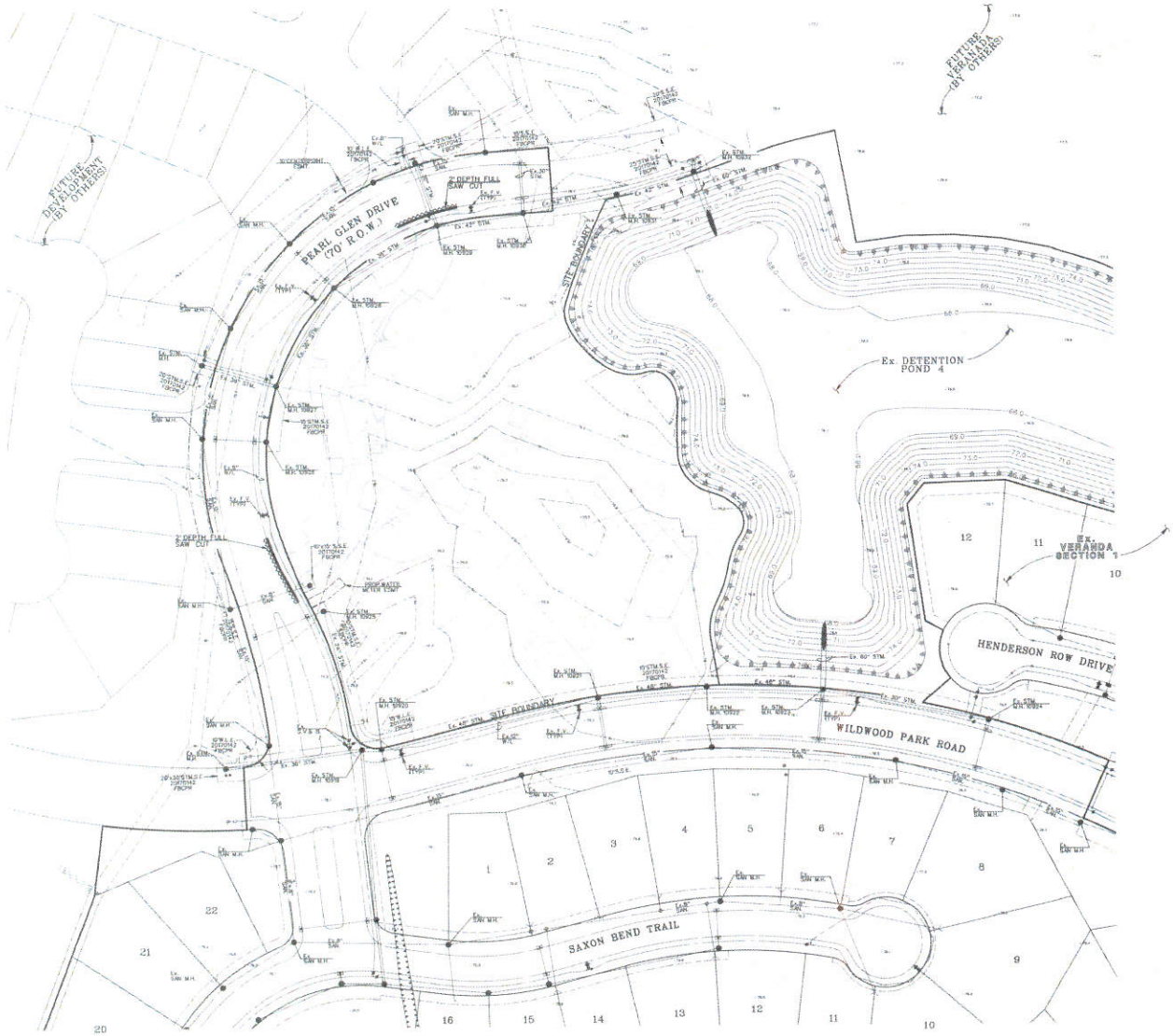
1. STORM SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FORT BEND COUNTY DRAINAGE DISTRICT'S DESIGN STANDARDS AS CURRENTLY AMENDED UNLESS SPECIFIED OTHERWISE ON PLANS OR TECHNICAL SPECIFICATIONS.
2. ALL STORM SEWER 24-INCH AND GREATER IN DIAMETER SHALL BE RCP UNLESS OTHERWISE NOTED ON THE PLANS. BEDDED AND BACKFILLED IN ACCORDANCE WITH CITY OF RICHMOND DESIGN STANDARDS, UNLESS OTHERWISE INDICATED ON PLANS OR TECHNICAL SPECIFICATIONS. ALL STORM SEWERS SHALL HAVE RUBBER GASKET JOINTS. ALL STORM SEWER PIPE AND FITTINGS UP TO 18-INCHES IN DIAMETER SHALL BE CONSTRUCTED OF PVC SDR 35 CONFORMING TO ASTM D3034. ALL STORM SEWER 18-INCHES IN DIAMETER SHALL BE, AT CONTRACTORS OPTION, REINFORCED CONCRETE PIPE (C-76 CLASS III) OR PVC SDR 35 CONFORMING TO ASTM F 679. ALL PVC JOINTS SHALL CONFORM TO ASTM D3212. JOINTS SHALL BE BELL AND SPIGOT TYPE WITH RUBBER GASKET CONFORMING TO ASTM 477. CHEMICALLY WELDED PVC PIPE JOINTS ARE NOT ACCEPTABLE.
3. ALL STORM SEWERS UNDER OR WITHIN THREE (3) FEET OF PROPOSED OR FUTURE PAVEMENT SHALL BE BACKFILLED WITH CEMENT STABILIZED SAND TO PAVEMENT SUBGRADE.
4. STORM SEWER MANHOLE COVERS SHALL BE STANDARD CITY OF RICHMOND CAST IRON, TRAFFIC BEARING TYPE RING AND COVER WITH WORDS "STORM SEWER" CAST INTO THE COVER. GRATE INLETS SHALL ALSO HAVE THE CITY OF RICHMOND WORDING CAST INTO THE COVER AS SUPPLIED BY EAST JORDAN IRON WORKS OR APPROVED EQUAL.
5. ALL STORM SEWER INLETS SHALL BE OF THE TYPE INDICATED ON THE PLANS. ALL CATCH BASINS SHALL BE PRECAST OR CAST-IN-PLACE AND DESIGNED FOR H-20 LOADING. ALL INLETS AND GRATE TOPS SHALL BE SET AT THE ALIGNMENT AND ORIENTATION INDICATED ON THE PLANS. ALIGNMENTS NOT NOTED ARE PARALLEL TO THE BASELINE, OR IF ON CURVES, ARE RADIAL TO THE CURVE WITH THE LONG END TANGENT TO THE CURVE.
6. IMMEDIATELY UPON INITIATING CONSTRUCTION OF STORM SEWER INLETS, THE CONTRACTOR SHALL CONSTRUCT INLET SILT BARRIERS FOR EACH INLET. THE UTILITY CONTRACTOR IS RESPONSIBLE FOR CLEANING AND MAINTAINING THE INLET SILT BARRIER FOR THE DURATION OF THE WSD PORTION OF THE PROJECT.
7. ALL TIE-INS TO INLETS AND MANHOLES WILL BE SEALED WITH NON-SHRINK GROUT.

SANITARY SEWER CONSTRUCTION NOTES

1. ALL SANITARY SEWERS SHALL BE CONSTRUCTED AND TESTED IN ACCORDANCE WITH TCEQ AND F.B.C. M.U.D. NO.215 DESIGN STANDARDS WITH LATEST REVISIONS, AMENDMENTS, AND SPECIAL PROVISIONS THERETO, UNLESS SPECIFIED OTHERWISE ON PLANS OR TECHNICAL SPECIFICATIONS.
2. ALL SANITARY SEWERS SHALL HAVE CLASS "A-A" BEDDING UNLESS MODIFIED "A-A" BEDDING IS REQUIRED DUE TO POOR SOIL CONDITIONS.
3. ALL SANITARY SEWERS UNDER OR WITHIN THREE (3) FEET OF PROPOSED OR FUTURE PAVEMENT SHALL BE BACKFILLED WITH CEMENT STABILIZED SAND TO PAVEMENT SUBGRADE.
4. ALL SANITARY SEWERS SHALL BE COLORED GREEN CONSTRUCTED OF PVC SDR 26 PR 160 CONFORMING TO ASTM D-2241. ALL JOINTS SHALL CONFORM TO ASTM D- 3139. JOINTS SHALL BE BELL AND SPIGOT TYPE WITH RUBBER GASKET CONFORMING TO ASTM F-477. CHEMICALLY WELDED PVC PIPE JOINTS ARE NOT ACCEPTABLE.
5. PRE-CAST SANITARY SEWER MANHOLES ONLY. ALL ADJUSTMENTS FOR MANHOLE TOPS MUST BE MADE USING CONCRETE RINGS. THE MAXIMUM CHIMNEY HEIGHT IS TWO FEET. THE CONTRACTOR SHALL ALLOW FOR ONE FOOT ADJUSTMENT UP OR DOWN AFTER SETTING MANHOLE TO FINAL GRADE.
6. WHENEVER A WATERLINE CROSSES A SANITARY SEWER, ONE JOINT OF WATER LINE SHALL BE CENTERED OVER THE SEWER SUCH THAT THE JOINTS OF THE WATER LINE ARE EQUIDISTANT AND AT LEAST NINE (9) FEET HORIZONTALLY FROM THE CENTERLINE OF THE SEWER. WHENEVER A SANITARY SEWER CROSSES A WATERLINE, ONE JOINT OF THE SEWER SHALL BE CENTERED UNDER THE WATERLINE SUCH THAT THE JOINTS OF THE SEWER ARE EQUIDISTANT AND AT LEAST NINE (9) FEET HORIZONTALLY FROM THE CENTERLINE OF THE WATERLINE. THE SEWER SHALL BE BACKFILLED WITH CEMENT STABILIZED SAND CONTAINING 2 1/2 SACKS OF CEMENT PER CUBIC YARD FOR THE TOTAL LENGTH OF ONE JOINT OF SEWER PLUS TWELVE (12) INCHES BEYOND THE JOINT ON EACH END.
7. WHEN MAKING A TIE TO AN EXISTING SANITARY SEWER MANHOLE, THE CONTRACTOR SHALL PLUG THE DOWNSTREAM END OF THE PROPOSED SANITARY SEWER LINE. THIS PLUG SHALL REMAIN IN PLACE UNTIL FINAL INSPECTION BY THE M.U.D. OPERATOR. TIES TO EXISTING MANHOLES SHALL BE MADE BY CORE AND SHALL HAVE MECHANICAL SEALS.
8. IN-FLOW PROTECTORS ARE REQUIRED FOR ALL PROPOSED SANITARY SEWER MANHOLES. IN-FLOW PROTECTOR SHALL BE "NO FLOW IN-FLOW DISH" AS SUPPLIED BY CONTRACTOR SPECIALTIES & SUPPLY CO., SAN ANTONIO, TX (210)497-8407 OR APPROVED EQUAL.
9. THE CONTRACTOR SHALL NOTIFY THE F.B.C. M.U.D NO.215 DISTRICT OPERATOR FORTY-EIGHT (48) HOURS PRIOR TO CONSTRUCTION.

PAVING LAYOUT CONTROL NOTES

1. PAVING SHALL BE CONSTRUCTED IN ACCORDANCE WITH FORT BEND COUNTY DESIGN STANDARD AS CURRENTLY AMENDED UNLESS SPECIFIED OTHERWISE ON PLANS OR TECHNICAL SPECIFICATIONS.
2. TC INDICATES TOP OF CURB. TP INDICATES TOP OF PAVEMENT. TS INDICATES TOP OF SIDEWALK.
3. FOLLOWING STRIPPING, THE PAVEMENT SUBGRADE SHALL BE PROOF-ROLLED TO LOCATE SOFT SPOTS. SOFT SPOTS IN THE SUBGRADE AS WELL AS ZONES OF DEBRIS AND INORGANICS SHALL BE EXCAVATED TO FIRM SOIL AND REPLACED WITH STRUCTURAL FILL OF THE QUALITY AND IN THE MANNER DESCRIBED IN THE GEOTECHNICAL REPORT. THE FINAL PAVEMENT SUBGRADE SHALL BE SCARIFIED TO A DEPTH OF 6 INCHES, MOISTURE CONDITIONED, STABILIZED PER RECOMMENDATIONS OF THE GEOTECHNICAL REPORT. STABILIZATION RATES AND MATERIAL TYPE MAY VARY DEPENDING ON ACTUAL GROUND CONDITIONS.
4. ALL SEVEN INCH CONCRETE PAVEMENT SHALL BE REINFORCED WITH No. 4 BARS AT 18-INCH C-C. ALL SIX INCH CONCRETE PAVEMENT SHALL BE REINFORCED WITH No. 4 BARS AT 18-INCH C-C. ALL FIVE INCH CONCRETE PAVEMENT SHALL BE REINFORCED WITH NO. 4 BARS AT 18-INCHES C-C. THE MATERIALS AND PROPERTIES OF CONCRETE SHALL MEET THE APPLICABLE REQUIREMENTS IN THE ACI MANUAL OF CONCRETE PRACTICE. THE CONCRETE SHALL MEET THE FOLLOWING REQUIREMENTS: HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,500 PSI AT 28 DAYS AS DETERMINED BY THE STANDARD TEST METHOD FOR STRENGTH OF CONCRETE ASTM C39 AND A MINIMUM MODULUS OF RUPTURE OF 500 psi AT 28 DAYS AS DETERMINED BY ASTM C78/A. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A-615, CURRENT GRADE 60. MINIMUM LAP AT ALL SPLICES SHALL BE 30-INCHES. THE CONCRETE SHALL HAVE A SLUMP OF 4 INCHES (+/- 1-INCH) THE PAVING CONTRACTOR SHALL SUBMIT THE PROPOSED MIX DESIGN TO THE ENGINEER AT LEAST SEVEN (7) DAYS PRIOR TO THE FIRST SCHEDULED CONCRETE PLACEMENT.
5. EXPANSION JOINTS AND CONTROL/CONSTRUCTION AREAS FOLLOWS:
   A. CONTRACTOR SHALL PROVIDE A JOINT LAYOUT PLAN FOR SUBMITTAL FOR ENGINEER AND ARCHITECT REVIEW & APPROVAL BEFORE PAVING FORMS ARE SET.
   B. ALL JOINTS WILL BE SPACED NO MORE THAN 12.5' FOR 5"PAVING, 15' FOR 6" PAVING AND 17.5' FOR 7" PAVING, UNLESS APPROVED BY ENGINEER.
   C. ANY JOINT LENGTH WILL NOT BE LESS THAN 12'.
   D. JOINTS TERMINATING AT CURVES WILL BE ORIENTED PERPENDICULAR TO THE TANGENT OF THE CURVE.
   E. RUNNING JOINT LINES ARE NOT TO BE LOCATED COINCIDENT ALONG DRAINAGE FLOW LINES.
6. LOCATIONS OF VARIOUS CONCRETE PAVEMENT THICKNESSES ARE NOTED ON THE PAVING LAYOUT.
7. ALL REQUIRED FILL MATERIAL SHALL BE PLACED ON PREPARED SURFACES IN LOOSE LAYERS NOT EXCEEDING 8-INCHES THICK AND COMPACTED TO A MINIMUM OF 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY WITHIN 2 PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D 698. PRIOR TO PLACEMENT OF FILL, ALL SUBGRADE AREAS SHALL BE PROPERLY PREPARED. SUBGRADE PREPARATION FOR PLACEMENT OF FILL SHALL CONSIST OF STRIPPING ORGANIC MATTER (A MINIMUM OF 4-INCHES) AND ALL LOOSE OR WEAR MATERIAL. UNSUITABLE AREAS OF SOFT OR WET MATERIALS AS WELL AS ZONES OF DEBRIS AND ORGANICS SHALL BE REMOVED AND REPLACED WITH STRUCTURAL FILL OF THE QUALITY AND IN THE MANNER DESCRIBED IN THE FILL NOTES. THE REMOVAL DEPTH WILL DEPEND ON THE ROOT ZONE THICKNESS AND EXTENT OF SOFT SOILS.
8. THE CONTRACTOR SHALL NOTIFY THE COUNTY OF FORT BEND AND THE ENGINEER AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF WORK, PRIOR TO ALL TESTING OF PAVEMENT SUBGRADE, AND PRIOR TO PLACEMENT OF CONCRETE.
9. WHERE PROPOSED PAVEMENT MEETS EXISTING PAVEMENT WITHIN THE RIGHT-OF-WAY, EXISTING REBAR OR DOWELS PROJECTING FROM PAVEMENT SHALL BE CLEANED AND TIED INTO PROPOSED PAVEMENT. WHERE EXISTING REINFORCING IS ABSENT, OR IS IN UNSATISFACTORY CONDITION, EXISTING PAVEMENT SHALL BE DRILLED AT 18-INCH C.C. AND HORIZONTAL DOWELS WILL BE EMBEDDED 12-INCHES WITH NON-SHRINK GROUT. DOWELS SHALL BE NO. 4 BARS, 24-INCHES LONG. IF EXISTING PAVEMENT IS IN UNSATISFACTORY CONDITION, CONTRACTOR SHALL SAW CUT AS REQUIRED TO PROVIDE A CLEAN JOINT. EXISTING STEEL SHALL BE EXPOSED TO ALLOW FOR A MINIMUM 22" LAP OR BARS SHALL BE DRILLED IN AS DISCUSSED ABOVE.
10. THE CONTRACTOR SHALL CONSTRUCT BLOCKOUTS AT ALL LIGHT POLES, MANHOLES, GATE VALVES, INLETS AND PULL BOXES FOR ALL UTILITIES, WHETHER PUBLIC OR PRIVATE, WITHIN PAVEMENT. THE CONTRACTOR SHALL ADJUST THE MANHOLES OR GATE VALVES TO CONFORM TO INSHED TOP OF PAVEMENT. ALL FINAL MANHOLE RIM ELEVATIONS WITHIN STREET R.O.W. OR GRASSED OR LANDSCAPED AREAS ARE TO BE SET 4-INCHES ABOVE THE FINISHED GRADE. THE CONTRACTOR SHALL ADJUST ANY WATER LINE GATE VALVES IN LANDSCAPED OR GRASSED AREAS TO 1-INCH ABOVE FINISHED GRADE. THESE CIVIL DRAWINGS INDICATE ONLY THE WATER, SEWER AND DRAINAGE FACILITIES TO BE ADJUSTED. THE CONTRACTOR SHALL COORDINATE SUCH WORK WITH OTHER PROJECT DISCIPLINES.
11. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL DRAWINGS CONCERNING SPECIFIC DETAILS FOR SLEEVING, SCREEN WALLS AND RETAINING WALLS.
12. ALL SIDEWALKS AND SIDEWALK RAMPS SHALL COMPLY WITH THE STANDARDS OF THE AMERICANS WITH DISABILITIES ACT (ADA).
13. IT IS THE RESPONSIBILITY OF THE PAVING CONTRACTOR TO ARRANGE FOR THE PURCHASE OF ANY CONSTRUCTION WATER. INCLUDE THE PRICE FOR SUCH WATER IN



CONTROL BENCHMARK

NGS MONUMENT HGCS20
STAINLESS STEEL ROD IN ROD IN PVC SLEEVE LOCATED ON SMITHENS LAKE ROAD

ELEVATION 63.6: NAVD-88

SITE TBM: 2584-6-02

SQUARE CUT ON TOP OF WEST CURB OF SWEETGRASS DRIVE, 5' - 7' SOUTH FROM END PAVING AT PROPERTY LINE

ELEVATION: 77.26

SITE TBM: 2682-78-1

BENCH TIE IN NORTH FACE OF PECAN TREE (TAG #417)

ELEVATION: 78.23

N

50 25 0 50 100

SCALE 1" = 50'

CONTROL		
POINT	NORTHING	EASTING
100	13814153.13	2981993.74
101	13813060.52	2982453.10
102	13814475.04	2982574.04

LEGEND

- STM. MANHOLE / INLET — EXIST. STORM SEWER
- SAN. MANHOLE — EXIST. SANITARY SEWER
- GATE VALVE — EXIST. WATER LINE
- FLUSH VALVE
- EXIST. WATER BLOW-OFF
- EXIST. POWER POLE
- EXIST. SPOT SHOTS
- EXIST. CONTOUR

DEMOLITION LEGEND

- INDICATES SAWCUT
- INDICATES EXISTING CURB TO BE REMOVED

SAWCUT NOTES:
SAWCUT EXISTING PAVEMENT AND TIE PROPOSED PAVEMENT TO EXISTING.
SEE PAVING NOTE 9 SHEET C0.1

DEMOLITION NOTES:

1. THE CONTRACTOR SHALL BE AWARE THAT ALL EXISTING UTILITIES ARE NOT SHOWN . IT IS THE CONTRACTOR'S RESPONSIBILITY TO VISIT THE SITE PRIOR TO COMMENCEMENT OF DEMOLITION TO DETERMINE THE EXTENT OF DEMOLITION REQUIRED.
2. UNLESS OTHERWISE NOTED ON THE PLANS, ALL TREES AND LANDSCAPING WITHIN THE PARKING LOT AREA ARE TO BE REMOVED. REMOVED TREES SHALL HAVE ENTIRE ROOT BALL REMOVED FROM THE SITE.

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TBPLS FIRM REG. No. 10046

APPROVED: DEVELOPMENT COORDINATOR
DATE: 2/13/18

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SEAL

MARK C. CARTER 53296 TEXAS 1/4/2018

ISSUE

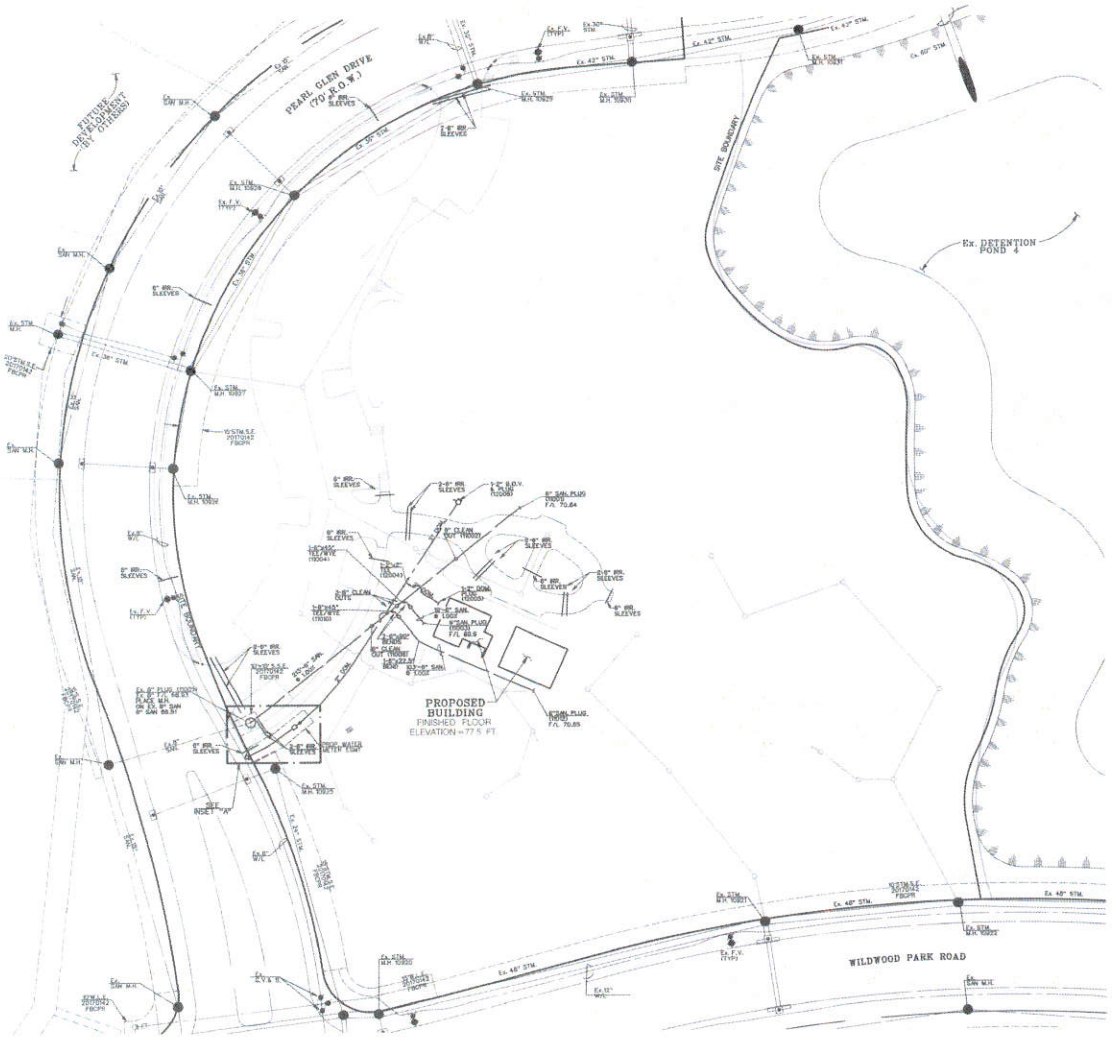
1	50% DD FOR REVIEW	05.19.2017
2	PART 1 100% DD FOR REVIEW	06.06.2017
3	PART 1 100% CD FOR PERMIT	06.30.17
4	PART 1 FOR BID	07.27.2017
1	ADDENDUM 01	08.10.2017
2	REVISION 2	12.15.2017

KEY MAP

VERANDA
RECREATION CENTER
RICHMOND, TX

DRAWN BY:
CHECKED BY:
DATE:
SCALE:
PROJECT #:

SHEET
C0.02
CIVIL TOPOGRAPHY & DEMOLITION PLAN



CONTROL BENCHMARK

NGS MONUMENT HGC2572
STAINLESS ROD, 1MON ROD IN PVC SLEEVE, LOCATED ON SWITCHES LAKE ROAD

ELEVATION 69.5. NAVD-88

SITE TBM: 2584-6-02

SQUARE CUT ON TOP OF WEST CURB OF SWITCHES DRIVE, 4' SOUTH FROM END PAVING AT PROPERTY LINE

ELEVATION: 77.28

SITE TBM 2682-TB-1

BENCH TIE IN NORTH FACE OF PECAN TREE, 47.0 WEST

ELEVATION: 78.23

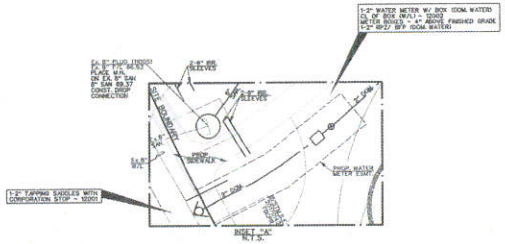
N

SCALE: 1"= 30'

FOR CONTROL SEE SHEET C0.08

LEGEND

- BACK OF PROP. 6-INCH CONC. CURB
- PROP. STORM SEWER
- PROP. SANITARY SEWER
- PROP. WATER LINE
- EXIST. STORM SEWER
- EXIST. SANITARY SEWER
- EXIST. WATER LINE
- LINE "A" / LINE "B" — SIGNIFIES LINE "A" OVER LINE "B" (TO BE COMPACTED WITH CEMENT STABILIZED SAND)



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MARK SANDER 93296 1/4/2018

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1	50% DD FOR REVIEW	05.19.2017
2	PART 1 100% DD FOR REVIEW	06.06.2017
3	PART 1 100% CD FOR PERMIT	06.30.17
4	PART 1 FOR BID	07.27.2017
△1	ADDENDUM 01	08.10.2017
△2	REVISION 2	12.15.2017

KEY MAP

VERANDA
RECREATION CENTER
RICHMOND, TX

DRAWN BY:
CHECKED BY:
DATE:
SCALE:
PROJECT #:

SHEET
C0.03
CIVIL WATER & SANITARY LAYOUT

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APPROVED: DEVELOPMENT COORDINATOR
DATE: 2/1/2018

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TBPE FIRM REG. No. 280
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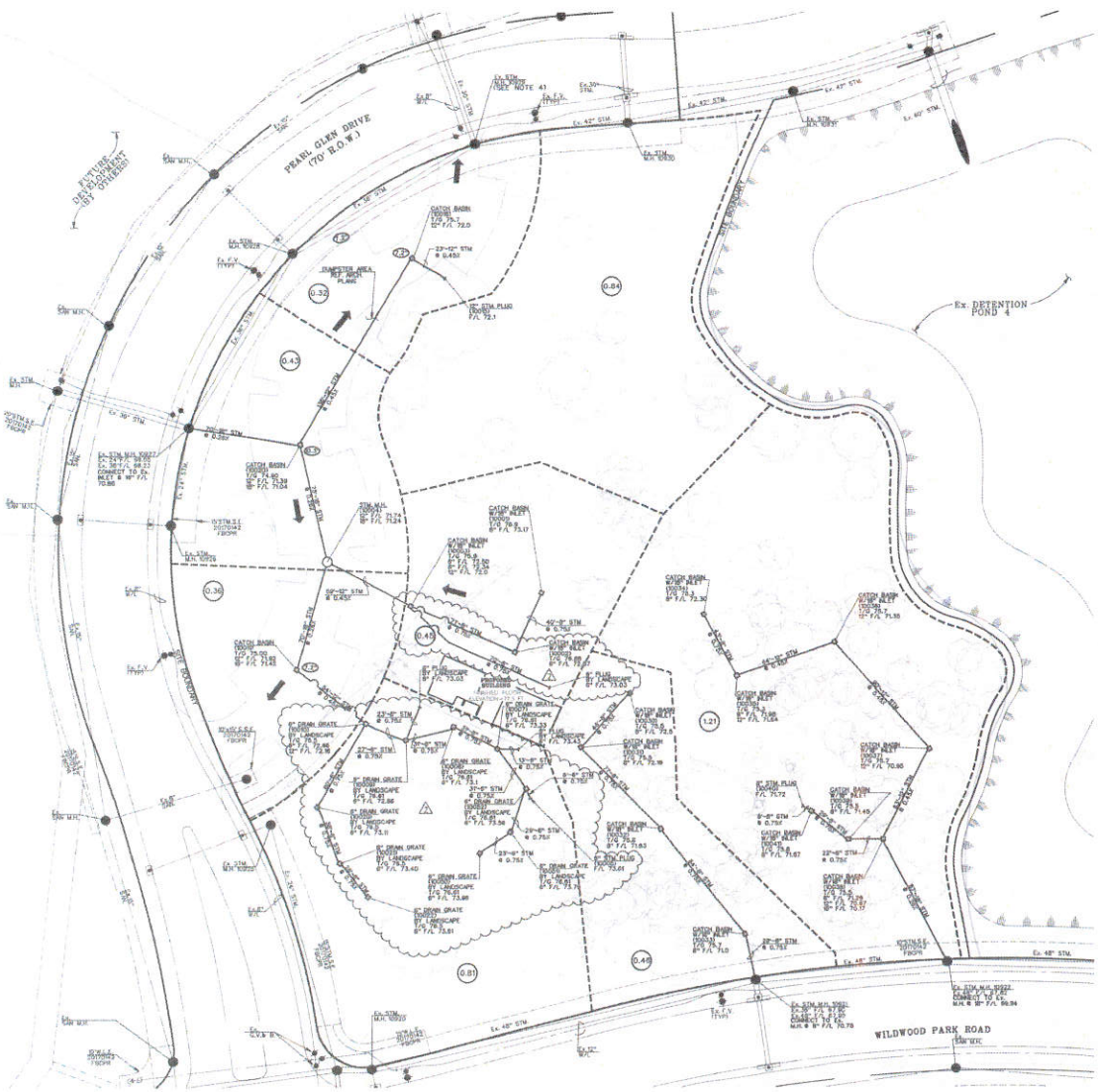

CONTROL BENCHMARK

NGS MONUMENT HGC5072
STAINLESS STEEL ROD IN PVC
ALERT LOCATED ON SOUTHERN LAKE ROAD

ELEVATION 69.6. NAVD-88

SITE TBM: 2584-6-02.

SQUARE CUT ON TOP OF WEST CURB OF
PEARL GLEN DRIVE, 20' SOUTH FROM
END PARKING AT PROPERTY LINE

ELEVATION: 77.28

SITE TBM: 2682-78-1

BENCH TIE IN NORTH FACE OF PECAN
TREE (TAG #617)

ELEVATION: 76.23

N

30 15 0 30 60

SCALE: 1" = 30'

FOR CONTROL SEE SHEET C0.02

LEGEND

- BACK OF PROP. 6-INCH CONC. CURB
- PROP. STORM SEWER
- PROP. SWALE
- PROP. SANITARY SEWER
- PROP. WATER LINE
- EXIST. STORM SEWER
- EXIST. SANITARY SEWER
- EXIST. WATER LINE
- SIGNIFIES LINE "A" OVER LINE "B"
- 100 YEAR OVERLAND FLOW
- DRAINAGE BOUNDARY
- DRAINAGE AREA, ACRES
- 100 YR. PONDING DEPTH
- PONDING
- CUMULATIVE & 100 YR. FREQUENCY RUNOFF

NOTE:

1. ALL STORM SEWERS ARE HDPE MATERIAL UNLESS OTHERWISE NOTED.
2. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRANSITIONS FROM STORM SEWER FOR BUILDING TO PROP. TRUNK LINE.
3. THE CONTRACTOR SHALL REFER THE ARCHITECTUAL PLANS FOR EXACT LOCATION OF DOWNSPOUTS FOR THE ROOF DRAINS.
4. CONTRACTOR TO ADJUST Ex. MANHOLE TO MATCH FINAL GRADE.

DRAINAGE NOTE:

100-YEAR STORM RUNOFF WILL PROCEED TO PEARL GLEN DRIVE WHERE IT IS ACCOUNTED FOR WITHIN VERANDA EAST DEVELOPMENT'S STORM SEWER SYSTEM. SEE VERANDA SECTION 9 CONSTRUCTION PLANS AND THE DRAINAGE IMPACT ANALYSIS TITLED "DRAINAGE IMPACT ANALYSIS FOR THE DEVELOPMENT OF THE 254.2 ACRE VERANDA EAST AND UPDATE TO THE RABBS BAYOU MASTER DRAINAGE PLAN" APPROVED AUGUST 1, 2016.

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SEAL

MARK A. CANZIO
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LICENSED
PROFESSIONAL
ENGINEER
1/4/2018

ISSUE

1	50% DD FOR REVIEW	06.19.2017
2	PART 1 100% DD FOR REVIEW	06.06.2017
3	PART 1 100% CD FOR PERMIT	08.30.17
4	PART 1 FOR BID	07.27.2017
△1	ADDENDUM 01	08.10.2017
△2	REVISION 2	12.15.2017

KEY MAP

VERANDA
RECREATION CENTER
RICHMOND, TX

DRAWN BY:
CHECKED BY:
DATE:
SCALE:
PROJECT #:

SHEET
C0.04
CIVIL STORM SEWER LAYOUT

811 Know what's below. Call before you dig

WARNING POWER LINES OVERHEAD

APPROVED: DEVELOPMENT COORDINATOR
DATE: 1/3/18

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TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 100486

STORM SEWER CALCULATIONS
HOST BOND COUNTY CRITERIA
Storm Event : 5-YEAR DESIGN STORM
Project : VERANDA REC CENTER
Date : AUGUST 14, 2017
By : LTR

Street Name	Subdivision Section	Inlet Name	TSS Inlet, #	Drainage Area Name	Commercial Areas Curve No. 1 Runoff Coeff. = 0.90 C Factor (in/hr)	Commercial Areas Drainage Area (ac)	Multi-Family Areas Curve No. 2 Runoff Coeff. = 0.80 C Factor (in/hr)	Multi-Family Areas Drainage Area (ac)	Composite Curve 1,2 &4 Curve No. 3 Runoff Coeff. = 0.75 C Factor (in/hr)	Composite Curve 1,2 &4 Drainage Area (ac)	Single Family Residential Curve No. 4 Runoff Coeff. = 0.50 C Factor (in/hr)	Single Family Residential Drainage Area (ac)	Playground Curve No. 5 Runoff Coeff. = 0.40 C Factor (in/hr)	Playground Drainage Area (ac)	Developed Park Areas Curve No. 6 Runoff Coeff. = 0.20 C Factor (in/hr)	Developed Park Areas Drainage Area (ac)
Trunk 1		10002	10001		2.01		1.73		1.39		1.14		0.84	0.08	0.58	
Trunk 1		10001	10002		2.01		1.73		1.37		1.11		0.81	0.20	0.57	
Trunk 1		10004	10007		2.01		1.69		1.31		1.12		0.90	0.08	0.56	
Trunk 1		10007	10006		2.01		1.68		1.34		1.11		0.88	0.08	0.56	
Trunk 1		10006	10009		1.01		1.67		1.34		1.11		0.88	0.08	0.56	
Trunk 1		10009	10016		2.01		1.67		1.34		1.10		0.80	0.08	0.55	
Trunk 1		10016	10011		1.91		1.66		1.32		1.10		0.84	0.08	0.55	
Trunk 1		10011	MH14004		1.97	0.04	1.67		1.31		1.08		0.81		0.54	
Trunk 1	MH14004		15009		1.93		1.63		1.29		1.05		0.84		0.53	
Trunk 1	15009	EX. MH 10027			1.91	0.43	1.55		1.27		1.05		0.81		0.53	
Trunk 2 Trib		10001	10002		2.01		1.73		1.39		1.14		0.91		0.58	
Trunk 2 Trib		10002	10016		2.01		1.69		1.39		1.14		0.90	0.08	0.58	
Trunk 2 Trib		10001	10016		2.01		1.68		1.38		1.11		0.89	0.08	0.58	
Trunk 2 Trib		10001	10002		2.01		1.73	0.13	1.39		1.14		0.91		0.58	
Trunk 2 Trib		10002	10001		2.01		1.71	0.14	1.37		1.11		0.91		0.57	
Trunk 2 Trib		10001	MH10004		2.01		1.69	0.14	1.40		1.11		0.90		0.56	
Trunk 2 Trib		10001	10020		2.01		1.73	0.14	1.39		1.14		0.92	0.04	0.58	
Trunk 2		10004	10001		2.01		1.73		1.39		1.14		0.94	0.12	0.59	
Trunk 2		10001	10003		2.01		1.67		1.34		1.12		0.89	0.12	0.56	
Trunk 2		10003	12000		1.96		1.62		1.30		1.08		0.87	0.12	0.54	
Trunk 2		10003	EX. MH 15023		1.92		1.61		1.29		1.06		0.85	0.12	0.53	
Trunk 2		10004	10005		2.01		1.73		1.39		1.14		0.92	0.08	0.58	
Trunk 2		10005	10006		2.01		1.72		1.37		1.11		0.91	0.12	0.57	
Trunk 2		10006	10007		2.01		1.69		1.34		1.11		0.89	0.12	0.56	
Trunk 2		10007	10008		1.97		1.67		1.32		1.09		0.87	0.12	0.54	
Trunk 2		10008	EX. MH 10022		1.95		1.62		1.30		1.07		0.86	0.12	0.54	
Trunk 2 Trib		10001	10009		2.01		1.73	0.14	1.39		1.14		0.92		0.58	
Trunk 2 Trib		10003	10007		2.01		1.71	0.14	1.37		1.12		0.91		0.57	

Q FACTOR & CONTRIBUTING DRAINAGE AREAS

Street Name	Inlet Name	Quick Reading Drainage Area (ac) Totals	Quick Reading Drainage Area (ac) Total	Composite Q Incremental	Composite Q Aggregate	Computed Runoff Flow "Q" = "I" x "C" (cfs)	Time of Concentration (T_c) Tc/Ts T_c	Time of Concentration (T_c) Total	Pipe Size, Length & Type Input Data: Reach (ft)	No. of BBLs	Pipe Diameter (Inches) or Span (in)	Height (in)	Pipe Type
Trunk 1	10002	0.08	0.08	0.57	0.57	0.27		10.0	20	1	6		HDPE
Trunk 1	10001	0.08	0.16	0.55	0.92	0.35	0.9	10.9	20	1	6		HDPE
Trunk 1	10004	0.08	0.24	0.90	0.92	0.21	0.6	11.5	20	1	6		HDPE
Trunk 1	10007	0.08	0.32	0.90	0.91	0.27	0.5	12.0	81	1	6		HDPE
Trunk 1	10006	0.08	0.40	0.89	0.90	0.37	0.1	12.1	81	1	6		HDPE
Trunk 1	10009	0.08	0.48	0.89	0.90	0.44	0.2	12.3	27	1	6		HDPE
Trunk 1	10016	0.32	0.81	0.90	0.90	0.73	13.1	13.1	54	1	12		HDPE
Trunk 1	10011	0.06	1.37	0.87	1.23	1.66	1.0	14.1	70	1	18		HDPE
Trunk 1	MH14004	1.92	3.29	1.71	1.70	5.21	12.7	15.7	75	1	18		HDPE
Trunk 1	15009	1.91	5.20	1.55	1.55	8.06	13.1	16.3	70	1	18		HDPE
Trunk 2 Trib	10001	0.08	0.08	0.57	0.57	0.27		10.0	36	1	6		HDPE
Trunk 2 Trib	10002	0.08	0.16	0.90	0.82	0.35	1.6	11.6	27	1	5		HDPE
Trunk 2 Trib	10001	0.08	0.24	0.89	0.82	0.42	0.9	12.5	67	1	6		HDPE
Trunk 2 Trib	10001	0.15	0.15	1.79	1.72	0.28		10.0	40	1	8		HDPE
Trunk 2 Trib	10002	0.15	0.30	1.75	1.72	0.12	0.9	10.9	71	1	8		HDPE
Trunk 2 Trib	MH10004	0.15	0.45	1.69	1.71	0.7	0.4	11.3	99	1	12		HDPE
Trunk 2 Trib	10020	1.34	2.24	1.79	1.73	4.12		10.0	136	1	14		HDPE
Trunk 2	10004	0.12	0.12	1.92	1.82	0.31		10.0	46	1	8		HDPE
Trunk 2	10001	0.12	0.24	1.89	1.82	0.27	0.4	10.4	71	1	8		HDPE
Trunk 2	10003	0.12	0.36	1.87	1.77	0.41	1.9	12.3	84	1	8		HDPE
Trunk 2	10005	0.12	0.48	1.86	1.85	0.42	1.5	13.8	78	1	8		HDPE
Trunk 2	10005	0.47	0.47	1.92	1.92	0.40		10.0	44	1	8		HDPE
Trunk 2	10006	0.12	0.59	1.81	1.92	0.51	0.6	10.6	64	1	12		HDPE
Trunk 2	10007	0.12	0.71	1.79	1.82	0.63	1.9	12.5	80	1	12		HDPE
Trunk 2	10008	0.08	0.79	1.44	1.11	1.40	13.9	14.1	43	1	12		HDPE
Trunk 2	10008	0.16	1.22	1.01	1.08	2.31	0.7	14.8	57	1	18		HDPE
Trunk 2 Trib	10009	0.14	0.14	1.72	1.71	0.24		10.0	29	1	8		HDPE
Trunk 2 Trib	10007	0.14	0.28	1.71	1.71	0.45	0.7	10.7	22	1	8		HDPE

Pipe Hydraulic Data & Design Capacities

Street Name	Inlet Name	Manning's Coefficient "n"	X-Sect Area of Pipe/Box (ft²)	Hydraulic Radius (ft)	Headloss Energy Slope (%)	Design Velocity (ft/sec)	Design Capacity (ft³/sec)
Trunk 1	10002	0.013	0.20	0.125	0.750	2.5	0.48
Trunk 1	10001	0.013	0.20	0.125	0.750	2.5	0.48
Trunk 1	10004	0.013	0.20	0.125	0.750	2.5	0.48
Trunk 1	10007	0.013	0.20	0.125	0.750	2.5	0.48
Trunk 1	10006	0.013	0.20	0.125	0.750	2.5	0.48
Trunk 1	10009	0.013	0.20	0.125	0.750	2.5	0.48
Trunk 1	10016	0.013	0.79	0.250	0.400	3.0	2.37
Trunk 1	10011	0.013	1.77	0.375	0.240	3.0	5.36
Trunk 1	MH14004	0.013	1.77	0.375	0.240	3.0	5.30
Trunk 1	15009	0.013	1.77	0.375	0.240	3.0	5.30
Trunk 2 Trib	10001	0.013	0.20	0.125	0.750	2.5	0.49
Trunk 2 Trib	10002	0.013	0.20	0.125	0.750	2.5	0.49
Trunk 2 Trib	10001	0.013	0.20	0.125	0.750	2.5	0.49
Trunk 2 Trib	10001	0.013	0.30	0.167	0.750	3.0	1.01
Trunk 2 Trib	10002	0.013	0.30	0.167	0.750	3.0	1.01
Trunk 2 Trib	MH10004	0.013	0.30	0.167	0.750	3.0	1.01
Trunk 2 Trib	10020	0.013	0.79	0.250	0.400	3.0	2.37
Trunk 2	10004	0.013	0.30	0.167	0.750	3.0	1.05
Trunk 2	10001	0.013	0.30	0.167	0.750	3.0	1.05
Trunk 2	10003	0.013	0.30	0.167	0.750	3.0	1.05
Trunk 2	10005	0.013	0.30	0.167	0.750	3.0	1.05
Trunk 2	10005	0.013	0.30	0.167	0.750	3.0	1.05
Trunk 2	10006	0.013	0.79	0.250	0.400	3.0	2.37
Trunk 2	10007	0.013	0.79	0.250	0.400	3.0	2.37
Trunk 2	10008	0.013	0.79	0.250	0.400	3.0	2.37
Trunk 2	10008	0.013	1.77	0.375	0.240	3.0	5.30
Trunk 2 Trib	10009	0.013	0.20	0.167	0.750	3.0	1.05
Trunk 2 Trib	10007	0.013	0.20	0.167	0.750	3.0	1.05

Pipe Elevation Data

Street Name	Inlet Name	Fall in Pipe/Reach (ft)	Mat. Drop (ft)	Pipe Invert Elevation @ U/S M.H.	Pipe Invert Elevation @ D/S M.H.	Pipe Soffit Elevation U/S (ft)	Pipe Soffit Elevation D/S (ft)
Trunk 1	10002	0.15	0.000	79.61	79.78	76.41	76.26
Trunk 1	10001	0.22	0.000	79.78	79.56	76.28	76.06
Trunk 1	10004	0.23	0.000	79.56	79.32	76.06	75.83
Trunk 1	10007	0.23	0.000	79.32	79.10	75.83	75.60
Trunk 1	10006	0.23	0.000	79.10	78.88	75.60	75.38
Trunk 1	10009	0.23	0.000	78.88	78.65	75.38	75.15
Trunk 1	10016	0.23	0.000	78.65	78.42	75.15	74.92
Trunk 1	10011	0.23	0.000	78.42	78.19	74.92	74.69
Trunk 1	MH14004	0.23	0.000	78.19	77.96	74.69	74.46
Trunk 1	15009	0.23	0.000	77.96	77.73	74.46	74.23
Trunk 2 Trib	10001	0.24	0.000	79.61	79.37	76.41	76.17
Trunk 2 Trib	10002	0.24	0.000	79.37	79.13	76.17	75.93
Trunk 2 Trib	10001	0.24	0.000	79.13	78.89	75.93	75.69
Trunk 2 Trib	10001	0.24	0.000	78.17	77.87	75.84	75.54
Trunk 2 Trib	10002	0.30	0.000	77.87	77.57	75.54	75.00
Trunk 2 Trib	MH10004	0.30	0.000	77.57	77.27	75.00	74.70
Trunk 2 Trib	10020	0.79	0.000	77.00	76.21	75.00	73.35
Trunk 2	10004	0.30	0.000	79.61	79.31	76.17	75.87
Trunk 2	10001	0.30	0.000	79.31	79.01	75.87	75.57
Trunk 2	10003	0.30	0.000	79.01	78.71	75.57	75.27
Trunk 2	10005	0.30	0.000	78.71	78.41	75.27	74.97
Trunk 2	10005	0.30	0.000	78.41	78.11	74.97	74.67
Trunk 2	10006	0.79	0.000	78.11	77.32	74.67	72.91
Trunk 2	10007	0.79	0.000	77.32	76.53	72.91	72.12
Trunk 2	10008	0.79	0.000	76.53	75.74	72.12	71.33
Trunk 2	10008	1.77	0.000	75.74	73.97	71.33	69.56
Trunk 2 Trib	10009	0.30	0.000	79.61	79.31	76.17	75.87
Trunk 2 Trib	10007	0.30	0.000	79.31	79.01	75.87	75.57

5-Year Design Calculations

Street Name	Inlet Name	Actual Velocity (V_{act}) (fps)	Velocity Check	Hydraulic Gradient Slope (S_{hydr}) (%)	Headloss (ft)	Hydraulic Grade Line Elevation U/S (ft)	Hydraulic Grade Line Elevation D/S (ft)
Trunk 1	10002	2.10	Val-OK	0.018	0.004	79.61	79.62
Trunk 1	10001	0.78	Val-OK	0.070	0.020	79.62	79.63
Trunk 1	10004	1.18	Val-OK	0.104	0.044	79.63	79.78
Trunk 1	10007	1.50	Val-OK	0.275	0.080	79.78	79.70
Trunk 1	10006	1.87	Val-OK	0.487	0.137	79.70	79.56
Trunk 1	10009	2.28	Val-OK	0.811	0.185	79.56	79.40
Trunk 1	10016	0.90	Val-OK	0.047	0.023	79.40	79.38
Trunk 1	10011	0.81	Val-OK	0.073	0.013	79.38	79.36
Trunk 1	MH14004	1.25	Val-OK	0.068	0.013	79.36	79.32
Trunk 1	15009	2.47	Val-OK	0.172	0.131	79.32	79.21
Trunk 2 Trib	10001	0.90	Val-OK	0.018	0.006	79.62	79.61
Trunk 2 Trib	10002	0.75	Val-OK	0.064	0.019	79.62	79.60
Trunk 2 Trib	10001	1.52	Val-OK	0.154	0.047	79.60	79.40
Trunk 2 Trib	10001	1.48	Val-OK	0.148	0.130	79.62	79.55
Trunk 2 Trib	10002	1.48	Val-OK	0.183	0.130	79.62	79.55
Trunk 2 Trib	MH10004	0.88	Val-OK	0.047	0.106	79.39	79.16
Trunk 2 Trib	10020	1.82	Val-OK	0.238	0.190	79.52	78.93
Trunk 2	10004	0.92	Val-OK	0.069	0.064	79.66	79.58
Trunk 2	10001	0.90	Val-OK	0.062	0.023	79.58	79.53
Trunk 2	10003	0.82	Val-OK	0.071	0.060	79.53	79.46
Trunk 2	10005	1.32	Val-OK	0.124	0.136	79.46	79.32
Trunk 2	10005	1.18	Val-OK	0.108	0.048	79.65	79.59
Trunk 2	10006	0.86	Val-OK	0.081	0.013	79.59	79.57
Trunk 2	10007	0.81	Val-OK	0.052	0.028	79.57	79.56
Trunk 2	10008	1.58	Val-OK	0.119	0.071	79.56	79.49
Trunk 2	10008	0.74	Val-OK	0.026	0.014	79.49	79.48
Trunk 2 Trib	10009	0.92	Val-OK	0.065	0.010	79.59	79.58
Trunk 2 Trib	10007	1.20	Val-OK	0.140	0.021	79.58	79.56

Elevations @ Inlet Location

Street Name	Inlet Name	Top of Curb (ft)	Gutter (ft)	Natural Ground @ P.O.W. (ft)	HGL Above(+) / Below(-) Gutter @ Inlet (ft)	5-yr HGL Check @ Inlet Location
Trunk 1	10002	76.91	76.41	76.41	0.750	OK
Trunk 1	10001	76.91	76.41	76.41	0.750	OK
Trunk 1	10004	76.91	76.41	76.41	1.370	OK
Trunk 1	10007	76.91	76.41	76.41	1.429	OK
Trunk 1	10006	76.91	76.41	76.41	1.913	OK
Trunk 1	10009	76.91	76.41	76.41	2.040	OK
Trunk 1	10016	76.90	76.40	76.40	2.140	OK
Trunk 1	10011	76.88	76.38	76.38	2.023	OK
Trunk 1	MH14004	76.88	76.38	76.38	0.936	OK
Trunk 1	15009	76.88	76.38	76.38	0.833	OK
Trunk 2 Trib	10001	76.91	76.41	76.41	2.000	OK
Trunk 2 Trib	10002	76.91	76.41	76.41	2.010	OK
Trunk 2 Trib	10001	76.91	76.41	76.41	2.155	OK
Trunk 2 Trib	10001	76.90	76.90	76.90	2.761	OK
Trunk 2 Trib	10002	76.88	76.88	76.88	2.759	OK
Trunk 2 Trib	MH10004	75.95	75.95	75.95	2.309	OK
Trunk 2 Trib	10020	76.76	75.35	75.70	0.680	OK
Trunk 2	10004	76.90	75.90	75.90	1.658	OK
Trunk 2	10001	75.90	75.50	75.50	1.402	OK
Trunk 2	10003	75.80	75.80	75.80	1.784	OK
Trunk 2	10005	75.70	75.70	75.70	1.794	OK
Trunk 2	10005	75.90	75.50	75.50	1.423	OK
Trunk 2	10006	75.70	75.70	75.70	1.747	OK
Trunk 2	10007	75.70	75.70	75.70	1.795	OK
Trunk 2	10008	75.50	75.50	75.50	1.528	OK
Trunk 2 Trib	10009	75.80	75.80	75.80	1.814	OK
Trunk 2 Trib	10007	75.50	75.50	75.50	1.530	OK

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SEAL

MARK A. LANZER 93298 TEXAS
9/4/2018

ISSUE

1	90% DD FOR REVIEW	05.19.2017
2	PART 1 100% DD FOR REVIEW	06.06.2017
3	PART 1 100% CD FOR PERMIT	06.30.17
4	PART 1 FOR BID	07.27.2017
⚠	ADDENDUM 01	08.10.2017
⚠	REVISION 2	12.15.2017

KEY MAP

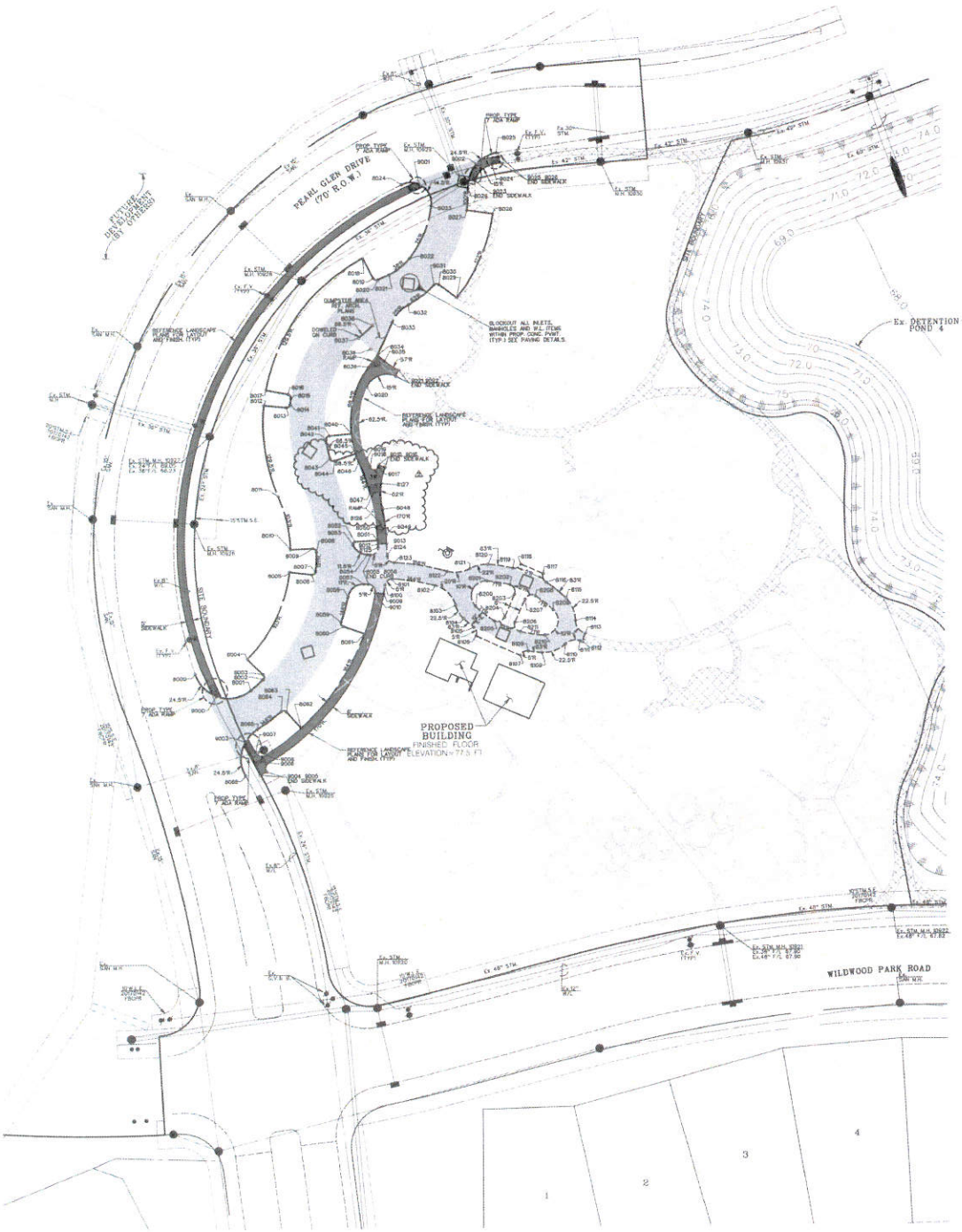
VERANDA
RECREATION CENTER
RICHMOND, TX

APPROVED: DEVELOPMENT COORDINATOR
DATE: 9/4/18

Costello
Engineering and Surveying
9990 Richmond Avenue, Suite 450 N
Houston, Texas 77042
(713) 783-7788 (713) 783-3580 Fax
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 10046

DRAWN BY:
CHECKED BY:
DATE:
SCALE:
PROJECT #:

SHEET
C0.05
CIVIL DRAINAGE CALCULATION



LEGEND

8050	COGO NUMBER
	BACK OF PROP. 6-INCH CONC. CURB
	PROP. STORM SEWER
	Ex. STORM SEWER
	Ex. SANITARY SEWER
	Ex. WATER LINE
	BACK OF PROP. 6-INCH CONC. CURB
	PROP. 7-INCH CONCRETE PAVEMENT
	PROP. 5-INCH CONCRETE PAVEMENT
	PROP. 4 1/2-INCH CONCRETE SIDEWALK (SEE THIS SHEET FOR TYPICAL SECTION)
	FUTURE SIDEWALK (BY OTHERS)

CONTROL BENCHMARK

NGS MONUMENT HGCS072
STAINLESS STEEL ROD IN PVC SLEEVE LOCATED ON SAUTHERN LAKE ROAD

ELEVATION 69.4- NAVD-88

SITE TBM: 2504-6-02

SQUARE CUT ON TOP OF WEST CURB OF CROSSROADS DRIVE, +/- 2' SOUTH FROM END PAVING AT PROPERTY LINE

ELEVATION: 77.26

SITE TBM: 2502-19-1

BENCH TIE IN NORTH FACE OF PECAN TREE (TAG #417)

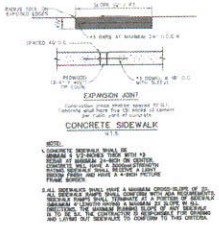
ELEVATION: 79.23

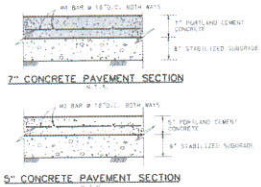
**--ALL COORDINATE POINTS AND DIMENSIONS ARE TO BACK OF CURB, UNLESS OTHERWISE NOTED.

ALL CURB RADII ARE STANDARD 2.5' TO BACK OF CURB AS SCALED, UNLESS OTHERWISE NOTED.**

NOTE:

1. REFERENCE LANDSCAPE ARCHITECTURAL DRAWINGS FOR MISCELLANEOUS SITE DETAILS.





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SEAL

MARK A. SANDER
5286
1/4/2018

ISSUE

1	50% DD FOR REVIEW	05.19.2017
2	PART I 100% DD FOR REVIEW	06.06.2017
3	PART I 100% CD FOR PERMIT	06.30.17
4	PART I FOR BID	07.27.2017
1	ADDENDUM 01	08.10.2017
1	REVISION 1	12.15.2017

KEY MAP

VERANDA
RECREATION CENTER
RICHMOND, TX

DRAWN BY
CHECKED BY
DATE
SCALE
PROJECT #

SHEET
C0.06
CIVIL PAVING LAYOUT

811 Know what's below. Call before you dig

WARNING POWER LINES OVERHEAD

APPROVED: DEVELOPMENT COORDINATOR
DATE:

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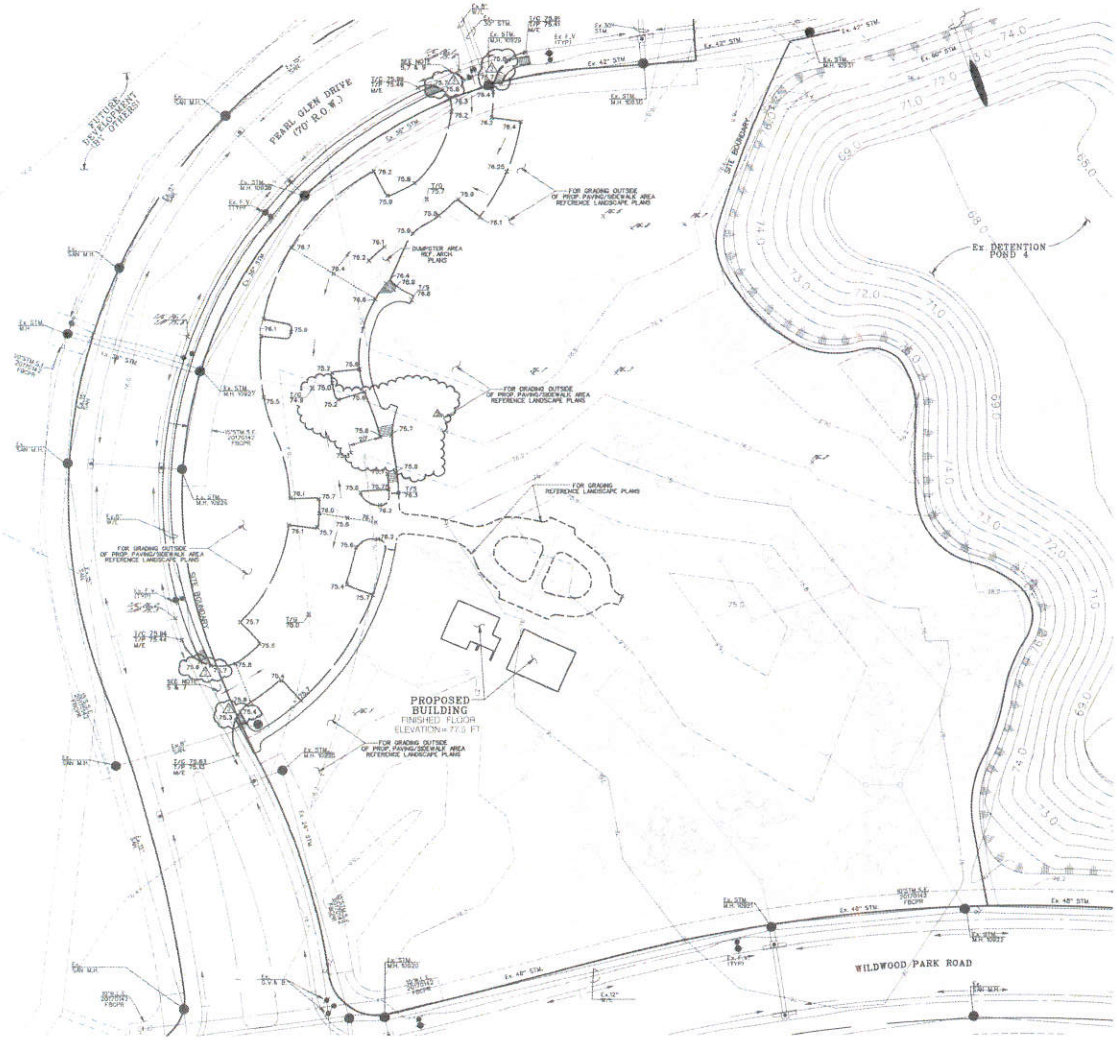
Engineering and Surveying
8990 Richmond Avenue, Suite 450 N
Houston, Texas 77042
(713) 783-7788 (713) 783-3580, Fax
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 10046



CONTROL BENCHMARK

NGS MONUMENT HOC5072
5 FEET WEST OF CENTER IRON ROD IN PVC SLEEVE LOCATED ON SMITHERS LAKE ROAD

ELEVATION 69.41 NAVD-88

SITE TBM: 2584-6-02

SQUARE CUT ON TOP OF WEST CURB OF SMITHERS DRIVE, +/- 3' SOUTH FROM END PAVING AT PROPERTY LINE

ELEVATION: 77.28

SITE TBM: 2582-78-1

BENCH TIE IN NORTH FACE OF PECAN TREE (TBD AM17)

ELEVATION: 78.23

N

SCALE 1"= 30'

LEGEND

	- PROP. DIRECTION OF FLOW
F/F	- PROP. FINISHED FLOOR
T/S	- PROP. TOP OF SIDEWALK/SLAB ELEVATION
T/C	- PROP. TOP OF CURB ELEVATION
T/P	- PROP. TOP OF PAVEMENT ELEVATION
M/E	- MATCH EXIST PAVEMENT GRADE/FINISHED GRADE
T/G	- PROP. TOP OF GRATE ELEVATION
F/G	- PROP. FINISHED GRADE ELEVATION
T/P 72.67	- EXIST. TOP OF CURB/TOP OF PAVEMENT SHOTS
x 67.00	- EXIST. GROUND SHOTS
	- EXIST 6-INCH CONC. CURB
	- BACK OF PROP. 6-INCH CONC. CURB
	- EDGE OF PROP. PAVEMENT
8' RAMP	- PROP. RAMP (TYPE 7 ADA)

FINISHED FLOOR ELEVATION IS AS INDICATED CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION OF BUILDING PAD. (REFERENCE ARCHITECTUAL FOR CONSTRUCTION DETAILS OF BUILDING PAD).

**ALL ELEVATIONS ARE TO TOP OF PAVEMENT, UNLESS OTHERWISE NOTED.

NOTES:

1. CONTRACTOR TO PROVIDE PAVEMENT JOINT LAYOUT AS A SUBMITTAL FOR ENGINEER AND ARCHITECT REVIEW AND APPROVAL. 5" AND 6" PAVING JOINT SPACING WILL NOT BE MORE THAN 15' C-C.
2. THE JOINTING SHALL BE COORDINATED BY CONTRACTOR TO SUIT HIS VARIED CONSTRUCTION NEEDS WITH THE APPROVAL OF THE ENGINEER AND OWNER.
3. EXPANSION JOINTS, CONTROL JOINTS AND CONSTRUCTION JOINTS ADJACENT TO A CURB SHOULD EXTEND INTO THE CURB.
4. JOINTS SHOULD TIE RADIALLY TO ALL CURVES AS INDICATED ON THE PAVING DETAILS, SHEET
5. CONTRACTOR SHALL MATCH AND CONTINUE ANY EXPANSION JOINTS ALREADY EXISTING AT LOCATIONS WHERE PROPOSED PARKING CONNECTS TO EXISTING STREETS/CONCRETE.
6. ALL CONTROL JOINTS MUST BE SAWCUT AND SEALED AS PER THE DETAIL SHEET.
7. CONTRACTOR SHALL SET GRADES ON DRIVEWAY SUCH THAT SIDEWALK PORTION OF DRIVEWAY DOES NOT EXCEED A 2% CROSS SLOPE.
8. CONTRACTOR SHALL REFERENCE APPROVED LANDSCAPE PLAN.
9. CONTRACTOR SHALL ADJUST EXISTING UTILITIES WITHIN THE PAVEMENT AREA TO MATCH PROPOSED PAVEMENT GRADES.

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SEAL

MARK A. CONDON 13296 TEXAS

3/4/2018

ISSUE

1	50% DD FOR REVIEW	05.19.2017
2	PART 1 100% DD FOR REVIEW	06.06.2017
3	PART 1 100% CD FOR PERMIT	06.30.17
4	PART 1 FOR BID	07.27.2017
1	ADDENDUM 01	08.10.2017
2	REVISION 2	12.15.2017
3	PERMIT REVISION 2	03.04.2018

KEY MAP

VERANDA
RECREATION CENTER
RICHMOND, TX

DRAWN BY:
CHECKED BY:
DATE:
SCALE
PROJECT #

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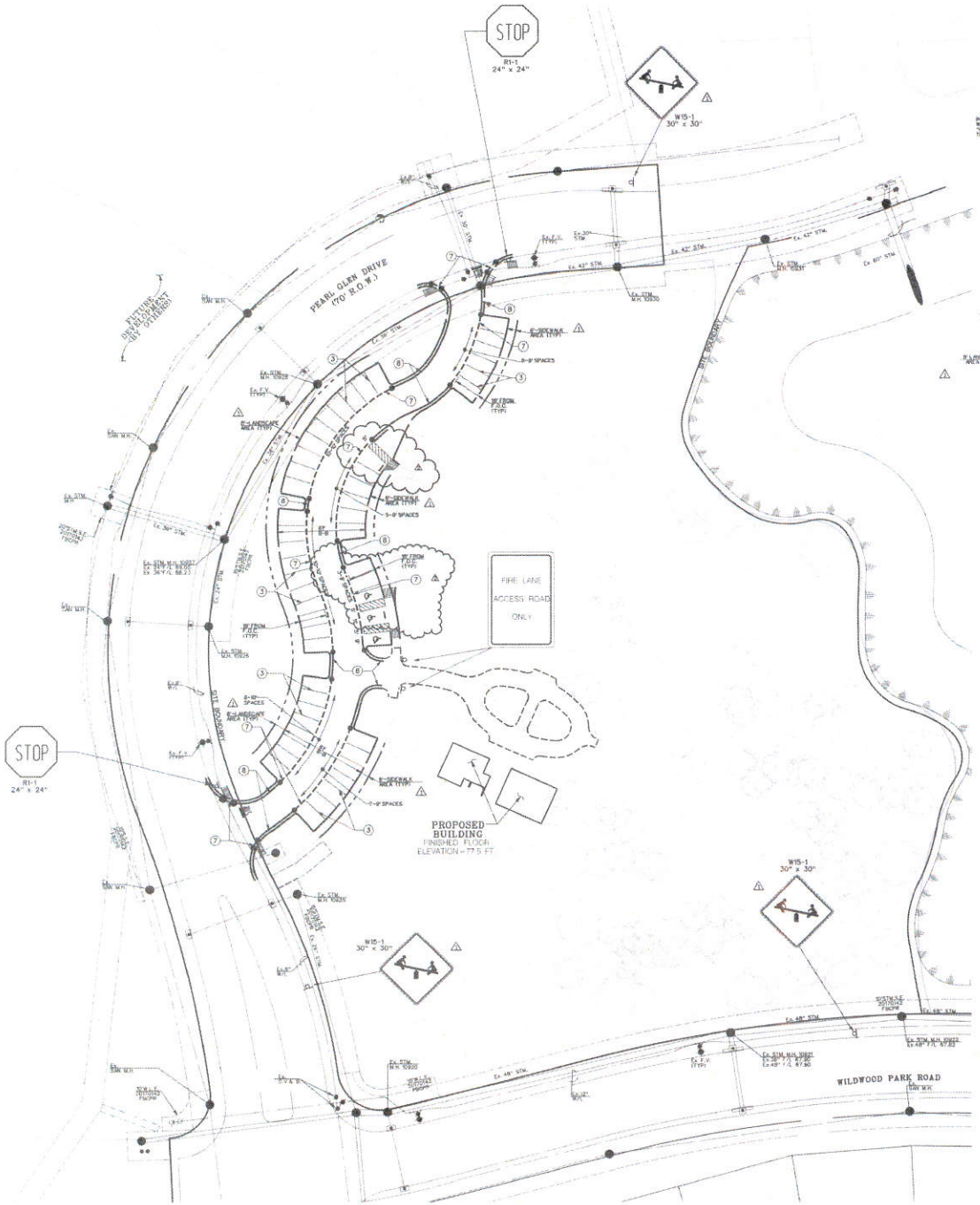
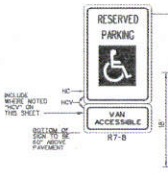
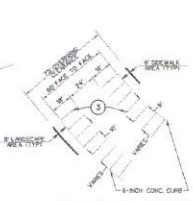
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 100486

SHEET
C0.07
CIVIL GRADING LAYOUT

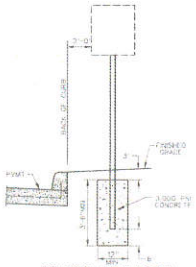




TYPICAL HANDICAP PARKING DETAILS
N.T.S.



TYPICAL PARKING DETAIL
N.T.S.



TRAFFIC SIGN DETAIL
N.T.S.

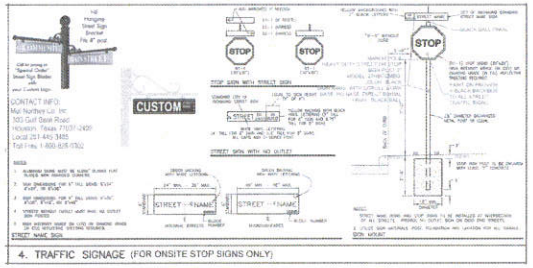
TYPICAL HANDICAP PARKING SYMBOL DETAIL
N.T.S.

TYPICAL STOP BAR
N.T.S.

WHEELSTOP DETAIL
N.T.S.

STRIPING NOTES

1. ALL SIGN DESIGNATIONS USED ARE REFERENCED IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".
2. ALL "R1-1" STOP SIGNS SHALL BE SIZED AS NOTED.
3. ALL PAINTED PARKING BAYS SHALL BE 4-INCH WIDE REFLECTORIZED WHITE STRIPES. (GORILLA HIGH PERFORMANCE ACRYLIC ZONE MARKING PAINT: ONE (1) COAT-TWO ONE-QUARTER MIL (2) MIL.) THICKNESS.
4. ALL TRAFFIC SIGNS SHALL BE OF DIAMOND GRADE SHEETING (SCOTCHLITE BRAND, OR APPROVED EQUAL) UNLESS SPECIFICALLY NOTED ON THE PLANS.
5. SOLID 24-INCH WIDE REFLECTORIZED WHITE STOP BAR.
6. AT EACH LOCATION INDICATED, THE WORD "STOP" AND/OR "ONLY" SHALL BE PAINTED, 5-FEET IN HEIGHT WITH ELONGATED LETTERS, IN WHITE REFLECTORIZED PAINT.
7. SOLID 6-INCH WIDE RED LINE WITH THE WORDS "NO PARKING-FIRE LANE" PAINTED IN WHITE ON THE RED STRIPE AT TWENTY FIVE (25) FEET SPACING.
8. CURB PAINTED RED WITH THE WORDS "FIRE LANE-NO PARKING" PAINTED IN WHITE AT TWENTY FIVE (25) FEET SPACING, IN 4-INCH LETTER.



4. TRAFFIC SIGNAGE (FOR ONSITE STOP SIGNS ONLY)

CLARK CONDON

VERANDA
STREET SIGNS AND POLES

LEGEND

- PROPOSED SIGN
- BACK OF PROP. 6-INCH CONC. CURB
- EXIST. STORM SEWER
- EXIST. SANITARY SEWER
- EXIST. WATER LINE

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SEAL

ISSUE

1	50% CD FOR REVIEW	05.19.2017
2	PART 1 100% DD FOR REVIEW	06.05.2017
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4	PART 1 FOR BID	07.27.2017
△1	ADDENDUM 01	08.10.2017
△2	REVISION 2	12.18.2017

KEY MAP

VERANDA
RECREATION CENTER
RICHMOND, TX

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SHEET
C0.08
CIVIL STRIPING & SIGNAL LAYOUT

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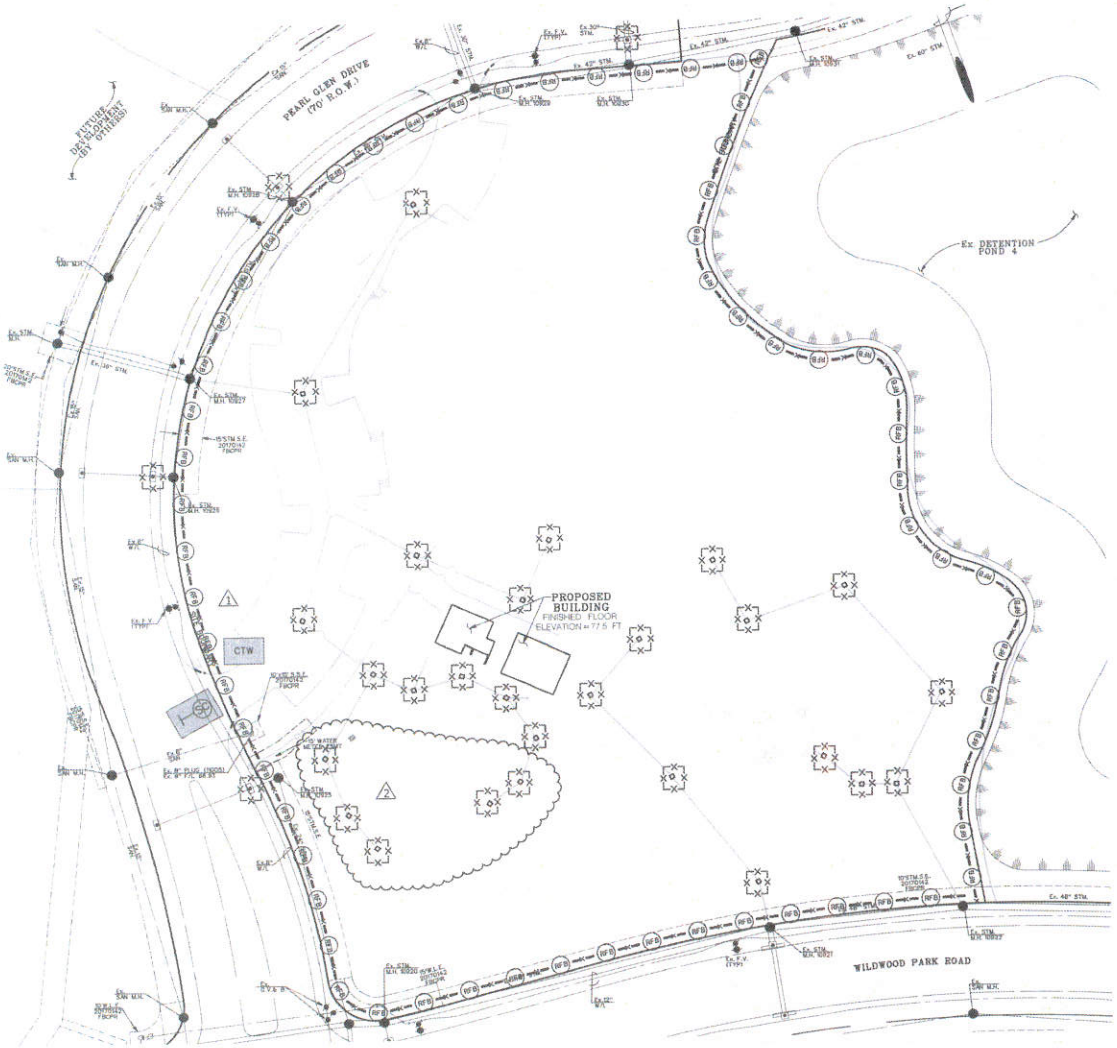
TBPLS FIRM REG. No. 10046



CONTROL BENCHMARK

HGS MONUMENT HGC6172
STAINLESS STEEL ROD IN PVC SLEEVE LOCATED ON SMITHERS LAKE ROAD

ELEVATION 69.4, NAVD-88

SITE TBM: 2584-4-02

SQUARE CUT ON TOP OF WEST CURB OF SMITHERS DRIVE, +/- 5' NORTH FROM END PAVING AT PROPERTY LINE

ELEVATION: 77.29

SITE TBM 2682-78-1

BENCH TIE IN NORTH FACE OF PECAN TREE (TAG #417)

ELEVATION: 76.23

N

SCALE: 1"= 30'

FOR CONTROL SEE SHEET C0.02

LEGEND

- BACK OF PROP. 6-INCH CONC. CURB
- PROP. STORM SEWER
- Ex. STORM SEWER
- FILTER FABRIC FENCE
- PROPOSED INLET SILT BARRIERS
- STABILIZED CONSTRUCTION ACCESS
- CONCRETE TRUCK WASHOUT AREA

NOTES:

1. PLACE FILTER FABRIC SILT FENCE +/- 5 FEET AROUND ALL INLETS.
2. ALL SOIL STOCKPILES OF SIGNIFICANT SIZE SHALL BE ENCOMPASSED BY A SILT FENCE.
3. ALL PROPOSED SWALES TO BE CONSTRUCTED BY THE CONTRACTOR TO FACILITATE SITE DRAINAGE SHALL HAVE SILT FENCES PLACED ACROSS THE ENTIRE SWALE JUST UPSTREAM OF THE OUTFALL LOCATION.
4. A VEHICLE WASH-DOWN AREA MAY BE LOCATED BY THE CONTRACTOR TO FACILITATE THE PROJECT. WHILE UTILIZING THE WASH-DOWN AREA, THE CONTRACTOR SHALL PROTECT THE INLET WHERE THE WASH-DOWN WATER IS DIRECTED AS PER PPP TEXT. THE LOCATION OF THE WASH-DOWN IS AT THE CONTRACTOR'S OPTION.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL FACILITIES INDICATED ON THIS PLAN.
6. THE CONTRACTOR SHALL CONSTRUCT SILT BARRIERS INDICATED ON THIS PLAN IN ADDITION TO CONFORMING WITH ALL ITEMS DISCUSSED IN THE WRITTEN STORMWATER POLLUTION PREVENTION PLAN TEXT.
7. UPON PROJECT COMPLETION, THE ENTIRE DISTURBED AREA NOT PROPOSED FOR IMMEDIATE RECONSTRUCTION SHALL BE RESEEDED AS PER THE POLLUTION PREVENTION PLAN.
8. UPON PROJECT COMPLETION AND FINAL STABILIZATION, ALL SILT FENCE SHALL BE REMOVED AND DISPOSED OF.

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SEAL

MARK W. LANDER 53206 LICENSED LANDSCAPE ARCHITECT
1/5/2018

ISSUE

1	50% DD FOR REVIEW	05.19.2017
2	PART 1 100% DD FOR REVIEW	06.06.2017
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2	REVISION 2	12.19.2017

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RICHMOND, TX

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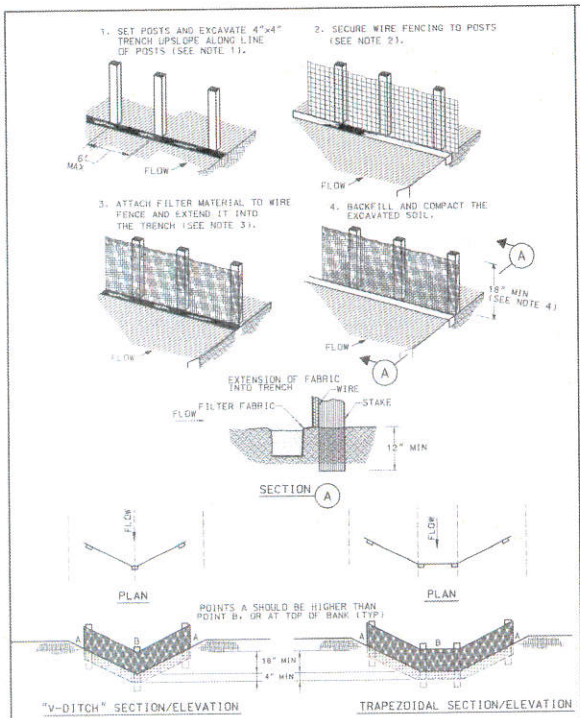
PROJECT #:

SHEET
C0.09
CIVIL POLLUTION PREVENTION LAYOUT

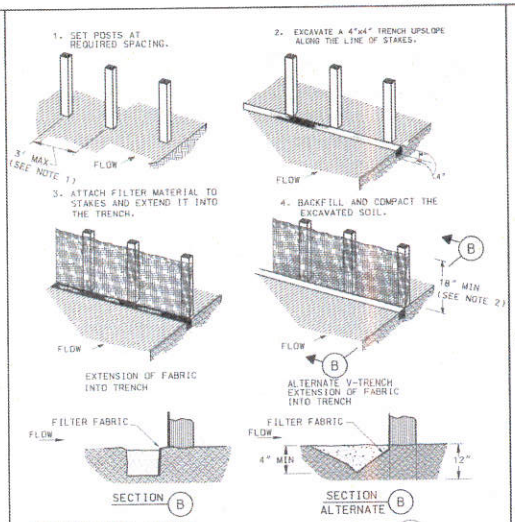


CONSTRUCTION NOTES:

1. SET 2 INCH BY 2 INCH WOODEN STAKES SPACED A MAX OF 6 FEET APART AND EMBEDDED A MIN OF 12 INCHES.
2. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH STAPLES.
3. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE, WITH TIES SPACED EVERY 24 INCHES AT TOP AND MIDSECTION.
4. MINIMUM HEIGHT OF FILTER SHOULD BE 18 INCHES AND A MAXIMUM OF 36 INCHES ABOVE NATURAL GROUND.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED 6 INCHES AT THE POSTS, AND FOLDED.
6. SEE SECTION 01568 - REINFORCED FILTER FABRIC BARRIER.

X — RFB — X
SYMBOL

REINFORCED FILTER FABRIC BARRIER

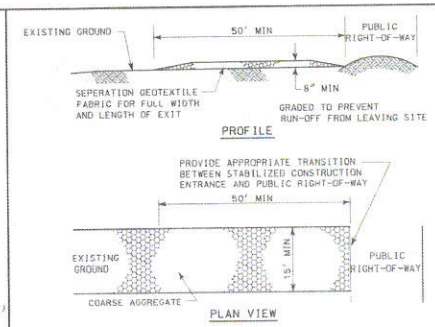


X — FF — X
SYMBOL

CONSTRUCTION NOTES:

1. 2 INCH THICK BY 2 INCH WOODEN STAKES TO BE SET AT MAX SPACING OF 3 FEET AND EMBEDDED A MIN OF 8 INCHES. IF PREASSEMBLED FENCE WITH SUPPORT NETTING IS USED, SPACING OF POST MAY BE INCREASED TO 8 FEET MAX.
2. ATTACH FILTER FABRIC TO WOODEN STAKES. FILTER FABRIC FENCE SHALL HAVE A MIN HEIGHT OF 18 INCHES AND MAX HEIGHT OF 36 INCHES ABOVE NATURAL GROUND.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHOULD BE OVERLAPPED 6 INCHES AT THE POSTS, AND FOLDED.
4. SEE SECTION 01567 - FILTER FABRIC FENCE.

FILTER FABRIC FENCE

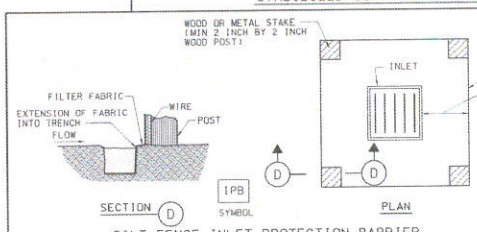


CONSTRUCTION NOTES:

1. LENGTH SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS, BUT NOT LESS THAN 50 FEET.
2. THICKNESS SHALL BE NOT LESS THAN 8 INCHES.
3. WIDTH SHALL BE NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
4. STABILIZATION FOR OTHER AREAS SHALL HAVE THE SAME AGGREGATE THICKNESS AND WIDTH REQUIREMENTS AS THE STABILIZED CONSTRUCTION EXIT, UNLESS OTHERWISE SHOWN ON THE CONSTRUCTION DRAWINGS.
5. STABILIZED AREA MAY BE WIDENED OR LENGTHENED TO ACCOMODATE A TRUCK WASHING AREA. AN OUTLET SEDIMENT TRAP MUST BE PROVIDED FOR THE TRUCK WASHING AREA.
6. SEE SECTION 01569 - STABILIZED CONSTRUCTION EXIT.
7. STABILIZED CONSTRUCTION EXIT SHALL BE MAINTAINED FREE OF SEDIMENT FOR THE DURATION OF THE PROJECT.

SC
SYMBOL

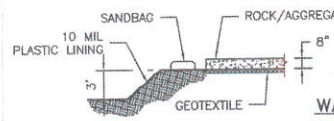
STABILIZED CONSTRUCTION EXIT



CONSTRUCTION NOTE:

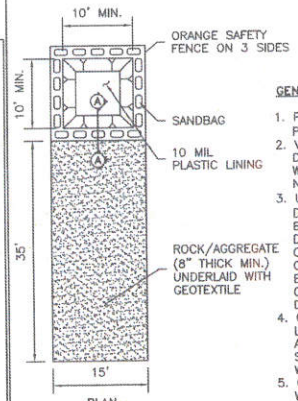
1. SEE CONSTRUCTION NOTES FOR RFB.

SILT FENCE INLET PROTECTION BARRIER



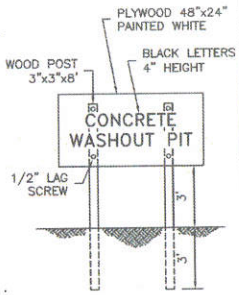
CONCRETE TRUCK WASHOUT AREA

CTW
SYMBOL

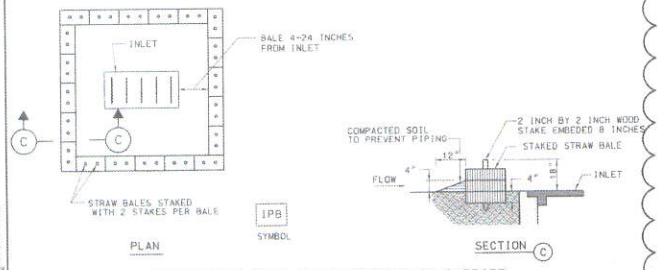


GENERAL NOTES:

1. POST A SIGN READING "CONCRETE WASHOUT PIT" NEXT TO THE PIT.
2. VERBALLY INSTRUCT THE CONCRETE TRUCK DRIVERS WHERE THE PIT IS AND TO WASHOUT THEIR TRUCKS IN THE PIT AND NOWHERE ELSE.
3. UPON THE CONCRETE SETTING UP (CURING, DRYING OUT), THE CONCRETE WASTE SHALL BE REMOVED FROM THE PROJECT SITE AND DISPOSED OF PROPERLY BY THE CONTRACTOR. AFTER REMOVAL OF THE CONCRETE WASTE, THE WASHOUT PIT SHALL BE FILLED WITH CLEAN FILL MATERIAL AND COMPACTED TO IN-SITU CONDITIONS, OR AS DIRECTED BY THE PROJECT SPECIFICATIONS.
4. CONCRETE WASHOUT PITS SHALL NOT BE LOCATED DIRECTLY ADJACENT TO, NOR AT ANY TIME DRAIN INTO THE STORM SEWER SYSTEM OR ANY OTHER SWALE, DITCH, OR WATERWAY.
5. CONSTRUCT ENTRY ROAD AND BOTTOM OF WASHOUT AREA TO SUPPORT EXPECTED LOADINGS FROM TRUCKS EQUIPMENT.



SIGN DETAIL (OR EQUIVALENT)



STRAW BALE DROP INLET PROTECTION BARRIER

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PROFESSIONAL
LANDSCAPE
ARCHITECT
STATE OF TEXAS
9/8/2016

ISSUE

1	50% CD FOR REVIEW	05.19.2017
2	PART 1 100% CD FOR REVIEW	06.06.2017
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2	REVISION 2	12.15.2017

KEY MAP

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RICHMOND, TX

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SHEET
C0.10
CIVIL POLLUTION PREVENTION DETAILS

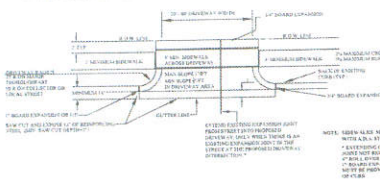
GENERAL NOTES FOR SIDEWALKS AND DRIVEWAYS

1. SAW CUT EXISTING CURB AT EACH END AND KNOCK OUT CURB FROM BEGINNING TO END OF PROPOSED DRIVEWAY.
2. SAW CUT EXISTING PAVEMENT A MINIMUM OF 18" INCHES AWAY FROM BACK OF CURB (GUTTER LINE) AND BREAK OUT TO EXPOSE EXISTING REINFORCEMENT STEEL.
3. COMPACT SUBGRADE FOR PROPOSED DRIVEWAY CONNECTION FROM PROPOSED SAW CUT AT EXISTING PAVEMENT TO RIGHT-OF-WAY LINE, COMPACT TO 95% OF STANDARD PROCTER DENSITY (+/- 2% OPT. MOISTURE). THE COUNTY ENGINEER RESERVES THE RIGHT TO REQUIRE LABORATORY TESTS TO BE CONDUCTED.
4. PLACE AND COMPACT 4" CLEAN BANK SAND.
5. MAINTAIN GUTTER LINE WITH FACE OF EXISTING CURB.
6. PROPOSED DRIVEWAY REINFORCING STEEL IS TO BE TIED TO EXISTING ROADWAY REINFORCING STEEL WITH A MINIMUM LAP OF 12 INCHES.
7. PROPOSED DRIVEWAY REINFORCING STEEL IS TO BE #4 DEFORMED RE-INFORCING BARS (ASTM A615 GRADE 60, UNLESS NOTED) SPACED AT 24 INCHES C.C., EACH WAY, WITH 12 INCHES MINIMUM LAP (8" x 6" W6 x W6 AS ALTERNATE) FROM PROPOSED SAW CUT TO RIGHT-OF-WAY LINE.
8. PROPOSED DRIVEWAY, CURB, GUTTER LINE, AND GRADE SHALL MATCH EXISTING STREET.
9. PROPOSED DRIVEWAY SHALL BE CONSTRUCTED WITH PORTLAND CEMENT CONCRETE, CLASS "A" STRUCTURAL (REFER TO SPECIFICATION 03301), 7 INCHES THICK, FROM PROPOSED SAW CUT TO RIGHT-OF-WAY LINE (PROPERTY LINE).
10. PROPOSED SIDEWALK SHALL BE CONSTRUCTED WITH PORTLAND CEMENT CONCRETE, CLASS "A" STRUCTURAL (REFER TO SPECIFICATION 03301), 4 1/2 INCHES THICK AND 5 FEET MINIMUM WIDTH. SEE DRAWING NO. FBC 24A FOR ADDITIONAL INFORMATION AND DETAILS.

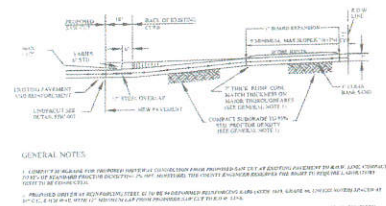
CONSTRUCTION NOTES FOR SIDEWALKS & DRIVEWAYS WITH CURB TYPE STREETS COMMERCIAL AREA	DRAWN BY: L. BRDECKA DATE DRAWN: 2-1-94	REVISED BY: N. HATCHER DATE REVISED: 1-1-16
	APPROVED BY: L. HOOD DATE: 2-1-94	DRAWING NO. FBC-025B
FORT BEND COUNTY ENGINEERING DEPARTMENT		

WHEN A COMMERCIAL SIDEWALK, DRIVEWAY, CURB OR GUTTER IS CONSTRUCTED, RECONSTRUCTED, REPAIRED OR REGRADED ON COUNTY RIGHT-OF-WAY FOR USE WITH CONCRETE OR ASPHALT CURB TYPE STREETS, USE SECTIONS APPLICABLE.

A. USE FOR ALL PROPOSED EXISTING CURB REMOVAL FOR DRIVEWAYS (PLAN VIEW NOT TO SCALE)



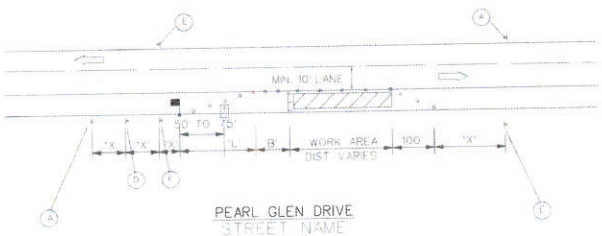
B. USE FOR ALL PROPOSED DRIVES ON CURBED TYPE STREETS



GENERAL NOTES:

1. CONSTRUCT SUBGRADE FOR PROPOSED DRIVEWAY CONNECTION FROM PROPOSED SAW CUT AT EXISTING PAVEMENT TO R.O.W. LINE, COMPACT TO 95% OF STANDARD PROCTER DENSITY (+/- 2% OPT. MOISTURE). THE COUNTY ENGINEER RESERVES THE RIGHT TO REQUIRE LABORATORY TESTS TO BE CONDUCTED.
2. PROPOSED DRIVEWAY REINFORCING STEEL IS TO BE #4 DEFORMED REINFORCING BARS (ASTM A615 GRADE 60, UNLESS NOTED) SPACED AT 24" C.C. EACH WAY, WITH 12" MINIMUM LAP FROM PROPOSED SAW CUT TO R.O.W. LINE.
3. PROPOSED DRIVEWAY SHALL BE CONSTRUCTED WITH PORTLAND CEMENT CONCRETE (5 SACKS MINIMUM OF CEMENT PER CUBIC YARD OF CONCRETE), CLASS "A" STRUCTURAL (REFER TO SPECIFICATION 03301), 7" THICK, FROM PROPOSED SAW CUT TO R.O.W. LINE.
4. PROPOSED SIDEWALK SHALL BE CONSTRUCTED WITH PORTLAND CEMENT (5 SACKS MINIMUM OF CEMENT PER CUBIC YARD OF CONCRETE), CLASS "A" STRUCTURAL (REFER TO SPECIFICATION 03301), 4" THICK.
5. SEE TYPICAL SIDEWALK DETAIL SHEET FBC-01.

SIDEWALKS & DRIVEWAYS ON CURB TYPE STREETS COMMERCIAL AREA	DRAWN BY: L. BRDECKA DATE DRAWN: 2-1-94	REVISED BY: N. HATCHER DATE REVISED: 1-1-16
	APPROVED BY: L. HOOD DATE: 2-1-94	DRAWING NO. FBC-025A
FORT BEND COUNTY ENGINEERING DEPARTMENT		



PEARL GLEN DRIVE
STREET NAME

TYPICAL RIGHT LANE CLOSURE OF A MULTILANE STREET
(LEFT LANE CLOSURE SIMILAR)

SPECIAL TRAFFIC REQUIREMENTS

1. Contractor shall provide and install traffic control devices in conformance with part VI of the Texas Manual on Uniform Traffic Control Devices (Texas MUTCD) most recent edition with revisions during construction.
2. Contractor will be responsible for replacing any monitoring pavement markings which include centerline, pavement lines, lane lines and crosswalk pavement markings.
3. This traffic control plan represents the minimum required by Fort Bend County. Contractor to maintain access to adjacent properties at all times.
4a. No lanes shall be closed from 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m. Monday thru Friday.
4b. No lanes shall be closed between 7:00 a.m. to 6:00 p.m. Monday thru Friday in downtown area. Exception to these times, if necessary, should be sought during lane closure permit application.
5. Contractor shall cover open pavement excavations with unburied steel plates during non-working hours, and open lanes for normal traffic.
6. Off-duty Uniformed Police Officer may be required to direct traffic when lanes are blocked.
7. Lane closure times shall be specified on the lane closure permit.
8. If the contractor chooses to use a different method of Traffic Control than shown in the construction plan which is subject to the contract drawings, they might be responsible to prepare and submit plans and set of plans to Plan Review Section for approval ten working days prior to implementation.
These plans shall be drawn in scale on reproducible mylars and sealed by a Licensed Engineer in the State of Texas. Plans will become a part of the contract drawings.
9. Approved copies of Traffic Control Plans and lane closure permits shall be available for inspection at job site at all times. Contractor must secure a lane closure Permit from City's Traffic Management and Maintenance Branch before opening a lane/sidewalk. The request must be made at least three business days prior to the date for which the closure is sought. Note that working hours may be restricted or the request may be denied. Call 713-837-7260 for an application.
10. Lanes shall be kept closed during pavement surface restoration and reopen only after pavement is restored completely.

SPACING FOR CHANNELIZING DEVICES

1. Plastic drums on merging taper @ 30 o.c. with chevron sign @ 60 o.c. and type C warning light (for overnight closure).
2. Plastic drums on transitions taper @ 30 o.c.
3. Plastic drums on radius @ 5 o.c.
4. Plastic drums on tangent @ 30 o.c. with vertical panel @ 60 o.c. and type C warning light @ 30 o.c. (for overnight closure).
5. Plastic drums in front of construction zone @ 20 o.c. with vertical panel @ 40 o.c. and type A warning light @ 40 o.c. (for overnight closure).
6. Concrete traffic barrier (CTB) or low profile concrete traffic barrier (with reflectors @ 30 o.c.) if pavement drop is more than twelve inches (12").
Note: Signs shown on traffic control plans shall supersede the above spacings.

Length for Longitudinal Buffer		LEGEND (TYPICAL)	TYPICAL SIGN SPACING, TAPER LENGTHS, AND SUGGESTED SPACING OF CHANNELIZATION DEVICES			
Posted Speed (mph)	Length (B) in Feet		Posted Speed (mph)	Sign Spacing X'	Min. Desirable Taper Length L' 10' Offset	11' Offset 12' Offset
20	35	▲ PLASTIC DRUM (use spacing for channelizing devices)	20	120'	150'	165' 180'
25	55	■ OFF-DUTY UNIFORMED POLICE OFFICER	25	160'	205'	225' 245'
30	85	••• TYPE III BARRICADE	30	240'	250'	275' 300'
35	100	FLASHING ARROW PANEL (optional)	35	320'	450'	495' 540'
40	170	● TUBULAR MARKER	40	400'	500'	550' 600'
45	220		50	500'	550'	605' 660'
50	280		55	550'	605'	665' 720'
55	335					

* ENGINEER TO STRIKE THROUGH ALL SPEED LIMITS NOT APPLICABLE

PEARL GLEN DRIVE STREET NAME	35 SPEED LIMIT

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
TYPICAL TRAFFIC CONTROL
TYPICAL RIGHT/LEFT CLOSURE OF A MULTILANE STREET

APPROVED BY: | APPROVED BY:
CITY ENGINEER | DIRECTOR OF PUBLIC WORKS AND ENGINEERING
CITY DATE: DATE | DWG. NO.

1

APPROVED: DEVELOPMENT COORDINATOR
DATE:

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MARK A. CONDON
03296
04/2016

ISSUE

1	60% DD FOR REVIEW	05.18.2016
2	PART 1 100% DD FOR REVIEW	06.06.2016
3	PART 1 100% CD FOR PERMIT	06.30.17
4	PART 1 FOR BID	07.27.2017
1	ADDENDUM #1	08.10.2017
2	REVISION 2	12.11.2017

KEY MAP

VERANDA
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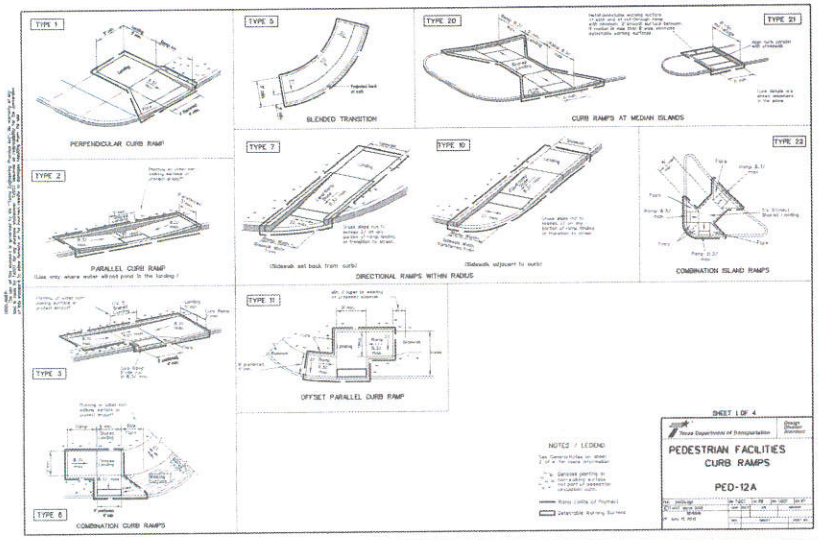
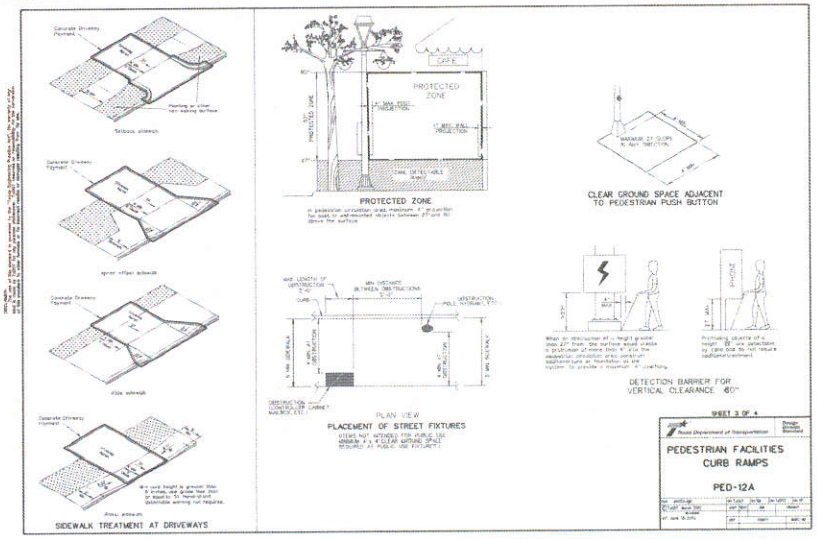
TBPLS FIRM REG. No 10046800

DRAWN BY:
CHECKED BY:
DATE
SCALE
PROJECT #

1

SHEET
C0.11
FORT BEND COUNTY
DRIVEWAY DETAIL &
TRAFFIC CONTROL





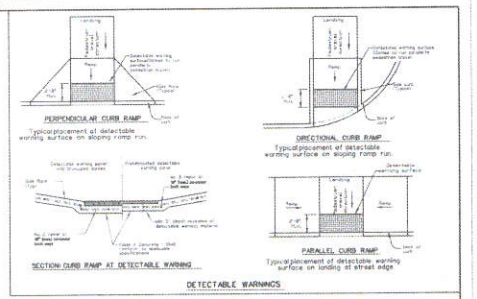
General Notes

Curb Ramps

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable (where slopes that will still drain properly should be used. Adjust curb ramp length or grade of approach sidewalk as directed.
3. The minimum sidewalk width is 5'. Where the sidewalk is adjacent to the back of curb, a 6' sidewalk width is desirable. Where a 5' sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4' for short distances. Th 5' passing areas at intervals not to exceed 200' are required.
4. Landings shall be 5' x 5' minimum with a maximum 2% slope in any direction.
5. Maneuvering space at the bottom of curb ramps shall be a minimum of 5' x 4' wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
6. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall have a maximum slope of 10%. Flared sides for curb ramps at back of curb may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp locations, design, light reflective value and texture may be found on the current edition of the Texas Accessibility Standards (TAS) and 16 TAC §68.301.
9. To serve as a pedestrian refuge area the center should be a minimum of 5' wide, measured from back of curbs. Medians should be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5'x 5' landing at the top of curb ramps, shall be cut through level with the surface of the street.
11. Crosswalk delineations, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. In intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalks unless otherwise directed.
12. Handrails are not required on curb ramps. Provide curb ramps wherever an accessible route crosses landscaped curb.
13. Curb ramps and landings shall be constructed and proof for in accordance with Item 531 "Sidewalks".
14. Place concrete in a minimum depth of 9" for ramps, flares and landings, unless otherwise directed.
15. Provide a smooth transition where the curb ramp connects to the street.
16. Curbs shown on sheet 1 within the limits of pavement are considered part of the curb ramp for payment, whether it is a separate curb, gutter or combined curb and gutter.
17. Detailing features that comply with TAS may deviate or place unless otherwise shown on the plans.

Detectable Warning Material

18. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with Section 705 of the TAS. The surface must contrast visually with adjacent surfaces, including side flares. Furnish and install an approved insert to place dark brown or dark red detectable warning surface material adjacent to unstained concrete, unless specified elsewhere on the plans.
19. Detectable Warning Materials must meet ASTM F2511 Experimental Materials Specification, DHS 4258 and be listed on the Material Producer List (MPL) product in accordance with manufacturer's specifications.
20. Detectable warning surfaces must be slip resistant and not allow water to accumulate.
21. Detectable warning surfaces shall be a minimum of 24" in depth on the direction of pedestrian travel and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
22. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb. Align the rows of domes to be perpendicular to the grade break between the ramp run and the street. Detectable warning surfaces may be turned along the corner radius.
23. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.

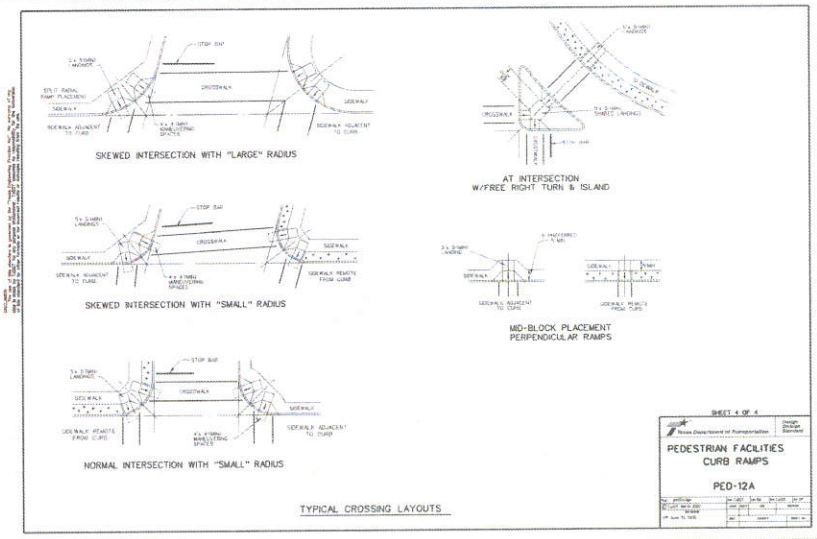


Detectable Warning Pavers

24. Furnish detectable warning paver units meeting all requirements of ASTM C-936/C-52 (eg or a set by two unit bedders where pattern is directed.
25. Lay full-size units first followed by closure units consisting of at least 25 percent of a full unit. Cut detectable warning paver units using a power saw.

Sidewalks

26. Provide clear ground space on operable parts including pedestrian push buttons. Operable parts shall be placed within one or more reach ranges specified in TAS 308.
27. Place traffic signal or observation poles, ground boxes, controller boxes, signs, drainage features and other items so as not to obstruct the pedestrian access route or clear ground space.
28. Street grates and cross slopes shall be as shown elsewhere in the plans.
29. Changes in level greater than 1/4 inch are not permitted.
30. The least possible grade should be used to maintain accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than 5% must be provided, handrails may be observable to improve sidewalking. Handrails may also be needed to provide a continuous path (potentially hazardous conditions). If provided, handrails shall comply with TAS 505.
31. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
32. Driveways and turnouts shall be constructed and proof for in accordance with Item 531 "Sidewalks". Sidewalks shall be constructed and proof for in accordance with Item "Sidewalks".
33. Sidewalk details are shown elsewhere in the plans.



APPROVED: DEVELOPMENT COORDINATOR
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9/4/2018

ISSUE

1	50% DD FOR REVIEW	05.10.2017
2	PART 1 100% DD FOR REVIEW	06.06.2017
3	PART 1 100% CD FOR PERMIT	06.30.17
4	PART 1 FOR BID	07.27.2017
△1	ADDENDUM #1	08.30.2017
△2	REVISION 2	12.15.2017

KEY MAP

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CHECKED BY:
DATE:
SCALE:
PROJECT #:

SHEET △2
C0.12
*TxDOT-PEDESTRIAN FACILITIES CURB RAMPS (PED-12A)

GENERAL NOTES

[illegible]

WATER DISTRIBUTION NOTES

[illegible]

STREET AND PAVING CONSTRUCTION NOTES

[illegible]

SANITARY SEWER CONSTRUCTION NOTES

[illegible]

STORM SEWER NOTES

[illegible]

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY WATER DISTRIBUTION SYSTEM GENERAL CONSTRUCTION NOTES

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
WATER DISTRIBUTION SYSTEM
GENERAL CONSTRUCTION NOTES

1. The water distribution system must be constructed in accordance with the current Texas Commission on Environmental Quality (TCEQ) Rules and Regulations for Public Water Systems, and the American Water Works Association (AWWA) standards. If the AWWA standards are revised with more stringent requirements than the current standard, the more stringent requirement shall be applied. Construction for public water systems must always, at a minimum, meet TCEQ's Rules and Regulations for Public Water Systems.

2. An appointed engineer must notify in writing the local TCEQ Regional Office when construction will start. Prior to the start of the construction of the water system project, the engineer or owner shall notify the community's Water Supply Division in writing as to the completion and detail of the fact that the high hazard connection assembly according to the plans and specifications of the with the commission as required in 30 TAC §290.38(41).

3. All newly installed pipes and related products must conform to American National Standards Institute/National Sanitation Foundation (ANSI/NSF) Standard 61. Pipe must be certified by an organization accredited by ANSI, as required by 30 TAC §290.44(2).

4. Plastic pipe for use in public water systems must bear the National Sanitation Foundation seal of approval (NSF-pw) and have an AWWA design pressure rating of at least 150 psi or a standard dimension ratio of 26 or less, as required by 30 TAC §290.44(2).

5. No pipe shall have been used for any purpose other than the conveyance of drinking water shall be allowed or permitted to be used in any public drinking water supply, as required by 30 TAC §290.44(2).

6. Water transmission and distribution lines shall be installed in accordance with the manufacturer's instructions. However, the top of the water line must be buried below the frost line or 24 inches, pipe shall the top of the water line must be at least four feet below ground surface, as required by 30 TAC §290.44(2)(f).

7. Pursuant to 30 TAC §290.44(2)(h), the hydrostatic leakage rate shall not exceed the allowable leakage rate for the pipeline being tested. The allowable leakage rate for cast iron and ductile iron pipe include the formula in the notes on the plans. The hypothetical leakage rate for polyvinyl chloride (PVC) pipe and polyethylene pipe shall meet the amount shown in accordance with the American Water Works Association (AWWA) C-605 as required in 30 TAC §290.44(2)(h). Please refer the formula for this calculation in metric and inch-pound formulas is as use.

$$L = \frac{SD\,P^{1/2}}{148{,}200}$$

Where:

D = the diameter of ordinary water in gallons per hour;
P = the length of the pipe section being tested, in feet;
S = the nominal diameter of the pipe in inches, and
P = the average test pressure during the hydrostatic test in pounds per square inch (psi).

8. Pipelines constructed on or after January 4, 2014 must comply with changes to the Safe Drinking Water Act that reduce the maximum allowable lead content of pipes, pipe fittings, plumbing fittings, and fixtures to 0.25 percent.

9. The system must be designed to maintain a minimum pressure of 35 psi at all points within the distribution network at flow rates of at least 1.5 gallons per minute per connection. When the system is intended to provide firefighting capability, it must also be designed to maintain a minimum pressure of 20 psi under conditions that are deemed worst-flow conditions as required by 30 TAC §290.44(d).

10. The contractor shall install depressions or raised devices in the distribution system at all points where topography or other factors may create an issue in the field. All air-venting to the atmosphere shall be covered with 16-mesh or finer corrosion resistant screening material or an acceptable equivalent as required by 30 TAC §290.44(d)(1).

11. Pursuant to 30 TAC §290.44(d)(2), accurate water meters shall be provided. Valves, connections and meter locations should be shown on the plans.

12. Pursuant to 30 TAC §290.44(d)(3), sufficient valves and fittings to isolate repairs. The engineering report must establish criteria for the design.

13. Pursuant to 30 TAC §290.44(d)(5), the system shall be designed to offset interface consumption of water with a minimum of dead ends. All dead-end mains shall be provided with acceptable flush valves and discharge piping. All dead-end lines less than two inches in diameter shall be provided with a flush valve. Dead-end mains more than 100 feet in length are discouraged and should be kept to the growth. If the system lines shall be looped and arranged to alternately connect the ends to provide circulation.

14. The contractor shall maintain a minimum separation distance of 9 inches of clear horizontal and vertical distance between the outside of the water line and other utilities, drainage, and sewer lines. Whenever, if the distance cannot be maintained, the contractor must immediately notify the project engineer for further direction. Separation distances, installation methods, and materials utilized must meet 30 TAC §290.44(e).

15. Pursuant to 30 TAC §290.44(e)(3), the contractor shall not place the pipe in water or where it can be flooded with sewer or sewage during the storage or installation.

16. Pursuant to 30 TAC §290.44(e)(4), when waterlines are laid under any flowing or intermittent stream or semi-permanent body of water the water main shall be placed in a separate watertight pipe encasement. Valves must be provided on each side of the crossing with facilities to drain the underwater portion of the system to be isolated and flushed.

17. The contractor shall disinfect the new water mains in accordance with AWWA Standard C-651 and then flush and sample the lines before being placed into service. Samples shall be collected and submitted to a laboratory for bacteriological analysis. Disinfection procedure shall be repeated if contamination persists. A minimum of one sample for each 1,000 feet of completed water line will be required of the developer or contractor, with 30 TAC §290.44(d)(5).

NO	DATE	REVISIONS	APP

CITY OF RICHMOND
STANDARD CONSTRUCTION DETAILS
NOTES

SCALE		DESIGNED BY:	LLY
HORIZONTAL	1" = NTS	DRAWN BY:	AJT
VERTICAL	1" = NTS	CHECKED BY:	KRH
		DATE:	7/28/17
		JOB NO:	
		DWG. NO:	R-1-17
		Sheet:	

APPROVED: DEVELOPMENT COORDINATOR
DATE:

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PROFESSIONAL ENGINEER
9-28-2018

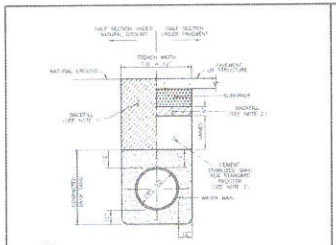
ISSUE		
1	50% DD FOR REVIEW	05.19.2017
2	PART 1 100% DD FOR REVIEW	06.06.2017
3	PART 1 100% CD FOR PERMIT	06.30.17
4	PART 1 FOR BID	07.27.2017
⚠	ADDENDUM 01	08.10.2017
⚠	REVISION 2	10.19.2017

KEY MAP

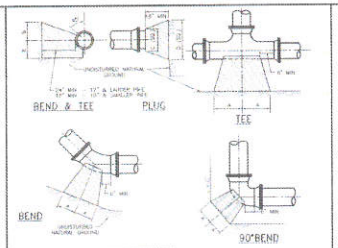
VERANDA
RECREATION CENTER
RICHMOND, TX

DRAWN BY
CHECKED BY
DATE
SCALE
PROJECT #

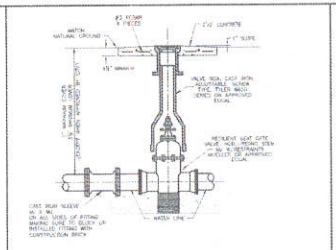
SHEET
C0.13
CITY OF RICHMOND DETAILS



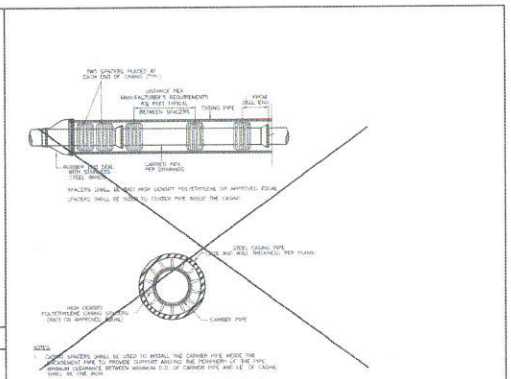
1. WATER LINE BEDDING



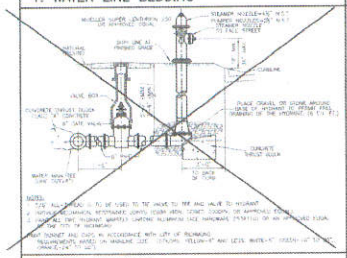
2. THRUST BLOCK



3. GATE VALVE AND BOX



7. WATER LINE CASING



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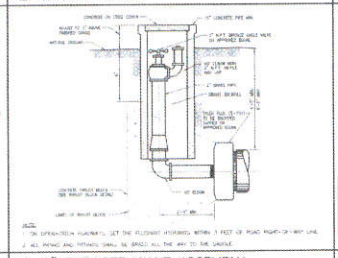
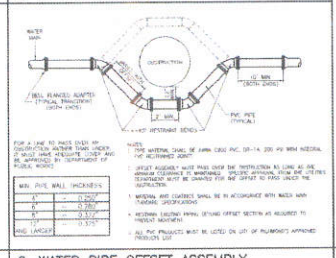
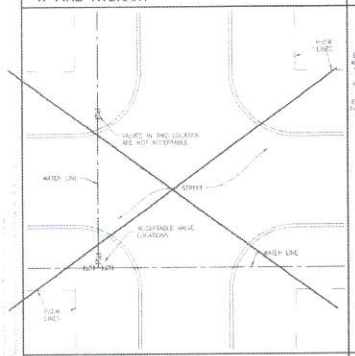


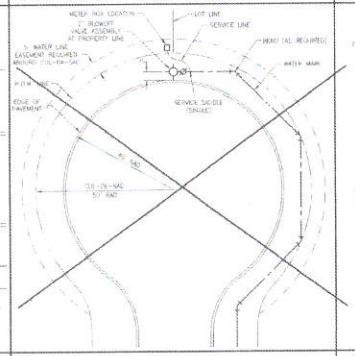
5. 2" BLOWOFF VALVE ASSEMBLY



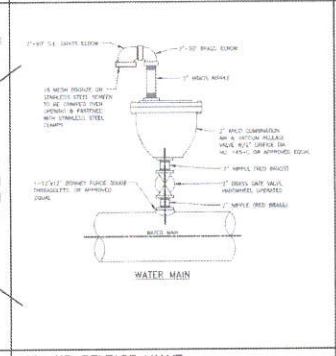
6. WATER PIPE OFFSET ASSEMBLY



8. VALVE LOCATION PLAN



9. BLOWOFF LOCATION PLAN



10. AIR RELEASE VALVE

NO	DATE	REVISIONS	APP.

CITY OF RICHMOND
STANDARD CONSTRUCTION DETAILS
WATER–1

SCALE		DESIGNED BY: LJT
HORIZONTAL	1" = NTS	DRAWN BY: AJR
VERTICAL	1" = NTS	CHECKED BY: ATB
		DATE: 7/28/17
		JOB NO.
		DWG. NO.
		R-2-17
		Sheet

APPROVED: DEVELOPMENT COORDINATOR
DATE: 7/28/18

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SEAL

ISSUE

1	50% CD FOR REVIEW	02.10.2017
2	PART 1 100% CD FOR REVIEW	06.06.2017
3	PART 1 100% CD FOR PERMIT	06.30.17
4	PART 1 FOR BID	07.27.2017
△1	ADDENDUM #1	08.10.2017
△2	REVISION 2	12.15.2017

KEY MAP

VERANDA
RECREATION CENTER
RICHMOND, TX

DRAWN BY
CHECKED BY
DATE
SCALE
PROJECT #

SHEET
C0.14
CITY OF RICHMOND DETAILS

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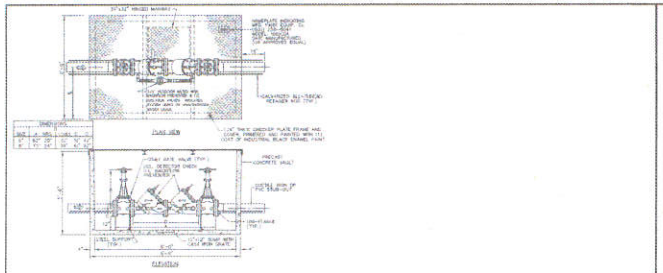
Engineering and Surveying
9990 Richmond Avenue, Suite 450 N
Houston, Texas 77042
(713) 783-7788 (713) 783-3580 Fax
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 10046



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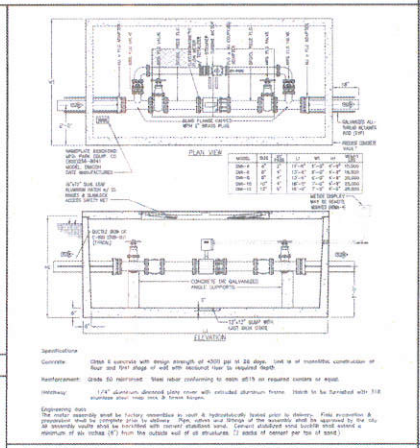
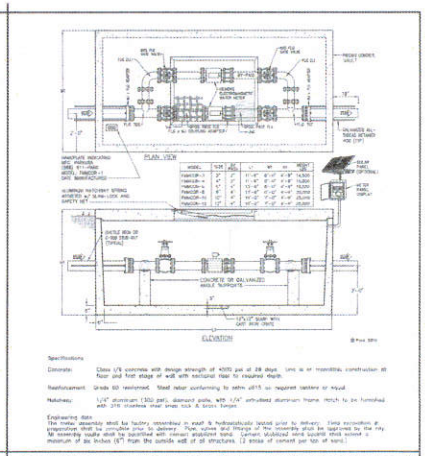
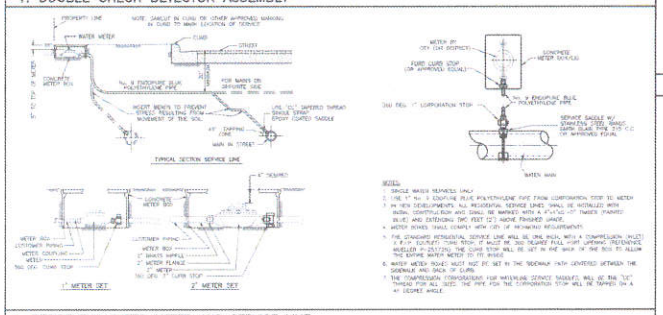


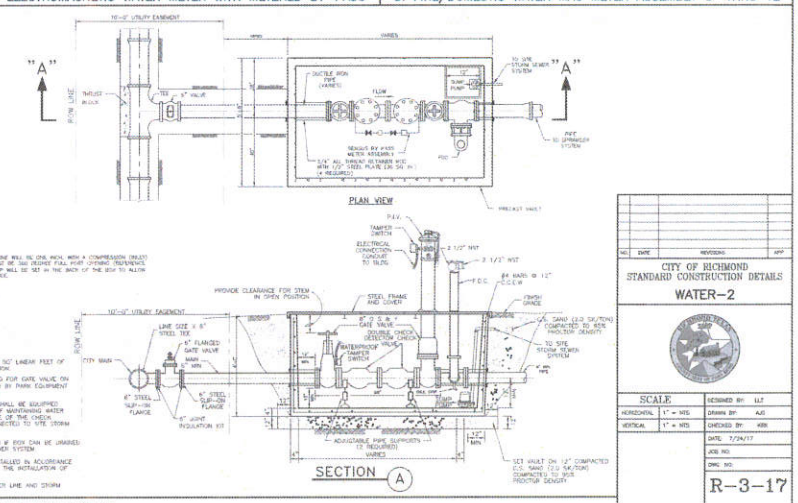
2. ELECTROMAGNETIC WATER METER WITH METERED BY-PASS



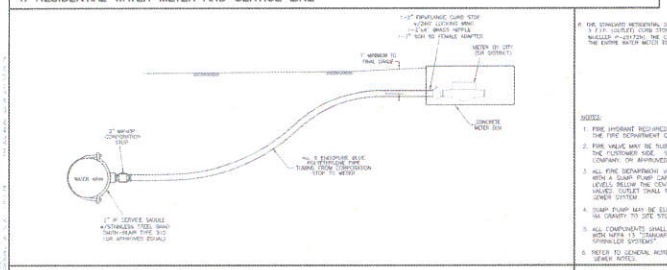
3. FIRE/DOMESTIC WATER MAG METER ASSEMBLY 3" THRU 12"



4. RESIDENTIAL WATER METER AND SERVICE LINE



6. TYPICAL FIRE SERVICE METER



5. 2" WATER SERVICE CONNECTION

NO.	DATE	REVISIONS	APP

CITY OF RICHMOND
STANDARD CONSTRUCTION DETAILS

WATER-2

SCALE	
HORIZONTAL	1" = NTS
VERTICAL	1" = NTS

DESIGNED BY:	LLT
DRAWN BY:	AJS
CHECKED BY:	KBR
DATE:	7/24/17
JOB NO.	
DWG NO.	R-3-17
Sheet:	

APPROVED: DEVELOPMENT COORDINATOR
DATE: 8/15/18

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SEAL

ISSUE		
1	50% DD FOR REVIEW	05.10.2017
2	PART 1 100% DD FOR REVIEW	06.06.2017
3	PART 1 100% CD FOR PERMIT	06.30.17
4	PART 1 FOR BID	07.27.2017
△1	ADDENDUM 01	08.10.2017
△2	REVISION 2	12.15.2017

KEY MAP

VERANDA
RECREATION CENTER
RICHMOND, TX

DRAWN BY:
CHECKED BY:
DATE:
SCALE:
PROJECT #

SHEET
C0.15
CITY OF RICHMOND DETAILS

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Houston, Texas 77042
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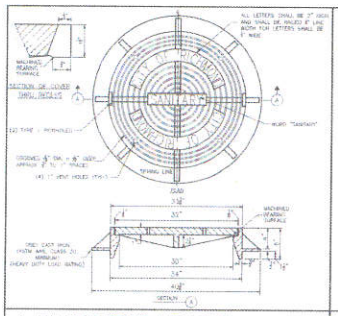
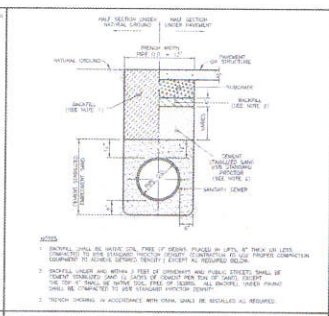
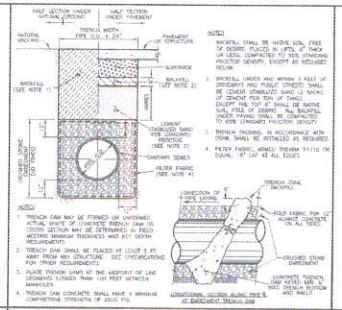
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 10046



1. MANHOLE FRAME AND COVER



2. SANITARY SEWER BEDDING



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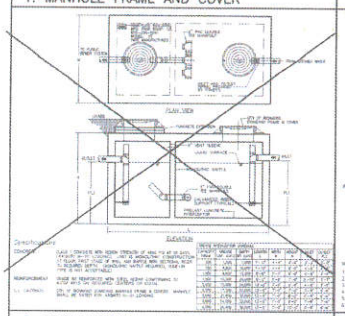

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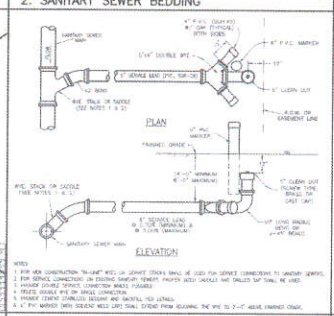
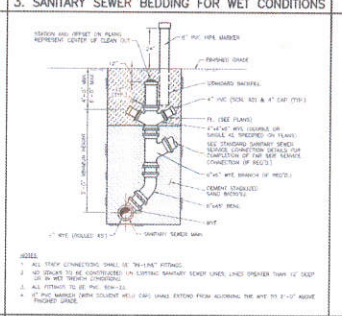
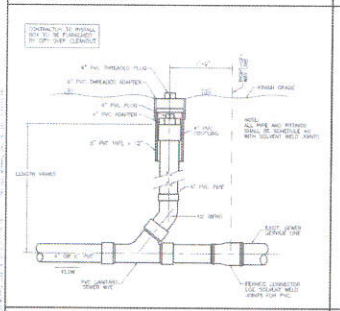


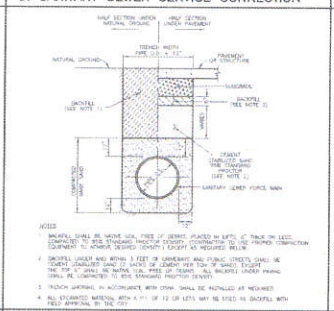
5. SANITARY SEWER SERVICE CONNECTION



6. SANITARY SEWER STACK



7. SERVICE LINE CLEANOUT ASSEMBLY



8. SANITARY SEWER FORCE MAIN BEDDING

NO.	DATE	REVISIONS	APP.

CITY OF RICHMOND
STANDARD CONSTRUCTION DETAILS
SANITARY–1

SCALE		DESIGNED BY:	LLT
HORIZONTAL	1" = NTS	DRAWN BY:	AJC
VERTICAL	1" = NTS	CHECKED BY:	RDW
		DATE:	7/24/17
		JOB NO:	
		DWG. NO:	R–4–17
		Sheet	

APPROVED: DEVELOPMENT COORDINATOR
DATE:

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SEAL

MARK A. GRIZZEL
63296
7/28/2016

ISSUE

1	50% DD FOR REVIEW	05.19.2017
2	PART I 100% DD FOR REVIEW	06.05.2017
3	PART I 100% DD FOR PERMIT	06.30.17
4	PART I FOR BID	07.27.2017
△1	ADDENDUM 01	08.10.2017
△2	REVISION 2	12.15.2017

KEY MAP

VERANDA
RECREATION CENTER
RICHMOND, TX

DRAWN BY:
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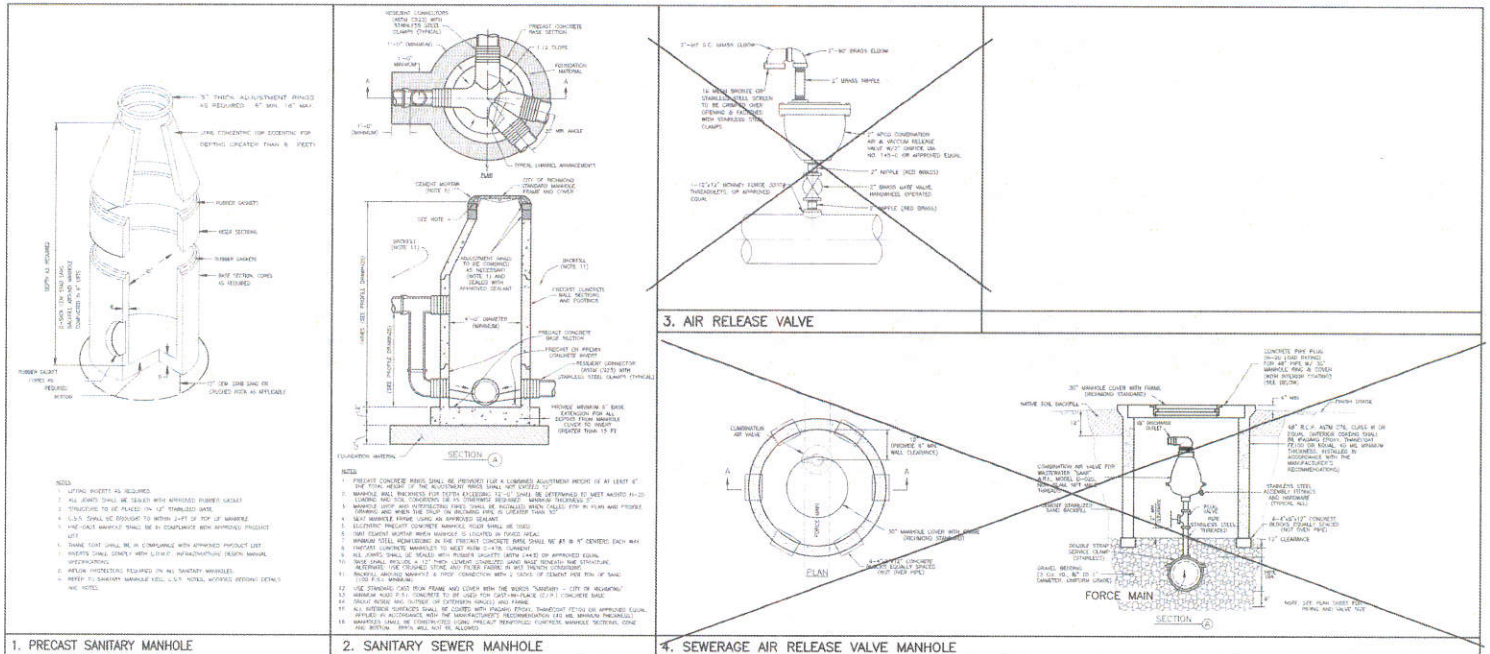
DATE:
SCALE:
PROJECT #

SHEET
C0.16
CITY OF RICHMOND DETAILS



NO.	DATE	REVISIONS	APP.

CITY OF RICHMOND
STANDARD CONSTRUCTION DETAILS

SANITARY-2

SCALE		DESIGNED BY:	LLT
HORIZONTAL	1" = NTS	DRAWN BY:	AJS
VERTICAL	1" = NTS	CHECKED BY:	GRF
		DATE: 7/24/17	
		JOB NO:	
		DWG. NO:	R-5-17
		Sheet:	

APPROVED: DEVELOPMENT COORDINATOR
DATE: 3/12/18

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SEAL

MARK S. JANZEN 83294 STATE OF TEXAS
4/20/2018

ISSUE

1	50% DD FOR REVIEW	05.19.2017
2	PART 1 100% DD FOR REVIEW	06.05.2017
3	PART 1 100% CD FOR PERMIT	06.30.17
4	PART 1 FOR BID	07.27.2017
⚠	ADDENDUM 01	08.10.2017
⚠	REVISION 2	12.15.2017

KEY MAP

VERANDA
RECREATION CENTER
RICHMOND, TX

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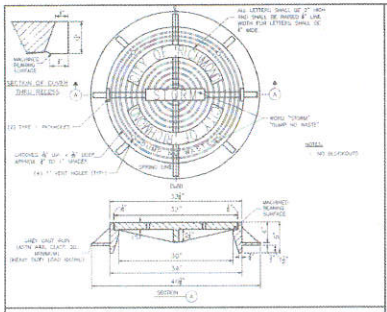
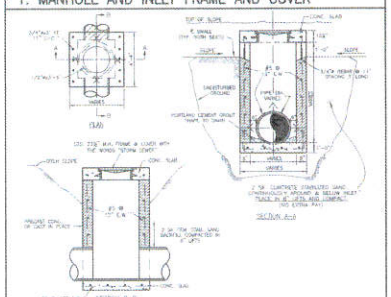
TBPLS FIRM REG. No. 100486



1. MANHOLE AND INLET FRAME AND COVER



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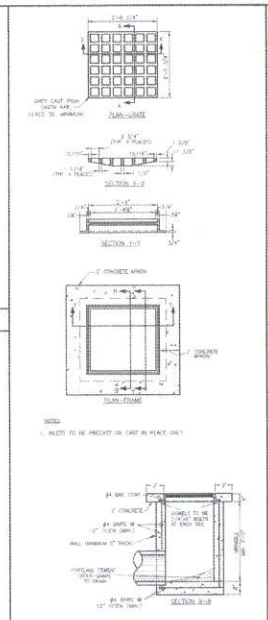

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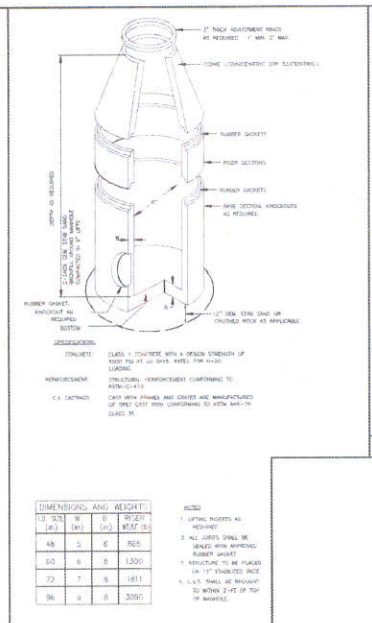
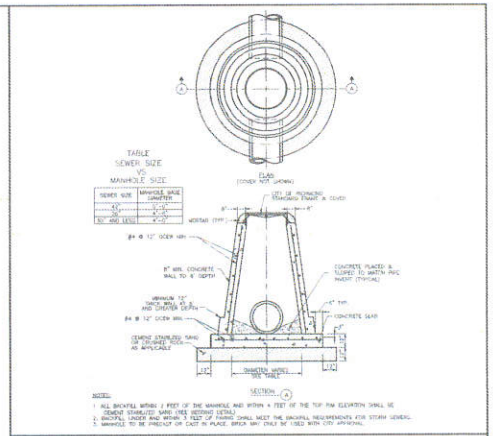
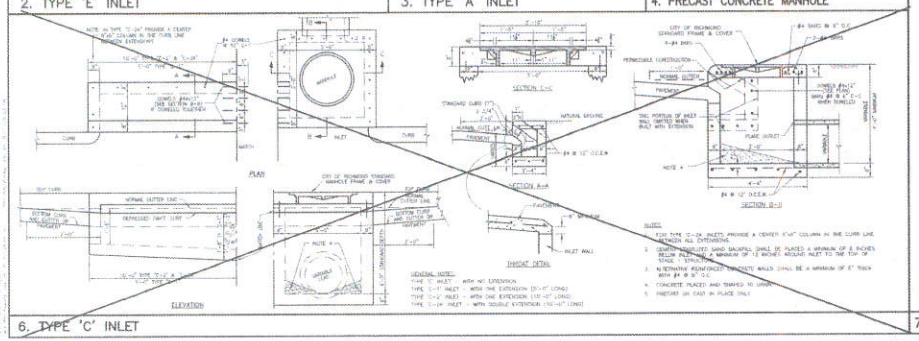


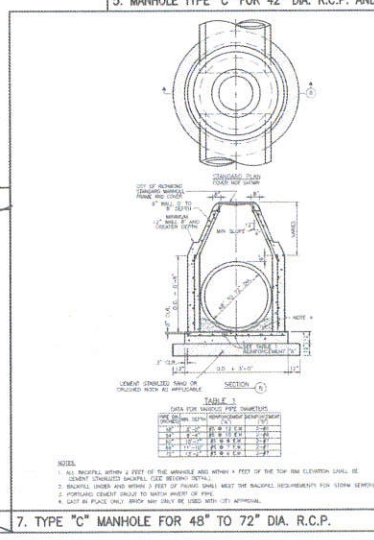
4. PRECAST CONCRETE MANHOLE



5. MANHOLE TYPE "C" FOR 42" DIA. R.C.P. AND SMALLER



6. TYPE 'C' INLET



7. TYPE "C" MANHOLE FOR 48" TO 72" DIA. R.C.P.

GENERAL CONSTRUCTION NOTES:

1. ALL CAST CONCRETE BARRELS SHALL HAVE #4 REBAR @ 12" C.C. EW.
2. CONCRETE SHALL BE 3000 PSI MIN.
3. USE C.R.S. BEDDING AS PER DETAILS & BE COMPACTED 6" LIFTS (MAX.) TO 95% STANDARD.

NOTE:

STORM MANHOLES AND INLETS SHALL BE PRECAST CONCRETE STRUCTURES. IN PLACE GENERATED CONCRETE STRUCTURES MAY BE SUBCONTRACTED WHEN THE PROPOSED CONSTRUCTION DETAIL IS SUBMITTED BY THE DESIGN ENGINEER FOR APPROVAL BY THE CITY.

A MOCK UP COLLAR IS REQUIRED TO BRIDGE A 6" OR LARGER GAP DEFLECTION OR CONNECTION OF DIFFERENT SIZE PIPES. THE COLLAR WILL BE 6" THICK 2 FT WIDE WITH #4 REBAR DOWELS AND THE PIPE AND STRUCTURE. FOR A PIPE CONNECTION BY A MANHOLE OR BOX, THE COLLAR WILL BE 1 FOOT WIDE ON THE OUTSIDE OF THE STRUCTURE AND SEALED SMOOTHLY ON THE INSIDE OF THE STRUCTURE WITH HIGH-STRENGTH GROUT.

NO	DATE	REVISIONS	APP

CITY OF RICHMOND
STANDARD CONSTRUCTION DETAILS
STORM SEWER-1

SCALE		DESIGNED BY:	LET
HORIZONTAL	1" = NTS	DRAWN BY:	AJG
VERTICAL	1" = NTS	CHECKED BY:	RRK
		DATE:	7/24/17
		JOB NO.	
		DWG. NO.	R-6-17
		Sheet	

CLARK CONDON
LANDSCAPE ARCHITECTURE
10401 Stella Link Dr.
Houston, TX 77025
T: 713.871.1414 F: 713.871.0468

CLIENT
HW589 HOLDING, LLC
4855 Riverstone Blvd.
Missouri City, TX 77459
T: 281 449 6700
www.johnsondevelopment.com

ARCHITECT
STUDIO RED ARCHITECTS
1320 McGowen St.
Houston, TX 77004
T: 713 622 8333

CIVIL ENGINEERS
COSTELLO, INC.
9990 Richmond Ave
Houston, TX 77042
T: 713 783 7788

POOL CONSULTANT
COUNSILMAN HUNSAKER
2425 North Central Expressway Ste.359
Richardson, TX 75080
T: 972-370-3740

MEP ENGINEERS
SALAS O'BRIEN
10830 West San Houston Pkwy
Houston, TX 77064
T: 281 664 1900

STRUCTURAL ENGINEERS
BEC-LIN ENGINEERING
10401 Westoffice Drive
Houston, TX 77042
T: 281 664 8440

CONSULTANT 6
JAMES POLE IRRIGATION
100 W Oak St. #106
Denton, TX 76201
T: 940 243 2264

SEAL

STATE OF TEXAS
83298
7/28/2018

ISSUE

1	50% DD FOR REVIEW	05.10.2017
2	PART 1 100% DD FOR REVIEW	06.08.2017
3	PART 1 100% CD FOR PERMIT	06.30.17
4	PART 1 FOR BID	07.27.2017
1	ADDENDUM 01	08.10.2017
2	REVISION 2	12.18.2017

KEY MAP

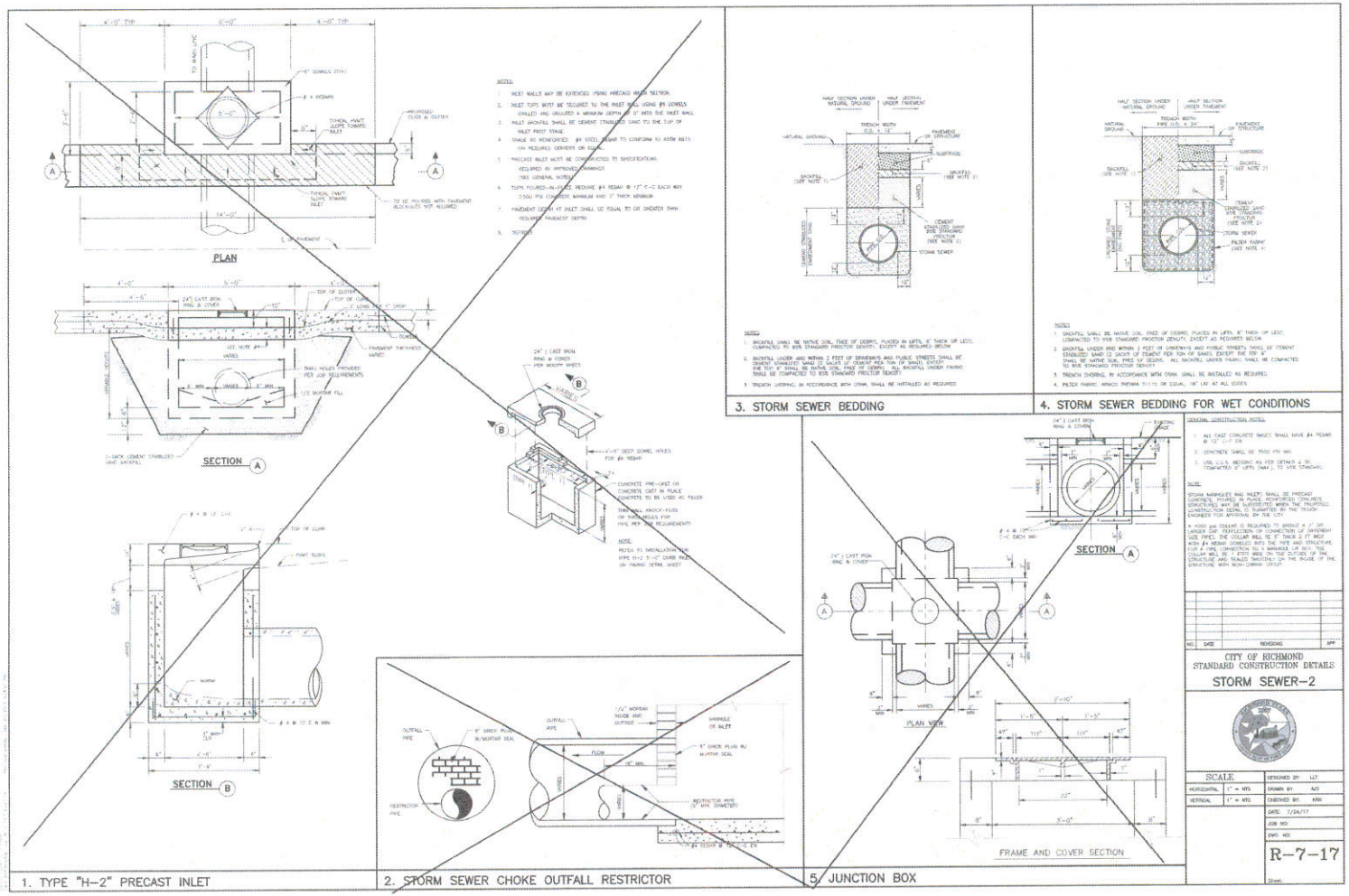
VERANDA
RECREATION CENTER
RICHMOND, TX

DRAWN BY:
CHECKED BY:
DATE:
SCALE:
PROJECT #:

SHEET
C0.18
CITY OF RICHMOND DETAILS

Costello
Engineering and Surveying
9990 Richmond Avenue, Suite 450 N
Houston, Texas 77042
(713) 783-7788 (713) 783-3580, Fax
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 100486

APPROVED: DEVELOPMENT COORDINATOR
DATE: 2/13/18



CLARK CONDON
LANDSCAPE ARCHITECTURE
10401 Stella Link Dr.
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T: 713 871 1414 F: 713 871 0880

CLIENT
HW589 HOLDING, LLC
4855 Riverstone Blvd.
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www.johnsondevelopment.com

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T: 713 783 7788

POOL CONSULTANT
COUNSILMAN HUNSAKER
2425 North Central Expressway Ste.369
Richardson, TX 75080
T: 972-370-3740

MEP ENGINEERS
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10930 West Sam Houston Pkwy
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T: 281 664 1900

STRUCTURAL ENGINEERS
BEC-LIN ENGINEERING
10401 Westoffice Drive
Houston, TX 77043
T: 281 684 8449

CONSULTANT 4
JAMES POLE IRRIGATION
100 W Oak St. #106
Denton, TX 76201
T: 940 243 2364

SEAL

ISSUE

1	50% DD FOR REVIEW	05.19.2017
2	PART 1 100% DD FOR REVIEW	06.06.2017
3	PART 1 100% CD FOR PERMIT	06.30.17
4	PART 1 FOR BID	07.27.2017
△1	ADDENDUM 01	08.10.2017
△2	REVISION 2	12.15.2017

KEY MAP

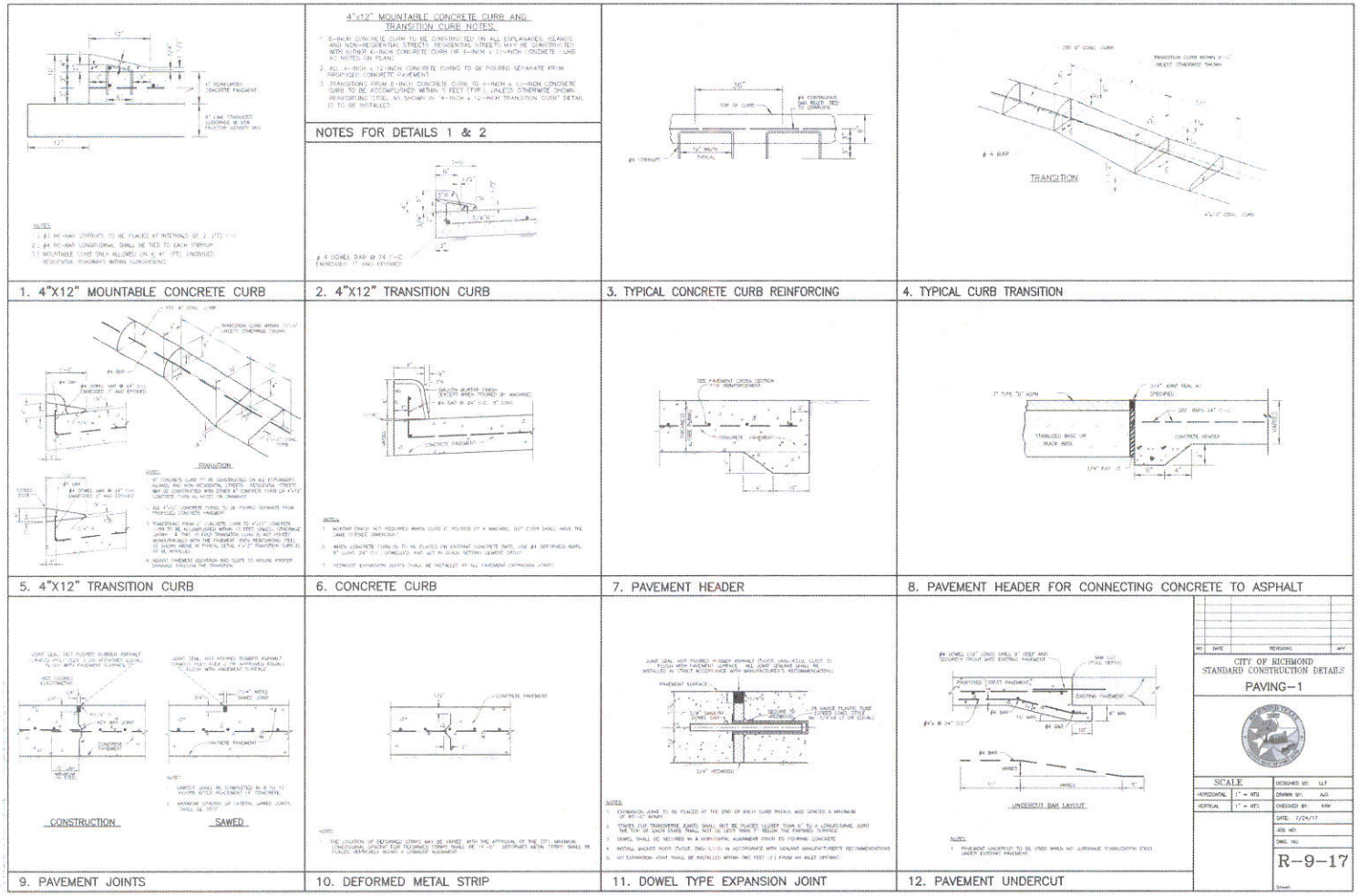
VERANDA
RECREATION CENTER
RICHMOND, TX

DRAWN BY:
CHECKED BY:
DATE
SCALE
PROJECT #

SHEET
C0.19
CITY OF RICHMOND DETAILS

Costello
Engineering and Surveying
9990 Richmond Avenue, Suite 450 N
Houston, Texas 77042
(713) 783-7788 (713) 783-3580 Fax
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 100486

APPROVED: DEVELOPMENT COORDINATOR
DATE:



NO	DATE	REVISIONS	APP

CITY OF RICHMOND
STANDARD CONSTRUCTION DETAILS
PAVING–1

SCALE		DESIGNED BY:	LLT
HORIZONTAL	1" = NTS	DRAWN BY:	AJS
VERTICAL	1" = NTS	CHECKED BY:	MRK
		DATE:	7/24/17
		JOB NO:	
		DWG. NO:	R–9–17
		Sheet	

APPROVED: DEVELOPMENT COORDINATOR
DATE:

CLARK CONDON
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HW589 HOLDING, LLC
4868 Riverstone Blvd
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STUDIO RED ARCHITECTS
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COSTELLO INC
9990 Richmond Ave
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POOL CONSULTANT
COUNSILMAN HUNSAKER
2425 North Central Expressway Ste.300
Richardson, TX 75080
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10930 West Sam Houston Pkwy
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T: 281 664 1900

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10401 Westoffice Drive
Houston, TX 77042
T: 281 584 9440

CONSULTANT 6
JAMES POLE IRRIGATION
100 W Oak St. #106
Denton, TX 76201
T: 940 243 2364

SEAL

ISSUE

1	50% DD FOR REVIEW	05.10.2017
2	PART 1 100% DD FOR REVIEW	06.06.2017
3	PART 1 100% DD FOR PERMIT	06.30.17
4	PART 1 FOR BID	07.27.2017
△1	ADDENDUM 01	08.10.2017
△2	REVISION 3	12.15.2017

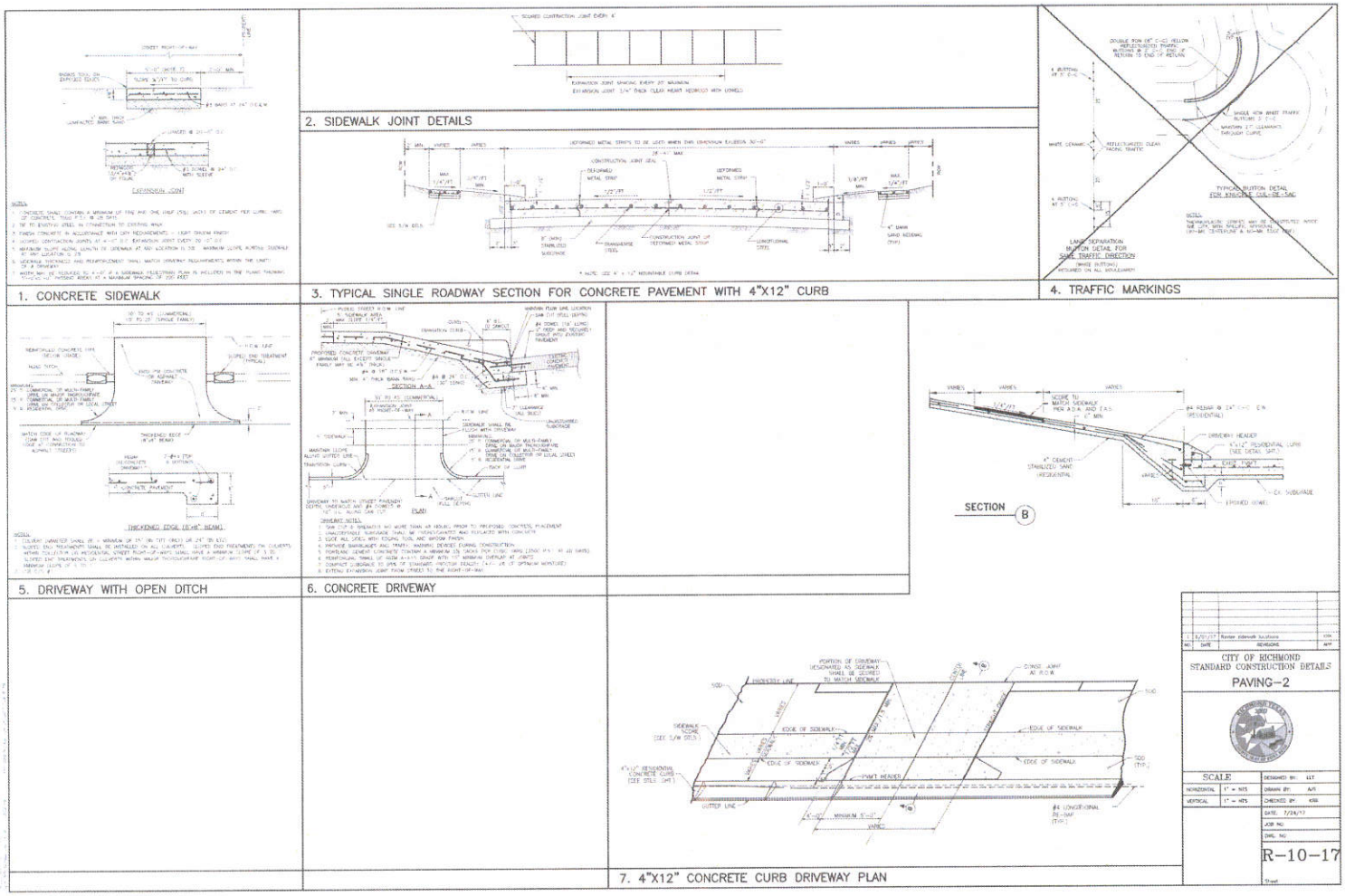
KEY MAP

VERANDA
RECREATION CENTER
RICHMOND, TX

DRAWN BY
CHECKED BY
DATE
SCALE
PROJECT #

SHEET
C0.20
CITY OF RICHMOND DETAILS

Costello
Engineering and Surveying
9990 Richmond Avenue, Suite 400 N
Houston, Texas 77042
(713) 783-7788 (713) 783-3580 Fax
TBPE FIRM REG. No. 285
TBPLS FIRM REG. No. 10046



CLARK CONDON
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HW569 HOLDING, LLC
4555 Riverstone Blvd.
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1320 McGowen St
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2425 North Central Expressway Ste.300
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STRUCTURAL ENGINEERS
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Houston, TX 77042
T: 281 664 8440

CONSULTANT 8
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109 W Oak St. #106
Denton, TX 76201
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SEAL

MARK A. SANDER
53295
V28/2018

ISSUE

1	50% DD FOR REVIEW	05.18.2017
2	PART I 100% DD FOR REVIEW	06.06.2017
3	PART I 100% CD FOR PERMIT	06.30.17
4	PART I FOR BID	07.27.2017
△	ADDENDUM 01	08.10.2017
△	REVISION 2	12.15.2017

KEY MAP

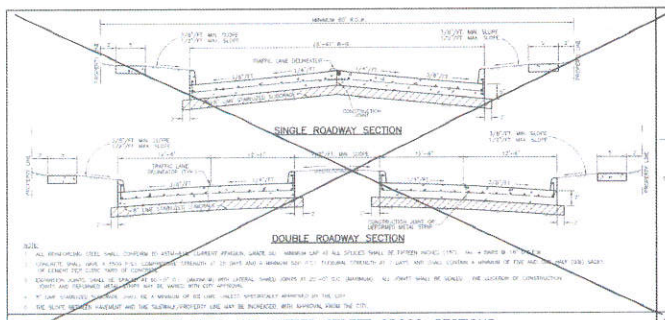
VERANDA
RECREATION CENTER
RICHMOND, TX

DRAWN BY:
CHECKED BY:
DATE:
SCALE:
PROJECT #:

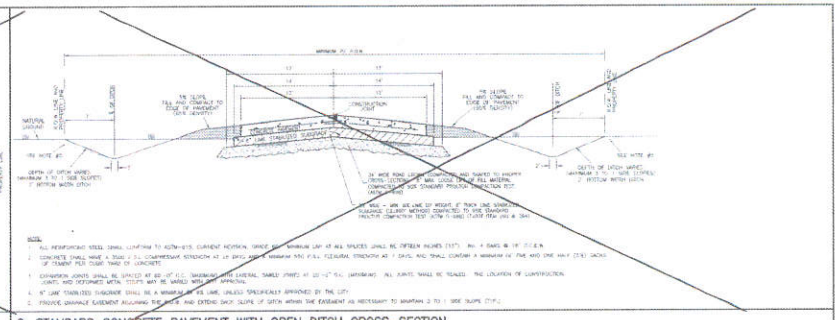
SHEET
C0.21
CITY OF RICHMOND DETAILS

Costello
Engineering and Surveying
9990 Richmond Avenue, Suite 450 N
Houston, Texas 77042
(713) 783-7788 (713) 783-3580, Fax
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 100486

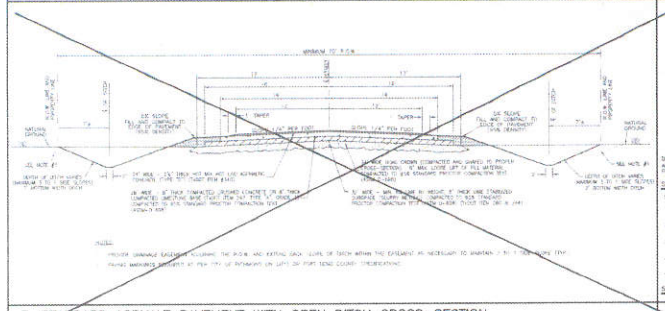
APPROVED: DEVELOPMENT COORDINATOR
DATE: 2/13/18



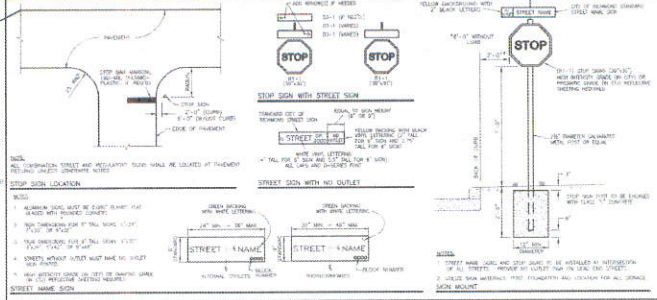
1. STANDARD CONCRETE CURB AND GUTTER STREET CROSS-SECTIONS



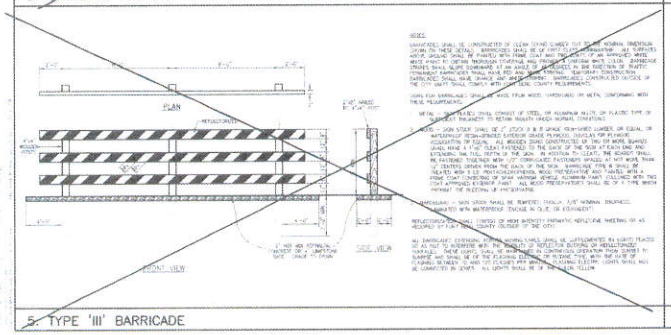
2. STANDARD CONCRETE PAVEMENT WITH OPEN DITCH CROSS-SECTION



3. STANDARD ASPHALT PAVEMENT WITH OPEN DITCH CROSS-SECTION



4. TRAFFIC SIGNAGE



5. TYPE 'III' BARRICADE

NO.	DATE	REVISIONS	APP

CITY OF RICHMOND
STANDARD CONSTRUCTION DETAILS
PAVING-3

SCALE		DESIGNED BY: LLT
HORIZONTAL	1" = NTS	DRAWN BY: AJG
VERTICAL	1" = NTS	CHECKED BY: MW
		DATE: 7/24/17
		JOB NO.:
		DWG. NO.:
		R-11-17
		Sheet

APPROVED: DEVELOPMENT COORDINATOR
DATE:

CLARK CONDON
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1320 McGowen St.
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CONSULTANT 6
JAMES POLE IRRIGATION
100 W Oak St #106
Denton, TX 76201
T: 940 243 2364

SEAL

ISSUE		
1	50% DD FOR REVIEW	05.19.2017
2	PART 1 100% DD FOR REVIEW	06.16.2017
3	PART 1 100% DD FOR PERMIT	06.29.17
4	PART 1 FOR BID	07.27.2017
△1	ADDENDUM 01	08.10.2017
△2	REVISION 2	12.15.2017

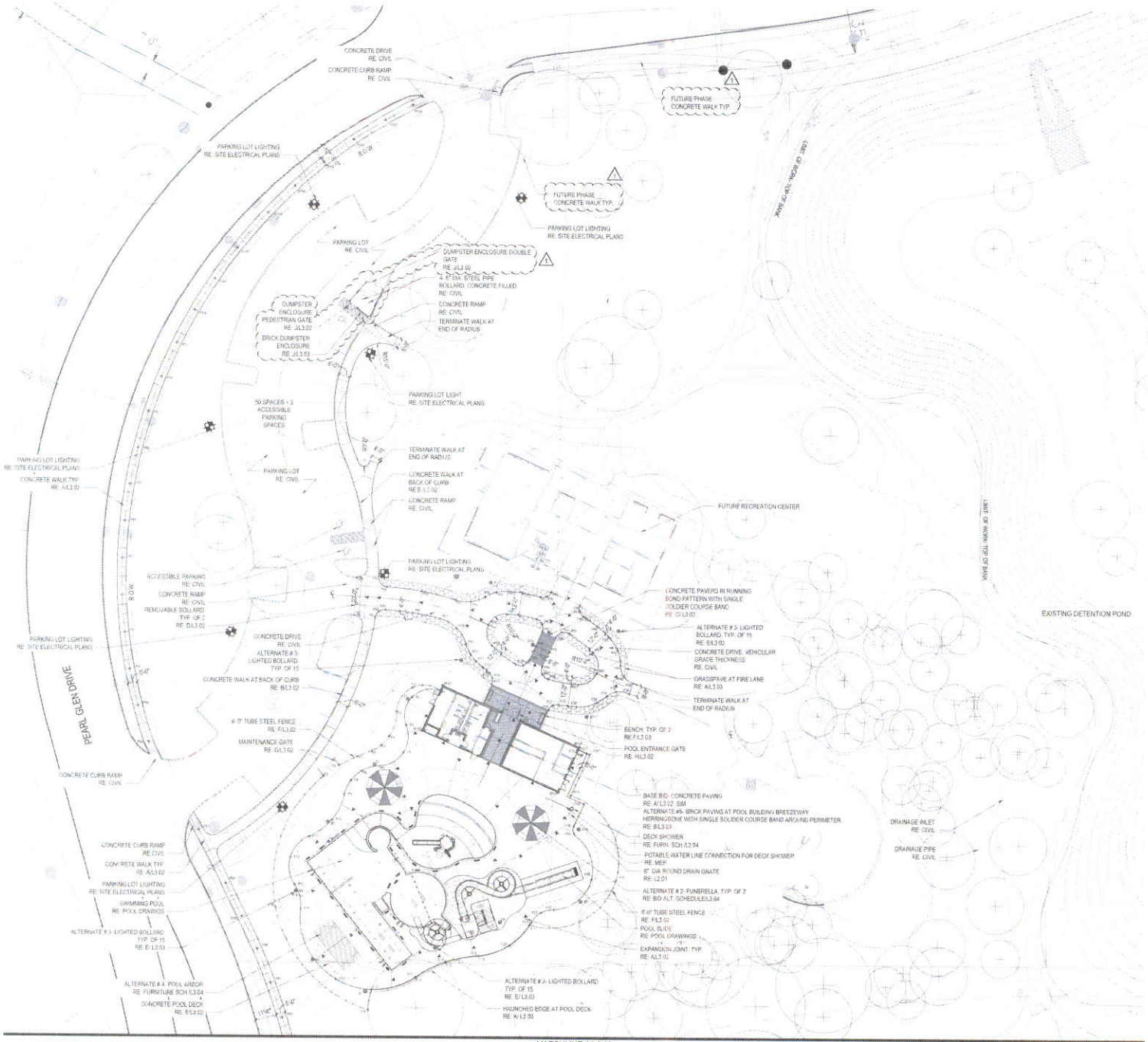
KEY MAP

VERANDA
RECREATION CENTER
RICHMOND, TX

DRAWN BY
CHECKED BY
DATE
SCALE
PROJECT #

SHEET
C0.22
CITY OF RICHMOND DETAILS

Costello
Engineering and Surveying
9990 Richmond Avenue, Suite 450 N
Houston, Texas 77042
(713) 783-7788 (713) 783-3580 Fax
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 100486



LEGEND

EXPANSION JOINT
RE: A/L3.02

NOTES

APPROVED: _____
DEVELOPMENT COORDINATOR
DATE: 2/13/14

CLARK CONDON
LANDSCAPE ARCHITECTURE
10401 Stella Link Dr.
Houston, TX 77025
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HW589 HOLDINGS, LLC
4800 Westheimer Road
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Houston, TX 77043
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CONSULTANTS
JAMES POLE IRRIGATION
1110 N Gay St #100
Denton, TX 76201
T. 940.243.2394

SEAL

REGISTERED LANDSCAPE ARCHITECT
STATE OF TEXAS
9/11/2017

ISSUE

	90% DD FOR REVIEW	02.14.2017
	PART 1 - 100% DD FOR REVIEW	4/28/2017
	PART 1 - 100% DD FOR PERMIT	05.15.2017
	PART 1 - CDR SET	7.27.2017
1	CONSTRUCTION	9/11/2017

KEY MAP

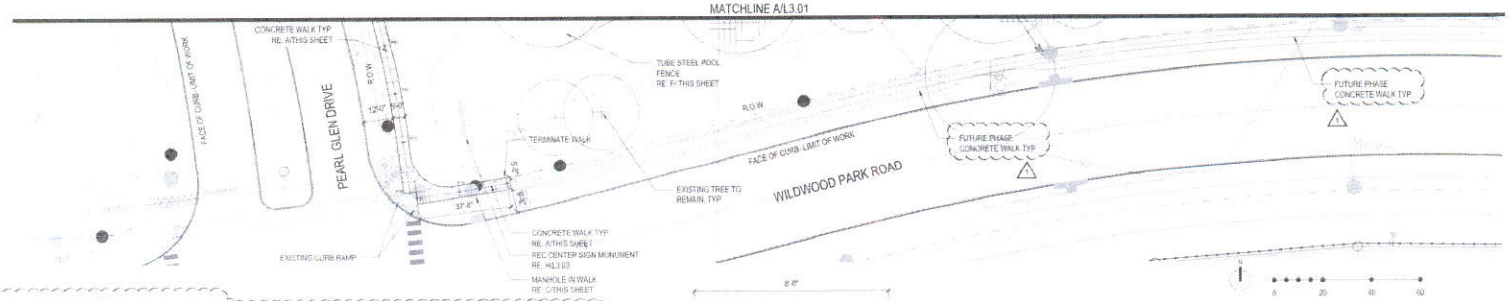
VERANDA PH.1
RECREATION CENTER
RICHMOND, TX

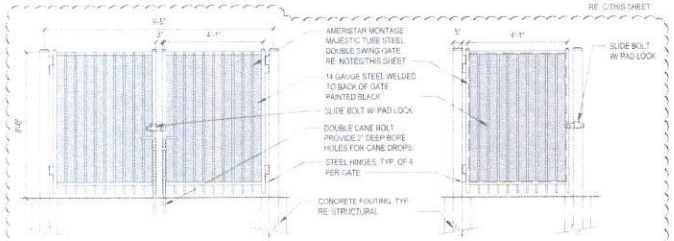
CONSTRUCTION PLAN

DRAWN BY: AEH, APT
CHECKED BY: SBS
DATE: 07.27.17
SCALE: 1"=20'-0"
PROJECT # 115-060

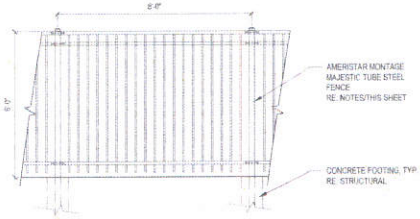
SHEET
L3.01

MATCHLINE A/L3.01

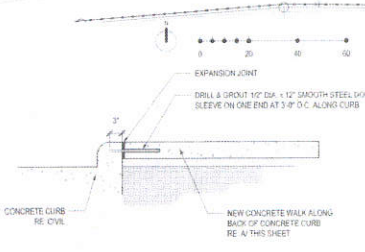




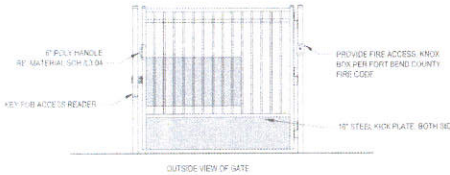
J DUMPSTER ENCLOSURE DOUBLE GATE AND PEDESTRIAN GATE
SECTION 1/2"=1'-0"

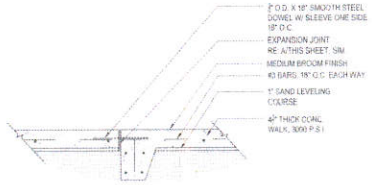


F TUBULAR STEEL POOL FENCE
SECTION 1/2"=1'-0"

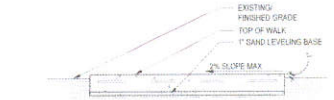


B CONCRETE WALK AT BACK OF CURB
SECTION 1"=1'-0"

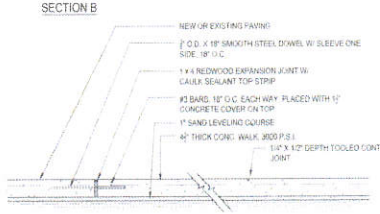




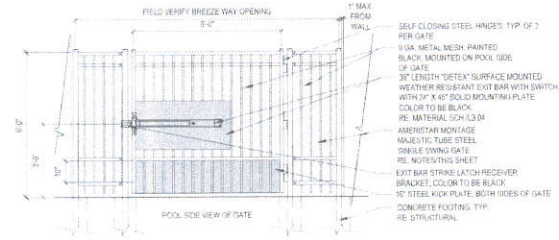
E CONCRETE POOL DECK
SECTION 1"=1'-0"



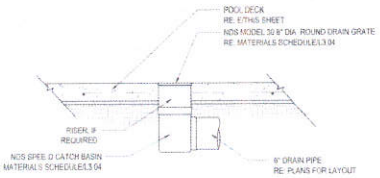
SECTION B



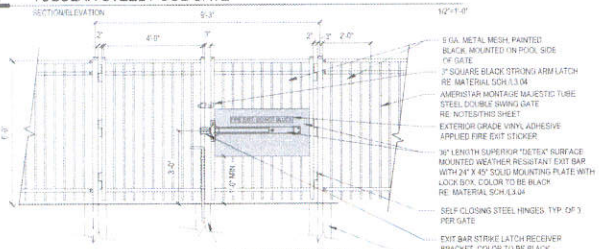
SECTION A



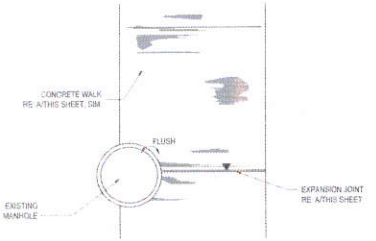
H TUBULAR STEEL POOL GATE
SECTION/ELEVATION 1/2"=1'-0"



D AREA DRAIN IN DECK
SECTION 1"=1'-0"



G TUBULAR STEEL MAINTENANCE GATE
SECTION 1/2"=1'-0"



C MANHOLE AT CONCRETE WALK
PLAN 1/2"=1'-0"

A CONCRETE WALK
PLAN/SECTION 1"=1'-0"

NOTE:
1. OWNER'S REPRESENTATIVE SHALL BE NOTIFIED PRIOR TO 1ST POUR AND BE ON SITE TO APPROVE CONC. WORK.
2. REFER TO DRAWINGS FOR WIDTH OF WALK.
3. ALL CROSS SLOPES ON CONCRETE WALKS SHALL NOT EXCEED 2%
4. ALL CONCRETE WORK SHALL BE IN COMPLIANCE WITH CURRENT ADA REGULATIONS

LEGEND

NOTES

CONSTRUCTION NOTES
1. OWNER TO PROVIDE CONTROL STAKING ONE TIME FOR CONTRACTOR
2. CONTRACTOR IS RESPONSIBLE FOR REPAIRING ALL EXISTING GRADES DAMAGED DURING CONSTRUCTION
3. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND/OR REPLACING ANY DAMAGED UTILITIES AT NO ADDITIONAL COST TO THE OWNER
4. EXISTING UNDERGROUND UTILITIES ARE NOT SHOWN. CONTRACTOR TO CONTACT 811 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE UTILITIES FIELD LOCATED
5. ALL CONSTRUCTION TO COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES
6. CONTRACTOR TO COORDINATE WORK WITH OTHER TRADES ON THE PROJECT
7. CONTRACTOR SHALL BE FAMILIAR WITH ACTUAL SITE CONDITIONS BEFORE PROCEEDING WITH WORK
8. ANY DISCREPANCIES BETWEEN ACTUAL SITE CONDITIONS AND THE CONSTRUCTION DOCUMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNERS REPRESENTATIVE IN A TIMELY MANNER TO NOT ADVERSELY AFFECT PROGRESS OF WORK.

TUBULAR STEEL FENCE AND GATE NOTE:
1. INSTALL GATE TO MANUFACTURER'S SPECIFICATIONS. CONTRACTOR SHALL PROVIDE SIGNED AND SEALED SHOP AND FOOTING DRAWINGS FOR APPROVAL PRIOR TO INSTALLATION. COLOR TO BE BLACK

APPROVED: DEVELOPMENT COORDINATOR
DATE: 2/13/18

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T: 713.871.1414 F: 713.871.0888

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Missouri City, TX 77459
T: 281.690.8700
www.advisorcommercialproperties.com

ARCHITECT
STUDIO RED ARCHITECTS
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Houston, TX 77006
T: 713.871.1414

CIVIL ENGINEER
COSTELLO
2900 Richmond Avenue
Houston, TX 77098
T: 713.522.5111

POOL CONSULTANT
COUNSILMAN HUNSAKER
2425 North Central Expressway, Ste. 201
Richardson, TX 75080
T: 972.235.3740

MEP ENGINEER
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Houston, TX 77064
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STRUCTURAL ENGINEERS
BEC-LIN ENGINEERING
10401 Westoffice Drive
Houston, TX 77042
T: 281.558.8481

CONSULTANT
JAMES POLE IRRIGATION
705 W Oak St #108
Denton, TX 76201
T: 940.382.3164

SEAL

REGISTERED LANDSCAPE ARCHITECT
CLARK CONDON
9/11/2017

ISSUE

	SUBMITTAL FOR REVIEW	09.15.2017
	PRELIM. SUBMITTAL FOR REVIEW	10.27.2017
	PRELIM. SUBMITTAL FOR REVIEW	11.30.2017
4	PERMIT SUBMITTAL	01.12.2018
5	PERMIT RESUBMITTAL	01.17.2018

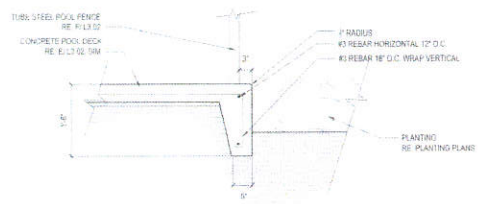
KEY MAP

VERANDA PH.1
RECREATION CENTER
RICHMOND, TX

CONSTRUCTION PLAN

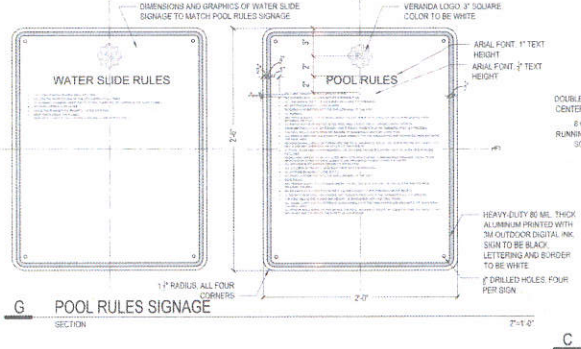
DRAWN BY: AEH, APT
CHECKED BY: SSS
DATE: 07.27.17
SCALE: 1"=20'-0"
PROJECT # 115.080

SHEET
L3.02

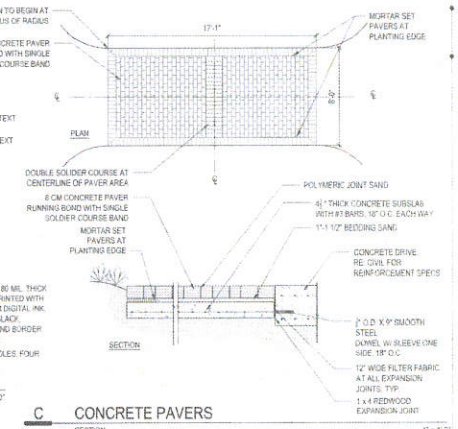


K HAUNCHED EDGE AT POOL DECK
SECTION 1"=1'-0"

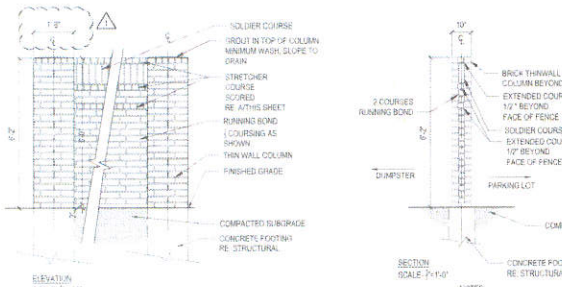
NOTES:
1. ALL REQUIRED REGULATORY SIGNAGE SHALL BE PAINTED BLACK ON BACK SIDE OF SIGNAGE IF VISIBLE.
2. FINAL GRAPHIC ART WORK AND RULES TO BE PROVIDED BY OWNER PRIOR TO FABRICATION.
3. CONTRACTOR TO PROVIDE FULL GRAPHIC PROOF FOR APPROVAL BY OWNER PRIOR TO FABRICATION AND INSTALLATION.



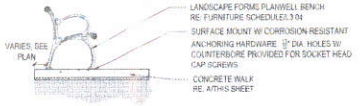
G POOL RULES SIGNAGE
SECTION 1"=1'-0"



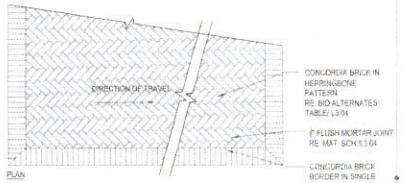
C CONCRETE PAVERS
SECTION 1"=1'-0"

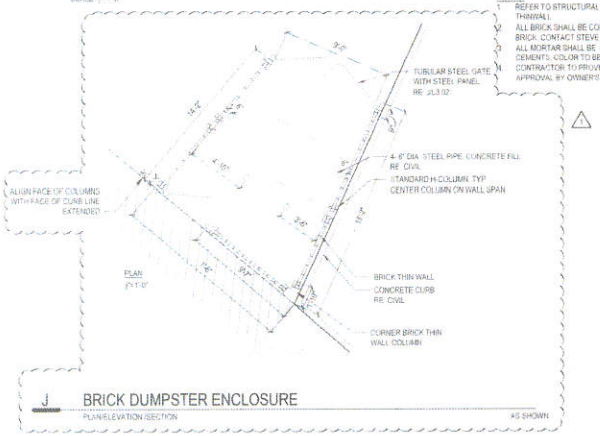


NOTES:
1. REFER TO STRUCTURAL FOR REINFORCEMENT OF BRICK THINWALL.
2. ALL BRICK SHALL BE CONCORDIA KING SIZE BY ACME BRICK. CONTACT STEVE COX (713) 502 7044.
3. ALL MORTAR SHALL BE SPECTRUM CUSTOM COLORED CEMENTS, COLOR TO BE ELDRIDGE BUFF. CONTRACTOR TO PROVIDE 4'x4' SAMPLE WALL, FOR APPROVAL BY OWNER'S REP. PRIOR TO INSTALLATION.

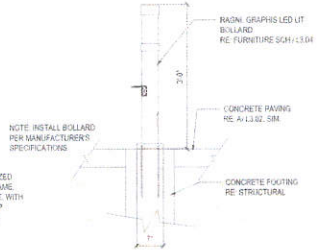


F SURFACE MOUNTED BENCH
SECTION 1/2"=1'-0"

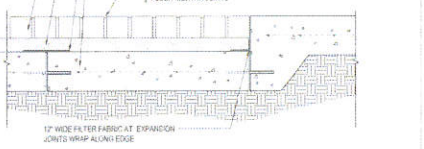




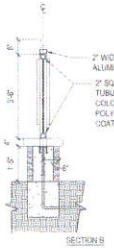
J BRICK DUMPSTER ENCLOSURE
PLAN/ELEVATION/SECTION AS SHOWN

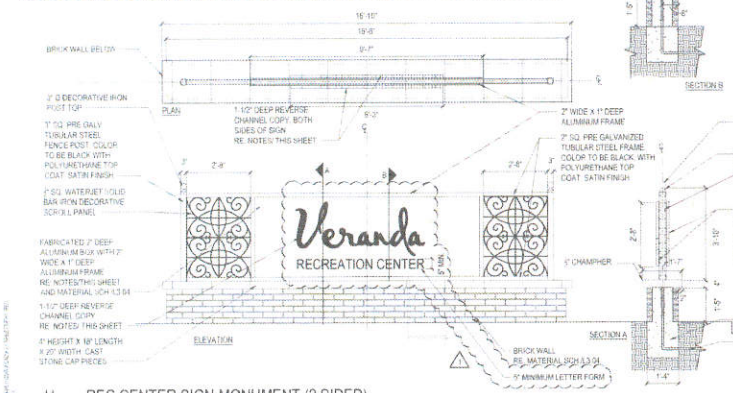


E ALTERNATE #3- LIGHTED BOLLARD
SECTION 1"=1'-0"

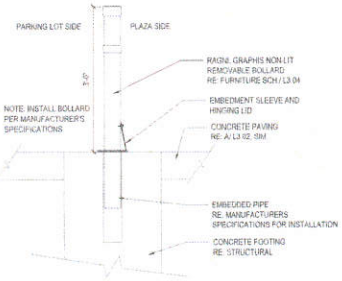


B ALTERNATE #5- BRICK PAVING AT POOL BUILDING
SECTION/PLAN 2"=1'-0"

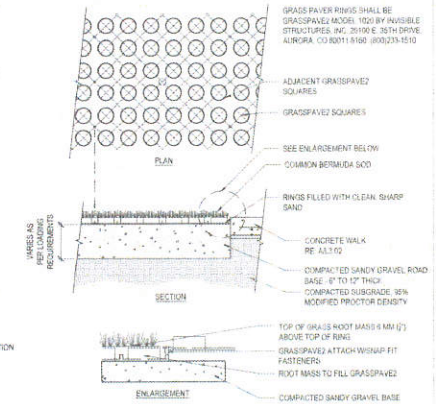




H REC CENTER SIGN MONUMENT (2 SIDED)
ELEVATION/SECTION 1/2"=1'-0"



D REMOVABLE STEEL BOLLARD
SECTION 1"=1'-0"



A GRASS PAVE AT FIRE LANE
SECTION/PLAN 1"=1'-0"

APPROVED: SS
for DEVELOPMENT COORDINATOR
DATE: 3/12/16

LEGEND

NOTES

1. TUBE STEEL FENCE NOTES: AMERISTAR MONTAGE MAJESTIC SERIES 5 BLACK TUBULAR STEEL FENCE. AMERISTAR PERIMETER SECURITY. USA: 1555 N. MINGO ROAD, TULSA, OK 74116 CONTACT: (888) 333 3422
2. INSTALL FENCE TO MANUFACTURERS SPECIFICATIONS. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR APPROVAL PRIOR TO INSTALLATION.
1. TUBE STEEL POOL GATE NOTES: AMERISTAR MONTAGE MAJESTIC SERIES 5 BLACK TUBULAR STEEL SINGLE SWING GATE. AMERISTAR PERIMETER SECURITY. USA: 1555 N. MINGO ROAD, TULSA, OK 74116 CONTACT: (888) 333 3422
2. INSTALL GATE TO MANUFACTURERS SPECIFICATIONS. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR APPROVAL PRIOR TO INSTALLATION.
1. TUBE STEEL MAINTENANCE GATE NOTES: AMERISTAR MONTAGE MAJESTIC SERIES 5 BLACK TUBULAR STEEL SINGLE SWING GATE. AMERISTAR PERIMETER SECURITY. USA: 1555 N. MINGO ROAD, TULSA, OK 74116 CONTACT: (888) 333 3422
2. INSTALL GATE TO MANUFACTURERS SPECIFICATIONS. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR APPROVAL PRIOR TO INSTALLATION.
1. **SIGNAGE NOTES:** COPY TO BE 1-1/2" DEEP REVERSE CHANNEL LETTERFORMS FABRICATED WITH 1/8" THICK ALUMINUM ON BOTH SIDES OF SIGN.
2. EXTERIOR OF LETTERFORMS TO BE PAINTED SONOMA SHIRAZ MATTHEWS PAINT #MP08303. CONTRACTOR TO SUBMIT COLOR SAMPLE FOR APPROVAL BY L/A PRIOR TO INSTALLATION.
3. INTERIOR OF LETTERFORMS TO BE PAINTED HIGH REFLECTIVE WHITE TO REFLECT LIGHT.
4. BACK PLATE OF COPY TO BE 1/8" THICK CLEAR LEXAN. BACK PLATE TO ATTACH TO COPY USING COUNTERSUNK SCREWS AND ALUMINUM ANGLE BRACKETS.
5. COPY TO BE HALO-ILLUMINATED USING LED MODULES. SIZE, QUANTITY, AND PLACEMENT TO BE DETERMINED BY MANUFACTURER TO PROVIDE EVEN HALO-ILLUMINATION OF COPY. ALUMINUM SLEEVES PAINTED TO MATCH METALLIC SILVER USED TO COVER STAND-OFF HARDWARE/ALL-THREAD SCREWS.
5. COPY TO BE MOUNTED ½" FROM ALUMINUM CABINET FOR EVEN HALO-ILLUMINATION (LED MANUFACTURER TO DETERMINE).
7. SIGNAGE CONTRACTOR TO VERIFY APPROPRIATE HARDWARE/ANCHORS FOR SIGN SUPPORT.
8. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR SIGN, SIGN PANEL, AND IRON SCROLL WORK.

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CONSULTANT 1
JAMES POLE IRRIGATION
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Denton, TX 76201
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SEAL

REGISTERED LANDSCAPE ARCHITECT
CLARK CONDON
9/11/2017

ISSUE

1	ON SITE REVIEW	08.17.2017
2	PARKS - REVISE FOR REVIEW	09.06.2017
3	PARKS - REVISE FOR REVIEW	09.08.2017
4	PARKS - FOR BID	09.11.2017
5	PARKS - FOR BID	09.11.2017
6	PERMIT REVISIONS	09.15.2017

KEY MAP

VERANDA PH.1
RECREATION CENTER
RICHMOND, TX

CONSTRUCTION DETAILS

DRAWN BY: AEH, APT
CHECKED BY: SSS
DATE: 01.27.17
SCALE: AS SHOWN
PROJECT #: 115-099

SHEET
L3.03

FURNITURE SCHEDULE

QTY	ITEM	MANUFACTURER/PRODUCT NAME	MODEL NUMBER	DESCRIPTION	
4	BENCH	LANDSCAPE FORMS	PLAINWELL BENCH	25"X 72" X 30" LANDSCAPE FORMS PLAINWELL BENCH WITHOUT CENTER ARMS. METAL COLOR TO BE BLACK. WOOD TO BE IPE. NO FINISH	LANDSCAPE FORMS 2122 TRINITY MANOR LN. |RICHMOND, TX 77469
2	REMOVABLE BOLLARDS	RAGNI LIGHTING	GRA 101	INTERNAL LOCKING REMOVABLE BOLLARDS. 6" DIA. CONTRACTOR TO INSTALL BOLLARD TO MANUFACTURER'S SPECIFICATIONS AND INSTRUCTIONS. COLOR TO BE BLACK	CW LIGHTING. CONTACT: SAMANTHA RUSSEM. 713-690-9320
1	SHOWER TOWER	MOST DEPENDABLE FOUNTAINS	590 SM	4 SPIGOT OUTDOOR DECK SHOWER. COLOR TO BE DETERMINED. CONTRACTOR TO SUBMIT MANUFACTURER'D FULL RANGE OF COLOR OPTIONS FOR SELECTION AND APPROVAL BY OWNER PRIOR TO FABRICATION AND INSTALLATION	MOST DEPENDABLE FOUNTAINS. 5706 COMMANDER DRIVE, ARLINGTON, TN 38002. 1- 800-552-6331

MATERIAL SCHEDULE

ITEM	TYPE	DESCRIPTION	MANUFACTURER/ SUPPLIER
ENTRANCE SIGN MONUMENT- METAL LETTER FORM METAL SIGN PANEL AND DECORATIVE IRON PANELS	1-1/2" DEEP REVERSE CHANNEL LETTER FORMS	EXTERIOR OF LETTERFORMS TO BE PAINTED MP08303 SONOMA SHIRAZ. SATIN FINISH. CONTRACTOR TO SUBMIT COLOR SAMPLES FOR APPROVAL BY LA PRIOR TO FABRICATION AND INSTALLATION	NEC NEON ELECTRIC COMPANY 1122 LAUDER ROAD, HOUSTON, TX 77076. CONTACT: ANTHONY RICHARDS 281-987-1144. PAINT COLORS: MATHEWS PAINT 1-800-323-6560
	FABRICATED 2" DEEP ALUMINUM BOX AND 2" WIDE X 1" DEEP ALUMINUM FRAME	EXTERIOR OF METAL PANEL TO BE PAINTED. FINAL COLOR TO BE DETERMINED BY LA. CONTRACTOR TO SUBMIT 12"X12"COLOR SAMPLES FOR FINAL APPROVAL BY LA PRIOR TO FABRICATION AND INSTALLATION. FRAME TO BE PAINTED BLACK. SATIN FINISH	
	DECORATIVE IRON SCROLL PANELS	IRON SCROLL PANEL- 9" SQ. WATERJET SOLID BAR IRON DECORATIVE SCROLL PANEL. IRON RAILING TO BE PRE GALV. TUBULAR STEEL RAIL. COLOR TO BE BLACK WITH POLYURETHANE TOP COAT. SATIN FINISH	IRON ACCESS 3815 HOLLISTER, HOUSTON, TX 77080. CONTACT:NEAL HORNER 713-864-1229 X 307
CONCRETE PAVER- ADA TRUNCATED DOME PAVER	IPC HOLLAND STONE	IPC 4"X8" CONCRETE PAVER WITH ADA COMPLIANT TRUNCATED DOMES. 80 MM. COLOR TO BE: CHARCOAL	IPC BUILDING PRODUCTS, 10202 SYNOTT SUGAR LAND, TX 77459. GREG SHEPHERD 832-266-7116
CONCRETE PAVERS AT ENTRANCE PLAZA	IPC HOLLAND STONE- RUNNING BOND PATTERN PAVER FIELD WITH SINGLE SOLDIER COURSE BAND	IPC 4"X8" CONCRETE PAVER. 80 MM. FIELD COLOR TO BE: MAROON. BAND COLOR TO BE: CHARCOAL	
BRICK	CONCORDIA	BULDER SPECIAL SIZE: 2 2/ THICKNESS X 2 2/ HEIGHT X 8 2/ LENGTH. COLOR TO BE CONCORDIA, NO FROGS	ACME BRICK, 5020 ACORN, HOUSTON, TX. 77092 STEVE COX, 713-502-7044
CAST STONE CAP	CUSTOM CAP	CAP SIZES: 27"X27"X5-1/2" AND 36"X36"X5". COLOR TO MATCH TOMBALL STONE TAN. CONTRACTOR TO SUBMIT COLOR SAMPLE FOR APPROVAL BY LA PRIOR TO FABRICATION AND INSTALLATION. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR APPROVAL BY LA PRIOR TO FABRICATION AND INSTALLATION	TOMBALL STONE & GRAPHICS, 7400 BREEN DR. HOUSTON, TX 77086. 281-734-2712
MORTAR FOR SIGN	ELDRIDGE BUFF	SPECTRUM CUSTOM COLORED PORTLAND AND LIME CEMENT. COLOR TO BE ELDRIDGE BUFF	AH SUPPLY, 2800 NORTH SORDEN, ALVIN, TX 77511. 281-331-0088
DRAINAGE GRATE	6" NDS ROUND SATIN BRASS GRATE WITH STYRENE COLLAR	9186- ROUND SATIN BRASS DRAIN COVER. 3" H. 6-11/16" DIAMETER	NDS PRODUCTS, INC. 111 ANDERSON ST. PASADENA, TX 77506. 1-888-825-4216
POOL ENTRANCE GATE SYSTEM	EXIT BAR, DOOR HANDLE, STRIKE PLATE, AND MOUNTING PLATE	6205-36 DETEX SURFACE MOUNT EXIT BAR WITH SWITCH. COLOR TO BE BLACK. 9050-B 6" POLY HANDLE. COLOR TO BE BLACK. 6021-B STRIKE LATCH RECEIVER BRACKET. COLOR TO BE BLACK. 6700-B DETEX PLATE. COLOR TO BE BLACK	DAC INDUSTRES, 600 ELEVENTH STREET, N.W., GRAND RAPIDS, MI 49504. 1-800-888-9766
MAINTENANCE GATE SYSTEM	EXIT BAR WITH LOCK KIT. STRONG ARM LATCH	6245 BQE 36" SUPERIOR EXIT BAR KIT. DETEX EXIT BAR, MOUNTING PLATE, LOCK BOX, RECEIVER BRACKET WITH STRIKE. COLOR TO BE BLACK. 4390-B BLACK STRONG ARM FOR SQUARE PIPE	

BID ALTERNATES

DESCRIPTION	DESCRIPTION	COLOR	MANUFACTURER/ SUPPLIER
ALTERNATE #1- SUNDEK COATING	PROVIDE AND INSTALL SUNDEK COATING ON POOL DECK COPING. COLOR TO BE DETERMINED	COLOR TO BE DETERMINED. CONTRACTOR TO SUBMIT MANUFACTURER'S FULL RANGE OF COLOR OPTIONS FOR SELECTION AND APPROVAL BY OWNER PRIOR TO FABRICATION AND INSTALLATION	SUNDEK, BULLION COATINGS, CONTACT: 281-859-4699
ALTERNATE #2- PUMBRELLA POOL UMBRELLAS. TYP. OF 2	20' DIA. CLASSIC WITH GROUND SLEEVES AND CAPS	COLOR TO BE DETERMINED. CONTRACTOR TO SUBMIT MANUFACTURER'S FULL RANGE OF COLOR OPTIONS FOR SELECTION AND APPROVAL BY OWNER PRIOR TO FABRICATION AND INSTALLATION	PUMBRELLA, ANCHOR INDUSTRIES TENTS & CLEAR SPAN STRUCTURES. CONTACT: STEVE LIPKING. 812-867-4626
ALTERNATE #3- SITE LIGHTING- LIGHTED BOLLARDS. TYP. OF 15. TREE UPLIGHTS. TYP. OF 2	RAGNI LIGHTING GRAPHIG LED LUMINOUS BOLLARD. FP34 M-4 X 4-15'H BLACK. 90" LIGHTED BOLLARD. WAC LANDSCAPE LIGHTING. TREE UPLIGHT. ACCENT 120V 5012-30BZ WITH POWER STAKE 1600-RPT-BK	COLOR TO BE BLACK	CW LIGHTING. CONTACT: SAMANTHA RUSSEM. 713-690-9320
ALTERNATE #4- ARBOR AT POOL TYP. OF 1	FREESTANDING WILLIAMSBURG FIBERGLASS PERGOLA. 12'X27' WITH 12' X8' SQ. FIBERGLASS COLUMNS. CONCRETE MOUNTING	COLOR TO BE: CW-WHITE	STRUCTUREWORKS FABRICATION. CONTACT: GREG SMITH. 877-489-8064

2

DESCRIPTION	EASTING	NORTHING
B1	E 3006630.21	N 13776549.06
B10	E 3006727.52	N 13776478.25
B11	E 3006731.26	N 13776269.28
B12	E 3006747.91	N 13776985.85
B13	E 3006701.98	N 13776978.06
B14	E 3006579.02	N 13776811.50
B15	E 3006663.72	N 13776659.34
B2	E 3006617.46	N 13776512.76
B3	E 3006692.71	N 13776481.49
B4	E 3006776.03	N 13776444.48
B5	E 3006885.24	N 13776435.36
B6	E 3006713.66	N 13776389.36
B7	E 3006850.98	N 13776413.29
B8	E 3006946.83	N 13776427.66
B9	E 3007028.95	N 13776439.26
BF01	E 3006578.78	N 13776565.68
BF02	E 3006842.76	N 13776531.15
BF03	E 3007036.36	N 13776502.90
BF04	E 3007017.22	N 13776527.42
F1	E 3006952.55	N 13776552.51
F10	E 3006884.95	N 13776435.49
F11	E 3006716.19	N 13776371.31
F12	E 3006517.04	N 13776360.43
F13	E 3006640.72	N 13776337.24
F14	E 3006556.82	N 13776476.51
F15	E 3006674.58	N 13776409.02
F17	E 3007091.68	N 13776426.40
F18	E 3007048.43	N 13776472.56
F19	E 3007013.96	N 13776513.25
F2	E 3006837.56	N 13776564.46
F20	E 3007022.73	N 13776523.80
F21	E 3007016.80	N 13776526.46
F22	E 3006995.65	N 13776536.94
F23	E 3006958.61	N 13776541.96
F3	E 3006829.13	N 13776411.55
F4	E 3006825.23	N 13776528.17
F5	E 3006820.83	N 13776523.14
F6	E 3006815.84	N 13776520.15
F7	E 3006908.20	N 13776517.32
F8	E 3006898.34	N 13776512.26
F9	E 3006890.17	N 13776508.36
P1	E 3006852.55	N 13776552.51
P10	E 3006894.90	N 13776482.09
P11	E 3006882.75	N 13776473.48
P12	E 3006872.73	N 13776462.31
P13	E 3006875.15	N 13776447.85
P14	E 3006877.98	N 13776441.56
P15	E 3006878.50	N 13776434.06
P16	E 3006887.70	N 13776365.92
P17	E 3006840.93	N 13776367.09
P18	E 3006956.93	N 13776405.25
P19	E 3006874.58	N 13776408.77
P2	E 3006837.48	N 13776549.26
P20	E 3006901.03	N 13776414.70
P21	E 3007022.70	N 13776427.73
P22	E 3007007.80	N 13776432.96
P23	E 3007014.72	N 13776434.75
P24	E 3007034.70	N 13776451.43
P25	E 3007026.58	N 13776474.08
P26	E 3007025.02	N 13776489.12
P27	E 3007023.96	N 13776493.23
P28	E 3007022.47	N 13776523.55
P29	E 3007006.04	N 13776532.40
P3	E 3006834.43	N 13776534.17
P30	E 3007010.69	N 13776542.77
P31	E 3007012.34	N 13776545.23
P32	E 3007016.15	N 13776545.74
P34	E 3007025.84	N 13776544.52
P35	E 3007008.76	N 13776546.81
P36	E 3007042.05	N 13776550.44
P37	E 3007048.92	N 13776552.86
P38	E 3007053.85	N 13776551.86
P39	E 3007056.95	N 13776557.53
P4	E 3006833.06	N 13776519.45
P40	E 3007051.13	N 13776561.54
P41	E 3007046.37	N 13776566.91
P42	E 3007047.56	N 13776575.33
P43	E 3007042.78	N 13776582.47
P44	E 3007036.80	N 13776586.06
P45	E 3007029.60	N 13776593.61
P46	E 3007029.63	N 13776593.59
P47	E 3007026.93	N 13776596.37
P48	E 3007021.72	N 13776606.58
P49	E 3007011.77	N 13776608.58
P50	E 3006990.20	N 13776612.31
P51	E 3006969.80	N 13776614.43
P52	E 3007025.95	N 13776613.01
P53	E 3006997.96	N 13776605.46
P54	E 3006980.53	N 13776606.75
P55	E 3006962.15	N 13776606.15
P56	E 3006976.20	N 13776613.52
P57	E 3006996.45	N 13776611.27
P58	E 3006990.32	N 13776602.04
P59	E 3006942.05	N 13776608.49
P60	E 3006923.36	N 13776606.72
P61	E 3006910.72	N 13776605.30
P62	E 3006918.79	N 13776614.67
P63	E 3006906.84	N 13776613.73
P64	E 3006906.71	N 13776591.78
P65	E 3006917.56	N 13776592.43
P66	E 3006918.93	N 13776595.69
P67	E 3006922.51	N 13776596.74
P68	E 3006937.42	N 13776595.11
P69	E 3006952.98	N 13776591.93
P70	E 3006949.42	N 13776586.40
P71	E 3006937.42	N 13776585.11
P72	E 3006925.36	N 13776583.62
P73	E 3006878.72	N 13776562.98
P74	E 3006890.46	N 13776564.90
P75	E 3006941.12	N 13776566.44
P76	E 3006956.58	N 13776566.78
P77	E 3006942.77	N 13776567.32
P78	E 3006986.08	N 13776577.41
P79	E 3006978.01	N 13776584.30
P8	E 3006904.91	N 13776564.11
P80	E 3006987.80	N 13776564.79
P81	E 3007003.80	N 13776592.09
P82	E 3007006.54	N 13776600.30
P83	E 3007006.98	N 13776589.26
P84	E 3007003.60	N 13776577.42
P85	E 3006989.99	N 13776569.52
P86	E 3007007.28	N 13776567.27
P87	E 3007007.28	N 13776562.18
P88	E 3007010.42	N 13776560.36
P89	E 3007006.94	N 13776566.61
P9	E 3006901.55	N 13776564.48
P90	E 3007006.41	N 13776562.07
P91	E 3007034.32	N 13776573.58
P92	E 3007021.48	N 13776584.21
P93	E 3007017.38	N 13776584.74
P94	E 3007014.27	N 13776591.96
P95	E 3007010.94	N 13776574.16

2

- LEGEND

B - BOLLARD
BF - BUILDING FOOTPRINT
P - PAVING
F - FENCE

1. CONTOURS ARE RELATIVE TO EXISTING GRADE
2. CONTROL BENCHMARK: NGS MONUMENT HGCS2072 STAINLESS STEEL IRON ROD IN PVC SLEEVE LOCATED ON SMITHERS LAKE ROAD ELEVATION 82.6, NAVD 88
3. SITE TBM: 2644-0-A2 SQUARE CUT ON TOP OF WEST CURB OF SWEET GRASS DRIVE/SOUTH FROM END PAVING AT PROPERTY LINE. ELEVATION 77.28

- NOTES

APPROVED: DEVELOPMENT COORDINATOR
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- SEAL

REGISTERED LANDSCAPE ARCHITECT
STEVEN SCOTT CONDON
12/15/2017

- ISSUE

	90% DD SET SUBMITTAL	10.16.17
2	PARTIAL 100% DD SET SUBMITTAL	10.30.17
	PARTIAL 100% DD SET SUBMITTAL	11.13.17
1	PERMIT SUBMITTAL	11.17.17
1	ISSUE FOR CONSTRUCTION	11.17.17
1	REVISION	12.15.17

- KEY MAP

VERANDA PH.1
RECREATION CENTER
RICHMOND, TX

MATERIAL, FURNITURE, AND BID ALTERNATE SCHEDULES

DRAWN BY: AEH, APT
CHECKED BY: SSC
DATE: 07.27.17
SCALE: AS SHOWN
PROJECT #: 115-000

SHEET
L3.04

ELECTRICAL GENERAL NOTES:

1. ALL METALLIC COMPONENTS WITHIN THE PERIMETER OF OR WITHIN 5'-0" OUTSIDE OF THE WATER AMENITY, WATER SLIDE TOWER, WATERSLIDE, STEEL SUPPORTS MUST BE PROPERLY BONDED IN ACCORDANCE WITH NEC 680.

ELECTRICAL KEY NOTES:

1. PROVIDE 24"C. SLEEVES WITH PULL STRING TO EACH POOL LIGHTING FIXTURE. COORDINATE FINAL POOL LIGHTING FIXTURE LOCATIONS WITH POOL CONSULTANT. (TYPICAL OF 7)
2. ALTERNATE 2: LIGHT BOLLARD, WITH DUPLEX RECEPTACLE WHERE INDICATED. REFER TO LIGHT FIXTURE SCHEDULE. IF ALTERNATE IS NOT ACCEPTED, PROVIDE EMPTY CONDUIT WITH PULL STRING 2' BEYOND CONCRETE SLAB. CAP AND TAG BELOW GRADE.
3. ALTERNATE 3: TREE UPLIGHT. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR EXACT LOCATION. IF ALTERNATE IS NOT ACCEPTED, PROVIDE EMPTY CONDUIT WITH PULL STRING ADJACENT TO TREE LOCATION. CAP AND TAG CONDUIT BELOW GRADE.
4. MOUNT LIGHT FIXTURE AT THE TOP OF THE LIGHT TOWER FOR STRUCTURE CANOPY. MOUNT TO STRUCTURE AS REQUIRED AND AS DIRECTED BY OWNER.
5. PROVIDE RED MUSHROOM TYPE PUSHBUTTON WITH COVER. FOR EMERGENCY SHUTDOWN OF WATER SLIDE PUMPS. PROVIDE CONTROL WIRING BETWEEN PUSHBUTTON AND CONTACTOR C4. LOCATE AT TOP OF WATER SLIDE TOWER
6. ALTERNATE 4: PROVIDE WEATHERPROOF RECEPTACLE MOUNTED TO BACK POST OF ARCHITECTURAL TRELLIS. PROVIDE STAINLESS STEEL HARDWARE FOR MOUNTING AS REQUIRED. IF ALTERNATE IS NOT ACCEPTED, PROVIDE EMPTY CONDUIT WITH PULL STRING 2' BEYOND CONCRETE SLAB. CAP AND TAG CONDUIT BELOW GRADE.
7. ROUTE CIRCUIT THROUGH LIGHTING INVERTER LOCATED IN POOL ELEC. 201. PROVIDE BODINE #BLI-3-400 OR EQUAL.

SYMBOL SCHEDULE

SYMBOL	DESCRIPTION (OVERGUARD ITEMS NOT SHOWN ON PLANS)
LIGHTING (LETTER DENOTES TYPE - SEE LIGHT FIXTURE SCHEDULE)	
	3ft POLE MOUNTED LIGHT
	02 BOLLARD LIGHT
	EXIT LIGHT WITH DIRECTIONAL ARROWS AS REQUIRED
	T1 TREE UPLIGHT
LIGHTING CONTROLS AND SWITCHES	
S	LINE VOLTAGE SINGLE POLE SWITCH
RECEPTACLES AND OUTLETS	
	DUPLEX RECEPTACLE
	DOUBLE DUPLEX IN 2-GANG BOX WITH SINGLE COVER PLATE
J	JUNCTION BOX
CIRCUITING	
	CONDUIT
	CONDUIT BELOW FLOOR, SLAB, OR GRADE
	3/4"C. UNLESS OTHERWISE NOTED. LONG HATCH, NEUTRAL, SHORT HATCH PHASE. LONG HATCH BLACK, INSULATED GROUND. NO HATCHES INDICATES 2 CONDUCTORS. ARROW INDICATES HOMERUN
	PARTIAL ELECTRICAL HOME RUN
SUBSCRIPTS AND ABBREVIATIONS	
WP	INDICATES WEATHERPROOF

GENERAL NOTES:
- ALL EXTERIOR BUILDING ELECTRICAL EQUIPMENT TO BE WEATHERPROOF NEMA-3R MINIMUM
- ALL EXTERIOR RECEPTACLES SHALL BE WATER RESISTANT TYPE

1 ELECTRICAL SITE PLAN - VERANDA AMENITIES CENTER
SCALE: 1" = 30'-0"

APPROVED: DEVELOPMENT COORDINATOR
DATE: 7/13/17

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SEAL

08-08-17

ISSUE

1	50% DD FOR REVIEW	05.19.2017
2	PART 1 - 100% DD FOR REVIEW	06.05.2017
3	PART1 - 100% FD FOR PERMIT	06.30.2017
4	PART 1 - FOR BID	07.27.2017
5	PART 1 - ADDENDUM 01	08.08.2017
6	REPORT FOR PERMIT REVISIONS	08.16.2017

KEY MAP

VERANDA PH.1
RECREATION CENTER
RICHMOND, TX

ELECTRICAL SITE PLAN

DRAWN BY: MG
CHECKED BY: JZ
DATE: 08.16.17
SCALE:
PROJECT #: 115-060

SHEET
ES0.01

1 PHOTOMETRIC SITE PLAN - VERANDA AMENITIES CENTER

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SEAL

ISSUE

1	50% DD FOR REVIEW	06.14.2017
2	PART 1 - 100% DD FOR REVIEW	06.22.2017
3	PART 1 - 100% CD FOR REVIEW	06.30.2017

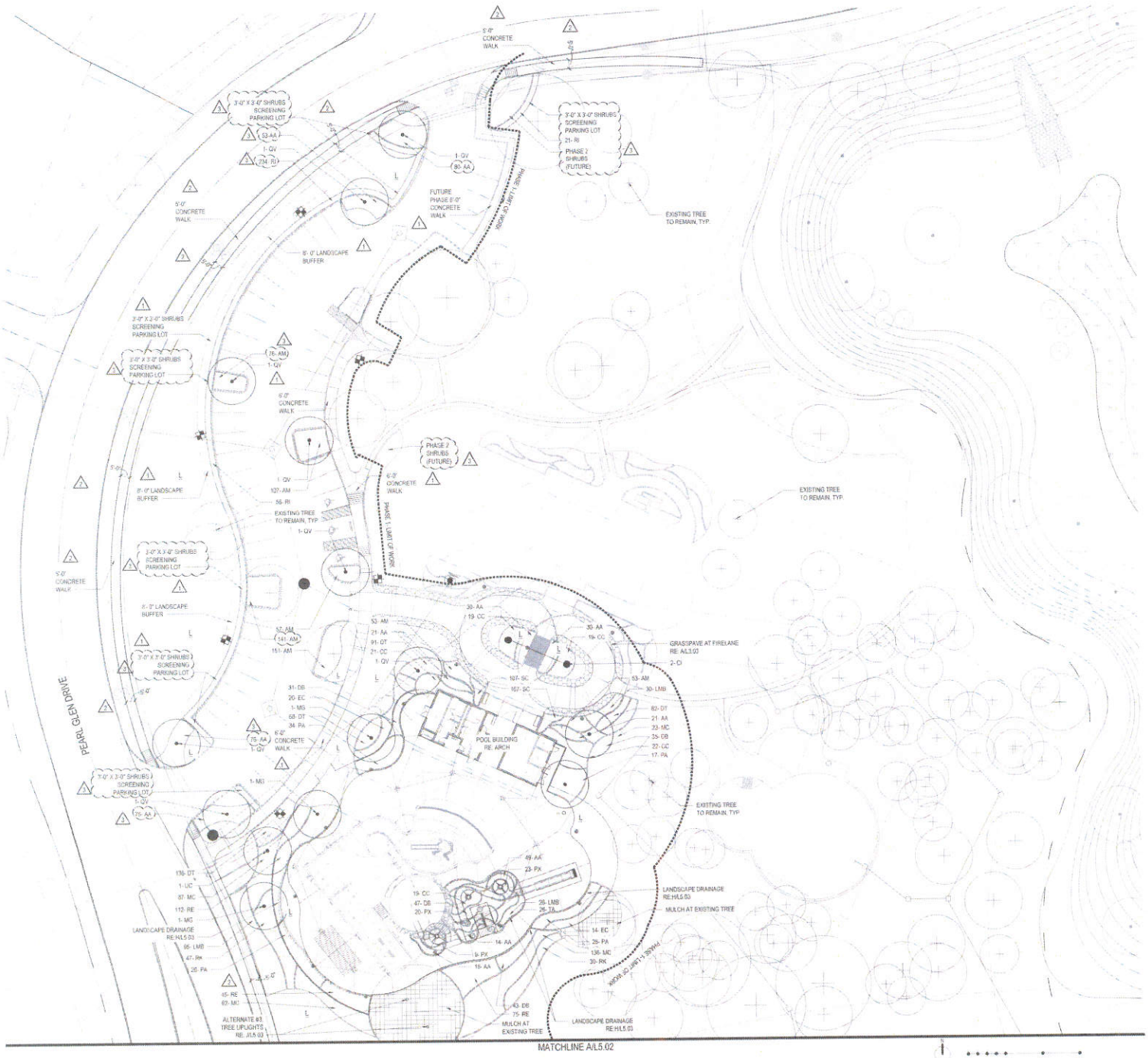
KEY MAP

VERANDA PH.1
RECREATION CENTER
RICHMOND, TX

PHOTOMETRIC
SITE PLAN

DRAWN BY: AEH, APT
CHECKED BY: SSB
DATE: 05.19.17
SCALE:
PROJECT # 115-080

SHEET
ES0.02



LEGEND

PLANT LEGEND

CI	INDIAN HAWTHORN MOVED *
LJ	NATCHEZ CRAPE MYRTLE 30 GAL
MG	SOUTHERN MAGNOLIA 30 GAL
SH	SYE OAK 30 GAL
UC	CEDAR ELM 30 GAL
AA	AGAPANTHUS
FM	FOXTAIL FERN
CC	LITTLE JOHN BOTTLE BRUSH
PB	BUTTERFLY BUSH
DT	VARIEGATED FLAX LILY
DC	DWARF PONDS CROAAT
LMB	BIG BLUE LIRIOPE
MC	GULF COAST MUHLY
PX	PITTOSPORUM
PA	DWARF PALMETTO
EC	DWARF PHILODENDRON
RE	FAKEONAKER PLANT
RK	INDIAN HAWTHORN
RH	MACKI DWT RUSS
RI	SEASONAL COLOR
TA	ASIAN JASMINE
L	FINE GRADE AND HYDROMULCH

*SEACHARE MOVED TREES TO BE PROVIDED BY OTHERS AND INSTALLATION LICENSED BY CHAIR ENVIRONMENTAL DETOUR

EXISTING TREE TO REMAIN

MULCH AT EXISTING TREE

COMMON BERMUDA SOD AT GRASS PAVE FIRE LANE

FINE GRADE AND HYDROMULCH

NOTES

APPROVED: CAD
DEVELOPMENT COORDINATOR
DATE: 2/13/18

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SEAL

REGISTERED LANDSCAPE ARCHITECT
CLARK CONDON
STATE OF TEXAS
2549
1/30/2018

ISSUE

1	90% CD FOR REVIEW	06.05.2017
2	PART 1 - 100% CD FOR REVIEW	06.19.2017
3	PART 1 - 100% CD FOR PERMIT	08.04.2017
4	PART 1 - FOR BID	01.30.2018
1	PERMIT REVISION	06.12.2018
2	PERMIT REVISION 2	12.2018
3	PERMIT REVISION 3	1.11.2019

KEY MAP

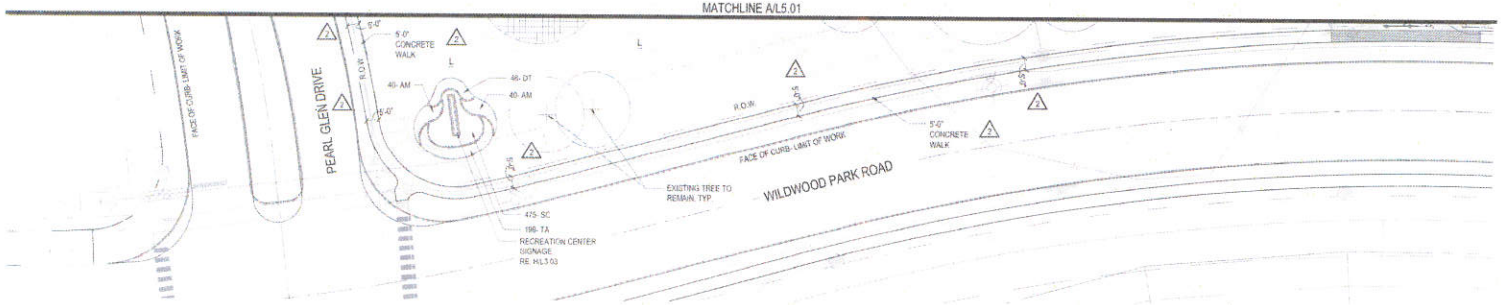
VERANDA PH.1
RECREATION CENTER
RICHMOND, TX

PLANTING PLAN

DRAWN BY: AEH, APT
CHECKED BY: SSS
DATE: 07.27.17
SCALE: 1"=20'-0"
PROJECT #: 115-060

SHEET
L5.01

MATCHLINE A/L5.01



PLANT SCHEDULE

QTY	KEY	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
TREES					
4	MG	MAGNOLIA GRANDIFLORA	SOUTHERN MAGNOLIA	65 GAL	10'-12' HT., 5'-6' SPR, 3"-3 1/2" CAL, RE: JL5.08
2	MM	MACHINE MOVED TREE		MACHINE MOVED	BY OTHERS. COORDINATE INSTALLATION WITH EDI
7	QV	QUERCUS VIRGINIANA	LIVE OAK	65 GAL	13'-15' HT., 6'-8' SPR., 3"-3½" CAL., FULL AND EVEN BRANCHING, STRAIGHT TRUNK, MATCHING
3	PM	PLATANUS MEXICANA	MEXICAN SYCAMORE	65 GAL	12'-14' HT., 7'-9' SPR, 2½"-3 ½" CAL, BRANCH AT EYE LEVEL
SHRUBS					
467	AA	AGAPANTHUS AFRICANUS	LILY OF THE NILE	3 GAL	18" HT., 18" SPR., MIN. 5 BIBS PER POT, BLUE & WHITE MIX (50 / 50), 24" O.C.
165	CC	CALLISTEMON CITRINUS 'LITTLE JOHN'	LITTLE JOHN BOTTLEBRUSH	3 GAL	18" HT., 18" SPR., FULL ROUNDED FORM, 30" O.C.
54	EC	ERIOBOTRYA X 'COPPERTONE'	COPPERTONE LOQUAT	7 GAL	18" HT. 18" SPR. FULL POT, WELL ROOTED, 36" OC
52	PX	PHILODENDRON X 'KANADU'	PHILODENDRON 'KANADU'	3 GAL	12" HT., 18" SPR., FULL POT, WELL ROOTED, 30" O.C.
112	PA	PLUMBAGO AURICULATA	CAPE PLUMBAGO	3 GAL	18" HT., 12" SPR., WELL ROOTED, FULL POT, 36" O.C.
111	RI	RAPHIOLEPIS INDICA 'CLARA'	INDIAN HAWTHORN	3 GAL	18" HT., 18" SPR., FULL ROUNDED FORM, 30" O.C
232	RE	RUSSELIA EQUISETIFORMIS	FIRECRACKER PLANT	5 GAL	18" HT., 18" SPR., FULL POT, WELL ROOTED, 24" O.C.
77	RK	ROSA SPP. 'KNOCK OUT'	KNOCK OUT ROSE	3 GAL	18" HT., 18" SPR., FULL ROUNDED FORM, 36" O.C
GROUNDCOVER					
636	AM	ASPARAGUS DENSIFLORUS 'MEYERSII'	FOXTAIL FERN	1 GAL	12" HT, 12" SPR, FULL POT, WELL ROOTED, 18" O.C.
391	DT	DIANELLA TASMANICA VARIAGATA	VARIEGATED TASMANIAN FLAX LILY	1 GAL	12", 18" HT, 12", 18" SPR, FULL POT, WELL ROOTED, 18" O.C.
137	DB	DIETES BICOLOR	BICOLOR IRIS	3 GAL	15", 18" HT, 10" SPR, FULL POT, WELL ROOTED, 24" O.C.
173	LMB	LIRIOPE MUSCARI 'BIG BLUE'	BIG BLUE LIRIOPE	1 GAL	12", 18" HT & SPR, FULL POT, WELL ROOTED, 24" O.C.
267	MC	MUHLENBERGIA CAPILLARIES 'GULF COAST'	GULF COAST MUHLY	3 GAL	18" HT, 18" SPR, FULL POT, WELL ROOTED, 36" OC
649	SC		SEASONAL COLOR	4" POTS	9" O.C., SEASONALLY APPROPRIATE MIX
259	TA	TRACHELOSPERMUM ASIATICUM	ASIAN JASMINE	1 GAL	6" HT, 9" SPR., FULL POT, WELL ROOTED, 12" O.C.
	L	FINE GRADE AND HYDROMULCH COMMON BERMUDA			

N

0 20 40 60

PLANTING NOTES

1. LOCATE ALL UTILITIES ON THE SITE PRIOR TO COMMENCING ANY WORK. ANY DAMAGE DONE TO EXISTING OR NEW UTILITIES SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL COST TO THE OWNER.
2. STAKE OUT ALL TREE LOCATIONS AND PLANTING BED EDGE CONFIGURATIONS APPROVAL BY THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION. BED EDGES SHALL HAVE SMOOTH, EVEN LINES AS SHOWN ON THE DRAWINGS. LOCATE AS DIMENSIONED ON PLANS.
3. COORDINATE WORK WITH THE WORK OF OTHER TRADES ON THE SITE.
4. ENTIRE SITE SHALL BE GRADED TO FINISH GRADE PRIOR TO SCHEDULING PLANTING INSTALLATION.
5. COORDINATE WITH APPLICABLE UTILITY COMPANIES AS REQUIRED DURING THE COURSE OF THE INSTALLATION.
6. APPLY FOR AND PROCURE REQUIRED PERMITS PRIOR TO COMMENCING WORK.
7. PLANTS SHALL BE SPECIMEN QUALITY, FULL POT AND HEAD, SYMMETRICAL FOLIAGE AND BRANCHING STRUCTURE. SHRUBS SHALL BE FULL TO GROUND.
8. PROVIDE SAMPLES OF EACH SHRUB AND GROUNDCOVER SPECIES FOR APPROVAL BY THE OWNER PRIOR TO DELIVERY TO THE SITE. PROVIDE PHOTOGRAPHS WITH SCALE FIGURES FOR TREES OR SAMPLE TREES FROM NURSERY FOR APPROVAL BY THE OWNER PRIOR TO DELIVERY TO THE SITE.
9. ORGANIZE WITH LOCAL SOURCES FOR NURSERY VISITS FOR TAGGING OF ALL TREES AND PLANT MATERIALS AS SOON AS POSSIBLE TO ENSURE AVAILABILITY AT TIME OF CONSTRUCTION.
10. PLANT MATERIAL OF THE SAME SPECIES SHALL BE MATCHING IN CHARACTER AND SIZE AND OBTAINED FROM THE SAME SOURCE.
11. ALTERNATE SPACING OF PLANT MATERIAL WHEN PLANTING IN LARGE MASSES, UNLESS OTHERWISE NOTED.
12. REFER CLOSELY TO SPECIFICATIONS FOR PLANTING WORK REQUIREMENTS.
13. CALIPER OF MULTI-TRUNK TREES DENOTES MINIMUM CALIPER OF MAJOR TRUNKS. OTHER TRUNKS MUST BE 1/2 SIZE OF MAJOR TRUNK OR LARGER.
14. WHERE AREAS ARE MARKED AS HYDROMULCH, IT SHALL MEAN BERMUDA GRASS HYDROMULCH UNLESS OTHERWISE NOTED. LANDSCAPE CONTRACTOR SHALL FINE GRADE AND HYDROMULCH ALL AREAS DAMAGED BY CONSTRUCTION.
15. HAND GRADE ENTIRE SITE PRIOR TO SEEDING. MEDIAN AREAS SHALL BE RAISED AT CENTER, TYPICAL WITH APPROXIMATELY 3 PERCENT SLOPE TO EDGES PRIOR TO GRASSING.

LEGEND

PLANT LEGEND	
MG	SOUTHERN MAGNOLIA 65 GAL
MM	MACHINE MOVED TREE BY OTHERS
PM	MEXICAN SYCAMORE
QV	LIVE OAK 65 GAL
AA	AGAPANTHUS
AM	FOXTAIL FERN
CC	LITTLE JOHN BOTTLE BRUSH
DB	BUTTERFLY IRIS (AFRICAN)
DT	VARIEGATED FLAX LILY
EC	COPPERTONE LOQUAT
LMB	BIG BLUE LIRIOPE
MC	GULF COAST MUHLY
PA	PLUMBAGO
PX	KANADU PHILODENDRON
RE	FIRECRACKER PLANT
RI	INDIAN HAWTHORN
RK	KNOCK OUT ROSE
SC	SEASONAL COLOR
TA	ASIAN JASMINE
L	FINE GRADE AND HYDROMULCH

MACHINE MOVED TREES TO BE PROVIDED BY OTHERS AND INSTALLATION COORDINATED WITH ENVIRONMENTAL DESIGN

EXISTING TREE TO REMAIN

MULCH AT EXISTING TREE

COMMON BERMUDA SOD AT GRASS PAVE FIRE LANE

FINE GRADE AND HYDROMULCH

NOTES

APPROVED:
BY: DEVELOPMENT COORDINATOR
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SEAL

REGISTERED LANDSCAPE ARCHITECT
JAMES POLE CLARK
11492
STATE OF TEXAS

1/30/2018

ISSUE

	90% DESIGN REVIEW	01.19.2018
	PART 1 - 100% SD FOR REVIEW	06.08.2017
	PART 1 - 50% CD FOR PERMIT	06.30.2017
	PART 1 - 100% CD	12.15.2017
1	PERMIT REVISION	02.01.18
2	PERMIT REVISION 2	1.15.2018
3	PERMIT REVISION 3	1.30.2018

KEY MAP

VERANDA PH.1
RECREATION CENTER
RICHMOND, TX

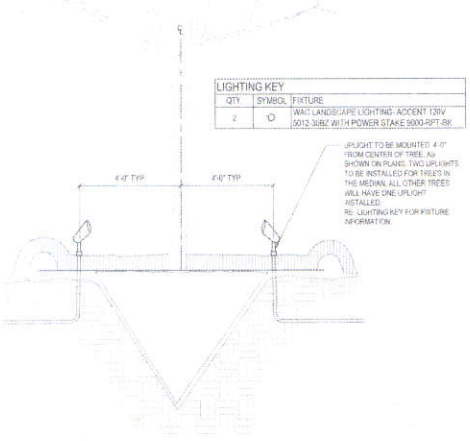
PLANTING PLAN, NOTES, AND SCHEDULE

DRAWN BY: AEH, APT
CHECKED BY: SSS
DATE: 07.27.17
SCALE: 1"=20'-0"
PROJECT # 115-060

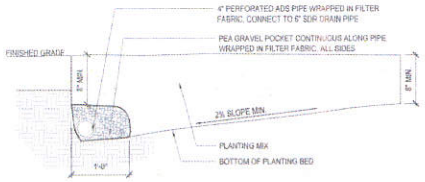
SHEET
L5.02

TREE UPLIGHT NOTES:
1. TREE UPLIGHT TO BE WAC LANDSCAPE LIGHTING - ACCENT 120V 5012-30BZ
2. CONTACT SAMANTHA RUSSRM AT CW LIGHTING 713.690.9226, 960 JAMBEL RD. SUITE 110 HOUSTON, TX 77045
3. ALL LIGHTING AND ELECTRICAL TO BE INSTALLED PER LOCAL CODES
4. LOCATE EXISTING CONDUIT RUN AND WIRE TO CONNECT TO LIGHT FIXTURE, UNLESS OTHERWISE NOTED ON PLANS
5. CONTRACTOR TO PROVIDE MALE NIPPLE FOR CONNECTION BETWEEN LIGHT FIXTURE AND POWER STAKE. PROVIDE METAL COLOR TO MATCH

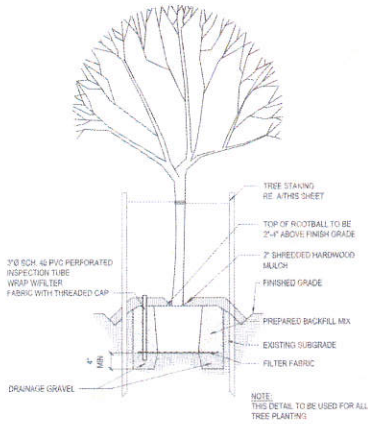
LIGHTING KEY		
QTY	SYMBOL	FIXTURE
2		WAC LANDSCAPE LIGHTING - ACCENT 120V 5012-30BZ WITH POWER STAKE 9000-RPT-BK



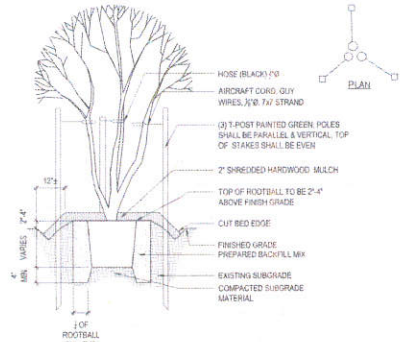
J ALTERNATE #3- TREE UPLIGHT
SECTION 1/2"=1'-0"



H LANDSCAPE DRAINAGE
SECTION NTS

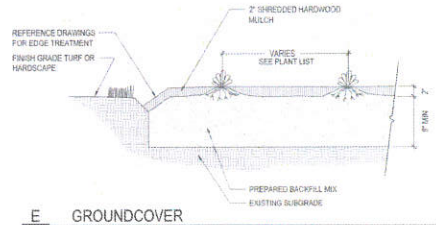


G INSPECTION TUBE
SECTION NTS

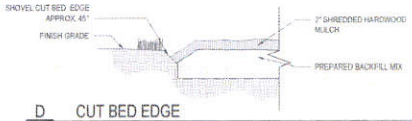


F MULTI-TRUNK TREE STAKING
SECTION/PLAN NTS

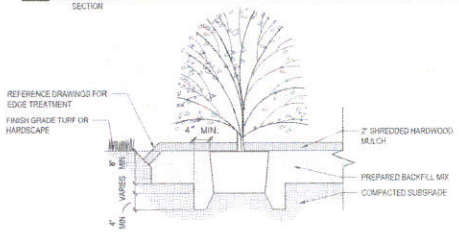
LEGEND



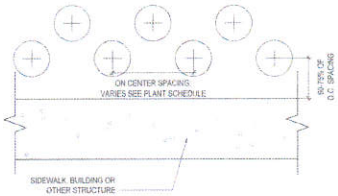
E GROUNDCOVER
SECTION NTS



D CUT BED EDGE
SECTION NTS

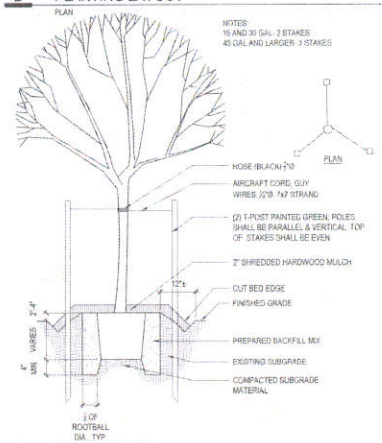


C SHRUBS
SECTION NTS



NOTES:
1. LAYOUT FIRST ROW AT WALKS, CURBS AND OTHER STRUCTURES WITH SPECIFIED ON CENTER SPACING. ALTERNATE SUBSEQUENT ROWS WITH TRIANGULAR SPACING UNLESS OTHERWISE NOTED AS SQUARE SPACING
2. IF PLANT COUNT DOES NOT LAYOUT IN THE BED WITH ON CENTER SPACING, NOTIFY LANDSCAPE ARCHITECT. DO NOT CROWD PLANTS.
3. PLANTING ROWS SHOULD RESPOND TO CURVATURE OF PLANTING BED PERIMETER WHEN APPLICABLE
4. 60-75% OF ON CENTER SPACING AS APPROPRIATE TO SPECIES

B PLANTING LAYOUT
PLAN NTS



A TREE STAKING
SECTION/PLAN NTS

NOTES

APPROVED: DEVELOPMENT COORDINATOR
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Denton, TX 76201
T: 940.243.2344

SEAL

ISSUE

1	90% SD FOR REVIEW	06.30.17
2	PART 1 - 90% DD FOR REVIEW	06.30.17
3	PART 1 - 90% DD FOR PERMIT	06.30.17
4	PART 1 FOR BID	07.27.17
5	PART 1 FOR CONSTRUCTION	11.13.17

KEY MAP

VERANDA PH.1
RECREATION CENTER
RICHMOND, TX

PLANTING DETAILS

DRAWN BY: AEH, APT
CHECKED BY: SSS
DATE: 07.27.17
SCALE: AS SHOWN
PROJECT # 115-060

SHEET
L5.03