HCC
HOUSTON COMMUNITY COLLEGE

Procurement
Operations
3100 Main St.

Solicitation Amendment No. 1

To: Prospective Bidder/Offeror:	**Date:**
Prospective Bidders	February 26, 2020
Project Title:	**Project No.:**
Perimeter Fence and Drainage Improvements for North Forest Campus	IFB 20-21

Description of Solicitation Amendment: The Invitation for Bid (Project IFB No. 20-21) is hereby amended as set forth below:

1. The Bid Documents, Public Link on Page No. 6 of 49, has been removed in its entirety and replace with the following, Construction Drawings: (as per below)

Please visit our website at https://www.hccs.edu/about-hcc/procurement/

Except as provided herein, all terms and conditions of the solicitation remain unchanged and in full force and effect.

Acknowledgement of Amendment No. by:	**Date:**

Company Name (Bidder/Offerer):

Signed by:

Name (Type or Print):	**Title:**

HOUSTON COMMUNITY COLLEGE

NORTHEAST COLLEGE

HOUSTON, TEXAS

NORTH FOREST CAMPUS
PERIMETER FENCE AND DRAINAGE IMPROVEMENTS

6010 LITTLE YORK ROAD
HOUSTON, TX 77016

TABS2020010473

ISSUED FOR CONSTRUCTION

JANUARY 28, 2020

HOUSTON COMMUNITY COLLEGE — OWNER
3100 MAIN STREET, HOUSTON, TEXAS 77002
(713) 718-2000 FAX (713) 718-7817

PGAL, INC. — ARCHITECT & CIVIL
3131 BRIARPARK DRIVE, SUITE 200 HOUSTON, TX 77042
(713) 622-1444 FAX (713) 968-8333

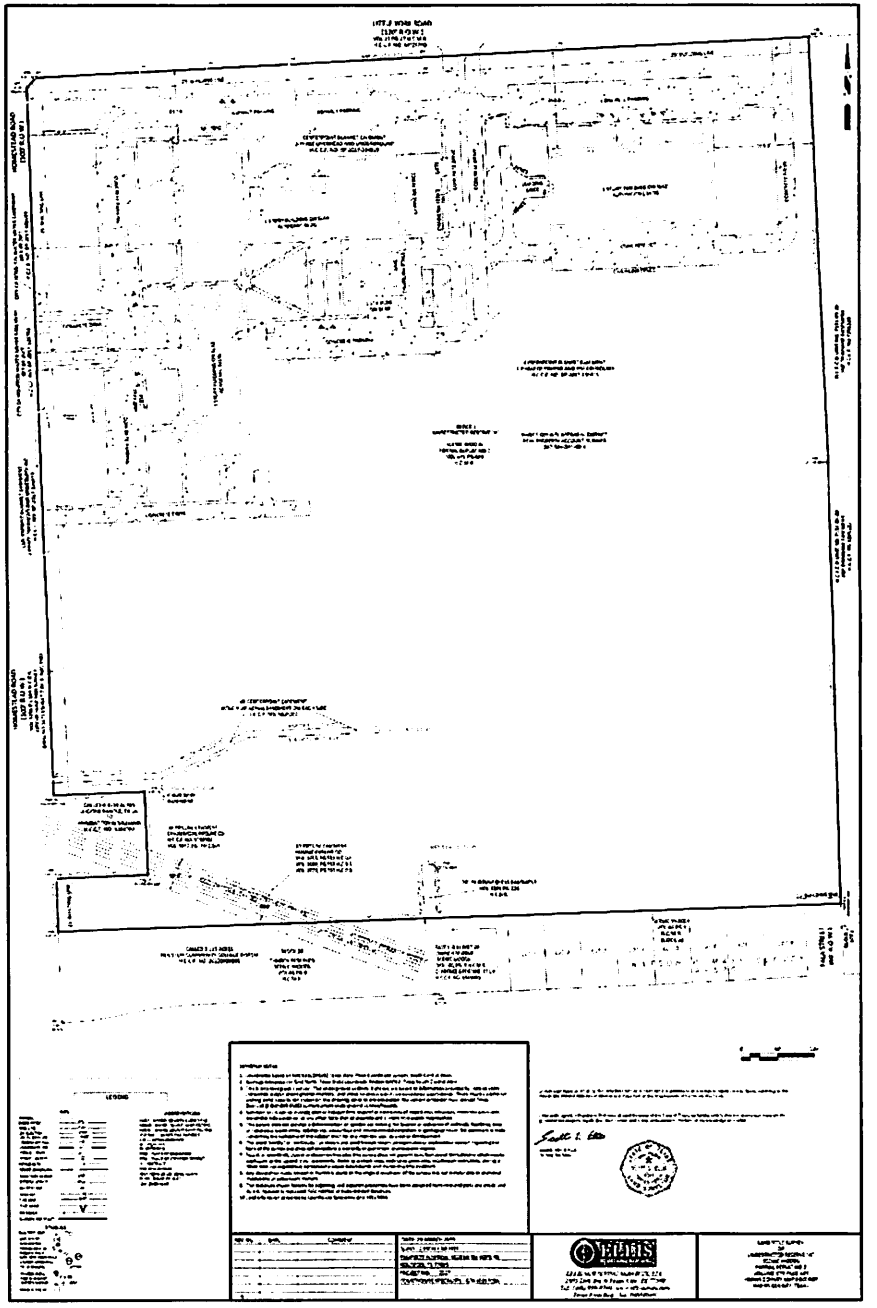
HENDERSON + ROGERS, INC. — STRUCTURAL ENGINEER
2603 Augusta Dr #600, Houston, TX 77057
(713) 430-5800 FAX (713) 430-5888

INFRASTRUCTURE — MEP ENGINEER
6117 RICHMOND AVENUE, SUITE 200 HOUSTON, TX 77057
(713) 622-0120 FAX (713) 622-0557

FERGUSON CONSULTING — TELECOMMUNICATIONS & SECURITY
37602 TOURNAMENT LANE, MAGNOLIA, TEXAS 77355
(281) 252-9232 FAX (281) 883-5773

M2L ASSOCIATES INC. — LANDSCAPE ARCHITECT
6856 KATY FREEWAY, SUITE 300 HOUSTON, TEXAS 77024
(713) 722-8697 FAX (713) 722-8043

SHEET INDEX



TOPOGRAPHIC SURVEY SCALE: 1" = 100'-0"

PROJECT INFORMATION

ADDRESS: 6010 HOMESTEAD ROAD AT LITTLE YORK
HOUSTON, TX 77016

OWNER: HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002
ATTN: MARSHALL B. HEINS
(T) 713 718-7495

PROJECT DESCRIPTION

SITE PERIMETER FENCE ON EXISTING CAMPUS
IMPROVEMENTS TO EXISTING SITE STORM DRAINAGE SYSTEM

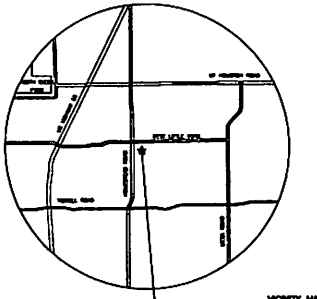
TOTAL AREA WITHIN PROPOSED FENCE	12.08 ACRES 526,456 G.S.F.
TOTAL CAMPUS AREA	43.32 ACRES 1,886,792 G.S.F.

APPLICABLE CODES:

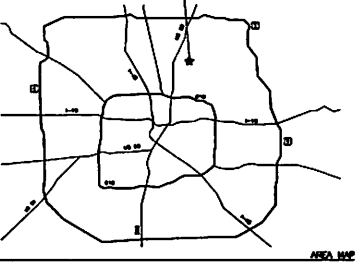
BUILDING CODE	2012 IBC WITH HOUSTON AMENDMENTS
ELECTRIC CODE	2017 NATIONAL ELECTRICAL CODE
FIRE CODE	2012 IFC WITH HOUSTON AMENDMENTS
ACCESSIBILITY	2012 TEXAS ACCESSIBILITY STANDARDS
SIGN CODE	COH SIGN CODE

GOVERNING GUIDELINES:

HOUSTON COMMUNITY COLLEGE (HCC) DESIGN STANDARDS



VICINITY MAP



AREA MAP

HCC
HOUSTON COMMUNITY COLLEGE

OWNER
HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002
(T) (713) 718-7333
(F) (713) 718-8231

ARCHITECT
PGAL
3131 BRIARPARK
SUITE 200
HOUSTON, TX 77042
(T) 713 622 1444
(F) 713 988 8333

PGAL TBPE REG. NO: F-3742

CONSULTANT

PROJECT TITLE
"HCC NORTHEAST" COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT NUMBER
1002047

PROJECT LOCATION
6010 LITTLE YORK ROAD
HOUSTON, TEXAS 77016

DATE OF ISSUE
JANUARY 29, 2020
ISSUED FOR CONSTRUCTION

REVISIONS

SHEET TITLE
PROJECT INFORMATION

SHEET NUMBER
G0.01

GENERAL NOTES

1. CONTRACTOR SHALL COMPLY WITH CODES, LAWS, ORDINANCES, RULES, AND REGULATIONS OF PUBLIC AUTHORITIES GOVERNING THE WORK.
2. CONTRACTOR SHALL OBTAIN AND PAY FOR PERMITS AND INSPECTIONS REQUIRED BY PUBLIC AUTHORITIES GOVERNING THE WORK.
3. CONTRACTOR SHALL REVIEW DOCUMENTS, VERIFY DIMENSIONS AND FIELD CONDITIONS AND CONFIRM THAT WORK CAN BE BUILT AS SHOWN. REPORT ANY CONFLICTS OR OMISSIONS TO THE ARCHITECT FOR CLARIFICATION PRIOR TO PERFORMING ANY WORK IN QUESTION.
4. CONTRACTOR SHALL SUBMIT REQUESTS FOR SUBSTITUTIONS, REVISIONS, OR CHANGES TO ARCHITECT FOR REVIEW PRIOR TO PURCHASE, FABRICATION OR INSTALLATION.
5. OWNER WILL PROVIDE WORK NOTED "BY OTHERS" OR "NIC" UNDER SEPARATE CONTRACT. INCLUDE SCHEDULE REQUIREMENTS IN CONSTRUCTION PROGRESS SCHEDULE AND COORDINATE TO ASSURE ORDERLY SEQUENCE OF INSTALLATION.
6. CONTRACTOR SHALL COORDINATE TELECOMMUNICATIONS, DATA AND SECURITY SYSTEM INSTALLATIONS WITH OWNER.
7. CONTRACTOR SHALL MAINTAIN EXITS, EXIT LIGHTING, FIRE PROTECTIVE DEVICES, AND ALARMS IN CONFORMANCE WITH CODES AND ORDINANCES.
8. CONTRACTOR SHALL PROTECT AREA OF WORK AND ADJACENT AREAS FROM DAMAGE.
9. CONTRACTOR SHALL MAINTAIN WORK AREAS SECURE AND LOCKABLE DURING CONSTRUCTION. COORDINATE WITH OWNER TO ENSURE SECURITY.
10. DO NOT SCALE DRAWINGS. WRITTEN DIMENSIONS GOVERN. IN CASE OF CONFLICT, CONSULT THE ARCHITECT PRIOR TO CONSTRUCTION.
11. DRAWINGS OF BASE SITE CONDITIONS ARE BASED ON EXISTING SURVEY DRAWINGS AND ON LIMITED FIELD OBSERVATION BY THE ARCHITECT. ACTUAL CONDITIONS MAY DIFFER FROM THOSE SHOWN.
12. THE CONTRACTOR SHALL MAINTAIN FOR THE ENTIRE LENGTH OF HIS CONTRACT EGRESS PATHWAYS, LIGHTING, FIRE PROTECTIVE DEVICES AND ALARMS TO CONFORM TO LOCAL BUILDING CODE REQUIREMENTS.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY BRACING AND PROTECTING WORK DURING CONSTRUCTION AGAINST DAMAGE, BREAKAGE, COLLAPSE, DISTORTION, AND/OR MISALIGNMENT IN ACCORDANCE WITH APPLICABLE CODES, STANDARDS, AND GOOD PRACTICE.
14. WORK AND/OR CONSTRUCTION OPERATIONS SHALL NOT UNDERMINE THE STRUCTURAL INTEGRITY OF THE EXISTING BUILDING AND SITEWORK.
15. THE CONTRACTOR SHALL VERIFY THAT DRAWINGS ARE THE LATEST ISSUE PRIOR TO COMMENCING CONSTRUCTION.
16. IN CASE OF CONFLICT BETWEEN ARCHITECT'S AND ENGINEER'S DRAWINGS IN LOCATION OF MATERIALS/EQUIPMENT, THE ARCHITECTURAL DRAWINGS SHALL GOVERN.
17. THE CONTRACTOR SHALL NOT PROCEED WITH WORK FOR WHICH HE EXPECTS ADDITIONAL COMPENSATION BEYOND THE CONTRACT AMOUNT WITHOUT WRITTEN AUTHORIZATION FROM THE OWNER. FAILURE TO OBTAIN SUCH AUTHORIZATION SHALL INVALIDATE A CLAIM FOR EXTRA COMPENSATION.
18. CONTRACTOR SHALL SUBMIT TO THE OWNER A SCHEDULE OF WORK FOR CONSTRUCTION. THE SCHEDULE SHALL INTEGRATE "WORK BY OTHERS" AND SHALL BE REISSUED TO THE OWNER'S PROJECT MANAGER, UPON MODIFICATION. SCHEDULE SHALL INDICATE THE PHASE DURING WHICH WORK BY OTHERS SHALL BE PERFORMED AND SHALL ALLOW SUFFICIENT TIME FOR THE WORK TO BE DONE EFFICIENTLY ON A NON-OVERTIME STATUS.
19. WORK SHALL BE PERFORMED DURING REGULAR BUSINESS HOURS WHENEVER POSSIBLE. WORK INVOLVING OVERTIME AND/OR NON-REGULAR BUSINESS HOURS SHALL BE APPROVED BY PROJECT MANAGER AND COORDINATED WITH BUILDING MANAGEMENT.
20. THE CONTRACTOR SHALL COORDINATE WORK WITH BUILDING MANAGEMENT INCLUDING BUT NOT LIMITED TO SCHEDULING TIME AND LOCATIONS FOR DELIVERIES, BUILDING ACCESS, BUILDING FACILITIES, AND USE AND CLEARANCE OF AVAILABLE ELEVATORS, IN ORDER TO MINIMIZE DISTURBANCE OF BUILDING FUNCTION AND OCCUPANTS.
21. THE CONTRACTOR SHALL, UPON RECEIPT OF CONSTRUCTION DOCUMENT ISSUES, DETERMINE THE DELIVERY SCHEDULE OF MATERIALS NEEDED FOR THE COMPLETION OF THE WORK. CONTRACTOR SHALL PROCURE, DELIVER, AND STORE MATERIALS AND LABOR IN SUFFICIENT QUANTITY AND ON A TIMELY BASIS SO AS TO NOT IMPEDE THE COMPLETION OF THE WORK. CONTRACTOR SHALL SUBMIT CONFIRMATIONS WITH DELIVERY DATES FOR ORDERS OF MATERIALS AND EQUIPMENT AND FOR LONG LEAD ITEMS. IF THE DELIVERY TIME OF ANY PRODUCT IMPEDES THE CONSTRUCTION SCHEDULE, THE CONTRACTOR SHALL NOTIFY THE PROJECT MANAGER AND ARCHITECT WITH SUGGESTED SUBSTITUTIONS.
22. REQUESTS FOR SUBSTITUTIONS OF SPECIFIED ITEMS SHALL BE SUBMITTED IN WRITING WITHIN 3 WEEKS OF CONSTRUCTION START AND WILL BE CONSIDERED ONLY IF THEY PROVIDE BETTER SERVICES, HAVE A MORE ADVANTAGEOUS DELIVERY DATE, OR A LOWER PRICE PROVIDING A CREDIT TO THE OWNER AND WILL NOT SACRIFICE QUALITY, APPEARANCE OR FUNCTION. UNDER NO CIRCUMSTANCES WILL THE ARCHITECT BE REQUIRED TO PROVE THAT A PRODUCT PROPOSED FOR SUBSTITUTION IS OR IS NOT OF EQUAL QUALITY TO THE SPECIFIED PRODUCT.
23. CONTRACTOR SHALL ENSURE THAT PER TEXAS ACCESSIBILITY STANDARDS THERE ARE NO ENCROACHMENTS WITHIN THE ACCESSIBLE ROUTE AFTER WORK IS COMPLETE.
24. AS APPLICABLE, WORK AREAS SHALL REMAIN SECURE AND LOCKED DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE OWNER WITH KEYS FOR CONSTRUCTION FENCING GATES.
25. THE CONTRACTOR SHALL APPLY, INSTALL, CONNECT, ERECT, CLEAN, AND/OR CONDITION MANUFACTURED ARTICLES, MATERIALS, AND/OR EQUIPMENT PER MANUFACTURER'S INSTRUCTIONS. IN CASE OF CONFLICT BETWEEN MANUFACTURER'S INSTRUCTIONS AND THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL OBTAIN WRITTEN CLARIFICATION FROM THE ARCHITECT BEFORE PROCEEDING.
26. THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES, AND FOR THE COORDINATION OF WORK AND FOR THE WORK PERFORMED BY HIS SUBCONTRACTORS.
27. THE CONTRACTOR SHALL COORDINATE AND SCHEDULE WORK BY OTHERS INCLUDING BUT NOT LIMITED TO HARDWARE, SECURITY, AND "FURNISHED-AND/OR-INSTALLED-CLIENT-PROVIDED" ITEMS. CONTRACTOR SHALL COORDINATE EXACT LOCATIONS AND SHALL DO THE CUTTING, FITTING, AND PATCHING THAT MAY BE REQUIRED TO MAKE THE PARTS OF THE WORK WHICH WILL RECEIVE THE WORK OF OTHERS AS SHOWN OR REASONABLY IMPLIED BY THE DRAWINGS AND SPECIFICATIONS.
28. THE CONTRACTOR SHALL PROTECT THE BUILDING PREMISES AND OCCUPANTS OR THE PROJECT SITE FROM DAMAGE. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN NECESSARY COVERINGS, BOARDS, AND TEMPORARY PROVISIONS AS REQUIRED TO PROTECT EXISTING WORK, MATERIALS, AND FINISHES TO REMAIN AT THE JOB SITE. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR DAMAGES ATTRIBUTABLE TO HIS OPERATION, REPAIRS, OR REPLACEMENT WITHOUT ADDITIONAL CHARGE TO THE PARTY AFFECTED.
29. IMMEDIATELY PRIOR TO OCCUPANCY OF ANY PHASE, THE CONTRACTOR SHALL CLEAN SURFACES OF DEBRIS, LOOSE CONSTRUCTION MATERIAL AND EQUIPMENT AND SHALL LEAVE THE SITE CLEAN. REMAINING CONSTRUCTION MATERIAL AND EQUIPMENT, IF ANY, SHALL BE MOVED AND TEMPORARILY SECURED IN AN AREA DIRECTED BY THE PROJECT MANAGER.
30. CONTRACTOR SHALL PATCH AND REPAIR ANY DAMAGE TO EXISTING LANDSCAPE, IRRIGATION OR SITE WORK THAT OCCURS DURING CONSTRUCTION.
31. CLARIFICATION OR INFORMATION REQUIRED BY THE CONTRACTOR WILL BE FURNISHED, UPON WRITTEN REQUEST, BY THE ARCHITECT.

SITE IMPROVEMENTS

COMMERCIAL VEHICULAR GATE OPERATORS

BASIS OF DESIGN: LIFTMASTER ELITE SERIES DC COMMERCIAL GATE OPERATORS
RATED: HIGH-CYCLE, HIGH-TEMPERATURE, CONTINUOUS DUTY
WARRANTY: 5 YEARS

VEHICULAR HORIZONTAL SLIDE GATE:
A. LIFTMASTER CSL24U 24VDC HIGH-TRAFFIC W/BATTERY BACK-UP

VEHICULAR GATES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROVISIONS OF ASTM F2200. GATES SHALL NOT RESULT IN CONTINUOUS, UNIMPEDED MOVEMENT IN EITHER DIRECTION ALONG ITS PATH OF TRAVEL. FOR PEDESTRIAN ACCESS IN THE VICINITY OF AN AUTOMATED VEHICULAR GATE, A SEPARATE PEDESTRIAN GATE SHALL BE PROVIDED. THE PEDESTRIAN GATE SHALL BE INSTALLED IN A LOCATION SUCH THAT A PEDESTRIAN SHALL NOT COME INTO CONTACT WITH A MOVING VEHICULAR GATE. A PEDESTRIAN GATE SHALL NOT BE INCORPORATED INTO AN AUTOMATED VEHICULAR GATE PANEL.

ALL WEIGHT BEARING EXPOSED ROLLERS 8 FEET OR LESS ABOVE GRADE SHALL BE GUARDED OR COVERED. ALL OPENINGS SHALL BE GUARDED OR SCREENED FROM THE BOTTOM OF THE GATE TO THE TOP OF THE GATE, OR A MINIMUM OF 72 IN. ABOVE GRADE, WHICHEVER IS LESS TO PREVENT A 2-1/4" DIAMETER SPHERE FROM PASSING THROUGH THE OPENINGS ANYWHERE IN THE GATE AND IN THAT PORTION OF THE ADJACENT FENCE THAT THE GATE COVERS IN THE OPEN POSITION. THE GATE PANEL SHALL INCLUDE THE ENTIRE SECTION OF THE MOVING GATE, INCLUDING ANY BACK FRAME OR COUNTERBALANCE PORTION OF THE GATE.

A GAP, MEASURED IN THE HORIZONTAL PLANE PARALLEL TO THE ROADWAY AND WHEN THE GATE IS IN EITHER THE FULLY OPEN POSITION OR THE FULLY CLOSED POSITION SHALL NOT EXCEED 2-1/4 INCHES.

POSITIVE STOPS SHALL BE REQUIRED TO LIMIT TRAVEL TO THE DESIGNED FULLY OPEN AND FULLY CLOSED POSITIONS. ALL GATES SHALL BE DESIGNED WITH SUFFICIENT LATERAL STABILITY TO ASSURE THAT THE GATE WILL ENTER A RECEIVER GUIDE.

VEHICULAR HORIZONTAL SWING GATE:
B. LIFTMASTER CSW24U 24VDC HIGH-TRAFFIC W/BATTERY BACK-UP

GATES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROVISIONS OF ASTM F2200. GATES SHALL BE CONSTRUCTED AND INSTALLED SO AS NOT TO CREATE AN ENTRAPMENT AREA BETWEEN THE GATE AND THE SUPPORTING STRUCTURE OR OTHER FIXED OBJECT WHEN THE GATE MOVES TOWARD THE FULLY OPEN POSITION.

THE WIDTH OF AN OBJECT COVERED BY A SWING GATE WHEN IN THE OPEN POSITION SHALL NOT EXCEED 4 INCHES WHEN MEASURED FROM THE CENTER LINE OF THE PIVOT POINT OF THE GATE, EXCEPT FOR THIS ZONE, THE DISTANCE BETWEEN A FIXED OBJECT AND A SWING GATE WHEN IN THE OPEN POSITION SHALL NOT BE LESS THAN 16 INCHES.

ALL INTERFACE WITH SECURITY COMPONENTS INCLUDING GATE PHONES, CARD READERS, AND CAMERAS SHALL HAVE THE FULL PRIOR APPROVAL OF HOUSTON COMMUNITY COLLEGE NETWORK AND SECURITY OPERATIONS DIRECTOR.

COMMERCIAL PEDESTRIAN GATE HARDWARE

HARDWARE GROUP NO. 1

FOR USE ON PEDESTRIAN GATES: A1, B1, C1, E1
PROVIDE EACH SINGLE GATE WITH THE FOLLOWING:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1 EA	DOOR CORD	798	626	SCE
1 EA	ELEC PANIC HDW	RX-99-L-E996-06-FSE-WH-CON 24 VDC	626	VON
1 EA	PERMANENT CORE	MATCH OWNER'S EXISTING SYSTEM	626	BES
1 EA	RIM CYLINDER	1E-72	626	BES
BALANCE OF HARDWARE BY GATE MFR		POWER SUPPLY - WORK OF DIVISION 28 DOOR CONTACT(S) - WORK OF DIVISION 28 CARD READER - WORK OF DIVISION 28		B/O

NOTES:

HARDWARE SET IS A GUIDE LINE; GENERAL CONTRACTOR SHOULD CONDUCT A COORDINATION MEETING WITH THE GATE FABRICATOR AND HARDWARE SUPPLIER BEFORE EITHER THE GATE IS FABRICATED OR THE HARDWARE ORDERED.

PROVIDE MOUNTING ACCESSORIES TO MOUNT HARDWARE TO GATE.

OPERATIONAL DESCRIPTION: GATE NORMALLY CLOSED AND LOCKED. INGRESS BY VALID CARD READ OR MANUAL KEY OVERRIDE. FREE EGRESS AT ALL TIME. UPON LOSS OF POWER, GATE TO REMAIN LOCKED.

HARDWARE GROUP NO. 2

FOR USE ON PEDESTRIAN GATES: D, L1
PROVIDE EACH GATE WITH THE FOLLOWING:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2 EA	DOOR CORD	798	626	SCE
1 EA	ELEC PANIC HDWR	RX-99-L-E996-06-FSE-WH-CON 24 VDC	626	VON
1 EA	ELEC PANIC HDWR	RX-99-EO-WH-CON	626	VON
1 EA	RIM CYLINDER	1E-72	626	BES
1 EA	PERMANENT CORE	MATCH OWNER'S EXISTING SYSTEM	626	BES
BALANCE OF HARDWARE BY GATE MFR		POWER SUPPLY - WORK OF DIVISION 28 DOOR CONTACT(S) - WORK OF DIVISION 28 CARD READER - WORK OF DIVISION 28		B/O

NOTES:

HARDWARE SET IS A GUIDE LINE; GENERAL CONTRACTOR SHOULD CONDUCT A COORDINATION MEETING WITH THE GATE FABRICATOR AND HARDWARE SUPPLIER BEFORE EITHER THE GATE IS FABRICATED OR THE HARDWARE ORDERED.

PROVIDE MOUNTING ACCESSORIES TO MOUNT HARDWARE TO GATE.

OPERATIONAL DESCRIPTION: GATES NORMALLY CLOSED AND LOCKED. INGRESS BY VALID CARD READ OR MANUAL KEY OVERRIDE. FREE EGRESS AT ALL TIME. UPON LOSS OF POWER, GATES TO REMAIN LOCKED.

EXISTING CONDITIONS

GEOTECHNICAL INVESTIGATION

A GEOTECHNICAL INVESTIGATION (SOILS REPORT) HAS BEEN PREPARED BY OTHERS FOR THE INFORMATION AND CONVENIENCE OF BIDDERS. A COPY OF THE FOLLOWING DOCUMENTS CAN BE OBTAINED FROM HCC AND ITS DESIGNATED REPRESENTATIVES.
ENTITLED: GEOTECHNICAL ENGINEERING REPORT HCC NORTH FOREST WORKFORCE AND CENTER OF EXCELLENCE IN AUTOMOTIVE TECHNOLOGY, HOMESTEAD ROAD AT LITTLE YORK ROAD
PREPARED FOR: HOUSTON COMMUNITY COLLEGE SYSTEM, HOUSTON, TEXAS
PREPARED BY: TERRACON CONSULTANTS, HOUSTON, TEXAS
DATED: APRIL 3, 2014
SUPPLEMENT 1 DATED: AUGUST 6, 2015
SUPPLEMENT 2 DATED: SEPTEMBER 22, 2016
SUPPLEMENT 3 DATED: OCTOBER 4, 2016
SUPPLEMENT 4 DATED: MAY 16, 2018

THE GEOTECHNICAL REPORT IS PROVIDED ONLY FOR BIDDERS' INFORMATION AND CONVENIENCE AND IS NOT PART OF THE CONTRACT DOCUMENTS. OWNER AND ARCHITECT DO NOT WARRANT THE ACCURACY, EXTENT OF THE REPORT, OR LOCATIONS OF THE TEST BORINGS.

WHERE THE GEOTECHNICAL REPORT STATES CONSTRUCTION OPTIONS, SUCH OPTIONS WILL BE AS SELECTED BY THE CIVIL AND STRUCTURAL ENGINEER, AS APPLICABLE, AND NOT BY THE BIDDER/GENERAL CONTRACTOR. REFER TO NOTES ON THE CIVIL AND STRUCTURAL DRAWINGS AND BRING ALL DISCREPANCIES BETWEEN DOCUMENTS TO THE ATTENTION OF THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.

THE GEOTECHNICAL REPORT IS BASED UPON THE ASSUMPTION THAT UNIFORM VARIATION EXISTS IN SOIL PROPERTIES BETWEEN BORINGS. INTERPRETATION OF THE REPORT IS BIDDER'S RESPONSIBILITY. OWNER AND ARCHITECT WILL NOT BE RESPONSIBLE FOR INTERPRETATION OF REPORT BY BIDDERS.

BIDDERS MAY MAKE ADDITIONAL SOIL BORINGS OR OTHER EXPLORATORY OPERATIONS AT NO EXPENSE TO OWNER, PROVIDED SUCH OPERATIONS ARE APPROVED BY OWNER IN ADVANCE.

SELECTIVE DEMOLITION

CONDUCT SELECTIVE DEMOLITION AND DEBRIS-REMOVAL OPERATIONS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS, WALKWAYS, AND OTHER ADJACENT OCCUPIED FACILITIES.

PROVIDE TEMPORARY BARRICADES AND OTHER PROTECTION REQUIRED TO PREVENT INJURY TO PEOPLE AND DAMAGE TO ADJACENT BUILDINGS AND FACILITIES TO REMAIN.

DEMOLISH AND REMOVE EXISTING CONSTRUCTION ONLY TO THE EXTENT REQUIRED BY NEW CONSTRUCTION. DO NOT ALLOW DEMOLISHED MATERIALS TO ACCUMULATE ON SITE. REMOVE AND TRANSPORT DEBRIS IN A MANNER THAT WILL PREVENT SPILLAGE ON ADJACENT SURFACES AND AREAS. TRANSPORT DEMOLISHED MATERIALS OFF SITE AND LEGALLY DISPOSE OF THEM.

UNIT MASONRY ASSEMBLIES

FENCE PILASTER FINISH MATERIALS ARE TO MATCH BRICK VENEER AND CAST STONE EXISTING ON THE CAMPUS.
1. ACME ELGIN BLEND 102 CRAFTWORK, 7026 MODULAR CRAFTWORK BRICK. NO SUBSTITUTIONS ALLOWED.
2. SITEWORKS ARCHITECTURAL CAST STONE, COLOR: CREAM. NO SUBSTITUTIONS ALLOWED.

SITE IMPROVEMENTS

DECORATIVE METAL FENCE AND GATES

BASIS OF DESIGN: AMETCO FALCON DESIGN ALUMINUM PICKET FENCE SYSTEM. MODULAR PANELS FABRICATED FROM ALUMINUM TUBULAR BLADES AND TOP/BOTTOM ALUMINUM RAILS FIELD ATTACHED TO ALUMINUM POSTS. PANEL HEIGHT AS INDICATED ON SHEETS A6.00, A6.01. COLOR AS SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE INCLUDING CUSTOM METALLIC OR PREMIUM COLORS.

TUBES:
A. 1" DIA. @ .083 THK AT 4" O.C.
RAILS:
B. 1-1/2" X 3/4" ALUMINUM CHANNELS

WARRANTY: 20 YEARS FOR FACTORY FINISH

CHAIN LINK FENCE AND GATES

INSTALL CHAIN-LINK FENCING IN ACCORDANCE WITH ASTM F567. INSTALL FENCING ON ESTABLISHED BOUNDARY LINES INSIDE PROPERTY LINE.

DRILL OR HAND-EXCAVATE HOLES FOR POSTS TO DIAMETERS AND SPACING INDICATED IN FIRM, UNDISTURBED SOIL. VERIFY THAT POSTS ARE SET PLUMB, ALIGNED, AND AT CORRECT HEIGHT SO THAT FENCE TOP LIMIT IS LEVEL ACROSS SITE. PANELS AT DIFFERING HEIGHTS ACROSS THE SITE ARE NOT ALLOWED.

PLACE CONCRETE FILL AROUND POSTS TO DIMENSIONS INDICATED AND VIBRATE OR TAMP FOR CONSOLIDATION. PROTECT ABOVEGROUND PORTION OF POSTS FROM SPLATTER. FINISH ANCHORAGE JOINT TO SLOPE AWAY FROM POST TO DRAIN WATER.

MATCH FINISH COLOR AND MATERIAL OF CHAIN LINK FENCE EXISTING ON CAMPUS.

GENERAL REQUIREMENTS

SUBMITTALS: (WHERE SPECIFICALLY REQUIRED BY OWNER)

THE ARCHITECT'S REVIEW OF SUBMITTALS SHALL NOT RELIEVE THE CONTRACTOR FROM CONFORMANCE WITH THE CONTRACT DOCUMENTS OR IMPLY APPROVAL OF CHANGES TO THE CONTRACT DOCUMENTS, WHETHER OR NOT SUCH NONCONFORMITIES ARE DISCOVERED IN THE SUBMITTALS.

PRIOR TO COMMENCING SUBSTANTIAL PORTIONS OF THE WORK, GENERAL CONTRACTOR SHALL PREPARE A MASTER SUBMITTAL LOG SHOWING EACH REQUIRED SUBMITTAL AND SPECIFICATION SECTION NUMBER, THE PROPOSED SCHEDULE AND SEQUENCING OF SUBMITTALS, AND EACH AFFECTED CONTRACTOR. MAINTAIN THE LOG CURRENT WITH THE PROGRESS OF THE WORK. PROVIDE A COPY OF THE INITIAL AND UPDATED (WEEKLY) LOG TO THE ARCHITECT.

CONTRACTOR SHALL REVIEW SUBMITTALS TO VERIFY FOR COMPLIANCE AND INDICATE RESULTS OF REVIEW PRIOR TO SUBMITTING TO ARCHITECT.

MAKE SUBMITTALS FAR ENOUGH IN ADVANCE OF SCHEDULED INSTALLATION DATES TO PROVIDE TIME REQUIRED FOR REVIEWS, FOR SECURING NECESSARY APPROVALS, FOR POSSIBLE REVISIONS AND RESUBMITTALS, AND FOR PLACING ORDERS AND SECURING DELIVERY.

SUBMITTALS PROVIDED FOR WORK AND FOR WHICH NO REQUIREMENT FOR SUBMITTAL IS STATED IN THE DRAWINGS OR SPECIFICATIONS WILL BE RETURNED WITHOUT REVIEW.

PRODUCT DATA: (WHERE SPECIFICALLY REQUIRED BY OWNER)

MARK EACH COPY TO IDENTIFY APPLICABLE PRODUCTS, MODELS, OPTIONS, AND OTHER DATA. SUPPLEMENT MANUFACTURER'S STANDARD DATA TO PROVIDE INFORMATION UNIQUE TO THE WORK.

SUBMIT NUMBER OF COPIES FOR PROCESSING, DISTRIBUTION AND RECORD DOCUMENTATION AS STATED BELOW:
A. FOR DATA INDICATION CHOICES OF COLOR, PROVIDE "ORIGINALS" (NO DIGITAL OR SIMILAR COPIES).

SAMPLES: (WHERE SPECIFICALLY REQUIRED BY OWNER)

SUBMIT A REASONABLE RANGE OF MANUFACTURER'S STANDARD COLORS, TEXTURES, SHEEN, AND PATTERNS FOR SELECTION WHERE SPECIFIC PRODUCT REQUIREMENTS HAVE NOT BEEN STATED OR WHERE SUBSTITUTIONS ARE PROPOSED.

SUBMIT SAMPLES TO ILLUSTRATE FUNCTIONAL AND SIGHT-EXPOSED CHARACTERISTICS OF THE PRODUCT, WITH INTEGRAL PARTS AND ATTACHMENT DEVICES. COORDINATE WITH SUBMITTAL DATE OF OTHER SECTIONS FOR INTERFACING WORK.

INCLUDE IDENTIFICATION OF EACH SAMPLE GIVING FULL INFORMATION.

SUBMIT TWO SETS OF EACH PRODUCT FOR THE ARCHITECT, PLUS ADDITIONAL SETS REQUIRED BY THE CONTRACTOR.

FULL SIZE OR ON-SITE SAMPLES OR MOCKUPS MAY BE USED IN THE WORK UPON APPROVAL.

REQUEST FOR SUBSTITUTIONS:

SUBMIT SEPARATE REQUESTS FOR EACH PRODUCT AND SUPPORT EACH REQUEST WITH:
A. PRODUCT IDENTIFICATION
B. MANUFACTURER'S LITERATURE
C. SAMPLES, AS APPLICABLE
D. NAME AND ADDRESS OF SIMILAR PROJECTS ON WHICH PRODUCT HAS BEEN USED, AND DATE OF INSTALLATION.

REASON FOR SUBSTITUTION:

ITEMIZE A COMPARISON OF THE PROPOSED SUBSTITUTION WITH PRODUCT SPECIFIED AND LIST SIGNIFICANT VARIATIONS

SUBMIT DATA RELATING TO CHANGES IN CONSTRUCTION SCHEDULE.

NOTE ANY EFFECT OF SUBSTITUTION ON THEIR WORK OR PRODUCTS OR ON SEPARATE CONTRACTS.

INCLUDE ACCURATE COST DATA COMPARING PROPOSED SUBSTITUTION WITH PRODUCT AND THE AMOUNT OF ANY NET CHANGE IN THE CONTRACT PRICE.

SUBSTITUTIONS WILL NOT BE CONSIDERED WHEN:
A. THEY ARE INDICATED OR IMPLIED ON SUBMITTALS WITHOUT A FORMAL REQUEST.
B. ACCEPTANCE WILL REQUIRE SUBSTANTIAL REVISION OF DRAWINGS AND SPECIFICATIONS.

CONTRACT CLOSE-OUT

SUBSTANTIAL COMPLETION

WHEN CONTRACTOR CONSIDERS THE WORK OR A DESIGNATED PORTION THEREOF SUBSTANTIALLY COMPLETED, SUBMIT WRITTEN NOTICE, ACCOMPANIED BY THE PUNCH LIST SPECIFIED UNDER CLOSE-OUT PUNCH LIST.

NO SUBSTANTIAL COMPLETION INSPECTION WILL BE MADE UNTIL THERE IS SUFFICIENT EVIDENCE TO INDICATE THAT SUBSTANTIAL COMPLETION HAS BEEN ACHIEVED.

DO NOT CLAIM SUBSTANTIAL COMPLETION UNTIL THE CERTIFICATES AND RELATED INSPECTIONS AFFIRMING COMPLIANCE ARE ISSUED BY AUTHORITIES AND AGENCIES HAVING JURISDICTION, FOR ARCHITECTURAL, STRUCTURAL, ELECTRICAL AND SECURITY EQUIPMENT, AND INSTALLATIONS THEREOF.

CONTRACTOR SHALL DELIVER A COPY OF EACH CERTIFICATE TO THE OWNER AND ARCHITECT BEFORE THE DATE OF SUBSTANTIAL COMPLETION INSPECTION.

FINAL CLEANING
1. EXECUTE FINAL CLEANING PRIOR TO SUBSTANTIAL COMPLETION.
2. CLEAN SURFACES OF THE WORK AND BASE BUILDING SURFACES AFFECTED BY THE WORK WHICH ARE EXPOSED TO VIEW. REMOVE TEMPORARY LABELS AND PROTECTIVE COVERINGS, STAINS AND FOREIGN SUBSTANCE.
3. REMOVE WASTE AND SURPLUS MATERIALS, RUBBISH, AND CONSTRUCTION FACILITIES FROM THE PROJECT AND FROM THE SITE.
4. LEAVE PREMISES IN SPOTLESS CONDITION, REQUIRING NO FURTHER CLEANING OF CONSTRUCTION BY OWNER.
5. CORRECT DEFECTIVE FUNCTION OF PRODUCTS.

CLOSE-OUT SUBMITTALS

PRIOR TO FINAL PAYMENT, AND BEFORE ISSUE OF A FINAL CERTIFICATE FOR PAYMENT, SUBMIT THE FOLLOWING:
A. WARRANTIES
B. RELEASE OR WAIVER OF LIENS AND CONSENTS OF SURETIES.
C. OPERATION AND MAINTENANCE MANUALS (FROM INTERFACE WORK UNDER SEPARATE PERMIT.)
D. MATERIALS CERTIFICATIONS

PROJECT RECORD DOCUMENTS

KEEP AT THE SITE ONE REPRODUCIBLE RECORD SET OF CURRENT DRAWINGS AND SPECIFICATIONS, FINAL VERSION OF SUBMITTAL DATA, AND OTHER APPLICABLE RECORD DATA. NOTE VARIATIONS FROM THE CONTRACT DOCUMENTS ON THE MOST SUITABLE DOCUMENT. INCLUDE ITEMS INSTALLED IN SUBSTANTIALLY DIFFERENT FORM, TYPE, SCOPE AND LOCATION FROM THAT SHOWN OR SPECIFIED.
A. PROVIDE FULL-SIZE PLAN SETS FOR GRAPHIC DATA.
B. CLEARLY MARK EACH RECORD DOCUMENT THUS: "RECORD DOCUMENT. USE ONLY FOR RECORDING FIELD DEVIATIONS AND ACTUAL CONSTRUCTED CONDITIONS."

GENERAL CONDITIONS

1. CONFORM WORK TO THE CONTRACT DOCUMENTS WHICH INCLUDE THE OWNER/CONTRACTOR AGREEMENT, DRAWINGS, HOUSTON COMMUNITY COLLEGE TECHNICAL SPECIFICATIONS AND STANDARDS, AND ALL ADDENDA OR MODIFICATIONS ISSUED BY THE ARCHITECT.
2. THE GENERAL CONDITIONS OF THE CONTRACT ARE AS REQUIRED BY THE OWNER: HOUSTON COMMUNITY COLLEGE (HCC)

GENERAL REQUIREMENTS

CONTRACTOR'S USE OF BASE BUILDING

THE TERM "BASE BUILDING" IS DEFINED IN SECTION "BASE BUILDING SURVEY."

LIMIT USE OF BASE BUILDING FOR THE WORK AND FOR CONSTRUCTION OPERATIONS TO ALLOW CONTROLLED OCCUPANCY AND USE.

CONFINE OPERATIONS WITHIN PROJECT LIMITS AND DESIGNATED STAGING AREAS AS APPROVED BY THE OWNER/HCC CONSTRUCTION MANAGER.

COORDINATE USE OF BASE BUILDING FACILITIES UNDER DIRECTION OF THE OWNER/HCC CONSTRUCTION MANAGER.

MAINTAIN PROPER PATHS AND IDENTIFICATION OF EMERGENCY EGRESS.

BASE BUILDING SURVEY

THE TERM "BASE BUILDING" MEANS THE EXISTING STRUCTURES WITHIN THE PROPERTY SITE WHERE THE PROJECT AND THE WORK IS CONSTRUCTED.

BY WAY OF GENERAL DESCRIPTION, BASE BUILDING INCLUDES: FOUNDATIONS; SUPERSTRUCTURE COLUMNS, BEAMS AND FLOORS; EXTERIOR AND INTERIOR CORE WALLS; PARTITIONS AND DOORS; CURTAINWALL SYSTEM; MEP SYSTEMS; ADJACENT SITE WORK, LANDSCAPING AND IRRIGATION.

EXCEPT WHERE DESIGNATED OR REQUIRED TO BE CUT AND PATCHED, BASE BUILDING IS INTENDED TO REMAIN AS CONSTRUCTED.

UTILITY SERVICE

MAINTAIN EXISTING UNDERGROUND UTILITIES AND IRRIGATION SYSTEM INDICATED TO REMAIN IN SERVICE AND PROTECT THEM AGAINST DAMAGE DURING SELECTIVE DEMOLITION OPERATIONS.

REFERENCES

AS SCOPE DOCUMENTS, THE DRAWINGS AND SPECIFICATIONS DO NOT NECESSARILY COMPLETELY DESCRIBE THE BASE BUILDING AT INTERFACE WITH THE WORK.

CUTTING AND PATCHING

REPAIR DAMAGE TO BASE BUILDING AND SITE, RESULTING FROM EXCESSIVE CUTTING OR DEMOLITION WORK.

ASSIGN THE WORK OF MOVING, REMOVAL, CUTTING AND PATCHING TO SUBCONTRACTORS QUALIFIED TO PERFORM WORK IN A MANNER TO CAUSE LEAST DAMAGE TO EACH TYPE OF EXISTING MATERIALS, RETURN EXISTING CONSTRUCTION TO APPEARANCE OF NEW WORK AND MATCH EXISTING WORK.

PERFORM CUTTING AND REMOVAL WORK TO REMOVE MINIMUM NECESSARY. CUT MATERIALS BY METHODS TO TERMINATE SURFACES IN A STRAIGHT LINE AT A NATURAL POINT OF DIVISION.

STRUCTURAL TESTING AND INSPECTIONS

WORK TO BE PERFORMED BY THE TESTING LABORATORY SHALL BE AS REQUIRED BY THE OWNER, ARCHITECT, AND ENGINEER; AND INCLUDE, BUT NOT BE LIMITED TO:
1. SHALLOW FOUNDATION ELEMENTS
2. REINFORCING STEEL
3. CAST-IN-PLACE CONCRETE

THE TESTING LABORATORY SHALL REVIEW THE SUBMITTED MIX DESIGNS FOR CONFORMANCE TO THE SPECIFICATIONS AND FOR SUITABILITY FOR USE IN THE PROJECT.

FIELD SAMPLES FOR STRENGTH TESTS SHALL BE TAKEN IN ACCORDANCE WITH ASTM C172 AT THE POINT OF PLACEMENT.

CONTRACTOR SHALL REJECT CONCRETE DELIVERED TO THE SITE FOR ANY OF THE FOLLOWING CAUSES: WRONG CLASS (INCORRECT MIX DESIGN NUMBER), ENVIRONMENTAL CONDITIONS, SLUMPS OUTSIDE OF THE LIMITS SPECIFIED, OR EXCESSIVE AGE. CONCRETE SHALL BE DISCHARGED WITHIN 90 MINUTES OF PLANT DEPARTURE OR BEFORE IT BEGINS TO SET IF SOONER THAN 90 MINUTES.

TEMPORARY TREE AND PLANT PROTECTION

PROTECT TREE ROOT SYSTEMS FROM DAMAGE CAUSED BY RUNOFF OR SPILLAGE WHILE MIXING, PLACING, OR STORING CONSTRUCTION MATERIALS.

DO NOT STORE CONSTRUCTION MATERIALS, DEBRIS, OR EXCAVATED MATERIAL INSIDE TREE PROTECTION ZONES. DO NOT PERMIT VEHICLES OR FOOT TRAFFIC WITHIN TREE PROTECTION ZONES; PREVENT SOIL COMPACTION OVER ROOT SYSTEMS.

DO NOT EXCAVATE WITHIN TREE PROTECTION ZONES UNLESS OTHERWISE INDICATED. WHERE EXCAVATION FOR NEW CONSTRUCTION IS REQUIRED WITHIN TREE ZONES HAND CLEAR AND EXCAVATE TO MINIMIZE DAMAGE TO ROOT SYSTEMS. USE NARROW-LINE SPADING FORKS AND COMB SOIL TO EXPOSE ROOTS.
1. REDIRECT ROOTS IN BACKFILL AREAS WHERE POSSIBLE. IF ENCOUNTERING LARGE, MAIN LATERAL ROOTS, EXPOSE ROOTS BEYOND EXCAVATION LIMITS AS REQUIRED TO BEND AND REDIRECT THEM WITHOUT BREAKING.
2. DO NOT ALLOW EXPOSED ROOTS TO DRY OUT BEFORE PLACING PERMANENT BACKFILL. PROVIDE TEMPORARY EARTH COVER OR PACK WITH PEAT MOSS AND WRAP WITH BURLAP. WATER AND MAINTAIN IN A MOIST CONDITION.

PRODUCT REQUIREMENTS

PROVIDE PRODUCTS THAT COMPLY WITH THE CONTRACT DOCUMENTS WHICH ARE UNDAMAGED AND NEW AT THE TIME OF INSTALLATION.
1. PROVIDE PRODUCTS COMPLETE WITH ACCESSORIES, TRIM, FINISHES, FASTENERS, AND OTHER ITEMS NEEDED FOR A COMPLETE INSTALLATION.
2. PROVIDE STANDARD PRODUCTS UNLESS CUSTOM PRODUCTS OR NONSTANDARD OPTIONS ARE SPECIFIED.
3. OWNER RESERVES THE RIGHT TO LIMIT SELECTION OF PRODUCTS TO THOSE WITH WARRANTIES COMPLIANT WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
4. WHERE PRODUCTS ARE ACCOMPANIED BY THE TERM "AS SELECTED", THE ARCHITECT WILL MAKE THE SELECTION.
5. WHERE SPECIFICATIONS INCLUDE THE PHRASE "FULL RANGE OF COLORS, PATTERNS, TEXTURES" (OR SIMILAR) ARCHITECT WILL SELECT FROM MANUFACTURER'S PRODUCT LINE THAT INCLUDES BOTH STANDARD AND PREMIUM FINISHES.

HCC
HOUSTON COMMUNITY COLLEGE
OWNER
HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002
(T) (713) 718-2000
(F) (713) 718-2111
ARCHITECT
PGAL
3131 BRIARPARK
SUITE 200
HOUSTON, TX 77042
(T) 713 622 1444
(F) 713 968 9333
PGAL TBPE REG. NO. F-3712
CONSULTANT

PROJECT TITLE
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE
PROJECT NUMBER
1202247
PROJECT LOCATION
6010 LITTLE YORK ROAD
HOUSTON, TEXAS 77016
DATE OF ISSUE
JANUARY 23, 2020
ISSUED FOR CONSTRUCTION

SHEET TITLE
SPECIFICATIONS
SHEET NUMBER
G1.01

CONSTRUCTION NOTES

GENERAL NOTES (APPLICABLE FOR ALL CONSTRUCTION)

1. CONTRACTOR SHALL COMPLY WITH O.S.H.A. REGULATIONS AND STATE OF TEXAS LAWS CONCERNING EXCAVATION, TRENCHING AND SHORING AS SPECIFIED IN CITY OF HOUSTON ORDINANCE NO. 87-1457.
2. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND CONDITIONS BEFORE COMMENCING WORK. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPORT ANY DISCREPANCIES TO THE OWNER BEFORE COMMENCING WORK.
3. PUBLIC AND PRIVATE UTILITY LINES AND CUSTOMER SERVICE LINES MAY EXIST THAT ARE NOT SHOWN ON THE DRAWINGS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE, MAINTAIN, AND PROTECT THE INTEGRITY OF THESE LINES. HAND EXCAVATION MAY BE REQUIRED.
4. CONTRACTOR SHALL COORDINATE WITH THE APPROPRIATE UTILITY COMPANY TO RELOCATE OR DIVERT ANY UTILITY IN CONFLICT WITH PROPOSED CONSTRUCTION SO AS NOT TO DISRUPT SERVICE OF SAME. WHEN APPLICABLE, CONTRACTOR SHALL RESTORE RELOCATED OR DIVERTED UTILITY TO ITS ORIGINAL CONDITION AND LOCATION, AND UPON COMPLETION OF CONSTRUCTION.
5. THE LOCATION OF PRIVATE UNDERGROUND UTILITIES AND PIPELINES, INCLUDING AT&T, CENTERPOINT ENERGY GAS, AND CENTERPOINT ENERGY ELECTRIC ARE SHOWN IN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL REQUEST THE EXACT LOCATION OF THESE FACILITIES BY CALLING THE LONE STAR NOTIFICATION CENTER AT 713-223-4567 (IN HOUSTON) OR TOLL FREE AT 1-800-669-8344 (OUTSIDE HOUSTON), AT LEAST 48 HOURS BEFORE COMMENCING WORK. THE CONTRACTOR SHALL ALSO NOTIFY THE TEXAS ONE CALL SYSTEM TOLL FREE AT 1-800-245-4545 AT LEAST 48 HOURS BEFORE COMMENCING WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH OCCUR DUE TO HIS FAILURE TO REQUEST THE LOCATION, FAILURE TO EXACTLY LOCATE, OR FAILURE TO PRESERVE THESE UNDERGROUND FACILITIES.
6. CONTRACTOR SHALL GIVE NOTICE TO ALL AUTHORIZED INSPECTORS, SUPERINTENDENTS, OR PERSON IN CHARGE OF PRIVATE AND PUBLIC UTILITIES OR RAILROADS AFFECTED BY HIS OPERATIONS PRIOR TO COMMENCEMENT OF WORK.
7. CONTRACTOR SHALL CONDUCT HIS OPERATIONS IN A MANNER SUCH THAT TRUCKS AND OTHER VEHICLES DO NOT CREATE A DIRT AND/OR DUST NUISANCE OR SAFETY HAZARD IN ANY STREETS – PUBLIC OR PRIVATE, SIDEWALKS, DRIVEWAYS, AND PARKING LOTS.
8. CERTAIN ABANDONED LINES ARE SHOWN ON THE DRAWINGS, BASED ON INFORMATION FROM VARIOUS PUBLIC AND PRIVATE RECORD DRAWINGS. THIS INFORMATION IS NOT REPRESENTED BY PGAL TO BE CORRECT OR COMPLETE.
9. CONTRACTOR SHALL ASSURE HIMSELF THAT ALL CONSTRUCTION PERMITS HAVE BEEN OBTAINED PRIOR TO COMMENCEMENT OF WORK. REQUIRED PERMITS THAT CAN BE ISSUED TO CONTRACTOR WILL BE OBTAINED AT HIS EXPENSE.
10. CONTRACTOR SHALL MAINTAIN ACCESS FOR EMERGENCY VEHICLES AT ALL TIMES. CONTRACTOR SHALL CONFIRM AND MAINTAIN ACCESS TO ALL FIRE CONNECTIONS AT BUILDINGS.
11. IF THE CONSTRUCTION DOES NOT BEGIN WITHIN A YEAR AFTER THE PLANS HAVE BEEN SIGNED, NEW SIGNATURES MUST BE OBTAINED AND LETTERS OF AVAILABILITY MUST BE UPDATED.

CITY OF HOUSTON GENERAL CONSTRUCTION NOTES – INSIDE CITY LIMITS

1. CONSTRUCT WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE AND STREET PAVING IN ACCORDANCE WITH THE LATEST EDITION OF THE PUBLICATIONS STANDARD CONSTRUCTION SPECIFICATIONS FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE AND STREET PAVING, AND STANDARD CONSTRUCTION DETAILS FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE, AND STREET PAVING PUBLISHED BY HOUSTON PUBLIC WORKS.
2. NO GEOTECHNICAL INVESTIGATION PERFORMED OR APPLICABLE FOR THIS PROJECT.
3. UTILITIES PRESENTED ON THESE DRAWINGS ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION. CONTRACTOR SHALL VERIFY THE EXACT LOCATIONS IN THE FIELD PRIOR TO COMMENCING CONSTRUCTION. CONTRACTOR SHALL NOTIFY TEXAS ONE CALL AT 713-223-4567/811 OR 800-344-8377 AND LONE STAR NOTIFICATION CENTER AT 800-669-8344 AT LEAST 48 HOURS BEFORE PROCEEDING WITH ANY EXCAVATION. UTILITIES MARKED WITHIN THE PUBLIC RIGHT OF WAY OR IN EASEMENTS SHALL COMPLY WITH TAC TITLE 16, PART 1, CHAPTER 18, RULE §18.6 AND THE AMERICAN PUBLIC WORKS ADMINISTRATION (APWA) UNIFORM COLOR CODE.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGES TO EXISTING WATER, WASTEWATER, STORM WATER LINES AND TRAFFIC CONTROL DEVICES. DAMAGES SHALL BE REPAIRED IN ACCORDANCE WITH THE HOUSTON PUBLIC WORKS, STANDARD CONSTRUCTION SPECIFICATIONS FOR WASTEWATER COLLECTION SYSTEM, WATER LINES, STORM DRAINAGE, AND STREET PAVING, AND STANDARD CONSTRUCTION DETAILS FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE, STREET PAVING, REFERENCED ABOVE, AT NO ADDITIONAL COST.
5. CONTRACTOR SHALL NOTIFY THE OFFICE OF THE CITY ENGINEER, HOUSTON PUBLIC WORKS @ 832-394-9098 OR VIA FAX AT 832-395-4424 FOR INSPECTION AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION.
6. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIME DURING CONSTRUCTION AND ANY DRAINAGE DITCH OR STRUCTURE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO EXISTING CONDITIONS OR BETTER.
7. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PROTECT ROOT SYSTEMS OF SHRUBS, PLANTS AND TREES ALONG THE AREA OF EXCAVATION.
8. THE CONTRACTOR SHALL COMPLY WITH THE LATEST EDITION OF OSHA REGULATIONS AND THE STATE OF TEXAS LAWS CONCERNING EXCAVATION.
9. CONTRACTOR SHALL MAINTAIN A SET OF REDLINE DRAWINGS RECORD AS-BUILT CONDITIONS DURING CONSTRUCTION. THESE REDLINE MARKED UP DRAWINGS WILL BE SUBMITTED TO THE DESIGN CONSULTANT WHO WILL MAKE THE CHANGES ON THE ORIGINAL TRACINGS, LABEL EACH SHEET IN THE SET AS "RECORD DRAWINGS", AND RETURN IT TO THE OFFICE OF THE CITY ENGINEER.

STORM CONSTRUCTION NOTES – COH STD (APPLICABLE FOR ROW ONLY)

1. STORM SEWERS SHALL BE REINFORCED CONCRETE PIPE (C-76, CLASS III) AND SHALL BE INSTALLED, BEDDED, AND BACKFILLED IN ACCORDANCE WITH THE CITY OF HOUSTON DRAWING NOS. 02317-02, 02317-03, 02317-05, 02317-06, AND 02317-07 (OCT. 2002) AS APPLICABLE UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
2. ALL STORM SEWER CONSTRUCTED IN SIDELOT EASEMENT SHALL BE R.C.P. (C-76, CLASS III) AND SHALL BE EMBEDDED IN ACCORDANCE WITH THE CITY OF HOUSTON DRAWING NOS. 02317-02, 02317-03, 02317-05, 02317-06, AND 02317-07 AS APPLICABLE.
3. ALL SEWER UNDER PROPOSED OR FUTURE PAVEMENT AND TO A POINT ONE (1) FOOT BACK OF ALL PROPOSED OR FUTURE CURBS SHALL BE BACKFILLED WITH 1-½ SACK CEMENT/C.Y. STABILIZED SAND TO WITH IN ONE (1) FOOT OF SUBGRADE. THE REMAINING DEPTH OF TRENCH SHALL BE BACKFILLED WITH SUITABLE EARTH MATERIAL.
4. ALL TRENCH BACKFILLS SHALL BE IN 8" LIFTS, WITH TESTS TAKEN AT 100 FOOT INTERVALS ON EACH LIFT, AND MECHANICALLY COMPACTED TO A DENSITY OF NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR COMPACTION TEST (ASTM D-698/AASHTO T99).
5. CIRCULAR AND ELLIPTICAL REINFORCED CONCRETE PIPE SHALL BE INSTALLED USING RUBBER GASKET JOINTS CONFORMING TO ASTM C443 AND ASTM C877 RESPECTIVELY.
6. ALL STORM SEWER PIPES AND INLET LEADS SHALL BE 24-INCH AND LARGER R.C.P. (C-76, CLASS III).
7. ALL PROPOSED PIPE STUB-OUTS FROM MANHOLES AND INLET LEADS ARE TO BE PLUGGED WITH 8" BRICK WALLS UNLESS OTHERWISE NOTED.
8. MINIMUM HORIZONTAL CLEARANCE BETWEEN ANY STORM PIPE AND BOX SHALL BE AT LEAST 48-INCHES FROM EXTERIOR OF THE STORM PIPE OR BOX TO THE EXTERIOR OF THE EXISTING OR PROPOSED PUBLIC OR PRIVATE UTILITY AND OTHER APPURTENANCES. MINIMUM VERTICAL CLEARANCE BETWEEN ANY STORM PIPE AND BOX SHALL BE AT LEAST 18-INCHES FROM EXTERIOR OF THE STORM PIPE OR BOX TO THE EXTERIOR OF THE EXISTING OR PROPOSED PUBLIC OR PRIVATE UTILITY AND OTHER APPURTENANCES.
9. ADJUST MANHOLE COVERS TO GRADE CONFORMING TO REQUIREMENTS OF SECTION 02086-ADJUSTING MANHOLES, INLETS AND VALVE BOXES TO GRADE.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING, MAINTAINING, AND RESTORING ANY BACK SLOPE DRAINAGE SYSTEM DISTURBED AS A RESULT OF THIS WORK.
11. ALL DITCHES SHALL BE GRADED TO PROPOSED ELEVATIONS TO INSURE PROPER DRAINAGE. ALL OUTFALLS SHALL BE PROPERLY BACKFILLED AND COMPACTED. ALL DISTURBED AREAS SHALL BE REGRADED, SEEDED, AND FERTILIZED.
12. ALL DRIVEWAYS WILL BE LOCATED TO AVOID EXISTING CURB INLET STRUCTURES.

WATER CONSTRUCTION NOTES – COH STD

1. WATER LINES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST CITY OF HOUSTON INFRASTRUCTURE DESIGN MANUAL, STANDARD SPECIFICATION, AND CONSTRUCTION DETAILS.
2. ALL 4" THROUGH 12" WATER LINE TO BE AWWA C-900 PVC DR-18 BLUE PRESSURE RATED WATER MAIN WITH 2" AND SMALLER WATER SERVICE LINE TO BE CONTINUOUS TYPE K COPPER TUBING PER COH STANDARD SPECIFICATION SECTION 02503. ALL 4" THRU 54" DI PIPE WATER LINES SHALL BE AWWA C151 WITH INSIDE LINING WITH AWWA C104 AND DOUBLE WRAPPED WITH 8-MIL POLYETHYLENE SHEETS.
3. CONCRETE THRUST BLOCKS SHALL BE PROVIDED AS NECESSARY TO PREVENT PIPE MOVEMENT. USE RESTRAINED JOINTS WHERE PREVENTING MOVEMENT OF 16" OR GREATER PIPE IS NECESSARY DUE TO THRUST.
4. ALL WATER LINES UNDER PROPOSED OR FUTURE PAVING AND TO A POINT OF ONE (1) FOOT BACK OF ALL PROPOSED OR FUTURE CURBS SHALL BE ENCASED IN BANK SAND TO 12" OVER PIPE AND BACKFILLED WITH CEMENT STABILIZED SAND TO WITHIN ONE (1) FOOT OF SUBGRADE.
5. ALL WATER LINE AND SEWER LINE CROSSINGS SHALL BE CONSTRUCTED PER CITY OF HOUSTON AND TCEQ REGULATIONS.
6. ALL WATER VALVES SHALL BE SUPPLIED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF AWWA C-500 AND SHALL BE OF THE RESILIENT SEAT TYPE.
7. ALL WATER LINES TO BE DISINFECTED IN CONFORMANCE WITH AWWA C-651 AND THE TEXAS STATE DEPARTMENT OF HEALTH. AT LEAST ONE BACTERIOLOGICAL SAMPLE SHALL BE COLLECTED FOR EVERY 1,000 LINEAR FEET OF WATER LINE AND SHALL BE REPEATED IF CONTAMINATION PERSISTS.
8. ALL BELOW GRADE VALVES SHALL BE GASKETED, HUB-END GATE VALVES WITH A CAST IRON BOX, EXCEPT WHERE FLANGES ARE CALLED OUT ON THE PLANS.
9. 4" THRU 12" FITTINGS SHALL BE CEMENT MORTAR LINED COMPACT DUCTILE IRON PRESSURE FITTINGS PER ANSI A21.53, OR PUSH ON FITTINGS PER ANSI A21.10 PRESSURE RATED AT 250 PSIG.
10. HYDROSTATIC TESTING: ALL WATER PIPE SHALL BE TESTED FOR LEAKAGE IN ACCORDANCE WITH THE LATEST CITY OF HOUSTON STANDARD CONSTRUCTION SPECIFICATIONS. TESTS ARE TO BE PERFORMED ON THE ENTIRE FOOTAGE OF WATER PIPE INCLUDED IN THE PROJECT.
11. ALL WATER LINES TO HAVE 4' MINIMUM COVER TO FINISHED GRADE AND MINIMUM 12" CLEARANCE TO OTHER UTILITIES AT CROSSING UNLESS OTHERWISE NOTED ON PLANS. ALL WATER LINES INSTALLED OVER 8' DEEP SHALL UTILIZE RESTRAINED JOINT FITTINGS.
12. CONTRACTOR SHALL KEEP WATER PIPE CLEAN AND CAPPED (OR OTHERWISE EFFECTIVELY COVERED) OPEN PIPE ENDS TO EXCLUDE INSECTS, ANIMALS OR OTHER SOURCES OF CONTAMINATION FROM UNFINISHED PIPE LINES AT TIMES WHEN CONSTRUCTION IS NOT IN PROGRESS.

GRADING NOTES

1. GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL VERIFY THE SUITABILITY OF ALL EXISTING AND PROPOSED SITE CONDITIONS INCLUDING GRADES AND DIMENSIONS BEFORE STARTING CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES.
2. BEFORE STARTING CONSTRUCTION, CONTRACTOR SHALL VERIFY BENCHMARK ELEVATION AND NOTIFY ENGINEER IF ANY DISCREPANCY AND/OR CONFLICT IS FOUND.
3. CONTRACTOR SHALL ENSURE THERE IS POSITIVE DRAINAGE FROM THE PROPOSED BUILDINGS AND NO PONDING IN PAVED AREAS, AND SHALL NOTIFY ENGINEER IF ANY GRADING DISCREPANCIES ARE FOUND IN THE EXISTING AND PROPOSED GRADES PRIOR TO PLACEMENT OF PAVEMENT OR UTILITIES.
4. CONTRACTOR SHALL PROTECT ALL MANHOLE COVERS, VALVE COVERS, VAULT LIDS, FIRE HYDRANTS, POWER POLES, GUY WIRES, AND TELEPHONE BOXES THAT ARE TO REMAIN IN PLACE AND UNDISTURBED DURING CONSTRUCTION.
5. ALL EXISTING CONCRETE PAVING, SIDEWALK, AND CURB DEMOLITION SHALL BE REMOVED AND DISPOSED OF BY CONTRACTOR. DISPOSAL SHALL BE AT AN APPROVED OFF-SITE, LAWFUL LOCATION, UNLESS DIRECTED OTHERWISE BY THE OWNER.

STREET & BRIDGE CONSTRUCTION NOTES – COH STD

1. HOUSTON PUBLIC WORKS "STANDARD CONSTRUCTION SPECIFICATIONS" AND "STANDARD CONSTRUCTION DETAILS FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE, AND STREET PAVING" UNLESS OTHERWISE NOTED AND APPROVED ON THESE PLANS. THE DESIGN IS CONSISTENT WITH THE MINIMUM STANDARDS ESTABLISHED IN THE "INFRASTRUCTURE DESIGN MANUAL" REFERENCED AT: http://edocs.publicworks.houstontx.gov/engineering-and-construction/design-manuals.html
2. FILL AREAS ON PLANS SHALL BE FILLED IN LAYERS NOT EXCEEDING 8" IN DEPTH AND EACH COMPACTED TO NOT LESS THAN 95% STANDARD PROCTOR DENSITY PRIOR TO INSTALLATION OF WATER LINE AND FILL AREA SHALL BE SEEDED AND FERTILIZED WITHIN 10 WORKING DAYS.
3. UTILITY CONTRACTOR SHALL PROVIDE TEMPORARY SILT BARRIER FENCE ON ALL NON-CURB INLETS WHICH WILL REMAIN IN PLACE AFTER UNDERGROUND CONTRACT IS COMPLETE.
4. CONTRACTOR SHALL PROVIDE SILT BARRIER FENCE ON ALL STAGE 1 CURB INLETS.
5. EXISTING PAVEMENT, CURBS, DRIVEWAYS, AND SIDEWALKS DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO CITY OF HOUSTON STANDARDS, WITH LATEST ADDENDA AND AMENDMENTS THERETO.
6. CONDITION OF THE ROAD AND/OR RIGHT-OF-WAY UPON COMPLETION OF JOB SHALL BE AS GOOD AS OR BETTER THAN PRIOR TO STARTING WORK.
7. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION AND ANY DRAINAGE DITCH OR STRUCTURE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THE SATISFACTION OF THE OWNING AUTHORITY.
8. EXPOSED 15" OF REINFORCING STEEL AT PROPOSED SAWED JOINT IF NO REINFORCING STEEL EXISTS, USE HORIZONTAL DOWELS. HORIZONTAL DOWELS SHALL BE #6 BARS, 24" LONG, 24" C-C, DRILLED AND EMBEDDED 8" INTO THE CENTER OF THE EXISTING SLAB WITH "PO ROC" OR EQUAL.
9. CONTRACTOR TO TAKE NECESSARY PRECAUTIONS TO PROTECT ROOT SYSTEMS OF SHRUBS, PLANTS AND TREES ALONG AREAS OF EXCAVATION.
10. CONTRACTOR SHALL COMPLY WITH OSHA REGULATIONS AND STATE OF TEXAS LAW CONCERNING EXCAVATION, TRENCHING AND SHORING AS SPECIFIED IN CITY OF HOUSTON ORDINANCE #87-1457.
11. WHEEL CHAIR RAMPS SHALL BE INSTALLED IN ACCORDANCE WITH CITY OF HOUSTON STANDARDS AT ALL INTERSECTIONS WHERE SIDEWALKS EXIST AND THE EXISTING CURB OR SIDEWALK IS DAMAGED OR REMOVED DURING CONSTRUCTION.
12. WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE AND STREET PAVING SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE HOUSTON PUBLIC WORKS "STANDARD CONSTRUCTION SPECIFICATIONS" AND "STANDARD CONSTRUCTION DETAILS FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE AND STREET PAVING" UNLESS OTHERWISE NOTED AND APPROVED ON THESE PLANS. THE DESIGN SHOULD BE CONSISTENT WITH THE MINIMUM STANDARD ESTABLISHED IN THE "DESIGN MANUAL FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE AND STREET PAVING".
13. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY DAMAGES TO EXISTING WATER, WASTEWATER, STORM SEWER AND TRAFFIC SIGNAL CONDUITS. ALL DAMAGES SHALL BE REPAIRED IN ACCORDANCE WITH THE HOUSTON PUBLIC WORKS "STANDARD CONSTRUCTION SPECIFICATIONS" WITH LATEST ADDENDA AND AMENDMENTS THERETO, AT NO COST TO THE CITY OF HOUSTON.
14. PRIOR TO STREET CONSTRUCTION, THE CONTRACTOR SHALL CONTACT HOUSTON PUBLIC WORKS AT (PHONE) 832-394-9578 AND COMPLY WITH ALL REQUIREMENTS FOR THE ISSUANCE OF THE NECESSARY PERMITS/WORK ORDERS FOR STREET CONSTRUCTION.
15. DOUBLE REFLECTORIZED BLUE TRAFFIC MARKERS SHALL BE PLACED 6-INCHES OFFSET OF THE CENTERLINE OF ALL FIRE HYDRANT LOCATIONS BY THE PAVING CONTRACTOR. HYDRANTS LOCATED AT INTERSECTIONS SHALL HAVE A BUTTON PLACED ON EACH STREET.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) CONSTRUCTION NOTES – COH STD

1. CONTRACTOR SHALL IMPLEMENT INLET PROTECTION DEVICES AND REINFORCED FILTER FABRIC BARRIER ALONG ROAD AND SIDE DITCHES AT LOCATIONS SHOWN ON THE TYPICAL STORM WATER POLLUTION PREVENTION (SWPP) PLANS TO KEEP SILT AND/OR EXCAVATED MATERIALS FROM ENTERING INTO THE STORM WATER INLETS AND DITCHES EVENTUALLY POLLUTING THE RECEIVING STORM.
2. DURING THE EXCAVATION PHASE OF THE PROJECT, CONTRACTOR SHALL SCHEDULE THE WORK IN SHORT SEGMENTS SO THAT EXCAVATION MATERIAL CAN BE QUICKLY HAULED AWAY FROM THE SITE AND TO PREVENT IT FROM STAYING UNCOLLECTED ON THE EXISTING PAVEMENT. ANY LOOSE EXCAVATED MATERIAL WHICH FALLS ON PAVEMENTS OR DRIVEWAYS SHALL BE SWEPT BACK INTO THE EXCAVATED AREA.
3. CONTRACTOR SHALL CLEAN UP THE EXISTING STREET INTERSECTIONS AND DRIVEWAYS DAILY, AS NECESSARY, TO REMOVE ANY EXCESS MUD, SILT OR ROCK TRACKED FROM THE EXCAVATED AREA.
4. CONTRACTOR SHALL FOLLOW GOOD HOUSEKEEPING PRACTICES DURING THE CONSTRUCTION OF THE PROJECT, ALWAYS CLEANING UP DIRT AND LOOSE MATERIAL AS CONSTRUCTION PROGRESSES.
5. CONTRACTOR TO INSPECT AND MAINTAIN THE AREAS LISTED BELOW AT LEAST ONCE EVERY FOURTEEN (14) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM EVENT OF 0.5 INCHES OR GREATER:
   - DISTURBED AREAS OF THE CONSTRUCTION SITE THAT HAVE NOT BEEN FINALLY STABILIZED.
   - AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION.
   - STRUCTURAL CONTROL MEASURES.
   - LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE.
6. CONTRACTOR TO BE RESPONSIBLE TO MAINTAIN EXISTING DITCHES AND/OR CULVERTS FOR UNOBSTRUCTED DRAINAGE AT ALL TIMES. WHERE SODDING IS DISTURBED BY EXCAVATION ON BACKFILLING OPERATIONS, SUCH AREAS SHALL BE REPLACED BY SEEDING OR SODDING. SLOPES 4:1 OR STEEPER SHALL BE REPLACED BY BLOCK SODDING.

SANITARY SEWER NOTES – COH STD

1. ALL SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF HOUSTON "STANDARD CONSTRUCTION SPECIFICATIONS FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE, STREET PAVING, AND TRAFFIC" AND ALL CURRENT AMENDMENTS THERETO AND BE SUBJECT TO A STANDARD EXFILTRATION TEST. TESTS ARE TO BE PERFORMED ON THE TOTAL FOOTAGE OF SEWER LINE INCLUDED IN THE PROJECT. REQUIREMENTS OF TEXAS ADMINISTRATIVE CODE, TITLE 30 CHAPTER 317, "DESIGN CRITERIA FOR SEWERAGE SYSTEMS" SHALL GOVERN WHERE CONFLICTS EXIST EXCEPT WHERE CITY REQUIREMENTS ARE MORE STRINGENT.
2. ALL MANHOLES ARE TO BE PER CITY OF HOUSTON STANDARD DETAILS DRAWING NUMBERS 02082-01, 02082-02, 02082N-02, 02082-03, AND 02082N-03 UNLESS OTHERWISE NOTED. USE 2010 VERSION AS APPLICABLE.
3. SANITARY SEWER MANHOLES WILL HAVE BEDDING AND BACKFILL PER CITY OF HOUSTON STANDARD DETAILS DRAWING NO. 02317-08 UNLESS OTHERWISE NOTED.
4. THE SANITARY SEWER PVC PIPE SHALL BE ASTM D 3034 TYPE PSM SDR 26 GRAVITY SEWER PIPE, ASTM D2241 SDR 26 PRESSURE RATED SEWER PIPE OR AWWA C-900 DR-18 GREEN PVC PRESSURE RATED SEWER PIPE BASED ON CONSTRUCTION CONDITION REQUIREMENT AND CONFORMING TO ASTM D1784 AND CITY OF HOUSTON STANDARD SPECIFICATION SECTION 02506 POLYVINYL CHLORIDE PIPE.
5. WHEN SS PRESSURE RATED PVC PIPE IS USED ON WATERLINE (WL) CROSSING UNDER CONDITION 1 OF COH IDM TABLE 7.3, THE SAME TYPE OF D2241 SDR 26PVC PIPE OR C-900 GREEN DR-18 PVC GREEN PRESSURED TO BE UTILIZING IN BETWEEN TWO SS MH'S. OR TO UTILIZE A DI TRANSITION ADAPTER FOR THE CONNECTING OF ASTM D-3034 PVC GRAVITY PIPE TO DI-OD AWWA C-900 PVC PIPE CENTERED AT WL WHEN CONNECTING TWO DIFFERENT TYPES OF PVC PIPES FOR SEWER CONSTRUCTION.
6. AWWA C-900 DR-18 PVC PIPE USES EITHER AWWA C900 DR-18 PVC FITTINGS OR DIP FITTINGS.
7. ALL SANITARY SEWER LINES UNDER PROPOSED OR FUTURE PAVEMENT AND TO A POINT ONE (1) FOOT BACK OF ALL PROPOSED OR FUTURE CURBS SHALL HAVE BEDDING PER CITY OF HOUSTON STANDARD DETAILS DRAWING NUMBERS 02317-01, 02317-02, OR 02317-03 AS APPLICABLE, WITH 1 ½ SACK CEMENT/CY STABILIZED SAND BACKFILL UP TO THE BOTTOM OF THE PAVEMENT SUBGRADE. 100 PSI PERFORMANCE RESULTS ARE STILL REQUIRED.
8. ALL SANITARY SEWERS CROSSING WATER LINES WITH A CLEARANCE BETWEEN 12 INCHES AND 9 FEET SHALL HAVE A MINIMUM OF ONE 18' JOINT OF 150 PSI DUCTILE IRON OR (GREEN) C900 PVC PIPE MEETING ASTM SPECIFICATION D2241 CENTERED ON WATER LINE. WHEN WATER LINE IS BELOW SANITARY SEWER PROVIDE MINIMUM 2 FOOT SEPARATION.
9. CONTRACTOR SHALL PROVIDE A MINIMUM HORIZONTAL CLEARANCE OF 9' FEET BETWEEN WATER LINES AND SANITARY SEWER MANHOLES AND LINES.
10. SANITARY SEWER MANHOLE RIMS OUTSIDE OF PROPOSED PAVING WILL BE SET 3" – 6" ABOVE THE SURROUNDING LEVEL FINISHED GRADE AFTER PAVING WITH SLOPED BACKFILL ADDED FOR STORM WATER TO DRAIN AWAY FROM MANHOLE RIM.
11. IN WET STABLE TRENCH AREAS USE BEDDING PER CITY OF HOUSTON STANDARD DETAILS DRAWING NUMBER 02317-02 (2002).
12. DEFLECTION TEST: DEFLECTION TESTS SHALL BE PERFORMED ON ALL FLEXIBLE AND SEMI-RIGID SEWER PIPE. THE TEST SHALL BE CONDUCTED AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS. NO PIPE SHALL EXCEED A DEFLECTION OF 5% IF THE DEFLECTION TEST IS TO BE RUN USING A RIGID MANDREL, IT SHALL HAVE A DIAMETER EQUAL TO 95% OF THE INSIDE DIAMETER OF THE PIPE. THE TEST SHALL BE PERFORMED AS PER 30 TAC 317.2 LATEST AMENDMENT AND WITHOUT MECHANICAL PULLING DEVICES. NO BALL-TYPE MANDREL IS ALLOWED.
13. INFILTRATION, EXFILTRATION OR LOW-PRESSURE AIR TEST: EITHER OF THE FOLLOWING TESTS SHALL BE PERFORMED AS PER TAC, TITLE 30 317.2 WITHIN THE SPECIFIED TOLERANCES ON ALL GRAVITY SEWERS.

A. INFILTRATION OR EXFILTRATION TEST: TOTAL LEAKAGE AS DETERMINED BY A HYDROSTATIC HEAD TEST SHALL NOT EXCEED 50 GALLONS PER INCH DIAMETER PER MILE OF PIPE PER 24 HOURS AT A MINIMUM TEST HEAD OF TWO (2) FEET.

B. LOW-PRESSURE AIR TEST: PERFORM TEST ACCORDING TO UNI-B-6-90 OR OTHER APPROPRIATE PROCEDURES. FOR SECTIONS OF PIPE LESS THAN 36" (INCH) AVERAGE INSIDE DIAMETER, THE MINIMUM ALLOWABLE TIME FOR PRESSURE DROP FROM 3.5 P.S.I.G. TO 2.5 P.S.I.G. SHALL BE AS FOLLOWS:
6" 340 SECONDS OR 0.855(L) FOR TEST LENGTHS GREATER THAN 398'
8" 454 SECONDS OR 1.520(L) FOR TEST LENGTHS GREATER THAN 298'
10" 567 SECONDS OR 2.374(L) FOR TEST LENGTHS GREATER THAN 239'
15" 850 SECONDS OR 5.342(L) FOR TEST LENGTHS GREATER THAN 159'
18" 1020 SECONDS OR 7.693(L) FOR TEST LENGTHS GREATER THAN 133'
WHERE L = LENGTH OF LINE OF SAME PIPE SIZE IN FEET.

14. "SAN. S. E." INDICATES "SANITARY SEWER EASEMENT".
15. FOR SANITARY MANHOLE (MH) RIMS SET INSIDE OF OR @ CURB & GUTTER PAVEMENT AND/OR BELOW T.C., MH RIMS WILL BE SET FLUSHED WITH AN ABUTTING PAVED SURFACE. THE (VALCUN, NEENAH OR EQUAL) HEAVY DUTY BOLTED SOLID MH COVER SHALL BE PROPERLY (AND SECURELY) ATTACHED AND SEALED TO ITS COMPATIBLE GASKETED FRAME BY USING BOTH A NEOPRENE GASKET AND (AT LEAST) 4 COUNTER-SUNK HEX-HEAD COARSE THREADED ¾"-13 UNC STAINLESS STEEL BOLTS. THE HEAVY DUTY FRAME MH COVER SHALL BE SOLID (NO AIR HOLES). SAID FRAME SHALL BE BOTH EMBEDDED INTO THE MH'S TOP ALSO SECURELY ANCHORED TO THE UNDERLYING MH STRUCTURE WITH EITHER SECURELY ATTACHED EMBEDDED ANCHOR BOLTS OR THE CONCRETE MH'S EXPOSED REBARS WELDED TO THE FRAME OR OTHER EQUALLY SECURED METHODS TO PREVENT MH COVER/FRAME BLOW-OFFS/EJECTIONS.

STORM WATER QUALITY NOTES

1. SWQMP: THIS PROJECT REQUIRES A STORM WATER QUALITY MANAGEMENT PLAN (SWQMP) BECAUSE THE PROJECT MEETS THE DEFINITION OF NEW DEVELOPMENT OR SIGNIFICANT REDEVELOPMENT UNDER THE HARRIS COUNTY REGULATIONS. THE SWQMP CONTROLS SHALL BE CONSTRUCTED BY THE CONTRACTOR, THEN MAINTAINED BY THE COUNTY UPON COMPLETION OF THE PROJECT.
2. SWPPP: THIS PROJECT DISTURBS 0.46 ACRES; THEREFORE COVERAGE IS NOT REQUIRED UNDER THE TPDES GENERAL PERMIT TXR150000 FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTATION, INSPECTION, AND MAINTENANCE OF THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS. THE COSTS TO IMPLEMENT, INSPECT, AND MAINTAIN THE SWPPP SHALL BE CONSIDERED INCIDENTAL TO THE SWPPP BID ITEMS.
3. SINCE THIS PROJECT DISTURBS LESS THAN 5 ACRES, A NOTICE OF INTENT (NOI) IS NOT REQUIRED TO BE SUBMITTED TO THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ).
4. COPIES OF THE CONTRACTOR'S AND HARRIS COUNTY'S NOI AND CONSTRUCTION SITE NOTICE (CSN) SHALL BE POSTED AT THE SITE BY THE CONTRACTOR. THE CONTRACTOR SHALL LAMINATE AND POST THE TWO NOIS, TWO CSNS AND ANY "SECONDARY OPERATOR" CSNS ON THE PROJECT SITE AT THE LOCATION WITH EASY ACCESS TO THE PUBLIC FOR CLEAR VIEWING AND AS APPROVED BY THE ENGINEER. THE COST OF LAMINATION AND POSTING OF THE NOIS AND CSNS SHALL BE CONSIDERED INCIDENTAL TO THE SWPPP BID ITEMS.
5. UPON COMPLETION OF CONSTRUCTION ACTIVITIES AND FINAL STABILIZATION OF THE SITE, AS DEFINED BY THE TPDES GENERAL PERMIT, A NOTICE OF TERMINATION (NOT) IS REQUIRED TO BE SUBMITTED TO THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ). THIS PROJECT SHALL HAVE TWO NOTS, ONE WITH THE CONTRACTOR'S SIGNATURE AND ONE WITH HARRIS COUNTY'S SIGNATURE. WHEN DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL PROVIDE TO HARRIS COUNTY A SIGNED COPY OF THE CONTRACTOR'S NOTICE OF TERMINATION (NOT). HARRIS COUNTY SHALL SUBMIT TO THE TCEQ THE CONTRACTOR'S AND HARRIS COUNTY'S SIGNED NOTS. HARRIS COUNTY SHALL ALSO SUBMIT COPIES OF BOTH SIGNED NOTS TO THE LOCAL MUNICIPAL SEPARATE STORM SEWER SYSTEM OPERATOR.
6. A RAIN GAUGE SHALL BE KEPT ON THE PROJECT SITE OR WITHIN THE IMMEDIATE PROJECT VICINITY. RECORDS OF RAINFALL EVENTS SHALL BE KEPT BY THE CONTRACTOR TO ASSIST WITH DETERMINING IF AN SWPPP SITE INSPECTION IS REQUIRED. THE COSTS FOR THE RAIN GAUGE SHALL BE CONSIDERED INCIDENTAL TO THE SWPPP BID ITEMS.
7. THE SWPPP, INSPECTION AND MAINTENANCE REPORTS, CERTIFICATIONS, RAINFALL RECORDS, MAJOR GRADING DATE RECORDS AND TEMPORARY AND PERMANENT STABILIZATION DATE RECORDS SHALL BE KEPT CURRENT BY THE CONTRACTOR AND IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS. COPIES OF THE ALL SWPPP RECORDS SHALL BE KEPT ON-SITE, IF FEASIBLE, UNTIL THE NOTICE OF TERMINATION HAS BEEN SUBMITTED TO THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY. THE SWPPP RECORDS TO HARRIS COUNTY AS DIRECTED BY THE ENGINEER.

BENCHMARK REFERENCE

1. THESE PLANS AND THE SURVEYS UPON WHICH THEY ARE BASED ARE TIED INTO THE OFFICIAL CITY OF HOUSTON SURVEY SYSTEM IN COMPLIANCE WITH ORDINANCE NO. 69-1978. THE CITY SURVEY MARKERS USED FOR THE TIES ARE SHOWN ON THE PLANS.
2. WHERE NEW CONSTRUCTION WILL DAMAGE, DESTROY, OR ALTER AN EXISTING SURVEY MARKER, CONTRACTOR TO INSTALL A SURVEY MARKER BOX AT NO DIRECT COST TO THE CITY. THE NUMBER AND LOCATION OF THE BOXES IS TO BE DETERMINED BY THE CITY ENGINEER AND SAID BOXES WILL BE FURNISHED BY THE CONTRACTOR.
3. REFER TO SURVEY CONTROL MAP FOR ALL BENCHMARKS, HORIZONTAL AND VERTICAL CONTROL.

PRIVATE UTILITY NOTES

CENTERPOINT ENERGY NOTES:

CAUTION: UNDERGROUND GAS FACILITIES

LOCATION OF CENTERPOINT ENERGY MAIN LINES (TO INCLUDE CENTERPOINT ENERGY, INTRASTATE PIPELINE, LLC. WHERE APPLICABLE) ARE SHOWN IN AN APPROXIMATE LOCATION ONLY. SERVICE LINES ARE USUALLY NOT SHOWN. OUR SIGNATURE ON THESE PLANS ONLY INDICATES THAT OUR FACILITIES ARE SHOWN IN APPROXIMATE LOCATION. IT DOES NOT IMPLY THAT A CONFLICT ANALYSIS HAS BEEN MADE. THE CONTRACTOR SHALL CONTACT THE UTILITY COORDINATING COMMITTEE AT 1-800-545-6005 OR 811 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE MAIN AND SERVICE LINES FIELD LOCATED.

- WHEN CENTERPOINT ENERGY PIPE LINE MARKINGS ARE NOT VISIBLE, CALL (713) 945-8036 OR (713) 945-8037 (7:00 A.M. TO 4:30 P.M.) FOR STATUS OF LINE LOCATION REQUEST BEFORE EXCAVATION BEGINS.
- WHEN EXCAVATING WITHIN EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF CENTERPOINT ENERGY FACILITIES, ALL EXCAVATION MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES.
- WHEN CENTERPOINT ENERGY FACILITIES ARE EXPOSED, SUFFICIENT SUPPORT MUST BE PROVIDED TO THE FACILITIES TO PREVENT EXCESSIVE STRESS ON THE PIPING.
- FOR EMERGENCIES REGARDING GAS LINES CALL (713) 659-3552 OR (713) 207-4200

THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND FACILITIES.

WARNING: OVERHEAD ELECTRICAL LINES

OVERHEAD LINES MAY EXIST ON THE PROPERTY. THE LOCATION OF OVERHEAD LINES HAS NOT BEEN SHOWN ON THESE DRAWINGS AS THE LINES ARE CLEARLY VISIBLE. BUT YOU SHOULD LOCATE THEM PRIOR TO BEGINNING ANY CONSTRUCTION. TEXAS LAW, SECTION 752, HEALTH & SAFETY CODE FORBIDS ACTIVITIES THAT OCCUR IN CLOSE PROXIMITY TO HIGH VOLTAGE LINES, SPECIFICALLY:

- ANY ACTIVITY WHERE PERSON OR THINGS MAY COME WITHIN SIX (6) FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES, AND
- OPERATING A CRANE, DERRICK, POWER SHOVEL, DRILLING RIG, PILE DRIVER, HOISTING EQUIPMENT, OR SIMILAR APPARATUS WITHIN 10 FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES.

PARTIES RESPONSIBLE FOR THE WORK, INCLUDING CONTRACTORS ARE LEGALLY RESPONSIBLE FOR THE SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. THIS LAW CARRIES BOTH CRIMINAL AND CIVIL LIABILITY. TO ARRANGE FOR LINES TO BE TURNED OFF OR REMOVED CALL CENTERPOINT ENERGY AT (713) 207-2222.

ACTIVITIES ON OR ACROSS CENTERPOINT ENERGY FEE OR EASEMENT PROPERTY

NO APPROVAL TO USE, CROSS OR OCCUPY CENTERPOINT FEE OR EASEMENT PROPERTY IS GIVEN. IF YOU NEED TO USE CENTERPOINT PROPERTY, PLEASE CONTACT OUR SURVEYING & RIGHT OF WAY DIVISION AT (713) 207-6348 OR (713) 207-5769.

AT&T TEXAS/SWBT FACILITIES:

1. THE LOCATIONS OF AT&T TEXAS/SWBT FACILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND UTILITIES.
2. THE CONTRACTOR SHALL CALL 1-800-344-8377 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE UNDERGROUND LINES FIELD LOCATED.
3. WHEN EXCAVATING WITHIN EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF AT&T TEXAS/SWBT FACILITIES, ALL EXCAVATIONS MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES. WHEN BORING, THE CONTRACTOR SHALL EXPOSE THE AT&T TEXAS/SWBT FACILITIES.
4. WHEN AT&T TEXAS/SWBT FACILITIES ARE EXPOSED, THE CONTRACTOR SHALL PROVIDE SUPPORT TO PREVENT DAMAGE TO THE CONDUIT DUCTS OR CABLES. WHEN EXCAVATING NEAR TELEPHONE POLES THE CONTRACTOR SHALL BRACE THE POLE FOR SUPPORT.
5. THE PRESENCE OR ABSENCE OF AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES OR BURIED CABLE FACILITIES SHOWN ON THESE PLANS DOES NOT MEAN THAT THERE ARE NO DIRECT BURIED CABLES OR OTHER CABLES IN CONDUIT IN THE AREA.
6. PLEASE CONTACT THE AT&T TEXAS DAMAGE PREVENTION MANAGER MR. ROOSEVELT LEE JR. AT (713) 567-4552 OR E-MAIL HIM AT rl7259@att.com, IF THERE ARE QUESTIONS ABOUT BORING OR EXCAVATING NEAR OUR AT&T TEXAS/SWBT FACILITIES.

CLIENT
HCC
HOUSTON COMMUNITY COLLEGE
HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002
[T] (713) 718-2000
[F] (713) 718-8331

ARCHITECT
PGAL
3131 BRIARPARK DRIVE
SUITE 200
HOUSTON, TX 77042
[T] 713 622 1444
[F] 713 968 9333
www.pgal.com
PGAL TBPE REG NO F-2742

CONSULTANT

PROJECT NAME
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT LOCATION
6010 LITTLE YORK ROAD
HOUSTON, TEXAS 77016

DATE OF ISSUE
JANUARY 28, 2020
ISSUED FOR CONSTRUCTION

DRAWING HISTORY

REGISTRATION

STATE OF TEXAS
OKSANA KANTAKA
116902
LICENSED
PROFESSIONAL ENGINEER
O. Kantara
01-28-2020

PROJECT NUMBER
1002047

SHEET TITLE
CONSTRUCTION NOTES

SHEET NUMBER
C0.10

FILE NAME: R:\1002000-1002999\1002047\NORTH FOREST CAMPUS\3-CAD\5010 CAD FILES\ADDITIONAL WORK\CIVIL\SHEET\C010 GENERAL CONSTRUCTION NOTES.DWG
DATE STAMP: Friday, January 31, 2020 3:09:28 PM

SECTION 334100 – STORM UTILITY DRAINAGE PIPING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 01 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.

1.2 SUMMARY

A. SECTION INCLUDES:
1. PIPE AND FITTINGS.
2. NON-PRESSURE TRANSITION COUPLINGS.
3. PRESSURE PIPE COUPLINGS.
4. CLEANOUTS.
5. MANHOLES.
6. INLETS/CATCH BASINS/JUNCTION BOXES.
7. STORMWATER QUALITY STRUCTURES.

1.3 DEFINITIONS

A. FRP: FIBERGLASS-REINFORCED PLASTIC.

1.4 ACTION SUBMITTALS

A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED.

B. SHOP DRAWINGS:
1. MANHOLES: INCLUDE PLANS, ELEVATIONS, SECTIONS, DETAILS, FRAMES, AND COVERS.
2. INLETS AND CATCH BASINS. INCLUDE PLANS, ELEVATIONS, SECTIONS, DETAILS, FRAMES, COVERS, AND GRATES.
3. STORMWATER QUALITY STRUCTURES: INCLUDE PLANS, ELEVATIONS, SECTIONS, DETAILS, FRAMES, COVERS, DESIGN CALCULATIONS, AND CONCRETE DESIGN-MIX REPORTS.

1.5 INFORMATIONAL SUBMITTALS

A. COORDINATION DRAWINGS: SHOW PIPE SIZES, LOCATIONS, AND ELEVATIONS. SHOW OTHER PIPING IN SAME TRENCH AND CLEARANCES FROM STORM DRAINAGE SYSTEM PIPING. INDICATE INTERFACE AND SPATIAL RELATIONSHIP BETWEEN MANHOLES, PIPING, AND PROXIMATE STRUCTURES.

B. PRODUCT CERTIFICATES: FOR EACH TYPE OF PIPE AND FITTING, FROM MANUFACTURER.

C. FIELD QUALITY-CONTROL REPORTS.

1.6 DELIVERY, STORAGE, AND HANDLING

A. DO NOT STORE PLASTIC MANHOLES, PIPE, AND FITTINGS IN DIRECT SUNLIGHT.

B. PROTECT PIPE, PIPE FITTINGS, AND SEALS FROM DIRT AND DAMAGE.

C. HANDLE MANHOLES ACCORDING TO MANUFACTURER'S WRITTEN RIGGING INSTRUCTIONS.

D. HANDLE STORMWATER INLETS ACCORDING TO MANUFACTURER'S WRITTEN RIGGING INSTRUCTIONS.

1.7 PROJECT CONDITIONS

A. INTERRUPTION OF EXISTING STORM DRAINAGE SERVICE: DO NOT INTERRUPT SERVICE TO FACILITIES OCCUPIED BY OWNER OR OTHERS UNLESS PERMITTED UNDER THE FOLLOWING CONDITIONS AND THEN ONLY AFTER ARRANGING TO PROVIDE TEMPORARY SERVICE ACCORDING TO REQUIREMENTS INDICATED:
1. NOTIFY ARCHITECT NO FEWER THAN TWO DAYS IN ADVANCE OF PROPOSED INTERRUPTION OF SERVICE.
2. DO NOT PROCEED WITH INTERRUPTION OF SERVICE WITHOUT ARCHITECT'S WRITTEN PERMISSION.

PART 2 – PRODUCTS

2.1 DUCTILE-IRON, PRESSURE PIPE AND FITTINGS

A. PUSH-ON-JOINT PIPING:

PIPE IN FIRST SUBPARAGRAPH BELOW SHOULD BE AVAILABLE IN NPS 3 TO NPS 64 (DN 80 TO DN 1600), BUT NO MANUFACTURER OF NPS 3 (DN 80) WAS LOCATED. JOINTS ARE GASKETED TYPE.

1. PIPE: AWWA C151, FOR PUSH-ON JOINTS.

FITTINGS IN FIRST SUBPARAGRAPH BELOW ARE AVAILABLE IN NPS 3 TO NPS 48 (DN 80 TO DN 1200).

FITTINGS IN FIRST SUBPARAGRAPH BELOW ARE AVAILABLE IN NPS 3 TO NPS 284 (DN 80 TO DN 1600) AND NPS 54 TO NPS 64 (DN 1350 TO DN 1600).

2. COMPACT FITTINGS: AWWA C153, FOR PUSH-ON JOINTS.
3. GASKETS: AWWA C111, RUBBER, OF SHAPE MATCHING PIPE AND FITTINGS.

2.2 PE PIPE AND FITTINGS

PIPING IN FIRST PARAGRAPH BELOW IS AVAILABLE IN NPS 3 TO NPS 10 (DN 80 TO DN 250). JOINTS ARE COUPLING TYPE.

PIPING IN PARAGRAPH BELOW IS AVAILABLE IN NPS 12 TO NPS 60 (DN 300 TO DN 1500). JOINTS ARE COUPLING TYPE.

A. CORRUGATED PE PIPE AND FITTINGS NPS 18 TO NPS 30 (DN 450 TO DN 750): AASHTO M 294M, TYPE S, WITH SMOOTH WATERWAY FOR COUPLING JOINTS.

JOINTS MADE USING COUPLINGS IN FIRST SUBPARAGRAPH BELOW ARE SILTTIGHT.

1. SILTTIGHT COUPLINGS: PE SLEEVE WITH ASTM D 1056, TYPE 2, CLASS A, GRADE 2 GASKET MATERIAL THAT MATES WITH PIPE AND FITTINGS.

JOINTS MADE USING COUPLINGS IN SUBPARAGRAPH BELOW ARE SOILTIGHT.

2.3 PVC PIPE AND FITTINGS

PIPING IN FIRST PARAGRAPH BELOW IS AVAILABLE IN NPS 1-1/2 TO NPS 12 (DN 40 TO DN 300). JOINTS ARE SOLVENT-CEMENTED TYPE.

PIPING IN FIRST PARAGRAPH BELOW IS AVAILABLE IN FOUR SDRS AND IN NPS 4 TO NPS 15 (DN 100 TO DN 375). JOINTS ARE GASKETED TYPE.

A. PVC TYPE PSM SEWER PIPING NPS 8 TO NPS 15 (DN 200 TO DN 380):
1. PIPE: ASTM D 3034, SDR 26, PVC TYPE PSM SEWER PIPE WITH BELL-AND-SPIGOT ENDS FOR GASKETED JOINTS.
2. FITTINGS: ASTM D 3034, PVC WITH BELL ENDS.
3. GASKETS: ASTM F 477, ELASTOMERIC SEALS.

PIPING IN FIRST PARAGRAPH BELOW IS AVAILABLE IN TWO THICKNESSES AND IN NPS 18 TO NPS 36 (DN 450 TO DN 900). JOINTS ARE GASKETED TYPE. GASKETS ARE FURNISHED WITH PIPE AND FITTINGS.

PIPING IN FIRST PARAGRAPH BELOW IS AVAILABLE IN NPS 4 TO NPS 12 (DN 100 TO DN 300). JOINTS ARE GASKETED TYPE.

B. PVC PRESSURE PIPING:
1. PIPE: AWWA C900, PVC PIPE WITH BELL-AND-SPIGOT ENDS FOR GASKETED JOINTS.
2. GASKETS: ASTM F 477, ELASTOMERIC SEALS.

PIPING IN PARAGRAPH BELOW IS AVAILABLE IN NPS 1/8 TO NPS 24 (DN 6 TO DN 600). JOINTS ARE SOLVENT-CEMENTED TYPE.

C. PVC WATER-SERVICE PIPING (STORM FORCE MAIN):
1. PIPE: ASTM D 1785, SCHEDULE 80 PVC, WITH PLAIN ENDS FOR SOLVENT-CEMENTED JOINTS.
2. FITTINGS: ASTM D 2467, SCHEDULE 80 PVC, SOCKET TYPE.

2.4 CONCRETE PIPE AND FITTINGS

CONCRETE PIPE IN THIS ARTICLE IS AVAILABLE IN MANY VARIATIONS OF CLASS AND WALL THICKNESS. REVIEW THE APPLICABLE STANDARD BEFORE MAKING SELECTION.

PIPING IN FIRST PARAGRAPH BELOW IS AVAILABLE IN THREE CLASSES AND IN NPS 4 TO NPS 36 (DN 100 TO DN 900). JOINTS ARE GASKETED TYPE.

PIPING IN PARAGRAPH BELOW IS AVAILABLE IN FIVE CLASSES AND THREE WALL THICKNESSES, AND IN NPS 12 TO NPS 144 (DN 300 TO DN 3600). NOT ALL CLASSES AND WALL THICKNESSES ARE AVAILABLE. JOINTS ARE GASKETED TYPE.

A. REINFORCED-CONCRETE SEWER PIPE AND FITTINGS: ASTM C 76 (ASTM C 76M).
1. BELL-AND-SPIGOT OR TONGUE-AND-GROOVE ENDS AND SEALANT JOINTS WITH ASTM C 990 (ASTM C 990M), BITUMEN OR BUTYL-RUBBER SEALANT.
2. CLASS III, WALL B.

2.5 NON-PRESSURE TRANSITION COUPLINGS

A. COMPLY WITH ASTM C 1173, ELASTOMERIC, SLEEVE-TYPE, REDUCING OR TRANSITION COUPLING, FOR JOINING UNDERGROUND NON-PRESSURE PIPING. INCLUDE ENDS OF SAME SIZES AS PIPING TO BE JOINED, AND CORROSION-RESISTANT-METAL TENSION BAND AND TIGHTENING MECHANISM ON EACH END.

B. SLEEVE MATERIALS:
1. FOR CONCRETE PIPES: ASTM C 443 (ASTM C 443M), RUBBER.
2. FOR PLASTIC PIPES: ASTM F 477, ELASTOMERIC SEAL OR ASTM D 5926, PVC.
3. FOR DISSIMILAR PIPES: ASTM D 5926, PVC OR OTHER MATERIAL COMPATIBLE WITH PIPE MATERIALS BEING JOINED.

C. UNSHIELDED, FLEXIBLE COUPLINGS:
1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
a. DALLAS SPECIALTY & MFG. CO.
b. FERNCO INC.
c. LOGAN CLAY PIPE.
d. MISSION RUBBER COMPANY; A DIVISION OF MCP INDUSTRIES, INC.
e. NDS INC.
f. PLASTIC ODDITIES; A DIVISION OF DIVERSE CORPORATE TECHNOLOGIES, INC.
2. DESCRIPTION: ELASTOMERIC SLEEVE WITH STAINLESS-STEEL SHEAR RING AND CORROSION-RESISTANT-METAL TENSION BAND AND TIGHTENING MECHANISM ON EACH END.

D. SHIELDED, FLEXIBLE COUPLINGS:
1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
a. CASCADE WATERWORKS MFG.
b. DALLAS SPECIALTY & MFG. CO.
c. MISSION RUBBER COMPANY; A DIVISION OF MCP INDUSTRIES, INC.
2. DESCRIPTION: ASTM C 1460, ELASTOMERIC OR RUBBER SLEEVE WITH FULL-LENGTH, CORROSION-RESISTANT OUTER SHIELD AND CORROSION-RESISTANT-METAL TENSION BAND AND TIGHTENING MECHANISM ON EACH END.

E. RING-TYPE, FLEXIBLE COUPLINGS:
1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
a. FERNCO INC.
b. LOGAN CLAY PIPE.
c. MISSION RUBBER COMPANY; A DIVISION OF MCP INDUSTRIES, INC.
2. DESCRIPTION: ELASTOMERIC COMPRESSION SEAL WITH DIMENSIONS TO FIT INSIDE BELL OF LARGER PIPE AND FOR SPIGOT OF SMALLER PIPE TO FIT INSIDE RING.

2.6 PRESSURE PIPE COUPLINGS

A. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
1. CASCADE WATERWORKS MFG.
2. DRESSER, INC.
3. FORD METER BOX COMPANY, INC. (THE); PIPE PRODUCTS DIV.
4. JCM INDUSTRIES, INC.
5. ROMAC INDUSTRIES, INC.
6. SMITH-BLAIR, INC.; A SENSUS COMPANY.
7. VICTAULIC DEPEND-O-LOK, INC.
8. VIKING JOHNSON.

B. DESCRIPTION: AWWA C219, TUBULAR-SLEEVE COUPLING, WITH CENTER SLEEVE, GASKETS, END RINGS, AND BOLT FASTENERS.

C. METAL, BOLTED, SLEEVE-TYPE, REDUCING OR TRANSITION COUPLING, FOR JOINING UNDERGROUND PRESSURE PIPING. INCLUDE 150-PSIG (1035-KPA) MINIMUM PRESSURE RATING AND ENDS SIZED TO FIT ADJOINING PIPES.

D. CENTER-SLEEVE MATERIAL: DUCTILE IRON.

E. GASKET MATERIAL: NATURAL OR SYNTHETIC RUBBER.

F. METAL COMPONENT FINISH: CORROSION-RESISTANT COATING OR MATERIAL.

2.7 CLEANOUTS

A. CAST-IRON CLEANOUTS (ALL VEHICULAR TRAFFIC PAVING AREAS):
1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
a. JOSAM COMPANY.
b. MIFAB, INC.
c. SMITH, JAY R., MFG. CO.
d. TYLER PIPE.
e. WATTS WATER TECHNOLOGIES, INC.
f. ZURN SPECIFICATION DRAINAGE OPERATION; ZURN PLUMBING PRODUCTS GROUP.
2. DESCRIPTION: ASME A112.36.2M, ROUND, GRAY-IRON HOUSING WITH CLAMPING DEVICE AND ROUND, SECURED, SCORIATED, GRAY-IRON COVER. INCLUDE GRAY-IRON FERRULE WITH INSIDE CALK OR SPIGOT CONNECTION AND COUNTERSUNK, TAPERED-THREAD, BRASS CLOSURE PLUG.
3. TOP-LOADING CLASSIFICATION(S): HEAVY DUTY.
4. SEWER PIPE FITTING AND RISER TO CLEANOUT: PVC SEWER PIPE FITTING AND RISER TO CLEANOUT OF SAME MATERIAL AS SEWER PIPING.

B. PLASTIC CLEANOUTS (GRASS AND NON-VEHICULAR TRAFFIC PAVING AREAS ONLY):
1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
a. CANPLAS LLC.
b. IPS CORPORATION.
c. NDS INC.
d. PLASTIC ODDITIES; A DIVISION OF DIVERSE CORPORATE TECHNOLOGIES, INC.
e. SIOUX CHIEF MANUFACTURING COMPANY, INC.
f. ZURN LIGHT COMMERCIAL PRODUCTS OPERATION; ZURN PLUMBING PRODUCTS GROUP.
2. DESCRIPTION: PVC BODY WITH PVC THREADED PLUG. INCLUDE PVC SEWER PIPE FITTING AND RISER TO CLEANOUT OF SAME MATERIAL AS SEWER PIPING.

2.8 ENCASEMENT FOR PIPING (DUCTILE IRON)

A. STANDARD: ASTM A 674 OR AWWA C105.

B. MATERIAL: HIGH-DENSITY, CROSS-LAMINATED POLYETHYLENE FILM OF 0.004-INCH (0.10-MM) MINIMUM THICKNESS.

C. FORM: SHEET OR TUBE.

D. COLOR: BLACK.

2.9 MANHOLES

A. DESIGNED PRECAST CONCRETE MANHOLES:
1. DESCRIPTION: ASTM C 913; DESIGNED ACCORDING TO ASTM C 890 FOR A-16 (AASHTO HS20-44), HEAVY-TRAFFIC, STRUCTURAL LOADING; OF DEPTH, SHAPE, AND DIMENSIONS INDICATED, WITH PROVISION FOR SEALANT JOINTS.
2. BALLAST: INCREASE THICKNESS OF ONE OR MORE PRECAST CONCRETE SECTIONS OR ADD CONCRETE TO MANHOLE AS REQUIRED TO PREVENT FLOTATION.
3. JOINT SEALANT: ASTM C 990 (ASTM C 990M), BITUMEN OR BUTYL RUBBER.
4. RESILIENT PIPE CONNECTORS: ASTM C 923 (ASTM C 923M), CAST OR FITTED INTO MANHOLE WALLS, FOR EACH PIPE CONNECTION.
5. GRADE RINGS: REINFORCED-CONCRETE RINGS, 6- TO 9-INCH (150- TO 225-MM) TOTAL THICKNESS, TO MATCH DIAMETER OF MANHOLE FRAME AND COVER, AND OF HEIGHT REQUIRED TO ADJUST MANHOLE FRAME AND COVER TO INDICATED ELEVATION AND SLOPE.

B. MANHOLE FRAMES AND COVERS:
1. DESCRIPTION: FERROUS; 24-INCH (610-MM) ID BY 7- TO 9-INCH (175- TO 225-MM) RISER WITH 4-INCH- (102-MM-) MINIMUM WIDTH FLANGE AND 26-INCH- (660-MM-) DIAMETER COVER. INCLUDE INDENTED TOP DESIGN WITH LETTERING CAST INTO COVER, USING WORDING EQUIVALENT TO "STORM SEWER."
2. MATERIAL: ASTM A 48/A 48M, CLASS 35 GRAY IRON UNLESS OTHERWISE INDICATED.
3. CLASSIFICATION/CERTIFICATION: HEAVY DUTY TRAFFIC SERVICE/AASHTO M306.

2.10 CONCRETE

A. GENERAL: CAST-IN-PLACE CONCRETE ACCORDING TO ACI 318, ACI 350/350R (ACI 350M/350RM), AND THE FOLLOWING:
1. CEMENT: ASTM C 150, TYPE II.
2. FINE AGGREGATE: ASTM C 33, SAND.
3. COARSE AGGREGATE: ASTM C 33, CRUSHED GRAVEL.
4. WATER: POTABLE.

B. PORTLAND CEMENT DESIGN MIX: 4,000 PSI (27.6 MPA) MINIMUM, WITH 0.45 MAXIMUM WATER/CEMENTITIOUS MATERIALS RATIO.
1. REINFORCING FABRIC: ASTM A 185/A 185M, STEEL, WELDED WIRE FABRIC, PLAIN.
2. REINFORCING BARS: ASTM A 615/A 615M, GRADE 60 (420 MPA) DEFORMED STEEL.

C. MANHOLE CHANNELS AND BENCHES: FACTORY OR FIELD FORMED FROM CONCRETE. PORTLAND CEMENT DESIGN MIX, 4,000 PSI (27.6 MPA) MINIMUM, WITH 0.45 MAXIMUM WATER/CEMENTITIOUS MATERIALS RATIO. INCLUDE CHANNELS AND BENCHES IN MANHOLES.
1. CHANNELS: CONCRETE INVERT, FORMED TO SAME WIDTH AS CONNECTED PIPING, WITH HEIGHT OF VERTICAL SIDES TO THREE-FOURTHS OF PIPE DIAMETER. FORM CURVED CHANNELS WITH SMOOTH, UNIFORM RADIUS AND SLOPE.
a. INVERT SLOPE: 1 PERCENT THROUGH MANHOLE.
2. BENCHES: CONCRETE, SLOPED TO DRAIN INTO CHANNEL.
a. SLOPE: 8 PERCENT.

D. BALLAST AND PIPE SUPPORTS: PORTLAND CEMENT DESIGN MIX, 3,000 PSI (20.7 MPA) MINIMUM, WITH 0.58 MAXIMUM WATER/CEMENTITIOUS MATERIALS RATIO.
1. REINFORCING FABRIC: ASTM A 185/A 185M, STEEL, WELDED WIRE FABRIC, PLAIN.
2. REINFORCING BARS: ASTM A 615/A 615M, GRADE 60 (420 MPA) DEFORMED STEEL.

2.11 CATCH BASINS AND JUNCTION BOXES

A. DESIGNED PRECAST CONCRETE CATCH BASINS: ASTM C 913, PRECAST, REINFORCED CONCRETE; DESIGNED ACCORDING TO ASTM C 890 FOR A-16 (AASHTO HS20-44), HEAVY-TRAFFIC, STRUCTURAL LOADING; OF DEPTH, SHAPE, AND DIMENSIONS INDICATED, WITH PROVISION FOR JOINT SEALANTS.
1. JOINT SEALANTS: ASTM C 990 (ASTM C 990M), BITUMEN OR BUTYL RUBBER.
2. ADJUSTING RINGS: INTERLOCKING RINGS WITH LEVEL OR SLOPED EDGE IN THICKNESS AND SHAPE MATCHING CATCH BASIN FRAME AND GRATE. INCLUDE SEALANT RECOMMENDED BY RING MANUFACTURER.
3. PIPE CONNECTORS: ASTM C 923 (ASTM C 923M), RESILIENT, OF SIZE REQUIRED, FOR EACH PIPE CONNECTING TO BASE SECTION.

B. FRAMES AND GRATES: ASTM A 536, GRADE 60-40-18, DUCTILE IRON DESIGNED FOR A-16, STRUCTURAL LOADING. INCLUDE FLAT GRATE WITH SMALL SQUARE OR SHORT-SLOTTED DRAINAGE OPENINGS.
1. SIZE: 24 BY 24 INCHES (610 BY 610 MM) MINIMUM UNLESS OTHERWISE INDICATED.
2. GRATE FREE AREA: APPROXIMATELY 50 PERCENT UNLESS OTHERWISE INDICATED.

C. FRAMES AND GRATES: ASTM A 536, GRADE 60-40-18, DUCTILE IRON DESIGNED FOR A-16, STRUCTURAL LOADING. INCLUDE 24-INCH (610-MM) ID BY 7- TO 9-INCH (175- TO 225-MM) RISER WITH 4-INCH (102-MM) MINIMUM WIDTH FLANGE, AND 26-INCH- (660-MM-) DIAMETER FLAT GRATE WITH SMALL SQUARE OR SHORT-SLOTTED DRAINAGE OPENINGS.
1. GRATE FREE AREA: APPROXIMATELY 50 PERCENT UNLESS OTHERWISE INDICATED.

SEE SECTION 055300 "METAL GRATINGS" FOR FABRICATED-STEEL GRATING.

2.12 STORMWATER QUALITY STRUCTURES

A. CAST-IN-PLACE OR PRECAST CONCRETE, STORMWATER DETENTION STRUCTURES: CONSTRUCTED OF REINFORCED-CONCRETE BOTTOM, WALLS, AND TOP; DESIGNED ACCORDING TO ASTM C 890 FOR A-16 (AASHTO HS20-44), HEAVY-TRAFFIC, STRUCTURAL LOADING; OF DEPTH, SHAPE, DIMENSIONS, AND APPURTENANCES INDICATED.
1. BALLAST: INCREASE THICKNESS OF CONCRETE AS REQUIRED TO PREVENT FLOTATION.
2. GRADE RINGS: INCLUDE TWO OR THREE REINFORCED-CONCRETE RINGS, OF 6- TO 9-INCH (150- TO 229-MM) TOTAL THICKNESS, THAT MATCH 24-INCH- (610-MM-) DIAMETER FRAME AND COVER.
3. STEPS: INDIVIDUAL FRP STEPS OR FRP LADDER, WIDE ENOUGH TO ALLOW WORKER TO PLACE BOTH FEET ON ONE STEP AND DESIGNED TO PREVENT LATERAL SLIPPAGE OFF STEP. CAST OR ANCHOR STEPS INTO SIDEWALLS AT 12- TO 16-INCH (300- TO 400-MM) INTERVALS. OMIT STEPS IF TOTAL DEPTH FROM FLOOR OF STRUCTURE TO FINISHED GRADE IS LESS THAN 36 INCHES (900 MM).

B. MANHOLE FRAMES AND COVERS: ASTM A 536, GRADE 60-40-18, DUCTILE-IRON CASTINGS DESIGNED FOR HEAVY-DUTY SERVICE. INCLUDE 24-INCH (610-MM) ID BY 7- TO 9-INCH (175- TO 225-MM) RISER WITH 4-INCH (102-MM) MINIMUM WIDTH FLANGE, AND 26-INCH- (660-MM-) DIAMETER COVER. INCLUDE INDENTED TOP DESIGN WITH LETTERING CAST INTO COVER, USING WORDING EQUIVALENT TO "STORM SEWER."

PART 3 – EXECUTION

3.1 EARTHWORK

A. EXCAVATION, TRENCHING, AND BACKFILLING ARE SPECIFIED IN SECTION 312000 "EARTH MOVING."

3.2 PIPING INSTALLATION

A. GENERAL LOCATIONS AND ARRANGEMENTS: DRAWING PLANS AND DETAILS INDICATE GENERAL LOCATION AND ARRANGEMENT OF UNDERGROUND STORM DRAINAGE PIPING. LOCATION AND ARRANGEMENT OF PIPING LAYOUT TAKE INTO ACCOUNT DESIGN CONSIDERATIONS. INSTALL PIPING AS INDICATED, TO EXTENT PRACTICAL. WHERE SPECIFIC INSTALLATION IS NOT INDICATED, FOLLOW PIPING MANUFACTURER'S WRITTEN INSTRUCTIONS.

B. INSTALL PIPING BEGINNING AT LOW POINT, TRUE TO GRADES AND ALIGNMENT INDICATED WITH UNBROKEN CONTINUITY OF INVERT. PLACE BELL ENDS OF PIPING FACING UPSTREAM. INSTALL GASKETS, SEALS, SLEEVES, AND COUPLINGS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS FOR USE OF LUBRICANTS, CEMENTS, AND OTHER INSTALLATION REQUIREMENTS.

C. INSTALL MANHOLES FOR CHANGES IN DIRECTION UNLESS FITTINGS ARE INDICATED. USE FITTINGS FOR BRANCH CONNECTIONS UNLESS DIRECT TAP INTO EXISTING SEWER IS INDICATED.

D. INSTALL PROPER SIZE INCREASERS, REDUCERS, AND COUPLINGS WHERE DIFFERENT SIZES OR MATERIALS OF PIPES AND FITTINGS ARE CONNECTED. REDUCING SIZE OF PIPING IN DIRECTION OF FLOW IS PROHIBITED.

E. WHEN INSTALLING PIPE UNDER STREETS OR OTHER OBSTRUCTIONS THAT CANNOT BE DISTURBED, USE PIPE-JACKING PROCESS OF MICROTUNNELING.

F. INSTALL GRAVITY-FLOW, NON-PRESSURE DRAINAGE PIPING ACCORDING TO THE FOLLOWING:
1. INSTALL PIPING PITCHED DOWN IN DIRECTION OF FLOW.
2. INSTALL PIPING NPS 6 (DN 150) AND LARGER WITH RESTRAINED JOINTS AT TEE FITTINGS AND AT CHANGES IN DIRECTION. USE CORROSION-RESISTANT RODS, PIPE OR FITTING MANUFACTURER'S PROPRIETARY RESTRAINT SYSTEM, OR CAST-IN-PLACE CONCRETE SUPPORTS OR ANCHORS.
3. INSTALL PIPING WITH 15-INCH (380-MM) MINIMUM COVER.
4. INSTALL DUCTILE-IRON PIPING AND SPECIAL FITTINGS ACCORDING TO AWWA C600 OR AWWA M41.
5. INSTALL PE CORRUGATED SEWER PIPING ACCORDING TO ASTM D 2321.
6. INSTALL PVC SEWER PIPING ACCORDING TO ASTM D 2321 AND ASTM F 1668.
7. INSTALL PVC WATER-SERVICE PIPING ACCORDING TO ASTM D 2321 AND ASTM F 1668.
8. INSTALL REINFORCED-CONCRETE SEWER PIPING ACCORDING TO ASTM C 1479 AND ACPA'S "CONCRETE PIPE INSTALLATION MANUAL."

G. INSTALL FORCE-MAIN PRESSURE PIPING ACCORDING TO THE FOLLOWING:
1. INSTALL PIPING WITH RESTRAINED JOINTS AT TEE FITTINGS AND AT HORIZONTAL AND VERTICAL CHANGES IN DIRECTION. USE CORROSION-RESISTANT RODS, PIPE OR FITTING MANUFACTURER'S PROPRIETARY RESTRAINT SYSTEM, OR CAST-IN-PLACE CONCRETE SUPPORTS OR ANCHORS.
2. INSTALL PIPING WITH 15-INCH (380-MM) MINIMUM COVER.
3. INSTALL DUCTILE-IRON PRESSURE PIPING ACCORDING TO AWWA C600 OR AWWA M41.
4. INSTALL DUCTILE-IRON SPECIAL FITTINGS ACCORDING TO AWWA C600.
5. INSTALL PVC PRESSURE PIPING ACCORDING TO AWWA M23, OR ASTM D 2774 AND ASTM F 1668.
6. INSTALL PVC WATER-SERVICE PIPING ACCORDING TO ASTM D 2774 AND ASTM F 1668.

H. INSTALL CORROSION-PROTECTION PIPING ENCASEMENT OVER THE FOLLOWING UNDERGROUND METAL PIPING ACCORDING TO ASTM A 674 OR AWWA C105:
1. DUCTILE-IRON PIPE AND FITTINGS.

3.3 PIPE JOINT CONSTRUCTION

A. JOIN GRAVITY-FLOW, NON-PRESSURE DRAINAGE PIPING ACCORDING TO THE FOLLOWING:
1. JOIN DUCTILE-IRON PIPING AND SPECIAL FITTINGS ACCORDING TO AWWA C600 OR AWWA M41.
2. JOIN CORRUGATED PE PIPING ACCORDING TO ASTM D 3212 FOR PUSH-ON JOINTS.
3. JOIN PVC SEWER PIPING ACCORDING TO ASTM D 2321 AND ASTM D 3034 FOR ELASTOMERIC-SEAL JOINTS OR ASTM D 3034 FOR ELASTOMERIC-GASKETED JOINTS.
4. JOIN REINFORCED-CONCRETE SEWER PIPING ACCORDING TO ACPA'S "CONCRETE PIPE INSTALLATION MANUAL" FOR RUBBER-GASKETED JOINTS.
5. JOIN DISSIMILAR PIPE MATERIALS WITH NON-PRESSURE TYPE FLEXIBLE COUPLINGS.

B. JOIN FORCE MAIN PRESSURE PIPING ACCORDING TO THE FOLLOWING:
1. JOIN DUCTILE-IRON PRESSURE PIPING ACCORDING TO AWWA C600 OR AWWA M41 FOR PUSH-ON JOINTS.
2. JOIN PVC PRESSURE PIPING ACCORDING TO AWWA M23 FOR GASKETED JOINTS.
3. JOIN PVC WATER-SERVICE PIPING ACCORDING TO ASTM D 2855 FOR SOLVENT-CEMENTED JOINTS.
4. JOIN DISSIMILAR PIPE MATERIALS WITH PRESSURE-TYPE COUPLINGS.

3.4 CLEANOUT INSTALLATION

A. INSTALL CLEANOUTS AND RISER EXTENSIONS FROM SEWER PIPES TO CLEANOUTS AT GRADE. USE CAST-IRON SOIL PIPE FITTINGS IN SEWER PIPES AT BRANCHES FOR CLEANOUTS AND CAST-IRON SOIL PIPE FOR RISER EXTENSIONS TO CLEANOUTS. INSTALL PIPING SO CLEANOUTS OPEN IN DIRECTION OF FLOW IN SEWER PIPE.
1. USE MEDIUM-DUTY, TOP-LOADING CLASSIFICATION CLEANOUTS IN EARTH, PAVED OR UNPAVED FOOT-TRAFFIC AREAS.
2. USE HEAVY-DUTY, TOP-LOADING CLASSIFICATION CLEANOUTS IN VEHICLE-TRAFFIC SERVICE AREAS.
3. USE EXTRA-HEAVY-DUTY, TOP-LOADING CLASSIFICATION CLEANOUTS IN ROADS.

B. SET CLEANOUT FRAMES AND COVERS IN EARTH IN CAST-IN-PLACE CONCRETE BLOCK, 18 BY 18 BY 12 INCHES (450 BY 450 BY 300 MM) DEEP. SET WITH TOPS 1 INCH (25 MM) ABOVE SURROUNDING EARTH GRADE.

C. SET CLEANOUT FRAMES AND COVERS IN CONCRETE PAVEMENT AND ROADS WITH TOPS FLUSH WITH PAVEMENT SURFACE.

3.5 MANHOLE INSTALLATION

A. GENERAL: INSTALL MANHOLES, COMPLETE WITH APPURTENANCES AND ACCESSORIES INDICATED.

B. INSTALL PRECAST CONCRETE MANHOLE SECTIONS WITH SEALANTS ACCORDING TO ASTM C 891.

C. WHERE SPECIFIC MANHOLE CONSTRUCTION IS NOT INDICATED, FOLLOW MANHOLE MANUFACTURER'S WRITTEN INSTRUCTIONS.

D. SET TOPS OF FRAMES AND COVERS FLUSH WITH FINISHED SURFACE OF MANHOLES THAT OCCUR IN PAVEMENTS. SET TOPS 3 INCHES (76 MM) ABOVE FINISHED SURFACE ELSEWHERE UNLESS OTHERWISE INDICATED.

3.6 CATCH BASIN/GRATE INLET AND JUNCTION BOX INSTALLATION

A. CONSTRUCT STRUCTURES TO SIZES AND SHAPES INDICATED.

B. SET FRAMES AND GRATES TO ELEVATIONS INDICATED.

3.7 CONCRETE PLACEMENT

A. PLACE CAST-IN-PLACE CONCRETE ACCORDING TO ACI 318.

3.8 CONNECTIONS

A. CONNECT NON-PRESSURE, GRAVITY-FLOW DRAINAGE PIPING IN BUILDING'S STORM BUILDING DRAINS SPECIFIED IN SECTION 221413 "FACILITY STORM DRAINAGE PIPING."

B. CONNECT FORCE-MAIN PIPING TO BUILDING'S STORM DRAINAGE FORCE MAINS SPECIFIED IN SECTION 221413 "FACILITY STORM DRAINAGE PIPING." TERMINATE PIPING WHERE INDICATED.

C. MAKE CONNECTIONS TO EXISTING PIPING AND UNDERGROUND MANHOLES.
1. USE COMMERCIALLY MANUFACTURED WYE FITTINGS FOR PIPING BRANCH CONNECTIONS. REMOVE SECTION OF EXISTING PIPE; INSTALL WYE FITTING INTO EXISTING PIPING; AND ENCASE ENTIRE WYE FITTING, PLUS 6-INCH (150-MM) OVERLAP, WITH NOT LESS THAN 6 INCHES (150 MM) OF CONCRETE WITH 28-DAY COMPRESSIVE STRENGTH OF 3,000 PSI (20.7 MPA).
2. MAKE BRANCH CONNECTIONS FROM SIDE INTO EXISTING PIPING, NPS 4 TO NPS 20 (DN 100 TO DN 500). REMOVE SECTION OF EXISTING PIPE, INSTALL WYE FITTING INTO EXISTING PIPING, AND ENCASE ENTIRE WYE WITH NOT LESS THAN 6 INCHES (150 MM) OF CONCRETE WITH 28-DAY COMPRESSIVE STRENGTH OF 3,000 PSI (20.7 MPA).
3. MAKE BRANCH CONNECTIONS FROM SIDE INTO EXISTING PIPING, NPS 21 (DN 525) OR LARGER, OR TO UNDERGROUND MANHOLES AND STRUCTURES BY CUTTING INTO EXISTING UNIT AND CREATING AN OPENING LARGE ENOUGH TO ALLOW 3 INCHES (76 MM) OF CONCRETE TO BE PACKED AROUND ENTERING CONNECTION. CUT END OF CONNECTION PIPE PASSING THROUGH PIPE OR STRUCTURE WALL TO CONFORM TO SHAPE OF AND BE FLUSH WITH INSIDE WALL UNLESS OTHERWISE INDICATED. ON OUTSIDE OF PIPE, MANHOLE, OR STRUCTURE WALL, ENCASE ENTERING CONNECTION IN 6 INCHES (150 MM) OF CONCRETE FOR MINIMUM LENGTH OF 12 INCHES (300 MM) TO PROVIDE ADDITIONAL SUPPORT OF COLLAR FROM CONNECTION TO UNDISTURBED GROUND.
a. USE CONCRETE THAT WILL ATTAIN A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3,000 PSI (20.7 MPA) UNLESS OTHERWISE INDICATED.
b. USE EPOXY-BONDING COMPOUND AS INTERFACE BETWEEN NEW AND EXISTING CONCRETE AND PIPING MATERIALS.
4. PROTECT EXISTING PIPING, MANHOLES, AND STRUCTURES TO PREVENT CONCRETE OR DEBRIS FROM ENTERING WHILE MAKING TAP CONNECTIONS. REMOVE DEBRIS OR OTHER EXTRANEOUS MATERIAL THAT MAY ACCUMULATE.

D. CONNECT TO SEDIMENT INTERCEPTORS AS INDICATED ON DRAWINGS.

E. PIPE COUPLINGS, EXPANSION JOINTS, AND DEFLECTION FITTINGS WITH PRESSURE RATINGS AT LEAST EQUAL TO PIPING RATING MAY BE USED IN APPLICATIONS BELOW UNLESS OTHERWISE INDICATED.
1. USE NON-PRESSURE TYPE FLEXIBLE COUPLINGS WHERE REQUIRED TO JOIN GRAVITY-FLOW, NON-PRESSURE SEWER PIPING UNLESS OTHERWISE INDICATED.
a. SHIELDED FLEXIBLE COUPLINGS FOR SAME OR MINOR DIFFERENCE OD PIPES.
b. UNSHIELDED, INCREASER/REDUCER-PATTERN, FLEXIBLE COUPLINGS FOR PIPES WITH DIFFERENT OD.
c. RING-TYPE FLEXIBLE COUPLINGS FOR PIPING OF DIFFERENT SIZES WHERE ANNULAR SPACE BETWEEN SMALLER PIPING'S OD AND LARGER PIPING'S ID PERMITS INSTALLATION.
2. USE PRESSURE-TYPE PIPE COUPLINGS FOR FORCE-MAIN JOINTS.

3.9 CLOSING ABANDONED STORM DRAINAGE SYSTEMS

A. ABANDONED PIPING: CLOSE OPEN ENDS OF ABANDONED UNDERGROUND PIPING INDICATED TO REMAIN IN PLACE. INCLUDE CLOSURES STRONG ENOUGH TO WITHSTAND HYDROSTATIC AND EARTH PRESSURES THAT MAY RESULT AFTER ENDS OF ABANDONED PIPING HAVE BEEN CLOSED. USE EITHER PROCEDURE BELOW:
1. CLOSE OPEN ENDS OF PIPING WITH AT LEAST 8-INCH- (203-MM-) THICK, BRICK MASONRY BULKHEADS.
2. CLOSE OPEN ENDS OF PIPING WITH THREADED METAL CAPS, PLASTIC PLUGS, OR OTHER ACCEPTABLE METHODS SUITABLE FOR SIZE AND TYPE OF MATERIAL BEING CLOSED. DO NOT USE WOOD PLUGS.

B. ABANDONED MANHOLES AND STRUCTURES: EXCAVATE AROUND MANHOLES AND STRUCTURES AS REQUIRED AND USE ONE PROCEDURE BELOW:
1. REMOVE MANHOLE OR STRUCTURE AND CLOSE OPEN ENDS OF REMAINING PIPING.
2. REMOVE TOP OF MANHOLE OR STRUCTURE DOWN TO AT LEAST 36 INCHES (915 MM) BELOW FINAL GRADE. FILL TO WITHIN 12 INCHES (300 MM) OF TOP WITH STONE, RUBBLE, GRAVEL, OR COMPACTED DIRT. FILL TO TOP WITH CONCRETE.

C. BACKFILL TO GRADE ACCORDING TO SECTION 312000 "EARTH MOVING."

3.10 IDENTIFICATION

A. MATERIALS AND THEIR INSTALLATION ARE SPECIFIED IN SECTION 312000 "EARTH MOVING." ARRANGE FOR INSTALLATION OF GREEN WARNING TAPE DIRECTLY OVER PIPING AND AT OUTSIDE EDGE OF UNDERGROUND STRUCTURES.
1. USE WARNING TAPE OVER FERROUS PIPING.
2. USE DETECTABLE WARNING TAPE OVER NONFERROUS PIPING AND OVER EDGES OF UNDERGROUND STRUCTURES.

3.11 FIELD QUALITY CONTROL

A. INSPECT INTERIOR OF PIPING TO DETERMINE WHETHER LINE DISPLACEMENT OR OTHER DAMAGE HAS OCCURRED. INSPECT AFTER APPROXIMATELY 24 INCHES (610 MM) OF BACKFILL IS IN PLACE, AND AGAIN AT COMPLETION OF PROJECT.
1. SUBMIT SEPARATE REPORTS FOR EACH SYSTEM INSPECTION.
2. DEFECTS REQUIRING CORRECTION INCLUDE THE FOLLOWING:
a. ALIGNMENT: LESS THAN FULL DIAMETER OF INSIDE OF PIPE IS VISIBLE BETWEEN STRUCTURES.
b. DEFLECTION: FLEXIBLE PIPING WITH DEFLECTION THAT PREVENTS PASSAGE OF BALL OR CYLINDER OF SIZE NOT LESS THAN 92.5 PERCENT OF PIPING DIAMETER.
c. DAMAGE: CRUSHED, BROKEN, CRACKED, OR OTHERWISE DAMAGED PIPING.
d. INFILTRATION: WATER LEAKAGE INTO PIPING.
e. EXFILTRATION: WATER LEAKAGE FROM OR AROUND PIPING.
3. REPLACE DEFECTIVE PIPING USING NEW MATERIALS, AND REPEAT INSPECTIONS UNTIL DEFECTS ARE WITHIN ALLOWANCES SPECIFIED.
4. RE-INSPECT AND REPEAT PROCEDURE UNTIL RESULTS ARE SATISFACTORY.

B. TEST NEW PIPING SYSTEMS, AND PARTS OF EXISTING SYSTEMS THAT HAVE BEEN ALTERED, EXTENDED, OR REPAIRED, FOR LEAKS AND DEFECTS.
1. DO NOT ENCLOSE, COVER, OR PUT INTO SERVICE BEFORE INSPECTION AND APPROVAL.
2. TEST COMPLETED PIPING SYSTEMS ACCORDING TO REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
3. SCHEDULE TESTS AND INSPECTIONS BY AUTHORITIES HAVING JURISDICTION WITH AT LEAST 24 HOURS' ADVANCE NOTICE.
4. SUBMIT SEPARATE REPORT FOR EACH TEST.
5. GRAVITY-FLOW STORM DRAINAGE PIPING: TEST ACCORDING TO REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION, UNI-B-6, AND THE FOLLOWING:
a. EXCEPTION: PIPING WITH SOILTIGHT JOINTS UNLESS REQUIRED BY AUTHORITIES HAVING JURISDICTION.
b. OPTION: TEST PLASTIC PIPING ACCORDING TO ASTM F 1417.
c. OPTION: TEST CONCRETE PIPING ACCORDING TO ASTM C 924 (ASTM C 924M).
6. FORCE-MAIN STORM DRAINAGE PIPING: PERFORM HYDROSTATIC TEST AFTER THRUST BLOCKS, SUPPORTS, AND ANCHORS HAVE HARDENED. TEST AT PRESSURE NOT LESS THAN 1-1/2 TIMES THE MAXIMUM SYSTEM OPERATING PRESSURE, BUT NOT LESS THAN 150 PSIG (1035 KPA).
a. DUCTILE-IRON PIPING: TEST ACCORDING TO AWWA C600, "HYDRAULIC TESTING" SECTION.
b. PVC PIPING: TEST ACCORDING TO AWWA M23, "TESTING AND MAINTENANCE" CHAPTER.

C. LEAKS AND LOSS IN TEST PRESSURE CONSTITUTE DEFECTS THAT MUST BE REPAIRED.

D. REPLACE LEAKING PIPING USING NEW MATERIALS, AND REPEAT TESTING UNTIL LEAKAGE IS WITHIN ALLOWANCES SPECIFIED.

3.12 CLEANING

A. CLEAN INTERIOR OF PIPING OF DIRT AND SUPERFLUOUS MATERIALS. FLUSH WITH CLEAN AND CLEAR WATER.

END OF SECTION 334100

CLIENT
HCC
HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002
[T] (713) 718-2000
[F] (713) 718-8331

ARCHITECT
PGAL
3131 BRIARPARK DRIVE
SUITE 200
HOUSTON, TX 77042
[T] 713 622 1444
[F] 713 968 9333
www.pgal.com
PGAL TBPE REG. NO F-2742

CONSULTANT

PROJECT NAME
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT LOCATION
6010 LITTLE YORK ROAD
HOUSTON, TEXAS 77016

DATE OF ISSUE
JANUARY 28, 2020
ISSUED FOR CONSTRUCTION

DRAWING HISTORY

REGISTRATION

STATE OF TEXAS – OKSANA KANTARA – 118902 – LICENSED PROFESSIONAL ENGINEER
O. Kantara 01-28-2020

PROJECT NUMBER
1002047

SHEET TITLE
STORM UTILITY DRAINAGE PIPING SPECIFICATIONS
334100

SHEET NUMBER
C1.10

FILE NAME: R:\1002000-1002999\1002047\NORTH FOREST CAMPUS\5-CAD\5010 CAD FILES\ADDITIONAL WORK\CIVIL\SHEET\C110 STORM SEWER SPECIFICATIONS - 334100.DWG
DATE STAMP: Friday, January 31, 2020 3:08:51 PM

SECTION 311000 – SITE CLEARING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 01 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.

1.2 SUMMARY

A. SECTION INCLUDES:

1. PROTECTING EXISTING VEGETATION TO REMAIN.
2. REMOVING EXISTING VEGETATION.
3. CLEARING AND GRUBBING.
4. STRIPPING AND STOCKPILING TOPSOIL.
5. REMOVING ABOVE– AND BELOW–GRADE SITE IMPROVEMENTS.
6. DISCONNECTING, CAPPING OR SEALING, AND REMOVING SITE UTILITIES.
7. TEMPORARY EROSION– AND SEDIMENTATION–CONTROL MEASURES.

B. RELATED SECTIONS:

1. SECTION 015000 "TEMPORARY FACILITIES AND CONTROLS" FOR TEMPORARY UTILITY SERVICES, CONSTRUCTION AND SUPPORT FACILITIES, SECURITY AND PROTECTION FACILITIES, AND TEMPORARY EROSION– AND SEDIMENTATION–CONTROL MEASURES.
2. SECTION 017300 "EXECUTION" FOR FIELD ENGINEERING AND SURVEYING.
3. SECTION 017419 "CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL".

1.3 DEFINITIONS

A. SUBSOIL: ALL SOIL BENEATH THE TOPSOIL LAYER OF THE SOIL PROFILE, AND TYPIFIED BY THE LACK OF ORGANIC MATTER AND SOIL ORGANISMS.

B. SURFACE SOIL: SOIL THAT IS PRESENT AT THE TOP LAYER OF THE EXISTING SOIL PROFILE AT THE PROJECT SITE. IN UNDISTURBED AREAS, THE SURFACE SOIL IS TYPICALLY TOPSOIL; BUT IN DISTURBED AREAS SUCH AS URBAN ENVIRONMENTS, THE SURFACE SOIL CAN BE SUBSOIL.

C. TOPSOIL: TOP LAYER OF THE SOIL PROFILE CONSISTING OF EXISTING NATIVE SURFACE TOPSOIL OR EXISTING IN–PLACE SURFACE SOIL AND IS THE ZONE WHERE PLANT ROOTS GROW. ITS APPEARANCE IS GENERALLY FRIABLE, PERVIOUS, AND BLACK OR A DARKER SHADE OF BROWN, GRAY, OR RED THAN UNDERLYING SUBSOIL; REASONABLY FREE OF SUBSOIL, CLAY LUMPS, GRAVEL, AND OTHER OBJECTS MORE THAN 2 INCHES (50 MM) IN DIAMETER; AND FREE OF SUBSOIL AND WEEDS, ROOTS, TOXIC MATERIALS, OR OTHER NON–SOIL MATERIALS.

D. PLANT–PROTECTION ZONE: AREA SURROUNDING INDIVIDUAL TREES, GROUPS OF TREES, SHRUBS, OR OTHER VEGETATION TO BE PROTECTED DURING CONSTRUCTION, AND INDICATED ON DRAWINGS.

E. TREE–PROTECTION ZONE: AREA SURROUNDING INDIVIDUAL TREES OR GROUPS OF TREES TO BE PROTECTED DURING CONSTRUCTION, AND DEFINED BY A CIRCLE CONCENTRIC WITH EACH TREE WITH A RADIUS 1.5 TIMES THE DIAMETER OF THE DRIP LINE UNLESS OTHERWISE INDICATED.

F. VEGETATION: TREES, SHRUBS, GROUNDCOVERS, GRASS, AND OTHER PLANTS.

1.4 MATERIAL OWNERSHIP

A. EXCEPT FOR STRIPPED TOPSOIL AND OTHER MATERIALS INDICATED TO BE STOCKPILED OR OTHERWISE REMAIN OWNER'S PROPERTY, CLEARED MATERIALS SHALL BECOME CONTRACTOR'S PROPERTY AND SHALL BE REMOVED FROM PROJECT SITE.

1.5 INFORMATIONAL SUBMITTALS

A. EXISTING CONDITIONS: DOCUMENTATION OF EXISTING TREES AND PLANTINGS, ADJOINING CONSTRUCTION, AND SITE IMPROVEMENTS THAT ESTABLISHES PRECONSTRUCTION CONDITIONS THAT MIGHT BE MISCONSTRUED AS DAMAGE CAUSED BY SITE CLEARING.

1. USE SUFFICIENTLY DETAILED PHOTOGRAPHS OR VIDEOTAPE.
2. INCLUDE PLANS AND NOTATIONS TO INDICATE SPECIFIC WOUNDS AND DAMAGE CONDITIONS OF EACH TREE OR OTHER PLANTS DESIGNATED TO REMAIN.

B. RECORD DRAWINGS: IDENTIFYING AND ACCURATELY SHOWING LOCATIONS OF CAPPED UTILITIES AND OTHER SUBSURFACE STRUCTURAL, ELECTRICAL, AND MECHANICAL CONDITIONS.

1.6 QUALITY ASSURANCE

A. PRE–INSTALLATION CONFERENCE: CONDUCT CONFERENCE AT PROJECT SITE.

1.7 PROJECT CONDITIONS

A. TRAFFIC: MINIMIZE INTERFERENCE WITH ADJOINING ROADS, STREETS, WALKS, AND OTHER ADJACENT OCCUPIED OR USED FACILITIES DURING SITE–CLEARING OPERATIONS.

1. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS, OR OTHER ADJACENT OCCUPIED OR USED FACILITIES WITHOUT PERMISSION FROM OWNER AND AUTHORITIES HAVING JURISDICTION.
2. PROVIDE ALTERNATE ROUTES AROUND CLOSED OR OBSTRUCTED TRAFFIC WAYS IF REQUIRED BY OWNER OR AUTHORITIES HAVING JURISDICTION.

B. IMPROVEMENTS ON ADJOINING PROPERTY: AUTHORITY FOR PERFORMING SITE CLEARING INDICATED ON PROPERTY ADJOINING OWNER'S PROPERTY WILL BE OBTAINED BY OWNER BEFORE AWARD OF CONTRACT.

1. DO NOT PROCEED WITH WORK ON ADJOINING PROPERTY UNTIL DIRECTED BY ARCHITECT.

C. SALVABLE IMPROVEMENTS: CAREFULLY REMOVE ITEMS INDICATED TO BE SALVAGED AND STORE ON OWNER'S PREMISES WHERE INDICATED.

D. UTILITY LOCATOR SERVICE: NOTIFY UTILITY LOCATOR SERVICE / CALL BEFORE YOU DIG / TEXAS811 FOR AREA WHERE PROJECT IS LOCATED BEFORE SITE CLEARING.

E. DO NOT COMMENCE SITE CLEARING OPERATIONS UNTIL TEMPORARY EROSION– AND SEDIMENTATION–CONTROL AND TREE–PROTECTION MEASURES ARE IN PLACE.

F. THE FOLLOWING PRACTICES ARE PROHIBITED WITHIN PROTECTION ZONES:

1. STORAGE OF CONSTRUCTION MATERIALS, DEBRIS, OR EXCAVATED MATERIAL.
2. PARKING VEHICLES OR EQUIPMENT.
3. FOOT TRAFFIC.
4. ERECTION OF SHEDS OR STRUCTURES.
5. IMPOUNDMENT OF WATER.
6. EXCAVATION OR OTHER DIGGING UNLESS OTHERWISE INDICATED.
7. ATTACHMENT OF SIGNS TO OR WRAPPING MATERIALS AROUND TREES OR PLANTS UNLESS OTHERWISE INDICATED.

G. DO NOT DIRECT VEHICLE OR EQUIPMENT EXHAUST TOWARDS PROTECTION ZONES.

H. PROHIBIT HEAT SOURCES, FLAMES, IGNITION SOURCES, AND SMOKING WITHIN OR NEAR PROTECTION ZONES.

I. SOIL STRIPPING, HANDLING, AND STOCKPILING: PERFORM ONLY WHEN THE TOPSOIL IS DRY OR SLIGHTLY MOIST.

PART 2 – PRODUCTS

2.1 MATERIALS

A. SATISFACTORY SOIL MATERIAL: REQUIREMENTS FOR SATISFACTORY SOIL MATERIAL ARE SPECIFIED IN SECTION 312000 "EARTH MOVING."

1. OBTAIN APPROVED BORROW SOIL MATERIAL OFF–SITE WHEN SATISFACTORY SOIL MATERIAL IS NOT AVAILABLE ON–SITE.

B. ANTIRUST COATING: FAST–CURING, LEAD– AND CHROMATE–FREE, SELF–CURING, UNIVERSAL MODIFIED–ALKYD PRIMER COMPLYING WITH MPI #79, ALKYD ANTICORROSIVE METAL PRIMER OR SSPC–PAINT 20 OR SSPC–PAINT 29 ZINC–RICH COATING.

VOC LIMIT IN SUBPARAGRAPH BELOW IS THE EPA LIMIT FOR RUST–PREVENTIVE ARCHITECTURAL COATINGS;

1. USE COATING WITH A VOC CONTENT OF 420 G/L (3.5 LB/GAL.) OR LESS WHEN CALCULATED ACCORDING TO 40 CFR 59, SUBPART D (EPA METHOD 24).

PART 3 – EXECUTION

3.1 PREPARATION

A. PROTECT AND MAINTAIN BENCHMARKS AND SURVEY CONTROL POINTS FROM DISTURBANCE DURING CONSTRUCTION.

B. LOCATE AND CLEARLY IDENTIFY TREES, SHRUBS, AND OTHER VEGETATION TO REMAIN OR TO BE RELOCATED. WRAP A 1–INCH (25–MM) BLUE VINYL TIE TAPE FLAG AROUND EACH TREE TRUNK AT 54 INCHES (1372 MM) ABOVE THE GROUND.

C. PROTECT EXISTING SITE IMPROVEMENTS TO REMAIN FROM DAMAGE DURING CONSTRUCTION.

1. RESTORE DAMAGED IMPROVEMENTS TO THEIR ORIGINAL CONDITION, AS ACCEPTABLE TO OWNER.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. PROVIDE TEMPORARY EROSION– AND SEDIMENTATION–CONTROL MEASURES TO PREVENT SOIL EROSION AND DISCHARGE OF SOIL–BEARING WATER RUNOFF OR AIRBORNE DUST TO ADJACENT PROPERTIES AND WALKWAYS, ACCORDING TO EROSION– AND SEDIMENTATION–CONTROL DRAWINGS AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.

B. VERIFY THAT FLOWS OF WATER REDIRECTED FROM CONSTRUCTION AREAS OR GENERATED BY CONSTRUCTION ACTIVITY DO NOT ENTER OR CROSS PROTECTION ZONES.

C. INSPECT, MAINTAIN, AND REPAIR EROSION– AND SEDIMENTATION–CONTROL MEASURES DURING CONSTRUCTION UNTIL PERMANENT VEGETATION HAS BEEN ESTABLISHED.

D. REMOVE EROSION AND SEDIMENTATION CONTROLS AND RESTORE AND STABILIZE AREAS DISTURBED DURING REMOVAL.

3.3 TREE AND PLANT PROTECTION

A. GENERAL: PROTECT TREES AND PLANTS REMAINING ON–SITE ACCORDING TO REQUIREMENTS IN SECTION 015639 "TEMPORARY TREE AND PLANT PROTECTION."

B. REPAIR OR REPLACE TREES, SHRUBS, AND OTHER VEGETATION INDICATED TO REMAIN OR BE RELOCATED THAT ARE DAMAGED BY CONSTRUCTION OPERATIONS, IN A MANNER APPROVED BY ARCHITECT.

3.4 EXISTING UTILITIES

A. OWNER WILL ARRANGE FOR DISCONNECTING AND SEALING INDICATED UTILITIES THAT SERVE EXISTING STRUCTURES BEFORE SITE CLEARING, WHEN REQUESTED BY CONTRACTOR.

1. VERIFY THAT UTILITIES HAVE BEEN DISCONNECTED AND CAPPED BEFORE PROCEEDING WITH SITE CLEARING.

B. LOCATE, IDENTIFY, DISCONNECT, AND SEAL OR CAP UTILITIES INDICATED TO BE REMOVED.

1. ARRANGE WITH UTILITY COMPANIES TO SHUT OFF INDICATED UTILITIES.
2. OWNER WILL ARRANGE TO SHUT OFF INDICATED UTILITIES WHEN REQUESTED BY CONTRACTOR.

C. LOCATE, IDENTIFY, AND DISCONNECT UTILITIES INDICATED TO BE ABANDONED IN PLACE.

D. INTERRUPTING EXISTING UTILITIES: DO NOT INTERRUPT UTILITIES SERVING FACILITIES OCCUPIED BY OWNER OR OTHERS UNLESS PERMITTED UNDER THE FOLLOWING CONDITIONS AND THEN ONLY AFTER ARRANGING TO PROVIDE TEMPORARY UTILITY SERVICES ACCORDING TO REQUIREMENTS INDICATED:

1. NOTIFY ARCHITECT NOT LESS THAN TWO DAYS IN ADVANCE OF PROPOSED UTILITY INTERRUPTIONS.
2. DO NOT PROCEED WITH UTILITY INTERRUPTIONS WITHOUT ARCHITECT'S WRITTEN PERMISSION.

E. EXCAVATE FOR AND REMOVE UNDERGROUND UTILITIES INDICATED TO BE REMOVED.

F. REMOVAL OF UNDERGROUND UTILITIES IS INCLUDED IN EARTHWORK SECTIONS AND WITH APPLICABLE FIRE SUPPRESSION, PLUMBING, HVAC, ELECTRICAL, COMMUNICATIONS, ELECTRONIC SAFETY AND SECURITY AND UTILITIES SECTIONS.

3.5 CLEARING AND GRUBBING

A. REMOVE OBSTRUCTIONS, TREES, SHRUBS, AND OTHER VEGETATION TO PERMIT INSTALLATION OF NEW CONSTRUCTION.

1. DO NOT REMOVE TREES, SHRUBS, AND OTHER VEGETATION INDICATED TO REMAIN OR TO BE RELOCATED.
2. GRIND DOWN STUMPS AND REMOVE ROOTS, OBSTRUCTIONS, AND DEBRIS TO A DEPTH OF 24 INCHES (600 MM) BELOW EXPOSED SUBGRADE.
3. USE ONLY HAND METHODS FOR GRUBBING WITHIN PROTECTION ZONES.
4. CHIP REMOVED TREE BRANCHES AND DISPOSE OF OFF–SITE.

B. FILL DEPRESSIONS CAUSED BY CLEARING AND GRUBBING OPERATIONS WITH SATISFACTORY SOIL MATERIAL UNLESS FURTHER EXCAVATION OR EARTHWORK IS INDICATED.

1. PLACE FILL MATERIAL IN HORIZONTAL LAYERS NOT EXCEEDING A LOOSE DEPTH OF 8 INCHES (200 MM), AND COMPACT EACH LAYER TO A DENSITY EQUAL TO ADJACENT ORIGINAL GROUND.

3.6 TOPSOIL STRIPPING

A. REMOVE SOD AND GRASS BEFORE STRIPPING TOPSOIL.

B. STRIP TOPSOIL TO DEPTH OF 6 INCHES (150 MM) IN A MANNER TO PREVENT INTERMINGLING WITH UNDERLYING SUBSOIL OR OTHER WASTE MATERIALS.

1. REMOVE SUBSOIL AND NON–SOIL MATERIALS FROM TOPSOIL, INCLUDING CLAY LUMPS, GRAVEL, AND OTHER OBJECTS MORE THAN 2 INCHES (50 MM) IN DIAMETER; TRASH, DEBRIS, WEEDS, ROOTS, AND OTHER WASTE MATERIALS.

C. STOCKPILE TOPSOIL AWAY FROM EDGE OF EXCAVATIONS WITHOUT INTERMIXING WITH SUBSOIL. GRADE AND SHAPE STOCKPILES TO DRAIN SURFACE WATER. COVER TO PREVENT WINDBLOWN DUST AND EROSION BY WATER.

1. LIMIT HEIGHT OF TOPSOIL STOCKPILES TO 72 INCHES (1800 MM).
2. DO NOT STOCKPILE TOPSOIL WITHIN PROTECTION ZONES.
3. DISPOSE OF SURPLUS TOPSOIL. SURPLUS TOPSOIL IS THAT WHICH EXCEEDS QUANTITY INDICATED TO BE STOCKPILED OR REUSED.
4. STOCKPILE SURPLUS TOPSOIL TO ALLOW FOR RE–SPREADING DEEPER TOPSOIL.

3.7 SITE IMPROVEMENTS

A. REMOVE EXISTING ABOVE– AND BELOW–GRADE IMPROVEMENTS AS INDICATED AND NECESSARY TO FACILITATE NEW CONSTRUCTION.

B. REMOVE SLABS, PAVING, CURBS, GUTTERS, AND AGGREGATE BASE AS INDICATED.

1. UNLESS EXISTING FULL–DEPTH JOINTS COINCIDE WITH LINE OF DEMOLITION, NEATLY SAW–CUT ALONG LINE OF EXISTING PAVEMENT TO REMAIN BEFORE REMOVING ADJACENT EXISTING PAVEMENT. SAW–CUT FACES VERTICALLY.
2. PAINT CUT ENDS OF STEEL REINFORCEMENT IN CONCRETE TO REMAIN WITH TWO COATS OF ANTIRUST COATING, FOLLOWING COATING MANUFACTURER'S WRITTEN INSTRUCTIONS. KEEP PAINT OFF SURFACES THAT WILL REMAIN EXPOSED.

3.8 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. REMOVE SURPLUS SOIL MATERIAL, UNSUITABLE TOPSOIL, OBSTRUCTIONS, DEMOLISHED MATERIALS, AND WASTE MATERIALS INCLUDING TRASH AND DEBRIS, AND LEGALLY DISPOSE OF THEM OFF OWNER'S PROPERTY.

B. SEPARATE RECYCLABLE MATERIALS PRODUCED DURING SITE CLEARING FROM OTHER NON–RECYCLABLE MATERIALS. STORE OR STOCKPILE WITHOUT INTERMIXING WITH OTHER MATERIALS AND TRANSPORT THEM TO RECYCLING FACILITIES. DO NOT INTERFERE WITH OTHER PROJECT WORK.

END OF SECTION 311000

CLIENT

HCC
HOUSTON COMMUNITY COLLEGE

HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002

[T] (713) 718-2000
[F] (713) 718-8331

ARCHITECT

PGAL

3131 BRIARPARK DRIVE
SUITE 200
HOUSTON, TX 77042
[T] 713.622.1444
[F] 713.968.9333
www.pgal.com

PGAL TBPE REG. NO. F-2742

CONSULTANT

PROJECT NAME
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT LOCATION
6010 LITTLE YORK ROAD
HOUSTON, TEXAS 77016

DATE OF ISSUE
JANUARY 28, 2020
ISSUED FOR CONSTRUCTION

DRAWING HISTORY

NO.	DATE	DESCRIPTION

01-28-2020

PROJECT NUMBER
1002047

SHEET TITLE
SITE CLEARING SPECIFICATIONS 311100

SHEET NUMBER
C1.20

FILE NAME: R:\1002000-1002999\1002047\NORTH FOREST CAMPUS\5-CAD\510 CAD FILES\ADDITIONAL WORK\DWG\SHEETS\C1.20 SITE CLEARING SPECIFICATIONS - 311000.DWG
DATE STAMP: Tuesday, January 21, 2020 3:10:13 PM

SECTION 315000 – EXCAVATION SUPPORT AND PROTECTION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 01 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.

1.2 SUMMARY

A. SECTION INCLUDES TEMPORARY EXCAVATION SUPPORT AND PROTECTION SYSTEMS.

B. RELATED REQUIREMENTS:

1. SECTION 013233 "PHOTOGRAPHIC DOCUMENTATION" FOR RECORDING PREEXISTING CONDITIONS AND EXCAVATION SUPPORT AND PROTECTION SYSTEM PROGRESS.
2. SECTION 312000 "EARTH MOVING" FOR EXCAVATING AND BACKFILLING AND FOR CONTROLLING SURFACE-WATER RUNOFF AND PONDING.
3. SECTION 312319 "DEWATERING" FOR DEWATERING EXCAVATIONS.

1.3 PRE-INSTALLATION MEETINGS

A. PRE-INSTALLATION CONFERENCE: CONDUCT CONFERENCE AT PROJECT SITE.

1. REVIEW GEOTECHNICAL REPORT.
2. REVIEW EXISTING UTILITIES AND SUBSURFACE CONDITIONS.
3. REVIEW COORDINATION FOR INTERRUPTION, SHUTOFF, CAPPING, AND CONTINUATION OF UTILITY SERVICES.
4. REVIEW PROPOSED EXCAVATIONS.
5. REVIEW PROPOSED EQUIPMENT.
6. REVIEW MONITORING OF EXCAVATION SUPPORT AND PROTECTION SYSTEM.
7. REVIEW COORDINATION WITH WATERPROOFING.
8. REVIEW ABANDONMENT OR REMOVAL OF EXCAVATION SUPPORT AND PROTECTION SYSTEM.

1.4 ACTION SUBMITTALS

A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT.

1. INCLUDE CONSTRUCTION DETAILS, MATERIAL DESCRIPTIONS, PERFORMANCE PROPERTIES, AND DIMENSIONS OF INDIVIDUAL COMPONENTS AND PROFILES, AND CALCULATIONS FOR EXCAVATION SUPPORT AND PROTECTION SYSTEM.

B. SHOP DRAWINGS: FOR EXCAVATION SUPPORT AND PROTECTION SYSTEM, PREPARED BY OR UNDER THE SUPERVISION OF A QUALIFIED PROFESSIONAL ENGINEER.

1. INCLUDE PLANS, ELEVATIONS, SECTIONS, AND DETAILS.
2. SHOW ARRANGEMENT, LOCATIONS, AND DETAILS OF SOLDIER PILES, PILING, LAGGING, TIEBACKS, BRACING, AND OTHER COMPONENTS OF EXCAVATION SUPPORT AND PROTECTION SYSTEM ACCORDING TO ENGINEERING DESIGN.
3. INDICATE TYPE AND LOCATION OF WATERPROOFING.
4. INCLUDE A WRITTEN PLAN FOR EXCAVATION SUPPORT AND PROTECTION, INCLUDING SEQUENCE OF CONSTRUCTION OF SUPPORT AND PROTECTION COORDINATED WITH PROGRESS OF EXCAVATION.

1.5 INFORMATIONAL SUBMITTALS

A. QUALIFICATION DATA: FOR PROFESSIONAL ENGINEER.

B. CONTRACTOR CALCULATIONS: FOR EXCAVATION SUPPORT AND PROTECTION SYSTEM. INCLUDE ANALYSIS DATA SIGNED AND SEALED BY THE QUALIFIED PROFESSIONAL ENGINEER RESPONSIBLE FOR THEIR PREPARATION.

C. EXISTING CONDITIONS: USING PHOTOGRAPHS, SHOW EXISTING CONDITIONS OF ADJACENT CONSTRUCTION AND SITE IMPROVEMENTS THAT MIGHT BE MISCONSTRUED AS DAMAGE CAUSED BY INADEQUATE PERFORMANCE OF EXCAVATION SUPPORT AND PROTECTION SYSTEMS. SUBMIT BEFORE WORK BEGINS.

D. RECORD DRAWINGS: IDENTIFY LOCATIONS AND DEPTHS OF CAPPED UTILITIES, ABANDONED-IN-PLACE SUPPORT AND PROTECTION SYSTEMS, AND OTHER SUBSURFACE STRUCTURAL, ELECTRICAL, OR MECHANICAL CONDITIONS.

1.6 FIELD CONDITIONS

A. INTERRUPTION OF EXISTING UTILITIES: DO NOT INTERRUPT ANY UTILITY SERVING FACILITIES OCCUPIED BY OWNER OR OTHERS UNLESS PERMITTED UNDER THE FOLLOWING CONDITIONS AND THEN ONLY AFTER ARRANGING TO PROVIDE TEMPORARY UTILITY ACCORDING TO REQUIREMENTS INDICATED:

1. NOTIFY ARCHITECT NO FEWER THAN TWO DAYS IN ADVANCE OF PROPOSED INTERRUPTION OF UTILITY.
2. DO NOT PROCEED WITH INTERRUPTION OF UTILITY WITHOUT ARCHITECT'S WRITTEN PERMISSION.

B. PROJECT-SITE INFORMATION: A GEOTECHNICAL REPORT HAS BEEN PREPARED FOR THIS PROJECT AND IS AVAILABLE FOR INFORMATION ONLY. THE OPINIONS EXPRESSED IN THIS REPORT ARE THOSE OF A GEOTECHNICAL ENGINEER AND REPRESENT INTERPRETATIONS OF SUBSOIL CONDITIONS, TESTS, AND RESULTS OF ANALYSES CONDUCTED BY A GEOTECHNICAL ENGINEER. OWNER IS NOT RESPONSIBLE FOR INTERPRETATIONS OR CONCLUSIONS DRAWN FROM THE DATA.

1. MAKE ADDITIONAL TEST BORINGS AND CONDUCT OTHER EXPLORATORY OPERATIONS NECESSARY FOR EXCAVATION SUPPORT AND PROTECTION ACCORDING TO THE PERFORMANCE REQUIREMENTS.
2. THE GEOTECHNICAL REPORT IS INCLUDED ELSEWHERE IN PROJECT MANUAL.

C. SURVEY WORK: ENGAGE A QUALIFIED LAND SURVEYOR OR PROFESSIONAL ENGINEER TO SURVEY ADJACENT EXISTING BUILDINGS, STRUCTURES, AND SITE IMPROVEMENTS; ESTABLISH EXACT ELEVATIONS AT FIXED POINTS TO ACT AS BENCHMARKS. CLEARLY IDENTIFY BENCHMARKS AND RECORD EXISTING ELEVATIONS.

PART 2 – PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. PROVIDE, DESIGN, MONITOR, AND MAINTAIN EXCAVATION SUPPORT AND PROTECTION SYSTEM CAPABLE OF SUPPORTING EXCAVATION SIDEWALLS AND OF RESISTING EARTH AND HYDROSTATIC PRESSURES AND SUPERIMPOSED AND CONSTRUCTION LOADS.

1. CONTRACTOR DESIGN: DESIGN EXCAVATION SUPPORT AND PROTECTION SYSTEM, INCLUDING COMPREHENSIVE ENGINEERING ANALYSIS BY A QUALIFIED PROFESSIONAL ENGINEER.
2. PREVENT SURFACE WATER FROM ENTERING EXCAVATIONS BY GRADING, DIKES, OR OTHER MEANS.
3. INSTALL EXCAVATION SUPPORT AND PROTECTION SYSTEMS WITHOUT DAMAGING EXISTING BUILDINGS, STRUCTURES, AND SITE IMPROVEMENTS ADJACENT TO EXCAVATION.
4. CONTINUOUSLY MONITOR VIBRATIONS, SETTLEMENTS, AND MOVEMENTS TO ENSURE STABILITY OF EXCAVATIONS AND CONSTRUCTED SLOPES AND TO ENSURE THAT DAMAGE TO PERMANENT STRUCTURES IS PREVENTED.

2.2 MATERIALS

A. GENERAL: PROVIDE MATERIALS THAT ARE EITHER NEW OR IN SERVICEABLE CONDITION.

B. STRUCTURAL STEEL: ASTM A 36/A 36M, ASTM A 690/A 690M, OR ASTM A 992/A 992M.

C. STEEL SHEET PILING: ASTM A 328/A 328M, ASTM A 572/A 572M, OR ASTM A 690/A 690M; WITH CONTINUOUS INTERLOCKS.

1. CORNERS: SITE-FABRICATED MECHANICAL INTERLOCK OR ROLL-FORMED CORNER SHAPE WITH CONTINUOUS INTERLOCK.

D. WOOD LAGGING: LUMBER, MIXED HARDWOOD, NOMINAL ROUGH THICKNESS OF SIZE AND STRENGTH REQUIRED FOR APPLICATION.

E. SHOTCRETE: COMPLY WITH SECTION 033713 "SHOTCRETE" FOR SHOTCRETE MATERIALS AND MIXES, REINFORCEMENT, AND SHOTCRETE APPLICATION.

F. CAST-IN-PLACE CONCRETE: ACI 301, OF COMPRESSIVE STRENGTH REQUIRED FOR APPLICATION.

G. REINFORCING BARS: ASTM A 615/A 615M, GRADE 60 (GRADE 420), DEFORMED.

H. TIEBACKS: STEEL BARS, ASTM A 722/A 722M.

I. TIEBACKS: STEEL STRAND, ASTM A 416/A 416M.

PART 3 – EXECUTION

3.1 PREPARATION

A. PROTECT STRUCTURES, UTILITIES, SIDEWALKS, PAVEMENTS, AND OTHER FACILITIES FROM DAMAGE CAUSED BY SETTLEMENT, LATERAL MOVEMENT, UNDERMINING, WASHOUT, AND OTHER HAZARDS THAT COULD DEVELOP DURING EXCAVATION SUPPORT AND PROTECTION SYSTEM OPERATIONS.

1. SHORE, SUPPORT, AND PROTECT UTILITIES ENCOUNTERED.

B. INSTALL EXCAVATION SUPPORT AND PROTECTION SYSTEMS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS, AND OTHER ADJACENT OCCUPIED AND USED FACILITIES.

1. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS, OR OTHER ADJACENT OCCUPIED OR USED FACILITIES WITHOUT PERMISSION FROM OWNER AND AUTHORITIES HAVING JURISDICTION. PROVIDE ALTERNATE ROUTES AROUND CLOSED OR OBSTRUCTED TRAFFIC WAYS IF REQUIRED BY AUTHORITIES HAVING JURISDICTION.

C. LOCATE EXCAVATION SUPPORT AND PROTECTION SYSTEMS CLEAR OF PERMANENT CONSTRUCTION SO THAT CONSTRUCTION AND FINISHING OF OTHER WORK IS NOT IMPEDED.

3.2 SOLDIER PILES AND LAGGING

A. INSTALL STEEL SOLDIER PILES BEFORE STARTING EXCAVATION. EXTEND SOLDIER PILES BELOW EXCAVATION GRADE LEVEL TO DEPTHS ADEQUATE TO PREVENT LATERAL MOVEMENT. SPACE SOLDIER PILES AT REGULAR INTERVALS NOT TO EXCEED ALLOWABLE FLEXURAL STRENGTH OF WOOD LAGGING. ACCURATELY ALIGN EXPOSED FACES OF FLANGES TO VARY NOT MORE THAN 2 INCHES (50 MM) FROM A HORIZONTAL LINE AND NOT MORE THAN 1:120 OUT OF VERTICAL ALIGNMENT.

B. INSTALL WOOD LAGGING WITHIN FLANGES OF SOLDIER PILES AS EXCAVATION PROCEEDS. TRIM EXCAVATION AS REQUIRED TO INSTALL LAGGING. FILL VOIDS BEHIND LAGGING WITH SOIL, AND COMPACT.

C. INSTALL WALES HORIZONTALLY AT LOCATIONS INDICATED ON DRAWINGS AND SECURE TO SOLDIER PILES.

3.3 SHEET PILING

A. BEFORE STARTING EXCAVATION, INSTALL ONE-PIECE SHEET PILING LENGTHS AND TIGHTLY INTERLOCK VERTICAL EDGES TO FORM A CONTINUOUS BARRIER.

B. ACCURATELY PLACE THE PILING, USING TEMPLATES AND GUIDE FRAMES UNLESS OTHERWISE RECOMMENDED IN WRITING BY THE SHEET PILING MANUFACTURER. LIMIT VERTICAL OFFSET OF ADJACENT SHEET PILING TO 60 INCHES (1500 MM). ACCURATELY ALIGN EXPOSED FACES OF SHEET PILING TO VARY NOT MORE THAN 2 INCHES (50 MM) FROM A HORIZONTAL LINE AND NOT MORE THAN 1:120 OUT OF VERTICAL ALIGNMENT.

C. CUT TOPS OF SHEET PILING TO UNIFORM ELEVATION AT TOP OF EXCAVATION.

3.4 TIEBACKS

MOST TIEBACK SYSTEMS ARE PROPRIETARY. INSERT MATERIAL REQUIREMENTS IN PART 2 IF A PARTICULAR TIEBACK IS REQUIRED. IF TIEBACKS ARE PERMANENT, CONSIDER REQUIRING CORROSION PROTECTION OF TENDONS AND ANCHORAGE CONNECTIONS.

A. DRILL, INSTALL, GROUT, AND TENSION TIEBACKS.

B. TEST LOAD-CARRYING CAPACITY OF EACH TIEBACK AND REPLACE AND RETEST DEFICIENT TIEBACKS.

1. HAVE TEST LOADING OBSERVED BY A QUALIFIED PROFESSIONAL ENGINEER RESPONSIBLE FOR DESIGN OF EXCAVATION SUPPORT AND PROTECTION SYSTEM.

C. MAINTAIN TIEBACKS IN PLACE UNTIL PERMANENT CONSTRUCTION IS ABLE TO WITHSTAND LATERAL EARTH AND HYDROSTATIC PRESSURES.

3.5 BRACING

BRACING OF WALES MAY BE REQUIRED FOR SOLDIER PILES AND LAGGING SYSTEMS AND FOR SHEET PILING.

A. BRACING: LOCATE BRACING TO CLEAR COLUMNS, FLOOR FRAMING CONSTRUCTION, AND OTHER PERMANENT WORK. IF NECESSARY TO MOVE BRACE, INSTALL NEW BRACING BEFORE REMOVING ORIGINAL BRACE.

1. DO NOT PLACE BRACING WHERE IT WILL BE CAST INTO OR INCLUDED IN PERMANENT CONCRETE WORK UNLESS OTHERWISE APPROVED BY ARCHITECT.
2. INSTALL INTERNAL BRACING IF REQUIRED TO PREVENT SPREADING OR DISTORTION OF BRACED FRAMES.
3. MAINTAIN BRACING UNTIL STRUCTURAL ELEMENTS ARE SUPPORTED BY OTHER BRACING OR UNTIL PERMANENT CONSTRUCTION IS ABLE TO WITHSTAND LATERAL EARTH AND HYDROSTATIC PRESSURES.

3.6 FIELD QUALITY CONTROL

A. SURVEY-WORK BENCHMARKS: RESURVEY BENCHMARKS REGULARLY DURING INSTALLATION OF EXCAVATION SUPPORT AND PROTECTION SYSTEMS, EXCAVATION PROGRESS, AND FOR AS LONG AS EXCAVATION REMAINS OPEN. MAINTAIN AN ACCURATE LOG OF SURVEYED ELEVATIONS AND POSITIONS FOR COMPARISON WITH ORIGINAL ELEVATIONS AND POSITIONS. PROMPTLY NOTIFY ARCHITECT IF CHANGES IN ELEVATIONS OR POSITIONS OCCUR OR IF CRACKS, SAGS, OR OTHER DAMAGE IS EVIDENT IN ADJACENT CONSTRUCTION.

B. PROMPTLY CORRECT DETECTED BULGES, BREAKAGE, OR OTHER EVIDENCE OF MOVEMENT TO ENSURE THAT EXCAVATION SUPPORT AND PROTECTION SYSTEM REMAINS STABLE.

C. PROMPTLY REPAIR DAMAGES TO ADJACENT FACILITIES CAUSED BY INSTALLATION OR FAULTY PERFORMANCE OF EXCAVATION SUPPORT AND PROTECTION SYSTEMS.

3.7 REMOVAL AND REPAIRS

A. REMOVE EXCAVATION SUPPORT AND PROTECTION SYSTEMS WHEN CONSTRUCTION HAS PROGRESSED SUFFICIENTLY TO SUPPORT EXCAVATION AND EARTH AND HYDROSTATIC PRESSURES. REMOVE IN STAGES TO AVOID DISTURBING UNDERLYING SOILS AND ROCK OR DAMAGING STRUCTURES, PAVEMENTS, FACILITIES, AND UTILITIES.

1. REMOVE EXCAVATION SUPPORT AND PROTECTION SYSTEMS TO A MINIMUM DEPTH OF 48 INCHES (1200 MM) BELOW OVERLYING CONSTRUCTION AND ABANDON REMAINDER.
2. FILL VOIDS IMMEDIATELY WITH APPROVED BACKFILL COMPACTED TO DENSITY SPECIFIED IN SECTION 312000 "EARTH MOVING."
3. REPAIR OR REPLACE, AS APPROVED BY ARCHITECT, ADJACENT WORK DAMAGED OR DISPLACED BY REMOVING EXCAVATION SUPPORT AND PROTECTION SYSTEMS.

B. LEAVE EXCAVATION SUPPORT AND PROTECTION SYSTEMS PERMANENTLY IN PLACE.

END OF SECTION 315000

CLIENT
HCC
HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002
[T] (713) 718-2000
[F] (713) 718-8331
ARCHITECT
PGAL
3131 BRIARPARK DRIVE
SUITE 200
HOUSTON, TX 77042
[T] 713 622 1444
[F] 713 968 9333
www.pgal.com
PGAL TBPE REG NO F-2742
CONSULTANT

PROJECT NAME
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT LOCATION
6010 LITTLE YORK ROAD
HOUSTON, TEXAS 77016

DATE OF ISSUE
JANUARY 28, 2020
ISSUED FOR CONSTRUCTION

DRAWING HISTORY

NO.	DATE	DESCRIPTION

REGISTRATION

STATE OF TEXAS
OKSANA KANTARA
116902
LICENSED PROFESSIONAL ENGINEER
O. Kantara
01-28-2020

PROJECT NUMBER
1002047

SHEET TITLE
EXCAVATION SUPPORT AND PROTECTION SPECIFICATIONS 315000

SHEET NUMBER
C1.30

FILE NAME: R:\1002000-1002999\1002047\NORTH FOREST CAMPUS\3-CAD\3010 CAD FILES\ADDITIONAL WORK\CIVIL\SHEETS\C1.30 EXCAVATION SUPPORT AND PROTECTION SPECIFICATIONS - 315000.DWG
DATE STAMP: Friday, January 31, 2020 3:10:35 PM

SECTION 312319 – DEWATERING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 01 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.

1.2 SUMMARY

A. SECTION INCLUDES CONSTRUCTION DEWATERING.

B. RELATED REQUIREMENTS:

1. SECTION 013233 "PHOTOGRAPHIC DOCUMENTATION" FOR RECORDING PREEXISTING CONDITIONS AND DEWATERING SYSTEM PROGRESS.
2. SECTION 312000 "EARTH MOVING" FOR EXCAVATING, BACKFILLING, SITE GRADING, AND CONTROLLING SURFACE-WATER RUNOFF AND PONDING.
3. SECTION 334600 "SUBDRAINAGE" FOR PERMANENT FOUNDATION WALL, UNDERFLOOR, AND FOOTING DRAINAGE.

1.3 ALLOWANCES

A. NONE.

1.4 PRE-INSTALLATION MEETINGS

A. PRE-INSTALLATION CONFERENCE: CONDUCT CONFERENCE AT PROJECT SITE.

1. VERIFY AVAILABILITY OF INSTALLER'S PERSONNEL, EQUIPMENT, AND FACILITIES NEEDED TO MAKE PROGRESS AND AVOID DELAYS.
2. REVIEW CONDITION OF SITE TO BE DEWATERED INCLUDING COORDINATION WITH TEMPORARY EROSION-CONTROL MEASURES AND TEMPORARY CONTROLS AND PROTECTIONS.
3. REVIEW GEOTECHNICAL REPORT.
4. REVIEW PROPOSED SITE CLEARING AND EXCAVATIONS.
5. REVIEW EXISTING UTILITIES AND SUBSURFACE CONDITIONS.
6. REVIEW OBSERVATION AND MONITORING OF DEWATERING SYSTEM.

1.5 ACTION SUBMITTALS

A. SHOP DRAWINGS: FOR DEWATERING SYSTEM, PREPARED BY OR UNDER THE SUPERVISION OF A QUALIFIED PROFESSIONAL ENGINEER.

1. INCLUDE PLANS, ELEVATIONS, SECTIONS, AND DETAILS.
2. SHOW ARRANGEMENT, LOCATIONS, AND DETAILS OF WELLS AND WELL POINTS; LOCATIONS OF RISERS, HEADERS, FILTERS, PUMPS, POWER UNITS, AND DISCHARGE LINES; AND MEANS OF DISCHARGE, CONTROL OF SEDIMENT, AND DISPOSAL OF WATER.
3. INCLUDE LAYOUTS OF PIEZOMETERS AND FLOW-MEASURING DEVICES FOR MONITORING PERFORMANCE OF DEWATERING SYSTEM.
4. INCLUDE WRITTEN PLAN FOR DEWATERING OPERATIONS INCLUDING SEQUENCE OF WELL AND WELL-POINT PLACEMENT COORDINATED WITH EXCAVATION SHORING AND BRACINGS AND CONTROL PROCEDURES TO BE ADOPTED IF DEWATERING PROBLEMS ARISE.

1.6 INFORMATIONAL SUBMITTALS

A. QUALIFICATION DATA: FOR INSTALLER.

B. FIELD QUALITY-CONTROL REPORTS.

C. EXISTING CONDITIONS: USING PHOTOGRAPHS, SHOW EXISTING CONDITIONS OF ADJACENT CONSTRUCTION AND SITE IMPROVEMENTS THAT MIGHT BE MISCONSTRUED AS DAMAGE CAUSED BY DEWATERING OPERATIONS. SUBMIT BEFORE WORK BEGINS.

D. RECORD DRAWINGS: IDENTIFY LOCATIONS AND DEPTHS OF CAPPED WELLS AND WELL POINTS AND OTHER ABANDONED-IN-PLACE DEWATERING EQUIPMENT.

1.7 QUALITY ASSURANCE

A. INSTALLER QUALIFICATIONS: AN EXPERIENCED INSTALLER THAT HAS SPECIALIZED IN DESIGN OF DEWATERING SYSTEMS AND DEWATERING WORK.

1.8 FIELD CONDITIONS

A. PROJECT-SITE INFORMATION: A GEOTECHNICAL REPORT HAS BEEN PREPARED FOR THIS PROJECT AND IS AVAILABLE FOR INFORMATION ONLY. THE OPINIONS EXPRESSED IN THIS REPORT ARE THOSE OF A GEOTECHNICAL ENGINEER AND REPRESENT INTERPRETATIONS OF SUBSOIL CONDITIONS, TESTS, AND RESULTS OF ANALYSES CONDUCTED BY A GEOTECHNICAL ENGINEER. OWNER IS NOT RESPONSIBLE FOR INTERPRETATIONS OR CONCLUSIONS DRAWN FROM THIS DATA.

1. MAKE ADDITIONAL TEST BORINGS AND CONDUCT OTHER EXPLORATORY OPERATIONS NECESSARY FOR DEWATERING ACCORDING TO THE PERFORMANCE REQUIREMENTS.
2. THE GEOTECHNICAL REPORT IS INCLUDED ELSEWHERE IN PROJECT MANUAL.

B. SURVEY WORK: ENGAGE A QUALIFIED LAND SURVEYOR OR PROFESSIONAL ENGINEER TO SURVEY ADJACENT EXISTING BUILDINGS, STRUCTURES, AND SITE IMPROVEMENTS; ESTABLISH EXACT ELEVATIONS AT FIXED POINTS TO ACT AS BENCHMARKS. CLEARLY IDENTIFY BENCHMARKS AND RECORD EXISTING ELEVATIONS.

PART 2 – PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. DEWATERING PERFORMANCE: DESIGN, FURNISH, INSTALL, TEST, OPERATE, MONITOR, AND MAINTAIN DEWATERING SYSTEM OF SUFFICIENT SCOPE, SIZE, AND CAPACITY TO CONTROL HYDROSTATIC PRESSURES AND TO LOWER, CONTROL, REMOVE, AND DISPOSE OF GROUND WATER AND PERMIT EXCAVATION AND CONSTRUCTION TO PROCEED ON DRY, STABLE SUBGRADES.

1. DESIGN DEWATERING SYSTEM, INCLUDING COMPREHENSIVE ENGINEERING ANALYSIS BY A QUALIFIED PROFESSIONAL ENGINEER.
2. CONTINUOUSLY MONITOR AND MAINTAIN DEWATERING OPERATIONS TO ENSURE EROSION CONTROL, STABILITY OF EXCAVATIONS AND CONSTRUCTED SLOPES, PREVENTION OF FLOODING IN EXCAVATION, AND PREVENTION OF DAMAGE TO SUBGRADES AND PERMANENT STRUCTURES.
3. PREVENT SURFACE WATER FROM ENTERING EXCAVATIONS BY GRADING, DIKES, OR OTHER MEANS.
4. ACCOMPLISH DEWATERING WITHOUT DAMAGING EXISTING BUILDINGS, STRUCTURES, AND SITE IMPROVEMENTS ADJACENT TO EXCAVATION.
5. REMOVE DEWATERING SYSTEM WHEN NO LONGER REQUIRED FOR CONSTRUCTION.

B. REGULATORY REQUIREMENTS: COMPLY WITH GOVERNING EPA NOTIFICATION REGULATIONS BEFORE BEGINNING DEWATERING. COMPLY WITH WATER- AND DEBRIS-DISPOSAL REGULATIONS OF AUTHORITIES HAVING JURISDICTION.

PART 3 – EXECUTION

3.1 PREPARATION

A. PROTECT STRUCTURES, UTILITIES, SIDEWALKS, PAVEMENTS, AND OTHER FACILITIES FROM DAMAGE CAUSED BY SETTLEMENT, LATERAL MOVEMENT, UNDERMINING, WASHOUT, AND OTHER HAZARDS CREATED BY DEWATERING OPERATIONS.

1. PREVENT SURFACE WATER AND SUBSURFACE OR GROUND WATER FROM ENTERING EXCAVATIONS, FROM PONDING ON PREPARED SUBGRADES, AND FROM FLOODING SITE OR SURROUNDING AREA.
2. PROTECT SUBGRADES AND FOUNDATION SOILS FROM SOFTENING AND DAMAGE BY RAIN OR WATER ACCUMULATION.

B. INSTALL DEWATERING SYSTEM TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS, AND OTHER ADJACENT OCCUPIED AND USED FACILITIES.

1. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS, OR OTHER ADJACENT OCCUPIED OR USED FACILITIES WITHOUT PERMISSION FROM OWNER AND AUTHORITIES HAVING JURISDICTION. PROVIDE ALTERNATE ROUTES AROUND CLOSED OR OBSTRUCTED TRAFFIC WAYS IF REQUIRED BY AUTHORITIES HAVING JURISDICTION.

C. PROVIDE TEMPORARY GRADING TO FACILITATE DEWATERING AND CONTROL OF SURFACE WATER.

D. PROTECT AND MAINTAIN TEMPORARY EROSION AND SEDIMENTATION CONTROLS, WHICH ARE SPECIFIED IN SECTION 015000 "TEMPORARY FACILITIES AND CONTROLS," AND/OR SECTION 311000 "SITE CLEARING," AND AS SHOWN ON DRAWINGS DURING DEWATERING OPERATIONS.

3.2 INSTALLATION

A. INSTALL DEWATERING SYSTEM UTILIZING WELLS, WELL POINTS, OR SIMILAR METHODS COMPLETE WITH PUMP EQUIPMENT, STANDBY POWER AND PUMPS, FILTER MATERIAL GRADATION, VALVES, APPURTENANCES, WATER DISPOSAL, AND SURFACE-WATER CONTROLS.

1. SPACE WELL POINTS OR WELLS AT INTERVALS REQUIRED TO PROVIDE SUFFICIENT DEWATERING.
2. USE FILTERS OR OTHER MEANS TO PREVENT PUMPING OF FINE SANDS OR SILTS FROM THE SUBSURFACE.

B. PLACE DEWATERING SYSTEM INTO OPERATION TO LOWER WATER TO SPECIFIED LEVELS BEFORE EXCAVATING BELOW GROUND-WATER LEVEL.

C. PROVIDE SUMPS, SEDIMENTATION TANKS, AND OTHER FLOW-CONTROL DEVICES AS REQUIRED BY AUTHORITIES HAVING JURISDICTION.

D. PROVIDE STANDBY EQUIPMENT ON-SITE, INSTALLED AND AVAILABLE FOR IMMEDIATE OPERATION, TO MAINTAIN DEWATERING ON CONTINUOUS BASIS IF ANY PART OF SYSTEM BECOMES INADEQUATE OR FAILS.

3.3 OPERATION

A. OPERATE SYSTEM CONTINUOUSLY UNTIL DRAINS, SEWERS, AND STRUCTURES HAVE BEEN CONSTRUCTED AND FILL MATERIALS HAVE BEEN PLACED OR UNTIL DEWATERING IS NO LONGER REQUIRED.

B. OPERATE SYSTEM TO LOWER AND CONTROL GROUND WATER TO PERMIT EXCAVATION, CONSTRUCTION OF STRUCTURES, AND PLACEMENT OF FILL MATERIALS ON DRY SUBGRADES. DRAIN WATER-BEARING STRATA ABOVE AND BELOW BOTTOM OF FOUNDATIONS, DRAINS, SEWERS, AND OTHER EXCAVATIONS.

1. DO NOT PERMIT OPEN-SUMP PUMPING THAT LEADS TO LOSS OF FINES, SOIL PIPING, SUBGRADE SOFTENING, AND SLOPE INSTABILITY.
2. REDUCE HYDROSTATIC HEAD IN WATER-BEARING STRATA BELOW SUBGRADE ELEVATIONS OF FOUNDATIONS, DRAINS, SEWERS, AND OTHER EXCAVATIONS.
3. MAINTAIN PIEZOMETRIC WATER LEVEL A MINIMUM OF 24 INCHES (600 MM) BELOW BOTTOM OF EXCAVATION.

C. DISPOSE OF WATER REMOVED BY DEWATERING IN A MANNER THAT AVOIDS ENDANGERING PUBLIC HEALTH, PROPERTY, AND PORTIONS OF WORK UNDER CONSTRUCTION OR COMPLETED. DISPOSE OF WATER AND SEDIMENT IN A MANNER THAT AVOIDS INCONVENIENCE TO OTHERS.

D. REMOVE DEWATERING SYSTEM FROM PROJECT SITE ON COMPLETION OF DEWATERING. PLUG OR FILL WELL HOLES WITH SAND OR CUT OFF AND CAP WELLS A MINIMUM OF 36 INCHES (900 MM) BELOW OVERLYING CONSTRUCTION.

3.4 FIELD QUALITY CONTROL

A. OBSERVATION WELLS: PROVIDE OBSERVATION WELLS OR PIEZOMETERS, TAKE MEASUREMENTS, AND MAINTAIN AT LEAST THE MINIMUM NUMBER INDICATED; ADDITIONAL OBSERVATION WELLS MAY BE REQUIRED BY AUTHORITIES HAVING JURISDICTION.

1. OBSERVE AND RECORD DAILY ELEVATION OF GROUND WATER AND PIEZOMETRIC WATER LEVELS IN OBSERVATION WELLS.
2. REPAIR OR REPLACE, WITHIN 24 HOURS, OBSERVATION WELLS THAT BECOME INACTIVE, DAMAGED, OR DESTROYED. IN AREAS WHERE OBSERVATION WELLS ARE NOT FUNCTIONING PROPERLY, SUSPEND CONSTRUCTION ACTIVITIES UNTIL RELIABLE OBSERVATIONS CAN BE MADE. ADD OR REMOVE WATER FROM OBSERVATION-WELL RISERS TO DEMONSTRATE THAT OBSERVATION WELLS ARE FUNCTIONING PROPERLY.
3. FILL OBSERVATION WELLS, REMOVE PIEZOMETERS, AND FILL HOLES WHEN DEWATERING IS COMPLETED.

B. SURVEY-WORK BENCHMARKS: RESURVEY BENCHMARKS REGULARLY DURING DEWATERING AND MAINTAIN AN ACCURATE LOG OF SURVEYED ELEVATIONS FOR COMPARISON WITH ORIGINAL ELEVATIONS. PROMPTLY NOTIFY ARCHITECT IF CHANGES IN ELEVATIONS OCCUR OR IF CRACKS, SAGS, OR OTHER DAMAGE IS EVIDENT IN ADJACENT CONSTRUCTION.

C. PROVIDE CONTINUAL OBSERVATION TO ENSURE THAT SUBSURFACE SOILS ARE NOT BEING REMOVED BY THE DEWATERING OPERATION.

D. PREPARE REPORTS OF OBSERVATIONS.

3.5 PROTECTION

A. PROTECT AND MAINTAIN DEWATERING SYSTEM DURING DEWATERING OPERATIONS.

B. PROMPTLY REPAIR DAMAGES TO ADJACENT FACILITIES CAUSED BY DEWATERING.

END OF SECTION 312319

CLIENT
HCC
HOUSTON COMMUNITY COLLEGE
HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002
[T] (713) 718-2000
[F] (713) 718-8331

ARCHITECT
PGAL
3131 BRIARPARK DRIVE
SUITE 200
HOUSTON, TX 77042
[T] 713 622 1444
[F] 713 868 9333
www.pgal.com
PGAL TBPE REG. NO. F-2742

CONSULTANT

PROJECT NAME
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT LOCATION
6010 LITTLE YORK ROAD
HOUSTON, TEXAS 77016

DATE OF ISSUE
JANUARY 28, 2020
ISSUED FOR CONSTRUCTION

DRAWING HISTORY

NO.	DATE	DESCRIPTION

REGISTRATION

PROJECT NUMBER
1002047

SHEET TITLE
DEWATERING
SPECIFICATIONS
312319

SHEET NUMBER
C1.40

1. ALL DIMENSIONS AND COORDINATES ARE TO FACE OF CURB OR OUTSIDE OF BUILDING FACE UNLESS NOTED OTHERWISE.
2. REFER TO SHT C1.00 – OVERALL SITE PLAN PREPARED BY PGAL DATED 07/15/2019 FOR RECORD DRAWING.
3. ALL DISTURBED GRASS AND NON-PAVED AREAS NOT INDICATED FOR IMPROVEMENTS BY LANDSCAPING PLANS ARE TO BE STABILIZED AND RESTORED WITH 4" MINIMUM TOPSOIL AND SODDING AS INDICATED TO MATCH FINISH GRADES PER GRADING PLAN.
4. REFER TO ARCHITECTURAL PLANS FOR SPECIAL PAVING FINISH MATERIALS AND DETAILS.
5. REFER TO PROJECT SPECIFICATIONS FOR ALL MINIMUM AND ADDITIONAL REQUIREMENTS.

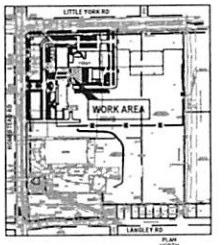
GENERAL NOTES (2)

(1) PROP FENCE AND GATE, RE: ARCHITECTURAL
(2) REGRADE EXIST VEGETATED AREA TO DRAIN TOWARDS INLET AND HYDROSEED.

KEY NOTES (3)

REGRADING AREA
SHEET FLOW DIRECTION
PROP STORM INLET
PROP STORM SEWER LINE

LEGEND (4)



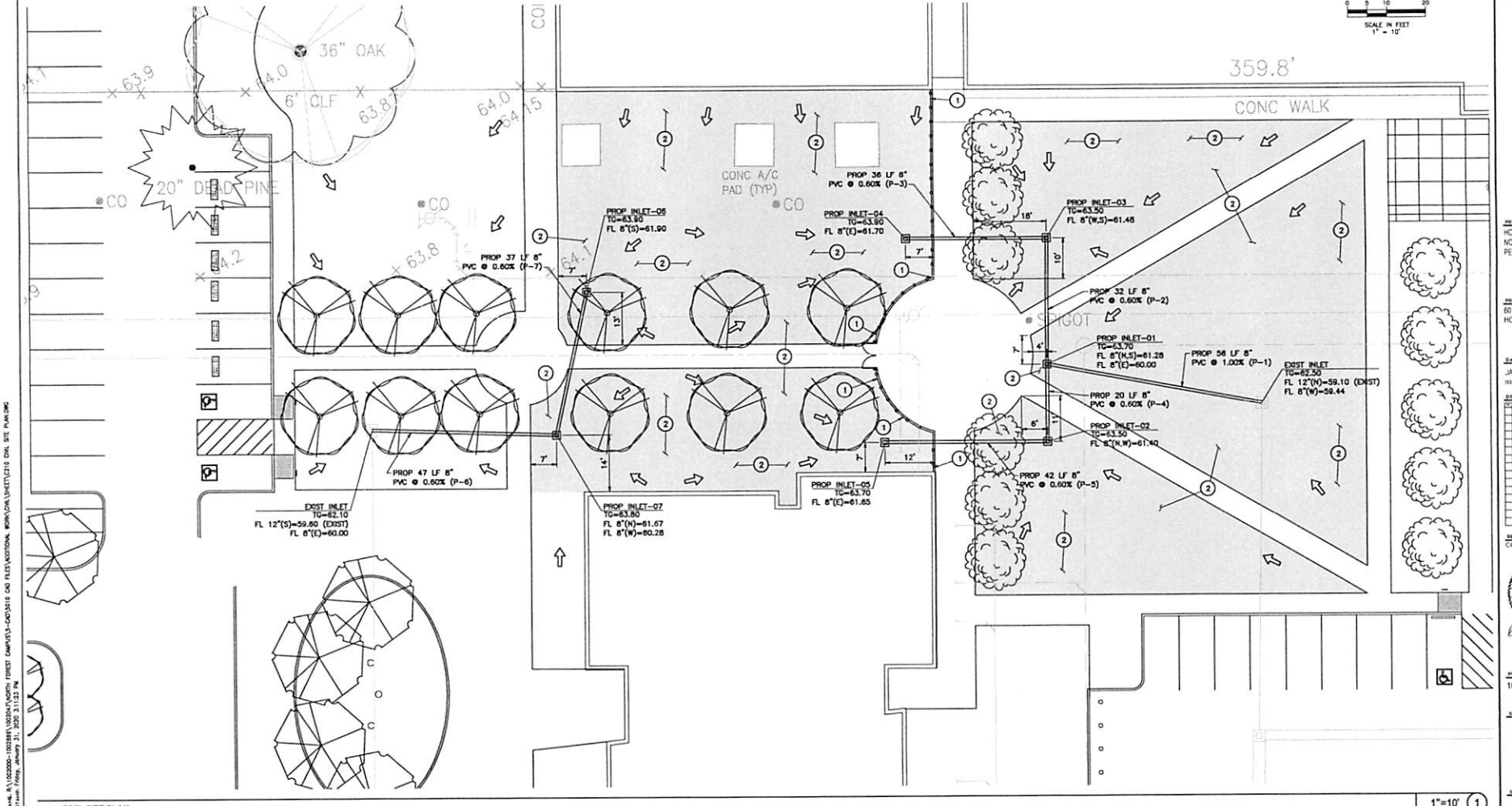
KEY MAP
SCALE: 1"=400'

BENCHMARK:
FLOOD PLAIN REFERENCE MARKER NO. 139430
HARRIS COUNTY FLOOD CONTROL DISTRICT 3-INCH BRASS DISK STAMPED "F125 BMO" LOCATED ON THE DOWNSTREAM SIDE OF THE SIDEWALK OF THE BRIDGE OVER THE CENTERLINE OF STREAM F125-00-00 LOCATED SOUTH APPROXIMATELY 301 FEET FROM THE INTERSECTION OF CHEEVES DRIVE AND HEATH STREET.
ELEVATION = 80.99 FEET, NAVD88 (2001 ADJ.)

TBM NO. 1
CUT "BOX" ON TOP OF BB-INLET & 220 FEET SOUTHWESTERLY FROM THE SOUTHERLY CUTBACK CORNER AT THE INTERSECTION OF THE SOUTH LINE OF LITTLE YORK ROAD AND THE EAST LINE OF HOMESTEAD ROAD AS SHOWN HEREON.
ELEVATION = 83.23

TBM NO. 2
CUT "BOX" ON TOP OF INLET LOCATED IN THE MEDIAN OF LITTLE YORK ROAD AND DIRECTLY NORTH OF THE NORTHEAST CORNER OF THE SUBJECT TRACT. EXACT LOCATION AS SHOWN HEREON.
ELEVATION = 80.55

TBM NO. 3
CUT "BOX" ON TOP OF INLET LOCATED AT THE NORTHEAST CORNER OF THE INTERSECTION OF LANGLEY RD. AND HOMESTEAD RD. EXACT LOCATION AS SHOWN HEREON.
ELEVATION = 78.03



SCALE IN FEET
1" = 10'

CIVIL SITE PLAN

1"=10' (1)

CLIENT
HCC
HOUSTON COMMUNITY COLLEGE
HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002
(T) (713) 718-2000
(F) (713) 718-8331

ARCHITECT
PGAL
3131 BRIARPARK DRIVE
SUITE 200
HOUSTON, TX 77042
(T) 713.622.1444
(F) 713.968.8333
www.pgal.com
PGAL TBPE REG. NO. F-2742

CONSULTANT

PROJECT NAME
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT LOCATION
6010 LITTLE YORK ROAD
HOUSTON, TEXAS 77016

DATE OF ISSUE
JANUARY 28, 2020
ISSUED FOR CONSTRUCTION

DRAWING HISTORY

NO.	DATE	DESCRIPTION

STATE OF TEXAS
DKSANA KANTARA
116902
REGISTERED
ENGINEER
01-28-2020

PROJECT NUMBER
1002047

SHEET TITLE
CIVIL SITE PLAN

SHEET NUMBER
C2.10

File Name: R:\1002000-1002599\1002047\NORTH FOREST CAMPUS\3-CAD\5810 CAD FILES\ADDITIONAL WORK\DWG\SHEET\C210 CIVIL SITE PLAN.DWG
Date/Time: Friday, January 31, 2020 3:11:23 PM

Area No.	Area, ac	Runoff Coefficient	Tc, min	Rainfall Intensity, in/hr	2-yr Runoff, cfs
A1	0.220	0.50	22.66	3.58	0.39
A2	0.080	0.50	21.41	3.68	0.15
A3	0.090	0.50	21.54	3.66	0.16
A4	0.110	0.50	21.78	3.65	0.20
A5	0.050	0.50	20.90	3.72	0.09
A6	0.040	0.50	20.67	3.74	0.07
A7	0.040	0.50	20.67	3.74	0.07
A8	0.140	0.50	22.07	3.62	0.25

CALCULATION FOR DRAINAGE AREA (2)

Pipe No.	Area, ac	Runoff Coefficient	Tc, min	Rainfall Intensity, in/hr	Material	Slope, %	Pipe Size, in	Velocity, ft/s	Capacity, cfs	2-yr Runoff, cfs
P1	0.550	0.50	24.00	3.48	0.011	1.000	8.00	4.10	1.43	0.96
P2	0.200	0.50	22.53	3.59	0.011	0.600	8.00	3.18	1.11	0.36
P3	0.110	0.50	21.78	3.65	0.011	0.600	8.00	3.18	1.11	0.20
P4	0.130	0.50	21.98	3.63	0.011	0.600	8.00	3.18	1.11	0.24
P5	0.050	0.50	20.90	3.72	0.011	0.600	8.00	3.18	1.11	0.09
P6	0.080	0.50	21.41	3.68	0.011	0.600	8.00	3.18	1.11	0.15
P7	0.040	0.50	20.67	3.74	0.011	0.600	8.00	3.18	1.11	0.07

CALCULATION FOR PIPE CAPACITY (3)

DRAINAGE AREA NUMBER
DRAINAGE AREA (ACRE)
AREA RUNOFF COEFFICIENT

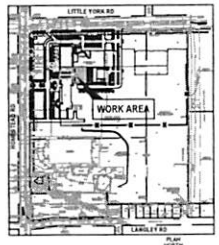
DRAINAGE AREA BOUNDARY

SHEET FLOW DIRECTION

PROP STORM INLET

PROP STORM SEWER LINE

LEGEND (4)



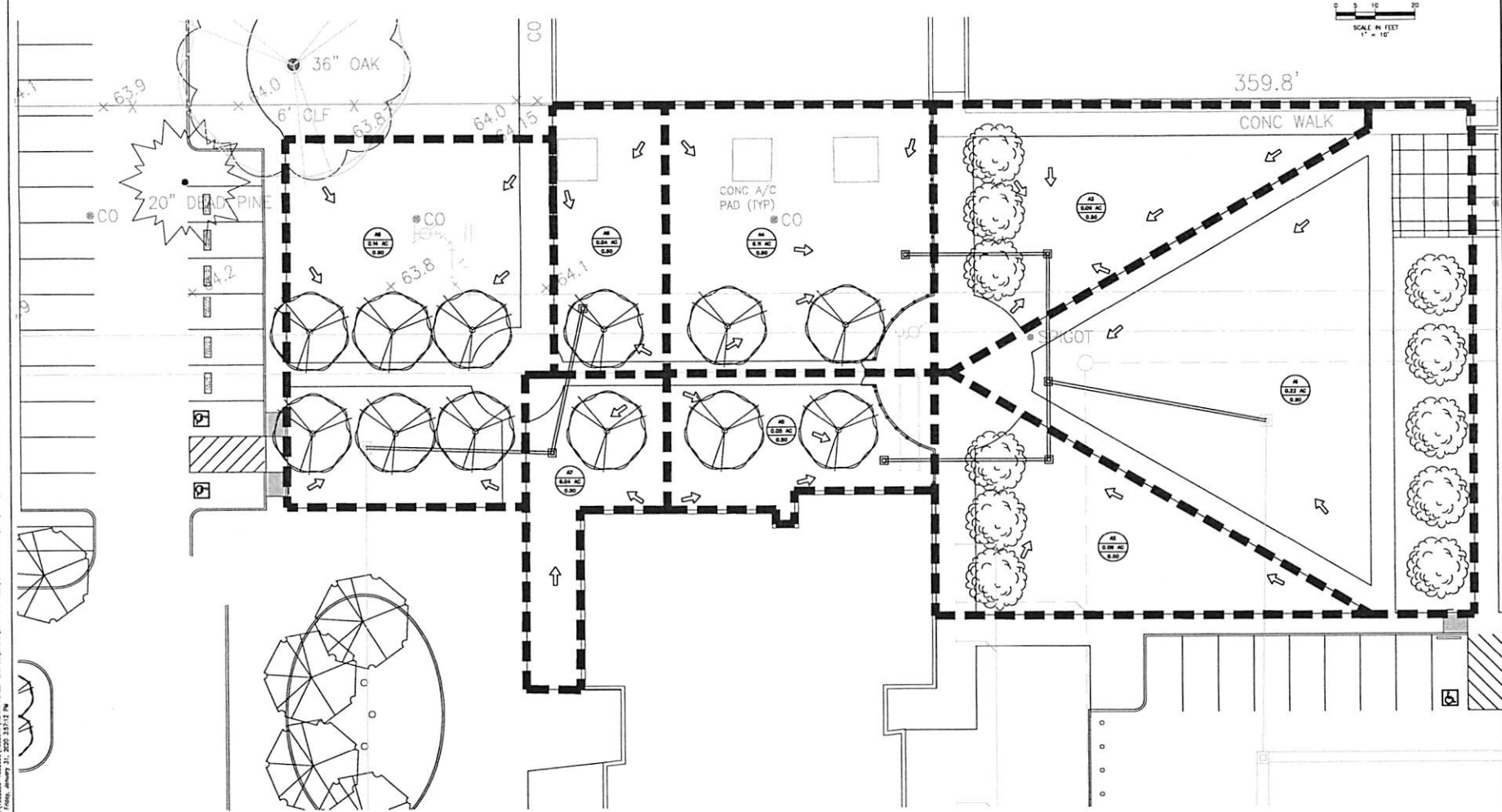
KEY MAP
SCALE: 1"=400'

BENCHMARK:
FLOOD PLAIN REFERENCE MARKER MEL 1284(3)
HARRIS COUNTY FLOOD CONTROL DISTRICT 3-INCH BRASS DISK STAMPED "P125 BM04" LOCATED ON THE DOWNSTREAM SIDE OF THE SIDEWALK OF THE BRIDGE OVER THE CENTERLINE OF STREAM P125-00-00 LOCATED SOUTH APPROXIMATELY 301 FEET FROM THE INTERSECTION OF CHESNES DRIVE AND HEATH STREET.
ELEVATION = 80.86 FEET, NAVD88 (2001 ADJ).

TBM NO. 1
CUT "NOX" ON TOP OF RR-INLET A 220 FEET SOUTHWESTERLY FROM THE SOUTHERLY CUTBACK CORNER AT THE INTERSECTION OF THE SOUTH LINE OF LITTLE YORK ROAD AND THE EAST LINE OF HOMESTEAD ROAD AS SHOWN HEREON.
ELEVATION = 83.33

TBM NO. 2
CUT "NOX" ON TOP OF INLET LOCATED IN THE MEDIAN OF LITTLE YORK ROAD AND DIRECTLY NORTH OF THE NORTHEAST CORNER OF THE SUBJECT TRACT. EXACT LOCATION AS SHOWN HEREON.
ELEVATION = 80.55

TBM NO. 3
CUT "NOX" ON TOP OF INLET LOCATED AT THE NORTHEAST CORNER OF THE INTERSECTION OF LANGLEY RD. AND HOMESTEAD RD. EXACT LOCATION AS SHOWN HEREON.
ELEVATION = 78.03



DRAINAGE AREA MAP

1"=10' (1)

SCALE IN FEET
1" = 10'

CLIENT
HCC
HOUSTON COMMUNITY COLLEGE
HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002
[T] (713) 718-2000
[F] (713) 718-8331

ARCHITECT
PGAL
3131 BRIARPARK DRIVE
SUITE 200
HOUSTON, TX 77042
[T] 713 622 1444
[F] 713 968 9333
www.pgal.com
PGAL TBPE REG. NO. F-2742

CONSULTANT

PROJECT NAME
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT LOCATION
6010 LITTLE YORK ROAD
HOUSTON, TEXAS 77016

DATE OF ISSUE
JANUARY 28, 2020
ISSUED FOR CONSTRUCTION

DRAWING HISTORY

No.	Date	Description

REGISTRATION

STATE OF TEXAS
OKSANA KANTARA
116902
LICENSED
ARCHITECT
01-28-2020

PROJECT NUMBER
1002047

SHEET TITLE
DRAINAGE AREA MAP

SHEET NUMBER
C3.30

SWPPP CONSTRUCTION NOTES (4)

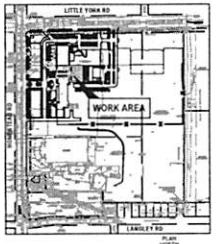
1. CONTRACTOR SHALL IMPLEMENT INLET PROTECTION DEVICES AND FILTER FABRIC BARRIER AT LOCATIONS SHOWN ON THE STORM WATER POLLUTION PREVENTION (SWPPP) PLANS TO KEEP SILT AND/OR EXCAVATED MATERIALS FROM ENTERING INTO THE STORM SEWER SYSTEM AND OUTFALL DITCHES THAT EVENTUALLY POLLUTE THE RECEIVING WATER SYSTEMS.
2. DURING THE EXCAVATION PHASE OF THE PROJECT, CONTRACTOR SHALL SCHEDULE THE WORK IN SHORT SEGMENTS SO THAT EXCAVATED MATERIAL CAN BE QUICKLY HAULED AWAY FROM THE SITE AND TO PREVENT IT FORM STAYING UNCOLLECTED ON THE EXISTING PAVEMENT. ANY LOOSE EXCAVATED MATERIAL WHICH FALLS ON PAVEMENTS OR DRIVEWAYS SHALL BE SWEPT BACK INTO THE EXCAVATED AREA.
3. CONTRACTOR SHALL CLEAN UP THE EXISTING STREET INTERSECTIONS AND DRIVEWAYS DAILY, AS NECESSARY, TO REMOVE ANY EXCESS MUD, SILT OR ROCK TRACKED FROM THE EXCAVATED AREA.
4. CONTRACTOR SHALL FOLLOW GOOD HOUSEKEEPING PRACTICES DURING THE CONSTRUCTION OF THE PROJECT, ALWAYS CLEANING UP DIRT AND LOOSE MATERIAL AS CONSTRUCTION PROGRESSES.
5. CONTRACTOR TO INSPECT AND MAINTAIN THE AREAS LISTED BELOW AT LEAST ONCE EVERY FOURTEEN (14) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM EVENT OF 0.5 INCHES OR GREATER.
   - o DISTURBED AREAS OF THE CONSTRUCTION SITE THAT HAVE NOT BEEN FINALLY STABILIZED.
   - o AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION.
   - o STRUCTURAL CONTROL MEASURES.
   - o LOCATIONS WHERE VEHICLES EXIT THE SITE.
6. CONTRACTOR TO BE RESPONSIBLE TO MAINTAIN EXISTING DITCHES, SWALES, STORM SEWERS AND CULVERTS FOR UNOBSTRUCTED DRAINAGE AT ALL TIMES. WHERE SODDING IS DISTURBED BY EXCAVATION OR BACKFILLING OPERATIONS, SUCH AREAS SHALL BE REPLACED BY SEEDING OR SODDING. SLOPES 3:1 OR STEEPER SHALL BE REPLACED BY BLOCK SODDING.
7. RESTORE AND STABILIZE ALL DISTURBED SOIL AREAS AS SOON AS POSSIBLE BY INSTALLATION OF PAVING, HYDRO-MULCH SEEDING AND SODDING. MAINTAIN ALL SWPPP CONTROLS UNTIL ALL DRAINAGE AREAS ARE STABILIZED.
8. UPON COMPLETION OF CONSTRUCTION THE PERMANENT STORM WATER QUALITY FEATURE WILL BE CLEANED OF ALL SEDIMENT AND DEBRIS THAT MAY HAVE ACCUMULATED. ADDITIONALLY ALL DISTURBED AREAS RELATED TO THIS PROJECT WILL BE COMPLETELY STABILIZED. THIS WILL BE DONE PRIOR TO SUBMITTING AN AS "AS-BUILT CERTIFICATE" AND CALLING FOR FINAL INSPECTION. HARRIS COUNTY ENGINEERING WILL NOT PASS THE FINAL INSPECTION OR ISSUE THE CERTIFICATE OF COMPLIANCE UNTIL THE REQUIRED FINAL CLEANOUT AND STABILIZATION HAVE BEEN COMPLETED. THE DEVELOPMENT IS NOT APPROVED FOR OPERATION UNTIL A CERTIFICATE OF COMPLIANCE HAS BEEN ISSUED.

GENERAL NOTES (3)

1. REFER TO DTL 1 (COH STD DWG 01571-01), SHT C8.00 & DTL 1, SHT C7.30 FOR SWPPP DETAILS.
2. PROP FILTER FABRIC FENCES MAY BE TEMPORARILY SECURED TO AND SUPPORTED BY EXISTING CHAIN LINK FENCES WHERE IMMEDIATELY ADJACENT.
3. PROVIDE TEMPORARY DROP INLET BASKET FOR EXISTING GRATE INLETS OR PROPOSED GRATE INLETS UPON INLET COMPLETION. PROVIDE TRITON MODEL TR - OPTION A STANDARD AS SUPPLIED BY CONTECH STORMWATER SOLUTIONS, INC.; OR FLEXSTORM CATCH-IT AS SUPPLIED BY ADVANCED DRAINAGE SYSTEMS, INC.; OR APPROVED EQUAL. REMOVE UPON AREA STABILIZATION OR PROJECT COMPLETION.

LEGEND (2)

- FF — FILTER FABRIC FENCE RE: DTL 1, SHT C8.00
- IPB — INLET PROTECTION BARRIER RE: DTL 1, SHT C8.00
- DIB — DROP INLET BASKET



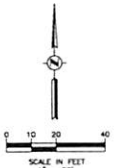
KEY MAP
SCALE: 1"=400'

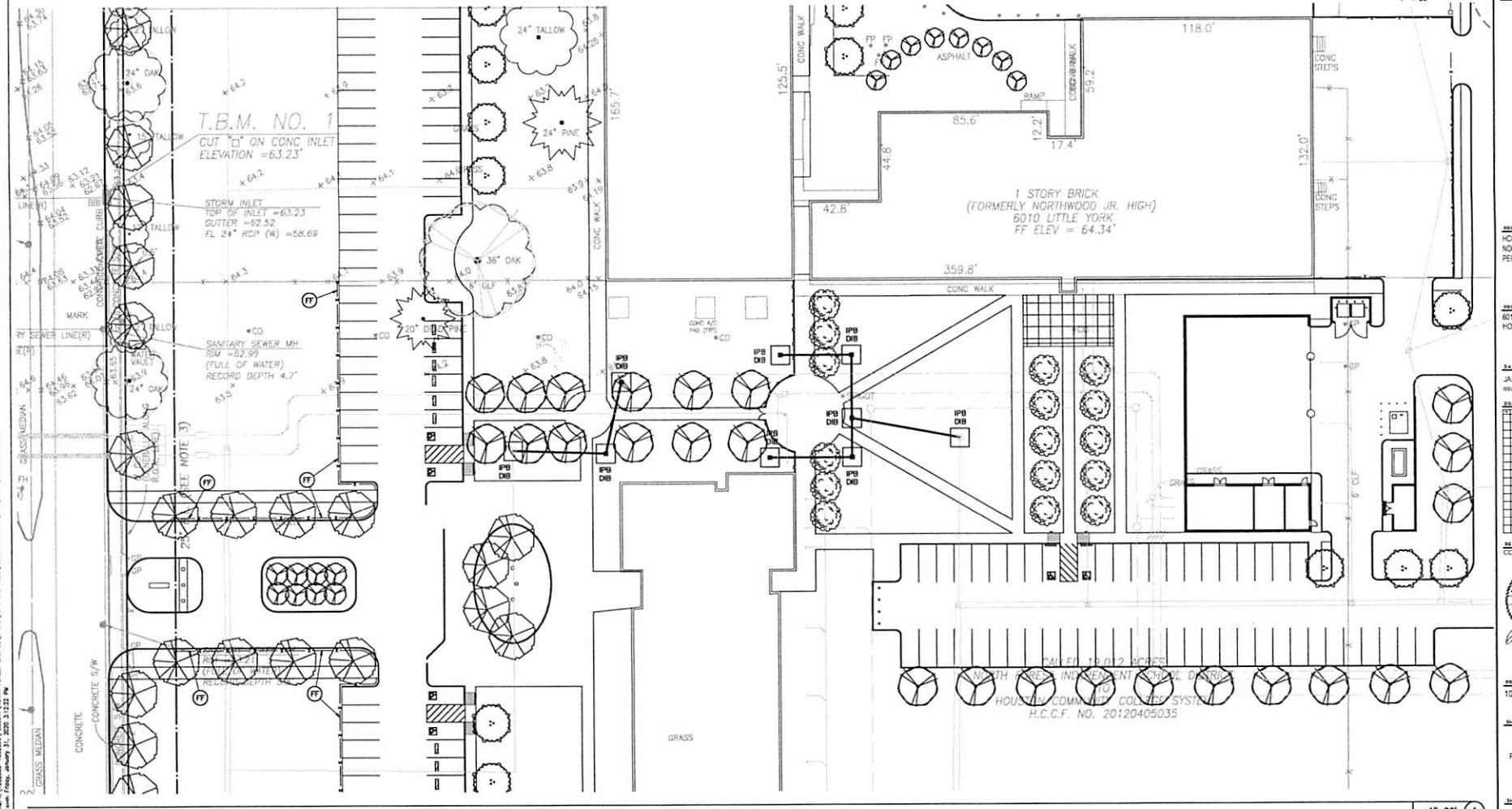
BENCHMARK:
FLOOD PLAIN REFERENCE MARKER NO. 155430
HARRIS COUNTY FLOOD CONTROL DISTRICT 3-INCH BRASS DISK STAMPED "7125 0604" LOCATED ON THE DOWNSTREAM SIDE OF THE SIDEWALK OF THE BRIDGE OVER THE CENTERLINE OF SPRING 7125-00-00 LOCATED SOUTH APPROXIMATELY 201 FEET FROM THE INTERSECTION OF CHEEVES DRIVE AND HEATH STREET.
ELEVATION = 80.86 FEET, NAVD88 (2001 ADJ).

T.B.M. NO. 1
CUT "BOX" ON TOP OF BW-INLET & 220 FEET SOUTHWESTERLY FROM THE SOUTHERLY OUTBACK CORNER AT THE INTERSECTION OF THE SOUTH LINE OF LITTLE YORK ROAD AND THE EAST LINE OF HOMESTEAD ROAD AS SHOWN HEREON.
ELEVATION = 63.23

T.B.M. NO. 2
CUT "BOX" ON TOP OF INLET LOCATED IN THE MEDIAN OF LITTLE YORK ROAD AND DIRECTLY NORTH OF THE NORTHEAST CORNER OF THE SUBJECT TRACT. EXACT LOCATION AS SHOWN HEREON.
ELEVATION = 80.55

T.B.M. NO. 3
CUT "BOX" ON TOP OF INLET LOCATED AT THE NORTHEAST CORNER OF THE INTERSECTION OF LANGLEY RD. AND HOMESTEAD RD. EXACT LOCATION AS SHOWN HEREON.
ELEVATION = 58.03





STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

1"=20' (1)

CLIENT
HCC
HOUSTON COMMUNITY COLLEGE
HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002
[T] (713) 718-2000
[F] (713) 718-8331

ARCHITECT
PGAL
3131 BRIARPARK DRIVE
SUITE 200
HOUSTON, TX 77042
[T] 713.622.1444
[F] 713.968.9333
www.pgal.com
PGAL TBPE REG. NO. F-2742

CONSULTANT

PROJECT NAME
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT LOCATION
6010 LITTLE YORK ROAD
HOUSTON, TEXAS 77016

DATE OF ISSUE
JANUARY 28, 2020
ISSUED FOR CONSTRUCTION

DRAWING HISTORY

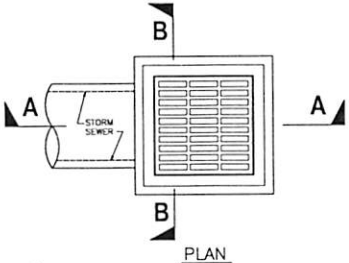
NO.	DATE	DESCRIPTION

STATE OF TEXAS
OKSANA KANTARIA
116902
LICENSED
ARCHITECT
01-28-2020

PROJECT NUMBER
1002047

SHEET TITLE
STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

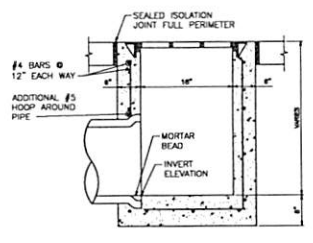
SHEET NUMBER
C5.00



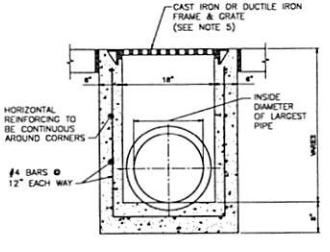
PLAN

NOTES:

1. SIMILAR SIZE PRECAST CONCRETE GRATE INLET MAY BE PROVIDED IN LIEU OF CAST-IN-PLACE SUBJECT TO REVIEW AND APPROVAL BY ENGINEER.
2. GRATE AND INLET SHALL BE DESIGNED FOR AASHTO HS-20 WHEEL LOADING.
3. ALL CAST-IN-PLACE CONCRETE SHALL TEST 4,000 PSI MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS.
4. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60.
5. FRAME AND GRATE SHALL BE EAST JORDAN IRON WORKS V-5620 OR APPROVED EQUAL.



SECTION "A–A"



SECTION "B–B"

STORM INLET DETAILS (TY 1 GRATE INLET)

N.T.S. 1

CLIENT

HCC
HOUSTON COMMUNITY COLLEGE

HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002

[T] (713) 718-2000
[F] (713) 718-8331

ARCHITECT

PGAL

3131 BRIARPARK DRIVE
SUITE 200
HOUSTON, TX 77042
[T] 713.622.1444
[F] 713.968.9333
www.pgal.com

PGAL TBPE REG. NO. F-2742

CONSULTANT

PROJECT NAME
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT LOCATION
6010 LITTLE YORK ROAD
HOUSTON, TEXAS 77016

DATE OF ISSUE
JANUARY 28, 2020
ISSUED FOR CONSTRUCTION

DRAWING HISTORY

NO.	ITEM	DESCRIPTION

REGISTRATION

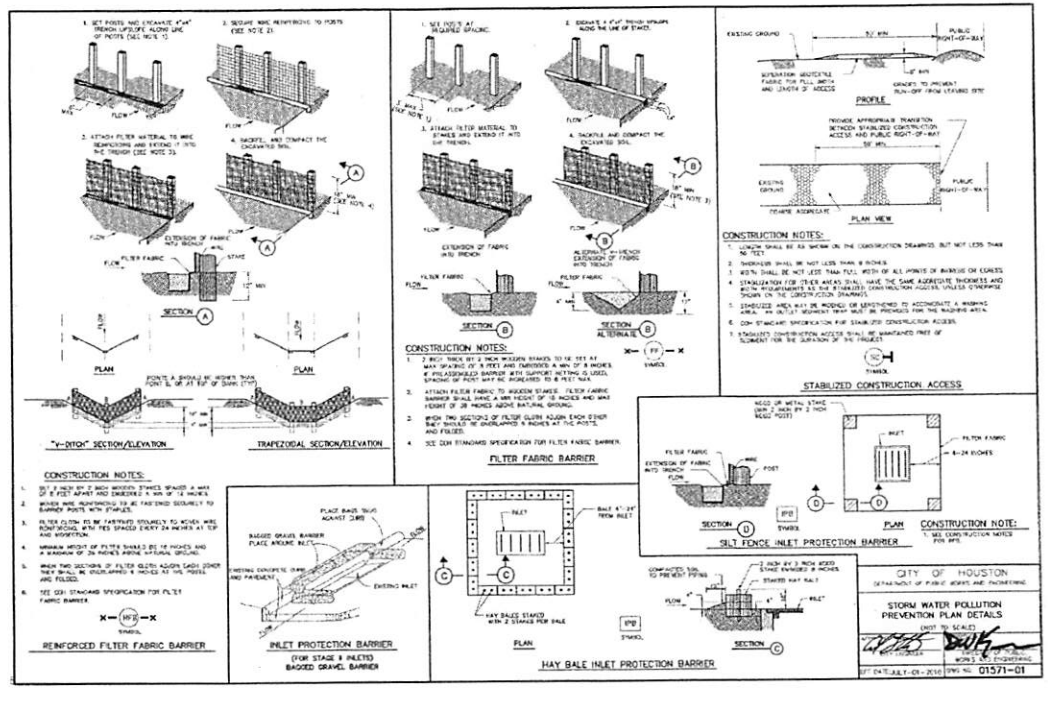
STATE OF TEXAS
OKSANA KANTARA
116902
LICENSED
01-28-2020

PROJECT NUMBER
1002047

SHEET TITLE
STORM DETAILS

SHEET NUMBER
C7.00

FILE name: R:\1002000-1002999\1002047\NORTH FOREST CAMPUS\13-CAD\810 CAD FILES\ADDITIONAL WORK\DWG\SHEETS\C700 STORM DETAILS.DWG
DATE/TIME: Friday, January 31, 2020 3:53:39 PM



SWPPP DETAILS

N.T.S. (1)

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
STORM WATER POLLUTION PREVENTION PLAN DETAILS
(NOT TO SCALE)
WORK ORDER NO. 01571-01
SPT DATE: JULY-01-2016

CLIENT
HCC
HOUSTON COMMUNITY COLLEGE
HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002
[T] (713) 718-2000
[F] (713) 718-8331

ARCHITECT
PGAL
3131 BRIARPARK DRIVE
SUITE 200
HOUSTON, TX 77042
[T] 713 622 1444
[F] 713 968 9333
www.pgal.com
PGAL TBPE REG. NO: F-2742

CONSULTANT

PROJECT NAME
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT LOCATION
6010 LITTLE YORK ROAD
HOUSTON, TEXAS 77016

DATE OF ISSUE
JANUARY 28, 2020
ISSUED FOR CONSTRUCTION

DRAWING HISTORY

NO.	DATE	DESCRIPTION

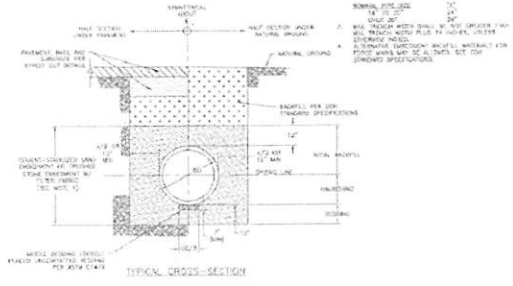
REGISTRATION

PROJECT NUMBER
1002047

SHEET TITLE
COH STANDARD DETAILS
GENERAL

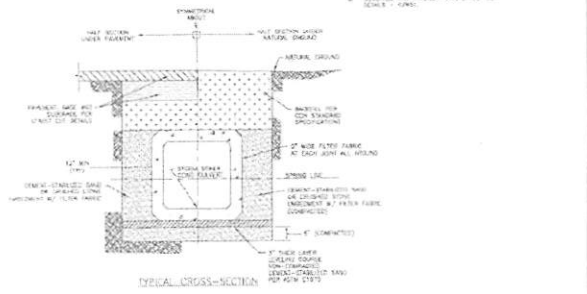
SHEET NUMBER
C8.00

02317--03



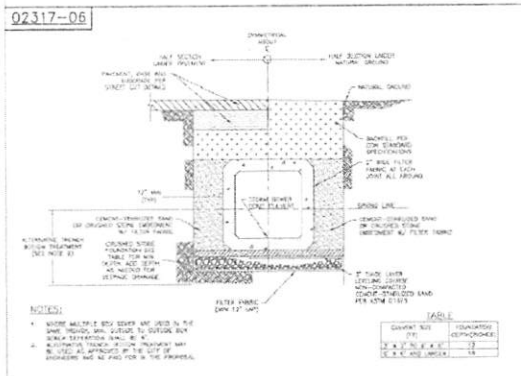
SANITARY OR STORM SEWER BEDDING AND BACKFILL
FOR DRY STABLE TRENCH
NTS

02317--05



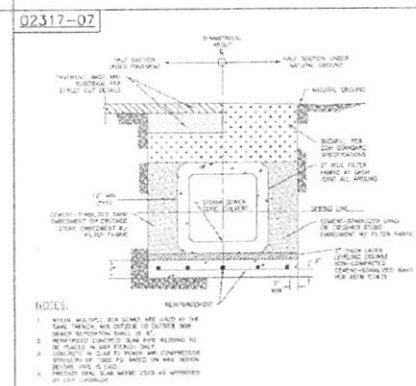
PRECAST CONCRETE BOX STORM SEWER
BEDDING AND BACKFILL FOR DRY STABLE TRENCH
NTS

02317--06



PRECAST CONCRETE BOX STORM SEWER
BEDDING AND BACKFILL FOR WET STABLE TRENCH
NTS

02317--07



PRECAST CONCRETE BOX STORM SEWER
BEDDING AND BACKFILL WITH SEAL SLAB
NTS

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STORM SEWER
02317--03 THROUGH 07

CLIENT
HCC
HOUSTON COMMUNITY COLLEGE
HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002
[T] (713) 718-2000
[F] (713) 718-8331

ARCHITECT
PGAL
3131 BRIARPARK DRIVE
SUITE 200
HOUSTON, TX 77042
[T] 713 802 1444
[F] 713 968 9333
www.pgal.com
PGAL TBPE REG. NO. F-2742

CONSULTANT

PROJECT NAME
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT LOCATION
6010 LITTLE YORK ROAD
HOUSTON, TEXAS 77016

DATE OF ISSUE
JANUARY 28, 2020
ISSUED FOR CONSTRUCTION

DRAWING HISTORY

NO.	DATE	DESCRIPTION

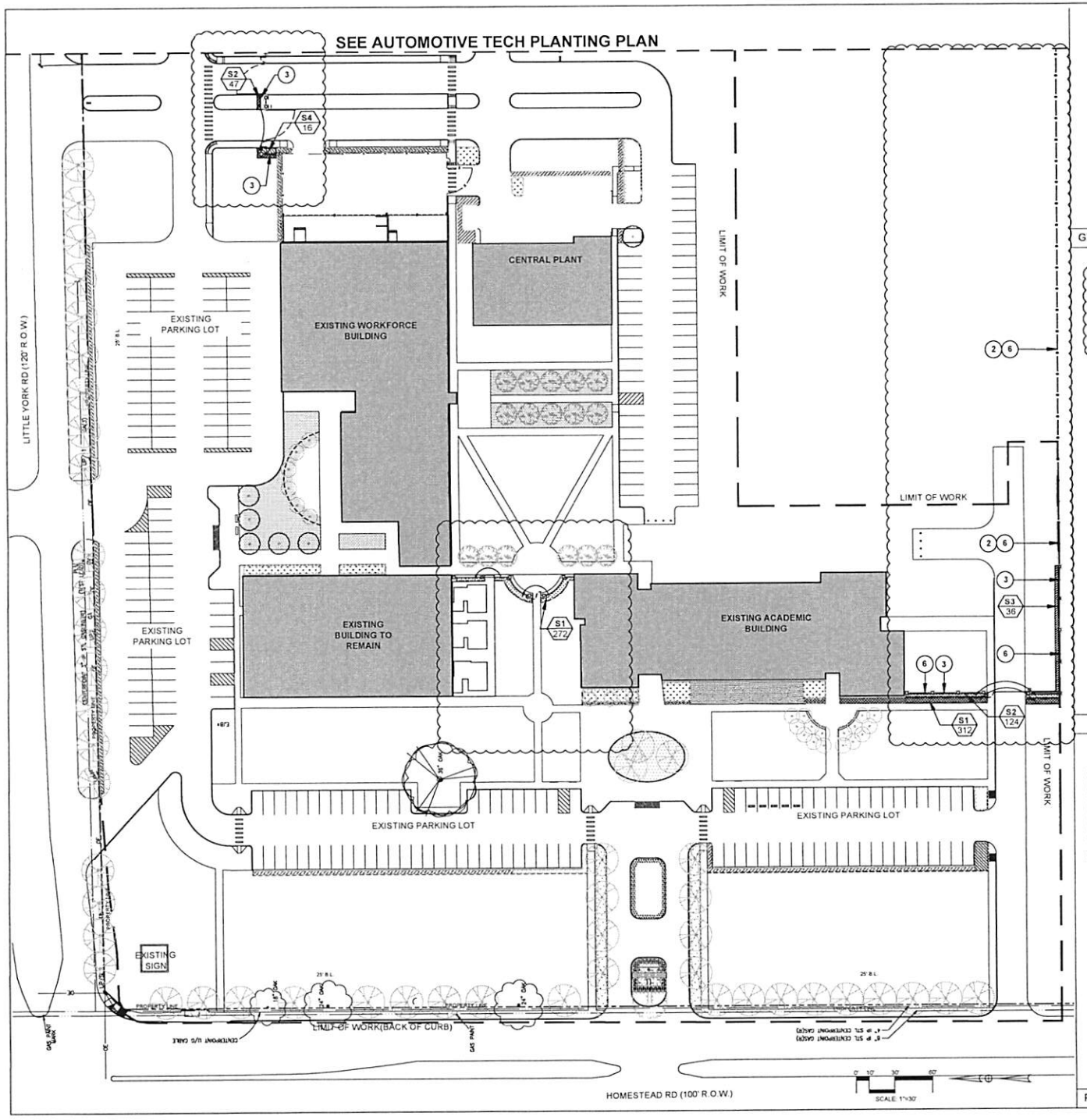
REGISTRATION

STATE OF TEXAS
DIGANA KANTANIE
111902
LICENSED
PROFESSIONAL ENGINEER
01-28-2020

PROJECT NUMBER
1002047

SHEET TITLE
COH STANDARD DETAILS
STORM

SHEET NUMBER
C8.10



A. CONTRACTOR TO LAYOUT ALL PLANTING BED LIMITS AND LOCATIONS OF ALL PROPOSED TREES IN THE FIELD FOR APPROVAL OF LANDSCAPE ARCHITECT.
B. TREES SHALL BE PLANTED NO CLOSER THAN 5.0' (AS MEASURED FROM CENTER OF TRUNK) FROM ANY WALKWAY, FENCE, BUILDING, OR OTHER HARDSCAPE ITEM.
C. CONTRACTOR SHALL FINE GRADE ALL LANDSCAPE AREAS.
D. CONTRACTOR TO PROVIDE MINIMUM 2" OF APPROVED TOPSOIL WORKED INTO EXISTING SOLID FOR ALL AREAS TO RECEIVE HYDROMULCHING AND TOP DRESS ALL AREAS TO RECEIVE SOLID SOD WITH 1" TOP SOIL MIXTURE OR ON SITE SOIL SPOILS IF APPROVED BY LANDSCAPE ARCHITECT.
E. CONTRACTOR TO PROVIDE METAL PLANTING BED EDGING FOR ALL AREAS WHERE TURF AREAS ADJOIN PLANTING BEDS.
F. SEE PLANTING DETAIL SHEET **L200** FOR PLANTING LEGEND AND DETAILS

GENERAL NOTES

1. NOT USED.
2. CHAIN-LINK FENCE. **SEE ARCHITECTURAL DRAWINGS.**
3. ORNAMENTAL METAL FENCE. **SEE ARCHITECTURAL & STRUCTURAL DRAWINGS. (FOR PILASTER DESIGN ONLY)**
4. NOT USED.
5. NOT USED.
6. PROVIDE ONE ROW OF SOLID SOD ALONG BOTH SIDE OF ORNAMENTAL FENCE AND CHAIN-LINK FENCE. SOD TO BE COMMON BERMUDA (CYNODON DACTYLON).
7. NOT USED.

PLANTING LIST

TYPE	ABR.	BOTANICAL NAME	COMMON NAME	SIZE / SPACING	QTY.
SHRUBS					
	B1	DIANELLA TASMANICA 'VARIEGATA'	FLAX LILY	1 GAL. @ 15"O.C.	333
	B2	DIETES BICOLOR	BUTTERFLY IRIS	3 GAL. @ 18"O.C.	429
	B3	NERIUM OLEANDER 'PETITE PINK'	DWARF OLEANDER	3 GAL. @ 36" O.C.	36
	B4	ROSA 'FLORIBUNDA'	NEARLY WILD ROSE	3 GAL. @ 24" O.C.	56

HCC
HOUSTON COMMUNITY COLLEGE

OWNER
HCC NORTHEAST COLLEGE
555 COMMUNITY COLLEGE DRIVE
HOUSTON, TX 77013
[T] (713) 718-6295
[F] (713) 718-6331

ARCHITECT
PGAL
3131 BRIARPARK
SUITE 200
HOUSTON, TX 77042
[T] 713 622 1444
[F] 713 968 9333

PGAL TBPE REG. NO. F-2742

CONSULTANT
M2L
M2L Associates Inc.

PROJECT TITLE
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT NUMBER
1002047

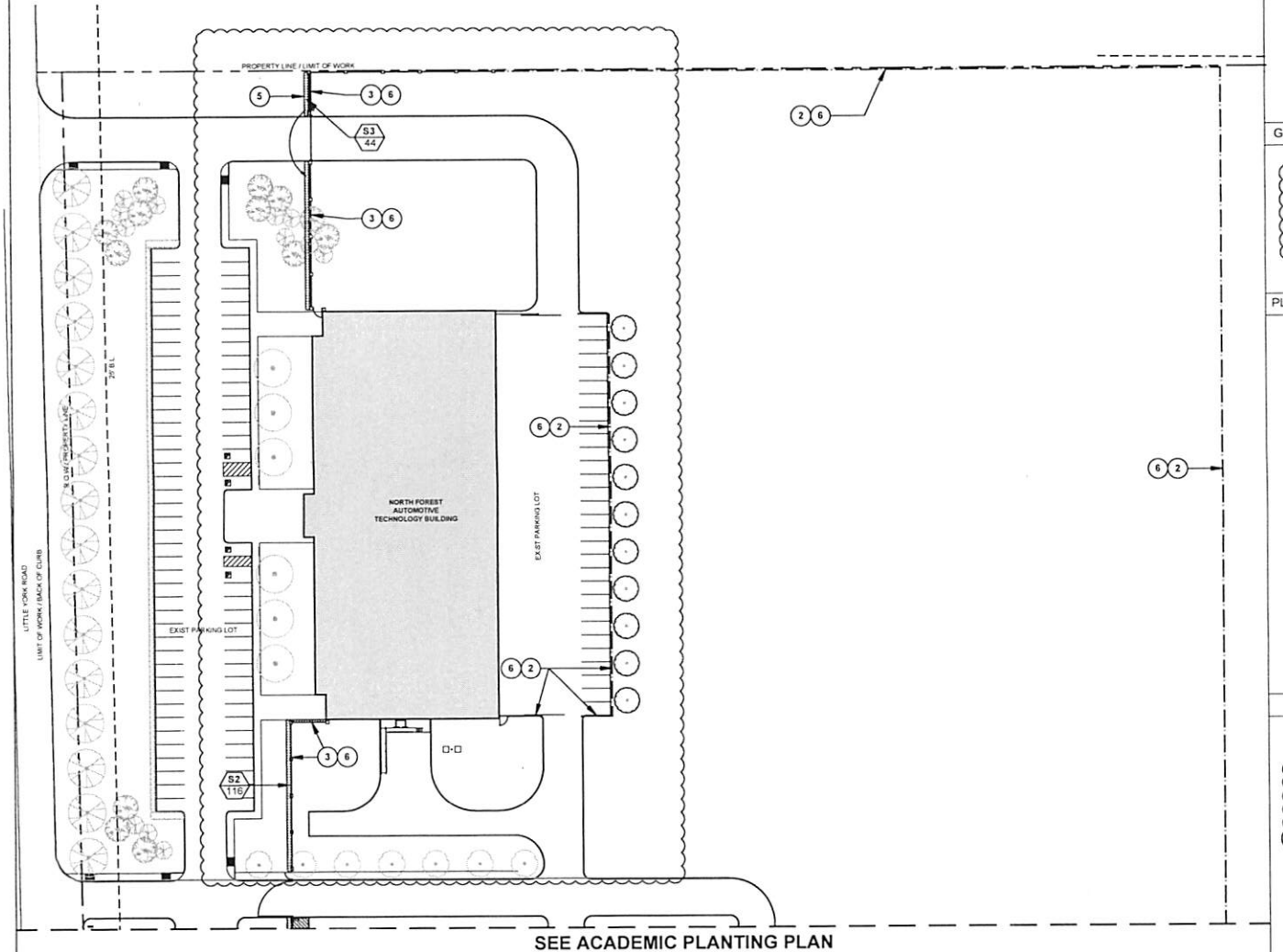
PROJECT LOCATION
6010 LITTLE YORK ROAD
HOUSTON, TX 77016

DATE OF ISSUE
January 28, 2020
ISSUED FOR CONSTRUCTION
REVISIONS

Pierce Goodwin Alexander & Linville

SHEET TITLE
LANDSCAPE PLAN

SHEET NUMBER
L101



SEE ACADEMIC PLANTING PLAN

0' 10' 30' 60'
SCALE: 1"=30'

A. CONTRACTOR TO LAYOUT ALL PLANTING BED LIMITS AND LOCATIONS OF ALL PROPOSED TREES IN THE FIELD FOR APPROVAL OF LANDSCAPE ARCHITECT.
B. TREES SHALL BE PLANTED NO CLOSER THAN 5-0" (AS MEASURED FROM CENTER OF TRUNK) FROM ANY WALKWAY, FENCE, BUILDING, OR OTHER HARDSCAPE ITEM.
C. CONTRACTOR SHALL FINE GRADE ALL LANDSCAPE AREAS.
D. CONTRACTOR TO PROVIDE MINIMUM 2" OF APPROVED TOPSOIL WORKED INTO EXISTING SOLID FOR ALL AREAS TO RECEIVE HYDROMULCHING AND TOP DRESS ALL AREAS TO RECEIVE SOLID SOD WITH 1" TOP SOIL MIXTURE OR ON SITE SOIL SPOILS IF APPROVED BY LANDSCAPE ARCHITECT.
E. CONTRACTOR TO PROVIDE METAL PLANTING BED EDGING FOR ALL AREAS WHERE TURF AREAS ADJOIN PLANTING BEDS.
F. SEE PLANTING DETAIL SHEET **L200** FOR PLANTING LEGEND AND DETAILS

GENERAL NOTES

1. CONCRETE MOW BAND AT ORNAMENTAL FENCE, CONTINUOUS. **SEE STRUCTURAL DRAWINGS**.
2. CHAIN-LINK FENCE. **SEE ARCHITECTURAL DRAWINGS**.
3. ORNAMENTAL METAL FENCE. **SEE ARCHITECTURAL & STRUCTURAL DRAWINGS. (FOR PILASTER DESIGN ONLY)**
4. LOUVER SCREEN. **SEE ARCHITECTURAL DRAWINGS**.
5. PLANTING EDGING. **SEE PLANTING DETAIL #4, SHEET L200.**
6. PROVIDE ONE ROW OF SOLID SOD ALONG BOTH SIDE OF ORNAMENTAL FENCE AND CHAIN-LINK FENCE. SOD TO BE COMMON BERMUDA (CYNODON DACTYLON)

PLAN NOTES

PLANTING LIST

TYPE	ABR.	BOTANICAL NAME	COMMON NAME	SIZE / SPACING	QTY.
SHRUBS					
	B1	DIANELLA TASMANICA 'VARIEGATA'	FLAX LILY	1 GAL. @ 15"O.C.	6
	B2	DIETES BICOLOR	BUTTERFLY IRIS	3 GAL. @ 18"O.C.	116
	B3	NERIUM OLEANDER 'PETITE PINK'	DWARF OLEANDER	3 GAL. @ 36" O.C.	44
	B4	ROSA 'FLORIBUNDA'	NEARLY WILD ROSE	3 GAL. @ 24" O.C.	6

HCC
HOUSTON COMMUNITY COLLEGE

OWNER
HCC NORTHEAST COLLEGE
555 COMMUNITY COLLEGE DRIVE
HOUSTON, TX 77013
[T] (713) 718-8281
[F] (713) 718-8331

ARCHITECT
PGAL
3131 BRIARPARK
SUITE 200
HOUSTON, TX 77042
[T] 713 622 1444
[F] 713 968 9333

PGAL TBPE REG. NO. F-2742

CONSULTANT
M2L
M2L Associates Inc.

PROJECT TITLE
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT NUMBER
1002047
PROJECT LOCATION
6910 LITTLE YORK ROAD
HOUSTON, TX 77016

DATE OF ISSUE
January 28, 2020
ISSUED FOR CONSTRUCTION
REVISIONS

Pierce Goodwin Alexander & Linville

REGISTRATION
COPYRIGHT © 20

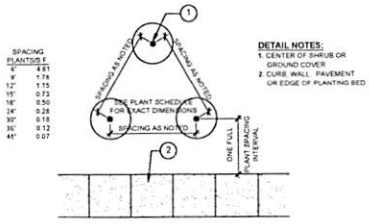
SHEET TITLE
LANDSCAPE SITE DEVELOPMENT PLAN

SHEET NUMBER
L102

9 NOT USED

6 NOT USED

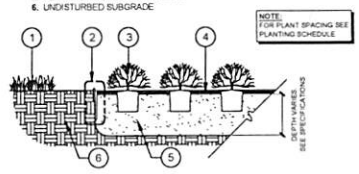
3 SHRUB & GROUNDCOVER SPACING NOT TO SCALE



8 NOT USED

5 NOT USED NOT TO SCALE

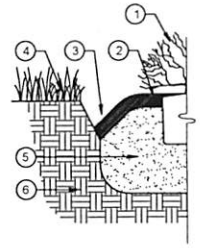
2 PLANTING WITH EDGING NOT TO SCALE



7 NOT USED

4 NOT USED NOT TO SCALE

1 SHOVEL EDGE NOT TO SCALE



HCC
HOUSTON COMMUNITY COLLEGE

OWNER
HCC NORTHEAST COLLEGE
500 COMMUNITY COLLEGE DRIVE
HOUSTON, TX 77013
[T] (713) 718-8289
[F] (713) 718-8231

ARCHITECT
PGAL
3131 BRIARPARK
SUITE 200
HOUSTON, TX 77042
[T] 713 622 1444
[F] 713 968 9333

PGAL TBPE REG. NO: F-2742

CONSULTANT
M2L
M2L Associates Inc.
[T] (713) 622-4447 [F] (713) 622-4448
Landscape Architecture
Land Planning
Urban Planning

PROJECT TITLE
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT NUMBER
1002047

PROJECT LOCATION
4918 LITTLE YORK ROAD
HOUSTON, TX 77016

DATE OF ISSUE
January 28, 2020
ISSUED FOR CONSTRUCTION

REVISIONS

Pierce Goodwin Alexander & Linville

REGISTRATION
COPYRIGHT © 2017

LICENSED LANDSCAPE ARCHITECT
STATE OF TEXAS
JOSEPH M. MICHEL
3132
REGISTERED
EXPIRES 08.31.2019

SHEET TITLE
PLANTING DETAILS

SHEET NUMBER
L200

GENERAL NOTES

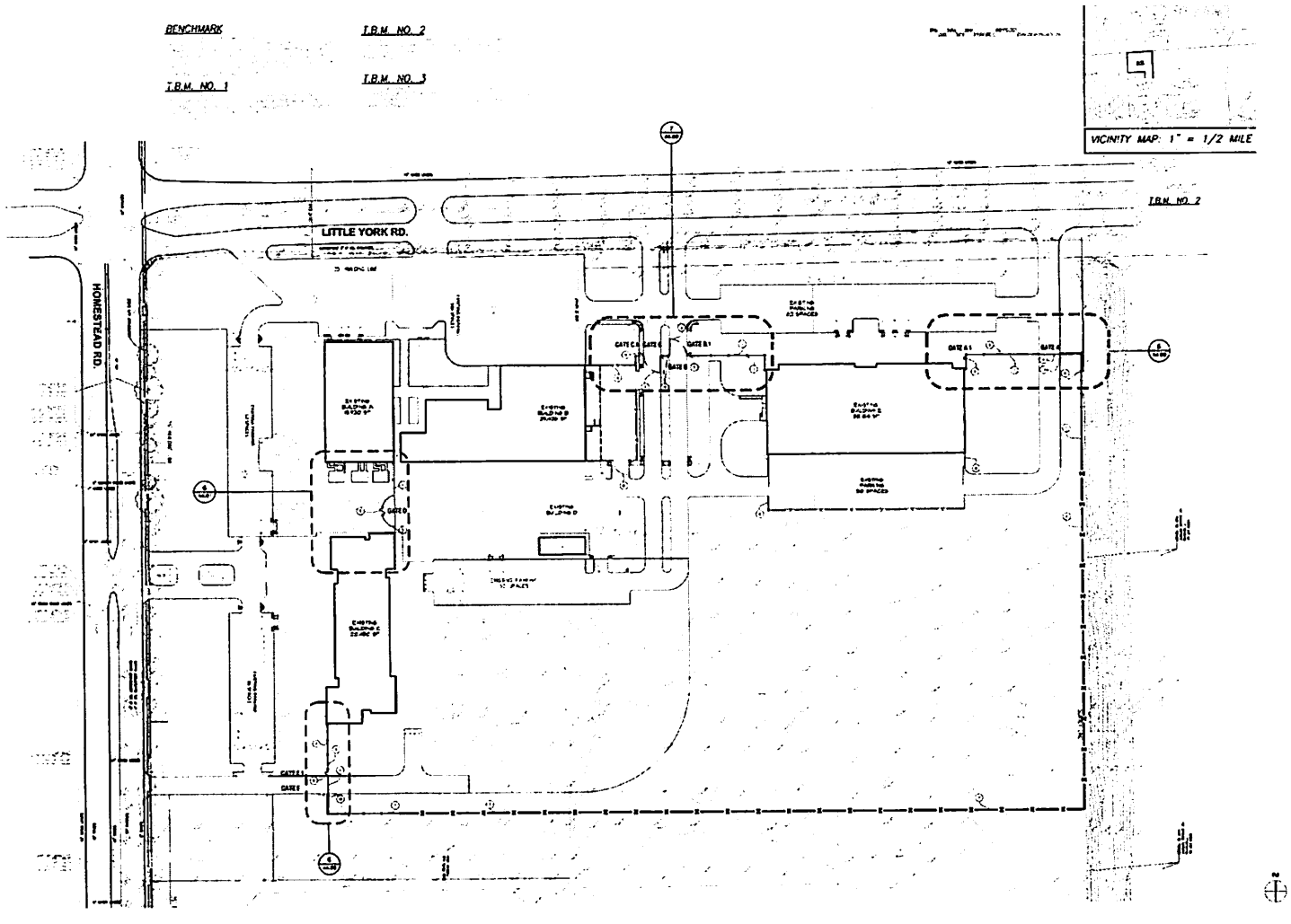
1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible]
5. [illegible]
6. [illegible]
7. [illegible]

KEYED NOTES

1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible]
5. [illegible]
6. [illegible]
7. [illegible]
8. [illegible]
9. [illegible]
10. [illegible]
11. [illegible]
12. [illegible]

LEGEND

NOT IN SCOPE



OVERALL SITE PLAN 1" = 1'-0" (6)

HCC
HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002
[T] (713) 718-8313
[F] (713) 718-8321

ARCHITECT
PGAL
3131 BRIARPARK
SUITE 200
HOUSTON, TX 77042
[T] 713 622 1444
[F] 713 968 9333
PGAL TBPE REG. NO. F-3742

CONSULTANT

PROJECT TITLE
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT NUMBER
902247

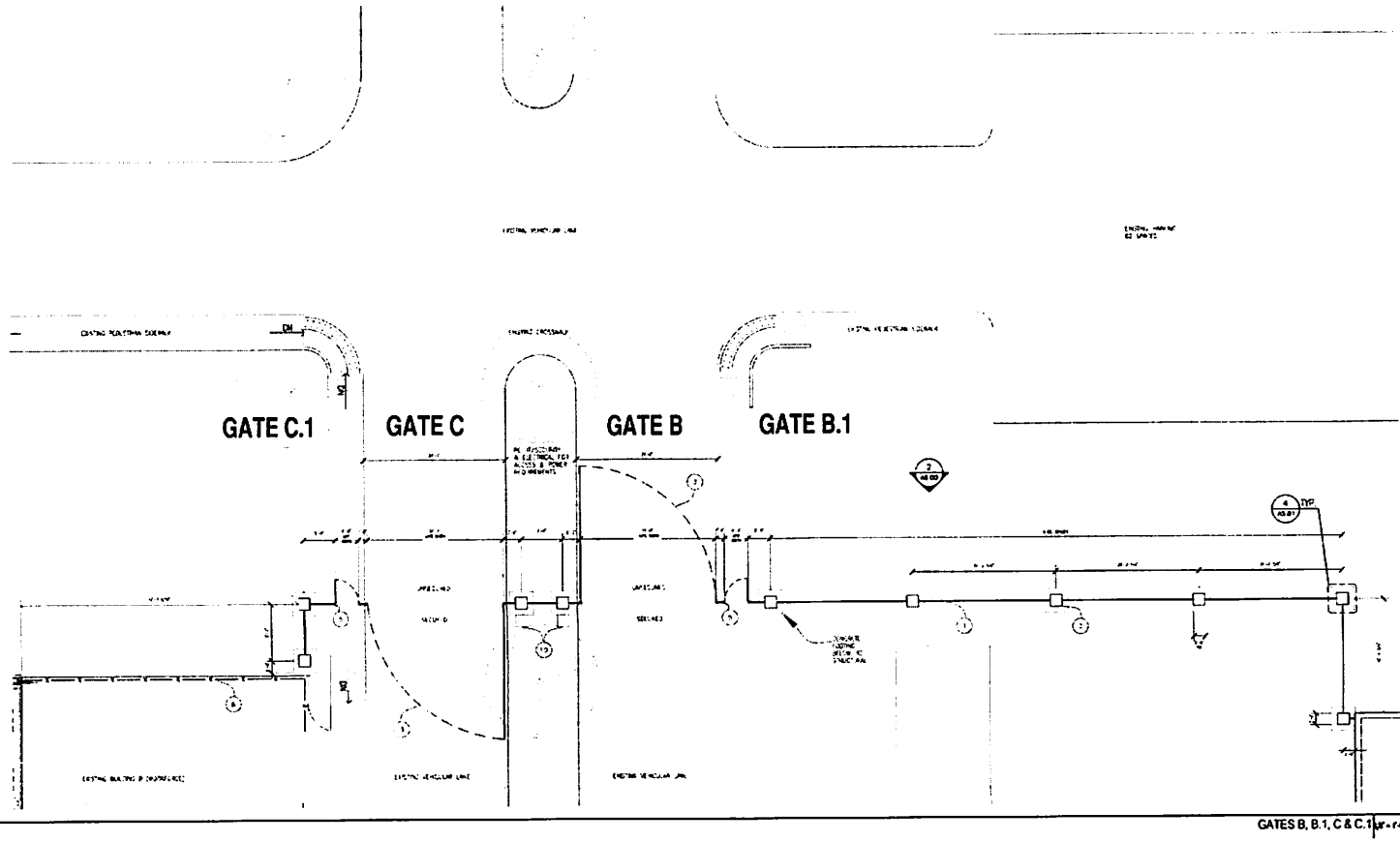
PROJECT LOCATION
6916 LITTLE YORK ROAD
HOUSTON, TEXAS 77016

DATE OF ISSUE
JANUARY 29, 2020
CONSTRUCTION DOCUMENTS

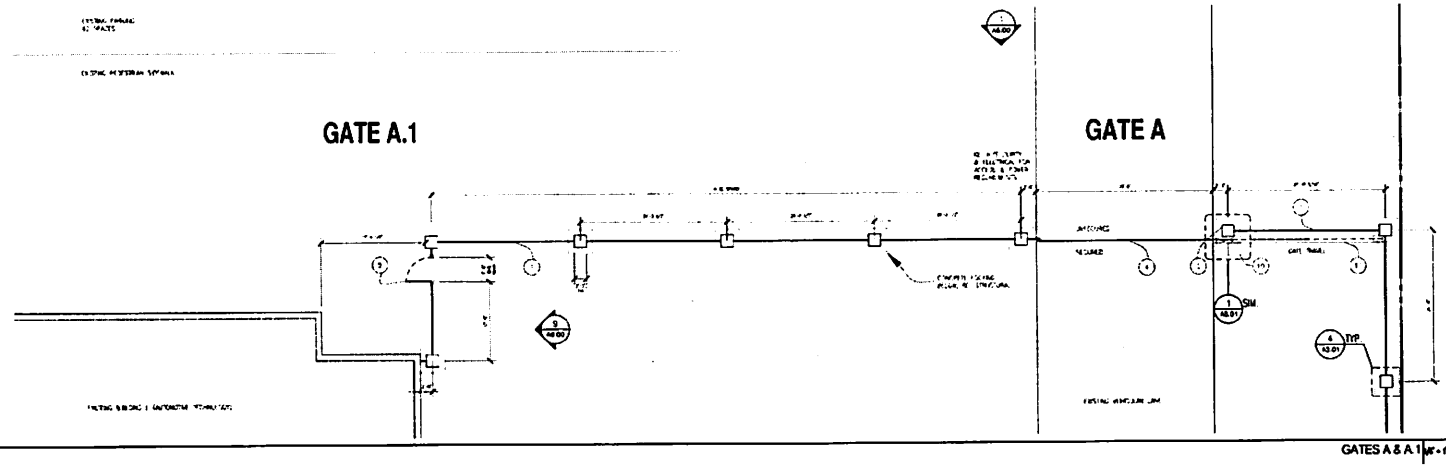
REVISION NOS.

SHEET TITLE
OVERALL SITE PLAN

SHEET NUMBER
A0.10



GATES B, B.1, C & C.1 (7)



GATES A & A.1 (6)

GENERAL NOTES

1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible]
5. [illegible]
6. [illegible]
7. [illegible]

KEYED NOTES

1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible]
5. [illegible]
6. [illegible]
7. [illegible]
8. [illegible]
9. [illegible]
10. [illegible]
11. [illegible]
12. [illegible]
13. [illegible]

LEGEND

NOT IN SCOPE

HCC
HOUSTON COMMUNITY COLLEGE

OWNER
HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002
[T] (713) 718-8000
[F] (713) 718-8001

ARCHITECT
PGAL
3131 BRIARPARK
SUITE 200
HOUSTON, TX 77042
[T] 713 622 1444
[F] 713 968 9333
PGAL TBPE REG NO F-2142

CONSULTANT

PROJECT TITLE
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT NUMBER
[illegible]

PROJECT LOCATION
[illegible]
HOUSTON, TEXAS 77016

DATE OF ISSUE
JANUARY 28, 2020
ISSUED FOR CONSTRUCTION

REVISIONS

DESCRIPTION
COPYRIGHT © [illegible]

SHEET TITLE
ENLARGED PLAN

SHEET NUMBER
A4.00

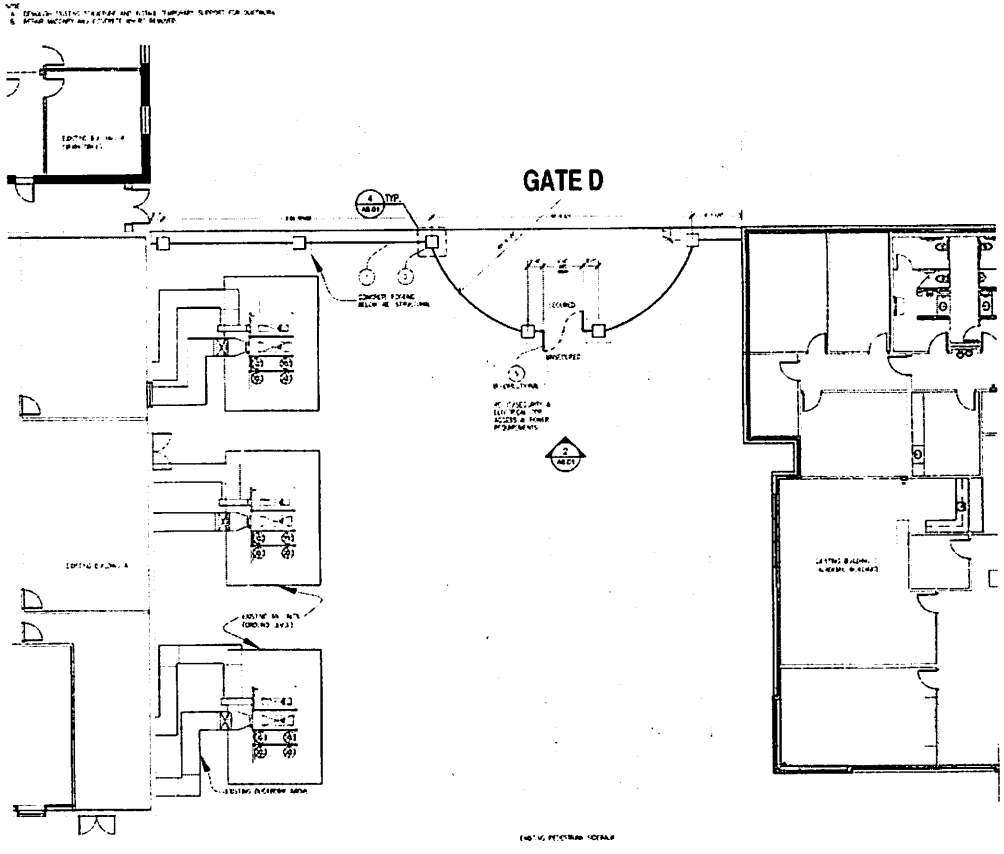
GENERAL NOTES

1. [illegible]
2. PROTECT ALL EXISTING TREES TO REMAIN.
3. [illegible]
4. [illegible]
5. REFER TO STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
6. REFER TO ELECTRICAL DRAWINGS FOR ADD'L INFO. AS APPROPRIATE.
7. REFER TO LANDSCAPE DRAWINGS FOR ADD'L INFO. AS APPROPRIATE.

KEYED NOTES

1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible]
5. [illegible]
6. [illegible]
7. [illegible]
8. [illegible]
9. [illegible]
10. [illegible]
11. [illegible]
12. [illegible]
13. [illegible]

LEGEND



GATE D 9

HCC
HOUSTON COMMUNITY COLLEGE

OWNER
HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002
(T) (713) 718-2000
(F) (713) 718-8201

ARCHITECT
PGAL
3131 BRIARPARK
SUITE 200
HOUSTON, TX 77042
(T) 713 622 1444
(F) 713 968 9133
PGAL TBPE REG NO F-3142

PROJECT TITLE
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT NUMBER
HCC2347
PROJECT LOCATION
6700 LITTLE YORK ROAD
HOUSTON, TEXAS 77016

DATE OF ISSUE
JANUARY 28, 2020
ISSUED FOR CONSTRUCTION
REVISIONS

DESCRIPTION
COPYRIGHT © 2019

SHEET TITLE
ENLARGED PLAN

SHEET NUMBER
A4.01

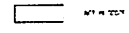
GENERAL NOTES

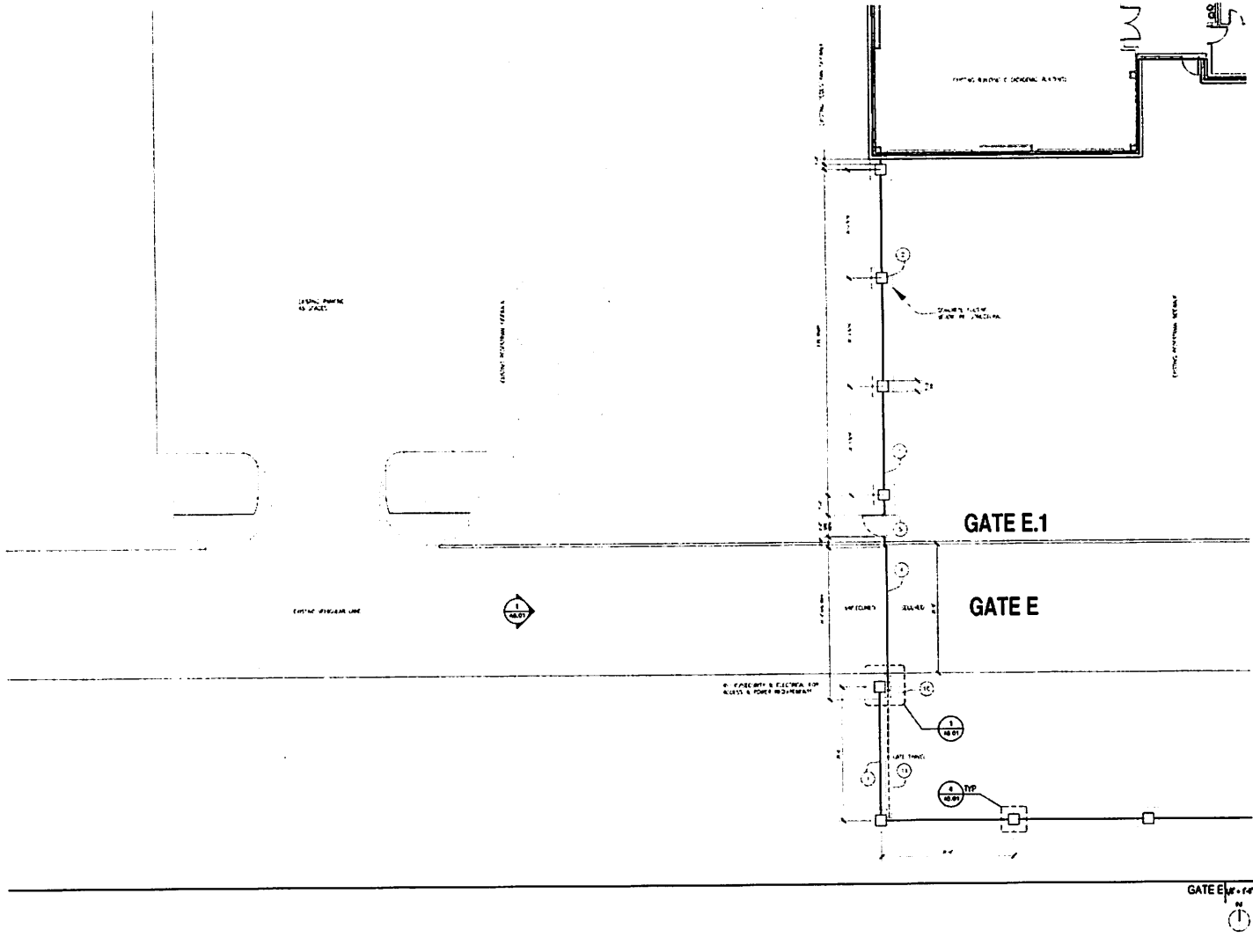
1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible]
5. [illegible]
6. [illegible]
7. [illegible]

KEYED NOTES

1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible]
5. [illegible]
6. [illegible]
7. [illegible]
8. [illegible]
9. [illegible]
10. [illegible]
11. [illegible]
12. [illegible]
13. [illegible]

LEGEND





GATE E 1/8" = 1'-0" (6)

N

HCC
HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002
[T] (713) 718-2571
[F] (713) 718-8201

ARCHITECT
PGAL
2131 BRIARPARK
SUITE 200
HOUSTON, TX 77042
[T] 713 622 1444
[F] 713 968 9333

PGAL TBPE REG. NO F-3742

CONSULTANT

PROJECT TITLE
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT NUMBER
XCC247

PROJECT LOCATION
6911 LITTLE YORK ROAD
HOUSTON, TEXAS 77016

DATE OF ISSUE
JANUARY 28, 2020
ISSUED FOR CONSTRUCTION

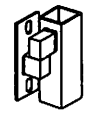
REVISIONS

DESCRIPTION

REGISTERED ARCHITECT
STATE OF TEXAS

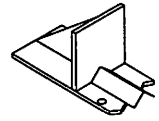
SHEET TITLE
ENLARGED PLAN

SHEET NUMBER
A4.02



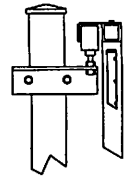
NOTE: INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS

SWINGING GATE STEEL HINGE - HEAVY DUTY N.T.S. 15



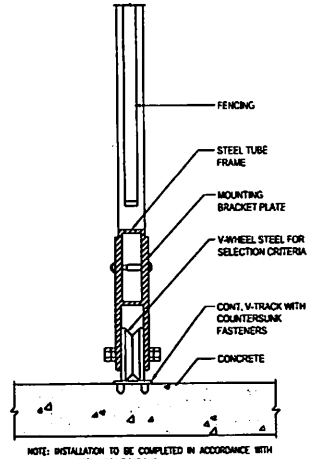
NOTE: INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS

V-WHEEL ROLLER GATE HARDWARE - WHEEL STOP N.T.S. 14



NOTE: INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS

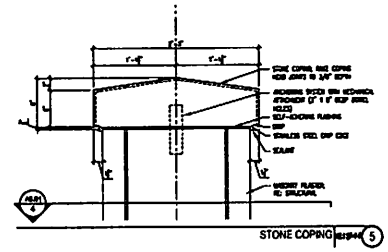
V-WHEEL GATE GUIDE WHEELS N.T.S. 13



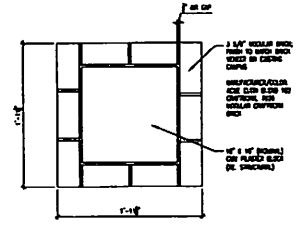
NOTE: INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS

FOR SLIDING GATES ONLY (GATES A & E) (SWINGING GATES B & C TO INCLUDE PIVOTAL WHEEL)

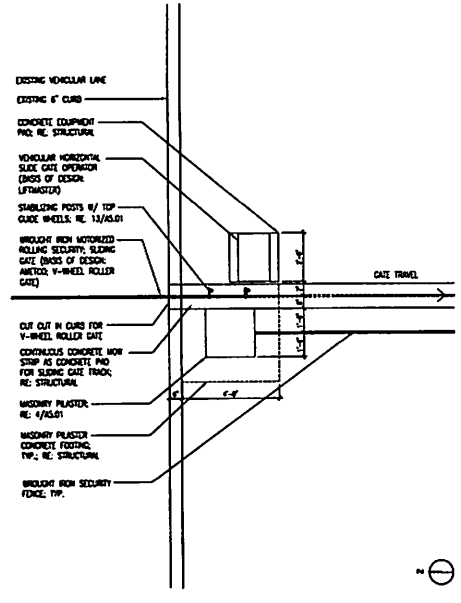
V-WHEEL ROLLER GATE SINGLE WHEEL N.T.S. 11



STONE COPING 12"=1'-0" 5



MASONRY PILASTER 12"=1'-0" 4



NOTE: INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS

FOR SLIDING GATES ONLY (GATES A & E); BASIS OF DESIGN: AMETCO (V-WHEEL ROLLER GATE)

SWINGING GATES B & C TO INCLUDE PIVOTAL WHEEL

V-WHEEL ROLLER GATE DETAIL 1/2"=1'-0" 1

OWNER
HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002
(T) 713 718-8200
(F) 713 718-8201

ARCHITECT
PGAL
3131 BRIARPARK
SUITE 200
HOUSTON, TX 77042
(T) 713 622 1444
(F) 713 808 8233
PGAL TBPE REG. NO.: F-2742

CONSULTANT

PROJECT TITLE
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT NUMBER
1002047

PROJECT LOCATION
8014 LITTLE YORK ROAD
HOUSTON, TEXAS 77016

DATE OF ISSUE
JANUARY 28, 2020
ISSUED FOR CONSTRUCTION
REVISIONS

CONSTRUCTION DOCUMENTS © 2019

SHEET TITLE
DETAILS

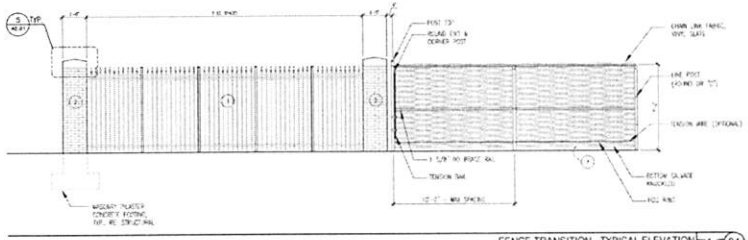
SHEET NUMBER
A5.01

GENERAL NOTES

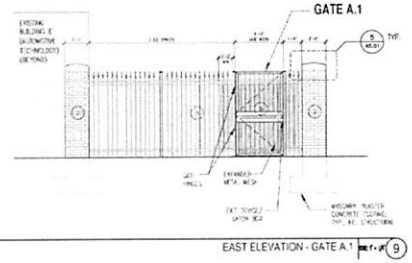
1. RESTRICT CONSTRUCTION ACTIVITIES AND STAGING TO LIMITS OF CONSTRUCTION UNLESS OTHERWISE APPROVED BY OWNER.
2. PROTECT ALL EXISTING TREES AS REQUIRED.
3. THE CONTRACTOR SHALL MAINTAIN EXISTING ACCESS TO ALL ENTRANCES AND SHALL NOT BLOCK ACCESS TO STREETS AND SHOP OFF AREAS.
4. CONTRACTOR SHALL NOTIFY THE OWNER PRIOR TO ANY SITE DEMOLITION AND SHALL SCHEDULE SUCH DEMOLITION IN A MANNER NOT TO INTERFERE WITH THE OWNER'S OPERATIONS AS OUTLINED IN AN AGREED PHASING PLAN AND SCHEDULE.
5. REFER TO STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
6. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
7. REFER TO LANDSCAPE DRAWINGS FOR ADDITIONAL INFORMATION.

KEYED NOTES

1. WROUGHT IRON SECURITY FENCE, TYP.
2. MASONRY PILASTER WITH CAST STONE TOP, REF. STRUCTURAL
3. WROUGHT IRON SWINGING GATE, VEHICULAR USE.
4. WROUGHT IRON MOTORIZED ROLLING SECURITY VEHICULAR GATE
5. WROUGHT IRON SWINGING GATE, PEDESTRIAN
6. FIXED LOUVER ALUMINUM FENCE
7. CHAIN LINK SECURITY FENCE
8. EXISTING CHAIN LINK SECURITY FENCE
9. CONTINUOUS CONCRETE WIDE STRIP, REF. STRUCTURAL
10. LARGE EXPOSED AGGREGATE CONCRETE EQUIPMENT PAD, REF. STRUCTURAL FOR PAD
11. NEW PLANT MATERIALS, REFER TO LANDSCAPE DRAWINGS FOR ADDITIONAL INFORMATION
12. 25' BUILDING LINE

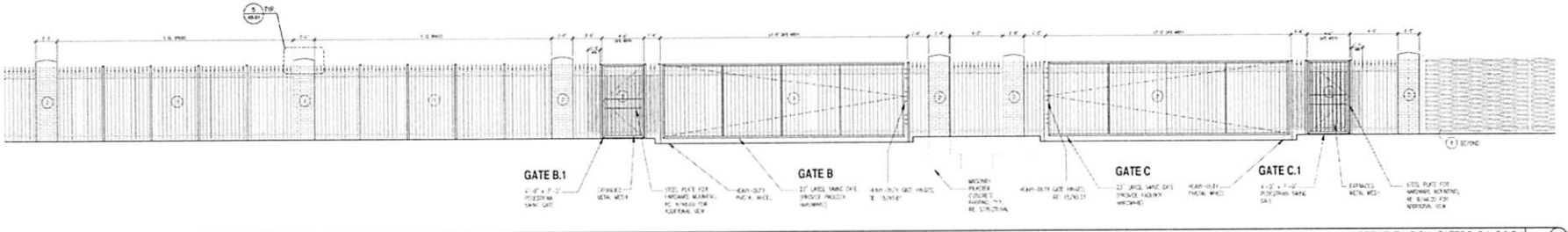


FENCE TRANSITION - TYPICAL ELEVATION 24

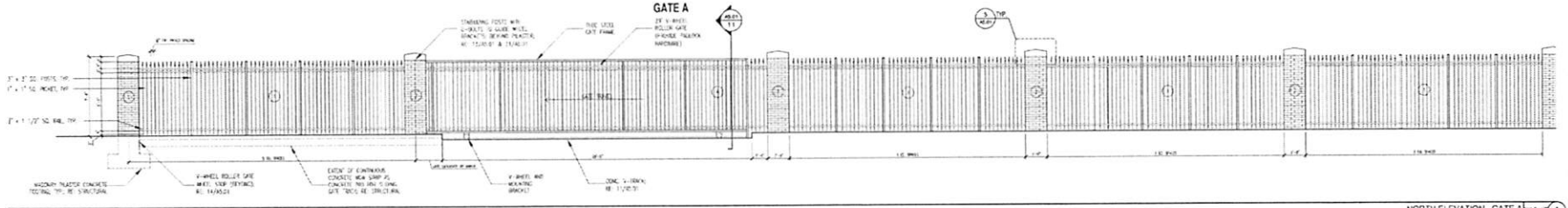


EAST ELEVATION - GATE A.1 9

LEGEND



NORTH ELEVATION - GATES B, B.1, C & C.1 2



NORTH ELEVATION - GATE A 1

0 2' 0" 4' 0" 8' 0"
SCALE: 1/4" = 1'-0"

HCC
HOUSTON COMMUNITY COLLEGE

OWNER
HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002
[T] (713) 718-2400
[F] (713) 718-8331

ARCHITECT
PGAL
3131 BRIARPARK
SUITE 200
HOUSTON, TX 77042
[T] 713 822 1444
[F] 713 908 9333

PGAL TBPE REG. NO. F-2742

CONSULTANT

PROJECT TITLE
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT NUMBER
1902947

PROJECT LOCATION
6510 LITTLE YORK ROAD
HOUSTON, TEXAS 77016

DATE OF ISSUE
JANUARY 28 2020
ISSUED FOR CONSTRUCTION

REVISIONS

Abbeville | Atlanta | Austin | Baton Rouge | Boston | Dallas | Houston | Las Vegas | Los Angeles | New Orleans | Wichita City

Harris Gochman Associates & Lucille

REGISTRATION
COPYRIGHT © 20

SHEET TITLE
ELEVATIONS

SHEET NUMBER
A6.00

GENERAL NOTES

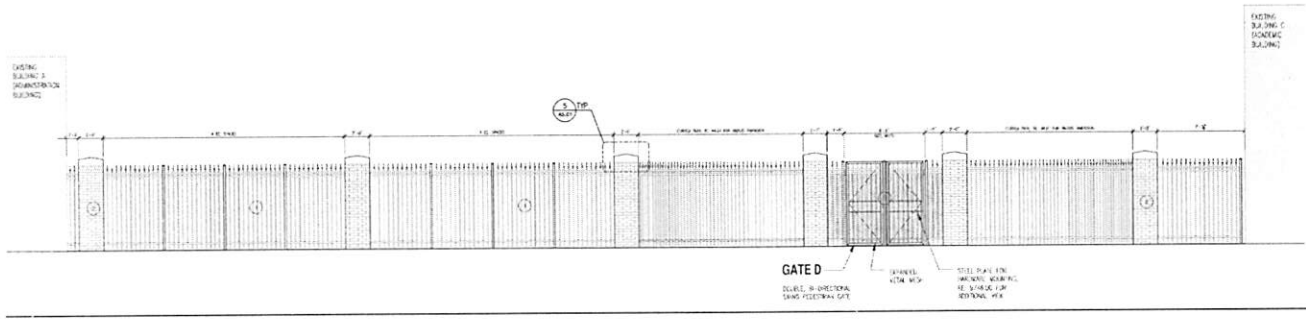
1. RESTRICT CONSTRUCTION ACTIVITIES AND STAGING TO LIMITS OF CONSTRUCTION UNLESS OTHERWISE APPROVED BY OWNER.
2. PROTECT ALL EXISTING TREES AS REQUIRED.
3. THE CONTRACTOR SHALL MAINTAIN EXISTING ACCESS TO ALL ENTRANCES AND SHALL NOT BLOCK ACCESS OF VEHICLES AND SHOP OUT AREAS.
4. CONTRACTOR SHALL INFORM THE OWNER PRIOR TO ANY SITE DEMOLITION AND SHALL SCHEDULE SUCH DEMOLITION IN A MANNER NOT TO INTERFERE WITH THE OWNER'S OPERATIONS AS OUTLINED IN AN AGREED PHASING PLAN AND SCHEDULE.
5. REFER TO CIVIL DRAWINGS FOR ADDITIONAL INFORMATION.
6. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
7. REFER TO LANDSCAPE DRAWINGS FOR ADDITIONAL INFORMATION.

KEYED NOTES

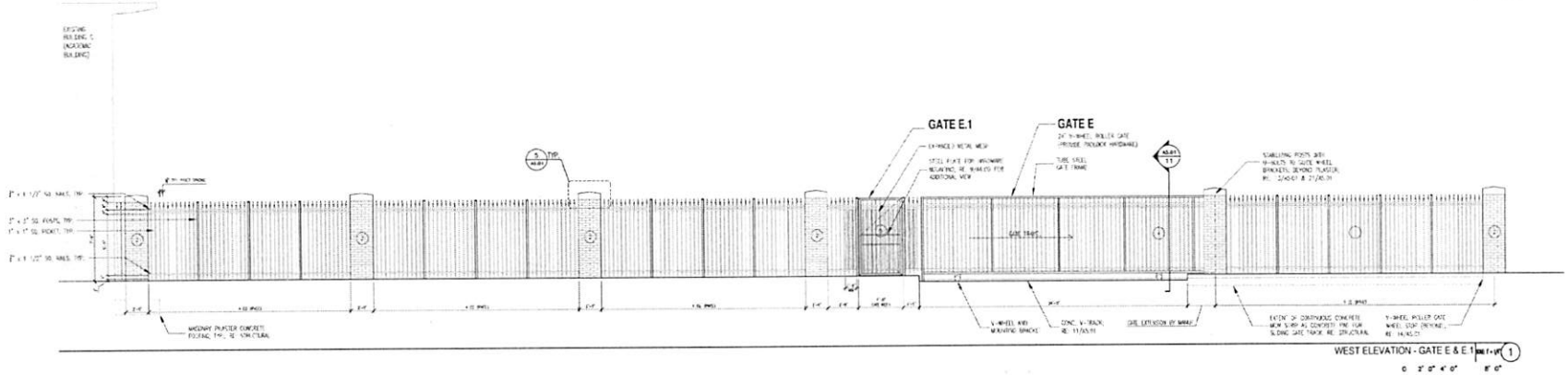
1. WROUGHT IRON SECURITY FENCE, TYP.
2. MASONRY PILASTER WITH CAST STONE CAP, RE: STRUCTURAL
3. WROUGHT IRON SWINGING GATE, VEHICULAR LANE
4. WROUGHT IRON MOTORIZED ROLLING SECURITY, VEHICULAR LANE
5. WROUGHT IRON SWINGING GATE, PEDESTRIAN
6. FENCE LOUVER ALUMINUM FENCE
7. CHAIN LINK TEMPORARY FENCE
8. EXISTING CHAIN LINK SECURITY FENCE
9. CONTINUOUS CONCRETE WORK STRIP, RE: STRUCTURAL
10. GATE OPERATOR ON CONCRETE EQUIPMENT PAD, RE: STRUCTURAL FOR PAD
11. CONCRETE PAD FOR SLIDING GATE TRACK, RE: STRUCTURAL
12. NEW PLANT MATERIALS, REFER TO LANDSCAPE DRAWINGS FOR ADDITIONAL INFORMATION
13. 55' RADIUS CURB

LEGEND

NEW IN SCOPE



WEST ELEVATION - GATE D



WEST ELEVATION - GATE E & E.1

SCALE: 1/4" = 1'-0"

HCC
HOUSTON COMMUNITY COLLEGE

OWNER
HOUSTON COMMUNITY COLLEGE
3 S BRIAN STREET
HOUSTON, TX 77002
[T] (713) 718-2400
[F] (713) 718-8331

ARCHITECT
PGAL
3131 BRIARPARK
SUITE 200
HOUSTON, TX 77042
[T] 713 622 1444
[F] 713 908 3333

PGAL TBPE REG. NO. F-2742

CONSULTANT

PROJECT TITLE
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT NUMBER
1902047

PROJECT LOCATION
6510 LITTLE YORK ROAD
HOUSTON, TEXAS 77016

DATE OF ISSUE
JANUARY 28, 2020
ISSUED FOR CONSTRUCTION

REVISIONS

Perkins Eastman Alexander & Lumlie
Atlanta | Austin | Boca Raton | Boston | Dallas | Houston | Las Vegas | Los Angeles | New Orleans | Mexico City

REGISTRATION
COPYRIGHT © 2019

SHEET TITLE
ELEVATIONS

SHEET NUMBER
A6.01

GENERAL STRUCTURAL NOTES

PART I - DESIGN CRITERIA

A. GENERAL BUILDING CODE
1. THE CONSTRUCTION DOCUMENTS ARE BASED ON THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE 2012 WITH HOUSTON AMENDMENTS TO THE 2012 INTERNATIONAL BUILDING CODE.

B. WIND LOADS
1. WIND PRESSURES ARE BASED ON THE PROVISIONS OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, ASCE 7-10 AND THE FOLLOWING CRITERIA:
   a. WIND SPEED: 130 MPH (3-SECOND GUST)
   b. BUILDING RISK CATEGORY: II
   c. WIND EXPOSURE CATEGORY: B

PART II - FOUNDATION

A. GEOTECHNICAL REPORT
1. FOUNDATION DESIGN IS BASED ON GEO TECH REPORT PREPARED BY TERRACON FOR THE HCC NORTH FOREST INDUSTRIES AND TECH CENTER OF EXCELLENCE IN AUTOMOTIVE TECHNOLOGY LOCATED AT SOUTH WEST CORNER OF HOMESTEAD ROAD AND LITTLE YORK ROAD, HARRIS COUNTY TEXAS. Terracon Project No. 92148088, SUPPLEMENT #1 DATED DECEMBER 6, 2019.
2. THE GEOTECHNICAL REPORT IS AVAILABLE TO THE GENERAL CONTRACTOR UPON REQUEST TO THE OWNER. THE INFORMATION INCLUDED THEREIN MAY BE USED BY THE GENERAL CONTRACTOR FOR HIS GENERAL INFORMATION ONLY. THE ARCHITECT AND ENGINEER ARE NOT RESPONSIBLE FOR THE ACCURACY OR APPLICABILITY OF SUCH DATA THEREIN.

PART III - REINFORCED CONCRETE

A. CLASSES OF CONCRETE
1. ALL CONCRETE SHALL BE NORMAL WEIGHT AND HAVE MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3,000 PSI.

B. HORIZONTAL CONSTRUCTION JOINTS IN CONCRETE POURS
1. THERE SHALL BE NO HORIZONTAL CONSTRUCTION JOINTS IN ANY CONCRETE POURS UNLESS SHOWN ON THE DRAWINGS. THE ARCHITECT/ENGINEER SHALL APPROVE ALL DEVIATIONS OR ADDITIONAL JOINTS IN WRITING.

C. REINFORCING STEEL
1. ALL REINFORCING STEEL SHALL BE ASTM A 615 GRADE 60 UNLESS NOTED OTHERWISE ON THE DRAWINGS OR IN THESE NOTES.

D. REINFORCEMENT IN HOUSEKEEPING PADS
1. PROVIDE MINIMUM REINFORCEMENT AS NOTED BELOW IN ALL HOUSEKEEPING PADS SUPPORTING MECHANICAL EQUIPMENT UNLESS SPECIFIED OTHERWISE ON THE DRAWINGS.
   a. #4 BARS AT 12" ON CENTER EACH WAY.

E. REINFORCING STEEL COVERAGE
1. REINFORCING STEEL COVERAGE SHALL CONFORM TO THE REQUIREMENTS OF ACI 318 UNLESS SPECIFIED OTHERWISE ON THE DRAWINGS. THE REINFORCING STEEL DETAILER SHALL ADJUST REINFORCING STEEL CAGE SIZES AT INTERSECTING STRUCTURAL MEMBERS AS REQUIRED TO ALLOW CLEARANCE FOR INTERSECTING REINFORCING BAR LAYERS WITHIN MINIMUM SPECIFIED COVER.

F. SPLICES AND HOOKS IN REINFORCING STEEL
1. SPLICE LOCATION AND TYPE AND HOOKS FOR UNSCHEDULED BEAMS SLABS AND WALLS.
   a. BEAMS AND SLABS, UNSCHEDULED BEAMS AND SLABS, INCLUDING GRADE BEAMS, SHALL HAVE CONTINUOUS TOP BARS LAPPED AT MIDSPAN BETWEEN SUPPORTS WITH A CLASS B TENSION SPLICE. BOTTOM BARS SHALL BE LAPPED AT THE SUPPORTS WITH A CLASS B TENSION SPLICE. ALL BEAM BARS SHALL BE HOOKED AT DISCONTINUOUS END, UNLESS NOTED OTHERWISE.

PART IV - STRUCTURAL STEEL

A. MATERIAL
1. HOT ROLLED STRUCTURAL MEMBERS: ALL HOT ROLLED STEEL PLATES (SHAPES, SHEET PILING, AND BARS) SHALL BE NEW STEEL CONFORMING TO ASTM SPECIFICATION A-6. ALL STRUCTURAL STEEL MEMBERS AND FASTENERS SHALL BE HOT-DIPPED GALVANIZED.
2. UNLESS NOTED OTHERWISE ON THE DRAWINGS, STRUCTURAL STEEL SHALL BE AS FOLLOWS:
   a. W- AND MT-SHAPES: ASTM A 992.
   b. M- AND S-SHAPES: ASTM A 36.
   c. C-SHAPES: ASTM A 36.
   d. L-SHAPES: ASTM A 36.
   e. ROUND HSS: ASTM A 500, GRADE B (FY=42 KSI).
   f. RECTANGULAR HSS COLUMNS: ASTM A 500, GRADE B (FY=46 KSI).
   g. BASE PLATES:
   h. BASE PLATES: ALL BASE PLATES SHALL CONFORM TO ASTM A 36 UNLESS NOTED OTHERWISE ON THE DRAWINGS.
   i. EDGE ANGLES, SHEAR PLATES, ANGLE HANGERS, AND ANGLE CLEATS: ASTM A 36.

B. CONNECTIONS
1. ALL FIELD CONNECTIONS SHALL BE STANDARD AISC BOLTED CONNECTIONS DESIGNED TO DEVELOP MAXIMUM SHEAR CAPACITY OF THE BEAMS. SHOP CONNECTIONS MAY BE WELDED.

C. STRUCTURAL BOLTS AND THREADED FASTENERS
1. A 325 BOLTS: ALL BOLTS IN STRUCTURAL CONNECTIONS SHALL CONFORM TO ASTM A 325 TYPE 1, UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
2. THREADED ROUND STOCK: THREADED RODS SHALL CONFORM TO
   a. ASTM A 572 GRADE 50 (TO 2 INCHES IN DIAMETER).

D. WELDING
1. UNLESS NOTED OTHERWISE, ELECTRODES FOR WELDING SHALL CONFORM TO E70XX (SMAW), F7XX-EXXX (SAW), ER70S-X (GMAW), OR E7XT-X (FCAW).

E. ANCHOR RODS
1. UNLESS INDICATED OTHERWISE IN THE COLUMN SCHEDULE OR ON THE DRAWINGS, ANCHOR RODS SHALL CONFORM TO ASTM F 1554 GRADE 36 (WITH SUPPLEMENTARY REQUIREMENT S1) AND THE SIZE SHALL BE 3/4" DIAMETER AND SHALL EMBED INTO THE CONCRETE FOUNDATION A DISTANCE OF 1'-0" WITH A HEAVY HEX NUT AT THE EMBEDDED END. STRAIGHT BOLT THREADED AT THE EMBEDDED END AT TWO PLACES BELOW THE NUT.

F. GROUT
1. GROUT BELOW STRUCTURAL STEEL BASE PLATES SHALL BE NON-METALLIC, NON-SHRINK GROUT WITH A MINIMUM STRENGTH OF 5,000 PSI WHEN BEARING ON 3,000 PSI CONCRETE OR LESS. A STRENGTH OF 5,000 PSI WHEN BEARING ON CONCRETE BETWEEN 3,000 AND 4,000 PSI; AND UNLESS NOTED OTHERWISE ON THE DRAWINGS, A STRENGTH OF 8,000 PSI WHEN BEARING ON CONCRETE GREATER THAN 4,000 PSI.

PART V - SPECIAL INSPECTIONS

A. THE OWNER'S TESTING LABORATORY SHALL PROVIDE SPECIAL INSPECTION SERVICES IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE FOR THE FOLLOWING ITEMS.
1. CONCRETE CONSTRUCTION
   a. BOLTS INSTALLED IN CONCRETE
   b. CONCRETE WORK
   c. CONTINUOUS INSPECTION OF REINFORCING STEEL PLACING
   d. EPOXY BOLTS
   e. FORMWORK
   f. REINFORCING STEEL PLACEMENT
   g. WELDING OF REINFORCING STEEL

PART VI - SUBMITTALS

A. SUBMITTAL LIST AND SCHEDULE
1. THE GENERAL CONTRACTOR SHALL PREPARE A DETAILED LIST AND SCHEDULE OF ALL SUBMITTAL ITEMS TO BE SENT TO THE STRUCTURAL ENGINEER PRIOR TO THE START OF CONSTRUCTION. THIS LIST SHALL BE UPDATED AND REVISED AND KEPT CURRENT AS THE JOB PROGRESSES. THE SUBMITTAL LIST SHALL BE ORGANIZED AS SHOWN BELOW
   a. SHOP DRAWINGS
   b. DESIGN CALCULATIONS
   c. PRODUCT DATA, CERTIFICATES, REPORTS AND OTHER LITERATURE

B. SUBMITTALS TO BE PROVIDED TO STRUCTURAL ENGINEER
1. SUBMITTAL REQUIREMENTS
   a. ALL SHOP DRAWINGS MUST BE REVIEWED AND ELECTRONICALLY STAMPED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTAL.
   b. CONTRACTOR SHALL PROVIDE THE SUBMITTAL IN ELECTRONIC PORTABLE DOCUMENT FORMAT (PDF) PER THE SPECIFICATIONS.
   c. THE OMISSION FROM THE SHOP DRAWINGS OF ANY MATERIALS REQUIRED BY THE CONTRACT DOCUMENTS TO BE FURNISHED SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF FURNISHING AND INSTALLING SUCH MATERIALS, REGARDLESS OF WHETHER THE SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED.

C. REPRODUCTION
1. THE USE OF ELECTRONIC FILES OR REPRODUCTIONS OF THESE CONTRACT DOCUMENTS BY ANY CONTRACTOR, SUBCONTRACTOR, ERECTOR, FABRICATOR, OR MATERIAL SUPPLIER IN LIEU OF PREPARATION OF SHOP OR WORK SUBMITTALS, THEIR ACCEPTANCE OF ALL INFORMATION SHOWN HEREON AS CORRECT AND OBLIGATES THEMSELVES TO ANY JOB EXPENSE, REAL OR IMPLIED, ARISING DUE TO ANY ERRORS THAT MAY OCCUR HEREON.

PART VII - MISCELLANEOUS

A. RESPONSIBILITY OF THE CONTRACTOR FOR STABILITY OF THE STRUCTURE DURING CONSTRUCTION
1. ALL STRUCTURAL ELEMENTS OF THE PROJECT HAVE BEEN DESIGNED BY THE STRUCTURAL ENGINEER TO RESIST THE REQUIRED CODE VERTICAL AND LATERAL FORCES THAT COULD OCCUR IN THE FINAL COMPLETED STRUCTURE ONLY. THE ABILITY OF THE STRUCTURAL FRAME TO RESIST THE REQUIRED CODE FORCES DERIVES FROM THE COMPLETE INSTALLATION OF THE LATERAL FORCE RESISTING SYSTEMS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL REQUIRED BRACING DURING CONSTRUCTION TO MAINTAIN THE STABILITY AND SAFETY OF ALL STRUCTURAL ELEMENTS DURING THE CONSTRUCTION PROCESS UNTIL THE LATERAL-LOAD RESISTING OR STABILITY-PROVIDING SYSTEM IS COMPLETELY INSTALLED AND ALL DESIGNATED CONCRETE ELEMENTS OF ANY FRAME REACHED A MINIMUM OF 75% OF THEIR DESIGN STRENGTH.

B. RESPONSIBILITY OF THE CONTRACTOR FOR CONSTRUCTION LOADS
1. THE STRUCTURE HAS BEEN DESIGNED FOR THE LOADS IDENTIFIED WITHIN THESE STRUCTURAL DRAWINGS THAT ARE ANTICIPATED TO BE APPLIED TO THE FINAL STRUCTURE ONCE COMPLETED AND OCCUPIED. THE CONTRACTOR SHALL NOT OVERLOAD THE STRUCTURE DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING THE ADEQUACY OF THE STRUCTURE TO SUPPORT ANY APPLIED CONSTRUCTION LOADS INCLUDING THOSE DUE TO CONSTRUCTION VEHICLES OR EQUIPMENT, MATERIAL HANDLING OR STORAGE, SHORING OR SHORING OR ANY OTHER CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL SUBMIT CALCULATIONS SIGNED AND SEALED BY AN ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED VERIFYING THE ADEQUACY OF THE STRUCTURE FOR ANY PROPOSED CONSTRUCTION LOADS THAT ARE IN EXCESS OF THE STATED DESIGN LOADS. THE STRUCTURAL ENGINEER IS NOT RESPONSIBLE TO DESIGN OR CHECK THE STRUCTURE FOR LOADS APPLIED TO THE STRUCTURE FOR ANY CONSTRUCTION ACTIVITY.

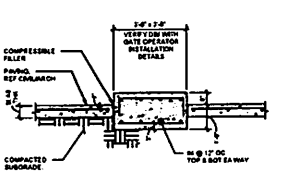
C. CONTRACTOR SUBSTITUTIONS
1. ANY MATERIALS OR PRODUCTS SUBMITTED FOR APPROVAL THAT ARE DIFFERENT FROM THE MATERIAL OR PRODUCTS SPECIFIED IN THE STRUCTURAL CONTRACT DOCUMENTS WILL BE APPROVED ONLY IF THE FOLLOWING CRITERIA ARE SATISFIED:
   a. A COST SAVINGS TO THE OWNER IS DOCUMENTED AND SUBMITTED WITH THE REQUEST.
   b. THE MATERIAL OR PRODUCT HAS BEEN APPROVED BY THE INTERNATIONAL CODE COUNCIL (ICC) AND THE ICC REPORT IS SUBMITTED WITH THE REQUEST.
      1) THE ICC ESR THAT IS SUBMITTED MUST REFERENCE THE BUILDING CODE UNDER WHICH THE PROJECT IS PERMITTED.
      2) ICC REPORTS THAT HAVE BEEN DISCONTINUED AT THE TIME OF PRODUCT INSTALLATION WILL NOT BE ACCEPTED.
2. SUBMITTALS NOT SATISFYING THE ABOVE CRITERIA WILL NOT BE CONSIDERED.

D. THE STRUCTURAL ENGINEER'S ROLE DURING CONSTRUCTION
1. THE ENGINEER SHALL NOT HAVE CONTROL NOR CHARGE OF, AND SHALL NOT BE RESPONSIBLE FOR, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK, FOR THE ACTS OR OMISSION OF THE CONTRACTOR, SUBCONTRACTOR, OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK, OR FOR THE FAILURE OF ANY OF THESE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
2. PERIODIC SITE OBSERVATION BY FIELD REPRESENTATIVES OF WALTER P MOORE AND ASSOCIATES IS SOLELY FOR THE PURPOSE OF BECOMING GENERALLY FAMILIAR WITH THE PROGRESS AND QUALITY OF THE WORK COMPLETED AND DETERMINING IN GENERAL IF THE WORK OBSERVED IS BEING PERFORMED IN A MANNER INDICATING THAT THE WORK, WHEN FULLY COMPLETED, WILL BE IN ACCORDANCE WITH THE STRUCTURAL CONTRACT DOCUMENTS. THIS LIMITED SITE OBSERVATION SHOULD NOT BE CONSTRUED AS EXHAUSTIVE OR CONTINUOUS TO CHECK THE QUALITY OR QUANTITY OF THE WORK, BUT RATHER PERIODIC IN AN EFFORT TO KEEP THE OWNER REASONABLY INFORMED ABOUT THE PROGRESS AND QUALITY OF THE PORTION OF THE STRUCTURE COMPLETED.

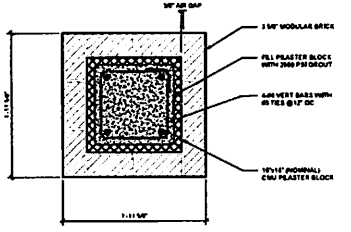
E. MAINTENANCE STATEMENT
1. ALL STRUCTURES REQUIRE PERIODIC MAINTENANCE TO EXTEND LIFESPAN AND TO ENSURE STRUCTURAL INTEGRITY FROM EXPOSURE TO THE ENVIRONMENT. A PLANNED PROGRAM OF MAINTENANCE SHALL BE ESTABLISHED BY THE BUILDING OWNER. THIS PROGRAM SHALL INCLUDE (SUCH ITEMS SUCH AS BUT NOT LIMITED TO PAINTING OF STRUCTURAL STEEL, PROTECTIVE COATING FOR CONCRETE, SEALANTS CAULKED JOINTS, EXPANSION JOINTS, CONTROL JOINTS, SPALLS AND CRACKS IN CONCRETE, AND PRESSURE WASHING OF EXPOSED STRUCTURAL ELEMENTS EXPOSED TO A SALT ENVIRONMENT OR OTHER HARSH CHEMICALS.

PART VIII - DRAWING INTERPRETATION

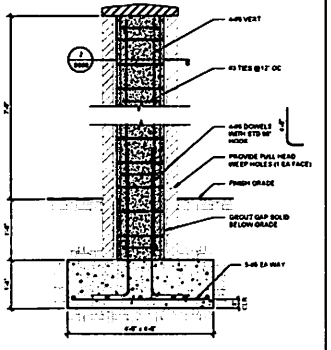
A. DRAWING VIEWS LABELED AS "TYPICAL"
1. PARTIAL PLANS, ELEVATIONS, SECTIONS, DETAILS, OR SCHEDULES LABELED WITH "TYPICAL" AT THE BEGINNING OF THEIR TITLE SHALL APPLY TO ALL SITUATIONS OCCURRING ON THE PROJECT THAT ARE THE SAME OR SIMILAR TO THOSE SPECIFICALLY SHOWN. THE APPLICABILITY OF THE CONTENT OF THESE VIEWS TO LOCATIONS ON THE PLAN CAN BE DETERMINED FROM THE TITLE OF THE VIEWS. SUCH VIEWS SHALL APPLY WHETHER OR NOT THEY ARE KEYED IN AT EACH LOCATION. RECEIVING REGARDING APPLICABILITY OF THESE "TYPICAL" VIEWS SHALL BE DETERMINED BY THE STRUCTURAL ENGINEER.



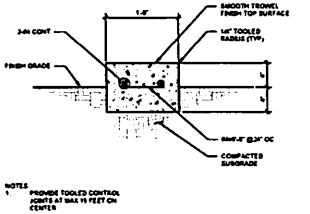
3 CONCRETE PAD FOR GATE OPERATOR
1/2" = 1'-0"



2 MASONRY PILASTER PLAN DETAIL
1 1/2" = 1'-0"



1 CMU PILASTER
3/4" = 1'-0"



NOTES
1. PROVIDE TOOLED CONTROL JOINTS AT MAX 15 FEET ON CENTER

4 MOW STRIP
1 1/2" = 1'-0"

HCC
HOUSTON COMMUNITY COLLEGE

OWNER
HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002
(T) (713) 718-2000
(F) (713) 718-8331

ARCHITECT
PGAL
3131 BRIARPARK
SUITE 300
HOUSTON, TX 77042
(T) 713 622 1444
(F) 713 968 8333

PGAL TBPE REG. NO. F-3742

CONSULTANT
HENDERSON ROGERS
structural engineers
2603 Augusta, Suite 800
Houston, Texas 77057
713.430.5800 713.430.5858 fax
www.hendersonrogers.com

PROJECT TITLE
HCC NORTHWEST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT NUMBER
1020047
PROJECT LOCATION
6815 LITTLE YORK ROAD
HOUSTON, TEXAS 77016

DATE OF ISSUE
JANUARY 23, 2020
ISSUE FOR CONSTRUCTION
REVISIONS

Abilene | Austin | Boca Raton | Boston | Dallas | Houston | Las Vegas | Los Angeles | New Orleans | Mexico City | Ponce Gresham Abramson & Lovelle

REGISTRATION
COPYRIGHT © 2019
Henderson + Rogers, Inc.
TBPE Firm Registration No. 2194

01/23/2020

SHEET TITLE
GENERAL NOTES AND DETAILS

SHEET NUMBER
S000

ELECTRICAL SYMBOL LEGEND

SYMBOL	DESCRIPTION	ABBREVIATION DEFINITIONS
	HOME RUN TO PANEL, NO. CIRCUITS 5 #12 MIN. #10 MIN. 3/4"C (MIN.) OR AS REQ. 3#6, 1 #8 UNLESS OTHERWISE NOTED EACH CIRCUIT SHALL HAVE ITS OWN NEUTRAL	2S-SP TWO-SPEED TWO-WINDING MOTOR 2SLW TWO-SPEED TWO-WINDING MOTOR ABD ABANDONED TO REMOVE A AMPERE 3 THREE 'A' or 3-WIRE - PHASE SYSTEM AFF ABOVE FINISHED FLOOR AT AMPERE SETTING AFG ABOVE FINISHED GRADE B BELOW BF BELOW FINISHED GRADE BFC BELOW FINISHED CEILING BFF BELOW FINISHED FLOOR BFS BELOW FINISHED SLAB C THREE 'C' or THREE - PHASE SYSTEM C CONDUIT CB CIRCUIT BREAKER CH CONSTANT HORSE POWER (CSW MOTOR) CKT CIRCUIT CS COMBINATION STARTER UNIT(OR STARTER / DISCONNECT) CT CONSTANT TORQUE (CSW MOTOR) CT CURRENT TRANSFORMER DM EXISTING TO BE DEMOLISHED OR REMOVED DUAL ELEMENT TYPE DELAY DS DISCONNECT SWITCH EX EXISTING TO REMAIN EMT ELECTRICAL METALLIC TUBING EPM ELECTRONIC POWER METER FAP FIRE ALARM ANNUNCIATOR PANEL FACP FIRE ALARM CONTROL PANEL FVNR FULL VOLTAGE NON-REVERSING G GROUND GEC GROUNDING ELECTRODE CONDUCTOR GF GROUND FAULT CIRCUIT INTERRUPTER HOA HAND / OFF / AUTO SWITCH HOA HAND / OFF / AUTO SWITCH (FOR PUMP CONTACTOR) HR HOUR - (4 HR / 8 HR = RATED OFF-TIME OR 25/50% CONTACTOR) I ISOLATED GROUND JMS JUNCTION BOX KAIC KILO AMPERE INTERRUPTING CAPACITY KVA KILO CIRCULAR MIL KVAR KILO VOLT AMPERES REACTIVE KVAR KILO VOLT AMPERES REACTIVE POWER KW KILO WATT LT HOT (7.6 KV) SINGLE - PHASE SYSTEM = 7.5Ø VAC LT HOT (13.2 KV) SINGLE - PHASE SYSTEM = 13Ø VAC LTD LONG TERM DELAY TRIP LTI-ST LONG TERM / SHORT TERM / INSTANTANEOUS AND GROUND - FAULT MCB MAIN CIRCUIT BREAKER MCC MOTOR CONTROL CENTER MLO MAIN LUGS ONLY MTR MOTOR N NEUTRAL NEC NATIONAL ELECTRICAL CODE (NFPA 70) NEMA NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION NF NON - FUSIBLE NFPA NATIONAL FIRE PROTECTION ASSOCIATION NNL NON - CONTINUOUS MOT LEE OFCI OWNER FURNISHED CONTRACTOR INSTALLED OS OCCUPANCY SENSOR P POLES P POWER FACTOR PFCC POWER FACTOR CORRECTION CAPACITOR PVC POLY VINYL CHLORIDE PT POTENTIAL TRANSFORMER RAL RIGID ALUMINUM RES RESIDENTIAL STYLE SEC SECTION BY LIGHT-HOUSE-CLASS PANEL SPD SURGE PROTECTION DEVICE SS-316 STAINLESS STEEL "304" / AUSTENITIC ALLOY TYPE III G 304) ST SHUNT TRIP CIRCUIT BREAKER THC TOTAL HARMONIC DISTORTION TVSS TRANSIENT VOLTAGE SURGE SUPPRESSION TYP TYPICAL UTD UNLESS OTHERWISE NOTED V VOLTS VAC VOLTS, ALTERNATING CURRENT VDC VOLTS, DIRECT CURRENT WPCI VENDOR FURNISHED CONTRACTOR INSTALLED WPD WEATHER PROOF DEVICE VFI VARIABLE FREQUENCY DRIVE (FOR MOTORS) W WIRE (MIN. #12 UNLESS OTHERWISE NOTED SEC WP WEATHER PROOF X AMERICAN WIRE GAGE Ø PHASE

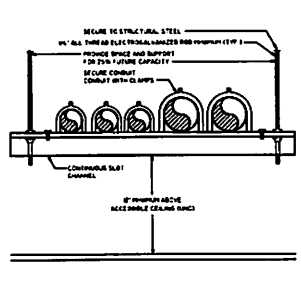
GENERAL NOTES:

1. SYMBOLS LISTED MAY CONTAIN SYMBOLS THAT ARE NOT USED ON ALL DRAWINGS.
2. ABBREVIATION DEFINITIONS ARE NOT COMPREHENSIVE, AND NOT ALL ABBREVIATIONS THAT APPLY TO ALL DRAWINGS SUBMIT FORMAL REQUEST FOR INFORMATION WHEN ENCOUNTERING CONFLICTS OR AMBIGUOUS SYMBOLS OR ABBREVIATIONS. AS THE SEAL IS NOT CONSTRUCTIVE DISPOSAL OF CONTRACTOR RESPONSIBILITY
3. ALL EQUIPMENTS FOR RECEPTACLES, SWITCHES AND DATA SHALL MATCH EXISTING DUTIES
4. PROVIDE RESIDENTIAL STYLE SWITCHES FOR LIGHT SWITCHES THAT ARE NOT OCCUPANCY SENSOR TYPE

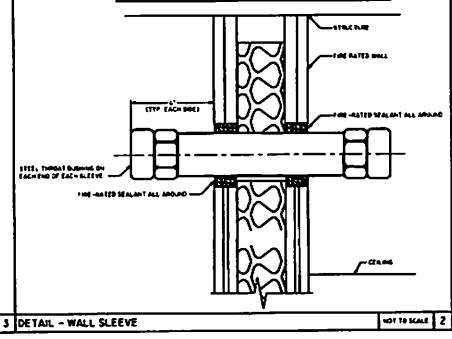
ELECTRICAL GENERAL NOTES AND SPECIFICATIONS

(BOOKS SPECIFICATIONS SUPERCEDE ANY NOTES BELOW)

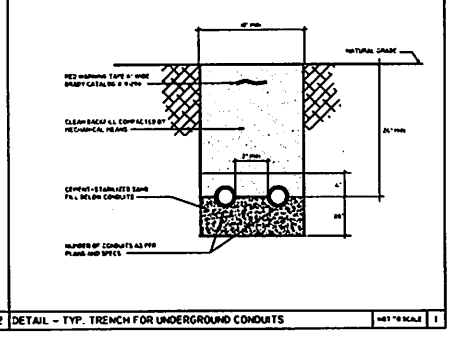
1. SCOPE: THIS DIVISION SHALL INCLUDE ALL EQUIPMENT, MATERIALS AND LABOR REQUIRED FOR COMPLETE INSTALLATION OF THE ELECTRICAL SYSTEM PROJECT INCLUDES INSTALLATION OF NEW ELECTRICAL SYSTEM, NEW RECEPTACLES AND OUTLETS AND NEW ELECTRICAL WORK AS INDICATED ON THE PLANS. CONTRACTOR SHALL PROVIDE CONDUITS, CONDUCTORS FOR POWER, CONTROLS AND LIGHTING, LIGHTING CONTACTOR AND CONTACT CLOSURES, AND ALL REQUIRED APPARATUS AS SHOWN FOR FULL INSTALLATION OF THE ELECTRICAL SYSTEM.
2. SITE VISIT AND FAMILIARIZATION: CONTRACTORS PROPOSING TO UNDERTAKE WORK UNDER THIS DIVISION SHALL VISIT THE SITE OF THE WORK, AND BE FULLY INFORMED THEMSELVES OF ALL CONDITIONS THAT AFFECT THE WORK OR COST THEREOF. CONTRACTOR SHALL EXAMINE THE DRAWINGS AND SPECIFICATIONS AS RELATED TO THE SITE CONDITIONS. ANY DISCREPANCY SHALL BE REPORTED TO THE ENGINEER.
3. NOTICE: CONSIDERATION WILL NOT BE GRANTED FOR ANY ALLEGED MISAPPREHENSIONS OF THE AMOUNT OF WORK TO BE PERFORMED TENDER OF A PROPOSAL SHALL CONVEY FULL KNOWLEDGE TO ALL SITES AND CONDITIONS SPECIFIED INDICATED ON THE DRAWINGS OR REQUIRED BY NATURE OF THE SITE.
4. DISCREPANCIES: SHOULD CONTRACTOR FIND DISCREPANCIES OR OMISSIONS IN THE CONTRACT DOCUMENTS OR BE IN DOUBT AS TO THE INTENT THEREOF, HE SHALL IMMEDIATELY OBTAIN CLARIFICATION FROM THE ARCHITECT BEFORE SUBMITTING PROPOSAL FOR WORK OR THIS DIVISION.
5. DEMOLITION: ALL ELECTRICAL COMPONENTS OF THE EXISTING SYSTEM WHICH ARE NOT UTILIZED FOR NEW CONSTRUCTION SHALL BE REMOVED AND DISPOSED OF BY CONTRACTOR REFER TO DEMOLITION NOTES AND DRAWINGS FOR EXTENT OF WORK
6. TIMELY PLACING OF MATERIALS AND EQUIPMENT: ALL ELECTRICAL APPARATUS SHALL BE INSTALLED AT THE PROPER TIME DURING PROGRESS OF CONSTRUCTION. COORDINATE WORK OPERATIONS WITH OTHER CRAFTS.
7. SPACE REQUIREMENTS: CONTRACTOR FOR WORK UNDER THIS DIVISION SHALL BE FULLY RESPONSIBLE FOR DETERMINING IN ADVANCE OF PURCHASE THAT EQUIPMENT AND APPARATUS PROPOSED FOR INSTALLATION SHALL FIT INTO THE SPACES INDICATED. MANUFACTURERS' LITERATURE DELIVERED ALL PRINTED TAGS, INSTRUCTIONS, CERTIFIED DRAWINGS, PARTS LISTS, CERTIFICATES, ETC. SUPPLIED WITH EQUIPMENT ITEMS TO THE OWNER.
8. CODES, PERMITS AND FEES: WORK UNDER THIS DIVISION SHALL BE CONSTRUCTED IN STRICT CONFORMANCE WITH PERTINENT PROVISIONS OF CITY AND STATE BUILDING CODES.
   a. ALL WORK SHALL COMPLY WITH THE 2017 EDITION OF NATIONAL ELECTRIC CODE (NEC)
   b. OBTAIN ALL REQUIRED PERMITS. PAY ALL LEGAL FEES FOR PERMITS AND INSPECTIONS BY AUTHORITIES HAVING JURISDICTION
   c. ALL WORK SHALL COMPLY WITH REQUIREMENTS OF CITY OF HOUSTON
9. CUTTING AND PATCHING
   a. CONTRACTOR FOR THIS DIVISION SHALL LAYOUT TO DIVISION AND LOCATIONS CUT AND PATCH ALL OPENINGS ON SURFACES TO BE FORMED, FRAMED OR CUT
   b. SHOULD CONDITION FOR THIS DIVISION FAIL TO ADHERE WITH THIS REQUIREMENT AS HEREIN PROVIDED, ANY OPENINGS SHALL BE CUT AND PATCHED BY GENERAL CONTRACTOR AT THE EXPENSE OF THIS CONTRACTOR FOR THIS DIVISION
10. PROTECTION OF APPARATUS: TAKE ALL PRECAUTIONS NECESSARY FOR PROPER PROTECTION OF NEW EQUIPMENT, APPARATUS AND MATERIALS FROM DAMAGE. FAILURE TO DO SO WILL BE CAUSE FOR REJECTION OF ANY ITEM FOUND UNDER QUESTION
11. SHOP DRAWINGS: CONTRACTOR FOR THIS DIVISION SHALL SUBMIT SHOP DRAWINGS AND CATALOGUE DATA ON ALL MAJOR ITEMS OF EQUIPMENT AND SYSTEMS AND OTHER MATERIAL AS REQUESTED BY ARCHITECT/ENGINEER. SUBMIT PRODUCT DATA FOR SWITCHBOARDS, PANELBOARDS, TRANSFORMERS, WIRES, CABLE, SUPPORTING DEVICES, IDENTIFICATION, LIGHTING FIXTURES, FIRE ALARM SYSTEM AND COMPONENTS, WIRING DEVICES, MULTI-OUTLET RACEWAYS, CABINETS, AND BOXES. SUBMIT SIX COPIES WITHIN THIRTY (30) DAYS AFTER CONTRACT AWARD AND IN NOT MORE THAN TWO GROUPS OF SUBMITTALS. SUBMITTALS SHALL CONSIST OF LAYOUTS, WORK AND DRAWINGS, CUTS, AND OPERATING AND PERFORMANCE DATA. ALLOW FOUR (4) WEEKS FOR REVIEW AND APPROVAL OF THE SHOP DRAWINGS BY ENGINEER.
12. MATERIALS AND WORKMANSHIP: ALL MATERIALS AND EQUIPMENT SHALL BE NEW OF BEST GRADE OF STANDARD MANUFACTURE APPROVED BY UL, AND BE SO LABELED. FOR WIRE AND CABLE MARKED AS REQUIRED BY ART. 310-3 NEC. INSTALLED BY SKILLED ELECTRICIANS, WORKING UNDER THE DIRECT SUPERVISION OF COMPETENT EXPERIENCED FOREMAN AND/OR SUPERINTENDENT. PRODUCTS SHALL BE INSTALLED IN A THOROUGH WORKMANLIKE MANNER. PROVISION A NEAT, CLEAN-CUT APPEARANCE WHEN INSTALLED. ANY DAMAGED OR PAINTED ITEM THAT REQUIREMENT SHALL BE REPLACED OR REPAINT WITHOUT EXTRA EXPENSE TO OWNER
13. PROTECTION OF EXISTING: EXISTING CABLE SHALL BE PROTECTED, TESTED AND REPAIRED AS PER APPLICABLE CODES
14. WIRING METHODS: THE DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO SHOW THE LOCATIONS OF EQUIPMENT AND ARRANGEMENT OF CIRCUITS ONLY. EXACT LOCATIONS SHALL BE DETERMINED BY ACTUAL MEASUREMENTS AT THE SITE. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ALL PIPES, DROPS, OFFSETS, ETC. NECESSARY TO AVOID CONFLICT WITH STRUCTURAL MEMBERS, DUCTWORK, OTHER PIPING AND INSTALLING ELECTRICAL CONDUITS. INSTALL EXPOSED CONDUIT AS SHOWN OR NOTED, PARALLEL TO HORIZONTAL AND VERTICAL LINES OF STRUCTURES. MAKE BENDS WITH NO DEGREE TURN ONLY. USE WITH CONDUIT BENDER.
15. CONDUIT SYSTEMS: A COMPLETE RACEWAY SYSTEM FOR BUT NOT LIMITED TO POWER BRANCH CIRCUITS, CONTROL WIRING AND AUXILIARY SYSTEM WIRING
   a. USE LIQUID TIGHT FLEXIBLE METAL CONDUIT AND FITTINGS FOR ALL MOTORIZED CONNECTIONS AND WHERE SUBJECT TO MOISTURE OR LOCATED OUTDOOR
   b. WHERE EXPOSING PANELS, PULL BOXES, J-BOXES OR OUTLET BOXES SECURED IN PLACE WITH LOCK NUTS INSIDE AND OUTSIDE AND INSULATED BUSHING
   c. BENDS AND OFFSETS MADE WITH APPROVED TOOLS ONLY. BENDS OR OFFSETS IN CONDUIT TYPE IS CRUSHED OR OTHERWISE DAMAGED, NOT BE INSTALLED
   d. USE EMT FOR INTERIOR DRY LOCATIONS. PVC FOR UNDERGROUND INSTALLATION AND RIGID GALVANIZED STEEL FOR EXPOSED LOCATIONS SUBJECT TO DAMAGE
16. OUTLET AND JUNCTION BOXES: FURNISH AND INSTALL ALL JUNCTION BOXES NECESSARY TO FACILITATE INSTALLATION OF THE VARIOUS CONDUIT SYSTEMS. JUNCTION BOXES SHALL BE PROPERLY SUPPORTED FROM BUILDING STRUCTURE.
17. WIRE AND CABLE: WIRE AND CABLE SHALL
   a. BE NEW AND OF SOFT DRAWN ANNEALED, COPPER WITH A CONDUCTIVITY OF NOT LESS THAN 98% OF THAT OF PURE COPPER. EACH WIRE CONTINUOUS WITHOUT SPLICE OR JOINT THROUGHOUT. ITS ENTIRE LENGTH UNIFORM IN CROSS SECTION AND FREE FROM FLAWS, SCALES AND OTHER IMPERFECTIONS
   b. UNLESS OTHERWISE SPECIFIED OR NOTED, WIRES SHALL BE #12 AWG STRAND MINIMUM, NEUTRAL AND GROUND CONDUCTOR(S) TYPE THW, THWN, THHN AS MANUFACTURED BY TRIANGLE GENERAL ELECTRIC, OKONITE OR ANACONDA
   c. ALL WIRE #8 AND LARGER SHALL BE STRANDED
   d. NOT BE DRAWN INTO A CONDUIT UNTIL ALL WORK WHICH MAY CAUSE INJURY TO INSULATION IS COMPLETE. WHERE TWO OR MORE CONDUITS RUN TO A SINGLE OUTLET BOX, USE EACH CIRCUIT AS A GUIDE
   e. WHERE ALL STRANDED CONDUCTORS FURNISHED WITH COPPER CONNECTING LUGS DRILLED OR REAMED THE FULL DIAMETER OF THE BARE CONDUCTORS. MEANS AND FEEDERS SHALL BE RUN THEIR ENTIRE LENGTH IN CONTINUOUS PIECES WITHOUT JOINTS OR SPLICES
18. IDENTIFICATION OF CONDUCTORS AND PANELBOARD ELEMENTS
   a. EACH AND EVERY MAIN AND FEEDER CONDUCTORS SHALL BE IDENTIFIED AT EACH OUTLET POINT WHERE SUCH CONDUCTOR TERMINATES. FEEDER BUSBARS, FEEDERS THROUGH A JUNCTION OR PULL BOX SHALL ALSO BE IDENTIFIED IN THAT BOX/ENCLOSURE BUT MAY BE IDENTIFIED IN SUCH LOCATIONS AS A GROUP
   b. IDENTIFY BY USE OF PERMANENT TYPE BRANDS, SNAKEY OR 3 AND 6 A METWITE MARKER AND/OR LETTER CODE SHALL BE EMPLOYED AND BE USED SAME THROUGHOUT EACH CONDUCTOR
   c. PROVIDE FULLY-COLORED INSULATION WIRE FOR PHASE IDENTIFICATION ON ALL WIRE SIZES. PHASE TAPING IS NOT ACCEPTABLE
   d. IDENTIFY EACH SWITCH, INCLUDING PUSH BUTTONS AND MOTOR STARTER WITH UNITS ON GLASS NAMEPLATE EACH HAVING 1/4" HIGH LETTERS, NEATLY AND SECURELY ADHERE NAMEPLATES TO THE UNIT
19. SWITCHES, FUSES AND INSTALL ALL FUSIBLE AND NON-FUSIBLE SWITCHES AS REQUIRED BY CODES, WHETHER OR NOT SHOWN, AND/OR NOTED. SWITCHES SHALL BE
   a. HEAVY DUTY WITH NEMA-1 OR 3R ENCLOSURE AS REQUIRED, AND BE PROVIDED WITH FOUR (4) SPARE FUSE PULLERS
   b. PROVIDED AT EACH MOTOR THAT IS OUT OF SIGHT OF THE SWITCH OR PANEL FROM WHICH FED AND BE NON-FUSIBLE DISCONNECT FOR SUCH USE
   c. SWITCH MANUFACTURER SHALL BE OF WESTINGHOUSE OR SQUARE D
   d. DISCONNECT SWITCHES INSTALLED OUTSIDE THE BUILDING SHALL BE IN NEMA-3R ENCLOSURES
   e. FUSIBLE SWITCH-STARTER UNITS EACH UNIT SHALL BE TOTALLY ENCLOSED AND EFFECTIVELY MAGNETICALLY OPERATED QUICK-MAKE, QUICK BREAK, NON-REVERSING RATED STARTER. PROVIDE CLASS R TYPE REJECTION FUSE CLIPS
   f. IDENTIFY EACH DEVICE WITH NAMEPLATE SHOWING THE LOAD DEVICE FEEDING THE EXISTING NAMEPLATES
21. WIRING DEVICES: FURNISH AND INSTALL ALL WIRING DEVICES AS INDICATED ON THE DRAWINGS. DEVICES SHALL BE ALL SAME'S BE SUITABLE FOR THE USE INTENDED AND SHALL HAVE VOLTAGE AND CURRENT RATINGS ADEQUATE FOR THE LOADS TO BE SERVED
   a. MOUNTING HEIGHTS OF ALL DEVICES ARE FROM FINISH FLOOR TO CENTERLINE OF DEVICE. DEVICES SHOWN ON THE DRAWINGS IN GROUPS OF TWO OR MORE SHALL BE LOCATED HORIZONTALLY IN SUCH A MANNER AS TO BE CLOSE AS POSSIBLE FROM THE CENTERLINE OF FIRST DEVICE TO THE CENTERLINE OF THE NEXT DEVICE UNLESS OTHERWISE NOTED
   b. WALL SWITCHES SHALL BE LEVITON DECORA TYPE WHITE IN COLOR AND CORRESPONDING DOUBLE POLE THREE WAY FOUR-WAY KEYED AND DIMMER SWITCHES WHERE NOTED. PLACE ON STRIKE SIDE BOTTOM OF DOOR ADJACENT SWITCHES WHERE NOTED. PROVIDE THREE WAY AND FOUR WAY SWITCHES AT LOCATIONS INDICATED
   c. CONVENIENCE OUTLETS SHALL BE GROUNDING TYPE 20 AMP 125 VOLT LEVITON WHITE COLOR WEATHERPROOF DUPLEX OUTLETS SHALL BE LEVITON 5362 WITH SIERRA NO. 5690-A PLATE MOUNT AT 6'-0" A.F.F. UNLESS OTHERWISE NOTED. PROVIDE NEMA 5-20R DEVICES UNLESS OTHERWISE INDICATED. PROVIDE SPECIFICATION GRADE HEAVY DUTY STANDARD BLADE DEVICES UNLESS OTHERWISE NOTED. PROVIDE HOSPITAL GRADE DEVICES WHERE INDICATED OR AS REQUIRED BY CODES
   d. ACCEPTABLE ALTERNATE MANUFACTURERS SHALL BE HUBBELL, P&S AND BRYANT PROVIDED THEIR DEVICES ARE OF THE SAME TYPE AND QUALITY AND THAT ONLY ONE MANUFACTURER SHALL BE USED THROUGHOUT THE WORK
   e. PLATES SHALL BE MATCHING TYPE FOR FINISHED AREAS AND GALVANIZED STEEL FOR AREAS WITH EXPOSED CONDUIT. PROVIDE STAINLESS STEEL PLATES FOR FLUSH MOUNTED DEVICES. PROVIDE CAST ALUMINUM WET LOCATION TYPE COVER PLATES WITH HINGED COVERS FOR EXTERIOR OUTSIDE GROUND OUTLETS GROUPED TOGETHER UNDER A SINGLE SMALL PLATE
   f. INSTALL WIRING DEVICES PLUMB AND LEVEL, IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS, APPLICABLE REQUIREMENTS OF NEC AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO FULFILL PROJECT REQUIREMENTS
   g. TIGHTEN CONNECTIONS AND TERMINALS, INCLUDING SCREWS AND BOLTS, IN ACCORDANCE WITH EQUIPMENT TIGHTENING TORQUE VALUES PUBLISHED BY THE MAKER FOR WIRING DEVICES
   h. COORDINATE WITH OTHER WORK, INCLUDING PAINTING, ELECTRICAL BOXES AND WIRING INSTALLATIONS AS NECESSARY TO INTERFACE INSTALLATION OF WIRING DEVICES WITH OTHER WORK
   i. INSTALL WIRING DEVICES AFTER PAINTING WORK IS COMPLETED. INSTALL ONLY IN ELECTRICAL BOXES THAT ARE CLEAN, FREE FROM EXCESS PLASTERING MATERIALS, DIRT AND DEBRIS. INSTALL WALL PLATES AFTER PAINTING WORK IS COMPLETED
   j. NO RECEPTACLE OR SWITCH OUTLETS SHALL BE MOUNTED BACK TO BACK. A MINIMUM OF ONE 24 STUD SHALL BE BETWEEN OUTLETS
   k. INSTALL RECEPTACLES WITH GROUND PIN UP. INSTALL SWITCHES WITH THE "ON" POSITION UP
   l. ALL EXTERIOR DEVICES TO BE WEATHER PROOF AND EXTERIOR RECEPTACLES SHALL BE A GFCI TYPE DEVICE
   m. ALL 120-VOLT RECEPTACLES OUTLETS LOCATED WITHIN SIX FEET OF SINKS SHALL HAVE GROUND FAULT CIRCUIT INTERRUPTION PROTECTION. GROUND FAULT OUTLETS SHALL BE CONNECTED ON DEDICATED NEUTRAL WIRE SERVING ONLY THE INDIVIDUAL OUTLET WITH THAT PROTECTION
22. FUSES: FUSES IN PANEL FEEDER AND BRANCH CIRCUIT SWITCHES RATED 600 AMPS AND BELOW FEEDING MOTORS, TRANSFORMERS AND GENERAL PURPOSE CIRCUITS UNLESS OTHERWISE SPECIFIED SHALL BE 1/4 UNITED AND LABELED AS CURRENT LIMITING TIME DELAY 200 000 A.I.C. CLASS RK-5 FUSES SHALL BE BUSSMAN TYPE FRN-R (250V) AND FRS-R (600V)
23. GROUNDING: ALL CIRCUIT WORK, MOTOR STARTERS, AND OTHER ELECTRICAL EQUIPMENT SHALL BE GROUNDED BY THIS CONTRACTOR SHALL BE EFFECTIVELY AND PERMANENTLY GROUNDED IN FULL ACCORDANCE WITH NEC 250
24. OTHER MATERIALS: FURNISH AND INSTALL ALL OTHER MATERIALS SUCH AS HANGER TAPE, CLAMPS, CONNECTORS, FITTINGS, SUPPORTS AND ALL OTHER APPURTENANCES REQUIRED TO COMPLETE THE WORK TO THE FULL INTENT OF THE CONTRACT. TERMINAL LUGS SHALL BE FURNISHED BY THE ELECTRICAL CONTRACTOR
25. SWITCHGEAR AND DISTRIBUTION PANELS: SHALL BE FIELD MARKED TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRICAL ARC FLASH HAZARDS. THE MARKING SHALL BE LOCATED SO AS TO BE CLEARLY VISIBLE TO QUALIFIED PERSONS BEFORE EXAMINING EQUIPMENT OR SERVICING OR MAINTENANCE OF THE EQUIPMENT (NEC 110.16)
26. ELECTRICAL MATERIAL AND EQUIPMENT: NO ELECTRICAL MATERIALS, APPARATUS, DEVICES, APPLIANCES, FIXTURES OR EQUIPMENT SHALL BE SOLD OR INSTALLED IN THE CITY UNLESS THEY ARE IN CONFORMANCE WITH THE PROVISIONS OF THIS CODE, THE LAWS OF THE STATE OF TEXAS AND ANY APPLICABLE RULES AND REGULATIONS ISSUED UNDER THE AUTHORITY OF THE STATE STATUTES. THE OWNER'S NAME, TRADEMARK OR OTHER IDENTIFICATION SYMBOL SHALL BE PLACED ON ALL ELECTRICAL MATERIALS, APPARATUS, DEVICES, APPLIANCES, FIXTURES AND EQUIPMENT USED OR INSTALLED UNDER THE PROVISIONS OF THIS CODE. ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE LISTED AND LABELED FOR THE INTENDED USE AND SHALL BE INCLUDED IN A LIST PUBLISHED BY AN APPROVED AGENCY



DETAIL - CONDUIT RACK — NOT TO SCALE — 3



DETAIL - WALL SLEEVE — NOT TO SCALE — 2



DETAIL - TYP. TRENCH FOR UNDERGROUND CONDUITS — NOT TO SCALE — 1

HCC
HOUSTON COMMUNITY COLLEGE
OWNER
HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002
(T) (713) 718-2000
(F) (713) 718-8231
ARCHITECT
PGAL
3131 BRIARPARK
SUITE 200
HOUSTON, TX 77042
(T) 713 622 1666
(F) 713 968 9533
PGAL TBPE REG. NO. F-3742
CONSULTANT
INFRASTRUCTURE ASSOCIATES, LLC
2617 Fitzgerald Avenue, Suite 250
Houston, TX 77004
TBPE REGISTRATION NO. F-4844
PH: (281) 622-0070
FAX: (866) 662-8965
WWW.INFRASTRUCTURE.BIZ

PROJECT TITLE
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT NUMBER
1022047

PROJECT LOCATION
8911 LITTLE YORK ROAD
HOUSTON, TEXAS 77016

ISSUE OF SHEET
JANUARY 28, 2020
ISSUED FOR CONSTRUCTION
REVISIONS

SHEET TITLE
NOTES AND LEGEND

SHEET NUMBER
E1.01

LOAD ANALYSIS

LOAD DESCRIPTION	LOAD (kVA)
EXISTING ALGEBRA BUILDING (BUILDING "C")	256
EXISTING HOSPITALITY BUILDING (BUILDING "A" & "B")	429
EXISTING AUTOMOTIVE BUILDING (BUILDING "D")	565
EXISTING CENTRAL PLANT	963
NEW GATE POWER	9
TOTAL kVA	2,535
TOTAL AMPS	3,170
THIS EXISTING 4,000A SERVICE IS SUFFICIENT TO SUPPORT THE NEW GATE POWER LOAD	

EXISTING PANELBOARD TO BE UTILIZED LOCATED IN BUILDING "C"

PANEL SLA

LOAD DESCRIPTION					LOAD DESCRIPTION
		1		2	
		3		4	
		5		6	
		7		8	
		9		10	
		11		12	
		13		14	
		15		16	
		17		18	
		19		20	
		21		22	
		23		24	
		25		26	
		27		28	
		29		30	
		31		32	
		33		34	
		35		36	
		37		38	
		39		40	
		41		42	

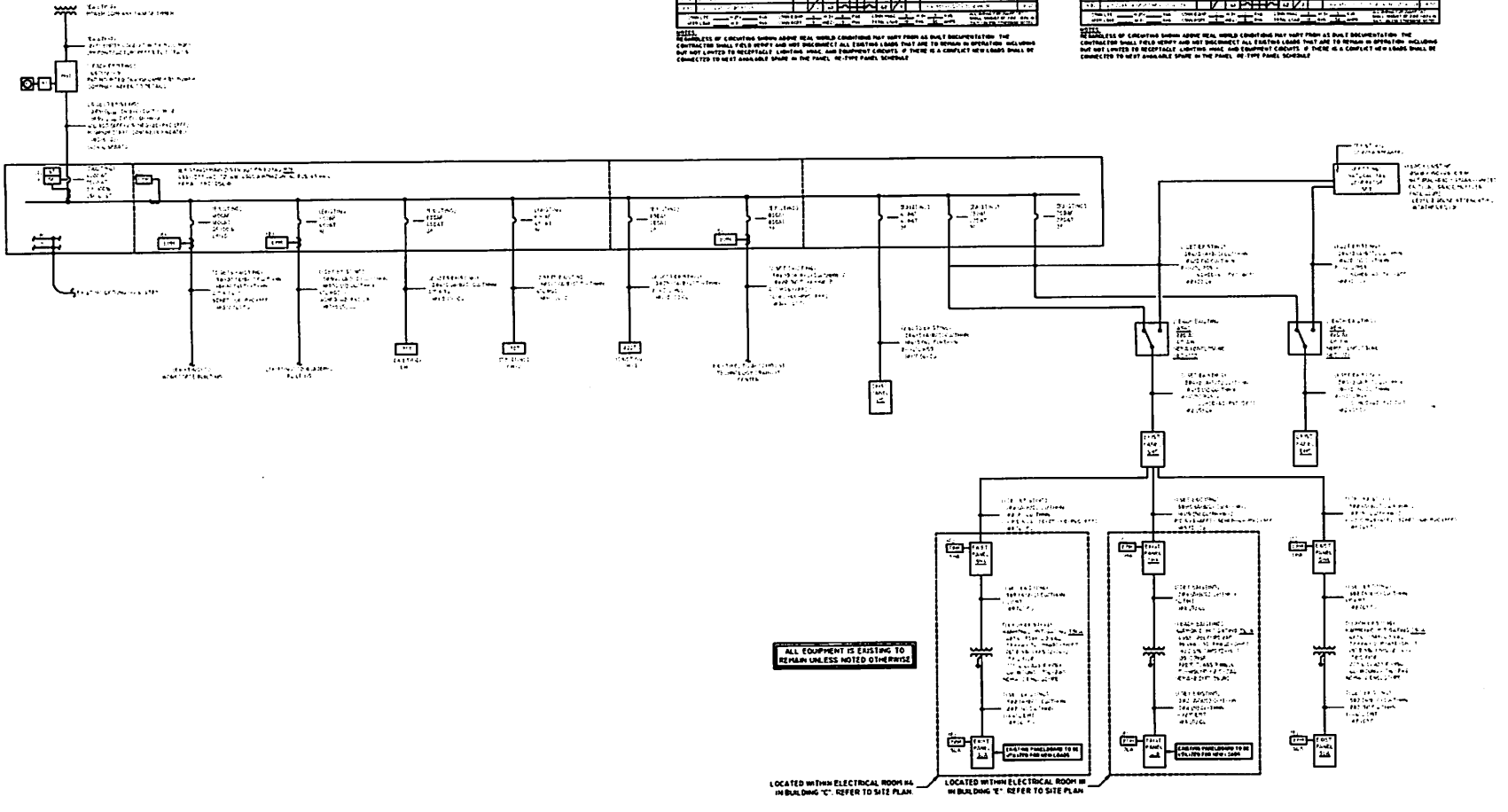
NOTES:
REGARDLESS OF LOCATIONS SHOWN ABOVE REAL WORLD CONDITIONS MAY VARY FROM AS BUILT DOCUMENTATION. THE CONTRACTOR SHALL FIELD VERIFY AND NOT DISCONNECT ALL EXISTING LOADS THAT ARE TO REMAIN IN OPERATION INCLUDING BUT NOT LIMITED TO RECEPTACLE, LIGHTING, HVAC AND EQUIPMENT CIRCUITS. IF THERE IS A CONFLICT NEW LOADS SHALL BE CONNECTED TO NEXT AVAILABLE SPARE IN THE PANEL OR TYPE PANEL SCHEDULE

EXISTING PANELBOARD TO BE UTILIZED LOCATED IN BUILDING "E"

PANEL SLA

LOAD DESCRIPTION					LOAD DESCRIPTION
		1		2	
		3		4	
		5		6	
		7		8	
		9		10	
		11		12	
		13		14	
		15		16	
		17		18	
		19		20	
		21		22	
		23		24	
		25		26	
		27		28	
		29		30	
		31		32	
		33		34	
		35		36	
		37		38	
		39		40	
		41		42	

NOTES:
REGARDLESS OF LOCATIONS SHOWN ABOVE REAL WORLD CONDITIONS MAY VARY FROM AS BUILT DOCUMENTATION. THE CONTRACTOR SHALL FIELD VERIFY AND NOT DISCONNECT ALL EXISTING LOADS THAT ARE TO REMAIN IN OPERATION INCLUDING BUT NOT LIMITED TO RECEPTACLE, LIGHTING, HVAC AND EQUIPMENT CIRCUITS. IF THERE IS A CONFLICT NEW LOADS SHALL BE CONNECTED TO NEXT AVAILABLE SPARE IN THE PANEL OR TYPE PANEL SCHEDULE



EXISTING ONE LINE DIAGRAM | NTS (1)

HCC
HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002
(T) (713) 718-8000
(F) (713) 718-2231

PGAL
3131 BRIARPARK
SUITE 200
HOUSTON, TX 77042
(T) 713 622 1444
(F) 713 963 9533
PGAL TBPE REG. NO. F-2742

INFRASTRUCTURE ASSOCIATES, INC.

PROJECT TITLE
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT NUMBER
1002047
PROJECT LOCATION
8519 LITTLE YORK ROAD
HOUSTON, TEXAS 77016

DATE OF ISSUE
JANUARY 29, 2029
ISSUED FOR CONSTRUCTION
REVISIONS

REGISTRATION
COPYRIGHT © 2019

07498
2029-01-31

SHEET TITLE
ONE LINE DIAGRAM

SHEET NUMBER
E1.02

Pierre Gustave Alexander & Lynda

EXISTING LIGHTING SYMBOL LEGEND

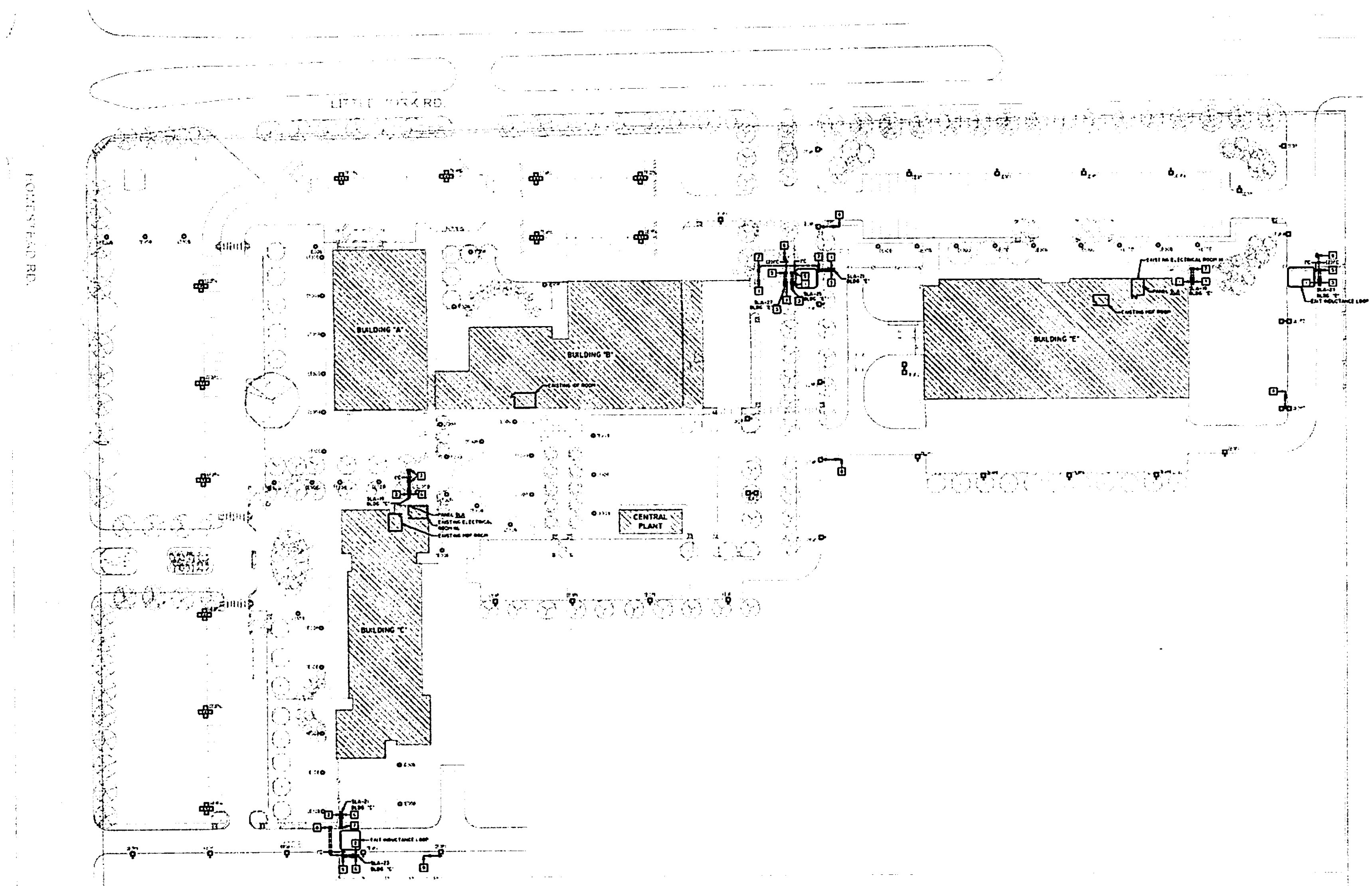
(symbol)	EXISTING PEDESTRIAN POLE FIXTURE
(symbol)	EXISTING SINGLE HEAD PARKING LOT POLE FIXTURE
(symbol)	EXISTING TWO HEAD PARKING LOT POLE FIXTURE
(symbol)	EXISTING FOUR HEAD PARKING LOT POLE FIXTURE

ELECTRICAL GENERAL NOTES

A. UNDERGROUND CONDUIT ROUTING SHALL BE COORDINATED WITH EXISTING PAVEMENT AND UNDERGROUND UTILITIES. COORDINATE WITH CIVIL PLANS FOR MORE INFORMATION. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY CONFLICTS ENCOUNTERED IN FIELD.
B. PRIOR TO TRENCHING, UNDERGROUND CONDUIT ROUTING SHALL BE MARKED FOR REVIEW AND ROUTING PATH APPROVAL OBTAINED BY THE OWNER REPRESENTATIVE. COORDINATE WITH EXISTING IMPROVEMENTS, TREES, ROOT SYSTEMS, EXISTING PAVEMENT, AND UNDERGROUND UTILITIES. PROVIDE PULL ROPE FOR ALL UNDERGROUND EMPTY CONDUITS.
C. ANY CONDUITS WHICH TRAVEL BETWEEN CONDITIONED AND NON-CONDITIONED SPACES (OR OUTDOOR TO INDOOR) SHALL BE SEALED INSIDE AND OUT AFTER PULLING CONDUCTORS SO THAT MOISTURE CONDENSATION THRU THE CONDUITS IS MITIGATED.
D. ELECTRICAL CONTRACTOR SHALL PROVIDE BACK BOXES AND CONDUITS FOR TELECOM AND SECURITY. COORDINATE WITH TELECOM AND SECURITY DRAWINGS FOR LOCATIONS AND REQUIREMENTS.
E. COORDINATE ALL PEDESTAL AND STUB-UP LOCATIONS PRIOR TO ROUGH-IN OF ANY CONDUITS.
F. COORDINATE LOCATIONS OF CONDUIT ENTRY TO BUILDINGS WITH ARCHITECT PRIOR TO BEGINNING WORK.

ELECTRICAL KEYED NOTES

1. PROVIDE (3)2"C WITH (3)2" THREE CELL MAXCELL STUB UP AT THIS GATE FROM MDF ROOM IN BUILDING "E".
2. PROVIDE (3)2"C WITH (3)2" THREE CELL MAXCELL STUB UP AT THIS GATE FROM MDF ROOM IN BUILDING "C".
3. PROVIDE 1"C FOR POWER TO PANEL SLA IN BUILDING "E" ELECTRICAL ROOM.
4. PROVIDE 1"C FOR POWER TO PANEL SLA IN BUILDING "C" ELECTRICAL ROOM.
5. COORDINATE POWER/DATA STUB UP FOR CONNECTION TO MOTORIZED GATE CONTROLLER.
6. COORDINATE POWER/DATA STUB UP FOR CONNECTION TO PEDESTAL FOR GATE PHONE AND CARD READER.
7. COORDINATE POWER/DATA STUB UP FOR CONNECTION TO SECURITY DEVICES AT GATE.
8. PROVIDE (3)2"C WITH (3)2" THREE CELL MAXCELL STUB UP AT THIS POLE FROM MDF ROOM IN BUILDING "E" FOR SECURITY CAMERA.
9. PROVIDE (3)2"C WITH (3)2" THREE CELL MAXCELL STUB UP AT THIS POLE FROM MDF ROOM IN BUILDING "C" FOR SECURITY CAMERA.



SITE PLAN - ELECTRICAL 1

HCC
HOUSTON COMMUNITY COLLEGE

OWNER
HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002
(T) (713) 718-2000
(F) (713) 718-2331

ARCHITECT
PGAL
3131 BRIARPARK
SUITE 200
HOUSTON, TX 77042
(T) 713 622 1444
(F) 713 968 9333
PGAL TBPE REG. NO. F-3742

CONSULTANT
INFRASTRUCTURE ASSOCIATES, INC.
www.iaihouston.com

PROJECT TITLE
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT NUMBER
1302947

PROJECT LOCATION
8919 LITTLE YORK ROAD
HOUSTON, TEXAS 77016

DATE OF ISSUE
JANUARY 29, 2020
ISSUED FOR CONSTRUCTION
REVISIONS

REGISTRATION
COPYRIGHT © 2019
DENNIS ... 97496 LICENSED PROFESSIONAL ENGINEER
2020-01-31

SHEET TITLE
SITE PLAN - ELECTRICAL

SHEET NUMBER
E2.01

SPECIFICATIONS:

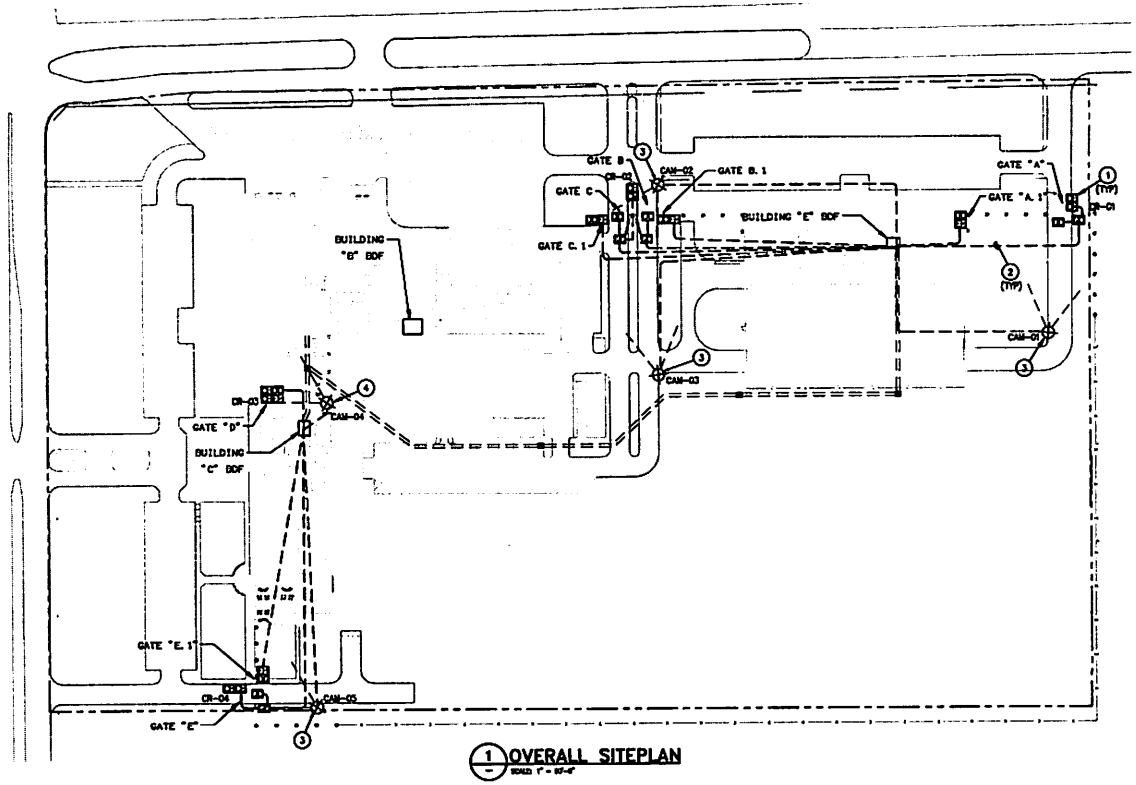
1. INSTALL ALL WORK FOLLOWING DRAWINGS, MANUFACTURER'S INSTRUCTIONS AND APPROVED SUBMITTAL DATA.
2. INSTALL CONDUIT IN EXCAVATIONS FOLLOWING DRAWINGS. IF DIRECTIONAL BORING IS UTILIZED, CABLE OR FLEXIBLE CONDUITS CAN BE ATTACHED TO THE UNIT AND PULLED BACK TO THE ORIGINATION POINT (AFTER THE DRILLING UNIT REACHES ITS DESTINATION).
3. HH WILL BE 64 CUBIC FEET (4 FEET X 4 FEET X 4 FEET) AND SHALL BE CONSTRUCTED OF TWO-INCH THICK CONCRETE COVERED WITH 3/8 INCH STEEL PLATE. THE HAND HOLE OR MH SHALL REST ON A 4 INCH BLANKET OF SAND, AND 4 INCHES AROUND THE SIDE WALLS SHALL BE FILLED WITH SAND
4. EACH MH/HH THAT CONTAINS A PEDESTAL WILL HAVE FOUR BOLLARDS INSTALLED 18 INCHES DIAGONALLY FROM EACH CORNER, WITH A CROSS MEMBER WELDED AT 30 INCHES CONNECTING THE FOUR CORNERS. THESE BARRIERS WILL BE CONSTRUCTED OF 4 INCH RIDGED CONDUIT FILLED WITH CONCRETE, DRIVEN FOUR FEET IN THE GROUND AND EXTENDING 36 INCHES ABOVE THE PROTECTIVE COVER.
5. INSTALL WATERTIGHT PENETRATIONS THROUGH FOUNDATION, HH AND MH WALLS. WHEREVER A HAND HOLE IS USED TO SIMPLY PASS THROUGH, THE CONDUIT ENTRANCES AND EXITS WILL BE SITUATED AT OPPOSITE ENDS OF THE HAND HOLE INSTEAD OF 90 DEGREE ANGLES.
6. ASSEMBLE DUCT BANKS WITH NON-MAGNETIC SADDLES, SPACERS AND SEPARATORS. POSITION SEPARATORS FOR 3 INCH MINIMUM CONCRETE SEPARATION BETWEEN OUTER SURFACES OF ADJACENT DUCTS.
7. MAKE UNIFORM REQUIRED BENDS WITH A MINIMUM OF A 24 INCH RADIUS FOR CONDUITS LESS THAN 3 INCH DIAMETER, AND A 48 INCH RADIUS FOR CONDUITS 3 INCHES AND LARGER.
8. MAINTAIN VERTICAL OR HORIZONTAL SEPARATIONS OF 12 INCHES OF WELL-PACKED TOPSOIL FROM ANY ELECTRICAL SERVICE CONDUIT RUN PARALLEL TO COMMUNICATIONS CONDUITS.
9. INSTALL REINFORCING. INSTALL CONCRETE ENCASEMENT FULLY SURROUNDING REINFORCING STEEL AND DUCTS. USE ONE-INCH MAXIMUM SIZE COURSE AGGREGATE CONCRETE.
10. UNLESS OTHERWISE NOTED ON THE DRAWINGS, REINFORCE WITH NO. 4 LONGITUDINAL STEEL BARS PLACED AT EACH CORNER AND ALONG EACH FACE AT MAXIMUM PARALLEL SPACING OF 12 INCHES O.C., AND NO. 3 TIE-BARS TRANSVERSELY PLACED AT 12 INCHES O.C. MAXIMUM LONGITUDINAL. MAINTAIN MAXIMUM CLEARANCE OF 2 INCHES FROM BARS TO EDGE OF FORMS AND DUCTS.
11. PLACE CONCRETE WITH MINIMUM 3 INCH COVER SURROUNDING DUCTS AND REINFORCEMENT.
12. MAINTAIN DUCTS IN PROPER PLACE DURING CONCRETE PLACEMENT.
13. TRANSITION FROM NON-METALLIC TO PVC COATED METALLIC CONDUIT WHERE DUCT BANKS ENTER STRUCTURES OR TURN UPWARD FOR CONTINUATION ABOVE GRADE.
14. WITH PRIOR OWNER/IT APPROVAL, FOR CONDUIT RUNS (1 . TO 4 .) A SPECIAL LBD CONDULET (CROUSE-HINES OR APPROVED EQUAL) MAY BE USED FOR EXTERIOR WALL PENETRATION WHERE A SWEPT 90 WILL NOT WORK. LBD CONDULETS ARE DESIGNED FOR COMMUNICATIONS CABLE INSTALLATION TO MAINTAIN BEND RADIUS REQUIREMENTS.
15. WHERE DUCTS ENTER STRUCTURES SUCH AS HH, MH, PULL BOXES, OR BUILDINGS, TERMINATE DUCTS IN PROPER END BELLS, INSULATED L-BUSHINGS, METERS HUBS OR COUPLINGS ON STEEL CONDUITS.
16. EXTEND BELOW GRADE CONDUITS TO 4 INCHES ABOVE THE FINISHED FLOOR INSIDE A BUILDING.
17. TAG CONDUITS ENTERING PULL BOXES WITH STAMPED STAINLESS STEEL TAGS FOLLOWING CABLE AND CONDUIT SCHEDULE.
18. INSTALL CONTINUOUS, ORANGE WARNING RIBBON, PVC TAPE (DETECTABLE I.E., CONTAINING METALLIC TRACINGS), 3 INCHES WIDE, PERMANENTLY IMPRINTED WITH "CAUTION – BURIED COMMUNICATIONS LINE BELOW" IN BLACK LETTERS, APPROXIMATELY 12 INCHES BELOW FINISHED GRADE FOLLOWING LINE OF DUCT BANKS.
19. PLACE SOIL MARKERS AT EVERY MH/HH AND ALONG THE ENTIRE COMMUNICATIONS PATHWAY, AT 100-FOOT INTERVALS.
20. RACEWAYS SHALL BE PROVIDED WITH EXPANSION FITTING WHERE NECESSARY TO COMPENSATE FOR THERMAL EXPANSION AND CONTRACTION.
21. USE EXPANSION-DEFLECTION FITTINGS ON CONDUIT CROSSING STRUCTURAL EXPANSION JOINTS AND ON EXPOSED CONDUIT RUNS WHERE NECESSARY. PROVIDE BONDING JUMPERS ACROSS FITTINGS IN METAL RACEWAYS SYSTEMS
22. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS. TOP OF MH/HH COVER SHALL BE SET 6 INCH ABOVE FINISHED PAVEMENT OR ONE INCH ABOVE FINISHED GRADE.
23. MH/HH SHALL BE BEDDED ON FOUR INCHES OF STABILIZED SAND WITH ¾ INCH GRADATION.
24. HAVE DUCTS STUBBED INTO THE MH/HH, WHICH SHALL TERMINATE IN END BELLS CAST IN CONCRETE FLUSH WITH THE INSIDE WALLS. DUCTS SHALL ENTER THE MH/HH AT THE LOWEST KNOCKOUT WINDOW AVAILABLE.
25. MH SHALL BE FITTED ON EACH WALL WITH CABLE RACKS AND STRUTS. EACH RACK WILL BE PROVIDED WITH A MINIMUM OF FOUR RACK TYPE ARMS. RACK ARMS WILL BE MADE OF NON-FLAMMABLE POLYMER.
26. MH SHALL BE PROVIDED WITH A PULLING EYE ON EACH END AND A DRAINAGE SUMP IN THE BOTTOM.
27. MH/HH WILL BE PROVIDED WITH A ¾ INCH BY 10-FOOT COPPER CLAD GROUND ROD IN EACH MH. SEE SECTION 27185 FOR GROUND ROD SPECIFICATION. DO NOT INSTALL THE GROUND ROD THROUGH THE DRAIN SUMP. INSTALL THROUGH A PREPARED OPENING AND GROUT FILL AFTER INSTALLATION.
28. ALL VACANT DUCTS, FLEXIBLE INNERDUCTS AND PLASTIC INNERDUCTS WILL BE SEALED WITH OWNER AND INDUSTRY APPROVED PLUG.
29. WHERE MORE THAN ONE INNERDUCT IS ROUTED IN A CONDUIT, EACH INNERDUCT SHALL CONSIST OF A DIFFERENT COLOR (EX. ORANGE, BLUE, BLACK AND WHITE). OWNER-IT APPROVAL REQUIRED BEFORE INSTALLATION.
30. WHEN POPULATING DUCT BANK WITH PLASTIC INNERDUCT THE FOLLOWING APPLY: OWNER-IT APPROVAL REQUIRED BEFORE INSTALLATION.
31. INNERDUCT TO BE DSP RATED
32. 4" DUCT TO BE POPULATED WITH NO LESS THAN 3-1.23 INCH INNERDUCTS
33. 4" DUCT TO BE POPULATED WITH NO LESS THAN 4-1 INCH INNERDUCTS
34. ALL FIBER CABLES MUST BE PLACED IN FLEXIBLE INNERDUCT.
35. ALL COPPER CABLES 100 PAIRS OR LESS WILL BE PLACED IN FLEXIBLE INNERDUCT.
36. PULL A 12 INCH LONG MANDREL (1/4 INCH SMALLER THAN DUCT DIAMETER) THROUGH DUCTS. PULL A RAG SWAB OR SPONGE THROUGH TO REMOVE DEBRIS, UNTIL IT SHOWS CLEAN.
37. PROVIDE A CONDUIT MEASURING TAPE, WITH A MINIMUM TEST RATING OF 1250 POUNDS OF PULLING TENSION IN ALL UNDERGROUND CONDUITS, FLEXIBLE INNERDUCTS AND PLASTIC INNERDUCT WHEN APPLICABLE. LABEL EACH END OF THE DUCT BANK IN EVERY MH TO ENSURE CONTINUITY PER SPECIFICATION 27 05 00 – COMMON WORK RESULTS FOR COMMUNICATIONS.

GENERAL NOTES:

1. ALL UNDERGROUND CONDUIT AND SITE PULLBOXES ARE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. FOLLOW DIVISION 27. REFER TO THE TELECOMMUNICATION DRAWINGS FOR CONDUIT AND HANDHOLE DETAILS. ALL TECHNOLOGY CONDUITS SHALL REQUIRE A HANDHOLE PULL BOX AFTER EVERY 180 DEGREES OF TURNS. NO 90 DEGREE TURNS ALLOW IN A PULL BOX.
2. REFER TO ELECTRICAL DRAWINGS FOR EXACT LOCATION OF ALL UNDERGROUND CONDUITS.
3. FIELD VERIFY EXACT UNDERGROUND CONDUIT ROUTES WITH EXISTING UTILITIES.
4. ENCASE ALL DUCT UNDER DRIVE-RATED PAVEMENT.

KEYED NOTES:

1. PROVIDE 2N HELIOS IP FORCE GATE PHONE WITH POE EXTENDER (VERACITY LONGSPAN #VLS-1P-C OR EQUAL). REFER TO CIVIL SITE PLANS FOR EXACT GATE AND ASSOCIATED EQUIPMENT LOCATIONS.
2. CONTRACTOR SHALL COORDINATE CONDUITS WITH ELECTRICAL CONTRACTOR. ALL GATE CONDUITS FROM BDF'S SHALL BE A MINIMUM OF 2" CONDUIT WITH (1) 2" DROIC CELL MAXICELL UNLESS OTHERWISE NOTED. ALL CAMERA & GATE CONNECTIVITY CONDUITS SHALL BE A MINIMUM OF 1" CONDUIT UNLESS OTHERWISE NOTED.
3. PROVIDE A POLE MOUNTED CAMERA WITH POE EXTENDER (VERACITY LONGSPAN #VLS-1P-C OR EQUAL). ALL CAMERAS SHALL CABLE BACK TO CLOSEST IDF. REFERENCE SC3.02 FOR POLE MOUNTING DETAILS.
4. PROVIDE A WALL MOUNTED CAMERA WITH POE EXTENDER IF REQUIRED (VERACITY LONGSPAN #VLS-1P-C OR EQUAL). ALL CAMERAS SHALL CABLE BACK TO CLOSEST IDF. REFERENCE SC3.02 FOR WALL MOUNTING DETAILS.



1 OVERALL SITEPLAN
SCALE: 1" = 60'-0"

SECURITY SYSTEM ABBREVIATIONS AND SYMBOLS LEGEND

	FIXED POLE OR WALL MOUNTED CCTV CAMERA
GC	GATE CONTROLLER
CR	CARD READER
CB	CALL BOX PHONE
DC	DOOR CONTACT
EG	ELECTRIC GATE
EH	ELECTRIC HARDWARE
HH	HANDHOLE 3'X3'X30"D
	EXPOSED CONDUIT
	UNDERGROUND/CONCEALED CONDUIT
	EXISTING DUCTBANK (SHOWN FOR REFERENCE)
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
CCTV	CLOSED CIRCUIT TELEVISION
TYP	TYPICAL
AD	ARCHITECTURAL DRAWINGS

HCC
HOUSTON COMMUNITY COLLEGE
OWNER
HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002
(T) (713) 718-2000
(F) (713) 718-8201
ARCHITECT
PGAL
3131 BRIARPARK
SUITE 200
HOUSTON, TX 77042
(T) 713 622 1444
(F) 713 968 9333
PGAL TBPE REG. NO F-2742
CONSULTANT
Pegasus Consulting

PROJECT TITLE
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT NUMBER
1302047
PROJECT LOCATION
8916 LITTLE YORK ROAD
HOUSTON, TEXAS 77016

DATE OF ISSUE
JANUARY 29, 2021
ISSUED FOR CONSTRUCTION

REVISIONS

SHEET TITLE
NORTH FOREST PERIMETER SITE PLAN - SECURITY

SHEET NUMBER
SC1.01

ACCESS CONTROL SCHEDULE

DOOR NUMBER	CARD READER ID	CARD READER NAME	CARD RDR TYPE	DETAIL NO.	ASSOC CCTV ID	DOOR HARDWARE SET	IDF ROOM	COMMENTS *
GATE "A"	CR-01	NE GATE A ENTRY	HID RP40	AD	1	GC	BUILDING "E" IDF	
GATE "A.1"	N/A	NE GATE A.1 PEDESTRIAN ENTRY	N/A	N/A	1	EH	BUILDING "C" IDF	CONTROLLED BY ACS SCHEDULE
GATE "B"	N/A	N GATE B EXIT	N/A	N/A	2/3	EH	BUILDING "C" IDF	CONTROLLED BY ACS SCHEDULE
GATE "B.1"	N/A	N GATE B.1 PEDESTRIAN ENTRY	N/A	N/A	2/3	EH	BUILDING "C" IDF	CONTROLLED BY ACS SCHEDULE
GATE "C"	CR-02	N GATE C ENTRY	HID RP40	AD	2/3	GC	BUILDING "E" IDF	
GATE "C.1"	N/A	N GATE C.1 PEDESTRIAN ENTRY	N/A	N/A	2/3	EH	BUILDING "E" IDF	CONTROLLED BY ACS SCHEDULE
GATE "D"	CR-03	W GATE D PEDESTRIAN ENTRY	HID RP40	SC3.02/2	4	EH	BUILDING "E" IDF	
GATE "E"	CR-04	SW GATE E ENTRY	HID RP40	AD	5	GC	BUILDING "E" IDF	
GATE "E.1"	N/A	SW GATE E.1 PEDESTRIAN ENTRY	N/A	N/A	5	EH	BUILDING "E" IDF	CONTROLLED BY ACS SCHEDULE

"REX" – REVERSE DOOR CONFIGURATION DENOTES THAT THE CARD READER IS LOCATED ON THE "PUSH" SIDE OF THE PORTAL AND THE REX IS LOCATED ON THE "PULL" SIDE OF THE PORTAL.

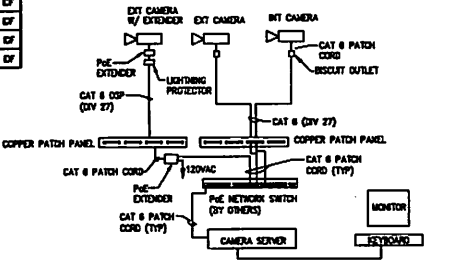
REFER TO SHEET SC1.01 FOR ABBREVIATIONS.

CAMERA SCHEDULE

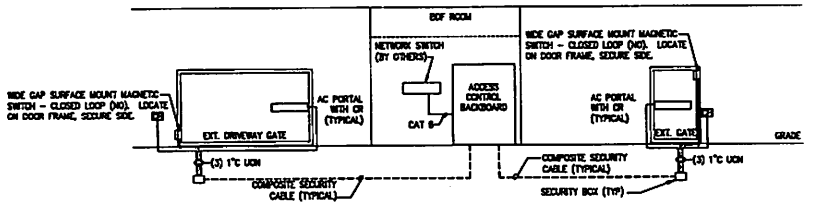
ITEM NUMBER	CAMERA ID	LOCATION DESCRIPTION	CAMERA TYPE	POWER	CABLE TYPE	DETAIL NO. (SC3.02)	MOUNT	IDF ROOM
1	CAM-01	EXTERIOR – SE ENTRANCE "A"	EXTERIOR	PoE	CAT 6	4	EXISTING LIGHT POLE	BUILDING "E" IDF
2	CAM-02	EXTERIOR – NW ENTRANCE "B"	EXTERIOR	PoE	CAT 6	4	EXISTING LIGHT POLE	BUILDING "E" IDF
3	CAM-03	EXTERIOR – N ENTRANCE "C"	EXTERIOR	PoE	CAT 6	4	EXISTING LIGHT POLE	BUILDING "E" IDF
4	CAM-04	EXTERIOR – W ENTRANCE "D"	EXTERIOR	PoE	CAT 6	5	WALL MOUNT	BUILDING "E" IDF
5	CAM-05	EXTERIOR – W ENTRANCE "E"	EXTERIOR	PoE	CAT 6	4	EXISTING LIGHT POLE	BUILDING "E" IDF

REFER TO SPECIFICATIONS SECTION 282300 FOR CCTV EQUIPMENT SPECIFICATIONS. FURNISH CAMERAS WITH ALL MOUNTING HARDWARE AS REQUIRED FOR INSTALLATION.

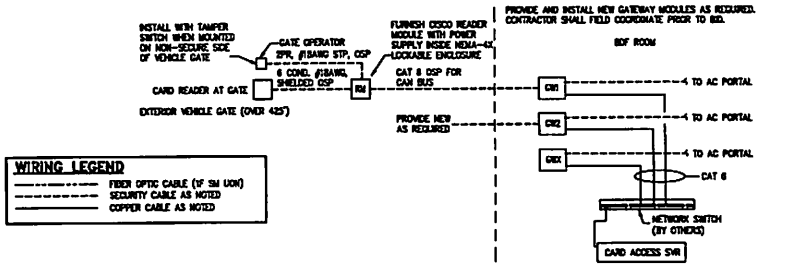
8 ACCESS CONTROL & CAMERA SCHEDULES



7 SURVEILLANCE SCHEMATIC WIRING DIAGRAM



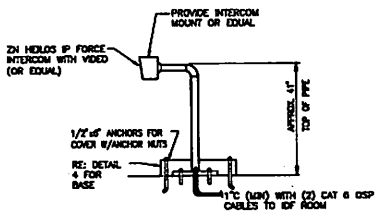
6 ACCESS CONTROL RISER DIAGRAM



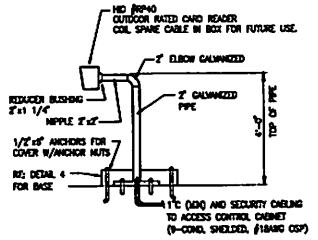
WIRING LEGEND

- FIBER OPTIC CABLE (1F SM UCH)
- SECURITY CABLE AS NOTED
- COPPER CABLE AS NOTED

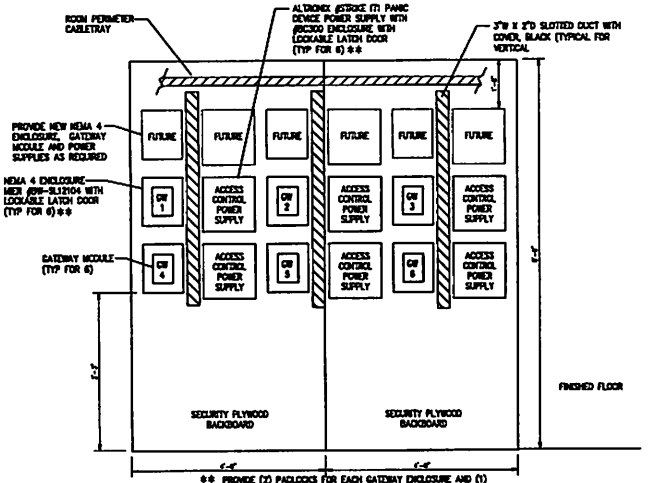
5 ACCESS CONTROL SCHEMATIC WIRING DIAGRAM (TYPICAL)



4 GATE TELEPHONE MOUNTING DETAILS



3 CARD READER MOUNTING DETAILS



1 EXISTING SECURITY ENCLOSURE ELEVATION

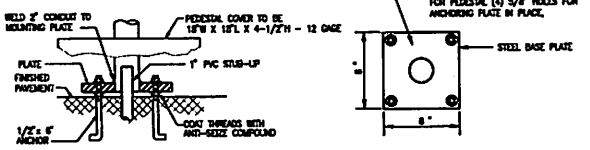
PEDESTAL BASE DETAIL NOTES

PEDESTAL FABRICATION NOTES:

1. ALL PARTS SHALL BE GALVANIZED.
2. FITTINGS SHALL BE TAPPED, THREADED, AND PROVIDED WITH SET SCREWS TO PREVENT THEM FROM TWISTING OUT OF ALIGNMENT.
3. THE MOUNTING FOR THE CARD READER SHALL BE A PLATE OR BOX WITH A SUITABLE SHROUD TO PROTECT THE READER FROM THE WEATHER.

ALTERNATE PEDASTAL DESIGN:

1. THE CARD READER AND TELEPHONE MAY BE CO-LOCATED TO A COMMON PEDASTAL.
2. THERE ARE A NUMBER OF LOCAL VENDORS THAT OFFER PEDASTALS FABRICATED FROM TUBULAR STEEL WITH BAKED ENAMEL OR EPOXY POWDER COAT FINISHES THAT ARE AS DURABLE AS GALVANIZED STEEL. ONE LOCAL VENDOR IS:
   TERRY SERVICES CO.
   (281) 345-1300
   CONTACT–FRED ABBOTT
   ABBOTTS@SBCGLOBAL.NET



2 PEDESTAL BASE DETAILS

HCC
HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002
(T) (713) 718-2000
(F) (713) 718-8201

ARCHITECT
PGAL
3131 BRIARPARK
SUITE 200
HOUSTON, TX 77042
(T) 713 622 1444
(F) 713 953 9333
PGAL TBPE REG. NO. F-2742

CONSULTANT
Ferguson Consulting

PROJECT TITLE
HCC NORTHEAST COLLEGE
NORTH FOREST CAMPUS
PERIMETER FENCE

PROJECT NUMBER
1202047

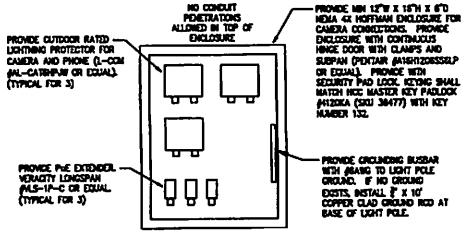
PROJECT LOCATION
6318 LITTLE YORK ROAD
HOUSTON, TEXAS 77016

DATE OF ISSUE
JANUARY 21, 2020
ISSUED FOR CONSTRUCTION

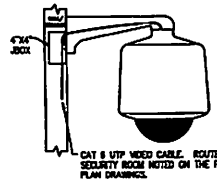
REGISTRATION
COPYRIGHT © 2019

SHEET TITLE
NORTH FOREST PERIMETER ENLARGED PLANS - SECURITY

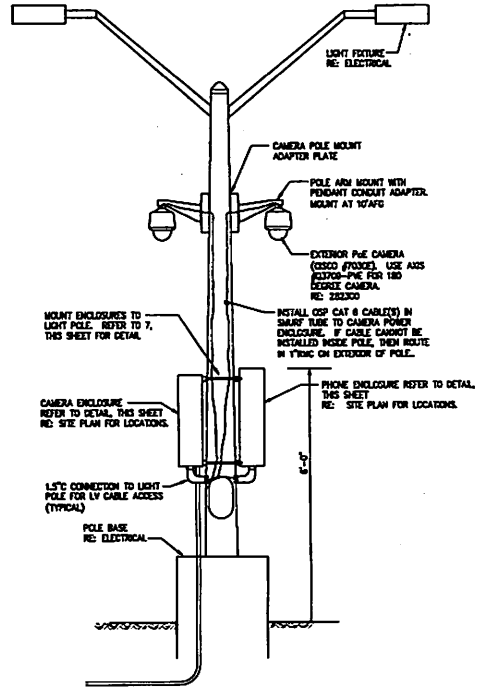
SHEET NUMBER
SC3.01



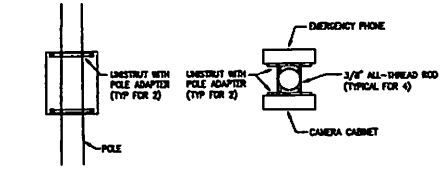
6 CAMERA ENCLOSURE
SCALE: N.T.S.



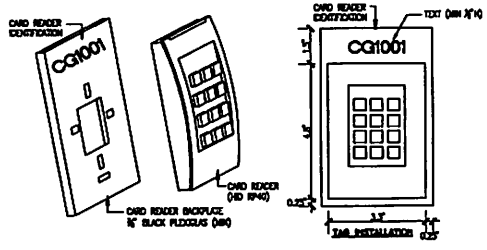
5 TYPICAL DOME WALL MOUNT
SCALE: N.T.S.



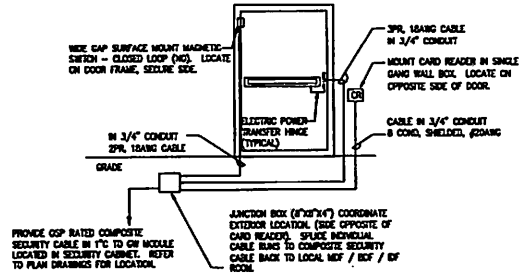
4 TYPICAL POLE MOUNTED CAMERA
SCALE: N.T.S.



3 ENCLOSURE MOUNT DETAIL AT LIGHT POLE
SCALE: N.T.S.



2 CARD READER MOUNTING/IDENTIFICATION
SCALE: NONE



1 SINGLE LEAF EXIT W/CR
SCALE: N.T.S.

HCC
HOUSTON COMMUNITY COLLEGE
3100 MAIN STREET
HOUSTON, TX 77002
(T) (713) 718-8000
(F) (713) 718-8231

ARCHITECT
PGAL
5151 BRIARPARK
SUITE 200
HOUSTON, TX 77042
(T) 713 622 1444
(F) 713 963 9333
PGAL TBPE REG. NO. F-2742

Pegasus Consulting

PROJECT TITLE
HCC NORTHEAST COLLEGE
NORTHFOREST CAMPUS
PERIMETER FENCE

PROJECT NUMBER
1302547
PROJECT LOCATION
6918 LITTLE YORK ROAD
HOUSTON, TEXAS 77016

JANUARY 29, 2020
ISSUED FOR CONSTRUCTION
REVISIONS

REGISTRATION
COPYRIGHT © 2019

SHEET TITLE
NORTH FOREST PERIMETER SECURITY DETAILS
SHEET NUMBER
SC3.02