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Item – 50
December 16, 2008
Economic Development

The Court hereby ordered and approved a motion approving the economic development grant agreement pursuant to Chapter 381 of the Texas Local Government Code, with the Brooks Development Authority in the amount of $3,300,000 in support of infrastructure improvements. (Record)

A motion was presented by County Commissioner Tommy Adkisson, duly seconded by County Commissioner Paul Elizondo, which motion was voted on as follows: Commissioners Elizondo, Larson, Adkisson, and Judge Wolff voting "Aye".

Commissioner Lyle Larson left the meeting at this time.

Item Number: 50
(for Comm Ct use only)

AGENDA COORDINATION FORM
Bexar County Commissioners Court

Type of Agenda Item (Choose one): Ceremonial ☐ Special Presentation ☐ Time Certain ☐ Consent ☒ Individual ☐

Sponsoring Office/Department: Economic Development Recipient Agency / Individual Name: San Antonio Sports Foundation

Contact Person: Melissa Shannon Phone Number: 335-2271 Court Date Requested: December 16, 2008

Presenter: David Marquez Phone Number: 335-0661 Deadline for Action: December 16, 2008

Audio / Visual Presentation: Y ☐ N ☒ PowerPoint? Y ☐ N ☒ ADA Assistance Required (type): No

Official/Department Head Signature: Melissa Shannon

Small, Minority, Women-owned Business Enterprise (SMWBE): Impact: Y ☐ N ☒

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CAPTION:

Approval of an economic development grant agreement pursuant to Chapter 381 of the Texas Local Government Code, with the Brooks Development Authority in the amount of $3,300,000 in support of infrastructure improvements.

ESTIMATED PRESENTATION TIME: N/A

BACKGROUND:

At its December 9, 2008, meeting the Commissioners Court directed staff to negotiate an economic development grant agreement with the Brooks Development Authority (BDA) in the amount of $3,300,000 in support of infrastructure improvements. This item requests the Court's approval of the grant agreement with the BDA.

The Brooks Development Authority's mission is to position Brooks City-Base as a premier location for science, research, technology and business through creative economic development. Brooks City-Base is an innovative model of collaborative economic development, and the world-class science, research, technology and business center has the distinction of being a sustainable master-planned development achieved through preservation of its rich history while building for the future.

Additionally, the BDA serves to promote the County in order to facilitate business growth and development in the area. The BDA has advised the County of Bexar that a contributing factor to facilitating business growth and development at Brooks City-Base is participation by the County in providing an economic development grant to defray a portion of the cost of vital infrastructure.

RECOMMENDED MOTION:

Approval of an economic development grant agreement pursuant to Chapter 381 of the Texas Local Government Code, with the Brooks Development Authority in the amount of $3,300,000 in support of infrastructure improvements.

Item Number: _____
(for Comm Ct use only)

FISCAL ASSESSMENT: APPLICABLE Yes ☒ No ☐ Fiscal Note ☐

1	Is this a revenue or expense?	Revenue ☒	Expense ☐
2	Dollar amount of revenue or expense associated with item?	$220,000	
3	Is this a budgeted revenue or expense?	Yes ☐	No ☐
4	Does this item require additional staff?	Yes ☐	No ☐
5	Will this increase your current budget?	Yes ☐	No ☐
6	Impact on future Budget? If Yes, Explain in Comments.	Yes ☐	No ☐
7	Current End-of-Year Expenditure Estimate-for impacted Object Code(s)?	N/A	
8	If an expense, what is the current Object Code budget amount?	N/A	
9	If an expense, are sufficient funds currently budgeted in the Object Code?	Yes ☐	No ☐
10	If an expense, are sufficient funds currently budgeted in the Appropriation	Yes ☐	No ☐
11	List impacted offices or departments or note if countywide:	Countywide	
12	Fund number:	001	
13	Org number and Agency Code:	999	
14	Object Code number:	0110	
15	If this is a grant, what is the estimated amount of program income?	N/A	
16	If this is a grant, what is the amount of Grantor funding?	N/A	
17	If this is a grant, what is the required County cash match?	N/A	
18	If this is a grant, what is the required County in-kind/allocation match?	N/A	
19	If this is a grant, was item approved by the Grant Review Committee?	Yes ☐	No ☐
20	Comments: The County will forgo $220,000 annually for the next 15 years for a total amount of $3.3M.		
21	Coordinated by: Melissa Shannon	Verified By: Aimee Sample 12/4/08	

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ORIGINAL

STATE OF TEXAS	§	**GRANT**
	§	
COUNTY OF BEXAR	§	**AGREEMENT**

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Pursuant to Chapter 381 of the Texas Local Government Code (the "Code"), this grant agreement ("Agreement") is made and entered into as of the date of the last signature set forth on the signature page below ("Effective Date"), by and between COUNTY OF BEXAR, a political subdivision of the State of Texas ("County"), and BROOKS DEVELOPMENT AUTHORITY ("BDA"), a governmental entity created by the City of San Antonio under authority granted by Chapter 379B of the Code. County and BDA are sometimes referred to herein collectively as the "Parties" (each, a "Party").

RECITALS

WHEREAS, the Texas Legislature has determined through Section 381.004(b)(1) and 381.004(b)(3) of the Code that a public purpose is served by a county stimulating business and commercial activity by developing and administering a program for: state and local economic development and for stimulating, encouraging and developing business location and commercial activity in the County; and

WHEREAS, BDA's mission is to position Brooks City-Base ("Brooks") as a premier location for science, research, technology and business through creative economic development; and

WHEREAS, BDA is an innovative model of collaborative economic development, and the world-class science, research, technology and business center has the distinction of being a sustainable master-planned development achieved through preservation of its rich history while building for the future; and

WHEREAS, BDA serves to promote the County in order to facilitate business growth and development in the County; and

WHEREAS, BDA advised the County that a contributing factor to facilitating business growth and development at Brooks is participation by County in providing an economic development grant to BDA to defray a portion of the cost of vital infrastructure; and

WHEREAS, the BDA has requested a grant from the County for expenses associated with economic development activities for development at Brooks; and

WHEREAS, pursuant to Section 381.004(c)(1) of the Code, the County may contract with a municipality, non-profit organization, or any other entity to administer a program for local economic development; and

WHEREAS, the County has determined that making an economic development grant to BDA in accordance with this Agreement will further the objectives of the County and benefit the County and its residents and serve the broader purpose of stimulating and encouraging business

and commercial activity in the County, retaining and expanding job opportunities and building the property tax base; and

WHEREAS, County, through approval and execution of this Agreement, hereby establishes a community and economic development program, pursuant to Section 381.004(b) and (h) of the Code, through a grant of public money to BDA;

NOW, THEREFORE, upon and in consideration for the mutual promises and covenants contained herein and for other valuable consideration, the receipt, adequacy and sufficiency of which are hereby acknowledged, the Parties agree as follows:

ARTICLE I
DEFINITIONS AND INTERPRETATIONS

1.01 Each term or phrase used in this Agreement in which the first letter of each word is capitalized has the meaning set forth in the attached Exhibit "A", unless the context in which such term or phrase is used in this Agreement clearly indicates otherwise.

ARTICLE II
PURPOSE

2.01 The purpose of this Agreement is to grant economic benefits to BDA as necessary for Improvements needed for the future development of adjacent real property sites on the Brooks campus as more specifically detailed in the attached Construction Documents. This action will be a significant contribution toward a broader purpose of stimulating and encouraging business and commercial activity, increasing job opportunities, and building the property tax base. The Project and initial budget are more specifically detailed in a document provided by BDA titled "Inner Circle – Phase I" attached hereto and incorporated herein as Exhibit "D."

ARTICLE III
TERM

3.01 This Agreement shall terminate fifteen (15) years from the date of the first annual Grant, as described in Section 8.01 of this Agreement, or when the total value of all Grants provided hereunder equal an amount not to exceed **THREE MILLION THREE HUNDRED THOUSAND DOLLARS ($3,300,000.00)**, whichever shall first occur ("Term"). This Agreement may not be extended except as specifically set forth herein.

ARTICLE IV
GENERAL PROVISIONS

4.01 The recitals to this Agreement are incorporated herein and are binding on the Parties.

4.02 The County shall not be liable for any expense of BDA, and in no event shall employees of BDA ever be deemed to be employees of County.

4.03 BDA and the County agree that BDA is an independent government entity, that BDA shall be responsible to all Parties for its respective acts and omissions, and that County shall in no way be responsible therefore, and that neither has authority to bind the other, or hold out to third Parties that it has the authority to bind the other.

4.04 It is understood and agreed among the parties that BDA and the County, in satisfying the conditions of this Agreement, have acted independently, and assume no responsibilities or liabilities to third parties in connection with these actions.

4.05 BDA shall not use the Grant Funds from this Agreement for purposes other than those listed in this Agreement without prior written consent of the County's Economic Development Department.

ARTICLE V
REPRESENTATIONS AND WARRANTIES OF BDA

5.01 BDA is a political subdivision of the State of Texas, duly created and validly existing under the laws of the State of Texas and has all requisite power and authority per 379B.004 of the Code to enter into this Agreement and perform all of its obligations hereunder. The execution and performance by BDA of this Agreement has been duly authorized by its Board of Directors and does not require the consent or approval of any other person which has not been obtained, including, without limitation, any Governmental Authority.

5.02 The execution and delivery of this Agreement and the performance of its obligations hereunder by BDA does not and will not conflict with any provision of any law, regulation or Governmental Rule to which BDA is subject to or conflict with, or result in a breach of, or constitute a default under any of the terms, conditions or provisions of any agreement or instrument to which BDA is a party or by which it is bound or any applicable order, resolution or decree.

5.03 The signer of this Agreement for BDA represents, warrants, assures and guarantees that he or she has full legal authority to execute this Agreement on behalf of BDA and to bind BDA to all terms, performances and provisions herein contained. In the event that a dispute arises as to the legal authority of either BDA, or the person signing on behalf of BDA, to enter into this Agreement, County shall have the right, at its option, to either temporarily suspend or permanently terminate this Agreement. Should County suspend or permanently terminate this Agreement pursuant to this paragraph, BDA shall be liable to County for any money it has received from County for performance of any of the provisions hereof.

5.04 BDA represents that no person or selling agency has been employed or retained to solicit or secure this Agreement upon any other agreement or understanding for a commission, percentage, brokerage, or contingent fee, and further that no such understanding or agreement exists or has existed, with any employee of BDA or County.

5.05 BDA represents that all documents made available to the County or to be provided by BDA to County are, or will be, true, correct and complete copies of the instruments which they

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purport to be and will accurately depict the subject matter addressed therein and shall remain so. Should BDA become aware of information which in any way contradicts this provision, BDA shall, within five (5) business days there from, notify County's Economic Development Department of such change.

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5.06 BDA represents that it shall provide non-monetary aid and assistance to the County as it may request in order to facilitate the goals of this Agreement, such assistance to include providing requested documentation within a reasonable amount of time or within the time periods specified herein.

5.07 BDA shall timely submit all information or documentation required or requested by the County pursuant to the terms contained herein.

5.08 No representations or warranties made by BDA in connection with this Agreement are in any way inaccurate, incomplete or misleading.

ARTICLE VI
REPRESENTATIONS AND WARRANTIES OF COUNTY

6.01 County is a political subdivision of the State of Texas, principally situated in Bexar County.

6.02 County has all requisite corporate power and authority to enter into this Agreement and perform all of its obligations hereunder. The execution and performance by County of this Agreement has been duly authorized by Commissioners Court and does not require the consent or approval of any other person which has not been obtained, including, without limitation, any Governmental Authority.

ARTICLE VII
THE PROJECT

7.01 BDA shall cause the Project to be constructed in accordance with the Construction Documents attached and incorporated herein for all purposes as Exhibit "C." BDA further agrees to notify the County of any change to the Construction Documents, such notice to be provided within five (5) working days from such change.

7.02 BDA shall, subject to events of Force Majeure, cause the Construction Commencement date to occur on or before February 1, 2009 and the Scheduled Completion Date to occur on or before November 1, 2009 ("Construction Deadline"), or such later date as may be determined by BDA, provided, however, that any date beyond January 1, 2010 shall require the approval of the County, such approval not to be unreasonably withheld or delayed, for continued participation by the County under this Agreement.

7.03 BDA shall contract for all work or services related to the Project only by written agreement and each such agreement related to the Project shall be subject by its terms to each and every provision of this Agreement.

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7.04 BDA shall require its Contractor to comply with all applicable federal, state and municipal laws, regulations, codes, ordinances and orders regarding the design and/or related to construction of the Project, including, without limitation, any requirement related to payment and performance bonds pursuant to Chapter 2253 of the Texas Government Code, maintenance bonds, and Sections 252 and 271 of the Texas Local Government Code.

7.05 BDA shall cause its Contractor to secure all permits, including legally required permits and/or permits considered necessary or proper for projects of similar nature, size, and scope to the Project, from all Governmental Authorities.

7.06 BDA shall provide County with a Final Project Report and an Inspection Report upon completion of the Project, such completion to be evidenced by a Certificate of Completion.

ARTICLE VIII
ECONOMIC DEVELOPMENT GRANTS

8.01 Subject to the conditions contained in Article IX, Section 9.01 and BDA's continued fulfillment of all the terms, conditions, representations and warranties contained in this Agreement, County will provide BDA with up to fifteen (15) annual economic development grants ("Grants") beginning with the tax year after the Final Project Report has been received by the County. Such Grants collectively shall not exceed **THREE MILLION THREE HUNDRED THOUSAND DOLLARS ($3,300,000.00)**.

8.02 Each of the yearly Grants provided hereunder shall be equal to the lesser of **TWO HUNDRED TWENTY THOUSAND DOLLARS ($220,000.00)** or the actual amount of Ad Valorem Taxes received by the County on the Investment Area above the Taxable Value of the Investment Area for the Base Year Value ("Maximum Annual Grant"). The Grants will be paid on June 30th, or as soon as reasonably practical thereafter, of the calendar year immediately following the calendar year for which the Grant applies, provided the County has actually received the Ad Valorem Taxes assessed against the Investment Area for such calendar year and those Ad Valorem Taxes exceed the Base Year Value.

8.03 In the event the Payee files a protest or contest of the taxation and/or the Taxable Value of property included in the Investment Area, the obligation of the County to provide Grant(s) shall be abated until a final determination has been made of such protest or contest and the Term shall automatically be extended during the abatement, if necessary. In the event the Payee files any protest or motion with the Bexar Appraisal District or otherwise contests the taxation of and/or the amount of any Taxable Value of the Investment Area that results in a final determination that changes the Taxable Value or tax liability after a Grant has been paid for such Tax Year, the Grant for such Tax Year shall be adjusted (either increased or decreased as necessary) accordingly on the following Grant payment date. If there are no further Grants to be paid, then the Party owed an adjustment shall be paid directly by the other Party.

8.04 The Grants provided pursuant to this Agreement will be paid solely from lawfully available funds that have been appropriated by the County. Under no circumstances will the County's obligations hereunder be deemed to create any debt within the meaning of any

constitutional or statutory provision. Consequently, notwithstanding any other provision of this Agreement, the County has no obligation or liability to pay any Grants unless the County appropriates funds to make such payment during the tax year in which such Grant is payable. Further, the County shall not be obligated to pay any commercial bank, lender or similar institution for any loan or credit agreement made by BDA. None of the County's obligations under this Agreement shall be pledged or otherwise encumbered in favor of any commercial lender and/or similar financial institution. Notwithstanding the foregoing, any restrictions in this Agreement on the transfer or assignment of BDA's interest in this Agreement shall not apply to and shall not prevent the assignment of this Agreement to a lending institution or other provider of capital in order to obtain financing for the Project. In no event, however, shall the County be obligated in any way to said financial institution or other provider of capital.

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ARTICLE IX
CONDITIONS TO ANNUAL GRANTS

9.01 After the Effective Date, the County's obligation to pay Grants pursuant to this Agreement are subject to satisfaction of the following conditions:

(a) that BDA has delivered copies of the Construction Documents to County;

(b) that the Project is complete and BDA has delivered a Certificate of Completion, Final Project Report, and Inspection Report to the County;

(c) that Payee has paid Ad Valorem Taxes on the Taxable Value of the Investment Area above the Base Year Value prior to payment of each annual Grant; and

(d) that BDA has no uncured breach of any term, condition, representation, or warranty contained in this Agreement.

ARTICLE X
TERMINATION

10.01 This Agreement terminates upon the occurrence of any one or more of the following:

(a) fifteen (15) years from the date of the first annual Grant;

(b) the total of all Grants equal $3,300,000.00;

(c) the Investment Area becomes non-taxable;

(d) BDA submits falsified information or documentation or fails to timely submit any information or documentation as required or requested by the County pursuant to the terms of this Agreement;

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(e) at the option of a Party in the event the other Party breaches any term, condition, representation or warranty contained herein during the Term of the Agreement and such breach is not cured during the Cure Period; or

(f) any subsequent Federal or State legislation or any decision by a court of competent jurisdiction declares or renders this Agreement invalid, illegal or unenforceable.

10.02 The County shall send written notice prior to terminating this Agreement for any reason except termination pursuant to either Section 9.01(a) or Section 9.01(b) hereinabove. From the date such notice is sent, BDA shall have sixty (60) days to cure any breach ("Cure Period"). If the breach, as set out in the notice, is not cured during the Cure Period, this Agreement shall terminate without necessity of any further action by County. The County may, in its sole discretion, extend the Cure Period if BDA begins to cure said breach within the Cure Period and BDA is diligently pursuing such cure.

10.03 Notwithstanding the above, BDA shall not be relieved of liability to County for damages sustained by County by virtue of any breach of this Agreement by BDA and County may withhold Grant Funds otherwise due as damages.

10.04 If County exercises the option of terminating this Agreement any and all unused funds either allocated and in possession of BDA or unallocated and in the possession of County shall be the sole property of County and County shall have the right to: (1) reclaim any and all Grant Funds unused but distributed to BDA under the terms of this Agreement; or (2) retain any and all Funds allocated but not distributed to BDA.

ARTICLE XI
RECAPTURE OF GRANT FUNDS

11.01 The County shall have the right to recapture all Grant Funds paid to BDA pursuant to this Agreement (upon delivery of notice and expiration of any applicable Cure Period as set forth in Article X) if: 1) BDA fails to construct the Project in accordance with the Construction Documents within the time periods set forth therein, except if such failure is the result of an event of Force Majeure occurring through no fault of BDA; or 2) breaches a term, condition or representation contained within this Agreement (either an "Event of Recapture").

11.02 Upon the occurrence of an Event of Recapture, BDA shall repay the Grant Funds received for the calendar year that such Event of Recapture occurs and all other Grants provided to BDA for previous calendar years within ninety (90) calendar days from the date any applicable Cure Period has expired, plus interest at the prime lending rate from the date of termination until all Grant Funds are fully repaid.

11.03 The County shall have the right to take any action to which it may be entitled, at law or in equity, against BDA, in addition to termination and/or recapture as described herein, in order to recover any recapture of Grant Funds that the County is entitled to receive pursuant to this Agreement.

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11.04 Should this Agreement be terminated by either Party for any reason and the Project not be fully completed as set forth in this Agreement, as determined solely by County after consultation with BDA, BDA understands and agrees that it shall repay any and all sums of money paid by County to BDA pursuant to this Agreement in accordance with this Article XI.

ARTICLE XII
INSURANCE

12.01 BDA shall require its Contractor(s) to secure and maintain a commercial liability insurance policy in such amounts considered necessary or proper for projects of similar nature, size, and scope to the Project prior to performing any work or services on or related to the Project and the same shall name Bexar County as an additional insured.

ARTICLE XIII
MONITORING & AUDITING

13.01 The County's Economic Development Department is assigned monitoring responsibility for this Agreement. BDA will provide County's staff, including internal auditors and other persons as designated by County, such as independent public accountants, access during regular business hours, as deemed necessary by County for the purposes of auditing, monitoring, evaluating, coordinating, investigating and making excerpts and/or copies of any and all of BDA's books, records and files related to the Project (including such items as contracts, paper, correspondence, copy, books, accounts, billings and other information related to the performance of BDA and/or its Contractor hereunder) no matter where such books, records and files are located. BDA understands that the County may require any and all books, records and files of BDA necessary to ensure BDA's compliance with this Agreement.

13.02 All records of BDA related to the Project shall continue to be available for inspection and audit for a period of three (3) years after the termination date hereof. However, if during the course of this three-year period an audit or investigation of BDA begins, then BDA is required to maintain said records until such time as the audit or investigation is completely finished.

13.03 BDA agrees that during the Term of this Agreement, any duly authorized representative of County's Economic Development Department shall have the right to conduct on-site inspections at reasonable times and to interview personnel and/or Contractor for the purposes of evaluating and monitoring compliance with this Agreement.

13.04 Should any Force Majeure or other situation, occurrence or event having a material impact on the Project be anticipated, or any Force Majeure or other situation, occurrence or event having a material impact on the Project occur, the BDA will immediately prepare a written Significant Event Report detailing all available information and the steps being taken to correct the problem and forward the same to the County's Economic Development Department within five (5) Business Days after BDA's discovery of such delay situation, occurrence or event. The County may at any time request a Significant Event Report on any event that in its reasonable opinion falls under this category.

ARTICLE XIV
FISCAL MANAGEMENT

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14.01 BDA shall establish and use internal accounting and administrative controls to preclude theft, embezzlement, improper inducement, obstruction of investigation or other criminal action and to prevent frauds and program abuse. The County may review BDA's system of internal administrative and accounting controls, as it deems necessary to ensure financial responsibility.

14.02 An accounting system using generally accepted accounting principles for governmental entities which accurately reflects all costs chargeable (paid and unpaid) to this Agreement is mandatory.

14.03 BDA agrees to keep a separate general ledger account for the Grant Funds provided under this Agreement and shall properly document all expenditures of Grant Funds.

14.04 Upon completion or termination of this Agreement, any unused Grant Funds, rebates or credits must immediately be returned by BDA to County.

14.05 BDA shall not be relieved of liability to County for damages sustained by County by virtue of any breach of this Agreement and County may withhold funds otherwise due as damages.

14.06 Should any expense or charge that has been paid with Funds from this Agreement be subsequently disapproved or disallowed as a result of any site review or audit, BDA will immediately refund such amounts to County within thirty (30) days. BDA further authorizes County, if County so elects, to deduct such amount or charge as a claim against future payments. The County's Economic Development Department has the express authority to deduct such claims from subsequent Grants.

14.07 Audit Conditions and Requirements:

(a) County, a political entity, unlike a business for profit, is more interested in knowing if agencies have accomplished or achieved the objectives as stipulated in their contracts and/or agreements, as opposed to certifications that the balance sheet fairly represents the financial position at a given date. Therefore, it is essential that County is made aware of progress made upon this Agreement. In addition to the Annual Progress Report, should County so request in writing, BDA shall submit an up-to-date written report reflecting the information contained in the Annual Progress Report within thirty (30) days thereafter.

(b) All County-funded agreements, including this Agreement, are subject to periodic audits at any reasonable hour of the day by County auditors. This includes the auditing of both BDA and any Contractor related to this Agreement.

(c) BDA shall furnish the County's Economic Development Department and other County departments designated by the Bexar County Economic Development Department audited financial statements for a twelve month period as of

December 31, 2008. The financial statements are to be prepared by an independent CPA and the financial statements are to be received by the County within one hundred and twenty (120) days following the end of each fiscal year of December 31. In addition to the audited financial statements, a copy of any internal controls review, audit exceptions, and management letter should be submitted. The audited financial statements must include a schedule of receipts and disbursements by budgeting cost category and a certification from BDA stating whether or not the terms and conditions of the Agreement were met.

(d) If the County determines, in its sole discretion, that BDA is in violation of the above requirements, the County shall have the right to select auditors of its choosing to conduct the required audit and to have BDA pay for such audit.

14.08 BDA understands and agrees to abide by and adhere to applicable federal, state and County provisions regarding financial accounting.

ARTICLE XV
NON-WAIVER OF REMEDIES

15.01 No remedy herein conferred upon or reserved to the County is intended to be exclusive of any other available remedy or remedies, but each and every such remedy shall be cumulative and shall be in addition to every other remedy given under this Agreement or now or hereafter existing at law or in equity or by statute.

ARTICLE XVI
WAIVER OF CLAIMS

16.01 To the extent allowed by law, BDA hereby releases any and all claims of every kind or character which BDA has or may have under or pursuant to this Agreement against County its appointed or elected officials, members, agents, employees, officers, directors and representatives, individually and collectively.

ARTICLE XVII
INDEMNIFICATION

17.01 To the extent allowed by law, BDA covenants and agrees to FULLY INDEMNIFY, DEFEND and HOLD HARMLESS the County and its elected officials, employees, officers, directors, and representatives of the County, individually or collectively, from and against any and all costs, claims, liens, damages, losses, expenses, fees, fines, penalties, proceedings, actions, demands, causes of action, liability and suits of any kind and nature, including but not limited to, personal injury or death and property damage, made upon the County, directly or indirectly arising out of, resulting from or related to BDA's activities under this Agreement, including any negligent acts or omissions of BDA, any agent, officer, director, representative or employee of BDA while in the exercise or performance of the rights or duties under this Agreement, all without, however, waiving any governmental immunity or defenses available to the Parties under Texas law. The provisions of this indemnity are

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solely for the benefit of the Parties hereto and not intended to create or grant any rights, contractual or otherwise, to any other person or entity. BDA shall promptly advise the County in writing of any claim or demand against the County or BDA known to BDA related to or arising out of BDA's activities under this Agreement and shall see to the investigation and defense of such claim or demand at BDA's cost. The County shall have the right, at its option and at BDA's expense, to participate in such defense without relieving BDA of any of its obligations under this Article VII. The provisions of this indemnity shall survive the termination of this Agreement.

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17.02 To the extent allowed by law, BDA shall also FULLY INDEMNIFY, DEFEND and HOLD HARMLESS the County and its elected officials, employees, officers, directors, and representatives of the County, individually or collectively, from and against any and all claims, damages, and liability of every kind, including all expenses of litigation, attorney's fees, and penalties arising from POLLUTION OF THE PROPERTY by BDA or BDA'S PREDECESSORS IN TITLE, or the failure of BDA OR BDA'S PREDECESSORS IN TITLE, to comply with local, state or federal ENVIRONMENTAL LAWS OR REGULATIONS and such indemnity shall survive the termination of this Agreement.

17.03 BDA shall also require its Contractors working on the Project to indemnify the County, and its respective officials and employees from and against any and all claims, losses, damages, causes of actions, suits and liabilities arising out of their actions related to the performance of this Agreement, utilizing the same indemnification language contained in Section 17.01 hereinabove, in its entirety. BDA shall provide proof of such further indemnity upon request of the County.

ARTICLE XVIII
EMPLOYMENT PRACTICES

18.01 As a condition of receipt of the Grant Funds, BDA agrees that it will not discriminate against any individual or group on account of race, color, sex, age, religion, national origin, disability, or sexual orientation and will not engage in employment practices which have the effect of discriminating against employees or prospective employees because of race, color, sex, age, religion, national origin, disability, or sexual orientation. Furthermore, BDA agrees to require its Contractor(s) hired to work on the Project to comply with this provision.

18.02 BDA agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this non-discrimination clause. BDA shall state in all solicitations or advertisements for employees and contracts by or on behalf of BDA that BDA is an equal opportunity employer. With respect to nondiscrimination and equal opportunity, all notices, advertisements and solicitation placed by BDA will be in accordance with federal law, rules, or regulations.

18.03 In the event of BDA's failure or refusal to comply with this Article, then this Agreement may, at the County's sole discretion, be canceled, terminated or suspended in whole or in part.

18.04 BDA shall ensure that wages paid for work on the Project or related to the project are not less than the minimum wages required by federal and state statutes to persons employed conducting the work, including but not limited to, Chapter 2258 of the Texas Government Code and such wages shall meet or exceed the Fair Minimum Wage Rate.

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ARTICLE XIX
MINORITY AND SMALL BUSINESS

19.01 After execution of this Agreement, BDA will endeavor to include the utilization of minority and small business suppliers, contractors and/or subcontractors as an additional condition of receipt of the Grant Funds under this Agreement. The County agrees to accept BDA's Small, Minority, Women Owned, and Local Business Enterprises Policy as meeting the County's condition to being awarded Grant Funds attached hereto and incorporated herein as Exhibit "G".

ARTICLE XX
LEGAL/LITIGATION EXPENSES

20.01 Under no circumstances will the Grants Funds received under this Agreement be used, either directly or indirectly, to pay costs or attorney fees incurred in any adversarial proceeding against the County or any other Governmental Entity. BDA must obtain the written approval of the Bexar County District Attorney's Office before any Grant Funds received under this Agreement may be used in any adversarial proceeding against any other Governmental Entity or any other Public Entity. For purposes of this Article, "adversarial proceedings" shall include any cause of action filed by BDA in any state or federal court, as well as any state or federal administrative hearing and alternative dispute resolution proceedings.

20.02 During the Term of this Agreement, if BDA files and/or pursues an adversarial proceeding against the County or any other Governmental Entity in violation of this Article, then, at the County's option, this Agreement and all access to the funding provided for hereunder may terminate.

20.03 Excepting Section 30.01 hereinbelow, each Party shall bear its own costs, including, but not limited to, attorneys' fees, for any action at law or in equity brought to enforce or interpret any provision of this Agreement. Notwithstanding the foregoing, nothing contained in this Section 20.03 shall impact or otherwise affect the indemnity provision contained in Article XVII of this Agreement.

ARTICLE XXI
SEVERABILITY OF PROVISIONS

21.01 If any clause or provision of this Agreement is held invalid, illegal or unenforceable under present or future federal, state or local laws, including but not limited to the County Codes, or ordinances of the City of San Antonio, Texas, then, and in that event, it is the intention of the Parties hereto that such invalidity, illegality or unenforceability shall not effect any other clause or provision hereof and that the remainder of this Agreement shall be construed as if such

invalid, illegal or unenforceable clause or provision was never contained herein; it is also the intention of the Parties hereto that in lieu of each clause or provision of this Agreement that is invalid, illegal, or unenforceable, there be added as a part of this Agreement a clause or provision as similar in terms to such invalid, illegal or unenforceable clause or provision as may be possible, legal, valid and enforceable.

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ARTICLE XXII
NON-WAIVER OF PERFORMANCE

22.01 No waiver by County of a breach of any of the terms, conditions, covenants, guarantees, representations or warranties of this Agreement shall be construed or held to be a waiver of any succeeding or preceding breach of the same or any other terms, conditions, covenants, guarantees, representations or warranties herein contained. Further, any failure of County to insist in any one or more cases upon the strict performance of any of the same, or to exercise any option herein contained, shall in no event be construed as a waiver or relinquishment for the future of such term, condition, covenant, guarantee, representation, warranty or option.

ARTICLE XXIII
ENTIRE AGREEMENT

23.01 This Agreement constitutes the final and entire agreement between the Parties hereto and contains all of the terms and conditions agreed upon. No other agreements, oral or otherwise, regarding the subject matter of this Agreement shall be deemed to exist or to bind the Parties hereto.

ARTICLE XXIV
CHANGES AND AMENDMENTS

24.01 Any alterations, additions, or deletions to the terms hereof shall be by amendment in writing executed by both County and BDA and approved by the respective governing bodies.

24.02 It is understood and agreed by the Parties hereto that any changes in local, state and federal rules, regulations or laws applicable hereto that occur during the Term of this Agreement shall be automatically incorporated into this Agreement without written amendment hereto, and shall become a part hereof as of the effective date of this rule, regulation or law.

ARTICLE XXV
NOTICE

25.01 All notices provided to be given under this Agreement shall be in writing, and shall either be personally served against a written receipt therefore or given by certified mail or registered mail, return receipt requested, postage prepaid, and addressed to the proper party at the address which appears below, or at such other address as the Parties hereto may hereafter designate in accordance herewith. All notices given by mail shall be deemed to have been given at the time of deposit in the United States mail and shall be effective from such date.

If to County:	County Judge Bexar County Commissioners Court Bexar County Courthouse 100 Dolorosa, Suite 120A San Antonio, Texas 78205-3042 Attn: 381 Grant Agreement
With a copy to:	Bexar County Auditor 212 Stumberg, Suite100 San Antonio, Texas 78204
and	Executive Director Economic Development Department 100 Dolorosa, Suite 120A San Antonio, Texas 78205-3042
and	Chief, Civil Section Bexar County District Attorney's Office 300 Dolorosa, Fourth Floor San Antonio, Texas 78205-3036
If to BDA:	President & CEO Brooks Development Authority 1 BDA Crossing, Suite 100 San Antonio, Texas 78235
With a copy to:	Chief Finance Officer Brooks Development Authority 1 BDA Crossing, Suite 100 San Antonio, Texas 78235

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25.02 Notice of changes of address by either party must be made in writing and delivered (or mailed, registered or certified mail, postage prepaid) to the other party's last known address within five (5) business days of such change.

ARTICLE XXVI
ASSIGNMENT

26.01 This Agreement may not be assigned by BDA without the prior written consent of the County.

ARTICLE XXVII
PARTIES BOUND

27.01 This Agreement shall be binding on and inure to the benefit of the Parties hereto and their respective heirs, executors, administrators, legal representatives, successors and permitted assigns, except as otherwise expressly provided for herein.

ARTICLE XXVIII
RELATIONSHIP OF PARTIES

28.01 Nothing contained herein shall be deemed or construed by the Parties hereto, or by any third party as creating the relationship of principal and agent, partners, joint ventures or any other similar such relationship between the Parties. It is expressly understood and agreed that BDA is and shall be deemed to be an independent contractor and operator responsible to the County for its respective acts or omissions and that the County shall in no way be responsible therefore.

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ARTICLE XXIX
TEXAS LAW TO APPLY

29.01 This Agreement shall be governed by and construed in accordance with the laws of the State of Texas, without regard to conflicts of law principles that would require the application of the laws of any other state. The Parties agree that venue for any action (including any action brought under Federal Law in Federal Court) brought hereunder will be exclusively in Bexar County, Texas.

ARTICLE XXX
EMPLOYMENT OF UNDOCUMENTED WORKERS

30.01 To the extent applicable, BDA, by execution of this Agreement, certifies, warrants, and represents that during the Term of this Agreement, it is, and will remain, in full compliance with chapter 2264 of the Texas Government Code. Further, BDA shall require, in all agreements for work or services related to the Project, all Contractors to comply with this provision. Any violation, as set forth in section 2264.051 of the Texas Government Code, by either BDA or a Contractor, shall constitute a breach of this Agreement and this Agreement shall terminate immediately thereafter. The County shall provide written notice to BDA of such breach and within thirty (30) days after notice is sent, BDA, notwithstanding any other term contained in this Agreement, shall repay all amounts received pursuant to this Agreement with interest to be calculated at the maximum legal rate as established under Texas law. The County, in its sole discretion, may extend the period for repayment set forth herein. In addition, BDA agrees to pay all costs and expenses, including attorney's fees, incurred by the County in enforcing this provision.

ARTICLE XXXI
MISCELLANEOUS

31.01 All descriptive headings and captions herein are inserted for convenience only and shall not be considered in interpreting or construing this Agreement.

31.02 The exhibits to this Agreement are incorporated herein by reference for all purposes wherever reference is made to the same.

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31.03 Each Party has thoroughly reviewed this Agreement (including each exhibit hereto) and has had the advice of counsel prior to execution hereof, and the Parties agree that neither shall be deemed to be the drafter hereof.

31.04 This Agreement may be executed in counterparts. Each of the counterparts shall be deemed an original instrument, but all of the counterparts shall constitute one and the same instrument.

THEREFORE, the Parties hereto have executed this Agreement and have agreed to the terms and conditions stated above as of the Effective Date.

EXECUTED IN TRIPLICATE ORIGINALS, EACH OF WHICH SHALL HAVE THE FULL FORCE AND EFFECT OF AN ORIGINAL, ON THIS THE 16, DAY OF DECEMBER, 2008.

COUNTY OF BEXAR:

NELSON W. WOLFF
County Judge

DATE: 12/16/08

BROOKS DEVELOPMENT AUTHORITY

DONALD E. JAKEWAY
President & CEO

DATE: 12-10-08

ATTEST:

GERARD RICKHOFF
County Clerk

APPROVED AS TO LEGAL FORM:

SUSAN D. REED
Bexar County Criminal District Attorney

By: _____
LARRY ROBERSON
Assistant Criminal District Attorney
Civil Section

APPROVED AS TO FINANCIAL CONTENT:

TOMMY J. TOMPKINS
Bexar County Auditor

AKS

DAVID SMITH
Budget Officer
Executive Director, Planning & Resource Management Department

APPROVED:

DAVID MARQUEZ
Executive Director, Economic Development Department

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EXHIBIT "A"

DEFINITIONS

VOL 7774 PG 1149

As used in this Agreement, each of the following terms and phrases has the meaning as set forth on this Exhibit "A", unless defined within the Agreement or the context in which such term or phrase is used in this Agreement clearly indicates otherwise.

"**Ad Valorem Taxes**" means only that portion of ad valorem property taxes charged, levied, or imposed by the County and assessed by the Bexar Appraisal District on real property and improvements in the Investment Area exceeding the Base Year Value and shall specifically exclude any other tax, including Bexar County Hospital District taxes and Flood Control District taxes (it being expressly understood that the amount of Ad Valorem Taxes collected in the Investment Area are being used only as a measurement of the yearly Grant provided pursuant to the terms of this Agreement).

"**Annual Progress Report**" means a written report submitted no later than December 31 of each year during the Term of this Agreement in a mutually acceptable format detailing the overall progress of the Project, including, but not limited to: details of the current status of work; work remaining; problem identification and resolution; total contract costs and expenditures to date; contract costs and expenditures of year of submission; and containing a certification that BDA is in full compliance with all terms, conditions, representations, and warranties contained in this Agreement.

"**Base Year Value**" means the Taxable Value of the Investment Area as determined by the Bexar County Appraisal District as of January 1, 2008.

"**Certificate of Commencement of Construction**" means the sworn certificate of BDA in the form attached as Exhibit "E".

"**Certificate of Completion**" means the sworn certificate of BDA's Contractor that Final Completion of the Project has occurred, in the form attached as Exhibit "F".

"**Construction Commencement**" means the date on which Construction Documents have been prepared and submitted and all approvals thereof required by applicable Governmental Authorities have been obtained and on-site construction activities on the Project have commenced as evidenced by a Certificate of Commencement of Construction.

"**Construction Documents**" means the architectural drawings, specifications, and other documents, as amended from time to time, setting forth the design of the Project and the requirements for its construction in sufficient detail for establishing the costs for construction, the permitting and construction of the Project and other improvements to be constructed as part of the Project.

"**Contractor**" means the contractors and/or subcontractors selected and engaged by BDA to construct the Project.

"**Commissioners Court**" means the Bexar County Commissioners Court.

"**Effective Date**" means the last date of execution by a Party to this Agreement.

"**Fair Minimum Wage Rate**" shall mean a wage exceeding the poverty level for a family of four, as determined annually by the U.S. Department of Health and Human Services.

"**Final Completion**" means, when used with respect to the work to be performed in construction of the Project, the final completion of all aspects of such work in accordance with all applicable law and in accordance with the requirements for same contained in the Construction Documents.

"**Final Project Report**" means a report provided by BDA to County within ninety (90) days after the Project Completion Date, as evidenced by a Certificate of Completion, which report shall set forth the total costs and expenditures associated with construction of the Project, total contract costs and expenditures; and containing a certification by BDA that the Project is completed in compliance with all terms, conditions, representations, and warranties contained in this Agreement.

"**Force Majeure**" shall mean any contingency or cause beyond the reasonable control of a Party, as applicable, including, without limitation, acts of God, war, riot, civil commotion, insurrection, uprising, adverse weather, fires, explosion, floods, or strikes.

"**Governmental Authority**" means any applicable federal, state, county or municipal governmental entity, authority or agency, court, tribunal, regulatory commission or other body, whether legislative, judicial or executive (or a combination thereof) with jurisdiction over the Project.

"**Governmental Rule**" means any applicable law, rule or regulation of a Governmental Authority.

"**Grant(s)**" shall have the meaning ascribed to it in Section 8.01 of this Agreement.

"**Grants Funds**" means any and all funds paid by County to BDA pursuant to this Agreement.

"**Improvements**" shall mean the infrastructure improvements, including, but not limited to, roadways and landscaping, to be developed and constructed by BDA in accordance with the Construction Documents.

"Investment Area" means the area which the County shall use as the measurement of the Ad Valorem Tax amount to be provided for each annual Grant, which area shall include the approximately 48.7 acres inside Brooks City Base as more thoroughly described in the field notes attached as Exhibit "B", incorporated herein for all purposes.

"**Inspection Report**" means a report from BDA or its Contractor to setting forth in detail all necessary inspection, testing, and safety programs for the design and construction of the Project.

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"**Payee**" shall mean the party responsible for paying the Ad Valorem Taxes on the Investment Area during the Term of this Agreement.

"**Project**" shall mean the construction of Improvements inside Brooks City Base, bordered at the west end of the Hospital and Medical Office Building site by South New Braunfels, the proposed BCB-Inner Circle Drive, Unit-1 will border the north and east sides of the Hospital and Medical Office Building site and Research Plaza will border the south end of the Hospital and Medical Office Building, all as more thoroughly described in the Construction Documents attached as Exhibit "C" and the document from BDA attached as Exhibit "D".

"**Project Completion Date**" means the date of Final Completion of the Project in accordance with the requirements of this Agreement.

"**Scheduled Completion Date**" means the date BDA has established as the target date for completion of the Project, or November 1, 2009.

"**Taxable Value**" shall mean the appraised value as certified by the Bexar Appraisal District as of January 1 of a given year.

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EXHIBIT "B"

INVESTMENT AREA

VOL 7776 PG 152

PAPE-DAWSON ENGINEERS

LAND DEVELOPMENT ENVIRONMENTAL TRANSPORTATION WATER RESOURCES SURVEYING

FIELD NOTES

FOR

A 28.72 acre, or 1,251,137 square feet more or less, tract of land being a remaining portion of a 1308.68 acre tract described in conveyance to Brooks Development Authority in Deed without Warranty recorded in Volume 9481, Pages 934-972 of the Official Public Records of Real Property of Bexar County, Texas, out of the Wm Small Survey No. 26, Abstract 670, County Block 5158 and the Justo Esqueda Survey No. 100, Abstract 213, County Block 5154 of Bexar County Texas, now all in New City Block (N.C.B.) 10879 of the City of San Antonio, Bexar County, Texas. Said 28.72 acre tract being more fully described as follows with bearings being based on the North American Datum of 1983 (CORS 1996), from the Texas Coordinate System established for the South Central Zone and the northwest right-of-way line of Research Plaza, a variable width right-of-way, minimum 90.5-foot dedicated in the Brooks City-Base, Unit-2 Subdivision recorded in Volume 9573, Pages 43-47 of the Deed and Plat Records of Bexar County, Texas:

BEGINNING: At a set ½" iron rod with a yellow cap marked "Pape-Dawson", on the northwest right-of-way line of said Research Plaza, from which the curve return for the southwest right-of-way line of City-Base Lndg., an 86-foot right-of-way dedicated in the Brooks City-Base, Unit-1 Subdivision recorded in Volume 9568, Pages 12-13 of the Deed and Plat Records of Bexar County, Texas and the northwest right-of-way line of said Research Plaza bears N 46°43'41"E, 536.09 feet;

THENCE: S 46°43'41"W, along and with the northwest right-of-way line of said Research Plaza, a distance of 1266.27 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson";

THENCE: Departing the northwest right-of-way line of said Research Plaza over and across a remaining portion of said 1308.68 acre tract the following calls and distances:

N 43°16'19"W, a distance of 653.00 feet to a set concrete nail;

N 46°43'41"E, a distance of 160.00 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson";

N 43°16'19"W, a distance of 444.08 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson";

N 63°43'41"E, a distance of 225.00 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson";

N 03°49'19"E, a distance of 242.00 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson";

SAN ANTONIO / AUSTIN
WWW.PAPE-DAWSON.COM
555 East Ramsey San Antonio, Texas 78216 P 210.375.9000 F 210.375.9010

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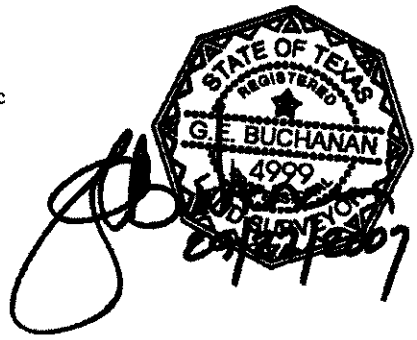
N 64°02'01"E, a distance of 100.01 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson", a point of curvature;

Southeasterly, along the arc of a curve to the right, said curve having a radius of 930.00 feet, a central angle of 72°41'40", a chord bearing and distance of S 79°37'09" E, 1102.38 feet, an arc distance of 1179.94 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson", a point of tangency;

S 43°16'19"E, a distance of 243.40 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson", a point of curvature;

Southwesterly, along the arc of a curve to the right, said curve having a radius of 35.00 feet, a central angle of 90°00'00", a chord bearing and distance of S 01°43'41" W, 49.50 feet, an arc distance of 54.98 feet to the POINT OF BEGINNING and containing 28.72 acres in the City of San Antonio, Bexar County, Texas. Said tract being described in accordance with a survey made on the ground and a survey map prepared by Pape-Dawson Engineers, Inc.

PREPARED BY:	Pape-Dawson Engineers, Inc.
DATE:	September 27, 2007
JOB No.	9291-07
DOC. ID.:	N:\survey07\7-9300\9291-07\word\9291-07fn.doc



PAPE-DAWSON ENGINEERS

VOL 7779 PG 1514

FIELD NOTES

FOR

A 19.95 acre, or 868,964 square feet more or less, tract of land being all of Lot 1, Block 7 of the Replat and Subdivision Plat Establishing Brooks City Base, Unit-14 recorded in Volume 9592, Page 33 of the Deed and Plat Records of Bexar County, Texas, said Lot 1 being a remaining portion of a 1308.68 acre tract described in conveyance to Brooks Development Authority in Deed without Warranty recorded in Volume 9481, Pages 934-972 of the Official Public Records of Real Property of Bexar County, Texas, out of the Wm Small Survey No. 26, Abstract 670, County Block 5158, now all in New City Block (N.C.B.) 10879 of the City of San Antonio, Bexar County, Texas. Said 19.95 acre tract being more fully described as follows with bearings being based on the North American Datum of 1983 (CORS 1996), from the Texas Coordinate System established for the South Central Zone and the northwest right-of-way line of Research Plaza, a variable width right-of-way, minimum 90.5-foot dedicated in the Brooks City-Base, Unit-2 Subdivision recorded in Volume 9573, Pages 43-47 of the Deed and Plat Records of Bexar County, Texas:

BEGINNING: At a set ½" iron rod with a yellow cap marked "Pape-Dawson", on the northwest right-of-way line of said Research Plaza, from which the curve return for the southwest right-of-way line of City-Base Lndg., an 86-foot right-of-way dedicated in the Brooks City-Base, Unit-1 Subdivision recorded in Volume 9568, Pages 12-13 of the Deed and Plat Records of Bexar County, Texas and the northwest right-of-way line of said Research Plaza bears N 46°43'41"E, 1802.36 feet, the south corner of Lot 2 of said Block 7, the east corner of said Lot 1;

THENCE: S 46°43'41"W, along and with the northwest right-of-way line of said Research Plaza, the southeast line of said Lot 1, a distance of 45.00 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson", the east corner of a variable width Right-of-Way dedicated to the City of San Antonio (0.0229 acre) established in the said Replat and Subdivision Plat Establishing Brooks City Base, Unit-14, a point of curvature;

THENCE: Departing the northwest right-of-way line of said Research Plaza, along and with the southeast line of said Lot 1, the following calls and distances:

Southwesterly, along the arc of a curve to the right, said curve having a radius of 300.00 feet, a central angle of 10°23'20", a chord bearing and distance of S 51°55'21" W, 54.32 feet, a distance of 54.40 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson", a point of tangency;

S 57°07'00"W, a distance of 27.25 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson", a point curvature;

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Southwesterly, along the arc of a curve to the left, said curve having a radius of 300.00 feet, a central angle of 10°23'20", a chord bearing and distance of S 51°55'21" W, 54.32 feet, a distance of 54.40 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson", a point of tangency on the northwest right-of-way line of the aforementioned Research Plaza;

THENCE: S 46°43'41"W, along and with the northwest right-of-way line of said Research Plaza, the southeast line of said Lot 1, a distance of 225.00 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson", a south corner of said Lot 1;

THENCE: Departing the northwest right-of-way line of said Research Plaza, along and with the southwest line of said Lot 1, the following calls and distances:

N 88°20'24"W, a distance of 106.19 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson", a south corner of said Lot 1;

N 43°24'28"W, a distance of 573.55 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson", a point of curvature;

Northwesterly, along the arc of a curve to the left, said curve having a radius of 860.00 feet, a central angle of 5°56'44", a chord bearing and distance of N 46°22'50" W, 89.20 feet, a distance of 89.24 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson", a point of tangency;

N 49°21'12"W, a distance of 580.99 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson", a west corner of said Lot 1;

N 01°13'28"W, along and with the northwest line of said Lot 1, a distance of 133.49 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson", at the southwest corner of Inner Circle Drive, a 70-foot right-of-way shown on the proposed BCB-Inner Circle Drive, Unit-2 (Plat No. 080196) a point of non-tangent curvature, a west corner of said Lot 1;

THENCE: Along and with the southeast right-of-way line of said Inner Circle Drive, the northwest line of said Lot 1, the following calls and distances:

Northeasterly, along the arc of a curve to the right, said curve having a radial bearing of S 41°43'04" E, a radius of 2080.00 feet, a central angle of 15°45'05", a chord bearing and distance of N 56°09'28" E, 570.02 feet, a distance of 571.82 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson", a point of tangency;

N 64°02'01"E, a distance of 469.90 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson", the west corner of the aforementioned Lot 2, the north corner of said Lot 1;

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THENCE: Departing the southeast right-of-way line of said Inner Circle Drive, along and with the southwest line of said Lot 2, the northeast line of said Lot 1, the following calls and distances:

S 03°49'19"W, a distance of 242.00 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson";

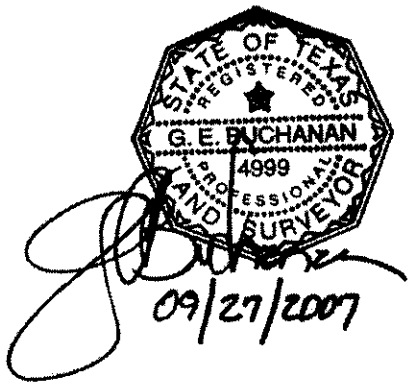
S 63°43'41"W, a distance of 225.00 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson", an exterior corner of said Lot 2, an interior corner of said Lot 1;

S 43°16'19"E, a distance of 444.08 feet to a set ½" iron rod with a yellow cap marked "Pape-Dawson";

S 46°43'41"W, a distance of 160.00 feet to a set concrete nail;;

THENCE: S 43°16'19"E, a distance of 653.00 feet to the POINT OF BEGINNING and containing 19.95 acres in the City of San Antonio, Bexar County, Texas. Said tract being described in accordance with a survey made on the ground and a survey map prepared by Pape-Dawson Engineers, Inc.

PREPARED BY: Pape-Dawson Engineers, Inc.
DATE: September 27, 2007
REVISED: June 20, 2008
JOB No. 9292-07
DOC. ID.: N:\survey07\7-9300\9292-07\word\9292-07FN-RECORDED-PLAT.doc



PAPE-DAWSON ENGINEERS

EXHIBIT "C"

CONSTRUCTION DOCUMENTS

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BROOKS CITY-BASE 3
A Technology and Business Center

BCB-INNER CIRCLE DRIVE, UNIT-1

TELECOMMUNICATIONS SHEET INDEX : ALEXANDER UTILITY ENGINEERING

Sheet No.	Description
T1.0	COMMUNICATIONS CONDUIT PLAN
T2.0	COMMUNICATIONS CONDUIT RELOCATION

ADD ALTERNATE #2
TRAFFIC SHEET INDEX (CBL/RESEARCH) : GONZALES-DE LA GARZA & ASSOCIATES, LLC

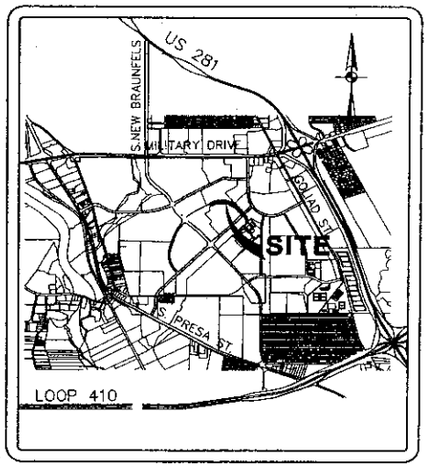
Sheet No.	Description
CGN01	GENERAL NOTES
CSUM01	SUMMARY SHEET
CTYS01	TYPICAL SECTIONS
CTCPDET01	TRAFFIC CONTROL DETAILS
CTCPDET02	TRAFFIC CONTROL DETAILS
CTCPDET03	TRAFFIC CONTROL DETAILS
CTCPDET04	TRAFFIC CONTROL DETAILS
CRP01	ROADWAY PLAN
CGP01	GRADING PLAN
CDET01	CIVIL DETAILS
CPM01	PAVEMENT MARKING PLAN
CPMDET01	PAVEMENT MARKING DETAILS
CPMDET02	PAVEMENT MARKING DETAILS
CSMDET01	SIGN MOUNTING DETAILS 01
CSMDET02	SIGN MOUNTING DETAILS 02
CTS01	TRAFFIC SIGNAL LAYOUT PLAN
CTS02	TRAFFIC SIGNAL ELEVATIONS
CTSDET01	TRAFFIC SIGNAL DETAILS 01
CTSDET02	TRAFFIC SIGNAL DETAILS 02
CTSDET03	TRAFFIC SIGNAL DETAILS 03
CTSDET04	TRAFFIC SIGNAL DETAILS 04
CTSDET05	TRAFFIC SIGNAL DETAILS 05
CTSDET06	TRAFFIC SIGNAL DETAILS 06
CTSDET07	TRAFFIC SIGNAL DETAILS 07
CTSDET08	TRAFFIC SIGNAL DETAILS 08
CTSDET09	TRAFFIC SIGNAL DETAILS 09
CTSDET10	TRAFFIC SIGNAL DETAILS 10

DEVELOPER/OWNER:

BROOKS DEVELOPMENT AUTHORITY
DONALD JAKEWAY, DIRECTOR
1 B.D.A. CROSSING SUITE 100
SAN ANTONIO, TEXAS 78235

PROJECT LOCATION:

EXTENSION OF INNER CIRCLE DRIVE
NORTH OF RESEARCH PLAZA
SAN ANTONIO, TEXAS



LOCATION MAP
NOT TO SCALE





NOVEMBER 2008

PAPE-DAWSON ENGINEERS

555 EAST RAMSEY | SAN ANTONIO TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.9010

CIVIL SHEET INDEX : PAPE-DAWSON ENGINEERS, INC.

Sheet No.	Description
C1.00	COVER SHEET
C1.01	EXISTING CONDITIONS - SANITARY SEWER
C1.02	EXISTING CONDITIONS - POTABLE WATER
C1.03	EXISTING CONDITIONS - RECYCLED WATER
C1.04	EXISTING CONDITIONS - GAS AND ELECTRIC
C1.05	EXISTING CONDITIONS - TELECOMMUNICATIONS
C1.06	CONDUIT PLANS
C1.07	DEMOLITION PLAN
C1.08	CPS CONDUIT PLAN (CITY BASE LNDG./RESEARCH PLAZA)
C1.09	STORM WATER POLLUTION PREVENTION PLAN
C1.10	STORM WATER POLLUTION PREVENTION PLAN DETAILS
C2.00	MASTER DRAINAGE PLAN
C2.01	DRAIN "A" (STA: 1+32.20 TO 6+60.00)
C2.02	DRAIN "A" (STA: 6+60.00 TO 12+20.00)
C2.03	DRAIN "A" (STA: 12+20.00 TO END)
C2.04	DRAIN "B" (STA: 1+00.00 TO END)
C2.05	DRAIN "C" (STA: 1+00.00 TO 5+80.00)
C2.06	DRAIN "C" (STA: 5+80.00 TO END)
C2.07	DRAIN "D" (STA: 1+00.00 TO END)
C2.08	DRAIN "E" (STA: 1+04.00 TO 6+20.00)
C2.09	DRAIN "E" (STA: 6+20.00 TO END)
C2.10	DRAIN DETAILS (SHEET 1 OF 2)
C2.11	DRAIN DETAILS (SHEET 2 OF 2)
C3.00	INNER CIRCLE DRIVE (STA: 1+00.00 TO 11+50.00)
C3.01	INNER CIRCLE DRIVE (STA: 11+50.00 TO 16+48.00)
C3.20	STREET DETAILS
C3.30	OVERALL SIGNAGE AND STRIPING PLAN
C3.40	SIGNAGE DETAILS
C3.50	SIGNAGE DETAILS
C3.60	SIGNAGE DETAILS
C3.70	SIGNAGE DETAILS
C4.00	POTABLE WATER DISTRIBUTION PLAN
C4.01	POTABLE WATER DISTRIBUTION NOTES AND DETAILS
C4.02	RECYCLED WATER DISTRIBUTION PLAN
C4.03	BOUNDARY RELOCATION OVERALL SHEET LAYOUT
C4.04	BOUNDARY RELOCATION PLAN SHEET
C4.05	BOUNDARY RELOCATION DETAIL SHEET
* C5.00	SANITARY SEWER LINE "C" (STA: 1+00.00 TO END)
* C5.01	SANITARY SEWER DETAILS AND NOTES

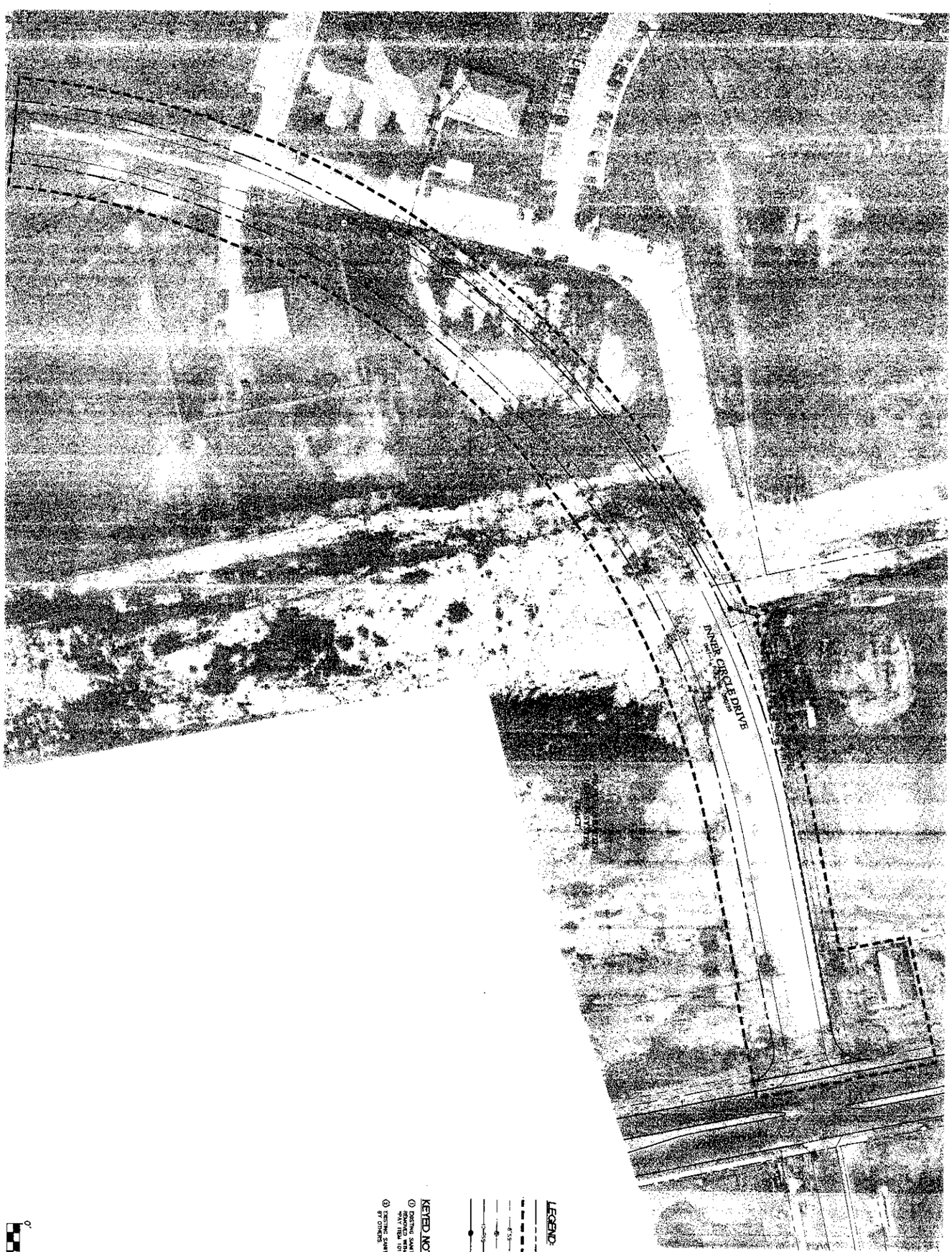
* SHEET C5.00 AND C5.01 ARE NOT PART OF THIS CONTRACT. THESE SHEETS ARE PROVIDED FOR REFERENCE ONLY.

SHEET C1.00
JOB NO. 5735-39
PLAT # 080195

Date: Nov 18, 2008, 8:40am User ID: sbailey
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0' 50' 100' 150'
SCALE: 1" = 50'

KEYED NOTES

① EXISTING SANITARY SEWER TO BE CUT, CAPPED AND ABANDONED IN PLACE. PROTECTION OF ROUTE OF WAY FROM INTERFERENCE DURING CONSTRUCTION BY OTHERS.

② EXISTING SANITARY SEWER TO BE REMOVED

LEGEND:

- PROPOSED R.O.W.
- PROJECT LIMITS
- EXISTING SANITARY SEWER LINE
- EXISTING MANHOLE
- PROPOSED SANITARY SEWER
- PROPOSED SS MANHOLE

LOCATION MAP
NOT TO SCALE



BCB-INNER CIRCLE DRIVE, UNIT 1

SAN ANTONIO, TEXAS

EXISTING CONDITIONS - SANITARY SEWER

PAPE-DAWSON ENGINEERS

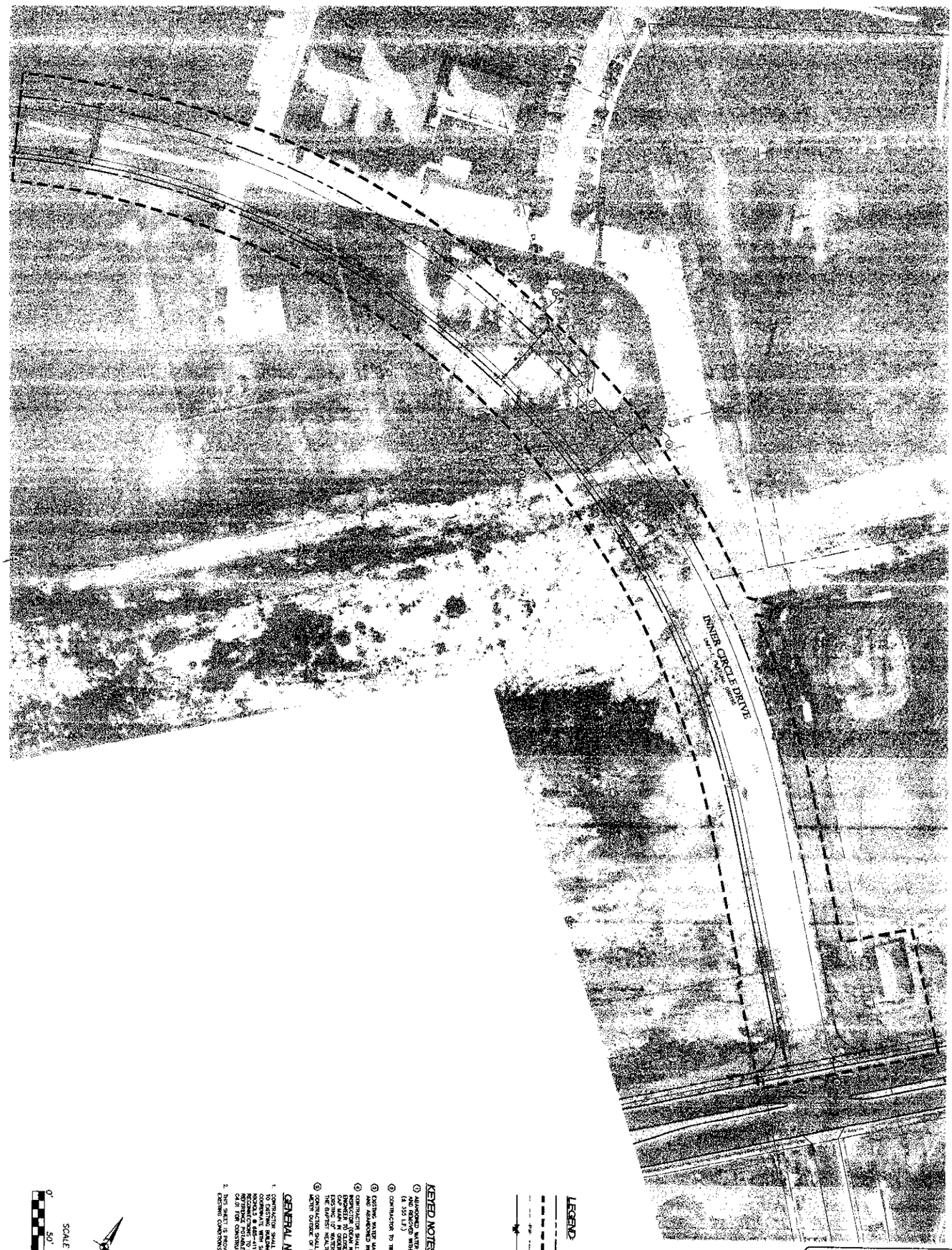
555 EAST RAMSEY | SAN ANTONIO, TEXAS 78216 | PHONE: 210.375.9000

STATE OF TEXAS
SHAUNA L. WEAVER
89512
LICENSED
PROFESSIONAL ENGINEER

REVISIONS:

JOB NO. 373538
DATE OCTOBER 2008
DESIGNED SM
CHECKED DRAWN BY
SHEET C1.01

Date: Oct 21, 2008, 3:35pm User ID: pmakee
File: P:\57\35\39\Design\Civil\Unit-1 Const Dwgs\EGPHS73539 U-1 (C1.02).dwg



KEYED NOTES

1. ABANDONED WATER MAIN TO BE CUT CAPPED AND ABANDONED IN PLACE (± 355 LF.)
2. CONTRACTOR TO TIE TO EXISTING WATER.
3. EXISTING WATER MAIN TO BE CUT CAPPED AND ABANDONED IN PLACE.
4. CONTRACTOR SHALL INSTALL NEW 8" WATER MAIN CONNECTION FROM MANHOLE # 885-4117 AND CONNECT TO CLOSE VALVE AND CUT AND EXISTING 12" WATER MAIN LOCATED WITHIN THE BUFFER STRIP OF THE HEALTH SYSTEM TRACT. (WITH OUTSIDE OF PROPOSED PAVEMENT).

GENERAL NOTES

1. CONTRACTOR SHALL MAINTAIN WATER SERVICE TO ALL EXISTING RESIDENTIAL AND COMMERCIAL DEVELOPMENT AT ALL TIMES. CONTRACTOR SHALL COORDINATE WITH SAWS INSPECTION (REAL NICHOLS @ 885-4117) FOR ALL CONSTRUCTION ACTIVITIES. SEE SAWS REFERENCE POTABLE WATER SHEETS (1,2,3,4) FOR ADDITIONAL INFORMATION.
2. THIS SHEET IS PROVIDED TO ILLUSTRATE EXISTING CONDITIONS FOR POTABLE WATER.

LEGEND

- PROPOSED R.O.W.
- PROJECT LIMITS
- EXISTING POTABLE WATER LINE
- PROPOSED POTABLE WATER

SCALE : 1"=50'

0' 50' 100' 150'

LOCATION MAP
SCALE: 1" = 1000'

JOB NO.	57-35-39
DATE	OCTOBER 2008
DESIGNER	CMD
DRAWN BY	CMD
CHECKED BY	
SHEET	C102

BCB-INNER CIRCLE DRIVE, UNIT 1

SAN ANTONIO, TEXAS

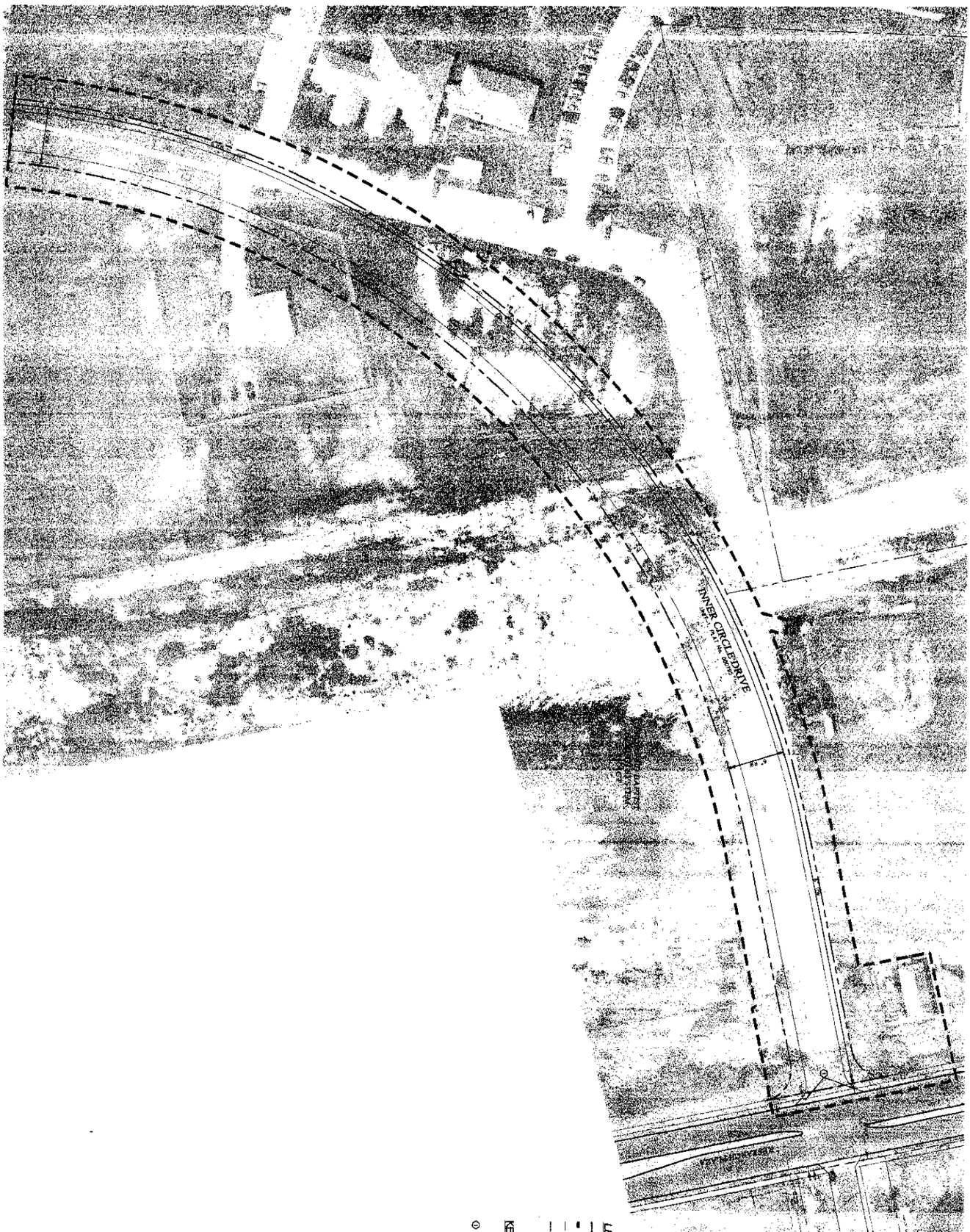
EXISTING CONDITIONS - POTABLE WATER

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STATE OF TEXAS
SHAUNA L. WEAVER
96511
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11-12-08

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Date: Oct 22, 2008, 9:22am User ID: pmckee
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BCB-INNER CIRCLE DRIVE, UNIT 1

SAN ANTONIO, TEXAS

EXISTING CONDITIONS - RECYCLED WATER

JOB NO. 576-08
DATE OCTOBER 2008
DESIGNER MK
CHECKED CAD SHAWN BERG
SHEET C103

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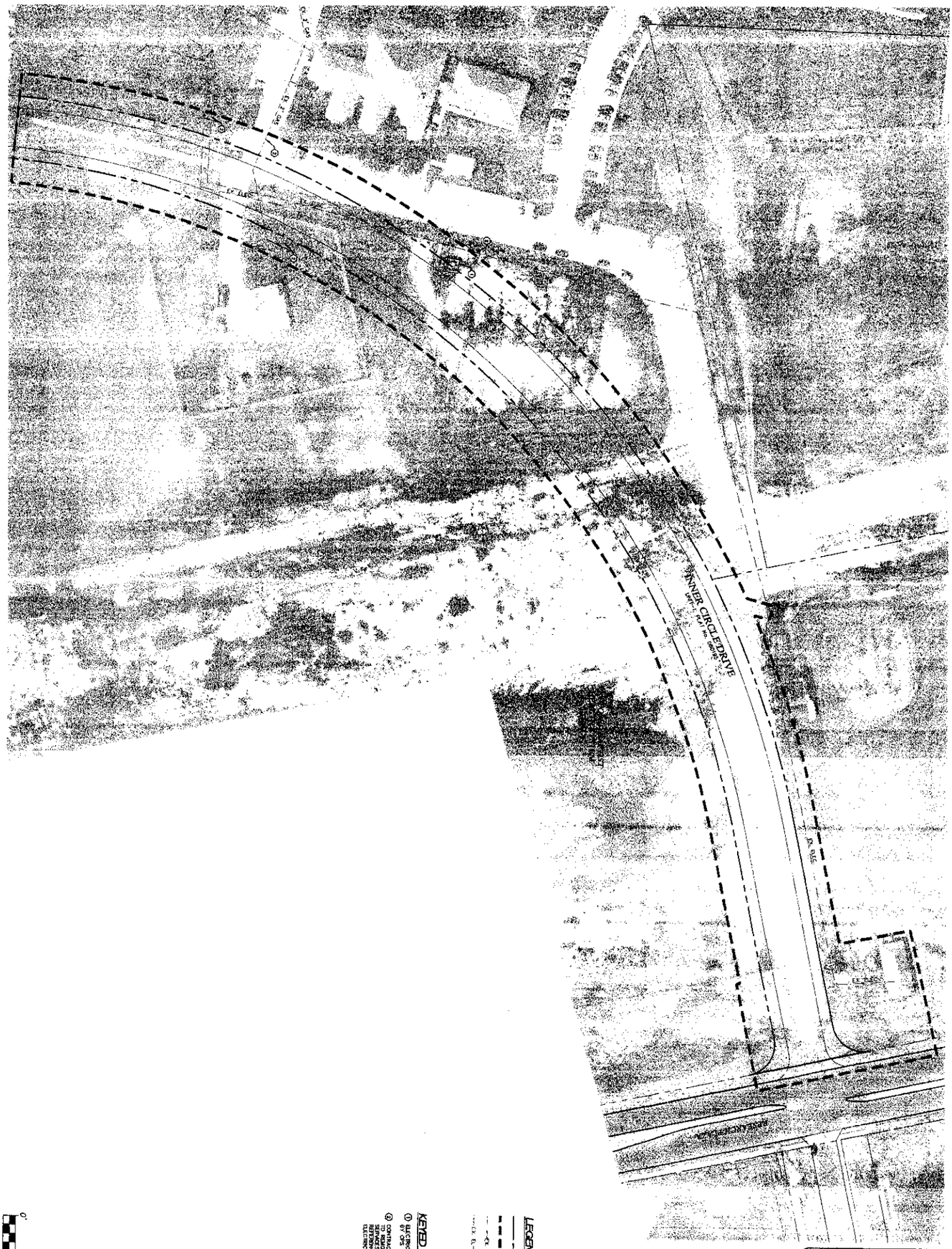
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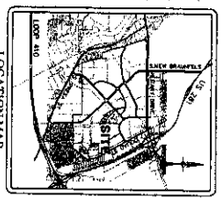
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File: P:\157\35\38\Design\CIVIL\Unit-1 Const Dwgs\EDGSEL573539 U-1 (C1.04).dwg





0' 50' 100' 150'
SCALE: 1" = 50'

KEYED NOTES

① ELECTRIC TRANSFORMER SHALL BE REMOVED BY CPS ENERGY.

② CONTRACTOR SHALL COORDINATE WITH CPS ENERGY FOR THE REMOVAL OF ELECTRIC SERVICES WITHIN THE PROPOSED R.O.W. REQUIRED FOR THE CONSTRUCTION OF THE PROPOSED ELECTRIC AND GAS ALIGNMENTS.

LEGEND

PROPOSED R.O.W.
PROJECT LIMITS
EXISTING GAS LINE
EXISTING ELECTRIC LINE

BCB-INNER CIRCLE DRIVE, UNIT 1
SAN ANTONIO, TEXAS
EXISTING CONDITIONS - GAS AND ELECTRIC

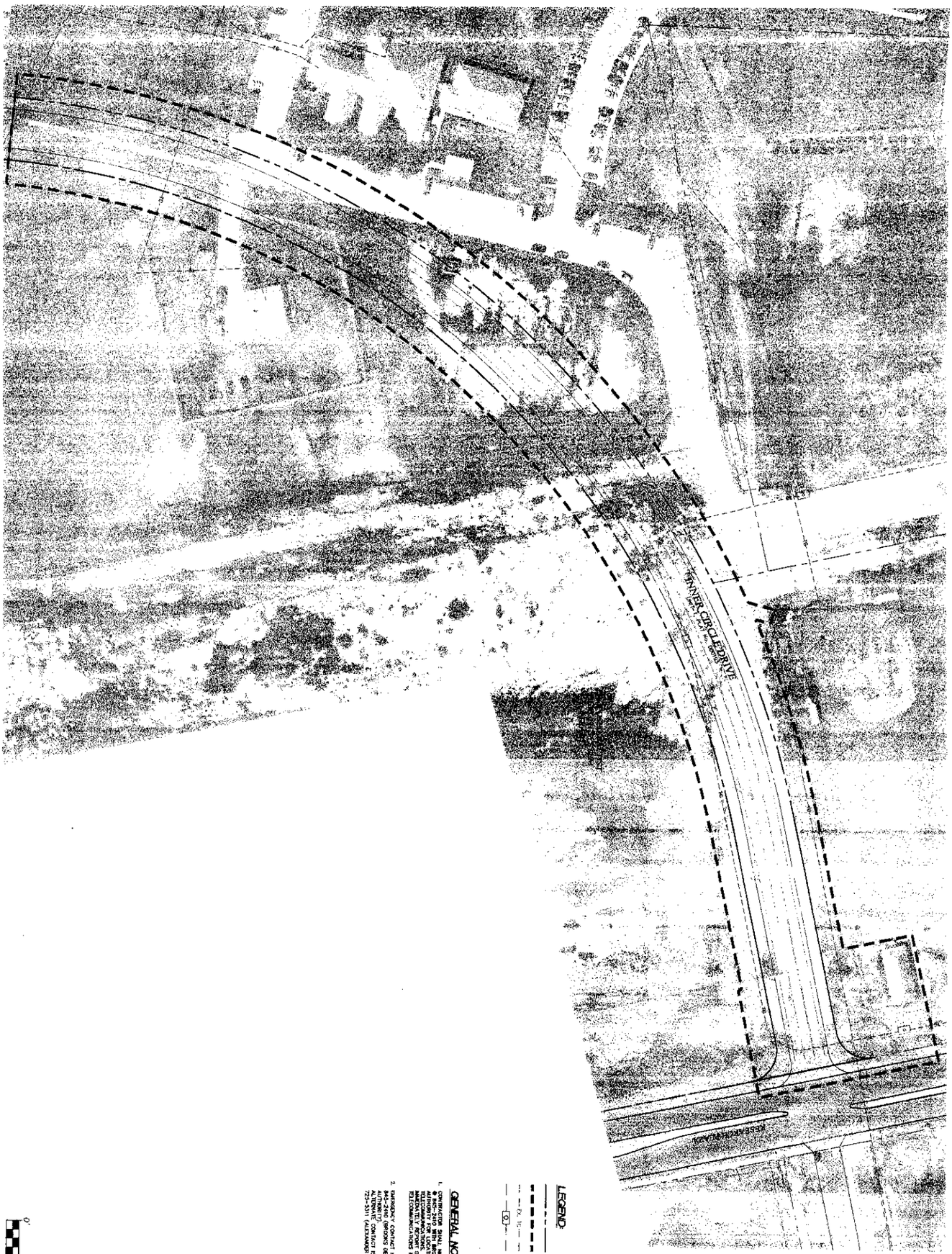
PAPE-DAWSON ENGINEERS
555 EAST RAMSEY | SAN ANTONIO, TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.9010

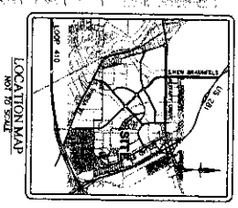
STATE OF TEXAS
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89512
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PROFESSIONAL ENGINEER
10-22-08

REVISIONS:

JOB NO. 573539
DATE OCTOBER 2008
DESIGNER JML
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SHEET C104

Date: Oct 22, 2008, 1:49pm User ID: pmckee
File: P:\57\35\39\Design\Civil\Unit-1 Const Dwgs\EC7C57535391-1 (C1.05).dwg





LEGEND

- PROPOSED R.O.W.
- PROJECT LIMITS
- EXISTING TELECOMMUNICATION LINE
- EXISTING TELECOMMUNICATIONS MANHOLE

GENERAL NOTES

1. CONTRACTOR SHALL NOTIFY CARLOS SALINAS @ 882-2400 (BROOKS DEVELOPMENT AUTHORITY) FOR LOCATION OF EXISTING TELECOMMUNICATIONS FACILITIES PRIOR TO MAKING TELEPHONE SERVICE TO TELECOMMUNICATIONS INFRASTRUCTURE.
2. EMERGENCY CONTACT IS CARLOS SALINAS @ 882-2400 (BROOKS DEVELOPMENT AUTHORITY) CONTACT IS DOUG JACKSON @ 725-5311 (ALTERNATE UTILITY ENGINEERING)

SCALE: 1"= 50'
0' 50' 100' 150'

BCB-INNER CIRCLE DRIVE, UNIT 1

SAN ANTONIO, TEXAS

EXISTING CONDITIONS - TELECOMMUNICATIONS

PAPE-DAWSON ENGINEERS

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10-22-08

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JOB NO. 5735-39
DATE OCTOBER 2008
DESIGNER JAK
CHECKED CAD DRAWN BY
SHEET C1.05

Date: Oct 22, 2008, 1:50pm User ID: smckee
File: P:\57\35\J9\Design\Civil\Unit-1 Const Dwgs\CP57J539 U-1 (C1.06).dwg

LEGEND

- PROPOSED R.O.W.
- PROJECT LIMITS
- 8145 LF — TRENCH LENGTH
- EXISTING UNDERGROUND TELECOMMUNICATIONS CONDUIT
- PROPOSED UNDERGROUND ELECTRICAL (CPS) DUCTBANK
- PROPOSED UNDERGROUND TELECOMMUNICATIONS DUCTBANK
- PROPOSED CPS CONDUIT
- PROPOSED IRRIGATION CONDUIT

LOCATION MAP
NOT TO SCALE

KEYED NOTES

1. LINES IN SINGLE TRENCH:
   (2) 2" PVC SLEEVES
   (1) 4" PVC SCH.40 IRRIGATION (PIPE)
2. LINE IN SINGLE TRENCH:
   (2) 6" PVC SCH.40 ELECTRIC CONDUITS
   (2) 4" PVC SCH.40 TELECOM CONDUITS
3. 5X4 DUCTBANK (NO CONFLICT W/ CPS DUCTBANK)

GENERAL NOTES

1. TELECOMMUNICATION INFORMATION AND NEW CONSTRUCTION IS INCLUDED IN THE CONSTRUCTION PLANS. THESE PLANS ARE COMPLETE PREPARED BY ALTERNATIVE UTILITY ENGINEERING.
2. PORTIONS OF THE PROPOSED CPS DUCTBANK CROSSING SHEET C1.02, C1.03, C1.04 ARE INCLUDED ON THIS SHEET FOR REFERENCE. CPS PLANS FOR CONSTRUCTION FOR BIDDING ONLY.

CPS DUCTBANK DETAILS
NOT TO SCALE

13-4" DUCTLINE DETAIL

2-4" DUCTLINE DETAIL

TYPICAL CONDUIT DETAIL
NOT TO SCALE

CPS VAULT SPECIFICATIONS
NOT TO SCALE

BCB-INNER CIRCLE DRIVE, UNIT 1

SAN ANTONIO, TEXAS

CONDUIT PLAN

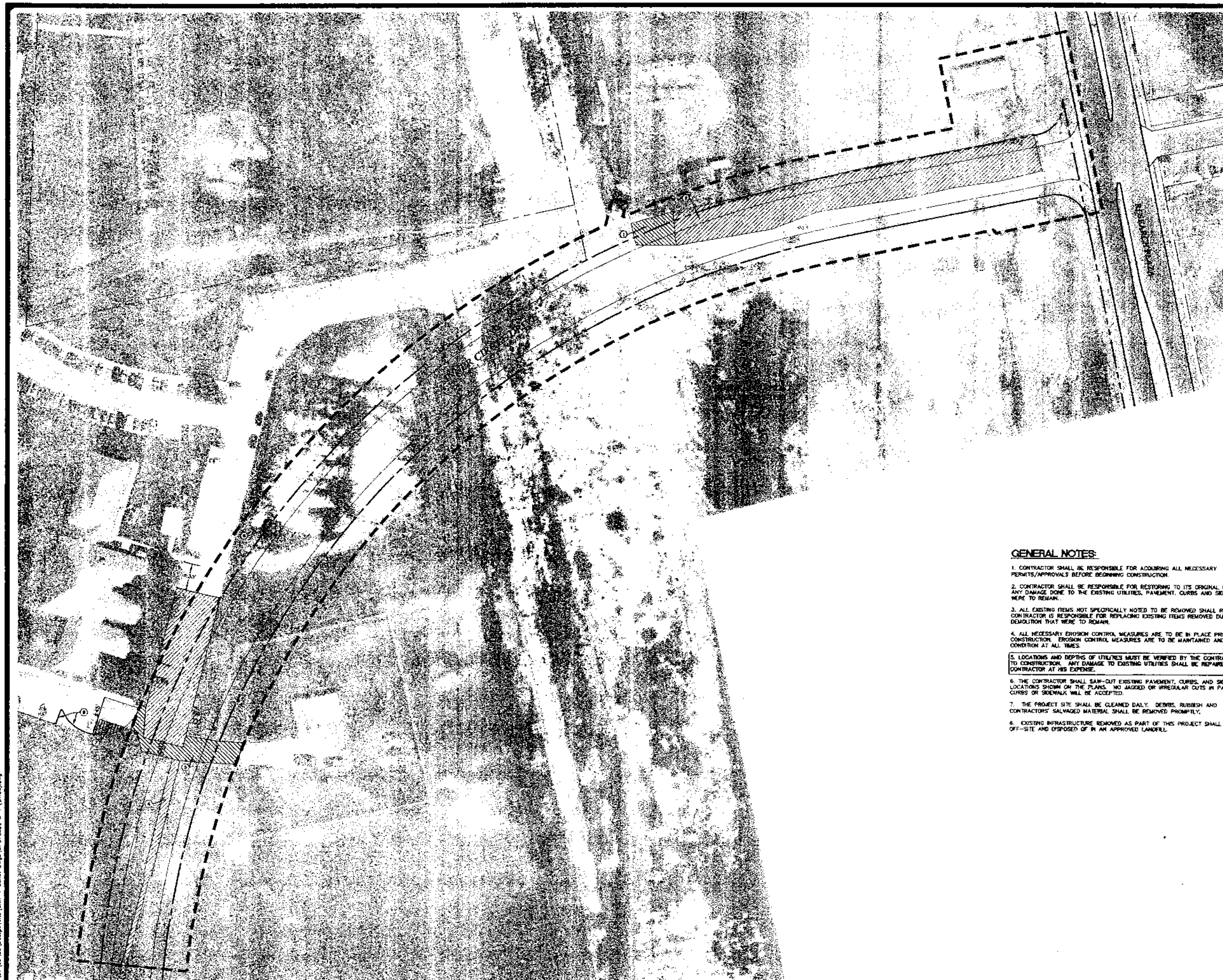
PAPE-DAWSON ENGINEERS
555 EAST RAMSEY | SAN ANTONIO, TEXAS 78216 | PHONE: 210.375.9000

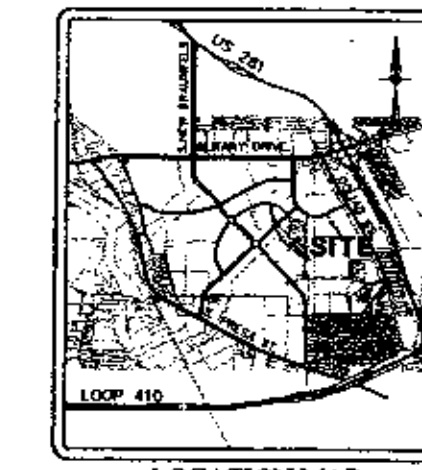
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PROFESSIONAL ENGINEER
10-22-08

REVISIONS:

JOB NO. 5735-35
DATE OCTOBER 2008
DESIGNER JAK
DRAWN BY JAK
CHECKED BY
SHEET C1.06

Date: Oct 21, 2008, 3:54pm User ID: pmckee
File: P:\57\35\39\Design\Civil\Unit-1 Const Dwgs\DP573539 U-1 (C1.08).dwg





LOCATION MAP
NOT TO SCALE

LEGEND:

- PROPOSED R.O.W.
- PROJECT LIMITS
- CPS STRUCTURE TO BE REMOVED BY OTHERS
- PAVEMENT TO BE REMOVED

SCALE : 1"=50'

0' 50' 100' 150'

GENERAL NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL NECESSARY PERMITS/APPROVALS BEFORE BEGINNING CONSTRUCTION.

2. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL CONDITION ANY DAMAGE DONE TO THE EXISTING UTILITIES, PAVEMENT, CURBS AND SIDEWALKS THAT WERE TO REMAIN..

3. ALL EXISTING ITEMS NOT SPECIFICALLY NOTED TO BE REMOVED SHALL REMAIN. CONTRACTOR IS RESPONSIBLE FOR REPLACING EXISTING ITEMS REMOVED DURING DEMOLITION THAT WERE TO REMAIN.

4. ALL NECESSARY EROSION CONTROL MEASURES ARE TO BE IN PLACE PRIOR TO CONSTRUCTION. EROSION CONTROL MEASURES ARE TO BE MAINTAINED AND IN WORKING CONDITION AT ALL TIMES.

5. LOCATIONS AND DEPTHS OF UTILITIES MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT HIS EXPENSE.

6. THE CONTRACTOR SHALL SAW-CUT EXISTING PAVEMENT, CURBS, AND SIDEWALKS AT LOCATIONS SHOWN ON THE PLANS. NO JAGGED OR IRREGULAR CUTS IN PAVEMENT, CURBS OR SIDEWALK WILL BE ACCEPTED.

7. THE PROJECT SITE SHALL BE CLEANED DAILY. DEBRIS, RUBBISH AND CONTRACTORS' SALVAGED MATERIAL SHALL BE REMOVED PROMPTLY.

8. EXISTING INFRASTRUCTURE REMOVED AS PART OF THIS PROJECT SHALL BE HAULED OFF-SITE AND DISPOSED OF IN AN APPROVED LANDFILL.

KEYED NOTES

(1) CONTRACTOR SHALL REMOVE ±1,460 SF OF CONCRETE PAVEMENT AND DISPOSE OFFSITE IN AN APPROVED LANDFILL.

(2) CONTRACTOR SHALL REMOVE ±16,881 SF OF GRAVEL MATERIAL AND DISPOSE OFFSITE IN AN APPROVED LANDFILL.

(3) CONTRACTOR SHALL REMOVE AND HAUL OFF ALL EXISTING IMPROVEMENTS ASSOCIATED WITH EXISTING PARKING LOT ±8,893 SF.

(4) CONTRACTOR SHALL REMOVE ±1,741 SF OF CONCRETE SIDEWALK AND DISPOSE OFFSITE IN AN APPROVED LANDFILL.

(5) CONTRACTOR SHALL REMOVE ±2,752 SF OF ASPHALT PAVEMENT.

(6) CPS STRUCTURE TO BE REMOVED BY OTHERS.

(7) CONTRACTOR SHALL REMOVE EXISTING CURB AND VEGETATION AND ADD PAVEMENT (GRADE TO DRAIN) TO CREATE TURN AROUND. USE 1½" TYPE "D" AND 6" FLEXIBLE BASE ±347 SF.

(8) ADD 4" WHITE STRIPE TO EXISTING PAVEMENT AS SHOWN. MATCH EXISTING PARKING SPACE.

(+) DEMOLITION ITEMS PAID UNDER ITEM 101.1 PREPARATION OF RIGHT-OF-WAY.

REVISIONS:

STATE OF TEXAS
SHAUNA L. WEAVER
86512
LICENSED
PROFESSIONAL ENGINEER
10-22-08

PAPE-DAWSON ENGINEERS

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BCB-INNER CIRCLE DRIVE, UNIT 1

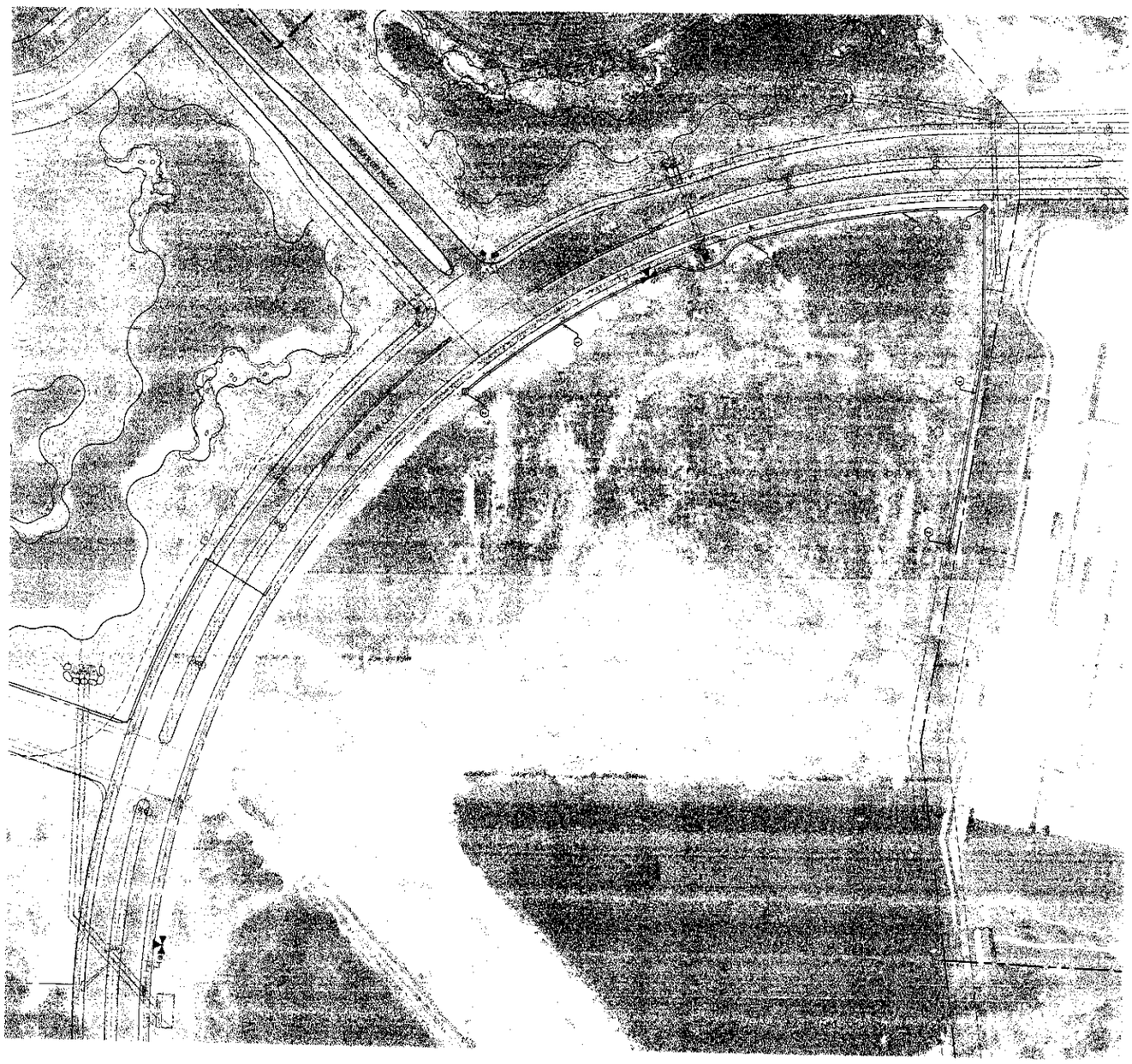
SAN ANTONIO, TEXAS

DEMOLITION PLAN

JOB NO. 5735-39
DATE OCTOBER 2008
DESIGNER JLL
CHECKED CAO DRAWN ERV
SHEET C1.07

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GENERAL NOTES

1. ELECTRICAL CONDUIT SHOWN IS EXISTING AND NEW CONSTRUCTION IS INCLUDED IN THE CONTRACT. REFERENCE CONSTRUCTION PLANS PREPARED BY ALEXANDER ENGINEERING.
2. PROPOSED CPS DUCTBANK IS INCLUDED IN THE CONTRACT. CONTRACTOR SHALL REFER TO CPS DETAILS PROVIDED ON THIS SHEET C1.06 ARE FOR BIDDING ONLY.

KEYED NOTES

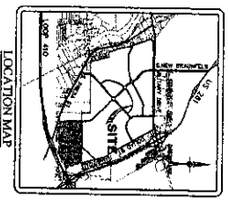
① CPS DUCTBANK THIS CONTRACT
(3) 5" PVC CONDUITS IN CPS DUCTBANK (SEE DETAILS, SHEET C1.06)
② 8'-6"x8' CPS MANHOLE (SEE DETAILS, SHEET C1.06)

LEGEND

- PROPOSED R.O.W.
- PROJECT LIMITS
- 5110 LF — TRENCH LENGTH
- EXISTING UNDERGROUND TELECOMMUNICATIONS CONDUIT
- EXISTING OVERHEAD ELECTRIC (POWER POLE)
- PROPOSED OVERHEAD TELECOMMUNICATIONS
- PROPOSED CPS DUCTBANK
- PROPOSED CPS CONDUIT
- PROPOSED IRRIGATION CONDUIT

SCALE: 1" = 60'
0' 60' 120' 180'

LOCATION MAP
NOT TO SCALE



JOB NO.	5735-39
DATE	OCTOBER 2008
DESIGNER	JM
DRAWN BY	PM
CHECKED BY	GRD
SHEET	C1.06

BCB-INNER CIRCLE DRIVE, UNIT 1

SAN ANTONIO, TEXAS

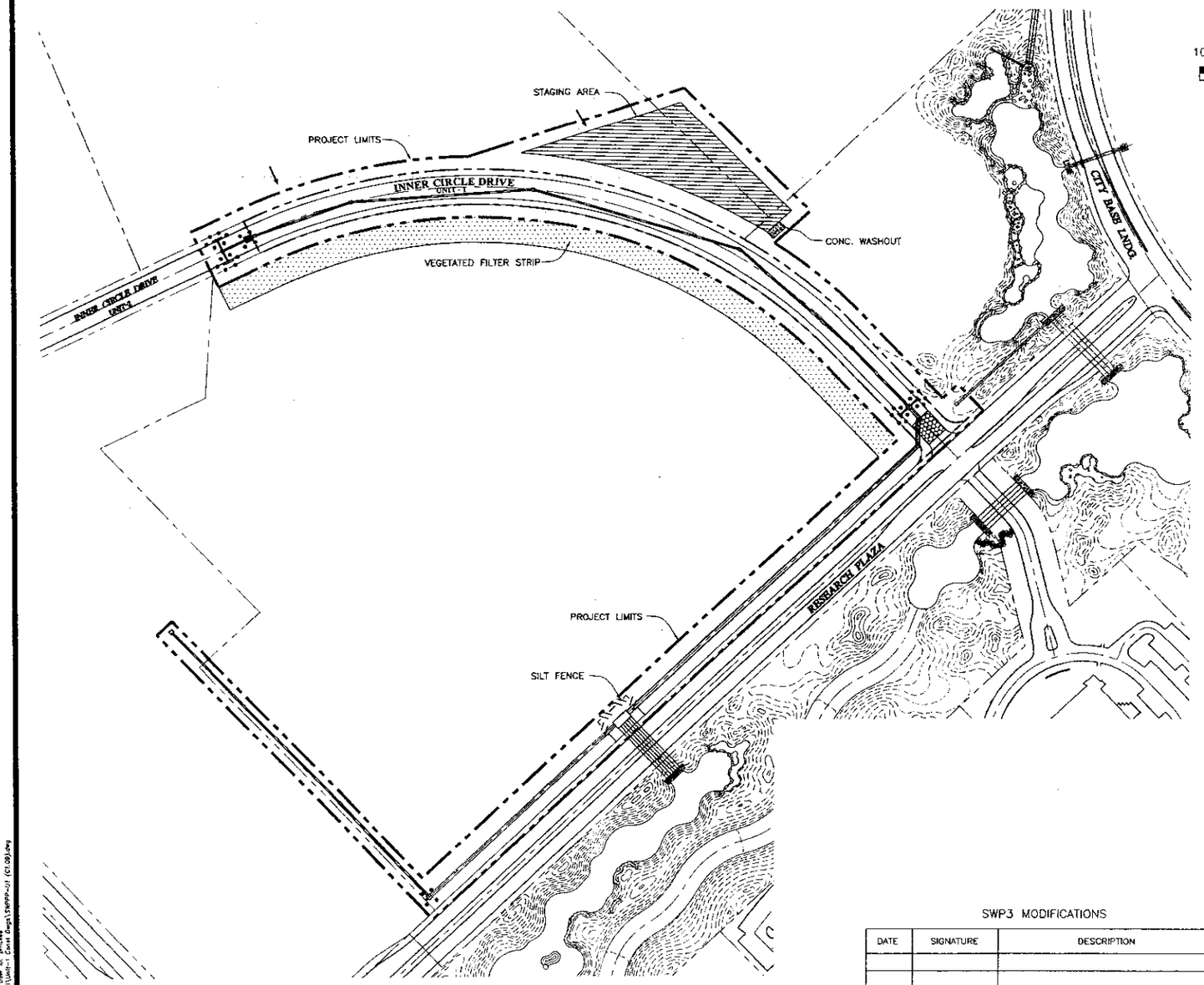
CPS CONDUIT PLAN (CITY BASE LNDG./RESEARCH PLAZA)

PAPE-DAWSON ENGINEERS
555 EAST RAMSEY | SAN ANTONIO, TEXAS 78216 | PHONE 210.375.9000

STATE OF TEXAS
SHAUNA L. WEAVER
89512
LICENSED
PROFESSIONAL ENGINEER
10-22-08

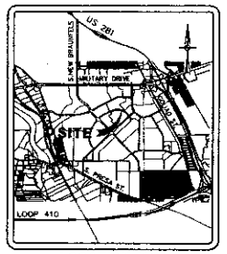
REVISIONS:

VOL 7779 PG 157





SCALE : 1"= 100'



LOCATION MAP
NOT-TO-SCALE

GENERAL NOTES

1. Do not disturb vegetated areas (trees, grass, weeds, brush, etc.) any more than necessary for construction.

2. Construction entrance/exit location, concrete wash-out pit, and construction equipment and material storage yard to be determined in the field.

3. Storm Water Pollution Prevention Controls may need to be modified in the field to accomplish the desired effect. All modifications are to be noted on this Exhibit and signed and dated by the responsible party.

4. Restrict entry/exit to the project site to designated locations by use of adequate fencing, if necessary.

5. All Storm Water Pollution Prevention Controls are to be maintained and in working conditions at all times.

6. For a complete listing of Temporary Storm Water Pollution Prevention Controls refer to the TPDES Storm Water Pollution Prevention Plan.

7. Storm water pollution prevention structures should be constructed within the site boundaries. Some of these features may be shown outside the site boundaries on this plan for visual clarity.

8. As soon as practical, all disturbed soil that will not be covered by impervious cover such as parkway areas, easement areas, embankment slopes, etc. will be stabilized per applicable project specifications.

9. Best Management Practices may be installed in stages to coincide with the disturbance of upgradient areas.

10. Best Management Practices may be removed in stages once the watershed for that portion controlled by the Best Management Practices has been stabilized in accordance with TPDES requirements.

11. Upon completion of the project, including site stabilization, and before final payment is issued, Contractor shall remove all sediment & erosion control measures, paying special attention to rock berms in drainage features.

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- SILT FENCE
- FLOW ARROW
- ROCK BERM
- INLET W/PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE/EXIT
- CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA. (FIELD LOCATE)
- CONCRETE TRUCK WASH-OUT PIT
- VEGETATED FILTER STRIP

SWP3 MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE TPDES-STORM WATER POLLUTION PREVENTION PLAN (SWP3) REGULATIONS.

THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF THE SWP3 ONLY. ALL OTHER CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

EXHIBIT 2

REVISIONS:

STATE OF TEXAS — STANDARD NO. 100252 — REGISTERED PROFESSIONAL ENGINEER — 10-22-08

PAPE-DAWSON ENGINEERS
555 EAST RAMSEY | SAN ANTONIO, TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.9010

BCB-INNER CIRCLE DRIVE, UNIT 1
SAN ANTONIO, TEXAS
STORM WATER POLLUTION PREVENTION PLAN
SITE PLAN

JOB NO. 5735-38
DATE OCTOBER 2008
DESIGNER APK
CHECKED CPF DRAWN RO
SHEET C1.09

Date: Oct 21, 2008, 4:46pm User ID: pmckay
File: P:\57\35\35\Design\Civil\Unit-1 Const Dwgs\SWPPP-01 (C1.09).dwg
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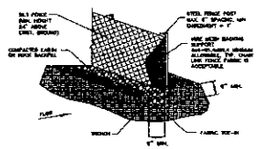
VOL 7777 PG 168

SILT FENCE

A silt fence is a barrier consisting of geotextile fabric supported by metal posts to prevent soil and sediment loss from a site. When properly used, silt fences can be highly effective at controlling sediment from disturbed areas. They retain runoff to pond, allowing heavier solids to settle out. If not properly installed, silt fences are not likely to be effective.

The purpose of a silt fence is to intercept and detain water-born sediment from unprotected areas of a limited extent. Silt fence is used during the period of construction near the perimeter of a disturbed area to intercept sediment while allowing water to percolate through. The fence should remain in place until the disturbed area is permanently stabilized. Silt fence should not be used where there is a concentration of water in a channel or drainage way. If concentrated flow occurs after installation, corrective action must be taken such as placing a rock berm in the areas of concentrated flow.

Silt fencing within the site may be temporarily moved during the day to allow construction activity provided it is replaced and properly anchored to the ground at the end of the day. Silt fences on the perimeter of the site or around drainage ways should not be moved at any time.



ISOMETRIC PLAN VIEW

N.T.S.

Schematic of a Silt Fence Installation (VICTORS, 1983b)

MATERIALS:

(1) Silt fence material should be polypropylene, polyethylene, or polyamide woven or nonwoven fabric. The fabric should be 36 inches, with a minimum unit weight of 4.5 oz/yd. mullen burst strength exceeding 190 lb/in2, ultraviolet stability exceeding 70%, and maximum apparent opening size of U.S. sieve No.30

(2) Fence posts should be made of hot rolled steel, at least 4 feet long with tee or Y-bar cross section, surface painted or galvanized, minimum weight 1.25 lb/ft, and brinell hardness exceeding 140.

(3) Woven wire backing to support the fabric should be galvanized 2" x 4" welded wire, 12 gauge minimum

INSTALLATION:

(1) Steel posts, which support the silt fence, should be installed on a slight angle toward the anticipated runoff source. Posts must be embedded a minimum of 1-foot deep and spaced not more than 8 feet on center. Where water concentrates, the maximum spacing should be 6 feet.

(2) Lay soil fencing down-slope of disturbed area, following the contour as closely as possible. The fence should be sited so that the maximum drainage area is ¼ acre/100 feet of fence.

(3) The toe of the silt fence should be trenched in with a spade or mechanical trencher, so that the down-slope face of the trench is flat and perpendicular to the line of flow. Where fence cannot be trenched in (e.g., pavement or rock outcrop), weight fabric flap with 3 inches of pea gravel on uphill side to prevent flow from seeping under fence.

(4) The trench must be a minimum of 6 inches deep and 6 inches wide to allow for the silt fence fabric to be laid in the ground and backfilled with compacted material.

(5) Silt fence should be securely fastened to each steel support post or to woven wire, which is in turn attached to the steel fence post. There should be a 3-foot overlap, securely fastened where ends of fabric meet.

(6) Silt fence should be removed when the site is completely stabilized so as not to block or impede storm flow or drainage.

COMMON TROUBLE POINTS:

(1) Fence not installed along the contour causing water to concentrate and flow over the fence.

(2) Fabric not seated securely to ground (runoff passing under fence).

(3) Fence not installed perpendicular to flow line (runoff escaping around sides).

(4) Fence treating too large an area, or excessive channel flow (runoff overtops or collapses fence).

INSPECTION AND MAINTENANCE GUIDELINES:

(1) Inspect all fencing weekly, and after rainfall.

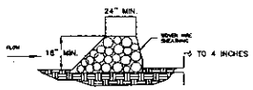
(2) Remove sediment when buildup reaches 6 inches.

(3) Replace torn fabric or install a second line of fencing parallel to the torn section.

(4) Replace or repair sections crushed or collapsed in the course of construction activity. If a section of fence is obstructing vehicular access, consider relocating it to a spot where it will provide equal protection, but will not obstruct vehicles. A triangular filter dike may be preferable to a silt fence at common vehicle access points.

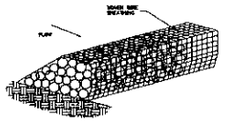
(5) When construction is complete, the sediment should be disposed of in a manner that will not cause additional siltation and the prior location of the silt fence should be revegetated. The fence itself should be disposed of in an approved landfill.

SILT FENCE



CROSS SECTION

N.T.S.



ISOMETRIC PLAN VIEW

N.T.S.

Schematic Diagram of a Rock Berm (VICTORS, 1983)

ROCK BERMS

The purposes of a rock berm is to serve as a check dam in areas of concentrated flow, to intercept sediment-laden runoff, detain the sediment and release the water in sheet flow. The rock berm should be used when the contributing drainage area is less than 5 acres. Rock berms are used in areas where the volume of runoff is too great for a silt fence to contain. They are less effective for sediment removal than silt fences, particularly for fine particles, but are able to withstand higher flows than a silt fence. As such, rock berms are often used in areas of channel flows (ditches, gullies, etc.). Rock berms are most effective at reducing bed load in channels and should not be substituted for other erosion and sediment control measures farther up the watershed.

MATERIALS:

(1) The berm structure should be secured with a woven wire sheathing having maximum opening of 1 inch and a minimum wire diameter of 20 gauge galvanized and should be secures with shoat rings.

(2) Clean, open graded 3- to 8-inch diameter rock should be used, except in areas where high velocities or large volumes of flow are expected, where 5- to 8-inch diameter rocks may be used.

INSTALLATION:

(1) Lay out the woven wire sheathing perpendicular to the flow line. The sheathing should be 20 gauge woven wire mesh with 1 inch openings.

(2) Berm should have a top width of 2 feet minimum with side slopes being 2:1 (H:V) or Better.

(3) Place the rock along the sheathing as shown in the diagram to a height not less than 18".

(4) Wrap the wire sheathing around the rock and secure with tie wire so that the ends of the sheathing overlap at least 2 inches, and the berm retains its shape when walked upon.

(5) Berm should be built along the contour at zero percent grade or as near as possible.

(6) The ends of the berm should be tied into existing upslope grade and the berm should be buried in a trench approximately 3 to 4 inches deep to prevent failure of the control.

COMMON TROUBLE POINTS:

(1) Insufficient berm height or length (runoff quickly escapes over the top or around the sides of berm).

(2) Berm not installed perpendicular to flow line (runoff escaping around one side).

INSPECTION AND MAINTENANCE GUIDELINES:

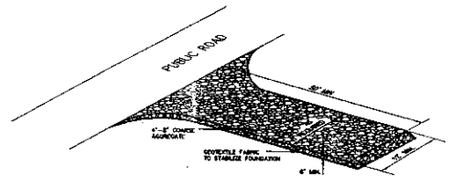
(1) Inspection should be made weekly and after each rainfall by the responsible party. For installations in streambeds, additional daily inspections should be made. (2) Remove sediment and other debris when buildup reaches 6 inches and dispose of the accumulated silt in an approved manner that will not cause any additional siltation.

(3) Repair any loose wire sheathing.

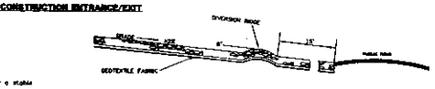
(4) The berm should be restraped as needed during inspection.

(5) The berm should be replaced when the structure ceases to function as intended due to silt accumulation among the rocks, washout, construction traffic damage, etc. (6) The rock berm should be left in place until all upstream areas are stabilized and accumulated silt removed.

ROCK BERM



SCHEMATIC OF TEMPORARY CONSTRUCTION ENTRANCE/EXIT



CROSS-SECTION OF A CONSTRUCTION ENTRANCE/EXIT

MATERIALS:

(1) The aggregate should consist of 4 to 8 inch washed stone over a stable foundation as specified in the plan.

(2) The aggregate should be placed with a minimum thickness of 6 inches.

(3) The geotextile fabric should be developed specifically for use as a soil filtration media with an apparentmass weight of 6 oz/yd², a mullen burst rating of 140 lb/in², and an equivalent opening size greater than a #50 sieve.

(4) If a washing facility is required, a level area with a minimum of 4 inch diameter washed stone or commercial rock should be included in the plans. Divert wastewater to a sediment trap or basin.

INSTALLATION:

(1) Avoid curves on public roads and steep slopes. Remove vegetation and other objectionable material from the foundation area. Grade crown foundation for positive drainage.

(2) The minimum width of the entrance/exit should be 12 feet or the full width of exit roadway, whichever is greater.

(3) The construction entrance should be at least 50 feet long.

(4) If the slope toward the road exceeds 2%, construct a ridge, 6 to 8 inches high with 3:1 (H:V) side slopes, across the foundation approximately 15 feet from the entrance to divert runoff away from the public road.

(5) Place geotextile fabric and grade foundation to improve stability, especially where wet conditions are encountered.

(6) Place stone to dimensions and grade shown on plans. Leave surface smooth and slope for drainage.

(7) Divert all surface runoff and drainage from the stone pad to a sediment trap or basin.

(8) Install pipe under pad as needed to maintain proper public road drainage.

CROSS-SECTION OF A CONSTRUCTION ENTRANCE/EXIT

COMMON TROUBLE POINTS:

(1) Inadequate runoff control-sediment washes onto public road.

(2) Stone too small or geotextile fabric absent, results in muddy condition as stone is pressed into soil.

(3) Pad too short for heavy construction traffic-extend pad beyond the minimum 50 foot length as necessary.

(4) Pad not sized sufficiently at road surface, results in mud being tracked on to road and possible damage to road.

(5) Unstable foundation – use geotextile fabric under pad and/or improve foundation drainage.

INSPECTION AND MAINTENANCE GUIDELINES:

(1) The entrance should be maintained in a condition, which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment.

(2) All sediment spilled, dropped, washed or tracked onto public rights-of-way should be removed immediately by contractor.

(3) When necessary, wheels should be cleaned to remove sediment prior to entrance onto public right-of-way.

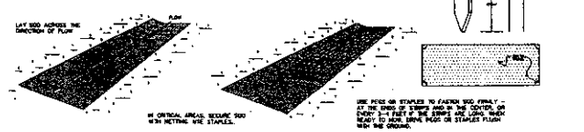
(4) When washing is required, it should be done on an area stabilized with crushed stone that drains into an approved sediment trap or sediment basin.

(5) All sediment should be prevented from entering any storm drain, ditch or water courses by using approved methods.

STABILIZED CONSTRUCTION ENTRANCE/EXIT



SOD INSTALLATION



Materials:

(1) Sod should be machine cut at a uniform soil thickness of 3/4" inch (± 1/4" inch) at the time of cutting. This thickness should exclude shoot growth and thatch.

(2) Pieces of sod should be cut to the supplier's standard width and length, with a maximum allowable deviation in any dimension of 5%. Torn or uneven pads should not be acceptable.

(3) Standard size sections of sod should be strong enough to support their own weight and retain their size and shape when suspended from a firm grasp on one end of the section.

(4) Sod should be harvested, delivered, and installed within a period of 36 hours.

Site Preparation:

(1) Prior to soil preparation, areas to be sodded should be brought to final grade in accordance with the approved plan.

(2) The surface should be cleared of all trash, debris and of all roots, brush, wire, grade stakes and other objects that would interfere with planting, fertilizing or maintenance operations.

(3) Fertilize according to soil tests. Fertilizer needs can be determined by a soil testing laboratory or (federal recommendations can be obtained from any agricultural extension agent). Fertilizer should be worked into the soil to a depth of 4 inches with a disc, spring-tooth harrow or other suitable equipment. On sloping land, the final harrowing or discing operation should be on the contour.

Installation in Channels:

(1) Sod strips in waterways should be laid perpendicular to the direction of flow. Care should be taken to butt ends of strips tightly (see Figure above).

(2) After rolling or tamping, sod should be pegged or stapled to resist washout during the establishment period. Mesh or other netting may be pegged over the sod for extra protection in critical areas.

General Installation (VA Dept. of Conservation, 1992).

(1) Sod should not be cut or laid in excessively wet or dry weather. Cut sod should not be laid on soil surfaced with snow or frozen.

(2) During periods of high temperature, the soil should be lightly irrigated immediately prior to laying the sod, to cool the soil and reduce root burning and drabook.

(3) The first row of sod should be laid in a straight line with subsequent rows placed parallel to and butting tightly against each other. Lateral joints should be staggered to promote more uniform growth and strength. Care should be exercised to ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause drying of the roots. (see above)

(4) On slopes 3:1 or greater, or wherever erosion may be a problem, sod should be laid with staggered joints and secured by staking or other approved methods. Sod should be installed with the length perpendicular to the slope (on contour).

(5) As sodding of designated areas is completed, sod should be rolled or tamped to provide firm contact between roots and soil.

(6) After rolling, sod should be irrigated to a depth sufficient that the underside of the sod pad and the soil 4 inches below the sod is thoroughly wet.

(7) Until such time a good root system becomes developed, in the absence of adequate rainfall, the sod should be watered daily or as often as necessary to maintain moist soil to a depth of at least 4 inches.

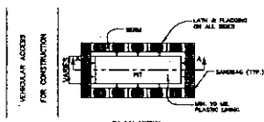
(8) The first mowing should not be attempted until the sod is firmly rooted, usually 2-3 weeks. Not more than one third of the grass leaf should be removed at any one cutting.

Inspection and Maintenance Guidelines

(1) Sod should be inspected weekly and after each rain event to locate and repair any damage.

(2) Damage from storms or normal construction activities such as tire ruts or disturbance of seals stabilization should be repaired as soon as practical.

CHANNEL LINING



PLAN VIEW

SECTION A-A

GENERAL NOTES:

- Detail above illustrates minimum dimensions. Pit can be increased in size depending on expected frequency of use.
- Washout pit shall be located in an area easily accessible to construction traffic.
- Washout pit shall not be located in areas subject to inundation from storm water runoff.
- Locate washout area at least 50 feet from sensitive features, storm drains, open ditches, or water bodies.
- Temporary concrete washout facility should be constructed with sufficient quantity and volume to contain all liquid and concrete waste generated by washout operations.

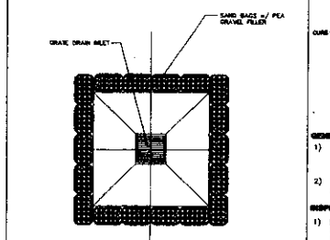
MATERIALS:

- Plastic lining material should be a minimum of 10 mil in polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.

MAINTENANCE:

- When temporary concrete washout facilities are no longer required for the work, the hardened concrete should be removed and disposed of.
- Materials used to construct temporary concrete washout facilities should be removed from the site of the work and disposed of.
- Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities should be backfilled and repaired.

CONCRETE TRUCK WASHOUT PIT



GENERAL NOTES:

1) The sandbags should be filled with washed pea gravel and stacked to form a continuous barrier about 1 foot high around inlets.

2) The bags should be tightly abutted against each other to prevent runoff from flowing between the bags.

INSPECTION AND MAINTENANCE GUIDELINES:

1) Inspection should be made weekly and after each rainfall. Repair or replacement should be made promptly as needed by the contractor.

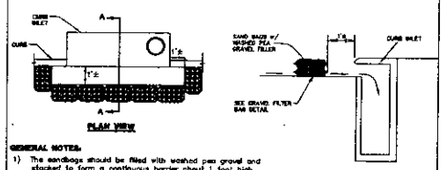
2) Remove sediment when buildup reaches a depth of 3 inches. Removed sediment should be deposited in a suitable area and in such a matter that it will not erode.

3) Check placement of device to prevent gaps between device and curb.

4) Inspect filter fabric and patch or replace if torn or missing.

5) Structures should be removed and the area stabilized only after the remaining drainage area has been properly stabilized.

BAGGED GRAVEL GRATE INLET PROTECTION



GENERAL NOTES:

1) The sandbags should be filled with washed pea gravel and stacked to form a continuous barrier about 1 foot high around inlets.

2) The bags should be tightly abutted against each other to prevent runoff from flowing between the bags.

INSPECTION AND MAINTENANCE GUIDELINES:

1) Inspection should be made weekly and after each rainfall. Repair or replacement should be made promptly as needed by the contractor.

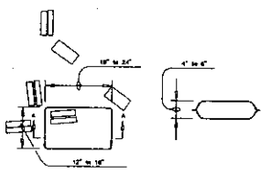
2) Remove sediment when buildup reaches a depth of 3 inches. Removed sediment should be deposited in a suitable area and in such a matter that it will not erode.

3) Check placement of device to prevent gaps between device and curb.

4) Inspect filter fabric and patch or replace if torn or missing.

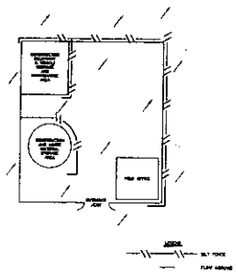
5) Structures should be removed and the area stabilized only after the remaining drainage area has been properly stabilized.

BAGGED GRAVEL CURB INLET PROTECTION



- The filter bag material shall be made of polypropylene, polyethylene or polyamide woven fabric, min. unit weight of 4 ounces/sy, Mullen burst strength exceeding 300 psi and ultraviolet stability exceeding 70%.
- The filter bag shall be filled with clean, medium (washed pea gravel) to coarse gravel (0.31 to 0.75 inch diameter).
- Sand shall NOT be used to fill the filter bags.

GRAVEL FILTER BAG DETAIL



CONSTRUCTION STAGING AREA

EXHIBIT 3

REVISIONS:

PAPE-DAWSON ENGINEERS

555 EAST RAMSEY | SAN ANTONIO, TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.9010

BCB-INNER CIRCLE DRIVE, UNIT 1

SAN ANTONIO, TEXAS

STORM WATER POLLUTION PREVENTION PLAN

TYPICAL DETAILS

JOB NO. 5735-99

DATE OCTOBER, 2006

DESIGNER AFK

CHECKED CHK DRAWN AK

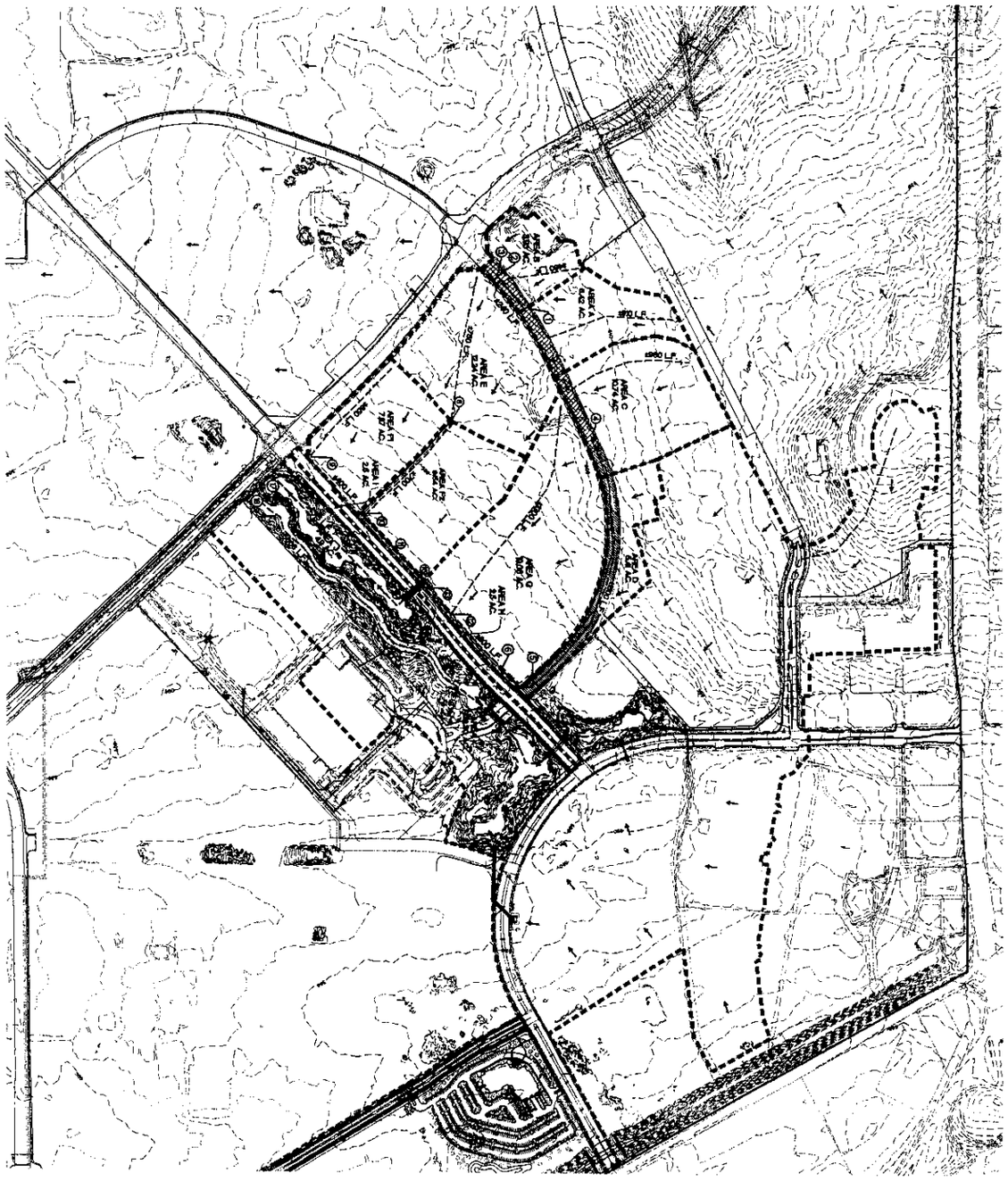
SHEET C1.10

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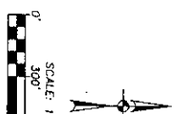
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Date: Oct 02, 2008, 1:15pm User ID: rlopez
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PT	STRUCTURE DESCRIPTION	AREA (ACRES) INCREMENT	TOTAL	L (FT)	Ln	Ln	Ln	C	I	D
1	RESERVE	A	9.40	940	2	5	7	0.90	9.25	18
2	RESERVE	B	9.25	480	1	5	8	0.90	9.25	18
3	MENTAIRE	C	10.74	1085	2	5	8	0.90	9.25	18
4	INLET	A1	10.26	1015	5	5	8	0.90	9.25	18
5	INLET	D	5.41	1000	4	5	8	0.90	9.25	18
6	CURB INLET	C1D	18.93	2940	8	5	11	0.90	9.25	18
7	INLET	F1	2.87	650	1	5	8	0.90	9.25	18
8	INLET	F2	9.54	765	1	5	8	0.90	9.25	18
9	INLET	F3	10.30	1495	4	5	8	0.90	9.25	18
10	INLET	F4	10.30	1495	4	5	8	0.90	9.25	18
11	INLET	F1+F2	12.41	1415	3	5	8	0.90	9.25	18
12	INLET	F3+F4	20.60	2990	8	5	11	0.90	9.25	18
13	INLET	G	10.01	1980	5	5	8	0.90	9.25	18
14	EXISTING INLET	H	2.05	1000	2	5	8	0.90	9.25	18
15	ALTERNATE INLET LOCATION	I	2.82	1000	5	5	8	0.90	9.25	18



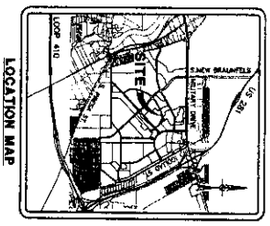
LEGEND:

UNIT 1 BOUNDARY

UNIT 2 BOUNDARY

DRAINAGE FLOW ARROW

DRAINAGE AREA (SEE CALCULATIONS)



LOCATION MAP
NOT TO SCALE

BCB-INNER CIRCLE DRIVE, UNIT 1

SAN ANTONIO, TEXAS

BROOKS DEVELOPMENT AUTHORITY

MASTER DRAINAGE PLAN

PLAT NO. 080196

PAPE-DAWSON ENGINEERS

555 EAST RAMSEY | SAN ANTONIO, TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.8010

STATE OF TEXAS
SHAUNA L. WEAVER
69512
LICENSED
PROFESSIONAL ENGINEER
10-3-08

REVISIONS:

JOB NO. 575-36
DATE OCTOBER 2008
DESIGNER DLB
CHECKED SLW DRAWN DLB
SHEET C2.00

VOL 7776 PG 170

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

NOTES:

1. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER OR NOT SHOWN ON THIS PLAN. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATION FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. REPAIRS TO ANY EXISTING UTILITIES DAMAGED BY THE CONTRACTOR, WHETHER OR NOT SHOWN ON THIS PLAN, SHALL BE THE SOLE RESPONSIBILITY AND AT THE EXPENSE OF THE CONTRACTOR.
2. THE ENGINEER SHALL PROVIDE ONE (1) SET OF CUT SHEETS AND ONE (1) SET OF CONSTRUCTION STAKES AT 50' INTERVALS FOR EACH DRAIN. CONTRACTOR SHALL LOCATE AND PROTECT CONSTRUCTION STAKES IMMEDIATELY AFTER STAKING IS COMPLETE AND PRIOR TO STARTING WORK. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPLACE ANY CONSTRUCTION STAKES THAT ARE LOST OR DESTROYED DURING CONSTRUCTION.
3. DRAINS MUST BE INSPECTED AND ACCEPTED BY THE CITY OF SAN ANTONIO.
4. CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUNCTION BOXES TO PROVIDE FOR POSITIVE DRAINAGE.
5. ALL CONCRETE SHALL BE CLASS "A" 3000 P.S.I. CYLINDER STRENGTH IN 28 DAYS.
6. REFERENCE DRAINAGE DETAIL SHEET FOR PIPE TRENCH DETAILS.

STORM DRAIN CALCULATIONS
42" UFCMP STORM DRAIN
STA: 1+32.20 TO STA: 2+86.25

Q_{28} = 84.55 cfs
D_R = 4.00'
S = 0.60%
S_f = 0.35%
V = 8.73 fps
n = 0.013

STORM DRAIN CALCULATIONS
42" UFCMP STORM DRAIN
STA: 2+91.25 TO STA: 5+74.38

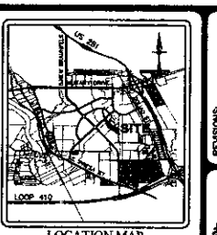
Q_{28} = 84.55 cfs
D_R = 3.50'
S = 0.75%
S_f = 0.71%
V = 8.78 fps
n = 0.013

STORM DRAIN CALCULATIONS
42" UFCMP STORM DRAIN
STA: 5+79.51 TO STA: 9+87.10

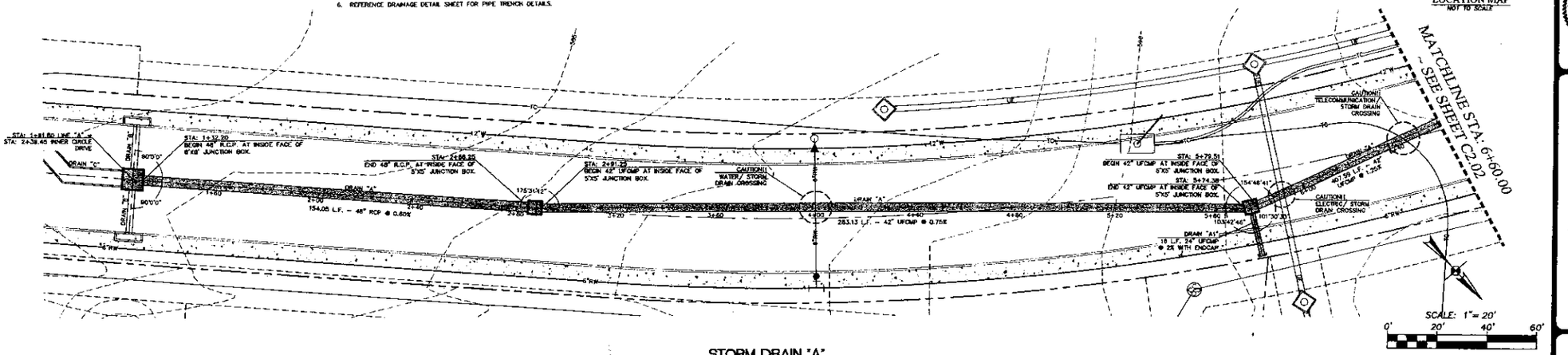
Q_{28} = 84.55 cfs
D_R = 3.50'
S = 1.25%
S_f = 0.71%
V = 8.78 fps
n = 0.013

LEGEND:

- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- STREET CENTER LINE
- PROPOSED CURB
- PROPOSED SANITARY SEWER LINE
- PROPOSED WATER LINE
- EXISTING SANITARY SEWER LINE
- EXISTING WATER LINE
- EXISTING UNDERGROUND ELEC. LINE
- EXISTING UNDERGROUND TELECOMMUNICATIONS
- PROPOSED UNDERGROUND TELECOMMUNICATIONS
- PROPOSED 6' SIDEWALK



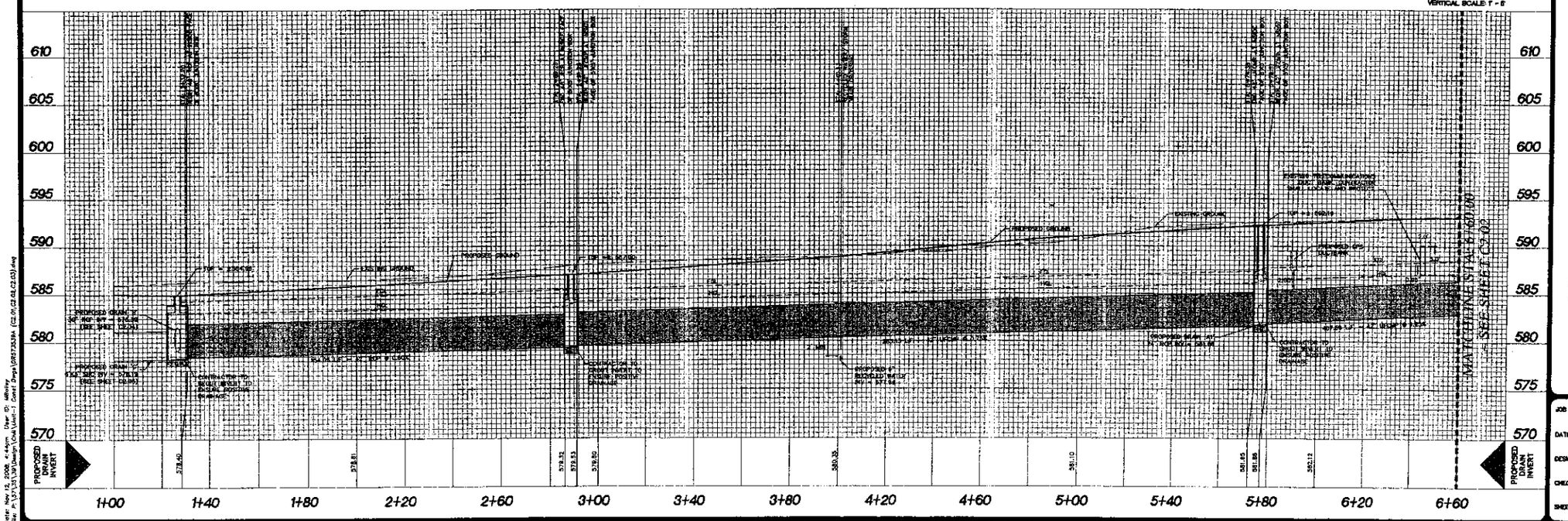
LOCATION MAP
NOT TO SCALE



SCALE: 1" = 20'
0' 20' 40' 60'

STORM DRAIN "A"
(STA: 1+32.20 TO STA: 6+60.00)

HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'



REVISIONS:

PAPE-DAWSON ENGINEERS
558 EAST RAMSEY | SAN ANTONIO, TEXAS 78216 | PHONE 210.375.9000 FAX 210.375.9010

BCB-INNER CIRCLE DRIVE, UNIT-1
SAN ANTONIO, TEXAS
DRAIN "A" - PLAN AND PROFILE
(STA: 1+32.20 TO 6+60.00)
(SHEET 1 OF 3)

PLAT NO. 080195

JOB NO. 5735-39
DATE OCTOBER 2008
DESIGNER ZP
CHECKED CAD DRAWN ERV
SHEET C2.01

Date: Nov 12, 2008, 4:44pm User ID: Mhinley
File: P:\57\35\39\Design\Civil\Unit-1 Const Drgs\05735394 (C2.01,C2.02,C2.03).dwg

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VOL 7776 PG 171

TRENCH EXCAVATION SAFETY PROTECTION

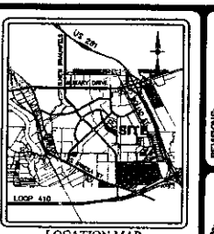
CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

NOTES:

1. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER OR NOT SHOWN ON THIS PLAN. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATION FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. REPAIRS TO ANY EXISTING UTILITIES DAMAGED BY THE CONTRACTOR, WHETHER OR NOT SHOWN ON THIS PLAN, SHALL BE THE SOLE RESPONSIBILITY AND AT THE EXPENSE OF THE CONTRACTOR.
2. THE ENGINEER SHALL PROVIDE ONE (1) SET OF CUT SHEETS AND ONE (1) SET OF CONSTRUCTION STAKES AT 50' INTERVALS FOR EACH DRAIN. CONTRACTOR SHALL LOCATE AND PROTECT CONSTRUCTION STAKES IMMEDIATELY. AFTER STAKING IS COMPLETE AND PRIOR TO STARTING WORK, IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPLACE ANY CONSTRUCTION STAKES THAT ARE LOST OR DESTROYED DURING CONSTRUCTION.
3. DRAINS MUST BE INSPECTED AND ACCEPTED BY THE CITY OF SAN ANTONIO.
4. CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUNCTION BOXES TO PROVIDE FOR POSITIVE DRAINAGE.
5. ALL CONCRETE SHALL BE CLASS "A" 3000 P.S.I. CYLINDER STRENGTH IN 28 DAYS.
6. REFERENCE DRAINAGE DETAIL SHEET FOR PIPE TRENCH DETAILS.

LEGEND:

- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- STREET CENTER LINE
- PROPOSED CURB
- PROPOSED SANITARY SEWER LINE
- PROPOSED WATER LINE
- EXISTING SANITARY SEWER LINE
- EXISTING WATER LINE
- EXISTING UNDRGRND ELEC. LINE
- EXISTING UNDERGROUND TELECOMMUNICATIONS
- PROPOSED UNDERGROUND TELECOMMUNICATIONS
- PROPOSED 6' SIDEWALK



LOCATION MAP
NOT TO SCALE

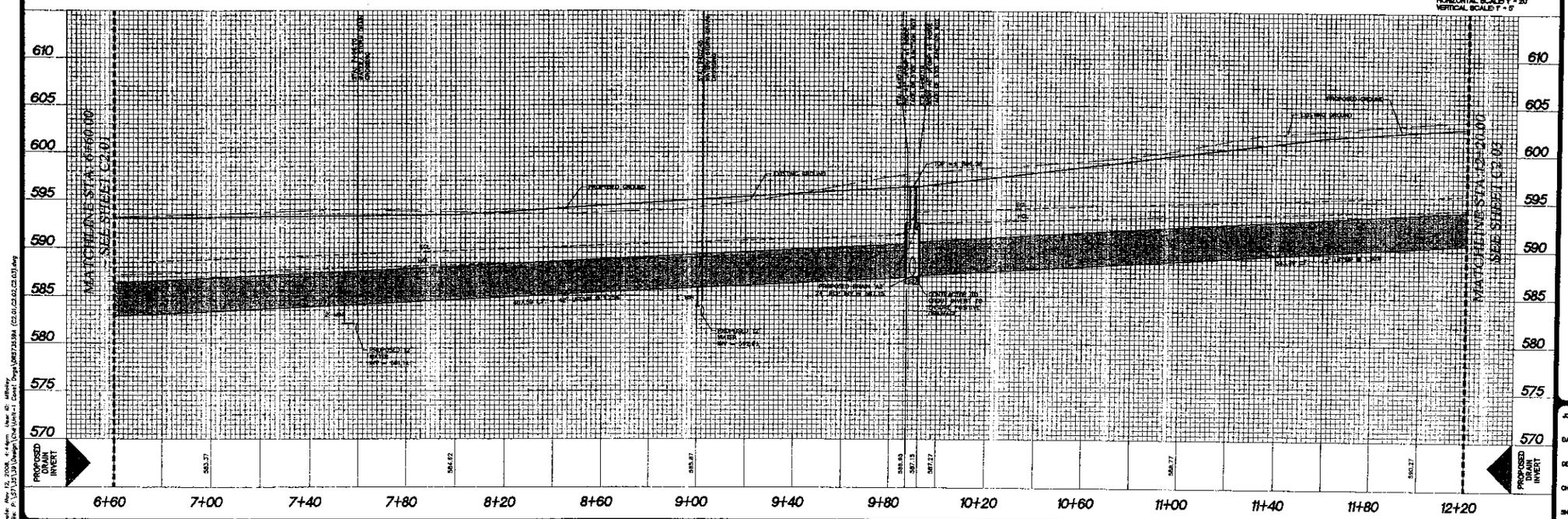
STORM DRAIN CALCULATIONS
42" UFCMP STORM DRAIN
STA: 5+79.51 TO STA: 9+87.10

Q_{design} = 84.55 cfs
D_{IN} = 3.50'
S = 1.25%
S_f = 0.71%
V = 6.78 fps
n = 0.013

STORM DRAIN CALCULATIONS
42" UFCMP STORM DRAIN
STA: 9+92.19 TO STA: 15+26.57

Q_{design} = 84.55 cfs
D_{IN} = 3.50'
S = 1.50%
S_f = 0.73%
V = 6.79 fps
n = 0.013

STORM DRAIN "A"
(STA: 6+60.00 TO 12+20.00)



REVISIONS:

PAPE-DAWSON ENGINEERS
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #100318-00
SHAUNA L. WEINER 85813 LICENSED PROFESSIONAL ENGINEER
1"=5
DATE: OCTOBER 2008
DESIGNED BY: ZP
DRAWN BY: ERV
CHECKED BY: CAC
PAPE-DAWSON ENGINEERS
555 EAST RAMSEY | SAN ANTONIO, TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.9010

BCB-INNER CIRCLE DRIVE, UNIT-1
SAN ANTONIO, TEXAS
DRAIN "A" - PLAN AND PROFILE
(STA: 6+60.00 TO 12+20.00)
(SHEET 2 OF 3)

PLAT NO. 080195

JOB NO. 5735-39
DATE OCTOBER 2008
DESIGNER ZP
CHECKED CAC DRAWN ERV
SHEET C2.02

Date: Nov 13, 2008, 4:44pm User ID: sfeffer
File: P:\5735\39\Design\Civil\Unit-1 Const Drgs\U5873539A (C2.01,C2.02,C2.03).dwg

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VOL 7776 PG 172

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

NOTES:

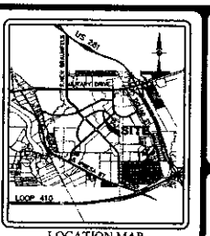
1. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER OR NOT SHOWN ON THIS PLAN. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATION FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. REPAIRS TO ANY EXISTING UTILITIES DAMAGED BY THE CONTRACTOR, WHETHER OR NOT SHOWN ON THIS PLAN, SHALL BE THE SOLE RESPONSIBILITY AND AT THE EXPENSE OF THE CONTRACTOR.
2. THE ENGINEER SHALL PROVIDE ONE (1) SET OF CUT SHEETS AND ONE (1) SET OF CONSTRUCTION STAKES AT 50' INTERVALS FOR EACH DRAIN. CONTRACTOR SHALL LOCATE AND PROTECT CONSTRUCTION STAKES IMMEDIATELY AFTER STAKING IS COMPLETE AND PRIOR TO STARTING WORK. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPLACE ANY CONSTRUCTION STAKES THAT ARE LOST OR DESTROYED DURING CONSTRUCTION.
3. DRAINS MUST BE INSPECTED AND ACCEPTED BY THE CITY OF SAN ANTONIO.
4. CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUNCTION BOXES TO PROVIDE FOR POSITIVE DRAINAGE.
5. ALL CONCRETE SHALL BE CLASS "A" 3000 P.S.I. CYLINDER STRENGTH IN 28 DAYS.
6. REFERENCE DRAINAGE DETAIL SHEET FOR PIPE TRENCH DETAILS.

STORM DRAIN CALCULATIONS
42" UFCMP STORM DRAIN
STA: 9+92.19 TO STA: 15+28.57

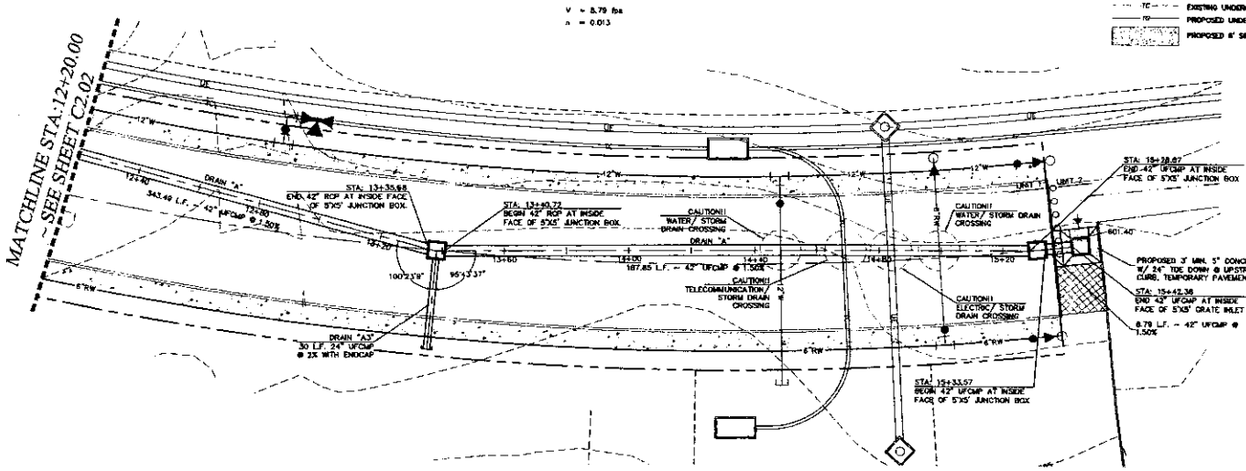
Q_{25} = 84.55 cfs
D_p = 3.50'
S = 1.50%
S_f = 0.73%
V = 8.79 fps
n = 0.013

LEGEND:

- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- STREET CENTER LINE
- PROPOSED CURB
- PROPOSED SANITARY SEWER LINE
- PROPOSED WATER LINE
- EXISTING SANITARY SEWER LINE
- EXISTING WATER LINE
- EXISTING UNDERGROUND ELEC. LINE
- EXISTING UNDERGROUND TELECOMMUNICATIONS
- PROPOSED UNDERGROUND TELECOMMUNICATIONS
- PROPOSED 6' SIDEWALK



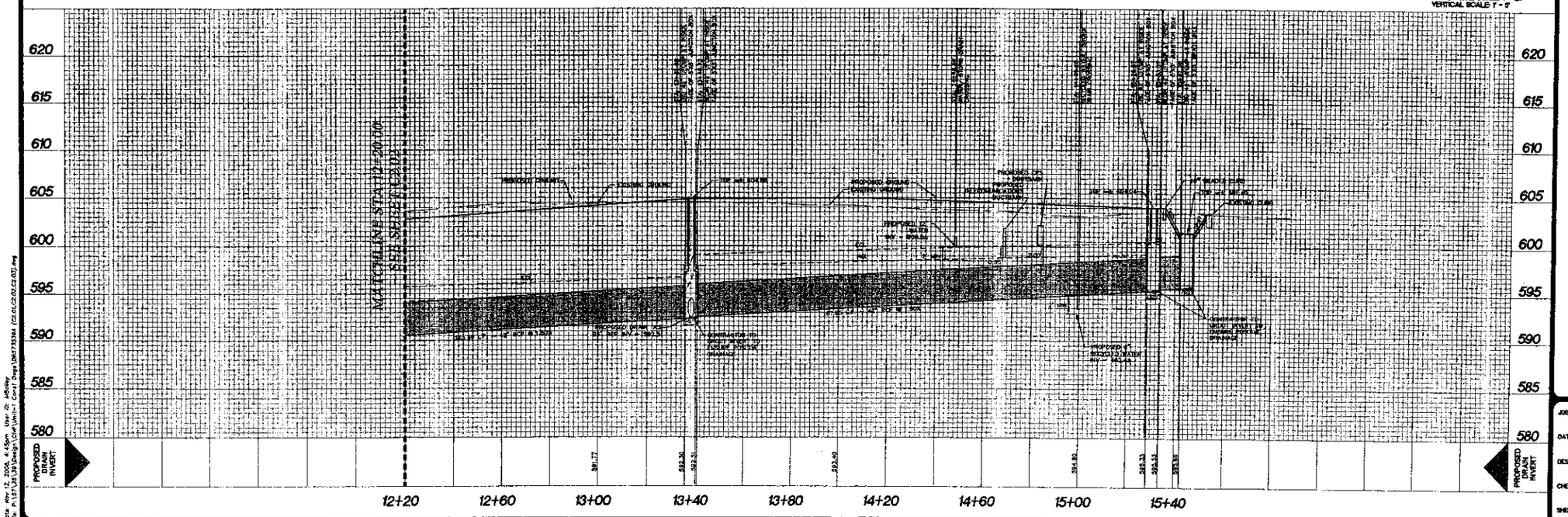
LOCATION MAP
NOT TO SCALE



SCALE: 1"= 20'
0' 20' 40' 60'

STORM DRAIN "A"
(STA: 12+20.00 TO END)

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



REVISIONS:

SHAUNA L. WEAVER
68512
LICENSED PROFESSIONAL ENGINEER
10-13-08

PAPE-DAWSON ENGINEERS
800 EAST RANDOLF | SAN ANTONIO, TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.9010

BCB-INNER CIRCLE DRIVE, UNIT-1
SAN ANTONIO, TEXAS
DRAIN "A" - PLAN AND PROFILE
(STA: 12+20.00 TO END)
(SHEET 3 OF 3)

PLAT NO. 080195

JOB NO. 5735-39
DATE OCTOBER 2008
DESIGNER ZP
CHECKED CAD DRAWN ERV
SHEET C2.03

Date: Nov 12, 2008, 4:45pm User ID: JMabry
File: P:\JT\JOB\5735-39\Design\Civil\Unit-1 Graf Sheets\5735739A (C2.01,C2.02,C2.03).dwg

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Date: Oct 01, 2008, 2:13pm User ID: ZPayne
File: P:\571\351\39\Design\Civil\Unit-1 Const Docs\QR5735308 (C2.04).dwg

TRENCH EXCAVATION SAFETY PROTECTION

EXCAVATION AND TRENCH SAFETY PROTECTION SYSTEMS
DURING EXCAVATION, CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS, REGULATIONS AND STANDARDS OF ANY REGULATORY BODY HAVING JURISDICTION OVER CONSTRUCTION OR EXCAVATION SAFETY AND HEALTH. CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND EXECUTE ALL WORK OR PROCEDURES REQUIRED BY SUCH LAWS, REGULATIONS AND STANDARDS IN ORDER TO PROVIDE A SAFE AND HEALTHFUL WORK ENVIRONMENT. CONTRACTOR SHALL DESIGN, FURNISH, INSTALL, MAINTAIN AND USE ALL EXCAVATION SAFETY SYSTEMS AND SHALL BE SOLELY RESPONSIBLE FOR THE ADEQUACY OF SUCH SYSTEMS. CONTRACTOR SHALL REMOVE THESE PLANS AND ANY AVAILABLE GEOTECHNICAL REPORTS FROM THE PROJECT SITE UPON COMPLETION OF THE WORK. IF ANY SHALL REMAIN, CONTRACTOR SHALL DESTROY THEM BEFORE LEAVING THE PROJECT SITE. CONTRACTOR SHALL ENSURE THAT ALL EXCAVATION SITES WITHIN THE PROJECT WORK AREA IN CHARGE OF A COMPETENT PERSON AS DEFINED BY OSHA REGULATIONS. CONTRACTOR SHALL ENSURE THAT ALL EXCAVATION SITES ARE INSPECTED DAILY BY A COMPETENT PERSON BEFORE WORK BEGINS AND AS NEEDED THROUGHOUT THE SHIFT. ANY DEFECTS OR HAZARDS FOUND BY THE COMPETENT PERSON SHALL BE CORRECTED BEFORE WORK CONTINUES IN THE AFFECTED AREA. CONTRACTOR SHALL ENSURE THAT ALL EXCAVATION SAFETY SYSTEMS ARE INSPECTED DAILY BY A COMPETENT PERSON AS DEFINED BY OSHA REGULATIONS. CONTRACTOR SHALL ENSURE THAT ALL EXCAVATION SAFETY SYSTEMS ARE INSPECTED DAILY BY A COMPETENT PERSON AS DEFINED BY OSHA REGULATIONS. CONTRACTOR SHALL ENSURE THAT ALL EXCAVATION SAFETY SYSTEMS ARE INSPECTED DAILY BY A COMPETENT PERSON AS DEFINED BY OSHA REGULATIONS.

NOTES:

1. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES BEFORE BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY LOCATIONS AND ELEVATIONS. ANY CONFLICTS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION. REPAIRS TO ANY EXISTING UTILITIES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE MADE AT THE EXPENSE OF THE CONTRACTOR.
2. THE ENGINEER SHALL PROVIDE ONE (1) SET OF CUT SHEETS AND PLAN SHALL BE THE SOLE RESPONSIBILITY AND AT THE EXPENSE OF THE CONTRACTOR.
3. MATERIAL SHALL BE INSPECTED AND ACCEPTED BY THE CITY OF SAN ANTONIO.
4. CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUNCTION BOXES TO PROVIDE FOR POSITIVE DRAINAGE.
5. ALL CONCRETE SHALL BE CLASS "A" 3000 P.S.I. CYLINDER STRENGTH IN 28 DAYS.
6. REFERENCE DRAINAGE DETAIL SHEET FOR PIPE TRENCH DETAILS.

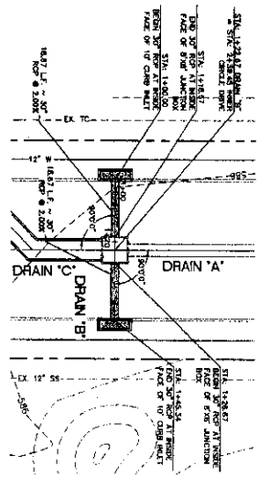
LEGEND:

- EXISTING 5' CONTOUR
- EXISTING 1' CONTOUR
- STREET CENTER LINE
- PROPOSED CURB
- PROPOSED SANITARY SEWER LINE
- PROPOSED WATER LINE
- EXISTING SANITARY SEWER LINE
- EXISTING WATER LINE
- EXISTING UNDERGRND ELEC. LINE
- EXISTING UNDERGROUND TELECOMMUNICATIONS
- PROPOSED UNDERGROUND TELECOMMUNICATIONS
- PROPOSED 6' SIDEWALK

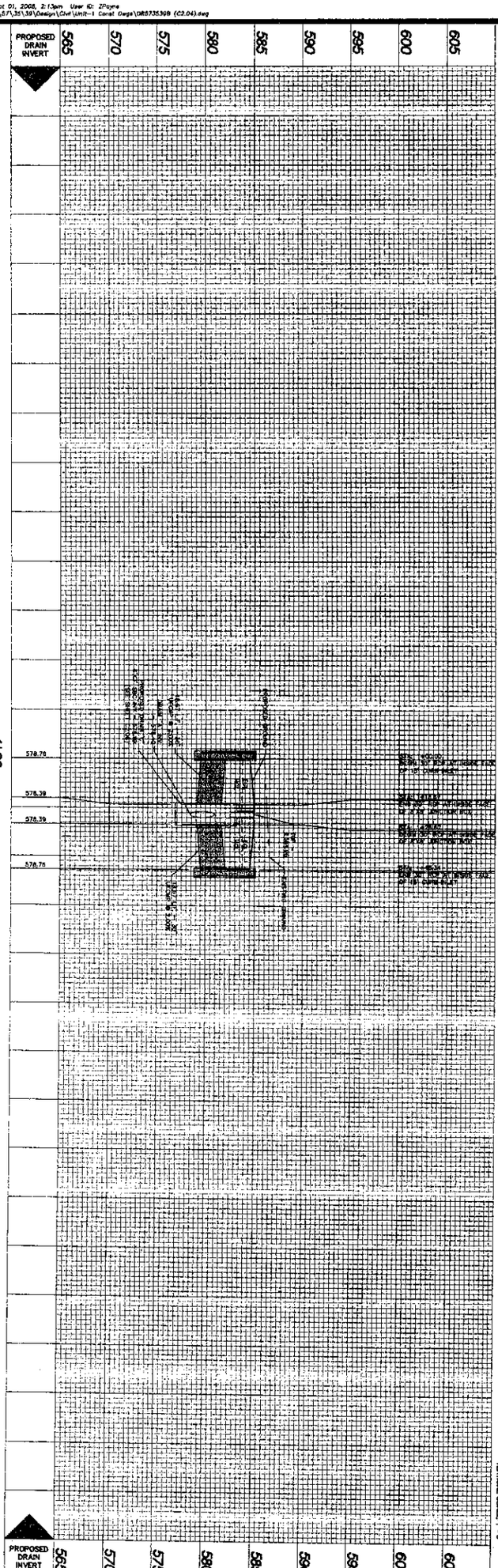
STORM DRAIN CALCULATIONS
30" UTICA STORM DRAIN
STA. 14+00.00 – STA. 11+45.33

Q_{100} = 19.87 cfs
D_p = 2.67
S = 2.00%
S_f = .34%
V = 4.67 fps
n = 0.013

Curb Inlet In Sag Design		
Q = Q₁₀₀/3.0=7.62		
DRAIN 'B'		
Curb Inlet In Sag (UDC Section 15-5060(J)(4))		
Qin	19.94	(Flowrate, cfs)
Qbypass	12.00	(Carryover Flow from Drain 'B', cfs)
Qcurb	19.87	(Flow to one inlet in sag, cfs)
Depth	0.83	(Depth of Water at Opening in feet)
Curb Inlet Length (UDC Section 15-5060(J)(4))		
Length	8.21	(Length of inlet Required)
Use Inlet Length of	10	Type C Inlets

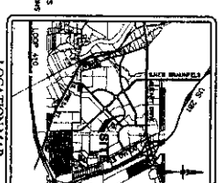


STORM DRAIN 'B' (STA: 11+00.00 TO END)



HORIZONTAL SCALE: 1" = 60'
VERTICAL SCALE: 1" = 6'

SCALE: 1" = 20'
0' 20' 40' 60'



LOCATION MAP
NOT TO SCALE

BCB-INNER CIRCLE DRIVE, UNIT-1
SAN ANTONIO, TEXAS

DRAIN "B" - PLAN AND PROFILE
(SHEET 1 OF 1)

PLAT NO. 080195
JOB NO. 5735.39
DATE AUGUST 2008
DESIGNED JF
DRAWN
CHECKED CAD OP
SHEET -

PAPE-DAWSON ENGINEERS
555 EAST RAMSEY | SAN ANTONIO TEXAS 78216 | PHONE 210.375.9000 FAX 210.375.9010

STATE OF TEXAS
SHAUNA L. WEAVER
89513
LICENSED
PROFESSIONAL ENGINEER
10-3-08

REVISIONS:

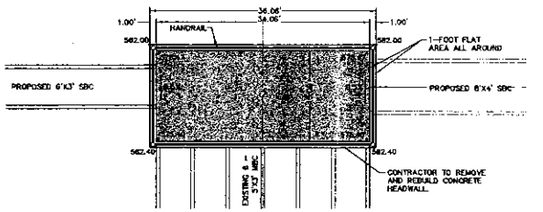
VOL 7771 PG 1174

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

NOTES:

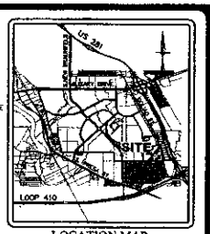
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5. ALL CONCRETE SHALL BE CLASS "A" 3000 P.S.I. CYLINDER STRENGTH IN 28 DAYS.
6. REFERENCE DRAINAGE DETAIL SHEET FOR PIPE TRENCH DETAILS.



DETAIL 'A'
SCALE: 1" = 10'

LEGEND:

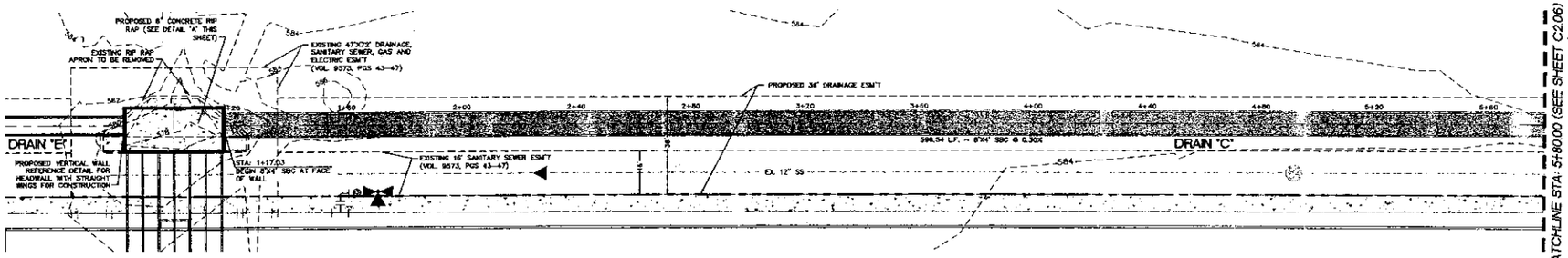
- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- STREET CENTER LINE
- PROPOSED CURB
- PROPOSED SANITARY SEWER LINE
- PROPOSED WATER LINE
- EXISTING SANITARY SEWER LINE
- EXISTING WATER LINE
- EXISTING UNDERGRND ELEC. LINE
- PROPOSED 6' SIDEWALK



LOCATION MAP
NOT TO SCALE

STORM DRAIN CALCULATIONS
8' X 4' S.B.C.
STA: 1+17.03 TO STA: 7+13.57

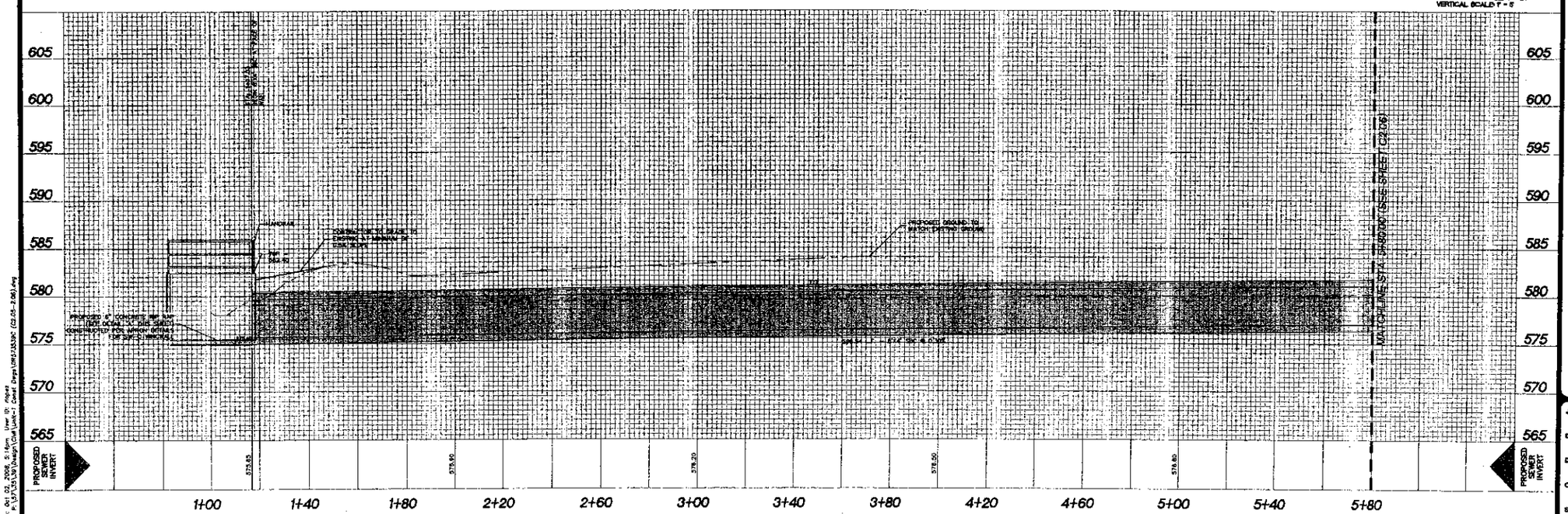
Q_{25} = 228.5 cfs
Q_{10} = 3.47'
S = 0.30%
S_f = 0.23%
V = 8.23 fps
n = 0.013



SCALE: 1"= 20'
0' 20' 40' 60'

STORM DRAIN "C"
(STA: 1+00.00 TO 5+80.00)

HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'



PAPE-DAWSON ENGINEERS
800 EAST RANDOLF | SAN ANTONIO, TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.9010

REVISIONS:

SHAUNA L. WEAVER 85572 LICENSED PROFESSIONAL ENGINEER 3-08

BCB-INNER CIRCLE DRIVE, UNIT-1

SAN ANTONIO, TEXAS

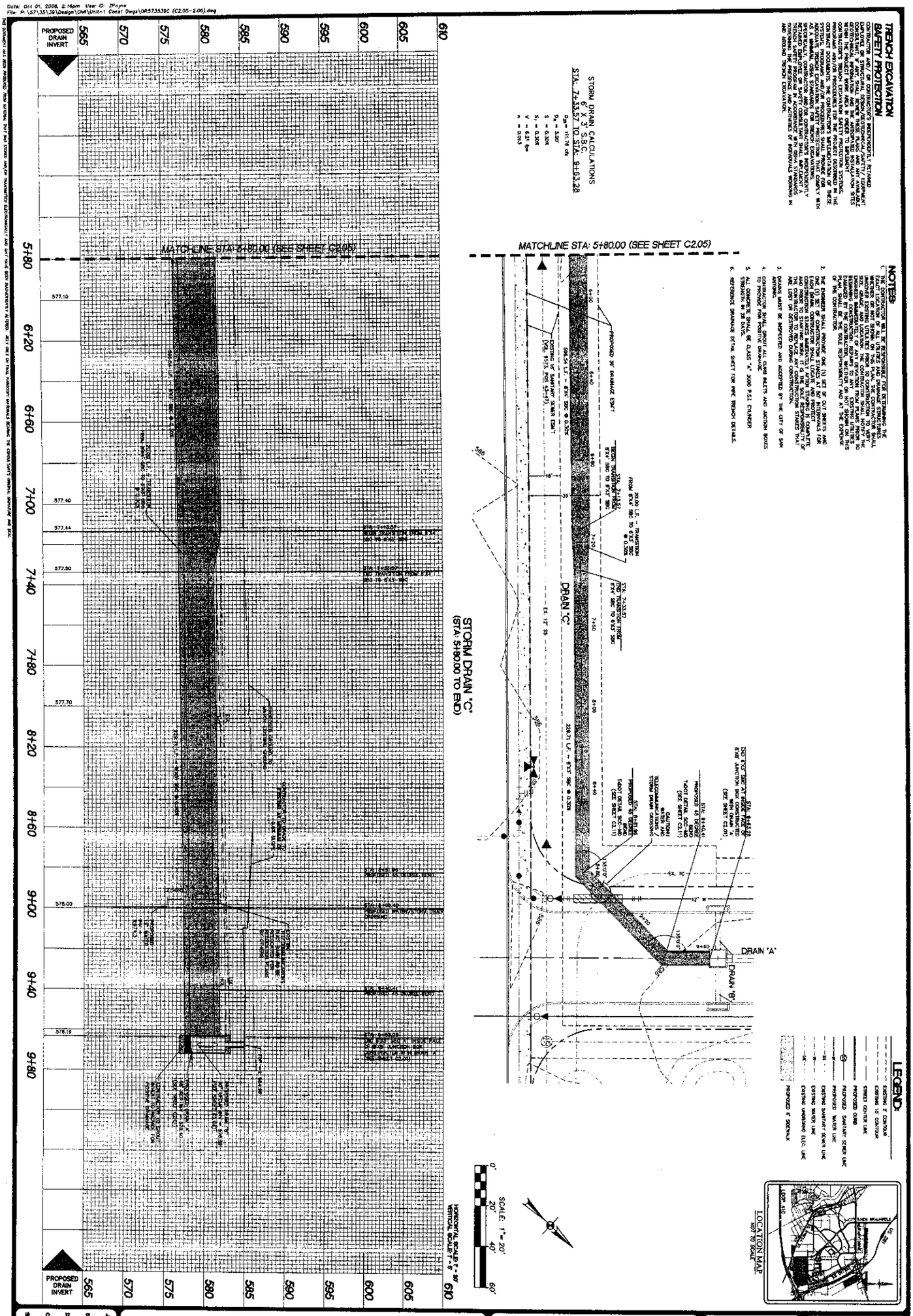
DRAIN "C" - PLAN AND PROFILE
(STA: 1+00.00 TO 5+80.00)
(SHEET 1 OF 2)

PLAT NO. 080195

JOB NO. 5735-39
DATE OCTOBER 2008
DESIGNER ZP
CHECKED CAO DRAWN ERY
SHEET C2.05

Date: Oct 02, 2008, 8:18pm User ID: rfloyd
File: K:\5735\39\Design\Civil\Unit-1 Drains\DRN5735392 (C2.05-2.06).dwg

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PLAT NO. 080185

BCB-INNER CIRCLE DRIVE, UNIT-1
SAN ANTONIO, TEXAS
DRAIN "C" - PLAN AND PROFILE
(STA: 5+80.00 TO END)
(SHEET 2 OF 2)

PAPE-DAWSON ENGINEERS
555 EAST RAMSEY | SAN ANTONIO, TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.9010

SHAUNA L. WEAVER 89512 LICENSED PROFESSIONAL ENGINEER 10-3-08

REVISIONS:

JOB NO. 575-09
DATE AUGUST 2008
DESIGNER ZF
CHECKED CAD DRAW. BY:
SHEET C2.06

VOL 9577 PG 179

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

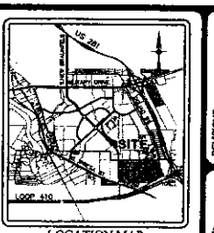
NOTES:

1. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES, WHETHER OR NOT SHOWN ON THIS PLAN. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATION FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. REPAIRS TO ANY EXISTING UTILITIES DAMAGED BY THE CONTRACTOR, WHETHER OR NOT SHOWN ON THIS PLAN, SHALL BE THE SOLE RESPONSIBILITY AND AT THE EXPENSE OF THE CONTRACTOR.
2. THE ENGINEER SHALL PROVIDE ONE (1) SET OF CUT SHEETS AND ONE (1) SET OF CONSTRUCTION STAKES AT 50' INTERVALS FOR EACH DRAIN. CONTRACTOR SHALL LOCATE AND PROTECT CONSTRUCTION STAKES IMMEDIATELY AFTER STAKING IS COMPLETE AND PRIOR TO STARTING WORK. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPLACE ANY CONSTRUCTION STAKES THAT ARE LOST OR DESTROYED DURING CONSTRUCTION.
3. DRAINS MUST BE INSPECTED AND ACCEPTED BY THE CITY OF SAN ANTONIO.
4. CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUCTION BOXES TO PROVIDE FOR POSITIVE DRAINAGE.
5. ALL CONCRETE SHALL BE CLASS "A" 3000 P.S.I. CYLINDER STRENGTH @ 28 DAYS.
6. REFERENCE DRAINAGE DETAIL SHEET FOR PIPE TRENCH DETAILS.

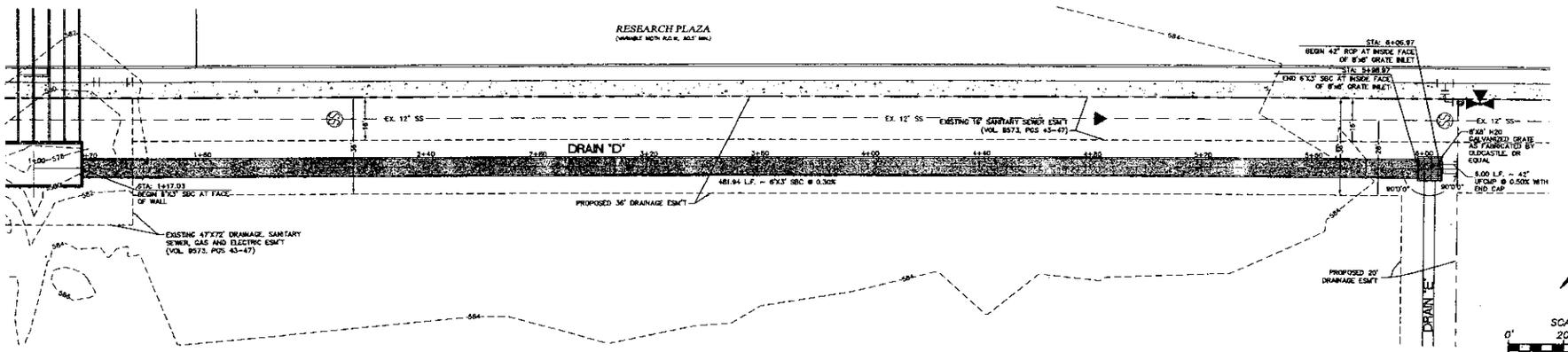
STORM DRAIN CALCULATIONS
6' X 3' S.B.C.
STA: 1+17.03 TO STA: 5+97.97

Q_{25} = 218.69 cfs
D_W = 3.00'
S = 0.30%
S_f = 0.444%
V = 7.61 fps
n = 0.013

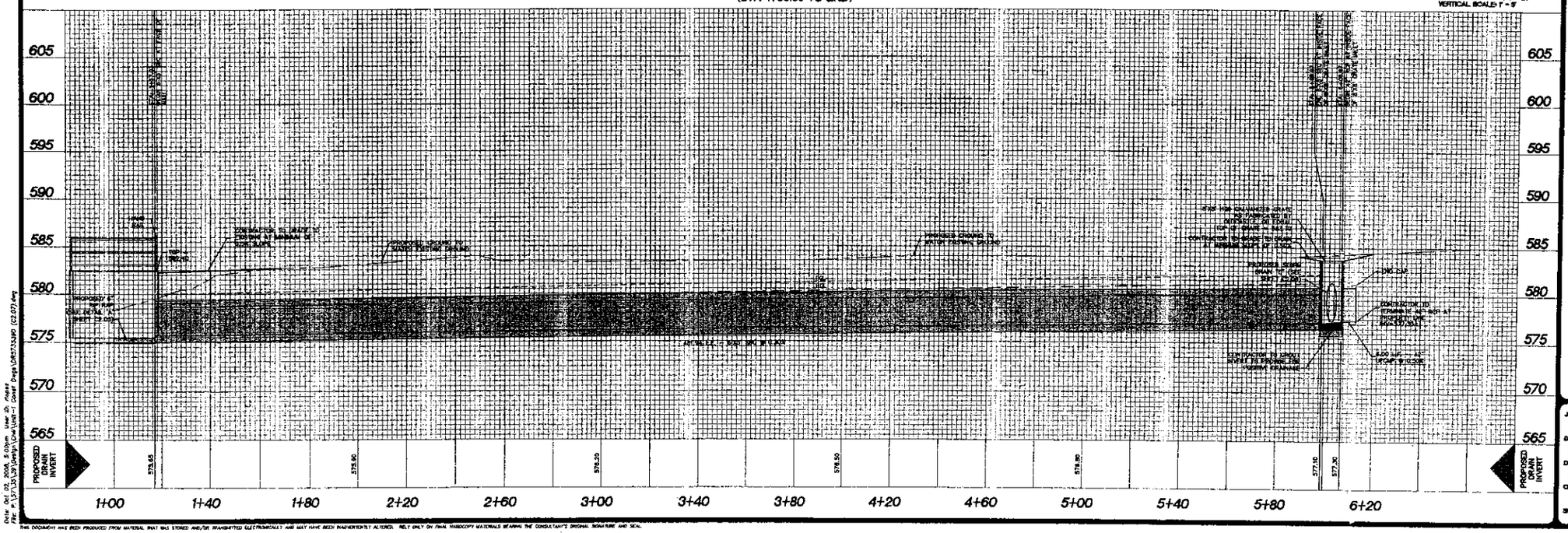
LEGEND:
- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- STREET CENTER LINE
- PROPOSED CURB
- PROPOSED SANITARY SEWER LINE
- PROPOSED WATER LINE
- EXISTING SANITARY SEWER LINE
- EXISTING WATER LINE
- EXISTING UNDERGRND ELEC. LINE
- PROPOSED 6' SIDEWALK



LOCATION MAP
NOT TO SCALE



STORM DRAIN "D"
(STA: 1+00.00 TO END)



REVISIONS:

SHAUNA L. WEAVER 85572 LICENSED PROFESSIONAL ENGINEER 10-3-08

PAPE-DAWSON ENGINEERS
850 EAST PARK | SAN ANTONIO, TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.9010

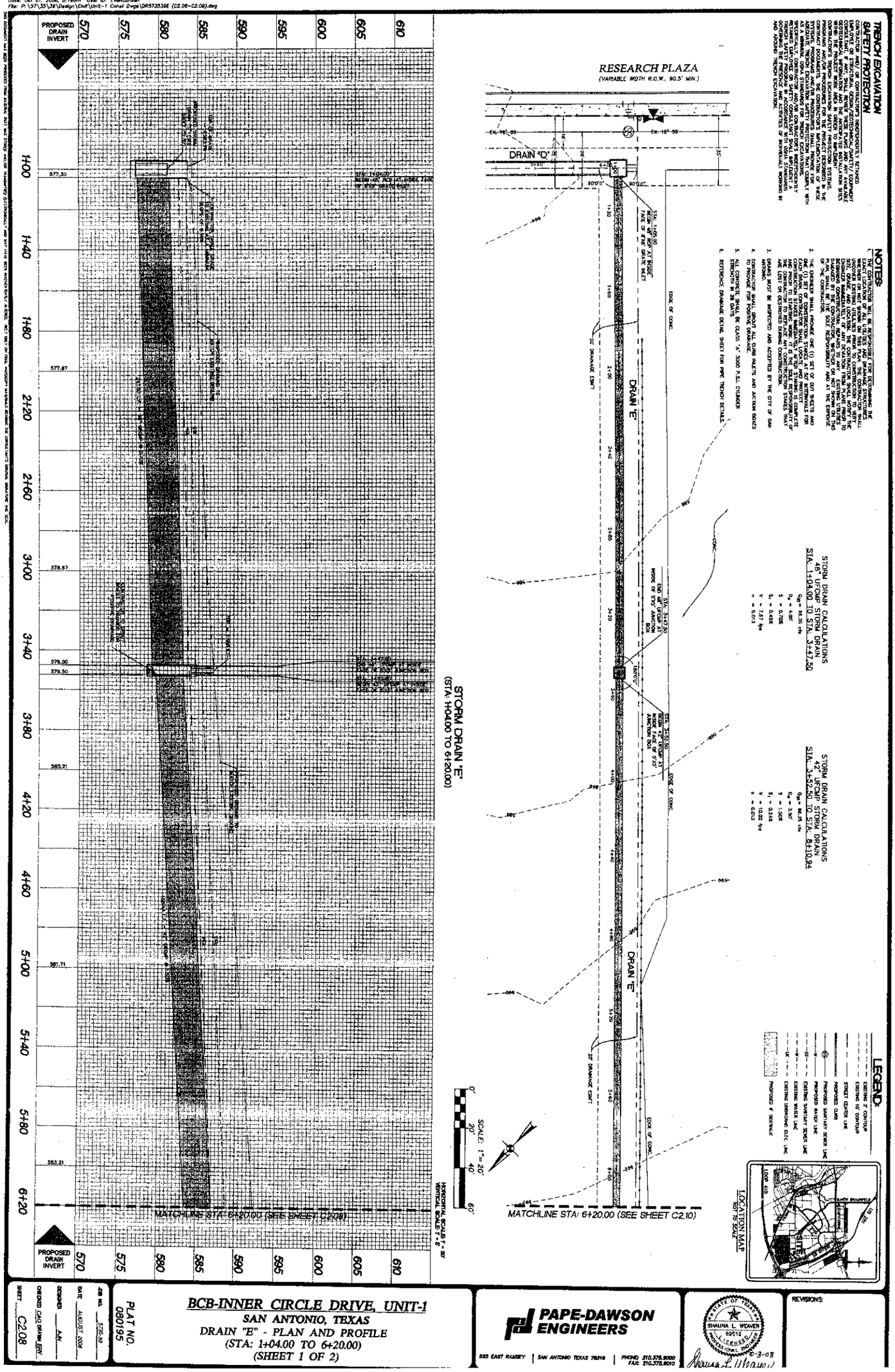
BCB-INNER CIRCLE DRIVE, UNIT-1
SAN ANTONIO, TEXAS
DRAIN "D" - PLAN AND PROFILE
(STA: 1+00.00 TO END)
(SHEET 1 OF 1)

PLAT NO. 080195

JOB NO. 5735-39
DATE OCTOBER 2008
DESIGNER AJN
CHECKED CAD DRAWN ERV
SHEET C2.07

Date: Oct 03, 2008, 5:02pm User ID: rhoad
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PLAT NO. 080195

BCB-INNER CIRCLE DRIVE, UNIT-1

SAN ANTONIO, TEXAS

DRAIN "E" - PLAN AND PROFILE

(STA: 1+04.00 TO 6+20.00)

(SHEET 1 OF 2)

JOB NO. 5726-09

DATE AUGUST 2008

DESIGNER AJN

CHECKED CAD DRAWN BY

SHEET C2.08

PAPE-DAWSON ENGINEERS

555 EAST RAMSEY | SAN ANTONIO TEXAS 78216 | PHONE 210.375.9000 FAX 210.375.9010

STATE OF TEXAS SHAUNA L. WEAVER 89512 LICENSED PROFESSIONAL ENGINEER 10-3-08

REVISIONS:

Date: Oct 02, 2008, 4:51pm User ID: rlopez
File: P:\37\35\39\Design\Civil\Unit-1 Const Dwgs\DR373539E (C2.08-C2.09).dwg

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TRENCH EXCAVATION SAFETY PROTECTION

THE CONTRACTOR IS RESPONSIBLE FOR ALL TRENCH EXCAVATION SAFETY PROTECTION AND SHALL COMPLY WITH ALL APPLICABLE REGULATIONS INCLUDING OSHA REGULATIONS. THE CONTRACTOR SHALL DESIGN AND CONSTRUCT ALL TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS IN ACCORDANCE WITH OSHA STANDARDS FOR TRENCH EXCAVATIONS. THE CONTRACTOR SHALL ALSO COMPLY WITH ALL LOCAL, STATE AND FEDERAL SAFETY REGULATIONS INCLUDING THE LATEST EDITION OF THE TRENCH SAFETY MANUAL PUBLISHED BY THE TEXAS DEPARTMENT OF TRANSPORTATION. THE CONTRACTOR'S REPRESENTATIVE SHALL BE A COMPETENT PERSON AS DEFINED BY OSHA STANDARDS AND SHALL BE EXPERIENCED IN THE DESIGN AND CONSTRUCTION OF TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS. THE CONTRACTOR SHALL EMPLOY AT LEAST ONE (1) COMPETENT PERSON AT EACH TRENCH EXCAVATION SITE WHO SHALL BE RESPONSIBLE FOR DAILY INSPECTIONS OF TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS. IF REQUIRED BY LAW OR REGULATION, THE COMPETENT PERSON SHALL BE REGISTERED AS A PROFESSIONAL ENGINEER. THE CONTRACTOR SHALL SUBMIT A TRENCH EXCAVATION SAFETY PROTECTION PLAN TO THE ENGINEER FOR INFORMATION PURPOSES PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR'S REPRESENTATIVE SHALL BE PRESENT AT ALL TIMES WHEN TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS ARE IN USE. THE CONTRACTOR'S REPRESENTATIVE SHALL HAVE THE AUTHORITY TO IMPLEMENT CHANGES IN THE TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS AS NECESSARY TO MAINTAIN COMPLIANCE WITH ALL APPLICABLE REGULATIONS. THE CONTRACTOR'S REPRESENTATIVE SHALL BE RESPONSIBLE FOR ENFORCING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

NOTES:

1. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES SHOWN ON THESE PLANS AND ANY OTHER UTILITIES OR STRUCTURES NOT SHOWN ON THESE PLANS AND SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, LOCATION AND ELEVATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY VARIATION FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. REPAIRS TO ANY EXISTING UTILITIES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE MADE AT THE EXPENSE OF THE CONTRACTOR.
2. THE ENGINEER SHALL PROVIDE ONE (1) SET OF CUT SHEETS AND COORDINATE WITH THE CONTRACTOR FOR LAYOUT DETAILS FOR EACH DRAIN. CONTRACTOR SHALL LOCATE AND PROTECT CONSTRUCTION CONTROL MONUMENTS AND BENCHMARKS FOR THE DURATION OF THE PROJECT. CONTRACTOR SHALL BE THE SOLE RESPONSIBILITY AND PAY FOR ANY RESETTING WORK IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPLACE ANY CONSTRUCTION STAKES THAT ARE DISTURBED DURING CONSTRUCTION.
3. DRAINS MUST BE INSPECTED AND ACCEPTED BY THE CITY OF SAN ANTONIO.
4. CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUNCTION BOXES TO PROVIDE FOR POSITIVE DRAINAGE.
5. ALL CONCRETE SHALL BE CLASS "A" 3000 P.S.I. CYLINDER STRENGTH IN 28 DAYS.
6. REFERENCE DRAINAGE DETAIL SHEET FOR PIPE TRENCH DETAILS.

STORM DRAIN CALCULATIONS

42" RCP STORM DRAIN
STA. 3+52.50 TO STA. 8+10.94

Q_{des} = 96.35 cfs
S_o = 3.50%
S = 1.50%
S_f = 0.234%
V = 10.02 fps
n = 0.013

LEGEND:

- EXISTING 5' CONTOUR
- EXISTING 10' CONTOUR
- STREET CENTER LINE
- PROPOSED D/S8
- PROPOSED SANITARY SEWER LINE
- EXISTING SANITARY SEWER LINE
- EXISTING WATER LINE
- EXISTING OVERHEAD ELEC LINE
- PROPOSED 6' SIDEWALK

MATCHLINE STA: 6+20.00 (SEE SHEET C2.09)

STORM DRAIN 'E'
(STA: 6+20.00 TO END)

MATCHLINE STA: 6+20.00 (SEE SHEET C2.09)

PROPOSED DRAIN INVERT
570 575 580 585 590 595 600 605 610
6+20 6+60 7+00 7+40 7+80 8+20
564.72
566.22
566.38

CONTRACTOR SHALL REPAIR EXISTING FENCE SEPARATE PAY

EXISTING CONCRETE PAVEMENT (REPLACEMENT NOT REQUIRED)

EXISTING WATER TO BE CUT, CAPPED AND ABANDONED IN-PLACE

STA: 8+10.94 END 42" RCP AT JUNCTION BOX

EX 10"W

EX 36" STORM DRAIN

CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING 36" STORM DRAIN TO BE CUT AND CAP AT LOCATION OF ANY PORTION OF DRAIN 'E'

CONTRACTOR TO TIE EXISTING 36" STORM DRAIN TO PROPOSED JUNCTION BOX AS SHOWN ON PLAN & EXISTING DRAIN LATERAL TO PROPOSED JUNCTION BOX AT LOCATION ACCEPTANCE OF PROPOSED DRAIN.

EXISTING 36" RCP STORM DRAIN TO BE CUT, CAPPED AND ABANDONED IN-PLACE. SEE PLAN AND PROFILE FOR DEMOLITION PLAN FOR DETAILS.

SCALE: 1" = 20'
0' 20' 40' 60'
HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'

LOCATION MAP
NOT TO SCALE

LOOP 410

REVISIONS:

SHAUNA L. WEAVER
89512
LICENSED
PROFESSIONAL ENGINEER
10-3-08

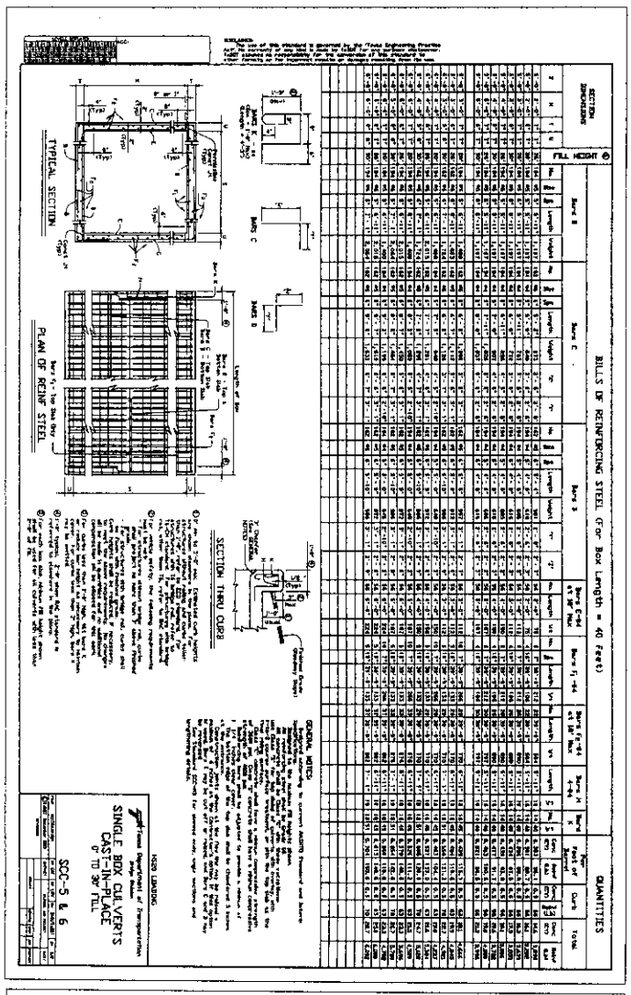
PAPE-DAWSON ENGINEERS
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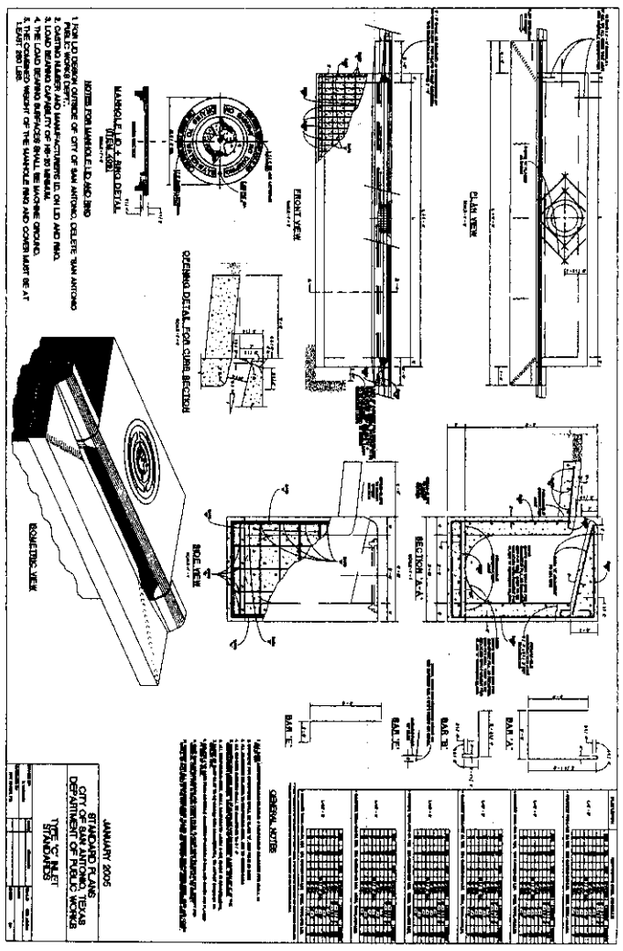
BCB-INNER CIRCLE DRIVE, UNIT-1
SAN ANTONIO, TEXAS
DRAIN "E" - PLAN AND PROFILE
(STA: 6+20.00 TO END)
(SHEET 2 OF 2)

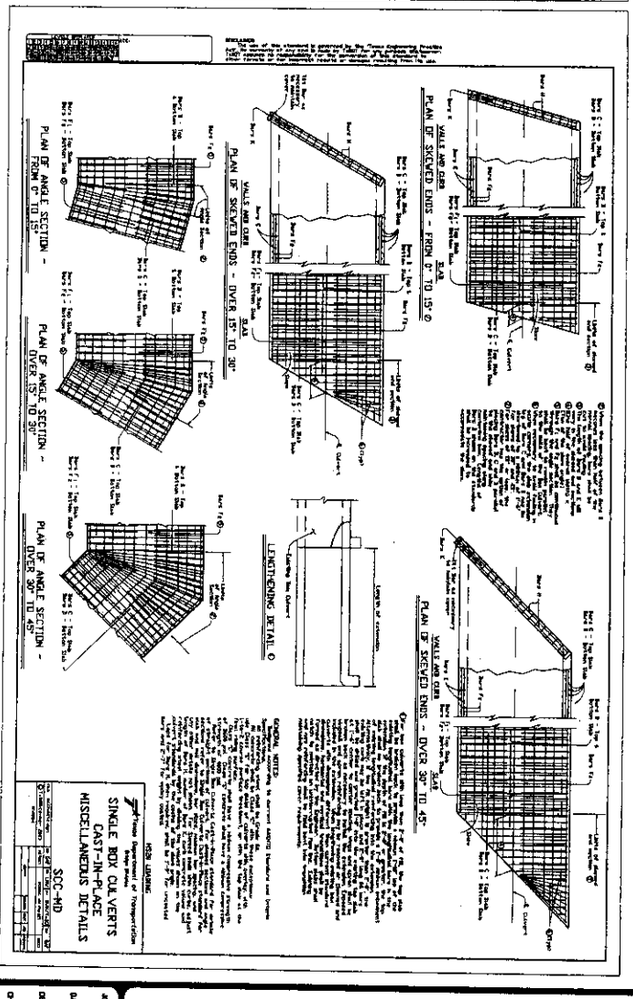
PLAT NO. 080195

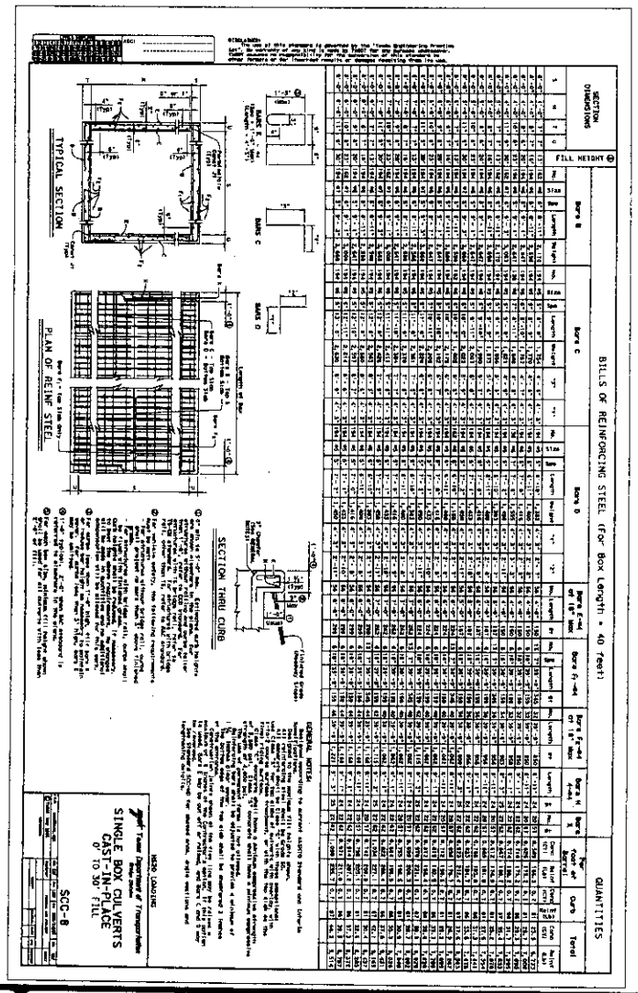
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DATE OCTOBER 2008
DESIGNER AM
DRAWN BY CAD DRAWN BY
CHECKED CAD CHECKED BY
SHEET C2.09

Date: Oct 02, 2008, 5:03pm User ID: rlopez
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BCB-INNER CIRCLE DRIVE, UNIT 1

SAN ANTONIO, TEXAS
DRAIN DETAILS
SHEET 1 OF 2

PAPE-DAWSON ENGINEERS

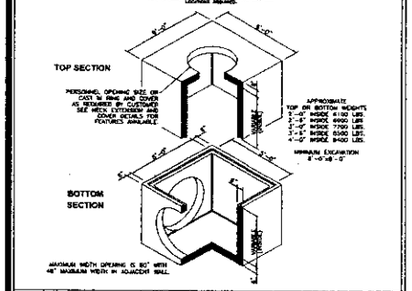
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SHAUNA L. WEAVER 89512 LICENSED PROFESSIONAL ENGINEER 03-08

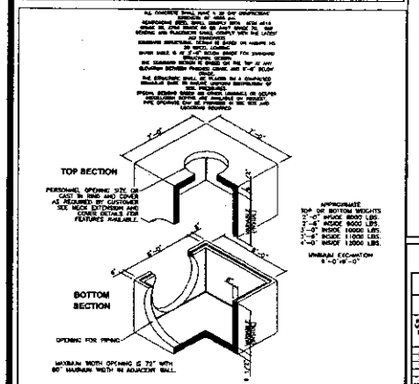
REVISIONS:

JOB NO. 573539
DATE OCTOBER 2008
DESIGNED GAO
DRAWN GDC
CHECKED GAO
SHEET C2.10

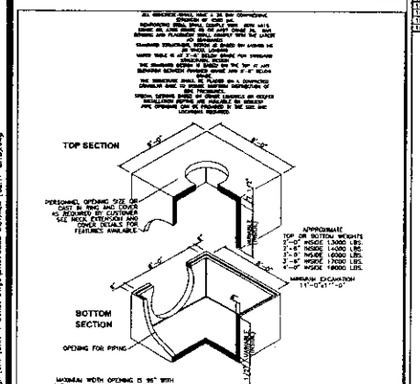
VOL 7777 PG 180



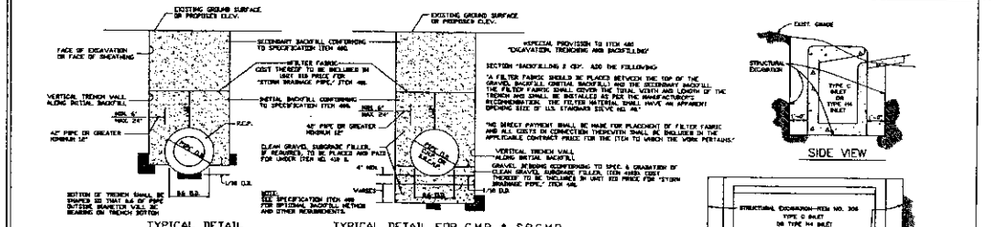
Oldcastle Precast	55-J	6'-0"x5'-0" 2-PIECE JUNCTION BOX
1800 Rittiman Road San Antonio, TX 78214 Phone: (210) 923-4563 Fax: (210) 721-0473	FILE NAME: 55J00.dwg ISSUE DATE: March, 2000	

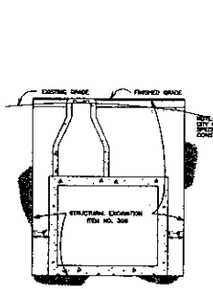


Oldcastle Precast	66-J	6'-0"x6'-0" 2-PIECE JUNCTION BOX
1800 Rittiman Road San Antonio, TX 78214 Phone: (210) 923-4563 Fax: (210) 721-0473	FILE NAME: 66J00.dwg ISSUE DATE: March, 2000	



Oldcastle Precast	88-J	8'-0"x8'-0" 2-PIECE JUNCTION BOX
1800 Rittiman Road San Antonio, TX 78214 Phone: (210) 923-4563 Fax: (210) 721-0473	FILE NAME: 88J00.dwg ISSUE DATE: March, 2000	





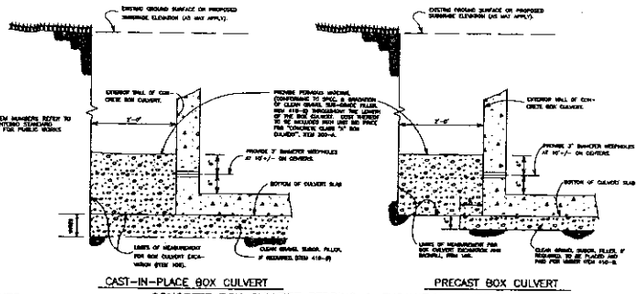


TABLE OF DIMENSIONS & REINFORCING STEEL
(Wings For One Structure End)

Dimensions					Reinforcing Schedule				Estimated Quantities (Per Wing)	
Maximum Height of Wall H	W	X	T	Z	Bars Ja		Bars Jb		Reinf. Steel	Conc.
					Size	Spa.	Size	Spa.	Weight (lbs)	Quantity (CY)
4'-0"	1'-0"	1'-0"	1'-0"	1'-0"	#4	12"	#4	12"	93.24	0.456
4'-0"	1'-0"	1'-0"	1'-0"	1'-6"	#4	12"	#4	12"	93.24	0.456
4'-0"	1'-0"	1'-0"	1'-0"	2'-0"	#4	12"	#4	12"	93.24	0.456
4'-0"	1'-0"	1'-0"	1'-0"	2'-6"	#4	12"	#4	12"	93.24	0.456
4'-0"	1'-0"	1'-0"	1'-0"	3'-0"	#4	12"	#4	12"	93.24	0.456
4'-0"	1'-0"	1'-0"	1'-0"	3'-6"	#4	12"	#4	12"	93.24	0.456
4'-0"	1'-0"	1'-0"	1'-0"	4'-0"	#4	12"	#4	12"	93.24	0.456
4'-0"	1'-0"	1'-0"	1'-0"	4'-6"	#4	12"	#4	12"	93.24	0.456
4'-0"	1'-0"	1'-0"	1'-0"	5'-0"	#4	12"	#4	12"	93.24	0.456
4'-0"	1'-0"	1'-0"	1'-0"	5'-6"	#4	12"	#4	12"	93.24	0.456
4'-0"	1'-0"	1'-0"	1'-0"	6'-0"	#4	12"	#4	12"	93.24	0.456
4'-0"	1'-0"	1'-0"	1'-0"	6'-6"	#4	12"	#4	12"	93.24	0.456
4'-0"	1'-0"	1'-0"	1'-0"	7'-0"	#4	12"	#4	12"	93.24	0.456
4'-0"	1'-0"	1'-0"	1'-0"	7'-6"	#4	12"	#4	12"	93.24	0.456
4'-0"	1'-0"	1'-0"	1'-0"	8'-0"	#4	12"	#4	12"	93.24	0.456
4'-0"	1'-0"	1'-0"	1'-0"	8'-6"	#4	12"	#4	12"	93.24	0.456
4'-0"	1'-0"	1'-0"	1'-0"	9'-0"	#4	12"	#4	12"	93.24	0.456
4'-0"	1'-0"	1'-0"	1'-0"	9'-6"	#4	12"	#4	12"	93.24	0.456
4'-0"	1'-0"	1'-0"	1'-0"	10'-0"	#4	12"	#4	12"	93.24	0.456

TABLE OF WINGWALL SKEW GROUPS

Skew	Group	Max. Z	Skew
0°	1	10'-0"	0°
5°	1	10'-0"	5°
10°	1	10'-0"	10°
15°	1	10'-0"	15°
20°	1	10'-0"	20°
25°	1	10'-0"	25°
30°	1	10'-0"	30°
45°	1	10'-0"	45°

TABLE OF ESTIMATED CULVERT TRANSITL QUANTITIES

Type	Reinf. Steel (lbs)	Conc. (CY)
Wingwall	1,860	1.70
Apron	1,860	2.05
Conc. (CY/FT)		3.677

WING DIMENSION CALCULATIONS:
Formulae: (All dimensions are in Feet)
Hy = H + T + C - S2SW
Ly = (Hy - 0.5237) CSJ
For Cast-in-place culverts
Lhy = .66 (Z+X - Dy + .5)
For Precast culverts
Lhy = .66 (Z+X - Dy + .5) (B/T)
Total Wingwall Area (Two Wings) = 1.73*Hy*Ly - 0.5237 Ly2

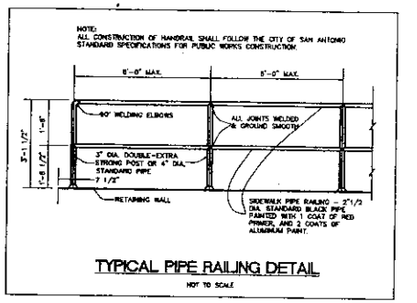
W = Height of Wingwall
Hy = Wall Height At Any Perpendicular Vertical
Ly = Length of Wingwall
Lhy = Length of Wingwall Horizontal
See applicable box culvert standard for H, S, T, and U values.

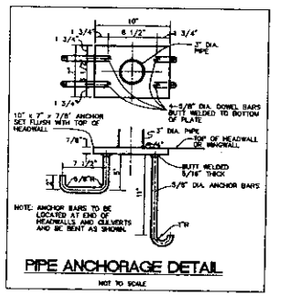
1. Extend bars P 3'-0" minimum into bottom slab of culvert.
2. Adjust to fit as necessary to maintain 1 1/4" clear cover and 4" minimum between bars.
3. Reinforcing steel shall be placed as wingwall ship height for the wings from structural angle to terminus taper. For Precast culverts the Trabuculad values.
4. Recommended values of Slope are: 1H, 3V, 4V, & 6V.
5. Where shown elsewhere on the plans, a 6" deep concrete cut off wall is required at the end of the wingwall. Where a series of wingwalls are used, the cut off wall shall be placed at the end of the last wingwall. The cut off wall shall be keyed into the subgrade by excavating a trench 6" deep and 6" wide. Concrete for cut off wall shall be placed against undisturbed soil. Bars or galvanized bolts, embedded in the concrete cut off wall, shall be provided to anchor the top of wingwall to the cut off wall. Spacing of anchors shall be the same as the spacing of the wingwall reinforcing bars. Anchors for riprap shall be as required by the Engineer.
6. All Reinforcing steel and galvanized dowels may be ended flush with Wingwall Concrete. Adjust reinforcing steel from skew wingwalls as necessary.
7. For use in 8'-0" box. For 10'-0" CS skew, see TS-01 standard for additional details. For 66" diameter and larger, refer to the RCC standard for curved wingwall details. Note that for high box CS standard for additional details. Contact the Engineer for wingwall design.
8. For vehicle safety, curb heights and rail heights shall be as shown on the standard. Curb heights may be increased above the minimum shown. No changes will be made in quantities and no additional compensation will be allowed for this work.

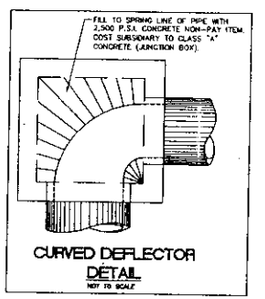
GENERAL NOTES:
Designed according to current AASHTO Standard and Material Specifications.
All reinforcing steel shall be Grade 60.
All concrete shall be Class "S" and shall have a minimum compressive strength of 3000 psi.
All exposed corners shall be beveled to provide a 3/4" chamfer.
Where structure is founded on solid rock, depth of footing may be reduced or eliminated as directed by the Engineer.
See BCS sheet for additional dimensions and information.
Quantities for concrete and reinforcing steel resulting from the formulas given on the sheet are for Contractor's information only.

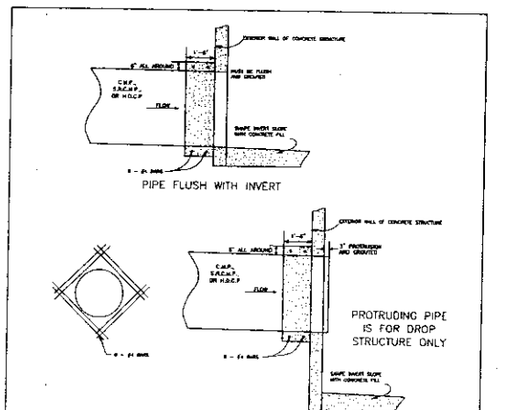
INSIDE ELEVATION
(Showing reinforcing, Culvert and Culvert Tapered reinforcing not shown for clarity)
PLAN
(Showing Dimensions)
BARS R
BARS B
BARS Ja
BARS V
BARS L
BARS Jb
SECTION A-A
CORNER DETAILS
(Culvert and Culvert Tapered reinforcing not shown for clarity)
WINGWALL
FOOTING AND TOEWALL
SECTION B-B

Texas Department of Transportation
Bridge Division
CONCRETE WINGWALLS WITH STRAIGHT WINGS FOR 0° SKEW BOX CULVERTS
SW-0









1. CONCRETE FOR STRUCTURAL SHALL BE CLASS "A".
2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
3. REINFORCING STEEL SHALL BE NEW BILLET STEEL, INTERMEDIATE GRADE #60, A.S.T.M. A-615, THE DEFORMATION SHALL CONFORM TO ASTM A-305.
4. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
5. ALL BARS INTERSECTING HANDRAIL OPENING AND REINFORCED CONCRETE PIPE SHALL BE FIELD-CUT.
6. MINIMUM LAPPING OF BARS IS REQUIRED A MINIMUM LAP OF 24 DIAMETERS SHALL BE USED.
7. WHERE OF ANCHOR BOLTS TO BE EMBEDD WITH CONCRETE FILL (CLOSED FULL END.) NO EFFORT SHALL BE MADE TO INSTALL PIPE. COST SUBSIDIARY TO CLASS "A" CONCRETE (HANDRAIL).

JANUARY 2006
STANDARD PLANS
CITY OF SAN ANTONIO, TEXAS
DEVELOPMENT SERVICES
CONCRETE COLLAR DETAIL

CONCRETE COLLAR DETAIL
NOT TO SCALE

REVISIONS:

SHAWNA L. WEAVER 86512 LICENSED PROFESSIONAL ENGINEER 12-7-06

PAPE-DAWSON ENGINEERS
555 EAST RAMSEY | SAN ANTONIO, TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.9010

BCB-INNER CIRCLE DRIVE, UNIT 1
SAN ANTONIO, TEXAS
DRAIN DETAILS
SHEET 2 OF 2

JOB NO. 5705-08
DATE OCTOBER 2006
DESIGNER CAO
CHECKED CAO DRAWN CDC
SHEET C211

THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL.

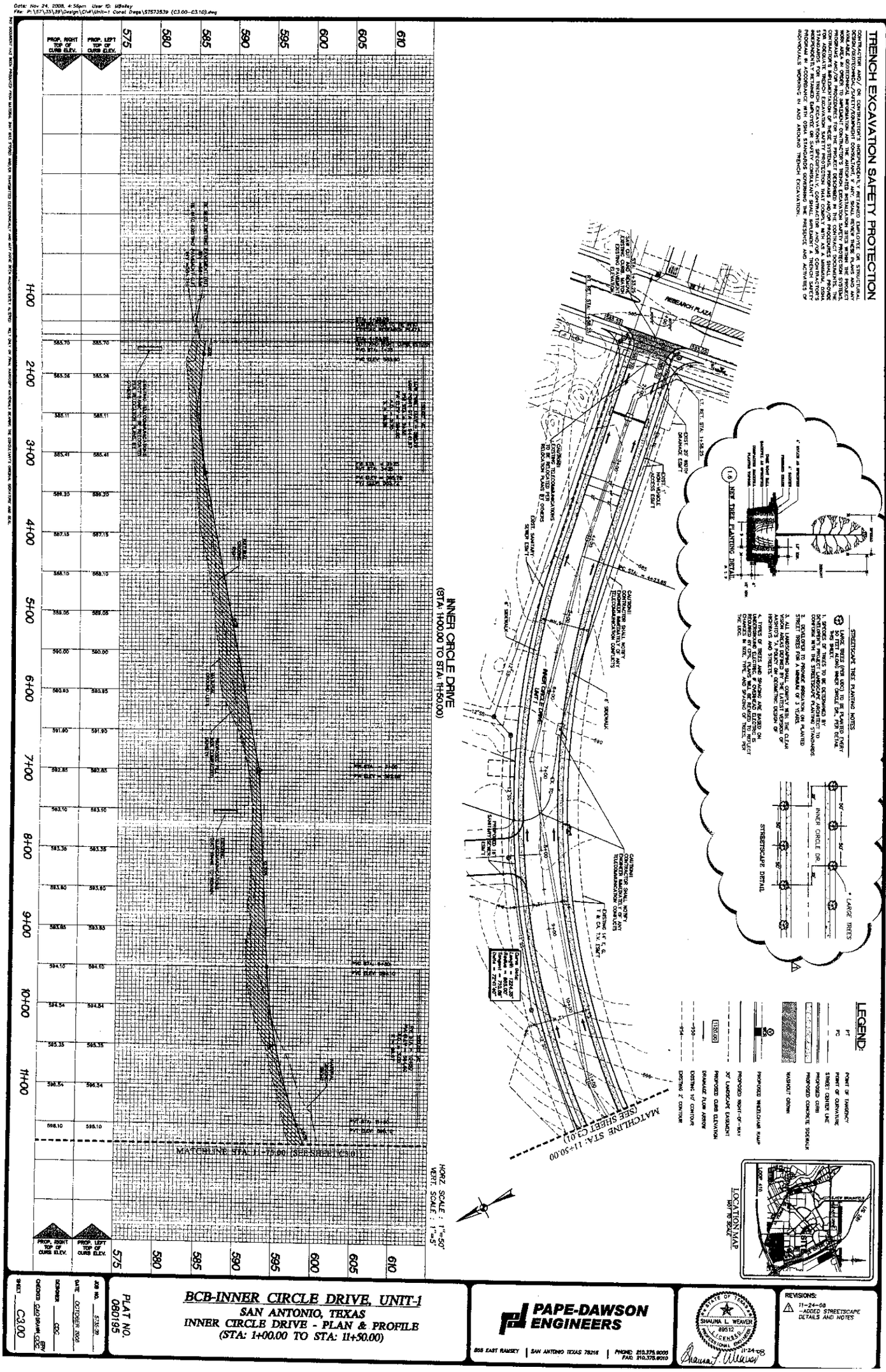
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Date: Nov 24, 2008, 4:56pm User ID: MBailey
File: P:\57\25\99\Design\Civil\Unit-1 Const Drgs\57573539 (C3.00-C3.10).dwg

THIS DOCUMENT WAS PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE ORIGINATOR'S ORIGINAL SIGNATURE AND SEAL.

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL ENGINEER SHALL DESIGN AND IMPLEMENT TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS AS REQUIRED BY OSHA REGULATIONS AND BASED ON THE SOIL CONDITIONS AS DISCLOSED IN THE AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT. CONTRACTOR SHALL PREPARE AND IMPLEMENT A TRENCH EXCAVATION SAFETY PROTECTION PROGRAM IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS. CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION PROGRAM SHALL INCLUDE, BUT NOT BE LIMITED TO, CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH, AS A MINIMUM, OSHA STANDARDS. CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION PROGRAM SHALL BE PREPARED BY A INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.



STREETSCAPE TREE PLANTING NOTES

1. LOCATION OF TREES TO BE DETERMINED BY DEVELOPER'S LANDSCAPE ARCHITECT AND APPROVED BY CITY ARBORIST PRIOR TO INSTALLATION. TREES SHALL BE PLANTED EVERY 50' ON CENTER ALONG PUBLIC STREETS AS SHOWN ON THIS SHEET.
2. DEVELOPER TO PROVIDE IRRIGATION ON PLANTED STREET TREES FOR A MINIMUM OF 3 YEARS.
3. ALL LANDSCAPING SHALL COMPLY WITH THE CLEAR VISION REQUIREMENTS SET FORTH IN SECTION 34-544 OF THE CITY'S UNIFIED DEVELOPMENT CODE.
4. TYPES OF TREES AND SPACING ARE BASED ON AASHTO'S "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS."
5. ALL LANDSCAPING SHALL COMPLY WITH THE CLEAR VISION REQUIREMENTS SET FORTH IN SECTION 34-544 OF THE CITY'S UNIFIED DEVELOPMENT CODE.
6. TYPES OF TREES AND SPACING ARE BASED ON AASHTO'S "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS."
7. LANDSCAPING PLANS MAY BE REVISED AS REQUIRED BY CITY ARBORIST TO REFLECT FIELD CONDITIONS. TREES MAY BE REVISED TO REFLECT THE SIZE, TYPE AND SPACING OF TREES PER

CONTRACTOR SHALL NOTIFY UTILITY COMPANIES 48 HOURS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES OF ANY CONFLICTS WITH PROPOSED IMPROVEMENTS. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES FOR RELOCATION PLANS BY OTHERS.

EXISTING 18" R.C.P. TRCA TX ESMT.

EXISTING 15" S.S. SANITARY SEWER ESMT.

EXIST. 20' WIDTH DRAINAGE ESMT.

EXIST. MANHOLE ACCESS ESMT.

EXIST. SANITARY SEWER ESMT.

Curve Data:
Length = 122.41'
Tangent = 78.08'
Delta = 72°01'40"

PROP. RIGHT TOP OF CURB ELEV.	PROP. LEFT TOP OF CURB ELEV.
585.70	585.70
585.26	585.26
585.11	585.11
585.41	585.41
586.20	586.20
587.15	587.15
588.10	588.10
589.05	589.05
590.00	590.00
590.95	590.95
591.90	591.90
592.85	592.85
593.10	593.10
593.35	593.35
593.60	593.60
593.85	593.85
594.10	594.10
594.84	594.84
595.35	595.35
596.34	596.34
596.10	596.10

PLAT NO.	080195
JOB NO.	5735-39
DATE	OCTOBER 2008
DESIGNER	CDC
CHECKED	CDC
DRAWN BY	CDC
SHEET	C3.00

BCB-INNER CIRCLE DRIVE, UNIT-1

SAN ANTONIO, TEXAS

INNER CIRCLE DRIVE - PLAN & PROFILE (STA: 1+00.00 TO STA: 11+50.00)

PAPE-DAWSON ENGINEERS
555 EAST RAMSEY | SAN ANTONIO TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.9010

STATE OF TEXAS
SHAUNA L. WEAVER
89512
LICENSED
PROFESSIONAL ENGINEER
11-24-08

REVISIONS:
1 11-24-08 -ADDED STREETSCAPE DETAILS AND NOTES

Date: Nov 24, 2008, 4:37pm User ID: MBailey
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TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND SUBCONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL ENGINEER SHALL REVIEW AND EVALUATE ALL GEOTECHNICAL REPORTS AVAILABLE, GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT BOUNDARIES. BASED ON THIS REVIEW AND EVALUATION, THE CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL ENGINEER SHALL DESIGN TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES THAT THE CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL ENGINEER SHALL PROVIDE TO THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE STANDARDS FOR TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA REGULATIONS. THE CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

MATCHLINE STA: 11+50.00 (SEE SHEET C3.00)

MATCHLINE STA: 11+75.00 (SEE SHEET C3.00)

INNER CIRCLE DRIVE
(STA: 11+50.00 TO STA: 16+48.00)

DETAIL 'A'
SCALE 1"=20'

SECTION 'A-A'
NOT TO SCALE

STREETSCAPE DETAIL

STREETSCAPE TREE PLANTING NOTES

1. ALL TREES SHALL BE PLANTED AS SHOWN ON THIS SHEET.
2. DEVELOPER TO PROVIDE IRRIGATION ON PLANTED STREET TREES FOR A MINIMUM OF 3 YEARS.
3. ALL LANDSCAPING SHALL COMPLY WITH THE CLEAR VISION REQUIREMENTS AS PROVIDED IN THE AASHTO'S "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS."
4. TYPES OF TREES AND SPACING ARE BASED ON REQUIREMENTS BY CPS. PLANS WILL BE REVISED TO REFLECT REQUIRED BY CPS. PLANS WILL BE REVISED TO REFLECT CHANGES IN SIZE, TYPE, AND SPACING OF TREES PER THE UDC.

LEGEND:

PT	POINT OF TANGENCY
PC	POINT OF CURVATURE
	STREET CENTER LINE
	PROPOSED CURB
	PROPOSED CONCRETE SIDEWALK
	WASHOUT CROWN
	PROPOSED WHEELCHAIR RAMP
	PROPOSED RIGHT-OF-WAY
	30' LANDSCAPE EASEMENT
1.00%	PROPOSED CURB ELEVATION
	DRAINAGE FLOW ARROW
954	EXISTING 10' CONTOUR
954	EXISTING 2' CONTOUR

LOCATION MAP
NOT TO SCALE

HORZ. SCALE : 1"=50'
VERT. SCALE : 1"=5'

BCB-INNER CIRCLE DRIVE, UNIT-1
SAN ANTONIO, TEXAS
INNER CIRCLE DRIVE - PLAN & PROFILE
(STA: 11+50.00 TO STA: 16+48.00)

PLAT NO. 080195

JOB NO. 5735-35
DATE OCTOBER 2008
DESIGNER CGC
DRAWN BY CGC
CHECKED BY CGC
SHEET C3.01

PAPE-DAWSON ENGINEERS
555 EAST RAMSEY | SAN ANTONIO, TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.9010

STATE OF TEXAS
SHAUNA L. WEAVER
89512
LICENSED
PROFESSIONAL ENGINEER
12-4-08

REVISIONS:
1 11-24-08 -ADDED STREETSCAPE DETAILS AND NOTES

VOL 7777PG 183

NOTE:
NO SEPARATE PAY FOR EXCAVATION REQUIRED TO CONSTRUCT CURB AND BASE MATERIAL BEHIND CURB.

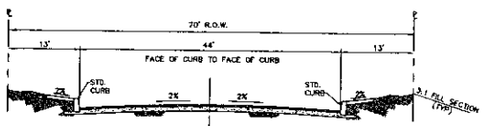
NOTE:
PAVEMENT SECTIONS ARE SUBJECT TO CHANGE DUE TO RETESTING OF SOIL AFTER STREET EXCAVATION HAS BEEN DONE TO TOP OF CURB

NOTES:

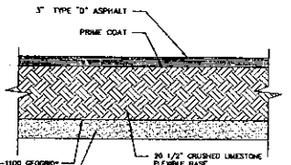
1. PAVEMENT SECTION ASSUMES HIGH PLASTIC CLAY SUBGRADE CONDITION. THE CONTRACTOR SHALL CONTACT THE OWNER, GEOTECHNICAL ENGINEER AND PAPE-DAWSON ENGINEERS PRIOR TO BEGINNING FINAL SUBGRADE PREPARATION WITHIN THIS PROJECT TO MAKE THE FINAL DETERMINATION OF THE ACTUAL FIELD SUBGRADE CONDITIONS. A WRITTEN LETTER AND REVISED CONSTRUCTION DRAWINGS TO THE CITY OF SAN ANTONIO AND BEXAR COUNTY VERIFYING THE FINAL SUBGRADE CONDITIONS AND REQUIRED SUBGRADE CONSTRUCTION SHALL BE REQUIRED FROM GEOTECHNICAL ENGINEER PRIOR TO THE START OF FINAL SUBGRADE CONSTRUCTION. THE LETTER AND REVISED CONSTRUCTION DRAWINGS SHALL INCLUDE THE AREAS OF THE STREET (BY STATIONING) THAT WILL REQUIRE LIME STABILIZATION FOR APPROVAL.

2. REFERENCE PROJECT GEOTECHNICAL REPORT AND PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND ALTERNATE PAVEMENT SECTIONS.

3. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING MATERIAL TESTING. GEOTECHNICAL MATERIAL TESTING TO BE PAID BY OWNER.



COLLECTOR
TYPICAL STREET SECTION
NOT TO SCALE

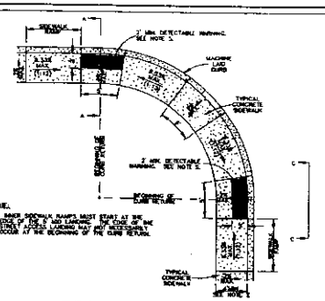


* SIX (6) INCHES OF LIME STABILIZATION MAY BE UTILIZED IN LIEU OF GEOGRID INSTALLED OVER A SIX (6) INCH MOISTURE CONDITIONED SUBGRADE.

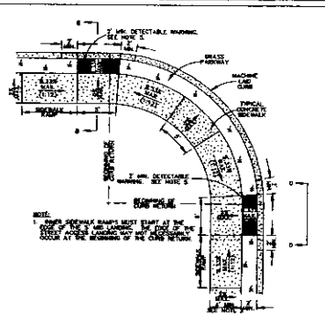
RECOMMENDED PAVEMENT SECTION
NOT TO SCALE

RECOMMENDED PAVEMENT SECTION

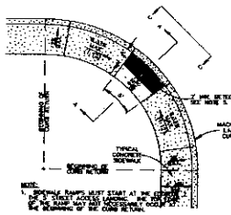
PAVEMENT TYPE	Structural Coefficient	Structural Number
3" Type D HMAC	0.44	1.32
20 1/2" Crushed Limestone Flexible Base	0.14	2.87
* 6" Lime Stabilized Subgrade	---	0.48
Geogrid		
Total: 23 1/2"	=	4.67



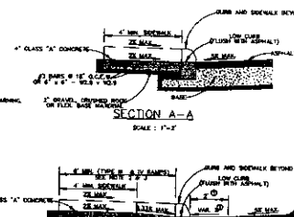
TYPICAL SIDEWALK RAMP – TYPE I
SIDEWALK ABUTS THE CURB
SCALE : 1"=5'



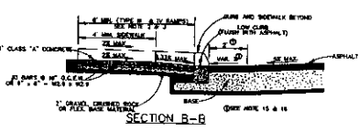
TYPICAL SIDEWALK RAMP – TYPE III
SIDEWALK SEPARATES FROM CURB
SCALE : 1"=5'



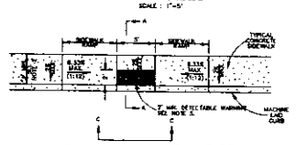
TYPICAL SIDEWALK RAMP – TYPE V
SIDEWALK ABUTS CURB
SCALE : N.T.S.



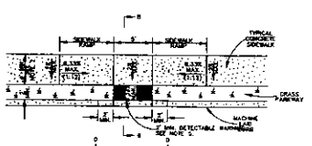
SECTION A–A
SCALE : 1"=3'



SECTION B–B
SCALE : 1"=3'



TYPICAL SIDEWALK RAMP – TYPE II
USED AT TEE INTERSECTIONS WHERE SIDEWALK ABUTS CURB
SCALE : 1"=5'



TYPICAL SIDEWALK RAMP – TYPE IV
USED AT TEE INTERSECTIONS WHERE SIDEWALK IS SEPARATED FROM CURB
SCALE : 1"=5'



SECTION C–C
CURB PROFILE WHERE SIDEWALK ABUTS CURB
SCALE : 1"=3'



SECTION D–D
CURB PROFILE WHERE SIDEWALK IS SEPARATED FROM CURB
SCALE : 1"=3'

GENERAL NOTES

1. WHERE POSSIBLE, SIDEWALKS SHOULD BE PLACED ABUTTING THE CURB, ALLOWING A MINIMUM OF 1 FOOT BUFFER BEHIND BACK OF THE PATHWAY FROM A STRAIGHT LINE IS ENCOURAGED TO AVOID TREES OR OTHER OBSTRUCTIONS.

2. PER LOCAL TYPE "A" STREETS, SIDEWALKS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 4', AND BE LOCATED FROM THE CURB. THE SIDEWALK SHALL BE LOCATED A MINIMUM OF 2' FROM THE BACK OF CURB.

3. PER OTHER THAN LOCAL TYPE "A" STREETS, SIDEWALKS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 5' AND BE LOCATED NOT LESS THAN 1' FROM THE BACK OF CURB OR AS AN OPTION THE SIDEWALK SHALL HAVE A MINIMUM OF 5' WIDE LOCATED AT THE BACK OF CURB.

4. SIDEWALK RAMP LOCATIONS PROVIDED IN 'LANE 1 ONE SIDEWALK ONLY' SIDEWALK RAMP LENGTHS SHALL BE OF SUFFICIENT LENGTH TO MAINTAIN 5.33% (1:12) MAXIMUM SLOPE.

5. ALL CURB RAMPS OR LANDINGS ABUTTING THE ROADWAY SHALL HAVE A DETECTABLE WARNING 24 INCHES WIDE AND THE FULL WIDTH OF THE PEDESTRIAN RAMP OR LANDING. THE DETECTABLE WARNING SHALL CONSIST OF RAISED TRUNCATED DOMES ALIGNED IN A GRID PATTERN. THE DOMES SHALL HAVE A BASE DIAMETER OF 0.9 INCHES, A TOP DIAMETER OF 0.45 INCHES AND A HEIGHT OF 0.2 INCHES. THE CENTER TO CENTER SPACING OF THE DOMES SHALL BE A MINIMUM OF 1.7 INCHES AND A MAXIMUM OF 2.4 INCHES. THE DETECTABLE WARNING SURFACE SHALL BE A CONTRASTING COLOR FROM THE ADJACENT SURFACE EITHER LIGHTER OR DARKER THAN THE ADJACENT SURFACES, BUT SHALL CONTRAST VISUALLY WITH ADJACENT SURFACES, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT. SEE DETAILS BELOW. THE DETECTABLE WARNING SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF THE TEXAS ACCESSIBILITY STANDARDS (TAS) AND THE AMERICANS WITH DISABILITIES ACT STANDARDS (ADAS).

6. DETECTABLE WARNINGS SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT. THE COLORING USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE.

7. SIDEWALK RAMP TYPE V SHALL BE USED ONLY WHERE THERE IS INSIGNIFICANT RESTRICTION TO WHERE THE PEDESTRIAN IS CONFINED. TYPE V IS TYPE III RAMPS.

8. CONSTRUCTION OF ALL SIDEWALKS RAMPS TO BE INCLUDED UNDER ITEMS 500 – CONCRETE PAVEMENT, MISCELLANEOUS CURB (TYPE 200) / OR 502 – CONCRETE SIDEWALKS". RAMP SURFACE SHALL BE BROOM FINISHED.

9. RAMP DETAILS ARE FOR REFERENCE ONLY. ACTUAL LOCATIONS OF RAMPS/CURB RAMPS TO BE SHOWN ON CONSTRUCTION PLANS. CITY CONSIDERATION INSPECTION CAN ADJUST LOCATIONS FOR SAFETY OR UTILITY CLEARANCE.

10. SIDEWALKS LESS THAN 5 FEET IN WIDTH SHALL BE PROVIDED WITH A PASSING SPACE AT A MAXIMUM SPACING OF 200 FEET.

11. WHEELCHAIR RAMP SHALL BE CONSTRUCTED WITH 4" CLASS "A" CONCRETE AND 3" GRAVEL, CRUSHED ROCK OR FLEXIBLE BASE MATERIAL.

12. REINFORCING STEEL SHALL BE #3 BARS AT 16" O.C.E.W. OR 6" x 6" – W2.9 x W2.9 WIRE MESH.

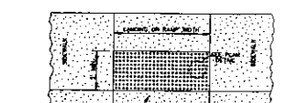
13. SIDEWALK GRADES SHALL NOT EXCEED RAMP GRADE ESTABLISHED FOR THE ADJACENT ROADWAY. ANY SIDEWALK CONSTRUCTED BUT DEMANDED FROM THE ROADWAY GRADE OF THE ROADWAY TO CREATE A GRADE STEEPER THAN THE EXISTING ROADWAY, ALL ROADWAY RAMPS, HANDRAILS AND RESTING PLATFORMS TO BE CONSTRUCTED IN ACCORDANCE WITH ADA AND TAS STANDARDS.

14. SIDEWALK CROSS GRADE SHALL HAVE A MAXIMUM SLOPE OF 1%. LANDINGS SHALL HAVE A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.

15. THE CHANGE OF GRADE BETWEEN ADJACENT SURFACES SHALL BE LESS THAN 1/2. THE CHANGE OF GRADE SHALL BE DEFINED AS THE ALGEBRAIC DIFFERENCE OF THE ADJACENT SURFACE SLOPES. IN THE CASE OF A STREET ACCESS RAMP DESIGNED AT THE 8.33% MAXIMUM SLOPE, THE ADJACENT PAVEMENT CROSS SLOPE SHALL BE LESS THAN OR EQUAL TO 7.83% (-0.5/(1+(1/12)^2)^1/2). IN ADDITION, THE ADJACENT PAVEMENT CROSS SLOPE SHALL BE LESS THAN OR EQUAL TO 2%.

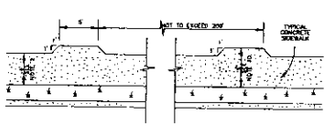
16. IF THE CHANGE OF GRADE BETWEEN ADJACENT SURFACES IS GREATER THAN OR EQUAL TO 1/2, A LEVELING STRIP, 5 FEET IN LENGTH, SHALL BE PROVIDED TO TRANSITION THE ADJACENT SURFACES.

17. ANY DEPARTURES IN ALTERATIONS INCLUDE ONLY THAT WORK WITHIN THE LIMITS, BOUNDARIES OR SCOPE OF A PLANNED PROJECT.



PLAN DETAIL
NO SCALE

DOME SECTION
NO SCALE



SIDEWALK PASSING SPACE
SCALE : 1"=5'

NOTE:
STAMPED CONCRETE (BRAILLE) WITH DOMES WILL NOT BE ALLOWED TO BE USED FOR DETECTABLE WARNING ON WHEELCHAIR RAMPS. CONTRACTOR MUST SUBMIT TECHNICAL DATA INFORMATION THAT IS TO BE USED ON WHEELCHAIR RAMPS TO THE PROJECT MANAGER FOR APPROVAL AT LEAST 30 DAYS PRIOR TO INSTALLATION.

TABLE 1
(SEE NOTE 4)

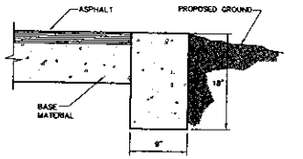
GUTTER SLOPE	SIDEWALK RAMP LENGTH (1:12) LOW SIDE	HIGH SIDE
1%	5'-4"	7'-1"
2%	5'-8"	8'-1"
3%	6'-0"	9'-1"
4%	6'-4"	10'-1"
5%	6'-8"	11'-1"
SE	5'-10"	10'-8"

JANUARY 2008

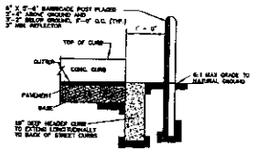
CITY OF SAN ANTONIO, TEXAS
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

WHEELCHAIR RAMP STANDARDS

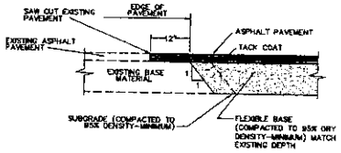
DRAWN BY:	DATE	REVISIONS	SCALE:	SEE ABOVE
Y. MASSAD			DATE:	
CHECKED BY:			SHEET	OF
RAY S. HEDRICK, P.E.				



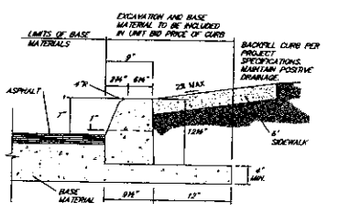
HEADER CURB DETAIL
NOT TO SCALE



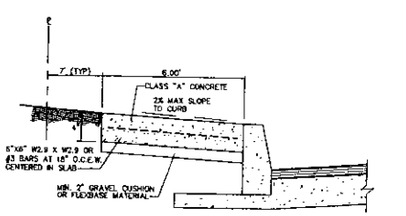
HEADER CURB w/ BARRICADE POST DETAIL
NOT TO SCALE



PAVEMENT JUNCTION DETAIL
NOT TO SCALE



STANDARD CURB DETAIL
NOT TO SCALE



SIDEWALK DETAIL
NOT TO SCALE

NOTE:
ALL CONSTRUCTION OF HANDRAIL SHALL FOLLOW THE CITY OF SAN ANTONIO STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.

REVISIONS:

PAPE-DAWSON ENGINEERS
555 EAST RAMSEY | SAN ANTONIO, TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.8995

BCB-INNER CIRCLE DRIVE, UNIT 1
SAN ANTONIO, TEXAS
STREET DETAILS

JOB NO. 5705-09
DATE OCTOBER 2008
DESIGNER CAO
CHECKED CAO DRAWN ERV
SHEET C3.20

Date: Nov 17, 2008, 9:58am User ID: MBailey
File: P:\SY\SA\Design\Civil\Unit-1 Const Drgs\STD\73539 (C3.20).dwg

THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL.

Date: Sep 26, 2008, 3:56pm User ID: EvanGunden
File: P:\571\38\39\Design\Civil\Unit-1 Const Dwgs\5705733S9 (C3.30-C3.40).dwg

THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. REFER ONLY TO FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL.

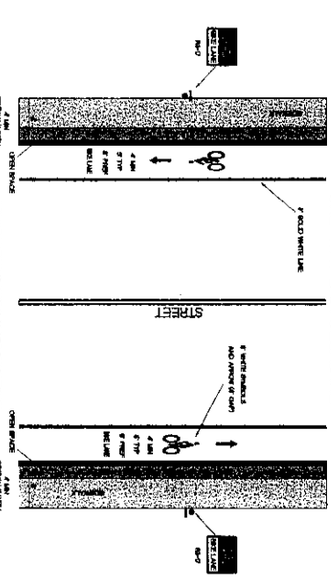
GENERAL NOTES

1. UNDERGROUND UTILITIES EXIST WITHIN THE PROJECT. CONTRACTOR SHALL HAVE THE UTILITIES MARKED PRIOR TO INSTALLATION OF THE SIGN FOOTINGS. THE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES BEFORE COMMENCING WORK.
2. PRIOR TO EXCAVATION, THE CONTRACTOR SHALL NOTIFY TEXAS ONE-CALL SYSTEM, INC. AT 1-800-545-6005. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE ARRANGEMENTS FOR UTILITY LOCATIONS AS NEEDED.
3. SIGN LOCATIONS ILLUSTRATED ON THE PLANS ARE APPROXIMATE. SIGNS SHALL BE LOCATED IN THE FIELD TO PROVIDE APPROPRIATE CLEARANCES AND SIGHT DISTANCES AS REQUIRED BY THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
4. ALL SIGNS SHALL COMPLY WITH THE SIGN MESSAGE PRESENTED IN STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS OR THE MILLENIUM SIGN DESIGNS, IF A MILLENIUM SIGN IS SPECIFIED ON THE PLANS.
5. ALL CONSTRUCTION SIGNS AND TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
6. CONTRACTOR SHALL FURNISH AND INSTALL ALL TRAFFIC CONTROL DEVICES AS REQUIRED FOR THE VARIOUS PHASES OF CONSTRUCTION. ALL WORK ALONG ROADWAYS SHALL BE PERFORMED UNDER THE PROTECTION OF TRAFFIC CONTROL DEVICES AS SHOWN ON THE PLANS AND AS REQUIRED BY THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
7. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL SIGN COMPONENTS. SHOP DRAWINGS SHALL BE SENT TO THE ENGINEER FOR ALL SIGN COMPONENTS. SHOP DRAWINGS SHALL CONSIST OF THE APPROPRIATE COMBINATION OF CATALOG SHEETS, SPECIFICATIONS, DIAGRAMS OF PRODUCT SAMPLES NECESSARY TO ADEQUATELY DESCRIBE THE PRODUCT. SAMPLES SHALL BE SUBMITTED WHEN A PRODUCT DOES NOT BE CLEARLY IDENTIFIED WHEN MULTIPLE PRODUCTS ARE LISTED IN THE SAME SHEET.
8. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS PROJECT SHALL CONFORM TO THE CITY OF SAN ANTONIO STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (LATEST EDITION) AS WELL AS THE FIRE DEPARTMENT PROVISIONS CONTAINED IN THE CITY OF SAN ANTONIO BUILDING CODE AND INSPECTIONS TO THE PROJECT MUST BE PERFORMED BY THE CITY OF SAN ANTONIO.
9. MATERIALS FURNISHED BY THE CONTRACTOR SHALL BE NEW, UNDEPRECIATED STOCK. ALL EQUIPMENT SHALL BE NEW, UNLESS NOTED OTHERWISE ON THE PLANS.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ORIGINAL OR BETTER CONDITION ALL EXISTING FACILITIES, INCLUDING BUT NOT LIMITED TO, PAVEMENT, CURBS OR DRIVEWAYS REMOVED DURING CONSTRUCTION. ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION, OR BETTER PRIOR TO FINAL ACCEPTANCE.
11. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER AS THE ROADWAYS ARE CONSTRUCTED.
12. SUPPORT AND DESIGN SHALL CONFORM WITH AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORT OF HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS WITH A DESIGN WIND SPEED OF 70 MPH.
13. STEEL PIPE SHALL BE GALVANIZED IN ACCORDANCE TO ASTM DESIGNATION A123.
14. STEEL PIPE SHALL BE GALVANIZED IN ACCORDANCE TO ASTM DESIGNATION A123.
15. WHERE SOLID ROCK IS ENCOUNTERED AT GROUND LEVEL, THE TOP 12 INCHES OF ROCK SHALL BE REMOVED. WHERE SOLID ROCK IS ENCOUNTERED BELOW GROUND LEVEL, THE TURNDOWN SHALL EXTEND TO WITHIN 12 INCHES OF THE TOP OF ROCK. ROCK EXCAVATION SHALL BE PAID FOR AS ROCK EXCAVATION FOR STRUCTURES.
16. CONTRACTOR SHALL FURNISH AND INSTALL ALL PERMANENT SIGNS AND SIGN SUPPORTS AS SHOWN ON THE PLANS. ALL SIGNS SHALL BE MOUNTED AT THE HEIGHT AND LOCATION SHOWN ON THE PLANS. ALL NECESSARY REMOVAL OF EXISTING SIGNS AND SUPPORTS SHALL BE PERFORMED BY THE CONTRACTOR AS REQUIRED BY THE ENGINEER. ALL SIGNS SHALL BE FABRICATED WITH HIGH SPECIFIC INTENSITY REFLECTIVE SHEETING (TYPE C).
17. ANY DEVIATION FROM APPROVED MATERIAL SPECIFICATION, CONSTRUCTION SPECIFICATION, MEASUREMENT AND PAYMENT PROCEDURE, TRAFFIC CONTROL PLAN AND TEXAS DEPARTMENT OF TRANSPORTATION STANDARDS SHALL BE REVIEWED ONLY BY THE ENGINEER AND THE CONTRACTOR. DECISION SHALL BE FINAL AND BINDING.

NOTES:

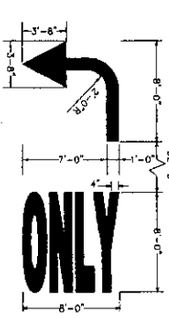
1. ALL PAVEMENT MARKINGS SHOWN ARE PROPOSED.
2. ALL EXISTING CURB INLETS ARE SHOWN SCREENED BACK IN PLANS.
3. ALL DIMENSIONS ARE TO ANGLE OF CURB, EDGE OF PAVEMENT TO CENTER OF PAVEMENT MARKING UNLESS OTHERWISE NOTED.
4. FOR ADDITIONAL DETAILS SEE CSDA TYPICAL STANDARD SHEETS.
5. ALL SIGN LOCATIONS ARE APPROXIMATE. EXACT LOCATIONS ARE TO BE STAKED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.

ONE-WAY BICYCLE LANE



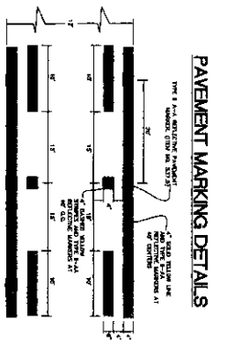
PAVEMENT MARKING DETAILS





LEFT TURN ONLY

NOTE:
ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC MATERIAL ACCORDING TO THE CITY OF SAN ANTONIO STANDARDS.



NOTE:
ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC MATERIAL ACCORDING TO THE CITY OF SAN ANTONIO STANDARDS.

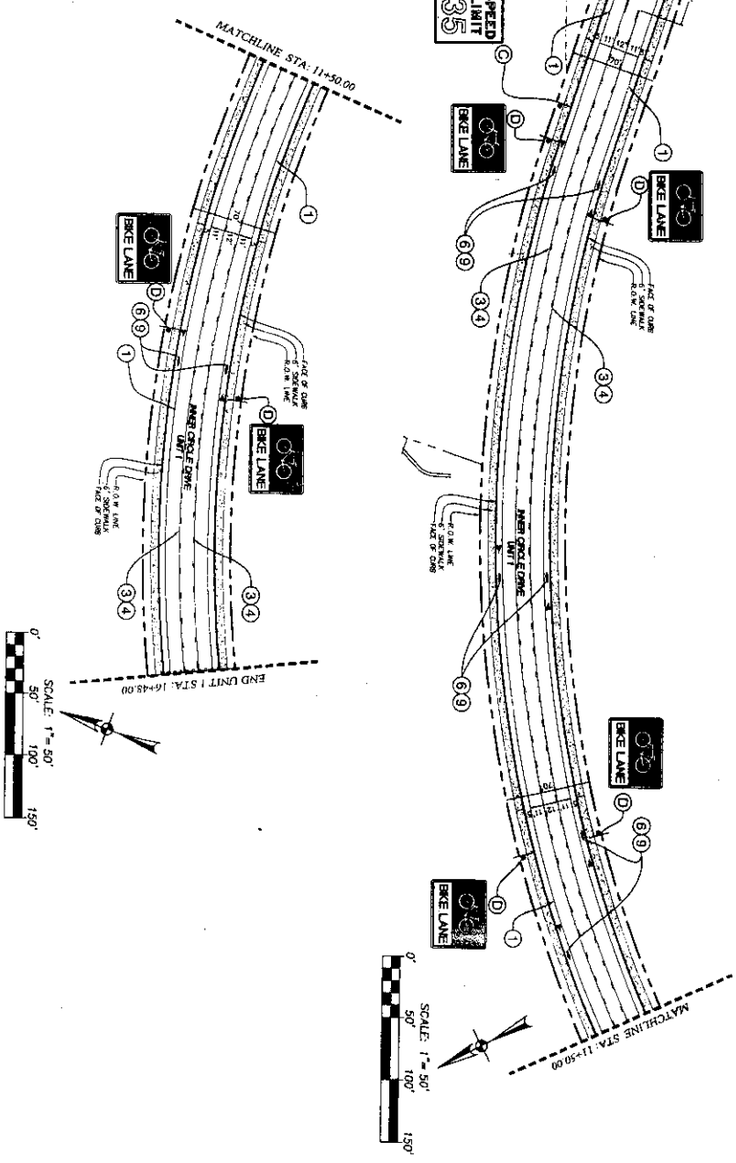
PAVEMENT MARKING LEGEND

① 8" WIDE SOLID WHITE LINE WITH TYPE I-C REFLECTIVE PAVEMENT MARKERS AT 80' O.C.	⑤ DIRECTIONAL PAVEMENT MARKING, LEFT ARROW
② 2-4" WIDE SOLID YELLOW THERMOPLASTIC PAVEMENT MARKING AT 4" O.C. REFLECTIVE	⑥ DIRECTIONAL PAVEMENT MARKING THRU ARROW
③ 24" WIDE SOLID YELLOW THERMOPLASTIC STRIPING WITH TYPE II-A-A REFLECTIVE PAVEMENT MARKINGS AT 40' O.C.	⑦ DIRECTIONAL PAVEMENT MARKING COMBINATION
④ STRIPING WITH YELLOW THERMOPLASTIC PAVEMENT MARKINGS AT 40' O.C. REFLECTIVE	⑧ DIRECTIONAL PAVEMENT MARKING "ONLY"
	⑨ PAVEMENT MARKING BICYCLE SYMBOL

STREET SIGN LEGEND

Ⓐ STOP	ITEM 681.03 R1-1 30X30	
Ⓑ STREET NAME	STANDARD GUIDE SIGN STREET NAME SIGN SPACED (MUTCD 2D BLOCK MARKERS)	
Ⓒ SPEED LIMIT 35	ITEM 681.05 R2-1 24X30	
Ⓓ BIKE LANE	R3-17 30X24	

NOTE
ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER AS THE ROADWAYS ARE CONSTRUCTED.



BCB-INNER CIRCLE DRIVE, UNIT 1

SAN ANTONIO, TEXAS

OVERALL SIGNING & STRIPING PLAN

PAPE-DAWSON ENGINEERS
555 EAST RAMSEY | SAN ANTONIO, TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.9010

STATE OF TEXAS — SHAUNA L. WEAVER — 86512 — LICENSED PROFESSIONAL ENGINEER — 10-3-08

Shauna L. Weaver

REVISIONS:

JOB NO.	570538
DATE	AUGUST 2008
DESIGNED	____ QSC
DRAWN	____ EVG
CHECKED	QSC
SHEET	C3.30

VOL 7771PG 185

GENERAL NOTES

1.) THE EXISTING SIGNS LOCATED ON THE JOB SITE ARE THE PROPERTY OF THE CITY OF SAN ANTONIO. THROUGHOUT THE PERIOD OF THE CONTRACT, THE CONTRACTOR SHALL PROTECT THESE SIGNS SUCH THAT THEY ARE NOT DAMAGED IN THE COURSE OF CONSTRUCTION ACTIVITY. SUCH PROTECTION SHALL INCLUDE THE PERIOD AFTER SIGNS ARE REMOVED FROM INSTALLATION AND STORED BY THE CONTRACTOR OR DELIVERED TO TRAFFIC OPERATIONS. THE ASSISTANT TRAFFIC SUPERINTENDENT (207-7765) MUST BE NOTIFIED 48 HOURS IN ADVANCE PRIOR TO DELIVERY.

2.) AFTER SIGNS ARE REMOVED FROM INSTALLATION AND ARE BEING STORED BY THE CONTRACTOR, THE CONTRACTOR SHALL CONTACT THE TRAFFIC OPERATIONS SECTION OF THE PUBLIC WORKS DEPARTMENT (207-7765) AND ARRANGE FOR A CONVENIENT TIME TO DELIVER CITY SIGNS AND POLES.

3.) PRIOR TO THE START OF CONSTRUCTION, ALL EXISTING SIGNS WITHIN THE AREA OF CONSTRUCTION WILL BE INVENTORIED AND DOCUMENTED JOINTLY BY THE TRAFFIC ENGINEERING (207-7720) CONSTRUCTION INSPECTION AND THE CONTRACTOR. THIS DOCUMENT WILL BE JOINTLY SIGNED BY BOTH PARTIES REFLECTING THE SIGN TYPE, SIGN SIZE, SIGN CONDITION, SIGN LOCATION, REFLECTIVITY ADEQUACY, ETC. THE CONTRACTOR IS HELD ACCOUNTABLE FOR THESE SIGNS THROUGHOUT THE PROJECT AND AT THE PROJECTS COMPLETION.

4.) ALL GROUND MOUNTED SHALL USE HIGH INTENSITY REFLECTIVE SHEETING.

5.) ALL OVERHEAD SIGNS SHALL USE DIAMOND GRADE REFLECTIVE SHEETING.

6.) ALL BLANKS TO BE ALUMINUM ALLOY NO. 5052-H38.

7.) "I" DENOTES THICKNESS OF SIGN BLANKS.

8.) ALL HOLES SHALL BE 3/8" DIAMETER DRILLED OR PUNCHED AS SHOWN ON EACH BLANK DETAIL AND SHALL BE FREE OF BURRS AND/OR ROUGH EDGES.

9.) SIGN BLANK CORNERS TO BE ROUNDED AS SHOWN ON EACH DETAIL.

10.) ALL SIGN BLANK TO BE ETCHED, DEGREASED, AND HAVE AN ALODINE FINISH PRIOR TO APPLICATION OF LEGENDS.

11.) ALL DETAILS ARE NOT TO SCALE.

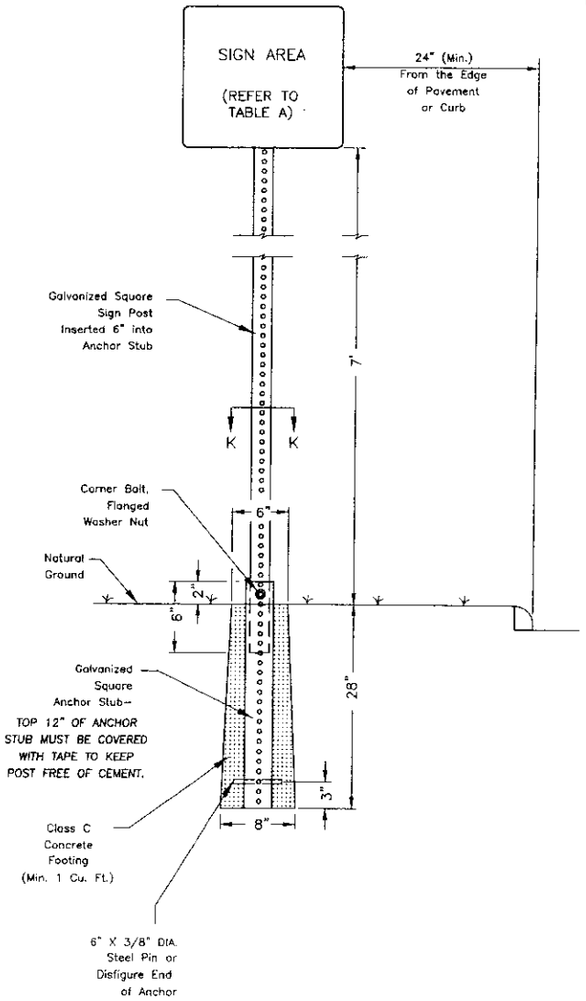
12.) ALL DIMENSIONS ARE IN INCHES.

13.) ALL SIGNS SHALL BE MANUFACTURED AND INSTALLED IN CONFORMANCE TO THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVISES AND STANDARD HIGHWAY SIGNS (FHWA) LATEST EDITION.

14.) REINSTALLATION OF PREVIOUSLY EXISTING SIGNS, WHERE REQUIRED BY THE CITY TRAFFIC ENGINEER, SHALL BE AT THE CONTRACTOR'S EXPENSE.

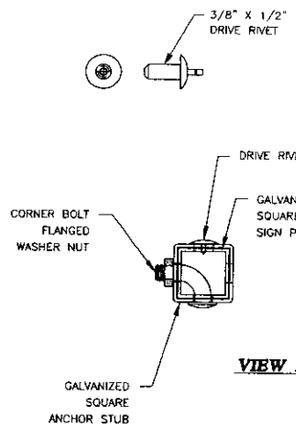
TYPICAL GROUND SIGN INSTALLATION

TYPE "U" MOUNT
PERFORATED SQUARE METAL TUBING (DRIVEABLE)



METAL TUBING	SIGN AREA	
	< 10 SQ. FT.	> 10 SQ. FT.
GALVANIZED SQUARE SIGN POST (Perforated)	1-3/4" x 1-3/4" (14 Guage)	2" x 2" (12 Guage)
GALVANIZED SQUARE ANCHOR STUB (Perforated)	2" X 2" (14 Guage)	2-1/4" x 2-1/4" (14 Guage)

TABLE A



VIEW K-K

CITY OF SAN ANTONIO
TRAFFIC ENGINEERING DIVISION
DEPARTMENT OF PUBLIC WORKS

TRAFFIC SIGN STANDARDS

GENERAL NOTES AND GROUND SIGN MOUNTING

TE-SGN(1)-06

DSND: EHM	APVD: JDF	DATE: 1.30.06		SHT. NO.
DRWN: AFG	APVD: EHM	DATE: 2.6.06		1 OF 4
RVSD:	APVD:	DATE:	SCALE: NOT TO SCALE	

REVISIONS:

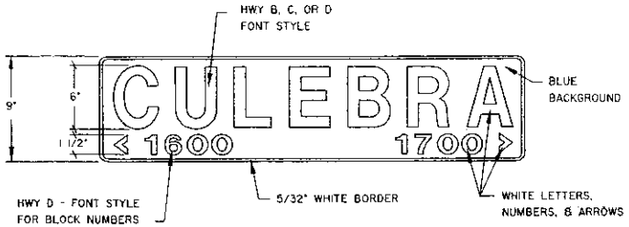
PAPE-DAWSON ENGINEERS
555 EAST RAMSEY | SAN ANTONIO, TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.9010

BCB-INNER CIRCLE DRIVE, UNIT 1
SAN ANTONIO, TEXAS
SIGNAGE DETAILS

JOB NO. 5735-39
DATE OCTOBER 2006
DESIGNER JAL
CHECKED CAO DRAWN ERV
SHEET C3.40

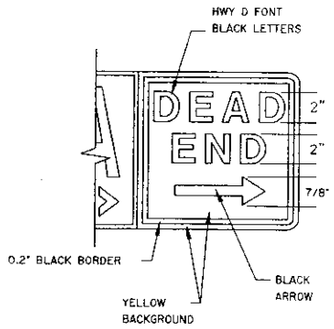
Date: Nov 17, 2006, 10:20am User ID: JBailey
File: K:\SA\Clients\Bexar\Civil\Units-1 Canal Dwgs\050737ASTE.dwg
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9" D3 - STREET NAME SIGN





NEW 9" D3 w/ DEAD END OR NO OUTLET SIGNAGE

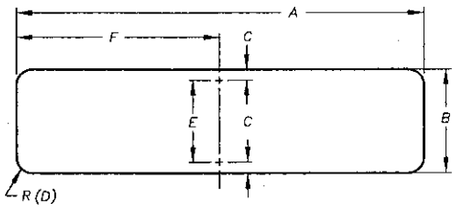
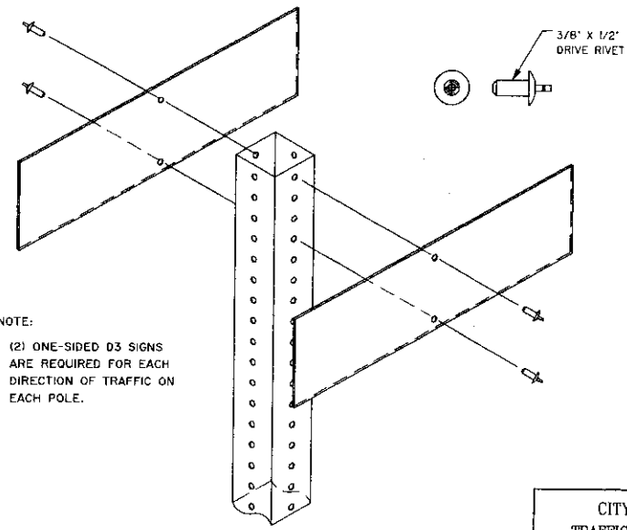


TABLE - D3 SIGNS

A	B	C	D	E	F	T
24"	9"	1/2"	3/4"	8"	12"	0.125"
30"	9"	1/2"	3/4"	8"	15"	0.125"
36"	9"	1/2"	3/4"	8"	18"	0.125"
42"	9"	1/2"	3/4"	8"	21"	0.125"
48"	9"	1/2"	3/4"	8"	24"	0.125"
54"	9"	1/2"	3/4"	8"	27"	0.125"

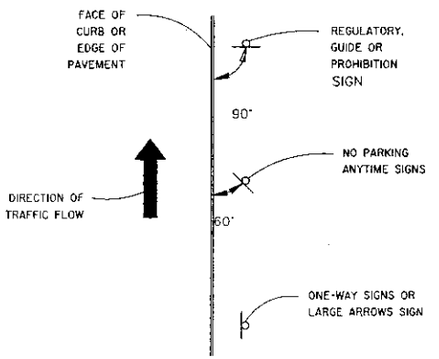
NOTE: A 30" LONG OR GREATER PLATE SHALL BE USED WHEN A "DEAD END" OR "NO OUTLET" SUPPLEMENT IS REQUIRED.



NOTE:
(2) ONE-SIDED D3 SIGNS ARE REQUIRED FOR EACH DIRECTION OF TRAFFIC ON EACH POLE.

D3 SIGN TO POLE INSTALLATION

HEIGHT	9" (228 mm)
LENGTH	24" (600mm) MIN. 54 (1350mm) MAX. 6" (150mm) INCREMENTS OF LENGTH
THICKNESS	0.125" (3mm)
SUBSTRATE	ALUMINUM ALLOY, 5052-H38 (ASTM B-209) GOLD CHROMATE FINISH
SIGN FACE MATERIALS	BLUE FILM OVER HIGH INTENSITY FP-85, SECTION 718 AND L-S-300C
LEGENDS AND SYMBOLS	SERIES D (USUAL) SERIES C OR B FOR MAXIMUM LENGTH SIGN BLANK, IF NECESSARY
COLOR	WHITE LEGEND ON BLUE BACKGROUND
LETTER TRACKING	10%



TYPICAL GROUND MOUNTED SIGN PLACEMENT

CITY OF SAN ANTONIO
TRAFFIC ENGINEERING DIVISION
DEPARTMENT OF PUBLIC WORKS

TRAFFIC SIGN STANDARDS

D3 STREET NAME SIGN
AND SIGN MOUNTING

TE-SGN(2)-06

DSND: EHM	APVD: JDF	DATE: 1.30.06		SHT. NO.
DRWN: AFG	APVD: EHM	DATE: 2.6.06		2 OF 4
RVSD:	APVD:	DATE:	SCALE: NOT TO SCALE	

REVISIONS

SHAUNA L. HEAVER
69515
LICENSED
PROFESSIONAL
ENGINEER
11-8-08

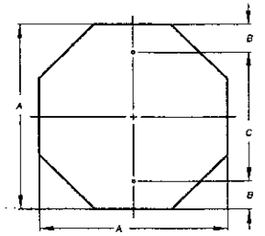
PAPE-DAWSON ENGINEERS
550 EAST RANDOLPH | SAN ANTONIO, TEXAS 78216 | PHONE 210.375.9000 FAX 210.375.9010

BCB-INNER CIRCLE DRIVE, UNIT 1
SAN ANTONIO, TEXAS
SIGNAGE DETAILS

JOB NO. 5755-09
DATE OCTOBER 2008
DESIGNER JJL
CHECKED CAD DRAWN EHV
SHEET C3.50

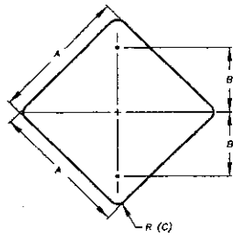
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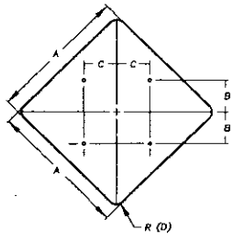
OCTAGONAL

A	B	C	T
24	3	18	0.080
30	3	24	0.080
36	3	30	0.100



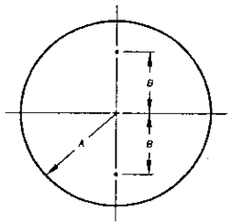
DIAMOND (A)

A	B	C	T
18	9	1 1/2	0.080
24	12	1 1/2	0.080
30	15	1 7/8	0.080
36	18	2 1/4	0.100



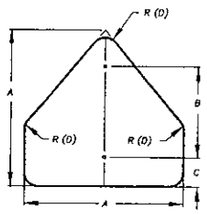
DIAMOND (B)

A	B	C	D	T
48	15	15	3	0.100



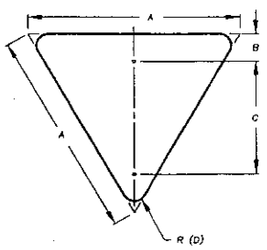
CIRCLE

A	B	T
18	15	0.100



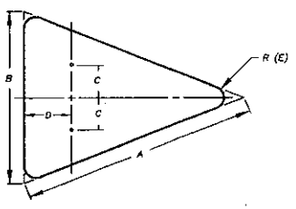
PENTAGON (SCHOOL)

A	B	C	D	T
36	24	3	2 1/4	0.100



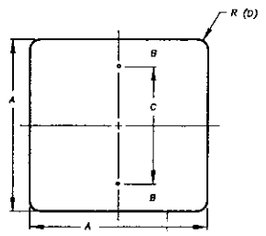
EQUILATERAL TRIANGLE

A	B	C	D	T
36	2	24	2	0.100



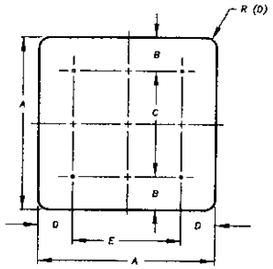
ISOSCELES TRIANGLE

A	B	C	D	E	T
40	30	7 1/2	12	1 7/8	0.100
48	36	9	15	2 1/4	0.100



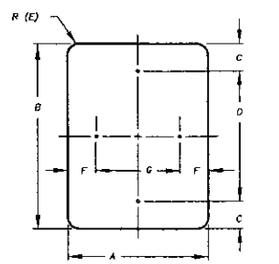
SQUARE (A)

A	B	C	D	T
18	1 1/2	15	1 1/2	0.080
24	3	18	1 1/2	0.080
30	3	24	1 7/8	0.080



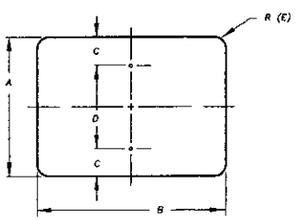
SQUARE (B)

A	B	C	D	E	F	T
48	6	36	8	30	3	0.100



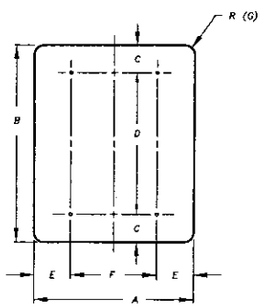
VERTICAL / HORIZONTAL RECTANGLE

A	B	C	D	E	F	G	T
12	18	1 1/2	15	1 1/2	1 1/2	9	0.080
12	36	3	30	1 1/2	1 1/2	9	0.080
18	24	1 1/2	21	1 1/2	1 1/2	15	0.080
24	30	3	24	1 1/2	3	18	0.080
24	36	3	30	1 1/2	3	18	0.080
24	48	6	36	1 7/8	3	18	0.080
30	36	3	30	1 7/8	3	24	0.080



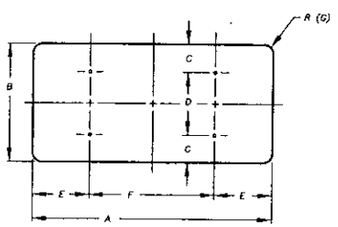
HORIZONTAL RECTANGLE

A	B	C	D	E	T
6	12	1	4	1/4	0.080
6	18	1	4	1/4	0.080
20	36	1 1/2	17	1 1/2	0.080



VERTICAL RECTANGLE

A	B	C	D	E	F	G	T
5	7 3/4	1/2	6 3/4	1/2	4	1/4	0.100
48	60	6	48	9	30	3	0.100



HORIZONTAL RECTANGLE

A	B	C	D	E	F	G	T
48	24	2	20	2	44	1 7/8	0.100
48	36	3	30	3	42	2 1/4	0.100
60	24	2	20	2	56	1 1/2	0.100
60	36	3	30	3	54	2 1/4	0.100
48	30	3	24	3	42	1 7/8	0.100
60	30	3	24	3	54	1 7/8	0.100

CITY OF SAN ANTONIO
TRAFFIC ENGINEERING DIVISION
DEPARTMENT OF PUBLIC WORKS

TRAFFIC SIGN STANDARDS

GROUND MOUNTED
SIGN SIZES

TE-SGN(3)-06

DSND: ENM	APVD: JDF	DATE: 1.30.06		SHT. NO.
DRWN: AFG	APVD: ENM	DATE: 2.6.06		3 OF 4
RVSD:	APVD:	DATE:	SCALE: NOT TO SCALE	

REVISIONS:

PAPE-DAWSON ENGINEERS
555 EAST RAMSEY | SAN ANTONIO, TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.9010

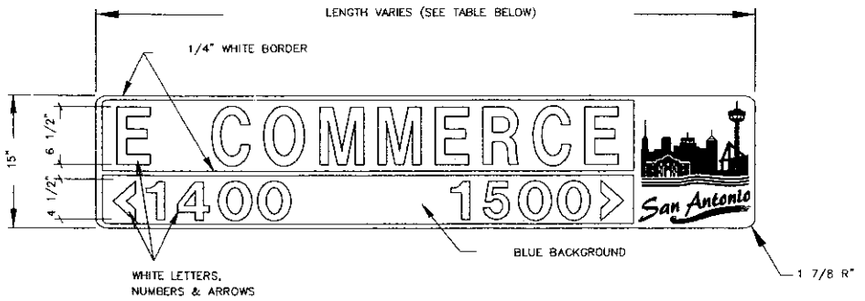
BCB-INNER CIRCLE DRIVE, UNIT 1
SAN ANTONIO, TEXAS
SIGNAGE DETAILS

JOB NO. 5735-09
DATE OCTOBER 2006
DESIGNER JJL
CHECKED CAO DRAWN ERV
SHEET C3.60

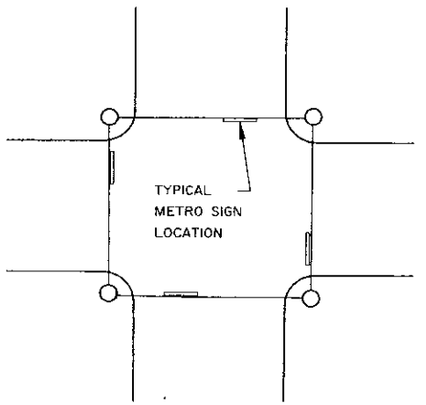
Date: Nov 17, 2006, 10:31am User ID: MBailey
File: P:\SJS\35\39\Design\Corl\Unit-1 Const Dwgs\5057575336.dwg

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VOL 7769 PG 138

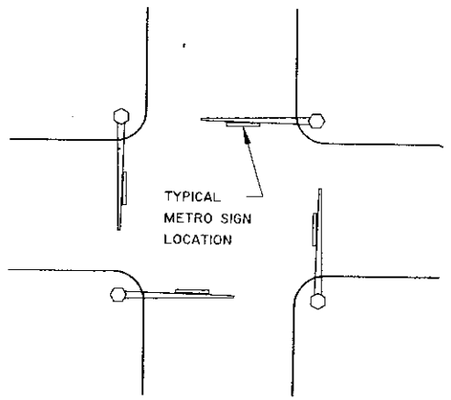


15" METRO - STREET NAME SIGNS



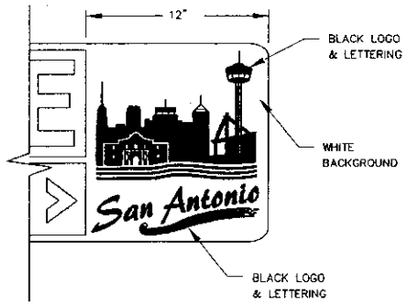
SPAN WIRE INSTALLATION

TYPICAL METRO SIGN PLACEMENT



MAST ARM INSTALLATION

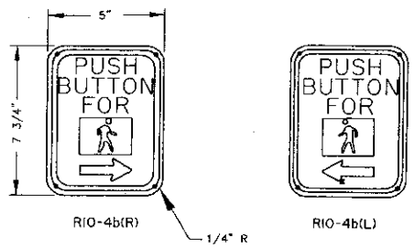
15" METRO w/ CITY SKY LINE



HEIGHT	15" (381 mm)
LENGTH	48" (1200 mm) MIN. 72" (1800 mm) MAX.** 1' (300mm) INCREMENTS OF LENGTH
THICKNESS	0.125" (3mm)
SUBSTRATE	ALUMINUM ALLOY, 5052-H38 (ASTM B-209) GOLD CHROMATE FINISH
SIGN FACE MATERIALS	BLUE FILM OVER DIAMOND GRADE FP-85, SECTION 718 AND L-S-300C
LEGENDS AND SYMBOLS	SERIES D (USUAL) SERIES C OR B FOR MAXIMUM LENGTH SIGN BLANK, IF NECESSARY
COLOR	WHITE LEGEND ON BLUE BACKGROUND
LETTER TRACKING	17% (USUAL) 10% (MIN.)

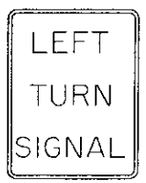
** SIGN PLATE LONGER THAN 72" MUST BE APPROVED BY THE CITY TRAFFIC ENGINEER

* DIAMOND GRADE SHEETING 5052-H38 ALUMINUM SUBSTRATE

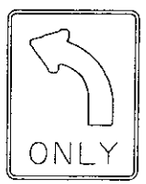


R10-4b(R) R10-4b(L)

PEDESTRIAN PUSHBUTTON SIGNS



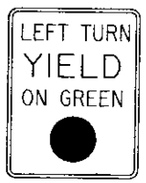
R10-10 "(30" X 36")



R3-5L "(30" X 36")



R10-9 "(30" X 24")



R10-12 "(30" X 36")

LEFT TURN SIGNS

CITY OF SAN ANTONIO
TRAFFIC ENGINEERING DIVISION
DEPARTMENT OF PUBLIC WORKS

TRAFFIC SIGN STANDARDS
METRO
STREET NAME SIGN
AND SIGN PLACEMENT

TE-SGN(4)-06

DSND: EHM	APVD: JBF	DATE: 1.30.06		SHT. NO.
DRWN: AFG	APVD: EHM	DATE: 2.6.06		4 OF 4
RVSD:	APVD:	DATE:	SCALE: NOT TO SCALE	

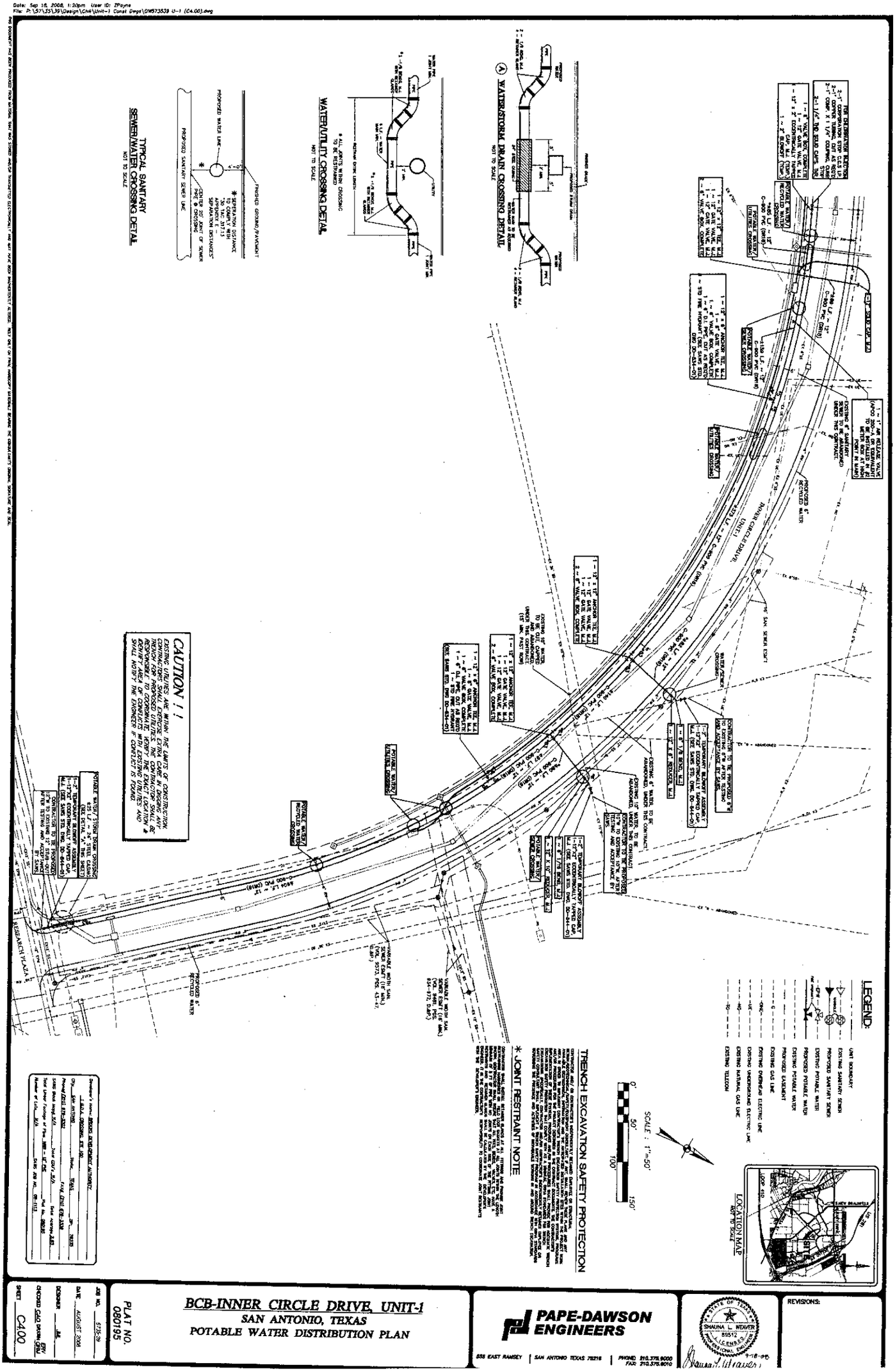
REVISIONS

PAPE-DAWSON ENGINEERS
555 EAST RANCEY | SAN ANTONIO, TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.9010

BCB-INNER CIRCLE DRIVE, UNIT 1
SAN ANTONIO, TEXAS
SIGNAGE DETAILS

JOB NO. 5735-38
DATE OCTOBER 2006
DESIGNER JJL
CHECKED CAO DRAWN ERV
SHEET C3.70

Date: Nov 17, 2006, 10:32am User ID: MBailey
File: P:\5735\38\Design\Civil\Unit-1 Civil Dwgs\SIGNS\5735SGN.dwg
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PLAT NO. 080195

BCB-INNER CIRCLE DRIVE, UNIT-1

SAN ANTONIO, TEXAS

POTABLE WATER DISTRIBUTION PLAN

PAPE-DAWSON ENGINEERS

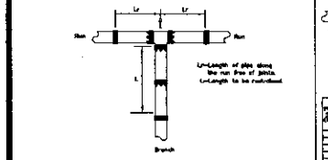
555 EAST RAMSEY | SAN ANTONIO TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.9010

STATE OF TEXAS — SHAUNA L. WEAVER — 85512 — LICENSED PROFESSIONAL ENGINEER — 9-18-06

REVISIONS:

JOB NO.	5735-09
DATE	AUGUST 2006
DESIGNER	JML
CHECKED DRAWN BY	DRV
SHEET	C400

VOL 7776 PG 190



RESTRAINED LENGTH FOR TEES

PIPE SIZE (Inch)	BRANCH SIZE (Inch)	LENGTH OF RUN (ft.)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 200 psi	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 150 psi
4	4	3	10	8
4	4	4	13	10
4	4	5	16	12
4	4	6	19	14
4	4	7	22	16
4	4	8	25	18
4	4	9	28	20
4	4	10	31	22
6	4	3	10	8
6	4	4	13	10
6	4	5	16	12
6	4	6	19	14
6	4	7	22	16
6	4	8	25	18
6	4	9	28	20
6	4	10	31	22
6	6	3	10	8
6	6	4	13	10
6	6	5	16	12
6	6	6	19	14
6	6	7	22	16
6	6	8	25	18
6	6	9	28	20
6	6	10	31	22

PROPERTY OF SAN ANTONIO WATER SYSTEM — RESTRAINED LENGTHS FOR TEES — APPROVED AUGUST 1998 — REVISED — DD-839-04 — SHEET 1 OF 2

RESTRAINED LENGTH FOR TEES (Cont'd)

PIPE SIZE (Inch)	BRANCH SIZE (Inch)	LENGTH OF RUN (ft.)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 200 psi	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 150 psi
12	4	3	42	34
12	4	4	51	41
12	4	5	60	48
12	4	6	69	55
12	4	7	78	62
12	4	8	87	69
12	4	9	96	76
12	4	10	105	83
12	6	3	42	34
12	6	4	51	41
12	6	5	60	48
12	6	6	69	55
12	6	7	78	62
12	6	8	87	69
12	6	9	96	76
12	6	10	105	83
12	8	3	42	34
12	8	4	51	41
12	8	5	60	48
12	8	6	69	55
12	8	7	78	62
12	8	8	87	69
12	8	9	96	76
12	8	10	105	83
12	12	3	42	34
12	12	4	51	41
12	12	5	60	48
12	12	6	69	55
12	12	7	78	62
12	12	8	87	69
12	12	9	96	76
12	12	10	105	83

PROPERTY OF SAN ANTONIO WATER SYSTEM — RESTRAINED LENGTHS FOR TEES — APPROVED AUGUST 1998 — REVISED — DD-839-04 — SHEET 2 OF 2

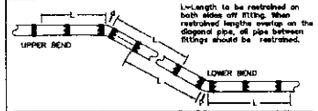
L=LENGTH TO BE RESTRAINED

PIPE SIZE (Inch)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 200 psi	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 150 psi
4	20	16
6	30	24
8	40	32
12	60	48

RESTRAINED LENGTH DESIGN
Restrained length calculations are for P.V.C pipe bedded in compacted granular material extending to the top of the pipe. Depth of bury is assumed to be 4 feet. The native soil material is assumed to be inorganic clay of high plasticity. Safety factor of 1.5 to 1 was used. Note: These calculations are provided for reference. The restrained length shall be designed based upon the conditions encountered during the installation.

PROPERTY OF SAN ANTONIO WATER SYSTEM — RESTRAINED LENGTHS FOR DEAD ENDS/ BLIND VALVES — APPROVED AUGUST 1998 — REVISED — DD-839-05 — SHEET 1 OF 1

L=Length to be restrained on both sides off fitting. When restrained lengths overlap on the diagonal pipe, all pipe between fittings should be restrained.



PIPE SIZE (Inch)	BEND ANGLE (Deg.)	Low Soil Conditions	MINIMUM LENGTH OF PIPE BEHIND BEND IN FEET, WHEN TEST PRESSURE = 200 psi	MINIMUM LENGTH OF PIPE AHEAD OF BEND IN FEET, WHEN TEST PRESSURE = 200 psi	MINIMUM LENGTH OF PIPE BEHIND BEND IN FEET, WHEN TEST PRESSURE = 150 psi	MINIMUM LENGTH OF PIPE AHEAD OF BEND IN FEET, WHEN TEST PRESSURE = 150 psi
4	45	5	14	5	10	3
4	22.5	5	7	2	5	1
4	11.25	5	3	1	2	1
6	45	5	21	7	16	5
6	22.5	5	10	3	7	2
6	11.25	5	5	1	3	1
8	45	5	28	9	21	7
8	22.5	5	13	4	10	3
8	11.25	5	6	2	4	1
12	45	5	42	14	32	10
12	22.5	5	20	6	15	5
12	11.25	5	9	3	7	2
4	45	10	14	5	10	3
4	22.5	10	7	2	5	1
4	11.25	10	3	1	2	1
6	45	10	21	7	16	5
6	22.5	10	10	3	7	2
6	11.25	10	5	1	3	1
8	45	10	28	9	21	7
8	22.5	10	13	4	10	3
8	11.25	10	6	2	4	1
12	45	10	42	14	32	10
12	22.5	10	20	6	15	5
12	11.25	10	9	3	7	2
4	45	15	14	5	10	3
4	22.5	15	7	2	5	1
4	11.25	15	3	1	2	1
6	45	15	21	7	16	5
6	22.5	15	10	3	7	2
6	11.25	15	5	1	3	1
8	45	15	28	9	21	7
8	22.5	15	13	4	10	3
8	11.25	15	6	2	4	1
12	45	15	42	14	32	10
12	22.5	15	20	6	15	5
12	11.25	15	9	3	7	2

RESTRAINED LENGTH DESIGN
Restrained length calculations are for P.V.C pipe bedded in compacted granular material extending to the top of the pipe. Depth of bury is assumed to be 4 feet. The native soil material is assumed to be inorganic clay of high plasticity. Safety factor of 1.5 to 1 was used. Note: These calculations are provided for reference. The restrained length shall be designed based upon the conditions encountered during the installation.

PROPERTY OF SAN ANTONIO WATER SYSTEM — RESTRAINED LENGTHS FOR VERTICAL OFFSETS — APPROVED AUGUST 1998 — REVISED — DD-839-06 — SHEET 1 OF 1

L=Length to be restrained

PIPE SIZE (Inch)	BEND ANGLE (Deg.)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 200 psi	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 150 psi
4	45	20	15
4	22.5	10	8
4	11.25	5	4
6	45	30	23
6	22.5	15	11
6	11.25	7	6
8	45	40	30
8	22.5	20	15
8	11.25	10	8
12	45	60	45
12	22.5	30	23
12	11.25	15	11

RESTRAINED LENGTH DESIGN
Restrained length calculations are for P.V.C pipe bedded in compacted granular material extending to the top of the pipe. Depth of bury is assumed to be 4 feet. The native soil material is assumed to be inorganic clay of high plasticity. Safety factor of 1.5 to 1 was used. Note: These calculations are provided for reference. The restrained length shall be designed based upon the conditions encountered during the installation.

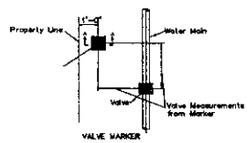
PROPERTY OF SAN ANTONIO WATER SYSTEM — RESTRAINED LENGTHS FOR REDUCERS — APPROVED AUGUST 1998 — REVISED — DD-839-07 — SHEET 1 OF 1

L=LENGTH TO BE RESTRAINED

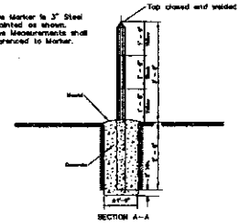
PIPE SIZE (Inch)	BEND ANGLE (Deg.)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 200 psi	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 150 psi
4	45	20	15
4	22.5	10	8
4	11.25	5	4
6	45	30	23
6	22.5	15	11
6	11.25	7	6
8	45	40	30
8	22.5	20	15
8	11.25	10	8
12	45	60	45
12	22.5	30	23
12	11.25	15	11

RESTRAINED LENGTH DESIGN
Restrained length calculations are for P.V.C pipe bedded in compacted granular material extending to the top of the pipe. Depth of bury is assumed to be 4 feet. The native soil material is assumed to be inorganic clay of high plasticity. Safety factor of 1.5 to 1 was used. Note: These calculations are provided for reference. The restrained length shall be designed based upon the conditions encountered during the installation.

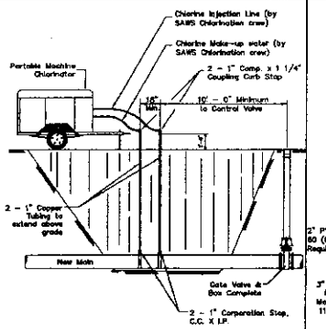
PROPERTY OF SAN ANTONIO WATER SYSTEM — RESTRAINED LENGTHS FOR ADDITIONAL BENDS — APPROVED AUGUST 1998 — REVISED — DD-839-08 — SHEET 1 OF 1



Notes:
1. Valve Marker to 3" Steel pipe painted as shown.
2. Valve Measurements shall be referenced to Marker.

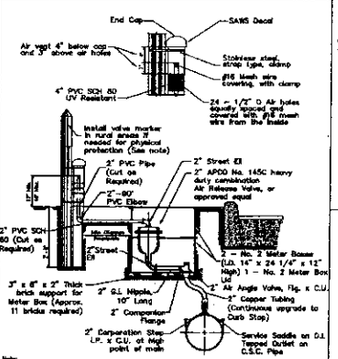


PROPERTY OF SAN ANTONIO WATER SYSTEM — VALVE MARKER — APPROVED AUGUST 1998 — REVISED — DD-828-04 — SHEET 1 OF 1



Note:
2 – 1 1/4" Stahl Cap, Thd., to be installed on Corporation Stop after chlorination

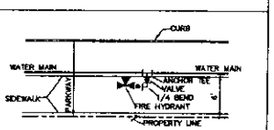
PROPERTY OF SAN ANTONIO WATER SYSTEM — STANDARD CHLORINATION INSTALLATION — APPROVED AUGUST 1998 — REVISED — DD-847-01 — SHEET 1 OF 1



Note:
In rural areas, meter should be at Property Line and

PROPERTY OF SAN ANTONIO WATER SYSTEM — INSTALLATION OF 2" AIR RELEASE VALVE — APPROVED AUGUST 1998 — REVISED — DD-846-02 — SHEET 1 OF 1

* NOTE: CONTRACTOR SHALL USE WDR DETAILS ON THIS SHEET FOR THE SIDNEY BROOKS INTERSECTION



FIRE HYDRANT INSTALLATION
(NOT TO SCALE)

WATER GENERAL NOTES

Last Revised: 1/2008

1. All materials and construction procedures within the scope of this project shall be approved by the San Antonio Water System (SAWS) and comply with the following as applicable:

A. Current "San Antonio Water System Standard Specifications for Construction"
B. Current "San Antonio Water System Utility Service Regulations"
C. Current City of San Antonio "Standard Specifications for Public Works Construction"
D. Current TxDOT " Standard Specification for Construction of Highways, Streets and Drainage"
E. Current City of San Antonio "Right – Of – way Ordinance and Criteria Manual".

2. The Contractor shall not proceed with any pipe installation work until they obtain a copy of the approved S.C.P. from the Consultant and has been notified by SAWS Construction Inspection Division to proceed with the work and has arranged a meeting with the inspector and consultant for the work requirements.

3. The locations and depths of existing utilities, including service laterals, and drainage structures shown on the plans are approximate only. The Contractor shall verify the exact location and depths of underground utilities at least 48 hours prior to construction whether shown on plans or not, and to protect the same during construction.

San Antonio Water System (Water, Sewer & Recycle Water)	233-2270
COSA Drainage	207-2500
City Sidewalk and Trenching Division	821-3240
COSA Traffic Signal Operations	207-7745
Texas State Wide One Call Locator	1-800-545-6005
City Public Service	-
South Western Bell	-
Time Warner	-
Valero Energy Co.	-
Bexar Metropolitan Water District	354-6536

4. No meter boxes to be set in driveways. Any meter boxes set in driveways will be relocated at contractor's and/or developer's expense.

5. The Contractor shall be responsible for restoring to its original or better condition from damage done to existing fences, curbs, streets, driveways, landscaping and structures.

6. The Contractor shall avoid cutting roots larger than one inch in diameter when excavating near existing trees. Excavation in vicinity of trees shall proceed with caution. The Contractor shall contact the City Arborist at 207-8053 and the SAWS construction inspector for guidance.

SUPPLEMENTARY

7. No extra-payment shall be allowed for work called for on the plans but not included on the bid schedule. This incidental work will be required and shall be included under the pay item to which it relates.

8. The Developer dedicates the water mains upon completion by the Developer and acceptance by the San Antonio Water System. The San Antonio Water System will own and maintain said water mains which are located within this particular subdivision. (As applicable)

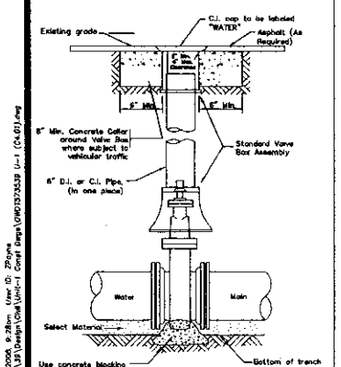
9. Contractor and/or Contractor's independently retained employee or structural design/geotechnical/safety/equipment consultant, if any, shall review these plans and available geotechnical information and the anticipated installation site(s) within the project work area in order to implement Contractor's trench excavation safety protection systems, programs and/or procedures. The Contractor's implementation of the systems, programs and/or procedures shall provide for adequate trench excavation safety protection that complies with or a minimum, OSHA Standards for trench excavations. Specifically, Contractor and/or Contractor's independently retained employee or safety consultant shall implement a trench safety program in accordance with OSHA Standards governing the presence and activities of individuals working in and around trench excavation.

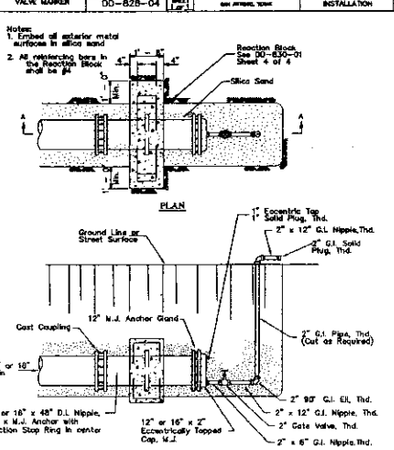
10. WORK COMPLETED BY THE CONTRACTOR WHICH HAS NOT RECEIVED A WORK ORDER OF THE NOTICE TO PROCEED WITH THE SAN ANTONIO WATER SYSTEM CONSTRUCTION INSPECTION DIVISION WILL BE SUBJECT TO REMOVAL AND REPLACEMENT AT NO AT THE EXPENSE OF THE CONTRACTOR.

11. The contractor will keep the area on top of and around the water meter box free of all objects and debris.

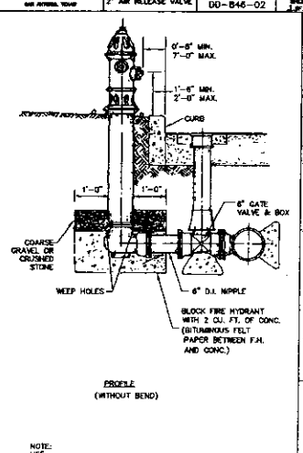
12. Water System to be completely restrained. Restrained length calculations are for P.V.C. pipe bedded i compacted granular material extending to the top of the pipe. The native soil material is assumed to be inorganic clay of high plasticity. Depth of bury is assumed to be 4 feet. Note: These calculations are provided for reference. The restrained lengths shall be designed based upon the conditions encountered during the installation. See SAWS Specification Book

NOTE:
ALL 12" PIPES SHALL BE P.V.C. C-900, DR14
ALL 16" PIPES SHALL BE P.V.C. C-900, DR14
ALL 6" PIPES SHALL BE P.V.C. C-900, DR14



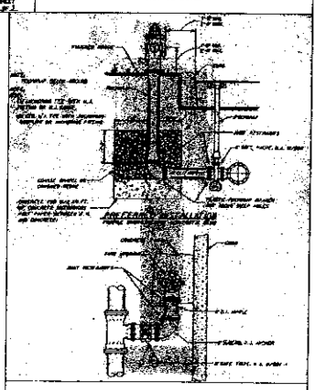


PROPERTY OF SAN ANTONIO WATER SYSTEM — 2" TEMPORARY BLOW-OFF ASSEMBLY ON 12" & 16" D.I. MAINS — APPROVED AUGUST 1998 — REVISED — DD-844-01 — SHEET 1 OF 1



NOTE:
USE
(A.) ANCHORING TEE WITH M.J. FITTING OR M.J VALVE, OR
(B.) STD. M.J. TEE WITH ANCHORING COUPLING OR ANCHORING FITTING.

FIRE HYDRANT INSTALLATION
(NOT TO SCALE)



FIRE HYDRANT INSTALLATION
(NOT TO SCALE)

Developer's Name: BROOKS DEVELOPMENT AUTHORITY
1 S.O.A. CROSSING STE 102
City: SAN ANTONIO State: TEXAS Zip: 78235
Phone# (210) 670-1302 FAX# (210) 670-1326
SAWS Block Map# N/A Total EDU's N/A Total Acreage 2.82
Total Linear Footage of Pipe 1988 – 12" PVC Plat No. 080185
Number of Lots N/A SAWS JOB NO. 06-1173

JOB NO. 5705-09
DATE AUGUST 2008
DESIGNER AJL
CHECKED CAO DRAWN GRM
SHEET C4.01

REVISIONS:

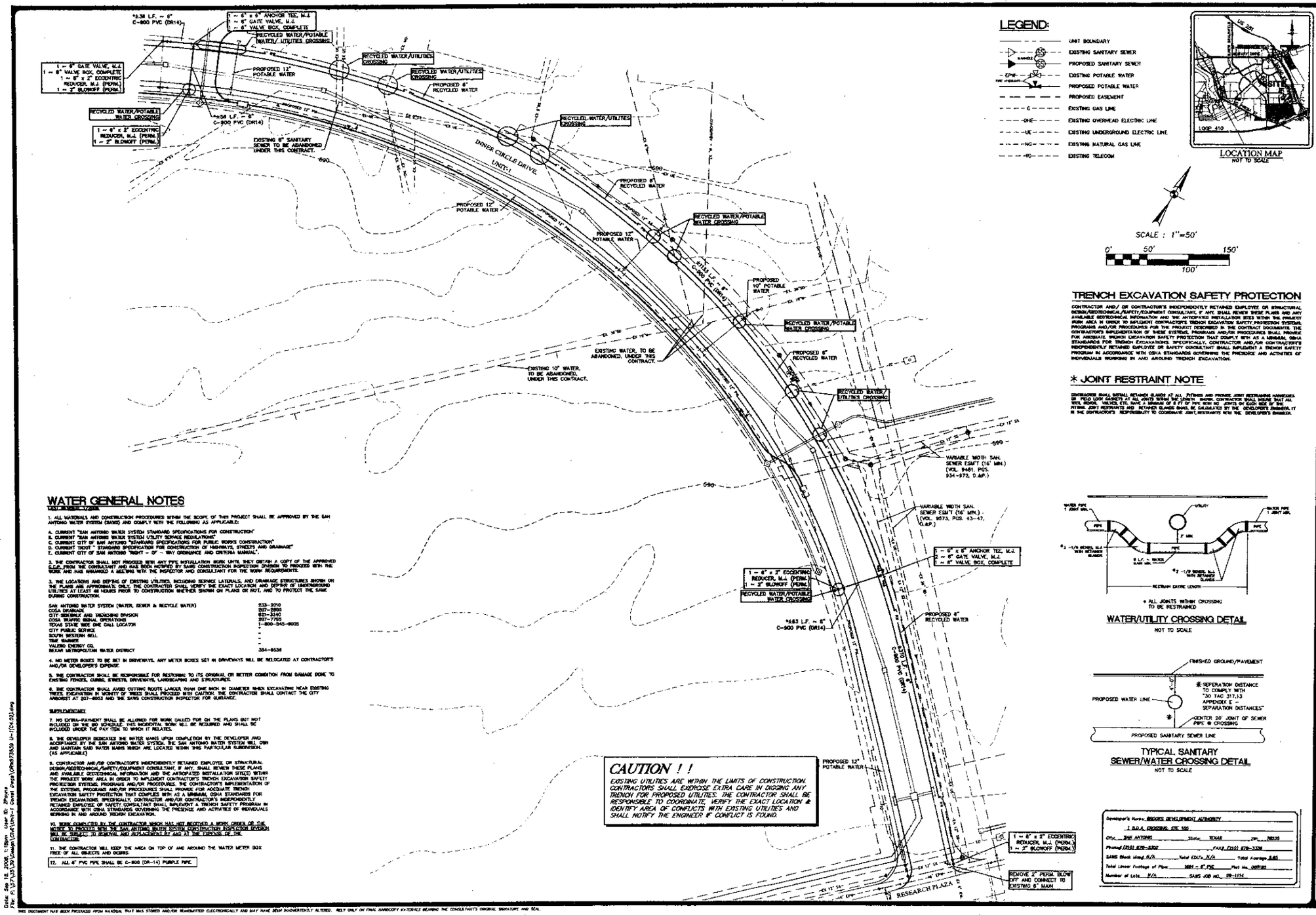
PAPE-DAWSON ENGINEERS
555 EAST RAMSEY | SAN ANTONIO, TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.9010

BCB-INNER CIRCLE DRIVE, UNIT 1
SAN ANTONIO, TEXAS
WATER DISTRIBUTION NOTES AND DETAILS

Date: Sep 17, 2008, 9:28am User ID: ZPayne
File: P:\5705\09\Design\Civil\Unit-1 Const Dwgs\0901705309 Unit 1 (C4.01).dwg

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LEGEND:

- UNIT BOUNDARY
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- EXISTING POTABLE WATER
- PROPOSED POTABLE WATER
- PROPOSED EASEMENT
- EXISTING GAS LINE
- EXISTING OVERHEAD ELECTRIC LINE
- EXISTING UNDERGROUND ELECTRIC LINE
- EXISTING NATURAL GAS LINE
- EXISTING TELECOM

LOCATION MAP
NOT TO SCALE

SCALE : 1"=50'

0' 50' 150'
100'

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

* JOINT RESTRAINT NOTE

CONTRACTOR SHALL INSTALL RETAINER GLANDS (3 ADD.) AT ALL FITTINGS AND PROVIDE JOINT RESTRAINING HARDWARE ON ALL MAIN LINE VALVES AT ALL PIPE BENDS, AT EVERY TEE, WITHIN CONSTRUCTION LIMITS. CONTRACTOR SHALL ENSURE THAT ALL PIPE WITH NO JOINTS OR EACH SIDE OF THE PIPING JOINT RESTRAINTS AND RETAINER GLANDS SHALL BE CALCULATED BY THE DEVELOPER'S ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE JOINT RESTRAINTS WITH THE DEVELOPER'S ENGINEER.

WATER GENERAL NOTES

FOR RECYCLED WATER

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS PROJECT SHALL BE APPROVED BY THE SAN ANTONIO WATER SYSTEM (SAWS) AND COMPLY WITH THE FOLLOWING AS APPLICABLE:

A. CURRENT "SAN ANTONIO WATER SYSTEM STANDARD SPECIFICATIONS FOR CONSTRUCTION"
B. CURRENT "SAN ANTONIO WATER SYSTEM UTILITY SERVICE REGULATIONS"
C. CURRENT CITY OF SAN ANTONIO "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION"
D. CURRENT "2003" " STANDARD SPECIFICATION FOR CONSTRUCTION OF HIGHWAYS, STREETS AND DRAINAGE"
E. CURRENT CITY OF SAN ANTONIO "RIGHT – OF – WAY ORDINANCE AND CRITERIA MANUAL".

2. THE CONTRACTOR SHALL NOT PROCEED WITH ANY PIPE INSTALLATION WORK UNTIL THEY OBTAIN A COPY OF THE APPROVED C.I.P. FROM THE CONSULTANT AND HAS BEEN NOTIFIED BY SAWS CONSTRUCTION INSPECTION DIVISION TO PROCEED WITH THE WORK AND HAS ARRANGED A MEETING WITH THE INSPECTOR AND CONSULTANT FOR THE WORK REQUIREMENTS.

3. THE LOCATIONS AND DEPTHS OF EXISTING UTILITIES, INCLUDING SERVICE LATERALS, AND DRAINAGE STRUCTURES SHOWN ON THE PLANS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND DEPTHS OF UNDERGROUND UTILITIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION WHETHER SHOWN ON PLANS OR NOT, AND TO PROTECT THE SAME DURING CONSTRUCTION.

SAN ANTONIO WATER SYSTEM (WATER, SEWER & RECYCLE WATER)	833-2010
CCSA DRAINAGE	207-2800
CITY-SIDEWALK AND TREE/SIGNS DIVISION	631-3240
CCSA TRAFFIC SIGNAL OPERATIONS	207-7705
TEXAS STATE WIDE ONE CALL LOCATOR	1-800-545-6005
CITY PUBLIC SERVICE	-
SOUTH WESTERN BELL	-
TIME WARNER	-
VALERO ENERGY CO.	-
BEXAR METROPOLITAN WATER DISTRICT	354-6536

4. NO METER BOXES TO BE SET IN DRIVEWAYS. ANY METER BOXES SET IN DRIVEWAYS WILL BE RELOCATED AT CONTRACTOR'S AND/OR DEVELOPER'S EXPENSE.

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER CONDITION FROM DAMAGE DONE TO EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, LANDSCAPING AND STRUCTURES.

6. THE CONTRACTOR SHALL AVOID CUTTING ROOTS LARGER THAN ONE INCH IN DIAMETER WHEN EXCAVATING NEAR EXISTING TREES. EXCAVATION IN VICINITY OF TREES SHALL PROCEED WITH CAUTION. THE CONTRACTOR SHALL CONTACT THE CITY ARBORIST AT 207-8053 AND THE SAWS CONSTRUCTION INSPECTOR FOR GUIDANCE.

SUPPLEMENTARY

7. NO EXTRA PAYMENT SHALL BE ALLOWED FOR WORK CALLED FOR ON THE PLANS BUT NOT INCLUDED ON THE BID SCHEDULE. THIS INCIDENTAL WORK WILL BE REQUIRED AND SHALL BE INCLUDED UNDER THE PAY ITEM TO WHICH IT RELATES.

8. THE DEVELOPER DEDICATES THE WATER MAINS UPON COMPLETION BY THE DEVELOPER AND ACCEPTANCE BY THE SAN ANTONIO WATER SYSTEM. THE SAN ANTONIO WATER SYSTEM WILL OWN AND MAINTAIN SAID WATER MAINS WHICH ARE LOCATED WITHIN THIS PARTICULAR SUBDIVISION. (AS APPLICABLE)

9. CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTOR'S IMPLEMENTATION OF THE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

10. WORK COMPLETED BY THE CONTRACTOR WHICH HAS NOT RECEIVED A WORK ORDER OR THE NOTICE TO PROCEED WITH THE SAN ANTONIO WATER SYSTEM CONSTRUCTION INSPECTION DIVISION WILL BE SUBJECTED TO REMOVAL AND REPLACEMENT BY AND AT THE EXPENSE OF THE CONTRACTOR.

11. THE CONTRACTOR WILL KEEP THE AREA ON TOP OF AND AROUND THE WATER METER BOX FREE OF ALL OBJECTS AND DEBRIS.

12. ALL 6" PVC PIPE SHALL BE C-900 (DR-14) PURPLE PIPE.

* ALL JOINTS WITHIN CROSSING TO BE RESTRAINED

WATER/UTILITY CROSSING DETAIL
NOT TO SCALE

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
NOT TO SCALE

CAUTION ! !

EXISTING UTILITIES ARE WITHIN THE LIMITS OF CONSTRUCTION. CONTRACTORS SHALL EXERCISE EXTRA CARE IN DIGGING ANY TRENCH FOR PROPOSED UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE, VERIFY THE EXACT LOCATION & IDENTIFY AREA OF CONFLICTS WITH EXISTING UTILITIES AND SHALL NOTIFY THE ENGINEER IF CONFLICT IS FOUND.

Developer's Name:	BEXAR'S DEVELOPMENT AUTHORITY
	1 B.D.A. CROSSING, STE. 100
City:	SAN ANTONIO State: TEXAS ZIP: 78216
Phone# (210) 826-8302	FAX# (210) 828-3328
SAWS Blank Mtrq. #:	N/A Total EDU's: N/A Total Acreage: 8.85
Total Linear Footage of Pipe:	1684 – 6" PVC Plat No.: 060180
Number of Lots:	N/A SAWS JOB NO.: 08-1114

REVISIONS

SHAWNA L. WORDEN 85512 LICENSED PROFESSIONAL ENGINEER 8-18-06

PAPE-DAWSON ENGINEERS
555 EAST RAMSEY | SAN ANTONIO, TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.9010

BCB-INNER CIRCLE DRIVE, UNIT 1
SAN ANTONIO, TEXAS
RECYCLED WATER DISTRIBUTION PLAN

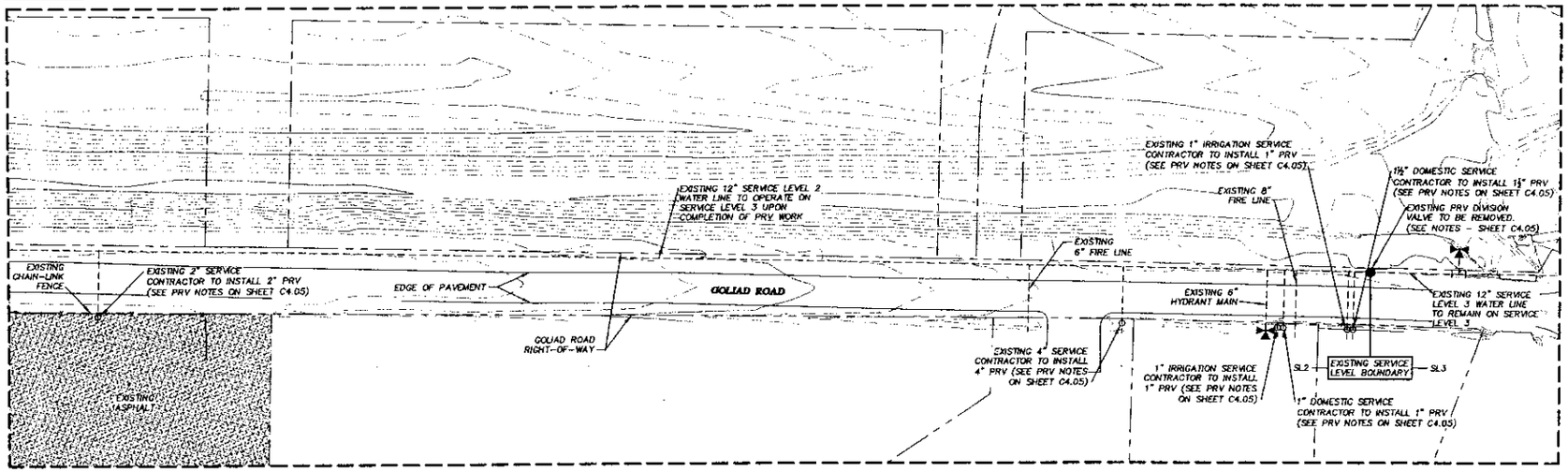
JOB NO. 5735-00
DATE AUGUST 2006
DESIGNER MK
CHECKED CAC DRAWN CRM
SHEET C4.02

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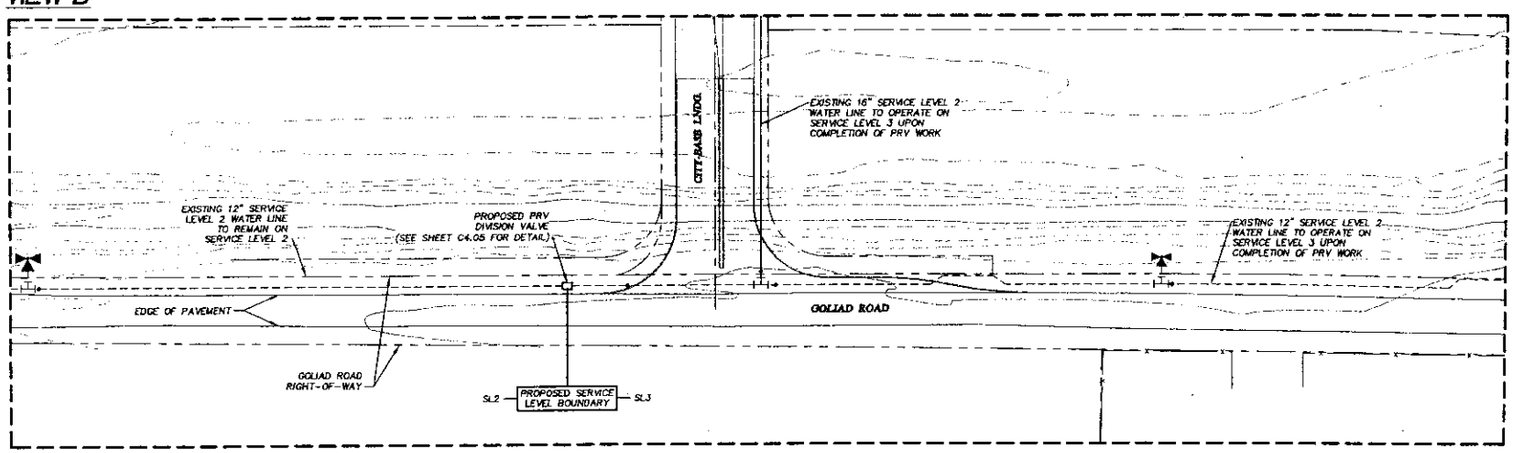
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VIEW A



VIEW B



SCALE : 1"=50'

0' 50' 150'

100'

REVISIONS:

STATE OF TEXAS
SHAUNA L. WEAVER
89512
LICENSED
PROFESSIONAL ENGINEER
8-15-08

PAPE-DAWSON ENGINEERS

555 EAST RAMSEY | SAN ANTONIO, TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.9010

BCB-INNER CIRCLE DRIVE, UNIT-1
SAN ANTONIO, TEXAS
SERVICE LEVEL 2/3 BOUNDARY RELOCATION PLAN SHEET

PLAT NO. 080195

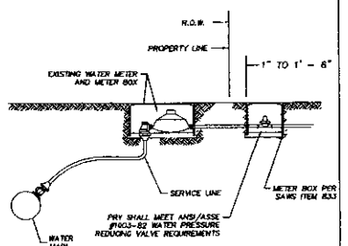
JOB NO. 5735-30
DATE AUGUST 2008
DESIGNER CAO
CHECKED S.L.W. DRAWN RAD
SHEET C4.04

Date: Aug 22, 2008, 8:08am User ID: Robertsam
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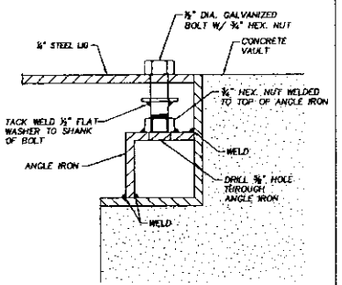
VOL 7779 PG 193

1



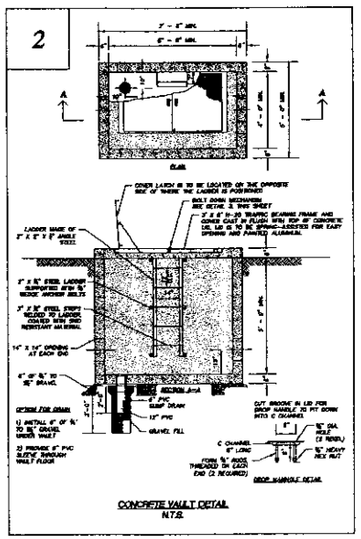
3/4" THRU 1" SERVICE PRESSURE REDUCING VALVE DETAIL
N.T.S.

3



RECESSED BOLT DOWN MECHANISM DETAIL
N.T.S.

2



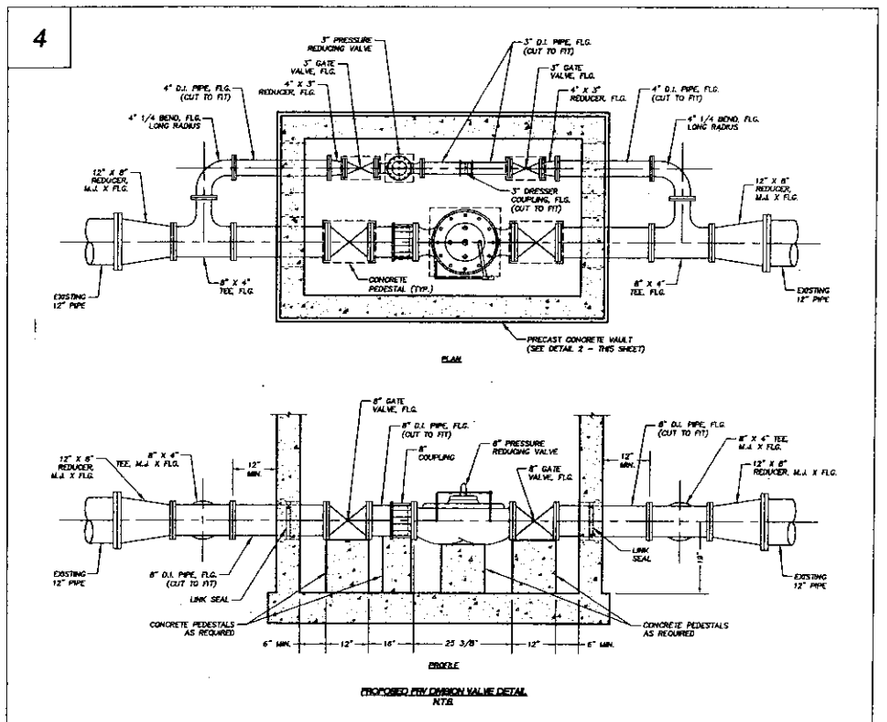
1" – 4" SERVICE LINE PRV NOTES

1. 1" – 3" PRESSURE REDUCING VALVES SHALL BE CLA-VAL MODEL 990. PRESSURE REDUCING VALVES LARGER THAN 3" SHALL BE CLA-VAL MODEL 690-01.
2. PRESSURE REDUCING VALVES SHALL BE INSTALLED PER DETAIL 1 – THIS SHEET.
3. PRESSURE REDUCING VALVES SHALL BE SET TO REDUCE INLET PRESSURE OF APPROXIMATELY 90 PSI TO APPROXIMATELY 65 PSI.
4. VALVE BOX AND COVER SHALL BE INSTALLED WITH EACH PRESSURE REDUCING VALVE PER DETAIL 1 – THIS SHEET (N.S.P.I.).
5. CONTRACTOR SHALL MINIMIZE AREA TO BE DISTURBED WHILE PERFORMING THE WORK. CONTRACTOR SHALL RESTORE AND REPAIR ALL DISTURBED AREAS AND EXISTING IMPROVEMENTS INCLUDING, BUT NOT LIMITED TO VEGETATION, PAVING, CONCRETE, FENCING, ETC. (N.S.P.I.)
6. CONTRACTOR SHALL COORDINATE WITH PROPERTY OWNERS AND NOTIFY PROPERTY OWNERS 48 HOURS IN ADVANCE OF ANY WATER SERVICE WORK WITHIN THE PROPERTY AND/OR SHUT DOWNS TO PERFORM THE WORK.

PRV REMOVAL NOTES

1. CONTRACTOR SHALL INSTALL ALL PROPOSED PRESSURE REDUCING VALVES PRIOR TO REMOVAL OF EXISTING PRESSURE REDUCING VALVES.
2. CONTRACTOR SHALL CLOSE EXISTING 8" GATE VALVES. (EXISTING 3" GATE VALVES SHALL BE IN THE OPEN POSITION), REMOVE EXISTING 8" PRESSURE REDUCING VALVE AND CLOSE GAP BETWEEN EXISTING 8" GATE VALVES WITH A D.I. SPOOL PIECE.
3. AFTER SPOOL PIECE IS INSTALLED CONTRACTOR SHALL OPEN EXISTING 8" GATE VALVES, CLOSE EXISTING 3" GATE VALVES, REMOVE EXISTING 3" PRESSURE REDUCING VALVE AND PIPING BETWEEN 3" GATE VALVES. BLIND FLANGES SHALL BE INSTALLED ON ENDS OF EXISTING 3" GATE VALVES.
4. EXISTING VAULT TO REMAIN.
5. RECOVERED PIPING, FITTINGS AND VALVES SHALL BE DELIVERED TO SAWS, AT THE DISCRETION OF THE SAWS INSPECTOR.

4



PROPOSED PRV DIVISION VALVE DETAIL
N.T.S.

REVISIONS

STATE OF TEXAS
SHAUNA L. WEAVER
89512
LICENSED
PROFESSIONAL ENGINEER
8-28-08

PAPE-DAWSON ENGINEERS
353 EAST RAMSEY | SAN ANTONIO, TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.9010

BCB-INNER CIRCLE DRIVE, UNIT 1

SAN ANTONIO, TEXAS

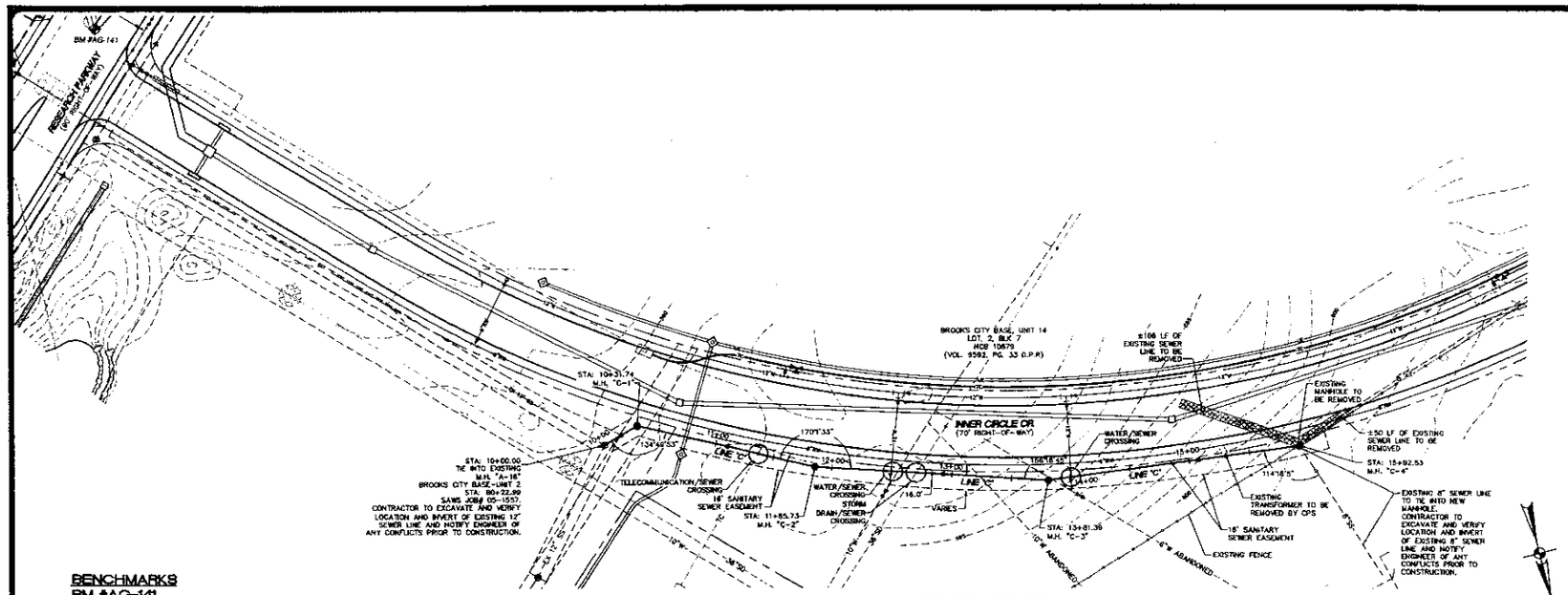
SERVICE LEVEL 2/3 BOUNDARY RELOCATION
DETAIL SHEET

JOB NO. 5735-39
DATE AUGUST 2008
DESIGNER CAO
CHECKED SLW DRAWN RAS
SHEET C4.05

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File: P:\35\05\39\Design\Civil\Unit-1 Canal Dmgs\DWG\573539 U-1 (C4.05).dwg

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LOCATION MAP
NOT-TO-SCALE

LEGEND:

- RIGHT-OF-WAY
- 880 EXISTING 10' CONTOUR
- 884 EXISTING 2' CONTOUR
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- 8"W EXISTING POTABLE WATER
- 8"W PROPOSED POTABLE WATER
- PROPOSED EASEMENT
- EXISTING SEWER MAIN TO BE REMOVED

BENCHMARKS

BM #AG-141

CHISELED SQUARE ON SE CORNER OF LAMP POST ON NOSE OF ISLAND ON RESEARCH PLAZA AND ENTRANCE TO BPT LAB SITE.
ELEV. = 1886.40

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANTS, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SPECS WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT EXPRESSED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH, AT A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATION. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS DISCIPLINING THE PROCESS AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

CAUTION ! !

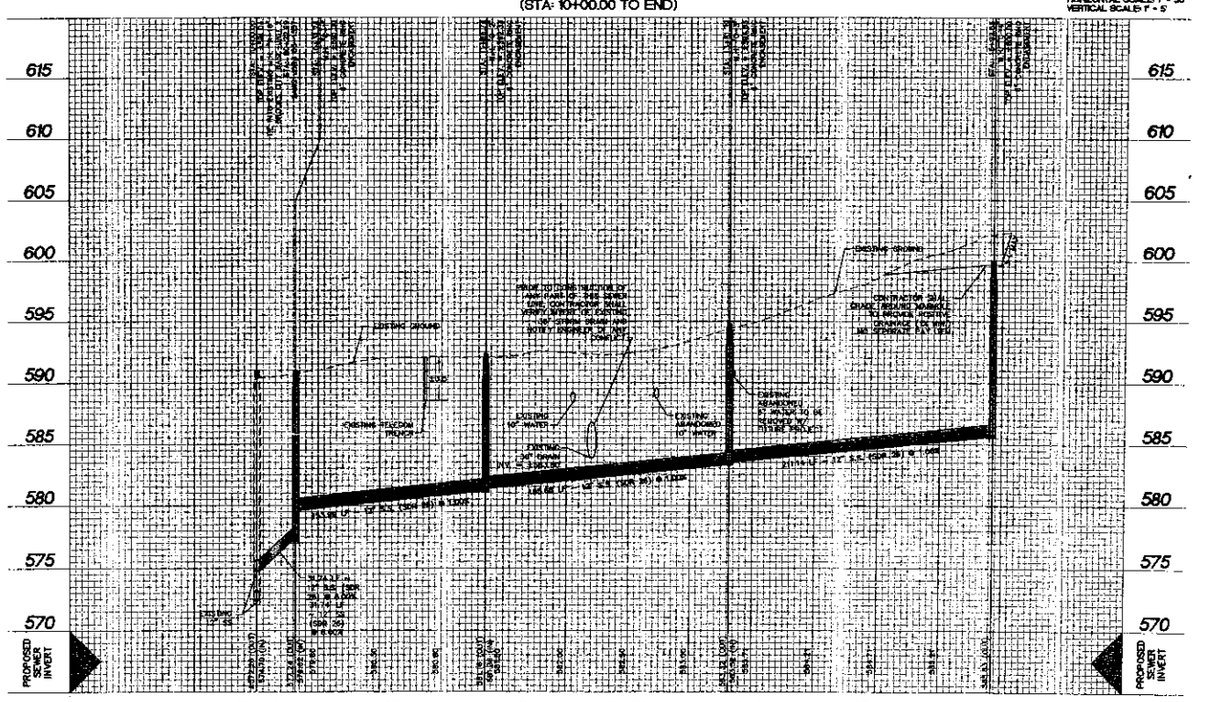
EXISTING UTILITIES ARE WITHIN THE LIMITS OF CONSTRUCTION. CONTRACTORS SHALL EXERCISE EXTRA CARE IN DIGGING ANY TRENCH FOR PROPOSED UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE, VERIFY THE EXACT LOCATION & IDENTIFY AREA OF CONFLICTS WITH EXISTING UTILITIES AND SHALL NOTIFY THE ENGINEER IF CONFLICT IS FOUND.

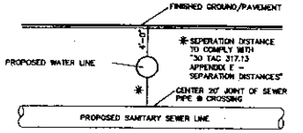
NOTES:

1. SEWER PIPE WHERE WATER LINE CROSSES SHALL BE 160 P.S.I. AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT WATER MAIN.
2. WHEN HORIZONTAL DISTANCE BETWEEN SEWER PIPES AND WATER MAIN IS LESS THAN 9 FOOT OF SEPARATION, SEWER MAIN SHALL BE INSTALLED WITH 150 PSI (MIN) PRESSURE PIPE AND FITTINGS IN ACCORDANCE WITH SAWS CONSTRUCTION CRITERIA FOR CONSTRUCTION OF SEWER MAINS IN THE VICINITY OF WATER MAINS.
3. CONTRACTOR SHALL ENSURE THAT MANHOLES OUTSIDE OF PAVED AREAS ARE SET WITH TOP ELEVATIONS 4" ABOVE FINISHED GRADE WITH CONCRETE RING ENCASEMENT.
4. ALL SEWER PIPES SHALL BE 12" PVC (SDR 26), UNLESS OTHERWISE NOTED.
5. CONTRACTOR IS TO VERIFY INVERT OF EXISTING SANITARY SEWER MAIN AT PROPOSED CONNECTION AND ALERT ENGINEER IMMEDIATELY OF ANY DIFFERENCE FROM INVERT SHOWN ON PLANS.
6. CONTRACTOR SHALL PROTECT ALL EXISTING FENCES. ANY FENCE DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR AT THEIR EXPENSE.
7. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.
8. SEE THIS SHEET FOR TYPICAL SANITARY SEWER/WATER CROSSING DETAIL.

SEWER LINE "C"
(STA: 10+00.00 TO END)

HORIZONTAL SCALE 1" = 50'
VERTICAL SCALE 1" = 5'





TYPICAL SANITARY
SEWER/WATER CROSSING DETAIL
NOT TO SCALE

Developer's Name: BROOKS DEVELOPMENT AUTHORITY
1 H.G.A. CROSSING, STE 100
City: SAN ANTONIO State: TEXAS Zip: 78235
Phone: (210) 978-3260 FAX (210) 978-3338
SAWS Block Map#: N/A Total EDU's: N/A Total Acreage: 2.65
Total Linear Footage of Pipe: 383.33 L.F. - 12" PIPE Plat No. 080185
Number of Lots: N/A SAWS JOB NO. 08-1433

REVISIONS:

JONATHAN L. WEAVER — 98870 — LICENSED PROFESSIONAL ENGINEER — STATE OF TEXAS — 9-19-08

PAPE-DAWSON ENGINEERS
555 EAST RAMSEY | SAN ANTONIO, TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.9010

BCB-INNER CIRCLE DRIVE, UNIT 1

SAN ANTONIO, TEXAS

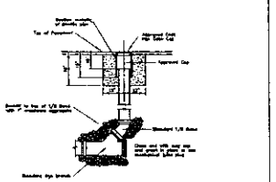
SANITARY SEWER LINE "C" - PLAN AND PROFILE
(STA: 10+00.00 TO END)

JOB NO. 5735-39
DATE AUGUST 2008
DESIGNER ZP
CHECKED CAD DRAWN ERV
SHEET C5.00

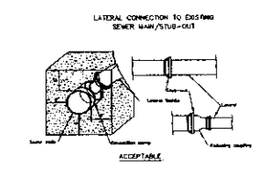
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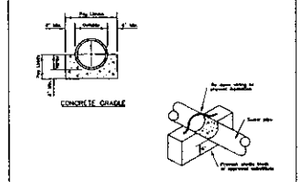
VOL 7771 PG 195



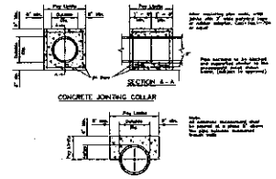
PROPERTY OF SAN ANTONIO WATER SYSTEM	TYPICAL CLEANOUT DETAIL	APPROVED AUGUST 1998	REVISED	SHEET 1 OF 1
		DD-854-02		



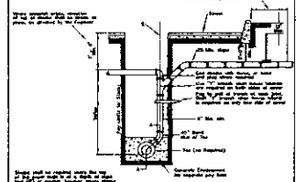
PROPERTY OF SAN ANTONIO WATER SYSTEM	LATERAL CONNECTION	APPROVED AUGUST 1998	REVISED	SHEET 1 OF 1
		DD-854-03		



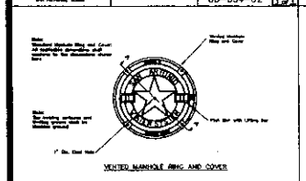
PROPERTY OF SAN ANTONIO WATER SYSTEM	TYPICAL CONCRETE ENCASEMENT DETAILS	APPROVED AUGUST 1998	REVISED	SHEET 1 OF 1
		DD-858-01		



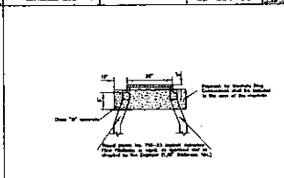
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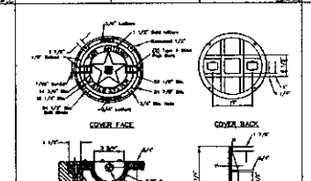
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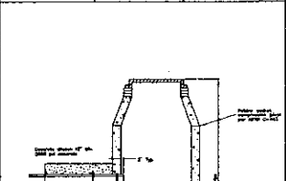
PROPERTY OF SAN ANTONIO WATER SYSTEM	VENTED MANHOLE RING AND COVER DETAIL	APPROVED AUGUST 1998	REVISED	SHEET 1 OF 1
		DD-852-02		



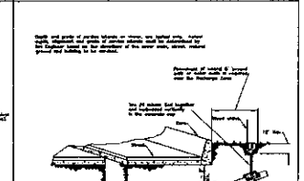
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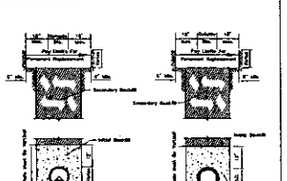
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		DD-852-07		



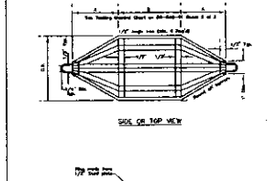
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		DD-852-08		



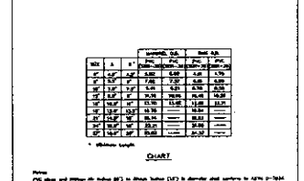
PROPERTY OF SAN ANTONIO WATER SYSTEM	HOUSE LATERAL DETAIL	APPROVED AUGUST 1998	REVISED	SHEET 1 OF 1
		DD-854-01		



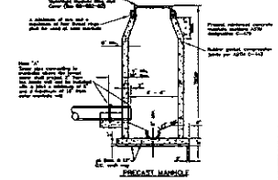
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		DD-400-01		



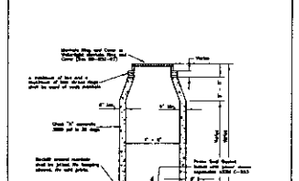
PROPERTY OF SAN ANTONIO WATER SYSTEM	GO, NO GO DEFLECTION TESTING MANDREL	APPROVED AUGUST 1998	REVISED	SHEET 1 OF 1
		DD-848-01		



PROPERTY OF SAN ANTONIO WATER SYSTEM	GO, NO GO DEFLECTION TESTING MANDREL CHART	APPROVED AUGUST 1998	REVISED	SHEET 1 OF 1
		DD-848-01		



PROPERTY OF SAN ANTONIO WATER SYSTEM	STANDARD PRECAST MANHOLE	APPROVED AUGUST 1998	REVISED	SHEET 1 OF 1
		DD-852-01		



PROPERTY OF SAN ANTONIO WATER SYSTEM	STANDARD MONOLITHIC MANHOLE	APPROVED AUGUST 1998	REVISED	SHEET 1 OF 1
		DD-852-01		

SAN ANTONIO WATER SYSTEM CRITERIA FOR SEWER MAIN CONSTRUCTION IN THE VICINITY OF WATER MAINS

I. WHERE A SEWER MAIN CROSSES OVER A WATER MAIN AND THE SEPARATION DISTANCE IS LESS THAN NINE (9) FEET, ALL PORTIONS OF THE SEWER MAIN WITHIN NINE (9) FEET OF THE WATER LINE SHALL BE CONSTRUCTED OF USING 150 PSI PRESSURE RATED DUCTILE IRON, CAST IRON, OR PVC PIPE AND JOINED WITH EQUALLY PRESSURE RATED RING GASKET CONNECTIONS OR CORROSION PROTECTED MECHANICAL COUPLING DEVICES OF A CAST IRON OR DUCTILE IRON MATERIAL. A SECTION OF 150 PSI PRESSURE RATED PIPE AT LEAST EIGHTEEN (18) FEET IN LENGTH MAY BE CENTERED ON THE WATER MAIN IN LIEU OF PIPE CONNECTION REQUIREMENTS (NO SEPARATE PAY ITEM).

II. WHERE A SEWER MAIN CROSSES UNDER A WATER MAIN AND THE SEPARATION DISTANCE IS LESS THAN NINE FEET BUT GREATER THAN TWO FEET, THE INITIAL BACKFILL SHALL BE CEMENT STABILIZED SAND (TWO OR MORE BAGS OF CEMENT PER CUBIC YARD OF SAND) FOR ALL SECTIONS OF THE SEWER WITHIN NINE FEET OF THE WATER MAIN.

III. WHERE A SEWER MAIN CROSSES UNDER A WATER MAIN AND THE SEPARATION DISTANCE IS LESS THAN TWO FEET, THE SEWER MAIN SHALL BE CONSTRUCTED OF CAST IRON, DUCTILE IRON, OR PVC WITH A MINIMUM PRESSURE RATING OF 150 PSI WITHIN NINE FEET OF THE WATER MAIN. SHALL BE PLACED NO CLOSER THAN SIX (6') INCHES BETWEEN OUTER DIAMETERS, AND SHALL BE JOINED WITH PRESSURE RING GASKET CONNECTIONS OR CORROSION PROTECTED MECHANICAL COUPLING DEVICES OR A CAST IRON OR DUCTILE IRON MATERIAL. A SECTION OF PSI PRESSURE RATED PIPE OF A LENGTH GREATER THAN EIGHTEEN (18) FEET MAY BE CENTERED ON THE WATER MAIN IN LIEU OF PIPE CONNECTION REQUIREMENTS. (NO SEPARATE PAY ITEM).

IV. WHERE A SEWER MAIN PARALLELS A WATER MAIN AND THE SEPARATION DISTANCE IS LESS THAN NINE FEET, THE SEWER MAIN SHALL BE BELOW THE WATER MAIN, SHALL BE CONSTRUCTED OF CAST IRON, DUCTILE IRON, OR PVC WITH A MINIMUM PRESSURE RATING OF 150 PSI FOR BOTH PIPE AND JOINTS FOR A DISTANCE OF NINE FEET BEYOND THE POINT OF CONFLICT, SHALL MAINTAIN A MINIMUM SEPARATION DISTANCE BETWEEN OUTER DIAMETERS OF TWO FEET VERTICALLY AND FOUR FEET HORIZONTALLY, AND SHALL BE JOINED WITH PRESSURE RING GASKET CONNECTIONS OR CORROSION PROTECTED MECHANICAL COUPLING DEVICES OF A CAST IRON OR DUCTILE IRON MATERIALS.

V. SANITARY SEWER MANHOLES SHALL NOT BE INSTALLED ANY CLOSER THAN NINE FEET TO WATER MAINS

VI. PLAN AND PROFILE MUST SHOW TYPE OR CROSSING AND MATERIAL TO USE.

NON-EDWARD'S AQUIFER RECHARGE ZONE
SANITARY SEWER SYSTEM
GENERAL NOTES
REVISED: JANUARY 26, 2006

1. All materials and construction procedures within the scope of this project shall be approved by the San Antonio Water System (SAWS) and comply with the following as applicable:

A. Current Texas Commission on Environmental Quality's Design Criteria for Sewerage Systems (30 TAC 317.1, 30 TAC 317.2, 30 TAC 317.3 and 30 TAC 317.13)

B. Current "San Antonio Water System Standard Specifications for Construction".

C. Current City of San Antonio "Standard Specifications for Public Works Construction".

D. Current TxDOT " Standard Specification for Construction of Highways, Streets and Drainage".

E. Current City of San Antonio "Right – Of – Way Ordinance and Criteria Manual".

2. The Contractor shall not proceed with any pipe installation work until they obtain a copy of the approved U.C.P. from the Consultant and has been notified by SAWS Construction Inspection Division to proceed with the work and has arranged a meeting with the inspector and consultant for the work requirements.

3. The locations and depths of existing utilities, including service laterals, and drainage structures shown on the plans are approximate only. The Contractor shall verify the exact location and depths of underground utilities at least 48 hours prior to construction whether shown on plans or not, and to protect the same during construction.

San Antonio Water System	233-2010
COSA Drainage	207-2820
COSA Traffic Signal Operations	207-7785
Texas State Wide One Call Locator	1-800-545-6005
City Public Service	-
South Western Bell	-
Time Warner Cable	-
Valero Energy Co.	-
Bexar Metropolitan Water District	354-6536

4. The Contractor shall be responsible for restoring to its original or better condition from damage done to existing fences, curbs, streets, driveways, landscaping and structures.

5. The Contractor shall avoid cutting roots larger than one inch in diameter when excavating near existing trees. Excavation in vicinity of trees shall proceed with caution. The Contractor shall contact the City Arborist at 207-8053 for guidance. SAWS Construction Inspector shall also be notified.

6. The Contractor shall maintain service to existing sanitary sewers at all times during construction.

7. Due to Federal Regulations Title 49, Part 192.181, City Public Service must maintain access to gas valves at all times. The Contractor must protect and work around gas valves that are in the project areas.

8. All residential sewer service laterals shall be extended to the property line and capped and sealed.

9. On all manholes to be abandoned, the rings and covers shall be salvaged in accordance with the most current San Antonio Water System's Standard Specification for Construction, Item 101: Preparation of right-of-way. The hole should be backfilled to the satisfaction of the inspector.

BLASTING

10. When allowable, blasting shall be performed in accordance with appropriate criteria established by the National Fire Protection Association (30 TAC 313.5 (c) (6)).

11. Blasting for sewer line excavation must be done in such a manner as to minimize the fracturing of rock beyond the required excavation. The Contractor shall consider the elevation of the existing sanitary sewer main in relation to the blasting charge and the relative direction of existing and proposed trenches. Blasting within such areas shall be accomplished only by qualified blasting contractors who hold blasting licenses from a qualified agency such as the San Antonio Fire Department in Bexar County. Any damage to existing sanitary sewers resulting from blasting shall be repaired and retested by the contractor at his own expense.

12. No blasting shall be performed within 75 feet of existing utilities.

13. After construction, testing will be done by TV camera by the Contractor and observed by Inspector, and Wastewater Engineering personnel, or the camera is run through the lines. Any abnormalities, such as broken pipe or misaligned joints, must be replaced by the Contractor at his expense. Contractor to provide TV tapes to Construction Inspection for review prior to final inspection of the project.

EXCAVATION

14. Contractor and/or Contractor's independently retained employee or structural design/geotechnical/safety/equipment consultant, if any, shall review these plans and available geotechnical information and the anticipated installation site(s) within the project work area in order to implement Contractor's trench excavation safety protection systems, programs and/or procedures. The Contractor's implementation of the systems, programs and/or procedures shall provide for adequate trench excavation safety protection that complies with as a minimum, OSHA Standards for trench excavations. Specifically, Contractor and/or Contractor's independently retained employee or safety consultant shall implement a trench safety program in accordance with OSHA Standards governing the presence and activities of individuals working in and around trench excavation.

15. Contractor is responsible for removal of all waste materials upon project completion. The Contractor shall not permanently place any waste materials in the 100-year flood plain without first obtaining an approved Flood Plain Development Permit.

16. Water jetting the backfill within a street will not be permitted. Sanitary sewer trenches subject to traffic shall conform to the S.A.W.S. Standard Specifications for Construction, Item No. 550 & 804.

WATER LINE CROSSING

17. Where the minimum 9 foot separation distance between sewer lines and water lines/mains cannot be maintained, the installation of sewer lines shall be in strict accordance with the Texas Commission on Environmental Quality's Rules (30 TAC 317.13 Appendix E).

EROSION AND SEDIMENTATION CONTROL

18. The Texas Commission on Environmental Quality and Environmental Protection Agency (EPA) require erosion and sedimentation control for construction of sewer collection systems. Developer or authorized representative shall provide erosion and sedimentation control as noted on the project's plan and profile sheets.

19. All temporary erosion and sedimentation controls shall be removed by the Contractor at final acceptance of the project by the San Antonio Water System.

SUPPLEMENTARY

20. No extra-payment shall be allowed for work called for on the plans but not included on the bid schedule. This incidental work will be required and shall be included under the pay item to which it relates.

21. The Developer dedicates the sanitary sewer mains upon completion by the Developer and acceptance by the San Antonio Water System. The San Antonio Water System will own and maintain said sanitary sewer mains which are located within this particular subdivision. (As applicable).

22. The Developer will be responsible for the lift station maintenance fee in effect at the time of certification. The current maintenance fee per lift station will be collected prior to plat recordation.

23. All PVC Sewer Pipe with over 14 feet of cover shall be extra strength pipe, Minimum Stiffness of 115 PSI.

24. WORK COMPLETED BY THE CONTRACTOR WHICH HAS NOT RECEIVED A WORK ORDER OR THE NOTICE TO PROCEED WITH THE SAN ANTONIO WATER SYSTEM CONSTRUCTION INSPECTION DIVISION WILL BE SUBJECT TO REMOVAL AND REPLACEMENT BY AND AT THE EXPENSE OF THE CONTRACTOR.

Developer's Name: BROOKS DEVELOPMENT AUTHORITY	
J.S.A. CROSSING SUB 100	
City: SAN ANTONIO	State: TEXAS Zip: 78230
Phone: (210) 979-3300	Fax: (210) 479-3338
SAWS Block Map#: N/A	Total EDU's: N/A Total Acreage: 2.65
Total Linear Footage of Pipe: 383.52 L.F. - 12" PIPE	Plat No.: 080185
Number of Lots: N/A	SAWS JOB NO.

REVISIONS:

SHAUNA L. WEAVER 88012 LICENSED PROFESSIONAL ENGINEER STATE OF TEXAS
7-24-08

PAPE-DAWSON ENGINEERS
555 EAST RAMSEY | SAN ANTONIO, TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.9010

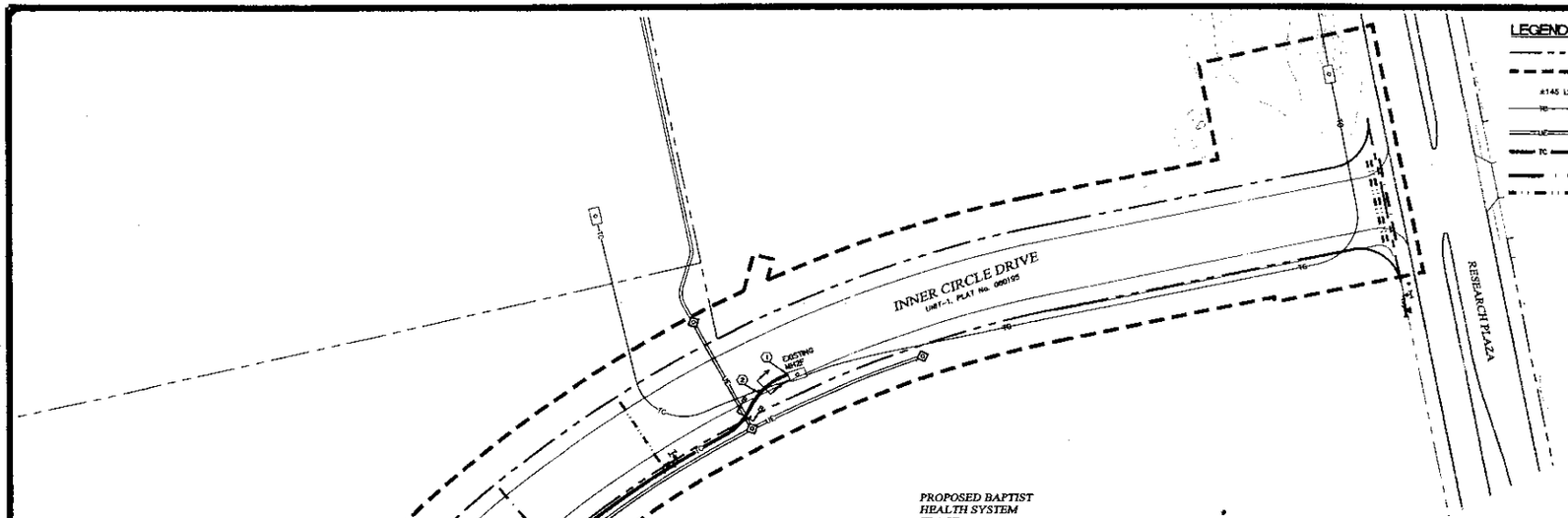
BCB-INNER CIRCLE DRIVE, UNIT 1
SAN ANTONIO, TEXAS
SANITARY SEWER NOTES & DETAILS

JOB NO. 6735-30
DATE JULY 2008
DESIGNER JLR
CHECKED CJG/D DRAWN CMH
SHEET C501

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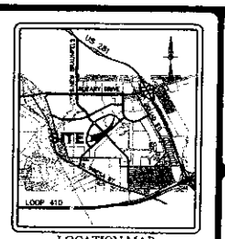
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File: P:\JJ\JJ3\JJ3\Design\Civil\Unit-1 Cent Dept\6735723539 U-1 (C501).dwg

VOL 7775 PG 196



LEGEND:

- PROPOSED R.O.W.
- PROJECT LIMITS
- #145 LF — TRENCH LENGTH
- EXISTING UNDERGROUND TELECOMMUNICATIONS CONDUIT
- PROPOSED UNDERGROUND ELECTRICAL (CPS) DUCTBANK
- TC — PROPOSED TELECOMMUNICATIONS DUCTBANK
- PROPOSED CPS CONDUIT
- PROPOSED IRRIGATION CONDUIT



LOCATION MAP
NOT TO SCALE

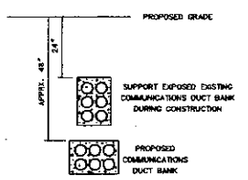
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0' 50' 100' 150'

CONSTRUCTION NOTE

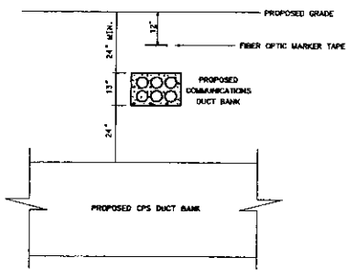
CONTRACTOR TO COORDINATE WITH PAPE-DAWSON TO HAVE CONDUIT ALIGNMENT AND MANHOLES STAKED PRIOR TO CONSTRUCTION.

KEYED NOTES

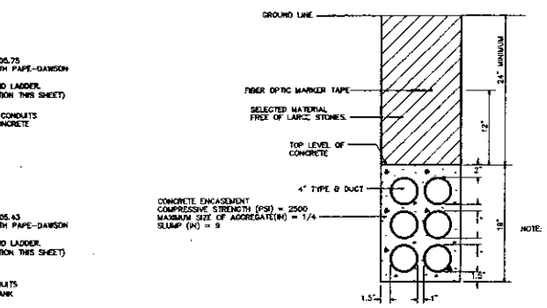
1. PLACE FORMEX TERMINATORS OR EQUIVALENT, ONE (1) 2 WIDE BY 1 HIGH AND ONE (1) 2 WIDE BY 2 HIGH. REMOVE KNOCKOUT FROM MANHOLE WALL AND GROUT TERMINATOR IN PLACE.
2. ROLL CONDUIT TO 3 WIDE BY 2 HIGH FROM MH2F TO A POINT 10 FOOT WEST OF PROPOSED CPS DUCT BANK CROSSING. REFERENCE CROSS SECTION A-A AND CROSS SECTION B-B.
3. PLACE 2-4" CONDUITS IN UPPER TERMINATOR
4. PLACE 2-4" TYPE "C" 90 DEGREE 15' RADIUS SWEEPS
5. CAP DUCTS AND PLACE ELECTRONIC MARKER.



CROSS SECTION A-A
NOT TO SCALE



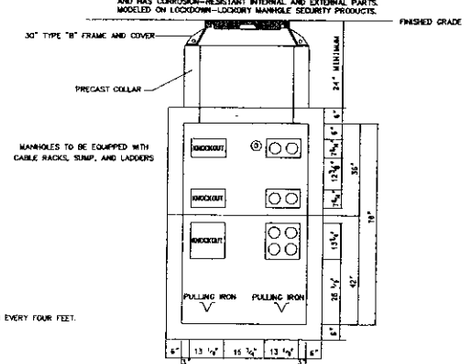
CROSS SECTION B-B
NOT TO SCALE



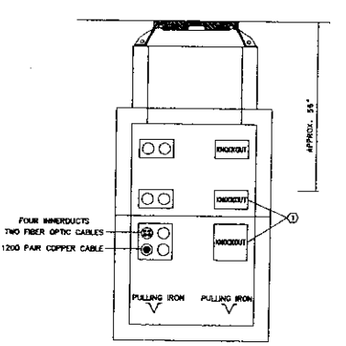
NOTE: PLACE DUCT SPACERS IN TRENCH EVERY FOUR FEET.

COMMUNICATIONS DUCT BANK DETAIL
(TYPICAL) NOT TO SCALE

CONTRACTOR TO PROVIDE MANHOLE SECURITY LOCKING DEVICES FOR EACH MANHOLE INSTALLED. EACH DEVICE TO INCLUDE A LOCK THAT PROVIDES OPTIMUM RESISTANCE AGAINST PHYSICAL ATTACK AND HAS CORROSION-RESISTANT INTERNAL AND EXTERNAL PARTS. MODELED ON LOCKDOWN-LOCKDRY MANHOLE SECURITY PRODUCTS.



PROPOSED MANHOLE WALL CONFIGURATION
(TYPICAL) NOT TO SCALE



EXISTING MANHOLE 2F -WEST WALL
NOT TO SCALE

REVISIONS



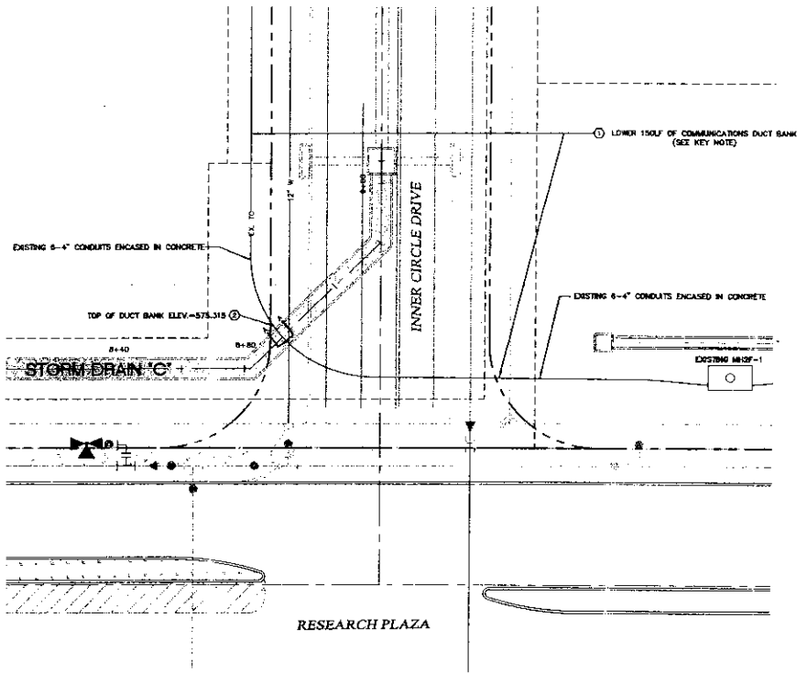
PREPARED BY
Alexander Utility Engineering, Inc.
Professional Engineering Services-Electric Power & Communications
975 N. BITTERS RD SAN ANTONIO TX 78216
(210)494-3300

BCB-INNER CIRCLE DRIVE, UNIT 1
SAN ANTONIO, TEXAS
COMMUNICATIONS CONDUIT PLAN

JOB NO. 5735-39
DATE OCTOBER 2008
DESIGNER RAS
CHECKED WMH DRAWN RAS
SHEET T1.0

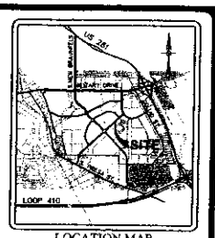
THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL.

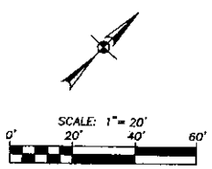
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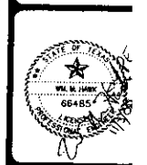
LEGEND:

- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- STREET CENTER LINE
- PROPOSED CURB
- PROPOSED SANITARY SEWER LINE
- PROPOSED WATER LINE
- EXISTING SANITARY SEWER LINE
- EXISTING WATER LINE
- EXISTING UNDRGRND ELEC. LINE
- PROPOSED 6' SIDEWALK





REVISIONS:



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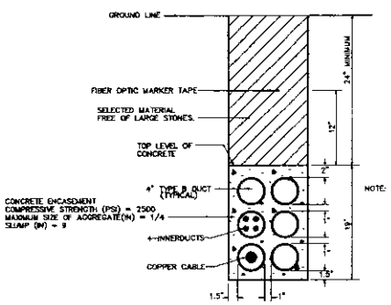
BCB-INNER CIRCLE DRIVE, UNIT-1
SAN ANTONIO, TEXAS
COMMUNICATIONS CONDUIT RELOCATION
DRAIN "C" STA. 896.5

JOB NO. 5735-39
DATE OCTOBER 2008
DESIGNER RAB
CHECKED VNH DRAWN RAB
SHEET T20

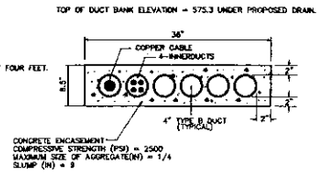
KEYED NOTES

(1) EXPOSE 150 LF OF COMMUNICATIONS DUCT BANK. REMOVE CONCRETE ENCASEMENT. REMOVE 4-4" VACANT CONDUITS. 2-4" CONDUITS CONTAINING COPPER AND FIBER CABLE TO REMAIN INTACT. REPAIR ANY CONDUIT DAMAGED DURING CONCRETE REMOVAL WITH SPLIT DUCT. CAREFULLY LOWER TWO EXISTING CONDUITS AND REPLACE 4-4" CONDUITS. ENCASE CONDUITS PER COMMUNICATIONS' DUCT BANK DETAIL A.

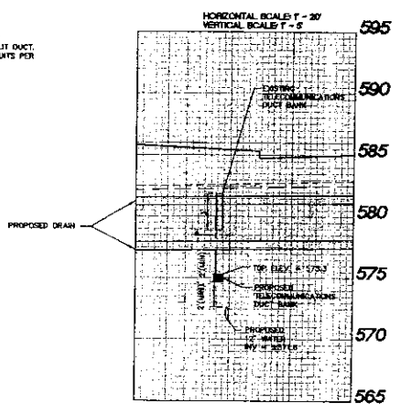
(2) ROLL CONDUIT TO 6 WIDE BY 1 HIGH A MINIMUM DISTANCE OF 20 LF BEFORE AND 20 LF AFTER PROPOSED DRAIN CROSSING. TOP OF DUCT BANK ELEVATION = 575.3 REFERENCE COMMUNICATIONS DUCT BANK DETAIL B.



COMMUNICATIONS DUCT BANK DETAIL A
LOOKING SOUTHWEST FROM MH2F-1 (TYPICAL)
NOT TO SCALE



COMMUNICATIONS DUCT BANK DETAIL B
NOT TO SCALE



CROSS SECTION A-A

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TRAFFIC CONTROL NARRATIVE GENERAL NOTES:

1. TRAFFIC MUST BE HANDELED APPROPRIATELY THROUGHOUT THE PROJECT DURING CONSTRUCTION. IT IS THE CONTRACTORS' RESPONSIBILITY TO PROVIDE FOR THE SAFETY AND COMFORT OF THE TRAVELING PUBLIC AT ALL TIMES. THE CONTRACTOR WILL NOT BE ALLOWED TO CLOSE THE ENTIRE ROADWAY. ONE LANE OF THRU TRAFFIC EACH WAY, AT A MINIMUM, WILL BE PROVIDED AT ALL TIMES. ACCESS TO PROPERTIES AND BUSINESSES ADJACENT TO THE PROPERTY LINE/RIGHT-OF-WAY MUST BE PROVIDED AND MAINTAINED AT ALL TIMES. WHEN NOT IN USE, NO EQUIPMENT SHALL BE LEFT IN A POSITION THAT WILL ENDANGER THE TRAVELING PUBLIC. ADEQUATE SAFETY PROVISIONS SHALL BE MAINTAINED THROUGHOUT THE PROJECT BY THE CONTRACTOR INCLUDING BUT NOT LIMITED TO SIGNING, MARKINGS, BARRIERS, AND BARRICADES. THESE PROVISIONS SHALL MEET OR EXCEED THE MINIMUM REQUIREMENTS OF THE LATEST EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD).
2. THE CONTRACTOR WILL NOT HAVE EXCLUSIVE USE OF THE RIGHT-OF-WAY BUT SHALL COOPERATE IN THE USE OF THE RIGHT-OF-WAY WITH THE BROOKS DEVELOPMENT AGENCY, THE VARIOUS PUBLIC UTILITY COMPANIES AND THEIR CONTRACTORS, AS MAY BE REQUIRED TO ALLOW ADJUSTMENTS TO BE MADE BY OTHERS. IF THE CONTRACTOR IS DELAYED BY VIRTUE OF THE ADJUSTMENT OF THESE UTILITIES, AN EXTENSION OF THE WORKING TIME MAY BE GRANTED IF, IN THE OPINION OF THE ENGINEER, AN EXTENSION IS NECESSARY FOR THE DELAY.
3. THE CONTRACTOR MAY PROPOSE/RECOMMEND MODIFICATIONS TO THE SEQUENCE OF WORK FOR CONSIDERATION BY THE ENGINEER IN WRITING. THE CONTRACTOR SHALL NOT PROCEED WITH ANY CONSTRUCTION OPERATIONS BASED ON A REVISED PHASE/ SEQUENCE OF WORK UNTIL THE CONTRACTOR OBTAINS WRITTEN APPROVAL FROM THE ENGINEER.
4. THE CONTRACTOR MAY BE REQUIRED TO HIRE OFF-DUTY PEACE OFFICERS TO SUPPLEMENT HIS WORK FORCE TO CONTROL TRAFFIC AT INTERSECTIONS DURING THE CLOSURE OF ROADWAYS AND ANY OTHER CRITICAL PHASE OF TRAFFIC HANDLING AS DETERMINED BY THE ENGINEER.
5. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ADEQUATE DRAINAGE DURING CONSTRUCTION.

TRAFFIC CONTROL SEQUENCE OF WORK

CITY-BASE LANDING/RESEARCH PLAZA IMPROVEMENTS SHALL BE CONSTRUCTED IN THREE MAIN PHASES.

A. PHASE I - SIGNAL INSTALLATION

PRIOR TO THE BEGINNING OF THIS PHASE, THE CONTRACTOR WILL HAVE TRAFFIC CONTROL DEVICES, AS INDICATED ON THE TCP DETAILS AND/OR AS DIRECTED BY THE ENGINEER, IN PLACE. CONSTRUCTION WORK WILL NOT BEGIN UNTIL GIVEN APPROVAL BY THE ENGINEER.

DURING THIS CONSTRUCTION PHASE, THE CONTRACTOR WILL CONSTRUCT THE TRAFFIC SIGNALS AND ALL APPURTANCES AS INDICATED ON THE PLANS. THE CONTRACTOR WILL REFER TO THE "TCP DETAILS" SHEETS CTCPDET01-CTCPDET04 FOR TRAFFIC CONTROL SIGNS AND PROCEDURES DURING CONSTRUCTION.

B. PHASE II - RESEARCH BLVD. RIGHT TURN LANE CONSTRUCTION.

PRIOR TO THE BEGINNING OF THIS PHASE, THE CONTRACTOR WILL HAVE TRAFFIC CONTROL DEVICES, AS INDICATED ON THE TCP DETAILS AND/OR AS DIRECTED BY THE ENGINEER, IN PLACE. CONSTRUCTION WORK WILL NOT BEGIN UNTIL GIVEN APPROVAL BY THE ENGINEER.

THE CONTRACTOR WILL SAW-CUT THE EXISTING PAVEMENT STRUCTURE ONE (1) FOOT OFFSET THE EXISTING CURB FACE, AND REMOVE THE EXISTING ASPHALT, BASE, AND CURB AS INDICATED ON THE PLANS. CONTRACTOR WILL CONSTRUCT THE PAVEMENT SECTION, CURB, AND SIDEWALK AS INDICATED. THE CONTRACTOR WILL REFER TO THE "TCP DETAILS" SHEETS CTCPDET01-CTCPDET04 FOR TRAFFIC CONTROL SIGNS AND PROCEDURES DURING CONSTRUCTION.

AT THE END OF EACH WORKDAY, A 3:1 SIDE SLOPE WILL BE PLACED AT THE EDGE OF EXCAVATION, ADJACENT TO THE TRAVELED ROADWAY, UNTIL THE ROADWAY BASE IS IN PLACE.

C. PHASE III - PAVEMENT MARKINGS AND CLEAN UP

PRIOR TO THE BEGINNING OF THIS PHASE, THE CONTRACTOR WILL HAVE TRAFFIC CONTROL DEVICES AS INDICATED ON THE TCP DETAILS AND/OR AS DIRECTED BY THE ENGINEER, IN PLACE. CONSTRUCTION WORK WILL NOT BEGIN UNTIL GIVEN APPROVAL BY THE ENGINEER.

THE CONTRACTOR WILL COMPLETE THE PERMANENT PAVEMENT MARKINGS AND INITIATE THE TRAFFIC SIGNAL OPERATION.

UPON COMPLETION OF THE WORK AND BEFORE FINAL ACCEPTANCE IS MADE, THE PROJECT WILL BE THOROUGHLY CLEANED OF ALL CONSTRUCTION MATERIALS. PORTIONS OF THE RIGHT OF WAY, WHICH MAY HAVE BEEN DISTURBED, WILL BE SHAPED AND FINISHED. BLOCK SOD WILL BE PROVIDED IN THE AREAS INDICATED ON THE TYPICAL SECTIONS AND WHERE EXISTING SOD WAS DISTURBED OR REMOVED DURING CONSTRUCTION. THE ENTIRE RIGHT OF WAY WILL BE LEFT IN A SMOOTH, NEAT, AND SIGHTLY CONDITION.

GRADING, DRAINAGE AND GENERAL NOTES:

1. PROPOSED GRADING WAS DESIGNED USING ELECTRONIC FILES PROVIDED BY PAPE DAWSON ENGINEERS, INC.
2. LONGITUDINAL SLOPES FOR ALL PROPOSED RAMPS ARE NOT TO EXCEED 8.33%. REFER TO CIVIL DETAILS FOR ADDITIONAL INFORMATION.
3. CROSS-SLOPES FOR ALL PROPOSED RAMPS AND SIDEWALKS ARE NOT TO EXCEED 2.0%. REFER TO CIVIL DETAILS FOR ADDITIONAL INFORMATION.
4. CONTRACTOR TO MAINTAIN A 2.0% CROSS-SLOPE AT ALL PEDESTRIAN CROSS-WALKS.
5. CONTRACTOR TO MAINTAIN EXISTING DRAINAGE PATTERNS DURING CONSTRUCTION.
6. POSITIVE DRAINAGE SHALL BE MAINTAINED ON ALL SURFACE AREAS WITHIN THE SCOPE OF THIS PROJECT. CONTRACTOR SHOULD TAKE PRECAUTIONS NOT TO ALLOW ANY PONDING OF WATER EXCEPT WHERE INTENDED.
7. NO ABRUPT CHANGE OF GRADE SHALL OCCUR.
8. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES (INCLUDING BUT NOT LIMITED TO WATER, SANITARY SEWER, GAS, ELECTRIC AND TELECOMMUNICATIONS) PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.
9. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT, WHERE NOT SPECIFICALLY COVERED IN THE PROJECT SPECIFICATIONS, SHALL CONFORM TO ALL APPLICABLE CITY OF SAN ANTONIO SPECIFICATIONS FOR CONSTRUCTION.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ORIGINAL, OR BETTER, CONDITION DUE TO ANY DAMAGES DONE TO EXISTING SIGNS, UTILITIES, PAVEMENT, CURBS, SIDEWALKS OR DRIVEWAYS (NO SEPARATE PAY ITEM).
11. DUE TO FEDERAL REGULATION TITLE 49, PART 192.181, CPS MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL NECESSARY UTILITY COMPANIES FOR PROVIDING TEMPORARY UTILITY SERVICES DURING CONSTRUCTION.
13. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY QUESTIONS THAT MAY ARISE CONCERNING THE INTENT, PLACEMENT, OR LIMITS, OF DIMENSIONS OR GRADES NECESSARY FOR CONSTRUCTION OF THIS PROJECT.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL PERMITS, TESTS, APPROVALS AND ACCEPTANCES REQUIRED TO COMPLETE CONSTRUCTION OF THIS PROJECT.
15. ALL ON-SITE CURBS ARE 7" HIGH UNLESS OTHERWISE SPECIFIED.
16. CONTRACTOR SHALL COMPLY WITH O.S.H.A. REGULATIONS AND STATE OF TEXAS LAW CONCERNING EXCAVATION, TRENCHING, AND SHORING. EXCAVATIONS OVER 5 FEET DEEP TO BE SHEETED AND PROTECTED IN ACCORDANCE WITH STATE LAW AND O.S.H.A.
17. PAVEMENT DESIGN PROVIDED BY RABA-KISTNER CONSULTANTS, INC. DATED 09/24/04.
18. CONTRACTOR SHALL INSTALL THE TEMPORARY SEDIMENT CONTROL FENCE PRIOR TO CONSTRUCTION.
19. PAVEMENT MARKINGS AND TRAFFIC SIGNS SHALL MEET OR EXCEED MINIMUM REQUIREMENTS ESTABLISHED BY THE MOST RECENT EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD).
20. UNDERGROUND UTILITIES EXIST WITHIN THE PROJECT. CONTRACTOR SHALL HAVE THE UTILITIES MARKED PRIOR TO INSTALLATION OF THE SIGN POST. SIGN LOCATIONS ILLUSTRATED ON THE PLANS ARE APPROXIMATE. CONTRACTOR SHALL LOCATE SIGNS TO AVOID UTILITIES. CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXISTING LOCATION OF UNDERGROUND UTILITIES BEFORE COMMENCING WORK.
21. IN ACCORDANCE WITH THE UNDERGROUND FACILITY DAMAGE PREVENTION ACT, THE TELEPHONE NUMBER FOR A UTILITY LOCATOR IS 1-800-545-6005. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE ARRANGEMENTS FOR UTILITY LOCATORS, AS NEEDED.
22. CONTRACTOR SHALL FURNISH AND MAINTAIN ALL TRAFFIC CONTROL DEVICES, LIGHTING, OR WARNING DEVICES REQUIRED TO COMPLETE THE WORK. ALL CONSTRUCTION SIGNS AND TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
23. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS PROJECT SHALL CONFORM TO APPLICABLE CITY OF SAN ANTONIO STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (LATEST EDITION), TxDOT STANDARD SPECIFICATIONS, AS WELL AS PROVISIONS APPLICABLE TO THE PROJECT AND AS OTHER SAFETY CODES AND INSPECTION REQUIREMENTS OF THE FIRE DEPARTMENT.
24. MATERIALS FURNISHED BY THE CONTRACTOR SHALL BE NEW, UN-DEPRECIATED STOCK.
25. ANY CONFLICT BETWEEN ANY DEFINITION, MATERIAL SPECIFICATION, CONSTRUCTION SPECIFICATION, MEASUREMENT AND PAYMENT PROCEDURE, ETC., SHOWN IN THIS PLAN SET AND ANY TEXAS DEPARTMENT OF TRANSPORTATION OR CITY OF SAN ANTONIO STANDARD SPECIFICATION SHALL BE RESOLVED ONLY BY THE ENGINEER. THE ENGINEER'S DECISION SHALL BE FINAL AND BINDING.

TRAFFIC SIGNAL NOTES

1. LOCATION OF TRAFFIC SIGNAL POLES, CONTROLLER ASSEMBLIES, AND ELECTRICAL SERVICE SHALL BE VERIFIED AND APPROVED BY COSA PRIOR TO CONSTRUCTION.
2. SIDEWALKS SHALL BE EXTENDED UP TO THE MAST ARM POLES, AS NEEDED, TO PROVIDE PEDESTRIAN ACCESS TO THE PEDESTRIAN PUSH BUTTON.
3. INSTALL STOP BARS AND CROSSWALKS ACROSS INTERSECTION AS SHOWN. EXTEND OR REMOVE PAVEMENT MARKINGS TO ALIGN WITH PROPOSED STOP BARS AND CROSSWALKS AS DIRECTED BY THE ENGINEER. REMOVE/REPLACE WORD AND ARROW FOR LEFT TURN BAYS AS DIRECTED BY THE ENGINEER.
4. PERMANENT DETECTION SHALL BE PROVIDED USING A VIDEO IMAGING VEHICLE DETECTION SYSTEM (VIVDS). THE CAMERA ASSEMBLIES SHALL BE MOUNTED ABOVE THE ROADWAY ON THE MAST ARMS, AS SHOWN ON THE PLANS. CAMERA ASSEMBLY HEIGHT SHALL BE IN ACCORDANCE WITH MANUFACTURER RECOMMENDATION TO OBTAIN OPTIMUM DETECTION. ANY MOUNTING HARDWARE, INCLUDING EXTENSION RODS, NEEDED TO MEET THESE REQUIREMENTS SHALL BE PROVIDED BY THE CONTRACTOR AND SHALL BE SUBSIDIARY TO THE VARIOUS VIVDS BID ITEMS.
5. THE VIVDS PROCESSOR SYSTEM PROVIDED SHALL CONSIST OF UNITS THAT INSERT DIRECTLY INTO A 2070 CONTROLLER INPUT FILE. CONTRACTOR SHALL PROVIDE ONE VIVDS PROCESSOR UNIT PER CAMERA.
6. VIVDS CAMERAS SHALL BE WIRED WITH TWO-IN-ONE CABLE (RG-59 COMMUNICATION CABLE AND #18 AWG 3-CONDUCTOR POWER SUPPLY CABLE), AS RECOMMENDED BY MANUFACTURER.
7. ALL VIVDS EQUIPMENT SHALL PROVIDE DETECTION ZONES BASED ON APPROACH SPEEDS, AS DIRECTED BY THE ENGINEER. CONTINUOUS SETBACK DETECTION SHALL BE PROVIDED BASED ON APPROACH SPEED, AS DIRECTED BY THE CITY TRAFFIC SIGNAL ENGINEER.
8. ALL ILSN SIGNS SHALL BE INSTALLED ON THE MAST ARM AS DIRECTED BY THE ENGINEER.
9. AN ADDITIONAL 2" SCHEDULE 80 PVC SHALL BE INSTALLED AT EACH POLE FOUNDATION STUBBED OUT 1' FROM THE FACE OF THE FOUNDATION. STUB OUTS SHALL BE APPROPRIATELY CAPPED BELOW GRADE FOR FUTURE USE.
10. MINIMUM CLEARANCE OF 3' RADIUS FROM NEUTRAL AND 10' RADIUS FROM PRIMARY SHALL BE MAINTAINED BETWEEN PROPOSED TRAFFIC SIGNAL EQUIPMENT, INCLUDING SPAN WIRE, AND EXISTING OVERHEAD ELECTRICAL LINES.
11. THE CONTRACTOR WILL REFER TO "TRAFFIC SIGNAL LAYOUT PLAN" SHEET CTSO1 FOR TRAFFIC SIGNS, SIGNALS AND THEIR LOCATIONS.
12. THREE (3) COPIES OF EQUIPMENT SUBMITTALS FOR ALL TRAFFIC SIGNAL COMPONENTS SHALL BE SENT TO THE ENGINEER. SUBMITTALS SHALL CONSIST OF THE APPROPRIATE COMBINATION OF CATALOG SHEETS, MATERIAL LISTS, MANUFACTURER'S BROCHURES, TECHNICAL BULLETINS, SPECIFICATIONS, DIAGRAMS, OR PRODUCT SAMPLES NECESSARY TO DESCRIBE A SYSTEM, PRODUCT OR ITEM. SPECIFIC ITEM NUMBERS AND PRODUCT CODES WILL BE CLEARLY IDENTIFIED WHEN MULTIPLE PRODUCTS ARE LISTED ON THE SAME SHEET.
13. THE CONTRACTOR SHALL FURNISH AND INSTALL AN ENCLOSED PHOTOCELL IN THE ELECTRICAL SERVICE TO POWER THE ILSN SIGNS.
14. ALL SIGNS MOUNTED ON TRAFFIC SIGNAL EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR AS SHOWN ON THE PLANS.
15. CONTRACTOR TO FIELD VERIFY LOCATION OF ALL MARKED AND UNMARKED EXISTING UTILITIES PRIOR TO EXCAVATING FOR DRILLED SHAFT FOUNDATIONS AND CONDUITS.

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REGISTERED
GONZALEZ DE LA GARZA
STATE OF TEXAS
Edith G. P.E. 10/16/06

BROOKS CITY-BASE
BROOKS DEVELOPMENT AUTHORITY
RESEARCH PLAZA/CITY BASE LANDING

REVISIONS:

DATE: 10/16/2006

DRAWN BY: J.S.

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER:
CGN01

VOL 7775 PG 99

ROADWAY SUMMARY

	100.1	101.1	103.1	104.1	107.1	108.1	200.1	203.1	205.3	205.4	500.1	502.1	516.1	530.1	540.9
	MOBILIZATION	PREPARING RIGTH-OF-WAY	REMOVE CONCRETE CURB	STREET EXCAVATION	EMBANKMENT	LIME TREATED SUBGRADE (6 INCHES)	FLEXIBLE BASE (18")	TACK COAT	HOT MIX ASPHALTIC PAVEMENT TYPE C (2")	HOT MIX ASPHALTIC PAVEMENT TYPE D (2")	CONCRETE CURB	CONCRETE SIDEWALKS	BERMUDA SODDING	BARRICADES, SIGNS AND TRAFFIC HANDLING	TEMPORARY SEDIMENT CONTROL FENCE
	LUMP SUM	LUMP SUM	LF	CY	CY	SY	SY	GAL	SY	SY	LF	SY	SY	LUMP SUM	LF
TOTALS	1	1	347	128	19	453	453	39	386	386	335	219	860	1	325

PAVEMENT MARKING SUMMARY

	531.14B	536.2	536.4	536.7	536.8	536.9	536.12	537.9
	R3-8B MOD (30"x48")	4 INCH WIDE WHITE LINE	8 INCH WIDE WHITE LINE	24 INCH WIDE WHITE LINE	RIGHT WHITE ARROW	LEFT WHITE ARROW	WORD "ONLY"	PAVMENT MARKER (TYPE II-C-R)
	EA	LF	LF	LF	EA	EA	EA	EA
TOTALS	1	324	482	276	2	8	10	8

TRAFFIC SIGNAL SUMMARY

	531.11	531.27	615.1	618.1	618.2	620.1	620.2	620.3	624.1	628.1	655.1	655.2	680.1	682.1
	R3-5 LEFT ONLY (30"x36")	R10-12 LEFT TURN YIELD ON "GREEN BALL" (30"x36")	TRAFFIC SIGNAL CONTROLLER ASSEMBLY (TYPE 332 CABINET)	CONDUIT (2 IN/PVC SCHEDULE 40)	CONDUIT (3 IN/PVC SCHEDULE 40)	ELECTRICAL CONDUCTOR (NO. 8) (BARE)	ELECTRICAL CONDUCTOR (NO. 6) (BARE)	ELECTRICAL CONDUCTOR (NO. 6) (INSULATED)	GROUND BOXES TYPE D (162922)	ELECTRICAL SERVICES	TYPE 332 CONTROLLER FOUNDATION	CONTROLLER PEDESTAL POST	INSTALLATION OF HIGHWAY TRAFFIC SIGNALS (ISOLATED)	VEHICLE SIGNAL SECTION (12 IN)
	EA	EA	EA	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA
TOTALS	1	1	1	4	421	425	4	16	1	1	1	1	1	26

	682.2	682.3	683.1	684.1	684.2	684.3	686.1	686.2	686.3	687.1	688.2	693.1	694.1	694.2
	BACK PLATE (3 SEC) (12 IN)	BACK PLATE (5 SEC) (12 IN)	LED COUNTDOWN PEDESTRIAN SIGNAL MODULE	TRAFFIC SIGNAL CABLE (TY A) (4 CONDR) (14 AWG)	TRAFFIC SIGNAL CABLE (TY A) (7 CONDR) (14 AWG)	TRAFFIC SIGNAL CABLE (TY A) (9 CONDR) (14 AWG)	INSTALL TRAFFIC SIGNAL POLE ASSEMBLY (STEEL) (1 ARM) (36 FT)	INSTALL TRAFFIC SIGNAL POLE ASSEMBLY (STEEL) (1 ARM) (40 FT)	INSTALL TRAFFIC SIGNAL POLE ASSEMBLY (STEEL) (1 ARM) (46 FT)	INSTALL PEDESTRIAN POLE ASSEMBLY	PEDESTRIAN DETECTORS (SIGN & PUSH BUTTON)	INTERNALLY LIGHTED STREET NAME SIGNS (8 FT) (D)	VIVDS PROCESSOR UNIT	VIVDS CAMERA ASSEMBLY
	EA	EA	EA	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	EA
TOTALS	7	1	4	317	431	447	1	1	1	1	4	3	2	7

	694.3	694.4	694.6	695.2	695.3	695.4
	VIVDS CENTRAL CONTROL	VIVDS SET-UP SYSTEM	VIVDS COMM. CABLE (COAXIAL)	EMERGENCY PREEMPTION PHASE SELECTOR	EMERGENCY PREEMPTION DETECTOR	EMERGENCY PREEMPTION DETECTOR CABLE
	EA	EA	LF	EA	EA	LF
TOTALS	1	1	825	1	1	317

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BROOKS CITY-BASE
BROOKS DEVELOPMENT AUTHORITY
RESEARCH PLAZA/CITY BASE LANDING

REVISIONS:

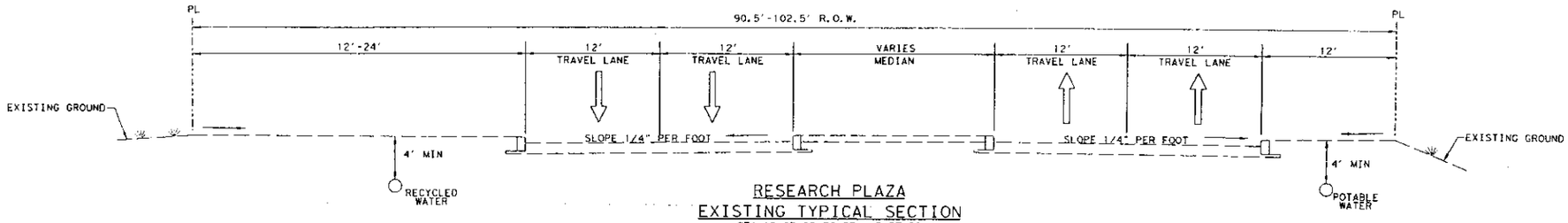
DATE: 10/16/2008

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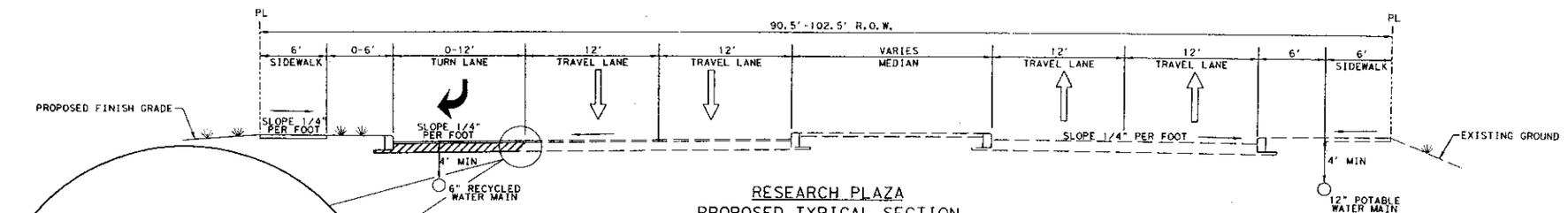
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SUMMARY SHEET

SHEET NUMBER:
CSUM01

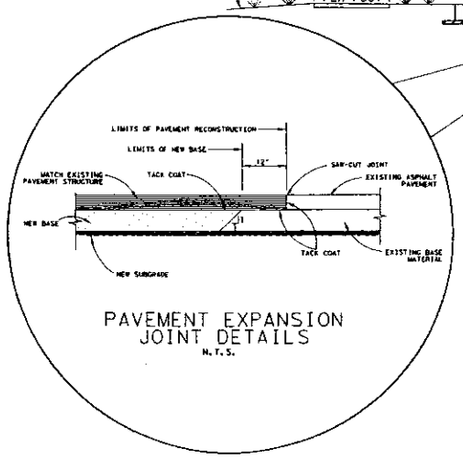
VOL 7776 PG 2000



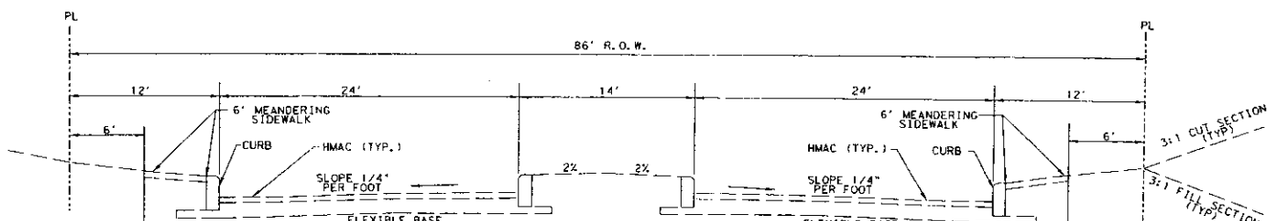
RESEARCH PLAZA
EXISTING TYPICAL SECTION
STA. 10+63.90 TO STA. 13+57.00



RESEARCH PLAZA
PROPOSED TYPICAL SECTION
STA. 10+63.90 TO STA. 13+57.00



PAVEMENT EXPANSION
JOINT DETAILS
N.T.S.



CITY BASE LANDING
EXISTING TYPICAL SECTION

NOTES:

1. PAVEMENT DESIGN THICKNESS BASED ON GEOTECHNICAL REPORT BY RABA-KISTNER CONSULTANTS, INC. DATED 09/24/04. SEE SHEET CDET01 FOR DETAILS.
2. EXISTING PAVEMENT SECTIONS WERE OBTAINED FROM PLANS PROVIDED BY PAPE DAWSON ENGINEERS, INC. PAVEMENT CORES OR BORES WERE NOT OBTAINED.

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P.E. 10/10/08

BROOKS CITY-BASE
BROOKS DEVELOPMENT AUTHORITY
RESEARCH PLAZA/CITY BASE LANDING

REVISIONS:

DATE: 10/10/2008

DRAWN BY: J.S.

SHEET TITLE:
TYPICAL SECTIONS

SHEET NUMBER:
CTYS01

VOL 7776PG 201

Barricade and Construction (BC) Standard Sheets General Notes:

1. The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of temporary traffic control devices, construction pavement markings, and typical work zone signs. The information contained in these sheets meet or exceed the requirements shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
2. The development and design of the Traffic Control Plan (TCP) is the responsibility of the Engineer.
3. The Contractor may propose changes to the TCP that are signed and sealed by a licensed professional engineer for approval. The Engineer may develop, sign and seal Contractor proposed changes.
4. The Contractor is responsible for installing and maintaining the traffic control devices as shown in the plans. The Contractor may not move or change the approximate location of any device without the approval of the Engineer.
5. Geometric design of lane shifts and detours should, when possible, meet the applicable design criteria contained in manuals such as the American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets", the TxDOT "Roadway Design Manual" or engineering judgment.
6. When projects exist, the Engineer(s) may omit the END ROAD WORK, TRAFFIC FINES DOUBLE, and other advance warning signs if the signing would be redundant and the work areas appear continuous to the motorists. If the adjacent project is completed first, the Contractor shall erect the necessary warning signs as shown on these sheets, the TCP sheets or as directed by the Engineer. The BEGIN ROAD WORK NEXT X MILES sign shall be revised to show appropriate work zone distance.
7. The Engineer may require duplicate warning signs on the median side of divided highways where median width will permit and traffic volumes justify the signing.
8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.
9. The temporary traffic control devices shown in the illustrations of the BC sheets are examples. As necessary, the Engineer will determine the most appropriate traffic control devices to be used.
10. As shown on BC(2), the OBEY WARNING SIGNS STATE LAW sign and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits.
11. Except for devices required by Note 10, traffic control devices should be in place only while work is actually in progress or a definite need exists.
12. The Engineer has the final decision on the location of all traffic control devices.
13. Inactive equipment and work vehicles, including workers' private vehicles must be parked away from travel lanes. They should be as close to the right-of-way line as possible, or located behind a barrier or guardrail, or as approved by the Engineer.

Worker Safety Apparel Notes:

1. Workers on foot who are exposed to traffic or to construction equipment within the right-of-way shall wear high-visibility safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Apparel" labeled as ANSI 107-2004 standard performance for Class 2 or 3 risk exposure. Class 3 garments should be considered for high traffic volume work areas or night time work.

Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes prequalified products and their sources and may be found on-line at the web address given below or by contacting:

Texas Department of Transportation
Traffic Operations Division - TE
Phone: (512) 416-3134

WEB ADDRESSES FOR REFERENCED DOCUMENTS

Compliant Work Zone Traffic Control Devices List (CWZTCD)
https://www.txdot.gov/public/bidinfo/trafficinfo.htm

Texas Manual on Uniform Traffic Control Devices (TMUTCD)
https://www.txdot.gov/public/bidinfo/trafficinfo.htm

Standard Highway Sign Designs for Texas (SHSDT)
https://www.txdot.gov/public/bidinfo/trafficinfo.htm

Traffic Engineering Standard Sheets
https://www.txdot.gov/business/resources/electrical.htm

Material Producer List
https://www.txdot.gov/business/qmsmaterial.htm

Departmental Material Specifications (DMS)
https://www.txdot.gov/inside-txdot/division/materials/publications/publications.html

Roadway Design Manual
https://www.txdot.gov/inside-txdot/division/roadway/roadway-manuals.html

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

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SKID MOUNTED WOOD SIGN SUPPORTS

LONG-TERM/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORT(S)

SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

GROUND MOUNTED SIGN SUPPORTS

PERFORATED SQUARE METAL TUBING

WEDGE ANCHORS

WOOD POST SYSTEM FOR GROUND MOUNTED SIGN SUPPORTS

Nominal Post Size	No. of Sides	Min. Depth of Sign Face	Minimum Embed. Depth	Drilled Hole Diameter
4 x 4	4	36"	24"	6"
4 x 6	4	36"	24"	6"
6 x 6	4	36"	24"	8"
6 x 8	4	36"	24"	8"

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT STANDARD

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CHANNELIZING DEVICES

VERTICAL PANELS (VP(1))

CHEVRONS

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)

Operating Speed	Formula	Minimum Spacing for Sequential Arrow Panels		Minimum Spacing for Flashing Arrow Panels	
		"L"	"D"	"L"	"D"
30	L=WS²/60	150'	165'	30"	60' - 75'
35		205'	225'	35"	70' - 90'
40		265'	295'	40"	80' - 100'
45		450'	495'	45"	90' - 110'
50	L=WS	500'	550'	50"	100' - 125'
55		550'	605'	55"	110' - 140'
60		600'	660'	60"	120' - 150'
65		650'	715'	65"	130' - 165'
70		700'	770'	70"	140' - 175'
75		750'	825'	75"	150' - 185'
80		800'	880'	80"	160' - 185'

HOLLOW OR WATER BALLASTED SYSTEMS USED AS LONGITUDINAL CHANNELIZING DEVICES OR BARRIERS

VERTICAL PANELS & OPPOSING TRAFFIC LANE DIVIDERS SEPARATING TWO-WAY TRAFFIC (Typical Applications)

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES STANDARD

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TYPE III BARRICADES

TYPE III BARRICADE (POST AND SKID) TYPICAL APPLICATION

CULVERT BRIDGING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS

Barricades shall NOT be used as a sign support.

TYPICAL STRIPING DETAIL FOR BARRICADE RAIL

TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

CONES

28" Cones shall have a minimum weight of 9 1/2 lbs.
42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

EDGELINE CHANNELIZER

TRAFFIC CONTROL FOR MATERIAL STOCKPILES

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES STANDARD

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REGISTERED TO PRACTICE ENGINEERING IN THE STATE OF TEXAS
94929
10/14/08

BROOKS CITY-BASE
BROOKS DEVELOPMENT AUTHORITY
RESEARCH PLAZA/CITY BASE LANDING

REVISIONS:

DATE: 10/15/2008

DRAWN BY: J.S.

SHEET TITLE:
TRAFFIC CONTROL DETAILS

SHEET NUMBER:
CTCPDET01

VOL 7776 PG 202

Barricade and Construction (BC) Standard Sheets General Notes:

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1. Workers on foot who are exposed to traffic or to construction equipment within the right-of-way shall wear high-visibility safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Apparel" labeled as ANSI 107-2004 standard performance for Class 2 or 3 risk exposure. Class 3 garments should be considered for high traffic volume work areas or night time work.

Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" NOTICE describes prequalified products and their sources and may be found on-line at the web address given below or by contacting:

Texas Department of Transportation
Traffic Operations Division - TE
Phone (512) 416-3154

WEB ADDRESSES FOR REFERENCED DOCUMENTS

Compliant Work Zone Traffic Control Devices List: NOTICE
http://www.txdot.gov/publications/traffic.htm

Texas Manual on Uniform Traffic Control Devices (TMUTCD)
http://www.txdot.gov/publications/traffic.htm

Highway Illumination Standard Sheets for Texas (HISD)
http://www.txdot.gov/publications/traffic.htm

Traffic Engineering Standard Sheets
http://www.txdot.gov/publications/traffic.htm

Material Producer List
http://www.txdot.gov/business/producers.htm

Departmental Material Specifications (DMS)
http://www.txdot.gov/business/resources/publications.htm

Roadway Design Manual
http://www.txdot.gov/business/resources/roadway_publications.htm

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

BARRICADE AND CONSTRUCTION
GENERAL NOTES
AND REQUIREMENTS

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Date	Revisions	Sheet
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8-01		
7-07		

SKID MOUNTED WOOD SIGN SUPPORTS

LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS (1)

SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

GROUND MOUNTED SIGN SUPPORTS

PERFORATED SQUARE METAL TUBING

WING CHANNEL

WEDGE ANCHORS

WOOD POST SYSTEM FOR GROUND MOUNTED SIGN SUPPORTS

Nominal Post Size	No. of Posts	Nominal Sign Area	Minimum Bolt Embedment	Drilled Borehole Diameter
4 x 4	1	12	24"	6"
4 x 4	2	24	24"	6"
4 x 4	3	36	24"	6"
4 x 4	4	48	24"	6"

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION
TYPICAL SIGN SUPPORT
STANDARD

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Date	Revisions	Sheet
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8-01		
7-07		

CHANNELIZING DEVICES

VERTICAL PANELS (VPs)

CONCRETE BARRIER DELINEATION

FIXED

DRIVABLE

PORTABLE

OPPOSITE TRAFFIC LANE DIVIDERS (OTLD)

Formula	Speed	Taper Length Minimum Values		Suggested Maximum Spacing	
		10' Offset	12' Offset	Channelizing Devices	Downstream Taper
L=WS²/60	30	150	180	30'	60'
	35	205	245	35'	70'
	40	270	320	40'	80'
	45	450	540	45'	90'
L=WS	50	500	600	50'	100'
	55	550	660	55'	110'
	60	600	720	60'	120'
	65	650	780	65'	130'
	70	700	840	70'	140'
	75	750	900	75'	150'
	80	800	960	80'	160'

HOLLOW OR WATER BALLASTED SYSTEMS USED AS LONGITUDINAL CHANNELIZING DEVICES OR BARRIERS

VERTICAL PANELS & OPPOSITE TRAFFIC LANE DIVIDERS SEPARATING TWO-WAY TRAFFIC
(Typical application)

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION
CHANNELIZING DEVICES
STANDARD

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Date	Revisions	Sheet
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8-01		
7-07		

TYPE III BARRICADES

TYPE III BARRICADE (POST AND SKID) TYPICAL APPLICATION

PERSPECTIVE VIEW

PLAN VIEW

Barricades shall NOT be used as a sign support.

TYPICAL STRIPING DETAIL FOR BARRICADE RAIL

TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

CONES

One-Piece cones Tubular Marker

Two-Piece cones

28" Cones shall have a minimum weight of 9 1/2 lbs.

42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS

PERSPECTIVE VIEW

PLAN VIEW

EDGELINE CHANNELIZER

TRAFFIC CONTROL FOR MATERIAL STOCKPILES

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION
CHANNELIZING DEVICES
STANDARD

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Date	Revisions	Sheet
8-95		
8-01		
7-07		

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2 ADDENDA, DTE: 10/14/08

BROOKS CITY-BASE
BROOKS DEVELOPMENT AUTHORITY
RESEARCH PLAZA/CITY BASE LANDING

REVISIONS

DATE: 10/16/2008

DRAWN BY: J.S.

SHEET TITLE:
TRAFFIC CONTROL DETAILS

SHEET NUMBER
CTCPDET01

VOL 7775 PG 203

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS

1. Barrier Reflectors shall be manufactured, and mounted by the color and reflectivity requirements of DMS-8060, a list of prequalified Barrier Reflectors (Type C Bidirectional) can be found on the Materials Producer List and website shown on DCIOL.
2. Spacing of Barrier Reflectors shall be as specified in the typical. The point of the reflectors shall be positioned subsidiary to item 560.

CONCRETE TRAFFIC BARRIER (CTB)

LOW PROFILE CONCRETE BARRIER (LPCB)

DELINEATION OF END TREATMENTS

DELINEATION	APPROACHING TRAFFIC BOTH SIDES	ONE SIDE	TRAFFIC PAST
	Gen'l	Gen'l	

END TREATMENTS FOR CTB'S USED IN WORK ZONES

One bidirectional panel on CTB's in work zones shall be placed at the beginning of the end treatment. Contractor is responsible for the ENDED list for approved end treatments and manufacturer's info.

TYPICAL FLASHING ARROW PANEL

Arrow Panels may be located behind channelizing devices in place of a shoulder taper or merging taper, otherwise they shall be delineated with four (4) channelizing devices placed perpendicular to traffic on the downtown side of traffic.

1. The Flashing Arrow Panel shall be used for all lane closures on freeways, expressways, and other conditions of construction, maintenance, or operation that could adversely affect traffic flow.
2. Flashing Arrow Panels should not be used on two-lane, two-way roadways. Delays, discomforts, or work on shoulders unless any CAUTION mode is used.
3. The Engineer/Assistant shall discuss all appropriate signs, barricades and/or other traffic control devices that should be used in conjunction with the Flashing Arrow Panel.
4. The Flashing Arrow Panel should be displayed the following sequence:

Flashing Right Hand Arrow

Flashing Double Arrow

Flashing Caution

REQUIREMENTS

TYPE	MINIMUM PANEL SIZE	MINIMUM NUMBER OF PANEL LAMPS	MINIMUM VISIBILITY DISTANCE
B	30 x 60	13	3/4 mile
C	48 x 96	15	1 mile

ATTENTION - Flashing Arrow Panels shall be equipped with automatic dimming devices.

MARK NOT ON SIDE, BEHIND END UNDER PANEL FROM THE FRONT-OF-MAT OF PLAT THE UNDER PANEL BEHIND CONCRETE TRAFFIC BARRIER OR CHANNEL.

5. The "CAUTION" display sequence of four corner lamps flashing simultaneously.
6. The use of the caution display is NOT ALLOWED.
7. The Flashing Arrow Panel shall be operated in the caution mode only when the vehicle is stopped.
8. Flashing arrow panel shall be visible for a minimum of 1 mile during periods of limited visibility caused by fog, dust, or rain and shall not be less than 30 feet above Mean Hi Traveled Way.
9. The Flashing Arrow Panel shall be equipped with one of the visibility dimming devices which automatically adjusts the panel intensity in accordance with the following schedule:

Ambient Light Level	Intensity
Sunny Daytime	100%
Cloudy Daytime	50%
Dusk to Dawn	20%

10. The Flashing Arrow display is the TURN sequence. However, the engineer can override display by manual during daytime operations.
11. The Flashing Arrow Panel shall be equipped with a vehicle, trailer or other suitable support.
12. A Flashing Arrow Panel shall be used in a mobile or short term operation. The Flashing Arrow is usually transported from area to area.
13. A Full Matrix PCMS may be used in a mobile or short term operation. The Full Matrix PCMS is usually transported from area to area.
14. Arrow panels should be 1 foot from roadway or barrier and mounted at a minimum height of 7 feet measured from bottom of panel.

Type C warning Lights or approved substitute mounted adjacent to the travel way.

Warning reflector may be round or square, must have a reflecting surface area of at least 30 square inches.

WARNING LIGHTS

1. Warning lights shall meet the requirements of the ITE/TCD.
2. Warning lights shall NOT be installed on barricades.
3. Type B Low Intensity Flashing Warning Lights and supporting cord with ends. They are intended to warn of or mark a potentially hazardous area. Only one light may be affixed to any one device and shall be mounted as near the top as possible. The Type C Warning Lights shall be used on speed zone signs approximately with Type I Sheeting Retroreflective Prismatic sheeting the requirements of Departmental Materials Specifications DMS-8300.
4. Type-C and Type D 360 degree Steady Burn Lights are intended to be used as a series for delineation, as replacement under traffic control devices, or to call attention to a restricted area. They are not to be used singly to mark a hazard.
5. The Engineer/Assistant shall be responsible for determining the spacing of Type C and Type D Steady Burn Lights for various traffic control devices.
6. When required by the Engineer, the Contractor shall furnish a power source for warning lights. The Contractor will be responsible for servicing the warning lights meet the requirements of Item 174 Furnishing Supplies and Storage Warning Lights.
7. When used to delineate curbs, Type-C and Type D Steady Burn Lights should also be placed on the approach of the curve, not the tangent.

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

1. Type A Flashing warning lights are intended to mark where they are approaching or are in a potentially hazardous area.
2. Type A lights shall be mounted on the top of the channelizing device and shall be visible for a minimum of 360 degrees.
3. A series of unidentified flashing warning lights placed on channelizing devices may be used to advise traffic in advance of conditions requiring caution. Any unidentified flashing or the sequential warning lights should never stop the beginning of the flasher to the end of the warning mode in order to identify the identical vehicle path. The rate of flashes for each light shall be 60 flashes to the minute, with one flash to flash.
4. Type C and D steady-burn warning lights are intended to be used in a series to delineate the edge of the travel lane on detours, on ramp closures, on lane closures, and on other kind of conditions.
5. Type A, Type C and Type D warning lights shall be maintained in locations as directed in the plans.
6. Warning lights shall be operated by a cell or dusk that has a light sensor.
7. The lens color covering for warning lights on drums shall be as required by the channelizing device spacing.

REFLECTIVE SHEETING MOUNTED ON PLASTIC DRUMS OR A SUBSTITUTE FOR TYPE C STEADY BURN WARNING LIGHTS

1. A warning reflector or approved substitute may be mounted on a plastic drum as a substitute for a type C, steady burn warning light at the discretion of the Contractor unless otherwise noted in the plans.
2. The reflective sheeting shall be mounted on the upper portion of the drum.
3. The reflective sheeting shall have a minimum retroreflective surface area of 30 square inches.
4. The warning reflector shall have a minimum retroreflective surface area of 30 square inches.
5. Sound reinforcers shall be fully retroreflective, including no gray empty stripeless to the drum.
6. Square dimensions must have a minimum of 30 square inches of retroreflected sheeting. They do not have to be retroactive sheet it.
7. Two sides of the warning reflector facing approaching traffic shall have sheeting meeting the color and retroreflectivity requirements for DMS-8300 Type C Bidirectional Prismatic.
8. The warning reflector shall be mounted on the drum so that the sheeting is perpendicular to approaching traffic.
9. The warning reflector shall be mounted on the drum so that the sheeting is perpendicular to approaching traffic.
10. The reflector spacing for warning reflectors should be identical to the channelizing device spacing requirements.

TRUCK-MOUNTED ATTENUATORS

1. Truck-mounted attenuators (TMA) used on SHSM facilities must meet the requirements outlined in the National Cooperative Highway Research Report No. 350 (NCHRP 350).
2. Refer to the DCTCP for the requirements at Level 2 or Level 3 TMAs.
3. Refer to the notes shown in the DCTCP to ensure that the TMA meets the size requirements and the orientation/placement requirements established by the Federal Highway Administration Memo for Record.
4. Refer to the DCTCP for a list of approved TMAs.
5. Refer to the DCTCP for the placement requirements for the plans.
6. A TMA should be placed a minimum distance of approximately 30 to 100 feet in advance of the area of activity or hazard. Distances exceeding the work performance.
7. The only exception to this placement rule are required if a work area is moved down the roadway and the work area is an extended distance from the TMA.

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION ARROW PANEL, REFLECTORS, WARNING LIGHTS & ATTENUATOR STANDARD

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WORK ZONE PAVEMENT MARKINGS

GENERAL

1. The Contractor shall be responsible for delineating work zone the existing pavement markings. In emergencies when one or more of these is not practical, the Contractor shall provide temporary markings to satisfy the Engineer. Temporary markings shall be in accordance with "Temporary Markings" in Section 662 of the Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges.
2. Pavement markings shall be installed in accordance with the TMUTCD and on plans on the plans.
3. When short term markings are required on the plans, short term markings shall conform with the TMUTCD. The colors and details in the plans shall be followed.
4. Where long term markings are required on the plans, short term markings shall conform with the TMUTCD. The colors and details in the plans shall be followed.
5. Subject to the approval of the Engineer, any surface that appears to be confusing or misleading to traffic shall be obliterated or removed.
6. Temporary tabs may be used but will not be required unless specifically detailed.
7. All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

RAISED PAVEMENT MARKERS

1. Raised pavement markers are to be placed according to the applicable of DCIOL.
2. All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and Departmental Materials Specification DMS-4300 & DMS-4304.

PREFABRICATED PAVEMENT MARKINGS

1. All prefabricated pavement markings shall meet the requirements of DMS-8241.
2. Non-removable preformed pavement markings shall meet the requirements of DMS-8244.

ALTERNATING WORK ZONE PAVEMENT MARKINGS

1. The Contractor will be responsible for delineating work zone pavement markings during the work traffic.
2. Work zone pavement markings shall be designed in accordance with the requirements and reporting requirements of the Texas Traffic Control Devices Manual.
3. The alternating phase pattern is typically referred for a minimum distance of 200 feet before opposing traffic meets and 100 feet over. Implemented by applicable two-lane two-lane or eight, unless sight distance is restricted by roadway conditions.
4. Markings failing to meet this criterion within the first 30 days after placement shall be replaced at the expense of the Contractor as specified in Item 662.

REMOVAL OF PAVEMENT MARKINGS

1. Pavement markings that are no longer applicable, would create confusion or which a similar color to or have the glossy portion of the roadway, shall be removed or obliterated before the roadway is open to traffic.
2. The black shall not apply as durable as brooms to have been hot blasted, sandblasted, or scraped. Other methods of removing markings may be used if approved by the Engineer.
3. Pavement markings shall be removed in the following manner: Removal markings shall be obliterated in accordance with the TMUTCD and as shown on the plans.
4. When short term markings are required on the plans, short term markings shall conform with the TMUTCD. The colors and details in the plans shall be followed.
5. Pavement markings that are no longer applicable, would create confusion or which a similar color to or have the glossy portion of the roadway, shall be removed or obliterated before the roadway is open to traffic.
6. The black shall not apply as durable as brooms to have been hot blasted, sandblasted, or scraped. Other methods of removing markings may be used if approved by the Engineer.
7. The removal of abandoned markings may require resurfacing or seal coating the area of the markings.
8. Subject to the approval of the Engineer, any surface that appears to be confusing or misleading to traffic shall be obliterated or removed.
9. Temporary tabs may be used but will not be required unless specifically detailed.
10. All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

Temporary Flexible-Reflective Roadway Marker Tabs

TOP VIEW — FRONT VIEW — SIDE VIEW

Height of sheeting To benefit a back from 1'-6" and less than 1'-".

Adhesive pad

STAPLES OR NAILS SHALL NOT BE USED TO SECURE TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS TO THE PAVEMENT SURFACE

1. Temporary flexible-reflective roadway marker tabs used on bituminous shall meet the requirements of DMS-8240.
2. Tabs marked on this sheet are to be fabricated and accepted by the Engineer or designated representative. Inspecting and testing is not normally required, however at the option of the Engineer, either 12 or 24 hours may be imposed to ensure quality before placement on the roadway.
   a. Install five (5) or more tabs of various kinds over an existing pavement surface in construction direction, temporary and Pavement Section to remain in place for 30 days.
   b. Retest five (5) tabs on the pavement surface after five (5) days of 24 inch horizontal on the pavement surface. Tabs shall not be damaged by snowplow blades or tires, nor shall the markers slide on the street and wear tires as a speed of 30 to 40 mph for a distance of 100 feet. If tabs do not meet this, tabs are not out of the five (5) reflective surface shall be removed and replaced at no cost to the State.
   b. Tabs shall not be damaged by snowplow blades or tires, nor shall the markers slide on the street and wear tires as a speed of 30 to 40 mph for a distance of 100 feet. If tabs do not meet this, tabs are not out of the five (5) reflective surface shall be removed and replaced at no cost to the State.
   c. Tabs shall not be damaged by snowplow blades or tires, nor shall the markers slide on the street and wear tires as a speed of 30 to 40 mph for a distance of 100 feet. If tabs do not meet this, tabs are not out of the five (5) reflective surface shall be removed and replaced at no cost to the State.
3. Insert Standard DCIT-213 for tab placement or seek work work.
4. Tab temporary flexible-reflective roadway marker tabs may be furnished in two (2) sizes, 4 inches by 4 inches and 4 inches by 6 inches.
5. Tab temporary flexible-reflective roadway marker tabs may be furnished in two (2) sizes, 4 inches by 4 inches and 4 inches by 6 inches.
6. Insert Standard DCIT-213 for tab placement or seek work work.

Raised Pavement Markers Used on Guidemarks

1. Raised pavement markers used on guidemarks shall be from the approved product list, and meet the requirements of DMS-4304.
2. All raised pavement markers used on guidemarks shall meet the requirements of DMS-4304.
3. Non-removable preformed reflective pavement markers previously on a permanent basis of the work zone construction.
4. Insert Standard DCIT-213 for tab placement or seek work work.
5. Tab temporary flexible-reflective roadway marker tabs may be furnished in two (2) sizes, 4 inches by 4 inches and 4 inches by 6 inches.
6. Insert Standard DCIT-213 for tab placement or seek work work.

DEPARTMENTAL MATERIAL SPECIFICATIONS

PAVEMENT MARKERS (RETROREFLECTIVE)	DMS-4300
TRAFFIC BUTTONS	DMS-4302
CRMET AND CONCRETE	DMS-4304
ATTACHMENT ADHESIVE FOR PROVISION MARKERS	DMS-4310
PREFABRICATED PAVEMENT MARKERS (PERMANENT)	DMS-8240
PREFABRICATED PAVEMENT MARKERS (REMOVABLE	DMS-8241
TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS	DMS-8240

A list of prequalified materials for raised pavement markers, temporary traffic control buttons, roadway marker tabs and other materials mentioned can be found on the Materials Producer List and website shown on DCIOL.

STANDARD PLANS
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BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS STANDARD

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TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

ROAD WORK AHEAD

When placing skid supports on pavement ground, the top post lengths must be adjusted so the sign supports vertical and plumb. Ballasts shall NOT be placed under skids as a means of leveling.

Sign supports may be placed on existing supports. They should be attached to the supports nearest the travel lane. Sign supports shall not be placed on the face of the panel sign.

ATTACHMENT FOR SIGN SUPPORTS

WORK ZONE TRAFFIC FINES DOUBLE

ROAD WORK AHEAD

Nails will NOT be allowed. Each sign shall be attached directly to the sign supports. Multiple signs shall not be joined or spliced by any means. Wood supports shall not be extended or repaired by splicing or other means.

Splicing embedded perforated square metal sleeve splicing is not to exceed each height will only be allowed when the section is made using two bolts, one each end the sleeve bolts. Holes are to be located with a template that has the same pattern as the sign substrate, and have the same of the members. Splices require lengths should be at least 12 inches after splice. Guidance on the splice are one of at least one side guide corner bolt.

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

1. Permanent signs are used for the protection of traffic here or regulations, and, therefore, the maintenance of the permanent signs is the responsibility of the Contractor. Contractor shall maintain all permanent signs within the project limits, including those installed by others, and other responsibilities, if damaged, vandalized, or otherwise rendered unsatisfactory for use by the traffic, shall be repaired or replaced in accordance with the Engineer's guidance as currently furnished as a material without compensation.
2. When maintenance responsibility of existing signs is transferred from others, replace or repair the permanent signs until new permanent sign message matches the existing condition.
3. When existing permanent signs are moved and reinstalled due to construction, they shall be visible to motorists as well as before.
4. If existing signs are to be relocated on their original supports, they shall be removed and reinstalled in accordance with the applicable Item.
5. If permanent signs are to be removed and reinstalled using temporary supports, the Contractor shall take all precautions to prevent the sign from falling or any DCTCP. The signs shall meet the required mounting height shown on the SMD Standards, or the SMD Standards during construction. This work should be done for under the applicable Item for removing existing signs.
6. Any sign or traffic control device that is struck or damaged by the Contractor or his/her construction equipment shall be replaced as soon as possible by the Contractor to ensure proper guidance for the motorists. This will be subsidiary to Item 560.

GENERAL NOTES FOR SIGN INSTALLATION

1. Contractor shall maintain and individual signs on a workday and shall condition and/or as directed by the Engineer.
2. Broken sign posts shall be spliced only.
3. Sign posts shall be installed in accordance with the plans or as directed by the Engineer.
4. Sign posts shall be installed in accordance with the plans or as directed by the Engineer.
5. The Contractor shall furnish sign supports listed in the "Standard Highway Sign Designs for Texas" (SHSD). The Engineer/Designer may require the Contractor to furnish either work zone breakaway supports or non-breakaway supports for work zone signs. The Engineer/Designer may require the Contractor to furnish either work zone breakaway supports or non-breakaway supports for work zone signs. Any variations to the above shall be subsequently by written agreement between the Engineer and the Contractor.
6. The Contractor shall furnish sign supports listed in the "Standard Highway Sign Designs for Texas" (SHSD). The Contractor shall furnish sign supports listed in the "Standard Work Zone Traffic Control Devices" (SHSD). The Contractor shall furnish sign supports listed in the "Standard Work Zone Traffic Control Devices" (SHSD). In accordance with the applicable Item regarding installation procedures, the Contractor shall furnish the Engineer a copy of the manufacturer's installation recommendations for the Engineer use.
7. The Contractor shall furnish the Engineer a copy of the manufacturer's installation recommendations for the Engineer use.
8. The Contractor is responsible for installing signs at approved supports and repairing signs with damaged or damaged substrates under the applicable Item.
9. The Contractor shall furnish sign supports listed in the "Standard Work Zone Traffic Control Devices" (SHSD). The Contractor shall furnish sign supports listed in the "Standard Work Zone Traffic Control Devices" (SHSD).
10. Sign supports shall be installed in accordance with the plans or as directed by the Engineer.
11. Contractor shall furnish sign supports listed in the "Standard Highway Sign Designs for Texas" (SHSD). The Contractor shall furnish sign supports listed in the "Standard Work Zone Traffic Control Devices" (SHSD).

SIGN MOUNTING HEIGHT

1. The bottom of temporary/intermediate-term signs shall be no less than 7 feet, but not more than 9 feet, above the paved surface, except as shown for mailboxes, delineators, and other types of sign supports.
2. The bottom of short-term/short duration signs shall be a minimum of 1 foot above the pavement surface but no more than 3 feet above the ground.
3. Long-term/intermediate-term signs may be used in lieu of short-term/short duration signing.
4. Where the planned mounting height is not practical, the Engineer shall determine the use of the nearest, or nearest to the planned mounting height that will provide adequate visibility.

SIZE OF SIGNS

1. The Engineer may waive the use of warning sign substitutions warning signs on secondary roads or city streets where speeds are low if the sign is not required by the plans or by the "Standard Construction Detail Sign Size and Mounting Details" sheet.
2. The Contractor shall furnish the sign sizes shown in plans, the MC Sheets, the TCP sheets or as directed by the Engineer.

SIGN SUPPORTS

1. The Contractor shall furnish sign supports listed in or approved by the Engineer in accordance with the requirements or recommendations pertaining a sign, marked on the sheets noted below. Signs, barricades and channelizing devices shall be placed and maintained as directed by the Engineer.
2. Sign supports shall be installed in accordance with the plans or as directed by the Engineer.
3. Sign supports shall be installed in accordance with the plans or as directed by the Engineer.
4. Sign supports shall be installed in accordance with the plans or as directed by the Engineer.
5. Sign supports shall be installed in accordance with the plans or as directed by the Engineer.

SIGN MOUNTING DESIGN

1. Where sign messages are to be overhanging or do not match, the signs shall be removed or temporarily covered.
2. Long-term maintenance or inconvenient positioning a sign, marked on the sheets noted below. Signs, barricades and channelizing devices shall be placed and maintained as directed by the Engineer.
3. Sign supports shall be installed in accordance with the plans or as directed by the Engineer.
4. Sign supports shall be installed in accordance with the plans or as directed by the Engineer.
5. Sign supports shall be installed in accordance with the plans or as directed by the Engineer.

SIGN SUPPORT DESIGN

1. Where sign supports are to be overhanging or do not match, the signs shall be removed or temporarily covered.
2. Long-term maintenance or inconvenient positioning a sign, marked on the sheets noted below. Signs, barricades and channelizing devices shall be placed and maintained as directed by the Engineer.
3. Sign supports shall be installed in accordance with the plans or as directed by the Engineer.
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SIGN LOCATION

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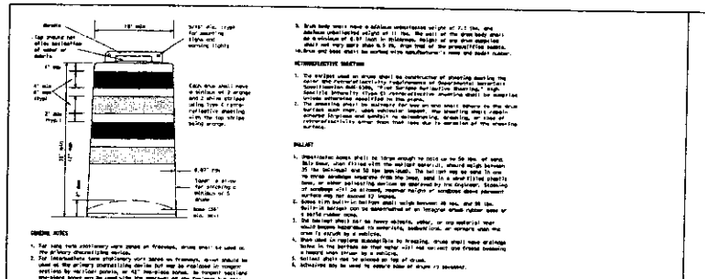
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STANDARD PLANS
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BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES STANDARD

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GENERAL NOTES

1. For using route maintenance work zones on freeways, arrow panel shall be used as a minimum.
2. For using route maintenance work zones on freeways, arrow panel shall be used as the primary communications device but on two-lane, two-way roadways, the arrow panel may be used only for emergency purposes. Flashing arrow panel shall not be used unless the arrow panel is not available.
3. Arrow panels shall be used in accordance with the Engineer and only when the arrow panel is not available.
4. Pavement markings shall be removed from the surface when they no longer apply to the traffic pattern. Pavement markings shall be removed in accordance with the TMUTCD and as shown on the plans.
5. When short term markings are required on the plans, short term markings shall conform with the TMUTCD. The colors and details in the plans shall be followed.
6. Pavement markings that are no longer applicable, would create confusion or which a similar color to or have the glossy portion of the roadway, shall be removed or obliterated before the roadway is open to traffic.
7. The black shall not apply as durable as brooms to have been hot blasted, sandblasted, or scraped. Other methods of removing markings may be used if approved by the Engineer.
8. Pavement markings shall be removed in the following manner: Removal markings shall be obliterated in accordance with the TMUTCD and as shown on the plans.
9. The removal of abandoned markings may require resurfacing or seal coating the area of the markings.
10. Subject to the approval of the Engineer, any surface that appears to be confusing or misleading to traffic shall be obliterated or removed.
11. Temporary tabs may be used but will not be required unless specifically detailed.
12. All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

BALLAST

1. Impact attenuator boxes shall be large enough to hold up to 50 lbs. of sand, dirt, gravel, clean filtered with the manufacturer's instructions. Ballast weight between 35 lbs. and 50 lbs. shall be used. The ballast may be placed in one or more containers separate from the bumper, sand in a sand-filled plastic bag, or water-filled containers. Ballast may be placed in the bumper. Ballasting of impact attenuators is not required, however ballast or sandbags shall be placed in the bumper to ensure proper performance.
2. Ballast boxes shall be filled to within 2 inches of the top.
3. Ballast shall not be placed on top of cover.
4. Ballast shall be secured by means that will prevent unauthorized removal.
5. Ballast boxes shall be designed so that they will not penetrate the bumper when impacted by a vehicle.
6. Ballast boxes shall have adequate ventilation to prevent rupture of the box during impact.
7. Ballast boxes shall be designed so that they will not penetrate the bumper when impacted by a vehicle.
8. Ballast boxes shall have adequate ventilation to prevent rupture of the box during impact.
9. Ballast boxes shall be designed so that they will not penetrate the bumper when impacted by a vehicle.
10. Ballast boxes shall have adequate ventilation to prevent rupture of the box during impact.

GENERAL DESIGN REQUIREMENTS

Prequalified plastic drums shall meet the following requirements:

1. Plastic drums shall be a two-piece design; the "body" of the unit shall be the drum and the "base" shall be the weighted portion.
2. The body and base shall have sufficient mechanical interlock that the body cannot be removed from the base by hand. The body and base shall have sufficient mechanical interlock that the body cannot be removed from the base by hand.
3. The body and base shall have sufficient mechanical interlock that the body cannot be removed from the base by hand.
4. Drums shall be manufactured of flame-retardant, ultraviolet stabilized polyethylene or polypropylene.
5. Drums shall be manufactured of flame-retardant, ultraviolet stabilized polyethylene or polypropylene.
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9. Drums shall be manufactured of flame-retardant, ultraviolet stabilized polyethylene or polypropylene.
10. Drums shall be manufactured of flame-retardant, ultraviolet stabilized polyethylene or polypropylene.

REFLECTIVE SHEETING

1. Drums shall be manufactured of flame-retardant, ultraviolet stabilized polyethylene or polypropylene.
2. Drums shall be manufactured of flame-retardant, ultraviolet stabilized polyethylene or polypropylene.
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9. Drums shall be manufactured of flame-retardant, ultraviolet stabilized polyethylene or polypropylene.
10. Drums shall be manufactured of flame-retardant, ultraviolet stabilized polyethylene or polypropylene.

DETECTION DEVICE ON DRUMS

1. The detection device shall be used to indicate the presence of vehicles, pedestrians, and bicycles in the work area. The detection device shall be used to indicate the presence of vehicles, pedestrians, and bicycles in the work area.
2. If used, the detection device shall be used to indicate the presence of vehicles, pedestrians, and bicycles in the work area.
3. The detection device shall be used to indicate the presence of vehicles, pedestrians, and bicycles in the work area.
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9. The detection device shall be used to indicate the presence of vehicles, pedestrians, and bicycles in the work area.
10. The detection device shall be used to indicate the presence of vehicles, pedestrians, and bicycles in the work area.



Plywood, Aluminum or Metal sign substrates shall NOT be used on plastic drums

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

1. Signs used on plastic drums shall be manufactured using reflective filmed on one SHEET.
2. Reflective filmed on one SHEET.
3. Vertical panels shall be mounted on the drum in accordance with the manufacturer's recommendations. The VP shall meet the requirements specified in the plans.
4. Vertical panels shall be mounted on the drum in accordance with the manufacturer's recommendations. The VP shall meet the requirements specified in the plans.
5. Signs shall be mounted on the drum in accordance with the manufacturer's recommendations. The sign shall meet the requirements specified in the plans.
6. Signs shall be mounted on the drum in accordance with the manufacturer's recommendations. The sign shall meet the requirements specified in the plans.
7. Signs shall be mounted on the drum in accordance with the manufacturer's recommendations. The sign shall meet the requirements specified in the plans.
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9. Signs shall be mounted on the drum in accordance with the manufacturer's recommendations. The sign shall meet the requirements specified in the plans.
10. Signs shall be mounted on the drum in accordance with the manufacturer's recommendations. The sign shall meet the requirements specified in the plans.

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES STANDARD

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GDA

GONZALEZ-DE LA GARZA & ASSOCIATES
115 E. TRAVIS ST., SUITE 1706
SAN ANTONIO, TX 78205
P: (210) 208-9400
F: (210) 208-9401

EDWARD M. DE LA GARZA 94829 LICENSED PROFESSIONAL ENGINEER

Edward M. De La Garza, P.E. 10/14/08

BROOKS CITY-BASE

BROOKS DEVELOPMENT AUTHORITY

RESEARCH PLAZA/CITY BASE LANDING

REVISIONS:

DATE: 10/16/2008

DRAWN BY: J.S.

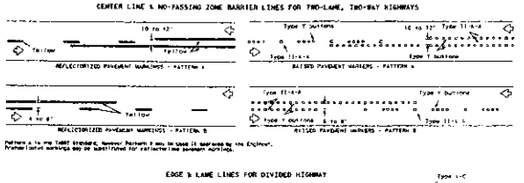
SHEET TITLE:
TRAFFIC CONTROL DETAILS

SHEET NUMBER:
CTCPDET02

VOL 7775 PG 19

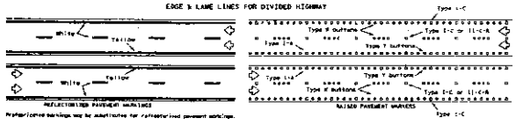
PAVEMENT MARKING PATTERNS

CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO-LANE, TWO-WAY HIGHWAYS



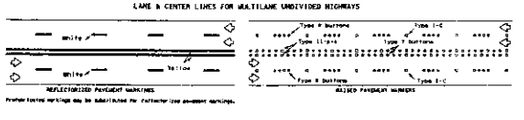
Pattern A is the TxDOT standard. Pattern B may be used if approved by the Engineer. Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



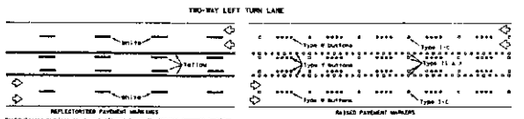
Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



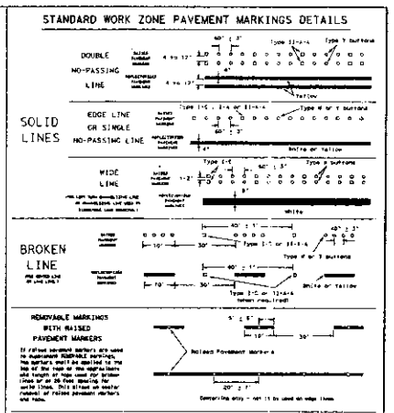
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE



Prefabricated markings may be substituted for reflectorized pavement markings.

STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

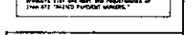


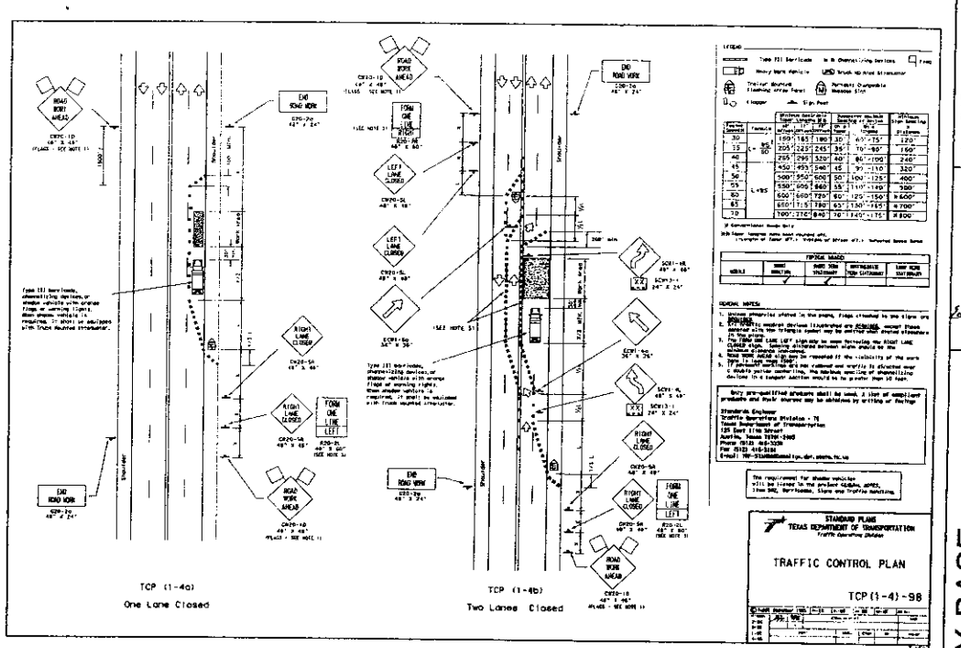
Raised pavement markers used as standard pavement marking shall be from the approved products list and meet the requirements of Item 672 "RAISED PAVEMENT MARKERS."

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Traffic Operations Division

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS STANDARD

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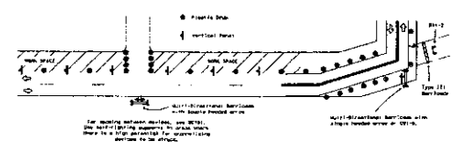




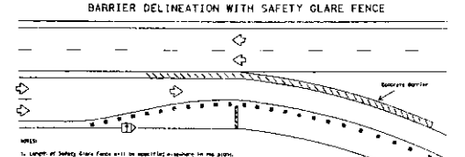
TCP (1-4a)
One Lane Closed

TCP (1-4b)
Two Lanes Closed

CHANNELIZING DEVICES FOR URBAN ROADWAY TYPE PROJECT



BARRIER DELINEATION WITH SAFETY GLARE FENCE



NOTES

1. Length of Safety Glare Fence will be specified as shown in the plans.
2. The manufacturer recommended height of the modular units shall adjust the height of the individual sections of temporary concrete traffic barrier so that they are installed as the plan between barrier sections will not be exposed by any one unit.
3. Penetrations will be designed each time utilized as steering conforming with Texas Department Material Specification DMS-8300, Fluid Surface Applications, Steering, Type C (High Specific Viscosity), minimum size of 5 inches by 12 inches and to conform to the slope of the pavement(s). The penetrations will be provided a specific location per section of concrete barrier where indicated on the plans. Barrier reflectors are to be installed where penetrations are located.
4. Modular Glare Screens for road light barrier shall meet the requirements of DMS-8310.

Any prequalified products shall be used. A copy of the "Prequalified Work Zone Traffic Control Devices List" (SDCTCD) shall list prequalified products and their sources and may be obtained by contacting:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone: (512) 416-3200
Fax: (512) 416-3206

Instructions to access the "SDCTCD" on TxDOT website are:

Start at website: www.dot.state.tx.us
Click on "Travel Inside"
Click on "Organizational Charts"
Click on Traffic Operations Div.
Click on "Suppliers Work Zone Traffic Control Devices",
Click on "View PDF".
This site is printable.

PREQUALIFICATION PROCEDURES ARE OBTAINED FROM:

CERTIFICATION OF FIELDS/MANUFACTURERS AND TESTS SECTION
TEXAS DEPARTMENT OF TRANSPORTATION (TxDOT)
125 EAST 11th STREET
AUSTIN, TX 78701-2483

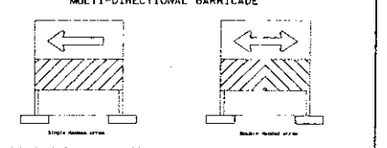
REFERENCE: MATERIAL SPECIFICATION

FLEX SURFACE REFLECTIVE SHEETING (BLUE/ORANGE) AND SELECT MARKERS AND DRUMS	DMS-8300 TYPE C
REFLECTIVE GLARE SCREENS	DMS-8310

COLOR	WHITE	YELLOW
BRAKE BACKGROUND	TYPE C FLUORESCENT PRISMATIC	
WHITE BACKGROUND	TYPE C NON-SPECULAR INTEGRITY	
BLACK LEGEND & BORDERS	LIGHT NON-REFLECTIVE SHEETING	

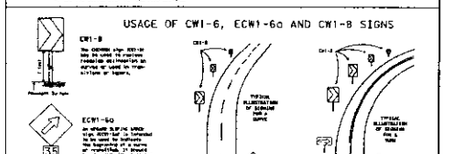
REFER TO THE MC SHEETS FOR SHEETING REQUIREMENTS OF CHANNELIZING DEVICES.

MULTI-DIRECTIONAL BARRICADE



1. Multi-directional barricades shall not be used for long slowdowns.
2. May be used for short duration TA activities, or across roadway from side of TTC intersection.
3. Typically used in conjunction with Texas Intersection, Short Term Intersection or Short Duration work zone operations.
4. See the CONSTRUCTION for approved designs.

USAGE OF CW1-6, ECW1-6a AND CW1-8 SIGNS



NOTES

1. CW1-6, ECW1-6a & CW1-8 signs shall be mounted on fixed supports. Channeling devices shall not be placed on the outside of a sharp curve or on the crest of a hill where they will not be visible to approaching traffic for a sufficient distance to allow them to react. Channeling devices shall not be used where they obscure motorists' view of traffic control devices.
2. For two-lane, two-way operations, use placement of signs on either of the two lanes.
3. For multi-lane, one-way operations, use placement of signs on outside of roadway. Refer to Table 1 "Lane Closure Tapers and Buffer Spaces" for buffer space values when needed.

The five categories of work operations one would view on a construction project are:

A. Long-term stationary is work that occupies a location for more than 3 days.

B. Intermediate-term stationary is work that occupies a location for more than one daylight period up to 3 days, or stationary work lasting more than 1 hour.

C. Short-term stationary is operations work that occupies a location for more than 1 hour, but less than 12 hours.

D. Short- Duration is work that occupies a location up to 1 hour.

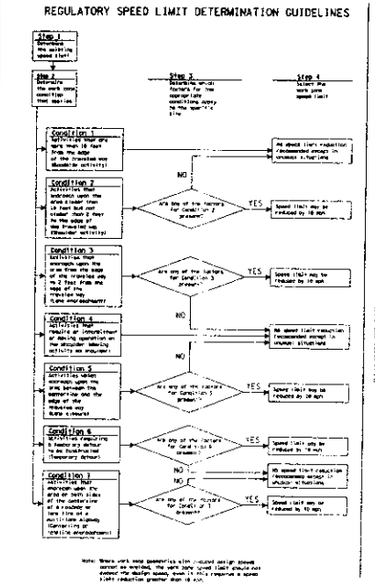
E. Mobile is work that moves intermittently or continuously.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL PLAN
TYPICAL DETAILS

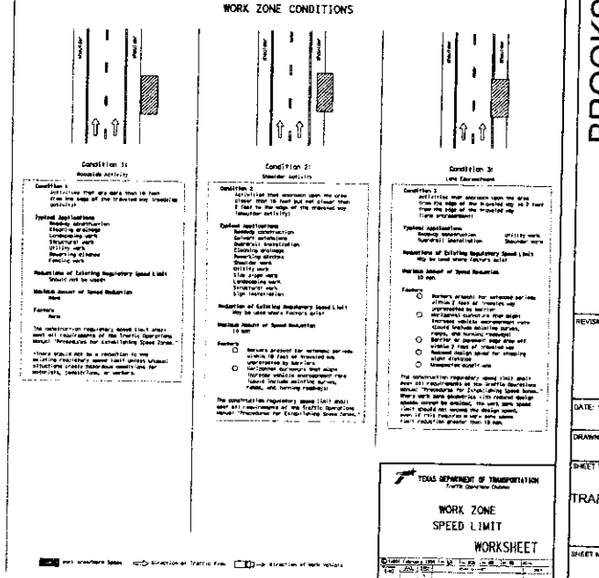
WZ(TD)-03

REGULATORY SPEED LIMIT DETERMINATION GUIDELINES



Note: Where work zone geometrics also indicate design speeds current as existing, the work zone speed limit should not exceed the design speed, even if this response is speed limit reduction greater than 10 mph.

WORK ZONE CONDITIONS



TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

WORK ZONE
SPEED LIMIT
WORKSHEET

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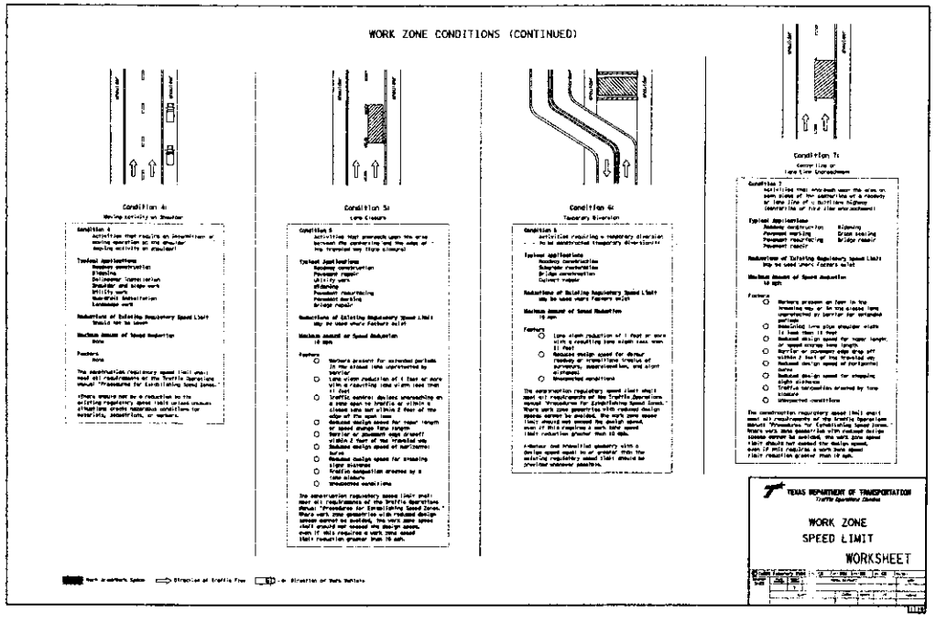
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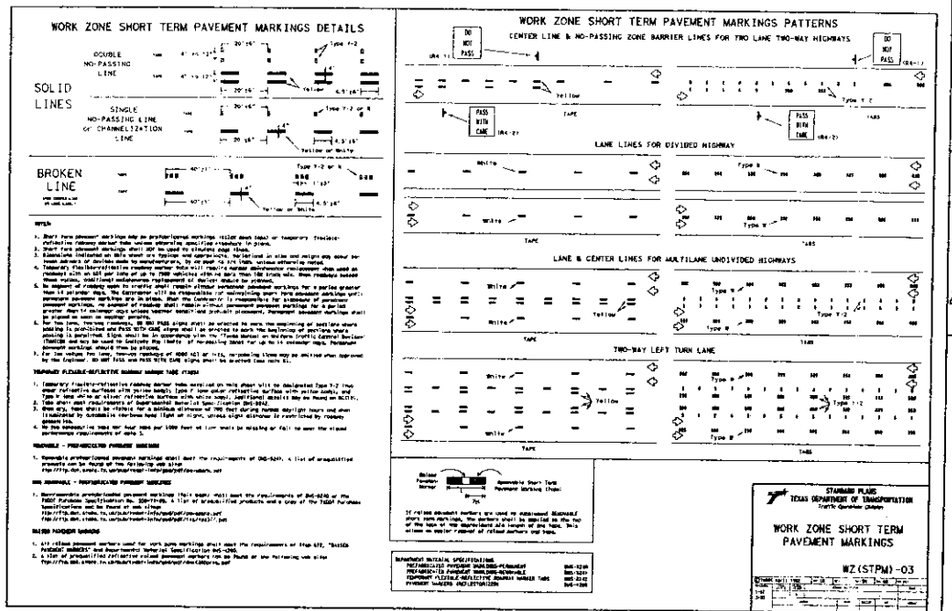
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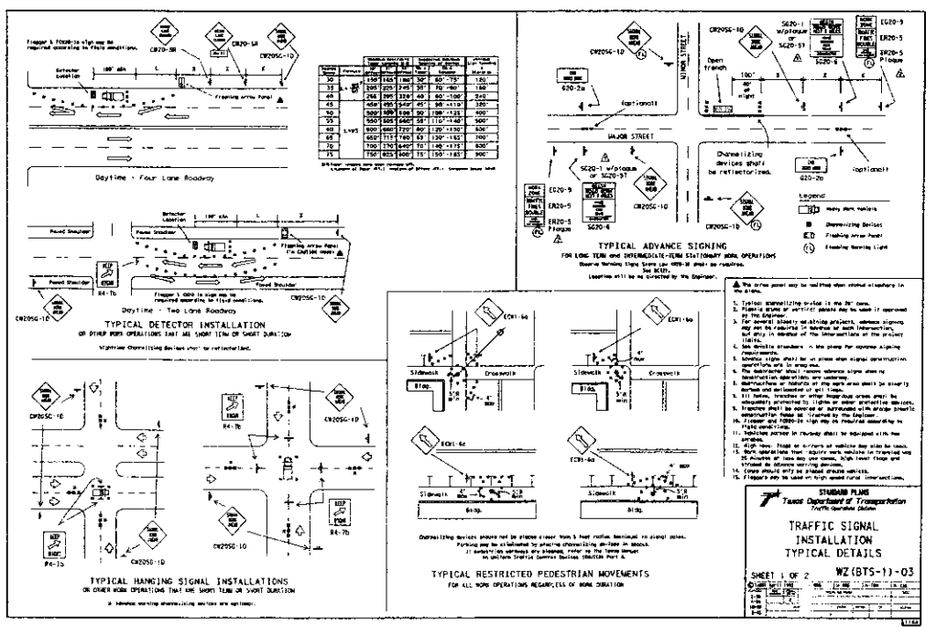
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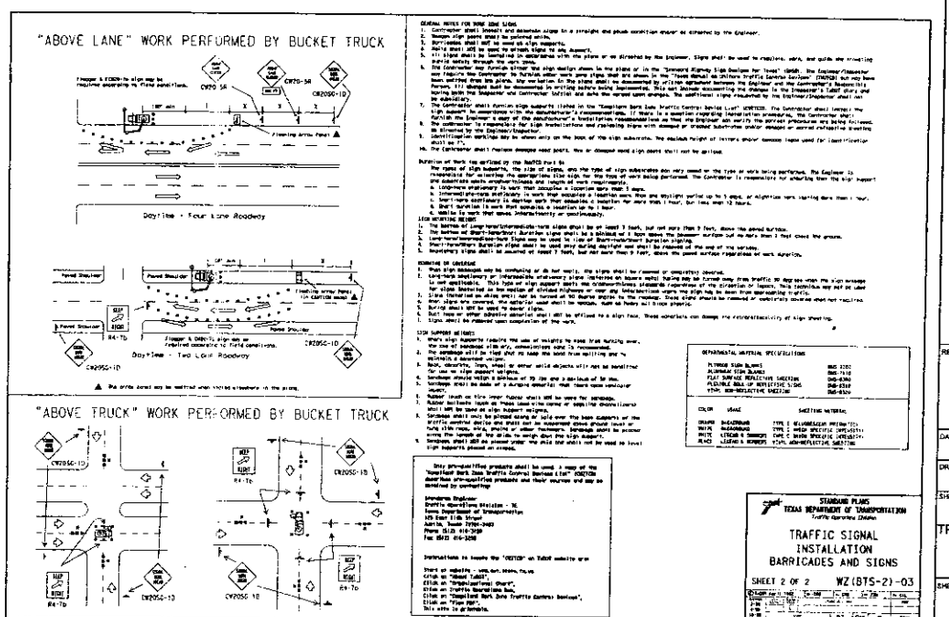
SHEET NUMBER:
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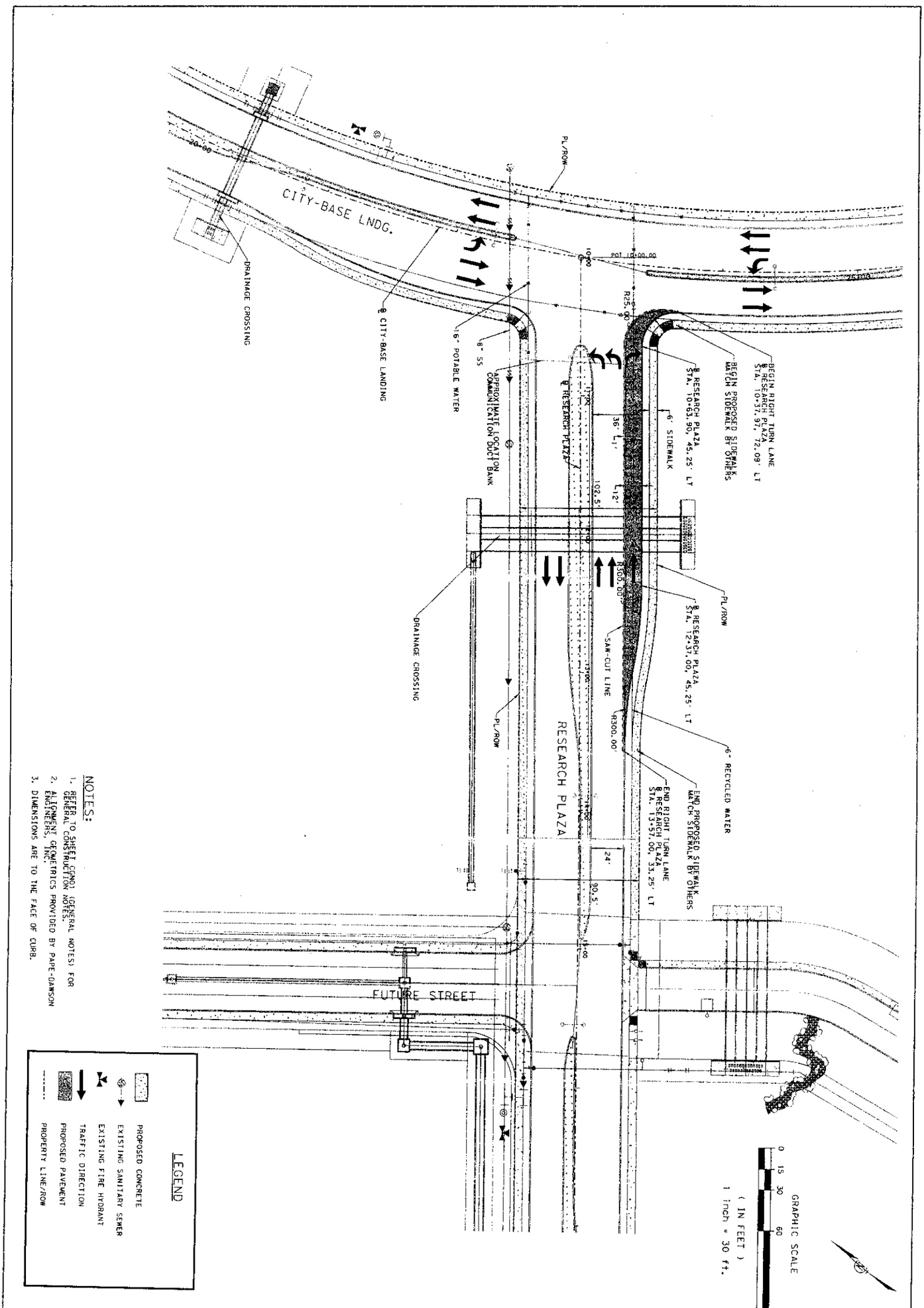
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DATE: 10/15/2008

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TRAFFIC CONTROL DETAILS

SHEET NUMBER:
CTCPDET04



NOTES:

1. REFER TO SHEET GCN01 (GENERAL NOTES) FOR GENERAL CONSTRUCTION NOTES.
2. ALIGNMENT GEOMETRICS PROVIDED BY PAPE-DAWSON ENGINEERS, INC.
3. DIMENSIONS ARE TO THE FACE OF CURB.

LEGEND

- PROPOSED CONCRETE
- EXISTING SANITARY SEWER
- EXISTING FIRE HYDRANT
- TRAFFIC DIRECTION
- PROPOSED PAVEMENT
- PROPERTY LINE/ROW

BROOKS CITY-BASE

BROOKS DEVELOPMENT AUTHORITY

RESEARCH PLAZA/CITY BASE LANDING

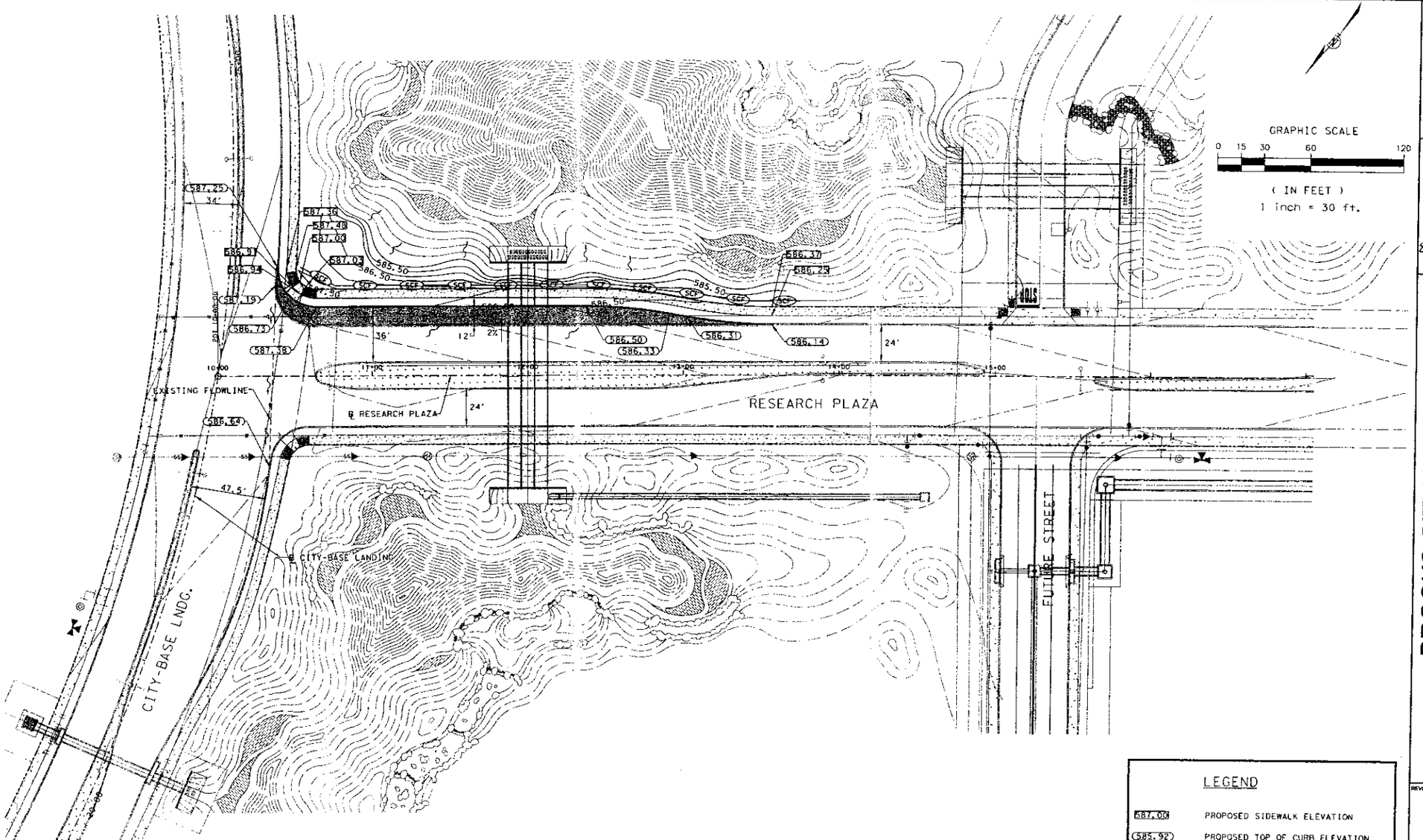
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REVISIONS	DATE	DRAWN BY	SHEET TITLE	SHEET NUMBER
	10/15/2020	JLS	ROADWAY PLAN	CRP01

VOL 7777 PG 2207



LEGEND

587.00	PROPOSED SIDEWALK ELEVATION
(585.92)	PROPOSED TOP OF CURB ELEVATION
(585.92)	EXISTING TOP OF CURB ELEVATION
	EXISTING FIRE HYDRANT
585.92	PROPOSED CONTOURS
	PROPOSED CONTOURS BY OTHERS
SCF	PROPOSED SILT FENCE
	FLOW DIRECTION
	PROPERTY LINE/R.O.W.

NOTES:

1. REFER TO SHEET CGN01 (GENERAL NOTES) FOR GRADING AND GENERAL CONSTRUCTION NOTES.
2. REFER TO SHEET CRP01 (ROADWAY PLAN) FOR ROADWAY, CURB, AND SIDEWALK CONSTRUCTION LIMITS.

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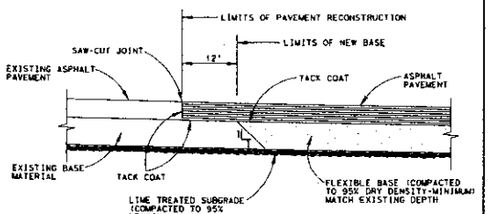
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DRAWN BY: J.S.

SHEET TITLE:
GRADING PLAN

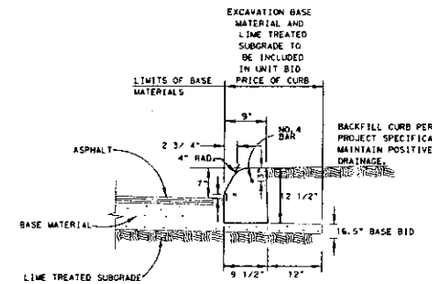
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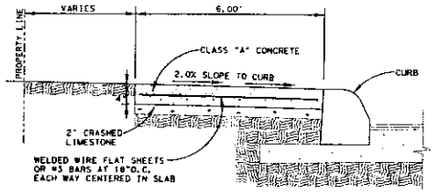


* SEE DETAIL 4, "PAVEMENT LAYER DESCRIPTION TABLE", FOR PAVEMENT STRUCTURE INFORMATION.

PAVEMENT EXPANSION JOINT DETAILS
① N.T.S.



② STANDARD CURB DETAIL
N.T.S.



③ SIDEWALK DETAIL
N.T.S.

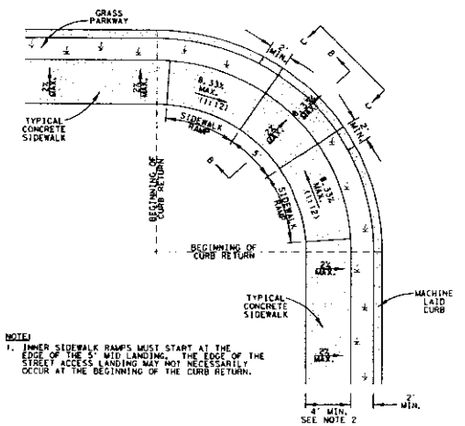
PAVEMENT LAYER DESCRIPTION TABLE

LAYER DESCRIPTION	LAYER THICKNESS	RECOMMENDED SN COEF.	SN EXTENSION
SURFACE COURSE ("D")	2.0 IN.	0.44	0.88
SURFACE COURSE ("C")	2.0 IN.	0.44	0.88
FLEXIBLE BASE	18.0 IN.	0.14	2.54
LIME-TREATED SUBGRADE	6.0 IN.	0.08	0.48
COMBINED TOTAL	28.0 IN.		5.78

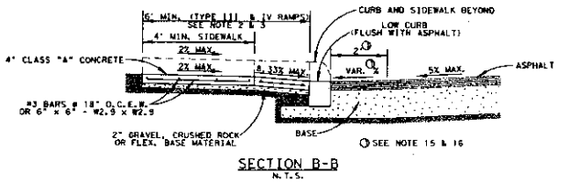
NOTES:

1. PAVEMENT DESIGN THICKNESS BASED ON GEOTECHNICAL REPORT BY RABA-KISTNER CONSULTANTS, INC. DATED 09/24/04. SEE TABLE ABOVE FOR STRUCTURAL NUMBER CALCULATION.
2. REFERENCE PROJECT GEOTECHNICAL REPORT AND PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING MATERIAL TESTING. TESTING TO BE PAID BY OWNER.
4. CONTRACTOR SHALL USE 4% HYDRATED LIME BY WEIGHT (20 LBS/SQUARE YARD) TO REDUCE THE PI OF SUBGRADE CLAYS.
5. TENSAR BX1100 GEOGRID SHALL BE PLACED AT THE MIDDLE OF THE FLEXIBLE BASE LAYER.

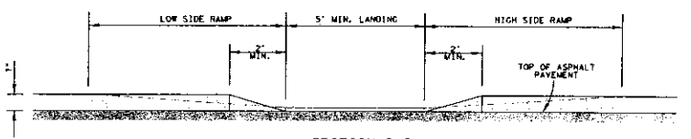
④ PAVEMENT LAYER DESCRIPTION TABLE



NOTE:
1. INNER SIDEWALK RAMPS MUST START AT THE EDGE OF THE 5' MIN LANDING. THE EDGE OF THE STREET ACCESS LANDING MAY NOT NECESSARILY OCCUR AT THE BEGINNING OF THE CURB RETURN.



SECTION B-B
N.T.S.



SECTION C-C
CURB PROFILE WHERE SIDEWALK IS SEPARATED FROM CURB
N.T.S.

GUTTER SLOPE	TABLE 1 (SEE NOTE 4) SIDEWALK RAMP LENGTH (1:12)	
	LOW SIDE	HIGH SIDE
1%	5'-6"	7'-2"
2%	5'-0"	8'-4"
3%	4'-6"	10'-0"
4%	4'-2"	12'-6"
5%	3'-10"	16'-8"

⑤ TYPICAL SIDEWALK RAMP
N.T.S.

GENERAL NOTES

1. WHEN POSSIBLE SIDEWALKS SHOULD BE PLACED NEXT TO THE PROPERTY LINE, ALLOWING A MINIMUM OF 1 FOOT BUFFER. DEVIATION OF THE PATHWAY FROM A STRAIGHT LINE IS ENCOURAGED TO AVOID TREES OR OTHER OBSTRUCTIONS.
2. FOR LOCAL TYPE "A" STREETS, SIDEWALKS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 4' AND IF SEPARATED FROM THE CURB, THE SIDEWALK SHALL BE LOCATED A MINIMUM OF 2' FROM THE BACK OF CURB.
3. FOR OTHER THAN LOCAL TYPE "A" STREETS, SIDEWALKS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 4' AND SEPARATED A MINIMUM OF 6' FROM THE BACK OF CURB OR AS AN OPTION, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 6' WHEN LOCATED AT THE BACK OF CURB.
4. SIDEWALK RAMP LENGTHS PRESENTED IN TABLE 1 ARE GUIDELINES ONLY. SIDEWALK RAMP LENGTHS SHALL BE OF SUFFICIENT LENGTH TO MAINTAIN 8.33% (1:12) MAXIMUM SLOPE.
5. ALL CURB-RAMPS OR LANDINGS ABUTTING THE CROSSWALK SHALL HAVE A DETECTABLE WARNING 24 INCHES DEEP (IN THE DIRECTION OF PEDESTRIAN TRAVEL) AND EXTENDING THE FULL WIDTH OF THE CURB RAMP OR LANDING. THE DETECTABLE WARNING SHALL CONSIST OF RAISED TRUNCATED DOMES, ALIGNED IN A GRID PATTERN WITH A DIAMETER OF A NOMINAL 0.9 INCHES (23 MM), A HEIGHT OF NOMINAL 0.2 INCHES (5 MM) AND A CENTER-TO-CENTER SPACING OF NOMINAL 2.35 INCHES (60 MM).
6. DETECTABLE WARNINGS SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT. THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE.
7. SIDEWALK RAMP TYPE V SHALL BE USED ONLY WHERE THERE IS SIGNIFICANT RESTRICTION WITHIN THE PARKWAY TO CONSTRUCT TYPE I OR TYPE III RAMPS.
8. CONSTRUCTION OF ALL WHEELCHAIR RAMPS TO BE INCLUDED UNDER ITEMS "500 - CONCRETE CURBING", "501 - MACHINE LAID CURB" AND / OR "502 - CONCRETE SIDEWALKS". RAMP SURFACE SHALL BE BRUSH FINISHED.
9. THESE DETAILS ARE FOR REFERENCE ONLY. ACTUAL LOCATIONS OF WHEELCHAIR RAMPS TO BE SHOWN ON CONSTRUCTION PLANS. CITY CONSTRUCTION INSPECTOR CAN ADJUST LOCATIONS FOR SAFETY OR UTILITY CLEARANCE.
10. SIDEWALKS LESS THAN 5 FEET IN WIDTH SHALL BE PROVIDED WITH A PASSING SPACE AT A MAXIMUM SPACING OF 200 FEET.
11. WHEELCHAIR RAMP SHALL BE CONSTRUCTED WITH 4" CLASS "A" CONCRETE AND 2" GRAVEL, CRUSHED ROCK OR FLEXIBLE BASE MATERIAL.
12. REINFORCING STEEL SHALL BE #3 BARS AT 18" O.C.E.W. OR 6" x 6" - W2.9 x W2.9 WIRE MESH.
13. SIDEWALK GRADES SHALL NOT EXCEED THE GRADE ESTABLISHED FOR THE ADJACENT ROADWAY, ANY SIDEWALK CONSTRUCTION THAT DEVIATES FROM THE NATURAL GRADE OF THE ROADWAY TO CREATE A GRADE STEEPER THAN THE EXISTING ROADWAY WILL REQUIRE RAMPS, HANDRAILS AND RESTING PLATFORMS TO BE CONSTRUCTED IN ACCORDANCE WITH ADA AND TAS STANDARDS.
14. SIDEWALK CROSS GRADE SHALL HAVE A MAXIMUM SLOPE OF 2%. LANDINGS SHALL HAVE A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
15. THE CHANGE OF GRADE BETWEEN ADJACENT SURFACES SHALL BE LESS THAN 11%. THE CHANGE OF GRADE SHALL BE DEFINED AS THE ALGEBRAIC DIFFERENCE OF THE ADJACENT SURFACE SLOPES. IN THE CASE OF A STREET ACCESS RAMP DESIGNED AT THE 8.33% MAXIMUM SLOPE, THE ADJACENT PAVEMENT CROSS SLOPE SHALL BE LESS THAN 2.67% (1: E. 8.33-1-2.67)=11). IN ADDITION, THE ADJACENT PAVEMENT CROSS SLOPE SHALL BE LESS THAN OR EQUAL TO 5%.
16. IF THE CHANGE OF GRADE BETWEEN ADJACENT SURFACES IS GREATER THAN OR EQUAL TO 11%, A LEVELING STRIP, 2 FEET IN LENGTH, SHALL BE PROVIDED TO TRANSITION THE ADJACENT SURFACES.
17. ADA COMPLIANCE IN ALTERATIONS INCLUDE ONLY THAT WORK WITHIN THE LIMITS, BOUNDARIES OR SCOPE OF A PLANNED PROJECT.

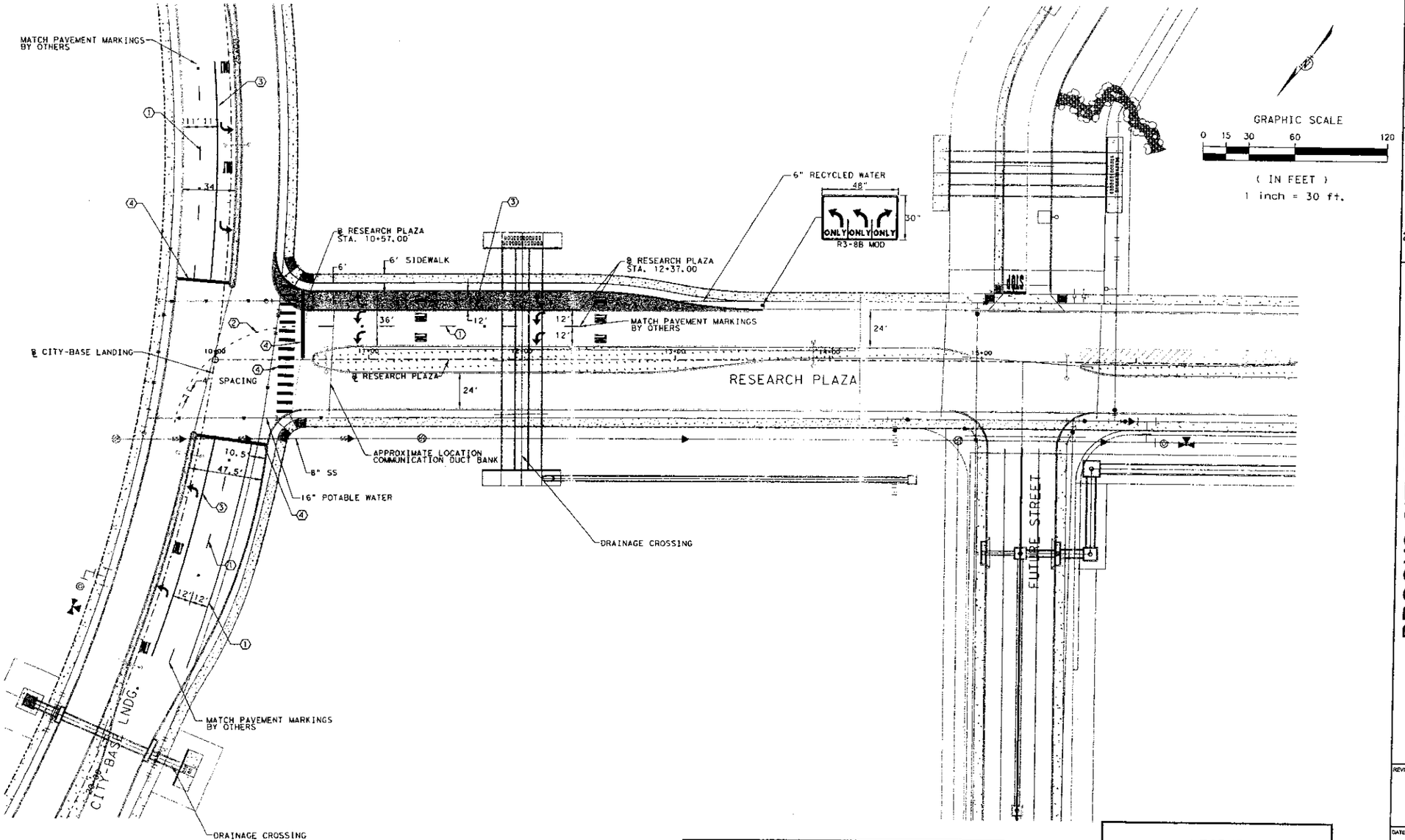
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REVISIONS:

DATE: 10/14/2008
DRAWN BY: J.E.
SHEET TITLE: CIVIL DETAILS
SHEET NUMBER: CDET01



KEY NOTES

① 4 INCH WIDE WHITE LINE W/TYPE II C-R
② 4 INCH WIDE X 2 FEET LONG WHITE LINE
③ 8 INCH WIDE WHITE LINE
④ 24 INCH WIDE WHITE LINE

LEGEND

PROPOSED CONCRETE
EXISTING SANITARY SEWER
EXISTING FIRE HYDRANT
PROPOSED PAVEMENT

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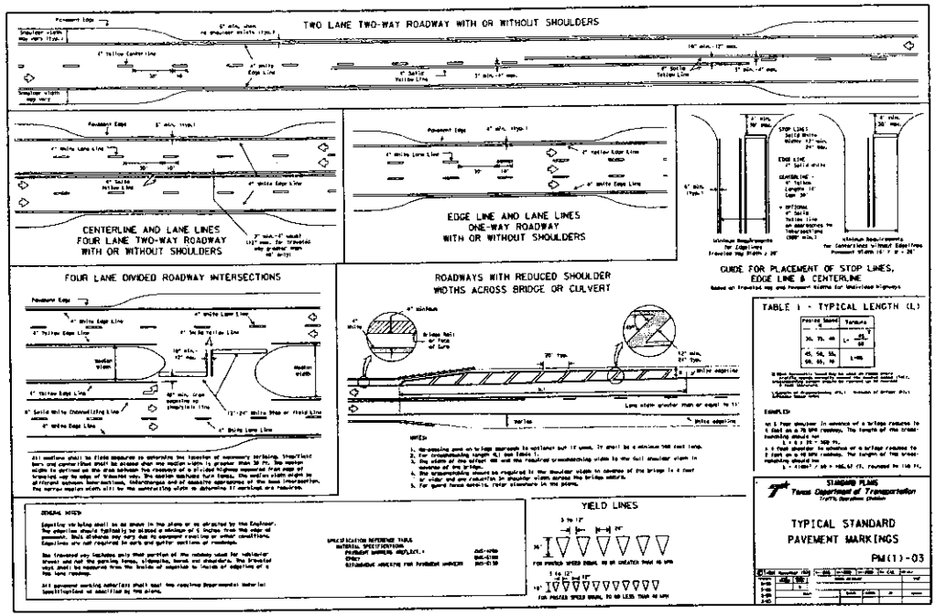
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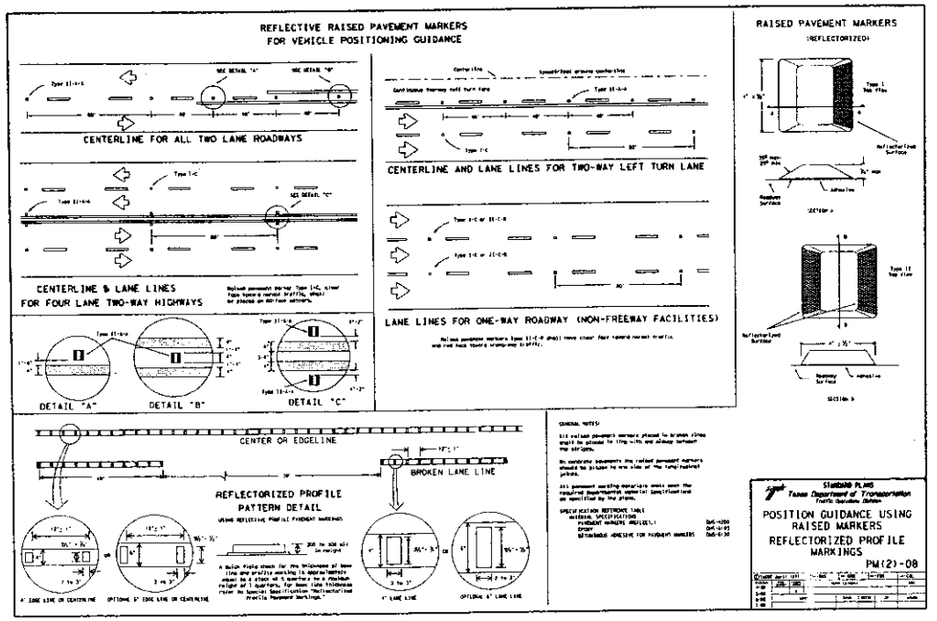
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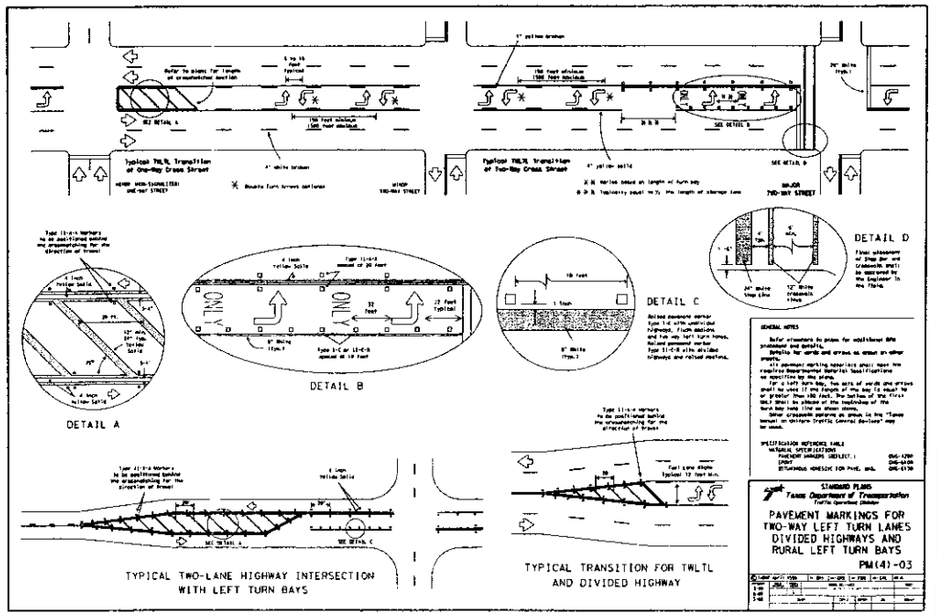
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SHEET NUMBER: CPM01

VOL 7776 PG 209

VOL 7769 PG 2210







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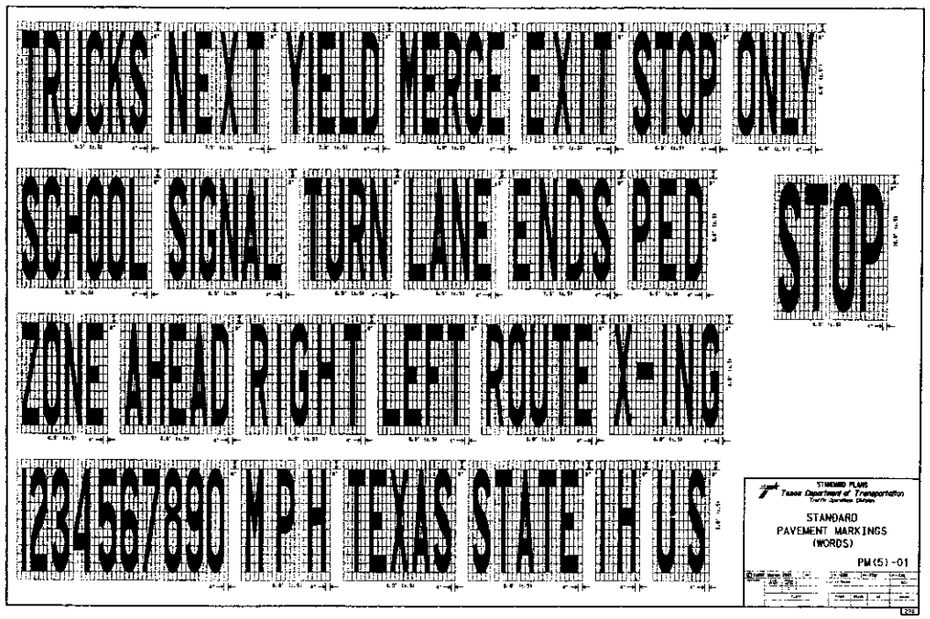
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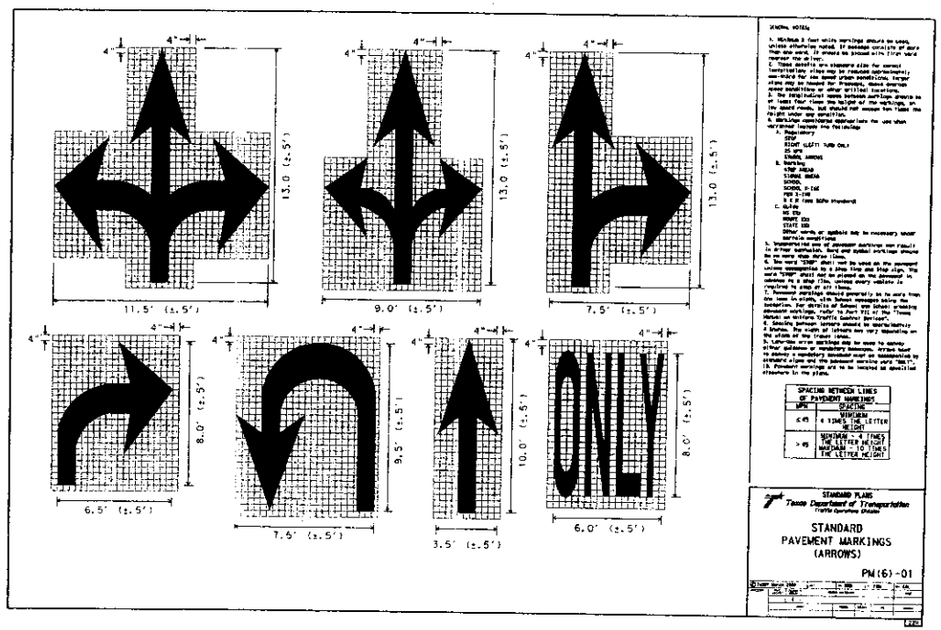
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SHEET NUMBER:
CPMDET01

VOL 7775 PG 211





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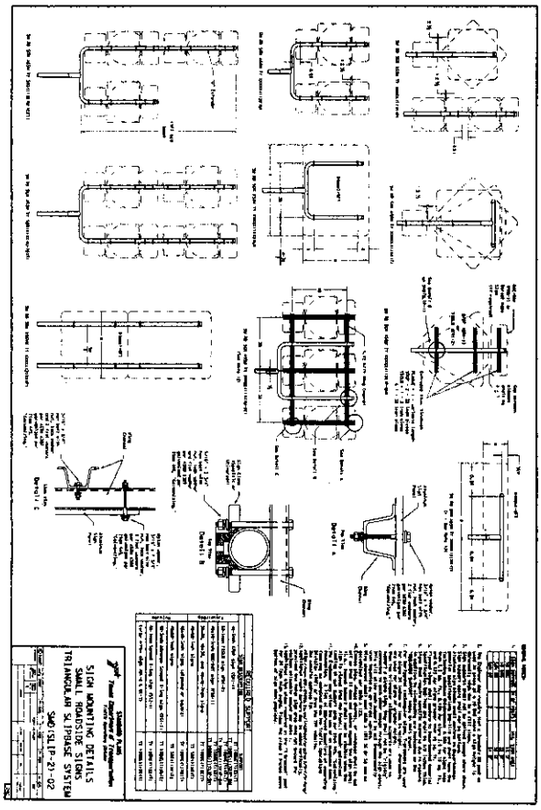
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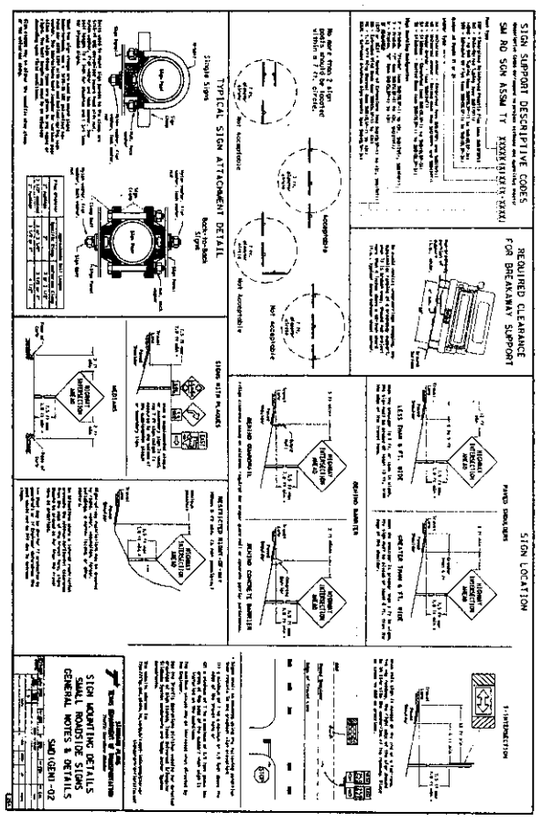
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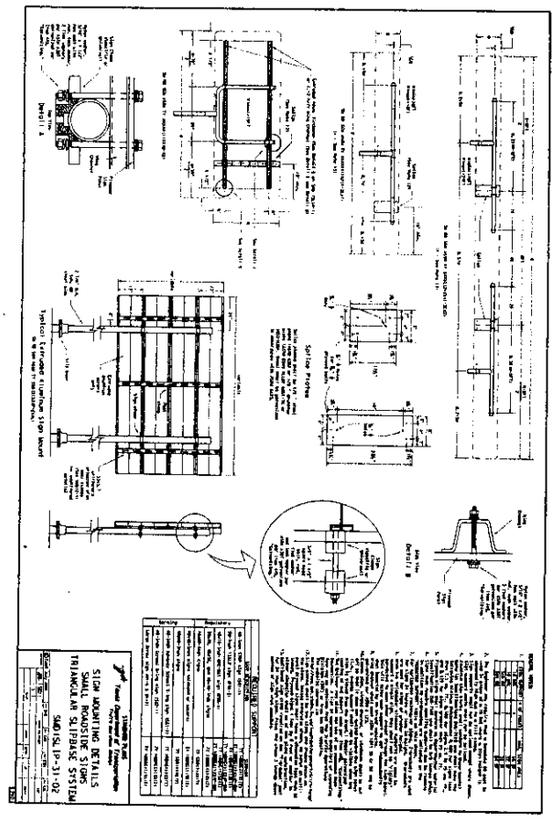
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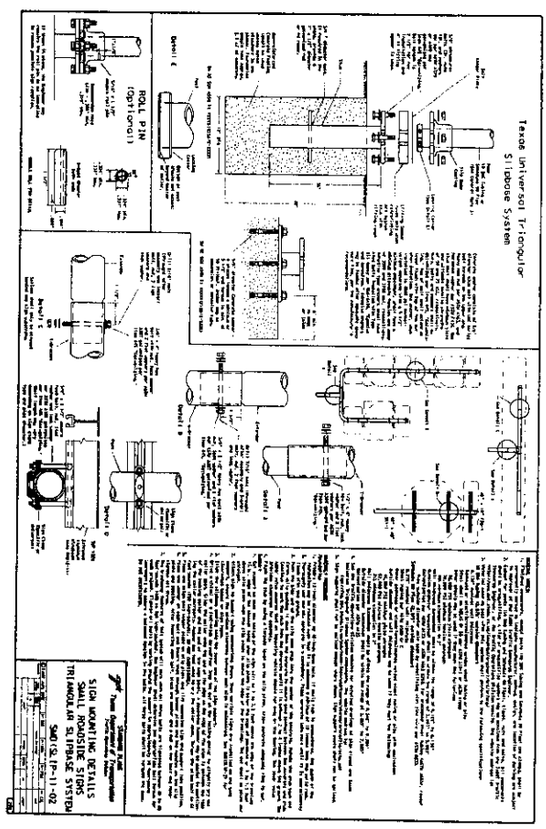
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PAVEMENT MARKING DETAILS

SHEET NUMBER:
CPMDET02









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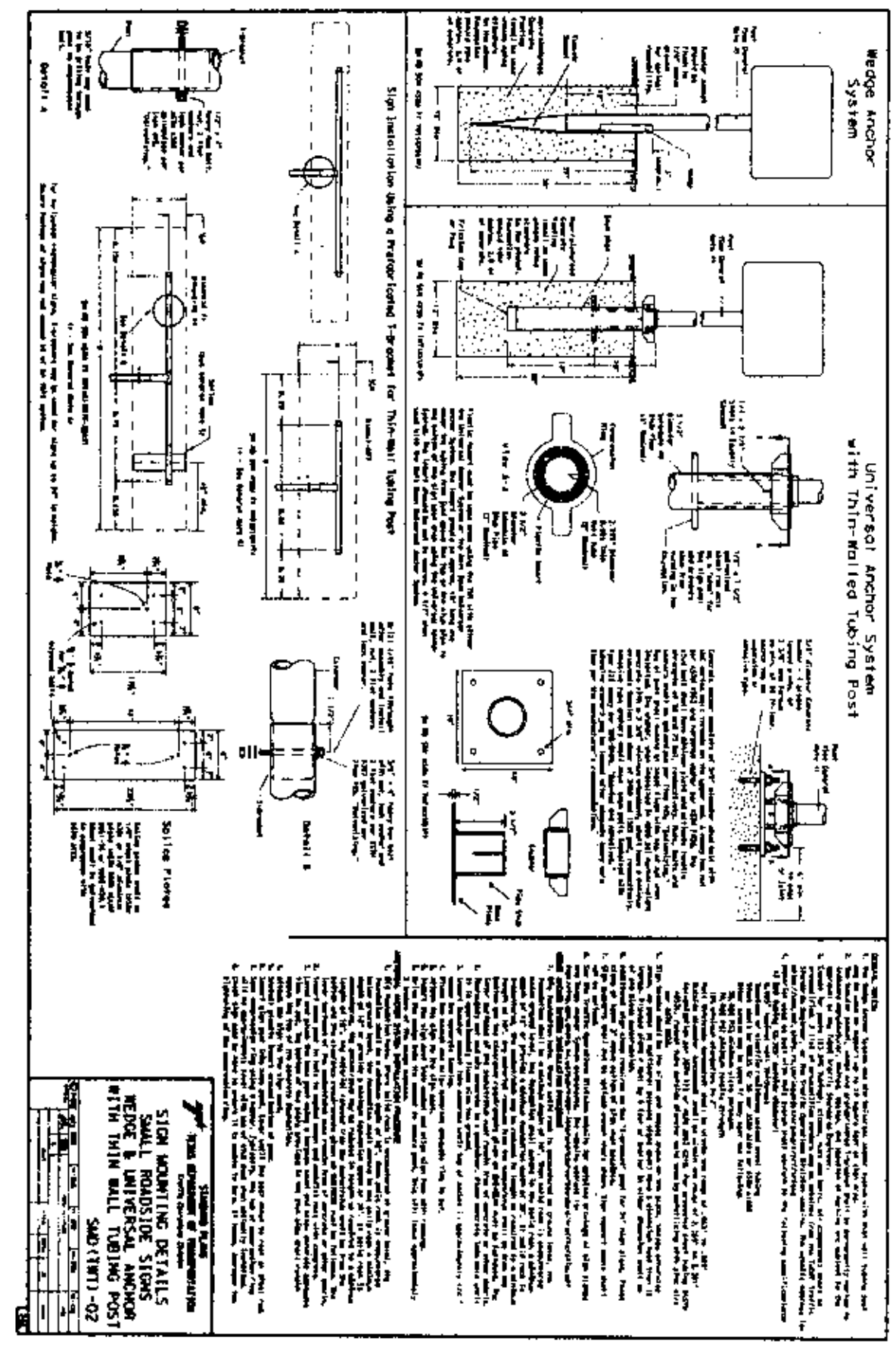
Gallop P.E. 6/14/08

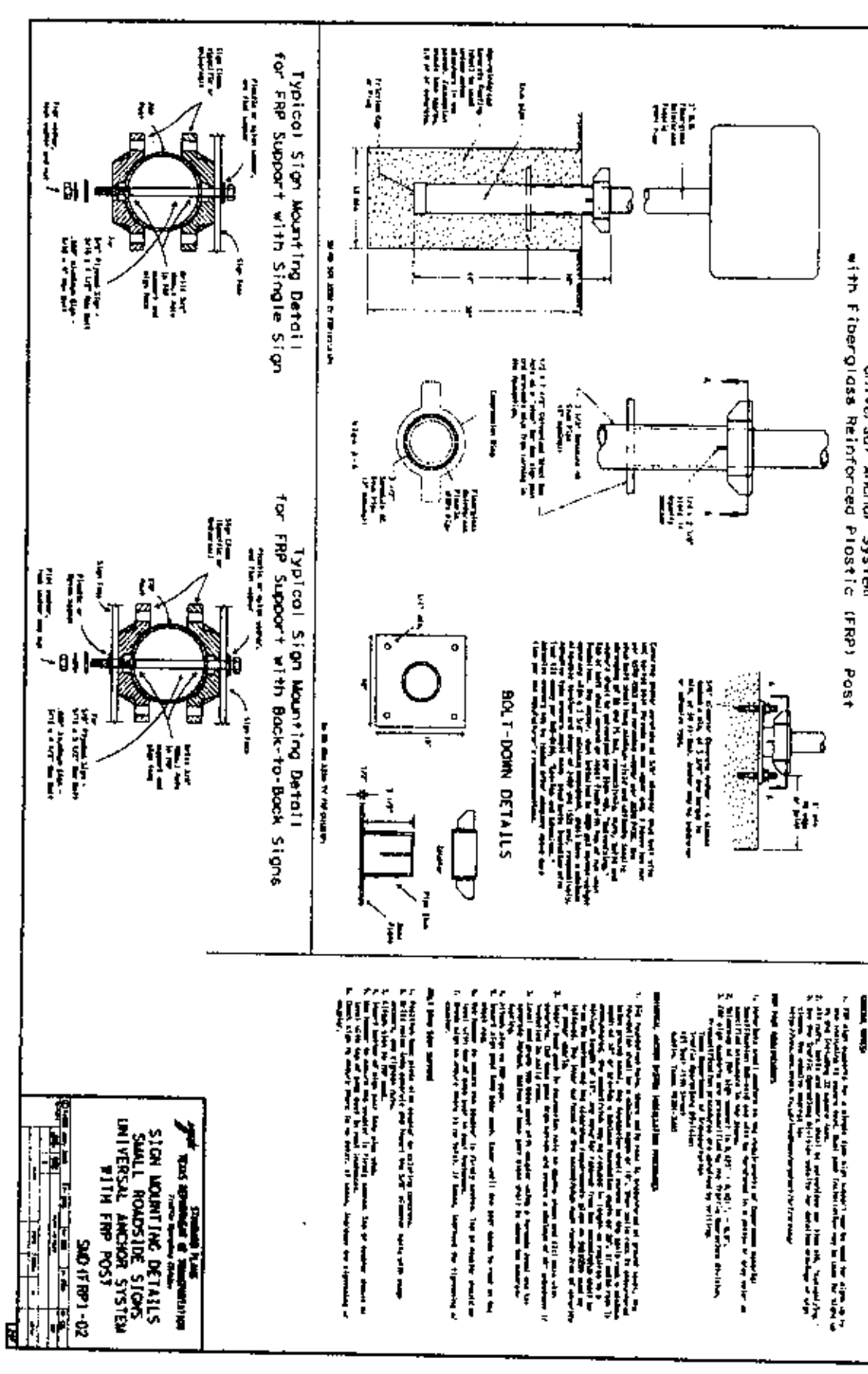
BROOKS CITY-BASE

BROOKS DEVELOPMENT AUTHORITY

RESEARCH PLAZA/CITY BASE LANDING

REVISIONS:	
DATE:	10/10/2008
DRAWN BY:	J.A.
SHEET TITLE:	SIGN MOUNTING DETAILS 01
SHEET NUMBER:	CSMDET01





SHEET NUMBER: CSMDET02

SHEET TITLE: SIGN MOUNTING DETAILS 02

DRAWN BY: J.S.

DATE: 10/16/2008

REVISIONS:

BROOKS CITY-BASE

BROOKS DEVELOPMENT AUTHORITY

RESEARCH PLAZA/CITY BASE LANDING

GDA

GONZALEZ-DE LA GARZA & ASSOCIATES
115 E. TRAVIS ST., SUITE 1706
SAN ANTONIO, TX 78205
P: (210) 208-9400
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VOL 7771 PG 114

EQUIPMENT SCHEDULE

ID	CONSTRUCTION NOTES	LOCATION	
(A)	INSTALL SERVICE PEDESTAL AND METER.	22+27.56	60.23 LT
		13471364.23 N	1998425.09 E
(B)	INSTALL TYPE 332 CABINET & 2070 CONTROLLER ASSEMBLY ON CITY TYPE CONCRETE FOUNDATION.	22+34.40	60.29 LT
		13471369.82 N	1998421.71 E
(C)	INSTALL 24' HIGH POLE W/46' MAST ARM, 13.2' DEEP 36-A FOUNDATION, TWO VIVIDS CAMERA ASSEMBLIES, ONE ILSN ON 9' MAST ARM.	22+35.42	50.55 LT
		13471375.66 N	1998429.44 E
(D)	INSTALL 7' HIGH PEDESTAL POLE, 5.7' DEEP 24-A FOUNDATION, ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE PEDESTRIAN PUSH BUTTON WITH R10-4b(R) SIGN ASSEMBLY.	22+55.53	59.18 RT
		13471451.04 N	1998511.70 E
(E)	INSTALL 24' HIGH POLE W/40' MAST ARM, 13.2' DEEP 36-A FOUNDATION, TWO LED COUNTDOWN PEDESTRIAN HEADS, TWO PEDESTRIAN PUSH BUTTON WITH R10-4b(L&R) SIGN ASSEMBLIES, TWO VIVDS CAMERA ASSEMBLIES, ONE ILSN SIGN ON 9' MAST ARM.	23+60.60	49.88 RT
		13471535.61 N	1998439.51 E
(F)	INSTALL 24' HIGH POLE W/36' MAST ARM, 13.2' DEEP 36-A FOUNDATION, TWO VIVIDS CAMERA ASSEMBLIES, ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE PEDESTRIAN PUSH BUTTON WITH R10-4b(L) SIGN ASSEMBLY, ONE ILSN ON 9' MAST ARM.	23+41.65	48.41 LT
		13471459.95 N	1998373.97 E

CONDUIT AND CONDUCTOR SCHEDULE

AWG	CIRCUIT	WIRE BY CPS	CONDUIT/SPAN RUN NUMBER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	TOTAL LENGTH
			CONDUIT/SPAN LENGTH (FEET)	4	4	81	02	00	05	11	5	2	11	20	12	13	12	11	25	10	11	11	
			CONDUIT SIZE IN INCHES	2-2	2	3	3	3	3	3	3	3	3	3	AERIAL	AERIAL	AERIAL	AERIAL	AERIAL	AERIAL	AERIAL	AERIAL	
			RUN TYPE		T	T	B	B	B	B	T	T	T	T									
# 14 7 - COND IMSA CABLE	SIGNALS		Ø1 Ø6		1						1		1								1	1	52
			Ø2		1	1					1		1		1	1							230
			Ø4		1						1						1	1	1				126
# 14 9 - COND IMSA CABLE	PED. SIGNAL & BUTTON	CPS	Ⓖ		1			1				1											115
			Ⓖ		1	1					1												198
			Ⓖ		1	1						1											111
# 6 THHN/ THWN	120 POWER HOT			1	1																		8
	120 POWER COMMON			1	1																		8
BARE	BARE BOND #8			1	1	1	1	1	1	1	1	1	1										425
	BARE BOND #6			1																			4
TWO-IN-ONE VIVDS COAX& 3 CONDUCTOR #18 POWER CABLE	VIVDS CAMERAS		Ø1,Ø6		2						2									2	1	1	83
			Ø2		2	2	2			2				2	1								446
			Ø4		2		2				2					2	1	1					271
ILSN 4-CONDUCTOR #14			S1-POLE C		1						1		1										6
			S2-POLE E		1	1	1				1												198
			S3-POLE F		1		1					1											90
3M OPTICOM M138 DETECTOR CABLE			POLE C		1						1		1										6
			POLE E		1	1	1				1												198
			POLE F		1		1					1											90

B=BORED
T=TRENCHED

ITEMS PROVIDED BY CITY OF SAN ANTONIO

ESTIMATED QUANTITIES - SHEET TOTAL

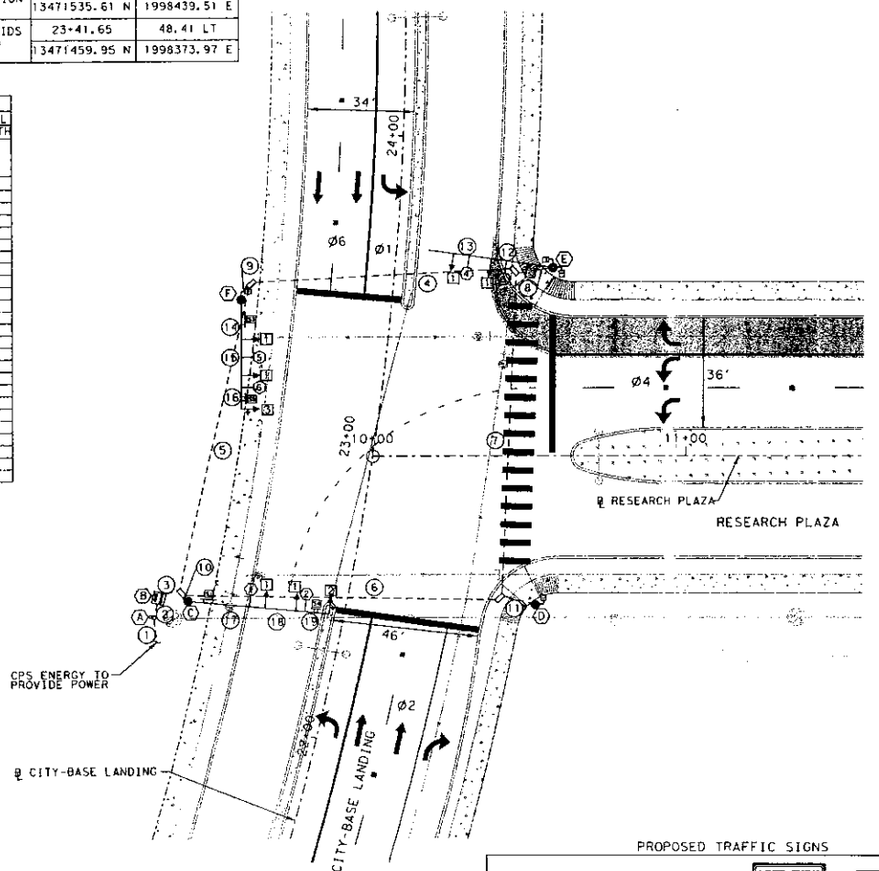
EST	UNIT	DESCRIPTION
1	EA	TRAF SIG CNTRL AND CABINET (CITY TYPE)

ITEMS PROVIDED BY CONTRACTOR

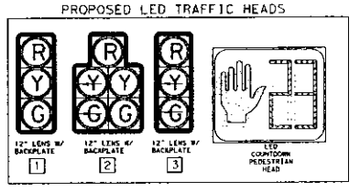
ESTIMATED QUANTITIES - SHEET TOTAL

EST	UNIT	DESCRIPTION
4	LF	CONDUIT (PVC) (SCHD 40) (2 IN)
421	LF	CONDUIT (PVC) (SCHD 40) (3 IN)
16	LF	ELEC CONDUCTOR (NO. 6) INSULATED
425	LF	ELEC CONDUCTOR (NO. 8) BARE
4	LF	ELECT CONDUCTOR (NO.6) BARE
4	EA	GROUND BOX TY D (162922)
1	EA	ELEC SERV TY T (120/240) 000 (NS) GS(N) SP(U)
1	EA	TRAF SIG CNTRL FND (CITY TYPE)
40	LF	FND FOR TRAF SIG (TY A) (36 IN DRIL SHFT)
6	LF	FND FOR TRAF SIG (TY A) (24 IN DRIL SHFT)
1	EA	INSTAL OF HWY TRAF SIG (SYSTEM)
26	EA	VEH SIG SEC (12 IN)
4	EA	LED COUNTDOWN PEDESTRIAN HEADS
7	EA	BACK PLATE (3 SEC) (12 IN)
1	EA	BACK PLATE (5 SEC) (12 IN)
431	LF	TRAF SIG CBL (TY A) (7 CONDR) (14 AWG)*
447	LF	TRAF SIG CBL (TY A) (9 CONDR) (14 AWG)*
4	EA	PED. PUSH BUTTONS WITH R10-4b SIGN ASSEMBLIES
1	EA	TRAF SIG POLE ASM (STL) 1 ARM (36 FT)
1	EA	TRAF SIG POLE ASM (STL) 1 ARM (40 FT)
1	EA	TRAF SIG POLE ASM (STL) 1 ARM (46 FT)
2	EA	VIVDS PROCESSOR UNIT
7	EA	VIVDS CAMERA ASSEMBLY
825	LF	VIVDS COMMUNICATION CABLE (COAXIAL)*
1	EA	VIVDS SET-UP SYSTEM
317	LF	ILSN 4-CONDUCTOR #14 *
317	LF	3M OPTICOM M138 DETECTOR CABLE*

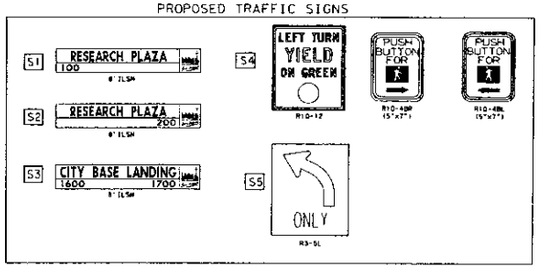
* QUANTITY INDICATES AN ADDITIONAL 23' FOR VERTICAL DISTANCE ON POLE.



PROPOSED LED TRAFFIC HEADS



PROPOSED TRAFFIC SIGNS

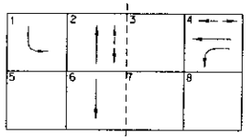


GRAPHIC SCALE

0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

PHASE DIAGRAM



LEGEND

- TRAFFIC DIRECTION
- TYPE D GROUNDBOX
- SIGNAL POLE WITH MA
- VIVDS CAMERA
- CONTROLLER & CABINET
- ELECTRICAL SERVICE CABINET
- SIGNAL CONDUIT
- SIGNAL HEAD
- SIGNAL W/TURN ARROW
- PEDESTRIAN HEAD
- POLE IDENTIFIER (A)
- CONDUIT IDENTIFIER (1)
- SIGNAL HEAD IDENTIFIER [1]
- VIDEO CAMERA IDENTIFIER (2)
- SIGN
- IL STREET NAME SIGN
- EXISTING LIGHTS

GDA
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JOSE L. GONZALEZ 96594 LICENSED PROFESSIONAL ENGINEER
10/14/08

BROOKS CITY-BASE

BROOKS DEVELOPMENT AUTHORITY

RESEARCH PLAZA/CITY BASE LANDING

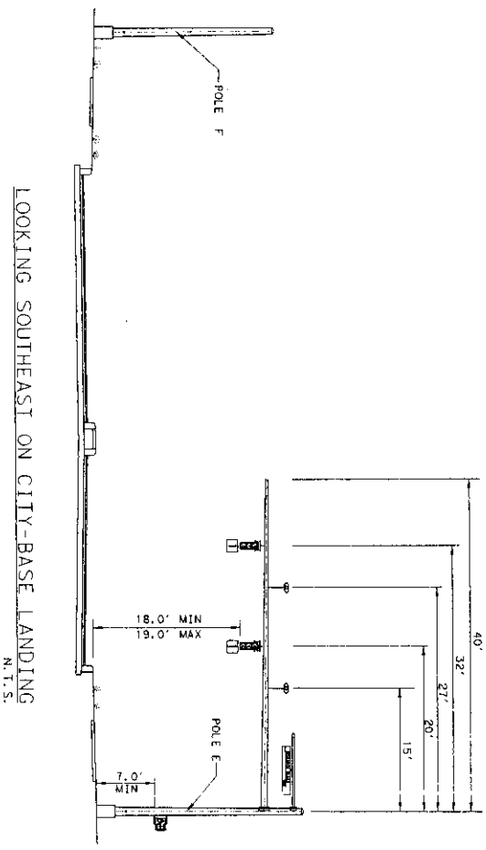
REVISIONS:

DATE: 10/16/2008

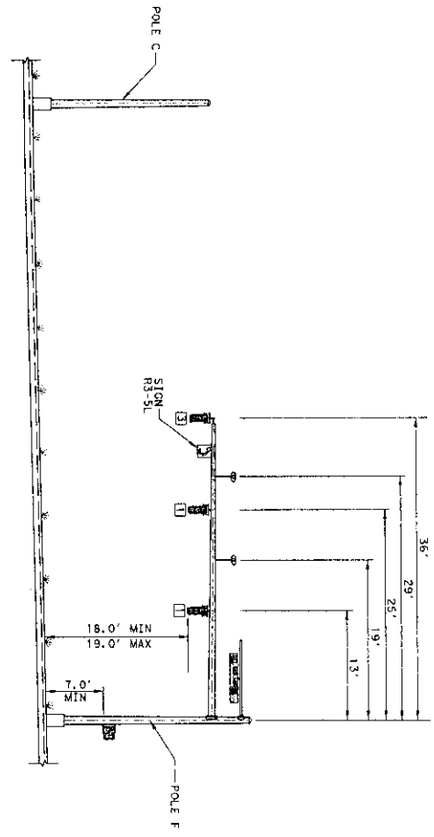
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SHEET TITLE: TRAFFIC SIGNAL LAYOUT PLAN

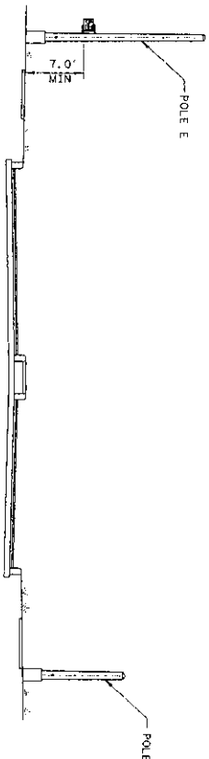
SHEET NUMBER: CTS01



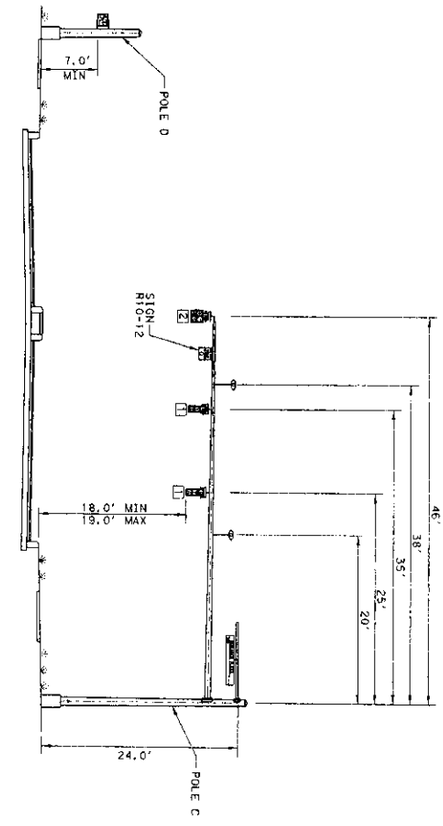
LOOKING SOUTHEAST ON CITY-BASE LANDING
N.T.S.



LOOKING NORTHEAST ON RESEARCH PLAZA
N.T.S.



LOOKING SOUTHWEST ON RESEARCH PLAZA
N.T.S.



LOOKING NORTHWEST ON CITY-BASE LANDING
N.T.S.

BROOKS CITY-BASE

BROOKS DEVELOPMENT AUTHORITY

RESEARCH PLAZA/CITY BASE LANDING

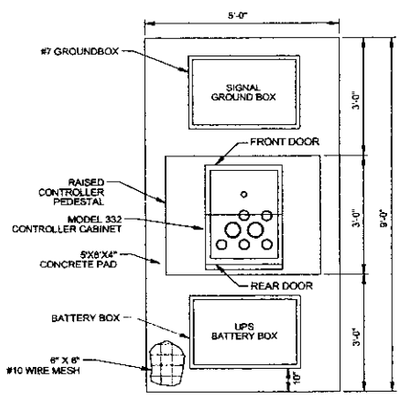
GDA

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115 E. TRAVIS ST., SUITE 1706
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F: (210) 228-1401

10/10/08

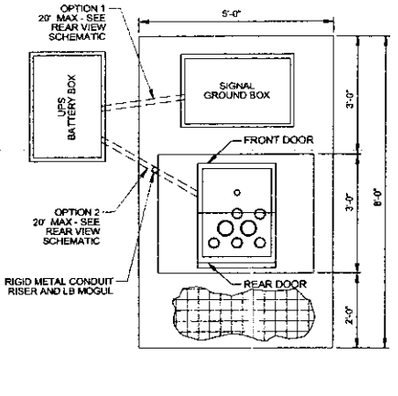
REVISIONS:	
DATE: 10/10/2008	
DRAWN BY: JG	
SHEET TITLE:	TRAFFIC SIGNAL ELEVATIONS
SHEET NUMBER:	CTS02

VOL 7775 PG 2216



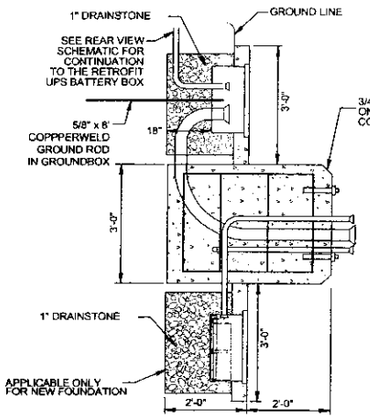
TOP VIEW

(REQUIRED FOR NEW FOUNDATION)

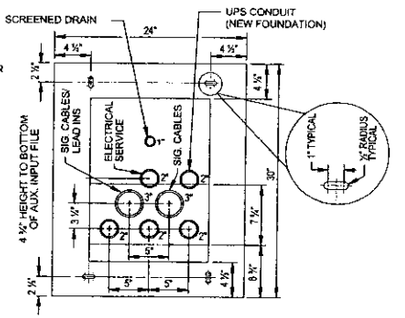


TOP VIEW

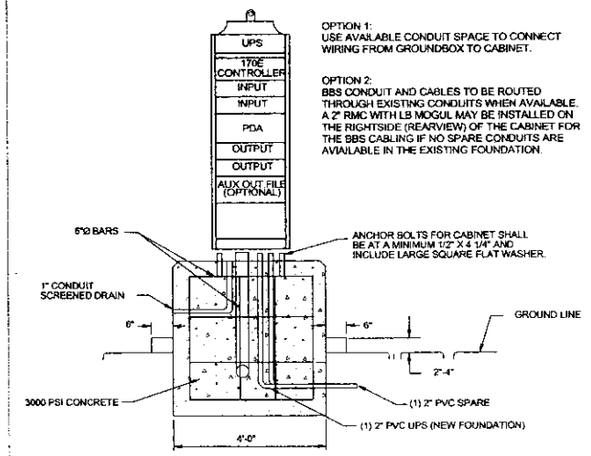
(RETROFITTED FOUNDATION)



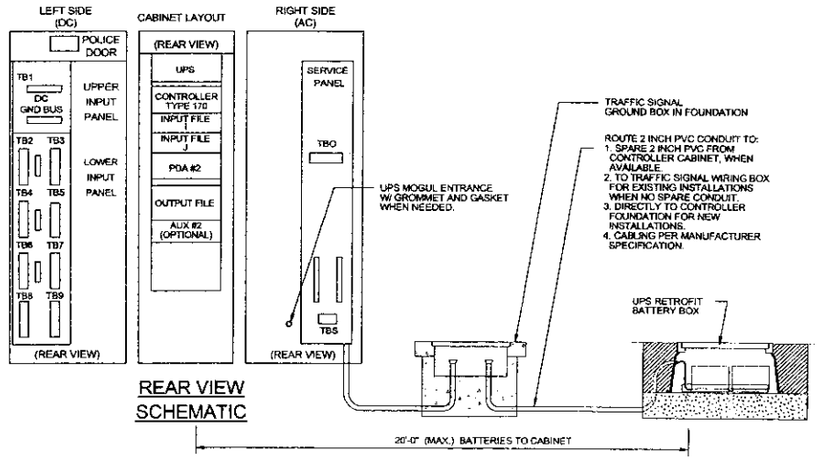
SIDE VIEW



332 BASE PLATE TEMPLATE



REAR VIEW



REAR VIEW SCHEMATIC

NOTES:

1. CONTRACTOR TO INSTALL GROUNDBOX, CONDUIT, CONTROLLER FOUNDATION, CONCRETE SLAB AND CONDUIT FROM GROUNDBOX TO CABINET. SEE BATTERY BACKUP SYSTEM SPECIFICATION FOR ADDITIONAL WIRING DETAILS.
2. FOR NEW FOUNDATIONS A DEDICATED BBS CONDUIT FROM THE FOUNDATION TO THE BATTERY BOX SHALL BE PROVIDED BY THE CONTRACTOR.

CITY OF SAN ANTONIO
TRAFFIC MANAGEMENT DIVISION
DEPARTMENT OF PUBLIC WORKS

TRAFFIC SIGNAL STANDARDS

BATTERY BACKUP SYSTEM LAYOUT

TM-BBS-08

DRWN: MAB	APVD:	DATE: 5-27-08		SHT. NO.
RVSD:	APVD:	DATE:		1 OF 1
RVSD:	APVD:	DATE:	NOT TO SCALE	

GDA

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ANDA S. GONZALEZ 96594 REGISTERED PROFESSIONAL ENGINEER STATE OF TEXAS

10/6/08

BROOKS CITY-BASE
BROOKS DEVELOPMENT AUTHORITY
RESEARCH PLAZA/CITY BASE LANDING

REVISIONS:

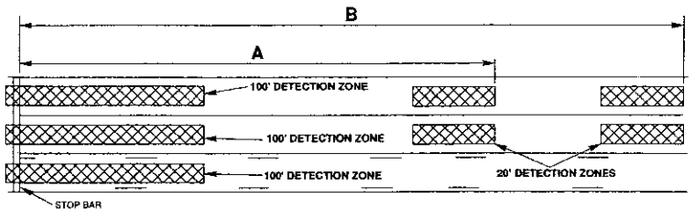
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DRAWN BY:

SHEET TITLE:
TRAFFIC SIGNAL DETAILS 01

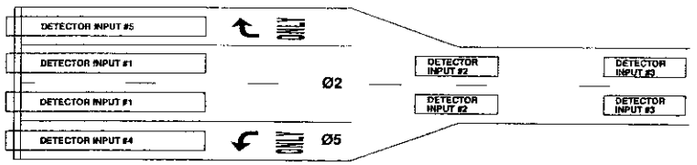
SHEET NUMBER:
CTSDET01

VOL 7775PG217



SETBACK DETECTION ZONE SPACING

POSTED SPEED	A	B
35 MPH	165'	270'
40 MPH	190'	310'
45 MPH	210'	350'
50 MPH	235'	390'
55 MPH	255'	430'



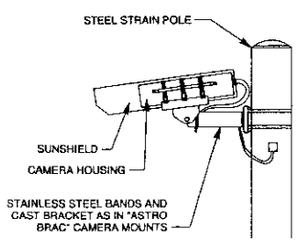
DETECTOR INPUT #	PHASE
1	Ø2 STOP BAR
2	Ø2 SETBACK - MID
3	Ø2 SETBACK - REAR
4	Ø5 STOP BAR
5 **	Ø2 RT LANE

** SEE NOTE 5

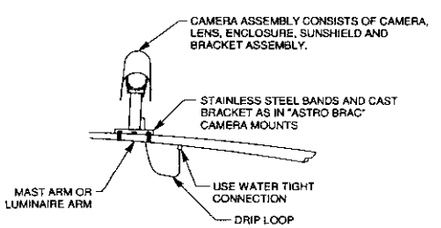
DETECTION PLACEMENT NOTES

1. ALL DETECTOR PLACEMENTS ARE BASED ON THE POSTED SPEED LIMIT
2. SPEEDS EQUAL OR GREATER THAN 35 MPH WILL REQUIRE THE USE OF TWO VIVDS CAMERAS. UTILIZATION OF CAMERA ONE FOR STOP BAR DETECTION AND CAMERA TWO FOR SET BACK DETECTION ZONES.
3. STOP BAR DETETGION ZONES SHALL BE PROVIDED FOR EACH LANE OF EACH APPROACH.
4. STOP BAR DETECTION AND SET BACK DETECTION SHOULD DRIVE A SEPARATE DETECTOR INPUT INTO THE CONTROLLER. IN ADDITION, DETECTORS IN EXCLUSIVE TURN LANES SHOULD DRIVE A SEPARATE DETECTOR INPUT INTO THE CONTROLLER. SEE TYPICAL LAYOUT.
5. WHEN AN EXCLUSIVE RIGHT TURN LANE IS PRESENT, AN EXTENSION MODULE MUST BE USED TO PROVIDE INPUT #5. IN LIEU OF AN EXTENSION MODULE, A SECOND PROCESSOR CARD CAN BE USED FOR THE STOP BAR CAMERA

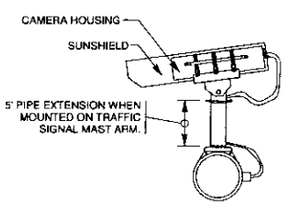
VIDEO DETECTION PLACEMENT DETAILS



POLE MOUNT



FRONT VIEW



SIDE VIEW

MAST ARM OR LUMINAIRE ARM

VIDEO DETECTION NOTES

1. VIDEO DETECTION PROCESSOR UNIT SHALL BE INSTALLED INSIDE CONTROLLER CABINET.
2. VIDEO DETECTION CAMERA & BRACKET SHALL BE INSTALLED AS DETAILED OR AS DIRECTED BY THE ENGINEER.
3. CAMERAS SHALL BE MOUNTED AS FAR OVER THE ROADWAY AS POSSIBLE.
4. STAINLESS STEEL BANDS AND CAST BRACKETS AS IN "ASTRO-BRAC" SHALL BE USED TO INSTALL THE CAMERAS.
5. WHEN AIMING CAMERA, HORIZON SHALL NOT BE VISIBLE IN THE FIELD OF VIEW.
6. CAMERA ENCLOSURE ASSEMBLY SHALL BE ROTATABLE AFTER INSTALLATION TO PROVIDE PROPER ALIGNMENT.
7. ALL CABLE ENTRY AND EXIT POINTS IN THE MAST ARM AND / OR POLES SHALL BE WATER TIGHT.

TYPICAL VIVDS DETAILS

CITY OF SAN ANTONIO
TRAFFIC MANAGEMENT DIVISION
DEPARTMENT OF PUBLIC WORKS

TRAFFIC SIGNAL STANDARDS

VEHICLE DETECTOR INSTALLATION DETAILS

TM-VIVDS-08

DRWN: MAB	APVD:	DATE: 5-27-08		SHT. NO.
RVSD:	APVD:	DATE		1 OF 1
RVSD:	APVD:	DATE:	NOT TO SCALE	

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AVA K. GONZALEZ 96594 — 10/6/08

BROOKS CITY-BASE
BROOKS DEVELOPMENT AUTHORITY
RESEARCH PLAZA/CITY BASE LANDING

REVISIONS:

DATE: 10/15/2008

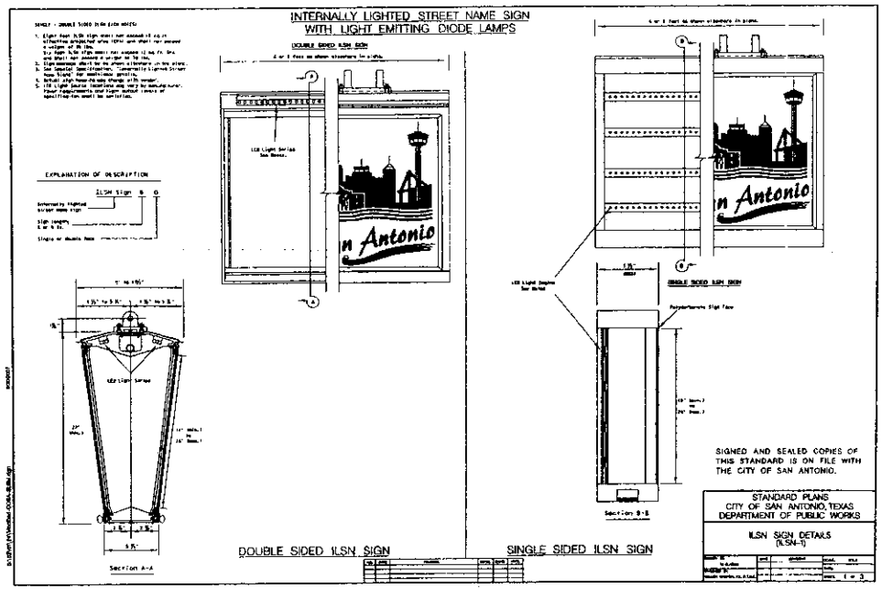
DRAWN BY:

SHEET TITLE:
TRAFFIC SIGNAL DETAILS 02

SHEET NUMBER:
CTSDET02

VOL 7776218

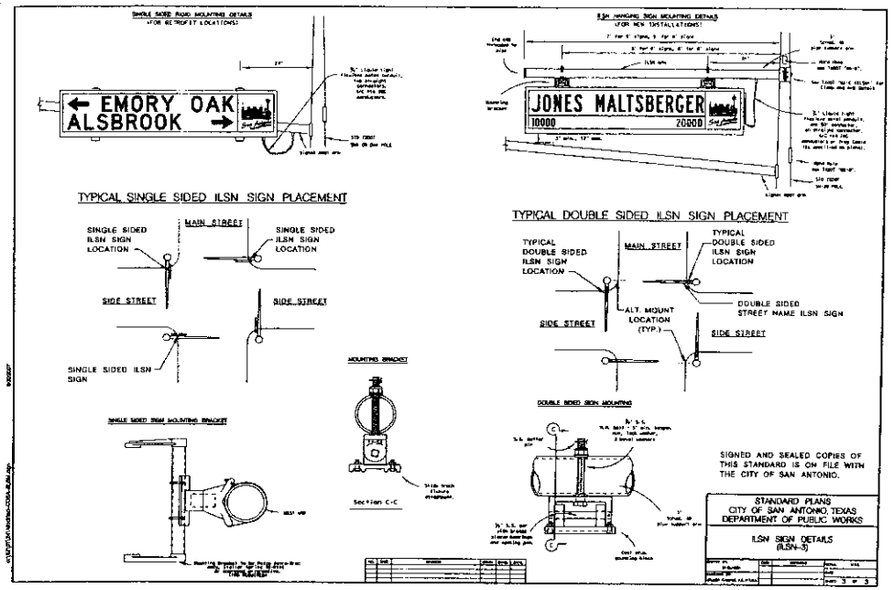
INTERNALLY LIGHTED STREET NAME SIGN WITH LIGHT EMITTING DIODE LAMPS



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STANDARD PLANS
CITY OF SAN ANTONIO, TEXAS
DEPARTMENT OF PUBLIC WORKS

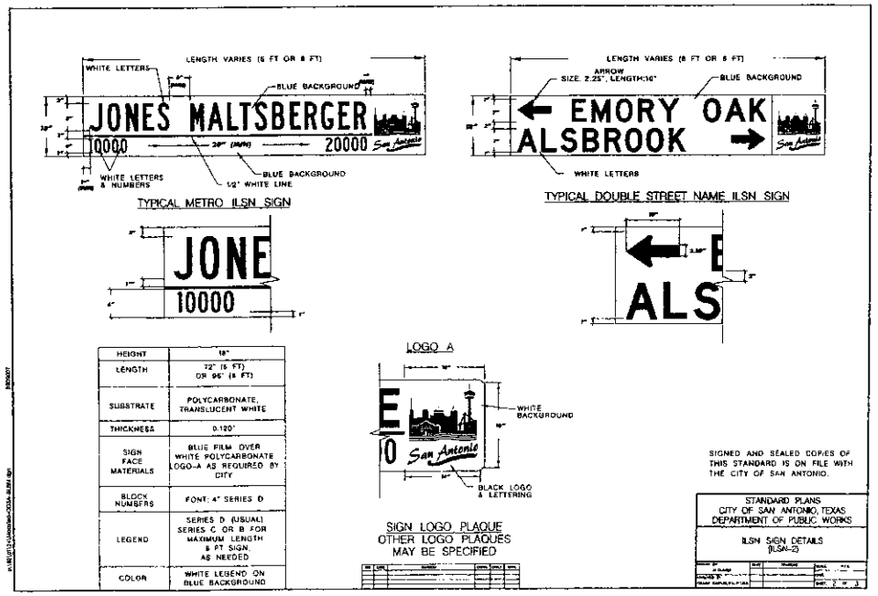
ILSN SIGN DETAILS
(ILSN-1)



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STANDARD PLANS
CITY OF SAN ANTONIO, TEXAS
DEPARTMENT OF PUBLIC WORKS

ILSN SIGN DETAILS
(ILSN-5)



HEIGHT	18"
LENGTH	72" (6 FT) OR 96" (8 FT)
SUBSTRATE	POLYCARBONATE, TRANSLUCENT WHITE
THICKNESS	0.120"
SIGN FACE MATERIALS	BLUE FILM OVER WHITE POLYCARBONATE LOGO-A AS REQUIRED BY CITY
BLOCK NUMBERS	FONT: 4" SERIES D
LEGEND	SERIES D (USUAL) SERIES C OR B FOR MAXIMUM LENGTH 8 FT SIGN, AS NEEDED
COLOR	WHITE LEGEND ON BLUE BACKGROUND

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STANDARD PLANS
CITY OF SAN ANTONIO, TEXAS
DEPARTMENT OF PUBLIC WORKS

ILSN SIGN DETAILS
(ILSN-2)

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ATIA S. GONZALEZ
96598
REGISTERED
LANDSCAPE ARCHITECT
STATE OF TEXAS
10/16/08

BROOKS CITY-BASE

BROOKS DEVELOPMENT AUTHORITY

RESEARCH PLAZA/CITY BASE LANDING

REVISIONS:

DATE: 10/15/2008

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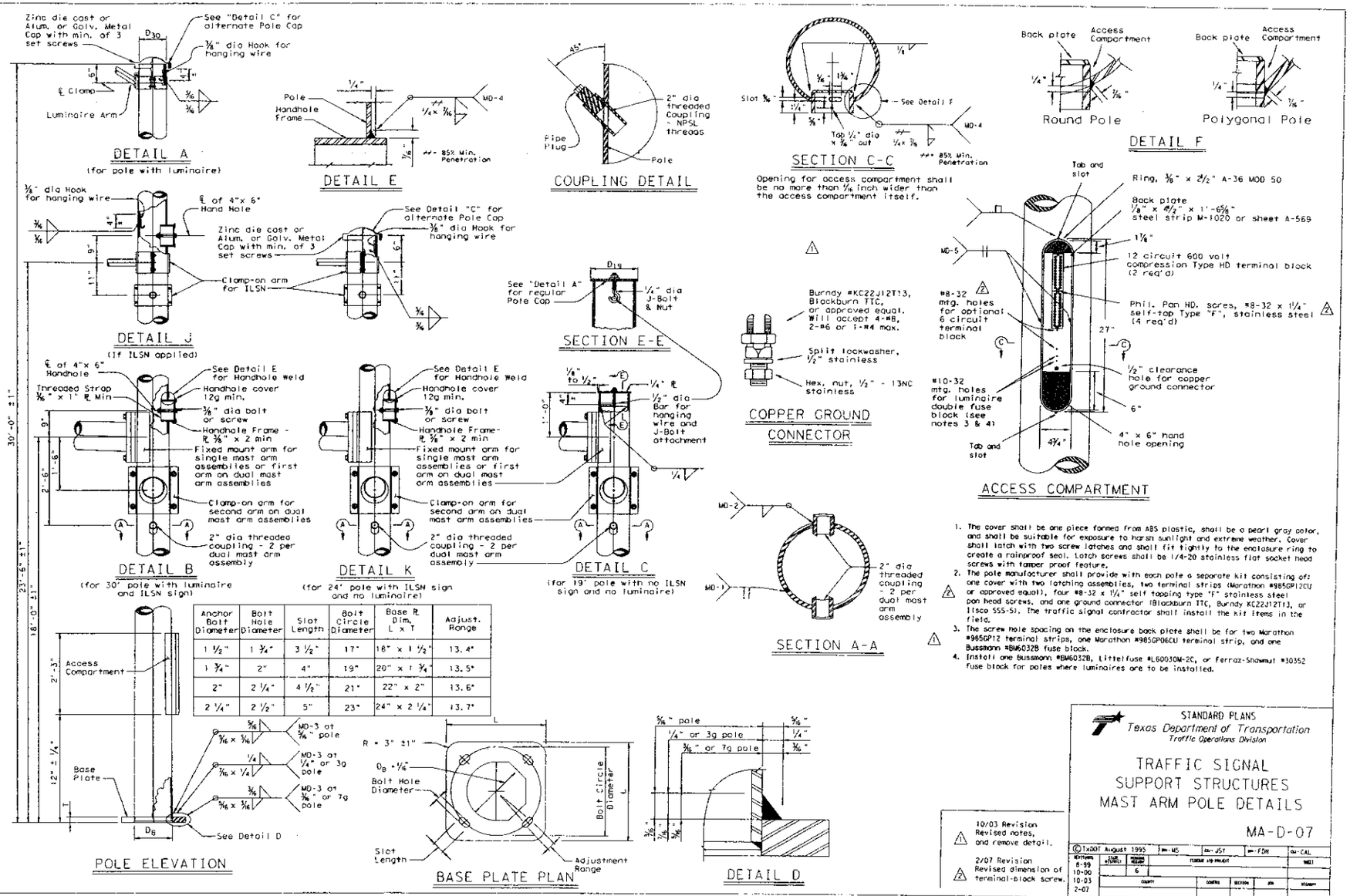
SHEET TITLE:

TRAFFIC SIGNAL DETAILS 03

SHEET NUMBER:

CTSDET03

VOL 7771 PG 19



Anchor Bolt Diameter	Bolt Hole Diameter	Slot Length	Bolt Circle Diameter	Base Pl. Dim. L x T	Adjust. Range
1 ½"	1 ¾"	3 ½"	17"	18" x 1 ½"	13.4"
1 ¾"	2"	4"	19"	20" x 1 ¾"	13.5"
2"	2 ¼"	4 ½"	21"	22" x 2"	13.6"
2 ¼"	2 ½"	5"	23"	24" x 2 ¼"	13.7"

Opening for access compartment shall be no more than ¼ inch wider than the access compartment itself.

1. The cover shall be one piece formed from ABS plastic, shall be a pearl gray color, and shall be suitable for exposure to harsh sunlight and extreme weather. Cover shall latch with two screw latches and shall fit tightly to the enclosure ring to create a rainproof seal. Latch screws shall be 1/4-20 stainless flat socket head screws with tamper proof feature.
2. The pole manufacturer shall provide with each pole a separate kit consisting of: one cover with two latching assemblies, two terminal strips (Marathon #985GP12CU or approved equal), four #8-32 x 1¼" self tapping type "F" stainless steel pan head screws, and one ground connector (Blackburn TTC, Burndy KC22J12TTJ, or Ilsco SSS-5). The traffic signal contractor shall install the kit items in the field.
3. The screw hole spacing on the enclosure back plate shall be for two Marathon #965GP12 terminal strips, one Marathon #985GP06CU terminal strip, and one Bussmann #BM6032B fuse block.
4. Install one Bussmann #BM6032B, Littelfuse #LEQ0030M-2C, or Ferraz-Shawmut #30352 fuse block for poles where luminaires are to be installed.

10/03 Revision
Revised notes, and remove detail.

2/07 Revision
Revised dimension of terminal-block screw.

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES MAST ARM POLE DETAILS

MA-D-07

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REVISIONS 8-99, 10-00, 10-03, 2-07	CONT 6 SHEETS	FEDERAL AID PROJECT		SHEET
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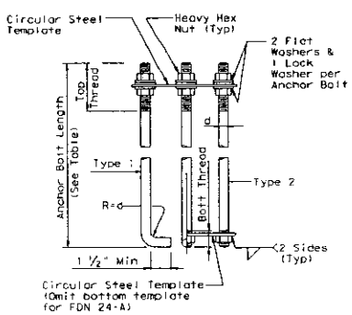
FOUNDATION DESIGN TABLE

FDN TYPE	DRILLED SHAFT DIA	REINFORCING STEEL: VERT BARS	REINFORCING STEEL: SPIRAL & PITCH	DRILLED SHAFT LENGTH-ft (4) (5) (6): TEXAS CONE PENETROMETER N blows/ft: 10	15	40	ANCHOR BOLT DESIGN (1): ANCHOR BOLT DIA	Fy (ksi)	BOLT CIR DIA	ANCHOR TYPE	FOUNDATION DESIGN LOAD (2): MOMENT K-ft	SHEAR Kips	TYPICAL APPLICATION
24-A	24"	4-#5	#2 at 12"	5.7	5.3	4.5	¾"	36	12 ¾"	1	10	1	Pedestal pole, pedestal mounted controller.
30-A	30"	8-#9	#3 at 6"	11.3	10.3	8.0	1 ½"	55	17"	2	87	3	Mast arm assembly. (see Selection Table)
36-A	36"	10-#9	#3 at 6"	13.2	12.0	9.4	1 ¾"	55	19"	2	131	5	Mast arm assembly. (see Selection Table) 30' strain pole with or without luminaire.
36-B	36"	12-#9	#3 at 6"	15.2	13.6	10.4	2"	55	21"	2	190	7	Mast arm assembly. (see Selection Table) Strain pole taller than 30' & strain pole with mast arm
42-A	42"	14-#9	#3 at 6"	17.4	15.6	11.9	2 ¼"	55	23"	2	271	9	Mast arm assembly. (see Selection Table)

FOUNDATION SELECTION TABLE FOR STANDARD MAST ARM PLUS ILSN SUPPORT ASSEMBLIES (ft)

		FDN 30-A	FDN 36-A	FDN 36-B	FDN 42-A
80 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH	32' ⚠	48'		
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS	24' X 24'			
		28' X 28'			
		32' X 28'	32' X 32'		
			36' X 36'		
			40' X 36'		
			44' X 28'	44' X 36'	
100 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH	⚠	36'	44'	
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS		24' X 24'		
			28' X 28'		
			32' X 24'	32' X 32'	
				36' X 36'	
				40' X24'	40' X 36'
					44' X 36'

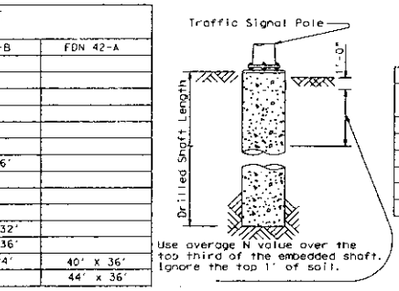
EXAMPLE:
1. For 80mph design wind speed, foundation 30-A can support up to a 32' arm with another arm up to 28'
2. For 100mph design wind speed, foundation 36-A can support a single 36' mast arm.

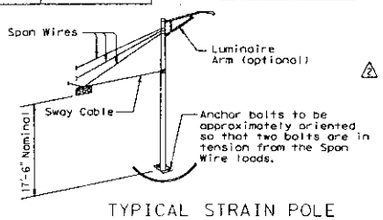


HOOKED ANCHOR (TYPE 1) NUT ANCHOR (TYPE 2)

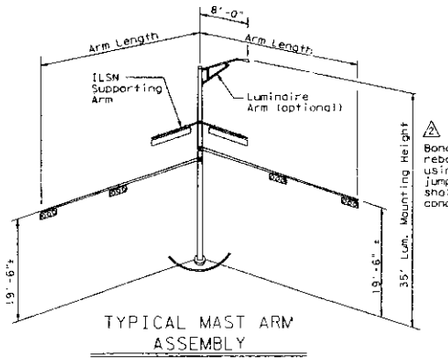
ANCHOR BOLT ASSEMBLY

INSTALLATION PROCEDURE:
Threads of anchor bolts shall be coated with pipe joint compound prior to installation of upper nuts when erecting pole. After pole is plumbed and in permanent alignment, the exposed threads of pointed bolts shall be cleaned and an additional coating of zinc-rich paint applied to seal the bolt thread-nut joint.





TYPICAL STRAIN POLE ASSEMBLY



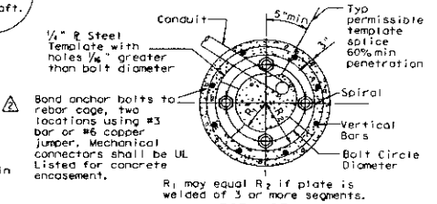
TYPICAL MAST ARM ASSEMBLY

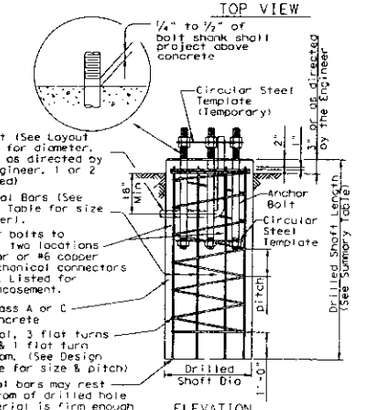
NOTES:
1. Anchor bolt design develops the foundation capacity given under Foundation Design Loads.
2. Foundation Design Loads are the allowable moments and shears at the base of the structure.
3. Foundations may be listed seperately or grouped according to similarity of location and type. Quantities are for the Contractor's information only.
4. Field Penetrometer readings at a depth of approximately 3 to 5 feet may be used to adjust shaft lengths.
5. If rock is encountered, the Drilled Shaft shall extend a minimum of two diameters into solid rock.
6. Decimal lengths in Design Table are to allow interpolation for other penetrometer values. Round to nearest foot for entry into Summary Table.

ANCHOR BOLT & TEMPLATE SIZES

BOLT DIA IN.	(7) BOLT LENGTH	TOP THREAD	BOTT THREAD	BOLT CIRCLE	R2	R1
¾"	1'-6"	3"	—	12 ¾"	7 ⅛"	5 ⅝"
1 ½"	3'-4"	6"	2"	17"	10"	7"
1 ¾"	3'-10"	7"	2 ¼"	19"	11 ¼"	7 ¾"
2"	4'-3"	8"	2 ½"	21"	12 ½"	8 ½"
2 ¼"	4'-9"	9"	3"	23"	13 ¾"	9 ¼"

(7) Min dimensions given, longer bolts are acceptable.





ELEVATION

FOUNDATION DETAILS

FOUNDATION SUMMARY TABLE (3)

LOCATION IDENTIFICATION	AVG. N BLOW /ft.	FDN TYPE	NO. EA	DRILLED SHAFT LENGTH (6) (FEET): 24-A	30-A	36-A	36-B	42-A
POLE C	10	36-A	1			13.2		
POLE D	10	24-A	1	5.7				
POLE E	10	36-A	1			13.2		
POLE F	10	36-A	1			13.2		
TOTAL DRILLED SHAFT LENGTHS				6.0		40.0		

GENERAL NOTES:
Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and interim revisions thereto.
Reinforcing steel shall conform to Item 440.
Concrete shall be Class A or C.
Threads for anchor bolts and nuts shall be rolled or cut threads of unified national coarse thread series except for A193B7 bolts which shall have 8 pitch thread series. Bolts and nuts shall have Class 2A and 2B fit tolerances. Galvanized nuts shall be tapped after galvanizing.
Anchor bolts that are 1" in diameter or less shall conform to ASTM A36. Anchor bolts larger than 1" in diameter shall conform to A36M55 in accordance with the Item, "Anchor Bolts" or ASTM A193B7 or A687. Galvanize or coat with zinc-rich paint a minimum of the upper 14 inches of all anchor bolts unless noted. Exposed nuts shall be galvanized or coated with zinc-rich paint. Washers shall be galvanized. Templates and embeded nuts need not be galvanized.

11/99 Revision
⚠ Changed to Facilitate new terminal strip enclosure
⚠ Changed from ground rod to UFER ground

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL POLE FOUNDATION

TS-FD-99

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REVISIONS 5-96 11-99	FEDERAL AID PROJECT			SHEET 6
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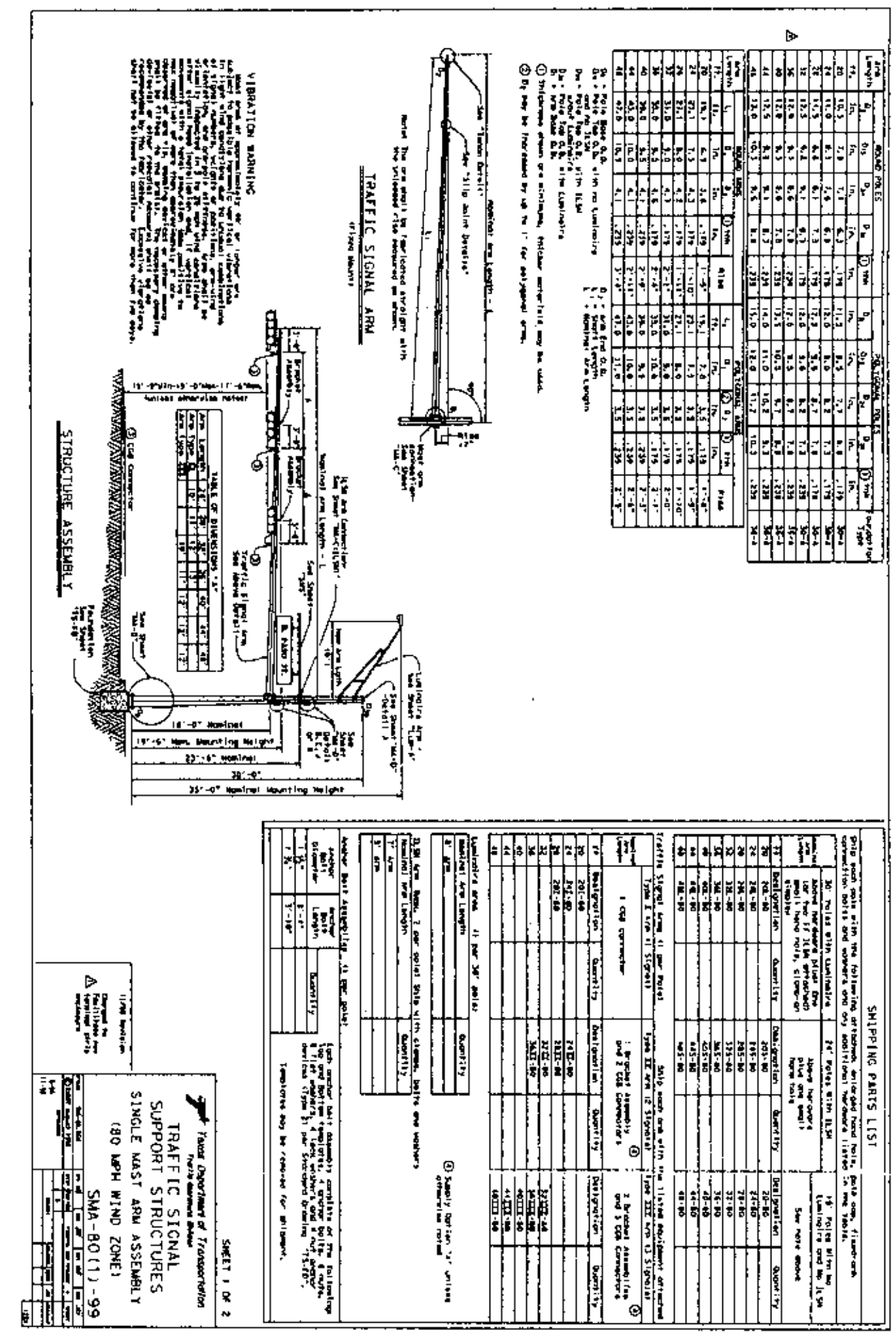
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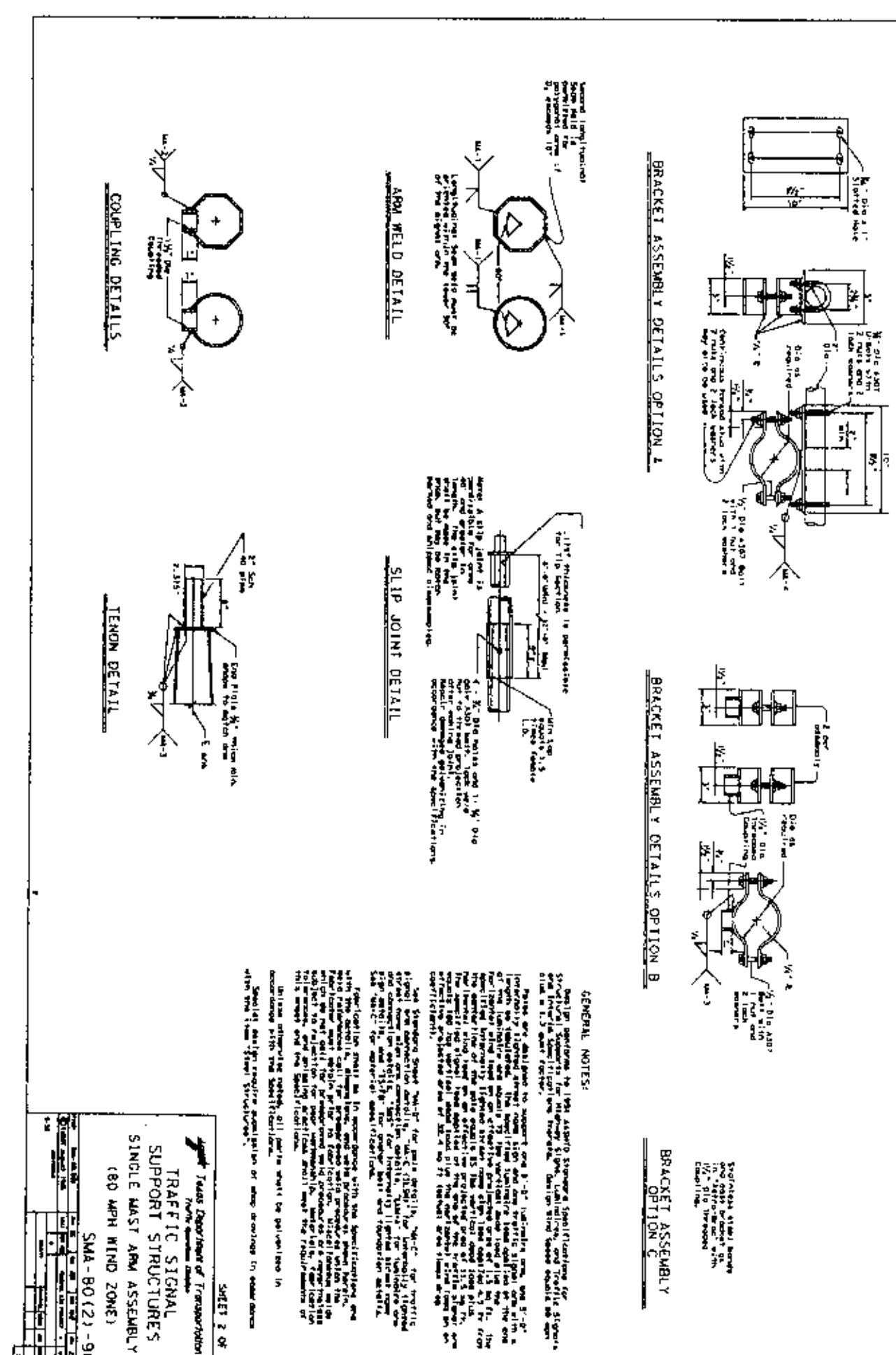
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SHEET TITLE: TRAFFIC SIGNAL DETAILS 06

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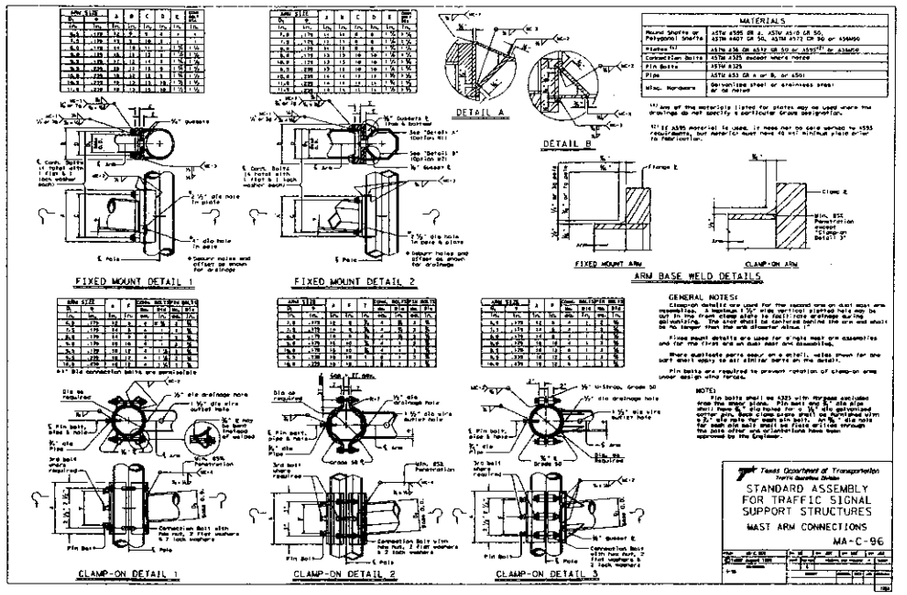
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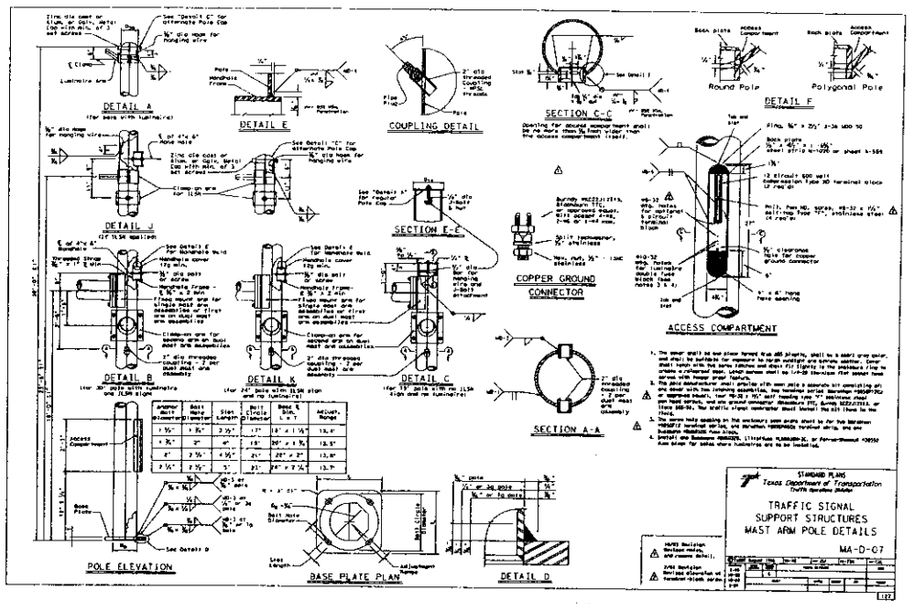
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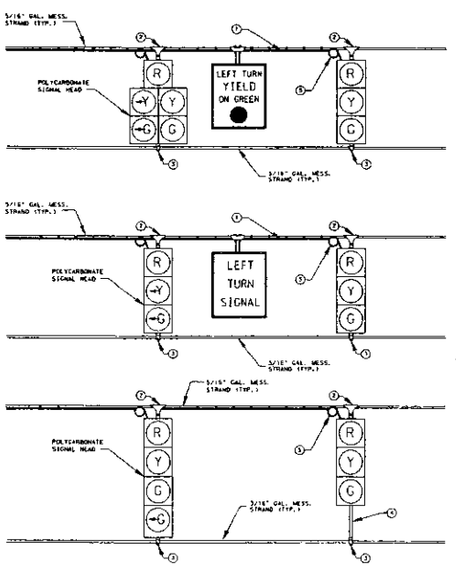
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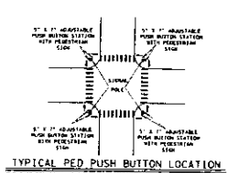


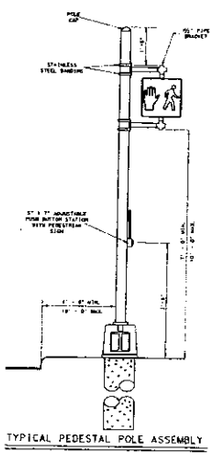


SIGNAL HEAD SPAN WIRE MOUNT DETAILS

① LEAD - IN CABLE FROM CONTROLLER TO SIGNAL HEAD.
② CAST ALUMINUM SPAN WIRE CLAMP AND CLEVIS ADAPTER. SECURE CLEVIS PIN WITH A WASHER (BOTH ENDS) AND HAIR RACK COTTER PIN. (ALL CLEVIS PIN SPECIMENS AND PIT WITH A SPLIT BUSHING. CLEVIS PIN, WASHER, COTTER PIN, AND SPLIT BUSHING TO BE STAINLESS STEEL.
③ BREAKAWAY TETHER ASSEMBLY.
④ 1 1/2" ALUM. PIPE (TYP.).
⑤ ALL SLACK CABLE COILS SHALL BE A MINIMUM OF 5'-0" IN DIAMETER AND SHALL HAVE A MINIMUM OF TWO TURNS.

NOTES: BACKPLATES OMITTED FOR CLARITY.
SETSCREWS SHALL BE INSTALLED IN ALL PIPE FITTINGS.
SIGNAL CABLE AND DETECTOR CABLE SHALL BE ATTACHED TO MESSENGER CABLE OR SPAN CABLE WITH LOOSE WIRE USING THE CABLE SPINNING METHOD WITH A MINIMUM OF ONE TURN PER FOOT.
SEE FLASHING BEACON, SIGN, POLE OR TIMBER POLE INSTALLATION DETAILS FOR ADDITIONAL INFORMATION.





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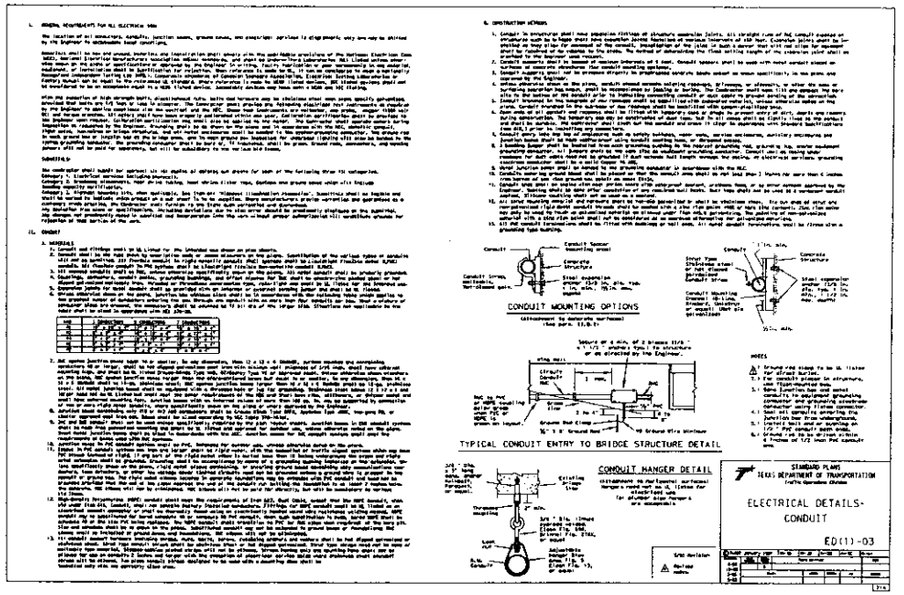
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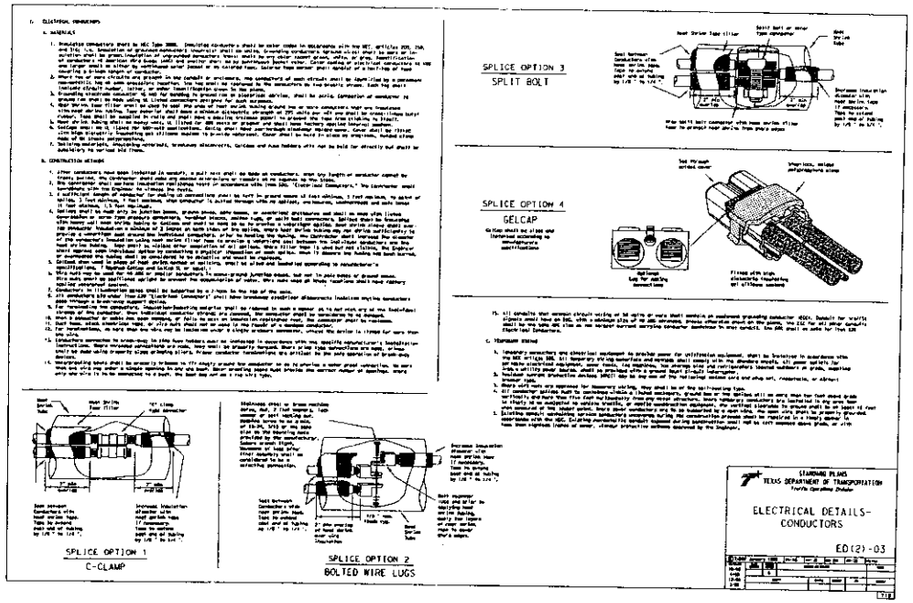
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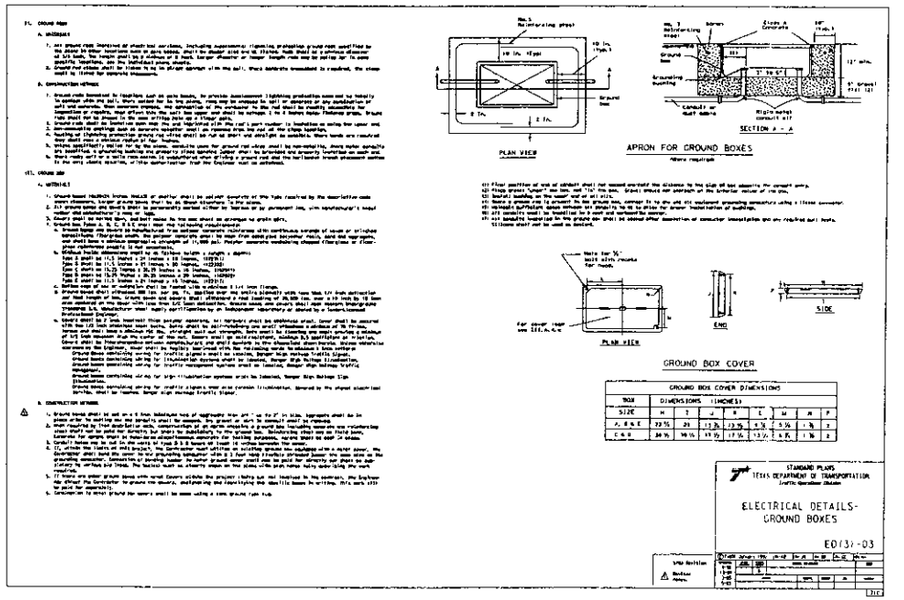
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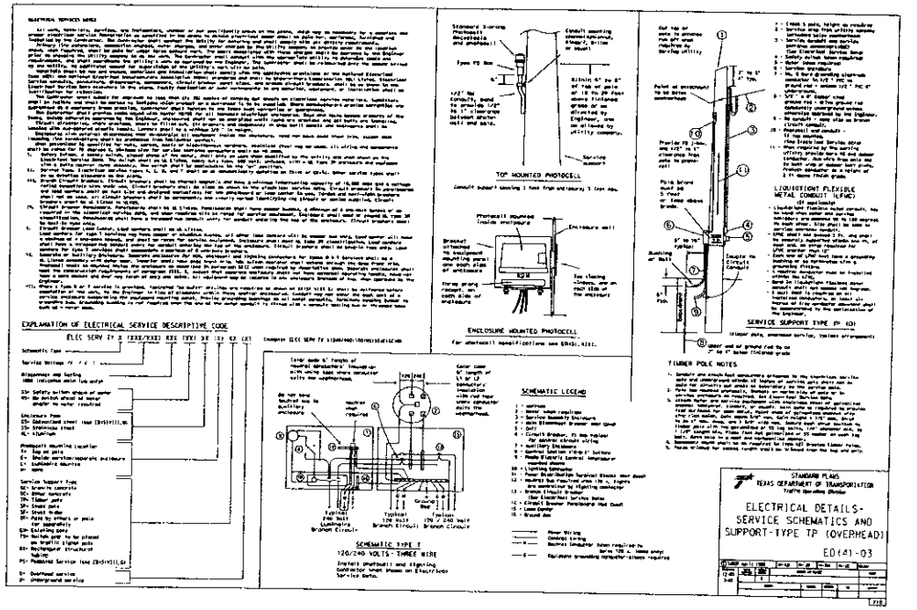
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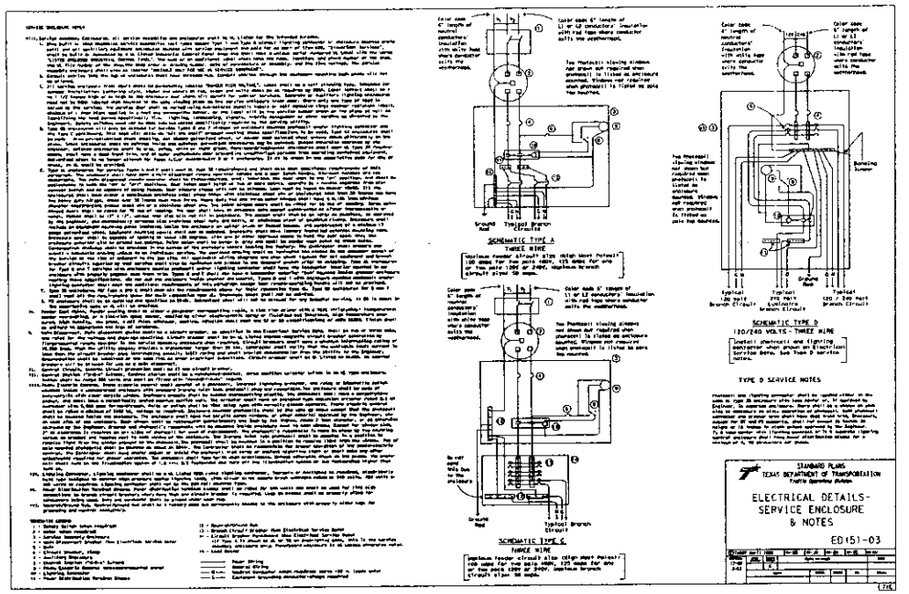
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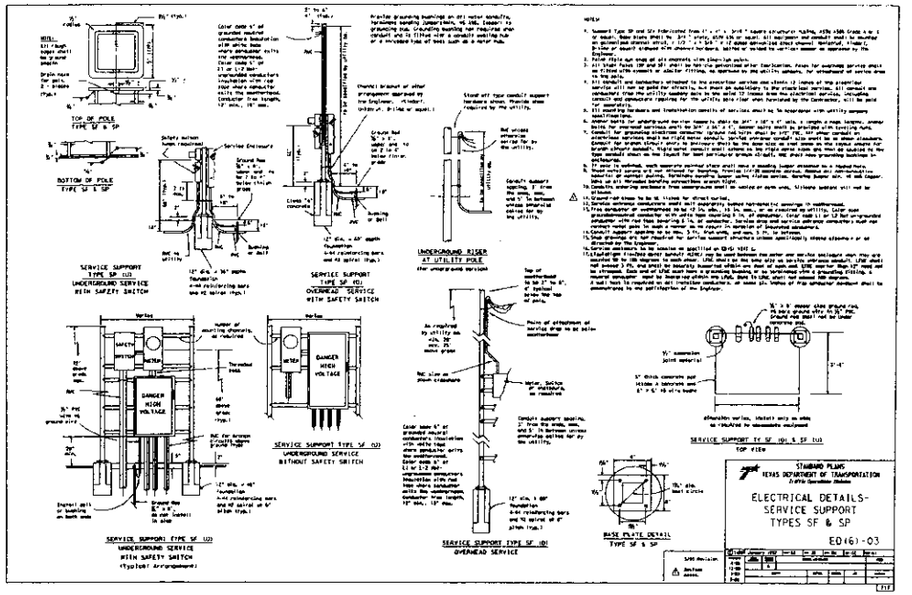
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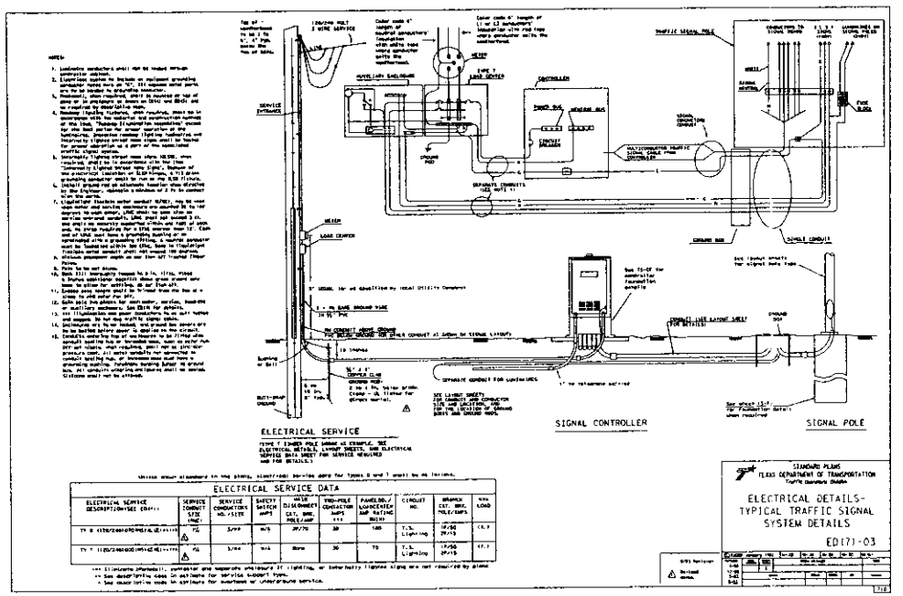
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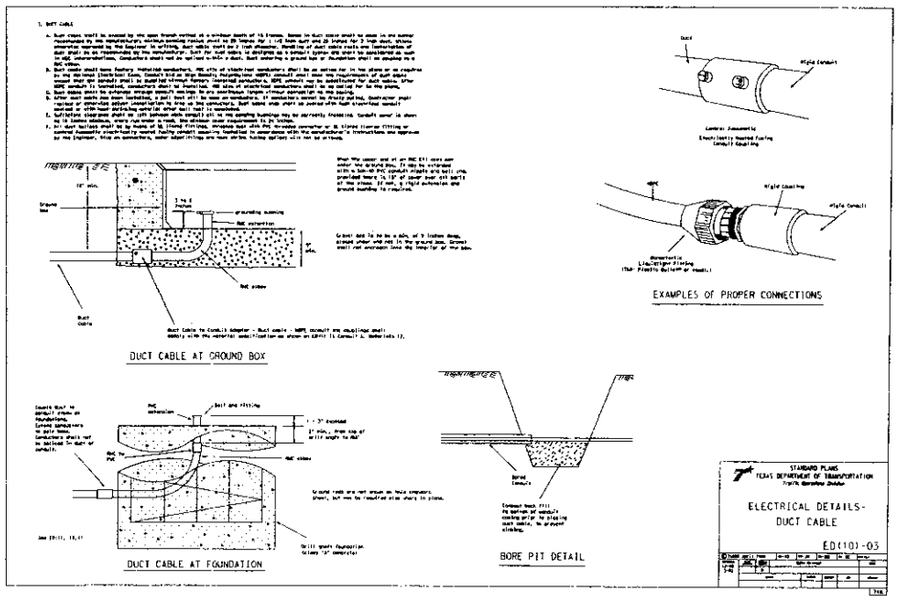
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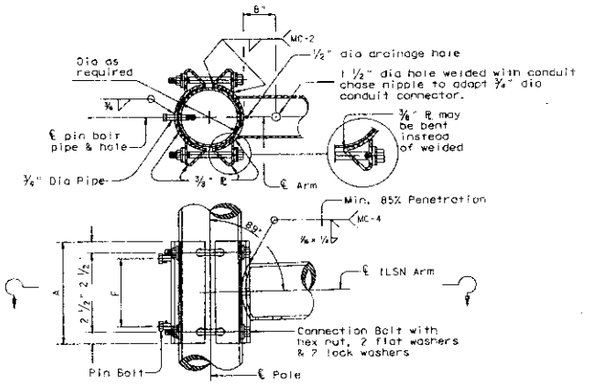
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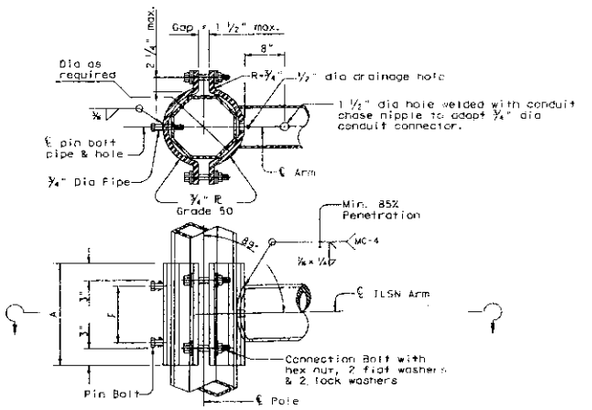
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REVISIONS			
5-96			

TABLE OF DIMENSIONS
for ILSN Support Arm Clamp-on
Details 1, 2 and 3

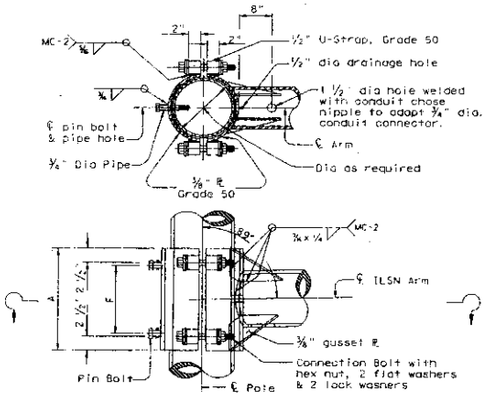
ILSN ARM SIZE	A	F	CONN. BOLTS		PIN BOLTS	
			No.	Dia	No.	Dia
3 in. dia Schedule 40 Pipe	in.	in.	ea.	in.	ea.	in.
	10	8	4	¾	2	⅝



ILSN CLAMP-ON DETAIL 1



ILSN CLAMP-ON DETAIL 2



ILSN CLAMP-ON DETAIL 3

GENERAL NOTES:

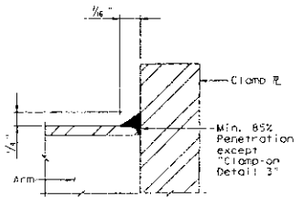
Clamp-on details shall be used for ILSN support arm assemblies. A 1 ½" inch diameter hole shall be cut in the front clamp plate for wiring access. A matched hole shall be field drilled through the pole to provide wire access after arm is oriented. Deburr both holes.

Where duplicate parts occur on a detail, welds shown for one part shall apply to all similar parts on the details.

Pin bolts are required to prevent rotation of clamp-on arms under design wind forces.

NOTE:

Pin bolts shall be A325 with threads excluded from the shear plane. Pin bolt and ¾" dia pipe shall have ⅜" dia holes for a ⅛" dia galvanized cotter pin. Back clamp plate shall be furnished with a ¾" dia hole for each pin bolt. An 11/16" dia hole for each pin bolt shall be field drilled through the pole after arm orientations have been approved by the Engineer.



CLAMP-ON ARM

ARM BASE WELD DETAILS

Texas Department of Transportation
Traffic Operations Division

STANDARD ASSEMBLY FOR TRAFFIC SIGNAL SUPPORT STRUCTURES

MAST-ARM CONNECTIONS

MA-C(ILSN)-96

1268

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TRAFFIC SIGNAL DETAILS 10

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EXHIBIT "D"

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A RESEARCH AND TECHNOLOGY CENTER

Inner Circle - Phase I

This project will provide the 1st Phase of a three lane collector street extension project and the infrastructure needed for the future development of the adjacent real estate property sites on Brooks City-Base campus. This will serve as a transportation and pedestrian facility that will eventually extend north-west to the South New Braunfels Road project from Research Plaza. This initial Phase I project will begin at Research Plaza and extend in a North-West Arch design to Building 538 parking area. The remainder of the project will connect from this end of Phase I to the proposed South New Braunfels road project and will be completed in Phase II. Both phases will be funded through operating reserves. The table below includes specific project costs.

Inner Circle Phase I Uses	Project Total
Street (1,700 LF)	950,000
Traffic	60,000
Drainage	250,000
Misc (Ins., Bond, Mob, Barricades, Trees, TPDES)	500,000
Landscape/Streetscape	175,000
Telecommunications	120,000
Potable Water	150,000
Recycled Water	85,000
Engineering, Design & Reimbursable	430,000
Project Management (8 Mos. @ $14K/Mo.)	150,000
Electric & gas relocation	125,000
Contingency (10%)	305,000
Total Uses	3,300,000

BDA is moving forward with the design of the construction documents and should be completed by November 2008, allowing the timing for a contractor to be selected by the end of the calendar year. Construction is projected to commence on January 2009 with completion no later than October 2009.

EXHIBIT "E"

CERTIFICATE OF COMMENCEMENT OF CONSTRUCTION

DATE:_____, 200___

AFFIANT: _____
_____
_____

Unless defined herein, each capitalized term or phrase used in this Certificate of Commencement of Construction ("**Certificate of Commencement of Construction**") will have the meaning ascribed to such term or phrase in the Grant Agreement dated _____, 2008, between Affiant and Bexar County, Texas ("**County**"), which is incorporated herein by reference for all purposes.

The person signing this Certificate of Commencement of Construction has been duly sworn. Under oath, the undersigned swears the following information is true and correct:

1. Representations of Affiant. The undersigned person has been duly authorized by Affiant to sign this Certificate of Commencement of Construction as its agent and representative and deliver it to the County in accordance with the terms of the Grant Agreement.

2. Description of Construction Obligations. Affiant entered into an Agreement for construction of the Project and agreed that commencement of construction of the Project, as therein provided, had begun on _____, _____.

3. Liability for False Statements. Affiant is aware that the County is relying upon the truth and accuracy of this Certificate of Commencement of Construction and that Affiant will be liable to the County for all damages, attorney's fees, and other expenses incurred because of any false statement contained in this Certificate of Commencement of Construction.

AFFIANT:

Printed Name

SWORN AND SUBSCRIBED to before me on this _____ day of _____, _____, by _____.

[seal]

Notary Public, State of Texas

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EXHIBIT "F"

CERTIFICATE OF COMPLETION

DATE:_____, 200___

AFFIANT: _____
_____
_____

Unless defined herein, each capitalized term or phrase used in this Certificate of Completion of construction ("**Certificate of Completion**") will have the meaning ascribed to such term or phrase in the Grant Agreement dated _____ ___, 2008, between Affiant and Bexar County, Texas ("**County**"), which is incorporated herein by reference for all purposes.

The person signing this Certificate of Completion of construction has been duly sworn. Under oath, the undersigned swears the following information is true and correct:

1. Representations of Affiant. The undersigned person has been duly authorized by Affiant to sign this Certificate of Completion of construction as its agent and representative and deliver it to the County in accordance with the terms of the Grant Agreement.

2. Description of Construction Obligations. Affiant entered into an Agreement for construction of the Project and agreed that completion of construction of the Project, as therein provided, was completed on _____, _____.

3. Liability for False Statements. Affiant is aware that the County is relying upon the truth and accuracy of this Certificate of Commencement of Construction and that Affiant will be liable to the County for all damages, attorney's fees, and other expenses incurred because of any false statement contained in this Certificate of Commencement of Construction.

AFFIANT:

Printed Name

SWORN AND SUBSCRIBED to before me on this _____ day of _____, _____, by _____.

[seal]

Notary Public, State of Texas

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EXHIBIT "G"

BDA SMALL, MINORITY, WOMEN OWNED, AND LOCAL BUSINESS ENTERPRISES POLICY

All solicitations advertised and all contracts signed by the BDA under this Agreement shall include the following statement:

> *It is the policy of the BDA to encourage involvement of qualified Small, Minority, Women-Owned Business Enterprises (SMWBE) and Local Business Enterprises in soliciting and awarding competitive contracts in accordance with the specific goals adopted by the BDA Board of Directors and the City of San Antonio.*