CIVIL ENGINEERING PLANS
FOR
FIRST UNITED METHODIST CHURCH OF CELINA

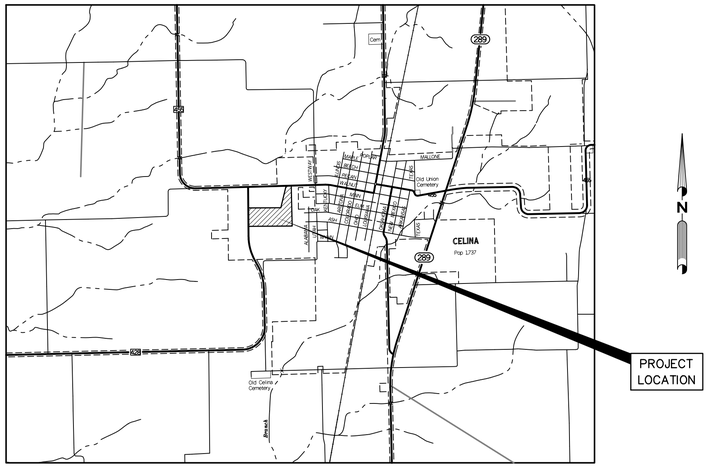
FIRST UNITED METHODIST CHURCH ADDITION
LOT 1, BLOCK A
CITY OF CELINA, COLLIN COUNTY, TEXAS

SHEET INDEX

DETAILS & STANDARDS

GENERAL NOTES:

1. THE ENGINEERING PLANS ARE DESIGNED TO AND SHALL BE CONSTRUCTED TO THE CITY OF CELINA, COLLIN COUNTY, THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS, AND TXDOT STANDARD DETAILS.
2. ALL EXISTING UTILITIES ARE SHOWN SCHEMATICALLY AND ARE FOR THE CONTRACTOR'S INFORMATION ONLY. THE CONTRACTOR SHALL VERIFY THE LOCATION SIZE, AND MATERIAL OF ALL UTILITIES AFFECTED BY CONSTRUCTION PRIOR TO COMMENCEMENT. THE CONTRACTOR SHALL CONTACT ALL AFFECTED UTILITIES 48 HOURS PRIOR TO CONSTRUCTION.
3. ALL CONTRACTORS SHALL CONFINE THEIR ACTIVITIES TO THE WORK AREA. NO ENCROACHMENTS ONTO DEVELOPED OR UNDEVELOPED AREAS WILL BE ALLOWED. ANY DAMAGE RESULTING THERE FROM SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR.
4. ALL CONSTRUCTION AND MATERIALS TESTING SHALL MEET OR EXCEED ALL REQUIREMENTS OF THE CITY OF CELINA AND/OR NCTCOG STANDARDS AND SPECIFICATIONS.



LOCATION MAP

PROJECT CONTROL DATA:

CITY OF CELINA BENCHMARK MONUMENT K263, LOCATED ON THE ELEVATED STORAGE TANK DOWNTOWN (OLD WATER TOWER).
ELEVATION = 695.44

TBM
60D NAIL SET IN POWER POLE APPROXIMATELY 18' SOUTH OF SOUTHWEST CORNER OF FIRST UNITED METHODIST CHURCH SITE.
ELEVATION = 674.26

TBM
60D NAIL SET IN POWER POLE APPROXIMATELY 309 FEET WEST OF NORTHEAST PROPERTY CORNER OF FIRST UNITED METHODIST CHURCH SITE.
ELEVATION = 692.20

CCG CIVIL CONSULTING GROUP
1515 HERITAGE DRIVE, STE. 212
MCKINNEY, TEXAS 75069
P 972.569.9193 F 972.569.9197
TEXAS REGISTERED ENGINEERING FIRM NO. F-9356

CITY OF CELINA
ENGINEERING DEPARTMENT
RELEASED FOR CONSTRUCTION

DATE _____ **BY** _____

PRIOR TO CONSTRUCTION, THE OWNER OR THEIR REPRESENTATIVE SHALL NOTIFY THE CITY OF CELINA ENGINEERING DEPARTMENT AT 972-382-2682 x1081. CONSTRUCTION DRAWINGS STAMPED BY THE CITY OF CELINA SHALL BE ON THE PROJECT SITE AT ALL TIMES DURING CONSTRUCTION. THE CITY OF CELINA STANDARD SPECIFICATIONS FOR CONSTRUCTION SHALL TAKE PRECEDENCE OVER THESE PLANS WHENEVER IN CONFLICT THEREWITH. DISCLAIMER: ALL NECESSARY APPROVALS AND PERMITS SHALL BE ACQUIRED PRIOR TO CONSTRUCTION.

STATE OF TEXAS
TREVOR L. CASTILLA
85405
LICENSED PROFESSIONAL ENGINEER

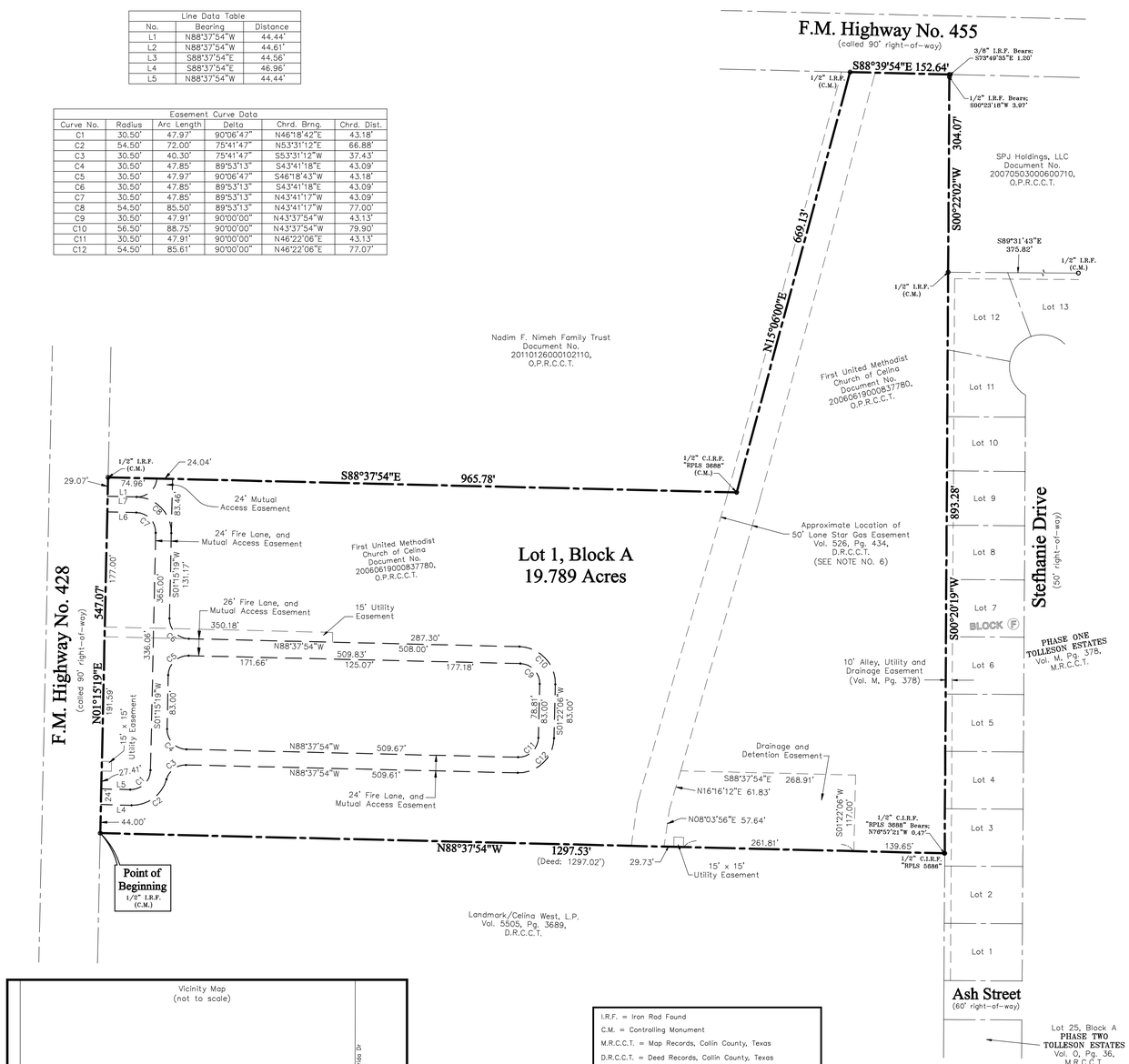
Trevor L. Castilla 8/24/15

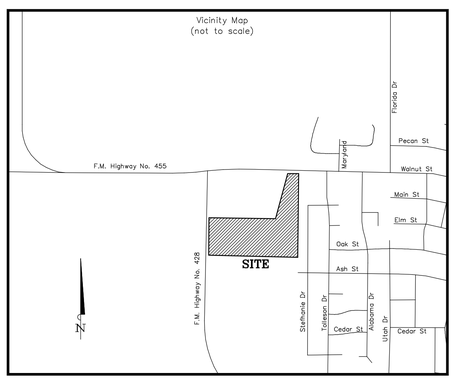
FILENAME: FUMC-COVER.dgn
PLOTTED: 8/24/2015

P-201504-01

Line Data Table		
No.	Bearing	Distance
L1	N88°37'54"W	44.44'
L2	N88°37'54"W	44.61'
L3	S88°37'54"E	44.56'
L4	S88°37'54"E	46.96'
L5	N88°37'54"W	44.44'

Easement Curve Data					
Curve No.	Radius	Arc Length	Delta	Chrd. Brng.	Chrd. Dist.
C1	30.50'	47.97'	90°06'47"	N46°18'42"E	43.18'
C2	54.50'	72.00'	75°41'47"	N53°31'12"E	66.88'
C3	30.50'	40.30'	75°41'47"	S53°31'12"W	37.43'
C4	30.50'	47.85'	89°53'13"	S43°41'18"E	43.09'
C5	30.50'	47.97'	90°06'47"	S46°18'43"W	43.18'
C6	30.50'	47.85'	89°53'13"	S43°41'18"E	43.09'
C7	30.50'	47.85'	89°53'13"	N43°41'17"W	43.09'
C8	54.50'	85.50'	89°53'13"	N43°41'17"W	77.00'
C9	30.50'	47.91'	90°00'00"	N43°37'54"W	43.13'
C10	56.50'	88.75'	90°00'00"	N43°37'54"W	79.90'
C11	30.50'	47.91'	90°00'00"	N46°22'06"E	43.13'
C12	54.50'	85.61'	90°00'00"	N46°22'06"E	77.07'





I.R.F. = Iron Rod Found
C.M. = Controlling Monument
M.R.C.C.T. = Map Records, Collin County, Texas
D.R.C.C.T. = Deed Records, Collin County, Texas
O.P.R.C.C.T. = Official Public Records, Collin County, Texas
C.I.R.F. = 1/2" Iron Rod With Cap Found

Notes:

1. According to the Flood Insurance Rate Map of Collin County, Texas, Map No. 48085C0110J, Map Revised June 02, 2009, the herein described property is located in Zone "X", described by said map to be, "areas determined to be outside the 0.2% annual chance floodplain".

2. Bearings are based on the westerly line of that tract of land described by deed to First United Methodist Church of Celina, as recorded under Document No. 20060619000837780, of the Official Public Records, Collin County, Texas.

3. The purpose of this plat is to create one lot for furture construction.

4. Selling a portion of this addition by metes and bounds is a violation of city ordinance and state law, and is subject to withholding of utilities and building permits.

5. The easement recorded in Volume 507, Page 370, of the Deed Records, Collin County, Texas, is a blanket style easement that affects the herein described property.

6. The Gas Easement shown is described as being 18' west of the first pipeline installed, and as such, the exact location of said Gas Easement will need to be verified by the controlling authority.

REVISED: 06/05/2015 FOR CITY COMMENTS				
REVISED: 04/23/2015 FOR CITY COMMENTS				
DATE: 03/24/2015	SCALE: 1" = 100'	DRAWN BY: C.S.H.	CHK'D. BY: M.B.A.	JOB NO.: 2013-0175

Approved by the City of Celina for filing at the office of the County Clerk of Collin County, Texas.

"Recommended By"

Signature of Chairperson — Planning and Zoning Commission, City of Celina, Texas — Date:

"Approved By"

Signature of Mayor — City Council, City of Celina, Texas — Date:

"Attest"

City Secretary — Date:

This property is located within the Corporate Limits (or extraterritorial jurisdiction) of the City of Celina, Collin County, Texas.

Signature of Mayor — Date:

"Attest"

City Secretary — Date:

SURVEYOR'S CERTIFICATE:

KNOW ALL MEN BY THESE PRESENTS:

THAT I, Michael B. Arthur, do hereby certify that I prepared this plat from an actual on-the-ground survey of the above described property, and that the corner monuments shown hereon were found or were properly placed under my personal supervision in accordance with the Platting Rules and Regulations of the City of Celina, Collin County, Texas.

Michael B. Arthur
Registered Professional Land Surveyor
Texas No. 5686

Date:

STATE OF TEXAS — REGISTERED — MICHAEL B. ARTHUR — 5686 — PROFESSIONAL LAND SURVEYOR

COUNTY OF COLLIN)(
STATE OF TEXAS)(

BEFORE ME, the undersigned, a Notary Public in and for the State of Texas, on this day personally appeared MICHAEL B. ARTHUR, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed.

WITNESS MY HAND AND SEAL OF OFFICE on this, the _____ day of _____ , 2015.

NOTARY PUBLIC in and for the State of Texas

Notes (continued):

7. The undersigned does hereby covenant and agree that he or she or they shall construct upon the fire lane easements, as dedicated as shown hereon, a hard surface in accordance with the City of Celina's paving standards for fire lane, and that he or she or they shall maintain the same in a state of good repair at all times and keep the same free and clear of any structures, fences, trees, shrubs, or other improvements or obstruction, including but not limited to the parking of motor vehicles, trailers, boats or other impediments to the accessibility of fire apparatus. The maintenance of paving on the fire lane easements is the responsibility of the owner, and the owner shall post and maintain appropriate signs in conspicuous places along such fire lanes, stating "Fire Lane, No Parking." The local law enforcement agency(s) is hereby authorized to enforce parking regulations within the fire lanes, and to cause such fire lanes and utility easements to be maintained free and unobstructed at all times for Fire Department and emergency use.

8. This plat is hereby adopted by the Owners and approved by the City of Celina (Called "City") subject to the following conditions which shall be binding upon the Owners, their heirs, grantees, successors and assigns: The portion of Lot 1, Block A, as shown on the plat is called "Drainage Easement." the Drainage Easement within the limits of this addition, will remain accessible at all times and will be maintained in a safe and sanitary condition by the owners of the lot or lots that are traversed by or adjacent to the Drainage Easement. The City will not be responsible for the maintenance and operation of said Easement or for any damage to private property or person that results from conditions in the Easement, or for the control of erosion. No construction of any type of building, fence or any other structure within the Drainage Easement, as herein above defined shall be permitted, unless approved by the City Engineer. Provided, however, it is understood that in the event it becomes necessary for the City to erect or consider erecting any type of drainage structure in order to improve the storm drainage that may be occasioned by drainage in or adjacent to the subdivision, then in such event, the city shall have the right to enter upon the Drainage Easement at any point, or points, to investigate, survey or to erect, construct and maintain any drainage facility deemed necessary for drainage purposes. Each property owner shall keep the Drainage Easement clean and free of debris, silt, and any substance which would result in unsanitary conditions or obstruct the flow of water, and the city shall have the right of ingress and egress for the purpose of inspection and supervision of maintenance work by the property owner to alleviate any undesirable conditions which may occur. The natural drainage through the Drainage Easement is subject to storm water overflow and natural bank erosion to an extent which cannot be definitely defined. The City shall not be held liable for any damages of any nature resulting from the failure of any structure or structures, within the easement.

9. The undersigned does hereby covenant and agree that the access easement may be utilized by any person or the general public for ingress and egress to public vehicular and pedestrian use and access, and for Fire Department and emergency use in, along, upon and across said premises, with the right and privilege at all times of the City of Celina, its agents, employees, workmen and representatives having ingress, egress, and regress in, along, upon and across said premises.

N

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

OWNER'S CERTIFICATE

COUNTY OF COLLIN)(
STATE OF TEXAS)(

WHEREAS, FIRST UNITED METHODIST CHURCH OF CELINA is the owner of a tract of a land situated in the M.E.P. and P.R.R. Survey, Abstract No. 644, in the City of Celina, Collin County, Texas, said being described by deed to First United Methodist Church of Celina (FUMC), as recorded under Document No. 20060619000837780, of the Official Public Records, Collin County, Texas (O.P.R.C.C.T.), said tract being more particularly described as follows:

BEGINNING at a 1/2" iron rod found at the southwesterly corner of said FUMC tract, same being the northwesterly corner of a tract of land described by deed to Landmark/Celina West, L.P., as recorded in Volume 5505, Page 3689, of the Deed Record, of Collin County, Texas (D.R.C.C.T.), same being in the easterly monumented line of F.M. Highway No. 428;

THENCE North 01°15'19" East, along the easterly monumented line of said F.M. Highway No. 428, a distance of 547.07' to a 1/2" iron rod found at the most westerly northwest corner of said FUMC tract, same being the southwesterly corner of a tract of land described by deed to Nadim F. Nimeh Family Trust, as recorded under Document No. 20110126000102110, O.P.R.C.C.T.;

THENCE South 88°37'54" East, along the common line between said Nimeh and FUMC tracts, a distance of 965.78' to a 1/2" iron rod with a plastic cap stamped "RPLS 3688" found for the southeasterly corner of said Nimeh tract, same being an angle point of said FUMC tract;

THENCE North 15°06'00" East, continuing along the common line between said Nimeh and FUMC tracts, a distance of 669.13' to a 1/2" iron rod found for the northeasterly corner of said Nimeh tract, same being the most northerly northwest corner of said FUMC tract, said corner also being in the southerly monumented line of F.M. Highway No. 455;

THENCE South 88°39'54" East, along the southerly monumented line of F.M. Highway No. 455, a distance of 152.64' to a point for corner from which a 3/8" iron rod found bears, South 73°49'35" East, a distance of 1.20' and a 1/2" iron rod found bears, South 00°23'18" West, a distance of 3.97', said point for corner being the northeasterly corner of said FUMC tract, same also being the northwesterly corner of that tract of land described by deed to SPJ Holdings, LLC, as recorded under Document No. 20070503000600710, O.P.R.C.C.T.;

THENCE South 00°22'02" West, along the common line between said SPJ Holdings, LLC and FUMC tracts, a distance of 304.07' to a 1/2" iron rod found at the southwesterly corner of said SPJ Holdings, LLC tract, same being the northwesterly corner of Lot 12, Block F, of **PHASE ONE TOLLESON ESTATES**, an addition to the City of Celina, as recorded in Volume M, Page 378, of the Map Records, of Collin County, Texas (M.R.C.C.T.);

THENCE South 00°20'19" West, along the common line between said **PHASE ONE TOLLESON ESTATES** and FUMC tract, a distance of 893.28' to a 1/2" iron rod with a yellow plastic cap stamped "RPLS 5686" set at the southeasterly corner of said FUMC tract, said corner also being the northeasterly corner of the aforementioned Landmark/Celina West, L.P. tract, from which a 1/2" iron rod with a plastic cap stamped "RPLS 3688" bears, North 76°57'21" West, a distance of 0.47';

THENCE North 88°37'54" West, along the common line between said FUMC and Landmark/Celina West, L.P. tracts, a distance of 1297.53' to the **POINT OF BEGINNING** and containing 19.789 acres of land, more or less.

COUNTY OF COLLIN)(
STATE OF TEXAS)(

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS:

That we, FIRST UNITED METHODIST CHURCH OF CELINA, do hereby adopt this plat designating the herein above described property as **FIRST UNITED METHODIST CHURCH OF CELINA ADDITION**, an addition to the City of Celina, Collin County, Texas and do hereby dedicate in fee simple, to the public use forever, the streets, rights-of-way, and other public improvements shown hereon. The easements shown thereon are hereby reserved for the purposes indicated. No buildings, fences, trees, shrubs or other improvements or growths shall be constructed, reconstructed or placed upon, over or across the easements as shown. Said easements being hereby reserved for mutual use and accommodation of all public utilities using or desiring to use the same unless the easement limits the use to particular utilities, said use by public utilities being subordinate to the public's and City of Celina's use thereof. The City of Celina and public utility entities shall have the right to remove and keep removed all or part of any buildings, fences, trees, shrubs or other improvements or growths which in any way may edanger or interfere with the construction, maintenance or efficiency of its respective system on the easements, and all public utilities shall at all times have full right of ingress and egress to or from and upon the said easements for the purpose of constructing, reconstructing, inspecting, patrolling, maintaining and adding to or removing all or parts of its respective systems without the necessity at any time of procuring the permission of anyone. (Any public utility shall have the right of ingress and egress to private property for the purpose of reading meters and any maintenance or service required or ordinarily performed by the utility).

This plat is approved subject to all platting ordinances, rules, regulations and resolutions of the City of Celina, Texas.

Witness my hand, this the_____day of_____, 2015.

By: _____
Authorized Representative

COUNTY OF COLLIN)(
STATE OF TEXAS)(

BEFORE ME, the undersigned, a Notary Public in and for the State of Texas, on this day personally appeared _____, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that the same is his act and deed in the capacity therein stated and for the purposes therein expressed.

WITNESS MY HAND AND SEAL OF OFFICE on this, the _____ day of _____ , 2015.

NOTARY PUBLIC in and for the State of Texas

OWNER:
First United Methodist
Church of Celina

ENGINEER:
Trevor L. Castilla, P.E.
Civil Consulting Group, PLLC
Texas Firm No. F-9356
1515 Heritage Drive, Suite 212 | McKinney, Texas | 75069 | 972.569.9193
102 N. Shiloh Road, Suite 204 | Garland, Texas | 75042 | 972.487.8380
972.569.9197 (fax)

SURVEYOR:
North Texas Surveying, L.L.C.
Registered Professional Land Surveyors
1515 South McDonald St. Suite 110
McKinney, Tx. 75069
Ph. (469) 424-2074 Fax: (469) 424-1997
www.northtexassurveying.com

CONSTRUCTION PLAT

FIRST UNITED METHODIST CHURCH OF CELINA

Lot 1, Block A

862,018 / 19.789 Acres
M.E.P. and P.R.R. Survey,
Abstract No. 644
City of Celina, Collin County, Texas

GENERAL

1. All construction shall be in accordance with the latest revision of the North Central Texas Council of Governments "Standard Specifications for Public Works Construction" including the Standard Drawings therein and the City of Celina's addendum thereto. Contractor shall have at least one set of approved Engineering Plans and Specifications on-site at all times.

2. Before beginning construction, the contractor shall prepare a construction sequence schedule. The construction schedule shall be such that there is minimum interference with traffic along or adjacent to the project.

3. Construction may not begin earlier than 7:00 A.M. on weekdays nor continue after dark without permission from the City of Celina. Construction on holidays and Saturday must be approved two days in advance. A fee of $300.00 a day for working on holidays and Saturday will be accessed payable to the city before work is performed. Work may not begin before 8:00 A.M. on holidays and Saturday and work on Sunday is prohibited without special permission and payment of fees.

4. Utilities shown on the plans were taken from field surveys and information provided by the utility companies. The completeness and the accuracy of this data is not guaranteed.

   The contractor is responsible for verifying the location of all underground utilities and structures and protecting them from damage during construction.

   It will be the responsibility of each contractor to protect all existing public and private utilities throughout the construction of this project. Contractor shall contact the appropriate utility companies for line location prior to commencement of construction and shall assume full liability to those companies for any damages caused to their facilities.

DIG TESS	800-DIG-TESS
GCEC-TELECOM	903-482-7274
GCEC-ELECTRIC	903-821-3007
AT&T	972-569-3013
ATMOS ENERGY	972-881-4161
ATMOS ENERGY	214-341-9900
CROSSTEX ENERGY	817-570-6753
ONEOK	903-257-6594
COSERV-ELEC	940-321-7800
COSERV-GAS	940-321-7800
CITY OF CELINA	972-382-2682
TOWN OF PROSPER	972-347-9969
MARILEE SUD	972-382-3222
GRANDE	972-410-0583
SUDDEN LINK	469-853-0486

5. Work may not be backfilled or covered until the City has inspected it.

6. Material testing shall be performed by an independent testing laboratory and paid for by the Contractor. The following material tests shall be provided by the Contractor:

   a. Embankment - One soil density test shall be performed at each location for each 500 C.Y. of backfill placed.

   b. Pavement Sub grade - One gradation test (where lime stabilized) and one soil density test shall be performed for each 300 linear feet of pavement unless otherwise noted. Gradations must pass 100% through a 1 3/4" sieve and 60% through a #4 sieve.

   c. Utility Trench Backfill - One soil density test shall be performed at 300 feet intervals or as directed by the Inspector.

   d. Concrete Tests:
      (1). Compressive Strength - Four test cylinders shall be taken from a representative portion of the concrete being placed for every 150-cubic yards of concrete pavement placed, but in no case shall less than 2 sets of cylinders be taken from any one day's placement.)

      (2). Air, slump, and temperature tests shall be taken for every set of cylinders made. Concrete with a temperature above 95° F will be rejected.

      (3). Additional cylinders and/or tests may be required at the Inspector's discretion.

   The City shall select the location and depth of each soil density test unless otherwise directed.

7. All excavation on the project is unclassified.

8. Temporary erosion control shall be used to minimize the spread of silt and mud from the project on to existing streets, alleys, drainage ways and public and private property. Temporary erosion controls may include silt fences, rock check dams, stabilized construction entrances, straw bales, berms, dikes, swales, strips of undisturbed vegetation, check dams and other methods as required by the City Manager or his representative and shall conform to the Storm Water Quality Best Management Practices for Construction Activities as published by the North Central Texas Council of Governments and the City of Celina Erosion and Sediment Control Manual.

9. Finished slopes on public rights-of-way and easements shall not be steeper than 4:1. All slopes steeper than 6:1 shall be covered with erosion control matting and are hydro mulched and maintained by the contractor until grass covers all parts of the slope.

10. The contractor shall maintain two-way traffic at all times along the project.

11. Remove, salvage and replace all street and traffic control signs, which may be damaged by the construction of the project.

12. All trenching and excavation shall be performed in accordance with OSHA standards. Trench safety design will be the responsibility of the Contractor. Contractor shall submit a trench safety design approved by a professional engineer to the City for review prior to the start of any underground utility construction.

PAVING

1. All embankments shall be compacted to 95% Standard Proctor density.

2. All streets and alleys shall be placed on lime stabilized subgrade with a lime content of not less than 7 ½% or as approved by city engineer.

3. The minimum 28 day compressive strength of concrete street paving shall not be less than 3600 psi and shall be air entrained. Water may not be applied to the surface of concrete paving to improve workability.

4. All curb and gutter shall be integral with the pavement.

5. Parabolic crowns are required on all street pavements except on major thoroughfares where straight sections are required.

6. Streets and alleys shall be constructed with provisions for sidewalk ramps at all intersections.

DRAINAGE

1. Storm sewer pipe shall be reinforced concrete, Class III unless otherwise noted.

2. All structural concrete shall be Class "C" (3600 psi compressive strength at 28 days), air entrained.

3. The contractor shall install plugs in storm sewer lines or otherwise prevent mud from entering the storm sewer system during construction.

WATER AND SANITARY SEWER

1. Water mains shall be AWWA C-900 or 905 PVC Class 200 unless otherwise noted. Minimum cover for waterlines is 48" below top of curb, 60" where no curbed street is present or as required to clear existing utilities, whichever is greater. Class B+ embedment unless otherwise noted.

2. All utility trench backfill shall be performed in 12" loose lifts and mechanically compacted with approved vibratory methods.

3. Marking tape shall be installed one foot above and over PVC water lines.

4. Fittings for PVC water lines shall be ductile iron and be encased in a polyethylene sheath.

5. All Mechanical Joints will be restrained. (Mega-Lug etc.)

6. Valves, including tapping valves shall be resilient seat gate valves, unless noted otherwise.

7. All direct burial valves shall be provided with cast iron valve boxes with PVC stacks. Valve stacks shall be vertical and concentric with the valve stem. Stainless steel valve extensions are required on all valves where the operating nut is greater than 4 feet below finished grade.

8. Fire hydrants shall be Kennedy or equal as directed or approved by the City of Celina on a case by case basis and field painted silver with bonnet and caps color-coded to pipe size.

   a. Six inch line- silver body with RED bonnet and caps.
   b. Eight inch line- silver body with BLUE bonnet and caps.
   c. Ten inch line- silver body with GREEN bonnet and caps.
   d. Twelve inch and larger- silver body with YELLOW bonnet and caps.

9. All exposed bolting on any buried equipment or material shall be stainless steel. Included are:

   a. Bonnet and stuffing box bolts on valves.
   b. Shoe bolts on fire hydrants.
   c. Flange bolts.
   d. "Cor-ten" mechanical joint "T" bolts are acceptable for direct burial service.

10. Depending on meter size; meter boxes shall be DFW37C-12-1SAF, DFW38C-14-1SAF, DFW65C-14-1SAF, or approved equal, and shall incorporate the Celina logo in the lid.

11. One sample station shall be provided to the city for every 250 connections.

12. Sanitary sewer mains shall be DR 35 PVC. Embedment shall be Class H unless otherwise noted.

    a. The contractor shall install and maintain watertight plugs in all connections to the City's sanitary sewer system until the City accepts the project.

    b. All sanitary sewer lines and manholes shall be leak tested before the project is accepted. Deflection testing of PVC sewer lines is required. Deflection shall be tested with a mandrel for 5% deflection.

    c. All sewer lines shall be video inspected with a copy of the video and station report submitted to the Inspector.

    d. Mandrel, Air Test, and Video inspection shall not be performed until all utilities are complete, in place, and backfilled.

Specifications are not meant to exclude any other manufacturer. Any specification may be replaced with an approved equal upon approval by the City of Celina.

STATE OF TEXAS
TREVOR L. CASTILLA
85405
LICENSED
PROFESSIONAL ENGINEER

8/24/15

NO.	REVISION	BY	DATE

CIVIL CONSULTING GROUP
1515 HERITAGE DRIVE, STE. 212
MCKINNEY, TEXAS 75069
P 972.569.9193 F 972.569.9197
TEXAS REGISTERED ENGINEERING FIRM NO. F-9356

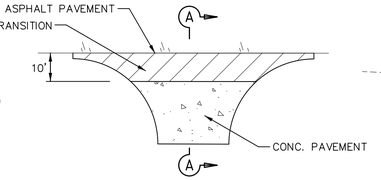
FIRST UNITED METHODIST CHURCH - CELINA
LOT 1, BLOCK A
FIRST UNITED METHODIST CHURCH ADDITION
CITY OF CELINA, COLLIN COUNTY, TEXAS

GENERAL NOTES

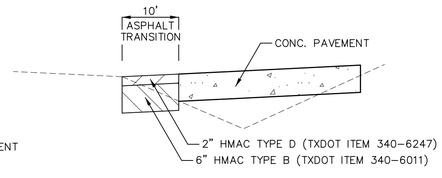
DESIGNED- TLC	DRAWN- JRK	DATE- 8/24/2015	C-1
APPROVED- CCG	CHECKED- TLC	SCALE-	

FILENAME: FUMC*NOTES. dgn
PLOTTED: 8/24/2015

P-201504-01



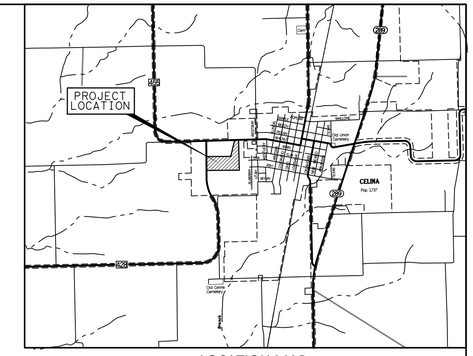
DRIVEWAY CONNECTION DETAIL



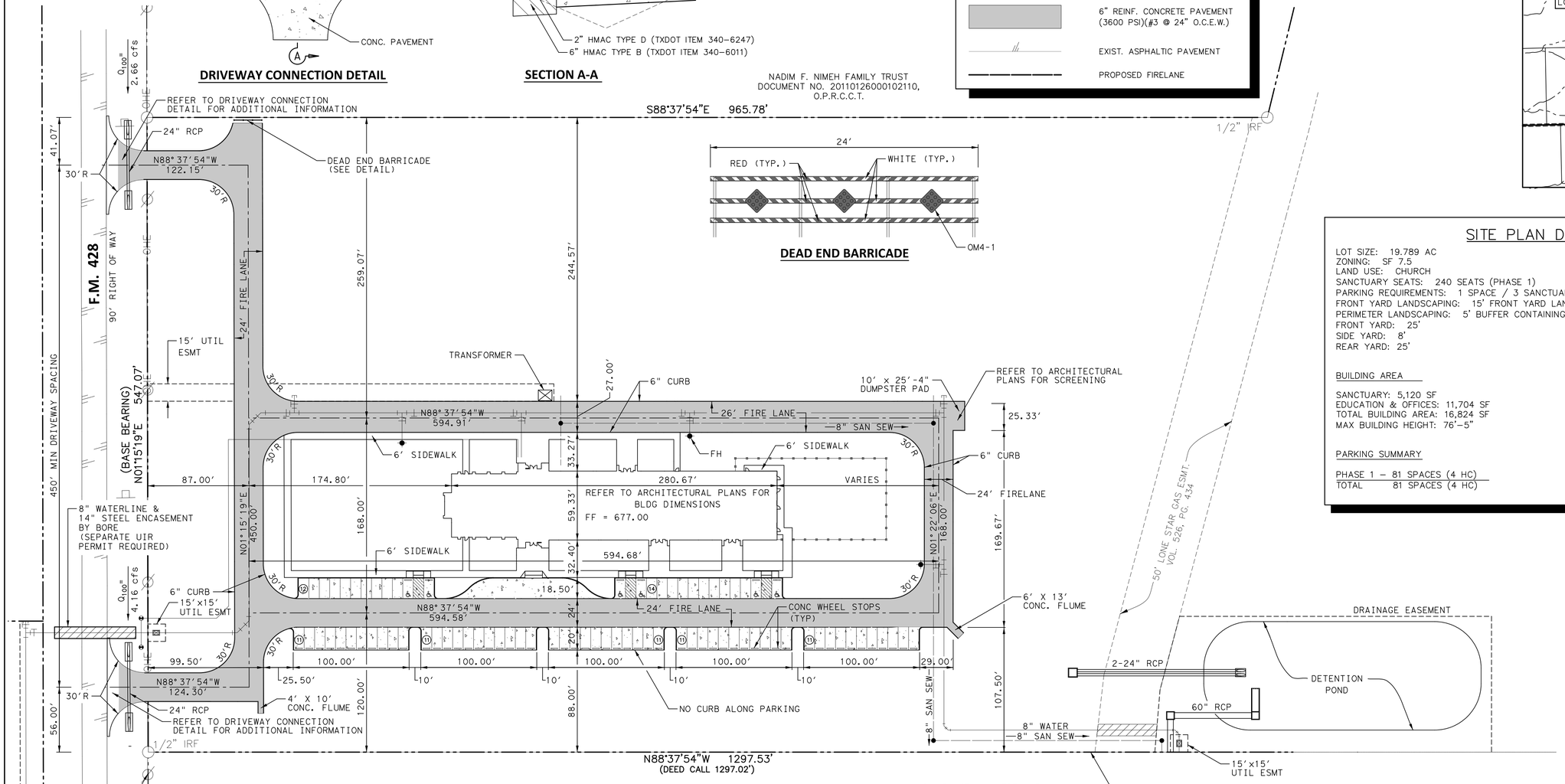
SECTION A-A

LEGEND

- 5" REINF. CONCRETE PAVEMENT (3600 PSI)(#3 @ 24" O.C.E.W.)
- 6" REINF. CONCRETE PAVEMENT (3600 PSI)(#3 @ 24" O.C.E.W.)
- EXIST. ASPHALTIC PAVEMENT
- PROPOSED FIRELANE



LOCATION MAP



DEAD END BARRICADE

SITE PLAN DATA

LOT SIZE: 19.789 AC
ZONING: SF 7.5
LAND USE: CHURCH
SANCTUARY SEATS: 240 SEATS (PHASE 1)
PARKING REQUIREMENTS: 1 SPACE / 3 SANCTUARY SEATS (80 SPACES)
FRONT YARD LANDSCAPING: 15' FRONT YARD LANDSCAPE SETBACK
PERIMETER LANDSCAPING: 5' BUFFER CONTAINING A WALL, FENCE, HEDGE OR BERM
FRONT YARD: 25'
SIDE YARD: 8'
REAR YARD: 25'

BUILDING AREA

SANCTUARY: 5,120 SF
EDUCATION & OFFICES: 11,704 SF
TOTAL BUILDING AREA: 16,824 SF
MAX BUILDING HEIGHT: 76'-5"

PARKING SUMMARY

PHASE 1 –	81 SPACES (4 HC)
TOTAL	81 SPACES (4 HC)

NOTES

1. ALL DIMENSIONS ARE TO BACK OF CURB, UNLESS NOTED OTHERWISE.
2. ALL DRIVEWAYS SHALL BE BUILT IN ACCORDANCE TO THE CITY OF CELINA DETAILS.
3. NO LANDSCAPING SUCH AS TREES, HEDGES, ABOVE AND UNDERGROUND STRUCTURES SHALL BE LOCATED WITHIN EXISTING OR PROPOSED UTILITY EASEMENTS AND RIGHT OF WAY.
4. REFER TO ARCHITECTURAL PLANS FOR BUILDING DIMENSIONS.
5. FIRE LANES SHALL BE A MINIMUM OF 6" CONCRETE REINFORCED WITH #3 BARS @ 24" O.C.E.W. COMPRESSIVE STRENGTH SHALL BE A MINIMUM OF 3600 PSI.
6. FIRE LANES SHALL BE MARKED BY PAINTED LINES OF RED TRAFFIC PAINT 6" WIDE TO SHOW THE EXACT BOUNDARY LINES OF THE FIRE LANE. THE LINES SHALL BE MARKED BY PAINTED 4-INCH HIGH LETTERING, USING A 1-INCH WIDE STROKE OF WHITE TRAFFIC PAINT ON THE CONTRASTING RED BACKGROUND STATING: "NO PARKING – FIRE LANE" OR "FIRE LANE NO PARKING". THIS MARKING IS TO BE PLACED AT 25-FOOT INTERVALS ALONG EACH BOUNDARY LINE. WHERE A CURB IS AVAILABLE, THE STRIPING SHALL BE ON THE VERTICAL FACE OF THE CURB.
7. ALL PARKING STALLS ARE 9' X 18' UNLESS NOTED OTHERWISE.
8. CURB RADII ARE 3' UNLESS NOTED OTHERWISE.
9. DUMPSTER AND STORAGE PADS SHALL BE A MINIMUM OF 8" CONCRETE REINFORCED WITH #3 BARS @ 24" O.C.E.W. COMPRESSIVE STRENGTH SHALL BE A MINIMUM OF 4000 PSI.
10. ALL STANDARD PARKING STALLS SHALL BE WHITE TRAFFIC PAINT (4") IN ACCORDANCE TO THE TxMUTCD AND TEXAS ACCESSIBILITY STANDARDS.
11. THE UPPER 6" OF THE SUBGRADE UNDER THE PROPOSED PAVEMENT SHALL CONSIST OF COMPACTED SOILS WITH PI OF LESS THAN 15% OR COMPACTED/STABILIZED BY ADDING 6% (BY DRY WEIGHT) OF HYDRATED LIME. ALTERNATIVELY, THE THICKNESS OF THE HEAVY DUTY PAVEMENT CAN BE INCREASED BY 2" IN-LIEU OF STABILIZING THE UPPER 6" OF SOILS UNDER THE PAVEMENT.
12. THE CONTRACTOR SHALL REVIEW AND ADHERE TO THE GEOTECHNICAL REPORT PREPARED BY REED ENGINEERING GROUP DATED NOVEMBER 18, 2013.

CASE NAME:
CASE NUMBER:
LOCATION:

DIRECTOR OF DEVELOPMENT SERVICES

DATE: _____

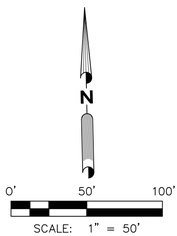
APPROVAL DOES NOT AUTHORIZE ANY WORK IN CONFLICT WITH ANY CODES OR ORDINANCES.

CITY OF CELINA
DEPARTMENT OF DEVELOPMENT SERVICES

FIRST UNITED METHODIST CHURCH OF CELINA
LOT 1, BLOCK A
862,018 / 19.789 AC.
M.E.P. AND P.R.R. SURVEY
ABSTRACT NO. 644
CITY OF CELINA,
COLLIN COUNTY, TEXAS

OWNER
FIRST UNITED METHODIST CHURCH
112 COLORADO STREET
CELINA, TEXAS 75009
972.382.2655

APPLICANT/ENGINEER
CIVIL CONSULTING GROUP
1515 HERITAGE DRIVE, SUITE 212
McKINNEY, TEXAS 75069
972.569.9193



SCALE: 1" = 50'

8/24/15

NO.	REVISION	BY	DATE

CIVIL CONSULTING GROUP
1515 HERITAGE DRIVE, STE. 212
MCKINNEY, TEXAS 75069
P 972.569.9193 F 972.569.9197
TEXAS REGISTERED ENGINEERING FIRM NO. F-9356

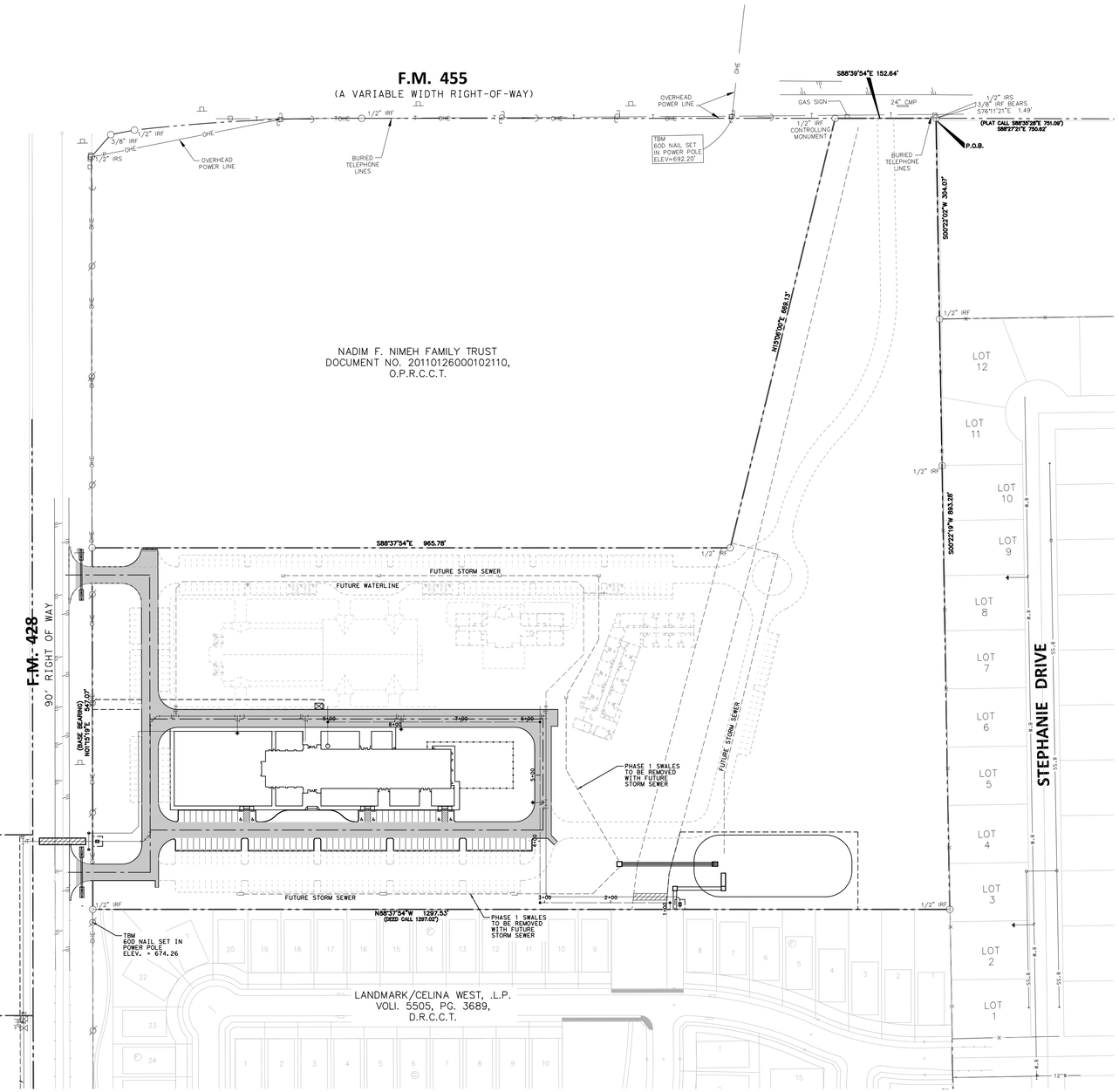
FIRST UNITED METHODIST CHURCH - CELINA
LOT 1, BLOCK A
FIRST UNITED METHODIST CHURCH ADDITION
CITY OF CELINA, COLLIN COUNTY, TEXAS

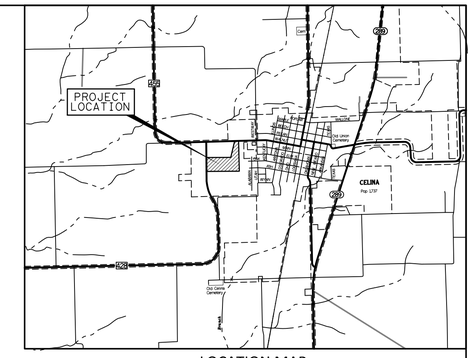
PHASE 1 SITE PLAN

DESIGNED- TLC	DRAWN- JRK	DATE- 8/24/2015	C-2
APPROVED- CCG	CHECKED- TLC	SCALE-	

FILENAME: FUMC-SITEPLAN.dgn
PLOTTED: 8/24/2015

P-201504-01





LOCATION MAP

SITE PLAN DATA

LOT SIZE: 19.789 AC
ZONING: SF 7.5
LAND USE: CHURCH
SANCTUARY SEATS: 240 SEATS (PHASE 1)
PARKING REQUIREMENTS: 1 SPACE / 3 SANCTUARY SEATS (80 SPACES)
FRONT YARD LANDSCAPING: 15' FRONT YARD LANDSCAPE SETBACK
PERIMETER LANDSCAPING: 5' BUFFER CONTAINING A WALL, FENCE, HEDGE OR BERM
FRONT YARD: 25'
SIDE YARD: 8'
REAR YARD: 25'

BUILDING AREA

SANCTUARY: 5,120 SF
EDUCATION & OFFICES: 11,704 SF
TOTAL BUILDING AREA: 16,824 SF
MAX BUILDING HEIGHT: 76'-5"

PARKING SUMMARY

PHASE 1 –	81 SPACES (4 HC)
TOTAL	81 SPACES (4 HC)

N

0' 100' 200'

SCALE: 1" = 100'

STATE OF TEXAS
TREVOR L. CASTILLA
85405
LICENSED PROFESSIONAL ENGINEER

8/24/15

NO.	REVISION	BY	DATE

CIVIL CONSULTING GROUP
1515 HERITAGE DRIVE, STE. 212
MCKINNEY, TEXAS 75069
P 972.569.9193 F 972.569.9197
TEXAS REGISTERED ENGINEERING FIRM NO. F-9356

FIRST UNITED METHODIST CHURCH - CELINA
LOT 1, BLOCK A
FIRST UNITED METHODIST CHURCH ADDITION
CITY OF CELINA, COLLIN COUNTY, TEXAS

OVERALL CONCEPTUAL SITE PLAN

FIRST UNITED METHODIST
CHURCH OF CELINA
LOT 1, BLOCK A
862,018 / 19.789 AC.
M.E.P. AND P.R.R. SURVEY
ABSTRACT NO. 644
CITY OF CELINA,
COLLIN COUNTY, TEXAS

OWNER

FIRST UNITED METHODIST CHURCH
112 COLORADO STREET
CELINA, TEXAS 75009
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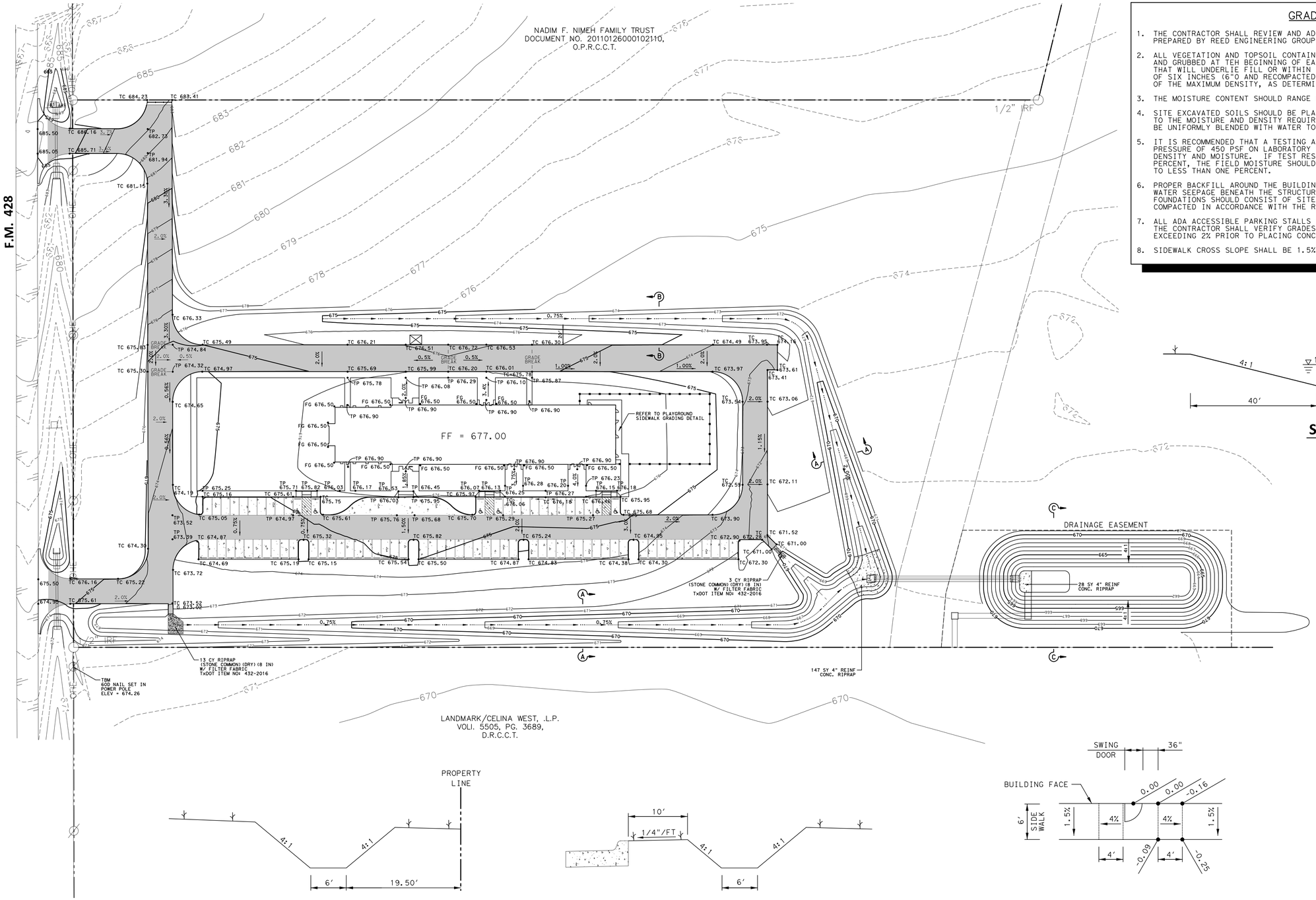
APPLICANT/ENGINEER

CIVIL CONSULTING GROUP
1515 HERITAGE DRIVE, SUITE 212
McKINNEY, TEXAS 75069
972.569.9193

DESIGNED- TLC	DRAWN- JRK	DATE- 8/24/2015	C-3
APPROVED- CCG	CHECKED- TLC	SCALE-	

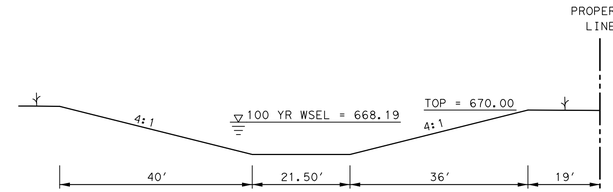
P-201504-01

FILENAME: FUMC*OVERALL*SITEPLAN.dgn
PLOTTED: 8/24/2015



GRADING NOTES

1. THE CONTRACTOR SHALL REVIEW AND ADHERE TO THE GEOTECHNICAL REPORT PREPARED BY REED ENGINEERING GROUP DATED NOVEMBER 18, 2013.
2. ALL VEGETATION AND TOPSOIL CONTAINING ORGANIC MATERIAL SHOULD BE CLEARED AND GRUBBED AT TEH BEGINNING OF EARTHWORK CONSTRUCTION. AREAS OF SITE THAT WILL UNDERLIE FILL OR WITHIN THE BUILDING SHOULD BE SCARIFIED TO A DEPTH OF SIX INCHES (6"O AND RECOMPACTED TO A MINIMUM OF 92% AND A MAXIMUM OF 98% OF THE MAXIMUM DENSITY, AS DETERMINED BY ASTM D-698, "STANDARD PROCTOR".
3. THE MOISTURE CONTENT SHOULD RANGE FROM +1% TO +4% ABOVE OPTIMUM.
4. SITE EXCAVATED SOILS SHOULD BE PLACED IN MAXIMUM 8" LOOSE LIFTS AND COMPACTED TO THE MOISTURE AND DENSITY REQUIREMENTS OUTLINED ABOVE. THE SOILS SHOULD BE UNIFORMLY BLENDED WITH WATER TO ACHIEVE THE REQUIRED MOISTURE CONTENT.
5. IT IS RECOMMENDED THAT A TESTING AGENCY PERFORM ONE-POINT SWELL TESTS AT A PRESSURE OF 450 PSF ON LABORATORY SAMPLES COMPACTED TO THE ABOVE RECOMMENDED DENSITY AND MOISTURE. IF TEST RESULTS INDICATE THAT THE SWELL WILL EXCEED ONE PERCENT, THE FIELD MOISTURE SHOULD BE ADJUSTED TO LIMIT THE POTENTIAL FOR SWELL TO LESS THAN ONE PERCENT.
6. PROPER BACKFILL AROUND THE BUILDING PERIMETER WILL REDUCE THE POTENTIAL FOR WATER SEEPAGE BENEATH THE STRUCTURES. FILL AGAINST THE PERIMETER OF THE FOUNDATIONS SHOULD CONSIST OF SITE EXCAVATED CLAYS, OR EQUAL, PLACED AND COMPACTED IN ACCORDANCE WITH THE RECOMMENDATIONS OUTLINED ABOVE.
7. ALL ADA ACCESSIBLE PARKING STALLS SHALL BE A MAX 2% GRADE IN ALL DIRECTIONS. THE CONTRACTOR SHALL VERIFY GRADES AND NOTIFY ENGINEER OF ANY GRADES EXCEEDING 2% PRIOR TO PLACING CONCRETE.
8. SIDEWALK CROSS SLOPE SHALL BE 1.5% DESIREABLE, 2% MAXIMUM.



SECTION C-C

SECTION A-A

SECTION B-B

PLAYGROUND SIDEWALK GRADING DETAIL

8/24/15

NO.	REVISION	BY	DATE

CIVIL CONSULTING GROUP
1515 HERITAGE DRIVE, STE. 212
MCKINNEY, TEXAS 75069
P 972.569.9193 F 972.569.9197
TEXAS REGISTERED ENGINEERING FIRM NO. F-9356

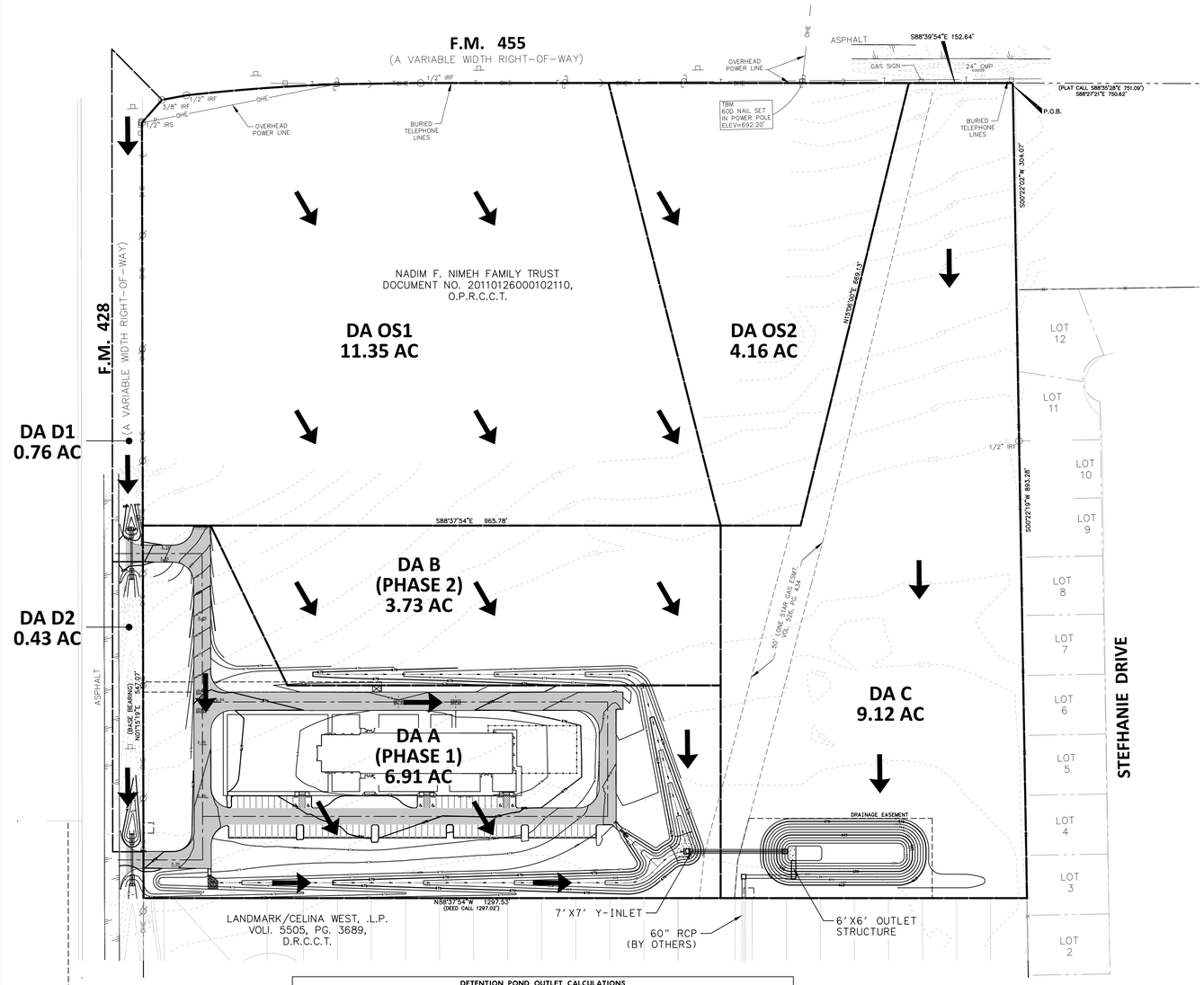
FIRST UNITED METHODIST CHURCH - CELINA
LOT 1, BLOCK A
FIRST UNITED METHODIST CHURCH ADDITION
CITY OF CELINA, COLLIN COUNTY, TEXAS

GRADING PLAN

DESIGNED- TLC	DRAWN- JRK	DATE- 8/24/2015	C-4
APPROVED- CCG	CHECKED- TLC	SCALE-	

P-201504-01

FILENAME: FUMC*GRADE.dgn
PLOTTED: 8/24/2015



MODIFIED RATIONAL METHOD DETENTION POND DESIGN (10 YEAR)

CONDITION	WEIGHTED RUNOFF COEFF. c	T_c (MIN)	INTENSITY (IN/HR)	AREA (AC)	RUNOFF (CFS)
EXISTING CONDITION	0.40	20	4.84	19.76	38.26
PROPOSED CONDITION	0.61	10	6.36	19.76	76.66

OFFSITE PASS THRU RUNOFF (CFS): 16.11

COMBINED ALLOWABLE RELEASE (CFS): 54.36

TIME STEP	Td DURATION (min)	WEIGHTED RUNOFF COEFF. c	INTENSITY (IN/HR)	AREA (AC)	Q (PEAK) (CFS)	VOLUME (FT3) INFLOW T_d*Q*60	VOLUME (FT3) OUTFLOW 0.5(T_c+T_d)*Q_a*60	VOLUME (FT3) REQ. STORAGE INFLOW - OUTFLOW	VOLUME (AC-FT)
1	10	0.61	6.36	19.76	76.66	45996.54	22953.22	23043.32	0.53
2	15	0.61	5.46	19.76	65.81	59231.39	28691.52	30539.87	0.70
3	20	0.61	4.85	19.76	58.46	70151.95	34429.82	35722.13	0.82
4	25	0.61	4.40	19.76	53.04	79553.76	40168.13	39385.63	0.90
5	30	0.61	4.10	19.76	49.42	88955.57	45906.43	43049.14	0.99
6	35	0.61	3.85	19.76	46.41	97453.36	51644.74	45808.62	1.05
7	40	0.61	3.55	19.76	42.79	102696.67	57383.04	45313.63	1.04
8	45	0.61	3.30	19.76	39.78	107397.58	63121.34	44276.23	1.02
9	50	0.61	3.10	19.76	37.37	112098.48	68859.65	43238.83	0.99
10	55	0.61	2.90	19.76	34.96	115352.95	74597.95	40755.00	0.94
11	60	0.61	2.69	19.76	32.42	116727.06	80336.26	36390.81	0.84
12	65	0.61	2.60	19.76	31.34	122223.50	86074.56	36148.94	0.83
13	70	0.61	2.50	19.76	30.13	126562.80	91812.86	34749.94	0.80
14	75	0.61	2.40	19.76	28.93	130178.88	97551.17	32627.71	0.75
15	80	0.61	2.29	19.76	27.60	132493.17	103289.47	29203.70	0.67
16	85	0.61	2.22	19.76	26.76	136470.86	109027.78	27443.08	0.63
17	90	0.61	2.15	19.76	25.92	139942.30	114766.08	25176.22	0.58

MODIFIED RATIONAL METHOD DETENTION POND DESIGN (100 YEAR)

CONDITION	WEIGHTED RUNOFF COEFF. c	T_c (MIN)	INTENSITY (IN/HR)	AREA (AC)	RUNOFF (CFS)
EXISTING CONDITION	0.40	20	6.78	19.76	53.59
PROPOSED CONDITION	0.61	10	8.74	19.76	105.35

OFFSITE PASS THRU RUNOFF (CFS): 42.06

COMBINED ALLOWABLE RELEASE (CFS): 95.65

TIME STEP	Td DURATION (min)	WEIGHTED RUNOFF COEFF. c	INTENSITY (IN/HR)	AREA (AC)	Q (PEAK) (CFS)	VOLUME (FT3) INFLOW T_d*Q*60	VOLUME (FT3) OUTFLOW 0.5(T_c+T_d)*Q_a*60	VOLUME (FT3) REQ. STORAGE INFLOW - OUTFLOW	VOLUME (AC-FT)
1	10	0.61	8.74	19.76	105.35	63209.08	32153.47	31055.61	0.71
2	15	0.61	7.52	19.76	90.64	81578.76	40191.84	41386.92	0.95
3	20	0.61	6.78	19.76	81.72	98068.09	48230.21	49837.88	1.14
4	25	0.61	6.20	19.76	74.73	112098.48	56268.58	55829.90	1.28
5	30	0.61	5.75	19.76	69.31	124754.76	64306.94	60447.82	1.39
6	35	0.61	5.50	19.76	66.29	139219.08	72345.31	66873.77	1.54
7	40	0.61	5.10	19.76	61.47	147536.06	80383.68	67152.38	1.54
8	45	0.61	4.70	19.76	56.65	152960.18	88422.05	64538.14	1.48
9	50	0.61	4.45	19.76	53.64	160915.56	96460.42	64455.14	1.48
10	55	0.61	4.20	19.76	50.63	167062.90	104498.78	62564.11	1.44
11	60	0.61	3.91	19.76	47.13	169666.47	112537.15	57129.32	1.31
12	65	0.61	3.80	19.76	45.80	178634.35	120575.52	58058.83	1.33
13	70	0.61	3.65	19.76	44.00	184781.69	128613.89	56167.80	1.29
14	75	0.61	3.50	19.76	42.19	189844.20	136652.26	53191.94	1.22
15	80	0.61	3.35	19.76	40.38	193821.89	144690.62	49131.26	1.13
16	85	0.61	3.25	19.76	39.17	199788.42	152728.99	47059.43	1.08
17	90	0.61	3.15	19.76	37.97	205031.74	160767.36	44264.38	1.02

HYDROLOGIC CALCULATIONS (10 YEAR)

AREA NUMBER	DRAINAGE AREA (ACRES)	RUNOFF COEFF. (c)	TIME OF CONCENTRATION (MIN)	INTENSITY I (IN/HR)	RUNOFF Q (CFS)	
PRE-DEVELOPMENT						
A	6.91	0.40	20	4.84	13.38	
B	3.73	0.40	20	4.84	7.22	
C	9.12	0.40	20	4.84	17.66	
D1	0.76	0.40	10	6.36	1.93	
D2	0.43	0.40	10	6.36	1.09	
OS1	11.35	0.40	20	4.84	8.05	
OS2	4.16	0.40	20	4.84	8.05	
					54.36	ALLOWABLE RELEASE RATE (10 YEAR) (AREAS A, B, C, OS1, OS2)
POST DEVELOPMENT						
A	6.91	0.80	10	6.36	35.16	
B	3.73	0.80	10	6.36	18.98	
C	9.12	0.40	20	4.84	17.66	
D1	0.76	0.40	10	6.36	1.93	
D2	0.43	0.40	10	6.36	1.09	
OS1	11.35	0.40	20	4.84	21.97	
OS2	4.16	0.40	20	4.84	8.05	

HYDROLOGIC CALCULATIONS (100 YEAR)

AREA NUMBER	DRAINAGE AREA (ACRES)	RUNOFF COEFF. (c)	TIME OF CONCENTRATION (MIN)	INTENSITY I (IN/HR)	RUNOFF Q (CFS)	
PRE-DEVELOPMENT						
A	6.91	0.40	20	6.78	18.74	
B	3.73	0.40	20	6.78	10.12	
C	9.12	0.40	20	6.78	24.73	
D1	0.76	0.40	10	8.74	2.66	
D2	0.43	0.40	10	8.74	1.50	
OS1	11.35	0.40	20	6.78	30.78	
OS2	4.16	0.40	20	6.78	11.28	
					95.65	ALLOWABLE RELEASE RATE (100 YEAR) (AREAS A, B, C, OS1, OS2)
POST DEVELOPMENT						
A	6.91	0.80	10	8.74	48.31	
B	3.73	0.80	10	8.74	26.08	
C	9.12	0.40	20	6.78	24.73	
D1	0.76	0.40	10	8.74	2.66	
D2	0.43	0.40	10	8.74	1.50	
OS1	11.35	0.40	20	6.78	30.78	
OS2	4.16	0.40	20	6.78	11.28	

DETENTION POND OUTLET CALCULATIONS

Weir Equation	$Q = cbh^{3/2}$	Orifice Equation	$Q = cA(2gh)^{1/2}$
Q	Runoff (cfs)	Q	Runoff (cfs)
c	Coefficient	c	Coefficient
b	Weir base width	A	Opening Area (ft^2)
h	Water height above weir	g	32.2 ft/s^2
		h	Water depth above centroid of opening

BASE OPENING

Opening base width (ft) =	2.000
Opening height (ft) =	1.250
Area (sf) =	2.50
Base Elevation (ft) =	660.75
Weir Coefficient =	3.00
Orifice Coefficient =	0.60

SECONDARY OPENING

Opening base width (ft) =	4.500
Opening height (ft) =	2.000
Area (sf) =	9.00
Base Elevation (ft) =	665.00
Weir Coefficient =	3.00
Orifice Coefficient =	0.60

DETENTION POND WSEL (ft)	BASE OPENING WEIR FLOW HEIGHT (ft)	BASE OPENING WEIR FLOW RUNOFF (cfs)	BASE OPENING ORIFICE FLOW HEIGHT (ft)	BASE OPENING ORIFICE FLOW RUNOFF (cfs)	SECONDARY OPENING WEIR FLOW HEIGHT (ft)	SECONDARY OPENING WEIR FLOW RUNOFF (cfs)	SECONDARY OPENING ORIFICE FLOW HEIGHT (ft)	SECONDARY OPENING ORIFICE FLOW RUNOFF (cfs)	COMBINED RUNOFF (cfs)	
660.75	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.0	
661.00	0.25	0.8	0.00	0.0	0.00	0.0	0.00	0.0	0.8	
661.50	0.75	3.9	0.00	0.0	0.00	0.0	0.00	0.0	3.9	
662.00	1.25	8.4	0.63	9.5	0.00	0.0	0.00	0.0	8.4	
662.50	0.00	0.0	1.13	12.8	0.00	0.0	0.00	0.0	12.8	
663.00	0.00	0.0	1.63	15.3	0.00	0.0	0.00	0.0	15.3	
663.50	0.00	0.0	2.13	17.5	0.00	0.0	0.00	0.0	17.5	
664.00	0.00	0.0	2.63	19.5	0.00	0.0	0.00	0.0	19.5	
664.50	0.00	0.0	3.13	21.3	0.00	0.0	0.00	0.0	21.3	
665.00	0.00	0.0	3.63	22.9	0.00	0.0	0.00	0.0	22.9	
665.50	0.00	0.0	4.13	24.4	0.50	4.8	0.00	0.0	29.2	
666.00	0.00	0.0	4.63	25.9	1.00	13.5	0.00	0.0	39.4	
666.50	0.00	0.0	5.13	27.3	1.50	24.8	0.00	0.0	52.1	
666.58	0.00	0.0	5.21	27.5	1.58	26.8	0.00	0.0	54.3	10 year detention
667.00	0.00	0.0	5.63	28.5	2.00	38.2	1.00	43.3	66.7	
667.50	0.00	0.0	6.13	29.8	2.50	53.4	1.50	53.1	82.9	
668.00	0.00	0.0	6.63	31.0	0.00	0.0	2.00	61.3	92.3	
668.19	0.00	0.0	6.82	31.4	0.00	0.0	2.19	64.1	95.6	100 year detention
668.50	0.00	0.0	7.13	32.1	0.00	0.0	2.50	68.5	100.6	
669.00	0.00	0.0	7.63	33.2	0.00	0.0	3.00	75.1	108.3	

Y-INLET CALCULATIONS

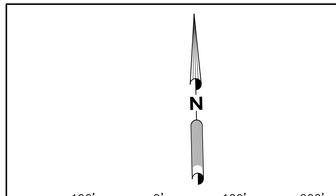
BASE OPENING

Opening base width (ft) =	28.000
Opening height (ft) =	1.000
Area (sf) =	28.00
Base Elevation (ft) =	666.00
Weir Coefficient =	3.00
Orifice Coefficient =	0.60

HEAD ELEVATION (ft)	BASE OPENING WEIR FLOW HEIGHT (ft)	BASE OPENING WEIR FLOW RUNOFF (cfs)	BASE OPENING ORIFICE FLOW HEIGHT (ft)	BASE OPENING ORIFICE FLOW RUNOFF (cfs)
666.00	0.00	0.0	0.00	0.0
666.25	0.25	10.5	0.00	0.0
666.50	0.50	29.7	0.00	0.0
666.75	0.75	54.6	0.00	0.0
667.00	1.00	84.0	0.50	95.3
667.11	1.11	98.2	0.61	105.3
667.50	0.00	0.0	1.00	134.8
667.75	0.00	0.0	1.25	150.7
668.00	0.00	0.0	1.50	165.1

Y-INLET HYDROLOGIC CALCULATIONS (100 YEAR)

AREA NUMBER	DRAINAGE AREA (ACRES)	RUNOFF COEFF. (c)	TIME OF CONCENTRATION (MIN)	INTENSITY I (IN/HR)	RUNOFF Q (CFS)	
POST DEVELOPMENT						
A	6.91	0.80	10	8.74	48.31	
B	3.73	0.80	10	8.74	26.08	
C	0.00	0.40	20	6.78	0.00	
D1	0.00	0.40	10	8.74	0.00	
D2	0.00	0.40	10	8.74	0.00	
OS1	11.35	0.40	20	6.78	30.78	
OS2	0.00	0.40	20	6.78	0.00	
					105.18	PHASE 1 RUNOFF TO Y-INLET



NO.	REVISION	BY	DATE

CCG CIVIL CONSULTING GROUP
1515 HERITAGE DRIVE, STE. 212
MCKINNEY, TEXAS 75069
P 972.569.9193 F 972.569.9197
TEXAS REGISTERED ENGINEERING FIRM NO. F-9356

FIRST UNITED METHODIST CHURCH - CELINA
LOT 1, BLOCK A
FIRST UNITED METHODIST CHURCH ADDITION
CITY OF CELINA, COLLIN COUNTY, TEXAS

DRAINAGE AREA MAP

DESIGNED- TLC	DRAWN- JRK	DATE- 8/24/2015	C-5
APPROVED- CCG	CHECKED- TLC	SCALE-	

FILENAME: FUMC*DAMAP.dgn
PLOTTED: 8/24/2015

P-201504-01

F.M. 428

CULVERT NO. 1
51 LF 24" RCP
W/ SETP-PD (6:1)

S88°37'54"E 965.78'

1/2" IRF

FUTURE PARKING

FUTURE STORM SEWER

FUTURE STORM SEWER

50' LONE STAR GAS ESMT.
VOL. 526, PG. 434

!!!CAUTION!!!
EXISTING GAS LINE

CONSTRUCT TY II
2-24" SETP-PD (4:1)
FE = 661.00

CONSTRUCT 6' x 6' OUTLET
STRUCTURE (SEE DRAINAGE DETAILS)
TOP = 669.10
FE = 660.75

CULVERT
LINE "B"

DRAINAGE EASEMENT

2-24" RCP

60" RCP

60" RCP

(BASE BEARING)
N01°15'19"E 547.07'

OHE

FUTURE PARKING

FUTURE STORM SEWER

N88°37'54"W 1297.53'
(DEED CALL 1297.02')

CULVERT NO. 2
51 LF 24" RCP
W/ SETP-PD (6:1)

TBM
60D NAIL SET IN
POWER POLE
ELEV. = 674.26

CONSTRUCT 7'X7' Y-INLET
W/ CONC RIPRAP APRON
(SEE DRAINAGE DETAILS)
TOP = 667.50
FE = 661.40

STORM SEWER
LINE "A"

CONNECT TO EXIST
60" RCP
FE = 659.9

CONSTRUCT 6' x 6'
JUNCTION BOX
TOP = 671.00
FE = 660.54

N

0' 50' 100'

SCALE: 1" = 50'

STATE OF TEXAS
TREVOR L. CASTILLA
85405
LICENSED
PROFESSIONAL ENGINEER

8/24/15

NO.	REVISION	BY	DATE

CIVIL CONSULTING GROUP
1515 HERITAGE DRIVE, STE. 212
MCKINNEY, TEXAS 75069
P 972.569.9193 F 972.569.9197
TEXAS REGISTERED ENGINEERING FIRM NO. F-9356

FIRST UNITED METHODIST CHURCH - CELINA
LOT 1, BLOCK A
FIRST UNITED METHODIST CHURCH ADDITION
CITY OF CELINA, COLLIN COUNTY, TEXAS

DRAINAGE PLAN

DESIGNED- TLC	DRAWN- JRK	DATE- 8/24/2015	C-6
APPROVED- CCG	CHECKED- TLC	SCALE- 1"=50'	

FILENAME: FUMC*DRAIN.dgn
PLOTTED: 8/24/2015

P-201504-01

F.M. 428

CULVERT NO. 1
51 LF 24" RCP
W/ SETP-PD (6:1)

S88°37'54"E 965.78'

1/2" IRF

FUTURE PARKING

FUTURE STORM SEWER

FUTURE STORM SEWER

50' LONE STAR GAS ESMT.
VOL. 526, PG. 434

!!!CAUTION!!!
EXISTING GAS LINE

CONSTRUCT TY II
2-24" SETP-PD (4:1)
FE = 661.00

CONSTRUCT 6' x 6' OUTLET
STRUCTURE (SEE DRAINAGE DETAILS)
TOP = 669.10
FE = 660.75

CULVERT
LINE "B"

DRAINAGE EASEMENT

2-24" RCP

60" RCP

60" RCP

(BASE BEARING)
N01°15'19"E 547.07'

FUTURE PARKING

IRF

FUTURE STORM SEWER

N88°37'54"W 1297.53'
(DEED CALL 1297.02')

CULVERT NO. 2
51 LF 24" RCP
W/ SETP-PD (6:1)

TBM
60D NAIL SET IN
POWER POLE
ELEV. = 674.26

CONSTRUCT 7'X7' Y-INLET
W/ CONC RIPRAP APRON
(SEE DRAINAGE DETAILS)
TOP = 667.50
FE = 661.40

STORM SEWER
LINE "A"

CONNECT TO EXIST
60" RCP
FE = 659.9

CONSTRUCT 6' x 6'
JUNCTION BOX
TOP = 671.00
FE = 660.54

CalHar Construction, Inc.
AS-BUILT PLANS AS OF: 3-18-16
SIGNED BY: Edward Smith
No Changes

N

0' 50' 100'

SCALE: 1" = 50'

STATE OF TEXAS
TREVOR L. CASTILLA
85405
LICENSED
PROFESSIONAL ENGINEER

8/24/15

NO.	REVISION	BY	DATE
1	CITY REVIEW COMMENTS/MISC REVISIONS	TLC	8/24/15

CIVIL CONSULTING GROUP
1515 HERITAGE DRIVE, STE. 212
MCKINNEY, TEXAS 75069
P 972.569.9193 F 972.569.9197
TEXAS REGISTERED ENGINEERING FIRM NO. F-9356

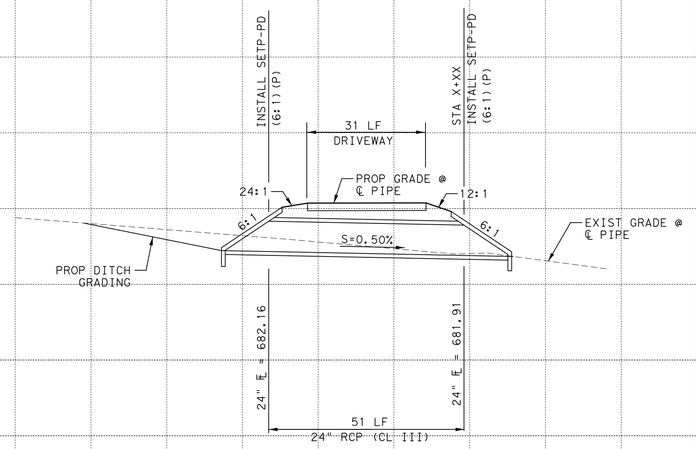
FIRST UNITED METHODIST CHURCH - CELINA
LOT 1, BLOCK A
FIRST UNITED METHODIST CHURCH ADDITION
CITY OF CELINA, COLLIN COUNTY, TEXAS

DRAINAGE PLAN

DESIGNED- TLC	DRAWN- JRK	DATE- 8/26/2015	C-6
APPROVED- CCG	CHECKED- TLC	SCALE- 1"=50'	

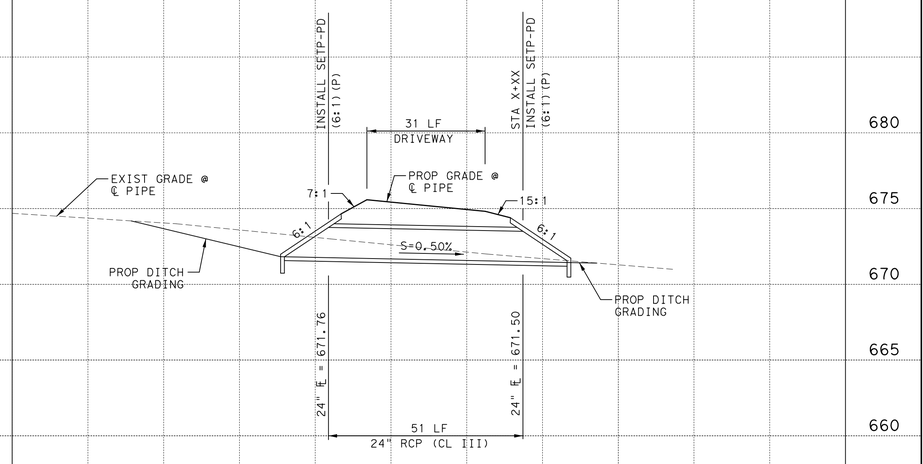
FILENAME: FUMC*DRAIN.dgn
PLOTTED: 8/26/2015

P-201504-01



CULVERT NO. 1 PROFILE

SCALE
H: 1" = 40', V: 1" = 10'



CULVERT NO. 2 PROFILE

SCALE
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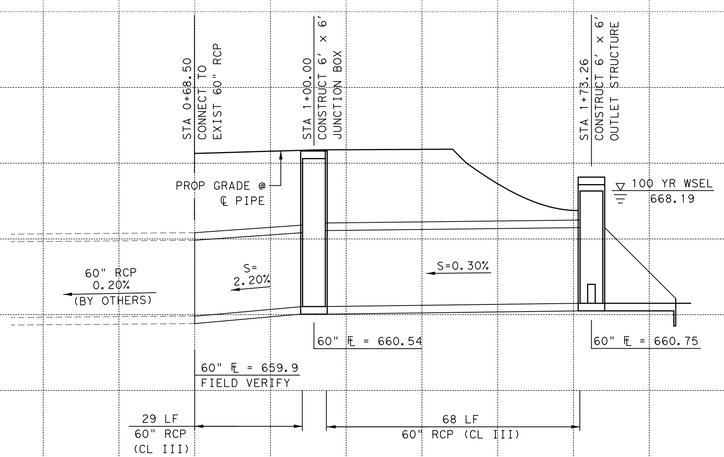
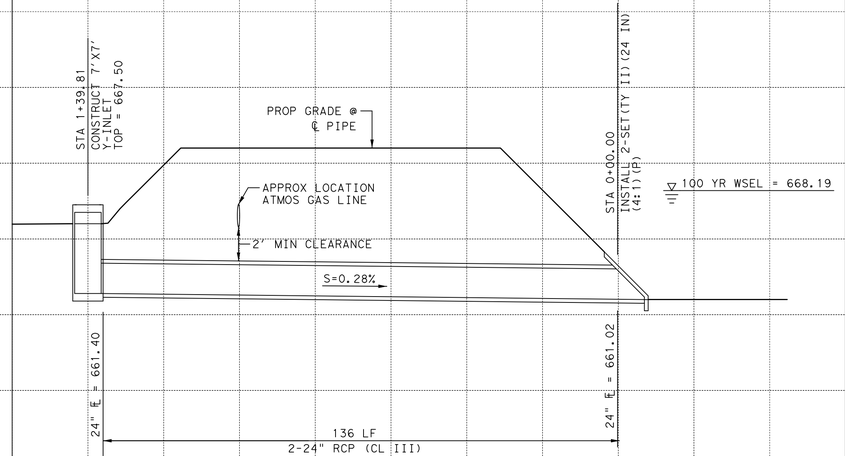


STORM SEWER LINE "A" PROFILE

SCALE
H: 1" = 40', V: 1" = 10'



STORM SEWER LINE "B" PROFILE

SCALE
H: 1" = 40', V: 1" = 10'

HORZ 0' 20' 40'
VERT 0' 5' 10'
SCALE IN FEET

STATE OF TEXAS
TREVOR L. CASTILLA
85405
LICENSED PROFESSIONAL ENGINEER

8/24/15

NO.	REVISION	BY	DATE

CIVIL CONSULTING GROUP
1515 HERITAGE DRIVE, STE. 212
MCKINNEY, TEXAS 75069
P 972.569.9193 F 972.569.9197
TEXAS REGISTERED ENGINEERING FIRM NO. F-9356

FIRST UNITED METHODIST CHURCH - CELINA
LOT 1, BLOCK A
FIRST UNITED METHODIST CHURCH ADDITION
CITY OF CELINA, COLLIN COUNTY, TEXAS

STORM SEWER PROFILES

DESIGNED- TLC	DRAWN- JRK	DATE- 8/24/2015	C-7
APPROVED- CCG	CHECKED- TLC	SCALE-	

P-201504-01

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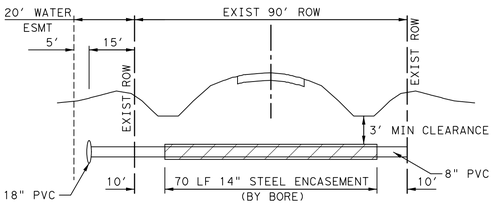
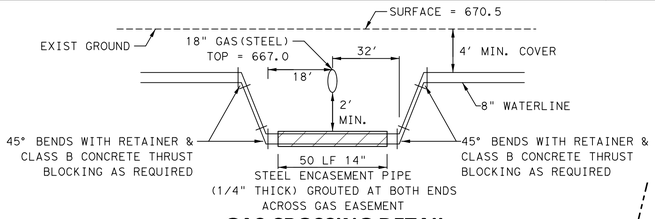
PLOTTED: 8/24/2015



BORE DETAIL



GAS CROSSING DETAIL

S88°37'54"E 965.78'

1/2" IRF

PHASE 2 WATER LINE

OHE

90' EXIST ROW

F.M. 428

INSTALL:
1-8"x8" TEE
2-8" VALVES
1-8" PLUG @ 5' BEHIND BACK OF CURB

INSTALL:
1-8"x6" TEE
1-8" VALVE
1-6" VALVE
38 LF 6" WATER (FIRE)

INSTALL:
1-8"x6" TEE
1-8" VALVE
1-6" VALVE
1-FH
26 LF 6" WATER

STA 9+01.58
CONSTRUCT 4' DIA SAN SEW MANHOLE W/ 4" LATERAL N & S

INSTALL:
1-8"x6" TEE
1-8" VALVE
1-6" VALVE
1-FH
20 LF 6" WATER

INSTALL:
8" WATER LINE
AWWA C900 PVC CL200

LINE "A"
8" SAN SWR

INSTALL:
1-8"x8" TEE
2-8" VALVES
1-8" PLUG @ 5' BEHIND BACK OF CURB

INSTALL:
2-8" 45° BENDS

ELEC TRANS

10'
9'
19'

9+00
8+00
7+00
6+00
8" SAN SEW

2" DOM (POLY)

4" SERVICE LATERAL
W/ 2-WAY CLEANOUT
FL = 673.00

FF = 677.00

87.5'
12.5'

INSTALL:
1-8" DETECTOR CHECK & VAULT
1-2" WATER METER (DOM)
1-1" WATER METER (IRR)

INSTALL:
1-18"x8" TEE
1-18" BUTTERFLY VALVE
1-8" VALVE
1-18" PLUG

INSTALL:
8" WATER LINE
AWWA C900 PVC CL200

STA 5+80.24
CONSTRUCT 4' DIA SAN SEW MANHOLE W/ 8" LATERAL (N)

INSTALL:
8" WATER LINE
AWWA C900 PVC CL200

8'
9'
5+00
4+00
8" SAN SEW

INSTALL:
1-8"x6" TEE
1-8" VALVE
1-6" VALVE
1-FH
20 LF 6" WATER

INSTALL:
2-8" 45° BENDS
1-8" DETECTOR CHECK & VAULT
CONNECT TO 8" WATER

!!!CAUTION!!!
EXISTING GAS LINE
REFER TO GAS
CROSSING DETAIL

G1

50' LONE STAR GAS ESMT.
VOL. 526, PG. 434

N01°15'19"E 547.07'

2" DOM (POLY)

103.00'

15'

PROP 20' WATER ESMT

18" WATER

INSTALL:
2-8" 45° BENDS

INSTALL:
8" WATER LINE
AWWA C900 PVC CL200

INSTALL:
70 LF 14" STEEL ENCASEMENT (1/4" THICK) BY BORE

INSTALL:
273 LF 18" WATER LINE
PVC C-905, DR18

REMOVE PLUG & CONNECT TO EXIST 18" WATER

EXIST 20' WATER ESMT

1/2" IRF

N88°37'54"W 1297.02'
(DEED CALL 1297.15')

LINE "A"
8" SAN SWR

STA 3+06.74
CONSTRUCT 4' DIA SAN SEW MANHOLE

LINE "A"
8" SAN SWR

INSTALL:
2-8" 45° BENDS

INSTALL:
8" WATER LINE
AWWA C900 PVC CL200

3+00
2+00
1+00
8" SAN SEW

9'
10'

15'x15' UTIL ESMT

STA 1+09.98
CONSTRUCT 4' DIA SAN SEW MANHOLE CONNECT TO 8" SAN SEW

8" SAN SEW (BY OTHERS)

8" WATER (BY OTHERS)

UTILITIES TO BE BUILT BY OTHERS

LEGEND

- PROP WATER LINE
- PROP SAN SEW MAIN
- PROP STORM SEWER
- FIRE HYDRANT
- TEE
- VALVE
- PLUG

NOTE:
1. UTILITIES SHALL BE CONSTRUCTED TO WITHIN 5' OF BUILDING FACE.

N

0' 50' 100'

SCALE: 1" = 50'

STATE OF TEXAS
TREVOR L. CASTILLA
85405
LICENSED PROFESSIONAL ENGINEER

8/24/15

NO.	REVISION	BY	DATE

CIVIL CONSULTING GROUP
1515 HERITAGE DRIVE, STE. 212
MCKINNEY, TEXAS 75069
P 972.569.9193 F 972.569.9197
TEXAS REGISTERED ENGINEERING FIRM NO. F-9356

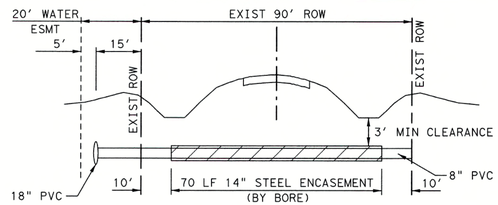
FIRST UNITED METHODIST CHURCH - CELINA
LOT 1, BLOCK A
FIRST UNITED METHODIST CHURCH ADDITION
CITY OF CELINA, COLLIN COUNTY, TEXAS

UTILITY PLAN

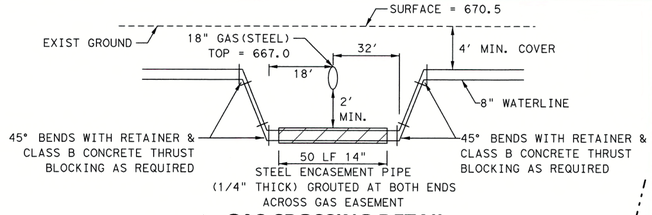
DESIGNED- TLC	DRAWN- JRK	DATE- 8/24/2015	C-8
APPROVED- CCG	CHECKED- TLC	SCALE- 1"=50'	

FILENAME: FUMC*UTIL.dgn
PLOTTED: 8/24/2015

P-201504-01



BORE DETAIL



⚠1 GAS CROSSING DETAIL

S88°37'54"E 965.78'

1/2" IRF

PHASE 2 WATER LINE

90' EXIST ROW

F.M. 428

N01°15'19"E 547.07'

INSTALL:
1-8"x8" TEE
2-8" VALVES
1-8" PLUG @ 5' BEHIND BACK OF CURB

INSTALL:
1-8"x6" TEE
1-8" VALVE
1-6" VALVE
38 LF 6" WATER (FIRE)

INSTALL:
1-8"x6" TEE
1-8" VALVE
1-6" VALVE
1-FH
26 LF 6" WATER

⚠1
STA 9+01.58
CONSTRUCT 4' DIA SAN SEW MANHOLE W/ 4" LATERAL N & S

INSTALL:
1-8"x6" TEE
1-8" VALVE
1-6" VALVE
1-FH
20 LF 6" WATER

INSTALL:
8" WATER LINE
AWWA C900 PVC CL200

LINE "A"
8" SAN SWR

INSTALL:
1-8"x8" TEE
2-8" VALVES
1-8" PLUG @ 5' BEHIND BACK OF CURB

INSTALL:
2-8" 45° BENDS

ELEC TRANS

10'
9'
19'
9'
9'
8'

9+00
8+00
7+00
6+00
5+00
4+00
3+00
2+00
1+00

8" SAN SEW

2" DOM (POLY)

87.5'
12.5'

4" SERVICE LATERAL
W/ 2-WAY CLEANOUT
FL = 673.00
FF = 677.00

⚠1
STA 5+80.24
CONSTRUCT 4' DIA SAN SEW MANHOLE W/ 8" LATERAL (N)

INSTALL:
1-8" DETECTOR CHECK & VAULT
1-2" WATER METER (DOM)
1-1" WATER METER (IRR)

INSTALL:
1-18"x8" TEE
1-18" BUTTERFLY VALVE
1-8" VALVE
1-18" PLUG

INSTALL:
8" WATER LINE
AWWA C900 PVC CL200

INSTALL:
8" WATER LINE
AWWA C900 PVC CL200

INSTALL:
1-8"x6" TEE
1-8" VALVE
1-6" VALVE
1-FH
20 LF 6" WATER

INSTALL:
2-8" 45° BENDS
1-8" DETECTOR CHECK & VAULT
CONNECT TO 8" WATER

INSTALL:
2-8" 45° BENDS

INSTALL:
2-8" 45° BENDS

LINE "A"
8" SAN SWR

LINE "A"
8" SAN SWR

15'

PROP 20' WATER ESMT

18" WATER

103.00'

1/2" IRF

N88°37'54"W 1297.02'
(DEED CALL 1297.15')

INSTALL:
8" WATER LINE
AWWA C900 PVC CL200

INSTALL:
70 LF 14" STEEL ENCASEMENT (1/4" THICK) BY BORE

INSTALL:
273 LF 18" WATER LINE
PVC C-905, DR18

REMOVE PLUG & CONNECT TO EXIST 18" WATER

EXIST 20' WATER ESMT

STA 3+06.74
CONSTRUCT 4' DIA SAN SEW MANHOLE

INSTALL:
8" WATER LINE
AWWA C900 PVC CL200

STA 1+09.98
CONSTRUCT 4' DIA SAN SEW MANHOLE CONNECT TO 8" SAN SEW

15'x15' UTIL ESMT

8" SAN SEW (BY OTHERS)

8" WATER (BY OTHERS)

UTILITIES TO BE BUILT BY OTHERS

50' LONE STAR GAS ESMT. VOL. 526, PG. 434

G1

!!!CAUTION!!!
EXISTING GAS LINE
REFER TO GAS CROSSING DETAIL

OHE

F

G

CallHer Construction, Inc.
AS-BUILT PLANS AS OF: 3-18-16
SIGNED BY: Edward Smith
No Changes

LEGEND

- PROP WATER LINE
- PROP SAN SEW MAIN
- PROP STORM SEWER
- FIRE HYDRANT
- TEE
- VALVE
- PLUG

NOTE:
1. UTILITIES SHALL BE CONSTRUCTED TO WITHIN 5' OF BUILDING FACE.

N

0' 50' 100'

SCALE: 1" = 50'

STATE OF TEXAS
TREVOR L. CASTILLA
85405
LICENSED PROFESSIONAL ENGINEER

Trevor L. Castilla 8/24/15

NO.	REVISION	BY	DATE
⚠1	CITY REVIEW COMMENTS/MISC REVISIONS	TLC	8/24/15

CIVIL CONSULTING GROUP
1515 HERITAGE DRIVE, STE. 212
MCKINNEY, TEXAS 75069
P 972.569.9193 F 972.569.9197
TEXAS REGISTERED ENGINEERING FIRM NO. F-9356

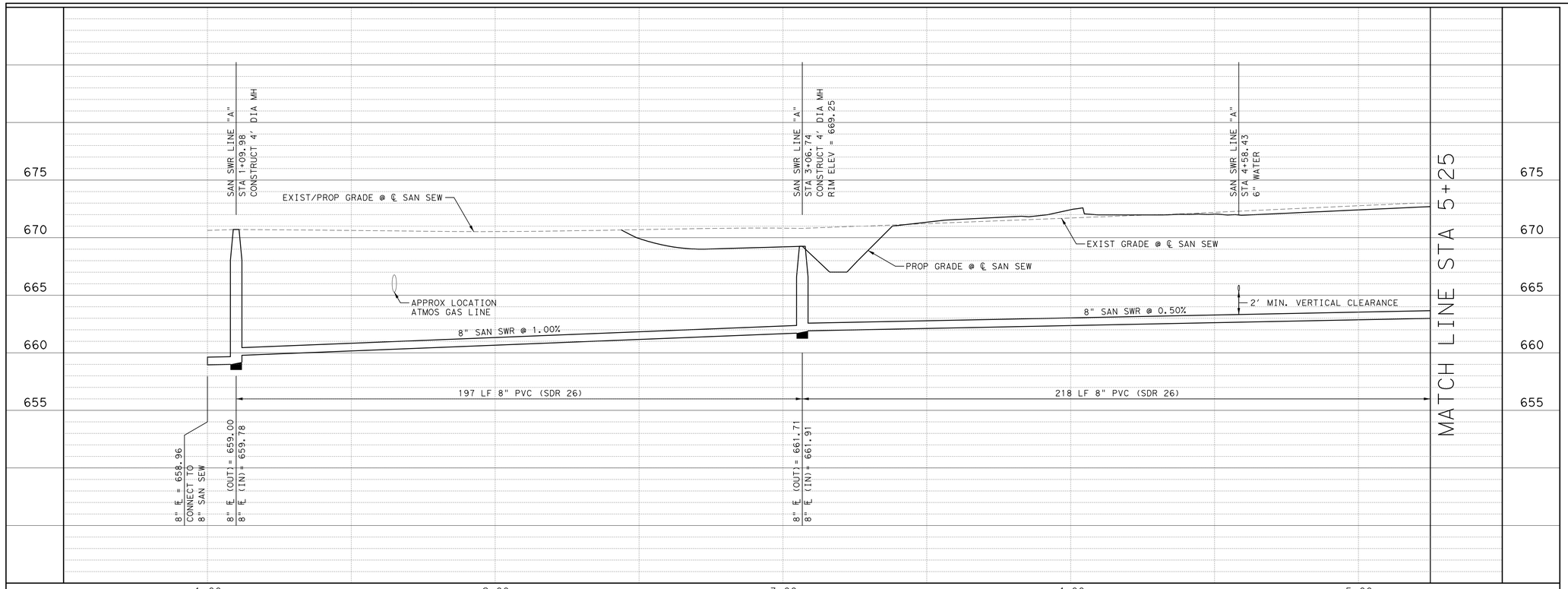
FIRST UNITED METHODIST CHURCH - CELINA
LOT 1, BLOCK A
FIRST UNITED METHODIST CHURCH ADDITION
CITY OF CELINA, COLLIN COUNTY, TEXAS

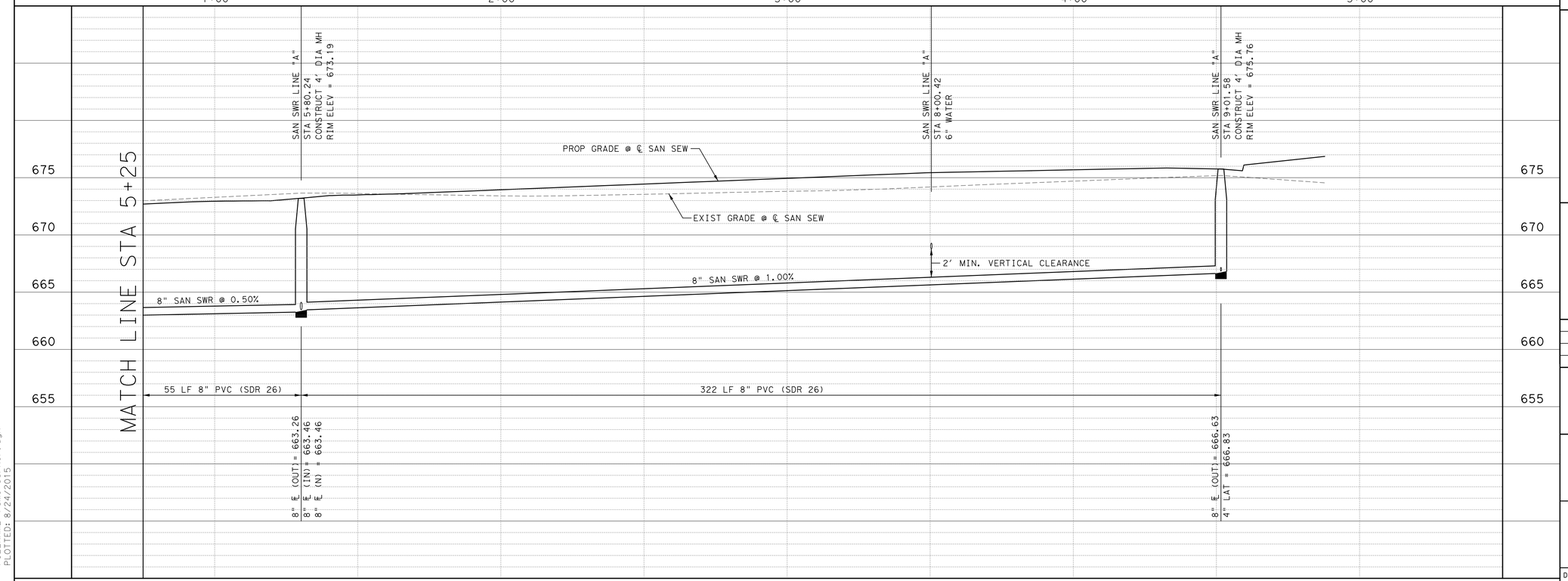
UTILITY PLAN

DESIGNED- TLC	DRAWN- JRK	DATE- 8/26/2015	C-8
APPROVED- CCG	CHECKED- TLC	SCALE- 1"=50'	

FILENAME: FUMC-UTIL.dgn
PLOTTED: 8/26/2015

P-201504-01





HORZ 0' 20' 40'
VERT 0' 5' 10'
SCALE IN FEET

STATE OF TEXAS
TREVOR L. CASTILLA
85405
LICENSED PROFESSIONAL ENGINEER

8/24/15

NO.	REVISION	BY	DATE

CIVIL CONSULTING GROUP
1515 HERITAGE DRIVE, STE. 212
MCKINNEY, TEXAS 75069
P 972.569.9193 F 972.569.9197
TEXAS REGISTERED ENGINEERING FIRM NO. F-9356

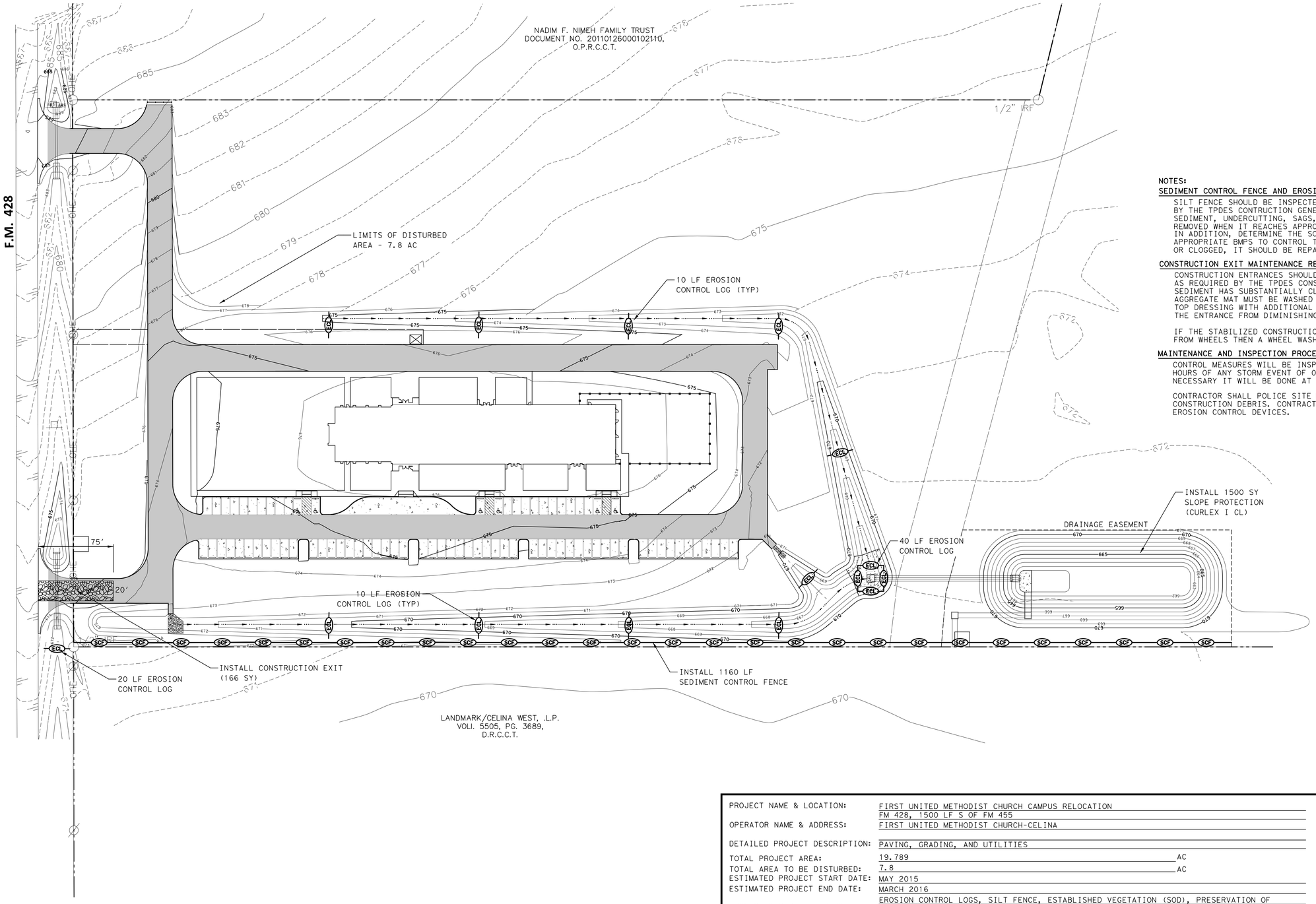
FIRST UNITED METHODIST CHURCH - CELINA
LOT 1, BLOCK A
FIRST UNITED METHODIST CHURCH ADDITION
CITY OF CELINA, COLLIN COUNTY, TEXAS

SANITARY SEWER PROFILE

DESIGNED- TLC	DRAWN- JRK	DATE- 8/24/2015	C-9
APPROVED- CCG	CHECKED- TLC	SCALE-	

FILENAME: FUMC*SSPROF.dgn
PLOTTED: 8/24/2015

P-201504-01



NOTES:

SEDIMENT CONTROL FENCE AND EROSION CONTROL LOG MAINTENANCE REQUIREMENTS

SILT FENCE SHOULD BE INSPECTED REGULARLY (AT LEAST AS OFTEN AS REQUIRED BY THE TPDES CONTRUCTION GENERAL PERMIT, APPENDIX A) FOR BUILDUP OF EXCESS SEDIMENT, UNDERCUTTING, SAGS, AND OTHER FAILURES. SEDIMENT SHOULD BE REMOVED WHEN IT REACHES APPROXIMATELY ONE-HALF THE HEIGHT OF THE FENCE/LOG. IN ADDITION, DETERMINE THE SOURCE OF EXCESS SEDIMENT AND IMPLEMENT APPROPRIATE BMPS TO CONTROL THE EROSION. IF THE FABRIC BECOMES DAMAGED OR CLOGGED, IT SHOULD BE REPAIRED OR REPLACED AS NECESSARY.

CONSTRUCTION EXIT MAINTENANCE REQUIREMENTS

CONSTRUCTION ENTRANCES SHOULD BE INSPECTED REGULARLY (AT LEAST AS OFTEN AS REQUIRED BY THE TPDES CONSTRUCTION GENERAL PERMIT, APPENDIX A). WHEN SEDIMENT HAS SUBSTANTIALLY CLOGGED THE VOID AREA BETWEEN THE ROCKS, THE AGGREGATE MAT MUST BE WASHED DOWN OR REPLACED. PERIODIC RE-GRADING AND TOP DRESSING WITH ADDITIONAL STONE MUST BE DONE TO KEEP THE EFFICIENCY OF THE ENTRANCE FROM DIMINISHING.

IF THE STABILIZED CONSTRUCTION ENTRANCE IS NOT EFFECTIVELY REMOVING SEDIMENT FROM WHEELS THEN A WHEEL WASH SHOULD BE CONSIDERED.

MAINTENANCE AND INSPECTION PROCEDURES

CONTROL MEASURES WILL BE INSPECTED AT LEAST ONCE A WEEK OR WITHIN 24 HOURS OF ANY STORM EVENT OF 0.5 INCHES OR GREATER. IF A REPAIR IS NECESSARY IT WILL BE DONE AT THE EARLIEST PRACTICAL DATE BUT WITHIN 48 HOURS.

CONTRACTOR SHALL POLICE SITE REGULARLY AND KEEP SITE FREE OF TRASH AND CONSTRUCTION DEBRIS. CONTRACTOR IS REQUIRED TO REPAIR AND/OR REPLACE DAMAGED EROSION CONTROL DEVICES.

PROJECT NAME & LOCATION:	FIRST UNITED METHODIST CHURCH CAMPUS RELOCATION FM 428, 1500 LF S OF FM 455
OPERATOR NAME & ADDRESS:	FIRST UNITED METHODIST CHURCH-CELINA
DETAILED PROJECT DESCRIPTION:	PAVING, GRADING, AND UTILITIES
TOTAL PROJECT AREA:	19.789 AC
TOTAL AREA TO BE DISTURBED:	7.8 AC
ESTIMATED PROJECT START DATE:	MAY 2015
ESTIMATED PROJECT END DATE:	MARCH 2016
EROSION & SEDIMENT BMPS:	EROSION CONTROL LOGS, SILT FENCE, ESTABLISHED VEGETATION (SOD), PRESERVATION OF EXISTING VEGETATION, CONSTRUCTION ENTRANCE/EXIT
STABILIZATION PRACTICES:	ESTABLISHED VEGETATION, PAVING

N

0' 50' 100'

SCALE: 1" = 50'

STATE OF TEXAS
TREVOR L. CASTILLA
85405
LICENSED
PROFESSIONAL ENGINEER
8/24/15

NO.	REVISION	BY	DATE

CIVIL CONSULTING GROUP
1515 HERITAGE DRIVE, STE. 212
MCKINNEY, TEXAS 75069
P 972.569.9193 F 972.569.9197
TEXAS REGISTERED ENGINEERING FIRM NO. F-9356

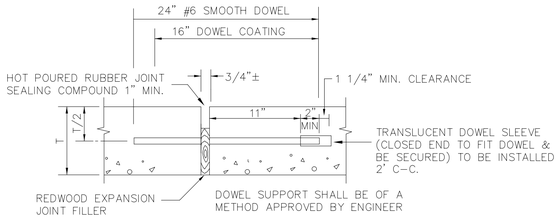
FIRST UNITED METHODIST CHURCH - CELINA
LOT 1, BLOCK A
FIRST UNITED METHODIST CHURCH ADDITION
CITY OF CELINA, COLLIN COUNTY, TEXAS

EROSION CONTROL PLAN

DESIGNED- TLC	DRAWN- JRK	DATE- 8/24/2015	C-10
APPROVED- CCG	CHECKED- TLC	SCALE-	

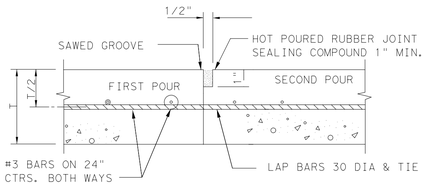
P-201504-01

FILENAME: FUMC*EROSION.dgn
PLOTTED: 8/24/2015



EXPANSION JOINT

(SPACED 600 FT. MAXIMUM; LOCATE AT STRUCTURES AND AT INTERSECTION P.C.'S & P.T.'S)
N.T.S.



CONSTRUCTION JOINT

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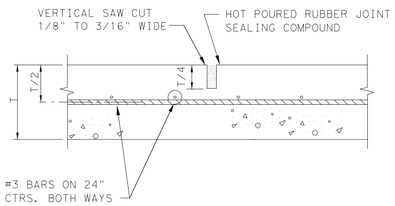
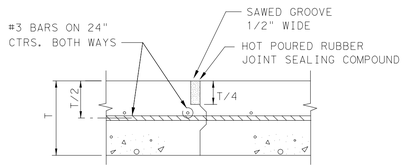


SAWED CONTRACTION JOINT

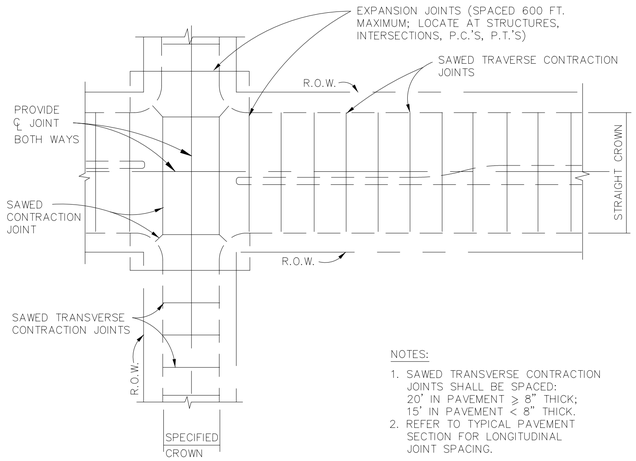
N.T.S.



KEYWAY JOINT

(FOR PAVEMENT THICKNESS > 6")
N.T.S.

NOTE:
ALTERNATE REINFORCEMENT #4 BARS ON 30" CTRS. BOTH WAYS.

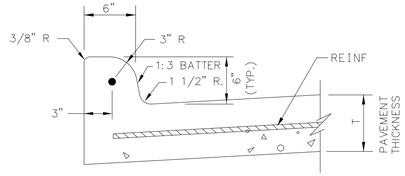


NOTES:

1. SAWED TRANSVERSE CONTRACTION JOINTS SHALL BE SPACED: 20' IN PAVEMENT ≥ 8" THICK; 15' IN PAVEMENT < 8" THICK.
2. REFER TO TYPICAL PAVEMENT SECTION FOR LONGITUDINAL JOINT SPACING.

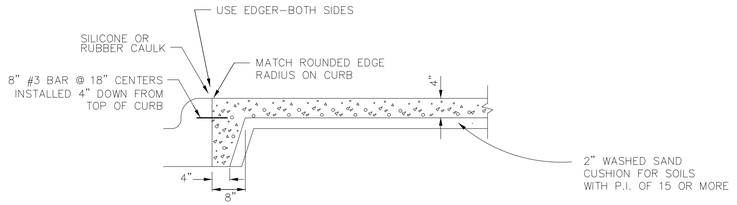
SPACING DIAGRAM FOR TRANSVERSE JOINTS

N.T.S.



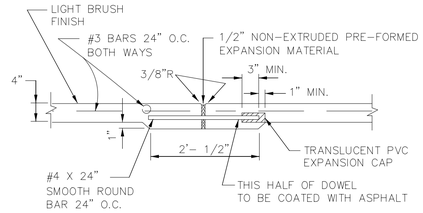
INTEGRAL CURB & GUTTER

N.T.S.



JOINT LUG DETAIL FOR MEDIAN PAVEMENT OR SIDEWALK ADJACENT TO CURB

N.T.S.



SIDEWALK EXPANSION JOINT DETAIL

N.T.S.

NOTE:

1. REFER TO STANDARD SPECIFICATION ITEM 8.3. FOR ALTERNATE REINFORCEMENT.
2. CROSS SLOPE OF SIDEWALK SHALL BE ± 1/4" PER FT. MAX.
3. OTHER THAN 6'-0" SIDEWALK WIDTH MAY BE SPECIFIED BY OWNER.
4. SIDEWALK SHALL BE CLASS "A" CONCRETE UNLESS OTHERWISE SPECIFIED BY OWNER.
5. ALL HONEYCOMB IN BACK OF CURB TO BE TROWEL-PLASTERED BEFORE POURING SIDEWALK.
6. LUG MAY BE FORMED BY SHAPING SUBGRADE TO APPROXIMATE DIMENSIONS SHOWN.

STATE OF TEXAS
TREVOR L. CASTILLA
85405
LICENSED PROFESSIONAL ENGINEER

Trevor L. Castilla 8/24/15

NO.	REVISION	BY	DATE

CIVIL CONSULTING GROUP
1515 HERITAGE DRIVE, STE. 212
MCKINNEY, TEXAS 75069
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TEXAS REGISTERED ENGINEERING FIRM NO. F-9356

FIRST UNITED METHODIST CHURCH - CELINA
LOT 1, BLOCK A
FIRST UNITED METHODIST CHURCH ADDITION
CITY OF CELINA, COLLIN COUNTY, TEXAS

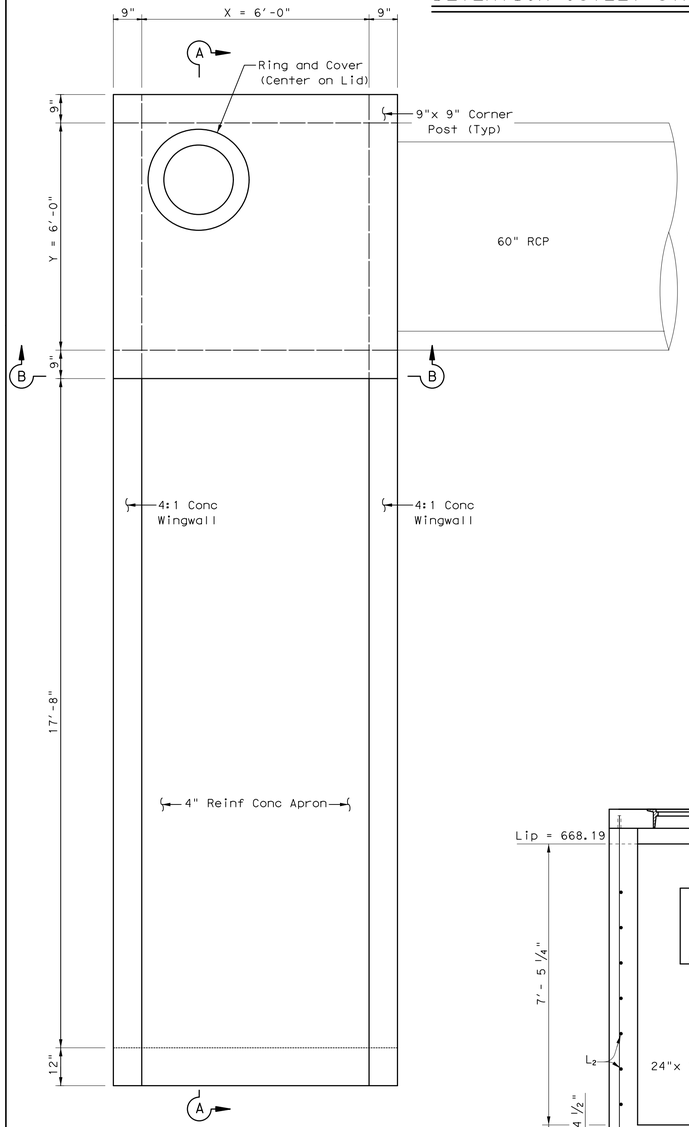
MISCELLANEOUS DETAILS
PAVING

DESIGNED- TLC	DRAWN- JRK	DATE- 8/24/2015	D-1
APPROVED- CCG	CHECKED- TLC	SCALE-	

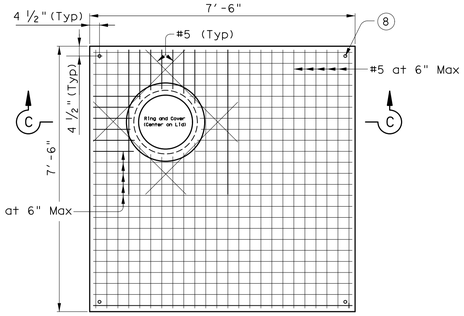
P-201504-01

FILENAME: FUMC*DETAILS01.dgn
PLOTTED: 8/24/2015

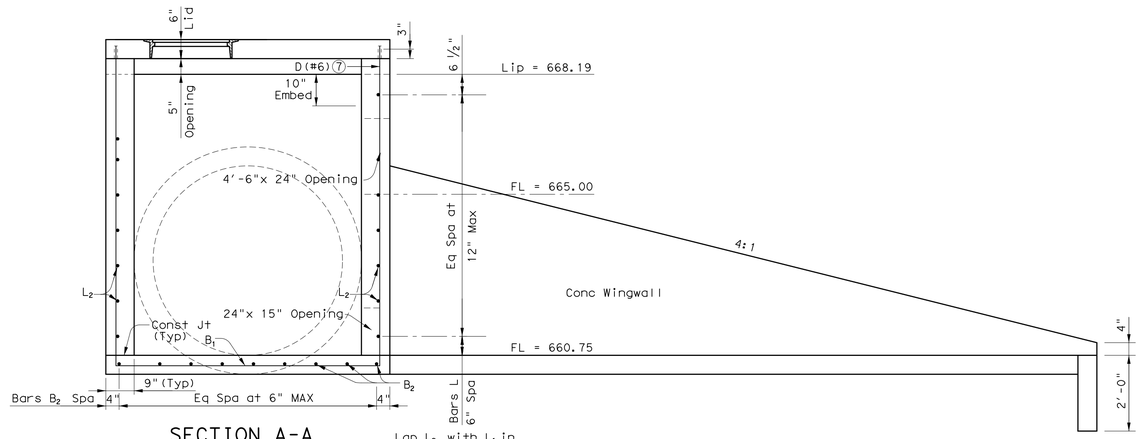
DETENTION OUTLET STRUCTURE DETAILS



OUTLET STRUCTURE PLAN



TYPICAL LID PLAN



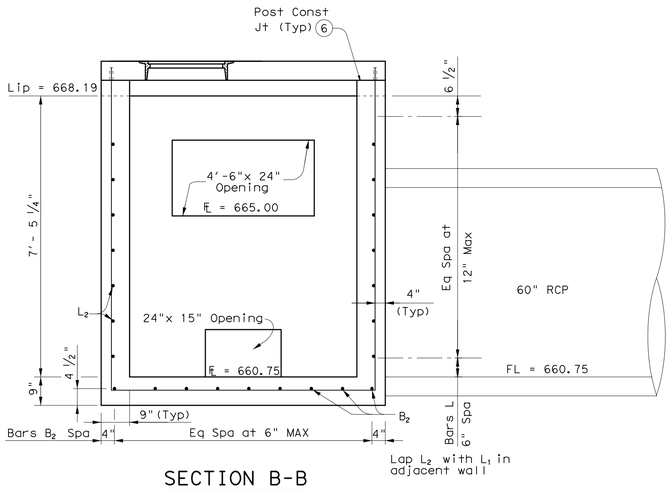
SECTION A-A

Lap L_2 with L_1 in adjacent wall

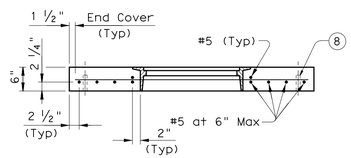
6 Place layer of grout between lid and corner posts to provide stable seating of lid.

7 Center Dowels D in corner posts. (Typ)

8 Form holes in lid for Dowels D using 1" Dia x 4" PVC Pipe (SCH 40) (Typ).



SECTION B-B



SECTION C-C

GENERAL NOTES:

When approved, precast inlets with equivalent structural capacity may be furnished. Sealed engineering calculations and drawings shall be submitted for approval prior to construction.

Lid will be precast.

In areas of conflict between reinforcing steel, blockouts, pipes, anchor bolts or other reinforcing steel, the reinforcement shall be bent or adjusted to clear as directed by the Engineer.

Structural Steel for grates shall conform to the requirements of ASTM Designation A-36 or AISI Designation M1010-M1020.

All reinforcing steel shall be Grade 60 unless otherwise noted.

All concrete shall be Class "A" (f'c = 3,000 psi).

All steel components except reinforcing, shall be galvanized after fabrication. Galvanizing damaged during transport or construction shall be repaired in accordance with the specifications.

BARS B (#4)

BARS L (#4)

STATE OF TEXAS
TREVOR L. CASTILLA
85405
LICENSED
PROFESSIONAL ENGINEER

8/24/15

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1515 HERITAGE DRIVE, STE. 212
MCKINNEY, TEXAS 75069
P 972.569.9193 F 972.569.9197
TEXAS REGISTERED ENGINEERING FIRM NO. F-9356

FIRST UNITED METHODIST CHURCH - CELINA
LOT 1, BLOCK A
FIRST UNITED METHODIST CHURCH ADDITION
CITY OF CELINA, COLLIN COUNTY, TEXAS

MISCELLANEOUS DETAILS
DRAINAGE

SHEET 1 OF 3

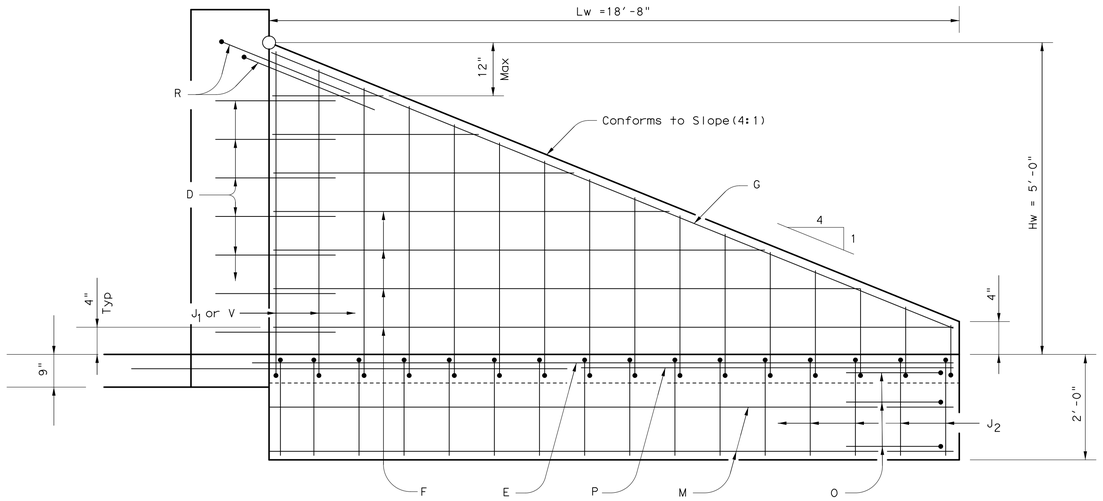
DESIGNED- TLC	DRAWN- JRK	DATE- 8/24/2015	D-2
APPROVED- CCG	CHECKED- TLC	SCALE-	

P-201504-01

FILENAME: FUMC-DETENTION01.dgn
PLOTTED: 8/24/2015

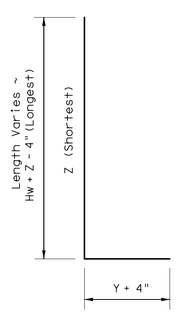
TABLE OF DIMENSIONS & REINFORCING STEEL
(Wings for One Structure End)

Dimensions					Variable Reinforcing				Estimated Quantities per ft of wing length (2~Wings) (3)	
					Bars J_1		Bars J_2			
Maximum Wingwall Height Hw	W	X	Y	Z	Size	Spa	Size	Spa	Reinf (Lb/Ft)	Conc (CY/Ft)
5'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.09	0.343

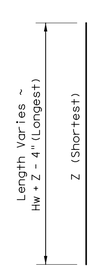


INSIDE ELEVATION OF WINGWALL

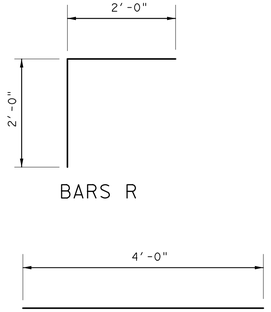
1. Extend Bars P 3'-0" minimum into bottom slab.
2. Adjust to fit as necessary to maintain 1 1/4" clear cover and 4" minimum between bars.
3. Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings multiply the tabulated values by Lw.
4. Recommended values of Slope are: 3:1, 4:1, & 6:1. Slope shall be 3:1 or flatter.
5. A 4" deep concrete riprap shall be constructed. Payment for riprap shall be as required by item 432, "Riprap". Unless otherwise shown on the plans or directed by the Engineer, construction joints or grooved joints, oriented in the direction of flow, and shall extend across the full distance of the riprap, at intervals of approximately 20'.



BARS J_1

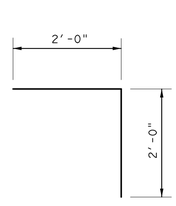


BARS V

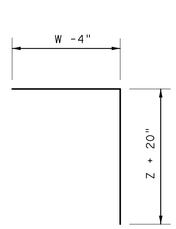


BARS R

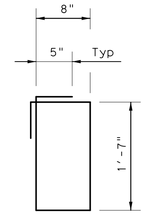
BARS D



BARS L & OL



BARS J_2



BARS K
(Length = 5'-4")

TABLE OF WINGWALL REINFORCING (2~Wings)

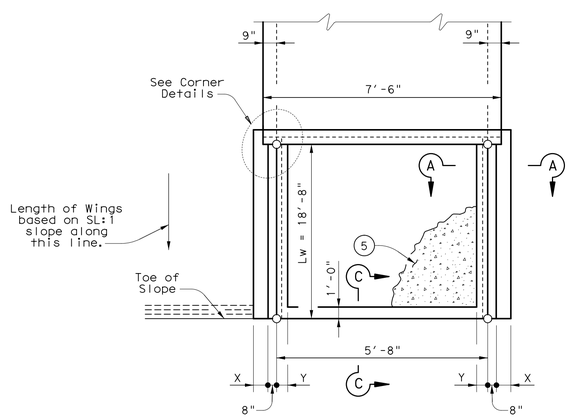
Bar	Size	No.	Spa
D	#5	~	1'-0"
E	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	4	~
M	#4	4	~
P	#4	~	1'-0"
R	#5	6	~
V	#4	~	1'-0"

TABLE OF ESTIMATED CULVERT TOEWALL QUANTITIES

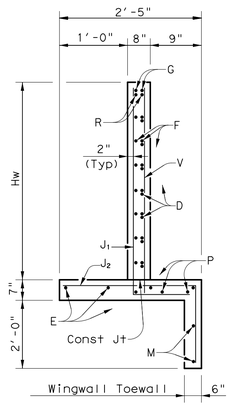
Bar	Size	No.	Spa
L	#4	~	1'-6"
Q	#4	1	~
Reinf (Lb/Ft)			2.45
Conc (CY/Ft)			0.037

TABLE OF ESTIMATED ANCHOR TOEWALL QUANTITIES

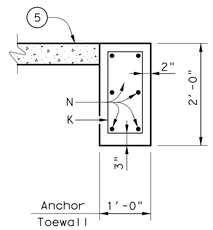
Bar	Size	No.	Spa
K	#4	~	1'-0"
N	#5	6	~
OL	#4	6	~
Reinf (Lb/Ft)			9.82
Conc (CY/Ft)			0.074



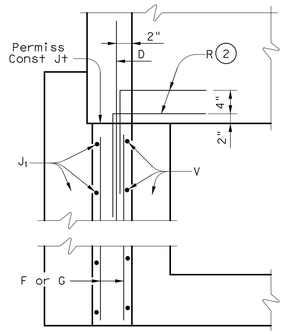
PLAN
(Showing Dimensions)



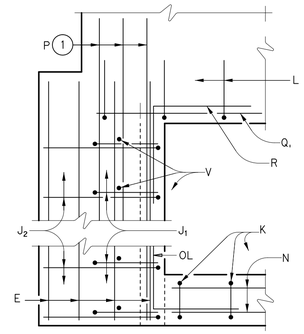
SECTION A-A



SECTION C-C



WINGWALL



FOOTING AND TOEWALL

CORNER DETAILS
(Culvert and Culvert Toewall reinforcing not shown for clarity.)

STATE OF TEXAS
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8/24/15

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TEXAS REGISTERED ENGINEERING FIRM NO. F-9356

NO.	REVISION	BY	DATE

FIRST UNITED METHODIST CHURCH - CELINA
LOT 1, BLOCK A
FIRST UNITED METHODIST CHURCH ADDITION
CITY OF CELINA, COLLIN COUNTY, TEXAS

MISCELLANEOUS DETAILS
DRAINAGE

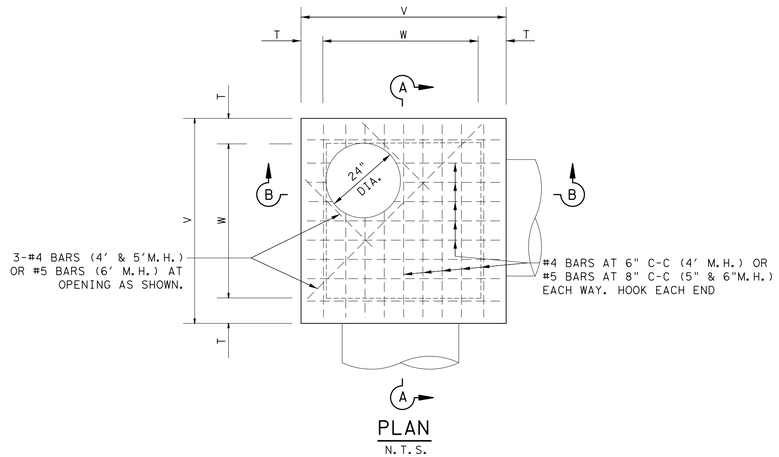
SHEET 2 OF 3

DESIGNED- TLC	DRAWN- JRK	DATE- 8/24/2015	D-3
APPROVED- CCG	CHECKED- TLC	SCALE-	

FILENAME: FUMC*DETENTION02.dgn
PLOTTED: 8/24/2015

P-201504-01

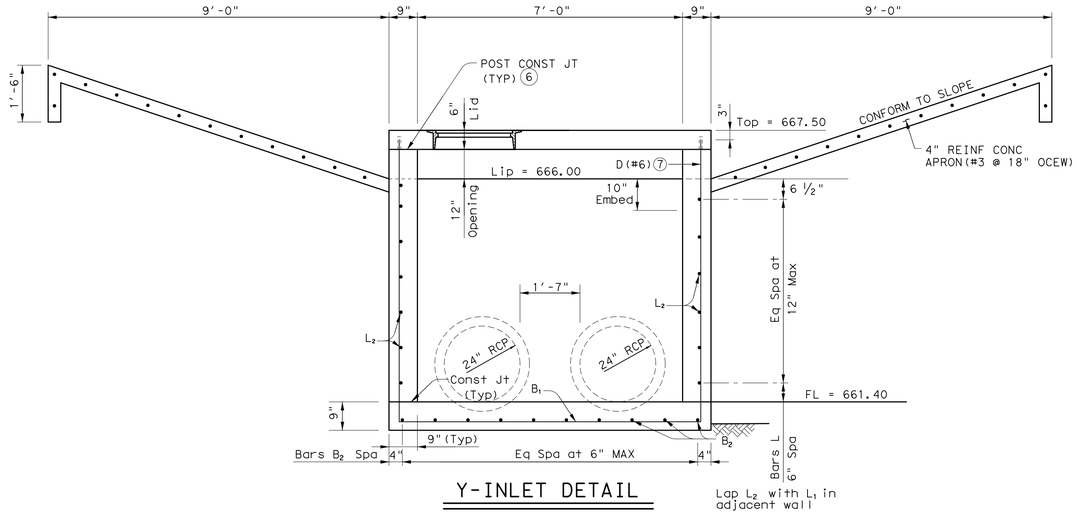
JUNCTION BOX DETAIL



PLAN
N.T.S.

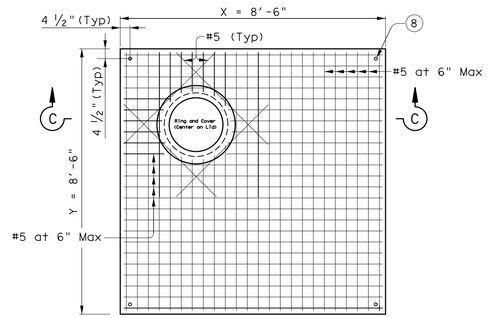
M.H. SIZE(W)	V	T	E	F	G	H
4'	5'-4"	8"	6"	9"	6"	1'-3"
5'	6'-4"	8"	6"	12"	8"	1'-8"
6'	7'-6"	9"	9"	16"	10"	2'-2"

TABLE OF DIMENSIONS
N.T.S.

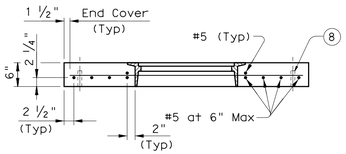


Y-INLET DETAIL

Lap L_2 with L_1 in adjacent wall



TYPICAL LID PLAN

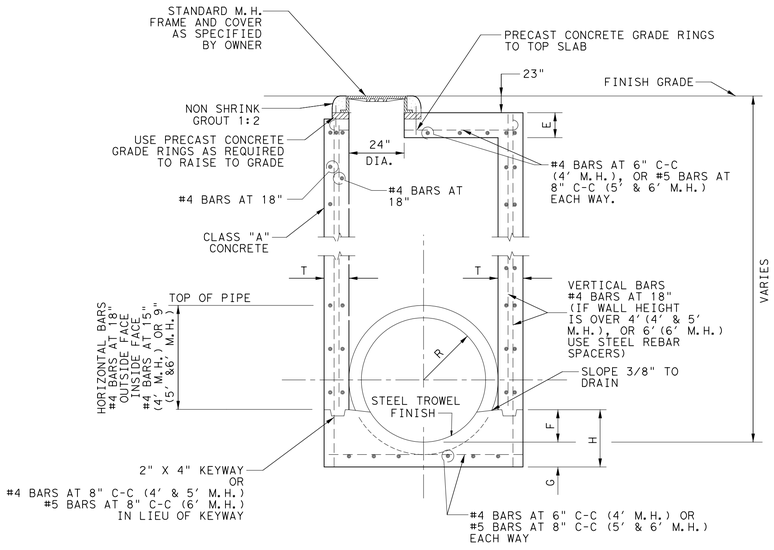


SECTION C-C

6 Place layer of grout between lid and corner posts to provide stable seating of lid.

7 Center Dowels D in corner posts. (Typ)

8 Form holes in lid for Dowels D using 1" Dia x 4" PVC Pipe (SCH 40) (Typ).



SECTION B-B
N.T.S.

FILENAME: FUMC-DETENTION03.dgn
PLOTTED: 8/24/2015

STATE OF TEXAS
TREVOR L. CASTILLA
85405
LICENSED PROFESSIONAL ENGINEER
8/24/15

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FIRST UNITED METHODIST CHURCH - CELINA
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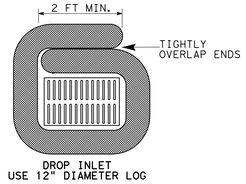
CITY OF CELINA, COLLIN COUNTY, TEXAS

MISCELLANEOUS DETAILS
DRAINAGE

SHEET 3 OF 3

DESIGNED- TLC	DRAWN- JRK	DATE- 8/24/2015	D-4
APPROVED- CCG	CHECKED- TLC	SCALE-	

P-201504-01

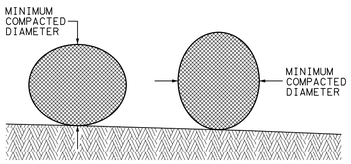


INLET PROTECTION

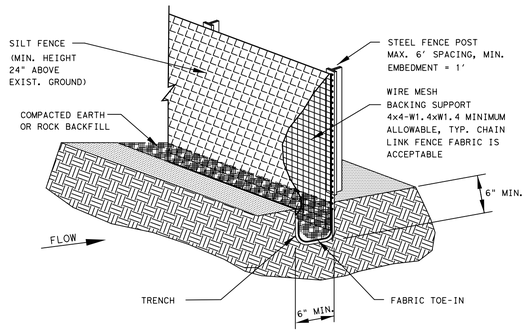
MATERIAL REQUIREMENTS

FILL:
USE 100% SHREDDED MULCH OR OTHER NON-COMPOST BIODEGRADEABLE MATERIAL AS FILL FOR LOGS. NO COMPOST OR FINES.
DO NOT USE MATERIAL WHICH PROHIBITS WATER INFILTRATION.

LOG MESH:
USE MESH WITH 1#4" OPENINGS OR LARGER. MESH MUST ALLOW WATER INFILTRATION BUT ALSO HOLD FILL MATERIAL IN PLACE.



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS



SILT FENCE

SILT FENCE GENERAL NOTES:

1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.

2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (e.g. PAVEMENT), WEIGHT FABRIC FLAP WITH ROCK ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.

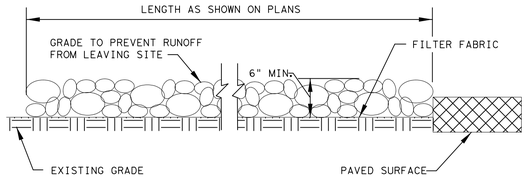
3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.

4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IN TURN IS ATTACHED TO THE STEEL FENCE POST. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.

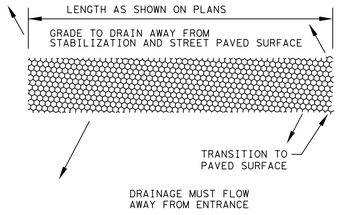
5. INSPECTION SHALL BE MADE EVERY TWO WEEKS AND AFTER EACH 1/2" RAINFALL. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.

6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.



PROFILE VIEW
N.T.S.



PLAN VIEW
N.T.S.

STABILIZED CONSTRUCTION ENTRANCE

STABILIZED CONSTRUCTION ENTRANCE GENERAL NOTES:

1. STONE SHALL BE 3 TO 5 INCH DIAMETER CRUSHED ROCK OR ACCEPTABLE CRUSHED PORTLAND CEMENT CONCRETE.

2. LENGTH SHALL BE SHOWN ON PLANS, WITH A MINIMUM LENGTH OF 30 FEET FOR LOTS WHICH ARE LESS THAN 150 FEET FROM EDGE OF PAVEMENT. THE MINIMUM DEPTH IN ALL OTHER CASES SHALL BE 50 FEET.

3. THE THICKNESS SHALL NOT BE LESS THAN 6 INCHES.

4. THE WIDTH SHALL BE NO LESS THAN THE FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.

5. WHEN NECESSARY, VEHICLES SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO A PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WITH DRAINAGE FLOWING AWAY FROM BOTH THE STREET AND THE STABILIZED ENTRANCE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.

6. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PAVED SURFACES. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PAVED SURFACES MUST BE REMOVED IMMEDIATELY.

7. THE ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

STATE OF TEXAS
TREVOR L. CASTILLA
85405
LICENSED
PROFESSIONAL ENGINEER
8/24/15

NO.	REVISION	BY	DATE

CIVIL CONSULTING GROUP
1515 HERITAGE DRIVE, STE. 212
MCKINNEY, TEXAS 75069
P 972.569.9193 F 972.569.9197
TEXAS REGISTERED ENGINEERING FIRM NO. F-9356

FIRST UNITED METHODIST CHURCH - CELINA
LOT 1, BLOCK A
FIRST UNITED METHODIST CHURCH ADDITION
CITY OF CELINA, COLLIN COUNTY, TEXAS

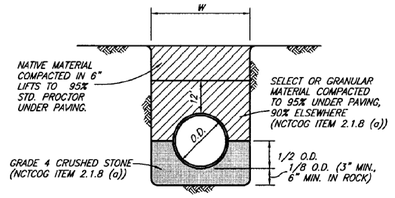
MISCELLANEOUS DETAILS
EROSION CONTROL

DESIGNED- TLC	DRAWN- JRK	DATE- 8/24/2015	D-5
APPROVED- CCG	CHECKED- TLC	SCALE-	

FILENAME: FUMC-DETAILS02.dgn
PLOTTED: 8/24/2015

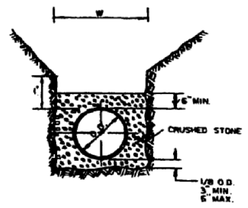
Sanitary Sewer Manhole

Embedment



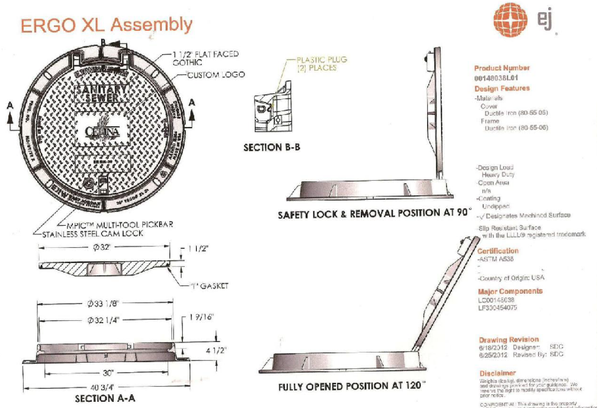
CLASS B+ EMBEDMENT

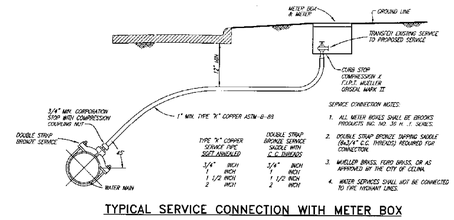
STD PVC WATER OR D.I.P.



CLASS H EMBEDMENT P.V.C. PIPE ONLY

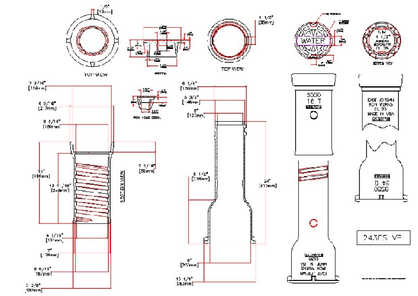
STD. P.V.C. SEWER INSTALLATION
STD. P.V.C., R.C.C.P & DUCTILE WATER INSTALLATION.





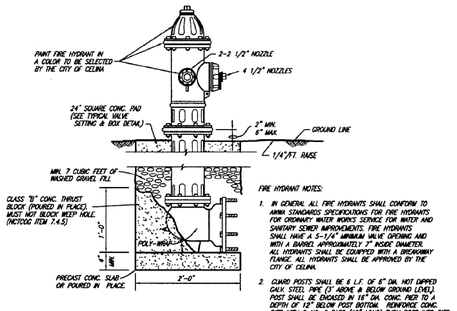
TYPICAL SERVICE CONNECTION WITH METER BOX

Valve box



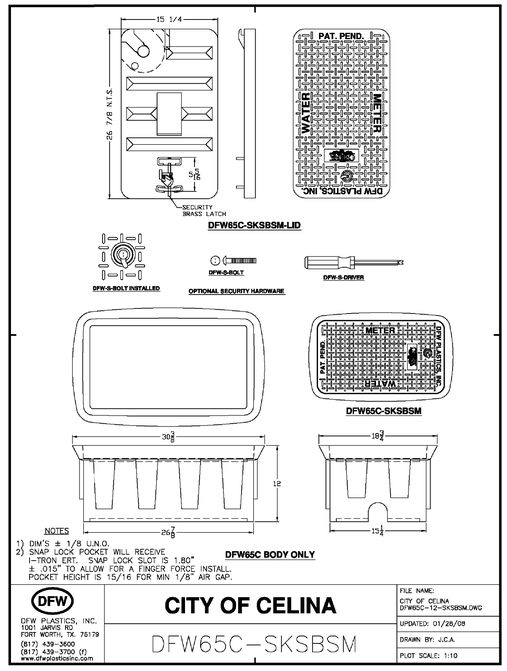
Fire Hydrant Installation

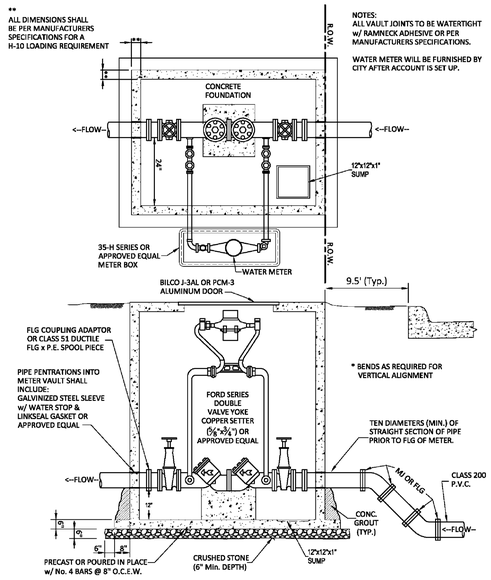
Note: Waterous or approved equal



TYPICAL FIRE HYDRANT INSTALLATION

NO SCALE





DOUBLE CHECK DETECTOR ASSEMBLY (LEAK DETECTOR)

STATE OF TEXAS
TREVOR L. CASTILLA
85405
LICENSED PROFESSIONAL ENGINEER

8/24/15

NO.	REVISION	BY	DATE

CIVIL CONSULTING GROUP
1515 HERITAGE DRIVE, STE. 212
MCKINNEY, TEXAS 75069
P 972.569.9193 F 972.569.9197
TEXAS REGISTERED ENGINEERING FIRM NO. F-9356

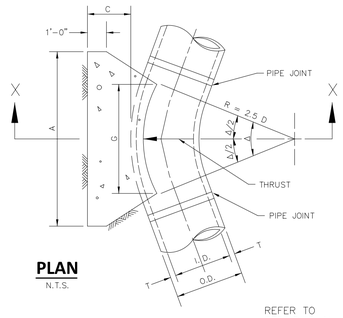
FIRST UNITED METHODIST CHURCH - CELINA
LOT 1, BLOCK A
FIRST UNITED METHODIST CHURCH ADDITION
CITY OF CELINA, COLLIN COUNTY, TEXAS

MISCELLANEOUS DETAILS

UTILITY

DESIGNED- TLC	DRAWN- JRK	DATE- 8/24/2015	D-6
APPROVED- CCG	CHECKED- TLC	SCALE-	

P-201504-01



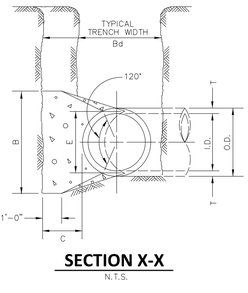
PLAN
N.T.S.

REFER TO
STD. DWG. No. 4040
FOR GENERAL NOTES.

I.D. (IN.)	T (IN.)	Δ = 11.25° (FT.)	Δ = 22.50° (FT.)	E (FT.)
4,6,8	0.4	1.5	1.5	0.9
10,12	0.5	1.5	1.5	1.2
16,18	0.6	1.5	1.5	1.6
20	0.7	1.5	1.5	1.8
24	0.9	1.5	1.5	2.1
30	2.9	1.5	1.9	2.6
36	4.5	1.5	2.3	3.3
42	5.0	1.8	2.6	3.8
48	5.5	2.0	3.0	4.3
54	6.0	2.3	3.4	4.8
60	6.5	2.5	3.8	5.3
66	6.8	2.8	4.1	5.7
72	7.5	3.0	4.5	6.3
78	7.5	3.3	4.9	6.7
84	8.0	3.5	5.3	7.2
90	8.5	3.8	5.6	7.7
96	9.0	4.0	6.0	8.2

I.D. (IN.)	Δ = 30° G (FT.)	THRUST (TONS)	EARTH A (FT.)	EARTH B (FT.)	EARTH VOL. (C.Y.)	ROCK A (FT.)	ROCK B (FT.)	ROCK VOL. (C.Y.)
4,6,8	1.0	2.6	2.0	1.5	0.2	1.0	1.5	0.1
10,12	1.5	5.9	2.5	2.5	0.3	2.0	1.5	0.2
16,18	2.2	13.2	3.5	4.0	0.8	2.5	3.0	0.4
20	2.4	16.3	4.5	4.0	1.0	3.0	3.0	0.5
24	2.9	23.4	6.0	4.0	1.4	3.5	3.5	0.7
30	3.6	27.5	6.5	5.0	1.9	3.5	4.0	0.9
36	4.4	39.5	7.0	6.0	3.4	4.5	4.5	1.6
42	5.1	53.8	8.0	7.0	5.1	5.5	5.0	2.5
48	5.8	70.3	9.0	8.0	7.4	6.0	6.0	3.7
54	6.5	89.0	10.0	9.0	10.3	7.0	6.5	5.3
60	7.3	110.0	11.0	10.0	13.9	7.5	7.5	7.3
66	8.0	132.9	12.5	11.0	18.9	8.5	8.0	9.6
72	8.7	158.2	13.5	12.0	24.0	9.0	9.0	12.3
78	9.4	185.6	14.5	13.0	30.0	10.0	9.5	15.6
84	10.1	215.3	15.5	14.0	37.1	10.5	10.5	19.5
90	10.9	247.1	16.5	15.0	45.0	11.5	11.0	23.9
96	11.6	281.2	18.0	16.0	55.5	12.5	11.5	28.9

I.D. (IN.)	Δ = 45° G (FT.)	THRUST (TONS)	EARTH A (FT.)	EARTH B (FT.)	EARTH VOL. (C.Y.)	ROCK A (FT.)	ROCK B (FT.)	ROCK VOL. (C.Y.)
4,6,8	1.5	3.9	2.0	2.0	0.2	1.5	1.5	0.1
10,12	2.2	8.7	3.5	2.5	0.5	2.0	2.5	0.3
16,18	3.2	19.5	4.5	4.5	1.2	3.0	3.5	0.6
20	3.6	24.1	5.5	4.5	1.5	3.5	3.5	0.7
24	4.3	34.6	8.0	4.5	2.3	4.5	4.0	1.1
30	5.4	40.6	8.5	5.0	3.2	5.5	4.0	1.6
36	6.5	58.5	10.0	6.0	5.3	6.5	4.5	2.6
42	7.5	79.6	11.5	7.0	8.1	8.0	5.0	4.2
48	8.6	104.0	13.0	8.0	11.9	9.0	6.0	6.3
54	9.7	131.5	15.0	9.0	17.1	10.5	6.5	8.9
60	10.7	162.4	16.5	10.0	23.1	11.0	7.5	12.0
66	11.8	196.5	18.0	11.0	30.1	12.0	8.5	16.2
72	12.9	233.9	19.5	12.0	38.6	14.0	8.5	20.7
78	13.9	274.5	21.5	13.0	49.8	14.5	9.5	25.9
84	15.0	318.4	23.0	14.0	61.2	15.5	10.5	32.6
90	16.1	365.5	24.5	15.0	74.5	17.5	10.5	39.6
96	17.1	415.6	26.0	16.0	89.5	18.5	11.5	48.5



SECTION X-X
N.T.S.

I.D. (IN.)	Δ = 11.25° G (FT.)	THRUST (TONS)	EARTH A (FT.)	EARTH B (FT.)	EARTH VOL. (C.Y.)	ROCK A (FT.)	ROCK B (FT.)	ROCK VOL. (C.Y.)
4,6,8	0.4	1.0	1.0	1.5	0.1	1.0	1.0	0.1
10,12	0.6	2.2	1.5	1.5	0.1	1.0	1.5	0.1
16,18	0.8	5.0	2.0	2.5	0.3	1.5	2.0	0.2
20	0.9	6.2	2.0	3.5	0.4	1.5	3.0	0.3
24	1.1	8.9	3.0	3.5	0.5	1.5	3.0	0.3
30	1.4	10.4	3.0	3.5	0.6	2.0	3.5	0.4
36	1.7	15.0	3.5	4.5	0.9	2.0	4.0	0.5
42	1.9	20.4	4.5	5.0	1.5	2.5	5.0	0.8
48	2.2	26.6	4.5	6.0	2.0	2.5	6.0	1.1
54	2.5	33.7	6.0	6.0	3.0	3.0	6.0	1.4
60	2.7	41.6	6.0	7.0	3.8	3.0	7.0	1.8
66	3.0	50.3	6.5	8.0	5.1	3.5	8.0	2.7
72	3.3	59.9	7.5	8.0	6.3	4.0	8.0	3.3
78	3.6	70.2	8.0	9.0	8.1	4.0	9.0	3.9
84	3.8	81.5	8.5	10.0	10.3	4.5	10.0	5.3
90	4.1	93.5	9.5	10.0	12.2	5.0	10.0	6.3
96	4.4	106.4	10.0	11.0	15.0	5.0	11.0	7.4

I.D. (IN.)	Δ= 22.50° G (FT.)	THRUST (TONS)	EARTH A (FT.)	EARTH B (FT.)	EARTH VOL. (C.Y.)	ROCK A (FT.)	ROCK B (FT.)	ROCK VOL. (C.Y.)
4,6,8	0.8	2.0	1.5	1.5	0.1	1.0	1.0	0.1
10,12	1.1	4.4	2.0	2.5	0.3	1.5	1.5	0.1
16,18	1.6	9.9	3.0	3.5	0.6	2.0	2.5	0.3
20	1.8	12.3	3.5	3.5	0.7	2.0	3.0	0.4
24	2.2	17.7	4.0	4.5	1.0	3.0	3.5	0.5
30	2.7	20.7	5.0	4.5	1.5	3.0	4.0	0.8
36	3.3	29.8	5.5	5.5	2.3	4.0	4.0	1.3
42	3.8	40.5	7.0	6.0	3.9	4.5	5.0	2.1
48	4.4	52.9	8.0	7.0	5.7	4.5	6.0	2.8
54	4.9	67.0	9.0	8.0	8.0	6.0	6.0	4.1
60	5.5	82.7	9.5	9.0	10.6	6.0	7.0	5.3
66	6.0	100.1	10.5	10.0	14.1	6.5	8.0	7.2
72	6.6	119.1	11.0	11.0	17.6	7.5	8.0	9.1
78	7.1	139.8	12.0	12.0	22.5	8.0	9.0	11.7
84	7.6	162.1	13.0	12.5	27.2	8.5	10.0	14.8
90	8.2	186.1	14.0	13.5	33.7	9.5	10.0	17.7
96	8.7	211.7	15.0	14.5	41.2	10.0	11.0	21.8

I.D. (IN.)	Δ = 67.50° G (FT.)	THRUST (TONS)	EARTH A (FT.)	EARTH B (FT.)	EARTH VOL. (C.Y.)	ROCK A (FT.)	ROCK B (FT.)	ROCK VOL. (C.Y.)
4,6,8	2.1	5.6	3.0	2.0	0.3	2.0	1.5	0.2
10,12	3.1	12.6	5.5	2.5	0.8	3.5	2.0	0.4
16,18	4.7	28.3	7.5	4.0	1.9	5.5	3.0	0.9
20	5.2	34.9	9.0	4.0	2.3	5.5	3.5	1.2
24	6.2	50.3	11.5	4.5	3.5	6.5	4.0	1.6
30	7.8	58.9	12.0	5.0	4.8	7.5	4.0	2.2
36	9.4	84.9	14.5	6.0	8.2	9.5	4.5	3.8
42	10.9	115.5	17.0	7.0	12.8	11.0	5.5	6.3
48	12.5	150.9	19.0	8.0	18.4	13.0	6.0	9.2
54	14.0	191.0	21.5	9.0	26.0	15.0	6.5	12.9
60	15.6	235.8	24.0	10.0	35.6	16.0	7.5	17.6
66	17.1	285.3	26.0	11.0	46.0	18.0	8.0	23.0
72	18.7	339.5	28.5	12.0	57.8	19.0	9.0	28.4
78	20.2	398.5	31.0	13.0	75.7	21.0	9.5	37.4
84	21.8	462.1	33.5	14.0	94.7	22.0	10.5	46.5
90	23.3	530.5	35.5	15.0	114.4	24.5	11.0	58.2
96	24.9	603.6	38.0	16.0	138.9	25.5	12.0	70.0

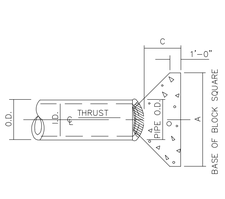
I.D. (IN.)	Δ = 90° G (FT.)	THRUST (TONS)	EARTH A (FT.)	EARTH B (FT.)	EARTH VOL. (C.Y.)	ROCK A (FT.)	ROCK B (FT.)	ROCK VOL. (C.Y.)
4,6,8	2.7	7.1	5.0	1.5	0.4	2.0	2.0	0.2
10,12	4.0	16.0	6.5	2.5	1.0	3.5	2.5	0.5
16,18	6.0	36.0	9.0	4.0	2.4	4.5	4.0	1.0
20	6.6	44.4	10.0	4.5	3.1	6.0	4.0	1.5
24	7.9	64.0	14.5	4.5	5.0	8.0	4.0	2.1
30	9.9	75.0	15.0	5.0	6.7	10.0	4.0	3.3
36	11.9	108.0	18.0	6.0	11.4	12.0	4.5	5.3
42	13.9	147.0	21.0	7.0	17.8	14.0	5.5	8.7
48	15.9	192.0	24.0	8.0	26.2	16.0	6.0	12.4
54	17.9	243.0	27.0	9.0	36.9	18.0	7.0	18.1
60	19.9	299.8	30.0	10.0	50.3	20.0	7.5	24.0
66	21.8	362.8	33.0	11.0	66.2	22.0	8.5	32.5
72	23.8	431.8	36.0	12.0	85.6	24.0	9.0	41.0
78	25.7	506.7	39.0	13.0	108.2	26.0	10.0	53.2
84	27.7	587.7	42.0	14.0	134.4	28.0	10.5	64.8
90	29.0	674.6	45.0	15.0	164.9	30.0	11.5	81.2
96	31.6	767.5	48.0	16.0	199.0	32.0	12.0	95.1

TABLES OF DIMENSIONS AND QUANTITIES

TABLES OF DIMENSIONS AND QUANTITIES

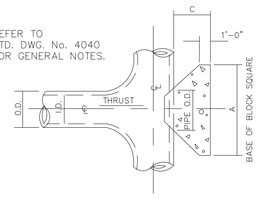
TABLES OF DIMENSIONS AND QUANTITIES

HORIZONTAL THRUST BLOCK
AT PIPE BEND



PLAN OF PLUG THRUST BLOCK
N.T.S.

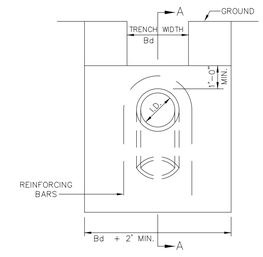
REFER TO
STD. DWG. No. 4040
FOR GENERAL NOTES.



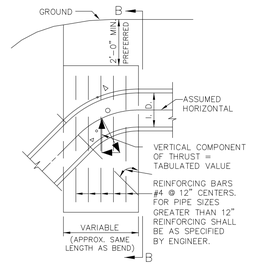
PLAN OF TEE THRUST BLOCK
N.T.S.

I.D. (IN.)	THRUST (TONS)	C (FT.)	EARTH A (FT.)	EARTH VOL. (C.Y.)	ROCK A (FT.)	ROCK VOL. (C.Y.)
4,6,8	5.1	1.5	2.5	0.3	2.0	0.2
10,12	11.3	1.5	3.5	0.6	2.5	0.3
16,18	25.5	2.0	5.5	1.6	4.0	0.9
20	31.5	2.0	6.0	1.9	4.0	0.9
24	45.2	2.5	7.0	3.1	5.0	1.7
30	53.0	3.0	7.5	4.1	5.5	2.4
36	76.3	4.0	9.0	7.3	6.5	4.2
42	104.0	4.5	10.5	11.0	7.5	6.2
48	136.0	5.0	12.0	15.6	8.5	8.7
54	172.0	5.5	13.5	21.4	9.5	11.9
60	212.0	6.0	15.0	28.4	10.5	15.7
66	257.0	6.5	16.5	36.8	11.5	20.5
72	305.0	7.5	17.5	47.2	12.5	27.2
78	358.0	8.0	19.0	58.9	13.5	33.7
84	416.0	8.5	20.5	72.3	14.5	41.2
90	477.0	9.0	22.0	87.7	15.5	49.7
96	543.0	9.5	23.5	104.8	16.5	61.0

HORIZONTAL THRUST BLOCK
AT TEES AND PLUGS



ELEVATION "B-B"
N.T.S.



SECTION "A-A"
N.T.S.

Δ	11.25° I.D. (IN.)	11.25° THRUST (TONS)	11.25° VOL. (C.Y.)	22.50° THRUST (TONS)	22.50° VOL. (C.Y.)	30° THRUST (TONS)	30° VOL. (C.Y.)	45° THRUST (TONS)	45° VOL. (C.Y.)	67.50° THRUST (TONS)	67.50° VOL. (C.Y.)	90° THRUST (TONS)	90° VOL. (C.Y.)	Δ I.D. (IN.)
4,6,8	1.0	0.5	2.0	1.0	2.5	1.3	3.6	1.8	4.6	2.3	5.0	2.5	4,6,8
10,12	2.2	1.1	4.3	2.2	5.7	2.8	8.0	4.0	10.5	5.2	11.3	5.7	10,12
16,18	5.0	2.5	9.7	4.9	12.7	6.4	18.0	9.0	23.5	11.8	25.5	12.7	16,18
20	6.1	3.1	12.0	6.0	15.7	7.9	22.2	11.1	29.2	14.5	31.4	15.7	20
24	8.2	4.4	17.3	8.7	22.6	11.3	32.0	16.0	41.8	20.9	45.2	22.6	24
30	10.5	5.2	20.3	10.1	26.5	13.3	37.5	18.8	49.0	24.5	53.1	26.5	30
36	14.9	7.5	29.2	14.6	38.2	19.1	54.0	27.0	70.5	35.3	76.4	38.2	36
42	20.3	10.1	39.8	19.9	52.0	26.0	73.5	36.7	96.0	48.0	104.0	52.0	42
48	26.5	13.2	51.9	26.0	67.9	33.9	96.0	48.0	126.0	62.7	136.0	67.9	48
54	33.5	16.8	65.7	32.9	85.9	42.9	122.0	60.7	159.0	79.4	172.0	85.9	54
60	41.4	20.7	81.2	40.6	106.0	53.0	150.0	75.0	196.0	98.0	212.0	106.0	60
66	50.1	25.0	98.2	49.1	128.0	64.2	182.0	90.7	237.0	119.0	257.0	128.0	66
72	59.6	29.8	117.0	58.4	153.0	76.3	216.0	108.0	282.0	141.0	305.0	153.0	72
78	69.9	35.0	137.0	68.6	179.0	90.0	254.0	127.0	331.0	166.0	358.0	179.0	78
84	81.1	40.5	159.0	79.5	208.0	104.0	294.0	147.0	384.0	192.0	416.0	208.0	84
90	93.1	46.5	183.0	91.3	239.0	119.0	337.0	169.0	441.0	221.0	477.0	239.0	90
96	106.0	53.0	208.0	104.0	272.0	136.0	384.0	192.0	502.0	251.0	543.0	272.0	96

VERTICAL THRUST BLOCK
AT PIPE BEND

GENERAL NOTES FOR ALL THRUST BLOCKS

1. CONCRETE FOR BLOCKING SHALL BE CLASS "B".
2. ALL CALCULATIONS ARE BASED ON INTERNAL PRESSURE OF 200 PSI FOR DUCTILE IRON, P.V.C., AND 150 PSI FOR CONCRETE PIPE.
3. VOLUMES OF THRUST BLOCKS ARE NET VOLUMES OF CONCRETE TO BE FURNISHED. THE CORRESPONDING WEIGHT OF THE CONCRETE (CLASS "B") IS EQUAL TO OR GREATER THAN THE VERTICAL COMPONENT OF THE THRUST ON THE VERTICAL BEND.
4. WALL THICKNESS (T) ASSUMED HERE FOR ESTIMATING PURPOSES ONLY.
5. POUR CONCRETE FOR BLOCK AGAINST UNDISTURBED EARTH.
6. DIMENSIONS MAY BE VARIED AS REQUIRED BY FIELD CONDITIONS WHERE AND AS DIRECTED BY THE ENGINEER. THE VOLUME OF CONCRETE BLOCKING SHALL NOT BE LESS THAN SHOWN HERE.
7. THE SOIL BEARING PRESSURES ARE BASED ON 1000 LBS./S.F. IN SOIL AND 2000 LBS./S.F. IN ROCK.
8. USE POLYETHYLENE WRAP OR EQUAL BETWEEN CONCRETE AND BEND, TEE, OR PLUG TO PREVENT THE CONCRETE FROM STICKING TO IT.
9. CONCRETE SHALL NOT EXTEND BEYOND JOINTS.

STATE OF TEXAS
TREVOR L. CASTILLA
85405
LICENSED
PROFESSIONAL ENGINEER
8/24/15

NO.	REVISION	BY	DATE

CIVIL CONSULTING GROUP
1515 HERITAGE DRIVE, STE. 212
MCKINNEY, TEXAS 75069
P 972.569.9193 F 972.569.9197
TEXAS REGISTERED ENGINEERING FIRM NO. F-9356

FIRST UNITED METHODIST CHURCH - CELINA
LOT 1, BLOCK A
FIRST UNITED METHODIST CHURCH ADDITION
CITY OF CELINA, COLLIN COUNTY, TEXAS

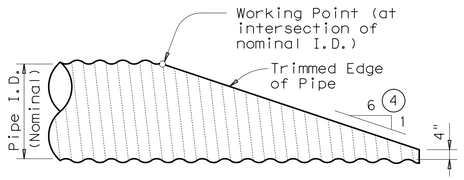
MISCELLANEOUS DETAILS
THRUST BLOCK

DESIGNED- TLC	DRAWN- JRK	DATE- 8/24/2015	D-7
APPROVED- CCG	CHECKED- TLC	SCALE-	

FILENAME: FUMC-DETAILS04.dgn
PLOTTED: 8/24/2015

P-201504-01

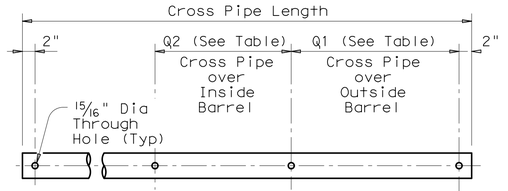
DATE:
FILE:



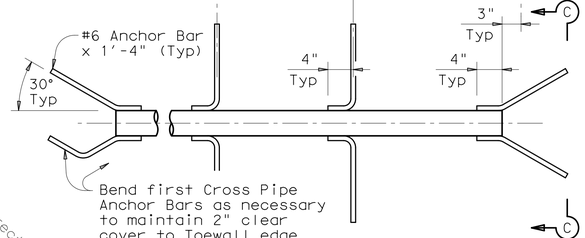
NOTE: All Cross Pipes, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

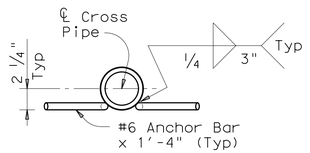
(Showing Corrugated Metal Pipe Culvert.)
(Details at Concrete Pipe Culvert are similar.)



PIPE W/ BOLTED ANCHOR

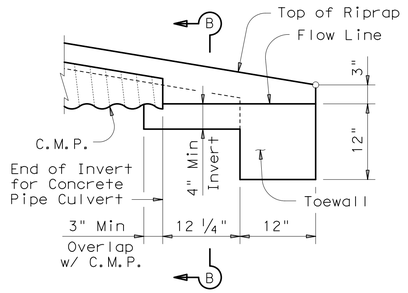


PIPE W/ ANCHOR BARS



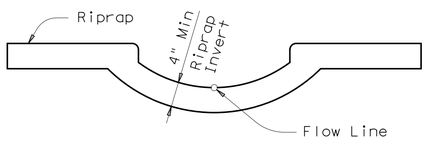
SECTION C-C

CROSS PIPE DETAILS



DETAIL "A"

(Showing Invert with Corrugated Metal Pipe Culvert. Concrete Pipe Culvert details are similar. Cross Pipes not shown for clarity.)



SECTION B-B

(Cross Pipes not shown for clarity.)

CROSS PIPE LENGTHS, REQUIRED PIPE SIZES, & RIPRAP QUANTITIES (2)							
Nominal Culvert I.D.	Conc Riprap (CY) (6)	Pipe Culvert Spa ~ G	Single Barrel ~ Q1	Multi-Barrel ~ Q1	Q2	Conditions for use of Cross Pipes	Cross Pipe Size
12"	0.6	9"	N/A	2'- 1"	1'- 9"	3 or more Pipe Culverts	3" Std (3.500" O.D.)
15"	0.7	11"	N/A	2'- 5"	2'- 2"		
18"	0.8	1'- 2"	N/A	2'-10"	2'- 8"		
21"	0.9	1'- 4"	N/A	3'- 2"	3'- 1"		
24"	0.9	1'- 7"	N/A	3'- 6"	3'- 7"		
27"	1.0	1'- 8"	N/A	3'-10"	3'-11"	3 or more Pipe Culverts	3 ½" Std (4.000" O.D.)
30"	1.1	1'-10"	N/A	4'- 2"	4'- 4"	2 or more Pipe Culverts	
33"	1.2	1'-11"	4'- 2"	4'- 5"	4'- 8"	All Pipe Culverts	
36"	1.3	2'- 1"	4'- 5"	4'- 9"	5'- 1"	All Pipe Culverts	4" Std (4.500" O.D.)
42"	1.5	2'- 4"	4'-11"	5'- 5"	5'-10"		
48"	1.7	2'- 7"	5'- 5"	6'- 0"	6'- 7"	All Pipe Culverts	5" Std (5.563" O.D.)
54"	2.0	3'- 0"	5'-11"	6'- 9"	7'- 6"		
60"	2.2	3'- 3"	6'- 5"	7'- 4"	8'- 3"		
66"	2.4	3'- 3"	6'-11"	7'-10"	8'- 9"		
72"	2.7	3'- 4"	7'- 5"	8'- 5"	9'- 4"		

(1) The proper installation of the first Cross Pipe is critical for vehicle safety. The top of the first Cross Pipe must be placed at no more than 6" above the flow line.

(2) Size of Cross Pipes, except the first bottom pipe, shall be as shown in the PIPE SIZE table. The first bottom pipe shall be 3 ½" Standard Pipe (4" O.D.).

(3) The third Cross Pipe from the bottom of the Culvert shall always be installed using a bolted connection. Care shall be taken to ensure that Riprap concrete does not flow into the Cross Pipe so as to permit disassembly of the bolted connection to allow cleanout access. At the Contractor's option, all other Cross Pipes may also be installed using the bolted connection details.

(4) Match Cross Slope as shown elsewhere in the plans. Cross Slope of 6:1 or flatter is required for vehicle safety.

(5) Riprap placed beyond the limits shown will be paid as Concrete Riprap in accordance with Item 432, "Riprap".

(6) Quantities shown are for one end of one reinforced Concrete Pipe Culvert. For multiple pipe culverts or for Corrugated Metal Pipe Culverts, quantities will need to be adjusted. Riprap quantities are for Contractor's information only.

GENERAL NOTES:

Cross Pipes are designed for a traversing load of 10,000 pounds at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.

Safety End Treatments shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the Cross Pipes.

Riprap and all necessary inverts shall be Concrete Riprap conforming to the requirements of Item 432, "Riprap".

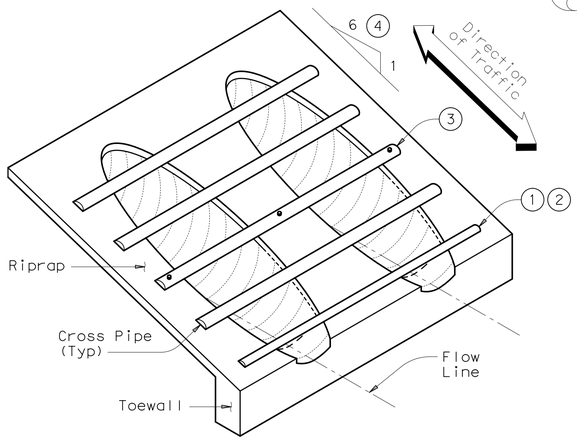
Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Payment for riprap and toewall is included in the Price Bid for each Safety End Treatment.

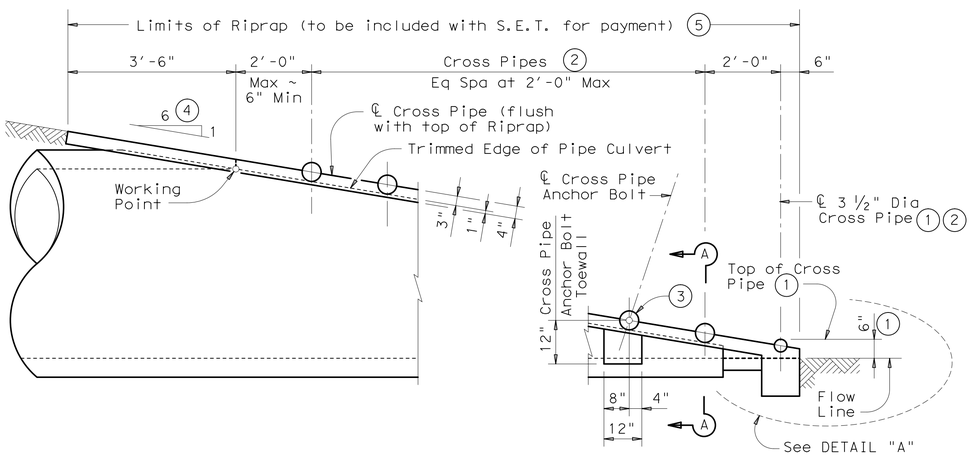
Cross Pipes shall conform to the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.

Bolts and nuts shall conform to ASTM A307.

All steel components, except concrete reinforcing, shall be galvanized after fabrication. Galvanizing damaged during transport or construction shall be repaired in accordance with the specifications.

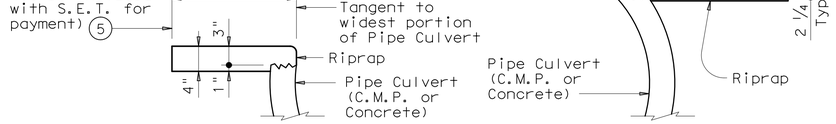


ISOMETRIC VIEW OF TYPICAL INSTALLATION



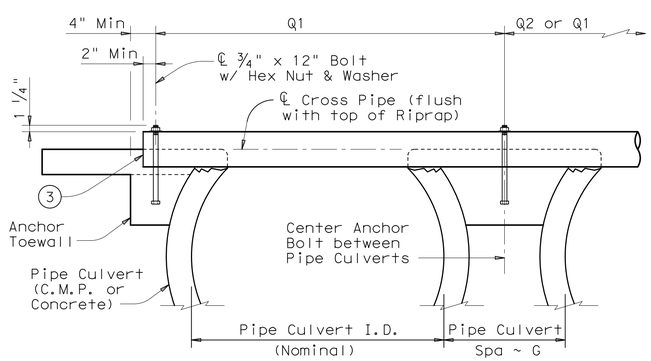
SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing Concrete Pipe Culvert.)
(Details at Corrugated Metal Pipe Culvert are similar.)



SHOWING TYPICAL PIPE CULVERT & RIPRAP

SHOWING CROSS PIPE WITH ANCHOR BAR



SHOWING CROSS PIPE WITH BOLTED ANCHOR

SECTION A-A

Texas Department of Transportation

Bridge Division Standard

SAFETY END TREATMENT

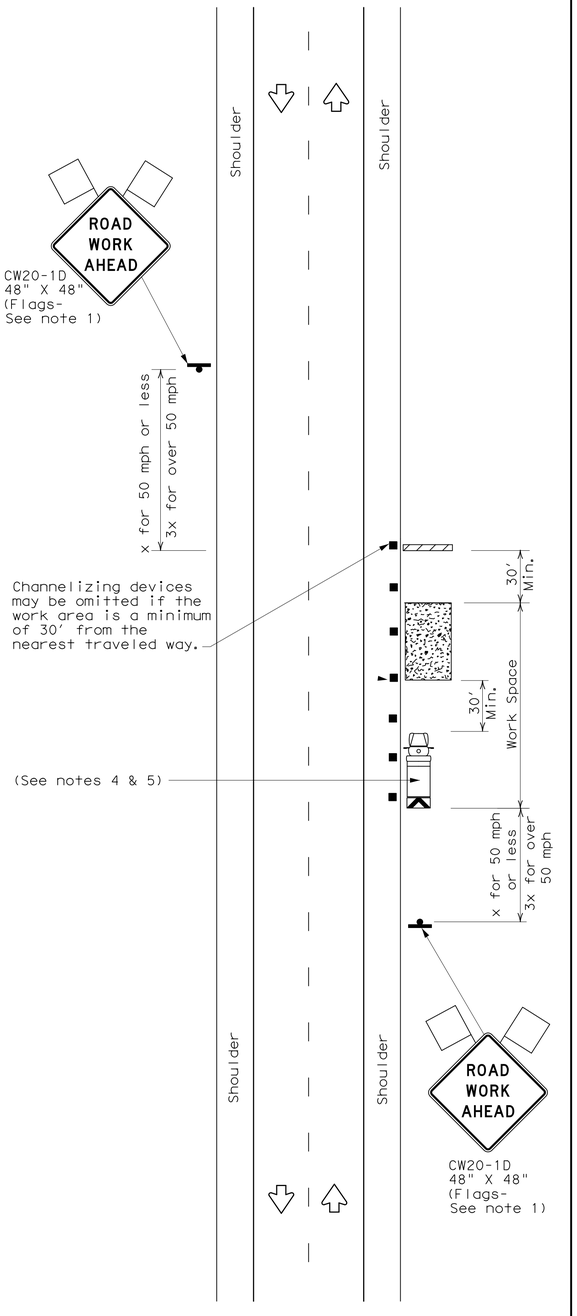
FOR 12" DIA TO 72" DIA
PIPE CULVERTS
TYPE II ~ PARALLEL DRAINAGE

SETP-PD

FILE: setppdse.dgn	DN: GAF	CK: CAT	DW: JRP	CK: GAF
©TxDOT February 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				
11-10: Add note for synthetic fibers.	DIST	COUNTY		SHEET NO.
				D-8

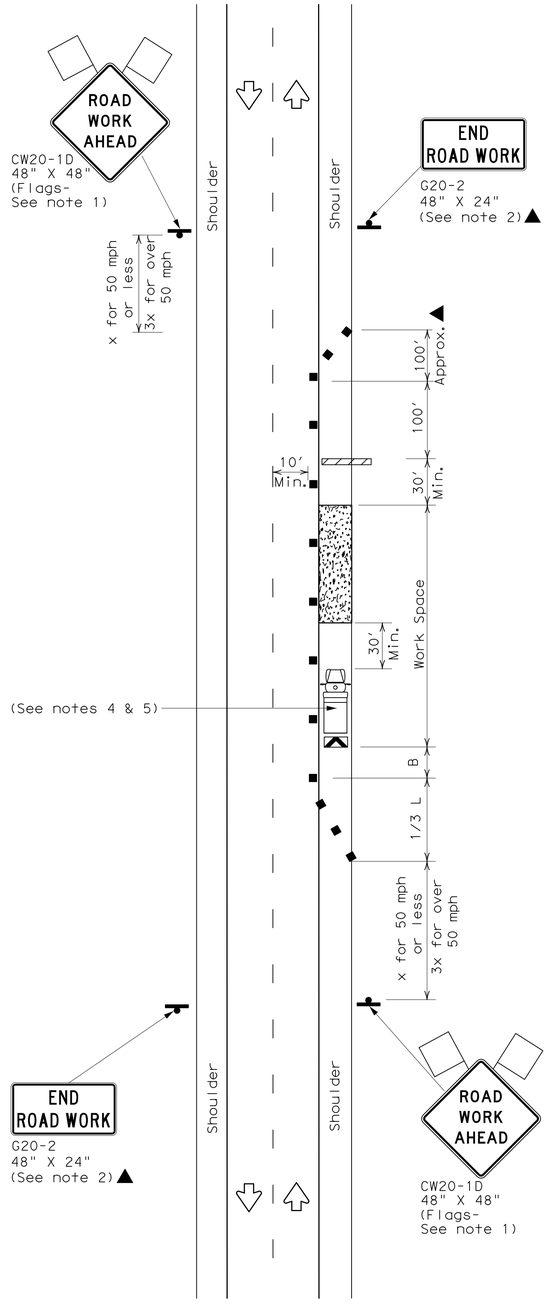
P-201504-01

DATE:
FILE:



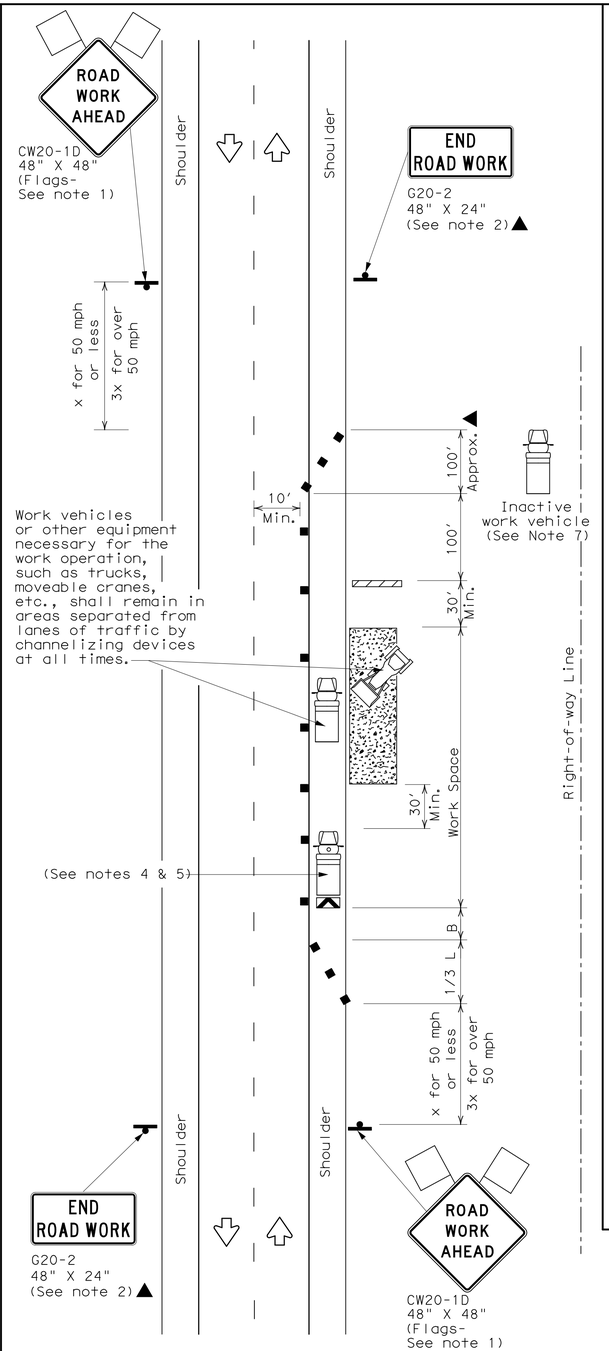
TCP (2-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (2-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (2-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only

** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓	✓

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated in the plans, or for routine maintenance work, when approved by the Engineer.
3. Stockpiled material should be placed a minimum of 30 feet from nearest traveled way.
4. Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
5. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.
6. See TCP(5-1) for shoulder work on divided highways, expressways and freeways.
7. Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
8. CW21-5 "SHOULDER WORK" signs may be used in place of CW21-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.

For construction or maintenance contract work, specific project requirements for shadow vehicles can be found in the project GENERAL NOTES for Item 502, Barricades, Signs and Traffic Handling.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

TCP(2-1)-12

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
			D-9

REVISIONS
2-94 2-12
8-95
1-97
4-98

161

P-201504-01