

CITY OF WESLACO PLANNING AND CODE ENFORCEMENT



UTAH AVENUE WATER LINE IMPROVEMENTS WESLACO, TEXAS

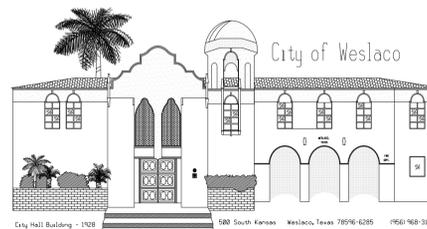


CITY OFFICIALS

DAVID SUAREZ	MAYOR
OLGA M. NORIEGA	(MAYOR PRO-TEM) DIST. 3
DAVID R. FOX	DIST. 1
GREG KERR	DIST. 2
GERARDO "JERRY" TAFOLLA	DIST. 4
LUPE V. RIVERA	DIST. 5
FIDEL L. PENA III	DIST. 6
MIKE PEREZ	CITY MANAGER

SHEET INDEX

- COVER SHEET
- C1 GENERAL NOTES/ESTIMATED QUANTITIES
- C2 EROSION CONTROL PLAN
- C3 WATER LINE PLAN/PROFILE (1 OF 2)
- C4 WATER LINE PLAN/PROFILE (2 OF 2)
- C5 MISCELLANEOUS DETAILS



City Hall Building - 1928
1800 South Kansas - Weslaco, Texas 78766-6285 (956) 968-3181

GENERAL NOTES:

- All improvements to be in accordance with City of Weslaco Codes.
- Contractor to plan and perform his work in a manner that will permit safe public traffic movement on all streets.
- Contractor to be responsible for protection and/or safety of the work site. Workers, Sub-Contractors, Materials and/or Equipment.
- Contractor shall be responsible for obtaining all permits required and at Contractor's expense.
- Contractor shall give notice to all authorized inspectors, superintendants, or persons in charge of private and public utilities affected by his operations prior to commencement of work. Notify Texas One Call for utility locations prior to any and all excavations.
- Upon completion of construction contractor shall return the site to original contours unless different finished elevations are shown on plans. Contractor to insure no areas of ponding are present. Upon completion of construction contractor shall return the site to original conditions including but not limited to backfill, top soil, hydro mulch, etc.
- Concrete Notes:
 - All concrete work to be formed, unless otherwise approved.
 - All concrete to be 3500-PSI minimum at 28 days, unless otherwise shown. Strength to be determined by cylinder break test.
 - All reinforcing steel to be ASTM A-615, Grade 60, unless otherwise shown.
 - All exposed concrete work to be chamfered.
- Contractor to insure same day access to all residence and businesses adjacent to construction.
- Demolition, removal & disposal of all excess concrete, curbs, rubble, etc. to be done in a legal manner at contractor's expense.
- Prior to construction, Contractor, Owner and City Engineer to perform on-site field inspection to document existing conditions (notes & photos).
- Contractor to contact all utilities companies in the area for field verification of existing facilities.
- Contractor to expose any existing facility that may be in conflict prior to start of excavation.
- It shall be the Contractor's responsibility to remove all excavated material and debris from the site.
- Contractor shall at all times allow access to existing driveway or provide/maintain alternative all-weather routes.
- All traffic control devices shall be in conformance with the Texas Manual of Uniform Traffic Control Devices latest edition. Trenches or excavations may not be left open over night.
- Any damages to fences, walks or private property shall be repaired by the contractor at the contractor's expense, no separate pay.
- All construction materials testing will be coordinated through City of Weslaco Planning & Code Enforcement Department.

WATER LINES:

- Waterlines to be constructed in accordance with specification Section 02511 "Water Mains".
- Waterlines to be constructed with a 3-foot minimum cover or as shown on profile.
- Waterlines and fittings to conform to AWWA C-900 Class 150 DR-18, for 4-inch through 12-inch, unless otherwise noted on plans or directed by owner. Service line smaller than 2-inches shall be polyethylene water tubing "tough tubing" ASTM D2737. Service lines 2-inches or greater shall be PVC SCH 40.
- All values and ductile iron fittings, except fire hydrants, shall be wrapped with 8-mil polyethylene film. Secure polyethylene wrap with 3-inch-wide plastic-backed adhesive tape (polyethylene No. 900. Scotchwrap No. 50 or approved equal). All fittings shall be mechanical joint with restraining gland (EBBA Iron Inc. Mega-lug or approved equal), no separate pay if not identified on quantities.
- Contractor to provide adequate concrete thrust blocking to withstand test pressure of 150psi.
- Contractor shall notify the City Engineer immediately upon encountering any leaking sanitary sewer during installation of waterlines.
- Contractor shall maintain the integrity of the existing waterlines during construction. Following construction, testing, and disinfection of new waterlines contractor shall, upon 24-hour notice to the City Engineer, cut, plug, and abandon existing waterlines, remove fire hydrants, and valves on fire hydrant leads. Transfer all affected services to the proposed mains prior to abandonment of existing mains. Unless otherwise directed by the City Engineer, all fire hydrants and valves on fire hydrant leads shall be taken to the City of Weslaco salvage yard unless otherwise instructed.

WATER LINES CONT'D:

- Inline valves on existing lines being abandoned shall be closed watertight, plugged, thrust blocked, and the operating nut on said valve be cut off. All valve boxes on abandoned lines shall be removed, except those in paved areas. Those located in paved areas shall be poured full of concrete and the cap shall be permanently removed. Contractor to notify the City Engineer when any valve on a line being abandoned fails to fully close or is not fully operational. All existing lines to be abandoned to be completely severed from new system.
- Contractor may deflect waterlines slightly to avoid conflicts with utilities or other obstruction. The City of Weslaco Public Utilities and Planning Departments must be contacted for approval at least 24-hours in advance of any decision to deflect waterlines. Contractor to keep accurate records of locations where waterlines are deflected for required redline record print set.
- Contractor is to install temporary blow-off valves as required to flush the newly constructed waterline for chlorination and testing. Temporary blow-off valves shall be removed by the contractor promptly upon successful completion of all testing.
- Contractor to allow 6-inch minimum clearance between proposed waterlines and other facilities unless otherwise noted.
- Contractor to maintain 9-foot minimum clearance in all directions between proposed waterlines and sanitary sewer, force mains, and sanitary manholes unless otherwise noted. Where this cannot be achieved, provide clearance as required by the TCEQ rules and regulations for public water systems. (Latest Revision).
- Contractor shall maintain a 2-foot absolute minimum clearance (out-to-out) of pipes where the proposed waterline crosses over sanitary sewer. Contractor shall maintain a 9-foot absolute minimum clearance (out-to-out) of pipes where the proposed waterline must cross under a sanitary sewer. Otherwise install proposed waterline in 20-foot joint of steel casing pipe centered on sewer. Where proposed sewer is parallel to waterlines, maintain 2-foot vertical and 4-foot horizontal clearances.
- For requirements for steel encasement pipe, seals, spacers, etc... See specification section 02447 Augering Pipe for Water Lines.
- Where proposed waterlines cross within 9 feet of the end of a sanitary sewer, center one (1) 20-foot joint of C-900 PVC DR-18, Class 150 waterline over the sanitary sewer.
- Backfill in pipe zone to be in accordance with specification section 02511 "Water Mains".

WATER MAIN – SANITARY SEWER CROSSINGS:

Primary Condition	Proposed Water Existing Sanitary				Proposed Water Proposed Sanitary or Existing Water Proposed Sanitary			
	Water Over Sanitary		Water Under Sanitary		Water Over Sanitary		Water Under Sanitary	
If the Clearance Is	Less Than 2'	Greater Than 2' But Less Than 9'	Less Than 2'	Greater Than 2' But Less Than 9'	Less Than 2'	Greater Than 2' But Less Than 9'	Less Than 2'	Greater Than 2' But Less Than 9'
*Protection Requirement	1	2	3	4	5	6	3	6

***Protection requirements for sanitary sewer crossings (Unless variance is granted by the TCEQ) (All clearances shall be measured from outside wall to outside wall)**

- Center one (1) 20-foot joint of C-900 PVC DR-18, Class 150, waterline pipe over sanitary sewer; 6-inch absolute minimum clearance.
- If no evidence of sanitary sewer leakage, center one joint of water line over sanitary sewer: 24-inch absolute minimum clearance. If the sewer line is leaking, the sewer line shall be replaced with 150 psi lined ductile iron or pvc pipe with appropriate adapters on all lined ductile iron or pvc pipe with appropriate adapters on all portions of the sanitary sewer within 9-feet of the water main.
- Not allowed
- Auger 9-feet minimum each side of sanitary sewer, place one 20-foot joint of C-900 PVC, 150 psi, centered under sanitary sewer. Fill bored hole with bentonite/clay moisture: 2-foot absolute minimum clearance or replace the existing sanitary sewer with 150 psi line ductile iron or PVC pipe with appropriate adapters on all portions of the sanitary within 9-feet of the water main.
- Minimum 18-foot joint of sanitary sewer, 150 psi lined ductile iron or PVC pipe centered at the water line; 6-inch absolute minimum clearance.
- If clearance is between 2 to 9-feet
 - Center a minimum 18-foot joint of 150 psi lined ductile iron or PVC pipe at water line.
 - Use cement-stabilized sand backfill (minimum 2 sacks cement per cubic yard of sand) starting at a pint ¼ of the pipe diameter above the bottom of the sanitary sewer to 1-foot above the top of sanitary sewer, or one sanitary sewer diameter, whichever is larger. Center one joint of sanitary sewer pipe about the water main.
- All water crossings to be approved by the City of Weslaco upon completion.

BASE BID		
Description	Unit	Estimated Quantity
Water Improvements Base Bid		
8" PVC DR-18 C-900 w/fittings	LF	1536
6" PVC DR-18 C-900 w/fittings	LF	20
Fire Hydrant w/valve	EA	1
8" Gate Valve w/box	EA	4
6" Gate Valve w/box	EA	3
2" Gate Valve w/box	EA	1
8" Cross	EA	2
6" Tee	EA	1
8" Tee	EA	4
12" Tee	EA	1
6" Cap***	EA	2
6" 45° Bend	EA	2
8" 45° Bend	EA	2
8" 90° Bend	EA	1
8" 11.25° Bend	EA	2
8" 22.5° Bend	EA	1
Erosion Control		
Silt Fence	LF	2085
Filter Fabric Inlet Protection	LF	24
***6" Cap item would be removed if alternate bid is accepted		

ALTERNATE BID		
Description	Unit	Estimated Quantity
Water Improvements Alternate Bid		
6" PVC DR-18 C-900 w/fittings	LF	820
6" Gate Valve w/box	EA	3
6" Tee	EA	2
Fire Hydrant w/valve	EA	1



**UTAH AVENUE
WATER LINE IMPROVEMENTS
WESLACO, TEXAS**

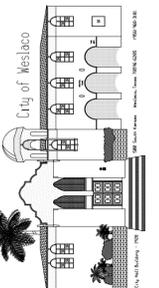
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REVISIONS:

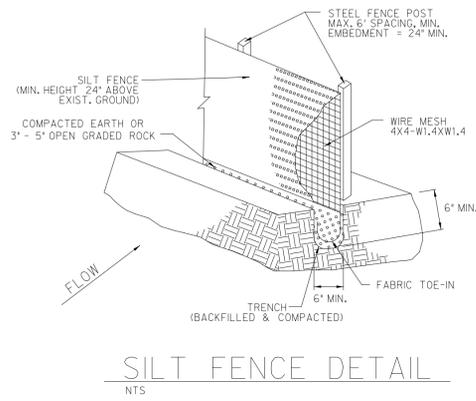
C-1

GENERAL NOTES/
ESTIMATED
QUANTITIES



EROSION GENERAL NOTES

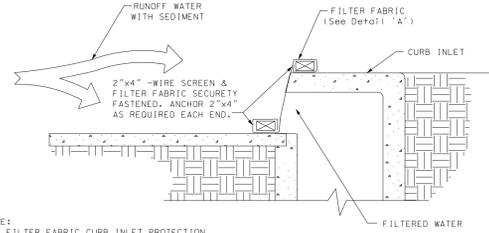
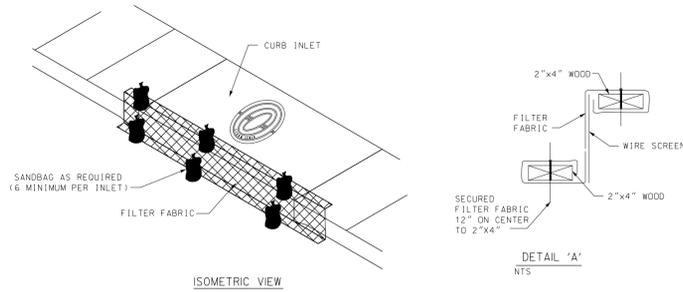
- IT IS THE INTENT OF THIS SUGGESTED EROSION CONTROL PLAN AND WITHIN THE SPECIFICATIONS TO BE USED AS THE GENERAL GUIDELINES OF THE STORM WATER POLLUTION PREVENTION PLAN FOR THIS PROJECT TO ESTABLISH A MINIMUM BASIS OF COMPLIANCE WITH FEDERAL REGULATIONS. CONTRACTOR SHALL PREPARE AND SUBMIT A NOTICE OF INTENT PER THE REQUIREMENTS IN THE NPDES GENERAL PERMIT. THE CONTRACTOR SHALL PREPARE THE STORM WATER POLLUTION PREVENTION PLAN AND BE SOLELY RESPONSIBLE FOR ITS IMPLEMENTATION. THE STORM WATER POLLUTION PREVENTION PLAN SHALL MEET THE REQUIREMENTS SET FORTH IN THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) TYPES GENERAL PERMIT FOR REGION 6 FOR STORM WATER DISCHARGES FROM CONSTRUCTION SITES.
- THE STORM WATER POLLUTION PREVENTION PLAN SHOULD ADDRESS THREE GOALS:
 - DIVERSION OF UPSTREAM WATER AROUND DISTURBED AREAS OF THE SITE
 - LIMITS THE EXPOSURE OF DISTURBED AREAS TO THE SHORTEST DURATION POSSIBLE AND
 - REMOVAL OF SEDIMENT FROM STORM WATER BEFORE IT LEAVES THE SITE.
- THE CONTRACTOR SHALL MAKE THE STORM WATER POLLUTION PREVENTION PLAN AVAILABLE, UPON REQUEST, TO TCEQ.
- THE CONTRACTOR MUST AMEND PLANS WHENEVER THERE IS A CHANGE IN DESIGN, CONSTRUCTION OPERATION OR MAINTENANCE OF THE PLAN, OR WHEN THE EXISTING PLAN PROVES INEFFECTIVE. MODIFICATIONS INCLUDING DESIGN AND ALL ADDITIONAL MATERIALS AND WORK SHALL BE ACCOMPLISHED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.
- STABILIZATION MEASURES ARE TO BE INSPECTED AT A MINIMUM OF ONCE EVERY 14 DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCHES. REPAIRS AND INADEQUACIES REVEALED BY THE INSPECTION MUST BE IMPLEMENTED WITHIN 7 CALENDAR DAYS FOLLOWING THE INSPECTION.
- AN INSPECTION REPORT THAT SUMMARIZES INSPECTION ACTIVITIES AND IMPLEMENTATION OF THE STORM WATER POLLUTION PREVENTION PLAN SHALL BE RETAINED AND MADE PART OF THE PLAN.
- ALL CONTRACTORS AND SUBCONTRACTORS IDENTIFIED IN THE PLAN MUST CERTIFY AS TO AN UNDERSTANDING OF THE NPDES GENERAL PERMIT BEFORE CONDUCTING ANY ACTIVITY IDENTIFIED IN THE POLLUTION PREVENTION PLAN.
- THE CONTRACTOR SHALL ADOPT APPROPRIATE CONSTRUCTION SITE MANAGEMENT PRACTICES TO PREVENT THE DISCHARGE OF OILS, GREASE, PAINTS, GASOLINE, AND OTHER POLLUTANTS TO STORM WATER. APPROPRIATE PRACTICES CAN INCLUDE:
 - DESIGNATING AREAS FOR EQUIPMENT MAINTENANCE AND REPAIR;
 - REGULAR COLLECTION OF WASTE;
 - CONVENIENTLY LOCATED WASTE RECEPTACLES; AND
 - DESIGNATING AND CONTROLLING EQUIPMENT WASHDOWN.
- THE CONTRACTOR SHALL AMEND OR MODIFY THIS PLAN AS REQUIRED BY CONSTRUCTION MEANS, METHODS AND SEQUENCE. MODIFICATIONS SHALL NOT COMPROMISE THE INTENT OF THE REQUIREMENTS OF LAW AND THIS PLAN. MODIFICATIONS SHALL NOT BE BASIS FOR ADDITIONAL COST TO THE OWNER.
- AREAS OF CONSTRUCTION ELSEWHERE ON THE JOB SITE SHALL CONFORM TO THE DETAILS SHOWN ON THE PLANS.
- BORROW AREAS, IF EXCAVATED, SHALL BE PROTECTED AND STABILIZED UTILIZING THE PLAN DETAILS. ALL WORK SHALL CONFORM TO GOVERNMENTAL REQUIREMENTS AND BECOME PART OF THE STORM WATER POLLUTION PREVENTION PLAN (SWP3). THE WORK SHALL BE DONE BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.
- ALL NON-PAVED AREAS SHALL BE MULCHED AND SEEDED WITH EROSION PROTECTION IMMEDIATELY UPON COMPLETION OF FINAL GRADING. THIS INCLUDES ALL DITCHES AND EMBANKMENTS. THE CONTRACTOR SHALL MAINTAIN FINAL GRADING AND KEEP SEEDING AREAS WATERED UNTIL FULLY ESTABLISHED AND ACCEPTED BY THE OWNER.
- THE CONTRACTOR SHALL CONSTRUCT A STABILIZED CONSTRUCTION EXIT AT ALL TRAFFIC EXIT POINTS PRIOR TO EXITING ONTO ANY PAVED ROADWAY.



SILT FENCE DETAIL
NTS

Silt Fence Detail Notes

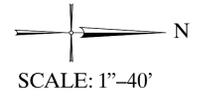
- Steelposts which support the silt fence shall be galvanized steel "I" posts and shall be installed with a slight angle toward the anticipated runoff source. Posts must be embedded a minimum of two (2) feet. The woven wire for the silt fence shall be 4" x 4" W1.4 x W1.4 zinc coated (galvanized) steel woven wire fabric conforming to ASTM A166. The silt fence fabric shall be Mrafal, Inc. silt fence or an owner approved equal.
- The toe of the silt fence shall be trenched in with a spade or mechanical trencher, so that the down slope face of the trench is flat and perpendicular to the line of flow. Where fence cannot be trenched in (e.g. Pavement), weight fabric flap with washed gravel on uphill side to prevent flow under fence. 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 as shown on the silt fence detail.
- Silt fence fabric shall be securely fastened to the woven wire, which is in turn attached to the steel fence post. There shall be a 3-foot overlap of silt fence fabric at joints in the silt fence fabric, securely fastened where ends of fabric meet. The silt fence shall be joined such that no bypass or leakage occurs.
- Install silt fence at edge of disturbed areas adjacent to all streets.



NOTE:

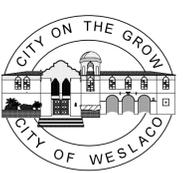
- 1.) FILTER FABRIC CURB INLET PROTECTION TO BE REMOVED WHEN SITE IS FULLY STABILIZED.
- 2.) FILTER FABRIC TO BE CLEANED AFTER EACH RAIN EVENT.
- 3.) 2"x4" LUMBER TO BE CUT AS REQUIRED TO FIT CONTOURS OF GUTTER LINE.
- 4.) ALL BAGS TO BE USED FOR INLET PROTECTION TO BE U.V. RESISTANT.

FILTER FABRIC CURB INLET PROTECTION
NTS

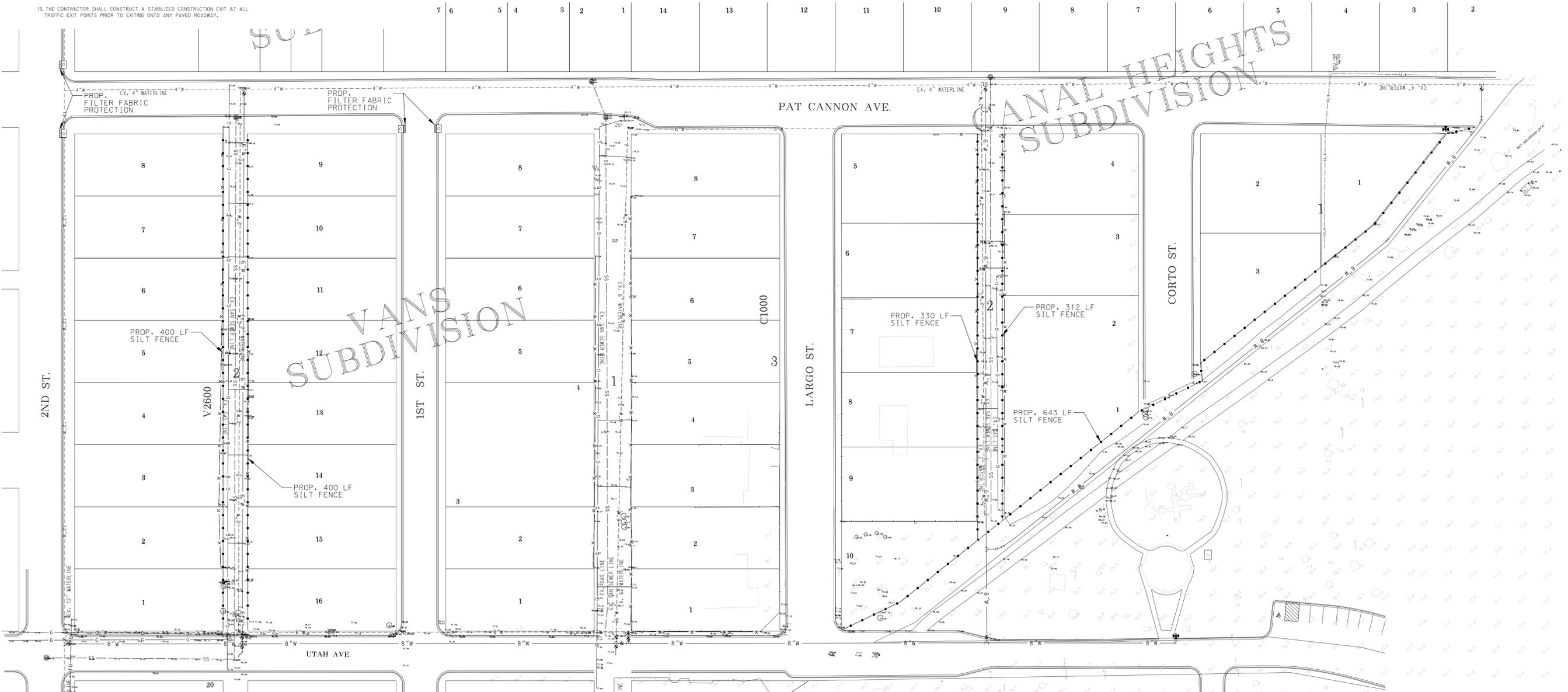


LEGEND

- EX. FIRE HYDRANT
- EX. 2" WATER LINE
- EX. 4" WATER LINE
- EX. 4" WATER LINE
- EX. MANHOLE
- EX. 6" SAN. SEWER LINE
- EX. GAS LINE
- EX. FENCE
- EX. TREE
- PROP. GATE VALVE
- EX. IRRIGATION LINE
- PROP. 8" WATER LINE
- PROP. 6" WATER LINE
- PROP. FIRE HYDRANT
- PROP. PAVEMENT
- CAUTION UTILITY CROSSING



**UTAH AVENUE
WATER LINE IMPROVEMENTS
WESLACO, TEXAS**

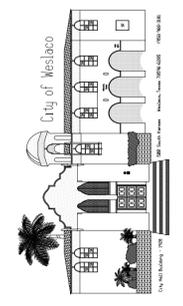


SEAL:



REVISIONS:

**C-2
SUGGESTED
EROSION
CONTROL PLAN
SCALE: 1" = 40'**

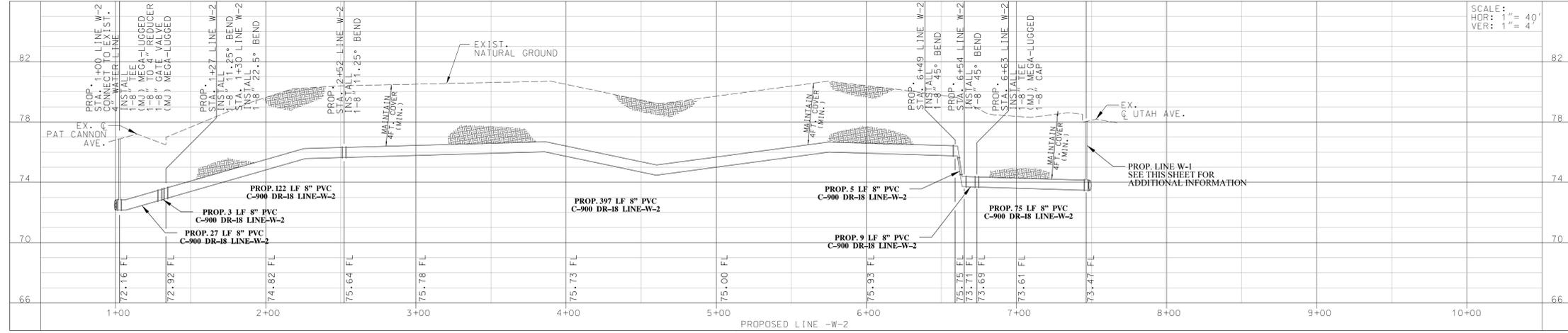
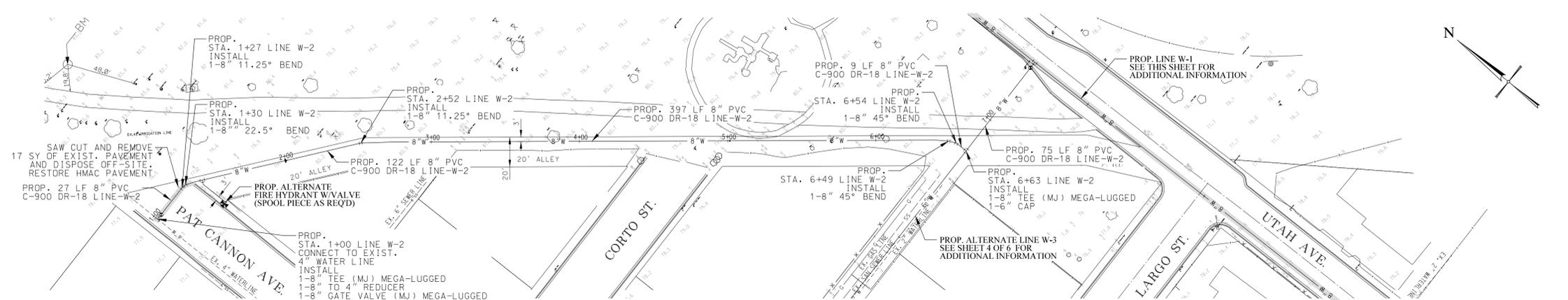
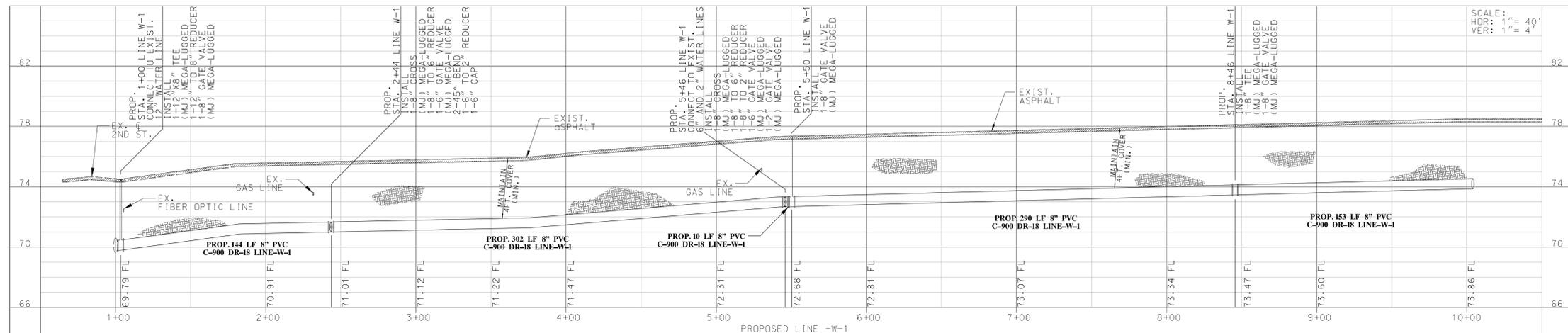
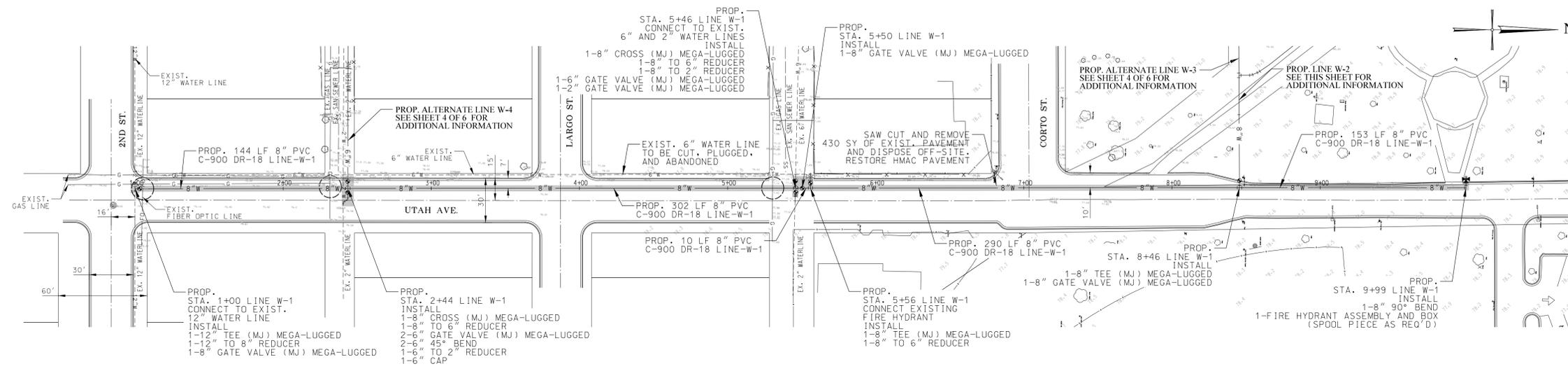




UTAH AVENUE WATER LINE IMPROVEMENTS WESLACO, TEXAS

LEGEND

- EX. FIRE HYDRANT
- EX. 2" WATER LINE
- EX. 4" WATER LINE
- EX. 4" WATER LINE
- EX. MANHOLE
- EX. 6" SAN. SEWER LINE
- EX. GAS LINE
- EX. FENCE
- EX. TREE
- PROP. GATE VALVE
- EX. IRRIGATION LINE
- PROP. 8" WATER LINE
- PROP. 6" WATER LINE
- PROP. FIRE HYDRANT
- PROP. PAVEMENT
- CAUTION UTILITY CROSSING



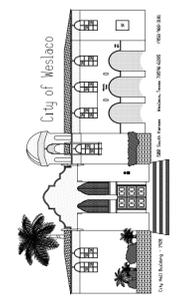
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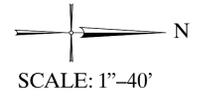
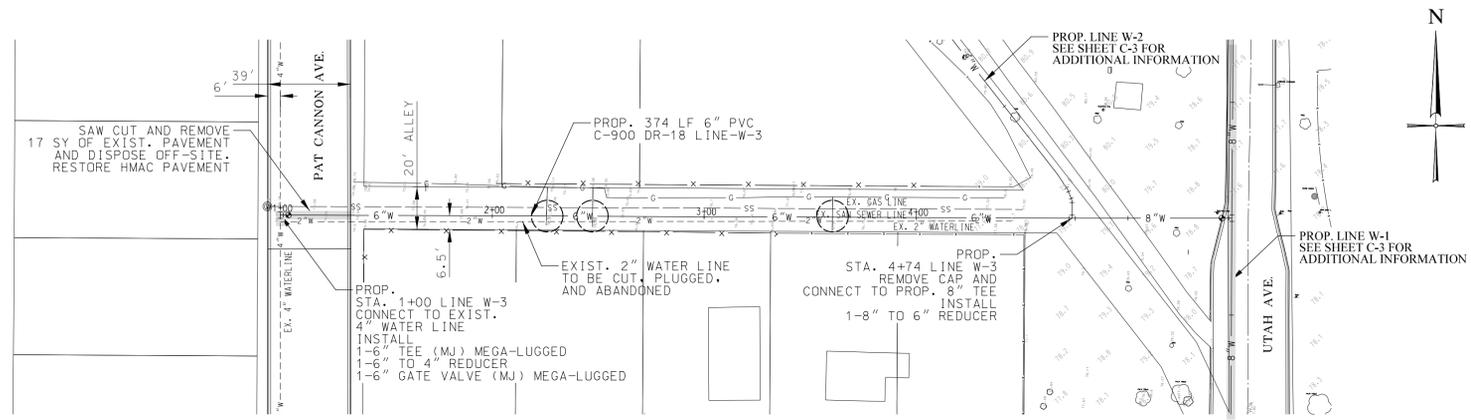
REVISIONS:

C-3 LINE W-1/W-2 PLAN/PROFILE 1 OF 2

SCALE: 1" = 40'

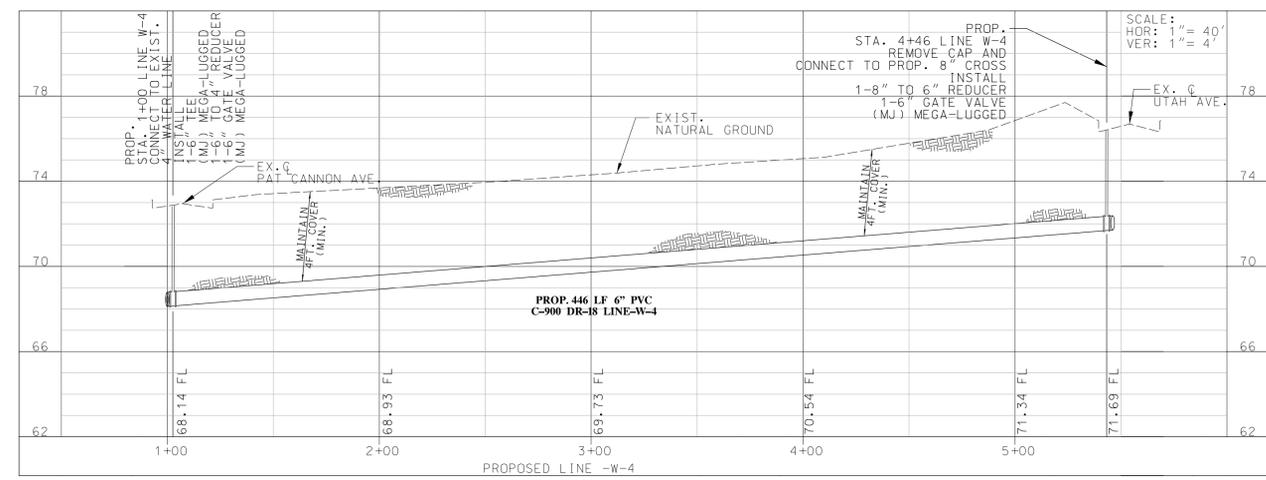
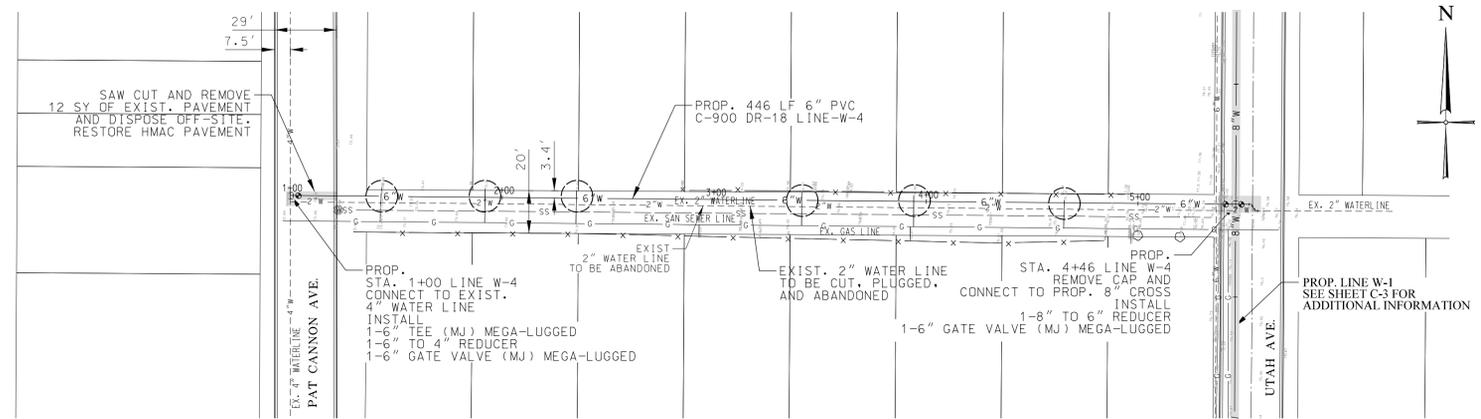
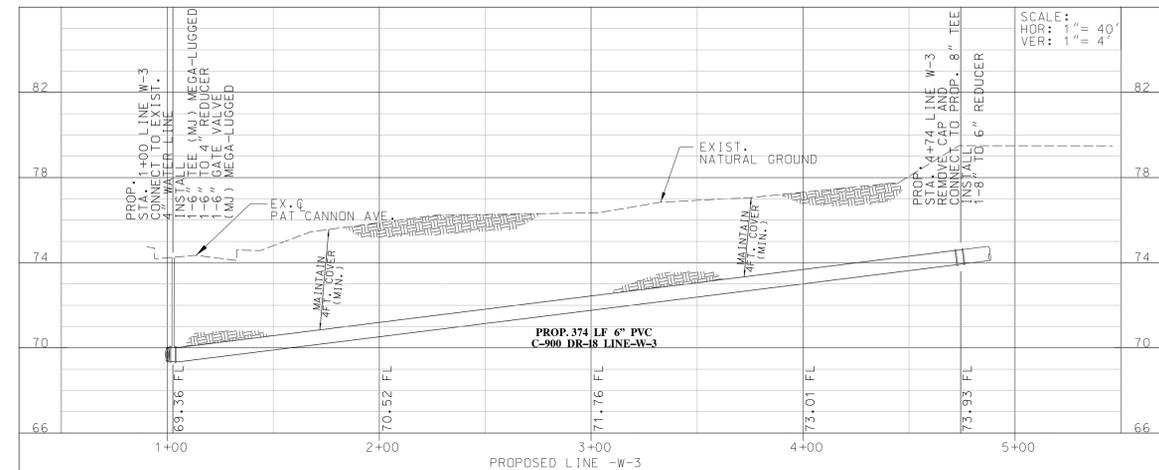


- NOTES:
- EXISTING PAVEMENT AND NATURAL GROUND TO BE REMOVED AND REPLACED TO MATCH EXISTING CONDITIONS.



LEGEND

	EX. FIRE HYDRANT
	EX. 2" WATER LINE
	EX. 4" WATER LINE
	EX. 4" WATER LINE
	EX. MANHOLE
	EX. 6" SAN. SEWER LINE
	EX. GAS LINE
	EX. FENCE
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	PROP. 6" WATER LINE
	PROP. FIRE HYDRANT
	PROP. PAVEMENT
	CAUTION UTILITY CROSSING



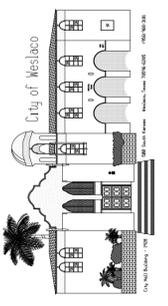
**UTAH AVENUE
WATER LINE IMPROVEMENTS
WESLACO, TEXAS**

SEAL:



REVISIONS:

**C-4
LINE W-3/W-4
PLAN/PROFILE
2 OF 2
SCALE: 1"=40'**



NOTES:
1 EXISTING PAVEMENT AND NATURAL GROUND TO BE REMOVED AND REPLACED TO MATCH EXISTING CONDITIONS.



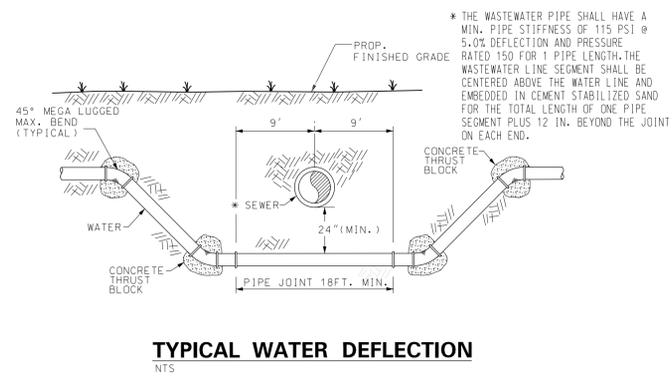
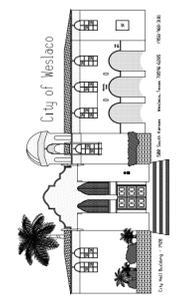
UTAH AVENUE
WATER LINE IMPROVEMENTS
WESLACO, TEXAS

SEAL:

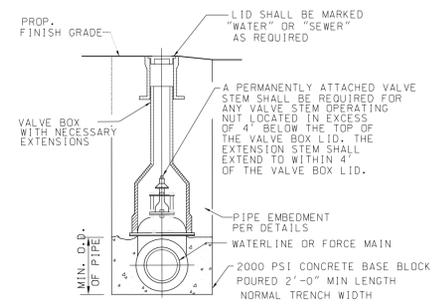


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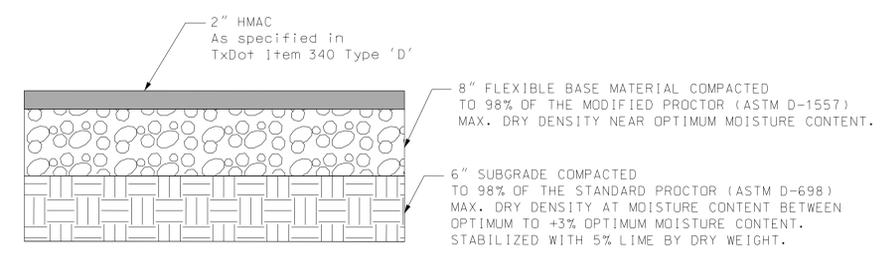
C-5
MISCELLANEOUS
DETAIL SHEET
SCALE: 1" = 40'



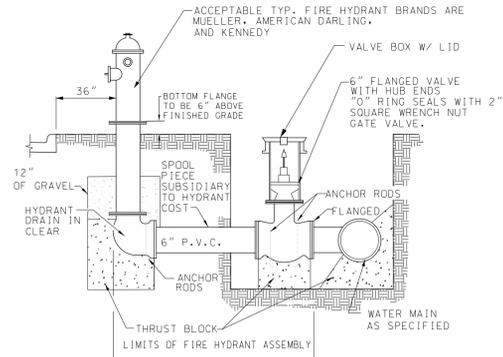
TYPICAL WATER DEFLECTION
NTS



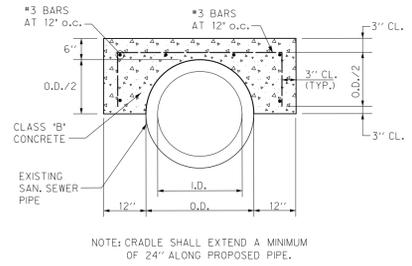
GATE VALVE AND BOX
NTS



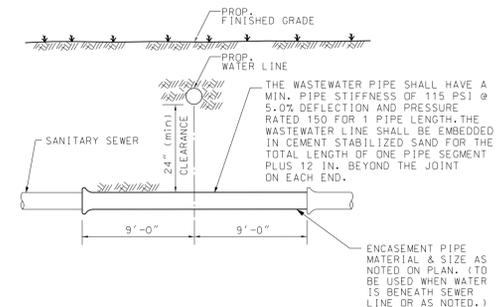
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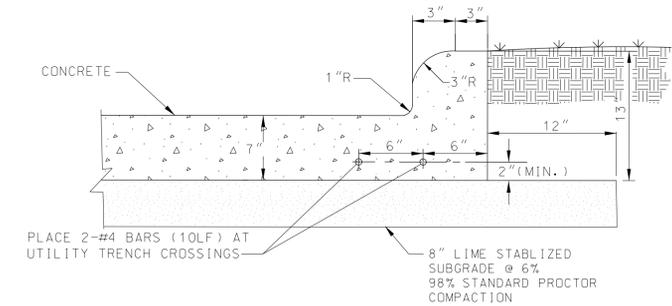
FIRE HYDRANT INSTALLATION
NTS



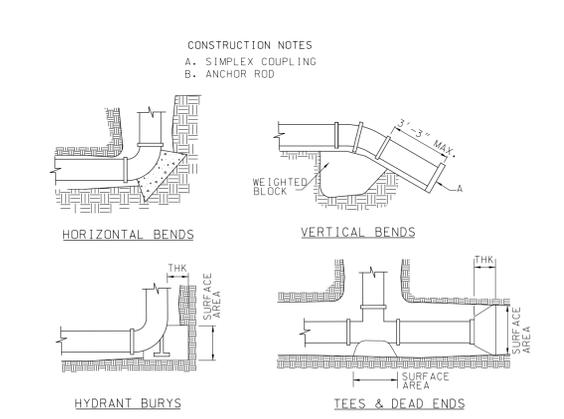
CONCRETE SADDLE
NTS



TYPICAL WATER / SANITARY SEWER CROSSING
NTS



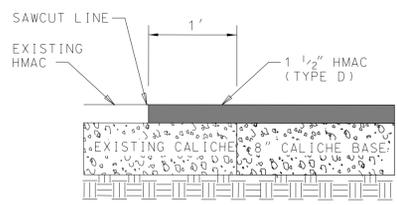
TYPICAL MONOLITHIC CURB
NTS



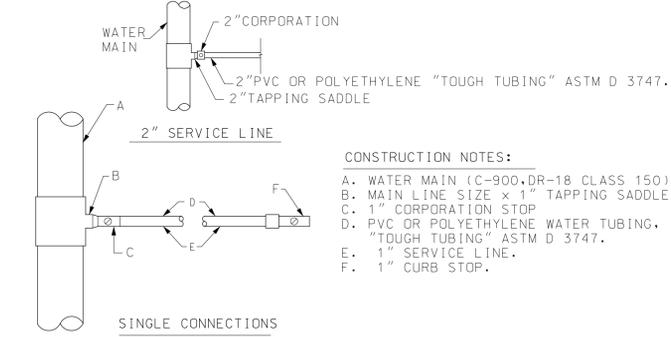
THRUST BLOCK SIZE			
DIAMETER OF PIPE INCHES	SURFACE AREA SQ. FEET	THICKNESS INCHES	WEIGHT AT VERTICAL BENDS-LBS.
22-1/2" BENDS			
6 OR LESS	2	8	1700
8	3	8	3,000
10	3.5	12	4,500
12	4	14	6,600
14	5	18	9,000
16	6	18	11,800
45" BENDS			
6 OR LESS	4	12	3,200
8	5	14	5,800
10	6	18	9,000
12	7	18	13,000
14	8	24	17,000
16	11.5	24	23,200
90" BENDS			
6 OR LESS	6	12	6,000
8	8	15	10,700
10	10	18	16,700
12	12	18	24,000
14	18	24	32,600
16	21	24	42,700
TEES & DEAD ENDS			
6 OR LESS	3	12	
8	4	15	
10	6	18	
12	8.5	18	
14	11.5	24	
16	15	24	

GENERAL NOTES
1. SEE THRUST BLOCK SIZE CHART FOR PROPER THICKNESS AND SURFACE AREAS. (SHEET 2 OF 2)
2. THE LOCATION OF THRUST BLOCKS DEPENDS UPON THE DIRECTION OF THRUST AND TYPE FITTINGS.

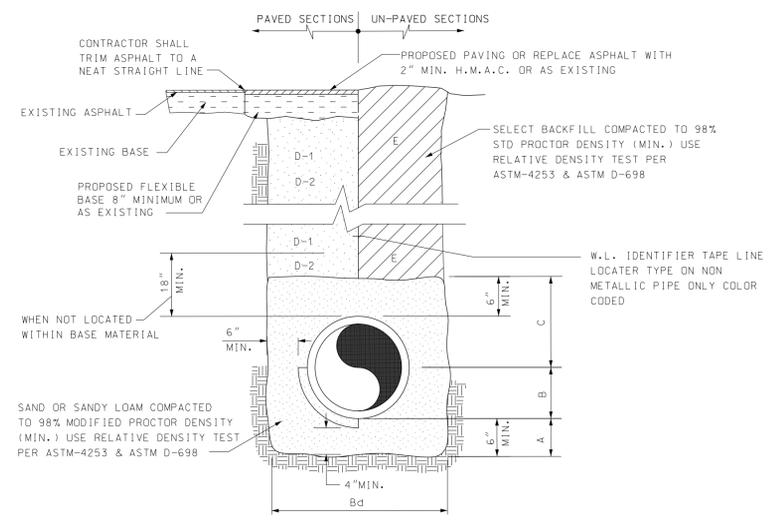
TYPICAL THRUST BLOCK DETAILS
NTS



SAWCUT DETAIL
NTS

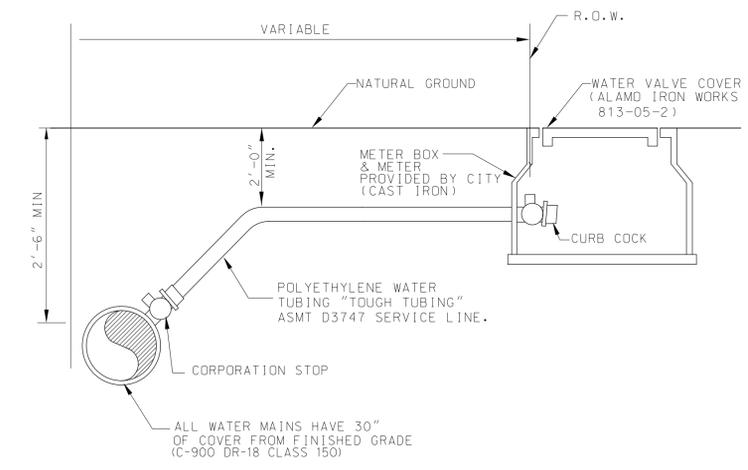


TYPICAL SINGLE SERVICE CONNECTION
NTS



- A. SAND OR SANDY LOAM BEDDING PLACED BEFORE PIPE IS LAID UP TO FLOW LINE OF PIPE. (MIN. THICKNESS= 6")
- B. SAND OR SANDY LOAM BACKFILL PLACED AFTER PIPE IS LAID FROM BOTTOM OF PIPE TO SPRING LINE OF PIPE. (4" LIFTS, HAND TAMPED) BG TRENCH WIDTHS SHALL BE PIPE O.D. + 12" OR IN ACCORDANCE WITH ASTM 2321 FOR PVC PIPE.
- C. SAND OR SANDY LOAM BACKFILL PLACED FROM SPRING LINE OF PIPE TO 6" ABOVE TOP OF PIPE. (6" LIFTS, HAND TAMPED)
- D-1. (CITY STREETS, PARKING AREA, SELECT EXCAVATED BACKFILL MATERIAL COMPACTED TO 98% SPD. (18" LIFTS, MECHANICAL COMPACTION)
- D-2. (STATE MAINTAINED ROADWAY) COMPACTED SAND/CEMENT STABILIZED BACKFILL WITH 7% PORTLAND CEMENT COMPACTED AS PER ASTM D-4253 AND ASTM D-698.
- E. SELECT EARTH BACKFILL COMPACTED TO 98% SPD. (12" LIFTS, MECHANICAL COMPACTION) FOUNDATION PREPARATION (WELLPOINTS, GRAVEL OR CEMENT STABILIZATION, OR APPROVED SUBSTITUTE) SHALL BE REQUIRED WHEN TRENCH BOTTOM IS UNSTABLE. BACKFILLING AT STRUCTURES SHALL BE PLACED IN UNIFORM LAYERS, MOISTENED AS REQUIRED TO APPROXIMATE OPTIMUM MOISTURE CONTENT, AND COMPACTED TO 98% STD. PROCTOR DENSITY (USE RELATIVE DENSITY TEST PER ASTM D-4253 & ASTM D-698). THE THICKNESS OF EACH LOOSE LAYER SHALL NOT EXCEED 6". STRUCTURE BACKFILL MATERIAL SHALL BE SAND, APPROVED SITE SOIL, OR OTHER APPROVED SUBSTITUTE.

WATER LINE BEDDING
NTS



TYPICAL SERVICE CONNECTION
NTS