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Short Report On The Archeological Investigations For Haskell County's Paint Creek Water Improvements Project, Haskell County, Texas

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Short Report On The Archeological Investigations For Haskell County's Paint Creek Water Improvements Project, Haskell County, Texas

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**SHORT REPORT ON THE
ARCHEOLOGICAL INVESTIGATIONS FOR HASKELL
COUNTY'S PAINT CREEK WATER IMPROVEMENTS
PROJECT,
HASKELL COUNTY, TEXAS**

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Josh Haefner

Written by:
Gregg Cestaro and Josh Haefner

Antiquities Permit #7302

Submitted to:
HowCo and Haskell County

Hicks & Company Archeology Series #270

August 2015

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PROJECT DESCRIPTION AND MANAGEMENT SUMMARY

Hicks & Company archaeologists, working on behalf of HowCo, Incorporated, and Haskell County (the County), recently conducted an intensive archaeological survey for the County's proposed Paint Creek Water Improvements Project, located east of downtown Haskell in Haskell County, Texas. According to current design plans, the proposed project consists of the installation of a new water well and approximately 3,670 meters (m) of new, 15 centimeter-diameter, waterline within a 10 meter-wide corridor (**Appendix A: Design Plans**). Depth of impacts for the waterline installation is expected to be no more than 1.25 meters below ground surface.

The project will be funded through a Texas Community Block Grant Program, as managed by the Texas Department of Agriculture, a political entity of the state of Texas, and is therefore subject to the Antiquities Code of Texas (ACT). This project was initially reviewed by the Texas Historical Commission (THC) in 2015. Following this review, the THC recommended that archeological survey was warranted for the waterline segment located along Callaway Road between State Highway (SH) 380 and East Road, a distance of approximately 1,540 m (**Figure 1**). According to the THC, this segment had never been surveyed and, being adjacent to Buffalo Creek, is located within an area of high probability for cultural resources (letter Wolfe to Howard May 6, 2015: See **Appendix B: Regulatory Correspondence**).

Totalling approximately 16 field hours, archeological investigations were conducted on June 22 and 23, 2015, and consisted of pedestrian survey of the Callaway Road segment, supplemented with 13 shovel tests, all of which were negative for cultural materials. In addition to these shovel tests, one backhoe trench was excavated just south of Buffalo Creek. No artifactual materials greater than 50 years in age, features, or archeological sites were encountered during this investigation. Based on the results of the current survey, it is recommended that no archeological historic properties (36 CFR 800.16(1)) or State Antiquities Landmarks (SALs) (13 TAC 26.12) will be affected by the proposed project and no further archeological investigations are recommended prior to construction.

Josh Haefner, as Principal Investigator, and Gregg Cestaro, as Project Archeologist, conducted the investigations and authored the report. As Geographic Information System (GIS) specialist, Jerod McClelland produced all maps and graphics. In addition to this Project Description and Management Summary, this report includes sections on Environmental Setting, Methodology, Results of the Field Investigations, and Conclusions and Recommendations. Also included, as appendices, are design plans illustrating the various design segments (**Appendix A**), regulatory correspondence (**Appendix B**), and shovel test and backhoe trench locations (**Appendix C**). All project-generated notes, forms, and photographs will be curated at the Center for Archeological Studies (CAS) in San Marcos, Texas. This report is offered in partial fulfillment of Texas Antiquities Permit #7302.

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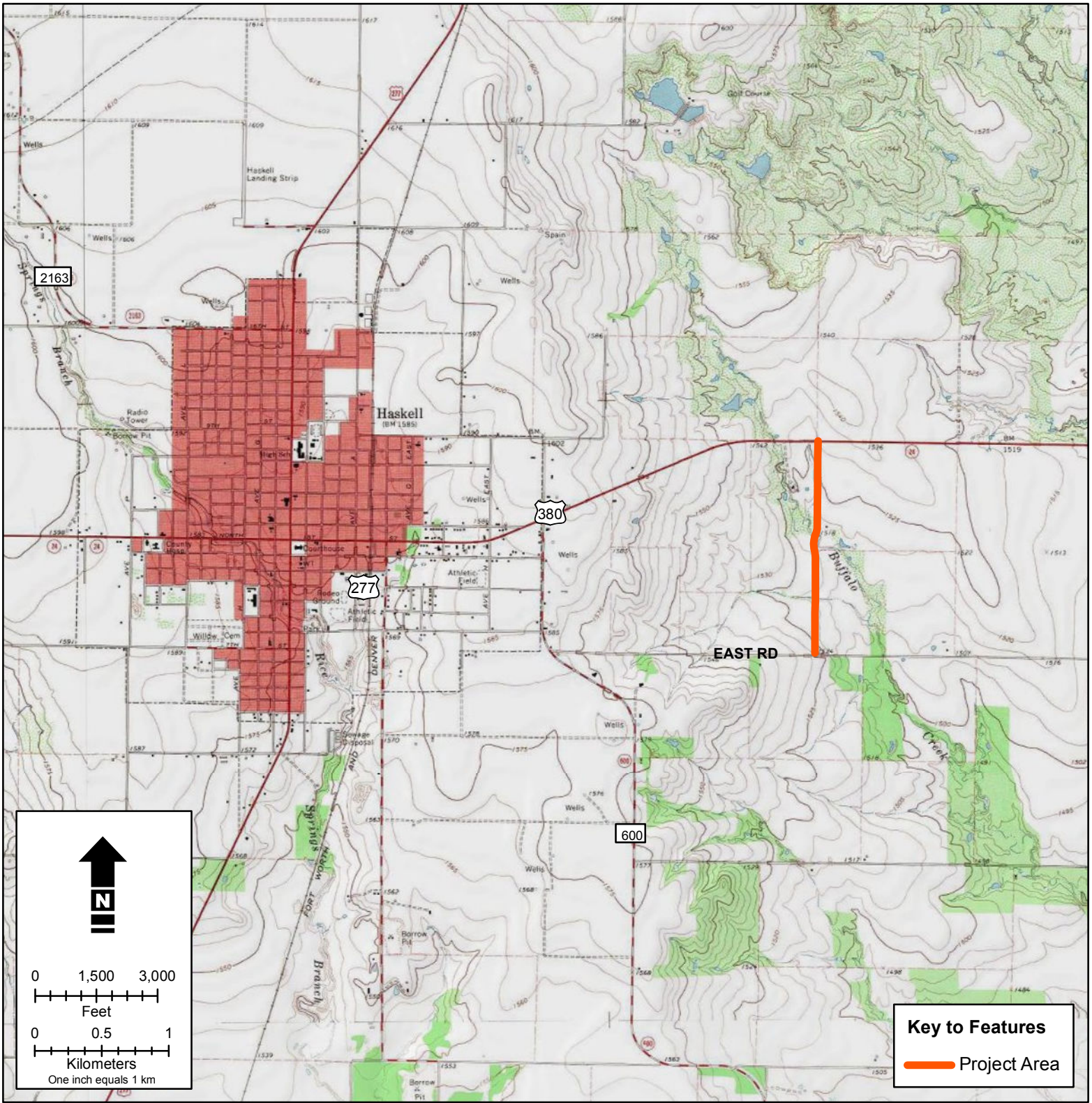
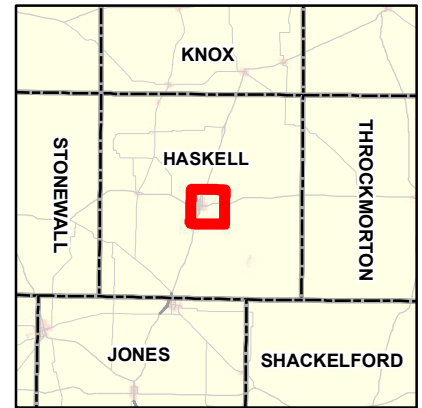


Figure 1
Project Location

USGS 7.5-minute Topographic Quadrangle:
Haskell (USGS# 33099-B6), TX



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ENVIRONMENTAL SETTING

Physiography

According to the Bureau of Economic Geology, the proposed project area is located in the North Central Plains region of Texas (Wermund 2015). This area is a heavily eroded surface of the Upper Paleozoic and is characterized by meandering rivers that have eroded softer shales and sandstones, creating gently rolling hills and plains. In areas of sandstone and limestone, erosion has created steep slopes and severely dissected riverine edges. The North Central Plains rise in elevation from 900 feet to 3000 feet above sea level. Flora for the area transitions from mesquite and lotebush in the west to oak, ash and juniper stands in the east.

Geology and Soils

According to the Geologic Atlas of Texas, Wichita Falls-Lawton Sheet, the underlying geology of the proposed project area consists entirely of the Clear Fork Group (Barnes 1987). This formation is dominantly mudstone, commonly silty, brownish-red in color with calcareous nodules present in its lower parts. Dating to the Cretaceous, which long predates human arrival in the Americas, cultural deposits in such areas can be expected to be contained within overlying soils/sediment or on the surface itself.

Four soil series have been mapped as underlying the proposed project area: Vernon clay loam; Miles fine sandy loam; Wheatwood silty clay loam; and Tillman clay loam (USDA NRCS 2015b). Vernon clay loam is described as moderately deep soils that are found on gently sloping to steep plains and escarpments (USDA NRCS 2015a). These soils are derived from residuum weathered from bedrock or dense clays of Permian age. The Miles series is noted to consist of very deep, well drained soils formed in loamy materials dating from the Pleistocene to the Permian. These soils are most often located on nearly level to moderately sloping terrace pediments or dissected plains. Consisting of very deep, well drained soils formed from calcareous loamy alluvium, the Wheatwood Series is typically located on nearly level to gently sloping flood plains of rivers and wide creeks. The Tillman series is composed of very deep, well drained soils formed in loamy and clayey alluvium parented from Permian age redbed clays and claystone.

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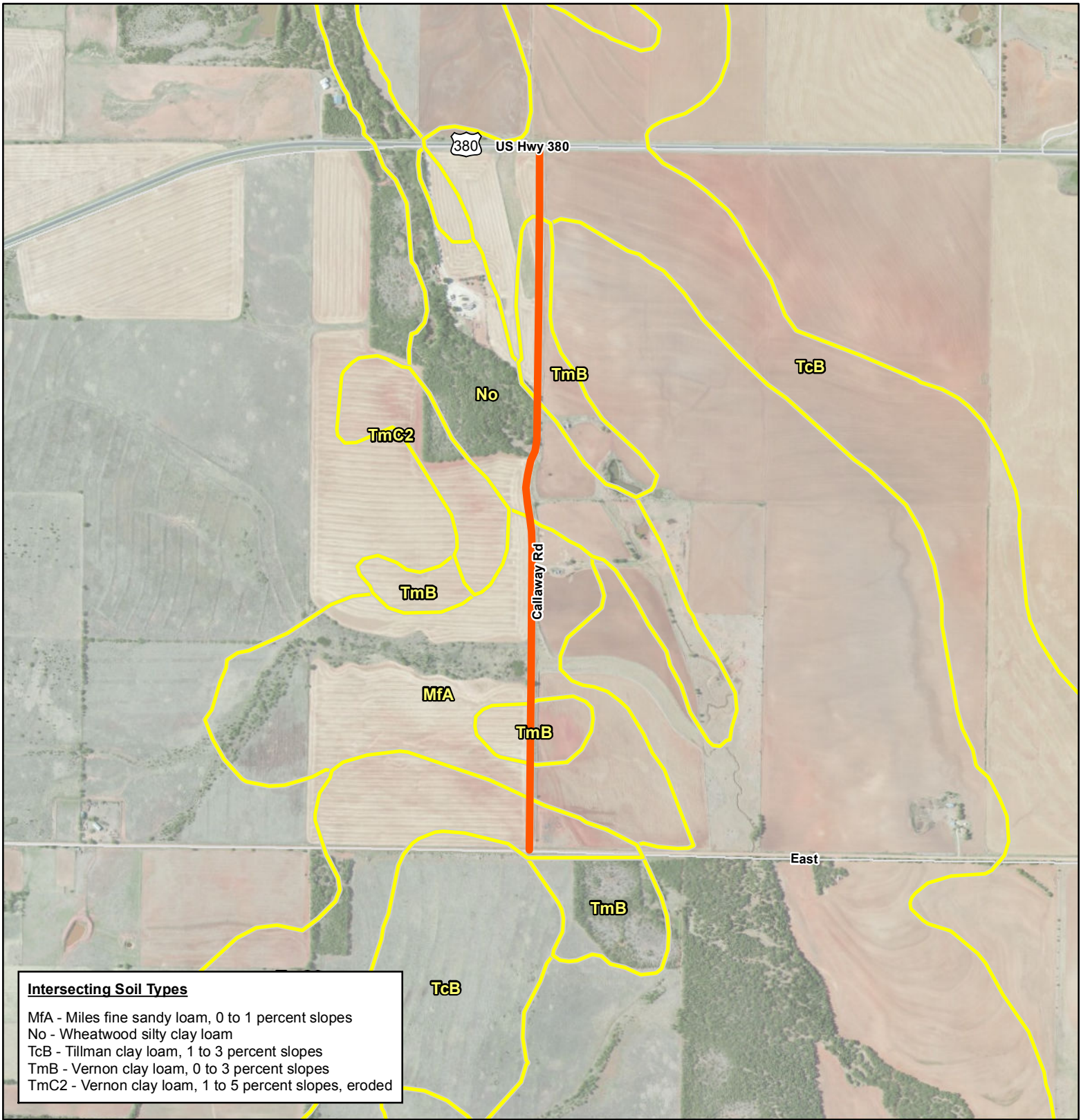




Figure 2
Project Area
Geology & Soils

Key to Features

-  Project Area
-  Soil Boundaries

Entire view of this map is located within the Pcf - Clear Fork Group Geologic Formation



0 480 960
 Feet

0 150 300
 Meters

One inch equals 300 m

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METHODOLOGY

During initial consultation between the THC and Haskell County it was noted that the “proposed project area has never been formally surveyed” and that the proposed location “is situated in a topographic location with moderate to high potential for the presence of previously unrecorded cultural resources” which warranted survey before initiation of construction (See **Appendix B:** letter from Wolf to Howard, May 6, 2015). In preparation for survey, Hicks & Company staff conducted background research utilizing the THC’s Archeological Sites Atlas (the Atlas) online database in order to identify previous cultural resources survey efforts and determine locations of cultural resources within the vicinity of the proposed project.

Previous Investigations

According to the Atlas (2015b), no survey-level investigations or previously recorded sites have been previously conducted within one kilometer of the proposed project area. Located approximately 14,000 meters east of the project location, the nearest recorded site is 41HK25. Site 41HK25 is described as a moderate to heavy lithic scatter, deposited on the surface across an area approximately 3,000 square meters in size. The nearest cemetery to the project area is Willow Cemetery, located in the City of Haskell, approximately 4,300 meters to the west.

Field Methodology

During the field investigations, Hicks & Company archeologists traversed the entirety of the survey area in a single transect. A total of 13 shovel tests were excavated during the survey. In addition, a single backhoe trench was excavated just south of Buffalo Creek. Excavation intervals conformed to the minimum standards outlined by the THC and the Council of Texas Archeologists’ practices and procedures (13 TAC 26.5 and 26.20) (THC 2015a), generally conforming to one excavation per 100 m, with spacing widened slightly in areas of greater than 30 percent ground surface visibility. Subsurface test locations were recorded using GPS technology with sub-meter accuracy. Shovel tests were excavated to impenetrable clays or bedrock and sediment from all shovel tests was screened through ¼-inch hardware cloth. The single conducted backhoe trench was excavated to well below the anticipated depth of impacts.

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RESULTS OF FIELD INVESTIGATIONS

On June 22 and 23, 2015, Hicks & Company archaeologists performed an intensive linear survey, supplemented by shovel testing and backhoe trenching for the segment of Haskell County's Paint Creek Water Improvements project located along the western extent of Callaway Road, a distance of approximately 1540 m. Impacts along this segment consist of the installation of new waterline to be located between the existing road limits and current property lines (see **Appendix A: Design Plans**). During survey, it was noted that much of the proposed waterline will be placed within an existing drainage ditch that runs parallel to Callaway Road, with an approximate average depth of 50 cmbs (**Figure 3**).

Field investigations initiated at the intersection of SH 380 and Callaway Road and proceeded south to the intersection of Callaway Road and East Road. During survey, variable levels of disturbance were noted, including the construction of the above-mentioned drainage ditch and, recently from plowing and harvesting of adjacent agricultural fields (**Figures 4 and 5**). In total, 13 shovel tests (STJH1-STJH6, and STGC1-STGC7) were excavated within the proposed waterline corridor (**Table 1**). These excavations noted very silty clay and sandy loams ranging from dark yellowish brown (10YR 3/4) to red (2.5YR 4/6) in color, with inclusions of gravel and rounded and angular igneous and sedimentary cobbles that decreased in density from the upper stratum to the lower stratum. These shovel tests terminated at depths between 10-63 centimeters below surface (cmbs) within thick clay loams, or within water inundation, a result of recent torrential rains. None of these shovel tests were positive for cultural materials and no sites or cultural features were noted within or immediately adjacent to the project area.



Figure 3: Overview of project area with drainage ditch at center, facing north from STJH1.



Figure 4: Overview facing south along Callaway Road from SH 380.



Figure 5: Overview facing north along Callaway Road from East Road.

Table 1: Shovel Test Data.							
Shovel Test	Level	Depth (cmbs)	P=Pos N=Neg	Munsell	Soil Texture Description	Inclusions	Notes
STJH1	1	0-50	N	10YR 3/4	Silty Clay Loam	Rootlets	Moist. Terminated at water table.
STJH2	1	0-20	N	10YR 3/4	Silty Clay Loam	Rootlets	
	2	20-60+	N	7.5YR4/6	Clay Loam		Terminated within thick clay loam.
STJH3	1	0-10	N	10YR 4/6	Silty Clay Loam	Rootlets	
	2	10-28	N	2.5YR 4/6	Clay Loam		
	3	28-63	N	7.5YR 5/1	Clay Loam	Grit and gravel	Terminated within thick clay loam.
STJH4	1	0-10	N	10YR 4/6	Silty Clay Loam	Rootlets	
	2	10-28	N	2.5YR 4/6	Clay Loam		
	3	28-70	N	7.5YR 5/1	Clay Loam	Grit and gravel	Terminated within thick clay loam.
STJH5	1	0-20	N	7.5YR 3/5	Clay Loam	Rootlets	
	2	20-45	N	10YR 4/3	Clay		Terminated within thick clay loam.
STJH6	1	0-10	N	10YR 4/3	Silty Clay Loam	Rootlets	Disturbed- road gravel below top-sediment.
STGC1	1	0-33	N	10YR 4/4	Silty Clay Loam	60% Grit and gravel	Quartzite and granitic gravel and cobbles.
	2	33-58	N	10YR 5/6	Silty Loam	20% Grit and gravel	Large cobble terminates test
STGC2	1	0-40	N	10YR 4/4	Silty Clay Loam	20% Grit and gravel	Some mottles of 10YR 4/5. Water table at 40 cmbs.
STGC3	1	0-35	N	10YR 4/4	Silty Clay Loam	10% Grit and gravel	Water table at 40 cmbs.
STGC4	1	0-38	N	10YR 4/4	Silty Clay Loam	10% Grit and gravel	Some Mottles of 10YR 4/5 sand. Water table.
STGC5	1	0-50	N	7.5YR 3/4	Silty Clay	5% Grit and gravel	Harder clay at terminus.
STGC6	1	0-35	N	7.5YR 3/4	Silty Clay Loam		Recently plowed field.
STGC7	1	0-10	N	7.5YR 3/4	Silty Clay Loam	5% Grit and gravel	Plowed field. Quartzite granitic gravel cobbles.

In addition to the above-described shovel tests, a single mechanical backhoe trench (BHT1), approximately 5 meters in length and oriented parallel to Callaway Road, was excavated at the southern edge of Buffalo Creek (**Figure 6**). Stratum 1 of BHT1, extending from 0-40 cmbs, was noted to be a reddish brown (2.5YR 5/4) silty clay with a moderate amount of gravel and rounded cobble inclusions. Initiating at a diffuse boundary, Stratum 2 was noted to be a reddish brown (2.5YR 5/4) silty clay with smaller and more granular inclusions of rounded gravel. It was in the lower part of this stratum, at 70—80 cmbs, that fragments of a highly deteriorated thin-walled metal jar with evidence of exterior enameling was noted. Also noted near this depth in the west wall were two isolated charcoal fragments (**Figure 8**). In order to further explore these occurrences in plan-view, sediment above this level was excavated to approximately 65 cmbs and then shovel scraped to 85 cmbs (**Figure 9**). This widening of BHT1 yielded no additional charcoal or artifacts and only localized oxidation surrounding the exposed carbonized wood. The jar fragments contained no distinct maker's marks or other definitively datable adornments making temporal assignment beyond early to late 20th Century impossible. A direct association between this artifact and the charcoal staining, which could well be root-burn, is spurious at best. As such, these occurrences are not considered to be an archeological feature or site. Stratum 2 terminates at a distinct and wavy boundary, 80 cmbs. Strata 3 was observed to be a red (2.5YR 5/6) sandy loam. Excavations were terminated within this stratum at 130 cmbs, well below the anticipated depths of impacts associated with the waterline installation.



Figure 6: Overview of Buffalo Creek, facing west from Callaway Road.



Figure 7: East wall of BHT1. Carbon and enameled jar level at bottom of darker silt clay layer.



Figure 8: Plan view of BHT1 exposed to 80 cmbs.

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CONCLUSIONS AND RECOMMENDATIONS

Archeological investigations for Haskell County's Paint Creek Water Improvements Project revealed no archeological sites or features greater than 50 years in age. Based on the results of the current survey, it is recommended that no archeological historic properties (36 CFR 800.16(1)) or SALs (13 TAC 26.12) will be affected by the undertaking and no further cultural resource investigations are recommended for the proposed project area prior to construction. In the event that unanticipated archeological deposits are encountered during construction, work in the immediate area will cease and THC archeological staff will be contacted to initiate post-review discovery procedures. No cultural materials were collected during the survey. All project-generated notes, forms, and photographs will be curated at CAS in San Marcos, Texas. Hicks & Company offers this draft report in partial fulfillment of Antiquities Permit #7302.

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Wermund, E.G.

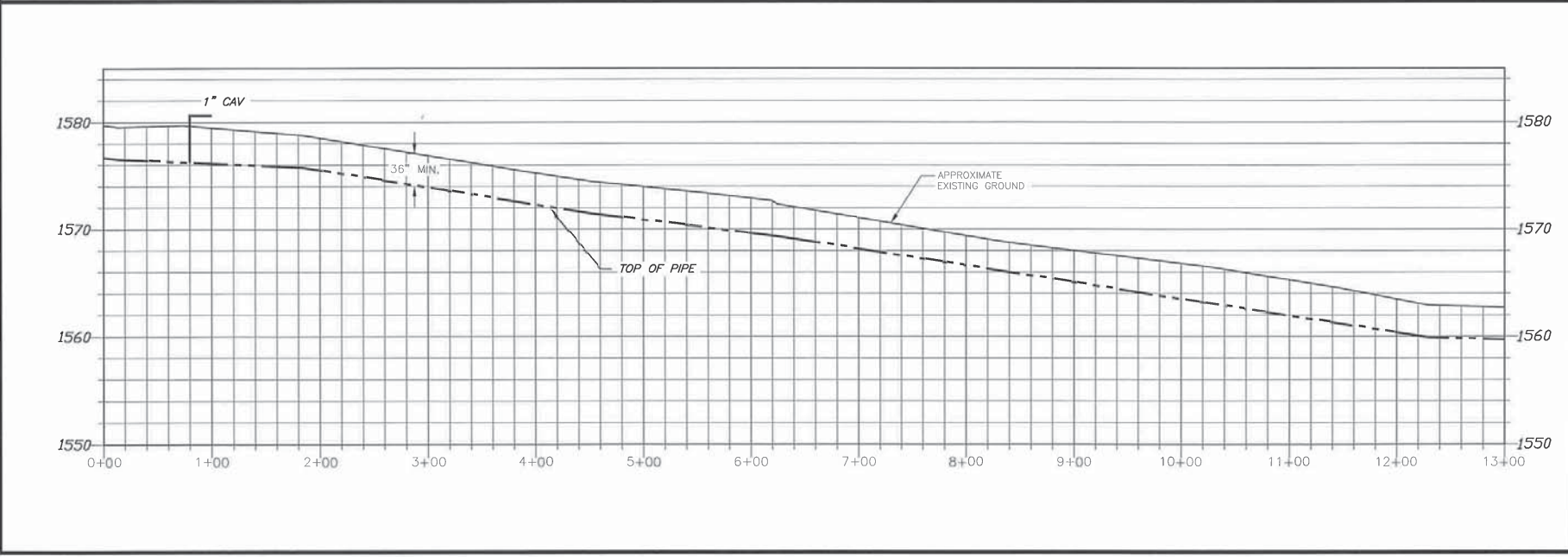
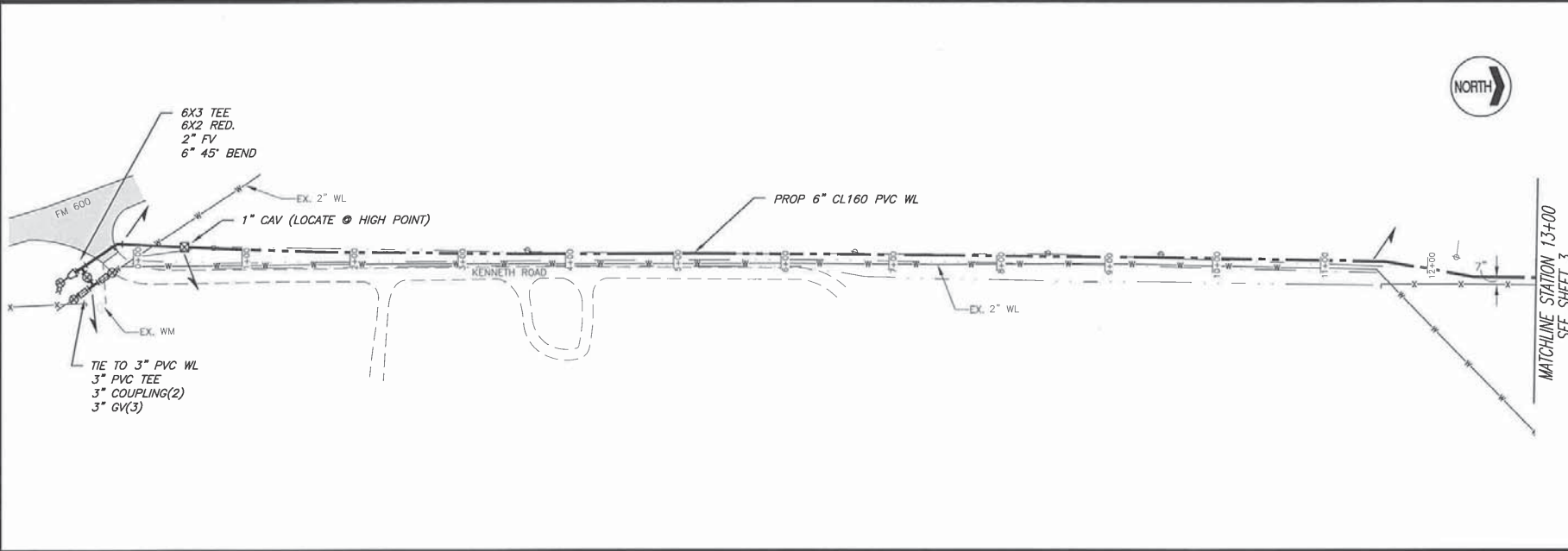
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APPENDIX A
DESIGN PLANS

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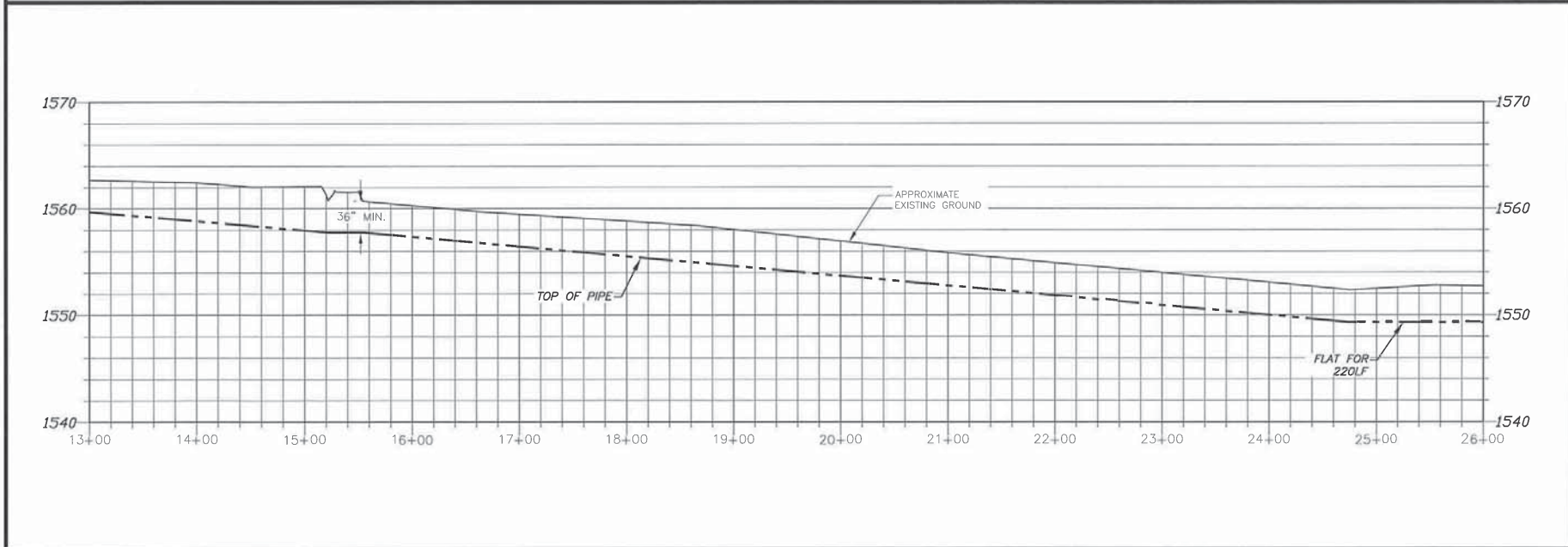
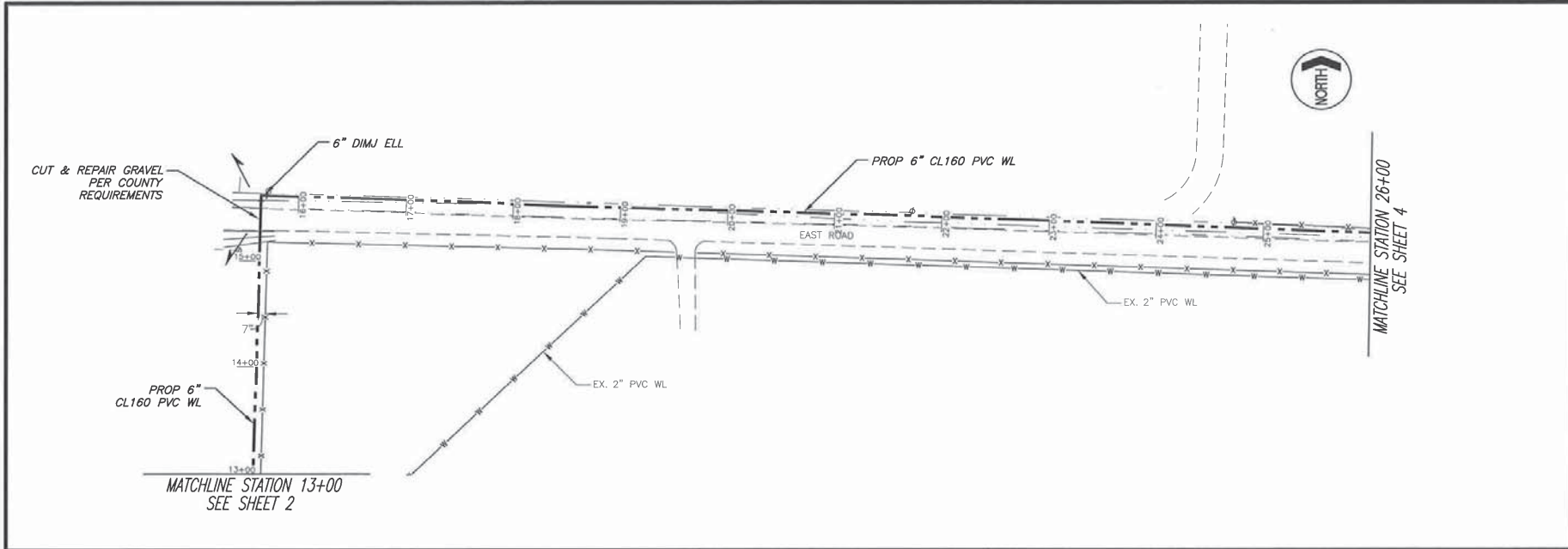
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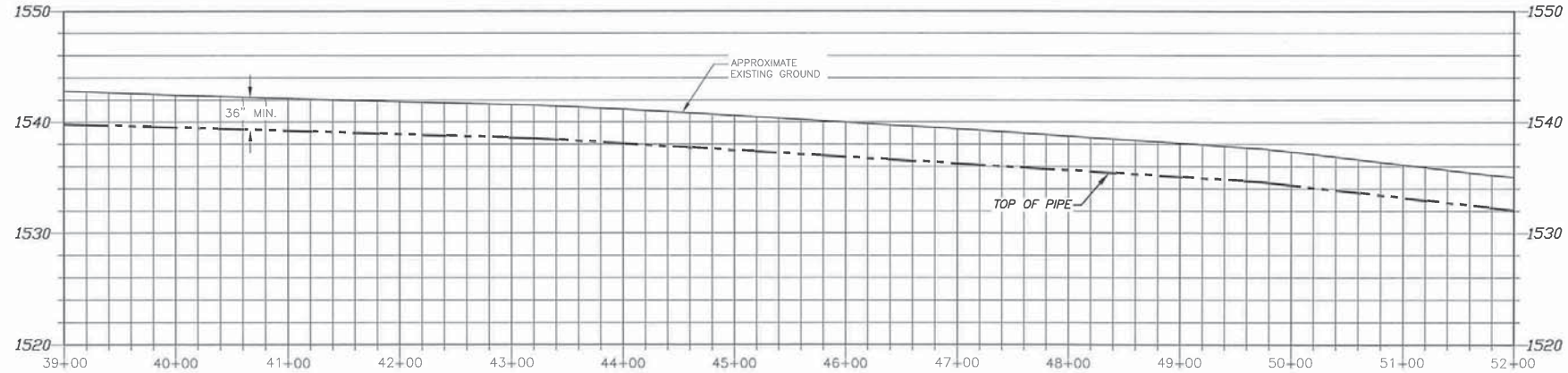
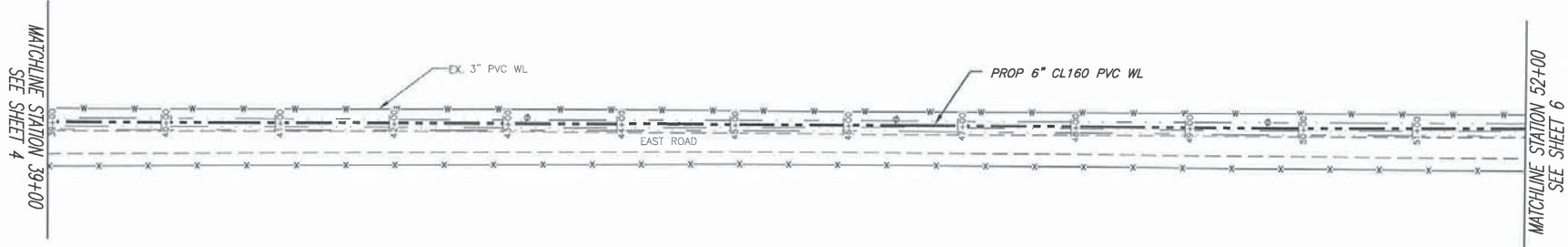
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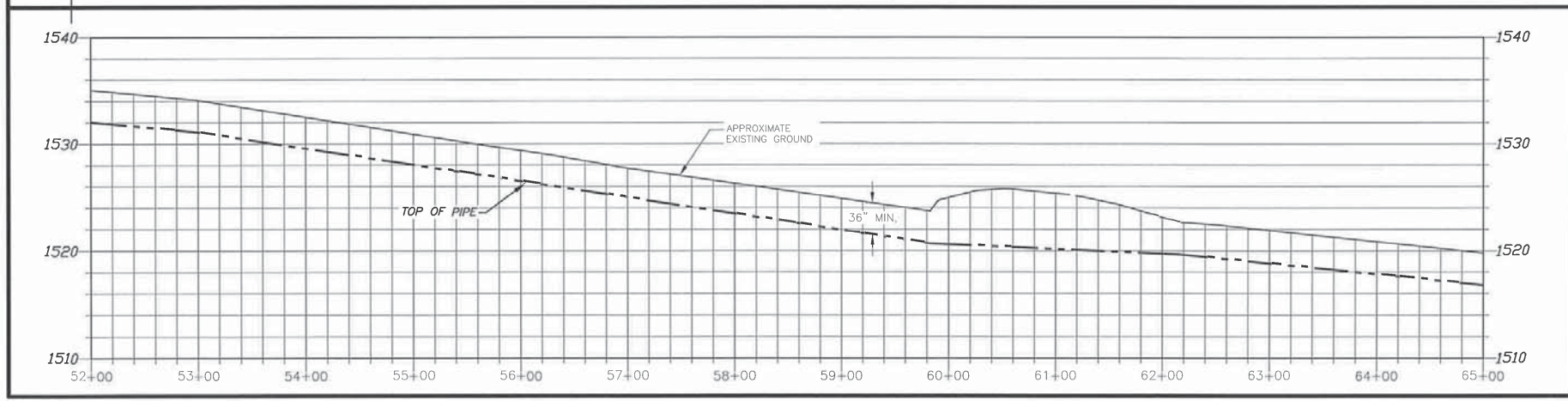
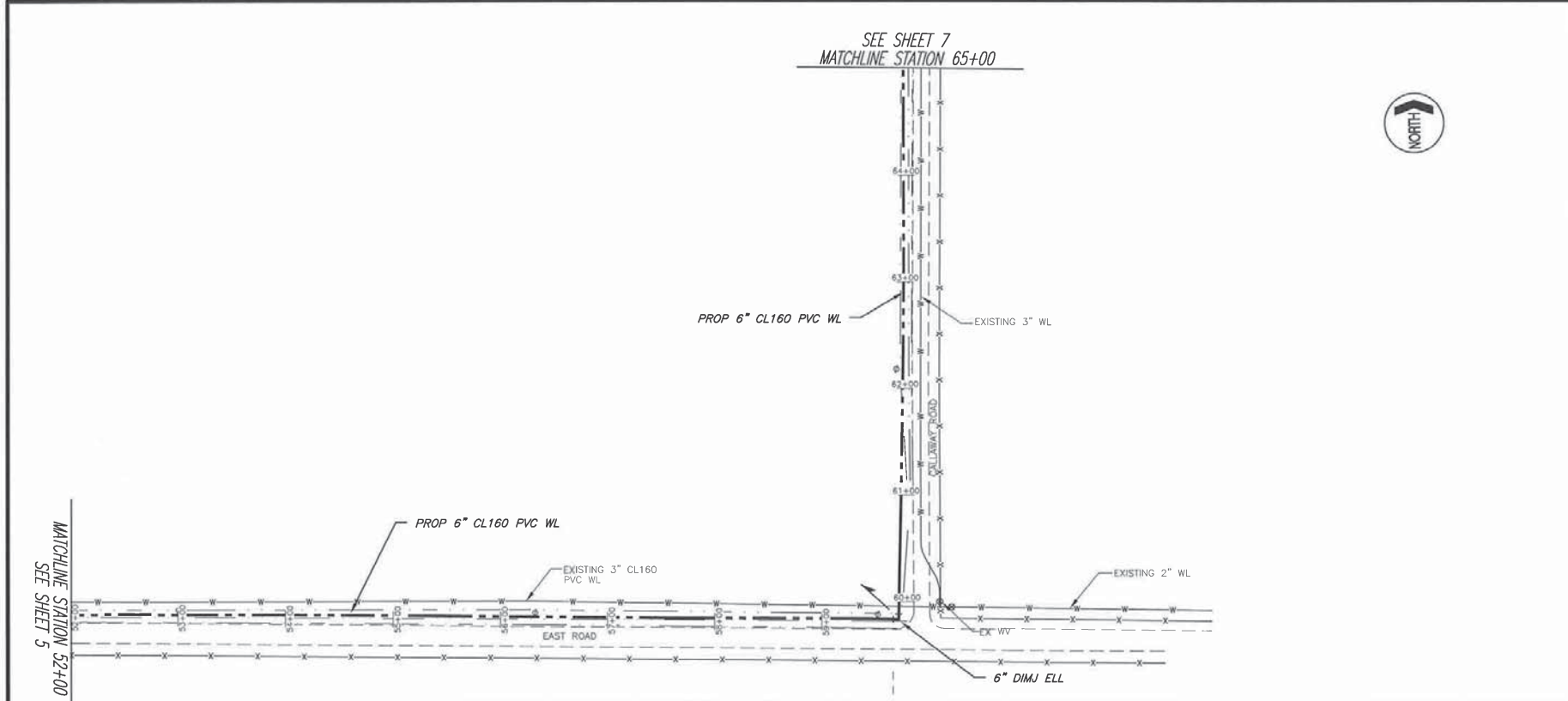
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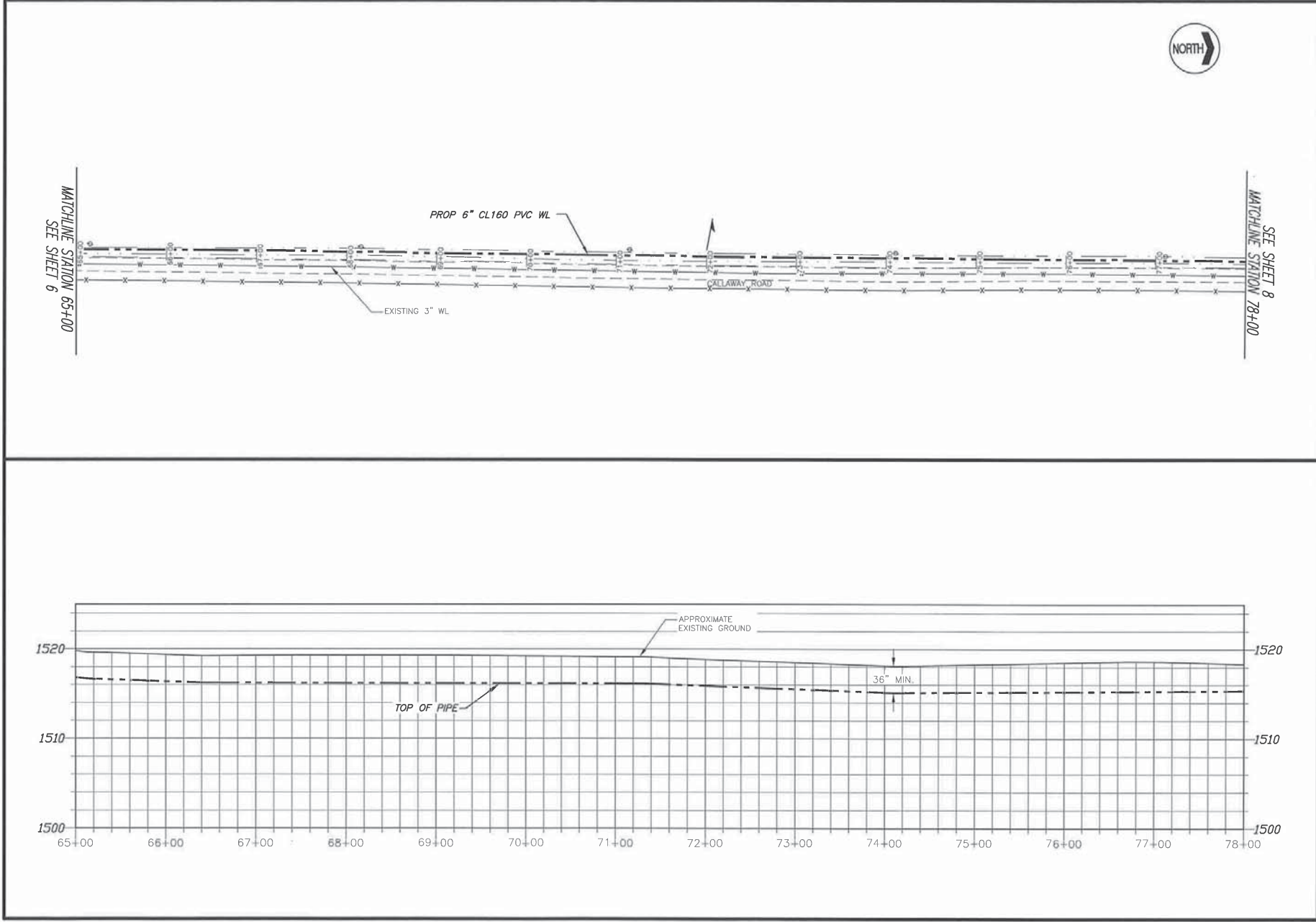
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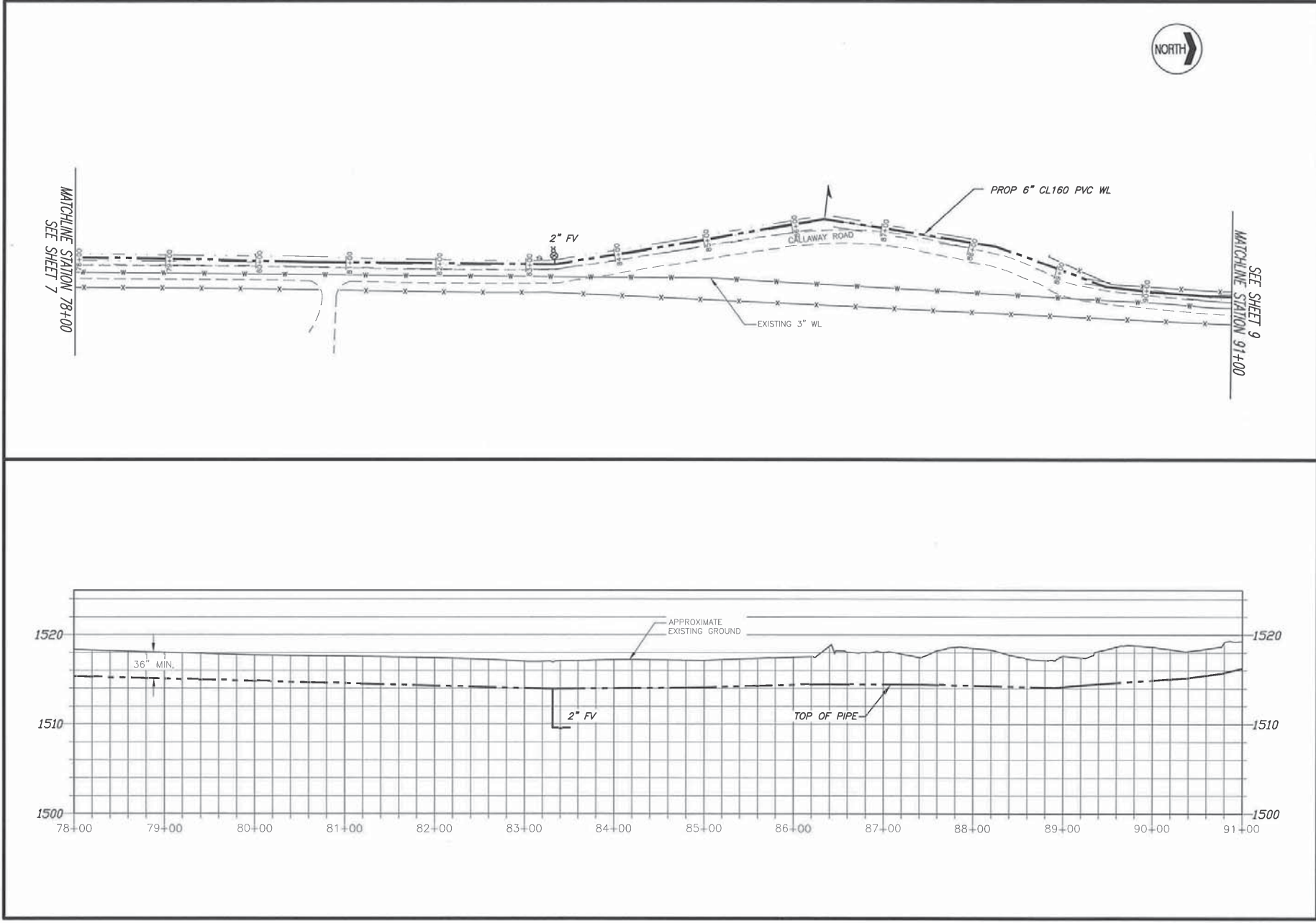
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SEE SHEET 7

SEE SHEET 9
MATCHLINE STATION 91+00

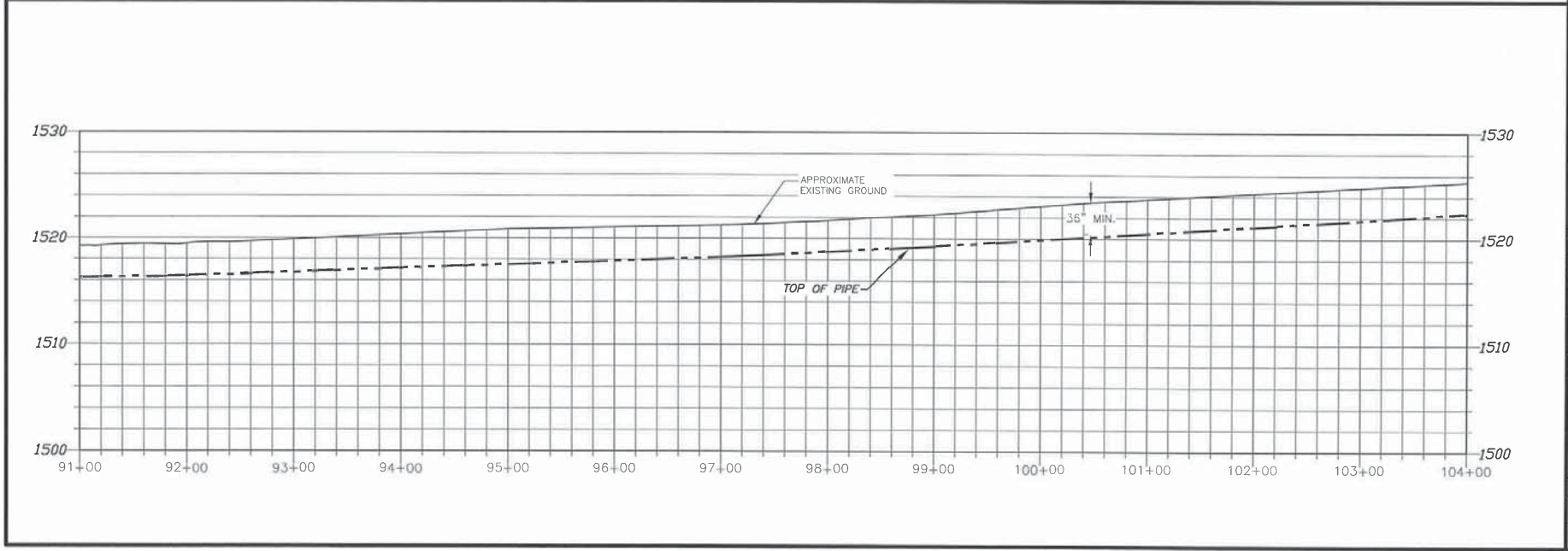
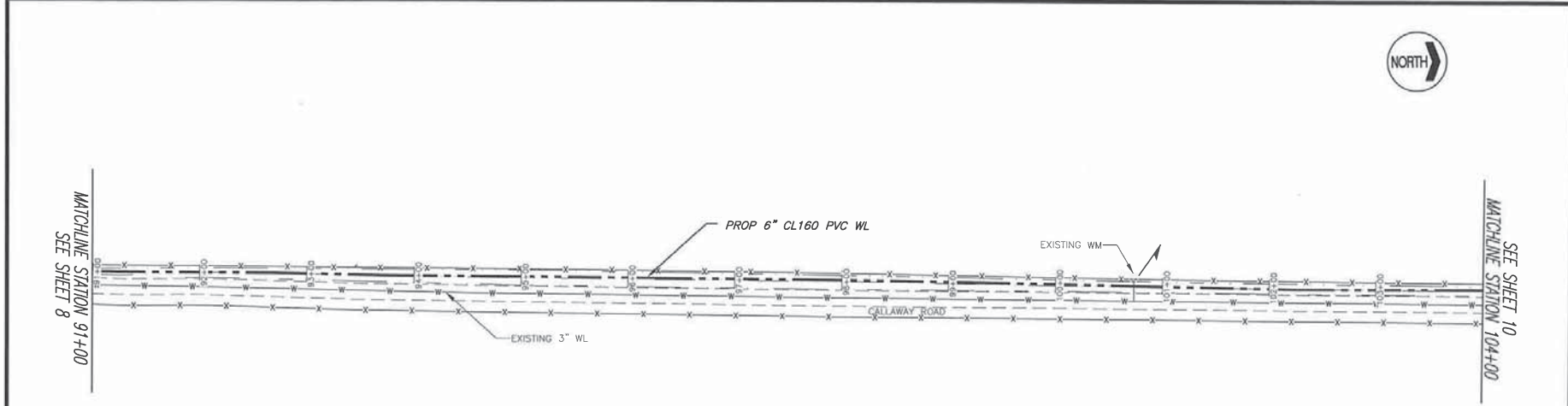
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[PRINT # F-2415]

PAINT CREEK WSC
WATER SUPPLY IMPROVEMENTS
WATER LINE PLAN & PROFILE

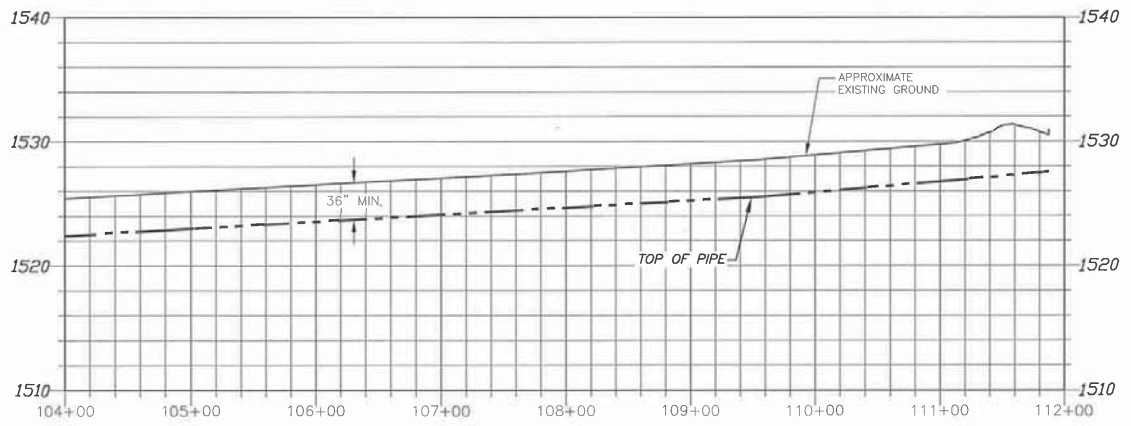
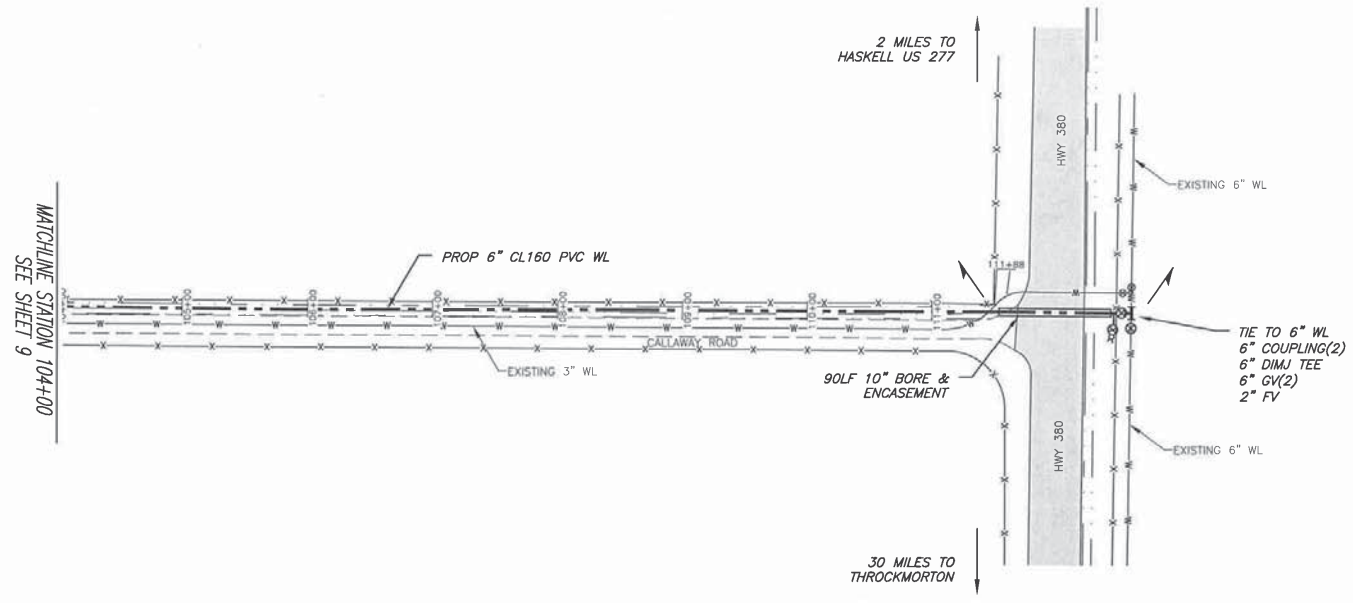
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SHEET								8					
TOTAL								23					

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PAINTE CREEK WSC WATER SUPPLY IMPROVEMENTS WATER LINE PLAN & PROFILE		THIS DOCUMENT IS REVISION NUMBER ONLY UNDER THE AUTHORIZATION OF KEN JACOB & MARTIN, LLC. AND IS NOT TO BE USED FOR CONSTRUCTION, PERMITTING PURPOSES	
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NO. REVISION SHEET TOTAL		SCALE VERT. 1" = 10' HORIZ. 1" = 100' FILE DATE DESIGNED DRAWN CHECKED	
9 23		SHEET 9 DATE APR. 2015 DESIGNED KJM DRAWN CV CHECKED KM	

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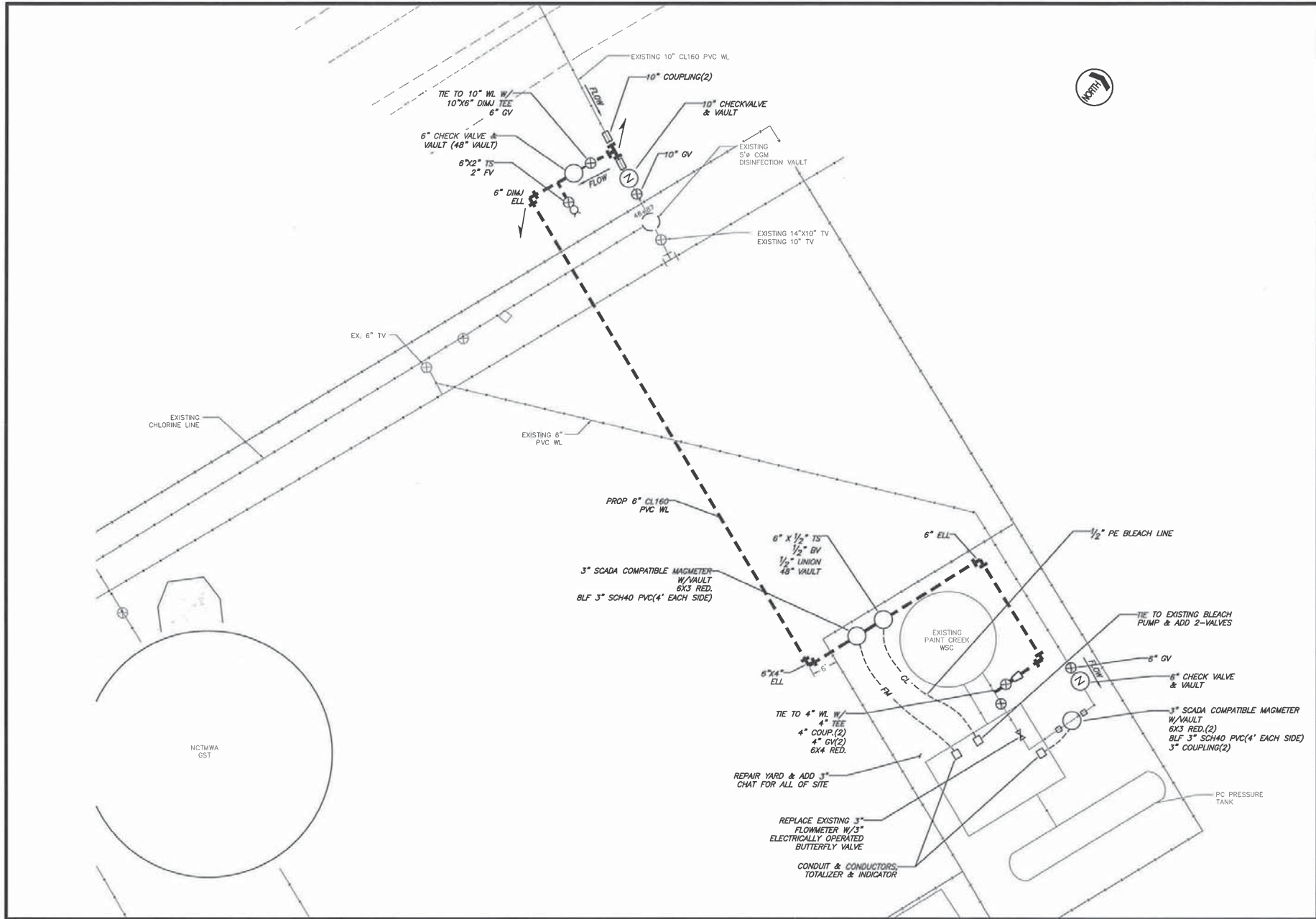
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 [FIRM# E-2448]

PAINT CREEK WSC
WATER SUPPLY IMPROVEMENTS
WATER LINE PLAN & PROFILE

NO.	REVISION	DATE	BY	SCALE		HORIZONTAL		VERTICAL	
				DATE	FILE	DATE	SHEET	DATE	FILE
SHEET				10		APR 2015		KLI	
TOTAL				23		CY		RM	

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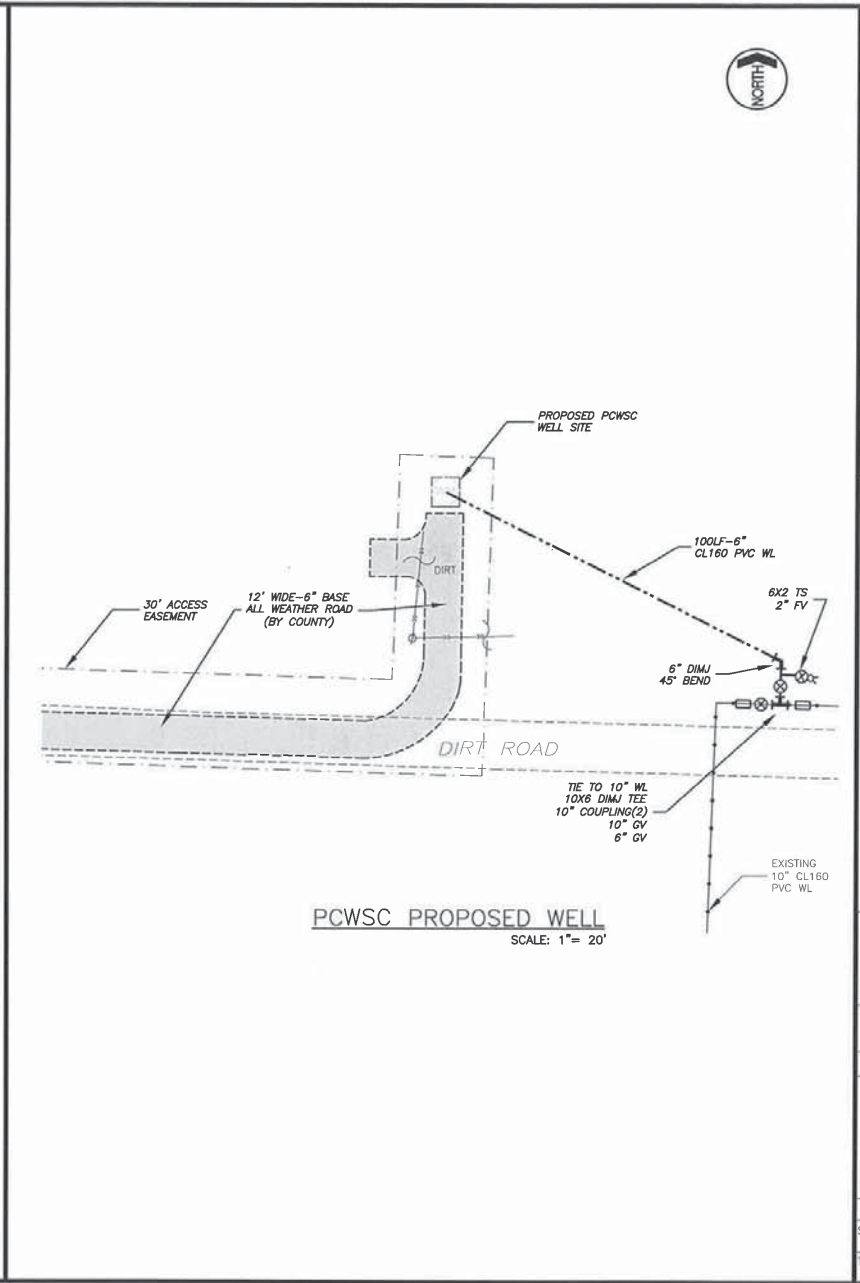
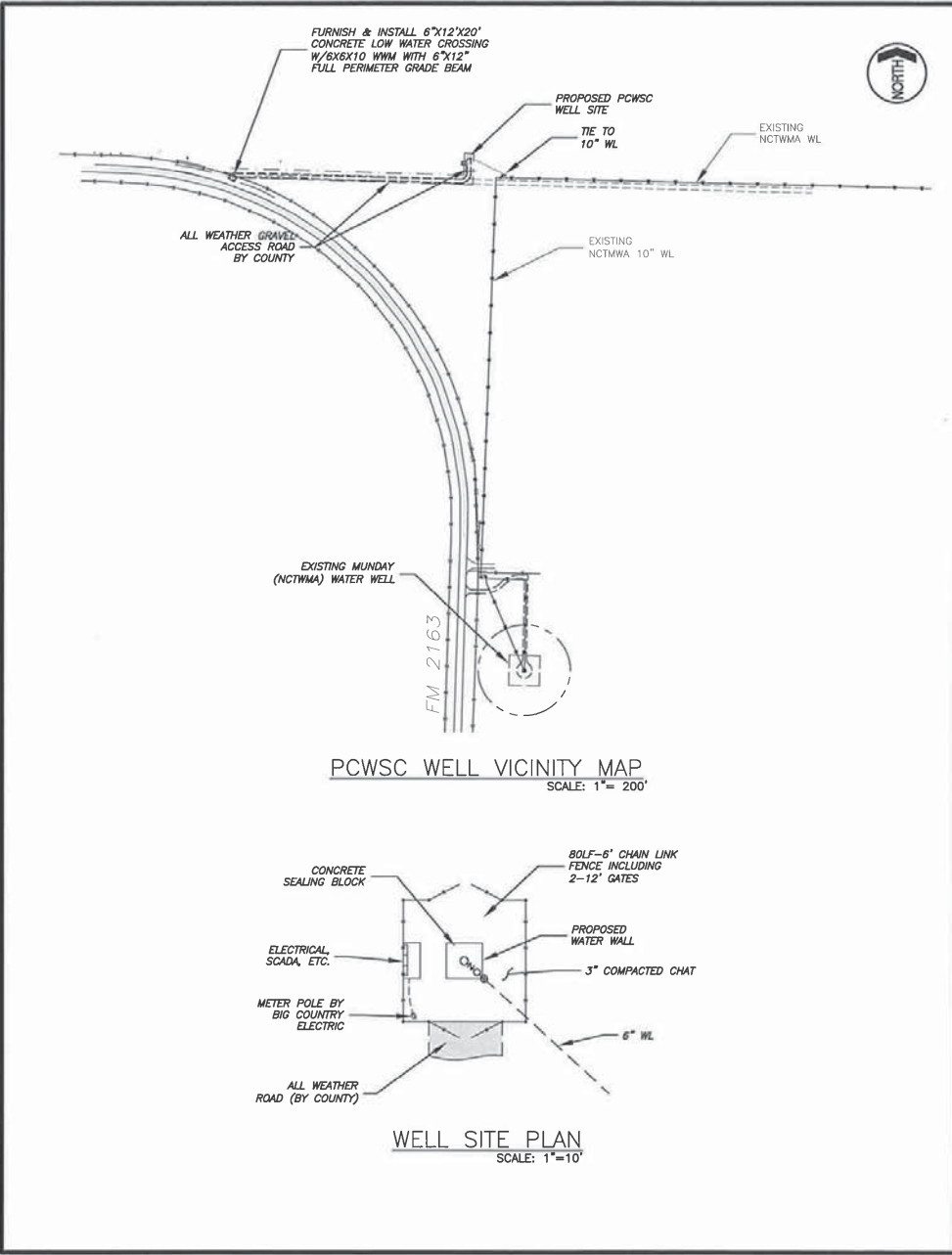
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PAINT CREEK SUD
WATER SUPPLY IMPROVEMENTS
HASKELL PUMP STATION SITE PLAN

NO.	REVISION	BY	DATE	SCALE	FILE	DATE	APR. 2015	DESIGNED	CHK	DRAWN	CV	CHECKED	KM
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SHEET	11												
TOTAL	23												

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PAINT CREEK WSC

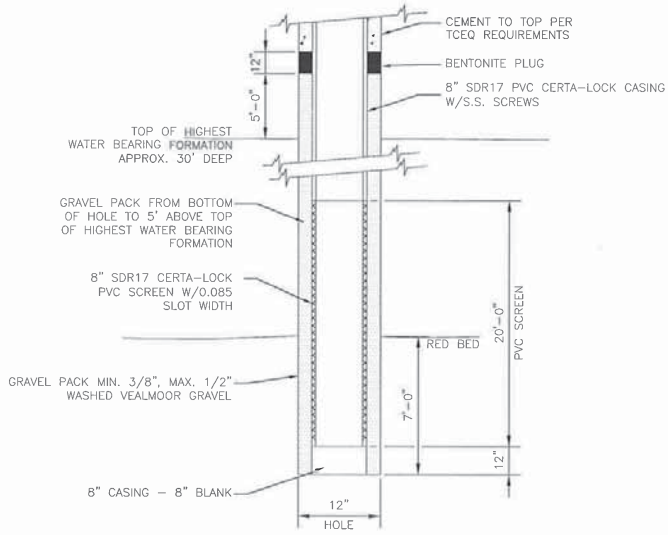
WATER SUPPLY IMPROVEMENTS

WATER WELL SITE PLAN

NO.	REVISION	BY	DATE	SCALE	AS SHOWN
				FILE	14-11564
			DATE	APR 2015	
			DESIGNED	GM	
			DRAWN	CV	
			CHECKED	VM	

SHEET 12

TOTAL 23



TYPICAL WELL SECTION
NTS



ESTIMATED WELL LOG
NTS

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WATER SUPPLY IMPROVEMENTS

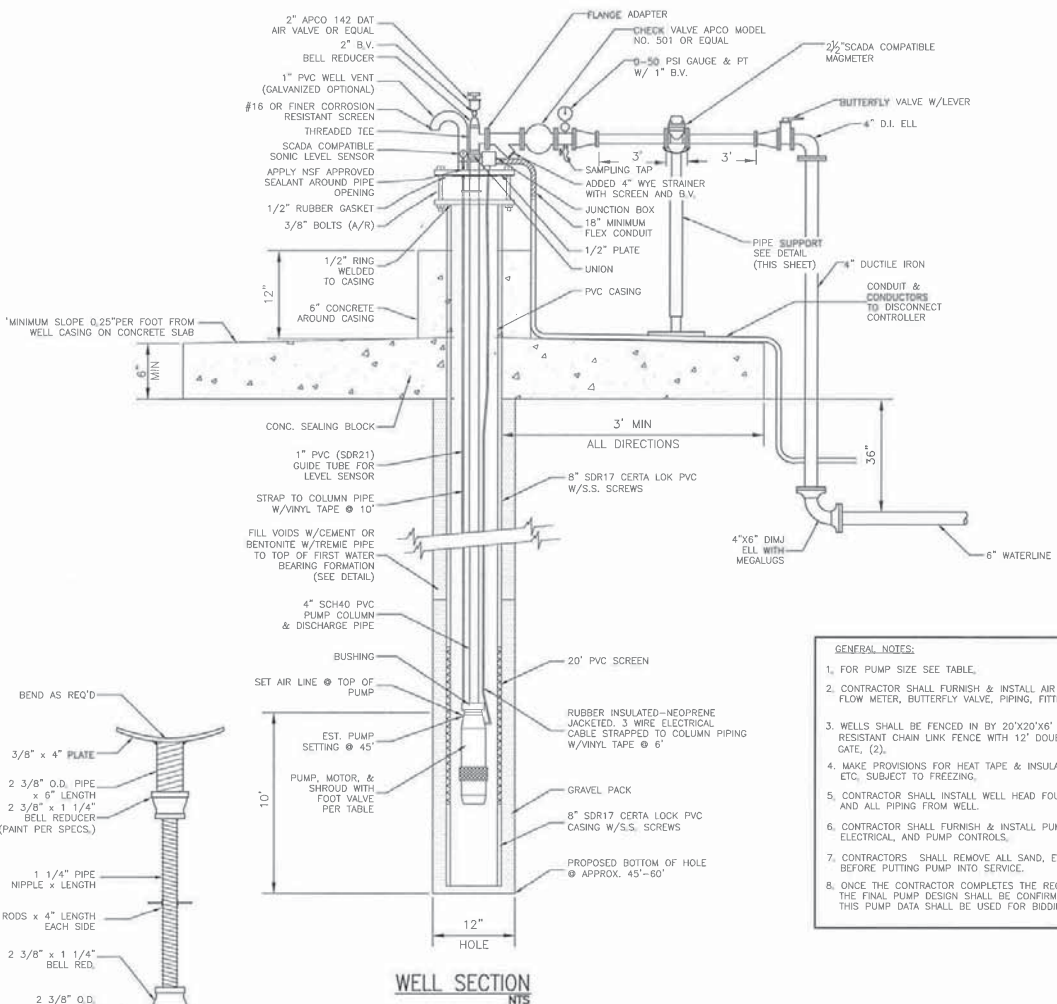
WELL SECTIONS

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				DATE	APR 2015
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				DRAWN	CY
				CHECKED	KM

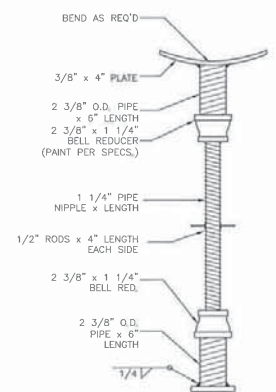
SHEET
13
TOTAL
23

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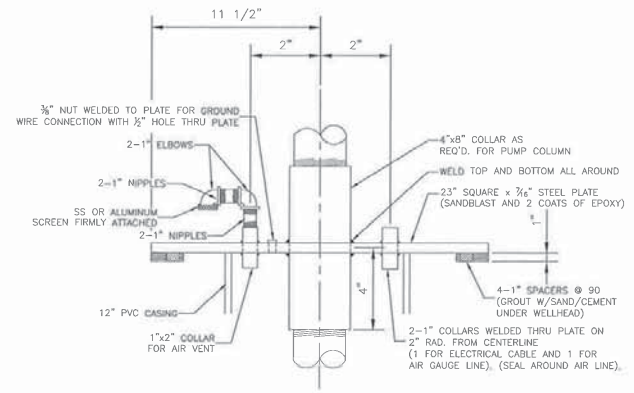
PIPE SUPPORT
NTS



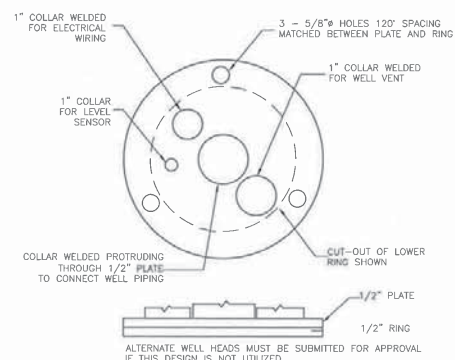
- GENERAL NOTES:**
- FOR PUMP SIZE SEE TABLE.
 - CONTRACTOR SHALL FURNISH & INSTALL AIR VALVE, CHECK VALVE, FLOW METER, BUTTERFLY VALVE, PIPING, FITTINGS & CONNECTIONS.
 - WELLS SHALL BE FENCED IN BY 20'X20'X6' INTRUDER RESISTANT CHAIN LINK FENCE WITH 12' DOUBLE GATE. (2).
 - MAKE PROVISIONS FOR HEAT TAPE & INSULATION OF ALL PIPING, ETC. SUBJECT TO FREEZING.
 - CONTRACTOR SHALL INSTALL WELL HEAD FOUNDATION, CONDUIT, AND ALL PIPING FROM WELL.
 - CONTRACTOR SHALL FURNISH & INSTALL PUMP, PIPING VALVES, WELL ELECTRICAL, AND PUMP CONTROLS.
 - CONTRACTORS SHALL REMOVE ALL SAND, ETC., FROM WELLS BEFORE PUTTING PUMP INTO SERVICE.
 - ONCE THE CONTRACTOR COMPLETES THE REQUIRED PUMP TEST, THE FINAL PUMP DESIGN SHALL BE CONFIRMED. THIS PUMP DATA SHALL BE USED FOR BIDDING PURPOSES.

PUMP DATA

Well #	Estimated Well Depth (ft)	Pump Column & Discharge Pipe Size	Proposed WL Size	Design Flow & Head Efficiency	BERKLEY Pump Model & RPM	# of Stages	Bowl Dia.	Motor Horsepower
THOMAS #1	60	4"	6"	125 gpm @ 125-74.4% Eff.	5TMH5-110 3500 rpm	3	4.15"	10 HP



WELL HEAD DETAIL
NTS



COVER DETAIL
NTS

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 FIRM# F2418

PAINT CREEK WSC
 WATER SUPPLY IMPROVEMENTS

WELL DETAILS

NO.	REVISION	DATE	SCALE	AS SHOWN
			FILE	14-11584
			DATE	APR. 2015
			DESIGNED	RM
			DRAWN	CM
			CHECKED	RM

SHEET 14
 TOTAL 23

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SCALE: 1" = 2 MILES

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FORM # 244E

PAINT CREEK WSC
WATER SUPPLY IMPROVEMENTS
PROPOSED SCADA SITES

NO.	REVISION	BY	DATE	SCALE	AS SHOWN

SHEET	15
TOTAL	23

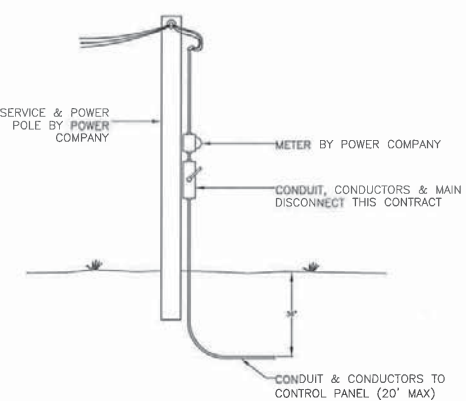
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 323-689-1070
 [E:JLM@J&M.COM] [F:323-689-1980]

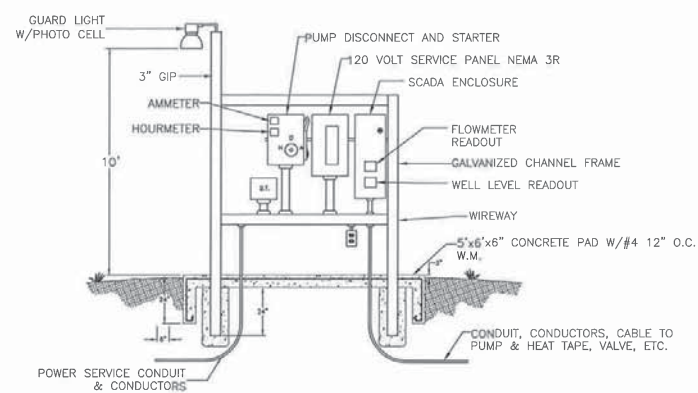
PAINT CREEK SWC
WATER SUPPLY IMPROVEMENTS
 WATER WELL ELECTRICAL SCADA DETAILS

Haskell County, Texas
 Paint Creek Water Supply Corporation
SCADA OPERATIONAL DATA

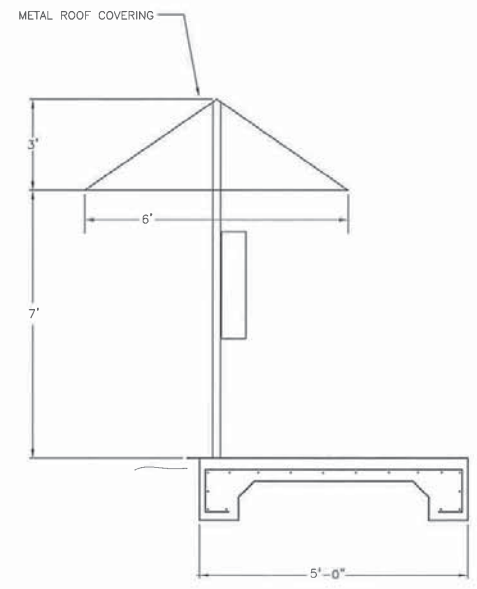
- There shall be two (2) SCADA sites as shown on the plans, and the NCTMWA and Paint Creek WSC shall have operational capabilities as called for in the specifications.
- All sites shall monitor and report power and pump status.
- The contractor shall furnish and install antennas, coaxial cable, etc. as required and towers if required.
- The contractor shall furnish and install a 0-30 foot pressure transmitter (PT) for the PCWSC ground storage tank at the Haskell pump station, 0-60psi PT for the PCWSC pressure tank at the Haskell Pump Station. The contractor shall furnish and install all taps, ball valves, piping, conduit, etc. as required for all SCADA and pressure facilities. All pressure transmitters and all facilities subject to freezing shall be heat taped, insulated or installed inside a heated building. No electrical equipment shall be installed where it can be submerged in a vault, etc. The contractor shall furnish and install all required electrical equipment for adding SCADA to the existing Haskell pump station and well site.
- At the proposed well site, the aquifer water level, pump status, flow meter rate and totalizer, and motor amperage, shall be reported. The pump operation shall have HOA capability and the automatic operation shall be based upon the water level in the Haskell Ground Storage Tank (GST) or as controlled by the NCTMWA.
- At the existing Haskell Pump Station, the contractor shall furnish and install HOA switches for the existing bleach pump, and for the proposed electrically operated butterfly valve. Automatic operation shall be through the SCADA system according to the adjustable settings of the water level in the GST. The SCADA shall monitor and report tank levels in the GST, pressures in the Pressure Tank, flow rate and totalizer for both proposed flow meters, motor amperage and run times (2). The proposed electrically operated butterfly valve shall indicate percent open the operator shall have the capability of having a pre-set percent open in the automatic or manual operation.



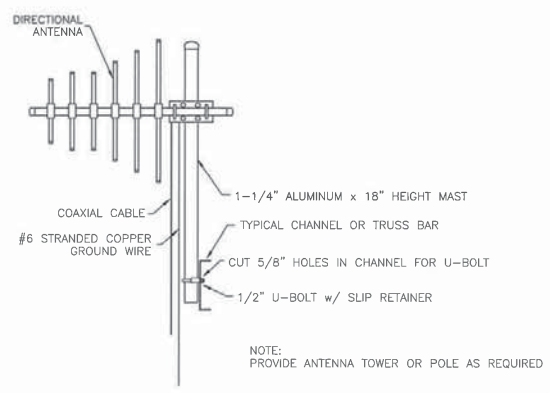
POWER SERVICE DETAIL



CONTROL PANEL

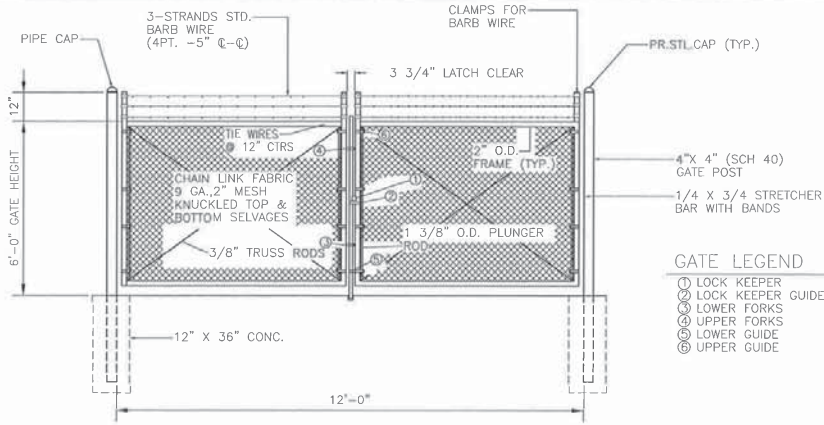


COVERED SCADA

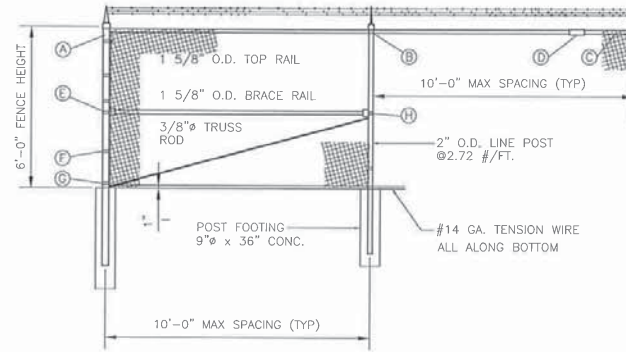


TYPICAL ANTENNA MOUNTING DETAIL

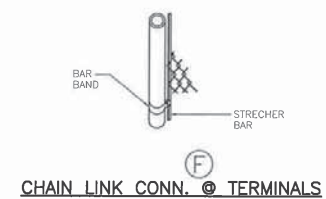
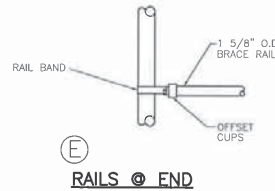
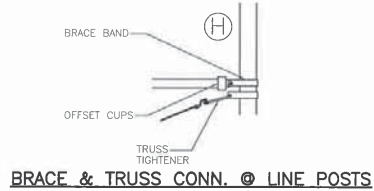
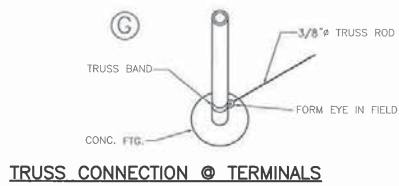
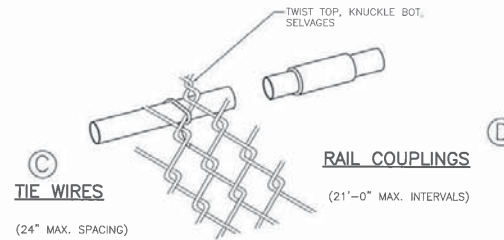
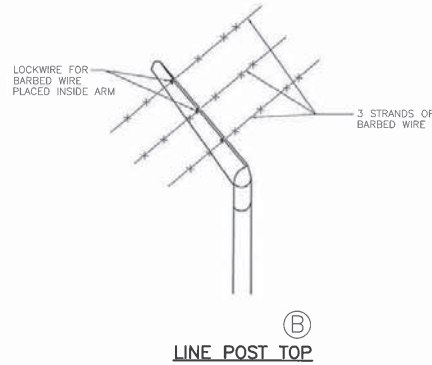
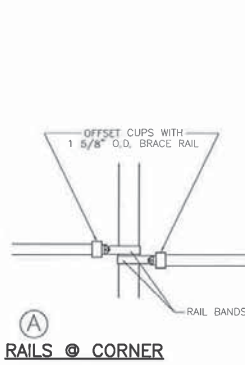
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TITLE	SHEET 16
DATE	APR. 2015
DESIGNED	AKR
DRAWN	CV
CHECKED	CV
NO. REVISION	
SHEET	16
TOTAL	23



STANDARD DOUBLE SWING GATE DETAIL (2 REQUIRED)



TYPICAL FENCE DETAIL



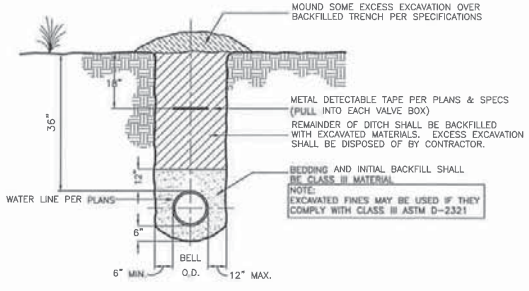
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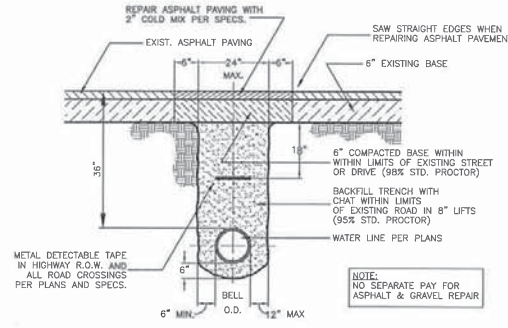
PAINT CREEK WSC
WATER SUPPLY IMPROVEMENTS
CHAIN LINK FENCE & GATE DETAILS

NO.	REVISION	BY	DATE	SCALE	AS SHOWN
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				DATE	APR 2015
				DESIGNED	FOR
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SHEET 17					
TOTAL 23					

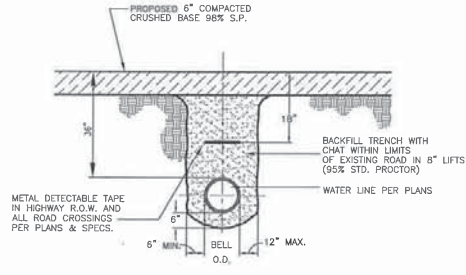
J:\2014\11564\11564.dwg (Paint Creek Water Supply Improvements) - Chain Link Fence & Gate Details - Sheet 17 of 23



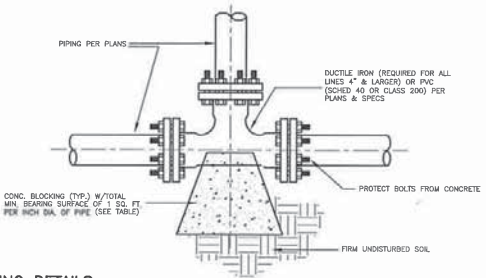
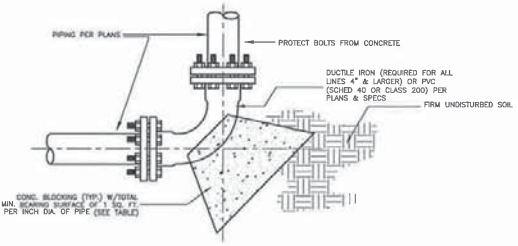
TYPICAL CROSS COUNTRY TRENCH



TRENCH @ EXISTING ASPHALT ROADS



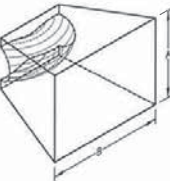
TRENCH FOR OPEN CUT GRAVEL



TYPICAL BLOCKING DETAILS

DIMENSIONS FOR CONCRETE THRUST BLOCKS			
PIPE DIA. SIZE (INCHES)	MINIMUM SOIL BEARING AREA REQUIRED (SQUARE FEET)	TYPICAL DIMENSIONS OF BEARING AREA IN INCHES (A X B)	TYPICAL VOLUME OF CONC. REQUIRED (CUBIC FEET)*
2	2.0	12" x 24"	3.0
2 1/2	2.5	15" x 24"	4.0
3	3.0	16" x 27"	4.5
4	4.0	18" x 32"	6.0
6	6.0	24" x 36"	9.0
8	8.0	29" x 40"	12.0
10	10.0	30" x 48"	15.0
12	12.0	36" x 48"	18.0
14	14.0	36" x 56"	21.0
16	16.0	39" x 59"	24.0
18	18.0	42" x 62"	27.0

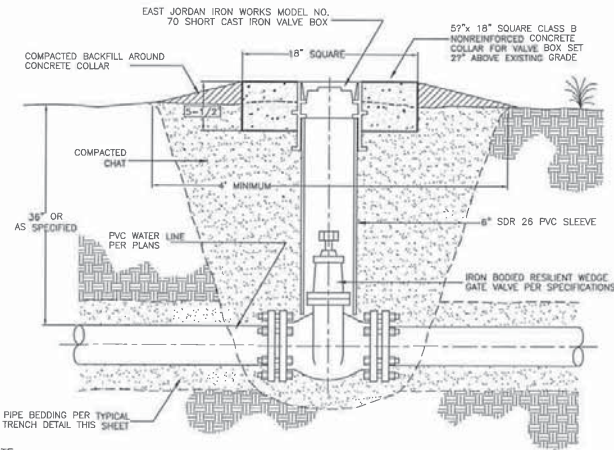
* VARIES CONSIDERABLY W/DISTANCE BETWEEN PIPE AND BEARING POINT



NOTES:
BLOCKING REQ'D. ON ALL FITTINGS 2" & LARGER.
ALL REQUIRED BENDS & FITTINGS MAY NOT BE LABELLED ON THE PLANS.
PIPE MAY BE CURVED UP TO 75% OF MANUFACTURER'S RECOMMENDED MAXIMUM CURVATURE WITHOUT A BEND AS APPROVED BY OWNER & ENGINEER.
PVC FITTINGS TO BE PROTECTED FROM CONCRETE WITH A WRAPPING OF 30# ROOFING FELT.

NOTE:
ALL IRON FITTINGS, VALVES, ETC SHALL BE ENCAPSULATED WITH 8 MIL POLYETHYLENE WRAP. ALL FITTINGS SHALL HAVE MEGALUG RESTRAINTS. VALVE FITTING COMBINATIONS SHALL HAVE FOSTER ADAPTORS

NOTE:
WHERE CUTTING ROADWAYS AND DRIVEWAYS, THE ENTIRE TRENCH SHALL BE BACKFILLED WITH GRAVEL & COMPACTED.



NOTE:
WHERE FLUSH INSTALLATION IS NOT REQUIRED, A MUSHROOM LID MAY BE USED IF APPROVED BY THE OWNER.

GATE VALVE & BOX

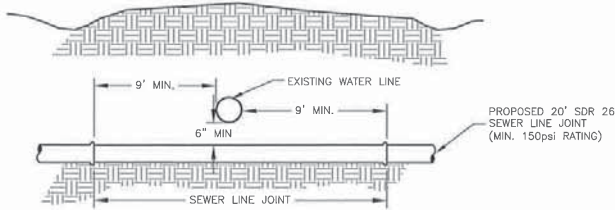
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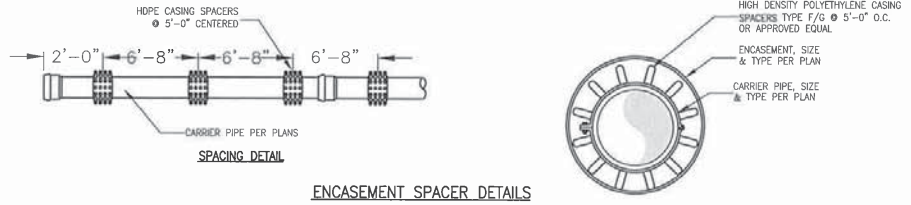
PAINT CREEK SWC
WATER SUPPLY IMPROVEMENTS
MISCELLANEOUS DETAILS

NO.	REVISION	BY	DATE	SCALE	N.T.S.

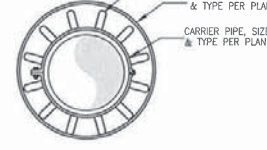
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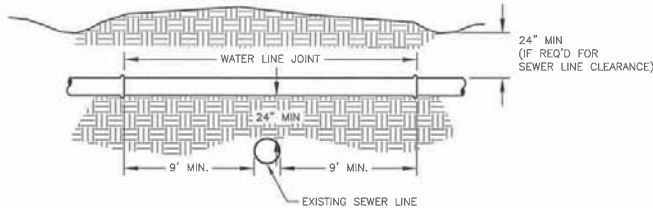
PROPOSED SEWER LINE CROSSING UNDER EXISTING WATER LINE
(PER TCEQ SEE SPECIFICATIONS) NTS



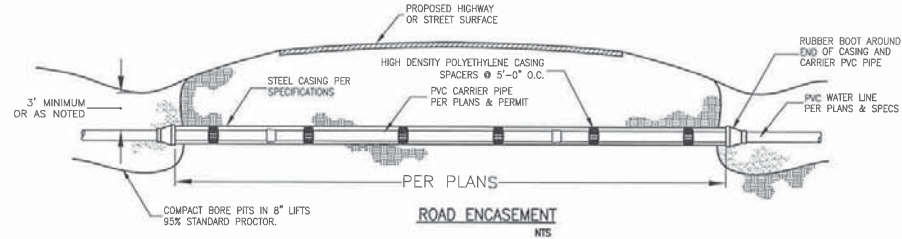
ENCASEMENT SPACER DETAILS



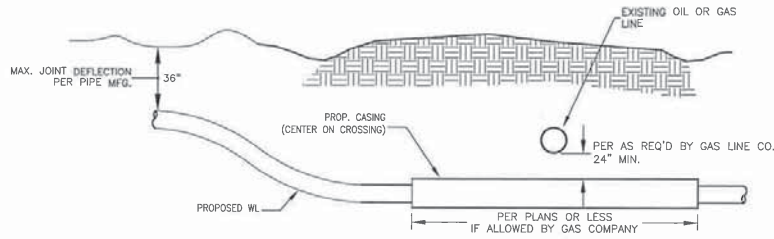
SPACER SECTION DETAIL



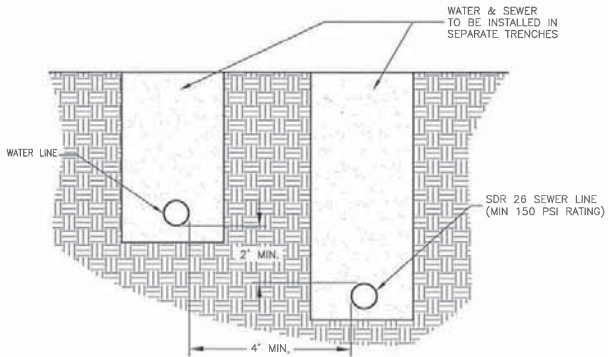
PROPOSED WATER LINE CROSSING OVER EXISTING SEWER LINE
(PER TCEQ SEE SPECIFICATIONS) NTS



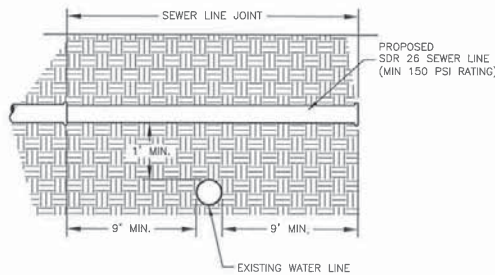
ROAD ENCASEMENT
NTS



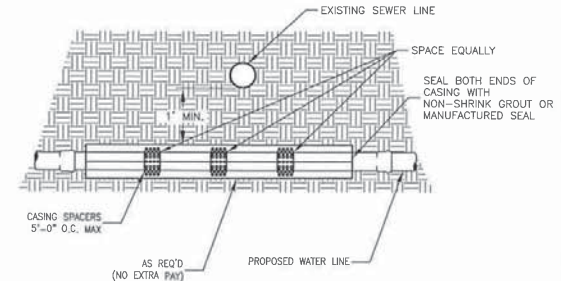
OIL OR GAS LINE CROSSING
NTS



PARALLEL WATER AND SEWER LINES
(WHEN 9' SEPARATION IS NOT POSSIBLE) NTS



PROPOSED SEWER LINE CROSSING OVER EXISTING WATER LINE
NTS



PROPOSED WATER LINE CROSSING UNDER EXISTING SEWER LINE
NTS

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325-695-1070
WEATHERFORD, TEXAS 76086
817-694-9880
[FIRM # F-248]

PAINT CREEK SWC
WATER SUPPLY IMPROVEMENTS
MISCELLANEOUS DETAILS

NO.	REVISION	DATE	SCALE	BY	DATE	FILE	DATE	DATE	DESIGNED	DRAWN	CHECKED	IN CHARGE
SHEET 19												
TOTAL 23												

I:\MSD_Plan_Comp_2012\11-15-12\11-15-12\Drawings\WaterSupplyImprovements\PaintCreek_SWC\Drawings\Miscellaneous\SDR 26 Sewer Line Crossing Under Existing Water Line.dwg

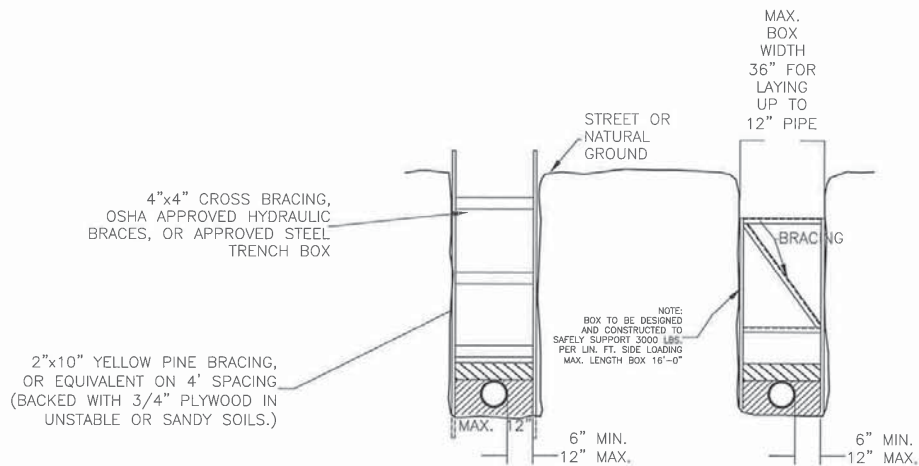
THIS DOCUMENT IS BY PERMIT ONLY UNDER THE AUTHORIZATION OF KEN AND IS NOT TO BE USED FOR CONSTRUCTION PERMITTING PURPOSES

JACOB & MARTIN, LLC.
 CONSULTING ENGINEERS
 1508 SANTA FE DR, SUITE 204
 ABILENE, TEXAS 79608
 325-696-1070
 (EIRMF F24LB)

PAINT CREEK SWC
 WATER SUPPLY IMPROVEMENTS
 MISCELLANEOUS DETAILS

NO.	REVISION	DATE	SCALE	INT.S.

SHEET	20
TOTAL	23

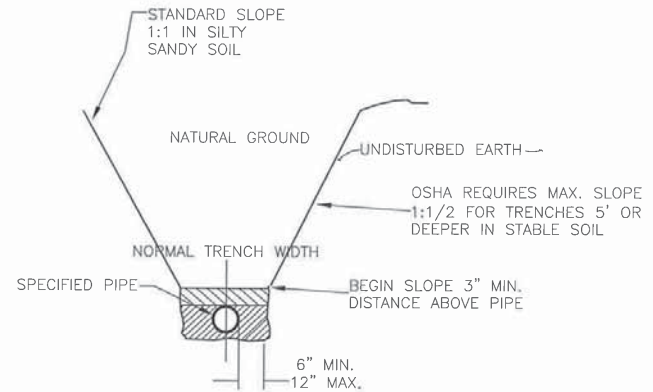


WALL BRACING DETAIL

MOVABLE SHIELD

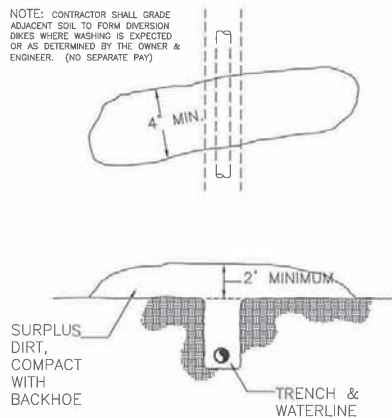
NOTE: TRENCH WALL PROTECTION SHALL BE PROVIDED FOR ALL TRENCHES GREATER THAN 5' DEEP. SEE TYPICAL TRENCH DETAIL FOR BACKFILL AND BEDDING REQUIREMENTS.

TRENCH WALL PROTECTION

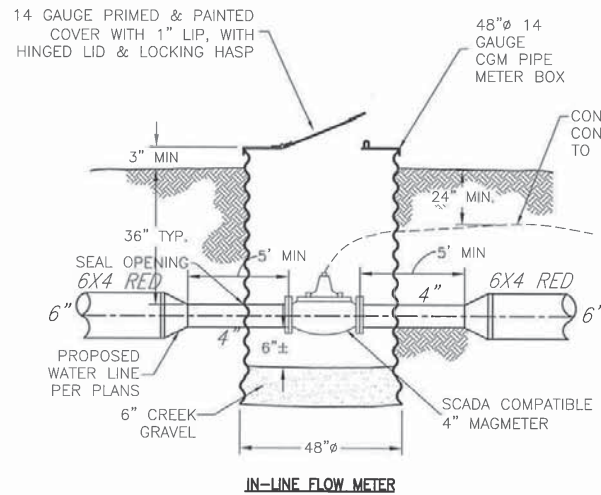


TRENCH WALL SLOPING

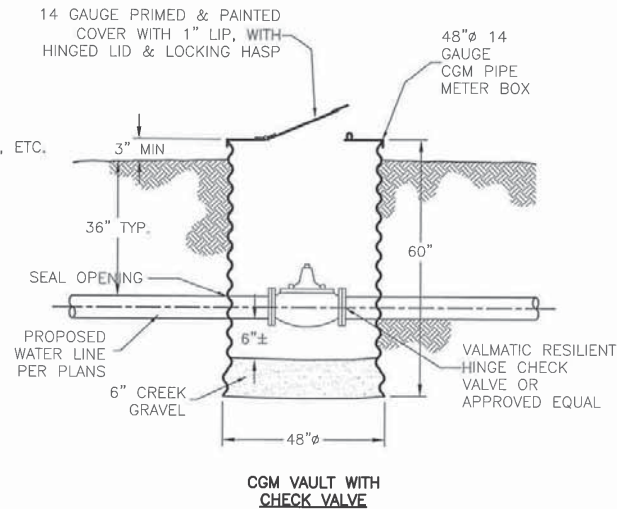
NOTE: CONTRACTOR SHALL GRADE ADJACENT SOIL TO FORM DIVERSION DIKES WHERE WASHING IS EXPECTED OR AS DETERMINED BY THE OWNER & ENGINEER. (NO SEPARATE P&V)



PLAN & ELEVATION OF DIVERSION DIKES

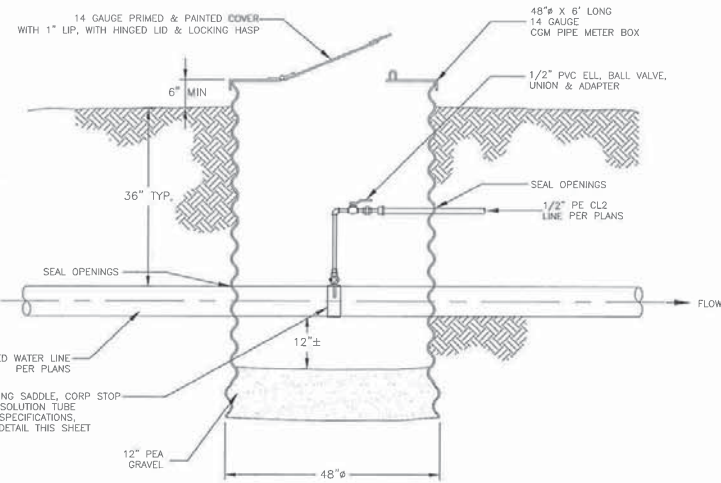


IN-LINE FLOW METER

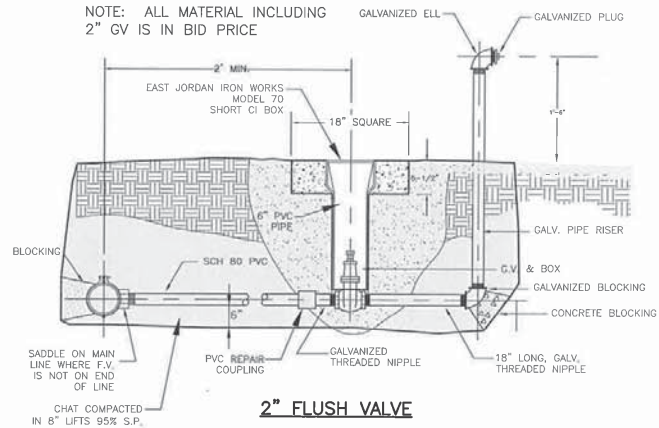


CGM VAULT WITH CHECK VALVE

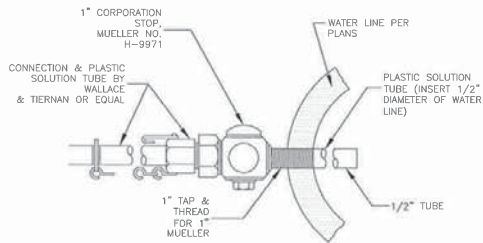
I:\MSD_Plan_Civil_MISC\2014\MSD14\2014\Drawings\Water_Supply\Improvements_Paint_Creek\Miscellaneous\Sheet 20.dwg, 4/20/15 11:12 AM, W:\PROJ\2015\15-01-01\Drawings\Water_Supply\Improvements_Paint_Creek\Miscellaneous\Sheet 20.dwg



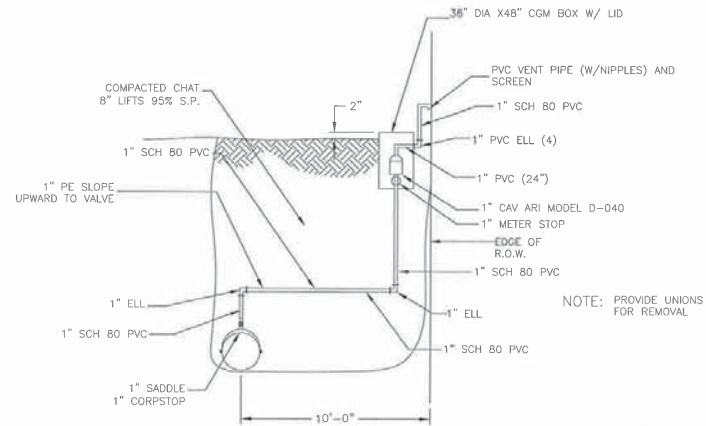
CHLORINE INJECTION BOX DETAIL
NTS



2\"/>



CHEMICAL DIFFUSER DETAIL
NTS



1\"/>

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325-695-1070
817-584-8880

PAINT CREEK SWC
WATER SUPPLY IMPROVEMENTS

MISCELLANEOUS DETAILS

NO.	REVISION	DATE	SCALE	N.T.S.	FILE	SHEET	DATE	DESIGNED	DRAWN	CY	CHKD
						21	APR, 2015				
						TOTAL					

SHEET 21
TOTAL 23

EROSION CONTROL REQUIREMENTS

It is required that all construction activity be in compliance with the latest regulations of the environmental protection agency, the Texas commission of environmental quality, and all other city, state, and federal regulations.

To be in compliance the contractor will furnish, install and maintain all devices necessary to insure the environment is protected as required by said regulations, protection will be in place before construction begins. upon completion of the project, the contractor is responsible for leaving the project in a stabilized condition that assures prevention of future erosion and sedimentation pollution.

"Stabilized Condition" implies that disturbed areas affected by this activity have been restored to a condition equal to, or better than, they were before the activity occurred. different methods such as permanent grass sod, concrete riprap, concrete retarders, grass covered earth berms, and other methods may accomplish the restoration. until permanent pollution and sedimentation control is established, the contractor will provide temporary control such as silt fence, rock retarders, berms, etc.

The cost associated with providing these controls will be considered subsidiary unless specific bid items are included in the plans.

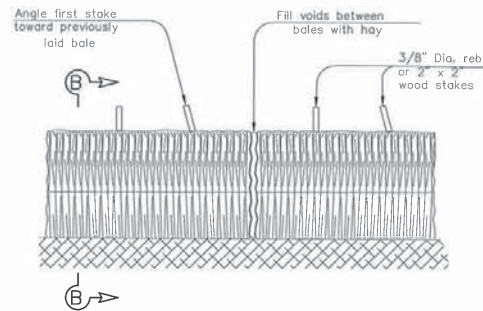
SEDIMENT CONTROL FENCE USAGE GUIDELINES

A sediment control fence may be constructed near the downstream perimeter of a disturbed area along a contour. A sediment control fence may be constructed near the to intercept sediment from overland runoff. A 2 year storm frequency may be used to calculate the flow rate to be filtered.

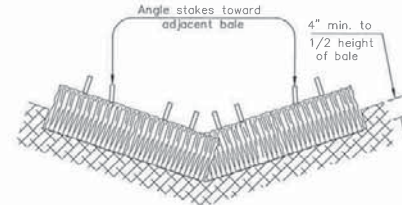
Sediment control fence should be sized to filter a max. flow through rate of 100 GPM/FT. Sediment control fence is not recommended to control erosion from a drainage area larger than 2 acres.

GENERAL NOTES

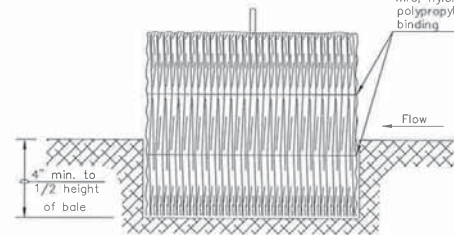
1. The guidelines shown hereon are suggestions only and may be modified by the Engineer.



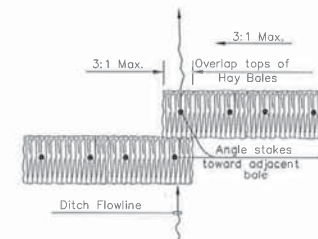
BALED HAY FOR EROSION CONTROL



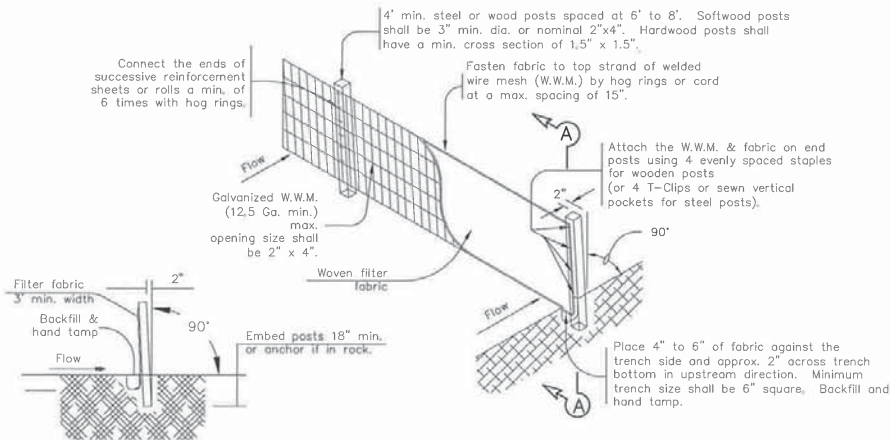
PROFILE VIEW



SECTION B-B



PLAN VIEW



TEMPORARY SEDIMENT CONTROL FENCE

SECTION A-A

NOTE: CONTRACTOR SHALL BE RESPONSIBLE FOR SWPPP, NOI, ETC. AT HIS COST.

GENERAL NOTES:

1. Use wire staples, .091" in diameter or greater "U" shaped with legs 6" in length and a 1" crown. Size and shape of staples used will vary with soil conditions. Drive staples vertically into the ground. Use four staples across at the start of each roll.
2. For slope installation, continue to staple along the length of the roll at 6 ft. intervals.
3. For ditch liner, staple along the length of the roll at 4 ft. intervals.
4. Another row of staples in the center of each blanket should be alternately spaced between each side for either slope or ditch.
5. Use a common row of staples on adjoining blankets.

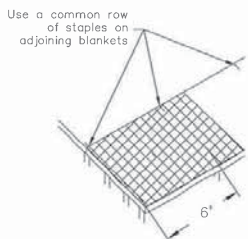
BALED HAY USAGE GUIDELINES

A Baled Hay installation may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A two year storm frequency may be used to calculate the flow rate to be filtered. The installation should be sized to filter a maximum flow thru rate of 5 GPM/FT of cross sectional area. Baled hay may be used at the following locations:

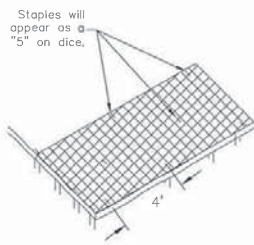
1. Where the runoff approaching the baled hay flows over disturbed soil for less than 100'. If the slope of the disturbed soil exceeds 10%, the length of slope upstream the baled hay should be less than 50'.
2. Where the installation will be required for less than 3 months.
3. Where the contributing drainage area is less than 1/2 acre. For Baled Hay installations in small ditches, the additional following considerations apply:
 1. The ditch sideslopes should be graded as flat as possible to maximize the drainage flow rate thru the hay.
 2. The ditch should be graded large enough to contain the overtopping drainage when sediment has filled to the top of the baled hay. Bales should be replaced usually every 2 months or more often during wet weather when loss of structural integrity is accelerated.

GENERAL NOTES

1. Hay bales shall be a minimum of 30" in length and weigh a minimum of 50 Lbs.
2. Hay bales shall be bound by either wire or nylon or polypropylene string. The bales shall be composed entirely of vegetative matter.
3. Hay bales shall be embedded in the soil a minimum of 4" and where possible 1/2 the height of the bale.
4. Hay bales shall be placed in a row with ends tightly abutting the adjacent bales. The bales shall be placed with bindings parallel to the ground.
5. Hay bales shall be securely anchored in place with 3/8" Dia. rebar or 2" x 2" wood stakes, driven through the bales. The first stake shall be angled towards the previously laid bale to force the bales together.
6. The guidelines shown hereon are suggestions only and may be modified by the Engineer.



SLOPE INSTALLATION



DITCH INSTALLATION

SOIL RETENTION BLANKET EROSION CONTROL

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325-695-1070

PAINT CREEK SWC WATER SUPPLY IMPROVEMENTS

EROSION CONTROL DETAILS

NO.	REVISION	DATE	SCALE	N.T.S.	FILE	SHEET	DATE	APPROVED	BY	DATE	SCALE	N.T.S.	FILE	SHEET	DATE	APPROVED	BY		
						23	APR. 2015							23					
														TOTAL	23				

APPENDIX B

REGULATORY CORRESPONDENCE

TEXAS HISTORICAL COMMISSION

real places telling real stories

May 6, 2015

Kay Howard
PO Box 64780
Lubbock, TX 79464

Re: Project review under the Antiquities Code of Texas and the National Historic Preservation Act: Haskell County Contract 7215017- Paint Creek Water Improvements (CDBG; Track #201507361)

Dear Ms. Howard:

Thank you for your correspondence describing the above referenced project. This letter serves as comment on the proposed undertaking from the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission.

The review staff, led by Tiffany Osburn, has examined our records. According to our maps, portions of the proposed project area have never been surveyed by a professional archeologist and may contain cultural resources. We recommend that a professional archeologist survey the portions of the proposed project that fall along Callaway Road. Survey should include shovel testing in areas with the potential for alluvial deposition regardless of surface visibility. If there is a potential for deeply buried cultural deposits within the depth of impacts, deeper subsurface investigations (such as backhoe trenching) may be required.

The work should meet the minimum archeological survey standards posted on-line at www.thc.state.tx.us. A report of investigations should be produced in conformance with the Secretary of the Interior's Guidelines for Archaeology and Historic Preservation, and submitted to this office for review. You may obtain lists of most professional archeologists in Texas on-line at: www.c-tx-arch.org or www.rpanet.org. Please note that other potentially qualified archeologists not included on these lists may be used.

If the survey is being performed on public land or within a public easement your contract archeologist must obtain an Antiquities Permit from our office before any investigations are undertaken. An Antiquities Permit can be issued as soon as we have a completed permit application.



Thank you for your cooperation in this federal review process, and for your efforts to preserve the irreplaceable heritage of Texas. **If you have any questions concerning our review or if we can be of further assistance, please contact Tiffany Osburn at 512/463-8883 or tiffany.osburn@thc.state.tx.us.**

Sincerely,

A handwritten signature in black ink, appearing to read "William A. Wolfe". The signature is fluid and cursive, with a prominent initial "W".

for

Mark Wolfe, State Historic Preservation Officer

MW/to

APPENDIX C

SHOVEL TEST AND TRENCH LOCATIONS

APPENDIX C
Shovel Test & Backhoe Trench Locations

380 US Hwy 380

STJH6

STJH5

STJH4

STJH3

STJH2

STJH1

STCC6

STCC5

STCC4

STCC7

Culvert

STCC3

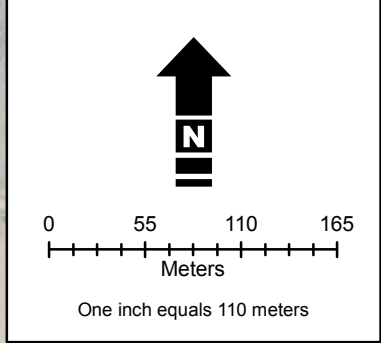
STCC2

STCC1

Buffalo Creek

Callaway Rd

East



Key to Features

- Shovel Tests
- ▬ Backhoe Trench
- ▬ Streams (NHD)
- ▬ Proposed Waterline