

CITY OF OWOSSO

2020 STREET PROGRAM CONTRACT 1

SHIAWASSEE COUNTY
SECTION 14, T7N-R2E, CITY OF OWOSSO
SECTION 19, T7N-R3E, CITY OF OWOSSO
POP: 15,194 (2010 CENSUS)

UTILITY CONTACTS

THE EXISTING UTILITIES LISTED BELOW AND SHOWN ON THE PLANS REPRESENT THE BEST INFORMATION AVAILABLE AT THE TIME OF PREPARING THESE PANS. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE REASONABILITY TO BE SATISFIED AS TO ITS ACCURACY AND LOCATION OF EXISTING UTILITIES.

CHARTER COMMUNICATIONS
ATT: MARK KELLY
1480 S. VALLEY CENTER DRIVE
BAY CITY, MI 48706

CABLE TV
PHONE: 989-233-9404
mark.kelly@chartercom.com

CITY OF OWOSSO
ATT: CLAYTON WEHER
301 W. MAIN STREET
OWOSSO, MI 48867

ROAD
989-725-0551
clayton.wehner@ci.owosso.mi.us

CITY OF OWOSSO
ATT: GLENN CHINAVARE
301 W. MAIN STREET
OWOSSO, MI 48867

SANITARY SEWER & WATER MAIN
989-725-0550
glenn.chinavare@ci.owosso.mi.us

CONSUMERS ENERGY
ATT: TRACY MAHAR
1801 W. MAIN ST
OWOSSO, MI 48867

ELECTRIC
OFFICE: 989-729-3250
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tmahar@cmsenergy.com

CONSUMERS ENERGY
ATT: ADAM BERTRAM
530 W. WILLOW STREET
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GAS
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adam.bertram@cmsenergy.com

DAYSTARR COMMUNICATIONS
ATT: BRENT KLEIN
307 N. BALL STREET
OWOSSO, MI 48867

FIBER
PHONE: 989-720-6000
FAX: 989-720-6060
brent.klein@daystarrfiber.net

FRONTIER COMMUNICATIONS
ATT: MARK V. STEVENS
1943 W. M-21
OWOSSO, MI 48847

FIBER
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mark.stevens@fr.com

SHIAWASSEE COUNTY HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
ATT: STEVE ALWORDEN
201 N. SHIAWASSEE STREET
CORUNNA, MI 48817

SOIL EROSION AND SEDIMENTATION CONTROL
PHONE: 989-743-2289
FAX: 989-743-2413
salworden@shiawasseechd.net

CALL MISS DIG AT 1-800-482-7171 OR 811 THREE DAYS, EXCLUDING SATURDAY, SUNDAY, AND HOLIDAY, BEFORE STARTING YOUR PROJECT.

MDOT ROAD STANDARD PLANS

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON PLANS, THEY ARE TO BE CONSTRUCTED ACCORDING TO THE MDOT STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED.

DRAINAGE STRUCTURES COVER B MONUMENT BOXES COVER K COVER Q SIDEWALK RAMP AND DETECTABLE WARNING DETAILS DRIVEWAY OPENINGS & APPROACHES AND CONCRETE SIDEWALKS CONCRETE CURB AND CONCRETE CURB AND GUTTER BUMPER & PARKING RAIL AND MISC. WOOD POSTS GRANULAR BLANKET, UNDERDRAINS, AND OUTLET ENDINGS FOR SEWER UNDERDRAINS, AND SEWER BULKHEADS BEDDING AND FILLING AROUND PIPE CULVERTS UTILITY TRENCHES SOIL EROSION & SEDIMENT CONTROL MEASURES SEEDING AND TREE PLANTING *SPECIAL DETAILS INCLUDED IN PROPOSAL OR MODIFIED IN GENERAL PLANS	R-1-G* R-7-F R-11-E R-15-F R-18-F R-28-J* R-29-I R-30-G R-74-D R-80-E R-82-D R-83-C R-96-E R-100-H
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LOCATION MAP
CITY OF OWOSSO

SHEET NO.	DESCRIPTION
CS	COVER SHEET
D1	NOTES AND MISCELLANEOUS ESTIMATES ROAD AND STORM SEWER DETAILS
D2	WATER MAIN NOTES AND DETAILS
D3	WATER MAIN STANDARD DETAILS
D4	SESC STANDARD NOTES AND DETAILS
NR1	E NORTH ST - ROAD AND STORM SEWER COVER SHEET & TRAFFIC CONTROL PLAN
NR2 - NR3	E NORTH ST - TYPICAL CROSS SECTIONS
NR4	E NORTH ST - REMOVAL PLAN
NR5 - NR10	E NORTH ST - ROAD PLAN AND PROFILE
NR11	E NORTH ST - PAVEMENT MARKING & PERMANENT SIGN PLAN
NR12	E NORTH ST - SOIL BORINGS
NR13	E NORTH ST - WATER MAIN COVER SHEET & TRAFFIC CONTROL PLAN
NR14 - NR18	E NORTH ST - WATER MAIN PLAN AND PROFILE
SU1	SUMMIT ST - ROAD AND STORM SEWER COVER SHEET, SIDEWALK RAMP DETAILS, & TRAFFIC CONTROL PLAN
SU2	SUMMIT ST - TYPICAL CROSS SECTIONS
SU3	SUMMIT ST - REMOVAL PLAN
SU4-SU5	SUMMIT ST - ROAD PLAN AND PROFILE
SU6	SUMMIT ST - SOIL BORINGS
SU7	SUMMIT ST - WATER MAIN COVER SHEET & TRAFFIC CONTROL PLAN
SU8-SU9	SUMMIT ST - WATER MAIN PLAN AND PROFILE

PROJECT LOCATION - E. NORTH STREET
B.O.P. STA 20+67 TO E.O.P. STA 45+43
TOTAL LENGTH = 2,476 FT (0.47 MILES)
PROJECT LOCATION - SUMMIT STREET
B.O.P. STA 0+42 TO E.O.P. STA 17+06
TOTAL LENGTH = 1664 FT (0.32 MILES)

CITY OF OWOSSO, MICHIGAN
ENGINEERING DIVISION
DEPT. OF PUBLIC SERVICE

NO.	REVISIONS	DATE	BY

BENCHMARK DATA
ELEV.

DESCRIPTION

ORIGINAL PLAN

CHECKED BY

APPROVED BY

2020 STREET PROGRAM CONTRACT 1
DWRF PROJECT NUMBER 7457-01 PHASE 1
COVER SHEET

CS



GENERAL NOTES

UNDERGROUND UTILITIES/MISS DIG
FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 174, 2013, THE CONTRACTOR SHALL DIAL 1-800-482-7171 FOR A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS, PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBER WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

THE EXISTING UTILITIES ON THESE DRAWINGS HAVE BEEN SHOWN ACCORDING TO THE BEST AVAILABLE INFORMATION. CONTRACTOR SHALL FIELD LOCATE ALL UTILITIES PRIOR TO BEGINNING CONSTRUCTION AND SHALL NOTIFY THE ENGINEER AS TO WHERE POSSIBLE CONFLICT EXIST.

EXISTING WATER MAINS AND SEWERS
THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO PROPERLY IDENTIFIED EXISTING WATER MAINS AND / OR EXISTING SEWERS DURING THE CONSTRUCTION OF THE PROJECT.

ADJUSTING OF MONUMENT BOXES
ALL GOVERNMENT CORNERS ON THIS PROJECT SHALL BE PRESERVED, WHETHER SHOWN OR NOT. IT MAY BE NECESSARY TO PLACE OR ADJUST MONUMENT BOXES AS REQUIRED.

PAVEMENT MARKINGS AND SIGNS
ALL PERMANENT PAVEMENT MARKINGS, SHAPES, AND DIMENSIONS SHALL CONFORM WITH MDOT PAVEMENT MARKING TYPICALS PAVE - 900 SERIES.

SOIL EROSION MEASURES
APPROPRIATE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO EARTH DISTURBING ACTIVITIES. PLACE LAWN RESTORATION ITEMS AS SOON AS POSSIBLE ON POTENTIAL ERODIBLE SLOPES AS DIRECTED BY THE ENGINEER. CRITICAL DITCH GRADES SHALL BE PROTECTED WITH EITHER SOD OR SEED / MULCH BLANKET AS DIRECTED BY THE ENGINEER.

SOIL EROSION AND SEDIMENTATION CONTROL MEASURES
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT SOIL EROSION AND SEDIMENTATION CONTROL MEASURES ARE IN PLACE AND MAINTAINED UNTIL THE CONTRACT HAS BEEN COMPLETED AND ACCEPTED. MEASURES SHALL ONLY BE PAID FOR ONCE.

RUBBISH DISPOSAL
SEE MAINTAINING TRAFFIC SPECIAL PROVISIONS.

MAIL DELIVERY
SEE MAINTAINING TRAFFIC SPECIAL PROVISIONS.

STORM SEWER REMOVAL
REMOVAL OF SEWER WITH DIAMETER LESS THAN 12 INCHES, WITHIN THE EXCAVATION LIMITS OF NEW SEWER, IS INCLUDED IN THE UNIT PRICE FOR NEW SEWER AND WILL NOT BE PAID FOR SEPARATELY.

STORM SEWER STRUCTURES
ALL STORM ORIFICES TO RECEIVE SEWER PIPE SHALL BE FITTED WITH KOR-N-SEAL FLEXIBLE CONNECTOR (S) OR APPROVED EQUAL CONNECTOR. THE FLEXIBLE CONNECTOR WILL NOT BE PAID FOR SEPARATELY, BUT IS CONSIDERED AS PART OF THE DRAINING STRUCTURE PAY ITEM.

STORM SEWER CONNECTIONS
PROPOSED STORM SEWERS SHALL BE CONNECTED TO EXISTING STORM SEWERS WITH A FERNOCO COUPLER, OR APPROVED EQUAL, AS DIRECTED BY THE ENGINEER. CONNECTION SHALL BE ACCOMPLISHED WITH COUPLER OF SIMILAR SIZE IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS. PAYMENT FOR ALL MATERIALS AND LABOR NECESSARY TO ACCOMPLISH THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT WILL BE CONSIDERED AS PART OF OTHER WORK ITEMS.

STREET APPROACHES
STREET APPROACHES SHALL BE PAID FOR AS PART OF THE MAINLINE PAVING PAY ITEMS.

STRUCTURE ADJUSTMENTS
ADJUSTMENTS TO STORM AND SANITARY STRUCTURES LOCATED WITHIN THE PAVEMENT OR CURB AND GUTTER SHALL BE PAID FOR AS: Dr Structure Cover, Adj, Case 1.

CURB AND GUTTER
ALL NEW SECTIONS OF CURB AND GUTTER SHALL BE TIED TO EXISTING CURB AND GUTTER ON BOTH ENDS USING EPOXY COATED #4 BARS.

SIDEWALK RAMP AND SIDEWALKS
SIDEWALK RAMP SHALL BE COMPLETED IN ACCORDANCE WITH THE MDOT 2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MDOT STANDARD PLAN R-28 SERIES, EXCEPT AS MODIFIED HEREIN. THE PORTION OF RAMP FROM THE CURB AND GUTTER TO THE LANDING SHALL BE 7-INCHES THICK AS IDENTIFIED ON THE SIDEWALK RAMP THICKNESS DETAIL. THE LANDING SHALL BE 4-INCHES THICK. THE PAY ITEMS FOR Sidewalk Ramp, Conc, 7 inch AND Sidewalk, Conc, 7 inch SHALL INCLUDE ALL EXCAVATION AND EMBANKMENT NECESSARY TO CONSTRUCT EACH ITEM AND ALL WORK NECESSARY TO SAW AND TRIM EDGES OF EXISTING CONCRETE. EXCAVATION AND EMBANKMENT WILL NOT BE PAID FOR SEPARATELY.

DETECTIBLE WARNING SURFACES SHALL BE EAST JORDAN DURALAST TM AND POWDER COATED RED, INSTALLED ONTO FRESH CONCRETE, AND IN ACCORDANCE WITH MDOT STANDARD R-28 SERIES. THE WARNING SURFACES SHALL BE 2.5 FEET IN LENGTH SUCH THAT TWO PLATES ARE USED FOR EACH 5 FOOT WIDE RAMP.

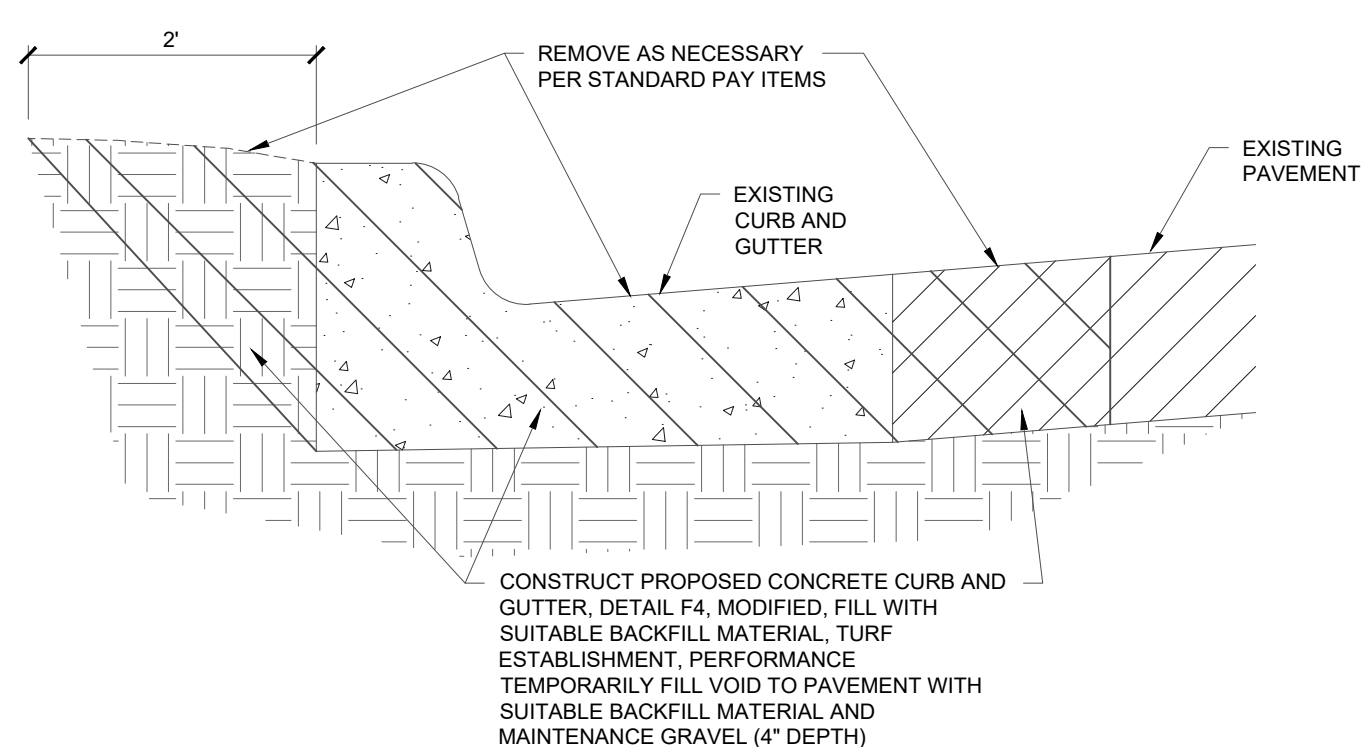
SIDEWALKS LOCATED WITHIN RESIDENTIAL DRIVEWAYS SHALL BE 6-INCHES THICK AND WILL BE PAID FOR AS Sidewalk, Conc, 6 inch.

SIDEWALKS LOCATED WITHIN COMMERCIAL DRIVEWAYS SHALL BE 7-INCHES THICK AND WILL BE PAID FOR AS Sidewalk, Conc, 7 inch.

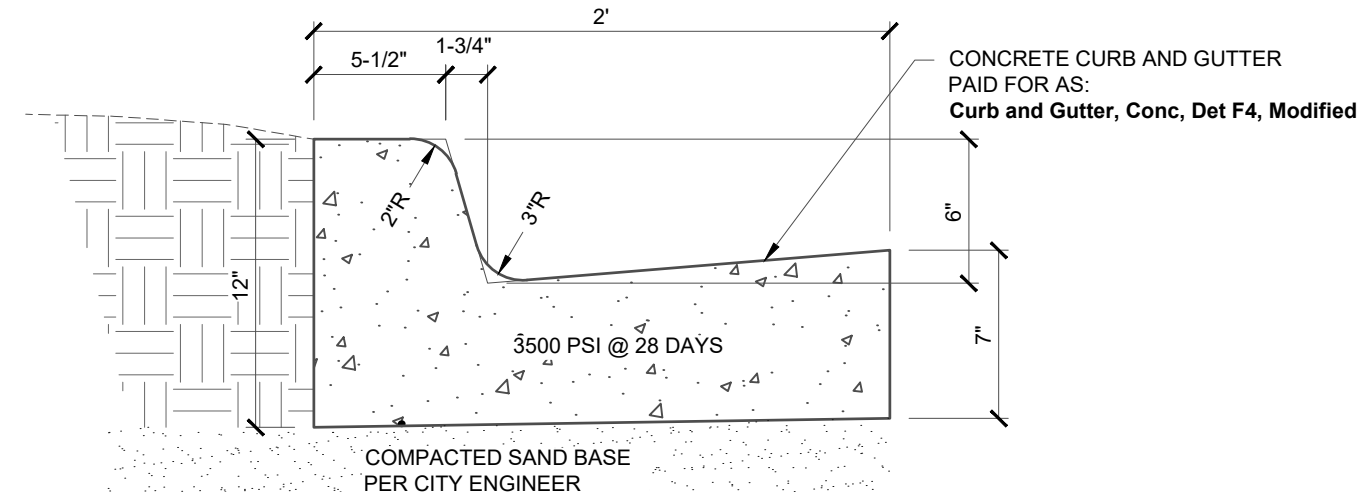
LAWN SPRINKLERS / LANDSCAPING
OWNERS OF EXISTING LAWN SPRINKLER SYSTEMS AND / OR LANDSCAPING SHALL BE NOTIFIED (IN WRITING WITH A COPY SENT TO THE ENGINEER) BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF ANY WORK THAT WILL BE DONE THAT WILL AFFECT THOSE SYSTEMS AND / OR LANDSCAPING. IF THE PROPERTY OWNER FAILS TO RELOCATE THE LAWN SPRINKLER SYSTEM PRIOR TO THE CONTRACTOR BEGINNING WORK, AND IF THE CONTRACTOR CUTS THE SYSTEM DURING CONSTRUCTION, THE CONTRACTOR SHALL CAP THE SYSTEM PIPE AND WITNESS THE LOCATION OF THE CAP WITH A WOODEN STAKE FOR THE PROPERTY OWNERS USE. THE CONTRACTOR SHALL PLACE THE SALVAGED SPRINKLER HEADS ON THE BACK OF THE RIGHT OF WAY. IF THE PROPERTY OWNER FAILS TO RELOCATE THE LANDSCAPING PRIOR TO THE CONTRACTOR BEGINNING WORK, THE CONTRACTOR SHALL CAREFULLY SALVAGE THE LANDSCAPING ITEMS AND STOCKPILE THEM ON THE BACK OF THE RIGHT OF WAY OR AT A LOCATION DESIGNATED BY THE ENGINEER FOR THE PROPERTY OWNER. ANY OTHER MODIFICATION TO THE SPRINKLER SYSTEM AND / OR LANDSCAPING IS THE RESPONSIBILITY OF THE OWNER AND IS NOT PART OF THIS CONTRACT. THIS WORK WILL NOT BE PAID FOR SEPARATELY.

PROPERTY OWNERS
PROPERTY OWNERS' NAMES, WHERE SHOWN, ARE FOR INFORMATION ONLY, AND THEIR ACCURACY IS NOT GUARANTEED.

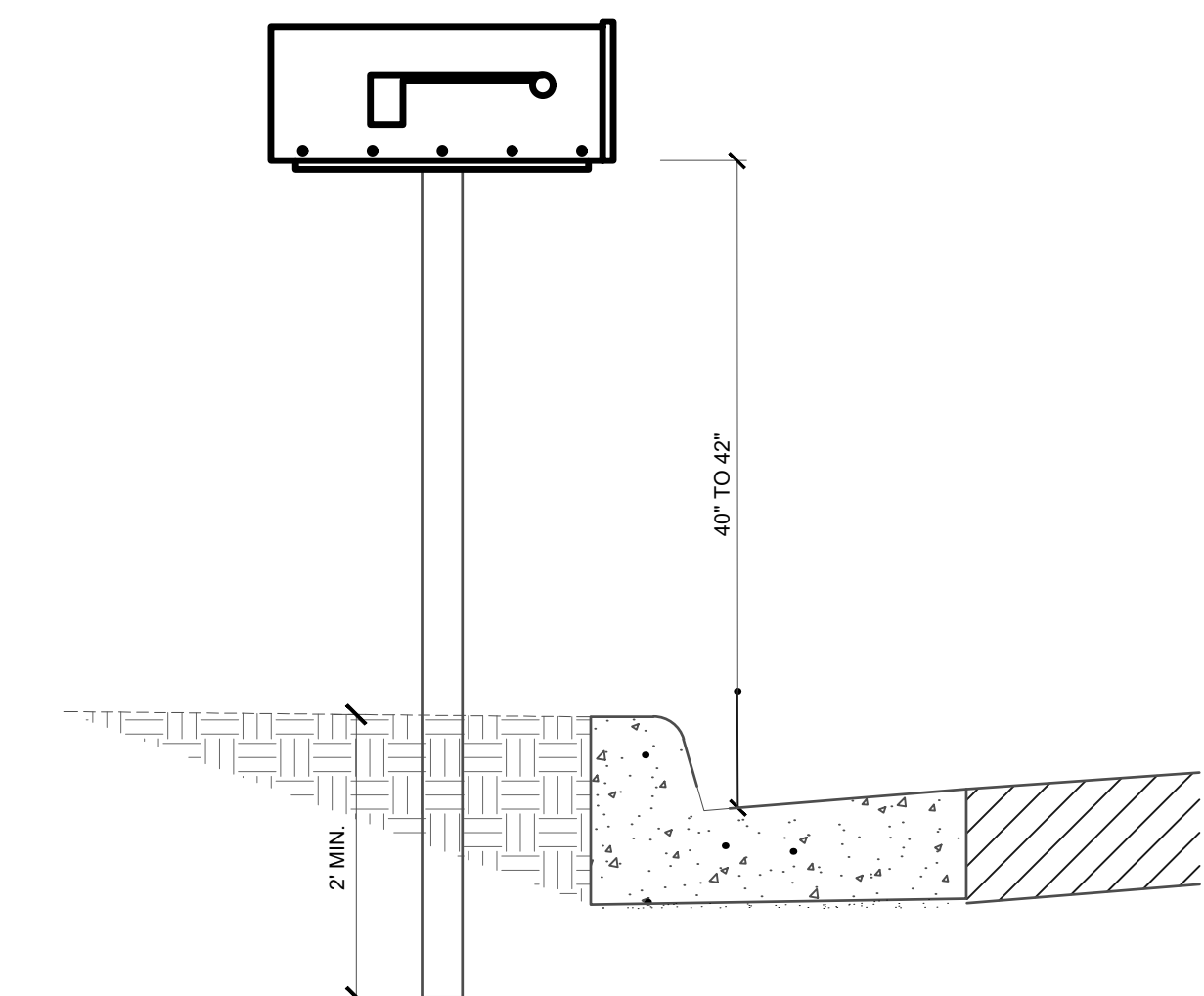
MAINTAINING TRAFFIC
REFER TO THE CONTRACT SPECIAL PROVISION FOR WORK RESTRICTIONS RELATIVE TO MAINTAINING TRAFFIC.



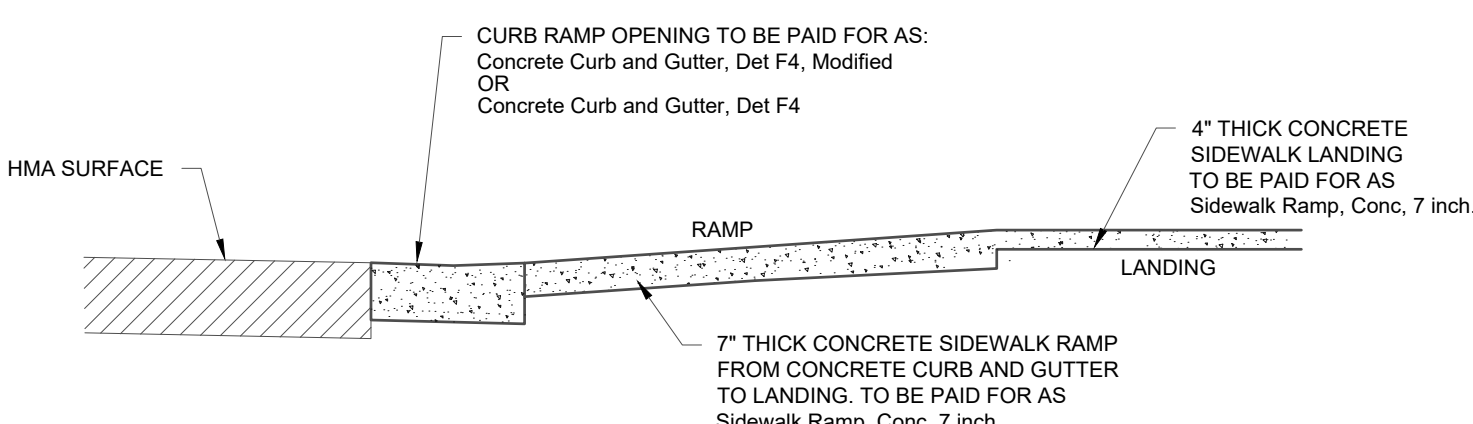
TYPICAL SELECT CURB AND GUTTER REPAIR DETAIL
SUMMIT ST ONLY
NOT TO SCALE



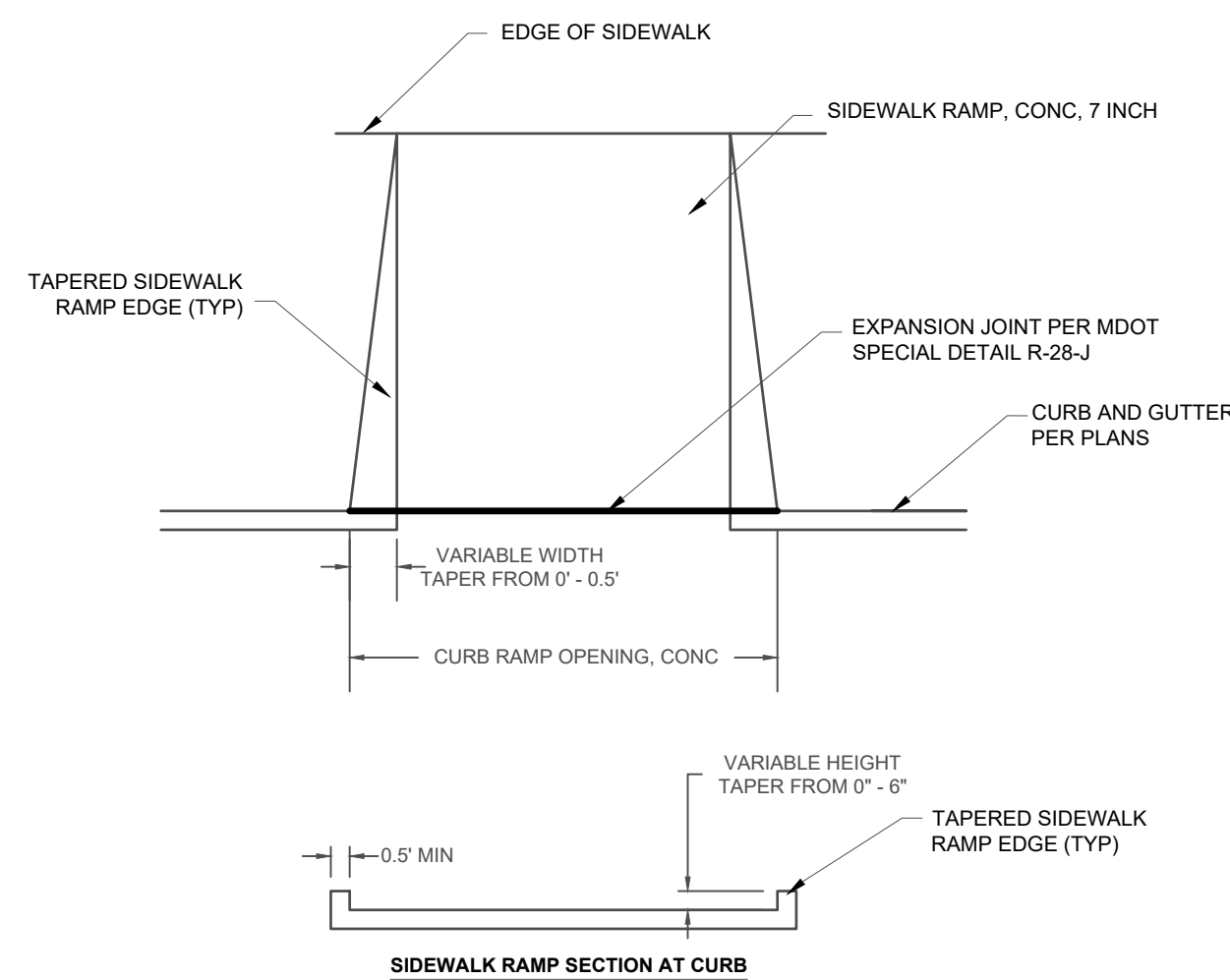
CONCRETE CURB AND GUTTER
MDOT F4 - MODIFIED DETAIL
SUMMIT ST ONLY
NOT TO SCALE



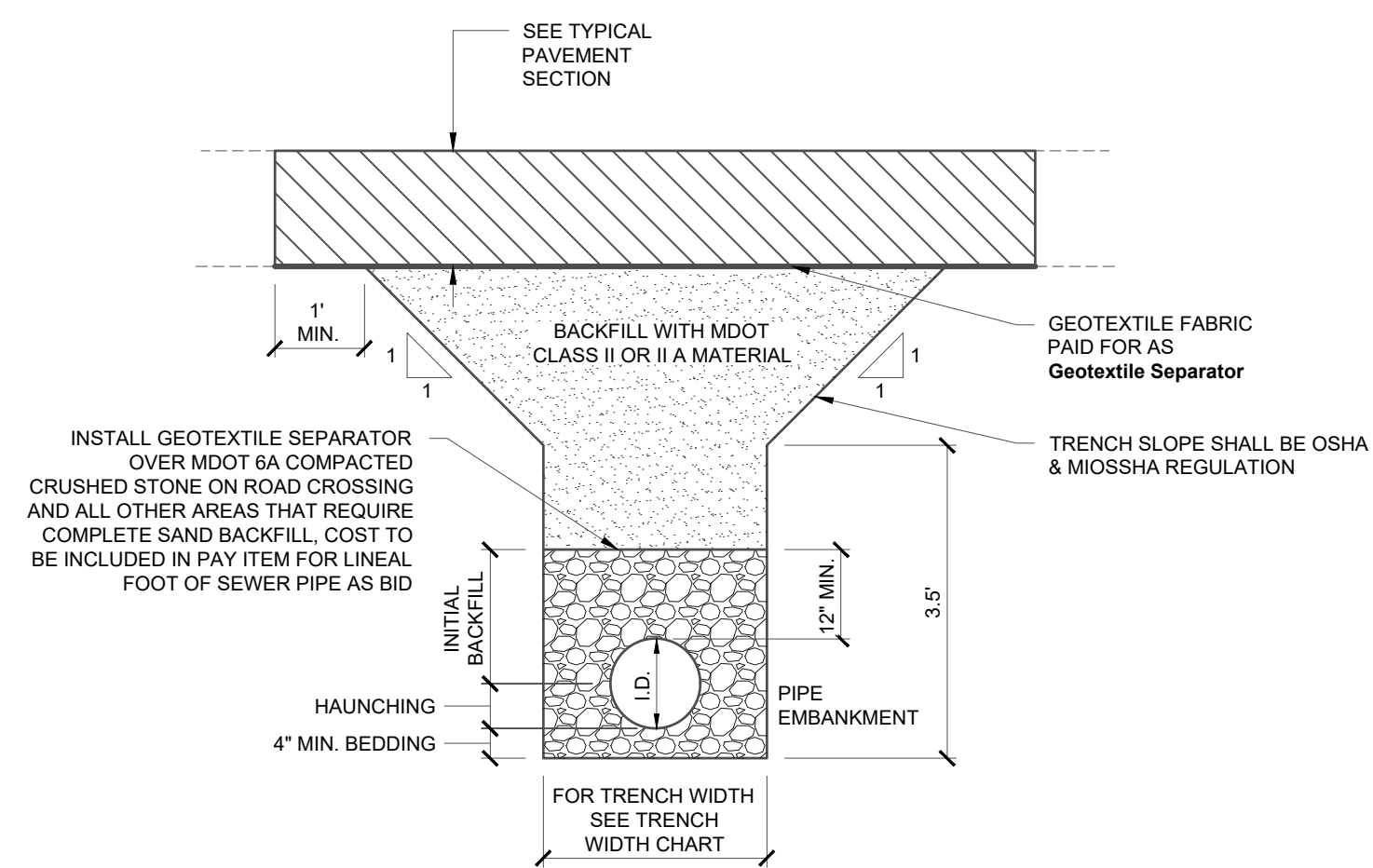
TYPICAL MAIL BOX CROSS SECTION DETAIL
NOT TO SCALE



SIDEWALK RAMP THICKNESS DETAIL
NOT TO SCALE

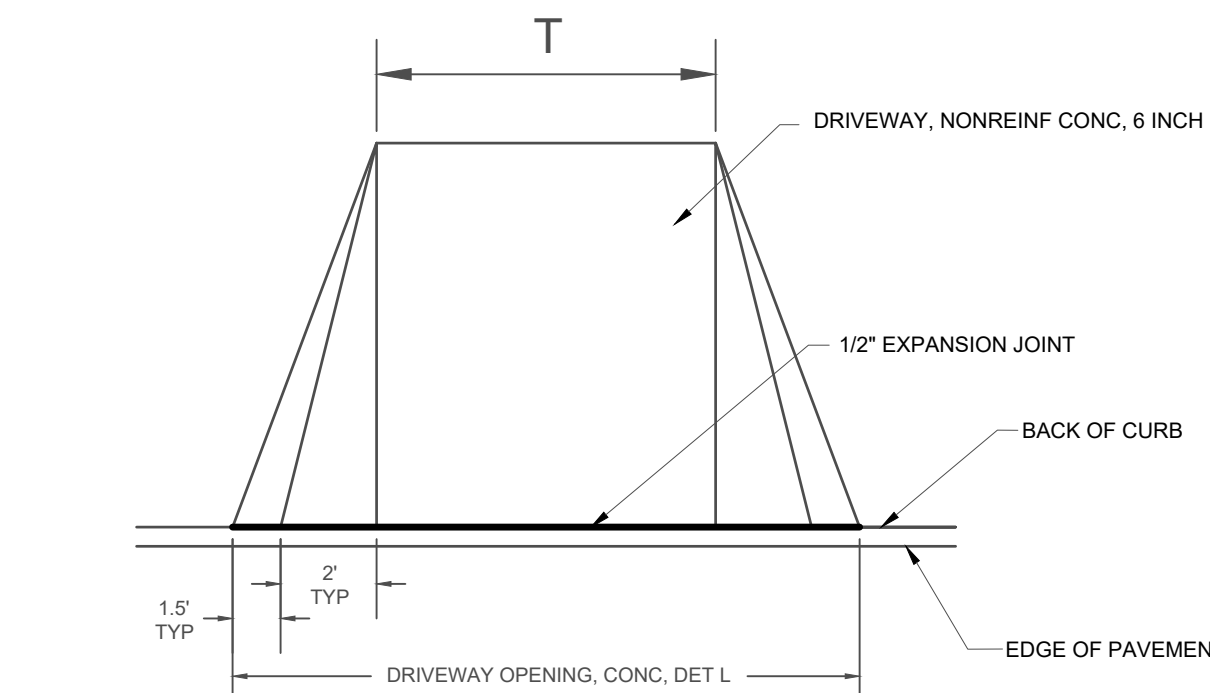


SIDEWALK RAMP DETAIL
NOT TO SCALE



TRENCH DETAIL B, MODIFIED DETAIL
NOT TO SCALE

TRENCH WIDTH CHART		
PIPE SIZE	MINIMUM	MAXIMUM
6", 8" & 10"	24"	30"
12" & 15"	30"	36"
18"	34"	40"
21"	38"	42"
24"	42"	46"
27"	45"	49"
30"	49"	53"
36"	56"	60"
LARGER THAN 36"	I.D. +20"	I.D. +24"



DRIVEWAY APPROACH DETAIL
NOT TO SCALE

MISCELLANEOUS ESTIMATES

THE FOLLOWING ITEMS OF WORK SHALL BE DONE AS THEY APPLY THROUGHOUT THE PROJECT. THESE ITEMS ARE NOT DETAILED OR INCLUDED ON THE PLAN AND PROFILE SHEETS

1	LSUM	Mobilization, Max 5% (Road and Storm)
1	LSUM	Mobilization, Max 5% (Water Main)
1	LSUM	Testing and Chlorination of Water Main
25	Cyd	Subbase, CIP
400	Cyd	Subgrade Undercutting, Type II
200	Ton	Maintenance Gravel
5	Ea	Sanitary Serv Conflict
10	Ea	Abandoned Gas Main Conflict
5	Ea	Sewer Bulkhead, 12 inch
100	Syd	Pavt, Rem
100	Syd	Sidewalk, Rem
100	Syd	Driveway, Nonreinf Conc, 6 inch
250	Syd	Driveway, Nonreinf Conc, 9 inch
600	Sft	Sidewalk, Conc, 4 inch
300	Sft	Sidewalk, Conc, 6 inch
1100	Sft	Sidewalk, Conc, 9 inch
2	Ton	Cement
200	Ft	Saw Cutting
400	Ft	Curb and Gutter, Rem
400	Ft	Curb and Gutter, Conc, Det F4, Modified
10	Ton	Hand Patching
15	Ton	HMA Approach
10	Cyd	Approach, CL II, LM
4	Ea	Valve Box, Adj
10	Ea	Sign, Type III, Rem
10	Ea	Sign, Type III, Erect, Salv
160	Ft	Post, Steel, 3 Pound
7250	Syd	Turf Establishment, Performance
1	LSUM	Audio Visual Filming

MAINTAINING TRAFFIC QUANTITIES

21	Ea	Barricade, Type III, High Intensity, Double Sided, Furn & Oper
25	Ea	Pedestrian, Type II Barricade, Temp
2	Ea	Lighted Arrow, Type C, Furn & Oper
80	Ea	Plastic Drum, High Intensity, Furn & Oper
550	Sft	Sign, Type B, Temp, Prismatic, Furn & Oper
1	LSUM	Minor Traffic Devices, Max \$10,000
1	Ea	Sign, Portable, Changeable Message, Furn & Oper

EXISTING FEATURES LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	TREE (DECIDUOUS)		CABLE BOX		SURVEY CONTROL POINT
	BUSH		TELEPHONE RISER		BENCHMARK
	TREE (CONIFEROUS)		TELEPHONE MANHOLE		SECTION CORNER
	DEAD TREE		TELEPHONE HANDHOLE		BOUNDARY LINE
	STUMP		ELECTRICAL RISER		PROPERTY LINE
	MANHOLE		ELECTRICAL MANHOLE		WATERMAIN
	SANITARY CLEANOUT		ELECTRICAL HANDHOLE		SANITARY SEWER
	RD. CATCH BASIN		POWER POLE		STORM SEWER
	SQ. CATCH BASIN		LIGHT POLE		

CITY OF OWOSSO, MICHIGAN
ENGINEERING DIVISION
DEPT. OF PUBLIC SERVICE

NO.	REVISIONS	DATE	BY

BENCHMARK DATA	DESCRIPTION
ELEV.	

NO.	REVISIONS	DATE	BY

2020 STREET PROGRAM CONTRACT 1
DWRF PROJECT NUMBER 7457-01 PHASE 1
NOTES AND MISCELLANEOUS ESTIMATES
ROAD AND STORM SEWER DETAILS

D1

NOTE: ALL ITEMS LISTED ON THE LEGEND MAY NOT BE PRESENT ON DRAWING.

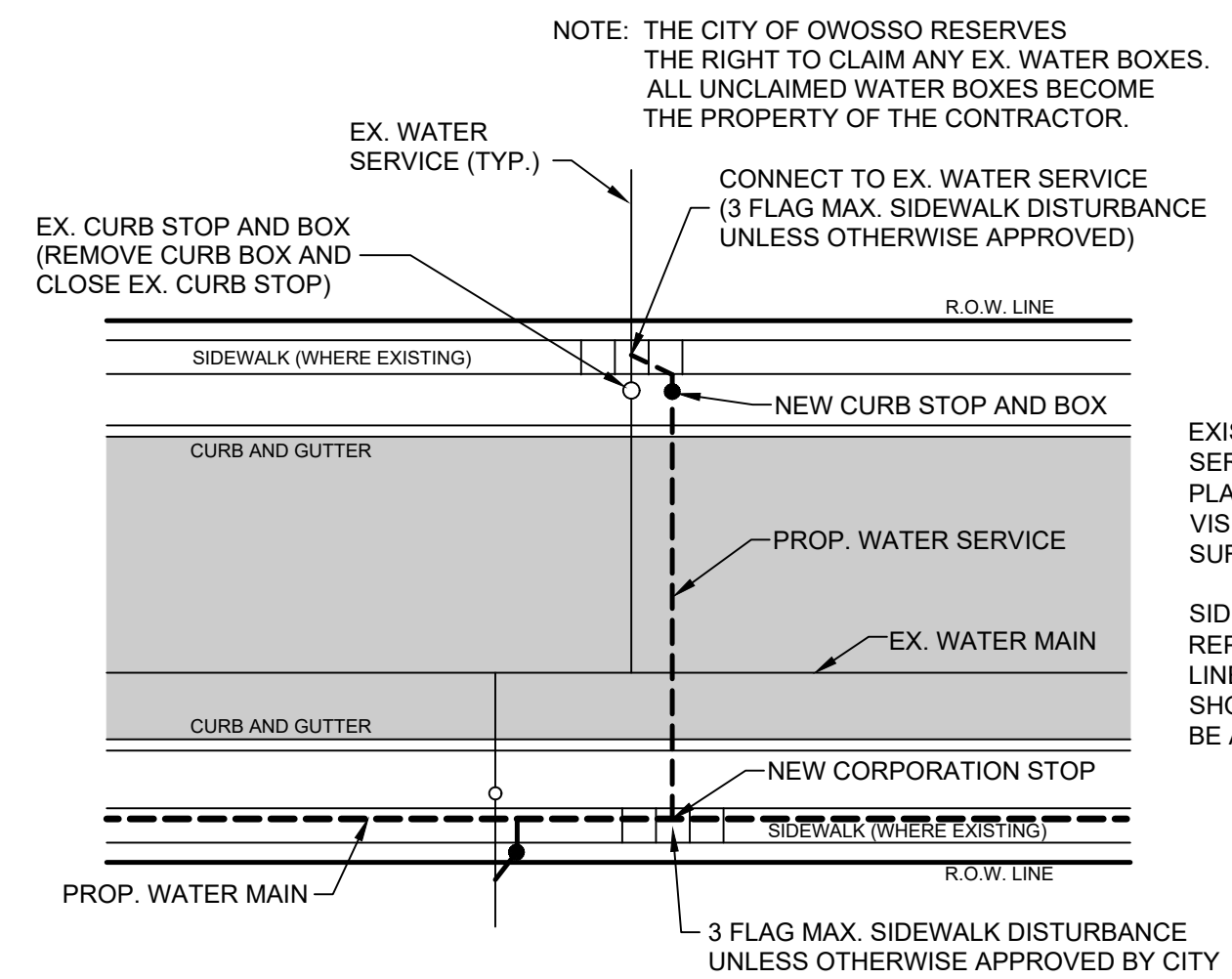
WATER MAIN CONSTRUCTION NOTES

- ALL WATER MAIN MAIN LINE PROPOSED FOR THIS PROJECT HAS BEEN DESIGNED FOR AND SHALL BECOME A PUBLIC SYSTEM.
- A WATER MAIN CONSTRUCTION PERMIT FROM THE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY MUST BE ISSUED PRIOR TO BEGINNING THE CONSTRUCTION OF ANY WATER MAIN IN THIS PROJECT.
- ALL CONSTRUCTION SHALL CONFORM TO THE CITY OF OWOSSO SPECIAL PROVISION FOR WATER MAIN INSTALLATION AND THE STANDARD DETAILS.
- ALL PUBLIC WATER MAIN SHALL BE OWNED AND MAINTAINED BY THE CITY OF OWOSSO UPON COMPLETION OF THE PROJECT.
- ALL PUBLIC WATER MAIN SHALL BE PVC AWWA C900/C909. TRACER WIRE AND BOXES SHALL CONFORM TO THE CITY OF OWOSSO SPECIAL PROVISION FOR WATER MAIN INSTALLATION.
- ALL PIPES, PIPE FITTINGS, PLUMBING FITTINGS, AND FIXTURES THAT ARE USED FOR POTABLE WATER MUST COMPLY WITH THE LEAD FREE REQUIREMENT AND MUST BEAR THE MARK NSF/ANSI STANDARD 61, ANNEX G OR NSF 61-G.
- GATE VALVES SHALL BE EAST JORDAN RESILIENT SEATED GATE VALVES CONFORMING TO AWWA C509. VALVES SHALL BE VERTICAL, NON-RISING STEM AND OPEN CLOCKWISE. SEE CITY OF OWOSSO SPECIAL PROVISION FOR WATER MAIN INSTALLATION AND STANDARD DETAILS.
- FIRE HYDRANTS SHALL CONFORM TO THE SPECIFICATION SHOWN ON THIS SHEET.
- WHERE SANITARY SERVICE LEADS OR OTHER UTILITIES ARE ENCOUNTERED DURING THE CONSTRUCTION OF THE WATER MAIN, THE CONTRACTOR SHALL MAKE ADJUSTMENTS TO EITHER THE WATER MAIN OR EXISTING UTILITY TO PROVIDE CONTINUOUS SERVICE TO PROPERTIES ALONG THE ROUTE OF CONSTRUCTION. ALL WORK INCLUDING THE REBORING OF SANITARY SEWER SERVICE LEADS TO ACCOMMODATE CONSTRUCTION OR ADJUSTING WATER MAIN CONSTRUCTION TO CLEAR EXISTING SERVICES SHALL BE CONSIDERED INCLUSIVE TO CONSTRUCTION OF THE WATER MAIN.
- PRESSURE TAPS TO EXISTING WATER MAINS AND CONNECTIONS TO EXISTING VALVES SHALL BE MADE ONLY UNDER CITY OF OWOSSO OBSERVATION. ALL VALVE OPENING AND CLOSING SHALL BE BY THE CITY OF OWOSSO PERSONNEL. A FULL DIAMETER STAINLESS STEEL TAPPING SLEEVE IS REQUIRED FOR ALL PRESSURE TAPS.
- ALL WATER MAIN SHALL HAVE A MINIMUM COVER OVER THE TOP OF THE PIPE OF 5.5 FEET FROM FINISHED GRADE. THE STANDARD LAYING CONDITIONS FOR WATER MAIN SHALL BE A 30" TRENCH WIDTH OR PIPE DIAMETER PLUS 12". THE PIPE SHALL BE LAID ON A 4" PREPARED SAND CUSHION WITH RECESSES TO ACCOMMODATE PIPE BELLS.
- ALL WATER SERVICE LEADS SHALL HAVE A MINIMUM COVER OVER THE TOP OF THE PIPE OF 5 FEET FROM FINISHED GRADE.
- ALL TRENCH EXCAVATION UNDER OR WITHIN 5' OF EXISTING OR PROPOSED PAVING SHALL BE BACKFILLED WITH CLASS II COMPACTED GRANULAR MATERIALS.
- MINIMUM HORIZONTAL SEPARATION BETWEEN WATER MAIN AND SEWERS SHALL BE 10 FEET.
- CONTRACTOR SHALL RESTRAIN ALL THRUST IN THE SYSTEM BY THE USE OF MEGA-LUG RESTRAINED JOINTS. ALL HYDRANTS, TEES, VERTICAL OR HORIZONTAL BENDS AND FUTURE VALVE CONNECTIONS SHALL BE RESTRAINED. RESTRAINTS SHALL HAVE APPROVAL PRIOR TO BEING INCORPORATED INTO PROJECT CONSTRUCTION.
- WATER MAINS SHALL BE PRESSURE TESTED IN ACCORDANCE WITH AWWA STANDARD C605, AND DISINFECTED IN ACCORDANCE WITH AWWA STANDARD C651. WATER MAIN CHLORINATION SHALL BE OBSERVED AND MONITORED BY CITY OF OWOSSO REPRESENTATIVE.
- WATER SERVICE LEADS SHALL BE TYPE "K" COPPER AND SHALL BE A MINIMUM OF ONE-INCH (1") IN DIAMETER. ALL SERVICE LEADS SHALL BE BORED UNDER ROADWAY. CORPORATIONS SHALL BE BRONZE ALLOY OR BRASS AND COMPLY WITH NSF/ANSI-372 OR NSF/ANSI-61G.
- THE CONTRACTOR SHALL INSTALL TWO INCH CORPORATIONS ON THE WATERLINE FOR PRESSURE TESTING, CHLORINE ADDITION AND FOR BLOW-OFF PURPOSES. THE CORPORATIONS SHALL HAVE COPPER PIPE EXTENDING TO THE GROUND SURFACE. THE CONTRACTOR SHALL REMOVE THE CORPORATION AND COPPER LINE UPON A SATISFACTORY TEST AND INSTALL A PLUG.
- THE CONTRACTOR SHALL ENCASE THE WATER MAIN IN PLASTIC OR CONCRETE PIPE WHERE VERTICAL SEPARATION BETWEEN STORM SEWER AND WATER MAIN OR SANITARY SEWER AND WATER MAIN IS LESS THAN EIGHTEEN (18) INCHES, AS PER MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY REQUIREMENTS.
- WHERE WATER MAIN CROSSES BENEATH SANITARY OR STORM SEWER, A SOLID LENGTH OF PIPE SHALL BE POSITIONED BENEATH THE CROSSING TO AVOID PIPE JOINTS IN THE VICINITY OF THE CROSSING.

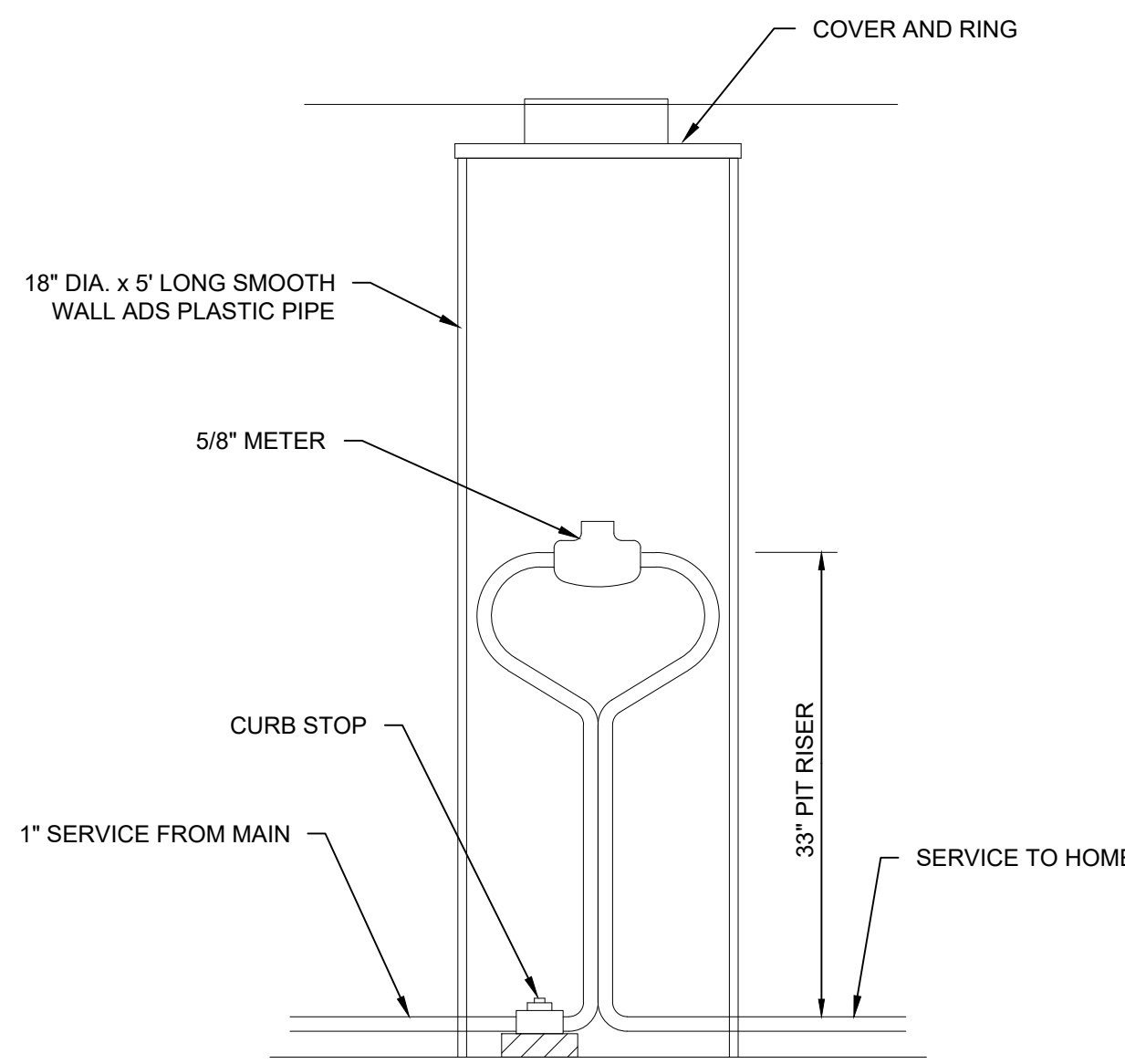
WATER SERVICES ON THE OPPOSITE SIDE OF THE ROAD OF THE NEW WATER MAIN SHALL BE BORED.

WATER SERVICES ON THE SAME SIDE OF THE ROAD AS THE NEW WATER MAIN SHALL BE OPEN CUT.

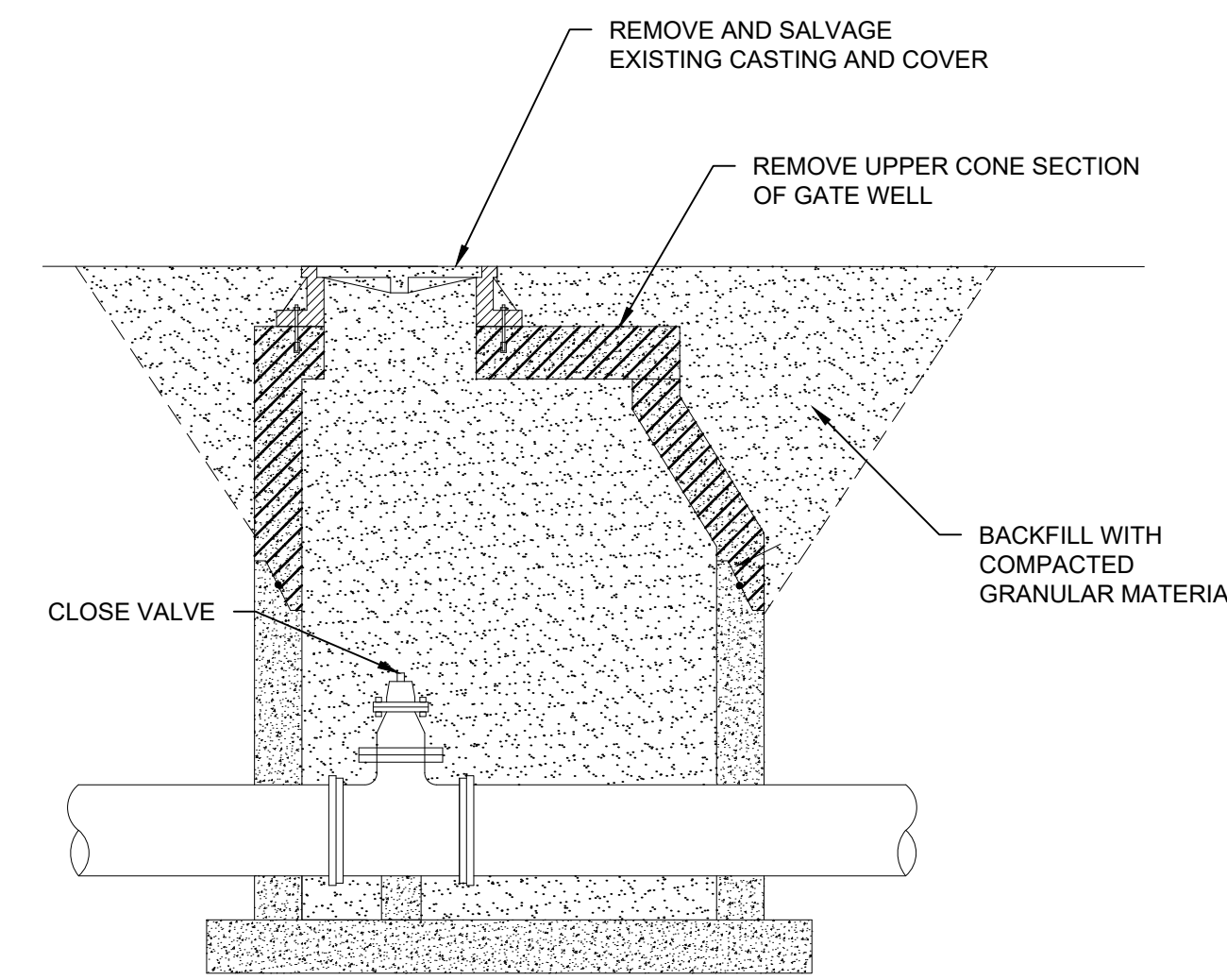
WHERE THE EXISTING CURB STOP BOX IS LOCATED IN PAVEMENT, PAVEMENT REMOVAL AND DRIVE RESTORATION WILL BE PAID SEPARATELY. CONTRACTOR SHALL MINIMIZE PAVEMENT DISTURBANCE AS DIRECTED BY THE ENGINEER.



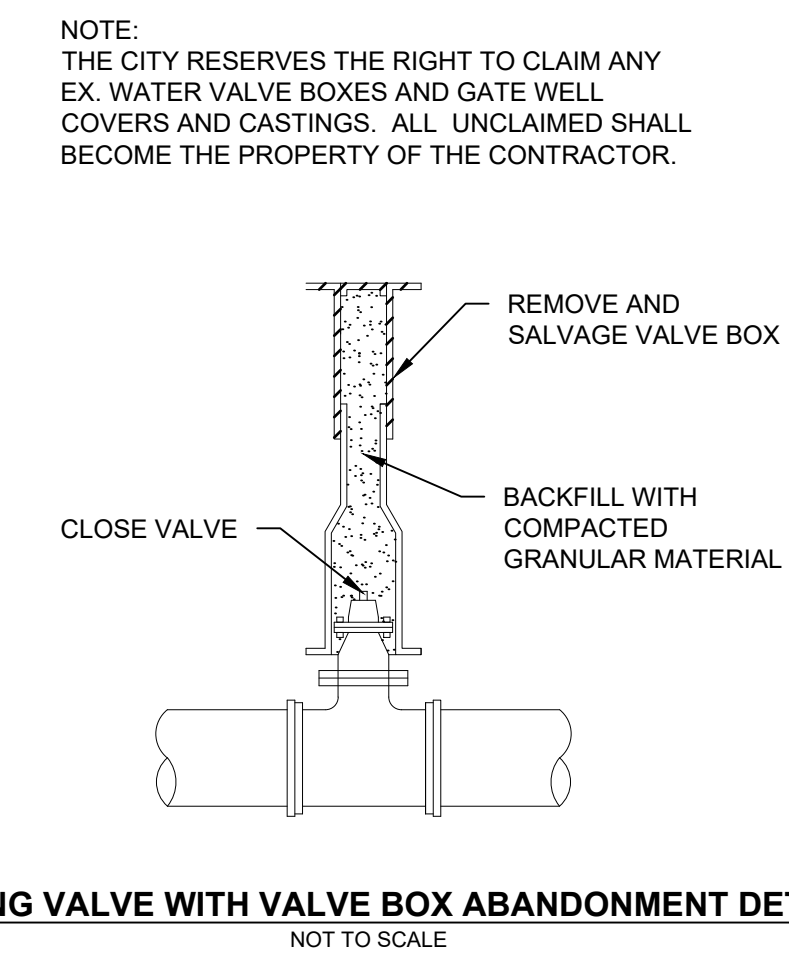
NEW WATER SERVICE CONNECTION DETAIL
NOT TO SCALE



METER PIT SCHEMATIC (FOR INFORMATION ONLY)
NOT TO SCALE



EXISTING VALVE WITH MANHOLE ABANDONMENT DETAIL
NOT TO SCALE

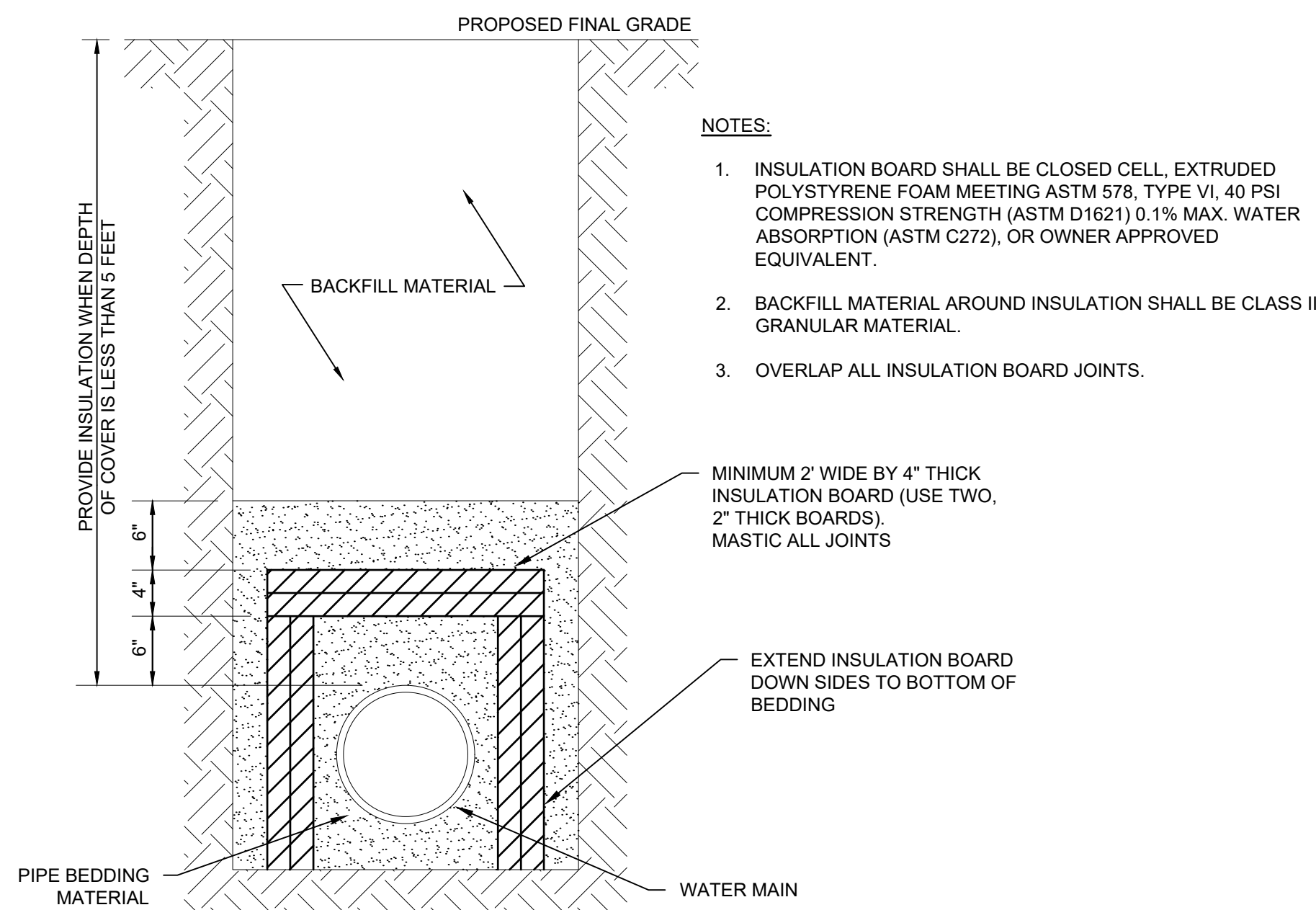


EXISTING VALVE WITH VALVE BOX ABANDONMENT DETAIL
NOT TO SCALE

FREEBORE NOTE:
CONTRACTOR SHALL FREEBORE PROPOSED WATER MAIN WHERE NECESSARY TO SAVE/PROTECT TREES OR AVOID EXISTING UTILITIES AND POLES. COST OF FREEBORE SHALL BE INCLUDED IN THE WATER MAIN PAY ITEM. REQUIRED FREEBORE LOCATIONS SHALL BE DETERMINED IN THE FIELD AND ARE NOT SHOWN ON THE PLANS.

CONSUMERS ENERGY NOTE:
ALL UTILITY POLES SHALL BE PROTECTED BY THE CONTRACTOR DURING CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE HIS CONSTRUCTION OPERATIONS WITH AFFECTED UTILITIES AND ADEQUATELY SUPPORT THE POLES.

WATER USAGE NOTE:
A SERVICE CHARGE OF \$1,000 WILL BE REQUIRED AT TIME OF PERMIT APPLICATION. THIS FEE INCLUDES THE MINIMUM CHARGE OF \$50 FOR 5,000 BULK GALLONS OF WATER, PLUS ADDITIONAL CHARGES OF \$10 PER 1,000 GALLONS CONSUMED IN EXCESS OF THE MINIMUM QUANTITY. OWOSSO WATER SYSTEM PERSONNEL WILL ATTACH A WATER METER AND RPZ BACKFLOW PREVENTER TO THE HYDRANT FOR CONTRACTOR USE. IF THE WATER METER AND RPZ IS RETURNED IN GOOD OPERATING CONDITION, THE CONTRACTOR WILL RECEIVE A \$450 REFUND, LESS ADDITIONAL WATER CONSUMED IN EXCESS OF MINIMUM QUANTITY.



WATER MAIN TRENCH INSULATION DETAIL
NOT TO SCALE

NOTES:

- INSULATION BOARD SHALL BE CLOSED CELL, EXTRUDED POLYSTYRENE FOAM MEETING ASTM 578, TYPE VI, 40 PSI COMPRESSION STRENGTH (ASTM D1621) 0.1% MAX. WATER ABSORPTION (ASTM C272), OR OWNER APPROVED EQUIVALENT.
- BACKFILL MATERIAL AROUND INSULATION SHALL BE CLASS II GRANULAR MATERIAL.
- OVERLAP ALL INSULATION BOARD JOINTS.



WaterMaster® Fire Hydrant Specifications for City of Owosso hydrants with Storz

- Manufacturers shall provide sufficient documentation to assure that their hydrant will successfully meet the latest revisions of AWWA Standard C502. Fire hydrants shall be rated for 250 psi working pressure and be listed by Underwriters Laboratories Inc. (UL246) and meet the test requirements of Factory Mutual (1510) at this pressure.
- Hydrants shall be of a true compression type, opening against the pressure and closing with the pressure. Composition of the main valve shall be a molded rubber having a durometer hardness of 91 +/- 5. The rubber seat valve shall fit a 5/8" opening and not be less than 1" thick.
- Fire hydrants shall be three-way in design, having **Harrington 5" Storz C & X Dome** pumper nozzle, and **2 1/2" Nat Std 2 7/8" Base, C Dome** hose nozzle. Nozzles shall "thread" counterclockwise into hydrant barrel utilizing "o" ring pressure seals. A suitable nozzle lock shall be in place to prevent inadvertent nozzle removal. Wedging devices and/or ductile iron retainers rings to secure nozzles shall not be allowed.
- The lubrication system shall be sealed from the waterway and any external contaminants by use of "o" ring pressure seals. Anti-friction washers shall be in place above and below the thrust collar of the operating nut to further minimize operating torque. The grease reservoir shall be factory filled with an FDA approved food grade lubricant. Oil shall not be used.
- The operating nut shall be a one piece design, manufactured of ASTM B-584 bronze. It shall be 1 1/8" **Pentagon- point to flat** in size/shape. The operating nut shall be affixed to the bonnet by means of an ASTM B-584 bronze hold down nut. The hold down nut shall be threaded into the bonnet in such a manner as to prevent accidental disengagement during the opening cycle of the hydrant. A resilient weather seal shall be incorporated with the hold down nut, for the purpose of protecting the operating mechanism from the elements.
- The direction of opening shall be **right**. An arrow shall be cast on the top of the hydrant to indicate the opening direction.
- The hydrant bonnet shall be attached to the upper barrel by no more than six bolts and nuts. All nuts and bolts below grade shall be 304 stainless steel.
- The hydrant will have 6' Depth of bury, unless otherwise noted.
- Hydrants shall be of the "Traffic Model" design, provided with a safety coupling and flange design that will permit a full 360 degree facing of the nozzles. O-rings shall be the "Quad-Ring" type and be installed in a groove on the bottom of the joint so that taping or gluing to the upper standpipe or

WaterMaster® Fire Hydrant Specification

extension is not required. The safety coupling shall be a one piece design. Multiple parts and cast iron not allowed.

- The operating stem shall be a two piece design, not less than 1 1/4" diameter (excluding threaded or machined areas). Threads shall be Acme type with no 60 deg. V threads allowed. Travel stops shall be in the inlet/shoe and are not allowed in the bonnet area. Screws, pins, bolts or fasteners used in conjunction with the stem coupling shall be stainless steel.
- The inside diameter of the hydrant barrels shall not be less than 7 1/4 inches and the hydrant shall be painted **Yellow**.
- Heavy duty drip shutoff (top plate) and valve seat shall be high strength manganese bronze. Valve seat shall be installed in a bronze seat ring. Drain shall be **tapped and plugged**, bronze lined and 3/8 inch diameter minimum. They shall operate without the use of springs, toggles, tubes, levers or other intricate synchronizing mechanisms. Lower valve plate shall be a one piece ductile iron casting and not require a separate cap nut. Drains shall be open and flushed during the first 4 turns of opening the hydrant before positively closing while operating the hydrant.
- The shoe connection shall be **Mechanical Joint** or as specified. The inlet/shoe shall be fusion bonded epoxy coated per ANSI/AWWA C550 and with an NSF61 approved coating having ample blocking pads for sturdy setting. Six stainless steel bolts and nuts are required to fasten the shoe to the lower barrel. The shoe/inlet shall be directly connected to the standpipe flange. Designs using a sandwich piece in between the standpipe and shoe/inlet shall not be allowed.
- External parts- the top bonnet, upper standpipe, lower standpipe and shoe shall be ductile iron to ensure strength throughout the exterior of the hydrant. Gray Iron hydrant body parts will not be allowed.

Municipality reserves the right to accept only those materials which are in full compliance with these specifications and deemed most advantageous to its interests.

Upon request, supplier shall furnish flow data indicating friction loss in psi at a flow of 1,000 gpm from the pumper nozzle. Such friction loss shall not exceed 2.5 psi. Also, the municipality may request the manufacturing "point of origin" for any/all hydrant parts. All cast components shall be made in the USA.

Failure to comply with any of these above requirements is sufficient cause for rejection of proposed hydrants.

Hydrant shall be EJ WaterMaster® **5BR250. 55726D**

ejco.com

800 626 4653

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CITY OF OWOSSO, MICHIGAN
ENGINEERING DIVISION
DEPT. OF PUBLIC SERVICE

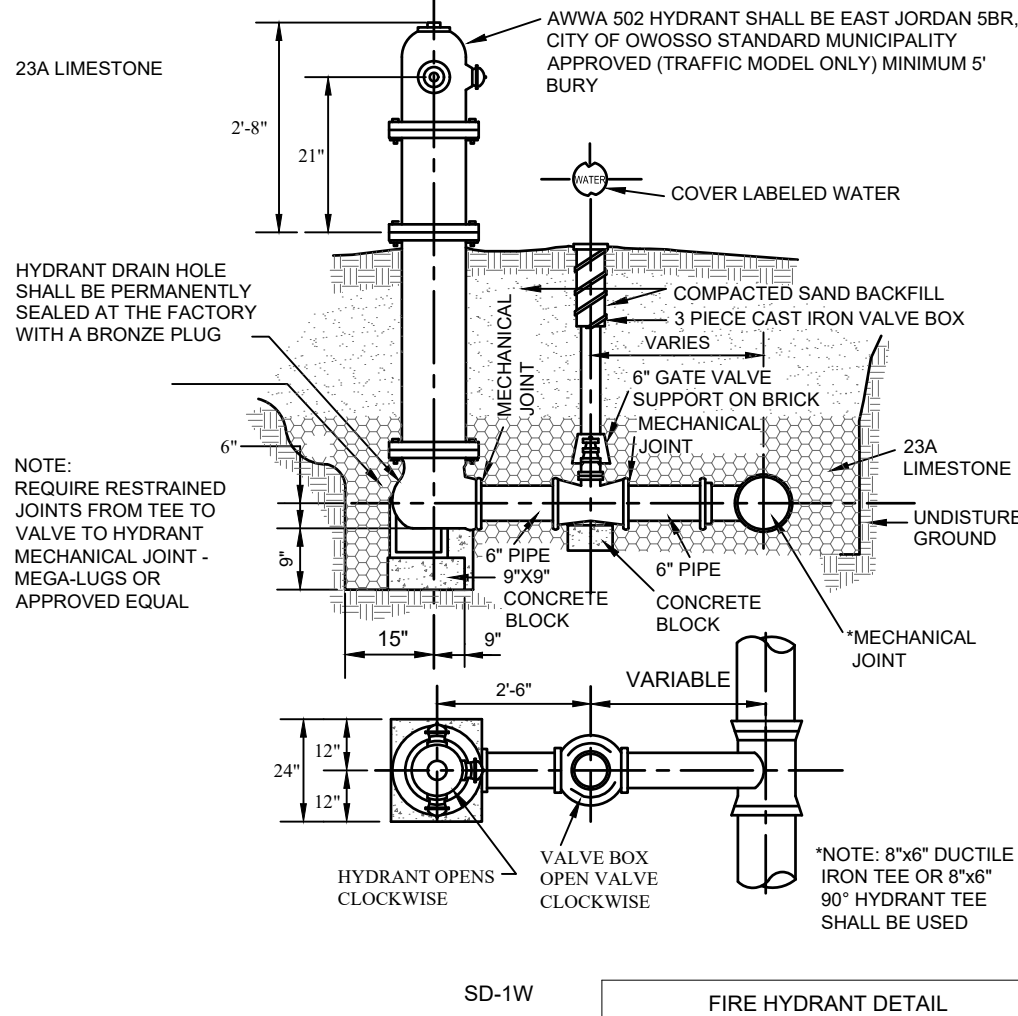
NO.	REVISIONS	DATE	BY

NO.	REVISIONS	DATE	BY

BENCHMARK DATA	DESCRIPTION
ELEV.	

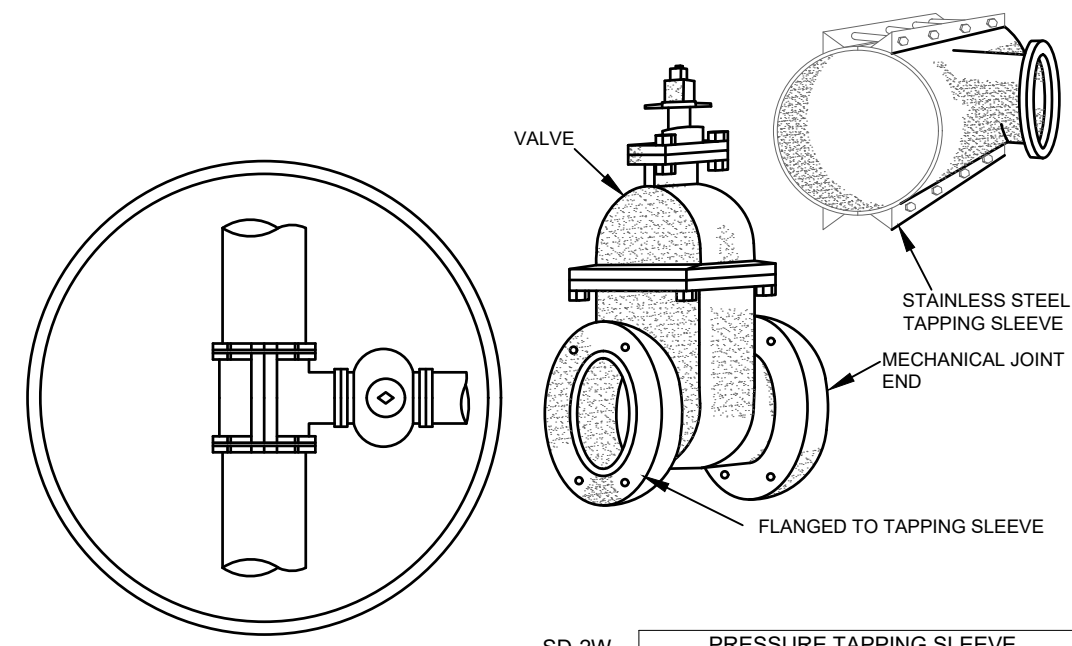
2020 STREET PROGRAM CONTRACT 1
DWRF PROJECT NUMBER 7457-01 PHASE 1
WATER MAIN NOTES AND DETAILS
D2

- NOTES:**
1. THE PUMPER CONNECTION SHALL FACE THE STREET.
 2. SET THE HYDRANT FLANGE AT PROPOSED GRADE OR AS FIELD DIRECTED.
 3. SET THE VALVE BOX COVER FLUSH WITH THE PROPOSED GRADE.
 4. ALL WORK FROM THE CENTER LINE OF THE MAIN TO AND INCLUDING THE HYDRANT SHALL BE PAID FOR BY UNIT PRICE BID ITEM FOR HYDRANTS.
 5. ALL MECHANICAL JOINTS SHALL BE RESTRAINED BY MEGA LUGS, OR APPROVED EQUAL.
 6. HYDRANT BARRELS SHALL BE PAINTED YELLOW. CAPS SHALL BE COLOR GREEN.
 7. 90° HYDRANT TEES ARE APPROVED WHERE SPACE REQUIREMENTS ARE LIMITED.



SD-1W FIRE HYDRANT DETAIL

- NOTES:**
1. ALL TAPPING SLEEVES SHALL BE STAINLESS STEEL WITH FLANGED OUTLET. TAPPING SLEEVES SHALL BE APPROVED BY THE CITY OF OWOSSO PRIOR TO INSTALLATION.
 2. THE GASKET FOR MAIN LINE SHALL BE MADE FOR THE PIPE MATERIAL IN PLACE, NORMALLY DUCTILE IRON CLASS 53.
 3. OUTLET FLANGE IS CLASS 125 ANS/B16.1.
 4. TAPPING TEE SHALL HAVE A BUILT-IN TEST PLUG.
 5. THE VALVE SHALL BE FLANGED, CONNECTED TO THE SLEEVE BY MECHANICAL JOINT TO THE LINE TO BE CONSTRUCTED.
 6. THE VALVE SHALL HAVE OVERSIZE SEAT RINGS TO PERMIT ENTRY OF THE TAPPING MACHINE CUTTERS.
 7. THE VALVE SHALL MEET ALL REQUIREMENTS OF AWWA C-500.
 8. THE MINIMUM SIZE MANHOLE SHALL BE 5'-0" INTERNAL DIAMETER.
 9. THE TOP OPENING SHALL BE CENTERED ON THE VALVE OPERATING NUT.
 10. USE FLAT SLAB FOR COVER WITH 24" OPENING.

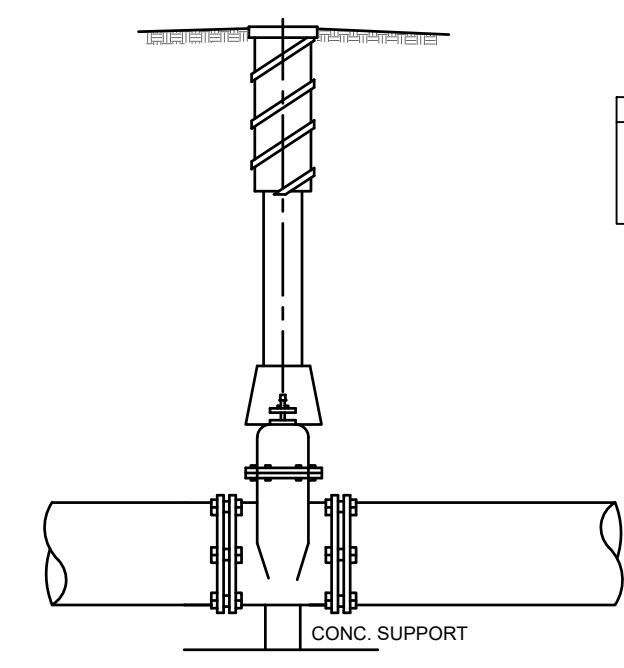


SD-2W PRESSURE TAPPING SLEEVE AND VALVE

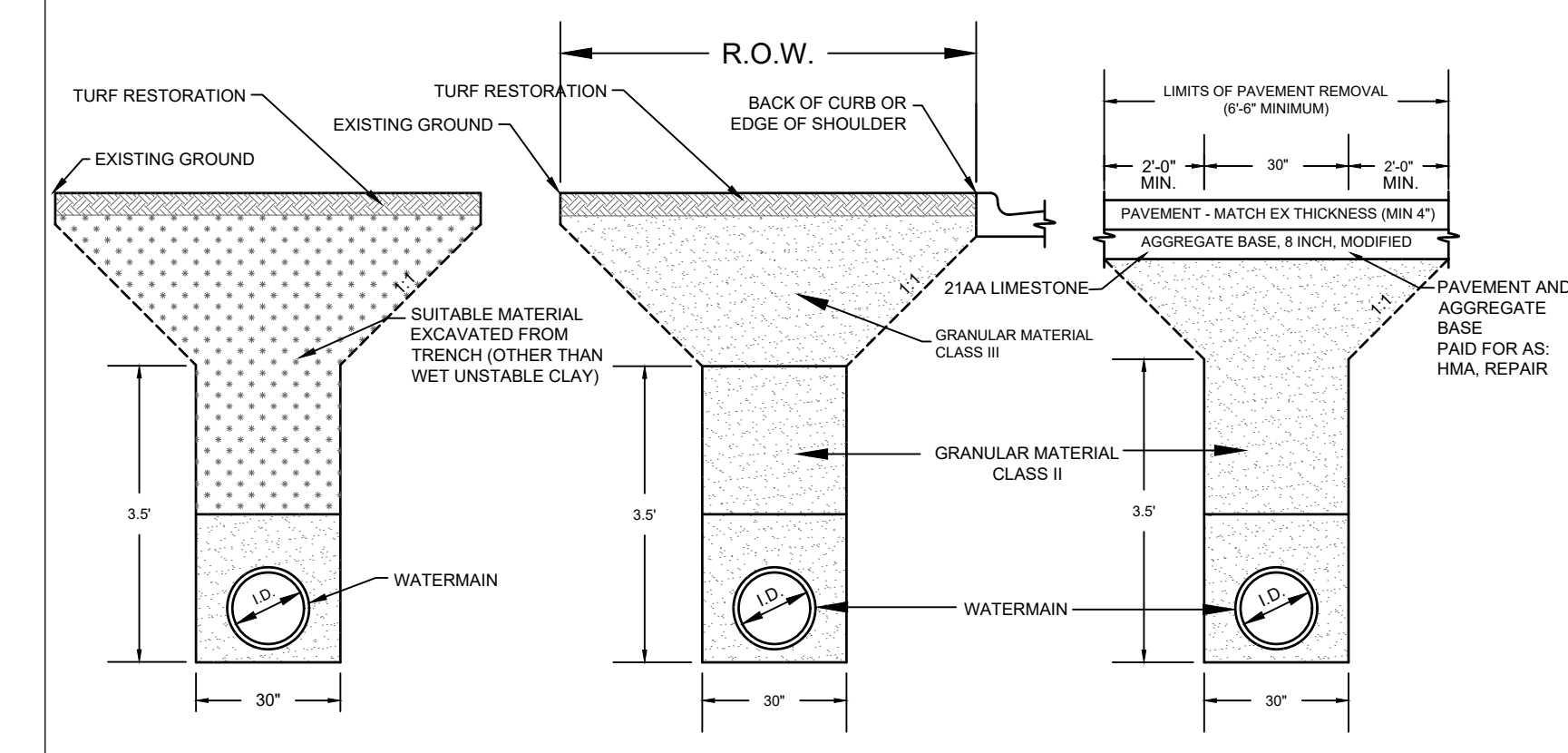
NOTE:
ALL MECHANICAL JOINTS SHALL BE RESTRAINED WITH MEGA LUGS OR APPROVED EQUAL. LENGTH OF RESTRAINT SHALL BE DETERMINED BY MANUFACTURER AND DIPRA, AND APPROVED BY CITY OF OWOSSO. THE MINIMUM REQUIRED RESTRAINT LENGTHS ARE SHOWN IN DETAIL SD-7W. MANUFACTURER RESTRAINT LENGTHS THAT ARE LESS THAN SHOWN IN SD-7W MUST BE APPROVED BY CITY OF OWOSSO.

SD-3W LOCATION OF RESTRAINED JOINTS

- NOTES:**
1. RESILIENT SEATED WEDGE GATE VALVES SHALL BE PER PROJECT SPECIFICATIONS.
 2. ALL PRESSURE TAPS 4" AND OVER MUST BE ENCLOSED WITH A CONCRETE VALVE MANHOLE.
 3. CONCRETE ADJUSTING BRICK OR RINGS ALLOWABLE TO A MAXIMUM ADJUSTMENT OF 12".
 4. VALVE BOXES SHALL BE MADE OF GOOD QUALITY CAST IRON AND SHALL BE OF THE SECTIONAL TYPE. THE LOWER SECTION SHALL BE A MINIMUM OF FIVE (5) INCHES IN DIAMETER, ENLARGED AT THE BASE TO FIT AROUND THE BONNET OF THE VALVE. THE UPPER SECTION SHALL BE ARRANGED TO SLIDE OR SCREW DOWN OVER THE ADJOINING LOWER SECTION AND SHALL BE FULL DIAMETER THROUGHOUT. VALVE BOXES SHALL BE PROVIDED WITH CAST IRON LIDS OR COVERS. LIDS OR COVERS SHALL BE MARKED "WATER". THE OVER-ALL LENGTH OF VALVE BOXES SHALL BE SUFFICIENT TO PERMIT THE TOP TO BE SET FLUSH WITH THE FINAL GROUND SURFACE GRADE. VALVE BOXES SHALL BE AS MANUFACTURED BY TRAVERSE CITY IRON WORKS, CLOW CORPORATION OR APPROVED EQUAL.



SD-4W WATER VALVE AND VALVE BOX DETAIL



TRENCH BACKFILL DETAIL 'F'
TYPICAL WATERMANS
NOT WITHIN INFLUENCE OF ROADBED,
DRIVEWAY, OR SIDEWALK, AND
LOCATED OUTSIDE OF ROAD
RIGHT-OF-WAY

TRENCH BACKFILL DETAIL 'G'
TYPICAL WATERMANS
UNDER ROADBED AND/OR WITHIN INFLUENCE OF
ROADBED, DRIVEWAY, OR SIDEWALK, OR
LOCATED WITHIN THE ROAD RIGHT-OF-WAY

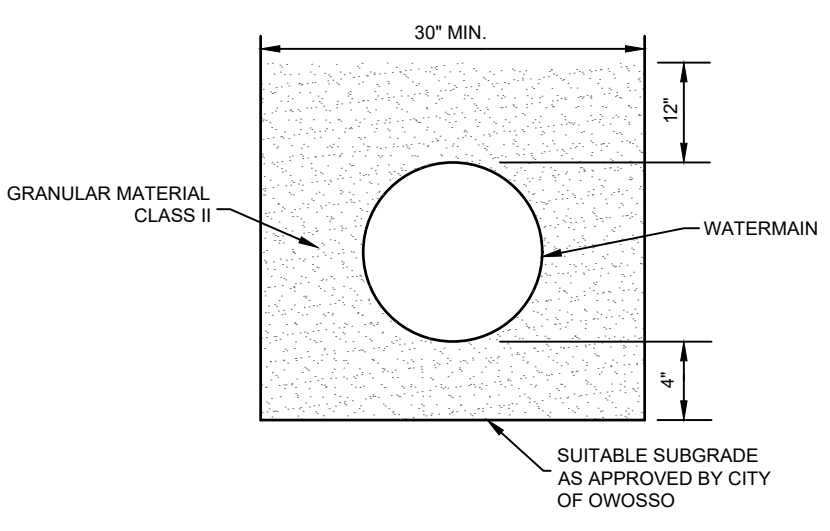
SD-5W WATERMAIN TRENCH BACKFILL DETAILS

MINIMUM PIPE RESTRAINT LENGTH SCHEDULE FOR GROUND BURIED PRESSURE PIPES(1)

LENGTH (IN FEET) OF RESTRAINT REQUIRED (2)

DEFLECTION ANGLE	22 1/2°	33 3/4°	45°	56 1/4°	67 1/2°	78 3/4°	90° OR DEAD END
PIPE							
6"	3	6	11	16	23	29	37
8"	4	8	15	22	31	41	50
10"	5	11	18	28	38	49	61

* WHEN MANUFACTURER SPECIFICATIONS CALL FOR GREATER RESTRAINT LENGTHS THE GREATER LENGTHS SHALL BE INSTALLED. WHEN THE MANUFACTURER SPECIFICATIONS CALL FOR LESSER RESTRAINT LENGTHS THEN THE ABOVE LENGTHS SHALL BE INSTALLED



SD-10W WATERMAIN BEDDING DETAIL

1. THIS TABLE IS BASED ON A TEST PRESSURE OF 100 PSI (OPERATING PRESSURE + WATER HAMMER). FOR OTHER TEST PROCEDURES, ALL VALUES ARE TO BE INCREASED PROPORTIONALLY.
2. IN EACH DIRECTION FROM POINT OF DEFLECTION OR TERMINATION EXCEPT FOR A TEE AT WHICH ONLY THE BRANCH IN THE DIRECTION OF THE TEE STEM.
3. IF THE RODS ARE USED, PLACE 2 RODS 5/8 INCH DIAMETER MINIMUM FOR WATERMAIN 6 INCH TO 10 INCH.

SD-7W MINIMUM PIPE RESTRAINT SCHEDULE

CITY OF OWOSSO, MICHIGAN
ENGINEERING DIVISION
DEPT. OF PUBLIC SERVICE

BENCHMARK DATA ELEV.	DESCRIPTION	NO.	REVISIONS	DATE	BY	APPROVED BY	
						CHECKED BY	ORIGINAL PLAN

2020 STREET PROGRAM CONTRACT 1
DWRF PROJECT NUMBER 7457-01 PHASE 1
WATER MAIN STANDARD DETAILS
D3

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET
S-E-S-C KEYING SYSTEM

KEY	BEST MANAGEMENT PRACTICES	SYMBOL	WHERE USED
EROSION CONTROLS			
E1	SELECTIVE GRADING AND SHAPING		To reduce steep slopes and erosive velocities.
E2	GRUBBING OMITTED		For use on steep slopes to prevent rilling, gullying, and reduce sheet flow velocity or where clear vision corridors are necessary.
E3	SLOPE ROUGHENING AND SCARIFICATION		Where created grades cause increased erosive velocities. Promotes infiltration and reduces runoff velocity.
E4	TERRACES		On relatively long slopes up to 8% grades with fairly stable soils.
E5	DUST CONTROL		For use on construction sites, unpaved roads, etc. to reduce dust and sedimentation from wind and construction activities.
E6	MULCH		For use in areas subject to erosive surface flows or severe wind or on newly seeded areas.
E7	TEMPORARY SEEDING		Stabilization method utilized on construction sites where earth change has been initiated but not completed within a 2 week period.
E8	PERMANENT SEEDING		Stabilization method utilized on sites where earth change has been completed (final grading attained).
E9	MULCH BLANKETS		On exposed slopes, newly seeded areas, new ditch bottoms, or areas subject to erosion.
E10	SODDING		On areas and slopes where immediate stabilization is required.
E11	VEGETATED CHANNELS		For use in created stormwater channels. Vegetation is used to slow water velocity and reduce erosion within the channel.
E12	RIPRAP		Use along shorelines, waterways, or where concentrated flows occur. Slows velocity, reduces sediment load, and reduces erosion.
E13	GABION WALLS		On newly created or denuded stream banks to reduce velocity until permanent stabilization is achieved or on existing banks to retard erosive velocities.
E14	ENERGY DISSIPATOR		Where the energy transmitted from a concentrated flow of surface runoff is sufficient to erode receiving area or watercourse.
E15	TEMPORARY SLOPE DRAIN		Where surface runoff temporarily accumulates or sheet flows over the top of a slope and must be conveyed down a slope in order to prevent erosion.
E16	SLOPE DRAIN		Where concentrated flow of surface runoff must be permanently conveyed down a slope in order to prevent erosion.

B = BIOENGINEERING

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET
S-E-S-C KEYING SYSTEM

KEY	BEST MANAGEMENT PRACTICES	SYMBOL	WHERE USED
E17	CELLULAR CONFINEMENT SYSTEMS		Used on steep slopes and high velocity channels.
E18	PLASTIC SHEETS		Used on exposed slopes, seeded areas, new ditch bottoms, and areas subject to surface runoff and erosion. Used as a liner in temporary channels and to stabilize stockpiles.
E19	TEMPORARY DRAINAGEWAY/ STREAM CROSSING		Use on construction sites where stream/drainage way crossings are required.
E20	TEMPORARY BYPASS CHANNEL		Use within existing stream corridors when existing flow cannot be interrupted, and at culvert and bridge repair sites.
E21	LIVE STAKING		In areas requiring protection of slopes against surface erosion and shallow mass wasting.
EROSION / SEDIMENT CONTROLS			
ES31	CHECK DAM		Used to reduce surface flow velocities within constructed and existing flow corridors.
ES32	STONE FILTER BERM		Use primarily in areas where sheet or rill flow occurs and to accommodate dewatering flow.
ES33	FILTER ROLLS		In areas requiring immediate protection of slopes against surface erosion and gully formation and for perimeter sediment control.
ES34	SAND FENCE		For use in areas susceptible to wind erosion, especially where the ground has not yet been stabilized by other means.
ES35	DEWATERING		Use where construction activities are limited by the presence of water and dry work is required.
ES36	DIVERSION DIKE/BERM		Within existing flow corridors to address or prevent erosion and sedimentation, or on disturbed or unstable slopes subject to erosive surface water velocities.
ES37	DIVERSION DITCH		In conjunction with a diversion dike, or where diversion of upslope runoff is necessary to prevent damage to unstabilized or disturbed construction areas.
ES38	COFFERDAM/SHEET PILING		Constructed along or within water corridor or waterbody to provide dry construction area.
ES39	STREAMBANK BIOSTABILIZATION		For use along banks where stream and riparian zones may have difficulty recovering from the long-term effects of erosion.
ES40	POLYMERS		To minimize soil erosion and reduce sedimentation in water bodies by increasing soil particle size.
ES41	WATTLES		In areas requiring protection of slopes against surface erosion and gully formation.

B = BIOENGINEERING

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET
S-E-S-C KEYING SYSTEM

KEY	BEST MANAGEMENT PRACTICES	SYMBOL	WHERE USED
SEDIMENT CONTROLS			
S51	SILT FENCE		Use adjacent to critical areas, to prevent sediment laden sheet flow from entering these areas.
S52	CATCH BASIN SEDIMENT GUARD		Use in or at stormwater inlets, especially at construction sites.
S53	STABILIZED CONSTRUCTION ACCESS		Used at every point where construction traffic enters or leaves a construction site.
S54	TIRE WASH		For use on construction sites where vehicular traffic requires sediment removed from its tires in highly erosive areas.
S55	SEDIMENT BASIN		At the outlet of disturbed areas and at the location of a permanent detention basin.
S56	SEDIMENT TRAP		In small drainage areas, along construction site perimeters, and above check dams or drain inlets.
S57	VEGETATED BUFFER/FILTER STRIP		Use along shorelines, waterways, or other sensitive areas. Slows velocity, reduces sediment load, and reduces erosion in areas of sheet flow.
S58	INLET PROTECTION FABRIC DROP		Use at stormwater inlets, especially at construction sites.
S59	INLET PROTECTION FABRIC FENCE		Use at stormwater inlets, especially at construction sites.
S60	INLET PROTECTION STONE		Use around urban stormwater inlets.
S61	TURBIDITY CURTAIN		Use during construction adjacent to a water source, to contain sediment within the work area when other BMP's cannot be used.

B = BIOENGINEERING

CONSTRUCTION SEQUENCE

1. INSTALLATION OF TEMPORARY EROSION CONTROL MEASURES.
2. TRENCH EXCAVATION, STORM SEWER INSTALLATION, AND BACKFILL.
3. PERMANENT MEASURES, FINAL GRADING, SEEDING AND MULCHING.

SOIL EROSION/SEDIMENTATION CONTROL OPERATION TIME SCHEDULE	OPERATION TIME SCHEDULE											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
CONSTRUCTION SEQUENCE												
STRIP AND STOCKPILE TOPSOIL												
ROUGH GRADE/ SEDIMENT CONTROL												
TEMP CONTROL MEASURES												
STORM FACILITIES												
TEMP CONSTRUCTION ROADS												
FOUNDATION/ BLDG. CONSTRUCTION												
SITE CONSTRUCTION												
PERM CONTROL MEASURES												
FINISH GRADING												
LANDSCAPING												

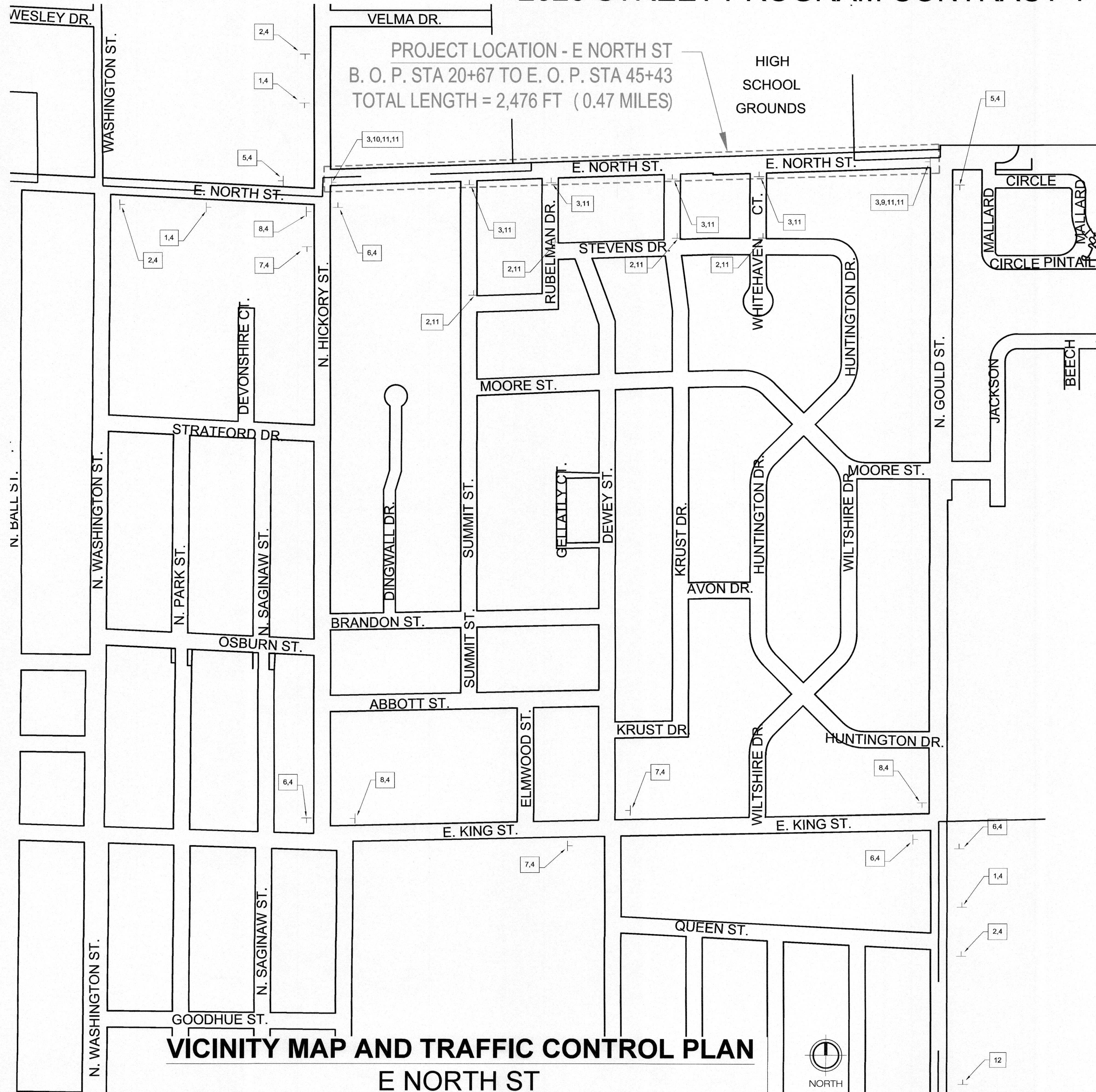
CITY OF OWOSSO, MICHIGAN
ENGINEERING DIVISION
DEPT. OF PUBLIC SERVICE

BENCHMARK DATA	NO.	REVISIONS	DATE	BY	DESCRIPTION

2020 STREET PROGRAM CONTRACT 1
DWRP PROJECT NUMBER 7457-01 PHASE 1
SESC STANDARD NOTES AND DETAILS

D4

E NORTH STREET ROAD AND STORM SEWER CITY OF OWOSSO 2020 STREET PROGRAM CONTRACT 1



**VICINITY MAP AND TRAFFIC CONTROL PLAN
E NORTH ST**

SHEET NO.	DESCRIPTION
NR1	E NORTH ST - ROAD AND STORM SEWER COVER SHEET & TRAFFIC CONTROL PLAN
NR2 - NR3	E NORTH ST - TYPICAL CROSS SECTIONS
NR4	E NORTH ST - REMOVAL PLAN
NR5 - NR10	E NORTH ST - ROAD PLAN AND PROFILE
NR11	E NORTH ST - PAVEMENT MARKING & PERMANENT SIGN PLAN
NR12	E NORTH ST - SOIL BORINGS

SIGNING REQUIREMENTS				
NO.	SIGN	SIGN DESIGNATION	SIZE	NO. REQ.
1		W20-2A	48 x 48	3
2		W20-3	48 x 48	7
3		R11-3A	60 x 30	6
4		M4-8 MOD	30 x 8	18
5		M4-8A	24 x 18	2
6		M4-9L	30 x 24	4
7		M4-9S	30 x 24	3
8		M4-9R	30 x 24	3
9		M4-10L	48 x 18	1
10		M4-10R	48 x 18	1
11		TYPE III BARRICADE		12
12	PCMB*	PORTABLE CHANGEABLE MESSAGE BOARD		1

*ENGINEER TO PROVIDE MESSAGE SEQUENCE AND PLACEMENT DATE AT PRE-CONSTRUCTION MEETING

THE DESIGN OF THIS ROAD IS BASED ON THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS OF CONSTRUCTION, 2012 EDITION, AND THE AASHTO A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, 2011 EDITION, AND THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, 2011 EDITION.

CONTRACT FOR: 0.47 MILES OF HMA RECONSTRUCTION, INTERSECTION IMPROVEMENTS, DRAINAGE IMPROVEMENTS, CURB AND GUTTER, ADA SIDEWALK RAMPS, PERMANENT SIGNING, AND PAVEMENT MARKINGS.

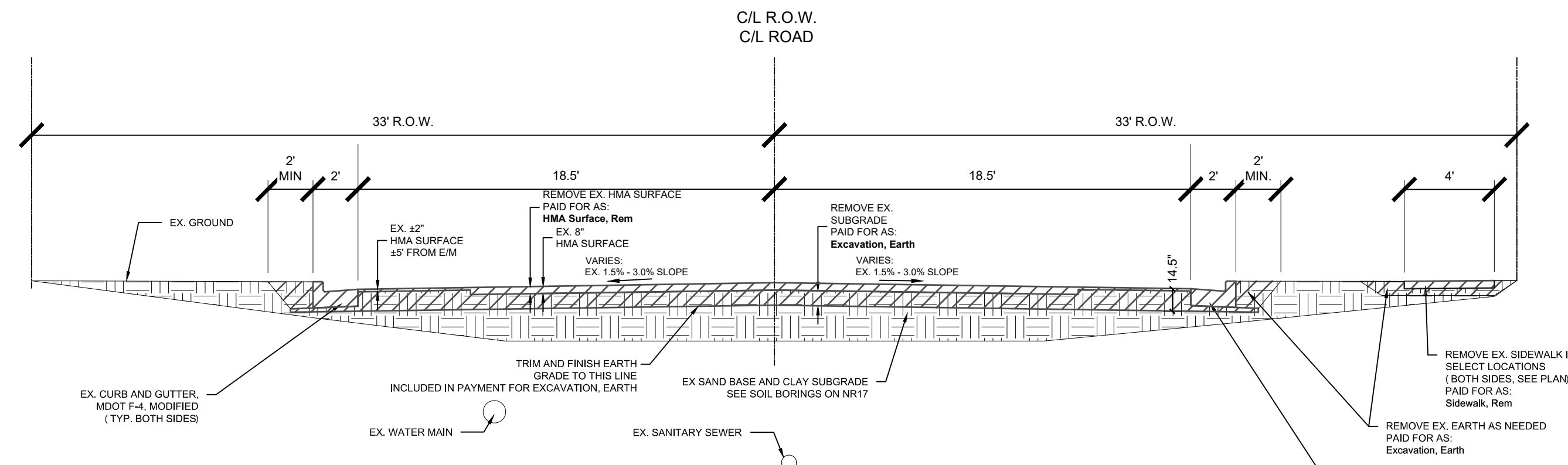
CITY OF OWOSSO APPROVAL



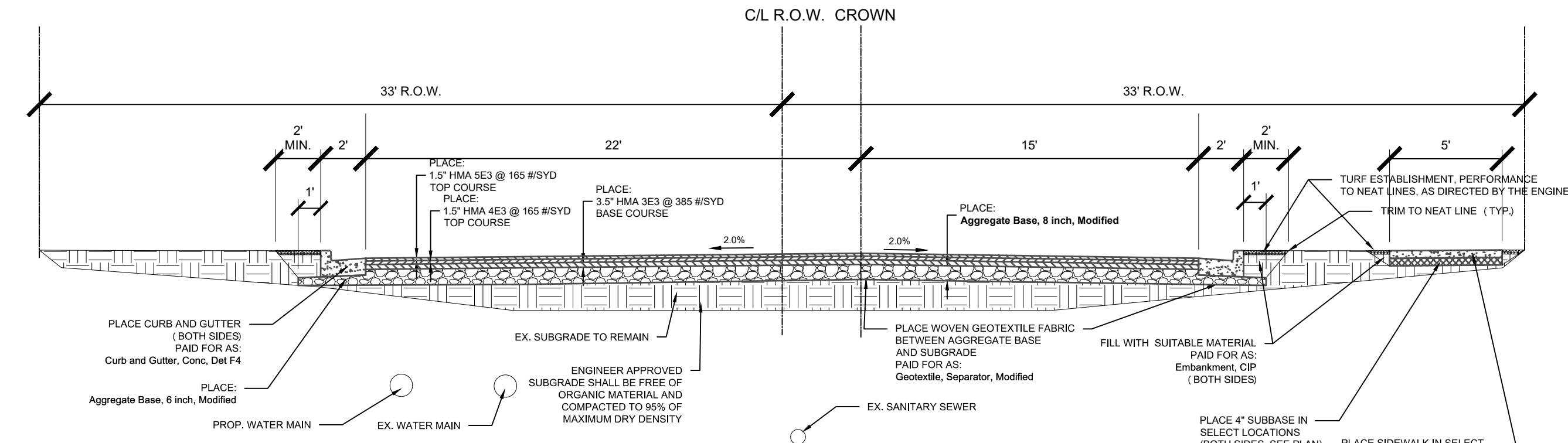
Randy Chesney

CITY ENGINEER RANDY CHESNEY, PE REGISTRATION NUMBER 33154 DATE 11-8-2019

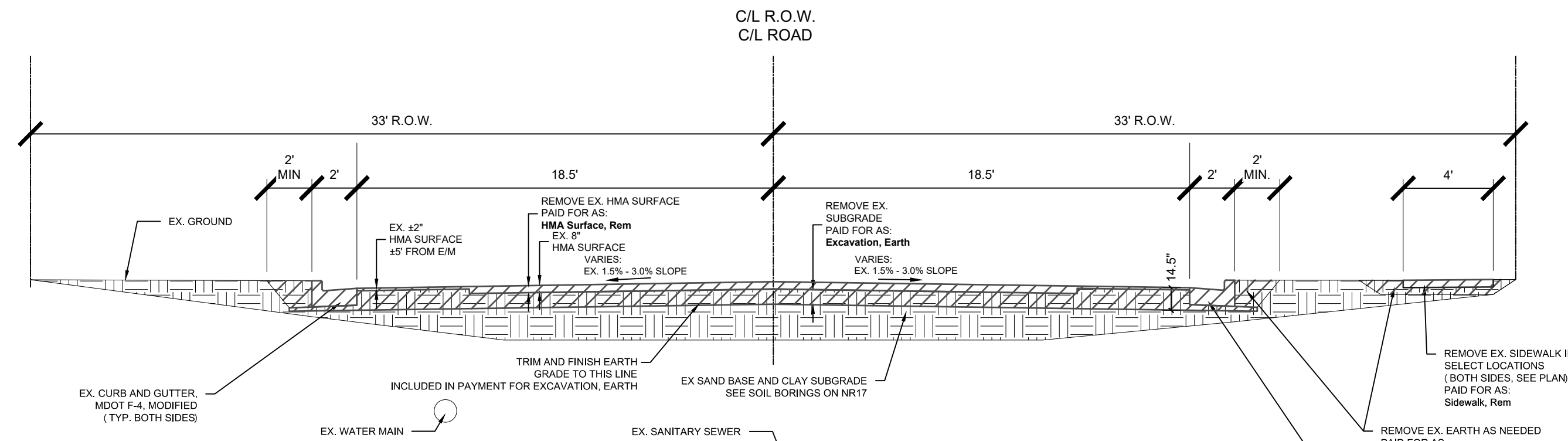
CITY OF OWOSSO, MICHIGAN ENGINEERING DIVISION DEPT. OF PUBLIC SERVICE	
BENCHMARK DATA ELEV. DESCRIPTION	REVISIONS DATE BY NO. NO. NO. NO. NO. NO.
2020 STREET PROGRAM CONTRACT 1 DWRF PROJECT NUMBER 7457-01 PHASE 1 E NORTH STREET ROAD AND STORM SEWER COVER SHEET & TRAFFIC CONTROL PLAN	
FIELD BOOK PG.	PROJECT NO. NR1



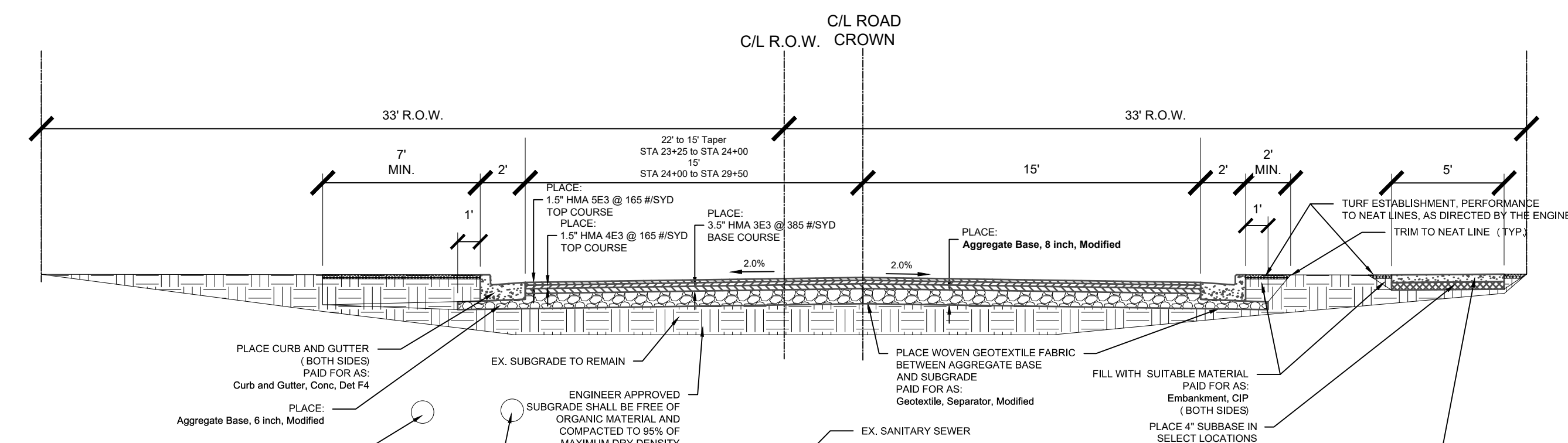
TYPICAL EXISTING CROSS SECTION - E NORTH STREET
APPLIES TO STATIONS:
20+67 (B.O.P.) TO 23+25
SCALE: 1" = 5'



TYPICAL PROPOSED CROSS SECTION - E NORTH STREET
APPLIES TO STATIONS:
20+67 (B.O.P.) TO 23+25
SCALE: 1" = 5'



TYPICAL EXISTING CROSS SECTION - E NORTH STREET
APPLIES TO STATIONS:
23+25 TO 29+50
SCALE: 1" = 5'



TYPICAL PROPOSED CROSS SECTION - E NORTH STREET
APPLIES TO STATIONS:
23+25 TO 29+50
SCALE: 1" = 5'

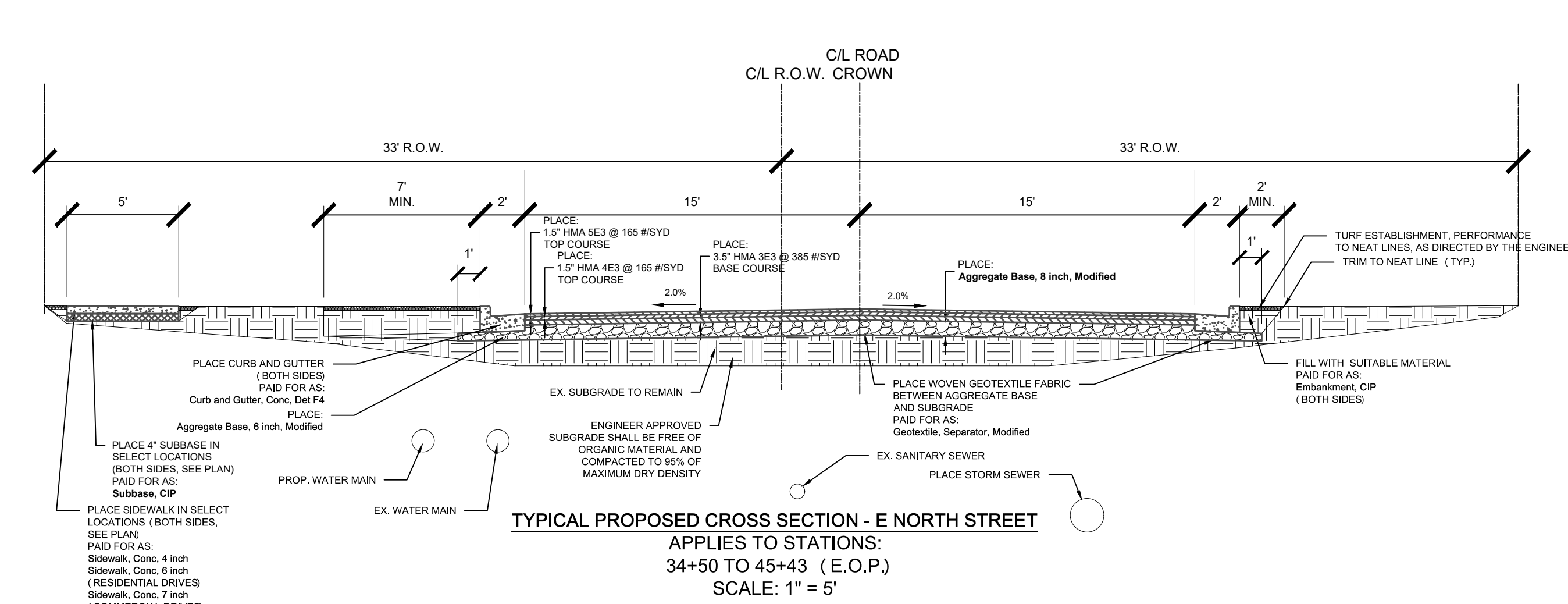
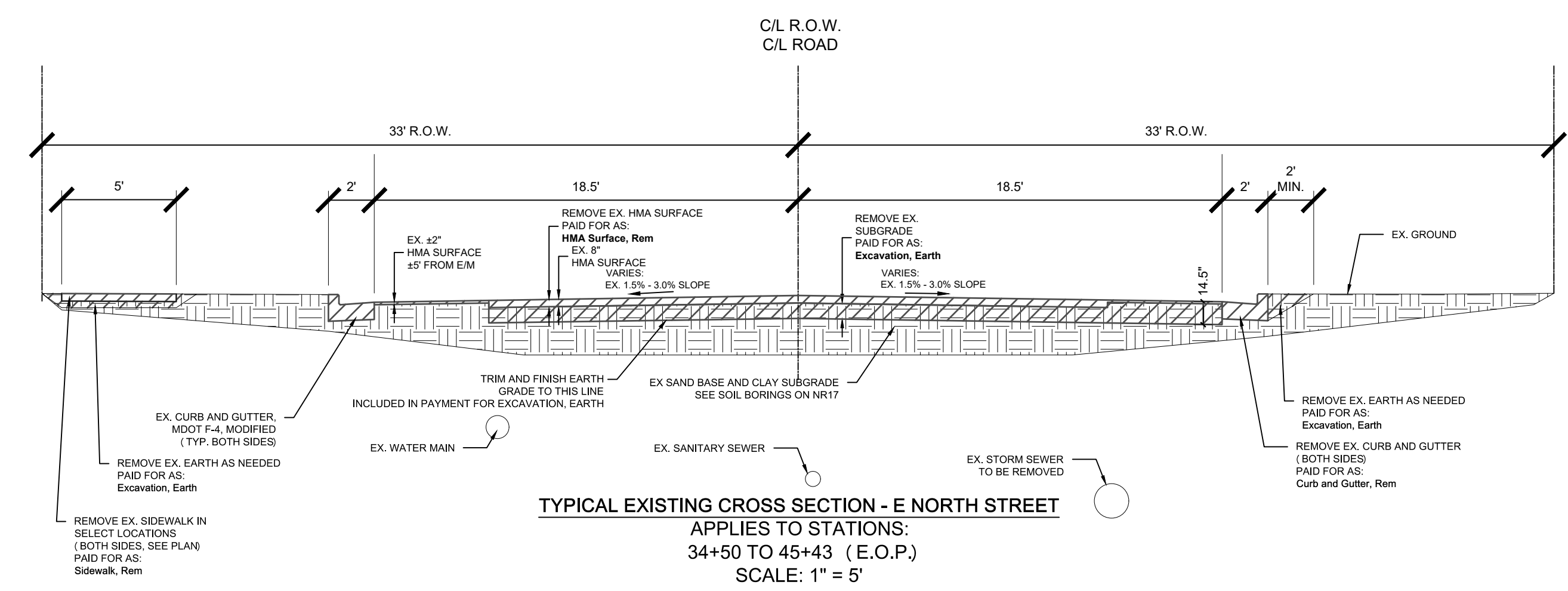
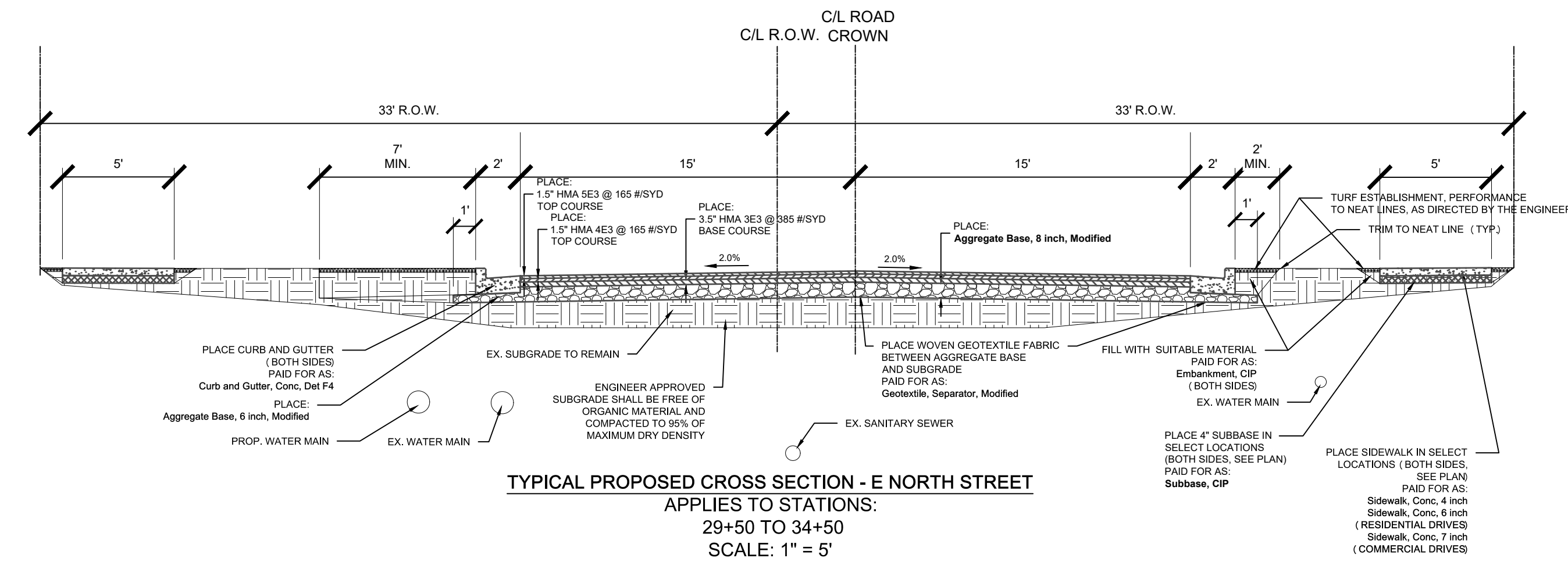
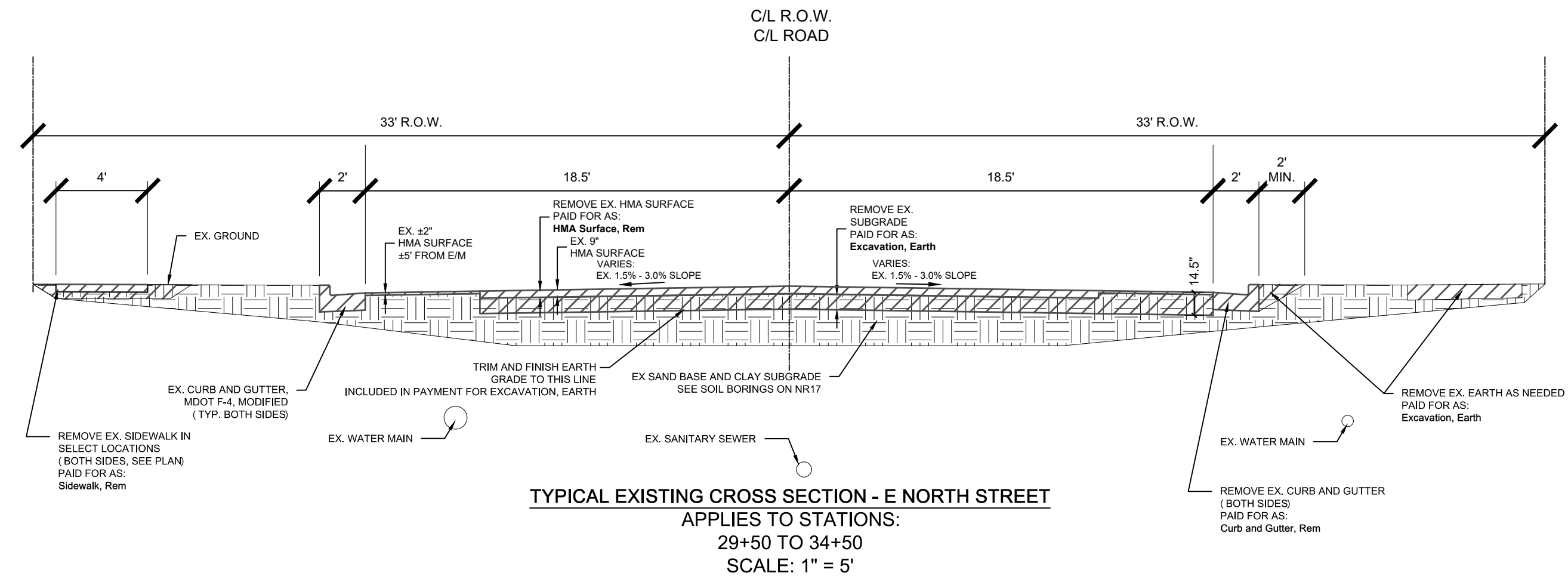
E NORTH STREET - HMA APPLICATION RATE					
ITEM	PAY ITEM	RATE PER SYD	PERFORMANCE GRADE	ESTIMATED THICKNESS	REMARKS
HMA	HMA, 5E3	165 LBS.	64-28	1.5"	TOP COURSE - AWI = 220 (MIN)
	HMA, 4E3	165 LBS.	64-28	1.5"	BASE COURSE
	HMA, 3E3	385 LBS.	64-28	3.5"	
DRIVE APPROACH	HMA APPROACH	220 LBS.	58-28	2"	TOP COURSE - AWI = 220 (MIN) HMA, 5E3
	HMA APPROACH	330 LBS.	58-28	3"	BASE COURSE HMA, 3E3
BOND COAT		0.1 GAL.			SS-1H (FOR INFORMATION ONLY)

NO.	REVISIONS	DATE	BY	APPROVED BY	
				CHECKED BY	ORIGINAL PLAN

2020 STREET PROGRAM CONTRACT 1
DWRP PROJECT NUMBER 7457-01 PHASE 1
E NORTH STREET
TYPICAL CROSS SECTIONS

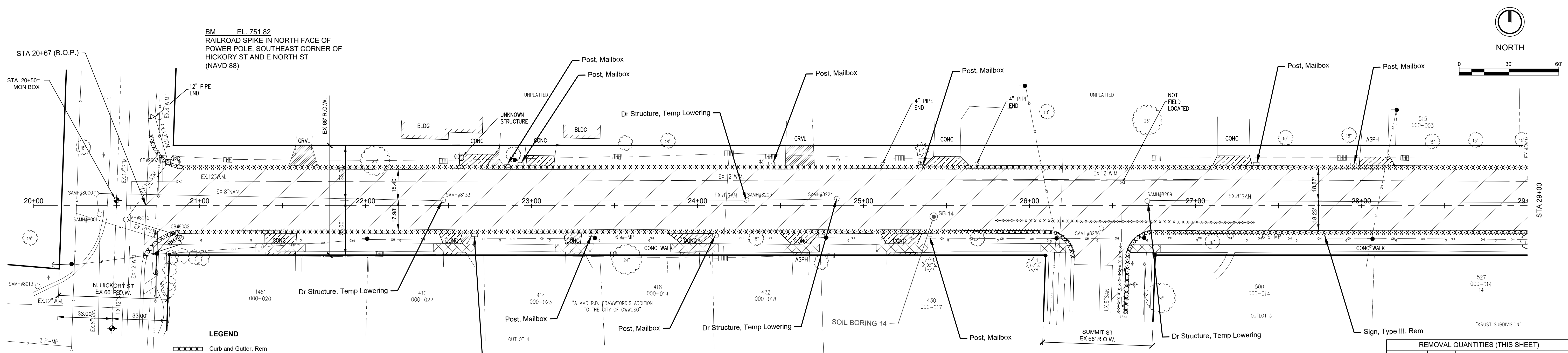
DATE PROJECT NO.
FIELD BOOK PG.

NR2



NO.	REVISIONS	DATE	BY	APPROVED BY	
				CHECKED BY	ORIGINAL PLAN

BENCHMARK DATA	
ELEV.	DESCRIPTION



LEGEND

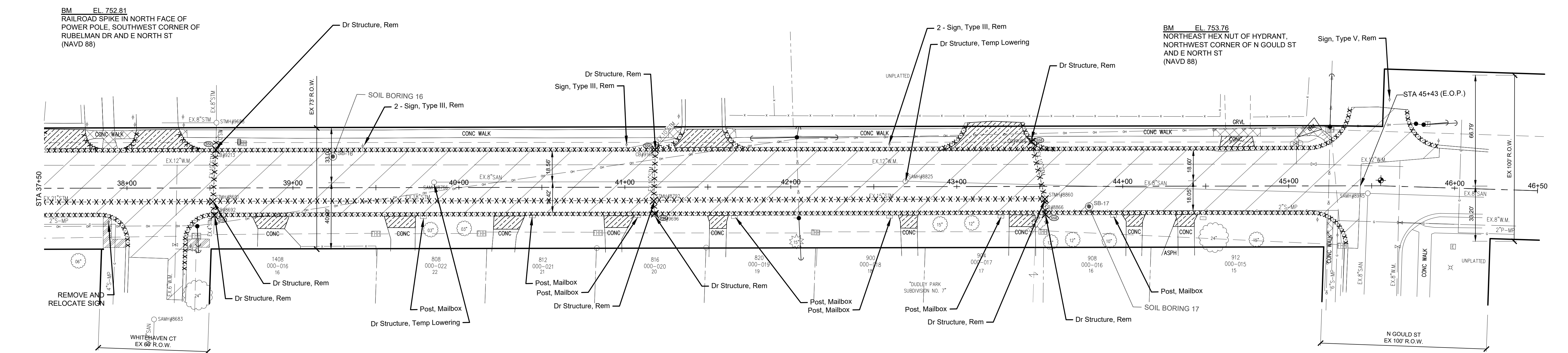
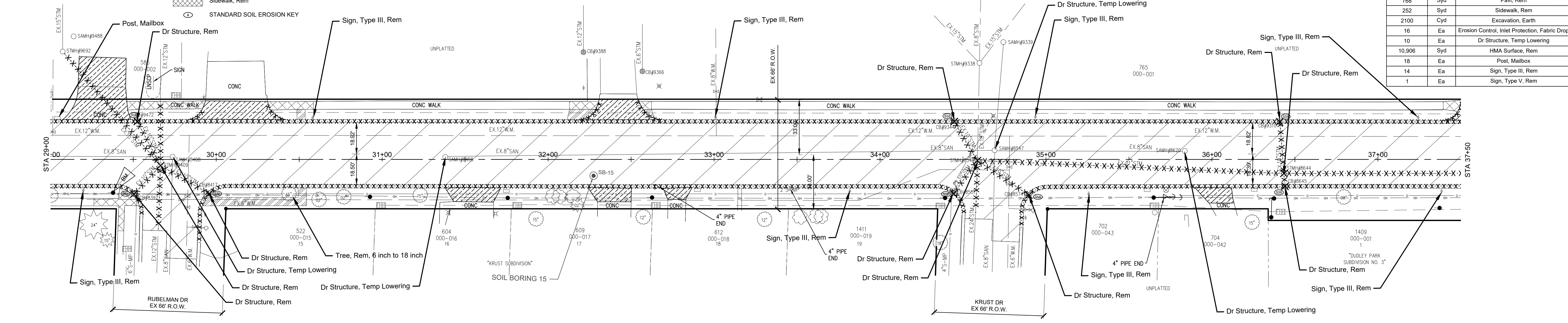
- X—X—X— Curb and Gutter, Rem
- X-X-X- Sewer, Rem
- XXX Dr Structure, Rem
- XXX HMA Surface, Rem and Excavation, Earth
- XXX Pavt, Rem
- XXX Sidewalk, Rem
- STANDARD SOIL EROSION KEY

E NORTH STREET

REMOVAL PLAN

REMOVAL QUANTITIES (THIS SHEET)

QUANTITY	UNIT	WORK ITEM
1	Ea	Tree, Rem, 6 inch to 18 inch
20	Ea	Dr Structure, Rem
1401	Ft	Sewer, Rem, Less than 24 inch
32	Ft	Sewer, Rem, 24 inch to 48 inch
5275	Ft	Curb and Gutter, Rem
768	Syd	Pavt, Rem
252	Syd	Sidewalk, Rem
2100	Cyd	Excavation, Earth
16	Ea	Erosion Control, Inlet Protection, Fabric Drop
10	Ea	Dr Structure, Temp Lowering
10,906	Syd	HMA Surface, Rem
18	Ea	Post, Mailbox
14	Ea	Sign, Type III, Rem
1	Ea	Sign, Type V, Rem



REVISIONS

NO.	DATE	BY

BENCHMARK DATA

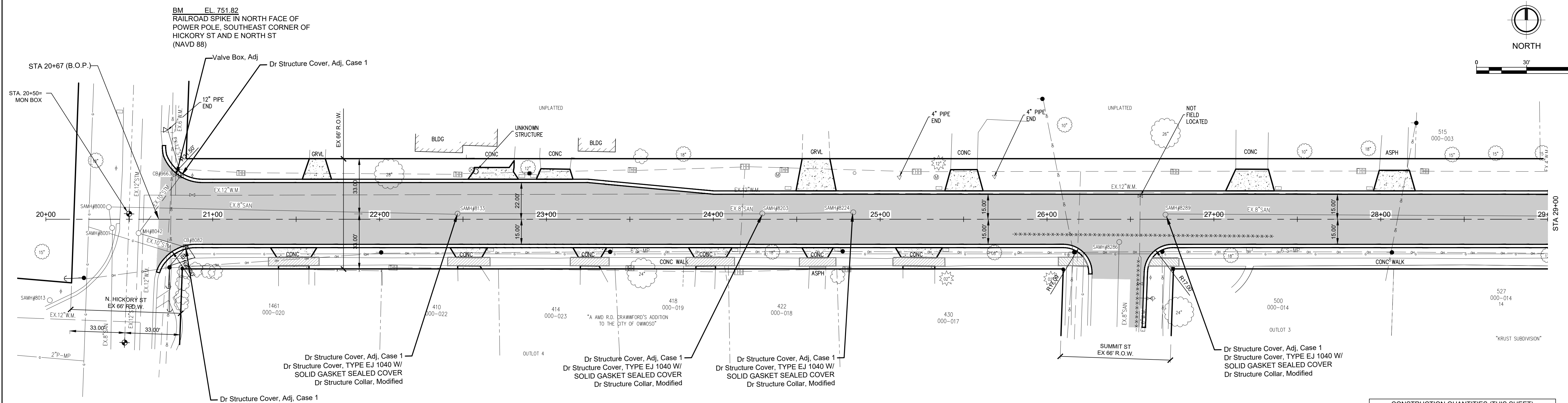
ELEV.	DESCRIPTION

2020 STREET PROGRAM CONTRACT 1
DWRP PROJECT NUMBER 7457-01 PHASE 1

E NORTH STREET
REMOVAL PLAN

DATE PROJECT NO.
FIELD BOOK PG.

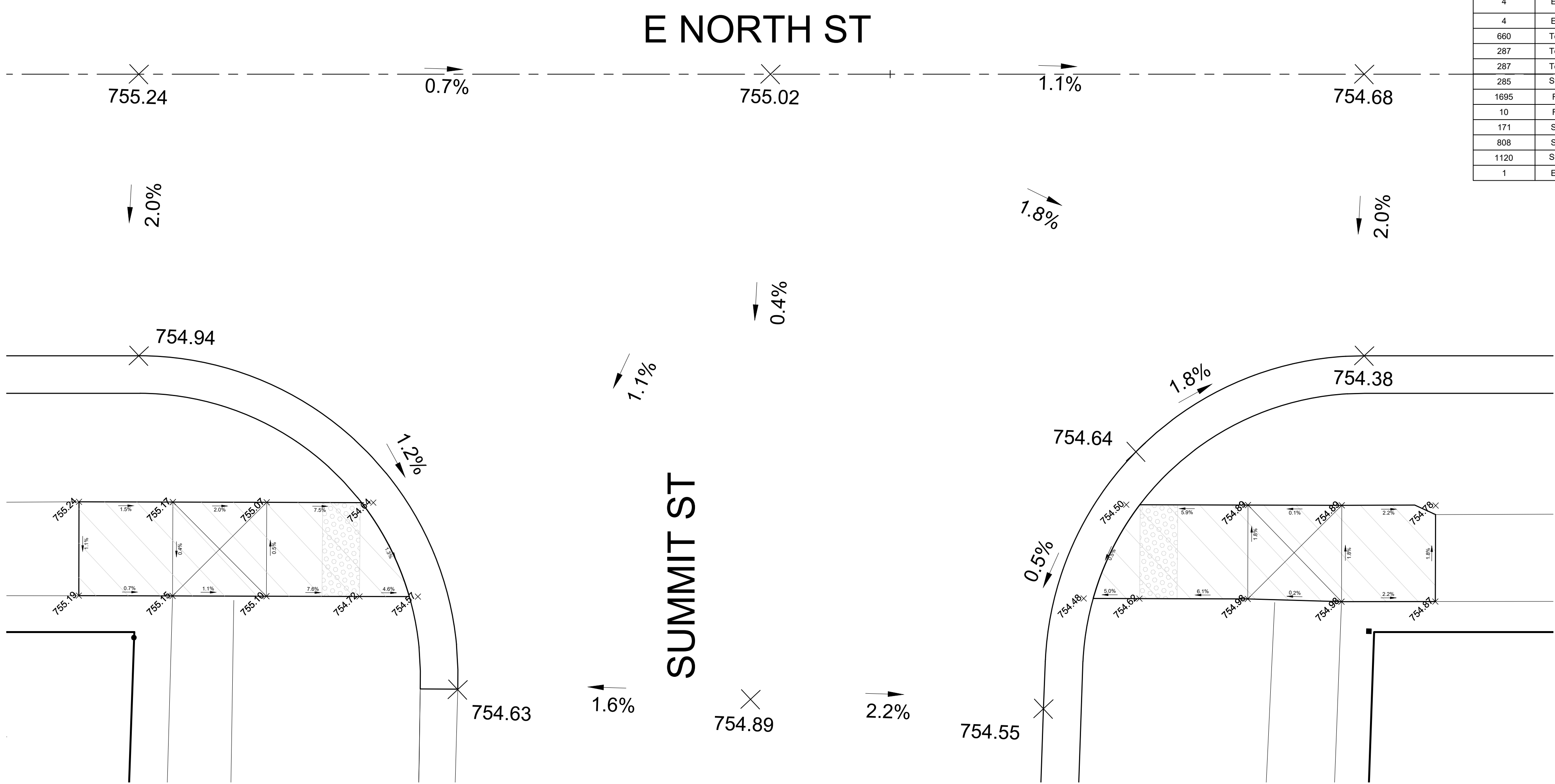
NR4



E NORTH ST
CONSTRUCTION PLAN

REMOVING ABANDONED WATER MAIN PIPE TO PLACE PROPOSED DRAINAGE STRUCTURES SHALL BE PAID FOR AS PART OF THE DRAINAGE STRUCTURE ITEM. BULKHEADING AND FILLING THE ABANDON WATER MAIN WILL BE PAID FOR SEPARATELY.

CONSTRUCTION QUANTITIES (THIS SHEET)		
QUANTITY	UNIT	WORK ITEM
440	Cyd	Embankment, CIP
55	Cyd	Subbase, CIP
565	Syd	Aggregate Base, 6 inch, Modified
3130	Syd	Aggregate Base, 8 inch, Modified
3695	Syd	Geotextile, Separator, Modified
6	Ea	Dr Structure Cover, Adj, Case 1
4	Ea	Dr Structure Cover, Type EJ 1040 w/ Solid Gasket Sealed Cover
4	Ea	Dr Structure Collar, Modified
660	Ton	HMA, 2C
287	Ton	HMA, 4E3
287	Ton	HMA, 5E3
285	Syd	Driveway, Nonreinf Conc, 6 inch
1695	Ft	Curb and Gutter, Conc, Det F4, Modified
10	Ft	Detectable Warning Surface, Modified
171	Sft	Sidewalk Ramp, Conc, 7 inch
808	Sft	Sidewalk, Conc, 6 inch
1120	Syd	Turf Establishment, Performance
1	Ea	Valve Box, Adj



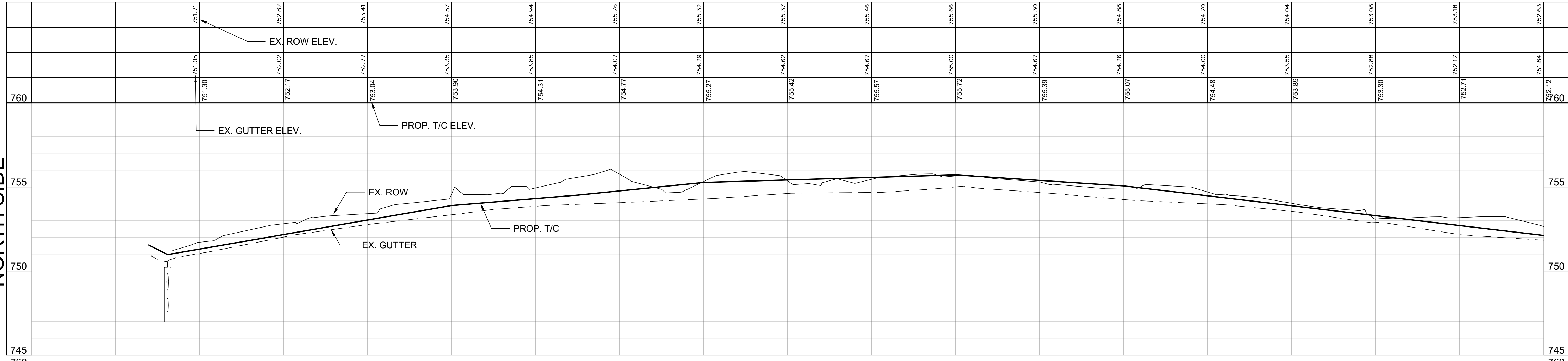
SIDEWALK RAMPS AT SUMMIT ST

- LEGEND**
- Curb and Gutter, Conc, Det F4, Modified
 - Sewer, SDR-26, ___ inch, Tr Det B, Modified
 - HMA / HMA Approach
 - Driveway, Nonreinf, Conc, ___ inch
 - Aggregate Approach, ___ inch
 - Sidewalk, Conc, ___ inch
 - Sidewalk, Ramp, Conc, ___ inch
 - STANDARD SOIL EROSION KEY

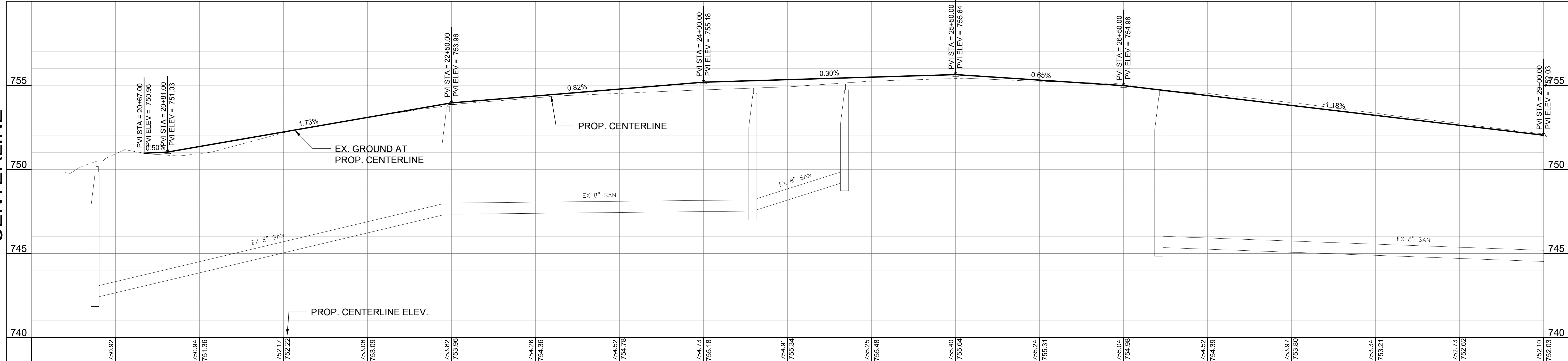
- LEGEND**
- Curb and Gutter Removal and Replacement
 - Detectable Warning Surface, Modified
 - Sidewalk Pay Item
 - Sidewalk Ramp Pay Item
 - Landing Area

NO.	REVISIONS	DATE	BY	BENCHMARK DATA		APPROVED BY
				ELEV.	DESCRIPTION	

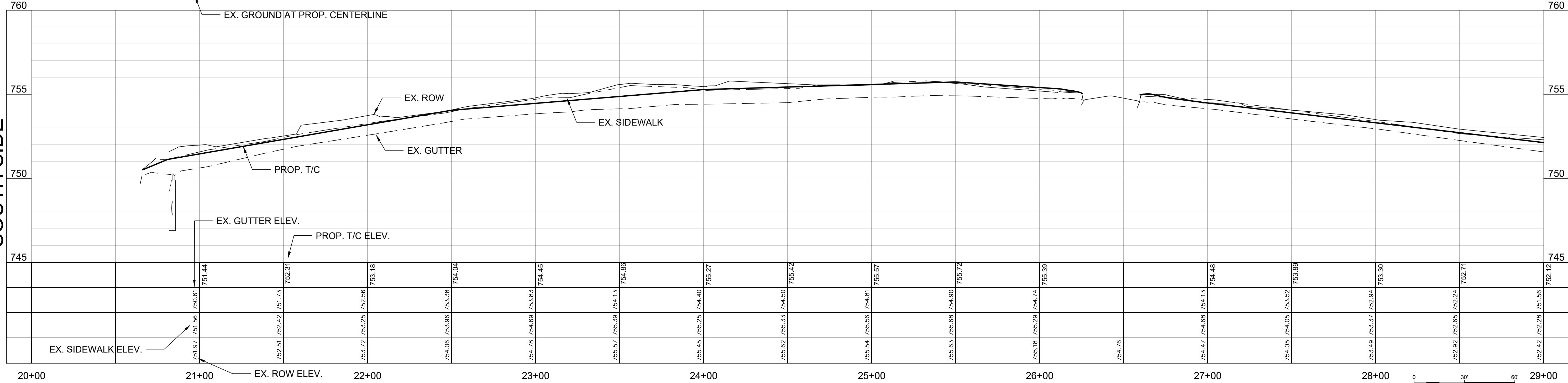
NORTH SIDE



CENTERLINE



SOUTH SIDE



BENCHMARK DATA		REVISIONS		APPROVED BY	
ELEV.	DESCRIPTION	NO.	DATE	CHECKED BY	ORIGINAL PLAN

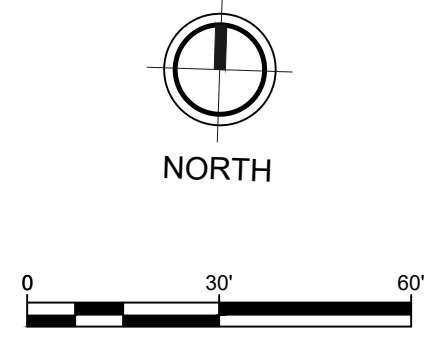
2020 STREET PROGRAM CONTRACT 1
 DWRP PROJECT NUMBER 7457-01 PHASE 1
 E NORTH STREET
 ROAD PROFILE

DATE PROJECT NO.
 FIELD BOOK PG.

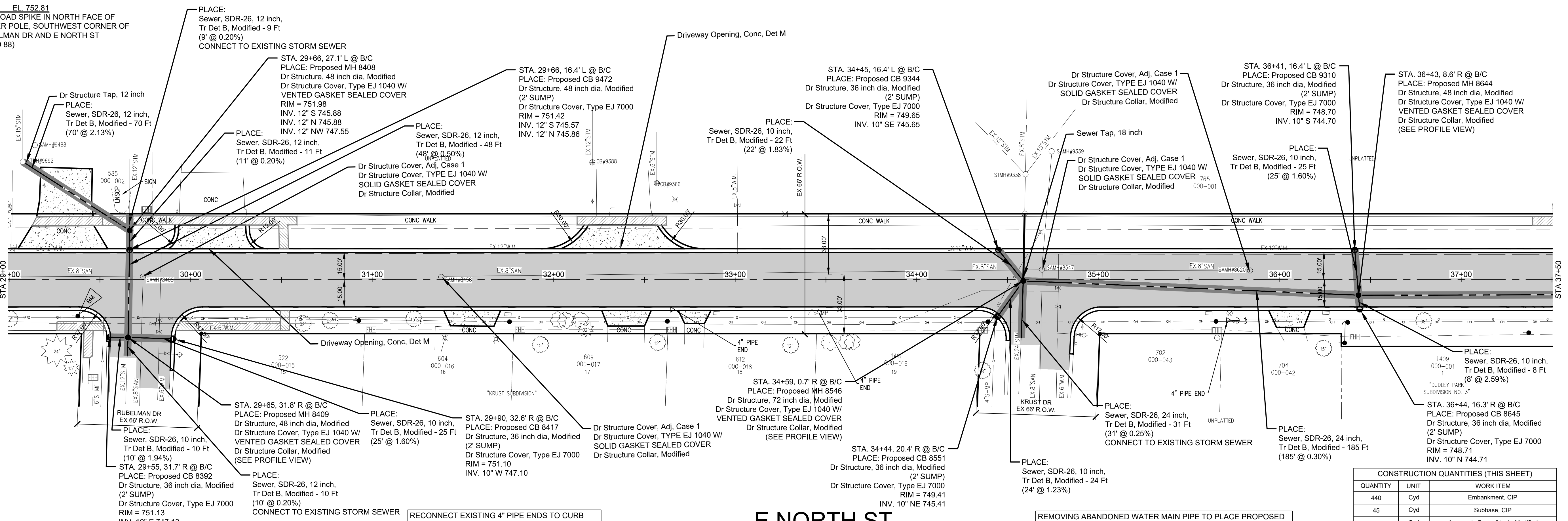
CITY OF OWOSSO, MICHIGAN
 ENGINEERING DIVISION
 DEPT. OF PUBLIC SERVICE

NR6

BM EL. 752.81
RAILROAD SPIKE IN NORTH FACE OF
POWER POLE, SOUTHWEST CORNER OF
RUBELMAN DR AND E NORTH ST
(NAVD 88)



CITY OF OWOSSO, MICHIGAN
ENGINEERING DIVISION
DEPT. OF PUBLIC SERVICE



E NORTH ST CONSTRUCTION PLAN

- LEGEND**
- Curb and Gutter, Conc, Det F4, Modified
 - Sewer, SDR-26, ___ inch, Tr Det B, Modified
 - HMA / HMA Approach
 - Driveway, Nonreinf, Conc, ___ inch
 - Aggregate Approach, ___ inch
 - Sidewalk, Conc, ___ inch
 - Sidewalk, Ramp, Conc, ___ inch
 - STANDARD SOIL EROSION KEY

RECONNECT EXISTING 4" PIPE ENDS TO CURB
HEAD USING 4" SDR-26 PIPE AND A FERNOCO
COUPLING. NOT TO BE PAID FOR SEPARATELY
BUT AS PART OF CURB AND GUTTER ITEM.

REMOVING ABANDONED WATER MAIN PIPE TO PLACE PROPOSED
DRAINAGE STRUCTURES SHALL BE PAID FOR AS PART OF THE
DRAINAGE STRUCTURE ITEM. BULKHEAD AND FILLING THE
ABANDON WATER MAIN WILL BE PAID FOR SEPARATELY.

CONSTRUCTION QUANTITIES (THIS SHEET)

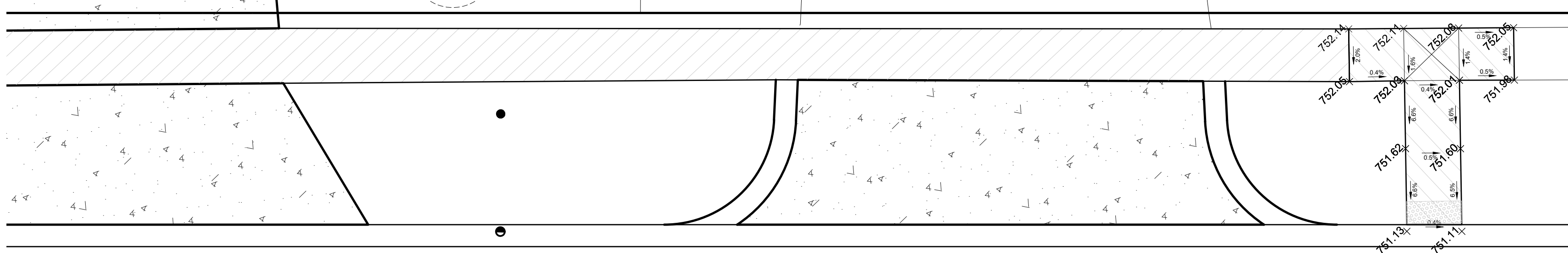
QUANTITY	UNIT	WORK ITEM
440	Cyd	Embankment, CIP
45	Cyd	Subbase, CIP
567	Syd	Aggregate Base, 6 inch, Modified
3077	Syd	Aggregate Base, 8 inch, Modified
3644	Syd	Geotextile, Separator, Modified
1	Ea	Sewer Tap, 18 inch
115	Ft	Sewer, SDR-26, 10 inch, Tr Det B, Modified
148	Ft	Sewer, SDR-26, 12 inch, Tr Det B, Modified
325	Ft	Sewer, SDR-26, 24 inch, Tr Det B, Modified
4	Ea	Dr Structure Cover, Adj, Case 1
6	Ea	Dr Structure, Tap, 12 inch
4	Ea	Dr Structure, 36 inch dia, Modified
4	Ea	Dr Structure, 48 inch dia, Modified
1	Ea	Dr Structure, 72 inch dia, Modified
4	Ea	Dr Structure Cover, Type EJ 1040 w/ Vented Gasket Sealed Cover
7	Ea	Dr Structure Cover, Type EJ 7000
4	Ea	Dr Structure Cover, Type EJ 1040 w/ Solid Gasket Sealed Cover
7	Ea	Dr Structure Collar, Modified
650	Ton	HMA, 2C
279	Ton	HMA, 4E3
279	Ton	HMA, 5E3
354	Syd	Driveway, Nonreinf Conc, 6 inch
1700	Ft	Curb and Gutter, Conc, Det F4
152	Ft	Driveway Opening, Conc, Det M
20	Ft	Detectable Warning Surface, Modified
303	Sft	Sidewalk Ramp, Conc, 7 inch
551	Sft	Sidewalk, Conc, 4 inch
713	Sft	Sidewalk, Conc, 6 inch
1136	Syd	Turf Establishment, Performance

NO.	REVISIONS	DATE	BY

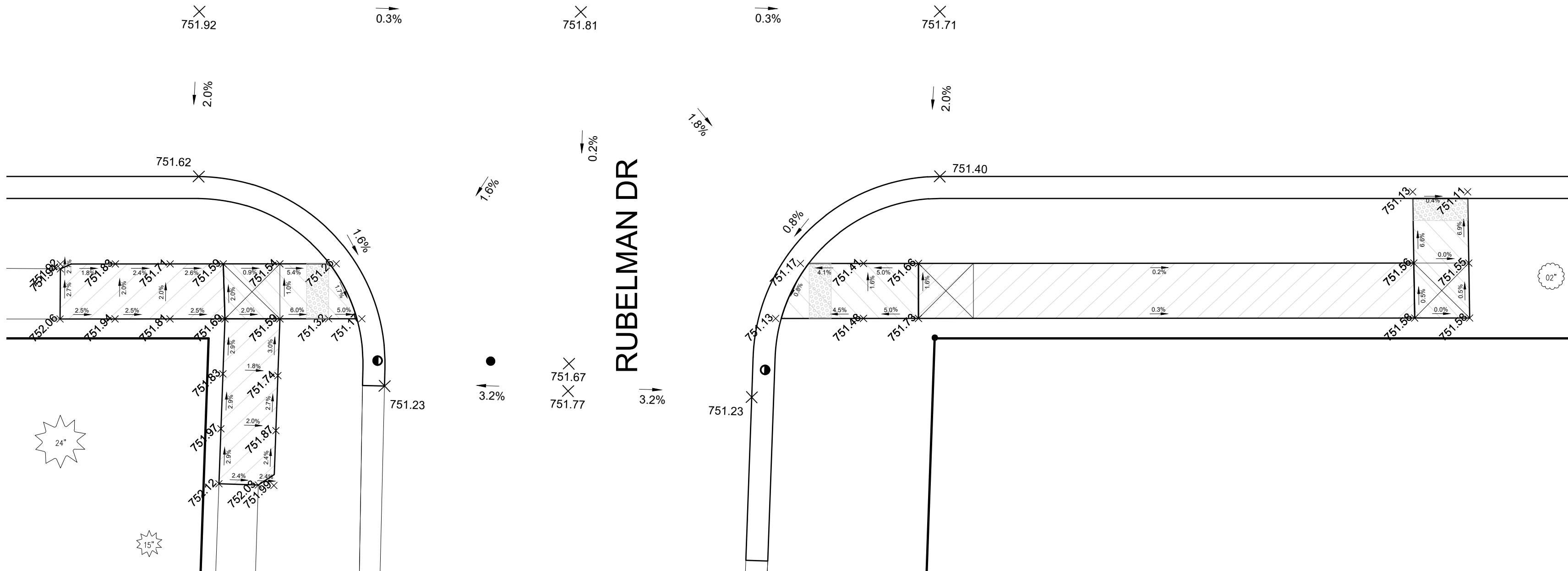
BENCHMARK DATA	DESCRIPTION	ELEV.

ORIGINAL PLAN
CHECKED BY
APPROVED BY

- LEGEND**
- Curb and Gutter Removal and Replacement
 - Detectable Warning Surface, Modified
 - Sidewalk Pay Item
 - Sidewalk Ramp Pay Item
 - Landing Area

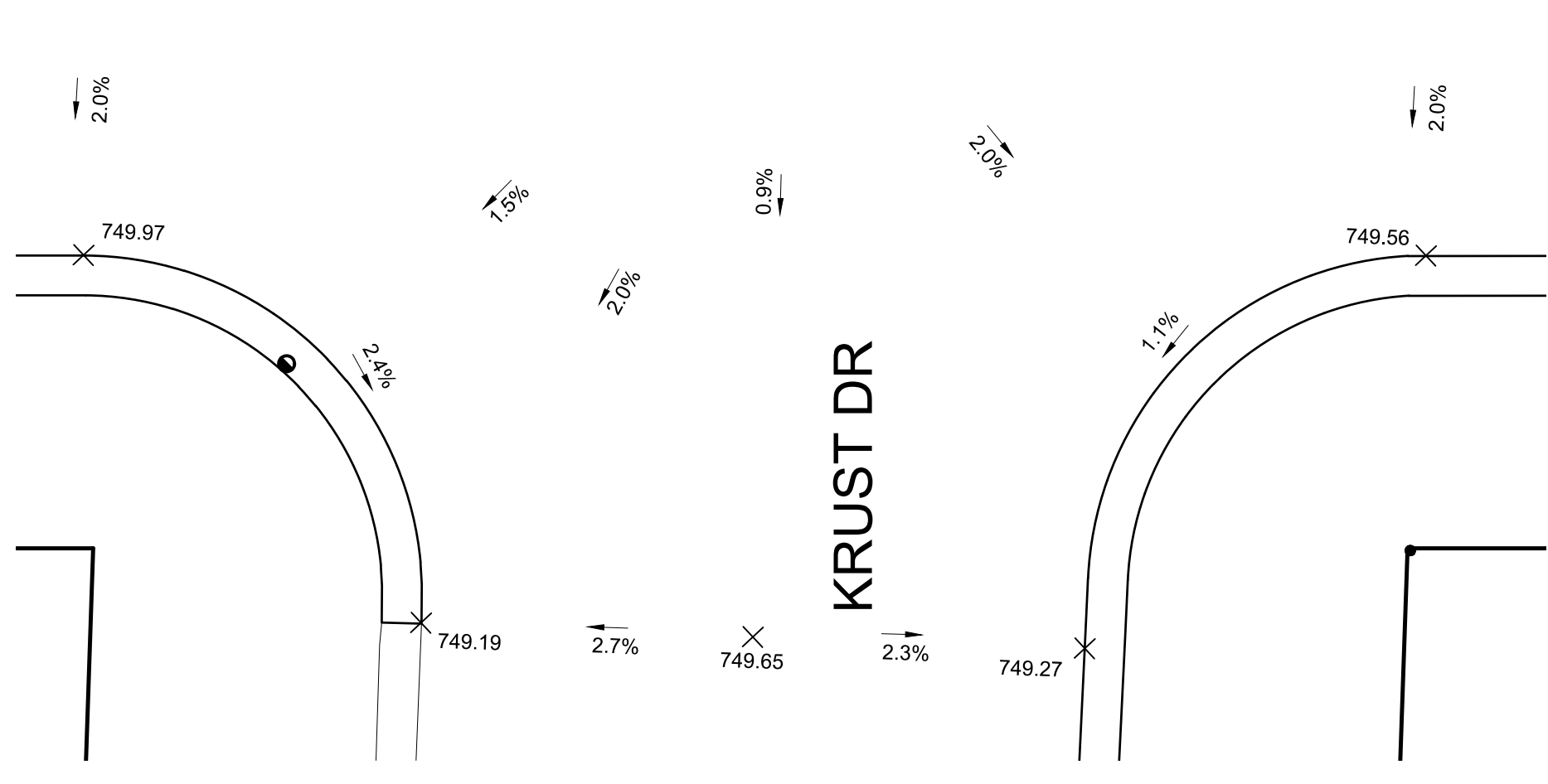


E NORTH ST



SIDEWALK RAMP AT RUBELMAN DR

E NORTH ST



INTERSECTION DETAIL AT KRUST DR

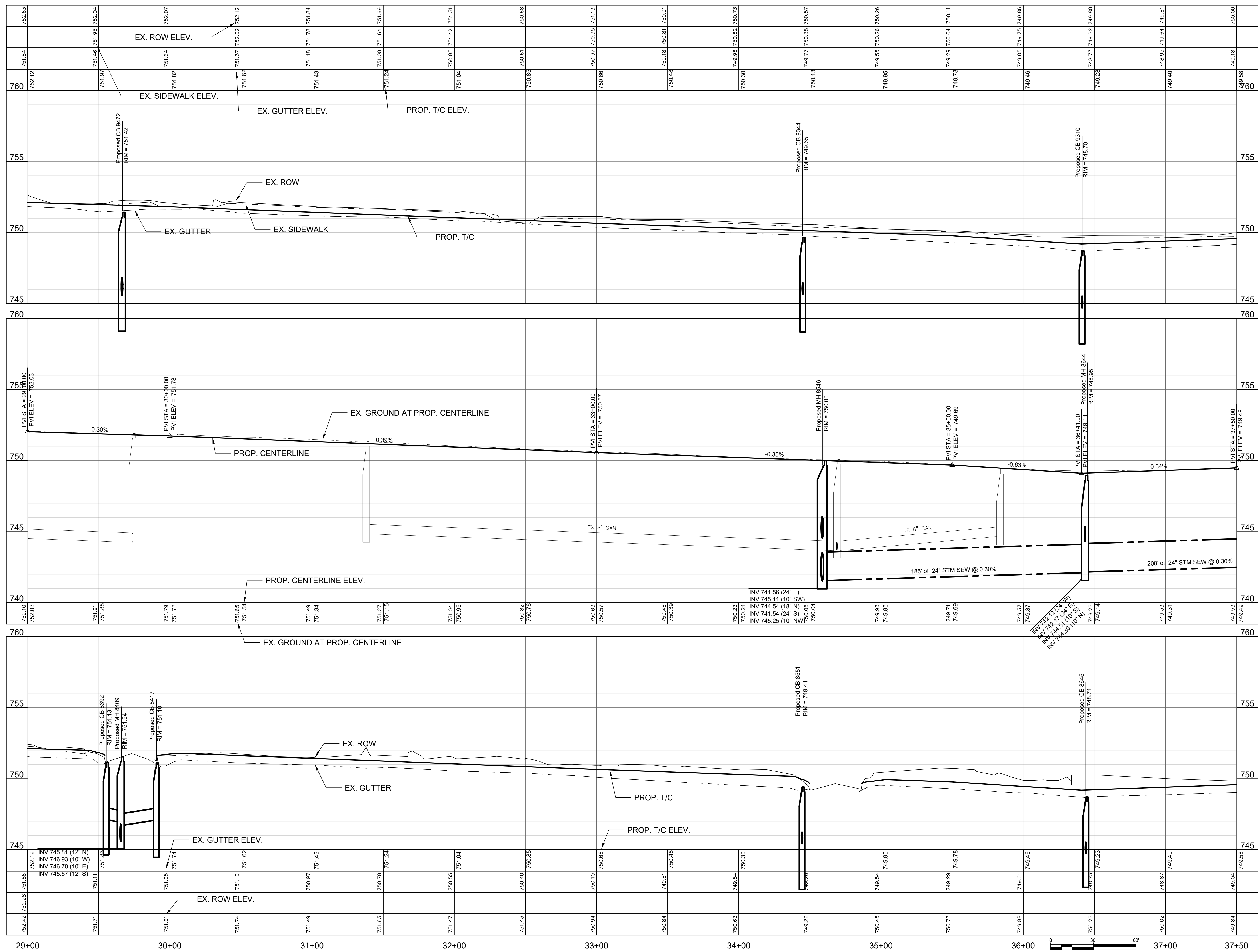
2020 STREET PROGRAM CONTRACT 1
DWRP PROJECT NUMBER 7457-01 PHASE 1
E NORTH STREET
ROAD PLAN

DATE PROJECT NO.
FIELD BOOK PG.
NR7

NORTH SIDE

CENTERLINE

SOUTH SIDE



CITY OF OWOSSO, MICHIGAN
 ENGINEERING DIVISION
 DEPT. OF PUBLIC SERVICE

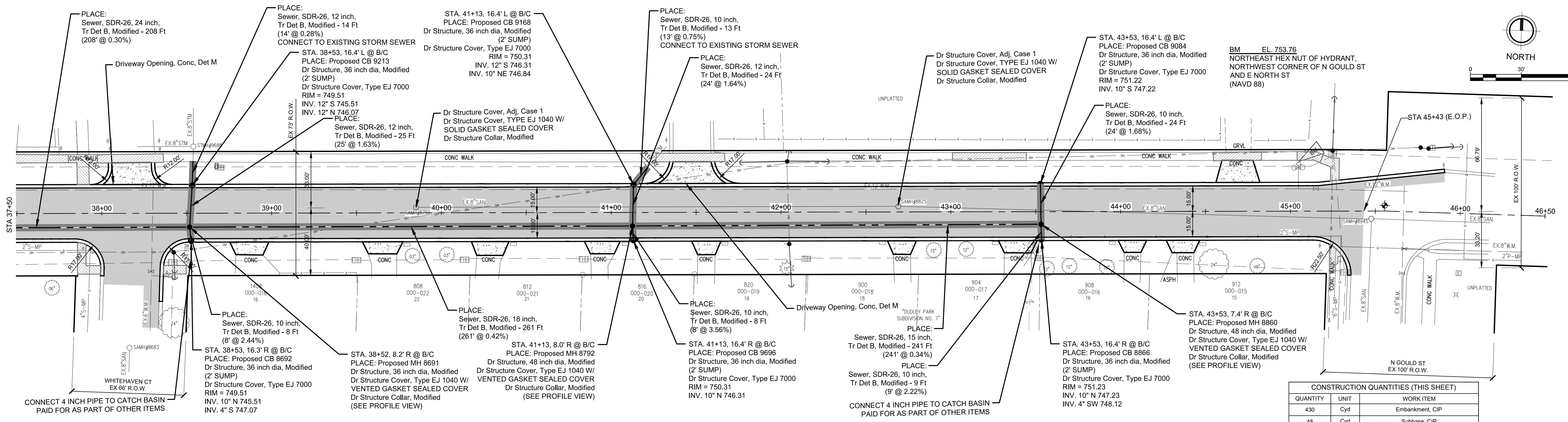
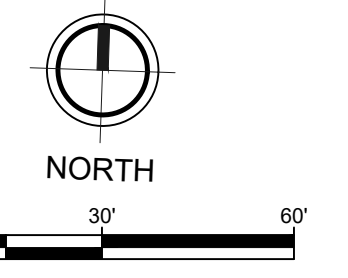
NO.	REVISIONS	DATE	BY

BENCHMARK DATA	DESCRIPTION
ELEV.	

2020 STREET PROGRAM CONTRACT 1
 DWRP PROJECT NUMBER 7457-01 PHASE 1
 E NORTH STREET
 ROAD PROFILE

DATE PROJECT NO. FIELD BOOK PG.

NR8



E NORTH ST
CONSTRUCTION PLAN

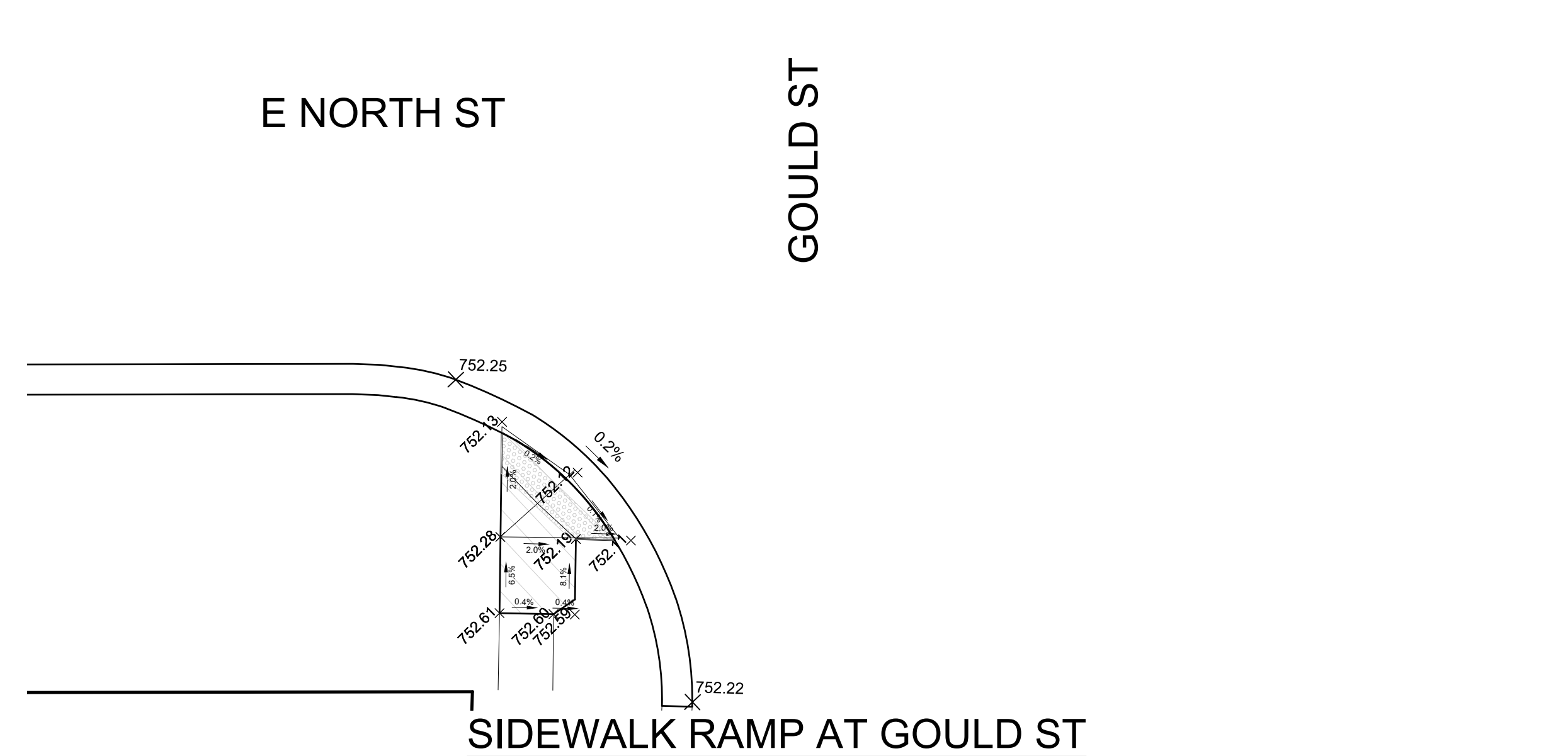
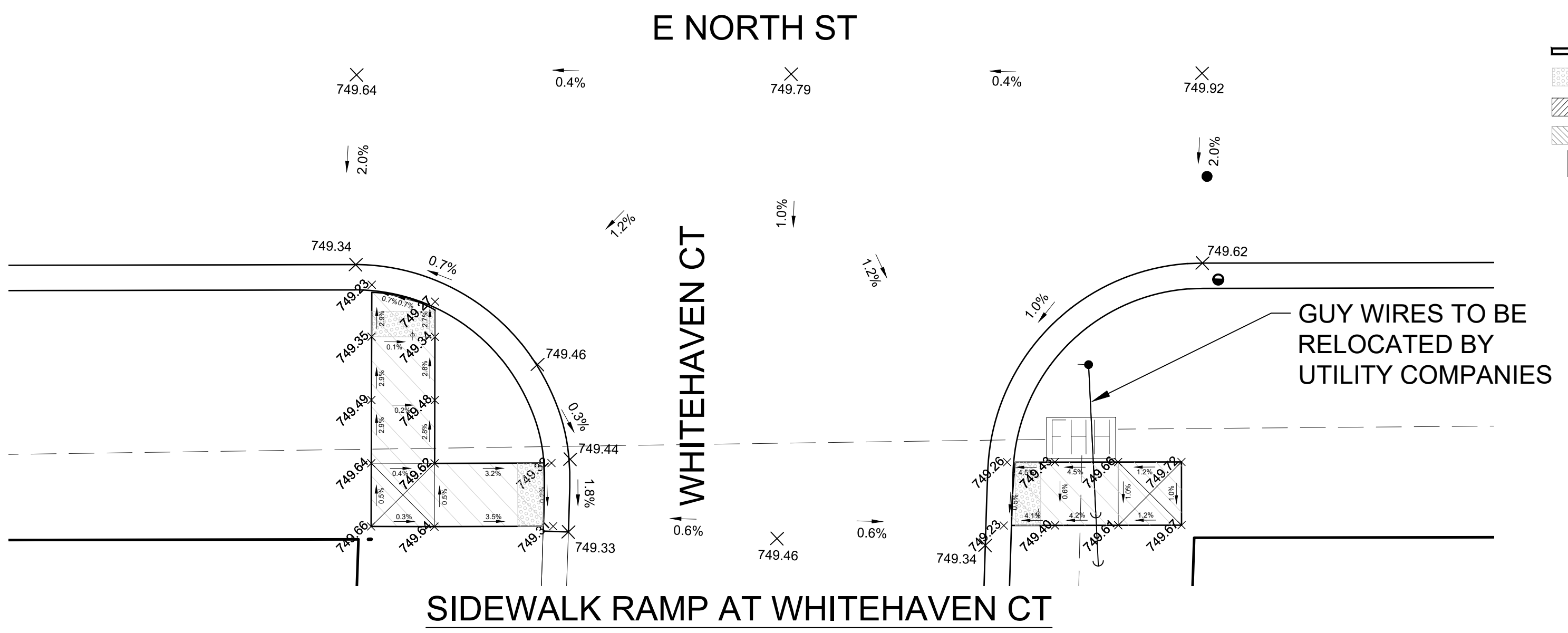
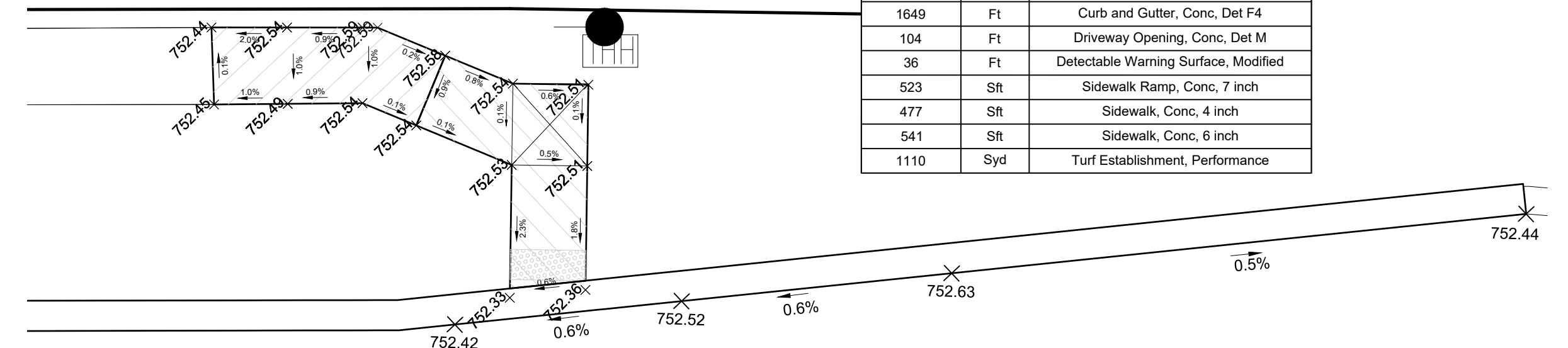
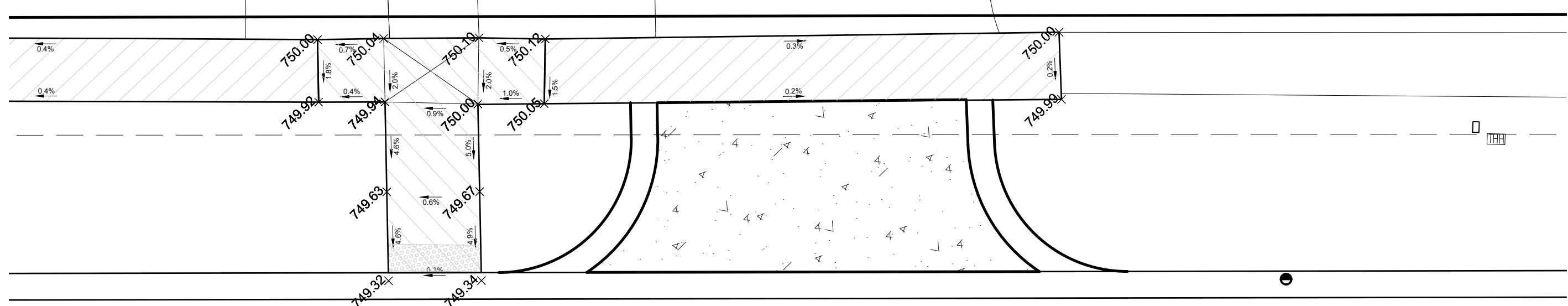
CONSTRUCTION QUANTITIES (THIS SHEET)

QUANTITY	UNIT	WORK ITEM
430	Cyd	Embankment, CIP
48	Cyd	Subbase, CIP
550	Syd	Aggregate Base, 6 inch, Modified
2875	Syd	Aggregate Base, 8 inch, Modified
3425	Syd	Geotextile, Separator, Modified
38	Ft	Sewer, SDR-26, 10 inch, Tr Det B, Modified
88	Ft	Sewer, SDR-26, 12 inch, Tr Det B, Modified
241	Ft	Sewer, SDR-26, 15 inch, Tr Det B, Modified
261	Ft	Sewer, SDR-26, 18 inch, Tr Det B, Modified
102	Ft	Sewer, SDR-26, 24 inch, Tr Det B, Modified
2	Ea	Dr Structure Cover, Adj, Case 1
6	Ea	Dr Structure, 36 inch dia, Modified
3	Ea	Dr Structure, 48 inch dia, Modified
3	Ea	Dr Structure Cover, Type EJ 1040 w/ Vented Gasket Sealed Cover
6	Ea	Dr Structure Cover, Type EJ 7000
2	Ea	Dr Structure Cover, Type EJ 1040 w/ Solid Gasket Sealed Cover
5	Ea	Dr Structure Collar, Modified
613	Ton	HMA, 2C
258	Ton	HMA, 4E3
258	Ton	HMA, 5E3
236	Syd	Driveway, Nonrein Conc, 6 inch
1649	Ft	Curb and Gutter, Conc, Det F4
104	Ft	Driveway Opening, Conc, Det M
36	Ft	Detectable Warning Surface, Modified
523	Sft	Sidewalk Ramp, Conc, 7 inch
477	Sft	Sidewalk, Conc, 4 inch
541	Sft	Sidewalk, Conc, 6 inch
1110	Syd	Turf Establishment, Performance

- LEGEND**
- Curb and Gutter, Conc, Det F4, Modified
 - Sewer, SDR-26, __ inch, Tr Det B, Modified
 - HMA / HMA Approach
 - Driveway, Nonrein, Conc, __ inch
 - Aggregate Approach, __ inch
 - Sidewalk, Conc, __ inch
 - Sidewalk, Ramp, Conc, __ inch
 - STANDARD SOIL EROSION KEY

RECONNECT EXISTING 4" PIPE ENDS TO CURB HEAD USING 4" SDR-26 PIPE AND A FERNCO COUPLING. NOT TO BE PAID FOR SEPARATELY BUT AS PART OF CURB AND GUTTER ITEM.

REMOVING ABANDONED WATER MAIN PIPE TO PLACE PROPOSED DRAINAGE STRUCTURES SHALL BE PAID FOR AS PART OF THE DRAINAGE STRUCTURE ITEM. BULKHEADING AND FILLING THE ABANDON WATER MAIN WILL BE PAID FOR SEPARATELY.

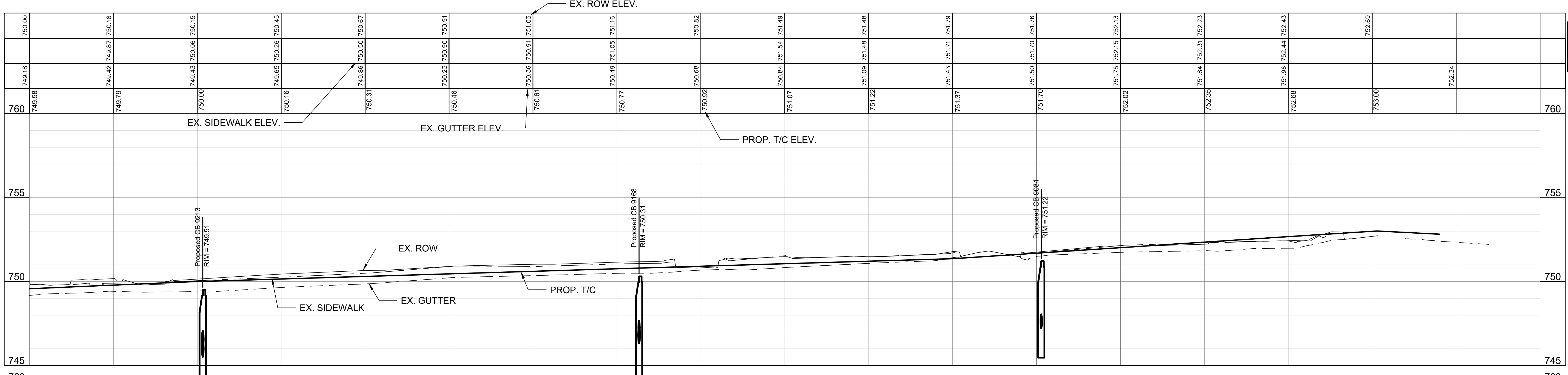


- LEGEND**
- Curb and Gutter Removal and Replacement
 - Detectable Warning Surface, Modified
 - Sidewalk Pay Item
 - Sidewalk Ramp Pay Item
 - Landing Area

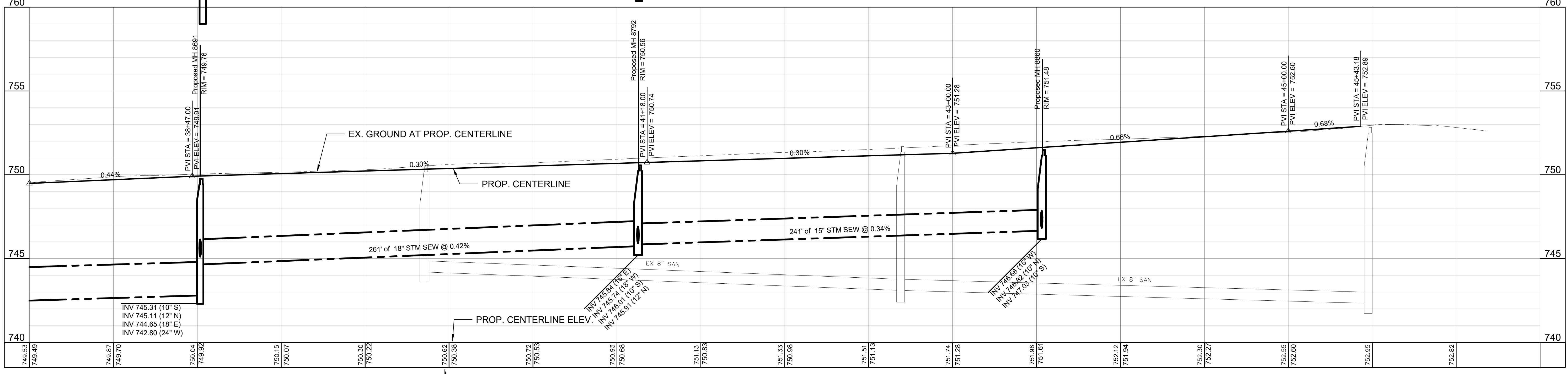
NO.	REVISIONS	DATE	BY

BENCHMARK DATA	DESCRIPTION	ELEV.

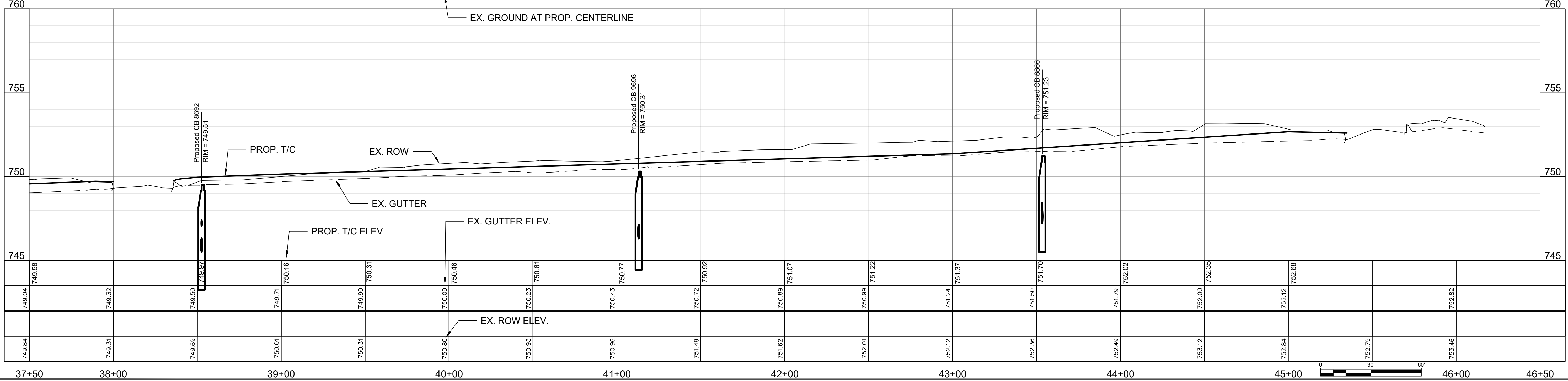
NORTH SIDE



CENTERLINE



SOUTH SIDE



CITY OF OWOSSO, MICHIGAN
ENGINEERING DIVISION
DEPT. OF PUBLIC SERVICE

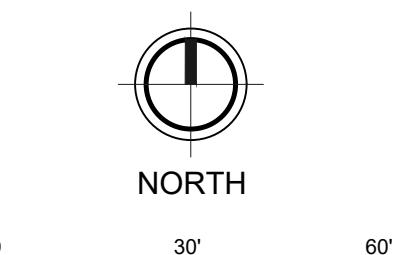
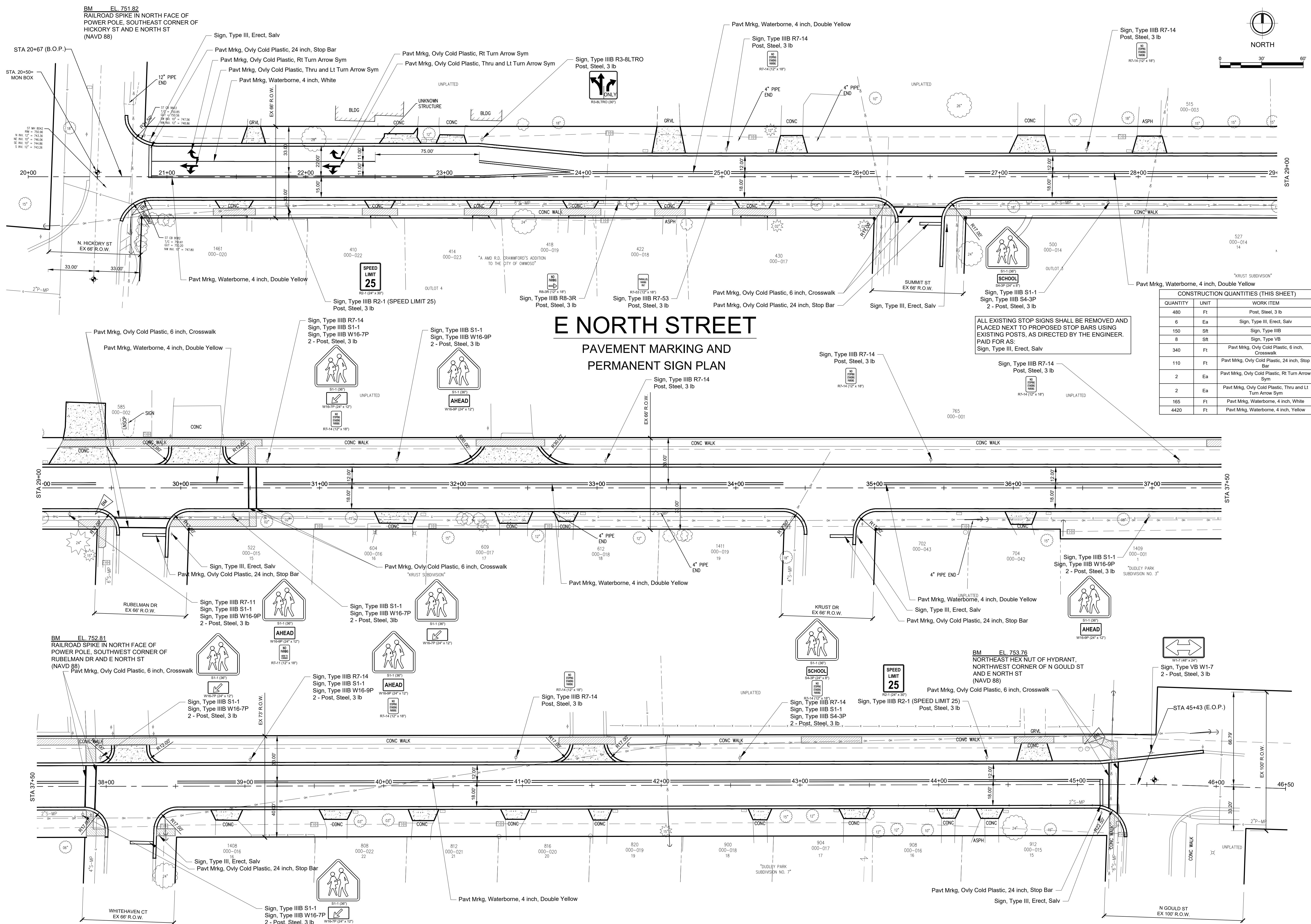
2020 STREET PROGRAM CONTRACT 1
DWRP PROJECT NUMBER 7457-01 PHASE 1
E NORTH STREET
ROAD PROFILE

NR10

BENCHMARK DATA	REVISIONS	DATE	BY
ELEV.	NO.		
DESCRIPTION			

DATE PROJECT NO. FIELD BOOK PG.

CHECKED BY ORIGINAL PLAN APPROVED BY



CONSTRUCTION QUANTITIES (THIS SHEET)

QUANTITY	UNIT	WORK ITEM
480	Ft	Post, Steel, 3 lb
6	Ea	Sign, Type III, Erect, Salv
150	SR	Sign, Type IIIB
8	SR	Sign, Type VB
340	Ft	Pavt Mrkg, Ovlv Cold Plastic, 6 inch, Crosswalk
110	Ft	Pavt Mrkg, Ovlv Cold Plastic, 24 inch, Stop Bar
2	Ea	Pavt Mrkg, Ovlv Cold Plastic, Rt Turn Arrow Sym
2	Ea	Pavt Mrkg, Ovlv Cold Plastic, Thru and Lt Turn Arrow Sym
165	Ft	Pavt Mrkg, Waterborne, 4 inch, White
4420	Ft	Pavt Mrkg, Waterborne, 4 inch, Yellow

ALL EXISTING STOP SIGNS SHALL BE REMOVED AND PLACED NEXT TO PROPOSED STOP BARS USING EXISTING POSTS, AS DIRECTED BY THE ENGINEER. PAID FOR AS:
Sign, Type III, Erect, Salv

E NORTH STREET

PAVEMENT MARKING AND PERMANENT SIGN PLAN

NO.	REVISIONS	DATE	BY

BENCHMARK DATA	DESCRIPTION
ELEV.	

2020 STREET PROGRAM CONTRACT 1
DWRP PROJECT NUMBER 7457-01 PHASE 1

E NORTH STREET
PAVEMENT MARKING & PERMANENT SIGN PLAN

DATE PROJECT NO.
FIELD BOOK PG.

NR11

CHECKED BY: _____
APPROVED BY: _____



Construction Testing Services
 3300 E. Bristol Road, Burton, MI 48529
 PHONE: (810) 603-0766
 FAX: (810) 603-0786

JOB NO. S-18-245 LOG OF SOIL BORING NO. 14
 PROJECT: City of Owosso 2019 Street Program
 LOCATION: Owosso, Michigan
 DATE: 9/17/18 SURFACE ELEVATION: Existing

Sample & Type	Depth	Legend	Soil Description	SPT Blows per ft.	Moisture %	Natural Wt. P.C.F.	UWC Comp. Strength	Str. %
	1		8" Asphalt					
14A SS	2		1'4" Sand - Medium Compact, Moist, Brown w/Gravel	2				
	3		Clay - Firm, Moist, Variegated w/Green Tint & occ/Pebble	3				
14B SS	4		4'0" Clay - Stiff, Moist, Sandy, Variegated w/occ Pebble	3				
	5		Clay - Stiff, Moist, Sandy, Variegated w/occ Pebble	4				
14C SS	6		6'0" Clay - Very Stiff, Moist, Sandy, Brown w/occ Pebble	7				
	7		7'0" End of Boring	8				
	8			11				
	9							
	10							
	11							
	12							
	13							
	14							
	15							
	16							
	17							
	18							
	19							
	20							
	21							

TYPE OF SAMPLE
 D - DISTURBED
 U.L. - UNDIST. LINER
 S.T. - SHELBY TUBE
 S.S. - SPLIT SPOON
 R.C. - ROCK CORE
 OTHER -

BORING PLUGGED WITH NATURAL SOIL
 * The soil descriptions shown on the logs are from visual observations. No classification tests were performed.
 Standard Penetration Test - Driving 2" OD Sampler 1" With 140# Hammer Falling 30"; Count Made At 6" Intervals.

GROUND WATER OBSERVATIONS
 G.W. ENCOUNTERED AT FT. INS.
 G.W. ENCOUNTERED AT FT. INS.
 G.W. ON COMPLETION FT. INS.
 G.W. AFTER HOURS FT. INS.
 G.W. VOLUMES None



Construction Testing Services
 3300 E. Bristol Road, Burton, MI 48529
 PHONE: (810) 603-0766
 FAX: (810) 603-0786

JOB NO. S-18-245 LOG OF SOIL BORING NO. 15
 PROJECT: City of Owosso 2019 Street Program
 LOCATION: Owosso, Michigan
 DATE: 9/17/18 SURFACE ELEVATION: Existing

Sample & Type	Depth	Legend	Soil Description	SPT Blows per ft.	Moisture %	Natural Wt. P.C.F.	UWC Comp. Strength	Str. %
	1		9" Asphalt					
15A SS	2		1'6" Sand - Medium Compact, Moist, Brown w/Gravel	1				
	3			2				
	4			4				
15B SS	5		Clay - Firm to Stiff, Moist, Sandy, Variegated	3				
	6			4				
15C SS	7		7'0" End of Boring	3				
	8			5				
	9			6				
	10			6				
	11							
	12							
	13							
	14							
	15							
	16							
	17							
	18							
	19							
	20							
	21							

TYPE OF SAMPLE
 D - DISTURBED
 U.L. - UNDIST. LINER
 S.T. - SHELBY TUBE
 S.S. - SPLIT SPOON
 R.C. - ROCK CORE
 OTHER -

BORING PLUGGED WITH NATURAL SOIL
 * The soil descriptions shown on the logs are from visual observations. No classification tests were performed.
 Standard Penetration Test - Driving 2" OD Sampler 1" With 140# Hammer Falling 30"; Count Made At 6" Intervals.

GROUND WATER OBSERVATIONS
 G.W. ENCOUNTERED AT FT. INS.
 G.W. ENCOUNTERED AT FT. INS.
 G.W. ON COMPLETION FT. INS.
 G.W. AFTER HOURS FT. INS.
 G.W. VOLUMES None



Construction Testing Services
 3300 E. Bristol Road, Burton, MI 48529
 PHONE: (810) 603-0766
 FAX: (810) 603-0786

JOB NO. S-18-245 LOG OF SOIL BORING NO. 16
 PROJECT: City of Owosso 2019 Street Program
 LOCATION: Owosso, Michigan
 DATE: 9/17/18 SURFACE ELEVATION: Existing

Sample & Type	Depth	Legend	Soil Description	SPT Blows per ft.	Moisture %	Natural Wt. P.C.F.	UWC Comp. Strength	Str. %
	1		8" Asphalt - Lower 4" Deteriorated					
16A SS	2		1'2" Sand - Medium Compact, Moist, Brown w/Gravel	2				
	3		Clay - Firm, Moist, Sandy, Variegated w/Green Tint, Possible Swamp Bottom	3				
	4			5				
16B SS	5		4'0" Sand - Loose, Wet, Dark Brown	1				
	6		Clay - Soft, Moist, Variegated w/Green Tint, Possible Swamp Bottom	1				
16C SS	7		6'3" Clay - Stiff, Moist, Sandy, Variegated w/Green Tint & Organics, Possible Swamp Bottom	2				
	8		7'0" End of Boring	3				
	9			6				
	10							
	11							
	12							
	13							
	14							
	15							
	16							
	17							
	18							
	19							
	20							
	21							

TYPE OF SAMPLE
 D - DISTURBED
 U.L. - UNDIST. LINER
 S.T. - SHELBY TUBE
 S.S. - SPLIT SPOON
 R.C. - ROCK CORE
 OTHER -

BORING PLUGGED WITH NATURAL SOIL
 * The soil descriptions shown on the logs are from visual observations. No classification tests were performed.
 Standard Penetration Test - Driving 2" OD Sampler 1" With 140# Hammer Falling 30"; Count Made At 6" Intervals.

GROUND WATER OBSERVATIONS
 G.W. ENCOUNTERED AT FT. INS.
 G.W. ENCOUNTERED AT FT. INS.
 G.W. ON COMPLETION FT. INS.
 G.W. AFTER HOURS FT. INS.
 G.W. VOLUMES None



Construction Testing Services
 3300 E. Bristol Road, Burton, MI 48529
 PHONE: (810) 603-0766
 FAX: (810) 603-0786

JOB NO. S-18-245 LOG OF SOIL BORING NO. 17
 PROJECT: City of Owosso 2019 Street Program
 LOCATION: Owosso, Michigan
 DATE: 9/17/18 SURFACE ELEVATION: Existing

Sample & Type	Depth	Legend	Soil Description	SPT Blows per ft.	Moisture %	Natural Wt. P.C.F.	UWC Comp. Strength	Str. %
	1		8" Asphalt - Lower 2" Deteriorated					
17A SS	2		1'2" Sand - Medium Compact, Moist, Brown w/Gravel	2				
	3		Clay - Stiff, Moist, Variegated w/Green Tint, Possible Swamp Bottom	3				
	4			6				
17B SS	5		4'0" Clay - Very Stiff, Moist, Variegated w/Pebble	5				
	6			8				
17C SS	7		6'0" Clay - Extremely Stiff, Moist, Brown w/Pebble	1				
	8		7'0" End of Boring	10				
	9			10				
	10							
	11							
	12							
	13							
	14							
	15							
	16							
	17							
	18							
	19							
	20							
	21							

TYPE OF SAMPLE
 D - DISTURBED
 U.L. - UNDIST. LINER
 S.T. - SHELBY TUBE
 S.S. - SPLIT SPOON
 R.C. - ROCK CORE
 OTHER -

BORING PLUGGED WITH NATURAL SOIL
 * The soil descriptions shown on the logs are from visual observations. No classification tests were performed.
 Standard Penetration Test - Driving 2" OD Sampler 1" With 140# Hammer Falling 30"; Count Made At 6" Intervals.

GROUND WATER OBSERVATIONS
 G.W. ENCOUNTERED AT FT. INS.
 G.W. ENCOUNTERED AT FT. INS.
 G.W. ON COMPLETION FT. INS.
 G.W. AFTER HOURS FT. INS.
 G.W. VOLUMES None

CITY OF OWOSSO, MICHIGAN
 ENGINEERING DIVISION
 DEPT. OF PUBLIC SERVICE

NO.	REVISIONS	DATE	BY

BENCHMARK DATA
 ELEV. DESCRIPTION

2020 STREET PROGRAM CONTRACT 1
 DWRF PROJECT NUMBER 7457-01 PHASE 1
 E NORTH STREET
 SOIL BORINGS

DATE PROJECT NO.
 FIELD BOOK PG.

NR12

E NORTH STREET WATER MAIN CITY OF OWOSSO 2020 STREET PROGRAM CONTRACT 1

SHEET NO.	DESCRIPTION
NR13	E NORTH ST - WATER MAIN COVER SHEET & TRAFFIC CONTROL PLAN
NR14 - NR18	E NORTH ST - WATER MAIN PLAN AND PROFILE

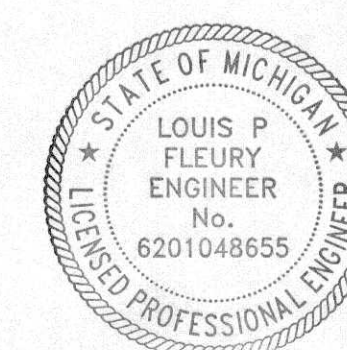
SIGNING REQUIREMENTS				
NO.	SIGN	SIGN DESIGNATION	SIZE	NO. REQ.
1		W20-2A	48 x 48	3
2		W20-3	48 x 48	7
3		R11-3A	60 x 30	6
4		M4-8 MOD	30 x 8	18
5		M4-8A	24 x 18	2
6		M4-9L	30 x 24	4
7		M4-9S	30 x 24	3
8		M4-9R	30 x 24	3
9		M4-10L	48 x 18	1
10		M4-10R	48 x 18	1
11		TYPE III BARRICADE		12
12	PCMB*	PORTABLE CHANGEABLE MESSAGE BOARD		1

*ENGINEER TO PROVIDE MESSAGE SEQUENCE AND PLACEMENT DATE AT PRE-CONSTRUCTION MEETING

THE MATERIAL AND METHODS FOR WATER MAIN CONSTRUCTION CONFORM TO THE STANDARDS OF THE AMERICAN WATER WORKS ASSOCIATION (AWWA).

CONTRACT FOR: 0.47 MILES OF WATER MAIN AND SERVICES REPLACEMENT.

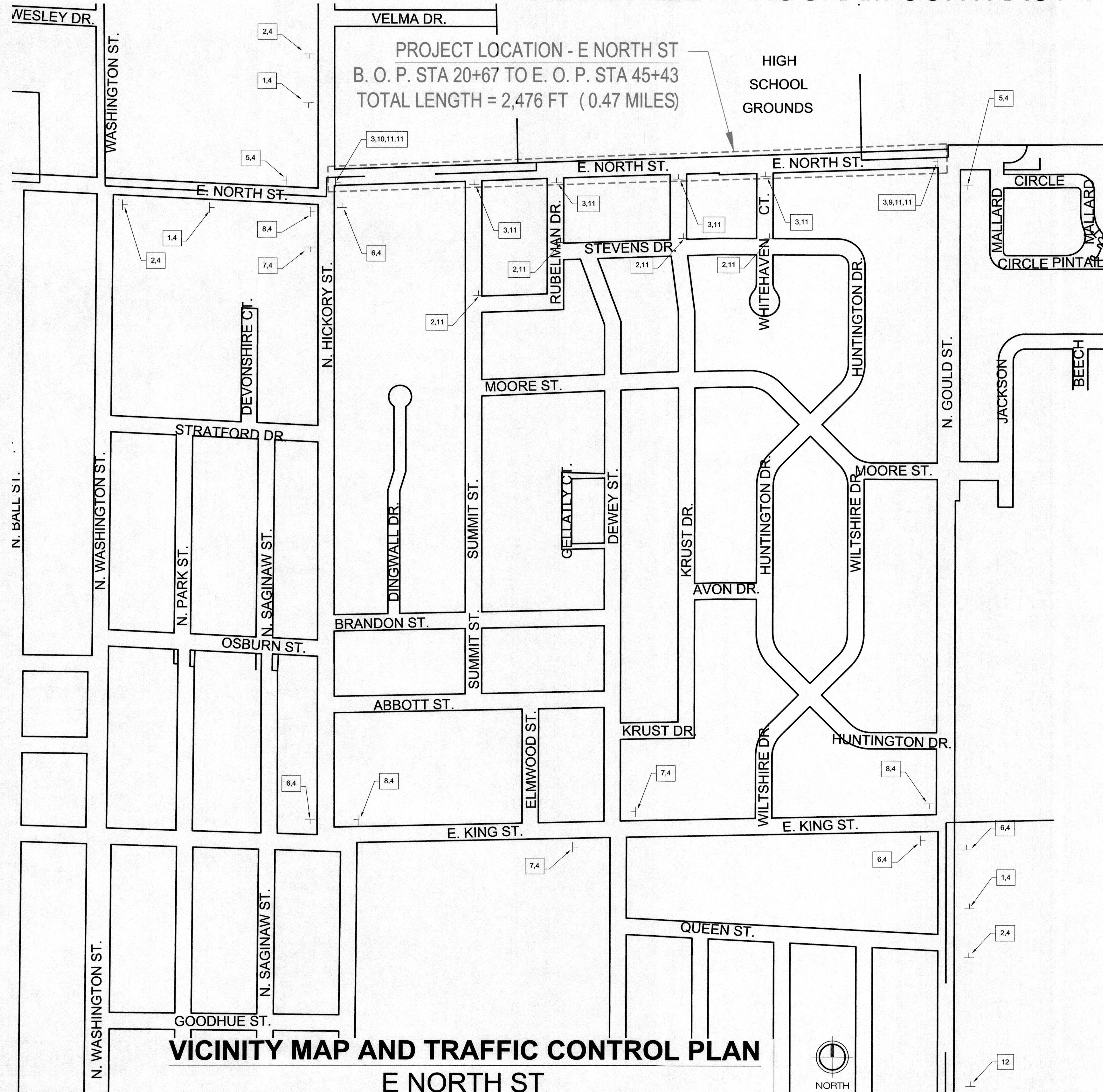
PREPARED FOR THE CITY OF OWOSSO BY:



[Signature]
LOU FLEURY/P.E.

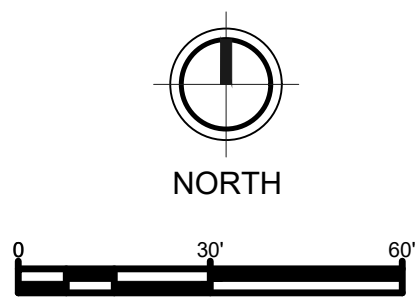
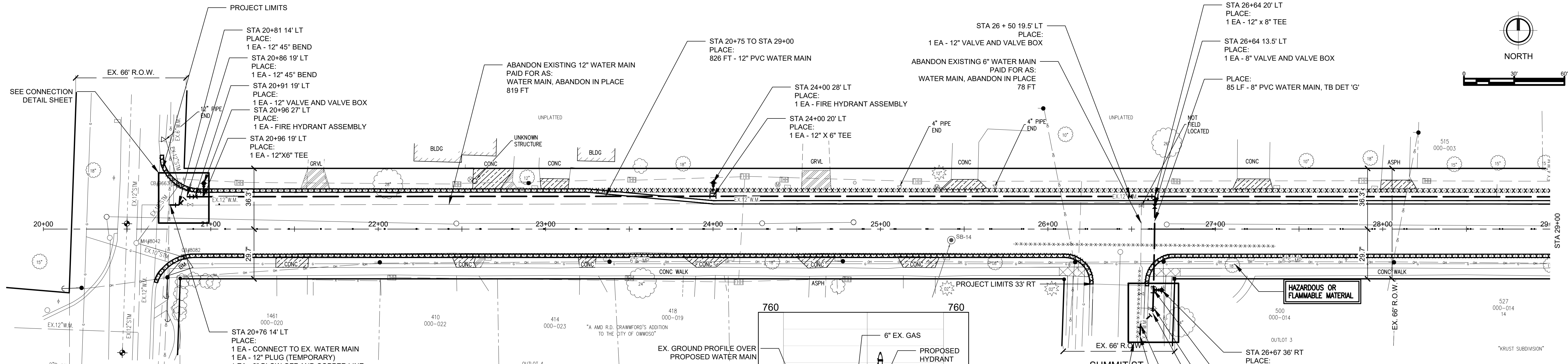
6201048655
REGISTRATION NUMBER

11/7/19
DATE



**VICINITY MAP AND TRAFFIC CONTROL PLAN
E NORTH ST**

CITY OF OWOSSO, MICHIGAN ENGINEERING DIVISION DEPT. OF PUBLIC SERVICE	
BENCHMARK DATA NO. REVISIONS DATE BY	ORIGINAL PLAN CHECKED BY APPROVED BY
2020 STREET PROGRAM CONTRACT 1 DWRF PROJECT NUMBER 7457-01 PHASE 1 E NORTH STREET WATER MAIN COVER SHEET & TRAFFIC CONTROL PLAN	
FIELD BOOK PG.	
NR13	



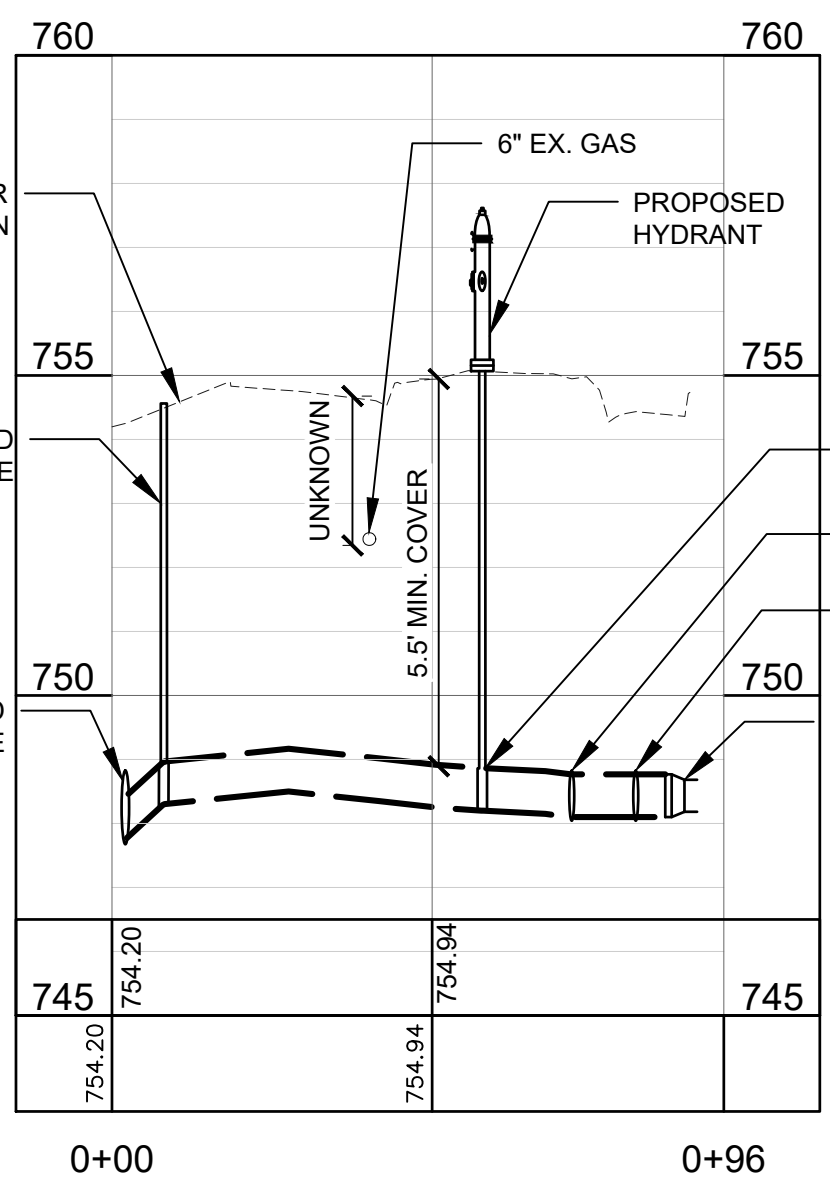
STA 20+76 14' LT
 PLACE:
 1 EA - CONNECT TO EX. WATER MAIN
 1 EA - 2" PLUG (TEMPORARY)
 1 EA - 2" BLOW-OFF AND COPPER LINE TO SURFACE (TEMPORARY)
 CONNECTION TO EXISTING WATER MAIN SHALL BE MADE AFTER THE PROPOSED WATER MAIN HAS BEEN TESTED AND APPROVED FOR SERVICE
 CONNECT TO EXISTING WITH SOLID SLEEVE

LEGEND

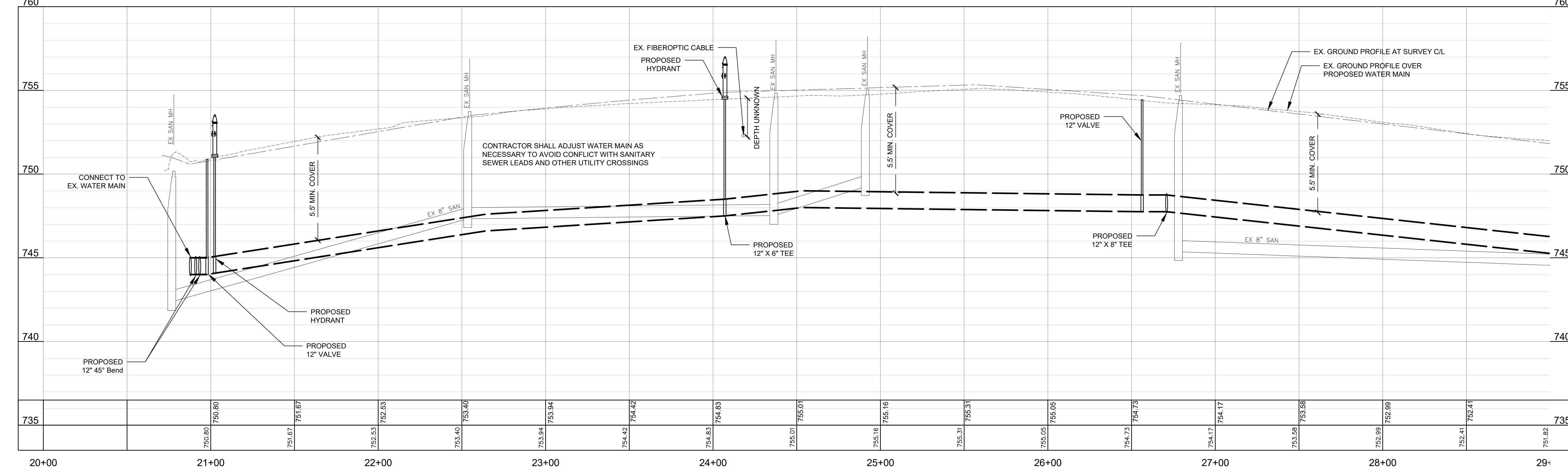
- WATER MAIN
- ✕ GATE VALVE AND BOX, _INCH
- ▶ REDUCER
- ⊕ HYDRANT / VALVE
- ⊙ STANDARD SOIL EROSION KEY

WATER MAIN QUANTITIES THIS SHEET

TOTAL	UNIT	DESCRIPTION
3	Ea	Fire Hydrant and Valve Assembly
560	Ft	1 inch Copper Service Lead, Type "K", Modified
897	Ft	Water Main, Abandon in Place
826	Ft	Water Main, C909 PVC, 12 inch, Tr Det G, Modified
85	Ft	Water Main, C909 PVC, 8 inch, Tr Det G, Modified
2	Ea	Connect to Existing Water Main
9	Ea	Curb Box, Stop, 3/4 inch, Corporation Stop and Connection, Modified
2	Ea	Gate Valve and Box, 12 inch, Modified
1	Ea	Gate Valve and Box, 8 inch, Modified
1	Ea	Water Main, 12 inch, Cut and Plug, Modified
1	Ea	Water Main, 6 inch, Cut and Plug, Modified
1	LSUM	Testing and Chlorination of Water Main
2	Ea	Existing Valve and Valve Box Abandonment
1	Ea	Hydrant, Rem



CROSSING AT SUMMIT ST.



20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 28+00 29+

811
 Know what's below.
 Call before you dig.

CITY OF OWOSSO, MICHIGAN
 ENGINEERING DIVISION
 DEPT. OF PUBLIC SERVICE



NO.	REVISIONS	DATE	BY	APPROVED BY
1	DRAFT	8/14/19	XX	

BENCHMARK DATA	DESCRIPTION	ELEV.

2020 STREET PROGRAM CONTRACT 1
 DWRP PROJECT NUMBER 7457-01 PHASE 1
 E NORTH STREET
 WATER MAIN PLAN

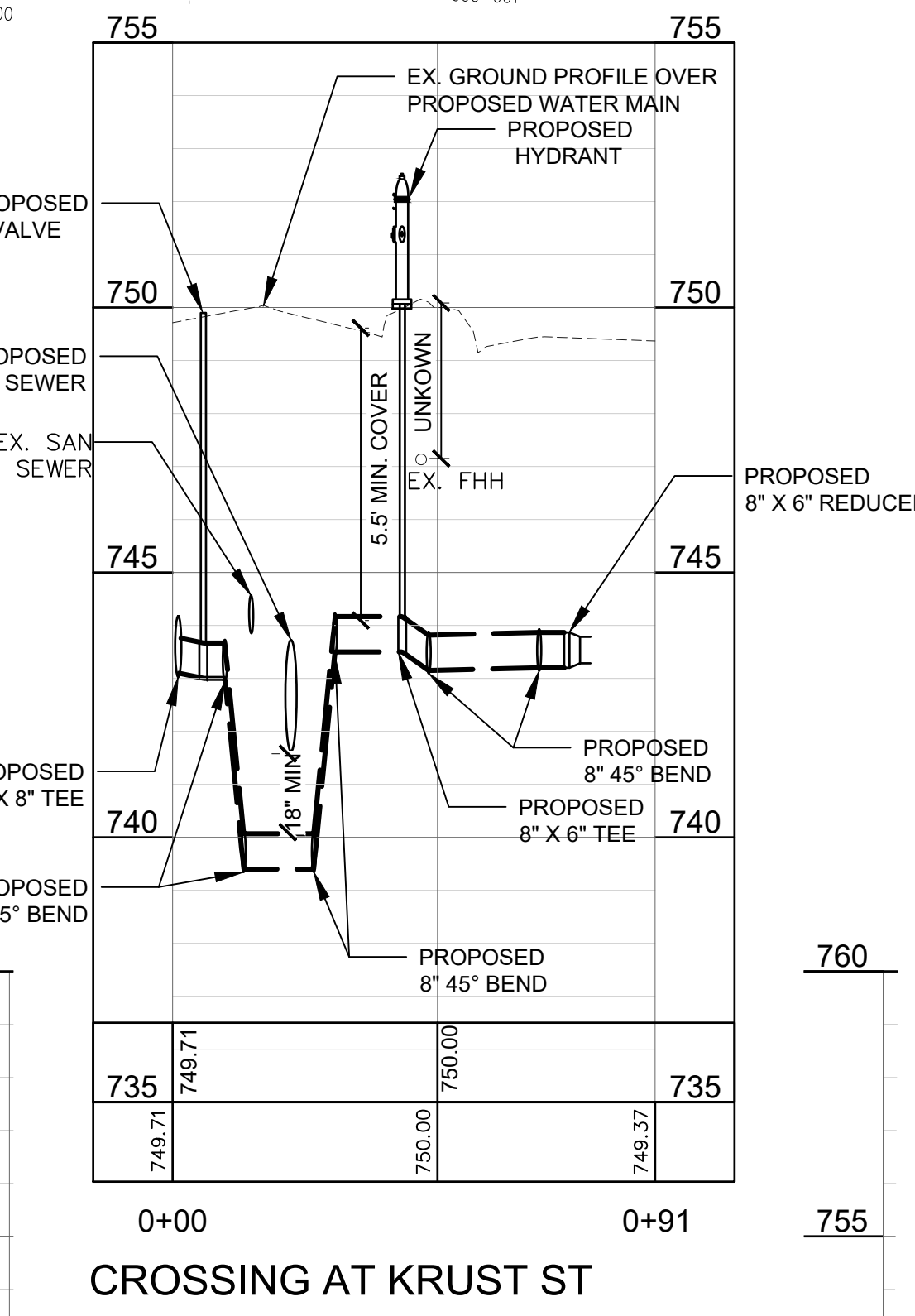
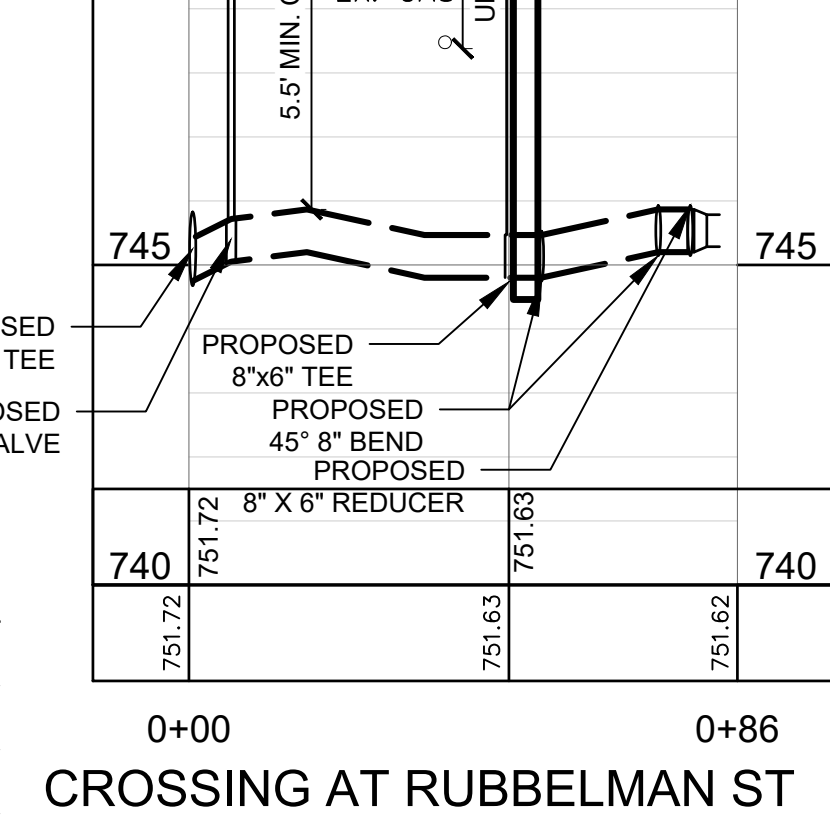
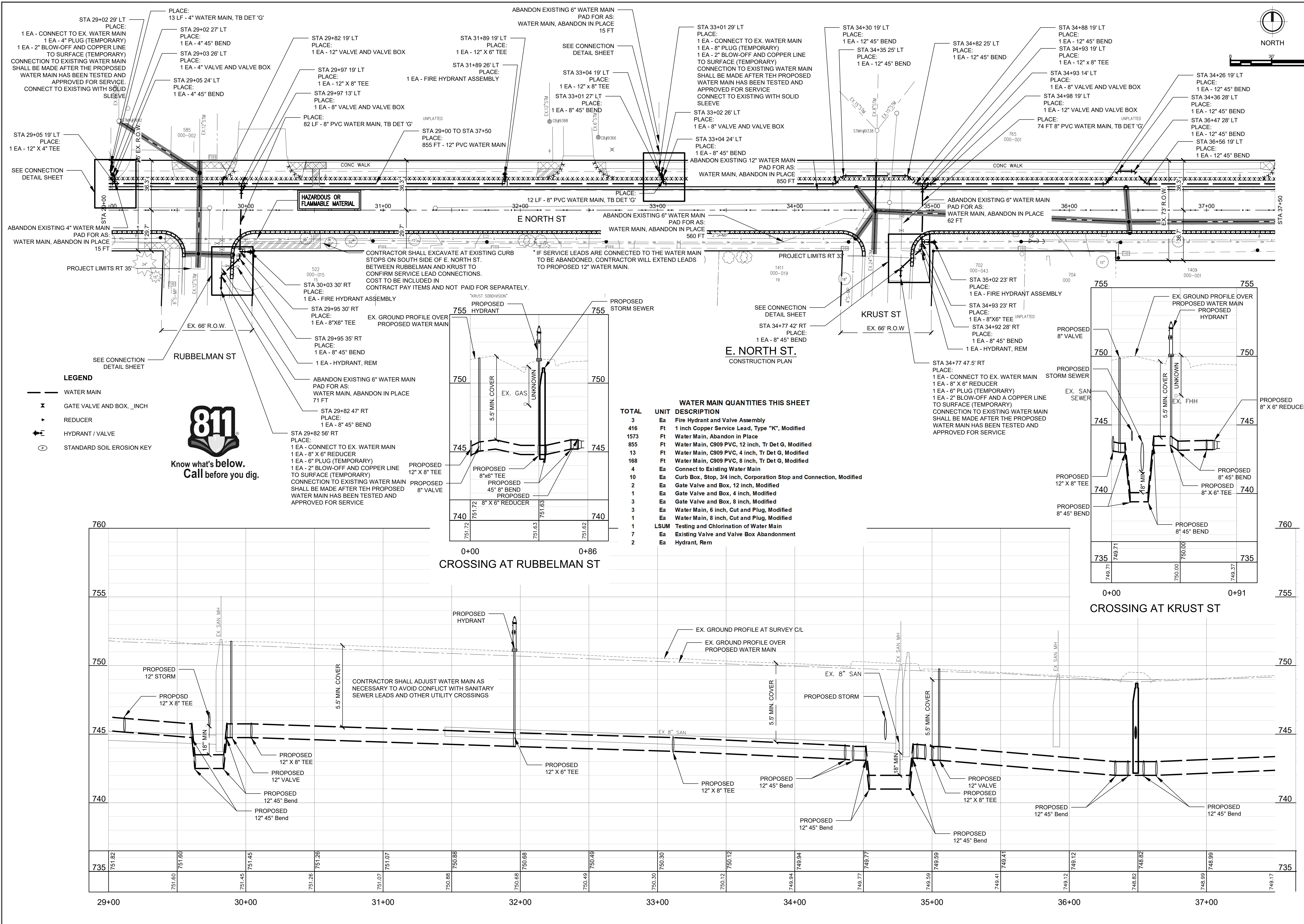
DATE PROJECT NO.
 FIELD BOOK PG.
NR14

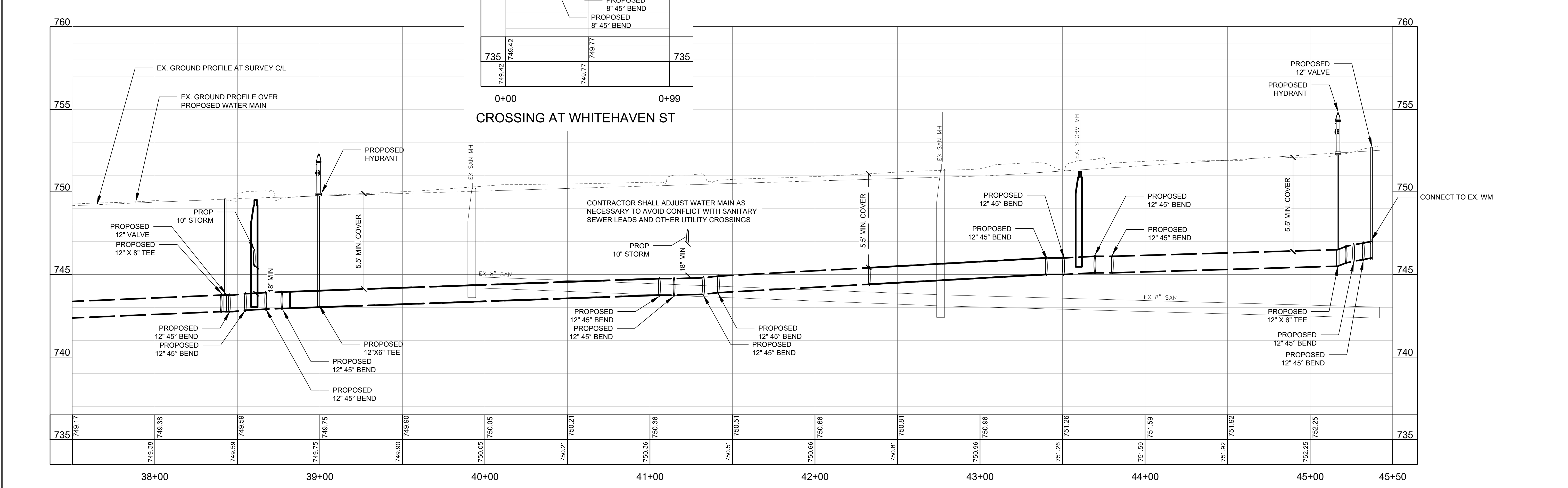
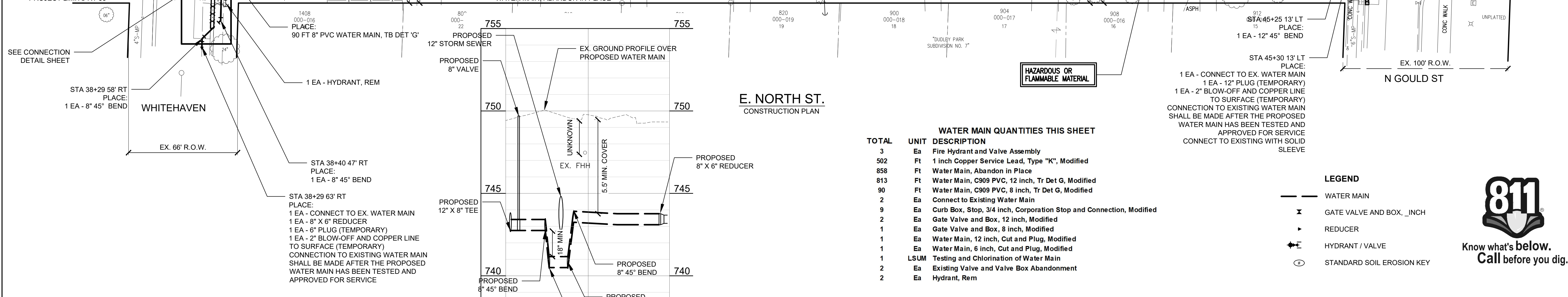
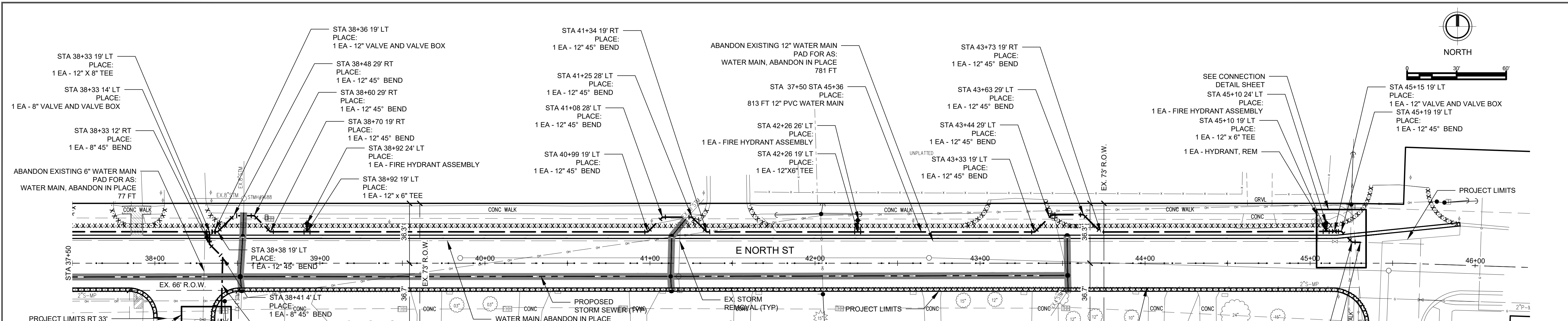


NO.	REVISIONS	DATE	BY
1	DRAFT	8/14/19	XX

BENCHMARK DATA	DESCRIPTION	ELEV.

NO.	REVISIONS	DATE	BY





WATER MAIN QUANTITIES THIS SHEET

TOTAL	UNIT	DESCRIPTION
3	Ea	Fire Hydrant and Valve Assembly
502	Ft	1 inch Copper Service Lead, Type "K", Modified
858	Ft	Water Main, Abandon in Place
813	Ft	Water Main, C909 PVC, 12 inch, Tr Det G, Modified
90	Ft	Water Main, C909 PVC, 8 inch, Tr Det G, Modified
2	Ea	Connect to Existing Water Main
9	Ea	Curb Box, Stop, 3/4 inch, Corporation Stop and Connection, Modified
2	Ea	Gate Valve and Box, 12 inch, Modified
1	Ea	Gate Valve and Box, 8 inch, Modified
1	Ea	Water Main, 12 inch, Cut and Plug, Modified
1	Ea	Water Main, 6 inch, Cut and Plug, Modified
1	LSUM	Testing and Chlorination of Water Main
2	Ea	Existing Valve and Valve Box Abandonment
2	Ea	Hydrant, Rem

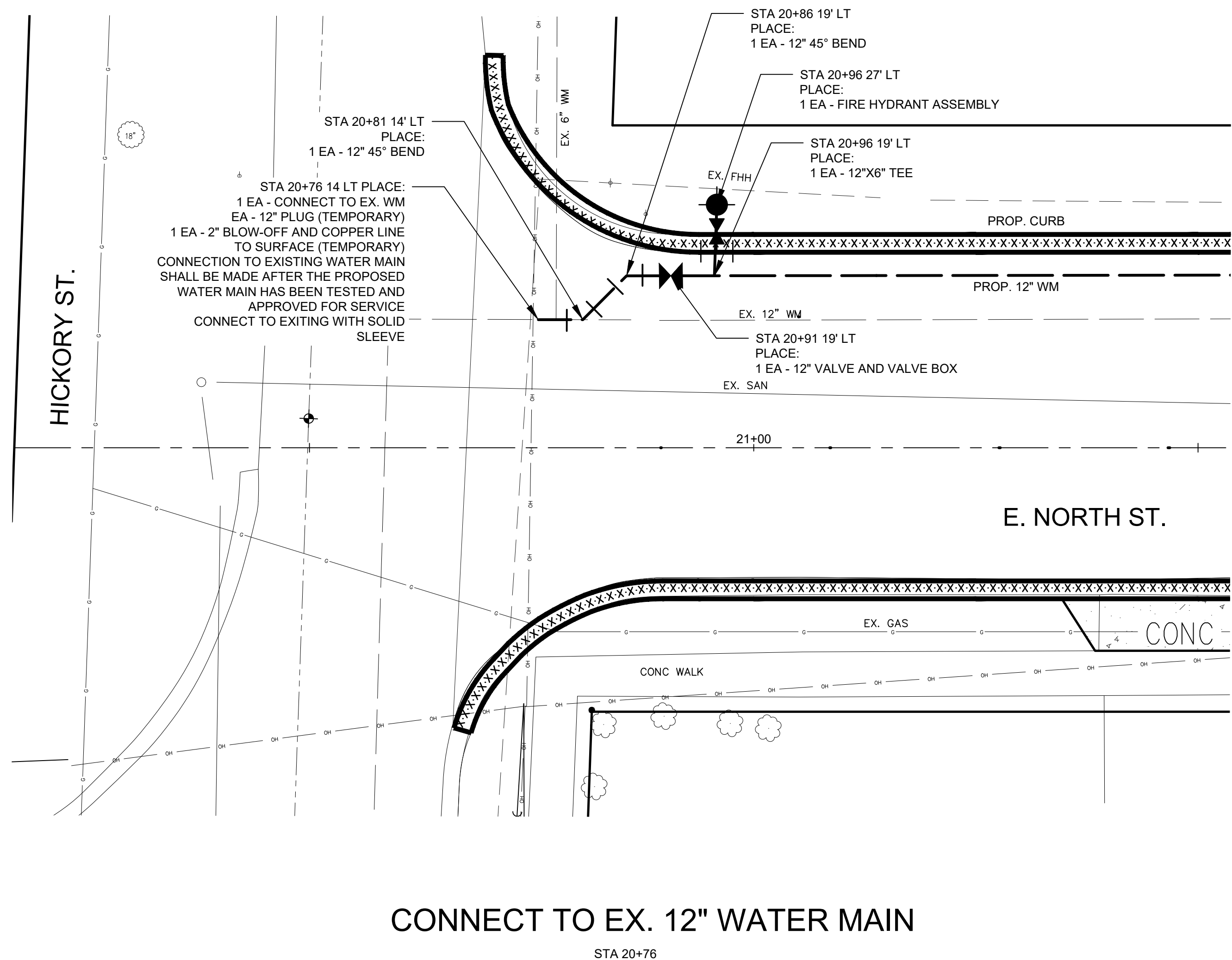
LEGEND

—	WATER MAIN
⊗	GATE VALVE AND BOX, _INCH
➤	REDUCER
⊕	HYDRANT / VALVE
⊙	STANDARD SOIL EROSION KEY



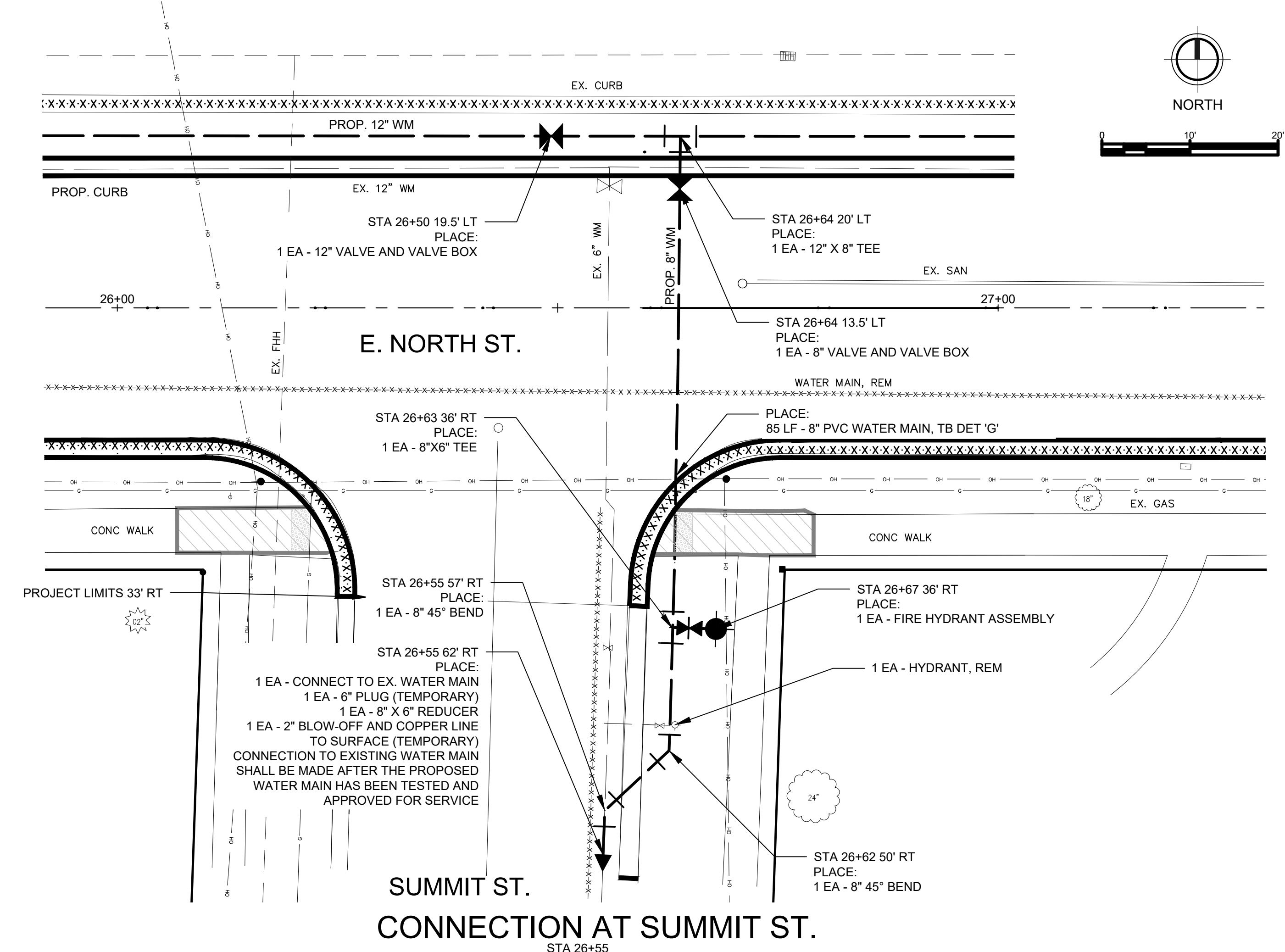
NO.	REVISIONS	DATE	BY	APPROVED BY
1	DRAFT	8/14/19	XX	
				CHECKED BY
				APPROVED BY

BENCHMARK DATA	DESCRIPTION
ELEV.	



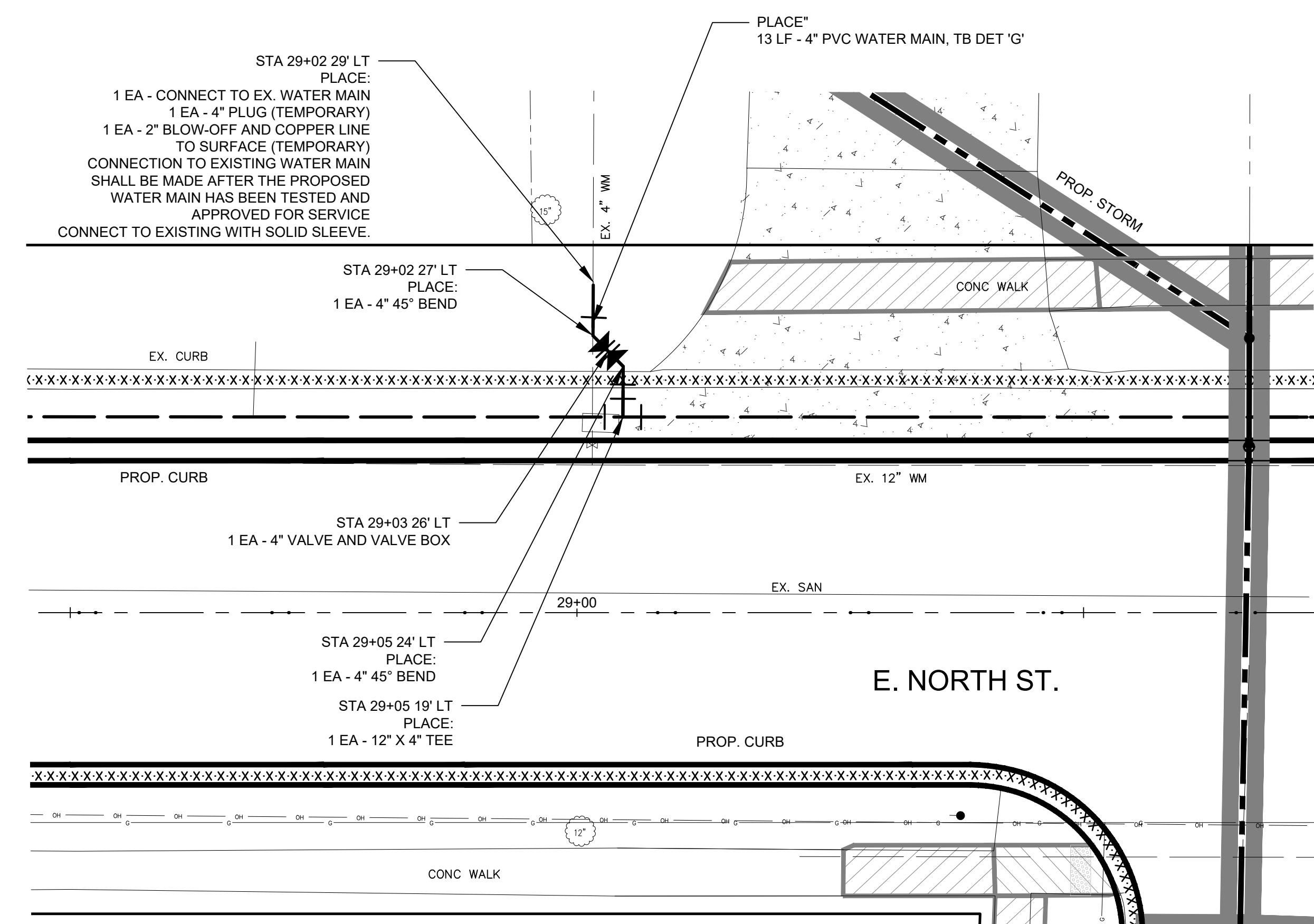
CONNECT TO EX. 12" WATER MAIN

STA 20+76



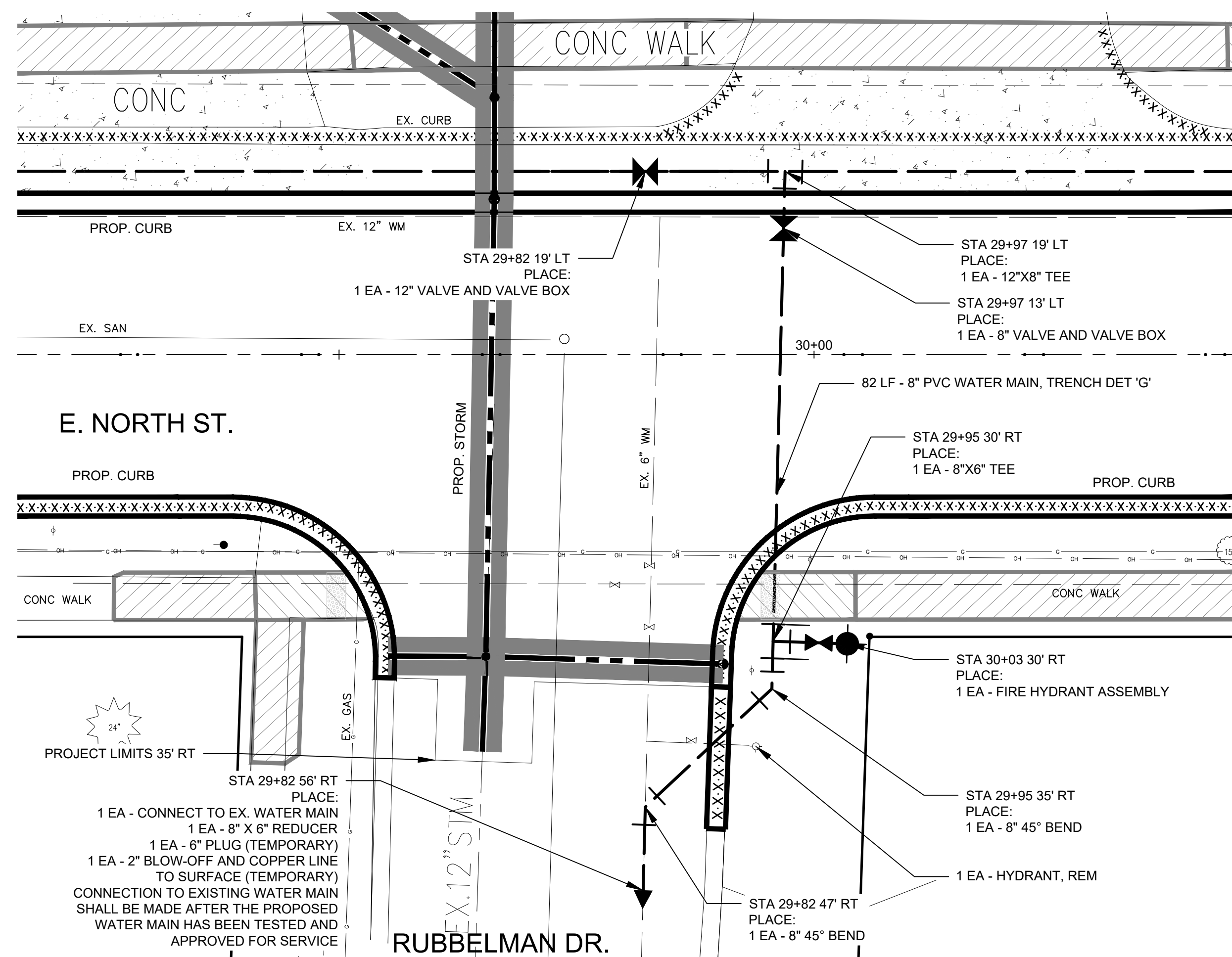
CONNECTION AT SUMMIT ST.

STA 26+55



CONNECT TO EX. 4" WATER MAIN

STA 29+01



CONNECTION AT RUBBELMAN DR.

STA 29+82

CITY OF OWOSSO, MICHIGAN
ENGINEERING DIVISION
DEPT. OF PUBLIC SERVICE



NO.	REVISIONS	DATE	BY
1	DRAFT	8/14/19	XX

BENCHMARK DATA	DESCRIPTION	ELEV.

2020 STREET PROGRAM CONTRACT 1
DWRP PROJECT NUMBER 7457-01 PHASE 1
E NORTH STREET
WATER MAIN PLAN

NR17

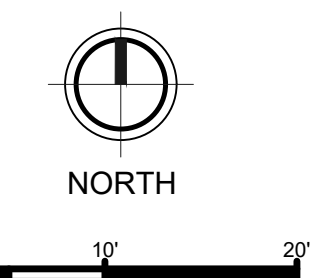
FIELD BOOK
PG.

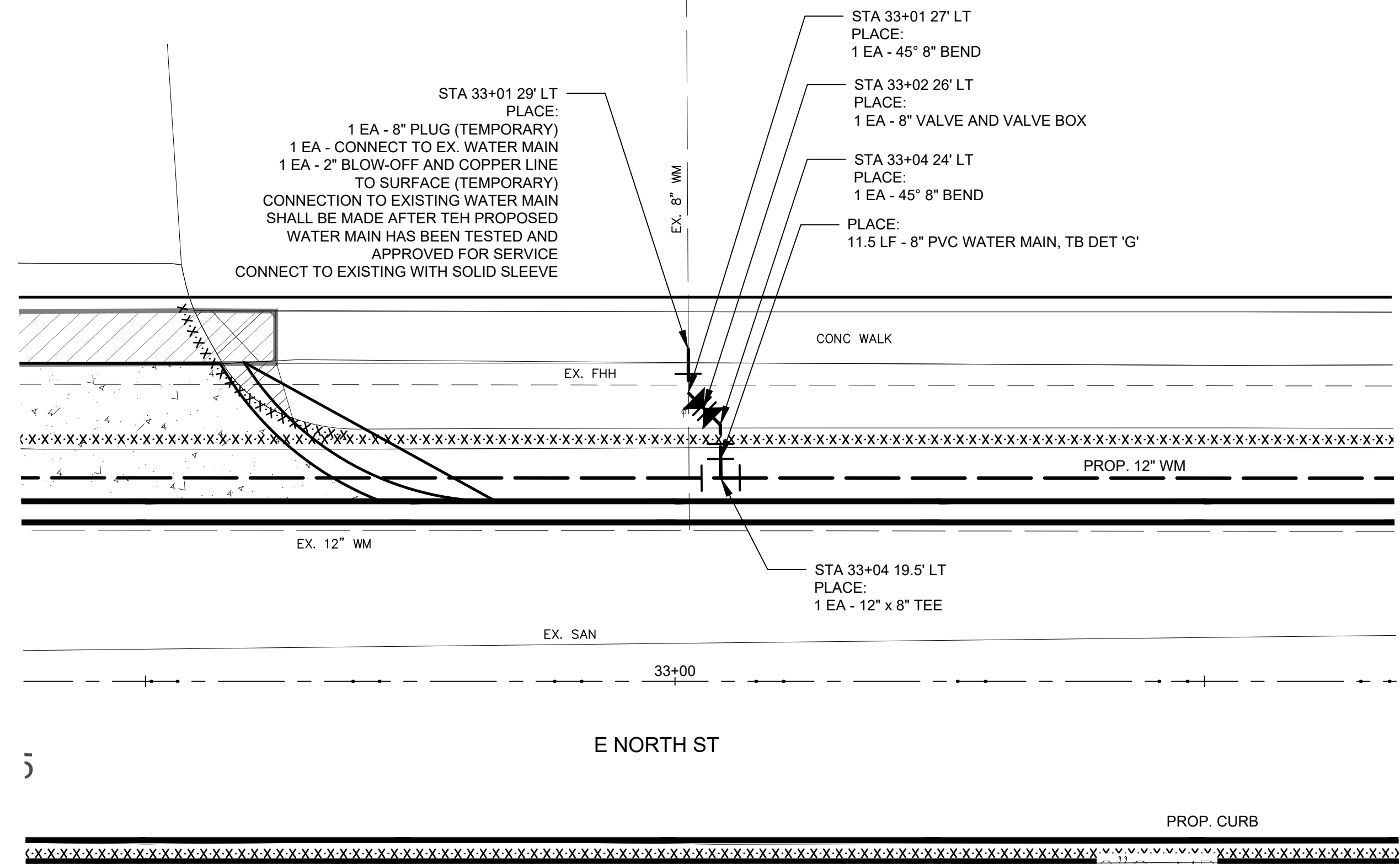
DATE
PROJECT NO.

APPROVED BY

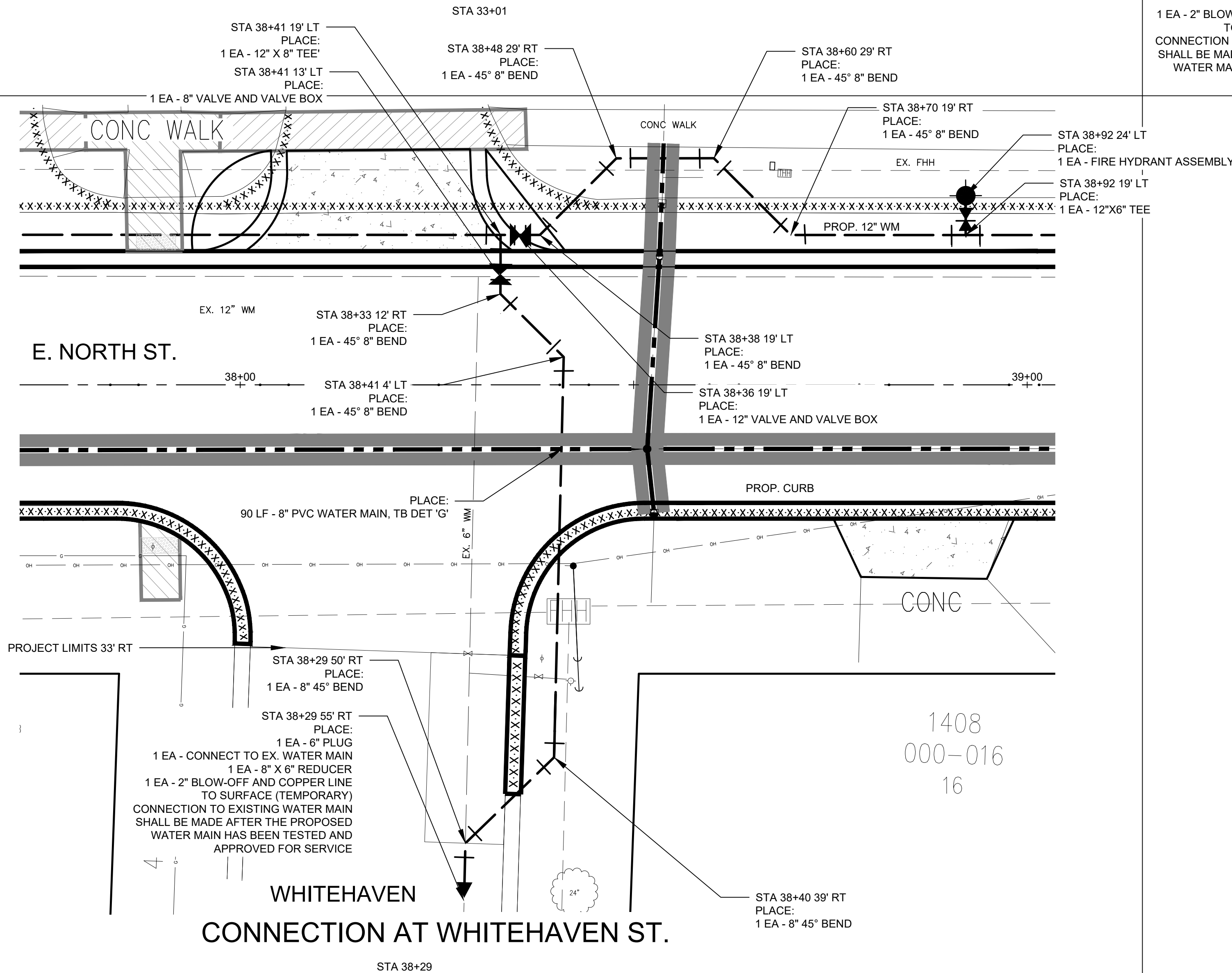
CHECKED BY

ORIGINAL PLAN

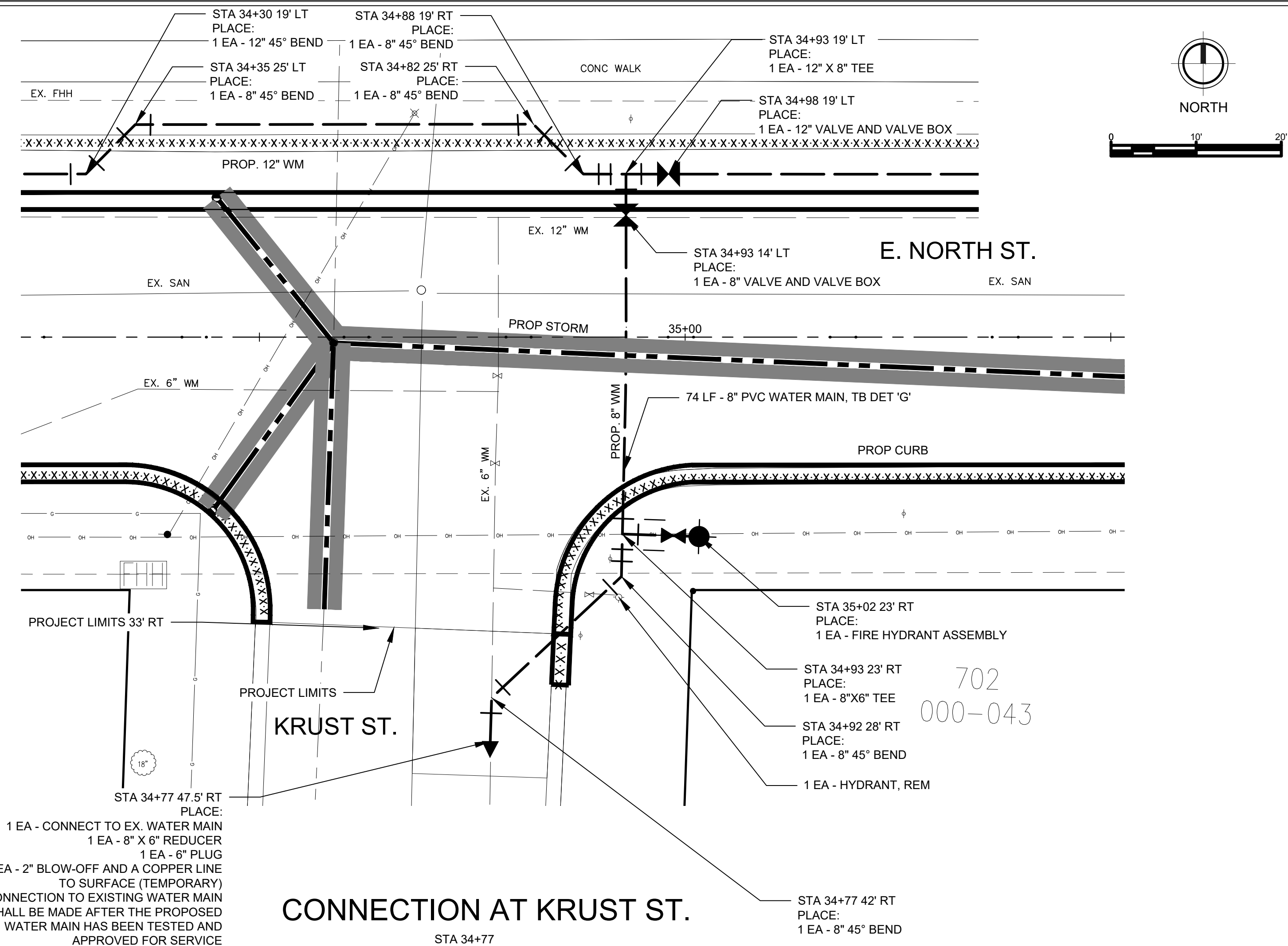




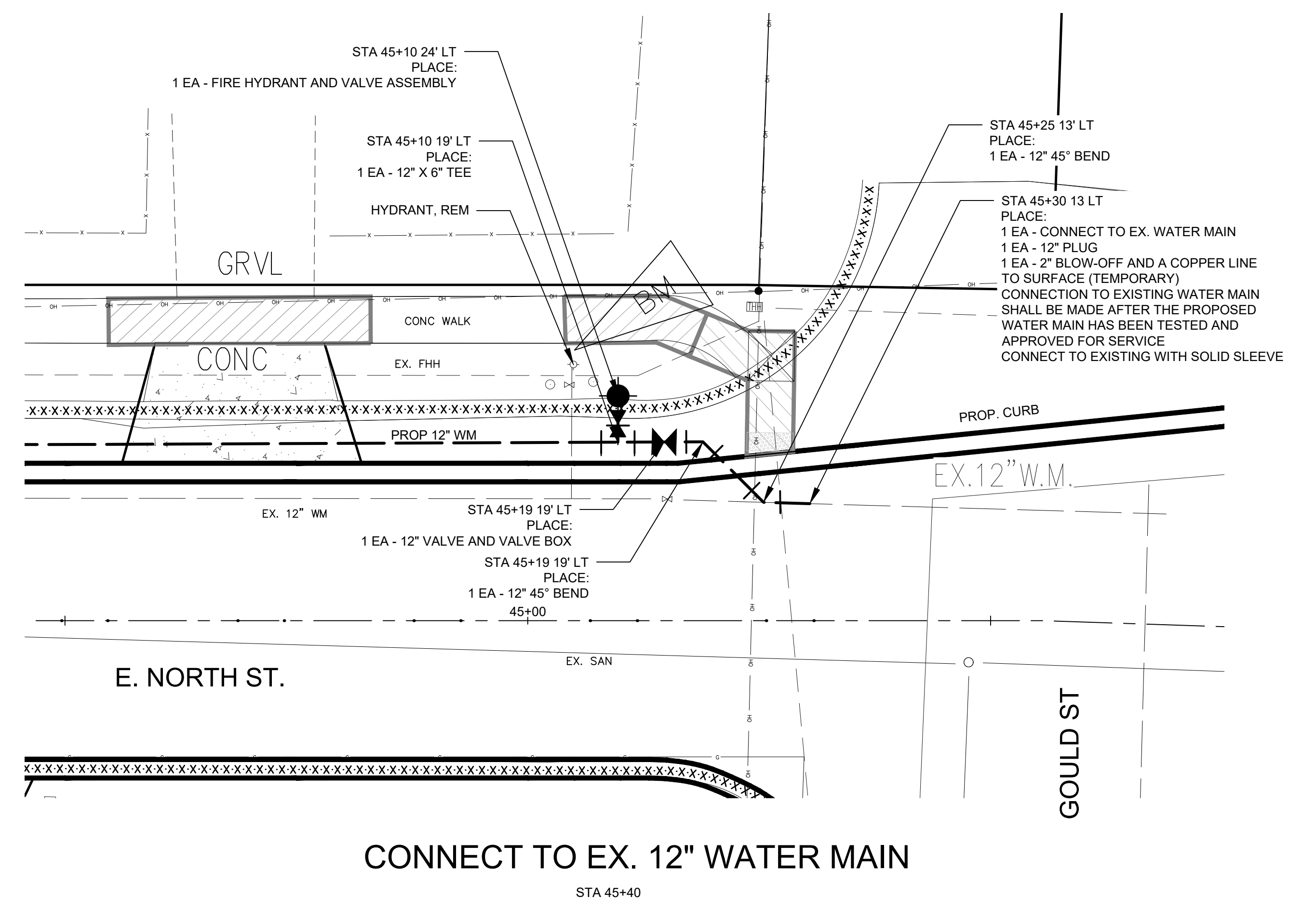
CONNECT TO EX. 8" WATER MAIN



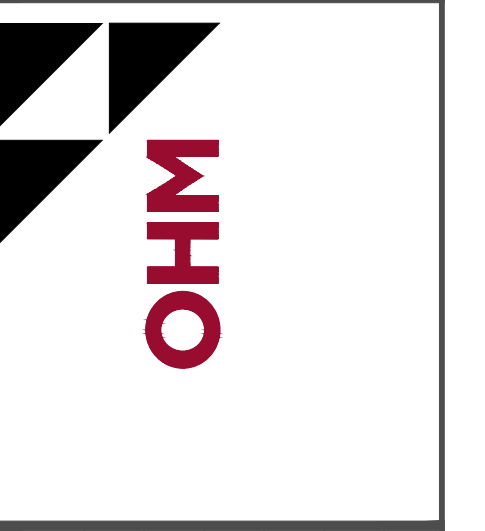
WHITEHAVEN
CONNECTION AT WHITEHAVEN ST.



CONNECTION AT KRUST ST.



CONNECT TO EX. 12" WATER MAIN



NO.	REVISIONS	DATE	BY
1	DRAFT	8/14/19	XX

BENCHMARK DATA	DESCRIPTION	ELEV.

SUMMIT STREET

ROAD AND STORM SEWER
CITY OF OWOSSO
2020 STREET PROGRAM
CONTRACT 1

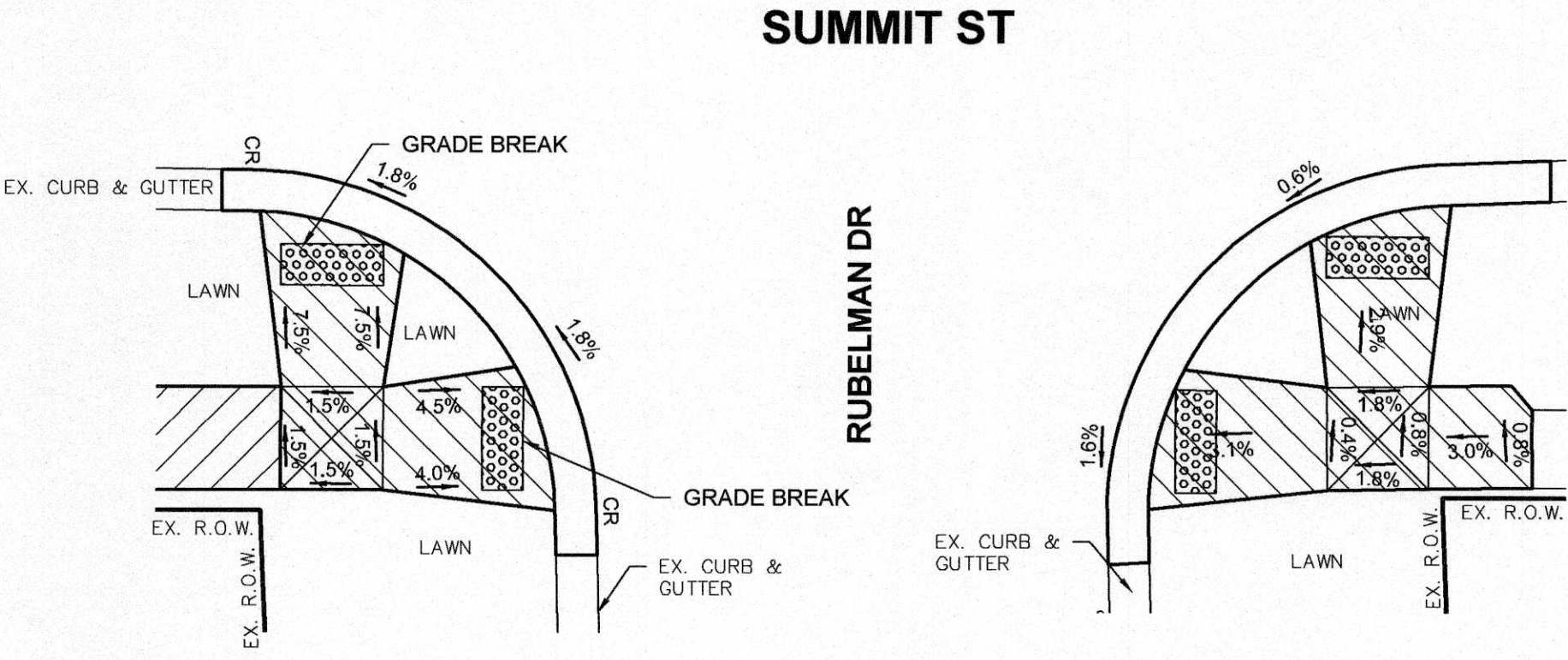
SHEET NO.	DESCRIPTION
SU1	SUMMIT ST - ROAD AND STORM SEWER COVER SHEET, SIDEWALK RAMP DETAILS, & TRAFFIC CONTROL PLAN
SU2	SUMMIT ST - TYPICAL CROSS SECTIONS
SU3	SUMMIT ST - REMOVAL PLAN
SU4 - SU5	SUMMIT ST - ROAD PLAN AND PROFILE
SU6	SUMMIT ST - SOIL BORINGS

PROJECT LOCATION - SUMMIT ST
B.O.P. STA. 00+42 TO E.O.P. STA. 17+06
TOTAL LENGTH = 1,664 FT (0.32 MILES)



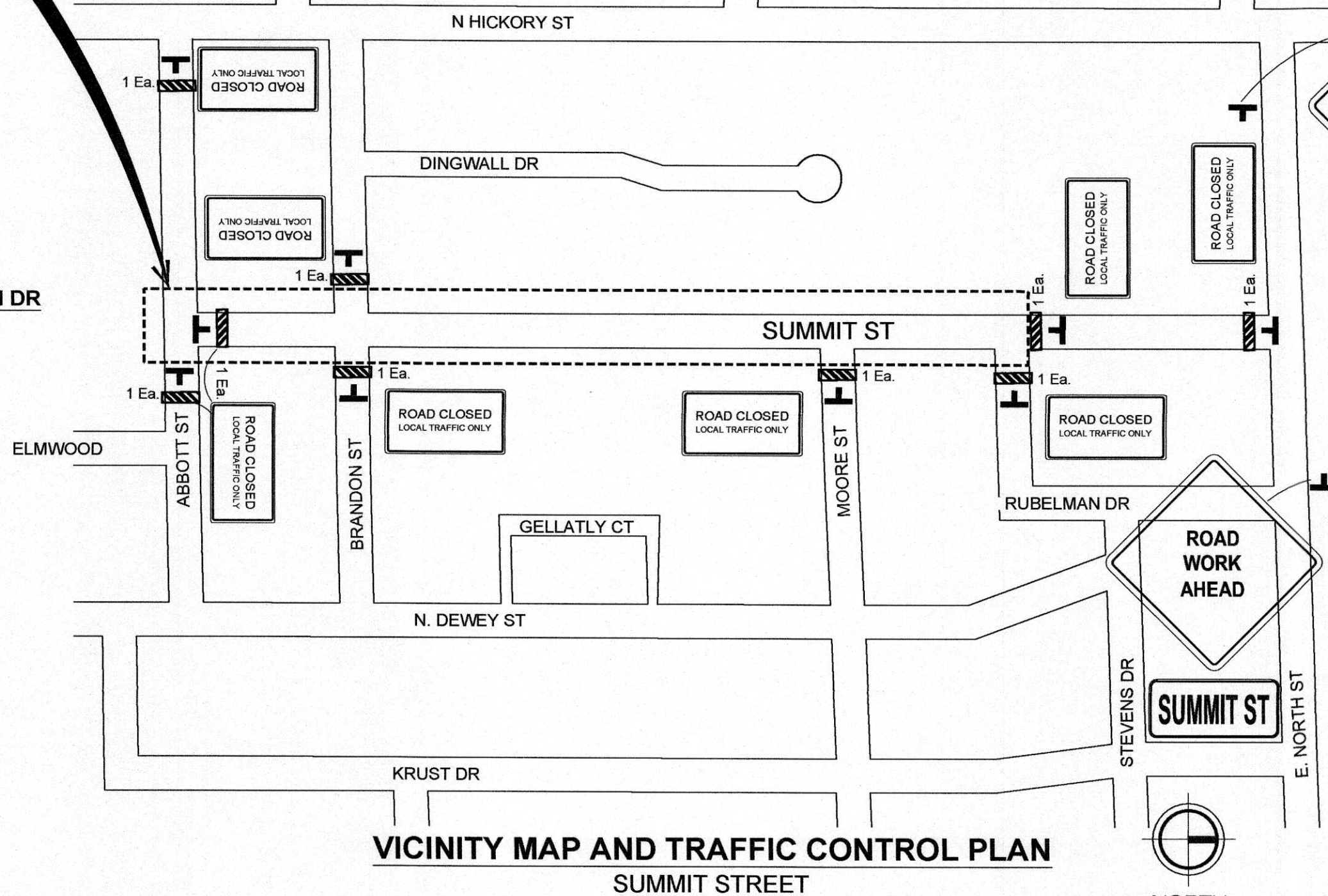
SIDEWALK RAMP SW QUAD AT RUBELMAN DR
SCALE: 1" = 8'

SIDEWALK RAMP NW QUAD AT RUBELMAN DR
SCALE: 1" = 8'

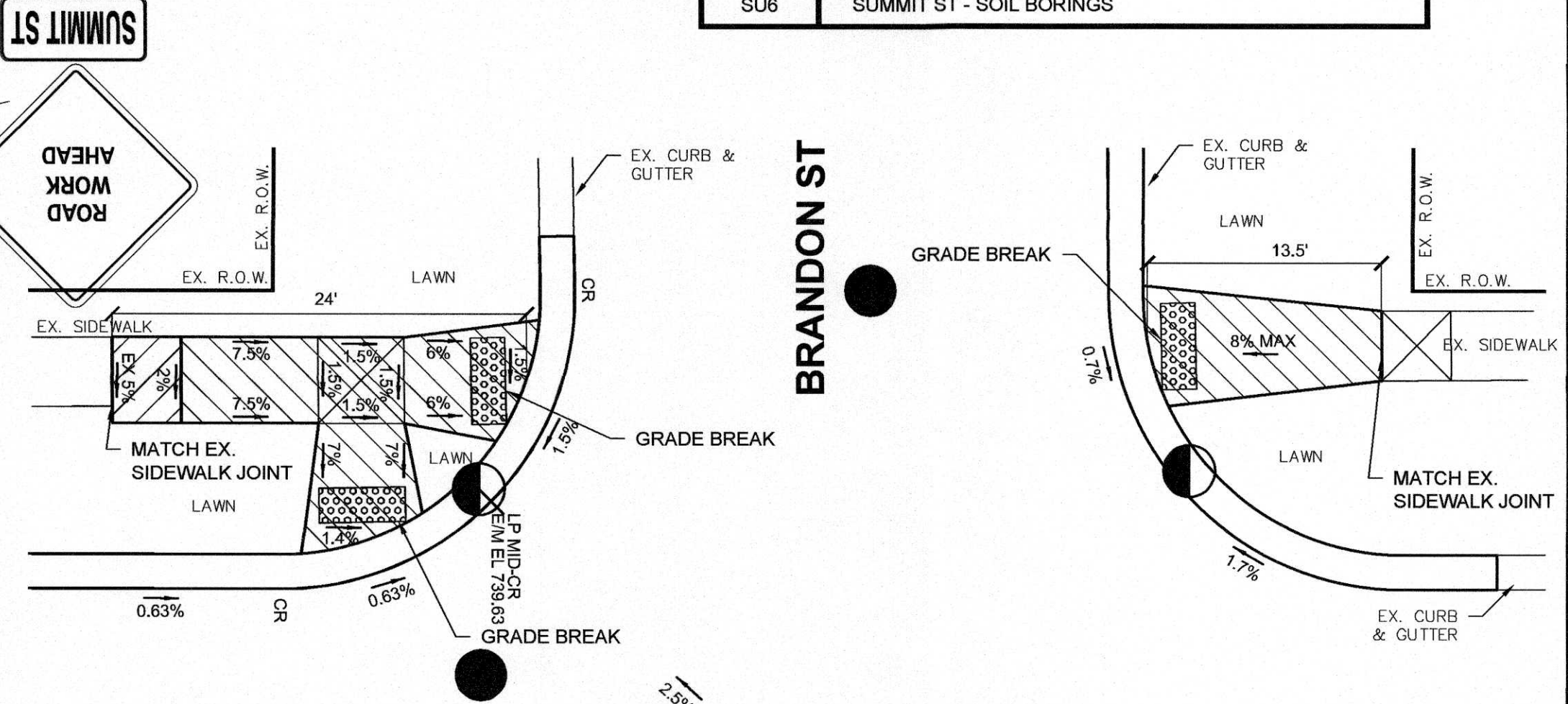


SIDEWALK RAMP SE QUAD AT RUBELMAN DR
SCALE: 1" = 8'

SIDEWALK RAMP NE QUAD AT RUBELMAN DR
SCALE: 1" = 8'

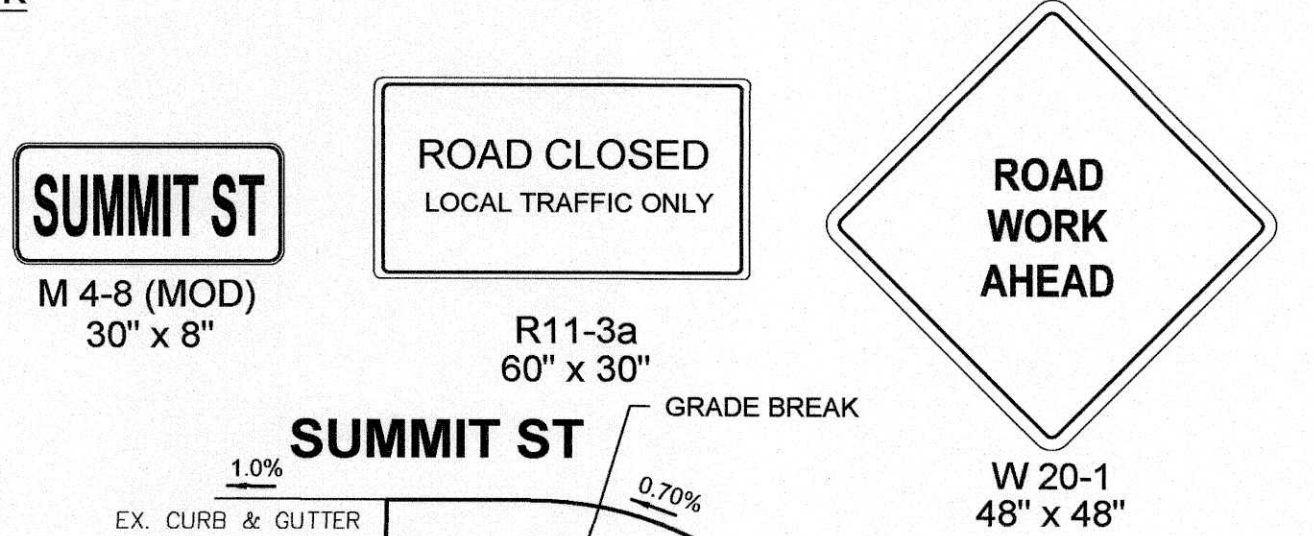


VICINITY MAP AND TRAFFIC CONTROL PLAN
SUMMIT STREET



SUMMIT ST

SUMMIT ST



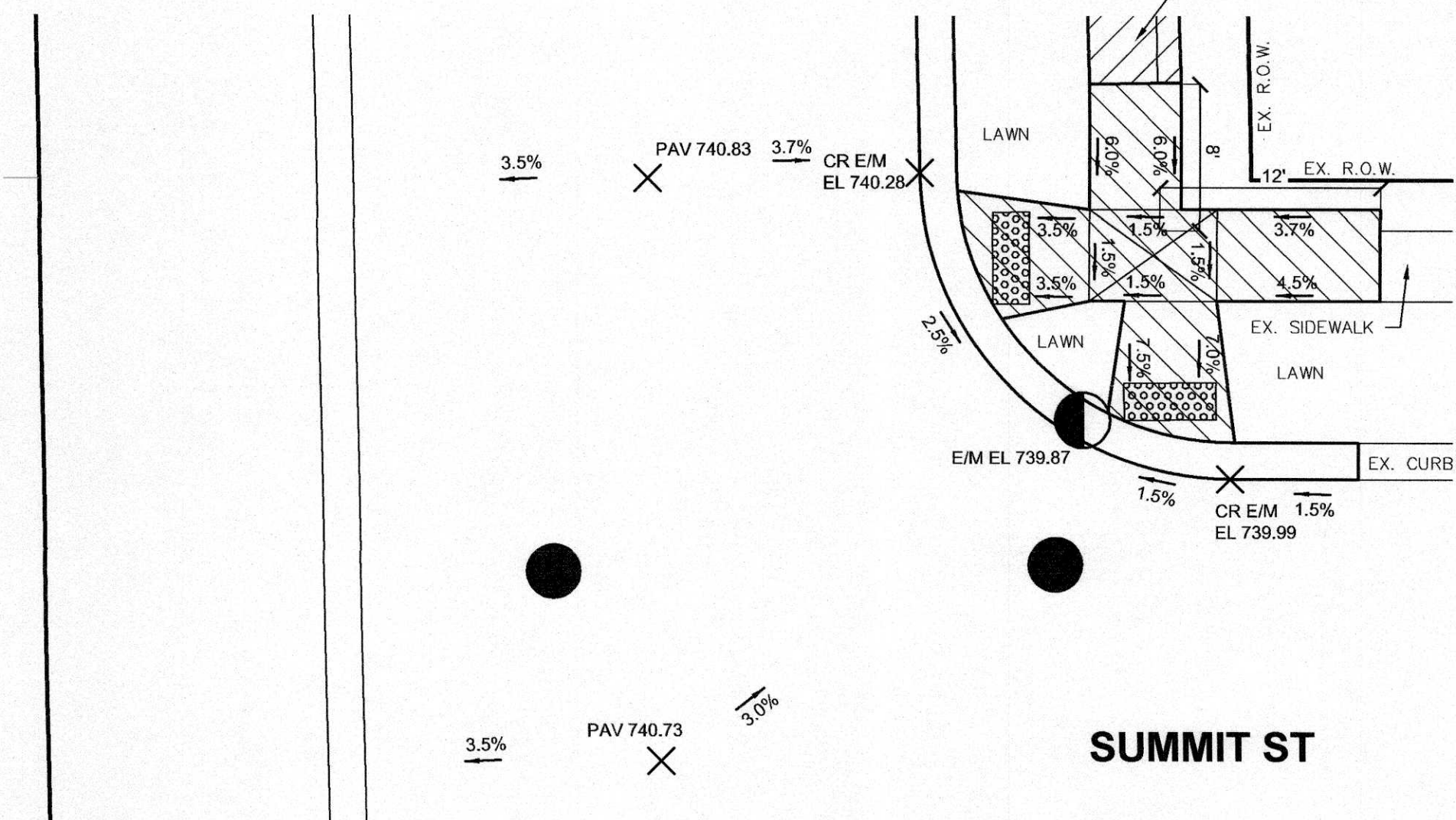
SUMMIT ST
M 4-8 (MOD)
30" x 8"

ROAD CLOSED
LOCAL TRAFFIC ONLY

ROAD WORK AHEAD

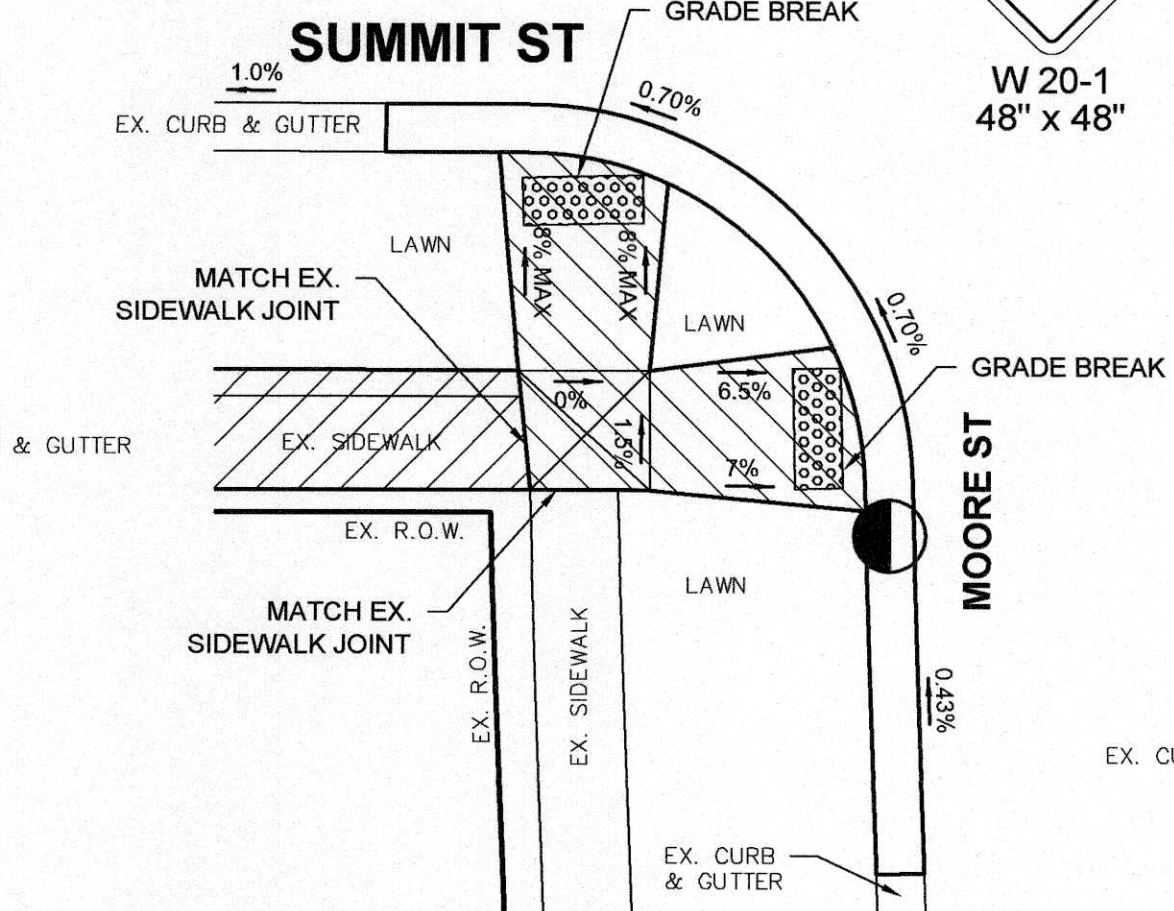
TYPE III BARRICADE

R11-3a
60" x 30"
W 20-1
48" x 48"



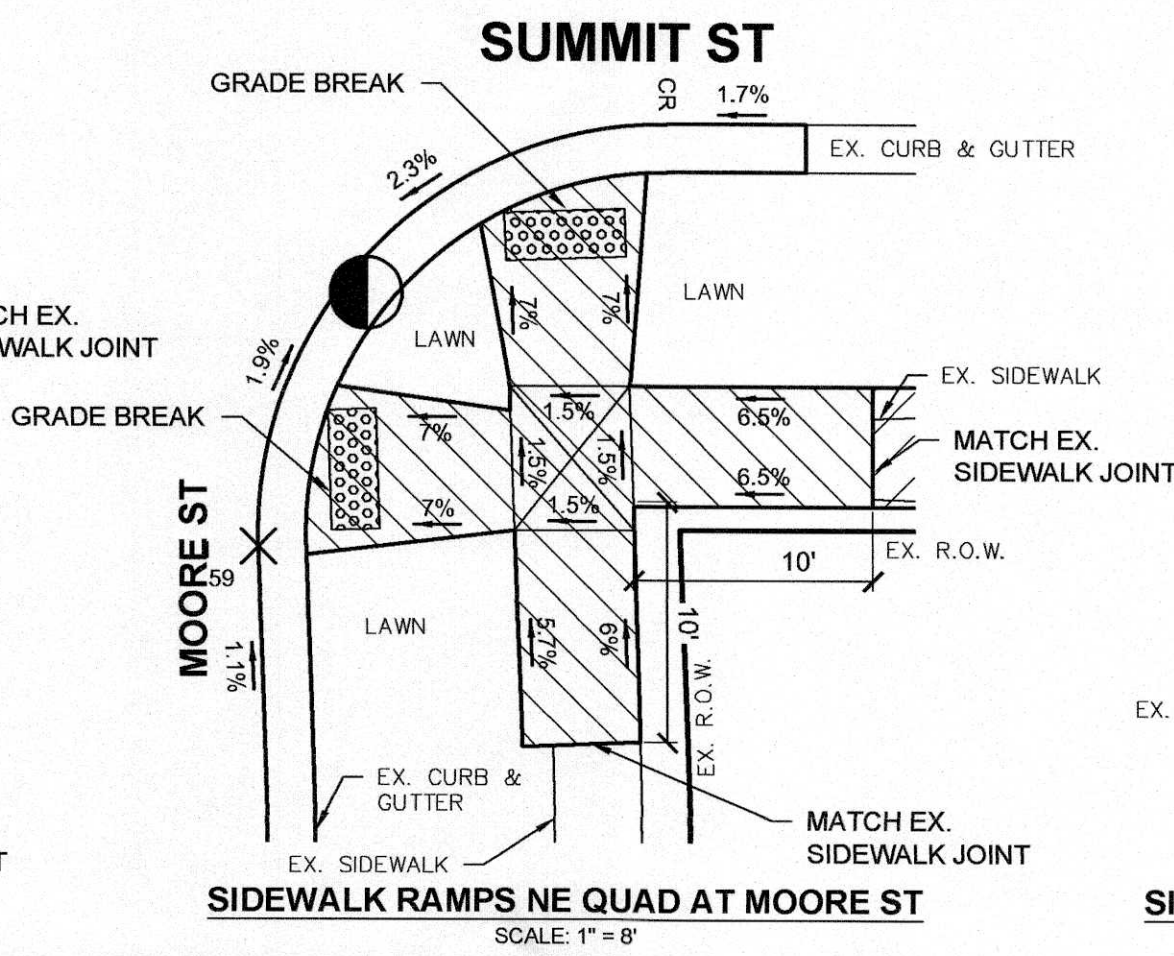
SUMMIT ST

SIDEWALK RAMP SUMMIT ST AND ABBOTT ST
SCALE: 1" = 8'



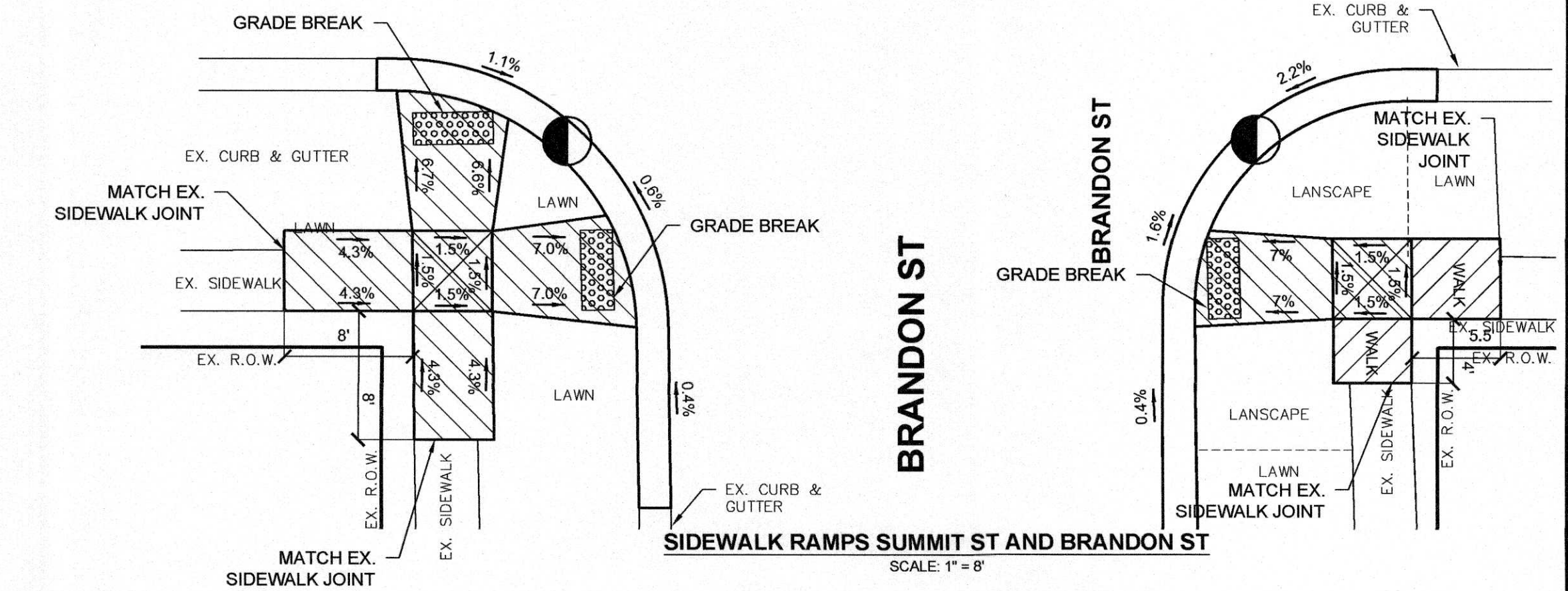
SIDEWALK RAMP SE QUAD AT MOORE ST
SCALE: 1" = 8'

SIDEWALK RAMP SW QUAD AT MOORE ST
SCALE: 1" = 8'



SIDEWALK RAMP NE QUAD AT MOORE ST
SCALE: 1" = 8'

SIDEWALK RAMP NW QUAD AT MOORE ST
SCALE: 1" = 8'



BRANDON ST

SIDEWALK RAMP SUMMIT ST AND BRANDON ST
SCALE: 1" = 8'

THE DESIGN OF THIS ROAD IS BASED ON THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS OF CONSTRUCTION, 2012 EDITION, AND THE AASHTO A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, 2011 EDITION, AND THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, 2011 EDITION.

CONTRACT FOR: 0.32 MILES OF HMA RECONSTRUCTION, INTERSECTION IMPROVEMENTS, DRAINAGE IMPROVEMENTS, CURB AND GUTTER, ADA SIDEWALK RAMP, AND PAVEMENT MARKINGS.

CITY OF OWOSSO APPROVAL



Randy Chesney
Randy Chesney, PE
REGISTRATION NUMBER 33154
DATE 11-8-2019

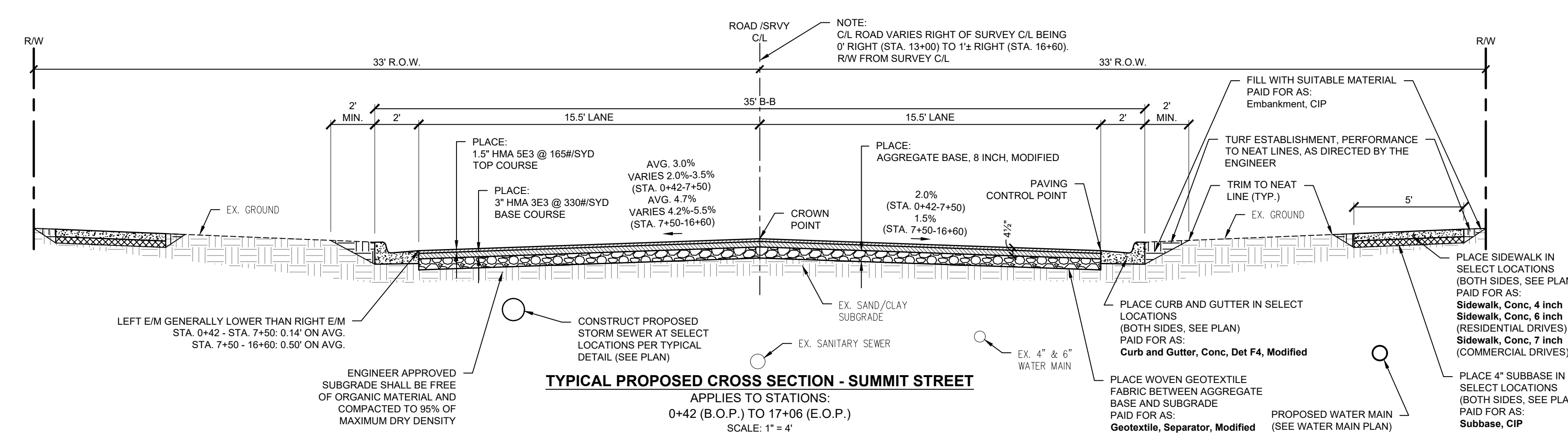
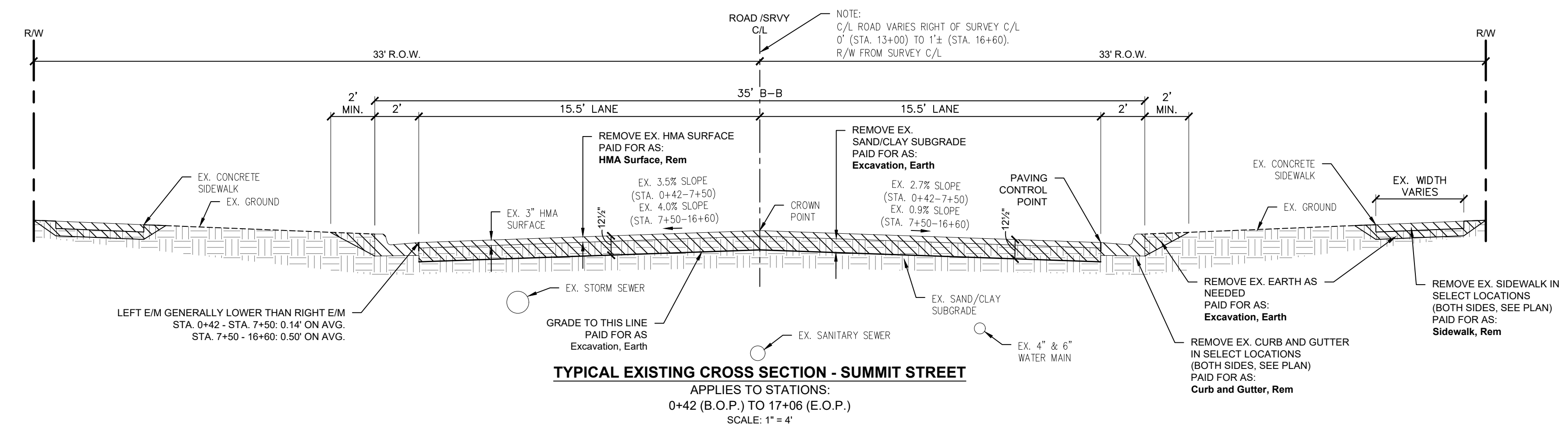
CITY OF OWOSSO, MICHIGAN
ENGINEERING DIVISION
DEPT. OF PUBLIC SERVICE

NO.	REVISIONS	DATE	BY

BENCH MARK DATA	DESCRIPTION

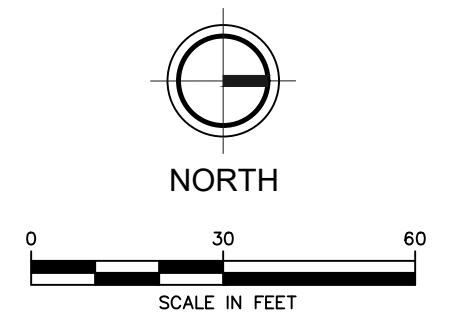
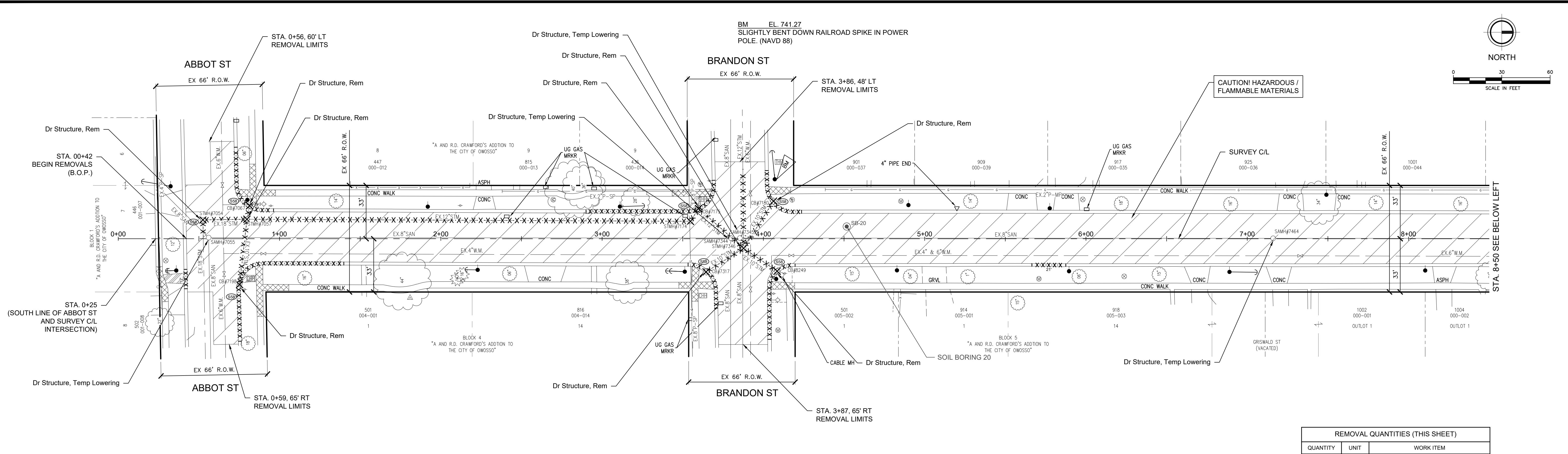
2020 STREET PROGRAM CONTRACT 1
DWRP PROJECT NUMBER 7457-01 PHASE 1
SUMMIT ST -
ROAD AND STORM SEWER COVER SHEET,
SIDEWALK RAMP DETAILS,
& TRAFFIC CONTROL PLAN
NOVEMBER, 2019
PROJECT NO. 830300
FIELD BOOK
PG.

SU1



ITEM	PAY ITEM	RATE PER SYD	PERFORMANCE GRADE	ESTIMATED THICKNESS, INCH	REMARKS
HMA	HMA, 5E3	165 LBS.	64 - 28	1.5"	TOP COURSE - AWI = 260 (MIN.)
	HMA, 3E3	330 LBS.	64 - 28	3"	BASE COURSE
HAND PATCHING	Hand Patching	110 LBS / SYD / INCH	64 - 28		HMA, 3E3 (PLACED IN EQUAL LIFTS)
RESIDENTIAL DRIVE APPROACH	HMA Approach	220 LBS.	58 - 28	2"	TOP COURSE - AWI = 220 (MIN.)
	HMA Approach	330 LBS.	58 - 28	3"	HMA, 5E3 BASE COURSE
HMA BOND COAT		0.10 GAL.			SS-1H (FOR INFORMATION ONLY)

NO.	REVISIONS	DATE	BY	BENCH MARK DATA	
				ELEV.	DESCRIPTION



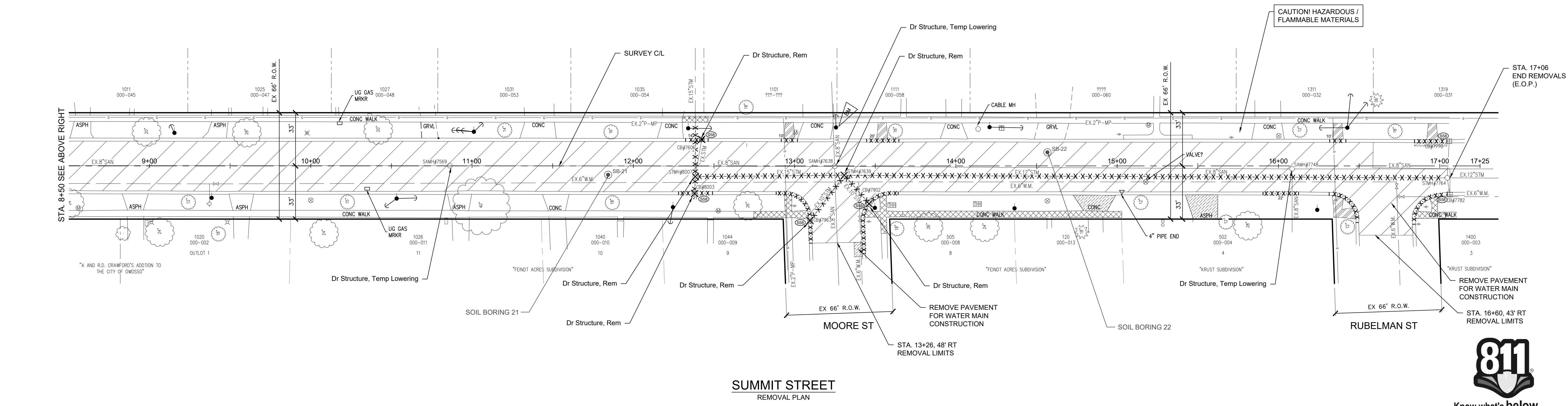
- LEGEND**
- XXXXXX Curb and Gutter, Rem
 - X-X-X-X- Sewer, Rem
 - XXX Dr Structure, Rem
 - ▨ HMA Surface, Rem
 - ▨ Pavt, Rem
 - ▨ Sidewalk, Rem
 - ▨ Excavation Earth (Cost inclusive to Machine Grading, Modified)
 - ⊕ STANDARD SOIL EROSION KEY

NOTE:
CONTRACTOR SHALL PROVIDED SUFFICIENT PROTECTION FOR BOTH MOTORISTS AND WORKERS THROUGHOUT WORKSITE SO AS TO ALLOW SAFE PASSAGE AROUND WORK AREAS - AS DIRECTED BY THE ENGINEER

**SUMMIT STREET
REMOVAL PLAN**

BM EL. 745.27
RAILROAD SPIKE IN EAST FACE POWER POLE. (NAVD 88)

REMOVAL QUANTITIES (THIS SHEET)		
QUANTITY	UNIT	WORK ITEM
6425	Syd	HMA Surface, Rem
225	Syd	Sidewalk, Rem
670	Ft	Curb and Gutter, Rem
55	Syd	Pavt, Rem
15	Ea	Dr Structure, Rem
1108	Ft	Sewer, Rem, Less than 24 inch
16	Ea	Erosion Control, Inlet Protection, Fabric Drop
1810	Cyd	Excavation, Earth
7	Ea	Dr Structure, Temp Lowering



**SUMMIT STREET
REMOVAL PLAN**



**CITY OF OWOSSO, MICHIGAN
ENGINEERING DIVISION
DEPT. OF PUBLIC SERVICE**

NO.	REVISIONS	DATE	BY

APPROVED BY: _____
CHECKED BY: _____

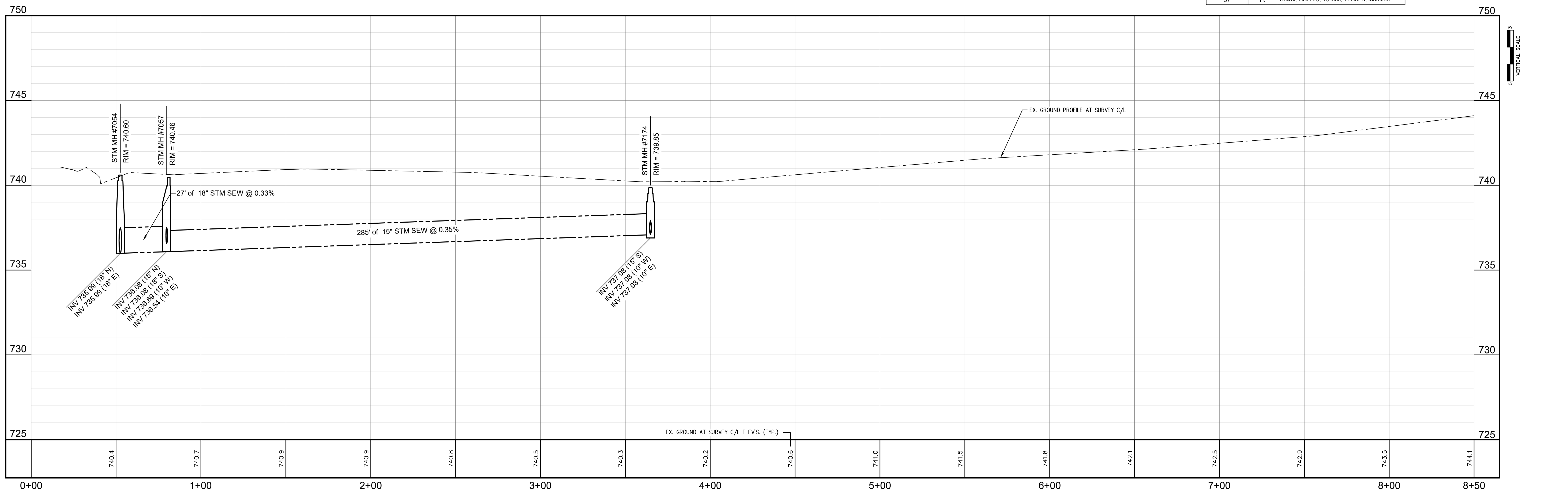
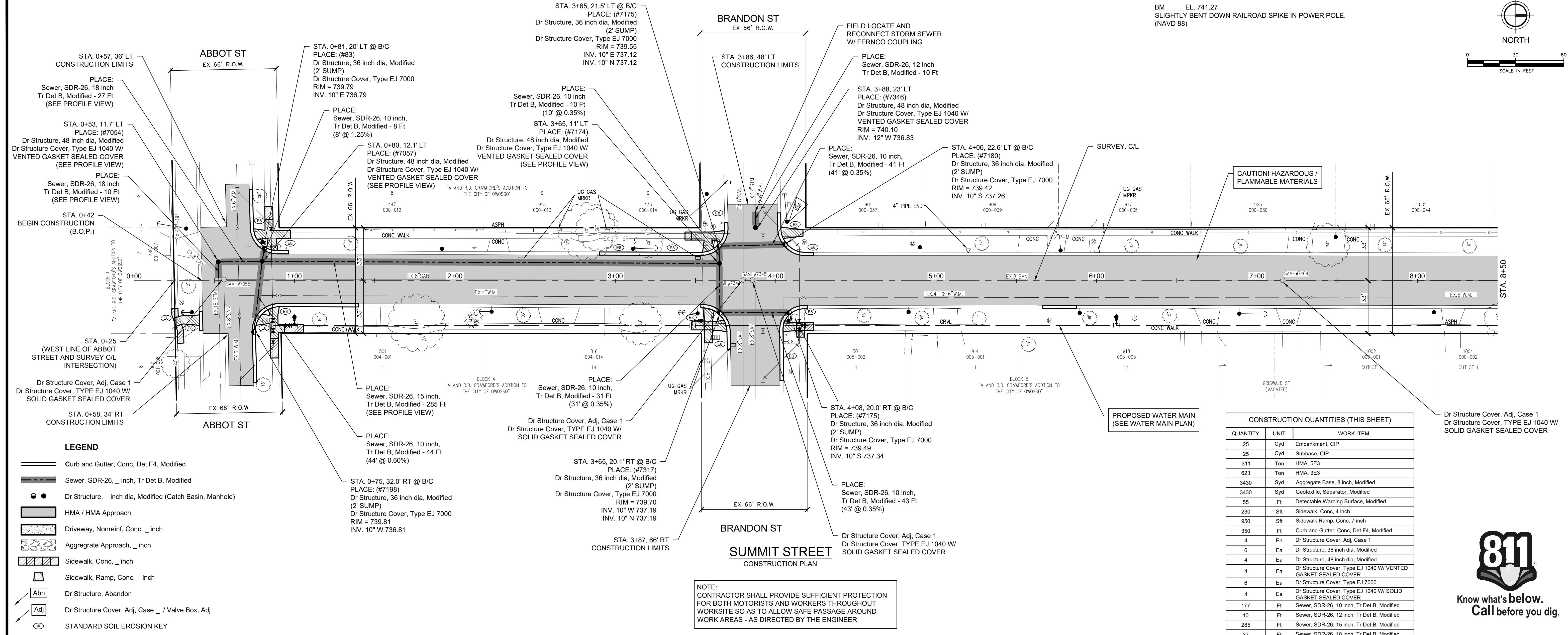
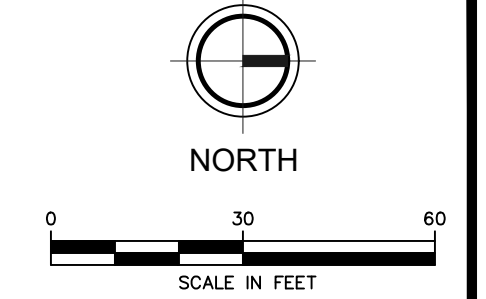
BENCH MARK DATA	DESCRIPTION	ELEV.

**2020 STREET PROGRAM CONTRACT 1
DWRF PROJECT NUMBER 7457-01 PHASE 1
SUMMIT ST
REMOVAL PLAN**

FIELD BOOK
PG. _____
NOVEMBER, 2019
PROJECT NO. 832190

SU3

BM EL. 741.27
SLIGHTLY BENT DOWN RAILROAD SPIKE IN POWER POLE.
(NAVD 88)



2020 STREET PROGRAM CONTRACT 1
DWRF PROJECT NUMBER 7457-01 PHASE 1
SUMMIT ST
ROAD PLAN AND PROFILE

NOVEMBER 2019
PROJECT NO. 832180

FIELD BOOK
PG.

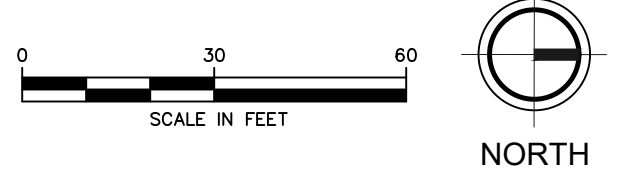
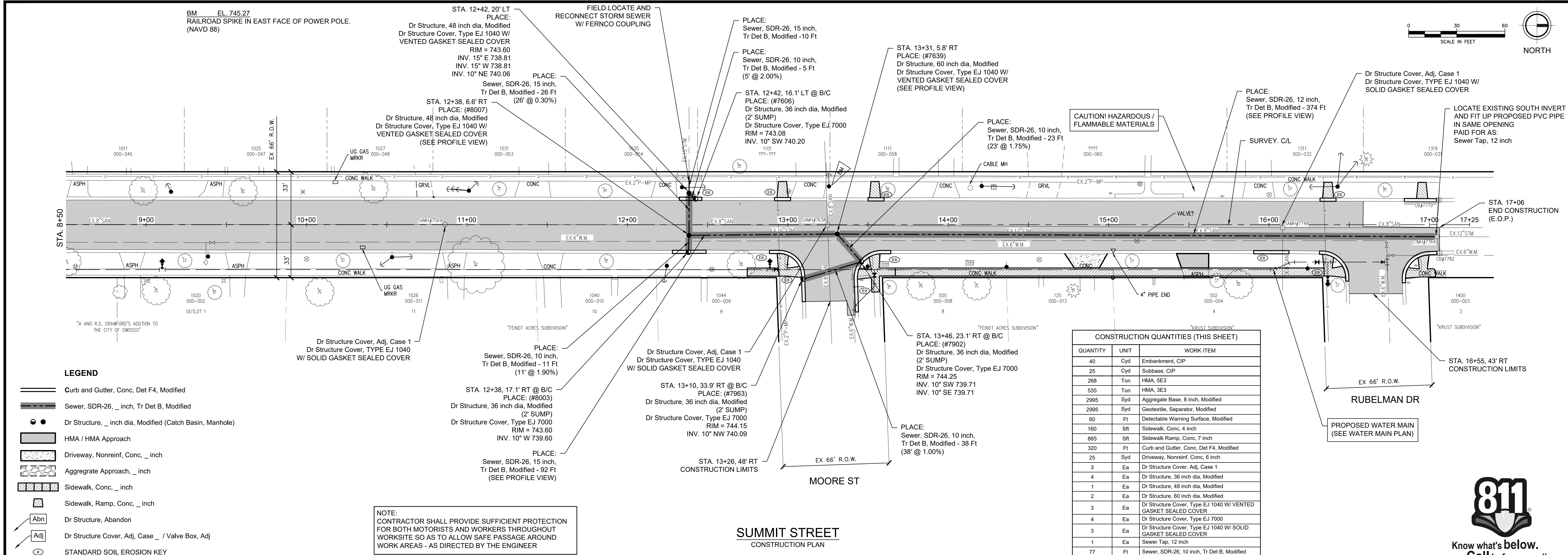
811
Know what's below.
Call before you dig.

NO.	REVISIONS	DATE	BY

BENCH MARK DATA

ELEV.	DESCRIPTION

CHECKED BY: ORIGINAL PLAN
APPROVED BY:

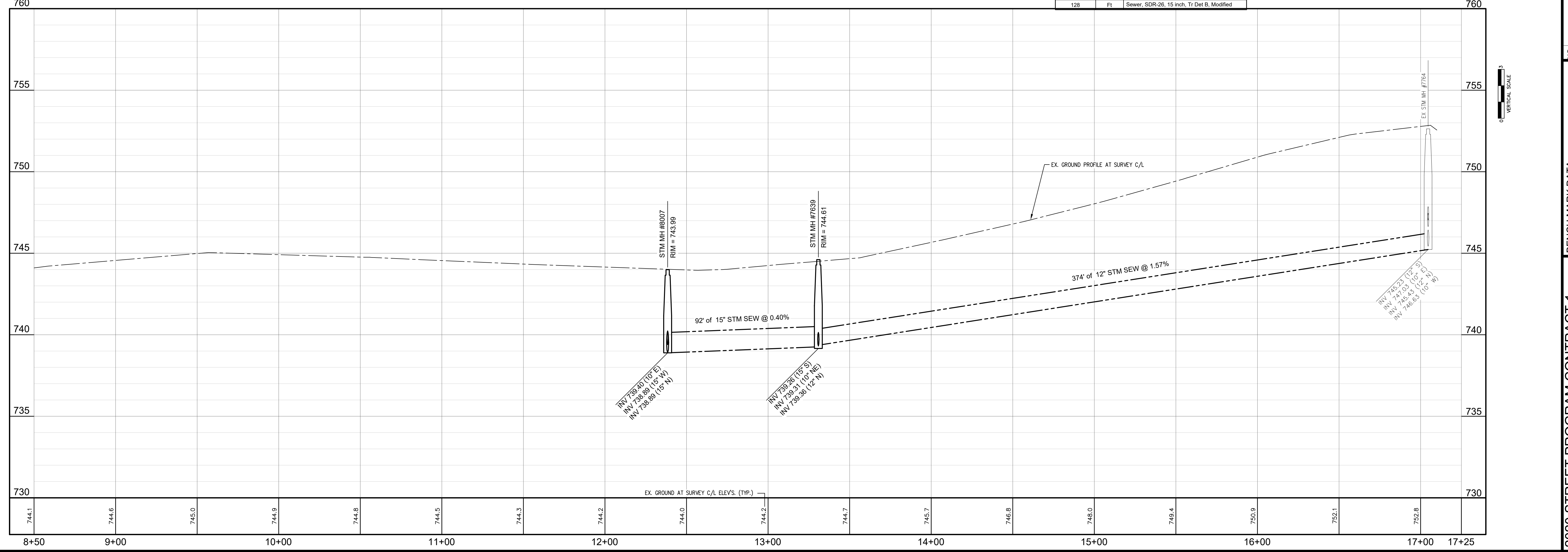


- LEGEND**
- Curb and Gutter, Conc, Det F4, Modified
 - Sewer, SDR-26, _ inch, Tr Det B, Modified
 - Dr Structure, _ inch dia, Modified (Catch Basin, Manhole)
 - ▨ HMA / HMA Approach
 - ▨ Driveway, Nonreinf, Conc, _ inch
 - ▨ Aggregate Approach, _ inch
 - ▨ Sidewalk, Conc, _ inch
 - ▨ Sidewalk, Ramp, Conc, _ inch
 - Abn Dr Structure, Abandon
 - Adj Dr Structure Cover, Adj, Case _ / Valve Box, Adj
 - ⊙ STANDARD SOIL EROSION KEY

NOTE:
 CONTRACTOR SHALL PROVIDE SUFFICIENT PROTECTION FOR BOTH MOTORISTS AND WORKERS THROUGHOUT WORKSITE SO AS TO ALLOW SAFE PASSAGE AROUND WORK AREAS - AS DIRECTED BY THE ENGINEER

CONSTRUCTION QUANTITIES (THIS SHEET)

QUANTITY	UNIT	WORK ITEM
40	Cyd	Embankment, CIP
25	Cyd	Subbase, CIP
268	Ton	HMA, SE3
535	Ton	HMA, 3E3
2995	Syd	Aggregate Base, 8 inch, Modified
2995	Syd	Geotextile, Separator, Modified
60	Ft	Detectable Warning Surface, Modified
160	Sft	Sidewalk, Conc, 4 inch
865	Sft	Sidewalk Ramp, Conc, 7 inch
320	Ft	Curb and Gutter, Conc, Det F4, Modified
25	Syd	Driveway, Nonreinf, Conc, 6 inch
3	Ea	Dr Structure Cover, Adj, Case 1
4	Ea	Dr Structure, 36 inch dia, Modified
1	Ea	Dr Structure, 48 inch dia, Modified
2	Ea	Dr Structure, 60 inch dia, Modified
3	Ea	Dr Structure Cover, Type EJ 1040 W/ VENTED GASKET SEALED COVER
4	Ea	Dr Structure Cover, Type EJ 7000
3	Ea	Dr Structure Cover, Type EJ 1040 W/ SOLID GASKET SEALED COVER
1	Ea	Sewer Tap, 12 inch
77	Ft	Sewer, SDR-26, 10 inch, Tr Det B, Modified
374	Ft	Sewer, SDR-26, 12 inch, Tr Det B, Modified
128	Ft	Sewer, SDR-26, 15 inch, Tr Det B, Modified



CITY OF OWOSSO, MICHIGAN
 ENGINEERING DIVISION
 DEPT. OF PUBLIC SERVICE

NO.	DATE	BY	REVISIONS

2020 STREET PROGRAM CONTRACT 1
 DWRF PROJECT NUMBER 7457-01 PHASE 1
 SUMMIT ST
 ROAD PLAN AND PROFILE

FIELD BOOK
 PG.
 NOVEMBER, 2019
 PROJECT NO. 832190

CHECKED BY
 APPROVED BY

ORIGINAL PLAN





Construction Testing Services
3300 E. Bristol Road, Burton, MI 48529
PHONE: (810) 603-0766
FAX: (810) 603-0786

JOB NO. S-17-254 LOG OF SOIL BORING NO. 20
PROJECT: 2018 Street Program
LOCATION: Owosso, Michigan
DATE: 11/8/17 SURFACE ELEVATION: Existing

Sample & Type	Depth	Legend	Soil Description	SPT Blows per ft	Moisture %	Natural Wt. P.C.F.	Unc. Comp. Strength	Str. %
	1		3" Asphalt					
			9" Fill Sand - Medium Compact, Moist, Brown w/Gravel					
20A	2		Possible Topsoil/Possible Fill Sand - Loose, Moist, Dark Brown w/Gravel	1				
SS				2				
	3		Possible Fill Sand - Loose, Moist, Fine Brown w/Variegated Clay, Pebble & tr/Possible Topsoil	2				
	4							
	5		4'7" Sand - Medium Compact, Moist, Fine, Brown					
20B	6		6'0" Sand - Compact, Wet, Fine, Brown	3				
SS				6				
	7		7'0" Sand - Compact, Wet, Fine, Brown	8				
	8		End of Boring					
	9							
	10							
	11							
	12							
	13							
	14							
	15							
	16							
	17							
	18							
	19							
	20							
	21							

TYPE OF SAMPLE D. - DISTURBED U.L. - UNDIST. LINER S.T. - SHELBY TUBE S.S. - SPLIT SPOON R.C. - ROCK CORE OTHER -	BORING PLUGGED WITH NATURAL SOIL * The soil descriptions shown on the logs are from visual observations. No classification tests were performed. Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30"; Count Made At 6" Intervals.	GROUND WATER OBSERVATIONS G.W. ENCOUNTERED AT FT. INS. G.W. ENCOUNTERED AT FT. INS. G.W. ON COMPLETION FT. INS. G.W. AFTER 1 HOUR FT. INS. G.W. VOLUMES None
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Construction Testing Services
3300 E. Bristol Road, Burton, MI 48529
PHONE: (810) 603-0766
FAX: (810) 603-0786

JOB NO. S-17-254 LOG OF SOIL BORING NO. 21
PROJECT: 2018 Street Program
LOCATION: Owosso, Michigan
DATE: 11/8/17 SURFACE ELEVATION: Existing

Sample & Type	Depth	Legend	Soil Description	SPT Blows per ft	Moisture %	Natural Wt. P.C.F.	Unc. Comp. Strength	Str. %
	1		3" Asphalt					
			7" Possible Fill Sand - Medium Compact, Moist, Brown w/Gravel					
21A	2		Possible Topsoil/Possible Fill Clay - Firm, Moist, Sandy, Black w/occ Pebble	1				
SS				2				
	3		Clay - Firm, Moist, Silty, Sandy, Brown w/Green Tint & occ/Dark Streaks	4				
	4							
	5		4'7" Sand - Compact, Moist, Fine, Brown					
21B	6		6'0" Sand - Compact, Moist, Fine, Brown	3				
SS				5				
	7		7'0" Sand - Compact, Wet, Fine, Brown	6				
	8		End of Boring					
	9							
	10							
	11							
	12							
	13							
	14							
	15							
	16							
	17							
	18							
	19							
	20							
	21							

TYPE OF SAMPLE D. - DISTURBED U.L. - UNDIST. LINER S.T. - SHELBY TUBE S.S. - SPLIT SPOON R.C. - ROCK CORE OTHER -	BORING PLUGGED WITH NATURAL SOIL * The soil descriptions shown on the logs are from visual observations. No classification tests were performed. Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30"; Count Made At 6" Intervals.	GROUND WATER OBSERVATIONS G.W. ENCOUNTERED AT FT. INS. G.W. ENCOUNTERED AT FT. INS. G.W. ON COMPLETION FT. INS. G.W. AFTER 1 HOUR FT. INS. G.W. VOLUMES None
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Construction Testing Services
3300 E. Bristol Road, Burton, MI 48529
PHONE: (810) 603-0766
FAX: (810) 603-0786

JOB NO. S-17-254 LOG OF SOIL BORING NO. 22
PROJECT: 2018 Street Program
LOCATION: Owosso, Michigan
DATE: 11/8/17 SURFACE ELEVATION: Existing

Sample & Type	Depth	Legend	Soil Description	SPT Blows per ft	Moisture %	Natural Wt. P.C.F.	Unc. Comp. Strength	Str. %
	1		4" Asphalt					
			3" Deteriorated Asphalt					
			40" Fill Sand - Compact, Moist, Brown w/Gravel					
22A	2		18" Possible Fill Sand - Medium Compact, Moist, Fine, Brown	2				
SS				3				
	3			3				
	4		Clay - Firm, Moist, Silty, Sandy, Variegated w/Pebble					
	5							
22B	6		6'0" Clay - Very Stiff, Moist, Silty, Variegated w/occ Pebble	4				
SS				8				
	7		7'0" Clay - Very Stiff, Moist, Silty, Variegated w/occ Pebble	9				
	8		End of Boring					
	9							
	10							
	11							
	12							
	13							
	14							
	15							
	16							
	17							
	18							
	19							
	20							
	21							

TYPE OF SAMPLE D. - DISTURBED U.L. - UNDIST. LINER S.T. - SHELBY TUBE S.S. - SPLIT SPOON R.C. - ROCK CORE OTHER -	BORING PLUGGED WITH NATURAL SOIL * The soil descriptions shown on the logs are from visual observations. No classification tests were performed. Standard Penetration Test - Driving 2" OD Sampler 1' With 140# Hammer Falling 30"; Count Made At 6" Intervals.	GROUND WATER OBSERVATIONS G.W. ENCOUNTERED AT FT. INS. G.W. ENCOUNTERED AT FT. INS. G.W. ON COMPLETION FT. INS. G.W. AFTER 1 HOUR FT. INS. G.W. VOLUMES None
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NO.	REVISIONS	DATE	BY

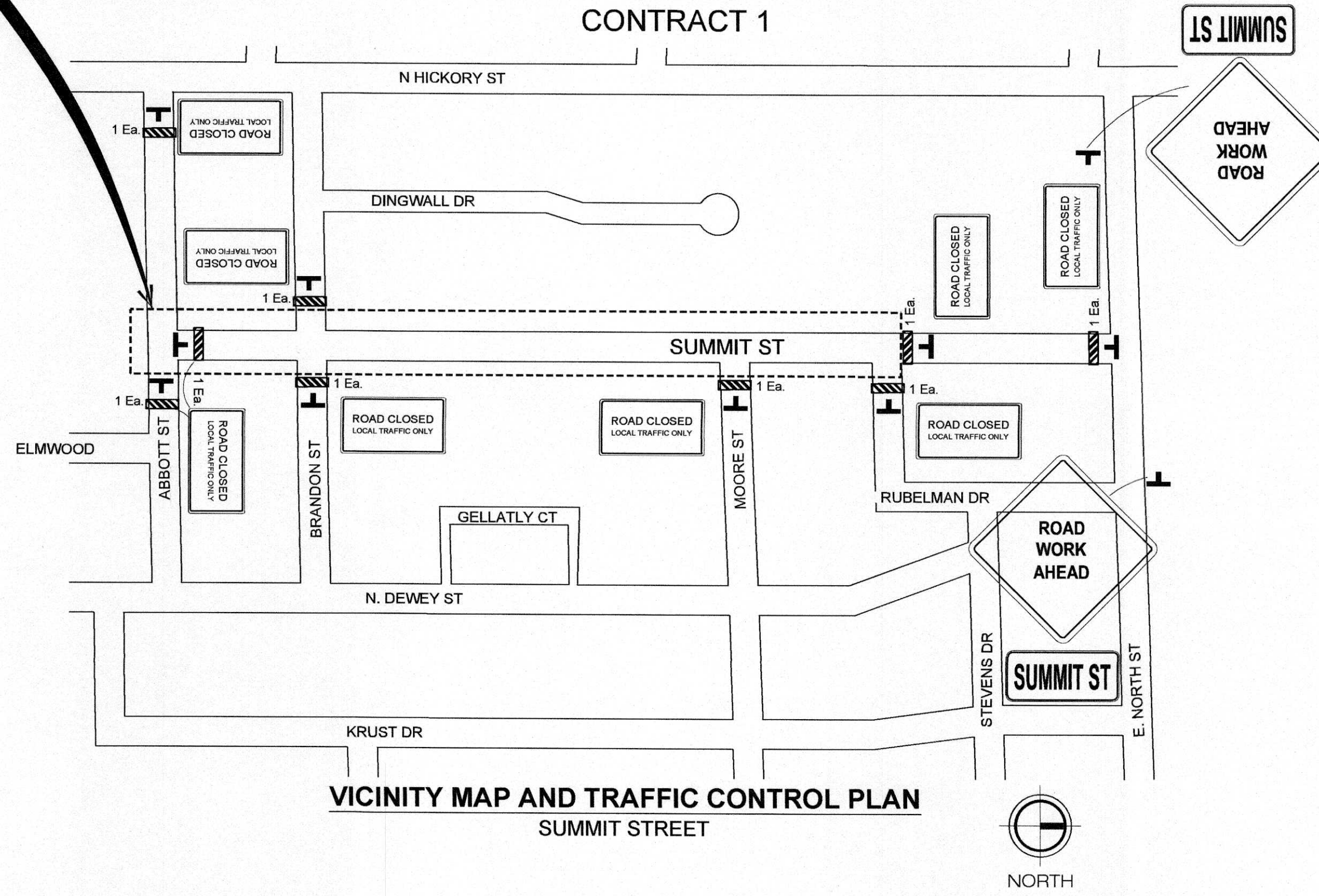
NO.	DESCRIPTION

PROJECT LOCATION - SUMMIT ST
 B.O.P. STA. 00+42 TO E.O.P. STA. 17+06
 TOTAL LENGTH = 1,664 FT (0.32 MILES)

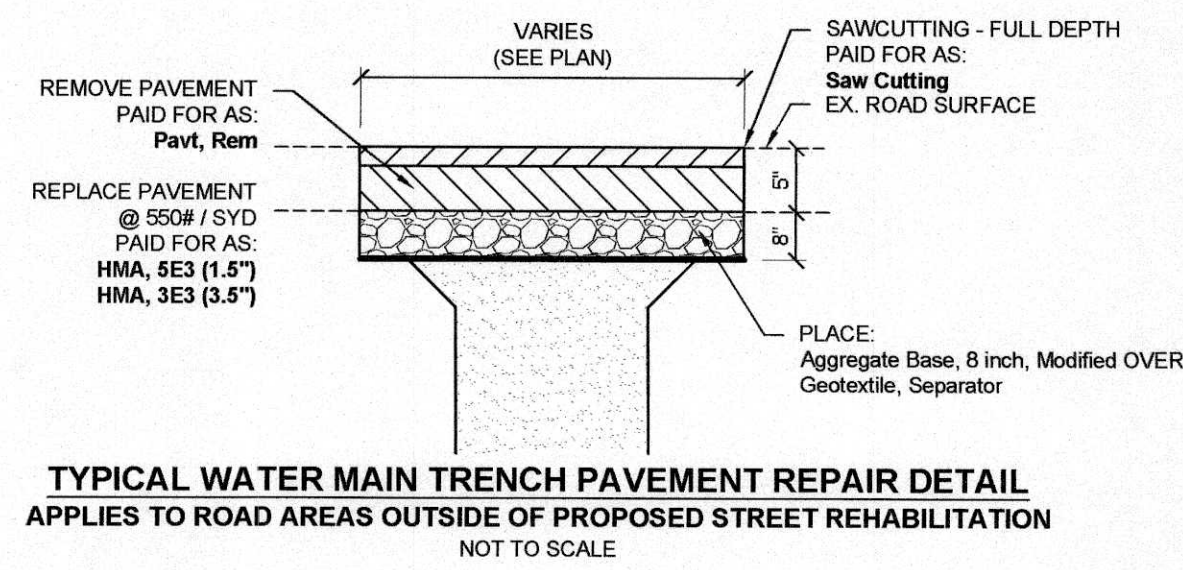
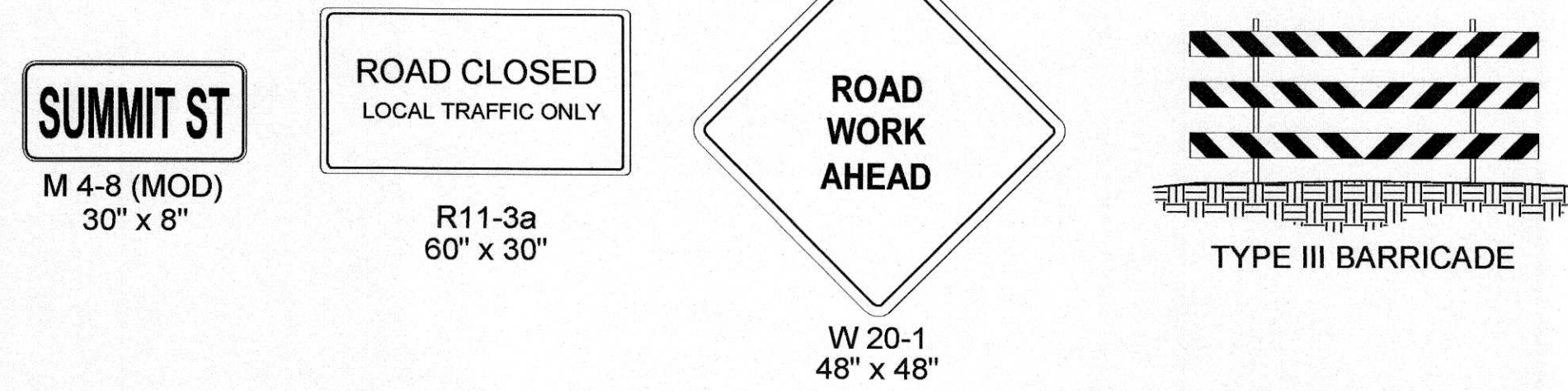
SUMMIT STREET

WATER MAIN
 CITY OF OWOSSO
 2020 STREET PROGRAM
 CONTRACT 1

SHEET NO.	DESCRIPTION
SU7	SUMMIT ST - WATER MAIN COVER SHEET & TRAFFIC CONTROL PLAN
SU8 - SU9	SUMMIT ST - WATER MAIN PLAN AND PROFILE



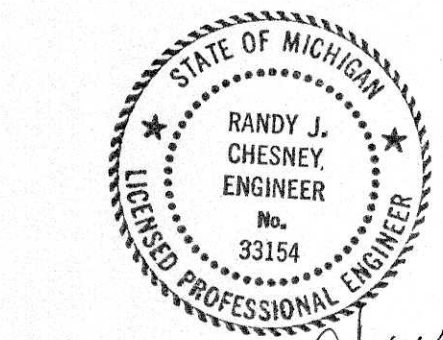
VICINITY MAP AND TRAFFIC CONTROL PLAN
 SUMMIT STREET



THE MATERIAL AND METHODS FOR WATER MAIN CONSTRUCTION CONFORM TO THE STANDARDS OF THE AMERICAN WATER WORKS ASSOCIATION (AWWA) AND THE MICHIGAN SAFE DRINKING WATER ACT 1976 PA 399, AS AMENDED, AND THE ADMINISTRATIVE RULES.

CONTRACT FOR: 0.32 MILES OF WATER MAIN AND SERVICES REPLACEMENT.

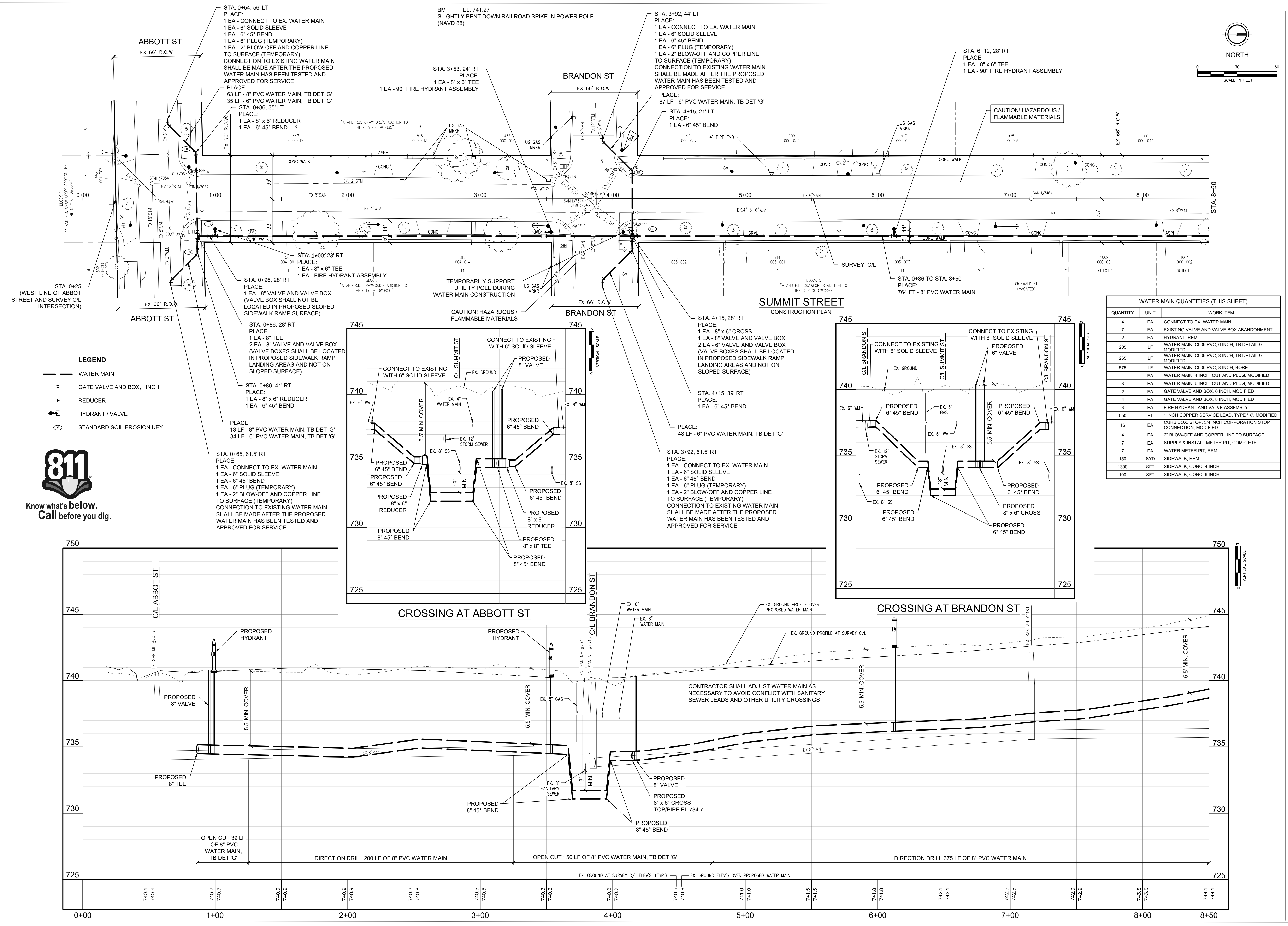
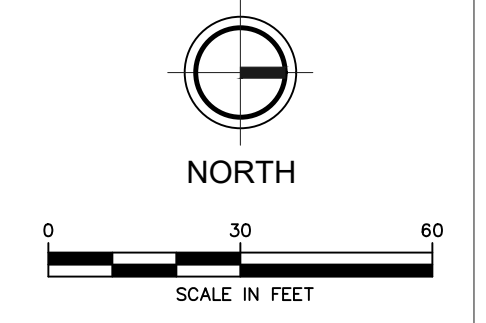
CITY OF OWOSSO APPROVAL



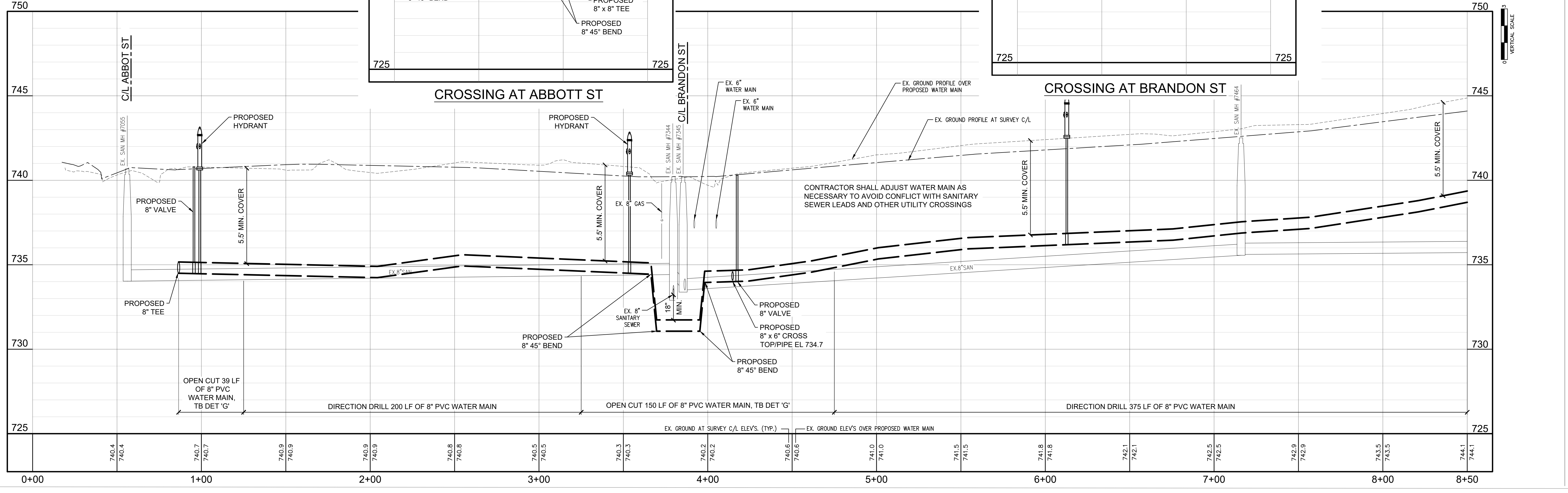
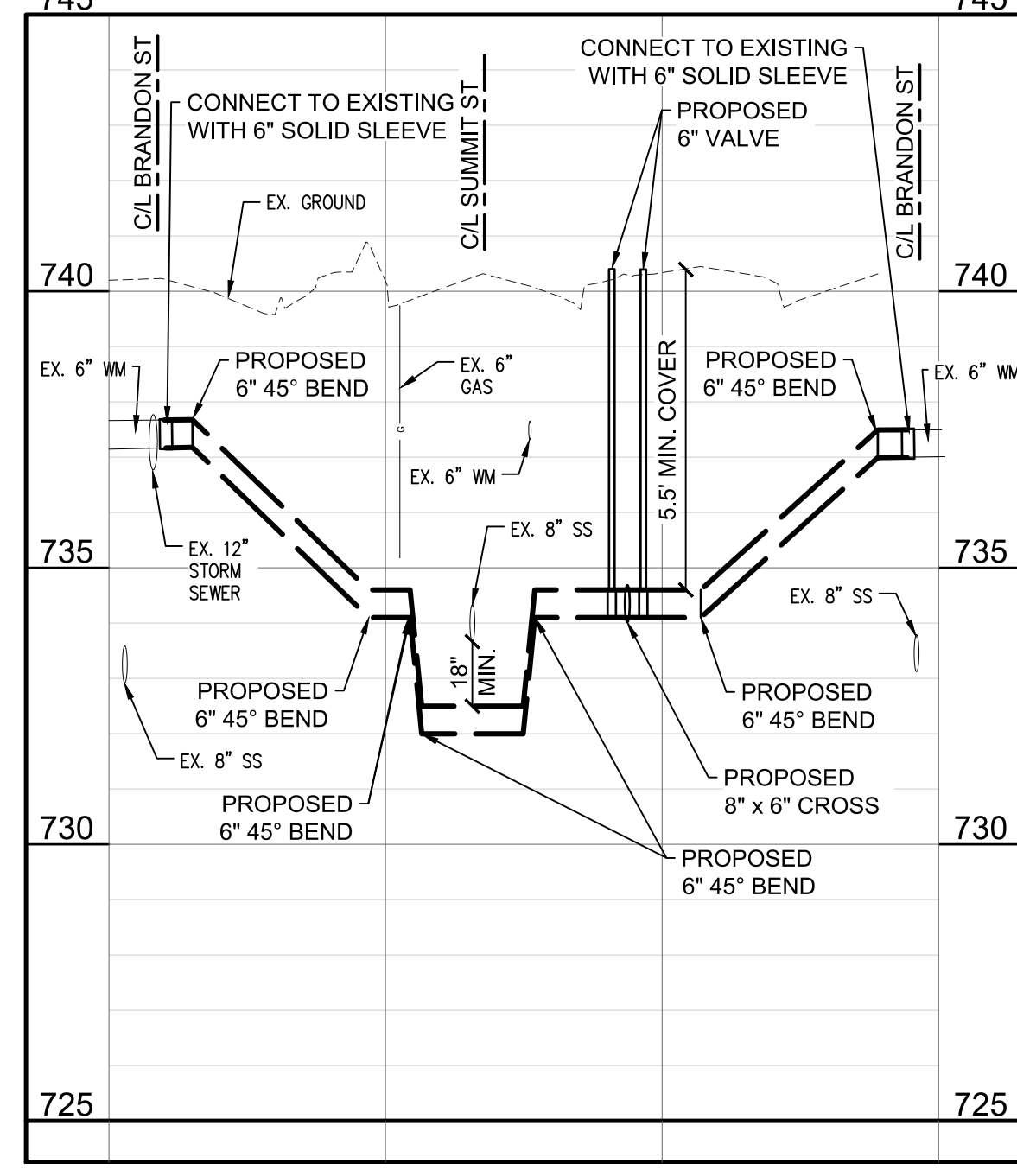
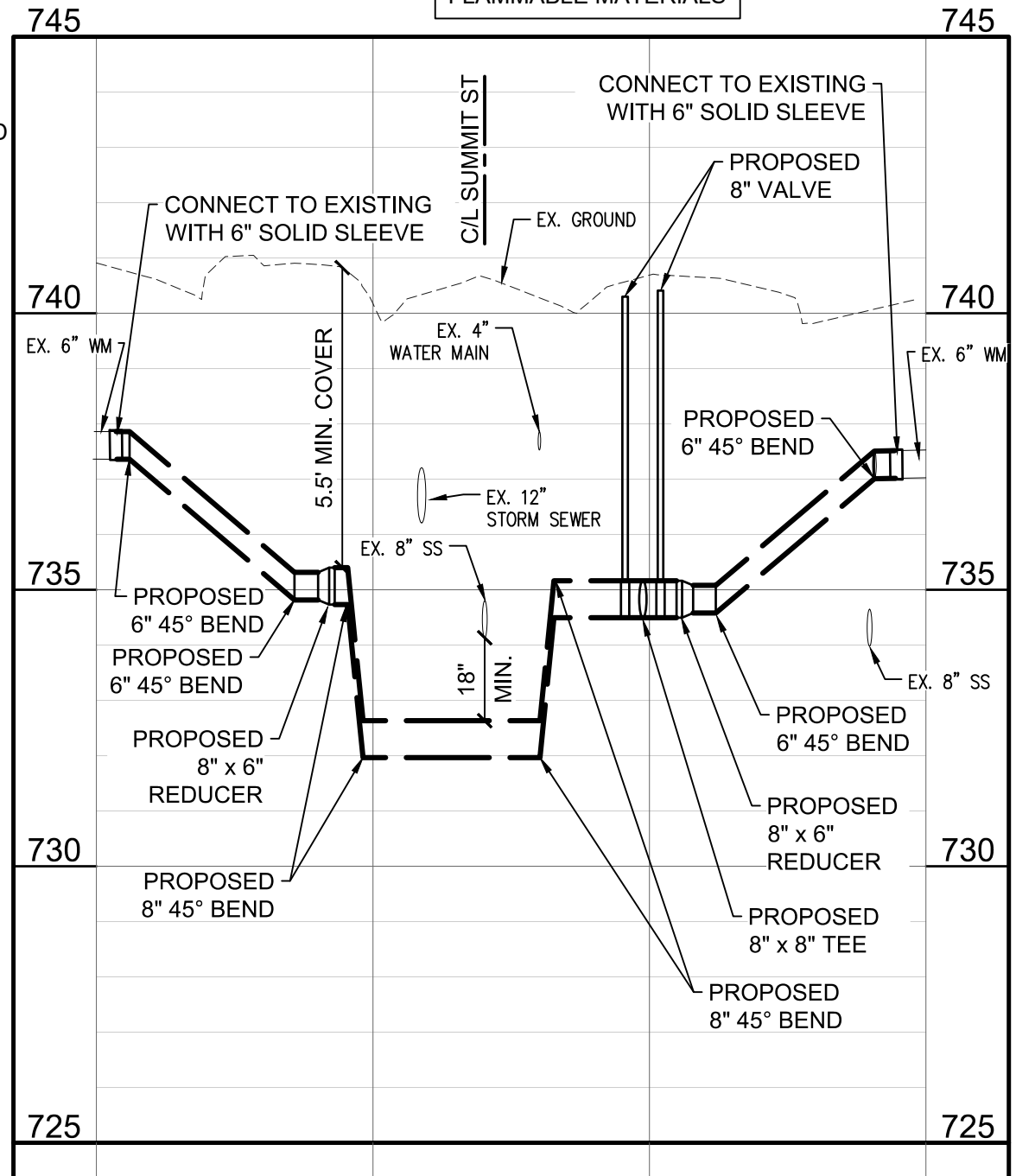
Randy Chesney

CITY ENGINEER *Randy Chesney* 33154 11-8-2019
 RANDY CHESNEY, PE REGISTRATION NUMBER DATE

CITY OF OWOSSO, MICHIGAN ENGINEERING DIVISION DEPT. OF PUBLIC SERVICE	
NO.	BY
DATE	DATE
REVISIONS	REVISIONS
CHECKED BY	APPROVED BY
DESCRIPTION	ORIGINAL PLAN
BENCH MARK DATA	
ELEV.	
2020 STREET PROGRAM CONTRACT 1 DWRP PROJECT NUMBER 7457-01 PHASE 1	FIELD BOOK PS.
SUMMIT ST - WATER MAIN COVER SHEET & TRAFFIC CONTROL PLAN	
NOVEMBER, 2019 PROJECT NO. 893900	
SU7	



WATER MAIN QUANTITIES (THIS SHEET)		
QUANTITY	UNIT	WORK ITEM
4	EA	CONNECT TO EX. WATER MAIN
7	EA	EXISTING VALVE AND VALVE BOX ABANDONMENT
2	EA	HYDRANT, REM
205	LF	WATER MAIN, C909 PVC, 6 INCH, TB DETAIL G, MODIFIED
265	LF	WATER MAIN, C909 PVC, 8 INCH, TB DETAIL G, MODIFIED
575	LF	WATER MAIN, C900 PVC, 8 INCH, BORE
1	EA	WATER MAIN, 4 INCH, CUT AND PLUG, MODIFIED
8	EA	WATER MAIN, 6 INCH, CUT AND PLUG, MODIFIED
2	EA	GATE VALVE AND BOX, 6 INCH, MODIFIED
4	EA	GATE VALVE AND BOX, 8 INCH, MODIFIED
3	EA	FIRE HYDRANT AND VALVE ASSEMBLY
550	FT	1 INCH COPPER SERVICE LEAD, TYPE "K", MODIFIED
16	EA	CURB BOX, STOP, 3/4 INCH CORPORATION STOP CONNECTION, MODIFIED
4	EA	2" BLOW-OFF AND COPPER LINE TO SURFACE
7	EA	SUPPLY & INSTALL METER PIT, COMPLETE
7	EA	WATER METER PIT, REM
150	SYD	SIDEWALK, REM
1300	SFT	SIDEWALK, CONC, 4 INCH
100	SFT	SIDEWALK, CONC, 6 INCH



- LEGEND**
- WATER MAIN
 - x GATE VALVE AND BOX, INCH
 - ▶ REDUCER
 - ⊕ HYDRANT / VALVE
 - ⊖ STANDARD SOIL EROSION KEY



REVISION:

CITY OF OWOSO
SHIAWASSEE COUNTY, MICHIGAN
2020 STREET PROGRAM

SUMMIT ST - WATER MAIN PLAN AND PROFILE
DWRP PROJECT NUMBER 7457-01 PHASE 1

DESIGN TEAM:
GLR, DPH
CHECK BY:
SMB MAR 2018
DRAWING INFORMATION:
832190_11_SUS_SU9_WMPP
110619 crw/mhr

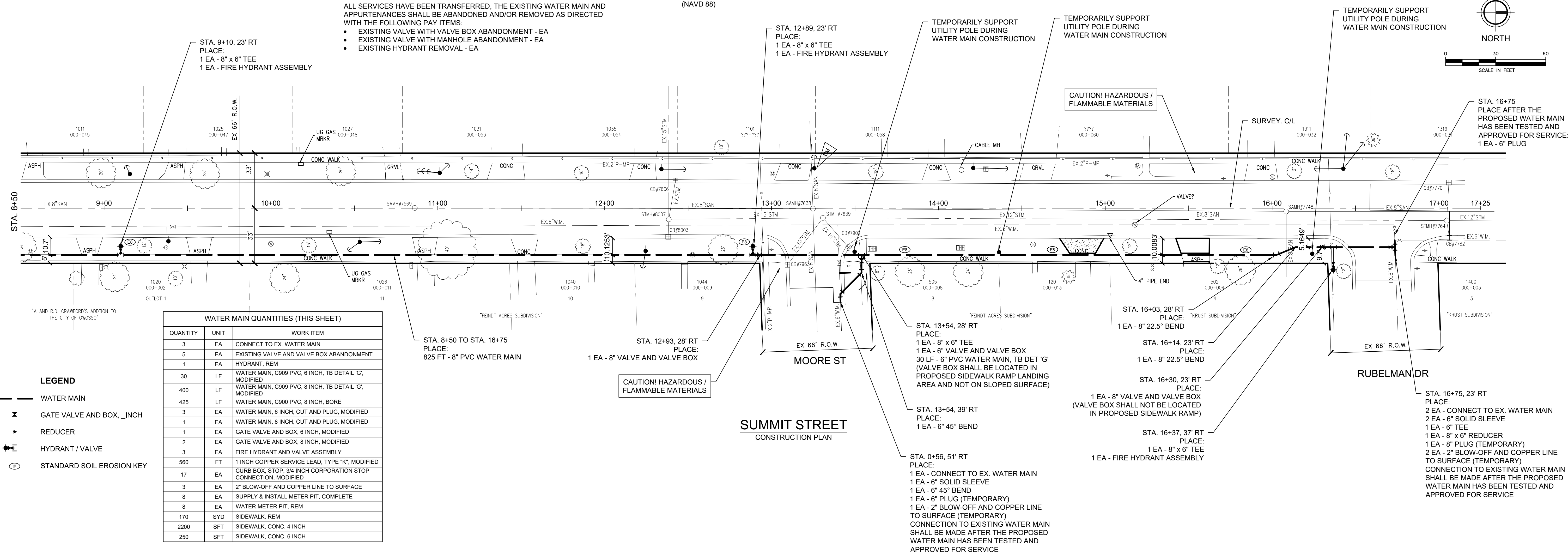
NOVEMBER, 2019
F&V PROJECT NO:
832190



EXISTING WATER MAIN ABANDONMENT
 ONCE THE PROPOSED WATER MAIN HAS BEEN TESTED AND ACCEPTED AND ALL SERVICES HAVE BEEN TRANSFERRED, THE EXISTING WATER MAIN AND APPURTENANCES SHALL BE ABANDONED AND/OR REMOVED AS DIRECTED WITH THE FOLLOWING PAY ITEMS:

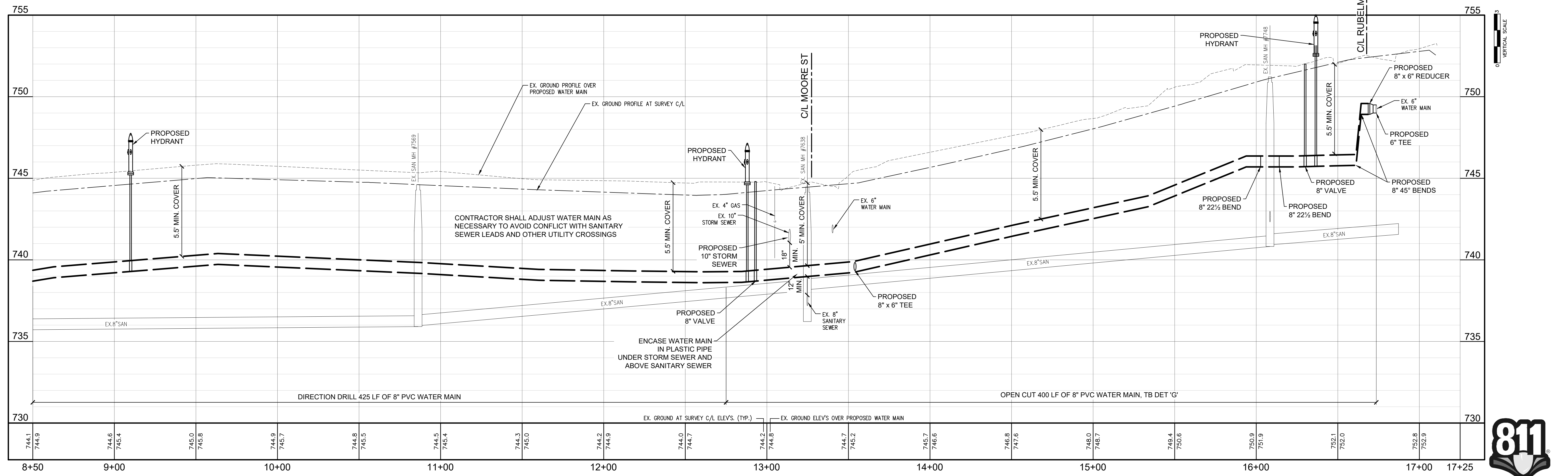
- EXISTING VALVE WITH VALVE BOX ABANDONMENT - EA
- EXISTING VALVE WITH MANHOLE ABANDONMENT - EA
- EXISTING HYDRANT REMOVAL - EA

BM EL. 745.27
 RAILROAD SPIKE IN EAST FACE OF POWER POLE.
 (NAVD 88)



WATER MAIN QUANTITIES (THIS SHEET)		
QUANTITY	UNIT	WORK ITEM
3	EA	CONNECT TO EX. WATER MAIN
5	EA	EXISTING VALVE AND VALVE BOX ABANDONMENT
1	EA	HYDRANT, REM
30	LF	WATER MAIN, C909 PVC, 6 INCH, TB DETAIL 'G', MODIFIED
400	LF	WATER MAIN, C909 PVC, 8 INCH, TB DETAIL 'G', MODIFIED
425	LF	WATER MAIN, C900 PVC, 8 INCH, BORE
3	EA	WATER MAIN, 6 INCH, CUT AND PLUG, MODIFIED
1	EA	WATER MAIN, 8 INCH, CUT AND PLUG, MODIFIED
1	EA	GATE VALVE AND BOX, 6 INCH, MODIFIED
2	EA	GATE VALVE AND BOX, 8 INCH, MODIFIED
3	EA	FIRE HYDRANT AND VALVE ASSEMBLY
560	FT	1 INCH COPPER SERVICE LEAD, TYPE 'K', MODIFIED
17	EA	CURB BOX, STOP, 3/4 INCH CORPORATION STOP CONNECTION, MODIFIED
3	EA	2\"/>

- LEGEND**
- WATER MAIN
 - ✕ GATE VALVE AND BOX, _INCH
 - ▶ REDUCER
 - ⊕ HYDRANT / VALVE
 - ⊙ STANDARD SOIL EROSION KEY



FLEISCHMANN & VANDENBRINK
 DESIGN, BUILD, OPERATE

9475 Holly Rd, Suite 201
 Grand Blanc, MI 48439
 P: 810.743.9120
 F: 810.743.1797

REVISION:

CITY OF OWOSSO
 SHIAWASSEE COUNTY, MICHIGAN
 2020 STREET PROGRAM

SUMMIT ST - WATER MAIN PLAN AND PROFILE
 DWRF PROJECT NUMBER 7457-01 PHASE 1

DESIGN TEAM:
 G.L.R., D.P.H.
 CHECK BY:
 S.M.B. MAR 2018
 DRAWING INFORMATION:
 832190_11_SUS_SU9_WMPP
 110619 crw/mhr

NOVEMBER, 2019
 P&V PROJECT NO.
 832190



Know what's below.
 Call before you dig.

SU9