COMCAST CABLEVISION 6095 WALL STREET STERLING HEIGHTS, MI 48312 CONTACT: TOM DICKINSON PHONE: 586.883.7412

CSX TRANSPORTATION INC. REAL ESTATE AND FACILITIES MANAGEMENT 500 WATER STREET, (J-180) JACKSONVILLE, FL 32202 CONTACT: ANN M JACKSON PHONE: 904.279.3953

BUCKEYE PARTNERS, L.P. CONTACT: CHRIS BETTS PHONE: 810.789.9180 OFFICE 313.549.1443 CELL Cbetts@buckeye.com

CONSUMERS ENERGY - ELECTRIC 3201 EAST COURT STREET FLINT, MICHIGAN 48501 CONTACT: MARCEY CONN PHONE: 810.760.3506

CONSUMERS ENERGY 3201 EAST COURT STREET FLINT, MICHIGAN 48501 CONTACT: AaRON PARKER PHONE: 810.760.3486

CHARTER TOWNSHIP OF GENESEE 7244 N GENESEE ROAD PO BOX 215, GENESEE,, MICHIGAN 48437 CONTACT: ROBERT ELLIS, DPW MANAGER PHONE: 810.640.2000

FLINT COMMUNITY SCHOOLS 923 EAST KEARSLEY STREET FLINT, MI 48503 CONTACT: DERRICK LOPEZ, SUPERINTENDENT PHONE: 810.760.1000

SOIL EROSION & SEDIMENTATION CONTROL G-4610 BEECHER ROAD FLINT, MI 48532 CONTACT: LYNNETTE MEINZ, ENGINEER PHONE: 810.732.7870

CITY OF FLINT 702 WEST 12TH STREET TRANSPORTATION BUILDING FLINT, MI 48502 CONTACT: JOHN DALEY, DIRECTOR PHONE: 810.766.7343

CITY OF FLINT WATER SERVICE CENTER 3310 EAST COURT STREET FLINT, MICHIGAN 48506 CONTACT: ROB BINCSIK PHONE: 810.766.7202

CITY OF FLINT TRAFFIC ENGINEERING 702 WEST 12TH STREET FLINT, MI 48502 CONTACT: ROD McGAHA PHONE: 810.766.7135

MASS TRANSPORTATION AUTHORITY (MTA) 1401 SOUTH DORT HIGHWAY FLINT, MI 48503

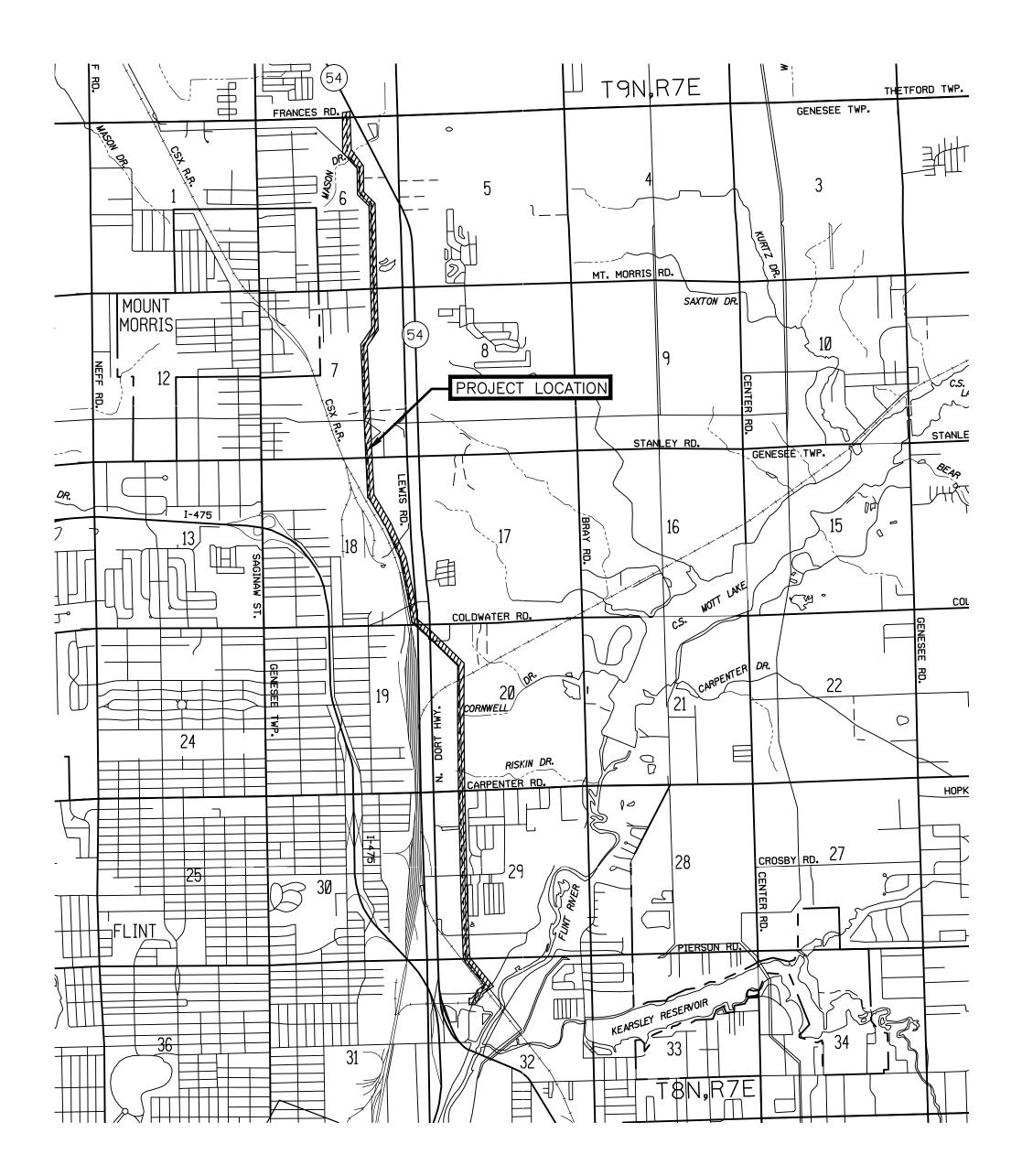
CONTACT: EDGAR BENNING, GENERAL MANAGER

MDOT - DAVISON TSC 9495 E POTTER RD DAVISON, MI 48423 CONTACT: EVAN HUIZENGA PHONE: 810.653.7470

PHONE: 810.767.6950

CONSTRUCTION PLANS FOR CITY OF FLINT 36" SECONDARY WATER SUPPLY

FROM CITY OF FLINT WATER TREATMENT PLANT TO GCDC NORTH WATER MAIN LOOP AT FRANCES ROAD



LOCATION MAP NO SCALE CITY OF FLINT AND GENESEE TWP

GENESEE COUNTY, MI

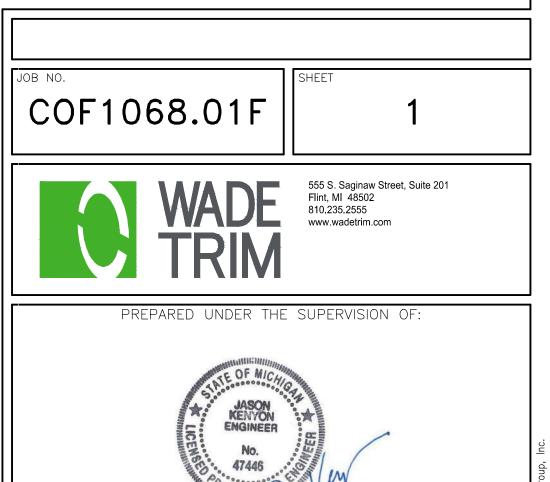
KEY MAP

NOT TO SCALE

PROJECT LOCATION:

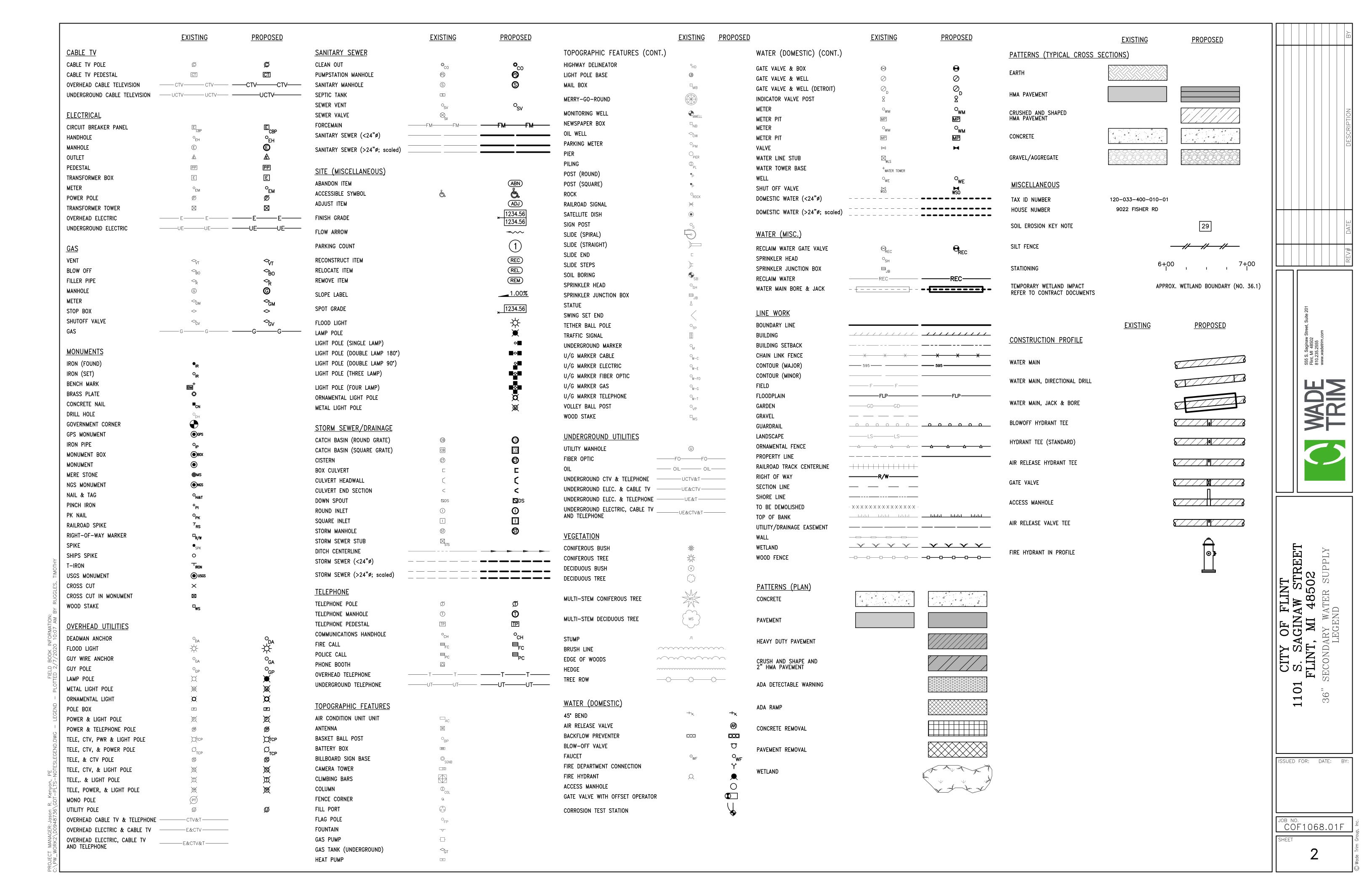
GENESEE COUNTY, MI

SHEET INDEX	
GENERAL SHEETS	SHEET NO.
COVER SHEET	1
LEGEND	2
GENERAL NOTES	3
CITY OF FLINT NOTE SHEET	4
STANDARD DETAIL SHEETS	5 – 18
WETLAND RESTORATION DETAIL SHEETS	19 – 23
PLAN SHEET INDEX	25 – 26
TRAFFIC CONTROL PLAN	24
36" WATER MAIN PLAN AND PROFILES	27 – 65
SOIL BORING LOG SHEETS	66 - 69
STRUCTURAL SHEETS	
STRUCTURAL GENERAL NOTES	S-0
GCDC METER VAULT AT FRANCES RD	S-1
CITY OF FLINT METER VAULT	S-2
TYPICAL STRUCTURAL DETAILS	S-3
PROCESS SHEETS	
PROPOSED- GCDC METER VAULT AT FRANCES RD	P-1
PROPOSED CITY OF FLINT METER VAULT	P-2
CONTROL STATION 2 MODIFICATIONS	P-3 - P-6
ALTITUDE VALVE REMOVAL & REPLACEMENT	P-7
METER VAULT — EXISTING CONDITIONS	P-8
ELECTRICAL SHEETS	
PROPOSED - GCDC METER VAULT AT FRANCES RD	E-1 - E-3
PROPOSED CITY OF FLINT METER VAULT	E-4 - E-6
CONTROL STATION 2 MODIFICATIONS	E-7 - E-13
CONTROL STATION 3 MODIFICATIONS	E-14 - E15
ALTITUDE VALVE REMOVAL & REPLACEMENT	E-16 - E-18
METER VAULT	E-19 - E20
ELECTRICAL DETAILS	E-21 - E23



Know what's below. Call before you dig.

ISSUED FOR BID 2/10/2020



ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE FINAL APPROVED CONSTRUCTION PLANS, THE SPECIFICATIONS AND SUPPLEMENTARY CONDITIONS, AND THE STANDARD DETAILS HEREIN. ANY DEVIATIONS FROM THESE DOCUMENTS WILL NOT BE PERMITTED, UNLESS OTHERWISE APPROVED BY THE OWNER OR ENGINEER.

2. BONDS AND INSURANCE

PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE A PERFORMANCE BOND, A LABOR AND MATERIAL PAYMENT BOND, AND ALL INSURANCE DOCUMENTS TO THE OWNER, AS REQUIRED BY THE CONTRACT DOCUMENTS. UPON COMPLETION OF THE WORK, AND PRIOR TO FINAL APPROVAL, THE CONTRACTOR SHALL FURNISH THE OWNER WITH THE REQUIRED MAINTENANCE AND GUARANTEE BONDS, AS REQUIRED BY THE CONTRACT DOCUMENTS.

3. PRE-CONSTRUCTION MEETING

A PRE-CONSTRUCTION MEETING SHALL BE HELD PRIOR TO BEGINNING THE WORK. NO PRE-CONSTRUCTION MEETING SHALL BE HELD PRIOR TO OBTAINING THE STATE CONSTRUCTION PERMITS. THE MEETING'S TIME, PLACE, AND ATTENDEES SHALL BE ARRANGED BY THE ENGINEER. THE MUNICIPALITY, THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS, PROJECT OWNER, CONTRACTOR, AND ANY AFFECTED UTILITIES SHALL BE INVITED, AS A MINIMUM, TO THE PRE-CONSTRUCTION MEETING.

4. CONSTRUCTION STAKING

THE CONTRACTOR SHALL, AT THEIR OWN EXPENSE, PROVIDE A PROFESSIONAL LAND SURVEYOR, LICENSED IN THE STATE OF MICHIGAN, TO PROVIDE ALIGNMENT AND GRADE STAKES, AND CUT SHEETS. THE SURVEYOR SHALL PROVIDE GRADE STAKES AND CUT SHEETS AT ALL STRUCTURES AND AT A MAXIMUM OF 50' INTERVALS BETWEEN STRUCTURES.

5. SHOP DRAWINGS

PRIOR TO THE START OF THE WORK, THE CONTRACTOR SHALL FURNISH TO OWNER SHOP DRAWINGS AND/OR CATALOG CUTS FOR ALL MATERIALS AND EQUIPMENT ITEMS USED IN THIS PROJECT PER THE STANDARD SPECIFICATIONS.

6. MATERIAL CERTIFICATIONS

PRIOR TO THE START OF THE WORK, THE CONTRACTOR SHALL FURNISH TO OWNER MATERIAL CERTIFICATES FOR ALL MATERIALS USED DURING THE WORK.

7. NON-STOPPAGE CLAUSE

THE CONTRACTOR SHALL BE REQUIRED TO COMPLETE ALL WORK IN AN EXPEDITIOUS MANNER AND SHALL NOT STOP THE WORK FOR EXTENDED PERIODS ONCE THE WORK HAS BEGUN WITHOUT WRITTEN APPROVAL OF OWNER.

8. MISS DIG UTILITY ALERT

THREE (3) WORKING DAYS PRIOR TO BEGINNING THE WORK, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT MISS DIG UTILITY PROTECTION SERVICE (811) TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR THE PROTECTION OF ALL EXISTING UTILITIES DURING CONSTRUCTION. ALL UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE PROPERLY REPAIRED IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS AT THE CONTRACTOR'S EXPENSE.

9. FIELD LOCATION OF UTILITIES

PRIOR TO BEGINNING THE WORK, THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A VERTICAL CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUDED IN THE LINEAL FEET OF PIPE INSTALLED. THE CONTRACTOR SHALL VERIFY THE DEPTH AND HORIZONTAL LOCATIONS OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED IN THAT PORTION OF THE PROJECT. THE CONTRACTOR SHALL ARRANGE FOR THE VARIOUS UTILITY OWNERS TO LOCATE, REMOVE AND REPLACE, OR RELOCATE THEIR FACILITIES. ALL COSTS FOR THIS SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PROJECT.

10. UTILITY INFORMATION

UTILITY INFORMATION IS DELINEATED IN ACCORDANCE WITH THE LOCATIONS PROVIDED BY UTILITY OWNERS. THE ENGINEER IS NOT RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION OR THE LOCATION AT WHICH THESE ARE SHOWN ON THE CONSTRUCTION PLANS. DIFFERING FIELD CONDITIONS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND OWNER.

11. EXISTING UTILITIES

THE CONTRACTOR SHALL MAINTAIN ALL EXISTING SANITARY SEWER, PRESSURE PIPE, STORM SEWER, GAS, TELEPHONE, FIBER OPTIC, CABLE, OR ELECTRICAL CONNECTIONS IN SERVICE THROUGHOUT THE WORK. THE CONTRACTOR SHALL PROVIDE OR ARRANGE FOR THE TEMPORARY SUPPORT OF EXISTING UTILITIES WHERE NEEDED. ALL UTILITIES DAMAGED OR REMOVED, OR RELOCATED BY THE CONTRACTOR AND NOT SHOWN AS BEING REMOVED, REPLACED OR RELOCATED ON THE CONTRACT DRAWINGS SHALL BE REPLACED WITH THE SAME SIZE AND QUALITY PIPE BY THE CONTRACTOR AT CONTRACTOR'S SOLE EXPENSE. ALL UTILITIES UNDERMINED BY THE EXCAVATION SHALL HAVE COMPACTED SAND BACKFILL PLACED UNDER THEM, UNLESS MDOT 6AA CRUSHED LIMESTONE (A1) OR MDOT 22A GRAVEL (A2) IS SHOWN ON THE CONSTRUCTION PLANS. ALL WORK TO ACCOMMODATE CONSTRUCTION TO CLEAR EXISTING SERVICES SHALL BE INCLUSIVE TO THE PROJECT UNLESS OTHERWISE NOTED.

12 IRRIGATION SYSTEMS & FIELD TILES

THE CONTRACTOR SHALL CONTACT ALL PROPERTY OWNERS IN THE VICINITY OF THE PROPOSED PIPE TRENCH IMPACTS TWO (2) WEEKS IN ADVANCE OF THE PROPOSED WORK TO DETERMINE IF MODIFICATIONS OF ANY IRRIGATION SYSTEMS AND/OR FIELD TILES ARE REQUIRED WITHIN THE VICINITY. IF MODIFICATIONS ARE NECESSARY, THE CONTRACTOR MUST NOTIFY THE PROPERTY OWNER IN WRITING, WITH A COPY OF THE LETTER TO THE ENGINEER, TO COORDINATE THE NECESSARY MODIFICATIONS.

13. SUBSURFACE SOIL CONDITIONS

PRIOR TO BIDDING, THE CONTRACTOR SHALL MAKE A PERSONAL INVESTIGATION OF THE SITE AND EXISTING SURFACE AND SUBSURFACE CONDITIONS. THE CONTRACTOR SHALL ACQUAINT THEMSELVES WITH CONDITIONS OF THE WORK AREA. THE CONTRACTOR IS ADVISED TO DETERMINE THE SUBSURFACE SOIL AND GROUND WATER CONDITIONS PRIOR TO START OF WORK. DEWATERING, IF DETERMINED NECESSARY BY THE CONTRACTOR, AND IF NOT SPECIFICALLY REQUIRED BY THE CONTRACT DOCUMENTS, WILL BE INCLUDED IN THE COST OF THE PIPE INSTALLATION.

GENERAL CONSTRUCTION NOTES

14. PERMITS AND FEES

THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS, INCLUDING THE PAYMENT OF ANY FEES OR BONDS, REQUIRED BY ANY FEDERAL, STATE, COUNTY, LOCAL, OR PRIVATE ORGANIZATIONS AND UTILITIES PRIOR TO COMMENCING WORK. PROVIDE FINAL WRITTEN APPROVAL AND RELEASE OF PERMITS FROM ALL GOVERNING AGENCIES TO OWNER AND ENGINEER.

15. STATE CONSTRUCTION PERMITS

THE CONSTRUCTION OF PUBLIC PRESSURE PIPES SHALL NOT BEGIN UNTIL THE REQUIRED STATE CONSTRUCTION PERMITS HAVE BEEN OBTAINED.

16. ROADWAY PERMITS

A PERMIT FROM THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS IS REQUIRED FOR ALL CONSTRUCTION WITHIN ANY ROAD RIGHT—OF—WAY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SECURE ALL NECESSARY PERMITS, POST ALL NECESSARY BONDS, PAY ALL FEES, AND OBTAIN ANY REQUIRED INSURANCES IN CONNECTION THEREWITH.

17. SOIL EROSION CONTROL, PART 91 OF P.A. 451 OF 1994

THE CONTRACTOR SHALL COMPLY WITH ALL PROVISIONS OF PART 91, ACT 451 OF P.A. 1994 FOR SOIL EROSION AND SEDIMENTATION CONTROL (SESC), AND WILL BE RESPONSIBLE FOR ALL MAINTENANCE UNTIL THE FINAL ACCEPTANCE OF THE PERMANENT CONTROL MEASURES BY THE AGENCY HAVING JURISDICTION. THE CONTRACTOR IS REQUIRED BY THE OWNER TO PREPARE AND SUBMIT A SOIL EROSION AND SEDIMENTATION CONTROL PLAN IN ORDER TO OBTAIN THE SOIL EROSION AND SEDIMENTATION CONTROL PERMIT, AND TO PAY ANY APPLICATION FEES AND BOND FEES NECESSARY TO OBTAIN THE PERMIT.

18. SOIL EROSION AND SEDIMENTATION CONTROL RELEASE

PRIOR TO FINAL ACCEPTANCE BY GOVERNING AGENCY, THE CONTRACTOR SHALL REQUEST A FINAL INSPECTION OF ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES AND RECEIVE WRITTEN APPROVAL FROM GOVERNING AGENCY. THE SOIL EROSION AND SEDIMENTATION CONTROL BOND WILL BE RELEASED UPON GOVERNING AGENCIES FINAL APPROVAL AND ACCEPTANCE OF THE NPDES.

19. STORM WATER DRAINAGE DURING THE WORK

THE CONTRACTOR SHALL OBTAIN THE SERVICES OF A CERTIFIED STORM WATER OPERATOR AND COMPLY WITH THE PROVISIONS OF THE NPDES AND SESC PERMITS. THE CONTRACTOR SHALL MAINTAIN DITCH DRAINAGE DURING CONSTRUCTION AND SHALL NOT OBSTRUCT SUMP PUMP LEADS DISCHARGING INTO THE DITCH. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PROTECT ALL STORM SEWER FACILITIES, SUCH AS CATCH BASINS AND CULVERTS, DURING THE WORK. CULVERTS, CATCH BASINS, AND STORM SEWERS CONTAMINATED DURING THE WORK SHALL BE CLEANED.

20. DISPOSAL OF EXCESS EXCAVATED MATERIAL

CONTRACTOR SHALL OBTAIN ALL APPROPRIATE PERMITS AND WRITTEN PERMISSIONS FOR DISPOSAL OF EXCESS EXCAVATED MATERIAL. ALL EXCESS EXCAVATED MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR WITH ALL PERMITS, PERMISSIONS, AND LOCATIONS PROVIDED BY THE CONTRACTOR. ADJACENT PROPERTY OWNERS SHALL BE GIVEN PREFERENCE FOR DISPOSAL OF EXCESS MATERIAL. WRITTEN PERMISSION FOR DISPOSAL FROM THE PROPERTY OWNERS SHALL BE PROVIDED TO OWNER.

21. WORK OBSERVATION

ALL WORK SHALL BE PERFORMED UNDER THE OBSERVATION OF A CONSTRUCTION OBSERVER FROM OWNER, LOCAL MUNICIPALITY HAVING JURISDICTION, AND/OR GOVERNING AGENCY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OBSERVING AGENCIES THREE (3) WORKING DAYS OR 72 HOURS PRIOR TO STARTING CONSTRUCTION TO ARRANGE FOR ON-SITE OBSERVATION AND TESTING. CUT SHEETS FOR ALL PIPE INSTALLATION AND RE-DITCHING SHALL BE PROVIDED TO THE GOVERNING AUTHORITY AND CONSTRUCTION OBSERVER A MINIMUM OF 24 HOURS PRIOR TO STARTING THE WORK WITH RESPECT TO THAT UTILITY. OWNER, LOCAL MUNICIPALITY HAVING JURISDICTION, OR GOVERNING AGENCY SHALL BE NOTIFIED FOR A FINAL INSPECTION.

22. MIOSHA SAFETY REQUIREMENTS

ALL WORK, WORK PRACTICE AND MATERIALS SHALL COMPLY WITH ALL APPLICABLE STATE AND FEDERAL SAFETY GUIDELINES, OCCUPATION, HEALTH AND ENVIRONMENTAL REGULATIONS, AND ALSO NFPA AND ANSI CODES AS APPLICABLE. ALL WORK INSIDE A CONFINED SPACE, SUCH AS THE PIPE LINE, MANHOLES OR OTHER UNDERGROUND STRUCTURES, SHALL BE COORDINATED WITH THE UTILITY OWNER, AND ALL WORKER SAFETY REQUIREMENTS STRICTLY ENFORCED. THE CONTRACTOR, SHALL HAVE ITS SAFETY PLAN ON FILE WITH OWNER, INSPECTOR, AND ONE COPY ON SITE AT ALL TIMES.

23. PROTECTION OF HAZARDOUS AREAS

EXCAVATION AND HAZARDOUS AREAS SHALL BE PROTECTED BY BARRICADES, SNOW FENCE, OR OTHER APPROPRIATE MEANS. BARRICADES LEFT IN PLACE AFTER DARK SHALL BE LIGHTED.

24. NOISE AND DUST CONTROL

THE CONTRACTOR SHALL CONTROL NOISE, CARRY OUT A PROGRAM OF DUST CONTROL, AND SHALL ALLOW NO ON—SITE BURNING WITHOUT APPROVAL FROM LOCAL FIRE DEPARTMENT.

25. TRAFFIC CONTROL

THE CONTRACTOR SHALL EXECUTE THE WORK IN A MANNER SUCH THAT TRAFFIC IS MAINTAINED AND ACCESS IS PROVIDED TO ALL RESIDENCES, BUSINESSES, AND COMMERCIAL ESTABLISHMENTS. TRAFFIC SHALL BE MAINTAINED IN ACCORDANCE WITH THE TRAFFIC CONTROL PLANS AND THE CURRENT EDITION OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AND THE REQUIREMENTS OF THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS, OR AS DIRECTED BY THE ENGINEER.

26. SIGNING AND BARRICADING

SIGNING AND BARRICADING SHALL BE PROVIDED BY THE CONTRACTOR IN ACCORDANCE WITH THE DETAILS ON THE PLANS, THE CURRENT EDITION OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AND THE REQUIREMENTS OF THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS. SIGNS AND BARRICADES LEFT IN PLACE AFTER DARK SHALL BE LIGHTED.

27. ROADWAY REQUIREMENTS FOR UTILITY CONSTRUCTION

THE CONTRACTOR SHALL COMPLY WITH ALL OF THE REQUIREMENTS OF THE CONSTRUCTION PLANS FOR MAINTAINING TRAFFIC, BARRICADING, BORING, BACKFILLING AND RESTORATION WITHIN THE ROAD RIGHT—OF—WAY.

28. OPEN CUTTING OF STATE/COUNTY/LOCAL ROADS

WHEN OPEN CUTTING OF GRAVEL OR HARD SURFACED ROADS ARE INCORPORATED INTO THE PROJECT, THE CONTRACTOR SHALL OBTAIN THE APPROVAL AND COMPLY WITH ALL OF THE REQUIREMENTS OF THE AGENCY HOLDING THE PERMIT OVER THE ROADWAYS, AND TO THE CONSTRUCTION PLANS, SPECIFICATIONS AND DETAILS. PRIOR TO THE START OF CONSTRUCTION, CONTRACTOR TO DOCUMENT EXISTING SIGN AND PAVEMENT MARKING LOCATIONS. CONTRACTOR TO RESTORE IN KIND AND PLACE FOLLOWING COMPLETION OF ROAD PAVING AND RESTORATION.

29. GRAVEL ROAD CONTAMINATION BY THE WORK

IF IT IS DETERMINED BY THE AGENCY HAVING AUTHORITY OVER THE ROADWAYS THAT GRAVEL ROADS HAVE BECOME CONTAMINATED DURING THE WORK, THE ROAD MUST BE REPAIRED PER THE CONSTRUCTION PLANS, STANDARD SPECIFICATIONS AND STANDARD DETAILS. WHERE THE EXISTING ROAD GRAVEL IS REMOVED BECAUSE OF THE WORK, ALL WORK AND MATERIALS SHALL MEET THE REQUIREMENTS, SPECIFICATIONS AND STANDARD DETAILS HEREIN. IF IT IS DETERMINED BY THE AGENCY HOLDING THE PERMIT OVER THE ROADWAY AND MUTUALLY AGREED UPON BY THE ENGINEER THAT GRAVEL ROAD PORTIONS THAT WERE TO REMAIN HAVE BEEN CONTAMINATED BY THE WORK, THE CONTRACTOR SHALL RE-GRAVEL PER THE CONSTRUCTION PLANS, SPECIFICATIONS AND DETAILS.

30. RESTORATION OF GRAVEL SHOULDERS

IF IT IS DETERMINED BY THE AGENCY HOLDING THE PERMIT OVER THE ROADWAYS THAT GRAVEL SHOULDERS HAVE BEEN CONTAMINATED BY THE WORK, THE CONTRACTOR SHALL RE-GRAVEL PER THE CONSTRUCTION PLANS, SPECIFICATIONS AND DETAILS.

31. COMPACTED GRANULAR BACKFILL FOR ROADWAYS, DRIVES,

ALL TRENCH EXCAVATION WITHIN A ONE—ON—ONE ZONE OF INFLUENCE OF A ROADWAY, DRIVEWAY CROSSINGS, PARKING LOTS, OR AS OTHERWISE NOTED ON THE PLANS, SHALL BE BACKFILLED PER THE SCHEDULE OF BACKFILLING, FOUND IN THE SPECIFICATIONS AND DETAILS. IN ADDITION, SEE THE SPECIFICATIONS FOR THE REQUIREMENTS FOR THE COMPACTION PLAN. PROVIDE SATISFACTORY RESULTS OF DENSITY CHECKS ON COMPACTED SAND BACKFILL FROM CERTIFIED TESTING AGENCY.

32. TREE DAMAGE

TREE REMOVAL SHALL BE LIMITED TO THE EXTENT OF THE IMPACTED RIGHT—OF—WAY LIMITS. IF TREE ROOTS ARE DISTURBED, CAUSING DAMAGE TO THE INTEGRITY OF THE TREE, THE CONTRACTOR SHALL REMOVE THE TREE IN ITS ENTIRETY.

33. SURFACE RESTORATION

ALL DISTURBED AREAS SHALL BE COMPLETELY RESTORED IN STRICT COMPLIANCE WITH THE SOIL EROSION AND SEDIMENTATION CONTROL (SESC) PLANS AND SPECIFICATIONS, AND TO THE SATISFACTION OF OWNER, GOVERNING AGENCY, COUNTY ROAD COMMISSION, MDOT, THE LOCAL MUNICIPALITY, AND THE PROPERTY OWNER. ALL COSTS FOR THE CLEANUP, RESTORATION WORK. AND OTHER INTERMEDIATE OPERATIONS INCLUDING BUT NOT LIMITED TO, CONSTRUCTION SIGNAGE, STREET SWEEPING, AND MAINTAINING EXISTING UTILITIES, SHALL BE CONSIDERED INCLUSIVE AND AT NO ADDITIONAL COST TO OWNER. AREAS DISTURBED DURING THE WORK SHALL RECEIVE A MINIMUM 4" APPLICATION OF SCREENED TOPSOIL, FERTILIZER, SEED, AND MULCH. ALL EXCESS MATERIALS, DEBRIS, AND SIMILAR ITEMS SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AND DISPOSED OF IN ACCORDANCE WITH THE LAW. ALL GROUND SURFACES SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER PRIOR TO FINAL APPROVAL. RESTORATION ACTIVITIES SHALL BE NOT FURTHER THAN 500 FT BEHIND ACTIVE PIPE INSTALLATION UNLESS PRIOR WRITTEN APPROVAL HAS BEEN OBTAINED FROM OWNER/ENGINEER.

34. FINAL ELEVATIONS OF SURFACE UTILITIES

ALL FINAL ELEVATIONS OF MANHOLE CASTINGS, HYDRANTS, VALVES, AND VALVE BOXES SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE IN THE FIELD. ANY ADJUSTMENTS THAT ARE MADE SHALL BE AT THE CONTRACTOR'S SOLE EXPENSE.

35. AS-BUILT INFORMATION

UPON COMPLETION OF THE WORK AND PRIOR TO FINAL APPROVAL FROM THE OWNER, THE CONTRACTOR SHALL FURNISH OWNER WITH ONE (1) COMPLETE SET OF AS-BUILTS PLANS.

AS-BUILTS SHALL BE SUBMITTED TO OWNER AND FOR THE REVIEW AND APPROVAL OF OWNER/ENGINEER AND SHALL INCLUDE BUT NOT BE LIMITED TO: INVERT OF PIPES, LOCATION OF MANHOLES AND MANWAYS, PIPE LENGTHS, SLOPES OF PIPE, LOCATION OF ANY LATERAL LINES, LOCATION OF MAINLINE VALVES, AIR RELEASE VALVES, BLOWOFFS, BENDS, TEES, AND CROSSES. LOCATIONS MUST BE PROVIDED IN GPS STATE PLANE COORDINATES (NAD 83), AND ELEVATIONS SHALL BE PROVIDED IN NAVD88 DATUM. THIS INFORMATION SHALL BE GATHERED BY THE CONTRACTOR'S PROFESSIONAL LAND SURVEYOR, AT ITS SOLE EXPENSE. THESE AS-BUILTS SHALL ALSO INCLUDE ANY ADDITIONAL INFORMATION COLLECTED BY THE OWNER OR MUNICIPAL CONSTRUCTION OBSERVER.

IN ADDITION TO THE AS-BUILTS, THE CONTRACTOR SHALL PROVIDE TO OWNER AN ELECTRONIC DATA SET IN A MICROSOFT EXCEL SPREADSHEET DETAILING ALL OF THE ABOVE MENTIONED ITEMS WITH GPS COORDINATES AND ELEVATIONS IN NAVD88 DATUM.

PRESSURE PIPE CONSTRUCTION NOTES

1.

ALL DUCTILE IRON PIPES, VALVES, AND FITTINGS SHALL BE POLYWRAPPED. CIRCUMFERENTIAL WRAPS OF MANUFACTURER RECOMMENDED TAPE SHALL BE PLACED AT NO GREATER THAN 4' INTERVALS ALONG THE BARREL OF THE PIPE, WITH THE EXCESS FOLDED OVER THE TOP TO TAKE OUT EXCESS SLACK, HELPING TO MINIMIZE THE SPACE BETWEEN THE POLYETHYLENE AND THE PIPE. COMPLETE THE INSTALLATION BY OVERLAPPING THE POLYETHYLENE TUBE WRAP AT EACH END AND SEAL ENDS PER AWWA C105/A21.5-99.

2.

THE CONTRACTOR MUST USE NYLON STRAPS OR SLINGS WHEN HANDLING THE PIPE. NO CHAINS OR CABLES ARE ALLOWED. THE FORKS AND CARRIAGE ON THE FORKLIFT MUST BE PADDED TO PREVENT DAMAGE TO THE PIPE. SHOULD DAMAGE OCCUR, IT MUST BE IMMEDIATELY REPAIRED IN ACCORDANCE WITH ANSI/AWWA STANDARDS, AND AS PER THE MANUFACTURER'S SPECIFICATIONS BY CONTRACTOR AT CONTRACTOR'S SOLE EXPENSE.

3.

WHERE UTILITY SERVICE LEADS OR OTHER UTILITIES ARE ENCOUNTERED, THE CONTRACTOR SHALL MAKE ADJUSTMENTS TO PROVIDE CONTINUOUS SERVICE TO PROPERTIES ALONG THE ROUTE OF CONSTRUCTION. ALL WORK, INCLUDING THE RECONSTRUCTION OF UTILITY SERVICE LEADS TO ACCOMMODATE CONSTRUCTION, OR ADJUSTING PRESSURE PIPE INSTALLATION TO CLEAR EXISTING SERVICES, SHALL BE INCLUSIVE TO CONSTRUCTION IF NOT OTHERWISE SPECIFIED.

4.

THE CONTRACTOR SHALL RESTRAIN ALL THRUST IN THE SYSTEM BY THE USE OF APPROVED RESTRAINED JOINTS AND THRUST BLOCKS FOR DUCTILE IRON PIPE. PRESSURE PIPE, HYDRANTS, TEES, VERTICAL OR HORIZONTAL BENDS, AND FUTURE VALVE CONNECTIONS SHALL BE RESTRAINED.

5.

THE CONTRACTOR SHALL ENCASE THE PRESSURE PIPE IN CONCRETE WHERE THE VERTICAL SEPARATION BETWEEN A SANITARY SEWER, STORM SEWER, OR OTHER UTILITY AND THE WATER MAIN IS LESS THAN 18 INCHES.

6.

FIRE HYDRANTS ASSEMBLIES, FROM THE TEE THROUGH THE HYDRANT, SHALL BE RESTRAINED BY AN APPROVED METHOD. FIRE HYDRANTS SHALL BE PLACED AT PROPERTY CORNERS AND WITHIN THE RIGHT-OF-WAY WHEN POSSIBLE, AND SHALL BE PAINTED WITH THE CAP COLOR-CODED IN ACCORDANCE WITH THE DETAILS, IF REQUIRED.

PRESSURE TAPS TO EXISTING PRESSURE PIPE, AND CONNECTIONS TO EXISTING VALVES, SHALL BE MADE ONLY UNDER THE OBSERVATION OF THE OWNER OR THE LOCAL MUNICIPALITY HAVING JURISDICTION. ALL VALVE OPENING AND CLOSING SHALL BE BY THE OPERATIONAL AUTHORITY. A CONCRETE MANHOLE SHALL BE REQUIRED AROUND ALL PRESSURE TAPS.

PROJECT SPECIFIC NOTES

1

ANY BROKEN DRAIN/FIELD TILE SHALL BE REPLACED WITH CMP OR SCHEDULE 40 PVC OF THE SAME DIAMETER AS THE PIPE BEING REPLACED. PIPE SHALL BE JOINED WITH SUITABLE COUPLINGS TO PROVIDE AN EARTH TIGHT JOINT.

2.

THE CONTRACTOR MUST MEET WITH THE LOCAL ROAD COMMISSION PRIOR TO BEGINNING CONSTRUCTION. IF THE ROAD COMMISSION IS IN ATTENDANCE AT THE PRE-CONSTRUCTION MEETING, THIS SATISFIES THE REQUIREMENT.

COORDINATE ALL CONSTRUCTION IN CSX RIGHT OF WAY PER SPECIFICATIONS, NOTES AND DETAILS.

INFORMATION PROVIDED FOR BENCHMARKS HAS BEEN DETERMINED BY TOPOGRAPHIC FIELD SURVEY AND SHALL BE USED WHEN DETERMINING ELEVATIONS OF THE PROPOSED TRANSMISSION MAIN OR ANCILLARY FEATURES. OTHER ELEVATATIONS SHOWN MAY HAVE BEEN TAKEN FROM RECORD DRAWINGS AND AERIAL PHOTOGRAMMETRY AND MAY HAVE A DIFFERENCE OF UP TO ± 1.0 FEET FROM ACTUAL SURVEY—GRADE READINGS.

5.

COORDINATE ALL PROPOSED CROSSINGS OF BUCKEYE PETROLEUM LINES WITH A COMPANY REPRESENTATIVE. WHEN ANY CONSTRUCTION ACTIVITY IS CONDUCTED IN OR AROUND A BUCKEYE PIPELINE RIGHT—OF—WAY, BUCKEYE'S ON—SITE INSPECTOR MUST BE PRESENT AT ALL TIMES. THE CONTRACTOR SHALL COORDINATE WITH BUCKEYE TO VERIFY THE DEPTH AND LOCATION OF ALL EXISTING PIPELINE CROSSINGS PRIOR TO CONSTRUCTING/BORING THE PROPOSED WATER MAIN ACROSS THE UTILITY. THE CONTRACTOR SHALL REFER TO BUCKEYE'S "RIGHT—OF—WAY USE RESTRICTIONS SPECIFICATION" EXHIBIT WHICH IS CONTAINED WITHIN THE CONTRACT DOCUMENTS AND SHALL ADHERE TO ALL REGULATIONS CONTAINED WITHIN.

CITY OF FLINT
S. SAGINAW STREET
FLINT, MI 48502
SECONDARY WATER SUPPLY
GENERAL NOTES

555 Flint 810.

SUED FOR: DATE: BY

JOB NO. COF1068.01F

GENERAL PLAN NOTES

- 1. FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 174, 2013, THE CONTRACTOR SHALL DIAL 1.800.482.7171 OR 811 OR GO TO WWW.MISSDIG.ORG A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO BEGINNING EACH DRIVEN SIGN LOCATION AND EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS 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.
- 2. IT IS THE INTENT THAT ALL GOVERNMENT CORNERS ON THIS PROJECT BE PRESERVED AND THAT, WHERE NECESSARY, MONUMENT BOXES BE PLACED OR ADJUSTED. WHETHER SHOWN OR NOT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING STAKES AND/OR FLAGS AT EACH PROPERTY IRON TO ENSURE THAT THEY ARE NOT REMOVED OR DISPLACED DURING CONSTRUCTION OPERATIONS. IF PROPERTY IRONS ARE REMOVED OR DISPLACED DUE TO THE CONTRACTORS OPERATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF THOSE IRONS, WITH AN APPROVED LICENSED SURVEYOR REGISTERED IN THE STATE OF MICHIGAN, AT HIS OWN COST.
- 3. CONTRACTOR WILL BE RESPONSIBLE FOR ANY DAMAGE TO: EXISTING UTILITIES, WATERMAINS, AND EXISTING SANITARY OR STORM SEWERS; AND MARKED WATER, STORM AND SANITARY LEADS DURING CONSTRUCTION OF THIS PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE ENGINEER OF ANY CONFLICTS BEFORE PLACING PROPOSED UTILITIES OR OTHER EXCAVATIONS WHICH ARE FOUND TO BE IN CONFLICT. LOCATIONS (HORIZONTAL AND VERTICAL) OF ALL EXISTING UTILITIES IN THE PLANS ARE SHOWN BASED ON THE BEST INFORMATION MADE AVAILABLE TO THE ENGINEER. THE ENGINEER MAKES NO REPRESENTATION AS TO THE ACCURACY OF LOCATIONS SHOWN FOR UTILITIES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE THE NECESSARY COORDINATION WITH UTILITY OWNERS AND TO LOCATE ALL UTILITIES (HORIZONTALLY AND VERTICALLY) INCLUDING SERVICE LEADS PRIOR TO PERFORMING WORK EFFECTING THOSE UTILITIES AND SERVICE LEADS (INCLUDING SERVICE LEADS TO PUBLIC WATER, STORM AND SANITARY SYSTEMS) AND TO PERFORM THE WORK IN A MANNER THAT DOES NOT HARM OR OBSTRUCT THE UTILITIES OR SERVICE LEADS. ALL COSTS TO PROTECT, REPAIR, OR TEMPORARILY BYPASS THEN RESTORE (TO THE SATISFACTION OF UTILITY OWNERS AND THE ENGINEER) UTILITIES AND SERVICE LEADS SHALL BE BORNE SOLELY BY THE CONTRACTOR.
- 4. CONTRACTOR IS RESPONSIBLE FOR METHODS TO PERFORM THE WORK EFFECTED BY EXISTING UTILITIES INCLUDING EXISTING PHONE COMPANY DUCT BANKS, CONDUITS, GAS LINES AND ALL OTHER UNDERGROUND STRUCTURES AND UTILITIES ENCOUNTERED. THE COSTS TO PERFORM THIS WORK WHICH MAY INCLUDE SHORING, FREE BORING, TUNNELING OR JACKING PIPE AND DEWATERING SHALL BE INCLUDED IN THE CONTRACT UNIT PRICES OF DRAINAGE AND WATERMAIN PAY ITEMS.
- 5. THE SOIL BORING AND PAVEMENT CORE LOGS REPRESENT POINT INFORMATION. PRESENTATION OF THIS INFORMATION IN NO WAY INFERS THAT SUBSURFACE AND PAVEMENT CONDITIONS ARE THE SAME OTHER THAN THE EXACT LOCATION OF THE BORINGS AND CORES. REFER TO THE PLANS OR PROPOSAL FOR LOG OF BORINGS, IF PROVIDED.

SUBMITTAL OF THEIR BID SHALL BE CONSIDERED PRIMA FACIA EVIDENCE THAT BIDDERS (AND PROSPECTIVE SUB-CONTRACTORS) HAVE PERFORMED SITE INVESTIGATIONS AND OTHERWISE INVESTIGATED THE EXISTING SURFACE AND SUBSURFACE CONDITIONS, INCLUDING REVIEW OF BORING LOGS WHICH MAY BE INCLUDED IN THE PLANS OR PROPOSAL, TO THE BIDDER'S SATISFACTION, AND HAS INCLUDED ALL COSTS RELATED TO SURFACE AND SUBSURFACE CONDITIONS IN THE CONTRACT UNIT PRICES OF THE CONTRACT PAY ITEMS. ADDITIONAL COST AND TIME DUE TO SURFACE OR SUBSURFACE CONDITIONS SHALL NOT BE CONSIDERED AS A BASIS OF CLAIMS BY THE CONTRACTOR FOR ADDITIONAL COMPENSATION OR CONTRACT TIME. ALL DEWATERING OF TRENCHES OR GRADE BY ANY MEANS SHALL BE CONSIDERED TO HAVE BEEN INCLUDED IN THE CONTRACT UNIT PRICES OF EFFECTED CONTRACT PAY ITEMS.

- 6. ELEVATIONS SHOWN ON THESE PLANS ARE FROM NAVD88 DATUM.
- 7. PRE-CAST STRUCTURES MAY BE UTILIZED AS APPROVED BY THE ENGINEER. HOWEVER, IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN PROPER HOLE ORIENTATION PRIOR TO ORDERING PRE-CAST STRUCTURE COMPONENTS. ALL COSTS TO REPLACE PRE-CAST STRUCTURE COMPONENTS THAT CAN NOT BE FIELD FIT SHALL BE BORNE SOLELY BY THE CONTRACTOR.
- 8. CONTRACTOR SHALL COORDINATE WITH UTILITY OWNERS FOR ANY NECESSARY ADJUSTMENTS TO THEIR UTILITIES. CONSUMERS ENERGY POWER/LIGHT POLES AND AT&T UTILITY/LIGHT POLES TO BE RELOCATED BY UTILITY OWNERS ONLY. PRIVATELY OWNED PUBLIC UTILITIES (INCLUDING AT&T & CONSUMERS ENERGY) SPECIFIED FOR RELOCATION MAY OR MAY NOT BE RELOCATED PER PLAN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE HIS WORK WITH THE UTILITY COMPANY AND SCHEDULE HIS WORK IN ACCORDANCE WITH THE UTILITY COMPANY'S SCHEDULE. THE CONTRACTOR SHALL BID AND PLAN THE WORK ACCORDINGLY.
- 9. THE CONTRACTOR SHALL TAKE ADEQUATE PRECAUTIONS TO KEEP CONSTRUCTION DEBRIS FROM ENTERING ANY UTILITY STRUCTURE. CONSTRUCTION DEBRIS WHICH ENTERS ANY UTILITY STRUCTURE OR SPILLED ON THE NEW ROAD SHALL BE CLEANED UP (INCLUDING VACUUM TRUCK STRUCTURE CLEANOUT) BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
- SUBGRADE UNDERCUTTING WILL BE PAID FOR SEPARATELY. SUBGRADE UNDERCUTTING QUANTITIES SHOWN ON THESE PLANS OR IN THE PROPOSAL REPRESENT QUANTITIES FOR ESTIMATING PURPOSES ONLY. ACTUAL LIMITS OF SUBGRADE UNDERCUTTING WILL BE DETERMINED BY THE ENGINEER DURING CONSTRUCTION, IF REQUIRED. REMOVAL OF HMA AND CONCRETE DRIVES. REGARDLESS OF THICKNESS OR MATERIAL COMPOSITION. INCLUDING SAWCUTTING OR MILLING AS DIRECTED BY THE ENGINEER, SHALL BE INCLUDED IN PAY ITEM PAVT, REM, MODIFIED.
- ALL EXCESS EXCAVATED MATERIALS SHALL BE THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR AT AN APPROVED LOCATION PROVIDED BY THE CONTRACTOR, WITH WRITTEN PERMISSION OF THE PROPERTY OWNER WHEN NOT OWNED BY THE CONTRACTOR.
- 11. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE FOR COORDINATION WITH CITY GARBAGE COLLECTION (CONTACT 810.577.8095). THIS ARRANGEMENT AND COORDINATION MAY REQUIRE EFFORT, TIME AND COSTS TO THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE THESE COSTS AND INCLUDE THEM IN HIS BID AND PROGRESS SCHEDULE. COORDINATION AND COSTS TO THE CONTRACTOR FOR GARBAGE COLLECTION SHALL NOT BE CONSIDERED AS A BASIS OF CLAIMS FOR ADDITION COMPENSATION OR EXTENSION OF CONTRACT TIME.
- 12. ALL INTERSECTIONS ARE TO BE CONSIDERED AS COMPLETE UNITS AND THEIR GRADES DETERMINED BEFORE CONSTRUCTION. CLOSURES OF INTERSECTIONS AND ANY TRAFFIC CLOSURES SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE FOR TRAFFIC CONTROL COORDINATION (CONTACT MR. ROD McGAHA AT 810.766.7165. A MINIMUM OF THREE FULL WORKING DAYS PRIOR TO TRAFFIC DEVICE PLACEMENT. START AND END TIMES OF CLOSURES, SIGNS AND TRAFFIC CONTROL DEVICES PROPOSED, WITH DETOUR ROUTES AND TRAFFIC SHIFTS CLEARLY DEPICTED ON DETAIL DRAWINGS, SHALL BE SUBMITTED FOR REVIEW AND APPROVAL. NO SIGNS OR TRAFFIC DEVICES FOR THIS TRAFFIC CONTROL MAY BE PLACED WITHOUT WRITTEN APPROVAL. NOTIFICATION TO POLICE, EMERGENCY VEHICLES, PUBLIC BUSING AND OTHERS WILL BE BY THE CITY. COSTS TO THE CONTRACTOR FOR TRAFFIC CONTROL COORDINATION SHALL NOT BE CONSIDERED AS A BASIS OF CLAIMS FOR ADDITIONAL COMPENSATION OR EXTENSION OF CONTRACT TIME.
- 13. WHERE TREES WITHIN THE RIGHT-OF-WAY ARE NOT SPECIFIED FOR REMOVAL, IT IS INTENDED TO PROTECT THOSE TREES AND TO PERFORM THE WORK IN A MANNER WHICH PREVENTS DAMAGE TO THE TREES AND THEIR ROOTS. THE CONTRACTOR SHALL PROTECT TREES WITHIN THE RIGHT-OF-WAY NOT SPECIFIED FOR REMOVAL AND SHALL INCLUDE ALL COSTS TO PROTECT THESE TREES IN THE CONTRACT UNIT PRICES OF EFFECTED PAY ITEMS.
- 14. ALL REMOVED SIGNS AND POSTS SHALL REMAIN PROPERTY OF THE CITY, CONTRACTOR SHALL COORDINATE PICK UP OF ALL STOCKPILED SIGNS AND POSTS WITH CITY OF FLINT TRAFFIC ENGINEERING SUPERVISOR ROD MCGAHA.

WATER MAIN NOTES

- 1. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY 72 HOURS PRIOR TO BEGINNING, THE CITY OF FLINT TRANSPORTATION DEPARTMENT, BETTY WIDEMAN AT (810) 766-7343 EXT. 2801, THE CITY ENGINEER, MARK ADAS AT (810) 766-7135 EXT. 2603, AND THE DEPARTMENT OF PUBLIC WORKS DIRECTOR, ROB BINCSIK AT (810) 766-7202. THE CONTRACTOR SHALL PROVIDE ALL THE DEPARTMENTS AND PERSONS MENTIONED ABOVE WITH AN ESTIMATED SCHEDULE OF TASKS WITH ASSOCIATED DATES IN WRITTEN FORM.
- 2. ALL MATERIALS AND CONSTRUCTION PROCEDURES SHALL COMPLY WITH THE CURRENT CITY OF FLINT STANDARD DETAILS & MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION, 2012 EDITION. SEE SPECIAL PROVISION FOR WATER MAIN SPECIFICATIONS IN BID PROPOSAL.
- 3. HDPE PIPE MAY BE USED ONLY FOR DIRECTIONAL DRILL INSTALLATION. FOR ALL OTHER INSTALLATION METHODS ALL PUBLIC WATER MAIN SHALL BE CLASS 52 ZINC COATED DUCTILE IRON, CLASS 54 ZINC COATED DUCTILE IRON PIPE, OR C-900 POLYVINYL CHLORIDE PIPE AS DEFINED IN THE BID PROPOSAL. THE PIPE SHALL BE BELL AND SPIGOT OR MECHANICAL JOINT FOR FITTINGS FITTED WITH A RUBBER GASKET.
- 4. GATE VALVES SHALL BE MANUFACTURED FROM GRAY CAST IRON MEETING OR EXCEEDING AWWA C509. VALVES OUTSIDE PAVED AREAS WILL BE PLACED IN A 3 PIECE SCREW STYLE, GRAY IRON (ASTM A48, CLASS 30A) WITH COAL TAR ASPHALTIC DIP VALVE BOX (BIBBY OR SIMILAR APPROVED). VALVES IN PAVED AREAS SHALL BE PLACED IN A GATEWELL STRUCTURE. GATEWELL STRUCTURES SHALL HAVE DIAMETER AS SPECIFIED IN THE PLANS AND DETAIL SHEET.
- 5. CHECK VALVES SHALL BE MANUFACTURED FROM GRAY CAST IRON MEETING OR EXCEEDING ASTM A126 GRADE B. VALVES SHALL COMPLY WITH AWWA C508, LATEST VERSION. VALVES SHALL ALLOW FOR CLEAR WATERWAY OPENING. CLAPPER ARM SHALL BE MADE OF DUCTILE IRON CONFORMING TO ASTM A536 GRADE 65-45-12. THE DISC SHALL NOT CONTACT THE BODY WHEN THE VALVE IS IN THE FULL OPEN POSITION. CHECK VALVE SHAFTS ARE TO BE STAINLESS STEEL WITH CORROSION RESISTANT BEARINGS. CHECK VALVES TO BE AMERICAN FLOW CONTROL 50-SC SWING CHECK VALVE OR APPROVED EQUAL.
- 6. PRIOR TO REQUESTING A FINAL PRESSURE TEST, THE CONTRACTOR SHALL BE REQUIRED TO DO THE FOLLOWING ITEMS:
 - CONDUCT A PRELIMINARY PRESSURE TEST ON THE SYSTEM.
 - OBTAIN TWO (2) CONSECUTIVE SAFE BACTERIOLOGICAL SAMPLES, OBTAINED AT LEAST 24 HOURS APART FOR EACH RUN OF PIPE, NOT OT EXCEED 1,200 FEET.
 - PROVIDE ALL RECORDS REFLECTING ACTUAL CONSTRUCTION CONDITIONS AND AS MEASURED QUANTITIES AND LOCATIONS.
 - PROVIDE PASSING DENSITY CHECKS ON COMPACTED SAND BACKFILL.
 - PROVIDE MATERIAL CERTIFICATION.
 - COMPLETE FINAL ADJUSTMENTS TO GRADE OF FIRE HYDRANT AND VALVE COVERS AND PROPER CAP COLORING CODING, USING THE TWO PART COATING SYSTEM AS DEFINED IN SPECIAL PROVISION.
- 7. WHERE SANITARY LEADS OR OTHER UTILITIES ARE ENCOUNTERED, THE CONTRACTOR SHALL MAKE ADJUSTMENTS TO PROVIDE CONTINUOUS SERVICE TO PROPERTIES ALONG THE ROUTE OF CONSTRUCTION. UNLESS OTHERWISE PROVIDED IN THE PLANS AND SPECIFICATIONS ELSEWHERE FOR THIS PROJECT, PAYMENT FOR ALL WORK AND COSTS, INCLUDING THE RECONSTRUCTION OF SANITARY SEWER AND DRAIN LEADS TO ACCOMMODATE CONSTRUCTION OR ADJUSTING WATER MAIN CONSTRUCTION, TO CLEAR EXISTING SERVICES, SHALL BE CONSIDERED INCLUDED IN THE CONTRACT UNIT PRICES OF WATER MAIN PAY ITEMS.
- 8. CONNECTIONS TO EXISTING WATER MAINS AND VALVES SHALL BE INSPECTED/SUPERVISED BY THE CITY OF FLINT STAFF, WITH ALL LABOR, MATERIAL AND EQUIPMENT PROVIDED BY THE CONTRACTOR. ALL CHLORINATION AND WATER QUALITY SAMPLING OF NEW LINES AND APPURTENANCES AND THE OPENING AND CLOSING OF EXISTING VALVES AND SERVICE LEAD CONNECTIONS SHALL BE PERFORMED BY THE CITY OF FLINT STAFF. A FULL DIAMETER TAPPING SLEEVE IS REQUIRED FOR ALL PRESSURE TAPS. A GATEWELL STRUCTURE SHALL BE REQUIRED AROUND ALL PRESSURE TAPS, WITH GATEWELL SIZE AND DETAILS SHOWN ON THE DETAIL SHEET FOUND ELSEWHERE IN THESE PLANS.
- 9. ALL WATER MAIN SHALL HAVE A MINIMUM COVER OVER THE TOP OF THE PIPE OF 5.5' FROM FINISHED GRADE. THE PIPE SHALL BE LAID ON A 4" PREPARED CLASS II SAND CUSHION WITH RECESSES TO ACCOMMODATE PIPE BELLS. REFER TO MDOT UTILITY TRENCH DETAIL R-83-C.
- 10. CONTRACTOR SHALL RESTRAIN ALL THRUST IN THE SYSTEM BY THE USE OF THRUST BLOCKS, RESTRAINED-TIE RODDED JOINTS, MEGA-LUG LOCKING RETAINING RINGS OR ENGINEER APPROVED EQUAL. ALL HYDRANTS. TEES, VERTICAL OR HORIZONTAL BENDS AND FUTURE VALVE CONNECTIONS SHALL BE RESTRAINED. CONTRACTOR SHALL SUBMIT A SCHEDULE OF RESTRAINT METHODS AND LOCATIONS TO ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION. THREADED RODDING SHALL HAVE OWNER AND ENGINEER APPROVAL PRIOR TO BEING INCORPORATED INTO PROJECT CONSTRUCTION.
- 11. EXISTING GATEWELLS SHALL BE REMOVED (MINIMUM 2 FT BELOW SUBBASE) AS NOTED ON THE PLAN SHEETS. AND PAID AS PAY ITEM WATER STRUCTURE, ABANDON. PAY ITEM WATER STRUCTURE, ABANDON SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY TO REMOVE CASTING FRAME, COVER, STRUCTURE, AND PLACE AND COMPACT CLASS II GRANULAR BACKFILL INSIDE OF STRUCTURE PER SPECIAL PROVISION IN BID PROPOSAL. EXCEPT AS NOTED ELSEWHERE IN THESE PLANS OR BID PROPOSAL FOR REINSTALLATION OF EXISTING UNDAMAGED STRUCTURE CASTINGS: 1) EXISTING COVERS AND CASTINGS SHALL BE SALVAGED; AND 2) SALVAGED MATERIALS WILL BE DELIVERED TO THE APPROVED ON-SITE STOCKPILING LOCATION BY THE CONTRACTOR FOR CITY FORCES TO COLLECT. VALVE BOXES TO BE ABANDONED SHALL BE KNOCKED DOWN (MINIMUM 2 FT BELOW SUB BASE) AND FILLED WITH CONCRETE, PAID AS PAY ITEM WATER STRUCTURE, ABANDON.
- 12. THE PROJECT SHALL REQUIRE FINAL RESTORATION IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. ALL GROUND SURFACES SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER PRIOR TO FINAL CONTRACT APPROVAL.
- 13. WATER MAINS SHALL BE CHLORINATED IN ACCORDANCE WITH AWWA C651-05, PRESSURE TESTED IN ACCORDANCE WITH AWWA C600-05 AND DISINFECTED IN ACCORDANCE WITH AWWA C651-99. ALL MATERIAL AND EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR. WATER MAINS SHALL BE TESTED TO 150 PSI FOR TWO HOURS. ALLOWABLE LEAKAGE IS 0.092 GPH X LENGTH OF TESTED PIPING (FT) X NOMINAL PIPE DIAMETER (INCHES) / 1,000 FT. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE CITY OF FLINT WATER SERVICE CENTER AT 810.766.7202, 72 HOURS PRIOR TO TESTING OF WATER MAIN AND SHALL NOT TEST UNTIL A REPRESENTATIVE OF THE WATER DISTRIBUTION CENTER IS ON SITE. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT TO THE CITY OF FLINT WATER SERVICE CENTER, AT THE DISTRIBUTION CENTER, AND CITY OF FLINT, AT THE UTILITIES DEPARTMENT, A DETAILED DESCRIPTION OF TESTING PROCEDURES AND CHLORINATION LIMITS FOR APPROVAL. THE CONTRACTOR WILL NOT TEST MORE THAN 1,200' OF WATER MAIN AT ANY TIME. DURING TESTING, THE CONTRACTOR WILL PROVIDE A FORM INDICATING THE LENGTH OF PIPE BY STATIONS, LOCATION OF TESTING AND BLOWOFF, AND PRESSURE TEST RESULTS WHICH WILL BE SIGNED BY THE CONTRACTOR'S REPRESENTATIVE AND WATER DISTRIBUTION REPRESENTATIVE. THE CONTRACTOR IS REQUIRED TO UTILIZE A MINIMUM OF 2" BLOWOFFS AND VALVES (BRASS OR COPPER MATERIAL ONLY) FOR TESTING. ALL DISCHARGED CHLORINATED WATER MUST BE DISCHARGED INTO SANITARY SEWER SYSTEM.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALL PROCEDURES AND COSTS FOR COORDINATION WITH ALL CITY DEPARTMENTS FOR WATER MAIN CONSTRUCTION AND INCLUDE ALL COSTS AND TIME IN THEIR BID AND PROGRESS SCHEDULE.
- 14. CONTRACTOR SHALL HAVE THE OPTION OF PRESSURE TESTING THE WATER MAIN AGAINST THE VALVE. IF THE VALVE LEAKS, THE CONTRACTOR SHALL MAKE REPAIRS (OR REPLACE) AND REPEAT THE PRESSURE TEST AGAINST THE VALVE OR CONSTRUCTED CAP. ALL COSTS FOR VALVE REPAIR, REPLACEMENT, OR TEMPORARY FITTINGS REQUIRED FOR PRESSURE TESTING SHALL BE CONSIDERED TO HAVE BEEN INCLUDED IN THE COST OF THE CONTRACT PAY ITEM FOR PRESSURE TESTING AND WILL NOT BE PAID FOR SEPARATELY.

WATER MAIN NOTES, CONTINUED:

- 15. THE CONTRACTOR SHALL PROVIDE CORPORATIONS (TO BE SUPERVISED BY THE CITY OF FLINT) ON THE WATER LINE FOR PRESSURE TESTING, CHLORINE ADDITION AND BLOW-OFF PURPOSES. THE CORPORATIONS SHALL HAVE COPPER PIPE EXTENDING TO THE GROUND SURFACE. THE CONTRACTOR SHALL REMOVE THE COPPER LINE UPON A SATISFACTORY TEST AND INSTALL A PLUG ON THE CORPORATION. AS A MINIMUM, CONTRACTOR SHALL PLACE A 2" CORPORATION WITH MUELLER THREADS INLET AND COPPER THREADS OUTLET ON EACH SIDE OF THE VALVES FOR TESTING AND CHLORINATION. THE CONTRACTOR IS REQUIRED TO CONFORM TO THE CURRENT MDEQ STANDARDS AND THE CITY OF FLINT REQUIREMENTS FOR WATER MAIN TESTING. HYDRANT SAMPLING IS NOT ACCEPTABLE.
- 16. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL FURNISH SHOP DRAWINGS AND MATERIAL CERTIFICATIONS, TO THE ENGINEER AND THE CITY OF FLINT WATER SERVICE CENTER VERIFYING THAT ALL WATER MAIN (AND APPURTENANCES) ITEMS USED ON THE PROJECT MEET THE REQUIREMENTS AND APPROVAL OF THE ENGINEER, CITY OF FLINT, AND MDOT STANDARDS, AS APPLICABLE.
- 17. MINIMUM HORIZONTAL DISTANCE BETWEEN SEWERS AND WATER MAIN SHALL BE 10'. VERTICAL SEPARATION SHALL BE 18".
- 18. THE CONTRACTOR SHALL ENCASE THE WATER MAIN IN CONCRETE FOR 3' BEYOND THE LIMITS WHERE VERTICAL SEPARATION BETWEEN WATER MAIN AND OTHER UTILITY IS LESS THAN 18". COST IS INCLUDED IN THE PRICES BID FOR THE WATER MAIN PAY ITEMS. DETAIL SHALL BE SUBMITTED FOR APPROVAL TO THE ENGINEER PRIOR TO PLACEMENT.
- 19. NO CONNECTION TO THE EXISTING WATER MAIN WILL BE MADE UNTIL APPROVAL OF THE PROPOSED WATER MAIN IS RECEIVED. THE CONTRACTOR MUST MAINTAIN SERVICE AT ALL TIMES EXCEPT DURING SERVICE LEAD INSTALLATIONS. CONTRACTOR SHALL NOTIFY RESIDENTS OF TEMPORARY SERVICE DISRUPTION A MINIMUM OF 24 HOURS IN ADVANCE.
- 20. ALL IN LINE BENDS. FITTINGS. TEES. SOLID SLEEVES. REDUCERS. AND FIRE HYDRANTS SHALL BE CONSTRUCTED WITH MECHANICAL JOINTS, AND ENCASED IN 8 MIL POLYETHYLENE. THE POLYETHYLENE FILM TUBE SHALL BE INSTALLED IN ACCORDANCE WITH ANSI/AWWA C 105/A21.5, METHOD A AND SHALL INCLUDE TAPING THE ENDS FULL CIRCUMFERENCE. METHOD A CONSISTS OF CUTTING THE POLYETHYLENE TUBE 2 FEET LONGER THAN THE PIPE TO PROVIDE AN OVERLAP AT THE JOINTS. THE COST OF THE POLYETHYLENE ENCASEMENT SHALL BE INCLUDED IN THE PRICES BID FOR THE WATER MAIN PAY ITEMS. RESTRAINING METHODS SHALL CONFORM TO STANDARD WATER DETAIL SHEET.
- 21. A MDEQ WATER MAIN PERMIT HAS BEEN OBTAINED BY THE CITY OF FLINT PRIOR TO CONSTRUCTION. CHLORINATION/DISINFECTION PERFORMANCE AND ACCEPTANCE ARE THE RESPONSIBILITY OF THE CITY OF FLINT, AS PROVIDED FOR AND WITH SUCH LIMITATIONS, AS DESCRIBED IN THE SPECIAL PROVISION FOR WATER MAIN WORK IN THE BID PROPOSAL.
- 22. THE CONTRACTOR SHALL SUPPLY VALVES AND SOLID MECHANICAL JOINT SLEEVES, AS NOTED ON THE PLANS THAT WILL FIT THE EXISTING MAINS. CONTACT THE CITY OF FLINT WATER SERVICE CENTER FOR PRE-APPROVED CITY VENDORS. ALL FITTINGS SHALL BE RIGHT HAND OPEN.
- 23. HYDRANTS SHALL BE MUELLER SUPER CENTURION OR EAST JORDON BR-250 CONFORMING TO CURRENT AWWA C-502. UNLESS OTHERWISE DIRECTED BY THE ENGINEER, LOCATE ALL HYDRANTS 2.0' CLEAR FROM THE RIGHT OF WAY, SERVICE CURB BOXES AND HYDRANT VALVE BOXES 2.0' MIN. BEHIND PROPOSED CURB AND 0.3' MIN. FROM PROPOSED SIDEWALK. SEE FIRE HYDRANT DETAIL SHEET 7 FOR MORE INFORMATION.
- 24. ALL GATEWELL STRUCTURES SHALL BE PRECAST CONCRETE.
- 25. BIDDERS ARE TO INCLUDE ALL COSTS AND TIME TO OBTAIN AND COMPLY WITH PROCEDURES, APPROVALS, CHARGES AND ALL COORDINATION WITH THE CITY OF FLINT INCLUSIVE TO THE PROJECT. ACTIVITES TO BE COORDINATED INCLUDE, BUT ARE NOT LIMITED TO, INSPECTION, TESTING, CHLORINATION, FLUSHING, PLACEMENT OF CORPORATIONS AND SERVICE LEADS, PLACEMENT OF TAPPING VALVES, AND PLACEMENT OF CONNECTIONS TO EXISTING WATERMAIN. THERE WILL BE NO CONSIDERATION GIVEN TO CLAIMS BY THE CONTRACTOR FOR ADDITIONAL COMPENSATION OR EXTENSION OF CONTRACT TIME FOR FAILURE TO INCLUDE THESE COSTS AND PROCEDURAL TIME IN THEIR BID (CONTRACT AMOUNT) AND PROGRESS SCHEDULE.
- 26. ALL WATER HYDRANTS, VALVES, FRAMES AND COVERS SALVAGED SHALL BE STOCKPILED IN AN APPROVED LOCATION FOR CITY FORCES TO COLLECT. ALL MATERIAL NOT WANTED BY CITY SHALL BE DISPOSED OF BY
- 27. CONTRACTOR TO BORE AROUND OR SUPPORT AND ENSURE STABILITY OF EXISTING UTILITY POLE DURING PLACEMENT OF PROPOSED WATERMAIN.

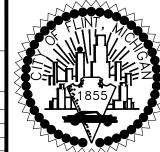
CASTING AND COVER NOTES

- 1. THE COVERS OF ALL EXISTING AND PROPOSED CURB INLET CATCH BASIN DRAINAGE STRUCTURES INCORPORATED INTO THE PROPOSED WORK SHALL BE REMOVED AND REPLACED WITH: 1) FOR STRAIGHT FACE CURB, NEW 500 POUND CF-3 CASTINGS, AND; 2) FOR CURB CUTS, NEW 490 POUND CF-4 CASTINGS. SEE CITY OF FLINT CASTING DETAILS SHEET 6 AND SPECIAL PROVISION.
- 2. THE COVERS OF ALL EXISTING AND PROPOSED MUNICIPAL MANHOLE STRUCTURES (WATER, STORM AND SANITARY) INCORPORATED INTO THE PROPOSED WORK SHALL BE REMOVED AND REPLACED WITH: 1) FOR SANITARY, NEW 380 POUND CF-1 CASTINGS; 2) FOR STORM, NEW 380 POUND CF-2 CASTINGS; AND, 3) FOR WATER, NEW 380 POUND CF-6 CASTINGS. SEE CITY OF FLINT CASTING DETAILS SHEET 6 AND SPECIAL PROVISION.
- 3. THE COVERS OF ALL EXISTING AND PROPOSED NON-MUNICIPAL UTILITY MANHOLES (TELEPHONE FOR EXAMPLE) SHALL BE ADJUSTED TO FINAL SURFACE ELEVATION BY THE OWNER'S OF THOSE FACILITIES, AS COORDINATED BY THE CONTRACTOR.

SUED FOR: DATE: BY 3-26-09

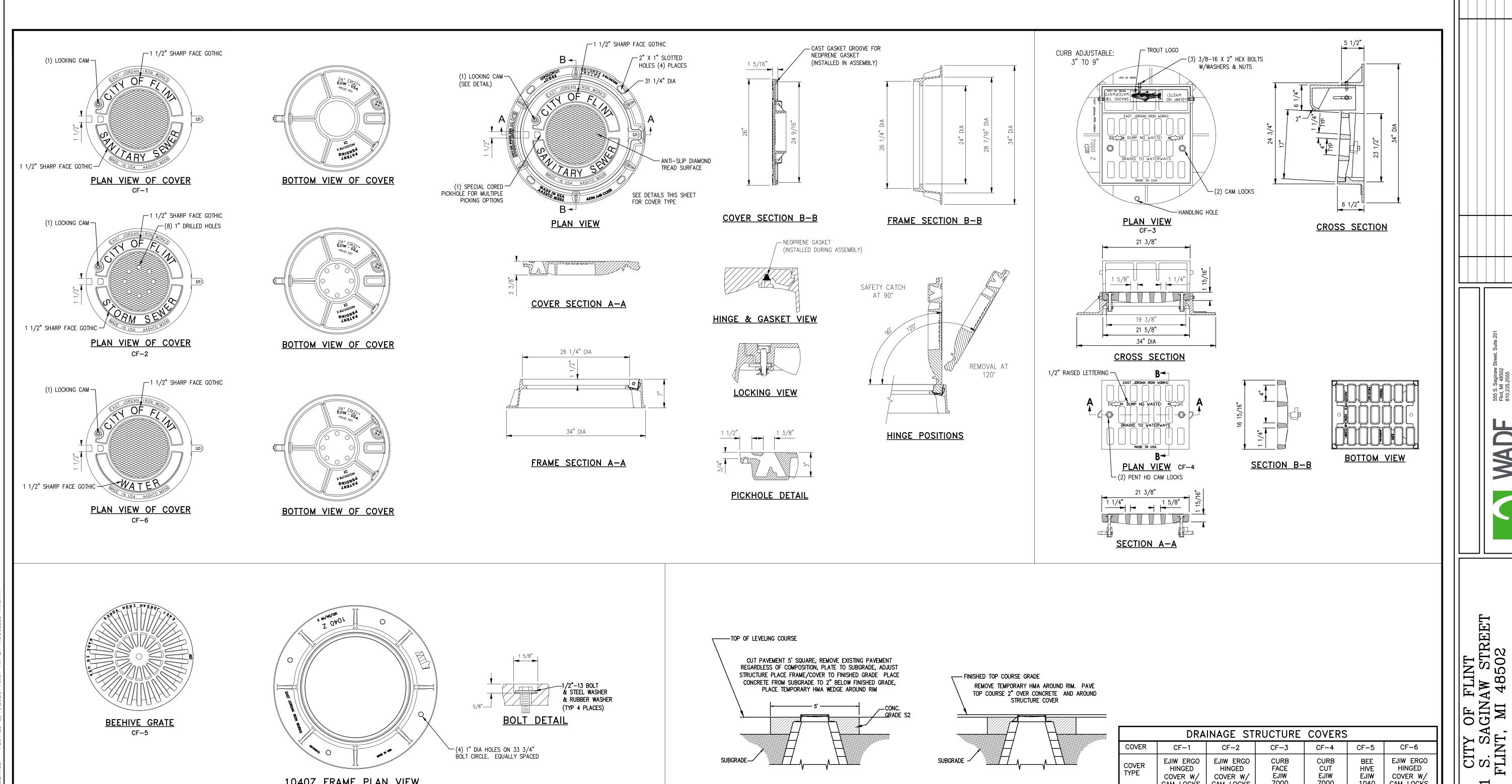
DEPARTMENT OF PUBLIC WORKS ENGINEERING AND UTILITIE Notes Sheet

REVISIONS: DRAWN BY: HECKED BY: NO SCALE SHFFT



COF1068.01F

FLINT AW STI 48502



STRUCTURE COVER ADJUSTMENTS

2) WHETHER MDOT CASE 1 OR MDOT CASE 2 IS SPECIFIED.

1) WHETHER PAVEMENT IS PARTIALLY OR COMPLETELY REMOVED, AND

THIS DETAIL APPLIES TO:

1040Z FRAME PLAN VIEW

FRAME SECTION

BEEHIVE GRATE SECTION

FINAL ADJUSTMENT OF UTILITY STRUCTURE

CASTINGS SHALL BE MADE PRIOR TO PLACING

TOP COURSE

_____ 27 9/16" DIA_____

3/4" DIA----

BEE HIVE EJIW 1040 Z & O2 CURB CUT EJIW 7000 EJIW ERGO EJIW ERGO EJIW ERGO COVER FACE EJIW HINGED COVER W/ HINGED HINGED COVER W/ COVER W/ 7000 Z, T1 CAM LOCKS, CAM LOCKS, CAM LOCKS, STAMPED CITY STAMPED STAMPED CITY OF FLINT -CITY OF OF FLINT -FLINT -SANITARY" STORM" PER DETAILS ON WATER" PER PER DETAILS DETAILS ON ON THIS THIS SHEET. SHEET. THIS SHEET. PRODUCT 00104087L01 00104088L01 00700033C01 00700010 103901 00104089L01 NUMBER

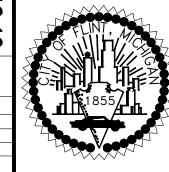
SHEET

NOTE: PARTS MAY BE OBTAINED BY EAST JORDAN IRON WORKS OR APPROVED EQUAL



HECKED BY:

NO SCALE

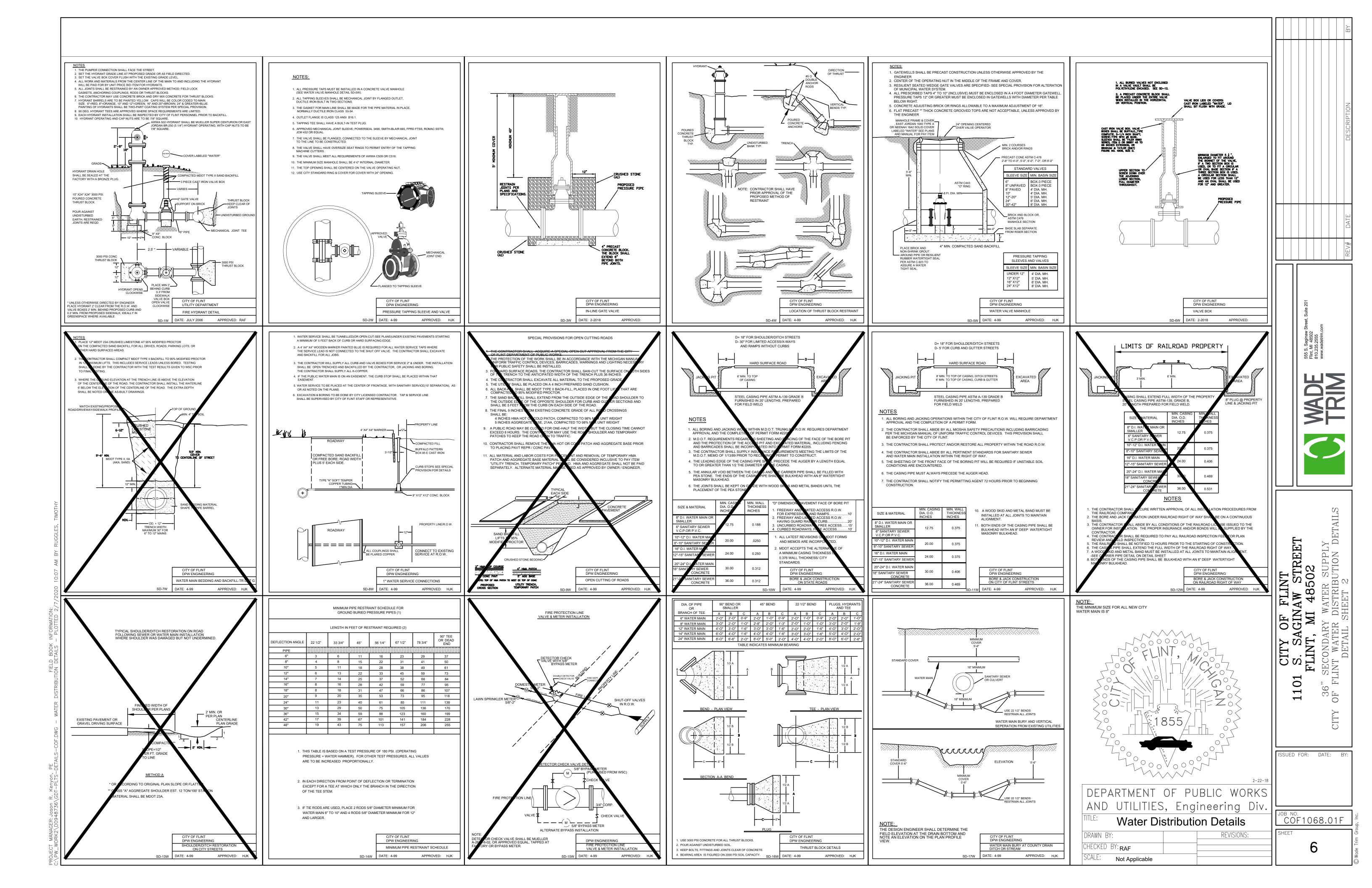


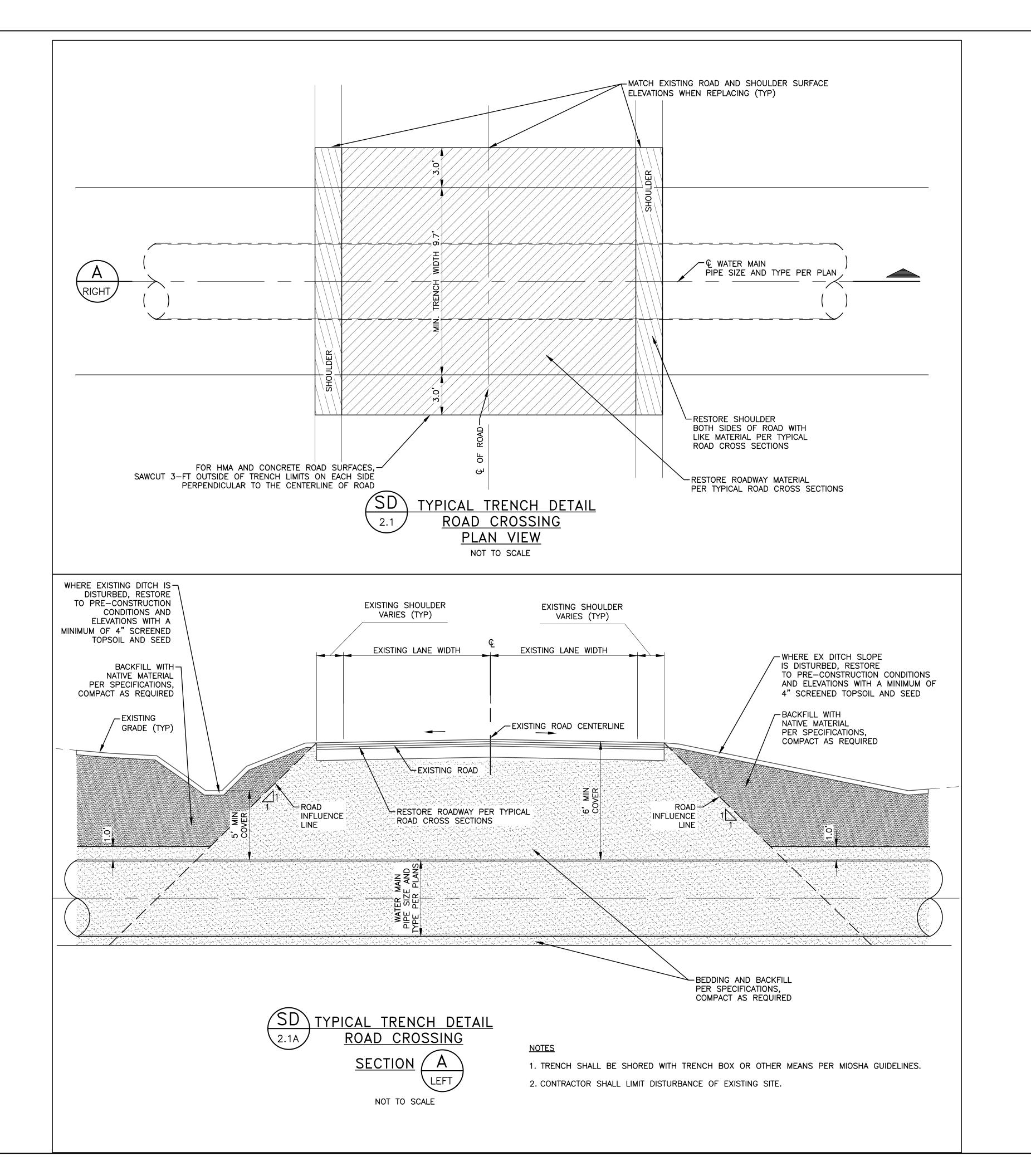
COF1068.01F

01

 $\overline{}$

SSUED FOR: DATE:







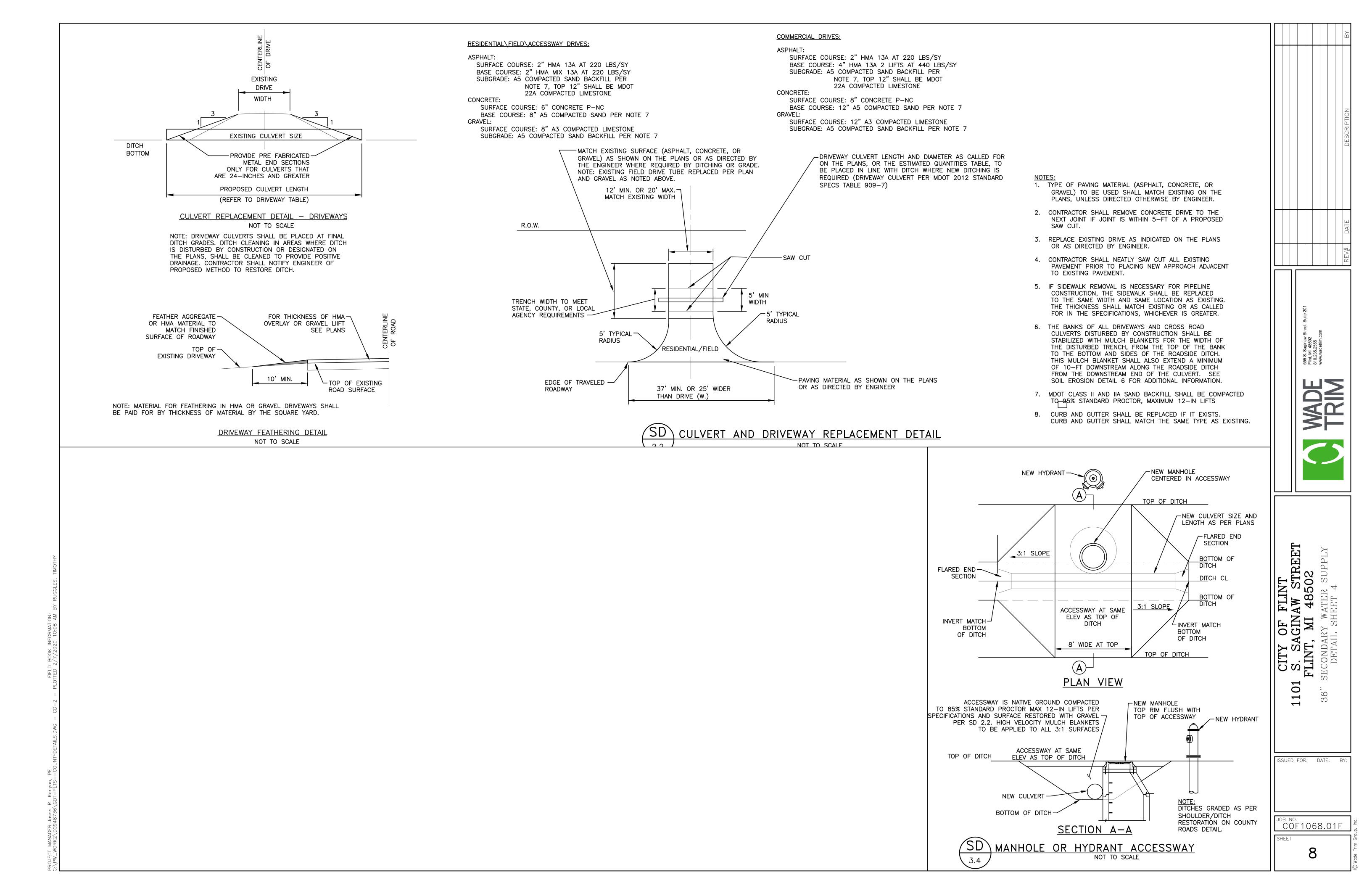
CITY OF FLINT

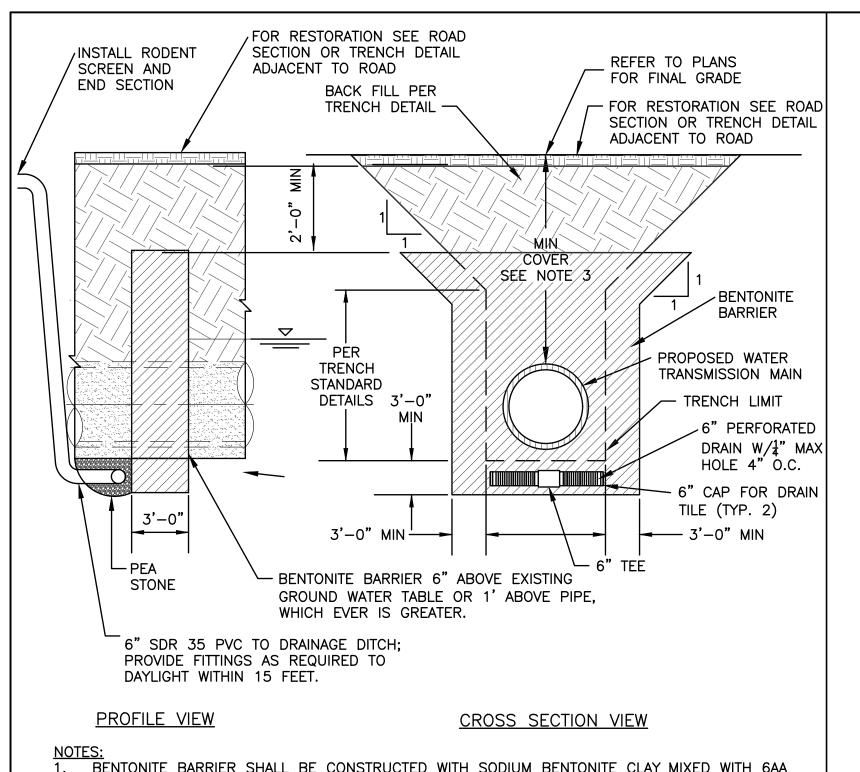
1 S. SAGINAW STREET
FLINT, MI 48502

" SECONDARY WATER SUPPLY
DETAIL SHEET 3

36"

1101





BENTONITE BARRIER SHALL BE CONSTRUCTED WITH SODIUM BENTONITE CLAY MIXED WITH 6AA CRUSHED LIMESTONE AT A RATIO OF 1 PART BENTONITE TO 5 PARTS LIMESTONE BY VOLUME.

- DRAIN PIPE SHALL BE COVERED WITH A GEOTEXTILE FABRIC CONFORMING TO THE CURRENT ASTM D6707-06
- WHEN WATER MAIN IS UNDER GREENBELT USE 5 FOOT MINIMUM, UNLESS OTHERWISE SPECIFIED. WHEN WATERMAIN IS UNDER ROADWAY USE 5 FOOT MINIMUM, UNLESS OTHERWISE SPECIFIED.
- TO BE PLACED AS SHOWN ON PLANS FOR ENVIRONMENTAL CONSIDERATIONS. THE CONTRACTOR IS RESPONSIBLE FOR ANY ADDITIONAL BARRIERS AT NO ADDITIONAL COST IF DETERMINED NECESSARY FOR HIS CONSTRUCTION OPERATIONS.

BENTONITE BARRIER DETAIL NOT TO SCALE

MDOT 22-A UNDERCUT BACKFILL MATERIAL

DENSITY. WOVEN GEOTEXTILE FABRIC TO BE

OF 12" AND COMPACTED TO 90% OF MAXIMUM SD

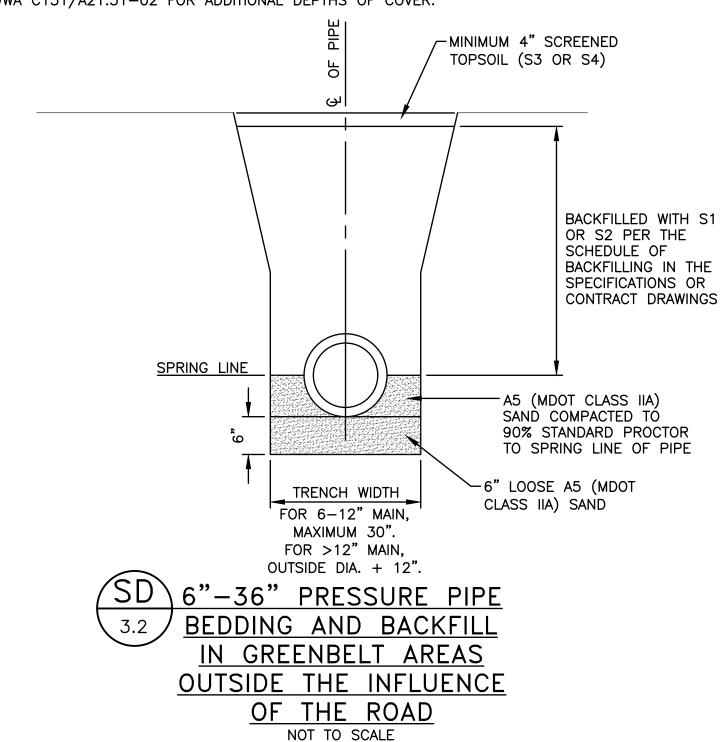
PLACED OVER TOP OF MATERIAL.

PLACED IN LIFTS WITH A MAXIMUM THICKNESS

1. THE CONTRACTOR SHALL PLACE AND COMPACT SAND BACKFILL A5 (MDOT CLASS IIA) TO 95% OF THE MATERIAL UNIT WEIGHT BY STANDARD PROCTOR ACROSS ALL ROADWAYS AND DRIVES PER THE SCHEDULE OF BACKFILLING OR CONTRACT DRAWINGS. THIS INCLUDES SERVICE LEADS UNLESS BORED. THE CONTRACTOR SHALL DO THE TESTING, WITH RESULTS SUBMITTED TO ENGINEER PRIOR TO FINAL ACCEPTANCE. 2. THE PRESSURE PIPE SHALL BE INSTALLED AT THE DEPTHS AND ELEVATIONS INDICATED ON THE PLANS THESE ELEVATIONS SHALL BE RECORDED ON THE AS-BUILT DRAWINGS.

3. FOR ADDITIONAL CONSIDERATION OF PIPE ZONE EMBEDMENT CONDITIONS, SEE AWWA C600-99.

4. THE ENGINEER SHALL REVIEW AND ADJUST PIPE THICKNESS DESIGN RECOMMENDATIONS IN AWWA C151/A21.51-02 FOR ADDITIONAL DEPTHS OF COVER.



3. WHEN WATER MAIN IS UNDER GREENBELT USE 5 FOOT MINIMUM. WHEN WATERMAIN IS

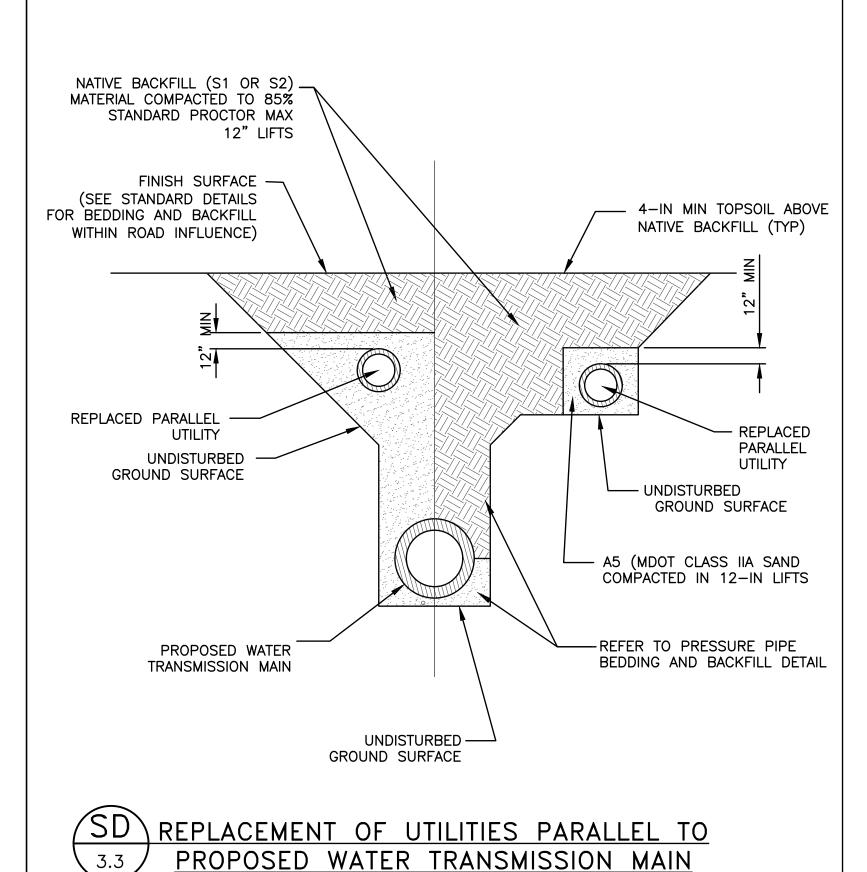
4. WHEN UNDERCUT \leq 1' COST SHALL BE INCLUSIVE TO WATER MAIN INSTALLATION.

6. WOVEN GEOTEXTILE FABRIC SHALL BE CONTINUOUS OR OVERLAP A MINIMUM OF 3'.

5. SHALL BE USED IN POOR SOIL AREAS WHERE BLOW COUNT IS LESS THAN 3.

UNDER ROADWAY USE 5 FOOT MINIMUM.

-OUTSIDE OF ROADWAY RESTORE



OUTSIDE OF ROAD INFLUENCE

NOT TO SCALE

WITH A MINIMUM OF 4" SCREENED TOPSOIL AND SEED INFLUENCE RESTORE ROADWAY PER TYPICAL--BACKFILL WITH **ROAD CROSS SECTIONS** NATIVE MATERIAL PER SPECIFICATIONS, COMPACT AS REQUIRED BEDDING AND BACKFILL PER SPECIFICATIONS, COMPACT AS REQUIRED -EXCAVATE TO SUITABLE MATERIAL AS APPROVED BY ENGINEER IN THE FIELD O.D. WATER MAIN PIPE SIZE AND TYPE PER PLANS * 3.0' MIN TO * 3.0' MIN TO WOVEN GEOTEXTILE 5.0' MIN 5.0' MIN **FABRIC** TRENCH WIDTH ** VARIES 1. TRENCH SHALL BE SHORED WITH TRENCH BOX OR OTHER MEANS PER MIOSHA GUIDELINES. * VARIES (SAME DISTANCE AS UNDERCUT DEPTH) ** VARIES (DEPENDS ON UNDERCUT DEPTH) PLACE EITHER MDOT 21-AA OR-2. CONTRACTOR SHALL LIMIT DISTURBANCE OF EXISTING SITE.

TYPICAL TRENCH DETAIL

AREAS OF UNDERCUT FOR

UNSUITABLE MATERIAL <4'

NOT TO SCALE

-OUTSIDE OF ROADWAY RESTORE WITH A MINIMUM OF 4" SCREENED TOPSOIL AND SEED INFLUENCE -BACKFILL WITH NATIVE MATERIAL RESTORE -PER SPECIFICATIONS, ROADWAY PER COMPACT AS REQUIRED **TYPICAL** ROAD CROSS SECTIONS BEDDING AND BACKFILL PER SPECIFICATIONS, UNDISTURBED EARTH COMPACT AS REQUIRED -UNDISTURBED EARTH— O.D. WATER MAIN PIPE SIZE AND TYPE PER PLANS

> 36" PRESSURE PIPE BEDDDING AND BACKFILL DETAIL UNDER/WITHIN INFLUENCE OF THE ROAD NOT TO SCALE

2. THE PRESSURE PIPE SHALL BE INSTALLED AT THE DEPTHS AND ELEVATIONS INDICATED ON THE PLANS THESE ELEVATIONS SHALL BE RECORDED ON THE AS-BUILT

3. FOR ADDITIONAL CONSIDERATION OF PIPE ZONE EMBEDMENT CONDITIONS, SEE AWWA

4. TRENCH SHALL BE SHORED WITH TRENCH BOX OR OTHER MEANS PER MIOSHA GUIDELINES.

5. CONTRACTOR SHALL LIMIT DISTURBANCE OF EXISTING SITE.

1. THE CONTRACTOR SHALL PLACE AND COMPACT SAND BACKFILL A5 (MDOT CLASS IIA) TO 95% OF THE MATERIAL UNIT WEIGHT BY STANDARD PROCTOR ACROSS AND UNDER ALL ROADWAYS AND DRIVES PER THE SCHEDULE OF BACKFILLING OR CONTRACT DRAWINGS. THIS INCLUDES SERVICE LEADS UNLESS BORED. THE CONTRACTOR SHALL DO THE TESTING, WITH RESULTS SUBMITTED TO ENGINEER PRIOR TO FINAL ACCEPTANCE.

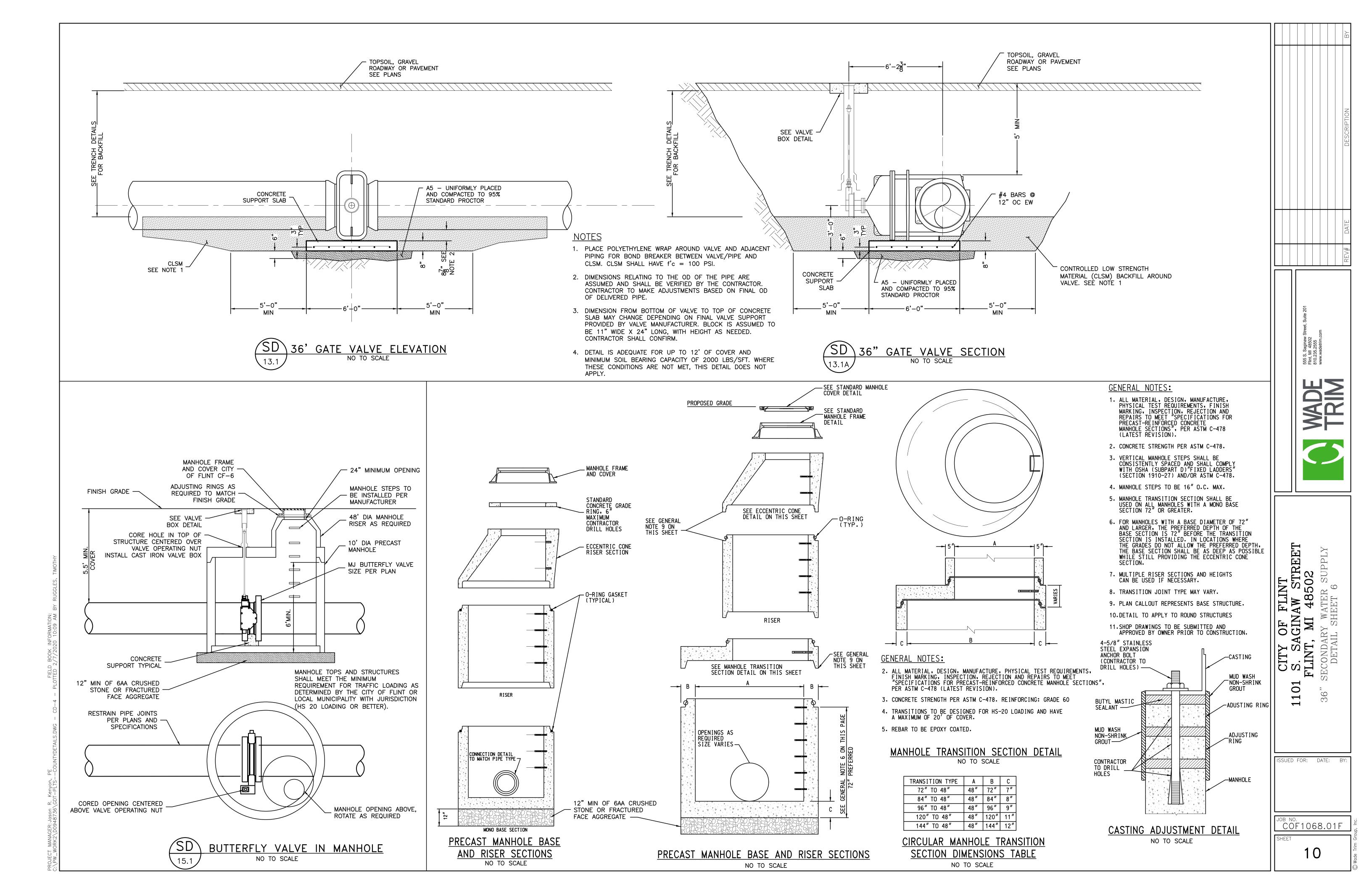
DRAWINGS.

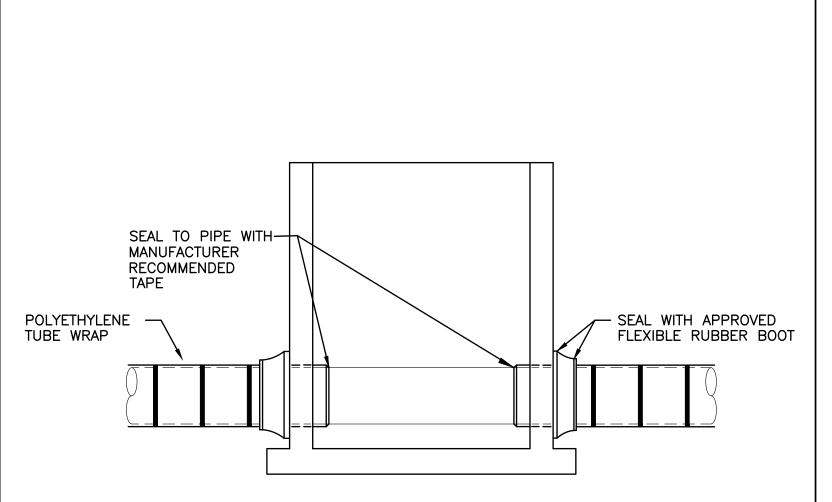
555 S. Saginaw Flint, MI 48502 810.235.2555

SAGINAW STREET

I, MI 48502

TO MATER SUPPLY 0



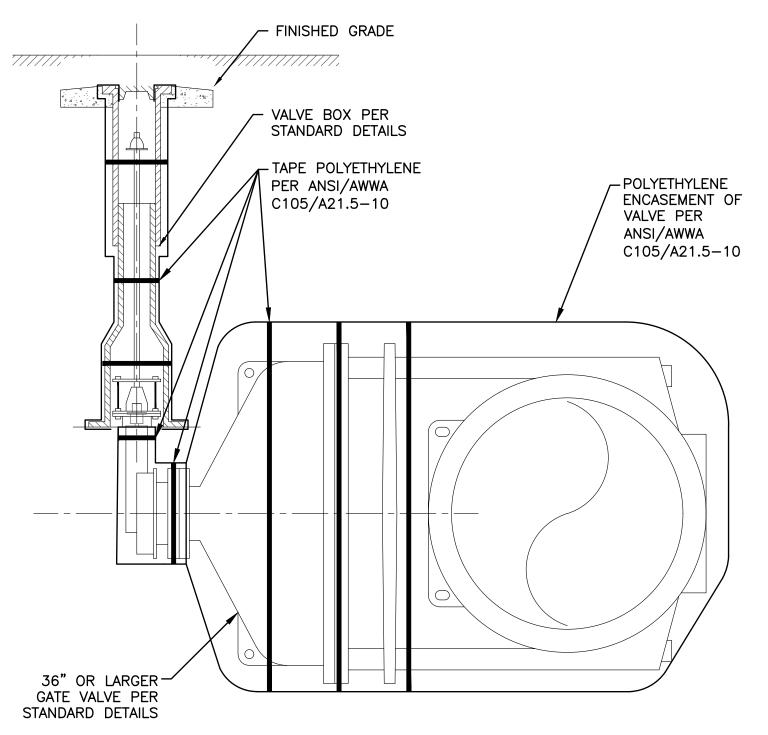


CIRCUMFERENTIAL WRAPS OF MANUFACTURER RECOMMENDED TAPE SHOULD BE PLACED AT NO GREATER THAN FOUR (4) FOOT INTERVALS ALONG THE BARREL OF THE PIPE WITH THE EXCESS FOLDED OVER TOP TO TAKE OUT EXCESS SLACK HELPING TO MINIMIZE THE SPACE BETWEEN THE POLYETHYLENE AND THE PIPE. COMPLETE THE INSTALLATION BY OVERLAPPING THE POLYETHYLENE TUBE WRAP, AROUND JOINTS AND VALVES, AT EACH END AND SEAL ENDS. INSTALL PER AWWA C105.

> TYPICAL WRAP FOR DUCTILE IRON PIPE AT MANHOLE

4.7

NOT TO SCALE



NOTE: SEE DETAIL 13.1 FOR INFORMATION ON THE VALVE AND INSTALLATION POLYETHYLENE WRAP FOR VALVES 36" & LARGER

GRAVEL ROADWAY OR

SHOULDER SURFACE

(SEE ROAD DETAILS)

PAVED ROADWAY -OR NATURAL

GROUND (SEE

ROAD DETAILS)

CAST IRON VALVE BOX -

ADJUSTMENTS FOR

GATE VALVE

WATER MAIN -

CONCRETE BLOCK WIDTH EQUAL TO PIPE DIAMETER PLUS 12" MINIMUM

SCREW TYPE

DEPTH

6" MIN →

NOT TO SCALE

SURFACE.

EXTENSION STEM HEIGHT AS PER

A2 AS PER SPEC SECTION 02320

12" LIFTS

LABELED "NC"

GREATER THAN 10' ONLY)

FINISHED GRADE SOLID ROD EXTENSION STEM PINNED TO STEM & OPERATING NUT. (FOR DEPTH GREATER THAN 10' ONLY) GATE VALVE AND BOX PER STANDARD DETAILS POLYETHYLENE ENCASEMENT OF-- TAPE POLYETHYLENE VALVE AND TEE, WRAP PER ANSI/AWWA AND SEAL COMPLETELY C105/A21.5-10 PRIOR TO BACKFILL PER ANSI/AWWA C105/A21.5-10 OVERLAP POLYETHYLENE -TUBE WRAP AND 48" (TYP.) VALVE WRAP A MINIMUM OF 12" SEAL JOINTS TYPICAL

NOTE: SEE DETAIL 4.1 FOR INFORMATION ON THE VALVE AND

POLYETHYLENE WRAP

FOR VALVES SMALLER THAN 24"

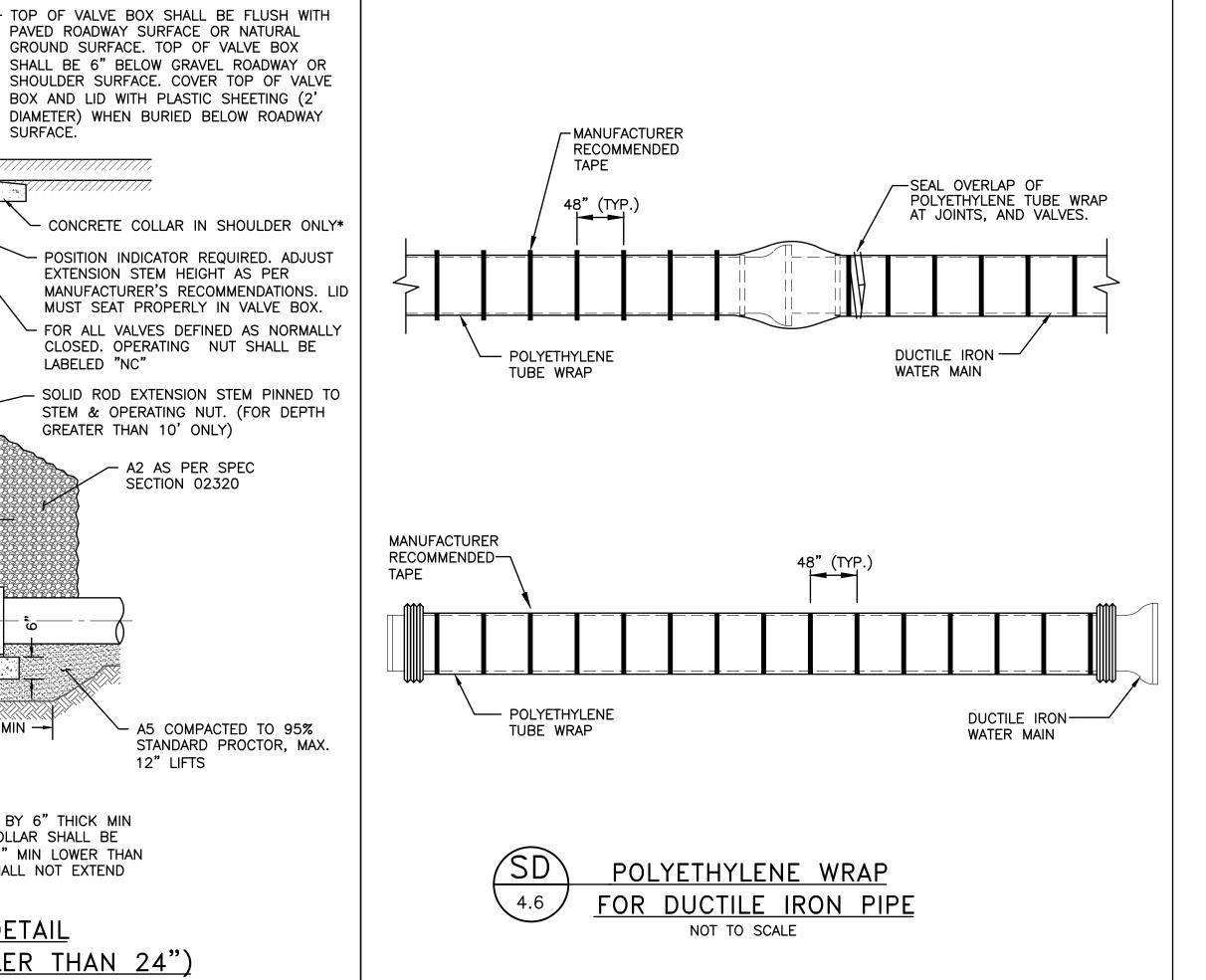
NOT TO SCALE

INSTALLATION

4.4

* VALVE BOX SHALL BE INSTALLED IN 3' DIAMETER BY 6" THICK MIN CONCRETE COLLAR. TOP SURFACE OF CONCRETE COLLAR SHALL BE SMOOTH AND THE EDGE OF CONCRETE SHALL BE 2" MIN LOWER THAN TOP CENTER OF CONCRETE COLLAR. VALVE BOX SHALL NOT EXTEND OR PROTRUDE ABOVE THE TOP OF CONCRETE.

/SD VALVE BOX DETAIL <u>(FOR VALVES SMALLER THAN 24")</u> (CONTRACTOR SUPPLIED ALL) NOT TO SCALE



555 S. Sagina Flint, MI 485 810.235.2555

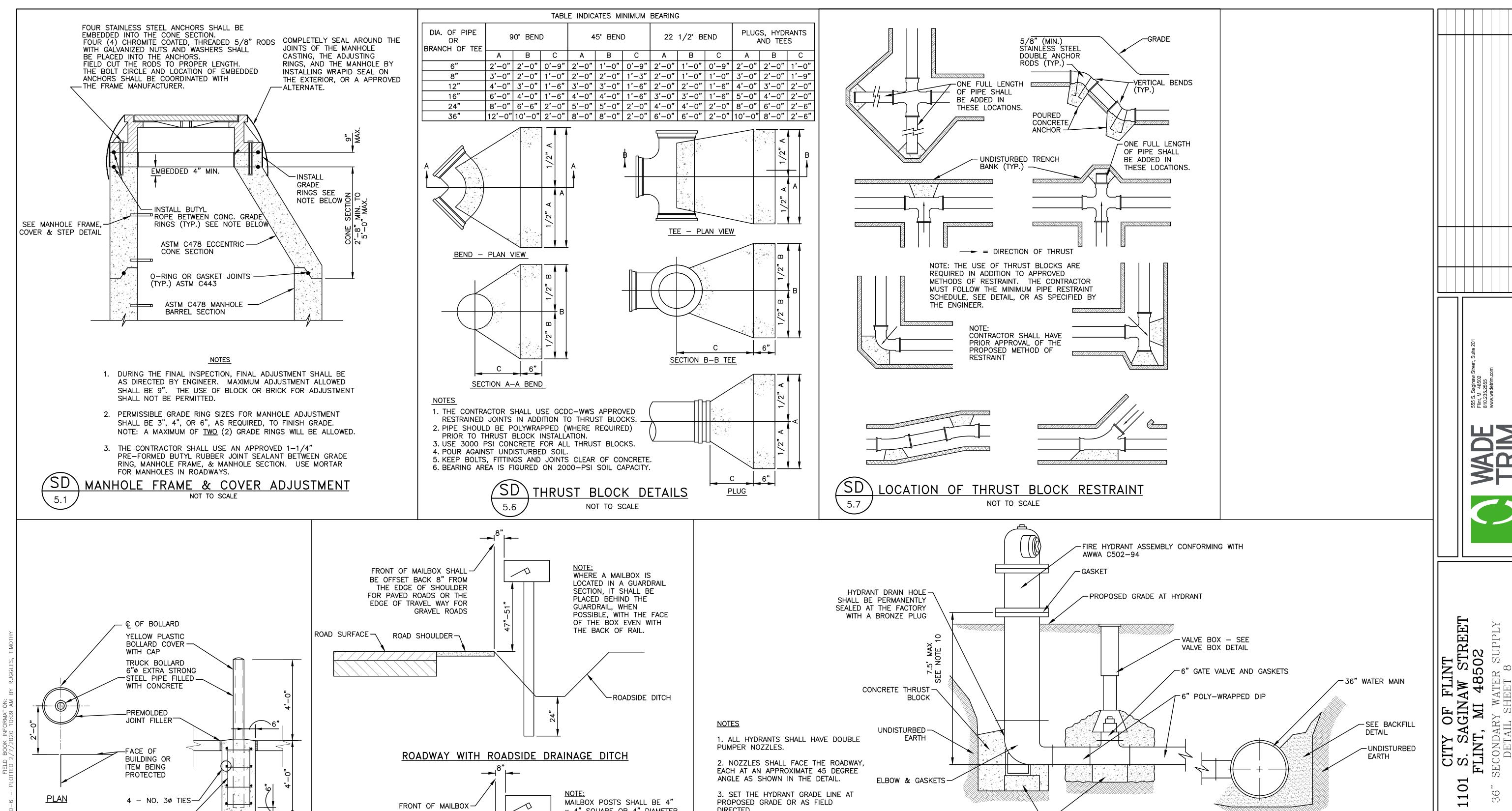
CITY OF FLINT

1 S. SAGINAW STREET
FLINT, MI 48502

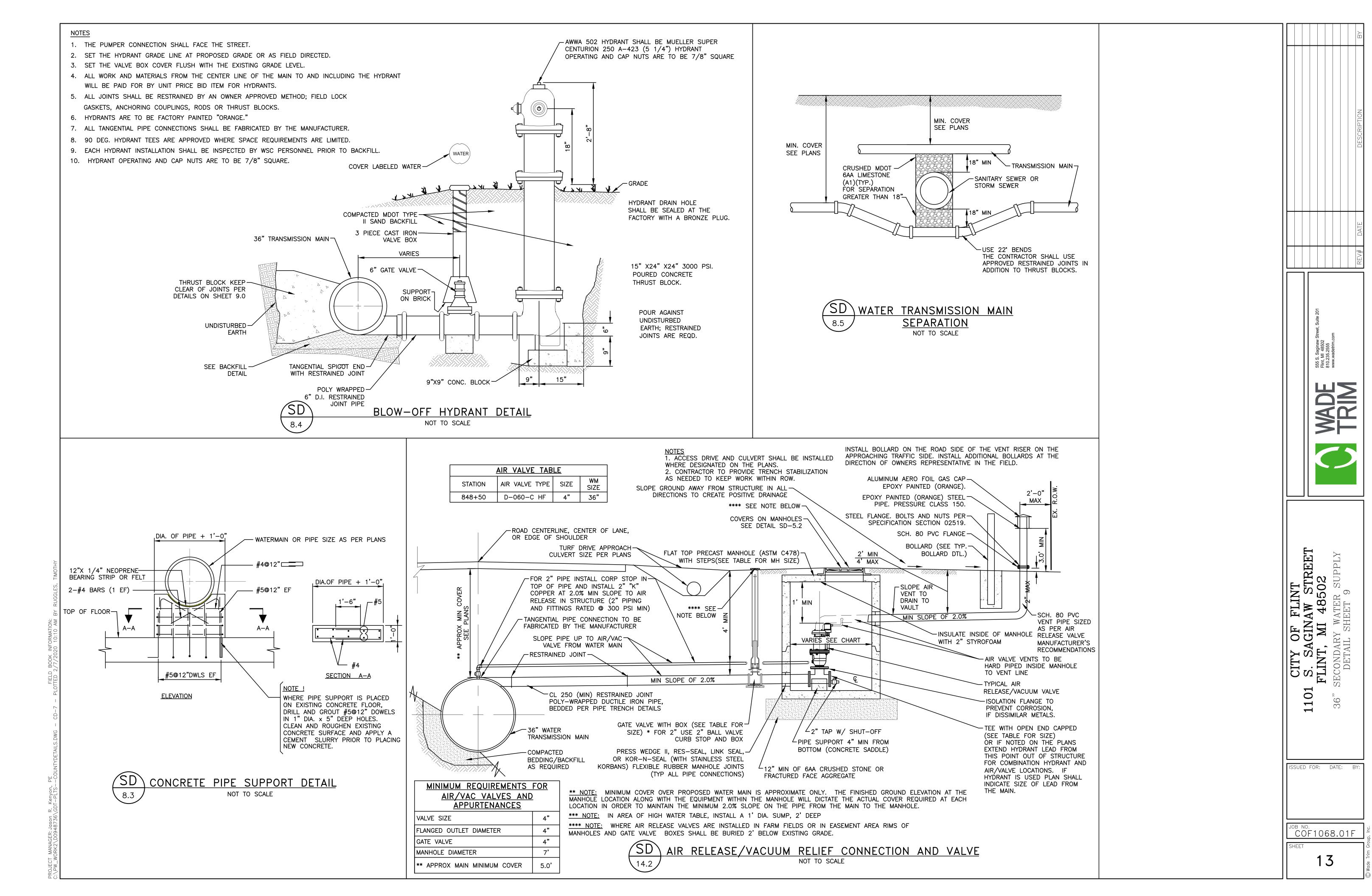
SECONDARY WATER SUPPLY
DETAIL SHEET 7

01

SSUED FOR: DATE: B`



x 4" SQUARE OR 4" DIAMETER DIRECTED. SHALL BE OFFSET BACK 6 - NO. 3ø-TREATED WOODEN POST OR 8" FROM THE FRONT CONCRETE BLOCK **VERTICAL** 4. SET THE VALVE BOX COVER FLUSH LIGHT GAUGE PIPE WITH A EDGE OF CURB EQUALLY SPACED WITH THE EXISTING/PROPOSED GRADE. STRENGTH NO GREATER THAN 2" STANDARD STEEL PIPE. 2.5' **VARIES** 5. THE CONTRACTOR MAY USE CONCRETE CONCRETE NO MORE THAN 2 MAILBOXES CONCRETE -BLOCK AND DRY MIX CONCRETE FOR FOUNDATION SHALL BE MOUNTED ON 1 THRUST BLOCK THRUST BLOCKS. SSUED FOR: DATE: B CURB-6. ALL JOINTS SHALL BE RESTRAINED BY ROAD SURFACE -AN APPROVED METHOD IN CONJUNCTION WITH THE USE OF THRUST BLOCKING FOR THIS PROJECT. 7. HYDRANTS ARE TO BE FACTORY PAINTED "ORANGE." ROADWAY WITH CURB AND GUTTER COF1068.01F STANDARD FIRE HYDRANT DETAIL TYPICAL BOLLARD DETAIL STANDARD MAILBOX REHAB NOT TO SCALE 5.4 NOT TO SCALE NOT TO SCALE



$\left(M\right)$	odified)	oility of a specific control measure of the seven problem areas	SLOPES	STREAMS AND WATERWAYS	SURFACE DRAINAGEWAYS	ENCLOSED DRAINAGE (inlet & Outfall Control)	LARGE FLAT SURFACE AREAS	BORROW AND STOCKPILE AREAS	ADJACENT PROPERTIES
KEY	DETAIL	CHARACTERISTICS	A	B B	C	D D	E	F	G
	Dust Control - No Detail -	DUST CONTROL APPLICATIONS CAN INCLUDE WATERING, CHEMICAL DUST SUPPRESSION, GRAVEL OR ASPHALT SURFACING, TEMPORARY	 					$\boxed{*}$	
2	Selective Grading & Shaping	WATER CAN BE DIVERTED TO MINIMIZE EROSION FLATTER SLOPES EASE EROSION PROBLEMS	*				 	*	*
3	Grubbing Omitted	SAVES COST OF GRUBBING, PROVIDES NEW SPROUTS RETAINS EXISTING ROOT MAT SYSTEM, REDUCES WIND FALL AT NEW FOREST EDGE. DISCOURAGES EQUIPMENT ENTRANCE	 				 		
4	Vegetative Stabilization	MAY UTILIZE A VARIETY OF PLANT MATERIAL STABILIZES SOIL SLOWS RUNOFF VELOCITY FILTERS SEDIMENT FROM RUNOFF	*	*	*		*	*	*
5	AVAILABLE DETAIL	FILLERS SEDIMENT FROM RUNOFF							
6	Seeding with Mulch Blanket and/or Matting	FACILITATES ESTABLISHMENT OF VEGETATIVE COVER EFFECTIVE FOR DRAINAGEWAYS WITH LOW VELOCITY EASILY PLACED IN SMALL QUANTITIES BY INEXPERIENCED PERSONNEL SHOULD INCLUDE PREPARED TOPSOIL BED	*		*			*	*
7	AVAILABLE DETAIL	A SOURCE SHOULD WEEKE THE THE SOURCE SEE							
8	Sodding	PROVIDES IMMEDIATE PROTECTION CAN BE USED ON STEEP SLOPES WHERE SEED MAY BE DIFFICULT TO ESTABLISH. EASY TO PLACE; MAY BE REPAIRED IF DAMAGED SHOULD INCLUDE PREPARED TOPSOIL BED	*		*		*	*	*
9	Vegetative Buffer Strip	SLOWS RUNOFF VELOCITY FILTERS SEDIMENT FROM RUNOFF REDUCES VOLUME OF RUNOFF ON SLOPES	*	*					*
10	Mulching	USED ALONE TO PROTECT EXPOSED AREAS FOR SHORT PERIODS PROTECTS SOIL FROM IMPACT OF FALLING RAIN PRESERVES SOIL MOISTURE AND PROTECTS GERMINATING SEED FROM TEMPERATURE EXTREMES	*				*	*	
11	Roughened Surface	REDUCES VELOCITY AND INCREASES INFILTRATION RATES COLLECTS SEDIMENT HOLDS WATER, SAND AND MULCH BETTER THAN SMOOTH SURFACES	*				*		
12	AVAILABLE DETAIL								
13	Riprap, Rubble, Gabions	USED WHERE VEGETATION IS NOT EASILY ESTABLISHED EFFECTIVE FOR HIGH VELOCITIES OR HIGH CONCENTRATIONS PERMITS RUNOFF TO INFILTRATE SOIL DISSIPATES ENERGY FLOW AT SYSTEM OUTLETS	*	*	*				
14	AVAILABLE DETAIL								
15	AVAILABLE DETAIL								
16	AVAILABLE DETAIL								
17	Benches	REDUCES RUNOFF VELOCITY BY REDUCING EFFECTIVE SLOPE LENGTH COLLECTS SEDIMENT, PROVIDES ACCESS TO SLOPES FOR SEEDING, MULCHING AND MAINTENANCE	*					*	
18	Earth Diversion Berm	DIVERTS WATER FROM VULNERABLE AREAS COLLECTS AND DIRECTS WATER TO PREPARED DRAINAGEWAYS MAY BE PLACED AS PART OF NORMAL CONSTRUCTION OPERATION	*					*	*
18A	Earth Diversion Berm With Stone Outlet Filter	DIVERTS WATER FROM VULNERABLE AREAS COLLECTS AND DIRECTS WATER TO PREPARED DRAINAGEWAYS MAY BE PLACED AS PART OF NORMAL CONSTRUCTION OPERATION	*					*	*
19	Diversion Ditch	COLLECTS AND DIVERTS WATER TO REDUCE EROSION POTENTIAL MAY BE INCORPORATED IN PERMANENT PROJECT DRAINAGE SYSTEMS	*					*	*
20	Diversion Berm & Ditch	DIVERTS WATER TO A PREPARED DRAINAGEWAY MAY BE USED AT INTERVALS ACROSS SLOPE FACE TO REDUCE EFFECTIVE SLOPE LENGTH	*					*	*
21	Stone Filter Berm	CONSTRUCTED OF GRAVEL OR STONE INTERCEPTS AND DIVERTS RUNOFF TO STABILIZED AREAS OR PREPARED DRAINAGE SYSTEMS SLOWS RUNOFF AND COLLECTS SEDIMENT	*	*					*
21A	Stone Filter Berm with Silt Fence	CONSTRUCTED OF GRAVEL OR STONE INTERCEPTS AND DIVERTS RUNOFF TO STABILIZED AREAS OR PREPARED DRAINAGE SYSTEMS SLOWS RUNOFF AND COLLECTS SEDIMENT — SILT FENCE PREVENTS EROSION AROUND SPILLWAY	*	*					*
22	AVAILABLE DETAIL								
23	AVAILABLE DETAIL								
24	Grassed Waterway	MUCH MORE STABLE FORM OF DRAINAGEWAY THAN BARE CHANNEL GRASS TENDS TO SLOW RUNOFF AND FILTER OUT SEDIMENT USED WHERE BARE CHANNEL WOULD BE ERODED			*				
25	Slope Drain (Surface Pipe)	PREVENTS EROSION ON SLOPES WHEN RUNOFF CANNOT BE DIVERTED TO EDGES OF SLOPE AREA. USUALLY TEMPORARY CAN BE CONSTRUCTED OR EXTENDED AS GRADING PROGRESSES	*						
26	Slope Drain — Paved Chute/Flume /	PREVENTS EROSION ON SLOPES WHEN RUNOFF CANNOT BE DIVERTED TO EDGE OF SLOPE AREA. USUALLY PERMANENT CAN BE CONSTRUCTED OR EXTENDED AS GRADING PROGRESSES	*						
27	Slope Drain (Subsurface Pipe)	PREVENTS EROSION ON SLOPES WHEN RUNOFF CANNOT BE DIVERTED TO EDGE OF SLOPE AREA. USUALLY PERMANENT CAN BE CONSTRUCTED AS GRADING PROGRESSES	*						
28	Drop Spillway	SLOWS VELOCITY OF FLOW, REDUCING EROSIVE CAPACITY		*	*				
29	Pipe Drop	REDUCES RUNOFF VELOCITY REMOVES SEDIMENT AND TURBIDITY CAN BE DESIGNED TO HANDLE LARGE VOLUMES OF FLOW			*				
30	Pipe Spillway	REMOVES SEDIMENT AND TURBIDITY FROM RUNOFF MAY BE PART OF PERMANENT EROSION CONTROL PLAN			*				
31	Energy Dissipater	SLOWS RUNOFF VELOCITY TO NON-EROSIVE LEVEL PERMITS SEDIMENT COLLECTION FROM RUNOFF	*		*	*			
32	Level Spreader	CONVERTS COLLECTED CHANNEL OR PIPE FLOW BACK TO SHEET FLOW AVOIDS CHANNEL EASEMENTS AND CONSTRUCTION OFF PROJECT SITE SIMPLE TO CONSTRUCT			*				
33	Sediment Trap	MAY BE CONSTRUCTED OF A VARIETY OF MATERIALS TRAPS SEDIMENT AND REDUCES VELOCITY OF FLOW CAN BE CLEANED AND EXPANDED AS NEEDED			*				
34	Sediment Basin	TRAPS SEDIMENT RELEASES RUNOFF AT NON-EROSIVE RATES CONTROLS RUNOFF AT SYSTEM OUTLETS CAN BE VISUAL AMENITIES			*	*			
35	AVAILABLE DETAIL								
36	Catch Basin Inlet Protection	COLLECTS HIGH VELOCITY CONCENTRATED RUNOFF MAY USE FILTER CLOTH OVER INLET					*		*
[37]	Sou Filter	INEXPENSIVE AND EASY TO CONSTRUCT PROVIDES IMMEDIATE PROTECTION PROTECTS AREAS AROUND INLETS FROM EROSION				*			
138	AVAILABLE DETAIL								

* ir	ndicates applica o one or more	bility of a specific control measure of the seven problem areas	SLOPES	STREAMS AND WATERWAYS	SURFACE DRAINAGEWAYS	ENCLOSED DRAINAGE (inlet & Outfall Control)	LARGE FLAT SURFACE AREAS	BORROW AND STOCKPILE AREAS	ADJACENT
KEY	DETAIL	CHARACTERISTICS	Α	В	С	D	E	F	(
39	Fabric Filter Curb Inlet Protection	CAN UTILIZE MATERIAL FOUND ON SITE EASY TO CONSTRUCT FILTERS SEDIMENT FROM RUNOFF				*			+
40	Inlet Sediment Trap	EASY TO SHAPE COLLECTS SEDIMENT MAY BE CLEANED AND EXPANDED AS NEEDED				*			
41	Stone and Rock Ford Crossing	MAY BE ROCK OR CLEAN RUBBLE MINIMIZES STREAM TURBIDITY INEXPENSIVE MAY ALSO SERVE AS DITCH CHECK OR SEDIMENT TRAP		*					
42	Temporary Culvert	ELIMINATES STREAM TURBULENCE AND TURBIDITY PROVIDES UNOBSTRUCTED PASSAGE FOR FISH AND OTHER WATER LIFE CAPACITY FOR NORMAL FLOW CAN BE PROVIDED WITH STORM WATER FLOWING OVER ROADWAY		*					
43	Culvert Sediment Trap	EAST TO INSTALL AT INLET KEEPS CULVERT CLEAN AND FREE FLOWING MAY BE CONSTRUCTED OF LUMBER OR LOGS		*					*
44	AVAILABLE DETAIL								
45	Temporary Stream Channel Change	NEW CHANNEL KEEPS NORMAL FLOWS AWAY FROM CONSTRUCTION REQUIRES STATE PERMIT		*					
46	AVAILABLE DETAIL								
47	Cofferdam	WORK CAN BE CONTINUED DURING MOST ANTICIPATED STREAM CONDITIONS CLEAR WATER CAN BE PUMPED DIRECTLY BACK INTO STREAM		*					
48	AVAILABLE DETAIL								
49	Check Dam	REDUCES FLOW VELOCITY CATCHES SEDIMENT CAN BE CONSTRUCTED OF LOGS, STRAW, HAY, ROCK, LUMBER, MASONRY, OR SAND BAGS		*	*				
50	AVAILABLE DETAIL								
51	Retaining Wall	REDUCES GRADIENT WHERE SLOPES ARE EXTREMELY STEEP PERMITS RETENTION OF EXISTING VEGETATION, KEEPING SOIL STABLE IN CRITICAL AREAS, MINIMIZES MAINTENANCE	*						*
52	AVAILABLE DETAIL								
53	Windbreak	MINIMIZES WIND EROSION MAY BE SNOW FENCE					*		
54	Silt Fence	USES GEOTEXTILE FABRIC AND POSTS OR POLES EASY TO CONSTRUCT AND LOCATE AS NECESSARY	*		*		*		*
55	Stone Filter-Before Paving	STONE FILTER TO PROVIDE INEXPENSIVE AND EASILY CONSTRUCTED SEDIMENT CONTROL PRIOR TO PAVING SEE DETAIL AT LEFT			*	*			
55A	Stone Filter—After Paving	STONE FILTER TO PROVIDE INEXPENSIVE AND EASILY CONSTRUCTED SEDIMENT CONTROL AFTER PAVING SEE DETAIL AT LEFT			*	*			
56	Turbidity Curtain	A TURBIDITY CURTAIN IS USED WHEN SLACK WATER AREA IS NECESSARY TO ISOLATE CONSTRUCTION ACTIVITIES FROM THE WATERCOURSE. THE STILL WATER AREA CONTAINS THE SEDIMENT WITHIN THE CONSTRUCTION LIMITS		$\boxed{*}$					
57	Stream — Liner	MAY BE 6A TYPE STONE, SMALL ROCKS OR SIMILAR-SIZED CLEAN CONCRETE-MASONRY RUBBLE, MINIMIZES STREAM TURBIDITY RELATIVELY INEXPENSIVE MAY BE USED AS DITCH CHECK OR SEDIMENT TRAP			*				
58	Sediment Sump	CONTROLS SEDIMENTATION IN LARGE STREAMS, CONSIST OF OVER EXCAVATING THE DRAIN BY ONE TO TWO FEET, THE SUMP WILL BE AT LEAST 200 FEET LONG, SEDIMENTS ACCUMULATED DURING CONSTRUCTION WILL BE REMOVED UPON PROJECT COMPLETION			*				
59	AVAILABLE DETAIL								
60	Temporary Construction Entrance	ASSISTS IN REMOVING SOIL FROM THE TIRES OF CONSTRUCTION EQUIPMENT/VEHICLES WHEN EXITING THE CONSTRUCTION SITE. THIS REDUCES TRACKING EXCESSIVE SEDIMENT/SOIL ONTO THE ADJACENT ROAD							

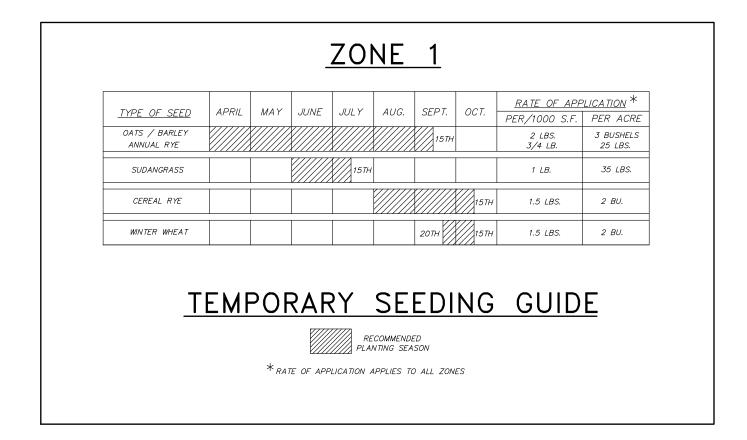
SOIL EROSION AND SEDIMENTATION CONTROL

- 1. CONSTRUCTION OPERATIONS SHALL BE SCHEDULED AND PERFORMED SO THAT PREVENTATIVE EROSION CONTROL MEASURES ARE IN PLACE PRIOR TO EXCAVATION AND TEMPORARY STABILIZATION MEASURES ARE IN PLACE IMMEDIATELY FOLLOWING BACKFILLING AND/OR GRADING OPERATIONS.
- 2. SPECIAL PRECAUTIONS WILL BE TAKEN IN THE USE OF CONSTRUCTION EQUIPMENT TO PREVENT SITUATIONS THAT PROMOTE EROSION.
- 3. CLEANUP WILL BE DONE IN A MANNER TO INSURE THAT EROSION CONTROL MEASURES ARE NOT DISTURBED.
- 4. THE PROJECT WILL CONTINUALLY BE INSPECTED FOR SOIL EROSION AND SEDIMENT CONTROL COMPLIANCE. DEFICIENCIES WILL BE CORRECTED BY THE CONTRACTOR WITHIN 24 HOURS.
- 5. TEMPORARY EROSION CONTROL MEASURES SHALL BE COMPLETELY REMOVED BY THE CONTRACTOR UPON ESTABLISHMENT OF PERMANENT CONTROL MEASURES.



CONSTRUCTION SEQUENCE

- 1. EXCAVATION AND STOCKPILING OF SOIL.
- 2. IMPLEMENTATION OF TEMPORARY EROSION CONTROL MEASURES; SELECTIVE GRADING, DIVERSIONS AS REQUIRED IN FIELD, PROTECTION OF STORM SEWER FACILITIES.
- 3. PERIODIC MAINTENANCE OF AFFECTED EROSION CONTROL MEASURES.
- 4. PERMANENT MEASURES; FINAL GRADING, SEEDING AND MULCHING.
- SEE UNIFIED KEYING SYSTEM FOR EROSION CONTROL KEY NUMBERS



<u>ZONE</u>	TYPE OF IRRIGATION	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	ОСТ.
ZONE 1	IRRIGATED and/or MULCHED without IRRIGATION or MULCH							
ZONE 2	IRRIGATED and/or MULCHED without IRRIGATION or MULCH							
ZONE 3	IRRIGATED and/or MULCHED without IRRIGATION or MULCH							

PERMANENT SEEDING GUIDE



TO BE COMPLETED BY CONTRACTOR FOR PERMIT

SOIL E		•				DULE		KUL					
CONSTRUCTION SEQUENCE	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	ОСТ	NOV	DEC
STRIP & 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													

1101

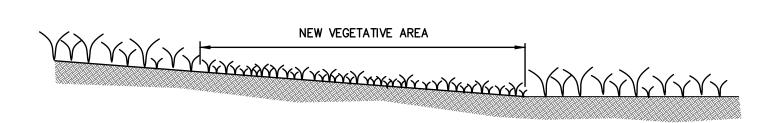
OF1068.01F

TEMPORARY SEEDING **APPLICATIONS**

- 1. WHEN AN AREA NEEDS STABILIZATION DURING
- A BREAK IN CONSTRUCTION. 2. TO STABILIZE SOIL AND PREVENT OR REDUCE SOIL EROSION/SEDIMENTATION PROBLEMS FROM DEVELOPING.
- 3. USED ON CONSTRUCTION AND EARTH CHANGE SITES WHICH REQUIRE TEMPORARY VEGETATIVE STABILIZATION.

DESIGN

- 1. REVIEW SESC PLAN AND CONSTRUCTION PHASING TO IDENTIFY AREAS IN NEED OF TEMPORARY VEGETATIVE STABILIZATION.
- 2. SELECT ANNUAL GRASS SEED FOR TEMPORARY COVER AREAS. SEED MIXES MAY VARY, SHOULD ONLY CONTAIN ANNUAL, NON-AGGRESSIVE SPECIES, AND GENERALLY INCLUDE RYE, WHEAT OR OAT SPECIES. SEED MIXES SHOULD OBTAINED THROUGH CONSULTATION WITH A CERTIFIED SEED PROVIDER AND WITH CONSIDERATION OF SOIL TYPE, LIGHT, MOISTURE AND USE APPLICATION.
- 4. PREPARE SEEDBED BY REMOVAL OF CONSTRUCTION AND WOODY DEBRIS. THEN SCARIFY OR RAKE SEEDBED.
- 5. SLOPES STEEPER THAN 1:3 SHOULD BE ROUGHENED.
- 6. APPLY SEED AS SOON AS POSSIBLE AFTER SEEDBED PREPARATION. MULCH IMMEDIATELY AFTER SEEDING ALL SLOPES, UNSTABLE SOILS, HEAVY CLAY SOILS AND ALL AREAS ADJACENT TO WETLANDS, WATERCOURSES, OR SENSITIVE AREAS.
- 7. PROTECT SEEDED AREAS FROM PEDESTRIAN OR VEHICULAR TRAFFIC.
- 8. DIVERT CONCENTRATED FLOWS AWAY FROM THE SEEDED AREA UNTIL VEGETATION IS ESTABLISHED.
- 9. INSPECT TEMPORARY SEEDED AREAS WEEKLY AND FOLLOWING EACH RAIN EVENT UNTIL FINAL GRADING AND STABILIZATION ARE COMPLETED.
- 10. TEMPORARY SEEDING MUST BE FOLLOWED BY PERMANENT SEEDING.



PERMANENT SEEDING **APPLICATIONS**

- 1. TO FINALIZE STABILIZATION OF TEMPORARY SEEDING AREAS OR WHEN AN AREA NEEDS PERMANENT STABILIZATION FOLLOWING COMPLETION OF CONSTRUCTION. ALSO USED WHEN VEGETATIVE ESTABLISHMENT CAN CORRECT EXISTING SOIL EROSION OR SEDIMENTATION PROBLEM.
- 2. TO STABILIZE SOIL AND PREVENT OR REDUCE SOIL EROSION/SEDIMENTATION PROBLEMS FROM DEVELOPING.
- 3. USED ON CONSTRUCTION AND EARTH CHANGE SITES WHICH REQUIRE PERMANENT VEGETATIVE STABILIZATION.

DESIGN

- 1. REVIEW SESC PLAN AND CONSTRUCTION PHASING TO IDENTIFY AREAS IN NEED OF PERMANENT VEGETATIVE STABILIZATION.
- 2. SELECT <u>PERENNIAL</u> GRASS AND GROUND COVER FOR PERMANENT COVER.
- 3. SEED MIXES MAY VARY BUT SHOULD BE SELECTED THROUGH CONSULTATION WITH A CERTIFIED SEED PROVIDER AND WITH CONSIDERATION OF SOIL TYPE, LIGHT, MOISTURE, USE APPLICATIONS, AND NATIVE SPECIES CONTENT.

4. SOIL TESTS SHOULD BE PERFORMED TO DETERMINE THE NUTRIENT AND PH LEVELS IN THE SOIL. THE PH MAY NEED TO BE ADJUSTED TO BETWEEN 6.5 AND 7.0.

- 5. PREPARE A 4-5" DEEP SEEDBED, WITH THE TOP 4" CONSISTING OF TOPSOIL.
- 6. SLOPES STEEPER THAN 1:3 SHOULD BE ROUGHENED.
- 7. APPLY SEED AS SOON AS POSSIBLE AFTER SEEDBED PREPARATION. SEED MAY BE BROADCAST BY HAND, HYDROSEEDING, OR BY USING MECHANICAL DRILLS.
- 8. DORMANT SEED MIXES ARE FOR USE AFTER THE GROWING SEASON, USING SEED WHICH LIES DORMANT IN THE WINTER AND BEGINS GROWING AS SOON AS SITE CONDITIONS BECOME FAVORABLE.
- 9. MULCH IMMEDIATELY AFTER SEEDING.
- PROTECT SEEDED AREAS FROM PEDESTRIAN OR VEHICULAR TRAFFIC.
- 10 DIVERT CONCENTRATED FLOWS AWAY FROM THE SEEDED AREA UNTIL VEGETATION IS ESTABLISHED.

PROFILE

APPLICATIONS

STEEP SLOPES.

STABILIZE WITH SEED

& MULCH, VEGETATIVE

CHANNEL AND ROADSIDE DITCH BOTTOMS.

LIMITS OF

DISTURBANCE

- USE SEED AND HIGH VELOCITY MULCH BLANKETS TO STABILIZE THE GRASSED LINED CHANNEL, IMMEDIATELY AFTER GRADING (ONE DAY MAX).
- MUST NOT BE PLACED ON FROZEN SOIL: MUST REMAIN IN IN CONTACT WITH SEED AND SOIL.
- MUST BE USED DURING THE NON-GROWING SEASON TO MINIMIZE EROSION UNTIL VEGETATION IS ESTABLISHED.

- VELOCITY MULCH BLANKETS IN THE
- 3. ON BACKSLOPES, BLANKETS SHALL BE PLACED AT RIGHT ANGLES TO ROADBED OR PIPE LINE.
- 4. OVERLAY ENDS BY 18" AND EDGES BY 4"
- BLANKET IN 3-4' DEEP TRENCH AND COMPACT TRENCH WITH NATIVE SOIL BACKFILL OR MDOT 6AA STONE.

DESIGN OR NATURAL TOP WIDTH

DESIGN OR NATURAL DEPTH

DIRECTION OF FLOW. DO NOT STRETCH.

HIGH VELOCITY

MULCH BLANKET

- MANUFACTURERS INSTRUCTIONS.
- 5. AT ALL BLANKET EDGES, BURY 6'-10" OF

DESIGN

- 1. FOR DITCHES AND CHANNELS ROLL HIGH

- 2. FASTEN OR PEG MULCH BLANKET PER

STRAW - MOST COMMON AND WIDELY USED MATERIAL. PROVIDES ORGANIC MATTER AS IT BREAKS DOWN. EFFECTIVENESS OF

1. WHEN AREAS ARE SUBJECT TO EROSIVE

DESSICATION OF GERMINATED SEEDS.

INHIBITS SEED CONSUMPTION BY BIRDS

3. USE ON EXPOSED SLOPES. NEWLY SEEDED

AREAS AND OTHER AREAS SUBJECT TO

SURFACE SHEET FLOWS OR SEVERE WIND.

SLOPES AGAINST EROSION FROM RAIN OR

FOR SEED GERMINATION AND REDUCES WIND

SHOULD BE INSTALLED PRIOR TO MULCHING.

2. PREPARE SURFACE TO PROPER GRADE AND

3. IF TREATMENT AREA IS TO BE REVEGETATED

4. SELECT MULCH MATERIAL APPROPRIATE FOR

SITE CHARACTERISTICS, INCLUDING GRADE,

LEVEL OF TRAFFIC, INSTALLATION METHOD.

IMMEDIATELY, SPREAD OR DRILL SEED, OR

INSTALL VEGETATIVE SPRIGS INTO PLANTING

COMPACTION REQUIREMENTS.

WIND. HOLDS SOIL MOISTURE TO ALLOW

APPLICATIONS

EROSION.

SURFACE.

AND ACCESSIBILITY.

DESIGN

SEDIMENT REDUCTION HIGH FOR AT LEAST 3 MONTHS. SUBJECT TO WINDBLOW AND WASHOUT. FOR STRAW, APPLY A MINIMUM OF 2 TONS/ACRE OR APPROX. 50 LBS./1000 SQ.FT. TO COVER THE SURFACE.

INCREASE APPLICATION RATES 50% FOR DORMANT SEEDING.

NO DRAWING DETAIL PROVIDED

DESIGN (CONT.)

- 5. MULCHES SHOULD NOT BE APPLIED IF FREE SURFACE WATER IS PRESENT BUT MAY BE APPLIED TO WET SOIL. 2. TEMPORARILY PROTECTS SEEDED AREAS AND
 - 6. MULCHES (PARTICULARLY STRAW) MAY NEED ANCHORING. COMMON MÉTHODS INCLUDE CRIMPING, DISKING, OR PUNCHING INTO SOIL; COVERING WITH NETTING; SPRAYING WITH A BINDER/TACKIFIER, OR KEEPING MOIST.
 - 7. IF USING A TACKIFIER TO ANCHOR MULCH IN PLACE, APPLY IMMEDIATELY AFTER MULCH HAS BEEN PLACED. TACKIFIERS INCLUDE:

LATEX-BASE. MIX 37 GALLONS OF ADHESIVE OR THE MANUFACTURER'S RECOMMENDED 1. OTHER SURFACE RUNOFF CONTROL MEASURES RATE WITH A MINIMUM OF 620 LBS. OF RECYCLED NEWSPRINT AS A TRACER WITH 925 GALLONS OF WATER. RECYCLED NEWSPRINT. MIX 1850 LBS. OF

> WOOD FIBER. MIX 1850 LBS. OF WOOD FIBER WITH 3700 GALLONS OF WATER. GUAR GUM. MIX 120 LBS. OF DRY ADHESIVE AND A MINIMUM OF 620 LBS.

RECYCLED NEWSPRINT AS A TRACER WITH 3225 GALLONS OF WATER.

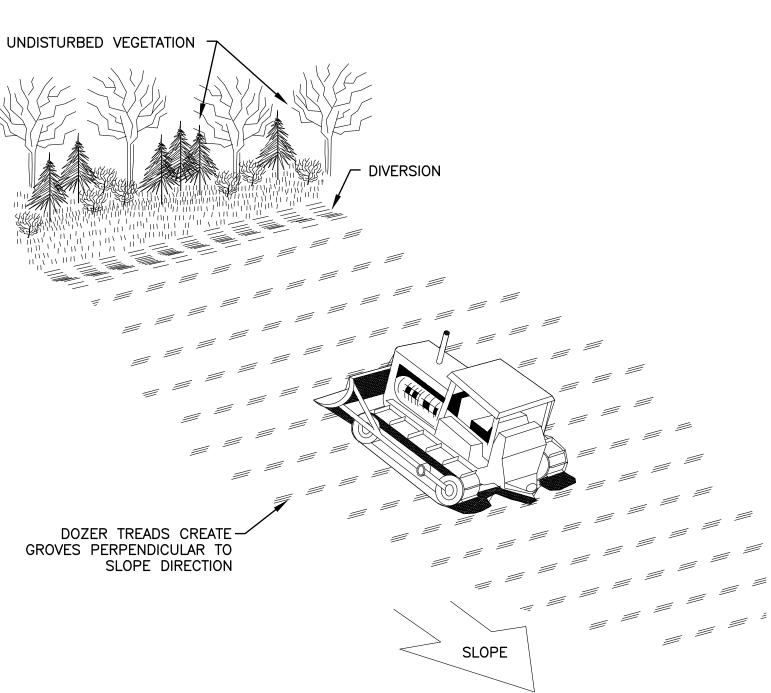
NEWSPRINT WITH 3700 GALLONS OF WATER.

OTHER TACKIFIERS. MIX 240 LBS. OF DRY ADHESIVE OR THE MANUFACTURER'S RECOMMENDED RATE AND A MINIMUM OF 620 LBS. OF RECYCLED NEWSPRINT AS A TRACER WITH 3225 GALLONS OF WATER.

MULCHING 10

VEGETATIVE STABILIZATION 4

NOT TO SCALE

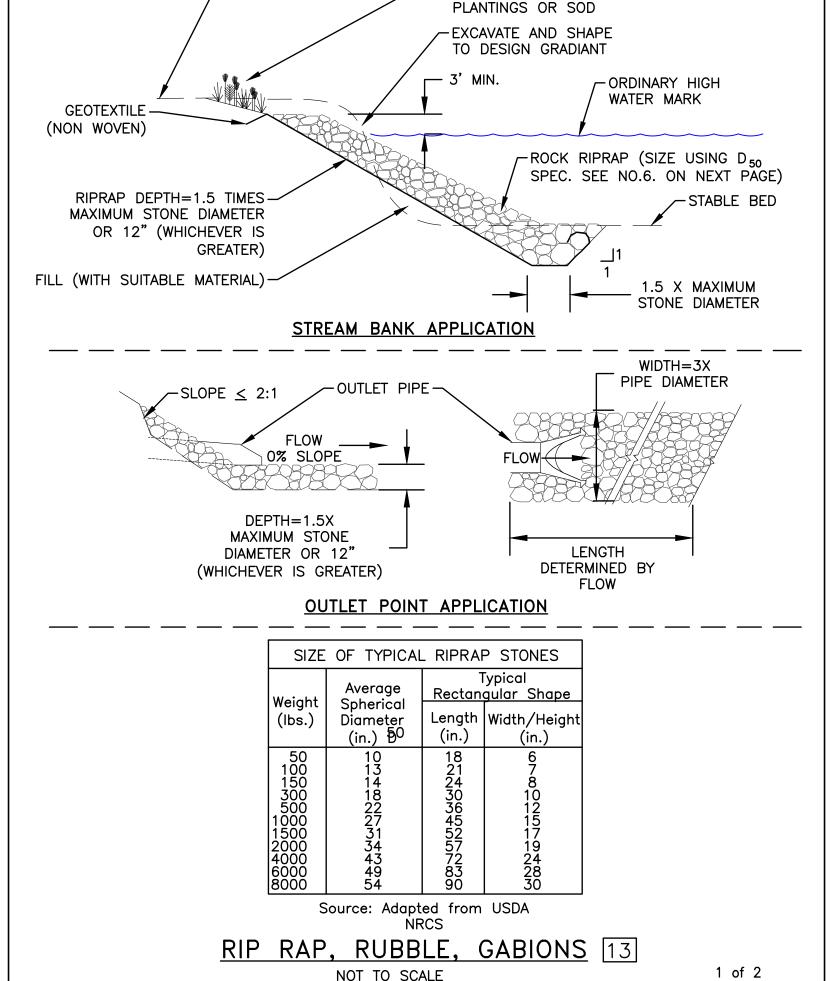


UNVEGETATED SLOPE SHOULD BE TEMPORARILY SCARIFIED TO MINIMIZE RUNOFF VELOCITIES

<u>APPLICATION</u>

PLACE HORIZONTAL GROOVES IN A SLOPE PERPENDICULAR TO THE FLOW OF THE RUNOFF. THIS CAN BE DONE BY EITHER DISC HARROWING, BACK BLADING OR JUST RUNNING THE TREADS OF A CRAWLER TRACTOR PERPENDICULAR TO THE SLOPE AS SHOWN BELOW.

> ROUGHENED SURFACE [11] NOT TO SCALE



APPLICATIONS

SEEDING WITH MULCH BLANKET AND/OR MATTING 6

NOT TO SCALE

- 1. WHEN CONCENTRATED WATER FLOWS HAVE THE POTENTIAL TO CREATE SCOUR, DOWN-CUTTING, OR LATERAL CUTTING.
- 2. TO PREVENT LOSS OF LAND OR DAMAGE TO UTILITIES OR STRUCTURES. IN AQUATIC APPLICATIONS, RIPRAP IS USED TO CONTROL CHANNEL MEANDER AND MAINTAIN CAPACITY, PROTECT AGAINST WAVE ATTACK, AND REDUCE SEDIMENT
- 3. ON SLOPES WITH PROFILES MEASURING 1:1.5 OR LESS.

- 1 REVIEW SUBJECT SITE TO IDENTIFY AREAS SUBJECT TO CONCENTRATED FLOWS OR WAVE/CURRENT ATTACK.
- 2. THE AREA UNDER REVIEW FOR RIPRAP PLACEMENT MUST BE SHAPED AND CONTOURED APPROPRIATELY BY GRADING PRIOR TO MATERIAL PLACEMENT.
- 3. NON-WOVEN GEOTEXTILE FABRIC SHOULD BE INSTALLED PRIOR TO RIPRAP PLACEMENT, WITH UPPER END AND TOE END OF FABRIC BURIED OR ANCHORED TO PREVENT MOVEMENT.
- 4. RIPRAP PLACEMENT SHOULD BE STARTED AT A STABILIZED LOCATION AND ENDED AT A STABILIZED OR CONTOURED POINT.
- 5. MATERIAL SELECTED FOR RIPRAP SHOULD BE HARD, ANGULAR, AND RESISTANT TO WEATHERING. APPROPRIATE MATERIAL SIZE DEPENDS ON EXPECTED WATER ENERGY AND INTENDED FUNCTION OF THE MATERIAL.
- 6. RIPRAP MIXTURE SHOULD BE AN EVEN MIXTURE OF STONE SIZES BASED ON THE AVERAGE, OR D₅₀ THIS MEANS 50% OF THE STONE, BY SIZE, WILL BE LARGER THAN THE DIAMETER SPECIFIED, AND 50% WILL BE SMALLER THAN THE SIZE SPECIFIED. THE DIAMETER OF THE LARGEST STONE SHOULD NOT BE MORE THAN 1.5 TIMES THE D STONE SIZE.
- 7. SEE TABLE ON THE PREVIOUS PAGE FOR TYPICAL RIPRAP STONE SIZES.
- 8. ROCK SHALL BE PLACED SO THAT LARGER ROCKS ARE UNIFORMLY DISTRIBUTED AND IN CONTACT WITH ONE ANOTHER. SMALLER ROCKS SHOULD FILL THE VOIDS.
- 9. WHEN IN CONTACT WITH MOVING WATER, RIPRAP WILL TIE INTO A STABLE BANK AT THE DOWNSTREAM END AND WILL BE KEYED INTO THE BANK AT THE UPSTREAM END. RIPRAP SHOULD EXTEND 3 FT. ABOVE THE ORDINARY HIGH WATER MARK OR TO THE TOP OF THE BANK ON SHORT SLOPES. EXTEND RIPRAP A MINIMUM 10 FT. BEYOND ACTIVE EROSION AREA.

RIP RAP, RUBBLE, GABIONS 13

555 Flint 810.

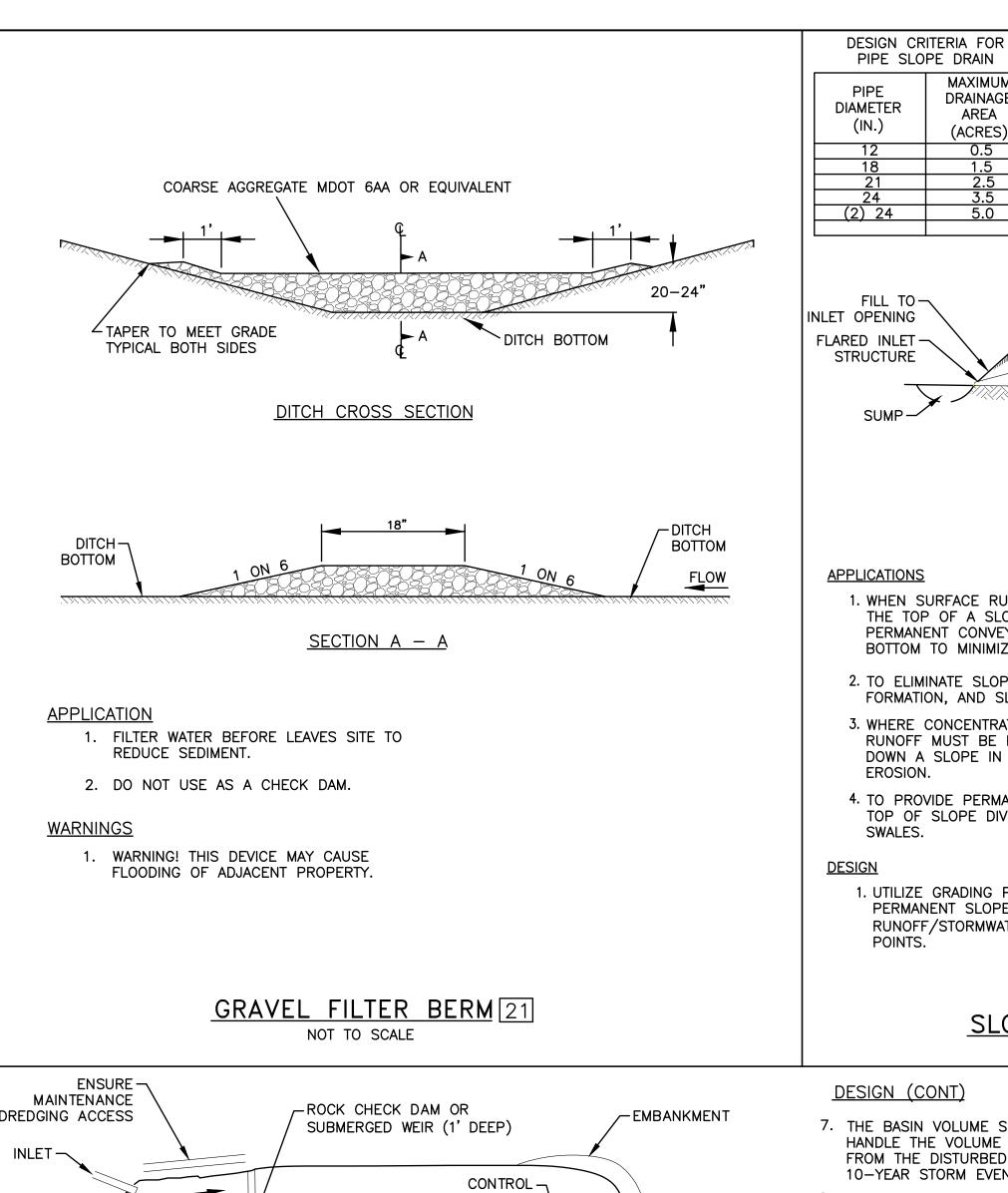
FLINT
W STREET
48502

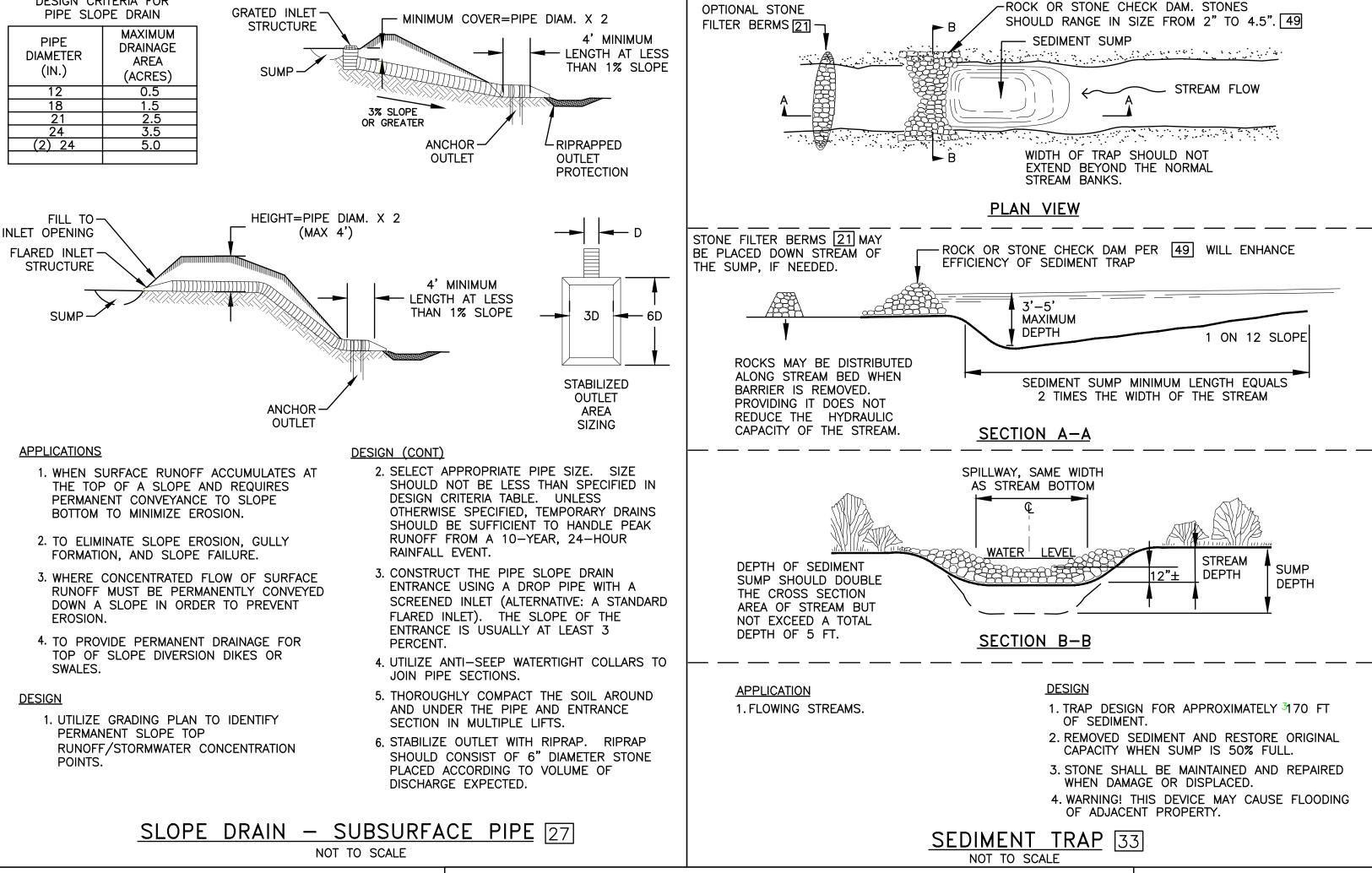
CITY S. S

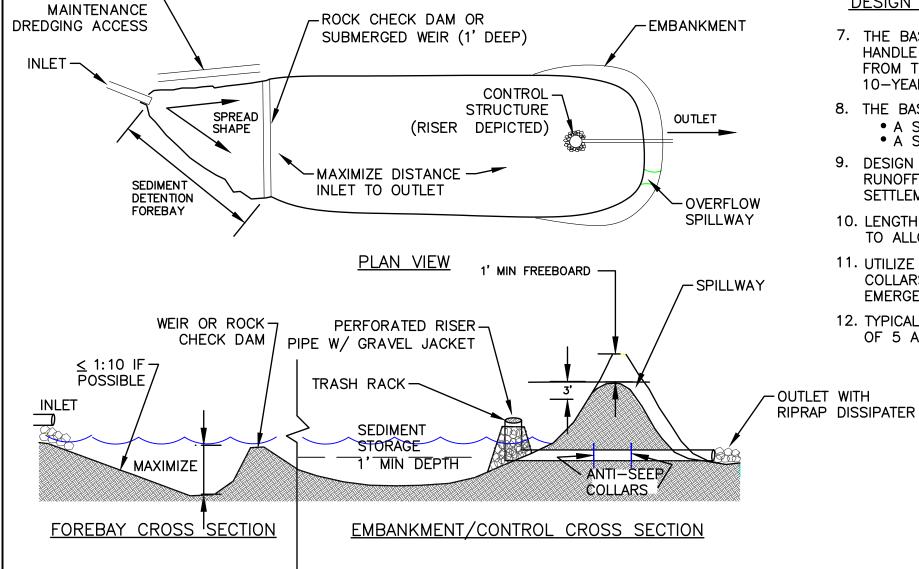
0

COF1068.01F

2 of 2







<u>APPLICATIONS</u>

INTO THE BASIN.

BASIN.

1. WHEN SITE RUNOFF IS SEDIMENT-LADEN

2. TO DETAIN RUNOFF SUFFICIENTLY TO ALLOW

EXCESSIVE SEDIMENT TO SETTLE OUT

3. AT THE OUTLET OF ANY DISTURBED AREA

TEMPORARY CHANNELS, AND PIPES TO

OR AT THE ULTIMATE SITE OUTLET.

AND/OR RUNOFF RELEASE RATE IS REQUIRED.

4. SHOULD BE USED IN ASSOCIATION WITH DIKES,

5. MAY BE COMBINED WITH PERMANENT DETENTION

BEFORE STORMWATER LEAVES CONSTRUCTION SITE.

DIVERT STORMWATER FROM THE DISTURBED AREAS

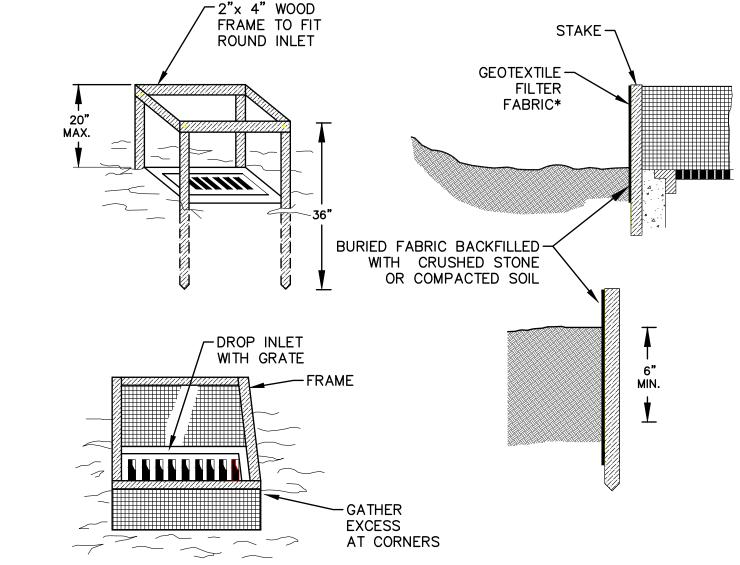
DESIGN (CONT)

- 7. THE BASIN VOLUME SHOULD BE DESIGNED TO HANDLE THE VOLUME OF STORMWATER EXPECTED FROM THE DISTURBED ACREAGE FOR A MINIMUM 10-YEAR STORM EVENT
- 8. THE BASIN VOLUME CONSISTS OF TWO ZONES • A SEDIMENT STORAGE ZONE TO A 1' MINIMUM DEPTH. • A SETTLING ZONE AT LEAST 2 FEET DEEP.
- 9. DESIGN SHOULD CONTAIN SUFFICIENT CAPACITY TO DETAIN RUNOFF FOR 24-48 HOURS, MAXIMIZING SEDIMENT SETTLEMENT POTENTIAL.
- 10. LENGTH TO WIDTH RATIO SHOULD BE GREATER THAN 4:1 TO ALLOW FOR SUFFICIENT SETTLEMENT TIME.
- 11. UTILIZE A WELL ANCHORED RISER PIPE WITH ANTI-SEEP COLLARS AS THE PRINCIPAL OUTLET, ALONG WITH AN EMERGENCY OVERFLOW SPILLWAY FOR MAJOR EVENTS.
- 12. TYPICALLY, PERMANENT BASINS ARE USED FOR DRAINAGE OF 5 ACRES OR MORE.



- 1.BASIN TO BE DESIGNED TO ENSURE ADEQUATE STORAGE VOLUME FROM THE CONTRIBUTING DRAINAGE
- 2.BASINS SHOULD BE CONSTRUCTED BEFORE CLEARING AND GRADING WORK BEGINS.
- 3. BASINS SHOULD BE LOCATED AT THE STORMWATER OUTLET FOR THE SITE AND MULTIPLE BASINS MAY BE LOCATED THROUGHOUT THE SITE.
- 4. BASIN LOCATION SHOULD ENSURE SUITABLE ACCESS FOR MAINTENANCE AND CLEANOUT.
- 5. DO NOT LOCATE IN A STREAM.
- 6. ALL BASIN SITES SHOULD BE LOCATED WHERE EMBANKMENT FAILURE WILL NOT COMPROMISE SAFETY OR RESULT IN PROPERTY DAMAGE.

SEDIMENT BASIN 34 NOT TO SCALE



APPLICATIONS

- INLETS WITH DRAINAGE OF 1 ACRE OR LESS AND SLOPES LESS THEN 5%.
- . SERVICE, CLEAN AND REPAIR AFTER EACH STORM EVENT.

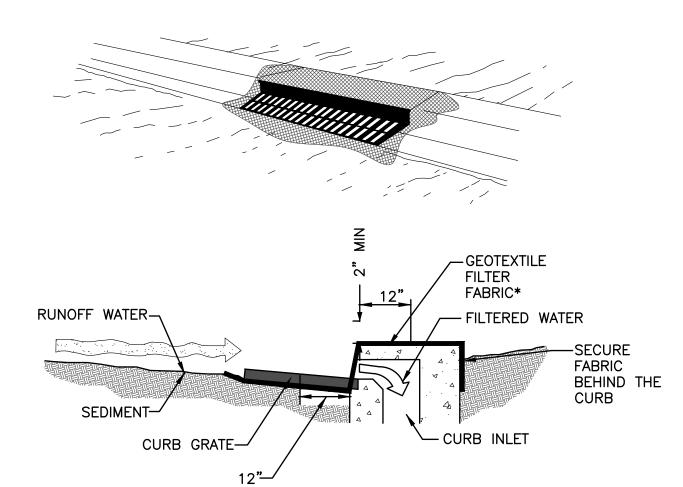
* NOTE *

DO NOT USE SILT FENCE IN LIEU OF FILTER FABRIC FOR THIS APPLICATION.

DESIGN

- 1. FILTER BAGS MAY BE PLACED IN THE MANHOLE TO INCREASE THE EFFECTIVENESS OF THIS DEVICE.
- 2. IN SOME CASES FILTER BAGS IN THE MANHOLE MAY BE USED ALONE.
- 3. WARNING! THIS DEVICE MAY CAUSE FLOODING OF ADJACENT PROPERTY!
- 4. TOP OF FRAME (PONDING HEIGHTS) MUST BE LOWER THAN GROUND ELEVATION DOWN STREAM TO PREVENT BYPASSING THE INLET. A TEMPORARY DIKE MAY BE NECESSARY DOWN SLOPE OF THE STRUCTURE.

CATCH BASIN INLET PROTECTION 36 NOT TO SCALE



<u>APPLICATION</u>

INLETS AT CURB OPENINGS

* NOTE * DO NOT USE SILT FENCE IN LIEU OF FILTER FABRIC FOR THIS APPLICATION.

1. WARNING! THIS DEVICE MAY CAUSE FLOODING OF ADJACENT PROPERTIES.

2. SERVICE CLEAN AND REPAIR AFTER EACH STORM EVENT.

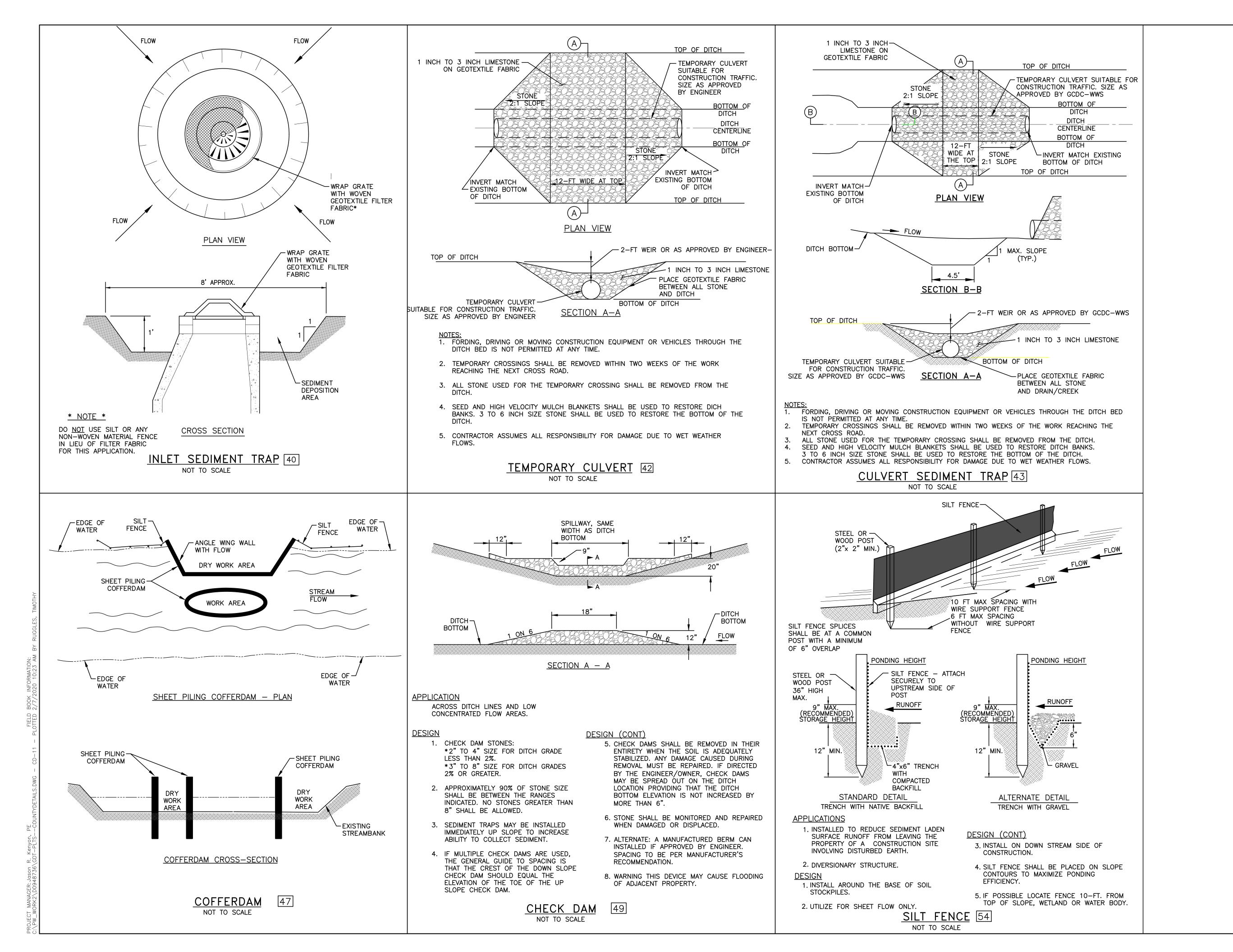
FABRIC FILTER CURB INLET PROTECTION 39 NOT TO SCALE

FLINT
IAW STREET
48502
WATER SUPPLY
IEET 12 O AG CITY S. S. 0

555 Flint 810.

COF1068.01F

SUED FOR: DATE: B'



555 S. Saginaw Street, Suite 201
Flint, MI 48502
810.235.2555
www.wadetrim.com

CITY OF FLINT

101 S. SAGINAW STREET
FLINT, MI 48502

36" SECONDARY WATER SUPPLY
DETAIL SHEET 13

SSUED FOR: DATE: E

JOB NO. COF1068.01F

555 S. Saginaw Flint, MI 48502 810.235.2555

CITY OF FLINT

11 S. SAGINAW STREET
FLINT, MI 48502

" SECONDARY WATER SUPPLY
DETAIL SHEET 14

1101

18

PROPOSED RESTORATION BY WETLAND AREA

	Wetland Type		tland Type							
WETLAND AREA	Wet ***Meadow/Invasiv es (WMI)	Wet Meadow (WM)	Scrub Shrub (SS)	Forested (FO)	Drain	Restoration Notes	Restoration Plan**	Notes*		
1				Х		None	None	Avoided- work on east side. No impact		
2				Х		Restore to original grade.	Plan 3			
3		Χ	X	Х		Restore to original grade.	Plan 4	Northern portion FO/Southern portion WM. Project only impacts FO/SS.		
4		Χ			Х	Work in dry weather. Contain sediment in Drain. Restore to original grade.	Plan 2	WM in and adjacent to Mason Drain. Work on southern side (avoid wooded area).		
5		Χ				Restore to original grade.	Plan 2	Work on W side (avoid wooded area).		
6		Χ				Restore to original grade.	Plan 2	Work on W side (avoid wooded area).		
7		Χ				Restore to original grade.	Plan 2	Work on W side (avoid wooded area).		
8	X					Restore to original grade. Invasives. Vegetation to restore naturally.	Plan 1	Invasives dominant.		
9	X					Restore to original grade. Invasives. Vegetation to restore naturally.	Plan 1	Invasives dominant.		
10		Χ		Χ		None	None	Not impacted.		
11	X					Restore to original grade. Invasives. Vegetation to restore naturally.	Plan 1	Invasives dominant.		
12		Х			Х	Work in dry weather. Contain sediment in Drain. Restore to original grade.	Plan 2	Work on E side (avoid wooded area). Costello Drain. No defined stream channel in open area.		
13		Х	Х	Х		None	None	Not impacted.		
14	Х		Х	Х		Restore to original grade. Restore FO/SS impacts with planting. WM area to restore naturally.	Plan 4	Work on E side (Minimize wooded area impacts)		
15		Х		Х		Restore to original grade.	Plan 2	Work on E side (Avoid wooded area).		
16		Х				None	None	Not regulated		
17	X	Χ				Restore to original grade.	Plan 2	Work on E side (avoid wooded area).		
18	X	Х				Restore to original grade.	Plan 2	Work on E side (avoid wooded area).		
19	X	Х				Restore to original grade.	Plan 2			
20	X					Restore to original grade.	Plan 1	Invasives dominant.		
21	X					Restore to original grade.	Plan 1	Invasives dominant.		
22		Χ	Х	Х	Х	None	None	Not impacted.		
23	X					None	None	Not impacted.		
24	Х			Х		Restore to original grade. Invasives. Vegetation to restore naturally.	Plan 1	No impacts to FO		
25	Х					Restore to original grade. Invasives. Vegetation to restore naturally.	Plan 1	Work on NE side (avoid woody vegetation)		
26	Х			Х		None	None	Not impacted.		
27	Х					Restore to original grade. Invasives. Vegetation to restore naturally.	Plan 1	Invasives dominant.		
28	Х					Restore to original grade. Invasives. Vegetation to restore naturally.	Plan 1	Invasives dominant.		
29	Х	Х	X	Х		Restore to original grade.	Plan 2	Only WM/IWM impacted		
30		Х				Restore to original grade.	None	Not regulated		
31		Х				Restore to original grade.	Plan 2	Work on E side (avoid woody vegetation)		
32		Х				Restore to original grade.	Plan 2	Work on E side (avoid woody vegetation)		
33	Х	X		Х		Restore to original grade.	Plan 2	Only IWM/WM impacted		
34	X 1	Х	Х	Х		Restore to original grade.	Plan 2 and 3	Work on E side (avoid woody vegetation to the extent possible)		

* Avoid wooded areas throughout when feasible

**Plan 1 Invasive plants No wetland seeding or plantings. Stabilization only. Wetland Vegetation restores naturally.

**Plan 2 Wet Meadow See plant lists See plant lists **Plan 3 Forested **Plan 4 Forested & Scrub See plant lists

CITY OF FLINT

1101 S. SAGINAW STREET
FLINT, MI 48502

36" SECONDARY WATER SUPPLY
WETLAND RESTORATION DETAIL SHEET 1

JOB NO. COF1068.01F

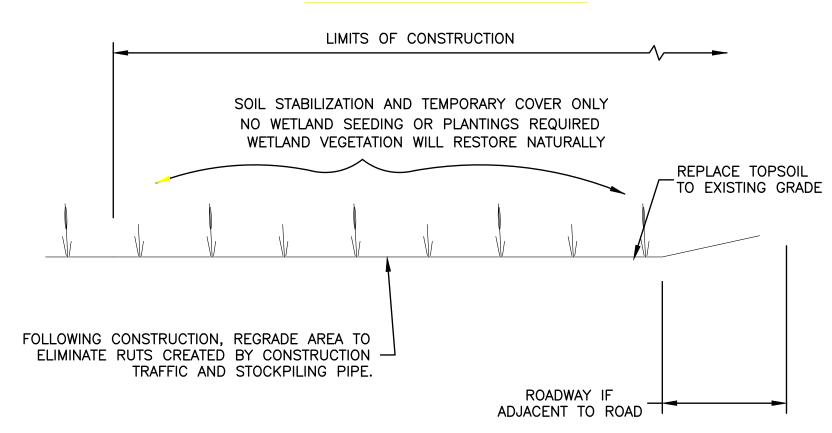
PRE-CONSTRUCTION CONDITION TYPICAL DETAIL FOR WET MEADOW/INVASIVES WETLAND (WMI) SEE TABLE ON SHEET 19 FOR THE WETLAND AREAS THAT THIS DETAIL APPLIES TO

NOT TO SCALE

NOTES

- 1. REMOVE AND TEMPORARILY STOCKPILE SOILS WITH TOPSOIL SEPARATE. REPLACE SOILS IN REVERSE ORDER TO ORIGINAL GRADE WITH TOPSOIL PLACED LAST AND LEVELED TO ORIGINAL GRADE. STABILIZE WITH PLANTING PLAN 1 PER TABLE.
- 2. STOCKPILING DONE IN WETLAND AREAS WILL BE DONE AT INCIDENTAL COST TO THE CONTRACTOR.
- 3. ALL EXCESS MATERIAL SHALL BE REMOVED FROM SITE.

RESTORED CONDITIONS



RESTORED CONDITION

TYPICAL DETAIL FOR WET MEADOW/INVASIVES WETLAND (WMI) SEE TABLE ON SHEET 19 FOR THE WETLAND AREAS

THAT THIS DETAIL APPLIES TO

NOT TO SCALE

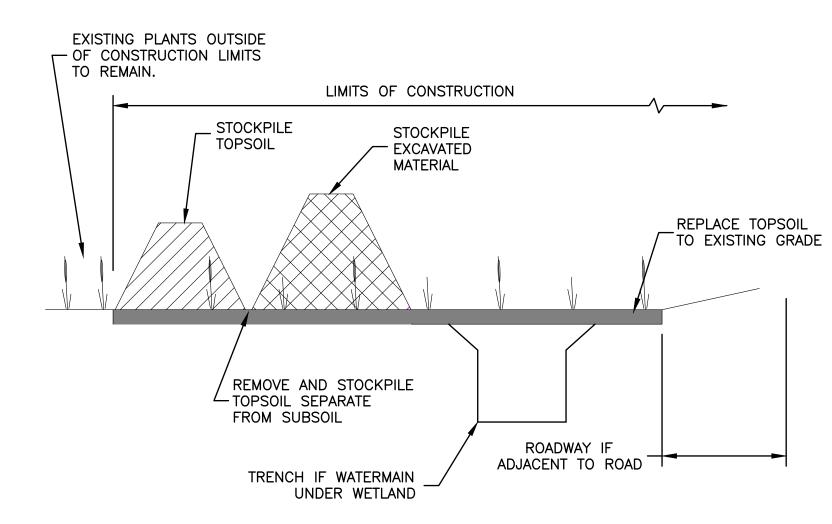
PLANTING PLAN 1

Stabilization at Wet Meadow Invasives crossings

		PLS
Botanical Name	Common Name	Ounces/Acre
Temporary Cover:		
Avena sativa	Common Oat	360.00
Lolium multiflorum	Annual Rye	100.00
	Tota	I 460.00

PLANTING PLAN 2

		PLS
Botanical Name	Common Name	Ounces/Acre
Permanent Grasses/Sedges:		
Calamagrostis canadensis	Bluejoint Grass	1.00
Carex comosa	Bristly Sedge	2.00
Carex cristatella	Crested Oval Sedge	1.00
Carex frankii	Bristly Cattail Sedge	2.00
Carex lupulina	Common Hop Sedge	3.00
Carex lurida	Bottlebrush Sedge	2.00
Carex stipata	Common Fox Sedge	1.00
Carex stricta	Common Tussock Sedge	1.00
Carex vulpinoidea	Brown Fox Sedge	3.00
Elymus virginicus	Virginia Wild Rye	24.00
Glyceria striata	Fowl Manna Grass	0.50
Juncus effusus	Common Rush	0.50
Leersia oryzoides	Rice Cut Grass	1.00
Scirpus atrovirens	Dark Green Rush	1.00
Scirpus cyperinus	Wool Grass	0.50
Scirpus pendulus	Red Bulrush	0.50
Schoenoplectus tabernaemontani	Great Bulrush	1.00
Spartina pectinata	Prairie Cord Grass	2.00
Opartina podinata	Total	47.00
Forbs:		
Alisma subcordatum	Common Water Plantain	1.00
Angelica atropurpurea	Great Angelica	4.00
Asclepias incarnata	Swamp Milkweed	2.00
Bidens cernua	Nodding Bur Marigold	2.00
Boehmeria cylindrica	False Nettle	0.50
Coreopsis tripteris	Tall Coreopsis	1.00
Doellingeria umbellata	Flat-Top Aster	0.50
Eupatorium perfoliatum	Common Boneset	0.50
Eutrochium maculatum	Spotted Joe-Pye Weed	1.00
Helenium autumnale	Sneezeweed	1.00
Hibiscus laevis	Smooth Rose Mallow	2.00
Iris virginica v. shrevei	Blue Flag	3.00
Liatris spicata	Marsh Blazing Star	2.00
Lobelia cardinalis	Cardinal Flower	0.25
Lobelia siphilitica	Great Blue Lobelia	0.25
Lycopus americanus	Common Water Horehound	0.50
Penthorum sedoides	Ditch Stonecrop	1.00
Physostegia virginiana	Obedient Plant	0.50
Persicaria spp.	Pinkweed Species	2.00
Pycnanthemum virginianum	Common Mountain Mint	0.50
Sagittaria latifolia	Common Arrowhead	1.00
Senna hebecarpa	Wild Senna	4.00
Silphium perfoliatum	Cup Plant	1.00
Sparganium eurycarpum	Common Bur Reed	4.00
Symphyotrichum novae-angliae	New England Aster	0.50
Symphyotrichum puniceum	Bristly Aster	1.00
Thalictrum dasycarpum	Purple Meadow Rue	1.00
Verbena hastata	Blue Vervain	2.00
Vernonia fasciculata	Common Ironweed	1.00
Zizia aurea	Golden Alexanders	1.00
	Total	42.00



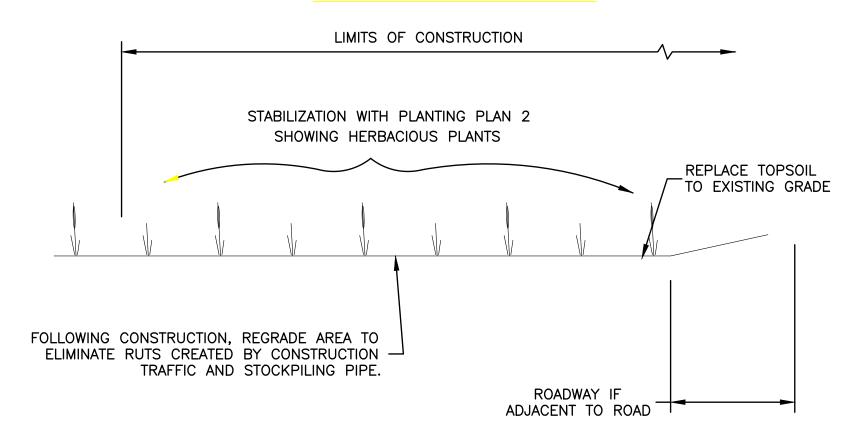
PRE-CONSTRUCTION CONDITION TYPICAL DETAIL FOR WET MEADOW WETLAND (WM) SEE TABLE ON SHEET 19 FOR THE WETLAND AREAS THAT THIS DETAIL APPLIES TO

NOT TO SCALE

NOTES

- 1. REMOVE AND TEMPORARILY STOCKPILE SOILS WITH TOPSOIL SEPARATE. REPLACE SOILS IN REVERSE ORDER TO ORIGINAL GRADE WITH TOPSOIL PLACED LAST AND LEVELED TO ORIGINAL GRADE. STABILIZE WITH WITH HERBACIOUS PLANTS PER PLANTING PLAN 2 SHOWN IN TABLE.
- 2. STOCKPILING DONE IN WETLAND AREAS WILL BE DONE AT INCIDENTAL COST TO THE CONTRACTOR.
- 3. ALL EXCESS MATERIAL SHALL BE REMOVED FROM SITE.

RESTORED CONDITIONS

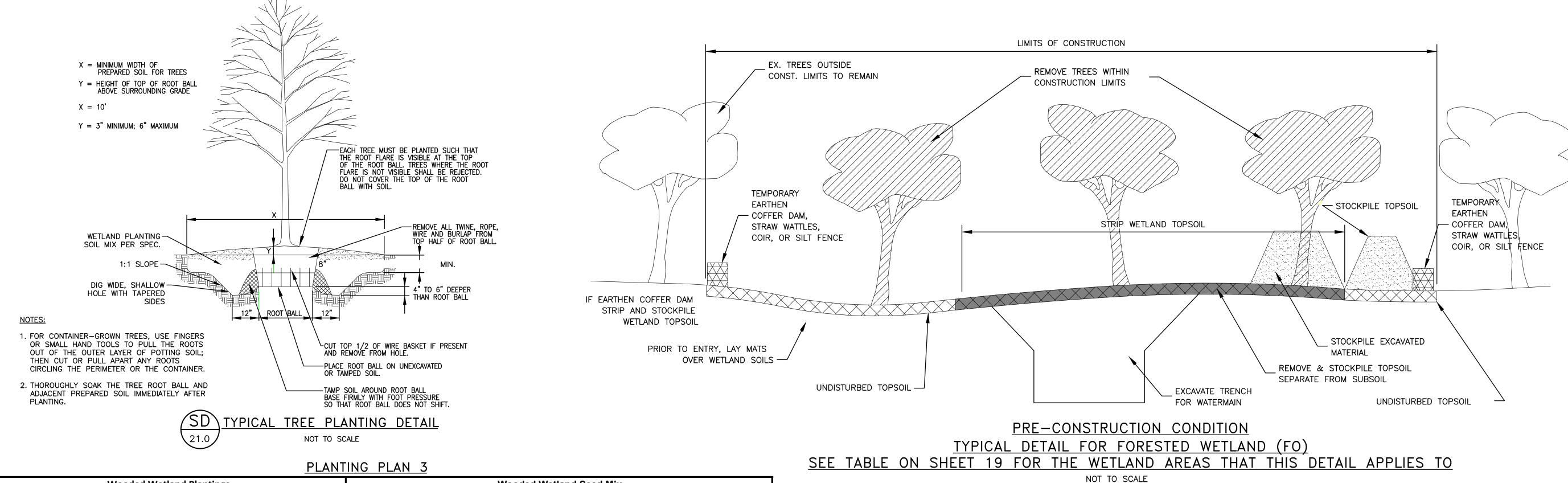


RESTORED CONDITION TYPICAL DETAIL FOR WET MEADOW WETLAND (WM) SEE TABLE ON SHEET 19 FOR THE WETLAND AREAS THAT THIS DETAIL APPLIES TO NOT TO SCALE

CITY OF FLINT 1101 S. SAGINAW STRE FLINT, MI 48502

ED FOR: DATE:

JOB NO. COF1068.01F



	Wooded Wetland Plantin	ngs	Wood	led Wetland Seed Mix	
					PLS
			Botanical Name	Common Name	Ounces/Acr
Botanical Name	Common Name	Quantity	Permanent Grasses/Sedges:		
Swamp White Oak	Quercus bicolor	150 bare root/acre	Calamagrostis canadensis	Bluejoint Grass	1.00
Acer saccharinum	Silver Maple	150 bare root/acre	Carex crinita	Fringed Sedge	1.00
			Carex frankii	Bristly Cattail Sedge	3.0
			Carex lupulina	Common Hop Sedge	3.0
			Carex lurida	Bottlebrush Sedge	2.0
			Carex muskingumensis	Swamp Oval Sedge	1.0
			Carex squarrosa	Narrow-Leaved Cattail Sedge	1.0
			Carex typhina	Common Cattail Sedge	3.0
			Carex vulpinoidea	Brown Fox Sedge	2.0
			Cinna arundinacea	Common Wood Reed	0.5
			Elymus virginicus	Virginia Wild Rye	32.0
			Glyceria striata	Fowl Manna Grass	2.0
			Juncus effusus	Common Rush	0.5
			Leersia oryzoides	Rice Cut Grass	2.0
			Scirpus atrovirens	Dark Green Rush	1.0
			Spartina pectinata	Prairie Cord Grass	1.0
				Tota	56.0
			Forbs:		
			Alisma subcordatum	Common Water Plantain	1.0
			Angelica atropurpurea	Great Angelica	1.0
			Asclepias incarnata	Swamp Milkweed	0.5
			Bidens spp.	Bidens Species	2.5
			Boehmeria cylindrica	False Nettle	2.0
			Campanulastrum americanum	Tall Bellflower	0.2
			Cephalanthus occidentalis	Buttonbush	0.5
			Doellingeria umbellata	Flat-Top Aster	0.2
			Helenium autumnale	Sneezeweed	1.0
			Heracleum maximum	Cow Parsnip	1.0
			Lobelia siphilitica	Great Blue Lobelia	0.5
			Lycopus americanus	Common Water Horehound	0.5
			Mimulus ringens	Monkey Flower	0.5
			Penthorum sedoides	Ditch Stonecrop	0.5
			Persicaria spp.	Pinkweed Species	2.0
			Rudbeckia laciniata	Wild Golden Glow	2.0
			Senna hebecarpa	Wild Senna	2.0
			Solidago patula	Swamp Goldenrod	1.0
			Symphyotrichum puniceum	Bristly Aster	1.0
			Thalictrum dasycarpum	Purple Meadow Rue	2.0
			Varhaaina altarnifalia	Wingstom	4.0

Verbesina alternifolia

Wingstem

4.00 **26.00**

Total

NOTES:

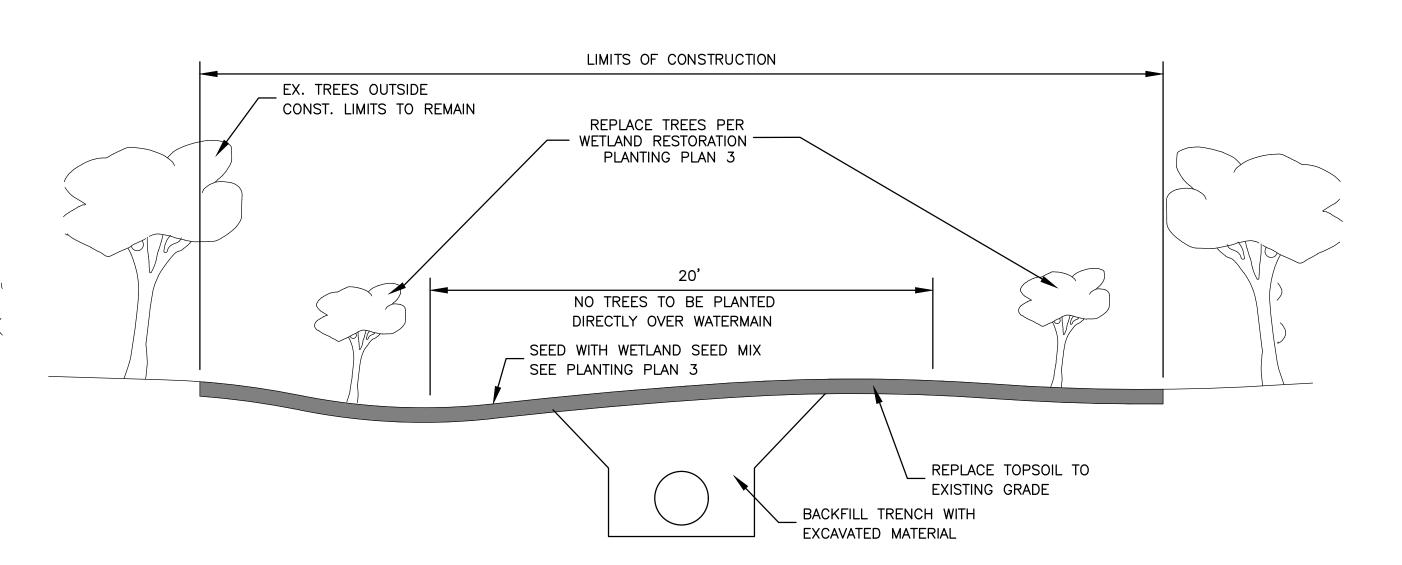
1. REMOVE AND TEMPORARILY STOCKPILE SOILS WITH TOPSOIL SEPARATE. REPLACE SOILS IN REVERSE ORDER TO ORIGINAL GRADE WITH TOPSOIL PLACED LAST AND LEVELED TO ORIGINAL GRADE. STABILIZE WITH SEED AND TREES PER PLANTING PLAN 3 SHOWN IN TABLE.

2. STOCKPILING DONE IN WETLAND AREAS WILL BE DONE AT INCIDENTAL

COST TO THE CONTRACTOR.

ALL EXCESS MATERIAL SHALL BE REMOVED FROM SITE.
 IN AREAS WHERE SLOPE EXCEEDS 1%, INSTALL TEMPORARY OAT AND RYE SEED MIX. IF SLOPE EXCEEDS 5%, APPLY STRAW MULCH OR MULCH BLANKET TO STABILIZE THE SLOPE.

5. DO NOT GRUB TREE ROOTS UNLESS IN DIRECT LINE OF TRENCH.



RESTORED CONDITION

TYPICAL DETAIL FOR FORESTED WETLAND (FO)

SEE TABLE ON SHEET 19 FOR THE WETLAND AREAS THAT THIS DETAIL APPLIES TO

NOT TO SCALE

1101

555 S. Saginaw Flint, MI 48502 810.235.2555 www.wadetrim.c

JOB NO. COF1068.01F

DIANTING DIANI 4

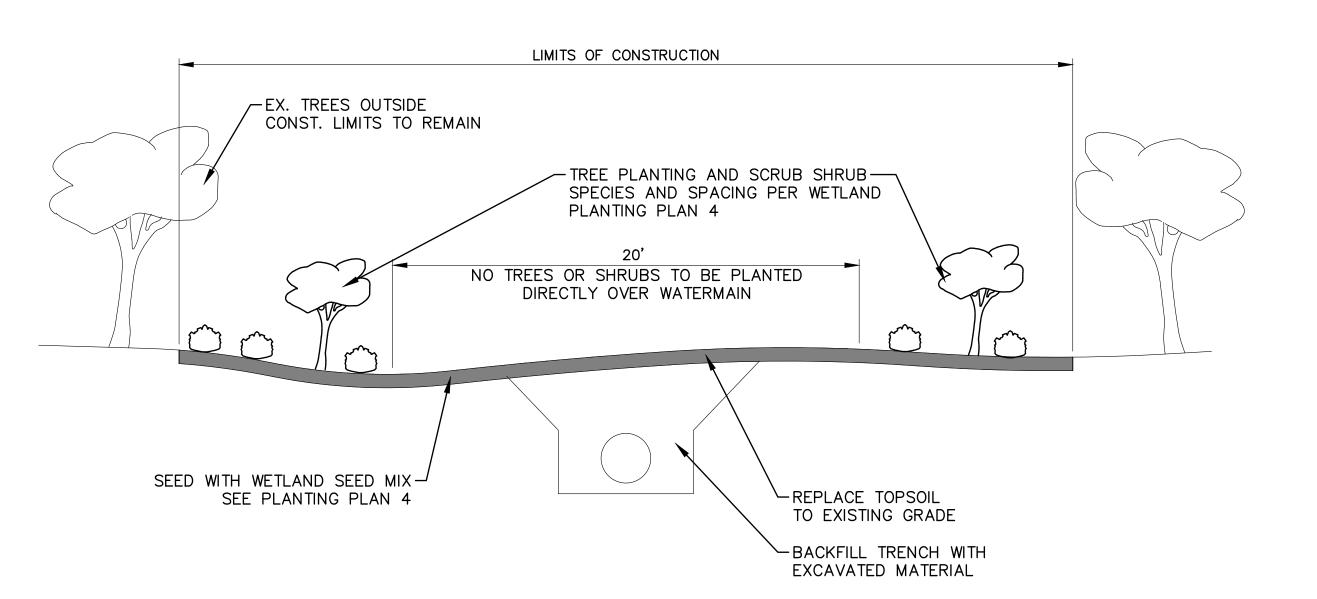
	<i>l</i> o 1 ol 1 111 d	151 -1			
Wooded/	Scrub Shrub Wetlai	nd Plantings	Wooded/Scr	rub Shrub Wetland Seed Mix	
			L		PLS
			Botanical Name	Common Name	Ounces/Ac
Botanical Name	Common Name	Quantity	Permanent Grasses/Sedges:		
Ulmus americana	Quercus bicolor	150 bare root/acre	Calamagrostis canadensis	Bluejoint Grass	1.0
Acer rubrum	Red Maple	150 bare root/acre	Carex crinita	Fringed Sedge	1.0
/iburnum lentago	Nannyberry	150 bare root/acre	Carex frankii	Bristly Cattail Sedge	3.0
Cornus amomum	Silky dogwood	150 bare root/acre	Carex lupulina	Common Hop Sedge	3.0
			Carex lurida	Bottlebrush Sedge	2.0
			Carex muskingumensis	Swamp Oval Sedge	1.0
			Carex squarrosa	Narrow-Leaved Cattail Sedge	1.0
			Carex typhina	Common Cattail Sedge	3.0
			Carex vulpinoidea	Brown Fox Sedge	2.0
			Cinna arundinacea	Common Wood Reed	0.
			Elymus virginicus	Virginia Wild Rye	32.
			Glyceria striata	Fowl Manna Grass	2.
			Juncus effusus	Common Rush	0.
			Leersia oryzoides	Rice Cut Grass	2.
			Scirpus atrovirens	Dark Green Rush	1.
			Spartina pectinata	Prairie Cord Grass	1.
			Spartina pectinata	Total	
			Forbs:		
			Alisma subcordatum	Common Water Plantain	1.
			Angelica atropurpurea	Great Angelica	1.
			Asclepias incarnata	Swamp Milkweed	0.
			Bidens spp.	Bidens Species	2.
			Boehmeria cylindrica	False Nettle	2
			Campanulastrum americanum	Tall Bellflower	0.
			Cephalanthus occidentalis	Buttonbush	0
			Doellingeria umbellata	Flat-Top Aster	0.
			Helenium autumnale	Sneezeweed	1.
			Heracleum maximum	Cow Parsnip	1.
			Lobelia siphilitica	Great Blue Lobelia	0.
			Lycopus americanus	Common Water Horehound	0.
			Mimulus ringens	Monkey Flower	0.
			Penthorum sedoides	Ditch Stonecrop	0.
			Persicaria spp.	Pinkweed Species	2.
			Rudbeckia laciniata	Wild Golden Glow	2.
			Senna hebecarpa	Wild Senna	2.
			Solidago patula	Swamp Goldenrod	1.
			Symphyotrichum puniceum	Bristly Aster	1.
			Thalictrum dasycarpum	Purple Meadow Rue	2.
			Verbesina alternifolia	Wingstem	4.
				Total	

PRE-CONSTRUCTION CONDITION

TYPICAL DETAIL FOR FORESTED & SCRUB SHRUB WETLAND (SS)
SEE TABLE ON SHEET 19 FOR THE WETLAND AREAS THAT THIS DETAIL APPLIES TO

NOT TO SCALE

- 1. REMOVE AND TEMPORARILY STOCKPILE SOILS WITH TOPSOIL SEPARATE. REPLACE SOILS IN REVERSE ORDER TO ORIGINAL GRADE WITH TOPSOIL PLACED LAST AND LEVELED TO ORIGINAL GRADE. STABILIZE WITH SEED, TREES AND SHRUBS PER PLANTING PLAN 4 SHOWN IN TABLE.
- 2. STOCKPILING DONE IN WETLAND AREAS WILL BE DONE AT INCIDENTAL
- COST TO THE CONTRACTOR.
- 3. ALL EXCESS MATERIAL SHALL BE REMOVED FROM SITE. 4. IN AREAS WHERE SLOPE EXCEEDS 1%, INSTALL TEMPORARY OAT AND RYE SEED MIX. IF SLOPE EXCEEDS 5%, APPLY STRAW MULCH OR
- MULCH BLANKET TO STABILIZE THE SLOPE. 5. DO NOT GRUB TREE ROOTS UNLESS IN DIRECT LINE OF TRENCH.



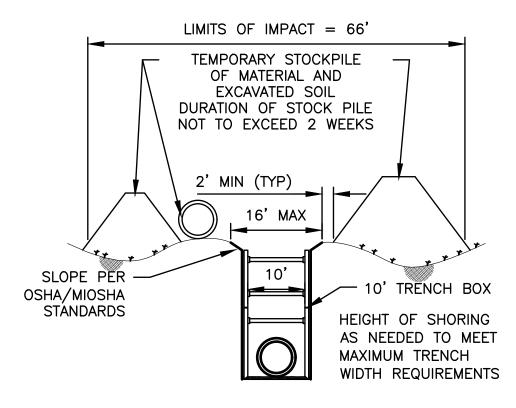
RESTORED CONDITION TYPICAL DETAIL FOR FORESTED & SCRUB SHRUB WETLAND (SS) SEE TABLE ON SHEET 19 FOR THE WETLAND AREAS THAT THIS DETAIL APPLIES TO NOT TO SCALE

555 S. Saginaw Flint, MI 48502 810.235.2555 www.wadetrim.c

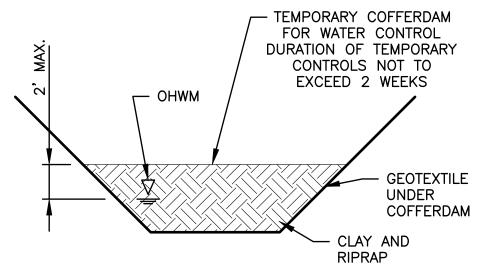
1101

JOB NO. COF1068.01F

TYPICAL DRAIN CROSSING PROFILE SEE TABLE ON SHEET 19 FOR THE WETLAND AREAS THAT THIS DETAIL APPLIES TO NOT TO SCALE



TYPICAL TRENCH CROSS SECTION NOT TO SCALE

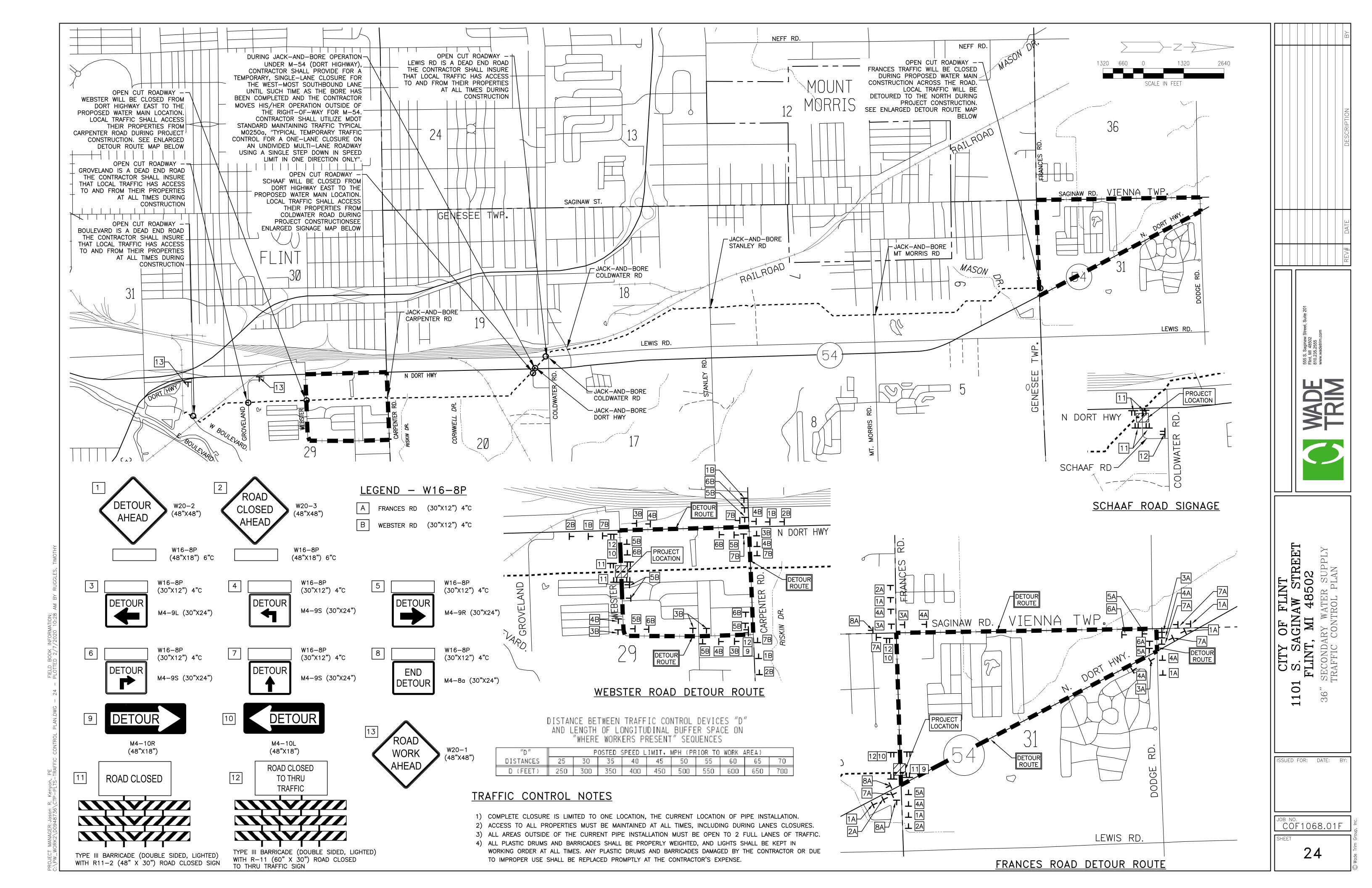


COFFERDAM CROSS SECTION NOT TO SCALE

TYPICAL WATER MAIN CROSSING OPEN CUT WATERCOURSE

TYPICAL WATER MAIN CROSSING OPEN CUT WATERCOURSE

NOT TO SCALE





RIGHT

SEE

IATCH

1101 S. SAGINAW S

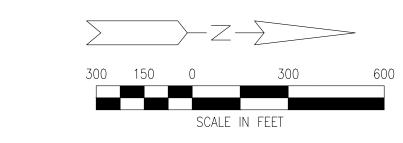
"SAGINAM S

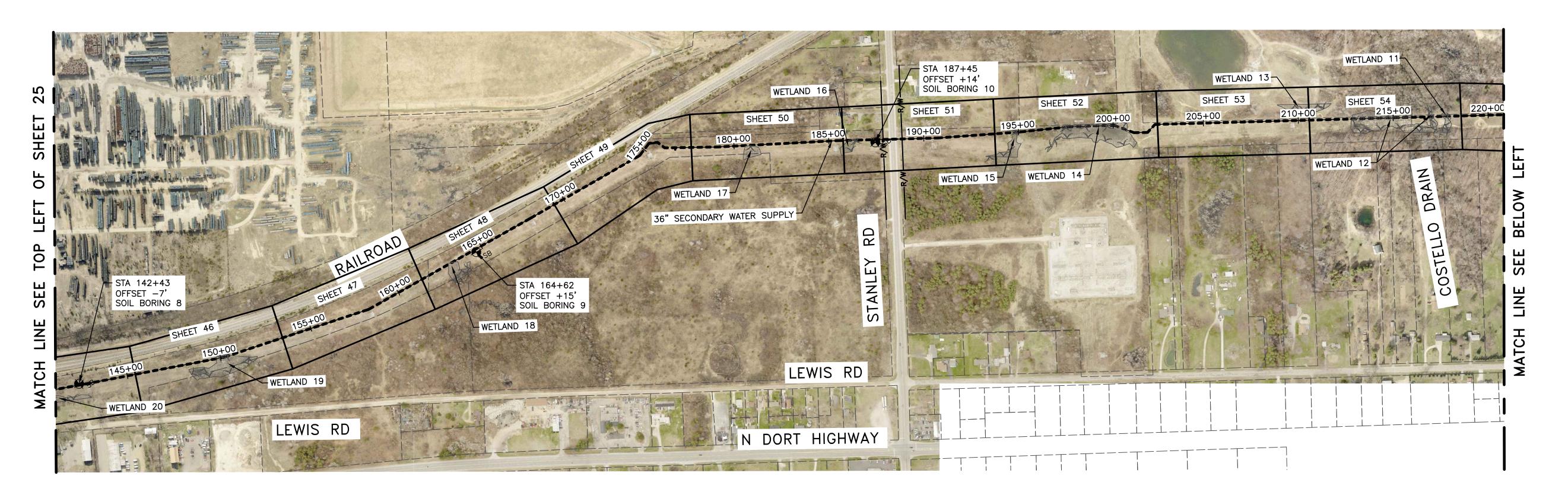
FLINT, MI 4850

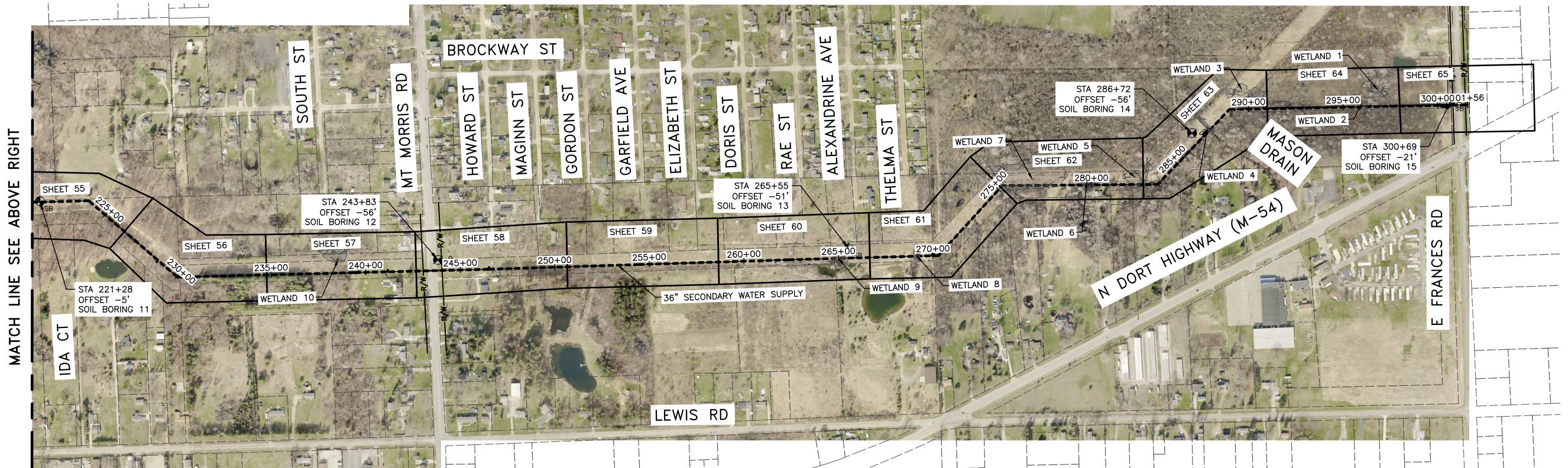
36" SECONDARY WATER

PLAN SHEET INDEX SE

JOB NO. COF1068.01F





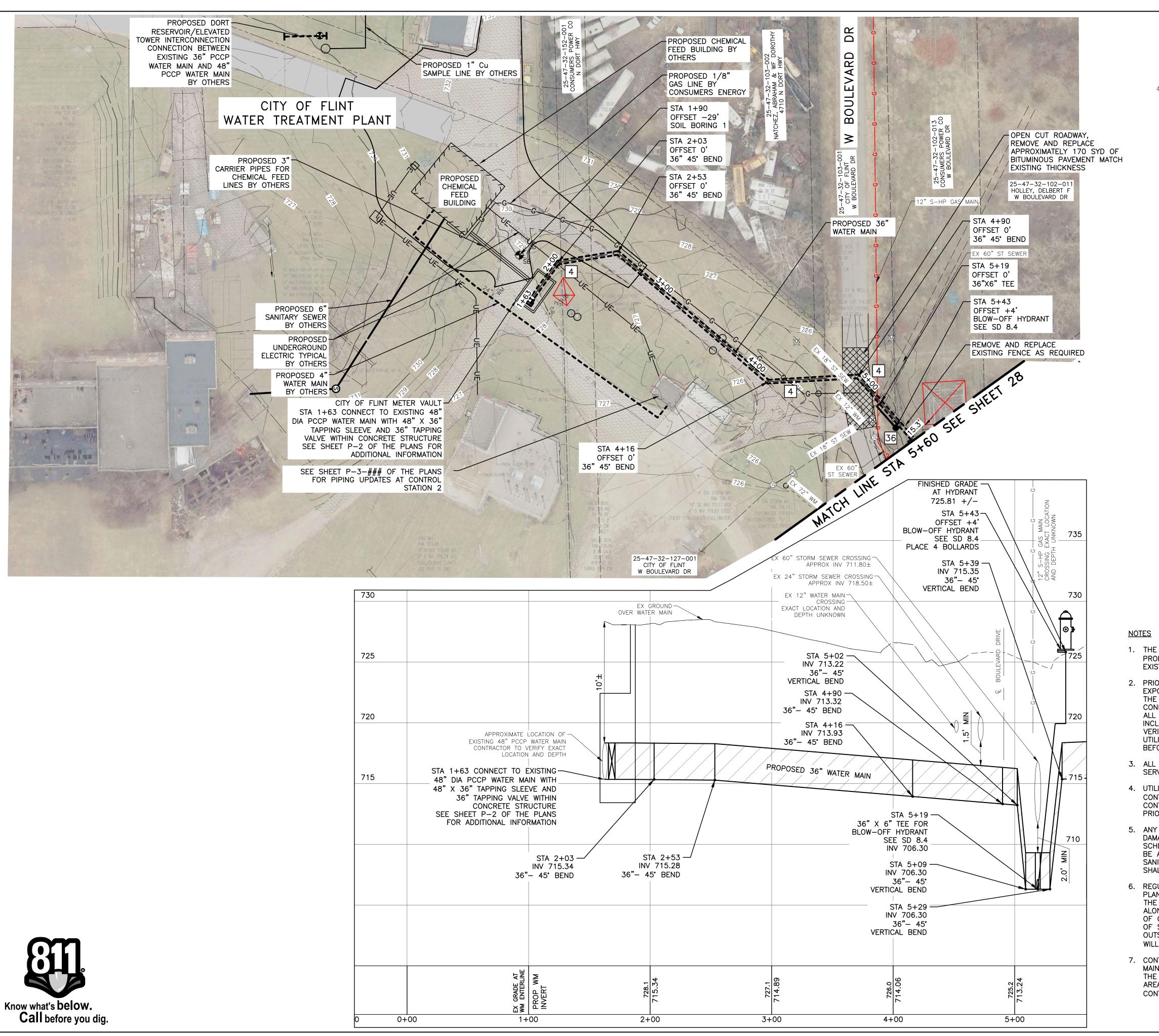


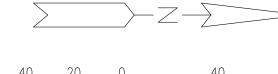
Know what's below.
Call before you dig.

CITY OF FLINT
1101 S. SAGINAW STREET
FLINT, MI 48502
36" SECONDARY WATER SUPPLY
PLAN SHEET INDEX SHEET 2

ISSUED FOR: DATE:

JOB NO. COF1068.01F





SCALE IN FEET

- 1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
- 2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
- 3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.
- 4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED PRIOR TO REPLACING.
- 5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
- 6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20-23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS WILL BE AT CONTRACTOR'S EXPENSE.
- 7. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY. AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT CONTRACTOR'S EXPENSE.

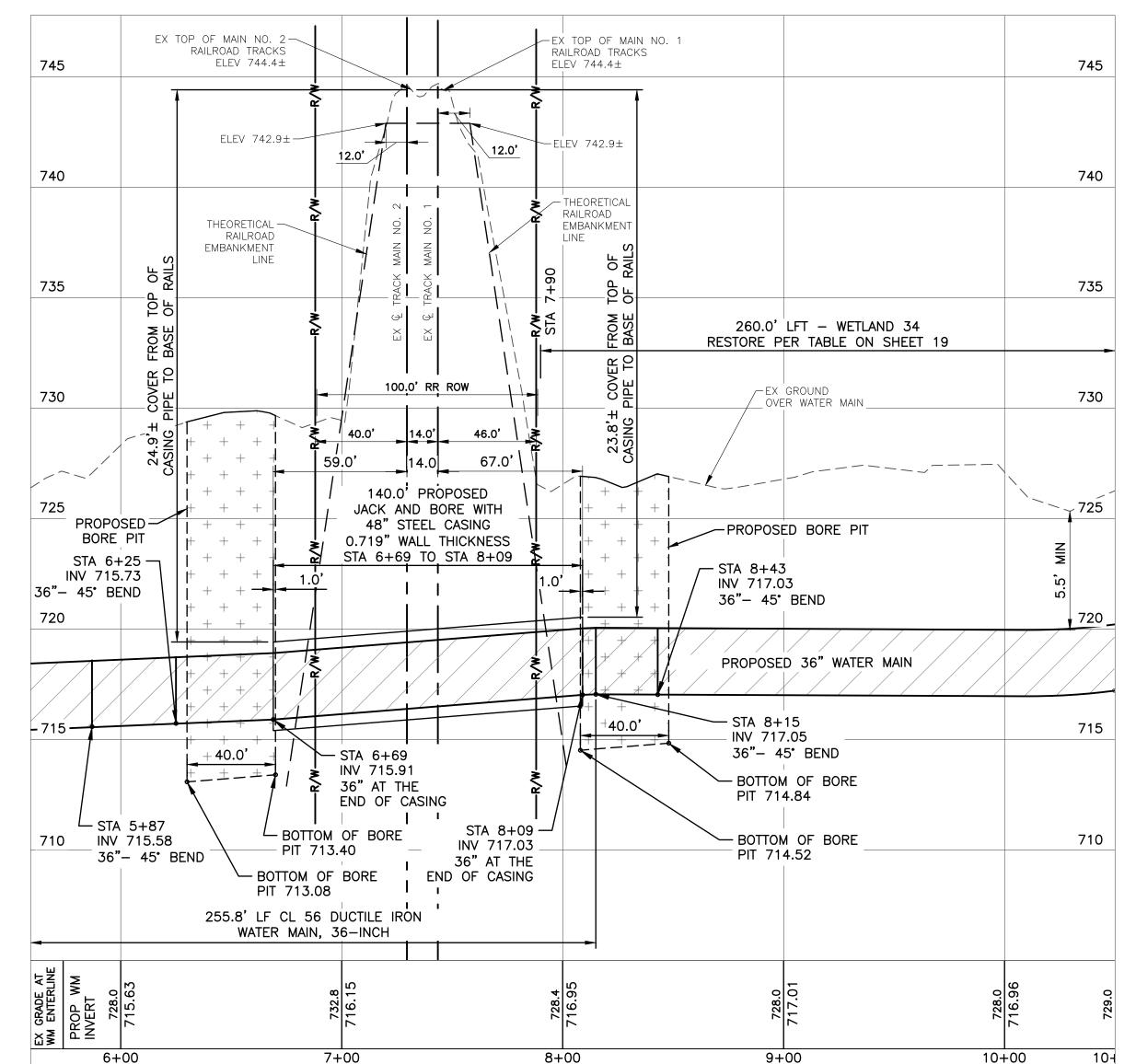
TLINT
W STREET
48502 OF AGIN, , MI

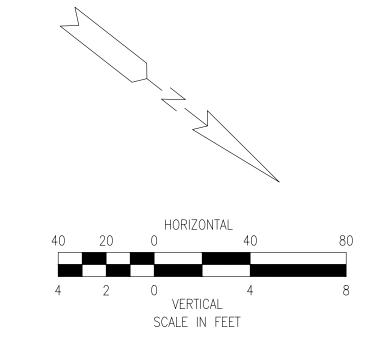
0

LY 1

555 Flint 810.

36" PL





BENCHMARK #9 RR SPIKE IN N FACE OF PP SOUTH SIDE BOULEVARD ROAD ELEV=725.38

FX TOP OF-RAILS 744.4± 745 745 BEYOND BRIDGE ABUTMENT EX BRIDGE 740 ABUTMENT BOTTOM OF RAILROAD TRESTLE 735 730 730 -EX CONC WINGWALLS 725 725 PROP 48" STEEL CASING WITH 0.719" WALL THICNESS EX ROADWAY ELEV 720 720 PROP 36" WATER MAIN INVERT WITHIN EX BOTTOM OF -RR BORE VARIES CONC FOOTING BETWEEN 717.03± ELEVATION UNKNOWN AND 715.91± 715 715 PIPE SUPPORTED-- CASING PIPE ENDS WITHIN CASING BY SHALL BE SEALED WOOD SKIDS WITH IN ACCORDANCE METAL BANDS WITH CSXT SPECS. 710 710

SECTION OF 36" WATER MAIN AT RAILROAD CROSSING

CSX CONSTRUCTION NOTES

1. CSXT LEASED RAILROAD TO LAKE STATE RAILWAY CO. CSXT MANAGES THE UTILITY LICENSES

SITE ACESS

1. CITY OF FLINT / CONTRACTOR SHALL OBTAIN ALL NECESSARY CONSTRUCTION EASEMENTS FROM CONSUMERS POWER (ADJACENT LANDOWNER) FOR WORK ON CONSUMERS POWER RIGHT OF WAY.

EXCAVATION

- 1. THE TOE OF RAILROAD EMBANKMENT SLOPE SHALL IN NO CASE BE UNDERCUT UNDERMINED BY POWER SHOVELS, BULLDOZERS, GRADERS, BLASTING, OR IN ANY MANNER.
- 2. CONTRACTOR SHALL BE GOVERNED BY CSXT CONSTRUCTION SUBMISSION CRITERIA SEC. VI TEMPORARY SHORING, INCLUDED IN THE CONTRACT DOCUMENTS.

1. CONTRACTOR SHALL BE GOVERNED BY CSXT SOIL AND WATER MANAGEMENT POLICY, INCLUDED IN THE CONTRACT DOCUMENTS.

DEWATERING

- 1. IF DEWATERING IS NECESSARY, DEWATERING PLANS MUST BE APPROVED BY CXST PRIOR TO EXECUTION/ CONSTRUCTION.
- 2. PUMPS OF SUFFICIENT CAPACITY TO HANDLE THE FLOW SHALL BE MAINTAINED AT THE SITE. PUMPS IN OPERATION SHALL BE CONSTANTLY ATTENDED ON A 24-HOUR BASIS UNTIL THE OPERATION CAN BE SAFELY HALTED. WHEN DEWATERING. A PROCESS FOR MONITORING FOR ANY SETTLEMENT OF TRACK OR STRUCTURES MUST BE IN PLACE.

SAFETY REQUIREMENTS

- 1. ALL OPERATIONS SHALL BE CONDUCTED SO AS NOT TO INTERFERE WITH, INTERRUPT, OR ENDANGER THE OPERATION OF TRAINS NOR DAMAGE, DESTROY, OR ENDANGER THE INTEGRITY OF RAILROAD FACILITIES. ALL WORK ON OR NEAR CSXT PROPERTY SHALL BE CONDUCTED IN ACCORDANCE WITH CSXT SAFETY RULES AND REGULATIONS. SPECIFICALLY ALL LICENSEE'S EMPLOYEES AND AGENTS, WHILE ON CSXT PROPERTY, SHALL BE REQUIRED TO WEAR AN ORANGE HARD HAT, SAFETY GLASSES WITH SIDE SHIELDS, 6" LACE UP BOOTS WITH A DISTINCT HEEL, SHIRTS WITH SLEEVES, AND LONG PANTS; ADDITIONAL PERSONAL PROTECTIVE EQUIPMENT MAY BE REQUIRED FOR CERTAIN OPERATIONS INCLUDING ABRASIVE CUTTING, USE OF TORCHES, USE OF CHAINSAWS, ETC. THE CONTRACTOR AND IT'S EMPLOYEES SHALL COMPLY WITH THE CSXT SAFETY RULES AT ALL TIMES WHILE OCCUPYING CSXT'S PROPERTY. OPERATIONS WILL BE SUBJECT TO CSXT INSPECTION AT ANY AND ALL TIMES.
- 2. ALL CRANES, LIFTS, OR OTHER EQUIPMENT THAT WILL BE OPERATED IN THE VICINITY OF THE RAILROAD'S ELECTRIFICATION AND POWER TRANSMISSION FACILITIES SHALL BE ELECTRICALLY GROUNDED AS DIRECTED BY CSXT.
- WHENEVER EQUIPMENT OR PERSONNEL ARE WORKING CLOSER THAN 25 FEET FROM THE CENTERLINE OF AN ADJACENT TRACK, THAT TRACK SHALL BE CONSIDERED AS BEING OBSTRUCTED. INSOFAR AS POSSIBLE, ALL OPERATIONS SHALL BE CONDUCTED NO LESS THAN THIS DISTANCE. ALL OPERATIONS SHALL BE CONDUCTED ONLY WITH THE PERMISSION OF, AND AS DIRECTED BY. A DULY QUALIFIED RAILROAD EMPLOYEE PRESENT AT THE SITE OF THE WORK. ALL COSTS RELATED TO RAILROAD PROTECTION WILL BE PASSED ON TO THE APPLICANT.
- CROSSING OF TRACKS AT GRADE BY EQUIPMENT AND PERSONNEL IS PROHIBITED EXCEPT BY PRIOR ARRANGEMENT WITH AND AS DIRECTED BY CSXT.

UTILITY NOTES **NOTES**

- 1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
- 2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
- 3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.
- 4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED PRIOR TO REPLACING.
- 5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
- 6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20-23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS WILL BE AT CONTRACTOR'S EXPENSE.
- 7. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY. AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT CONTRACTOR'S EXPENSE.

田田 TLINT W STRE 48502 OF GIN, Ω Ω \vdash

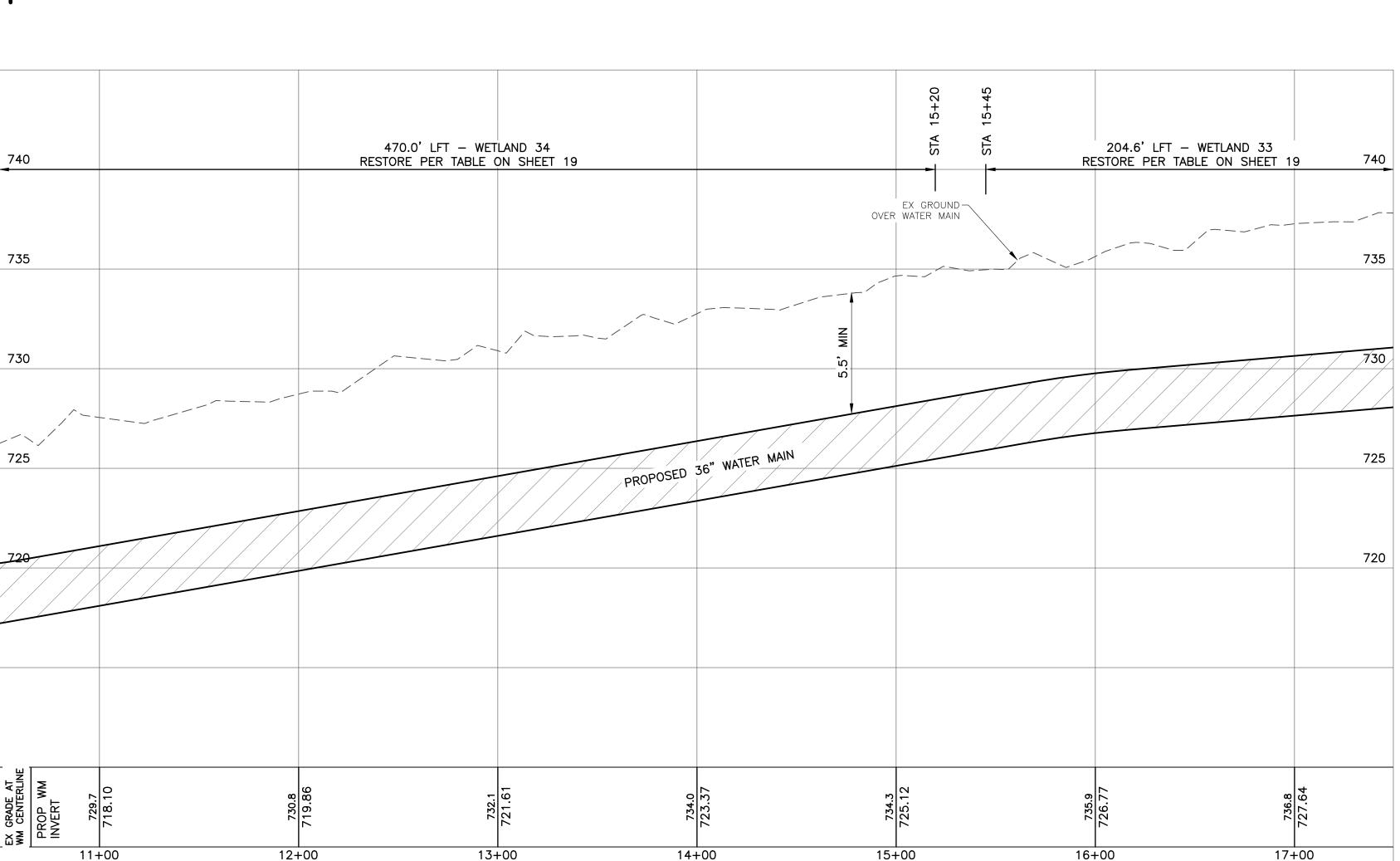
555 Flint 810.

IR SUPPLY SHEET 2

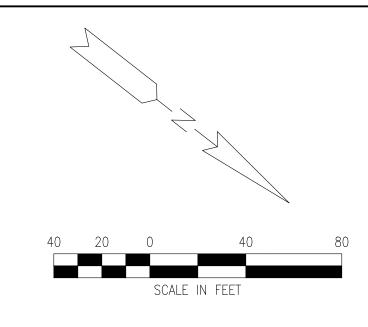
36" PL

0

Know what's below. Call before you dig.



14+00





<u>NOTES</u>

- 1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
- 2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
- 3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.
- 4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED PRIOR TO REPLACING.
- 5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
- 6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20-23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS WILL BE AT CONTRACTOR'S EXPENSE.
- 7. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY. AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT CONTRACTOR'S EXPENSE.

01

FLINT IAW STREET 48502

SAGINAW

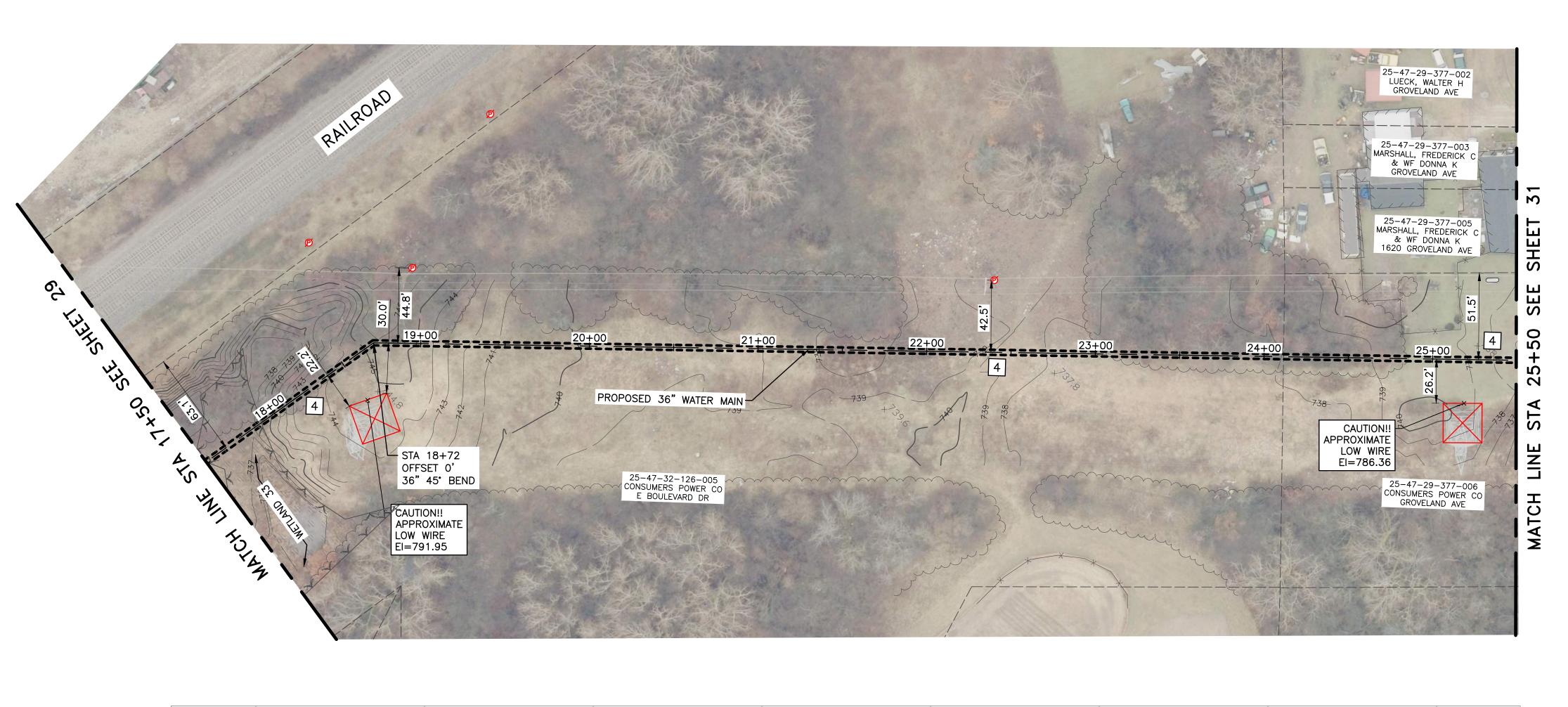
C, MI 48

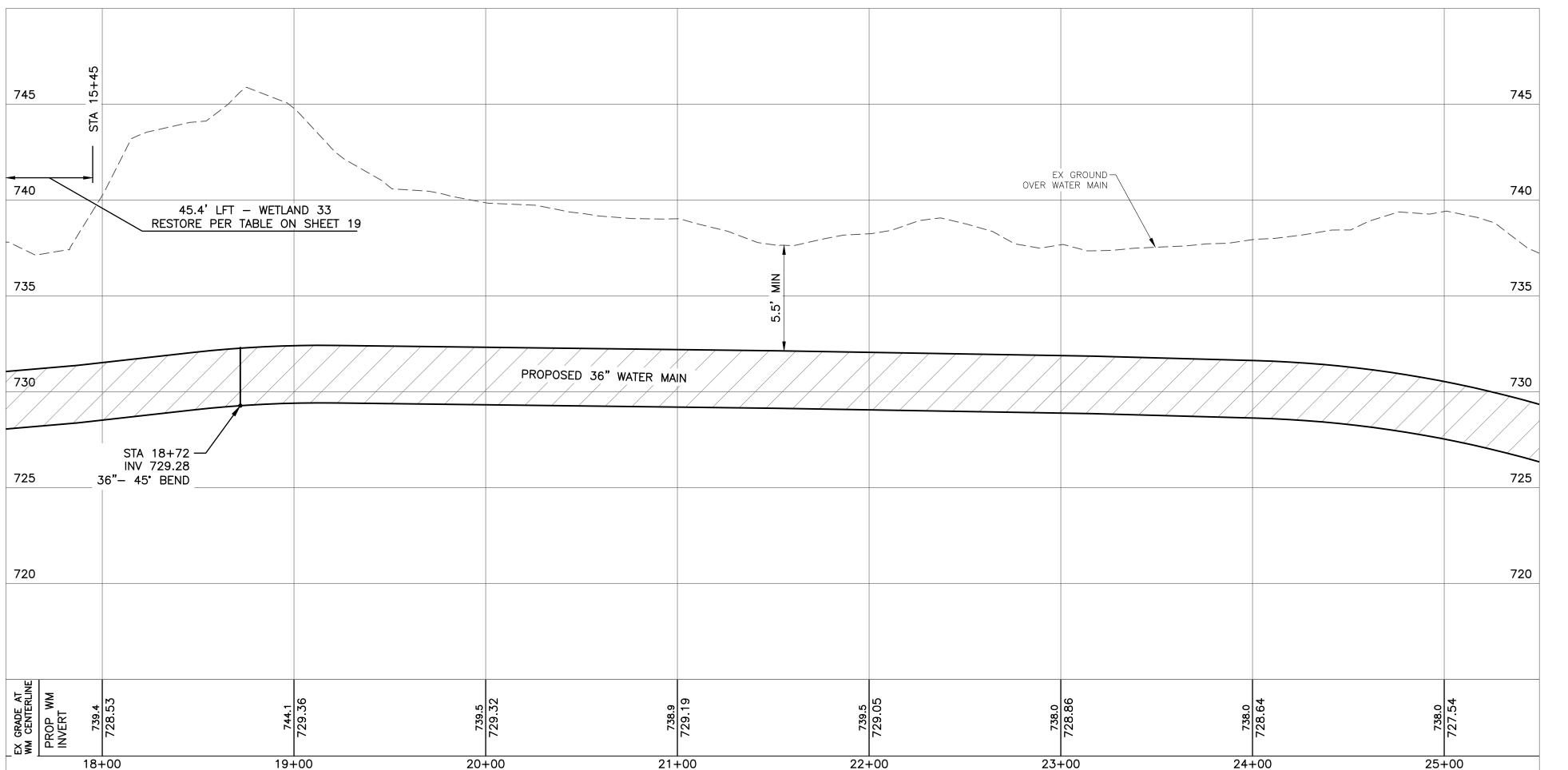
DARY WATE

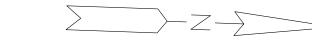
PROFILE

COF1068.01F

Know what's below. Call before you dig.







1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE

2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO

THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK.

3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN

SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.

4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE

5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE

SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.

CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED

DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT

6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20-23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS

7. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY.

AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT

EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF

ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED

EXISTING ELECTRIC POWER POLE OR TOWER.

BEFORE WORK IS STARTED.

PRIOR TO REPLACING.

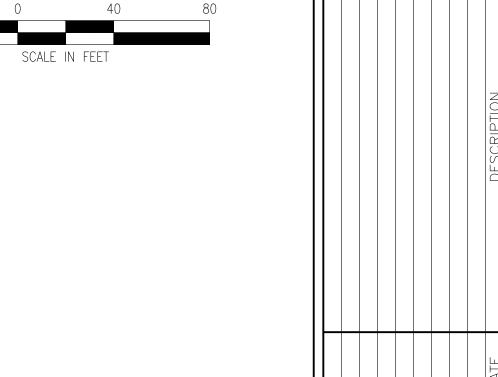
WILL BE AT CONTRACTOR'S EXPENSE.

CONTRACTOR'S EXPENSE.

PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN

<u>NOTES</u>





FLINT

VAW STREET

[48502

WATER SUPPLY
ILE SHEEET 4 SAGINAW

C, MI 48

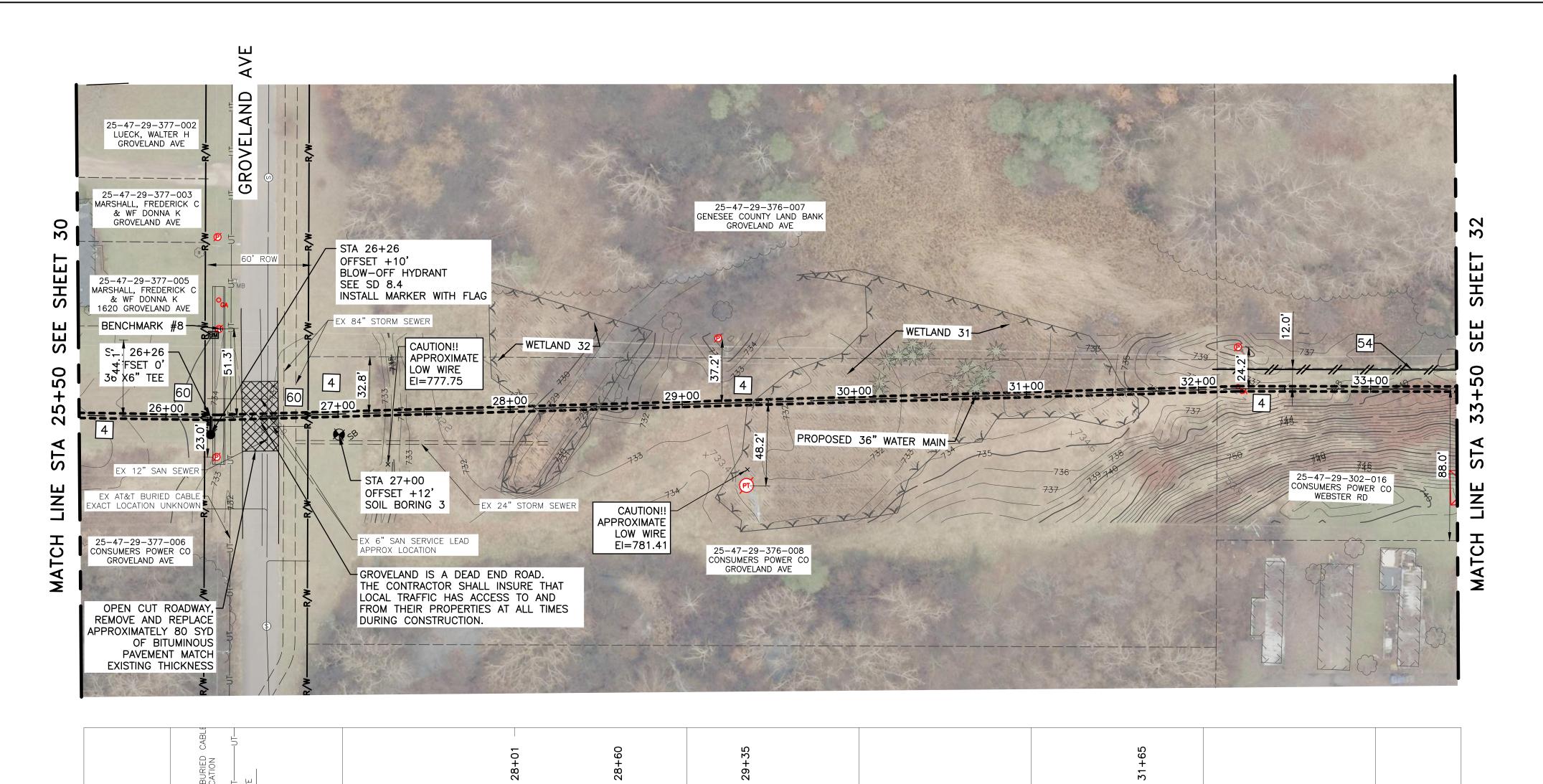
DARY WATH

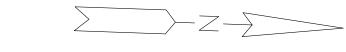
PROFILE

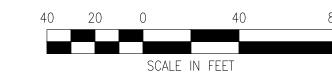
0

COF1068.01F

Know what's below. Call before you dig.







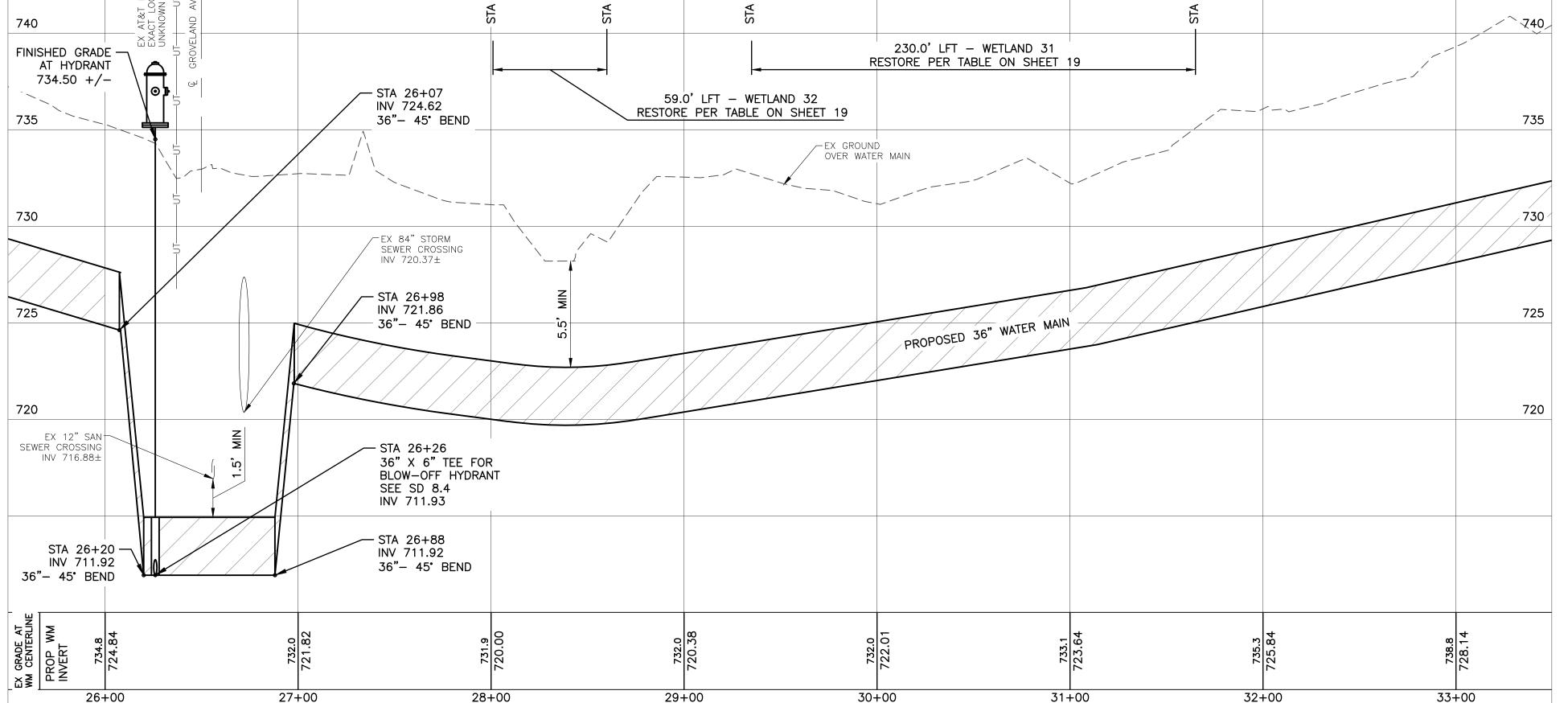
BENCHMARK #8 RR SPIKE IN NE FACE OF PP SOUHT SIDE OF GROVELAND ROAD 20'+/- SE OF MAILBOX TO HOUSE #1620 GROVELAND AVE ELEV=734.94

7 OF FLINT SAGINAW STREET I, MI 48502 LY 5

CITY
S. S4
FLINT,
SECONDA 0

COF1068.01F

31

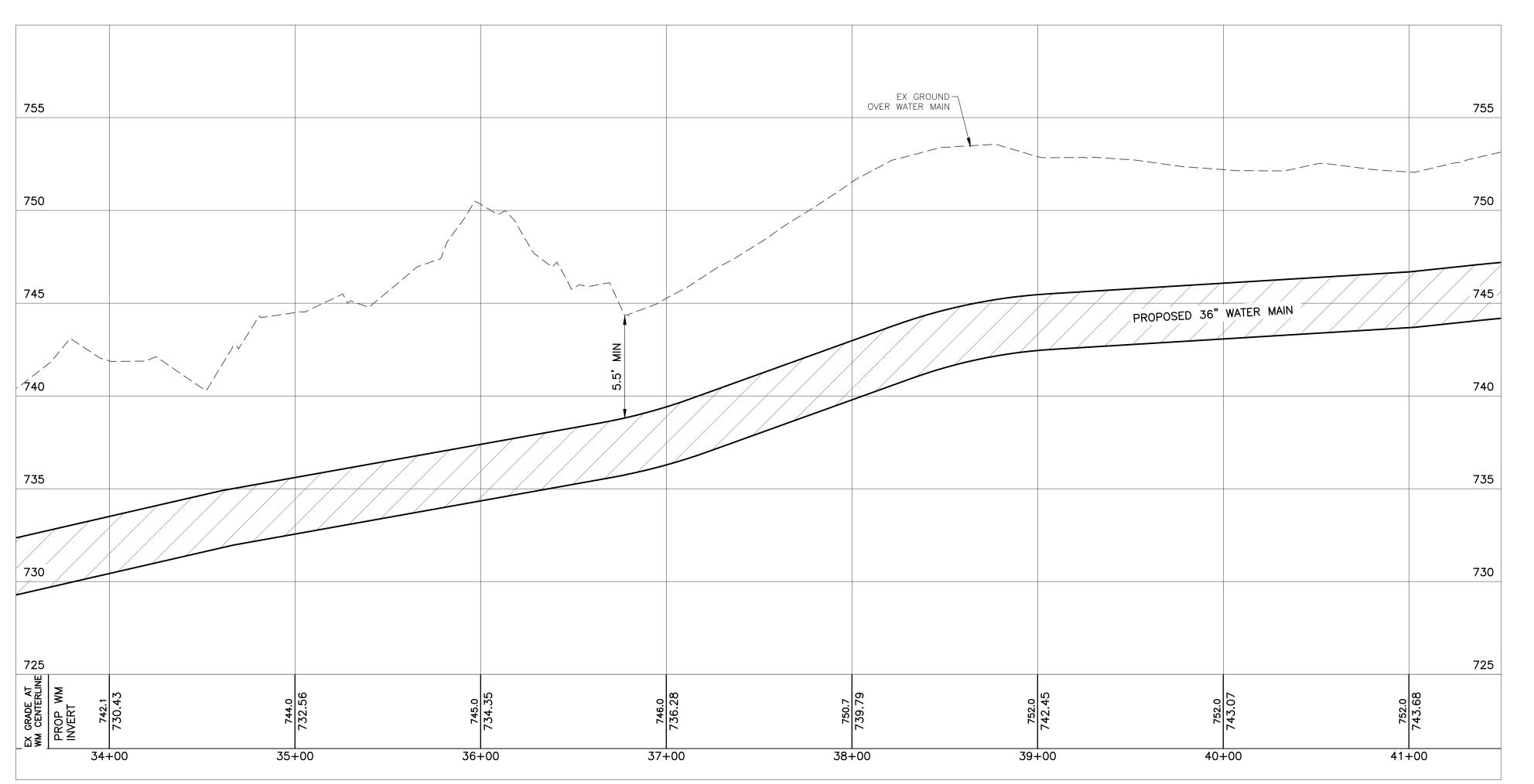


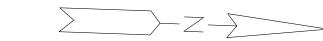
Know what's below.

Call before you dig.

<u>NOTES</u>

- 1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
- 2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
- 3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.
- 4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED PRIOR TO REPLACING.
- 5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
- 6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20-23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS WILL BE AT CONTRACTOR'S EXPENSE.
- 7. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY. AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT CONTRACTOR'S EXPENSE.







<u>NOTES</u>

- 1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
- 2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
- 3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.
- 4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED PRIOR TO REPLACING.
- 5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
- 6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20-23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS WILL BE AT CONTRACTOR'S EXPENSE.
- 7. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY. AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT CONTRACTOR'S EXPENSE.



7 OF FLINT
SAGINAW STREET
T, MI 48502
DARY WATER SUPPLY
PROFILE SHEEET 6 ГУ 6

01





BENCHMARK #7 NORTH FLANGE BOLT ON HYDRANT ON THE WET LINE OF RIGHT OF WAY 12' NORTH OF WEBSTER ROAD ELEV=755.77

7

FLINT IAW STREET 48502

0

SAGINAW

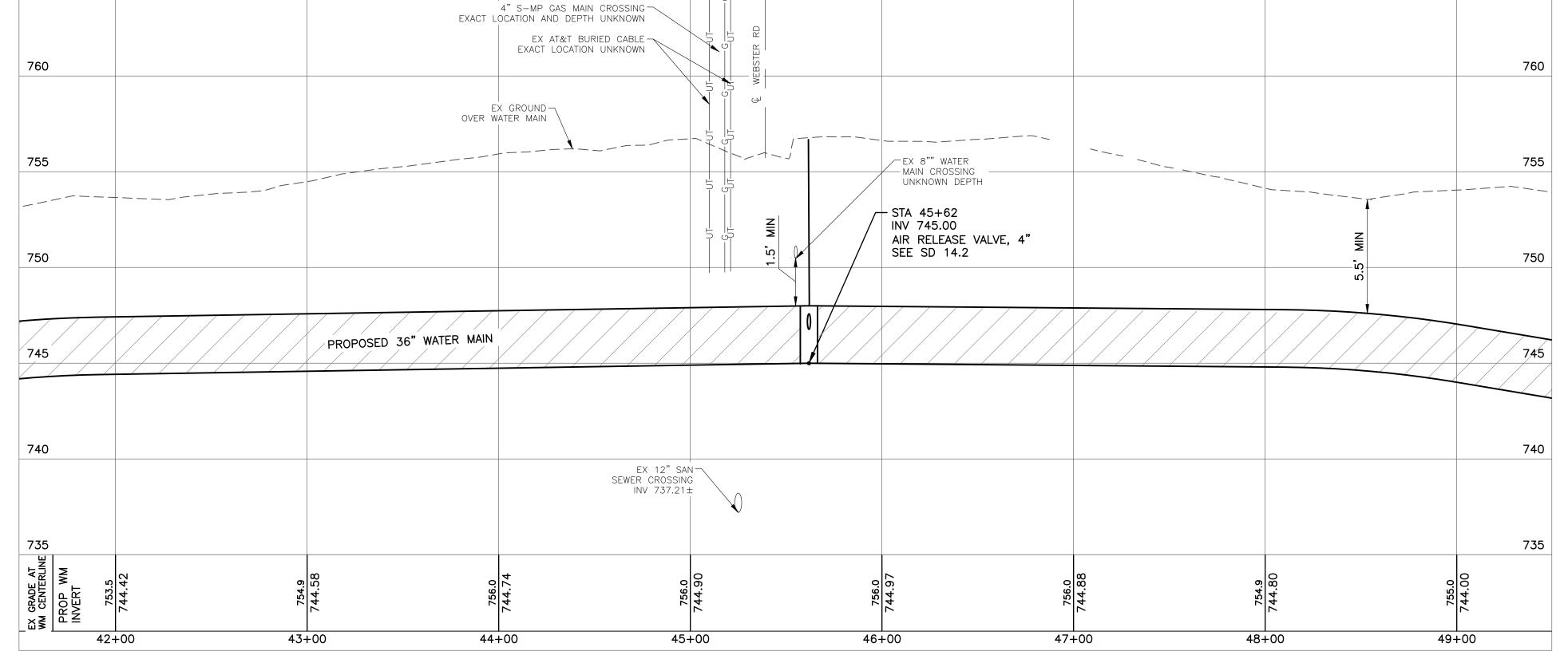
C, MI 48

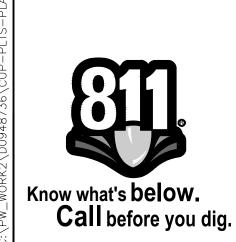
DARY WATE

PROFILE

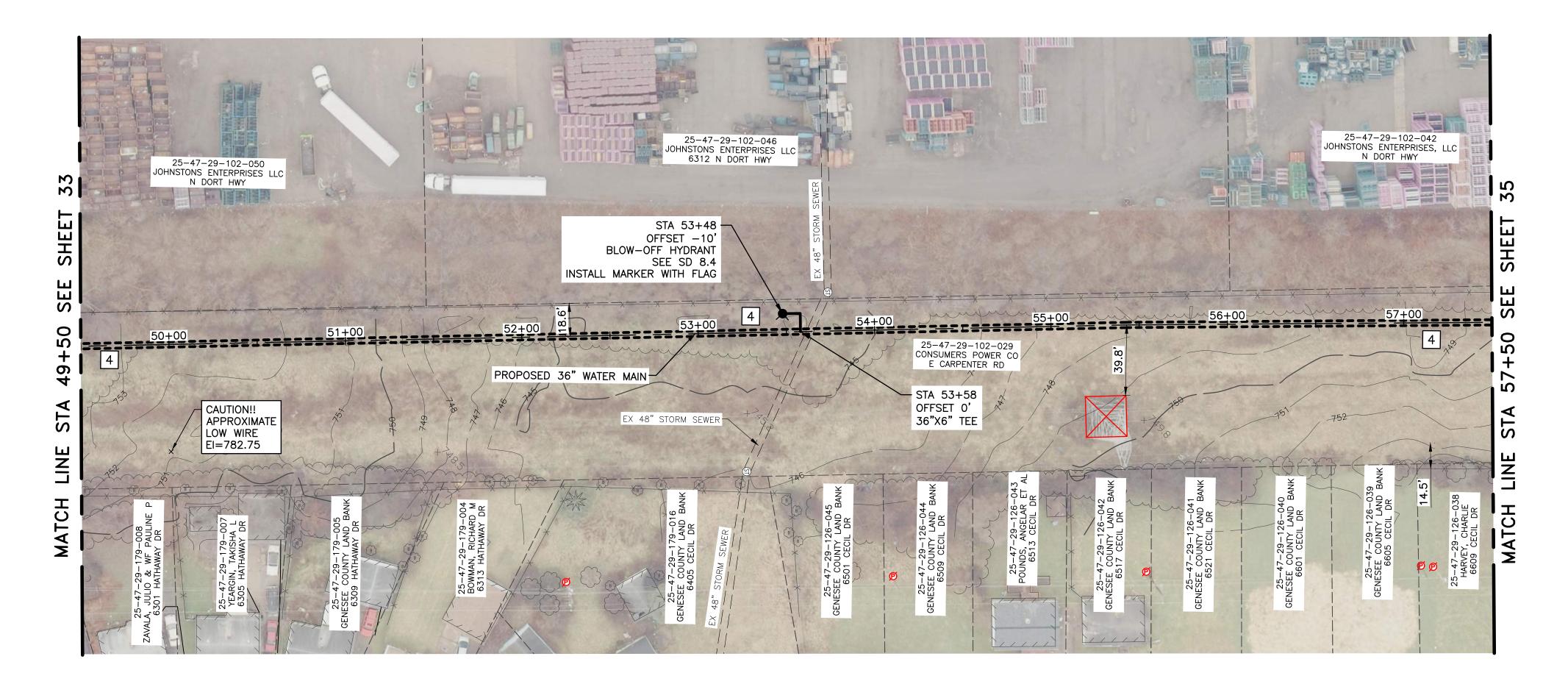
<u>NOTES</u>

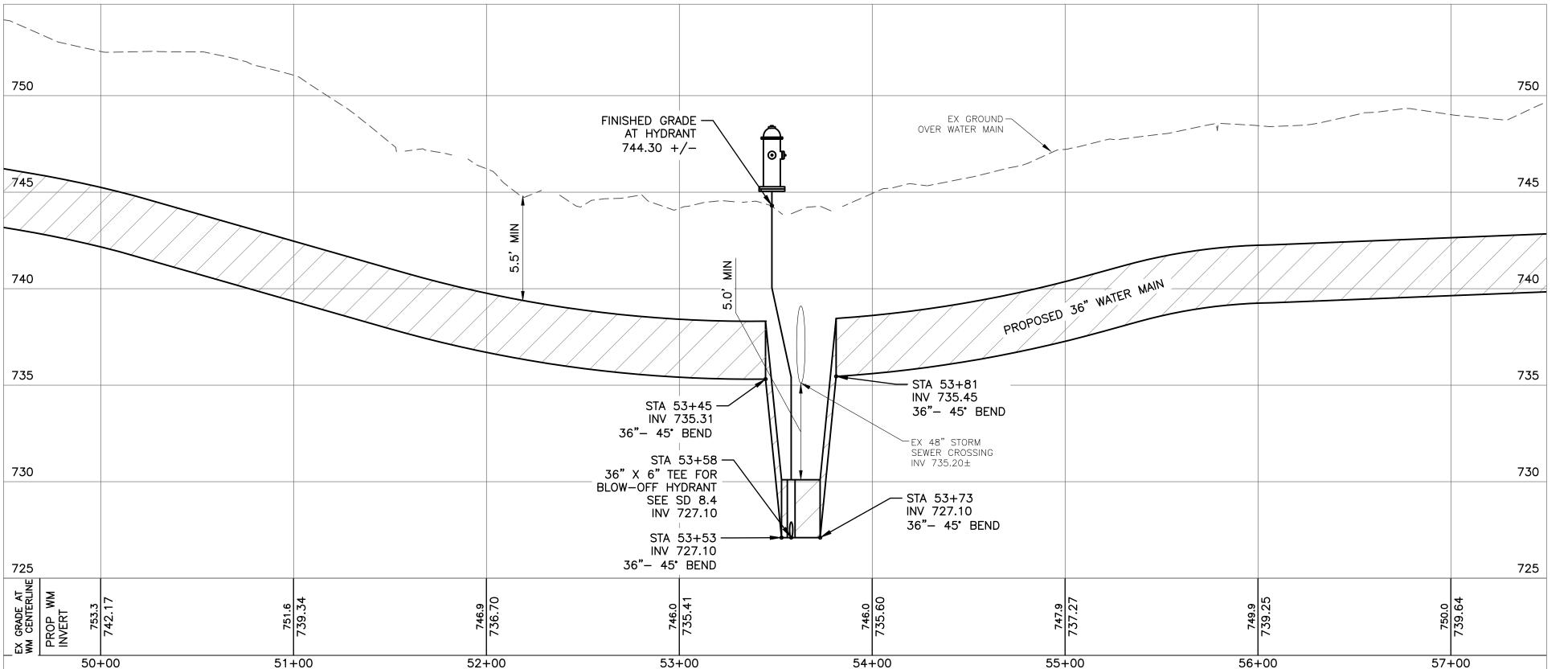
- 1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
- 2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
- 3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.
- 4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED PRIOR TO REPLACING.
- 5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
- 6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20-23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS WILL BE AT CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY. AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT CONTRACTOR'S EXPENSE.





SCALE IN FEET





<u>NOT</u>

- 1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
- 2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
- 3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.
- 4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED PRIOR TO REPLACING.
- 5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
- 6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20-23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS WILL BE AT CONTRACTOR'S EXPENSE.
- 7. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY. AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT CONTRACTOR'S EXPENSE.

555 S. Saginaw Street, Suite 201
Flint, MI 48502
810.235.2555
www.wadetrim.com



S. SAGINAW STREET
JINT, MI 48502
AND PROFILE SHEEET 8

110 36"

UED FOR: DATE:

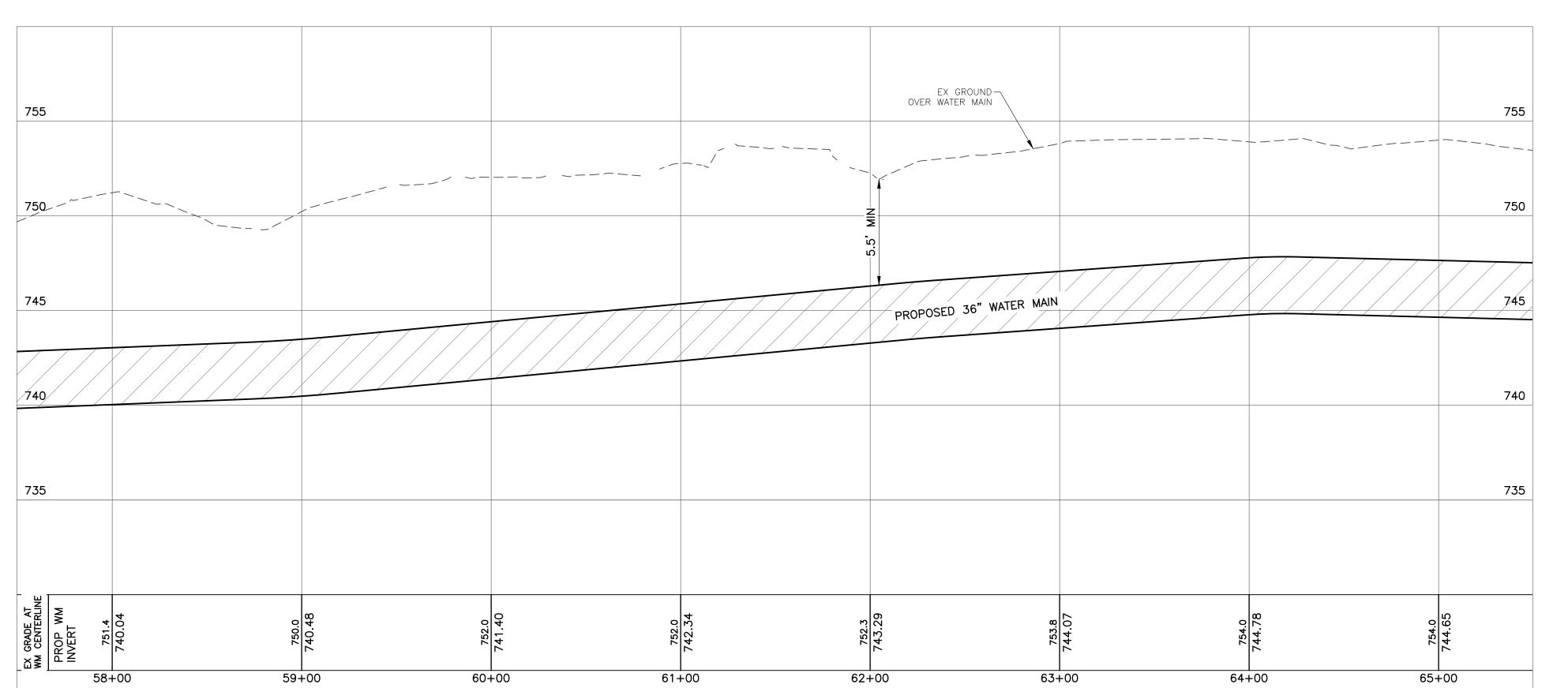
COF1068.01F

34

Know what's below. Call before you dig.



25-47-29-102-038 25-47-29-102-033 HOLT, OTHIE L 6604 N DORT HWY COHILL, DAVINA N 6648 N DORT HWY 25-47-29-102-017 HOLT, OTHIE L 6576 N DORT HWY 25-47-29-102-047 GREATER HOLY TEMPLE COGIC 6702 N DORT HWY 25-47-29-102-018 BANSRI INC 6550 N DORT HWY 25-47-29-102-042 JOHNSTONS ENTERPRISES, LLC N DORT HWY REMOVE AND REPLACE EXISTING FENCE AS REQUIRED PROPOSED 36" WATER MAIN--REMOVE AND REPLACE EXISTING FENCE AS REQUIRED CAUTION!! **APPROXIMATE** 25-47-29-102-029 CONSUMERS POWER CO LOW WIRE E CARPENTER RD EI=781.04 25-47-29-126-0. CLARK, SHELIA L 6705 CECIL DR



<u>NOTES</u>

- 1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
- 2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
- 3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.
- 4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED PRIOR TO REPLACING.
- 5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
- 6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20–23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS WILL BE AT CONTRACTOR'S EXPENSE.
- 7. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY. AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT CONTRACTOR'S EXPENSE.

TET.

Y OF FLINT
SAGINAW STREET
T, MI 48502
DARY WATER SUPPLY
PROFILE SHEEET 9

0

ED FOR: DATE:

COF1068.01F

35

Know what's below.
Call before you dig.

3

SHEET

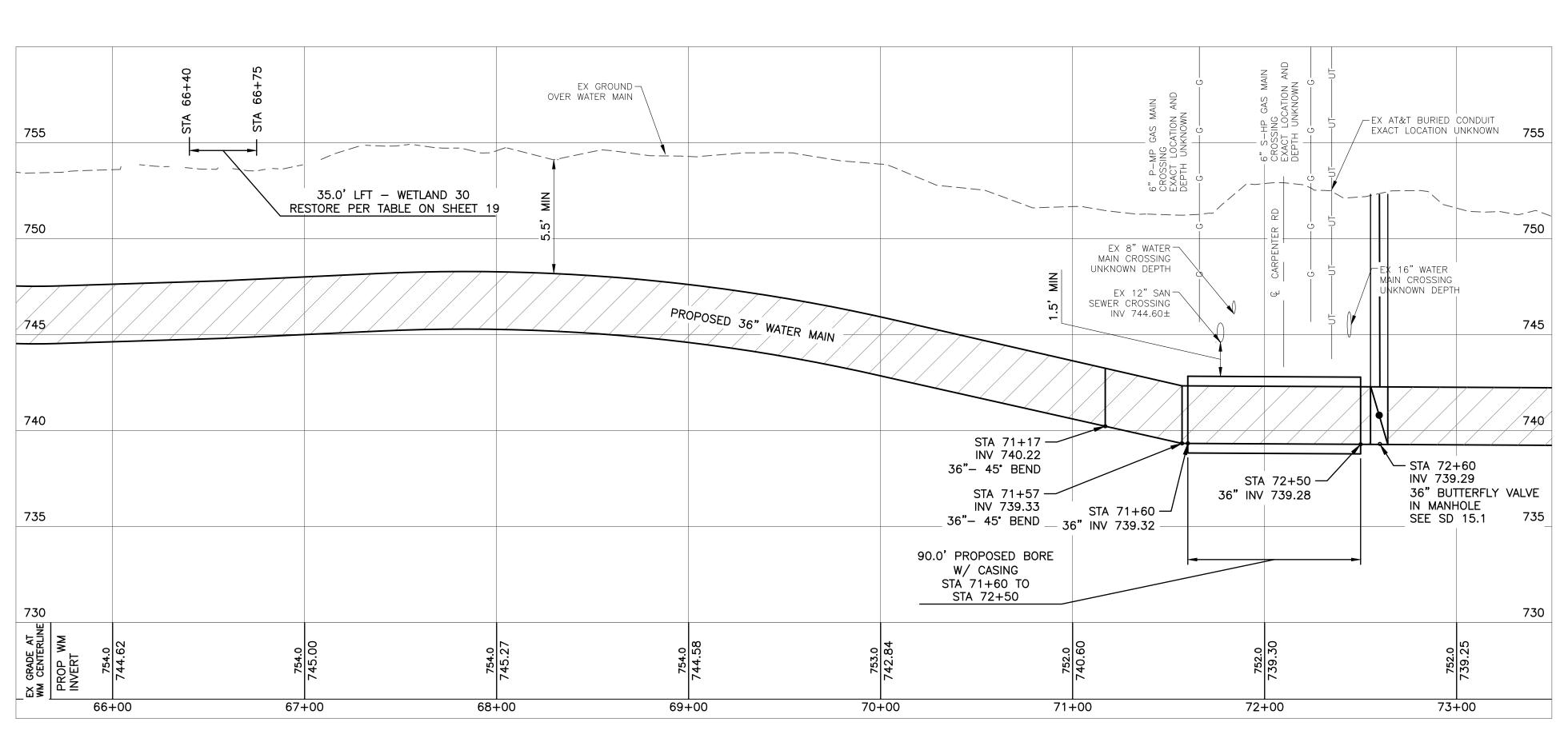
SEE

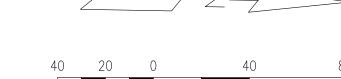
50

STA

LINE

MATCH







BENCHMARK #6
NORTH FLANGE BOLT ON HYDRANT
IN THE MIDDLE OF RIGHT OF WAY
ON THE NORTH SIDE OF
CARPENTER ROAD
ELEV=753.17

<u>NOTES</u>

- 1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
- 2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
- 3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.
- 4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED PRIOR TO REPLACING.
- 5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
- 6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20–23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS WILL BE AT CONTRACTOR'S EXPENSE.
- 7. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY. AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT CONTRACTOR'S EXPENSE.

REV# DATE DESCRIPTIO

555 S. Saginaw Street, Suite 201 Flint, MI 48502 810.235.2555 www.wadetrim.com



FY OF FLINT
SAGINAW STREET
NT, MI 48502
NDARY WATER SUPPLY
D PROFILE SHEEET 10

SUED FOR: DATE:

0

JOB NO. COF1068.01F



Know what's below.

Call before you dig.

74+00

75+00

76+00

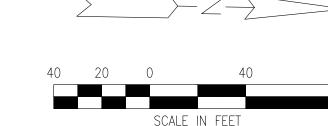
77+00

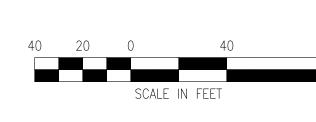
78+00

79+00

80+00

81+00

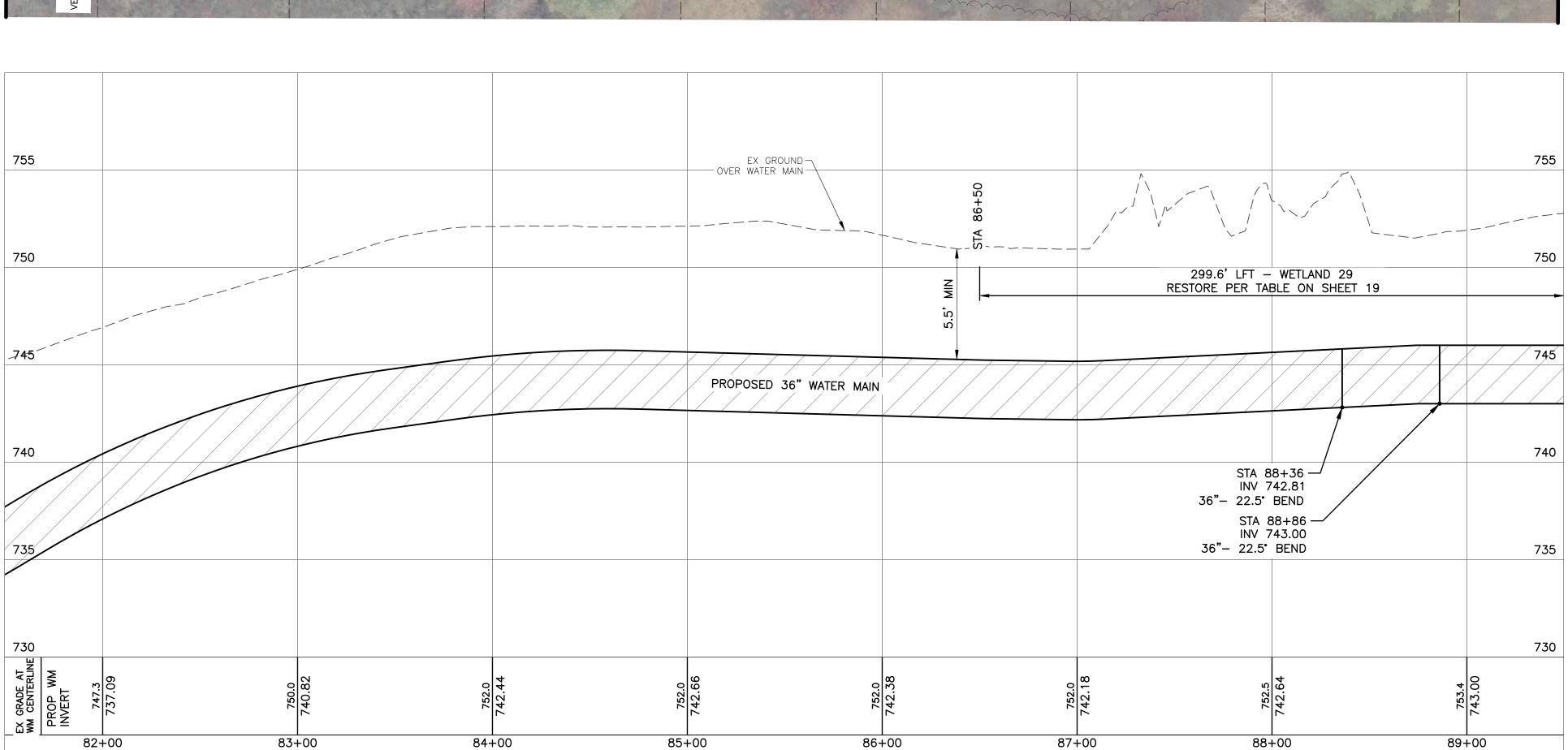


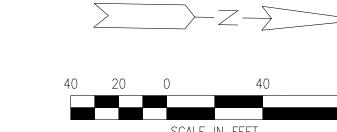


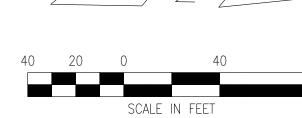
- 1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
- 2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
- 740 3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.
 - 4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED PRIOR TO REPLACING.
 - 5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
 - 6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20-23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS WILL BE AT CONTRACTOR'S EXPENSE.
 - 7. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY. AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT CONTRACTOR'S EXPENSE.

FLINT IAW STREET 48502 OF AGIN, ', MI

0









- 1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
- 2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
- 3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.
- 4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED PRIOR TO REPLACING.
- 5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
- 6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20-23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS WILL BE AT CONTRACTOR'S EXPENSE.
- 7. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY. AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT CONTRACTOR'S EXPENSE.

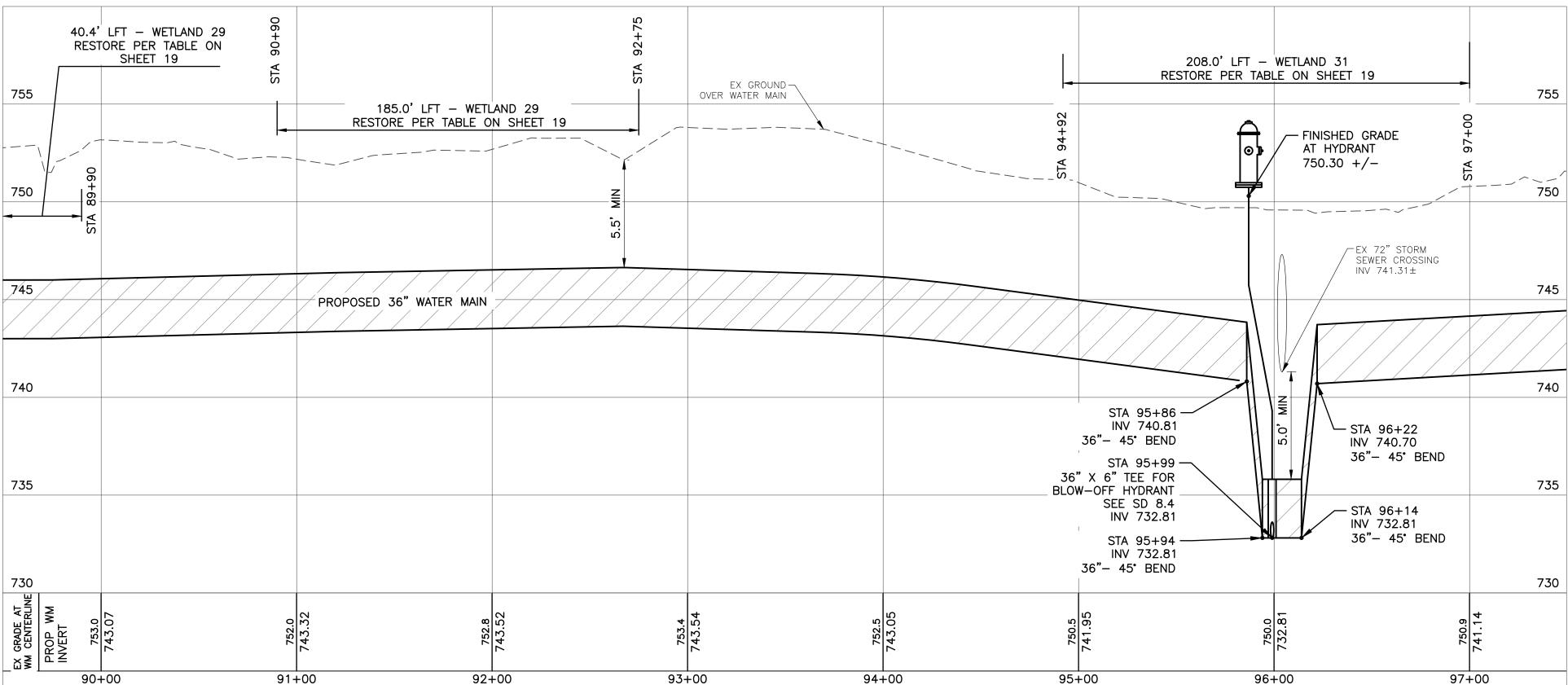


FY OF FLINT
SAGINAW STREET
NT, MI 48502
NDARY WATER SUPPLY
D PROFILE SHEEET 12 ER SUPPLY SHEEET 12

0



STA 95+89 -OFFSET -10' **BLOW-OFF HYDRANT** 25-11-20-300-018 WOLVERINE REAL ESTATE DEV LLC 25-11-20-300-019 SEE SD 8.4 38 NDW, LLC 5196 N DORT HWY 5182 N DORT HWY INSTALL MARKER WITH FLAG 25-11-20-100-011 KOTARSKI, JOHN STA 95+99 5220 N DORT HWY OFFSET O' SHE 36"X6" TEE GRAVFI ARFA S PROPOSED 36" WATER MAIN-25-11-20-300-020 WETLAND 29 တ CAUTION!! CONSUMERS ENERGY CO **APPROXIMATE** E CARPENTER RD LOW WIRE WETLAND 29 EI=785.43 LINE 36"± STORM CULVERT 25-11-20-551-020 25-11-20-551-021 25-11-20-551-022 STEEL FAB ENERGY REAL ESTATE, LL 25-11-20-551-023 GENESEE TOWNSHIP ENERGY DR ENERGY REAL ESTATE, LLC 5225 ENERGY DR ENERGY DR 25-11-20-501-028 ENERGY DR GENESEE TOWNSHIP ENERGY DR



<u>NOTES</u>

- 1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
- 2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
- 3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.
- 4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED PRIOR TO REPLACING.
- 5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
- 6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20-23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS WILL BE AT CONTRACTOR'S EXPENSE.
- 7. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY. AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT CONTRACTOR'S EXPENSE.

ER SUPPLY SHEEET 13 FLINT IAW STREET 48502 OF AGIN,

0

COF1068.01F

Know what's below. Call before you dig.

Ш

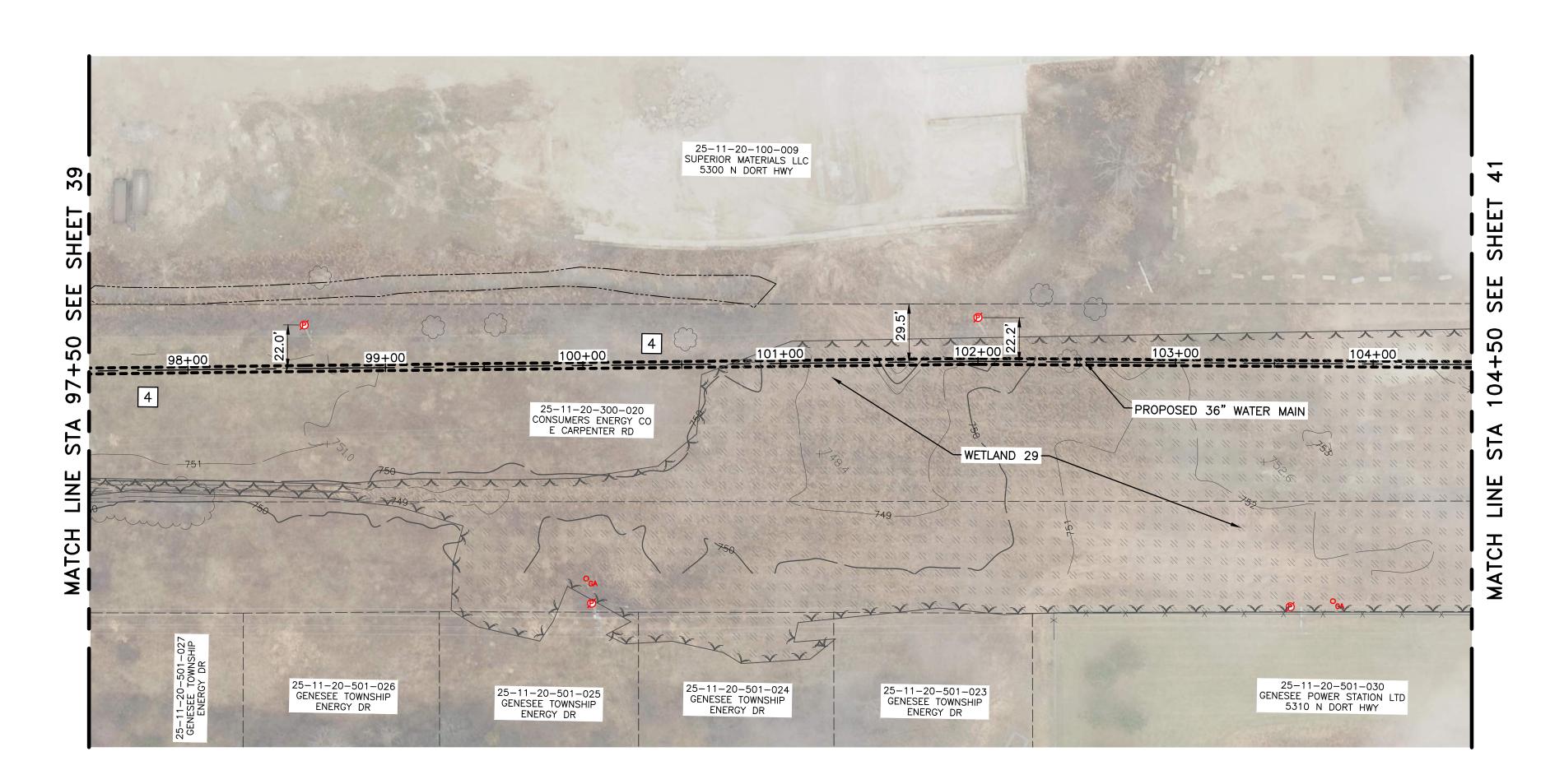
SH

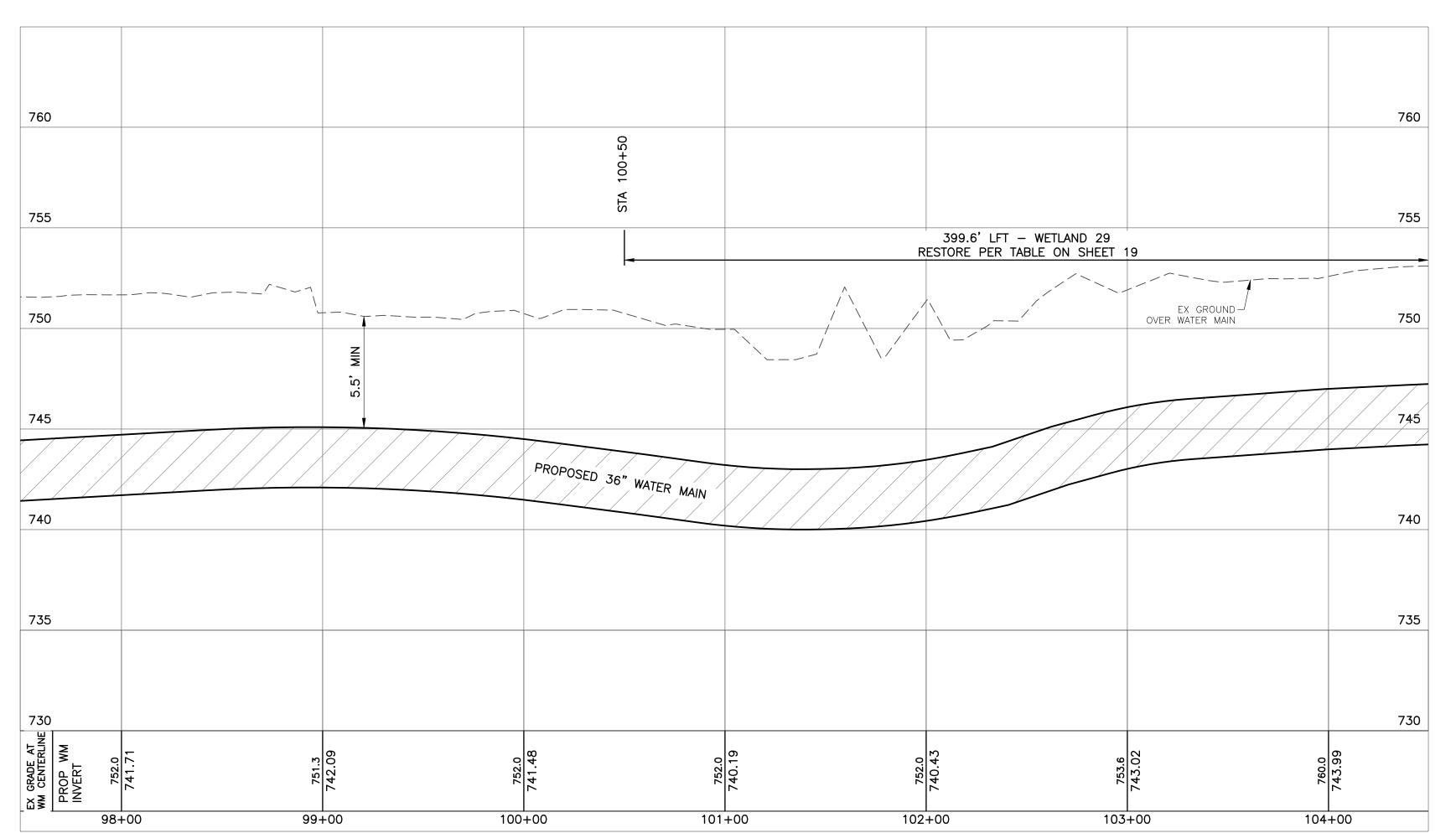
O

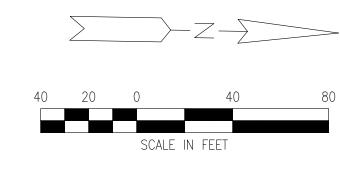
 ∞

N

ATCH







REV# DATE DESCRIPTION

555 S. Saginaw Street, Suite 201 Flint, MI 48502 810.235.2555 www.wadetrim.com



COF FLINT
SAGINAW STREET
I, MI 48502
DARY WATER SUPPLY

CITY OF FL. 101 S. SAGINAW FLINT, MI 48

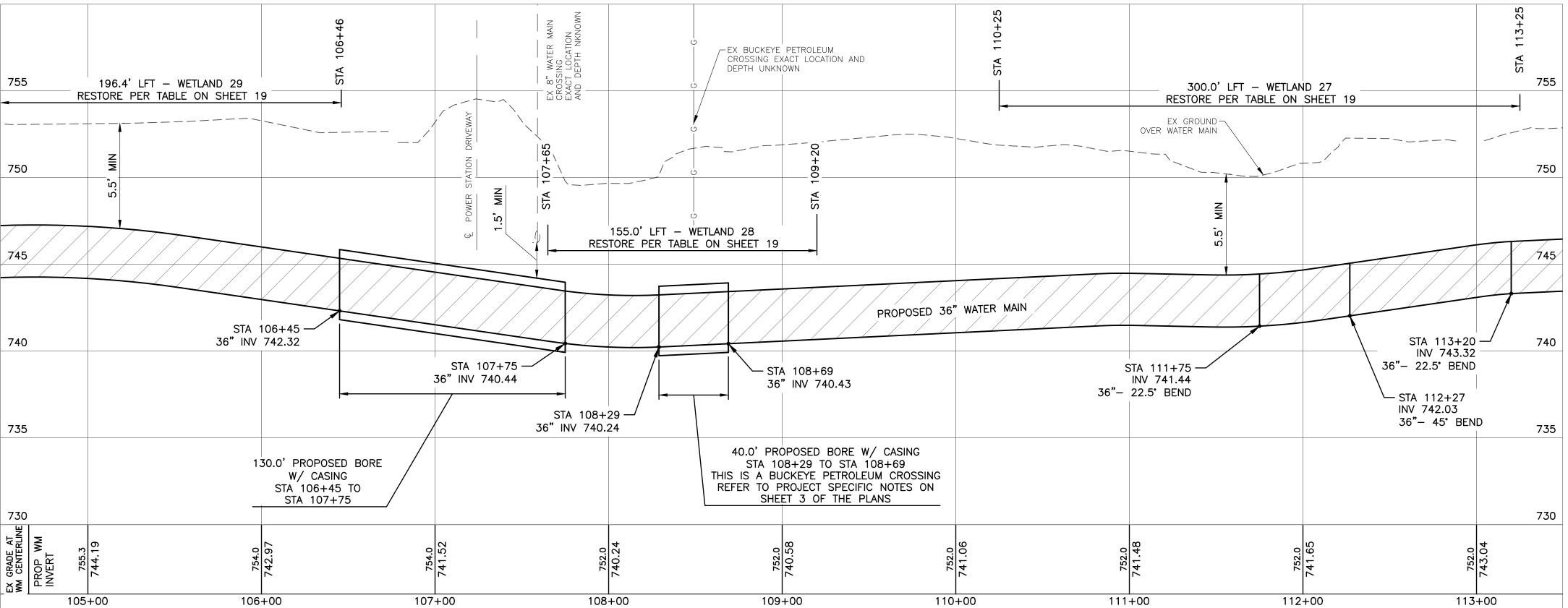
SUED FOR: DATE:

OF1068.01F

40

<u>NOTES</u>

- 1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
- 2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
- 3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.
- 4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED PRIOR TO REPLACING.
- 5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
- 6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20-23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS WILL BE AT CONTRACTOR'S EXPENSE.
- 7. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY. AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT CONTRACTOR'S EXPENSE.



NOT

- 1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
- 2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
- 3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.
- 4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED PRIOR TO REPLACING.
- 5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
- 6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20–23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS WILL BE AT CONTRACTOR'S EXPENSE.
- 7. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY. AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT CONTRACTOR'S EXPENSE.

<u>NOTES</u>

CITY OF FLINT
S. SAGINAW STREET
LINT, MI 48502
CONDARY WATER SUPPLY
AND PROFILE SHEEET 15

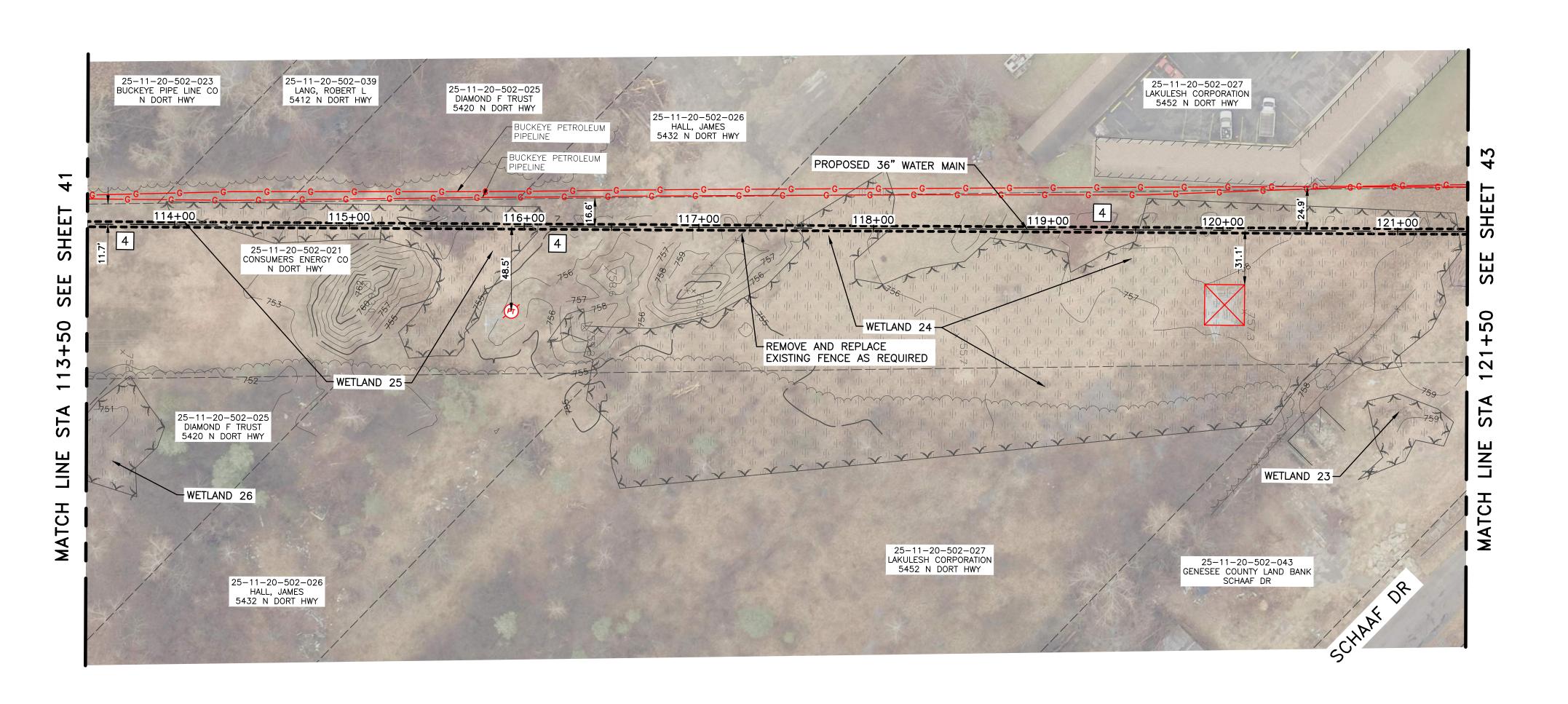
1101 S FI 36" SEC

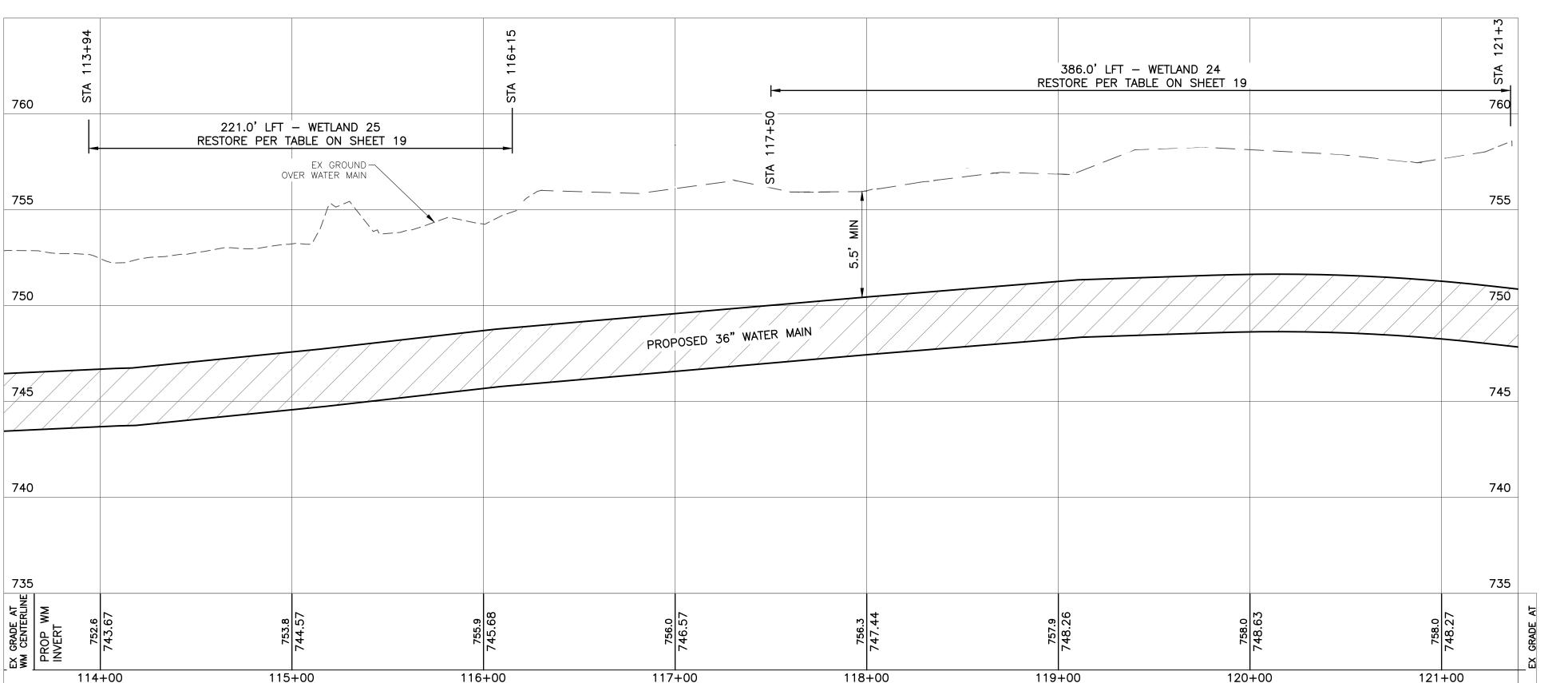
UED FOR: DATE:

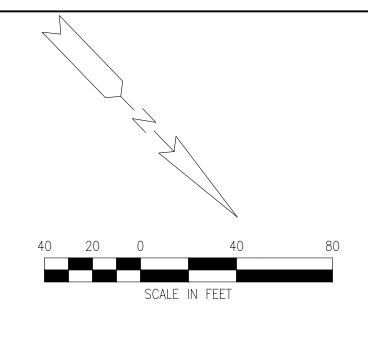
COF1068.01F

41

MOBKZ/P004/88/36/Cnb-LIZ-P004/88/Snb-LIZ-P004







555 S. Saginaw Street, Suite 201 Flint, MI 48502 810.235.2555 www.wadetrim.com

> WAD TRIN

Y OF FLINT SAGINAW STREET IT, MI 48502 NDARY WATER SUPPLY PROFILE SHEEET 16

CITY OF FI
1101 S. SAGINAV
FLINT, MI 4
36" SECONDARY WAT
PLAN AND PROFILE

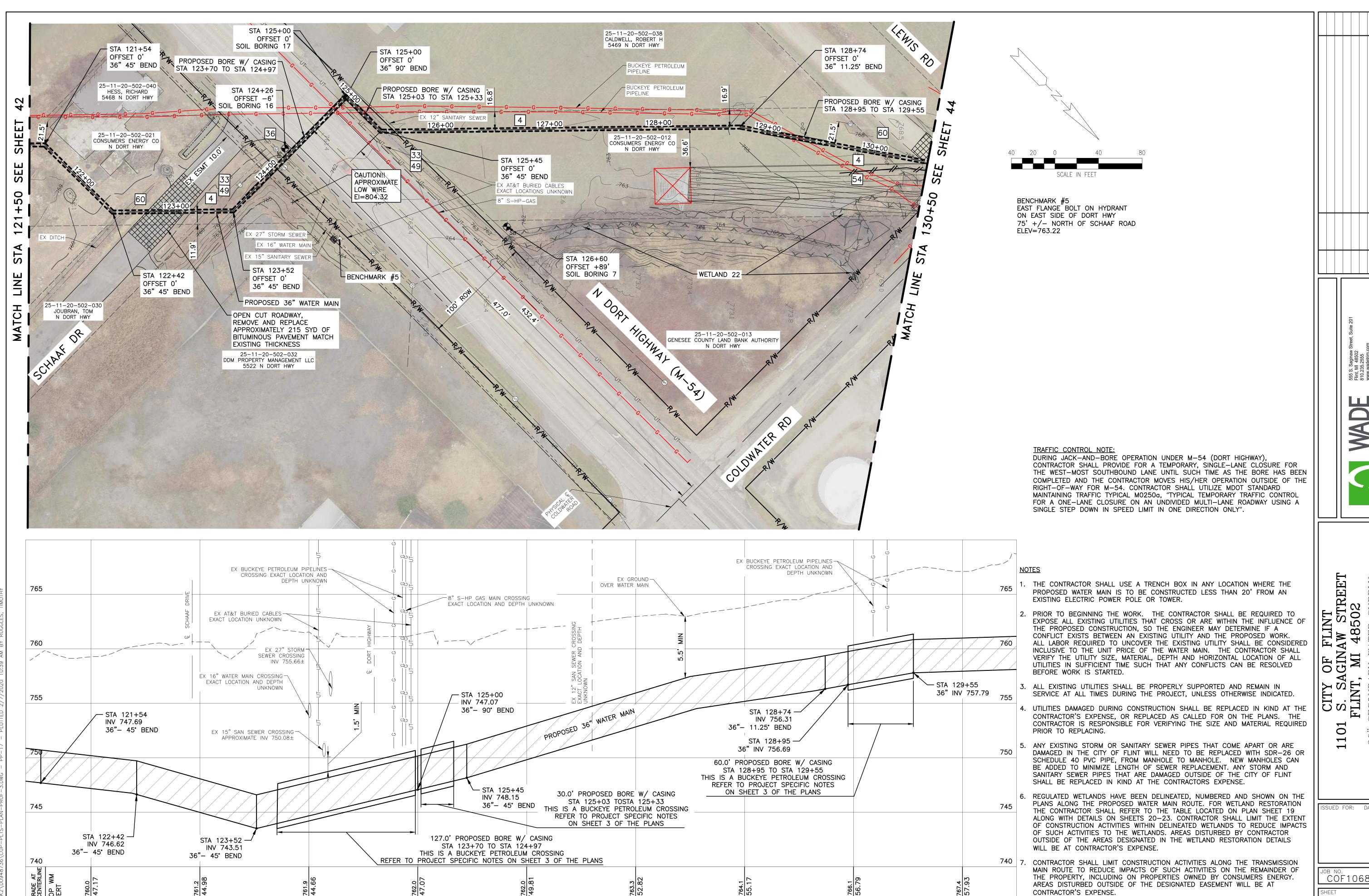
JED FOR: DATE:

JOB NO. COF1068.01F

HEET

<u>NOTES</u>

- 1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
- 2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
- 3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.
- 4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED PRIOR TO REPLACING.
- 5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
- 6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20-23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS WILL BE AT CONTRACTOR'S EXPENSE.
- 7. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY. AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT CONTRACTOR'S EXPENSE.



122+00

123+00

124+00

125+00

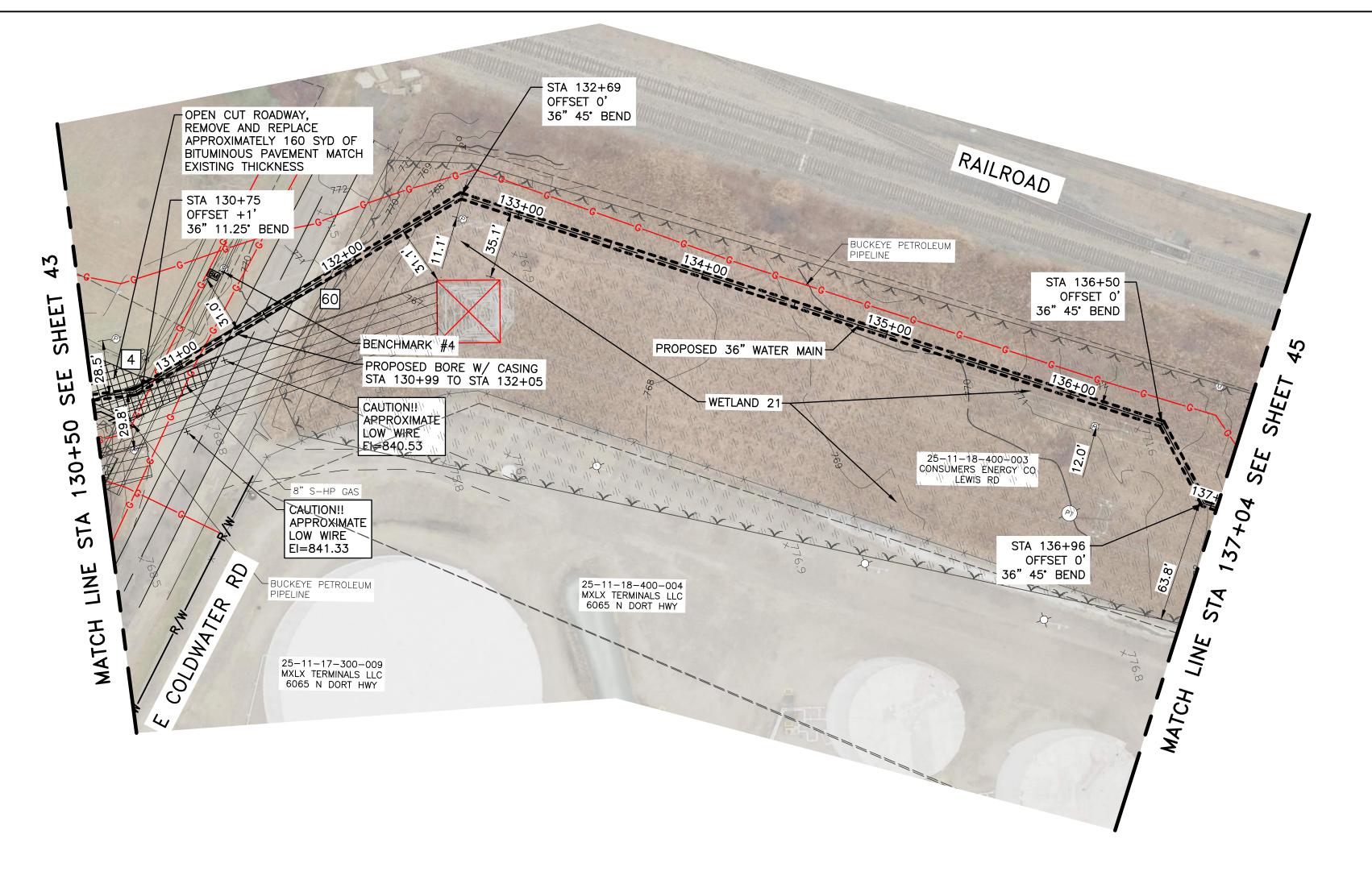
126+00

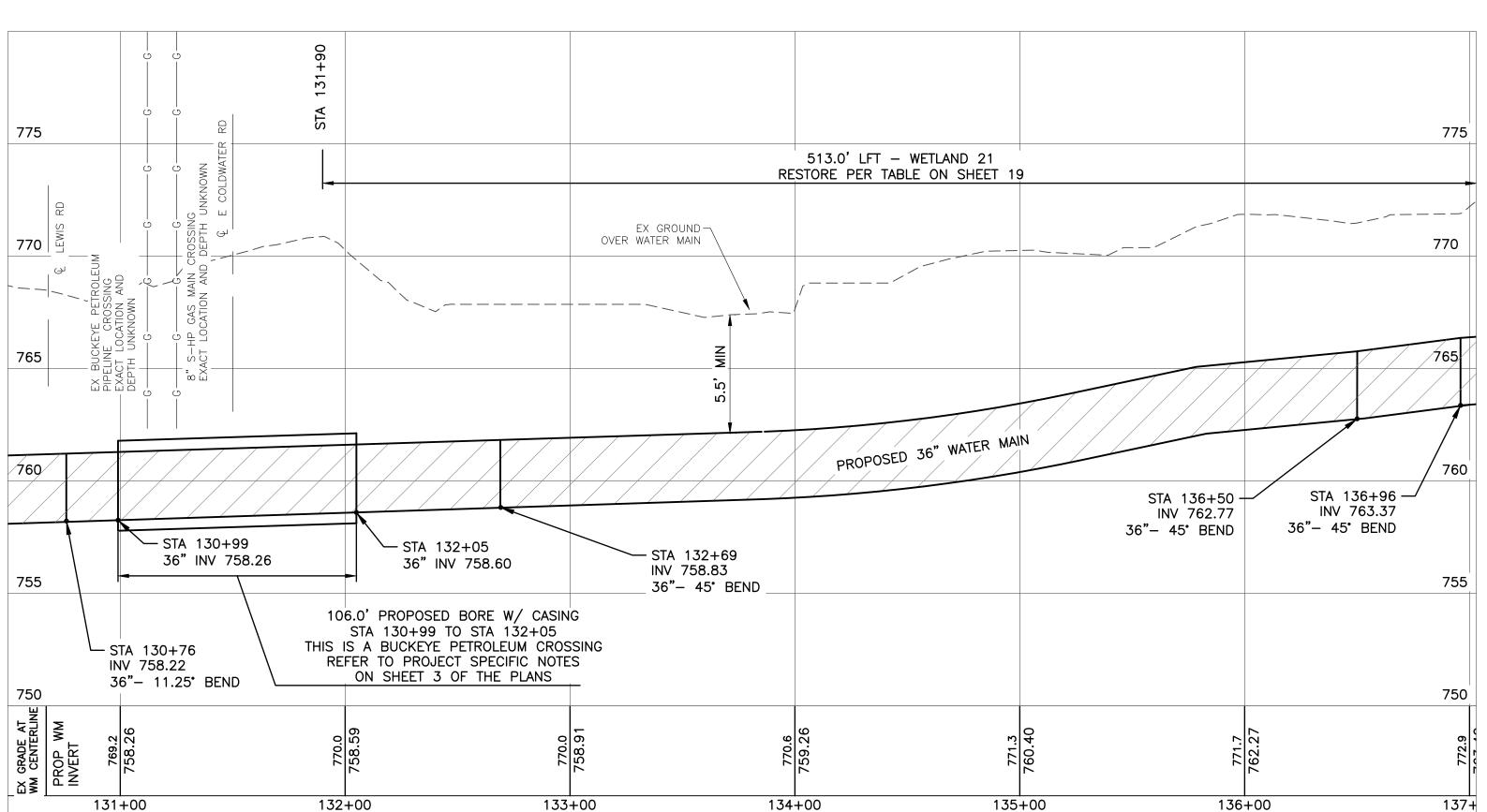
127+00

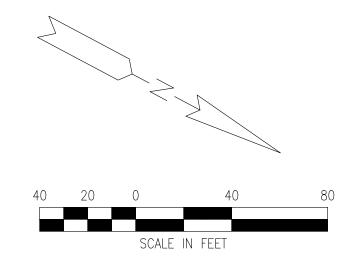
128+00

129+00

130+00







BENCHMARK #4
SET BENCHTIE IN NORTH
FACE OF PP SOUTH OF
COLDWATER ROAD AND 5' WEST
OF DRIVE
ELEVATION=770.34

<u>NOTES</u>

- 1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
- 2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
- 3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.
- 4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED PRIOR TO REPLACING.
- 5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
- 6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20-23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS WILL BE AT CONTRACTOR'S EXPENSE.
- 7. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY. AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT CONTRACTOR'S EXPENSE.

REV# DATE DESCRIPTION

555 S. Saginaw Street, Suite 201 Flint, MI 48502 810.235.2555 www.wadetrim.com



OF FLINT
AGINAW STREET

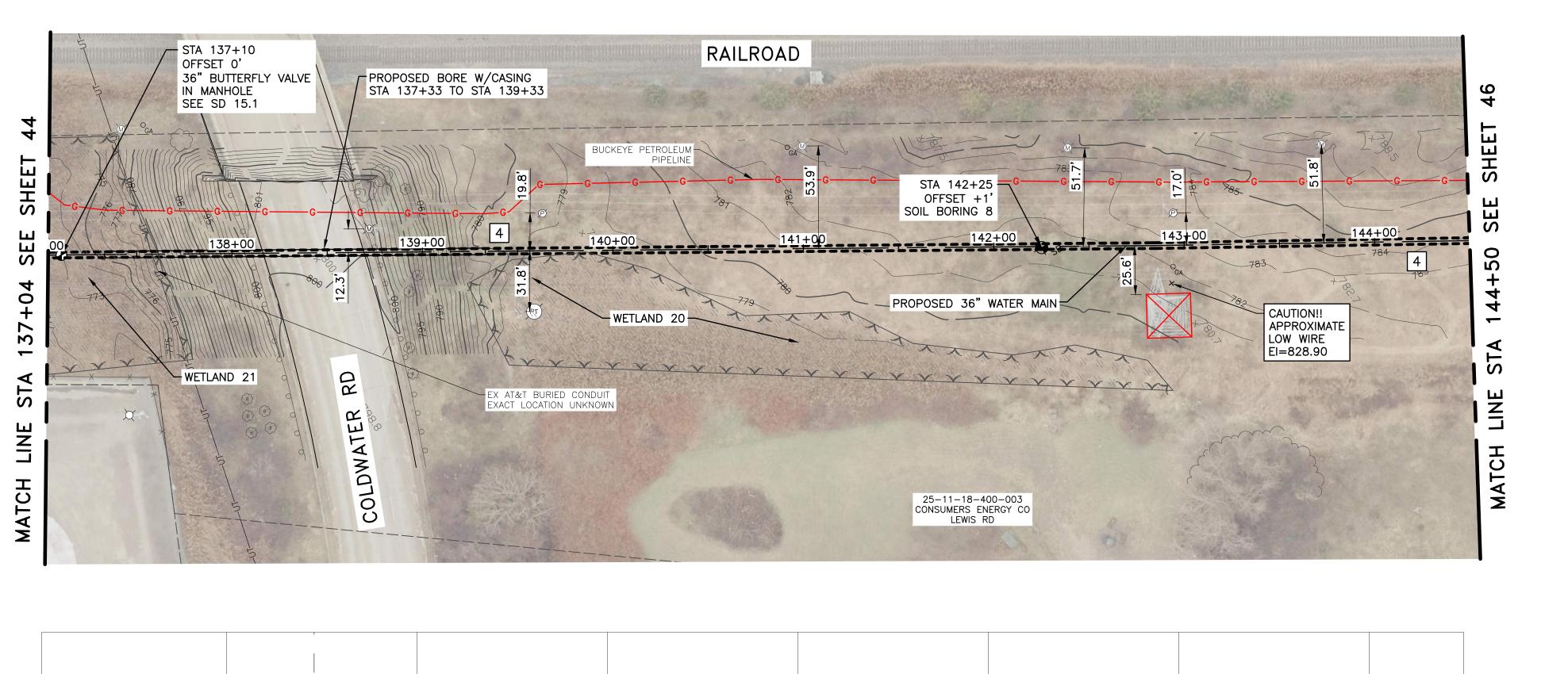
MI 48502

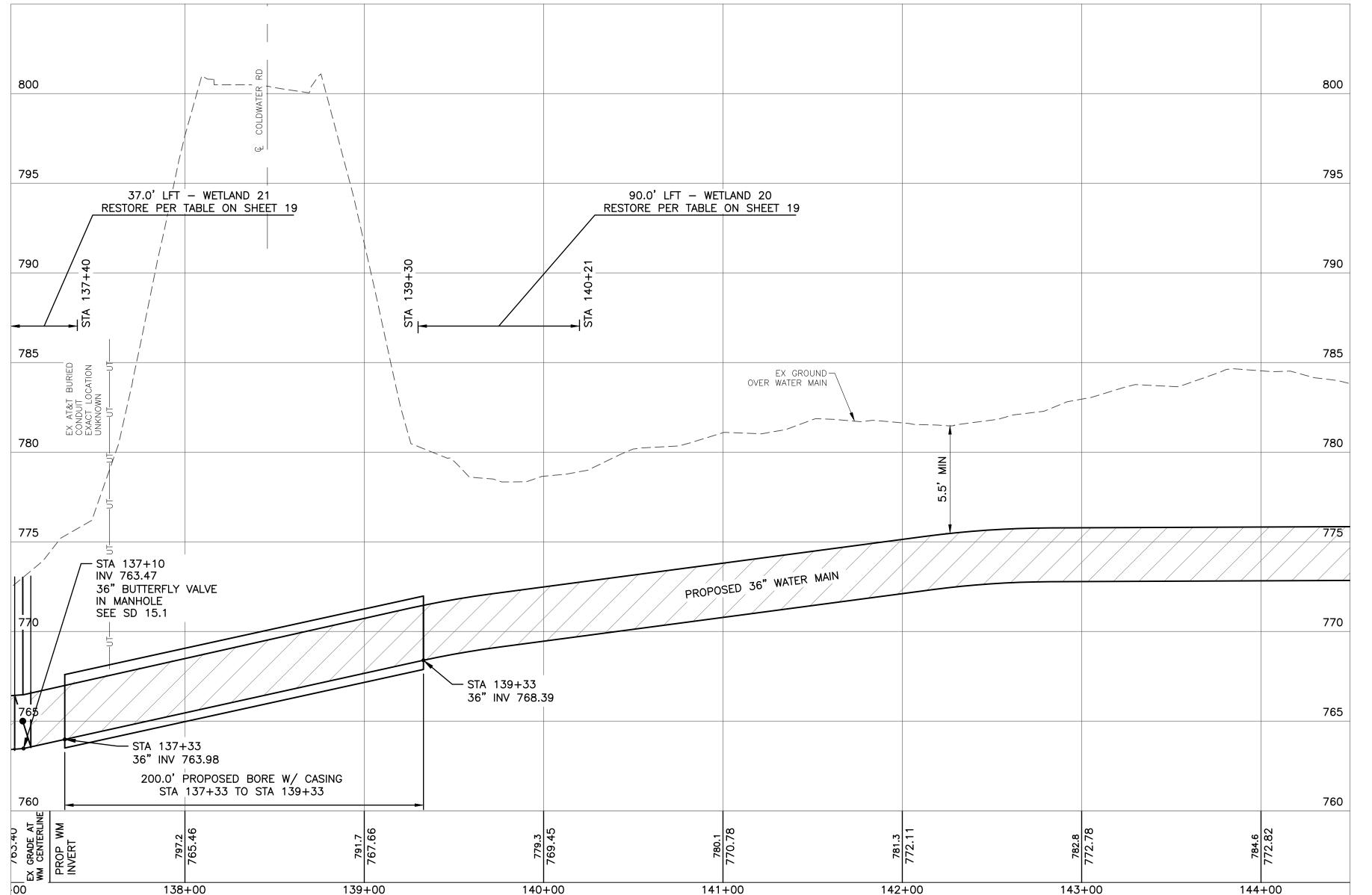
1101 S. SAG. FLINT, N

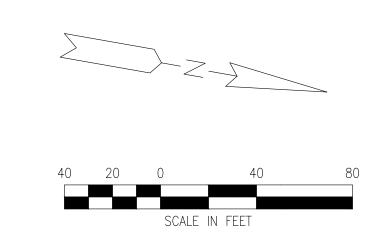
UED FOR: DATE:

JOB NO. COF1068.01F

EET A A







<u>NOTES</u>

- 1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
- 2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
- 3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.
- 4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED PRIOR TO REPLACING.
- 5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
- 6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20–23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS WILL BE AT CONTRACTOR'S EXPENSE.
- 7. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY. AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT CONTRACTOR'S EXPENSE.

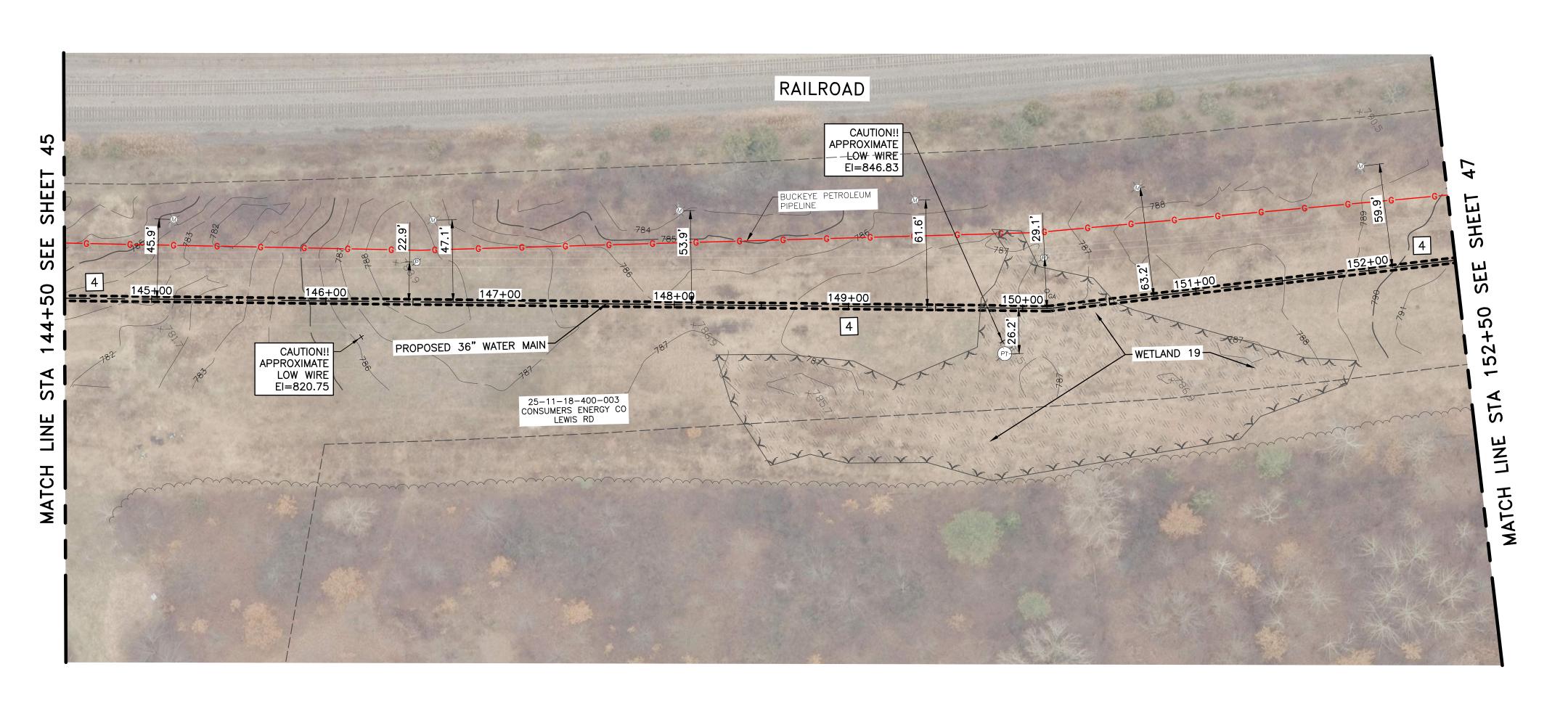
FLINT
IAW STREET
48502
WATER SUPPLY

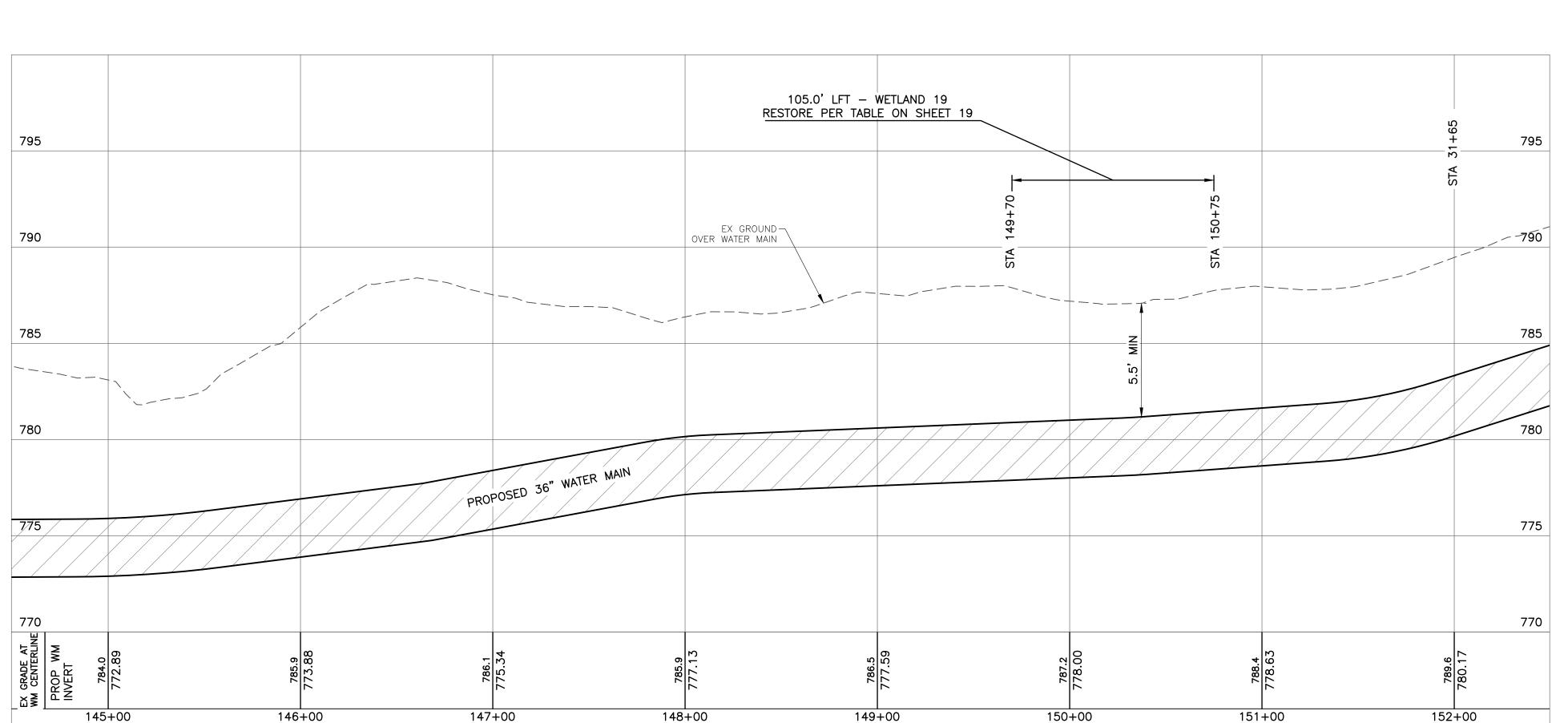
CITY OF FLINOS SAGINAW FLINT, MI 485
" SECONDARY WATER LAN AND PROFILE SH

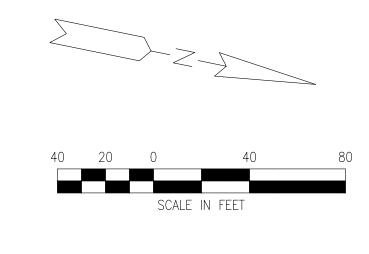
JED FOR: DATE:

OF1068.01F

45



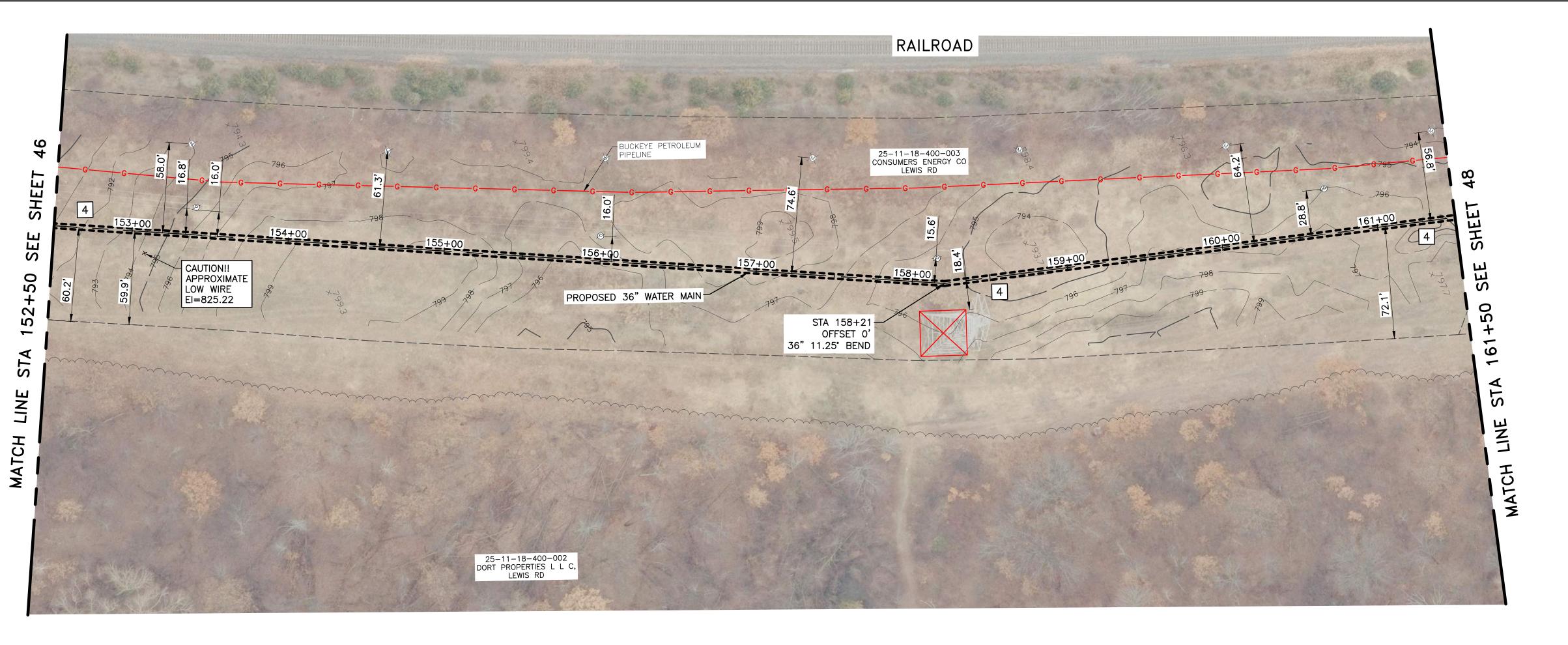




- 1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
- 2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
- 3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.
- 4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED PRIOR TO REPLACING.
- 5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
- 6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20-23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS WILL BE AT CONTRACTOR'S EXPENSE.
- 7. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY. AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT CONTRACTOR'S EXPENSE.

FLINT IAW STREET 48502 OF AGIN,

0



EX GROUND -

OVER WATER MAIN

PROPOSED 36" WATER MAIN

STA 158+21

INV 785.24

158+00

159+00

160+00

161+00

36"- 11.25° BEND

157+00

800

795

790

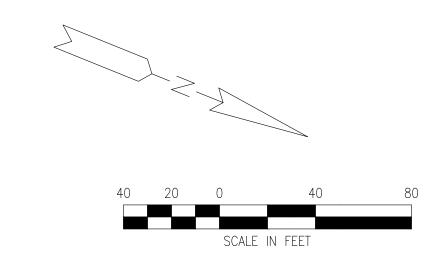
780

153+00

154+00

155+00

156+00





ER SUPPLY SHEEET 21

800

- 1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN
- FLINT IAW STREET 48502 2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL OF AGIN, VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
- SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.
- 4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED
- 5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
- 6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20-23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS WILL BE AT CONTRACTOR'S EXPENSE.
- MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY. AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT CONTRACTOR'S EXPENSE.

<u>NOTES</u>

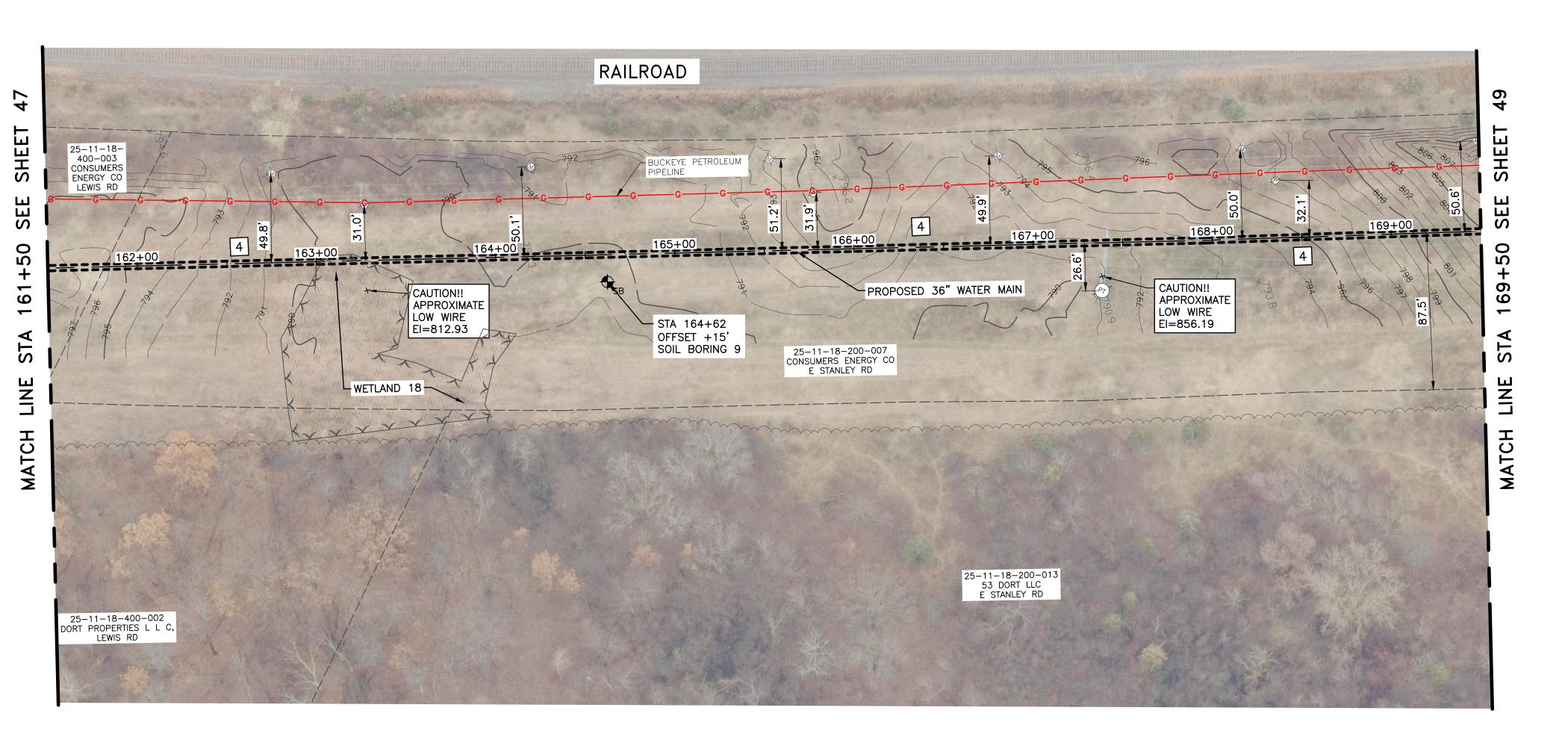
EXISTING ELECTRIC POWER POLE OR TOWER.

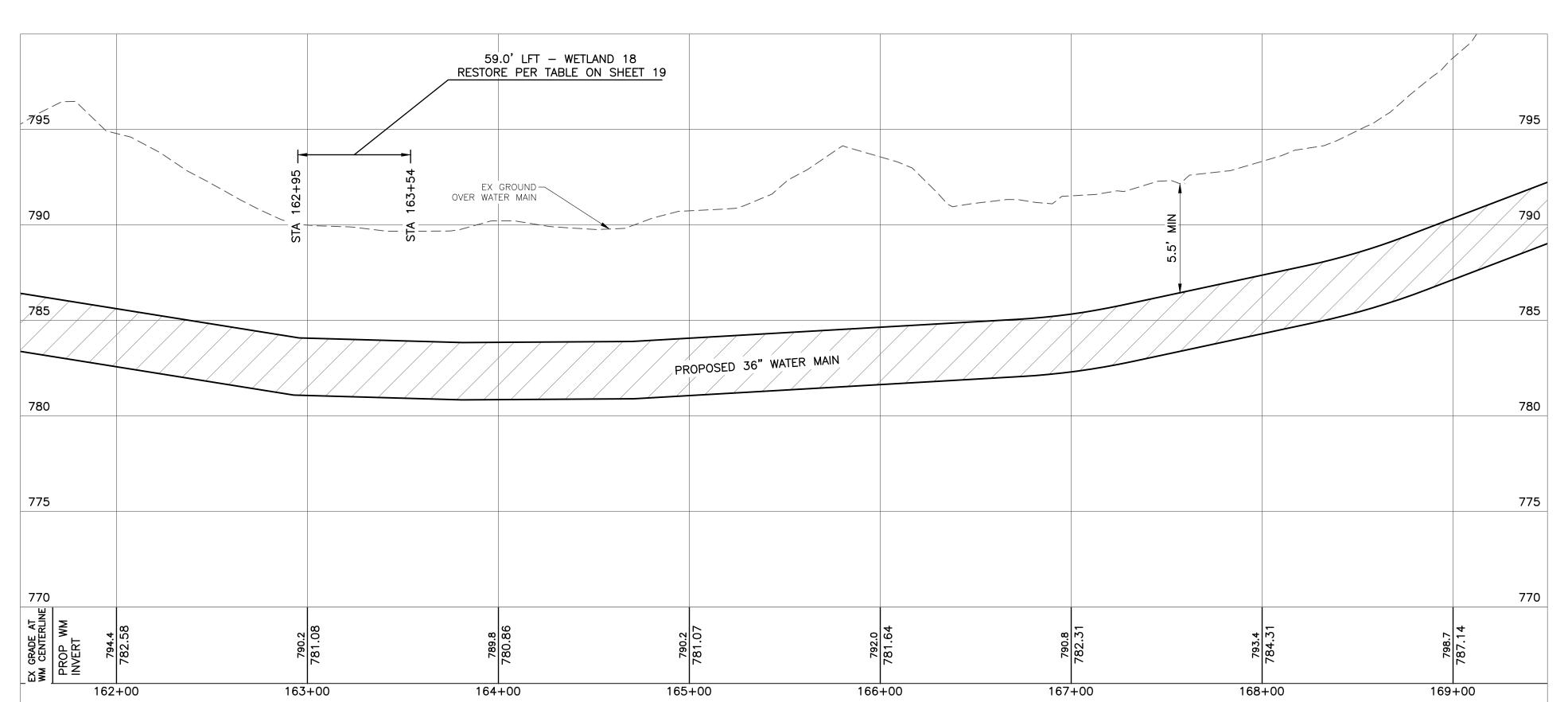
3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN

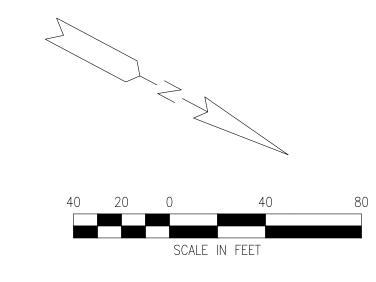
PRIOR TO REPLACING.

7. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION

0







555 S. Saginaw Street, Suite 201 Flint, MI 48502 810.235,2555 www.wadetrim.com

W STREET
8502
TER SUPPLY
SHEEET 22

FY OF FLINT SAGINAW STREET NT, MI 48502

1101 S. SAG FLINT, I 36" SECONDARY PLAN AND PRO

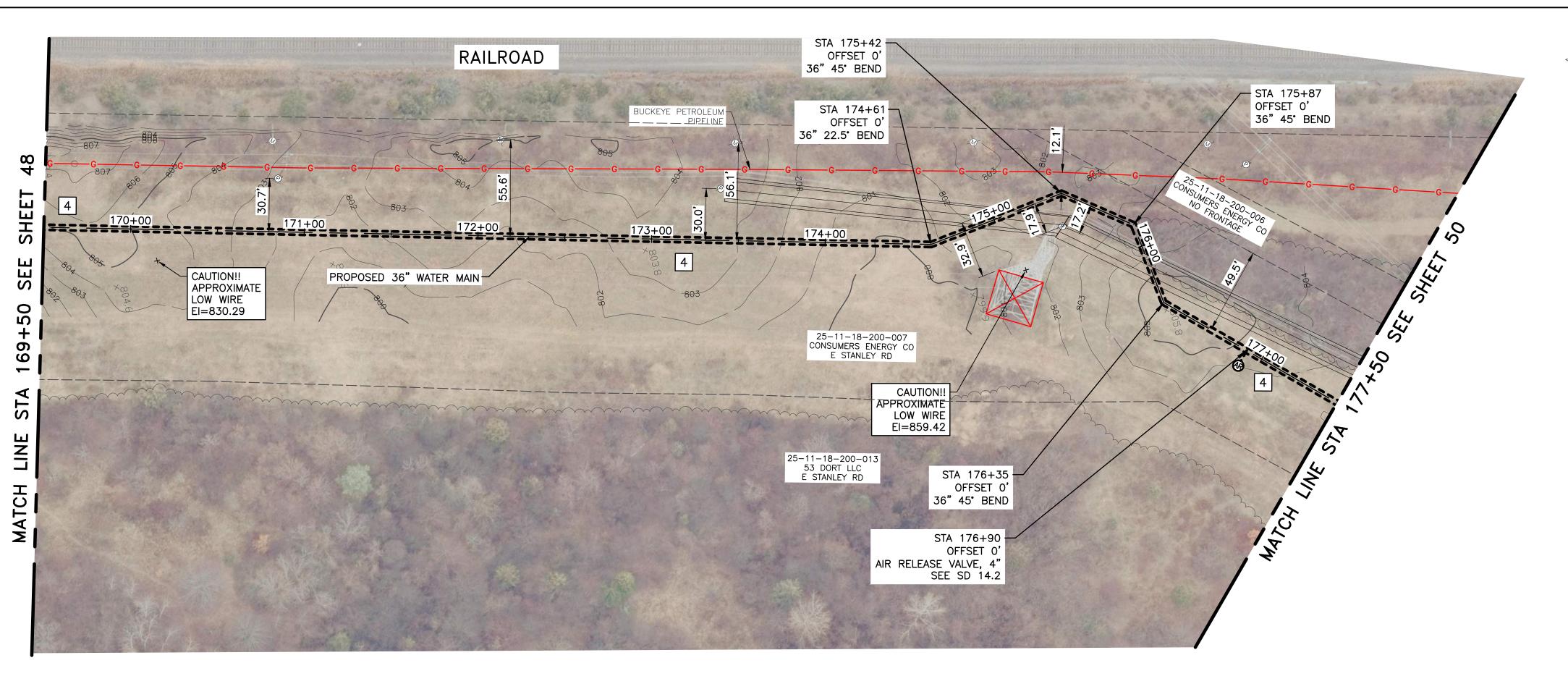
ED FOR: DATE

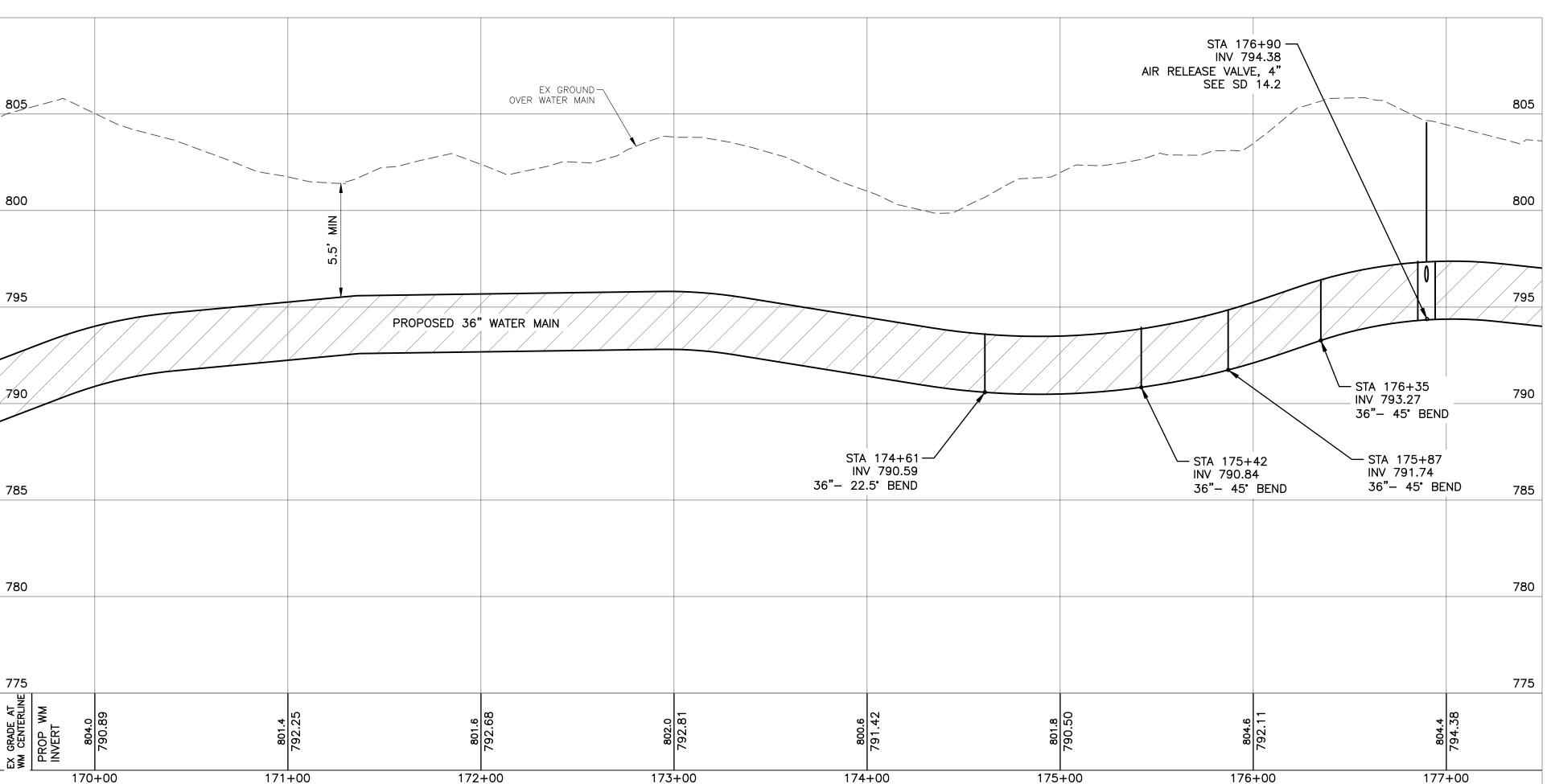
COF1068.01F

48

<u>NOTES</u>

- 1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
- 2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
- 3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.
- 4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED PRIOR TO REPLACING.
- 5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
- 6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20–23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS WILL BE AT CONTRACTOR'S EXPENSE.
- 7. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY. AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT CONTRACTOR'S EXPENSE.





<u>NOTES</u>

- 1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
- 2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
- 3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.
- 4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED PRIOR TO REPLACING.
- 5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
- 6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20-23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS WILL BE AT CONTRACTOR'S EXPENSE.
- 7. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY. AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT CONTRACTOR'S EXPENSE.

S55 Flint 810.1



SAGINAW STREET
NT, MI 48502
NDARY WATER SUPPLY
PROFILE SHEEET 23

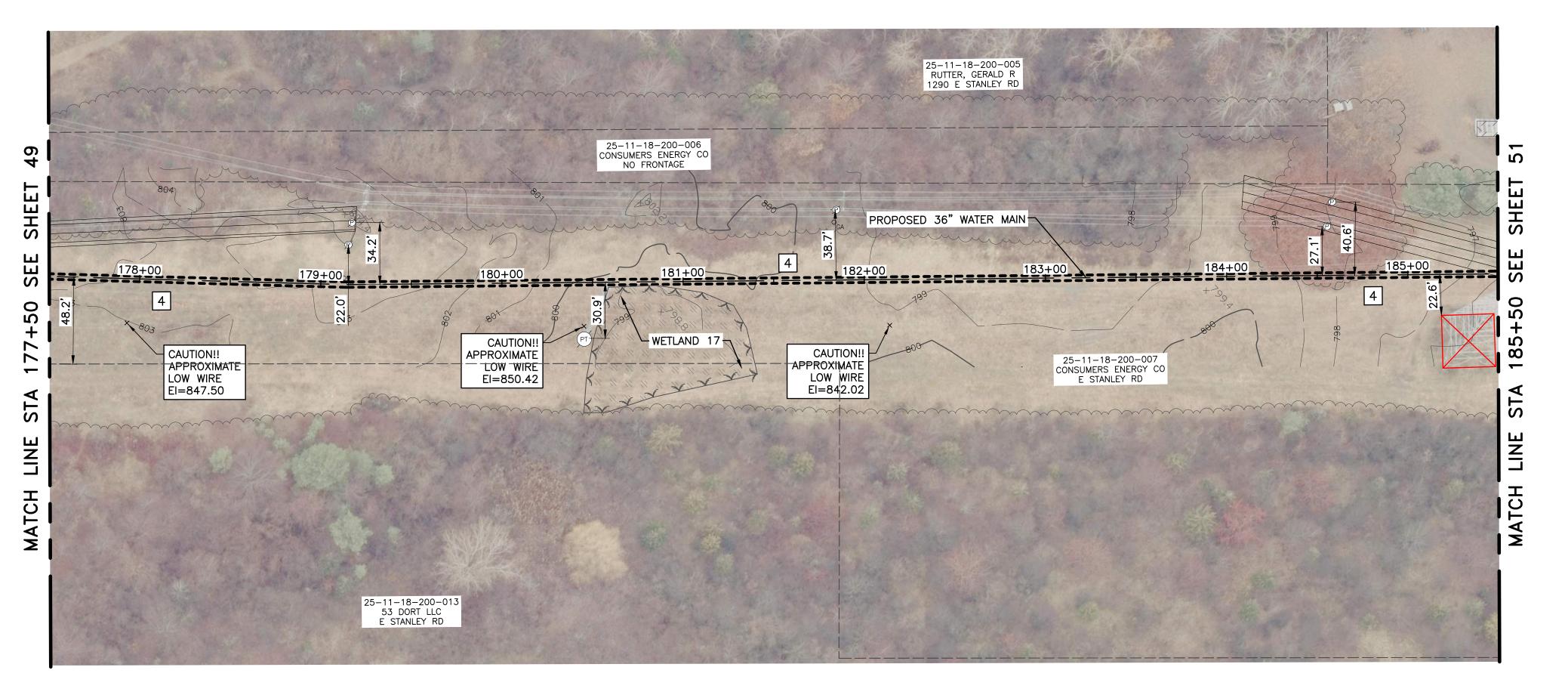
1101 S. FLIN 36" SECON PLAN AND

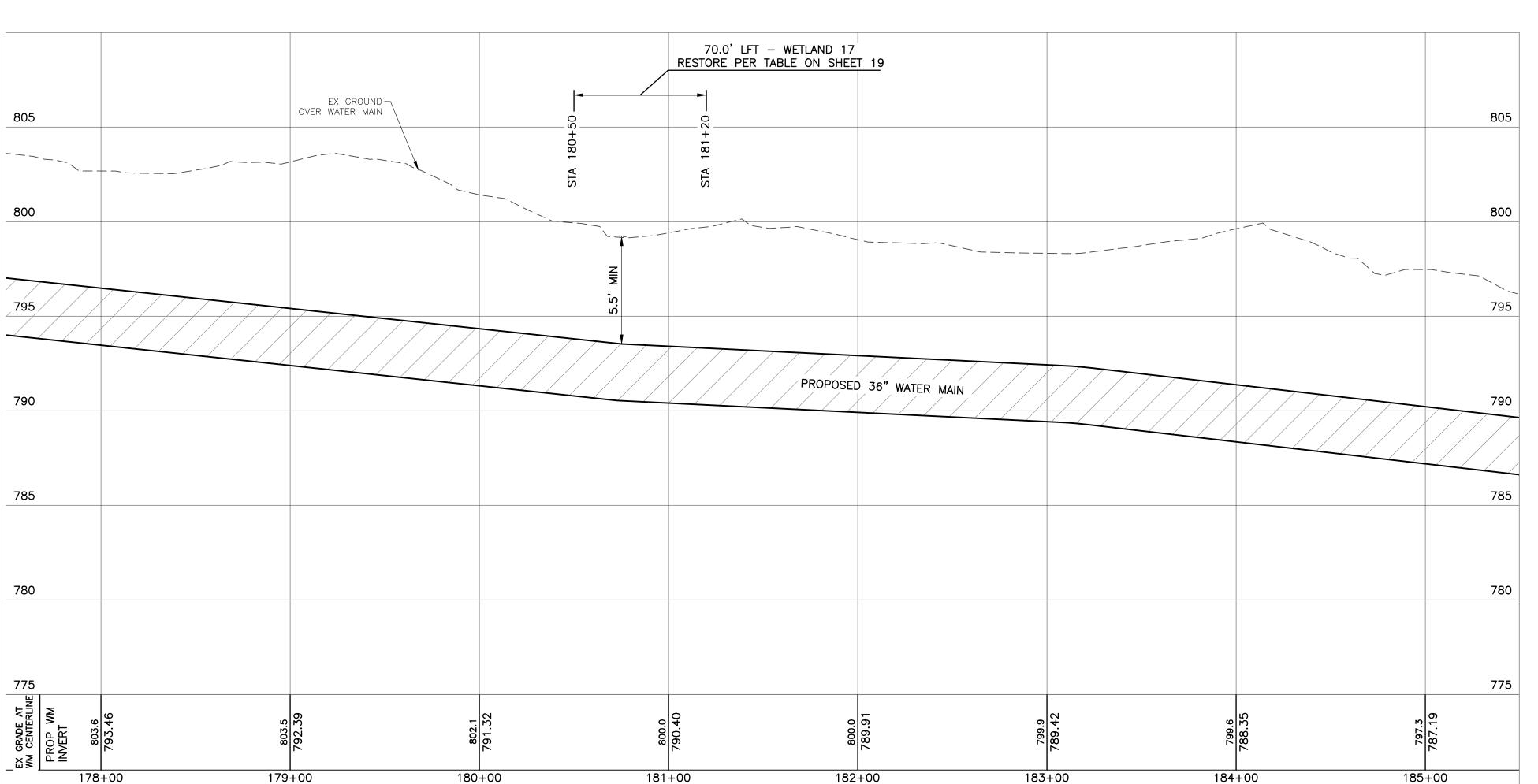
JED FOR: DATE:

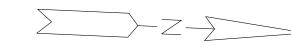
JOB NO. COF1068.01F

SHEET

49









SCALE IN FEET

<u>NOTES</u>

- 1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
- 2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
- 3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.
- 4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED PRIOR TO REPLACING.
- 5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
- 6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20-23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS WILL BE AT CONTRACTOR'S EXPENSE.
- 7. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY. AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT CONTRACTOR'S EXPENSE.

FLINT

VAW STREET

1 48502

WATER SUPPLY

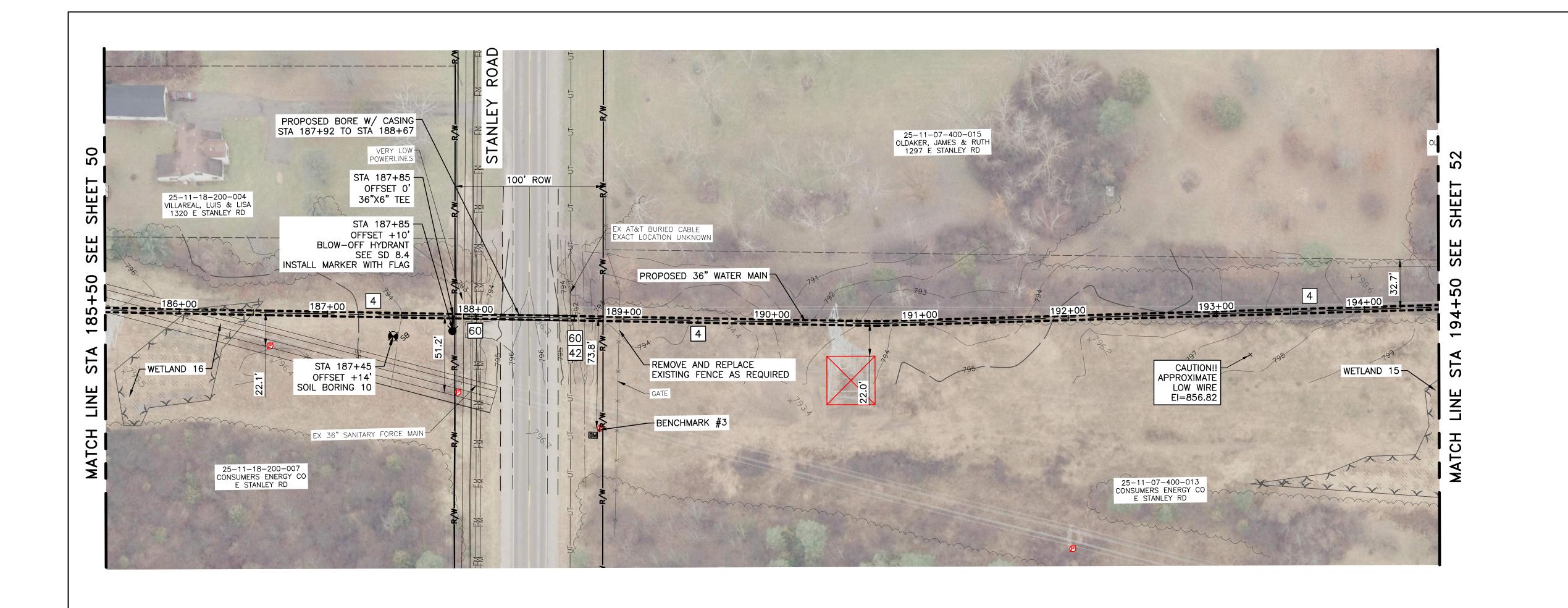
LE SHEEET 24

ITY OF FLINT
S. SAGINAW STF
INT, MI 48502
CONDARY WATER SU

SSLIED FOR: DAT

JOB NO. COF1068.01F

ET



PROPOSED 36" WATER MAIN

192+00

193+00

191+00

EX GROUND -

OVER WATER MAIN

- STA 188+67

189+00

36" INV 778.37

75.0' PROPOSED BORE

W/ CASING

STA 187+92 TO

STA 188+67

190+00

-EX 12" RCP

CULVERT

INV 792.2±

70.0' LFT - WETLAND 16 RESTORE PER TABLE ON SHEET 19

> FINISHED GRADE -AT HYDRANT

> > 793.74 +/-

EX 36" SAN FORCE MAIN CROSSING TEXACT LOCATION AND DEPTH UNKNOWN

STA 187+69 —

INV 784.72

STA 187+78 —

INV 775.62

STA 187+85 -

SEE SD 8.4

187+00

INV 775.84

STA 187+92 ─

188+00

36" INV 776.05

36"- 45° BEND

36" X 6" TEE FOR

BLOW-OFF HYDRANT

36"- 45° BEND

PROPOSED 36" WATER MAIN

800

795

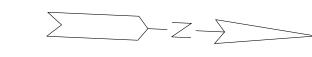
790

785

780

775

186+00





BENCHMARK #3
BM TIE SOUTH FACE OF PP N SIDE OF STANLEY IN CENTER OF ITC CORRIDOR ELEV=796.56



- TLINT W STRE 48502 PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
- SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.
- 4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED
- DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
- 6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20-23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS
- 7. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY. AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT

800

795

770

194+00

1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.

3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN

PRIOR TO REPLACING.

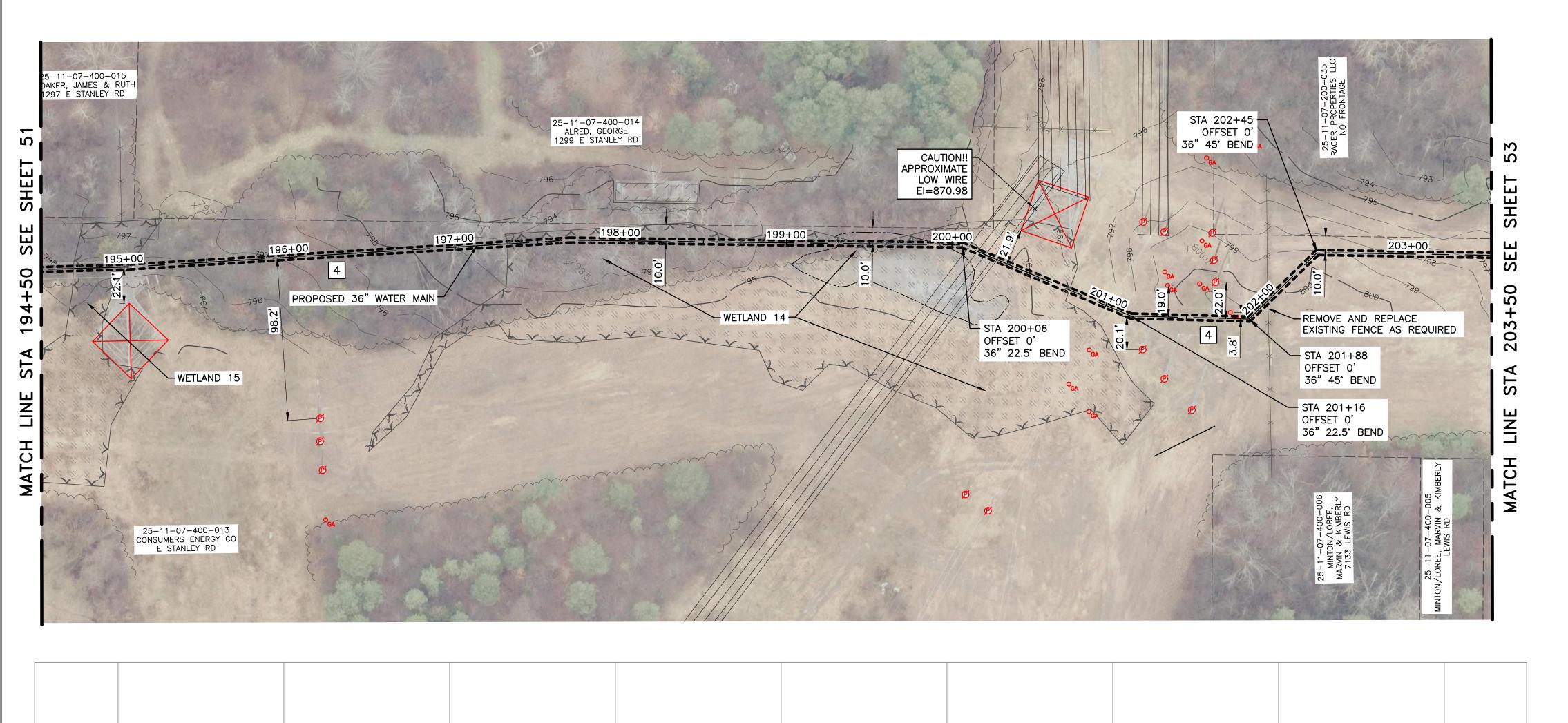
5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE

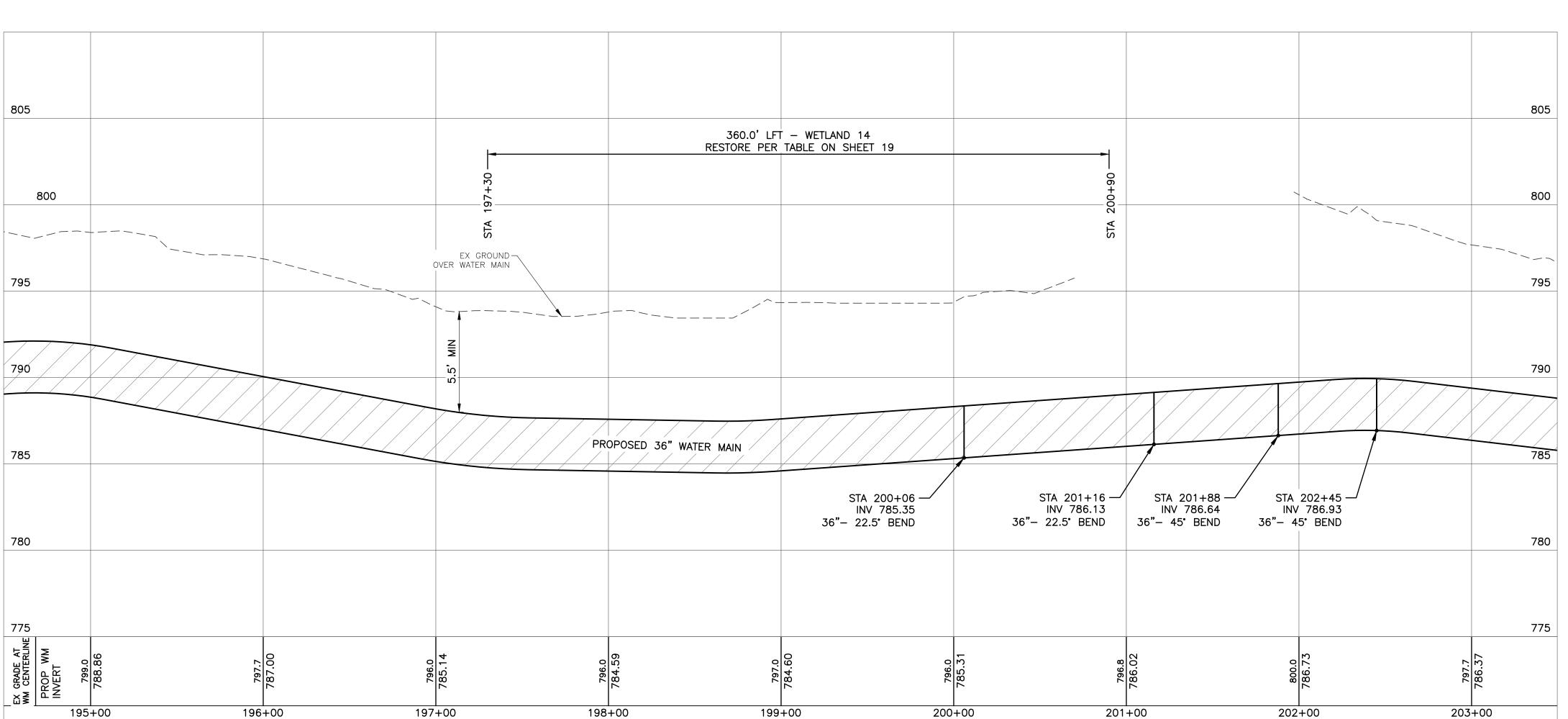
WILL BE AT CONTRACTOR'S EXPENSE.

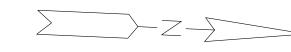
CONTRACTOR'S EXPENSE.

OF GIN

0





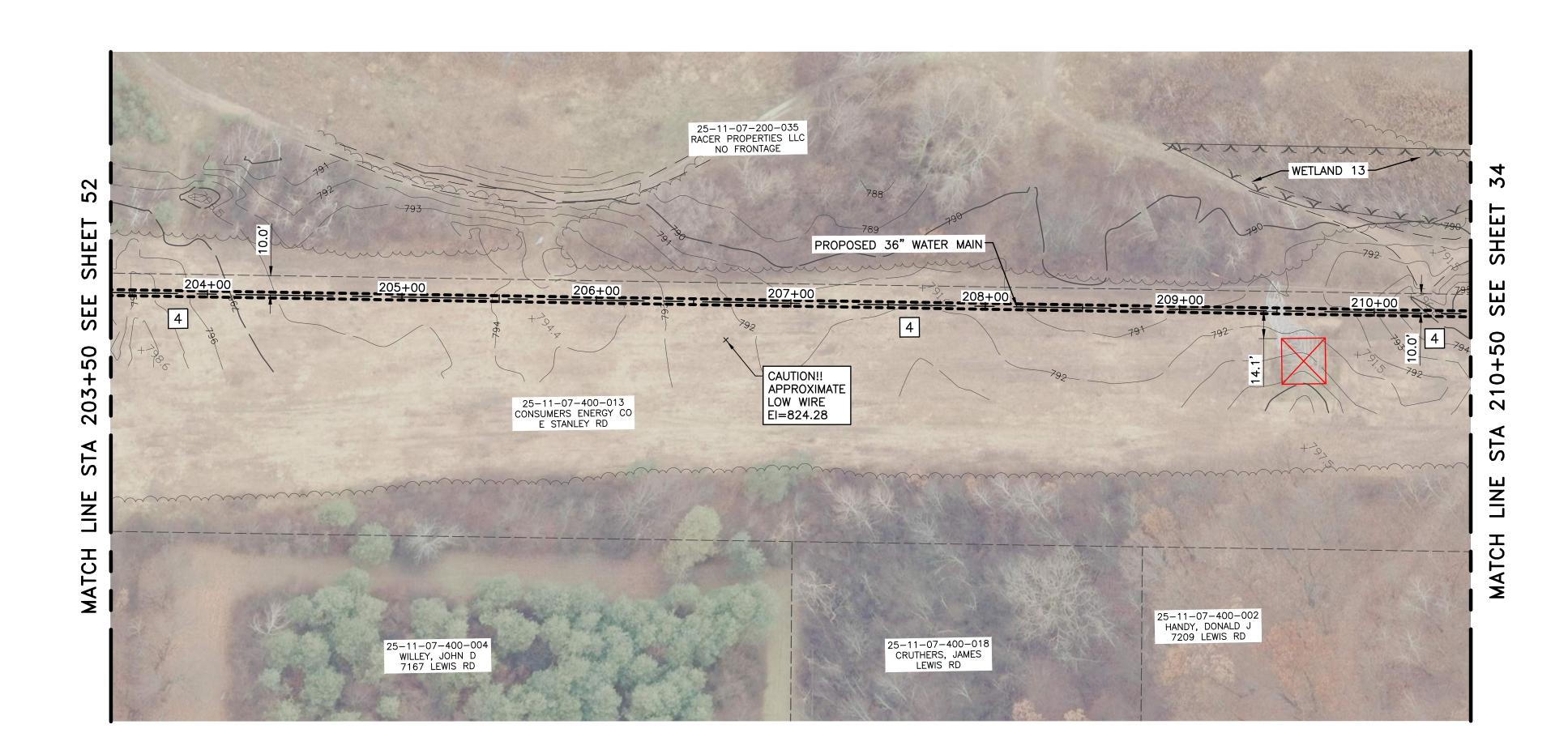


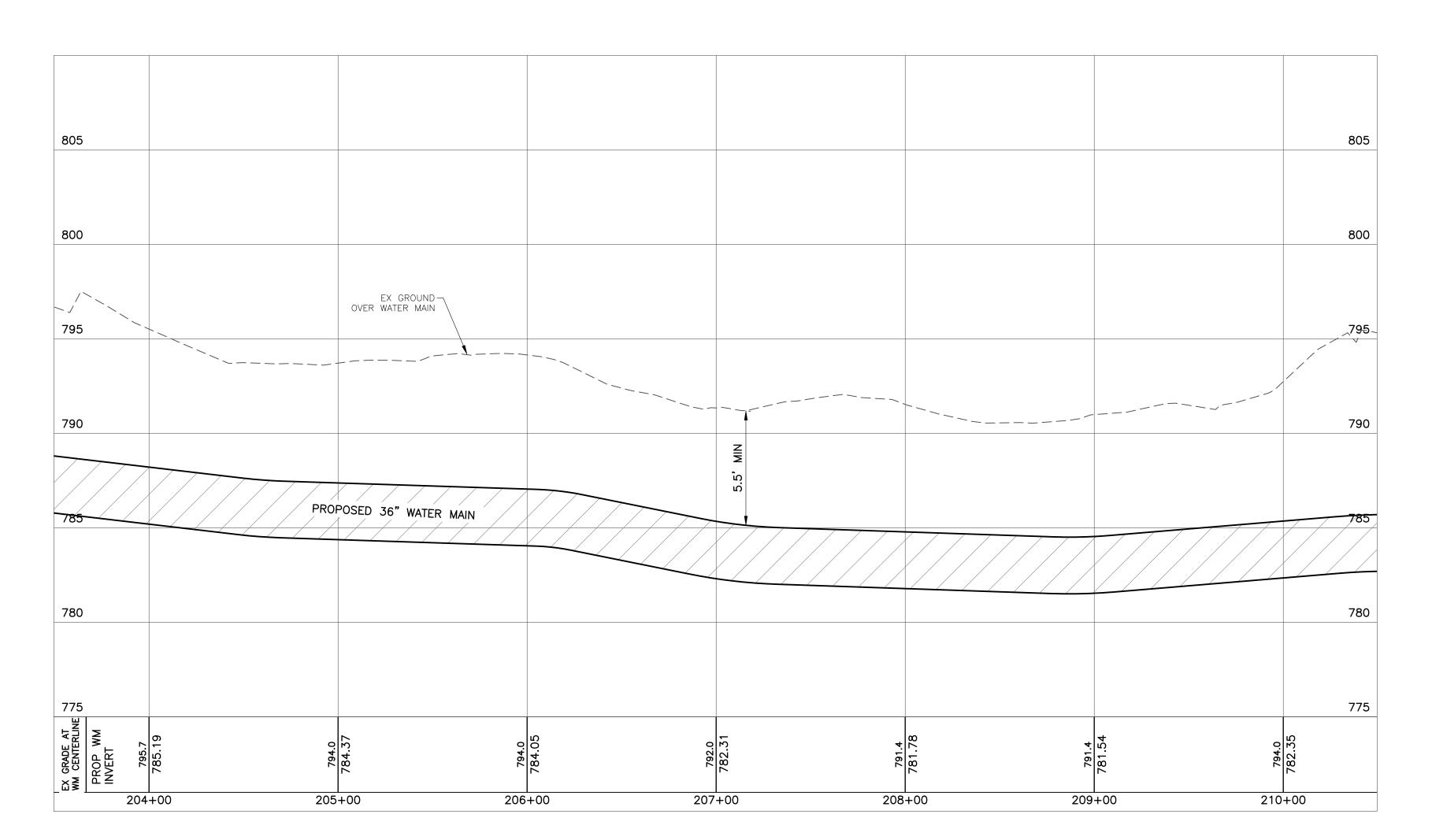


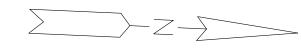


- 1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
- FLINT IAW STRE 48502 2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL OF AGIN, ', MI VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
- 3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.
- 4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED PRIOR TO REPLACING.
- 5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
- 6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20-23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS WILL BE AT CONTRACTOR'S EXPENSE.
- 7. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY. AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT CONTRACTOR'S EXPENSE.

0









<u>NOTES</u>

- 1. THE CONTRACTOR SHALL USE A TRENCH BOX IN ANY LOCATION WHERE THE PROPOSED WATER MAIN IS TO BE CONSTRUCTED LESS THAN 20' FROM AN EXISTING ELECTRIC POWER POLE OR TOWER.
- 2. PRIOR TO BEGINNING THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO EXPOSE ALL EXISTING UTILITIES THAT CROSS OR ARE WITHIN THE INFLUENCE OF THE PROPOSED CONSTRUCTION, SO THE ENGINEER MAY DETERMINE IF A CONFLICT EXISTS BETWEEN AN EXISTING UTILITY AND THE PROPOSED WORK. ALL LABOR REQUIRED TO UNCOVER THE EXISTING UTILITY SHALL BE CONSIDERED INCLUSIVE TO THE UNIT PRICE OF THE WATER MAIN. THE CONTRACTOR SHALL VERIFY THE UTILITY SIZE, MATERIAL, DEPTH AND HORIZONTAL LOCATION OF ALL UTILITIES IN SUFFICIENT TIME SUCH THAT ANY CONFLICTS CAN BE RESOLVED BEFORE WORK IS STARTED.
- 3. ALL EXISTING UTILITIES SHALL BE PROPERLY SUPPORTED AND REMAIN IN SERVICE AT ALL TIMES DURING THE PROJECT, UNLESS OTHERWISE INDICATED.
- 4. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE, OR REPLACED AS CALLED FOR ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SIZE AND MATERIAL REQUIRED PRIOR TO REPLACING.
- 5. ANY EXISTING STORM OR SANITARY SEWER PIPES THAT COME APART OR ARE DAMAGED IN THE CITY OF FLINT WILL NEED TO BE REPLACED WITH SDR-26 OR SCHEDULE 40 PVC PIPE, FROM MANHOLE TO MANHOLE. NEW MANHOLES CAN BE ADDED TO MINIMIZE LENGTH OF SEWER REPLACEMENT. ANY STORM AND SANITARY SEWER PIPES THAT ARE DAMAGED OUTSIDE OF THE CITY OF FLINT SHALL BE REPLACED IN KIND AT THE CONTRACTORS EXPENSE.
- 6. REGULATED WETLANDS HAVE BEEN DELINEATED, NUMBERED AND SHOWN ON THE PLANS ALONG THE PROPOSED WATER MAIN ROUTE. FOR WETLAND RESTORATION THE CONTRACTOR SHALL REFER TO THE TABLE LOCATED ON PLAN SHEET 19 ALONG WITH DETAILS ON SHEETS 20-23. CONTRACTOR SHALL LIMIT THE EXTENT OF CONSTRUCTION ACTIVITIES WITHIN DELINEATED WETLANDS TO REDUCE IMPACTS OF SUCH ACTIVITIES TO THE WETLANDS. AREAS DISTURBED BY CONTRACTOR OUTSIDE OF THE AREAS DESIGNATED IN THE WETLAND RESTORATION DETAILS WILL BE AT CONTRACTOR'S EXPENSE.
- 7. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES ALONG THE TRANSMISSION MAIN ROUTE TO REDUCE IMPACTS OF SUCH ACTIVITIES ON THE REMAINDER OF THE PROPERTY, INCLUDING ON PROPERTIES OWNED BY CONSUMERS ENERGY. AREAS DISTURBED OUTSIDE OF THE DESIGNATED EASEMENT WILL BE AT CONTRACTOR'S EXPENSE.

FLINT IAW STREET 48502 OF AGIN,

0