



IOWA COMMUNICATIONS NETWORK

SAC CITY MIDDLE SCHOOL FIBER RELOCATION PROJECT

FIBER INSTALLATION

SAC COUNTY, SAC CITY, IOWA



509 SOUTH GILBERT STREET
 IOWA CITY, IA 52240
 PHONE: (319) 338-7557
 STATE OF IOWA, DEPARTMENT OF LABOR
 REGULATION NO. 00527328

PROJECT INFORMATION

SCOPE OF WORK:

THE ICN IS RELOCATING FROM THE SAC CITY MIDDLE SCHOOL TO A NEW ICN SHELTER AT THE SAC CITY ELEMENTARY SCHOOL AT 400 S 16TH ST., SAC CITY, IA. THIS REQUIRES NEW OSP CONSTRUCTION TO CONNECT TO EXISTING ICN, UPN, G4S AND SCHALLER TELEPHONE CABLES AND/OR SPLICE LOCATIONS.

THE ICN INTENDS TO INSTALL A 48-STRAND ARMORED CABLE CONNECTION FROM NEW ICN SHELTER LOCATED AT NW CORNER OF THE MAINTENANCE BUILDING ON THE SAC COMMUNITY ELEMENTARY SCHOOL PROPERTY AT S. 16TH STREET, SAC CITY, IA AND CONNECT TO THE EXISTING ICN, SCHALLER, AND G4S CABLES AND ENDS AT THE UPN HANDHOLE ON AUDUBON STREET AT THE SW CORNER OF S. 10TH STREET. THIS WILL REQUIRE CONDUIT OF APPROXIMATELY 4,314 FEET AND A TOTAL CABLE FOOTAGE OF APPROXIMATELY 5,614 FEET. THIS INCLUDES A DROP TO THE SAC CITY ELEMENTARY SCHOOL. CONTRACTOR IS REQUIRED TO COORDINATE WITH ICN ON THE CUT OVER OF EXISTING CABLES FOR DINKS 510-4FA AND G4S-4FA WITH ICN. CREWS WILL BE REQUIRED FOR CABLE PULLING DURING CUTOVER; AFTER HOURS 22:00 TO 6:00.

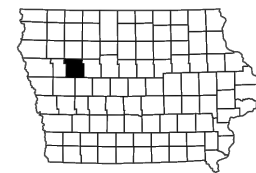
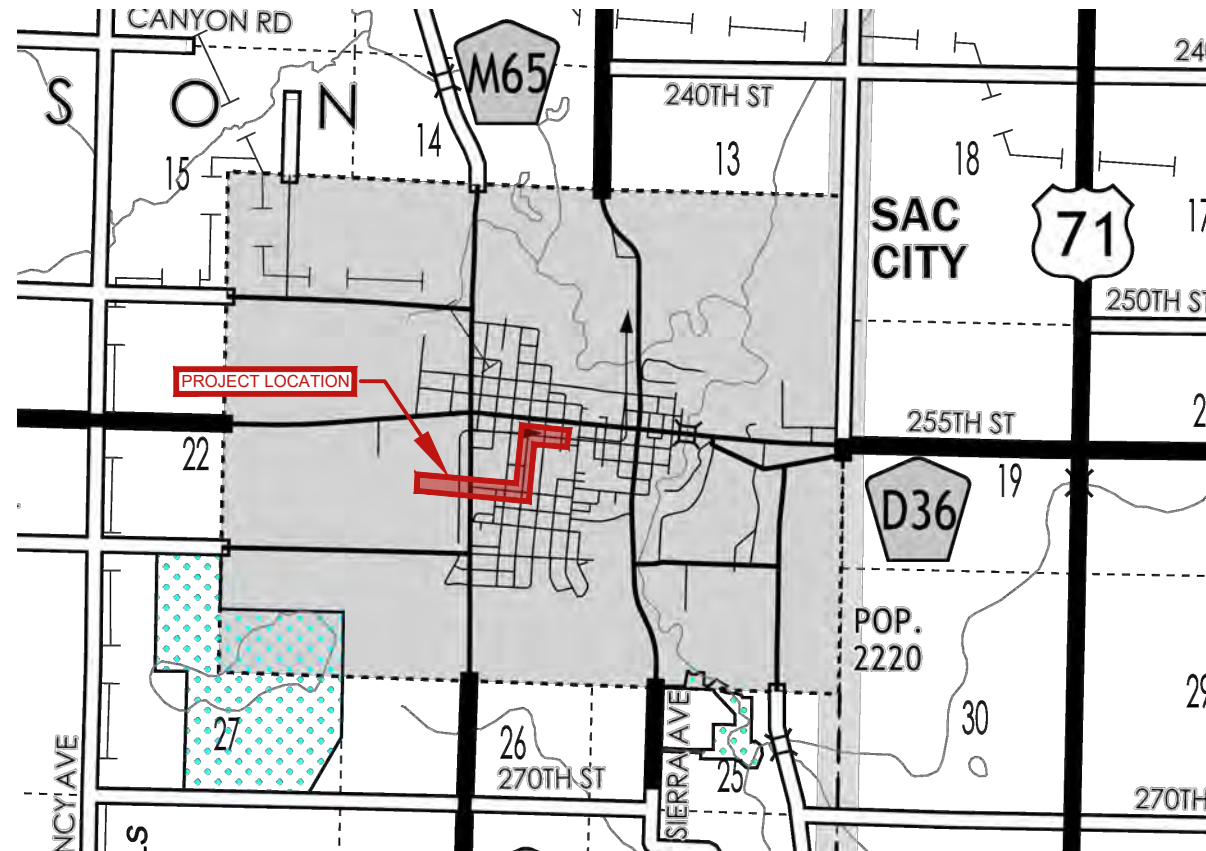
CONTACT PERSON:

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LOCATION MAP



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UTILITY CONTACTS

COMPANY	CONTACT NAME	PHONE	PHONE
BELT TELEPHONE COMPANY (CBT)	LARRY NEPL	(712) 664-2221	CORNBELT@NETINS.NET
FRONTIER COMMUNICATIONS (FCI)	URANAN THAO	(515) 573-1268	FRONTIERLOCATEMAPSIA@FTR.COM
IOWA COMMUNICATIONS NETWORK (ICN)	SHANNON MARLOW	(800) 572-3940	ICNOUTSIDEPLANTIOWAONECALL@IOWA.GOV
MIDAMERICAN-ELEC (M56E)	MARK WITTRUCK	(712) 749-7116	MARK.WITTRUCK@MIDAMERICAN.COM
MIDAMERICAN-GAS (M56G)	BRIAN SEWELL	(515) 574-5042	BSEWELL@MIDAMERICAN.COM
WINDSTREAM COMMUNICATIONS (MFS)	LOCATE DESK	(800) 289-1901	LOCATE.DESK@WINDSTREAM.COM
SAC CITY, CITY OF (SAC)	ADAM LEDFORD	(712) 662-7593	SACCITYAL@PRAIRIENET.NET
SCHALLER TELEPHONE COMPANY (STC)	JIM KESTEL	(712) 275-4211	LOCATES@SCHALLERTEL.NET
MEDIACOM (T11)	MIKE LAWLER	(515) 571-2183	MLAWLER@MEDIACOMCC.COM
UNITE PRIVATE NETWORKS, LLC (UPN)	JOE KILZER	(816) 425-3556	UPNGIS@UPNFIBER.COM
WINDSTREAM COMMUNICATIONS (WINIA)	LOCATE DESK	(800) 289-1901	LOCATE.DESK@WINDSTREAM.COM
SAC CITY PUBLIC WORKS	TOM CRABB	(712) 662-7593	MAINTENANCE@SACCITY.CITY

NOTE:
 CALL 811 FOR LOCATION OF UNDERGROUND TELEPHONE, ELECTRIC, GAS MAINS, CABLE TELEVISION AND OTHER UTILITIES.

EXISTING UNDERGROUND AND OVERHEAD UTILITIES AND DRAINAGE STRUCTURES HAVE BEEN PLOTTED FROM AVAILABLE INFORMATION AND THEREFORE, THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS THE RESPONSIBILITY OF THE INDIVIDUAL CONTRACTORS TO EXACTLY LOCATE AND PROTECT EACH EXISTING UTILITY BEFORE AND DURING ACTUAL CONSTRUCTION.



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2	PERMIT PLANS	11/29/2022
3	FINAL PERMIT PLANS	12/1/2022
4		

IOWA COMMUNICATIONS NETWORK
 400 EAST 14TH STREET
 GRIMES STATE OFFICE BUILDING
 DES MOINES, IOWA 50319
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*THIS CONTACT LIST IS NOT ALL-INCLUSIVE. CONTRACTOR IS RESPONSIBLE FOR REQUESTING LOCATES OF ALL UTILITIES.

ENGINEER GENERAL NOTES AND LEGEND

ALL CONDUIT AND HANDHOLE INSTALLATIONS, REMOVALS, MODIFICATIONS, AND TEMPORARY WORK SHALL BE DONE ACCORDING TO THE FOLLOWING NON-INCLUSIVE CONDITIONS:

SECTION 1.0 SCOPE OF WORK

1.01 INSTALLATION DESCRIPTION:

INSTALL CONDUIT AND ALL RELATED APPURTENANCES FOR FIBER OPTIC CABLE INSTALLATION. SEE PLANS FOR EXACT LOCATION, LENGTHS, QUANTITIES, AND DIMENSIONS OF PROPOSE IMPROVEMENTS.

1.02 SEE SHEET 3 FOR LOCATION OF ENGINEER'S ESTIMATE OF MATERIALS.

1.03 THE CONTRACTOR SHALL PROVIDE ALL MATERIAL, EQUIPMENT, LABOR, INSTALLATION, RESTORATION, UTILITY RELOCATION CHARGES, JOB SITE DELIVERY COSTS AND INCIDENTALS TO COMPLETE THE DESCRIBED OR ILLUSTRATED WORK, UNDER THIS CONTRACT.

1.04 ANY CHANGE-ORDER REQUEST MUST BE PRESENTED IN WRITING TO THE OWNER'S REPRESENTATIVE AND APPROVED PRIOR TO PROCEEDING WITH THE REQUESTED CHANGE. DOCUMENTATION CONCERNING ANY AND ALL CHANGE ORDERS WILL BE REDUCED TO FORMAL RECORD, FILED WITH THE OWNER'S REPRESENTATIVE, AND BE MADE AVAILABLE FOR FUTURE REFERENCE.

1.05 THE CONTRACTOR SHALL PROVIDE A MINIMUM 48 HOUR ADVANCED NOTICE TO HBK ENGINEERING (319-338-7557) TO SCHEDULE A PRE-CONSTRUCTION WALK THROUGH WITH A HBK ENGINEERING REPRESENTATIVE. THIS WALK THROUGH MUST BE COMPLETED PRIOR TO THE COMMENCEMENT OF ANY WORK WITHIN THE LIMITS OF THIS PROJECT.

1.06 THE ENGINEER WILL NOT BE RESPONSIBLE NOR ASSUME ANY LIABILITY FOR NEGLIGENT ACTS OR ERRORS OF OMISSIONS OF ANY CONTRACTOR, ANY SUBCONTRACTOR, OR ANY OF THE CONTRACTOR'S OR SUBCONTRACTORS' AGENTS OR EMPLOYEES OR ANY OTHER PERSONS (EXCEPT ENGINEER'S OWN EMPLOYEES) AT THE PROJECT SITE OR OTHERWISE PERFORMING ANY OF THE WORK OF THE PROJECT. ANY CONTRACTOR OR SUBCONTRACTOR, AS WELL AS THE ENGINEER, WILL BE RESPONSIBLE FOR HIS OWN SAFETY PROGRAM. NEITHER THE PROFESSIONAL ACTIVITIES OF THE ENGINEER, NOR THE PRESENCE OF THE ENGINEER OR HIS OR HER EMPLOYEES AND SUB-CONSULTANTS AT THE CONSTRUCTION SITE, SHALL RELIEVE ANY CONTRACTOR OF HIS OR HER OBLIGATIONS, DUTIES AND RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING OR COORDINATING ALL PORTIONS OF THE WORK OF CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ANY HEALTH OR SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES. THE ENGINEER AND HIS OR HER PERSONNEL HAVE NO AUTHORITY TO EXERCISE ANY CONTROL OVER ANY CONSTRUCTION CONTRACTOR OR OTHER ENTITY OR THEIR EMPLOYEES IN CONNECTION WITH ANY HEALTH OR SAFETY PRECAUTIONS.

SECTION 2.0 MATERIALS

2.01 ALL MATERIALS INSTALLED WITHIN THE LIMITS OF THIS PROJECT SHALL BE IN CONFORMANCE WITH STANDARD RECOMMENDATIONS OF THE NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION (NEMA) AND AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI).

2.02 ALL TRENCHED CONDUIT, ELBOWS, AND COUPLINGS SHALL BE HDPE UNLESS OTHERWISE NOTED. ALL BORED CONDUIT AND COUPLINGS SHALL BE HDPE SDR-13 UNLESS OTHERWISE NOTED.

2.03 JOB SITE MATERIAL WILL BE DELIVERED TO AND MAINTAINED AT THE STREET WORK AREAS IN A WELL MANAGED MANNER, TO MINIMIZE CONGESTION OR INCONVENIENCE TO OTHER WORKERS, OR CONTRACTORS WORKING UNDER ALTERNATE PERMITS.

SECTION 3.0 GENERAL NOTES

3.01 CONTRACTOR IS ADVISED TO READ ALL NOTES ON DRAWINGS, CAREFULLY.

3.02 THE CONTRACTOR SHALL VERIFY EXISTING STREET RIGHTS OF WAY TO THE EXTENT NECESSARY TO VERIFY PROPOSED WORK REMAINS WITHIN THESE RIGHTS OF WAY AND DOES NOT INFRINGE ON PRIVATE PROPERTY NOT OWNED BY THE OWNER.

3.03 SCALE FOR DRAWINGS IS FOR GENERAL INFORMATION ONLY. LOCATIONS AND DIMENSIONS SHALL BE TAKEN AS SHOWN AND THE DRAWINGS SHALL NOT BE SCALED.

3.04 CONTRACTOR SHALL COORDINATE ALL WORK WITH ALL PUBLIC AND PRIVATE UTILITIES AS WELL AS CITY AND STATE AGENCIES.

3.05 INSTALL CONDUIT MINIMUM OF 10'-0" BELOW ALL WATERWAYS AND CULVERT CROSSINGS. CONTRACTOR TO VERIFY CULVERT DEPTH PRIOR TO CONDUIT INSTALLATION.

3.06 NUMEROUS ELEVATION CHANGES. TOPOGRAPHY LINES SHOWN ON DRAWING FOR REFERENCE ONLY.

3.07 DUE TO EXISTING FORESTED AREAS, SOME TREE REMOVAL AND TRIMMING REQUIRED FOR CONDUIT OR HANDHOLE INSTALLATION WITHIN THE RIGHT-OF-WAY.

3.08 RIGHT OF WAY LOCATIONS ARE APPROXIMATE. FIBER INSTALLATION 6'-0" MINIMUM OFF RIGHT-OF-WAY.

SECTION 4.0 SAFETY

4.01 CONTRACTOR SHALL TAKE ALL NECESSARY SAFETY PRECAUTIONS TO PROTECT UTILITIES, PEDESTRIANS, WORKERS AND VEHICULAR TRAFFIC. THE CONTRACTOR SHALL PROVIDE TEMPORARY FENCES, BARRICADES, ETC. AS REQUIRED TO PROTECT ADJACENT PROPERTY AND THE PUBLIC DURING ALL PHASES OF CONSTRUCTION.

4.02 THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY BARRICADES, SIGNAGE, WARNING LIGHTS AND OTHER DEVICES AND KEEP ALL TRAFFIC CONTROL OPERATIONAL 24 HOURS A DAY AT ALL OPEN TRENCH LOCATIONS AND AT LOCATIONS WHICH DO NOT HAVE A FINISHED SURFACE OR ROAD PLATES.

4.03 THE CONTRACTOR SHALL COORDINATE INGRESS AND EGRESS TO ADJACENT PROPERTIES AND/OR CONSTRUCTION AFFECTED BY THE PROPOSED WORK.

SECTION 5.0 EXISTING UTILITIES

5.01 EXISTING CONDITIONS, STRUCTURES, UTILITIES AND SURFACE FEATURES SHOWN WERE OBTAINED FROM UTILITY ATLASES AND FROM DRAWINGS FURNISHED BY THE VARIOUS UTILITIES AND ARE ASSUMED TO BE ACCURATE AND CORRECT. THE CONTRACTOR SHALL PERFORM HIS OWN SURVEY AND VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS OF EXISTING STRUCTURES PRIOR TO STARTING ANY WORK.

5.02 FOR BORED INSTALLATIONS, THE CONTRACTOR SHALL PERFORM TEST HOLES AT ALL UTILITY CROSSINGS TO VERIFY THE LOCATION AND ELEVATION OF ALL UTILITIES PRIOR TO ANY EXCAVATION, AND TO LOCATE ANY POSSIBLE OBSTRUCTIONS. ALL TEST HOLES SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

5.03 FOR TRENCHED INSTALLATIONS, THE CONTRACTOR SHALL PERFORM TEST HOLES PER PLAN OR AS DEEMED NECESSARY TO VERIFY THE LOCATION AND ELEVATION OF ALL UTILITIES PRIOR TO ANY EXCAVATION, AND TO LOCATE ANY POSSIBLE OBSTRUCTIONS. ALL TEST HOLES SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

5.04 THE CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL OVERHEAD OBSTRUCTIONS PRIOR TO THE COMMENCEMENT OF WORK.

5.05 EXISTING UTILITIES ARE SHOWN AT THEIR APPROXIMATE LOCATION. THE CONTRACTOR SHALL CONTACT IOWA ONE CALL AT 1(800)-292-8989 A MINIMUM OF 48 HOURS (EXCLUDING WEEKENDS AND GOVERNMENT HOLIDAYS) PRIOR TO COMMENCEMENT OF ANY PAVEMENT CUTS OR EXCAVATION TO REQUEST LOCATING AND MARKING OF EXISTING UTILITIES PRIOR TO PERFORMING ANY EXCAVATION WORK IN OR AROUND ANY UTILITY.

5.06 ALL EXCAVATION WORK NEAR AND AROUND EXISTING STRUCTURES AND UTILITIES SHALL BE BY HAND METHOD.

5.07 ALL DISCREPANCIES SHOULD BE REPORTED TO ENGINEER OF RECORD AT HBK ENGINEERING (319-338-7557). ANY QUESTIONS OR COMMENTS THE CONTRACTOR MAY HAVE ARE TO BE DISCUSSED WITH THE OWNER AND ENGINEER PRIOR TO CONSTRUCTION.

5.08 FURTHER, THE CONTRACTOR SHALL RECORD THE LOCATION AND ELEVATION OF ALL UTILITIES ENCOUNTERED, AND INSTALLATION OF NEW WORK, AS THE WORK PROGRESSES AND SHALL PREPARE RECORD DRAWINGS (RED-LINES) BASED ON HIS RECORDS. AS PART OF THE RECORD DRAWINGS, CONTRACTOR SHALL ALSO PROVIDE HORIZONTAL AND VERTICAL CONFIGURATION OF CONDUITS WHERE MULTIPLE CONDUITS ARE INSTALLED. THESE RECORDS TO BE SUPPLIED TO HBK ENGINEERING, LLC AT COMPLETION OF WORK.

5.09 AT SEWER DRAINS FROM HOMES OR OTHER BUILDINGS, IF THERE IS INTERFERENCE, REPLACE INKIND. IN ALL CASES WHERE SEWER WORK IS DONE, A PERMIT SHOULD BE OBTAINED AND A SEWER INSPECTOR SHOULD BE PRESENT DURING THE WORK.

5.10 CONTRACTOR SHALL SUPPORT ALL WATER MAINS IN EXCESS OF 12" IN DIAMETER WITH A PERMANENT TYPE OF STRUCTURE UNLESS OTHERWISE NOTIFIED BY THE WATER DEPARTMENT, AND IS INCLUDED IN COST FOR DOING THE WORK. AT NO TIME DURING CONSTRUCTION SHALL WATER MAINS GO UNSUPPORTED FOR A SPAN GREATER THAN 8'-0".

5.11 CONTRACTOR RESPONSIBLE FOR OBTAINING AND PROVIDING REVIEW AND DESIGN OF ANY AND ALL TEMPORARY UTILITY SUPPORT SYSTEMS PRIOR TO CONSTRUCTION.

5.12 CONTRACTOR SHALL NOTIFY ALLIANT IN SITUATIONS WHERE STEEL PIPE CONDUCTOR IS NICKED DURING EXCAVATION. ALLIANT WILL EVALUATE THE EXTENT OF THE DAMAGE SO AS TO DETERMINE WHETHER REPAIR IS REQUIRED PRIOR TO BACKFILL AND GRADE SURFACE RESTORATION.

SECTION 6.0 WORK

6.01 NO STORAGE OF EQUIPMENT OR MATERIALS IN THE ROADWAY IS PERMITTED UNLESS THE CONTRACTOR OBTAINS WRITTEN PERMISSION FROM THE CITY, STATE, AND/OR GOVERNING BODY.

6.02 THE CONTRACTOR SHALL MARK ALL OPENINGS ON THE SURFACE PRIOR TO THE COMMENCEMENT OF EXCAVATION. ALL OPENINGS ON PAVED SURFACES SHALL BE SAW CUT PRIOR TO REMOVAL OF PAVEMENT.

6.03 CONTRACTOR RESPONSIBLE FOR OBTAINING AND PROVIDING REVIEW AND DESIGN OF ANY AND ALL SHORING SYSTEMS PRIOR TO CONSTRUCTION.

6.04 CONTRACTOR SHALL ASSUME ALL ELECTRICAL CABLES ARE ENERGIZED AND SHALL BE SUPPORTED SO AS NOT TO STRESS ANY PORTION OF THE CABLE.

6.05 CONTRACTOR SHALL PROVIDE APPROPRIATE ENGINEERED DE-WATERING MEASURES, IF NECESSARY, TO ENSURE GROUNDWATER TABLE REMAINS AT A DEPTH BELOW THE BASE OF THE EXCAVATION AT ALL TIMES DURING EXCAVATION, INSTALLATION AND BACKFILLING OPERATIONS.

6.06 THE ENGINEER SHALL BE NOTIFIED FOR RESOLUTION OF SITUATIONS WHERE CONDUIT DEPTH BELOW GRADE DEVIATES BY MORE THAN 3" AS CURRENTLY SHOWN ON PLAN/PROFILE DRAWINGS.

6.07 THE ENGINEER SHALL ALSO BE NOTIFIED FOR DISPOSITION OF SITUATIONS WHERE THE CONDUIT CANNOT MAINTAIN SEPARATIONS PER PLAN.

SECTION 7.0 RESTORATION

7.01 THE CONTRACTOR SHALL OBTAIN A PERMIT TO PERFORM ALL RESTORATION WORK IN THE CONTRACTOR'S NAME. ALL PAVING SHALL BE COMPLETED WITHIN 15 WORKING DAYS AFTER EXCAVATION IS BACKFILLED UNLESS OTHERWISE ARRANGED IN ADVANCE WITH GOVERNING AGENCY.

7.02 CONTRACTOR SHALL BREAK OUT SIDEWALK, DRIVEWAY, CURB AND GUTTER, PAVEMENT AND RESTORE TO PERMANENT CONDITION. CONTRACTOR TO CONFORM CONCRETE TO COLOR, FINISH, AND TEXTURE OF EXISTING SIDEWALKS, CURB AND GUTTER.

7.03 THE CONTRACTOR IS RESPONSIBLE FOR THE RESTORATION OF THE AREAS DISTURBED BY CONSTRUCTION ACTIVITIES. CONTRACTOR TO PAY ALL FEES AND OBTAIN ALL PERMITS FOR RESTORATION.

7.04 THE CONTRACTOR IS TO RESTORE ALL DAMAGED STRUCTURES AND UTILITIES TO THE SATISFACTION OF THE FACILITY OWNER, IN THE EVENT THAT DAMAGE OCCURS.

LEGEND

FENCE	
EXISTING ROW LINE	
EXISTING FIBER OPTIC LINE	
EXISTING OVERHEAD LINE	
EXISTING STORM DRAIN	
EXISTING ELECTRIC (BURIED)	
EXISTING GAS LINE	
EXISTING STORM SEWER	
EXISTING SANITARY SEWER	
EXISTING WATER LINE	
EXISTING ICN FIBER	
EXISTING ICN (AERIAL)	
EXISTING ICN CONDUIT	
TO BE ABANDONED	
PROPOSED ICN FIBER	
PROPOSED AERIAL	
PROPOSED ICN CONDUIT	
CENTERLINE OF ROAD	
EXISTING WATERWAY BOUNDARY	
PROPOSED ICN HANDHOLE	
EXISTING ICN HANDHOLE	
EXISTING HANDHOLE (BY OTHERS)	
EXISTING STORM CULVERT LOCATION	
EXISTING STORM MANHOLE	
EXISTING STORM INLET	
EXISTING SANITARY MANHOLE	
EXISTING SANITARY CLEAN OUT	
EXISTING FIBER OPTIC MANHOLE	
EXISTING FIBER OPTIC HANDHOLE	
EXISTING COMMUNICATIONS MANHOLE	
EXISTING COMMUNICATIONS HANDHOLE	
EXISTING COMMUNICATIONS PEDESTAL	
EXISTING ELECTRIC MANHOLE	
EXISTING ELECTRIC TRANSFORMER	
EXISTING ELECTRIC PEDESTAL	
EXISTING ELECTRIC HANDHOLE	
EXISTING UTILITY POLE	
EXISTING GUY ANCHOR	
EXISTING LIGHT POLE	
EXISTING WATER MANHOLE	
EXISTING WATER VALVE	
EXISTING MONITORING WELL	
EXISTING FIRE HYDRANT	
EXISTING NATURAL GAS MANHOLE	
EXISTING NATURAL GAS VALVE	
EXISTING TREE	



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 400 EAST 14TH STREET
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 DES MOINES, IOWA 50319
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ICN GENERAL NOTES

STANDARD INSTALLATION REQUIREMENTS:

GENERAL REQUIREMENTS:

1. THE CONTRACTOR SHALL POTHOLE ALL EXISTING UTILITIES.
2. PROVIDE THE OWNERS OF ANY NATURAL GAS UTILITY 48 HOURS ADVANCE NOTICE THAT WORK IS SCHEDULED IN THE VICINITY OF THEIR LINES/MAINS SO THAT THEY CAN PROVIDE STANDBY AND PROTECT SERVICES.
3. MAINTAIN PROOF OF NOTIFICATION TO AND RECEIPT OF NOTIFICATION BY THE GAS UTILITY.
4. PERMITS AND COORDINATION
 - 4.1. SECURE ALL NECESSARY STATE AND LOCAL (CITY, COUNTY, ETC.) PERMITS, PUBLIC OR PRIVATE EASEMENTS, FACILITY PERMITS, USAGE PERMITS, AND ANY OTHER PERMIT REQUIRED BY AN AUTHORITY HAVING JURISDICTION (AHJ). ALL CONTRACTORS AND SUBCONTRACTORS MUST BE LICENSED AND BONDED WITH THE CITY OF CLEAR LAKE.
 - 4.2. ICN WILL OBTAIN AND PROVIDE COPIES OF IDOT PERMITS.
 - 4.3. IF PERMITS ARE REQUIRED TO BE IN THE NAME OF THE OWNER RATHER THAN THE CONTRACTOR, THE CONTRACTOR SHALL PREPARE THE PERMIT FOR THE OWNER'S SIGNATURE.
 - 4.4. COORDINATE INSTALLATION WITH ALL OWNERS AND AHJ OVER THE ROUTE, THE FIBER, RIGHT-OF-WAY AND BUILDINGS IN WHICH END POINTS WILL BE LOCATED.
 - 4.5. FAILURE TO COORDINATE WITH THE AHJ AND TO OBTAIN ALL NECESSARY PERMITS IS AT THE PERIL OF THE CONTRACTOR.
 - 4.6. RIGHT-OF-WAY PERMIT FEES ARE AN AUTHORIZED EXTRA ABOVE THE QUOTED BID PRICE. EXCAVATION PERMITS SHALL BE BY THE CONTRACTOR.
 - 4.7. ENSURE ALL FACILITIES ARE PLACED WITHIN THE PUBLIC RIGHT-OF-WAY.
5. ENSURE THAT PERSONNEL WORKING IN THE ROW ARE EQUIPPED WITH AND USE PROPER SAFETY EQUIPMENT AND ATTIRE.
6. ALL TOOLS AND TEST EQUIPMENT REQUIRED TO DO A PROJECT SHALL BE PROVIDED BY THE CONTRACTOR OR ITS SUBCONTRACTOR(S). SECURITY OF TOOLS AND TEST EQUIPMENT SHALL BE THE RESPONSIBILITY OF EACH WORKER. THE ICN SHALL NOT BE RESPONSIBLE FOR THE SECURITY OF ANY PROPERTY LEFT ON ICN'S PROPERTY OR ON PROPERTY CONTROLLED BY THE ICN OR THE STATE OF IOWA.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTRUCTING ITS EMPLOYEES IN SAFETY MEASURES CONSIDERED APPROPRIATE FOR THE JOB. IN ADDITION, THE CONTRACTOR SHALL NOT PERMIT PLACING OR USE OF TOOLS OR MATERIALS IN TRAFFIC LANES OR OTHER LOCATIONS. THE TOOLS OR MATERIALS SHALL NOT BE PLACED IN SUCH A MANNER SO AS TO CREATE SAFETY HAZARDS TO STATE EMPLOYEES, CONTRACTING AGENCY EMPLOYEES, THE PUBLIC OR THEMSELVES.
8. EXCAVATIONS AND TRENCHES: THE ICN REQUIRES ALL OPEN EXCAVATIONS OR TRENCHES TO BE MONITORED AND ATTENDED TO DURING CONSTRUCTION PER. THE ICN REQUIRES ALL OPEN EXCAVATIONS AND TRENCHES BACKFILLED THE SAME DAY. IF THE CONTRACTOR IS REQUIRED TO LEAVE AN EXCAVATION OR TRENCH OPEN, THEN THE CONTRACTOR SHALL PROPERLY FENCE AND/OR COVER THE EXCAVATION FOR SAFETY. CONTRACTOR SHALL FOLLOW ALL OSHA REQUIREMENTS FOR EXCAVATION AND TRENCH SAFETY.
9. CONTRACTOR AND ITS EMPLOYEES SHALL COMPLY WITH ALL OSHA REGULATIONS. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE STATE AND FEDERAL LAWS.
10. CONTRACTOR SHALL COMPLY WITH ALL IOWA ONE CALL REQUIREMENTS AS PROVIDED BY IOWA CODE, CHAPTER 480.
11. PROVIDE ALL LABOR AND SUPERVISION FOR THE PROJECT.
12. PROVIDE AND INSTALL MATERIALS NEEDED TO RESULT IN A FULLY FUNCTIONAL SYSTEM MEETING ICN STANDARDS, WHETHER OR NOT THE MATERIALS OR METHODS ARE SPECIFICALLY MENTIONED IN THIS DOCUMENT. SEE THE LIST OF ICN-FURNISHED MATERIALS.
13. INSTALL CABLE ROUTE MARKERS FURNISHED BY ICN. WHERE POSSIBLE, INSTALL MARKERS ADJACENT TO POLES, BUILDINGS OR IN OTHER PROTECTED AREAS.
14. A COPY OF THIS SCOPE OF WORK AND THE ENGINEERING PLAN FOR THIS PROJECT SHALL BE ON SITE AND AVAILABLE ANY TIME WORK IS BEING PERFORMED. FAILURE TO HAVE THE REQUIRED DOCUMENTS ON SITE MAY RESULT IN ICN REQUIRING THE CONTRACTOR TO STOP WORKING UNTIL THE REQUIRED DOCUMENTS ARE ON-SITE.
15. SUBCONTRACTORS SHALL MEET THE SAME QUALIFICATIONS STATED FOR CONTRACTORS. CONTRACTOR SHALL OBTAIN APPROVAL OF THE CONTRACTING AGENCY'S PROJECT MANAGER PRIOR TO USING A SUBCONTRACTOR ON ANY PROJECT.
16. RESTORE ALL DAMAGE TO PRIVATE PROPERTY, RIGHT-OF-WAY, ICN PROPERTY, AND ANY OTHER PROPERTY DAMAGED IN THE COURSE OF THE WORK.
 - 16.1. ANY DISRUPTION OF GRASS IN AN INDIVIDUAL'S YARD OR IN A PRIVATE MAINTAINED AREA OF THE PUBLIC RIGHT OF WAY (THE AREA BETWEEN THE SIDEWALK AND THE STREET CURB) MUST BE RESTORED THROUGH RE-SODDING. ANY DISRUPTION OF THE GRASS IN THE MEDIAN WAY OR AN UNIMPROVED SHOULDER MUST BE RESTORED EITHER THROUGH RE-SODDING OR RE-SEEDING AS REQUIRED BY THE ROW OWNER.
 - 16.2. AREAS SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION.
 - 16.3. DIRT SHALL BE MECHANICALLY COMPACTED AROUND HANDHOLES AND PITS.
 - 16.4. LAWNS SHALL BE SODDED WITH LIKE GRASS.
 - 16.5. CONTRACTOR IS RESPONSIBLE FOR WATERING THE SOD UNTIL IT HAS KNITTED TO THE GROUND BENEATH.
 - 16.6. ALL DEBRIS SHALL BE REMOVED FROM THE CONSTRUCTION AREAS INCLUDING BUT NOT LIMITED TO: CONSTRUCTION MATERIALS, TRASH, LARGE OBJECTS OR STONES WITHIN BACKFILLED AREAS, ETC.

DUCT INSTALLATION REQUIREMENTS

1. HDPE DUCT SHALL BE NO LESS THAN 36-42 INCHES DEEP.
2. DUCT SHALL BE INSTALLED IN THE PUBLIC RIGHT-OF-WAY.
3. WHEN CROSSING A HIGHWAY IN DOT RIGHT-OF-WAY, DUCT SHALL BE NO LESS THAN 48 INCHES BELOW GRADE UNDER THE ROADWAY AND SHOULDERS. HDPE MAY BE USED UNDER THE ROADWAY AND SHOULDERS IF INSTALLED AT A MINIMUM DEPTH OF 48".
4. SHOULD IT BE NECESSARY TO CROSS PRIVATE PROPERTY, THE CONTRACTOR MAY APPLY TO THE ICN FOR AN EXCEPTION, AND REQUEST PERMISSION TO SECURE AN EASEMENT. THE EASEMENT IS REQUIRED TO BE IN THE NAME OF ICN AND THE CONTRACTOR SHALL HAVE THE EASEMENT PREPARED BY A LAND SURVEYOR LICENSED IN THE STATE OF IOWA. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FEES UNLESS PREVIOUSLY AUTHORIZED BY THE ICN.
5. AT THE CONCLUSION OF THE PROJECT, PROVIDE AND LEAVE A PULL ROPE IN ALL DUCTS, CONDUITS AND PATHWAYS, INCLUDING INDOOR, OUTDOOR, NEW AND EXISTING.
6. DIRT SHALL BE MECHANICALLY COMPACTED AT ALL DUCT SPLICES, BORE PITS AND AROUND HANDHOLES.
7. GROUND SHALL BE RESTORED TO THE CONDITION FOUND PRIOR TO CONSTRUCTION AND DEBRIS REMOVED PRIOR TO SODDING OR SEEDING.
8. ALL CONDUITS SHALL BE PLUGGED VIA DUCT SEAL OR OTHER METHOD UPON COMPLETION OF CABLE INSTALLATION.
9. IF SCHEDULE 40 PVC CONDUIT IS UTILIZED, ALL ANGLES (45, 90 DEGREE OR OTHER) REQUIRE FITTINGS TO LONG SWEEP TO ACCOMMODATE MINIMUM CABLE BEND RADIUS.
10. THE ICN REQUIRES PICTURES BY THE CONTRACTOR AND/OR ON-SITE INSPECTION BY ICN STAFF PRIOR TO COMPLETION OF THE PROJECT WHERE PIPE AND FITTINGS ARE NOT EXPOSED; I.E. UNDERGROUND, BEHIND A WALL, ETC.

HANDHOLE REQUIREMENTS

1. INSTALL HANDHOLES SO THAT THE LID IS LEVEL AND FLUSH WITH THE SURROUNDING NATURAL GRADE. THE LID SHALL NOT EXTEND ABOVE THE SURROUNDING NATURAL GRADE.
2. PROVIDE 3/4" OPENING HARDWARE CLOTH TYPE SCREEN WIRE BELOW THE HANDHOLE.
3. PROVIDE 5-6 INCHES OF 3/4" CRUSHED ROCK BELOW THE HANDHOLE. ROCK SHALL BE COMPACTED. GRAVEL SHALL EXTEND A MINIMUM OF 6 INCHES BEYOND THE OUTSIDE WALLS OF THE HANDHOLE. DO NOT USE PEA GRAVEL OR OTHER ROUND STONE.
4. DO NOT PLACE GRAVEL INSIDE HANDHOLE ABOVE THE HARDWARE CLOTH.
5. CONDUIT SHALL EXTEND A MINIMUM OF 6" ABOVE THE HARDWARE CLOTH/GRAVEL.
6. FAILURE OF THE CONTRACTOR TO INSTALL HANDHOLES AS SPECIFIED WILL CAUSE THE CONTRACTOR TO RETURN AND RE-INSTALL THE HANDHOLE ACCORDING TO THIS SPECIFICATION BEFORE PAYMENT FOR THE PROJECT IS MADE.
7. HANDHOLE INSTALLATIONS SHALL FOLLOW ICN STANDARD TYPICAL INSTALLATION; SEE TYPICAL DRAWING.

FIBER INSTALLATION REQUIREMENTS

1. INSTALL FIBER ACCORDING TO INDUSTRY "BEST PRACTICES".
2. THE CONTRACTOR SHALL NOT VIOLATE THE MANUFACTURER'S MINIMUM INSTALLATION BEND RADIUS WHEN THE CABLE IS UNDER TENSION, OR THE MINIMUM INSTALLED BEND RADIUS.
3. TO PREVENT EXCEEDING THE MANUFACTURER'S MAXIMUM PULLING TENSION DURING INSTALLATION OF THE FIBER OPTIC CABLE, THE CONTRACTOR SHALL USE A "BREAK-AWAY" PULLING SWIVEL WHEN INSTALLING CABLE.
4. THE "BREAK-AWAY" FUNCTION SHALL ACTIVATE AT OR BELOW THE MAXIMUM PULLING TENSION SPECIFIED BY THE CABLE MANUFACTURER.
5. THE CONTRACTOR SHALL TEST ALL STRANDS OF THE FIBER, ON THE REEL, PRIOR TO BEGINNING FIBER INSTALLATION. CONFIRM THAT ALL STRANDS MEET MANUFACTURER'S LOSS SPECIFICATIONS.
6. THE CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND EXISTING CONDITIONS PRIOR TO STARTING CONSTRUCTION.
7. SLACK LOOPS IN HANDHOLES SHALL BE COILED, INSTALLED, AND SECURED TO AVOID DAMAGE TO THE COIL AND NOT INTERFERE WITH LIDS.
8. SLACK LOOPS AT SPLICES SHALL BE COILED TO MATCH THE EXISTING FIBER CABLE TAILS AND ALLOWANCE FOR SPLICE PREPARATION.
9. ICN FIBER IN ALL HANDHOLES SHALL BE LABELED WITH ICN WRAP AROUND CABLE TAGS OR OTHER LABELED CABLE TAGS.

BUILDING ENTRY REQUIREMENTS

1. WEATHER-SEAL ALL PENETRATIONS.
2. USE MORTAR OR SIMILAR CEMENT TO SEAL PENETRATION OF BRICK OR CEMENT BLOCK.
3. FIRESTOP PENETRATIONS OF ANY FIRE-RATED FLOOR, WALL OR CEILING.
4. REPLACE THE FIRESTOP MATERIAL IN ANY EXISTING FIRESTOPPED PENETRATION USED BY THE CONTRACTOR.
5. ALL OUTDOOR CONDUITS, OF ANY LENGTH, SHALL BE GALVANIZED IRON PIPE (GIP). EMT, PVC AND PLASTIC ARE PROHIBITED.
6. IMMEDIATELY UPON INSTALLATION, SEAL THE ENDS OF ALL DUCTS WITH DUCT SEAL OR EXPANSION FOAM TO PREVENT SILTATION OR FILLING WITH MOISTURE. THIS APPLIES TO BOTH NEW AND EXISTING DUCTS.
7. AT THE CONCLUSION OF THE PROJECT, ENSURE THAT A PULL ROPE IS LEFT IN ALL PATHWAYS, BOTH INSIDE AND OUTSIDE, NEW AND EXISTING.

LOCATE FACILITY REQUIREMENTS

1. TRACER WIRE SHALL BE CONTINUOUS.
2. SPLICES IN THE TRACER WIRE ARE NOT ALLOWED. IF TRACER WIRE IS ACCIDENTALLY SEVERED, REQUEST PERMISSION FROM ICN TO SPLICE.
3. SPLICE ONLY IN HANDHOLES.
4. USE EITHER AN EPOXY SPLICE KIT, SCOTCH 3M 3832 OR A MOLEX PERMASEAL BUTT SPLICE. 10-12 GA. SPLICE MATERIALS SHALL BE DESIGNED FOR UNDERGROUND APPLICATIONS.
5. LEAVE THE WIRE SPLICE VISIBLE IN THE HANDHOLE.
6. ROUTE A GROUND WIRE FROM THE GROUND INSIDE THE BUILDING, THROUGH THE ENTRY TO THE TII 163 TERMINAL.
7. SECURE ALL RISER CONDUITS WITH 3 EACH TWO-HOLE CONDUIT STRAPS.
8. WIRE THE PEDESTAL/TERMINAL SO THAT LOCATES MAY BE PERFORMED IN ANY DIRECTION AND FROM THE FAR END.
9. DO NOT LEAVE ANY EXPOSED TRACER WIRE OR GROUND WIRE.
10. PERMANENTLY GROUND THE TRACER WIRE AT THE HANDHOLE ON THE FURNISHED GROUND ROD.
11. AT THE CONCLUSION OF THE PROJECT LEAVE THE TRACER WIRE SHIELD SHORTED TO GROUND IN THE LOCATE TERMINAL.
12. USE TRACER WIRE THAT IS RATED FOR DIRECT BURIAL WHERE REQUIRED. TRACER WIRE SHALL BE #12 AWG, SOLID HF CCS 30 MIL HDPE HIGH FLEX TRACER WIRE: EITHER SOLID COPPER OR COPPER CLAD STEEL.
13. LABEL ALL WIRES IN THE LOCATE TERMINAL/PEDESTAL/TRIVIEW. (I.E. "GROUND", "FACING DMACC", "FACING NORTH" ETC.)
14. FAILURE TO LABEL THE LOCATE WIRES WILL CAUSE THE CONTRACTOR TO RETURN AND PROPERLY LABEL THE WIRES BEFORE PAYMENT FOR THE PROJECT IS MADE.
15. BOND TRACER WIRE(S) WITHIN SPLICE ENCLOSURES UTILIZING A 3M 4460-D\FO SHIELD BONDING KIT.
16. ROUTE TRACER WIRE(S) OUT OF SPLICE ENCLOSURE THROUGH A SINGLE PORT UTILIZING A FOSC CLOSURE SEALING KIT.
17. AT SPLICE LOCATIONS WITH NO LOCATE PEDESTAL, TRACER WIRES SHALL BE BONDED TOGETHER, WITHIN THE SPLICE ENCLOSURE.
18. AT EACH END OF ANY TRACER WIRE, USE APPROPRIATE-SIZED RING TERMINAL (CRIMP) CONNECTORS USING APPROPRIATE CRIMP TOOL; OR CREATE A WIRE EYELET AS PER TYPICAL INSTALLATION OF TRI-VIEW LOCATE PEDESTAL DETAIL.

DELIVERABLES/ACCEPTANCE:

1. CONTRACTOR SHALL PROVIDE CONSTRUCTION REDLINE AS-BUILTS WITH:
 - 1.1. OFFSETS TO FIXED OBJECTS TO THE CABLE/CONDUIT RUNNING LINE, HANDHOLES AND NEW FACILITIES.
 - 1.2. METER MARKS OF CABLE INSTALLATIONS AT HANDHOLE ENTRY/EXIT, SPLICE LOCATIONS, BUILDING ENTRIES, ETC.
 - 1.3. DEPTHS OF CABLE AND/OR CONDUIT INSTALLATION.
 - 1.4. ONE ORIGINAL SET OF AS-BUILT DRAWINGS MUST BE PROVIDED WITHIN TWO (2) WEEKS AFTER COMPLETION OF CONSTRUCTION FOR THE ICN MANAGEMENT RECORDS. REDLINE AS-BUILT DRAWINGS MUST BE COMPLETE.
2. CONTRACTOR SHALL PROVIDE SPLICING REDLINE OF ALL SPLICING COMPLETED AND VALIDATION THAT THE SPLICE PLAN WAS FOLLOWED.
3. CONTRACTOR IS RESPONSIBLE TO LOCATE FIBER UNTIL ACCEPTANCE BY THE ICN. ACCEPTANCE INCLUDES:
 - 3.1. SUBMISSION OF CONSTRUCTION AND SPLICING RED LINE DRAWINGS BY CONTRACTOR.
 - 3.2. ASSIGNMENT OF LINK NUMBER BY THE ICN (IF APPLICABLE).
 - 3.3. SUBMISSION OF FINAL AS BUILT DRAWING BY THE ICN TO THE ICN NETWORK MAINTENANCE PROVIDER.
 - 3.4. SUBMISSION TO IOWA ONE CALL AND THE ICN NETWORK MAINTENANCE PROVIDER'S CONTRACT LOCATER.
 - 3.5. THE MEASUREMENTS IN THE STATEMENT OF WORK ARE ESTIMATES AND NEED TO BE VERIFIED BY THE CONTRACTOR.
4. ONLY WRITTEN MODIFICATIONS TO THIS SCOPE OF WORK ARE BINDING - VERBAL CHANGES TO THIS SCOPE OF WORK BY ANY PERSON OR PERSONS ARE NOT BINDING, UNLESS CONFIRMED IN WRITING.
5. FINAL PAYMENT WILL NOT BE PROCESSED UNTIL ALL DELIVERABLES ARE RECEIVED AND ACCEPTED.



SAC CITY MIDDLE SCHOOL FIBER RELOCATION PROJECT FIBER INSTALLATION			
1	90% REVIEW PLANS	11/16/2022	
2	PERMIT PLANS	11/29/2022	IOWA COMMUNICATIONS NETWORK 400 EAST 14TH STREET GRIMES STATE OFFICE BUILDING DES MOINES, IOWA 50319 ICN © 2021, COPY WITH PERMISSION
3	FINAL PERMIT PLANS	12/1/2022	
4			

MATERIALS

DESCRIPTION	ITEM DESCRIPTION	UNIT	QTY
ICN SUPPLIED MATERIALS			
Fiber	48 Strand Armored SM Fiber	LFT	5500
Fiber	12F In/Out OFRN Dielectric SM Cable	LFT	500
Handholes w/ Lids	24"x36"x36" Tier 15 HH W/ LID	EA	4
Ground Rod	Erico 1/2" x 6' Ground Rod (Graybar)	EA	7
Ground Clamp	Burndy 1/2" Ground Rod Clamp (Anixter)	EA	7
Test Station	Trievew Test Station with Isolever 72" Orange	EA	3
Locate Facilities	Locate Box (custom with IsoLever)	EA	2
FDP, Bulkheads, Trays	Corning WCH-02P Wall Mount FDP	EA	1
FDP, Bulkheads, Trays	Corning CCH-02U Rack Mount FDP	EA	1
FDP, Bulkheads, Trays	Corning CCH 6f SM SC Cassette Loaded	EA	4
FDP, Bulkheads, Trays	Corning CCH 12f SM D-SC Cassette Loaded	EA	1
Splice Enclosure	450A Splice Closure (w lugs)	EA	4
Splice Tray	A Tray 12-pos	EA	5
Tracer Bonding Connector	*3M Scotchlok Shield Bond Connector 4460-D	EA	11
Sealing Kit	*FOSC Closure Sealing Kit	EA	3

LISTING OF CONDUIT & FIBER WORK						
CONDUIT RUN	FROM	TO	LENGTH	2" CONDUIT	1-1/4" CONDUIT	48 SM ARMORED FIBER, UNDERGROUND
1	EX. ICN SHELTER	HH1	547	547	-	547
2	EX SCHALLER TEL HH	HH2	151	-	151	151
3	HH1	HH2	618	618	-	618
4	HH2	HH3	1022	-	1022	1022
5	HH3	HH4	578	-	578	578
6	HH4	EX. HH5	1098	-	1098	1098
7	EX. HH5	HH6	264	-	264	264
TOTAL						4278

LISTING OF CONDUIT & FIBER WORK					
CONDUIT RUN	FROM	TO	LENGTH	2" CONDUIT	12 SM OFNR INDOOR/OUTDOOR RATED
1	HH1	ELEMENTARY SCHOOL	36	36	36
2	ELEMENTARY SCHOOL	UTILITY ROOM	275	-	275
TOTAL					311

NOTE: THIS TABLE SHOWS APPROXIMATE LENGTHS IN CONDUIT ONLY AND DOES NOT INCLUDE ANY COILS OR SLACK FOR FINER CABLES, TRACER WIRE, PULL ROPE, ETC. CONTRACTOR SHALL VERIFY NECESSARY QUANTITIES INCLUDING COILS.

CONTRACTOR SUPPLIED	
ITEM NO.	ITEM
1	#6 GROUND WIRES
2	#12 TRACER WIRES
3	HDPE CONDUIT
4	OTHER INCIDENTALS AS REQUIRED FOR INSTALLATION

LISTING OF HANDHOLE WORK				
HANDHOLE LABEL	HANDHOLE TYPE	ROUTE	STATION	48 SM ARMORED FIBER COIL
EX. ICN SHELTER	EX. ICN SHELTER	S 16TH ST	0+00	25
HH1	24"x36"x36"	S 16TH ST	5+47	150
HH2 (48f Mainline Cable)	24"x36"x36"	ROBBINS ST	11+65	150
HH2 (Schaller Drop Cable)	24"x36"x36"	ROBBINS ST	11+65	75
EX. SCHALLER TEL HH	EX. HH	S 16TH ST	-	75
HH3	24"x36"x36"	ROBBINS ST	21+87	100
HH4	24"x36"x36"	LEE ST	27+65	150
EX. HH5	EX. HH	AUDUBON ST	38+58	150
EX. HH6	EX UPN HH	AUDUBON ST	41+22	75
TOTAL				950

ESTIMATE OF QUANTITIES				
ITEM NO.	ITEM	UNIT	PLANNED TOTAL	AS-BUILT TOTAL
1	MOBILIZATION	LS	1	
2	INSTALL 24" X 36" X 36" HANDHOLE	EA	4	
3	1-1/4" HDPE CONDUIT	LF	3113	
4	2" HDPE CONDUIT	LF	1201	
5	48 SM ARMORED FIBER (TOTAL)	LF	5228	
6	48 SM ARMORED FIBER (RUNNING LINE)	LF	4278	
7	48 SM ARMORED FIBER (COIL)	LF	950	
8	TRI-VIEW LOCATE STATION	EA	3	
9	GROUND ROD	EA	7	
10	SPLICE ENCLOSURE	EA	4	
11	12 SM OFNR INDOOR/OUTDOOR RATED (TOTAL)	LF	386	
12	12 SM OFNR INDOOR/OUTDOOR RATED (EXTERIOR PORTION FROM HH1)	LF	36	
13	12 SM OFNR INDOOR/OUTDOOR RATED (COIL)	LF	75	
14	12 SM OFNR INDOOR/OUTDOOR RATED (INTERIOR SEGMENT)	LF	275	

LISTING OF HANDHOLE WORK				
HANDHOLE LABEL	HANDHOLE TYPE	ROUTE	STATION	12 SM OFNR INDOOR/OUTDOOR RATED
HH1 (DROP TO ELEMENTARY SCHOOL)	24"x36"x36"	S 16TH ST	5+47	75
TOTAL				75

NOTE: CONDUIT INSTALLATION METHOD SHALL BE BORED UNDER ANY ROADWAYS, DRIVEWAYS, AND PAVED SURFACES. THE METHOD BETWEEN PLOW VERSUS BORE FOR CONDUIT INSTALLATION IS AT THE CONTRACTORS DISCRETION.

NOTE ON HDPE CONDUIT AND SPLICES:

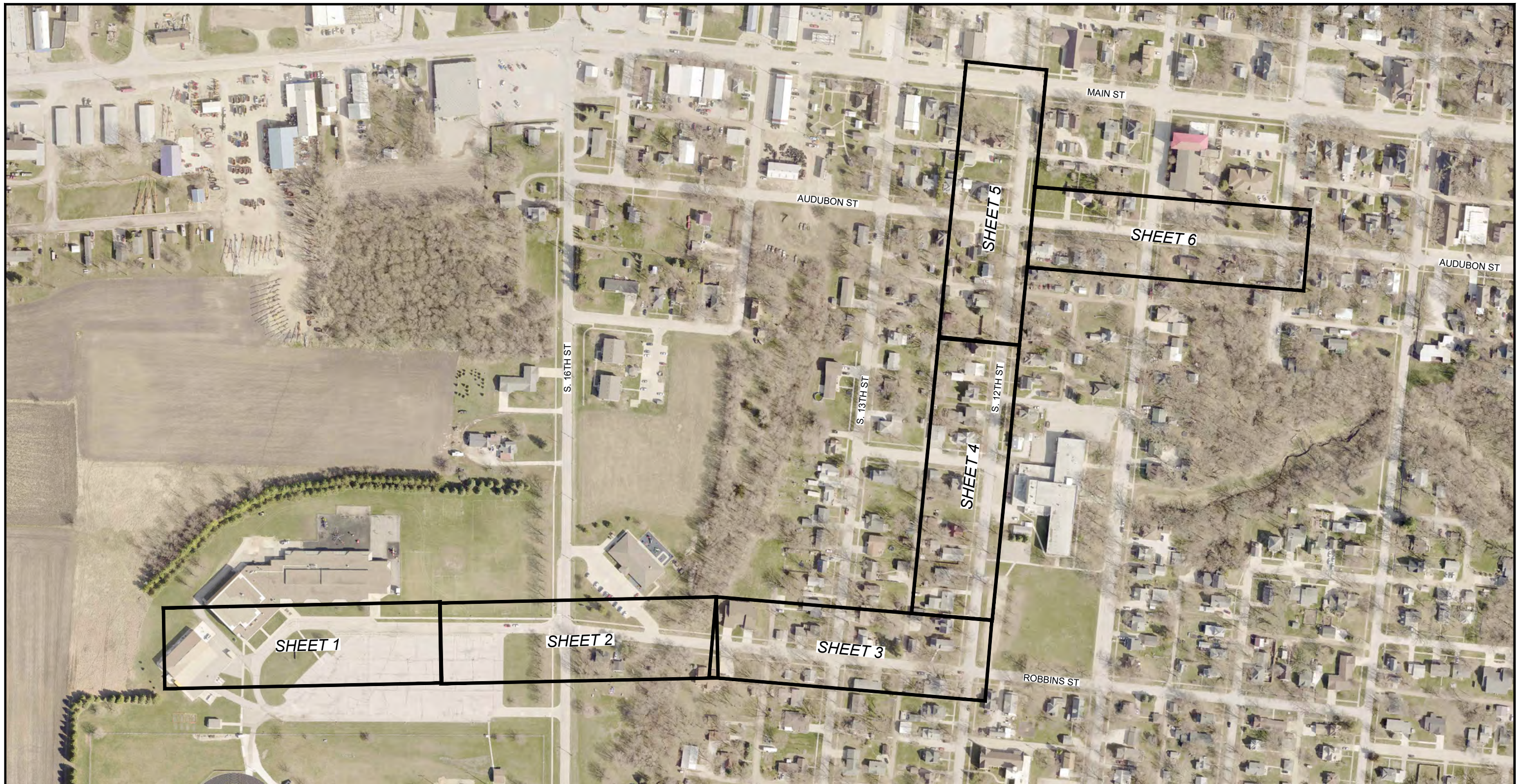
- HDPE SHALL BE ORANGE SMOOTH WALL SDR 13.5
- DUCT SPLICES SHALL BE MADE OF THE FOLLOWING (IN ORDER OF PREFERENCE.)
 - CRIMP ON
 - CLAMP ON / BOLT ON (SPLIT COUPLINGS)
 - PUSH ON
- ALL SPLICES SHALL BE AIR AND WATER TIGHT**
- DUCT SPLICES SHALL BE OF A TYPE MADE SPECIFICALLY FOR JOINING HDPE CONDUIT
- ALL DUCT SPLICES SHALL BE MADE IN SUCH MANNER AS TO ALLOW CONTINUOUS PULLING OF CABLE THROUGH DUCT.

ANY EXCEPTIONS MUST BE AGREED UPON IN WRITING PRIOR TO CONSTRUCTION



SAC CITY MIDDLE SCHOOL FIBER RELOCATION PROJECT FIBER INSTALLATION			hbk icn
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2	PERMIT PLANS	11/29/2022	
3	FINAL PERMIT PLANS	12/1/2022	
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SHEET LAYOUT



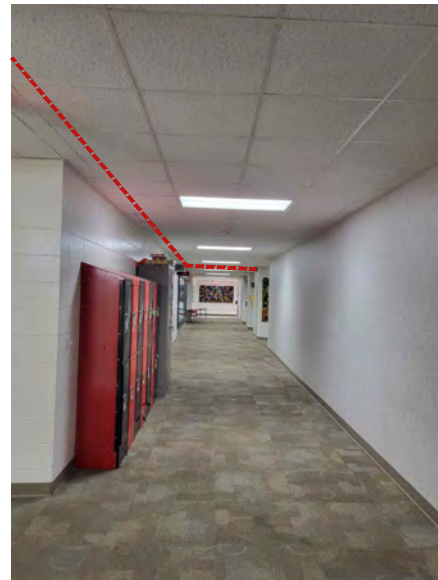
SAC CITY MIDDLE SCHOOL FIBER RELOCATION
PROJECT FIBER INSTALLATION



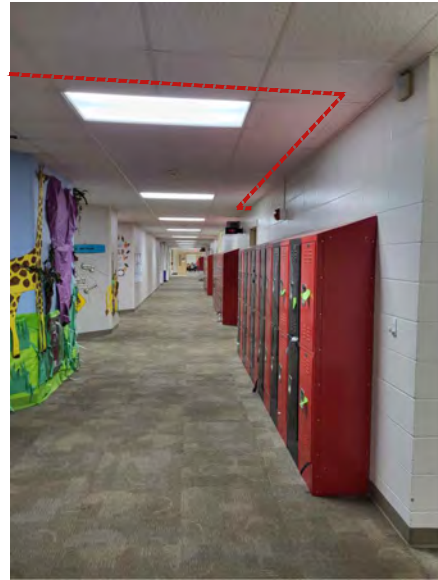
1	90% REVIEW PLANS	11/16/2022
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INTERIOR ROUTE AT SAC COMMUNITY ELEMENTARY SCHOOL



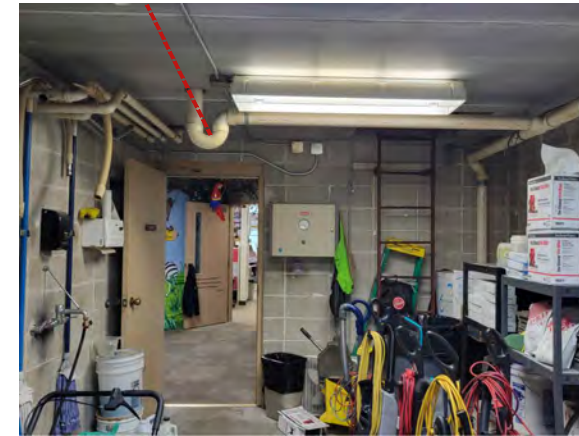
INTERIOR ROUTE LOOKING EAST



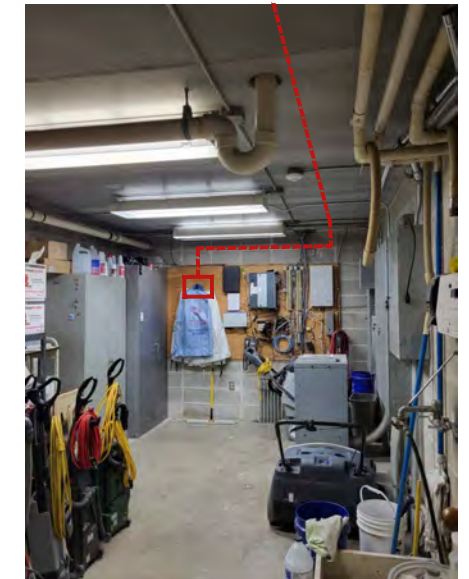
INTERIOR ROUTE LOOKING WEST



INTERIOR ROUTE
UTILITY ROOM - LOOKING NORTH

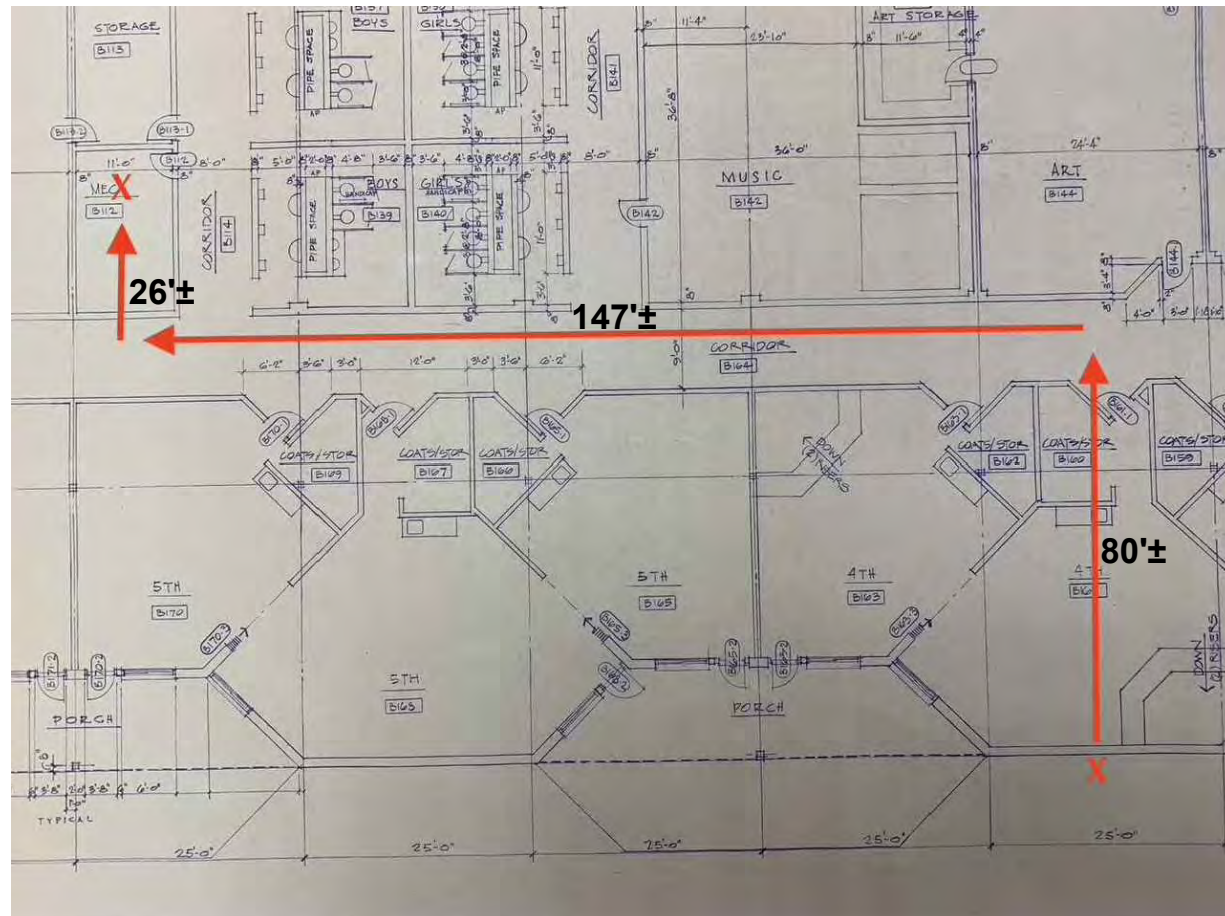


INTERIOR ROUTE
UTILITY ROOM - LOOKING SOUTH



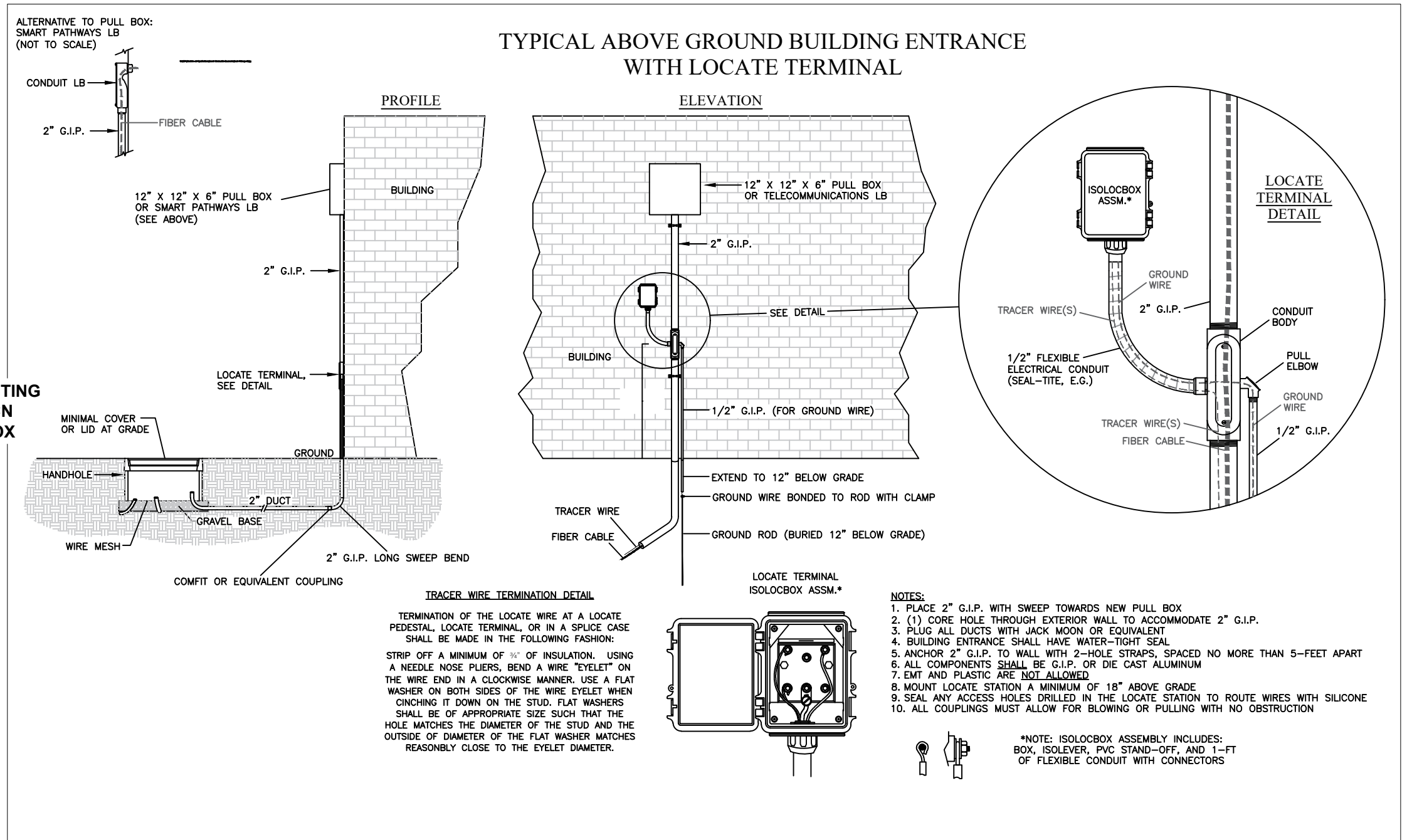
INTERIOR ROUTE
UTILITY ROOM - LOOKING NORTH

* FOLLOW EXISTING CABLES FROM BUILDING ENTRY TO UTILITY ROOM.



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SAC COMMUNITY ELEMENTARY SCHOOL EXTERIOR ROUTE DETAILS

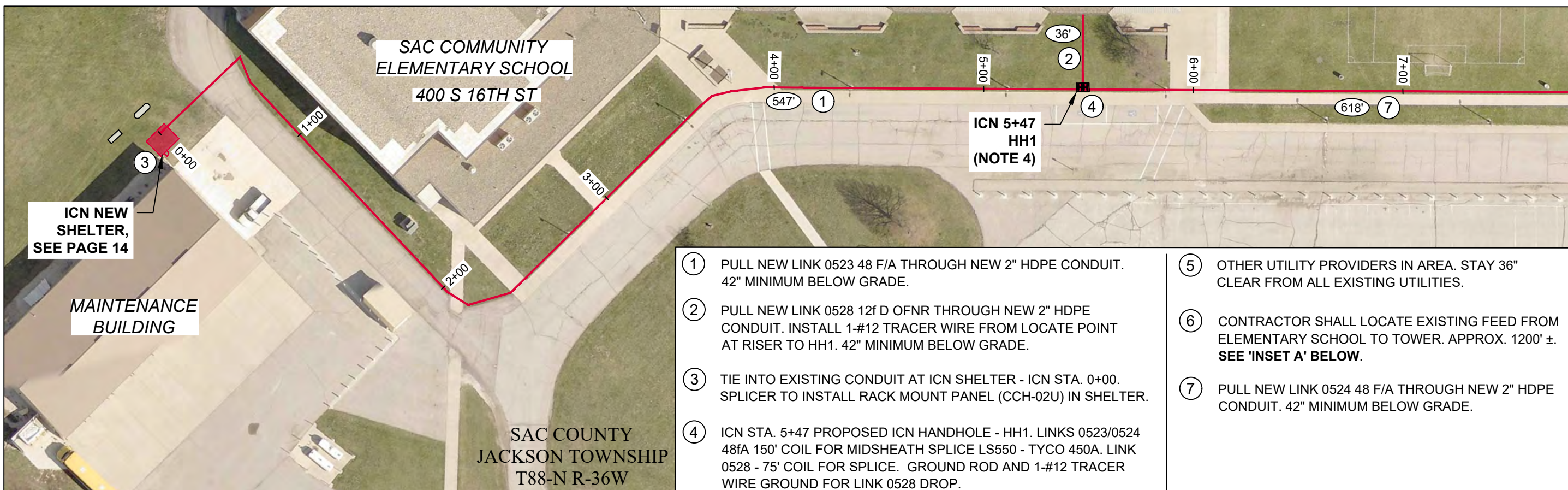


SAC CITY MIDDLE SCHOOL FIBER RELOCATION
PROJECT FIBER INSTALLATION

1	90% REVIEW PLANS	11/16/2022
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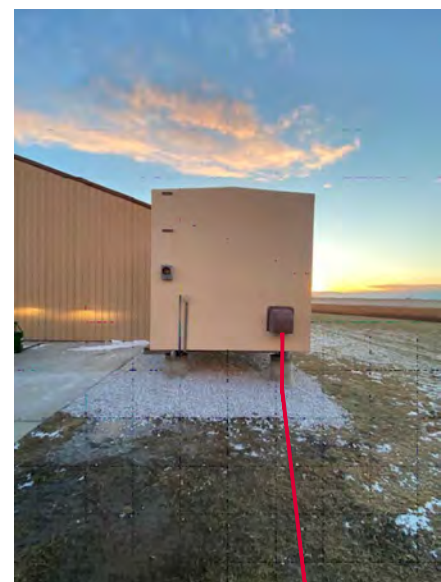
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- ① PULL NEW LINK 0523 48 F/A THROUGH NEW 2" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ② PULL NEW LINK 0528 12f D OFNR THROUGH NEW 2" HDPE CONDUIT. INSTALL 1-#12 TRACER WIRE FROM LOCATE POINT AT RISER TO HH1. 42" MINIMUM BELOW GRADE.
- ③ TIE INTO EXISTING CONDUIT AT ICN SHELTER - ICN STA. 0+00. SPLICER TO INSTALL RACK MOUNT PANEL (CCH-02U) IN SHELTER.
- ④ ICN STA. 5+47 PROPOSED ICN HANDHOLE - HH1. LINKS 0523/0524 48fA 150' COIL FOR MIDSHEATH SPLICE LS550 - TYCO 450A. LINK 0528 - 75' COIL FOR SPLICE. GROUND ROD AND 1-#12 TRACER WIRE GROUND FOR LINK 0528 DROP.

- ⑤ OTHER UTILITY PROVIDERS IN AREA. STAY 36" CLEAR FROM ALL EXISTING UTILITIES.
- ⑥ CONTRACTOR SHALL LOCATE EXISTING FEED FROM ELEMENTARY SCHOOL TO TOWER. APPROX. 1200' ±. SEE 'INSET A' BELOW.
- ⑦ PULL NEW LINK 0524 48 F/A THROUGH NEW 2" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.



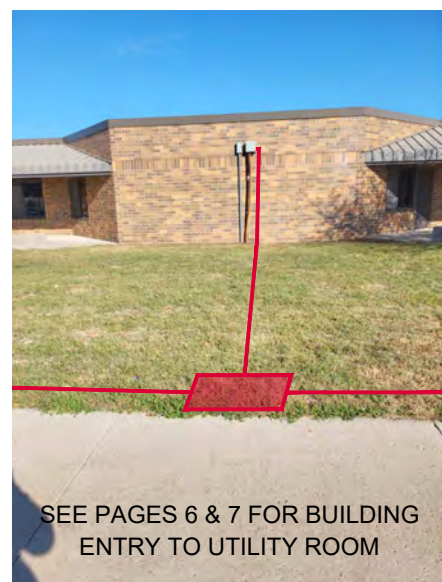
ICN STA. 0+00
EXISTING ICN SHELTER



WEST SIDE OF ELEMENTARY SCHOOL



SOUTH SIDE OF ELEMENTARY SCHOOL



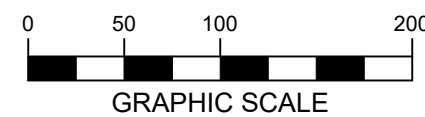
SEE PAGES 6 & 7 FOR BUILDING
ENTRY TO UTILITY ROOM



LISTING OF HANDHOLES				
HANDHOLE	STATION	HANDHOLE	STATION	LENGTH FT
PROP. ICN SHELTER	0+00	HH1	5+47	547
HH1	5+47	HH2	11+65	618
TOTAL				1165

* LENGTH DOES NOT INCLUDE SLACKCOILS

NOTE: RUNNING LINE TO BE ADJUSTED PER UTILITY LOCATES. CONTACT THE ICN AND SAC CITY PUBLIC WORKS TO ADJUST RUNNING LINE.

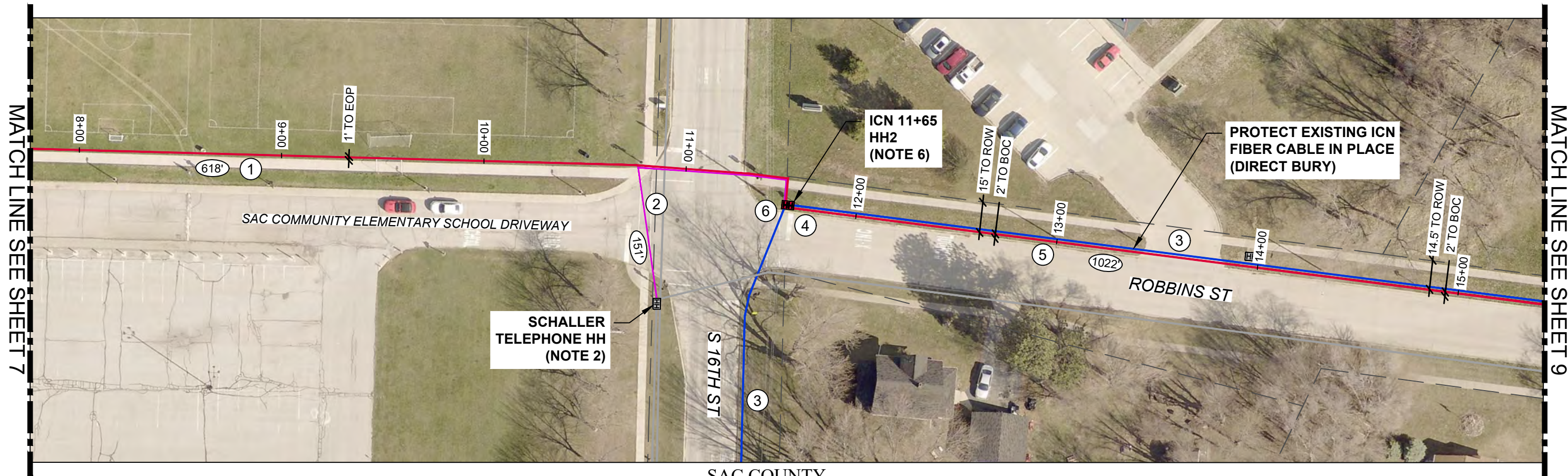


SAC CITY MIDDLE SCHOOL FIBER RELOCATION
PROJECT FIBER INSTALLATION

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- ① PULL NEW LINK 0524 48 F/A THROUGH NEW 2" HDPE CONDUIT. 42" MINIMUM BELOW GRADE TO HH2 ICN STA. 11+65.
- ② PULL NEW LINK 0529 48 F/A THROUGH NEW 1-1/4" HDPE CONDUIT TO EXISTING SCHALLER TELEPHONE HANDHOLE. APPROX. 151' FROM SCHALLER TELEPHONE HH TO ICN HH2.
- ③ EXISTING ICN LINK 510-4fA PROTECT IN PLACE UNTIL CUTOVER.
- ④ CONTRACTOR SHALL EXPOSE 75' OF EXISTING ICN DIRECT BURIED FIBER CABLE LINK 510-4fA EAST OF HH2 FOR THE CUTOVER.
- ⑤ PULL NEW LINK 0525 48 F/A THROUGH NEW 1-1/4" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ⑥ ICN STA. 11+65 PROPOSED ICN HANDHOLE - HH2 OVER EXISTING ICN DIRECT BURIED CABLE LINK 510-4fA - PROTECT WITH SPLIT CONDUIT UNDERNEATH NEW HH. LINKS 0524/0525 48fA 150' COIL FOR MIDSHEATH. SPLICE LS551 - TYCO 450A. LINK 0529 - 75' COIL FOR SPLICE. LOCATE POINT: TRIVIEW WITH GROUND ROD AND 4-#12 TRACER WIRES - LEAVE 30' COILS FOR EACH DIRECTION.
- ⑦ OTHER UTILITY PROVIDERS IN AREA. STAY 36" CLEAR FROM ALL EXISTING UTILITIES.

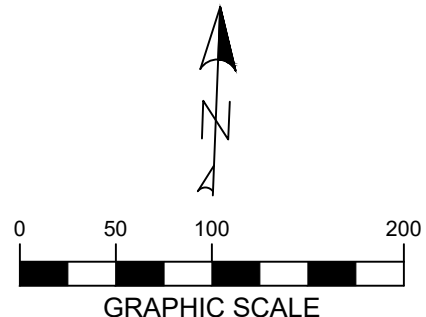
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JACKSON TOWNSHIP
T88-N R-36W



LISTING OF HANDHOLES				
HANDHOLE	STATION	HANDHOLE	STATION	LENGTH FT
HH1	5+47	HH2	11+65	618
HH2	11+65	HH3	21+87	1022
TOTAL				1640

* LENGTH DOES NOT INCLUDE SLACKCOILS

NOTE: RUNNING LINE TO BE ADJUSTED PER UTILITY LOCATES. CONTACT THE ICN AND SAC CITY PUBLIC WORKS TO ADJUST RUNNING LINE.



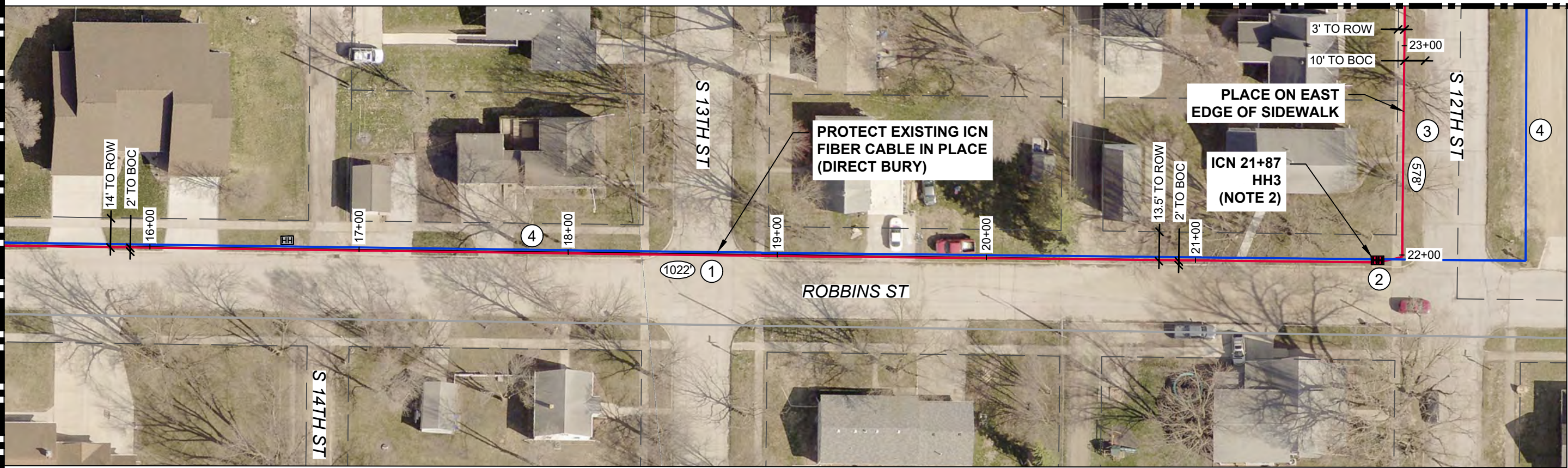
SAC CITY MIDDLE SCHOOL FIBER RELOCATION
PROJECT FIBER INSTALLATION

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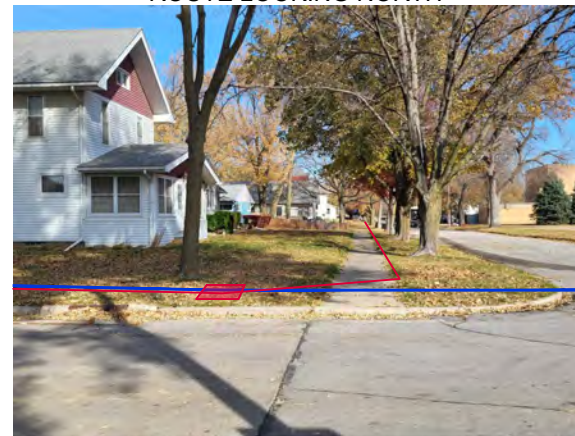
MATCH LINE SEE SHEET 10

MATCH LINE SEE SHEET 8



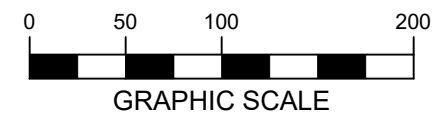
SAC COUNTY
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T88-N R-36W

ROUTE LOOKING NORTH



ICN STA. 21+87 - HH4
NW CORNER OF INTERSECTION
AT S 12TH ST & ROBBINS ST

- ① PULL NEW LINK 0525 48 F/A THROUGH NEW 1-1/4" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ② ICN STA. 21+87 PROPOSED ICN HANDHOLE - HH3. LINK 0525-48fA 100' SLACK COIL.
- ③ 2-INCH GAS MAIN IN WEST RIGHT-OF-WAY OF S 12TH ST. USE CAUTION WHEN BORING IN THIS AREA.
- ④ EXISTING ICN LINK 510-4fA.
- ⑤ OTHER UTILITY PROVIDERS IN AREA. STAY 36" CLEAR FROM ALL EXISTING UTILITIES.



LISTING OF HANDHOLES				
HANDHOLE	STATION	HANDHOLE	STATION	LENGTH FT
HH2	11+65	HH3	21+87	1022
HH3	21+87	HH4	27+65	578
TOTAL				1600

* LENGTH DOES NOT INCLUDE SLACKCOILS

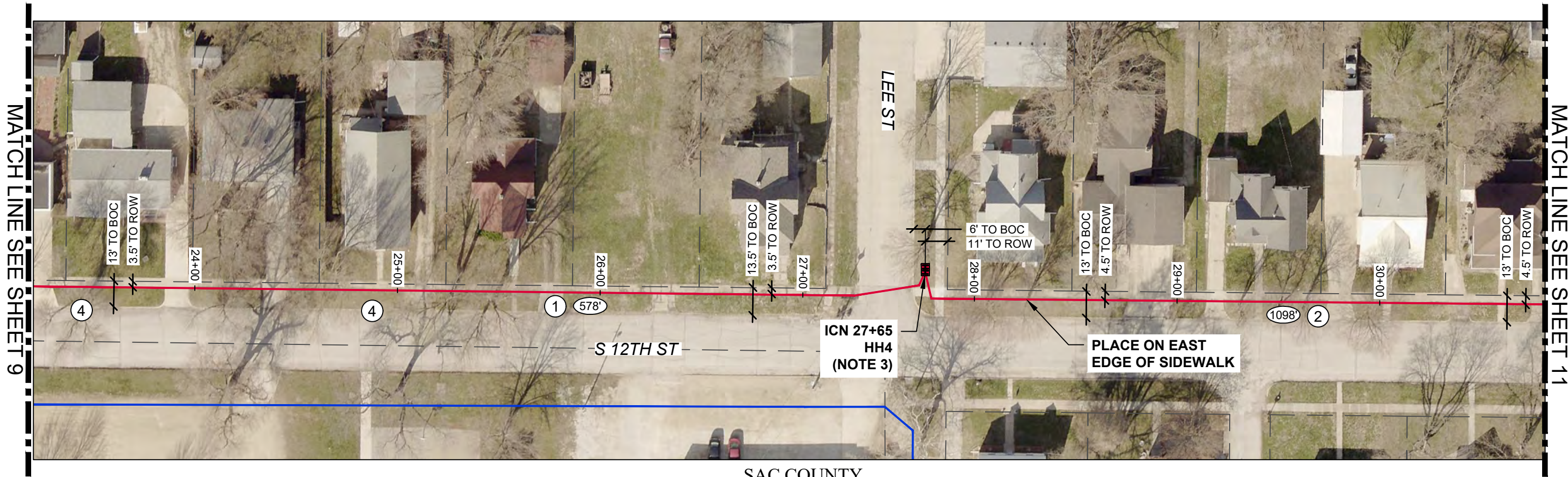
NOTE: RUNNING LINE TO BE ADJUSTED PER UTILITY LOCATES. CONTACT THE ICN AND SAC CITY PUBLIC WORKS TO ADJUST RUNNING LINE.



SAC CITY MIDDLE SCHOOL FIBER RELOCATION
PROJECT FIBER INSTALLATION

1	90% REVIEW PLANS	11/16/2022
2	PERMIT PLANS	11/29/2022
3	FINAL PERMIT PLANS	12/1/2022
4		

IOWA COMMUNICATIONS NETWORK
400 EAST 14TH STREET
GRIMES STATE OFFICE BUILDING
DES MOINES, IOWA 50319
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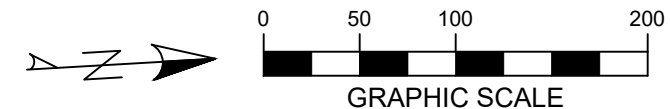
SAC COUNTY
JACKSON TOWNSHIP
T88-N R-36W

- ① PULL NEW LINK 0525 48 F/A THROUGH NEW 1-1/4" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ② PULL NEW LINK 0526 48 F/A THROUGH NEW 1-1/4" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ③ ICN STA. 27+65 PROPOSED ICN HANDHOLE - HH4 - ACCESS EXISTING G4S CONDUIT AND 4f CABLE - APPROX DEPTH 5'±. LINKS 0525/0526 48fA 150' COIL FOR MIDSHEATH SPLICE LS552 - TYCO 450A. G4S-4f CABLE TO BE CUT AT MIDDLE SCHOOL AND PULLED BACK FOR SPLICING DURING HOT CUT. LOCATE POINT: TRIVIEW WITH GROUND ROD AND 3-#12 TRACER WIRES - LEAVE 30' COILS FOR EACH DIRECTION. MOUNT LOCATE POINT IN THE HH.
- ④ 2-INCH GAS MAIN IN WEST RIGHT-OF-WAY OF S 12TH ST. USE CAUTION WHEN BORING IN THIS AREA.
- ⑤ OTHER UTILITY PROVIDERS IN AREA. STAY 36" CLEAR FROM ALL EXISTING UTILITIES.

ROUTE LOOKING NORTH



ICN STA. 27+65 - HH4



LISTING OF HANDHOLES				
HANDHOLE	STATION	HANDHOLE	STATION	LENGTH FT
HH3	21+87	HH4	27+65	578
HH4	27+65	EX. HH5	38+58	1098
TOTAL				1676

* LENGTH DOES NOT INCLUDE SLACKCOILS

NOTE: RUNNING LINE TO BE ADJUSTED PER UTILITY LOCATES. CONTACT THE ICN AND SAC CITY PUBLIC WORKS TO ADJUST RUNNING LINE.

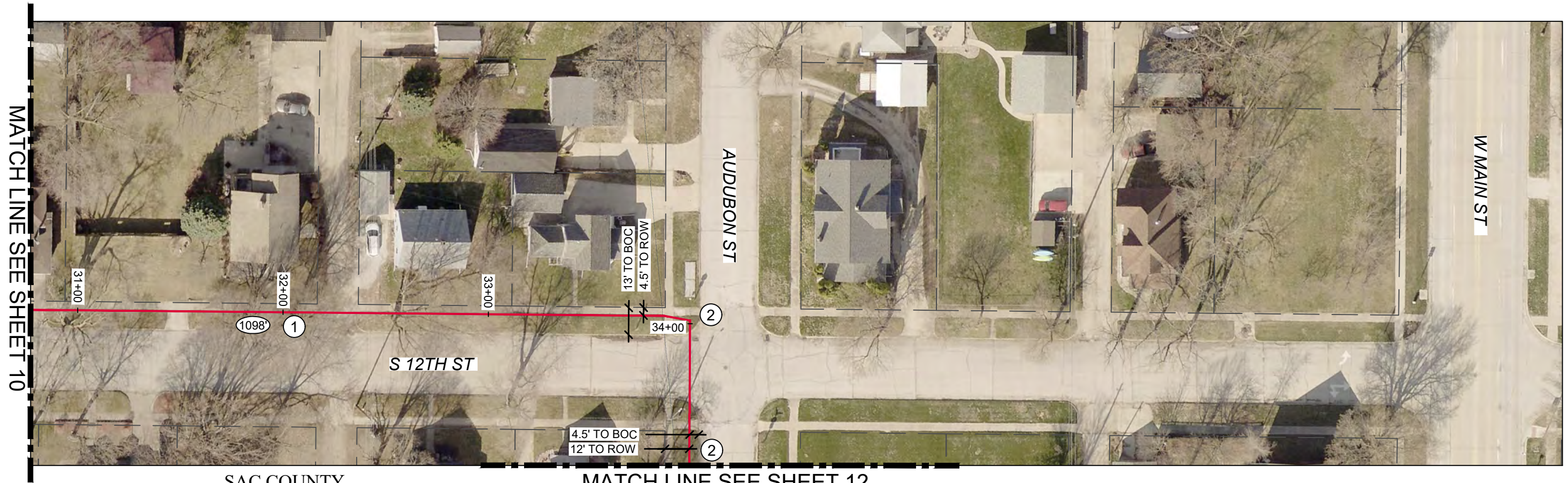


SAC CITY MIDDLE SCHOOL FIBER RELOCATION
PROJECT FIBER INSTALLATION



1	90% REVIEW PLANS	11/16/2022
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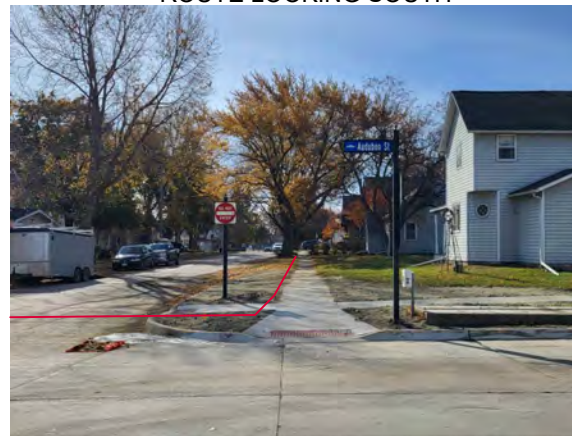
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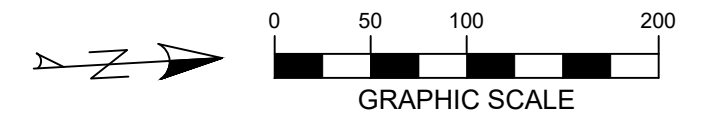
SAC COUNTY
JACKSON TOWNSHIP
T88-N R-36W

- ① PULL NEW LINK 0526 48 F/A THROUGH NEW 1-1/4" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ② WATER AND GAS MAINS RUN PARALLEL WITH THE CURB LINE APPROX 1'-2'± IN THE RIGHT-OF-WAY ON AUDUBON ST. USE CAUTION WHEN BORING IN THIS AREA.

ROUTE LOOKING SOUTH



SW CORNER OF INTERSECTION
AT S 12TH ST & AUDUBON ST



LISTING OF HANDHOLES				
HANDHOLE	STATION	HANDHOLE	STATION	LENGTH FT
HH4	27+65	EX. HH5	38+58	1098
TOTAL				1098

* LENGTH DOES NOT INCLUDE SLACKCOILS

NOTE: RUNNING LINE TO BE ADJUSTED PER UTILITY LOCATES. CONTACT THE ICN AND SAC CITY PUBLIC WORKS TO ADJUST RUNNING LINE.

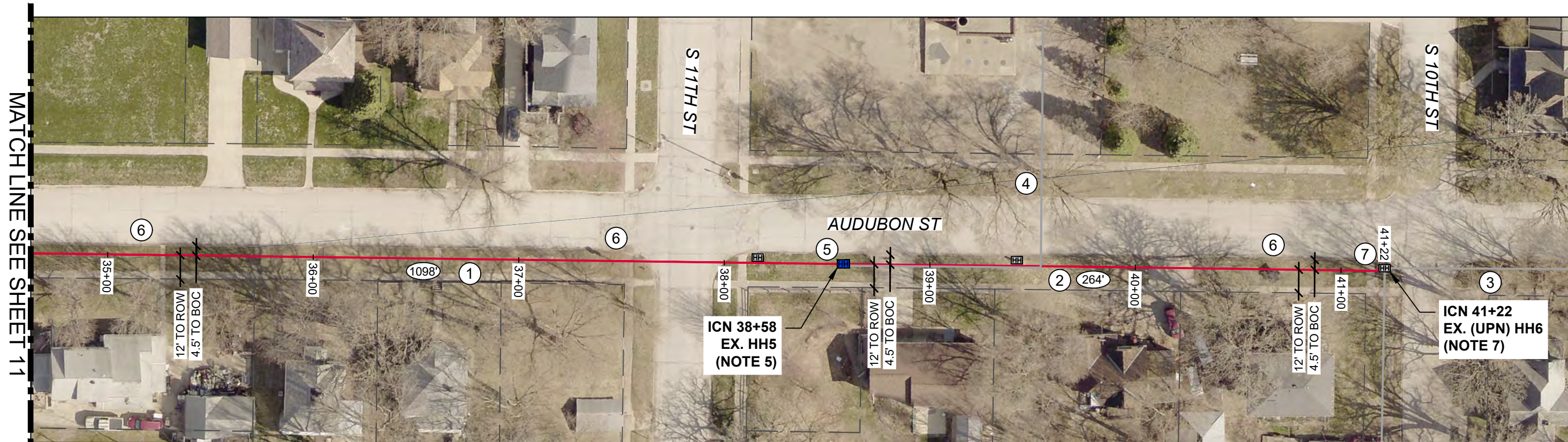


SAC CITY MIDDLE SCHOOL FIBER RELOCATION
PROJECT FIBER INSTALLATION



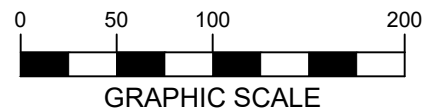
1	90% REVIEW PLANS	11/16/2022
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SAC COUNTY
JACKSON TOWNSHIP
T88-N R-36W

- ① PULL NEW LINK 0526 48 F/A THROUGH NEW 1-1/4" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ② PULL NEW LINK 0527 48 F/A THROUGH NEW 1-1/4" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ③ EXISTING UPN 24 F/A.
- ④ EXISTING G4S 2 F/A ROUTE CONNECTING TO THE SAC CITY LIBRARY DATA ROOM.
- ⑤ ICN STA. 38+58 EXISTING ICN HANDHOLE - EX. HH5. ICN STA. 38+58 - ROUTE CONDUITS/CABLES TO EXISTING HH TO BE TRANSFERRED TO ICN. LINKS 0526/0527 48FA 150' COIL FOR MIDSHEATH. SPLICE LS553 - TYCO 450A. G4S-2f CABLE TO BE CUT AT EXISTING HH FOR SPLICING FOR SERVICE TO LIBRARY DURING HOT CUT. LOCATE POINT: TRIVIEW WITH GROUND ROD AND 3-#12 TRACER WIRES - LEAVE 30' COILS FOR EACH DIRECTION.
- ⑥ WATER AND GAS MAINS RUN PARALLEL WITH THE CURB LINE APPROX 1'-2"± IN THE RIGHT-OF-WAY ON AUDUBON ST. USE CAUTION WHEN BORING IN THIS AREA.
- ⑦ ICN STA. 41+22 EXISTING UPN HH6 FOR TIE IN TO UPN SPLICE (ICN REFERENCE LS554). LINK 0527 75' SLACK COIL 48 F/A.
- ⑧ OTHER UTILITY PROVIDERS IN AREA. STAY 36" CLEAR FROM ALL EXISTING UTILITIES.



LISTING OF HANDHOLES				
HANDHOLE	STATION	HANDHOLE	STATION	LENGTH FT
HH4	27+65	EX. HH5	38+58	1098
EX. HH5	38+58	EX. (UPN) HH6	41+22	264
TOTAL				1362

* LENGTH DOES NOT INCLUDE SLACKCOILS

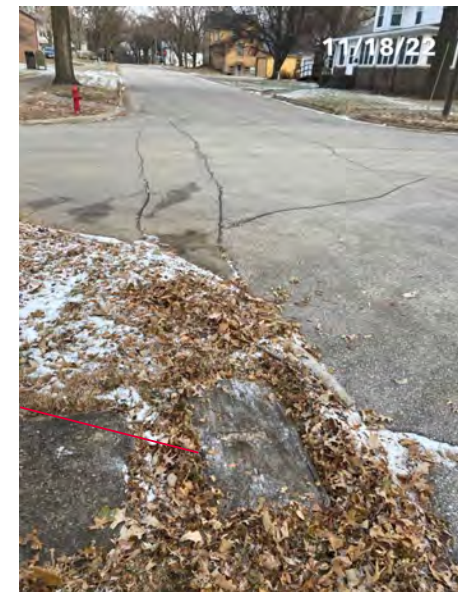
ROUTE LOOKING WEST



ICN STA. 38+58 - EX. HH5



ROUTE LOOKING NORTH



ICN STA. 41+22 - EX. UPN HH6

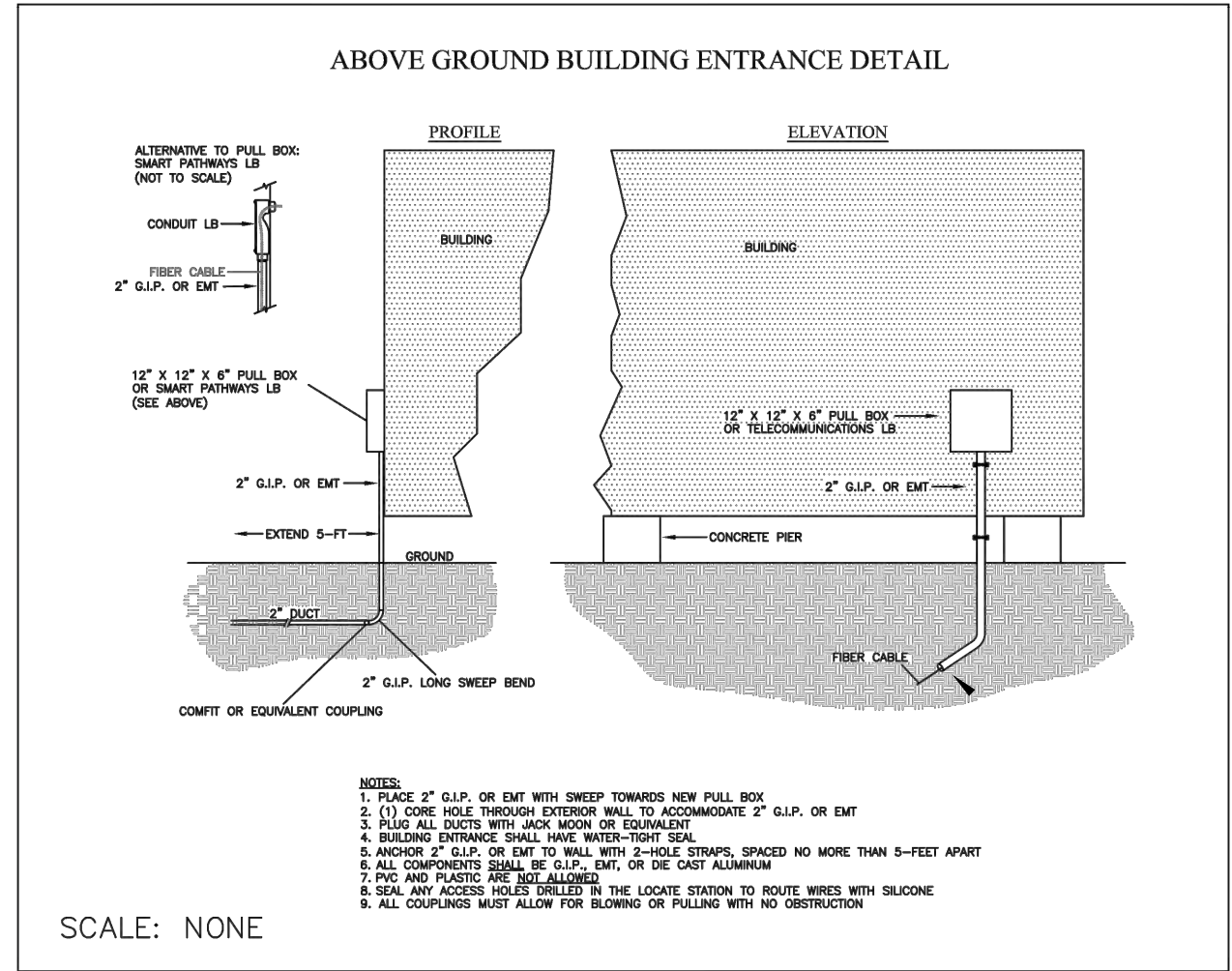
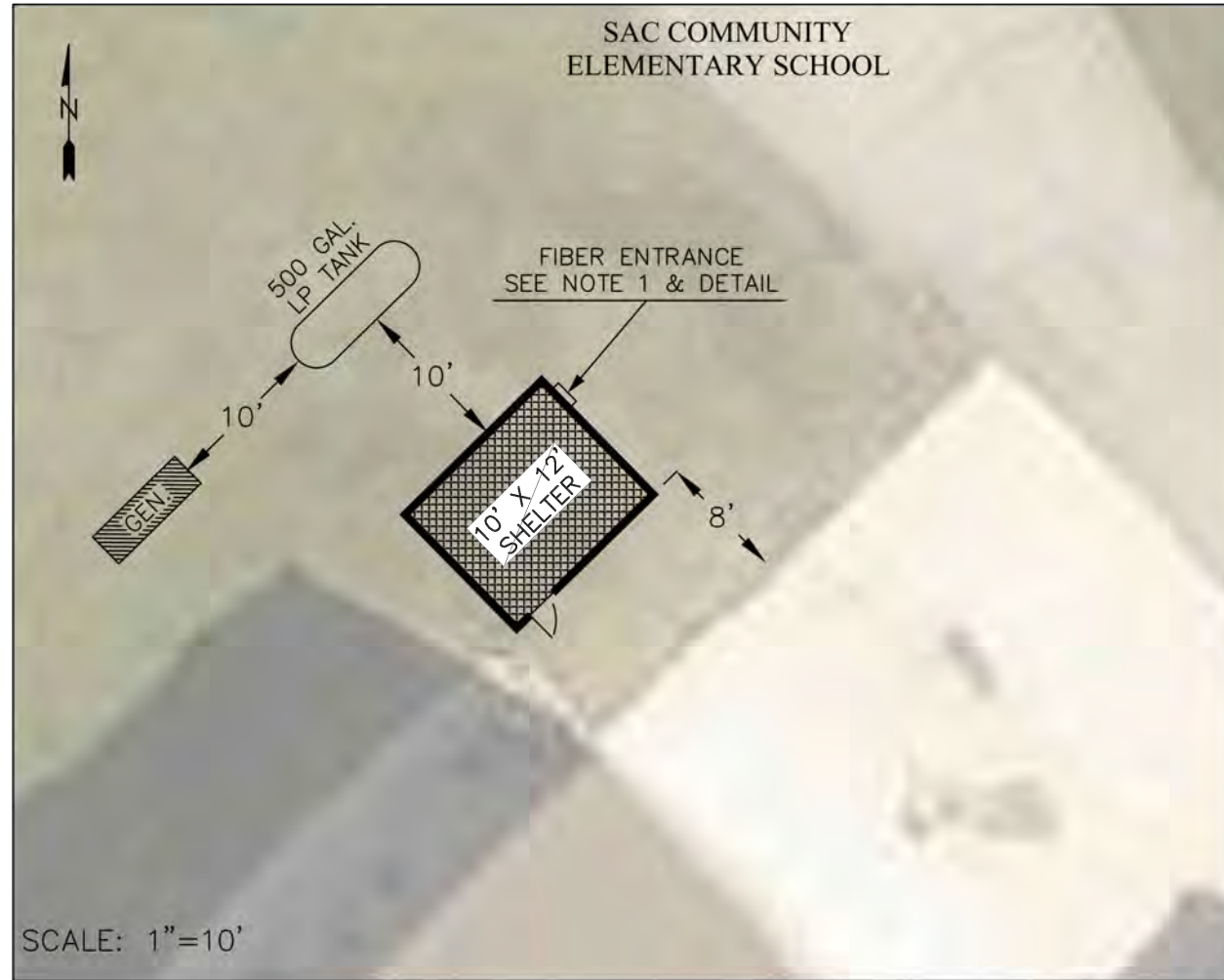


SAC CITY MIDDLE SCHOOL FIBER RELOCATION
PROJECT FIBER INSTALLATION

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NOTE: RUNNING LINE TO BE ADJUSTED PER UTILITY LOCATES. CONTACT THE ICN AND SAC CITY PUBLIC WORKS TO ADJUST RUNNING LINE.



NOTES:

1. INSTALL PULL BOX & RISER, STUB OUT 5-FT FROM BASE OF BUILDING PER ABOVE GROUND BUILDING ENTRANCE DETAIL
2. XXX
3. XXX

1) SHELTER CONTRACTOR TO INSTALL 2" GIP RISER PER STANDARD ICN TYPICAL ENTRANCE DIAGRAM.

2) OSP CONTRACTOR TO CONNECT TO 2" CONDUIT PROVIDED INTO THE NEW SHELTER AND COMPLETE THE LOCATE POINT INSTALLATION PER STANDARD DIAGRAM.

3) #12 TRACER WIRE (APPROX 20') TO BE ROUTED FROM THE LOCATE POINT INTO THE SHELTER TO THE FIBER TERMINATION POINT. TO BE BONDED BY THE SPLICING CONTRACTOR TO THE ARMORED CABLE.



CONSTRUCTION DOCUMENT

PROJECT TITLE		ICN	
1	DRAFT (EXAMPLE)	1-7-19	IOWA COMMUNICATIONS NETWORK
2			400 EAST 14TH STREET
3			GRIMES STATE OFFICE BUILDING
4			DES MOINES, IOWA 50319
			ICN © 2021, COPY WITH PERMISSION
OSP PROJECT LOG #: 12345678		LINK NAME: LINK (F)	SCALE: 1" = 100' SIZE: 11 x 17 CONSTRUCTION PAGE -- OF --



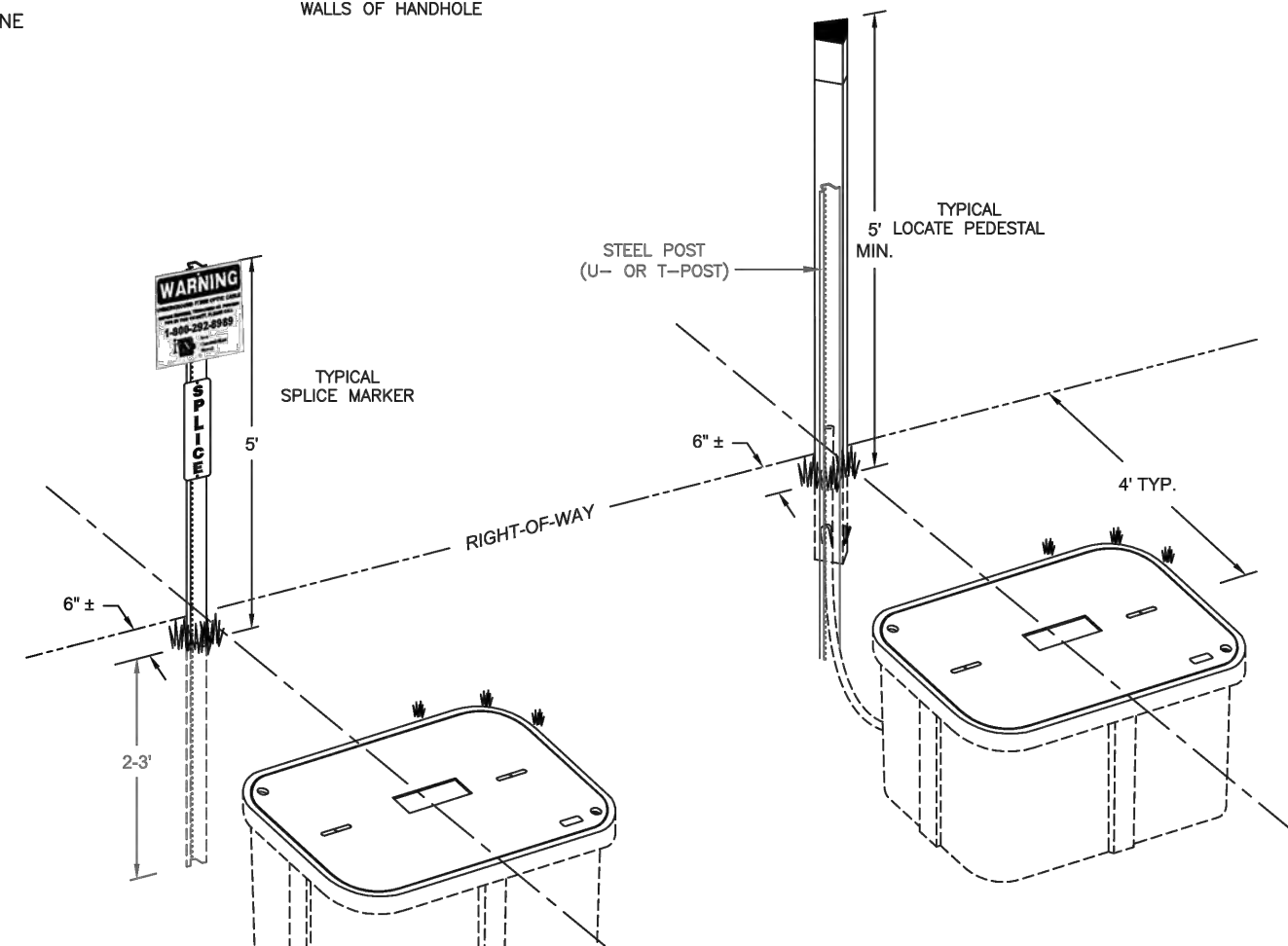
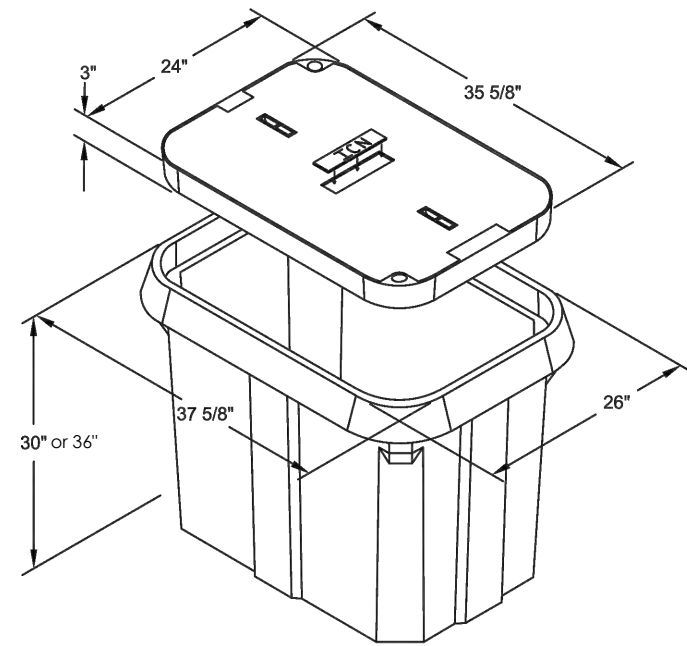
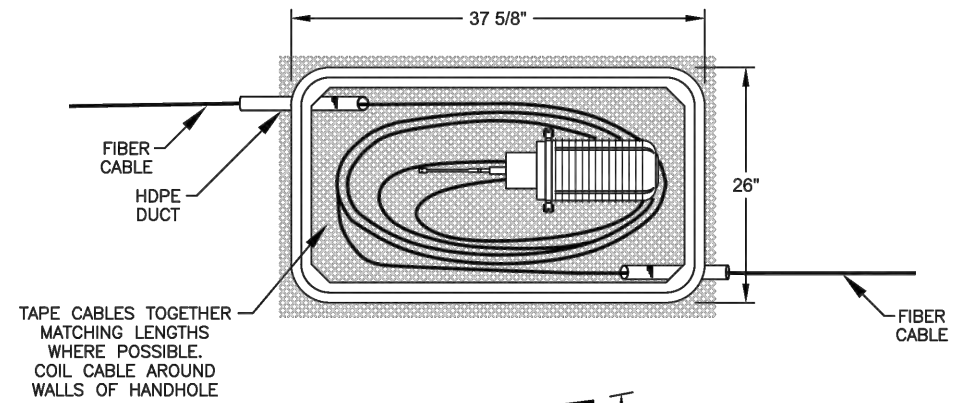
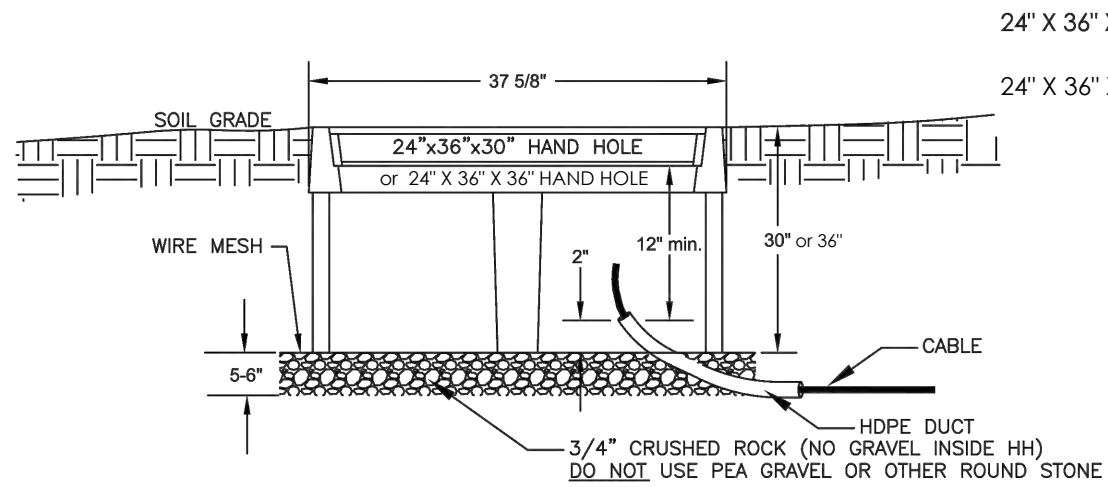
SAC CITY MIDDLE SCHOOL FIBER RELOCATION
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HANDHOLE PLACEMENT TYPICAL



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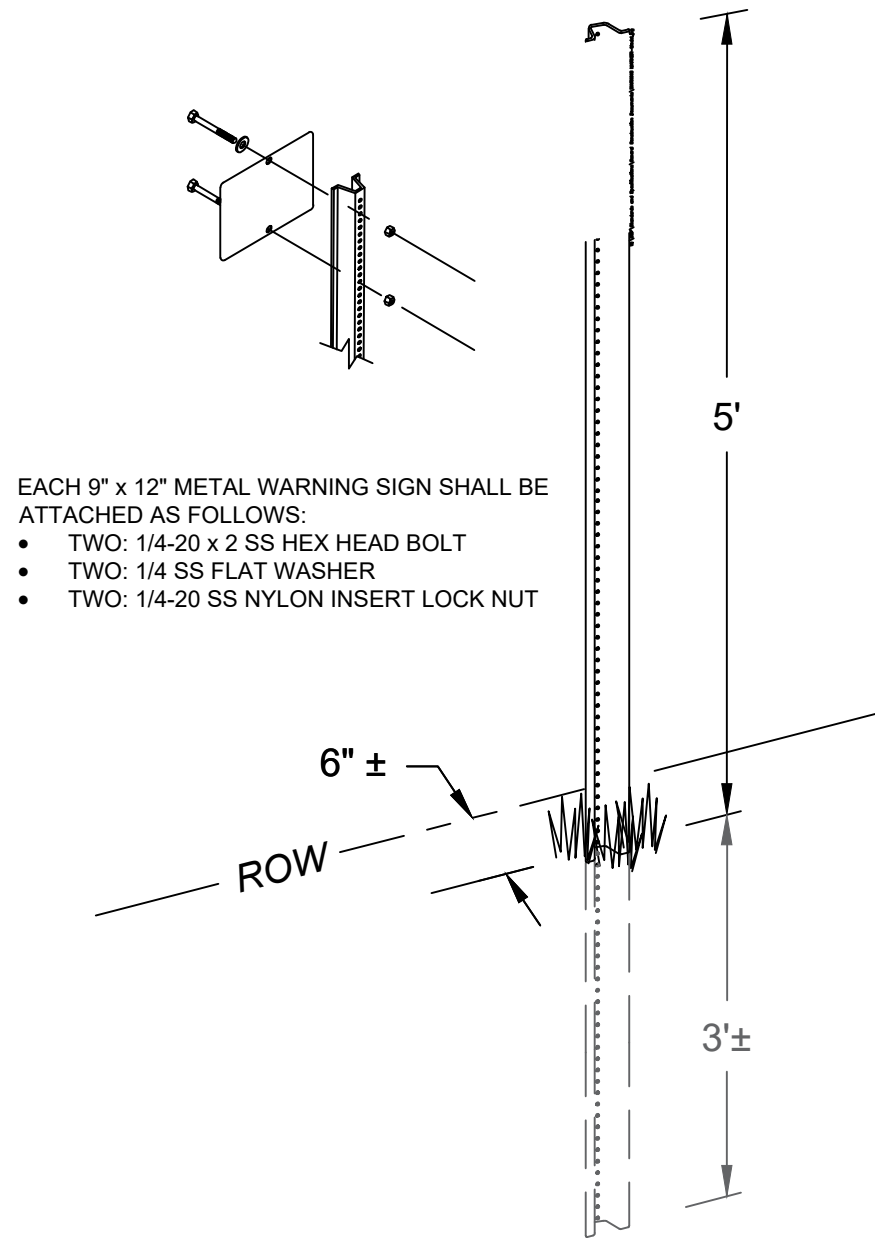
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WARNING MARKER INSTALLATION DETAIL

METAL SIGN & U-CHANNEL POST

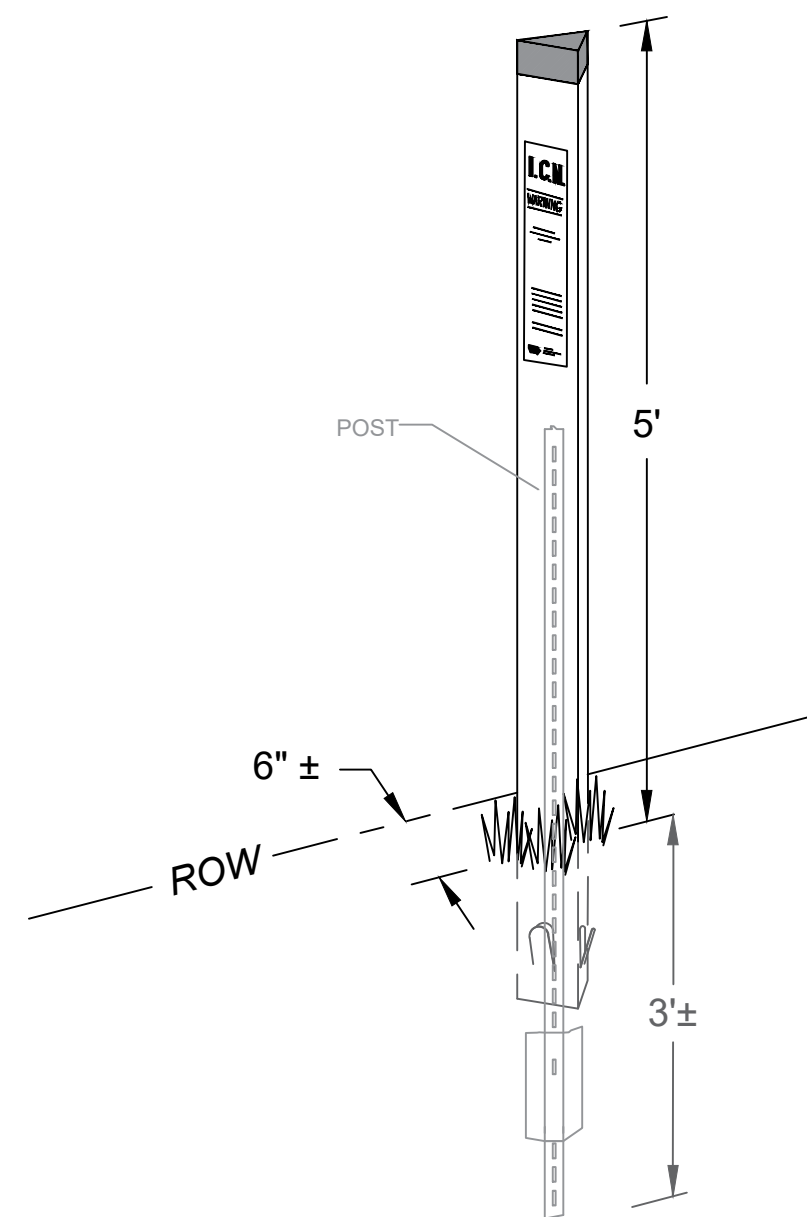
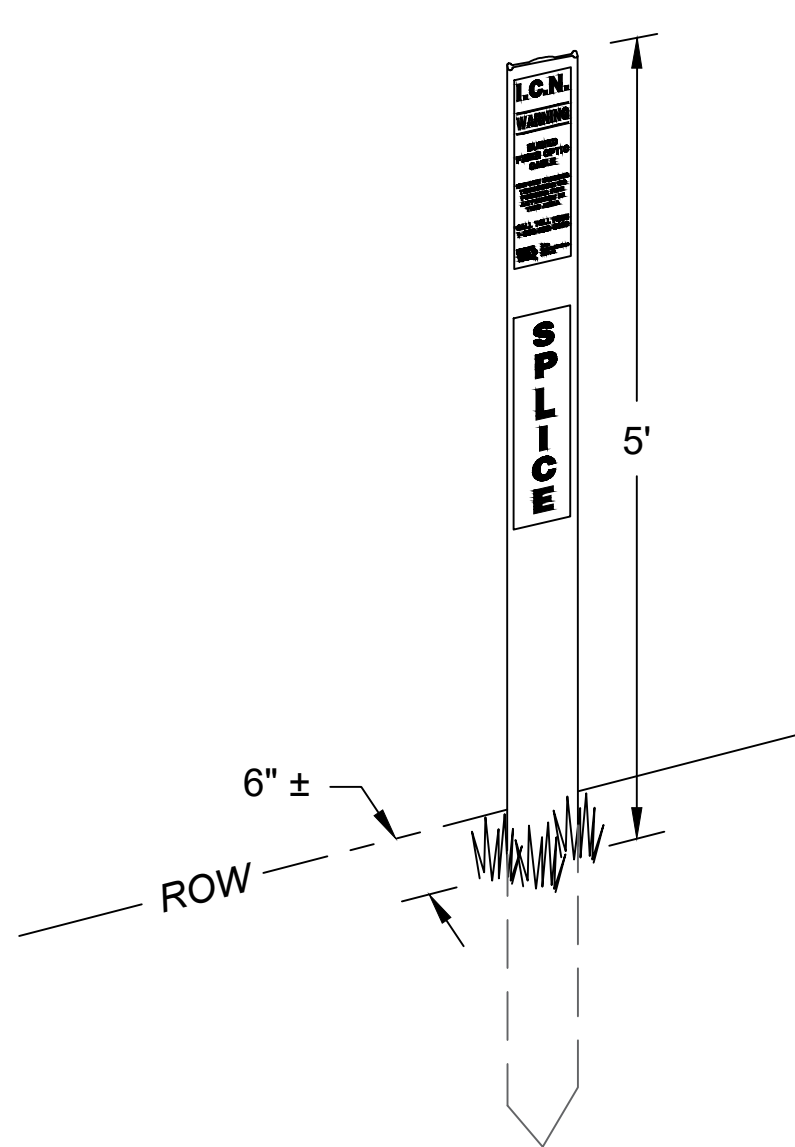
FIBERGLASS MARKER

TRIVIEW MARKER



EACH 9" x 12" METAL WARNING SIGN SHALL BE ATTACHED AS FOLLOWS:

- TWO: 1/4-20 x 2 SS HEX HEAD BOLT
- TWO: 1/4 SS FLAT WASHER
- TWO: 1/4-20 SS NYLON INSERT LOCK NUT

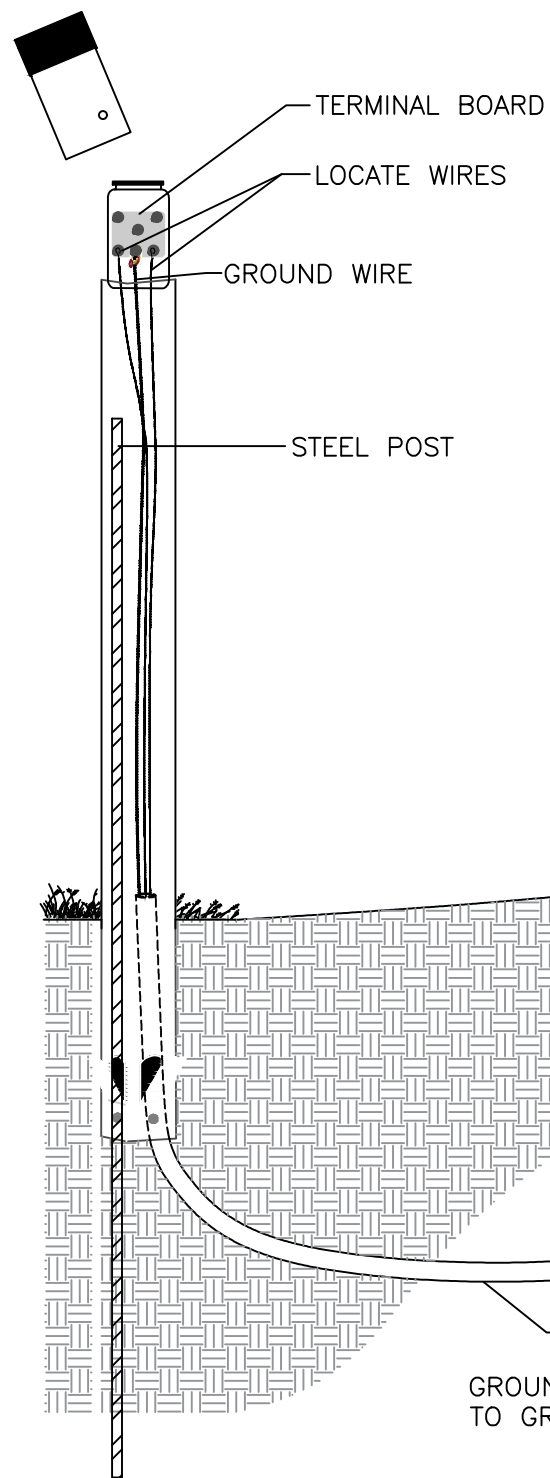


SAC CITY MIDDLE SCHOOL FIBER RELOCATION
PROJECT FIBER INSTALLATION

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TYPICAL INSTALLATION OF TRI-VIEW LOCATE PEDESTAL



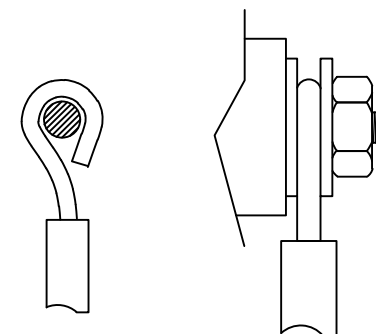
NOTES:

- LOCATE (TRACER) WIRE: #10 or #12 AWG SOLID COPPER WIRE
- GROUND WIRE: #6 OR #8 AWG SOLID BARE COPPER WIRE
- ONE LOCATE WIRE PER FIBER CABLE AT SPLICE ENCLOSURE
- LOCATE WIRE(S) TO BE BONDED INSIDE SPLICE ENCLOSURE WITH 3M SCOTCHLOK SHIELD BONDING KIT
- LOCATE WIRE(S) TO BE ROUTED OUTSIDE OF SPLICE ENCLOSURE WITH FOSC CLOSURE SEALING KIT
- LOCATE WIRE(S) TO BE ROUTED VIA DUCT TO LOCATE PEDESTAL AND TERMINATED AT TERMINAL BOARD
- GROUND LOCATE PEDESTAL TO GROUND ROD WITH SOLID BARE COPPER WIRE AND GROUND CLAMP
- SECURE LOCATE PEDESTAL BY PLACING OVER STEEL POST
- SET PEDESTAL AT OR NEAR RIGHT-OF-WAY, IF POSSIBLE
- MINIMUM HEIGHT OF INSTALLED PEDESTAL MUST BE 5 FEET

TRACER WIRE TERMINATION DETAIL

Termination of the locate wire at either a pedestal, puck, or in a splice case shall be made in the following fashion:

Strip off a minimum of 3/4" of insulation. Using a needle nose pliers bend a wire "eyelet" on the wire end in a clockwise manner. Use a flat washer on both sides of the wire eyelet when cinching it down on the stud. Flat washers shall be of appropriate size such that the hole matches the diameter of the stud and the outside diameter of the flat washer matches reasonably close to the eyelet diameter.

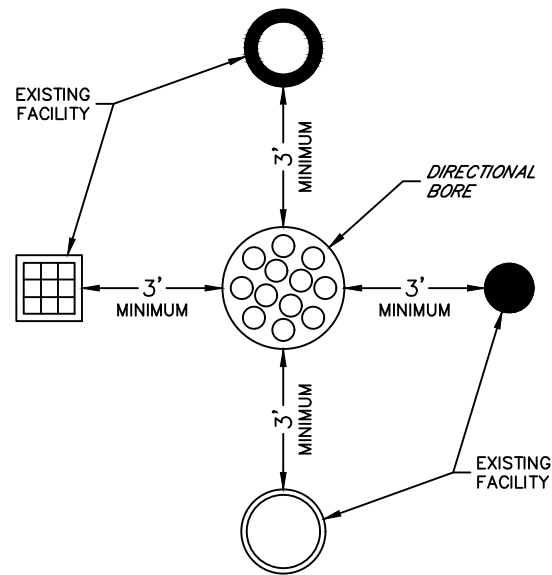


SAC CITY MIDDLE SCHOOL FIBER RELOCATION
PROJECT FIBER INSTALLATION

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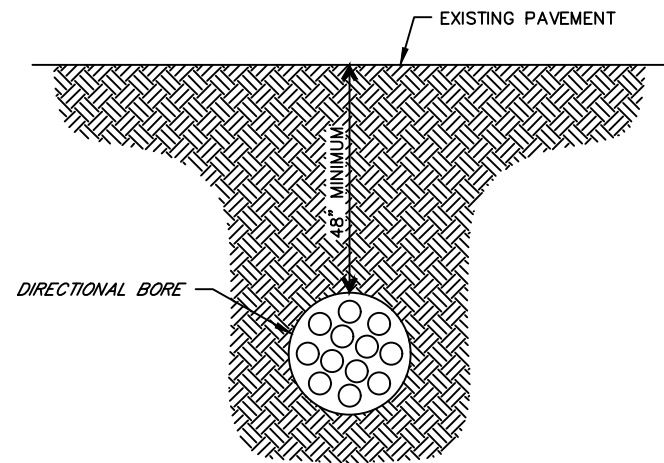
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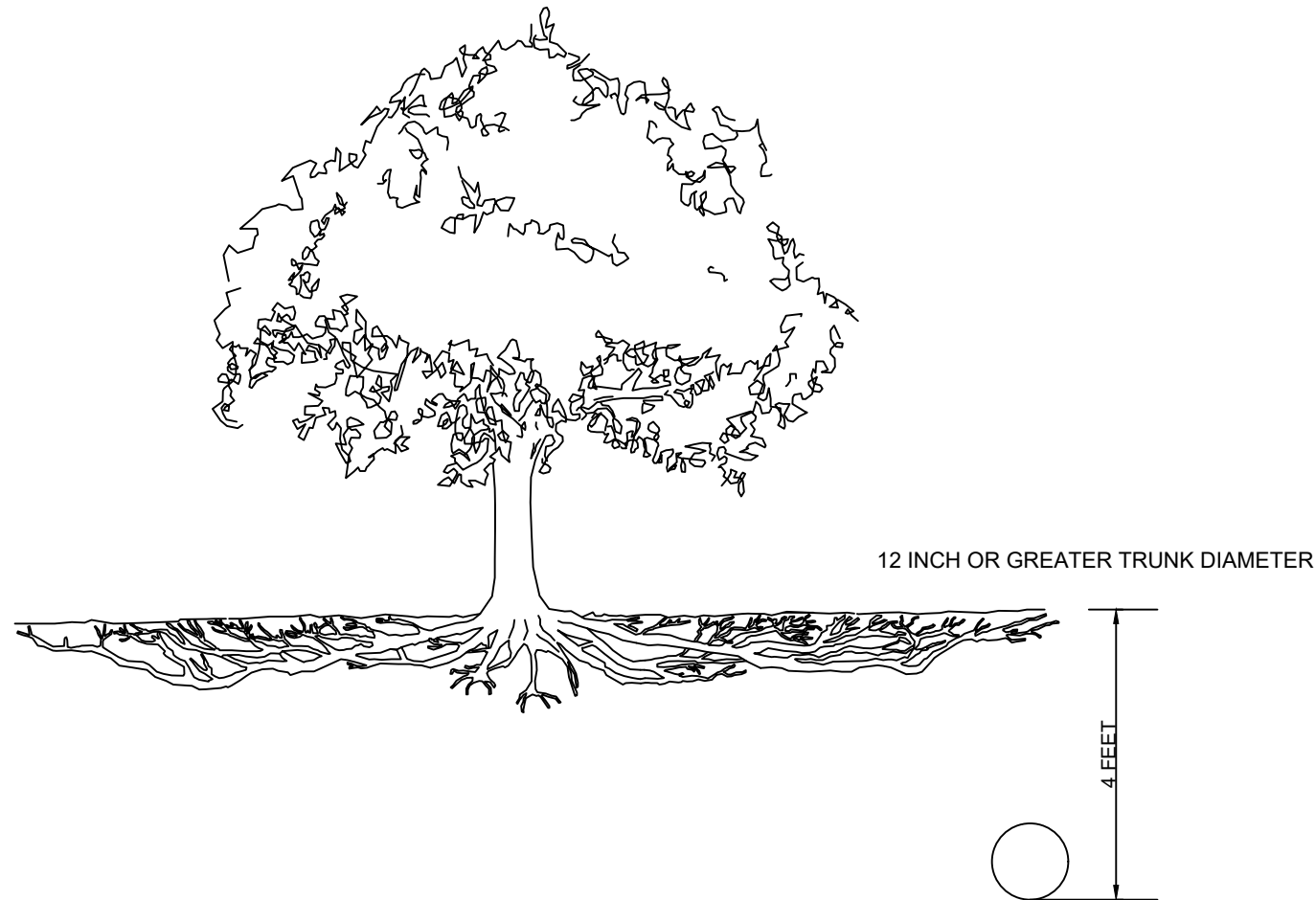


MAINTAIN A MINIMUM OF AT LEAST 3 FEET OF SEPARATION IN ANY DIRECTION BETWEEN DIRECTIONAL BORE AND ALL EXISTING FACILITIES.

UTILITY SEPARATION DETAIL



DIRECTIONAL BORING DETAIL



TREE PROTECTION - TUNNELING



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Do not allow work to interfere with the flow of traffic.

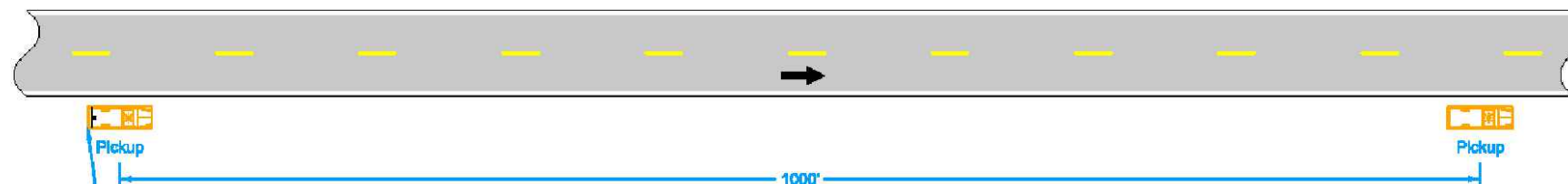
When parked, locate vehicles as far from the open traffic lane as possible. Entrances and driveways should be used whenever appropriate.

Equip all vehicles with an amber revolving light or amber strobe light.

① For work lasting longer than one hour, refer to TC-202 or TC-402.



VEHICLE STOPPED ON SHOULDER FOR LESS THAN ONE HOUR ①



SLOW-MOVING OPERATION



LEGEND
 Traffic Sign
 Direction of Traffic

Possible Contract Item:
Traffic Control

	REVISION	
	3	10-15-19
STANDARD ROAD PLAN	TC-1	
REVISIONS: New logo.	SHEET 1 of 1	

APPROVED BY DESIGN METHOD ENGINEER

**WORK NOT AFFECTING TRAFFIC
(TWO-LANE OR MULTI-LANE)**

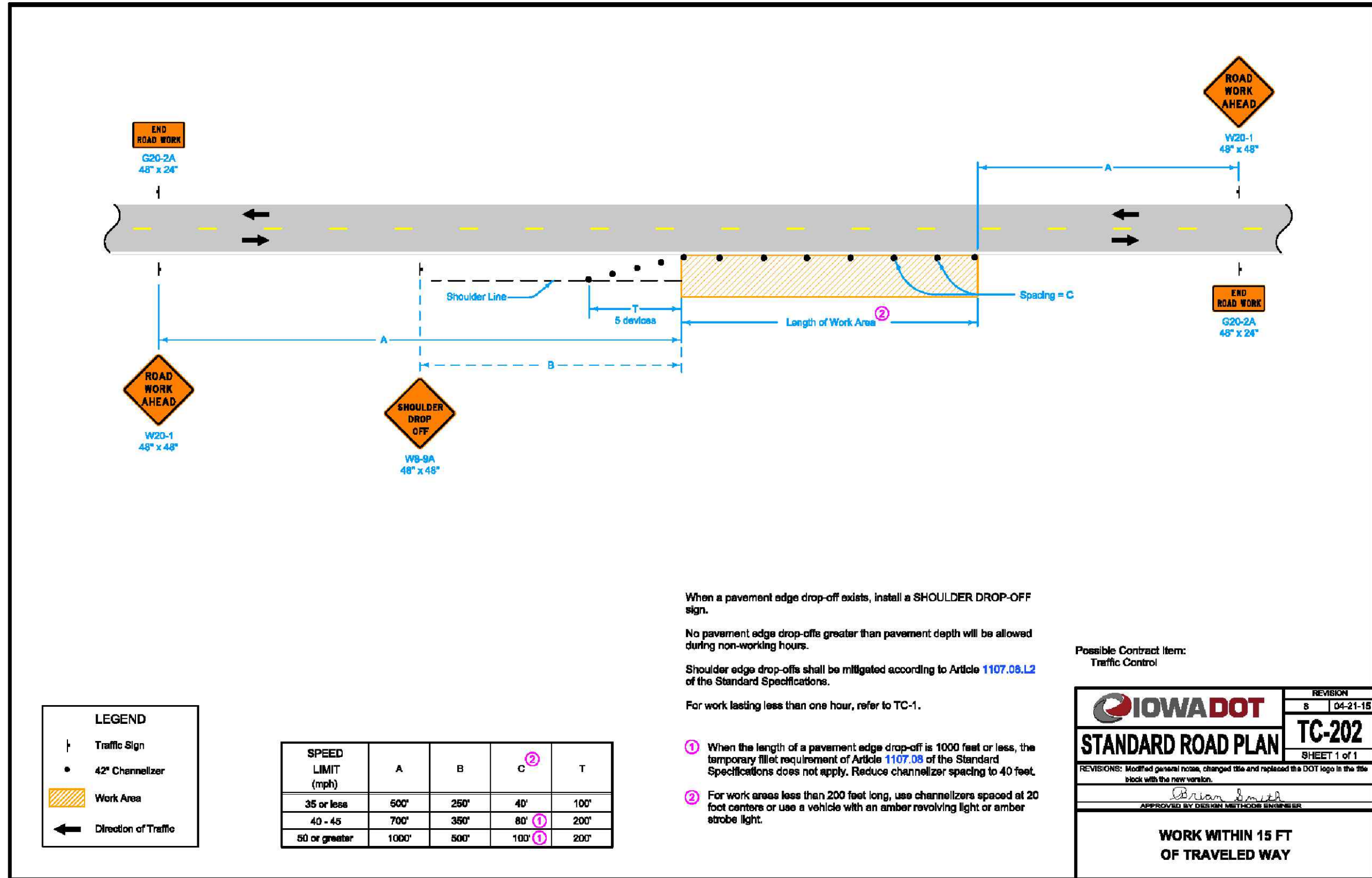


SAC CITY MIDDLE SCHOOL FIBER RELOCATION
PROJECT FIBER INSTALLATION



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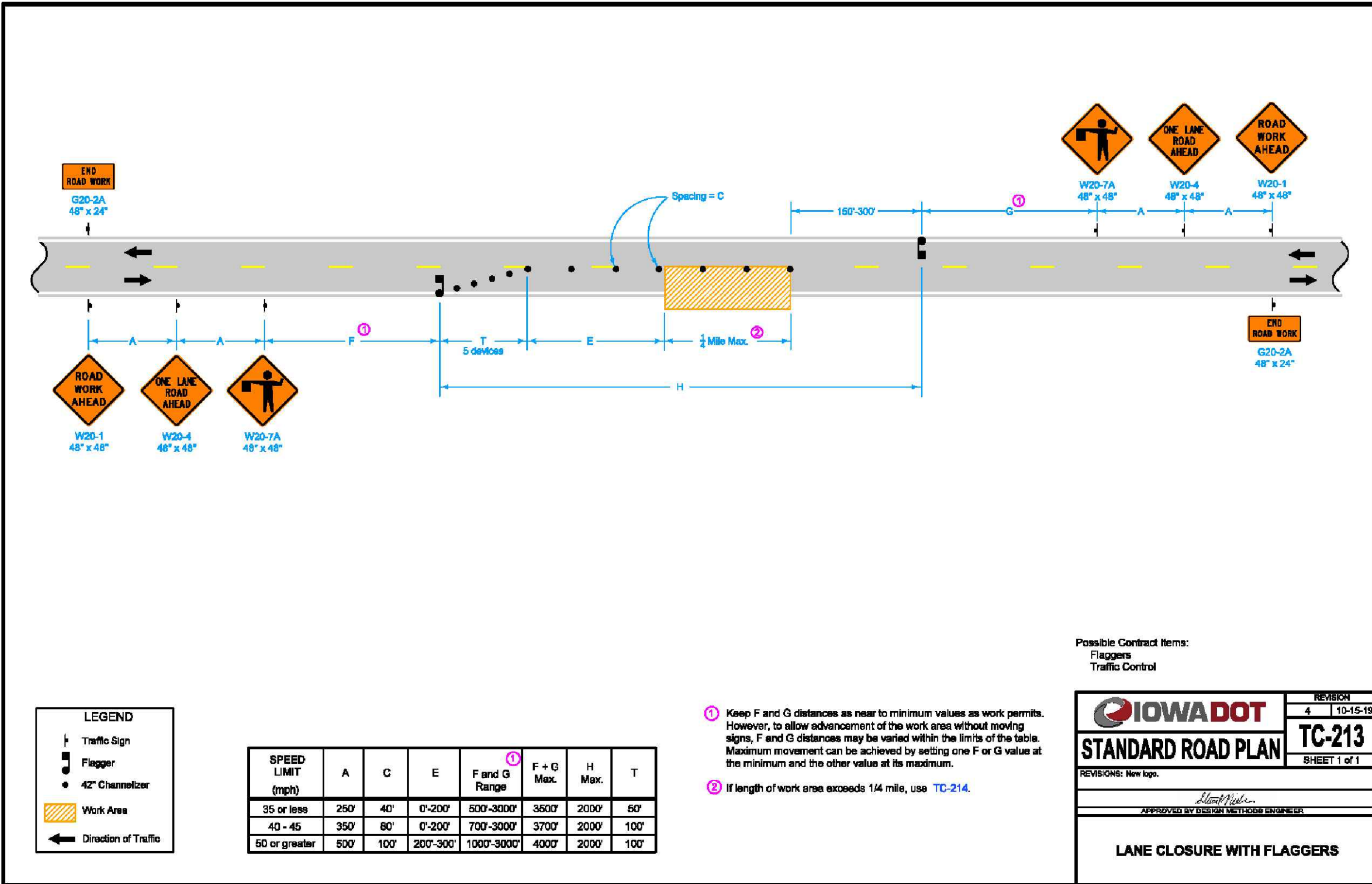
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LEGEND

- Traffic Sign
- Flagger
- 42" Channelizer
- Work Area
- Direction of Traffic

SPEED LIMIT (mph)	A	C	E	F and G Range	F + G Max.	H Max.	T
35 or less	250'	40'	0'-200'	500'-3000'	3500'	2000'	50'
40 - 45	350'	80'	0'-200'	700'-3000'	3700'	2000'	100'
50 or greater	500'	100'	200'-300'	1000'-3000'	4000'	2000'	100'

- ① Keep F and G distances as near to minimum values as work permits. However, to allow advancement of the work area without moving signs, F and G distances may be varied within the limits of the table. Maximum movement can be achieved by setting one F or G value at the minimum and the other value at its maximum.
- ② If length of work area exceeds 1/4 mile, use TC-214.

Possible Contract Items:
 Flaggers
 Traffic Control

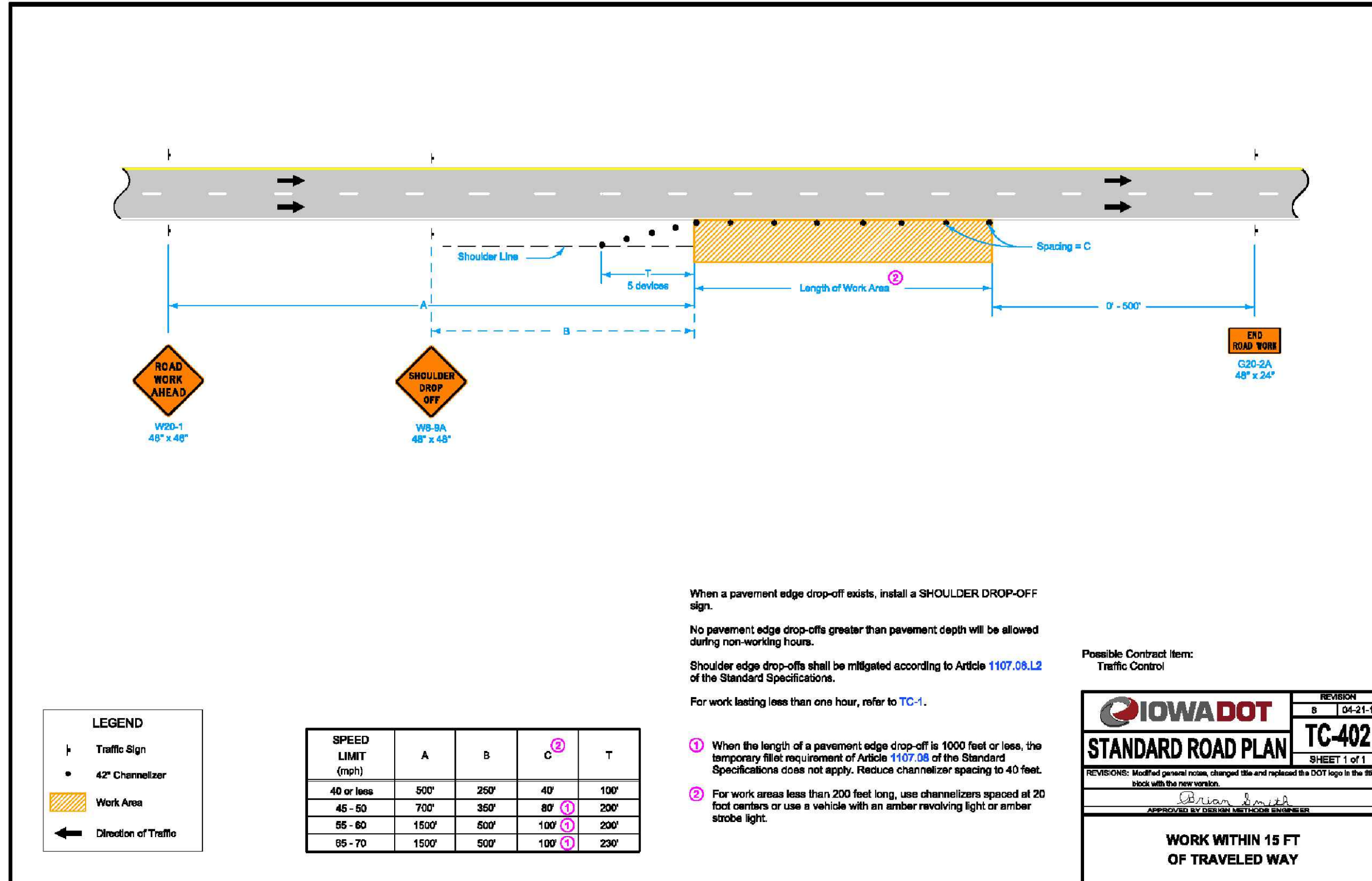
	REVISION
	4 10-15-19
STANDARD ROAD PLAN	TC-213
REVISIONS: New logo.	SHEET 1 of 1
 APPROVED BY DESIGN METHOD ENGINEER	
LANE CLOSURE WITH FLAGGERS	



SAC CITY MIDDLE SCHOOL FIBER RELOCATION
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LEGEND

- Traffic Sign
- 42" Channelizer
- Work Area
- Direction of Traffic

SPEED LIMIT (mph)	A	B	C ^②	T
40 or less	500'	250'	40'	100'
45 - 50	700'	350'	80' ①	200'
55 - 60	1500'	500'	100' ①	200'
65 - 70	1500'	500'	100' ①	230'

When a pavement edge drop-off exists, install a SHOULDER DROP-OFF sign.

No pavement edge drop-offs greater than pavement depth will be allowed during non-working hours.

Shoulder edge drop-offs shall be mitigated according to Article 1107.06.L2 of the Standard Specifications.

For work lasting less than one hour, refer to TC-1.

- ① When the length of a pavement edge drop-off is 1000 feet or less, the temporary fillet requirement of Article 1107.08 of the Standard Specifications does not apply. Reduce channelizer spacing to 40 feet.
- ② For work areas less than 200 feet long, use channelizers spaced at 20 foot centers or use a vehicle with an amber revolving light or amber strobe light.

Possible Contract Item:
Traffic Control

IOWA DOT

STANDARD ROAD PLAN

REVISION 8 04-21-15

TC-402

SHEET 1 of 1

REVISIONS: Modified general notes, changed title and replaced the DOT logo in the title block with the new version.

Brian Smith
APPROVED BY DESIGN METHODS ENGINEER

WORK WITHIN 15 FT OF TRAVELED WAY



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