

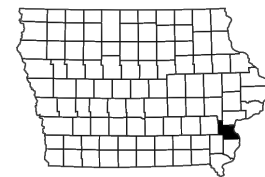
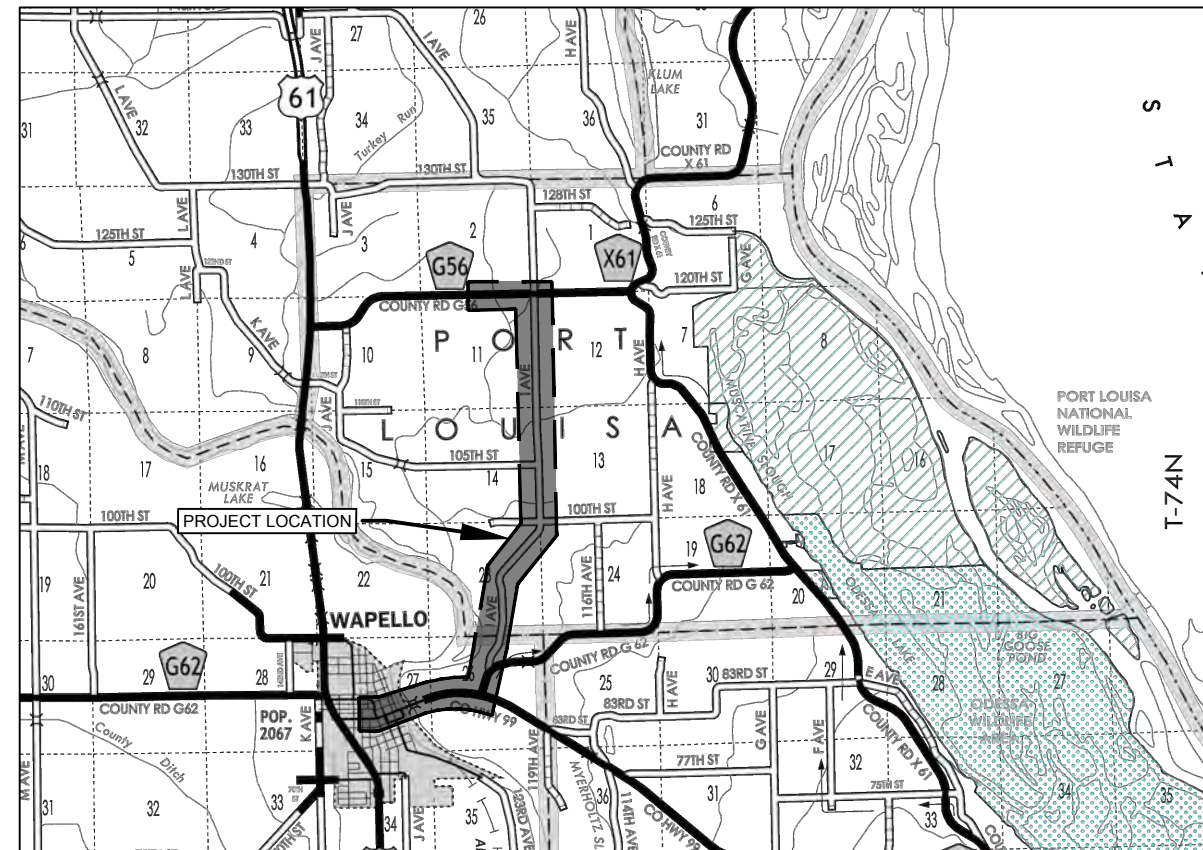
# IOWA COMMUNICATIONS NETWORK

WAPELLO HIGH SCHOOL TO LOUISA COUNTY COMMUNICATIONS CENTER  
 FIBER INSTALLATION  
 LOUISA COUNTY, WAPELLO, IOWA  
 501 BUCHANAN STREET 12635 COUNTY ROAD G56



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

## LOCATION MAP



### PROJECT INFORMATION

**SCOPE OF WORK:**  
 ICN # 58190105  
 THE ICN INTENDS TO EXTEND A 12 STRAND ARMORED, FIBER OPTIC CABLE CONNECTION FROM THE WAPELLO HIGH SCHOOL AT 501 BUCHANAN ST, WAPELLO, IA HEREIN AFTER REFERRED TO AS THE "HIGH SCHOOL", TO THE LOUISA COUNTY COMMUNICATIONS CENTER AT 12635 COUNTY ROAD G56, WAPELLO, IA, HEREIN AFTER REFERRED TO AS THE "COMM CENTER". THIS WILL REQUIRE NEW CONDUIT OF APPROXIMATELY 27,744 FEET, CABLE INSTALLATION IN EXISTING CONDUIT (37 FEET) AT THE HIGH SCHOOL, CABLE INSTALLATION THROUGH NEW BRIDGE CONDUIT (1,241 FEET) ON HIGHWAY 99 CROSSING THE RIVER, AND INSTALLING FIBER IN NEW CONDUIT, ALONG WITH A NEW BUILDING ENTRANCE AT THE COMM CENTER; TOTAL CABLE FOOTAGE OF 32,311'.

**CONTACT PERSON:**  
 TIM FLICKINGER  
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SANDRA SMITH  
 HBK ENGINEERING  
 509 S. GILBERT STREET  
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### INDEX OF SHEETS

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### UTILITY CONTACTS

| COMPANY                                  | CONTACT NAME    | PHONE          | EMAIL                               |
|--|-----------------|----------------|-------------------------------------|
| ALLIANT ENERGY (ANE)                     | LAURA BARR      | (319) 286-1315 | LOCATE_IPL@ALLIANTENERGY.COM        |
| CENTURY LINK (CTLIA01)                   | TOM STURMER     | (720) 578-8090 | THOMAS.STURMER@CENTURYLINK.COM      |
| CITY OF WAPELLO                          | SHELLY SWAFFARD | (319) 572-2838 | SHELLYSWAFFARD7464@GMAIL.COM        |
| IOWA COMMUNICATIONS NETWORK (ICN)        | SHANNON MARLOW  | (800) 572-3940 | ICNOUTSIDEPLANTIOWAONECALL@IOWA.GOV |
| IOWA DEPARTMENT OF TRANSPORTATION (ICR)  | JOHNNY SHANAHAN | (319) 350-1764 | JOHNNY.SHANAHAN@DOT.IOWA.GOV        |
| IOWA DEPARTMENT OF TRANSPORTATION (IDOT) | SCOTT FIX       | (319) 523-4991 | SCOTT.FIX@DOT.IOWA.GOV              |
| LOUISA COUNTY ENGINEER                   | LARRY ROEHL     | (319) 523-5271 | LROEHL.LOEOE@LOUISACOMM.NET         |
| MEDIACOM (ME2)                           | RANDY CHASE     | (845) 867-0933 | RANDYCHASE@MEDIACOMCC.COM           |
| SOUTH SLOPE TELEPHONE (SSC)              | BRIAN FRESE     | (319) 227-7111 | BRIAN@SOUTHSLOPE.COM                |
| WAPELLO JR/SR HIGH SCHOOL                | STEVE BOHLEN    | (319) 572-2838 | STEVE.BOHLEN@WAPELLOCS.D.ORG        |

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.



ICN - WAPELLO HIGH SCHOOL TO LOUISA COUNTY COMMUNICATION CENTER

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**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.

# ENGINEERS 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 4 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 ONTO 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 EXISTING UTILITIES

- 4.01 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.
- 4.02 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.
- 4.03 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.
- 4.04 THE CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL OVERHEAD OBSTRUCTIONS PRIOR TO THE COMMENCEMENT OF WORK.
- 4.05 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.
- 4.06 ALL EXCAVATION WORK NEAR AND AROUND EXISTING STRUCTURES AND UTILITIES SHALL BE BY HAND METHOD.
- 4.07 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.
- 4.08 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.
- 4.09 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.
- 4.10 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".
- 4.11 CONTRACTOR RESPONSIBLE FOR OBTAINING AND PROVIDING REVIEW AND DESIGN OF ANY AND ALL TEMPORARY UTILITY SUPPORT SYSTEMS PRIOR TO CONSTRUCTION.
- 4.12 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 5.0 WORK

- 5.01 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.
- 5.02 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.
- 5.03 CONTRACTOR RESPONSIBLE FOR OBTAINING AND PROVIDING REVIEW AND DESIGN OF ANY AND ALL SHORING SYSTEMS PRIOR TO CONSTRUCTION.
- 5.04 CONTRACTOR SHALL ASSUME ALL ELECTRICAL CABLES ARE ENERGIZED AND SHALL BE SUPPORTED SO AS NOT TO STRESS ANY PORTION OF THE CABLE.
- 5.05 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.
- 5.06 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.
- 5.07 THE ENGINEER SHALL ALSO BE NOTIFIED FOR DISPOSITION OF SITUATIONS WHERE THE CONDUIT CANNOT MAINTAIN SEPARATIONS PER PLAN.




## SECTION 6.0 SAFETY

- 6.01 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.
- 6.02 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.
- 6.03 THE CONTRACTOR SHALL COORDINATE INGRESS AND EGRESS TO ADJACENT PROPERTIES AND/OR CONSTRUCTION AFFECTED BY THE PROPOSED WORK.



## 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                         | — X — X — X —   |
| EXISTING ROW LINE             | - - - - -   |
| EXISTING FIBER OPTIC LINE     | — FO — FO —   |
| EXISTING OVERHEAD LINE        | — OH — OH —   |
| EXISTING STORM DRAIN          | — SD — SD —   |
| EXISTING ELECTRIC (BURIED)    | — E — E —   |
| EXISTING GAS LINE             | — G — G —   |
| EXISTING STORM SEWER          | — > — > —   |
| EXISTING SANITARY SEWER       | — ) — ) —   |
| EXISTING WATER LINE           | — W — W —   |
| EXISTING ICN FIBER            | - - - - -   |
| EXISTING ICN (AERIAL)         | — A —   |
| EXISTING ICN CONDUIT          | — — — — —   |
| TO BE ABANDONED               | - - - - -   |
| PROPOSED ICN FIBER            | - - - - -   |
| PROPOSED AERIAL               | — A —   |
| PROPOSED ICN CONDUIT          | — — — — —   |
| CENTERLINE OF ROAD            | — — — — —   |
| EXISTING WATERWAY BOUNDARY    | — — — — —   |
| PROPOSED ICN HANDHOLE         |  |
| EXISTING ICN HANDHOLE         |  |
| PROPOSED HANDHOLE (BY OTHERS) |  |
| PROPOSED LOCATE POINT         |  |
| EXISTING CULVERT LOCATION     |  |
| EXISTING UTILITY POLE         |  |
| EXISTING SANITARY MANHOLE     |  |



|  |                  |   |
|--|------------------|---|
| ICN – WAPELLO HIGH SCHOOL TO LOUISA<br>COUNTY COMMUNICATION CENTER   |                  |   |
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| 2  | ---              | ---   |
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| <b>IOWA COMMUNICATIONS NETWORK</b><br>400 EAST 14TH STREET<br>GRIMES STATE OFFICE BUILDING<br>DES MOINES, IOWA 50319<br>ICN © 2019, COPY WITH PERMISSION |                  |   |

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).
  - 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 ¼" OPENING HARDWARE CLOTH TYPE SCREEN WIRE BELOW THE HANDHOLE.
3. PROVIDE 5-6 INCHES OF ¾" 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.



|  |                  |   |          |
|--|------------------|---|----------|
| ICN - WAPELLO HIGH SCHOOL TO LOUISA  |                  |  |          |
| COUNTY COMMUNICATION CENTER  |                  |   |          |
| 1  | ISSUE FOR PERMIT |   | 1/8/2020 |
| 2  | ---              |   | ---      |
| 3  |                  |   |          |
| 4  |                  |   |          |
| <b>IOWA COMMUNICATIONS NETWORK</b><br>400 EAST 14TH STREET<br>GRIMES STATE OFFICE BUILDING<br>DES MOINES, IOWA 50319<br>ICN © 2019, COPY WITH PERMISSION |                  |   |          |

| Iowa Communications Network   |                          |                |                   |
|---|--------------------------|----------------|-------------------|
| Project Name: Louisa County, Wapello, County PSAP 12635 Cty Rd G56                |                          | Date: 01/08/20 |                   |
| Project Number: 58190105  |                          |                |                   |
| ICN Provided Material List (Warehouse Contact Paul Damage 515.725.4749)           |                          |                |                   |
| Item  | ICN Part Number          | Qty            | Notes             |
| <b>FIBER CABLE</b>  |                          |                |                   |
| 12 strand Armored SM fiber  |                          | 34,000         | 2 - 17,000' Reels |
| <b>HANDHOLES AND LIDS</b>   |                          |                |                   |
| Bulk 24"x36"x36" with lid Tier 22   | BULKU2436360061001       | 21             |                   |
| Bulk Puck ICN Logo Black  | ACC7734-125              | 19             |                   |
| Bulk Puck ICN Logo Orange   | ACC7334OR-125            | 2              | Locate point only |
| <b>LOCATE FACILITIES</b>  |                          |                |                   |
| <b>LOCATE STATIONS</b>  |                          |                |                   |
| TRIVIEW Test Station w/ Isolever 72" ORANGE (with 3 ICN decals applied) (Walker)  | TVT172OB-EM9125          | 2              | 142+89, 283+83    |
| ISO Lever Locate Box (pre-fabricated unit)  | ISOLOCBOX                | 1              | School            |
| <b>GROUNDING</b>  |                          |                |                   |
| Erico 1/2" x 6' Ground Rod (Graybar)  | 611360                   | 3              |                   |
| Burndy 1/2" Ground Rod Clamp (Anixter)  | GRC12                    | 3              |                   |
| Molex Perma Seal Butt Splices #12 Wire  | 19164-0056               |                |                   |
| <b>MARKERS FLAGS DECALS</b>   |                          |                |                   |
| ICN Snap Around Vulcan 4"x4" 15Mil Coiled Pvc (ICN-4X4-Sa)                        | 1502345 (ICN-4x4-SA)     | 26             |                   |
| T Post 6-ft Steel Studded   | (provided with TriViews) | 29             |                   |
| TriView Warning Marker 78" with Orange Cap (with 3 decals - part number SD-9007K) | TVFL7800                 | 29             |                   |
| <b>TERMINATION ITEMS: FDP, BULKHEADS, TRAYS, &amp; RELATED</b>                    |                          |                |                   |
| Closet Connector Housing (CCH), 1 rack unit, holds 2 CCH cassettes                | CCH-01U                  | 2              | School / PSAP     |
| CCH Pigtailed Splice Cassette, 12 F, SC UPC Duplex, SM, SF PRE-ASSEMBLED          | CCH-CS12-59-P00RE        | 1              | School            |
| CCH Pigtailed Splice Cassette, 6 F, SC UPC Simplex, SM PRE-ASSEMBLED              | CCH-CS06-3C-P00RE        | 1              | PSAP              |
| Lewton storage ring 24-inch   | 48900-OFR                | 1              | School            |
| <b>SPLICING MATERIALS</b>   |                          |                |                   |
| <b>SPLICE CLOSURES</b>  |                          |                |                   |
| 450BS FOSC450-BS-6-NT-0-B0V   | F34112-000               | 2              |                   |
| <b>SPLICE TRAYS</b>   |                          |                |                   |
| A TRAY 12 FOSC-ACC-A-TRAY-12 TRAY WITH 12 FUSION SPLICE HOLDER                    | 497817-000               | 1              | BS case           |
| <b>BONDING &amp; TRACING HARDWARE</b>   |                          |                |                   |
| FOSC Closure Sealing Kit FAK-MULDRP-45-4P/CBL-ATT                                 | 1F6818-000               | 2              |                   |
| 3M Scotchlok Shield Bond Connector 4460-D   | 4460-D                   | 6              |                   |

| LISTING OF CONDUIT & FIBER WORK |                            |                                 |        |                    |                                  |
|---------------------------------|----------------------------|---------------------------------|--------|--------------------|----------------------------------|
| CONDUIT RUN                     | FROM                       | TO                              | LENGTH | 1.25" CONDUIT      | 12 SM ARMORED FIBER, UNDERGROUND |
| 1                               | TELECOM ROOM (HIGH SCHOOL) | MH1                             | 37     | EXISTING           | 37                               |
| 2                               | MH1 (EX)                   | HH2                             | 456    | 456                | 456                              |
| 3                               | HH2                        | HH3                             | 406    | 406                | 406                              |
| 4                               | HH3                        | HH4                             | 1163   | 1163               | 1163                             |
| 5                               | HH4                        | HH4A (COUNTY HH)                | 8      | 8                  | 8                                |
| 6                               | HH4A (COUNTY HH)           | HH5A (COUNTY HH)                | 1335   | PROVIDED BY COUNTY | 1335                             |
| 7                               | HH5A (COUNTY HH)           | HH5                             | 9      | 9                  | 9                                |
| 8                               | HH5                        | HH6                             | 1552   | 1552               | 1552                             |
| 9                               | HH6                        | HH7                             | 921    | 921                | 921                              |
| 10                              | HH7                        | HH8                             | 1206   | 1206               | 1206                             |
| 11                              | HH8                        | HH9                             | 1779   | 1779               | 1779                             |
| 12                              | HH9                        | HH10                            | 1996   | 1996               | 1996                             |
| 13                              | HH10                       | HH11                            | 1781   | 1781               | 1781                             |
| 14                              | HH11                       | HH12                            | 1678   | 1678               | 1678                             |
| 15                              | HH12                       | HH13                            | 1816   | 1816               | 1816                             |
| 16                              | HH13                       | HH14                            | 1475   | 1475               | 1475                             |
| 17                              | HH14                       | HH15                            | 1034   | 1034               | 1034                             |
| 18                              | HH15                       | HH16                            | 1338   | 1338               | 1338                             |
| 19                              | HH16                       | HH17                            | 1644   | 1644               | 1644                             |
| 20                              | HH17                       | HH18                            | 1669   | 1669               | 1669                             |
| 21                              | HH18                       | HH19                            | 1579   | 1579               | 1579                             |
| 22                              | HH19                       | HH20                            | 844    | 844                | 844                              |
| 23                              | HH20                       | HH21                            | 1454   | 1454               | 1454                             |
| 24                              | HH21                       | HH22                            | 1240   | 1240               | 1240                             |
| 25                              | HH22                       | TELECOM ROOM (SHERIFFS STATION) | 696    | 696                | 696                              |
| TOTAL                           |                            |                                 |        | 27744              | 29116                            |

| LISTING OF HANDHOLE WORK                                |                 |              |         |                          |
|---|-----------------|--------------|---------|--------------------------|
| HANDHOLE LABEL  | HANDHOLE TYPE   | ROUTE        | STATION | 12 SM ARMORED FIBER COIL |
| EXISTING MH 1   | 36" MANHOLE     | BUCHANAN AVE | 0+00    |                          |
| HH2   | 24" X 36" X 36" | N 4TH ST     | 4+56    | 100                      |
| HH3   | 24" X 36" X 36" | N 4TH ST     | 8+62    | 100                      |
| HH4   | 24" X 36" X 36" | FRANKLIN ST  | 20+25   | 100                      |
| HH4A  | 24" X 36" X 36" | FRANKLIN ST  | 20+33   |                          |
| HH5A  | 24" X 36" X 36" | HWY 99       | 33+68   |                          |
| HH5   | 24" X 36" X 36" | HWY 99       | 33+77   | 100                      |
| HH6   | 24" X 36" X 36" | HWY 99       | 49+29   | 100                      |
| HH7   | 24" X 36" X 36" | HWY99        | 58+50   | 100                      |
| HH8   | 24" X 36" X 36" | G62          | 70+56   | 100                      |
| HH9   | 24" X 36" X 36" | I AVE        | 88+35   | 100                      |
| HH10  | 24" X 36" X 36" | I AVE        | 108+31  | 100                      |
| HH11  | 24" X 36" X 36" | I AVE        | 126+12  | 100                      |
| HH12 - LINK 1621 (REEL END/SPLICE HH WITH LOCATE POINT) | 24" X 36" X 36" | I AVE        | 142+90  | 150                      |
| HH13  | 24" X 36" X 36" | I AVE        | 161+07  | 100                      |
| HH14  | 24" X 36" X 36" | I AVE        | 175+82  | 100                      |
| HH15  | 24" X 36" X 36" | I AVE        | 186+16  | 100                      |
| HH16  | 24" X 36" X 36" | I AVE        | 199+54  | 100                      |
| HH17  | 24" X 36" X 36" | I AVE        | 215+98  | 100                      |
| HH18  | 24" X 36" X 36" | I AVE        | 232+67  | 100                      |
| HH19  | 24" X 36" X 36" | I AVE        | 248+46  | 100                      |
| HH20  | 24" X 36" X 36" | G56          | 256+90  | 100                      |
| HH21  | 24" X 36" X 36" | G56          | 271+44  | 100                      |
| HH22 (FIBER ACCESS CLOSURE CASE WITH LOCATE POINT)      | 24" X 36" X 36" | G56          | 283+84  | 150                      |
| TOTAL   |                 |              |         | 2200                     |

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.

| 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   | 21            |                |
| 3                      | 1.25" CONDUIT                      | LF   | 27,744        |                |
| 4                      | 12 SM ARMORED FIBER (TOTAL)        | LF   | 32,311        |                |
| 5                      | 12 SM ARMORED FIBER (RUNNING LINE) | LF   | 29,116        |                |
| 6                      | 12 SM ARMORED FIBER (COIL)         | LF   | 2,200         |                |
| 7                      | ICN WARNING MARKERS                | EA   | 29            |                |
| 8                      | TRI-VIEW LOCATE STATION            | EA   | 2             |                |
| 9                      | GROUND ROD                         | EA   | 3             |                |
| 10                     | TYCO 450BS SPLICE ENCLOSURE        | EA   | 2             |                |

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:**

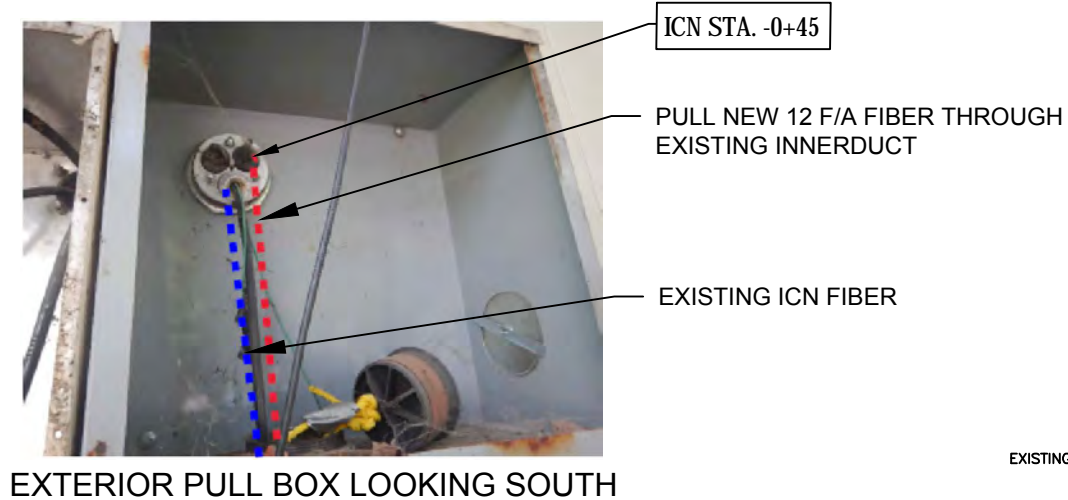
- HDPE SHALL BE ORANGE SMOOTH WALL SDR 13.5
- DUCT SPLICES SHALL BE MADE OF THE FOLLOWING (IN ORDER OF PREFERENCE.)
  - CRIMP ON
  - CLAMP ON / BOLT ON (SPLIT COUPLINGS)
  - PUSH ON
- ALL SPLICES SHALL BE AIR AND WATER TIGHT
- DUCT SPLICES SHALL BE OF A TYPE MADE SPECIFICALLY FOR JOINING HDPE CONDUIT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

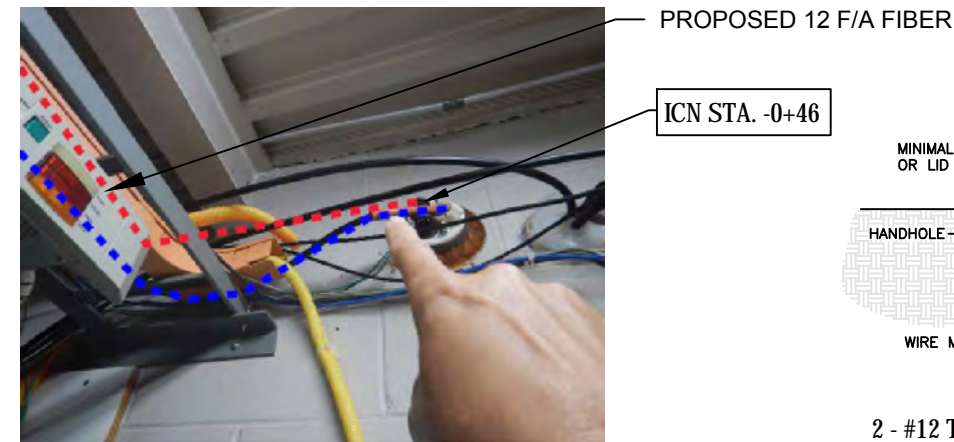


|   |                  |            |
|---|------------------|------------|
| ICN - WAPELLO HIGH SCHOOL TO LOUISA COUNTY COMMUNICATION CENTER   |                  | <b>hbk</b> |
| 1   | ISSUE FOR PERMIT | 1/8/2020   |
| 2   | ---              | ---        |
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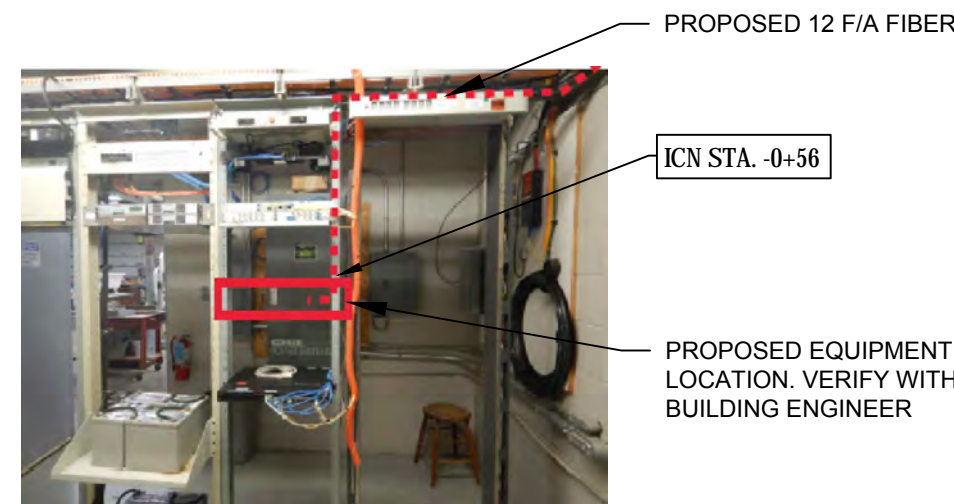
WAPELLO HIGH SCHOOL EXTERIOR AND INTERIOR ROUTE DETAILS



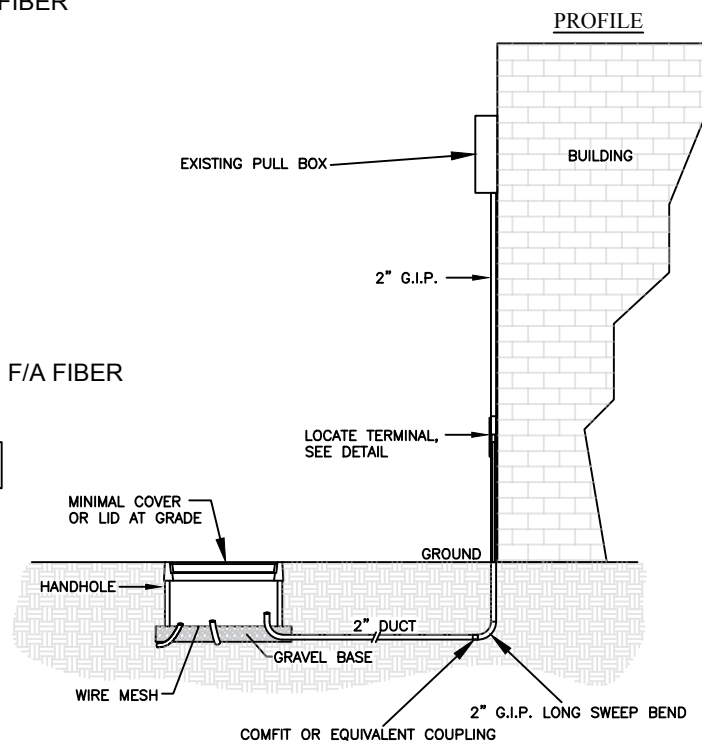
EXTERIOR PULL BOX LOOKING SOUTH



BUILDING ENTRY POINT LOOKING NORTH



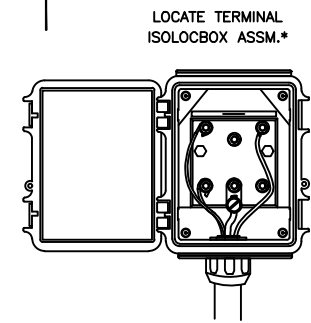
RACK LOCATION LOOKING WEST



2 - #12 TRACER WIRES FROM EXTERIOR LOCATE POINT FOR BONDING TO NEW CABLE AND EXISTING ICN CABLE.

TRACER WIRE TERMINATION DETAIL

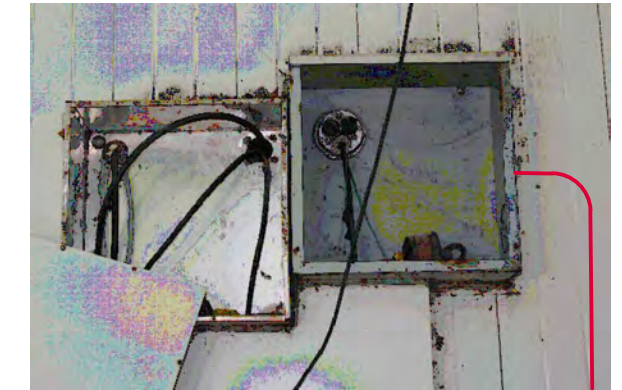
TERMINATION OF THE LOCATE WIRE AT A LOCATE PEDESTAL, LOCATE TERMINAL, OR IN A SPLICE CASE SHALL BE MADE IN THE FOLLOWING FASHION:  
STRIP OFF A MINIMUM OF 3/4\" OF INSULATION. USING A NEEDLE NOSE PLIERS, BEND A WIRE "EYELET" ON THE WIRE END IN A CLOCKWISE MANNER. USE A FLAT WASHER ON BOTH SIDES OF THE 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 OF DIAMETER OF THE FLAT WASHER MATCHES REASONABLY CLOSE TO THE EYELET DIAMETER.



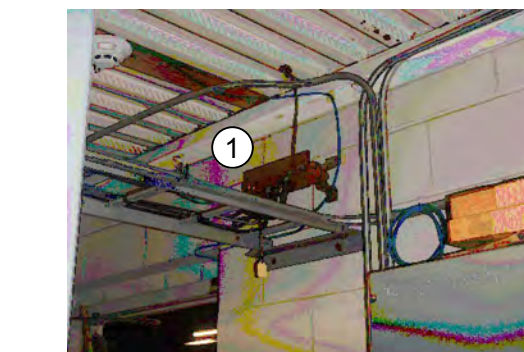
NOTES:

1. PLACE 2" G.I.P. WITH SWEEP TOWARDS NEW PULL BOX
2. (1) CORE HOLE THROUGH EXTERIOR WALL TO ACCOMMODATE 2" G.I.P.
3. PLUG ALL DUCTS WITH JACK MOON OR EQUIVALENT
4. BUILDING ENTRANCE SHALL HAVE WATER-TIGHT SEAL
5. ANCHOR 2" G.I.P. TO WALL WITH 2-HOLE STRAPS, SPACED NO MORE THAN 5- FEET APART
6. ALL COMPONENTS SHALL BE G.I.P. OR DIE CAST ALUMINUM
7. EMT AND PLASTIC ARE NOT ALLOWED
8. MOUNT LOCATE STATION A MINIMUM OF 18" ABOVE GRADE
9. SEAL ANY ACCESS HOLES DRILLED IN THE LOCATE STATION TO ROUTE WIRES WITH SILICONE
10. ALL COUPLINGS MUST ALLOW FOR BLOWING OR PULLING WITH NO OBSTRUCTION

\*NOTE: ISOLOCBOX ASSEMBLY INCLUDES: BOX, ISOLEVER, PVC STAND-OFF, AND 1-FT OF FLEXIBLE CONDUIT WITH CONNECTORS



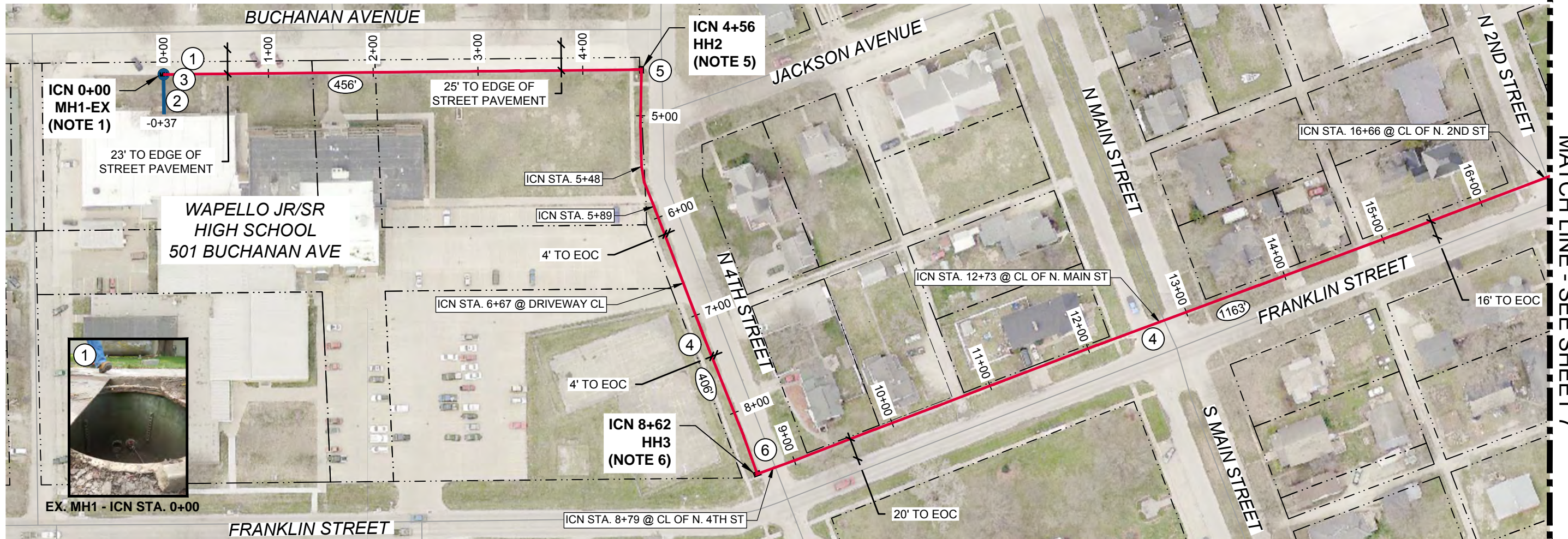
TYPICAL ABOVE GROUND BUILDING ENTRANCE WITH LOCATE TERMINAL



① CONTRACTOR TO INSTALL #10 GROUNDING WIRE TO EXISTING GROUND BAR TO THE TERMINATION RACK AND TEMPORARILY BOND TO THE ARMORED JACKET.

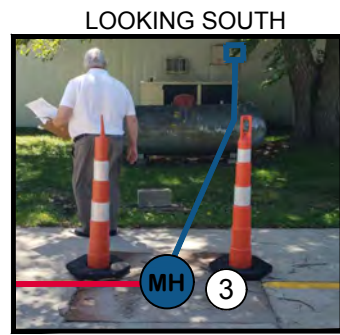
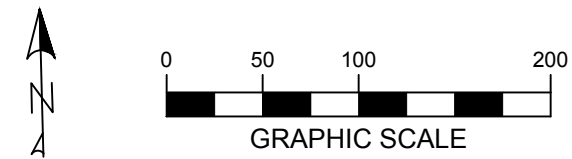


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|---|------------------|----------|---|
| ICN - WAPELLO HIGH SCHOOL TO LOUISA COUNTY COMMUNICATION CENTER |                  | hbk icn  |   |
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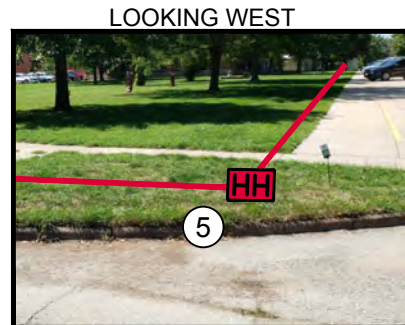


- ① REMOVE AND DISCARD METAL PLATE COVER. REMOVE EXISTING MANHOLE COLLAR. REPLACE COLLAR TO RAISE LID HEIGHT FLUSH WITH EXISTING SIDEWALK. REMOVE AND REPLACE CONCRETE SIDEWALK BACK TO NEAREST JOINT. EXCAVATE AROUND EXISTING MANHOLE RING AND POUR NEW CONCRETE TO GRADE, 6" MIN. TO PROVIDE SUPPORT FOR CAST IRON FRAME/LID. SEE MANHOLE COLLAR AND LID DETAIL 1 PROVIDED ON THIS SHEET. CONTRACTOR TO VERIFY COLLAR AND LID SIZE REQUIRED IN FIELD.
- ② PULL NEW LINK 1621 12 F/A THROUGH EXISTING CONDUIT TO PULL BOX OUTSIDE BUILDING. SEE PLAN SHEET 5, FOR EXTERIOR AND INTERIOR ROUTES.
- ③ CORE EXISTING MANHOLE FOR NEW 1 1/4" HDPE CONDUIT.
- ④ PULL NEW LINK 1621 12 F/A THROUGH NEW 1 1/4" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ⑤ ICN STA. 4+56. INSTALL PROPOSED 24"x36"x36" ICN HANDHOLE - HH2. LINK 1621 12 F/A 100' SLACK COIL.
- ⑥ ICN STA. 8+62. INSTALL PROPOSED 24"x36"x36" ICN HANDHOLE - HH3. LINK 1621 12 F/A 100' SLACK COIL.

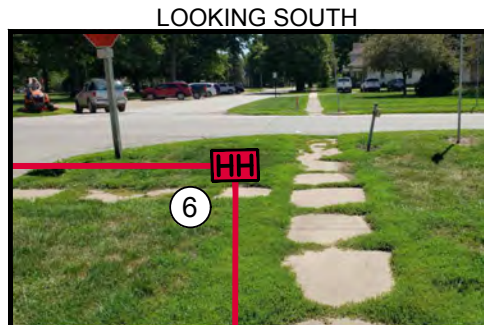
LOUISA COUNTY  
 WAPELLO TOWNSHIP  
 T74-N R-03W



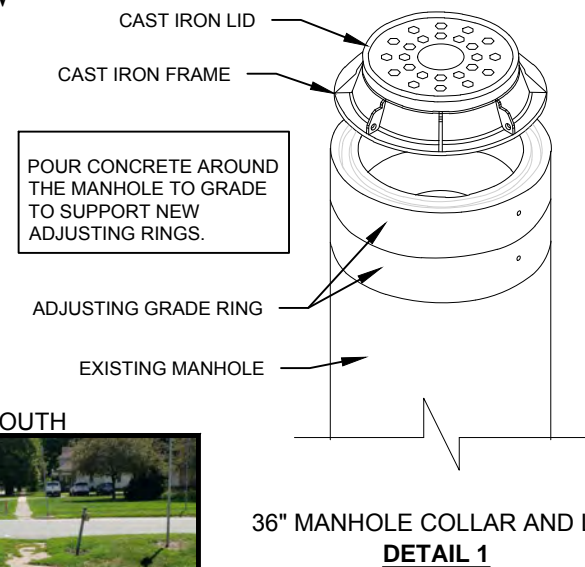
EX. MH1 - ICN STA. 0+00



HH2 - ICN STA. 4+56



HH3 - ICN STA. 8+62



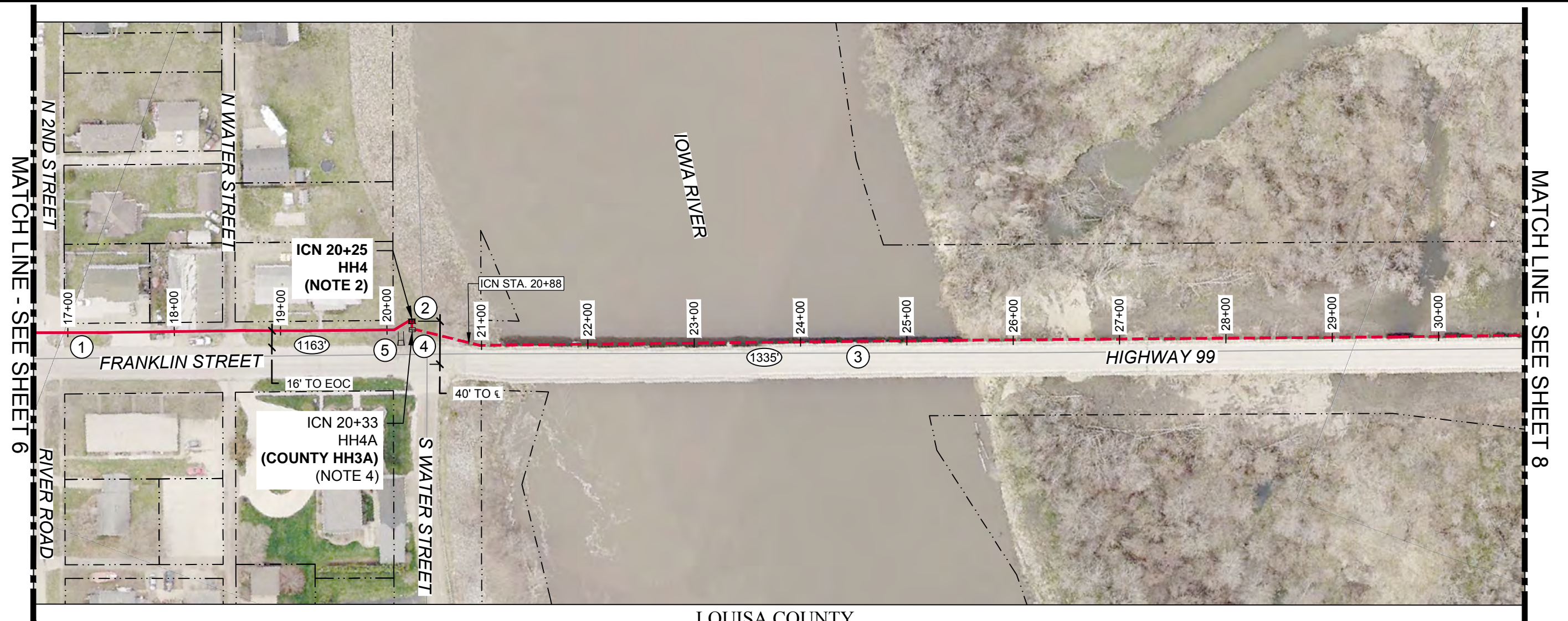
| LISTING OF HANDHOLES |         |          |         |           |
|----------------------|---------|----------|---------|-----------|
| HANDHOLE             | STATION | HANDHOLE | STATION | LENGTH FT |
| EXISTING MH 1        | 0+00    | HH2      | 4+56    | 456       |
| HH2                  | 4+56    | HH3      | 8+62    | 406       |
| HH3                  | 8+62    | HH4      | 20+25   | 1163      |
| TOTAL                |         |          |         | 2025      |

\* LENGTH DOES NOT INCLUDE SLACKCOILS

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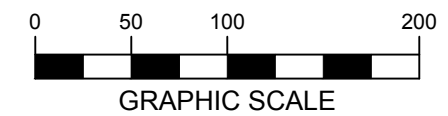
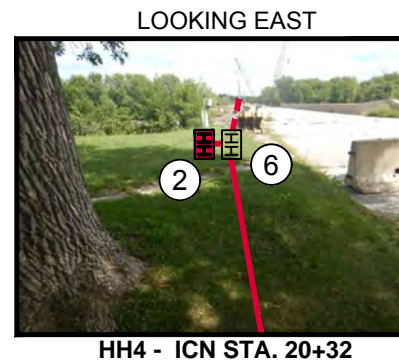
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- ① PULL NEW LINK 1621 12 F/A THROUGH NEW 1 ¼" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ② ICN STA. 20+25. PROPOSED 24"x36"x36" ICN HANDHOLE - HH4. LINK 1621 100' SLACK COIL 12 F/A.
- ③ ICN STA. 20+88 TO 33+03 LINK 1621 12 F/A - PULL THROUGH NEW 2" PVC COUNTY CONDUIT ATTACHED TO THE BRIDGE RAILING PROVIDED BY LOUISA COUNTY. COORDINATE WITH LOUISA COUNTY ENGINEER ON ACCESS AND LOCATION.
- ④ PULL FIBER FROM ICN HH4 TO HH4A (FUTURE COUNTY HANDHOLE HH3A). HH4A TO BE INSTALLED BY LOUISA COUNTY - CURRENTLY NOT PLACED, PLACEMENT TO BE DETERMINED ONCE BRIDGE CONSTRUCTION IS COMPLETE. CONTRACTOR TO COORDINATE WITH LOUISA COUNTY ENGINEER ON FINAL HANDHOLE LOCATION PLACEMENT. SEE COUNTY BRIDGE PLAN ON DETAIL SHEET 33.

- ⑤ APPROXIMATE LOCATION OF PROPOSED SIDEWALK CROSSING. AVOID PLACING HANDHOLE AT SIDEWALK CROSSING. CONTRACTOR TO COORDINATE WITH LOUISA COUNTY ENGINEER ON FINAL SIDEWALK PLACEMENT.
- ⑥ CONNECT ICN 1 ¼" CONDUIT TO PROPOSED LOUISA COUNTY HANDHOLE. CONTRACTOR TO COORDINATE WITH THE LOUISA COUNTY ENGINEER.



| LISTING OF HANDHOLES |         |                  |         |             |
|----------------------|---------|------------------|---------|-------------|
| HANDHOLE             | STATION | HANDHOLE         | STATION | LENGTH FT   |
| HH3                  | 8+62    | HH4              | 20+25   | 1163        |
| HH4                  | 20+25   | HH4A (COUNTY HH) | 20+33   | 8           |
| HH4A (COUNTY HH)     | 20+33   | HH5A (COUNTY HH) | 33+68   | 1335        |
| TOTAL                |         |                  |         | <b>2506</b> |

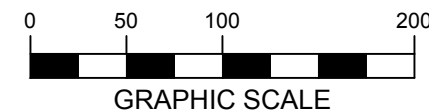
\* LENGTH DOES NOT INCLUDE SLACKCOILS



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- ① PULL NEW LINK 1621 12 F/A THROUGH NEW 1 1/4" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ② ICN STA. 33+77. PROPOSED 24"x36"x36" ICN HANDHOLE - HH5. INSTALL ICN MARKER POST. LINK 1621 100' SLACK COIL 12 F/A.
- ③ ICN STA. 20+88 TO 33+03 LINK 1621 12 F/A - PULL THROUGH NEW 2" PVC COUNTY CONDUIT ATTACHED TO THE BRIDGE RAILING PROVIDED BY LOUISA COUNTY. COORDINATE WITH LOUISA COUNTY ENGINEER ON ACCESS AND LOCATION.
- ④ PULL FIBER FROM ICN HH5 TO HH5A (FUTURE COUNTY HANDHOLE HH3B). HH5A TO BE INSTALLED BY LOUISA COUNTY - CURRENTLY NOT PLACED, PLACEMENT TO BE DETERMINED ONCE BRIDGE CONSTRUCTION IS COMPLETE. CONTRACTOR TO COORDINATE WITH LOUISA COUNTY ENGINEER ON FINAL HANDHOLE LOCATION PLACEMENT. SEE COUNTY BRIDGE PLAN ON DETAIL SHEET 33.
- ⑤ CONNECT ICN 1 1/4" CONDUIT TO PROPOSED LOUISA COUNTY HANDHOLE. CONTRACTOR TO COORDINATE WITH THE LOUISA COUNTY ENGINEER.
- ⑥ OTHER TELECOM PROVIDERS IN THE AREA. STAY 36" CLEAR FROM ALL EXISTING UTILITIES.

| LISTING OF HANDHOLES |         |                  |         |             |
|----------------------|---------|------------------|---------|-------------|
| HANDHOLE             | STATION | HANDHOLE         | STATION | LENGTH FT   |
| HH4 (COUNTY HH)      | 20+33   | HH5A (COUNTY HH) | 33+68   | 1335        |
| HH5A (COUNTY HH)     | 33+68   | HH5              | 33+77   | 9           |
| HH5                  | 33+77   | HH6              | 49+29   | 1552        |
| TOTAL                |         |                  |         | <b>2896</b> |

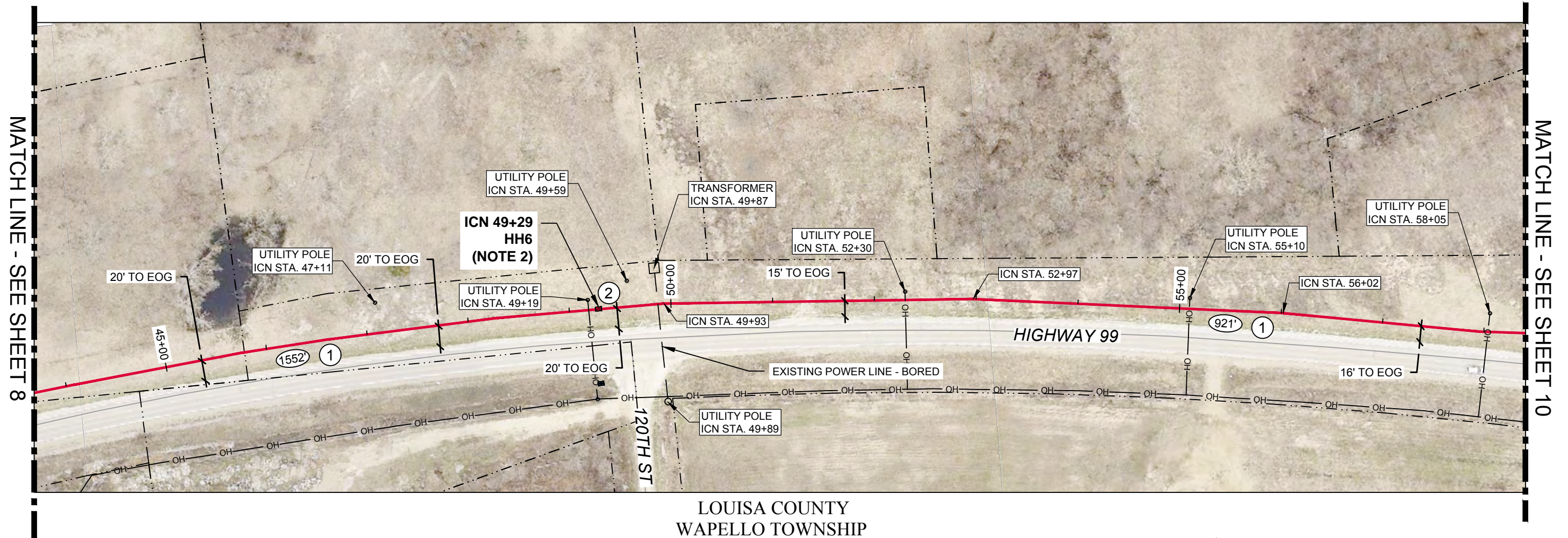
\* LENGTH DOES NOT INCLUDE SLACKCOILS



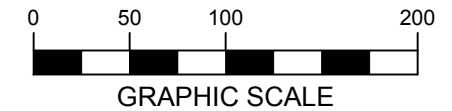
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LOUISA COUNTY  
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 T74-N R-03W



- ① PULL NEW LINK 1621 12 F/A THROUGH NEW 1 1/4" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ② ICN STA. 49+29 PROPOSED 24"x36"x36" ICN HANDHOLE - HH6. INSTALL ICN MARKER POST. LINK 1621 100' SLACK COIL 12 F/A.
- ③ OTHER TELECOM PROVIDERS IN THE AREA. STAY 36" CLEAR FROM ALL EXISTING UTILITIES.

| LISTING OF HANDHOLES |         |          |         |           |
|----------------------|---------|----------|---------|-----------|
| HANDHOLE             | STATION | HANDHOLE | STATION | LENGTH FT |
| HH5                  | 33+77   | HH6      | 49+29   | 1552      |
| HH6                  | 49+29   | HH7      | 58+50   | 921       |
| TOTAL                |         |          |         | 2473      |

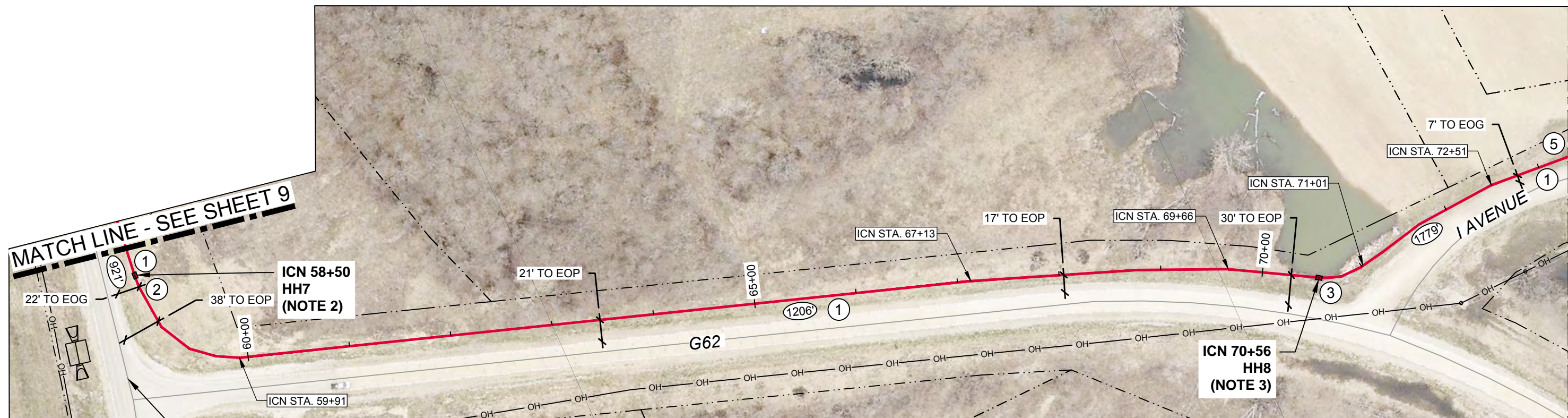
\* LENGTH DOES NOT INCLUDE SLACKCOILS



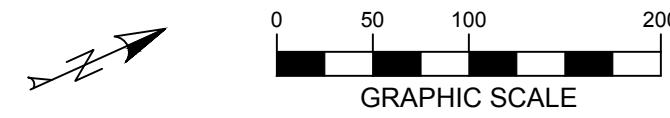
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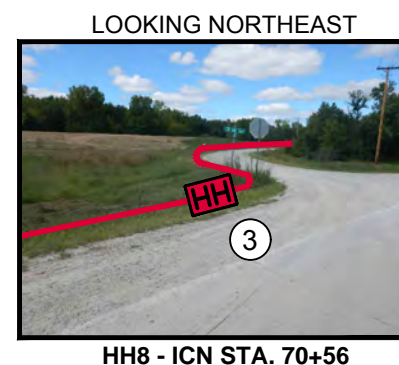
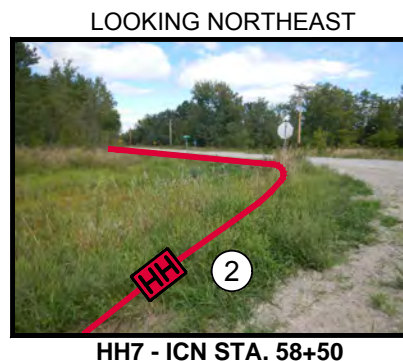
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- ① PULL NEW LINK 1621 12 F/A THROUGH NEW 1 ¼" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ② ICN STA. 58+50. PROPOSED 24"x36"x36" ICN HANDHOLE - HH7. INSTALL MARKER POST. LINK 1621 100' SLACK COIL 12 F/A. PLACE HANDHOLE IN FORESLOPE OF THE DITCH PER LOUISA COUNTY.
- ③ ICN STA. 70+56. PROPOSED 24"x36"x36" ICN HANDHOLE - HH8. INSTALL MARKER POST. LINK 1621 100' SLACK COIL 12 F/A. PLACE HANDHOLE IN FORESLOPE OF THE DITCH PER LOUISA COUNTY.
- ④ OTHER TELECOM PROVIDERS IN AREA. STAY 36" CLEAR FROM ALL EXISTING UTILITIES.
- ⑤ CONTRACTOR SHALL NOT ALLOW ANY EQUIPMENT ON LEVY.



| LISTING OF HANDHOLES |         |          |         |           |
|----------------------|---------|----------|---------|-----------|
| HANDHOLE             | STATION | HANDHOLE | STATION | LENGTH FT |
| HH6                  | 49+29   | HH7      | 58+50   | 921       |
| HH7                  | 58+50   | HH8      | 70+56   | 1206      |
| HH8                  | 70+56   | HH9      | 88+35   | 1779      |
| TOTAL                |         |          |         | 3906      |

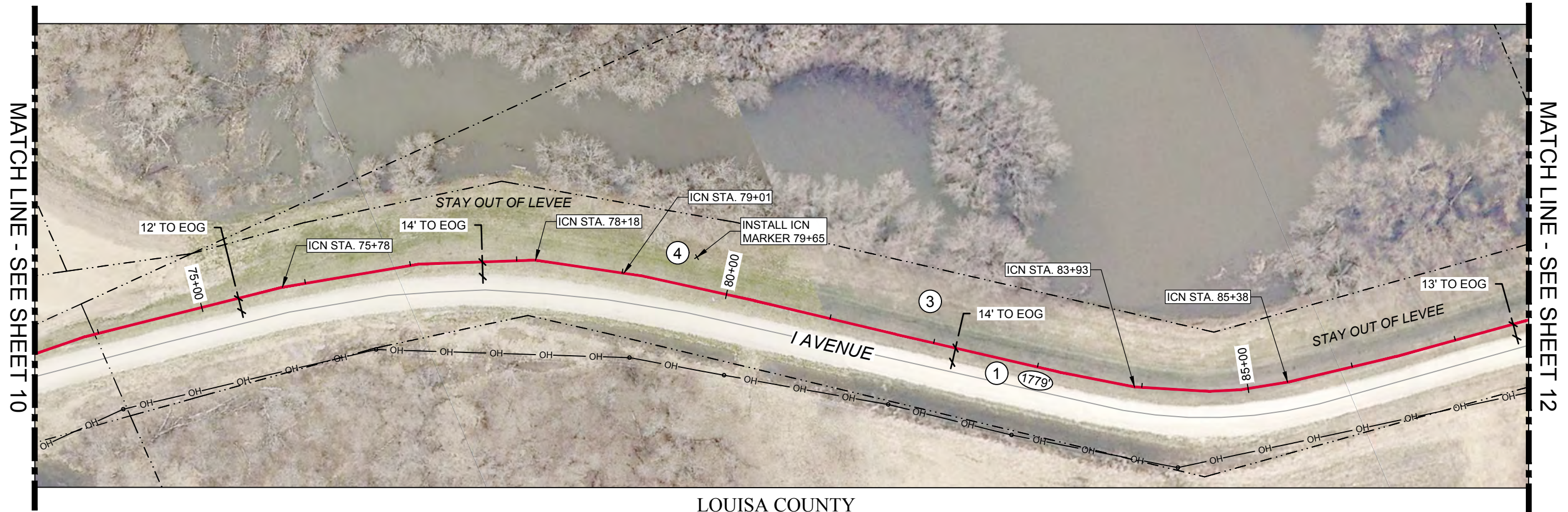
\* LENGTH DOES NOT INCLUDE SLACKCOILS



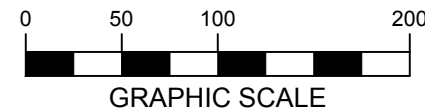
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- ① PULL NEW LINK 1621 12 F/A THROUGH NEW 1 1/4" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ② OTHER TELECOM PROVIDERS IN AREA. STAY 36" CLEAR FROM ALL EXISTING UTILITIES.
- ③ CONTRACTOR SHALL NOT ALLOW ANY EQUIPMENT ON LEVY.
- ④ INSTALL ICN MARKER AT ICN STA. 79+64.

| LISTING OF HANDHOLES |         |          |         |           |
|----------------------|---------|----------|---------|-----------|
| HANDHOLE             | STATION | HANDHOLE | STATION | LENGTH FT |
| HH8                  | 70+56   | HH9      | 88+35   | 1779      |
| TOTAL                |         |          |         | 1779      |

\* LENGTH DOES NOT INCLUDE SLACKCOILS



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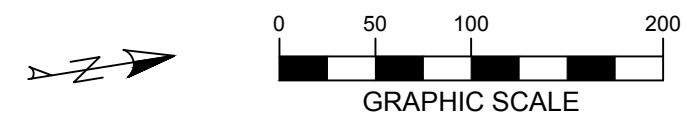
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- ① PULL NEW LINK 1621 12 F/A THROUGH NEW 1 ¼" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ② ICN STA. 88+35. PROPOSED 24"x36"x36" ICN HANDHOLE - HH9. INSTALL MARKER POST. LINK 1621 100' SLACK COIL 12 F/A.
- ③ OTHER TELECOM PROVIDERS IN AREA. STAY 36" CLEAR FROM ALL EXISTING UTILITIES.
- ④ CONTRACTOR SHALL NOT ALLOW ANY EQUIPMENT ON LEVY.
- ⑤ INSTALL ICN MARKER AT ICN STA. 98+76.



| LISTING OF HANDHOLES |         |          |         |           |
|----------------------|---------|----------|---------|-----------|
| HANDHOLE             | STATION | HANDHOLE | STATION | LENGTH FT |
| HH8                  | 70+56   | HH9      | 88+35   | 1779      |
| HH9                  | 88+35   | HH10     | 108+31  | 1996      |
| TOTAL                |         |          |         | 3775      |

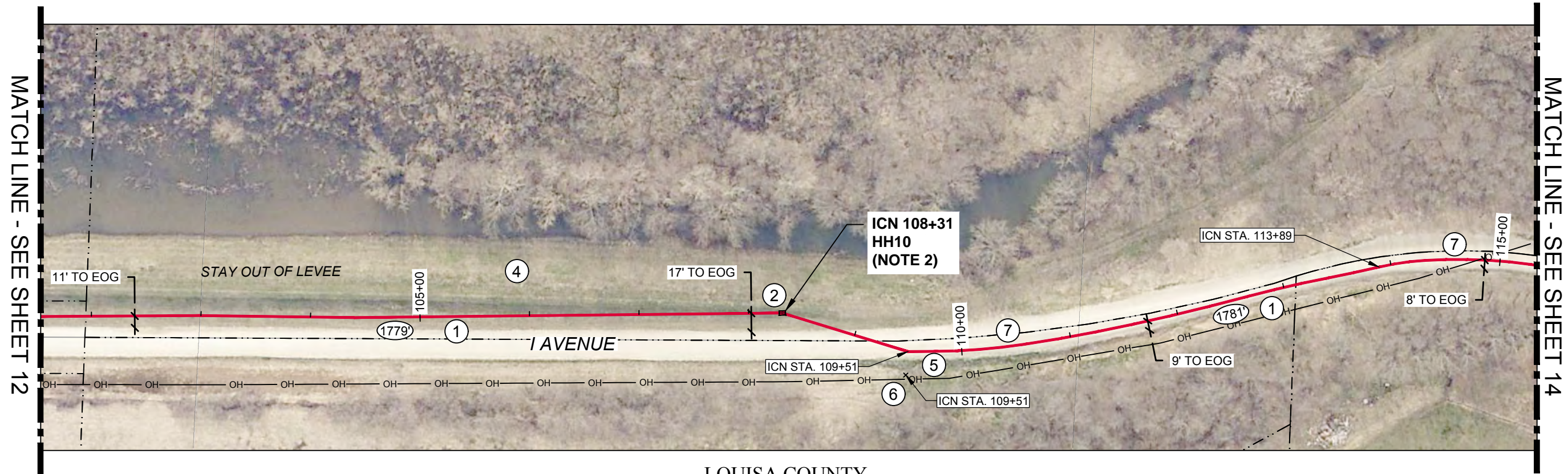
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- ① PULL NEW LINK 1621 12 F/A THROUGH NEW 1 1/4" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ② ICN STA. 108+31. PROPOSED 24"x36"x36" ICN HANDHOLE - HH10. INSTALL MARKER POST. LINK 1621 100' SLACK COIL 12 F/A.
- ③ OTHER TELECOM PROVIDERS IN AREA. STAY 36" CLEAR FROM ALL EXISTING UTILITIES.
- ④ CONTRACTOR SHALL NOT ALLOW ANY EQUIPMENT ON LEVY.
- ⑤ BORE IN GRAVEL ROAD IS 9' OFFSET TO THE EAST CENTERLINE OF I AVENUE (PER LOUISA COUNTY ENGINEER).
- ⑥ INSTALL ICN MARKER AT ICN STA. 109+51.
- ⑦ CONTRACTOR SHALL BORE AT A MINIMUM FROM ICN STA. 109+51 (BASE OF HILL) UP THE HILL TO ICN STA. 122+02 TO MINIMIZE ANY FUTURE WASHOUT.



| LISTING OF HANDHOLES |         |          |         |           |
|----------------------|---------|----------|---------|-----------|
| HANDHOLE             | STATION | HANDHOLE | STATION | LENGTH FT |
| HH9                  | 88+35   | HH10     | 108+31  | 1779      |
| HH10                 | 108+31  | HH11     | 126+12  | 1781      |
| TOTAL                |         |          |         | 3560      |

\* LENGTH DOES NOT INCLUDE SLACKCOILS

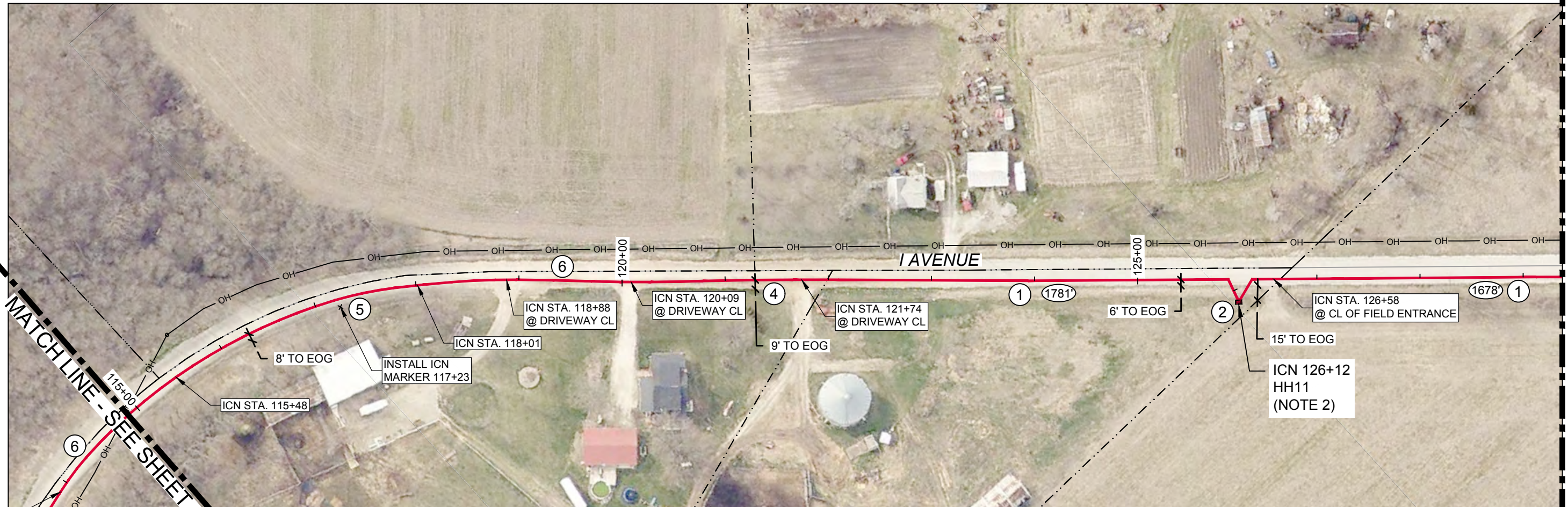


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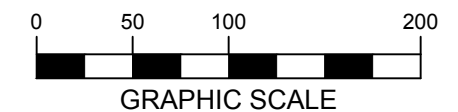
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- ① PULL NEW LINK 1621 12 F/A THROUGH NEW 1 ¼" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ② ICN STA. 126+12. PROPOSED 24"x36"x36" ICN HANDHOLE - HH11. INSTALL ICN MARKER. LINK 1621 100' SLACK COIL 12 F/A.
- ③ OTHER TELECOM PROVIDERS IN THE AREA. STAY 36" CLEAR FROM ALL EXISTING UTILITIES.
- ④ BORE IN GRAVEL ROAD IS 9' OFFSET TO THE EAST CENTERLINE OF I AVENUE TO EOG (PER LOUISA COUNTY ENGINEER).
- ⑤ INSTALL ICN MARKER AT ICN STA. 117+23.
- ⑥ CONTRACTOR SHALL BORE AT A MINIMUM FROM ICN STA. 109+51 (BASE OF HILL) UP THE HILL TO ICN STA. 122+02 TO MINIMIZE ANY FUTURE WASHOUT.



| LISTING OF HANDHOLES |         |          |         |           |
|----------------------|---------|----------|---------|-----------|
| HANDHOLE             | STATION | HANDHOLE | STATION | LENGTH FT |
| HH10                 | 108+31  | HH11     | 126+12  | 1781      |
| HH11                 | 126+12  | HH12     | 142+90  | 1678      |
| TOTAL                |         |          |         | 3459      |

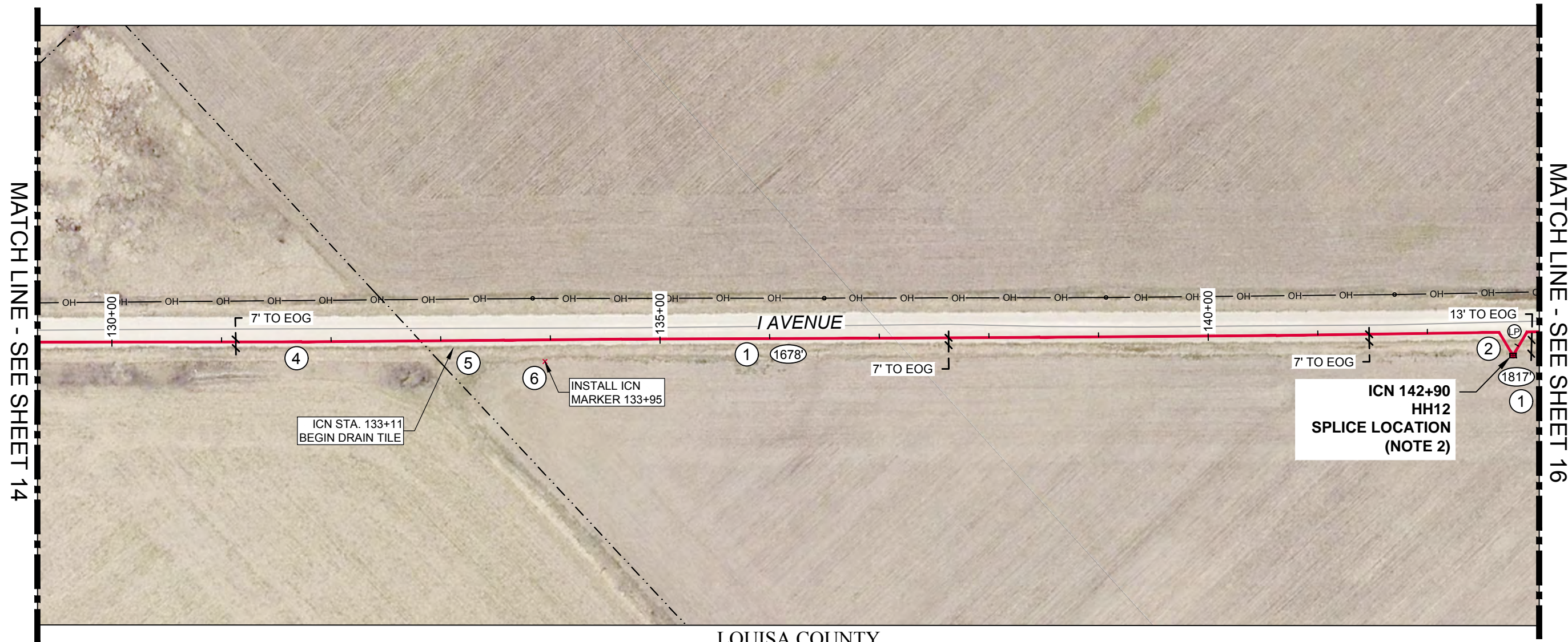
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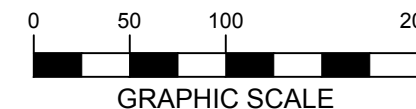
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- ① PULL NEW LINK 1621 12 F/A THROUGH NEW 1 1/4" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ② ICN STA. 142+90. PROPOSED 24"x36"x36" ICN HANDHOLE - HH12. LINK 1621 PLANNED CABLE REEL ENDS - 75' COILS ON EACH TAIL FOR SPLICING. BUTT SPLICE, TYCO 450BS. TRI-VIEW LOCATE POINT.
- ③ OTHER TELECOM PROVIDERS IN THE AREA. STAY 36" CLEAR FROM ALL EXISTING UTILITIES.
- ④ BORE IN GRAVEL ROAD IS 9' OFFSET TO THE EAST CENTERLINE OF I AVENUE (PER LOUISA COUNTY ENGINEER).
- ⑤ DRAIN TILE PRESENT FROM ICN STA. 133+11 TO 155+27 APPROXIMATELY (PER LOUISA COUNTY ENGINEER).
- ⑥ INSTALL ICN MARKER AT ICN STA. 133+95.

| LISTING OF HANDHOLES |         |          |         |             |
|----------------------|---------|----------|---------|-------------|
| HANDHOLE             | STATION | HANDHOLE | STATION | LENGTH FT   |
| HH11                 | 126+12  | HH12     | 142+90  | 1678        |
| HH12                 | 142+90  | HH13     | 161+07  | 1817        |
| TOTAL                |         |          |         | <b>3495</b> |

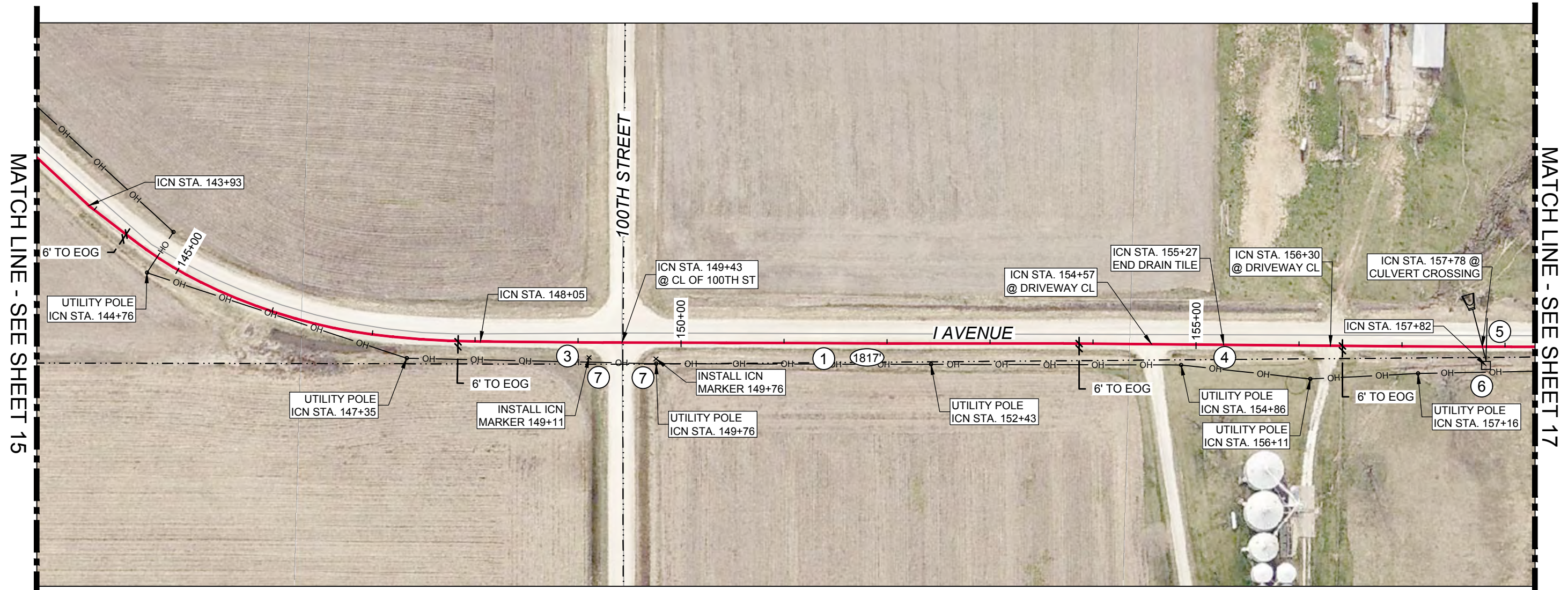
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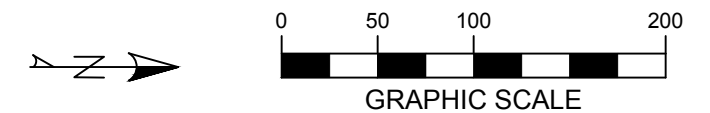
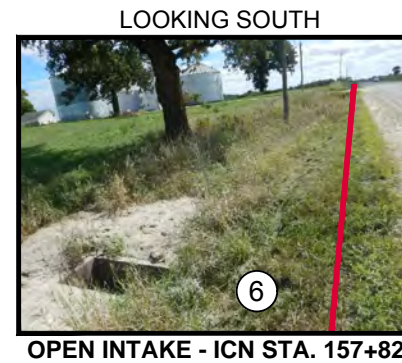


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LOUISA COUNTY  
WAPELLO TOWNSHIP  
T74-N R-03W

- ① PULL NEW LINK 1621 12 F/A THROUGH NEW 1 1/4" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ② OTHER TELECOM PROVIDERS IN THE AREA. STAY 36" CLEAR FROM ALL EXISTING UTILITIES.
- ③ BORE IN GRAVEL ROAD IS 9' OFFSET TO THE EAST CENTERLINE OF I AVENUE (PER LOUISA COUNTY ENGINEER).
- ④ DRAIN TILE PRESENT FROM ICN STA. 133+11 TO 155+27 APPROXIMATELY (PER LOUISA COUNTY ENGINEER).
- ⑤ BORE MIN. DEPTH OF 5' BELOW FLOW LINE (ICN STA. 157+78). CONTRACTOR TO FIELD VERIFY FLOW LINE DEPTH.
- ⑥ ICN STA. 157+82. EXISTING OPEN INTAKE/DRAINAGE WAY. USE CAUTION IN THIS AREA, THERE IS NO LID OVER THIS INTAKE AS SHOWN IN PICTURE.
- ⑦ INSTALL ICN MARKER AT ICN STA. 149+11 AND 149+76.



| LISTING OF HANDHOLES |         |          |         |             |
|----------------------|---------|----------|---------|-------------|
| HANDHOLE             | STATION | HANDHOLE | STATION | LENGTH FT   |
| HH12                 | 142+90  | HH13     | 161+07  | 1817        |
| TOTAL                |         |          |         | <b>1817</b> |

\* LENGTH DOES NOT INCLUDE SLACKCOILS

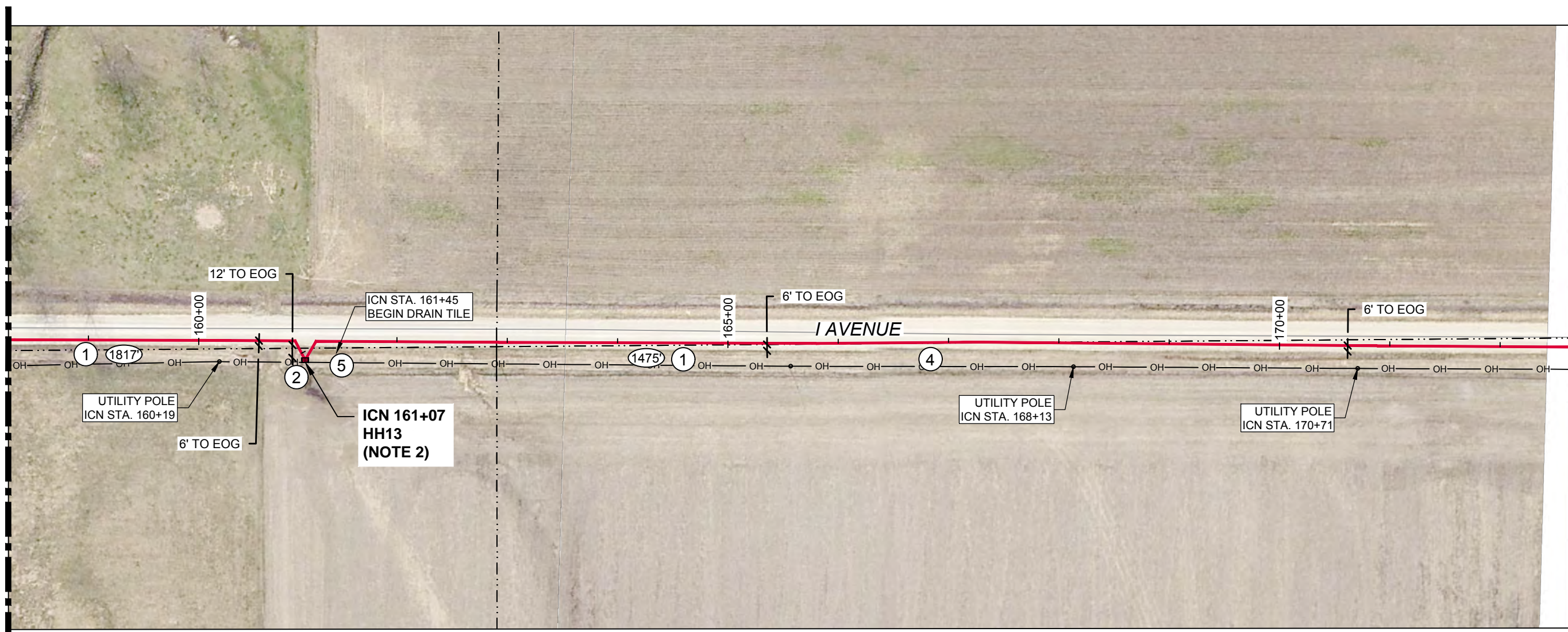


ICN - WAPELLO HIGH SCHOOL TO LOUISA COUNTY COMMUNICATION CENTER

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| 1 | ISSUE FOR PERMIT | 1/8/2020 | <p><b>IOWA COMMUNICATIONS NETWORK</b><br/>400 EAST 14TH STREET<br/>GRIMES STATE OFFICE BUILDING<br/>DES MOINES, IOWA 50319<br/>ICN © 2019, COPY WITH PERMISSION</p> |
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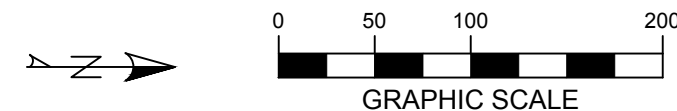
MATCH LINE - SEE SHEET 16

MATCH LINE - SEE SHEET 18



LOUISA COUNTY  
WAPELLO TOWNSHIP  
T74-N R-03W

- ① PULL NEW LINK 1621 12 F/A THROUGH NEW 1 ¼" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ② ICN STA. 161+07 INSTALL PROPOSED 24"x36"x36" ICN HANDHOLE - HH13. LINK 1621 100' SLACK COIL 12 F/A. INSTALL ICN MARKER.
- ③ OTHER TELECOM PROVIDERS IN THE AREA. STAY 36" CLEAR FROM ALL EXISTING UTILITIES.
- ④ BORE IN GRAVEL ROAD IS 9' OFFSET TO THE EAST CENTERLINE OF I AVENUE (PER LOUISA COUNTY ENGINEER).
- ⑤ DRAIN TILE PRESENT FROM ICN STA. 161+45 TO 185+58 APPROXIMATELY (PER LOUISA COUNTY ENGINEER).



| LISTING OF HANDHOLES |         |          |         |             |
|----------------------|---------|----------|---------|-------------|
| HANDHOLE             | STATION | HANDHOLE | STATION | LENGTH FT   |
| HH12                 | 142+90  | HH13     | 161+07  | 1817        |
| HH13                 | 161+07  | HH14     | 175+82  | 1475        |
| TOTAL                |         |          |         | <b>3292</b> |

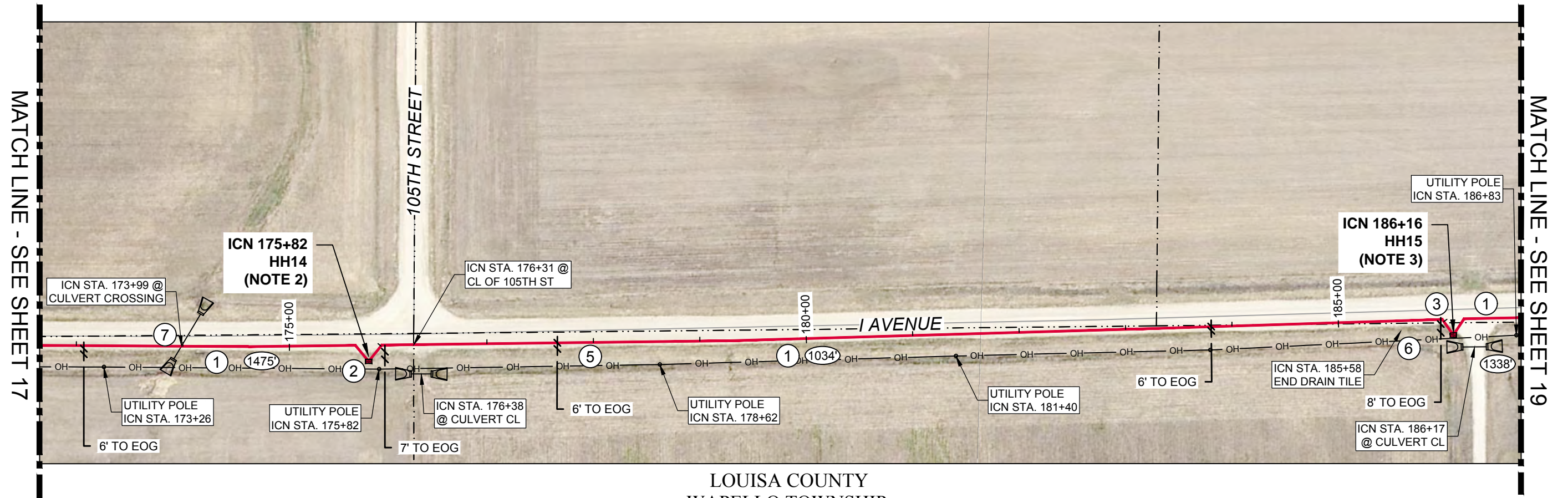
\* LENGTH DOES NOT INCLUDE SLACKCOILS



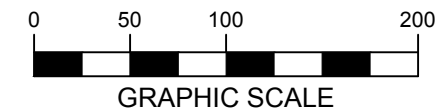
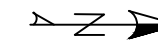
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LOUISA COUNTY  
 WAPELLO TOWNSHIP  
 T74-N R-03W



- ① PULL NEW LINK 1621 12 F/A THROUGH NEW 1 1/4" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ② ICN STA. 175+82. PROPOSED 24"x36"x36" ICN HANDHOLE - HH14. INSTALL ICN MARKER. LINK 1621 100' SLACK COIL 12 F/A.
- ③ ICN STA. 186+16. PROPOSED 24"x36"x36" ICN HANDHOLE - HH15. INSTALL ICN MARKER. LINK 1621 100' SLACK COIL 12 F/A.
- ④ OTHER TELECOM PROVIDERS IN THE AREA. STAY 36" CLEAR FROM ALL EXISTING UTILITIES.
- ⑤ BORE IN GRAVEL ROAD IS 9' OFFSET TO THE EAST CENTERLINE OF I AVENUE (PER LOUISA COUNTY ENGINEER).
- ⑥ DRAIN TILE PRESENT FROM ICN STA. 161+45 TO 185+58 APPROXIMATELY (PER LOUISA COUNTY ENGINEER).
- ⑦ BORE MIN. DEPTH OF 5' BELOW FLOW LINE (ICN STA. 173+99). CONTRACTOR TO FIELD VERIFY FLOW LINE DEPTH.

| LISTING OF HANDHOLES |         |          |         |           |
|----------------------|---------|----------|---------|-----------|
| HANDHOLE             | STATION | HANDHOLE | STATION | LENGTH FT |
| HH13                 | 161+07  | HH14     | 175+82  | 1475      |
| HH14                 | 175+82  | HH15     | 186+16  | 1034      |
| HH15                 | 186+16  | HH16     | 199+54  | 1338      |
| TOTAL                |         |          |         | 3847      |

\* LENGTH DOES NOT INCLUDE SLACKCOILS



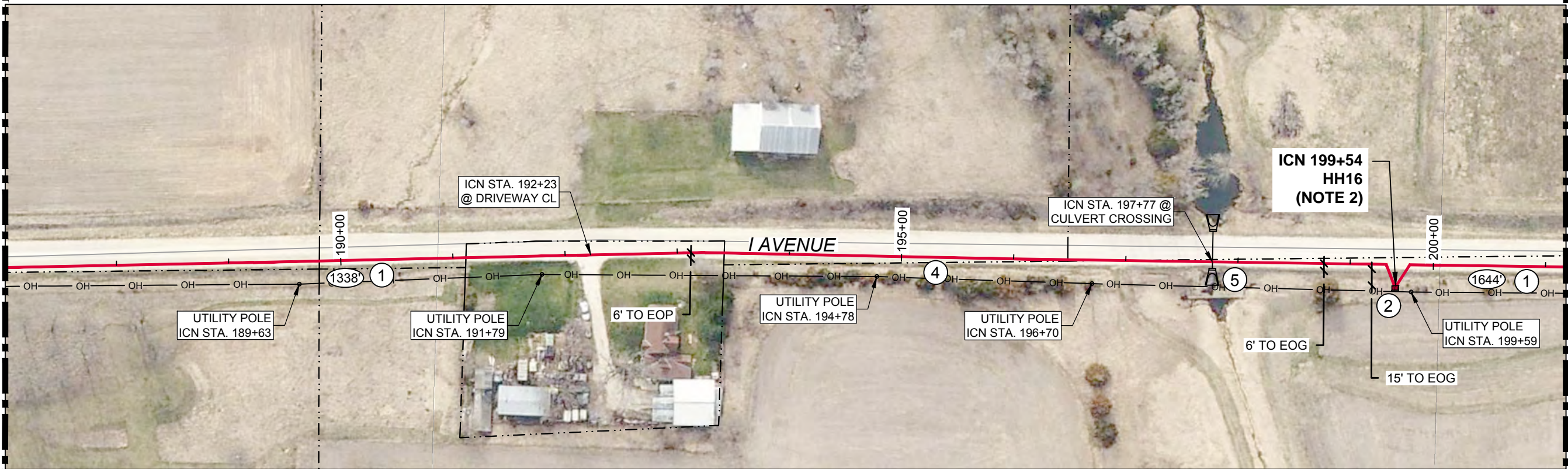
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| 1 | ISSUE FOR PERMIT | 1/8/2020 |
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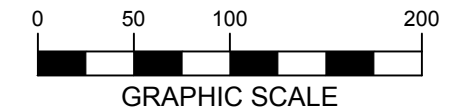
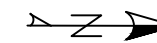
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MATCH LINE SEE SHEET 18

MATCH LINE - SEE SHEET 20



LOUISA COUNTY  
WAPELLO TOWNSHIP  
T74-N R-03W



- ① PULL NEW LINK 1621 12 F/A THROUGH NEW 1 1/4" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ② ICN STA. 199+54. PROPOSED 24"x36"x36" ICN HANDHOLE - HH16. INSTALL ICN MARKER. LINK 1621 100' SLACK COIL 12 F/A.
- ③ OTHER TELECOM PROVIDERS IN THE AREA. STAY 36" CLEAR FROM ALL EXISTING UTILITIES.
- ④ BORE IN GRAVEL ROAD IS 9' OFFSET TO THE EAST CENTERLINE OF I AVENUE (PER LOUISA COUNTY ENGINEER).
- ⑤ BORE MIN. DEPTH OF 5' BELOW FLOW LINE (ICN STA. 197+77). CONTRACTOR TO FIELD VERIFY FLOW LINE DEPTH.

| LISTING OF HANDHOLES |         |          |         |             |
|----------------------|---------|----------|---------|-------------|
| HANDHOLE             | STATION | HANDHOLE | STATION | LENGTH FT   |
| HH15                 | 186+16  | HH16     | 199+54  | 1338        |
| HH16                 | 199+54  | HH17     | 215+98  | 1644        |
| TOTAL                |         |          |         | <b>2982</b> |

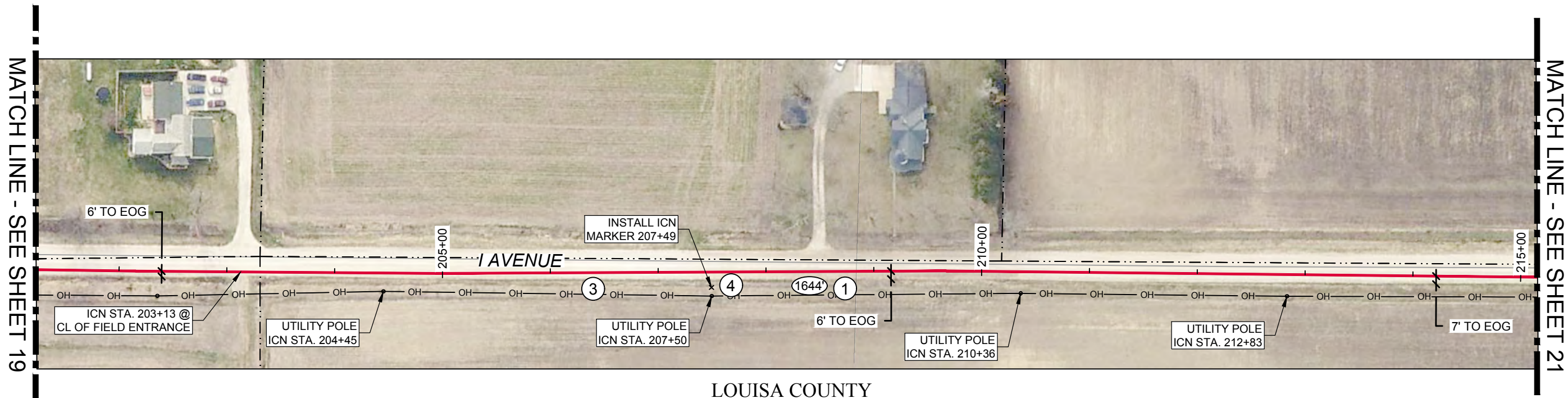
\* LENGTH DOES NOT INCLUDE SLACKCOILS



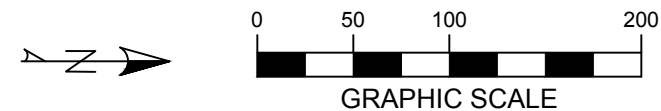
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LOUISA COUNTY  
 WAPELLO TOWNSHIP  
 T74-N R-03W



- ① PULL NEW LINK 1621 12 F/A THROUGH NEW 1 1/4" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ② OTHER TELECOM PROVIDERS IN THE AREA. STAY 36" CLEAR FROM ALL EXISTING UTILITIES.
- ③ BORE IN GRAVEL ROAD IS 9' OFFSET TO THE EAST CENTERLINE OF I AVENUE (PER LOUISA COUNTY ENGINEER).
- ④ INSTALL ICN MARKER AT ICN STA. 207+49.

| LISTING OF HANDHOLES |         |          |         |             |
|----------------------|---------|----------|---------|-------------|
| HANDHOLE             | STATION | HANDHOLE | STATION | LENGTH FT   |
| HH16                 | 199+54  | HH17     | 215+98  | 1644        |
| TOTAL                |         |          |         | <b>1644</b> |

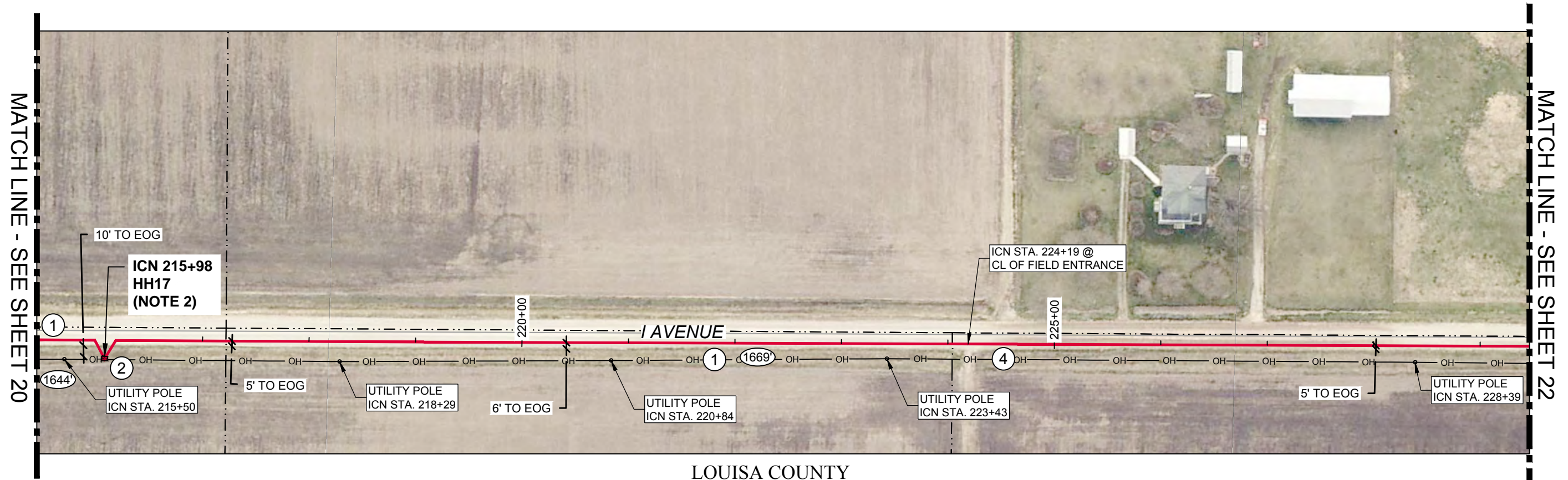
\* LENGTH DOES NOT INCLUDE SLACKCOILS



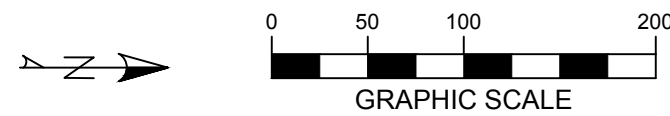
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LOUISA COUNTY  
 WAPELLO TOWNSHIP  
 T74-N R-03W



- ① PULL NEW LINK 1621 12 F/A THROUGH NEW 1 1/4" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ② ICN STA. 215+98. PROPOSED 24"x36"x36" ICN HANDHOLE - HH17. INSTALL ICN MARKER. LINK 1621 100' SLACK COIL 12 F/A.
- ③ OTHER TELECOM PROVIDERS IN THE AREA. STAY 36" CLEAR FROM ALL EXISTING UTILITIES.
- ④ BORE IN GRAVEL ROAD IS 9' OFFSET TO THE EAST CENTERLINE OF I AVENUE (PER LOUISA COUNTY ENGINEER).

| LISTING OF HANDHOLES |         |          |         |           |
|----------------------|---------|----------|---------|-----------|
| HANDHOLE             | STATION | HANDHOLE | STATION | LENGTH FT |
| HH16                 | 199+54  | HH17     | 215+98  | 1644      |
| HH17                 | 215+98  | HH18     | 232+67  | 1669      |
| TOTAL                |         |          |         | 3313      |

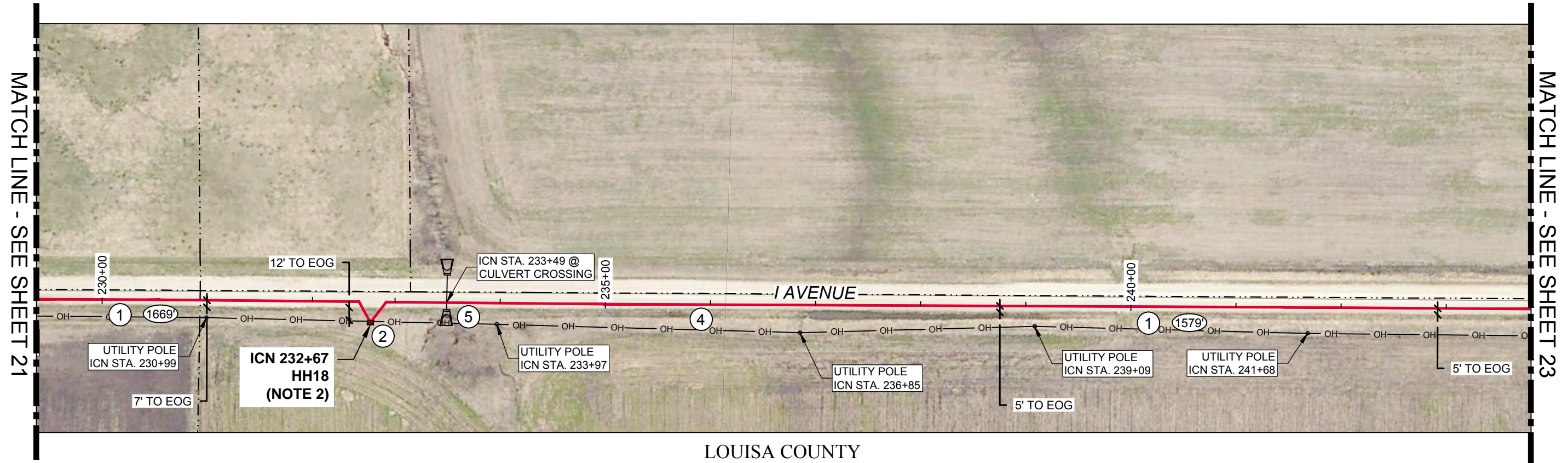
\* LENGTH DOES NOT INCLUDE SLACKCOILS



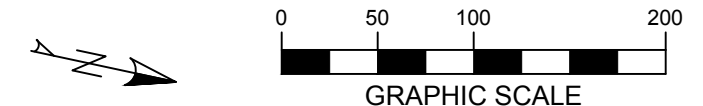
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LOUISA COUNTY  
 WAPELLO TOWNSHIP  
 T74-N R-03W



- ① PULL NEW LINK 1621 12 F/A THROUGH NEW 1 1/4" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ② ICN STA. 232+67. PROPOSED 24"x36"x36" ICN HANDHOLE - HH18. INSTALL ICN MARKER. LINK 1621 100' SLACK COIL 12 F/A.
- ③ OTHER TELECOM PROVIDERS IN THE AREA. STAY 36" CLEAR FROM ALL EXISTING UTILITIES.
- ④ BORE IN GRAVEL ROAD IS 9' OFFSET TO THE EAST CENTERLINE OF I AVENUE (PER LOUISA COUNTY ENGINEER).
- ⑤ BORE MIN. DEPTH OF 5' BELOW FLOW LINE (ICN STA. 233+49). CONTRACTOR TO FIELD VERIFY FLOW LINE DEPTH.

| LISTING OF HANDHOLES |         |          |         |             |
|----------------------|---------|----------|---------|-------------|
| HANDHOLE             | STATION | HANDHOLE | STATION | LENGTH FT   |
| HH17                 | 215+98  | HH18     | 232+67  | 1669        |
| HH18                 | 232+67  | HH19     | 248+46  | 1579        |
| TOTAL                |         |          |         | <b>3248</b> |

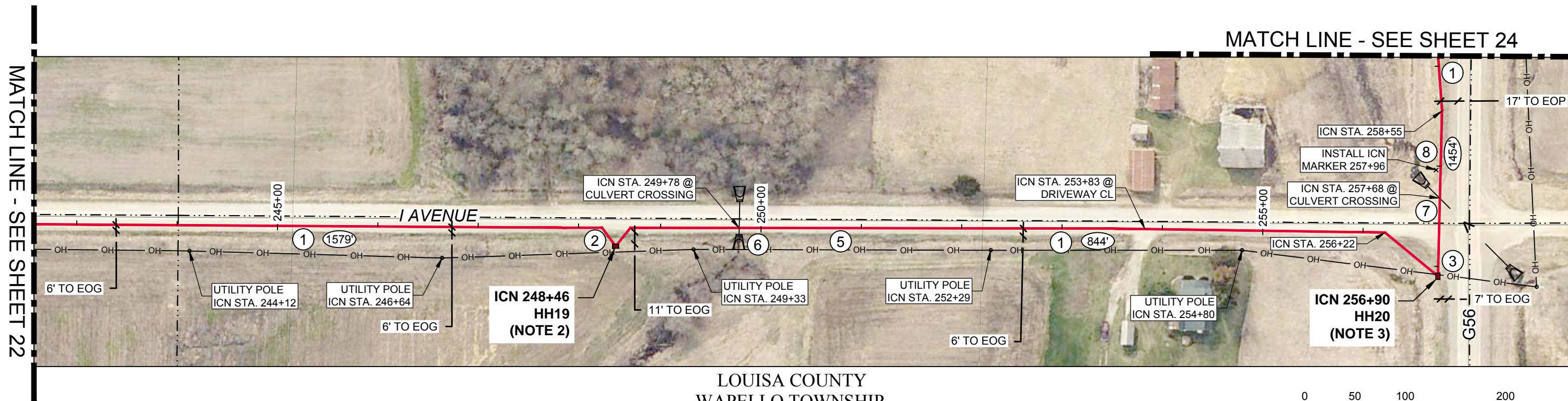
\* LENGTH DOES NOT INCLUDE SLACKCOILS



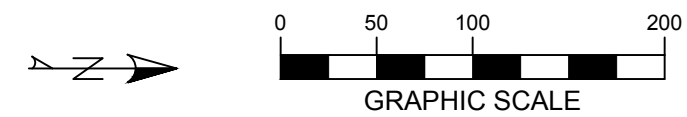
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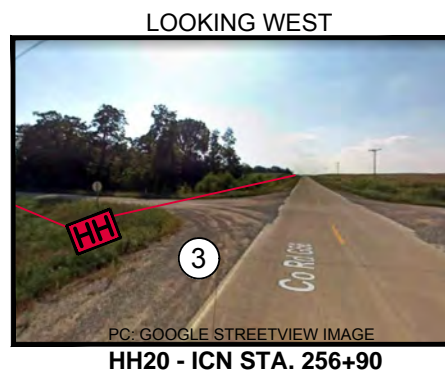
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LOUISA COUNTY  
 WAPELLO TOWNSHIP  
 T74-N R-03W



- ① PULL NEW LINK 1621 12 F/A THROUGH NEW 1 1/4" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ② ICN STA. 248+46. PROPOSED 24"x36"x36" ICN HANDHOLE - HH19. INSTALL ICN MARKER. LINK 1621 100' SLACK COIL 12 F/A.
- ③ ICN STA. 256+90. PROPOSED 24"x36"x36" ICN HANDHOLE - HH20. INSTALL ICN MARKER. LINK 1621 100' SLACK COIL 12 F/A. PLACE HANDHOLE IN FORESLOPE OF DITCH PER LOUISA COUNTY.
- ④ OTHER TELECOM PROVIDERS IN THE AREA. STAY 36" CLEAR FROM ALL EXISTING UTILITIES.
- ⑤ BORE IN GRAVEL ROAD IS 9' OFFSET TO THE EAST CENTERLINE OF I AVENUE (PER LOUISA COUNTY ENGINEER).
- ⑥ BORE MIN. DEPTH OF 5' BELOW FLOW LINE (ICN STA. 249+78). CONTRACTOR TO FIELD VERIFY FLOW LINE DEPTH.
- ⑦ BORE MIN. DEPTH OF 5' BELOW FLOW LINE (ICN STA. 257+68). CONTRACTOR TO FIELD VERIFY FLOW LINE DEPTH.
- ⑧ INSTALL ICN MARKER AT ICN STA. 257+96.



| LISTING OF HANDHOLES |         |          |         |             |
|----------------------|---------|----------|---------|-------------|
| HANDHOLE             | STATION | HANDHOLE | STATION | LENGTH FT   |
| HH18                 | 232+67  | HH19     | 248+46  | 1579        |
| HH19                 | 248+46  | HH20     | 256+90  | 844         |
| HH20                 | 256+90  | HH21     | 271+44  | 1454        |
| TOTAL                |         |          |         | <b>3877</b> |

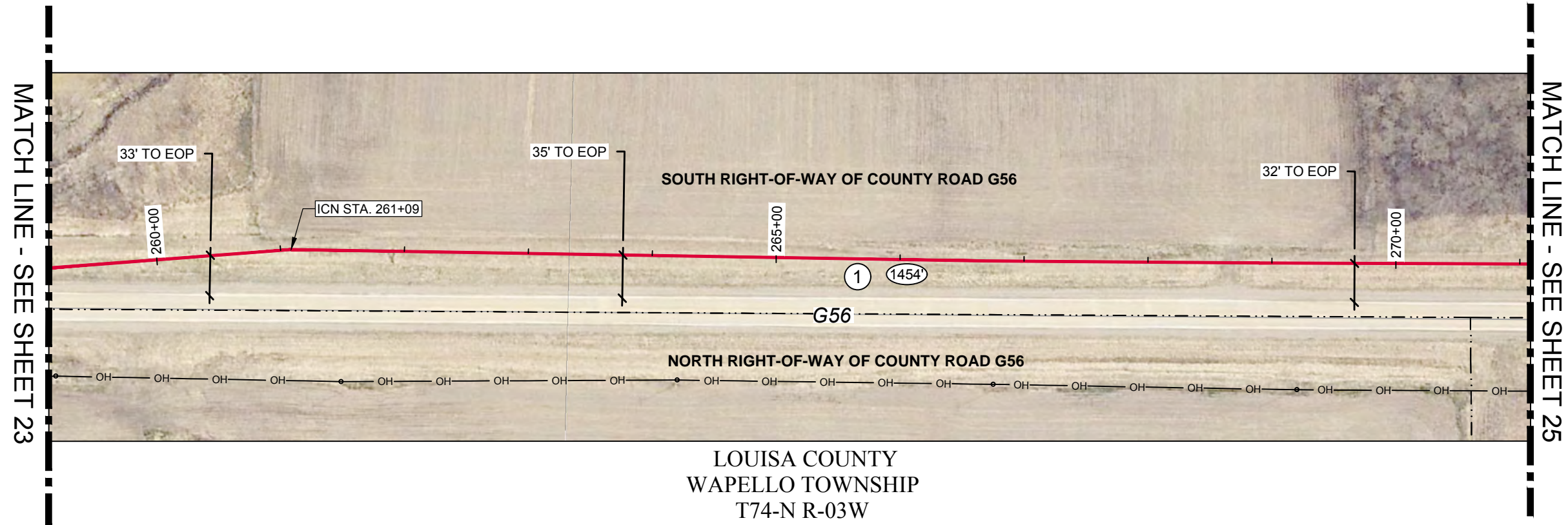
\* LENGTH DOES NOT INCLUDE SLACKCOILS



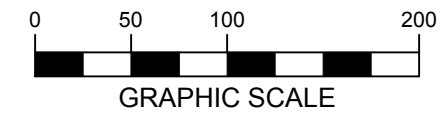
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- ① PULL NEW LINK 1621 12 F/A THROUGH NEW 1 ¼" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ② OTHER TELECOM PROVIDERS IN THE AREA. STAY 36" CLEAR FROM ALL EXISTING UTILITIES.



| LISTING OF HANDHOLES |         |          |         |           |
|----------------------|---------|----------|---------|-----------|
| HANDHOLE             | STATION | HANDHOLE | STATION | LENGTH FT |
| HH20                 | 256+90  | HH21     | 271+44  | 1454      |
| TOTAL                |         |          |         | 1454      |

\* LENGTH DOES NOT INCLUDE SLACKCOILS



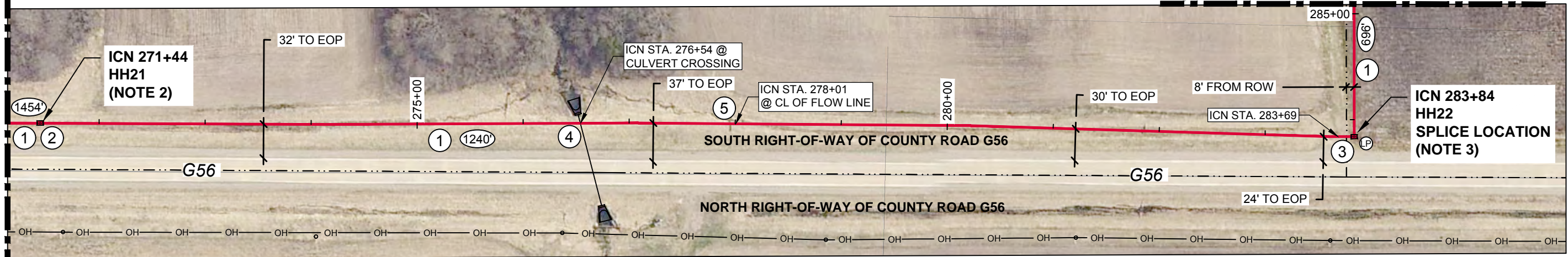
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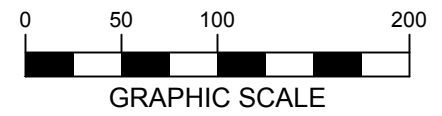
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MATCH LINE - SEE SHEET 24

MATCH LINE - SEE SHEET 26

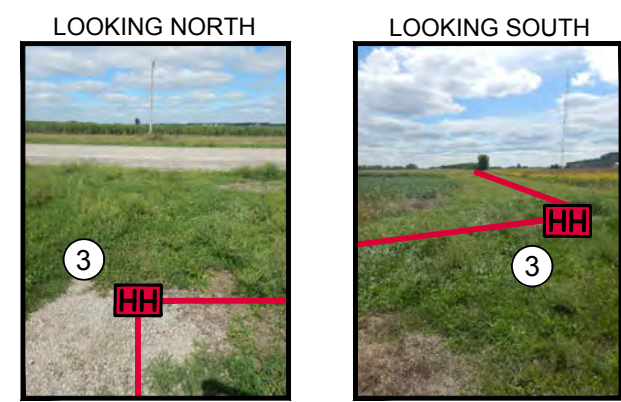


LOUISA COUNTY  
WAPELLO TOWNSHIP  
T74-N R-03W



NOTE DIRECTION OF NORTH ARROW

- ① PULL NEW LINK 1621 12 F/A THROUGH NEW 1 1/4" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ② ICN STA. 271+44. PROPOSED 24"x36"x36" ICN HANDHOLE - HH21. INSTALL ICN MARKER. LINK 1621 100' SLACK COIL 12 F/A.
- ③ ICN STA. 283+84. PROPOSED 24"x36"x36" ICN HANDHOLE - HH22. MIDSHEATH THE CABLE AT THIS LOCATION TO INSTALL A TRI-VIEW LOCATE POINT. THIS WILL BE TO AVOID HAVING LOCATORS AT THE SHERIFFS BUILDING. INSTALL TYCO 450BS SPLICE CLOSURE. LINK 1621 150' SLACK COIL 12 F/A FOR 75' SPLICE TAILS.
- ④ BORE MIN. DEPTH OF 5' BELOW FLOW LINE (ICN STA. 276+54). CONTRACTOR TO FIELD VERIFY FLOW LINE DEPTH.
- ⑤ BORE MIN. DEPTH OF 5' BELOW FLOW LINE (ICN STA. 278+01). CONTRACTOR TO FIELD VERIFY FLOW LINE DEPTH.
- ⑥ OTHER TELECOM PROVIDERS IN THE AREA. STAY 36" CLEAR FROM ALL EXISTING UTILITIES.



HH22 - ICN STA. 283+84

| LISTING OF HANDHOLES |         |                              |         |             |
|----------------------|---------|------------------------------|---------|-------------|
| HANDHOLE             | STATION | HANDHOLE                     | STATION | LENGTH FT   |
| HH20                 | 256+90  | HH21                         | 271+44  | 1454        |
| HH21                 | 271+44  | HH22                         | 283+84  | 1240        |
| HH22                 | 283+84  | SHERIFF BLDG<br>TELECOM ROOM | 290+80  | 696         |
| TOTAL                |         |                              |         | <b>3390</b> |

\* LENGTH DOES NOT INCLUDE SLACKCOILS

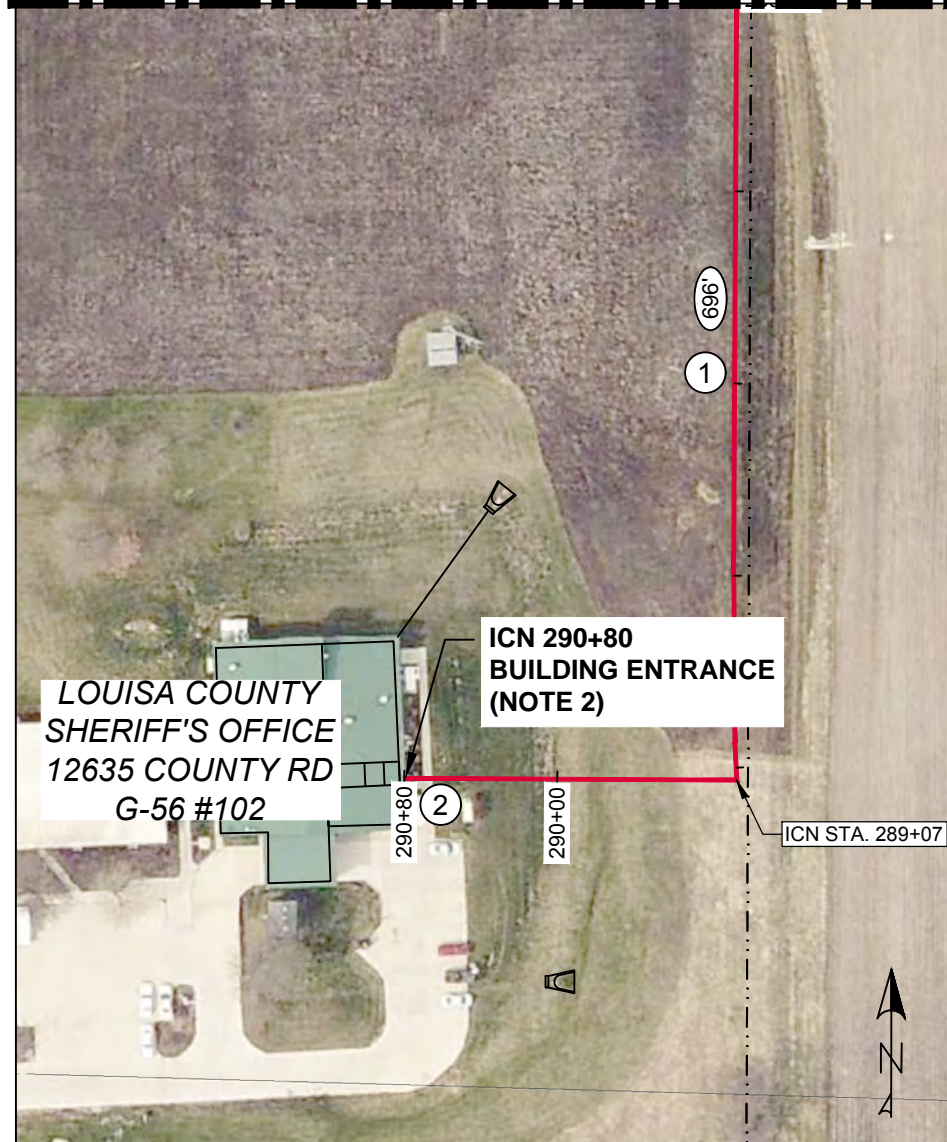


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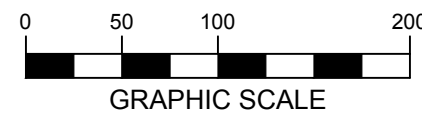
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MATCH LINE - SEE SHEET 25



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T74-N R-03W



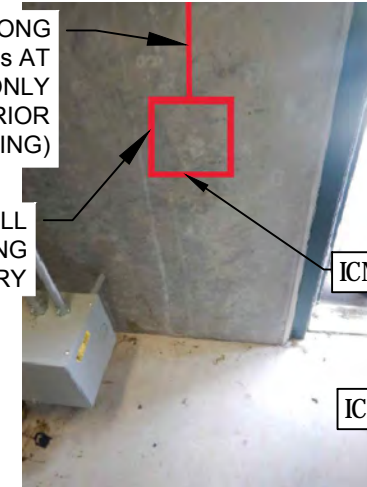
- ① PULL NEW LINK 1621 12 F/A THROUGH NEW 1 1/4" HDPE CONDUIT. 42" MINIMUM BELOW GRADE.
- ② PULL NEW LINK 1621 12 F/A THROUGH NEW CONDUIT TO PULL BOX OUTSIDE BUILDING. SEE SHEET 27 FOR GROUNDING AND MOUNTING DETAILS.
- ③ OTHER TELECOM PROVIDERS IN THE AREA. STAY 36" CLEAR FROM ALL EXISTING UTILITIES.

FIBER LB OR PULL BOX PER TYPICAL. TRANSITION TO RGS BELOW GROUND



ELECTRICAL ROOM - LOOKING WEST

1 1/4" EMT WITH LONG SWEEP 90's AT TURNS. (EMT ONLY ON INTERIOR ROUTING)

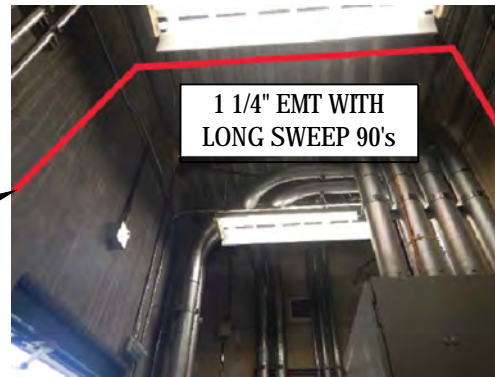


ELECTRICAL ROOM - LOOKING EAST



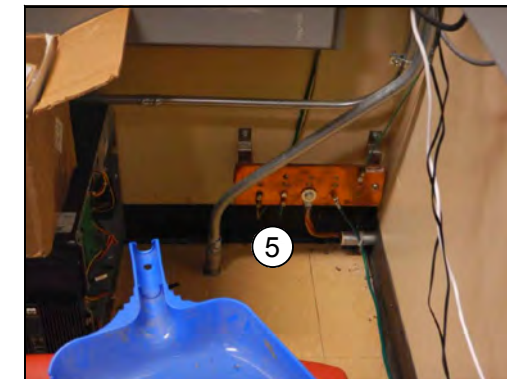
ELECTRICAL ROOM - LOOKING WEST

FROM ICN STA. 290+85

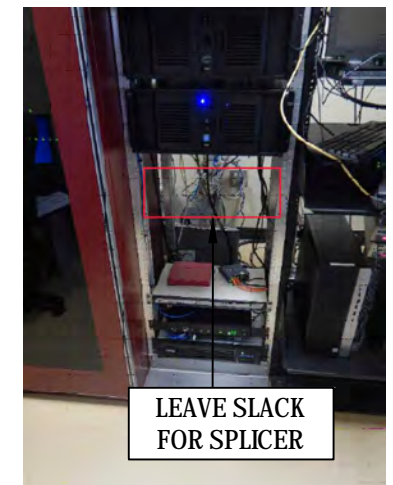


ELECTRICAL ROOM - LOOKING SOUTH

FROM ICN STA. 291+05

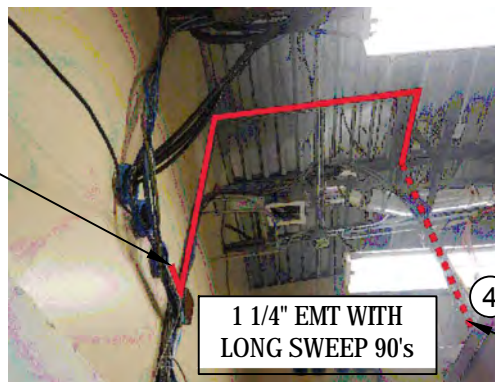


TELECOM ROOM LOOKING NORTH



TELECOM ROOM - LOOKING EAST

ICN STA. 291+06



TELECOM ROOM LOOKING SOUTH

ICN STA. 291+24

- ④ ICN TO TIE INTO EXISTING CABINET. CABLE TO REMAIN IN CONDUIT UNTIL DROP TO CABINET. INTERIOR FIBER ROUTE APPROXIMATELY 43'-0" FROM EXTERIOR WALL TO CABINET.
- ⑤ CONTRACTOR TO INSTALL #10 GROUNDING WIRE TO EXISTING GROUND BAR TO THE TERMINATION RACK AND TEMPORARILY BOND TO THE ARMORED JACKET.
- ⑥ VERIFY LOCATION FOR EQUIPMENT WITH BUILDING ENGINEER.

| LISTING OF HANDHOLES |         |                           |         |           |
|----------------------|---------|---------------------------|---------|-----------|
| HANDHOLE             | STATION | HANDHOLE                  | STATION | LENGTH FT |
| HH22                 | 283+84  | SHERIFF BLDG TELECOM ROOM | 290+80  | 696       |
| TOTAL                |         |                           |         | 696       |


\* LENGTH DOES NOT INCLUDE SLACKCOILS

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**hbK** **ICN**

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|   |                          |
|---|--------------------------|
| <br><b>CHANNELL</b>  | INSTALLATION INSTRUCTION |
| Install Channell BULK Vaults  | Date: 5/12/15            |
| <p><u>Installation Considerations</u></p> <p>This Installation Instruction provides general information useful for installing the Channell BULK line of below-grade handhole vaults. This guide cannot anticipate all situations that could be encountered in the field and thus represents information applicable to common installation conditions. Please consult local company practice for proper product configuration for each application.</p> <p><u>Site Preparation</u></p> <ol style="list-style-type: none"> <li>1. Ensure that all local, state, federal, OSHA and company-specific regulations are met prior to beginning and throughout the installation process.</li> <li>2. Plan the excavation approximately 12 to 16 inches in length and width larger than the actual dimensions of the handhole to be installed. <b>(See Figure 1)</b></li> <li>3. Excavate the hole 6 to 8 inches in depth more than the overall height dimension of the handhole with the cover in place. Tamp the floor of excavated pit using either a hand tamp tool and/or a mechanical tamper. (Remember: if the handhole is to be set in concrete, the polymer ring must be included in this dimension.)</li> <li>4. Place 5 to 6 inches of 3/4" crushed rock over the entire floor. The rock should be free of soil and other organic matter. This important step prevents subsistence of the vault over time, aids in drainage, and provides a solid foundation for the handhole. <b>(See Figure 2)</b> <ol style="list-style-type: none"> <li>a. As an alternative, a dry mix of cement and crushed rock in a 1:10 ratio may be used to form a higher strength foundation.</li> <li>b. NOTE: Do not use "pea gravel" or other "round stone" for this step.</li> </ol> </li> <li>5.                     <ol style="list-style-type: none"> <li>a. Place the handhole body into the pit. <b>(See Figure 3)</b></li> <li>b. Center the handhole body in the excavated pit parallel to the sidewalk and/or curb if applicable.</li> <li>c. Level and adjust the height of the handhole body to grade, as required, by adding more crushed rock.</li> </ol> <p style="margin-left: 20px; font-size: 0.8em;">FOR THE PURPOSE OF THIS ILLUSTRATION, THIS HANDHOLE IS BEING PLACED AT A SITE THAT WILL HAVE A FUTURE SIDEWALK; THEREFORE, THE COMPOSITE RING IS REQUIRED. THE RING IS ONLY REQUIRED AT SITES WHERE THE HANDHOLE IS BEING PLACED IN AND SURROUNDED BY CONCRETE.</p> </li> <li>6. Place the cover on the handhole body to prevent the backfill dirt from entering the inside of the handhole. The cover should be level with the ground. Bolting of the cover is recommend but is not a requirement for this step; however, the cover must always be bolted down prior to departure of the site. <b>(See Figure 4)</b></li> <li>7. The excess soil removed from the excavated pit shall be used during the backfill of the pit. The backfill shall be tamped continuously during the filling process to prevent settling around the sides of the handhole. <b>(See Figure 5)</b> <p style="margin-left: 20px; font-size: 0.8em;">During the filling process of the soil around the handhole, stones that are 3" and larger shall be removed from the soil and not used.</p> </li> <li>8. The final backfill shall be tamped with a slope away from the handhole. All excess backfill material shall be removed from the installation site. <b>(See Figure 6)</b></li> </ol> |                          |

|  |  |
|--|--|
| <br><b>CHANNELL</b>   | Install Channell BULK Vaults   |
| <b>Figure 1</b><br>   | <b>Figure 2</b><br>   |
| <b>Figure 3</b><br>  | <b>Figure 4</b><br>  |
| <b>Figure 5</b><br> | <b>Figure 6</b><br> |



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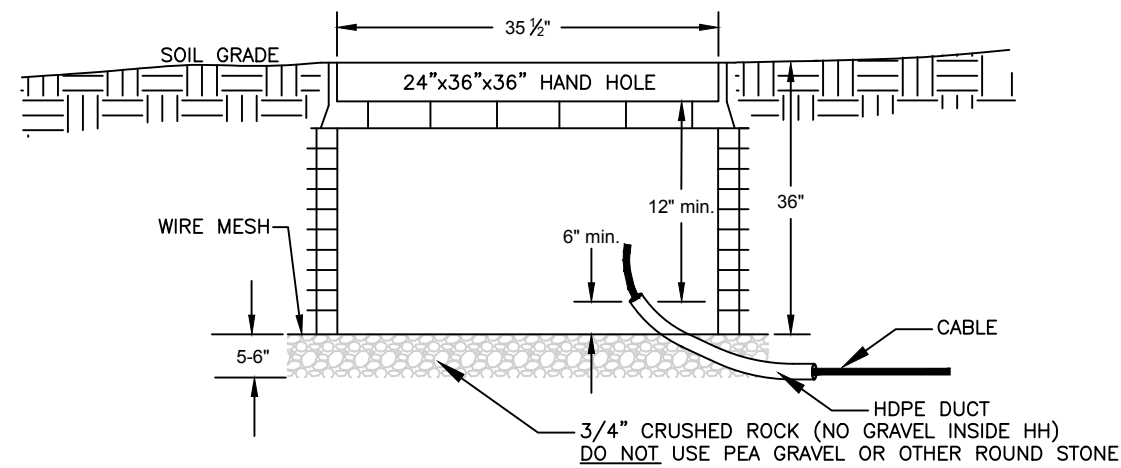


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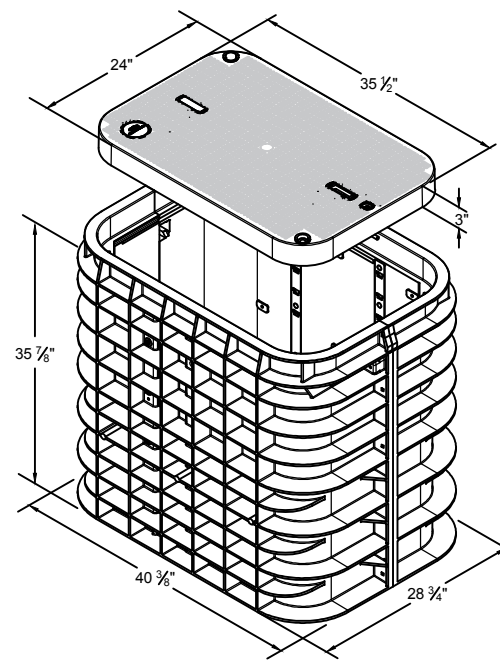
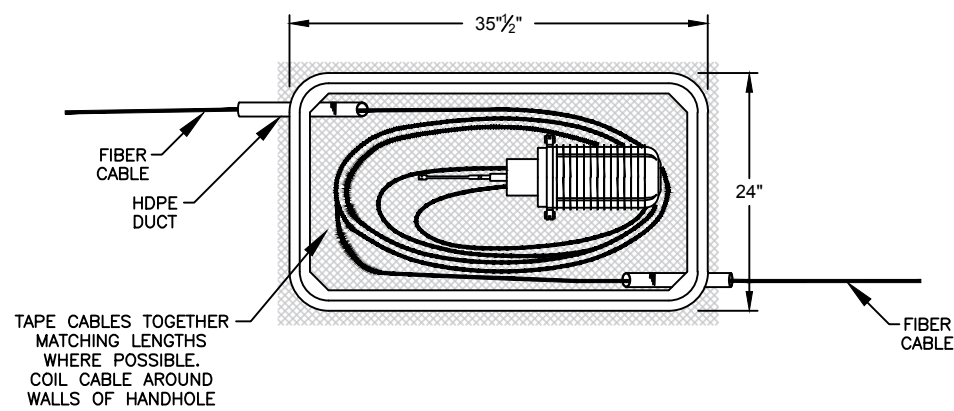
# HANDHOLE PLACEMENT TYPICAL

24" X 36" X 36" HAND HOLE

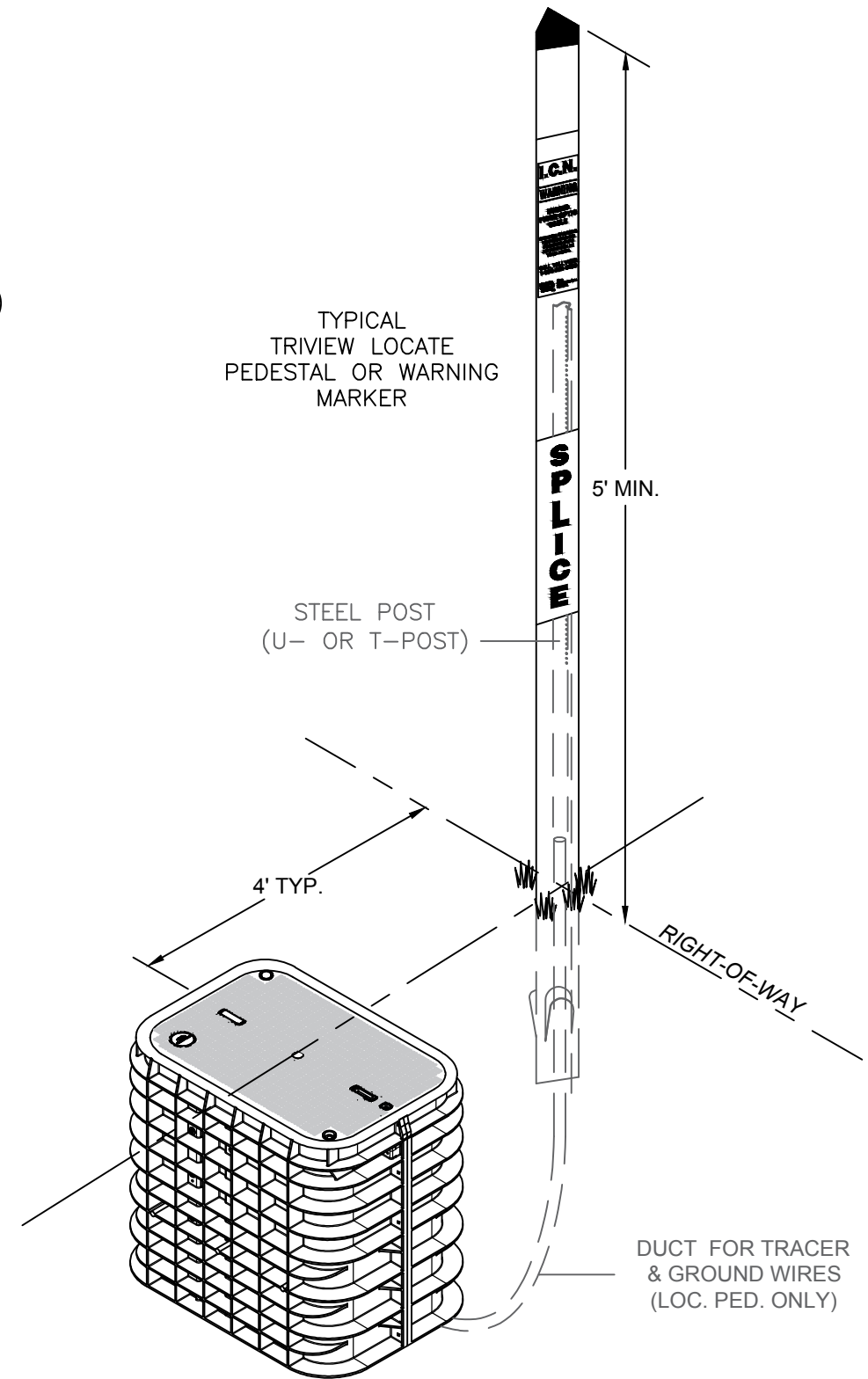


SEE INSTALLATION INSTRUCTIONS FOR PROPER PLACEMENT OF CHANNEL BULK HANDHOLE

TYPICAL TRIVIEW LOCATE PEDESTAL OR WARNING MARKER



BULK HANDHOLE TYPICAL  
24"X36"X36"



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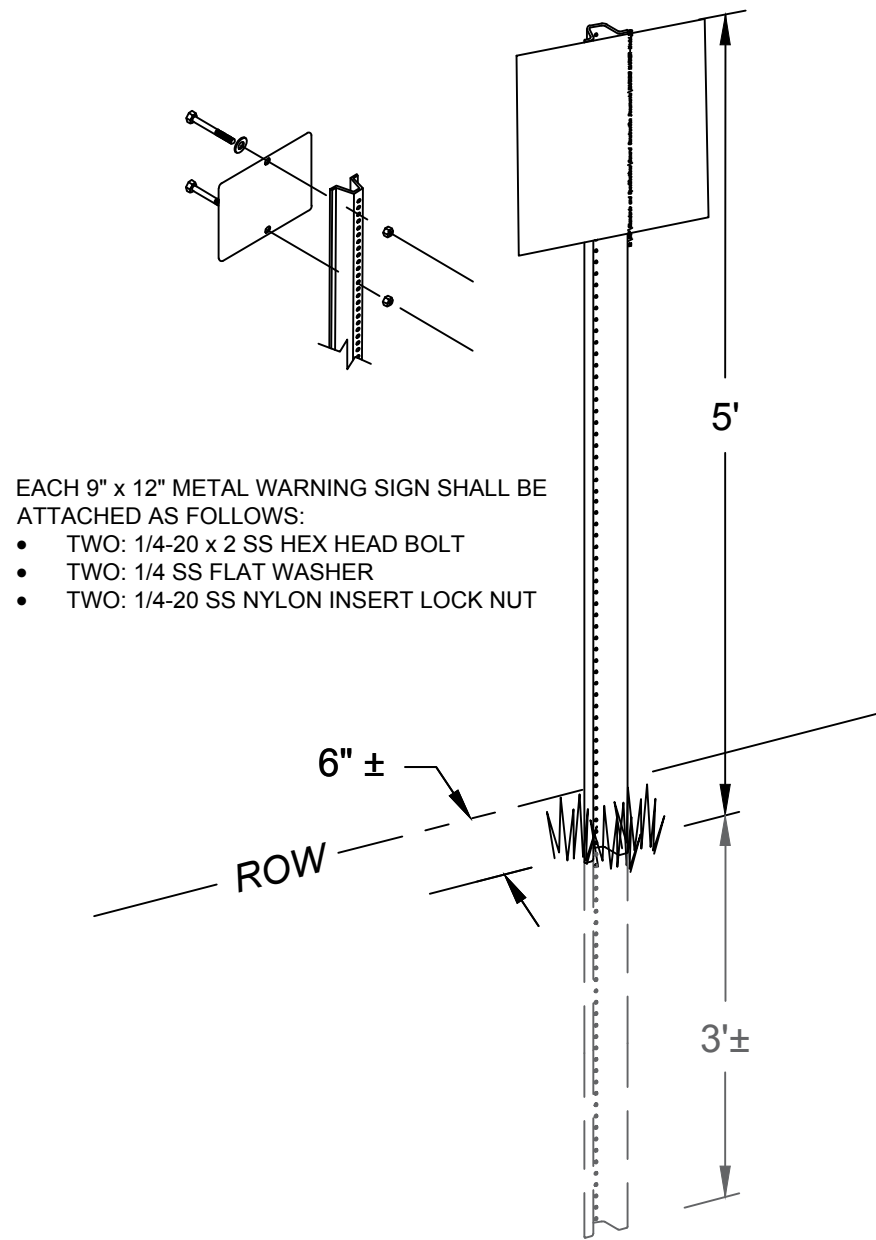
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# WARNING MARKER INSTALLATION DETAIL

METAL SIGN & U-CHANNEL POST

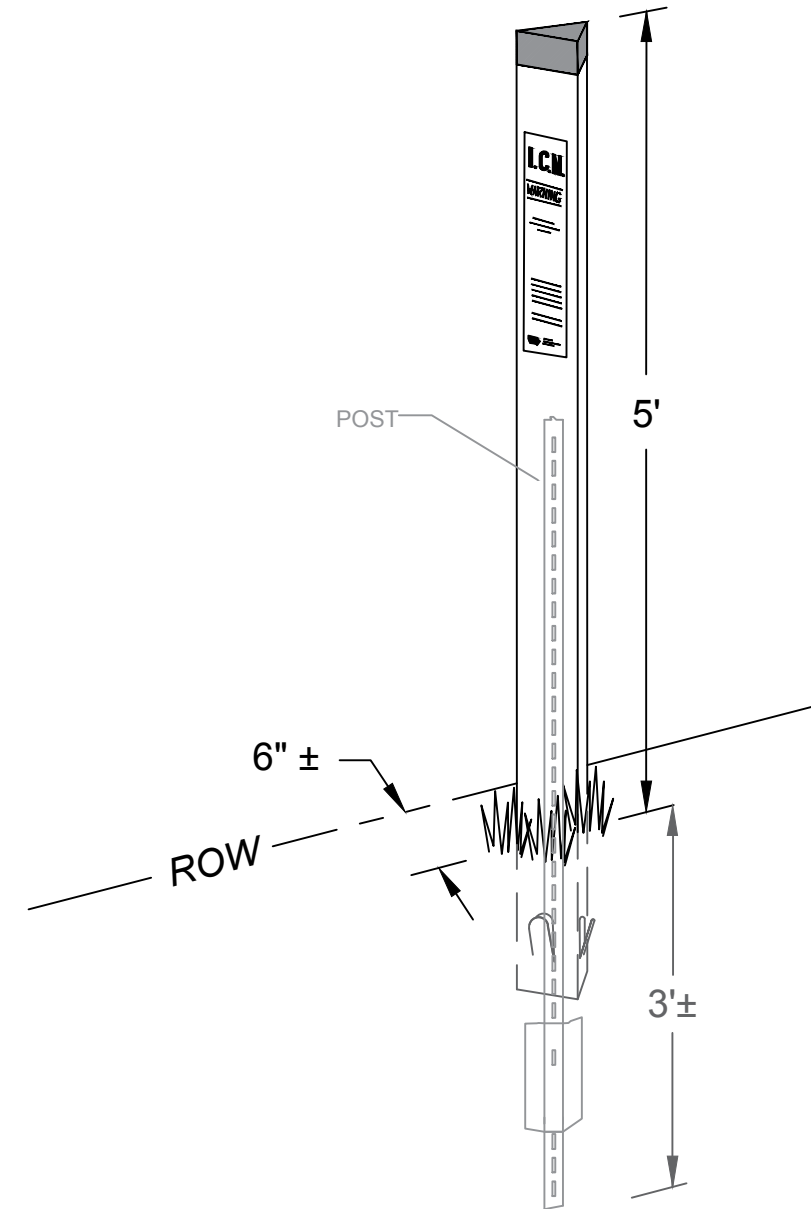
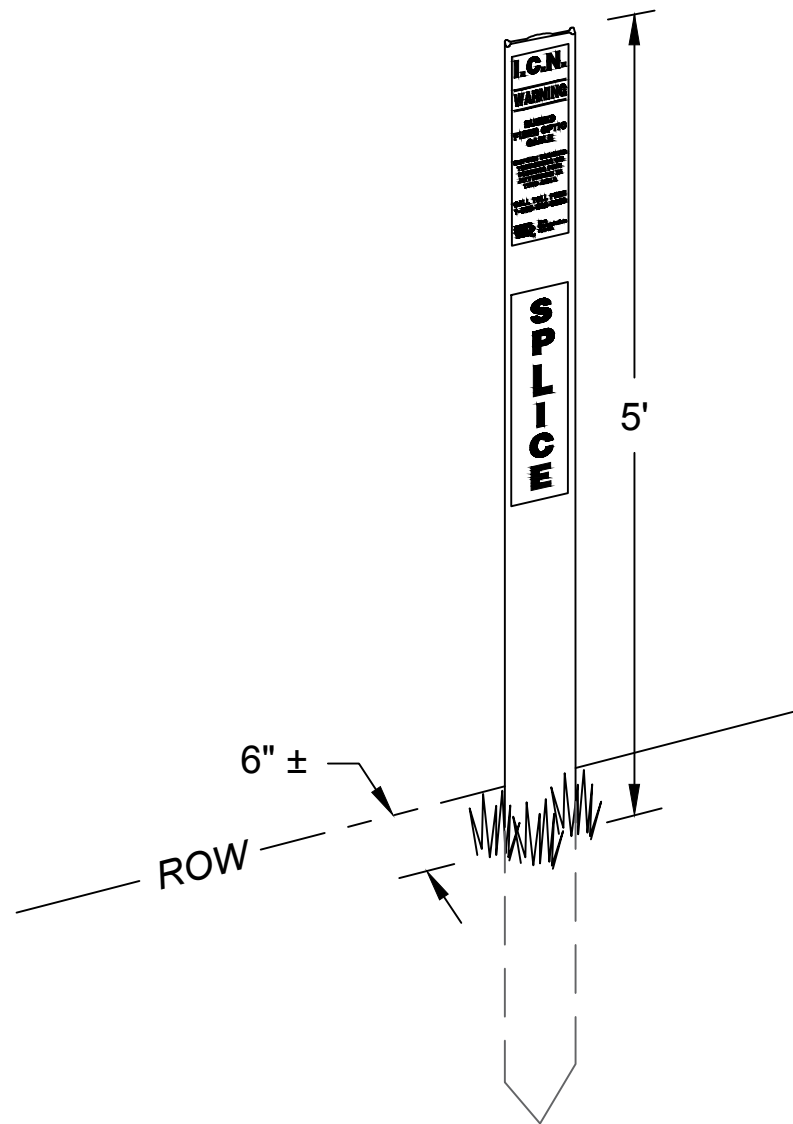
FIBERGLASS MARKER

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

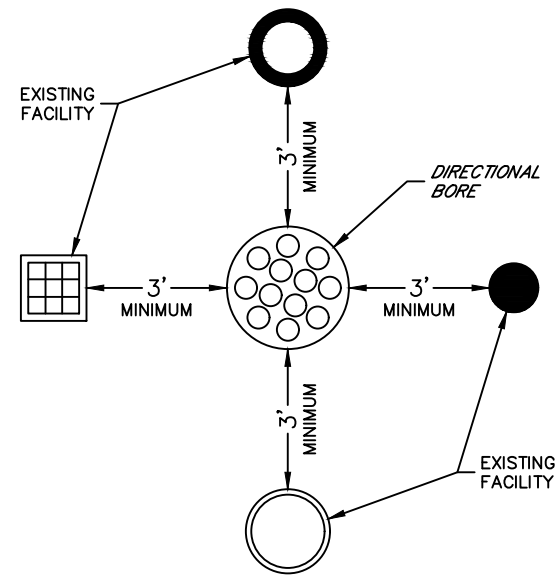


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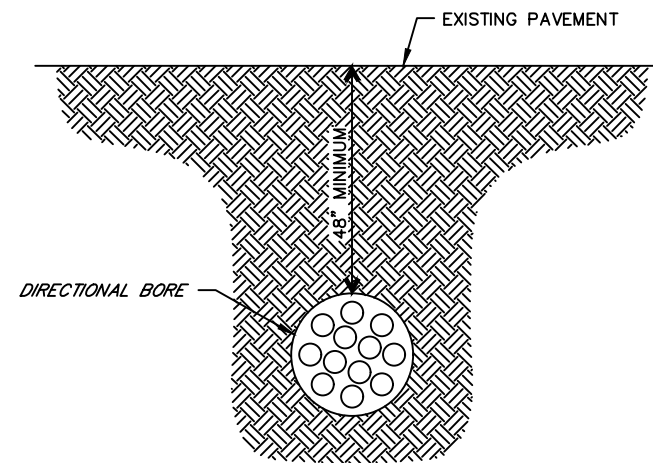
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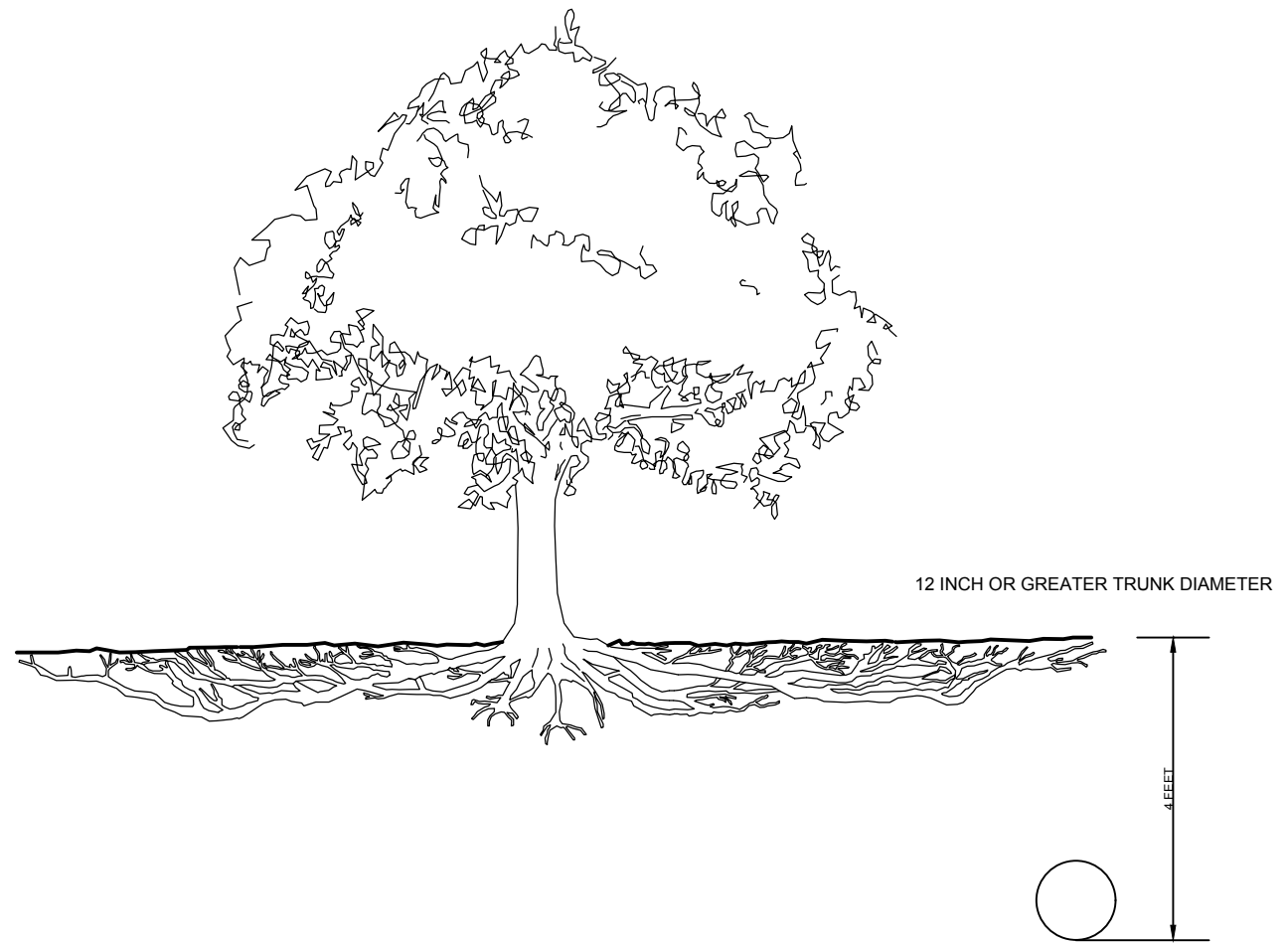


MAINTAIN A MINIMUM OF AT LEAST 3 FEET OF SEPARATION IN ANY DIRECTION BETWEEN DIRECTIONAL BORE AND ALL EXISTING FACILITIES.

UTILITY SEPARATION DETAIL



DIRECTIONAL BORING DETAIL

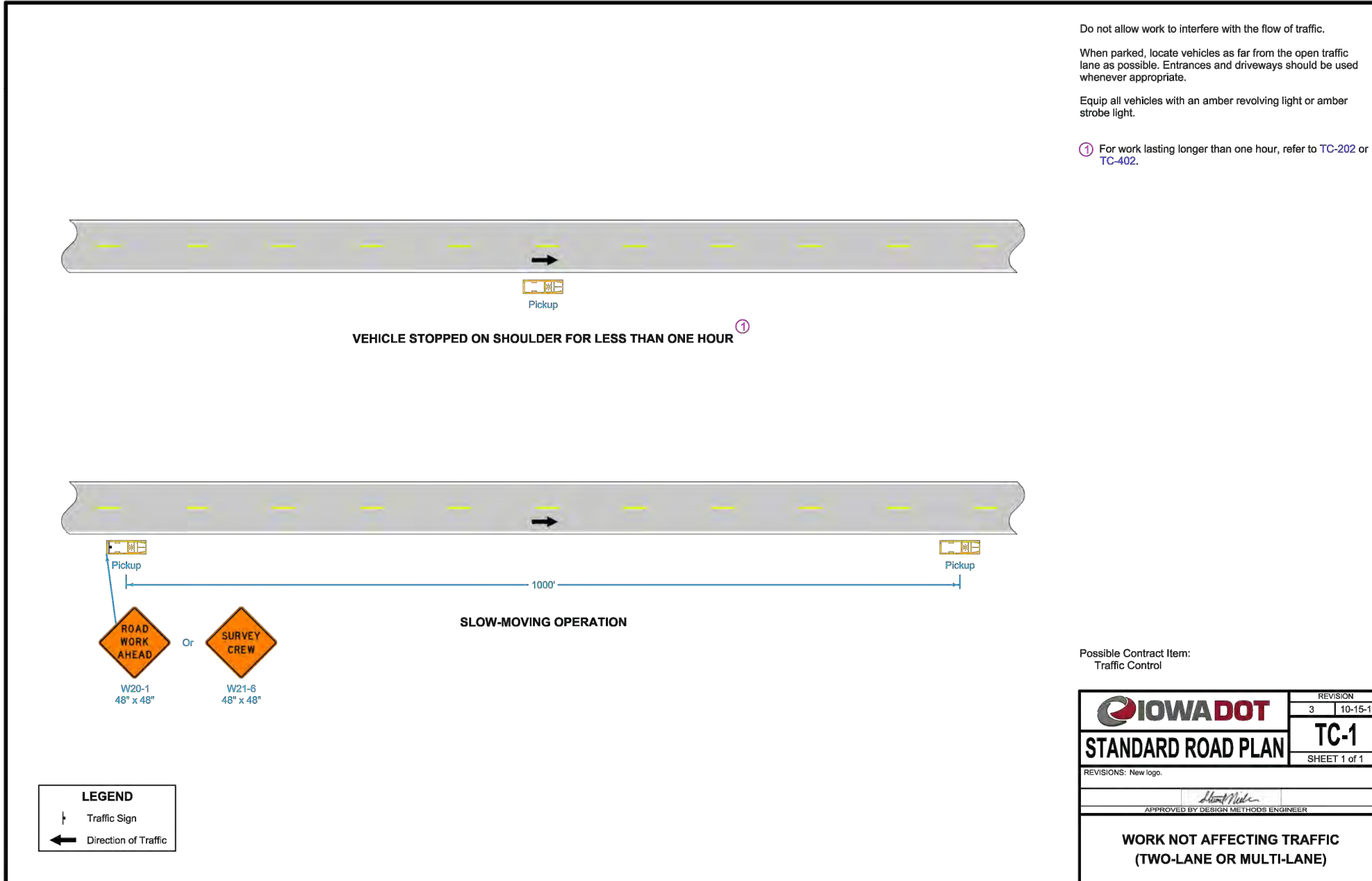


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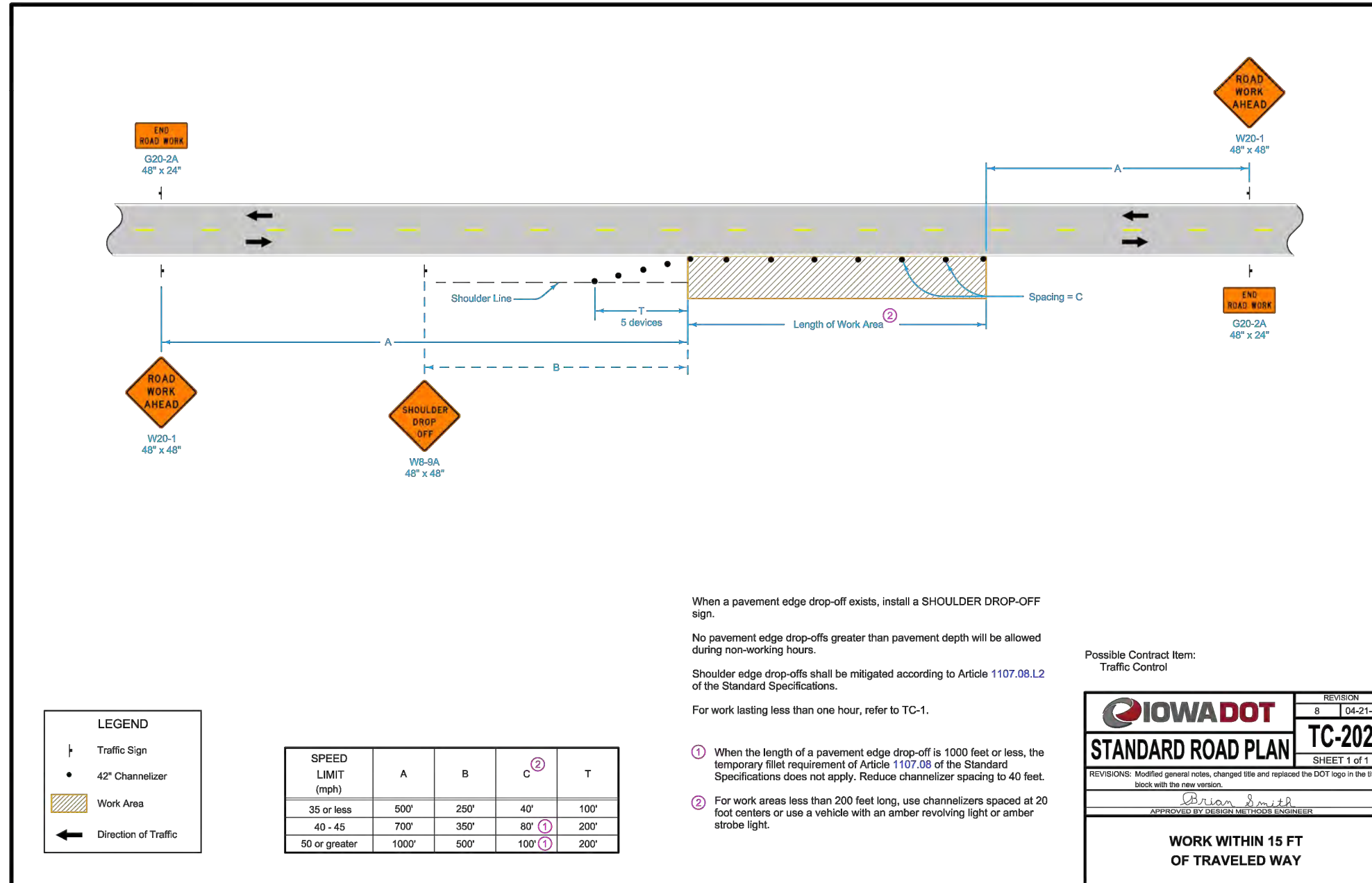
**LEGEND**  
 ↑ Traffic Sign  
 ← Direction of Traffic



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**LEGEND**

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

| SPEED LIMIT (mph) | A     | B    | C <sup>②</sup>    | T    |
|-------------------|-------|------|-------------------|------|
| 35 or less        | 500'  | 250' | 40'               | 100' |
| 40 - 45           | 700'  | 350' | 80' <sup>①</sup>  | 200' |
| 50 or greater     | 1000' | 500' | 100' <sup>①</sup> | 200' |

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 1107.08.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**

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**

| REVISION | DATE     |
|----------|----------|
| 8        | 04-21-15 |

**TC-202**

SHEET 1 of 1



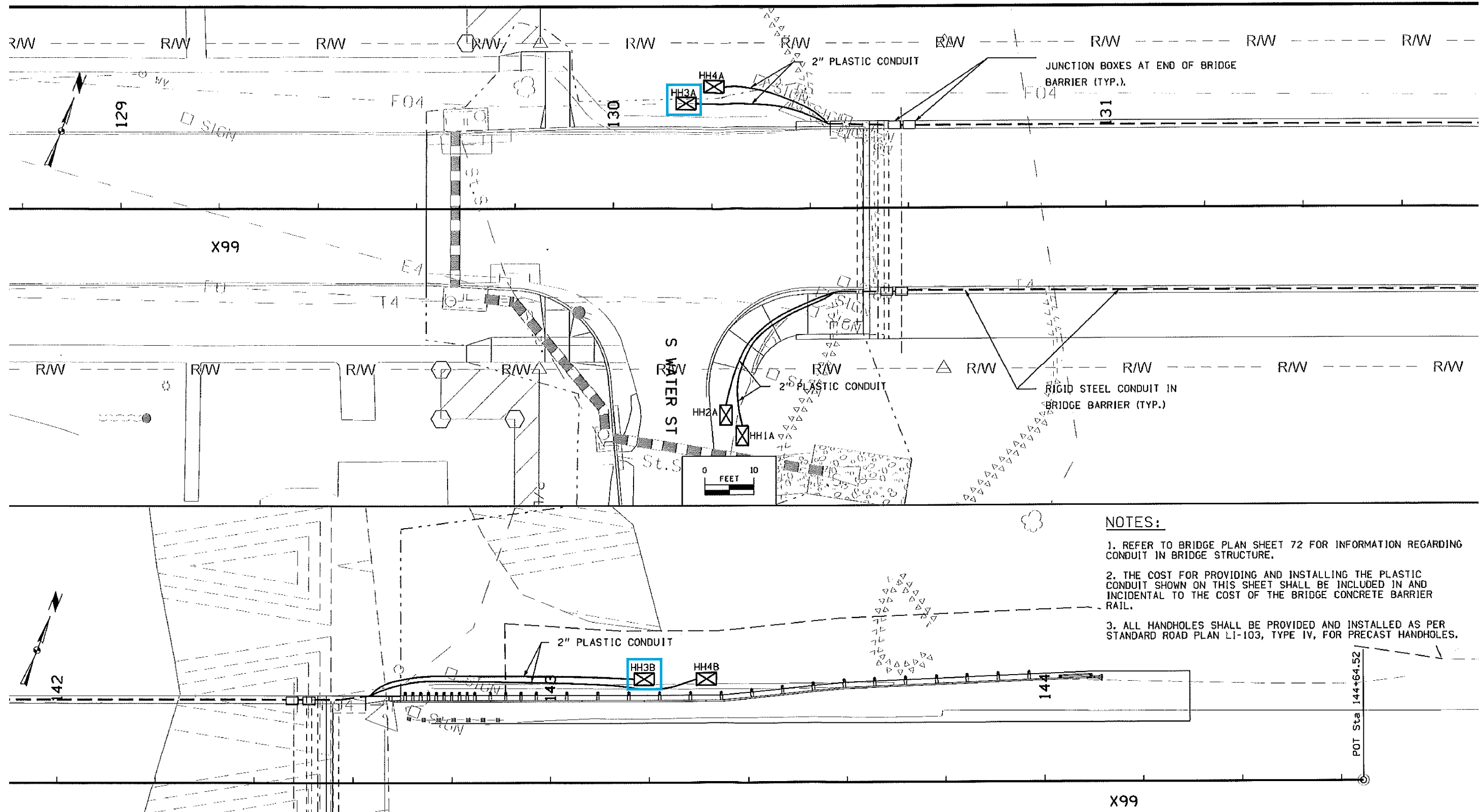
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BRIDGE DETAIL



NOTES:

1. REFER TO BRIDGE PLAN SHEET 72 FOR INFORMATION REGARDING CONDUIT IN BRIDGE STRUCTURE.
2. THE COST FOR PROVIDING AND INSTALLING THE PLASTIC CONDUIT SHOWN ON THIS SHEET SHALL BE INCLUDED IN AND INCIDENTAL TO THE COST OF THE BRIDGE CONCRETE BARRIER RAIL.
3. ALL HANDHOLES SHALL BE PROVIDED AND INSTALLED AS PER STANDARD ROAD PLAN LI-103, TYPE IV, FOR PRECAST HANDHOLES.

X99



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