

TREE PRESERVATION

ALL PUBLIC TREES, WHETHER SHOWN OR NOT SHOWN ON THE PLANS, ARE TO BE PRESERVED, UNLESS APPROVAL TO REMOVE OR PRUNE IS GIVEN IN WRITING BY CRPD/CITY FORESTER AND THEIR REMOVAL HAS BEEN DESIGNATED ON THE PLAN. TREES APPROVED FOR REMOVAL BY EITHER OF THE TWO PRECEDING AUTHORITIES SHALL BE PAID FOR UNDER ITEM 201. CLEARING AND GRUBBING, UNLESS OTHERWISE PROVIDED FOR BY UNIT PRICE, SHALL BE BID UNDER ITEM 201. THE CONTRACTOR SHALL USE SPECIAL PRECAUTIONS TO AVOID DAMAGE TO ALL OTHER TREES. ALL TREES REMOVED SHALL INCLUDE STUMP REMOVAL TO EIGHTEEN (18) INCHES BELOW GRADE. ALL CLEARING AND GRUBBING DONE ON CRPD PROPERTY, RIGHTS-OF-WAY, OR ANY CITY OF COLUMBUS PROPERTY SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR. HEAVY EQUIPMENT WILL NOT BE ALLOWED TO COMPACT THE SOIL OVER THE ROOT ZONE OF EXISTING PUBLIC TREES. RESTRICTED EQUIPMENT ACCESS ROUTES WILL BE ESTABLISHED BEFORE WORK IS BEGUN. TEMPORARY PAVING MATERIALS SUCH AS PLYWOOD, LUMBER OR RUBBER MATTING SPREAD OVER THE ROOT ZONE MAY BE REQUIRED TO PREVENT COMPACTION. CONTRACTOR SHALL REFER TO THE ANSI A300 AND/OR CITY OF COLUMBUS EXECUTIVE ORDER 2015-01 FOR TREE PROTECTION AND REPLACEMENT.

TREE PROTECTION

CONTRACTORS MUST SUBMIT A TREE PROTECTION PLAN TO THE CITY DIVISION OF FORESTRY WITH A DRAWING OF ANY WORK LOCATED WITHIN THE DRIP LINE OF A PUBLIC TREE. REFER TO CRPD STANDARD DRAWING, TREE PROTECTION FOR GUIDANCE. CONSTRUCTION MATERIALS, EXCAVATION DEBRIS, FUEL, EQUIPMENT OR VEHICLES ARE NOT TO BE STOCKPILED, STORED, DUMPED OR PARKED WITHIN THE DRIP LINE OF PUBLIC TREES. PUBLIC TREES MUST BE PROTECTED AGAINST INJURY OR DAMAGE TO BRANCHES, TRUNKS OR ROOTS FROM CONSTRUCTION AND EXCAVATION, AS DESCRIBED IN "BEST MANAGEMENT PRACTICES - MANAGING TREES DURING CONSTRUCTION," A COMPANION PUBLICATION TO ANSI A300 PART 5. FAILURE TO CONTACT THE CITY FORESTRY REPRESENTATIVE, (614) 645-2864, IN ADVANCE OF CONSTRUCTION WILL RESULT IN THE APPLICANT REIMBURSING CITY FORESTRY FOR THE COST OF ANY AND ALL DAMAGE AS DETERMINED BY THE CURRENT ANSI A300/CITY OF COLUMBUS EXECUTIVE ORDER 2015-01 FOR TREE PROTECTION AND REPLACEMENT.

FOR THE DIVISION OF POWER

THE DIVISION OF POWER (DOP) MAY HAVE UNDERGROUND AND OVERHEAD PRIMARY, SECONDARY, AND STREET LIGHTING AT THIS WORK LOCATION. THE CONTRACTOR IS HEREBY REQUIRED TO CONTACT OUPS AT 811 OR 1-800-362-2764 FORTY-EIGHT HOURS PRIOR TO CONDUCTING ANY ACTIVITY WITHIN THE CONSTRUCTION AREA.

ANY REQUIRED RELOCATION, SUPPORT, PROTECTION, OR ANY OTHER ACTIVITY CONCERNED WITH THE CITY'S ELECTRICAL FACILITIES IN THE CONSTRUCTION AREA IS TO BE PERFORMED BY THE CONTRACTOR UNDER THE DIRECTION OF DOP PERSONNEL AND AT THE EXPENSE OF THE PROJECT. THE CONTRACTOR SHALL USE MATERIAL AND MAKE REPAIRS TO A CITY OF COLUMBUS STREET LIGHTING SYSTEM BY FOLLOWING DOP'S "MATERIAL AND INSTALLATION SPECIFICATIONS" (MIS) AND THE CITY OF COLUMBUS "CONSTRUCTION AND MATERIAL SPECIFICATIONS" (CMSC). ANY NEW OR RE-INSTALLED UNDERGROUND STREETLIGHT SYSTEM SHALL REQUIRE TESTING AS REFERRED TO IN SECTION 1001.18 OF THE CMSC MANUAL. THE CONTRACTOR SHALL CONFORM TO DOP'S EXISTING STREET LIGHTING LOCKOUT/TAGOUT (LOTO) PROCEDURE MIS-01, COPIES OF WHICH ARE AVAILABLE FROM DOP.

IF ANY ELECTRIC FACILITY BELONGING TO DOP IS DAMAGED IN ANY MANNER BY THE CONTRACTOR, ITS AGENTS, SERVANTS, OR EMPLOYEES, AND REQUIRES EMERGENCY REPAIRS, THE DOP DISPATCH OFFICE SHOULD BE CONTACTED IMMEDIATELY AT (614) 645-7627. DOP SHALL MAKE ALL NECESSARY REPAIRS, AND THE EXPENSE OF SUCH REPAIRS AND OTHER RELATED COSTS SHALL BE PAID BY THE CONTRACTOR TO THE DIVISION OF POWER, CITY OF COLUMBUS, OHIO.

ITEM 619 - FIELD OFFICE, TYPE C, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF THE C&MS, PROVIDE AN ADDITIONAL UNOBSTRUCTED 25 FOOT X 25 FOOT (MINIMUM) AREA OF FLOOR SPACE TO BE USED AS A CONFERENCE ROOM, INCLUDING SIX 30" X 72" WORK TABLES AND 36 PADDED, FOLDABLE OR STACKABLE CHAIRS. INCREASE THE NUMBER OF ALL-WEATHER PARKING SPACES TO 25 SPACES TOTAL. THE PARKING AREA SHALL BE HARD-SURFACED (PAVED), WELL LIT, SECURED, AND MAINTAINED, WITH SLOPES NOT EXCEEDING 1 PERCENT IN ANY DIRECTION. A SEPARATE, FENCED, LOCKABLE AREA SHALL BE PROVIDED FOR 10 VEHICLES WITHIN THE PROVIDED PARKING AREA.

ITEM 606 - SPECIAL - CABLE BARRIER, ANCHOR ASSEMBLY

THIS ITEM SHALL CONSIST OF REPLACING EXISTING CABLE BARRIER, ANCHOR ASSEMBLY IN KIND. SEE THE OFFICE OF ROADWAY ENGINEERING'S WEB PAGE FOR DETAILS. PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606 CABLE BARRIER, ANCHOR ASSEMBLY AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL HIGH TENSION CABLE GUARDRAIL SYSTEM NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

SYSTEMS SHALL HAVE A MAXIMUM DEFLECTION OF 8 FEET AND THE MAXIMUM LONGITUDINAL DISTANCE BETWEEN POSTS SHALL BE 15 FEET.

DELINEATE THE CABLE BARRIER USING TYPE 6 BARRIER REFLECTORS PER ITEM 626 OR USING FLEXIBLE POSTS PER ITEM 620 AS CALLED FOR IN THE PLANS OR DIRECTED BY THE ENGINEER.

ANCHOR TERMINAL STRUTS SHALL BE COVERED COMPLETELY ON BOTH SIDES WITH YELLOW TYPE J, ASTM D 4956 TYPE XI REFLECTIVE SHEETING, PER CMS 730.193.

TRANSITIONS TO W-BEAM GUARDRAIL ARE NOT ALLOWED.

REFER TO MANUFACTURER FOR MAXIMUM OFFSET FROM BREAK POINT.

TORPEDO OR BULLET SPLICES ARE NOT ALLOWED. ALL CABLE PLICES SHALL BE A SWAGED OR OPEN BODY DESIGN THAT ALLOWS FOR ANNUAL INSPECTION BETWEEN THE WEDGE AND STRANDS OF CABLE.

POSTS ARE SET IN SOCKETED CONCRETE FOUNDATIONS AND SHALL NOT BE PERMANENTLY INSTALLED UNTIL THEIR RESPECTIVE RUNS OF TENSIONED CABLE GUARDRAIL ARE READY FOR FINAL CONNECTION TO THE END TERMINAL ASSEMBLY. THE CONTRACTOR SHALL REPLACE ANY POSTS DAMAGED DURING INSTALLATION AS DETERMINED BY THE ENGINEER AT NO ADDITIONAL COST TO THE STATE.

ITEM SPECIAL - FILL AND PLUG EXISTING CONDUIT

THIS ITEM CONSISTS OF THE CONSTRUCTION OF BULKHEADS IN AN EXISTING 54 - 60 INCH DIAMETER CONDUIT AND FILLING THE AREA SEALED OFF WITH ITEM 613, SAND OR OTHER MATERIAL APPROVED BY THE ENGINEER.

LOCATE THE BULKHEADS AT THE LIMITS OF THE AREA TO BE FILLED, AS INDICATED ON THE PLANS. THE BULKHEADS CONSIST OF BRICK OR CONCRETE MASONRY WITH A MINIMUM THICKNESS OF 12 INCHES.

PUMP THE FILL MATERIAL INTO PLACE OR BY OTHER MEANS APPROVED BY THE ENGINEER, SO THAT AFTER SETTLEMENT, AT LEAST 90 PERCENT OF THE CROSSSECTIONAL AREA OF THE CONDUIT, FOR ITS ENTIRE LENGTH IS FILLED. THE LENGTH OF FILLED AND PLUGGED CONDUIT TO BE PAID FOR IS THE ACTUAL NUMBER OF FEET (MEASURED ALONG THE CENTERLINE OF EACH CONDUIT FROM OUTER FACE TO OUTER FACE OF BULKHEADS) FILLED AND PLUGGED AS DESCRIBED ABOVE.

IN LIEU OF FILLING AND PLUGGING THE EXISTING CONDUIT, THE PIPE MAY BE CRUSHED AND BACKFILLED PER 203, OR IT MAY BE REMOVED. THE LENGTH, MEASURED AS PROVIDED ABOVE, WILL BE PAID FOR AT THE CONTRACT PRICE PER FOOT FOR, ITEM SPECIAL, FILL AND PLUG EXISTING CONDUIT.

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GENERAL NOTES

FRA - 70 - 22.61

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| SHEET NUM. | | | | | | | | | | | | | | | | PART. | ITEM | ITEM | GRAND | UNIT | DESCRIPTION | SEE SHEET NO. |
|------------|--|--|--|----|----|-----|---------|--------|-------|---------|-------|-----------|---------|---------|----------|---------|---------|---|-------|------|-------------|---------------|
| | | | | 45 | 54 | 212 | 234 | 235 | 236 | 246 | 751 | 01/IMS/PV | EXT | TOTAL | | | | | | | | |
| | | | | | | | | | | | | | LS | 201 | 11000 | LS | ROADWAY | | | | | |
| | | | | | | | | | 14 | | | | 14 | 202 | 20010 | 14 | EACH | CLEARING AND GRUBBING | | | | |
| | | | | | | | 49,493 | | | | | | 49,493 | 202 | 23000 | 49,493 | SY | HEADWALL REMOVED | | | | |
| | | | | | | | | | | | | | 1,155 | 202 | 30700 | 1,155 | FT | PAVEMENT REMOVED | | | | |
| | | | | | | | | | | | | | 9,895 | 202 | 32000 | 9,895 | FT | CONCRETE BARRIER REMOVED | | | | |
| | | | | | 68 | | | | 3,191 | | | | 3,259 | 202 | 35100 | 3,259 | FT | CURB REMOVED | | | | |
| | | | | | | | | | 597 | | | | 597 | 202 | 35200 | 597 | FT | PIPE REMOVED, 24" AND UNDER | | | | |
| | | | | | | | | | | | | | 3,956 | 202 | 38000 | 3,956 | FT | PIPE REMOVED, OVER 24" | | | | |
| | | | | | | | | | | | | | 25 | 202 | 38200 | 25 | FT | GUARDRAIL REMOVED | | | | |
| | | | | | | | | | | | | | 255 | 202 | 38300 | 255 | FT | GUARDRAIL REMOVED FOR REUSE | | | | |
| | | | | | | | | | | | | | 14 | 202 | 42206 | 14 | EACH | GUARDRAIL REMOVED, BARRIER DESIGN | | | | |
| | | | | | | | | | | | | | 7 | 202 | 47000 | 7 | EACH | ANCHOR ASSEMBLY REMOVED | | | | |
| | | | | | | | | | | | | | 2 | 202 | 47800 | 2 | EACH | BRIDGE TERMINAL ASSEMBLY REMOVED | | | | |
| | | | | | | | | | | | | | 99 | 202 | 48000 | 99 | FT | IMPACT ATTENUATOR REMOVED | | | | |
| | | | | | | | | | 12 | | | | 12 | 202 | 58000 | 12 | EACH | CABLE BARRIER REMOVED | | | | |
| | | | | | | | | | | | | | 22 | 202 | 58100 | 22 | EACH | MANHOLE REMOVED | | | | |
| | | | | | | | | | | | | | 1,452 | SPECIAL | 20270000 | 1,452 | FT | CATCH BASIN REMOVED | | | | |
| | | | | | | | | | | | | | 285 | SPECIAL | 20270000 | 285 | FT | FILL AND PLUG EXISTING CONDUIT, 54" | | | | |
| | | | | | | | | 17,895 | | | | | 17,895 | 202 | 75000 | 17,895 | FT | FILL AND PLUG EXISTING CONDUIT, 60" | | | | |
| | | | | | | | | 2 | | | | | 2 | 202 | 75250 | 2 | EACH | FENCE REMOVED | | | | |
| | | | | | | | | | | 84,402 | 4,936 | | 89,338 | 203 | 10000 | 89,338 | CY | GATE REMOVED | | | | |
| | | | | | | | | | | 166,395 | | | 166,395 | 203 | 20000 | 166,395 | CY | EXCAVATION | | | | |
| | | | | | | | | | | | 1,580 | | 1,580 | 203 | 22000 | 1,580 | CY | EMBANKMENT | | | | |
| | | | | | | | | | | | 428 | | 428 | 203 | 20001 | 428 | CY | EMBANKMENT, USING NATURAL SOILS, 703.16.A | | | | |
| | | | | 5 | | | | | | | | | 5 | SPECIAL | 20365000 | 5 | EACH | EMBANKMENT, AS PER PLAN | | | | |
| | | | | 1 | | | | | | | | | 1 | 203 | 98600 | 1 | EACH | SETTLEMENT PLATFORM | | | | |
| | | | | | | | 124,889 | | | | | | 124,889 | 204 | 10000 | 124,889 | SY | ROADWAY, MISC.: SETTLEMENT MONUMENTS | | | | |
| | | | | | | | | | | 6,407 | | | 6,407 | 204 | 13000 | 6,407 | CY | SUBGRADE COMPACTION | | | | |
| | | | | | | | | | | 10,028 | | | 10,028 | 204 | 30020 | 10,028 | CY | EXCAVATION OF SUBGRADE | | | | |
| | | | | | | | 66 | | | | | | 66 | 204 | 45000 | 66 | HOUR | GRANULAR MATERIAL, TYPE C | | | | |
| | | | | | | | | | | | | | | | | | | PROOF ROLLING | | | | |

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GENERAL SUMMARY

FRA - 70 - 22.61

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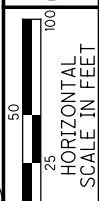
| SHEET NO. | REFERENCE NO. | STATION TO STATION | | SIDE | 202 | 202 | 202 | 202 | 202 | 202 | 202 | | | |
|--|---------------|--------------------|------------|-------|--------------------------|-----------------------------------|------------------------------|-------------------------|-----------------------------|---|---|--|--|--|
| | | FROM | TO | | HEADWALL REMOVED EACH | PIPE REMOVED, 24" AND UNDER FT | PIPE REMOVED, OVER 24" FT | MANHOLE REMOVED EACH | CATCH BASIN REMOVED EACH | SPECIAL - FILL AND PLUG EXISTING CONDUIT, 54" FT | SPECIAL - FILL AND PLUG EXISTING CONDUIT, 60" FT | | | |
| | | IR70 | | | | | | | | | | | | |
| 705 | RD1 | 532+00.00 | 537+40.00 | LT | | 540 | | | | | | | | |
| 705 | RD2 | 544+16.00 | | RT | | | 177 | 1 | | | | | | |
| 707 | RD3 | 545+96.00 | | RT | 1 | 32 | | | | | | | | |
| 707 | RD4 | 558+96.00 | | RT | | 23 | | | | | | | | |
| | | IR270 | | | | | | | | | | | | |
| 716 | RD200 | 978+53.00 | 978+85.00 | RT | 1 | 37 | | | | | | | | |
| 716 | RD201 | 979+56.00 | | RT | 1 | 10 | | | | | | | | |
| 716 | RD203 | 978+55.41 | | RT | | 74 | | 1 | | | | | | |
| 717 | RD204 | 992+98.00 | | RT | 1 | 77 | | | | | | | | |
| 721 | RD205 | 1052+03.00 | | LT | | 62 | | | | | | | | |
| | | RAMP A1 | | | | | | | | | | | | |
| 721 | RD300 | 2006+33.73 | 2010+39.74 | RT | | | | | | 486 | | | | |
| 721 | RD301 | 2010+39.74 | 2015+27.18 | RT | | | | 1 | | 482 | | | | |
| 721 | RD302 | 2010+40.00 | | RT | 1 | 10 | | | | | | | | |
| 721 | RD303 | 2013+39.00 | | RT | 1 | | | | | | | | | |
| 720 | RD304 | 2015+27.18 | 2020+14.10 | RT | | | | 1 | | 484 | | | | |
| 720 | RD305 | 2020+14.10 | | RT | | 84 | | | 1 | | | | | |
| 720 | RD306 | 2019+27.00 | | RT | 1 | 15 | | | | | | | | |
| 720 | RD307 | 2020+14.10 | 2025+15.00 | RT | | | 210 | 1 | | 285 | | | | |
| 715 | RD308 | 2030+00.00 | | LT | | | 30 | | 1 | | | | | |
| | | RAMP A2 | | | | | | | | | | | | |
| | | RAMP C1 | | | | | | | | | | | | |
| 718 | RD500 | 6001+91.00 | | LT | 1 | 6 | | | | | | | | |
| 718 | RD501 | 6002+27.00 | | RT | 1 | | 5 | | | | | | | |
| 709 | RD502 | 6051+87.00 | | LT | | 51 | | | 1 | | | | | |
| 710 | RD503 | 6064+36.00 | | LT | 1 | 34 | | | | | | | | |
| 710 | RD504 | 6070+33.00 | | LT | 1 | 24 | | | | | | | | |
| 710 | RD505 | 6073+42.00 | | LT/RT | 2 | | 169 | | | | | | | |
| 705 | RD506 | 6029+00.00 | | LT/RT | | 47 | | 1 | 2 | | | | | |
| 705 | RD507 | 6030+48.00 | | RT | | 34 | | | 1 | | | | | |
| 705 | RD508 | 6029+03.62 | 6030+78.28 | RT | | 174 | | 1 | | | | | | |
| 705 | RD509 | 6030+55.85 | 6030+78.28 | LT | | 47 | | | 1 | | | | | |
| 705 | RD510 | 6030+78.28 | 6033+71.34 | RT | | 364 | | 1 | | | | | | |
| 705 | RD511 | 6033+98.00 | | RT | | | | | 1 | | | | | |
| 705 | RD512 | 6034+02.00 | | LT | | | | | 1 | | | | | |
| 705 | RD513 | 6033+35.04 | | RT | | 82 | | 1 | 1 | | | | | |
| 707 | RD514 | 6036+59.94 | 6039+84.25 | RT | | 320 | | | | | | | | |
| 707 | RD515 | 6036+61.81 | 6036+58.27 | RT | | 62 | | 1 | 2 | | | | | |
| 707 | RD516 | 6039+83.61 | 6039+83.34 | RT | | 62 | | 1 | 2 | | | | | |
| 707 | RD517 | 6039+84.25 | 6042+56.67 | RT | | 269 | | | | | | | | |
| 707 | RD518 | 6042+54.52 | 6042+57.25 | RT | | 62 | | 1 | 2 | | | | | |
| | | RAMP G1 | | | | | | | | | | | | |
| 710 | RD600 | 8588+95.00 | | RT | 1 | | 6 | | 1 | | | | | |
| | | SCARBOROUGH | | | | | | | | | | | | |
| 723 | RD700 | 30+32.11 | 30+57.64 | RT | | 176 | | 1 | | | | | | |
| 723 | RD701 | 30+57.64 | 30+68.49 | LT | | 9 | | | 1 | | | | | |
| 723 | RD702 | 30+68.49 | | RT | | 49 | | | 1 | | | | | |
| 723 | RD703 | 30+57.64 | 33+67 | LT | | 306 | | | 1 | | | | | |
| 723 | RD704 | 33+67 | | RT | | 49 | | | 1 | | | | | |
| TOTALS CARRIED TO GENERAL SUMMARY | | | | | 14 | 3191 | 597 | 12 | 22 | 1452 | 285 | | | |

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DRAINAGE REMOVALS SUBSUMMARY

FRA - 70 - 22.61

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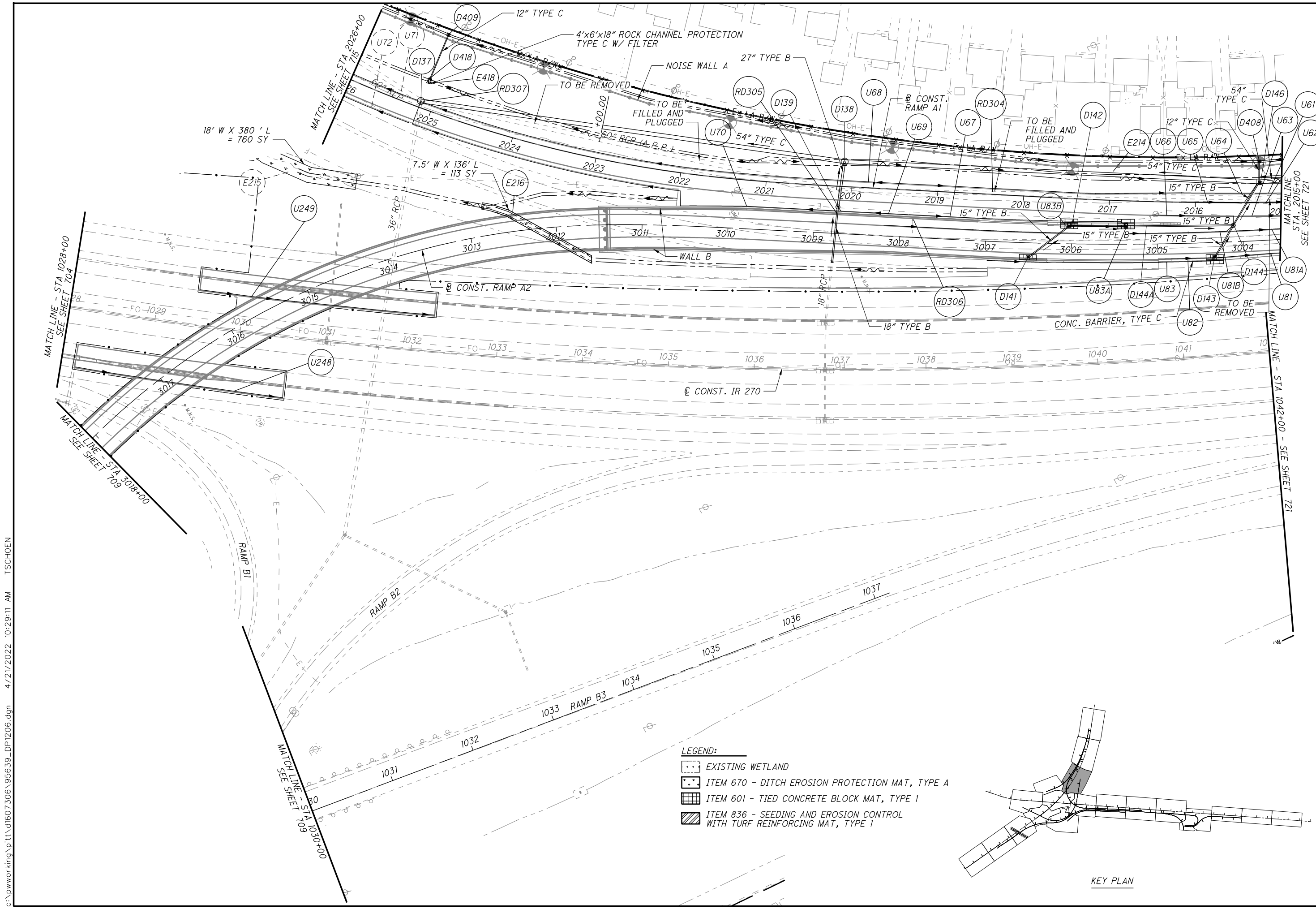


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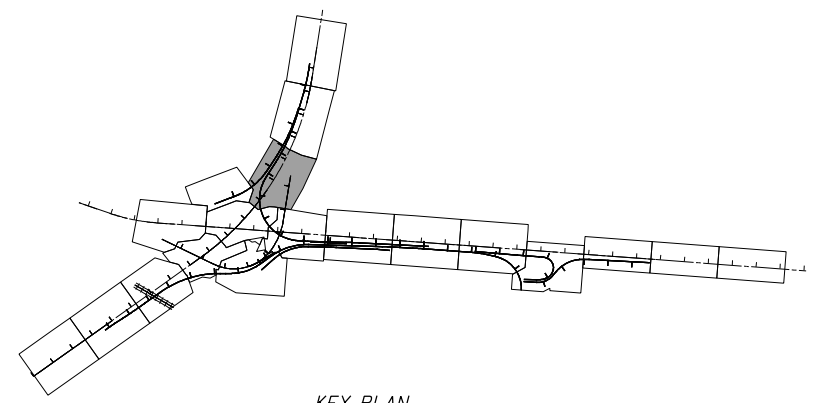
DRAINAGE PLAN - IR 270
STA. 1028+00 TO STA. 1042+00

FRA-70-22.61

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- LEGEND:**
- EXISTING WETLAND
 - ITEM 670 - DITCH EROSION PROTECTION MAT, TYPE A
 - ITEM 601 - TIED CONCRETE BLOCK MAT, TYPE 1
 - ITEM 836 - SEEDING AND EROSION CONTROL WITH TURF REINFORCING MAT, TYPE 1



KEY PLAN

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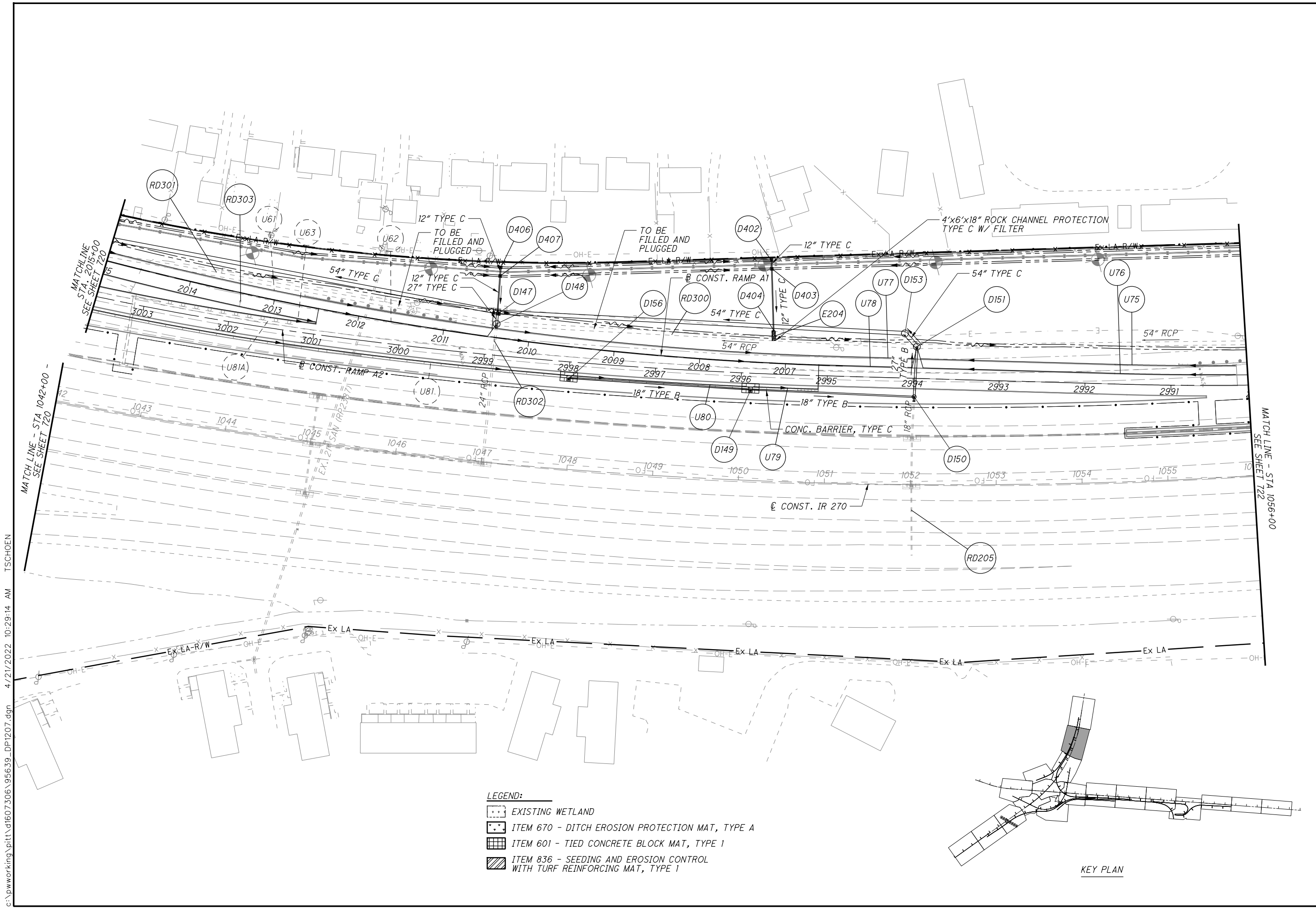


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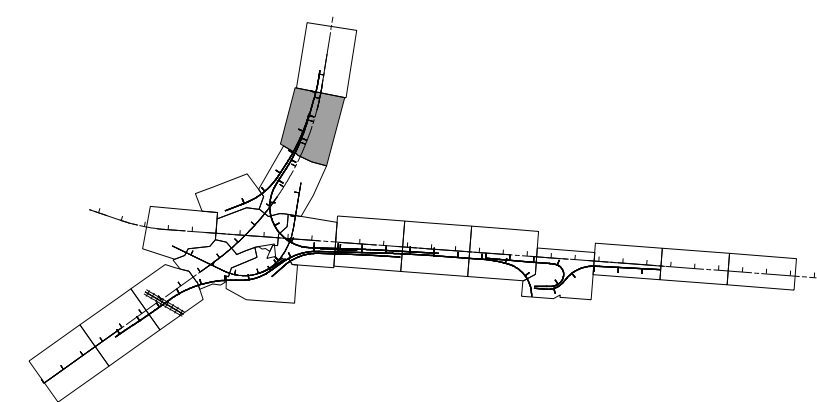
**DRAINAGE PLAN - IR 270
STA. 1042+00 TO STA. 1056+00**

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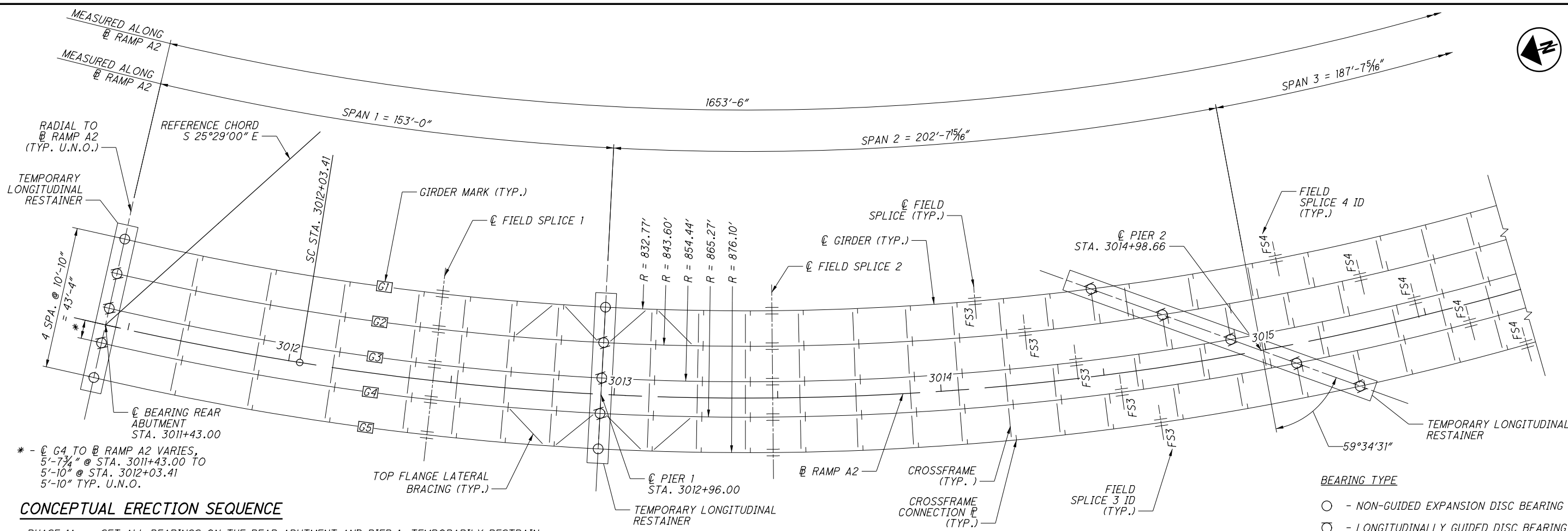
- LEGEND:**
- EXISTING WETLAND
 - ITEM 670 - DITCH EROSION PROTECTION MAT, TYPE A
 - ITEM 601 - TIED CONCRETE BLOCK MAT, TYPE 1
 - ITEM 836 - SEEDING AND EROSION CONTROL WITH TURF REINFORCING MAT, TYPE 1



KEY PLAN

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CONCEPTUAL ERECTION SEQUENCE

- PHASE 1A: SET ALL BEARINGS ON THE REAR ABUTMENT AND PIER 1. TEMPORARILY RESTRAIN LONGITUDINAL MOVEMENT. PLACE GIRDER 5 FROM REAR ABUTMENT TO FIELD SPLICE 2. UTILIZE A HOLD CRANE TO SUPPORT GIRDER 5.
- PHASE 1B: PLACE GIRDER 4 FROM REAR ABUTMENT TO FIELD SPLICE 2 AND CONNECT ALL CROSSFRAMES AND TOP FLANGE LATERAL BRACING BETWEEN THE TWO GIRDERS WITH BOLTS SNUG TIGHT. RELEASE GIRDERS 4 AND 5 AFTER THE CONNECTIONS ARE MADE.
- PHASE 1C: PLACE GIRDER 3 FROM REAR ABUTMENT TO FIELD SPLICE 2 AND CONNECT ALL CROSSFRAMES BETWEEN GIRDERS 3 AND 4 WITH BOLTS SNUG TIGHT. RELEASE GIRDER 3 AFTER THE CONNECTIONS ARE MADE.
- PHASE 1D: PLACE GIRDER 2 FROM REAR ABUTMENT TO FIELD SPLICE 2 AND CONNECT ALL CROSSFRAMES BETWEEN GIRDERS 2 AND 3 WITH BOLTS SNUG TIGHT. RELEASE GIRDER 2 AFTER THE CONNECTIONS ARE MADE.
- PHASE 1E: PLACE GIRDER 1 FROM REAR ABUTMENT TO FIELD SPLICE 2 AND CONNECT ALL CROSSFRAMES AND TOP FLANGE LATERAL BRACING BETWEEN GIRDERS 1 AND 2 WITH BOLTS SNUG TIGHT. RELEASE GIRDER 1 AFTER THE CONNECTIONS ARE MADE.
- PHASE 2A: SET ALL BEARINGS ON PIER 2. TEMPORARILY RESTRAIN LONGITUDINAL MOVEMENT. PLACE GIRDER 5 FROM FIELD SPLICE 2 TO FIELD SPLICE 4. UTILIZE A HOLD CRANE TO SUPPORT GIRDER 5.
- PHASE 2B: PLACE GIRDER 4 FROM FIELD SPLICE 2 TO FIELD SPLICE 4 AND CONNECT ALL CROSSFRAMES BETWEEN THE TWO GIRDERS WITH BOLTS SNUG TIGHT. RELEASE GIRDERS 4 AND 5 AFTER THE CONNECTIONS ARE MADE.
- PHASE 2C: PLACE GIRDER 3 FROM FIELD SPLICE 2 TO FIELD SPLICE 4 AND CONNECT ALL CROSSFRAMES BETWEEN GIRDERS 3 AND 4 WITH BOLTS SNUG TIGHT. RELEASE GIRDER 3 AFTER THE CONNECTIONS ARE MADE.
- PHASE 2D: PLACE GIRDER 2 FROM FIELD SPLICE 2 TO FIELD SPLICE 4 AND CONNECT ALL CROSSFRAMES BETWEEN GIRDERS 2 AND 3 WITH BOLTS SNUG TIGHT. RELEASE GIRDER 2 AFTER THE CONNECTIONS ARE MADE.
- PHASE 2E: PLACE GIRDER 1 FROM FIELD SPLICE 2 TO FIELD SPLICE 4 AND CONNECT ALL CROSSFRAMES BETWEEN GIRDERS 1 AND 2 WITH BOLTS SNUG TIGHT. RELEASE GIRDER 1 AFTER THE CONNECTIONS ARE MADE.

ERECTION PLAN

NOTES:

1. THE CONCEPTUAL ERECTION SEQUENCE IS A REPRESENTATION OF HOW THE BRIDGE COULD BE ERECTED AND IS BASED ON THE LIFT CRANE AND HOLD CRANE METHOD. ALL INTERMEDIATE STAGES OF ERECTION, TEMPORARY RESTRAINING DEVICES, TEMPORARY BRACING, COMPRESSION FLANGE STIFFENING TRUSS, CRANE LOCATIONS, ETC. THAT MAY BE NECESSARY ARE NOT SHOWN. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF PARTIAL AND COMPLETE GIRDERS DURING THE ERECTION PROCESS. THE CONTRACTOR'S ATTENTION IS DIRECTED TO CMS 513.26 FOR THE REQUIREMENTS FOR STABILITY OF STEEL GIRDERS DURING SHIPPING AND ERECTION AND THE SUBMITTAL REQUIREMENTS OF CMS 501.05.B.4.
2. THE METHODS USED BY THE CONTRACTOR SHALL BE DOCUMENTED ON THE ERECTION DRAWINGS WITH ALL SUPPORTING STABILITY CALCULATIONS SUBMITTED IN ACCORDANCE WITH CMS 501 AND 513. THE CONTRACTOR MAY SUBMIT AN ALTERNATE MEANS OF ERECTION FROM THE ONE SHOWN IN THE PLANS AND SHALL REFERENCE THE FHWA NHI-15-044 PUBLICATION FOR STRUCTURAL STABILITY IN BRIDGE CONSTRUCTION. THE FOLLOWING HAS BEEN INCLUDED IN THE PRELIMINARY INVESTIGATION OF THE PARTIALLY ERECTED STRUCTURE AND ARE RECOMMENDED AS MINIMUM GUIDELINES. FOR PHASES IN WHICH A SINGLE GIRDER IS NOT CONNECTED TO ANOTHER GIRDER BY CROSSFRAMES, DETERMINE WIND PRESSURES BASED ON A 30 MPH DESIGN WIND VELOCITY. FOR PHASES WHEN ONLY 2 GIRDERS PROJECT INTO THE NEXT SPAN, DETERMINE WIND PRESSURES BASED ON AN 85 MPH DESIGN WIND VELOCITY. FOR ALL OTHER PHASES DETERMINE WIND PRESSURES BASED ON A 115 MPH DESIGN WIND VELOCITY. THE CONTRACTOR SHALL PROVIDE WORK LIMITATIONS RELATIVE TO WIND SPEED AND PROCEDURES FOR HIGH WIND EVENTS.
3. IF A FIELD SPLICE IS INCLUDED IN THE SPECIFIED LIFT LENGTH, BOLT THE GIRDER SECTIONS TOGETHER ON THE GROUND BEFORE LIFTING IN PLACE. INSTALL ONE HUNDRED PERCENT (100%) OF THE HOLES WITH COMPLETELY TIGHTENED BOLTS.
4. IF TWO GIRDER LINES ARE TO BE PLACED SIMULTANEOUSLY, INSTALL ALL CROSSFRAMES BETWEEN THE TWO GIRDERS AND SNUG TIGHT THE BOLTS ON THE GROUND BEFORE LIFTING AND PLACING THE PAIR OF GIRDERS.
5. IF A SINGLE GIRDER LINE IS PLACED, DO NOT RELEASE THE GIRDER FROM THE LIFTING APPARATUS UNTIL ALL CROSSFRAMES AND TOP FLANGE LATERAL BRACING, IF APPLICABLE, IN THE ADJACENT BAY HAVE BEEN INSTALLED WITH THE BOLTS SNUG TIGHT. THIS REQUIREMENT CAN BE WAIVED IF A REDUCED NUMBER OF CROSSFRAMES IS SHOWN TO BE SUFFICIENT ON THE CONTRACTOR'S APPROVED ERECTION PROCEDURE.
6. SEVENTY FIVE PERCENT (75%) OF THE BOLTS IN THE FIELD SPLICE MUST BE INSTALLED BEFORE ALLOWING TRAFFIC TO PASS BENEATH OR ADJACENT TO THE STRUCTURE. THIS REQUIREMENT CAN BE MODIFIED IF A REDUCED NUMBER OF BOLTS IS SHOWN TO BE SUFFICIENT ON THE CONTRACTOR'S APPROVED ERECTION PROCEDURE.
7. TEMPORARY LONGITUDINAL RESTRAINERS SHOWN ARE REQUIRED AND MUST REMAIN IN PLACE UNTIL THE ENTIRE SUPERSTRUCTURE HAS BEEN ERECTED. THE TEMPORARY RESTRAINER SHALL BE A DEVICE CAPABLE OF PREVENTING, WITHOUT DAMAGE, THE FREE LONGITUDINAL MOVEMENT OF THE BRIDGE. THIS REQUIREMENT CAN BE WAIVED IF STABILITY IS DEMONSTRATED IN THE CONTRACTOR'S APPROVED ERECTION PROCEDURE.
8. UNLESS NOTED OTHERWISE, PERMANENTLY FASTEN ALL CROSSFRAME, FIELD SPLICE, AND TOP FLANGE LATERAL BRACING CONNECTIONS PER CMS 513.26 AFTER PHASE 8E AND BEFORE POURING THE DECK.
9. ALL CROSSFRAMES MUST BE IN PLACE WITH ALL BOLTS INSTALLED BEFORE ALLOWING TRAFFIC TO PASS BENEATH OR ADJACENT TO THE STRUCTURE. THIS REQUIREMENT CAN BE WAIVED IF A REDUCED NUMBER OF CROSSFRAMES IS SHOWN TO BE SUFFICIENT ON THE CONTRACTOR'S APPROVED ERECTION PROCEDURE.

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| | DESIGN AGENCY H&R ENGINEERING, INC. 2800 CORPORATE EXCHANGE DR., SUITE 100 COLUMBUS, OHIO 43231 614-835-5770 | DATE 8/13/20 | PROJECT BRIDGE NO. FRA-270-4262 RAMP A2 OVER I.R. 270, I.R. 70 AND RAMP D2 | FILE NUMBER 2511300 |
| DESIGNED JTW | DRAWN JTW | REVIEWED BTA | STRUCTURE FILE NUMBER 2511300 | |
| CHECKED NUH | ERECTION PLAN - 1 | | | |
| FRA-70-22-61 | | PID No. 95639 | | |
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