

CITY OF CANTON, OHIO

GP 1159-NAVARRE RD. S.W. SANITARY SEWER REPLACEMENT AND BRIDGE REHABILITATION

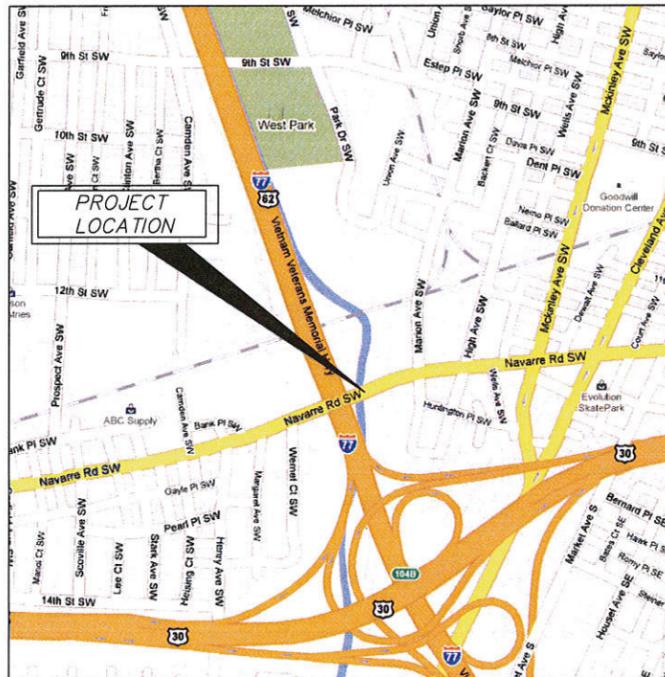
APRIL 2013

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UTILITY CONTACTS

NATURAL GAS DISTRIBUTION DOMINION EAST OHIO GAS 320 SPRINGSIDE DRIVE, SUITE 320 AKRON, OHIO 44333 330-664-2409 ATTN: MARY LONG EMERGENCY NO. 1-800-521-4400	TELEPHONE AT&T 50 WEST BOWER STREET AKRON, OHIO 44308 330-384-8057 ATTN: GINO SANTILLO EMERGENCY NO. - 24 HRS. 1-800-572-4545 OPTION#4
COMMUNICATIONS CABLE TIME WARNER CABLE 5520 WHIPPLE AVE N.W. NORTH CANTON, OHIO 44720 330-494-9200, EXT. 87 ATTN: TIM KNIGHT	ELECTRIC AMERICAN ELECTRIC POWER 301 CLEVELAND AVE. S.W. P.O. BOX 24400 CANTON, OHIO 44701-4400 330-438-7762 ATTN: RAY ZITNEY EMERGENCY NO. 1-800-672-2017
SANITARY AND STORM SEWER CITY ENGINEER'S OFFICE 2436-30TH ST. N.E. CANTON, OHIO 44705 ATTN: DAN MOEGLIN, P.E., S.I. 330-489-3381	WATER WATER DEPARTMENT 2664 HARRISBURG RD. N.E. CANTON, OHIO 44708 330-489-3310 ATTN: LEWI MILLER
NATURAL GAS TRANSMISSION DOMINION EAST OHIO GAS 320 SPRINGSIDE DRIVE, SUITE 320 AKRON, OHIO 44333 330-664-2409 ATTN: MARY LONG	TRAFFIC INTERCONNECT CITY ENGINEER'S OFFICE 2436-30TH ST. N.E. CANTON, OHIO 44705 330-489-3370 ATTN: NICK LOUKAS, P.E.
ODOT DISTRICT 4 2088 SOUTH ARLINGTON ROAD AKRON, OHIO 44306 800-603-1054 ATTN: KEN GREENE	COLLECTION SYSTEMS 2901 REGENT AVENUE, N.E. CANTON, OHIO 44705 330-489-3031 ATTN: JAMES DIMARZIO



VICINITY MAP
N.T.S.



STANDARD DRAWINGS

NO. 29	CITY OF CANTON COMBINED CURB & WALK
NO. 19	CITY OF CANTON UTILITY TRENCH REQUIREMENTS

ENGINEER/ SURVEYOR

HAMMONTREE & ASSOCIATES, LTD.
5233 STONEHAM RD.
NORTH CANTON, OHIO 44720

ATTN: THOMAS POWELL, P.E.
TELE: (330) 499-8817
FAX: (330) 499-0149

OWNER

CITY OF CANTON, OHIO
2436 30TH STREET N.E.
CANTON, OHIO 44705

ATTN: DANIEL MOEGLIN, P.E., S.I.
TELE: (330) 489-3381
FAX: (330) 489-3337

CITY OFFICIALS

MAYOR	WILLIAM J. HEALY II
SERVICE DIRECTOR	WARREN R. PRICE
SAFETY DIRECTOR	THOMAS REAM

COUNCIL MEMBERS

WARD 1	GREG HAWK
WARD 2	THOMAS E. WEST
WARD 3	JAMES E. GRIFFIN
WARD 4	CHRIS SMITH
WARD 5	KEVIN FISHER
WARD 6	DAVID R. DOUGHERTY
WARD 7	JOHN MARIOL II
WARD 8	EDMOND MACK
WARD 9	FRANK MORRIS
AT-LARGE	MARY M. CIRELLI
AT-LARGE	JOE COLE
AT-LARGE	JAMES BABCOCK
COUNCIL PRESIDENT	ALLEN SCHULMAN

APPROVALS

APPROVED BY: DANIEL MOEGLIN, P.E., S.I.-CANTON CITY ENGINEER DATE

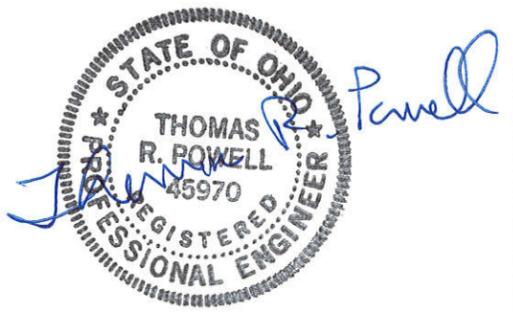
APPROVED BY: *Thomas R. Powell* 4/17/2013
THOMAS R. POWELL, P.E.-HAMMONTREE & ASSOCIATES, LIMITED DATE
REGISTERED ENGINEER NO. E-45970

APPROVED BY: *Karl J. Oprisch* 17 APR 2013
KARL J. OPRISCH, P.E. - HAMMONTREE & ASSOCIATES, LIMITED DATE
REGISTERED ENGINEER NO. E-53879

2010 SPECIFICATIONS

THE WORK UNDER THIS PROJECT SHALL COMPLY WITH THE GENERAL, SUPPLEMENTAL AND TECHNICAL SPECIFICATIONS PROVIDED WITH THE CONTRACT, THE CITY OF CANTON, STANDARD CONSTRUCTION DRAWINGS AND THE LATEST EDITION OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, CONSTRUCTION AND MATERIAL SPECIFICATIONS.

ROOF DRAINS, FOUNDATION DRAINS AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.



UNDERGROUND UTILITIES
CONTACT BOTH SERVICES
CALL TWO WORKING DAYS
BEFORE YOU DIG

CALL
1-800-362-2764
(TOLL FREE)

OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

OIL & GAS PRODUCERS PROTECTIVE
SERVICE CALL: 1-800-925-0988



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CANTON-AKRON-PITTSBURGH

5233 STONEHAM ROAD NORTH CANTON, OHIO 44720
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561	2	4/16/2013
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2	TRP	2/11/11
DRWN BY:	DATE:	DESC.:
561	2	4/16/2013
CHKD BY:	DATE:	DESC.:
TRP	2/11/11	PER CITY COMMENTS
RWD BY:	DATE:	DESC.:
TRP	09/01/2010	PER CITY COMMENTS

TITLE SHEET
GP 1159-NAVARRE RD. S.W. SANITARY SEWER REPLACEMENT AND BRIDGE REHABILITATION
FOR: THE CITY OF CANTON
LOCATED IN THE CITY OF CANTON, STARK COUNTY, OHIO

1/14

I. PRECONSTRUCTION INCIDENTALS

(A) PROJECT SPECIFICATIONS/REQUIREMENTS:

ALL WORK REQUIRED TO COMPLETE THIS IMPROVEMENT SHALL BE PERFORMED IN ACCORDANCE WITH SPECIFICATIONS/REQUIREMENTS OF THE CITY OF CANTON AND THE LATEST EDITION OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS, EXCEPT AS HEREIN AMENDED. IN THE CASE OF A CONFLICT BETWEEN THE CITY OF CANTON AND THE OHIO DEPARTMENT OF TRANSPORTATION SPECIFICATIONS/REQUIREMENTS, THE CITY OF CANTON REQUIREMENTS WILL TAKE PRECEDENCE, UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.

THE DEVELOPER/CONTRACTOR SHALL COMPLY WITH THE CITY OF CANTON SUPPLEMENTAL SPECIFICATION 01-00 PROJECT DOCUMENTATION AND SUBMITTAL REQUIREMENTS.

(B) ADMINISTRATIVE REQUIREMENTS:

THE DEVELOPER/CONTRACTOR SHALL BE RESPONSIBLE FOR FULLY COMPLYING WITH ALL THE ADMINISTRATIVE DUTIES HEREIN CONTAINED.

THE DEVELOPER/CONTRACTOR SHALL DESIGNATE TO THE CITY AN EMPLOYEE RESPONSIBLE FOR CORRESPONDENCE, NOTIFICATIONS, AND SUBMITTALS PERTINENT TO THE PROJECT.

(C) PRECONSTRUCTION MEETING:

A PRECONSTRUCTION MEETING WITH THE DEVELOPER, CONTRACTOR, REPRESENTATIVES OF ALL UTILITY COMPANIES, THE CITY OF CANTON ENGINEERING DEPARTMENT AND THE CITY OF CANTON WATER DEPARTMENT IS REQUIRED FOR THIS PROJECT PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY.

FOR SUBDIVISION DEVELOPMENTS, THE DEVELOPER SHALL CONTACT THE CITY ENGINEER'S OFFICE TO ARRANGE A MEETING DATE. THE DEVELOPER WILL CONTACT THE ABOVE AGENCIES TO CONFIRM THE MEETING DATE.

FOR CITY GENERAL PROJECTS, THE CITY ENGINEER WILL CONTACT THE CONTRACTOR TO ARRANGE A MEETING DATE. THE CITY ENGINEER WILL CONTACT THE ABOVE AGENCIES TO CONFIRM THE MEETING DATE.

IF THE PROPOSED PROJECT LAND-DISTURBANCE AREA IS ONE (1) OR MORE ACRES, A SEPARATE PRE-CONSTRUCTION MEETING IS ALSO REQUIRED. THIS MEETING SHALL OCCUR ON-SITE BETWEEN THE CONTRACTOR AND THE STARK SOIL & WATER CONSERVATION DISTRICT (SWCD). THE CONTRACTOR IS RESPONSIBLE FOR ARRANGING THIS MEETING. NO LAND-DISTURBANCE ACTIVITIES SHALL START UNTIL SAID MEETING HAS OCCURRED AND APPROVAL HAS BEEN GRANTED BY STARK SWCD.

(D) PROJECT SAFETY:

THE CONTRACTOR SHALL MAINTAIN A SAFE WORKING ENVIRONMENT AT THE PROJECT SITE AT ALL TIMES. THE CONTRACTOR SHALL PROPERLY SUPPORT AND/OR MAINTAIN ALL EXCAVATIONS PER APPLICABLE SAFETY REQUIREMENTS AND COMPLY WITH ALL O.S.H.A. REGULATIONS. APPROPRIATE BARRICADES, WARNING LIGHTS, SIGNS, FENCING, ETC. SHALL BE ERCTED AROUND THE CONSTRUCTION AREA DURING ALL NON-WORKING HOURS TO ALERT PERSONS OF THE POTENTIAL DANGER ASSOCIATED WITH THE AREA UNDER CONSTRUCTION AS WELL AS TO PREVENT ACCESS BY UNAUTHORIZED PERSONNEL TO THE CONSTRUCTION SITE/AREA. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THE SAFETY OF THE GENERAL PUBLIC AS WELL AS ALL CONSTRUCTION PERSONNEL. PUBLIC STREETS SHALL BE KEPT CLEAN AND FREE OF DEBRIS (MUD, STONE, ETC.) AT ALL TIMES. THE CONTRACTOR SHALL ALERT ALL LOCAL EMERGENCY AGENCIES (FIRE, POLICE, AMBULANCE, ETC.) OF THE NATURE OF THE PROPOSED PROJECT PRIOR TO BEGINNING AND CONSTRUCTION ACTIVITY. ACCESS FOR EMERGENCY VEHICLES SHALL BE MAINTAINED AT ALL TIMES.

(E) UNDERGROUND UTILITIES:

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THE PLANS WERE OBTAINED BY FIELD OBSERVATIONS, FROM EXISTING RECORDS, AND/OR FROM THE OWNERS OF THE RESPECTIVE UTILITIES. THE INFORMATION AS SHOWN IS BELIEVED TO BE CORRECT; HOWEVER, THE COMPLETENESS AND ACCURACY OF THIS INFORMATION CANNOT BE GUARANTEED. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT ALL THE VARIOUS UTILITY COMPANIES (PUBLIC AND PRIVATE) TO VERIFY THE EXISTENCE, LIMITS AND/OR LOCATION OF ANY UTILITIES WHICH MAY BE ALONG THE ROUTE OR WITHIN THE VICINITY OF THIS IMPROVEMENT.

(F) UTILITY NOTIFICATION:

AT LEAST TWO WORKING DAYS PRIOR TO COMMENCING OPERATIONS ON THIS PROJECT, THE CONTRACTOR SHALL NOTIFY THE CITY ENGINEER, THE REGISTERED UTILITY PROTECTION AGENCY/SERVICE, AND THE OWNERS OF ANY OTHER UTILITIES (PUBLIC AND/OR PRIVATE) THAT MAY HAVE UTILITY LINES OR FACILITIES WITHIN THE VICINITY OF THIS PROJECT BUT WHO ARE NOT MEMBERS OF THE REGISTERED UTILITY PROTECTION SERVICE. THE OWNERS OF ANY UNDERGROUND UTILITY FACILITY SHALL, WITHIN 48 HOURS AFTER NOTICE IS RECEIVED, EXCLUDING SATURDAYS, SUNDAYS AND OTHER LEGAL HOLIDAYS; STAKE, MARK OR OTHERWISE DESIGNATE THE EXISTENCE AND/OR LOCATION OF THE UNDERGROUND UTILITY FACILITIES IN THE CONSTRUCTION AREA IN SUCH A MANNER AS TO INDICATE THEIR COURSE TOGETHER WITH THE APPROXIMATE DEPTH AT WHICH THEY WERE INSTALLED. THE MARKING AND/OR LOCATING SHALL BE COORDINATED TO STAY APPROXIMATELY TWO WORKING DAYS AHEAD OF THE PLANNED CONSTRUCTION.

OHIO UTILITIES PROTECTION SERVICE: 1-800-362-2764 (CONTACT NON-MEMBERS DIRECTLY).

THE PRIMARY UTILITIES WITHIN THE CITY OF CANTON AREA:

NATURAL GAS DIST./TRANS.
DOMINION EAST OHIO GAS
320 SPRINGSIDE DR.
AKRON, OHIO 44333
330-664-2409
ATTN: MARY LONG
RELOCATION@DOM.COM
EMERGENCY NO.
1-800-521-4400

COMMUNICATIONS CABLE
TIME WARNER CABLE
5520 WHIPPLE AVE N.W.
NORTH CANTON, OHIO 44720
330-494-9200
ext. 330-555-3003
ATTN: RON FERDINAND

SANITARY AND STORM SEWER
CITY ENGINEER'S OFFICE
2436-30TH ST. N.E.
CANTON, OHIO 44705
330-489-3381
ATTN: DAN MOEGLIN

TRAFFIC INTERCONNECT
CITY ENGINEER'S OFFICE
2436-30TH ST. N.E.
CANTON, OHIO 44705
330-489-3381
ATTN: NICK LOUKAS

THE CITY ENGINEER'S OFFICE IS TO BE CONTACTED DIRECTLY FOR SANITARY AND STORM SEWER AND TRAFFIC INTERCONNECT FACILITIES LOCATION: 330-489-3381.

(G) PROPOSED PUBLIC UTILITY LOCATION IN PROPOSED SUBDIVISIONS:

THE DEVELOPER/CONTRACTOR AND REPRESENTATIVES OF THE CITY OF CANTON SHALL MEET WITH REPRESENTATIVES OF THE VARIOUS PUBLIC UTILITY COMPANIES (EAST OHIO GAS, AMERICAN ELECTRIC POWER, AMERITECH, WARNER CABLE, ETC.) TO DETERMINE THE APPROPRIATE LOCATION FOR THESE UTILITIES WITHIN THE PROJECT SITE. ONCE AN AGREEMENT HAS BEEN REACHED, IT SHALL BE THE RESPONSIBILITY OF THE UTILITY OWNERS TO INSPECT THE INSTALLATION OF THE VARIOUS PUBLIC UTILITY LINES WITHIN THE ROAD RIGHT-OF-WAY TO ENSURE THAT CONFLICTS ARE AVOIDED AND ADEQUATE CLEARANCE AND OFFSETS WITH OTHER UTILITIES ARE MAINTAINED. UTILITY COMPANIES SHALL SUBMIT PLANS INDICATING THEIR PROPOSED IMPROVEMENTS AND FACILITIES TO THE CITY OF CANTON FOR APPROVAL. THE SITE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE INSTALLATION OF THE OTHER UTILITIES NOT OWNED BY THE CITY.

(H) EXPLORATORY BORINGS:

EXPLORATORY SOIL BORING INFORMATION IS NOT THE RESPONSIBILITY OF THE CITY OF CANTON. IT IS THE DEVELOPER/CONTRACTOR RESPONSIBILITY TO REVIEW ANY AND ALL INFORMATION AVAILABLE. IF DEVELOPER/CONTRACTOR REQUESTS TO DRILL AND OR EXCAVATE WITHIN THE CITY'S R/W, THE DEVELOPER/CONTRACTOR SHALL NOTIFY THE CITY ENGINEER AT LEAST 3 WORKING DAYS PRIOR TO THIS WORK. THE DEVELOPER/CONTRACTOR SHALL BE RESPONSIBLE FOR ALL UTILITY NOTIFICATION, AS SPECIFIED, ALL TRAFFIC CONTROL, PREMIUM BACKFILL, AND COMPACTION AND RESTORATION, AS NECESSARY.

(I) CONTINGENCY QUANTITIES:

WHEN SPECIFIED ON PLANS OR SPECIFICATIONS, CONTINGENCY QUANTITIES ARE TO BE PERFORMED ONLY UNDER DIRECTION OF THE CITY ENGINEER. THE DEVELOPER/CONTRACTOR SHALL NOT ORDER ANY CONTINGENCY MATERIAL OR PERFORM ANY WORK UNTIL DIRECTED BY THE ENGINEER. THE ACTUAL WORK LOCATION AND QUANTITIES FOR SUCH ITEMS SHALL BE DOCUMENTED BY THE DEVELOPER/CONTRACTOR AND THE ENGINEER.

II. CONSTRUCTION INCIDENTALS

(A) PLAN DISCREPANCIES:

ANY DISCREPANCIES FROM THE PLAN INFORMATION SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER SO THAT THE APPROPRIATE ADJUSTMENTS IN ALIGNMENT AND/OR GRADE MAY BE MADE PRIOR TO THE START OF CONSTRUCTION OR THE CONTINUATION OF THE SAME.

FAILURE BY THE DEVELOPER/CONTRACTOR TO VERIFY AND/OR DETERMINE EXISTING INFORMATION AS INDICATED WILL RESULT IN THE CONTRACTOR BEING RESPONSIBLE FOR ANY CHANGES NECESSARY TO COMPLETE THE WORK SPECIFIED WITHOUT ADDITIONAL COMPENSATION.

(B) VERIFICATION OF UNDERGROUND UTILITIES:

THE DEVELOPER/CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THE EXISTENCE AS WELL AS THE ACTUAL LOCATION, ALIGNMENT, AND ELEVATIONS OF ALL EXISTING UTILITIES/FACILITIES WITHIN AND/OR ADJACENT TO THE GENERAL LIMITS OF THESE IMPROVEMENTS INCLUDING WATERLINES, SANITARY AND STORM SEWERS, GAS LINES, COMMUNICATION LINES/BANKS, ELECTRIC LINES, ETC. THIS MAY REQUIRE EXPLORATORY EXCAVATIONS TO BE PERFORMED BY THE CONTRACTOR FOR WHICH HE WILL NOT BE REIMBURSED. THE CONTRACTOR SHALL NOT ASSUME THAT EXISTING UTILITIES/CONDUITS WERE INSTALLED AT TYPICAL/STANDARD DEPTHS OR AT UNIFORM SLOPES/GRADES/DEPTHS BETWEEN ACCESS POINTS (CATCH BASINS, MANHOLES, JUNCTION CHAMBERS, ETC.)

WHERE PLANS PROVIDE FOR A PROPOSED CONDUIT TO BE CONNECTED TO, OR CROSS OVER OR UNDER AN EXISTING SEWER OR UNDERGROUND UTILITY, THE CONTRACTOR SHALL LOCATE THE EXISTING PIPES OR UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING TO INSTALL THE PROPOSED CONDUIT.

(C) PROTECTION OF UTILITIES:

THE DEVELOPER/CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT AND SUPPORT EXISTING UTILITIES ENCOUNTERED DURING THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS AS APPROVED BY THE OWNERS OF THE UTILITY AND THE CITY ENGINEER.

THE DEVELOPER/CONTRACTOR SHALL BE RESPONSIBLE TO CLOSELY COORDINATE THEIR WORK WITH ALL UTILITY COMPANIES; ANY POTENTIAL DELAYS WILL NOT BE THE RESPONSIBILITY OF THE CITY.

THE CONTRACTOR SHOULD EXPECT AT A MINIMUM ONE SANITARY SEWER LATERAL, ONE ROOF DRAIN, ONE WATER SERVICE, AND ONE GAS SERVICE FOR EACH LOT. ANY OF THE ABOVE UTILITIES DAMAGED DUE TO THE CONTRACTOR'S WORK SHALL BE RESTORED TO THE UTILITY OWNER'S SATISFACTION AT THE CONTRACTOR'S EXPENSE, UNLESS OTHERWISE NOTED IN THE PLANS OR SPECIFICATIONS.

(D) MAINTENANCE OF UTILITY SERVICES:

THE CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN UTILITY SERVICES AT ALL TIMES.

WATER SERVICE MAY BE INTERRUPTED FOR LIMITED PERIODS (4 HOURS MAXIMUM) DURING CONNECTION BETWEEN EXISTING WATER LINES AND RELOCATED/NEW WATER MAINS WHICH CANNOT BE COMPLETED OTHERWISE. NO SHUT DOWN SHALL OCCUR WITHOUT WRITTEN PERMISSION OF THE CITY OF CANTON WATER DEPARTMENT. PROPERTY OWNERS AFFECTED BY APPROVED INTERRUPTED SERVICE SHALL BE NOTIFIED 48 HOURS IN ADVANCE BY THE CONTRACTOR.

STORM SEWER AND SANITARY SEWER SERVICES SHALL BE MAINTAINED WITHOUT INTERRUPTION, UNLESS APPROVED BY THE CITY ENGINEER.

IN THE EVENT THAT CONSTRUCTION DISRUPTS THE FLOW OF A SANITARY SEWER, THE CONTRACTOR SHALL IMMEDIATELY RECTIFY THE DISRUPTED SEWER BY EITHER TEMPORARILY FLUMING WITH MATERIALS ACCEPTABLE TO THE ENGINEER OR BYPASSING WITH PUMPS. COST OF MAINTAINING AND REPAIR OF SANITARY SEWERS DISTURBED BY CONSTRUCTION SHALL BE AT THE CONTRACTOR'S EXPENSE, UNLESS OTHERWISE NOTED IN THE PLANS OR SPECIFICATIONS.

(E) CONSTRUCTION NOISE:

CONSTRUCTION NOISE ASSOCIATED WITH ANY IMPROVEMENT PROJECT SHALL BE LIMITED TO LEVELS COMMENSURABLE WITH ADJOINING LAND AND THEIR ASSOCIATED USAGE AS DETERMINED BY THE CITY ENGINEER. IN ORDER TO MINIMIZE ANY ADVERSE CONSTRUCTION NOISE IMPACTS, ANY POWER-OPERATED CONSTRUCTION-TYPE DEVICES SHALL NOT BE OPERATED BETWEEN THE HOURS OF 7:00 P.M. AND 7:00 A.M. UNLESS AUTHORIZED BY THE CITY ENGINEER.

(F) OPEN TRENCH CONSTRUCTION:

THE DEVELOPER/CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATION/TRENCHING PRACTICES FOR THE PROPOSED IMPROVEMENT, OR AS FURTHER SHOWN ON THE PLANS AND SPECIFICATIONS.

THE DEVELOPER/CONTRACTOR SHALL FOLLOW ALL APPLICABLE LOCAL AND STATE SAFETY REGULATIONS, INCLUDING CODE OF FEDERAL REGULATIONS, PART 1926 (SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION), SUBPART P (EXCAVATIONS), FOR ALL APPLICABLE REQUIREMENTS AND RESPONSIBILITIES.

PRIOR TO COMMENCING CONSTRUCTION, THE DEVELOPER/CONTRACTOR SHALL NOTIFY THE CITY ENGINEER OF THE PROJECT'S ASSIGNED "COMPETENT PERSON" IN OSHA EXCAVATION STANDARDS.

(G) TRENCH CLOSING AND TEMPORARY TOPPING:

THE DEVELOPER/CONTRACTOR SHALL BE RESPONSIBLE TO DETERMINE THE NECESSARY LEVELS OF PROTECTION AND SAFEGUARDING OF ALL OPEN TRENCHES, WHEN WORK IS EITHER COMPLETED AT THE END OF THE DAY OR SUSPENDED FOR ANY OTHER REASON.

FOR TRENCH SURFACE REQUIREMENTS, REFER TO NOTE 4 ON CITY STANDARD DRAWING NO. 19.

(H) DUST CONTROL:

THE DEVELOPER/CONTRACTOR SHALL FURNISH AND APPLY WATER AND CALCIUM CHLORIDE FOR DUST CONTROL AS DIRECTED BY THE ENGINEER. SUFFICIENT QUANTITIES OF CALCIUM CHLORIDE SHALL BE STORED ON THE JOB SITE AT ALL TIMES TO BE USED FOR DUST CONTROL.

(I) TESTING OF UTILITIES:

ALL NEWLY CONSTRUCTED WATERLINES AND SANITARY SEWERS (INCLUDING LATERALS) MUST BE INSTALLED AND TESTED IN ACCORDANCE WITH APPLICABLE STANDARDS (AWWA, ETC.) PER THE OHIO ENVIRONMENTAL PROTECTION AGENCY, AND PER THE REQUIREMENTS OF THE CITY OF CANTON WATER AND ENGINEERING DEPARTMENTS.

SANITARY SEWERS SHALL BE TESTED BY DEVELOPER/CONTRACTOR IN ACCORDANCE WITH THE CITY OF CANTON'S SUPPLEMENTAL SPECIFICATIONS:

02-00 TESTING FOR EXCESSIVE DEFLECTION FOR NON-PRESSURE THERMOPLASTIC SEWER PIPE.

03-00 TESTING PRACTICES FOR LOW-PRESSURE AIR TESTING OF INSTALLED, NON-PRESURE, THERMOPLASTIC SEWER PIPE.

04-01 STANDARD TEST METHOD FOR CONCRETE SEWER MANHOLES BY THE NEGATIVE AIR PRESSURE TEST.

SANITARY AND STORM SEWERS CONSTRUCTED WITH THIS PROJECT SHALL BE TELEVIEWED BY THE DEVELOPER/CONTRACTOR.

05-01 SEWER TELEVISION INSPECTION AND DOCUMENTATION PROCEDURE.

HAMMONTREE & ASSOCIATES, LTD.
ENGINEERS, PLANNERS, SURVEYORS
CANTON-AKRON-PITTSBURGH
5233 STONEHAM ROAD NORTH CANTON, OHIO 44720
AKRON: (330)499-8817 FAX: (330)499-0149
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DESIGN BY:	DATE:	GEN NOTES
DRWN BY:	DATE:	GEN NOTES
CHKD BY:	DATE:	GEN NOTES
RWD BY:	DATE:	GEN NOTES
DATE:	09/01/2010	GEN NOTES 1

SCALES	N/A
HORIZ:	N/A
VERT:	N/A
CONTOUR INTN:	N/A

GENERAL NOTES
GP 1159-NAVAREE RD. S.W. SANITARY SEWER REPLACEMENT AND BRIDGE REHABILITATION FOR THE CITY OF CANTON LOCATED IN THE CITY OF CANTON, STARK COUNTY, OHIO

II. CONSTRUCTION INCIDENTALS (continued)

(J) PRESERVATION AND RESTORATION OF DISTURBED FEATURES:

EXISTING DRIVES, BERMS, LAWNS, PAVEMENTS, CURBS, SIDEWALKS, SIGNS, MAILBOXES, FENCES, RETAINING WALLS, LANDSCAPING ITEMS, OR OTHER APPURTENANCES DISTURBED DURING CONSTRUCTION BUT NOT SPECIFICALLY DESIGNATED FOR REMOVAL/REPLACEMENT SHALL BE RESTORED BY THE DEVELOPER/CONTRACTOR AT HIS EXPENSE TO A CONDITION EQUAL TO OR BETTER THAN THAT WHICH EXISTED PRIOR TO DISTURBANCE AND TO THE COMPLETE SATISFACTION OF THE CITY ENGINEER.

RESTORATION OF EXISTING ROADWAYS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY, TOWNSHIP, COUNTY, AND/OR OTHER AGENCIES HAVING AUTHORITY. COST FOR THE RESTORATION OF THESE ITEMS SHALL BE THE RESPONSIBILITY OF THE DEVELOPER/CONTRACTOR, UNLESS OTHERWISE SPECIFIED IN THE PLANS OR SPECIFICATIONS. NO PUBLIC ROADWAY SHALL BE DISTURBED WITHOUT PRIOR WRITTEN APPROVAL FROM THE GOVERNING AGENCY AND ACQUISITION OF NECESSARY PERMITS.

(K) SALVAGED CASTINGS:

WHEN DIRECTED BY THE CITY ENGINEER, ALL METAL CASTINGS SHALL BE CAREFULLY REMOVED AND STORED ON SITE OR DELIVERED TO A LOCATION DESIGNATED BY THE CITY ENGINEER.

(L) PLUG EXISTING CONDUIT:

THIS ITEM SHALL CONSIST OF THE CONSTRUCTION OF BULKHEADS IN AN EXISTING CONDUIT TO BE ABANDONED.

BULKHEADS SHALL CONSIST OF BRICK AND/OR CONCRETE MASONRY WITH A MINIMUM THICKNESS OF 12 INCHES.

PAYMENT FOR PLUGGING OF EXISTING CONDUIT FOR ABANDONMENT SHALL BE INCLUDED IN THE UNIT BID OF THE VARIOUS ITEMS OF THE PROJECT.

(M) CONSTRUCTION LAYOUT:

THE DEVELOPER/CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION LAYOUT UTILIZING PERTINENT PLAN DATA. THE CITY ENGINEER WILL NOT BE RESPONSIBLE FOR STAKING HORIZONTAL OR VERTICAL CONTROL. CONSTRUCTION LAYOUT SHALL BE IN ACCORDANCE WITH ODOT 623 CONSTRUCTION LAYOUT STAKES.

AT THE CITY ENGINEER'S REQUEST, THE CONTRACTOR SHALL MAKE AVAILABLE ALL SURVEY FIELD NOTES FOR REVIEW.

(N) EXISTING MONUMENTATION:

THE CONTRACTOR SHALL PRESERVE ALL CORNERSTONES, IRON PINS, CONCRETE MONUMENTS AND/OR ANY TYPE OF LAND MONUMENT. THE CONTRACTOR SHALL HAVE ALL MONUMENTS IN THE PROXIMITY OF THE WORK REFERENCED. THE CONTRACTOR SHALL REPLACE/RESET ANY DISTURBED OR DAMAGED MONUMENTS AND SHALL FURNISH A CERTIFICATION BY A REGISTERED SURVEYOR THAT THE MONUMENTS HAVE BEEN RESTORED.

(O) ELEVATION DATUM:

ALL ELEVATIONS ARE BASED ON THE **NAVD 1988 DATUM**.

(P) DEWATERING OPERATIONS:

WHEN DEEMED NECESSARY, THE DEVELOPER/CONTRACTOR MAY INSTALL DEWATERING EQUIPMENT PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

THE PROPOSED LOCATION OF WELL POINTS, HEADER PIPE, ELECTRICAL DISTRIBUTION, GENERATORS AND DISCHARGE PIPES, ETC. SHALL BE THE RESPONSIBILITY OF THE DEVELOPER/CONTRACTOR.

THE DEVELOPER/CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS FOR THE INSTALLATION AND SUBSEQUENT REMOVAL OF DEWATERING EQUIPMENT AS WELL AS PROPER WATER DISCHARGE PROCEDURES AS MAY BE REQUIRED PER STATE AND LOCAL GOVERNING AGENCIES.

INSTALLATION OF ALL ELECTRICAL EQUIPMENT, INCLUDING GROUNDING AND PROTECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER/CONTRACTOR.

DEVELOPER/CONTRACTOR SHALL PROVIDE ALL COMBUSTIBLE ENGINE DRIVEN GENERATORS WITH "HOSPITAL GRADE" MUFFLERS. MUFFLERS SHALL BE RATED, AT A MAXIMUM OF 67 dB AT 23 FEET AWAY RUNNING FULL LOAD.

(Q) INSPECTION:

FOLLOWING THE PRE-CONSTRUCTION MEETING(S) AND ESTABLISHMENT OF AN APPROVED SCHEDULE, THE CONTRACTOR SHALL GIVE A MINIMUM 48 HOUR NOTICE BEFORE STARTING ANY WORK ON THIS PROJECT AND SHALL KEEP THE CITY INFORMED OF HIS/HER CONSTRUCTION SCHEDULE. ALL WORK REQUIRED FOR THIS IMPROVEMENT SHALL BE SUBJECT TO INSPECTION BY THE CITY OF CANTON OR THEIR DESIGNATED REPRESENTATIVE. NO WORK SHALL BE PERFORMED WITHOUT AN AUTHORIZED INSPECTOR PRESENT, UNLESS OTHERWISE APPROVED.

(R) FIELD OFFICE:

IF A PAY ITEM IS PROVIDED, THE DEVELOPER/CONTRACTOR SHALL PROVIDE A FIELD OFFICE IN ACCORDANCE WITH ODOT 619. THE FIELD OFFICE SHALL BE TYPE 'A', UNLESS OTHERWISE SPECIFIED.

III. EARTHWORK / SITE WORK

(A) EASEMENTS AND RIGHT-OF WAY:

THE DEVELOPER/CONTRACTOR SHALL STAY WITHIN THE DESIGNATED PROPERTIES, EASEMENTS, AND/OR RIGHT-OF-WAY PROVIDED FOR THE PROJECT AT ALL TIMES. NO MATERIAL SHALL BE STORED NOR ANY WORK PERFORMED ON PRIVATE PROPERTY UNLESS OTHERWISE APPROVED. DISTURBANCE OF EXISTING FEATURES AND/OR IMPROVEMENTS SHALL BE KEPT TO AN ABSOLUTE MINIMUM AND AS APPROVED BY THE CITY ENGINEER/PROPERTY OWNER.

(B) SUITABILITY OF SITE:

THE CITY OF CANTON SHALL NOT BE RESPONSIBLE FOR THE TYPE AND/OR SUITABILITY OF THE MATERIAL UNDERLYING THE PROJECT SITE. THE DEVELOPER/CONTRACTOR MUST APPRAISE THEMSELVES OF ANY EXISTING SITE CONDITIONS WHICH MAY AFFECT THEIR BID OR THE PERFORMANCE OF THE REQUIRED WORK. THE DEVELOPER/CONTRACTOR SHALL PERFORM ANY INVESTIGATIONS AND/OR TESTING NECESSARY TO ADEQUATELY DETERMINE/ESTIMATE TO THEIR SATISFACTION ALL SITE CONDITIONS WHICH COULD AFFECT THE PERFORMANCE OF THE PROPOSED IMPROVEMENTS. THIS COULD INCLUDE, BUT NOT BE LIMITED TO, UNSUITABLE AND/OR UNSTABLE SOIL/SUBSURFACE CONDITIONS, ROCK, WATER (PERCHED OR FREE), SPRINGS, ETC.

REFER TO CITY STANDARD DRAWING NO. 19 FOR ADDITIONAL DETAILS.

(C) REMOVAL/REPLACEMENT OF UNSUITABLE MATERIAL:

THE DEVELOPER/CONTRACTOR SHALL UNDERCUT AND REPLACE UNSUITABLE MATERIAL ENCOUNTERED DURING INSTALLATION OF THE PROPOSED UTILITIES AND ROADWAY IN ACCORDANCE WITH CITY STANDARD DRAWING NO. 19.

IV. ROADWAY / DRIVE APPROACHES / WALK / CURB

(A) PAVEMENT STANDARDS:

PAVEMENTS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH APPLICABLE CITY STANDARD DRAWINGS AND SPECIFICATIONS (LISTED BELOW) AND ODOT SPECIFICATIONS, UNLESS SPECIFIED OTHERWISE ON THE PLANS.

CITY STANDARD DRAWING NO.:

NO. 29 COMBINED CURB & WALK

CITY SPECIFICATIONS:

"CITY OF CANTON SPECIFICATIONS FOR THE CONSTRUCTION, REPAIR, AND REPLACEMENT OF SIDEWALKS, CURBS, AND DRIVEWAYS"

(B) RESTRICTED WORK SCHEDULE:

NO CONCRETE FINISH WORK OR PERMANENT ASPHALT SHALL BE PLACED FROM NOVEMBER 15TH TO APRIL 15TH UNLESS WRITTEN APPROVAL IS GRANTED BY THE CITY ENGINEER.

(C) ASPHALT/CONCRETE:

IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER/CONTRACTOR TO NOTIFY THE ENGINEER 48 HOURS IN ADVANCE OF BEGINNING WORK WHICH REQUIRES COMPACTION TESTING AND/OR PRE-POUR INSPECTION PRIOR TO PLACEMENT OF ASPHALT OR CONCRETE. WORK SHALL NOT PROCEED UNTIL TESTING AND/OR INSPECTION HAS BEEN COMPLETED AND APPROVED BY THE CITY ENGINEER.

V. SANITARY SEWERS / STORM SEWERS

(A) SEWER STANDARDS:

ALL SANITARY/STORM SEWER CONDUITS AND APPURTENANCES SHALL BE CONSTRUCTED ACCORDING TO APPLICABLE CITY STANDARD DRAWINGS AND SPECIFICATIONS (LISTED BELOW) AND ODOT SPECIFICATIONS EFFECTIVE AT THE TIME OF CONSTRUCTION, UNLESS SPECIFIED OTHERWISE ON THE PLANS. **SANITARY SEWER INSTALLATION SHALL BE GOVERNED BY THE WATERLINE SPECIFICATIONS SHOWN ON SHEET 4/14 WHERE APPLICABLE.**

CITY STANDARD DRAWING NO.:

**CONDUITS AND TRENCHES
19 "UTILITY TRENCH REQUIREMENTS"**

VI. STORM WATER POLLUTION PREVENTION:

(A) FOR PROJECTS ONE (1) ACRE OR MORE OF TOTAL LAND-DISTURBANCE:

THE OWNER/DEVELOPER SHALL APPLY FOR AND OBTAIN AN OHIO EPA NPDES PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY. SAID PERMIT REQUIRES THE PREPARATION AND IMPLEMENTATION OF A STORM WATER POLLUTION PREVENTION PLAN (SWP3) TO ADDRESS CONSTRUCTION SITE STORM WATER RUNOFF AS WELL AS POST-CONSTRUCTION STORM WATER MANAGEMENT. THE SWP3 MUST BE REVIEWED AND APPROVED BY THE STARK COUNTY SOIL & WATER CONSERVATION DISTRICT (SWCD).

THE OWNER/DEVELOPER AND HIS REPRESENTATIVES SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF THE PERMIT AS WELL AS THE SWP3. ALL ACTIVITIES AND PRACTICES SHALL ALSO COMPLY WITH THE CURRENT EDITIONS OF THE CITY OF CANTON STORM WATER MANAGEMENT MANUAL AND THE OHIO DEPARTMENT OF NATURAL RESOURCES' RAINWATER AND LAND DEVELOPMENT MANUAL, AS APPLICABLE. SUCH PROJECTS ARE ALSO SUBJECT TO INSPECTION BY THE CITY OF CANTON AND/OR ITS AUTHORIZED REPRESENTATIVES (I.E. STARK SWCD) TO ENSURE COMPLIANCE WITH PERMIT AND SWP3 REQUIREMENTS AND LOCAL STORM WATER QUALITY REGULATIONS.

A PRE-CONSTRUCTION MEETING INITIATED BY THE DEVELOPER/CONTRACTOR IS REQUIRED ON-SITE WITH THE STARK SWCD PRIOR TO ANY LAND-DISTURBING ACTIVITIES. THE DEVELOPER/CONTRACTOR SHALL ABIDE BY ALL ORDERS ISSUED BY THE CITY AND/OR STARK SWCD PURSUANT TO INSPECTION OF THE PROJECT SITE.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO SUBMIT CO-PERMITTEE APPLICATION TO OHIO EPA PRIOR TO BEGINNING WORK ON THE PROJECT. AS APPLICABLE, THE CONTRACTOR SHALL OBTAIN A COPY OF THE SWP3 AND FAMILIARIZE HIMSELF WITH IT, IMPLEMENTING ALL ITEMS AND ABIDING BY ALL PERMIT REQUIREMENTS AND REGULATIONS.

(B) FOR PROJECTS LESS THAN ONE (1) ACRE OF TOTAL LAND-DISTURBANCE:

AN EPA NPDES CONSTRUCTION STORM WATER PERMIT AND SWP3 IS NOT REQUIRED. HOWEVER, THE DEVELOPER/CONTRACTOR SHALL STILL ENSURE THAT APPROPRIATE PRACTICES ARE IN PLACE TO PROVIDE CONSTRUCTION RUNOFF AND EROSION AND SEDIMENT CONTROLS WITHIN THE PROJECT LIMITS. SUCH PRACTICES MAY INCLUDE THE USE OF SILT FENCE, STORM DRAIN INLET PROTECTION, JUTE MATTING, TEMPORARY SEEDING, MULCHING, CHECK DAMS, CONSTRUCTION ENTRANCES, CONCRETE WASHOUT AREAS, ETC. ALL PRACTICES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE CURRENT EDITION OF THE OHIO DEPARTMENT OF NATURAL RESOURCES' RAINWATER AND LAND DEVELOPMENT MANUAL, AS APPLICABLE.

EROSION AND SEDIMENT CONTROL PRACTICES MUST BE INSTALLED PRIOR TO BEGINNING CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTINUED INSPECTION AND MAINTENANCE OF ALL PRACTICES AND WILL BE HELD RESPONSIBLE FOR ADDRESSING ANY ON- OR OFF-SITE EROSION/SEDIMENT ISSUES RELATED TO THE PROJECT. THE OWNER/DEVELOPER/CONTRACTOR SHALL ABIDE BY ALL ORDERS ISSUED BY THE CITY PURSUANT TO INSPECTION OF THE PROJECT SITE.

VII. TRAFFIC:

(A) MAINTAINING TRAFFIC:

THE CONTRACTOR SHALL MAINTAIN TRAFFIC ADJACENT TO AND THROUGH THE PROJECT AS DESCRIBED BELOW AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE OHIO DEPARTMENT OF TRANSPORTATION MANUAL OF CONSTRUCTION AND MATERIALS SPECIFICATIONS ITEM 614 MAINTAINING TRAFFIC. THE CONTRACTOR SHALL FURNISH, MAINTAIN, AND REMOVE ALL SIGNS, FLAGS, FLAGMEN, WATCHMEN, BARRICADES, SIGN SUPPORTS, CONES, BARRELS, AND INCIDENTALS IN CONFORMANCE WITH THE MOST RECENT REVISIONS OF THE CURRENT EDITION OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS.

ALL OPEN TRENCHES AND EXCAVATIONS SHALL BE PROTECTED WITH DRUMS, BARRICADES, OR BARRIERS. ACCESS SHALL BE MAINTAINED AT ALL TIMES FOR EMERGENCY AND FIRE DEPARTMENT VEHICLES.

THE CONTRACTOR MAY CLOSE THE ROADWAY DURING WORKING HOURS. ROADWAY MUST BE RETURNED TO 2-WAY OPERATION DURING NON-WORKING HOURS.

ANY TEMPORARY ROADWAY CLOSING MUST BE APPROVED IN WRITING BY THE CITY TRAFFIC ENGINEER AND ANY OTHER PUBLIC AGENCY HAVING JURISDICTION. THE CONTRACTOR SHALL NOTIFY THE TRAFFIC ENGINEER AT LEAST 72 HOURS IN ADVANCE OF ANY SUCH CLOSINGS FOR PUBLICATION AND EMERGENCY AGENCY NOTIFICATION.

(B) RESIDENTIAL AND BUSINESS AREAS:

THE CONTRACTOR SHALL MAINTAIN ACCESS TO LOCAL RESIDENCES AND BUSINESSES DURING CONSTRUCTION. IN THE EVENT A DRIVE ACCESS NEEDS TO BE CLOSED, THE CONTRACTOR SHALL GIVE NOTICE OF CLOSURE AND DURATION TO THE PROPERTY OWNER 24 HOURS IN ADVANCE. CONTRACTOR SHALL ARRANGE FOR ALTERNATE PARKING AND REASONABLE ACCESS FOR THOSE PROPERTY OWNERS AFFECTED BY DRIVE CLOSURES.

(C) EXISTING STREET NAME AND TRAFFIC CONTROL SIGNS:

WHERE WORK REQUIRES THE MOVEMENT OF EXISTING SIGNS (STOP SIGNS, SPEED LIMIT SIGNS, NO PARKING SIGNS, ETC.), THE CONTRACTOR IS REQUIRED TO MAINTAIN THE FUNCTION OF ALL TRAFFIC CONTROL SIGNS. ALL SIGNS REMOVED BY THE CONTRACTOR SHALL BE STORED ON SITE AND REINSTALLED BY THE CONTRACTOR.

(D) NEW STREET NAME & TRAFFIC CONTROL SIGNS:

ALL STREET NAME AND TRAFFIC CONTROL SIGNS SHALL COME COMPLETE AND BE MADE IN ACCORDANCE WITH THE CITY OF CANTON SIGN AND PAINT DEPARTMENT SPECIFICATIONS. GENERALLY, ALL SIGNS SHALL HAVE HI-INTENSITY SHEETING AND BE MADE WITH .080 50/52 ALUMINUM. STREET NAME SIGNS SHALL BE MADE WITH WHITE UPPER AND LOWER CASE LETTERING ON GREEN BACKGROUND USING 9" BLANKS, BE DOUBLED SIDED W/RADIUS CORNERS AND HAVE 6" NAME AND 3" SUFFIXES. ALL SIGN RELATED HARDWARE IS TO BE INCLUDED, SUCH AS 6" HEAVY DUTY U-CHANNEL CAPS AND STREET NAME CROSSES.

FOR SUBDIVISION DEVELOPMENTS, ALL PERMANENT STREET NAME SIGNS AND TRAFFIC CONTROL SIGNS SHALL BE FURNISHED AND INSTALLED BY THE DEVELOPER/CONTRACTOR.

HAMMONTREE & ASSOCIATES, LTD.
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DESIGN BY: CML	FLD BK: 561	REV. BY: CML	DATE: 12/3/10	DESC.: PER CITY COMMENTS
DRAWN BY: CML	BK PG: 2	REV. BY: BJB	DATE:	DESC.:
CHKD BY: TRP	CRW CHF: BJB	REV. BY: TRP	DATE:	DESC.:
RWD BY: TRP	CP/RGHT: 2010	REV. BY: CML	DATE:	DESC.:
DATE: 09/01/2010	GEN NOTES 2	REV. BY: CML	DATE:	DESC.:

SCALES	HORIZ:	N/A
VERT:	N/A	
CONTOUR	INTN/A	

GENERAL NOTES
GP 1159-NAVARE RD. S.W. SANITARY SEWER
REPLACEMENT AND BRIDGE REHABILITATION
FOR: THE CITY OF CANTON
LOCATED IN THE CITY OF CANTON,
STARK COUNTY, OHIO

VII. TRAFFIC (continued)

(E) EXISTING TRAFFIC SIGNALS:

WHERE WORK REQUIRES INTERFERENCE WITH EXISTING SIGNALIZATION IN THE INTERSECTIONS, ALL WORK SHALL BE COORDINATED THROUGH THE CITY ENGINEER. THE CONTRACTOR SHALL NOT ALTER ANY SIGNALIZATION WITHOUT THE CITY ENGINEER'S AUTHORIZATION.

(F) NEW TRAFFIC SIGNALIZATION:

ALL NEW OR MODIFIED TRAFFIC SIGNALIZATION AT INTERSECTIONS SHALL BE IN ACCORDANCE WITH CITY TRAFFIC ENGINEERING TRAFFIC CONTROL GENERAL NOTES AND ODOT SPECIFICATIONS; WITH SPECIAL EMPHASIS ON ODOT ITEMS 625, 632, 633, 732, AND 733 WHICH DEALS WITH TRAFFIC CONTROL.

(G) TRAFFIC CONTROL PLAN:

THE DEVELOPER/CONTRACTOR SHALL SUBMIT TO THE CITY ENGINEER A TRAFFIC CONTROL PLAN IN ACCORDANCE WITH CITY SUPPLEMENTAL SPECIFICATION 01-00. DETOURS SHALL BE APPROVED BY THE CITY ENGINEER PRIOR TO PLAN SUBMISSION.

VIII. WATER MAIN / SERVICES:

(A) WATER MAINS/SERVICES:

ALL WATER MAINS, SERVICES AND APPURTENANCES SHALL BE DESIGNED AND CONSTRUCTED ACCORDING TO THE CITY OF CANTON WATER DEPARTMENT REQUIREMENTS AND SPECIFICATIONS IN EFFECT AT THE TIME OF CONSTRUCTION. ANY DEVIATION FROM THE PLANS AFFECTING THE WATER SYSTEM MUST BE APPROVED BY THE CANTON WATER DEPARTMENT.

FOR NEW DEVELOPMENTS INSIDE THE CITY, ALL WATER MAIN PIPE MATERIAL FITTINGS, BENDS, VALVES, VALVE BOXES, MEGALUGS, GASKETS AND HYDRANTS WILL BE SUPPLIED BY THE CITY OF CANTON. THE CONTRACTOR WILL BE RESPONSIBLE FOR TRANSPORTING MATERIALS TO THE PROJECT SITE. BACKFILL, BEDDING, THRUST BLOCKING, ETC. AND ASSOCIATED LABOR IS THE RESPONSIBILITY OF THE CONTRACTOR.

WATER MAINS SHALL BE CLASS 53 (12" AND UNDER) OR CLASS 54 (OVER 12") DUCTILE IRON MEETING AWWA C-151 WITH PUSH JOINTS. THE MINIMUM COVER OVER WATER MAINS SHALL BE 4'-6" FROM GROUND SURFACE TO THE BARREL OF THE PIPE. THE OUTSIDE SURFACE OF ALL DUCTILE IRON PIPE, FITTINGS, AND APPURTENANCES SHALL BE SHOP COATED WITH EITHER A COAL TAR OR ASPHALT BASE BITUMINOUS MATERIAL. IF THE COATING MATERIAL IS FOUND TO BE DAMAGED PRIOR TO THE PIPE TRENCH BEING BACKFILLED, THE CONTRACTOR SHALL PROVIDE AN ADDITIONAL APPROVED MATERIAL AS REQUIRED TO REPAIR THE DAMAGES. THE CONTRACTOR SHALL HAVE SUFFICIENT COATING MATERIAL AVAILABLE AT THE JOB SITE PRIOR TO LAYING THE PIPE. THE INTERIOR OF ALL PIPES AND FITTINGS SHALL BE LINED WITH DOUBLE CEMENT MORTAR AND SEAL COATED IN COMPLETE CONFORMANCE WITH AWWA C-104, OR THE LATEST REVISION. FITTINGS SHALL BE RATED FOR 250 PSI WORKING PRESSURE IN ACCORDANCE WITH AWWA C-153. PIPE LENGTHS MAY BE DEFLECTED AT THE JOINT IF REQUIRED, AT ONE-HALF THE DEGREE RECOMMENDED BY THE MANUFACTURER. WATER SERVICES WILL BE INSTALLED BY THE CITY OF CANTON AND PAID FOR BY THE OWNER/DEVELOPER. DISINFECTION OF WATER MAINS SHALL BE IN ACCORDANCE WITH AWWA C-651. ALL WATER LINE PRESSURE TESTING SHALL CONFORM TO AWWA C-600.

WATER MAINS SHALL BE INSTALLED AND BACKFILLED PER O.D.O.T. ITEM 638. WATERLINES LOCATED WITHIN THE LIMITS OF OR WITHIN A 1/2 TO 1 SLOPE OF EXISTING AND/OR PROPOSED ROADWAYS, PARKING AREAS, BUILDINGS, BUILDINGS, SIDEWALKS, AND/OR DRIVES SHALL BE INSTALLED AS TYPE B CONDUITS. ALL OTHER WATER MAINS MAY BE INSTALLED AS TYPE C CONDUITS. BEDDING SHALL BE AS SPECIFIED, EXCEPT THAT SLAG WILL NOT BE PERMITTED.

ALL BENDS, FITTINGS, TEES, VALVES, DEAD ENDS, ETC. SHALL BE SECURED EQUAL. POURED-IN-PLACED CONCRETE THRUST BLOCKS SHALL ALSO BE PROVIDED AT/FOR EACH BEND, FITTINGS, TEE, DEAD END, ETC. THIS BLOCKING SHALL BE CAREFULLY PLACED TO ENSURE IT IS POSITIONED PROPERLY TO WITHSTAND THE RESULTANT FORCES AT EACH BEND, FITTING, ETC. AND SHALL BEAR ON STABLE UNDISTURBED GROUND CAPABLE OF WITHSTANDING THE POTENTIAL LOADING.

IN ADDITION TO THE RESTRAINT OF ALL BENDS, FITTINGS, TEES, VALVES, DEAD END, ETC. THE CONTRACTOR SHALL ALSO SECURE/RESTRAIN ALL JOINTS FOR AT LEAST THREE (3) PIPE JOINTS (50 LF MIN.) ON BOTH SIDES OF EACH DEAD END, BEND, FITTING, VALVE, TEE, ETC. UTILIZING MEGALUGS, FIELD LOK GASKETS, OR APPROVED EQUAL.

THE CONTRACTOR SHALL PROVIDE 18" VERTICAL CLEARANCE BETWEEN PROPOSED WATERLINES AND ANY SANITARY SEWERS. WHEN 18" CLEARANCE BETWEEN A WATERLINE AND SANITARY SEWER CANNOT BE OBTAINED THE CONTRACTOR SHALL PROVIDE CONCRETE ENCASMENT AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE 12" MINIMUM CLEARANCE BETWEEN WATERLINE AND STORM SEWER. THE CONTRACTOR SHALL MAINTAIN TEN (10) FOOT HORIZONTAL CLEARANCE BETWEEN WATERLINES/SERVICES AND SANITARY SEWERS AND FOUR (4) FOOT HORIZONTAL CLEARANCE BETWEEN WATERLINES/SERVICES AND STORM SEWERS.

THE FIRE HYDRANT SETTING SHALL INCLUDE THE HYDRANT, ANCHOR TEE, VALVE, VALVE BOX, 6 INCH PIPING AND ALL FITTINGS NEEDED FOR PROPER INSTALLATION. FIRE HYDRANTS SHALL BE MUELLER A423 MEETING THE CITY OF CANTON WATER DEPARTMENT STANDARDS AND REQUIREMENTS. ALL COSTS FOR THE 6" PIPING ASSOCIATED WITH THE INSTALLATION OF FIRE HYDRANTS SHALL BE INCLUDED WITH THE FIRE HYDRANT PAY ITEM. ALL HYDRANTS WILL BE INSTALLED WITH THE PUMPER NOZZLE FACING THE STREET.

ALL WATER SERVICES MUST BE INSTALLED BEFORE ANY PAVEMENT FOR THE PROPOSED ROADWAYS HAS BEEN PLACED. CONTRACTOR IS NOT TO MAKE ANY SERVICE TAPS ON THE WATER MAIN. THE CANTON WATER DEPARTMENT WILL MAKE ALL SERVICE TAPS.

THE PROPOSED FACILITIES WILL MAINTAIN A MINIMUM 35 PSI PRESSURE DELIVERED TO THE CURB STOP DURING NORMAL OPERATING CONDITIONS.

BOOSTER PUMPS ARE NOT PERMITTED ON SERVICE CONNECTIONS.

ALL DUCTILE IRON PIPE, INCLUDING FITTINGS AND APPURTENANCES BURIED UNDERGROUND, SHALL BE ENCASED WITH 8 MIL POLYETHYLENE FILM CONFORMING TO AWWA C105.

POLYETHYLENE WATER MAIN AND SERVICE TUBING 2" AND UNDER SHALL BE COPPER TUBE SIZE AND MEET STANDARDS ASTM-D2737 PE3408 AND AWWA C906. THE ONLY ACCEPTED TUBING IS CP CHEM PERFORMANCE PIPE DRISCOPLEX 5100-ULTRA-LINE.

THE CONTRACTOR SHALL TAKE ANY AND ALL NECESSARY PRECAUTIONS TO PROTECT AND MAINTAIN IN SERVICE, ANY EXISTING WATER MAINS EXPOSED DURING CONSTRUCTION.

ANY WATER SERVICE LINE THAT IS BROKEN, CUT OR OTHERWISE DAMAGED, SHALL BE REPLACED FROM THE CORPORATION STOP TO THE CURB STOP WITH A SINGLE PIECE OF PLASTIC SERVICE LINE (DRISCOPLEX). NO SPLICING OF THE SERVICE LINE WILL BE PERMITTED.

SERVICE BRANCHES WILL BE INSTALLED AS PER O.D.O.T ITEM 638.16 WITH THE FOLLOWING EXCEPTIONS:
1. WHEN A SERVICE BRANCH IS DISTURBED FOR LOWERING, RAISING, EXTENDING OR SHORTENING ON THE PROPERTY SIDE ON THE SERVICE STOP, IT SHALL BE REPLACED WITH NEW MATERIALS FROM THE CORPORATION STOP TO THE SERVICE STOP.

IN A STREET IMPROVEMENT, NO EXISTING WATER CURB BOX WILL BE LEFT IN THE PAVEMENT, CURB AND GUTTER OR SIDEWALK. THE CURB BOX WILL BE MOVED TO A SUITABLE LOCATION DETERMINED BY THE CANTON WATER DEPARTMENT. WHEN THE CURB BOX IS MOVED ALL NEW MATERIAL WILL BE USED FROM THE CORPORATION STOP TO THE CURB STOP WHICH IS A SINGLE PIECE OF PLASTIC SERVICE LINE (DRISCOPLEX). NO SPLICING OF THE SERVICE LINE WILL BE PERMITTED. A NEW TAP (CORPORATION STOP) AND CURB STOP AND BOX MAY ALSO BE REQUIRED. THE DETERMINATION WILL BE MADE BY THE CANTON WATER DEPARTMENT.

ALL WATER MAINS WILL BE INSTALLED UNDER THE PAVEMENT WITH A MINIMUM OF 3 FEET FROM THE EDGE OF PAVEMENT OR THE CURB AND/OR GUTTER. IN EXISTING STREETS, A SAW CUT WILL BE MADE TO ENSURE A CLEAN EDGE.

WHEN AN EXISTING WATER MAIN MUST BE SHUT DOWN TO PERFORM REQUIRED WORK, THE PROPERTIES TO BE EFFECTED SHALL BE GIVEN A MINIMUM 24 HOUR NOTICE OF SAID SHUT DOWN. THE WORK WILL BE SCHEDULED AND COORDINATED TO MINIMIZE THE TIME THE MAIN IS OUT OF SERVICE.

THE CONTRACTOR SHALL NOTIFY THE CITY 48 HOURS IN ADVANCE OF ANY SHUT DOWN OF AN EXISTING WATER MAIN. THE CONTRACTOR WILL NOT OPERATE ANY VALVES. VALVES WILL BE OPERATED BY CANTON WATER DEPARTMENT PERSONNEL ONLY. VALVES DAMAGED BY THE CONTRACTOR'S OPERATION WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

ALL VALVE BOXES WILL BE ADJUSTED TO FINAL GRADE OF THE PAVEMENT WHEN THE PROJECT IS COMPLETED.

ANY COMMERCIAL OR INDUSTRIAL WATER SERVICE MUST HAVE SITE AND PLUMBING PLANS SUBMITTED TO THE CANTON WATER DEPARTMENT ENGINEERING OFFICE FOR APPROVAL. THE CANTON WATER DEPARTMENT WILL REVIEW THE PLANS AND MAKE COMMENTS. CORRECTIONS MUST BE MADE AND RESUBMITTED. PRICE ESTIMATES WILL NOT BE ISSUED AND SERVICE TAPS WILL NOT BE MADE UNTIL THE PLANS HAVE BEEN APPROVED BY THE CANTON WATER DEPARTMENT.

IX. POST CONSTRUCTION INCIDENTALS

(A) AS-BUILT DRAWINGS:

AS-BUILT REPRODUCIBLE MYLARS SHALL BE PROVIDED TO THE CITY OF CANTON BY THE DESIGN ENGINEER AT THE COMPLETION OF THE PROJECT. AS-BUILT INFORMATION CONSISTS OF POST-CONSTRUCTION FIELD SURVEY DATA OF THE LOCATION, FLOWLINE ELEVATIONS, AND TOP-OF-GRATE/RIM ELEVATIONS FOR ALL STORM AND SANITARY STRUCTURES CONSTRUCTED AND/OR IMPACTED BY THE PROJECT.

FOR PRIVATE PROJECTS, THE CONSTRUCTION BOND WILL NOT BE RELEASED UNTIL THE AS-BUILT DRAWINGS HAVE BEEN ACCEPTED.

(B) PROPOSED MONUMENTATION:

THE DEVELOPER'S/CONTRACTOR'S SURVEYOR SHALL NOTIFY THE CITY ENGINEER IN WRITING UPON THE COMPLETION OF MONUMENTS BEING SET AS PER PLAN OR RECORD PLAT.

(C) RELEASE OF RETAINER/BONDS:

PRIOR TO THE RELEASE OF RETAINER/CONSTRUCTION BOND BY THE CITY OF CANTON, THE CONTRACTOR SHALL HAVE COMPLETED THE ENGINEER'S PROJECT PUNCHLIST AND SUBMIT FINAL WAIVER OF LIEN, IN ACCORDANCE WITH CITY SS 01-00.

CONTROL POINTS AND BENCH MARKS

PT. NO.	NORTHING (Y)	EASTING (X)	ELEV.
9	410516.42	2276886.72	1019.61
10	410537.38	2277012.20	1020.34
50	410639.14	2277220.55	1022.80
51	410622.64	2277180.02	1022.86
53	410644.19	2277019.70	1023.00
54	410594.62	2277095.38	1024.74
BM#1	410560.95	2277011.07	1024.83
BM#2	410623.97	2277144.81	1023.52

LEGEND

R/W	RIGHT OF WAY
℄	CENTER LINE
℄	PROPERTY LINE
℄	LOT LINE
○	EX. MONUMENT FOUND (AS NOTED)
●	1/2 INCH IRON BAR W/ H&A CAP SET
()	RECORD BEARINGS & DISTANCES
E.O.P.	EDGE OF PAVEMENT
F.F.	FINISH FLOOR ELEVATION
x-x-x-x	FENCE (AS NOTED)
—+—+—+—	GUARD RAIL
■	MAILBOX
⊙	POST
⊙	POWER POLE
⊙	TELEPHONE POLE
⊙	TELEPHONE/ LIGHT POLE
⊙	TELEPHONE/ POWER POLE
⊙	GENERAL POLE
⊙	LIGHT POLE
⊙	LIGHT/ POWER POLE
⊙	LIGHT/ POWER/ TELEPHONE POLE
⊙	LIGHT/ POWER/ TELEPHONE, CABLE TV POLE
⊙	ANCHOR
#####	RAIL ROAD
↑	SIGN (AS NOTED)
●	TREE (AS NOTED)
▼	H.C. RAMP W/ TRUNCATED DOME
T/G	TOP OF GRATE
T/C	TOP OF COVER
℄	FLOW LINE
-TV-	CABLE LINE
⊠	CABLE BOX
-E-	ELECTRIC LINE
⊠	ELECTRIC BOX
-G-	GAS LINE
⊕	GAS LINE MARKER
-S-	SANITARY SEWER LINE
○	EX. MANHOLE (AS NOTED)
●	PROP. MANHOLE (AS NOTED)
CO	CLEAN OUT
-ST-	STORM SEWER LINE
□	EX. STORM C.B.
■	PROP. STORM C.B.
YD	YARD DRAIN
FD	FLOOR DRAIN
RD	ROOF DRAIN
DS	DOWN SPOUT
-T-	TELEPHONE LINE
⊠	TELEPHONE BOX
-W-	WATER LINE
⊙	EX. FIRE HYDRANT
●	PROP. FIRE HYDRANT
↑	EX. VALVE (AS NOTED)
↑	PROP. VALVE (AS NOTED)
—	EX. CONTOUR LINE
—	PROP. CONTOUR LINE
980	CONTOUR LABEL
+350.25	SPOT ELEVATION
-373.75	SOIL BORING
◆	SOIL BORING
△	SHEET NUMBER

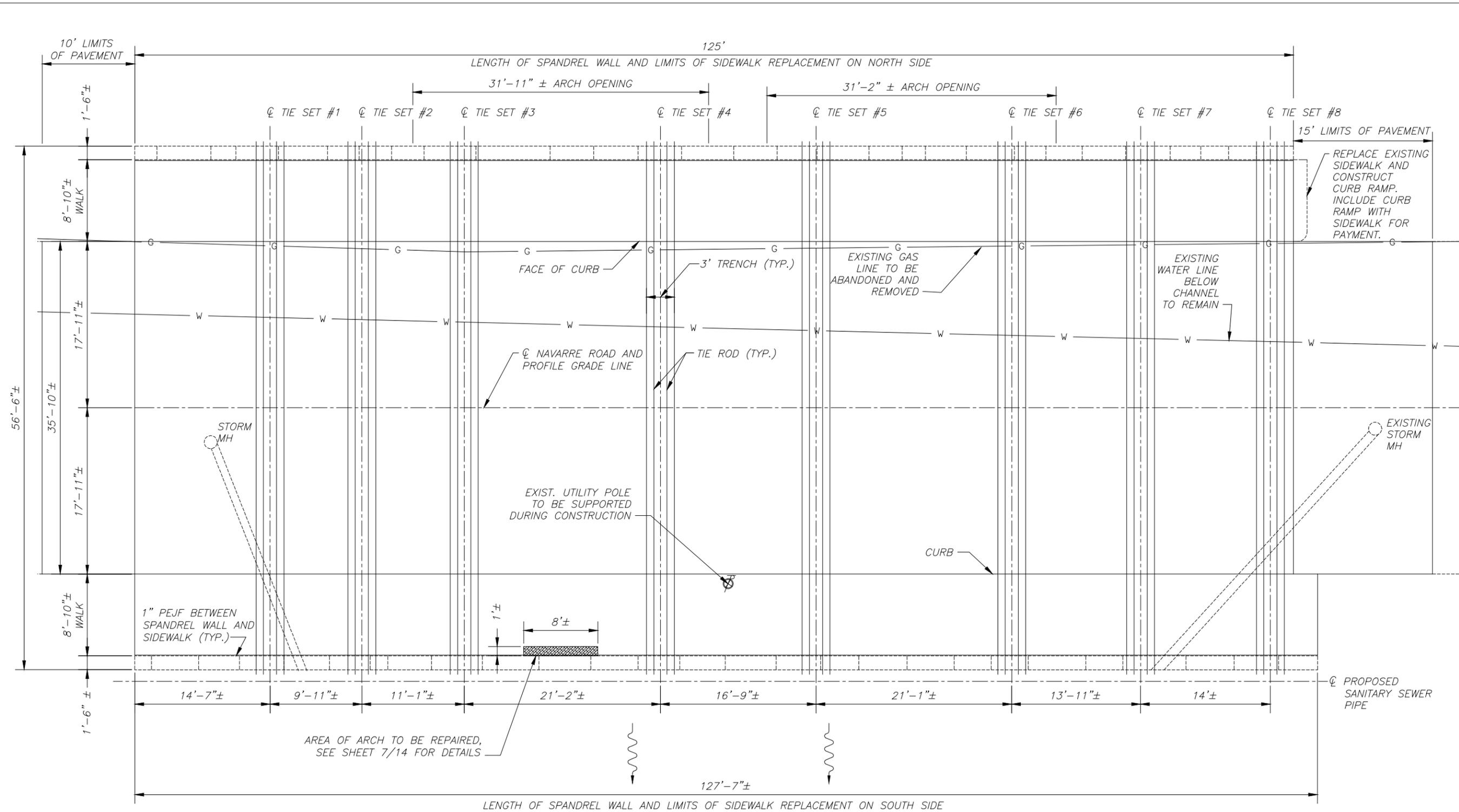
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561		
2		
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PER CITY COMMENTS		

DESIGN BY:	DATE:	SCALE:
CMH		
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TRP		
TRP		
09/01/2010		
GEN NOTES 3		

HORIZ:	VERT:
N/A	N/A
N/A	N/A
INTN/A	

GENERAL NOTES
GP 11159-NAVARE RD. S.W. SANITARY SEWER REPLACEMENT AND BRIDGE REHABILITATION FOR: THE CITY OF CANTON, LOCATED IN THE CITY OF CANTON, STARK COUNTY, OHIO



GENERAL PLAN

NOTE: SANITARY SEWER SHALL BE SUPPORTED AT THE BELL OF THE SECTION OF PIPE ONLY AT DESIGNATED LOCATIONS. SECTIONS OF DUCTILE IRON PIPE LONGER THAN THE NORMAL LAYING LENGTH SHALL BE CONNECTED WITHOUT THE USE OF ADDITIONAL SUPPORTS. ALLOWANCES SHALL BE MADE FOR EXPANSION AND CONTRACTION.

EXISTING WATERLINE IS LOCATED BENEATH THE STREAM CHANNEL IN THE AREA OF THE WORK ON THE BRIDGE.

EXISTING GAS LINE UNDER BRIDGE PAVEMENT WILL BE ABANDONED BY THE UTILITY AND REMOVED BY THE CONTRACTOR. A NEW GAS LINE WILL BE HUNG ON THE NORTH SIDE OF THE BRIDGE.

PEJF - PREFORMED EXPANSION JOINT FILLER

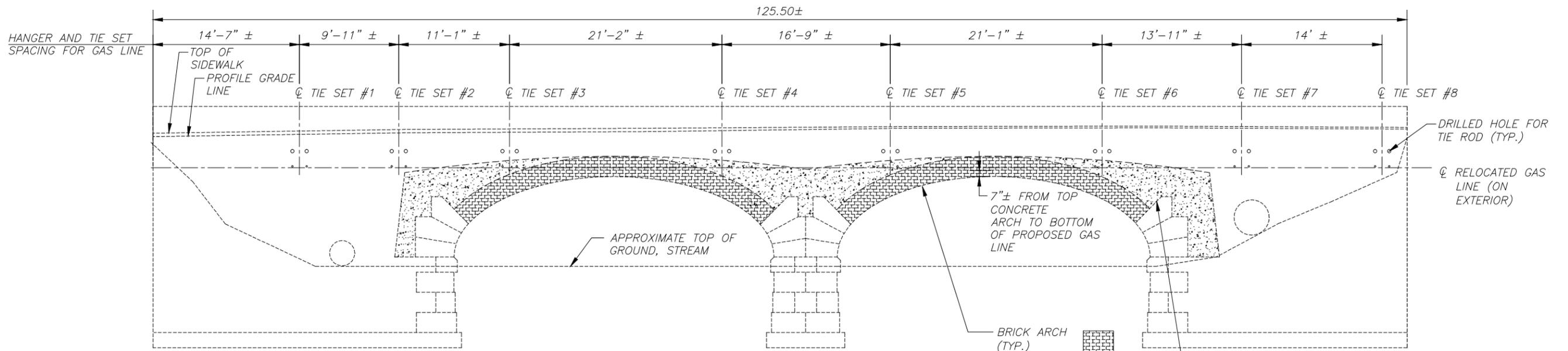

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 5233 STONEHAM ROAD NORTH CANTON, OHIO 44720
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REV. BY:	DATE:	DESC.:

DESIGN BY:	RSW	FLD BK:
DRWN BY:	RSW	BK PG:
CHKD BY:	KSQ	CRW CHF:
RWMD BY:	TRP	CPYRGT: 2010
DATE:	5/18/2013	

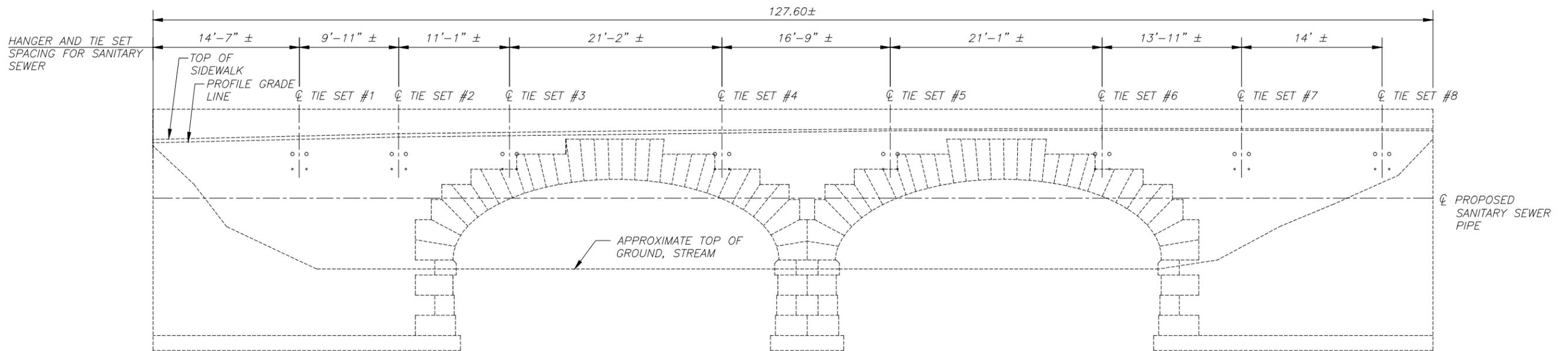
SCALES	N/A
HORIZ:	N/A
VERT:	N/A
CONTOUR INTN:	N/A

BRIDGE GENERAL PLAN
 1159-NAVARRE RD., S.W. SANITARY SEWER
 REPLACEMENT AND BRIDGE REHABILITATION
 FOR: THE CITY OF CANTON
 LOCATED IN THE CITY OF CANTON,
 STARK COUNTY, OHIO



NORTH SPANDEL WALL
(SHOWN AS LONGITUDINAL SECTION
LOOKING NORTH)

NOTE: SANITARY SEWER SHALL BE SUPPORTED AT THE BELL OF THE SECTION OF PIPE ONLY AT DESIGNATED LOCATIONS. SECTIONS OF DUCTILE IRON PIPE LONGER THAN THE NORMAL LAYING LENGTH SHALL BE CONNECTED WITHOUT THE USE OF ADDITIONAL SUPPORTS. ALLOWANCES SHALL BE MADE FOR EXPANSION AND CONTRACTION.



SOUTH SPANDEL WALL
(SHOWN AS LONGITUDINAL VIEW
LOOKING NORTH)

NOTES

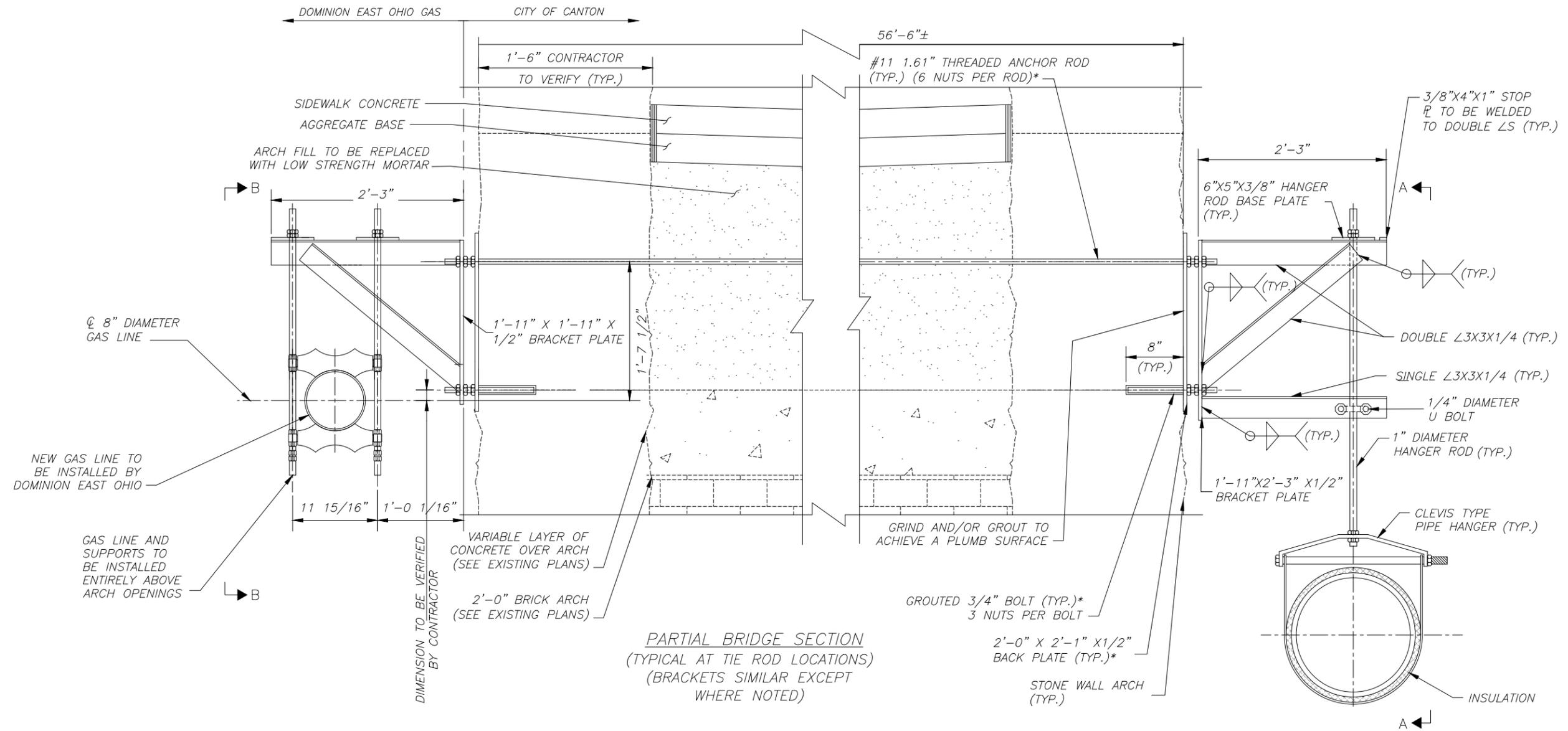
1. STONE JOINTS NOT SHOWN FOR CLARITY.
2. SEE SHEET 12/14 FOR ELEVATIONS OF PROPOSED SANITARY SEWER ON SOUTH SPANDEL WALL.

REV. BY:	DATE:	DESC.:

FLD BK:	DESIGN BY:	DATE:
	BSW	
BK PG:	DRWN BY:	
	BSW	
CRW CHF:	CHKD BY:	
	KSQ	
CPYRGT: 2010	RWMD BY:	
	TRP	
	DATE:	7/2/2012

SCALES	N/A
HORIZ:	
VERT:	N/A
CONTOUR INT:	N/A

SPANDEL WALL ELEVATIONS
GP 1159-NAVARRE RD. S.W. SANITARY SEWER
REPLACEMENT AND BRIDGE REHABILITATION
FOR: THE CITY OF CANTON
LOCATED IN THE CITY OF CANTON,
STARK COUNTY, OHIO



LEGEND

* - INCLUDED WITH TIE ROD FOR PAYMENT

NOTES

1. PIPE SHALL BE SUPPORTED AT THE BELL OF THE SECTION OF PIPE AS SHOWN ON SHEET 6.
2. ALL HANGER ROD, CLEVIS PIPE HANGER, ANGLE BRACKETS, BOLTS, NUTS, AND WASHERS ARE TO BE 36 ksi MIN., HOT DIPPED GALVANIZED.
3. INSULATION AND METAL JACKET SHOULD BE PLACED ON THE PIPE AFTER THE PIPE IS SUPPORTED. AT THE CLEVIS HANGERS, THE INSULATION AND METAL JACKET SHOULD BE CUT OUT WHERE IT IMPEDES THE WRAPPING PROCESS. ANY EXPOSED AREAS WHERE THE INSULATION AND JACKET ALLOW PIPE TO SHOW SHOULD BE SEALED WITH SILICONE, ROOFING TAR OR OTHER BUTYL COMPOUND.
4. ALL ANCHOR ROD AND BOLT HOLES SHALL BE IN CONFORMANCE WITH C&MS SPECIFICATION 510 USING NON-SHRINK, NON-METALLIC GROUT.
5. DOMINION EAST OHIO GAS WILL ABANDON THEIR EXISTING LINE, PAY FOR REMOVAL OF ABANDONED LINE, MATERIAL AND INSTALLATION OF NEW UTILITY SUPPORT BRACKETS, AND INSTALL THEIR NEW GAS LINE ON THE BRACKETS. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY TO ACCOMMODATE THE WORK.

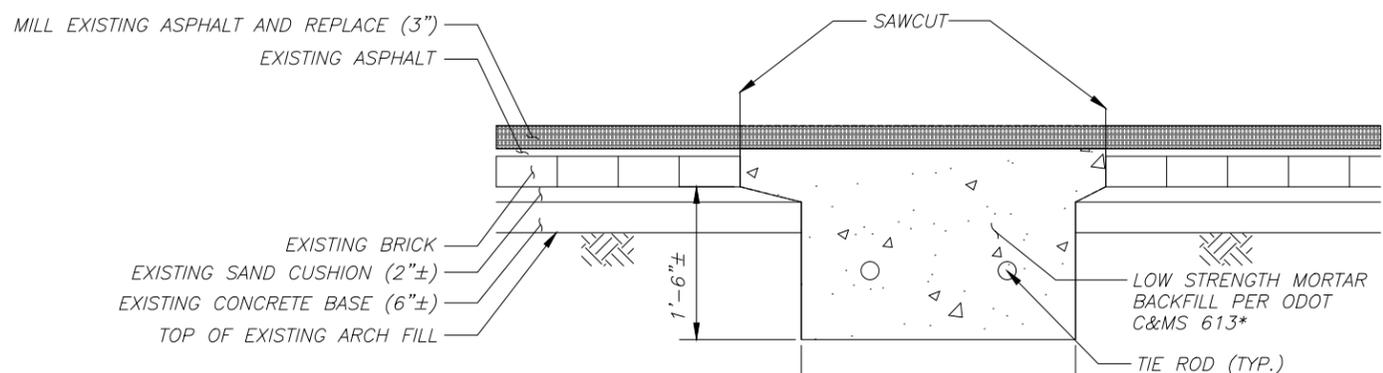
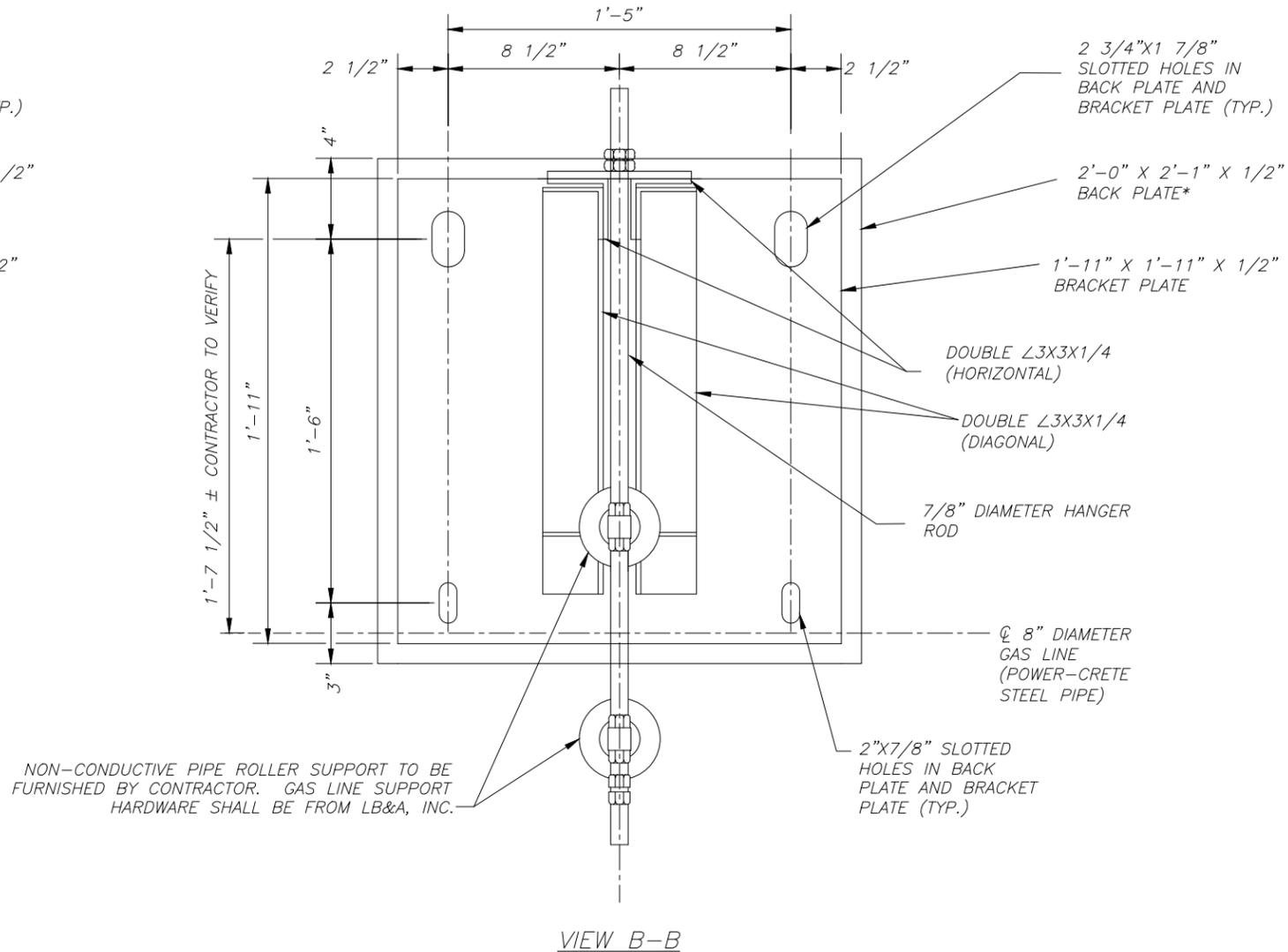
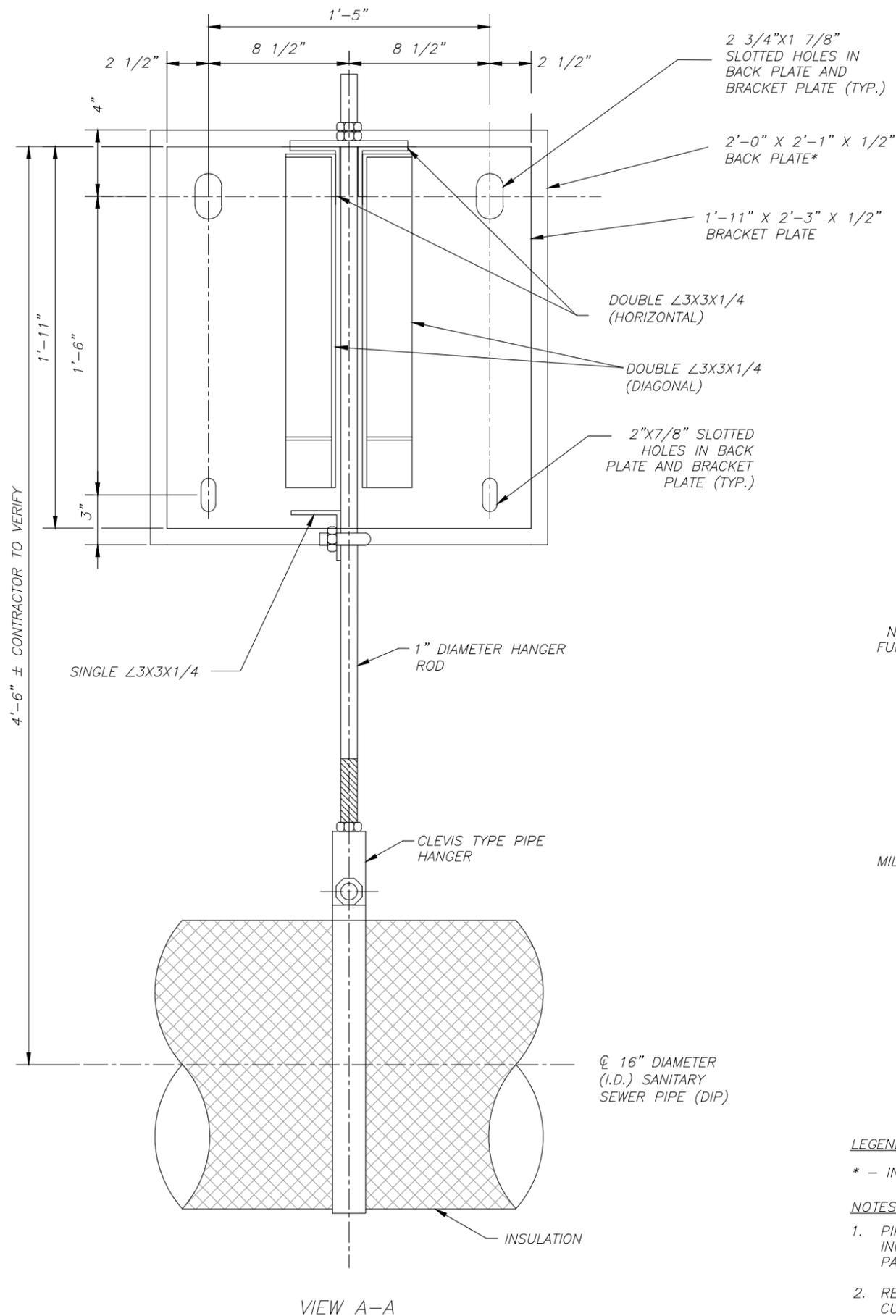
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REV. BY:	DATE:	DESC.:

FLD BK:	DESIGN BY:	DATE:

SCALES	N/A
HORIZ:	
VERT:	
CONTOUR INT:	

TIE ROD DETAILS
 GP 1159-NAVARRA RD. S.W. SANITARY SEWER
 REPLACEMENT AND BRIDGE REHABILITATION
 FOR: THE CITY OF CANTON
 LOCATED IN THE CITY OF CANTON,
 STARK COUNTY, OHIO



LEGEND:

* - INCLUDED WITH TIE ROD FOR PAYMENT

NOTES:

1. PIPE SUPPORT BRACKET AND HANGER TO BE INCLUDED WITH ITEM 513E95030 FOR PAYMENT.
2. REMOVAL OF EXISTING ASPHALT, BRICK, SAND CUSHION, CONCRETE BASE AND ARCH FILL FOR TIE ROD PLACEMENT TO BE INCLUDED WITH TIE RODS FOR PAYMENT.

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REV. BY:	DATE:	DESC.:

DESIGN BY: RSW
DRAWN BY: RSW
CHKD BY: KSO
RWD BY: JRP
DATE: 7/2/2012

FLD BK: _____
BK PG: _____
CRW CHF: _____
CPYRGT: 2010

SCALES
HORIZ: N/A
VERT: N/A
CONTOUR INTN/A

HANGER DETAILS
GP 1159-NAVARRA RD. S.W. SANITARY SEWER
REPLACEMENT AND BRIDGE REHABILITATION
FOR: THE CITY OF CANTON,
LOCATED IN THE CITY OF CANTON,
STARK COUNTY, OHIO

9
14

NOTES

- CONTRACTOR IS RESPONSIBLE FOR SURVEY AND DOCUMENTATION OF EXISTING ROADWAY SURFACE PRIOR TO WORK. FINAL ELEVATIONS SHALL MATCH EXISTING.
- CONTRACTOR IS RESPONSIBLE FOR ALL MAINTENANCE OF TRAFFIC AND SUBJECT TO MEETING THE CITY OF CANTON REQUIREMENTS.
- REMOVE THE EXISTING SIDEWALK AND CURB. MILL 3" OF ASPHALT SURFACE. AT TIE ROD LOCATIONS, REMOVE PAVEMENT AND FILL TO CREATE A 3'-0" WIDE X 1'-6" DEEP TRENCH FOR TIE ROD PLACEMENT. ARCH FILL SHALL BE REMOVED IN A UNIFORM FASHION TO PREVENT UNBALANCED FORCES ON THE MASONRY ARCHES. EXISTING SIDEWALK MAY BE BROKEN AND USED AS BANK PROTECTION AS DIRECTED BY THE CITY AND IN ACCORDANCE WITH CMS 203.19. PAVEMENT REMOVAL AND EXCAVATION INCLUDED WITH TIE RODS FOR PAYMENT.
- CONTRACTOR SHALL BRACE AND SUPPORT SPANDREL WALLS AND ARCHES AS NECESSARY DURING CONSTRUCTION TO PREVENT MOVEMENT.
- GROUT, PATCH, AND TUCKPOINT AREAS OF THE BRIDGE WHERE GAPS HAVE FORMED BETWEEN STONES. FILL AND SEAL CRACKS.
- ONE HANGER AND TIE ROD SET SHALL BE PLACED PER PIPE SECTION.
- THE ELEVATION AND SLOPE OF THE SEWER PIPE SHALL MATCH THE SEWER PLAN ELEVATIONS.
- HANGER AND TIE ROD SETS ARE TO BE INSTALLED AND ANCHORED AT THE TOP OF THE THIRD ROW OF STONES DOWN FROM THE TOP OF HEADWALL.
- SOME DRILLING MAY BE REQUIRED AT THE JOINTS TO CREATE A HOLE FOR THE TIE RODS. TIES SHALL BE PLACED AT THE SAME ELEVATION AND STATION ON EITHER SIDE OF THE SPANDREL WALLS SUCH THAT THE MINIMUM LENGTH OF TIE ROD IS ACHIEVED. HOLES SHALL BE DRILLED TO MINIMIZE DAMAGE TO FACE OF STONE.
- DRILL AND GROUT BOLT HOLES IN THE HORIZONTAL JOINT BELOW THE THIRD ROW OF STONES.
- GRIND AND/OR GROUT THE 2'-1" X 2'-0" AREA SURROUNDING THE TIE ROD INSERTS PRIOR TO PLACING THE BASE PLATE. THE BASE PLATE SHOULD PLUMB.
- ALL BOLTS, NUTS, AND WASHERS ARE TO BE 36 KSI MINIMUM, HOT DIPPED GALVANIZED.
- TIE ROD SHALL BE A 75 KSI THREADED BAR.
- TIE RODS SHALL BE TENSIONED AND SET WITH BOLTS SUCH THAT THE STONE BRIDGE WALLS ARE PLUMB.
- PLACE LOW STRENGTH MORTAR BACKFILL WITH CARE TAKEN TO SUPPORT TIE RODS IN THE HORIZONTAL POSITION WITHOUT ADDITIONAL LATERAL FORCES. BACKFILL SHALL BE PLACED IN ACCORDANCE WITH ODOT CONSTRUCTION AND MATERIAL SPECIFICATION 203. INCLUDE WITH TIE RODS FOR PAYMENT.
- PAVE BRIDGE AND PLACE SIDEWALKS AS SHOWN ON SHEET 8/14.
- BRICK PAVEMENT REMOVED BEYOND THE LIMITS SHOWN DURING CONSTRUCTION OF THE PROJECT SHALL BE REPLACED WITH CLASS C CONCRETE.
- THE UNIT PRICE FOR THE SEWER REPLACEMENT ITEM IN THE BID SHALL INCLUDE VIDEO TELEVISION OF THE SANITARY SEWER LINE AFTER THE REPLACEMENT OF THE SEWER TO OBSERVE THE CONNECTION TO THE EXISTING SANITARY SEWER UPSTREAM AND DOWNSTREAM OF THE REPLACEMENT PIPE.
- THE UNIT PRICE FOR THE SEWER REPLACEMENT SHALL INCLUDE THE PROPER REMOVAL AND DISPOSAL OF THE EXISTING SEWER IN THE GROUND AND HANGING ON THE BRIDGE AND THE EXISTING PIPE SUPPORTS.

601E35100 ROCK CHANNEL PROTECTION, TYPE A, MISC., LUMP SUM

THIS ITEM SHALL CONSIST OF THE FOLLOWING: EMBANK THE EXCESS STONE AND GRAVEL MATERIAL IN THE WEST STREAM BED UP AGAINST THE WEST ABUTMENT WALL, WEST SIDE OF THE PIER (INCLUDING THE NOSE OF PIER ON NORTH SIDE) AND AT THE STORM SEWER OUTLET AT THE SOUTHWEST SPANDREL WALL TO APPROXIMATELY THE NORMAL STREAM ELEVATION APPROXIMATELY 2' WIDE, INSTALL FILTER FABRIC OVER THE EMBANKED MATERIAL, AND PLACE ODOT 601 ROCK CHANNEL PROTECTION, TYPE A, ON TOP OF THE FILTER FABRIC 18" HIGH. PER NOTE 3 ON PAGE 10 OF THESE PLANS, THE EXISTING SIDEWALK MAY BE BROKEN TO MEET THE STANDARDS OF ODOT 601 ROCK CHANNEL PROTECTION, TYPE A, AND USED. THIS ITEM SHALL BE BID AS LUMP SUM FOR ALL MATERIAL AND LABOR TO PERFORM THIS WORK AS DESCRIBED.

4" CONCRETE WALK WITH INTEGRAL CURB, AS PER PLAN

THE WALK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF CANTON STANDARD DRAWING NO. 29. THE COST OF THE SIDEWALK SHALL INCLUDE THE WORK REQUIRED TO EXCAVATE AND PLACE THE AGGREGATE BASE. THE COST OF THE WORK SHALL ALSO INCLUDE THE CONSTRUCTION OF A 5 FOOT WIDE CURB RAMP TYPE A1 AT THE NORTHEAST CORNER OF THE BRIDGE.

ITEM 202 - REMOVAL MISC.: ABANDONED GAS LINE

THE EXISTING GAS LINE IN THE ARCH FILL WILL BE ABANDONED PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL REMOVE THE LINE FROM THE STRUCTURE LIMITS (APPROX. 125'). AT THE DIRECTION OF THE CITY, THE REMOVAL LIMITS MAY BE ADJUSTED TO CORRESPOND TO THE TRENCHING LIMITS. THERE WILL BE NO ADJUSTMENT TO THE UNIT COST BID FOR THIS ITEM IF THE LIMITS ARE SO REVISED.

ESTIMATED STRUCTURE QUANTITIES

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	SEE SHEET
202	30001	2208	SQ FT	WALK REMOVED, AS PER PLAN	10/14, NOTE 3
202	32000	250	FT	CURB REMOVED	
202	98200	130	FT	REMOVAL MISC.: EXISTING SANITARY LINE / CASING	
202	98000	1	LUMP	REMOVAL MISC.: PIPE SUPPORT BRACKETS, GROUT HOLES	
					6/14, 7/14
254	01000	498	SQ YD	PAVEMENT PLANING, ASPHALT CONCRETE	
304	20000	31	CU YD	AGGREGATE BASE	
407	10000	38	GALLON	TACK COAT	
408	10000	200	GALLON	PRIME COAT	
448	46050	21	CU YD	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22	
448	47020	21	CU YD	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22	
513	95030	8	EACH	STRUCTURAL STEEL, MISC.: PIPE SUPPORT AND HANGERS, SANITARY	
516	13600	85	SQ FT	1" PREFORMED EXPANSION JOINT FILLER	
530	00200	1	LUMP	SPECIAL - STRUCTURE, MISC.: CONCRETE REPAIR AREAS	
530	00400	16	EACH	SPECIAL-STRUCTURE, MISC.: TIE RODS, 60'-0" IN LENGTH, AS PER PLAN	9 & 10/14
601	35100	1	LUMP	ROCK CHANNEL PROTECTION, TYPE A, MISC.	
608	10001	2168	SQ FT	4" CONCRETE WALK WITH INTEGRAL CURB, AS PER PLAN	10/14
625	10500	1	EACH	LIGHT POLE, MISC.: EXISTING LIGHT POLE TO BE SUPPORTED DURING CONSTRUCTION	

ESTIMATED SEWER REPLACEMENT QUANTITIES

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	SEE SHEET
603	98501	19	FT	CONDUIT, MISC.: 16" DIP (CL52 MJ) WITH PIPE ENCASEMENT, SR-1, A.P.P	12/14
603	98501	133	FT	CONDUIT, MISC.: 16" DIP (CL52 MJ) WITH PIPE INSULATION, SRE-1, A.P.P	12/14
604	98001	1	LUMP	DRAINAGE STRUCTURE, MISC.: BYPASS PUMPING, BP-1, A.P.P	13/14
614	18002	1	LUMP	MAINTAINING TRAFFIC, MISC.	
623	10000	1	LUMP	CONSTRUCTION LAYOUT STAKES	
624	10000	1	LUMP	MOBILIZATION	
690	98400	1	LUMP	SPECIAL - MISC.: PRECONSTRUCTION VIDEO TAPING	

DOMINION EAST OHIO QUANTITIES

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	SEE SHEET
202	98200	145	FT	REMOVAL MISC.: ABANDONED GAS LINE	10/14
513	95030	8	EACH	STRUCTURAL STEEL, MISC.: PIPE SUPPORT AND HANGERS, GAS	

DOMINION EAST OHIO GAS COMPANY NOTES

BIDDERS ARE ADVISED THAT NOT ALL OF DOMINION EAST OHIO (DEO) FACILITIES WILL BE CLEARED FROM THE CONSTRUCTION AREA AT THE TIME OF AWARD OF THE CONTRACT. DEO FACILITIES SHALL REMAIN IN SERVICE BETWEEN OCTOBER 1ST AND APRIL 1ST. DEO WILL NOT TAKE THE GAS LINE OUT OF SERVICE BETWEEN THESE DATES. DEO REQUIRES A 10-DAY NOTIFICATION IN WRITING TO BEGIN RELOCATION WORK. DEO WILL CUT AND CAP ITS CURRENT GAS LINE OUTSIDE OF THE PROJECT LIMITS ON EITHER SIDE OF THE STRUCTURE. DEO WILL ABANDON THE EXISTING GAS LINE ON THE BRIDGE. DEO REQUIRES NO MORE THAN 5 WORKING DAYS TO PERFORM THE CUT AND CAPS.

THE CITY'S CONTRACTOR IS RESPONSIBLE FOR FURNISHING AND INSTALLING THE MISCELLANEOUS STEEL, SUPPORT ANGLES, SUPPORT BRACKETS, ROLLERS AND ASSEMBLIES ETC. FOR THIS PROJECT. ONCE SAID ITEMS ARE INSTALLED, DEO WILL REINSTALL THE GAS PIPELINE ON THE BRIDGE. DEO IS RESPONSIBLE FOR FURNISHING AND INSTALLING THE PIPE ONLY. THE STEEL, BRACKETS, ROLLERS ETC. SHALL BE INSTALLED BY THE CITY'S CONTRACTOR PRIOR TO SEPT 1ST SO THAT DEO CAN PUT NEW GAS LINE IN SERVICE BY OCTOBER 1ST.

THE COMPANY DOES NOT ANTICIPATE ANY OTHER CONFLICTS WITH THE PROPOSED WORK. IF A CONFLICT DOES ARISE, THE CITY'S CONTRACTOR WILL IMMEDIATELY CONTACT DEO SO THAT PROPER ACTIONS CAN BE TAKEN TO PREVENT DELAY OF CONSTRUCTION. THE COMPANY SHALL TAKE NO MORE THAN 20 WORKING DAYS TO INSTALL THE NEW 8" STEEL LOW PRESSURE GAS LINE. THE CITY'S CONTRACTOR SHALL USE CAUTION WHEN DIGGING NEAR DEO'S FACILITIES INCLUDING BUT NOT LIMITED TO TEST BOXES, CURB STOPS, GATE VALVE BOXES, MAINLINE AND SERVICES. COSTS INCURRED BY DAMAGES TO DEO'S FACILITY COULD BE BILLED TO DAMAGING PARTY.

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DESIGN BY: RSW
DRWN BY: RSW
CHKD BY: KSG
RWD BY: TRP
DATE: 7/2/2012

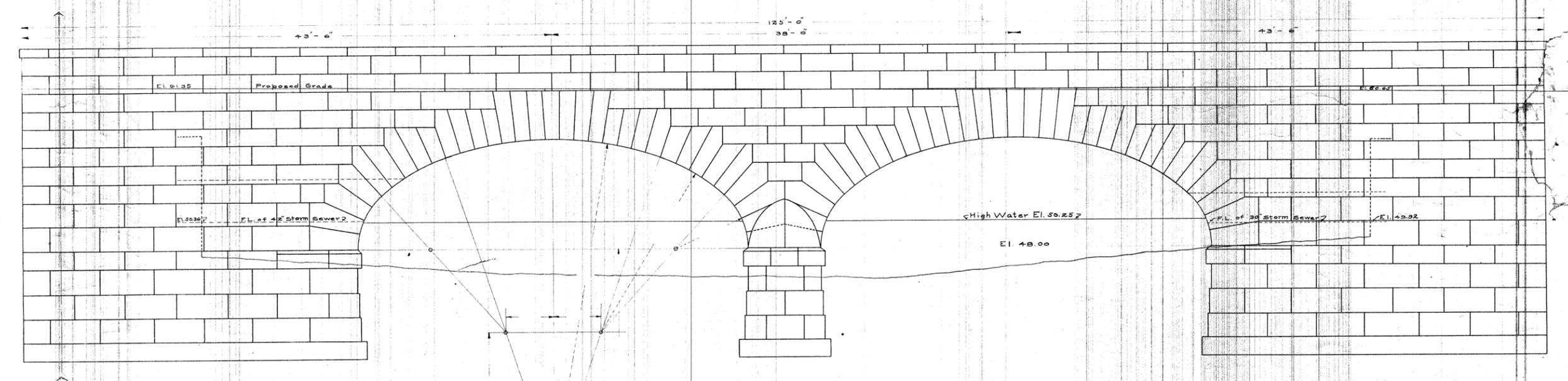
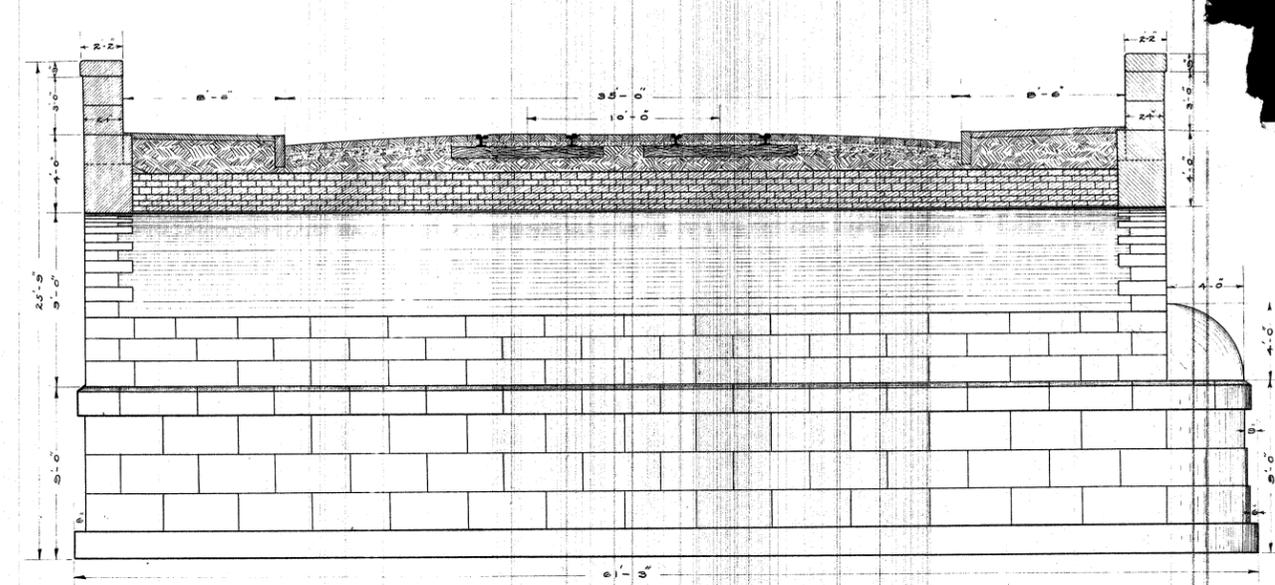
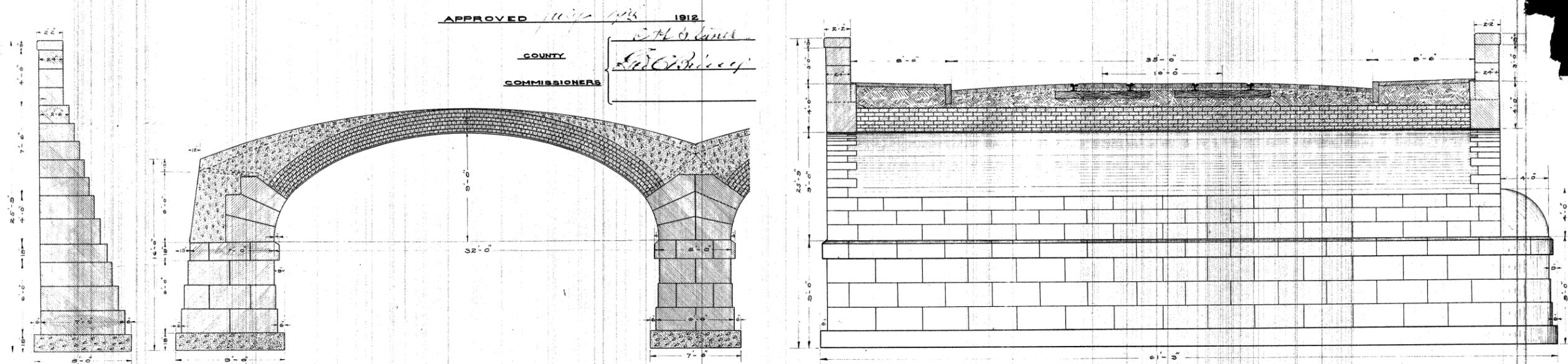
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REV. BY: DATE: DESC.:
REV. BY: DATE: DESC.:

FLD BK: _____
BK PG: _____
CRW CHF: _____
CPYRIGHT: 2010

SCALES
HORIZ: N/A
VERT: N/A
CONTOUR INTN/A

SPECIAL NOTES AND QUANTITIES
REPLACEMENT AND BRIDGE REHABILITATION
FOR: THE CITY OF CANTON
LOCATED IN THE CITY OF CANTON,
STARK COUNTY, OHIO

INFORMATION ONLY



ESTIMATED QUANTITIES	
KIND	QUANTITY
Excavation Unclassified	1000 cu yds.
Masonry Concrete	392 cu yds.
Masonry Stone	118 @ perch
Masonry Brick	286 perch

PROPOSED PLAN
FOR
NAVARRE STREET ARCH - CANTON, OHIO.

CANTON TOWNSHIP STARK COUNTY, OHIO.
JULY 1912
W. W. Hall
COUNTY SURVEYOR

EXISTING ELEVATION
GP 1159-NAVARRE RD. S.W. SANITARY SEWER
REPLACEMENT AND BRIDGE REHABILITATION
FOR: THE CITY OF CANTON
LOCATED IN THE CITY OF CANTON,
STARK COUNTY, OHIO

DESIGN BY: BSW
DRAWN BY: BSW
CHKD BY: BSO
RWD BY: JRE
DATE: 7/2/2012

FLD BK: _____
BK PG: _____
CRW CHF: _____
CPYRGT: 2010

REV. BY: _____ DATE: _____
REV. BY: _____ DATE: _____
REV. BY: _____ DATE: _____
REV. BY: _____ DATE: _____

DESC: _____
DESC: _____
DESC: _____
DESC: _____

SCALE:
HORIZ: N/A
VERT: 2"=1'
CONTOUR INT: 1/4'

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BENCHMARKS:
SEE SHEET 4 FOR
ADDITIONAL INFORMATION

BM #1:
"+" ON S.W. BOLT AT S.W.
CORNER OF BRIDGE
ABUTMENT

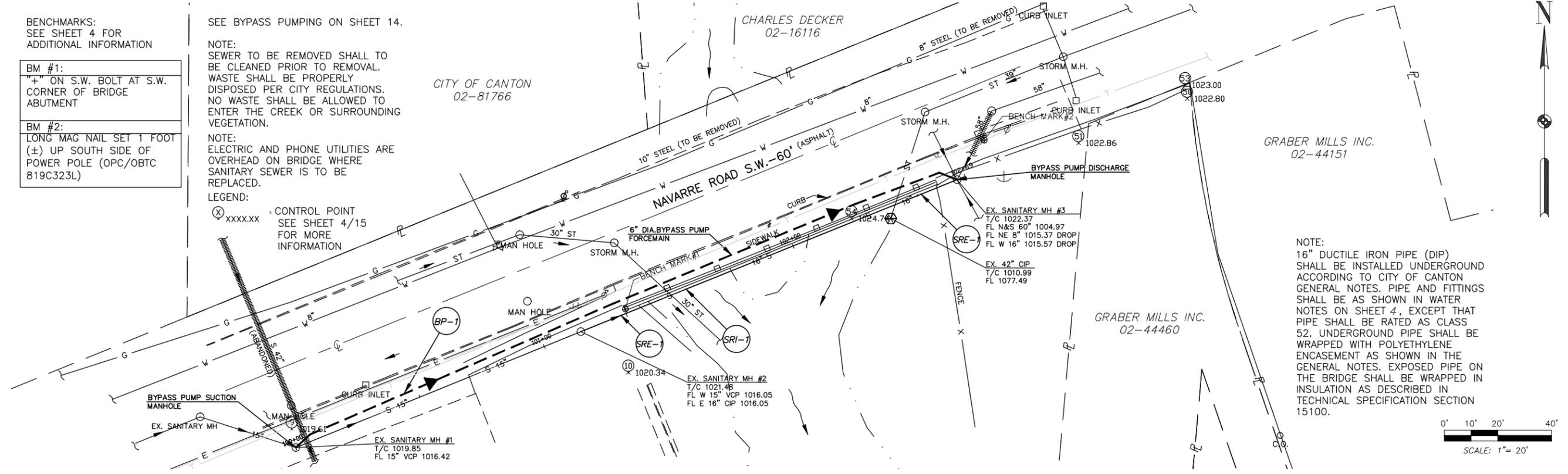
BM #2:
LONG MAG NAIL SET 1 FOOT
(±) UP SOUTH SIDE OF
POWER POLE (OPC/OBTC
819C323L)

SEE BYPASS PUMPING ON SHEET 14.

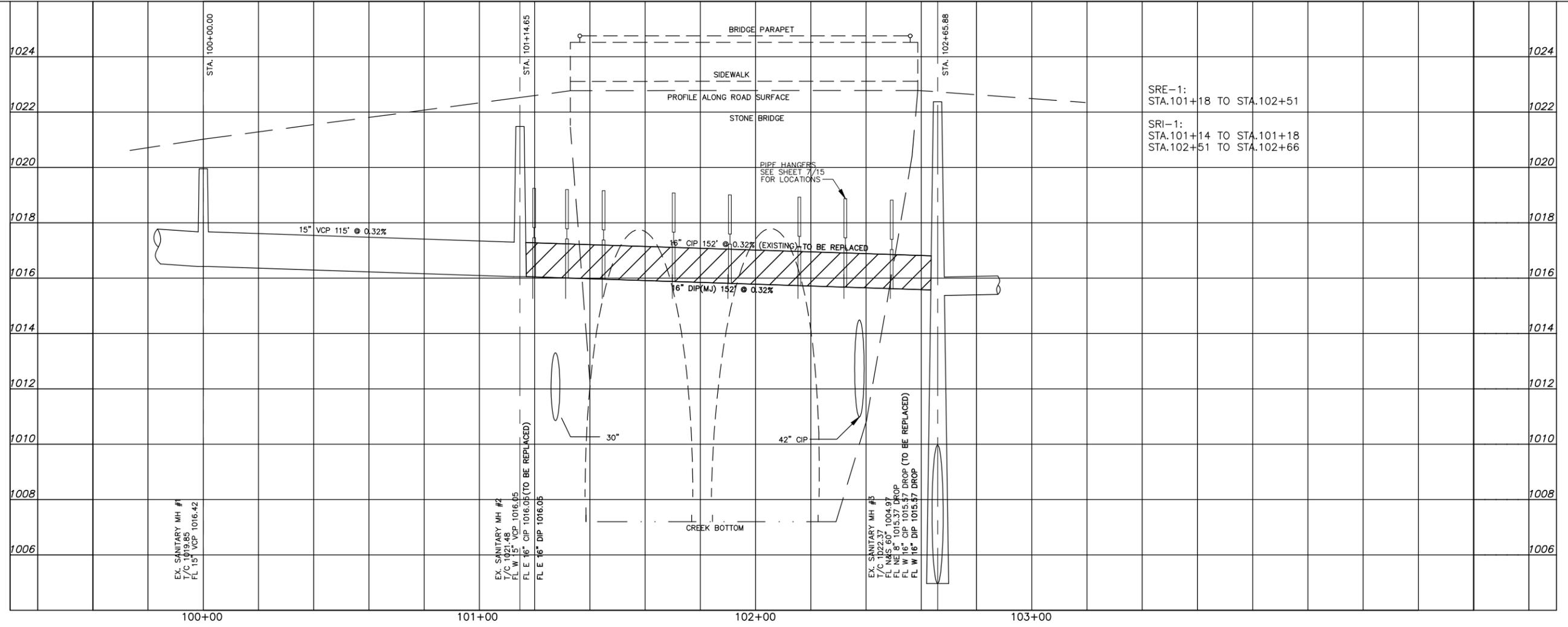
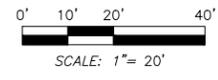
NOTE:
SEWER TO BE REMOVED SHALL
BE CLEANED PRIOR TO REMOVAL.
WASTE SHALL BE PROPERLY
DISPOSED PER CITY REGULATIONS.
NO WASTE SHALL BE ALLOWED TO
ENTER THE CREEK OR SURROUNDING
VEGETATION.

NOTE:
ELECTRIC AND PHONE UTILITIES ARE
OVERHEAD ON BRIDGE WHERE
SANITARY SEWER IS TO BE
REPLACED.

LEGEND:
⊗ XXXX.XX CONTROL POINT
SEE SHEET 4/15
FOR MORE
INFORMATION



NOTE:
16" DUCTILE IRON PIPE (DIP)
SHALL BE INSTALLED UNDERGROUND
ACCORDING TO CITY OF CANTON
GENERAL NOTES. PIPE AND FITTINGS
SHALL BE AS SHOWN IN WATER
NOTES ON SHEET 4, EXCEPT THAT
PIPE SHALL BE RATED AS CLASS
52. UNDERGROUND PIPE SHALL BE
WRAPPED WITH POLYETHYLENE
ENCASEMENT AS SHOWN IN THE
GENERAL NOTES. EXPOSED PIPE ON
THE BRIDGE SHALL BE WRAPPED IN
INSULATION AS DESCRIBED IN
TECHNICAL SPECIFICATION SECTION
15100.



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SEWER REPLACEMENT
GP 11159-NAVARRA RD. S.W. SANITARY SEWER
REPLACEMENT AND BRIDGE REHABILITATION
FOR: THE CITY OF CANTON
LOCATED IN THE CITY OF CANTON,
STARK COUNTY, OHIO

DESIGN BY: CML
DRAWN BY: CML
CHKD BY: TRP
DATE: 08/30/10

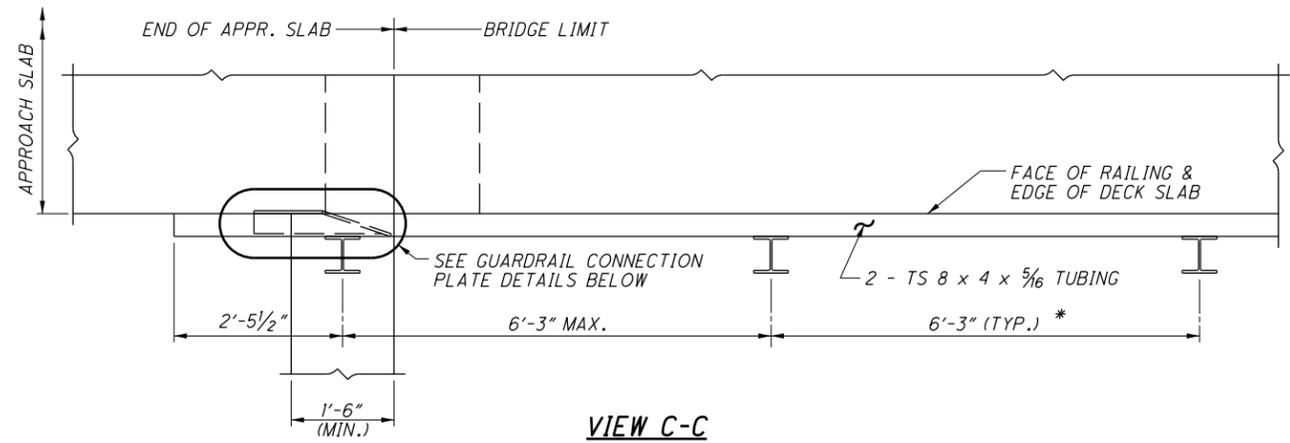
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CRW CHG: BJH
COPYRIGHT: 2010
TAB: PP-20

REV. BY: CML
DATE: 2/11/11
PER CITY COMMENTS

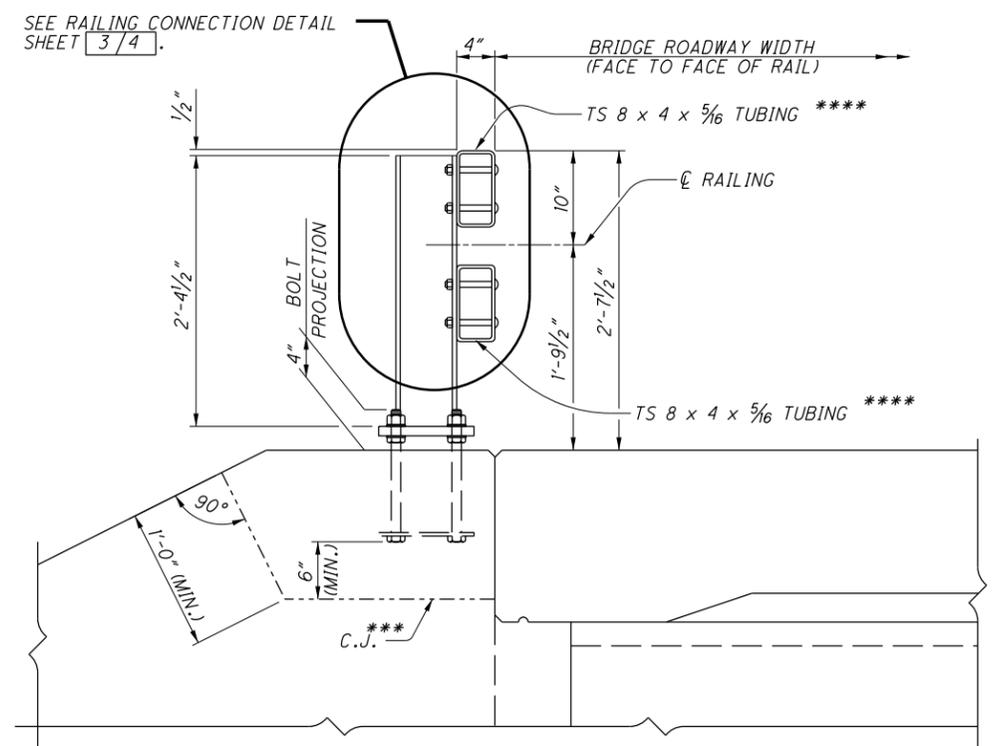
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DESC.: PER CITY COMMENTS

SCALES
HORIZ: 1" = 20'
VERT: 1" = 2'
CONTOUR INTN/A

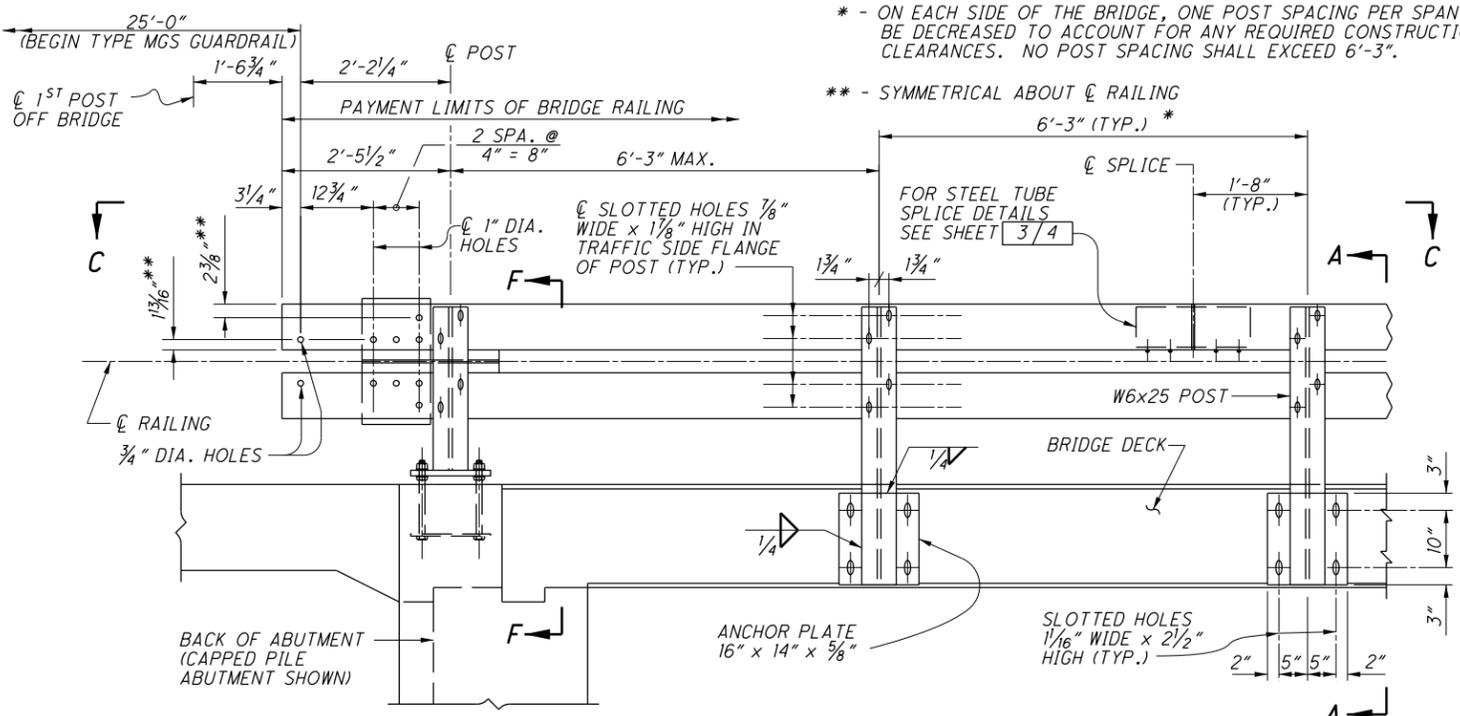
12
14



VIEW C-C



SECTION F-F

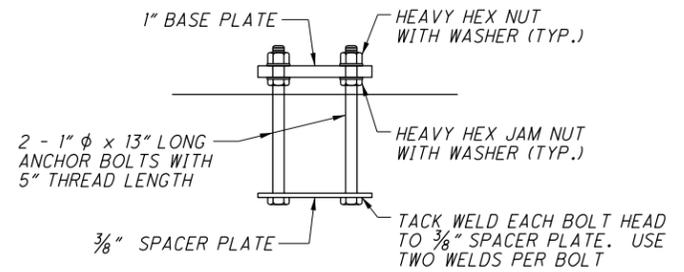


RAILING ELEVATION ON CONCRETE SLAB

FOR SECTION A-A SEE SHEET 2/4

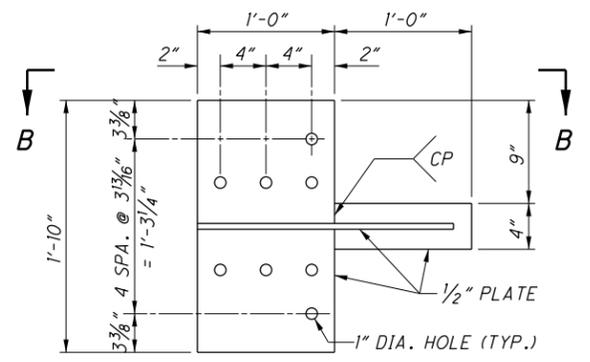
BRIDGE TERMINAL ASSEMBLY NOT SHOWN. REFER TO STANDARD CONSTRUCTION DRAWING MGS-3.1 FOR DETAILS.

*** - PLACE THE CONCRETE ABOVE THE CONSTRUCTION JOINT AFTER INSTALLATION OF THE RAILING IS COMPLETE.
 **** - IN LIEU OF PROVIDING THE WINGWALL CONSTRUCTION JOINT, THE CONTRACTOR MAY FIELD DRILL HOLES IN THE TUBING FOR POST-TO-TUBE RAIL CONNECTIONS AT ALL FLUSH MOUNTED POST LOCATIONS. REPAIR GALVANIZING ACCORDING TO C&MS 711.02.

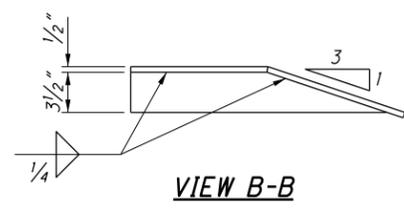


FLUSH MOUNTED POST ANCHOR DETAIL

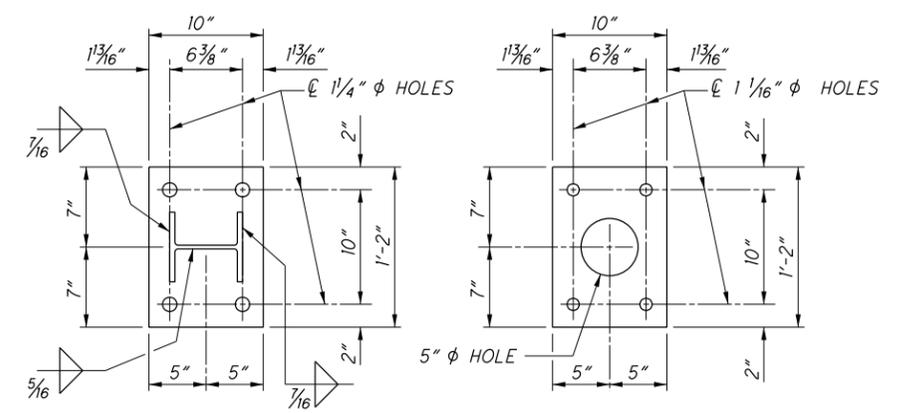
(POST NOT SHOWN)



GUARDRAIL CONNECTION PLATE DETAILS



VIEW B-B



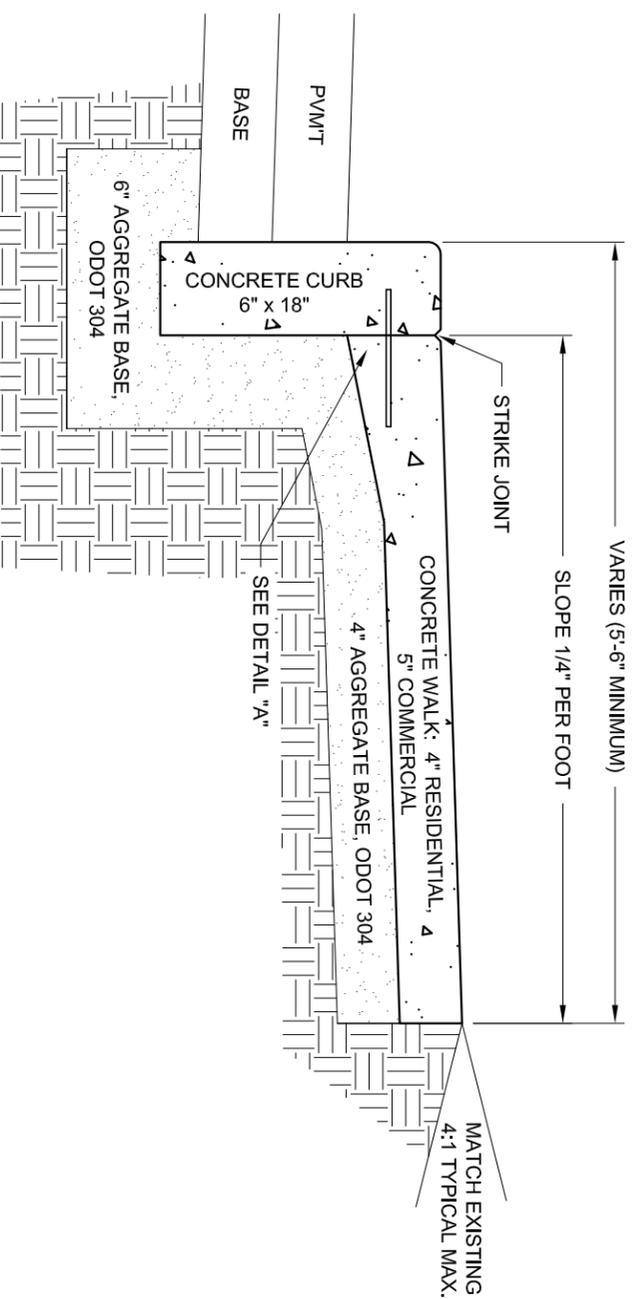
BASE PLATE

SPACER PLATE

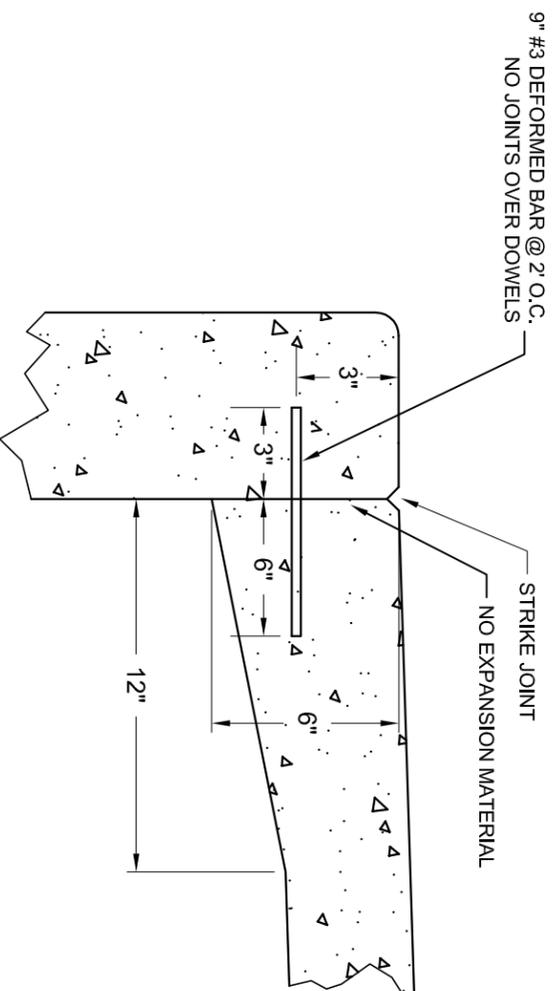
(1" PLATE)

(3/8" PLATE)

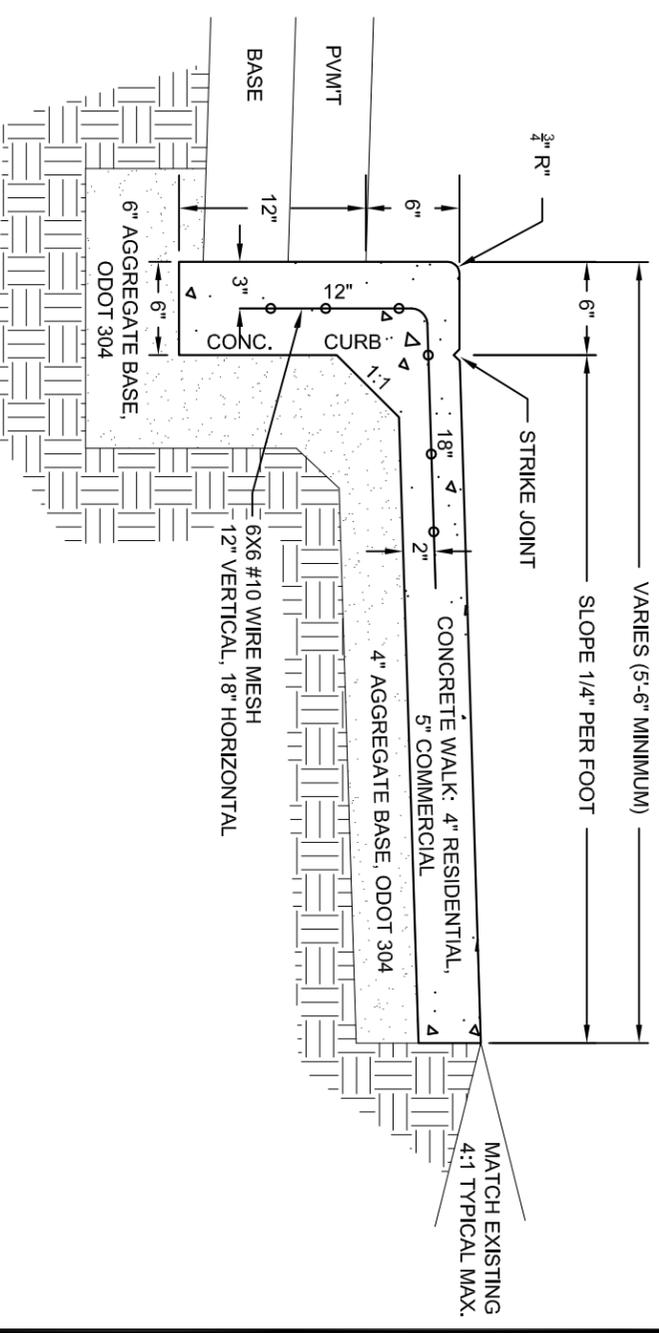
TYPE A
CONCRETE WALK
ADJACENT TO CURB



DETAIL "A"



TYPE B
INTEGRAL CONCRETE WALK
AND CURB



NOTES:

1. CURB CONSTRUCTION MUST TO CONFORM TO ODOT 609 AND THE CURRENT CITY OF CANTON SPECIFICATIONS FOR THE CONSTRUCTION, REPAIR, AND REPLACEMENT OF SIDEWALKS, CURBS, AND DRIVEWAYS.
2. CONCRETE MATERIAL FOR CURB AND WALK MUST BE ODOT 499 CLASS 'C' CONCRETE WITH LIMESTONE AGGREGATE.
3. NO FOUNDRY SAND OR SLAG PERMITTED IN AGGREGATE BASE, ODOT 304.
4. CONCRETE WALK REPLACED OR INSTALLED ADJACENT TO EXISTING CONCRETE CURB MUST BE DOWELED TO THE EXISTING CURB, UNLESS DETERMINED OTHERWISE BY THE CITY ENGINEER.
5. CURB CONTRACTION JOINT MUST BE SPACED 10 FEET TYPICALLY; WALK CONTRACTION JOINTS MUST BE SPACED 5 FEET TYPICALLY, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER. CURB EXPANSION JOINTS MUST BE INSTALLED AT CURB INLET CATCH BASIN AND AT ANY OTHER RIGID STRUCTURES. CURB EXPANSION AND CONSTRUCTION JOINTS MUST BE DOWELED WITH TWO (2) #5 THRU #8 SMOOTH BARS, 18" LONG, EXTENDING 9" INTO EACH CURB.
6. ODOT REFERENCES ARE FROM THE CURRENT ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS, ANY DISCREPANCIES SHALL BE SUBJECT TO THE CITY ENGINEER'S DISCRETION.



OFFICE OF THE CITY ENGINEER
CANTON, OHIO

DANIEL J. MOEGLIN, P.E., CITY ENGINEER
2436 30th St. NE 44705 330-489-3381 www.cantonohio.gov/engineering

APPROVED DATE: MARCH 2012

APPROVED BY: CDB, RMB

DRAWING FILE NAME: ce_29.dwg

REVISIONS

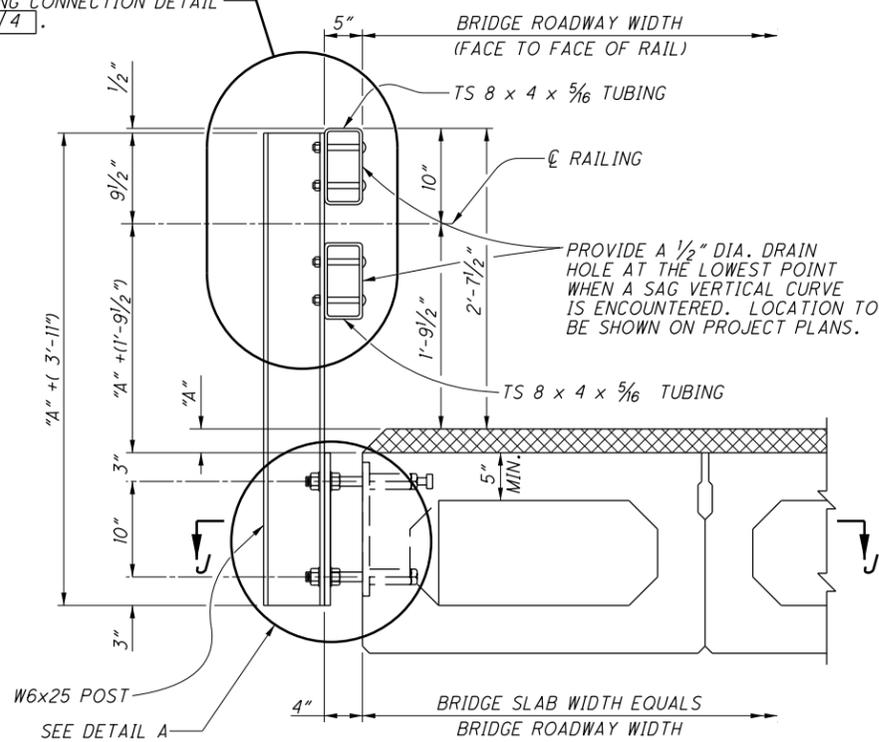
DESCRIPTION	DATE	BY

STANDARD DRAWING NO. 29

COMBINED CURB & WALK

SHEET 1 OF 1

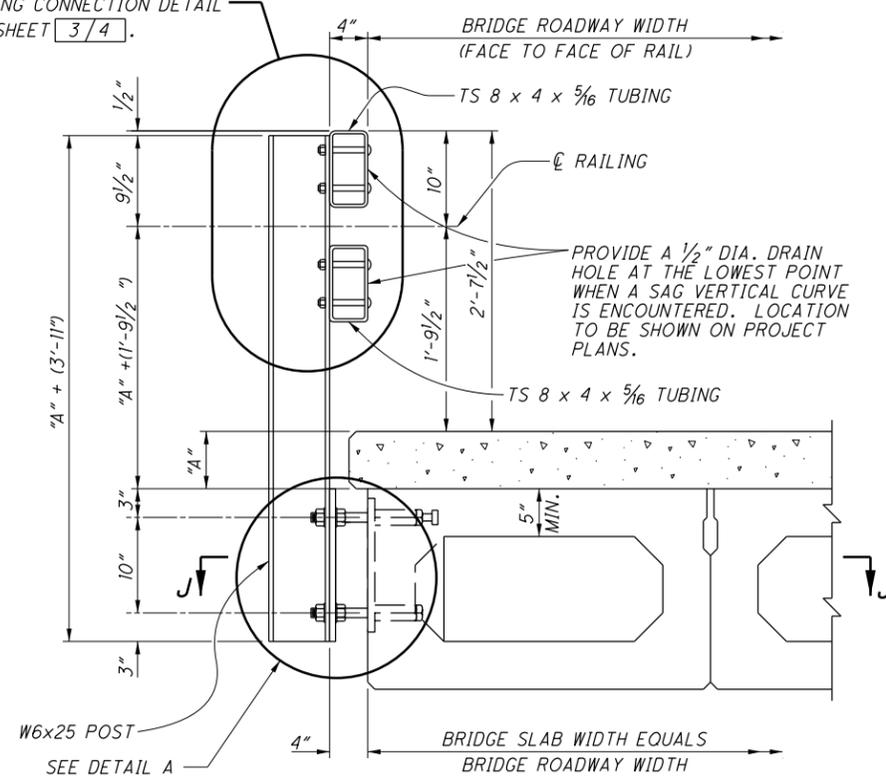
SEE RAILING CONNECTION
DETAIL SHEET **3/4**.



SECTION A-A

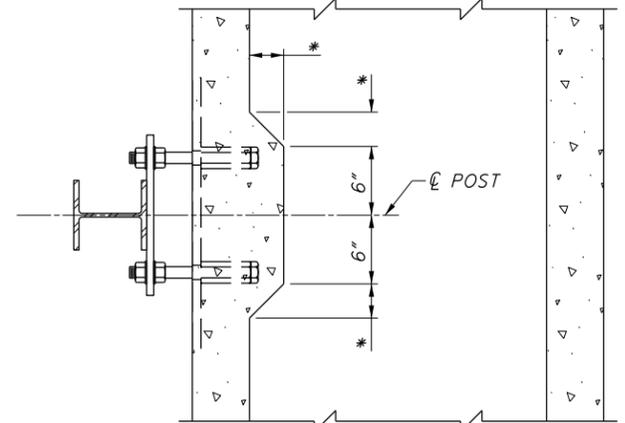
(FOR 17" AND DEEPER NONCOMPOSITE
PRESTRESSED BOX BEAM BRIDGES)

SEE RAILING CONNECTION
DETAIL SHEET **3/4**.



SECTION A-A

(FOR 17" AND DEEPER COMPOSITE
PRESTRESSED BOX BEAM BRIDGES)

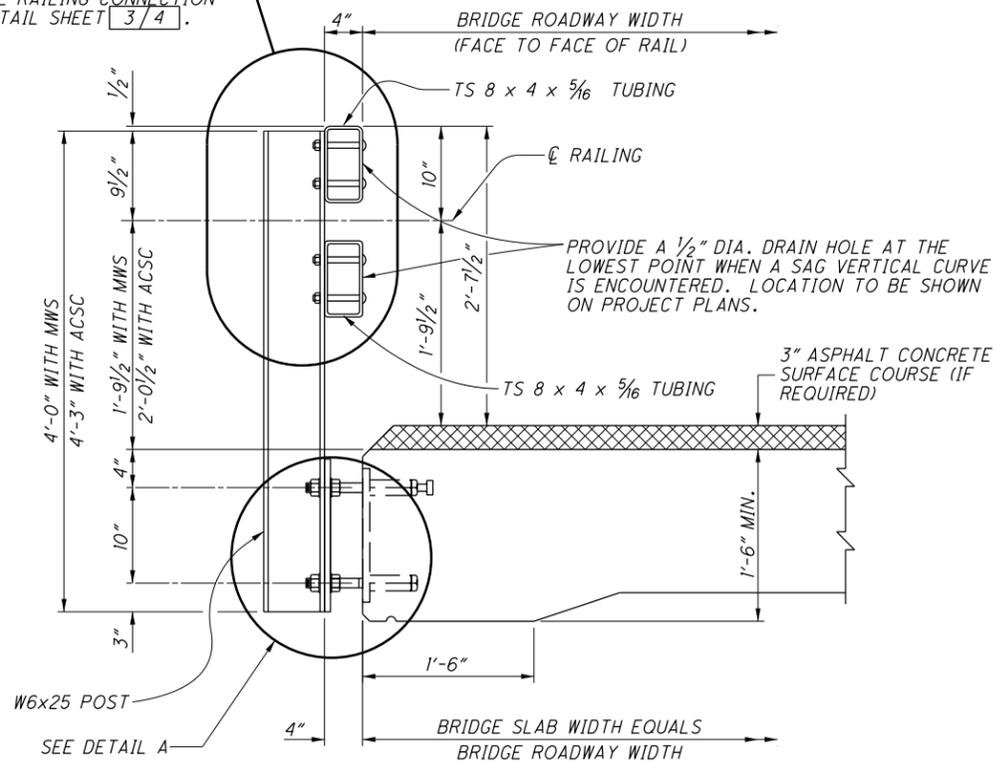


SECTION J-J

LEGEND

- MWS - MONOLITHIC WEARING SURFACE
- ACSC - ASPHALT CONCRETE SURFACE COURSE
- "A" - DECK OR OVERLAY THICKNESS, THIS DIMENSION VARIES ACROSS THE LENGTH OF THE BRIDGE.
- * - THIS DIMENSION IS THE SAME AS THE WIDTH OF FILLET IN THE BOX BEAMS'S VOID.

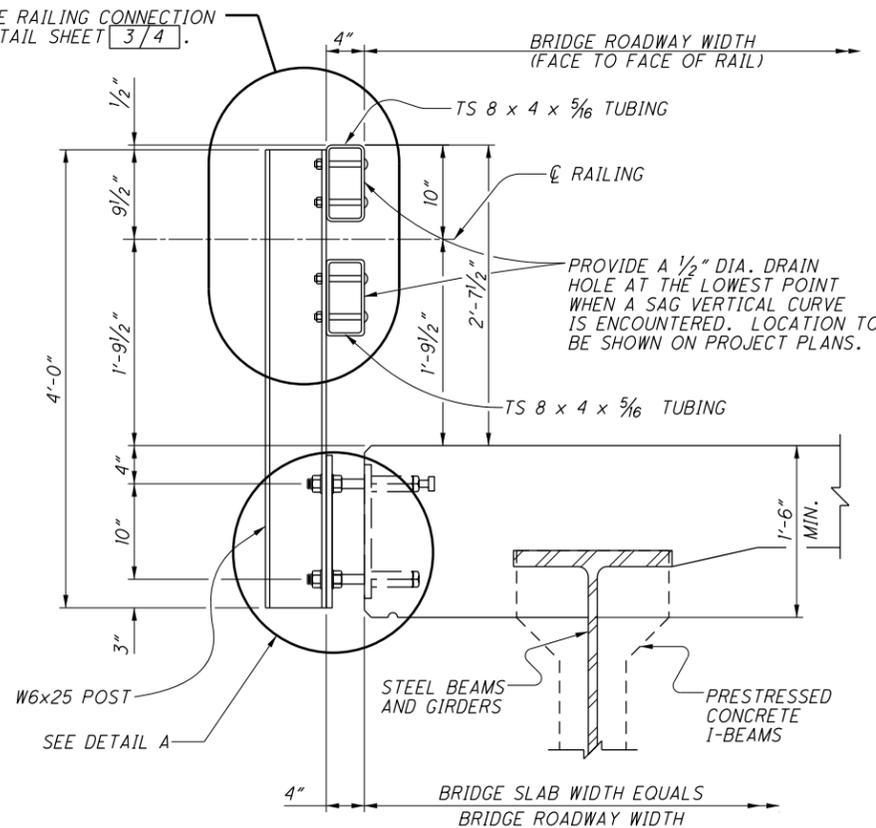
SEE RAILING CONNECTION
DETAIL SHEET **3/4**.



SECTION A-A

(FOR SLAB BRIDGES)

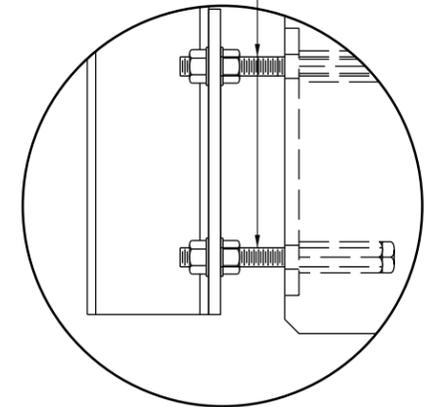
SEE RAILING CONNECTION
DETAIL SHEET **3/4**.



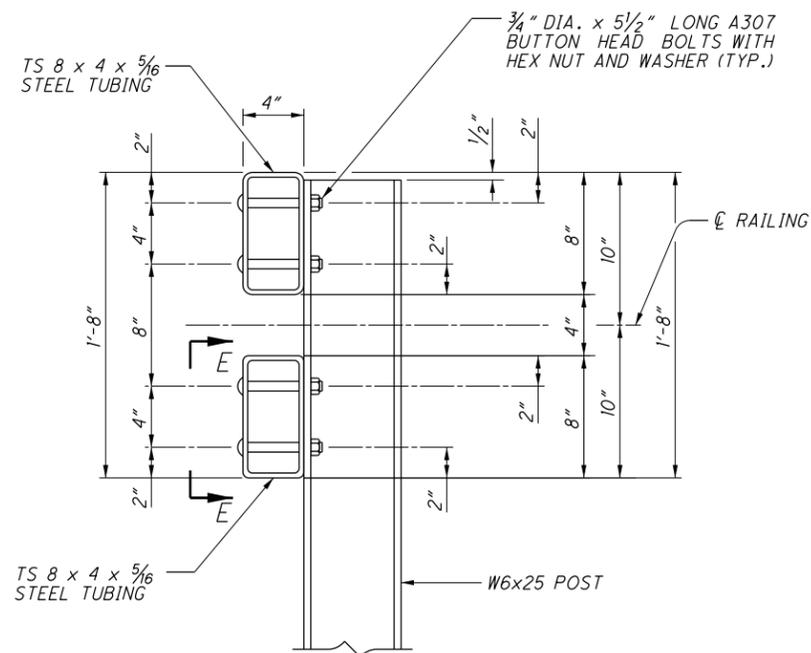
SECTION A-A

(FOR CONCRETE OR STEEL I-BEAM BRIDGES)

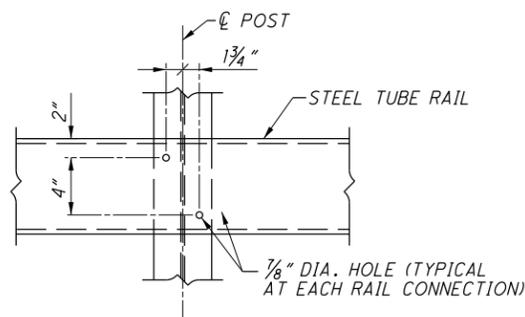
2 - 1" DIA. x 12" LONG ANCHOR
BOLTS WITH MACHINE THREADS
FULL LENGTH AND TWO HEX NUTS
AND TWO 3" x 3" x 5/16" PLATE
WASHERS PER BOLT.



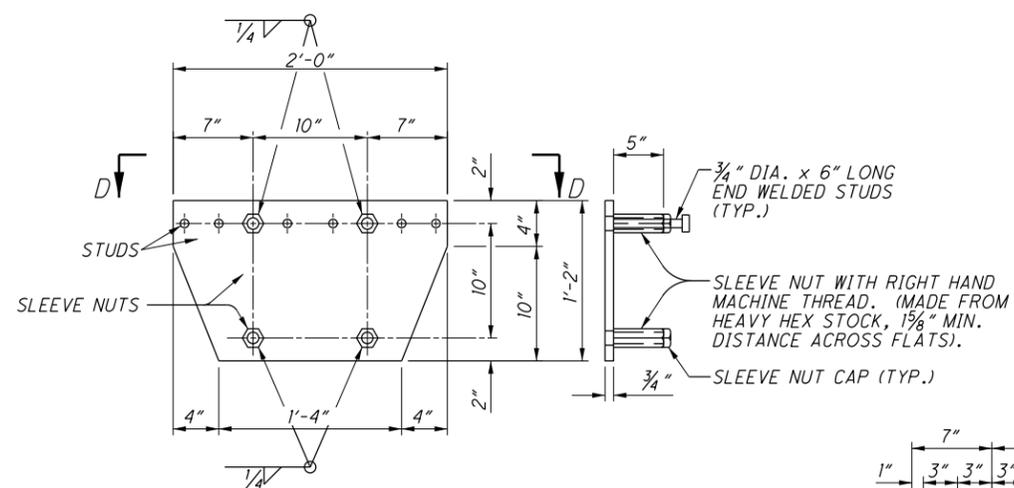
DETAIL A



RAILING CONNECTION DETAIL



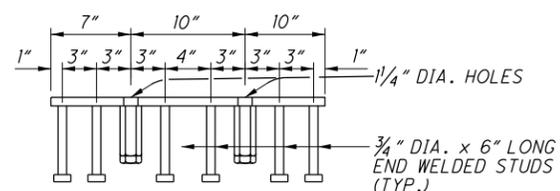
VIEW E-E



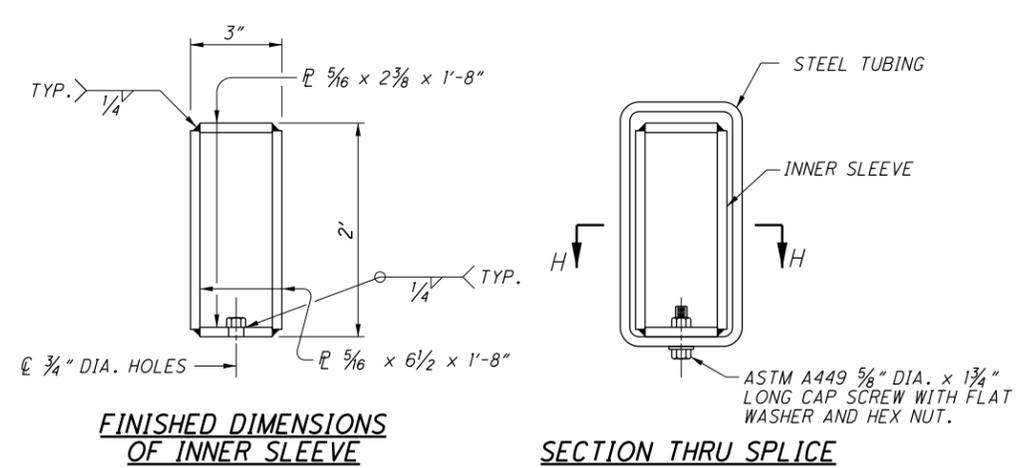
ELEVATION

END VIEW

POST ANCHOR DEVICE

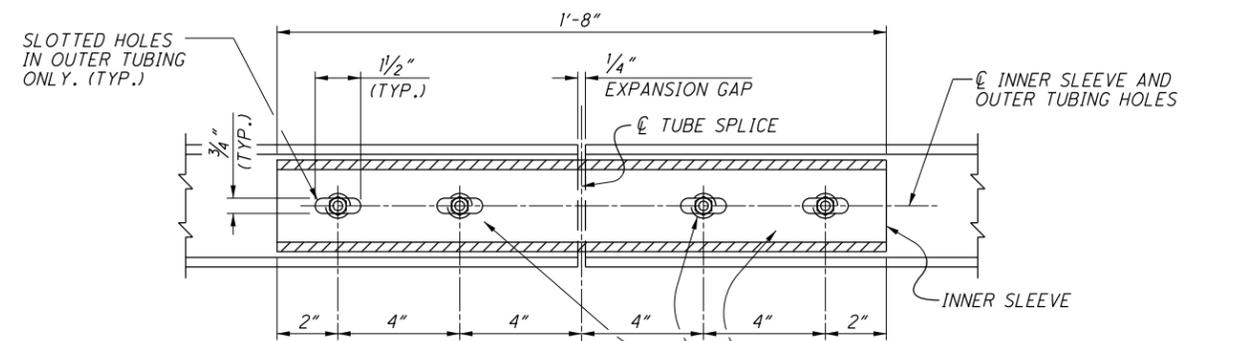


VIEW D-D



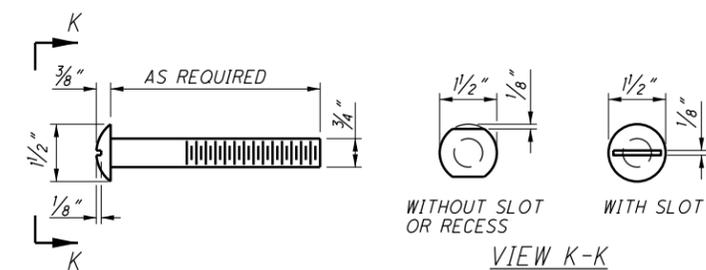
FINISHED DIMENSIONS OF INNER SLEEVE

SECTION THRU SPLICE

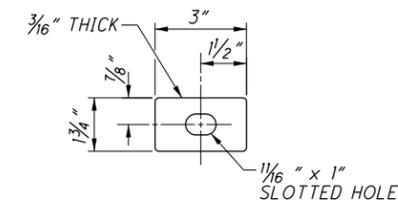


SECTION H-H

STEEL TUBE SPLICE DETAILS



DETAIL OF 3/4 inch DIA. ROUND HEAD BOLT



SPECIAL WASHER

PLACE WASHER BETWEEN BOLT HEAD AND FACE OF THRIE BEAM RAIL.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION	07-06-99	DATE
ADMINISTRATOR	Brad Fogell	
REVISIONS		
01-17-14		
04-18-08		
10-17-03		
04-18-03		
07-19-02		
10-20-00		
CHECKED	JS	WTL
DESIGNED	AJM/SAM	SAM
OFFICE OF STRUCTURAL ENGINEERING		
STANDARD BRIDGE DRAWING		
TWIN STEEL TUBE BRIDGE RAILING		
SCD NUMBER	TST-1-99	
	3 / 4	

TST-1-99 GENERAL NOTES:

GENERAL: THIS DRAWING PROVIDES DESIGN AND CONSTRUCTION DETAILS. THE PROJECT PLANS FOR EACH STRUCTURE SHALL PROVIDE NECESSARY ADDITIONAL RAILING DIMENSIONS INCLUDING RAILING LENGTHS, POST SPACINGS, POST LENGTHS AND ANY OTHER PERTINENT INFORMATION INCLUDING SPECIAL NOTES AND DETAILS. FOR ADDITIONAL GUARDRAIL DETAILS, SEE STD. CONSTR. DWGS. MGS-1.1, MGS-2.1 AND OTHER DRAWINGS PERTAINING TO DESIGN OF SPECIFIC GUARDRAIL TYPES.

APPLICATION: THIS RAILING SYSTEM HAS BEEN ACCEPTED TO THE TL-4 CRITERIA OF NCHRP REPORT 350. THE TWIN STEEL TUBE RAILING SHALL BE USED ON STRUCTURES DESIGNED TO DRAIN SURFACE WATER OVER THE SIDES OF THE STRUCTURE. THIS RAILING IS NOT APPLICABLE TO COMPOSITE BOX BEAM BRIDGES WITH DESIGN OVERHANGS GREATER THAN 2" OR TOP FLANGE THICKNESSES LESS THAN 5".

CONNECT THE APPROACH AND TRAILING ENDS OF THE TWIN STEEL TUBE RAILING TO THE BRIDGE TERMINAL ASSEMBLY DETAILED IN STANDARD CONSTRUCTION DRAWING MGS-3.1. THE FIRST POST AT THE APPROACH END AND THE LAST POST AT THE TRAILING END OF THE BRIDGE RAILING SHALL BE FLUSH MOUNTED AS SHOWN ON SHEET 1 OF 4.

DESIGN DATA:

REINFORCING STEEL - MINIMUM YIELD STRENGTH = 60,000 PSI
 STEEL TUBING - MINIMUM YIELD STRENGTH = 46,000 PSI
 ALL OTHER STEEL - MINIMUM YIELD STRENGTH = 50,000 PSI

MATERIALS: FURNISH SHAPED STRUCTURAL TUBING ACCORDING TO 707.10 (ASTM A500, GRADE B). IN LIEU OF THE "DROP WEIGHT TEAR TEST" (ASTM E436), THE MANUFACTURER MAY CHOOSE TO SUPPLY TUBING THAT MEETS IMPACT TOUGHNESS ACCORDING TO AASHTO T266, "NOTCHED BAR IMPACT TESTING OF METALLIC MATERIALS (CVN)". THE CVN IMPACT REQUIREMENTS SHALL BE 15 FT-LBS AT 0°F. FOR EACH HEAT SUPPLIED, THE MANUFACTURER SHALL FURNISH ONE 2" x 18" SPECIMEN, MARKED WITH ITS HEAT NUMBER, FOR IMPACT TESTING.

FURNISH STRUCTURAL STEEL SHAPES, PLATES AND PLATE WASHERS ACCORDING TO 711.01.

GALVANIZING: GALVANIZE ALL SHAPED STRUCTURAL TUBES, POSTS, PLATES, HARDWARE AND ACCESSORIES IN ACCORDANCE WITH 711.02. PRIOR TO GALVANIZING, ROUND ALL STRUCTURAL TUBING ENDS AND REMOVE BURRS FROM ALL STEEL TUBING, SHAPES AND PLATES.

HORIZONTAL CURVATURE: THIS STANDARD IS APPLICABLE TO STRUCTURES HAVING A RAILING CURVATURE RADIUS OF 20 FEET OR MORE. FOR A RADIUS OF LESS THAN 20 FEET, THE DESIGN SHALL BE SPECIAL. FOR ALL CURVED STRUCTURES, HEAT CURVE THE HORIZONTAL RAIL ELEMENTS ACCORDING TO THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS.

TUBE SPLICES: LOCATE SPLICES SO THAT EACH TUBE SEGMENT IS CONNECTED TO NOT LESS THAN TWO POSTS. STAGGER SPLICES IN THE TOP AND BOTTOM TUBES TO AVOID OCCURRENCES IN THE SAME PANEL.

FASTENERS: FURNISH MATERIAL CONFORMING TO THE FOLLOWING:

ALL ANCHOR BOLTS, SLEEVE NUTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A 449.

END WELDED STUDS SHALL CONFORM TO ASTM A108.

THE TUBE RAIL TO POST CONNECTION BOLTS AND HEX NUTS SHALL CONFORM TO 711.10 (ASTM A307). REFER TO STANDARD CONSTRUCTION DRAWING MGS-3.1 FOR THE BRIDGE TERMINAL ASSEMBLY CONNECTION HARDWARE.

THE HEX CAP SCREWS (BOLTS), HEX NUTS AND WASHERS SHALL CONFORM TO ASTM A 449.

BOX BEAMS: THE DISTANCE FROM THE CENTERLINE OF A GUARDRAIL POST TO THE ABUTMENT END OF THE BEAM OR TO THE CENTERLINE OF A TIE ROD SHALL NOT BE LESS THAN 1'-8". THE DISTANCE FROM THE CENTERLINE OF A GUARDRAIL POST TO THE PIER END OF THE BEAM SHALL NOT BE LESS THAN 2'-10". THE LOCATION OF THE HORIZONTAL TIE RODS MAY NEED TO BE ADJUSTED IN ORDER TO ACCOMMODATE EACH POST ANCHOR DEVICE.

METHOD OF MEASUREMENT: THE DEPARTMENT WILL MEASURE TWIN STEEL TUBE BRIDGE RAILING BY THE NUMBER OF FEET. THE DEPARTMENT WILL MEASURE THE LENGTH OF RAILING AS THE DISTANCE BETWEEN THE CENTERS OF THE FLUSH MOUNTED POSTS AT THE APPROACH AND TRAILING ENDS PLUS 4'-11".

BASIS OF PAYMENT: THE DEPARTMENT WILL CONSIDER THE COSTS ASSOCIATED WITH FURNISHING AND INSTALLING STEEL TUBING, STEEL POSTS, POST ANCHOR DEVICES, ANCHOR PLATES, TUBE SPLICE PLATES, STEEL SHIM PLATES, GUARDRAIL CONNECTION PLATES, ANCHOR BOLTS, 3/4" ROUND HEAD BOLTS, SLEEVE NUTS, NUTS, CAP SCREWS, WASHERS AND OTHER HARDWARE TO BE INCLUDED WITH THE TWIN STEEL TUBE RAILING. THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 517, RAILING (TWIN STEEL TUBE).

THE DEPARTMENT WILL PAY FOR BRIDGE TERMINAL ASSEMBLY HARDWARE SEPARATELY.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
Brad Fogell
 ADMINISTRATOR
 07-06-99
 DATE

REVISIONS
01-17-14
04-18-08
10-17-03
04-18-03
07-19-02
10-20-00

CHECKED	JS
DESIGNED	AJM/SAM
DRAWN	SAM
REVIEWED	WTL

OFFICE OF
 STRUCTURAL
 ENGINEERING

STANDARD BRIDGE DRAWING
 TWIN STEEL TUBE
 BRIDGE RAILING

SCD NUMBER
 TST-1-99